Government Gazette
Staatskoerant

REPUBLIC OF SOUTH AFRICA
REPUBLIEK VAN SUID AFRIKA

Vol. 733 24 July Julie 2026 No. 55046

PART 1 OF 9

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NO FUTURE QUERIES WILL BE HANDLED IN CONNECTION WITH THE ABOVE.

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government printing
Department:
Government Printing Works
REPUBLIC OF SOUTH AFRICA

HIGH ALERT: SCAM WARNING!!!

TO ALL SUPPLIERS AND SERVICE PROVIDERS OF THE GOVERNMENT PRINTING WORKS

It has come to the attention of the *GOVERNMENT PRINTING WORKS* that there are certain unscrupulous companies and individuals who are defrauding unsuspecting businesses disguised as representatives of the *Government Printing Works* (*GPW*).

The scam involves the fraudsters using the letterhead of *GPW* to send out fake tender bids to companies and requests to supply equipment and goods.

Although the contact person's name on the letter may be of an existing official, the contact details on the letter are not the same as the *Government Printing Works*'. When searching on the Internet for the address of the company that has sent the fake tender document, the address does not exist.

The banking details are in a private name and not company name. Government will never ask you to deposit any funds for any business transaction. *GPW* has alerted the relevant law enforcement authorities to investigate this scam to protect legitimate businesses as well as the name of the organisation.

Example of e-mails these fraudsters are using:

PROCUREMENT@GPW-GOV.ORG

Should you suspect that you are a victim of a scam, you must urgently contact the police and inform the *GPW*.

GPW has an official email with the domain as **@gpw.gov.za**

Government e-mails DO NOT have org in their e-mail addresses. All of these fraudsters also use the same or very similar telephone numbers. Although such number with an area code 012 looks like a landline, it is not fixed to any property.

GPW will never send you an e-mail asking you to supply equipment and goods without a purchase/order number. *GPW* does not procure goods for another level of Government. The organisation will not be liable for actions that result in companies or individuals being resultant victims of such a scam.

Government Printing Works gives businesses the opportunity to supply goods and services through RFQ / Tendering process. In order to be eligible to bid to provide goods and services, suppliers must be registered on the National Treasury's Central Supplier Database (CSD). To be registered, they must meet all current legislative requirements (e.g. have a valid tax clearance certificate and be in good standing with the South African Revenue Services - SARS).

The tender process is managed through the Supply Chain Management (SCM) system of the department. SCM is highly regulated to minimise the risk of fraud, and to meet objectives which include value for money, open and effective competition, equitability, accountability, fair dealing, transparency and an ethical approach. Relevant legislation, regulations, policies, guidelines and instructions can be found on the tender's website.

Fake Tenders

National Treasury's CSD has launched the Government Order Scam campaign to combat fraudulent requests for quotes (RFQs). Such fraudulent requests have resulted in innocent companies losing money. We work hard at preventing and fighting fraud, but criminal activity is always a risk.

How tender scams work

There are many types of tender scams. Here are some of the more frequent scenarios:

Fraudsters use what appears to be government department stationery with fictitious logos and contact details to send a fake RFQ to a company to invite it to urgently supply goods. Shortly after the company has submitted its quote, it receives notification that it has won the tender. The company delivers the goods to someone who poses as an official or at a fake site. The Department has no idea of this transaction made in its name. The company is then never paid and suffers a loss.

OR

Fraudsters use what appears to be government department stationery with fictitious logos and contact details to send a fake RFQ to Company A to invite it to urgently supply goods. Typically, the tender specification is so unique that only Company B (a fictitious company created by the fraudster) can supply the goods in question.

Shortly after Company A has submitted its quote it receives notification that it has won the tender. Company A orders the goods and pays a deposit to the fictitious Company B. Once Company B receives the money, it disappears. Company A's money is stolen in the process.

Protect yourself from being scammed

- If you are registered on the supplier databases and you receive a request to tender or quote that seems to be from a government department, contact the department to confirm that the request is legitimate. Do not use the contact details on the tender document as these might be fraudulent.
- Compare tender details with those that appear in the Tender Bulletin, available online at **www.gpwonline.co.za**
- Make sure you familiarise yourself with how government procures goods and services. Visit the tender website for more information on how to tender.
- If you are uncomfortable about the request received, consider visiting the government department and/or the place of delivery and/or the service provider from whom you will be sourcing the goods.
- In the unlikely event that you are asked for a deposit to make a bid, contact the SCM unit of the department in question to ask whether this is in fact correct.

Any incidents of corruption, fraud, theft and misuse of government property in the *Government Printing Works* can be reported to:

Supply Chain Management: Ms. Anna Marie Du Toit, Tel. (012) 748 6292.
Email: **Annamarie.DuToit@gpw.gov.za**

Marketing and Stakeholder Relations: Ms Bonakele Mbhele, at Tel. (012) 748 6193.
Email: **Bonakele.Mbhele@gpw.gov.za**

Security Services: Mr Daniel Legoabe, at tel. (012) 748 6176.
Email: **Daniel.Legoabe@gpw.gov.za**

Closing times for **ORDINARY WEEKLY** *GOVERNMENT GAZETTE* 2026

*The closing time is **15:00** sharp on the following days:*

- **23 December,** Tuesday for the issue of Friday **02 January 2026**
- **02 January,** Friday for the issue of Friday **09 January 2026**
- **09 January,** Friday for the issue of Friday **16 January 2026**
- **16 January,** Friday for the issue of Friday **23 January 2026**
- **23 January,** Friday for the issue of Friday **30 January 2026**
- **30 January,** Friday for the issue of Friday **06 February 2026**
- **06 February,** Friday for the issue of Friday **13 February 2026**
- **13 February,** Friday for the issue of Friday **20 February 2026**
- **20 February,** Friday for the issue of Friday **27 February 2026**
- **27 February,** Friday for the issue of Friday **06 March 2026**
- **06 March,** Friday for the issue of Friday **13 March 2026**
- **13 March,** Friday for the issue of Thursday **20 March 2026**
- **20 March,** Friday for the issue of Friday **27 March 2026**
- **26 March,** Thursday for the issue of Thursday **02 April 2026**
- **01 April,** Wednesday for the issue of Friday **10 April 2026**
- **10 April,** Friday for the issue of Friday **17 April 2026**
- **17 April,** Friday for the issue of Friday **24 April 2026**
- **22 April,** Wednesday for the issue of Thursday **30 April 2026**
- **30 April,** Thursday for the issue of Friday **08 May 2026**
- **08 May,** Friday for the issue of Friday **15 May 2026**
- **15 May,** Friday for the issue of Friday **22 May 2026**
- **22 May,** Friday for the issue of Friday **29 May 2026**
- **29 May,** Friday for the issue of Friday **05 June 2026**
- **05 June,** Friday for the issue of Friday **12 June 2026**
- **11 June,** Thursday for the issue of Friday **19 June 2026**
- **19 June,** Friday for the issue of Friday **26 June 2026**
- **26 June,** Friday for the issue of Friday **03 July 2026**
- **03 July,** Friday for the issue of Friday **10 July 2026**
- **10 July,** Friday for the issue of Friday **17 July 2026**
- **17 July,** Friday for the issue of Friday **24 July 2026**
- **24 July,** Friday for the issue of Friday **31 July 2026**
- **31 July,** Friday for the issue of Friday **07 August 2026**
- **06 August,** Thursday for the issue of Friday **14 August 2026**
- **14 August,** Friday for the issue of Friday **21 August 2026**
- **21 August,** Friday for the issue of Friday **28 August 2026**
- **28 August,** Friday for the issue of Friday **04 September 2026**
- **04 September,** Friday for the issue of Friday **11 September 206**
- **11 September,** Friday for the issue of Friday **18 September 2026**
- **17 September,** Thursday for the issue of Friday **25 September 2026**
- **25 September,** Friday for the issue of Friday **02 October 2026**
- **02 October,** Friday for the issue of Friday **09 October 2026**
- **09 October,** Friday for the issue of Friday **16 October 2026**
- **16 October,** Friday for the issue of Friday **23 October 2026**
- **23 October,** Friday for the issue of Friday **30 October 2026**
- **30 October,** Friday for the issue of Friday **06 November 2026**
- **06 November,** Friday for the issue of Friday **13 November 2026**
- **13 November,** Friday for the issue of Friday **20 November 2026**
- **20 November,** Friday for the issue of Friday **27 November 2026**
- **27 November,** Friday for the issue of Friday **04 December 2026**
- **04 December,** Friday for the issue of Friday **11 December 2026**
- **10 December,** Thursday for the issue of Friday **18 December 2026**
- **17 December,** Thursday for the issue of Thursday **24 December 2026**
- **23 December,** Wednesday for the issue of Thursday **31 December 2026**

LIST OF TARIFF RATES

FOR PUBLICATION OF NOTICES

COMMENCEMENT: 1 APRIL 2018

NATIONAL AND PROVINCIAL

Notice sizes for National, Provincial & Tender gazettes 1/4, 2/4, 3/4, 4/4 per page. Notices submitted will be charged at R1008.80 per full page, pro-rated based on the above categories.

Pricing for National, Provincial - Variable Priced Notices		
Notice Type	**Page Space**	**New Price (R)**
Ordinary National, Provincial	1/4 - Quarter Page	252.20
Ordinary National, Provincial	2/4 - Half Page	504.40
Ordinary National, Provincial	3/4 - Three Quarter Page	756.60
Ordinary National, Provincial	4/4 - Full Page	1008.80

EXTRA-ORDINARY

All Extra-ordinary National and Provincial gazette notices are non-standard notices and attract a variable price based on the number of pages submitted.

The pricing structure for National and Provincial notices which are submitted as **Extra ordinary submissions** will be charged at R**3026.32** per page.

GOVERNMENT PRINTING WORKS - BUSINESS RULES

The **Government Printing Works** (**GPW**) has established rules for submitting notices in line with its electronic notice processing system, which requires the use of electronic *Adobe* Forms. Please ensure that you adhere to these guidelines when completing and submitting your notice submission.

Closing Times for Acceptance of Notices

1. The *Government Gazette* and *Government Tender Bulletin* are weekly publications that are published on Fridays and the closing time for the acceptance of notices is strictly applied according to the scheduled time for each gazette.

2. Please refer to the Submission Notice Deadline schedule in the table below. This schedule is also published online on the Government Printing works website www.gpwonline.co.za

   All re-submissions will be subject to the standard cut-off times.
   All notices received after the closing time will be rejected.

Government Gazette Type	Publication Frequency	Publication Date	Submission Deadline	Cancellations Deadline
National Gazette	Weekly	Friday	Friday 15h00 for next Friday	Tuesday, 15h00 - 3 working days prior to publication
Regulation Gazette	Weekly	Friday	Friday 15h00 for next Friday	Tuesday, 15h00 - 3 working days prior to publication
Petrol Price Gazette	Monthly	Tuesday before 1st Wednesday of the month	One day before publication	1 working day prior to publication
Road Carrier Permits	Weekly	Friday	Thursday 15h00 for next Friday	3 working days prior to publication
Unclaimed Monies (Justice, Labour or Lawyers)	January / September 2 per year	Last Friday	One week before publication	3 working days prior to publication
Parliament (Acts, White Paper, Green Paper)	As required	Any day of the week	None	3 working days prior to publication
Manuals	Bi- Monthly	2nd and last Thursday of the month	One week before publication	3 working days prior to publication
State of Budget (National Treasury)	Monthly	30th or last Friday of the month	One week before publication	3 working days prior to publication
Extraordinary Gazettes	As required	Any day of the week	*Before 10h00 on publication date*	*Before 10h00 on publication date*
Legal Gazettes A, B and C	Weekly	Friday	One week before publication	Tuesday, 15h00 - 3 working days prior to publication
Tender Bulletin	Weekly	Friday	Friday 15h00 for next Friday	Tuesday, 15h00 - 3 working days prior to publication
Gauteng	Weekly	Wednesday	Two weeks before publication	3 days **after** submission deadline
Eastern Cape	Weekly	Monday	One week before publication	3 working days prior to publication
Northern Cape	Weekly	Monday	One week before publication	3 working days prior to publication
North West	Weekly	Tuesday	One week before publication	3 working days prior to publication
KwaZulu-Natal	Weekly	Thursday	One week before publication	3 working days prior to publication
Limpopo	Weekly	Friday	One week before publication	3 working days prior to publication
Mpumalanga	Weekly	Friday	One week before publication	3 working days prior to publication

GOVERNMENT PRINTING WORKS - BUSINESS RULES

Government Gazette Type	Publication Frequency	Publication Date	Submission Deadline	Cancellations Deadline
Gauteng Liquor License Gazette	Monthly	Wednesday before the First Friday of the month	Two weeks before publication	3 working days **after** submission deadline
Northern Cape Liquor License Gazette	Monthly	First Friday of the month	Two weeks before publication	3 working days **after** submission deadline
National Liquor License Gazette	Monthly	First Friday of the month	Two weeks before publication	3 working days **after** submission deadline
Mpumalanga Liquor License Gazette	Bi-Monthly	Second & Fourth Friday	One week before publication	3 working days prior to publication

EXTRAORDINARY GAZETTES

3. *Extraordinary Gazettes* can have only one publication date. If multiple publications of an *Extraordinary Gazette* are required, a separate Z95/Z95Prov *Adobe* Forms for each publication date must be submitted.

NOTICE SUBMISSION PROCESS

4. Download the latest *Adobe* form, for the relevant notice to be placed, from the **Government Printing Works** website www.gpwonline.co.za.

5. The *Adobe* form needs to be completed electronically using *Adobe Acrobat* / *Acrobat Reader*. Only electronically completed *Adobe* forms will be accepted. No printed, handwritten and/or scanned *Adobe* forms will be accepted.

6. The completed electronic *Adobe* form has to be submitted via email to submit.egazette@gpw.gov.za. The form needs to be submitted in its original electronic *Adobe* format to enable the system to extract the completed information from the form for placement in the publication.

7. Every notice submitted **must** be accompanied by an official **GPW** quotation. This must be obtained from the *eGazette* Contact Centre.

8. Each notice submission should be sent as a single email. The email **must** contain **all documentation relating to a particular notice submission**.

   8.1. Each of the following documents must be attached to the email as a separate attachment:

      8.1.1. An electronically completed *Adobe* form, specific to the type of notice that is to be placed.

         8.1.1.1. For National *Government Gazette* or *Provincial Gazette* notices, the notices must be accompanied by an electronic Z95 or Z95Prov *Adobe* form

         8.1.1.2. The notice content (body copy) **MUST** be a separate attachment.

      8.1.2. A copy of the official **Government Printing Works** quotation you received for your notice. *(Please see Quotation section below for further details)*

      8.1.3. A valid and legible Proof of Payment / Purchase Order: **Government Printing Works** account customer must include a copy of their Purchase Order**. Non-Government Printing Works** account customer needs to submit the proof of payment for the notice

      8.1.4. Where separate notice content is applicable (Z95, Z95 Prov and TForm 3, it should **also** be attached as a separate attachment. *(Please see the Copy Section below, for the specifications)*.

      8.1.5. Any additional notice information if applicable.

GOVERNMENT PRINTING WORKS - BUSINESS RULES

9. The electronic *Adobe* form will be taken as the primary source for the notice information to be published. Instructions that are on the email body or covering letter that contradicts the notice form content will not be considered. The information submitted on the electronic *Adobe* form will be published as-is.

10. To avoid duplicated publication of the same notice and double billing, Please submit your notice **ONLY ONCE.**

11. Notices brought to **GPW** by "walk-in" customers on electronic media can only be submitted in *Adobe* electronic form format. All "walk-in" customers with notices that are not on electronic *Adobe* forms will be routed to the Contact Centre where they will be assisted to complete the forms in the required format.

12. Should a customer submit a bulk submission of hard copy notices delivered by a messenger on behalf of any organisation e.g. newspaper publisher, the messenger will be referred back to the sender as the submission does not adhere to the submission rules.

QUOTATIONS

13. Quotations are valid until the next tariff change.

    13.1. ***Take note:*** **GPW**'s annual tariff increase takes place on ***1 April*** therefore any quotations issued, accepted and submitted for publication up to ***31 March*** will keep the old tariff. For notices to be published from 1 April, a quotation must be obtained from **GPW** with the new tariffs. Where a tariff increase is implemented during the year, **GPW** endeavours to provide customers with 30 days' notice of such changes.

14. Each quotation has a unique number.

15. Form Content notices must be emailed to the *eGazette* Contact Centre for a quotation.

    15.1. The *Adobe* form supplied is uploaded by the Contact Centre Agent and the system automatically calculates the cost of your notice based on the layout/format of the content supplied.

    15.2. It is critical that these *Adobe* Forms are completed correctly and adhere to the guidelines as stipulated by **GPW**.

16. **APPLICABLE ONLY TO GPW ACCOUNT HOLDERS**:

    16.1. **GPW** Account Customers must provide a valid **GPW** account number to obtain a quotation.

    16.2. Accounts for **GPW** account customers **must** be active with sufficient credit to transact with **GPW** to submit notices.

        16.2.1. If you are unsure about or need to resolve the status of your account, please contact the **GPW** Finance Department prior to submitting your notices. (If the account status is not resolved prior to submission of your notice, the notice will be failed during the process).

17. **APPLICABLE ONLY TO CASH CUSTOMERS:**

    17.1. Cash customers doing **bulk payments** must use a **single email address** in order to use the **same proof of payment** for submitting multiple notices.

18. The responsibility lies with you, the customer, to ensure that the payment made for your notice(s) to be published is sufficient to cover the cost of the notice(s).

19. Each quotation will be associated with one proof of payment / purchase order / cash receipt.

    19.1. This means that **the quotation number can only be used once to make a payment.**

GOVERNMENT PRINTING WORKS - BUSINESS RULES

COPY (SEPARATE NOTICE CONTENT DOCUMENT)

20. Where the copy is part of a separate attachment document for Z95, Z95Prov and TForm03

20.1. Copy of notices must be supplied in a separate document and may not constitute part of any covering letter, purchase order, proof of payment or other attached documents.

The content document should contain only one notice. (You may include the different translations of the same notice in the same document).

20.2. The notice should be set on an A4 page, with margins and fonts set as follows:

Page size = A4 Portrait with page margins: Top = 40mm, LH/RH = 16mm, Bottom = 40mm; Use font size: Arial or Helvetica 10pt with 11pt line spacing;

Page size = A4 Landscape with page margins: Top = 16mm, LH/RH = 40mm, Bottom = 16mm; Use font size: Arial or Helvetica 10pt with 11pt line spacing;

CANCELLATIONS

21. Cancellation of notice submissions are accepted by **GPW** according to the deadlines stated in the table above in point 2. Non-compliance to these deadlines will result in your request being failed. Please pay special attention to the different deadlines for each gazette. Please note that any notices cancelled after the cancellation deadline will be published and charged at full cost.

22. Requests for cancellation must be sent by the original sender of the notice and must accompanied by the relevant notice reference number (N-) in the email body.

AMENDMENTS TO NOTICES

23. With effect from 01 October 2015, **GPW** will not longer accept amendments to notices. The cancellation process will need to be followed according to the deadline and a new notice submitted thereafter for the next available publication date.

REJECTIONS

24. All notices not meeting the submission rules will be rejected to the customer to be corrected and resubmitted. Assistance will be available through the Contact Centre should help be required when completing the forms. (012-748 6200 or email info.egazette@gpw.gov.za). Reasons for rejections include the following:

24.1. Incorrectly completed forms and notices submitted in the wrong format, will be rejected.

24.2. Any notice submissions not on the correct *Adobe* electronic form, will be rejected.

24.3. Any notice submissions not accompanied by the proof of payment / purchase order will be rejected and the notice will not be processed.

24.4. Any submissions or re-submissions that miss the submission cut-off times will be rejected to the customer. The Notice needs to be re-submitted with a new publication date.

GOVERNMENT PRINTING WORKS - BUSINESS RULES

APPROVAL OF NOTICES

25. Any notices other than legal notices are subject to the approval of the Government Printer, who may refuse acceptance or further publication of any notice.

26. No amendments will be accepted in respect to separate notice content that was sent with a Z95 or Z95Prov notice submissions. The copy of notice in layout format (previously known as proof-out) is only provided where requested, for Advertiser to see the notice in final Gazette layout. Should they find that the information submitted was incorrect, they should request for a notice cancellation and resubmit the corrected notice, subject to standard submission deadlines. The cancellation is also subject to the stages in the publishing process, i.e. If cancellation is received when production (printing process) has commenced, then the notice cannot be cancelled.

GOVERNMENT PRINTER INDEMNIFIED AGAINST LIABILITY

27. The Government Printer will assume no liability in respect of—

27.1. any delay in the publication of a notice or publication of such notice on any date other than that stipulated by the advertiser;

27.2. erroneous classification of a notice, or the placement of such notice in any section or under any heading other than the section or heading stipulated by the advertiser;

27.3. any editing, revision, omission, typographical errors or errors resulting from faint or indistinct copy.

LIABILITY OF ADVERTISER

28. Advertisers will be held liable for any compensation and costs arising from any action which may be instituted against the Government Printer in consequence of the publication of any notice.

CUSTOMER INQUIRIES

Many of our customers request immediate feedback/confirmation of notice placement in the gazette from our Contact Centre once they have submitted their notice – While **GPW** deems it one of their highest priorities and responsibilities to provide customers with this requested feedback and the best service at all times, we are only able to do so once we have started processing your notice submission.
GPW has a 2-working day turnaround time for processing notices received according to the business rules and deadline submissions.
Please keep this in mind when making inquiries about your notice submission at the Contact Centre.

29. Requests for information, quotations and inquiries must be sent to the Contact Centre ONLY.

30. Requests for Quotations (RFQs) should be received by the Contact Centre at least **2 working days** before the submission deadline for that specific publication.

GOVERNMENT PRINTING WORKS - BUSINESS RULES

Payment of cost

31. The Request for Quotation for placement of the notice should be sent to the Gazette Contact Centre as indicated above, prior to submission of notice for advertising.

32. Payment should then be made, or Purchase Order prepared based on the received quotation, prior to the submission of the notice for advertising as these documents i.e. proof of payment or Purchase order will be required as part of the notice submission, as indicated earlier.

33. Every proof of payment must have a valid **GPW** quotation number as a reference on the proof of payment document.

34. Where there is any doubt about the cost of publication of a notice, and in the case of copy, an enquiry, accompanied by the relevant copy, should be addressed to the Gazette Contact Centre, **Government Printing Works**, Private Bag X85, Pretoria, 0001 email: info.egazette@gpw.gov.za before publication.

35. Overpayment resulting from miscalculation on the part of the advertiser of the cost of publication of a notice will not be refunded, unless the advertiser furnishes adequate reasons why such miscalculation occurred. In the event of underpayments, the difference will be recovered from the advertiser, and future notice(s) will not be published until such time as the full cost of such publication has been duly paid in cash or electronic funds transfer into the **Government Printing Works** banking account.

36. In the event of a notice being cancelled, a refund will be made only if no cost regarding the placing of the notice has been incurred by the **Government Printing Works**.

37. The **Government Printing Works** reserves the right to levy an additional charge in cases where notices, the cost of which has been calculated in accordance with the List of Fixed Tariff Rates, are subsequently found to be excessively lengthy or to contain overmuch or complicated tabulation.

Proof of publication

38. Copies of any of the *Government Gazette* or *Provincial Gazette* can be downloaded from the **Government Printing Works** website www.gpwonline.co.za free of charge, should a proof of publication be required.

39. Printed copies may be ordered from the Publications department at the ruling price. The **Government Printing Works** will assume no liability for any failure to post or for any delay in despatching of such *Government Gazette*(s)

GOVERNMENT PRINTING WORKS CONTACT INFORMATION

Physical Address:	**Postal Address:**	**GPW Banking Details:**
Government Printing Works	Private Bag X85	**Bank:** ABSA Bosman Street
149 Bosman Street	Pretoria	**Account No.:** 405 7114 016
Pretoria	0001	**Branch Code:** 632-005

For Gazette and Notice submissions: Gazette Submissions:	**E-mail:** submit.egazette@gpw.gov.za
For queries and quotations, contact: Gazette Contact Centre:	**E-mail:** info.egazette@gpw.gov.za
	Tel: 012-748 6200
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DEPARTMENT OF EMPLOYMENT AND LABOUR

NO. 7719 **24 July 2026**

EMPLOYMENT EQUITY ACT, 1998 (ACT 55 OF 1998 AS AMENDED)

DRAFT REVIEWED CODE OF GOOD PRACTICE ON THE PREPARATION AND IMPLEMENTATION OF THE EMPLOYMENT EQUITY PLAN

I, Nomakhosazana Meth, Minister of Employment and Labour in terms of Section 55(1) of the Employment Equity Act, 1998 (Act No 55 of 1998 as amended), and on the advice of the Commission for Employment Equity, hereby publish this notice on the Draft Reviewed Code of Good Practice on the Preparation and Implementation of the Employment Equity Plan for public comment for **60 days** from the date of publication.

All public comment must be in writing and forwarded to:

christina.lehlokoa@labour.gov.za
Tsholofelo.ndlovu@labour.gov.za

MS NOMAKHOSAZANA METH, MP

MINISTER: DEPARTMENT OF EMPLOYMENT AND LABOUR

Date: 29 June 2026

DRAFT AMENDED CODE OF GOOD PRACTICE ON THE PREPARATION, IMPLEMENTATION AND MONITORING OF THE EMPLOYMENT EQUITY PLAN (EE PLAN)

This gazette is also available free online at **www.gpwonline.co.za**

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DEFINITIONS

Department:	Department of Employment and Labour;
Designated employer:	Designated employers are those who employ 50 or more employees. (NB: Employers with 1 to 49 employees are designated if they are an organ of state or if an employer bound by a collective agreement in terms of section 23 or 31 of the Labour Relations Act.
Designated groups:	"Designated groups" mean black people, women and people with disabilities who are citizens of the Republic of South Africa by birth or descent; or became citizens of the Republic of South Africa by naturalization – before 27 April 1994; or after 26 April 1994 and who would have been entitled to acquire citizenship by naturalization prior to that date but who were precluded by apartheid policies;
Director-General:	Director-General of Department of Employment and Labour;
EAP:	Economically Active Population;
EEA:	Employment Equity Act, 55 of 1998, as Amended;
EE Plan:	Employment Equity Plan as contemplated in section 20 of the Act; and
Sector:	An industry or service or part of any industry or service

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1. OBJECTIVES OF THE CODE

1.1 This Code provides guidelines to designated employers and their employees on good practice for the preparation, implementation and monitoring of an employment equity plan as required by the Employment Equity Act, No. 55 of 1998 (EEA) as amended, and its Regulations.

1.2 It also provides guidelines to employers and employees to consider and apply appropriately to their workplace circumstances.

2. APPLICATION OF THE CODE

This Code applies to all designated employers that are required to, in consultation with representative trade union(s) or its employees, or employee representatives prepare, implement and monitor the EE Plan in terms of the EEA, as amended, and its Regulations.

3. LEGAL FRAMEWORK

3.1. This Code is issued in terms of section 54 of the EEA and must be read in conjunction with the Act and other Codes issued in terms of the Act.[1]

3.2 The Code should also be read in conjunction with the Constitution of the Republic of South Africa, No. 108 of 1996 and all relevant legislation, including the:

3.2.1 Employment Equity Act, No. 55, of 1998;

3.2.2 Employment Equity Amendment Act, No. 47 of 2013;

3.2.3 Employment Equity Amendment Act, No. 4 of 2022;

3.2.4 Employment Equity Regulations of 2025 as amended;

3.2.5 Labour Relations Act, No. 66 of 1995 as amended;

3.2.6 Basic Conditions of Employment Act, No.75 of 1997 as amended;

3.2.7 National Minimum Wage Act, No. 9 of 2018;

[1]Code of Good Practice on the Integration of Employment Equity into Human Resources Policies and Practices; Code of Good Practice on the Employment of Persons with Disabilities; Code of Good Practice on HIV and AIDS and the World of Work; Code of Good Practice on Equal Pay/Remuneration for Work of Equal Value and Code of Good Practice on the Prevention and Elimination of Harassment in the Workplace.

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3.2.8 Skills Development Act, No. 97 of 1998 as amended;

3.2.9 Employment Services Act, Act No. 4 of 2014 as amended;

3.2.10 Promotion of Equality and Prevention of Unfair Discrimination Act, No. 4 of 2000 as amended; and

3.2.11 Broad Based Black Economic Empowerment Act, No. 53 of 2003 as amended.

4. PURPOSE AND RATIONALE OF THE EE PLAN

4.1 The EE Plan is a designated employer's implementation programme to achieve equitable representation and fair treatment of the designated groups (i.e. Black people, women and persons with disabilities) in the workplace across all occupational levels.

4.2 The EE Plan addresses the barriers to fair employment policies, practices and procedures, identified in the employment equity analysis process; and implements remedial measures in the workplace within set time frames.

5. STRUCTURE OF THE EE PLAN

5.1 The EE Plan must meet all the requirements of Section 20 of the EEA, as amended.
5.2 The EE Plan must be developed using the EEA13 template contained in the Employment Equity Regulations, as amended.
5.3 The EE Plan must be informed by the analysis (EEA12) and as a minimum contain all the information required by EEA13 template in the Employment Equity Regulations.

6. PROCESS FOR PREPARATION, IMPLEMENTATION AND MONITORING OF AN EE PLAN

a) The development of an EE Plan must be an inclusive process that involves consultation and is informed by:

i) analysis of the policies, practices and procedures;
ii) an analysis of the workforce; and
iii) analysis of the work environment, including diversity management experience.

b) Three phases are usually involved in relation to the EE Plan, i.e. the preparation phase, the implementation phase and the monitoring phase.

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6.1 PREPARATION PHASE

6.1.1 INITIATOR TO STEER THE PROCESS, INCLUDING THE ASSIGNMENT OF ONE OR MORE SENIOR MANAGERS

a) As soon as an employer becomes designated, that employer must initiate and facilitate a process for the preparation of an EE Plan.

b) A designated employer must initiate and steer the process for the preparation of an EE Plan, which could be assigning such responsibility to a permanent employee that reports directly to the Chief Executive Officer [2] (CEO) / Accounting Officer.

c) Notwithstanding the CEO / Accounting Officer is deemed to be the accounting officer for the implementation of the Act, the board may nevertheless agree on employment equity outcomes for the CEO / Accounting Officer.

d) The CEO / Accounting Officer may, depending on the size of the organisation, assume or assign the responsibility for initiating the process for the development, implementation and monitoring of the EE Plan to one or more senior managers.

e) One or more senior managers who are assigned the responsibility for the implementation and monitoring of EE Plans should be included from the preparation phase of the process.

f) A designated employer must -

i. provide the assigned senior managers with the necessary authority and means, such as an appropriate budget, to perform their allocated functions; and

ii. take reasonable steps to ensure that these assigned senior managers perform their allocated functions by incorporating key employment equity outcomes in their performance contracts.

6.1.2 COMMUNICATION, AWARENESS AND CONSULTATION

When communicating on matters concerning employment equity, it is important to ensure that the content is communicated in clear and easily understood language to provide the entire workforce reasonable opportunity to grasp the content and subsequent rights.

6.1.2.1 All employees should be made aware and informed of –

[2] The CEO is the accounting officer who could also be a Director General, Municipal Manager, etc.

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a) The purpose, content and application of the EEA, its Regulations and Codes of Good Practice in preparation for their participation, including consultation.
b) Matters relating to the identification, prohibition and elimination of unfair discrimination and affirmative action to achieve equality and diversity in the workplace.
c) The proposed process to be followed by the designated employer.
d) The advantages to employees for participation in the process.
e) The need for the involvement of all stakeholders in order to promote positive outcomes.

6.1.2.2 Designated employers must consult with employees, both from designated and non-designated groups at all occupational levels in the organization, when conducting an analysis, preparing and implementing a plan and when submitting employment equity reports to the Department of Employment and Labour.

6.1.2.3 Managers should be informed of their obligations in terms of the EEA, and training should be provided to them where particular skills do not exist, e.g. diversity management, coaching and mentoring.

6.1.2.4 Communication on employment equity should focus on positive outcomes, including the better utilization of all of the employer's human resources and the creation of an inclusive, diverse and more productive workforce.

6.1.2.5 Where a representative trade union, or employees, or employee representative refuses to take part in the consultation process, the employer should record the circumstances in writing and a copy of this document should be provided to the representative trade union, or employee, or employee representative concerned.

6.1.2.6 Consultation must commence as early as possible and should involve:

a) A designated employer establishing a consultative forum or using an existing forum to consult with the representative trade union(s), or employees, or representatives of employees on employment equity matters.
b) Representative trade union(s), or employees, or representatives of employees must reflect the interests of employees from both designated and non-designated groups, and across all occupational levels of the workforce.
c) A designated employer should be represented by one or more members of senior management in the forum.
d) An agreement on the composition of the forum and how it should be constituted and rules governing the work of the forum.
e) Members of the EE forum must be trained and capacitated on their roles and responsibilities.

6.1.2.7 Consultation must include-

a) Reasonable opportunity for representative trade union(s), or employees, or employee representatives to meet with the designated employer to consult on the

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conducting of an analysis, development of an EE plan and the submission of reports to the Department of Employment and Labour.

b) The opportunity for both designated employer and representative trade union(s), or employees or employee representatives to provide feedback to their respective constituencies.

c) The request, receipt and consideration of relevant information.

d) Representatives trade unions, or employees or employee representatives must be allowed time to effectively participate in the consultation process.

6.1.2.8 Regular (at least quarterly), structured and scheduled meetings must be held and the deliberations properly recorded to ensure a constructive and well-informed process.

6.1.3 CONDUCTING AN ANALYSIS *(contained in EEA12 in the EE Regulations)*

A designated employer must conduct an analysis as required by section 19 of the EEA by reviewing its workforce profile; and employment policies, practices, procedures; and the working environment in order to identify employment barriers, which adversely affect people from the designated groups from being equitably represented across all occupational levels, and the outcome of the analysis must be reported using the **EEA12** template.

6.1.3.1 Purpose of the analysis

a) To determine the extent of under-representation or over-representation of employees, i.e. both permanent and temporary[3] workers, from the designated groups in the different occupational levels of the employer's workforce in terms of race, gender and disability.

b) To assess all employment policies, practices and procedures, and the working environment in order to –

(i) Identify any barriers that may contribute to the under-representation of suitably qualified employees from the designated groups;

(ii) Identify any barriers or factors that may contribute to the lack of inclusion and affirmation of diversity in the workplace;

(iii) Identify any other employment conditions that may adversely affect the designated groups; and

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[3] Section 57 of the Act states:

(1) For purposes of Chapter III of this Act, a person whose services have been procured for, or provided to, a client by a temporary employment service is deemed to be the employee of that client, where that person's employment with the client is of indefinite duration or for a period three months or longer.

(2) Where a temporary employment service, on the express or implied instruction of a client, commits an act of unfair discrimination, both the temporary employment service and the client are jointly and severally liable

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(iv) Identify practices or factors that positively promote employment equity and diversity in the workplace, including reasonable accommodation.

6.1.3.2 Workforce profile

a) The first step in conducting an analysis of the workforce profile is to differentiate between employees of the various groups, both in terms of the designated groups (i.e. Black people, women and persons with disabilities) and non-designated groups by using the EEA1 form contained in the EE Regulations, to determine the population group, gender and disability status.

b) Where an employee refuses to complete the **EEA1** form or provides inaccurate information, the employer may establish the designation of an employee by using reliable historical and existing data, and persons with disabilities have the right not to declare their disability.

c) When conducting an analysis, a designated employer must determine the under-representation or over representation of both the designated and non-designated groups using up-to-date demographic data in terms of the Economically Active Population (EAP) and the Sector EE targets as required by section 15A of the EE Amendment Act of 2022, across the various occupational levels, as guided by the EEA8 and the EEA9 in the EE Regulations.

d) The analysis of the workforce profile must be based on a snapshot taken on a particular date for each of the occupational levels in terms of the population group, gender and disability.

e) The under-representation or over-representation of a particular group, whether designated or non-designated, must be captured in the analysis and used to inform and prioritize strategies in the EE plan to address the under-representation in relation to the sector EE targets and the applicable EAP for each population group, gender and disability.

f) Recruitment strategies may vary depending upon the level of responsibility and the degree of specialization of the occupation, usually the higher the degree of responsibility or specialization required for the job, the broader the recruitment strategy.

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g) In addition to the factors listed above, a designated employer may take into account any of the following to the extent that they are consistent with the purpose of the Act –

i. the inherent requirements of a particular job;

ii. the pool of suitably qualified persons;

iii. the formal qualifications, prior learning, relevant experience or capacity to acquire, within a reasonable time, the ability to do the job, as contemplated in sections 20(3) to (5) of the Act;

iv. the rate of turnover and natural attrition within the workplace; and

v. the recruitment and promotional trends within a workplace.

6.1.3.3 Review of employment policies, practices, procedures, and working environment

The review should include a critical examination of all established policies, practices, procedures and the working environment to identify barriers that directly or indirectly impede one or more of the designated groups' equitable representation in the workplace, including those relating to -

a) Recruitment, selection, pre-employment testing and induction, promotion, development and retention.
b) Succession and experience planning, promotions and transfers.
c) Job assignments and training opportunities.
d) Performance and remuneration, including equal pay for work of equal value[4].

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[4] Section 16 (3) (4) (5)of the LRA states that:

Subject to subsection (5), whenever an employer is consulting or bargaining with a representative trade union, the employer must disclose to the representative trade union all relevant information that will allow the representative trade union to engage effectively in consultation or collective bargaining. The employer must notify the trade union representative or the representative trade union in writing if any information disclosed in terms of subsection (2) or (3) is confidential. An employer is not required to disclose information-
that is legally privileged;

(a) that the employer cannot disclose without contravening a prohibition imposed on the employer by any law or order of any court;
(b) that is confidential and, if disclosed, may cause substantial harm to an employee or the employer; or
(c) that is private personal information relating to an employee, unless that employee consents to the disclosure of that information.

If there is a dispute about what information is required to be disclosed in terms of this section, any party to the dispute may refer the dispute in writing to the Commission.

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e) Discipline and dispute resolution.
f) Working conditions, including the accommodation of cultural, religious and other diversity differences.
g) Reasonable accommodation, including for persons with disabilities.
h) Corporate culture.
i) Any other policy, practice or procedure that may arise from the consultation process.

7. DEVELOPING THE EE PLAN

The employer must consult and attempt to reach consensus on the development of the EE Plan (EEA13) by taking the following into account-

a) Analysis report (EEA12).
b) National and Provincial Economically Active Population (EAP).
c) 5-years Sector EE targets.
d) Determining the duration of the EE Plan.
e) Determining the annual objectives of the EE Plan.
f) Corrective measures/ Affirmative Action measures, including numerical goals and annual EE targets.
g) Time frames established.
h) The EE Plan drawn up in terms of section 20 of the Act.
i) Resources identified and allocated for the implementation of the EE Plan.
j) The EE Plan communication.

7.1 Analysis Report

7.1.1 An employer must consult and attempt to reach reasonable consensus on the under-representation of the designated groups and the barriers they identified in the analysis report. The analysis report must be used to prioritize the targeted designated groups in accordance with their representation.

7.1.2 The analysis report must be used to determine and inform the affirmative action measures, including strategies, which would be included in the EE Plan as a response to barriers identified in policies, practices and procedures.

7.2 Duration of EE Plan

An employer should take the following into consideration when determining the duration of an EE Plan:

a) the EE Plan must not be shorter than one year and not longer than five years.
b) workforce size.
c) nature and location of the workplace, including geographic spread.

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d) the time needed to implement affirmative action measures to achieve numerical and non-numerical goals as outlined in the EE Plan.
e) the start and end date of the EE Plan must be specific in terms of the day, month and the year.
f) An employer's business/ strategic plan.

7.3 Objectives of the EE Plan

In determining the annual objectives for the EE Plan, the following must be taken into account:

a) The purpose or overall objective of the Act is to achieve equitable representation of the designated groups in the workplace that is free from unfair discrimination.
b) The objectives in the EE Plan must be specific, measurable, achievable, relevant and time bound (SMART).
c) Broader objectives of the business.
d) Prioritizing and resource availability and allocation.

7.4 Numerical goals and numerical targets

a) **Numerical goals** are the entire workforce profile in terms of population group, gender and disability, and **not** the difference between the current workforce profile and the projected workforce profile the designated employer seeks to achieve at the end of the employment equity plan (EE Plan).
b) The **numerical EE targets** are the entire workforce profile in terms of race, gender and disability, and **not** the difference between the current workforce profile and the projected workforce profile the designated employer seeks to achieve by the next reporting period.
c) The numerical goals and the annual numerical targets must be informed by the outcome of the analysis and prioritized and weighted more towards the designated groups that are most under-represented in terms of the national and provincial economically active population, in terms of section 42 of the EEA.
d) Planned vacancies and natural attrition (such as resignations, promotions and terminations) must be taken into consideration when determining numerical goals and annual EE targets.
e) The 5-year sectoral numerical EE targets set in terms of section 15A(2) of the EEA are key milestones towards achieving the equitable representation of the different designated groups within the four upper occupational levels in an designated employer's workforce in relation to the demographics of the applicable EAP, and for persons with disabilities.

f) Designated employers must set numerical goals and annual EE targets at the semi-skilled and unskilled occupational levels in their EE Plans in terms of Section 20(2) of the EEA, taking into account the applicable EAP.

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g) A designated employer that has already exceeded the 5-year sector numerical EE targets, should continue to set annual EE targets towards achieving the EAP for any of the designated groups.

h) A designated employer must avoid perpetuating the over-representation of any group if their representation exceeds the applicable EAP in a particular occupational level.

i) A designated employer must –

i. comply with the numerical EE targets set in terms of section 15A(3) for the economic sector in which they operate;

ii. refer to the Ministerial notice issued in terms of section 15A and **EEA17** in the Regulations to determine the sector they operate in; and

iii. if it operates in more than one sector, apply the numerical EE targets for the sector in which the majority of their employees are engaged.

7.5 Affirmative action measures

7.5.1 A designated employer must implement affirmative action measures in response to barriers identified in the analysis report (EEA12) to ensure that suitably qualified people from the designated groups have equal employment opportunities and are equitably represented in all occupational levels in the workforce, including:

(a) measures to identify and eliminate employment barriers that adversely affect people from the designated groups, directly or indirectly.
(b) measures to further diversity and the management of diversity in the workplace.
(c) reasonable accommodation for suitably qualified people from the designated groups, including for persons with disabilities.
(d) measures to recruit, promote, retain and develop people from the designated groups, including succession planning, skills development and skills transfer.
(e) measures that include preferential treatment, numerical goals and measures other than numerical goals, but exclude quotas or the creation of absolute barriers.

7.5.2 All corrective measures to eliminate any barriers identified during the analysis must be specified in the EE Plan.

7.6 Consensus

a) The designated employer must consult and attempt to reach consensus on the annual objectives and corrective measures contained in the EE Plan.
b) Where consensus is not reached on a particular item in the EE Plan, the reasons related thereto must be recorded and attempts must be made to resolve them through the dispute resolution mechanisms outlined in the EE Plan.

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7.7 Resources

Resources must be appropriately allocated, including human resources, financial resources and material resources.

7.8 Assignment of responsibility

The person in the workforce, including senior managers, responsible for preparation, implementation and monitoring of the EE Plan must take into account:

a) The size of the organization.
b) Line functions.
c) Geographic location and spread.
d) Feedback requirements.
e) Responsibility and authority of the person.

7.9 Dispute Resolution

a) Internal procedures for resolving any dispute about the interpretation and implementation of the EE Plan should be agreed and specified in the EE Plan.
b) The last point of call for the resolving of any disputes about the interpretation and implementation of the EE Plan should be the Chief Executive Officer (CEO) / Accounting Officer of the organization.
c) Existing dispute resolution procedures could be used or tailored to resolve disputes concerning the interpretation and implementation of the EE Plan.
d) Where a dispute still remains after the internal dispute resolution processes were followed, a party to the dispute may make an application to the Commission for Conciliation, Mediation and Arbitration (CCMA) or the Labour Court.
e) Procedures must be time-bound, cost effective and simple for designated and non-designated employees to follow.

7.10 Monitoring of the EE Plan

a) designated employer must assign one or more senior managers to take responsibility for the implementation and monitoring of the EE Plan and take steps to ensure that the managers perform their functions adequately.

b) The person(s) responsible for the monitoring of the EE Plan and the process to be followed, including the CEO / Accounting Officer and the Board, must be outlined in the EE Plan.

c) Regular meetings must be held and records of progress reports must be kept to effectively monitor and evaluate the implementation of the EE Plan, which where applicable should include the CEO / Accounting Officer and the Board.

d) Indicators for the monitoring of the EE Plan must be predefined and agreed upon prior to the implementation of the EE Plan.

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e) The outcome of the monitoring process must inform strategies to strengthen the implementation of the EE Plan and for the preparation of successive plans to start at least six months prior to the expiry of the current EE Plan.

f) An EE Plan may only be reviewed due to major changes or restructuring in an organisation during the duration of the current EE Plan.

g) The disclosure of relevant information by designated employers is vital for the successful implementation of the EE Plan, which should include-

i. the extent to which suitably qualified people from and amongst the different designated groups are equitably represented within each occupational level in that employer's workforce in relation to the demographic profile of the national and regional (provincial) economically active population.
ii. steps taken by a designated employer to train suitably qualified people from the designated groups.
iii. steps to be taken by a designated employer to recruit and promote persons from the designated groups to implement its EE Plan.
iv. the extent to which the designated employer has made progress in eliminating employment barriers that adversely affect people from the designated groups.
v. steps taken by a designated employer to appoint and retain suitably qualified people from the designated groups.
vi. steps taken by the designated employer to provide reasonable accommodation for suitably qualified people from the designated groups.
vii. All progress reports involving the monitoring of the EE plans must be discussed in the consultative forum of the designated employer.

7.11 Communication

Communication of the EE Plan must be informed by a communication strategy that takes the following into account:

a) The mechanisms available to communicate, including print and electronic.
b) Various ways to communicate with different target groups, e.g. persons with disabilities.
c) The content of the EE Plan.
d) The persons responsible for the preparation, implementation and monitoring of the EE Plan.
e) The manner in which disputes on the implementation and interpretation of the EE Plan would be managed.
f) Availability and accessibility of the EE Plan, including to persons with disabilities.

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8. REPORTING

A designated employer must submit a report to the Director-General in terms of section 21 of the Act annually–

(a) by hand delivery of a completed **EEA2** form as specified in regulation 10(2) together with the **EEA4** form in terms of regulation 12; or
(b) electronically by using the online reporting system available on the Department's website: **www.labour.gov.za**.
(c) The designated employer must consult with its representative trade union or employees, or employee representative or through established forum(s) prior to submitting their EE Report to the Department of Employment and Labour.
(d) The EE Report must be used as a monitoring and evaluation tool to inform future implementation strategies and the preparation of successive plans.
(e) EE Reports must reflect the progress made against the employer's current EE Plan.
(f) EE Reports must be completed by designated employers using the EEA2 and EEA4 forms contained in the Regulations.
(g) A designated employer may not be issued with a certificate of compliance in terms of section 53(2) of the Act unless, it has submitted a compliant report in the preceding year.
(h) A designated employer will not be assessed for compliance with its annual EE targets in the first report submitted after becoming a designated employer.
(i) Public companies must include their workforce profile in their financial report using the EEA10 form format contained in the EE Regulations.
(j) When a designated employer within any organ of state has produced a report in terms of section 21 of the Act, the Minister responsible for that employer must table the report in Parliament using the EEA10 format contained in the EE Regulations.

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Draft Reviewed Code of Good Practice for the Preparation, Implementation and Monitoring of the Employment Equity Plan – July 2026

E-mail: Christina.Lehlokoa@labour.gov.za and Tsholofelo.Ndlovu@labour.gov.za

NAME OF INDIVIDUAL/ORGANISATION	COMMENT NUMBER	STATE THE PARAGRAPH NUMBER IN THE CODE, e.g. 2.1, 3.2,5.7 and 7.1	COMMENT / PROPOSED AMENDMENT

DEPARTMENT OF HEALTH

NO. 7720 **24 July 2026**

MEDICINES AND RELATED SUBSTANCES ACT, (101 OF 1965 AS AMENDED)

REGULATIONS RELATING TO A TRANSPARENT PRICING SYSTEM FOR MEDICINES AND SCHEDULED SUBSTANCES: EXEMPTION OF SCHEDULE 0 MEDICINES

I, PROF. NICHOLAS CRISP, Acting Director-General, have determined in accordance with Regulation 21 of the Regulations Relating to a Transparent Pricing System for Medicines and Scheduled Substances (Medicines Pricing Regulations) published in Government Gazette number 28214 of 11 November 2005, that a manufacturer, importer of a medicine or scheduled substance, who is the applicant of a medicine and all interested stakeholders must submit information required for the review of Schedule 0 medicines exemption from the operations of Sections 22G and 18A of Act No. 101 of 1965, as amended in accordance with the template named "Template for collecting market data of Schedule 0 medicines" appended to this Notice.

These submissions must be made within three months of the publication of this notice. Submissions can be made either in hard copy or electronically, and delivered to:

The Director-General: National Department of Health **(Attention to the Director: Pharmaceutical Economic Evaluations Directorate, Dr AB Xuma Building, Office D1-14A, 1112 Voortrekker Rd, Pretoria Townlands 351-JR, Pretoria, 0187)); e-mail:** sepupdates@health.gov.za and Ntobeko.Mpanza@health.gov.za.

Kindly note that all comments received will be duly considered prior to the finalisation of any amendments to the existing regulatory framework governing the pricing of Schedule 0 medicines.

SCHEDULE

Definitions

In this schedule,

1. "**the Act**" means the Medicines and Related Substances Act, 1965 (Act No. 101 of 1965) and any word or expression to which a meaning has been assigned in the Act shall have such meaning, unless the context indicates otherwise.

2. **"Schedule 0 medicine"** refers to a category of medicines that are considered to have the lowest level of control because they pose minimal risk to the public when used correctly. These are medicines that may be sold to the public without a prescription and without the direct supervision of a pharmacist.

3. **"the Regulations"** means the Regulations Relating to the Transparent Pricing System for Medicine and Scheduled Substances published in terms of Government Notice No. R1102 of November 2005, as amended.

PROF NICHOLAS CRISP
ACTING DIRECTOR-GENERAL OF HEALTH
DATE 05/05/2026.

TEMPLATE FOR COLLECTING MARKET DATA OF SCHEDULE 0 (S0) MEDICINES

To be issued to stakeholders for inputs to support in determining the appropriate regulatory framework for Schedule 0 (S0) medicines excluding category D complementary medicines.

Stakeholders are requested to submit their responses by completing the sections of the template which are applicable to them with accurate information that is available to them. Where necessary, additional information may be submitted. Kindly note that only duly registered companies are eligible to respond; associations or representative bodies of companies will not be considered.

SECTION A: RESPONDENT INFORMATION

Organisation Name	
Contact Person	
Position/Title	
Email Address	
Telephone Number	

Role in the S0 Supply Chain (tick ☑ all applicable):

☐ Applicant
☐ Manufacturer
☐ Importer
☐ Distributor
☐ Wholesaler
☐ Retail Pharmacy
☐ Retail franchise chain
☐ E-commerce platform
☐ Other please specify: _____

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SECTION B: PRODUCT IDENTIFICATION INFORMATION AND PRICING STRUCTURE

Provide the following information for all S0 medicines that were marketed during the period 01 January 2021 to 31 December 2025.

PRODUCT NAME	DOSAGE FORM	STRENGTH	PACK SIZE	WHOLESALE MARK-UP	RETAIL SELLING PRICE				
					01 Jan 2021 - 31 Dec 2021	01 Jan 2022 - 31 Dec 2022	01 Jan 2023 - 31 Dec 2023	01 Jan 2024 - 31 Dec 2024	01 Jan 2025 - 31 Dec 2025

1. The retail selling price information provided may be presented in any format that is available to your business.
2. The retail selling price information should be a weighted average figure for the period 01 January to 31 December for each year.

Additional Information Required

Please also provide information on the impact of the following on S0 medicine pricing:

• Exchange rate • Are the medicines exposed to any exchange rate fluctuations?	
• API price fluctuations • Is the API locally source or imported?	
• Changes in manufacturing costs	
• Changes in regulatory or compliance costs	

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SECTION C: COMMERCIAL ARRANGEMENTS

Indicate whether the following commercial practices apply to S0 medicines in your organisation by marking the box/boxes that are applicable to you with a tick ☑ and add where necessary:

☐ Front-end discounts
☐ Conditional rebates
☐ Marketing allowances
☐ Category management agreements
☐ Back-end rebates
☐ Volume incentives
☐ Bundling practices
☐ Other, please specify _____

SECTION D: SALES AND MARKET DATA

Provide annual sales data for S0 medicines for each year between 2021 and 2025.

PRODUCT NAME	DOSAGE FORM	STRENGTH	PACK SIZE	01 Jan 2021 - 31 Dec 2021		01 Jan 2022 - 31 Dec 2022		01 Jan 2023 - 31 Dec 2023		01 Jan 2024 - 31 Dec 2024		01 Jan 2025 - 31 Dec 2025	
				Sales Volume	Annual Revenue	Sales Volume	Annual Revenue	Sales Volume	Annual Revenue	Sales Volume	Annual Revenue	Sales Volume	Annual Revenue

SECTION E: COST STRUCTURE

Provide the cost components considered to derive S0 medicines selling prices, tick (☑) where applicable and add where necessary.

☐ API cost
☐ Excipients
☐ Packaging materials
☐ Direct manufacturing labour

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☐ Manufacturing overheads
☐ Quality Assurance
☐ Regulatory compliance costs
☐ Marketing and Promotion costs
☐ Distribution and Logistics costs
☐ Import duties and freight
☐ Insurance and Risk costs
☐ Rebate costs
☐ Other, please specify _____

SECTION F: SUPPLY CHAIN AND AVAILABILITY

Provide supply chain annual data for the past five (5) years.

Period	01 Jan 2021 - 31 Dec 2021	01 Jan 2022 - 31 Dec 2022	01 Jan 2023 - 31 Dec 2023	01 Jan 2024 - 31 Dec 2024	01 Jan 2025 - 31 Dec 2025
Average manufacturing lead per annum					
Average import lead time per annum					
Order fill rate (%) per annum					
Stock-out frequency per annum					
Average duration of stock-outs per annum					

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SECTION G: MARKET STRUCTURE AND COMPETITION

Molecule/Product	Number of Competitors	Originator/Generic	Exclusive Distribution Agreements (Yes/No)

SECTION H: REGULATORY IMPACT ASSESSMENT

In your view, how could S0 medicines selling price regulation affect consumer affordability?

_____

In your view, how could S0 medicines selling price regulation affect medicine availability?

_____

Could S0 medicines selling price regulation impact supply chain sustainability? Please explain.

_____

In your view what would be the impact of regulating S0 medicines on counterfeit or unregulated medicines?

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PARLIAMENT OF THE REPUBLIC OF SOUTH AFRICA

NO. 7721 **24 July 2026**

INVITATION TO COMMENT ON DRAFT PARLIAMENTARY VILLAGES BILL, 2026

Notice is hereby given that the Ad Hoc Committee to Review and Amend the Parliamentary Villages Management Board Act (Act No. 96 of 1998), intends to introduce the Parliamentary Villages Bill, 2026.

A copy of the draft Parliamentary Villages Bill, 2026, and a Memorandum setting out its objectives are included in the Schedule to this Notice in fulfilment of the requirements of Rule 275(a), Rules 276(1)(b) and (c) and Rule 276(5) of the Rules of the National Assembly.

Stakeholders and interested persons are hereby invited to submit written comments on the draft Bill addressed to the Speaker of Parliament by Friday, 14 August 2026. In addition to the written comments, stakeholders and interested persons are invited to indicate their interest in making an oral submission on the draft Bill.

Written submissions may be delivered by hand to the Office of the Speaker of Parliament for the attention of Ms H Salie, Parliament Street, Cape Town; mailed to the Speaker of Parliament, PO Box 15, Cape Town, 8000 or e-mailed to hsalie@parliament.gov.za. In all instances, please advise Ms H Salie, Committee Secretary, of the written submission at the following number: 061 472 9191

24 July 2026

Issued by Hon CM Masina, MP
Chairperson: Ad Hoc Committee on the Review and Amendment of the Parliamentary Villages Management Board Act

REPUBLIC OF SOUTH AFRICA

PARLIAMENTARY VILLAGES BILL

(As initiated by the Ad Hoc Committee to Review and Amend the Parliamentary Villages Management Board Act, as a Committee Bill, for introduction in the National Assembly (proposed section 75); Bill and prior notice of its introduction published in Government Gazette No. .... of ... 20..)
(The English text is the official text of the Bill)

(AD HOC COMMITTEE TO REVIEW AND AMEND THE PARLIAMENTARY VILLAGES MANAGEMENT BOARD ACT)

[B ……. 2026]

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BILL

To repeal the Parliamentary Villages Management Board Act, 1998; to recognise and regulate the existence of the parliamentary villages, and the allocation of housing in the parliamentary villages; to designate Parliament as the custodian and user of the parliamentary villages; to establish and regulate the Parliamentary Villages Management Board; to provide for the governance of the Board and its role to support Parliament as custodian and user of the parliamentary villages; to provide for the establishment of a Residents Committee at each of the parliamentary villages and to provide for its role and functions; to provide for the role of the South African Police Service at the parliamentary villages; to amend the Government Immovable Asset Management Act, 2007; and to provide for matters connected therewith.

BE IT ENACTED by the Parliament of the Republic of South Africa, as follows:—

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Sections

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2. Interpretation
3. Objects of Act

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4. Parliamentary Villages
5. Allocation of accommodation at Parliamentary Villages
6. Responsibilities of residents

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7. Parliament as custodian and user of Parliamentary Villages
8. Role of Accounting Officer
9. Financial Governance of Parliamentary Villages
10. Delegation of powers by Accounting Officer

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12. Composition of Board
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Repeal and amendment of laws

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CHAPTER 1

DEFINITIONS, INTERPRETATION AND OBJECTS OF ACT

Definitions

1. In this Act, unless the context indicates otherwise—

'Accounting Officer' means the Secretary to Parliament, and includes, a person acting as the Secretary to Parliament;

'Board' means the Parliamentary Villages Management Board, referred to in section 11;

'custodian', in relation to the parliamentary villages, means Parliament as represented by the Executive Authority;

'Constitution' means the Constitution of the Republic of South Africa, 1996;

'Department' means the National Department responsible for public works and infrastructure;

'Executive Authority' means the Speaker of the National Assembly and the Chairperson of the National Council of Provinces, acting jointly;

'Financial Management of Parliament and Provincial Legislatures Act' means the Financial Management of Parliament and Provincial Legislatures Act, 2009 (Act No. 10 of 2009);

'GIAMA' means the Government Immovable Asset Management Act, 2007 (Act No. 19 of 2007);

'Houses' means the National Assembly and the National Council of Provinces;

'household' means a family unit or a group of individuals living together on the same premises and sharing resources;

'Member' means a member of the National Assembly or a permanent delegate to the National Council of Provinces and "Members" has a corresponding meaning;

'Minister' means the cabinet member responsible for public works and infrastructure;

'Parliament' means the National Assembly and the National Council of Provinces referred to in section 42(1) of the Constitution;

'parliamentary term' means the period of five years commencing from the date when Members take their oath or affirmation in terms of section 48 of the Constitution and expires on the day before the first day of polling for the next National Assembly;

'parliamentary villages' means the place of accommodation as contemplated in section 4;

'Presiding Officer' includes the Speaker, Deputy Speaker and House Chairpersons of the National Assembly, and the Chairperson, Deputy Chairpersons and House Chairpersons of the National Council of Provinces;

'person with a disability' means a person who has a physical, intellectual, neurological or sensory impairment that substantially limits such a person and who requires an aide to assist them;

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'prescribe' means prescribe by regulations;

'resident' means a person residing in the parliamentary villages;

'Residents Committee' means a Residents Committee established at each of the parliamentary villages as contemplated in section 23;

'sessional official' means an official who is designated by the Head of a National Department to perform parliamentary work during the parliamentary programme in Cape Town; and

'user', in relation to the parliamentary villages, means Parliament as represented by the Executive Authority.

Interpretation

2. In the event of any conflict between the provisions of this Act and GIAMA, the provisions of this Act prevail.

Objects of Act

3. The objects of this Act are to—

(a) ensure the effective management and efficient maintenance of the parliamentary villages as a recognised strategic facility that forms an integral part of Parliament's institutional infrastructure required for the optimal functioning, security and continuity of Parliament;

(b) provide for the effective management of, alignment of control over, and efficient maintenance of, the parliamentary villages in terms of GIAMA by designating Parliament as the custodian and user of the parliamentary villages;

(c) ensure the effective and optimal functioning of the Parliamentary Villages Management Board; and

(d) ensure that the planning for, allocation of, and management of, accommodation in the parliamentary villages is aligned with Parliament's constitutional mandate, oversight responsibilities, and operational requirements.

CHAPTER 2

PARLIAMENTARY VILLAGES

Parliamentary Villages

4. (1) The parliamentary villages serve to accommodate Members and any person contemplated in subsection (4).

(2) The parliamentary villages are the residential estates of Acacia Park in the suburb of Goodwood, Laboria Park in the suburb of Belhar, and Pelican Park in the suburb of Zeekoevlei, Cape Town, or any other place of residence so designated in terms of subsection (3).

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(3) The Minister, in consultation with the Executive Authority and the Minister responsible for Finance, may declare another place of accommodation as a parliamentary village, by notice in the *Gazette.*

(4) The following persons, together with their household, are eligible to reside in a parliamentary village:

(a) Members;

(b) sessional officials;

(c) support staff to a Presiding Officer, Chief Whip or Deputy Chief Whip;

(d) aides supporting a Member, where such Member is a person with a disability;

(e) any other support staff employed by a Member, political party, or by Parliament; and

(f) any person declared to be eligible by the Executive Authority, after consultation with the Board and the Accounting Officer, by resolution of both Houses.

Allocation of accommodation at Parliamentary Villages

5. (1) The Accounting Officer must—

(a) within 30 days before the end of the parliamentary term, conduct an audit and inspection of all available accommodation in the parliamentary villages to determine the condition and vacancy of such accommodation, and develop a report with the findings of that audit and inspection; and

(b) submit the report contemplated in paragraph (*a*), to the Executive Authority of that outgoing Parliament, to form part of the legacy report of that outgoing Parliament.

(2) As soon as reasonably possible after the commencement of the parliamentary term, the Executive Authority must establish a Housing Allocation Forum that comprises of—

(a) two or three employees of Parliament responsible for matters relating to the parliamentary villages;

(b) nominated representatives of each political party represented in Parliament in accordance with the composition contemplated in the Standing Rules of Parliament applicable to the joint business of both Houses; and

(c) a representative from the Department as designated by the Minister.

(3)(*a*)"Parliament Members' Facility Handbook" in this section, means the policy governing the allocation of accommodation at the parliamentary villages, developed and maintained by the division in the administration of Parliament that provides support services to Members.

(b) The Housing Allocation Forum must consider the report provided by the Accounting Officer contemplated in subsection (1), the Parliament Members' Facility Handbook, and the number of persons requesting residence in the parliamentary villages for that parliamentary term, in order to determine the number of residential units to be made available to each category of person listed in section 4(4).

(c) The determination contemplated in paragraph (*b*) is agreed on in accordance with the Standing Rules of Parliament applicable to the joint business of both Houses: Provided

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that the members of the Housing Allocation Forum contemplated in subsection (2)(*a*) and (*c*) are non-voting members.

(4) The Accounting Officer must allocate the residential units in accordance with the determination contemplated in subsection (3).

Responsibilities of residents

6. (1) A person residing in any of the parliamentary villages must adhere to the rules contemplated in section 13(1)(*f*).

(2) Should a resident breach any of the rules contemplated in section 13(1)(*f*), the Parliamentary Villages Management Board has a right of recourse against such person or against the resident in whose name the accommodation has been allocated, as contemplated in section 13(1)(*g*).

(3) Upon allocation of a residential unit and before taking up residence of that unit, a resident in whose name the accommodation has been allocated, must enter into a lease agreement with the Accounting Officer.

(4) A resident who has entered into a lease agreement contemplated in subsection (3), must pay the monthly rental amount, as determined by Executive Authority, to the custodian, which will contribute to the maintenance and management of the parliamentary villages.

CHAPTER 3

MANAGEMENT AND MAINTENANCE OF PARLIAMENTARY VILLAGES

Parliament as custodian and user of Parliamentary Villages

7. (1) In accordance with section 4 of GIAMA, Parliament is the custodian and user of the parliamentary villages.

(2) Parliament must, in accordance with GIAMA and the Financial Management of Parliament and Provincial Legislatures Act, effectively manage, efficiently maintain and reasonably improve the parliamentary villages.

(3) Parliament may dispose of any surplus immovable asset in terms of section 13(3) of GIAMA in consultation with the Minister, only—

(a) after consultation with the Parliamentary Villages Management Board;

(b) if such disposal is in the interests of the effective management of the parliamentary villages; and

(c) after the benefit to Parliament of the immovable asset, and the value of the immovable asset, have been taken into account.

Role of Accounting Officer

8. (1) The Accounting Officer is responsible for the preparation of the custodian immovable

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asset management plan and the user immovable asset management plan contemplated in GIAMA and must comply with sections 7 and 8 of GIAMA when compiling both plans.

(2) Parliament must annually revise both the custodian immovable asset management plan and user immovable asset management plan, in terms of section 12 of GIAMA.

(3) The Accounting Officer must submit the custodian immovable asset management plan and the user immovable asset management plan to the Parliamentary Villages Management Board for inputs prior to submitting the plans to the Executive Authority for consideration.

(4)(*a*) The Accounting Officer must incorporate the custodian immovable asset management plan and the user immovable asset management plan into the strategic plan of Parliament, for tabling in Parliament in terms of section 13 of the Financial Management of Parliament and Provincial Legislatures Act.

(*b*) The Accounting Officer must, as contemplated in section 9 of GIAMA, submit the custodian immovable asset management plan and the user immovable asset management plan to National Treasury, when Parliament's budget is submitted in accordance with the process contemplated in section 17(1)(*a*) of the Financial Management of Parliament and Provincial Legislatures Act.

(5) The Accounting Officer is responsible for providing transportation services to Members and all residents, travelling between the parliamentary villages and the precincts of Parliament as referred to in section 2 of the Powers, Privileges and Immunities of Parliament and Provincial Legislatures Act, 2004 (Act No. 4 of 2004).

Financial Governance of Parliamentary Villages

9. (1) Such funds as are necessary for the maintenance of the parliamentary villages, in compliance with GIAMA and the provision of transport contemplated in section 8(5), must be appropriated to Parliament, by an Act of Parliament.

(2) In the exercise of its duties contemplated in section 7(2), Parliament may procure such goods or services as may be necessary and must do so in accordance with the supply chain management prescripts contemplated in the Financial Management of Parliament and Provincial Legislatures Act.

(3) The Accounting Officer must quarterly provide the Parliamentary Villages Management Board with a written report on—

(a) any procurement undertaken in terms of subsection (2) during that quarter; and

(b) the budget available, and expenditure incurred during that quarter, relating to the parliamentary villages.

(4) Any rental amount contemplated in section 6(4), must be paid into a bank account contemplated in section 25(1) of the Financial Management of Parliament and Provincial Legislatures Act, and may only be utilised for the maintenance, management or improvement of the parliamentary villages.

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Delegation of powers by Accounting Officer

10. (1) The Accounting Officer may—

(a) delegate any power conferred on the Accounting Officer by this Act to an official of Parliament in accordance with a system of delegation; or

(b) authorise, in writing, an official of Parliament to perform any duty imposed on the Accounting Officer by this Act.

(2) A person to whom a power has been delegated, or who has been authorised to perform a duty contemplated in subsection (1), must exercise that power, or perform that duty, subject to such conditions as the Accounting Officer may determine.

(3) A delegation or authorisation in terms of this section—

(a) does not prevent the Accounting Officer from exercising that power or performing that duty; and

(b) may at any time be withdrawn, in writing, by the Accounting Officer.

CHAPTER 4

PARLIAMENTARY VILLAGES MANAGEMENT BOARD

Parliamentary Villages Management Board

11. The Parliamentary Villages Management Board is hereby established.

Composition of Board

12. (1) The Executive Authority must, in accordance with section 14, appoint as members of the Board—

(a) the House Chairperson in the National Assembly responsible for the parliamentary villages;

(b) the House Chairperson in the National Council of Provinces responsible for the parliamentary villages;

(c) the Chairperson of the Residents Committee established by each of the residential estates that are considered part of the parliamentary villages;

(d) three residents nominated by each of the Residents Committees, of whom two must be Members and one must be either a sessional worker or a support staff member;

(e) the Accounting Officer;

(f) a representative from the Department, as designated by the Minister;

(g) the owner, or a representative of the owner, of the land on which one or more of the parliamentary villages are located where the Department is not the owner; and

(h) a representative of the South African Police Service, as designated by the Western Cape Provincial Commissioner of the South African Police Service.

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(2) The voting members of the Board, as referred to in section 18(4), must elect a Chairperson and a Deputy Chairperson from amongst themselves at the first meeting of the Board.
(3) The Accounting Officer must designate a parliamentary official to provide secretarial and administrative support to the Board.
(4) The Board may co-opt a person as a non-voting member, based on expertise required in a matter before it.

Functions of Board

13. (1) The functions of the Board are to—

(a) facilitate the effective management, efficient maintenance, and reasonable improvements, of the parliamentary villages by Parliament and to report any concerns related to such management, maintenance or improvement to the Executive Authority;

(b) facilitate the provision of transportation services for residents by the Accounting Officer and report any concerns related to such transportation to the Accounting Officer;

(c) facilitate, and take the necessary steps to ensure, the security and safety of each parliamentary village and its residents and make recommendations in this regard to the Minister responsible for policing;

(d) scrutinise quarterly reports provided by the Accounting Officer, contemplated in section 9(3);

(e) report any discrepancies or concerns related to the quarterly reports contemplated in section 9(3) to the Executive Authority;

(f) establish management rules dealing with the administrative functioning of the parliamentary villages, and conduct rules governing the day-to-day behaviour of residents;

(g) determine sanctions, such as the paying of a fine or recommending the termination of a lease agreement contemplated in section 6(3), for breaching the rules established in paragraph (*f*) and impose these sanctions against residents who are found, in accordance with a prescribed process, to have breached these rules;

(h) consider and inform the custodian immovable asset management plan and the user immovable asset management plan submitted by the Accounting Officer;

(i) account to and provide progress updates to a Residents Committee on any matter brought to the Board's attention by that Residents Committee;

(j) annually provide a written report to the Executive Authority on the status of the parliamentary villages, discrepancies or concerns raised, and on the execution of its functions;

(k) consider and act on a resolution or order of either House of Parliament directed at the Board within a reasonable time; and

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(l) advise the Accounting Officer on the efficacy of this Act, or on any other matter on which the Accounting Officer requires advice, in relation to the parliamentary villages.

(2) In undertaking its functions, the Board and its members must—

(a) act with due care, diligence and good faith;

(b) avoid conflicts of interest;

(c) act with impartiality in respect of all matters concerning the Board and the parliamentary villages;

(d) act independently; and

(e) comply with any other prescribed requirements.

Appointment of Board

14. (1) All members of the Board must be appointed by the Executive Authority in a transparent and formal process, within 60 days after the allocation of accommodation as contemplated in section 5.

(2) The terms of the appointment must be formalised in a letter of appointment provided to each member of the Board.

(3) Members of the Board should submit declarations of financial interests, economic and other interests held by the member to the Executive Authority before appointment.

(4) Despite some of the members of the Board being appointed *nomine officio*, no person may be appointed to, or nominated as a member of, the Board—

(a) if that person has been removed from an office of trust, on the grounds of misconduct involving dishonesty, or unlawful use of a power;

(b) if the person has been convicted in terms of the Prevention and Combating of Corrupt Activities Act, 2004 (Act No. 12 of 2004);

(c) if that person is an unrehabilitated insolvent;

(d) if that person has been convicted of an offence and sentenced to imprisonment without the option of a fine;

(e) if that person has been convicted of an offence related to financial crime;

(f) if that person has been declared a delinquent director or was placed under an order of probation in terms of section 162 of the Companies Act, 2008 (Act No. 71 of 2008); or

(g) unless that person is a South African citizen permanently resident in the Republic.

(5)(*a*) In the event that a member of the Board appointed *nomine officio* is disqualified to be a member of the Board, that membership position remains vacant, unless the Executive Authority, after consultation with the Minister, appoints a person to fill that vacancy.

(b) Subject to paragraph (*a*), in the event that a member of the Board vacates his or her office, or where a member of the Board ceased to be a Member, and that member of the Board was appointed—

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(i) *nomine officio*, the person newly appointed in that office or post, or in the event that a person is appointed to act in that post or office, such acting person;
(ii) in accordance with section 12(1)(*d*), the relevant resident nominated by the affected Residents Committee;
(iii) in accordance with section 12(1)(*f*) or (*h*), the person newly designated by the Minister or Western Cape Provincial Commissioner of the South African Police Service respectively; or
(iv) in accordance with section 12(1)(*g*), the new owner or representative of the owner,

must be appointed as member of the Board in accordance with this section.

Term of office

15. The term of office of the Board is linked to the parliamentary term.

Resignation and removal

16. (1) A member of the Board may resign from the Board by submitting to the Executive Authority—

(a) three months' written notice; or

(b) less than three-months' written notice, with the written approval of the Executive Authority.

(2) The Executive Authority may remove a member of the Board from office, but only on the grounds of—

(a) misconduct, incapacity or incompetence;

(b) absence from three consecutive meetings of the Board without prior notice to the Board; or

(c) being disqualified as contemplated in section 14(4).

(3) Before removing a person from office in terms of subsection (2), the Executive Authority must afford that person an opportunity to make oral or written representations and may gather any other information in order to determine whether the facts constitute a ground contemplated in subsection (2).

Meetings

17. (1) The Board must meet at least four times a year, and meetings must be held at such times and places as the Board may determine.

(2) The Chairperson may at any time convene a special meeting of the Board, which must be held at such time and place as the Chairperson may direct.

(3) A meeting of the Board may only begin once one third of the members of the Board are present.

(4) If one third of members are not present within 30 minutes of the time determined for a

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meeting of the Board, the person presiding at the meeting may adjourn the meeting to the same time and place, seven days after the adjournment.

(5) Any decision of the Board is taken by resolution of the majority of the members present at any quorate meeting of the Board, and, in the event of an equality of votes on any matter, the Chairperson has a casting vote in addition to his or her deliberative vote as a member of the Board.

(6) A quorum for a meeting of the Board is in accordance with the provisions of section 18.

(7) A member of the Board may not vote, or in any manner participate in the relevant proceedings, nor be present in the meeting if, in relation to a matter before the Board, he or she has any interest in a matter, which precludes him or her from performing his or her functions as a member of the Board in a fair, unbiased and proper manner, or may reasonably be perceived to do so.

Quorum and voting

18. (1) A decision of the Board may only be taken once a quorum of the voting members of the Board is present.

(2) A quorum is fifty percent of its voting members, plus one.

(3) Where a quorum cannot be attained for two consecutive meetings, or where a decision is urgent, the Board may take a decision by way of a system of remote voting: Provided that each voting member must declare their vote to the Chairperson in writing and a record of such written votes must be stored with the decision.

(4) The following members are voting members of the Board:

(a) The House Chairperson in the National Assembly responsible for the parliamentary villages;

(b) the House Chairperson in the National Council of Provinces responsible for the parliamentary villages;

(c) the Chairperson of each Residents Committee; and

(d) the nine Board members nominated by the Residents Committees.

Subcommittees of Board

19. (1) The Board may establish a subcommittee to consider a specific, time-consuming or highly specialised task, or to make recommendations on a specific decision to be taken.

(2) The Board must, where a subcommittee contemplated in subsection (1) was established—

(a) assign members of the Board based on their knowledge and skills, or co-opt a person with relevant qualifications, skill or expertise, to serve on the subcommittee; and

(b) determine its—

(i) terms of reference;

(ii) composition;

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(iii) tenure of members;

(iv) reporting mechanisms; and

(v) method and reasons for removal of a member.

(3) A subcommittee contemplated in subsection (1)—

(a) is an extension of the Board;

(b) must meet as often as is necessary to carry out its functions effectively; and

(c) may determine its own procedures.

(4) Unless specifically delegated by the Board, a subcommittee contemplated in subsection (1) has no decision-making powers and can only make recommendations to the Board.

(5) A subcommittee contemplated in subsection (1) must appoint a Chairperson from among its members.

Reports

20. (1)(*a*) The Board must, before 30 April of each year, submit an annual report to the Executive Authority setting out the activities of the Board during the year preceding that date.

(*b*) The Board must submit reports contemplated in section 31(4), to the Executive Authority within the periods stipulated in that section.

(2) The Executive Authority may request specific reports from the Board, additional to the reports contemplated in subsection (1).

(3) The Board must furnish the Executive Authority with such information as they may at any time require in connection with any of the Board's activities.

(4) The Executive Authority must consider reports received from the Board in accordance with a process provided by the Joint Standing Rules of Parliament.

Vacancies

21. If a member of the Board vacates his or her office, or is removed as a member as contemplated in section 16(2), or where a member of the Board is appointed based on that person being a Member, ceases to be a Member, before the expiration of the period for which he or she was appointed, the resultant vacancy must be filled in accordance with section 14, in order for the newly appointed person to hold office for the unexpired portion of his or her predecessor’s term of office.

Dissolution of Board

22. (1) The Executive Authority may dissolve the Board if the Board collectively disregards any applicable law or collectively disregards a resolution or order of either House of Parliament directed at the Board.

(2) Upon dissolution of the Board, the Executive Authority must appoint an administrator

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to take over the functions of the Board and to execute any task, or take any decision, which the Board might otherwise be empowered or required to do by or under this Act, subject to such conditions as the Executive Authority may determine, until such time a new Board has been appointed.

(3) The appointment contemplated in subsection (2) must be effected within two months of the dissolution of the Board, and the term of the appointment of the administrator may not exceed six months.

CHAPTER 5

RESIDENTS COMMITTEES

Election of Residents Committee

23. (1) The Accounting Officer must, within 30 days of the allocation of accommodation in terms of section 5, call an annual general meeting at each parliamentary village for the residents of that parliamentary village to elect the voting members of a Residents Committee referred to in section 24(1)(*a*).

(2) A Residents Committee represents the residents of the parliamentary village concerned and liaises with the Board on matters pertaining to the needs of such residents.

Composition of Residents Committee

24. (1) A Residents Committee consists of the following—

(a) voting members:

(i) Three Members who reside in the parliamentary village;

(ii) a support staff member who resides in the parliamentary village; and

(iii) a sessional official who resides in the parliamentary village; and

(b) non-voting members:

(i) An official appointed by Parliament to manage the administration and day-to-day operations of the parliamentary village;

(ii) where a service provider has been appointed by the Accounting Officer to manage the parliamentary village, a representative of that service provider;

(iii) a representative of the Department as designated by the Minister; and

(iv) a representative of the South African Police Service, designated by the Western Cape Provincial Commissioner of the South African Police Service.

(2) The voting members of each Residents Committee referred to in subsection (1)(*a*) must, from among themselves—

(*a*) elect a Chairperson, who will also serve on the Board;

(b) elect a Deputy Chairperson; and

(c) nominate persons to serve on the Board, which nominees must include—

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(i) two Members; and

(ii) a sessional official or a support staff member,

who reside in the parliamentary village.

(3) The disqualifications set out in section 14(4) also apply to members of a Residents Committee.

(4) The Accounting Officer must designate a parliamentary official to provide secretarial and administrative support to each Residents Committee.

Functions of Residents Committee

25. (1) The functions of a Residents Committee are to—

(a) compile and submit reports to the Board on challenges at the parliamentary village related to maintenance, safety, security, personnel appointed to support the parliamentary villages in any manner, or any other challenge that may affect the residents of that parliamentary village;

(b) propose improvements for the parliamentary village to the Board;

(c) conduct an annual audit of the status of available accommodation at the parliamentary village and submit the results of such audit to the Board;

(d) oversee the repair, maintenance and improvements of immovable property at the parliamentary village;

(e) regularly inspect the common property at the parliamentary village;

(f) enforce the rules of the parliamentary villages contemplated in section 13(1)(*f*);

(g) refer any breach of the rules contemplated in section 13(1)(*f*) to the Board for consideration and further action by the Board;

(h) hold regular meetings, including meetings with residents, and keep accurate minutes of such meetings; and

(i) consider and address complaints received from residents of the relevant parliamentary village.

(2) In undertaking its functions, each Residents Committee and its members must—

(a) act with due care, diligence and good faith;

(b) avoid conflicts of interest; and

(c) comply with any other prescribed requirements.

Duration of membership

26. The term of office of the members of a Residents Committee is linked to the term of Parliament.

Resignation and removal

27. (1) A member of a Residents Committee may resign from the Residents Committee by submitting one month's written notice to the Chairperson of that Committee but may only be removed from office by agreement of all the other members of that Residents Committee and

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with the approval of the Board.

(2) A member of a Residents Committee may only be removed as member as contemplated in subsection (1), by the Board, on the grounds of—

(a) misconduct, incapacity or incompetence;

(b) absence from three consecutive meetings of the Residents Committee without prior written notice to the Residents Committee of good cause for such absence; or

(c) being disqualified as contemplated in section 14(4).

(3) Before removing a person from office in terms of this section, the Board must afford the person an opportunity to make oral or written representations and may gather any other information in order to determine whether the facts constitute a ground contemplated in subsection (2).

Meetings

28. (1) Each Residents Committee must at least meet every two months, or as frequently as it deems necessary, at such time and place as it may determine.

(2) The Chairperson of the Residents Committee may at any time call a special meeting of the Residents Committee, which must be held at such time and place as the Chairperson may direct.

(3) A meeting of a Residents Committee may only begin once one third of its members are present.

(4) If one third of members are not present within 30 minutes of the time determined for a meeting of the Residents Committee, the person presiding at the meeting may adjourn the meeting to the same time and place, seven days after the adjournment.

(5) Any decision of a Residents Committee is taken by resolution of the majority of the members present at any quorate meeting of the Residents Committee, and, in the event of an equality of votes on any matter, the Chairperson has a casting vote in addition to his or her deliberative vote as a member of the Residents Committee.

Quorum and voting

29. (1) A decision of a Residents Committee may only be taken once a quorum of the voting members are present.

(2) A quorum for a decision is fifty percent of its voting members, plus one.

(3) Where a quorum cannot be attained for two consecutive meetings, or where a decision is urgent, the Residents Committee may take a decision by way of a system of remote voting: Provided that each voting member must declare their vote to the Chairperson in writing and a record of such written votes must be stored with the decision.

Vacancies

30. If a member of a Residents Committee vacates his or her office, or is removed as a member as contemplated in section 27, or is a Member who ceases to be a Member, before the expiration of the period for which he or she was appointed, the resultant vacancy must be

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filled as follows for the newly appointed person to hold office for the unexpired portion of his or her predecessor's term of office:

(a) If the vacancy is in respect of a voting member referred to in section 24(1)(*a*), the Chairperson or Deputy Chairperson, or if both these offices are vacant, the Accounting Officer, must call a special meeting at the affected parliamentary village for the residents of that parliamentary village to elect the new voting member; or

(b) if the vacancy is in respect of a non-voting member referred to in—

(i) section 24(1)(*b*)(i), then Parliament must appoint the new official;

(ii) section 24(1)*(b)*(ii), the relevant service provider must appoint the new representative;

(iii) section 24(1)(*b*)(iii), the Minister must designate the new representative; or

(iv) section 24(1)(*b*)(iv), the Western Cape Provincial Commissioner of the South African Police Service must designate the new representative.

Dissolution

31. (1) In the event that the residents at a parliamentary village are dissatisfied with their Residents Committee due to—

(a) a loss of confidence in their Residents Committee as a result of mismanagement or failure to perform its duties effectively;

(b) continued failure by their Residents Committee to comply with a provision of this Act; or

(c) irreconcilable conflicts of interest or disputes among the members of their Residents Committee,

the residents of that affected parliamentary village may request the Board to call a special meeting of all residents in the affected parliamentary village to take a vote on dissolving their current Residents Committee.

(2) The Board must consider the request in the manner prescribed within 30 days, and where the challenge—

(a) cannot be corrected, determine a date for the special meeting to take a vote on dissolving the affected Residents Committee, which date may not be more than 60 days from the date of receipt of the request; or

(*b*) can be corrected, refer the request back to the Residents Committee to do so within a period stipulated by the Board.

(3)(*a*) The Board must, without delay, announce the outcome of the vote taken at the special meeting contemplated in subsection (2)(*a*), by written notice to all residents in the affected parliamentary village.

(*b*) Where the majority of residents in the affected parliamentary village decide to dissolve their current Residents Committee, the Board must in the written notice contemplated in paragraph (*a*), also announce the dissolution of that Residents Committee and must call a special meeting to take place no later than 30 days of

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the date of said written notice, to elect the voting members of a new Residents Committee.

(4) The Board must provide a report to the Executive Authority within seven days of—

(a) the receipt of a request to call a special meeting in a parliamentary village to take a vote on dissolving the relevant Residents Committee, indicating the reasons for the request;

(b) the decision of the Board contemplated in subsection (2), indicating the decision, the reasons for the decision and the date of the special meeting to exercise a vote on dissolving the relevant Residents Committee, or the period stipulated for the challenge to be corrected;

(c) the announcement of the outcome of the special meeting to exercise a vote on dissolving the relevant Residents Committee, indicating the outcome of the vote and where the majority of residents in the affected parliamentary village decided to dissolve their Residents Committee, the date of a special meeting to elect the voting members of a new Residents Committee; and

(d) the special meeting to elect the voting members of a new Residents Committee, indicating the outcome of that election.

CHAPTER 6

GENERAL PROVISIONS

Role of South African Police Service

32. The South African Police Service as contemplated in the South African Police Service Act, 1995 (Act No. 68 of 1995), is responsible for providing protection, policing and security services at the parliamentary villages, which services include:

(a) access control in and out of the parliamentary villages;

(b) verification of the identity of residents and visitors entering the parliamentary villages;

(c) authorisation and permitting of residents and visitors;

(d) foot patrols utilising an animal for safeguarding and visible policing in and around the parliamentary villages;

(e) emergency response capability;

(f) investigation of reported crimes committed in the parliamentary villages and providing a written report thereon;

(g) crime intelligence threat analysis and monitoring; and

(h) registering criminal complaints made by the residents.

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Regulations

33. The Executive Authority may, after consultation with the Board and the Accounting Officer, make regulations regarding—

(a) the manner and form in which the Board must report to the Executive Authority;

(b) any further requirements and functions to be undertaken by the Board;

(c) the process for determining whether a breach of the rules contemplated in section 13(1)(*f*) has occurred;

(d) any matter that must be prescribed in this Act; and

(e) any other ancillary or incidental administrative or procedural matter that is necessary to prescribe for the proper implementation or administration of this Act.

Savings

34. (1) "**Parliamentary Villages Management Board**" in this section means the Parliamentary Villages Management Board established by the Parliamentary Villages Management Board Act, 1998 (Act No. 96 of 1998).

(2) Until the first meeting of the newly constituted Board established by this Act, the Parliamentary Villages Management Board, continues to function and any written or verbal agreement between the Department and Parliament, the Parliamentary Villages Management Board and Parliament, or the Parliamentary Villages Management Board and the Department, that was binding on the Parliamentary Villages Management Board immediately before the commencement of this Act, continues to be binding on that Board.

(3) Any action, decision or resolution taken by the Parliamentary Villages Management Board under—

(a) the Parliamentary Villages Management Board Act, 1998 (Act No. 96 of 1998), remain in force and are deemed to be decisions and resolutions taken by the newly constituted Board in terms of this Act; and

(b) this Act, are deemed to be decisions and resolutions taken by the newly constituted Board in terms of this Act.

(4) Any written or verbal agreement between the Department and Parliament related to the parliamentary villages, including maintenance, operations and allocation of accommodation, entered into before the commencement of this Act, continues to be binding and in force until terminated by Parliament.

Transitional arrangements

35. (1) **"Seventh Parliament"** in this section means the Parliament that was constituted following the elections held on 29 May 2024.

(2)(*a*) All contracts currently in effect between the Department and other parties relating to the parliamentary villages are deemed to be contracts entered into between the Accounting Officer of Parliament and the relevant party, and continue in effect until rescinded, revised or amended.

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(*b*) Either the Accounting Officer, or the other contracting party referred to in paragraph (*a*), may propose and negotiate amendments or may cancel the contract referred to in paragraph *(a)*, with two months' written notice, within 12 months of commencement of this Act.

(3) A person employed by the Department in a post relating to the management, maintenance or upkeep of a parliamentary village immediately before the commencement of this Act may elect to be transferred to the employ of Parliament, and if they so elect to be transferred, that transfer must comply with section 197 of the Labour Relations Act, 1995 (Act No. 66 of 1995).

(4)*(a)* Allocation of accommodation made during the Seventh Parliament before the commencement of section 5 is deemed to have been made in accordance with section 5 and remains a valid allocation during the Seventh Parliament until altered in terms of this Act.

(b) Notwithstanding section 5(2), the Executive Authority of the Seventh Parliament must establish a Housing Allocation Forum for the Seventh Parliament within 30 days of the commencement of section 5(2): Provided that the Housing Allocation Forum established during the term of the Seventh Parliament may only decide on new or further allocations to be made during the Seventh Parliament, or to consider disputes regarding allocations that arise in the Seventh Parliament.

(c) Any Housing Allocation Forum established during the term of the Seventh Parliament must consider the latest audit report undertaken in respect of the parliamentary villages, the Parliament Members' Facility Handbook and the number of persons requesting accommodation in the parliamentary villages for the remainder of the term of the Seventh Parliament, in order to determine any new or further allocations to be made available to each category of persons listed in section 4(4), or to consider disputes regarding allocations.

(5)(*a*) Lease agreements entered into between the residents of the parliamentary villages and the Department during the Seventh Parliament remain valid until such time that new lease agreements between the residents and the Accounting Officer have been entered into during this Seventh Parliamentary term.

(*b*)The Accounting Officer must provide each resident with a lease agreement on similar terms as those contemplated in paragraph (*a*), within 60 days of the commencement of this Act, and residents must, within 30 days of receipt of that lease agreement, enter into that lease agreement or vacate the residential unit.

(6)(*a*) Notwithstanding section 8(4)(*a*), the Accounting Officer must table the custodian immovable asset management plan and user immovable asset management plan within three months of the commencement of section 8.

(*b*) Notwithstanding section 8(4)(*b*), the Accounting Officer must submit the custodian immovable asset management plan and user immovable asset management plan to the National Treasury within four months of the commencement of section 8.

(7) In the event that section 23 commences during the term of the Seventh Parliament—

(*a*) the Accounting Officer must, within 30 days of the commencement of section 23, call a general meeting at each parliamentary village for the residents of that parliamentary village to elect the voting members of a Residents Committee to serve for the remainder

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of the Seventh Parliament; and

(*b*) the non-voting members of a Residents Committee must, within 30 days of the commencement of section 23, be appointed by the relevant authorities as contemplated in section 24(1)(*b*).

(8) In the event that section 14 commences during the term of the Seventh Parliament, the Executive Authority of that Parliament must, within 60 days of the commencement of section 14, appoint the members of the new Parliamentary Villages Management Board.

Repeal and amendment of laws

36. The laws specified in the Schedule are repealed or amended to the extent indicated in the fourth column thereof.

Short title and commencement

37. (1) This Act is called the Parliamentary Villages Act, 2026, and comes into operation on a date determined by the Executive Authority by proclamation in the *Gazette.*

(2) Different dates may be fixed under subsection (1) in respect of different provisions of this Act.

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SCHEDULE 1
REPEAL AND AMENDMENT OF LAWS: SECTION 36

Item No.	No. and year of law	Short Title	Extent of amendment or repeal
1.	Act No. 96 of 1998	Parliamentary Villages Management Board Act, 1998	**1.** Whole.
2.	Act No. 19 of 2007	Government Immovable Asset Management Act, 2007	**1.** The amendment of section 1— *(a)* by the substitution for the definition of "accounting officer" of the following definition: " '**accounting officer'** means, in relation to— *(a)* a national or a provincial department, a person mentioned in section 36 of the PFMA; and *(b)* Parliament, the Secretary to Parliament, and includes any person acting as the accounting officer;"; *(b)* by the insertion after the definition of "best value for money" of the following definition: " **'Constitution'** means the Constitution of the Republic of South Africa, 1996;"; *(c)* by the substitution for the definition of "custodian" of the following definition: " '**custodian**' means— *(a)* a national **[or provincial]** department referred to in section 4 represented by the Minister of such national department **[,]**; *(b)* a provincial department referred to in section 4 represented by the Premier of **[a]** such province or MEC of such provincial department, so designated by the Premier of that province; or *(c)* Parliament, represented by the Executive Authority of Parliament;";

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Item No.	No. and year of law	Short Title	Extent of amendment or repeal
			(d) by the insertion after the definition of "disposal" of the following definitions: " **'Executive Authority of Parliament'** means the Speaker of the National Assembly and the Chairperson of the National Council of Provinces, acting jointly; and **'FMPPLA'** means the Financial Management of Parliament and Provincial Legislatures Act, 2009 (Act No. 10 of 2009);"; *(e)* by the substitution for the definition of "organ of state" of the following definition: " '**organ of state**' means— *(a)* any department of state or administration contemplated in paragraph (*a*) of section 239 of the Constitution **[of the Republic of South Africa, of 1996]**, but excluding the department or administration in the local sphere of government; and *(b)* Parliament;"; *(f)* by the insertion after the definition of "organ of state" of the following definition: " **'Parliament'** means the National Assembly and the National Council of Provinces referred to in section 42(1) of the Constitution;"; *(g)* by the substitution for the definition of "strategic plan" of the following definition: " '**strategic plan**' means the strategic plan of a custodian or user as prescribed in terms of the Public Service Act, 1994 (Proclamation R103 of 1994 and the PFMA or in the case of Parliament, the strategic plan as prescribed in terms of the FMPPLA;"; and *(h)* by the substitution for the definition of "user" of the following definition:

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Item No.	No. and year of law	Short Title	Extent of amendment or repeal
			"'**user**' means Parliament, or a national or provincial department that uses or intends to use an immovable asset in support of its service delivery objectives and includes a custodian in relation to an immovable asset that it occupies or intends to occupy, represented by the Executive Authority of Parliament, the Minister of such national department, Premier of a province or MEC of such provincial department, so designated by the Premier of that province.". **2.** The amendment of section 3 by the substitution for paragraph (*c*) of the following paragraph: "(*c*) ensure coordination of the use of immovable assets with service delivery objects of a national or provincial department, or that of Parliament, and the efficient utilisation of immovable assets;". **3.** The amendment of section 4— *(a)* by the substitution in subsection (1) for the words preceding paragraph (*a*) of the following words: "The **[departments]** organs of state managed by the following **[executive organs of state]** office bearers within the national and provincial spheres of government are custodians:"; *(b)* by the substitution in subsection (1) for paragraph (*a*) of the following paragraph: "(*a*) The Minister, in relation to immovable assets that vest in national government, except in cases where custodial functions— (i) were assigned to other Ministers by virtue of legislation before the commencement of this Act; and (ii) are assigned to the Executive Authority of Parliament by virtue of legislation;"; *(c)* by the substitution in subsection (2)(*b*) for

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Item No.	No. and year of law	Short Title	Extent of amendment or repeal
			subparagraph (i) of the following subparagraph: "(i) in the case of a national department, or Parliament, acquire and manage an immovable asset as contemplated in section 13 and, subject to the State Land Disposal Act, 1961 (Act No. 48 of 1961), or any other Act regulating the disposal of state land, dispose of that immovable asset;"; *(d)* by the substitution in subsection (3) for the words preceding paragraph (*a*) of the following words: "The Executive Authority of Parliament, or Minister or MEC of a user is—"; and *(e)* by the substitution for subsection (4) of the following subsection: "(4) A custodian and user must settle any dispute between them in the manner contemplated in the Intergovernmental Relations Framework Act, 2005 (Act No. 13 of 2005), and where the custodian or user is Parliament, in accordance with the principles espoused by that Act.". **4.** The amendment of section 6 by the substitution in subsection (1) for the words preceding paragraph (*a*) of the following words: "Subject to this Act and as part of its strategic planning process contemplated in the Public Service Regulations, 2001, and in the case of Parliament, the strategic and budget planning process contemplated in the FMPPLA, the accounting officer of—;". **5.** The amendment of section 9— (*a*) by the substitution for subsection (1) of the following subsection: "(1) The accounting officer of a custodian must,— *(a)* on a date determined by the relevant

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Item No.	No. and year of law	Short Title	Extent of amendment or repeal
			treasury, submit a copy of its custodian immovable asset management plan to that treasury; or (*b*) in the case of Parliament, together with the submission of Parliament's budget in accordance with the process contemplated in section 17(1)(*a*) of the FMPPLA, submit a copy of its custodian immovable asset management plan to the National Treasury." and (*b*) by the substitution in subsection (2) for paragraph (*a*) of the following paragraph: "*(a)*(i) on a date determined by the relevant treasury, submit its user immovable asset management plan as part of its strategic plan to that treasury; or (ii) in the case of Parliament, together with the submission of Parliament's budget in accordance with the process contemplated in section 17(1)(*a*) of the FMPPLA, submit a copy of its user immovable asset management plan as part of its strategic plan to the National Treasury; and". **6.** The amendment of section 13 by the substitution in subsection (1) for paragraph *(b)* of the following paragraph: "(*b*)(i) submit the custodian immovable asset management plan to the relevant treasury as part of its strategic plan; or (ii) in the case of Parliament, together with the submission of Parliament's budget in accordance with the process contemplated in section 17(1)(*a*) of the FMPPLA, submit a copy of its custodian immovable asset management plan as part of its strategic plan to the National

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Item No.	No. and year of law	Short Title	Extent of amendment or repeal
			Treasury;". **7.** The amendment of section 18— *(a)* by the substitution for subsection (1) of the following subsection: "(1) The Executive Authority of Parliament, **[A]** a Minister, Premier or MEC referred to in section 4 may, in writing, assign any or all of his or her powers, duties and responsibilities as a custodian in terms of this Act to any organ of state."; and *(b)* by the substitution for subsection (3) of the following subsection: "(3) The Executive Authority of Parliament, Minister, Premier or MEC referred to in section 4 may, in writing, withdraw an assignment contemplated in subsection (1).". **8.** The amendment of section 19 by the insertion after subsection (1) of the following subsection: "(1A) Notwithstanding the provisions of the PFMA or the FMPPLA, the asset management guidelines issued by National Treasury in terms of the PFMA, contemplated in subsection (1)*(b)*, also apply to Parliament in respect of any immovable asset that Parliament is the custodian or user of.".

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MEMORANDUM ON THE OBJECTS OF THE PARLIAMENTARY VILLAGES BILL, 2026

1. INTRODUCTION AND BACKGROUND

The Parliamentary Villages Management Board Act, 1998 (Act No. 96 of 1998), regulates the Parliamentary Villages Management Board and aspects of the administration of the parliamentary villages. Over time, it has become necessary to comprehensively reform the legislative framework governing the parliamentary villages in order to clarify the legal status of the villages, regulate the categories of persons who may reside there, strengthen governance and oversight arrangements, and align the management of the villages with the constitutional and institutional framework applicable to Parliament.

The Parliamentary Villages Bill, 2026 (the "Bill"), therefore repeals the Parliamentary Villages Management Board Act, 1998, and introduces a new statutory framework.

2. OBJECTS OF BILL

The objects of the Bill are to repeal the Parliamentary Villages Management Board Act, 1998 (Act No. 96 of 1998); designate Parliament as the custodian and user of the parliamentary villages; regulate the maintenance, management and allocation of accommodation in the parliamentary villages; provide for the categories of persons who may reside in the parliamentary villages; establish and regulate the Parliamentary Villages Management Board and provide for its composition, powers and functions; provide for Residents' Committees in each parliamentary village and related governance mechanisms; amend the Government Immovable Asset Management Act, 2007 (Act No. 19 of 2007) ("GIAMA"), to give effect to the new custodial and user arrangements related to the parliamentary villages; and provide for matters connected therewith.

3. CONTENTS OF BILL

3.1 Clause 1 provides definitions for terms used in the Act.

3.2 Clause 2 provides for the interpretation of the Act, and states that where there is a conflict with the provisions of this Act and the GIAMA, the provisions of this Act apply.

3.3 Clause 3 sets out the objects of the Act which, inter alia, include ensuring the effective management and efficient maintenance of the parliamentary villages as a recognised strategic facility that forms part of Parliament's institutional infrastructure required for the optimal functioning, security and continuity of Parliament; providing for the effective management, alignment of control and efficient maintenance of the parliamentary villages as per GIAMA

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by designating Parliament as the custodian and user of the parliamentary villages; and to ensure the effective and efficient planning for, allocation of, and management of accommodation in the parliamentary villages are aligned with Parliament's constitutional mandate, oversight responsibilities and operational requirements.

3.4 Clause 4 describes where the parliamentary villages are situated, provide for the process to designate additional places of accommodation, and lists the categories of persons who may reside therein.

3.5 Clause 5 regulates the allocation of accommodation at the parliamentary villages by requiring the Accounting Officer to conduct an audit and inspection of all available accommodation at the end of a parliamentary term. It further provides for the establishment of a Housing Allocation Forum at the start of the next parliamentary term, which Forum must determine the number of residential units to be made available to each category of persons eligible to reside in the parliamentary villages. It also provides for the allocation of residential units.

3.6 Clause 6 provides for the responsibilities of residents at the parliamentary villages. It states that the residents must adhere to the rules established by the Parliamentary Villages Management Board ("Board") and provides that the Board has a right of recourse against any person or resident in whose name the accommodation has been allocated, in the event of a failure to comply with such rules. It also makes provision for a lease agreement to be entered into between the residents in whose name the accommodation has been allocated to and the Accounting Officer, and the payment of a rental amount.

3.7 Clause 7 provides for Parliament to be the custodian and user of the parliamentary villages in terms of section 4 of GIAMA. It further provides that Parliament must in accordance with GIAMA and the Financial Management of Parliament and Provincial Legislatures Act, 2009 (Act No. 10 of 2009) ("FMPPLA") effectively manage, efficiently maintain and reasonably improve the parliamentary villages. It also provides for disposal of surplus immovable assets.

3.8 Clause 8 regulates the role of the Accounting Officer in relation to the obligations of the custodian, which includes the preparation and submission of the custodian immovable asset management plan and the user immovable asset management plan in terms of section 7 and 8 of GIAMA. The Accounting Officer is also made responsible for the provision of transport services to residents.

3.9 Clause 9 provides for the financial governance of the parliamentary villages and stipulates that Parliament must be provided with such funds as are necessary for the maintenance of the parliamentary villages in compliance with GIAMA and for transport services by way of an Act of Parliament. It also provides for procurement and the provision of reports to the Board on such procurement and budget and expenditure related to the parliamentary villages. The

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clause also ring-fences rental amounts received by Parliament for maintenance, management or improvement of the parliamentary villages.

3.10 Clause 10 makes provision for the delegations of power and authority by the Accounting Officer.

3.11 Clause 11 establishes the Parliamentary Villages Management Board.

3.12 Clause 12 sets out the composition of the Board and provides that the voting members of the Board must elect a Chairperson and Deputy Chairperson from amongst themselves at the first meeting of the Board.

3.13 Clause 13 provides for the functions of the Board. These functions entail facilitating the effective management, efficient maintenance and reasonable improvements of the parliamentary villages by Parliament; facilitating the provision of transport services for the residents; facilitating, and taking the necessary steps to ensure, the security and safety of each parliamentary village and its residents; scrutinising quarterly reports and reporting any discrepancies or concerns; establishing the management and conduct rules for the parliamentary villages and determining sanctions in the event of a breach of rules; considering and informing the custodian immovable asset management plan and the user immovable asset management plan; submitting annual reports to the Executive Authority and advising the Accounting officer on the efficacy of this Act or any other matter related to the parliamentary villages that the Accounting Officer may request advice on.

3.14 Clause 14 regulates the appointment of the Board members by the Executive Authority. The appointment must occur within 60 days after the allocation of accommodation. It provides that each member's appointment must be formalised by letter and sets out the circumstances in which a person may not be appointed or elected as a member of the Board. It further provides for vacancies, including vacancies due a person appointed *nomine officio* being disqualified to be a member, and for filling of said vacancies.

3.15 Clause 15 provides that the term of office of the Board is linked to the parliamentary term.

3.16 Clause 16 regulates the resignation and removal of members of the Board.

3.17 Clause 17 provides that the Board must meet at least four times a year. It also provides for special meetings. Clause 17 further provides that any decision of the Board must be taken by resolution of the majority of members at a quorate meeting of the board. It also provides for a casting vote and the process to deal with a conflict of interest.

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3.18 Clause 18 provides that a meeting of the Board only begins once one third of the members of the Board are present and a quorum is fifty percent of its voting members, plus one. It further sets out processes to arrive at a decision if a quorum is not attained. It also lists the voting members of the Board.

3.19 Clause 19 states that the Board may establish subcommittees of the Board. It further provides for the logistics around these subcommittees.

3.20 Clause 20 provides the Board must submit an annual report to the Executive Authority. It also provides for additional reports and requests for information.

3.21 Clause 21 regulates the filling of vacancies on the Board.

3.22 Clause 22 provides for the dissolution of the Board and the appointment of an administrator to take over the functions of the Board until such time that a new Board is appointed.

3.23 Clause 23 provides for the election of a Residents Committee at each parliamentary village.

3.24 Clause 24 provides for the composition of a Residents Committee. The clause also lists who the voting and non-voting members are and also provides that they must nominate certain persons for appointment to the Board.

3.25 Clause 25 lists the various functions of a Residents Committee.

3.26 Clause 26 provides for the duration of membership of a Residents Committee.

3.27 Clause 27 provides for the resignation or removal of members of a Residents Committee.

3.28 Clause 28 states that a Residents Committee must meet at least every two months. The clause further states that a meeting of a Residents Committee may only begin once one third of its members are present.

3.29 Clause 29 provides that a decision of a Residents Committee may only be taken once a quorum of the voting members are present and that a quorum is fifty percent of the voting members, plus one.

3.30 Clause 30 regulates how vacancies on a Residents Committee should be filled.

3.31 Clause 31 provides for the dissolution of a Residents Committee and the process to be followed.

3.32 Clause 32 provides that the South African Police Service is responsible for providing protection, policing and security services at the parliamentary villages.

3.33 Clause 33 empowers the Executive Authority to make regulations.

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3.34 Clause 34 contains a savings provision to provide for the continued existence of the Parliamentary Villages Management Board established by the Parliamentary Villages Management Board Act, 1998 (Act No. 96 of 1998), until the first meeting of the newly constituted Board established by this Act. It further provides for the validity of actions, decisions and resolutions taken by the Parliamentary Villages Management Board under the Parliamentary Villages Management Board Act, 1998 (Act No. 96 of 1998), and this Act. It also provides that any written or verbal agreement between the Department and Parliament relating to the parliamentary villages entered into before the commencement of this Act, continue to be binding and in force until terminated by Parliament.

3.35 Clause 35 provides for transitional arrangements in relation to the status of contracts entered into before the commencement of this Act between the Minister and a service provider to the parliamentary villages. It also provides for the possible transfer of current employees of the Department doing work related to the management, maintenance or upkeep of a parliamentary village, to Parliament. It further provides that the allocation of accommodation made during the Seventh Parliament before the commencement of this Act, remains a valid allocation in the Seventh Parliament until altered in terms of this Act. Further provisions relate to the existing lease agreements; the timeframes within which the custodian immovable asset management plan and user immovable asset management plans must be submitted; the timeframes within which the Residents Committees must be elected, and the Board established, where those sections of the Act come into operation during the Seventh Parliament.

3.36 Clause 36 repeals and amends laws as set out in the Schedule to the Bill.

3.37 Clause 37 contains the short title of the Act and states that the Act will come into operation on a date determined by the Executive Authority. The clause also provides that different dates may be fixed in respect of different provisions of this Act.

4. ORGANISATIONAL AND PERSONNEL IMPLICATIONS

Additional parliamentary staff may be required to provide secretarial and administrative support to the Board and the Residents Committee. Current employees of the Department who manage and maintain the parliamentary villages may be transferred to Parliament.

5. FINANCIAL IMPLICATIONS FOR THE STATE

Significant financial implications are foreseen for Parliament, in relation to the management,

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maintenance and improvement of parliamentary villages. Provision is made for monies to be appropriated in this regard. The nett difference in financial implications for the State will however not significantly increase as these expenses are currently dealt with by monies appropriated to the Department of Public Works and Infrastructure. Only normal inflationary increases are foreseen.

6. DEPARTMENTS, BODIES OR PERSONS CONSULTED

The following stakeholders were consulted—

6.1 Department of Public Works and Infrastructure;
6.2 Members of Parliament;
6.3 Chief Whips Forum; and
6.4 The divisions responsible for support to Members in the Administration of Parliament.

7. PARLIAMENTARY PROCEDURE

7.1 The Committee proposes that the Bill must be dealt with in accordance with the procedure established by section 75 of the Constitution since it contains no provisions to which the procedures set out in section 74 or 76 of the Constitution apply.

7.2 The Committee is of the opinion that the Bill does not directly affect traditional or Khoi-San communities or contain any provisions pertaining to customary law or customs of traditional or Khoi-San communities. Furthermore, the Committee is of the view that the Bill does not contain any provisions pertaining to any matter referred to in section 154(2) of the Constitution. Therefore, the Committee is of the view that the Bill does not have to be referred to the National House of Traditional and Khoi-San Leaders in terms of section 39(1)(*a*) of the Traditional and Khoi-San Leadership Act, 2019 (Act No. 3 of 2019).

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DEPARTMENT OF PUBLIC WORKS AND INFRASTRUCTURE

NO. 7722 24 July 2026

cidb
Construction Industry Development Board

Standard for Uniformity in Construction Procurement

Draft Second edition

Standard for Uniformity in Construction Procurement

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Introduction

The Construction Industry Development Board (CIDB) has a mandate in terms of its founding Act (Act no 38 of 2000) to:

- determine and establish best practices that promotes procurement and delivery management reform and improved public sector delivery management; and
- promote best practices through the development and implementation of appropriate programmes and measures aimed at participants in the construction delivery process.

The construction industry comprises the broad conglomeration of industries which add value in the creation and maintenance of fixed assets within the built environment including building and engineering infrastructure. The way clients approach procurement in this industry has a major influence on how the industry behaves, performs, and ultimately delivers value in projects. For each individual project or group of projects, the client's procurement strategy and delivery management arrangements is what orchestrates the collaboration between design professionals, contractors, and subcontractors, ensuring that client requirements are met efficiently and effectively. Procurement processes not only bring together these various contributors but also establish the terms of engagement, defining the roles, responsibilities, and risks that bind the parties, with the aim of achieving value for money and optimizing project outcomes.

Projects and programmes associated with the development, extension, installation, repair, maintenance, renewal, removal, renovation, alteration, dismantling or demolition of a fixed asset including building and engineering infrastructure are delivered through a supply chain. Contracts bind the participants in the supply chain. The delivery of such projects embraces:

- a "buying" or client delivery management function focusing on client delivery management practices (plan, specify, procure and oversee delivery);
- a "supply" or delivery function focussing on the management and integration of the resources required to deliver the project.

The specificities relating to project delivery within the construction industry include:

- the need to simultaneously address the geography, site conditions, communities, physical environments, existing construction works, as well as a wide range of stakeholder requirements, client value propositions and project constraints;
- an ever-changing, complex environment, often with a high degree of known and unknown risks;
- the scale and complexity of projects require high-impact evidence-based decision making with material implications for cost and outcomes;
- the frequent one-of-a-kind product which is delivered on a particular site rather than mass-produced items delivered in a factory environment;
- the unique design of engineering infrastructure within a system of interdependent assets which invariably requires optimization within the environment within which it operates and alignment of interfaces with the operational characteristics and parameters of its components;
- the frequent integration of built environment professions and engineering disciplines and specialists in the design and delivery processes;
- the delivery of a project in phases, which provides an opportunity to review and refine the project design and implementation strategy, as well as to validate the investment intention;

- the industry being almost entirely based on a competitive market environment for project cost, schedule and performance delivery;
- the nature of the contracting construction businesses which are paid for work in progress and become a conduit for payment to those businesses who do the actual work;
- projects being delivered through multiple contracts where:
    - the individual pieces in a single project have no value without every other piece being successfully completed;
    - requirements (specifications), availability of resources (supply-side issues) and the context (how and why projects take place) can change between project inception and completion, particularly where there is an appreciable time between these milestones;
- the involvement of different combinations of funders, professionals, site conditions, materials and technologies and general contractors, specialist contractors, skills and workforces on each project;
- the development or utilization of land;
- the magnitude of individual transactions which can form a major portion of the annual turnover or the assets of organizations and stakeholders involved in the process;
- construction works, with a few exceptions, being acquired to support social and economic activities and, as such, forming inputs into broader projects, beyond the construction sector; and
- the buying or client function requires significant built environment professional capability throughout the process of conceptualisation, implementation and maintenance i.e., throughout the full life-cycle of a project.

The second edition of the CIDB Standard for Uniformity in Construction, which replaces the first edition which was first published in 2004 and last amended in 2015, expands the scope of the first edition to:

- embrace the delivery management function associated with project delivery within the construction industry and aligns it with the specificities of the construction industry;
- standardize processes and procedures for a procurement system as envisaged in the Public Procurement Act of 2024; and
- give effect to the call for government to be a sophisticated client and to make a step change in the planning, procurement and execution systems with capabilities to be operating at the highest global standard as articulated in the National Infrastructure Plan 2050 (NIP 2050) published in terms of the Infrastructure Development Act of 2014.

This standard must be implemented by all organs of state as defined in section 239 of the Constitution of the Republic of South Africa. Given that it is framed around national and international best practices it is suitable for implementation in the private sector in whole or part as a best practice as well as organisations operating in the public sector which are not organs of state.

Standard for Uniformity in Construction Procurement

1 Scope

1.1 This standard establishes requirements for a construction procurement system for:

a) the delivery of an organisation's construction works projects; and

b) the contracting of goods or services which add value in the creation and maintenance of construction works including professional services.

1.2 This standard provides:

a) uniform and standard processes, methods and procedures to perform procurement and delivery management functions in the delivery or maintenance of construction works;

b) generally applicable requirements for an organisation's procurement system as provided for in the Public Procurement Act of 2024;

c) control frameworks within which decisions may be made in relation to:

1) project delivery from project inception or the initiation of a contract to the close out of the project or contract; and

2) procurement tasks associated with the initiation of a procurement process, the preparation of procurement documents, the evaluation of submissions and the award and management of contracts;

d) a framework for the standardisation of procurement documents; and

e) ethical practices that regulate the actions, practices and procedures of those engaged in the procurement system for project delivery.

1.3 This standard:

a) includes the procurement of goods and / or services necessary for a new facility, structure or system as delivered to be used or occupied as a functional entity; and

b) excludes digital or analogue communication systems and petty cash purchases.

Note: Annex A provides guidance on the implementation of this standard.

2 Normative references

The following documents are referred to in the text in such a way that some or all their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

AACE International (2020a). Cost Estimate Classification System – as applied in Engineering, Procurement, and Construction for the Building and General Construction Industries. Recommended Practice No 56-R08

AACE International (2020b). Cost Estimate Classification System – as applied in Engineering, Procurement, and Construction for the Process Industries. Recommended Practice No 18R-97

CIDB Code of Conduct for all parties engaged in construction procurement as published by CIDB Notice No 127 in Gazette No. 25656 of 31 October 2003

Construction Industry Regulations issued in terms of the Construction Industry Development Board Act of 2000 (Act 38 of 2000)

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HM Treasury, Infrastructure and Projects Authority, Infrastructure Business Case: International Guidance

ISO 6082, Construction project governance — Guidance on delivery management

ISO 21502, Project, programme and portfolio management — Guidance on project management

SANS 10845-1/ ISO 10845-1, Construction procurement — Part 1: Processes, methods and procedures

SANS 10845-2/ ISO 10845-2:, Construction procurement — Part 2: Formatting and compilation of procurement documents

SANS 10845-3/ ISO 10845-3, Construction procurement — Part 3: Standard Conditions of Tender

SANS 10845-4/ ISO 10845-4, Construction procurement — Part 4: Standard Conditions for the Calling for Expressions of Interest

SANS 22058:2024 / ISO 22058:2022, Construction procurement — Guidance on strategy and tactics

SANS 55001 / ISO 55001, Asset Management — Management systems — Requirements

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

advance payment: sum of money paid to the contractor after the contract is signed but before work starts or goods or services or any combination thereof are supplied

agent: a person who is not an employee of an employer who engages in procurement activities on behalf of the employer

asset: completed construction works put into use or operations

asset management plan: documented information that specifies the activities, resources and timescales required for an individual asset, or a grouping of assets, to achieve the client's asset management objectives

authorised amount: the sum of money authorised by the governing body for a project or programme which may not be exceed without authorisation

benefit: created advantage, value or other positive effect

built environment professional: a person registered in one of the following professional category of registration:

a) professional architect or professional senior architectural technologist in terms of the Architectural Profession Act of 2000;

b) professional landscape architect or a professional landscape technologist in terms of the Landscape Architectural Profession of 2000;

c) a professional engineer, professional engineering technologist or professional engineering technician in terms of the Engineering Profession Act of 2000;

d) a professional construction project manager or professional construction manager in terms of the South African Council for the Project Management and Construction Management Council; or

e) a professional quantity surveyor in terms of the Quantity Surveying Professions Act.

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business case: a proposition that explains why a project or programme is necessary or a documented justification to support decision making about the commitment to a project

Note: A business case is a management tool for scoping, planning and evaluating that proposition

class estimate: a categorization of cost estimates into five classes based on their accuracy and project definition level

Note: AACE International publishes class estimate classification systems for various industries

client organisation: the organisation requiring construction works to support a business case or a service delivery mandate which approves the requirements for project delivery

client delivery management team: resources who, through coordinated actions, are responsible for performing the delivery management functions associated with project delivery

Note: A client delivery management team commonly comprises a client delivery manager, a technical team and an administrative team (see ISO 6082)

conflict of interest: a situation where business, financial, family, political or personal interests could interfere with the judgment of persons in carrying out their duties for an organization

Note: a conflict of interest includes any situation in which someone in a position of trust has competing professional or personal interests which make it difficult for them to fulfil their duties impartially, an individual or organization is in a position to exploit a professional or official capacity in some way for their personal or for corporate benefit, or incompatibility or contradictory interests exist between an employee and the organization which employs that employee

contingency sum: a sum of money budgeted for to cover required work that cannot be foreseen or predicted with certainty

contract data: document that identifies the applicable conditions of a contract and states the associated contract-specific data

contract management: application of the terms and conditions of a contract, monitoring of compliance with requirements, management of changes in requirements, determining corrective action and assessing adjustments to cost and schedule occasioned by risk events

contractor: person or body of persons that contracts to supply goods, carry out construction works, provide services or undertake disposals or any combination thereof;

Note: the use of the generic term "contractor" eliminates the need to introduce the terms "service provider" and "supplier" as it has been defined to cover these terms.

control budget: the amount of money which is allocated or made available to deliver or maintain construction works associated with a project, contract or order, including any site costs, professional fees, all service and planning charges, furniture, fittings and equipment, applicable taxes, risk allowances and provision for price adjustment for inflation

control framework: the organisation of activities and actions within a process into discrete tasks or stages which incorporate decision gates enabling informed decision-making relating to authorizations to proceed or confirming compliance with governance requirements

construction procurement: the acquisition of goods, services or any combination thereof in accordance with a procurement system envisaged in Section 24(3) the Public Procurement Act of 2024 aligned with the specificities of the construction industry

construction procurement policy: intensions and directions and accepted principles or instructions which state the client organisation's and / or procuring entity's expectations on what ought to be done and what is allowed or not allowed in implementing this standard

construction works: fixed assets including building and engineering infrastructure

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decision gate: a control point within a process where a decision is required from a person authorised to do so before proceeding to the next process, activity or task

delivery management: critical leadership role played by a knowledgeable client organisation to plan, specify, procure and oversee the delivery of construction works projects including knowledgeable leadership, consistent governance and systematic administration of procurement, contracts and project finances

demand management: co-ordinated activities, based on asset management plans and strategic planning processes, which forecast demand for new and functionality of existing construction works, and reduce, increase, delay or switch demand in response to resource constraints with forecasted consequences

emergency: an event which is unexpected and usually a dangerous situation that poses an immediate risk to health, life, human rights, property, financial loss, livestock, environment or the ability of the organization to maintain critical business functions and requires immediate action

employer: person or body of persons intending to or entering a contract with a contractor to supply goods, carry out construction works, provide services or undertake disposals or any combination thereof

Note: The employer can be the client organisation or the implementing agent

facility: physical structure or installation, including related site works

framework agreement: an agreement between an employer and a contractor, the purpose of which is to establish the terms governing orders to be awarded during a given period, in particular with regard to price and, where appropriate, the quantity envisaged

family member: a person's spouse, whether in a marriage or in a customary union according to indigenous law, domestic partner in a civil union, or child, parent, brother, sister, whether such a relationship results from birth, marriage or adoption

Five Case Model (5CM): a framework for the development and presentation of a business case, comprising the strategic, economic, commercial, financial and management cases – the five dimensions of the case

Note: The Infrastructure Business Case: International Guidance provides guidance on the 5CM which is aligned with the G20 Principles for the Infrastructure Project Preparation Phase

governing body: person or group of people who have ultimate accountability for a whole organization

Note: a governing body includes an accounting authority or an accounting officer as defined in section 1 of the Public Finance Management Act of 1999 and the municipal official referred to in section 60 or section 93 of the Municipal Finance Management Act of 2003 in relation to a municipality and a municipal entity

gratification: an inducement to perform an improper act

infrastructure: physical facilities or structures

maintenance: work undertaken to ensure the continuing performance of completed construction works and made available for use to achieve their expected useful lives in line with the asset management plan**order (call off):** instruction to supply goods, carry out construction works and/or provide services under a framework agreement

package: work which is grouped together for delivery under a single contract or an order issued in terms of a framework agreement

preferential procurement: procurement implemented in accordance with a procuring entity's preferential procurement policy which provides for categories of preference in the allocation of

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contracts and the protection or advancement of persons, or categories of persons, disadvantaged by unfair discrimination

procurement document: documentation used to initiate or conclude (or both) a contract or the issuing of an order (call off)

procurement strategy: selected packaging, contracting, pricing and targeting strategy and selection method for a particular procurement

procuring entity: the client organisation or the organisation which implements elements of a procurement system on behalf of the client organisation

professional services: services including design and consultancy services which are provided with the skill and care normally used by professionals providing services similar to the required service

programme: group of programme components managed in a coordinated way to realize benefits

project: an undertaking which maintains or creates construction works or a series of related construction works including professional services

project delivery: actions and activities associated with the creation or maintenance of construction works

project delivery management plan: a plan which, as a minimum, summarizes the asset management plan, provides a credible forecast of current and net demand for construction works or requirements for functionality and prioritizes projects against a forecasted budget over a number of years

project delivery team: individuals or entities who, through coordinated activities, are collectively responsible for producing project deliverables

project preparation: the actions necessary to ensure that a project is well conceptualised, aligned with client organisation's strategic objectives, is feasible and can be successfully implemented

respondent: person or body that submits an expression of interest in response to an invitation to do so

risk: exposure to the chance of loss, harm or failure to achieve objectives

social facilitation: a structured set of interventions and professional services aimed at mobilising, engaging, and integrating communities into the project delivery processes

stage: a collection of logically related activities in the project delivery cycle that culminates in a major deliverable

stakeholder: person, group or organisation that has interests in, or can affect, be affected by, or perceive itself to be affected by, any aspect of the project

structure: organized combination of connected parts designed to provide some measure of strength and rigidity

submission data: document that establishes the respondent's obligations in responding to a call for an expression of interest and the employer's undertakings in administering the process of calling for and receiving expressions of interest

tenderer: person or body that submits a tender offer

tender data: document that establishes the tenderer's obligations in submitting a tender and the employer's undertakings in administering the tender process and evaluating tender offers

variation: instructed alteration to the nature or the extent of the work as provided for in the contract, or to the conditions under which they will be carried out

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value for money: optimal use of resources to achieve intended outcomes

Note: optimal use of resources results in the most desirable possible outcomes given expressed or implied restrictions or constraints.

work package: the work defined at the lowest level of the work breakdown structure for which cost and duration are estimated and managed

4 System requirements

4.1 General principles

4.1.1 A client organisation requiring project delivery shall ensure that the system as implemented:

a) is fair, equitable, transparent, competitive and cost effective in accordance with the provisions of Table 1 and embrace a construction procurement policy providing for categories of preference in the allocation of contracts and the protection or advancement of persons, or categories of persons, disadvantaged by unfair discrimination as provided for in a framework prescribed by national legislation within which such a policy must be implemented;

b) promotes the efficient, effective and economic use of available resources in an accountable, ethical and development orientated manner; and

c) enables administrative action that is lawful, procedurally fair and reasonable.

Note: 4.1.1a), b) and c) capture the Constitutional imperatives included in Sections 217, 195 and 33 of the Constitution.

Table 1: Procurement system parameters

Parameter	Basic system requirement
Fair	The process of offer and acceptance is conducted impartially without bias and provides participating parties simultaneous and timely access to the same information. Terms and conditions for performing the work do not unfairly prejudice the interests of the parties.
Equitable	The process of offer and acceptance is reasonable, fair and just. The only grounds for not awarding a contract to a tenderer who complies with all requirements are restrictions from doing business with the procuring entity, lack of capability or capacity, legal impediments and conflicts of interest. Procurement is sustainable and has the most positive environmental, social and economic impacts possible.
Transparent	The procurement process and criteria upon which decisions are to be made are publicized. Decisions (award and intermediate) are made publicly available. Reasons for decisions are provided. It is possible to verify that criteria were applied. The requirements of procurement documents are presented in a clear, unambiguous, comprehensive and understandable manner.
Competitive	The system provides for: • open competition as the default procurement method. • a range of procurement methods which facilitate appropriate levels of competition within particular procurement contexts to ensure fair and cost-effective outcomes. Contracts are only concluded at market related prices
Cost-effective	The processes, procedures and methods are standardized with sufficient flexibility enabling best- value outcomes in respect of quality, timing and cost and least resources to effectively manage and control procurement processes. Decision making focusses on the attainment of value for money through the evaluation of relevant costs and benefits together with the assessment of risks.
Promotion of other objectives	The system may incorporate measures to promote objectives associated with a preferential procurement policy in accordance with the framework prescribed in national legislation subject to objectives being measurable, quantifiable and monitored for compliance.

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4.1.2 A governing body requiring project delivery shall, based on the provisions of this standard, develop its construction procurement policy including its preferential procurement policy aligned with applicable national legislation and its delivery capabilities and competencies. Such a policy must as a minimum address the issues identified in Annex A.

Note: This standard needs to be read in conjunction with an organisation's construction procurement policy. It establishes generic and uniform construction procurement system requirements in the form of rules, planning instruments, delegation frameworks which include decision gates, control sequencing and oversight mechanisms. Each organisation has its own governance arrangements, capabilities, capacities and needs for project delivery. It is therefore not possible to standardise the governance arrangement and use of options. At the same time, public sector procurement is in a state of transition in moving towards the implementation of the Public Procurement Act of 2024. As a result, variables such as the number of days are omitted from the text of the standard and need to be stated in a construction procurement policy. Annex A identifies what needs to be included or considered in a construction procurement policy.

4.2 Institutional arrangements

4.2.1 The procurement system established by a client organisation shall include:

a) an effective and efficient planning system which:

1) provides for the identification and analysis of the procurement needs of the organisation;

2) ensures that procurement needs support the strategic and operational commitments of the organisation; and

3) considers the total cost of owning an asset over its useful life from its acquisition to its disposal including its acquisition, operating, maintenance and disposal costs as well as indirect costs such as those associated with environmental and social impacts;

b) effective governance processes to ensure that:

1) there are proper management and control systems implemented for project delivery including demand management;

2) all the various parts of the organisation which play a role in project delivery work together in a coordinated, efficient and effective manner;

3) project delivery is, wherever possible, managed as a long term and strategic system of individual yet interlinked projects aimed at meeting the client organisation's objectives;

4) there is timeous decision-making and both individual and organisational accountability for project delivery;

5) single point accountability is assigned to a suitably qualified and experienced practitioner (client delivery manager) to provide executive level leadership in the planning, specifying, procuring and overseeing of project delivery;

6) control frameworks are established which include decision gates to enable risks to be appropriately and proactively managed and enable the delivery system to be audited;

7) there is a separation in duties from those:

i) accounting for the organisation's expenditure and those certifying payments in accordance with the provisions of a contract; and
ii) managing and accounting for the organisation's expenditure and those managing and accounting for project expenditure; and

8) procurement is recognized as a central competency of those responsible for project delivery; and

c) a suitable means for the tracking of the progress of projects, the monitoring of performance and at least quarterly reporting to the governance structures.

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Note: Client leadership (see Annex A) and governance are closely connected. Client governance processes should ensure that the client organisation takes ownership of the delivery of construction works projects. Annex A illustrates an appropriate allocation of roles and responsibilities whereby a client delivery manager has single point accountability for project delivery based on ISO 6082.

4.2.2 The client organisation shall appoint a client delivery management team comprising individuals or entities who through coordinated actions are responsible for performing the necessary delivery management functions associated with project delivery in accordance with the guidance provided in ISO 6082. Such a team shall include suitably experienced and qualified built environment professionals to provide advice and to support decision making from project inception to project completion.

4.2.3 Responsibility to perform functions of the client's delivery management team may be performed by internal resources (employees of the client organisation) or external resources (another organ of state or contracted individuals or entities on a full or part time basis). Contracted individuals and entities who function as members of the client delivery management team shall not provide services relating to the project delivery team save as otherwise approved by the procuring entity's governing body on good grounds.

Note: ISO 6082 provides guidance on the roles and responsibilities of those who support project delivery including the client delivery management team.

4.2.4 A client organization may appoint an organ of state (implementing agent) to perform functions associated with a procurement system on their behalf provided that an agency agreement is put in place assigning responsibilities and delegations. Such an agreement shall:

a) establish principles and requirements relating to the recovery of costs associated with the rendering of the service, claims for payments made on an agency basis including the release of retention sums, the settling of claims for payment and the documentation required to accompany such claims; and

b) contain as necessary:

1) overall aims, objectives and priorities;

2) governance structures;

3) reporting requirements;

4) the scope of the services to be performed by the implementer during each financial year;

5) the projects and packages which are included in a project delivery management plan and which are to be delivered, and the timeframes for doing so;

6) the roles and responsibilities of the parties to the agreement, including requirements for the engagement and management of stakeholders;

7) delegations to the implementer to accept end-of-stage deliverables on an agency basis;

8) contributing resources, including human resources; and

9) dispute resolution procedures.

4.3 Governance arrangements

4.3.1 Establishment of control frameworks

4.3.1.1 The client organisation shall put in place suitable control frameworks which are substantially similar to those established in terms of 4.3.2 to 4.3.5 and assign responsibility for decision making at control gates in its construction procurement policy. Additional decision gates may be added to the control framework to address organisational specificities.

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4.3.1.2 Decisions to proceed to the next stage at each decision gate shall be based on the acceptability or approval of the end-of-stage deliverable. The level of detail contained in such deliverables shall be sufficient to enable decision makers to make informed decisions whether to proceed to the next stage or task.

4.3.1.3 All relevant approvals and acceptances that are obtained shall be recorded on suitable templates and retained for record and potential audit purposes in a secure environment for a period of not less than the number of years stated in a construction procurement policy after such approval or acceptance.

4.3.2 Control framework for project preparation

4.3.2.1 Projects shall:

a) be identified through demand management and strategic planning processes (see 4.4 and Figure 1); and

b) following a decision being taken at Stage P0 to advance a project, be prepared for implementation through the project preparation control framework provided for in Figure 1 and Table 3 by:

1) process 1 - being admitted to portfolio planning processes (see 4.5.1 and 4.5.2) ; or

2) process 2 - having the early business case developed before a decision to proceed is made (see 4.3.2.2).

Table 3: Project preparation stages and associated deliverables

Stage	End of stage deliverable
PO Project initiation	An initiation report that outlines the high-level business case which the project seeks to meet with the estimated project cost and proposed schedule for a single project or a group of projects having a similar high-level scope which should as a minimum: • describe why the project is necessary and provide a rationale for the project • provide a project description and high-level scope of work; • outline key issues and solution options that were interrogated and the options that were evaluated; and • decision-making criteria, findings, assumptions and recommendations
P1 Project prioritization and scheduling	Project delivery management plan which identifies and prioritizes projects and work packages against a forecasted budget over a three-to-five-year horizon which should include for each project a high level scope, the proposed time schedule, the estimated total cost and annual budget requirement, the geographical location and any known encumbrances with the estimated time frames for their removal.
P2 Strategic resourcing	A procurement strategy for each project or work package in at least the first year of the project delivery management plan together with the structure and composition of the client delivery management team to oversee the implementation of such strategy
B1 Scoping	Early business case (first stage in developing a project's business case) which focuses primarily on the strategic and economic cases, establishing the 'strategic need' for the project, and a shortlist of options together with high-level costs, benefits and risks
B2 Planning stage leading to procurement	Intermediate Business Case (second, and most substantial, stage in developing the project's Five Case Model (5CM)) which focuses on the economic, commercial, financial and management cases, assesses the shortlist of options through cost benefit analysis to determine a 'preferred option', considers the affordability and commercial viability of the 'preferred option', and identifies the expected resources and management arrangements for the project.
B3 Delivery stage where the procurement leads to contracting	Full business case (third stage in developing a project's Five Case Model (5CM)) which focuses primarily on the procurement process, and updates the economic, commercial, financial and management cases to reflect the negotiated deal.

Draft for discussion

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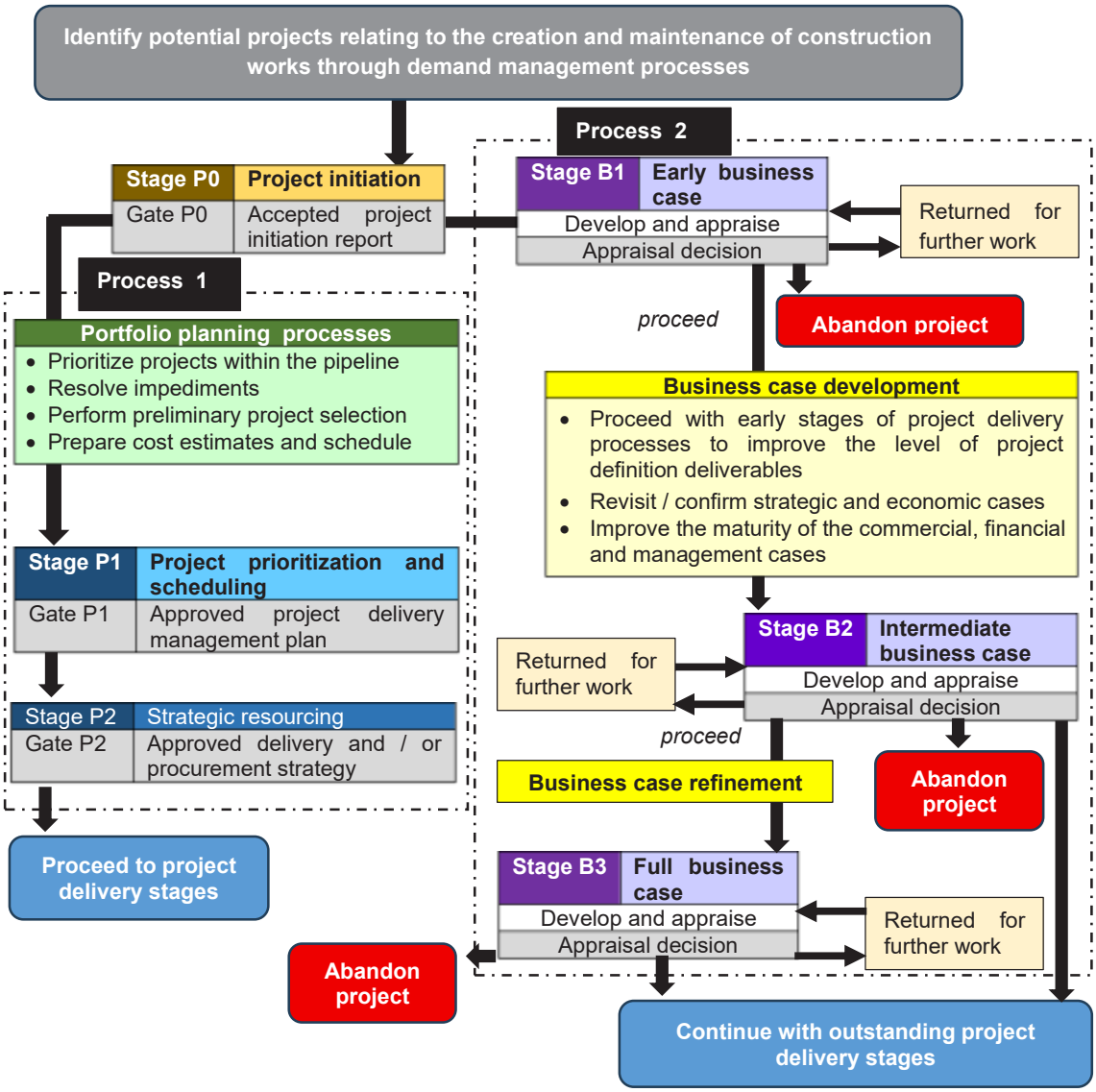


Figure 1: Control framework for project preparation

4.3.2.2 An early business case (process 2) shall be prepared in accordance with the Five Case Model (5CM) (Stage 1) following acceptance of Stage P0 and further refined through Stage B2 and, where necessary, Stage B3, should a project meet one of more of the following conditions:

a) the project or series of interrelated projects on a single site has an estimated cost above a threshold established in terms of legislation or a construction procurement policy;

b) there are several solutions available to satisfy needs and opportunities with significantly different financial and non-financial benefits and risks;

c) there is a need to demonstrate that capital investment and operating costs are affordable from public and/or private resources;

d) possible sources of finance, suitability of the project for green or climate financing, or affordability of options need to be considered including any expected income which the state may generate from the project;

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e) technological novelty such as first-of-a-kind technologies is central to the project;

f) project scope, organisational or stakeholder complexity is high; or

g) required by a construction procurement policy or legislation.

4.3.2.3 Early, intermediate and final business cases shall be developed in accordance with the Five Case Model (5CM) described in the HM Infrastructure and Project's Authority's Infrastructure Business Case: International Guidance as outlined in Table 4 and illustrated in Figure 2. An intermediate business case shall be prepared prior to proceeding with the procurement of a contractor. A full business case shall, if necessary, be developed following the receipt of tenders (see Table 3).

4.3.2.4 The project delivery management plan developed during the portfolio planning processes shall be updated at least annually and supplemented as necessary with periodic structured risk reviews.

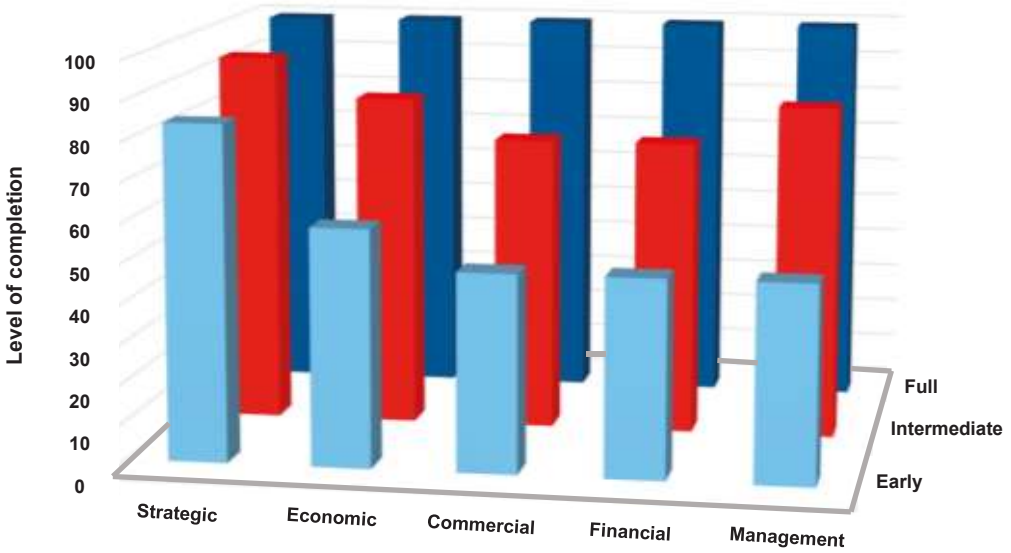


Figure 2: Illustration of the evolution of the full business case form the early business case

4.3.3 Control framework for project delivery

4.3.3.1 Projects shall be delivered within authorised amounts which are included in project delivery management plans (process 1 in Figure 1) or which are approved following the development of a business case (process 2 in Figure 1) when a decision is taken to implement a project. Any increase in the authorised amount must be approved by the governing body.

Note 1: A client organisation can include in the project delivery management plan authorised amounts to cover project preparation processes (process 1 and process 2) and project delivery processes to enable a project to progress to a stage when a decision can be taken to execute the project or not within an authorised amount (see Annex A).

Note 2: The authorised amounts included in the project delivery management plan for project preparation can apply to multiple projects grouped into programmes and need not be separately allocated to a particular project (see Annex A).

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Table 4: Five Case Model

Case	**Early business case** (Scoping stage)	**Intermediate business case** (Planning stage leading to procurement)	**Full business case** (Planning stage where the procurement leads to contracting)
Strategic Case (describes why the project is necessary)	Provides the rationale for the project, evidences the strategic fit, defines the project objectives and outlines the potential scope for the project	Revisits and confirms the project rationale, strategic fit, and objectives, and updates the potential scope accordingly	Confirms and updates as necessary the project rationale, strategic fit, objectives, and the agreed scope
Economic Case (determines how the project will deliver the economic, social, and environmental objectives while achieving the most value for money for society, or public value)	Appraises a range of possible option choices, refines these to a shortlist with high level estimates of costs and benefits and identifies a 'Preferred Approach'	Revisits the longlist of project options, subjects the shortlisted options to detailed cost benefit analysis based on values for Environmental Social Impact Assessments and technical studies and confirms the Preferred Option	Reconsiders and confirms the economic case options based on cost data received from tenderers together with associated whole-life costs.
Commercial Case (demonstrates that the project is commercially viable)	Gives initial thought to the potential commercial and procurement arrangements for the preferred approach.	Sets out the service requirements and outputs for the procurement, including potential arrangements for the allocation of risk between the contracting parties. Provides analysis of the associated charging arrangements and contractual arrangements for the potential deal between the public sector and supply side partners.	Sets out the agreed service requirements and outputs for the procurement. It describes the agreed charging arrangements and contractual arrangements for the deal between the public sector and appointed supplier(s).
Financial Case (demonstrates that capital investment and operating costs are affordable from public and/or private resources, and that sufficient allowance has been made for risk management, monitoring and unexpected events)	Provides indicative whole-life costs (capital plus operating costs) for the preferred approach and considers potential funding and financing options.	Provides best estimates of the whole-life costs (capital plus operating costs, including project contingency sums) for the preferred option, to test the affordability of the project and describes how the project will be funded and financed.	Provides agreed contract costs together with associated public sector costs and describes how the whole-life costs (capital plus operating costs, including project contingency sums) will be funded and financed, as agreed and expected.
Management Case (describes the project delivery team and demonstrates it has the right skills and experience, appropriate governance, and a realistic project delivery plan)	Gives initial thought to delivery arrangements, and the capacity and capability resources required for the preferred approach	Details the expected project management arrangements, including governance, roles and responsibilities, project implementation approach and required resources, and the assurance and evaluation plans	Reviews and finalizes the plans developed at the intermediate stage and show how they will be fit for purpose once the contract has been signed and the project moves into delivery

4.3.3.2 Projects shall be delivered through the project delivery control framework provided for in Figure 3 and Table 5 provided that:

a) where projects are processed through portfolio planning processes (process 1 in Figure 1),

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Stage 1 may only commence following the approval of the project delivery management plan in whole if the budgets are approved; and

b) Stage 1 may be omitted should an early business case have been prepared (process 2 in Figure 1) which incorporates the contents of the end of stage deliverable for Stage 1.

Note ISO 6082 provides guidance on the application of the project delivery control framework for building and construction projects.

Table 5: Stages associated with project delivery

Stage No (AACE class estimate)	**Building and construction projects**		**Process projects**	
	Name	**Typical description of end-of-stage deliverable**	**Name**	**Typical description of end-of-stage deliverable**
1 (class 5)	Preparation and briefing	A strategic brief that defines project objectives, needs, acceptance criteria and client organisation priorities and aspirations, and that sets out the basis for the development of the concept report for one or more work packages	Preliminary concept design (FEL1)	Feasible technical solutions identified, high-level design approaches outlined, block flow diagrams provided and preferred solution selected
2 (class 4)	Concept and viability	A concept report which establishes the detailed brief, scope, scale, form and control budget, and sets out the integrated concept for one or more work packages	Concept design (FEL2)	Conceptual engineering proposal developed which establish the initial project scope, the technical basis for the works including a process flow diagram and mass and energy balance for the adopted solution and "freezes" the out-put level scope
3 (class 3)	Design development	A design development report which develops in detail the approved concept to finalize the design and definition criteria, sets out the integrated design, and contains the cost plan and schedule for one or more work packages	Basic engineering design (FEL3)	Basic engineering package which includes the design philosophy including the process and instrumentation diagram, the detailed scope and "freezes" the design.
4 (Class 2)	Design documentation	Production information and manufacture, fabrication and construction information	Detailed engineering design	Completed detailed engineering design for execution
5	Works	Completed works which are capable of being occupied or used	Works	Completed works which are commissioned
6	Handover	Works which have been taken over by the user or owner complete with record information	Handover	Works which have been taken over by the user or owner complete with record information
7	Close out	Works with notified defects corrected, final account settled and the close out report issued	Package completion	Works with notified defects corrected, final account settled and the close out report issued

Note: FEL (Front-End Loading is also referred to as FEED (Front-End Engineering Design) or FEP (Front End Planning)

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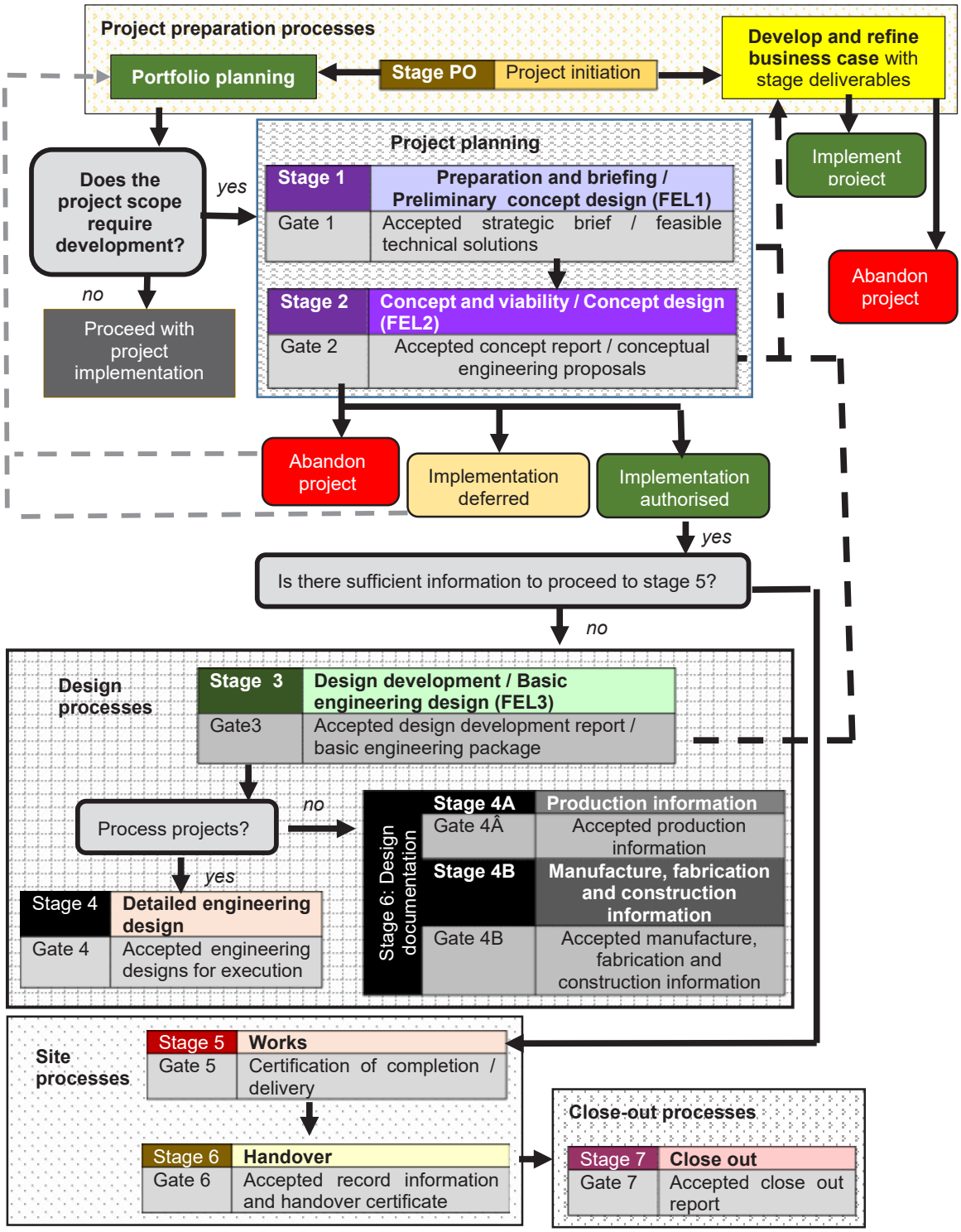


Figure 3: Control framework for project delivery

4.3.3.3 Stages 1 to 7 may be omitted where the project scope does not need to be developed. Stages 3 and 4 may be omitted following the conclusion of Stage 2 if there is sufficient information to proceed to Stage 5.

4.3.3.4 A stage shall only be complete when the deliverable has been approved or accepted by the

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person or persons designated in a construction procurement policy to do so. Activities within stages 4 to 6 may be undertaken in parallel or series, provided that each stage is completed in sequence.

4.3.3.5 The level of detail contained in a deliverable associated with the end of a stage shall in addition to being sufficient to enable informed decisions to be made:

a) be capable of being used to form the basis of the scope of work for a construction contract framed around the adopted procurement strategy should a contractor be appointed following the conclusion of Stages 2, 3 or 4;

b) enable a class 1, 2, 3 or 4 estimate to be made at Stages 1, 2, 3 and 4, respectively, in accordance with the provisions of the relevant AACE International cost estimation system.

Note: The AACE International cost estimation system links classes of estimates to the maturity of project definition deliverables linked to an expected range of accuracy as indicated in Annex A.

4.3.3.6 Procurement processes associated with long lead items of plant, equipment and materials may be initiated before the conclusion of stage 2 (concept and viability or feasibility). No contract may be entered into following such processes until stage 2 has been concluded and the budgets are in place to proceed.

4.3.3.7 Gateway reviews (assurance review point) may be initiated by a client organisation at any of the gates established or identified in Figure 3. Where a gateway review is performed, the procuring entity shall appoint a gateway review team comprising not less than three persons who are not involved in the project and who are familiar with various aspects of the subject matter of the deliverable at the end of the stage under review. The members of the team should, as relevant, have expertise in key technical areas, cost estimating, scheduling and implementation of similar projects and be led by a built environment professional. The independent assurance team shall develop an assessment report of the project which:

a) shows the team's confidence in the project's ability to meet its aims and objectives;

b) offers advice as to whether it has reached a sufficient stage of maturity to proceed to the next stage.

Note: Gateway reviews at the end of stage 2 in Figure 3 provides an effective means for moderating the planned project outcomes and identifying gaps and shortcomings in the information upon which a decision is made to proceed to implementation. Such a review can provide client organisations with the necessary confidence to proceed. ISO 6082 provides guidance on the conducting of gateway reviews.

4.3.3.8 The contents of the gateway review report shall be considered when accepting the end of stage deliverable. A stage deliverable should not be accepted until such time that all risks that pose a significant risk to the project have been addressed.

4.3.4 Control framework for initiating, creating and fulfilling contracts

4.3.4.1 Procurement shall, whenever a negotiated, competitive selection or competitive negotiations selection method is applied, be implemented in accordance with the processes included in Table 6 and the control framework indicated in Figure 4.

Note: SANS ISO 10845-1 provides guidance on the application of the control framework in Annexes D and E.

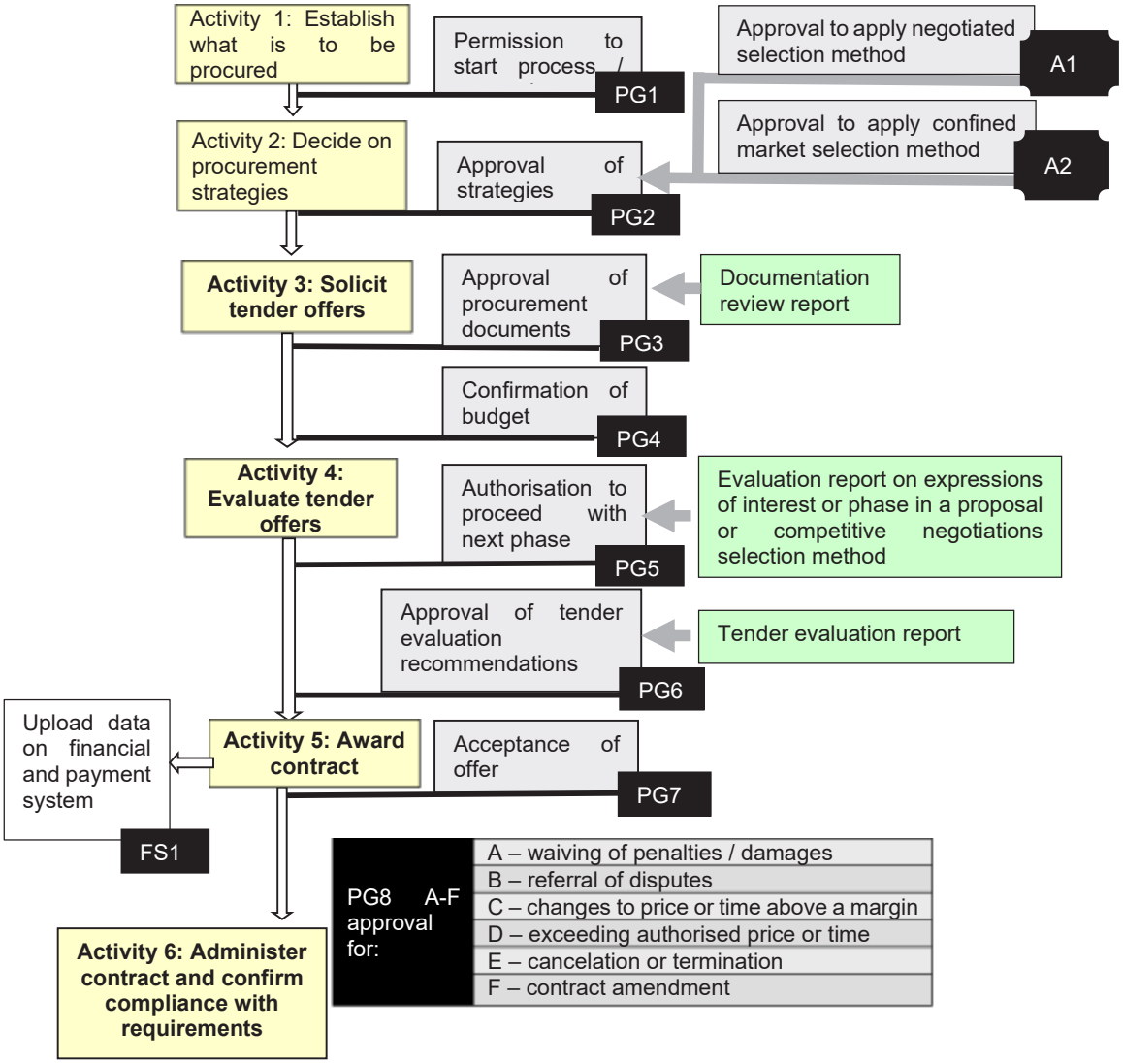
4.3.4.2 Notwithstanding the provisions of 4.2.4.1, where the contract value of the transaction is equal to or less than the prescribed threshold for quotations, the acceptance of an offer shall be based on the evaluation report prepared by the evaluation committee.

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Table 6: Principal actions and sub activities for initiating, creating and fulfilling contracts

Activity		Subactivity	
No.	**Description**		
1	Establish what is to be procured	1. Prepare broad scope of work for procurement	
		2. Estimate financial value of proposed procurement	
		3. Obtain permission to start with the procurement process (PG1)	
2	Decide on procurement strategies	1. Establish opportunities for promoting secondary procurement policies, if any	
		2. Establish contracting strategy	
		3. Establish targeting strategy	
		4. Establish selection method	
		5. Obtain approval for procurement strategies that are to be adopted (PG2)	
	Solicit tender offers	1. Prepare procurement documents	
		2. Obtain approval for procurement documents (PG3)	
		3. Confirm that budgets are in place (PG4)	
		4. Invite contractors to submit tender offers or expressions of interest	
		5. Receive submissions	
		6. Open and record submissions received	
4	Evaluate tender offers	Qualified, proposal or competitive negotiations selection methods only	1. Evaluate and prepare evaluation report on submissions received
			2. Obtain authorization to proceed with next phase of the procurement process (PG5)
			3. Invite tender offers from qualified respondents or selected tenderers
			4. Open and record submissions received and, if necessary, repeat 1 to 4 above
		5. Evaluate tender offers and prepare a tender evaluation report	
		6. Confirm recommendations contained in tender evaluation report (PG6)	
5	Award contract	1. Notify unsuccessful tenderers of the outcome	
		2. Compile contract document	
		3. Award contract (PG7)	
		4. Capture contract award data data (including provisions for contingency amount, escalation, and currency fluctuations)	
		5 Upload data in financial management and payment systems (FS1)	
6	Administer contracts and confirm compliance with requirements	1. Administer contract in accordance with the terms and provisions of the contract	
		2. Confirm compliance with requirements	
		3. Capture contract completion/ termination data	
		4. Obtain approval to waive penalties or low performance damages (PG8A)	
		5. Obtain approval to notify and refer a dispute to an adjudicator, or for final settlement to an arbitrator or court of law (PG8B)	
		6. Obtain approval to increase the total of prices, excluding contingency sums and price adjustment for inflation, or the time for completion at the award of a contract or the issuing of an order up to a specified percentage stated in a construction procurement policy (PG8C)	
		7. Obtain approval to exceed the total of prices, excluding contingency sums and price adjustment for inflation, or the time for completion at award of a contract or the issuing of an order by more than percentages stated in a construction procurement policy (PG8D)	
		8. Obtain approval to cancel or terminate a contract (PG8E)	
		9. Obtain approval to amend a contract (PG8F)	
		10 Close out the contract	

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Legend
PG1 to PG8 are procurement gates
A1 and A2 are approval gates for selection methods
FS1 is a form to capture the contract award data in the financial system for payment purposes

Figure 4: Control framework for initiating, creating and fulfilling contracts

4.3.4.3 Prior approval shall be obtained for the use of the negotiated and confined market selection methods from the person named in a construction procurement policy, unless:

a) these procedures are already provided for in the approved procurement strategy developed during stage P2 of the control framework for project preparation (see Figure 1); or

b) where a rapid response is required in an emergency which can be dealt with, or the risks relating thereto arrested, within 48 hours, and the person delegated authority in a construction procurement policy has granted approval to do so.

4.3.4.4 The governing body shall approve an increase in the total of prices excluding price adjustment for inflation and contingency sums at gate PG8D in Table 6 which exceeds a percentage

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stated in the organisation's construction procurement policy. The procuring entity shall record in their annual report any such increase which is occasioned by an expansion in the scope of work or a variation indicating the reasons associated therewith.

Note: The intention of the 4.3.3.4 is to curb the expansion or variation of the scope of work associated with a contract to avoid approaching the market for the additional / unplanned work. However, there are several reasons for the original value of a contract to be increased and the end date of a contract to be extended for reasons other than those relating to the expansion or variation of the scope of work. For example, any of the following contractual provisions if included in a contract can lead to cost and time increases:

a) price adjustment for inflation;
b) foreign currency fluctuations;
c) various risk events that materialise during the contract period which the contractor is not at risk;
d) changes in quantities;
e) exclusion of items which ought to have been included in the bill of quantities but for whatever reason were omitted;
f) correction of assumptions made regarding items which were identified but could not be fully priced at the time of tender e.g., specialist subcontracts; and
g) the application of a "pain and gain" (risk sharing) mechanism in target contracts.

4.3.5 Control framework for issuing orders in terms of framework agreements

Orders issued in terms of framework agreements shall be implemented in accordance with the processes included in Table 7 and the control framework indicated in Figure 5.

Table 7: Principal actions and sub activities for issuing an order under a framework agreement

Activity		Sub-activity	
#	Description		
1	Budget confirmation	**Confirm that budgets are in place (FG1)**	
2	Motivation for selecting a framework contractor	**1.** Prepare motivation for selecting a framework contractor where there is more than one framework agreement covering the same scope of work	
		2. Confirm justifiable reasons provided in motivation (FG2)	
3	Inviting quotations for an order	Competition not reopened amongst framework contractors	1a. Prepare draft order
			2a. Consult framework contractor and prepare draft priced order
			3a. Review the procurement document prior to the submission for approval
			4a. Obtain approval for procurement documents (FG 3)
		Competition reopened amongst framework contractors	1b. Prepare procurement documents
			2b. Review the procurement document prior to the submission for approval
			3b. Obtain approval for procurement documents (FG3a)
			4b. Invite all framework contractors having the same scope of work to submit quotations and receive submissions
			5b. Open and record submissions received
			6b. Evaluate and prepare draft evaluation report on submissions received
			7b. Approve evaluation report (FG3b)
4	Issue order	**Issue order to framework contractor (FG4)**	
5	Administer contract	Administer order and confirm compliance with requirements	

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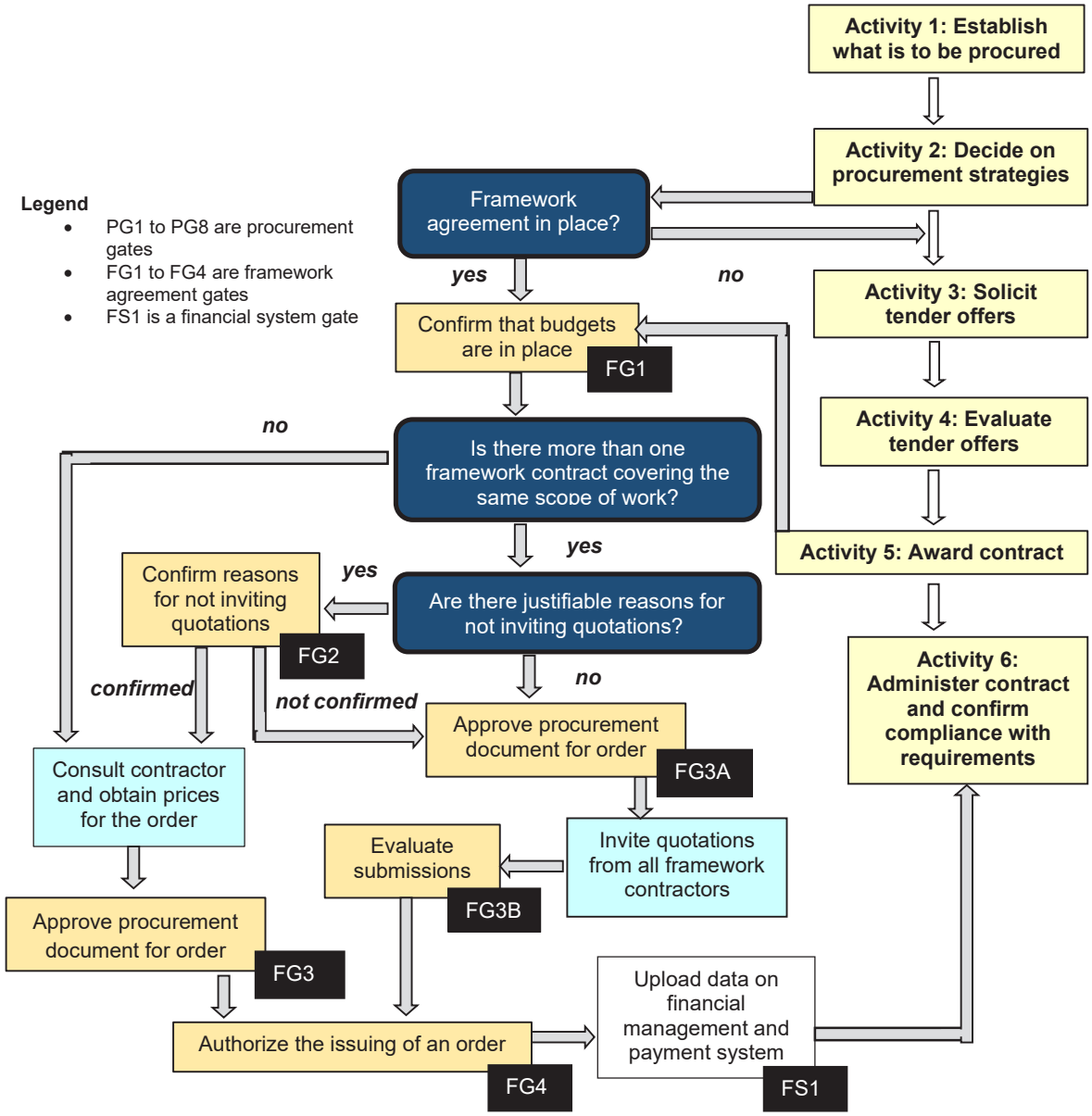


Figure 5: Control framework for issuing orders for framework agreements

4.4 Demand management

4.4.1 The demand for projects relating to the creation and maintenance of fixed assets within the built environment shall be identified through:

a) asset management activities based on an asset management system informed by SANS ISO 55001; and

b) strategic planning activities.

Note: Where there are significant constraints on available funding and resources, the nature and scope of projects and programmes should be reconfigured based on risk management considerations.

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4.4.2 Demand for projects established in 4.4.1 shall be:

a) managed through asset management plans which provide a credible forecast of current and net demand for or requirements for system functionality and associated life-cycle management projects of such assets over a period of not less than ten years and which are informed by:

1) the assessment of current performance against desired levels of service and functionality;

2) a needs analysis informed by factors such as policies, norms and standards, condition assessments, functional performance, demographic trends, current and forecasted levels of optimisation; and

3) cost estimates for the life cycle activities comprising acquisition, operations, maintenance, refurbishment, rehabilitation or alteration as relevant; and

b) based on the following principles:

1) construction works shall be used efficiently and when they become surplus to requirements and disposed of or repurposed if it does not support its service delivery objectives or the organization's strategic objectives at an efficient level and if it not in the organization's best interest to be upgraded to that level;

2) alternative service delivery methods or solutions that do not require infrastructure or reduce the demand for infrastructure such as maximising utilisation, improving efficiencies, reducing peak demand, repurposing, promoting alternatives and changing behaviour, shall be identified and considered to minimise the demand for infrastructure;

3) the cost of the construction works as well as operational and maintenance cost throughout its life cycle shall be considered when acquiring infrastructure;

4) construction works that are currently used shall be kept operational to function in a manner that supports safe use in accordance with legislative requirements within acceptable levels of reliability / non-availability; and

5) construction works shall be disposed of and / or decommissioned when:

i) no longer required or fails to provide best use of funds;

ii) is financially unsustainable; or

iii) other methods of delivering the service or outputs become more economical or environmentally acceptable to do so.

4.4.2 Goods which are required to maintain infrastructure, and which are issued to the client organisation's staff or are issued to contractors shall be delivered at the right price, time and place and of be of the right quality and compatible with existing components, elements and subsystems.

4.4.3 Demand for enhancements or additional construction works shall be proactively managed through project planning and contract management phases to:

a) resist insistent and peremptory requests for modifications and additions or statutory approvals; and

b) prevent scope creep, i.e. changes, continuous or uncontrolled growth in a project's scope.

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4.5 Procurement planning and budgeting

4.5.1 Project preparation

4.5.1.1 Potential projects relating to the creation or maintenance of construction works shall be identified through strategic planning and demand management processes. A project initiation report (see Table 3) shall be developed to inform the decision as to whether resources should be made available to further prepare projects prior to taking a decision to proceed with implementation.

4.5.1.2 All projects which are subjected to portfolio planning processes must be prioritized as relevant on a risk-based approach in terms of:

a) extent of impact;

b) benefits of the project;

c) urgency of the project;

c) potential consequences of not undertaking the work;

d) alignment with broader planning and strategic considerations including spatial planning strategies;

e) interdependencies with other projects;

f) affordability in terms of initial and whole-life costs; and

e) the resolution of impediments to their implementation such as those relating to land, planning, environmental, heritage and other legislative approvals and licencing.

4.5.2 Project prioritization and scheduling

4.5.2.1 A project delivery management plan which identifies and prioritises projects and work packages against a forecasted budget shall be developed over a 3 to 5 year horizon (see Annex B of ISO 6082) and updated preferably on a quarterly basis but at least annually.

4.5.2.2 An annual procurement plan of all planned procurement which is aligned to the budget of the organisation shall be developed, updated as necessary, and made available to procurement committees.

4.5.3 Procurement strategy

Procurement strategies shall be:

a) aimed at achieving value for money and cost-effective project outcomes, taking into account risks and organisational policy including social and environmental objectives, and

b) developed and documented in accordance with the provisions of SANS ISO 22058 except where business cases are developed in accordance with the provisions of the Five Case Model .

Note:

1) Value for money addresses the following four Es, namely economy (minimizing the cost of resources used to achieve a desired project outcome), effectiveness (extent to which planned project outcomes are realized or achieved), efficiency (resources used in relation to the results achieved) and equity (balanced and objective consideration of intergenerational, interregional and intra-societal ethics, including environmental protection, economic efficiency and social needs).

2) SANS ISO 22058 provides a framework for developing a procurement strategy framed around strategic considerations, procurement objectives, a spend, organisational, market and stakeholder analysis, packaging

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strategy, contracting strategy, targeting strategy and selection method. It also provides a standard format for documenting a procurement strategy.

3) SANS ISO 22058 provides a structured approach to deal with decisions and descriptions of procurement approaches. Rather than focusing on contracting methods, the distinguishing features of each have been identified in a way that leads to the answering of the six underlying questions which explain how any specific project is being procured, namely. source of funding, selection method, responsibility for design, responsibility for co-ordination, price basis and supply chain integration.

4.5.4 Budgets

4.5.4.1 Project budgets shall be realistic and based on cost estimates, reliable benchmarks, cost norms or elemental cost estimates which provide for all project costs including land costs, professional fees, furniture, fittings and equipment and contingency sums to cover costs which cannot be foreseen or predicted with certainty, price adjustment for inflation and exchange rate fluctuations.

4.5.4.2 Costs shall be proactively managed through the setting and proactive monitoring of control budgets for projects through the project planning, detailed design and site processes. Control budgets within authorised amounts shall be established for each project. Contingency amounts included in such budgets shall be managed at a project level and not at a contract level.

Note: Annex A provides guidance on managing multi-year construction works projects over a three year horizon. Annex E of SANS ISO 10845-1 provides guidance on managing contingency sums.

4.5.4.3 The budgets for multi-year projects may be appropriated to programmes rather than individual projects to allow for the management of cash flows within a financial year provided that expenditure for individual projects does not exceed the authorised amounts for projects (see Annex A).

4.5.5 Social facilitation

4.5.5.1 The procuring entity shall during the project preparation processes identify which projects require social facilitation to mitigate potential site-based disruptions and community conflicts that can hinder project delivery. Where necessary and appropriate, social facilitation identification should include:

a) stakeholder mapping and analysis which identifies all project stakeholders, documents their demographics and assesses their interest and influence;

b) community profiling and needs assessments to understand the unique needs of each community to inform project delivery and social facilitation responses;

c) the development and implementation of a community engagement and consultation plan to interface with the community throughout the project delivery life cycle, given the local context and dynamics

d) the development of a communication strategy to clearly communicate project benefits and to manage expectations;

e) the identification and implementation of strategies to provide for the participation of targeted enterprises and targeted labour in the execution of contracts and opportunities for skills development; and

f) the establishment of a conflict management and site security plan to proactively manage conflict in hostile environments , engage with law enforcement agencies and apply site disruption protocols.

4.5.5.2 Where social facilitation is necessary, the procuring entity shall develop and implement:

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a) site-level incident reporting protocols

b) escalation pathways to law enforcement; and

c) a system for monitoring and evaluating social facilitation processes and efforts and documenting lessons learned.

4.6 Acquisition management

4.6.1 Conducting of acquisition processes

4.6.1.1 Advertisements

4.6.1.1.1 An invitation for prospective respondents and tenderers to submit expressions of interest or tenders, respectively, shall be advertised in accordance with the requirements and time frames stated in a construction procurement policy.

4.6.1.2 Contacting of participants before the closing time for submissions

All communications with respondents and tenderers during the procurement process to obtain information and clarifications shall be made in writing through the employer's agent named in the submission or tender data. Records of all communications shall be retained for auditing purposes.

4.6.1.3 Receipt of tender submissions

4.6.1.3.1 Tenders may be submitted electronically in terms of a device satisfying the requirements of clause 4.7 of SANS ISO 10845-1 or deposited in a secure and dedicated tender box in accordance with a construction procurement policy.

4.6.1.3.2 Submissions shall be opened by an opening panel named in a construction procurement policy who have declared their interest or confirmed that they have no interest in the submissions that are to be opened.

4.6.1.3.3 The opening panel shall open the tenders received at tender box at the stipulated closing time. Electronic submissions may be opened only after the closing time for submissions.

4.6.1.3.4 The opening panel shall as relevant:

a) sort through the submissions and return those submissions to the box that are not yet due to be opened including those whose closing date has been extended;

b) returns submissions unopened and suitably annotated where submissions:

   1) are received late, unless otherwise permitted in terms of the submission data;

   2) were submitted by a method other than the stated method,

   3) were withdrawn in accordance with the procedures contained in SANS 10845-3; and

   4) only one tender submission is received and it is decided not to open it and to call for fresh tender submissions;

c) record in the register submissions that were returned unopened;

d) open submissions if received in sealed envelopes and annotated with the required particulars and read out the name of and record in the register the name of the tenderer or respondent and, if relevant, the total of prices including VAT where this is possible;

e) record in the register the name of any submissions that is returned with the reasons for doing so;

f) record the names of the tenderer's representatives that attend the public opening;

g) sign the entries into the register; and

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h) mark each returnable document in each tender submission.

4.6.1.3.5 Submissions shall be safeguarded from the time of receipt until the conclusion of the procurement process.

4.6.1.4 Publication of submissions received and the award of contracts

4.6.1.4.1 Within the number of days of the closure of any advertised call for an expression of interest or an invitation to tender stated in a construction procurement policy, the names of all respondents or tenderers that made submissions to that advertisement, and if practical or applicable, the total of the prices and the preferences claimed, shall be published on the procuring entity's website. Such information should remain on the website for at least 30 days.

4.6.1.4.2 The following shall as a minimum be published on the procuring entity's website within the number of days of the award of a contract stated in a construction procurement policy:

a) the contract number and title;

b) the total of the prices, if practical;

c) the names of successful tenderers; and

d) the duration of the contract.

4.6.1.4.3 The award of contracts and orders in terms of a framework agreement relating to construction works which are subject to the Construction Industry Development Regulations issued in terms of the Construction Industry Development Act of 2000 shall in addition to the requirements of 4.6.1.4.2 be notified on the CIDB website. The notification shall be placed by the person named in a construction procurement policy.

4.6.1.5 Notification of award

The person named in a construction procurement policy shall ensure that the outcome of the tender process is communicated to all participants under his or her signature. Any communication to the recommended tenderer notifying them of their preferred tenderer status shall stipulate that no contract and / or contractual obligation of any kind whatsoever exists until such time as a formal written contract is concluded and entered into.

4.6.2 Committee system

4.6.2.1 General

4.6.2.1.1 A committee system comprising a procurement documentation committee, evaluation committee and tender committee shall be applied to all selection methods where the estimated value of the procurement exceeds the value stipulated in a construction procurement policy for the quotation procedure. A construction procurement policy shall establish requirements for the quotation procedure.

4.6.2.1.2 The membership of the committees referred to in 4.6.2.1.1 shall be drawn from employees of the procuring entity as set out in a construction procurement policy. Persons appointed as technical advisors and subject matter experts who are not employees of the procuring entity may attend any committee meeting but not participate in the decision-making proceedings.

4.6.2.1.3 No person who has a conflict of interest shall be appointed to a committee. No person who is a member of the documentation committee or the evaluation committee may serve on tender committee but may participate as a technical advisor or subject matter expert. The person authorised to take a decision on the award of a contractor may not serve on any of the three committees.

4.6.2.1.4 Committee decisions shall be:

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a) as far as possible based on the consensus principle, namely the general agreement characterized by the lack of sustained opposition to substantial issues; and

b) recorded in writing on an appropriate standard template and retained for a period stated in 4.3.1.3.

4.6.2.1.5 Committees shall make decisions at meetings or, subject to the committee chairperson's approval, on the basis of responses to documents circulated to committee members provided that not less than sixty percent of the members are present or respond to the request for responses.

4.6.2.1.6 No member of, technical adviser or subject matter expert who participates in the work of the any of the procurement committees or a family member or associate of such a member, shall be permitted to tender for any work associated with the tender which is considered by these committees.

4.6.2.2 Approval of procurement documents

4.6.2.2.1 A procurement documentation committee shall approve procurement documents before they are issued to the market in terms of a competitive or competitive negotiation selection method, are finalised in the negotiated selection method or issued to framework contractors. Such approval should take place following the review of the procurement documents in the case of a project by a documentation review team.

4.6.2.2.2 The procurement documentation committee shall when approving a procurement document:

a) consider the contents of the documentation review report (see 4.6.2.2.3 to 4.6.2.2.6);

b) confirm that the procurement documents are fair, transparent and equitable and are likely to result in a cost-effective procurement outcome; and

c) confirm the following as relevant:

1) the proposed eligibility criteria do not unfairly eliminate tenderers from consideration;

2) compulsory clarification meetings are justifiable in the context of the procurement;

3) the weightings, if any, included in the evaluation of submissions are reasonable;

4) the quality criteria and any weightings between sub-criteria which are to be scored in the evaluation of tenders are fair and reasonable and are justifiable in terms of procurement outcomes, and

5) the provisions for applying preferential procurement are feasible and are likely to result in the tendering of market related prices.

4.6.2.2.3 The review of procurement documents associated with the negotiation, competitive selection or competitive negotiation procedure should confirm that:

a) the procurement documents have been formatted and compiled in accordance with the requirements of this standard and a construction procurement policy and are aligned with the approved procurement strategy;

b) appropriate prompts for judgement are included in accordance with the requirements of this standard whenever quality is evaluated and scored in the evaluation of calls for expressions of interest or tender offers;

c) the selected form of contract is in accordance with the requirements of this standard and the construction procurement policy and any organizational standard templates have been correctly applied;

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d) the selected submission data in the case of a call for an expression of interest, or tender data and contract data options in the case of a draft contract, are likely to yield best value outcomes;

e) the scope of work adequately establishes what is required and the constraints to the way in which the contract work is to be provided, and satisfies the drafting requirements of this standard;

f) the submission or returnable documents are necessary and will enable submissions to be evaluated fairly and efficiently, and

g) the risk allocations in the contract and pricing data are appropriate.

4.6.2.2.4 The review of procurement documentation associated with the issuing of an order needs to confirm that

a) any standard organizational templates have been correctly applied;

b) the scope of work adequately establishes what is required and the constraints to the way the contract work is to be provided;

c) the provisions for competition amongst framework contractors, if relevant, and the selected options are likely to yield best value outcomes; and

d) the risk allocations are appropriate.

4.6.2.2.5 One or more built environment professionals shall be appointed in the case of a project to review the procurement documents and to develop a procurement documentation review report.

4.6.2.2.6 The documentation review report needs to:

a) list the name(s) and qualifications of person(s) that undertook the review;

b) confirm that the documents are in accordance with the requirements of this standard;

c) identify sections, if any, which require amendments or improvements;

d) capture any comments or opinions which the reviewer(s) may wish to express; and

e) make recommendations whether the document be accepted with or without modifications.

4.6.2.3 Evaluation of tenders and submissions

4.6.2.3.1 An evaluation committee shall:

a) finalize evaluation reports prepared in accordance with 4.6.2.3.2 to 4.6.2.3.5 and address any areas in the report should a report be referred back to the committee by the tender committee;

b) authorize admission to an electronic data base and the proceeding with the next phase of a procurement process in the qualified and two-stage competitive and the restricted and open competitive negotiation selection methods following the:

   i) confirmation that the evaluation report is complete and addresses all considerations necessary to make a decision,

   ii) confirmation of the validity and reasonableness of reasons provided for the elimination of tenderers or respondents, and

   iii) the identification and consideration of any risks that have been overlooked which warrant investigation prior to taking a final decision.

4.6.2.3.2 Submissions shall be evaluated strictly in accordance with:

a) the approved procurement documents and any addenda relating thereto; and

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b) the processes set out in Annex C of SANS ISO 10845-4 in the case of expressions of interest; and Annex C of SANS ISO 10845-3 in the case of tender offers.

4.6.2.3.3 Evaluation reports shall be prepared in accordance with the content headings and relevant guidelines contained in:

a) Annex D of SANS ISO 10845-4 in the case of an expression of interest; or

b) Annex E of SANS ISO 10845-3 in the case of tender offers, with modifications as necessary where a two-envelope, two-stage process or competitive negotiation selection method is followed or competition is reopened amongst those having framework agreements covering the same scope of work.

4.6.2.3.4 The reports referred to in subclause 4.6.2.3.2 shall:

a) contain extracts from the procurement documents which are linked to the evaluation of submissions, such as eligibility criteria, criteria associated with evaluation methods, preferencing, quality criteria (including prompts for judgement), the method by which tenders are reduced to a common base and lists of returnable documents to enable those tasked with making decisions based on these documents to do so without having to refer back to submissions to understand the content of the report; and

b) include in annexures the evaluation reports of any prior processes, e.g. a call for an expression of interest, a round in a competitive negotiation procedure or a stage in a competitive selection procedure.

4.6.2.3.5 The evaluation report shall be prepared by one or more persons who are conversant with the nature and subject matter of the procurement documents. Where the procurement relates to a project, the evaluation report shall be prepared by a person registered in the categories of professional registration identified in 4.6.1.2.2**.**

4.6.2.3.6 Where quality is evaluated, at least three persons who are conversant with the nature and subject matter of the procurement documents and are built environment professionals shall undertake such an evaluation. Quality shall be scored by each evaluator separately in terms of the prompts for judgement, with fixed scores assigned to each prompt preferably with notes to substantiate the score. The evaluators may discuss and moderate scores where there is a significant difference in a score between evaluators for a criteria prior to the scores being averaged. Such individual evaluation documents shall be placed on file as an audit trail and may form the basis of any contractor debriefing that takes place.

4.6.2.3.7 An evaluation report covering the application of the negotiated procedure for the award of a contract or the issuing of an order, shall specifically confirm that the negotiated amounts are market-related and represent value for money. Where the total of the prices associated with a target cost contract is negotiated, the total of prices shall be certified as being fair and reasonable (market related). Confirmations and certifications shall be made by a professional quantity surveyor registered in terms of the Quantity Surveying Profession Act of 2000 or a professional engineer or a professional engineering technologist registered in terms of the Engineering Profession Act of 2000.

4.6.2.4 Recommendation for the award of a contract

4.6.2.4.1 The tender committee should

a) consider the report and recommendations of the evaluation committee and

1) verify that the procurement process which was followed complies with the provisions of this policy;

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2) confirm that the report is complete and addresses all considerations necessary to make a recommendation;

3) confirm the validity and reasonableness of reasons provided for the elimination of tenderers; and

4) consider risks indicated in the report and identify any risks that have been overlooked or fall outside of the scope of the report which warrant investigation prior to taking a final decision; and

b) refer the report back to the evaluation committee for their reconsideration together with their reasons for doing so or make a recommendation to the authorized person on the award of a tender, with or without conditions, together with reasons for such recommendation.

Note: The tender committee should rely on the documented evaluation report prepared by the evaluation committee to reach a decision.

4.6.2.5 Award of contracts and issuing of orders

4.6.2.5.1 The persons authorised in a construction procurement policy to award a contract shall, if the value of the contract is within his or her delegation, consider the report(s) and recommendations of the tender committee, or in the case of the awards for contracts below the quotation procedure threshold, the recommendation of the evaluation report and either:

a) award the contract after confirming that the report is complete and addresses all considerations necessary to make a recommendation and budgetary provisions are in place; or

b) decide not to proceed or to start afresh with the process.

4.6.2.5.2 The award of a construction contract shall be notified on the CIDB website in accordance with the provisions of the Construction Industry Development Regulations.

4.6.2.6 Issuing of an order

4.6.2.6.1 The persons authorised in a construction procurement policy to issue an order, should, if the value of an order issued in terms of a framework contract is within his or her delegation either:

a) decide not to proceed or to start afresh with the process, or

b) authorize the issuing of an order after

1) confirming that the required goods or services, or any combination thereof, are within the scope of work associated with the relevant framework contract, and

2) considering the recommendations of the evaluation report where competition amongst framework contractors takes place or a significant proportion of the total of the prices is negotiated, based on the financial parameter contained in the framework contract, and either confirm the reasonableness of such recommendations and sign the acceptance of the order, or refer the evaluation report and recommendation back to those who prepared it.

4.6.2.6.2 The issuing of an order shall be notified on the CIDB website in accordance with the provisions of the Construction Industry Development Regulations.

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4.6.3 Unsolicited proposals

A procuring entity may consider unsolicited offers received outside a normal procurement process but may consider such an offer only if:

a) the goods, services or any combination thereof that is offered is a demonstrably or proven unique innovative concept;

b) proof of ownership of design, manufacturing, intellectual property, copyright or any other proprietary right of ownership or entitlement is vested in the person who made the offer; and

c) the offer presents a value proposition which demonstrates a clear, measurable and foreseeable benefit for the client organisation;

d) the procuring entity's governing body finds the reasons for not going through the normal tender processes to be sound.

4.6.4 Emergency procurement

The procuring entity shall incorporate in their construction procurement policy emergency procurement procedures based on the recommended methods aligned with different types of emergencies as indicated in Table 8.

Table 8: Recommended emergency procurement procedures

Category of emergency		**Recommended method to acquire resources**
Type	**Description**	
I Localised failure	**Localised failures** which can readily be remedied within 48 hours.	• Negotiation procedure (see 4.3.4.3b)) • Issuing of orders in terms of a framework agreement
II Localised reconstruction	**Localised reconstruction** of an element or component	• Nominated procedure • Issuing of orders in terms of a framework agreement • Qualified procedure
III Widespread failure	**Widespread failure** commonly associated with an extreme event which requires extensive reconstruction	• Issuing of orders in terms of a framework agreement • Qualified procedure

4.7 Contract management and assessment of projects against outcomes

4.7.1 Oversight requirements

4.7.1.1 The client delivery manager shall, appropriate to the adopted procurement strategy for the delivery of new or altered, refurbished or rehabilitated infrastructure (see SANS ISO 22058), ensure that there is a level of expertise and resources that are available to ensure that:

a) contracts are entered into as an informed client organisation;

b) due diligence is undertaken at an appropriate level to confirm that the requirement of a contract is delivered in accordance with the terms of that contract; and

c) an appropriate level of independent scrutiny is undertaken in relation to all aspects of design and construction or installation that are in effect largely or partly self-certified by those producing them.

4.7.1.2 The client delivery manager shall ensure that financial data is gathered to enable a financial report to be generated at regular intervals (see 4.12 and Annex A).

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4.7.1.3 The client delivery manager shall ensure that an implementation plan is produced, for all projects for which he or she is responsible, to enable a project delivery management plan to be implemented incrementally. Implementation plans shall be prepared or updated prior to the start of a financial year which should indicate the information indicated in Table 9 (see ISO 6082). The client delivery manager shall update the implementation plan at least quarterly.

Table 9: Content of implementation plan

Suggested heading		Content
No	**Title**	
1	Programme / project objectives	An overview of the programme / project and identified objectives
2	Scope, budget and schedule	In respect of each project, contract or work package for the financial year under consideration: • outline of the scope, • the authorised expenditure, broken down into financial years • the control budget for each project, broken down into financial years • the overarching control budget and authorised expenditure for each financial year • proposed / actual start and end date for the project
3	Key success factors and Key Performance Indicators	Key success factors and the key performance indicators which should be measured, monitored and evaluated
4	Outline of procurement strategy	Procurement strategy in summary form for each project or order issued in terms of a framework contract, i.e. • The selected option to engage the market (if applicable) - design strategy and interface management strategy • Packaging strategy - framework / non-framework • Contracting strategy – contract type, standard form of contract and procurement strategy • Targeting strategy • Selection method
5	Time management plan	A time management plan for each project in the form of a Gantt Chart for the financial year under consideration, i.e. the baseline against which progress towards the attainment of milestone (key deliverables) target dates can be measured.
6	Projected budget and cash flow	The projected budget and cash flows for the financial year under consideration and subsequent financial years, which will enable planned and actual expenditure to be compared and revisions to the budget to be approved, and multiple project budgets to be managed
7	Procurement plan	The timeline for the financial year under consideration for advertising and closing of tenders and the obtaining of gate approvals leading up to • the award of the contract including information such as: - Tender number, title, broad scope of work - Estimated total of the prices for the contract / order - Proposed dates for approvals (see ISO 10845-1) • the issuing of an order in terms of a framework agreement including information (see ISO 10845-1)
8	Major risks	The identification of major risks and how such risks are to be mitigated or managed
9	Health, safety and environmental and socio-economic risks	An outline of the controls and measures which will address health, safety, socio-economic or environmental risks
10	Quality plan	An indication as to how quality requirements and expectations are to be met and managed
11	Communication plan	A communication plan which determines the lines of communication and the key activities associated therewith
12	Allocation of resources	An indication of the assigned internal and external resources with implementation responsibilities

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4.7.1.4 The client delivery manager shall establish an annual control budget for all projects for which he or she is responsible for delivering in a financial year as well as for each individual project (see Annex A). Such a budget shall include all costs associated with the delivery of a work package including professional fees, furniture, fittings and equipment and make provision for contingency sums and price adjustment for inflation.

4.7.1.5 The client delivery management team shall monitor and measure performance against agreed plans, including authorized changes, in accordance with the practices established in ISO 21502.

4.7.2 Duties of a contract manager

4.7.2.1 A contract manager, who may or may not be a member of the procuring entity's staff, shall be responsible for applying the terms and conditions of a contract, including the agreed procedures for the management thereof, subject to any constraints that may be imposed by the procuring entity.

4.7.2.2 The contract manager, shall

a) act as stated in the contract as the agent of the employer, subject to any constraints that may be imposed by the procuring entity in terms of its construction procurement policy;

b) timeously obtain approvals at procurement gates for taking actions to increase the total of the prices or time for completion when administering contract or order issued in terms of a framework agreement so that the work is not disrupted while approvals are being sought (see Procurement Gates 8A to 8F in Figure 4 and Table 6);

c) promptly provide all information for a contract or order required to populate and maintain registers for governance purposes including:

   1) the agreed time for completion or delivery at the start of the contract or order and any changes to such times made in accordance with the provisions of the contract;

   2) an initial and a revised cash flow forecast;

   3) the agreed and forecasted total of prices;

   4) where applicable, the estimated price adjustment for inflation; and

   5) final delay damages and retention amounts;

   d) manage the interface between the contractor and those responsible for providing client organisation inputs;

   e) develop and maintain a contract risk register;

   f) provide a monthly report on events which, in terms of the contract, cause the total of prices to increase or the contract completion date to be changed;

   g) report monthly on specific key performance indicators required by a procuring entity, funder or in terms of legislation;

   h) immediately notify the client delivery manager of any health and safety events that impact on the work undertaken in terms of the contract;

   i) provide the client delivery manager with adequate notice of the anticipated date of completion of a part or the whole of the works so that the necessary handover arrangements with the client organisation or end user may be made; and

   j) ensure that the necessary CIDB best practice assessment scheme reports are developed in accordance with the provisions of the Construction Industry Development Regulations;

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k) make inputs into the close out report, including those relating to cost norms or benchmarks, contractor / supplier performance and the attainment, or not, of project objectives; and

l) coordinate the social facilitation requirements for the contract, and maintain a record of all stakeholder engagements.

4.7.3 Qualifications of a contract manager

The contract manager responsible for the contract management of a construction works contract or order relating to the provision of new infrastructure or the rehabilitation, refurbishment or alteration of existing infrastructure, shall be a built environment professional .

4.7.4 Payment against certified amounts

Payment shall be made by the procuring entity against the amount certified by the contract manager. Any corrections to a certified amount other than a final amount shall be affected in the subsequent payment certificate.

4.7.5 Meetings on construction contracts

The focus of site meetings relating to construction contracts between the contract manager and the contractor in site meetings shall be on how the effects of project risks which can:

a) increase the contract amount;

b) delay the time for completion, the client organisation from realising benefits or others from doing their work;

c) adversely affect the performance of works in use; or.

d) cause the works for whatever reason to cease

can be avoided or reduced.

4.8 Risk management

4.8.1 Risk management by a procuring entity of risks which have a significant chance of occurring shall include :

a) an identification of risks, including possible consequential risks;

b) an analysis of risks to determine the probabilities of occurrence and the likely impacts thereof;

c) decisions as to how risks are to be allocated and managed through the life of a project to contain them within acceptable limits;

d) monitoring and controlling changes in risks; and

e) gathering and analysing data enabling informed decisions to be made.

4.8.2 A procuring entity shall manage risks on projects through the following as applicable:

a) focussing decision making on:

1) the attainment of value for money through the evaluation of relevant costs and benefits together with the assessment of risks;

2) the final contract amount (outturn cost) which equates to the sum of the initial contract price for work, contract price adjustment for inflation and the cost of risk events that materialise in the execution of a contract for which the contractor is not responsible;

3) the management of risk events which impact negatively on time, cost and quality or performance and which may be foreseen or unforeseen and have the potential to negatively

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impact project outcomes during the protracted delivery process;

4) proactive management of project contingency sums in a stepped manner as provided for in 4.3.4 at Procurement Gates 8C and 8D to fund risks for which the client organisation is financially liable;

b) the proactive mitigation of risks which threaten project outcomes through:

1) the application of the control frameworks established in 4.3;

2) the formulation of appropriate procurement strategies and tactics for projects aimed at achieving value for money and cost effective project outcomes taking into account risks, policy objectives and the total cost of ownership or the life cycle of that which is procured (see 4.5.3 and 5.7.1.2);

3) the framing of delivery models around the following:

i) the contractual transfer or retention of risk, based on the allocation of risk to the part best able to manage such risk or where the efficiency gains by transferring risk are higher than the losses from inefficient risk pricing;

ii) the mitigation of risk through collaborative approaches and making use of competitive negotiations to address uncertainties in tender processes;

iii) the degree to which externalised project activities are bundled;

iv) the appropriate identification of work packages associated with the scope of the project and the arrangements for interface management between work packages;

v) the approach to remuneration on a cost or price basis;

vi) the introduction in contracts of positive / negative incentives such as pain/ gain share regimes and performance bonds; and

vii) when in the project cycle are contractors involved in the design process or assigned design responsibilities;

4) establishment of contingency plans to deal with risks should they occur;

5) having in place emergency procedures which may be rapidly activated when an emergency arises; and

c) risk transfer to insurers.

d) processes and procedures to deal with social disruptions and corruption and avoid non-compliance with labour, environmental, planning, and health and safety legislation which can delay projects or increase costs.

4.8.3 Risk registers shall be established and maintained to enable risk relating to the procurement system to be identified proactively mitigated and managed at both a project and senior executive level.

4.8.4 Risks that have a significant negative impact upon project outcomes shall be escalated through the project governance structures established in 4.2 to mitigate the risk.

4.9 Logistics management

4.9.1 The logistics management system shall address at least the following:

a) the requisitioning of goods or services;

b) the placing of orders for goods or services;

c) the receipt of goods or services;

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d) the distribution of goods;

e) the preparation of payment vouchers;

f) the reconciliation of inventory records with financial accounts; and

g) inventory management including:

1) the measurement of inventory for reporting in the annual financial statements and in associated disclosures;

2) a coding system for the recording of inventory items;

3) manual or computerised systems for demand forecasting and material requirement planning;

4) approaches for inventory control;

5) stock levels for the different categories of inventory items;

6) quality and re-order point models to be used for categories of inventory items;

7) stocktake requirements;

8) mechanisms to prevent theft, losses, wastage and misuse for each category of items;

9) warehouse and stockroom organisation; and

10) systems, whether manual or computerised, for the recording of inventory transactions.

4.9.2 Materials, equipment and plant may be procured and issued free of charge to a contractor for incorporation into the works. Care shall be taken to ensure that suitable arrangements or measures are in place to minimise:

1) loss, degradation or damage to such items until the contractor has received and accepted them; and

2) delays in supply which can result in increases in the contractor's prices for providing the works.

4.10 Disposal management

The procuring entity shall appoint a disposal committee to decide on how best to undertake disposals who shall make recommendations on disposals.

Note: 5.6.9 establishes disposal methods

4.11 Monitoring and assessment of procurement performance

4.11.1 The client delivery manager shall ensure that the following registers are developed, maintained and kept up to date (see Annex A):

a) a planned procurement and commitment register to record for each project the contract value for all the contracts or orders issued in terms of a framework agreement, and the estimated value of a planned procurement so that at any point in time the total value of work that is committed for a project can be compared with the authorised project expenditure;

b) a contracts register to provide particulars of all contracts and orders issued in terms of a framework agreement, including information relating to the starting price, details relating to the time for completion and any changes in the prices and time for completion;

c) a payment register to record all the payments that have been certified for payment against each contract or order issued in terms of a framework agreement; and

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d) a purchase order register (or the equivalent thereof) which links contracts and orders and payments relating thereto to the authorised amounts within the procuring entity's financial management system.

4.11.2 The client delivery manager shall ensure proper feedback on projects so that all the role players are fully aware of everything taking place and can take any corrective action that may be required in accordance with the provisions of ISO 21502.

4.11.3 The client delivery management team shall:

a) review, as necessary progress towards the attainment of project deliverables, outcomes, outputs and benefits as well as deviations from the expected or anticipated progress

b) review, on at least a monthly basis project timelines, budgets and cash flows and carefully monitor any potential deviations and the effect of corrective actions taken;

c) continuously monitor the status of project contingency sums and reduce unused contingency sums as the work progresses; and

d) propose mitigation measures to bring projects closer to what was planned or prepare proposed changes to reflect the changed circumstances for consideration by the governance structures.

4.12 Reporting

4.12.1 Reports prepared by the client delivery management team for senior executives and the governing body should focus on providing the status, analysis of variances, and forecasts of future performance for projects in relation to project plans (see ISO 21502). They should also, as relevant, report on the progress towards the attainment of benefits including those associated with targets (key performance indicators) associated with the implementation of preferential procurement policy.

4.12.2 The client delivery management team shall ensure that financial data is gathered to enable a finnacial report to be generated at quarterly intervals which:

a) lists the packages which have completed stage 5 (works) together with actual expenditure;

b) indicates the following for packages which have advanced beyond stage 2 (concept and viability or stage 2 (concept design) but have not yet completed stage 5 (works):

   1) budget for the financial year;

   2) expenditure committed to date;

   3) actual expenditure to date;

   4) remaining budget for the year;

   5) forecast expenditure for the remainder of the year; and

   6) forecast over/under expenditure for the year;

c) indicates professional fees and any furniture, fittings and equipment associated with a project or package; and

d) enables "actual" versus "committed" and "planned" expenditure to be compared.

5 Procurement methods and procedures

5.1 General

5.1.1 Procurement shall be undertaken in accordance with:

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a) the relevant requirements of SANS ISO 10845-1, SANS ISO 10845-2, SANS ISO 10845-3 and SANS ISO10845-4; and

b) the administrative procedures embedded in the standard forms of contract and associated contract data incorporated in a contract; and

c) the guidance provided in SANS ISO 22058 and ISO 6082.

5.1.2 All contracts that are entered into following a procurement process shall be in writing.

5.1.3 Written reasons shall upon request be made to respondents and tenderers for any decisions that are taken during a call for an expression of interest and an invitation to tender. Such reasons for actions taken should be as brief as possible and where relevant be framed around the clauses in:

a) SANS ISO 10845-4 which give rise to the reason why a respondent was not admitted to a data base, short listed or prequalified to be invited to submit tender offers; and

b) SANS ISO 10845-3, as to why a tenderer was not considered for the award of a contract or not awarded a contract.

5.2 Selection methods

5.2.1 The methods by which tenders are solicited from the market shall be in accordance with the provisions of Table 10 and the corresponding requirements of SANS ISO 10845-1. The open selection method shall be the default method. Other selection methods may be used where the conditions associated with a method in Table 10 are satisfied unless otherwise stated in a construction procurement policy.

5.2.2 Approval for the use of a confined market selection method shall only be valid for a period not exceeding 18 months.

5.2.3 The period between calling for expressions of interest and the inviting of submissions in the qualified procedure shall not exceed 18 months.

5.2.4 The nominated procedure may only be used where the procuring entity has in place a rotating electronic data base which substantially satisfies the provisions of 4.5.1 and 4.5.2 of SANS ISO 10845-1. Calls for expressions of interest for admission to the rotating electronic data base shall be made at least once a year. Respondents shall be admitted to the data base for a period of three years whenever they make an application and comply with the entry requirements and are removed from the data base after the expiry of this period.

Note: A rotating electronic data base is a form of a panel that satisfies the system requirements established in Table 1. It ensures that those on the data base are afforded an opportunity to submit tenders when requested to do so.

5.2.5 Quotations in the quotation procedure shall only be invited from prospective contractors whose core business is to supply the required goods or services or any combination thereof in a manner which is consistent with the system objectives identified in Table 1, giving tenderers the minimum number of working days stated in a construction procurement policy to respond to the invitation.

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Table 10: Standard selection methods and the conditions under which they may be applied

Selection method (see clause in SANS ISO 10845-1)	**Description**	**Conditions which need to be satisfied to utilise the procedure unless otherwise stated in a construction procurement policy**
1 Negotiation (6.3.3)	A tender offer is solicited from a single tenderer.	Any procurement where it is established with reasonable certainty that: 1) a rapid response is required due an emergency and there is insufficient time to mitigate the risks relating thereto using a competitive selection method (see Table 8) ; 2) the required goods, services or works cannot technically or economically be separated from another contract previously performed by a specific contractor; 3) only one contractor has been identified following market research as possessing the necessary experience and qualifications or product to deliver value for money in relation to a particular need; 4) the service or works being procured are largely identical to work previously executed by that contractor and it is not in the interest of the public or the procuring entity to solicit other tender offers; 5) the nature of the works, goods or services, or the risks attached thereto, do not permit prior overall pricing; 6) it is impractical to pursue a competitive selection method due to artistic, technical reasons, exclusive rights or achieving compatibility with other members of or balanced skills sets within a client delivery management team; 7) specialist or strategic inputs are required to address gaps and shortcomings in initiating and implementing projects or overseeing delivery which threatens cost effective project outcomes; or 8) none or only one responsive tender is received in response to a competitive selection method and it is unlikely that fresh tenders will result in a different outcome An unsolicited proposal is converted into a contract.
2 Competitive selection (6.3.2.1)	Any selection method in which the contract is normally awarded to the contractor who submits the lowest financial offer or obtains the highest number of tender-evaluation points.	A competitive selection method is the default option. A negotiated and competitive negotiation method should only be used were justified
2A Nominated (6.3.2.2)	Tenderers that satisfy stipulated criteria are entered into an electronic database. Tenderers are invited to submit tender offers based on search criteria and, if relevant, their position in the database. Tenderers are repositioned in the database upon appointment or upon submission of a tender offer.	Any procurement where: 1) large numbers of procurement transactions are required for work that is relatively simple and routine in nature or the goods or services are readily obtainable form the market; 2) the employer's exposure to risks are low; 3) the procurement transactions are below a prescribed threshold; and 4) the employer has in place a rotating data base which satisfies the requirements of SANS ISO 10845-1

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Selection method (see clause in SANS ISO 10845-1)	**Description**	**Conditions which need to be satisfied to utilise the procedure unless otherwise stated in a construction procurement policy**	
2B Open (6.3.2.3)	Tenderers may submit tender offers in response to an advertisement by the procuring entity to do so.	Any procurement, except where the cost of the evaluation of a large number of tender submissions is disproportionate to the value of the work.	
2C Qualified (6.3.2.4)	A call for expressions of interest is advertised and thereafter only those tenderers who have expressed interest, satisfy objective criteria and who are selected to submit tender offers, are invited to do so.	Any procurement where: 1) a contract requires for its execution a high degree of specialised input, skills or expertise which are not readily available, or requires exceptional management skills or quality; 2) a tender submission requires significant tenderer inputs to respond appropriately to requirements and make a tender offer; 3) it is desirable, in a large programme or project, to link packages of work to tenderers who have the appropriate capacity and capability to compete against one another; or 4) the time and cost required to examine and evaluate a large number of tender offers is excessively high.	
2D Quotation (6.3.2.5)	Tender offers are solicited from not less than three tenderers, subject to the procedures being fair, equitable, transparent, competitive and cost-effective.	Any procurement where the estimated contract value does not exceed a prescribed threshold	
2E Proposal procedure using the two-envelope system (6.3.2.6)	Tenderers submit technical and financial proposals in two envelopes. The financial proposal is only opened if the technical proposal is found to attain the minimum threshold score.	Any procurement involving the provision of services including professional services where tenderers are required to develop a scope of work and price proposals to satisfy a broad scope of work.	
2F Proposal procedure using the two-stage system (6.3.2.7)	Non-financial proposals are called for. Tender offers are then invited from those tenderers that submit acceptable proposals based on revised procurement documents. Alternatively, a contract is negotiated with the tenderer scoring the highest number of evaluation points.	Option 1	Any procurement in which tenderers are required to submit technical proposals and, if required, cost parameters around which a contract may be negotiated.
		Option 2	Any procurement in which tenderers are invited to submit technical proposals in the first stage and to submit tender offers based on procurement documents issued during the second stage.
2G Confined market (6.3.2.8)	Tenders are invited from a limited number of tenderers who can provide goods, services or construction works which are not freely available in the market, or which are provided solely for the client organisation in accordance with unique requirements.	It is established following market research that there are only a very limited number of contractors who are able to provide the required goods, services or works which: 1) are not freely available in the market, or which are provided solely for the client organisation in accordance with unique requirements; or 2) there is justification for standardising goods or making use of manufacturer-accredited contractors	

Selection method (see clause in SANS ISO 10845-1)	**Description**	**Conditions which need to be satisfied to utilise the procedure unless otherwise stated in a construction procurement policy**
3 Competitive negotiation (6.3.4)	A selection method which reduces the number of tenderers competing for the contract through a series of negotiations until the remaining tenderers are invited to submit their final offers.	Procurements where tenderers: 1) need to discuss aspects of the service, goods or construction works which might influence their financial and non-financial proposals; 2) might benefit from interactions with designers before finalizing their proposals and in design and construct construction contracts or supply contracts.
3A Restricted competitive negotiations	A call for expressions of interest is advertised and thereafter only those tenderers who have expressed interest, satisfy objective criteria and who are selected to submit tender offers, are invited to do so. The procuring entity evaluates the offers and determines who may enter into competitive negotiations.	As for open competitive negotiations, but where: 1) a contract requires for its execution a high degree of specialised input, skills or expertise which is not readily available, or requires exceptional management skills or quality; 2) a tender submission requires significant tenderer inputs to respond appropriately to requirements and make a tender offer; 3) it is desirable, in a large programme or project, to link packages of work to tenderers who have the appropriate capacity and capability to compete against one another; or 4) the time and cost required to examine and evaluate a large number of tender offers is high.
3B Open competitive negotiations (6.3.4)	Tenderers may submit tender offers in response to an advertisement by the procuring entity to do so. The procuring entity evaluates the offers and determines who may enter into competitive negotiations.	Any procurement where: 1) it is not feasible to formulate detailed specifications for the work or to identify the characteristics of goods or works to obtain the most satisfactory solution to procurement needs; 2) there are various possible means of satisfying procurement needs; 3) the technical character of the goods or works, or the nature of the services, warrants the use of competitive negotiations to realise the most satisfactory solution to procurement needs; 4) the purpose of the contract is research, experimentation, study or development; or 5) all the tenders received in a competitive selection procedure are non-responsive and the calling for fresh tenders is likely to result in a similar outcome.

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5.3 Framework agreements

5.3.1 A framework agreement for goods, works or services shall:

a) be put in place using an appropriate selection method in accordance with the provisions of 5.2;

b) be entered into in a single-stage with all the terms which may be called off over the term of the agreement being agreed at the time that the agreement is concluded;

c) be implemented in accordance with the provisions of clause 6.4 of SANS ISO 10845-1;

d) have a term not exceed 4 years unless a shorter period is stated in a construction procurement policy or the procuring entity can on good grounds justify a longer period.

Note: A framework agreement is a contractual arrangement for variable volumes of goods, services or works which may be instructed over a term.

5.3.2 Orders may be issued in accordance with 4.3.5 with or without reopening competition amongst contractors. Competition is not reopened where there is only one contractor or where the framework agreement sets out all the terms governing orders and objective criteria or a mechanism exists which can be applied to choose one contractor over other contractors. Competition shall take the form of a mini-competition, based on quotes or proposals.

5.3.3 A contracting entity may:

a) enter into a framework agreement covering the same scope of work with more than one contractor and may put in place further agreements with the same scope of work during the term of such agreements;

b) approach the market for goods, works or services covered by a framework agreement during the term of such agreement whenever it considers that better value in terms of time, cost and quality may be obtained;

5.3.4 A procuring entity may request in writing to make use of one or more framework agreements entered into by another procuring entity. Such a request, signed by the governing body of that organisation shall:

a) outline the scope and anticipated quantum of work associated with the work that is required;

b) provide a motivation for the use of the framework agreement; and

c) detail the benefit for the state to be derived from making use of the framework agreement.

5.3.5 The governing body of the procuring entity may approve a request made in terms of 5.3.4 to make use of the organisation's framework contract, conditionally or unconditionally, if:

a) the framework agreement was put in place following a competitive tender process;

b) confirmation is obtained that the framework agreement is suitable for the intended use, and the required goods, services and works fall within the scope of such contract;

c) the other party to the agreement (contractor) agrees in writing to accept an order from that procuring entity;

d) the requesting procuring entity undertakes to pay the contractor in accordance with the terms and conditions of the agreement; and

e) the term of the framework agreement does not expire before the issuing of the required orders.

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5.4 Design competitions

Design competitions shall be conducted in accordance with the provisions of clause 6.5 of SANS ISO 10845-1.

5.5 Targeted procurement procedures

Targeted procurement procedures described in SANS ISO 10845-1, SANS ISO 22058 and ISO 6082 may be used provided they do not breach the system requirements expressed in Table 1. Where they breach these system parameters, the provisions of 5.6 apply**.**

5.6 Preferential procurement

5.6.1 General

A procuring entity shall where possible, permitted and provided for in a construction procurement policy implement any or all of the following:

a) set-asides in accordance with the provisions of 5.6.2;

b) pre-qualification in accordance with the provisions of 5.6.3; or

c) subcontract in accordance with the provisions of 5.6.4;

d) requirements that only locally produced goods or locally manufactured goods meet a threshold for minimum local production and content in accordance with the provisions of 5.6.5; and

e) measures to advance sustainable development in accordance with the provisions of 5.6.6; and

f) measures to address specified developmental objectives in accordance with the provisions of 5.6.7.

5.6.2 Set-asides for preferential procurement

5.6.2.1 A procuring entity shall, where possible, set-aside contracts having an estimated contract value below a threshold stipulated in a construction procurement policy for targeted categories of persons. The targeted categories of persons shall be:

a) limited to the categories of persons identified in the Public Procurement Act of 2024 who have the relevant prescribed ownership and membership percentages; and

b) prescribed or identified in the procuring entity's construction procurement policy provisions for set-asides.

5.6.2.2 Only targeted categories of persons are eligible to be invited to submit tender offers. At least the number of persons stated in a construction procurement policy who have the capability and capacity to perform the proposed contract shall be invited to submit tender offers. Submissions shall be evaluated in accordance with method 1 (financial offer) as provided for in SANS ISO 10845-1.

5.6.2.3 Where it is not possible to identify the minimum number of suitable targeted categories of persons to perform the contract stated in a construction procurement policy the prequalifying provisions of 5.6.3 shall be applied.

5.6.3 Prequalification criteria for preferential procurement

5.6.3.1 A procuring entity shall, where possible, apply prequalifying criteria for the award of a contract having an estimated contract value not exceeding a value stipulated in a construction

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procurement policy if there is a strong likelihood that at least 5 tenders will satisfy such criteria. A tenderer shall, in order to have their tender evaluated:

a) satisfy a minimum percentage of preferential procurement from enterprises that are owned and managed by black people in terms of the applicable code of good practice on black economic empowerment issued in terms of section 9(1) of the Broad-Based Black Economic Empowerment Act, 2003 (Act No. 53 of 2003); and

b) undertake if considered feasible by the procuring entity, to subcontract a prescribed minimum percentage of the contract to categories of persons identified in the Public Procurement Act of 2024 which satisfy prescribed ownership and member percentages; provided that in the case of construction contracts, subcontractors so engaged are registered in terms of the Construction Industry Development Board Act of 2000.

5.6.3.2 Submissions shall, as relevant, be evaluated in accordance with method 1 (financial offer) or method 2 (financial offer and quality) as provided for in SANS ISO 10845-1.

5.6.3.3 Subcontractors shall not be engaged in terms of a written subcontract which contains any of the following:

a) a right to set off in favour of the employing contractor not provided for by law;

b) authoritarian rights given to the employing contractor or his agent, with no recourse to independent adjudication in the event of a dispute arising;

c) payment procedures based on a pay-when-paid system;

d) a dispute resolution process which only makes use of formal proceedings such as arbitration or litigation and excludes inexpensive alternative dispute resolution procedures such as arbitration or litigation; or

e) conditions which are more onerous than those which exist in the main contract.

5.6.3.4 Justifiable reasons for a procuring entity not applying the subcontracting portion of the prequalification criteria (5.2.6.2.1b)) include the inappropriate division of responsibilities, increased contractual risk, duplication of establishment charges, under-utilization of resources and practicalities of subcontracting a portion of the contract.

5.6.4 Subcontracting as a condition of contract

5.6.4.1 A procuring entity shall, where feasible, require subcontracting as a condition of contract where a contract has an estimated contract value and only if there is a strong likelihood that the minimum number of tenders will be able to comply with such a requirement as stated in a construction procurement policy. A tenderer shall, in order to have their tender evaluated undertake to subcontract a prescribed minimum percentage of the contract to categories of persons identified in the Public Procurement Act of 2024 which satisfy prescribed ownership and member percentages; provided that in the case of construction contracts, subcontractors so engaged are registered in terms of the Construction Industry Development Board Act of 2000.

5.6.4.2 A procuring entity may, to encouraging the tendering of a beyond minimum subcontracting percentage, offer a preference in terms of a points scoring tender evaluation system. The total preference points in such a system shall not exceed 10% of the total tender evaluation points in accordance with the provisions of SANS ISO 10845-1.

5.6.4.3 Submissions shall, as relevant, be evaluated in accordance with method 1 (financial offer), method 2 (financial offer and quality), method 3 (financial offer and preference) or method 4 (financial offer, quality and preferences) as provided for in SANS ISO 10845-1.

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5.6.4.4 The successful tenderer shall be free to identify and engage subcontractors in terms of a written subcontract which does not contain any of the following:

a) a right to set off in favour of the employing contractor not provided for by law;

b) authoritarian rights given to the employing contractor or his agent, with no recourse to independent adjudication in the event of a dispute arising;

c) payment procedures based on a pay-when-paid system;

d) a dispute resolution process which does not include inexpensive alternative dispute resolution procedures, such as mediation or adjudication, but which only makes use of formal proceedings such as arbitration or litigation; or

e) conditions which are more onerous than those which exist in the main contract.

5.6.4.5 Justifiable reasons for a procuring entity not applying subcontracting as a condition of contract include the inappropriate division of responsibilities, increased contractual risk, duplication of establishment charges, under-utilization of resources, practicalities of subcontracting a portion of the contract.

5.6.5 Designation of sectors for local production and content

5.6.5.1 The procuring entity shall, where the Minister for Trade, Industry and Competition, has designated a sector, sub-sector or product for local production and content, advertise the tender with a specific condition that only locally produced goods or locally manufactured goods meeting the stipulated minimum threshold for local production and content will be considered. Any submission which fails to meet the stipulated minimum threshold for local production and content shall not be eligible to be evaluated.

5.6.5.2 The provisions of 5.6.4.1 shall not apply or only apply in part where the procuring entity has obtained a waiver in accordance with the provisions of the Public Procurement Act of 2024.

5.6.5.3 Submissions shall, as relevant, be evaluated in accordance with method 1 (financial offer), method 2 (financial offer and quality), method 3 (financial offer and preference) or method 4 (financial offer, quality and preferences) as provided for in SANS ISO 10845-1.

5.6.6 Measures to advance sustainable development

5.6.6.1 A procuring entity may develop Key Performance Indicators (KPI) or identify practices to promote sustainable development i.e. development that meets the environmental, social and economic needs of the present without compromising the ability of future generations to meet their own needs. Such KPIs and practices may be linked to a preference points system in the evaluation of tenders to offer a preference to tenderers who undertake to equal or exceed a KPI or embrace identified practices subject to:

a) KPIs being formulated in accordance with the provision of SANS ISO 22058 and are incorporated into the scope of work associated with a contract;

b) identified practices are fully specified in the scope of work;

c) the total preference points in the tender evaluation system do not exceed 10% of the total tender evaluation points in accordance with the provisions of SANS ISO 10845-1; and

d) penalties are included in the contract should the KPIs not be achieved or the practices fail to be implemented.

5.6.6.2 Submissions shall, as relevant, be evaluated in accordance with method 1 (financial offer), method 2 (financial offer and quality), method 3 (financial offer and preference) or method 4 (financial offer, quality and preference).

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5.6.7 Measures to address specified developmental objectives

5.6.7.1 A procuring entity may develop Key Performance Indicators (KPI) or identify practices to promote beneficiation and innovation, advancing creation of jobs, intensification of labour absorption and development of small enterprises within geographical areas. Such KPIs and practices may be linked to a preference points system in the evaluation of tenders to offer a preference to tenderers who undertake to equal or exceed a KPI or embrace identified practices subject to:

a) KPIs being formulated in accordance with the provision of SANS ISO 22058 and are incorporated into the scope of work associated with a contract;

b) identified practices are fully specified in the scope of work;

c) the preference points in the tender evaluation system do not exceed more than 10% of the total tender evaluation points in accordance with the provisions of SANS ISO 10845-1; and

d) penalties are included in the contract should the KPIs not be achieved or the practices fail to be implemented.

5.6.7.2 Submissions shall be evaluated, as relevant, in accordance with method 1 (financial offer), method 2 (financial offer and quality), method 3 (financial offer and preference) or method 4 (financial offer, quality and preferences)

5.6.8 Preferential procurement reporting

A procuring entity shall:

a) verify that the conditions associated with preferential treatment were met maintain records regarding the use of the different procedures and what preference was applied and

b) the measurable benefits that were achieved.

5.6.9 Disposal methods

Disposals may be undertaken using:

a) a suitable selection method as provided for in clause 6.3.5 of SANS ISO 10845-1;

b) a public auction (see Annex H of SANS ISO 10845-1);

c) transfers to other organs of state;

d) recycling or re-use of component materials; or

e) controlled dumping.

5.7 Procurement documents

5.7.1 General requirements

5.7.1.1 Procurement documents shall as relevant:

a) require those making submissions to submit particulars sufficient for the procuring entity to evaluate their submissions, establish their credentials and assess their capabilities and capacities to perform a contract;

b) establish the risks, liabilities and obligations of the parties to the contract, the procedures for the management of the contract and how the contractor is to be remunerated in terms of the contract; and

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c) define the nature, quality and quantity of goods, services or any combination thereof to be provided in the performance of the contract.

5.7.1.2 Procurement documents shall be:

a) prepared in English;

b) developed in accordance with the relevant provisions of clause 6.2 of SANS ISO 10845-1 and clause 4 of SANS 10845-2;

c) formatted and compiled under the headings in accordance with the provisions of clauses 5 and 6 of SANS ISO 10845-2 as relevant, using the headings and contents aligned with the provisions of Tables 11, 12 and 13; and

d) framed around suitable tactics which enable identified procurement strategies to be effectively implemented (see ISO 22058).

Table 11: Documents that relate to a call for expressions of interest

Contents		**Function and broad outline of contents**
Number	**Heading**	
E1: Submission procedures		
E1.1	Notice and invitation to submit an expression of interest	Alerts respondents to submit their credentials in order to be admitted to an electronic database or to be invited to submit tenders should they satisfy the stated criteria.
E1.2	Submission data	Establishes the rules from the time a call for an expression of interest is advertised to the time a submission is evaluated.
E2: Returnable documents		
E2.1	List of returnable documents	Ensures that everything the employer requires a respondent to include in his submission is included in, or returned with, such a submission.
E2.2	Submission schedules	Contains documents that the respondent is required to complete for the purpose of evaluating submissions.
E3: Indicative scope of work (where appropriate)		
E3	Indicative scope of work	Indicates to respondents what the contract is likely to entail so that they can make an informed decision as to whether or not they wish to respond and, if so, structure their submission around the likely demands of the project.

Table 12: Documents that relate to the tender

Contents		**Function and broad outline of contents**
Number	**Heading**	
T1: Tendering procedures		
T1.1	Tender notice and invitation to tender	Alerts tenderers to the nature of the goods, services and construction works required by the employer and should contain sufficient information to enable them to respond appropriately.
T1.2	Tender data	Establishes the rules from the time a tender is invited to the time a tender is awarded.
T2: Returnable documents		
T2.1	List of returnable documents	Ensures that everything the employer requires a tenderer to submit with his tender is included in, or returned with, his tender submission.
T2.2	Returnable schedules	Contains documents that the tenderer is required to complete for the purpose of evaluating tenders and other schedules which, upon acceptance, become part of the subsequent contract.

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Table 13: Documents that relate to the contract

Contents		Broad outline of contents
Number	**Heading**	
C1: Agreements and contract data		
C1.1	Form of offer and acceptance	Formalizes the legal process of offer and acceptance.
C1.2	Contract data	Identifies the applicable conditions of contract and associated contract-specific data that collectively describe the risks, liabilities and obligations of the contracting parties and the procedures for the administration of the contract.
C2: Pricing data		
C2.1	Pricing assumptions	Provides the criteria and assumptions which it is assumed (in the contract) that the tenderer has taken into account when developing his prices and fee percentages in the case of cost-reimbursable contracts.
C2.2	Pricing schedules/ activity schedule/ bill of quantities	Records the contractor's prices for providing goods, services or construction works which are described in the scope of work section of the contract.
C3: Scope of work		
C3	Scope of work	Specifies and describes the goods, services or construction works which are to be provided and any other requirements and constraints relating to the manner in which the contract work shall be performed.
C4: Site information (construction contracts only)		
C4	Site information	Describes the site at the time of tender to enable the tenderer to price his tender and to decide upon his method of working and programming, and risks.

5.7.1.3 Procurement documents shall incorporate requirements to enable the implementation of the register of contractors and the best practice project assessment schemes established in terms of the Construction Industry Development Act.

5.7.2 Notice and Invitation to submit an Expression of Interest or Tender

The notice and invitation to submit an expression of interest or tender shall comply with the minimum requirements established in subclauses 5.2.1 and 5.3.1 of SANS ISO 10845-2 and as a minimum contain the wording of the progorma documents published on the CIDB website.

5.7.3 Submission and tender data

5.3.2.1 The submission data shall reference the Standard Conditions for the Calling for Expressions of Interest contained in SANS ISO 10845-4. The tender data shall reference the Standard Conditions of Tender contained in SANS ISO 10845-3.

5.3.2.2 The tender offer validity period provided for in the tender data shall generally not exceed eight weeks, and in exceptional circumstances shall not exceed 12 weeks, unless otherwise authorised by the procuring entity.

5.3.2.3 The submission data and tender data for a construction works contract shall include the CIDB contractor grading criteria as provided for in the Construction Industry Development Regulations.

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5.7.4 Returnable documents

5.7.3.1 Standard returnable documents which are incorporated into expressions of interest and tender documents shall not conflict with the provisions of SANS ISO 10845-2 and be compatible with the contents of SANS ISO 10845-4 and SANS ISO 10845-3, respectively, as well as any standard conditions of contract referenced in the draft contract.

5.7.3.2 Tender assessment schedules shall, where appropriate, be used to take account of all tendered financial parameters that have an impact upon the final value of the contract to facilitate the reducing of tender offers to a comparative amount in the evaluation of submissions.

5.7.3.3 The Compulsory Declaration, Proposed amendments and qualifications and the Record of Addenda to Tender Documents obtainable from the CIDB website , shall be included in the tender portion of procurement documents.

5.7.5 Form of offer and acceptance

5.7.5.1 The Form of Offer and Acceptance contained in SANS ISO 10845-2 shall be used, with minimal contract-specific amendments, to form the basis of agreement arising from the solicitation of tender offers. The formation of a contract (see SANS 10845-2) shall occur once:

a) each and every amendment to the tender documents made in terms of addenda issued prior to the close of tenders and permitted in terms of the conditions of tender, and agreed to in the process of offer and acceptance has either:

   1) been reflected in the schedule of deviations; or

   2) been incorporated into the final contract and a brief summary of the changes made in the final contract document is included in the schedule of deviations so as to allow the reader to understand the nature and extent of the changes; and

b) the acceptance portion of the Form of Offer and Acceptance has been signed by the person authorised to do so.

5.7.5.2 A tenderer's covering letter may not be included in the final contract document or referenced in the schedule of deviations. The agreed provisions of such a letter shall be reflected in the schedule of deviations.

5.7.6 Contract data

5.7.6.1 The contract data shall reference a suitable standard form of contract which is listed in Table 14 or an amended version of Table 14 published on the CIDB website, unless the procuring entity can on good grounds justify the use of a bespoke contract.

5.7.6.2 The selected standard form of contract shall be used with minimal contract amendments which do not change their intended usage and shall only be amended when necessary to accommodate special needs.

5.7.6.3 An alternative dispute resolution procedure shall be used to resolve disputes arising during the performance of a contract prior to proceeding to either arbitration or litigation.

5.7.6.4 Bonds which guarantee performance with a stated financial benefit in the event of non-performance shall unless otherwise directed by the procuring entity on good grounds:

a) not be required in service, professional service and supply contracts; and

b) be between 5% and 12,5% of the contract or package order value, excluding VAT, and may be either a fixed or variable guarantee.

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Table 14: Standard forms of contract

Contract type	Scope and nature of the contract	Document
Construction contract	Construct, alter, refurbish or rehabilitate construction works on a site including any level of design responsibility. The contractor is generally responsible for loss of or damage to the works from the time that access is granted to provide the works until the works are completed and taken over by the client organisation	1) SAICE's General Conditions of Contract for Construction Works 2) JBCC Principal Building Agreement 3) NEC Contracts published by the Institution of Civil Engineering 4) FIDIC Contracts published by the International Federation of Consulting Engineers
Design, build and operate contract	Design, build and operate or maintain construction works over a defined period of time	1) NEC Contracts published by the Institution of Civil Engineering 2) FIDIC Contracts published by the International Federation of Consulting Engineers
Professional service contract	Provide construction works related services with the skill and care normally used by professionals providing services similar to the required services	1) NEC Contracts published by the Institution of Civil Engineering 2) Standard contract published by the CIDB
Service contract	Manage and provide a construction works related service other than a professional service or maintain construction works and plant in an existing state, typically over a term, which may involve a modest amount of improvement through renewal and replacement	1) NEC Contracts published by the Institution of Civil Engineering 2) FIDIC Contracts published by the International Federation of Consulting Engineers
Supply contract	Supply local and international construction works related goods and provide any associated services, if any, including design	NEC Contracts published by the Institution of Civil Engineering

5.7.6.5 Advance payment, where required in construction and supply contracts, may only be made to contractors against the lodging of a suitable advance payment bond and with the approval a person nominated in a construction procurement policy.

5.7.6.6 Retention monies that are held shall not exceed 10% of any amount due to a contractor. The total amount of retention monies held shall not exceed 5% of the contract or order price.

5.7.6.7 Professional service appointments shall, unless otherwise directed by the procuring entity on good grounds, be subject to proof of current professional indemnity insurance being submitted by the contractor in an amount of not less than an amount stipulated by the procuring entity in respect of each claim, without limit to the number of claims.

5.7.7 Scope of work

5.7.7.1 The topics included in the checklist included in Annex C of SANS ISO 10845-2 should be considered when developing a scope of work for a supply, service, professional service or construction contract.

5.7.7.2 The scope of work shall not reference a particular trademark or trade name, patent, design or type, specific origin or producer unless:

a) there is not a sufficiently precise or intelligible way of describing the characteristics of the subject matter of the procurement in which case words such as "or equivalent" must be included;

b) there are clear advantages to do so or there is justification for standardising goods or making use of manufacturer-accredited contractors;

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c) a change in product or manufacturer requires modifications to related equipment and fixtures; or

d) a replacement model requires the holding of additional spares or maintenance personnel.

5.7.7.3 The scope of work shall include the following where:

a) it is estimated that a grade 7 or higher contractor grading designation construction contracts in all classes of construction works is required and the time for completion is at least 12 months; and

b) professional service and term service contracts where the estimated tender value exceeds R 5,0 including VAT and the time for completion is at least 12 months.

The provisions of the Standard for Indirect Targeting for Enterprise Development through Construction Works Contracts shall apply.

5.7.7.4 The scope of work included in a procurement document for a construction works contract in the general building (GB) or civil engineering (CE) class of construction works shall include the following where:

a) it is estimated that a grade 7 or higher contractor grading designation is required and the time for completion is at least 6 months; and

b) at least 25% of the main contract can reasonably be expected to be subcontracted to one or more of the following CIDB classes of construction works:

1) general building works (GB);

2) civil engineering works (CE);

3) electrical engineering works (buildings) (EB); or

4) mechanical engineering works (ME).

The provisions of the Standard for Indirect Targeting for Enterprise Development through Construction Works Contracts shall apply with the following specification data: The contract participation goal (CPG) is .... % [*insert a value not less than 5%*] The employer's representative is ..... [*insert name*]

5.7.8 Budgetary items

5.7.7.1 Provision for budgetary items in procurement documents should as far as possible be avoided. Assumptions should rather be stated in the pricing data so that they can be priced and adjusted in terms of the contract, should these assumptions be incorrect. Where unavoidable, estimates of the likely costs may be included in the contract to cover identified work or services to be performed by a subcontractor appointed in terms of the contract.

5.7.7.2 No provision for contingency sums or price adjustment for inflation shall be made in the pricing data or included in the contract price at the time that the contract is awarded or an order is issued.

5.8 Applying the CIDB register of contractors to public contracts

5.8.1 Contractor grading designations shall, where required in terms of the Construction Industry Regulations issued in terms of the Construction Industry Development Board Act, be described in all procurement documents by a three digit alpha-numeric where the first character is a number representing the tender value designation and the next two characters are capital letters representing the designation for the class of construction works indicated in the Construction Industry Development Regulations.

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5.8.2 The following wording shall be included in the Notice and Invitation to Tender in all construction contracts:

It is estimated that tenderers should have a CIDB contractor grading designation of ….. or ……. or higher.. Note: Delete "or …." where only one class of construction works is applicable.

5.8.3 The following wording shall be included in the Tender Data, where the class of work is designated in accordance with the provisions of the Construction Industry Development Regulations:

Clause number (refer to SANS ISO 10845-3)	
5.1	Only those tenderers who are registered with the CIDB, or are capable of being so prior to the evaluation of submissions, in a contractor grading designation equal to or higher than a contractor grading designation determined in accordance with the sum tendered, or a value determined in accordance with Regulation 25 (1B) or 25(7A) of the Construction Industry Development Regulations, for a ….. or ……..*. class of construction work, are eligible to have their tenders evaluated. Joint ventures are eligible to submit tenders provided that**: every member of the joint venture is registered with the CIDB; the lead partner has a contractor grading designation in the ….. or ……..* class of construction work; and the combined contractor grading designation calculated in accordance with the Construction Industry Development Regulations is equal to or higher than a contractor grading designation determined in accordance with the sum tendered for a or ….* class of construction work or a value determined in accordance with Regulation 25 (1B) or 25(7A) of the Construction Industry Development Regulations.

* insert class of construction work (see Table G2). Delete "or …." where only one class of construction works is applicable.

** include where joint ventures are eligible to submit tenders

5.8.4 The following wording shall be included in the Notice and Invitation to Submit an Expression of Interest in respect of engineering and construction works, where the contractor grading designation is based on the estimated value of a tender that may arise:

Respondents must have a contractor grading designation of … or ……or higher. Note: Delete "or …." where only one class of construction works is applicable.

5.8.5 The following wording shall be included in the Submission Data:

Clause number (refer to SANS ISO 10845-4)	
5.1	Only those respondents who are registered with the Construction Industry Development Board, or are capable of being so registered within 21 working days from the closing date for submission of tenders, in a contractor grading designation of . . . . or . . . . * or higher, are eligible to have their submissions evaluated.

*insert contractor grading designation for one or two classes of construction works. Delete "or …." where only one class of construction works is applicable.

5.8.6 The following wording may be included in the Submission Data:

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Clause number (refer to SANS ISO 10845-4)	
5.1	Joint ventures are eligible to have their submissions evaluated provided that: 1) every member of the joint venture is registered with the CIDB not later than 21 working days from the closing date for tenders; 2) the lead partner has a contractor grading designation in the . . . or . . . . . * class of construction work; and 3) the combined contractor grading designation calculated in accordance with the Construction Industry Development Regulations is equal to or higher than the required contractor grading designation..

* insert class of construction work (see Table L2). Delete "or ...." where only one class of construction works is applicable.

5.8.7 Where a client or employer promotes potentially emerging enterprises within a framework of a targeted development programme as contemplated in terms of Regulation 25(8) of the Construction Industry Development Regulations:

a) the wording provided in the Notice and Invitation to Tender in terms of 5.8.2 shall be amended as follows:

It is estimated that tenderers should have a CIDB contractor grading designation of ..... or .....* or higher. ..... or .....** potentially emerging enterprises who satisfy criteria stated in the Tender Data may submit tender offers. * insert estimated contractor grading designation in one or two construction classes, as relevant. ** insert one contractor grading designation below estimated contractor grading designation Note: Delete "or ...." where only one class of construction works is applicable.

b) the wording in the Tender Data provided in terms of 5.8.3 shall be amended as follows:

Clause number (SANS ISO 10845-4)	
5.1	The following tenderers who are registered with the CIDB, or are capable of being so registered prior to the evaluation of submissions, are eligible to have their tenders evaluated: a) contractors who have a contractor grading designation equal to or higher than a contractor grading designation determined in accordance with the sum tendered, or a value determined in accordance with Regulation 25 (1B) or 25(7A) of the Construction Industry Development Regulations, for a ..... or .....*. class of construction work; and b) contractors registered as potentially emerging enterprises with the CIDB who are registered in one contractor grading designation lower than that required in terms of a) above and who satisfy the following criteria: .....**

* insert class of construction work (see Table L2). Delete "or ...." where only one class of construction works is applicable.

**state criteria relevant to employer's targeted development programme

b) the wording provided in terms of 5.8.4 shall be amended as follows:

Respondents must have a contractor grading designation of ... or ..... or higher. ..... or ..... potentially emerging enterprises who satisfy criteria stated in the Submission Data may submit expressions of interest. Note: Delete "or ...." where only one class of construction works is applicable.

c) the wording in the Submission Data provided in terms of 5.8.5 shall be amended as follows:

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Clause number (refer to SANS ISO 10845-4)	
5.1	The following respondents who are registered with the CIDB, or are capable of being so registered not later than 21 working days from the closing date for the submission of tenders, are eligible to have their submissions evaluated: a) those respondents who are registered with the Construction Industry Development Board, or are capable of being so registered within 21 working days from the closing date for submission of tenders, in a contractor grading designation of ….. or ……*or higher; and b) contractors registered as potentially emerging enterprises with the CIDB who are registered in one contractor grading designation lower than that required in terms of a) above and who satisfy the following criteria: ……..** .

* insert contractor grading designation for one or two classes of construction works. Delete "or …." where only one class of construction works is applicable.

**state criteria relevant to employer's targeted development programme

d) details appropriate to any support provided shall be stated in the Contract Data, the Pricing Data and the Scope of Work, as relevant.

5.8.8 Employers, wherever appropriate, in support of industry development, shall in the application of the register of contractors, promote the participation and development of registered contractors by means of one or more of the following:

a) unbundling projects into smaller contracts;

b) implementing targeted development programmes to support potentially emerging contractors in accordance with the provisions of the Construction Industry Development Regulations;

c) offering preferences to contractors who undertake to enter into joint ventures with or subcontract portions of the works to such contractors; and

d) requiring a prime contractor to subcontract defined portions of the works to such contractors.

6 Conduct of those engaged in procurement and delivery management

6.1 General

6.1.1 All agents and employees shall:

a) behave equitably, honestly and transparently;

b) discharge duties and obligations timeously and with integrity;

c) comply with all applicable legislation and associated regulations;

d) satisfy all relevant requirements established in procurement documents;

e) avoid conflicts of interest; and

f) not maliciously or recklessly injure or attempt to injure the reputation of another party.

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Note: These general requirements are aligned with those contained in CIDB Code of Conduct published in terms of section 5(4) of the Construction Industry Development Board Act for all parties engaged in construction procurement and SANS ISO 10845-1. The parties that may be directly and indirectly involved in construction procurement include agents, contractors, employers, employees, representatives (an elected person who holds a public office or a member of a board or controlling body of an employer who is not an employee), subcontractors and tenderers. The CIDB Code of Conduct targets all those involved in construction procurement i.e. natural persons, juristic persons and partnerships, as relevant. It is published with a set of examples that illustrate good conduct and, by implication, conduct that would breach this code.

6.1.2 All employees and agents engaged in the procurement system shall:

a) exercise powers and perform duties impartially and with the degree of care and diligence that a reasonable person would exercise in similar circumstances;

b) not use their position, or information obtained because of their position improperly to gain an advantage for themselves or someone else or cause prejudice to any other person;

c) not interfere with or exert undue influence on any person involved in procurement;

d) if a conflict of interest exists in a procurement matter, disclose such conflict and recuse himself or herself from participating in the process of that procurement matter.

e) not perform any duties to unlawfully gain any form of compensation, payment or gratification from any person for themselves or a family member or an associate;

f) perform their duties efficiently, effectively and with integrity and may not use their position for private gain or to improperly benefit another person;

g) strive to be familiar with and abide by all statutory and other instructions applicable to their duties;

h) furnish information in the course of their duties that is complete, true and fair and not intended to mislead;

i) ensure that resources are administered responsibly;

j) at no time afford any undue preferential treatment to any group or individual or unfairly discriminate against any group or individual;

k) not abuse the power vested in them;

l) not place themselves under any financial or other obligation to external individuals or firms that might seek to influence them in the performance of their duties;

m) assist the procuring entity in combating corruption and fraud within the procuring entity's procurement system;

n) not disclose information obtained in connection with a project except when necessary to carry out assigned duties;

o) not make false or misleading entries in reports or accounting systems; and

p) keep matters of a confidential nature in their possession confidential unless legislation, the performance of duty or the provision of the law require otherwise.

6.2 Conflicts of interest

6.2.1 Employees and agents who are connected in any way to the procuring entity's procurement system activities shall:

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a) disclose in writing to the staff member to whom they report, or to the person responsible for managing their contract, if they have, or a family member or associate has, any conflict of interest; and

b) not participate in any activities that might compromise the integrity of the procuring entity's procurement system.

6.2.2 Employees and agents shall declare and address any perceived or known conflict of interest, indicating the nature of such conflict to those responsible for acquisition management at the start of any deliberations relating to the evaluation and award of contract or as soon as they become aware of such conflict, and abstain from any decisions where such conflict exists or recuse themselves from the procurement process, as appropriate.

6.3 Evaluation of submissions received from respondents and tenderers

6.3.1 An employee or agent of the procuring entity:

a) may not amend or tamper with any submission, tender or contract in any manner whatsoever.

b) shall immediately withdraw from participating in any manner whatsoever in a procurement process in which they, or any close family member, partner or associate, has any private or business interest.

6.3.2 The confidentiality of the outcome of the processes associated with the calling for expressions of interest, quotations or tenders shall be preserved. Those engaged in the evaluation process shall:

a) not have any conflict between their duties as an employee or an agent and their private interest;

b) may not be influenced by a gift or consideration (including acceptance of hospitality) to show favour or disfavour to any person;

c) deal with respondents and tenderers in an equitable and even-handed manner at all times; and

d) not use any confidential information obtained for personal gain and may not discuss with, or disclose to outsiders, prices which have been quoted or charged to the procuring entity.

6.4 Gratifications, hospitality and gifts

6.4.1 Employees and agents of the procuring entity shall not, directly or indirectly, accept or agree or offer to accept any gratification from any other person including a commission, whether for the benefit of themselves or for the benefit of another person, as an inducement to improperly influence in any way a procurement process, procedure or decision.

6.4.2 Employees and agents of the procuring entity as well as their family members or associates shall not receive any of the following from any tenderer, respondent or contractor or any potential contractor:

a) money, loans, equity, personal favours, benefits or services;

b) overseas trips; or

c) any gifts or hospitality irrespective of value from tenderers or respondents prior to the conclusion of the processes associated with a call for an expression of interest or a tender.

6.4.3 Employees and agents of the procuring entity shall not purchase any items at artificially low prices from any tenderer, respondent or contractor or any potential contractor at artificially low prices which are not available to the public.

6.4.4 Employees and agents of the procuring entity may for the purpose of fostering inter-personal business relations accept the following:

a) meals and entertainment, but excluding the cost of transport and accommodation;

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b) promotional material of small intrinsic value such as pens, paper-knives, diaries, calendars, etc; and

c) complimentary tickets to sports meetings and other public events, but excluding the cost of transport and accommodation, provided that such tickets are not of a recurrent nature.

6.4.5 Under no circumstances shall gifts be accepted from prospective contractors during the evaluation of calls for expressions of interest, quotations or tenders that could be perceived as undue and improper influence of such processes.

6.4.6 All agents and employees of the procuring entity shall without delay report any incidences of a respondent, tenderer or contractor who directly or indirectly offers a gratification to them or any other person to improperly influence in any way a procurement process, procedure or decision.

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Annex A: Implementation guide

A1 Introduction

Construction works are, except for certain types of residential buildings, necessary to support the strategic and business objectives of client organisations according to their purpose and values. Accordingly, projects involving construction works with a few exceptions form inputs into broader projects, beyond the construction sector. The implications of this, apart from pointing to the linkage between the role played by the client and project outcomes, are that:

- governance processes within the client organisation are required to take ownership of project delivery as an important component of the organisation's business; and
- project delivery is managed as a business rather than as an ad-hoc collection of projects.

Project delivery takes place through a supply chain. Contracts bind the participants in the supply chain. Such projects embrace:

- a "buying" or client delivery management function focusing on client delivery management practices (plan, specify, procure and oversee delivery); and
- a "supply" or delivery function focussing on the management and integration of the resources required to physically deliver the project.

Effective delivery management shaped by strategic decision-making is central to transforming a client's business case and value proposition into successful project outcomes across the entire project lifecycle.

A2 Structure and purpose of the standard

The Public Finance Management Act of 1999 (PFMA) requires an accounting officer or accounting authority to ensure that their organisation has in place an appropriate procurement and provisioning system. The Local Government Municipal Finance Management Act of 2023 (MFMA) requires a council to adopt and implement a supply chain management policy which is in accordance with the provisions of that Act. The Public Procurement Act of 2024 makes the accounting officer or accounting authority of a procuring entity responsible for making decisions on behalf of the entity in terms of the Act. This Act makes the procuring entity responsible for implementing an effective and efficient procurement system including a procurement policy which provides for:

- institutional and governance arrangements;
- demand management;
- procurement planning and budgeting;
- acquisition management;
- contract management, including assessment of projects against outcomes;
- risk management;
- logistics management;
- disposal management;
- monitoring and assessment of procurement performance; and
- reporting.

A construction procurement system as envisaged in the Public Procurement Act of 2024 operates within a structured system of rules, delegation frameworks, control sequencing and oversight mechanisms. The purpose of this standard is to provide a coherent architecture within which procurement decisions are framed, authorised, implemented and, where necessary, corrected. It

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establishes a system of planning instruments, control points and procurement processes which together form an integrated control environment across all stages of project delivery.

This standard represents a significant and necessary evolution from a procedural procurement standard toward a structured control framework for project delivery. The inclusion of planning instruments, procurement gates and broader delivery management considerations collectively provide a solid platform for consistently delivering value for money. This is made possible through the provision of a structured control framework within which procurement and delivery decisions are taken, and progression is conditional on defined information, authority and confirmation.

This standard does not include proforma documents for inclusion in procurement documents. Such documents are available from the CIDB website.

A3 Tailoring

The provisions of this standard are generic and scalable in nature and can be applied across the spectrum of construction works projects from the simplest to the most complex in both the public and private sectors. It is recognised that each organisation has its own governance arrangements, capabilities, capacities and needs for project delivery that influence how the standard is implement. At the same time, public sector procurement is in a state of transition in moving from the Supply Chain Management Regulations issued in terms of the PFMA or MFMA towards the implementation of the Public Procurement Act of 2024. As a result, variables such as the number of days within a process are omitted from the text of the standard.

It is therefore not possible to standardise the construction procurement system for all public and private sector organisations. Some tailoring through an organisation's construction procurement policy is necessary. What is possible is to provide:

- uniform and standard processes, methods and procedures to perform procurement and delivery management functions in the delivery or maintenance of construction works;
- generally applicable requirements for an organisation's construction procurement system;
- control frameworks within which decisions may be made in relation to project delivery;
- a framework for the standardisation of procurement documents; and
- ethical practices that regulate the actions, practices and procedures of those engaged in the procurement system for project delivery.

However, there are several policy choices and alignments required to make it organisation specific. It is necessary to:

- tailor some of the principles and provision to the specificities of client organisational needs and levels of maturity;
- discard the application of some of the options or implement them incrementally over time due to organisational capacity and capability constraints;
- make several policy choices and alignments required with the parameters of the current and future public sector legislative framework for procurement.

Such adjustments and tailoring may be performed through the development of the organisation's construction procurement policy, a proforma of which is available from the CIDB website.

Table A1 identifies what needs to be included or considered in a construction procurement policy to align it with the provisions of the standard

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Table A1: Minimum policy requirements to align a construction procurement policy with the standard

General clause	Construction procurement policy requirements and considerations	Specific clauses
4.1 General principles	The policy must, based on the provisions of the standard, include a preferential procurement policy aligned with applicable national legislation and organisational delivery capabilities and competencies	4.1.1 a) 4.1.3
4.3 Governance arrangements	Assign responsibility for decision making at control gates and add any additional gates if necessary	4.3.1.1
	The number of years that documents relating to approvals and acceptance are retained for record or potential audit purposes	4.3.1.3
	Cost thresholds and conditions that trigger the development of business cases using the Five Case Mode and gateway review requirements.	4.3.2.2a) and g) 4.3.3.7
	Delegations relating to percentage increases in the total of prices or time for completion at Procurement Gates PG8C or PG8D	Table 6; Activity 6 4.3.4.4
	Identity of person who approves the use of the negotiated and confined market selection method	4.3.4.3
	Identity of person who is empowered to authorise a rapid response in an emergency which can be dealt with in 48 hours	4.3.4.3b)
4.6 Acquisition management	Requirements for placing of advertisements and the timing of advertisements	4.6.1.1.1
	Permit or prohibit electronic submissions Arrangements for a tender box	4.6.1.3.1
	The identity of the opening panel	4.6.1.3.2
	The number of days following the closure of any advertised call for an expression of interest or an invitation to tender within which data associated therewith must be published on the organisation's website	4.6.1.4.1 4.6.1.4.2
	The identity of the person who notifies the award of contracts and orders in terms of framework agreements on the CIDB website in accordance with the provisions of the Construction Industry Development Regulations	4.6.1.4.3
	The identity of the person who communicates the outcome of the tender process to all participants	4.6.1.5
	Establish: • the value below which the petty cash purchases • the estimated value of a procurement above which the quotation procedure may not be applied; and • requirements for the application of the quotation procedure	4.6.2.1.1
	Establish the membership of the procurement documentation committee, evaluation committee and tender committee	4.6.2.1.2
	Establish requirements for procurement documents which are beyond the minimum requirements of the standard including which standard forms of contract endorsed by the CIDB on their website may be used and requirements to apply standard templates	4.6.2.2.3
	The identity of the person(s) who are authorised to award a contract	4.6.2.5.1
	The identity of the person(s) who are authorised to issue an order in terms of a framework agreement	4.6.2.6.1
	Establish emergency procurement procedures	4.6.4

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General clause	Construction procurement policy requirements and considerations	Specific clauses
4.7 Contract management	Identify constraints if any that may be imposed on the contracts manager when acting in terms of the contract	4.7.2.2a)
5 Procurement methods and procedures	Identify selection methods which may not be applied and / or modifications to the conditions under which a selection method may be applied	5.2.1
	State the minimum number of working days which tenderers must be given to prepare and submit quotations under the quotation procedure	5.2.5
	State the maximum term of a framework agreement	5.3.1d)
	Identify where possible and permitted in terms of legislation which instruments may be applied to implement a preferential procurement policy	5.6.1
	State the value of the threshold below which set asides may be implemented and where permitted Identify the targeted categories of persons for which contracts may be set aside Establish the minimum number of persons who must have the capability and capacity to perform the contract to be invited to submit tenders	5.6.2
	State the value of the threshold below which prequalification criteria may be implemented	5.6.3.1
	State the value, the minimum number of tenderers required to comply with requirements and the estimated value to apply subcontracting as a condition of contract	5.6.4.1
	Identify the person who approves advance payments to contractors	5.7.6.5

A4 Critical leadership role of the client

A4.1 Principal function of a client organisation

An organization, functioning as a client in a project delivery context, initiates and finances a project and approves the requirements as captured in a brief and any changes thereto. The principal function of the client organization is to ensure that a solution to the business case for a construction works project is achieved. The client, as such, owns the business case of the project and is accountable for project outcomes throughout the project cycle shown in Figure A1..

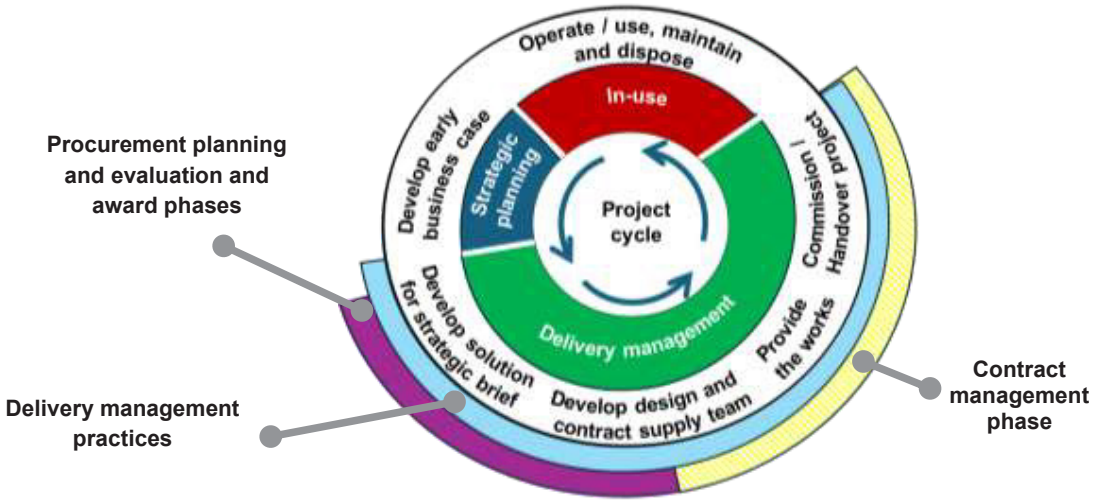


Figure A1: Stages and principal activities in the project cycle

The role of the client is widely held as the primary determinant of successful project delivery irrespective of scale, technical complexity or geographic variables. Effective alignment of the project objectives with broader business outcomes is predicated on the client's active engagement, the

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strategic selection of project teams and procurement options, and the implementation of robust management systems characterised by consistent decision-making and transparent communication. Effective governance, clear roles, and structured processes help transform a client's value proposition into successful project outcomes across the full project delivery cycle as indicated in Figure A1.

Table A2 outlines the key actions associated with the project cycle indicated in Figure A1. Table A3 maps the topics covered in this standard in relation to the project cycle.

Table A2: Descriptions and associated key actions in the project cycle

Stage	Description	Key actions associated with a principal activities
In-use	Stage during which construction works performs its intended functions and is maintained in a condition to do so reliably	• Operate / use as intended • Maintain in a condition as intended • Dispose when no longer required
Strategic planning	Stage when projects involving the creation and maintenance of construction works projects are identified and motivated through organisational processes aimed at meeting strategic or critical asset management objectives	Develop as necessary • project initiation report that outlines the high-level business case, costs and schedule • early business case which focuses primarily on the strategic and economic cases, establishing the 'strategic need' for the project, and a shortlist of options.
Delivery management	Stage when projects are planned, specified, procured and their delivery overseen through knowledgeable leadership, consistent governance and systematic administration of procurement processes, contracts and project finances	• Develop a viable solution which enables decisions to be made to proceed or develop an intermediate business case before proceeding • Procure contractor(s) and professionals as per adopted procurement strategy • Develop design and associated documentation, as necessary • Provide, commission and / or hand over works to those who will operate / use and maintain the works

Table A3: Project cycle topics addressed in the standard

Stage	Clause	Topic
Operate / use, maintain and dispose	4.3.2.1	Linkage between strategic planning and demand management processes to project identification
	4.4	Principles associated with the establishment of the demand for projects linked to asset management and strategic planning activities
	4.6.4	Arrangements for obtaining external resources to address emergencies which result in local failure, localised reconstruction or widespread failure of construction works
	4.10 and 5.6.9	Options for disposal of materials and construction works which are surplus to requirements
Develop early business case	4.3.1 and 4.3.2	Organisation of activities and actions within project preparation processes into discrete tasks which incorporate decision gates (control framework)
	4.4	Principles associated with managing the demand for projects linked to asset management and strategic planning activities
	4.5.1	Informing of decision making through the preparation of a project initiation report and the criteria by which projects are prioritised
	4.5.2	Tools for project prioritisation and scheduling through project delivery management plans and annual procurement plans
	4.5.3	Considerations in the development of a construction procurement strategy
	4.6.3	Principles for considering and accepting unsolicited proposals

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Stage	Clause	Topic
Develop solution for strategic brief	4.3.1 and 4.3.3	Organisation of activities and actions within project planning processes into discrete tasks which incorporate decision gates (control framework) for project preparation
	4.3.2	Criteria for admission to portfolio planning processes and business case development established as well as what is required in terms of these two front end planning regimes
	4.3.3	Minimum stage deliverables associated with project planning processes which inform project viability or enable business cases to be refined
	4.3.3.6 and 4.3.3.7	Assurance review points in the form of gateway reviews which are usually applied at the end of the project planning phases
	4.5.4	Principles for development and management of budgets
	4.5.5	Mitigation of potential site based disruptions and community conflicts through social facilitation
Develop design and contract supply team	4.3.1 and 4.4.3	Organisation of activities and actions within design development processes into discrete tasks which incorporate decision gates (control framework) for project preparation
	4.3.4	Organisation of activities and actions within processes associated with the initiating, creating and fulfilling contracts into discrete tasks which incorporate decision gates (control framework)
	4.3.5	Organisation of activities and actions within processes associated with the issuing of orders for framework agreements into discrete tasks which incorporate decision gates (control framework)
	4.6	Principles and requirements associated with the conducting of acquisition processes Application of the committee system to approve procurement documents, evaluate submissions and make recommendations to award a contract Award of contracts and issuing of orders in terms of framework agreements
	4.7	Oversight responsibilities of the client delivery manager Duties of a contract manager Payment against certified amounts
	5.3	Framework agreements
Provide the works	4.3.1 and 4.3.3	Organisation of activities and actions within site processes into discrete tasks which incorporate decision gates (control framework)
	4.3.3.5	Procurement of long lead items
	4.5.5	Mitigation of potential site based disruptions and community conflicts through social facilitation
	4.7	Oversight responsibilities of the client delivery manager Duties of a contract manager Payment against certified amounts Focus of meetings on construction contracts
Commission / handover project	4.3.1	Organisation of activities and actions within handover / commissioning and close out processes into discrete tasks which incorporate decision gates (control framework)
	4.7	Payment against certified amounts

A4.2 Translating a value proposition into project outcomes

The client's organisation's business case, vision, values and project priorities collectively make up the client's value proposition for a project i.e. the promise of measurable benefits. Figure A2 illustrates the process whereby a client's value proposition is transformed into project delivery outcomes. Activities associated with the planning, designing, manufacturing, fabrication, construction, installation and commissioning need to translate the client's value proposition into project outcomes i.e. the change resulting from the use of the output from a project. Project outcomes include construction works with the required functionality, performance, and quality in all its forms, ready for use, with a concomitant impact on the three aspects of sustainability

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(economic, environmental and social) and public value. Project value is the outcome of client decision making to achieve an optimal balance of the project benefits, risks and costs.

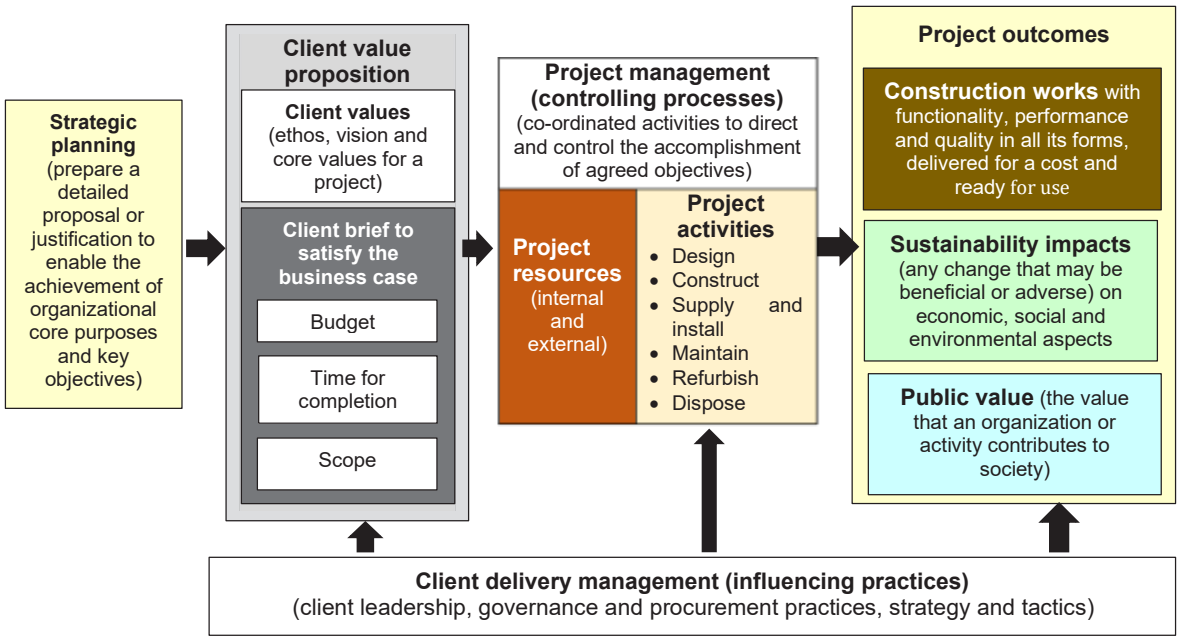


Figure A2: Translating the client value proposition into project outcomes

During the process of converting a value proposition into project outcomes, the client should perform the following delivery management (influencing) practices to realize project value:

- plan – decide on what should be done, how it is to be resourced and achieved and in what time frames, and set a budget;
- specify – define the organisation's functional and other requirements for the project clearly and precisely;
- procure – obtain project resources (internal and external) to execute project activities with care and effort; and
- oversee delivery – observe and define the execution of the project to deliver and realise the client's value proposition associated with a business case.

The project management function associated with projects coordinates activities to direct and control the accomplishment of agreed objectives in support of the supply function. The delivery management function, on the other hand, focuses on knowledgeable leadership, consistent governance and systematic administration of procurement, contracts and project finances.

A client needs to provide effective leadership of the project throughout the delivery cycle, commencing at a strategic level and ending at the close out of a project.

A4.3 Functions of principal role players in project delivery

There is no 'one size fits all' allocation of roles and responsibilities to support project delivery as project governance arrangements vary between projects and client organizations. Figure A3, nevertheless, illustrates an appropriate allocation of roles and responsibilities aligned with the project governance arrangements whereby a client delivery manager has single-point accountability for project delivery and reports to a senior line manager and a project delivery steering committee. The line manager in turn reports to the governing body.

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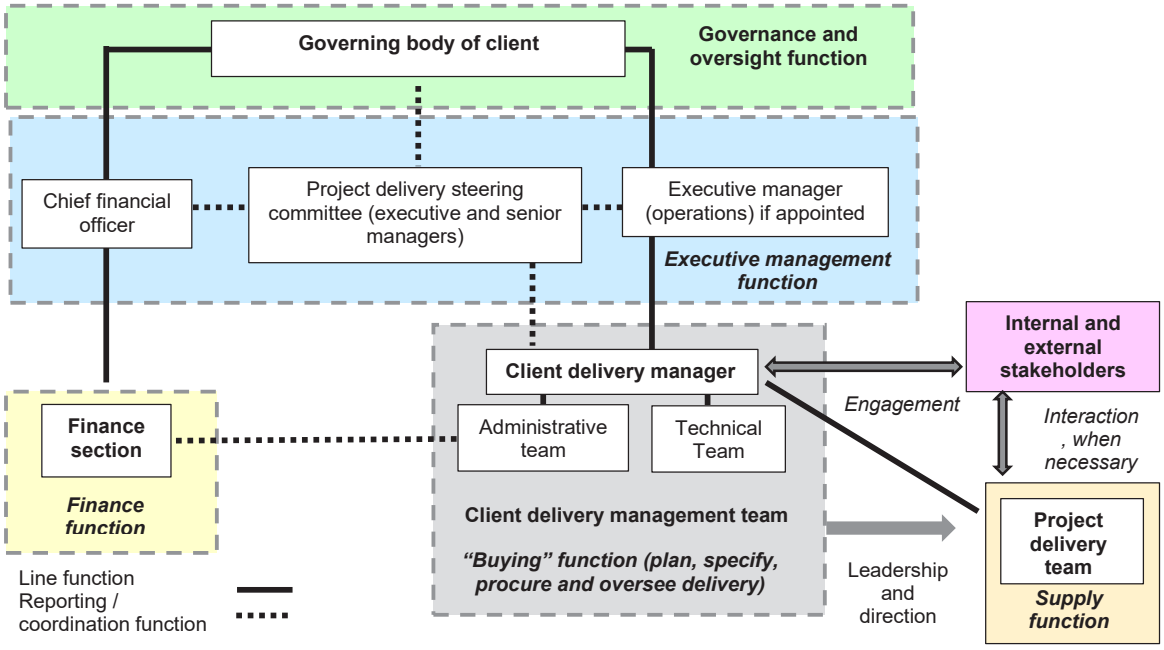


Figure A3: Example of the allocation of roles and responsibilities in project delivery

Note: ISO 6082 provides guidance on the roles and responsibilities of the role players in project delivery

A4.4 Client leadership

The key purpose of project delivery control frameworks (see 4.3.3) that impose decision gates is to undertake work incrementally to promote informed decision-making as the project progresses and its definition is developed. As the project definition deliverables mature over time, the estimating methods change and the expected range of accuracy improve as indicated in Table A4. The procurement of the entity responsible for the works stage (stage 5) can be appointed following the completion of stages 1, 2, 3 or 4, depending on whether they are assigned design responsibilities for the permanent works and how contractors are to be contracted and remunerated.

Mature control frameworks consider more than the technical solution. They also consider the ongoing development and refinement as necessary of the business case, project execution planning and the role of the project owner in decision making throughout the lifecycle.

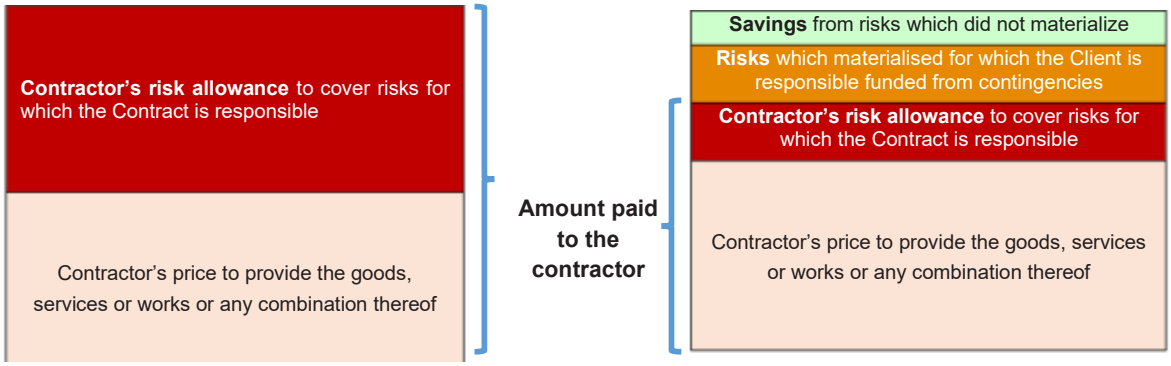
There are also several approaches to the allocation of risks in a contract between the client organisation and the contractor. Risks can be retained by the client organisation or transferred to the contractor. Risks for which the contractor is responsible for are priced in the contract amount and are as such paid irrespective of whether they manifest during the execution of the contract. Retained risks reduce risk pricing in contract amounts but need to be funded should the risk event occur (see Figure A4). At the same time, the demand for insistent and peremptory requests for modifications and additions to the scope and additional features or functions not authorised (scope creep) may flare up. These risks can lead to considerable cost overruns if not carefully monitored and overseen.

Knowledgeable leadership is required to guide the client through the maze of decision making required to deliver a project and to achieve project value.

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Table A4: AACE International Cost Estimate Classification System

Class estimate / approximate stage	General building and construction industries (56R-08, 2020)			Process industries (18R-97, 2020)		
	Maturity level of project definition deliverables (%)	**End usage** (Typical purpose of estimate)	**Expected accuracy range** (typical variation in low and high ranges)	**Maturity level of project definition deliverables** (%)	**End usage** (Typical purpose of estimate)	**Expected accuracy range** (typical variation in low and high ranges
Class 5 / Stage 1	0% to 2%	Functional area, or concept screening	L: -20% to – 30% H: +30% to +50%	0% to 2%	Concept screening	L:- 20 to – 50% H:+30 to +100%
Class 4 / Stage 2	1% to 15%	Schematic design or concept study	L: -10% to – 20% H: +20% to +30%	1% to 15%	Study or Feasibility	L: -15 to -30% +20 to +50%
Class 3 / Stage 3	10% to 40%	Design development, budget authorization, feasibility	L: -5% to – 15% H: +10% to +20%	10% to 40%	Budget, Authorisation, or Control	L: -10 to -20% H: +10 to +30%
Class 2 / Stage 4	30% to 75%	Control or bid/tender, semi-detailed	L: -5% to – 10% H: +5% to +15%	30% to 70%	Control or Bid/Tender	L: -5 to -15% H: +5 to +20%
Class 1 / Stage 5	65% to 100%	Check estimate or pre bid/tender, change order	L: -3% to – 5% H: +3% to +10%	70% to 100%	Check Estimate or Bid/Tender	L: -3 to -10% H: +3 to +15%



Note: The focus in the allocation of risk is on the payment and responsibility for the cost of the risk event, should it materialise

Figure A4: Risk allocation principles

A5 Managing multi-year construction works projects over a three year horizon

A5.1 General

Public sector planning in South Africa is governed by a 3 year rolling budgetary planning process referred to as the Medium Term Expenditure Framework (MTEF) or the Medium Term Revenue and Expenditure Framework (MTREF). A client delivery management team needs to oversee and

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manage budgets and cash flows, the procurement of implementation resources, payment of contracted persons and the accounting for expenditure. This requires cost and time management across multiple construction works projects which is dependent on having accurate, reliable and up to date information to make informed decisions. The focus of such management is on:

- managing the overall budget available for the current financial year and, if necessary, over subsequent years;
- delivering projects within a budget; and
- aligning the completion of projects within end user requirements (achieving project value).

The primary tools for doing so are defined in this standard as:

- **authorised amount:** the sum of money authorised by the governing body for a project or programme which may not be exceed without authorisation;
- **control budget:** the amount of money which is allocated or made available to deliver or maintain construction works associated with a project, contract or order, including any site costs, professional fees, all service and planning charges, furniture, fittings and equipment, applicable taxes, risk allowances and provision for price adjustment for inflation; and
- **contingency sum: a** sum of money budgeted for to cover required work that cannot be foreseen or predicted with certainty

A5.2 Authorised amounts, project control budgets and contingency sums

Risk can influence the delivery of a project in terms of time, cost and quality, and in extreme cases, even the completion of the project. Risk taking is unavoidable in project delivery. A central issue that needs to be dealt with is the financial liability relating to the uncertainty of future events (see Figure A4). Standard forms of contract establish the allocation of risks between the parties and make provision for any necessary adjustments to the contract amount and time for completion arising from risk events for which the contractor is not responsible.

The authorised amount is funding approved by the governing body for a project following a decision to implement a project. It represents the total cost of an investment required to realise the value proposition for a project. Such an amount includes delivery management costs and the project control budget as indicated in Table A5.

Table A5: Example of the authorised amount for a project

Item		**Amount (Rands)**
A Contribution from own resources e.g. revenue	**R**	
B Contribution from other resources e.g. annual budget	**R**	
C Grant funding	**R**	
Total amount available for the project (A + B + C =T_1)		**R** . . . . .
D Expenses relating to insurance, audit fees etc.	**R**	
E Expenses relating to delivery management team services / implementing agent fees	**R**	
F Expenses relating to technical advisory services	**R**	
G Other	**R**	
Total expenses (D + E + F + G = T_2)		**R** . . . . .
H Total authorised amount available for the project (T_1-T_2)		**R** . . . . .

A control budget needs to be established for each project. Such budgets are concerned with the estimation of the outturn (final) cost of a project and include costs for all external resources required to deliver or maintain identified construction works as indicated in Table A6. Such a

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budget needs to include contingency sums to fund the client organisation's liabilities (risk allocations) in terms of the contract. Control budgets as such set a target or benchmark against which projects are delivered. They are set and adjusted / amended at decision gates (control points) within the control framework for project delivery.

Table A6: Example of a control budget for a project

Item			Amount (Rands)
A Service and planning charges			**R** . . . . .
Cumulative value of planned procurements, contracts and orders issued in terms of a framework agreement excluding contingencies and price adjustment for inflation for:			
• work packages	**R**		
• professional services and other services	**R**		
• furniture fittings and equipment	**R**		
B Total cumulative planned procurements, contracts and orders (A)			**R** . . . . .
C Add contingency amount	. . . . .	% of A	**R** . . . . .
D Add allowance for price adjustment for inflation	. . . . .	% of A	**R** . . . . .
E Add allowance for currency fluctuations	. . . . .	% of A	**R** . . . . .
Total excluding VAT (A+B+C+D+E)			**R** . . . . .
VAT@ . . . . %			**R** . . . . .
Project control budget			**R** . . . . .

The difference between the authorised amount (see Table A5) and the control budget (see Table A6) enables the surplus / deficit to be established.

A5.3 Multi-year budgeting for projects

It is seldom possible to complete the planning, design, procurement and implementation of a construction works project in a single financial year. A multi-year approach is required for planning project delivery, as a procuring entity may in any given year be engaged in:

- closure and reporting activities for the previous year's project implementation;
- managing implementation, monitoring and reporting for the current year's project implementation;
- managing procurement processes for the current, next or future year's implementation;
- planning for next and future year's implementation; and
- updating the project delivery management plan.

The budget for a multi-year project should be spread over the years for which the project is planned. Project plans should therefore include cash-flow projections that indicate when budgets are required, what portion of the project will be completed in each financial year, and how much budget should be allocated each year. This will inform the cashflow to be allocated to each project for each year.

Delays in project delivery are common, and not just due to poor management. Often delays are caused by unforeseen events, such as ground conditions which are only discovered after the project has started. To avoid under-expenditure in a financial year, the procuring entity needs flexibility to adjust annual project cash-flow projections so that funds can be directed to faster-moving projects. This does not mean that overall project budgets or the approved purpose of the funds would change, but rather that the rate of expenditure may vary. This cashflow management requires careful consideration.

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One way to achieve this cash-flow flexibility is to appropriate budgets to programmes (groups of coordinated projects) rather than individual projects, allowing funds to move between projects as illustrated in Figure A5.

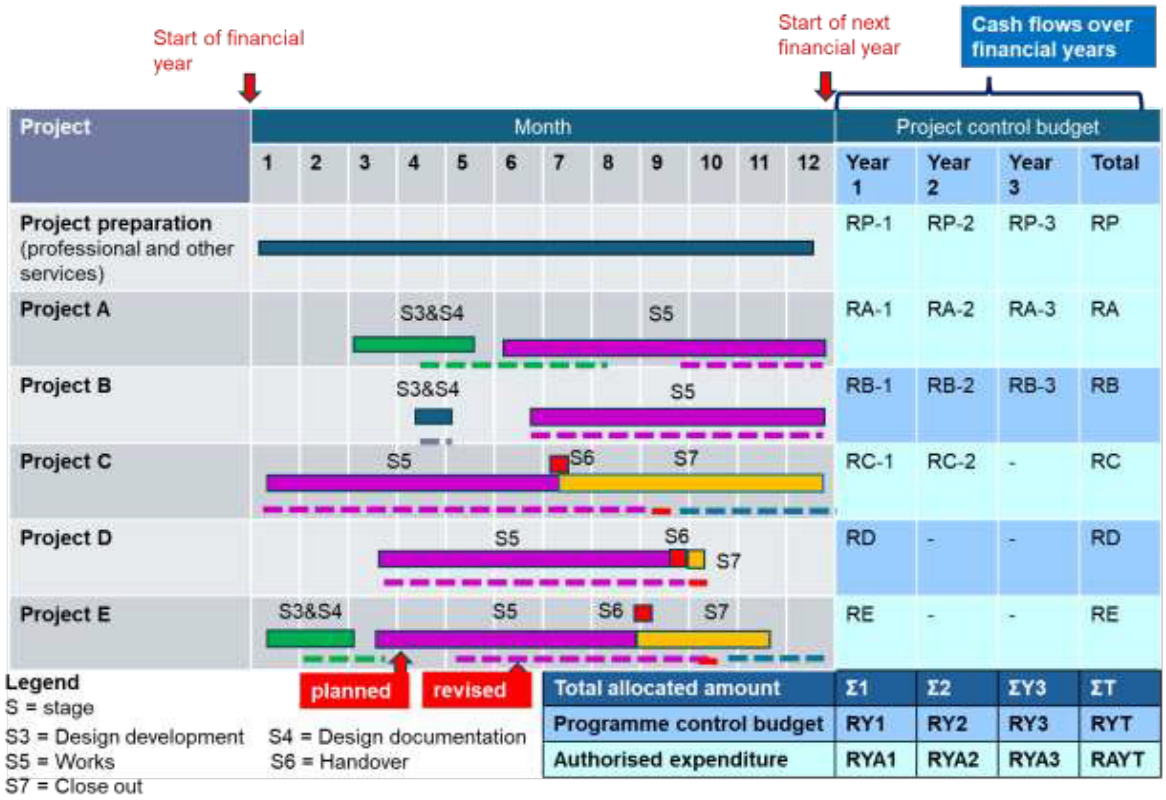


Figure A5: An example of a high-level multi-year project delivery management plan for a programme of projects

A5.4 Data gathering to manage commitments and expenditure

Cost data needs to be gathered continuously to ensure that, at any point in time, both the amount paid on a project and the funds set aside for projected expenditure in each financial year are known. Much of this data can be obtained from well formulated payment certificates issued in terms of the contract as the contract manager has all the required information i.e. the data relating to the time for completion and the total of the prices at the start of the contract and any changes to these values which are made in accordance with the provisions of the contract or are pending.

A management system to enable oversight and control of procurements, contract commitments, authorised budgets, payments and expenditure needs to be put in place by the client delivery manager's administrative team at both a project and programme level. Such a system should comprise the following four registers indicated in Figure A5 to seamlessly link project finances to the overarching financial management system:

1) a **planned procurement and commitment register** to record for each project the estimated value of planned procurements together with the contracts entered (or orders issued in terms of a framework agreement) so that at any point in time the total value of a project can be compared with the planned project budget;

2) a **contracts register** which ensures that contract numbers are never duplicated and contains particulars of all contracts and orders issued in terms of a framework agreements and can, if required, include additional information relating to the starting price, details relating to the time for completion and any changes in the time for completion;

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3) a **payment register** to record all the payments that have been authorised against each contract and purchase order and enable time between receipt of invoice and making of payment to be established; and

4) a **purchase order register** to link contracts or orders issued in terms of framework agreements and the payments relating thereto to the amounts authorised within the financial management system to ensure that approved contract budgets are not exceeded.

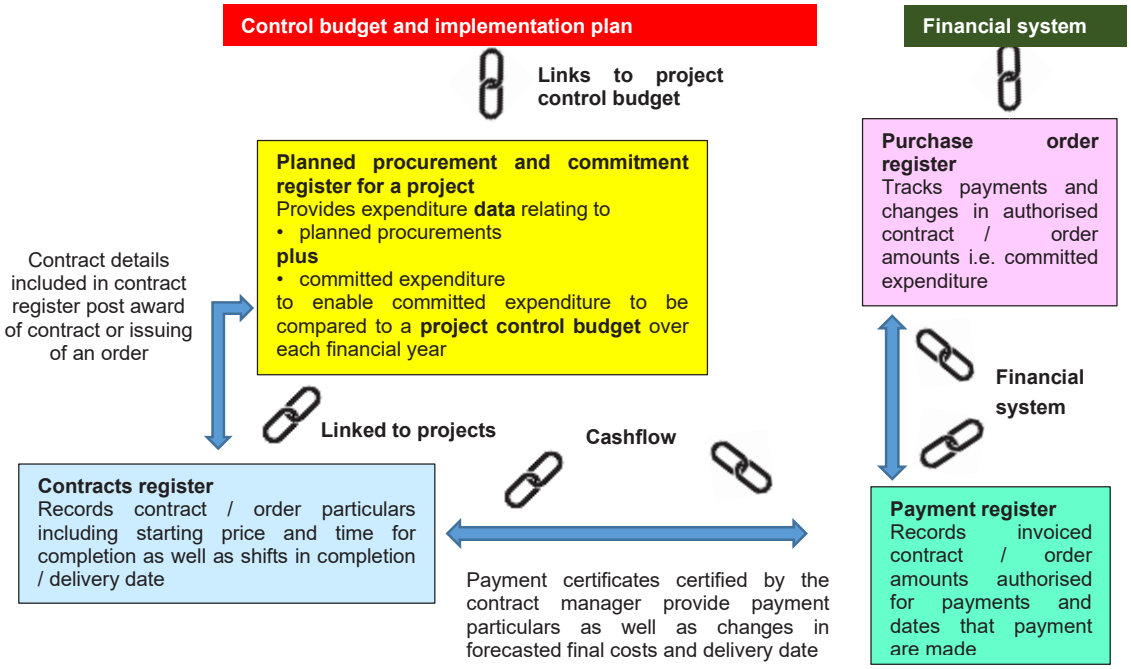


Figure A5: Managing the overall programme of commitments and expenditure

Underpinning these registers is a Payment Authorisation Form that spells out what is being paid against which contract or order, which purchase order, how much has been paid in total and how much is remaining on the control budget and authorised amount.

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WITHDRAWAL GOVERNMENT GAZETTE NO 27712 OF 2005

GENERAL NOTICE IN TERMS OF THE RESTITUTION OF LAND RIGHTS ACT, 1994 (ACT NO. 22 OF 1994)

Withdrawal Notice is hereby given in terms of section 11A(2) (C) of the Restitution of Land Rights Act, 1994 (Act No. 22 of 1994 as amended) that a claim for restitution of land rights on:

REF NO.	CLAIMANT	PROPERTY	DISTRICT	CURRENT LAND OWNER	DEEDS OF TRANSFER
TT 012	Ramotshabi Lucas Molotlhanyi	farm Blaauwboschkuil 229 HO	DR Kenneth Kaunda District	Botha Christoffel Daniel	T21068/1961
		Portion 3		Botha Christoffel Daniel	T36249/1976
		Portion 4		Theunissen Johan	T148795/2003
		Portion 5		Botha Christoffel Daniel	T21068/1961
		Portion 6		P & Delwerye Pty Ltd	T66501/2002
		Portion 8		Kuhn Jan Christaan	T113811
		Portion 9		Theunissen Johan	T115747/1997
		Portion 10		Beestkraal Trust	T156646/2003
		Portion 11			T57006/2002
		Portion 12			

has been submitted to the Regional Land Claims Commissioner for North West Province. Any person who has an objection in the above mentioned withdrawal notice is hereby invited to submit within 30(Thirty) days from the publication of this notice to this below address

The Regional Land Claims Commissioner: North-West
Private Bag X 8
MMABATHO
2735

Tel: (018) 388 7000
Fax:

MR L.H MAPHUTHA
REGIONAL LAND CLAIMS COMMISSIONER: S.A
DATE: 2026/04/14

MR V TITIES
DEPUTY DIRECTOR: INFORMATION MANAGEMENT SUPPORT: NORTH WEST
DATE: 2026/03/17

DEPARTMENT OF RURAL DEVELOPMENT AND LAND REFORM

NO. 7724 **24 July 2026**

GENERAL NOTICE IN TERMS OF THE RESTITUTION OF LAND RIGHTS ACT, 1994 (ACT NO.22 OF 1994)

Notice is hereby given in terms of section 11 (1) of the Restitution of Land Rights Act, 1994 (Act No.22 of 1994 as amended) that a claim for restitution of land rights on:

Reference : 6/2/3/D/59/710/2010/1

Claimant :Mr. James Thembile Ndlaleni

Property Description	Property Extent (Square Meter)	Title Deed	Current Owner	Municipality
Portion of Erf 589 Riebeek East, Eastern Cape Province	417.0000	T57316/1999	Hllanganyana Max Lanx	Blue Crane Municipality
Portion of Erf 590 Riebeek East, Eastern Cape Province	453.0000	T57270/1999	Xolile Zondani	Blue Crane Municipality
Portion of Erf 593 Riebeek East, Easten Cape Province	392.0000	T57318/1999	Thembeka Gloria Dyantyi	Blue Crane Municipality
Portion of Erf 594 Riebeek East, Eastern Cape Province	244.0000	T57273/1999	Thanduxolo Witness Yaka	Blue Crane Municipality

Total extent of claimed land: 757 square meters

Date Claim Submitted : 18th of December 1998

Has been submitted to the Regional Land Claims Commissioner for the Eastern Cape and that the Commission on Restitution of Land Rights will investigate the claim in terms of the provisions of the Act in due course.

Any person who has an interest in the above-mentioned land is hereby invited to submit, within ninenty (90) days from the publication of this notice, any comments/information to:

Office of the Regional Land Claims Commissioner : Eastern Cape
Department of Land Reform and Rural Development
PO Box 1375
East London
5200
Tel: 043 700 6000, Fax : 043 743 3687

Mr. L.H. Maphutha
Regional Land Claims Commissioner

DEPARTMENT OF RURAL DEVELOPMENT AND LAND REFORM

NO. 7725 **24 July 2026**

GENERAL NOTICE IN TERMS OF THE RESTITUTION OF LAND RIGHTS ACT, 1994 (ACT NO.22 OF 1994)

Notice is hereby given in terms of section 11 (1) of the Restitution of Land Rights Act, 1994 (Act No.22 of 1994 as amended) that a claim for restitution of land rights on:

Reference : 6/2/2/D/1078/0/0/102

Claimant : Mr. Henry Dickson

Property Description	Property Extent (Hectares)	Title Deed	Current Owner	Municipality
Farm 484 Stockenstrom, Eastern Cape Province	1.7988	T2327/2011	Barnes Hector MacMillan Douglas	Raymond Mhlaba Municipality

Date Claim Submitted : 30th of November 1998

Has been submitted to the Regional Land Claims Commissioner for the Eastern Cape and that the Commission on Restitution of Land Rights will investigate the claim in terms of the provisions of the Act in due course.

Any person who has an interest in the above-mentioned land is hereby invited to submit, within ninenty (90) days from the publication of this notice, any comments/information to:

Office of the Regional Land Claims Commissioner : Eastern Cape
Department of Land Reform and Rural Development
PO Box 1375
East London
5200
Tel: 043 700 6000, Fax : 043 743 3687

Mr. L.H. Maphutha
Regional Land Claims Commissioner

DEPARTMENT OF RURAL DEVELOPMENT AND LAND REFORM

NO. 7726 **24 July 2026**

GENERAL NOTICE IN TERMS OF THE RESTITUTION OF LAND RIGHTS ACT, 1994 (ACT NO.22 OF 1994)

Notice is hereby given in terms of Section 11 A (4) of the Restitution of Land Rights Act, No, 22 of 1994 as amended, due to an error in the Government Gazette Number 25627, Notice Number 2669 of 2003.

The above-mentioned gazette notice is hereby amended to include the extent of the land.

Reference : **6/2/3/D/50/780/875/123**

Claimant : **Mr. Jabula Mziwoxolo Ngcayisa**

Property Description	Land Owners	Extent
Erf 876 now consolidated into Erf 1460	Kouga Municipality	1569 square meters

The property is situated in the in Hankey, Kouga Local Municipality, Sarah Baartman, Eastern Cape Province.

Province Date Claim Submitted : **01 August 1995**

Current Owner : **Kouga Local Municipality**

Current Land Use : **Church**

The reason why the office of the Regional Land Claims Commissioner believes that the notice must be amended:

a) The claim was gazette with no extent of the subject property / land.

NOTICE is further given that at the expiry of the aforesaid 90 day period; the office of the Regional Land Claims Commissioner shall, unless cause to the contrary has been shown to his satisfaction, amend the notice.

The Regional Land Claims Commissioner
Eastern Cape P .O. Box 15402 Beacon Bay
East London
5241

Tel: (043) 700 6000
Fax: (043) 743 3687

Mr. Lebjane Maphutha
Regional Land Claims Commissioner
Date: 2026/03/05

DEPARTMENT OF RURAL DEVELOPMENT AND LAND REFORM

NO. 7727 **24 July 2026**

GENERAL NOTICE IN TERMS OF THE RESTITUTION OF LAND RIGHTS ACT, 1994 (ACT NO.22 OF 1994)

Notice is hereby given in terms of Section 11 A (4) of the Restitution of Land Rights Act, No, 22 of 1994 as amended, due to an error in the Government Gazette Number 53210, Notice Number 6528 of 2025.

The above-mentioned gazette notice is hereby amended to specify the following correct Reference number and to reflect the correct Current Owners.

Reference : **6/2/3/D/51/797/679/175**

Claimant : **Mr. Lionel Hugh Bell**

Property Description	Extent	Title Deed	Current Owners
Erf 813 (now consolidated into ERF 1634) in South End	529 square meters	T81370/2005	Provincial Housing Development Board – Eastern Cape
Erf 842 in Fairview	806 square meters	T28094/1980	Provincial Housing Development Board – Eastern Cape
Remainder 3103 in Uitenhage	821 square meters	T34171/1980	Provincial Housing Development Board – Eastern Cape

All the properties are situated in Gqeberha, Nelson Mandela Metropolitan Municipality, Sarah Baartman District, Eastern Cape Province.

Date Claim Submitted : **26th of February 1997**

The reason why the office of the Regional Land Claims Commissioner believes that the notice must be amended:

a) When the claim was gazetted it transpired that there was an error in stating the correct Reference number and to reflect the correct Current Owners.

NOTICE is further given that at the expiry of the aforesaid 14 day period; the office of the Regional Land Claims Commissioner shall, unless cause to the contrary has been shown to his satisfaction, amend the notice.

The Regional Land Claims Commissioner
Eastern Cape P .O. Box 15402 Beacon Bay
East London
5241

Tel: (043) 700 6000
Fax: (043) 743 3687

Mr. Lebjane Maphutha
Regional Land Claims Commissioner
Date: 2026/05/13

DEPARTMENT OF RURAL DEVELOPMENT AND LAND REFORM

NO. 7728 **24 July 2026**

GENERAL NOTICE IN TERMS OF THE RESTITUTION OF LAND RIGHTS ACT, 1994 (ACT No. 22 OF 1994), AS AMENDED

Notice is hereby given in terms of Section 11A (4) read with section 11A (2) of the Restitution of Land Rights Act, 1994 (Act No. 22 of 1994), as amended, for amendment of Gazette notice number 1415 of 2008 contained in Government Gazette No. 31595, dated 14th of November 2008, that a claim of Restitution of Land Rights Act has been lodged on the farm Manorvlei 556 LT on behalf of Banatse Community.

The late Mashiane Albert Maunatlala, lodged a land claim on the 26 of June 1998 on behalf of Natse community dispossessed of rights in land on the land described in the land claim form as Manorvlei 556 LT (Natse) Bodupe. The date is within the cut-off date of 31st December 1998 as prescribed in the Restitution of Land Rights Act, 1994 (Act 22 of 1994), as amended.

However, the gazette notice number 1415 of 2008 published in the Government Gazette number 31595 indicate that Banatse Community lodged a land claim on the farm Manorvlei 556 LT. However, the survey conducted to determine the extent of the claimed land established that Banatse Community is claiming land within the portions of the farms Doorhoek 535 LT, Doornvlei 569 LT, Pusela 555 LT, Lushof 540 LT and Manorvlei 556 LT measuring 804.7352 hectares.

Therefore, Banatse Community is entitled to claim the land within portions of the farms Doorhoek 535 LT, Doornvlei 569 LT, Pusela 555 LT, Lushof 540 LT and Manorvlei 556 LT measuring 804.7352 hectares.

The table below depict the claimed land,

NO	FARM NAME	PORTION	CURRENT OWNER	TITLE DEED NUMBER	EXTENT IN HECTARES
1	THE FARM DOORNHOEK 535 LT	PTN 4	SEBATA TRUST	T35633/2011PTA	500078 H
2		PTN 15	WESTHUIZEN WYNAND JOHANNES VAN DER	T132200/2003PTA	171306H
3		PTN 16	CALEBDIRECT PTY LTD	T7678/2023	85653 H
4		PTN 18	P & F FARMERS PTY LTD	T104579/2000PTA	171306 H
5		PTN 30	GUBITZ DEESIDE BOERDERY PTY LTD	T73940/2016PTA	728062H
6		R/E OF PTN 31	OSMERS CARL FREDRICH	T73859/1990PTA	517131 H
7		PTN 34	NOT LISTED ON DEEDS		
8		PTN 35	SCHALKWYK NICOLAAS JACOBUS VAN	T34401/2002PTA	666319 H
9		R/E OF PTN 28	COETZER JOHANNA CATHARINA	T25996/1986PTA	367943 H
10		R/E OF PTN 32	OSMERS VICTOR	T25075/2008PTA	148972 H

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11		PTN 46	NOT LISTED ON DEEDS		
12	**DOORNVLEI 569 LT**	PTN 0/ R/E	DICK & JUDY GRAHAM TRUST	T65569/2011PTA	575592 H
13		PTN 1	NOT LISTED ON DEEDS	T65569/2011PTA	
14	**PUSELA 555 LT**	PTN 189	NOW-TZANEEN-EXT-5	T12831/956	441490 H
15		PTN 198	NOT LISTED ON DEEDS		
16		PTN 378	FAIRVIEW TRUST	T122036/2008PTA	121533 H
17		PTN 394	NOT LISTED ON DEEDS		
18		R/E OF PTN 6	GREATER TZANEEN LOCAL MUNICIPALITY	T22749/1944PTA	266862 H
19	**MANORVLEI 556 LT**	PTN 2	DICK & JUDY GRAHAM TRUST	T69172/1995PTA	256960 H
20		PTN 6	MANORVLEI BELEGGINGS PTY LTD	T15488/1967PTA	100614 H
21		PTN 8	FAIRVIEW TRUST	T25417/1995PTA	70060 H
22		PTN 25	LUTZANA FAMILIE TRUST	T68522/2004PTA	70610000 SQM
23		PTN 27	SOUTH AFRICAN NATIONAL ROADS AGENCY SOC LTD	T1517/2023	10000 H
24		PTN 29	RAUBEX EIENDOMME PTY LTD	T94198/2007PTA	28682 H
25		PTN 37	SHEKINAH HOUSE	T1524/2023	45900 H
26		PTN 38	MOOIZICHT PROP PTY LTD	T1522/2023	59099 H
27		PTN 43	SOUTH AFRICAN NATIONAL ROADS AGENCY SOC LTD	T6920/2025	6790000SQM
28		R/E OF PTN 20	NOT LISTED ON DEEDS		
29		R/E OF PTN 22	DICK & JUDY GRAHAM TRUST	T92765/1993PTA	483330 H
30		R/E OF PTN 23	RAUBEX EIENDOMME PTY LTD	T94199/2007PTA	14874 H
31		REMAINING EXTENT	DICK & JUDY GRAHAM TRUST	T13987/1999PTA	142183 H
32	**LUSHOF 540 LT**	PTN 3	KOHAN INV PTY LTD	T730/2019	169380 H
33		R/E OF PTN 4	KOHAN INV PTY LTD	T730/2019	85653 H
34		PTN 10	KOHAN INV PTY LTD	T9284/2018	8.5901H

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35		PTN 19	GRANGE ANDRE JEAN JAQUES LE	T35706/2009PTA	85653H
36		R/E OF PTN 20	ECKARD PETRUS JACOBUS AND ECKARD JOHANNA ELIZABETH	T121155/2005	2.0156H
37		R/E OF PTN 30	ARHABON TRUST	T9746/2021	33554 H
38		R/E OF PTN 31	OOSTHUIZEN LOUINA JOHANNA	T221/2020	4.9762H
39		R/E OF PTN 33	NOAHS ARK CHILDRENS HOME TRUST	T54422/2013PTA	41172 H
40		R/E OF PTN 34	TERBLANCHE CHARL JOHAN	T63286/1995PTA	86721 H
41		R/E OF PTN 35	PRETORIUS ERASMUS JOHANNES AND PRETORIUS KAREN	T75401/2012PTA	28578H
42		PTN 36	HUMAN FRIEDA MARIE	T9301/2020	87871H
43		R/E OF PTN 37	PADRI TRUST	T113535/2000PTA	85776 H
44		PTN 38	K SPAN CC	T76165/1996PTA	8.6356H
45.		PTN 40	VISSER MARTHINUS PIETER SMIT AND VISSER CHRISTIAAN RUDOLPH	T99501/2016PTA	29327 SQM
46.		PTN 49	FRENES PTY LTD	T123176/2001PTA	89092 H
47.		R/E OF PTN 50	FRENES PTY LTD	T123176/2001PTA	60955 H
48.		R/E OF PTN 51	JOHAN SPIES DIENSTE CC	T45464/2016PTA	8.8590
49.		R/E OF PTN 53	MASWANGANYI HEAVEN VIVIAN	T74831/2008	7.0400H
50.		PTN 60	CLAASEN IZAK EDUARD	T16943/2013PTA	86594H
51.		R/E OF PTN 62	NIEKERK PIETER BEYERS VAN	T169564/2006PTA	20560H
52.		R/E OF PTN 63	BRITS THEUNIS JOHANNES	T107201/1996PTA	87317 H
53.		R/E OF PTN 64	JOHAN SPIES DIENSTE CC	T29458/2008PTA	6.4928H
54.		PTN 65	P T BOEDERY PTY LTD	T8957/2023	82147H
55.		R/E OF PTN 70	AGPRO CC	T5551/2004PTA	34102 H
56.		R/E OF PTN 76	PHILIP ROBINSON TRUST	T20833/2009PTA	66674 H
57.		PTN 77	FINESSE TRUST	T5626/2020	92816 H
58.		R/E OF PTN 82	FINESSE TRUST	T4252/2024	23809 H

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59.		PTN 93	FRENES PTY LTD	T68012/2008PTA	18203H
60.		PTN 96	PHASHA MASILO DANIEL AND PHASHA MMABUKE THERESIAH	T75761/2006PTA	53870000SQM
61.		PTN 99	JOHAN SPIES DIENSTE CC	T36437/2008	8.5653H
62.		PTN 102	VREDEN HENDRICK PETRUS JOHANNES VAN	T102963/1995	2.0101H
63.		PTN 104	ARHABON TRUST	T12053/2018	44646H
64.		PTN 108	NOT LISTED ON DEEDS		
65.		PTN 109	HANTER TRUST	T123175/2001	2.9495H
66.		PTN 110	NOT LISTED ON DEEDS		
67		R/E 119	JORDAAN TRUST	T88315/2006PTA	21847H
68		PTN 129	NOT LISTED ON DEEDS		
69.		PTN 132	SOUTH AFRICAN ROAD AGENCY	T85276/2016PTA	1924000SQM
70.		PTN 134	SOUTH AFRICAN NATIONAL ROADS AGENCY	T501/2018	3.7224H
71.		PTN 135	VREDEN MARTHINUS CHRISTOFFEL JOHANNES VAN	T39252/2016PTA	32780000SQM
72.		PTN 139	NOT LISTED ON DEEDS		
73.		PTN 140	NOT LISTED ON DEEDS		
74		PTN 146	NOT LISTED ON DEEDS		
75.		PTN 176	JUMP THE HUMP EDU CC	T45282/2012	2.1618H
76.		PTN 178	MOSEAMEDI MABYALWA JEANETTE	T71155/2012PTA	20879H
77.		PTN 185	HALL LIMPOPO PACKERS PTY LTD	T35431/2009PTA	20725H
78.		PTN 204	OOSTHUIZEN FAMILIE TRUST	T5154/2020	2.5190H
79.		PTN 207	FINESSE TRUST	T3313/2019	20002H
80.		PTN 215	SANSEI TRADING PTY LTD	T5852/2019	52099H
81.		PTN 227	SWART GERHARDUS LODEWIEKUS AND SWART SHARRON DOREEN	T13843/2019	5.7028H
82.		PTN 229	ADAMS PETER DAVID	T4234/2024	20279H
83.		PTN 233	ADAMS PETER DAVID	T2443/2024	20740H

84.		PTN 234	FINESSE TRUST	T4252/2024	35357H
85.		PTN 238	PINNACLE FRONTIER PROP PTY LTD	T4235/2024	28920H
86.		PTN 245	FRENES PTY LTD	T10776/2019	1.5998H
87.		PTN 248	FRENES PTY LTD	T10776/2019	14461 H
88.		PTN 250	D & M FAMILIE TRUST	T8768/2020	92990 H
89.		PTN 255	MOSTERT PHILLIPUS JACOBUS AND MOSTERT DANICA MARIA	T1863/2021	23594 H
90.		PTN 265	HUMAN FRIEDA MARIE AND HUMAN ERNST GODFRIED	T1858/2024	43831 H
91.		PTN 266	KUISIS SHELLEY	T1859/2024	43282H
92.		PTN 338	NOT LISTED ON DEEDS		
TOTAL EXTENT OF THE CLAIMED LAND					**804.7352**

The Regional Land Claims Commissioner is processing the land claim. Any party that has an interest on the above-mentioned properties is hereby invited to submit within 90 days of the publication of this notice any comments, objections, or information under KRP references 2436 & 768 to:

The Regional Land Claims Commission: Limpopo
Private Bag X9552
Polokwane
0700

OR

Submission may also be delivered to
Thabakgolo Nedbank Building 13th -15th Floor
50-58 Landross Mare Street
Polokwane
0700

MAPHUTHA L
REGIONAL LAND CLAIMS COMMISSIONER
DATE 2026/07/08

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DEPARTMENT OF RURAL DEVELOPMENT AND LAND REFORM

NO. 7729 **24 July 2026**

GENERAL NOTICE IN TERMS OF THE RESTITUTION OF LAND RIGHTS ACT, 1994 (ACT NO. 22 OF 1994), AS AMENDED

Notice is hereby given in terms of section 11(1) of the Restitution of Land Rights Act, Act No. 22 of 1994 as amended, that the late Mr Malatji Ramabo Phillip lodged a land claim for restitution of land rights, on Makhushane Dairy Project which is officially registered as Remaining Extent of the farm Makhushane Location 28 LU measuring 17,6853H, situated within the Mopani District of the Limpopo. This land claim was lodged on 23 December 1998. **Further details of the property under claim are as follows:**

FARM NAME	OWNER	EXTENT CLAIMED	TOTAL EXTENT	ENDORSEMENTS	HOLDER	TITLE DEED
R/E of the farm Makhushane Location 28 LU	National Government of the RSA	17.6853	4039.0182	I-12922/2012CPTA I-13532/1991LG-91082PTA I-187/2022C K1673/2000RMPTA K424/2004S	Lebowa Mineral trust	T21468/1989PTA

Take further notice that the Office of the Regional Land Claims Commissioner: Limpopo is investigating this land claim. Any party that has an interest in the above-mentioned property is hereby invited to submit in writing within **14** days of publication of this notice, any comment, and/or objection to the Regional Land Claims Commissioner at the addresses set out below under reference number **KRP 10635.**

The office of the Regional Land Claims Commissioner: Limpopo
Private Bag x9552
POLOKWANE
0700

Old Mutual Building
62 Mphephu Drive
THOHOYANDOU
0950

Submission may also be delivered to:
13th – 15th Floor Thabakgolo Nedbank Building
50 -58 Landros Mare Street
POLOKWANE
0700

L H MAPHUTHA
REGIONAL LAND CLAIMS COMMISSIONER
DATE: 2026/07/16

GENERAL NOTICE IN TERMS OF THE RESTITUTION OF LAND RIGHTS ACT, 1994 (ACT NO. 22 OF 1994), AS AMENDED

Notice is hereby given in terms of section 11(1) of the Restitution of Land Rights Act No. 22 of 1994, as amended that Mr. Hendrick Mothwa lodged a land claim on the 20th of March 1998 on behalf of the Maretela individual families on the farm Marsfontein 91 KS, situated in the Polokwane Local Municipality of Capricorn District, Limpopo. However, the land claim only affects the Remaining Extent, Remaining extent of portion 8 and Portion 30 of the farm Marsfontein 91 KS.

Detailed Deeds information of the portions under claim is as follows:

PROPERTY DESCRIPTION	CURRENT REGISTERED OWNER	TITLE DEED NUMBER	EXTENT (HECTARES)	EXTENT AFFECTED	ENDORSEMENTS	HOLDER
Remaining Extent of the farm Marsfontein 91 KS.	National Government of the Republic of South Africa National Government of the Republic of South Africa	T26789/ 1982PTA T85368/2006PTA	1713064 H	116.7180 H	KS,91PTA K1333/1940PTA K2334/1992RMPTA K5484/1998RMPTA K7617/1993RMPTA	- - SAMANCOR LTD SOUTHERNERA RESOURCES LTD -
Remaining extent of portion 8 of the farm Marsfontein 91 KS.	National Government of the Republic of South Africa Lethuse Communal Property Association National Government of the Republic of South Africa	1.T10858 /1981 PTA 2.T2969/2025 3.T85368/2006PTA	2147891 H		1332/1940SPTA K2334/1992RMPTA K5484/1998RMPTA K7617/1993RMPTA	- - SAMANCOR LTD SOUTHERNERA RESOURCES LTD -
Portion 30 of the farm Marsfontein 91 KS	Lethuse Communal Property Association	T2971/2025	1713064 H		-	-

Take further notice that the Office of the Regional Land Claims Commissioner: Limpopo is processing this land claim towards settlement. Any party that has an interest in the above-mentioned properties is hereby invited to submit in writing within **14** days of publication of this notice, any comment, and/ or objection to this land claim to the Office of the Regional Land Claims Commissioner: Limpopo at the address set out below under reference: **KRP 11503.**

The Regional Land Claims Commissioner: Limpopo OR 13th -15th Floor, Nedbank Building

Private Bag X 9552
Polokwane
0700

50-58 Landros Mare Street
Polokwane
0700

MR. LH MAPHUTHA
REGIONAL LAND CLAIMS COMMISSIONER
DATE: 2026/07/06

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DEPARTMENT OF WATER AND SANITATION

NO. 7731 **24 July 2026**

NATIONAL WATER ACT, 1998

PROPOSED WATER RESOURCE CLASSES AND THE RESOURCE QUALITY OBJECTIVES IN THE KEISKAMMA AND FISH TO TSITSIKAMMA CATCHMENTS WITHIN THE MZIMVUBU TO TSITSIKAMMA WATER MANAGEMENT AREA 7 (EXCLUDING MZIMVUBU CATCHMENT T31-T36)

I, Pemmy Castelina Pamela Majodina, in my capacity as Minister of Water and Sanitation, and duly authorised in terms of section 13(4) of the National Water Act, 1998 (Act No. 36 of 1998), hereby publish for public comment. the Notice, on the proposed Water Resources Classes and the Resource Quality Objectives in the Keiskamma and Fish to Tsitsikamma Catchments within the Mzimvubu to Tsitsikamma Water Management Area 7 (excluding Mzimvubu Catchment T31-T36), as set out in the Schedule.

Any person who wishes to submit written comments in connection with the proposed Water Resources Classes and Resource Quality Objectives in the Keiskamma and Fish to Tsitsikamma Catchments within the Mzimvubu to Tsitsikamma Water Management Area 7 (excluding Mzimvubu Catchment T31-T36), is hereby invited to do so within 60 days from the date of publication this Notice by:

(a) Posting such comments to the following address:
Department of Water and Sanitation, Attention: Ms Lebogang Matlala
Private Bag X 313
PRETORIA
0001

OR

(b) Delivering such comments by hand to the following address:
Department of Water and Sanitation, Attention: Ms Lebogang Matlala
Ndinaye Building
178 Francis Baard Street
PRETORIA
0001

OR

(c) Emailing such comments to the following address:
Email: matlalal@dws.gov.za

Comments must be addressed to the Director: Water Resource Classification and marked for the attention of Ms Lebogang Matlala. Comments received after the closing date shall not be considered.

MS PEMMY CASTELINA PAMELA MAJODINA

MINISTER OF WATER AND SANITATION

DATE: 12/06/2026

SCHEDULE

1. DEFINITIONS

In this Schedule any word or expression to which a meaning has been assigned in the Act shall have the meaning so assigned and, unless the context indicates otherwise -

"Class I water resource" means a water resource in which the configuration of ecological categories of the water resources within a catchment, results in an overall condition of that water resource that is minimally altered from its pre-development condition, and as defined in the Water Resource Classification System;

"Class II water resource" means a water resource in which the configuration of ecological categories of the water resources within a catchment, results in an overall condition of that water resource that is moderately altered from its pre-development condition and as defined in the Water Resource Classification System;

"Class III water resource" means a water resource in which the configuration of Ecological categories of the water resources within a catchment, results in an overall condition of that water resource that is significantly altered from its pre-development condition and as defined in the Water Resource Classification System;

"Ecological category" means the ecological condition of that water resource in terms of the deviation of its biophysical components from a predevelopment condition;

"Ecological Water Requirements' in relation to a water resource, means the quantity and quality of water of that resource that is required to maintain the said water resource in its assigned Ecological Category;

"Integrated unit of analysis" means a water resource catchment that incorporates a socio-economic zone, but is defined by a watershed;

"Percentile" means the non-exceedance probability i.e., at the 95th percentile, 95 percent of values must be less than or equal to the value; and at 50th percentile, 50 percent of values must be less than or equal to the value;

"Present Ecological State" means the current health or integrity of various biological attributes of the resource, compared to the natural or close to natural reference conditions;

"Recommended Ecological Category" means a category indicating the realistically attainable ecological management target for a water resource;

"Resource Quality Objectives" means descriptive qualitative statements and numerical values for the biological, physical, and chemical attributes of the significant water resources throughout the catchments;

"Resource Unit" means a basic unit of a water resource to which Resource Quality Objectives will apply;

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"Target Ecological Category" means the ultimate target to achieve a sustainable system both ecologically and economically, considering the Present Ecological State and Recommended Ecological Category; and

"Water Resource Classification System" means the Regulations for the Establishment of the Classification System, 2010 as prescribed in Government Notice No. R. 810 of 17 September 2010;

2 DESCRIPTION OF THE WATER RESOURCE

(1) The Water Resource Classes, Reserve and the Resource Quality Objectives are determined for all or part of every significant water resource within the Mzimvubu to Tsitsikamma Water Management Area 7 (WMA7), excluding the Mzimvubu catchment (T31 – T36) as set out below:

Water Management Areas: Mzimvubu to Tsitsikamma

Drainage Region: K80, K90, L10 - L90, M10 – M30, N10 – N40, P10 – P40, Q10 – Q90, R10 – R50, S10 – S70, T10 – T20, T60 – T90)

River(s):
K80 (Tsitsikamma and small coastal rivers)
K90 (Krom and small coastal rivers)
L10 - L90 (Gamtoos with main tributaries Groot, Baviaanskloof and Kouga)
M10 - M30 (Koega, Swartkops and small coastal rivers)
N10 - N40 (Sundays)
P10 - P40 (Kowie, Kariega, Boesmans and small coastal rivers)
Q10 - Q90 (Fish River with main tributaries of Little Fish, Koonap and Kat)
R10 - R50 (Keiskamma and small coastal rivers)
S10 - S70 (Great Kei River with main tributaries of Klipplaats, Indwe, White Kei, Black Kei)
T10 (Mbhashe)
T20 (Mthatha)
T60 (Small coastal rivers - Mtentu, Msikaba, Mzintlava)
T70 (Small coastal rivers - Mtakatye, Mngazi)
T80 & T90 (Small coastal rivers)

(2) The date from which the Resource Quality Objectives will apply shall be the date stipulated in the *Gazette* wherein the final approved Resource Quality Objectives for the Keiskamma, Fish to Tsitsikamma catchment areas within the Mzimvubu to Tsitsikamma Water Management Area 7, excluding the Mzimvubu catchment (T31 – T36) will be published.

3 DETERMINATION OF THE CLASS OF WATER RESOURCES IN TERMS OF SECTION 13(1)*(a)* OF THE ACT

(1) The proposed Water Resource Classes, which are in accordance with the Water Resource Classification System, for the Keiskamma, Fish to Tsitsikamma catchment areas are as

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listed in **Table 1** according to the overall class per integrated unit of analysis; and as illustrated in **Figure 1** in **Annexure A.**.

(2) The Integrated Units of Analysis in the Keiskamma, Fish to Tsitsikamma catchment areas are listed in **Table 2** and illustrated in **Figure 2** in **Annexure A.**.

(3) The summary of Water Resource Classes per integrated unit of analysis and ecological categories for the Keiskamma, Fish to Tsitsikamma catchment areas are as listed in **Table 3** in **Annexure A.**

4 RESOURCE UNITS SELECTED WITH PROPOSED RESOURCE QUALITY OBJECTIVES

(1) **Table 4** in **Annexure A** provides:

(a) the listed Integrated unit of analysis in the Keiskamma, Fish to Tsitsikamma catchment areas for which Resource Quality Objectives are proposed;

(b) the selected Water Resources (Rivers, Dams, Wetlands, Groundwater, and Estuaries) for which Resource Quality Objectives are proposed; and

(c) reference to subsequent Tables that list the proposed Resource Quality Objectives per selected sub-components (quantity, quality, habitat, biota or groundwater, or estuary) per Resource Unit.

(2) Resource Quality Objectives for rivers per Integrated unit of analysis and Resource Unit within the Keiskamma, Fish to Tsitsikamma catchment areas are specified in **Table 5** (hydrological RQOs for priority Resource Units per Integrated Unit of Analysis (IUA), **Table 6** (habitat and biota RQOs for Priority Resource Units per IUA) and **Table 7** (water quality RQOs for priority Resource Units per IUA below in **Annexure A**.

(3) Resource Quality Objectives for priority dams per IUA in the Keiskamma, Fish to Tsitsikamma catchment areas are set out in **Table 8** in **Annexure A.**

(4) Resource Quality Objectives for priority wetland clusters and systems in priority Resource Units per IUA in the Keiskamma, Fish to Tsitsikamma catchment areas are set out in **Table 9** in **Annexure A.**

(5) Regional and Resource Unit specific Resource Quality Objectives for groundwater in priority Groundwater Resource Units in the Keiskamma, Fish to Tsitsikamma catchment areas are set out in **Table 10** in **Annexure A.**

(6) Resource Quality Objectives for Estuary components in priority Resource Units are as set out in **Table 11** and **Table 12** in **Annexure A** with supporting estuarine information in **Appendix A** to **C**.

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Annexure A to this Notice, containing the proposed water resource classes and Resource Quality Objectives can be assessed from **https://www.dws.gov.za/RDM/WRCS/kft.aspx**

OR from

The Department of Water and Sanitation, Attention: Ms Lebogang Matlala

Private Bag X 313 **PRETORIA** 0001

OR

Director: Water Resource Classification, Attention: Ms Lebogang Matlala,

Ndinaye Building, 178 Francis Baard Street **PRETORIA** 001

OR

Email: matlalal@dws.gov.za

5

WATER EN SANITASIE, DEPARTEMENT VAN

NO. 7731 **24 Julie 2026**

NASIONALE WATERWET, 1998

VOORGESTELDE WATERHULPBRONKLASSE EN DIE HULPBRONKWALITEITSDOELWITTE IN DIE KEISKAMMA- EN VIS-NA-TSITSIKAMMA-OPVANGGEBIEDE BINNE DIE MZIMVUBU NA-TSITSIKAMMA-WATERBESTUURSGEBIED 7 (UITGESLUIT MZIMVUBU-OPVANGGEBIEDE T31-T36)

Ek, Pemmy Castelina Pamela Majodina, in my hoedanigheid as Minister van Water en Sanitasie, en na behore gemagtig ingevolge artikel 13(4) van die Nasionale Waterwet, 1998 (Wet Nr. 36 van 1998), publiseer hiermee vir openbare kommentaar die Kennisgewing oor die voorgestelde Waterhulpbronklasse en die Hulpbronkwaliteitsdoelwitte in die Keiskamma- en Vis- tot Tsitsikamma-Opvanggebiede binne die Mzimvubu- tot Tsitsikamma-Waterbestuursgebied 7 (uitgesluit Mzimvubu-Opvanggebied T31-T36), soos uiteengesit in die Bylae.

Enige persoon wat skriftelike kommentaar wil indien in verband met die voorgestelde Waterhulpbronklasse en Hulpbronkwaliteitsdoelwitte in die Keiskamma- en Vis-na-Tsitsikamma-opvanggebiede binne die Mzimvubu-na-Tsitsikamma-Waterbestuursgebied 7 (uitgesluit Mzimvubu-Opvanggebied T31-T36), word hiermee uitgenooi om dit te doen binne 60 dae vanaf die datum van publikasie van hierdie Kennisgewing deur:

(a) Sodanige kommentaar na die volgende adres te rig:
Departement van Water en Sanitasie, Aandag: Me. Lebogang Matlala
Privaatsak X313
PRETORIA
0001

OF

(b) Sodanige kommentaar per hand af aan die volgende adres te besorg:
Departement van Water en Sanitasie, Aandag: Me. Lebogang Matlala
Ndinayegebou
Francis Baardstraat 178
PRETORIA
0001

OF

(c) Stuur sulke kommentaar per e-pos na die volgende adres:
E-pos: matlalal@dws.gov.za

Kommentaar moet gerig word aan die Direkteur: Waterhulpbronklassifikasie en gemerk word vir die aandag van Me. Lebogang Matlala. Kommentaar wat na die sluitingsdatum ontvang word, sal nie oorweeg word nie.

ME PEMMY CASTELINA PAMELA MAJODINA

MINISTER VAN WATER EN SANITASIE

DATUM : 12/06/2026

SKEDULE

1. DEFINISIES

In hierdie Aanhangsel het enige woord of uitdrukking waaraan 'n betekenis in die Wet toegeken is, sal die betekenis wat aldus toegeken is, en tensy die konteks anders aandui -

"Klas I-waterhulpbron" beteken 'n waterhulpbron waarin die opstelling van ekologiese kategorieë van die waterhulpbronne binne 'n opvanggebied lei tot 'n algehele toestand van daardie waterhulpbron wat minimaal verander is vanaf sy toestand voor ontwikkeling, en soos gedefinieer in die Waterhulpbronklassifikasiestelsel ;

"Klas II-waterhulpbron" beteken 'n waterhulpbron waarin die opstelling van ekologiese kategorieë van die waterhulpbronne binne 'n opvanggebied lei tot 'n algehele toestand van daardie waterhulpbron wat middelmatig verander is van sy toestand voor ontwikkeling en soos gedefinieer in die Waterhulpbronklassifikasiestelsel ;

"Klas III-waterhulpbron" beteken 'n waterhulpbron waarin die opstelling van ekologiese kategorieë van die waterhulpbronne binne 'n opvanggebied lei tot 'n algehele toestand van daardie waterhulpbron wat aansienlik verander is van sy toestand voor ontwikkeling en soos gedefinieer in die Waterhulpbronklassifikasiestelsel;

"Ekologiese kategorie" beteken die ekologiese toestand van daardie waterhulpbron in terme van die afwyking van sy biofisiese komponente van 'n toestand voor ontwikkeling ;

" Ekologiese Watervereistes" in verhouding met 'n waterhulpbron beteken die hoeveelheid en
die kwaliteit van water van daardie hulpbron vereis dat die genoemde waterhulpbron in die bepaalde Ekologiese Kategorie volhou;

"Geïntegreerde eenheid van analise" beteken 'n waterhulpbronopvanggebied wat 'n sosio-ekonomiese gebied insluit, maar is bepaal deur 'n waterskeiding;

"Persentiel" beteken die nie-oorskrydingwaarskynlikheid, d.w.s. by die 95ste persentiel moet 95 persent van die waardes minder as of gelyk aan die waarde wees; en by die 50ste persentiel moet 50 persent van die waardes minder as of gelyk aan die waarde wees;

"Huidige Ekologiese Toestand" beteken die huidige gesondheid of integriteit van verskeie biologiese eienskappe van die hulpbron, in vergelyking met die natuurlike of naby-natuurlike verwysingstoestande;

"Aanbevole Ekologiese Kategorie" beteken 'n kategorie wat die realisties haalbare ekologiese bestuursteiken vir 'n waterhulpbron aandui;

"Hulpbronkwaliteitsdoelwitte" beteken beskrywende kwalitatiewe stellings en numeriese waardes vir die biologiese, fisiese en chemiese eienskappe van die beduidende waterbronne dwarsdeur die opvanggebiede;

"Hulpbroneenheid" beteken 'n basiese eenheid van 'n waterhulpbron waaraan Hulpbronkwaliteitsdoelwitte van toepassing sal wees;

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"Teiken Ekologiese Kategorie" beteken die uiteindelike teiken om 'n volhoubare stelsel te bereik, beide ekologies en ekonomies, met inagneming van die Huidige Ekologiese Toestand en Aanbevole Ekologiese Kategorie; en

"Waterhulpbronklassifikasiestelsel" beteken die Regulasies vir die Vestiging van die Klassifikasiestelsel, 2010 soos voorgeskrewe in Regeringskennisgewing Nr. R. 810 van 17 September 2010;

2 BESKRYWING VAN DIE WATERBRON

(1) Die Waterhulpbronklasse , Reserwe en die Hulpbronkwaliteitsdoelwitte word bepaal vir alle of 'n gedeelte van elke betekenisvolle waterhulpbron binne die Mzimvubu tot Tsitsikamma Waterbestuursgebied 7 (WMA7), uitgesluit die Mzimvubu-opvanggebied (T31 – T36) soos hieronder uiteengesit:

Waterbestuursgebiede: Mzimvubu tot Tsitsikamma

Dreineringsgebied: K80, K90, L10 - L90, M10 – M30, N10 – N40, P10 – P40, Q10 – Q90, R10 – R50, S10 – S70, T10 – T20, T60 – T90)

Rivier(e):
K80 (Tsitsikamma en klein kusriviere)
K90 (Krom en klein kusriviere)
L10 - L90 (Gamtoos met hoofsytakke Groot, Baviaanskloof en Kouga)
M10 - M30 (Koega, Swartkops en klein kusriviere)
N10 - N40 (Sondags)
P10 - P40 (Kowie, Kariega, Boesmans en klein kusriviere)
Q10 - Q90 (Visrivier met hooftakke van Little Vis, Koonap en Kat)
R10 - R50 (Keiskamma en klein kusriviere)
S10 - S70 (Groot Keirivier met hoofsytakke van Klipplaats, Indwe, White Kei, Black Kei)
T10 (Mbhashe)
T20 (Mthatha)
T60 (Klein kusriviere - Mtentu, Msikaba, Mzintlava)
T70 (Klein kusriviere - Mtakatye, Mngazi)
T80 & T90 (Klein kusriviere)

(2) Die datum vanaf waarop die Hulpbronkwaliteitsdoelwitte van toepassing sal wees, is die datum wat in die *Staatskoerant bepaal word* waarop die finale goedgekeurde Hulpbronkwaliteitsdoelwitte vir die Keiskamma, Vis tot Tsitsikamma-opvanggebiede binne die Mzimvubu tot Tsitsikamma-Waterbestuursgebied 7, uitgesluit die Mzimvubu-Opvanggebied (T31 – T36), gepubliseer sal word.

3 BEPALING VAN DIE KLAS WATERBRONNE INGEVOLGE ARTIKEL 13(1) *(a)* VAN DIE WET

(1) Die voorgestelde Waterhulpbronklasse, wat in ooreenstemming is met die Waterhulpbronklassifikasiestelsel, vir die Keiskamma-, Vis- tot Tsitsikamma-opvanggebiede word in **Tabel 1 gelys** volgens die algehele klas per geïntegreerde eenheid van analise; en soos geïllustreer in **Figuur 1** in **Aanhangsel A**.

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(2) Die Geïntegreerde Eenhede van Analise in die Keiskamma, Vis tot Tsitsikamma opvanggebiede word in **Tabel 2 gelys** en in **Figuur 2** in **Aanhangsel A geïllustreer** .

(3) Die opsomming van Waterhulpbronklasse per geïntegreerde eenheid van analise en ekologiese kategorieë vir die Keiskamma-, Vis- tot Tsitsikamma-opvanggebiede word in **Tabel 3** in **Aanhangsel A** gelys .

4 HULPBRONEENHEDE GEKIES MET VOORGESTELDE HULPBRONKWALITEITDOELWITTE

(1) **Tabel 4** in **Aanhangsel A** verskaf:

(a) die gelyste Geïntegreerde eenheid van analise in die Keiskamma, Vis tot Tsitsikamma opvanggebiede waarvoor Hulpbronkwaliteitsdoelwitte voorgestel word;

(b) die gekose waterbronne (riviere, damme, vleilande, grondwater en riviermondings) waarvoor hulpbronkwaliteitsdoelwitte voorgestel word; en

(c) verwysing na daaropvolgende Tabelle wat die voorgestelde Hulpbronkwaliteitsdoelwitte per geselekteerde subkomponente (hoeveelheid, kwaliteit, habitat, biota of grondwater, of riviermonding) per Hulpbroneenheid lys.

(2) Hulpbronkwaliteitsdoelwitte vir riviere per Geïntegreerde eenheid van analise en Hulpbroneenheid binne die Keiskamma-, Vis- tot Tsitsikamma-opvanggebiede word in **Tabel 5 gespesifiseer** (hidrologiese RQO's vir prioriteitshulpbroneenhede per Geïntegreerde Eenheid van Analise (IUA), **Tabel 6).** (habitat- en biota-RQO's vir prioriteitshulpbroneenhede per IUA) en **Tabel 7** (watergehalte-RQO's vir prioriteitshulpbroneenhede per IUA hieronder in **Aanhangsel A)** .

(3) Hulpbronkwaliteitsdoelwitte vir prioriteitsdamme per IUA in die Keiskamma-, Vis- tot Tsitsikamma-opvanggebiede word in **Tabel 8** in **Aanhangsel A uiteengesit.**

(4) Hulpbronkwaliteitsdoelwitte vir prioriteitsvleilandgroepe en -stelsels in prioriteitshulpbroneenhede per IUA in die Keiskamma-, Vis- tot Tsitsikamma-opvanggebiede word in **Tabel 9** in **Aanhangsel A uiteengesit.**

(5) Streeks- en hulpbroneenheidspesifieke hulpbronkwaliteitsdoelwitte vir grondwater in prioriteitsgrondwaterhulpbroneenhede in die Keiskamma-, Vis- tot Tsitsikamma-opvanggebiede word in **Tabel 10** in **Aanhangsel A uiteengesit.**

(6) Hulpbronkwaliteitsdoelwitte vir riviermondingskomponente in prioriteitshulpbroneenhede word uiteengesit in **Tabel 11** en **Tabel 12** in **Aanhangsel A** met ondersteunende riviermondingsinligting in **Aanhangsel** A tot **C.**

Aanhangsel A tot hierdie Kennisgewing, wat die voorgestelde waterhulpbronklasse en Hulpbronkwaliteitsdoelwitte bevat, kan beoordeel word vanaf
https://www.dws.gov.za/RDM/WRCS/kft.aspx

OF van

Die Departement van Water en Sanitasie, Aandag: Me. Lebogang Matlala

Privaatsak X 313 **PRETORIA** 0001

OF

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Direkteur: Waterhulpbronklassifikasie, Aandag: Me. Lebogang Matlala,

Ndinaye-gebou, Francis Baardstraat 178, **PRETORIA,** 001

OF

E-pos: matlalal@dws.gov.za

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UMTHETHO WAMANZI WESIZWE, KA1998

AMAHLELO APHAKANYISIWEYO EMISELE YAMANZI NEENJONGO NGEKWALITI YAMANZI KWIINDAWO ZOBONISELO NGAMANZI I- KEISKAMMA NE- FISH UKUYA ETSITSIKAMMA PHAKATHI KUMMANDLA WOBONISELO NGAMANZI I- MZIMVUBU UKUYA ETSITSIKAMMA (OKO KUNGAYIQUKI INDAWO YOBONISELO I -MZIMVUBU T31-T36)

Mna Pemmy Castelina Pamela Majodina, ngegunya lam njengoMphathiswa wezaManzi noGutyulo, nigunyaziswa ngkupheleleyo sisiqendu 13(4) somMthetho waManzi weSizwe (uMthetho No. 36 ka998), ndishicilela iSaziso khonukuze abemi benze amagqabantshintshi namahlelo aphakanyisiweyo emisele yamanzi neenjongo nekwaliti yemisele kwiindawo zoboniselo iKeiskamma neFish ukuya kutsho e-Tsitsikamma phakathi kuMmandla 7 woboniselo iMzimvubu ukuya kutsho eTsitsikamma (oko kungayiquki indawo yoboniselo iMzimvubu T31-T36), njengoko kubonisiwe kwitafil engezantsiasset out in the Schedule.

Nabani na ke ofuna ukuthumela amagqabantshi abhaliweyo malunga nala mahlelo aphakanyisiweyo nezi njongo ziphakanyisiweyo makakwenze oko ngezi ndlela zilandelayo:

(a) ngokuposela loo magqbqntshintshi kule dilesi ilandelayo:
Department of Water and Sanitation, Attention: Ms Lebogang Matlala
Private Bag X 313
PRETORIA
0001

OKANYE

(b) Ngokufaka ngesandla loo magqabantshintshi kule dilesi ilandelayo:
Department of Water and Sanitation, Attention: Ms Lebogang Matlala
Ndinaye Building
178 Francis Baard Street
PRETORIA
0001

OR

(c) gokuthumela loo magqabantshintshi nge-Email kule dilesi:
Email: matlalal@dws.gov.za

Onke amagqabantshntshi makathunyelwe ngu Mphathi oyi- Director: Water Resource Classification aphawylwe ngegama likaNkosazana Lebogang Matlala. Amagqabantshintshi afike ngaphaya kwexesha elinekiweyo akasayi kuhoywa. Comments.

NGUNKOSAZANA PEMMY CASTELINA PAMELA MAJODINA

MINISTER OF WATER AND SANITATION

DATE: 12/06/2026

ISHEDYULI

1. IINKCAZO

Kule shedyuli naliphi na igama okanye isaci apho intsingiselo ingqala oko kuxeliweyo nguMthetho iza kuba nentsingiselo ekwanjalo, ngaphandle kokuba ke iimeko zibonisa ngolunye uhlobo -

"KwiHelo I umsele wamanzi uxela "umsele wamanzi apho uphuculo lwamabakala eendawo zokuphila kuloo msele wamanzi ukwindawo ethile yoboniselo ubangela ukuba xa iyonke imeko yaloo msele ibonisa inguqu encinane uyithelekisa naleyo yakuqala, futhi ichazwa njengeNdlela yoHlelo lweMisele yaManzi;

"KwiHlelo II umsele wamanzi uxela"umsele wamanzi apho uphuculo lwamabakala kuloo msele wamanzi ukwindawo ethile yoboniselo ubangela ukuba xa iyonke imeko yaloo msele ibonisa inguqu nje ephakathi uyithelekisa naleyo yakuqala futhi ichazwa njengeNdlela yoHlelo lweMisele yaManzi ;

"KwiHlelo III umsele wamanzi uxela"umsele wamanzi apho uphuculo lwamabakala kuloo msele wamanzi ukwindawo ethile yoboniselo ubangela ukuba xa iyonke imeko yaloo msele ibonisa inguqu ebalaseleyo xa uyithelekisa naleyo yakuqala futhi ichazwa njengeNdlela yoHlelo lweMisele yaManzi ;

"INdlela yoHlelo lweMisele yaManzi" uxela aMasolotya oPhuliso lweeNdlela zoBuchule zoHlelo eans the, zika2010 njengoko sisitsho iSaziso sikaRhulumente No. R. 810 somhla we-17 Msintsi ku2010;

"IBakala leNdawo yokuPhila"uxela imeko yendawo yokuphila kuloo msele uthile ngokwemiqathango yophambuko lwamabakala ebonakalayo endalo kulawo eemeko zokuqala;

"IiMfuno zaManzi eNdawo yokuPhila'ngokubhekiselele kumsele othile wamanzi, uxela umthamo nekwaliti yamanzi aloo msele efunekayo ukuze kugcinwe loo msele wamanzi ukwibakala eliqingqiweyo leNdawo yokuPhila:
;

"Icandelo elibumbeneyo lohlalutyo"uxela indawo yoboniselo yomsele wamanzi equka umda wezentlalo noqoqosho, kodwa ube uchazwa bubumanzi;

"U-Percentile" uxela ummandla omawungadlulwa oqikelelwayo i.e., ngokwe-95th percentile, i-95 percent yamaxabiso mayibe ngaphantsi okanye ilingane nexabiso; kwaye ngokwe- 50th percentile, i-50 percent yamaxabiso mayibe ngaphantsi okanye ilingane nexabiso;

"ISimo saNgoku seNdawo yokuPhilisana"uxela impilo okanye imfezeko yangoku yeempawu ezininzi zendalo yomsele, xa uyithelekisa neemeko zendalo okanye ezikufuphi endalweni;

"IBakala lendawo yokuPhilisana eliNdululwayo"uxela ibakala elibonisa isiphumo esingqaliweyo solawulo esifumanekayo;

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"liNjongo zeKwaliti yoMsele"uxela iinkcazo ezichaza iimpawu zekwaliti namaxabiso obalo ngeempawu zendalo, zobuqu, nezeekhemikhali zaloo misele ibalaseleyo yamanzi kuzo zonke iindawo zoboniselo;

"lCandelo loMsele"uxela icandelo elisisiseko apho iiNjongo ngeKwaliti yaManzi ziza kusebenza;
d"lBakala eliNgqaliweyo leNdawo yokuPhilisana"uxela isiphumo esingqaliweyo ekugqibeleni ukuze kuzuzwe indlela eya kuzinza ngokwendawo yokuphilisana nangokwezoqoqosho, apho kucingisiswa amanqanaba eSimo saNgoku seNdawo yokuPhilisana neBakala leNdawo yokuphilisana eliNdululwayo.

2 INKCAZO NGOMSELE WAMANZI

(1) Uqingqo, amahlelo emisele yamanzi, uhlelo kunye noqingqo lweenjongo ngekwaliti yomsele lwenzelwa yonke imisele okanye inxalenye yawo ekummandla 7 woboniselo ngmanzi iMzimvubu ukuya kummandla wolawulo lwamanzi iTsitsikamma (WMA7), oko kungayiquki ndawo yobonselo iMzimvubu (T31 – T36) njengoko kubonisiwe apha ngezantsi:

Imimandla yolawulo lwamanzi: uMzimvubu ukuya kwiiTsitsikamma

Ingingqi yofunxo: K80, K90, L10 - L90, M10 – M30, N10 – N40, P10 – P40, Q10 – Q90, R10 – R50, S10 – S70, T10 – T20, T60 – T90)

Imilambo
K80 (iTsitsikamma nemilanjana yaselunxwemeni)
K90 (Krom nemilanjana yaselunxwemeni)
L10 - L90 (iGamtoos neyona milambo igalelelayo iGroot, iBaviaanskloof neKouga)
M10 - M30 (Koega, Swartkops nemilanjana yaselunxwemeni)
N10 - N40 (Sundays)
P10 - P40 (Kowie, Kariega, Boesmans)
Q10 - Q90 (Fish River neyona milambo igalelelayo iLittle Fish, Koonap nemilanjana yaselunxwemeni Kat)
R10 - R50 (Keiskamma nemilanjana yaselunxwemeni)
S10 - S70 (Great Kei River neyona milambo igalelelayo iKlipplaats, Indwe, White Kei, Black Kei)
T10 (Mbhashe)
T20 (Mthatha)
T60 (imilanjana yaselunxwemeni - Mtentu, Msikaba, Mzintlava)
T70 (imilanjana yaselunxwemeni - Mtakatye, Mngazi)
T80 & T90 (nemilanjana yaselunxwemeni)

(2) Umhla wokuqalisa kweenjongo ezisekiweyo ngekwaliti yomsele uza kuba ngulowo umiselweyo kwiSaziso sikaRhulumnte , apho iinjongo ezivunywe ngokusesikweni ngeendawo zoboniselo ngamanzi iKeiskamma, Fish ukuya kytsho ekummandla 7 woboniselo ngmanzi iMzimvubu ukuya kummandla wolawulo lwamanzi iTsitsikamma (WMA7), oko kungayiquki ndawo yobonselo iMzimvubu (T31 – T36) ziya kushicilelwa.

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3 UQINGQO LWAMAHLELO EMISELE NGOKWESIQENDU 13(1)*(a)* SOMTHETHO

(1) Amahlelo emisele aphakanyisiweyo, naqingqwe ngokweNdlela yoBuchule yoHlelo lweMiseke yaManzi, aqingqelwe imimandla yoboniselo iKeiskamma, Fish ukuya eTsitsikamma adwelisiwe **kuTafile 1** ngokwecandelo ngalinye elibumbeneyo lohlalutyo; nanjengoko kubonsiwe **kuMzobo 1 weSihlomelelo A** in **Annexure A.**.

(2) Amacandelo ngamanye abumbeneyo ohlalutyo eKeiskamma, Fish ukuya kwimimandla oboniselo yaseTsitsikamma catchment adwelisiwe **kuTafile 2** aza aboniswa nakuMzobo 2 **weSihlomelelo A**.

(3) Isishwankathelo samahlelo emisele ngokwecandelo ngalinye elibumbeneyo lohlalutyo nangokwamahlelo eendawo zokuphilisana eKeiskamma, Fish neTsikamma sidwelisiwe kuTafile 3 **weslhlomelelo A.**

4 AMACANDELO EMIISELE AKHETHWE KUNYE NEENJONGO NGEKWALITI YAMANZI EZIPHAKANYISIWEYO WITH

(1) **UTafile 4 weSihlemelelo A ubonisa** Table 4 in Annexure A provides:

(a) Icandelo ngalinye elibumbeneyo lohlalutyo elidwelisiweyo eKeiskamma, Fish ukuya e Tsitsikamma, ndawo ezo ziqingqelwe amahlelo;

(b) Imisele yamanzi ekhethiweyo (Imilambo, amadama, imiwonyo, amanzi angaphantsi komhlaba, nemifula); kunye

(c) Ukubhekiselelela kwiitafile ezilandelayo ezidwelisa iinjongo ngekwaliti yamanzi ngokwamabakalana akhethiweyo (ikwaliti, umthamo, indawo yokuphila, i- biota okanye amanzi angaphantsi komhlaba, umfula) ngokwecwandelo lomsele.

(2) Iiinjongo ngekwaliti yomsele ngemilambo ngokwecandelo ngalinye elibumbeneyo lohlalutyo neCandelo lomsele phakathi eKeiskamma, Fish naseTsitsikamma zibonisiwe phaya **kuTafile** 5 (iiRQOs ngofundo ngamanzi kumacandelo ongxamiseko ngokwecandelo ngalinye elibumbeneyo lohlalutyo (Unit of Analysis (IUA), **UTafile** 6 **(Indawo yokuphila ne-**biota RQOs ngokwamacandelo emisele yongxamiseko nge-IUA nganye) **UTafile 7** (iiRQOs ngekwaliti yamanzi kumacandelo emisele yongxamiseko ngokwe IUA apha ngezantsi **kwiSihlomelelo A**.

(3) Iinjongo ngekwaliti yamanzi nge- IUA nganye eseKeiskamma, Fish ukuya eTsitsikamma zibonisiwe **kuTafile 8 kwiSihlomelelo A.**

(4) Iinjongo ngekwaliti yamanzi ngengqokelela yemiwonyo yongxamiseko nobunye ubucule kumacandelo emisele yongxamiseko nge- IUA nganye ese-Keiskamma, Fish ukuya eTsitsikamma njengoko kubonisiwe phaya **kuTable 9 kwiSihlomelelo A.**

(5) iiRQOs ezingqala iingingqi namacandelo emisele malunga namanzi angaphantsi komhlaba eKeiskamma, Fish ukuya eTsitsikamma zibonisiwe **kuTafile 10 kwiSihlomelelo A.**

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(6) iiRQOs ngemiwonyo kumacandelo emisele yongxamiseko zinjengoko zibonisiwe **kuTafile 11 nakuTafile 12 kwiSihlomelelo A, apho kukho neenkcukacha ngemiwonyo ezibonisiweyo kwii-Appendix A** ukuya ku**C**.

ISihlomelelo A sesi saziso sifumaneka ku: **https://www.dws.gov.za/RDM/WRCS/kft.aspx**

OKANYE

The Department of Water and Sanitation, Attention: Ms Lebogang Matlala

Private Bag X 313 **PRETORIA** 0001

OKANYE

Director: Water Resource Classification, Attention: Ms Lebogang Matlala,

Ndinaye Building, 178 Francis Baard Street**PRETORIA**001

OKANYE

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INDEPENDENT COMMUNICATIONS AUTHORITY OF SOUTH AFRICA

NOTICE 4040 OF 2026

FEASIBILITY STUDY AND RFSAP FOR FRMCS

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ELECTRONIC COMMUNICATIONS ACT, 2005 (ACT NO. 36 OF 2005)

HEREBY ISSUES A NOTICE REGARDING THE FEASIBILITY STUDIES FOR THE FREQUENCY BANDS ALLOCATED TO THE MOBILE RADIOCOMMUNICATIONS SERVICES AND IDENTIFIED INTERNATIONAL MOBILE TELECOMMUNICATIONS IN THE NATIONAL RADIO FREQUENCY PLAN.

1. The Independent Communications Authority of South Africa ("the Authority"), on 28 March 2024, published the Draft International Mobile Telecommunications (IMT) Roadmap, in Government Gazette No. 50413 (Notice 4584 of 2024) inviting Written Representations.

2. On 13 September 2024, in Government Gazette 51244 (Notice 5209 of 2024) the Authority published a "Notice Communicating the Outcome of the Consultation Process of the Draft IMT Roadmap 2025.

3. The Authority, in Government Gazette 53883 (Notice 3712 of 2025), published the Second Draft International Mobile Telecommunications (IMT) Roadmap 2025, in terms of section 4(3)(c) of the Independent Communications Authority of South Africa Act, 2000 (Act No. 13 of 2000), read with sections 2(e), 30, 31(4), and 33 of the Electronic Communications Act (Act No 36 of 2005).

4. Now therefore, the Authority, in terms of section 4(3)(c) of the Independent Communications Authority of South Africa Act, 2000 (Act No. 13 of 2000), read with sections 2(e), 30, 31(4), and 33 of the Electronic Communications Act (Act No 36 of 2005) hereby publishes the notice regarding the feasibility studies for the frequency bands allocated to the mobile radiocommunications services and identified international mobile telecommunications in the national radio frequency plan**.**

5. Interested persons are hereby invited to submit written representations on the notice regarding the feasibility studies for the frequency bands allocated to the mobile radiocommunications services and identified international mobile telecommunications in the national radio frequency plan in both Microsoft Word (MS) and Portable Document Format (PDF) by no later than 16:00 on **4 September 2026.**

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6. Persons making representations are further invited to indicate whether they require an opportunity to make oral representations.

7. Written representations or enquiries may be directed by email to:

Attention:

Mr Manyaapelo Richard Makgotlho

e-mail: rmakgotlho@icasa.org.za

Copy: jdikgale@icasa.org.za

8. Where persons making representations require that their representation, or part thereof, be treated as confidential, then an application in terms of section 4D of the ICASA Act, 2000 (Act No 13 of 2000) must be lodged with the Authority. Such an application must be submitted simultaneously with the representation, together with a non-confidential, redacted version of the submission. If, however, the request for confidentiality is not granted, the person making the request will be allowed to withdraw the representation or document in question.

9. The guidelines for confidentiality requests are contained in Government Gazette Number No 41839 of 17 August 2018.

10. All written representations submitted to the Authority pursuant to this notice will be made available for inspection by interested persons from **11 September 2026** at the Authority's Library. Electronic copies of such representations are obtainable on request and printed versions will be obtainable on payment of a fee.

11. The feasibility studies for the frequency bands allocated to the mobile radiocommunications services and identified international mobile telecommunications in the national radio frequency plan and the non-confidential representations will be uploaded to the Authority's website under this link: https://www.icasa.org.za/legislation-and-regulations/radio-frequency-spectrum-plans/draft-radio-frequency-spectrum-plans.



Mothibi G. Ramusi

CHAIRPERSON

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Feasibility Study

1900 MHz to 1920 MHz

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1 About this section

1.1 This section contains the feasibility study for international mobile telecommunications ("IMT") services the 1900 - 1920 MHz band.

1.2 The structure of the feasibility study is as set out in the draft IMT Roadmap 2025, and is as follows:

1.2.1 Introduction;

1.2.2 Regulatory context;

1.2.3 Economic feasibility for IMT;

1.2.4 Technical feasibility;

1.2.5 Maturity of the IMT ecosystem;

1.2.6 International considerations;

1.2.7 Stakeholder comments; and

1.2.8 Advantages and disadvantages of using the band for IMT.

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2 Glossary of Terms, Abbreviations, and Acronyms

Acronym	Explanation
3G	Third generation mobile telecommunications is a generation of standards for mobile phones and mobile telecommunication relating to the ITU-R IMT-2000 specifications.
4G	Fourth Generation Network Technology relating to ITU-R IMT-Advanced specifications.
5G	Fifth Generation Network Technology, relating to the ITU-R IMT-2020 specifications.
6G	Sixth Generation Network Technology, relating to the ITU-R IMT-2030 specifications.
Act	Electronic Communications Act, 2005 (Act No. 36 of 2005).
AAS	Active antennae systems.
Administration	Members States of the International Telecommunications Union.
Allocation	Entry in the Table of Frequency Allocations of a given frequency band for the purpose of its use by one or more terrestrial or space *radiocommunication services* or the *radio astronomy service* under specified conditions.
Assignment	The authorisation given by the authority to a licensee to use a radio frequency or radio frequency channel under specified conditions.
ATU	African Telecommunications Union.
Authority	The Independent Communications Authority of South Africa.
BFWA	Broadband Fixed Wireless Access.
CEPT	Conference of European Posts and Telecommunications Authorities.
CRASA	Communications Regulators' Association of Southern Africa.
DC-MSS-IMT	Direct Connectivity between Mobile-Satellite Service space station and IMT UEs.
DECT	Digital Enhanced Cordless Telecommunications 1880 - 1900 MHz which is a digital communication standard, primarily used for creating cordless phone systems.
ECA	The Electronic Communications Act of South Africa, Act No 36 of 2005.
EIRP	Effective isotropically radiated power.
ERP	Effective radiated power, which is the product of the power supplied to an antenna and its gain relative to a half wave dipole in a given direction.
FDD	Frequency Division Duplex.
FWA	Fixed Wireless Access.
FS	Fixed Service.
FSS	Fixed Satellite Service.
Gbps	Gigabits per second.
GHz	Gigahertz of Radio Frequency Spectrum.
GSM	Global System for Mobile Communications, (originally Groupe Spécial Mobile), and is a standard set developed by the European Telecommunications Standards Institute (ETSI) to describe technologies for second generation (2G) digital cellular networks.
GSMA	Global System for Mobile Communications Association.
IMT	The name that encompasses IMT-2000, IMT-Advanced, IMT-2020 and IMT-2030 collectively known as International Mobile Telecommunications.
IMT-2000	The International Mobile Telecommunications, as envisioned in ITU-R Recommendation ITU-R M.687 and M.816.
IMT-Advanced	The International Mobile Telecommunications, as envisioned in Recommendation ITU-R M.1645.

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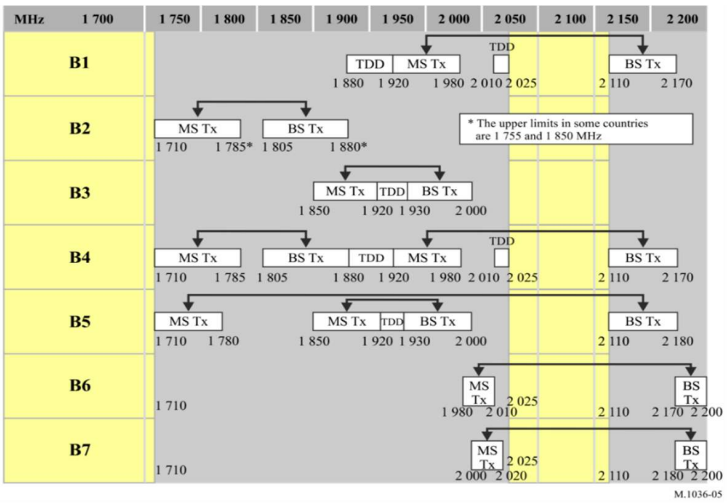
Acronym	Explanation
IMT-2020	The International Mobile Telecommunications, as envisioned in Recommendation ITU-R M.2083.
IMT-2030	The International Mobile Telecommunications, as envisioned in Recommendation ITU-R M.2160.
IoT	Internet of Things.
ITU	International Telecommunication Union.
ITU RR	International Telecommunication Union Radio Regulations.
kHz	Kilohertz of Radio Frequency Spectrum.
LTE	Long Term Evolution and is a standard for wireless communication of high-speed data for mobile phones and data terminals. It is based on the GSM/EDGE and UMTS/HSPA network technologies.
M2M	Machine to Machine.
MHz	Megahertz of Radio Frequency Spectrum.
MIMO	Multiple-Input and Multiple-Output and is the use of multiple antennas at both the transmitter and receiver to improve communication performance.
NRFP	The National Radio Frequency Plan for South Africa.
NTN	Non-terrestrial Network
PMSE	Programme making and special events applications (PMSE)
PRASA	Passenger Rail Agency of South Africa.
PTM	Point to Multipoint.
PTP	Point to Point.
Radio-communication	All electronic communication by means of radio waves.
RATG	Radio Access Technology Group.
Revocation Period	A period of transition during which incumbent users are migrated out of the band in question to clear sufficient spectrum for new service providers.
RFSAP	Radio Frequency Spectrum Assignment Plan.
RLAN	Radio Local Access Network and is the high data rate two-way (duplex) wireless data communications network.
SABRE	South African Band Re-Planning Exercise.
SADC	Southern African Development Community.
SADC RFSAP	Southern African Development Community Frequency Allocation Plan.
SAPS	South African Police Service.
Service licence	BS, ECS or ECNS licence.
SF	Single Frequency.
SFN	Single Frequency Network.
TDD	Time Division Duplex.
VSAT	Very small aperture terminal used for fixed satellite services.
WAS	Wireless Access Systems and is end-user radio connections to public or private core networks.

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3 Introduction

3.1 The frequency arrangements for this band are set out in Section 5 of ITU-R M.1036-7. This band forms part of Band 4 for the overall range between 1710MHz and 2200MHz (see Figure 1). Portions of the band are currently licensed to Telkom, including the 1900-1920MHz band licensed for Fixed Wireless Access ("FWA"). Various very small aperture terminal ("VSAT") fixed satellite services ("FSS") are operated in this band. Many broadcasters and other entities use VSAT for various services such as video, news gathering, and telemetry data services.

Figure 1: Frequency arrangements between 1710MHz-2200MHz



Source: ITU M.1036

4 Regulatory context

4.1 The NRFP allocations for this band are shown in the NRFP.

4.2 The IMT1900 TDD (1900 – 1920 MHz) band is allocated to mobile services on a primary basis in the NRFP. The use of the range 1900-1910MHz for railway communications is mentioned in column 3 (typical applications).

5 Economic feasibility for IMT

5.1 Telkom currently uses the 1900-1920MHz band for Fixed Wireless Access ("FWA") systems and would need to migrate to make the band available for IMT services, to be used for railway services:

5.1.1 There would be a migration cost incurred for Telkom to do so. However, it is not clear how many links are used in this band, nor is it clear how many end users Telkom offers IMT services to. This cost may therefore be very low or non-existent.

5.1.2 There would also be a significant benefit to assigning this band to IMT services. The Passenger Rail Association of South Africa ("PRASA") has proposed using the band 1895MHz-1915MHz for IMT services.

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5.1.2.1 There has been considerable support for the United Kingdom's Office of Communications' ("Ofcom") proposed use of the 1900-1910 MHz subrange for railway mobile communications, such as from public transport providers and mobile network operators.1 There was unanimous agreement amongst the ten stakeholders who submitted comments in support of Ofcom's proposed use of the band. Ofcom therefore recommends the band for Future Railway Mobile Communication System ("FRMCS") services, citing stakeholder approval alongside that FRMCS would use the band more extensively than other prospective users Similarly, the European Union ("EU") has identified the use of this band for Railway Mobile Radio2, following the European Conference of Postal and Telecommunications Administrations' ("CEPT") confirmation of the technical feasibility of this band for FRMCS.[3]

5.1.2.2 Further, Ofcom have proposed the use of the 1910-1915 MHz subrange for Emergency Service Network ("ESN") gateways, highlighting the potential to deliver public safety benefits which outweigh the value added by alternatives.[4]

5.1.3 At the same time, Shure has proposed using the band 1910-1920 MHz for DECT services, at least in the United Kingdom ("UK"),[5] although in its submission to the Authority on the draft spectrum migration plan, Shure South Africa noted that 1880-1900MHz is assigned for DECT. Shure highlights that an ongoing CEPT study is yet to determine the feasibility of DECT within the 1910-1920 MHz band.[6] Ofcom is set to publish their final recommendation on this matter in 2026 However:

5.1.3.1 It is not clear how many users would be served by allocating parts of the band to DECT services.

5.1.3.2 Given the likely adoption in the UK and Europe of IMT services in the band for rail, it is probable that the value of the band for IMT services will grow significantly in the coming years given the number of devices that can be connected using IMT. It is unlikely that programme making and special events ("PMSE") would exceed the value of the spectrum used for IMT, given the small number of PMSE devices and users that would likely be served.

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[1] See: See Ofcom. 2025. Future authorisation of the 1900–1920 MHz band 24 October 2025, available at: https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-1-10-weeks/future-authorisation-of-the-19001920-mhz-band/main-documents/statement-and-further-consultation-future-authorisation-1900-1920-mhz-band.pdf?v=406703

[2] See Commission Implementing Decision (EU) 2021/1730 of 28 September 2021, available at: https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32021D1730

[3] See CEPT Report 74 of 3 July 2020, available: https://docdb.cept.org/download/132

[4] See Ofcom. 2025. Future authorisation of the 1900–1920 MHz band 10 March 2025, available at: https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-1-10-weeks/future-authorisation-of-the-19001920-mhz-band/main-documents/consultation-future-authorisation-of-the-19001920-mhz-band.pdf?v=392441

[5] See: https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-1-10-weeks/future-authorisation-of-the-19001920-mhz-band/responses/shure-uk-ltd.pdf?v=403939

[6] See Ofcom. 2025. Future authorisation of the 1900–1920 MHz band 24 October 2025, available at: https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-1-10-weeks/future-authorisation-of-the-19001920-mhz-band/main-documents/statement-and-further-consultation-future-authorisation-1900-1920-mhz-band.pdf?v=406703

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5.1.3.3 Ofcom has indicated that it does not propose to allocate the 1915-1920 MHz band, on the basis that the spectrum is considered suitable primarily for low-power applications.[7] This position was adopted notwithstanding Shure UK's view that DECT would be suitable for the band.[8]

5.2 Despite the migration cost incurred for the incumbent in this band, its value for IMT use is evident given its proposed allocation for railway mobile communications in both the UK and Europe. It is therefore highly likely that the benefits of allocating the band to IMT outweigh the costs of doing so.

6 Technical feasibility

6.1 The existing interference studies[9] do not suggest that there are concerns of interference from DECT services in the 1900-1920MHz band, given their relatively low range at approximately 50m.

7 Maturity of the IMT ecosystem

7.1 There is already a strong device ecosystem that supports this band (n39), which is likely to grow further given the identification of the band 1900-1920 MHz for IMT services by the ITU, as shown on Figure 1 above.

8 International considerations

8.1 South Africa has an obligation in accordance with the Act to harmonise its allocations of spectrum with other countries in Region 1, including countries in the EU and the UK, which are in the process of allocating the band to mobile services.

9 Stakeholder comments

9.1 Refer to Table 1 below for a summary of the stakeholders' comments on the Draft IMT Roadmap 2024, Second Draft IMT Roadmap 2025, and Draft Radio Frequency Migration Plan 2024, alongside the Authority's response.

Table 1: Stakeholder comments and the Authority's responses for the 1880 – 1920 MHz band

Stakeholder comments	Authority's comment
Vodacom and Cell C support the allocation of this band for IMT. Vodacom expresses scepticism about the band's use for DECT	The Authority is considering information on the value of this band

[7] See Ofcom. 2025. Future authorisation of the 1900–1920 MHz band 10 March 2025, available at: https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-1-10-weeks/future-authorisation-of-the-19001920-mhz-band/main-documents/consultation-future-authorisation-of-the-19001920-mhz-band.pdf?v=392441 ; see also Ofcom. 2025. Future authorisation of the 1900–1920 MHz band 24 October 2025, available at: https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-1-10-weeks/future-authorisation-of-the-19001920-mhz-band/main-documents/statement-and-further-consultation-future-authorisation-1900-1920-mhz-band.pdf?v=406703

[8] See: https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-1-10-weeks/future-authorisation-of-the-19001920-mhz-band/responses/shure-uk-ltd.pdf?v=403939

[9] See CEPT/ECC Report 314: Coexistence between Future Railway Mobile Communication System (FRMCS) in the frequency range 1900-1920 MHz and other application in adjacent bands, available at: https://docdb.cept.org/download/64824326-aa9c/ECC%20Report%20314.pdf

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Stakeholder comments	Authority's comment
services and considers that the IMT1900 band has strong terminal support, and recommends a deployment of band b/n39. Cell C recommends that incumbent users should be required to reapply for IMT spectrum.	for IMT use, such as potential auction values, the network costs avoided by using this band for IMT, and any other benefits. Stakeholders are encouraged to comment in this regard.
Huawei acknowledges the importance of this band for railway industry communications, given that the 1900-1910 MHz band has been identified for Railway Mobile Radio services in the EU.[10] Similarly, PRASA requested that the frequency range 1895-1915MHz be set aside for railway use.	
The DECT Forum has previously recommended, when commenting on the 2024 Draft IMT Roadmap, that the entire 1880-1920 MHz band be allocated to DECT.	There is substantial demand for additional spectrum for IMT use including for railway mobile communications, as set out in Section 6, and it is improbable that alternative niche uses such as DECT and PMSE command equally high demand. Nonetheless, the Authority is considering information on the value of the use of these bands for alternative services. Stakeholders are encouraged to comment in this regard.
Telkom is of the view that only the band 1900-1920MHz is currently available for IMT use.	
Telkom advised that no VSAT services have been deployed in this band.	The Authority notes the mistake and has made the correction.

10 Considerations in favour of and against IMT allocation

10.1 There are a number of factors that weigh in favour of allocating this band to IMT for FRMCS:

10.1.1 The NRFP has allocated the 1900-1920 MHz band to IMT;

10.1.2 There is a high likelihood that the highest value use of the band is for IMT rather than alternatives such as DECT;

10.1.3 The allocation of this band to IMT is technically feasible, i.e. that this will not interfere with systems in adjacent bands;

10.1.4 There are a number of jurisdictions proposing the allocation of the band for IMT, and thus there is a likely developing ecosystem;

10.1.5 Other countries in Region 1 are allocating the band for IMT, and South Africa must harmonise its allocations with other countries in Region 1;

10.1.6 Several stakeholders consider that the band should be allocated for IMT.

10.2 While some stakeholders have indicated that the band could be used for DECT, the number of customers using the band for this purpose is likely to be limited, and in any event much lower than the number of railway users. Given the evident lack of disadvantages regarding the

[10] See Commission Implementing Decision (EU) 2021/1730 of 28 September 2021, available at: https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32021D1730

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allocation of this band for IMT, the considerations in favour of the allocation outweigh those against doing so.

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GOVERNMENT GAZETTE

GENERAL NOTICE

NOTICE XXXX OF 2026

THE INDEPENDENT COMMUNICATIONS AUTHORITY OF SOUTH AFRICA

ELECTRONIC COMMUNICATIONS ACT, 2005 (ACT NO. 36 OF 2005)

HEREBY ISSUES A NOTICE REGARDING THE RADIO FREQUENCY ASSIGNMENT PLANS FOR THE FREQUENCY BANDS ALLOCATED TO THE MOBILE RADIOCOMMUNICATIONS SERVICES AND IDENTIFIED INTERNATIONAL MOBILE TELECOMMUNICATIONS IN THE NATIONAL RADIO FREQUENCY PLAN.

1. The Independent Communications Authority of South Africa ("the Authority"), on 28 March 2024, published the Draft International Mobile Telecommunications (IMT) Roadmap, in Government Gazette No. 50413 (Notice 4584 of 2024) inviting Written Representations.

2. On 13 September 2024, in Government Gazette 51244 (Notice 5209 of 2024) the Authority published a "Notice Communicating the Outcome of the Consultation Process of the Draft IMT Roadmap 2025.

3. The Authority, in Government Gazette 53883 (Notice 3712 of 2025), published the Second Draft International Mobile Telecommunications (IMT) Roadmap 2025, in terms of section 4(3)(c) of the Independent Communications Authority of South Africa Act, 2000 (Act No. 13 of 2000), read with sections 2(e), 30, 31(4), and 33 of the Electronic Communications Act (Act No 36 of 2005).

4. Now therefore, the Authority, in terms of section 4(3)(c) of the Independent Communications Authority of South Africa Act, 2000 (Act No. 13 of 2000), read with sections 2(e), 30, 31(4), and 33 of the Electronic Communications Act (Act No 36 of 2005) hereby publishes the notice regarding the radio frequency assignment plans for the frequency bands allocated to the mobile radiocommunications services and identified international mobile telecommunications in the national radio frequency plan**.**

5. Interested persons are hereby invited to submit written representations on the notice regarding the radio frequency assignment plans for the frequency bands allocated to the mobile radiocommunications services and identified international mobile telecommunications in the national radio frequency plan in both Microsoft Word (MS) and Portable Document Format (PDF) by no later than 16:00 on **4 September 2026.**

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6. Persons making representations are further invited to indicate whether they require an opportunity to make oral representations.

7. Written representations or enquiries may be directed by email to:

Attention:

Mr Manyaapelo Richard Makgotlho

e-mail: rmakgotlho@icasa.org.za

Copy: jdikgale@icasa.org.za

8. Where persons making representations require that their representation, or part thereof, be treated as confidential, then an application in terms of section 4D of the ICASA Act, 2000 (Act No 13 of 2000) must be lodged with the Authority. Such an application must be submitted simultaneously with the representation, together with a non-confidential, redacted version of the submission. If, however, the request for confidentiality is not granted, the person making the request will be allowed to withdraw the representation or document in question.

9. The guidelines for confidentiality requests are contained in Government Gazette Number No 41839 of 17 August 2018.

10. All written representations submitted to the Authority pursuant to this notice will be made available for inspection by interested persons from **11 September 2026** at the Authority's Library. Electronic copies of such representations are obtainable on request and printed versions will be obtainable on payment of a fee.

11. The radio frequency assignment plans for the frequency bands allocated to the mobile radiocommunications services and identified international mobile telecommunications in the national radio frequency plan and the non-confidential representations will be uploaded to the Authority's website under this link: https://www.icasa.org.za/legislation-and-regulations/radio-frequency-spectrum-plans/draft-radio-frequency-spectrum-plans.



Mothibi G. Ramusi

CHAIRPERSON

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Radio Frequency Spectrum Assignment Plan

Rules for Services operating in the Frequency Band

1900 MHz to 1920 MHz

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1 Glossary of Terms, Abbreviations, and Acronyms

1.1 In this Radio Frequency Spectrum Assignment Plan, terms used will have the same meaning as in the Electronic Communications Act 36 of 2005; unless the context indicates otherwise. The definitions and acronyms for additional terms are listed below:

"3GPP"	means the 3rd Generation Partnership Project (3GPP) which consists of six telecommunications standard development organisations
"AAS"	means Active Antenna System
"Act"	means the Electronic Communications Act, 2005 (Act No. 36 of 2005) as amended
"AGM"	means Annual General Meeting
"AU"	means African Union
"BEM"	means Block Edge Masks
"BS"	means Base Stations
"CRASA"	means Communications Regulators' Association of Southern Africa
"CRASA ECC"	means the Communications Regulators' Association of Southern Africa (CRASA) Electronic Communications Committee (ECC)
"DM RS"	means Demodulation Reference Signal
"ECC"	means the Electronic Communications Committee within the European Conference of Postal and Telecommunications Administrations (CEPT)
"ECC/REC (11)04"	means the ECC Recommendation (11)04 - Cross-border Coordination for Mobile/Fixed Communications Networks (MFCN) in the frequency band 790-862 MHz, Edition 3 February 2017
"ECC/REC (15)01"	means the ECC Recommendation (15)01 - (15)01 -ECC Recommendation (15)01 "Cross-border coordination for Mobile/Fixed Communications Networks (MFCN) in the frequency bands: 694-790 MHz, 1427-1518 MHz, and 3400-3800 MHz". Amended on 14 February 2020
"EIRP"	means Effective Isotropic Radiated Power
"ESN"	means Emergency Service Network
"FDD"	means the Frequency Division Duplex
"FRMCS"	means Future Railway Mobile Communication System
"HCM"	means the Harmonised Calculation Method
"HCM4A"	means the Harmonised Calculation Method for Africa
"HDA"	means High-Density Area
"HIPSSA"	means the Sub-Saharan Africa Assessment Report on Harmonisation of ICT Policies in Sub-Saharan Africa
"ICNIRP"	Means the International Commission on Non-Ionizing Radiation Protection (ICNIRP)
"IMT"	means the International Mobile Telecommunications
"IMT-2020"	means International Mobile Telecommunications-2020
"IMT Advanced"	means International Mobile Telecommunications-Advanced
"ITA"	means the Invitation to Apply
"ITU"	means the International Telecommunication Union
"ITU-R"	means the International Telecommunication Union Radiocommunication Sector
"LPI"	means Low Power Indoor
"LoS"	means Line of Sight
"LTE"	means the Long-Term Evolution is a standard for wireless communication of high-speed data for mobile phones and data terminals. It is based on the GSM/EDGE and

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"Non-AAS"	means Non-Active Antenna System
"NR"	means New Radio
"NRFP"	means the National Radio Frequency Plan 2013 for South Africa
"PCI"	means the Physical-Layer Cell Identities
"PFD"	means Power Flux Density
"PPDR"	means the Public Protection and Disaster Relief as defined in ITU-R Report M.2033
"PRACH"	means the Physical Random-Access Channel
"PSTN"	means the Public Switched Telephone Network
"PUCCH"	means the Physical Uplink Control Channel
"PUSCH"	means the Physical Uplink Shared Channel
"RAS"	means Radio Astronomy Service
"RFSAP"	means the Radio Frequency Spectrum Assignment Plan
"RR"	means Radio Regulations
"SADC"	means Southern African Development Community
"TCA"	means the Terrain Clearance Angle
"TRP"	means the Total Radiated Power. The TRP is defined as the integral of the power transmitted in different directions over the entire radiation sphere.
"TDD"	means the Time Division Duplex
"UE"	means User Equipment
"VLP"	means Very Low Power
"WRC-12"	means the World Radiocommunication Conference 2012 held in Geneva
"WRC-15"	means the World Radiocommunication Conference 2015 held in Geneva
"WRC-19"	means the World Radiocommunication Conference 2019 held in Sharm el-Sheikh
"WRC-23"	means the World Radiocommunication Conference 2023 held in Dubai

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2 Purpose

2.1 An RFSAP provides information on the requirements attached to the use of a frequency band in line with the allocation and other information in the NRFP. This information includes technical characteristics of radio systems, frequency channelling, coordination, and details on required migration of existing users of the band and the expected method of assignment.

2.2 This RFSAP states the requirements for the utilisation of the frequency band 1900 MHz to 1920 MHz for IMT.

2.3 The ITU states that IMT systems are mobile systems that provide access to a wide range of telecommunication services including advanced mobile services, supported by mobile and fixed networks, which are increasingly packet-based. Key features of the IMT systems are:[11]

- a high degree of commonality of functionality worldwide whilst retaining the flexibility to support a wide range of services and applications in a cost-efficient manner;
- compatibility of services within IMT and with fixed networks;
- capability of interworking with other radio access systems;
- high quality mobile services;
- user equipment suitable for worldwide use;
- user-friendly applications, services, and equipment;
- worldwide roaming capability; and
- enhanced peak data rates to support advanced services and applications.

3 General

3.1 Technical characteristics of equipment used in IMT systems will conform to all applicable South African standards, international standards, and ITU (including its radio regulations) as agreed and adopted by South Africa.

3.2 All installations must comply with safety rules as specified in applicable standards.

3.3 The equipment used will be certified under South African law and regulations.

3.4 The allocations of the IMT bands and the information in this RFSAP are subject to review.

3.5 Frequency bands identified for IMT include the bands 1900 MHz to 1920 MHz.

3.6 The requirements for the standard families which can provide IMT services include, but are not limited to:

- IMT-2000;
- IMT-Advanced;
- IMT-2020;

[11] See ITU-R Frequently Asked Questions on IMT, available at: https://www.itu.int/en/ITU-R/Documents/FAQ-IMT-2024.pdf#:~:text=Key%20features%20of%20IMT%2D2000%20and,in%20a%20cost%20efficient%20manner%3B

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- IMT-2030.

3.7 Typical technical and operational characteristics identified by the ITU are described in the following documents:

- Recommendation ITU-R M.2012-5 (02/2022): Detailed specifications of the terrestrial radio interfaces of IMT Advanced;
- Report ITU-R M.2074-0 (2006): Report on Radio Aspects for the terrestrial component of IMT-2000 and systems beyond IMT-2000;
- Recommendation ITU-R M.1645 (06/2003): Framework and overall objectives of the future development of IMT-2000 and systems beyond IMT-2000;
- Recommendation ITU-R M.1036: Frequency arrangements for implementation of the terrestrial component of IMT in the bands identified for IMT in the RR;
- Recommendation ITU-R M.2150-1 (02/2022): Detailed specifications of the terrestrial radio interfaces of IMT-2020; and
- Recommendation ITU-R M.2160-0 (11/2023): Framework and overall objectives of the future development of IMT for 2030 and beyond.

3.8 The ITU also provides guidelines for modelling and simulation, e.g.

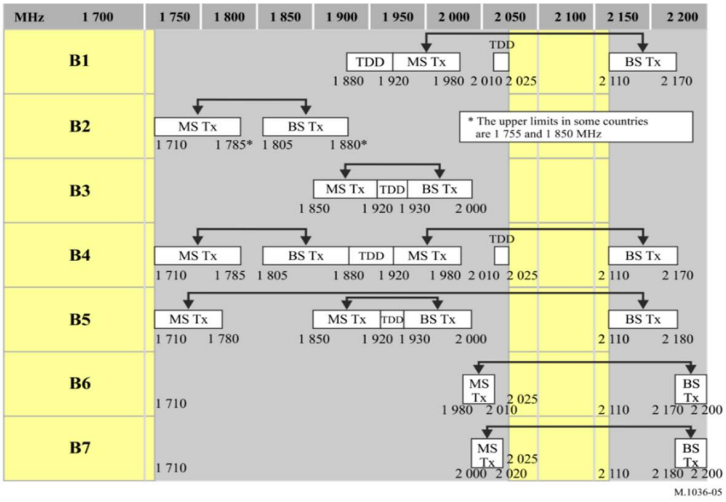
- Recommendation ITU-R M.2070-1 (02/2017): Generic unwanted emission characteristics
- of base stations using the terrestrial radio interfaces of IMT-Advanced;
- Recommendation ITU-R M.2071-1 (02/2017): Generic unwanted emission characteristics of mobile stations using the terrestrial radio interfaces of IMT-Advanced; and
- Recommendation ITU-R M.2101 (02/2017): Modelling and simulation of IMT networks and systems for use in sharing and compatibility studies.

4 Channelling Plan

4.1 The frequency arrangements for implementation of IMT in the 1 900 – 1 920 MHz frequency range are summarized in Figure 2 below, noting the implementation aspects in this RFSAP. Band plan 4 (“B4”) is applicable to South Africa.

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Figure 2: Frequency arrangements for B1 to B7



Source: ITU M.1036-05

5 Requirements for the Usage of the Radio Frequency Spectrum

5.1 This chapter covers the minimum key characteristics considered necessary in order to make the best use of the available frequencies.

5.2 The use of Band 4 (B4) spectrum on Figure 2 is limited to IMT services. The use of the range 1900-1910MHz for railway communications is mentioned in column 3 (typical applications).

5.3 Only systems using digital technologies that promote spectral efficiency will be issued with an assignment. Capacity enhancing digital techniques is being rapidly developed together with techniques that promote efficient spectrum use without reducing service quality. These techniques are encouraged.

5.4 In some cases, a radio system conforming to the requirements of this RFSAP may require modifications if harmful interference is caused to other radio stations or systems.

5.5 The allocation of spectrum and shared services within these bands are found in the NRFP.

5.6 Maximum radiated power:

5.6.1 Maximum transmit power levels for base stations ("BS") operating include:[12]

5.6.1.1 AAS base stations: The maximum power limit is specified as TRP of 60 dBm per cell (per 5 MHz block).

5.6.1.2 Non-AAS base stations: The maximum power limit for macro base stations is an in-block EIRP limit of 61 dBm per 5 MHz block.

5.6.2 UE: The ECC recommends that the in-block TRP for mobile UEs does not exceed 28 dBm;

[12] See, in this regard: ECC Decision (06)01; ECC Report 298; CEPT Report 67.

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5.6.3 On a case-to-case basis, higher TRP may be permitted if acceptable technical justification is provided.

5.6.4 The Authority may specify BEM if necessary.

5.7 Where appropriate, subscriber terminal stations should comply with the technical specification outlined under the latest version of 3GPP specifications, e.g., TS 36.521-1 for LTE, 38.521-1 for 5G NR;

5.8 ICNIRP Guideline compliance is required, where applicable; and

5.9 The criteria and guidelines for interference mitigation are described in Appendices B and D.

6 Commencement

6.1 This RFSAP comes into effect upon publication of this notice.

6.2 No new assignment for IMT in the band 1900 MHz – 1920 MHz will be approved unless it complies with this RFSAP.

7 Conflict

7.1 In the event of a conflict between this RFSAP and the applicable NRFP and/or Terrestrial Broadcasting Frequency Plan, the NRFP and the Terrestrial Broadcasting Frequency Plan shall prevail.

8 Coordination Requirements

8.1 Cross Border Frequency Coordination will abide by the HCM4A Agreement. This follows the 3rd CRASA AGM that agreed that CRASA should implement the Cross Border Frequency Coordination HCM4A Agreement.

8.2 The ECC had noted the need for greater understanding of the concept and need for harmonisation in the signing of the HCM4A Agreement by the SADC Member States if the implementation of the Agreement is to be effective. The ECC, therefore, agreed to convene a workshop on HCM4A and requested the CRASA Members to consider signing the agreement.

8.3 At the 5th CRASA AGM, Swakopmund, Namibia – 07-08 April 2016 [1], the subject of Cross Border Frequency Coordination using the Harmonised Calculation Method for Africa (HCM4A) was discussed in detail, following similar efforts in Europe. The Resolution CRASA/AGM/15.16/07 stipulates, "The AGM urged CRASA Members to prioritise the motivation to their administrations who are yet to indicate their interest to sign the HCM4A, to do so as soon as possible".

8.4 Therefore, coordination would follow the HCM4A as detailed in Sub-Saharan Africa Assessment Report on HIPSSA.[13]

8.5 A harmonised calculation method (HCM4A) brings these benefits:

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[13] See: https://www.itu.int/en/ITU-D/Projects/ITU-EC-ACP/HIPSSA/Documents/FINAL%20DOCUMENTS/FINAL%20DOCS%20ENGLISH/hcm4a_agreement.pdf.pdf

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8.5.1 Based on HCM Agreement used in Europe;

8.5.2 Optimise spectrum usage;

8.5.3 Prevent harmful interferences;

8.5.4 Confer an adequate protection for stations;

8.5.5 Define technical provisions and administrative procedures;

8.5.6 Quick assignment of preferential frequencies;

8.5.7 Transparent decisions through agreed assessment procedures;

8.5.8 Quick assessment of interference through data exchange.

8.6 HCM4A involves all 4 sub regions of Africa. This means the HCM4A projects include performing a survey and a comparative analysis of existing administrative and technical procedures related to bilateral and multilateral cross-border frequency coordination agreements across the 4 geographical sub-regions as defined by the AU, namely:

8.6.1 Central Africa [Burundi, Central African Republic, Chad, Congo, Democratic Republic of Congo, Equatorial Guinea, Gabon, Sao Tome, and Principe];

8.6.2 East Africa [Comoros, Djibouti, Eritrea, Ethiopia, Kenya, Madagascar, Mauritius, Rwanda, Seychelles, Somalia, Sudan, Tanzania, Uganda];

8.6.3 Southern Africa [Angola, Botswana, Lesotho, Malawi, Mozambique, Namibia, South Africa, Eswatini, Zambia, Zimbabwe];

8.6.4 West Africa [Benin, Burkina-Faso, Cape Verde, Côte d'Ivoire, Gambia, Ghana, Guinea, Guinea-Bissau, Liberia, Mali, Niger, Nigeria, Sierra Leone, Senegal, Togo].

8.7 HCM4A also comes with a software tool for Sub-Saharan Africa. This has the following features:[14]

8.7.1 Optimise spectrum usage by accurate interference field strength calculations;

8.7.2 Establish general parameters, improvement, and supplementation of technical provisions, individual restrictions;

8.7.3 Establish models for computer-aided interference range calculations; and

8.7.4 Harmonise parameters: objectively predictable towards transparent decisions.

8.8 Use of these frequency bands will require coordination with the neighbouring countries within the coordination zones of 6 kilometres from the neighbouring country. The coordination distance is continuously being reviewed and these may be updated from time to time.

8.9 The below field strength thresholds have to be assured based on based on ECC/REC (08)02 in respect of the IMT1800 band, ECC/REC 01)01 for the IMT2100 band, and ECC/REC (23)01 for

[14] See: https://www.itu.int/en/ITU-D/Regional-Presence/AsiaPacific/Documents/Events/2017/May%20BKK/Presentations/HCM%20and%20HCM4A%20BKK%2020170504%20IB.pdf

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the 1900-1910MHz band, applied over the range 1880-1920MHz range in South Africa. Operator-to-operator coordination may be necessary to avoid interference.

8.10 In general stations of FDD systems may be used without coordination with a neighbouring country if the mean field strength produced of each carrier produced by the base station does not exceed the value of:

8.10.1 In respect of IMT1800:

8.10.1.1 If preferential codes are used: 65 dBµV/m/5 MHz at a height of 3 m above ground at the border line between countries and does not exceed a value of 47 dBµV/m/5 MHz at a height of 3 m above ground at a distance of 6 km inside the neighbouring country.

8.10.1.2 If non-preferential codes are used with centre frequencies aligned: 47 dBµV/m/5MHz at a height of 3 m above ground at the borderline between neighbouring countries.

8.10.2 In respect of IMT2100:

8.10.2.1 If preferential codes are used: 65 dBµV/m/5 MHz at a height of 3 m above ground at the border line between countries and does not exceed a value of 37 dBµV/m/5 MHz at a height of 3 m above ground at a distance of 6 km inside the neighbouring country.

8.10.2.2 Using non-preferential codes with centre frequencies aligned: 37 dBµV/m/5MHz at a height of 3 m above ground at and beyond the border line between countries.

8.10.2.3 Preferential use: For some cross-border situations, together with code coordination, it may be possible to agree on a frequency coordination based on preferential frequencies, while ensuring a fair treatment of different operators within a country. This could be implemented in the case when FDD mode in MFCN systems is used in following manner:

8.10.2.3.1 Preferential frequencies (or preferential frequency bands) shall be agreed between Administrations concerned.

8.10.2.3.2 Preferential frequencies may be used without coordination with a neighbouring country if the predicted mean field strength of each carrier produced by the base station does not exceed a value of 75 dBµV/m/5 MHz at a height of 3 m above ground at and beyond the border line between countries

8.10.2.3.3 Non-preferential frequencies may be used without coordination with a neighbouring country if the predicted mean field strength of each carrier produced by the base station does not exceed a value of 65 dBµV/m/5MHz at a height of 3 m above ground at the borderline between countries and 37 dBµV/m/5MHz at a height of 3 m above ground at a distance of 6 km inside the neighbouring country.

8.10.2.3.4 Systems operating on non-preferential frequencies have to accept interference from services in the neighbouring country using preferential frequencies.

8.11 In general stations of TDD systems in the band 1900-1920MHz may be used without coordination with a neighbouring country:

8.11.1 Base stations of unsynchronised TDD networks (e.g. with non-compatible frame structures and/or without common phase clock reference) on both sides of the borderline do not exceed the limit of: 0 dBµV/m/(5 MHz) at a height of 3 m above ground at the borderline between countries.

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8.11.2 Base stations of synchronised TDD networks on both sides of the borderline with synchronisation signal centre frequencies not aligned for all PCIs or with synchronisation signal[15] centre frequencies aligned and for preferential PCIs may be used without coordination with a neighbouring country if the field strength of each cell produced by the base station does not exceed the values of:

8.11.2.1 65 dBµV/m/(5 MHz) at a height of 3 m above ground at the borderline between countries;

8.11.2.2 47 dBµV/m/(5 MHz) at a height of 3 m above ground at a distance of 6 km inside the neighbouring country.

8.11.3 Base stations of synchronised TDD networks on both sides of the borderline with synchronisation signal centre frequencies aligned and for non-preferential PCIs may be used without coordination with a neighbouring country if the field strength of each cell produced by the base station does not exceed the value of: 47 dBµV/m/(5 MHz) at a height of 3 m above ground at the borderline between countries.

8.12 For field strength predictions the calculations should be made according to Appendix A. In cases of other frequency block sizes 10*log10 (frequency block size / 5 MHz) should be added to the field strength values.

8.13 If neighbouring administrations wish to agree on frequency coordination based on preferential frequencies, while ensuring a fair treatment of different operators within a country the Authority will add these mutual agreements.

8.14 Technical analysis may be conducted by the Authority before an assignment is issued according to Appendix A.

8.15 In the event of any interference, the Authority will require affected parties to carry out coordination. In the event that the interference continues to be unresolved after 24 hours, the affected parties may refer the matter to the Authority for a resolution. The Authority will decide the necessary modifications and schedule of modifications to resolve the dispute. The Authority will be guided by the Frequency Coordination Process as outlined in Appendix C.

8.16 Assignment holders shall take full advantage of interference mitigation techniques such as antenna discrimination, tilt, polarization, frequency discrimination, shielding / blocking (introduce diffraction loss), site selection, and/or power control to facilitate the coordination of systems.

9 Assignment

9.1 The unassigned spectrum in this band will be assigned through a Section 5 process for FRMCS and ESN.

10 Amendments

[15] In this context, "synchronisation signals" refer to the Synchronisation Signal Block (SSB) for NR and Primary/Secondary Synchronisation Signal (PSS/SSS) for LTE as defined in relevant standards, and should not be confused with the general principle of synchronised/unsynchronised operation that is a different concept.

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10.1 Applicable licences are hereby amended to conform with this RFSAP upon publication of this notice.

11 Radio Frequency Migration

11.1 Licensees in the band 1900-1920MHz are to migrate out of this band within 24 months.

12 Synchronisation

12.1 In order to avoid interference between TDD networks operating in adjacent frequency carriers, the radio transmissions of adjacent TDD networks should be synchronized with the uplink and downlink frames aligned in time. Such synchronization of TDD networks is very important because it is the best way to avoid interference between networks and ensures efficient use of spectrum resources by avoiding inter-operator guard bands and additional base station filtering. Otherwise, the uplink and downlink interference cannot be eliminated or avoided in terms of technical measures.

12.2 The Authority will align with the operators to define a unified national uplink and downlink frame as part of a future ITA for unassigned spectrum in this band.

13 Appendix A: Propagation Model

13.1 The following methods are proposed for assessment of anticipated interference inside neighbouring countries based on established trigger values. Due to the complexity of radio-wave propagation, different methods are proposed to be considered by administrations and are included here for guidance purposes only. It should be noted that the following methods provide theoretical predictions based on available terrain knowledge. It is practically impossible to recreate these methods with measurement procedures in the field. Therefore, only some approximation of measurements could be used to check compliance with those methods based on practical measurement procedures. The details of such approximations are not included in this recommendation and should be negotiated between countries based on their radio monitoring practices.

A. Path specific model

13.2 Where appropriately detailed terrain data is available, the propagation model for interference field strength prediction is the latest version of ITU-R Rec. P.452.[16] For the relevant transmitting terminal, predictions of path loss would be made at x km steps along radials of y km at z degree intervals.[17] The values for those receiver locations within the neighbouring country would be used to construct a histogram of path loss – and if more than 10% of predicted values exceed the threshold, the station should be coordinated.

B. Site General model

13.3 If it is not desirable to utilise detailed terrain height data for propagation modelling in the border area, the basic model to be used to trigger coordination between administrations and to decide if

[16] Recommendation ITU-R P.452-17 (09/2021, with Editorial corrections on 28 October 2021) "Prediction procedure for the evaluation of interference between stations on the surface of the Earth at frequencies above about 0.1 GHz" (https://www.itu.int/rec/R-REC-P.452/en).

[17] Values for x, y, z, and path specific field strength levels are to be agreed between the administrations concerned.

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coordination is necessary, is ITU-R Rec. P.1546, "Method for point to area predictions for terrestrial services in the frequency range 30 to 4000 MHz".

13.4 This model is to be employed for 50% locations, 10% time and using a receiver height of 3m. For specific reception areas where terrain roughness adjustments for improved accuracy of field strength prediction are needed, administrations may use correction factors according to terrain irregularity and/or an averaged value of the TCA parameter in order to describe the roughness of the area on and around the coordination line.

13.5 Administrations and/or operators concerned may apply to the Authority to deviate from the aforementioned model.

C. Area calculations

13.6 In the case where greater accuracy is required, administrations and operators may use the area calculation below. For calculations, all the pixels of a given geographical area to be agreed between the Administrations concerned in a neighbouring country are taken into consideration. For the relevant base station, predictions of path loss should be made for all the pixels of a given geographical area from a base station and at a receiver antenna height of 3 m above ground.

13.7 For evaluation:

13.7.1 Only 10% of the number of the geographical area between the border line (also including the border line) and the 6 km line itself inside the neighbouring country may be interfered by higher field strength than the trigger field strength value given for the border line in the main text above at a height of 3 m above ground:

13.7.2 Only 10% of the number of the geographical area between the 6 km (including also the 6 km line) and 12 km line inside the neighbouring country may be interfered by higher field strength than the trigger field strength value given for the 6 km line in the main text above at a height of 3 m above ground;

13.8 It is recommended that during area calculations, not only detailed terrain data but also clutter data be taken into account. Use of correction factors for clutter is crucial in particular where the border area is 'open' or 'quasi-open' from the point of view of clutter or where the interfering base station is just a few kilometres from a border line.

13.9 If the distance between a base station and a terrain point of a border line is closer than or equal to 1 km, the free space propagation model needs to be applied. Furthermore, if there is no terrain obstacle within the 1st Fresnel zone, the free space propagation model should be applied.

13.10 If clutter data is not available, it is proposed to extend the usage of the free space propagation model to a few kilometres, depending on the clutter situation in border areas.

13.11 For area type interference calculations, propagation models with path specific terrain correction factors are recommended (e.g., the latest Recommendation ITU–R P.1546[18] with the Terrain

[18] ITU-R Recommendation P.1546-6 (08/2019): Method for point-to-area predictions for terrestrial services in the frequency range 30 MHz to 3 000 MHz (https://www.itu.int/rec/R-REC-P.1546/en).

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Clearance Angle correction factor TCA, HCM[19] method with the Terrain Clearance Angle correction factor or Recommendation ITU–R P.1812[20]).

13.12 As to correction factors for clutters 'open area' and 'quasi-open area', 20 dB and 15 dB should be used, respectively. Recommendations ITU–R P.1406[21] and/or ITU-R P.2108[22] should be used if a finer selection of clutter is required.

13.13 It must be noted that terrain irregularity factor Δh is not recommended to be used in area calculations. Administrations and/or operators concerned may agree to deviate from the aforementioned models by mutual consent.

14 Appendix B: Coordination for IMT-Systems

A. PREFERENTIAL PCI FOR IMT SYSTEMS

14.1 The following is extracted from the abovementioned ECC recommendations as an operational example and can be adapted for the SADC countries for IMT systems.

14.2 PCI coordination is only needed when channel centre frequencies are aligned independently of the channel bandwidth.

14.3 3GPP TS 36.211[23] defines 168 "unique physical-layer cell-identity groups" in §6.11, numbered 0...167, hereafter called "PCI groups" for IMT systems. Within each PCI group, there are three separate PCIs giving 504 PCIs in total.

14.4 Administrations should agree on a repartition of these 504 PCIs on an equitable basis when channel centre frequencies are aligned, as shown in the table below. It has to be noted that dividing the PCI groups or PCIs is equivalent. Each country should only use their own preferential PCIs close to the border and can use all PCIs away from the border. This transition

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[19] HCM Agreement (Harmonised Calculation Method) between the administrations of Austria, Belgium, the Czech Republic, Germany, France, Hungary, the Netherlands, Croatia, Italy, Liechtenstein, Lithuania, Luxembourg, Poland, Romania, the Slovak Republic, Slovenia, and Switzerland on the Coordination of frequencies between 29.7 MHz and 43.5 GHz for the Fixed Service and the Land Mobile Service. The latest version of this agreement can be found from http://www.hcm-agreement.eu/http/englisch/verwaltung/index_europakarte.htm

[20] Recommendation P.1812-6 (09/2021) "A path-specific propagation prediction method for point-to-area terrestrial services in the frequency range 30 MHz to 6 000 MHz" (https://www.itu.int/rec/R-REC- P.1812/en).

Annex 5: Determination of the interference field strength in the Land Mobile Service (https://www.itu.int/en/ITU-D/Projects/ITU-EC- ACP/HIPSSA/Documents/REGIONAL%20documents/HCM4A-E-Annex05.pdf).

[21] Recommendation P.1406-2 (07/2015) "Propagation effects relating to terrestrial land mobile and broadcasting services in the VHF and UHF bands" (https://www.itu.int/rec/R-REC-P.1406/en).

[22] Recommendation P.2108-1 (09/2021) "Prediction of clutter loss" (https://www.itu.int/rec/R-REC-P.2108/en).

[23] 3GPP TS 36.211 "Evolved Universal Terrestrial Radio Access (E-UTRA); Physical channels and modulation". (https://portal.3gpp.org/desktopmodules/Specifications/SpecificationDetails.aspx?specificationId=2425, also provided in ETSI TS 136 211). In comparison, 3GPP 38.211 (and ETSI TS 138 211) define NR Physical channels and modulation, in NR 2-step identification using PSS/SSS detection of the Physical Cell ID (same as LTE), the number of different cell IDs has been increased from 504 in LTE to 1008 for NR. Thus, for the deployment of LTE systems only the PCIs between 0 to 503 should be used and for NR systems PCIs between 0 to 1007 may be used.

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distance between "close to the border" and "away from the border" should be agreed between neighbouring countries.

14.5 Administrations may wish to define different field strength levels (than those provided in the main text referring to this Appendix) for non-preferential PCIs.

14.6 As shown in the table below, the PCIs should be divided into 6 sub-sets containing each one sixth of the available PCIs. Each country is allocated three sets (half of the PCIs) in a bilateral case and two sets (one third of the PCIs) in a trilateral case.

14.7 Four types of countries are defined in a way such that no country will use the same code set as any one of its neighbours. The following lists describe a sample distribution for African countries:

14.7.1 Country type 1: Botswana, Cameroon, Comoros, Democratic Republic of the Congo, Ghana, Guinea- Bissau, Kenya, Liberia, Malawi, Mauritius, Niger, Republic of the Sudan, Eswatini;

14.7.2 Country type 2: Algeria, Angola, Benin, Cape Verde, Chad, Cote d'Ivoire, Egypt, Ethiopia, Madagascar, Senegal, United Republic of Tanzania, Zimbabwe;

14.7.3 Country type 3: Burkina Faso, Congo, Djibouti, Equatorial Guinea, Guinea, Mauritania, Nigeria, Rwanda, Sao Tome and Principe, Seychelles, South Africa, South Sudan, Tunisia, Zambia;

14.7.4 Country type 4: Burundi, Central African Republic, Eritrea, Gabon, Gambia, Lesotho, Libyan Arab Jamahiriya, Mali, Morocco, Mozambique, Namibia, Sierra Leone, Somalia, Togo, Uganda. (Note: A sample country type map can be found in the figure below).

14.8 For each type of country, the following tables and figure describe the sharing of the PCIs with its neighbouring countries, with the following conventions of writing:

Preferential PCI	
Non-Preferential PCI	

14.9 The 504 physical-layer cell-identities should be divided into the following 6 sub-sets when the carrier frequencies are aligned in border areas:

Table 2: Sharing of PCIs between countries

	Set A	**Set B**	**Set C**	**Set D**	**Set E**	**Set F**
Country 1	0..83	84..167	168..251	252..335	336..419	420..503
Border 1-2						
Zone 1-2-3						
Border 1-3						
Zone 1-2-4						
Border 1-4						
Zone 1-3-4						

PCI	**Set A**	**Set B**	**Set C**	**Set D**	**Set E**	**Set F**
Country 2	0..83	84..167	168..251	252..335	336..419	420..503
Border 2-1						
Zone 2-3-1						
Border 2-3						
Zone 2-1-4						
Border 2-4						
Zone 2-3-4						

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PCI	Set A	Set B	Set C	Set D	Set E	Set F
Country 3	0..83	84..167	168..251	252..335	336..419	420..503
Border 3-2						
Zone 3-2-3						
Border 3-1						
Zone 3-1-4						
Border 3-4						
Zone 3-2-4						

PCI	Set A	Set B	Set C	Set D	Set E	Set F
Country 4	0..83	84..167	168..251	252..335	336..419	420..503
Border 4-1						
Zone 4-1-2						
Border 4-2						
Zone 4-2-3						
Border 4-3						
Zone 4-3-1						

14.10 Note:

14.10.1 All PCIs are available in areas away from the border.

14.10.2 In certain specific cases (e.g., if Angola and Botswana happened to have the same Country type/PCI code) where the distance between two countries of the same type number is very small (below a few tens of kilometres), it may be necessary to address the situation in bilateral /multilateral coordination agreements as necessary and may include further subdivision of the allocated codes in certain areas.

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Figure 3: Country type map/PCI distribution map



15 Appendix C: Guidance on the consideration of IMT system radio parameters for use in bilateral and multilateral agreements

15.1 This section is provided for guidance purposes for use in bi-lateral and multilateral discussions. For IMT systems, it may be beneficial to coordinate other radio parameters besides PCI in order to minimise deteriorating effects of uplink interference.

15.2 The parameters described in this section are usually optimised during IMT system radio network planning of an operator's network. The idea of optimisation is to plan the parameters taking into account specific correlation properties of the uplink control signals, which enable more stable and predictable operation of the network. In the cross-border scenario the optimisation of parameters among neighbouring operators could provide better control of uplink interference. However, because of the difference between intra-network and inter-network interference and due to limited experience in the IMT system cross- border deployment, it is difficult to assess the benefits of such optimisation. The following guidance provides the basis for operators to consider in border areas in case of high levels of uplink interference.

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A. DM RS coordination

15.3 DM RS are transmitted in the uplink and used for channel estimation.

15.4 There is a risk of intercell interference between neighbouring cells even in case of no frame synchronisation. That is why special measures for DM RS allocation between networks in neighbouring countries occupying the same channel may need to be applied.

15.5 The case of partial channel overlap has not been studied but due to DM RS occupying resource blocks of separate users, there is a risk of DM RS collisions between neighbouring networks when the subcarriers' positions coincide (the frequency offset between central carriers of neighbouring networks is multiple of 300 kHz). Some minor benefits from DM RS coordination in these particular cases could be expected.

15.6 There are a number of possible approaches to the coordination of DM RS:

15.6.1 In the basic planning procedure, only 30 DM RS sequence groups with favourable correlation characteristics are available: {0…29}. In this case, each cell could be assigned one of the 30 DM RS sequence groups providing a cluster size of 30.

15.6.2 It is possible to extend each DM RS sequence group to generate up to 12-time shifted sequence groups by applying the cyclic shift parameter stated in 3GPP TS 36.211 for LTE. For example, each tri-sector site could be assigned one DM RS sequence group with each co-sited cell having its own cyclic shift of $2\pi/3$, which provides cluster size 30 only with 10 DM RS sequence groups. The latter case corresponds well to the case of DM RS sequence groups repartition between neighbouring countries when only limited number of groups is available for network planning. The drawback of DM RS sequence group cyclic shift is a loss of orthogonally of DM RS due to fading channels which has been found during first trials of LTE and caused throughput loss as well as time alignment problems.

15.6.3 Another approach for DM RS coordination is to implement dynamic DM RS sequence group allocation, also called pseudo-random group hopping. In this method, nearby cells are grouped into clusters up to 30 cells, and within each cell cluster, the same hopping-pattern is used. At the border of two clusters, inter-cell interference is averaged since two different hopping patterns are utilised.

15.6.4 There are 17 defined hopping patterns, numbered {0…16}, which leads to some minor unfairness in case of apportioning these patterns between neighbouring countries. Even in a trilateral case each operator will have at least 5 hopping patterns available near the border, which should be enough or planning purposes. It should be noted the pseudo-random group hopping option could be absent in the first generations of IMT system equipment.

15.7 The decision of which of these methods to use in cross-border coordination should be agreed upon by the interested parties. Specific DM RS sequence groups or hopping patterns repartition is not provided in this text but could be deduced in a similar manner to the PCI repartition.

B. PRACH coordination

15.8 Another radio network parameter that is considered during radio network planning is PRACH configuration which is needed to distinguish random access requests addressed to different cells.

15.9 PRACH resources are allocated by specifying the PRACH Resource Blocks time positions within the uplink frame, their frequency position within the IMT system channel bandwidth and by

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apportioning cell- specific root sequences. During radio network planning, these parameters are usually used in the following way:

15.9.1 Time positions for PRACH resource allocations are usually used to create time collision of PRACH resources of co-sited/frame synchronised cells because PRACH-to-PRACH interference is usually less severe than PUSCH-to-PRACH interference;

15.9.2 Frequency positions within the IMT system channel bandwidth are usually the same for all cells, again because PRACH-to-PRACH interference case is a more favourable one.

15.9.3 Cell-specific root sequences are used to distinguish between PRACH requests addressed to different cells.

15.10 For cross-border coordination, it is proposed to use frequency position offsets to exclude the possibility of so-called "ghost" PRACH requests caused by neighbouring networks. The PRACH is configured in IMT systems to use only 6 Resource Blocks or 1.08 MHz of the IMT system channel bandwidth except in regions used by PUCCH. In case of overlapping or partially overlapping channel bandwidths of neighbouring networks, it is enough to establish non-overlapping PRACH frequency blocks to perform coordination.

15.11 Because it is difficult to establish an implementation dependent procedure for such allocation, it will be the responsibility of operators to manage such frequency separation during coordination discussions.

15.12 In an early implementation, it is possible that a very limited number of frequency positions could be supported by IMT system equipment which will not be enough to coordinate in the trilateral case. In such cases, root-sequence repartition could be used. There are 838 root sequences in total to be distributed between cells, numbered {0...837}. There are two numbering schemes for PRACH root sequences (physical and logical) and that only logical root sequences numbering needs to be used for coordination.

15.13 Unfortunately, the process of root sequences planning doesn't involve direct mapping of root sequences between cells because the number of root sequences needed for one cell is dependent on the cell range.

15.14 The table showing such interdependency is presented below:

Table 3: PRACH – Range Interdependency

PRACH Configuration	Number of root seq. per cell	Cell Range (km)
1	1	0.7
2	2	1
3	2	1.4
4	2	2
5	2	2.5
6	3	3.4
7	3	4.3
8	4	5.4
9	5	7.3
10	6	9.7
11	8	12.1
12	10	15.8

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PRACH Configuration	Number of root seq. per cell	Cell Range (km)
13	13	22.7
14	22	38.7
15	32	58.7
0	64	118.8

15.15 Thus, in the case of root sequence reparation, it will be the responsibility of radio network planners to assign the correct number of root sequences in order to not overlap with the root sequence ranges of other operators. It also should be noted that different root sequences have different cubic metrics and correlation properties, which affect PRACH coverage performance and planning of so-called high-speed cells. For simplicity of cross-border coordination, it is proposed to ignore these properties.

15.16 In summary, it should be stipulated that frequency separation of PRACH resources should be used as the main coordination method. PRACH root sequences repartition should be avoided and used only in exceptional cases. Specific PRACH root sequences repartition is not provided in this text but could be deduced in a similar manner to the PCI repartition.

15.17 Additional guidance for cross-border coordination of synchronised and unsynchronised IMT TDD systems may be found in ECC/REC/ (15)01[24] and ECC Report 296[25].

16 Appendix D: Frequency coordination process

16.1 Technical procedures related to bilateral and multilateral cross-border frequency coordination agreements for 4 geographical sub-regions are defined by the African Union, which includes the Southern African sub-region of 10 countries. Cross-Border Frequency Coordination and interference resolution should follow the HCM4A.[26]

16.2 When requesting coordination, the relevant characteristics of the base station and the code or PCI group number should be forwarded to the Administration affected. All of the following characteristics should be included:

16.2.1 carrier frequency [MHz];

16.2.2 name of transmitter station;

16.2.3 country of location of transmitter station;

[24] ECC Recommendation (15)01 "Cross-border coordination for Mobile/Fixed Communications Networks (MFCN) in the frequency bands: 694-790 MHz, 1427-1518 MHz, and 3400-3800 MHz". Amended on 14 February 2020.

[25] ECC Report 296: "National synchronisation regulatory framework options in 3400-3800 MHz: a toolbox for coexistence of MFCNs in synchronised, unsynchronised, and semi-synchronised operation in 3400-3800 MHz", March 2019.

[26] Cross-Border Frequency Coordination: Harmonised Calculation Method for Africa (HCM4A), available at: https://www.itu.int/en/ITU-D/Projects/ITU-EC-ACP/HIPSSA/Documents/FINAL%20DOCUMENTS/FINAL%20DOCS%20ENGLISH/hcm4a_agreement.pdf.pdf

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16.2.4 geographical coordinates [latitude, longitude];

16.2.5 effective antenna height [m];

16.2.6 antenna polarisation;

16.2.7 antenna azimuth [degrees];

16.2.8 antenna gain [dBi];

16.2.9 effective radiated power [dBW];

16.2.10 expected coverage zone or radius [km];

16.2.11 date of entry into service [month, year].

16.2.12 code group number used; and

16.2.13 antenna tilt [degrees].

16.3 The Administration affected will evaluate the request for coordination and will, within 30 days, notify the result of the evaluation to the Administration requesting coordination. If, in the course of the coordination procedure, the Administration affected requires additional information, it may request such information.

16.4 If no reply is received by the Administration requesting coordination within 30 days, it may send a reminder to the Administration affected. An Administration not having responded within 30 days following communication of the reminder will be deemed to have given its consent and the code coordination may be put into use with the characteristics given in the request for coordination.

16.5 The periods mentioned above may be extended by common consent.

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INDEPENDENT COMMUNICATIONS AUTHORITY OF SOUTH AFRICA

NOTICE 4041 OF 2026

ELECTRONIC COMMUNICATIONS ACT, 2005 (ACT NO. 36 OF 2005)

HEREBY ISSUES A NOTICE REGARDING THE EXCLUSIVE GEOGRAPHIC AREAS FOR RADIO FREQUENCY SPECTRUM ASSIGNMENT PLANS FOR THE MMWAVE IMT BANDS 24.25-27.5 GHZ, 37.5-43.5GHZ, 45.5-47GHZ, AND 47.2-48.2GHZ ALLOCATED TO THE MOBILE RADIOCOMMUNICATIONS SERVICES AND IDENTIFIED INTERNATIONAL MOBILE TELECOMMUNICATIONS IN THE NATIONAL RADIO FREQUENCY PLAN.

1. The Independent Communications Authority of South Africa ("the Authority"), on 28 March 2024, published the Draft International Mobile Telecommunications (IMT) Roadmap, in Government Gazette No. 50413 (Notice 4584 of 2024) inviting Written Representations.

2. On 13 September 2024, in Government Gazette 51244 (Notice 5209 of 2024) the Authority published a "Notice Communicating the Outcome of the Consultation Process of the Draft IMT Roadmap 2025.

3. The Authority, in Government Gazette 53883 (Notice 3712 of 2025), published the Second Draft International Mobile Telecommunications (IMT) Roadmap 2025, in terms of section 4(3)(c) of the Independent Communications Authority of South Africa Act, 2000 (Act No. 13 of 2000), read with sections 2(e), 30, 31(4), and 33 of the Electronic Communications Act (Act No 36 of 2005).

4. Now therefore, the Authority, in terms of section 4(3)(c) of the Independent Communications Authority of South Africa Act, 2000 (Act No. 13 of 2000), read with sections 2(e), 30, 31(4), and 33 of the Electronic Communications Act (Act No 36 of 2005) hereby publishes the notice regarding the exclusive geographic areas for radio frequency spectrum assignment plans for the mmWave IMT bands 24.25-27.5GHz, 37.5-43.5GHZ, 45.5-47GHz, and 47.2-48.2GHz allocated to the mobile radiocommunications services and identified international mobile telecommunications in the national radio frequency plan**.**

5. Interested persons are hereby invited to submit written representations on the notice regarding the exclusive geographic areas for radio frequency spectrum assignment plans for the mmWave IMT bands 24.25-27.5GHz, 37.5-43.5GHZ, 45.5-47GHz, and 47.2-48.2GHz allocated to the mobile radiocommunications services and identified international mobile telecommunications in the national radio frequency plan in both Microsoft Word (MS) and Portable Document Format (PDF) by no later than 16:00 on **4 September 2026.**

6. Persons making representations are further invited to indicate whether they require an opportunity to make oral representations.

7. Written representations or enquiries may be directed by email to:

Attention:

Mr Manyaapelo Richard Makgotlho

e-mail: rmakgotlho@icasa.org.za

Copy: jdikgale@icasa.org.za

8. Where persons making representations require that their representation, or part thereof, be treated as confidential, then an application in terms of section 4D of the ICASA Act, 2000 (Act No 13 of 2000) must be lodged with the Authority. Such an application must be submitted simultaneously with the representation, together with a non-confidential, redacted version of the submission. If, however, the request for confidentiality is not granted, the person making the request will be allowed to withdraw the representation or document in question.

9. The guidelines for confidentiality requests are contained in Government Gazette Number No 41839 of 17 August 2018.

10. All written representations submitted to the Authority pursuant to this notice will be made available for inspection by interested persons from **11 September 2026** at the Authority's Library. Electronic copies of such representations are obtainable on request and printed versions will be obtainable on payment of a fee.

11. The exclusive geographic areas for radio frequency spectrum assignment plans for the mmWave IMT bands 24.25-27.5GHz, 37.5-43.5GHZ, 45.5-47GHz, and 47.2-48.2GHz allocated to the mobile radiocommunications services and identified international mobile telecommunications in the national radio frequency plan and the non-confidential representations will be uploaded to the Authority's website under this link: https://www.icasa.org.za/legislation-and-regulations/radio-frequency-spectrum-plans/draft-radio-frequency-spectrum-plans.

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Mothibi G. Ramusi

CHAIRPERSON

1 About this document

1. The figures below classify wards in each province by population density. High-density areas (HDAs) will be defined as "IMT Exclusive Zones" which are limited to IMT services. HDAs are towns and semi-dense areas, urban areas, and dense urban areas. Non-HDAs are rural areas, using a population density of less than 300 people per square kilometre, as applied previously by the Authority.[1] Outside of these HDAs, IMT services may coexist with incumbent users to the extent that there is no harmful interference. Non-HDAs are rural areas. Licensees may consult the shapefiles for these maps, which are compatible with most GIS tools, from the Statistics South Africa website.[2]

[1] See the Authority's call termination rate review process, available at: https://www.icasa.org.za/legislation-and-regulations/inquiries/call-termination-rate-review

[2] See: https://www.statssa.gov.za/?p=18967

2 Eastern Cape

Figure 1: Geotype Classification of Eastern Cape Wards by Population Density

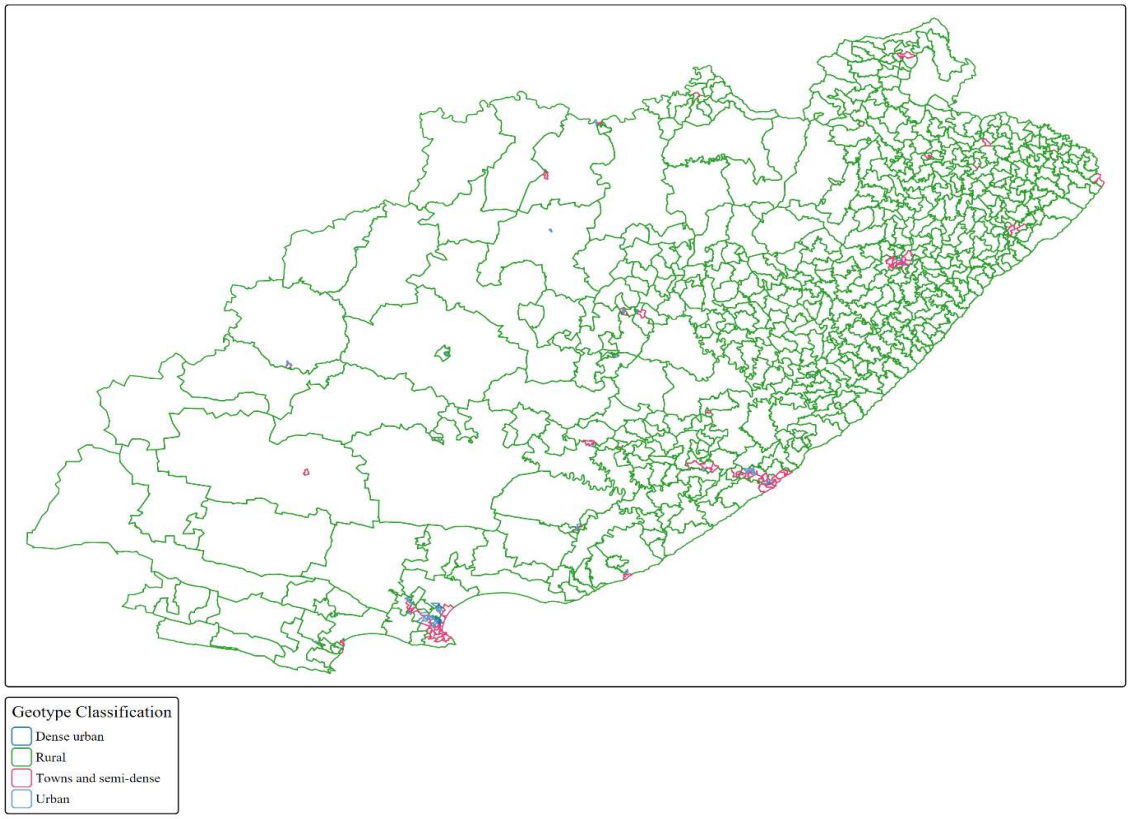


Table 1: IMT Exclusive Zones by Ward for the Eastern Cape

Province	District	District code	Municipality	Ward code	Ward label	Population density	Geotype
EC	Alfred Nzo	DC44	Matatiele LM	24401001	EC441_1	1942	Urban
EC	Alfred Nzo	DC44	Matatiele LM	24401002	EC441_2	321	Towns, semi-dense
EC	Alfred Nzo	DC44	Matatiele LM	24401027	EC441_27	316	Towns, semi-dense
EC	Alfred Nzo	DC44	Mbizana LM	24403001	EC443_1	416	Towns, semi-dense
EC	Alfred Nzo	DC44	Mbizana LM	24403013	EC443_13	373	Towns, semi-dense
EC	Alfred Nzo	DC44	Mbizana LM	24403024	EC443_24	356	Towns, semi-dense
EC	Alfred Nzo	DC44	Mbizana LM	24403023	EC443_23	334	Towns, semi-dense
EC	Alfred Nzo	DC44	Ntabankulu LM	24404010	EC444_10	323	Towns, semi-dense
EC	Alfred Nzo	DC44	Umzimvubu LM	24402016	EC442_16	499	Towns, semi-dense
EC	Alfred Nzo	DC44	Umzimvubu LM	24402018	EC442_18	452	Towns, semi-dense
EC	Alfred Nzo	DC44	Umzimvubu LM	24402028	EC442_28	329	Towns, semi-dense
EC	Amathole	DC12	Amahlathi LM	21204015	EC124_15	1428	Towns, semi-dense
EC	Amathole	DC12	Mnquma LM	21202003	EC122_3	2134	Urban
EC	Amathole	DC12	Mnquma LM	21202002	EC122_2	1888	Urban
EC	Amathole	DC12	Mnquma LM	21202004	EC122_4	1640	Urban
EC	Amathole	DC12	Mnquma LM	21202001	EC122_1	674	Towns, semi-dense
EC	Amathole	DC12	Raymond Mhlaba LM	21209019	EC129_19	4742	Urban
EC	Amathole	DC12	Raymond Mhlaba LM	21209003	EC129_3	1328	Towns, semi-dense
EC	Amathole	DC12	Raymond Mhlaba LM	21209020	EC129_20	487	Towns, semi-dense
EC	Amathole	DC12	Raymond Mhlaba LM	21209011	EC129_11	403	Towns, semi-dense
EC	Buffalo City	BUF	Buffalo City MM	29200002	BUF_2	18472	Dense urban
EC	Buffalo City	BUF	Buffalo City MM	29200007	BUF_7	9773	Dense urban
EC	Buffalo City	BUF	Buffalo City MM	29200006	BUF_6	7342	Dense urban
EC	Buffalo City	BUF	Buffalo City MM	29200008	BUF_8	5898	Urban
EC	Buffalo City	BUF	Buffalo City MM	29200048	BUF_48	4250	Urban
EC	Buffalo City	BUF	Buffalo City MM	29200001	BUF_1	4173	Urban

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Province	District	District code	Municipality	Ward code	Ward label	Population density	Geotype
EC	Buffalo City	BUF	Buffalo City MM	29200030	BUF_30	3765	Urban
EC	Buffalo City	BUF	Buffalo City MM	29200041	BUF_41	3672	Urban
EC	Buffalo City	BUF	Buffalo City MM	29200014	BUF_14	3663	Urban
EC	Buffalo City	BUF	Buffalo City MM	29200010	BUF_10	3249	Urban
EC	Buffalo City	BUF	Buffalo City MM	29200042	BUF_42	3219	Urban
EC	Buffalo City	BUF	Buffalo City MM	29200009	BUF_9	3178	Urban
EC	Buffalo City	BUF	Buffalo City MM	29200034	BUF_34	2721	Urban
EC	Buffalo City	BUF	Buffalo City MM	29200003	BUF_3	2300	Urban
EC	Buffalo City	BUF	Buffalo City MM	29200017	BUF_17	1930	Urban
EC	Buffalo City	BUF	Buffalo City MM	29200005	BUF_5	1786	Urban
EC	Buffalo City	BUF	Buffalo City MM	29200027	BUF_27	1415	Towns, semi-dense
EC	Buffalo City	BUF	Buffalo City MM	29200023	BUF_23	1301	Towns, semi-dense
EC	Buffalo City	BUF	Buffalo City MM	29200021	BUF_21	1299	Towns, semi-dense
EC	Buffalo City	BUF	Buffalo City MM	29200011	BUF_11	1291	Towns, semi-dense
EC	Buffalo City	BUF	Buffalo City MM	29200025	BUF_25	1287	Towns, semi-dense
EC	Buffalo City	BUF	Buffalo City MM	29200020	BUF_20	1254	Towns, semi-dense
EC	Buffalo City	BUF	Buffalo City MM	29200004	BUF_4	1179	Towns, semi-dense
EC	Buffalo City	BUF	Buffalo City MM	29200049	BUF_49	983	Towns, semi-dense
EC	Buffalo City	BUF	Buffalo City MM	29200047	BUF_47	981	Towns, semi-dense
EC	Buffalo City	BUF	Buffalo City MM	29200016	BUF_16	974	Towns, semi-dense
EC	Buffalo City	BUF	Buffalo City MM	29200013	BUF_13	937	Towns, semi-dense
EC	Buffalo City	BUF	Buffalo City MM	29200018	BUF_18	914	Towns, semi-dense
EC	Buffalo City	BUF	Buffalo City MM	29200029	BUF_29	905	Towns, semi-dense
EC	Buffalo City	BUF	Buffalo City MM	29200019	BUF_19	736	Towns, semi-dense
EC	Buffalo City	BUF	Buffalo City MM	29200028	BUF_28	612	Towns, semi-dense
EC	Buffalo City	BUF	Buffalo City MM	29200044	BUF_44	573	Towns, semi-dense
EC	Buffalo City	BUF	Buffalo City MM	29200046	BUF_46	572	Towns, semi-dense
EC	Buffalo City	BUF	Buffalo City MM	29200024	BUF_24	531	Towns, semi-dense

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Province	District	District code	Municipality	Ward code	Ward label	Population density	Geotype
EC	Buffalo City	BUF	Buffalo City MM	29200012	BUF_12	386	Towns, semi-dense
EC	Buffalo City	BUF	Buffalo City MM	29200039	BUF_39	380	Towns, semi-dense
EC	Chris Hani	DC13	Enoch Mgijima LM	21309014	EC139_14	7642	Dense urban
EC	Chris Hani	DC13	Enoch Mgijima LM	21309013	EC139_13	6482	Urban
EC	Chris Hani	DC13	Enoch Mgijima LM	21309012	EC139_12	5394	Urban
EC	Chris Hani	DC13	Enoch Mgijima LM	21309017	EC139_17	3845	Urban
EC	Chris Hani	DC13	Enoch Mgijima LM	21309007	EC139_7	3744	Urban
EC	Chris Hani	DC13	Enoch Mgijima LM	21309023	EC139_23	3510	Urban
EC	Chris Hani	DC13	Enoch Mgijima LM	21309029	EC139_29	2950	Urban
EC	Chris Hani	DC13	Enoch Mgijima LM	21309025	EC139_25	2760	Urban
EC	Chris Hani	DC13	Enoch Mgijima LM	21309008	EC139_8	2366	Urban
EC	Chris Hani	DC13	Enoch Mgijima LM	21309016	EC139_16	1455	Towns, semi-dense
EC	Chris Hani	DC13	Enoch Mgijima LM	21309011	EC139_11	1193	Towns, semi-dense
EC	Chris Hani	DC13	Enoch Mgijima LM	21309002	EC139_2	920	Towns, semi-dense
EC	Chris Hani	DC13	Enoch Mgijima LM	21309006	EC139_6	495	Towns, semi-dense
EC	Chris Hani	DC13	Inxuba Yethemba LM	21301004	EC131_4	4160	Urban
EC	Chris Hani	DC13	Inxuba Yethemba LM	21301002	EC131_2	3617	Urban
EC	Chris Hani	DC13	Inxuba Yethemba LM	21301001	EC131_1	3496	Urban
EC	Chris Hani	DC13	Inxuba Yethemba LM	21301003	EC131_3	3222	Urban
EC	Chris Hani	DC13	Inxuba Yethemba LM	21301008	EC131_8	2146	Urban
EC	Joe Gqabi	DC14	Elundini LM	21401002	EC141_2	1638	Urban
EC	Joe Gqabi	DC14	Elundini LM	21401009	EC141_9	751	Towns, semi-dense
EC	Joe Gqabi	DC14	Elundini LM	21401003	EC141_3	352	Towns, semi-dense
EC	Joe Gqabi	DC14	Senqu LM	21402010	EC142_10	485	Towns, semi-dense
EC	Joe Gqabi	DC14	Walter Sisulu LM	21405008	EC145_8	3636	Urban
EC	Joe Gqabi	DC14	Walter Sisulu LM	21405006	EC145_6	2601	Urban
EC	Joe Gqabi	DC14	Walter Sisulu LM	21405009	EC145_9	1292	Towns, semi-dense
EC	Joe Gqabi	DC14	Walter Sisulu LM	21405007	EC145_7	1120	Towns, semi-dense

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Province	District	District code	Municipality	Ward code	Ward label	Population density	Geotype
EC	Joe Gqabi	DC14	Walter Sisulu LM	21405005	EC145_5	869	Towns, semi-dense
EC	Nelson Mandela Bay	NMA	Nelson Mandela Bay MM	29300055	NMA_55	8887	Dense urban
EC	Nelson Mandela Bay	NMA	Nelson Mandela Bay MM	29300024	NMA_24	8830	Dense urban
EC	Nelson Mandela Bay	NMA	Nelson Mandela Bay MM	29300020	NMA_20	8205	Dense urban
EC	Nelson Mandela Bay	NMA	Nelson Mandela Bay MM	29300027	NMA_27	8100	Dense urban
EC	Nelson Mandela Bay	NMA	Nelson Mandela Bay MM	29300019	NMA_19	7923	Dense urban
EC	Nelson Mandela Bay	NMA	Nelson Mandela Bay MM	29300056	NMA_56	7473	Dense urban
EC	Nelson Mandela Bay	NMA	Nelson Mandela Bay MM	29300017	NMA_17	7288	Dense urban
EC	Nelson Mandela Bay	NMA	Nelson Mandela Bay MM	29300026	NMA_26	7276	Dense urban
EC	Nelson Mandela Bay	NMA	Nelson Mandela Bay MM	29300018	NMA_18	7139	Dense urban
EC	Nelson Mandela Bay	NMA	Nelson Mandela Bay MM	29300021	NMA_21	6940	Dense urban
EC	Nelson Mandela Bay	NMA	Nelson Mandela Bay MM	29300057	NMA_57	6488	Urban
EC	Nelson Mandela Bay	NMA	Nelson Mandela Bay MM	29300022	NMA_22	6484	Urban
EC	Nelson Mandela Bay	NMA	Nelson Mandela Bay MM	29300043	NMA_43	5532	Urban
EC	Nelson Mandela Bay	NMA	Nelson Mandela Bay MM	29300042	NMA_42	5300	Urban
EC	Nelson Mandela Bay	NMA	Nelson Mandela Bay MM	29300050	NMA_50	5296	Urban
EC	Nelson Mandela Bay	NMA	Nelson Mandela Bay MM	29300058	NMA_58	4243	Urban
EC	Nelson Mandela Bay	NMA	Nelson Mandela Bay MM	29300037	NMA_37	4224	Urban
EC	Nelson Mandela Bay	NMA	Nelson Mandela Bay MM	29300054	NMA_54	3930	Urban
EC	Nelson Mandela Bay	NMA	Nelson Mandela Bay MM	29300033	NMA_33	3897	Urban
EC	Nelson Mandela Bay	NMA	Nelson Mandela Bay MM	29300031	NMA_31	3173	Urban
EC	Nelson Mandela Bay	NMA	Nelson Mandela Bay MM	29300013	NMA_13	3125	Urban
EC	Nelson Mandela Bay	NMA	Nelson Mandela Bay MM	29300049	NMA_49	3038	Urban
EC	Nelson Mandela Bay	NMA	Nelson Mandela Bay MM	29300025	NMA_25	2765	Urban
EC	Nelson Mandela Bay	NMA	Nelson Mandela Bay MM	29300023	NMA_23	2341	Urban
EC	Nelson Mandela Bay	NMA	Nelson Mandela Bay MM	29300028	NMA_28	2263	Urban
EC	Nelson Mandela Bay	NMA	Nelson Mandela Bay MM	29300035	NMA_35	2030	Urban
EC	Nelson Mandela Bay	NMA	Nelson Mandela Bay MM	29300059	NMA_59	1977	Urban

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Province	District	District code	Municipality	Ward code	Ward label	Population density	Geotype
EC	Nelson Mandela Bay	NMA	Nelson Mandela Bay MM	29300041	NMA_41	1902	Urban
EC	Nelson Mandela Bay	NMA	Nelson Mandela Bay MM	29300048	NMA_48	1813	Urban
EC	Nelson Mandela Bay	NMA	Nelson Mandela Bay MM	29300032	NMA_32	1647	Urban
EC	Nelson Mandela Bay	NMA	Nelson Mandela Bay MM	29300038	NMA_38	1594	Urban
EC	Nelson Mandela Bay	NMA	Nelson Mandela Bay MM	29300036	NMA_36	1462	Towns, semi-dense
EC	Nelson Mandela Bay	NMA	Nelson Mandela Bay MM	29300046	NMA_46	1344	Towns, semi-dense
EC	Nelson Mandela Bay	NMA	Nelson Mandela Bay MM	29300015	NMA_15	1341	Towns, semi-dense
EC	Nelson Mandela Bay	NMA	Nelson Mandela Bay MM	29300011	NMA_11	1323	Towns, semi-dense
EC	Nelson Mandela Bay	NMA	Nelson Mandela Bay MM	29300004	NMA_4	1298	Towns, semi-dense
EC	Nelson Mandela Bay	NMA	Nelson Mandela Bay MM	29300014	NMA_14	1253	Towns, semi-dense
EC	Nelson Mandela Bay	NMA	Nelson Mandela Bay MM	29300009	NMA_9	1171	Towns, semi-dense
EC	Nelson Mandela Bay	NMA	Nelson Mandela Bay MM	29300005	NMA_5	1121	Towns, semi-dense
EC	Nelson Mandela Bay	NMA	Nelson Mandela Bay MM	29300010	NMA_10	1116	Towns, semi-dense
EC	Nelson Mandela Bay	NMA	Nelson Mandela Bay MM	29300044	NMA_44	1081	Towns, semi-dense
EC	Nelson Mandela Bay	NMA	Nelson Mandela Bay MM	29300007	NMA_7	1044	Towns, semi-dense
EC	Nelson Mandela Bay	NMA	Nelson Mandela Bay MM	29300029	NMA_29	999	Towns, semi-dense
EC	Nelson Mandela Bay	NMA	Nelson Mandela Bay MM	29300016	NMA_16	882	Towns, semi-dense
EC	Nelson Mandela Bay	NMA	Nelson Mandela Bay MM	29300047	NMA_47	856	Towns, semi-dense
EC	Nelson Mandela Bay	NMA	Nelson Mandela Bay MM	29300008	NMA_8	840	Towns, semi-dense
EC	Nelson Mandela Bay	NMA	Nelson Mandela Bay MM	29300060	NMA_60	804	Towns, semi-dense
EC	Nelson Mandela Bay	NMA	Nelson Mandela Bay MM	29300006	NMA_6	786	Towns, semi-dense
EC	Nelson Mandela Bay	NMA	Nelson Mandela Bay MM	29300003	NMA_3	742	Towns, semi-dense
EC	Nelson Mandela Bay	NMA	Nelson Mandela Bay MM	29300034	NMA_34	602	Towns, semi-dense
EC	Nelson Mandela Bay	NMA	Nelson Mandela Bay MM	29300012	NMA_12	557	Towns, semi-dense
EC	Nelson Mandela Bay	NMA	Nelson Mandela Bay MM	29300002	NMA_2	456	Towns, semi-dense
EC	O.R.Tambo	DC15	Ingquza Hill LM	21503019	EC153_19	678	Towns, semi-dense
EC	O.R.Tambo	DC15	Ingquza Hill LM	21503015	EC153_15	584	Towns, semi-dense
EC	O.R.Tambo	DC15	Ingquza Hill LM	21503020	EC153_20	394	Towns, semi-dense

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Province	District	District code	Municipality	Ward code	Ward label	Population density	Geotype
EC	O.R.Tambo	DC15	Ingquza Hill LM	21503006	EC153_6	351	Towns, semi-dense
EC	O.R.Tambo	DC15	Ingquza Hill LM	21503014	EC153_14	350	Towns, semi-dense
EC	O.R.Tambo	DC15	Ingquza Hill LM	21503021	EC153_21	330	Towns, semi-dense
EC	O.R.Tambo	DC15	King Sabata Dalindyebo LM	21507002	EC157_2	5223	Urban
EC	O.R.Tambo	DC15	King Sabata Dalindyebo LM	21507003	EC157_3	2925	Urban
EC	O.R.Tambo	DC15	King Sabata Dalindyebo LM	21507012	EC157_12	1705	Urban
EC	O.R.Tambo	DC15	King Sabata Dalindyebo LM	21507008	EC157_8	1532	Urban
EC	O.R.Tambo	DC15	King Sabata Dalindyebo LM	21507004	EC157_4	1487	Towns, semi-dense
EC	O.R.Tambo	DC15	King Sabata Dalindyebo LM	21507030	EC157_30	1227	Towns, semi-dense
EC	O.R.Tambo	DC15	King Sabata Dalindyebo LM	21507009	EC157_9	1172	Towns, semi-dense
EC	O.R.Tambo	DC15	King Sabata Dalindyebo LM	21507011	EC157_11	1143	Towns, semi-dense
EC	O.R.Tambo	DC15	King Sabata Dalindyebo LM	21507037	EC157_37	1001	Towns, semi-dense
EC	O.R.Tambo	DC15	King Sabata Dalindyebo LM	21507006	EC157_6	958	Towns, semi-dense
EC	O.R.Tambo	DC15	King Sabata Dalindyebo LM	21507007	EC157_7	836	Towns, semi-dense
EC	O.R.Tambo	DC15	King Sabata Dalindyebo LM	21507001	EC157_1	491	Towns, semi-dense
EC	O.R.Tambo	DC15	Nyandeni LM	21505012	EC155_12	410	Towns, semi-dense
EC	O.R.Tambo	DC15	Nyandeni LM	21505011	EC155_11	314	Towns, semi-dense
EC	Sarah Baartman	DC10	Blue Crane Route LM	21002003	EC102_3	2050	Urban
EC	Sarah Baartman	DC10	Blue Crane Route LM	21002002	EC102_2	512	Towns, semi-dense
EC	Sarah Baartman	DC10	Dr Beyers Naude LM	21001003	EC101_3	6763	Dense urban
EC	Sarah Baartman	DC10	Dr Beyers Naude LM	21001006	EC101_6	4715	Urban
EC	Sarah Baartman	DC10	Dr Beyers Naude LM	21001005	EC101_5	3388	Urban
EC	Sarah Baartman	DC10	Dr Beyers Naude LM	21001004	EC101_4	975	Towns, semi-dense
EC	Sarah Baartman	DC10	Dr Beyers Naude LM	21001011	EC101_11	728	Towns, semi-dense
EC	Sarah Baartman	DC10	Kouga LM	21008006	EC108_6	2357	Urban
EC	Sarah Baartman	DC10	Kouga LM	21008005	EC108_5	1795	Urban
EC	Sarah Baartman	DC10	Kouga LM	21008002	EC108_2	1380	Towns, semi-dense
EC	Sarah Baartman	DC10	Kouga LM	21008008	EC108_8	1115	Towns, semi-dense

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Province	District	District code	Municipality	Ward code	Ward label	Population density	Geotype
EC	Sarah Baartman	DC10	Kouga LM	21008003	EC108_3	716	Towns, semi-dense
EC	Sarah Baartman	DC10	Makana LM	21004002	EC104_2	5408	Urban
EC	Sarah Baartman	DC10	Makana LM	21004006	EC104_6	4401	Urban
EC	Sarah Baartman	DC10	Makana LM	21004007	EC104_7	3898	Urban
EC	Sarah Baartman	DC10	Makana LM	21004010	EC104_10	3584	Urban
EC	Sarah Baartman	DC10	Makana LM	21004003	EC104_3	3552	Urban
EC	Sarah Baartman	DC10	Makana LM	21004005	EC104_5	3508	Urban
EC	Sarah Baartman	DC10	Makana LM	21004008	EC104_8	910	Towns, semi-dense
EC	Sarah Baartman	DC10	Makana LM	21004009	EC104_9	442	Towns, semi-dense
EC	Sarah Baartman	DC10	Ndlambe LM	21005007	EC105_7	5664	Urban
EC	Sarah Baartman	DC10	Ndlambe LM	21005009	EC105_9	3901	Urban
EC	Sarah Baartman	DC10	Ndlambe LM	21005010	EC105_10	638	Towns, semi-dense
EC	Sarah Baartman	DC10	Sundays River Valley LM	21006005	EC106_5	5764	Urban
EC	Sarah Baartman	DC10	Sundays River Valley LM	21006001	EC106_1	1545	Urban

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3 Free State

Figure 2: Geotype Classification of Free State Wards by Population Density

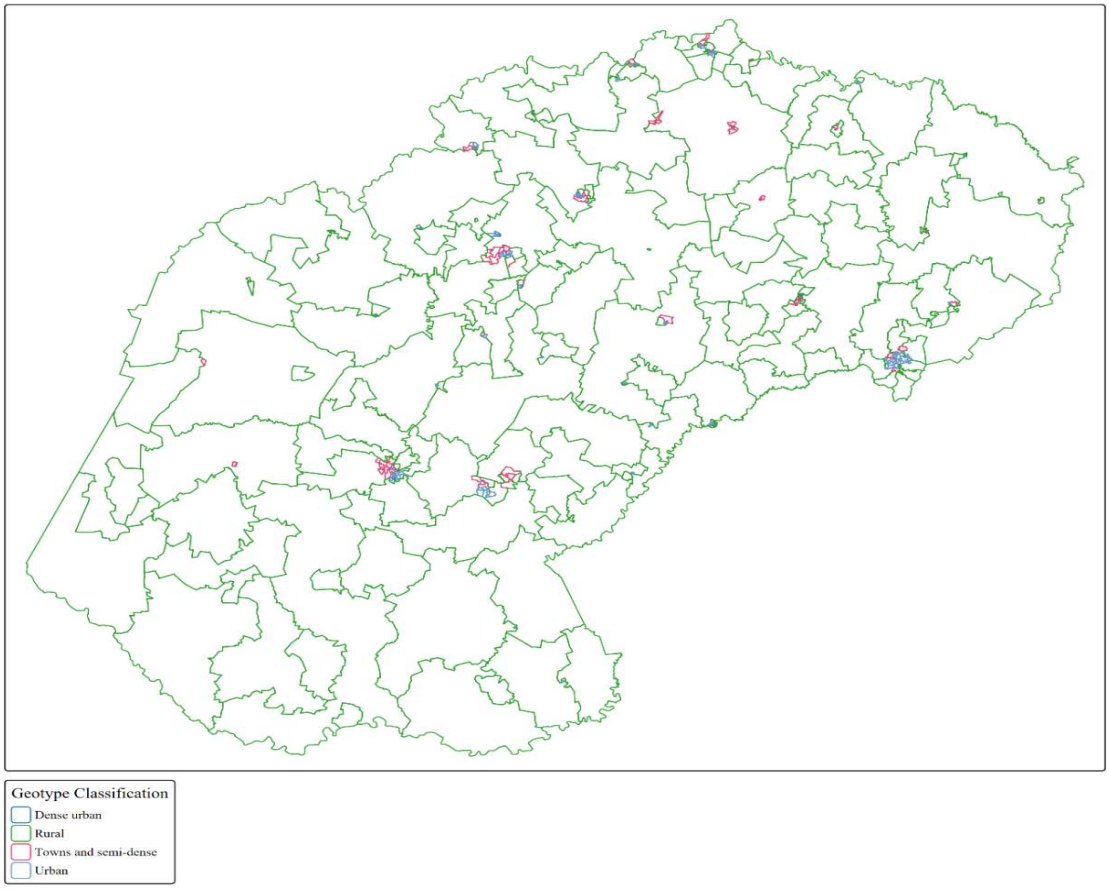


Table 2: IMT Exclusive Zones by Ward for the Free State

Province	District	District code	Municipality	Ward code	Ward label	Population density	Geotype
FS	Fezile Dabi	DC20	Mafube LM	42005003	FS205_3	3951	Urban
FS	Fezile Dabi	DC20	Mafube LM	42005009	FS205_9	3845	Urban
FS	Fezile Dabi	DC20	Mafube LM	42005002	FS205_2	3763	Urban
FS	Fezile Dabi	DC20	Mafube LM	42005006	FS205_6	1469	Towns, semi-dense
FS	Fezile Dabi	DC20	Metsimaholo LM	42004009	FS204_9	7172	Dense urban
FS	Fezile Dabi	DC20	Metsimaholo LM	42004002	FS204_2	5938	Urban
FS	Fezile Dabi	DC20	Metsimaholo LM	42004003	FS204_3	5514	Urban
FS	Fezile Dabi	DC20	Metsimaholo LM	42004010	FS204_10	5444	Urban
FS	Fezile Dabi	DC20	Metsimaholo LM	42004021	FS204_21	4228	Urban
FS	Fezile Dabi	DC20	Metsimaholo LM	42004007	FS204_7	2803	Urban
FS	Fezile Dabi	DC20	Metsimaholo LM	42004019	FS204_19	2698	Urban
FS	Fezile Dabi	DC20	Metsimaholo LM	42004011	FS204_11	2556	Urban
FS	Fezile Dabi	DC20	Metsimaholo LM	42004006	FS204_6	2413	Urban
FS	Fezile Dabi	DC20	Metsimaholo LM	42004015	FS204_15	2096	Urban
FS	Fezile Dabi	DC20	Metsimaholo LM	42004013	FS204_13	1852	Urban
FS	Fezile Dabi	DC20	Metsimaholo LM	42004017	FS204_17	1751	Urban
FS	Fezile Dabi	DC20	Metsimaholo LM	42004016	FS204_16	527	Towns, semi-dense
FS	Fezile Dabi	DC20	Metsimaholo LM	42004022	FS204_22	431	Towns, semi-dense
FS	Fezile Dabi	DC20	Metsimaholo LM	42004008	FS204_8	339	Towns, semi-dense
FS	Fezile Dabi	DC20	Metsimaholo LM	42004004	FS204_4	304	Towns, semi-dense
FS	Fezile Dabi	DC20	Moqhaka LM	42001005	FS201_5	6691	Dense urban
FS	Fezile Dabi	DC20	Moqhaka LM	42001012	FS201_12	6105	Urban
FS	Fezile Dabi	DC20	Moqhaka LM	42001006	FS201_6	5290	Urban
FS	Fezile Dabi	DC20	Moqhaka LM	42001008	FS201_8	4976	Urban
FS	Fezile Dabi	DC20	Moqhaka LM	42001015	FS201_15	4110	Urban
FS	Fezile Dabi	DC20	Moqhaka LM	42001010	FS201_10	3886	Urban

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Province	District	District code	Municipality	Ward code	Ward label	Population density	Geotype
FS	Fezile Dabi	DC20	Moqhaka LM	42001009	FS201_9	3777	Urban
FS	Fezile Dabi	DC20	Moqhaka LM	42001014	FS201_14	3709	Urban
FS	Fezile Dabi	DC20	Moqhaka LM	42001019	FS201_19	3475	Urban
FS	Fezile Dabi	DC20	Moqhaka LM	42001001	FS201_1	2887	Urban
FS	Fezile Dabi	DC20	Moqhaka LM	42001011	FS201_11	1427	Towns, semi-dense
FS	Fezile Dabi	DC20	Moqhaka LM	42001003	FS201_3	981	Towns, semi-dense
FS	Fezile Dabi	DC20	Moqhaka LM	42001016	FS201_16	833	Towns, semi-dense
FS	Fezile Dabi	DC20	Moqhaka LM	42001004	FS201_4	773	Towns, semi-dense
FS	Fezile Dabi	DC20	Moqhaka LM	42001013	FS201_13	612	Towns, semi-dense
FS	Fezile Dabi	DC20	Moqhaka LM	42001018	FS201_18	314	Towns, semi-dense
FS	Fezile Dabi	DC20	Ngwathe LM	42003006	FS203_6	4798	Urban
FS	Fezile Dabi	DC20	Ngwathe LM	42003009	FS203_9	4530	Urban
FS	Fezile Dabi	DC20	Ngwathe LM	42003011	FS203_11	4113	Urban
FS	Fezile Dabi	DC20	Ngwathe LM	42003019	FS203_19	3606	Urban
FS	Fezile Dabi	DC20	Ngwathe LM	42003003	FS203_3	3508	Urban
FS	Fezile Dabi	DC20	Ngwathe LM	42003004	FS203_4	3351	Urban
FS	Fezile Dabi	DC20	Ngwathe LM	42003015	FS203_15	2434	Urban
FS	Fezile Dabi	DC20	Ngwathe LM	42003010	FS203_10	1289	Towns, semi-dense
FS	Fezile Dabi	DC20	Ngwathe LM	42003012	FS203_12	1044	Towns, semi-dense
FS	Fezile Dabi	DC20	Ngwathe LM	42003016	FS203_16	997	Towns, semi-dense
FS	Fezile Dabi	DC20	Ngwathe LM	42003005	FS203_5	859	Towns, semi-dense
FS	Fezile Dabi	DC20	Ngwathe LM	42003017	FS203_17	688	Towns, semi-dense
FS	Fezile Dabi	DC20	Ngwathe LM	42003002	FS203_2	468	Towns, semi-dense
FS	Lejweleputswa	DC18	Masilonyana LM	41801005	FS181_5	4185	Urban
FS	Lejweleputswa	DC18	Masilonyana LM	41801010	FS181_10	3704	Urban
FS	Lejweleputswa	DC18	Masilonyana LM	41801009	FS181_9	3092	Urban
FS	Lejweleputswa	DC18	Masilonyana LM	41801007	FS181_7	1210	Towns, semi-dense
FS	Lejweleputswa	DC18	Matjhabeng LM	41804006	FS184_6	6882	Dense urban

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Province	District	District code	Municipality	Ward code	Ward label	Population density	Geotype
FS	Lejweleputswa	DC18	Matjhabeng LM	41804021	FS184_21	6574	Dense urban
FS	Lejweleputswa	DC18	Matjhabeng LM	41804029	FS184_29	6467	Urban
FS	Lejweleputswa	DC18	Matjhabeng LM	41804014	FS184_14	6260	Urban
FS	Lejweleputswa	DC18	Matjhabeng LM	41804015	FS184_15	5989	Urban
FS	Lejweleputswa	DC18	Matjhabeng LM	41804020	FS184_20	5615	Urban
FS	Lejweleputswa	DC18	Matjhabeng LM	41804017	FS184_17	5370	Urban
FS	Lejweleputswa	DC18	Matjhabeng LM	41804007	FS184_7	5162	Urban
FS	Lejweleputswa	DC18	Matjhabeng LM	41804016	FS184_16	4661	Urban
FS	Lejweleputswa	DC18	Matjhabeng LM	41804019	FS184_19	4634	Urban
FS	Lejweleputswa	DC18	Matjhabeng LM	41804026	FS184_26	4613	Urban
FS	Lejweleputswa	DC18	Matjhabeng LM	41804002	FS184_2	4524	Urban
FS	Lejweleputswa	DC18	Matjhabeng LM	41804030	FS184_30	4071	Urban
FS	Lejweleputswa	DC18	Matjhabeng LM	41804023	FS184_23	3397	Urban
FS	Lejweleputswa	DC18	Matjhabeng LM	41804031	FS184_31	3243	Urban
FS	Lejweleputswa	DC18	Matjhabeng LM	41804022	FS184_22	2430	Urban
FS	Lejweleputswa	DC18	Matjhabeng LM	41804018	FS184_18	2370	Urban
FS	Lejweleputswa	DC18	Matjhabeng LM	41804012	FS184_12	2267	Urban
FS	Lejweleputswa	DC18	Matjhabeng LM	41804025	FS184_25	1489	Towns, semi-dense
FS	Lejweleputswa	DC18	Matjhabeng LM	41804034	FS184_34	914	Towns, semi-dense
FS	Lejweleputswa	DC18	Matjhabeng LM	41804028	FS184_28	805	Towns, semi-dense
FS	Lejweleputswa	DC18	Matjhabeng LM	41804005	FS184_5	781	Towns, semi-dense
FS	Lejweleputswa	DC18	Matjhabeng LM	41804011	FS184_11	694	Towns, semi-dense
FS	Lejweleputswa	DC18	Matjhabeng LM	41804033	FS184_33	545	Towns, semi-dense
FS	Lejweleputswa	DC18	Matjhabeng LM	41804027	FS184_27	438	Towns, semi-dense
FS	Lejweleputswa	DC18	Matjhabeng LM	41804032	FS184_32	403	Towns, semi-dense
FS	Lejweleputswa	DC18	Nala LM	41805003	FS185_3	6749	Dense urban
FS	Lejweleputswa	DC18	Nala LM	41805006	FS185_6	6359	Urban
FS	Lejweleputswa	DC18	Nala LM	41805001	FS185_1	5777	Urban

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Province	District	District code	Municipality	Ward code	Ward label	Population density	Geotype
FS	Lejweleputswa	DC18	Nala LM	41805007	FS185_7	4975	Urban
FS	Lejweleputswa	DC18	Nala LM	41805005	FS185_5	3283	Urban
FS	Lejweleputswa	DC18	Nala LM	41805004	FS185_4	2139	Urban
FS	Lejweleputswa	DC18	Nala LM	41805009	FS185_9	1961	Urban
FS	Lejweleputswa	DC18	Nala LM	41805011	FS185_11	1852	Urban
FS	Lejweleputswa	DC18	Nala LM	41805012	FS185_12	627	Towns, semi-dense
FS	Lejweleputswa	DC18	Tokologo LM	41802004	FS182_4	1219	Towns, semi-dense
FS	Lejweleputswa	DC18	Tokologo LM	41802006	FS182_6	1007	Towns, semi-dense
FS	Lejweleputswa	DC18	Tswelopele LM	41803006	FS183_6	6977	Dense urban
FS	Lejweleputswa	DC18	Tswelopele LM	41803001	FS183_1	5821	Urban
FS	Lejweleputswa	DC18	Tswelopele LM	41803007	FS183_7	5805	Urban
FS	Lejweleputswa	DC18	Tswelopele LM	41803003	FS183_3	5144	Urban
FS	Lejweleputswa	DC18	Tswelopele LM	41803002	FS183_2	4990	Urban
FS	Mangaung	MAN	Mangaung MM	49400014	MAN_14	9026	Dense urban
FS	Mangaung	MAN	Mangaung MM	49400013	MAN_13	5957	Urban
FS	Mangaung	MAN	Mangaung MM	49400006	MAN_6	5808	Urban
FS	Mangaung	MAN	Mangaung MM	49400005	MAN_5	5396	Urban
FS	Mangaung	MAN	Mangaung MM	49400007	MAN_7	5291	Urban
FS	Mangaung	MAN	Mangaung MM	49400035	MAN_35	4904	Urban
FS	Mangaung	MAN	Mangaung MM	49400002	MAN_2	4788	Urban
FS	Mangaung	MAN	Mangaung MM	49400012	MAN_12	4190	Urban
FS	Mangaung	MAN	Mangaung MM	49400036	MAN_36	4062	Urban
FS	Mangaung	MAN	Mangaung MM	49400004	MAN_4	3868	Urban
FS	Mangaung	MAN	Mangaung MM	49400045	MAN_45	3761	Urban
FS	Mangaung	MAN	Mangaung MM	49400046	MAN_46	3741	Urban
FS	Mangaung	MAN	Mangaung MM	49400015	MAN_15	3717	Urban
FS	Mangaung	MAN	Mangaung MM	49400009	MAN_9	3623	Urban
FS	Mangaung	MAN	Mangaung MM	49400029	MAN_29	3501	Urban

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Province	District	District code	Municipality	Ward code	Ward label	Population density	Geotype
FS	Mangaung	MAN	Mangaung MM	49400011	MAN_11	3355	Urban
FS	Mangaung	MAN	Mangaung MM	49400010	MAN_10	3309	Urban
FS	Mangaung	MAN	Mangaung MM	49400001	MAN_1	2864	Urban
FS	Mangaung	MAN	Mangaung MM	49400032	MAN_32	2056	Urban
FS	Mangaung	MAN	Mangaung MM	49400003	MAN_3	1844	Urban
FS	Mangaung	MAN	Mangaung MM	49400037	MAN_37	1843	Urban
FS	Mangaung	MAN	Mangaung MM	49400008	MAN_8	1780	Urban
FS	Mangaung	MAN	Mangaung MM	49400034	MAN_34	1588	Urban
FS	Mangaung	MAN	Mangaung MM	49400038	MAN_38	1547	Urban
FS	Mangaung	MAN	Mangaung MM	49400025	MAN_25	1358	Towns, semi-dense
FS	Mangaung	MAN	Mangaung MM	49400049	MAN_49	1352	Towns, semi-dense
FS	Mangaung	MAN	Mangaung MM	49400016	MAN_16	1303	Towns, semi-dense
FS	Mangaung	MAN	Mangaung MM	49400028	MAN_28	1243	Towns, semi-dense
FS	Mangaung	MAN	Mangaung MM	49400024	MAN_24	1143	Towns, semi-dense
FS	Mangaung	MAN	Mangaung MM	49400031	MAN_31	1135	Towns, semi-dense
FS	Mangaung	MAN	Mangaung MM	49400040	MAN_40	1051	Towns, semi-dense
FS	Mangaung	MAN	Mangaung MM	49400021	MAN_21	1006	Towns, semi-dense
FS	Mangaung	MAN	Mangaung MM	49400022	MAN_22	1002	Towns, semi-dense
FS	Mangaung	MAN	Mangaung MM	49400026	MAN_26	920	Towns, semi-dense
FS	Mangaung	MAN	Mangaung MM	49400020	MAN_20	873	Towns, semi-dense
FS	Mangaung	MAN	Mangaung MM	49400019	MAN_19	865	Towns, semi-dense
FS	Mangaung	MAN	Mangaung MM	49400039	MAN_39	581	Towns, semi-dense
FS	Mangaung	MAN	Mangaung MM	49400030	MAN_30	564	Towns, semi-dense
FS	Mangaung	MAN	Mangaung MM	49400042	MAN_42	498	Towns, semi-dense
FS	Mangaung	MAN	Mangaung MM	49400023	MAN_23	378	Towns, semi-dense
FS	Thabo Mofutsanyane	DC19	Dihlabeng LM	41902008	FS192_8	8499	Dense urban
FS	Thabo Mofutsanyane	DC19	Dihlabeng LM	41902007	FS192_7	6964	Dense urban
FS	Thabo Mofutsanyane	DC19	Dihlabeng LM	41902001	FS192_1	6606	Dense urban

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Province	District	District code	Municipality	Ward code	Ward label	Population density	Geotype
FS	Thabo Mofutsanyane	DC19	Dihlabeng LM	41902004	FS192_4	5587	Urban
FS	Thabo Mofutsanyane	DC19	Dihlabeng LM	41902005	FS192_5	5119	Urban
FS	Thabo Mofutsanyane	DC19	Dihlabeng LM	41902013	FS192_13	4749	Urban
FS	Thabo Mofutsanyane	DC19	Dihlabeng LM	41902006	FS192_6	3776	Urban
FS	Thabo Mofutsanyane	DC19	Dihlabeng LM	41902002	FS192_2	3515	Urban
FS	Thabo Mofutsanyane	DC19	Dihlabeng LM	41902009	FS192_9	923	Towns, semi-dense
FS	Thabo Mofutsanyane	DC19	Dihlabeng LM	41902003	FS192_3	770	Towns, semi-dense
FS	Thabo Mofutsanyane	DC19	Dihlabeng LM	41902016	FS192_16	552	Towns, semi-dense
FS	Thabo Mofutsanyane	DC19	Maluti a Phofung LM	41904005	FS194_5	4835	Urban
FS	Thabo Mofutsanyane	DC19	Maluti a Phofung LM	41904027	FS194_27	3020	Urban
FS	Thabo Mofutsanyane	DC19	Maluti a Phofung LM	41904026	FS194_26	2607	Urban
FS	Thabo Mofutsanyane	DC19	Maluti a Phofung LM	41904023	FS194_23	2337	Urban
FS	Thabo Mofutsanyane	DC19	Maluti a Phofung LM	41904025	FS194_25	2311	Urban
FS	Thabo Mofutsanyane	DC19	Maluti a Phofung LM	41904035	FS194_35	2202	Urban
FS	Thabo Mofutsanyane	DC19	Maluti a Phofung LM	41904014	FS194_14	2103	Urban
FS	Thabo Mofutsanyane	DC19	Maluti a Phofung LM	41904013	FS194_13	2033	Urban
FS	Thabo Mofutsanyane	DC19	Maluti a Phofung LM	41904029	FS194_29	1987	Urban
FS	Thabo Mofutsanyane	DC19	Maluti a Phofung LM	41904024	FS194_24	1948	Urban
FS	Thabo Mofutsanyane	DC19	Maluti a Phofung LM	41904008	FS194_8	1894	Urban
FS	Thabo Mofutsanyane	DC19	Maluti a Phofung LM	41904017	FS194_17	1848	Urban
FS	Thabo Mofutsanyane	DC19	Maluti a Phofung LM	41904018	FS194_18	1842	Urban
FS	Thabo Mofutsanyane	DC19	Maluti a Phofung LM	41904012	FS194_12	1837	Urban
FS	Thabo Mofutsanyane	DC19	Maluti a Phofung LM	41904009	FS194_9	1727	Urban
FS	Thabo Mofutsanyane	DC19	Maluti a Phofung LM	41904033	FS194_33	1647	Urban
FS	Thabo Mofutsanyane	DC19	Maluti a Phofung LM	41904010	FS194_10	1551	Urban
FS	Thabo Mofutsanyane	DC19	Maluti a Phofung LM	41904030	FS194_30	1528	Urban
FS	Thabo Mofutsanyane	DC19	Maluti a Phofung LM	41904031	FS194_31	1514	Urban
FS	Thabo Mofutsanyane	DC19	Maluti a Phofung LM	41904007	FS194_7	1443	Towns, semi-dense

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Province	District	District code	Municipality	Ward code	Ward label	Population density	Geotype
FS	Thabo Mofutsanyane	DC19	Maluti a Phofung LM	41904028	FS194_28	1367	Towns, semi-dense
FS	Thabo Mofutsanyane	DC19	Maluti a Phofung LM	41904034	FS194_34	1347	Towns, semi-dense
FS	Thabo Mofutsanyane	DC19	Maluti a Phofung LM	41904016	FS194_16	1186	Towns, semi-dense
FS	Thabo Mofutsanyane	DC19	Maluti a Phofung LM	41904004	FS194_4	1143	Towns, semi-dense
FS	Thabo Mofutsanyane	DC19	Mantsopa LM	41906006	FS196_6	5708	Urban
FS	Thabo Mofutsanyane	DC19	Mantsopa LM	41906005	FS196_5	4932	Urban
FS	Thabo Mofutsanyane	DC19	Nketoana LM	41903008	FS193_8	5098	Urban
FS	Thabo Mofutsanyane	DC19	Nketoana LM	41903002	FS193_2	1178	Towns, semi-dense
FS	Thabo Mofutsanyane	DC19	Phumelela LM	41905002	FS195_2	5398	Urban
FS	Thabo Mofutsanyane	DC19	Phumelela LM	41905004	FS195_4	3901	Urban
FS	Thabo Mofutsanyane	DC19	Phumelela LM	41905006	FS195_6	861	Towns, semi-dense
FS	Thabo Mofutsanyane	DC19	Phumelela LM	41905001	FS195_1	636	Towns, semi-dense
FS	Thabo Mofutsanyane	DC19	Setsoto LM	41901005	FS191_5	6171	Urban
FS	Thabo Mofutsanyane	DC19	Setsoto LM	41901008	FS191_8	5751	Urban
FS	Thabo Mofutsanyane	DC19	Setsoto LM	41901013	FS191_13	5650	Urban
FS	Thabo Mofutsanyane	DC19	Setsoto LM	41901012	FS191_12	5442	Urban
FS	Thabo Mofutsanyane	DC19	Setsoto LM	41901017	FS191_17	5009	Urban
FS	Thabo Mofutsanyane	DC19	Setsoto LM	41901011	FS191_11	4812	Urban
FS	Thabo Mofutsanyane	DC19	Setsoto LM	41901014	FS191_14	4367	Urban
FS	Thabo Mofutsanyane	DC19	Setsoto LM	41901016	FS191_16	4361	Urban
FS	Thabo Mofutsanyane	DC19	Setsoto LM	41901007	FS191_7	2598	Urban
FS	Thabo Mofutsanyane	DC19	Setsoto LM	41901002	FS191_2	2591	Urban
FS	Thabo Mofutsanyane	DC19	Setsoto LM	41901010	FS191_10	1961	Urban
FS	Thabo Mofutsanyane	DC19	Setsoto LM	41901006	FS191_6	604	Towns, semi-dense
FS	Xhariep	DC16	Letsemeng LM	41601006	FS161_6	806	Towns, semi-dense
FS	Xhariep	DC16	Mohokare LM	41603007	FS163_7	2927	Urban
FS	Xhariep	DC16	Mohokare LM	41603001	FS163_1	1486	Towns, semi-dense

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4 Gauteng

Figure 3: Geotype Classification of Gauteng Wards by Population Density

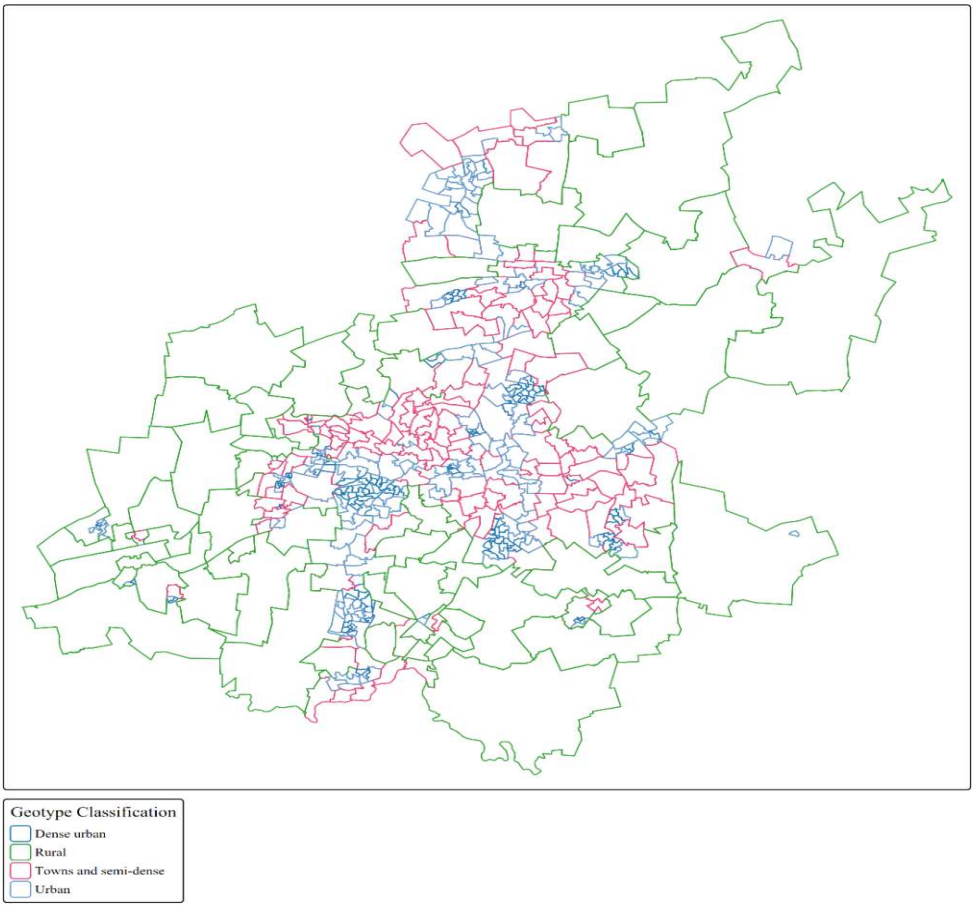


Table 3: IMT Exclusive Zones by Ward for Gauteng

Prov.	District	Dist. code	Municipality	Ward code	Ward label	Pop. density	Geotype
GP	City of Johannesburg	JHB	City of Johannesburg MM	79800063	JHB_63	128232	Dense urban
GP	City of Johannesburg	JHB	City of Johannesburg MM	79800116	JHB_116	39351	Dense urban
GP	City of Johannesburg	JHB	City of Johannesburg MM	79800107	JHB_107	35884	Dense urban
GP	City of Johannesburg	JHB	City of Johannesburg MM	79800062	JHB_62	33014	Dense urban
GP	City of Johannesburg	JHB	City of Johannesburg MM	79800075	JHB_75	29675	Dense urban
GP	City of Johannesburg	JHB	City of Johannesburg MM	79800108	JHB_108	27120	Dense urban
GP	City of Johannesburg	JHB	City of Johannesburg MM	79800133	JHB_133	25099	Dense urban
GP	City of Johannesburg	JHB	City of Johannesburg MM	79800064	JHB_64	24076	Dense urban
GP	City of Johannesburg	JHB	City of Johannesburg MM	79800079	JHB_79	23167	Dense urban
GP	City of Johannesburg	JHB	City of Johannesburg MM	79800077	JHB_77	22139	Dense urban
GP	City of Johannesburg	JHB	City of Johannesburg MM	79800078	JHB_78	21697	Dense urban
GP	City of Johannesburg	JHB	City of Johannesburg MM	79800095	JHB_95	20847	Dense urban
GP	City of Johannesburg	JHB	City of Johannesburg MM	79800076	JHB_76	18697	Dense urban
GP	City of Johannesburg	JHB	City of Johannesburg MM	79800059	JHB_59	18611	Dense urban
GP	City of Johannesburg	JHB	City of Johannesburg MM	79800111	JHB_111	14941	Dense urban
GP	City of Johannesburg	JHB	City of Johannesburg MM	79800040	JHB_40	14794	Dense urban
GP	City of Johannesburg	JHB	City of Johannesburg MM	79800042	JHB_42	14552	Dense urban
GP	City of Johannesburg	JHB	City of Johannesburg MM	79800043	JHB_43	13539	Dense urban
GP	City of Johannesburg	JHB	City of Johannesburg MM	79800052	JHB_52	13381	Dense urban
GP	City of Johannesburg	JHB	City of Johannesburg MM	79800051	JHB_51	12919	Dense urban
GP	City of Johannesburg	JHB	City of Johannesburg MM	79800105	JHB_105	12803	Dense urban
GP	City of Johannesburg	JHB	City of Johannesburg MM	79800128	JHB_128	12384	Dense urban
GP	City of Johannesburg	JHB	City of Johannesburg MM	79800015	JHB_15	12216	Dense urban
GP	City of Johannesburg	JHB	City of Johannesburg MM	79800020	JHB_20	12137	Dense urban
GP	City of Johannesburg	JHB	City of Johannesburg MM	79800041	JHB_41	11832	Dense urban
GP	City of Johannesburg	JHB	City of Johannesburg MM	79800044	JHB_44	11819	Dense urban

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Prov.	District	Dist. code	Municipality	Ward code	Ward label	Pop. density	Geotype
GP	City of Johannesburg	JHB	City of Johannesburg MM	79800130	JHB_130	11540	Dense urban
GP	City of Johannesburg	JHB	City of Johannesburg MM	79800131	JHB_131	11346	Dense urban
GP	City of Johannesburg	JHB	City of Johannesburg MM	79800035	JHB_35	10745	Dense urban
GP	City of Johannesburg	JHB	City of Johannesburg MM	79800037	JHB_37	10720	Dense urban
GP	City of Johannesburg	JHB	City of Johannesburg MM	79800080	JHB_80	10513	Dense urban
GP	City of Johannesburg	JHB	City of Johannesburg MM	79800021	JHB_21	10422	Dense urban
GP	City of Johannesburg	JHB	City of Johannesburg MM	79800028	JHB_28	10262	Dense urban
GP	City of Johannesburg	JHB	City of Johannesburg MM	79800016	JHB_16	10158	Dense urban
GP	City of Johannesburg	JHB	City of Johannesburg MM	79800030	JHB_30	10036	Dense urban
GP	City of Johannesburg	JHB	City of Johannesburg MM	79800047	JHB_47	9708	Dense urban
GP	City of Johannesburg	JHB	City of Johannesburg MM	79800113	JHB_113	9185	Dense urban
GP	City of Johannesburg	JHB	City of Johannesburg MM	79800123	JHB_123	8892	Dense urban
GP	City of Johannesburg	JHB	City of Johannesburg MM	79800031	JHB_31	8699	Dense urban
GP	City of Johannesburg	JHB	City of Johannesburg MM	79800003	JHB_3	8682	Dense urban
GP	City of Johannesburg	JHB	City of Johannesburg MM	79800034	JHB_34	8622	Dense urban
GP	City of Johannesburg	JHB	City of Johannesburg MM	79800100	JHB_100	8453	Dense urban
GP	City of Johannesburg	JHB	City of Johannesburg MM	79800045	JHB_45	8303	Dense urban
GP	City of Johannesburg	JHB	City of Johannesburg MM	79800129	JHB_129	8106	Dense urban
GP	City of Johannesburg	JHB	City of Johannesburg MM	79800012	JHB_12	7748	Dense urban
GP	City of Johannesburg	JHB	City of Johannesburg MM	79800027	JHB_27	7643	Dense urban
GP	City of Johannesburg	JHB	City of Johannesburg MM	79800046	JHB_46	7605	Dense urban
GP	City of Johannesburg	JHB	City of Johannesburg MM	79800002	JHB_2	7490	Dense urban
GP	City of Johannesburg	JHB	City of Johannesburg MM	79800004	JHB_4	7280	Dense urban
GP	City of Johannesburg	JHB	City of Johannesburg MM	79800001	JHB_1	7232	Dense urban
GP	City of Johannesburg	JHB	City of Johannesburg MM	79800036	JHB_36	7195	Dense urban
GP	City of Johannesburg	JHB	City of Johannesburg MM	79800017	JHB_17	7079	Dense urban
GP	City of Johannesburg	JHB	City of Johannesburg MM	79800033	JHB_33	6859	Dense urban
GP	City of Johannesburg	JHB	City of Johannesburg MM	79800039	JHB_39	6675	Dense urban

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Prov.	District	Dist. code	Municipality	Ward code	Ward label	Pop. density	Geotype
GP	City of Johannesburg	JHB	City of Johannesburg MM	79800022	JHB_22	6332	Urban
GP	City of Johannesburg	JHB	City of Johannesburg MM	79800014	JHB_14	6102	Urban
GP	City of Johannesburg	JHB	City of Johannesburg MM	79800048	JHB_48	6003	Urban
GP	City of Johannesburg	JHB	City of Johannesburg MM	79800026	JHB_26	5672	Urban
GP	City of Johannesburg	JHB	City of Johannesburg MM	79800007	JHB_7	5529	Urban
GP	City of Johannesburg	JHB	City of Johannesburg MM	79800038	JHB_38	5351	Urban
GP	City of Johannesburg	JHB	City of Johannesburg MM	79800025	JHB_25	4928	Urban
GP	City of Johannesburg	JHB	City of Johannesburg MM	79800013	JHB_13	4887	Urban
GP	City of Johannesburg	JHB	City of Johannesburg MM	79800061	JHB_61	4781	Urban
GP	City of Johannesburg	JHB	City of Johannesburg MM	79800019	JHB_19	4558	Urban
GP	City of Johannesburg	JHB	City of Johannesburg MM	79800067	JHB_67	4323	Urban
GP	City of Johannesburg	JHB	City of Johannesburg MM	79800011	JHB_11	4295	Urban
GP	City of Johannesburg	JHB	City of Johannesburg MM	79800049	JHB_49	4182	Urban
GP	City of Johannesburg	JHB	City of Johannesburg MM	79800082	JHB_82	3958	Urban
GP	City of Johannesburg	JHB	City of Johannesburg MM	79800050	JHB_50	3925	Urban
GP	City of Johannesburg	JHB	City of Johannesburg MM	79800114	JHB_114	3661	Urban
GP	City of Johannesburg	JHB	City of Johannesburg MM	79800065	JHB_65	3607	Urban
GP	City of Johannesburg	JHB	City of Johannesburg MM	79800069	JHB_69	3599	Urban
GP	City of Johannesburg	JHB	City of Johannesburg MM	79800029	JHB_29	3482	Urban
GP	City of Johannesburg	JHB	City of Johannesburg MM	79800018	JHB_18	3454	Urban
GP	City of Johannesburg	JHB	City of Johannesburg MM	79800010	JHB_10	3357	Urban
GP	City of Johannesburg	JHB	City of Johannesburg MM	79800066	JHB_66	3255	Urban
GP	City of Johannesburg	JHB	City of Johannesburg MM	79800120	JHB_120	3241	Urban
GP	City of Johannesburg	JHB	City of Johannesburg MM	79800135	JHB_135	3173	Urban
GP	City of Johannesburg	JHB	City of Johannesburg MM	79800060	JHB_60	2976	Urban
GP	City of Johannesburg	JHB	City of Johannesburg MM	79800055	JHB_55	2912	Urban
GP	City of Johannesburg	JHB	City of Johannesburg MM	79800119	JHB_119	2590	Urban
GP	City of Johannesburg	JHB	City of Johannesburg MM	79800118	JHB_118	2485	Urban

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Prov.	District	Dist. code	Municipality	Ward code	Ward label	Pop. density	Geotype
GP	City of Johannesburg	JHB	City of Johannesburg MM	79800071	JHB_71	2315	Urban
GP	City of Johannesburg	JHB	City of Johannesburg MM	79800024	JHB_24	2284	Urban
GP	City of Johannesburg	JHB	City of Johannesburg MM	79800006	JHB_6	2128	Urban
GP	City of Johannesburg	JHB	City of Johannesburg MM	79800008	JHB_8	2114	Urban
GP	City of Johannesburg	JHB	City of Johannesburg MM	79800110	JHB_110	1930	Urban
GP	City of Johannesburg	JHB	City of Johannesburg MM	79800058	JHB_58	1755	Urban
GP	City of Johannesburg	JHB	City of Johannesburg MM	79800084	JHB_84	1720	Urban
GP	City of Johannesburg	JHB	City of Johannesburg MM	79800086	JHB_86	1647	Urban
GP	City of Johannesburg	JHB	City of Johannesburg MM	79800109	JHB_109	1633	Urban
GP	City of Johannesburg	JHB	City of Johannesburg MM	79800121	JHB_121	1627	Urban
GP	City of Johannesburg	JHB	City of Johannesburg MM	79800009	JHB_9	1613	Urban
GP	City of Johannesburg	JHB	City of Johannesburg MM	79800098	JHB_98	1613	Urban
GP	City of Johannesburg	JHB	City of Johannesburg MM	79800081	JHB_81	1591	Urban
GP	City of Johannesburg	JHB	City of Johannesburg MM	79800124	JHB_124	1584	Urban
GP	City of Johannesburg	JHB	City of Johannesburg MM	79800127	JHB_127	1572	Urban
GP	City of Johannesburg	JHB	City of Johannesburg MM	79800073	JHB_73	1553	Urban
GP	City of Johannesburg	JHB	City of Johannesburg MM	79800070	JHB_70	1546	Urban
GP	City of Johannesburg	JHB	City of Johannesburg MM	79800092	JHB_92	1485	Towns and semi-dense
GP	City of Johannesburg	JHB	City of Johannesburg MM	79800085	JHB_85	1383	Towns and semi-dense
GP	City of Johannesburg	JHB	City of Johannesburg MM	79800099	JHB_99	1381	Towns and semi-dense
GP	City of Johannesburg	JHB	City of Johannesburg MM	79800068	JHB_68	1271	Towns and semi-dense
GP	City of Johannesburg	JHB	City of Johannesburg MM	79800115	JHB_115	1267	Towns and semi-dense
GP	City of Johannesburg	JHB	City of Johannesburg MM	79800005	JHB_5	1216	Towns and semi-dense
GP	City of Johannesburg	JHB	City of Johannesburg MM	79800083	JHB_83	1174	Towns and semi-dense
GP	City of Johannesburg	JHB	City of Johannesburg MM	79800134	JHB_134	1173	Towns and semi-dense
GP	City of Johannesburg	JHB	City of Johannesburg MM	79800101	JHB_101	1172	Towns and semi-dense
GP	City of Johannesburg	JHB	City of Johannesburg MM	79800054	JHB_54	1157	Towns and semi-dense
GP	City of Johannesburg	JHB	City of Johannesburg MM	79800112	JHB_112	1152	Towns and semi-dense

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GP	City of Johannesburg	JHB	City of Johannesburg MM	79800056	JHB_56	1080	Towns and semi-dense
GP	City of Johannesburg	JHB	City of Johannesburg MM	79800091	JHB_91	1069	Towns and semi-dense
GP	City of Johannesburg	JHB	City of Johannesburg MM	79800087	JHB_87	1066	Towns and semi-dense
GP	City of Johannesburg	JHB	City of Johannesburg MM	79800122	JHB_122	1055	Towns and semi-dense
GP	City of Johannesburg	JHB	City of Johannesburg MM	79800093	JHB_93	930	Towns and semi-dense
GP	City of Johannesburg	JHB	City of Johannesburg MM	79800132	JHB_132	925	Towns and semi-dense
GP	City of Johannesburg	JHB	City of Johannesburg MM	79800089	JHB_89	922	Towns and semi-dense
GP	City of Johannesburg	JHB	City of Johannesburg MM	79800053	JHB_53	864	Towns and semi-dense
GP	City of Johannesburg	JHB	City of Johannesburg MM	79800117	JHB_117	847	Towns and semi-dense
GP	City of Johannesburg	JHB	City of Johannesburg MM	79800102	JHB_102	812	Towns and semi-dense
GP	City of Johannesburg	JHB	City of Johannesburg MM	79800126	JHB_126	803	Towns and semi-dense
GP	City of Johannesburg	JHB	City of Johannesburg MM	79800088	JHB_88	785	Towns and semi-dense
GP	City of Johannesburg	JHB	City of Johannesburg MM	79800057	JHB_57	587	Towns and semi-dense
GP	City of Johannesburg	JHB	City of Johannesburg MM	79800074	JHB_74	572	Towns and semi-dense
GP	City of Johannesburg	JHB	City of Johannesburg MM	79800023	JHB_23	568	Towns and semi-dense
GP	City of Johannesburg	JHB	City of Johannesburg MM	79800104	JHB_104	565	Towns and semi-dense
GP	City of Johannesburg	JHB	City of Johannesburg MM	79800103	JHB_103	557	Towns and semi-dense
GP	City of Johannesburg	JHB	City of Johannesburg MM	79800090	JHB_90	532	Towns and semi-dense
GP	City of Johannesburg	JHB	City of Johannesburg MM	79800096	JHB_96	480	Towns and semi-dense
GP	City of Johannesburg	JHB	City of Johannesburg MM	79800106	JHB_106	466	Towns and semi-dense
GP	City of Johannesburg	JHB	City of Johannesburg MM	79800072	JHB_72	454	Towns and semi-dense
GP	City of Johannesburg	JHB	City of Johannesburg MM	79800097	JHB_97	443	Towns and semi-dense
GP	City of Johannesburg	JHB	City of Johannesburg MM	79800032	JHB_32	409	Towns and semi-dense
GP	City of Tshwane	TSH	City of Tshwane MM	79900071	TSH_71	15201	Dense urban
GP	City of Tshwane	TSH	City of Tshwane MM	79900081	TSH_81	13329	Dense urban
GP	City of Tshwane	TSH	City of Tshwane MM	79900017	TSH_17	13130	Dense urban
GP	City of Tshwane	TSH	City of Tshwane MM	79900040	TSH_40	13037	Dense urban
GP	City of Tshwane	TSH	City of Tshwane MM	79900068	TSH_68	10568	Dense urban

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GP	City of Tshwane	TSH	City of Tshwane MM	79900006	TSH_6	10321	Dense urban
GP	City of Tshwane	TSH	City of Tshwane MM	79900097	TSH_97	10286	Dense urban
GP	City of Tshwane	TSH	City of Tshwane MM	79900018	TSH_18	9651	Dense urban
GP	City of Tshwane	TSH	City of Tshwane MM	79900072	TSH_72	9356	Dense urban
GP	City of Tshwane	TSH	City of Tshwane MM	79900016	TSH_16	8632	Dense urban
GP	City of Tshwane	TSH	City of Tshwane MM	79900089	TSH_89	8212	Dense urban
GP	City of Tshwane	TSH	City of Tshwane MM	79900010	TSH_10	7707	Dense urban
GP	City of Tshwane	TSH	City of Tshwane MM	79900063	TSH_63	7176	Dense urban
GP	City of Tshwane	TSH	City of Tshwane MM	79900062	TSH_62	7117	Dense urban
GP	City of Tshwane	TSH	City of Tshwane MM	79900027	TSH_27	6779	Dense urban
GP	City of Tshwane	TSH	City of Tshwane MM	79900011	TSH_11	6705	Dense urban
GP	City of Tshwane	TSH	City of Tshwane MM	79900093	TSH_93	6493	Urban
GP	City of Tshwane	TSH	City of Tshwane MM	79900034	TSH_34	6263	Urban
GP	City of Tshwane	TSH	City of Tshwane MM	79900107	TSH_107	6017	Urban
GP	City of Tshwane	TSH	City of Tshwane MM	79900009	TSH_9	5919	Urban
GP	City of Tshwane	TSH	City of Tshwane MM	79900090	TSH_90	5826	Urban
GP	City of Tshwane	TSH	City of Tshwane MM	79900039	TSH_39	5661	Urban
GP	City of Tshwane	TSH	City of Tshwane MM	79900025	TSH_25	5576	Urban
GP	City of Tshwane	TSH	City of Tshwane MM	79900028	TSH_28	5529	Urban
GP	City of Tshwane	TSH	City of Tshwane MM	79900021	TSH_21	5512	Urban
GP	City of Tshwane	TSH	City of Tshwane MM	79900038	TSH_38	5297	Urban
GP	City of Tshwane	TSH	City of Tshwane MM	79900088	TSH_88	5272	Urban
GP	City of Tshwane	TSH	City of Tshwane MM	79900094	TSH_94	4989	Urban
GP	City of Tshwane	TSH	City of Tshwane MM	79900067	TSH_67	4821	Urban
GP	City of Tshwane	TSH	City of Tshwane MM	79900012	TSH_12	4808	Urban
GP	City of Tshwane	TSH	City of Tshwane MM	79900086	TSH_86	4463	Urban
GP	City of Tshwane	TSH	City of Tshwane MM	79900026	TSH_26	4284	Urban
GP	City of Tshwane	TSH	City of Tshwane MM	79900036	TSH_36	4239	Urban

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GP	City of Tshwane	TSH	City of Tshwane MM	79900080	TSH_80	4062	Urban
GP	City of Tshwane	TSH	City of Tshwane MM	79900106	TSH_106	3803	Urban
GP	City of Tshwane	TSH	City of Tshwane MM	79900029	TSH_29	3705	Urban
GP	City of Tshwane	TSH	City of Tshwane MM	79900043	TSH_43	3668	Urban
GP	City of Tshwane	TSH	City of Tshwane MM	79900060	TSH_60	3648	Urban
GP	City of Tshwane	TSH	City of Tshwane MM	79900019	TSH_19	3539	Urban
GP	City of Tshwane	TSH	City of Tshwane MM	79900058	TSH_58	3458	Urban
GP	City of Tshwane	TSH	City of Tshwane MM	79900035	TSH_35	3390	Urban
GP	City of Tshwane	TSH	City of Tshwane MM	79900033	TSH_33	3175	Urban
GP	City of Tshwane	TSH	City of Tshwane MM	79900015	TSH_15	2911	Urban
GP	City of Tshwane	TSH	City of Tshwane MM	79900075	TSH_75	2787	Urban
GP	City of Tshwane	TSH	City of Tshwane MM	79900077	TSH_77	2738	Urban
GP	City of Tshwane	TSH	City of Tshwane MM	79900014	TSH_14	2689	Urban
GP	City of Tshwane	TSH	City of Tshwane MM	79900074	TSH_74	2561	Urban
GP	City of Tshwane	TSH	City of Tshwane MM	79900020	TSH_20	2536	Urban
GP	City of Tshwane	TSH	City of Tshwane MM	79900030	TSH_30	2507	Urban
GP	City of Tshwane	TSH	City of Tshwane MM	79900023	TSH_23	2402	Urban
GP	City of Tshwane	TSH	City of Tshwane MM	79900045	TSH_45	2243	Urban
GP	City of Tshwane	TSH	City of Tshwane MM	79900092	TSH_92	2153	Urban
GP	City of Tshwane	TSH	City of Tshwane MM	79900022	TSH_22	2130	Urban
GP	City of Tshwane	TSH	City of Tshwane MM	79900057	TSH_57	1988	Urban
GP	City of Tshwane	TSH	City of Tshwane MM	79900044	TSH_44	1964	Urban
GP	City of Tshwane	TSH	City of Tshwane MM	79900032	TSH_32	1932	Urban
GP	City of Tshwane	TSH	City of Tshwane MM	79900037	TSH_37	1923	Urban
GP	City of Tshwane	TSH	City of Tshwane MM	79900078	TSH_78	1917	Urban
GP	City of Tshwane	TSH	City of Tshwane MM	79900085	TSH_85	1913	Urban
GP	City of Tshwane	TSH	City of Tshwane MM	79900053	TSH_53	1845	Urban
GP	City of Tshwane	TSH	City of Tshwane MM	79900104	TSH_104	1832	Urban

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Prov.	District	Dist. code	Municipality	Ward code	Ward label	Pop. density	Geotype
GP	City of Tshwane	TSH	City of Tshwane MM	79900008	TSH_8	1763	Urban
GP	City of Tshwane	TSH	City of Tshwane MM	79900069	TSH_69	1713	Urban
GP	City of Tshwane	TSH	City of Tshwane MM	79900064	TSH_64	1711	Urban
GP	City of Tshwane	TSH	City of Tshwane MM	79900098	TSH_98	1582	Urban
GP	City of Tshwane	TSH	City of Tshwane MM	79900005	TSH_5	1562	Urban
GP	City of Tshwane	TSH	City of Tshwane MM	79900002	TSH_2	1533	Urban
GP	City of Tshwane	TSH	City of Tshwane MM	79900004	TSH_4	1343	Towns and semi-dense
GP	City of Tshwane	TSH	City of Tshwane MM	79900047	TSH_47	1271	Towns and semi-dense
GP	City of Tshwane	TSH	City of Tshwane MM	79900054	TSH_54	1259	Towns and semi-dense
GP	City of Tshwane	TSH	City of Tshwane MM	79900001	TSH_1	1242	Towns and semi-dense
GP	City of Tshwane	TSH	City of Tshwane MM	79900041	TSH_41	1157	Towns and semi-dense
GP	City of Tshwane	TSH	City of Tshwane MM	79900046	TSH_46	1143	Towns and semi-dense
GP	City of Tshwane	TSH	City of Tshwane MM	79900056	TSH_56	1006	Towns and semi-dense
GP	City of Tshwane	TSH	City of Tshwane MM	79900084	TSH_84	1005	Towns and semi-dense
GP	City of Tshwane	TSH	City of Tshwane MM	79900083	TSH_83	980	Towns and semi-dense
GP	City of Tshwane	TSH	City of Tshwane MM	79900042	TSH_42	950	Towns and semi-dense
GP	City of Tshwane	TSH	City of Tshwane MM	79900007	TSH_7	945	Towns and semi-dense
GP	City of Tshwane	TSH	City of Tshwane MM	79900050	TSH_50	937	Towns and semi-dense
GP	City of Tshwane	TSH	City of Tshwane MM	79900079	TSH_79	904	Towns and semi-dense
GP	City of Tshwane	TSH	City of Tshwane MM	79900003	TSH_3	894	Towns and semi-dense
GP	City of Tshwane	TSH	City of Tshwane MM	79900052	TSH_52	880	Towns and semi-dense
GP	City of Tshwane	TSH	City of Tshwane MM	79900051	TSH_51	876	Towns and semi-dense
GP	City of Tshwane	TSH	City of Tshwane MM	79900070	TSH_70	848	Towns and semi-dense
GP	City of Tshwane	TSH	City of Tshwane MM	79900061	TSH_61	821	Towns and semi-dense
GP	City of Tshwane	TSH	City of Tshwane MM	79900024	TSH_24	796	Towns and semi-dense
GP	City of Tshwane	TSH	City of Tshwane MM	79900013	TSH_13	780	Towns and semi-dense
GP	City of Tshwane	TSH	City of Tshwane MM	79900076	TSH_76	745	Towns and semi-dense
GP	City of Tshwane	TSH	City of Tshwane MM	79900066	TSH_66	681	Towns and semi-dense

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GP	City of Tshwane	TSH	City of Tshwane MM	79900082	TSH_82	665	Towns and semi-dense
GP	City of Tshwane	TSH	City of Tshwane MM	79900103	TSH_103	562	Towns and semi-dense
GP	City of Tshwane	TSH	City of Tshwane MM	79900059	TSH_59	556	Towns and semi-dense
GP	City of Tshwane	TSH	City of Tshwane MM	79900049	TSH_49	512	Towns and semi-dense
GP	City of Tshwane	TSH	City of Tshwane MM	79900065	TSH_65	463	Towns and semi-dense
GP	City of Tshwane	TSH	City of Tshwane MM	79900031	TSH_31	380	Towns and semi-dense
GP	City of Tshwane	TSH	City of Tshwane MM	79900095	TSH_95	333	Towns and semi-dense
GP	Ekurhuleni	EKU	Ekurhuleni MM	79700090	EKU_90	26227	Dense urban
GP	Ekurhuleni	EKU	Ekurhuleni MM	79700014	EKU_14	16559	Dense urban
GP	Ekurhuleni	EKU	Ekurhuleni MM	79700003	EKU_3	16545	Dense urban
GP	Ekurhuleni	EKU	Ekurhuleni MM	79700100	EKU_100	15361	Dense urban
GP	Ekurhuleni	EKU	Ekurhuleni MM	79700054	EKU_54	15301	Dense urban
GP	Ekurhuleni	EKU	Ekurhuleni MM	79700007	EKU_7	14699	Dense urban
GP	Ekurhuleni	EKU	Ekurhuleni MM	79700051	EKU_51	13796	Dense urban
GP	Ekurhuleni	EKU	Ekurhuleni MM	79700011	EKU_11	13356	Dense urban
GP	Ekurhuleni	EKU	Ekurhuleni MM	79700002	EKU_2	13350	Dense urban
GP	Ekurhuleni	EKU	Ekurhuleni MM	79700070	EKU_70	12762	Dense urban
GP	Ekurhuleni	EKU	Ekurhuleni MM	79700055	EKU_55	12214	Dense urban
GP	Ekurhuleni	EKU	Ekurhuleni MM	79700004	EKU_4	11475	Dense urban
GP	Ekurhuleni	EKU	Ekurhuleni MM	79700009	EKU_9	11331	Dense urban
GP	Ekurhuleni	EKU	Ekurhuleni MM	79700108	EKU_108	11303	Dense urban
GP	Ekurhuleni	EKU	Ekurhuleni MM	79700006	EKU_6	11244	Dense urban
GP	Ekurhuleni	EKU	Ekurhuleni MM	79700052	EKU_52	10341	Dense urban
GP	Ekurhuleni	EKU	Ekurhuleni MM	79700058	EKU_58	10193	Dense urban
GP	Ekurhuleni	EKU	Ekurhuleni MM	79700078	EKU_78	9949	Dense urban
GP	Ekurhuleni	EKU	Ekurhuleni MM	79700066	EKU_66	9924	Dense urban
GP	Ekurhuleni	EKU	Ekurhuleni MM	79700069	EKU_69	9700	Dense urban
GP	Ekurhuleni	EKU	Ekurhuleni MM	79700005	EKU_5	9528	Dense urban

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Prov.	District	Dist. code	Municipality	Ward code	Ward label	Pop. density	Geotype
GP	Ekurhuleni	EKU	Ekurhuleni MM	79700010	EKU_10	9443	Dense urban
GP	Ekurhuleni	EKU	Ekurhuleni MM	79700050	EKU_50	9383	Dense urban
GP	Ekurhuleni	EKU	Ekurhuleni MM	79700079	EKU_79	9379	Dense urban
GP	Ekurhuleni	EKU	Ekurhuleni MM	79700047	EKU_47	8376	Dense urban
GP	Ekurhuleni	EKU	Ekurhuleni MM	79700087	EKU_87	8346	Dense urban
GP	Ekurhuleni	EKU	Ekurhuleni MM	79700057	EKU_57	8294	Dense urban
GP	Ekurhuleni	EKU	Ekurhuleni MM	79700086	EKU_86	8292	Dense urban
GP	Ekurhuleni	EKU	Ekurhuleni MM	79700080	EKU_80	8208	Dense urban
GP	Ekurhuleni	EKU	Ekurhuleni MM	79700030	EKU_30	8113	Dense urban
GP	Ekurhuleni	EKU	Ekurhuleni MM	79700083	EKU_83	7835	Dense urban
GP	Ekurhuleni	EKU	Ekurhuleni MM	79700084	EKU_84	7666	Dense urban
GP	Ekurhuleni	EKU	Ekurhuleni MM	79700056	EKU_56	7447	Dense urban
GP	Ekurhuleni	EKU	Ekurhuleni MM	79700012	EKU_12	7410	Dense urban
GP	Ekurhuleni	EKU	Ekurhuleni MM	79700059	EKU_59	7257	Dense urban
GP	Ekurhuleni	EKU	Ekurhuleni MM	79700103	EKU_103	7210	Dense urban
GP	Ekurhuleni	EKU	Ekurhuleni MM	79700060	EKU_60	7206	Dense urban
GP	Ekurhuleni	EKU	Ekurhuleni MM	79700021	EKU_21	7100	Dense urban
GP	Ekurhuleni	EKU	Ekurhuleni MM	79700081	EKU_81	7014	Dense urban
GP	Ekurhuleni	EKU	Ekurhuleni MM	79700085	EKU_85	6986	Dense urban
GP	Ekurhuleni	EKU	Ekurhuleni MM	79700029	EKU_29	6956	Dense urban
GP	Ekurhuleni	EKU	Ekurhuleni MM	79700049	EKU_49	6853	Dense urban
GP	Ekurhuleni	EKU	Ekurhuleni MM	79700063	EKU_63	6687	Dense urban
GP	Ekurhuleni	EKU	Ekurhuleni MM	79700101	EKU_101	6461	Urban
GP	Ekurhuleni	EKU	Ekurhuleni MM	79700110	EKU_110	6410	Urban
GP	Ekurhuleni	EKU	Ekurhuleni MM	79700008	EKU_8	6392	Urban
GP	Ekurhuleni	EKU	Ekurhuleni MM	79700067	EKU_67	6276	Urban
GP	Ekurhuleni	EKU	Ekurhuleni MM	79700026	EKU_26	5898	Urban
GP	Ekurhuleni	EKU	Ekurhuleni MM	79700112	EKU_112	5837	Urban

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Prov.	District	Dist. code	Municipality	Ward code	Ward label	Pop. density	Geotype
GP	Ekurhuleni	EKU	Ekurhuleni MM	79700046	EKU_46	5714	Urban
GP	Ekurhuleni	EKU	Ekurhuleni MM	79700077	EKU_77	5587	Urban
GP	Ekurhuleni	EKU	Ekurhuleni MM	79700109	EKU_109	5530	Urban
GP	Ekurhuleni	EKU	Ekurhuleni MM	79700044	EKU_44	5181	Urban
GP	Ekurhuleni	EKU	Ekurhuleni MM	79700041	EKU_41	5116	Urban
GP	Ekurhuleni	EKU	Ekurhuleni MM	79700061	EKU_61	4922	Urban
GP	Ekurhuleni	EKU	Ekurhuleni MM	79700102	EKU_102	4710	Urban
GP	Ekurhuleni	EKU	Ekurhuleni MM	79700048	EKU_48	4618	Urban
GP	Ekurhuleni	EKU	Ekurhuleni MM	79700035	EKU_35	4183	Urban
GP	Ekurhuleni	EKU	Ekurhuleni MM	79700095	EKU_95	4042	Urban
GP	Ekurhuleni	EKU	Ekurhuleni MM	79700096	EKU_96	3932	Urban
GP	Ekurhuleni	EKU	Ekurhuleni MM	79700068	EKU_68	3915	Urban
GP	Ekurhuleni	EKU	Ekurhuleni MM	79700093	EKU_93	3472	Urban
GP	Ekurhuleni	EKU	Ekurhuleni MM	79700013	EKU_13	3356	Urban
GP	Ekurhuleni	EKU	Ekurhuleni MM	79700071	EKU_71	3324	Urban
GP	Ekurhuleni	EKU	Ekurhuleni MM	79700064	EKU_64	3198	Urban
GP	Ekurhuleni	EKU	Ekurhuleni MM	79700042	EKU_42	2611	Urban
GP	Ekurhuleni	EKU	Ekurhuleni MM	79700098	EKU_98	2467	Urban
GP	Ekurhuleni	EKU	Ekurhuleni MM	79700018	EKU_18	2427	Urban
GP	Ekurhuleni	EKU	Ekurhuleni MM	79700065	EKU_65	2376	Urban
GP	Ekurhuleni	EKU	Ekurhuleni MM	79700053	EKU_53	2324	Urban
GP	Ekurhuleni	EKU	Ekurhuleni MM	79700019	EKU_19	2320	Urban
GP	Ekurhuleni	EKU	Ekurhuleni MM	79700107	EKU_107	2285	Urban
GP	Ekurhuleni	EKU	Ekurhuleni MM	79700015	EKU_15	1981	Urban
GP	Ekurhuleni	EKU	Ekurhuleni MM	79700034	EKU_34	1970	Urban
GP	Ekurhuleni	EKU	Ekurhuleni MM	79700092	EKU_92	1943	Urban
GP	Ekurhuleni	EKU	Ekurhuleni MM	79700104	EKU_104	1682	Urban
GP	Ekurhuleni	EKU	Ekurhuleni MM	79700036	EKU_36	1635	Urban

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Prov.	District	Dist. code	Municipality	Ward code	Ward label	Pop. density	Geotype
GP	Ekurhuleni	EKU	Ekurhuleni MM	79700043	EKU_43	1499	Towns and semi-dense
GP	Ekurhuleni	EKU	Ekurhuleni MM	79700016	EKU_16	1448	Towns and semi-dense
GP	Ekurhuleni	EKU	Ekurhuleni MM	79700020	EKU_20	1410	Towns and semi-dense
GP	Ekurhuleni	EKU	Ekurhuleni MM	79700074	EKU_74	1374	Towns and semi-dense
GP	Ekurhuleni	EKU	Ekurhuleni MM	79700033	EKU_33	1329	Towns and semi-dense
GP	Ekurhuleni	EKU	Ekurhuleni MM	79700040	EKU_40	1201	Towns and semi-dense
GP	Ekurhuleni	EKU	Ekurhuleni MM	79700045	EKU_45	1146	Towns and semi-dense
GP	Ekurhuleni	EKU	Ekurhuleni MM	79700028	EKU_28	1109	Towns and semi-dense
GP	Ekurhuleni	EKU	Ekurhuleni MM	79700073	EKU_73	991	Towns and semi-dense
GP	Ekurhuleni	EKU	Ekurhuleni MM	79700091	EKU_91	972	Towns and semi-dense
GP	Ekurhuleni	EKU	Ekurhuleni MM	79700082	EKU_82	969	Towns and semi-dense
GP	Ekurhuleni	EKU	Ekurhuleni MM	79700037	EKU_37	942	Towns and semi-dense
GP	Ekurhuleni	EKU	Ekurhuleni MM	79700038	EKU_38	917	Towns and semi-dense
GP	Ekurhuleni	EKU	Ekurhuleni MM	79700031	EKU_31	911	Towns and semi-dense
GP	Ekurhuleni	EKU	Ekurhuleni MM	79700023	EKU_23	900	Towns and semi-dense
GP	Ekurhuleni	EKU	Ekurhuleni MM	79700106	EKU_106	887	Towns and semi-dense
GP	Ekurhuleni	EKU	Ekurhuleni MM	79700001	EKU_1	884	Towns and semi-dense
GP	Ekurhuleni	EKU	Ekurhuleni MM	79700111	EKU_111	856	Towns and semi-dense
GP	Ekurhuleni	EKU	Ekurhuleni MM	79700097	EKU_97	851	Towns and semi-dense
GP	Ekurhuleni	EKU	Ekurhuleni MM	79700022	EKU_22	839	Towns and semi-dense
GP	Ekurhuleni	EKU	Ekurhuleni MM	79700027	EKU_27	750	Towns and semi-dense
GP	Ekurhuleni	EKU	Ekurhuleni MM	79700099	EKU_99	711	Towns and semi-dense
GP	Ekurhuleni	EKU	Ekurhuleni MM	79700072	EKU_72	702	Towns and semi-dense
GP	Ekurhuleni	EKU	Ekurhuleni MM	79700062	EKU_62	651	Towns and semi-dense
GP	Ekurhuleni	EKU	Ekurhuleni MM	79700094	EKU_94	629	Towns and semi-dense
GP	Ekurhuleni	EKU	Ekurhuleni MM	79700039	EKU_39	615	Towns and semi-dense
GP	Ekurhuleni	EKU	Ekurhuleni MM	79700032	EKU_32	570	Towns and semi-dense
GP	Ekurhuleni	EKU	Ekurhuleni MM	79700105	EKU_105	503	Towns and semi-dense

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Prov.	District	Dist. code	Municipality	Ward code	Ward label	Pop. density	Geotype
GP	Ekurhuleni	EKU	Ekurhuleni MM	79700024	EKU_24	498	Towns and semi-dense
GP	Ekurhuleni	EKU	Ekurhuleni MM	79700089	EKU_89	423	Towns and semi-dense
GP	Ekurhuleni	EKU	Ekurhuleni MM	79700017	EKU_17	421	Towns and semi-dense
GP	Ekurhuleni	EKU	Ekurhuleni MM	79700075	EKU_75	408	Towns and semi-dense
GP	Ekurhuleni	EKU	Ekurhuleni MM	79700076	EKU_76	346	Towns and semi-dense
GP	Sedibeng	DC42	Emfuleni LM	74201035	GT421_35	10953	Dense urban
GP	Sedibeng	DC42	Emfuleni LM	74201037	GT421_37	10176	Dense urban
GP	Sedibeng	DC42	Emfuleni LM	74201034	GT421_34	9959	Dense urban
GP	Sedibeng	DC42	Emfuleni LM	74201041	GT421_41	9671	Dense urban
GP	Sedibeng	DC42	Emfuleni LM	74201032	GT421_32	8866	Dense urban
GP	Sedibeng	DC42	Emfuleni LM	74201033	GT421_33	8435	Dense urban
GP	Sedibeng	DC42	Emfuleni LM	74201006	GT421_6	8194	Dense urban
GP	Sedibeng	DC42	Emfuleni LM	74201013	GT421_13	8157	Dense urban
GP	Sedibeng	DC42	Emfuleni LM	74201039	GT421_39	7958	Dense urban
GP	Sedibeng	DC42	Emfuleni LM	74201022	GT421_22	7720	Dense urban
GP	Sedibeng	DC42	Emfuleni LM	74201002	GT421_2	7525	Dense urban
GP	Sedibeng	DC42	Emfuleni LM	74201024	GT421_24	6755	Dense urban
GP	Sedibeng	DC42	Emfuleni LM	74201020	GT421_20	6580	Dense urban
GP	Sedibeng	DC42	Emfuleni LM	74201040	GT421_40	6492	Urban
GP	Sedibeng	DC42	Emfuleni LM	74201018	GT421_18	5609	Urban
GP	Sedibeng	DC42	Emfuleni LM	74201026	GT421_26	5497	Urban
GP	Sedibeng	DC42	Emfuleni LM	74201028	GT421_28	5459	Urban
GP	Sedibeng	DC42	Emfuleni LM	74201044	GT421_44	5376	Urban
GP	Sedibeng	DC42	Emfuleni LM	74201030	GT421_30	5203	Urban
GP	Sedibeng	DC42	Emfuleni LM	74201029	GT421_29	5201	Urban
GP	Sedibeng	DC42	Emfuleni LM	74201038	GT421_38	5116	Urban
GP	Sedibeng	DC42	Emfuleni LM	74201019	GT421_19	5057	Urban
GP	Sedibeng	DC42	Emfuleni LM	74201031	GT421_31	4680	Urban

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Prov.	District	Dist. code	Municipality	Ward code	Ward label	Pop. density	Geotype
GP	Sedibeng	DC42	Emfuleni LM	74201014	GT421_14	4679	Urban
GP	Sedibeng	DC42	Emfuleni LM	74201003	GT421_3	4470	Urban
GP	Sedibeng	DC42	Emfuleni LM	74201042	GT421_42	4031	Urban
GP	Sedibeng	DC42	Emfuleni LM	74201043	GT421_43	3312	Urban
GP	Sedibeng	DC42	Emfuleni LM	74201027	GT421_27	2582	Urban
GP	Sedibeng	DC42	Emfuleni LM	74201010	GT421_10	2029	Urban
GP	Sedibeng	DC42	Emfuleni LM	74201023	GT421_23	1985	Urban
GP	Sedibeng	DC42	Emfuleni LM	74201012	GT421_12	1575	Urban
GP	Sedibeng	DC42	Emfuleni LM	74201036	GT421_36	1509	Urban
GP	Sedibeng	DC42	Emfuleni LM	74201009	GT421_9	1389	Towns and semi-dense
GP	Sedibeng	DC42	Emfuleni LM	74201011	GT421_11	1342	Towns and semi-dense
GP	Sedibeng	DC42	Emfuleni LM	74201021	GT421_21	1046	Towns and semi-dense
GP	Sedibeng	DC42	Emfuleni LM	74201017	GT421_17	1002	Towns and semi-dense
GP	Sedibeng	DC42	Emfuleni LM	74201015	GT421_15	647	Towns and semi-dense
GP	Sedibeng	DC42	Emfuleni LM	74201004	GT421_4	610	Towns and semi-dense
GP	Sedibeng	DC42	Emfuleni LM	74201005	GT421_5	586	Towns and semi-dense
GP	Sedibeng	DC42	Emfuleni LM	74201007	GT421_7	551	Towns and semi-dense
GP	Sedibeng	DC42	Emfuleni LM	74201016	GT421_16	412	Towns and semi-dense
GP	Sedibeng	DC42	Emfuleni LM	74201001	GT421_1	370	Towns and semi-dense
GP	Sedibeng	DC42	Lesedi LM	74203004	GT423_4	8381	Dense urban
GP	Sedibeng	DC42	Lesedi LM	74203002	GT423_2	7815	Dense urban
GP	Sedibeng	DC42	Lesedi LM	74203007	GT423_7	6728	Dense urban
GP	Sedibeng	DC42	Lesedi LM	74203013	GT423_13	6322	Urban
GP	Sedibeng	DC42	Lesedi LM	74203003	GT423_3	4568	Urban
GP	Sedibeng	DC42	Lesedi LM	74203005	GT423_5	3094	Urban
GP	Sedibeng	DC42	Lesedi LM	74203008	GT423_8	618	Towns and semi-dense
GP	Sedibeng	DC42	Lesedi LM	74203009	GT423_9	614	Towns and semi-dense
GP	Sedibeng	DC42	Lesedi LM	74203001	GT423_1	377	Towns and semi-dense

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GP	Sedibeng	DC42	Midvaal LM	74202006	GT422_6	7906	Dense urban
GP	Sedibeng	DC42	Midvaal LM	74202008	GT422_8	6940	Dense urban
GP	Sedibeng	DC42	Midvaal LM	74202010	GT422_10	3671	Urban
GP	Sedibeng	DC42	Midvaal LM	74202014	GT422_14	631	Towns and semi-dense
GP	West Rand	DC48	Merafong City LM	74804023	GT484_23	7624	Dense urban
GP	West Rand	DC48	Merafong City LM	74804008	GT484_8	7417	Dense urban
GP	West Rand	DC48	Merafong City LM	74804026	GT484_26	7168	Dense urban
GP	West Rand	DC48	Merafong City LM	74804002	GT484_2	6248	Urban
GP	West Rand	DC48	Merafong City LM	74804009	GT484_9	5967	Urban
GP	West Rand	DC48	Merafong City LM	74804025	GT484_25	5384	Urban
GP	West Rand	DC48	Merafong City LM	74804010	GT484_10	5176	Urban
GP	West Rand	DC48	Merafong City LM	74804004	GT484_4	4941	Urban
GP	West Rand	DC48	Merafong City LM	74804006	GT484_6	4520	Urban
GP	West Rand	DC48	Merafong City LM	74804020	GT484_20	3983	Urban
GP	West Rand	DC48	Merafong City LM	74804007	GT484_7	2032	Urban
GP	West Rand	DC48	Merafong City LM	74804016	GT484_16	1752	Urban
GP	West Rand	DC48	Merafong City LM	74804017	GT484_17	1106	Towns and semi-dense
GP	West Rand	DC48	Merafong City LM	74804018	GT484_18	800	Towns and semi-dense
GP	West Rand	DC48	Merafong City LM	74804024	GT484_24	461	Towns and semi-dense
GP	West Rand	DC48	Mogale City LM	74801012	GT481_12	18221	Dense urban
GP	West Rand	DC48	Mogale City LM	74801004	GT481_4	15859	Dense urban
GP	West Rand	DC48	Mogale City LM	74801010	GT481_10	14396	Dense urban
GP	West Rand	DC48	Mogale City LM	74801024	GT481_24	12534	Dense urban
GP	West Rand	DC48	Mogale City LM	74801035	GT481_35	9746	Dense urban
GP	West Rand	DC48	Mogale City LM	74801015	GT481_15	9490	Dense urban
GP	West Rand	DC48	Mogale City LM	74801013	GT481_13	8074	Dense urban
GP	West Rand	DC48	Mogale City LM	74801025	GT481_25	6778	Dense urban
GP	West Rand	DC48	Mogale City LM	74801005	GT481_5	6531	Dense urban

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GP	West Rand	DC48	Mogale City LM	74801011	GT481_11	6289	Urban
GP	West Rand	DC48	Mogale City LM	74801019	GT481_19	5515	Urban
GP	West Rand	DC48	Mogale City LM	74801002	GT481_2	3491	Urban
GP	West Rand	DC48	Mogale City LM	74801003	GT481_3	3462	Urban
GP	West Rand	DC48	Mogale City LM	74801034	GT481_34	3074	Urban
GP	West Rand	DC48	Mogale City LM	74801001	GT481_1	2765	Urban
GP	West Rand	DC48	Mogale City LM	74801007	GT481_7	2655	Urban
GP	West Rand	DC48	Mogale City LM	74801036	GT481_36	2118	Urban
GP	West Rand	DC48	Mogale City LM	74801020	GT481_20	2019	Urban
GP	West Rand	DC48	Mogale City LM	74801027	GT481_27	1321	Towns and semi-dense
GP	West Rand	DC48	Mogale City LM	74801014	GT481_14	1274	Towns and semi-dense
GP	West Rand	DC48	Mogale City LM	74801017	GT481_17	1171	Towns and semi-dense
GP	West Rand	DC48	Mogale City LM	74801009	GT481_9	1140	Towns and semi-dense
GP	West Rand	DC48	Mogale City LM	74801006	GT481_6	1105	Towns and semi-dense
GP	West Rand	DC48	Mogale City LM	74801037	GT481_37	1050	Towns and semi-dense
GP	West Rand	DC48	Mogale City LM	74801016	GT481_16	1048	Towns and semi-dense
GP	West Rand	DC48	Mogale City LM	74801018	GT481_18	1005	Towns and semi-dense
GP	West Rand	DC48	Mogale City LM	74801021	GT481_21	944	Towns and semi-dense
GP	West Rand	DC48	Mogale City LM	74801028	GT481_28	714	Towns and semi-dense
GP	West Rand	DC48	Mogale City LM	74801029	GT481_29	418	Towns and semi-dense
GP	West Rand	DC48	Mogale City LM	74801022	GT481_22	365	Towns and semi-dense
GP	West Rand	DC48	Mogale City LM	74801023	GT481_23	360	Towns and semi-dense
GP	West Rand	DC48	Mogale City LM	74801038	GT481_38	343	Towns and semi-dense
GP	West Rand	DC48	Rand West City LM	74805034	GT485_34	13228	Dense urban
GP	West Rand	DC48	Rand West City LM	74805022	GT485_22	12766	Dense urban
GP	West Rand	DC48	Rand West City LM	74805018	GT485_18	12396	Dense urban
GP	West Rand	DC48	Rand West City LM	74805021	GT485_21	11481	Dense urban
GP	West Rand	DC48	Rand West City LM	74805020	GT485_20	9484	Dense urban

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GP	West Rand	DC48	Rand West City LM	74805010	GT485_10	9105	Dense urban
GP	West Rand	DC48	Rand West City LM	74805031	GT485_31	8864	Dense urban
GP	West Rand	DC48	Rand West City LM	74805016	GT485_16	6601	Dense urban
GP	West Rand	DC48	Rand West City LM	74805015	GT485_15	5778	Urban
GP	West Rand	DC48	Rand West City LM	74805014	GT485_14	4958	Urban
GP	West Rand	DC48	Rand West City LM	74805019	GT485_19	4538	Urban
GP	West Rand	DC48	Rand West City LM	74805013	GT485_13	4087	Urban
GP	West Rand	DC48	Rand West City LM	74805004	GT485_4	3291	Urban
GP	West Rand	DC48	Rand West City LM	74805028	GT485_28	2819	Urban
GP	West Rand	DC48	Rand West City LM	74805027	GT485_27	2729	Urban
GP	West Rand	DC48	Rand West City LM	74805032	GT485_32	2178	Urban
GP	West Rand	DC48	Rand West City LM	74805024	GT485_24	2076	Urban
GP	West Rand	DC48	Rand West City LM	74805006	GT485_6	1881	Urban
GP	West Rand	DC48	Rand West City LM	74805012	GT485_12	1495	Towns and semi-dense
GP	West Rand	DC48	Rand West City LM	74805026	GT485_26	1422	Towns and semi-dense
GP	West Rand	DC48	Rand West City LM	74805007	GT485_7	1383	Towns and semi-dense
GP	West Rand	DC48	Rand West City LM	74805005	GT485_5	1082	Towns and semi-dense
GP	West Rand	DC48	Rand West City LM	74805008	GT485_8	706	Towns and semi-dense
GP	West Rand	DC48	Rand West City LM	74805035	GT485_35	674	Towns and semi-dense
GP	West Rand	DC48	Rand West City LM	74805011	GT485_11	653	Towns and semi-dense
GP	West Rand	DC48	Rand West City LM	74805002	GT485_2	449	Towns and semi-dense
GP	West Rand	DC48	Rand West City LM	74805029	GT485_29	440	Towns and semi-dense
GP	West Rand	DC48	Rand West City LM	74805033	GT485_33	344	Towns and semi-dense
GP	West Rand	DC48	Rand West City LM	74805023	GT485_23	302	Towns and semi-dense

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Figure 4: Geotype Classification of Kwa-Zulu Natal Wards by Population Density

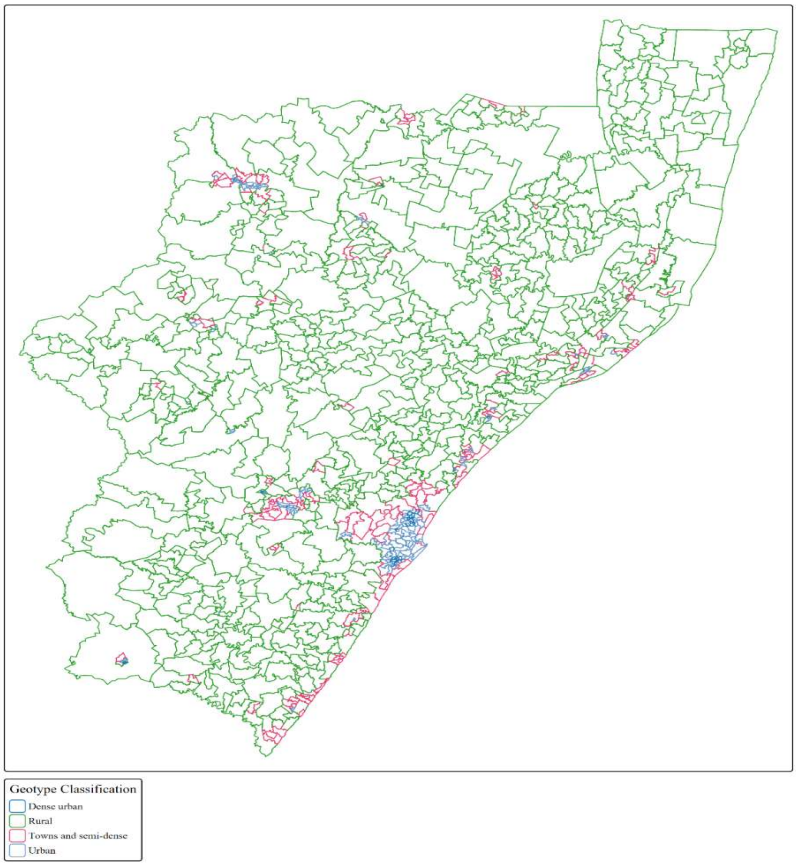


Table 4: IMT Exclusive Zones by Ward for KwaZulu-Natal

Province	District	Municipality	District code	Ward code	Ward label	Population density	Geotype
KZN	Amajuba	Dannhauser LM	DC25	52504011	KZN254_11	363	Towns, semi-dense
KZN	Amajuba	Dannhauser LM	DC25	52504009	KZN254_9	333	Towns, semi-dense
KZN	Amajuba	Newcastle LM	DC25	52502027	KZN252_27	7439	Dense urban
KZN	Amajuba	Newcastle LM	DC25	52502023	KZN252_23	7183	Dense urban
KZN	Amajuba	Newcastle LM	DC25	52502014	KZN252_14	6586	Dense urban
KZN	Amajuba	Newcastle LM	DC25	52502029	KZN252_29	5869	Urban
KZN	Amajuba	Newcastle LM	DC25	52502011	KZN252_11	5668	Urban
KZN	Amajuba	Newcastle LM	DC25	52502013	KZN252_13	5506	Urban
KZN	Amajuba	Newcastle LM	DC25	52502028	KZN252_28	5384	Urban
KZN	Amajuba	Newcastle LM	DC25	52502024	KZN252_24	5174	Urban
KZN	Amajuba	Newcastle LM	DC25	52502017	KZN252_17	5116	Urban
KZN	Amajuba	Newcastle LM	DC25	52502032	KZN252_32	4801	Urban
KZN	Amajuba	Newcastle LM	DC25	52502022	KZN252_22	4798	Urban
KZN	Amajuba	Newcastle LM	DC25	52502008	KZN252_8	4640	Urban
KZN	Amajuba	Newcastle LM	DC25	52502010	KZN252_10	4163	Urban
KZN	Amajuba	Newcastle LM	DC25	52502018	KZN252_18	4073	Urban
KZN	Amajuba	Newcastle LM	DC25	52502019	KZN252_19	4016	Urban
KZN	Amajuba	Newcastle LM	DC25	52502026	KZN252_26	2504	Urban
KZN	Amajuba	Newcastle LM	DC25	52502030	KZN252_30	2113	Urban
KZN	Amajuba	Newcastle LM	DC25	52502016	KZN252_16	2074	Urban
KZN	Amajuba	Newcastle LM	DC25	52502012	KZN252_12	1866	Urban
KZN	Amajuba	Newcastle LM	DC25	52502009	KZN252_9	1810	Urban
KZN	Amajuba	Newcastle LM	DC25	52502004	KZN252_4	1592	Urban
KZN	Amajuba	Newcastle LM	DC25	52502020	KZN252_20	1568	Urban
KZN	Amajuba	Newcastle LM	DC25	52502003	KZN252_3	1352	Towns, semi-dense

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Province	District	Municipality	District code	Ward code	Ward label	Population density	Geotype
KZN	Amajuba	Newcastle LM	DC25	52502025	KZN252_25	1276	Towns, semi-dense
KZN	Amajuba	Newcastle LM	DC25	52502033	KZN252_33	1063	Towns, semi-dense
KZN	Amajuba	Newcastle LM	DC25	52502007	KZN252_7	1014	Towns, semi-dense
KZN	Amajuba	Newcastle LM	DC25	52502015	KZN252_15	939	Towns, semi-dense
KZN	Amajuba	Newcastle LM	DC25	52502005	KZN252_5	893	Towns, semi-dense
KZN	Amajuba	Newcastle LM	DC25	52502002	KZN252_2	801	Towns, semi-dense
KZN	Amajuba	Newcastle LM	DC25	52502006	KZN252_6	779	Towns, semi-dense
KZN	Amajuba	Newcastle LM	DC25	52502031	KZN252_31	419	Towns, semi-dense
KZN	Amajuba	Newcastle LM	DC25	52502034	KZN252_34	398	Towns, semi-dense
KZN	eThekwini	Ethekwini MM	ETH	59500029	ETH_29	17411	Dense urban
KZN	eThekwini	Ethekwini MM	ETH	59500054	ETH_54	11681	Dense urban
KZN	eThekwini	Ethekwini MM	ETH	59500051	ETH_51	10451	Dense urban
KZN	eThekwini	Ethekwini MM	ETH	59500081	ETH_81	10408	Dense urban
KZN	eThekwini	Ethekwini MM	ETH	59500079	ETH_79	10165	Dense urban
KZN	eThekwini	Ethekwini MM	ETH	59500052	ETH_52	9838	Dense urban
KZN	eThekwini	Ethekwini MM	ETH	59500107	ETH_107	9710	Dense urban
KZN	eThekwini	Ethekwini MM	ETH	59500104	ETH_104	9297	Dense urban
KZN	eThekwini	Ethekwini MM	ETH	59500040	ETH_40	9262	Dense urban
KZN	eThekwini	Ethekwini MM	ETH	59500083	ETH_83	9109	Dense urban
KZN	eThekwini	Ethekwini MM	ETH	59500078	ETH_78	8939	Dense urban
KZN	eThekwini	Ethekwini MM	ETH	59500047	ETH_47	8871	Dense urban
KZN	eThekwini	Ethekwini MM	ETH	59500087	ETH_87	8821	Dense urban
KZN	eThekwini	Ethekwini MM	ETH	59500041	ETH_41	8443	Dense urban
KZN	eThekwini	Ethekwini MM	ETH	59500071	ETH_71	7964	Dense urban
KZN	eThekwini	Ethekwini MM	ETH	59500080	ETH_80	7451	Dense urban
KZN	eThekwini	Ethekwini MM	ETH	59500088	ETH_88	7444	Dense urban
KZN	eThekwini	Ethekwini MM	ETH	59500050	ETH_50	7100	Dense urban

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Province	District	Municipality	District code	Ward code	Ward label	Population density	Geotype
KZN	eThekwini	Ethekwini MM	ETH	59500086	ETH_86	6817	Dense urban
KZN	eThekwini	Ethekwini MM	ETH	59500042	ETH_42	6770	Dense urban
KZN	eThekwini	Ethekwini MM	ETH	59500022	ETH_22	6718	Dense urban
KZN	eThekwini	Ethekwini MM	ETH	59500082	ETH_82	6580	Dense urban
KZN	eThekwini	Ethekwini MM	ETH	59500057	ETH_57	6506	Dense urban
KZN	eThekwini	Ethekwini MM	ETH	59500074	ETH_74	6404	Urban
KZN	eThekwini	Ethekwini MM	ETH	59500085	ETH_85	6201	Urban
KZN	eThekwini	Ethekwini MM	ETH	59500045	ETH_45	6175	Urban
KZN	eThekwini	Ethekwini MM	ETH	59500055	ETH_55	5961	Urban
KZN	eThekwini	Ethekwini MM	ETH	59500089	ETH_89	5759	Urban
KZN	eThekwini	Ethekwini MM	ETH	59500043	ETH_43	5396	Urban
KZN	eThekwini	Ethekwini MM	ETH	59500038	ETH_38	5367	Urban
KZN	eThekwini	Ethekwini MM	ETH	59500049	ETH_49	5329	Urban
KZN	eThekwini	Ethekwini MM	ETH	59500039	ETH_39	5205	Urban
KZN	eThekwini	Ethekwini MM	ETH	59500095	ETH_95	5167	Urban
KZN	eThekwini	Ethekwini MM	ETH	59500068	ETH_68	5030	Urban
KZN	eThekwini	Ethekwini MM	ETH	59500053	ETH_53	4763	Urban
KZN	eThekwini	Ethekwini MM	ETH	59500076	ETH_76	4729	Urban
KZN	eThekwini	Ethekwini MM	ETH	59500031	ETH_31	4536	Urban
KZN	eThekwini	Ethekwini MM	ETH	59500014	ETH_14	4448	Urban
KZN	eThekwini	Ethekwini MM	ETH	59500077	ETH_77	4126	Urban
KZN	eThekwini	Ethekwini MM	ETH	59500046	ETH_46	4074	Urban
KZN	eThekwini	Ethekwini MM	ETH	59500101	ETH_101	3966	Urban
KZN	eThekwini	Ethekwini MM	ETH	59500056	ETH_56	3700	Urban
KZN	eThekwini	Ethekwini MM	ETH	59500011	ETH_11	3650	Urban
KZN	eThekwini	Ethekwini MM	ETH	59500020	ETH_20	3518	Urban
KZN	eThekwini	Ethekwini MM	ETH	59500070	ETH_70	3516	Urban

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Province	District	Municipality	District code	Ward code	Ward label	Population density	Geotype
KZN	eThekwini	Ethekwini MM	ETH	59500069	ETH_69	3462	Urban
KZN	eThekwini	Ethekwini MM	ETH	59500048	ETH_48	3216	Urban
KZN	eThekwini	Ethekwini MM	ETH	59500019	ETH_19	3164	Urban
KZN	eThekwini	Ethekwini MM	ETH	59500033	ETH_33	3114	Urban
KZN	eThekwini	Ethekwini MM	ETH	59500012	ETH_12	3111	Urban
KZN	eThekwini	Ethekwini MM	ETH	59500111	ETH_111	3060	Urban
KZN	eThekwini	Ethekwini MM	ETH	59500025	ETH_25	3046	Urban
KZN	eThekwini	Ethekwini MM	ETH	59500094	ETH_94	3034	Urban
KZN	eThekwini	Ethekwini MM	ETH	59500037	ETH_37	2897	Urban
KZN	eThekwini	Ethekwini MM	ETH	59500106	ETH_106	2895	Urban
KZN	eThekwini	Ethekwini MM	ETH	59500073	ETH_73	2871	Urban
KZN	eThekwini	Ethekwini MM	ETH	59500026	ETH_26	2854	Urban
KZN	eThekwini	Ethekwini MM	ETH	59500028	ETH_28	2719	Urban
KZN	eThekwini	Ethekwini MM	ETH	59500017	ETH_17	2715	Urban
KZN	eThekwini	Ethekwini MM	ETH	59500091	ETH_91	2565	Urban
KZN	eThekwini	Ethekwini MM	ETH	59500075	ETH_75	2471	Urban
KZN	eThekwini	Ethekwini MM	ETH	59500084	ETH_84	2447	Urban
KZN	eThekwini	Ethekwini MM	ETH	59500072	ETH_72	2325	Urban
KZN	eThekwini	Ethekwini MM	ETH	59500013	ETH_13	2300	Urban
KZN	eThekwini	Ethekwini MM	ETH	59500027	ETH_27	2266	Urban
KZN	eThekwini	Ethekwini MM	ETH	59500006	ETH_6	2239	Urban
KZN	eThekwini	Ethekwini MM	ETH	59500021	ETH_21	2113	Urban
KZN	eThekwini	Ethekwini MM	ETH	59500030	ETH_30	2059	Urban
KZN	eThekwini	Ethekwini MM	ETH	59500065	ETH_65	2057	Urban
KZN	eThekwini	Ethekwini MM	ETH	59500110	ETH_110	1994	Urban
KZN	eThekwini	Ethekwini MM	ETH	59500066	ETH_66	1901	Urban
KZN	eThekwini	Ethekwini MM	ETH	59500023	ETH_23	1896	Urban

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Province	District	Municipality	District code	Ward code	Ward label	Population density	Geotype
KZN	eThekwini	Ethekwini MM	ETH	59500016	ETH_16	1765	Urban
KZN	eThekwini	Ethekwini MM	ETH	59500064	ETH_64	1753	Urban
KZN	eThekwini	Ethekwini MM	ETH	59500092	ETH_92	1605	Urban
KZN	eThekwini	Ethekwini MM	ETH	59500067	ETH_67	1599	Urban
KZN	eThekwini	Ethekwini MM	ETH	59500034	ETH_34	1585	Urban
KZN	eThekwini	Ethekwini MM	ETH	59500044	ETH_44	1546	Urban
KZN	eThekwini	Ethekwini MM	ETH	59500024	ETH_24	1527	Urban
KZN	eThekwini	Ethekwini MM	ETH	59500063	ETH_63	1524	Urban
KZN	eThekwini	Ethekwini MM	ETH	59500015	ETH_15	1484	Towns, semi-dense
KZN	eThekwini	Ethekwini MM	ETH	59500093	ETH_93	1460	Towns, semi-dense
KZN	eThekwini	Ethekwini MM	ETH	59500036	ETH_36	1433	Towns, semi-dense
KZN	eThekwini	Ethekwini MM	ETH	59500109	ETH_109	1398	Towns, semi-dense
KZN	eThekwini	Ethekwini MM	ETH	59500097	ETH_97	1234	Towns, semi-dense
KZN	eThekwini	Ethekwini MM	ETH	59500090	ETH_90	1225	Towns, semi-dense
KZN	eThekwini	Ethekwini MM	ETH	59500059	ETH_59	1156	Towns, semi-dense
KZN	eThekwini	Ethekwini MM	ETH	59500061	ETH_61	964	Towns, semi-dense
KZN	eThekwini	Ethekwini MM	ETH	59500018	ETH_18	916	Towns, semi-dense
KZN	eThekwini	Ethekwini MM	ETH	59500108	ETH_108	907	Towns, semi-dense
KZN	eThekwini	Ethekwini MM	ETH	59500060	ETH_60	813	Towns, semi-dense
KZN	eThekwini	Ethekwini MM	ETH	59500062	ETH_62	788	Towns, semi-dense
KZN	eThekwini	Ethekwini MM	ETH	59500102	ETH_102	787	Towns, semi-dense
KZN	eThekwini	Ethekwini MM	ETH	59500009	ETH_9	665	Towns, semi-dense
KZN	eThekwini	Ethekwini MM	ETH	59500035	ETH_35	652	Towns, semi-dense
KZN	eThekwini	Ethekwini MM	ETH	59500004	ETH_4	590	Towns, semi-dense
KZN	eThekwini	Ethekwini MM	ETH	59500005	ETH_5	558	Towns, semi-dense
KZN	eThekwini	Ethekwini MM	ETH	59500098	ETH_98	544	Towns, semi-dense
KZN	eThekwini	Ethekwini MM	ETH	59500010	ETH_10	478	Towns, semi-dense

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Province	District	Municipality	District code	Ward code	Ward label	Population density	Geotype
KZN	eThekwini	Ethekwini MM	ETH	59500008	ETH_8	467	Towns, semi-dense
KZN	eThekwini	Ethekwini MM	ETH	59500007	ETH_7	450	Towns, semi-dense
KZN	eThekwini	Ethekwini MM	ETH	59500096	ETH_96	426	Towns, semi-dense
KZN	eThekwini	Ethekwini MM	ETH	59500032	ETH_32	418	Towns, semi-dense
KZN	eThekwini	Ethekwini MM	ETH	59500099	ETH_99	371	Towns, semi-dense
KZN	eThekwini	Ethekwini MM	ETH	59500003	ETH_3	364	Towns, semi-dense
KZN	eThekwini	Ethekwini MM	ETH	59500001	ETH_1	352	Towns, semi-dense
KZN	eThekwini	Ethekwini MM	ETH	59500103	ETH_103	311	Towns, semi-dense
KZN	Harry Gwala	Dr Nkosazana Dlamini Zuma LM	DC43	54306009	KZN436_9	317	Towns, semi-dense
KZN	Harry Gwala	Greater Kokstad LM	DC43	54303001	KZN433_1	11803	Dense urban
KZN	Harry Gwala	Greater Kokstad LM	DC43	54303008	KZN433_8	10535	Dense urban
KZN	Harry Gwala	Greater Kokstad LM	DC43	54303009	KZN433_9	6649	Dense urban
KZN	Harry Gwala	Greater Kokstad LM	DC43	54303004	KZN433_4	4920	Urban
KZN	Harry Gwala	Greater Kokstad LM	DC43	54303005	KZN433_5	4118	Urban
KZN	Harry Gwala	Greater Kokstad LM	DC43	54303010	KZN433_10	3589	Urban
KZN	Harry Gwala	Greater Kokstad LM	DC43	54303007	KZN433_7	424	Towns, semi-dense
KZN	Harry Gwala	Greater Kokstad LM	DC43	54303003	KZN433_3	323	Towns, semi-dense
KZN	Harry Gwala	Ubuhlebezwe LM	DC43	54304006	KZN434_6	382	Towns, semi-dense
KZN	Harry Gwala	Ubuhlebezwe LM	DC43	54304007	KZN434_7	356	Towns, semi-dense
KZN	Harry Gwala	Umzimkhulu LM	DC43	54305016	KZN435_16	1680	Urban
KZN	iLembe	KwaDukuza LM	DC29	52902008	KZN292_8	12492	Dense urban
KZN	iLembe	KwaDukuza LM	DC29	52902023	KZN292_23	11681	Dense urban
KZN	iLembe	KwaDukuza LM	DC29	52902018	KZN292_18	4920	Urban
KZN	iLembe	KwaDukuza LM	DC29	52902013	KZN292_13	4205	Urban
KZN	iLembe	KwaDukuza LM	DC29	52902014	KZN292_14	4113	Urban
KZN	iLembe	KwaDukuza LM	DC29	52902005	KZN292_5	3380	Urban
KZN	iLembe	KwaDukuza LM	DC29	52902028	KZN292_28	2968	Urban

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Province	District	Municipality	District code	Ward code	Ward label	Population density	Geotype
KZN	iLembe	KwaDukuza LM	DC29	52902024	KZN292_24	2600	Urban
KZN	iLembe	KwaDukuza LM	DC29	52902016	KZN292_16	2489	Urban
KZN	iLembe	KwaDukuza LM	DC29	52902004	KZN292_4	2150	Urban
KZN	iLembe	KwaDukuza LM	DC29	52902029	KZN292_29	1931	Urban
KZN	iLembe	KwaDukuza LM	DC29	52902002	KZN292_2	1407	Towns, semi-dense
KZN	iLembe	KwaDukuza LM	DC29	52902015	KZN292_15	1328	Towns, semi-dense
KZN	iLembe	KwaDukuza LM	DC29	52902006	KZN292_6	1328	Towns, semi-dense
KZN	iLembe	KwaDukuza LM	DC29	52902010	KZN292_10	1327	Towns, semi-dense
KZN	iLembe	KwaDukuza LM	DC29	52902026	KZN292_26	1061	Towns, semi-dense
KZN	iLembe	KwaDukuza LM	DC29	52902007	KZN292_7	1054	Towns, semi-dense
KZN	iLembe	KwaDukuza LM	DC29	52902019	KZN292_19	822	Towns, semi-dense
KZN	iLembe	KwaDukuza LM	DC29	52902017	KZN292_17	539	Towns, semi-dense
KZN	iLembe	KwaDukuza LM	DC29	52902022	KZN292_22	407	Towns, semi-dense
KZN	iLembe	KwaDukuza LM	DC29	52902020	KZN292_20	338	Towns, semi-dense
KZN	iLembe	KwaDukuza LM	DC29	52902011	KZN292_11	313	Towns, semi-dense
KZN	iLembe	Mandeni LM	DC29	52901014	KZN291_14	7576	Dense urban
KZN	iLembe	Mandeni LM	DC29	52901013	KZN291_13	5871	Urban
KZN	iLembe	Mandeni LM	DC29	52901015	KZN291_15	4461	Urban
KZN	iLembe	Mandeni LM	DC29	52901007	KZN291_7	3253	Urban
KZN	iLembe	Mandeni LM	DC29	52901018	KZN291_18	2026	Urban
KZN	iLembe	Mandeni LM	DC29	52901012	KZN291_12	1127	Towns, semi-dense
KZN	iLembe	Mandeni LM	DC29	52901017	KZN291_17	842	Towns, semi-dense
KZN	iLembe	Mandeni LM	DC29	52901010	KZN291_10	545	Towns, semi-dense
KZN	iLembe	Mandeni LM	DC29	52901011	KZN291_11	301	Towns, semi-dense
KZN	iLembe	Ndwedwe LM	DC29	52903012	KZN293_12	547	Towns, semi-dense
KZN	iLembe	Ndwedwe LM	DC29	52903014	KZN293_14	472	Towns, semi-dense
KZN	iLembe	Ndwedwe LM	DC29	52903013	KZN293_13	358	Towns, semi-dense

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Province	District	Municipality	District code	Ward code	Ward label	Population density	Geotype
KZN	iLembe	Ndwedwe LM	DC29	52903015	KZN293_15	310	Towns, semi-dense
KZN	King Cetshwayo	Mfolozi LM	DC28	52801006	KZN281_6	2369	Urban
KZN	King Cetshwayo	Mfolozi LM	DC28	52801014	KZN281_14	1143	Towns, semi-dense
KZN	King Cetshwayo	Mfolozi LM	DC28	52801016	KZN281_16	1003	Towns, semi-dense
KZN	King Cetshwayo	Mfolozi LM	DC28	52801005	KZN281_5	741	Towns, semi-dense
KZN	King Cetshwayo	uMhlathuze LM	DC28	52802007	KZN282_7	6174	Urban
KZN	King Cetshwayo	uMhlathuze LM	DC28	52802021	KZN282_21	3877	Urban
KZN	King Cetshwayo	uMhlathuze LM	DC28	52802008	KZN282_8	3838	Urban
KZN	King Cetshwayo	uMhlathuze LM	DC28	52802016	KZN282_16	3626	Urban
KZN	King Cetshwayo	uMhlathuze LM	DC28	52802020	KZN282_20	3138	Urban
KZN	King Cetshwayo	uMhlathuze LM	DC28	52802014	KZN282_14	2911	Urban
KZN	King Cetshwayo	uMhlathuze LM	DC28	52802017	KZN282_17	2904	Urban
KZN	King Cetshwayo	uMhlathuze LM	DC28	52802003	KZN282_3	2805	Urban
KZN	King Cetshwayo	uMhlathuze LM	DC28	52802028	KZN282_28	2208	Urban
KZN	King Cetshwayo	uMhlathuze LM	DC28	52802009	KZN282_9	1987	Urban
KZN	King Cetshwayo	uMhlathuze LM	DC28	52802022	KZN282_22	1466	Towns, semi-dense
KZN	King Cetshwayo	uMhlathuze LM	DC28	52802004	KZN282_4	1170	Towns, semi-dense
KZN	King Cetshwayo	uMhlathuze LM	DC28	52802015	KZN282_15	1144	Towns, semi-dense
KZN	King Cetshwayo	uMhlathuze LM	DC28	52802027	KZN282_27	907	Towns, semi-dense
KZN	King Cetshwayo	uMhlathuze LM	DC28	52802006	KZN282_6	767	Towns, semi-dense
KZN	King Cetshwayo	uMhlathuze LM	DC28	52802030	KZN282_30	665	Towns, semi-dense
KZN	King Cetshwayo	uMhlathuze LM	DC28	52802029	KZN282_29	660	Towns, semi-dense
KZN	King Cetshwayo	uMhlathuze LM	DC28	52802023	KZN282_23	587	Towns, semi-dense
KZN	King Cetshwayo	uMhlathuze LM	DC28	52802010	KZN282_10	531	Towns, semi-dense
KZN	King Cetshwayo	uMhlathuze LM	DC28	52802024	KZN282_24	432	Towns, semi-dense
KZN	King Cetshwayo	uMhlathuze LM	DC28	52802001	KZN282_1	399	Towns, semi-dense
KZN	King Cetshwayo	uMhlathuze LM	DC28	52802018	KZN282_18	355	Towns, semi-dense

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Province	District	Municipality	District code	Ward code	Ward label	Population density	Geotype
KZN	iLembe	Ndwedwe LM	DC29	52903015	KZN293_15	310	Towns, semi-dense
KZN	King Cetshwayo	Mfolozi LM	DC28	52801006	KZN281_6	2369	Urban
KZN	King Cetshwayo	Mfolozi LM	DC28	52801014	KZN281_14	1143	Towns, semi-dense
KZN	King Cetshwayo	Mfolozi LM	DC28	52801016	KZN281_16	1003	Towns, semi-dense
KZN	King Cetshwayo	Mfolozi LM	DC28	52801005	KZN281_5	741	Towns, semi-dense
KZN	King Cetshwayo	uMhlathuze LM	DC28	52802007	KZN282_7	6174	Urban
KZN	King Cetshwayo	uMhlathuze LM	DC28	52802021	KZN282_21	3877	Urban
KZN	King Cetshwayo	uMhlathuze LM	DC28	52802008	KZN282_8	3838	Urban
KZN	King Cetshwayo	uMhlathuze LM	DC28	52802016	KZN282_16	3626	Urban
KZN	King Cetshwayo	uMhlathuze LM	DC28	52802020	KZN282_20	3138	Urban
KZN	King Cetshwayo	uMhlathuze LM	DC28	52802014	KZN282_14	2911	Urban
KZN	King Cetshwayo	uMhlathuze LM	DC28	52802017	KZN282_17	2904	Urban
KZN	King Cetshwayo	uMhlathuze LM	DC28	52802003	KZN282_3	2805	Urban
KZN	King Cetshwayo	uMhlathuze LM	DC28	52802028	KZN282_28	2208	Urban
KZN	King Cetshwayo	uMhlathuze LM	DC28	52802009	KZN282_9	1987	Urban
KZN	King Cetshwayo	uMhlathuze LM	DC28	52802022	KZN282_22	1466	Towns, semi-dense
KZN	King Cetshwayo	uMhlathuze LM	DC28	52802004	KZN282_4	1170	Towns, semi-dense
KZN	King Cetshwayo	uMhlathuze LM	DC28	52802015	KZN282_15	1144	Towns, semi-dense
KZN	King Cetshwayo	uMhlathuze LM	DC28	52802027	KZN282_27	907	Towns, semi-dense
KZN	King Cetshwayo	uMhlathuze LM	DC28	52802006	KZN282_6	767	Towns, semi-dense
KZN	King Cetshwayo	uMhlathuze LM	DC28	52802030	KZN282_30	665	Towns, semi-dense
KZN	King Cetshwayo	uMhlathuze LM	DC28	52802029	KZN282_29	660	Towns, semi-dense
KZN	King Cetshwayo	uMhlathuze LM	DC28	52802023	KZN282_23	587	Towns, semi-dense
KZN	King Cetshwayo	uMhlathuze LM	DC28	52802010	KZN282_10	531	Towns, semi-dense
KZN	King Cetshwayo	uMhlathuze LM	DC28	52802024	KZN282_24	432	Towns, semi-dense
KZN	King Cetshwayo	uMhlathuze LM	DC28	52802001	KZN282_1	399	Towns, semi-dense
KZN	King Cetshwayo	uMhlathuze LM	DC28	52802018	KZN282_18	355	Towns, semi-dense

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Province	District	Municipality	District code	Ward code	Ward label	Population density	Geotype
KZN	King Cetshwayo	uMhlathuze LM	DC28	52802012	KZN282_12	309	Towns, semi-dense
KZN	King Cetshwayo	uMlalazi LM	DC28	52804012	KZN284_12	3111	Urban
KZN	King Cetshwayo	uMlalazi LM	DC28	52804011	KZN284_11	436	Towns, semi-dense
KZN	King Cetshwayo	uMlalazi LM	DC28	52804024	KZN284_24	316	Towns, semi-dense
KZN	Ugu	Ray Nkonyeni LM	DC21	52106005	KZN216_5	3382	Urban
KZN	Ugu	Ray Nkonyeni LM	DC21	52106028	KZN216_28	2902	Urban
KZN	Ugu	Ray Nkonyeni LM	DC21	52106017	KZN216_17	2282	Urban
KZN	Ugu	Ray Nkonyeni LM	DC21	52106023	KZN216_23	1349	Towns, semi-dense
KZN	Ugu	Ray Nkonyeni LM	DC21	52106026	KZN216_26	1176	Towns, semi-dense
KZN	Ugu	Ray Nkonyeni LM	DC21	52106021	KZN216_21	1071	Towns, semi-dense
KZN	Ugu	Ray Nkonyeni LM	DC21	52106024	KZN216_24	875	Towns, semi-dense
KZN	Ugu	Ray Nkonyeni LM	DC21	52106004	KZN216_4	603	Towns, semi-dense
KZN	Ugu	Ray Nkonyeni LM	DC21	52106018	KZN216_18	564	Towns, semi-dense
KZN	Ugu	Ray Nkonyeni LM	DC21	52106019	KZN216_19	561	Towns, semi-dense
KZN	Ugu	Ray Nkonyeni LM	DC21	52106027	KZN216_27	559	Towns, semi-dense
KZN	Ugu	Ray Nkonyeni LM	DC21	52106031	KZN216_31	532	Towns, semi-dense
KZN	Ugu	Ray Nkonyeni LM	DC21	52106020	KZN216_20	435	Towns, semi-dense
KZN	Ugu	Ray Nkonyeni LM	DC21	52106010	KZN216_10	432	Towns, semi-dense
KZN	Ugu	Ray Nkonyeni LM	DC21	52106012	KZN216_12	431	Towns, semi-dense
KZN	Ugu	Ray Nkonyeni LM	DC21	52106025	KZN216_25	386	Towns, semi-dense
KZN	Ugu	Ray Nkonyeni LM	DC21	52106009	KZN216_9	378	Towns, semi-dense
KZN	Ugu	Ray Nkonyeni LM	DC21	52106016	KZN216_16	368	Towns, semi-dense
KZN	Ugu	Ray Nkonyeni LM	DC21	52106033	KZN216_33	344	Towns, semi-dense
KZN	Ugu	Ray Nkonyeni LM	DC21	52106011	KZN216_11	341	Towns, semi-dense
KZN	Ugu	Ray Nkonyeni LM	DC21	52106007	KZN216_7	308	Towns, semi-dense
KZN	Ugu	Umdoni LM	DC21	52102013	KZN212_13	5312	Urban
KZN	Ugu	Umdoni LM	DC21	52102017	KZN212_17	699	Towns, semi-dense

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Province	District	Municipality	District code	Ward code	Ward label	Population density	Geotype
KZN	Ugu	Umdoni LM	DC21	52102008	KZN212_8	675	Towns, semi-dense
KZN	Ugu	Umdoni LM	DC21	52102014	KZN212_14	644	Towns, semi-dense
KZN	Ugu	Umdoni LM	DC21	52102009	KZN212_9	625	Towns, semi-dense
KZN	Ugu	Umdoni LM	DC21	52102016	KZN212_16	577	Towns, semi-dense
KZN	Ugu	Umdoni LM	DC21	52102012	KZN212_12	329	Towns, semi-dense
KZN	Ugu	UMuziwabantu LM	DC21	52104008	KZN214_8	422	Towns, semi-dense
KZN	Ugu	Umzumbe LM	DC21	52103010	KZN213_10	1391	Towns, semi-dense
KZN	Ugu	Umzumbe LM	DC21	52103017	KZN213_17	1218	Towns, semi-dense
KZN	Ugu	Umzumbe LM	DC21	52103019	KZN213_19	1148	Towns, semi-dense
KZN	Ugu	Umzumbe LM	DC21	52103018	KZN213_18	732	Towns, semi-dense
KZN	Ugu	Umzumbe LM	DC21	52103020	KZN213_20	652	Towns, semi-dense
KZN	Ugu	Umzumbe LM	DC21	52103011	KZN213_11	366	Towns, semi-dense
KZN	Umgungundlovu	Mkhambathini LM	DC22	52206001	KZN226_1	465	Towns, semi-dense
KZN	Umgungundlovu	Mpofana LM	DC22	52203003	KZN223_3	5021	Urban
KZN	Umgungundlovu	Mpofana LM	DC22	52203005	KZN223_5	2649	Urban
KZN	Umgungundlovu	Richmond LM	DC22	52207002	KZN227_2	1268	Towns, semi-dense
KZN	Umgungundlovu	Richmond LM	DC22	52207007	KZN227_7	1155	Towns, semi-dense
KZN	Umgungundlovu	Richmond LM	DC22	52207001	KZN227_1	363	Towns, semi-dense
KZN	Umgungundlovu	The Msunduzi LM	DC22	52205021	KZN225_21	6761	Dense urban
KZN	Umgungundlovu	The Msunduzi LM	DC22	52205029	KZN225_29	6483	Urban
KZN	Umgungundlovu	The Msunduzi LM	DC22	52205019	KZN225_19	5326	Urban
KZN	Umgungundlovu	The Msunduzi LM	DC22	52205016	KZN225_16	5319	Urban
KZN	Umgungundlovu	The Msunduzi LM	DC22	52205031	KZN225_31	5207	Urban
KZN	Umgungundlovu	The Msunduzi LM	DC22	52205013	KZN225_13	4769	Urban
KZN	Umgungundlovu	The Msunduzi LM	DC22	52205022	KZN225_22	4539	Urban
KZN	Umgungundlovu	The Msunduzi LM	DC22	52205028	KZN225_28	4503	Urban
KZN	Umgungundlovu	The Msunduzi LM	DC22	52205041	KZN225_41	4414	Urban

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Province	District	Municipality	District code	Ward code	Ward label	Population density	Geotype
KZN	Umgungundlovu	The Msunduzi LM	DC22	52205015	KZN225_15	4317	Urban
KZN	Umgungundlovu	The Msunduzi LM	DC22	52205017	KZN225_17	3979	Urban
KZN	Umgungundlovu	The Msunduzi LM	DC22	52205010	KZN225_10	3759	Urban
KZN	Umgungundlovu	The Msunduzi LM	DC22	52205030	KZN225_30	2715	Urban
KZN	Umgungundlovu	The Msunduzi LM	DC22	52205032	KZN225_32	2404	Urban
KZN	Umgungundlovu	The Msunduzi LM	DC22	52205034	KZN225_34	2249	Urban
KZN	Umgungundlovu	The Msunduzi LM	DC22	52205023	KZN225_23	2233	Urban
KZN	Umgungundlovu	The Msunduzi LM	DC22	52205020	KZN225_20	1995	Urban
KZN	Umgungundlovu	The Msunduzi LM	DC22	52205012	KZN225_12	1970	Urban
KZN	Umgungundlovu	The Msunduzi LM	DC22	52205033	KZN225_33	1719	Urban
KZN	Umgungundlovu	The Msunduzi LM	DC22	52205027	KZN225_27	1474	Towns, semi-dense
KZN	Umgungundlovu	The Msunduzi LM	DC22	52205001	KZN225_1	1332	Towns, semi-dense
KZN	Umgungundlovu	The Msunduzi LM	DC22	52205024	KZN225_24	1182	Towns, semi-dense
KZN	Umgungundlovu	The Msunduzi LM	DC22	52205014	KZN225_14	1173	Towns, semi-dense
KZN	Umgungundlovu	The Msunduzi LM	DC22	52205035	KZN225_35	1029	Towns, semi-dense
KZN	Umgungundlovu	The Msunduzi LM	DC22	52205036	KZN225_36	996	Towns, semi-dense
KZN	Umgungundlovu	The Msunduzi LM	DC22	52205002	KZN225_2	914	Towns, semi-dense
KZN	Umgungundlovu	The Msunduzi LM	DC22	52205011	KZN225_11	785	Towns, semi-dense
KZN	Umgungundlovu	The Msunduzi LM	DC22	52205038	KZN225_38	772	Towns, semi-dense
KZN	Umgungundlovu	The Msunduzi LM	DC22	52205006	KZN225_6	662	Towns, semi-dense
KZN	Umgungundlovu	The Msunduzi LM	DC22	52205040	KZN225_40	648	Towns, semi-dense
KZN	Umgungundlovu	The Msunduzi LM	DC22	52205026	KZN225_26	629	Towns, semi-dense
KZN	Umgungundlovu	The Msunduzi LM	DC22	52205008	KZN225_8	609	Towns, semi-dense
KZN	Umgungundlovu	The Msunduzi LM	DC22	52205004	KZN225_4	525	Towns, semi-dense
KZN	Umgungundlovu	The Msunduzi LM	DC22	52205025	KZN225_25	513	Towns, semi-dense
KZN	Umgungundlovu	The Msunduzi LM	DC22	52205007	KZN225_7	502	Towns, semi-dense
KZN	Umgungundlovu	The Msunduzi LM	DC22	52205005	KZN225_5	500	Towns, semi-dense

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KZN	Umgungundlovu	The Msunduzi LM	DC22	52205003	KZN225_3	436	Towns, semi-dense
KZN	Umgungundlovu	uMngeni LM	DC22	52202011	KZN222_11	8165	Dense urban
KZN	Umgungundlovu	uMngeni LM	DC22	52202013	KZN222_13	5871	Urban
KZN	Umgungundlovu	uMngeni LM	DC22	52202010	KZN222_10	3441	Urban
KZN	Umgungundlovu	uMngeni LM	DC22	52202001	KZN222_1	1666	Urban
KZN	Umgungundlovu	uMngeni LM	DC22	52202012	KZN222_12	1451	Towns, semi-dense
KZN	Umgungundlovu	uMngeni LM	DC22	52202002	KZN222_2	650	Towns, semi-dense
KZN	Umgungundlovu	uMshwathi LM	DC22	52201005	KZN221_5	401	Towns, semi-dense
KZN	Umgungundlovu	uMshwathi LM	DC22	52201010	KZN221_10	376	Towns, semi-dense
KZN	Umkhanyakude	Big Five Hlabisa LM	DC27	52706012	KZN276_12	358	Towns, semi-dense
KZN	Umkhanyakude	Mtubatuba LM	DC27	52705006	KZN275_6	2265	Urban
KZN	Umkhanyakude	Mtubatuba LM	DC27	52705005	KZN275_5	1444	Towns, semi-dense
KZN	Umkhanyakude	Mtubatuba LM	DC27	52705007	KZN275_7	1313	Towns, semi-dense
KZN	Umkhanyakude	Mtubatuba LM	DC27	52705011	KZN275_11	774	Towns, semi-dense
KZN	Umkhanyakude	Mtubatuba LM	DC27	52705002	KZN275_2	443	Towns, semi-dense
KZN	Umkhanyakude	Mtubatuba LM	DC27	52705021	KZN275_21	438	Towns, semi-dense
KZN	Umkhanyakude	Mtubatuba LM	DC27	52705012	KZN275_12	311	Towns, semi-dense
KZN	Umkhanyakude	Mtubatuba LM	DC27	52705019	KZN275_19	311	Towns, semi-dense
KZN	Umkhanyakude	Umhlabuyalingana LM	DC27	52701001	KZN271_1	627	Towns, semi-dense
KZN	Umzinyathi	Endumeni LM	DC24	52401003	KZN241_3	4656	Urban
KZN	Umzinyathi	Endumeni LM	DC24	52401004	KZN241_4	2647	Urban
KZN	Umzinyathi	Endumeni LM	DC24	52401002	KZN241_2	492	Towns, semi-dense
KZN	Umzinyathi	Nqutu LM	DC24	52402009	KZN242_9	522	Towns, semi-dense
KZN	Umzinyathi	Nqutu LM	DC24	52402006	KZN242_6	460	Towns, semi-dense
KZN	Umzinyathi	Nqutu LM	DC24	52402017	KZN242_17	325	Towns, semi-dense
KZN	Umzinyathi	Umvoti LM	DC24	52405007	KZN245_7	577	Towns, semi-dense
KZN	Umzinyathi	Umvoti LM	DC24	52405009	KZN245_9	383	Towns, semi-dense

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Province	District	Municipality	District code	Ward code	Ward label	Population density	Geotype
KZN	Uthukela	Alfred Duma LM	DC23	52308005	KZN238_5	3096	Urban
KZN	Uthukela	Alfred Duma LM	DC23	52308002	KZN238_2	2854	Urban
KZN	Uthukela	Alfred Duma LM	DC23	52308001	KZN238_1	2426	Urban
KZN	Uthukela	Alfred Duma LM	DC23	52308003	KZN238_3	2284	Urban
KZN	Uthukela	Alfred Duma LM	DC23	52308020	KZN238_20	1970	Urban
KZN	Uthukela	Alfred Duma LM	DC23	52308009	KZN238_9	1682	Urban
KZN	Uthukela	Alfred Duma LM	DC23	52308033	KZN238_33	1498	Towns, semi-dense
KZN	Uthukela	Alfred Duma LM	DC23	52308012	KZN238_12	1142	Towns, semi-dense
KZN	Uthukela	Alfred Duma LM	DC23	52308021	KZN238_21	1054	Towns, semi-dense
KZN	Uthukela	Alfred Duma LM	DC23	52308010	KZN238_10	844	Towns, semi-dense
KZN	Uthukela	Alfred Duma LM	DC23	52308015	KZN238_15	711	Towns, semi-dense
KZN	Uthukela	Alfred Duma LM	DC23	52308016	KZN238_16	508	Towns, semi-dense
KZN	Uthukela	Alfred Duma LM	DC23	52308035	KZN238_35	436	Towns, semi-dense
KZN	Uthukela	Alfred Duma LM	DC23	52308027	KZN238_27	417	Towns, semi-dense
KZN	Uthukela	Alfred Duma LM	DC23	52308034	KZN238_34	319	Towns, semi-dense
KZN	Uthukela	Alfred Duma LM	DC23	52308023	KZN238_23	301	Towns, semi-dense
KZN	Uthukela	Inkosi Langalibalele LM	DC23	52307009	KZN237_9	2821	Urban
KZN	Uthukela	Inkosi Langalibalele LM	DC23	52307008	KZN237_8	1590	Urban
KZN	Uthukela	Inkosi Langalibalele LM	DC23	52307010	KZN237_10	730	Towns, semi-dense
KZN	Uthukela	Inkosi Langalibalele LM	DC23	52307004	KZN237_4	524	Towns, semi-dense
KZN	Uthukela	Inkosi Langalibalele LM	DC23	52307005	KZN237_5	411	Towns, semi-dense
KZN	Zululand	Abaqulusi LM	DC26	52603011	KZN263_11	7899	Dense urban
KZN	Zululand	Abaqulusi LM	DC26	52603020	KZN263_20	2167	Urban
KZN	Zululand	Abaqulusi LM	DC26	52603018	KZN263_18	1751	Urban
KZN	Zululand	Abaqulusi LM	DC26	52603019	KZN263_19	804	Towns, semi-dense
KZN	Zululand	Abaqulusi LM	DC26	52603016	KZN263_16	755	Towns, semi-dense
KZN	Zululand	Abaqulusi LM	DC26	52603010	KZN263_10	702	Towns, semi-dense

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KZN	Zululand	Abaqulusi LM	DC26	52603008	KZN263_8	349	Towns, semi-dense
KZN	Zululand	eDumbe LM	DC26	52601003	KZN261_3	2504	Urban
KZN	Zululand	eDumbe LM	DC26	52601004	KZN261_4	805	Towns, semi-dense
KZN	Zululand	eDumbe LM	DC26	52601010	KZN261_10	438	Towns, semi-dense
KZN	Zululand	eDumbe LM	DC26	52601002	KZN261_2	305	Towns, semi-dense
KZN	Zululand	Nongoma LM	DC26	52605019	KZN265_19	417	Towns, semi-dense
KZN	Zululand	Ulundi LM	DC26	52606012	KZN266_12	954	Towns, semi-dense
KZN	Zululand	Ulundi LM	DC26	52606022	KZN266_22	849	Towns, semi-dense
KZN	Zululand	Ulundi LM	DC26	52606019	KZN266_19	733	Towns, semi-dense
KZN	Zululand	Ulundi LM	DC26	52606018	KZN266_18	631	Towns, semi-dense
KZN	Zululand	UPhongolo LM	DC26	52602010	KZN262_10	1079	Towns, semi-dense
KZN	Zululand	UPhongolo LM	DC26	52602002	KZN262_2	1060	Towns, semi-dense
KZN	Zululand	UPhongolo LM	DC26	52602009	KZN262_9	442	Towns, semi-dense
KZN	Zululand	UPhongolo LM	DC26	52602007	KZN262_7	363	Towns, semi-dense
KZN	Zululand	UPhongolo LM	DC26	52602004	KZN262_4	322	Towns, semi-dense

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6 Limpopo

Figure 5: Geotype Classification of Limpopo Wards by Population Density

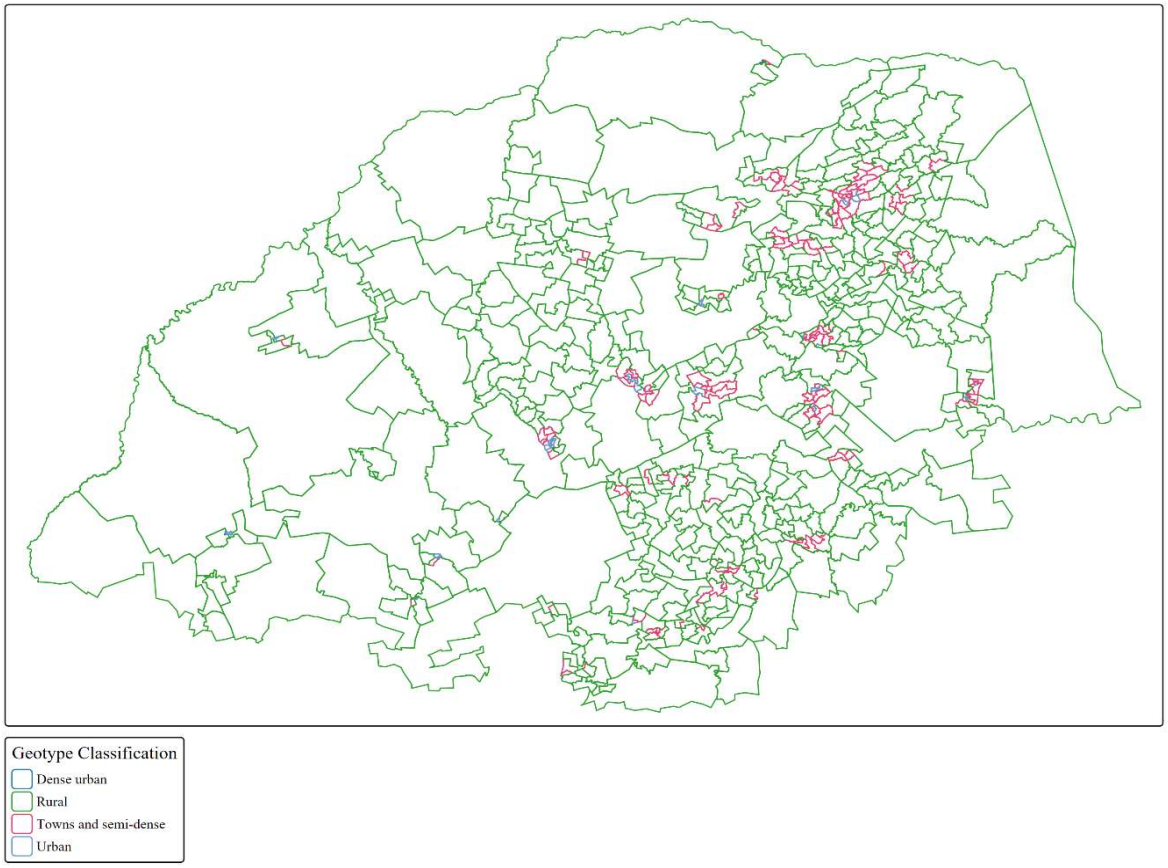


Table 5: IMT Exclusive Zones by Ward for Limpopo

Prov	District	Municipality	District code	Ward code	Ward label	Population density	Geotype
LM	Capricorn	Blouberg LM	DC35	93501019	LIM351_19	439	Towns, semi-dense
LM	Capricorn	Lepele-Nkumpi LM	DC35	93505018	LIM355_18	1474	Towns, semi-dense
LM	Capricorn	Lepele-Nkumpi LM	DC35	93505015	LIM355_15	837	Towns, semi-dense
LM	Capricorn	Lepele-Nkumpi LM	DC35	93505016	LIM355_16	434	Towns, semi-dense
LM	Capricorn	Lepele-Nkumpi LM	DC35	93505024	LIM355_24	380	Towns, semi-dense
LM	Capricorn	Lepele-Nkumpi LM	DC35	93505012	LIM355_12	349	Towns, semi-dense
LM	Capricorn	Lepele-Nkumpi LM	DC35	93505022	LIM355_22	315	Towns, semi-dense
LM	Capricorn	Molemole LM	DC35	93503009	LIM353_9	2016	Urban
LM	Capricorn	Molemole LM	DC35	93503004	LIM353_4	1056	Towns, semi-dense
LM	Capricorn	Polokwane LM	DC35	93504025	LIM354_25	3126	Urban
LM	Capricorn	Polokwane LM	DC35	93504008	LIM354_8	2862	Urban
LM	Capricorn	Polokwane LM	DC35	93504011	LIM354_11	2685	Urban
LM	Capricorn	Polokwane LM	DC35	93504017	LIM354_17	2651	Urban
LM	Capricorn	Polokwane LM	DC35	93504012	LIM354_12	1984	Urban
LM	Capricorn	Polokwane LM	DC35	93504014	LIM354_14	1909	Urban
LM	Capricorn	Polokwane LM	DC35	93504019	LIM354_19	1806	Urban
LM	Capricorn	Polokwane LM	DC35	93504010	LIM354_10	1720	Urban
LM	Capricorn	Polokwane LM	DC35	93504027	LIM354_27	1521	Urban
LM	Capricorn	Polokwane LM	DC35	93504026	LIM354_26	1478	Towns, semi-dense
LM	Capricorn	Polokwane LM	DC35	93504037	LIM354_37	1463	Towns, semi-dense
LM	Capricorn	Polokwane LM	DC35	93504039	LIM354_39	1011	Towns, semi-dense
LM	Capricorn	Polokwane LM	DC35	93504022	LIM354_22	975	Towns, semi-dense
LM	Capricorn	Polokwane LM	DC35	93504013	LIM354_13	797	Towns, semi-dense
LM	Capricorn	Polokwane LM	DC35	93504016	LIM354_16	525	Towns, semi-dense
LM	Capricorn	Polokwane LM	DC35	93504034	LIM354_34	397	Towns, semi-dense
LM	Capricorn	Polokwane LM	DC35	93504020	LIM354_20	368	Towns, semi-dense

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Prov	District	Municipality	District code	Ward code	Ward label	Population density	Geotype
LM	Capricorn	Polokwane LM	DC35	93504031	LIM354_31	339	Towns, semi-dense
LM	Capricorn	Polokwane LM	DC35	93504028	LIM354_28	333	Towns, semi-dense
LM	Capricorn	Polokwane LM	DC35	93504007	LIM354_7	331	Towns, semi-dense
LM	Mopani	Ba-Phalaborwa LM	DC33	93304004	LIM334_4	3033	Urban
LM	Mopani	Ba-Phalaborwa LM	DC33	93304005	LIM334_5	2757	Urban
LM	Mopani	Ba-Phalaborwa LM	DC33	93304007	LIM334_7	2074	Urban
LM	Mopani	Ba-Phalaborwa LM	DC33	93304014	LIM334_14	2009	Urban
LM	Mopani	Ba-Phalaborwa LM	DC33	93304006	LIM334_6	1866	Urban
LM	Mopani	Ba-Phalaborwa LM	DC33	93304016	LIM334_16	1438	Towns, semi-dense
LM	Mopani	Ba-Phalaborwa LM	DC33	93304015	LIM334_15	1410	Towns, semi-dense
LM	Mopani	Ba-Phalaborwa LM	DC33	93304001	LIM334_1	1365	Towns, semi-dense
LM	Mopani	Ba-Phalaborwa LM	DC33	93304003	LIM334_3	1233	Towns, semi-dense
LM	Mopani	Ba-Phalaborwa LM	DC33	93304013	LIM334_13	1055	Towns, semi-dense
LM	Mopani	Ba-Phalaborwa LM	DC33	93304019	LIM334_19	503	Towns, semi-dense
LM	Mopani	Ba-Phalaborwa LM	DC33	93304009	LIM334_9	396	Towns, semi-dense
LM	Mopani	Greater Giyani LM	DC33	93301011	LIM331_11	561	Towns, semi-dense
LM	Mopani	Greater Giyani LM	DC33	93301012	LIM331_12	524	Towns, semi-dense
LM	Mopani	Greater Giyani LM	DC33	93301013	LIM331_13	449	Towns, semi-dense
LM	Mopani	Greater Giyani LM	DC33	93301007	LIM331_7	359	Towns, semi-dense
LM	Mopani	Greater Giyani LM	DC33	93301014	LIM331_14	332	Towns, semi-dense
LM	Mopani	Greater Letaba LM	DC33	93302004	LIM332_4	2143	Urban
LM	Mopani	Greater Letaba LM	DC33	93302003	LIM332_3	1985	Urban
LM	Mopani	Greater Letaba LM	DC33	93302010	LIM332_10	1241	Towns, semi-dense
LM	Mopani	Greater Letaba LM	DC33	93302006	LIM332_6	1093	Towns, semi-dense
LM	Mopani	Greater Letaba LM	DC33	93302002	LIM332_2	1010	Towns, semi-dense
LM	Mopani	Greater Letaba LM	DC33	93302011	LIM332_11	642	Towns, semi-dense
LM	Mopani	Greater Letaba LM	DC33	93302005	LIM332_5	473	Towns, semi-dense
LM	Mopani	Greater Letaba LM	DC33	93302007	LIM332_7	470	Towns, semi-dense

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Prov	District	Municipality	District code	Ward code	Ward label	Population density	Geotype
LM	Mopani	Greater Letaba LM	DC33	93302008	LIM332_8	441	Towns, semi-dense
LM	Mopani	Greater Letaba LM	DC33	93302009	LIM332_9	330	Towns, semi-dense
LM	Mopani	Greater Letaba LM	DC33	93302001	LIM332_1	303	Towns, semi-dense
LM	Mopani	Greater Tzaneen LM	DC33	93303031	LIM333_31	3078	Urban
LM	Mopani	Greater Tzaneen LM	DC33	93303020	LIM333_20	2801	Urban
LM	Mopani	Greater Tzaneen LM	DC33	93303021	LIM333_21	1857	Urban
LM	Mopani	Greater Tzaneen LM	DC33	93303030	LIM333_30	1717	Urban
LM	Mopani	Greater Tzaneen LM	DC33	93303010	LIM333_10	1535	Urban
LM	Mopani	Greater Tzaneen LM	DC33	93303029	LIM333_29	1366	Towns, semi-dense
LM	Mopani	Greater Tzaneen LM	DC33	93303019	LIM333_19	1160	Towns, semi-dense
LM	Mopani	Greater Tzaneen LM	DC33	93303018	LIM333_18	972	Towns, semi-dense
LM	Mopani	Greater Tzaneen LM	DC33	93303035	LIM333_35	803	Towns, semi-dense
LM	Mopani	Greater Tzaneen LM	DC33	93303032	LIM333_32	774	Towns, semi-dense
LM	Mopani	Greater Tzaneen LM	DC33	93303009	LIM333_9	678	Towns, semi-dense
LM	Mopani	Greater Tzaneen LM	DC33	93303012	LIM333_12	677	Towns, semi-dense
LM	Mopani	Greater Tzaneen LM	DC33	93303008	LIM333_8	593	Towns, semi-dense
LM	Mopani	Greater Tzaneen LM	DC33	93303028	LIM333_28	429	Towns, semi-dense
LM	Mopani	Greater Tzaneen LM	DC33	93303024	LIM333_24	418	Towns, semi-dense
LM	Mopani	Maruleng LM	DC33	93305012	LIM335_12	796	Towns, semi-dense
LM	Mopani	Maruleng LM	DC33	93305011	LIM335_11	461	Towns, semi-dense
LM	Mopani	Maruleng LM	DC33	93305014	LIM335_14	398	Towns, semi-dense
LM	Sekhukhune	Elias Motsoaledi LM	DC47	94702017	LIM472_17	1348	Towns, semi-dense
LM	Sekhukhune	Elias Motsoaledi LM	DC47	94702002	LIM472_2	878	Towns, semi-dense
LM	Sekhukhune	Elias Motsoaledi LM	DC47	94702020	LIM472_20	657	Towns, semi-dense
LM	Sekhukhune	Elias Motsoaledi LM	DC47	94702024	LIM472_24	542	Towns, semi-dense
LM	Sekhukhune	Elias Motsoaledi LM	DC47	94702028	LIM472_28	529	Towns, semi-dense
LM	Sekhukhune	Elias Motsoaledi LM	DC47	94702027	LIM472_27	484	Towns, semi-dense
LM	Sekhukhune	Elias Motsoaledi LM	DC47	94702026	LIM472_26	334	Towns, semi-dense

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Prov	District	Municipality	District code	Ward code	Ward label	Population density	Geotype
LM	Sekhukhune	Elias Motsoaledi LM	DC47	94702005	LIM472_5	330	Towns, semi-dense
LM	Sekhukhune	Elias Motsoaledi LM	DC47	94702001	LIM472_1	317	Towns, semi-dense
LM	Sekhukhune	Ephraim Mogale LM	DC47	94701008	LIM471_8	2087	Urban
LM	Sekhukhune	Ephraim Mogale LM	DC47	94701002	LIM471_2	333	Towns, semi-dense
LM	Sekhukhune	Ephraim Mogale LM	DC47	94701009	LIM471_9	322	Towns, semi-dense
LM	Sekhukhune	Fetakgomo Tubatse LM	DC47	94706004	LIM476_4	1472	Towns, semi-dense
LM	Sekhukhune	Fetakgomo Tubatse LM	DC47	94706013	LIM476_13	1405	Towns, semi-dense
LM	Sekhukhune	Fetakgomo Tubatse LM	DC47	94706005	LIM476_5	1174	Towns, semi-dense
LM	Sekhukhune	Fetakgomo Tubatse LM	DC47	94706020	LIM476_20	834	Towns, semi-dense
LM	Sekhukhune	Fetakgomo Tubatse LM	DC47	94706028	LIM476_28	720	Towns, semi-dense
LM	Sekhukhune	Fetakgomo Tubatse LM	DC47	94706025	LIM476_25	564	Towns, semi-dense
LM	Sekhukhune	Fetakgomo Tubatse LM	DC47	94706007	LIM476_7	550	Towns, semi-dense
LM	Sekhukhune	Fetakgomo Tubatse LM	DC47	94706018	LIM476_18	363	Towns, semi-dense
LM	Sekhukhune	Fetakgomo Tubatse LM	DC47	94706036	LIM476_36	325	Towns, semi-dense
LM	Sekhukhune	Makhuduthamaga LM	DC47	94703018	LIM473_18	993	Towns, semi-dense
LM	Sekhukhune	Makhuduthamaga LM	DC47	94703009	LIM473_9	917	Towns, semi-dense
LM	Sekhukhune	Makhuduthamaga LM	DC47	94703019	LIM473_19	470	Towns, semi-dense
LM	Sekhukhune	Makhuduthamaga LM	DC47	94703020	LIM473_20	421	Towns, semi-dense
LM	Sekhukhune	Makhuduthamaga LM	DC47	94703003	LIM473_3	407	Towns, semi-dense
LM	Sekhukhune	Makhuduthamaga LM	DC47	94703008	LIM473_8	381	Towns, semi-dense
LM	Vhembe	Collins Chabane LM	DC34	93405023	LIM345_23	487	Towns, semi-dense
LM	Vhembe	Collins Chabane LM	DC34	93405024	LIM345_24	486	Towns, semi-dense
LM	Vhembe	Collins Chabane LM	DC34	93405010	LIM345_10	432	Towns, semi-dense
LM	Vhembe	Collins Chabane LM	DC34	93405005	LIM345_5	415	Towns, semi-dense
LM	Vhembe	Collins Chabane LM	DC34	93405021	LIM345_21	397	Towns, semi-dense
LM	Vhembe	Collins Chabane LM	DC34	93405007	LIM345_7	390	Towns, semi-dense
LM	Vhembe	Collins Chabane LM	DC34	93405004	LIM345_4	383	Towns, semi-dense
LM	Vhembe	Collins Chabane LM	DC34	93405006	LIM345_6	378	Towns, semi-dense

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Prov	District	Municipality	District code	Ward code	Ward label	Population density	Geotype
LM	Vhembe	Collins Chabane LM	DC34	93405031	LIM345_31	347	Towns, semi-dense
LM	Vhembe	Collins Chabane LM	DC34	93405026	LIM345_26	333	Towns, semi-dense
LM	Vhembe	Collins Chabane LM	DC34	93405030	LIM345_30	311	Towns, semi-dense
LM	Vhembe	Makhado LM	DC34	93404002	LIM344_2	1296	Towns, semi-dense
LM	Vhembe	Makhado LM	DC34	93404027	LIM344_27	1237	Towns, semi-dense
LM	Vhembe	Makhado LM	DC34	93404034	LIM344_34	873	Towns, semi-dense
LM	Vhembe	Makhado LM	DC34	93404006	LIM344_6	840	Towns, semi-dense
LM	Vhembe	Makhado LM	DC34	93404004	LIM344_4	716	Towns, semi-dense
LM	Vhembe	Makhado LM	DC34	93404003	LIM344_3	658	Towns, semi-dense
LM	Vhembe	Makhado LM	DC34	93404028	LIM344_28	642	Towns, semi-dense
LM	Vhembe	Makhado LM	DC34	93404014	LIM344_14	620	Towns, semi-dense
LM	Vhembe	Makhado LM	DC34	93404023	LIM344_23	574	Towns, semi-dense
LM	Vhembe	Makhado LM	DC34	93404001	LIM344_1	571	Towns, semi-dense
LM	Vhembe	Makhado LM	DC34	93404038	LIM344_38	461	Towns, semi-dense
LM	Vhembe	Makhado LM	DC34	93404016	LIM344_16	435	Towns, semi-dense
LM	Vhembe	Makhado LM	DC34	93404022	LIM344_22	402	Towns, semi-dense
LM	Vhembe	Makhado LM	DC34	93404032	LIM344_32	400	Towns, semi-dense
LM	Vhembe	Makhado LM	DC34	93404008	LIM344_8	387	Towns, semi-dense
LM	Vhembe	Makhado LM	DC34	93404013	LIM344_13	381	Towns, semi-dense
LM	Vhembe	Makhado LM	DC34	93404035	LIM344_35	324	Towns, semi-dense
LM	Vhembe	Makhado LM	DC34	93404017	LIM344_17	305	Towns, semi-dense
LM	Vhembe	Musina LM	DC34	93401005	LIM341_5	11941	Dense urban
LM	Vhembe	Musina LM	DC34	93401003	LIM341_3	8717	Dense urban
LM	Vhembe	Musina LM	DC34	93401004	LIM341_4	1423	Towns, semi-dense
LM	Vhembe	Thulamela LM	DC34	93403038	LIM343_38	2081	Urban
LM	Vhembe	Thulamela LM	DC34	93403021	LIM343_21	1772	Urban
LM	Vhembe	Thulamela LM	DC34	93403041	LIM343_41	1526	Urban
LM	Vhembe	Thulamela LM	DC34	93403037	LIM343_37	1260	Towns, semi-dense

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Prov	District	Municipality	District code	Ward code	Ward label	Population density	Geotype
LM	Vhembe	Thulamela LM	DC34	93403018	LIM343_18	1138	Towns, semi-dense
LM	Vhembe	Thulamela LM	DC34	93403017	LIM343_17	1048	Towns, semi-dense
LM	Vhembe	Thulamela LM	DC34	93403023	LIM343_23	972	Towns, semi-dense
LM	Vhembe	Thulamela LM	DC34	93403040	LIM343_40	945	Towns, semi-dense
LM	Vhembe	Thulamela LM	DC34	93403035	LIM343_35	892	Towns, semi-dense
LM	Vhembe	Thulamela LM	DC34	93403024	LIM343_24	690	Towns, semi-dense
LM	Vhembe	Thulamela LM	DC34	93403033	LIM343_33	652	Towns, semi-dense
LM	Vhembe	Thulamela LM	DC34	93403020	LIM343_20	639	Towns, semi-dense
LM	Vhembe	Thulamela LM	DC34	93403022	LIM343_22	565	Towns, semi-dense
LM	Vhembe	Thulamela LM	DC34	93403036	LIM343_36	477	Towns, semi-dense
LM	Vhembe	Thulamela LM	DC34	93403026	LIM343_26	452	Towns, semi-dense
LM	Vhembe	Thulamela LM	DC34	93403027	LIM343_27	450	Towns, semi-dense
LM	Vhembe	Thulamela LM	DC34	93403025	LIM343_25	419	Towns, semi-dense
LM	Vhembe	Thulamela LM	DC34	93403014	LIM343_14	402	Towns, semi-dense
LM	Vhembe	Thulamela LM	DC34	93403011	LIM343_11	373	Towns, semi-dense
LM	Vhembe	Thulamela LM	DC34	93403016	LIM343_16	371	Towns, semi-dense
LM	Vhembe	Thulamela LM	DC34	93403013	LIM343_13	359	Towns, semi-dense
LM	Vhembe	Thulamela LM	DC34	93403029	LIM343_29	346	Towns, semi-dense
LM	Waterberg	Bela-Bela LM	DC36	93606003	LIM366_3	9906	Dense urban
LM	Waterberg	Bela-Bela LM	DC36	93606005	LIM366_5	5187	Urban
LM	Waterberg	Bela-Bela LM	DC36	93606002	LIM366_2	870	Towns, semi-dense
LM	Waterberg	Lephalale LM	DC36	93602014	LIM362_14	5228	Urban
LM	Waterberg	Lephalale LM	DC36	93602002	LIM362_2	2140	Urban
LM	Waterberg	Lephalale LM	DC36	93602001	LIM362_1	595	Towns, semi-dense
LM	Waterberg	Lephalale LM	DC36	93602004	LIM362_4	328	Towns, semi-dense
LM	Waterberg	Modimolle-Mookgophong LM	DC36	93608008	LIM368_8	6059	Urban
LM	Waterberg	Modimolle-Mookgophong LM	DC36	93608010	LIM368_10	3811	Urban
LM	Waterberg	Modimolle-Mookgophong LM	DC36	93608001	LIM368_1	2297	Urban

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Prov	District	Municipality	District code	Ward code	Ward label	Population density	Geotype
LM	Waterberg	Modimolle-Mookgophong LM	DC36	93608013	LIM368_13	1757	Urban
LM	Waterberg	Modimolle-Mookgophong LM	DC36	93608011	LIM368_11	612	Towns, semi-dense
LM	Waterberg	Modimolle-Mookgophong LM	DC36	93608004	LIM368_4	606	Towns, semi-dense
LM	Waterberg	Mogalakwena LM	DC36	93607027	LIM367_27	3813	Urban
LM	Waterberg	Mogalakwena LM	DC36	93607026	LIM367_26	3324	Urban
LM	Waterberg	Mogalakwena LM	DC36	93607029	LIM367_29	2771	Urban
LM	Waterberg	Mogalakwena LM	DC36	93607028	LIM367_28	2376	Urban
LM	Waterberg	Mogalakwena LM	DC36	93607030	LIM367_30	2134	Urban
LM	Waterberg	Mogalakwena LM	DC36	93607022	LIM367_22	1728	Urban
LM	Waterberg	Mogalakwena LM	DC36	93607025	LIM367_25	1317	Towns, semi-dense
LM	Waterberg	Mogalakwena LM	DC36	93607031	LIM367_31	908	Towns, semi-dense
LM	Waterberg	Mogalakwena LM	DC36	93607021	LIM367_21	691	Towns, semi-dense
LM	Waterberg	Mogalakwena LM	DC36	93607023	LIM367_23	647	Towns, semi-dense
LM	Waterberg	Mogalakwena LM	DC36	93607012	LIM367_12	637	Towns, semi-dense
LM	Waterberg	Mogalakwena LM	DC36	93607024	LIM367_24	563	Towns, semi-dense
LM	Waterberg	Thabazimbi LM	DC36	93601010	LIM361_10	7215	Dense urban
LM	Waterberg	Thabazimbi LM	DC36	93601012	LIM361_12	1677	Urban

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Figure 6: Geotype Classification of Mpumalanga Wards by Population Density

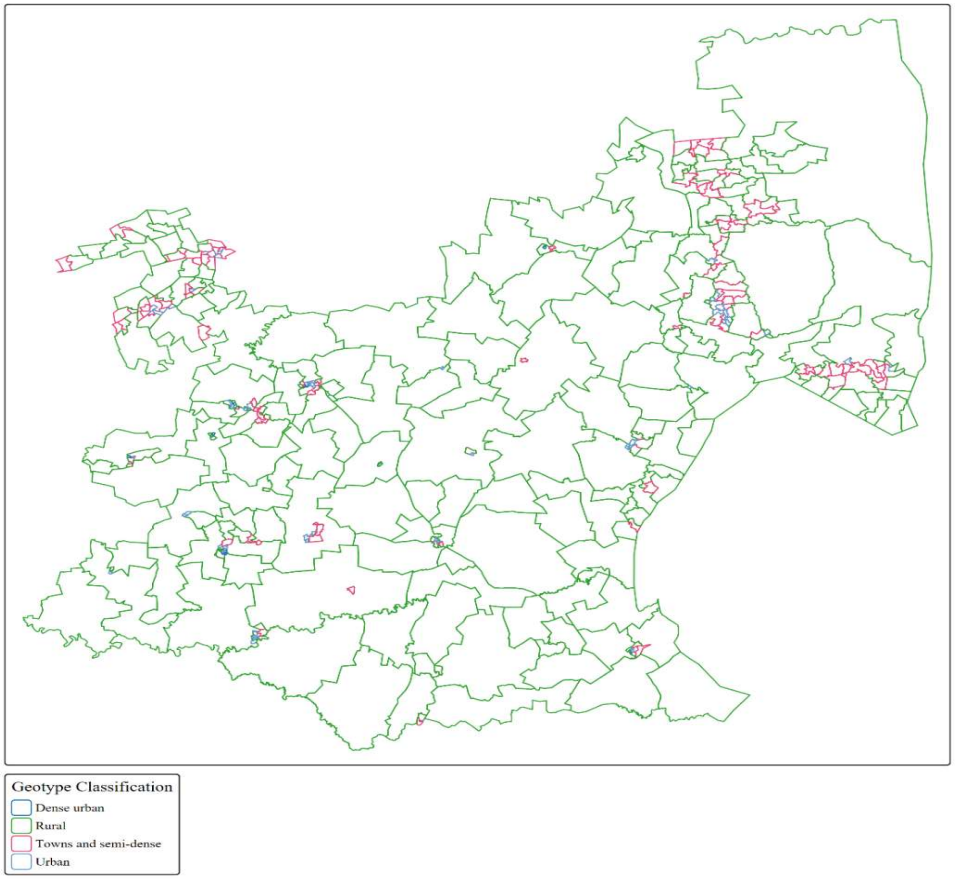


Table 6: IMT Exclusive Zones by Ward for Mpumalanga

Province	District	Municipality	District code	Ward code	Ward label	Population density	Geotype
MP	Ehlanzeni	Bushbuckridge LM	DC32	83205003	MP325_3	1275	Towns, semi-dense
MP	Ehlanzeni	Bushbuckridge LM	DC32	83205004	MP325_4	1190	Towns, semi-dense
MP	Ehlanzeni	Bushbuckridge LM	DC32	83205008	MP325_8	1107	Towns, semi-dense
MP	Ehlanzeni	Bushbuckridge LM	DC32	83205011	MP325_11	914	Towns, semi-dense
MP	Ehlanzeni	Bushbuckridge LM	DC32	83205019	MP325_19	914	Towns, semi-dense
MP	Ehlanzeni	Bushbuckridge LM	DC32	83205018	MP325_18	906	Towns, semi-dense
MP	Ehlanzeni	Bushbuckridge LM	DC32	83205017	MP325_17	839	Towns, semi-dense
MP	Ehlanzeni	Bushbuckridge LM	DC32	83205014	MP325_14	803	Towns, semi-dense
MP	Ehlanzeni	Bushbuckridge LM	DC32	83205031	MP325_31	760	Towns, semi-dense
MP	Ehlanzeni	Bushbuckridge LM	DC32	83205005	MP325_5	605	Towns, semi-dense
MP	Ehlanzeni	Bushbuckridge LM	DC32	83205001	MP325_1	592	Towns, semi-dense
MP	Ehlanzeni	Bushbuckridge LM	DC32	83205020	MP325_20	556	Towns, semi-dense
MP	Ehlanzeni	Bushbuckridge LM	DC32	83205023	MP325_23	461	Towns, semi-dense
MP	Ehlanzeni	Bushbuckridge LM	DC32	83205026	MP325_26	457	Towns, semi-dense
MP	Ehlanzeni	Bushbuckridge LM	DC32	83205013	MP325_13	439	Towns, semi-dense
MP	Ehlanzeni	Bushbuckridge LM	DC32	83205015	MP325_15	410	Towns, semi-dense
MP	Ehlanzeni	Bushbuckridge LM	DC32	83205037	MP325_37	388	Towns, semi-dense
MP	Ehlanzeni	Bushbuckridge LM	DC32	83205002	MP325_2	372	Towns, semi-dense
MP	Ehlanzeni	Bushbuckridge LM	DC32	83205010	MP325_10	350	Towns, semi-dense
MP	Ehlanzeni	Bushbuckridge LM	DC32	83205021	MP325_21	344	Towns, semi-dense
MP	Ehlanzeni	Bushbuckridge LM	DC32	83205035	MP325_35	310	Towns, semi-dense
MP	Ehlanzeni	City of Mbombela LM	DC32	83206044	MP326_44	4905	Urban
MP	Ehlanzeni	City of Mbombela LM	DC32	83206020	MP326_20	4215	Urban
MP	Ehlanzeni	City of Mbombela LM	DC32	83206013	MP326_13	3650	Urban
MP	Ehlanzeni	City of Mbombela LM	DC32	83206028	MP326_28	3502	Urban
MP	Ehlanzeni	City of Mbombela LM	DC32	83206029	MP326_29	3083	Urban

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Province	District	Municipality	District code	Ward code	Ward label	Population density	Geotype
MP	Ehlanzeni	City of Mbombela LM	DC32	83206022	MP326_22	2934	Urban
MP	Ehlanzeni	City of Mbombela LM	DC32	83206021	MP326_21	2375	Urban
MP	Ehlanzeni	City of Mbombela LM	DC32	83206023	MP326_23	2179	Urban
MP	Ehlanzeni	City of Mbombela LM	DC32	83206032	MP326_32	1992	Urban
MP	Ehlanzeni	City of Mbombela LM	DC32	83206006	MP326_6	1712	Urban
MP	Ehlanzeni	City of Mbombela LM	DC32	83206036	MP326_36	1692	Urban
MP	Ehlanzeni	City of Mbombela LM	DC32	83206033	MP326_33	1624	Urban
MP	Ehlanzeni	City of Mbombela LM	DC32	83206002	MP326_2	1608	Urban
MP	Ehlanzeni	City of Mbombela LM	DC32	83206031	MP326_31	1581	Urban
MP	Ehlanzeni	City of Mbombela LM	DC32	83206040	MP326_40	1556	Urban
MP	Ehlanzeni	City of Mbombela LM	DC32	83206007	MP326_7	1416	Towns, semi-dense
MP	Ehlanzeni	City of Mbombela LM	DC32	83206027	MP326_27	1260	Towns, semi-dense
MP	Ehlanzeni	City of Mbombela LM	DC32	83206030	MP326_30	1223	Towns, semi-dense
MP	Ehlanzeni	City of Mbombela LM	DC32	83206019	MP326_19	1170	Towns, semi-dense
MP	Ehlanzeni	City of Mbombela LM	DC32	83206011	MP326_11	904	Towns, semi-dense
MP	Ehlanzeni	City of Mbombela LM	DC32	83206005	MP326_5	861	Towns, semi-dense
MP	Ehlanzeni	City of Mbombela LM	DC32	83206025	MP326_25	847	Towns, semi-dense
MP	Ehlanzeni	City of Mbombela LM	DC32	83206010	MP326_10	782	Towns, semi-dense
MP	Ehlanzeni	City of Mbombela LM	DC32	83206026	MP326_26	748	Towns, semi-dense
MP	Ehlanzeni	City of Mbombela LM	DC32	83206016	MP326_16	590	Towns, semi-dense
MP	Ehlanzeni	City of Mbombela LM	DC32	83206035	MP326_35	488	Towns, semi-dense
MP	Ehlanzeni	City of Mbombela LM	DC32	83206009	MP326_9	433	Towns, semi-dense
MP	Ehlanzeni	City of Mbombela LM	DC32	83206004	MP326_4	370	Towns, semi-dense
MP	Ehlanzeni	City of Mbombela LM	DC32	83206037	MP326_37	347	Towns, semi-dense
MP	Ehlanzeni	Nkomazi LM	DC32	83204004	MP324_4	3148	Urban
MP	Ehlanzeni	Nkomazi LM	DC32	83204001	MP324_1	2701	Urban
MP	Ehlanzeni	Nkomazi LM	DC32	83204021	MP324_21	2532	Urban
MP	Ehlanzeni	Nkomazi LM	DC32	83204002	MP324_2	1790	Urban

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Province	District	Municipality	District code	Ward code	Ward label	Population density	Geotype
MP	Ehlanzeni	Nkomazi LM	DC32	83204005	MP324_5	1330	Towns, semi-dense
MP	Ehlanzeni	Nkomazi LM	DC32	83204033	MP324_33	1243	Towns, semi-dense
MP	Ehlanzeni	Nkomazi LM	DC32	83204009	MP324_9	1034	Towns, semi-dense
MP	Ehlanzeni	Nkomazi LM	DC32	83204022	MP324_22	887	Towns, semi-dense
MP	Ehlanzeni	Nkomazi LM	DC32	83204027	MP324_27	843	Towns, semi-dense
MP	Ehlanzeni	Nkomazi LM	DC32	83204010	MP324_10	692	Towns, semi-dense
MP	Ehlanzeni	Nkomazi LM	DC32	83204003	MP324_3	571	Towns, semi-dense
MP	Ehlanzeni	Nkomazi LM	DC32	83204026	MP324_26	563	Towns, semi-dense
MP	Ehlanzeni	Nkomazi LM	DC32	83204017	MP324_17	530	Towns, semi-dense
MP	Ehlanzeni	Nkomazi LM	DC32	83204025	MP324_25	457	Towns, semi-dense
MP	Ehlanzeni	Nkomazi LM	DC32	83204020	MP324_20	432	Towns, semi-dense
MP	Ehlanzeni	Nkomazi LM	DC32	83204024	MP324_24	385	Towns, semi-dense
MP	Ehlanzeni	Nkomazi LM	DC32	83204028	MP324_28	375	Towns, semi-dense
MP	Ehlanzeni	Nkomazi LM	DC32	83204023	MP324_23	353	Towns, semi-dense
MP	Ehlanzeni	Thaba Chweu LM	DC32	83201003	MP321_3	8758	Dense urban
MP	Ehlanzeni	Thaba Chweu LM	DC32	83201001	MP321_1	2884	Urban
MP	Ehlanzeni	Thaba Chweu LM	DC32	83201014	MP321_14	1157	Towns, semi-dense
MP	Gert Sibande	Chief Albert Luthuli LM	DC30	83001022	MP301_22	5570	Urban
MP	Gert Sibande	Chief Albert Luthuli LM	DC30	83001020	MP301_20	1971	Urban
MP	Gert Sibande	Chief Albert Luthuli LM	DC30	83001025	MP301_25	1856	Urban
MP	Gert Sibande	Chief Albert Luthuli LM	DC30	83001024	MP301_24	1654	Urban
MP	Gert Sibande	Chief Albert Luthuli LM	DC30	83001015	MP301_15	841	Towns, semi-dense
MP	Gert Sibande	Chief Albert Luthuli LM	DC30	83001014	MP301_14	561	Towns, semi-dense
MP	Gert Sibande	Chief Albert Luthuli LM	DC30	83001002	MP301_2	504	Towns, semi-dense
MP	Gert Sibande	Chief Albert Luthuli LM	DC30	83001013	MP301_13	493	Towns, semi-dense
MP	Gert Sibande	Chief Albert Luthuli LM	DC30	83001010	MP301_10	466	Towns, semi-dense
MP	Gert Sibande	Chief Albert Luthuli LM	DC30	83001011	MP301_11	330	Towns, semi-dense
MP	Gert Sibande	Dipaleseng LM	DC30	83006004	MP306_4	4434	Urban

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Province	District	Municipality	District code	Ward code	Ward label	Population density	Geotype
MP	Gert Sibande	Dipaleseng LM	DC30	83006001	MP306_1	1126	Towns, semi-dense
MP	Gert Sibande	Dr Pixley Ka Isaka Seme LM	DC30	83004002	MP304_2	5078	Urban
MP	Gert Sibande	Dr Pixley Ka Isaka Seme LM	DC30	83004003	MP304_3	1374	Towns, semi-dense
MP	Gert Sibande	Dr Pixley Ka Isaka Seme LM	DC30	83004001	MP304_1	1099	Towns, semi-dense
MP	Gert Sibande	Dr Pixley Ka Isaka Seme LM	DC30	83004009	MP304_9	473	Towns, semi-dense
MP	Gert Sibande	Govan Mbeki LM	DC30	83007031	MP307_31	9906	Dense urban
MP	Gert Sibande	Govan Mbeki LM	DC30	83007013	MP307_13	7525	Dense urban
MP	Gert Sibande	Govan Mbeki LM	DC30	83007004	MP307_4	7520	Dense urban
MP	Gert Sibande	Govan Mbeki LM	DC30	83007012	MP307_12	6931	Dense urban
MP	Gert Sibande	Govan Mbeki LM	DC30	83007014	MP307_14	6325	Urban
MP	Gert Sibande	Govan Mbeki LM	DC30	83007029	MP307_29	6006	Urban
MP	Gert Sibande	Govan Mbeki LM	DC30	83007020	MP307_20	5674	Urban
MP	Gert Sibande	Govan Mbeki LM	DC30	83007022	MP307_22	5284	Urban
MP	Gert Sibande	Govan Mbeki LM	DC30	83007003	MP307_3	4864	Urban
MP	Gert Sibande	Govan Mbeki LM	DC30	83007008	MP307_8	4500	Urban
MP	Gert Sibande	Govan Mbeki LM	DC30	83007024	MP307_24	3730	Urban
MP	Gert Sibande	Govan Mbeki LM	DC30	83007011	MP307_11	3563	Urban
MP	Gert Sibande	Govan Mbeki LM	DC30	83007023	MP307_23	3206	Urban
MP	Gert Sibande	Govan Mbeki LM	DC30	83007027	MP307_27	2868	Urban
MP	Gert Sibande	Govan Mbeki LM	DC30	83007007	MP307_7	2498	Urban
MP	Gert Sibande	Govan Mbeki LM	DC30	83007006	MP307_6	2349	Urban
MP	Gert Sibande	Govan Mbeki LM	DC30	83007009	MP307_9	1058	Towns, semi-dense
MP	Gert Sibande	Govan Mbeki LM	DC30	83007032	MP307_32	900	Towns, semi-dense
MP	Gert Sibande	Govan Mbeki LM	DC30	83007026	MP307_26	721	Towns, semi-dense
MP	Gert Sibande	Govan Mbeki LM	DC30	83007028	MP307_28	695	Towns, semi-dense
MP	Gert Sibande	Govan Mbeki LM	DC30	83007021	MP307_21	634	Towns, semi-dense
MP	Gert Sibande	Govan Mbeki LM	DC30	83007030	MP307_30	505	Towns, semi-dense
MP	Gert Sibande	Lekwa LM	DC30	83005015	MP305_15	5640	Urban

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Province	District	Municipality	District code	Ward code	Ward label	Population density	Geotype
MP	Gert Sibande	Lekwa LM	DC30	83005002	MP305_2	4273	Urban
MP	Gert Sibande	Lekwa LM	DC30	83005001	MP305_1	3797	Urban
MP	Gert Sibande	Lekwa LM	DC30	83005006	MP305_6	3573	Urban
MP	Gert Sibande	Lekwa LM	DC30	83005005	MP305_5	3545	Urban
MP	Gert Sibande	Lekwa LM	DC30	83005003	MP305_3	2837	Urban
MP	Gert Sibande	Lekwa LM	DC30	83005011	MP305_11	2375	Urban
MP	Gert Sibande	Lekwa LM	DC30	83005007	MP305_7	2086	Urban
MP	Gert Sibande	Lekwa LM	DC30	83005004	MP305_4	961	Towns, semi-dense
MP	Gert Sibande	Lekwa LM	DC30	83005014	MP305_14	940	Towns, semi-dense
MP	Gert Sibande	Lekwa LM	DC30	83005010	MP305_10	848	Towns, semi-dense
MP	Gert Sibande	Lekwa LM	DC30	83005008	MP305_8	735	Towns, semi-dense
MP	Gert Sibande	Mkhondo LM	DC30	83003016	MP303_16	8340	Dense urban
MP	Gert Sibande	Mkhondo LM	DC30	83003011	MP303_11	4445	Urban
MP	Gert Sibande	Mkhondo LM	DC30	83003012	MP303_12	4157	Urban
MP	Gert Sibande	Mkhondo LM	DC30	83003013	MP303_13	2618	Urban
MP	Gert Sibande	Mkhondo LM	DC30	83003010	MP303_10	1111	Towns, semi-dense
MP	Gert Sibande	Mkhondo LM	DC30	83003014	MP303_14	365	Towns, semi-dense
MP	Gert Sibande	Mkhondo LM	DC30	83003007	MP303_7	306	Towns, semi-dense
MP	Gert Sibande	Msukaligwa LM	DC30	83002001	MP302_1	6328	Urban
MP	Gert Sibande	Msukaligwa LM	DC30	83002017	MP302_17	5713	Urban
MP	Gert Sibande	Msukaligwa LM	DC30	83002004	MP302_4	4285	Urban
MP	Gert Sibande	Msukaligwa LM	DC30	83002002	MP302_2	3077	Urban
MP	Gert Sibande	Msukaligwa LM	DC30	83002006	MP302_6	2774	Urban
MP	Gert Sibande	Msukaligwa LM	DC30	83002003	MP302_3	1488	Towns, semi-dense
MP	Gert Sibande	Msukaligwa LM	DC30	83002007	MP302_7	820	Towns, semi-dense
MP	Nkangala	Dr JS Moroka LM	DC31	83106003	MP316_3	3346	Urban
MP	Nkangala	Dr JS Moroka LM	DC31	83106004	MP316_4	2240	Urban
MP	Nkangala	Dr JS Moroka LM	DC31	83106009	MP316_9	1796	Urban

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Province	District	Municipality	District code	Ward code	Ward label	Population density	Geotype
MP	Nkangala	Dr JS Moroka LM	DC31	83106001	MP316_1	1618	Urban
MP	Nkangala	Dr JS Moroka LM	DC31	83106006	MP316_6	1537	Urban
MP	Nkangala	Dr JS Moroka LM	DC31	83106005	MP316_5	1260	Towns, semi-dense
MP	Nkangala	Dr JS Moroka LM	DC31	83106016	MP316_16	1121	Towns, semi-dense
MP	Nkangala	Dr JS Moroka LM	DC31	83106018	MP316_18	868	Towns, semi-dense
MP	Nkangala	Dr JS Moroka LM	DC31	83106002	MP316_2	723	Towns, semi-dense
MP	Nkangala	Dr JS Moroka LM	DC31	83106014	MP316_14	668	Towns, semi-dense
MP	Nkangala	Dr JS Moroka LM	DC31	83106010	MP316_10	537	Towns, semi-dense
MP	Nkangala	Dr JS Moroka LM	DC31	83106019	MP316_19	410	Towns, semi-dense
MP	Nkangala	Dr JS Moroka LM	DC31	83106011	MP316_11	409	Towns, semi-dense
MP	Nkangala	Dr JS Moroka LM	DC31	83106027	MP316_27	400	Towns, semi-dense
MP	Nkangala	Dr JS Moroka LM	DC31	83106031	MP316_31	385	Towns, semi-dense
MP	Nkangala	Dr JS Moroka LM	DC31	83106007	MP316_7	364	Towns, semi-dense
MP	Nkangala	Dr JS Moroka LM	DC31	83106017	MP316_17	350	Towns, semi-dense
MP	Nkangala	Dr JS Moroka LM	DC31	83106008	MP316_8	329	Towns, semi-dense
MP	Nkangala	Emakhazeni LM	DC31	83104003	MP314_3	4325	Urban
MP	Nkangala	Emakhazeni LM	DC31	83104007	MP314_7	1498	Towns, semi-dense
MP	Nkangala	Emalahleni LM	DC31	83102003	MP312_3	9757	Dense urban
MP	Nkangala	Emalahleni LM	DC31	83102031	MP312_31	8364	Dense urban
MP	Nkangala	Emalahleni LM	DC31	83102004	MP312_4	7785	Dense urban
MP	Nkangala	Emalahleni LM	DC31	83102008	MP312_8	7303	Dense urban
MP	Nkangala	Emalahleni LM	DC31	83102011	MP312_11	6907	Dense urban
MP	Nkangala	Emalahleni LM	DC31	83102005	MP312_5	6886	Dense urban
MP	Nkangala	Emalahleni LM	DC31	83102002	MP312_2	6634	Dense urban
MP	Nkangala	Emalahleni LM	DC31	83102016	MP312_16	6069	Urban
MP	Nkangala	Emalahleni LM	DC31	83102007	MP312_7	6055	Urban
MP	Nkangala	Emalahleni LM	DC31	83102013	MP312_13	5841	Urban
MP	Nkangala	Emalahleni LM	DC31	83102010	MP312_10	5618	Urban

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Province	District	Municipality	District code	Ward code	Ward label	Population density	Geotype
MP	Nkangala	Emalahleni LM	DC31	83102001	MP312_1	5154	Urban
MP	Nkangala	Emalahleni LM	DC31	83102006	MP312_6	4762	Urban
MP	Nkangala	Emalahleni LM	DC31	83102023	MP312_23	4462	Urban
MP	Nkangala	Emalahleni LM	DC31	83102014	MP312_14	2490	Urban
MP	Nkangala	Emalahleni LM	DC31	83102028	MP312_28	1614	Urban
MP	Nkangala	Emalahleni LM	DC31	83102026	MP312_26	1497	Towns, semi-dense
MP	Nkangala	Emalahleni LM	DC31	83102033	MP312_33	1495	Towns, semi-dense
MP	Nkangala	Emalahleni LM	DC31	83102021	MP312_21	1442	Towns, semi-dense
MP	Nkangala	Emalahleni LM	DC31	83102018	MP312_18	1096	Towns, semi-dense
MP	Nkangala	Emalahleni LM	DC31	83102015	MP312_15	1081	Towns, semi-dense
MP	Nkangala	Emalahleni LM	DC31	83102024	MP312_24	518	Towns, semi-dense
MP	Nkangala	Emalahleni LM	DC31	83102022	MP312_22	451	Towns, semi-dense
MP	Nkangala	Emalahleni LM	DC31	83102009	MP312_9	358	Towns, semi-dense
MP	Nkangala	Steve Tshwete LM	DC31	83103024	MP313_24	9975	Dense urban
MP	Nkangala	Steve Tshwete LM	DC31	83103025	MP313_25	9394	Dense urban
MP	Nkangala	Steve Tshwete LM	DC31	83103021	MP313_21	7691	Dense urban
MP	Nkangala	Steve Tshwete LM	DC31	83103002	MP313_2	6282	Urban
MP	Nkangala	Steve Tshwete LM	DC31	83103023	MP313_23	5493	Urban
MP	Nkangala	Steve Tshwete LM	DC31	83103022	MP313_22	4502	Urban
MP	Nkangala	Steve Tshwete LM	DC31	83103026	MP313_26	4449	Urban
MP	Nkangala	Steve Tshwete LM	DC31	83103001	MP313_1	4199	Urban
MP	Nkangala	Steve Tshwete LM	DC31	83103020	MP313_20	4069	Urban
MP	Nkangala	Steve Tshwete LM	DC31	83103006	MP313_6	2379	Urban
MP	Nkangala	Steve Tshwete LM	DC31	83103019	MP313_19	2022	Urban
MP	Nkangala	Steve Tshwete LM	DC31	83103018	MP313_18	1739	Urban
MP	Nkangala	Steve Tshwete LM	DC31	83103008	MP313_8	1526	Urban
MP	Nkangala	Steve Tshwete LM	DC31	83103027	MP313_27	1102	Towns, semi-dense
MP	Nkangala	Steve Tshwete LM	DC31	83103016	MP313_16	913	Towns, semi-dense

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Province	District	Municipality	District code	Ward code	Ward label	Population density	Geotype
MP	Nkangala	Steve Tshwete LM	DC31	83103012	MP313_12	843	Towns, semi-dense
MP	Nkangala	Steve Tshwete LM	DC31	83103013	MP313_13	540	Towns, semi-dense
MP	Nkangala	Steve Tshwete LM	DC31	83103015	MP313_15	487	Towns, semi-dense
MP	Nkangala	Steve Tshwete LM	DC31	83103014	MP313_14	400	Towns, semi-dense
MP	Nkangala	Thembisile Hani LM	DC31	83105005	MP315_5	3028	Urban
MP	Nkangala	Thembisile Hani LM	DC31	83105028	MP315_28	2410	Urban
MP	Nkangala	Thembisile Hani LM	DC31	83105016	MP315_16	2285	Urban
MP	Nkangala	Thembisile Hani LM	DC31	83105018	MP315_18	1978	Urban
MP	Nkangala	Thembisile Hani LM	DC31	83105030	MP315_30	1962	Urban
MP	Nkangala	Thembisile Hani LM	DC31	83105006	MP315_6	1724	Urban
MP	Nkangala	Thembisile Hani LM	DC31	83105015	MP315_15	1664	Urban
MP	Nkangala	Thembisile Hani LM	DC31	83105004	MP315_4	1439	Towns, semi-dense
MP	Nkangala	Thembisile Hani LM	DC31	83105014	MP315_14	1413	Towns, semi-dense
MP	Nkangala	Thembisile Hani LM	DC31	83105020	MP315_20	1375	Towns, semi-dense
MP	Nkangala	Thembisile Hani LM	DC31	83105012	MP315_12	1194	Towns, semi-dense
MP	Nkangala	Thembisile Hani LM	DC31	83105025	MP315_25	1013	Towns, semi-dense
MP	Nkangala	Thembisile Hani LM	DC31	83105029	MP315_29	901	Towns, semi-dense
MP	Nkangala	Thembisile Hani LM	DC31	83105023	MP315_23	866	Towns, semi-dense
MP	Nkangala	Thembisile Hani LM	DC31	83105019	MP315_19	759	Towns, semi-dense
MP	Nkangala	Thembisile Hani LM	DC31	83105001	MP315_1	678	Towns, semi-dense
MP	Nkangala	Thembisile Hani LM	DC31	83105026	MP315_26	641	Towns, semi-dense
MP	Nkangala	Thembisile Hani LM	DC31	83105003	MP315_3	551	Towns, semi-dense
MP	Nkangala	Thembisile Hani LM	DC31	83105009	MP315_9	531	Towns, semi-dense
MP	Nkangala	Thembisile Hani LM	DC31	83105011	MP315_11	457	Towns, semi-dense
MP	Nkangala	Thembisile Hani LM	DC31	83105002	MP315_2	351	Towns, semi-dense
MP	Nkangala	Thembisile Hani LM	DC31	83105017	MP315_17	336	Towns, semi-dense
MP	Nkangala	Victor Khanye LM	DC31	83101005	MP311_5	8159	Dense urban
MP	Nkangala	Victor Khanye LM	DC31	83101004	MP311_4	6436	Urban

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Province	District	Municipality	District code	Ward code	Ward label	Population density	Geotype
MP	Nkangala	Victor Khanye LM	DC31	83101001	MP311_1	3358	Urban
MP	Nkangala	Victor Khanye LM	DC31	83101002	MP311_2	1353	Towns, semi-dense
MP	Nkangala	Victor Khanye LM	DC31	83101006	MP311_6	1351	Towns, semi-dense
MP	Nkangala	Victor Khanye LM	DC31	83101003	MP311_3	480	Towns, semi-dense

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8 North West

Figure 7: Geotype Classification of North West Wards by Population Density



Table 7: IMT Exclusive Zones by Ward for the North West

Province	District	Municipality	District code	Ward code	Ward label	Population density	Geotype
NW	Bojanala	Kgetlengrivier LM	DC37	63704004	NW374_4	4420	Urban
NW	Bojanala	Kgetlengrivier LM	DC37	63704005	NW374_5	1022	Towns, semi-dense
NW	Bojanala	Kgetlengrivier LM	DC37	63704007	NW374_7	524	Towns, semi-dense
NW	Bojanala	LM of Madibeng	DC37	63702022	NW372_22	7370	Dense urban
NW	Bojanala	LM of Madibeng	DC37	63702013	NW372_13	4889	Urban
NW	Bojanala	LM of Madibeng	DC37	63702038	NW372_38	3429	Urban
NW	Bojanala	LM of Madibeng	DC37	63702005	NW372_5	2317	Urban
NW	Bojanala	LM of Madibeng	DC37	63702012	NW372_12	2269	Urban
NW	Bojanala	LM of Madibeng	DC37	63702018	NW372_18	2243	Urban
NW	Bojanala	LM of Madibeng	DC37	63702017	NW372_17	2128	Urban
NW	Bojanala	LM of Madibeng	DC37	63702016	NW372_16	2098	Urban
NW	Bojanala	LM of Madibeng	DC37	63702020	NW372_20	2019	Urban
NW	Bojanala	LM of Madibeng	DC37	63702015	NW372_15	2017	Urban
NW	Bojanala	LM of Madibeng	DC37	63702041	NW372_41	1820	Urban
NW	Bojanala	LM of Madibeng	DC37	63702036	NW372_36	1774	Urban
NW	Bojanala	LM of Madibeng	DC37	63702011	NW372_11	1708	Urban
NW	Bojanala	LM of Madibeng	DC37	63702037	NW372_37	1651	Urban
NW	Bojanala	LM of Madibeng	DC37	63702006	NW372_6	1488	Towns, semi-dense
NW	Bojanala	LM of Madibeng	DC37	63702008	NW372_8	997	Towns, semi-dense
NW	Bojanala	LM of Madibeng	DC37	63702024	NW372_24	741	Towns, semi-dense
NW	Bojanala	LM of Madibeng	DC37	63702021	NW372_21	556	Towns, semi-dense
NW	Bojanala	LM of Madibeng	DC37	63702028	NW372_28	528	Towns, semi-dense
NW	Bojanala	LM of Madibeng	DC37	63702009	NW372_9	469	Towns, semi-dense
NW	Bojanala	LM of Madibeng	DC37	63702026	NW372_26	460	Towns, semi-dense
NW	Bojanala	LM of Madibeng	DC37	63702035	NW372_35	395	Towns, semi-dense
NW	Bojanala	LM of Madibeng	DC37	63702010	NW372_10	308	Towns, semi-dense

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Province	District	Municipality	District code	Ward code	Ward label	Population density	Geotype
NW	Bojanala	Moretele LM	DC37	63701015	NW371_15	1636	Urban
NW	Bojanala	Moretele LM	DC37	63701009	NW371_9	1307	Towns, semi-dense
NW	Bojanala	Moretele LM	DC37	63701008	NW371_8	1133	Towns, semi-dense
NW	Bojanala	Moretele LM	DC37	63701016	NW371_16	937	Towns, semi-dense
NW	Bojanala	Moretele LM	DC37	63701025	NW371_25	857	Towns, semi-dense
NW	Bojanala	Moretele LM	DC37	63701013	NW371_13	798	Towns, semi-dense
NW	Bojanala	Moretele LM	DC37	63701019	NW371_19	645	Towns, semi-dense
NW	Bojanala	Moretele LM	DC37	63701020	NW371_20	590	Towns, semi-dense
NW	Bojanala	Moretele LM	DC37	63701022	NW371_22	586	Towns, semi-dense
NW	Bojanala	Moretele LM	DC37	63701018	NW371_18	575	Towns, semi-dense
NW	Bojanala	Moses Kotane LM	DC37	63705016	NW375_16	1105	Towns, semi-dense
NW	Bojanala	Moses Kotane LM	DC37	63705028	NW375_28	795	Towns, semi-dense
NW	Bojanala	Moses Kotane LM	DC37	63705017	NW375_17	777	Towns, semi-dense
NW	Bojanala	Moses Kotane LM	DC37	63705015	NW375_15	716	Towns, semi-dense
NW	Bojanala	Moses Kotane LM	DC37	63705031	NW375_31	604	Towns, semi-dense
NW	Bojanala	Moses Kotane LM	DC37	63705032	NW375_32	365	Towns, semi-dense
NW	Bojanala	Moses Kotane LM	DC37	63705020	NW375_20	364	Towns, semi-dense
NW	Bojanala	Rustenburg LM	DC37	63703020	NW373_20	6757	Dense urban
NW	Bojanala	Rustenburg LM	DC37	63703010	NW373_10	5836	Urban
NW	Bojanala	Rustenburg LM	DC37	63703019	NW373_19	4815	Urban
NW	Bojanala	Rustenburg LM	DC37	63703022	NW373_22	4272	Urban
NW	Bojanala	Rustenburg LM	DC37	63703012	NW373_12	4088	Urban
NW	Bojanala	Rustenburg LM	DC37	63703013	NW373_13	2608	Urban
NW	Bojanala	Rustenburg LM	DC37	63703037	NW373_37	2572	Urban
NW	Bojanala	Rustenburg LM	DC37	63703041	NW373_41	2422	Urban
NW	Bojanala	Rustenburg LM	DC37	63703009	NW373_9	2209	Urban
NW	Bojanala	Rustenburg LM	DC37	63703027	NW373_27	1967	Urban
NW	Bojanala	Rustenburg LM	DC37	63703008	NW373_8	1918	Urban

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Province	District	Municipality	District code	Ward code	Ward label	Population density	Geotype
NW	Bojanala	Rustenburg LM	DC37	63703040	NW373_40	1617	Urban
NW	Bojanala	Rustenburg LM	DC37	63703043	NW373_43	1601	Urban
NW	Bojanala	Rustenburg LM	DC37	63703011	NW373_11	1439	Towns, semi-dense
NW	Bojanala	Rustenburg LM	DC37	63703038	NW373_38	1367	Towns, semi-dense
NW	Bojanala	Rustenburg LM	DC37	63703006	NW373_6	1280	Towns, semi-dense
NW	Bojanala	Rustenburg LM	DC37	63703007	NW373_7	1172	Towns, semi-dense
NW	Bojanala	Rustenburg LM	DC37	63703039	NW373_39	1082	Towns, semi-dense
NW	Bojanala	Rustenburg LM	DC37	63703018	NW373_18	1031	Towns, semi-dense
NW	Bojanala	Rustenburg LM	DC37	63703021	NW373_21	841	Towns, semi-dense
NW	Bojanala	Rustenburg LM	DC37	63703005	NW373_5	774	Towns, semi-dense
NW	Bojanala	Rustenburg LM	DC37	63703014	NW373_14	742	Towns, semi-dense
NW	Bojanala	Rustenburg LM	DC37	63703015	NW373_15	687	Towns, semi-dense
NW	Bojanala	Rustenburg LM	DC37	63703023	NW373_23	626	Towns, semi-dense
NW	Bojanala	Rustenburg LM	DC37	63703042	NW373_42	513	Towns, semi-dense
NW	Bojanala	Rustenburg LM	DC37	63703004	NW373_4	379	Towns, semi-dense
NW	Bojanala	Rustenburg LM	DC37	63703017	NW373_17	355	Towns, semi-dense
NW	Bojanala	Rustenburg LM	DC37	63703024	NW373_24	311	Towns, semi-dense
NW	Bojanala	Rustenburg LM	DC37	63703035	NW373_35	302	Towns, semi-dense
NW	Dr Kenneth Kaunda	City of Matlosana LM	DC40	64003038	NW403_38	7132	Dense urban
NW	Dr Kenneth Kaunda	City of Matlosana LM	DC40	64003009	NW403_9	7088	Dense urban
NW	Dr Kenneth Kaunda	City of Matlosana LM	DC40	64003010	NW403_10	6871	Dense urban
NW	Dr Kenneth Kaunda	City of Matlosana LM	DC40	64003024	NW403_24	6473	Urban
NW	Dr Kenneth Kaunda	City of Matlosana LM	DC40	64003013	NW403_13	6209	Urban
NW	Dr Kenneth Kaunda	City of Matlosana LM	DC40	64003005	NW403_5	6191	Urban
NW	Dr Kenneth Kaunda	City of Matlosana LM	DC40	64003014	NW403_14	5242	Urban
NW	Dr Kenneth Kaunda	City of Matlosana LM	DC40	64003002	NW403_2	5191	Urban
NW	Dr Kenneth Kaunda	City of Matlosana LM	DC40	64003008	NW403_8	4823	Urban
NW	Dr Kenneth Kaunda	City of Matlosana LM	DC40	64003020	NW403_20	4783	Urban

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Province	District	Municipality	District code	Ward code	Ward label	Population density	Geotype
NW	Dr Kenneth Kaunda	City of Matlosana LM	DC40	64003007	NW403_7	4436	Urban
NW	Dr Kenneth Kaunda	City of Matlosana LM	DC40	64003035	NW403_35	4191	Urban
NW	Dr Kenneth Kaunda	City of Matlosana LM	DC40	64003037	NW403_37	4074	Urban
NW	Dr Kenneth Kaunda	City of Matlosana LM	DC40	64003025	NW403_25	3879	Urban
NW	Dr Kenneth Kaunda	City of Matlosana LM	DC40	64003022	NW403_22	3126	Urban
NW	Dr Kenneth Kaunda	City of Matlosana LM	DC40	64003026	NW403_26	1798	Urban
NW	Dr Kenneth Kaunda	City of Matlosana LM	DC40	64003011	NW403_11	1728	Urban
NW	Dr Kenneth Kaunda	City of Matlosana LM	DC40	64003003	NW403_3	1702	Urban
NW	Dr Kenneth Kaunda	City of Matlosana LM	DC40	64003006	NW403_6	1467	Towns, semi-dense
NW	Dr Kenneth Kaunda	City of Matlosana LM	DC40	64003027	NW403_27	1314	Towns, semi-dense
NW	Dr Kenneth Kaunda	City of Matlosana LM	DC40	64003036	NW403_36	1282	Towns, semi-dense
NW	Dr Kenneth Kaunda	City of Matlosana LM	DC40	64003023	NW403_23	1113	Towns, semi-dense
NW	Dr Kenneth Kaunda	City of Matlosana LM	DC40	64003016	NW403_16	1055	Towns, semi-dense
NW	Dr Kenneth Kaunda	City of Matlosana LM	DC40	64003032	NW403_32	855	Towns, semi-dense
NW	Dr Kenneth Kaunda	City of Matlosana LM	DC40	64003017	NW403_17	705	Towns, semi-dense
NW	Dr Kenneth Kaunda	City of Matlosana LM	DC40	64003015	NW403_15	577	Towns, semi-dense
NW	Dr Kenneth Kaunda	City of Matlosana LM	DC40	64003031	NW403_31	477	Towns, semi-dense
NW	Dr Kenneth Kaunda	City of Matlosana LM	DC40	64003030	NW403_30	420	Towns, semi-dense
NW	Dr Kenneth Kaunda	City of Matlosana LM	DC40	64003039	NW403_39	347	Towns, semi-dense
NW	Dr Kenneth Kaunda	JB Marks LM	DC40	64005016	NW405_16	6125	Urban
NW	Dr Kenneth Kaunda	JB Marks LM	DC40	64005010	NW405_10	5577	Urban
NW	Dr Kenneth Kaunda	JB Marks LM	DC40	64005001	NW405_1	5533	Urban
NW	Dr Kenneth Kaunda	JB Marks LM	DC40	64005008	NW405_8	5355	Urban
NW	Dr Kenneth Kaunda	JB Marks LM	DC40	64005019	NW405_19	4803	Urban
NW	Dr Kenneth Kaunda	JB Marks LM	DC40	64005014	NW405_14	4721	Urban
NW	Dr Kenneth Kaunda	JB Marks LM	DC40	64005029	NW405_29	4484	Urban
NW	Dr Kenneth Kaunda	JB Marks LM	DC40	64005026	NW405_26	4068	Urban
NW	Dr Kenneth Kaunda	JB Marks LM	DC40	64005021	NW405_21	3303	Urban

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Province	District	Municipality	District code	Ward code	Ward label	Population density	Geotype
NW	Dr Kenneth Kaunda	JB Marks LM	DC40	64005018	NW405_18	3292	Urban
NW	Dr Kenneth Kaunda	JB Marks LM	DC40	64005013	NW405_13	3168	Urban
NW	Dr Kenneth Kaunda	JB Marks LM	DC40	64005009	NW405_9	2574	Urban
NW	Dr Kenneth Kaunda	JB Marks LM	DC40	64005030	NW405_30	2375	Urban
NW	Dr Kenneth Kaunda	JB Marks LM	DC40	64005012	NW405_12	1622	Urban
NW	Dr Kenneth Kaunda	JB Marks LM	DC40	64005020	NW405_20	1316	Towns, semi-dense
NW	Dr Kenneth Kaunda	JB Marks LM	DC40	64005015	NW405_15	1117	Towns, semi-dense
NW	Dr Kenneth Kaunda	JB Marks LM	DC40	64005007	NW405_7	1017	Towns, semi-dense
NW	Dr Kenneth Kaunda	JB Marks LM	DC40	64005006	NW405_6	849	Towns, semi-dense
NW	Dr Kenneth Kaunda	JB Marks LM	DC40	64005005	NW405_5	766	Towns, semi-dense
NW	Dr Kenneth Kaunda	JB Marks LM	DC40	64005025	NW405_25	705	Towns, semi-dense
NW	Dr Kenneth Kaunda	JB Marks LM	DC40	64005022	NW405_22	452	Towns, semi-dense
NW	Dr Kenneth Kaunda	JB Marks LM	DC40	64005011	NW405_11	367	Towns, semi-dense
NW	Dr Kenneth Kaunda	Maquassi Hills LM	DC40	64004001	NW404_1	4953	Urban
NW	Dr Kenneth Kaunda	Maquassi Hills LM	DC40	64004002	NW404_2	4793	Urban
NW	Dr Kenneth Kaunda	Maquassi Hills LM	DC40	64004003	NW404_3	4384	Urban
NW	Dr Kenneth Kaunda	Maquassi Hills LM	DC40	64004007	NW404_7	3477	Urban
NW	Dr Kenneth Kaunda	Maquassi Hills LM	DC40	64004011	NW404_11	1757	Urban
NW	Dr Kenneth Kaunda	Maquassi Hills LM	DC40	64004004	NW404_4	508	Towns, semi-dense
NW	Dr Ruth Segomotsi Mompati	Greater Taung LM	DC39	63904013	NW394_13	472	Towns, semi-dense
NW	Dr Ruth Segomotsi Mompati	Greater Taung LM	DC39	63904005	NW394_5	434	Towns, semi-dense
NW	Dr Ruth Segomotsi Mompati	Kagisano/Molopo LM	DC39	63907013	NW397_13	371	Towns, semi-dense
NW	Dr Ruth Segomotsi Mompati	Kagisano/Molopo LM	DC39	63907010	NW397_10	334	Towns, semi-dense
NW	Dr Ruth Segomotsi Mompati	Lekwa-Teemane LM	DC39	63906005	NW396_5	3515	Urban
NW	Dr Ruth Segomotsi Mompati	Lekwa-Teemane LM	DC39	63906002	NW396_2	2432	Urban
NW	Dr Ruth Segomotsi Mompati	Lekwa-Teemane LM	DC39	63906001	NW396_1	684	Towns, semi-dense
NW	Dr Ruth Segomotsi Mompati	Lekwa-Teemane LM	DC39	63906003	NW396_3	648	Towns, semi-dense
NW	Dr Ruth Segomotsi Mompati	Mamusa LM	DC39	63903006	NW393_6	7122	Dense urban

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Province	District	Municipality	District code	Ward code	Ward label	Population density	Geotype
NW	Dr Ruth Segomotsi Mompati	Mamusa LM	DC39	63903004	NW393_4	3189	Urban
NW	Dr Ruth Segomotsi Mompati	Mamusa LM	DC39	63903002	NW393_2	1888	Urban
NW	Dr Ruth Segomotsi Mompati	Naledi LM	DC39	63902008	NW392_8	5223	Urban
NW	Dr Ruth Segomotsi Mompati	Naledi LM	DC39	63902006	NW392_6	2412	Urban
NW	Dr Ruth Segomotsi Mompati	Naledi LM	DC39	63902004	NW392_4	959	Towns, semi-dense
NW	Dr Ruth Segomotsi Mompati	Naledi LM	DC39	63902009	NW392_9	676	Towns, semi-dense
NW	Dr Ruth Segomotsi Mompati	Naledi LM	DC39	63902003	NW392_3	375	Towns, semi-dense
NW	Ngaka Modiri Molema	Ditsobotla LM	DC38	63804003	NW384_3	6550	Dense urban
NW	Ngaka Modiri Molema	Ditsobotla LM	DC38	63804004	NW384_4	3351	Urban
NW	Ngaka Modiri Molema	Ditsobotla LM	DC38	63804009	NW384_9	2004	Urban
NW	Ngaka Modiri Molema	Ditsobotla LM	DC38	63804010	NW384_10	1212	Towns, semi-dense
NW	Ngaka Modiri Molema	Ditsobotla LM	DC38	63804002	NW384_2	777	Towns, semi-dense
NW	Ngaka Modiri Molema	Ditsobotla LM	DC38	63804015	NW384_15	772	Towns, semi-dense
NW	Ngaka Modiri Molema	Ditsobotla LM	DC38	63804013	NW384_13	373	Towns, semi-dense
NW	Ngaka Modiri Molema	Ditsobotla LM	DC38	63804018	NW384_18	368	Towns, semi-dense
NW	Ngaka Modiri Molema	Ditsobotla LM	DC38	63804014	NW384_14	321	Towns, semi-dense
NW	Ngaka Modiri Molema	Mafikeng LM	DC38	63803013	NW383_13	3724	Urban
NW	Ngaka Modiri Molema	Mafikeng LM	DC38	63803030	NW383_30	3414	Urban
NW	Ngaka Modiri Molema	Mafikeng LM	DC38	63803033	NW383_33	2755	Urban
NW	Ngaka Modiri Molema	Mafikeng LM	DC38	63803016	NW383_16	2225	Urban
NW	Ngaka Modiri Molema	Mafikeng LM	DC38	63803020	NW383_20	1771	Urban
NW	Ngaka Modiri Molema	Mafikeng LM	DC38	63803021	NW383_21	1714	Urban
NW	Ngaka Modiri Molema	Mafikeng LM	DC38	63803005	NW383_5	1400	Towns, semi-dense
NW	Ngaka Modiri Molema	Mafikeng LM	DC38	63803011	NW383_11	1389	Towns, semi-dense
NW	Ngaka Modiri Molema	Mafikeng LM	DC38	63803014	NW383_14	1321	Towns, semi-dense
NW	Ngaka Modiri Molema	Mafikeng LM	DC38	63803015	NW383_15	1292	Towns, semi-dense
NW	Ngaka Modiri Molema	Mafikeng LM	DC38	63803017	NW383_17	1224	Towns, semi-dense
NW	Ngaka Modiri Molema	Mafikeng LM	DC38	63803019	NW383_19	1154	Towns, semi-dense

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Province	District	Municipality	District code	Ward code	Ward label	Population density	Geotype
NW	Ngaka Modiri Molema	Mafikeng LM	DC38	63803032	NW383_32	1046	Towns, semi-dense
NW	Ngaka Modiri Molema	Mafikeng LM	DC38	63803029	NW383_29	962	Towns, semi-dense
NW	Ngaka Modiri Molema	Mafikeng LM	DC38	63803018	NW383_18	959	Towns, semi-dense
NW	Ngaka Modiri Molema	Mafikeng LM	DC38	63803007	NW383_7	919	Towns, semi-dense
NW	Ngaka Modiri Molema	Mafikeng LM	DC38	63803035	NW383_35	918	Towns, semi-dense
NW	Ngaka Modiri Molema	Mafikeng LM	DC38	63803008	NW383_8	856	Towns, semi-dense
NW	Ngaka Modiri Molema	Mafikeng LM	DC38	63803010	NW383_10	617	Towns, semi-dense
NW	Ngaka Modiri Molema	Mafikeng LM	DC38	63803034	NW383_34	573	Towns, semi-dense
NW	Ngaka Modiri Molema	Mafikeng LM	DC38	63803012	NW383_12	525	Towns, semi-dense
NW	Ngaka Modiri Molema	Ramotshere Moiloa LM	DC38	63805010	NW385_10	457	Towns, semi-dense
NW	Ngaka Modiri Molema	Ratlou LM	DC38	63801014	NW381_14	795	Towns, semi-dense
NW	Ngaka Modiri Molema	Ratlou LM	DC38	63801010	NW381_10	629	Towns, semi-dense
NW	Ngaka Modiri Molema	Ratlou LM	DC38	63801005	NW381_5	571	Towns, semi-dense
NW	Ngaka Modiri Molema	Tswaing LM	DC38	63802011	NW382_11	3852	Urban
NW	Ngaka Modiri Molema	Tswaing LM	DC38	63802008	NW382_8	722	Towns, semi-dense

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Figure 8: Geotype Classification of Northern Cape Wards by Population Density

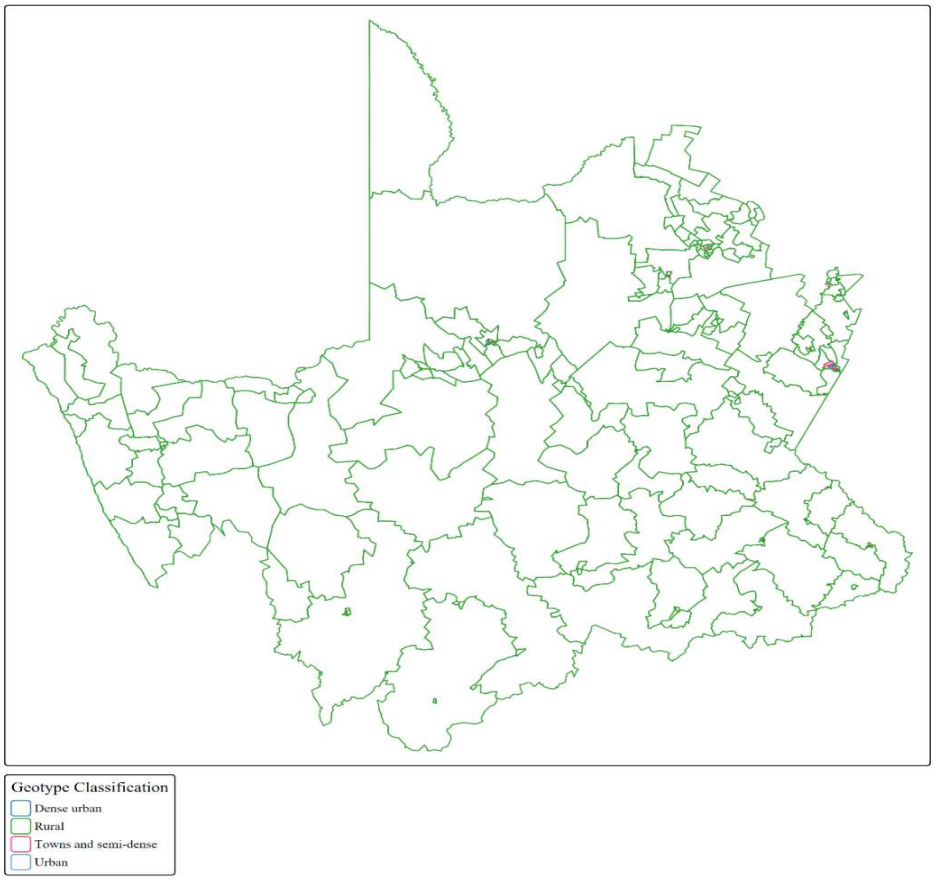


Table 8: IMT Exclusive Zones by Ward for the Northern Cape

Province	District	Municipality	District code	Ward code	Ward label	Population density	Geotype
NC	Frances Baard	Dikgatlong LM	DC9	30902001	NC092_1	4979	Urban
NC	Frances Baard	Dikgatlong LM	DC9	30902007	NC092_7	3968	Urban
NC	Frances Baard	Dikgatlong LM	DC9	30902003	NC092_3	427	Towns, semi-dense
NC	Frances Baard	Magareng LM	DC9	30903006	NC093_6	4780	Urban
NC	Frances Baard	Magareng LM	DC9	30903001	NC093_1	2353	Urban
NC	Frances Baard	Magareng LM	DC9	30903003	NC093_3	1201	Towns, semi-dense
NC	Frances Baard	Magareng LM	DC9	30903004	NC093_4	1192	Towns, semi-dense
NC	Frances Baard	Phokwane LM	DC9	30904005	NC094_5	3563	Urban
NC	Frances Baard	Phokwane LM	DC9	30904002	NC094_2	3074	Urban
NC	Frances Baard	Phokwane LM	DC9	30904007	NC094_7	2882	Urban
NC	Frances Baard	Phokwane LM	DC9	30904008	NC094_8	1568	Urban
NC	Frances Baard	Phokwane LM	DC9	30904001	NC094_1	546	Towns, semi-dense
NC	Frances Baard	Sol Plaatje LM	DC9	30901005	NC091_5	8292	Dense urban
NC	Frances Baard	Sol Plaatje LM	DC9	30901006	NC091_6	7817	Dense urban
NC	Frances Baard	Sol Plaatje LM	DC9	30901019	NC091_19	7176	Dense urban
NC	Frances Baard	Sol Plaatje LM	DC9	30901010	NC091_10	5789	Urban
NC	Frances Baard	Sol Plaatje LM	DC9	30901013	NC091_13	5550	Urban
NC	Frances Baard	Sol Plaatje LM	DC9	30901007	NC091_7	5488	Urban
NC	Frances Baard	Sol Plaatje LM	DC9	30901017	NC091_17	5381	Urban
NC	Frances Baard	Sol Plaatje LM	DC9	30901012	NC091_12	4759	Urban
NC	Frances Baard	Sol Plaatje LM	DC9	30901031	NC091_31	4665	Urban
NC	Frances Baard	Sol Plaatje LM	DC9	30901016	NC091_16	4542	Urban
NC	Frances Baard	Sol Plaatje LM	DC9	30901002	NC091_2	4510	Urban
NC	Frances Baard	Sol Plaatje LM	DC9	30901011	NC091_11	4399	Urban
NC	Frances Baard	Sol Plaatje LM	DC9	30901009	NC091_9	4316	Urban
NC	Frances Baard	Sol Plaatje LM	DC9	30901033	NC091_33	4201	Urban
NC	Frances Baard	Sol Plaatje LM	DC9	30901004	NC091_4	4084	Urban

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Province	District	Municipality	District code	Ward code	Ward label	Population density	Geotype
NC	Frances Baard	Sol Plaatje LM	DC9	30901008	NC091_8	3275	Urban
NC	Frances Baard	Sol Plaatje LM	DC9	30901015	NC091_15	2678	Urban
NC	Frances Baard	Sol Plaatje LM	DC9	30901018	NC091_18	1796	Urban
NC	Frances Baard	Sol Plaatje LM	DC9	30901003	NC091_3	1773	Urban
NC	Frances Baard	Sol Plaatje LM	DC9	30901024	NC091_24	1314	Towns, semi-dense
NC	Frances Baard	Sol Plaatje LM	DC9	30901022	NC091_22	1294	Towns, semi-dense
NC	Frances Baard	Sol Plaatje LM	DC9	30901014	NC091_14	1225	Towns, semi-dense
NC	Frances Baard	Sol Plaatje LM	DC9	30901023	NC091_23	939	Towns, semi-dense
NC	Frances Baard	Sol Plaatje LM	DC9	30901020	NC091_20	789	Towns, semi-dense
NC	Frances Baard	Sol Plaatje LM	DC9	30901025	NC091_25	721	Towns, semi-dense
NC	Frances Baard	Sol Plaatje LM	DC9	30901030	NC091_30	674	Towns, semi-dense
NC	Frances Baard	Sol Plaatje LM	DC9	30901021	NC091_21	615	Towns, semi-dense
NC	Frances Baard	Sol Plaatje LM	DC9	30901032	NC091_32	446	Towns, semi-dense
NC	John Taolo Gaetsewe	Gamagara LM	DC45	34503006	NC453_6	1048	Towns, semi-dense
NC	John Taolo Gaetsewe	Ga-Segonyana LM	DC45	34502003	NC452_3	724	Towns, semi-dense
NC	John Taolo Gaetsewe	Ga-Segonyana LM	DC45	34502006	NC452_6	411	Towns, semi-dense
NC	Namakwa	Hantam LM	DC6	30605002	NC065_2	966	Towns, semi-dense
NC	Namakwa	Richtersveld LM	DC6	30601006	NC061_6	2919	Urban
NC	Pixley ka Seme	Emthanjeni LM	DC7	30703002	NC073_2	4847	Urban
NC	Pixley ka Seme	Emthanjeni LM	DC7	30703001	NC073_1	4441	Urban
NC	Pixley ka Seme	Emthanjeni LM	DC7	30703003	NC073_3	4139	Urban
NC	Pixley ka Seme	Emthanjeni LM	DC7	30703004	NC073_4	1257	Towns, semi-dense
NC	Pixley ka Seme	Kareeberg LM	DC7	30704001	NC074_1	4300	Urban
NC	Pixley ka Seme	Renosterberg LM	DC7	30705005	NC075_5	742	Towns, semi-dense
NC	Pixley ka Seme	Renosterberg LM	DC7	30705002	NC075_2	552	Towns, semi-dense
NC	Pixley ka Seme	Siyathemba LM	DC7	30707002	NC077_2	6272	Urban
NC	Pixley ka Seme	Siyathemba LM	DC7	30707001	NC077_1	1545	Urban
NC	Pixley ka Seme	Thembelihle LM	DC7	30706005	NC076_5	9996	Dense urban
NC	Pixley ka Seme	Thembelihle LM	DC7	30706003	NC076_3	4571	Urban

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Province	District	Municipality	District code	Ward code	Ward label	Population density	Geotype
NC	Pixley ka Seme	Thembelihle LM	DC7	30706004	NC076_4	3306	Urban
NC	Pixley ka Seme	Umsobomvu LM	DC7	30702005	NC072_5	839	Towns, semi-dense
NC	Pixley ka Seme	Umsobomvu LM	DC7	30702003	NC072_3	473	Towns, semi-dense
NC	Pixley ka Seme	Umsobomvu LM	DC7	30702004	NC072_4	385	Towns, semi-dense
NC	Z F Mgcawu	Dawid Kruiper LM	DC8	30807010	NC087_10	5740	Urban
NC	Z F Mgcawu	Dawid Kruiper LM	DC8	30807004	NC087_4	4997	Urban
NC	Z F Mgcawu	Dawid Kruiper LM	DC8	30807002	NC087_2	4092	Urban
NC	Z F Mgcawu	Dawid Kruiper LM	DC8	30807015	NC087_15	3459	Urban
NC	Z F Mgcawu	Dawid Kruiper LM	DC8	30807005	NC087_5	3199	Urban
NC	Z F Mgcawu	Dawid Kruiper LM	DC8	30807001	NC087_1	2709	Urban
NC	Z F Mgcawu	Dawid Kruiper LM	DC8	30807006	NC087_6	2353	Urban
NC	Z F Mgcawu	Dawid Kruiper LM	DC8	30807003	NC087_3	1686	Urban
NC	Z F Mgcawu	Dawid Kruiper LM	DC8	30807007	NC087_7	1008	Towns, semi-dense
NC	Z F Mgcawu	Dawid Kruiper LM	DC8	30807008	NC087_8	385	Towns, semi-dense
NC	Z F Mgcawu	Dawid Kruiper LM	DC8	30807009	NC087_9	315	Towns, semi-dense
NC	Z F Mgcawu	Kai !Garib LM	DC8	30802006	NC082_6	5132	Urban
NC	Z F Mgcawu	Kgatelopele LM	DC8	30806001	NC086_1	2068	Urban
NC	Z F Mgcawu	Tsantsabane LM	DC8	30805002	NC085_2	4346	Urban
NC	Z F Mgcawu	Tsantsabane LM	DC8	30805004	NC085_4	926	Towns, semi-dense

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Figure 9: Geotype Classification of Western Cape Wards by Population Density

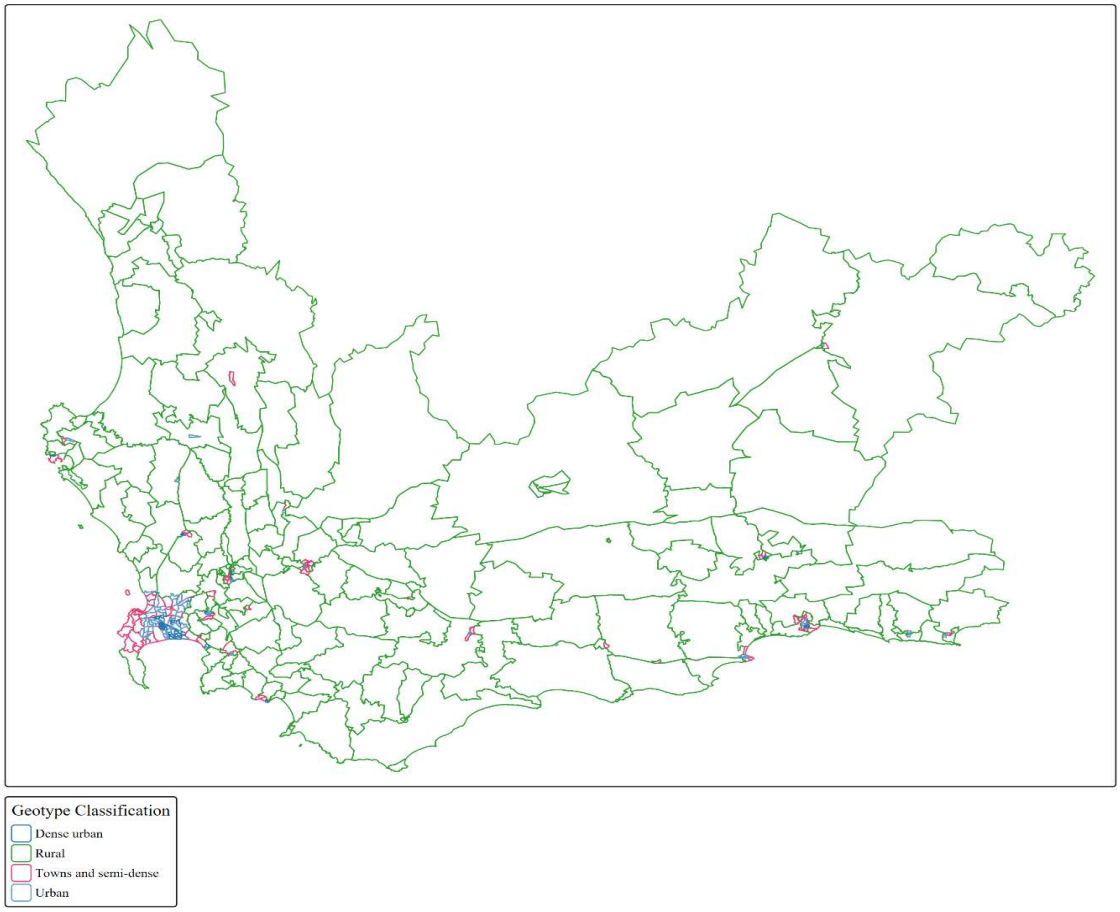


Table 9: IMT Exclusive Zones by Ward for the Western Cape

Province	District	Municipality	District code	Ward code	Ward label	Population density	Geotype
WC	Cape Winelands	Breede Valley LM	DC2	10205009	WC025_9	14381	Dense urban
WC	Cape Winelands	Breede Valley LM	DC2	10205017	WC025_17	12159	Dense urban
WC	Cape Winelands	Breede Valley LM	DC2	10205016	WC025_16	6620	Dense urban
WC	Cape Winelands	Breede Valley LM	DC2	10205014	WC025_14	4899	Urban
WC	Cape Winelands	Breede Valley LM	DC2	10205011	WC025_11	4743	Urban
WC	Cape Winelands	Breede Valley LM	DC2	10205012	WC025_12	1479	Towns, semi-dense
WC	Cape Winelands	Breede Valley LM	DC2	10205010	WC025_10	1308	Towns, semi-dense
WC	Cape Winelands	Breede Valley LM	DC2	10205008	WC025_8	1097	Towns, semi-dense
WC	Cape Winelands	Breede Valley LM	DC2	10205013	WC025_13	887	Towns, semi-dense
WC	Cape Winelands	Breede Valley LM	DC2	10205007	WC025_7	829	Towns, semi-dense
WC	Cape Winelands	Breede Valley LM	DC2	10205021	WC025_21	683	Towns, semi-dense
WC	Cape Winelands	Breede Valley LM	DC2	10205006	WC025_6	630	Towns, semi-dense
WC	Cape Winelands	Drakenstein LM	DC2	10203005	WC023_5	19075	Dense urban
WC	Cape Winelands	Drakenstein LM	DC2	10203032	WC023_32	16732	Dense urban
WC	Cape Winelands	Drakenstein LM	DC2	10203012	WC023_12	16659	Dense urban
WC	Cape Winelands	Drakenstein LM	DC2	10203006	WC023_6	15852	Dense urban
WC	Cape Winelands	Drakenstein LM	DC2	10203008	WC023_8	11956	Dense urban
WC	Cape Winelands	Drakenstein LM	DC2	10203024	WC023_24	10860	Dense urban
WC	Cape Winelands	Drakenstein LM	DC2	10203009	WC023_9	9411	Dense urban
WC	Cape Winelands	Drakenstein LM	DC2	10203020	WC023_20	9256	Dense urban
WC	Cape Winelands	Drakenstein LM	DC2	10203027	WC023_27	9181	Dense urban
WC	Cape Winelands	Drakenstein LM	DC2	10203021	WC023_21	7970	Dense urban
WC	Cape Winelands	Drakenstein LM	DC2	10203014	WC023_14	7911	Dense urban
WC	Cape Winelands	Drakenstein LM	DC2	10203010	WC023_10	7676	Dense urban
WC	Cape Winelands	Drakenstein LM	DC2	10203016	WC023_16	7596	Dense urban
WC	Cape Winelands	Drakenstein LM	DC2	10203013	WC023_13	5717	Urban
WC	Cape Winelands	Drakenstein LM	DC2	10203026	WC023_26	5665	Urban

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Province	District	Municipality	District code	Ward code	Ward label	Population density	Geotype
WC	Cape Winelands	Drakenstein LM	DC2	10203007	WC023_7	5290	Urban
WC	Cape Winelands	Drakenstein LM	DC2	10203033	WC023_33	3778	Urban
WC	Cape Winelands	Drakenstein LM	DC2	10203002	WC023_2	1556	Urban
WC	Cape Winelands	Drakenstein LM	DC2	10203022	WC023_22	1463	Towns, semi-dense
WC	Cape Winelands	Drakenstein LM	DC2	10203011	WC023_11	1417	Towns, semi-dense
WC	Cape Winelands	Drakenstein LM	DC2	10203023	WC023_23	1138	Towns, semi-dense
WC	Cape Winelands	Drakenstein LM	DC2	10203019	WC023_19	952	Towns, semi-dense
WC	Cape Winelands	Drakenstein LM	DC2	10203004	WC023_4	881	Towns, semi-dense
WC	Cape Winelands	Langeberg LM	DC2	10206002	WC026_2	7390	Dense urban
WC	Cape Winelands	Langeberg LM	DC2	10206003	WC026_3	2603	Urban
WC	Cape Winelands	Langeberg LM	DC2	10206001	WC026_1	1548	Urban
WC	Cape Winelands	Langeberg LM	DC2	10206010	WC026_10	1420	Towns, semi-dense
WC	Cape Winelands	Stellenbosch LM	DC2	10204014	WC024_14	31264	Dense urban
WC	Cape Winelands	Stellenbosch LM	DC2	10204015	WC024_15	27430	Dense urban
WC	Cape Winelands	Stellenbosch LM	DC2	10204013	WC024_13	11322	Dense urban
WC	Cape Winelands	Stellenbosch LM	DC2	10204016	WC024_16	6725	Dense urban
WC	Cape Winelands	Stellenbosch LM	DC2	10204012	WC024_12	5887	Urban
WC	Cape Winelands	Stellenbosch LM	DC2	10204017	WC024_17	3995	Urban
WC	Cape Winelands	Stellenbosch LM	DC2	10204010	WC024_10	2491	Urban
WC	Cape Winelands	Stellenbosch LM	DC2	10204023	WC024_23	1919	Urban
WC	Cape Winelands	Stellenbosch LM	DC2	10204002	WC024_2	1406	Towns, semi-dense
WC	Cape Winelands	Stellenbosch LM	DC2	10204007	WC024_7	1247	Towns, semi-dense
WC	Cape Winelands	Stellenbosch LM	DC2	10204009	WC024_9	1211	Towns, semi-dense
WC	Cape Winelands	Stellenbosch LM	DC2	10204022	WC024_22	630	Towns, semi-dense
WC	Cape Winelands	Stellenbosch LM	DC2	10204018	WC024_18	596	Towns, semi-dense
WC	Cape Winelands	Stellenbosch LM	DC2	10204008	WC024_8	301	Towns, semi-dense
WC	Cape Winelands	Witzenberg LM	DC2	10202001	WC022_1	21221	Dense urban
WC	Cape Winelands	Witzenberg LM	DC2	10202006	WC022_6	4172	Urban
WC	Cape Winelands	Witzenberg LM	DC2	10202004	WC022_4	475	Towns, semi-dense

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Province	District	Municipality	District code	Ward code	Ward label	Population density	Geotype
WC	Central Karoo	Beaufort West LM	DC5	10503003	WC053_3	2537	Urban
WC	Central Karoo	Beaufort West LM	DC5	10503005	WC053_5	1929	Urban
WC	Central Karoo	Beaufort West LM	DC5	10503004	WC053_4	793	Towns, semi-dense
WC	Central Karoo	Prince Albert LM	DC5	10502003	WC052_3	4799	Urban
WC	City of Cape Town	City of Cape Town MM	CPT	19100052	CPT_52	28125	Dense urban
WC	City of Cape Town	City of Cape Town MM	CPT	19100089	CPT_89	26472	Dense urban
WC	City of Cape Town	City of Cape Town MM	CPT	19100087	CPT_87	23832	Dense urban
WC	City of Cape Town	City of Cape Town MM	CPT	19100091	CPT_91	22115	Dense urban
WC	City of Cape Town	City of Cape Town MM	CPT	19100080	CPT_80	21131	Dense urban
WC	City of Cape Town	City of Cape Town MM	CPT	19100034	CPT_34	20350	Dense urban
WC	City of Cape Town	City of Cape Town MM	CPT	19100033	CPT_33	19604	Dense urban
WC	City of Cape Town	City of Cape Town MM	CPT	19100086	CPT_86	18988	Dense urban
WC	City of Cape Town	City of Cape Town MM	CPT	19100106	CPT_106	18775	Dense urban
WC	City of Cape Town	City of Cape Town MM	CPT	19100040	CPT_40	17512	Dense urban
WC	City of Cape Town	City of Cape Town MM	CPT	19100037	CPT_37	15834	Dense urban
WC	City of Cape Town	City of Cape Town MM	CPT	19100041	CPT_41	15466	Dense urban
WC	City of Cape Town	City of Cape Town MM	CPT	19100020	CPT_20	14460	Dense urban
WC	City of Cape Town	City of Cape Town MM	CPT	19100088	CPT_88	14278	Dense urban
WC	City of Cape Town	City of Cape Town MM	CPT	19100038	CPT_38	13377	Dense urban
WC	City of Cape Town	City of Cape Town MM	CPT	19100013	CPT_13	12483	Dense urban
WC	City of Cape Town	City of Cape Town MM	CPT	19100101	CPT_101	12143	Dense urban
WC	City of Cape Town	City of Cape Town MM	CPT	19100098	CPT_98	11926	Dense urban
WC	City of Cape Town	City of Cape Town MM	CPT	19100018	CPT_18	11740	Dense urban
WC	City of Cape Town	City of Cape Town MM	CPT	19100036	CPT_36	11404	Dense urban
WC	City of Cape Town	City of Cape Town MM	CPT	19100085	CPT_85	11397	Dense urban
WC	City of Cape Town	City of Cape Town MM	CPT	19100104	CPT_104	11300	Dense urban
WC	City of Cape Town	City of Cape Town MM	CPT	19100097	CPT_97	11078	Dense urban
WC	City of Cape Town	City of Cape Town MM	CPT	19100092	CPT_92	10387	Dense urban
WC	City of Cape Town	City of Cape Town MM	CPT	19100035	CPT_35	9757	Dense urban

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Province	District	Municipality	District code	Ward code	Ward label	Population density	Geotype
WC	City of Cape Town	City of Cape Town MM	CPT	19100039	CPT_39	9541	Dense urban
WC	City of Cape Town	City of Cape Town MM	CPT	19100096	CPT_96	9290	Dense urban
WC	City of Cape Town	City of Cape Town MM	CPT	19100108	CPT_108	8868	Dense urban
WC	City of Cape Town	City of Cape Town MM	CPT	19100116	CPT_116	8799	Dense urban
WC	City of Cape Town	City of Cape Town MM	CPT	19100025	CPT_25	8158	Dense urban
WC	City of Cape Town	City of Cape Town MM	CPT	19100094	CPT_94	7953	Dense urban
WC	City of Cape Town	City of Cape Town MM	CPT	19100042	CPT_42	7714	Dense urban
WC	City of Cape Town	City of Cape Town MM	CPT	19100050	CPT_50	7680	Dense urban
WC	City of Cape Town	City of Cape Town MM	CPT	19100051	CPT_51	7603	Dense urban
WC	City of Cape Town	City of Cape Town MM	CPT	19100093	CPT_93	7581	Dense urban
WC	City of Cape Town	City of Cape Town MM	CPT	19100006	CPT_6	7137	Dense urban
WC	City of Cape Town	City of Cape Town MM	CPT	19100099	CPT_99	7134	Dense urban
WC	City of Cape Town	City of Cape Town MM	CPT	19100082	CPT_82	7110	Dense urban
WC	City of Cape Town	City of Cape Town MM	CPT	19100095	CPT_95	6899	Dense urban
WC	City of Cape Town	City of Cape Town MM	CPT	19100110	CPT_110	6467	Urban
WC	City of Cape Town	City of Cape Town MM	CPT	19100012	CPT_12	6052	Urban
WC	City of Cape Town	City of Cape Town MM	CPT	19100078	CPT_78	5993	Urban
WC	City of Cape Town	City of Cape Town MM	CPT	19100076	CPT_76	5959	Urban
WC	City of Cape Town	City of Cape Town MM	CPT	19100068	CPT_68	5834	Urban
WC	City of Cape Town	City of Cape Town MM	CPT	19100044	CPT_44	5685	Urban
WC	City of Cape Town	City of Cape Town MM	CPT	19100019	CPT_19	5534	Urban
WC	City of Cape Town	City of Cape Town MM	CPT	19100024	CPT_24	5226	Urban
WC	City of Cape Town	City of Cape Town MM	CPT	19100075	CPT_75	4937	Urban
WC	City of Cape Town	City of Cape Town MM	CPT	19100114	CPT_114	4896	Urban
WC	City of Cape Town	City of Cape Town MM	CPT	19100045	CPT_45	4543	Urban
WC	City of Cape Town	City of Cape Town MM	CPT	19100017	CPT_17	4504	Urban
WC	City of Cape Town	City of Cape Town MM	CPT	19100081	CPT_81	4440	Urban
WC	City of Cape Town	City of Cape Town MM	CPT	19100079	CPT_79	4425	Urban
WC	City of Cape Town	City of Cape Town MM	CPT	19100047	CPT_47	3846	Urban

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Province	District	Municipality	District code	Ward code	Ward label	Population density	Geotype
WC	City of Cape Town	City of Cape Town MM	CPT	19100031	CPT_31	3828	Urban
WC	City of Cape Town	City of Cape Town MM	CPT	19100016	CPT_16	3698	Urban
WC	City of Cape Town	City of Cape Town MM	CPT	19100049	CPT_49	3423	Urban
WC	City of Cape Town	City of Cape Town MM	CPT	19100107	CPT_107	3392	Urban
WC	City of Cape Town	City of Cape Town MM	CPT	19100026	CPT_26	3335	Urban
WC	City of Cape Town	City of Cape Town MM	CPT	19100065	CPT_65	3262	Urban
WC	City of Cape Town	City of Cape Town MM	CPT	19100007	CPT_7	2946	Urban
WC	City of Cape Town	City of Cape Town MM	CPT	19100046	CPT_46	2942	Urban
WC	City of Cape Town	City of Cape Town MM	CPT	19100048	CPT_48	2934	Urban
WC	City of Cape Town	City of Cape Town MM	CPT	19100111	CPT_111	2926	Urban
WC	City of Cape Town	City of Cape Town MM	CPT	19100030	CPT_30	2911	Urban
WC	City of Cape Town	City of Cape Town MM	CPT	19100090	CPT_90	2759	Urban
WC	City of Cape Town	City of Cape Town MM	CPT	19100058	CPT_58	2571	Urban
WC	City of Cape Town	City of Cape Town MM	CPT	19100028	CPT_28	2499	Urban
WC	City of Cape Town	City of Cape Town MM	CPT	19100103	CPT_103	2497	Urban
WC	City of Cape Town	City of Cape Town MM	CPT	19100002	CPT_2	2475	Urban
WC	City of Cape Town	City of Cape Town MM	CPT	19100027	CPT_27	2472	Urban
WC	City of Cape Town	City of Cape Town MM	CPT	19100063	CPT_63	2460	Urban
WC	City of Cape Town	City of Cape Town MM	CPT	19100060	CPT_60	2352	Urban
WC	City of Cape Town	City of Cape Town MM	CPT	19100072	CPT_72	2310	Urban
WC	City of Cape Town	City of Cape Town MM	CPT	19100073	CPT_73	2172	Urban
WC	City of Cape Town	City of Cape Town MM	CPT	19100011	CPT_11	2169	Urban
WC	City of Cape Town	City of Cape Town MM	CPT	19100066	CPT_66	2064	Urban
WC	City of Cape Town	City of Cape Town MM	CPT	19100021	CPT_21	2002	Urban
WC	City of Cape Town	City of Cape Town MM	CPT	19100008	CPT_8	1957	Urban
WC	City of Cape Town	City of Cape Town MM	CPT	19100009	CPT_9	1920	Urban
WC	City of Cape Town	City of Cape Town MM	CPT	19100059	CPT_59	1865	Urban
WC	City of Cape Town	City of Cape Town MM	CPT	19100112	CPT_112	1792	Urban
WC	City of Cape Town	City of Cape Town MM	CPT	19100004	CPT_4	1784	Urban

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Province	District	Municipality	District code	Ward code	Ward label	Population density	Geotype
WC	City of Cape Town	City of Cape Town MM	CPT	19100003	CPT_3	1745	Urban
WC	City of Cape Town	City of Cape Town MM	CPT	19100005	CPT_5	1672	Urban
WC	City of Cape Town	City of Cape Town MM	CPT	19100057	CPT_57	1622	Urban
WC	City of Cape Town	City of Cape Town MM	CPT	19100056	CPT_56	1543	Urban
WC	City of Cape Town	City of Cape Town MM	CPT	19100022	CPT_22	1461	Towns, semi-dense
WC	City of Cape Town	City of Cape Town MM	CPT	19100010	CPT_10	1451	Towns, semi-dense
WC	City of Cape Town	City of Cape Town MM	CPT	19100115	CPT_115	1380	Towns, semi-dense
WC	City of Cape Town	City of Cape Town MM	CPT	19100014	CPT_14	1357	Towns, semi-dense
WC	City of Cape Town	City of Cape Town MM	CPT	19100055	CPT_55	1352	Towns, semi-dense
WC	City of Cape Town	City of Cape Town MM	CPT	19100053	CPT_53	1334	Towns, semi-dense
WC	City of Cape Town	City of Cape Town MM	CPT	19100067	CPT_67	1317	Towns, semi-dense
WC	City of Cape Town	City of Cape Town MM	CPT	19100083	CPT_83	1297	Towns, semi-dense
WC	City of Cape Town	City of Cape Town MM	CPT	19100074	CPT_74	1233	Towns, semi-dense
WC	City of Cape Town	City of Cape Town MM	CPT	19100113	CPT_113	1229	Towns, semi-dense
WC	City of Cape Town	City of Cape Town MM	CPT	19100109	CPT_109	1217	Towns, semi-dense
WC	City of Cape Town	City of Cape Town MM	CPT	19100015	CPT_15	1140	Towns, semi-dense
WC	City of Cape Town	City of Cape Town MM	CPT	19100064	CPT_64	1015	Towns, semi-dense
WC	City of Cape Town	City of Cape Town MM	CPT	19100001	CPT_1	970	Towns, semi-dense
WC	City of Cape Town	City of Cape Town MM	CPT	19100077	CPT_77	916	Towns, semi-dense
WC	City of Cape Town	City of Cape Town MM	CPT	19100070	CPT_70	814	Towns, semi-dense
WC	City of Cape Town	City of Cape Town MM	CPT	19100102	CPT_102	675	Towns, semi-dense
WC	City of Cape Town	City of Cape Town MM	CPT	19100069	CPT_69	637	Towns, semi-dense
WC	City of Cape Town	City of Cape Town MM	CPT	19100043	CPT_43	605	Towns, semi-dense
WC	City of Cape Town	City of Cape Town MM	CPT	19100062	CPT_62	505	Towns, semi-dense
WC	City of Cape Town	City of Cape Town MM	CPT	19100054	CPT_54	472	Towns, semi-dense
WC	City of Cape Town	City of Cape Town MM	CPT	19100071	CPT_71	362	Towns, semi-dense
WC	Garden Route	Bitou LM	DC4	10407003	WC047_3	5298	Urban
WC	Garden Route	Bitou LM	DC4	10407005	WC047_5	4982	Urban
WC	Garden Route	Bitou LM	DC4	10407006	WC047_6	2999	Urban

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Province	District	Municipality	District code	Ward code	Ward label	Population density	Geotype
WC	Garden Route	Bitou LM	DC4	10407004	WC047_4	1094	Towns, semi-dense
WC	Garden Route	George LM	DC4	10404010	WC044_10	14300	Dense urban
WC	Garden Route	George LM	DC4	10404009	WC044_9	11635	Dense urban
WC	Garden Route	George LM	DC4	10404015	WC044_15	10190	Dense urban
WC	Garden Route	George LM	DC4	10404007	WC044_7	10122	Dense urban
WC	Garden Route	George LM	DC4	10404008	WC044_8	7744	Dense urban
WC	Garden Route	George LM	DC4	10404012	WC044_12	7480	Dense urban
WC	Garden Route	George LM	DC4	10404006	WC044_6	6698	Dense urban
WC	Garden Route	George LM	DC4	10404013	WC044_13	6684	Dense urban
WC	Garden Route	George LM	DC4	10404001	WC044_1	4712	Urban
WC	Garden Route	George LM	DC4	10404020	WC044_20	2945	Urban
WC	Garden Route	George LM	DC4	10404014	WC044_14	2727	Urban
WC	Garden Route	George LM	DC4	10404016	WC044_16	2634	Urban
WC	Garden Route	George LM	DC4	10404005	WC044_5	1941	Urban
WC	Garden Route	George LM	DC4	10404028	WC044_28	1743	Urban
WC	Garden Route	George LM	DC4	10404017	WC044_17	1603	Urban
WC	Garden Route	George LM	DC4	10404027	WC044_27	1497	Towns, semi-dense
WC	Garden Route	George LM	DC4	10404002	WC044_2	1361	Towns, semi-dense
WC	Garden Route	George LM	DC4	10404021	WC044_21	1259	Towns, semi-dense
WC	Garden Route	George LM	DC4	10404003	WC044_3	807	Towns, semi-dense
WC	Garden Route	George LM	DC4	10404019	WC044_19	589	Towns, semi-dense
WC	Garden Route	George LM	DC4	10404026	WC044_26	553	Towns, semi-dense
WC	Garden Route	George LM	DC4	10404011	WC044_11	469	Towns, semi-dense
WC	Garden Route	George LM	DC4	10404018	WC044_18	328	Towns, semi-dense
WC	Garden Route	Hessequa LM	DC4	10402005	WC042_5	4958	Urban
WC	Garden Route	Hessequa LM	DC4	10402002	WC042_2	1240	Towns, semi-dense
WC	Garden Route	Hessequa LM	DC4	10402008	WC042_8	1132	Towns, semi-dense
WC	Garden Route	Kannaland LM	DC4	10401001	WC041_1	1457	Towns, semi-dense
WC	Garden Route	Knysna LM	DC4	10408003	WC048_3	5232	Urban

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Province	District	Municipality	District code	Ward code	Ward label	Population density	Geotype
WC	Garden Route	Knysna LM	DC4	10408008	WC048_8	4307	Urban
WC	Garden Route	Knysna LM	DC4	10408007	WC048_7	3382	Urban
WC	Garden Route	Knysna LM	DC4	10408006	WC048_6	2510	Urban
WC	Garden Route	Knysna LM	DC4	10408011	WC048_11	1737	Urban
WC	Garden Route	Mossel Bay LM	DC4	10403003	WC043_3	10062	Dense urban
WC	Garden Route	Mossel Bay LM	DC4	10403002	WC043_2	7305	Dense urban
WC	Garden Route	Mossel Bay LM	DC4	10403015	WC043_15	6187	Urban
WC	Garden Route	Mossel Bay LM	DC4	10403012	WC043_12	4246	Urban
WC	Garden Route	Mossel Bay LM	DC4	10403001	WC043_1	4042	Urban
WC	Garden Route	Mossel Bay LM	DC4	10403013	WC043_13	3206	Urban
WC	Garden Route	Mossel Bay LM	DC4	10403009	WC043_9	2537	Urban
WC	Garden Route	Mossel Bay LM	DC4	10403008	WC043_8	1065	Towns, semi-dense
WC	Garden Route	Mossel Bay LM	DC4	10403006	WC043_6	939	Towns, semi-dense
WC	Garden Route	Mossel Bay LM	DC4	10403010	WC043_10	652	Towns, semi-dense
WC	Garden Route	Oudtshoorn LM	DC4	10405004	WC045_4	11018	Dense urban
WC	Garden Route	Oudtshoorn LM	DC4	10405013	WC045_13	8499	Dense urban
WC	Garden Route	Oudtshoorn LM	DC4	10405008	WC045_8	8368	Dense urban
WC	Garden Route	Oudtshoorn LM	DC4	10405005	WC045_5	4495	Urban
WC	Garden Route	Oudtshoorn LM	DC4	10405010	WC045_10	2028	Urban
WC	Garden Route	Oudtshoorn LM	DC4	10405006	WC045_6	1719	Urban
WC	Garden Route	Oudtshoorn LM	DC4	10405003	WC045_3	1383	Towns, semi-dense
WC	Garden Route	Oudtshoorn LM	DC4	10405007	WC045_7	1274	Towns, semi-dense
WC	Overberg	Cape Agulhas LM	DC3	10303003	WC033_3	1911	Urban
WC	Overberg	Overstrand LM	DC3	10302012	WC032_12	21386	Dense urban
WC	Overberg	Overstrand LM	DC3	10302005	WC032_5	13593	Dense urban
WC	Overberg	Overstrand LM	DC3	10302006	WC032_6	7254	Dense urban
WC	Overberg	Overstrand LM	DC3	10302007	WC032_7	1211	Towns, semi-dense
WC	Overberg	Overstrand LM	DC3	10302002	WC032_2	815	Towns, semi-dense
WC	Overberg	Overstrand LM	DC3	10302013	WC032_13	683	Towns, semi-dense

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Province	District	Municipality	District code	Ward code	Ward label	Population density	Geotype
WC	Overberg	Swellendam LM	DC3	10304006	WC034_6	3117	Urban
WC	Overberg	Swellendam LM	DC3	10304005	WC034_5	817	Towns, semi-dense
WC	Overberg	Swellendam LM	DC3	10304004	WC034_4	755	Towns, semi-dense
WC	Overberg	Theewaterskloof LM	DC3	10301006	WC031_6	10454	Dense urban
WC	Overberg	Theewaterskloof LM	DC3	10301013	WC031_13	6258	Urban
WC	Overberg	Theewaterskloof LM	DC3	10301014	WC031_14	3256	Urban
WC	Overberg	Theewaterskloof LM	DC3	10301011	WC031_11	779	Towns, semi-dense
WC	Overberg	Theewaterskloof LM	DC3	10301008	WC031_8	310	Towns, semi-dense
WC	West Coast	Bergrivier LM	DC1	10103004	WC013_4	1919	Urban
WC	West Coast	Cederberg LM	DC1	10102002	WC012_2	580	Towns, semi-dense
WC	West Coast	Saldanha Bay LM	DC1	10104004	WC014_4	8068	Dense urban
WC	West Coast	Saldanha Bay LM	DC1	10104009	WC014_9	4467	Urban
WC	West Coast	Saldanha Bay LM	DC1	10104013	WC014_13	4003	Urban
WC	West Coast	Saldanha Bay LM	DC1	10104001	WC014_1	1554	Urban
WC	West Coast	Saldanha Bay LM	DC1	10104010	WC014_10	931	Towns, semi-dense
WC	West Coast	Saldanha Bay LM	DC1	10104002	WC014_2	775	Towns, semi-dense
WC	West Coast	Saldanha Bay LM	DC1	10104003	WC014_3	304	Towns, semi-dense
WC	West Coast	Swartland LM	DC1	10105009	WC015_9	11750	Dense urban
WC	West Coast	Swartland LM	DC1	10105011	WC015_11	11263	Dense urban
WC	West Coast	Swartland LM	DC1	10105002	WC015_2	2696	Urban
WC	West Coast	Swartland LM	DC1	10105010	WC015_10	1339	Towns, semi-dense
WC	West Coast	Swartland LM	DC1	10105008	WC015_8	609	Towns, semi-dense

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INDEPENDENT COMMUNICATIONS AUTHORITY OF SOUTH AFRICA

NOTICE 4042 OF 2026

Radio frequency spectrum assignment plans

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ELECTRONIC COMMUNICATIONS ACT, 2005 (ACT NO. 36 OF 2005)

HEREBY ISSUES A NOTICE REGARDING THE RADIO FREQUENCY ASSIGNMENT PLANS FOR THE FREQUENCY BANDS ALLOCATED TO THE MOBILE RADIOCOMMUNICATIONS SERVICES AND IDENTIFIED INTERNATIONAL MOBILE TELECOMMUNICATIONS IN THE NATIONAL RADIO FREQUENCY PLAN.

1. The Independent Communications Authority of South Africa ("the Authority"), on 28 March 2024, published the Draft International Mobile Telecommunications (IMT) Roadmap, in Government Gazette No. 50413 (Notice 4584 of 2024) inviting Written Representations.

2. On 13 September 2024, in Government Gazette 51244 (Notice 5209 of 2024) the Authority published a "Notice Communicating the Outcome of the Consultation Process of the Draft IMT Roadmap 2025.

3. The Authority, in Government Gazette 53883 (Notice 3712 of 2025), published the Second Draft International Mobile Telecommunications (IMT) Roadmap 2025, in terms of section 4(3)(c) of the Independent Communications Authority of South Africa Act, 2000 (Act No. 13 of 2000), read with sections 2(e), 30, 31(4), and 33 of the Electronic Communications Act (Act No 36 of 2005).

4. Now therefore, the Authority, in terms of section 4(3)(c) of the Independent Communications Authority of South Africa Act, 2000 (Act No. 13 of 2000), read with sections 2(e), 30, 31(4), and 33 of the Electronic Communications Act (Act No 36 of 2005) hereby publishes the notice regarding the radio frequency assignment plans for the frequency bands allocated to the mobile radiocommunications services and identified international mobile telecommunications in the national radio frequency plan**.**

5. Interested persons are hereby invited to submit written representations on the notice regarding the radio frequency assignment plans for the frequency bands allocated to the mobile radiocommunications services and identified international mobile telecommunications in the national radio frequency plan in both Microsoft Word (MS) and Portable Document Format (PDF) by no later than 16:00 on **4 September 2026.**

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6. Persons making representations are further invited to indicate whether they require an opportunity to make oral representations.

7. Written representations or enquiries may be directed by email to:

Attention:

Mr Manyaapelo Richard Makgotlho

e-mail: rmakgotlho@icasa.org.za

Copy: jdikgale@icasa.org.za

8. Where persons making representations require that their representation, or part thereof, be treated as confidential, then an application in terms of section 4D of the ICASA Act, 2000 (Act No 13 of 2000) must be lodged with the Authority. Such an application must be submitted simultaneously with the representation, together with a non-confidential, redacted version of the submission. If, however, the request for confidentiality is not granted, the person making the request will be allowed to withdraw the representation or document in question.

9. The guidelines for confidentiality requests are contained in Government Gazette Number No 41839 of 17 August 2018.

10. All written representations submitted to the Authority pursuant to this notice will be made available for inspection by interested persons from **11 September 2026** at the Authority's Library. Electronic copies of such representations are obtainable on request and printed versions will be obtainable on payment of a fee.

11. The radio frequency assignment plans for the frequency bands allocated to the mobile radiocommunications services and identified international mobile telecommunications in the national radio frequency plan and the non-confidential representations will be uploaded to the Authority's website under this link: https://www.icasa.org.za/legislation-and-regulations/radio-frequency-spectrum-plans/draft-radio-frequency-spectrum-plans.



Mothibi G. Ramusi

CHAIRPERSON

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Radio Frequency Spectrum Assignment Plan

Rules for Services operating in the Frequency Band

1710 MHz to 2200 MHz

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1 Glossary of Terms, Abbreviations, and Acronyms

1.1 In this Radio Frequency Spectrum Assignment Plan, terms used will have the same meaning as in the Electronic Communications Act 36 of 2005; unless the context indicates otherwise. The definitions and acronyms for additional terms are listed below:

"3GPP"	means the 3rd Generation Partnership Project (3GPP) which consists of six telecommunications standard development organisations
"AAS"	means Active Antenna System
"Act"	means the Electronic Communications Act, 2005 (Act No. 36 of 2005) as amended
"AGM"	means Annual General Meeting
"AU"	means African Union
"BEM"	means Block Edge Masks
"BS"	means Base Stations
"CRASA"	means Communications Regulators' Association of Southern Africa
"CRASA ECC"	means the Communications Regulators' Association of Southern Africa (CRASA) Electronic Communications Committee (ECC)
"DM RS"	means Demodulation Reference Signal
"ECC"	means the Electronic Communications Committee within the European Conference of Postal and Telecommunications Administrations (CEPT)
"ECC/REC (11)04"	means the ECC Recommendation (11)04 - Cross-border Coordination for Mobile/Fixed Communications Networks (MFCN) in the frequency band 790-862 MHz, Edition 3 February 2017
"ECC/REC (15)01"	means the ECC Recommendation (15)01 - (15)01 -ECC Recommendation (15)01 "Cross-border coordination for Mobile/Fixed Communications Networks (MFCN) in the frequency bands: 694-790 MHz, 1427-1518 MHz, and 3400-3800 MHz". Amended on 14 February 2020
"EIRP"	means Effective Isotropic Radiated Power
"FDD"	means the Frequency Division Duplex
"HCM"	means the Harmonised Calculation Method
"HCM4A"	means the Harmonised Calculation Method for Africa
"HDA"	means High-Density Area
"HIBS"	means High-Altitude Platform Stations as IMT Base Stations
"HIPSSA"	means the Sub-Saharan Africa Assessment Report on Harmonisation of ICT Policies in Sub-Saharan Africa
"ICNIRP"	Means the International Commission on Non-Ionizing Radiation Protection (ICNIRP)
"IMT"	means the International Mobile Telecommunications
"IMT-2020"	means International Mobile Telecommunications-2020
"IMT Advanced"	means International Mobile Telecommunications-Advanced
"ITA"	means the Invitation to Apply
"ITU"	means the International Telecommunication Union
"ITU-R"	means the International Telecommunication Union Radiocommunication Sector
"LPI"	means Low Power Indoor
"LoS"	means Line of Sight
"LTE"	means the Long-Term Evolution is a standard for wireless communication of high-speed data for mobile phones and data terminals. It is based on the GSM/EDGE and
"Non-AAS"	means Non-Active Antenna System
"NR"	means New Radio

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"NRFP"	means the National Radio Frequency Plan 2013 for South Africa
"PCI"	means the Physical-Layer Cell Identities
"PFD"	means Power Flux Density
"PPDR"	means the Public Protection and Disaster Relief as defined in ITU-R Report M.2033
"PRACH"	means the Physical Random-Access Channel
"PSTN"	means the Public Switched Telephone Network
"PUCCH"	means the Physical Uplink Control Channel
"PUSCH"	means the Physical Uplink Shared Channel
"RAS"	means Radio Astronomy Service
"RFSAP"	means the Radio Frequency Spectrum Assignment Plan
"RR"	means Radio Regulations
"SADC"	means Southern African Development Community
"TCA"	means the Terrain Clearance Angle
"TRP"	means the Total Radiated Power. The TRP is defined as the integral of the power transmitted in different directions over the entire radiation sphere.
"TDD"	means the Time Division Duplex
"UE"	means User Equipment
"VLP"	means Very Low Power
"WRC-12"	means the World Radiocommunication Conference 2012 held in Geneva
"WRC-15"	means the World Radiocommunication Conference 2015 held in Geneva
"WRC-19"	means the World Radiocommunication Conference 2019 held in Sharm el-Sheikh
"WRC-23"	means the World Radiocommunication Conference 2023 held in Dubai

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2 Purpose

2.1 An RFSAP provides information on the requirements attached to the use of a frequency band in line with the allocation and other information in the NRFP. This information includes technical characteristics of radio systems, frequency channelling, coordination, and details on required migration of existing users of the band and the expected method of assignment.

2.2 This RFSAP states the requirements for the utilisation of the frequency band 1710 MHz to 2200 MHz for IMT.

2.3 The ITU states that IMT systems are mobile systems that provide access to a wide range of telecommunication services including advanced mobile services, supported by mobile and fixed networks, which are increasingly packet-based. Key features of the IMT systems are:[1]

- a high degree of commonality of functionality worldwide whilst retaining the flexibility to support a wide range of services and applications in a cost-efficient manner;
- compatibility of services within IMT and with fixed networks;
- capability of interworking with other radio access systems;
- high quality mobile services;
- user equipment suitable for worldwide use;
- user-friendly applications, services, and equipment;
- worldwide roaming capability; and
- enhanced peak data rates to support advanced services and applications.

3 General

3.1 Technical characteristics of equipment used in IMT systems will conform to all applicable South African standards, international standards, and ITU (including its radio regulations) as agreed and adopted by South Africa.

3.2 All installations must comply with safety rules as specified in applicable standards.

3.3 The equipment used will be certified under South African law and regulations.

3.4 The allocations of the IMT bands and the information in this RFSAP are subject to review.

3.5 Frequency bands identified for IMT include the bands 1710 MHz to 2200 MHz.

3.6 The requirements for the standard families which can provide IMT services include, but are not limited to:

- IMT-2000;
- IMT-Advanced;
- IMT-2020;
- IMT-2030.

[1] See ITU-R Frequently Asked Questions on IMT, available at: https://www.itu.int/en/ITU-R/Documents/FAQ-IMT-2024.pdf#:~:text=Key%20features%20of%20IMT%2D2000%20and,in%20a%20cost%20efficient%20manner%3B

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3.7 Typical technical and operational characteristics identified by the ITU are described in the following documents:

- Recommendation ITU-R M.2012-5 (02/2022): Detailed specifications of the terrestrial radio interfaces of IMT Advanced;
- Report ITU-R M.2074-0 (2006): Report on Radio Aspects for the terrestrial component of IMT-2000 and systems beyond IMT-2000;
- Recommendation ITU-R M.1645 (06/2003): Framework and overall objectives of the future development of IMT-2000 and systems beyond IMT-2000;
- Recommendation ITU-R M.1036: Frequency arrangements for implementation of the terrestrial component of IMT in the bands identified for IMT in the RR;
- Recommendation ITU-R M.2150-1 (02/2022): Detailed specifications of the terrestrial radio interfaces of IMT-2020; and
- Recommendation ITU-R M.2160-0 (11/2023): Framework and overall objectives of the future development of IMT for 2030 and beyond.

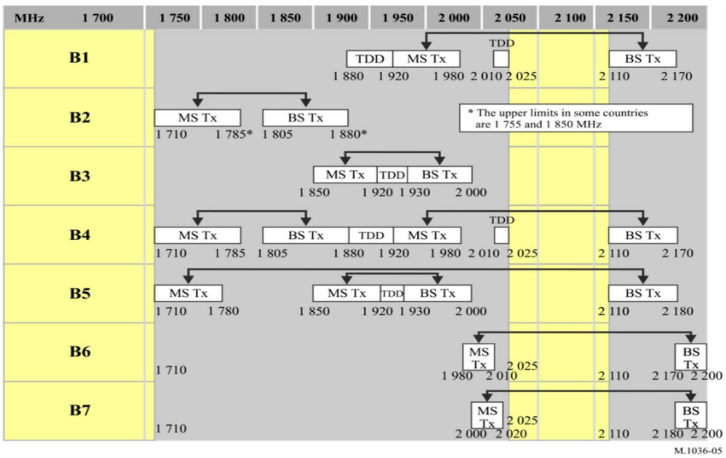
3.8 The ITU also provides guidelines for modelling and simulation, e.g.

- Recommendation ITU-R M.2070-1 (02/2017): Generic unwanted emission characteristics
- of base stations using the terrestrial radio interfaces of IMT-Advanced;
- Recommendation ITU-R M.2071-1 (02/2017): Generic unwanted emission characteristics of mobile stations using the terrestrial radio interfaces of IMT-Advanced; and
- Recommendation ITU-R M.2101 (02/2017): Modelling and simulation of IMT networks and systems for use in sharing and compatibility studies.

4 Channelling Plan

4.1 The frequency arrangements for implementation of IMT in the 1 710 – 2 200 MHz frequency range are summarized in Figure 1 below, noting the implementation aspects in this RFSAP. Band plan 4 (“B4”) and band plan 6 (“B6”) is applicable to South Africa.

Figure 1: Frequency arrangements for B1 to B7



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Source: ITU M.1036-05

5 Requirements for the Usage of the Radio Frequency Spectrum

5.1 This chapter covers the minimum key characteristics considered necessary in order to make the best use of the available frequencies.

5.2 The use of Band 4 (B4) spectrum on Figure 1 is limited to IMT services.

5.3 Only systems using digital technologies that promote spectral efficiency will be issued with an assignment. Capacity enhancing digital techniques is being rapidly developed together with techniques that promote efficient spectrum use without reducing service quality. These techniques are encouraged.

5.4 In some cases, a radio system conforming to the requirements of this RFSAP may require modifications if harmful interference is caused to other radio stations or systems.

5.5 The allocation of spectrum and shared services within these bands are found in the NRFP..

5.6 Maximum radiated power:

5.6.1 Maximum transmit power levels for base stations ("BS") operating include:[2]

5.6.1.1 AAS base stations: The maximum power limit is specified as TRP of 60 dBm per cell (per 5 MHz block).

5.6.1.2 Non-AAS base stations: The maximum power limit for macro base stations is an in-block EIRP limit of 61 dBm per 5 MHz block.

5.6.2 UE: The ECC recommends that the in-block TRP for mobile UEs does not exceed 28 dBm;

5.6.3 On a case-to-case basis, higher TRP may be permitted if acceptable technical justification is provided.

5.6.4 The Authority may specify BEM if necessary.

5.7 Licensees may use their assignments in this band for HIBS. The PFD limits set out in WRC-23 Resolution 221 apply.[3]

5.8 Where appropriate, subscriber terminal stations should comply with the technical specification outlined under the latest version of 3GPP specifications, e.g., TS 36.521-1 for LTE, 38.521-1 for 5G NR;

5.9 ICNIRP Guideline compliance is required, where applicable; and

5.10 The criteria and guidelines for interference mitigation are described in Appendices B and D.

6 Commencement

6.1 This RFSAP comes into effect upon publication of this notice.

6.2 No new assignment for IMT in the band 1710 MHz – 2200 MHz will be approved unless it complies with this RFSAP.

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[2] See, in this regard: ECC Decision (06)01; ECC Report 298; CEPT Report 67.

[3] See ITU Resolution 221 (Rev. WRC-23).

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7 Conflict

7.1 In the event of a conflict between this RFSAP and the applicable NRFP and/or Terrestrial Broadcasting Frequency Plan, the NRFP and the Terrestrial Broadcasting Frequency Plan shall prevail.

8 Coordination Requirements

8.1 Cross Border Frequency Coordination will abide by the HCM4A Agreement. This follows the 3rd CRASA AGM that agreed that CRASA should implement the Cross Border Frequency Coordination HCM4A Agreement.

8.2 The ECC had noted the need for greater understanding of the concept and need for harmonisation in the signing of the HCM4A Agreement by the SADC Member States if the implementation of the Agreement is to be effective. The ECC, therefore, agreed to convene a workshop on HCM4A and requested the CRASA Members to consider signing the agreement.

8.3 At the 5th CRASA AGM, Swakopmund, Namibia – 07-08 April 2016 [1], the subject of Cross Border Frequency Coordination using the Harmonised Calculation Method for Africa (HCM4A) was discussed in detail, following similar efforts in Europe. The Resolution CRASA/AGM/15.16/07 stipulates, "The AGM urged CRASA Members to prioritise the motivation to their administrations who are yet to indicate their interest to sign the HCM4A, to do so as soon as possible".

8.4 Therefore, coordination would follow the HCM4A as detailed in Sub-Saharan Africa Assessment Report on HIPSSA.[4]

8.5 A harmonised calculation method (HCM4A) brings these benefits:

8.5.1 Based on HCM Agreement used in Europe;

8.5.2 Optimise spectrum usage;

8.5.3 Prevent harmful interferences;

8.5.4 Confer an adequate protection for stations;

8.5.5 Define technical provisions and administrative procedures;

8.5.6 Quick assignment of preferential frequencies;

8.5.7 Transparent decisions through agreed assessment procedures;

8.5.8 Quick assessment of interference through data exchange.

8.6 HCM4A involves all 4 sub regions of Africa. This means the HCM4A projects include performing a survey and a comparative analysis of existing administrative and technical procedures related to bilateral and multilateral cross-border frequency coordination agreements across the 4 geographical sub-regions as defined by the AU, namely:

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[4] See: https://www.itu.int/en/ITU-D/Projects/ITU-EC-ACP/HIPSSA/Documents/FINAL%20DOCUMENTS/FINAL%20DOCS%20ENGLISH/hcm4a_agreement.pdf.pdf

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8.6.1 Central Africa [Burundi, Central African Republic, Chad, Congo, Democratic Republic of Congo, Equatorial Guinea, Gabon, Sao Tome, and Principe];

8.6.2 East Africa [Comoros, Djibouti, Eritrea, Ethiopia, Kenya, Madagascar, Mauritius, Rwanda, Seychelles, Somalia, Sudan, Tanzania, Uganda];

8.6.3 Southern Africa [Angola, Botswana, Lesotho, Malawi, Mozambique, Namibia, South Africa, Eswatini, Zambia, Zimbabwe];

8.6.4 West Africa [Benin, Burkina-Faso, Cape Verde, Côte d'Ivoire, Gambia, Ghana, Guinea, Guinea-Bissau, Liberia, Mali, Niger, Nigeria, Sierra Leone, Senegal, Togo].

8.7 HCM4A also comes with a software tool for Sub-Saharan Africa. This has the following features:[5]

8.7.1 Optimise spectrum usage by accurate interference field strength calculations;

8.7.2 Establish general parameters, improvement, and supplementation of technical provisions, individual restrictions;

8.7.3 Establish models for computer-aided interference range calculations; and

8.7.4 Harmonise parameters: objectively predictable towards transparent decisions.

8.8 Use of these frequency bands will require coordination with the neighbouring countries within the coordination zones of 6 kilometres from the neighbouring country. The coordination distance is continuously being reviewed and these may be updated from time to time.

8.9 The below field strength thresholds have to be assured based on based on ECC/REC (08)02 in respect of the IMT1800 band, ECC/REC 01)01 for the IMT2100 band, and ECC/REC (23)01 for the 1900-1910MHz band, applied over the range 1880-1920MHz range in South Africa. Operator-to-operator coordination may be necessary to avoid interference.

8.10 In general stations of FDD systems may be used without coordination with a neighbouring country if the mean field strength produced of each carrier produced by the base station does not exceed the value of:

8.10.1 In respect of IMT1800:

8.10.1.1 If preferential codes are used: 65 dBµV/m/5 MHz at a height of 3 m above ground at the border line between countries and does not exceed a value of 47 dBµV/m/5 MHz at a height of 3 m above ground at a distance of 6 km inside the neighbouring country.

8.10.1.2 If non-preferential codes are used with centre frequencies aligned: 47 dBµV/m/5MHz at a height of 3 m above ground at the borderline between neighbouring countries.

8.10.2 In respect of IMT2100:

[5] See: https://www.itu.int/en/ITU-D/Regional-Presence/AsiaPacific/Documents/Events/2017/May%20BKK/Presentations/HCM%20and%20HCM4A%20BKK%2020170504%20IB.pdf

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8.10.2.1 If preferential codes are used: 65 dBµV/m/5 MHz at a height of 3 m above ground at the border line between countries and does not exceed a value of 37 dBµV/m/5 MHz at a height of 3 m above ground at a distance of 6 km inside the neighbouring country.

8.10.2.2 Using non-preferential codes with centre frequencies aligned: 37 dBµV/m/5MHz at a height of 3 m above ground at and beyond the border line between countries.

8.10.2.3 Preferential use: For some cross-border situations, together with code coordination, it may be possible to agree on a frequency coordination based on preferential frequencies, while ensuring a fair treatment of different operators within a country. This could be implemented in the case when FDD mode in MFCN systems is used in following manner:

8.10.2.3.1 Preferential frequencies (or preferential frequency bands) shall be agreed between Administrations concerned.

8.10.2.3.2 Preferential frequencies may be used without coordination with a neighbouring country if the predicted mean field strength of each carrier produced by the base station does not exceed a value of 75 dBµV/m/5 MHz at a height of 3 m above ground at and beyond the border line between countries

8.10.2.3.3 Non-preferential frequencies may be used without coordination with a neighbouring country if the predicted mean field strength of each carrier produced by the base station does not exceed a value of 65 dBµV/m/5MHz at a height of 3 m above ground at the borderline between countries and 37 dBµV/m/5MHz at a height of 3 m above ground at a distance of 6 km inside the neighbouring country.

8.10.2.3.4 Systems operating on non-preferential frequencies have to accept interference from services in the neighbouring country using preferential frequencies.

8.11 In general stations of TDD systems in the band 1880-1920MHz may be used without coordination with a neighbouring country:

8.11.1 Base stations of unsynchronised TDD networks (e.g. with non-compatible frame structures and/or without common phase clock reference) on both sides of the borderline do not exceed the limit of: 0 dBµV/m/(5 MHz) at a height of 3 m above ground at the borderline between countries.

8.11.2 Base stations of synchronised TDD networks on both sides of the borderline with synchronisation signal centre frequencies not aligned for all PCIs or with synchronisation signal[6] centre frequencies aligned and for preferential PCIs may be used without coordination with a neighbouring country if the field strength of each cell produced by the base station does not exceed the values of:

8.11.2.1 65 dBµV/m/(5 MHz) at a height of 3 m above ground at the borderline between countries;

8.11.2.2 47 dBµV/m/(5 MHz) at a height of 3 m above ground at a distance of 6 km inside the neighbouring country.

[6] In this context, "synchronisation signals" refer to the Synchronisation Signal Block (SSB) for NR and Primary/Secondary Synchronisation Signal (PSS/SSS) for LTE as defined in relevant standards, and should not be confused with the general principle of synchronised/unsynchronised operation that is a different concept.

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8.11.3 Base stations of synchronised TDD networks on both sides of the borderline with synchronisation signal centre frequencies aligned and for non-preferential PCIs may be used without coordination with a neighbouring country if the field strength of each cell produced by the base station does not exceed the value of: 47 dBµV/m/(5 MHz) at a height of 3 m above ground at the borderline between countries.

8.12 For field strength predictions the calculations should be made according to Appendix A. In cases of other frequency block sizes 10*log10 (frequency block size / 5 MHz) should be added to the field strength values.

8.13 If neighbouring administrations wish to agree on frequency coordination based on preferential frequencies, while ensuring a fair treatment of different operators within a country the Authority will add these mutual agreements.

8.14 Technical analysis may be conducted by the Authority before an assignment is issued according to Appendix A.

8.15 In the event of any interference, the Authority will require affected parties to carry out coordination. In the event that the interference continues to be unresolved after 24 hours, the affected parties may refer the matter to the Authority for a resolution. The Authority will decide the necessary modifications and schedule of modifications to resolve the dispute. The Authority will be guided by the Frequency Coordination Process as outlined in Appendix D.

8.16 Assignment holders shall take full advantage of interference mitigation techniques such as antenna discrimination, tilt, polarization, frequency discrimination, shielding / blocking (introduce diffraction loss), site selection, and/or power control to facilitate the coordination of systems.

9 Assignment

9.1 The unassigned spectrum in this band will be assigned through an Invitation to Apply in line with the regulations developed in terms of section 31(3) of Act.

10 Amendments

10.1 Applicable licences are hereby amended to conform with this RFSAP upon publication of this notice.

11 Radio Frequency Migration

11.1 Licensees in the band 1880-1900MHz are to migrate out of this band within 24 months.

12 Synchronisation

12.1 In order to avoid interference between TDD networks operating in adjacent frequency carriers, the radio transmissions of adjacent TDD networks should be synchronized with the uplink and downlink frames aligned in time. Such synchronization of TDD networks is very important because it is the best way to avoid interference between networks and ensures efficient use of spectrum resources by avoiding inter-operator guard bands and additional base station filtering. Otherwise, the uplink and downlink interference cannot be eliminated or avoided in terms of technical measures.

12.2 The Authority will align with the operators to define a unified national uplink and downlink frame as part of a future ITA for unassigned spectrum in this band.

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13 Appendix A: Propagation Model

13.1 The following methods are proposed for assessment of anticipated interference inside neighbouring countries based on established trigger values. Due to the complexity of radio-wave propagation, different methods are proposed to be considered by administrations and are included here for guidance purposes only. It should be noted that the following methods provide theoretical predictions based on available terrain knowledge. It is practically impossible to recreate these methods with measurement procedures in the field. Therefore, only some approximation of measurements could be used to check compliance with those methods based on practical measurement procedures. The details of such approximations are not included in this recommendation and should be negotiated between countries based on their radio monitoring practices.

A. Path specific model

13.2 Where appropriately detailed terrain data is available, the propagation model for interference field strength prediction is the latest version of ITU-R Rec. P.452.[7] For the relevant transmitting terminal, predictions of path loss would be made at x km steps along radials of y km at z degree intervals.[8] The values for those receiver locations within the neighbouring country would be used to construct a histogram of path loss – and if more than 10% of predicted values exceed the threshold, the station should be coordinated.

B. Site General model

13.3 If it is not desirable to utilise detailed terrain height data for propagation modelling in the border area, the basic model to be used to trigger coordination between administrations and to decide if coordination is necessary, is ITU-R Rec. P.1546, "Method for point to area predictions for terrestrial services in the frequency range 30 to 4000 MHz".

13.4 This model is to be employed for 50% locations, 10% time and using a receiver height of 3m. For specific reception areas where terrain roughness adjustments for improved accuracy of field strength prediction are needed, administrations may use correction factors according to terrain irregularity and/or an averaged value of the TCA parameter in order to describe the roughness of the area on and around the coordination line.

13.5 Administrations and/or operators concerned may apply to the Authority to deviate from the aforementioned model.

C. Area calculations

13.6 In the case where greater accuracy is required, administrations and operators may use the area calculation below. For calculations, all the pixels of a given geographical area to be agreed between the Administrations concerned in a neighbouring country are taken into consideration. For the relevant base station, predictions of path loss should be made for all the pixels of a given geographical area from a base station and at a receiver antenna height of 3 m above ground.

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[7] Recommendation ITU-R P.452-17 (09/2021, with Editorial corrections on 28 October 2021) "Prediction procedure for the evaluation of interference between stations on the surface of the Earth at frequencies above about 0.1 GHz" (https://www.itu.int/rec/R-REC-P.452/en).

[8] Values for x, y, z, and path specific field strength levels are to be agreed between the administrations concerned.

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13.7 For evaluation:

13.7.1 Only 10% of the number of the geographical area between the border line (also including the border line) and the 6 km line itself inside the neighbouring country may be interfered by higher field strength than the trigger field strength value given for the border line in the main text above at a height of 3 m above ground:

13.7.2 Only 10% of the number of the geographical area between the 6 km (including also the 6 km line) and 12 km line inside the neighbouring country may be interfered by higher field strength than the trigger field strength value given for the 6 km line in the main text above at a height of 3 m above ground;

13.8 It is recommended that during area calculations, not only detailed terrain data but also clutter data be taken into account. Use of correction factors for clutter is crucial in particular where the border area is 'open' or 'quasi-open' from the point of view of clutter or where the interfering base station is just a few kilometres from a border line.

13.9 If the distance between a base station and a terrain point of a border line is closer than or equal to 1 km, the free space propagation model needs to be applied. Furthermore, if there is no terrain obstacle within the 1st Fresnel zone, the free space propagation model should be applied.

13.10 If clutter data is not available, it is proposed to extend the usage of the free space propagation model to a few kilometres, depending on the clutter situation in border areas.

13.11 For area type interference calculations, propagation models with path specific terrain correction factors are recommended (e.g., the latest Recommendation ITU–R P.15469 with the Terrain Clearance Angle correction factor TCA, HCM10 method with the Terrain Clearance Angle correction factor or Recommendation ITU–R P.181211).

13.12 As to correction factors for clutters 'open area' and 'quasi-open area', 20 dB and 15 dB should be used, respectively. Recommendations ITU–R P.1406[12] and/or ITU-R P.2108[13] should be used if a finer selection of clutter is required.

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[9] ITU-R Recommendation P.1546-6 (08/2019): Method for point-to-area predictions for terrestrial services in the frequency range 30 MHz to 3 000 MHz (https://www.itu.int/rec/R-REC-P.1546/en).

[10] HCM Agreement (Harmonised Calculation Method) between the administrations of Austria, Belgium, the Czech Republic, Germany, France, Hungary, the Netherlands, Croatia, Italy, Liechtenstein, Lithuania, Luxembourg, Poland, Romania, the Slovak Republic, Slovenia, and Switzerland on the Coordination of frequencies between 29.7 MHz and 43.5 GHz for the Fixed Service and the Land Mobile Service. The latest version of this agreement can be found from http://www.hcm-agreement.eu/http/englisch/verwaltung/index_europakarte.htm

[11] Recommendation P.1812-6 (09/2021) "A path-specific propagation prediction method for point-to-area terrestrial services in the frequency range 30 MHz to 6 000 MHz" (https://www.itu.int/rec/R-REC- P.1812/en).

Annex 5: Determination of the interference field strength in the Land Mobile Service (https://www.itu.int/en/ITU-D/Projects/ITU-EC- ACP/HIPSSA/Documents/REGIONAL%20documents/HCM4A-E-Annex05.pdf).

[12] Recommendation P.1406-2 (07/2015) "Propagation effects relating to terrestrial land mobile and broadcasting services in the VHF and UHF bands" (https://www.itu.int/rec/R-REC-P.1406/en).

[13] Recommendation P.2108-1 (09/2021) "Prediction of clutter loss" (https://www.itu.int/rec/R-REC-P.2108/en).

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13.13 It must be noted that terrain irregularity factor Δh is not recommended to be used in area calculations. Administrations and/or operators concerned may agree to deviate from the aforementioned models by mutual consent.

14 Appendix B: Coordination for IMT-Systems

A. PREFERENTIAL PCI FOR IMT SYSTEMS

14.1 The following is extracted from the abovementioned ECC recommendations as an operational example and can be adapted for the SADC countries for IMT systems.

14.2 PCI coordination is only needed when channel centre frequencies are aligned independently of the channel bandwidth.

14.3 3GPP TS 36.21114 defines 168 "unique physical-layer cell-identity groups" in §6.11, numbered 0...167, hereafter called "PCI groups" for IMT systems. Within each PCI group, there are three separate PCIs giving 504 PCIs in total.

14.4 Administrations should agree on a repartition of these 504 PCIs on an equitable basis when channel centre frequencies are aligned, as shown in the table below. It has to be noted that dividing the PCI groups or PCIs is equivalent. Each country should only use their own preferential PCIs close to the border and can use all PCIs away from the border. This transition distance between "close to the border" and "away from the border" should be agreed between neighbouring countries.

14.5 Administrations may wish to define different field strength levels (than those provided in the main text referring to this Appendix) for non-preferential PCIs.

14.6 As shown in the table below, the PCIs should be divided into 6 sub-sets containing each one sixth of the available PCIs. Each country is allocated three sets (half of the PCIs) in a bilateral case and two sets (one third of the PCIs) in a trilateral case.

14.7 Four types of countries are defined in a way such that no country will use the same code set as any one of its neighbours. The following lists describe a sample distribution for African countries:

14.7.1 Country type 1: Botswana, Cameroon, Comoros, Democratic Republic of the Congo, Ghana, Guinea- Bissau, Kenya, Liberia, Malawi, Mauritius, Niger, Republic of the Sudan, Eswatini;

14.7.2 Country type 2: Algeria, Angola, Benin, Cape Verde, Chad, Cote d'Ivoire, Egypt, Ethiopia, Madagascar, Senegal, United Republic of Tanzania, Zimbabwe;

14.7.3 Country type 3: Burkina Faso, Congo, Djibouti, Equatorial Guinea, Guinea, Mauritania, Nigeria, Rwanda, Sao Tome and Principe, Seychelles, South Africa, South Sudan, Tunisia, Zambia;

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[14] 3GPP TS 36.211 "Evolved Universal Terrestrial Radio Access (E-UTRA); Physical channels and modulation". (https://portal.3gpp.org/desktopmodules/Specifications/SpecificationDetails.aspx?specificationId=2425, also provided in ETSI TS 136 211). In comparison, 3GPP 38.211 (and ETSI TS 138 211) define NR Physical channels and modulation, in NR 2-step identification using PSS/SSS detection of the Physical Cell ID (same as LTE), the number of different cell IDs has been increased from 504 in LTE to 1008 for NR. Thus, for the deployment of LTE systems only the PCIs between 0 to 503 should be used and for NR systems PCIs between 0 to 1007 may be used.

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14.7.4 Country type 4: Burundi, Central African Republic, Eritrea, Gabon, Gambia, Lesotho, Libyan Arab Jamahiriya, Mali, Morocco, Mozambique, Namibia, Sierra Leone, Somalia, Togo, Uganda. (Note: A sample country type map can be found in the figure below).

14.7.5 For each type of country, the following tables and figure describe the sharing of the PCIs with its neighbouring countries, with the following conventions of writing:

Preferential PCI	
Non-Preferential PCI	

14.8 The 504 physical-layer cell-identities should be divided into the following 6 sub-sets when the carrier frequencies are aligned in border areas:

Table 1: Sharing of PCIs between countries

	Set A	**Set B**	**Set C**	**Set D**	**Set E**	**Set F**
Country 1	0..83	84..167	168..251	252..335	336..419	420..503
Border 1-2						
Zone 1-2-3						
Border 1-3						
Zone 1-2-4						
Border 1-4						
Zone 1-3-4						

PCI	**Set A**	**Set B**	**Set C**	**Set D**	**Set E**	**Set F**
Country 2	0..83	84..167	168..251	252..335	336..419	420..503
Border 2-1						
Zone 2-3-1						
Border 2-3						
Zone 2-1-4						
Border 2-4						
Zone 2-3-4						

PCI	**Set A**	**Set B**	**Set C**	**Set D**	**Set E**	**Set F**
Country 3	0..83	84..167	168..251	252..335	336..419	420..503
Border 3-2						
Zone 3-2-3						
Border 3-1						
Zone 3-1-4						
Border 3-4						
Zone 3-2-4						

PCI	**Set A**	**Set B**	**Set C**	**Set D**	**Set E**	**Set F**
Country 4	0..83	84..167	168..251	252..335	336..419	420..503
Border 4-1						
Zone 4-1-2						
Border 4-2						
Zone 4-2-3						
Border 4-3						
Zone 4-3-1						

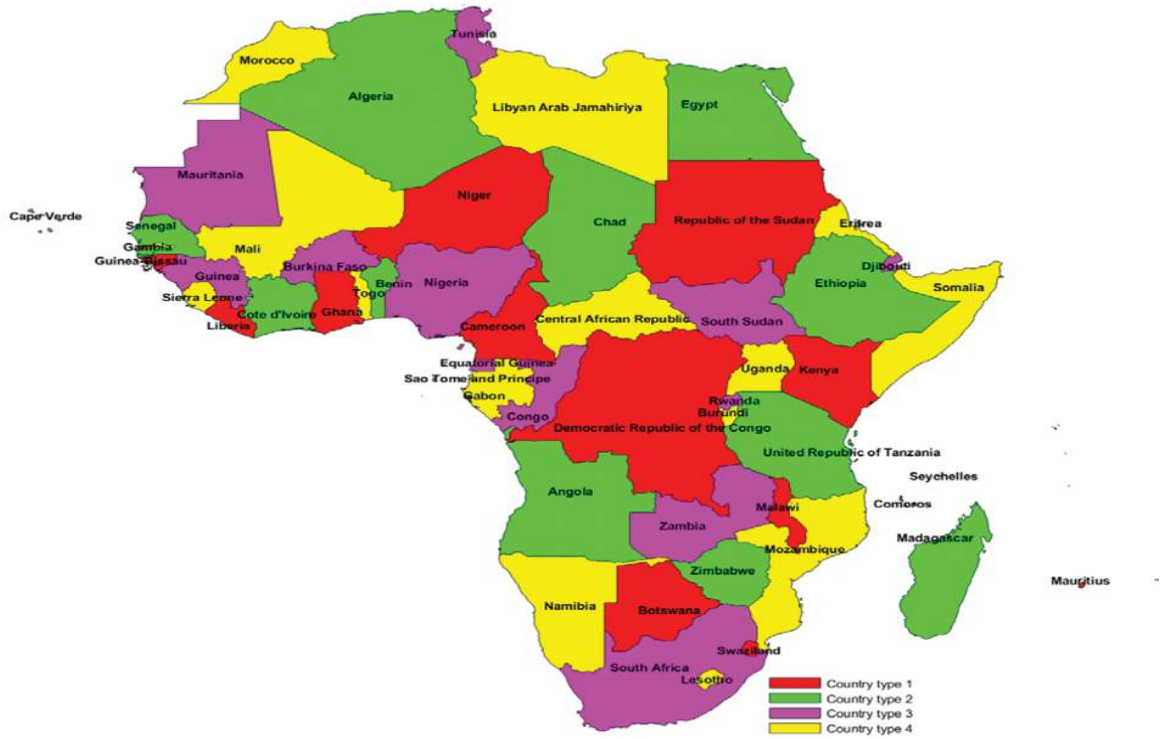
14.9 Note:

14.9.1 All PCIs are available in areas away from the border.

14.9.2 In certain specific cases (e.g., if Angola and Botswana happened to have the same Country type/PCI code) where the distance between two countries of the same type number is very small (below a few tens of kilometres), it may be necessary to address the situation in bilateral /multilateral coordination agreements as necessary and may include further subdivision of the allocated codes in certain areas.

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Figure 2: Country type map/PCI distribution map



15 Appendix C: Guidance on the consideration of IMT system radio parameters for use in bilateral and multilateral agreements

15.1 This section is provided for guidance purposes for use in bi-lateral and multilateral discussions. For IMT systems, it may be beneficial to coordinate other radio parameters besides PCI in order to minimise deteriorating effects of uplink interference.

15.2 The parameters described in this section are usually optimised during IMT system radio network planning of an operator's network. The idea of optimisation is to plan the parameters taking into account specific correlation properties of the uplink control signals, which enable more stable and predictable operation of the network. In the cross-border scenario the optimisation of parameters among neighbouring operators could provide better control of uplink interference. However, because of the difference between intra-network and inter-network interference and due to limited experience in the IMT system cross- border deployment, it is difficult to assess the benefits of such optimisation. The following guidance provides the basis for operators to consider in border areas in case of high levels of uplink interference.

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A. DM RS coordination

15.3 DM RS are transmitted in the uplink and used for channel estimation.

15.4 There is a risk of intercell interference between neighbouring cells even in case of no frame synchronisation. That is why special measures for DM RS allocation between networks in neighbouring countries occupying the same channel may need to be applied.

15.5 The case of partial channel overlap has not been studied but due to DM RS occupying resource blocks of separate users, there is a risk of DM RS collisions between neighbouring networks when the subcarriers' positions coincide (the frequency offset between central carriers of neighbouring networks is multiple of 300 kHz). Some minor benefits from DM RS coordination in these particular cases could be expected.

15.6 There are a number of possible approaches to the coordination of DM RS:

15.6.1 In the basic planning procedure, only 30 DM RS sequence groups with favourable correlation characteristics are available: {0…29}. In this case, each cell could be assigned one of the 30 DM RS sequence groups providing a cluster size of 30.

15.6.2 It is possible to extend each DM RS sequence group to generate up to 12-time shifted sequence groups by applying the cyclic shift parameter stated in 3GPP TS 36.211 for LTE. For example, each tri-sector site could be assigned one DM RS sequence group with each co-sited cell having its own cyclic shift of $2\pi/3$, which provides cluster size 30 only with 10 DM RS sequence groups. The latter case corresponds well to the case of DM RS sequence groups repartition between neighbouring countries when only limited number of groups is available for network planning. The drawback of DM RS sequence group cyclic shift is a loss of orthogonally of DM RS due to fading channels which has been found during first trials of LTE and caused throughput loss as well as time alignment problems.

15.6.3 Another approach for DM RS coordination is to implement dynamic DM RS sequence group allocation, also called pseudo-random group hopping. In this method, nearby cells are grouped into clusters up to 30 cells, and within each cell cluster, the same hopping-pattern is used. At the border of two clusters, inter-cell interference is averaged since two different hopping patterns are utilised.

15.6.4 There are 17 defined hopping patterns, numbered {0…16}, which leads to some minor unfairness in case of apportioning these patterns between neighbouring countries. Even in a trilateral case each operator will have at least 5 hopping patterns available near the border, which should be enough or planning purposes. It should be noted the pseudo-random group hopping option could be absent in the first generations of IMT system equipment.

15.7 The decision of which of these methods to use in cross-border coordination should be agreed upon by the interested parties. Specific DM RS sequence groups or hopping patterns repartition is not provided in this text but could be deduced in a similar manner to the PCI repartition.

B. PRACH coordination

15.8 Another radio network parameter that is considered during radio network planning is PRACH configuration which is needed to distinguish random access requests addressed to different cells.

15.9 PRACH resources are allocated by specifying the PRACH Resource Blocks time positions within the uplink frame, their frequency position within the IMT system channel bandwidth and by

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apportioning cell- specific root sequences. During radio network planning, these parameters are usually used in the following way:

15.9.1 Time positions for PRACH resource allocations are usually used to create time collision of PRACH resources of co-sited/frame synchronised cells because PRACH-to-PRACH interference is usually less severe than PUSCH-to-PRACH interference;

15.9.2 Frequency positions within the IMT system channel bandwidth are usually the same for all cells, again because PRACH-to-PRACH interference case is a more favourable one.

15.9.3 Cell-specific root sequences are used to distinguish between PRACH requests addressed to different cells.

15.10 For cross-border coordination, it is proposed to use frequency position offsets to exclude the possibility of so-called "ghost" PRACH requests caused by neighbouring networks. The PRACH is configured in IMT systems to use only 6 Resource Blocks or 1.08 MHz of the IMT system channel bandwidth except in regions used by PUCCH. In case of overlapping or partially overlapping channel bandwidths of neighbouring networks, it is enough to establish non-overlapping PRACH frequency blocks to perform coordination.

15.11 Because it is difficult to establish an implementation dependent procedure for such allocation, it will be the responsibility of operators to manage such frequency separation during coordination discussions.

15.12 In an early implementation, it is possible that a very limited number of frequency positions could be supported by IMT system equipment which will not be enough to coordinate in the trilateral case. In such cases, root-sequence repartition could be used. There are 838 root sequences in total to be distributed between cells, numbered {0...837}. There are two numbering schemes for PRACH root sequences (physical and logical) and that only logical root sequences numbering needs to be used for coordination.

15.13 Unfortunately, the process of root sequences planning doesn't involve direct mapping of root sequences between cells because the number of root sequences needed for one cell is dependent on the cell range.

15.14 The table showing such interdependency is presented below:

Table 2: PRACH – Range Interdependency

PRACH Configuration	Number of root seq. per cell	Cell Range (km)
1	1	0.7
2	2	1
3	2	1.4
4	2	2
5	2	2.5
6	3	3.4
7	3	4.3
8	4	5.4
9	5	7.3
10	6	9.7
11	8	12.1
12	10	15.8
13	13	22.7

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PRACH Configuration	Number of root seq. per cell	Cell Range (km)
14	22	38.7
15	32	58.7
0	64	118.8

15.15 Thus, in the case of root sequence reparation, it will be the responsibility of radio network planners to assign the correct number of root sequences in order to not overlap with the root sequence ranges of other operators. It also should be noted that different root sequences have different cubic metrics and correlation properties, which affect PRACH coverage performance and planning of so-called high-speed cells. For simplicity of cross-border coordination, it is proposed to ignore these properties.

15.16 In summary, it should be stipulated that frequency separation of PRACH resources should be used as the main coordination method. PRACH root sequences repartition should be avoided and used only in exceptional cases. Specific PRACH root sequences repartition is not provided in this text but could be deduced in a similar manner to the PCI repartition.

15.17 Additional guidance for cross-border coordination of synchronised and unsynchronised IMT TDD systems may be found in ECC/REC/ (15)0115 and ECC Report 29616.

16 Appendix D: Frequency coordination process

16.1 Technical procedures related to bilateral and multilateral cross-border frequency coordination agreements for 4 geographical sub-regions are defined by the African Union, which includes the Southern African sub-region of 10 countries. Cross-Border Frequency Coordination and interference resolution should follow the HCM4A.17

16.2 When requesting coordination, the relevant characteristics of the base station and the code or PCI group number should be forwarded to the Administration affected. All of the following characteristics should be included:

16.2.1 carrier frequency [MHz];

16.2.2 name of transmitter station;

16.2.3 country of location of transmitter station;

16.2.4 geographical coordinates [latitude, longitude];

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[15] ECC Recommendation (15)01 "Cross-border coordination for Mobile/Fixed Communications Networks (MFCN) in the frequency bands: 694-790 MHz, 1427-1518 MHz, and 3400-3800 MHz". Amended on 14 February 2020.

[16] ECC Report 296: "National synchronisation regulatory framework options in 3400-3800 MHz: a toolbox for coexistence of MFCNs in synchronised, unsynchronised, and semi-synchronised operation in 3400-3800 MHz", March 2019.

[17] Cross-Border Frequency Coordination: Harmonised Calculation Method for Africa (HCM4A), available at: https://www.itu.int/en/ITU-D/Projects/ITU-EC-ACP/HIPSSA/Documents/FINAL%20DOCUMENTS/FINAL%20DOCS%20ENGLISH/hcm4a_agreement.pdf.pdf

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16.2.5 effective antenna height [m];

16.2.6 antenna polarisation;

16.2.7 antenna azimuth [degrees];

16.2.8 antenna gain [dBi];

16.2.9 effective radiated power [dBW];

16.2.10 expected coverage zone or radius [km];

16.2.11 date of entry into service [month, year].

16.2.12 code group number used; and

16.2.13 antenna tilt [degrees].

16.3 The Administration affected will evaluate the request for coordination and will, within 30 days, notify the result of the evaluation to the Administration requesting coordination. If, in the course of the coordination procedure, the Administration affected requires additional information, it may request such information.

16.4 If no reply is received by the Administration requesting coordination within 30 days, it may send a reminder to the Administration affected. An Administration not having responded within 30 days following communication of the reminder will be deemed to have given its consent and the code coordination may be put into use with the characteristics given in the request for coordination.

16.5 The periods mentioned above may be extended by common consent.

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GOVERNMENT GAZETTE

GENERAL NOTICE

NOTICE XXXX OF 2026

THE INDEPENDENT COMMUNICATIONS AUTHORITY OF SOUTH AFRICA

ELECTRONIC COMMUNICATIONS ACT, 2005 (ACT NO. 36 OF 2005)

HEREBY ISSUES A NOTICE REGARDING THE RADIO FREQUENCY ASSIGNMENT PLANS FOR THE FREQUENCY BANDS ALLOCATED TO THE MOBILE RADIOCOMMUNICATIONS SERVICES AND IDENTIFIED INTERNATIONAL MOBILE TELECOMMUNICATIONS IN THE NATIONAL RADIO FREQUENCY PLAN.

1. The Independent Communications Authority of South Africa ("the Authority"), on 28 March 2024, published the Draft International Mobile Telecommunications (IMT) Roadmap, in Government Gazette No. 50413 (Notice 4584 of 2024) inviting Written Representations.

2. On 13 September 2024, in Government Gazette 51244 (Notice 5209 of 2024) the Authority published a "Notice Communicating the Outcome of the Consultation Process of the Draft IMT Roadmap 2025.

3. The Authority, in Government Gazette 53883 (Notice 3712 of 2025), published the Second Draft International Mobile Telecommunications (IMT) Roadmap 2025, in terms of section 4(3)(c) of the Independent Communications Authority of South Africa Act, 2000 (Act No. 13 of 2000), read with sections 2(e), 30, 31(4), and 33 of the Electronic Communications Act (Act No 36 of 2005).

4. Now therefore, the Authority, in terms of section 4(3)(c) of the Independent Communications Authority of South Africa Act, 2000 (Act No. 13 of 2000), read with sections 2(e), 30, 31(4), and 33 of the Electronic Communications Act (Act No 36 of 2005) hereby publishes the notice regarding the radio frequency assignment plans for the frequency bands allocated to the mobile radiocommunications services and identified international mobile telecommunications in the national radio frequency plan**.**

5. Interested persons are hereby invited to submit written representations on the notice regarding the radio frequency assignment plans for the frequency bands allocated to the mobile radiocommunications services and identified international mobile telecommunications in the national radio frequency plan in both Microsoft Word (MS) and Portable Document Format (PDF) by no later than 16:00 on **4 September 2026.**

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6. Persons making representations are further invited to indicate whether they require an opportunity to make oral representations.

7. Written representations or enquiries may be directed by email to:

Attention:

Mr Manyaapelo Richard Makgotlho

e-mail: rmakgotlho@icasa.org.za

Copy: jdikgale@icasa.org.za

8. Where persons making representations require that their representation, or part thereof, be treated as confidential, then an application in terms of section 4D of the ICASA Act, 2000 (Act No 13 of 2000) must be lodged with the Authority. Such an application must be submitted simultaneously with the representation, together with a non-confidential, redacted version of the submission. If, however, the request for confidentiality is not granted, the person making the request will be allowed to withdraw the representation or document in question.

9. The guidelines for confidentiality requests are contained in Government Gazette Number No 41839 of 17 August 2018.

10. All written representations submitted to the Authority pursuant to this notice will be made available for inspection by interested persons from **11 September 2026** at the Authority's Library. Electronic copies of such representations are obtainable on request and printed versions will be obtainable on payment of a fee.

11. The radio frequency assignment plans for the frequency bands allocated to the mobile radiocommunications services and identified international mobile telecommunications in the national radio frequency plan and the non-confidential representations will be uploaded to the Authority's website under this link: https://www.icasa.org.za/legislation-and-regulations/radio-frequency-spectrum-plans/draft-radio-frequency-spectrum-plans.



Mothibi G. Ramusi

CHAIRPERSON

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Radio Frequency Spectrum Assignment Plan

Rules for Services operating in the Frequency Band

3300 MHz to 3800 MHz

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1 Glossary of Terms, Abbreviations, and Acronyms

1.1 In this Radio Frequency Spectrum Assignment Plan, terms used will have the same meaning as in the Electronic Communications Act 36 of 2005; unless the context indicates otherwise. The definitions and acronyms for additional terms are listed below:

"3GPP"	means the 3rd Generation Partnership Project (3GPP) which consists of six telecommunications standard development organisations
"AAS"	means Active Antenna System
"Act"	means the Electronic Communications Act, 2005 (Act No. 36 of 2005) as amended
"AGM"	means Annual General Meeting
"AU"	means African Union
"BEM"	means Block Edge Masks
"BS"	means Base Stations
"CRASA"	means Communications Regulators' Association of Southern Africa
"CRASA ECC"	means the Communications Regulators' Association of Southern Africa (CRASA) Electronic Communications Committee (ECC)
"DM RS"	means Demodulation Reference Signal
"ECC"	means the Electronic Communications Committee within the European Conference of Postal and Telecommunications Administrations (CEPT)
"ECC/REC (11)04"	means the ECC Recommendation (11)04 - Cross-border Coordination for Mobile/Fixed Communications Networks (MFCN) in the frequency band 790-862 MHz, Edition 3 February 2017
"ECC/REC (15)01"	means the ECC Recommendation (15)01 - (15)01 -ECC Recommendation (15)01 "Cross-border coordination for Mobile/Fixed Communications Networks (MFCN) in the frequency bands: 694-790 MHz, 1427-1518 MHz, and 3400-3800 MHz". Amended on 14 February 2020
"EIRP"	means Effective Isotropic Radiated Power
"FDD"	means the Frequency Division Duplex
"HCM"	means the Harmonised Calculation Method
"HCM4A"	means the Harmonised Calculation Method for Africa
"HDA"	means High-Density Area
"HIBS"	means High-Altitude Platform Stations as IMT Base Stations
"HIPSSA"	means the Sub-Saharan Africa Assessment Report on Harmonisation of ICT Policies in Sub-Saharan Africa
"ICNIRP"	Means the International Commission on Non-Ionizing Radiation Protection (ICNIRP)
"IMT"	means the International Mobile Telecommunications
"IMT-2020"	means International Mobile Telecommunications-2020
"IMT Advanced"	means International Mobile Telecommunications-Advanced
"ITA"	means the Invitation to Apply
"ITU"	means the International Telecommunication Union
"ITU-R"	means the International Telecommunication Union Radiocommunication Sector
"LPI"	means Low Power Indoor
"LoS"	means Line of Sight
"LTE"	means the Long-Term Evolution is a standard for wireless communication of high-speed data for mobile phones and data terminals. It is based on the GSM/EDGE and
"Non-AAS"	means Non-Active Antenna System
"NR"	means New Radio

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"NRFP"	means the National Radio Frequency Plan 2013 for South Africa
"PCI"	means the Physical-Layer Cell Identities
"PFD"	means Power Flux Density
"PPDR"	means the Public Protection and Disaster Relief as defined in ITU-R Report M.2033
"PRACH"	means the Physical Random-Access Channel
"PSTN"	means the Public Switched Telephone Network
"PUCCH"	means the Physical Uplink Control Channel
"PUSCH"	means the Physical Uplink Shared Channel
"RAS"	means Radio Astronomy Service
"RFSAP"	means the Radio Frequency Spectrum Assignment Plan
"RR"	means Radio Regulations
"SADC"	means Southern African Development Community
"TCA"	means the Terrain Clearance Angle
"TRP"	means the Total Radiated Power. The TRP is defined as the integral of the power transmitted in different directions over the entire radiation sphere.
"TDD"	means the Time Division Duplex
"UE"	means User Equipment
"VLP"	means Very Low Power
"WRC-12"	means the World Radiocommunication Conference 2012 held in Geneva
"WRC-15"	means the World Radiocommunication Conference 2015 held in Geneva
"WRC-19"	means the World Radiocommunication Conference 2019 held in Sharm el-Sheikh
"WRC-23"	means the World Radiocommunication Conference 2023 held in Dubai

2 Purpose

2.1 An RFSAP provides information on the requirements attached to the use of a frequency band in line with the allocation and other information in the NRFP. This information includes technical characteristics of radio systems, frequency channelling, coordination, and details on required migration of existing users of the band and the expected method of assignment.

2.2 The RFSAP for the band 3400-3600MHz was developed and is contained in Government Gazette number 38640 (Notice Number 278 of 2015). This mid-band frequency (LTE Band 42) was later considered as one of the most popular global bands for IMT-2020 deployments, and so an updated RFSAP for that band was published in Government Gazette number 47763, notice number 2879.

2.3 This RFSAP states the requirements for the utilisation of the frequency band 3300 MHz to 3800 MHz for IMT.

2.4 The ITU states that IMT systems are mobile systems that provide access to a wide range of telecommunication services including advanced mobile services, supported by mobile and fixed networks, which are increasingly packet-based. Key features of the IMT systems are:[18]

- a high degree of commonality of functionality worldwide whilst retaining the flexibility to support a wide range of services and applications in a cost-efficient manner;

[18] See ITU-R Frequently Asked Questions on IMT, available at: https://www.itu.int/en/ITU-R/Documents/FAQ-IMT-2024.pdf#:~:text=Key%20features%20of%20IMT%2D2000%20and,in%20a%20cost%20efficient%20manner%3B

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- compatibility of services within IMT and with fixed networks;
- capability of interworking with other radio access systems;
- high quality mobile services;
- user equipment suitable for worldwide use;
- user-friendly applications, services, and equipment;
- worldwide roaming capability; and
- enhanced peak data rates to support advanced services and applications.

3 General

3.1 Technical characteristics of equipment used in IMT systems will conform to all applicable South African standards, international standards, and ITU(including its radio regulations) as agreed and adopted by South Africa.

3.2 All installations must comply with safety rules as specified in applicable standards.

3.3 The equipment used will be certified under South African law and regulations.

3.4 The allocations of the IMT bands and the information in this RFSAP are subject to review.

3.5 Frequency bands identified for IMT include the bands 3300 MHz to 3800 MHz.

3.6 The requirements for the standard families which can provide IMT3500 services include, but are not limited to:

- IMT-2000;
- IMT-Advanced;
- IMT-2020;
- IMT-2030.

3.7 Typical technical and operational characteristics identified by the ITU are described in the following documents:

- Recommendation ITU-R M.2012-5 (02/2022): Detailed specifications of the terrestrial radio interfaces of IMT Advanced;
- Report ITU-R- M.2111 (2007): Sharing studies between IMT-Advanced and the radiolocation service in the 3 400-3 700 MHz bands;
- Report ITU-R M.2074-0 (2006): Report on Radio Aspects for the terrestrial component of IMT-2000 and systems beyond IMT-2000;
- Recommendation ITU-R M.1645 (06/2003): Framework and overall objectives of the future development of IMT-2000 and systems beyond IMT-2000;
- Recommendation ITU-R M.1036: Frequency arrangements for implementation of the terrestrial component of IMT in the bands identified for IMT in the RR;
- Recommendation ITU-R M.2150-1 (02/2022): Detailed specifications of the terrestrial radio interfaces of IMT-2020; and
- Recommendation ITU-R M.2160-0 (11/2023): Framework and overall objectives of the future development of IMT for 2030 and beyond.

3.8 The ITU also provides guidelines for modelling and simulation, e.g.

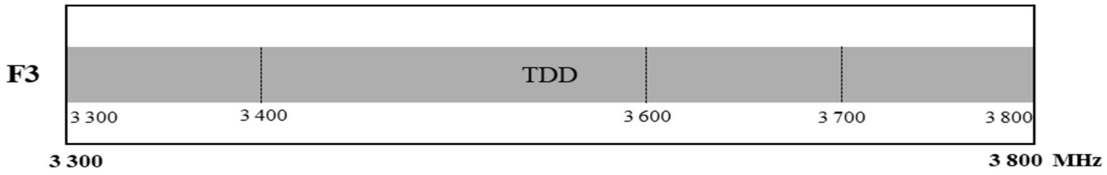
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- Recommendation ITU-R M.2070-1 (02/2017): Generic unwanted emission characteristics
- of base stations using the terrestrial radio interfaces of IMT-Advanced;
- Recommendation ITU-R M.2071-1 (02/2017): Generic unwanted emission characteristics of mobile stations using the terrestrial radio interfaces of IMT-Advanced; and
- Recommendation ITU-R M.2101 (02/2017): Modelling and simulation of IMT networks and systems for use in sharing and compatibility studies.

4 Channelling Plan

4.1 The frequency arrangements for implementation of IMT in the 3300 - 3800 MHz frequency range are summarized in Figure 3 below, noting the implementation aspects in this RFSAP.

Figure 3: Frequency arrangements for F3



Source: ITU-R M.1036-07

5 Requirements for The Usage of the Radio Frequency Spectrum

5.1 This chapter covers the minimum key characteristics considered necessary in order to make the best use of the available frequencies.

5.2 The use of the band is limited to IMT services, although Radiolocation, FS, and FSS may be accommodated subject to coordination requirements if necessary set out in Section 8 below.

5.3 Only systems using digital technologies that promote spectral efficiency will be issued with an assignment. Capacity-enhancing digital techniques are being rapidly developed together with and such techniques that promote efficient spectrum use without reducing service quality. These techniques are encouraged.

5.4 In some cases, a radio system conforming to the requirements of this RFSAP may require modifications if harmful interference is caused to other radio stations or systems.

5.5 The allocation of spectrum and shared services within these bands are found in the NRFP.

5.6 Maximum radiated power limits are as follows:

5.6.1 For non-AAS BS: The maximum output power is up to 46 dBm per antenna port, depending on the channel bandwidth.

5.6.2 For microcell (wide-area BS) non-AAS base stations: The maximum output power is 24 dBm per antenna port.

5.6.3 Mobile BS transmissions should not exceed 44 dBm/5 MHz TRP.

5.6.4 Maximum EIRP for user equipment: the limit is 23 dBm EIRP.

5.6.5 Maximum TRP for user equipment: the limit is 25 dBm TRP.

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5.6.6 On a case-to-case basis, higher power limits may be permitted if acceptable technical justification is provided.

5.6.7 The Authority may specify BEM if necessary.

5.7 In respect of the band 3400-3800MHz, ITU RR 5.434A and 5.434B apply, and the power limits are as follows:

5.7.1 For the protection of the fixed and fixed-satellite services in the frequency bands between 3 400 MHz and 3 800 MHz from the mobile, except aeronautical mobile, service in the context of the provisions of Nos. 5.430A, 5.431A, 5.432B and 5.434A, and from IMT in the context of the provisions of No. 5.431B, the PFD of –154.5 dB(W/m^2·4 kHz)^2 produced at the height of 3 m above ground level is used.

5.7.2 Based on the above PFD value the coordination distances are calculated using Recommendation ITU-R P.452-18 at 20% of time with a smooth Earth terrain profile.

5.8 Where appropriate, subscriber terminal stations should comply with the technical specification outlined under the latest version of 3GPP specifications, e.g., TS 36.521-1 for LTE, 38.521-1 for 5G NR;

5.9 ICNIRP Guideline compliance is required, where applicable; and

5.10 The criteria and guidelines for interference mitigation are described in Appendices B and D.

6 Commencement

6.1 This RFSAP comes into effect upon publication of this notice.

6.2 No new assignment for IMT in the band 3300 MHz – 3800 MHz will be approved unless it complies with this RFSAP.

7 Conflict

7.1 In the event of a conflict between this RFSAP and the applicable NRFP and/or Terrestrial Broadcasting Frequency Plan, the NRFP and the Terrestrial Broadcasting Frequency Plan shall prevail.

8 Coordination Requirements

8.1 Cross Border Frequency Coordination will abide by the HCM4A Agreement. This follows the 3rd CRASA AGM that agreed that CRASA should implement the Cross Border Frequency Coordination HCM4A Agreement.

8.2 The ECC had noted the need for greater understanding of the concept and need for harmonisation in the signing of the HCM4A Agreement by the SADC Member States if the implementation of the Agreement is to be effective. The ECC, therefore, agreed to convene a workshop on HCM4A and requested the CRASA Members to consider signing the agreement.

8.3 At the 5th CRASA AGM, Swakopmund, Namibia – 07-08 April 2016 [1], the subject of Cross Border Frequency Coordination using the Harmonised Calculation Method for Africa (HCM4A) was discussed in detail, following similar efforts in Europe. The Resolution CRASA/AGM/15.16/07 stipulates, "The AGM urged CRASA Members to prioritise the motivation to their administrations who are yet to indicate their interest to sign the HCM4A, to do so as soon as possible".

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8.4 Therefore, coordination would follow the HCM4A as detailed in Sub-Saharan Africa Assessment Report on HIPSSA.[19]

8.5 A harmonised calculation method (HCM4A) brings these benefits:

8.5.1 Based on HCM Agreement used in Europe;

8.5.2 Optimise spectrum usage;

8.5.3 Prevent harmful interferences;

8.5.4 Confer an adequate protection for stations;

8.5.5 Define technical provisions and administrative procedures;

8.5.6 Quick assignment of preferential frequencies;

8.5.7 Transparent decisions through agreed assessment procedures;

8.5.8 Quick assessment of interference through data exchange.

8.6 HCM4A involves all 4 sub regions of Africa. This means the HCM4A projects include performing a survey and a comparative analysis of existing administrative and technical procedures related to bilateral and multilateral cross-border frequency coordination agreements across the 4 geographical sub-regions as defined by the AU, namely:

8.6.1 Central Africa [Burundi, Central African Republic, Chad, Congo, Democratic Republic of Congo, Equatorial Guinea, Gabon, Sao Tome, and Principe];

8.6.2 East Africa [Comoros, Djibouti, Eritrea, Ethiopia, Kenya, Madagascar, Mauritius, Rwanda, Seychelles, Somalia, Sudan, Tanzania, Uganda];

8.6.3 Southern Africa [Angola, Botswana, Lesotho, Malawi, Mozambique, Namibia, South Africa, Eswatini, Zambia, Zimbabwe];

8.6.4 West Africa [Benin, Burkina-Faso, Cape Verde, Côte d'Ivoire, Gambia, Ghana, Guinea, Guinea-Bissau, Liberia, Mali, Niger, Nigeria, Sierra Leone, Senegal, Togo].

8.7 HCM4A also comes with a software tool for Sub-Saharan Africa. This has the following features:[20]

8.7.1 Optimise spectrum usage by accurate interference field strength calculations;

8.7.2 Establish general parameters, improvement, and supplementation of technical provisions, individual restrictions;

8.7.3 Establish models for computer-aided interference range calculations; and

8.7.4 Harmonise parameters: objectively predictable towards transparent decisions.

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[19] See: https://www.itu.int/en/ITU-D/Projects/ITU-EC-ACP/HIPSSA/Documents/FINAL%20DOCUMENTS/FINAL%20DOCS%20ENGLISH/hcm4a_agreement.pdf.pdf

[20] See: https://www.itu.int/en/ITU-D/Regional-Presence/AsiaPacific/Documents/Events/2017/May%20BKK/Presentations/HCM%20and%20HCM4A%20BKK%2020170504%20IB.pdf

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8.8 Use of these frequency bands will require coordination with the neighbouring countries within the coordination zones of 6 kilometres from the neighbouring country. The coordination distance is continuously being reviewed and these may be updated from time to time.

8.9 In the event that the Authority assigns spectrum to private networks on a geographically limited basis in the band in addition to national assignments, the geographically limited private network shall ensure that its systems do not cause interference with those of the national licensee.

8.10 Technical analysis may be conducted by the Authority before an assignment is issued according to Appendix A.

8.11 New assignments would also require coordination with the existing incumbent assignments. See Appendices B and D.

8.12 If neighbouring administrations wish to agree on frequency coordination based on preferential frequencies, while ensuring a fair treatment of different operators within a country the Authority will add these mutual agreements.

8.13 In the event of any interference, the Authority will require affected parties to carry out coordination. In the event that the interference continues to be unresolved after 24 hours, the affected parties may refer the matter to the Authority for a resolution. The Authority will decide the necessary modifications and schedule of modifications to resolve the dispute. The Authority will be guided by the Frequency Coordination Process as outlined in Appendix D.

8.14 Assignment holders shall take full advantage of interference mitigation techniques such as antenna discrimination, tilt, polarization, frequency discrimination, shielding / blocking (introduce diffraction loss), site selection, and/or power control to facilitate the coordination of systems.

8.15 The below field strength thresholds have to be assured. Operator-to-operator coordination may be necessary to avoid interference. The below follows ECC/REC (15)01:

A. TDD, Synchronised case

8.15.1 Base stations of synchronised TDD systems on both sides of the border line with centre frequencies not aligned for all PCIs or with centre frequencies aligned and for preferential PCIs may be used without coordination with a neighbouring country if the mean field strength of each cell produced by the base station does not exceed the values of

8.15.1.1 79 dBµV/m/5 MHz at a height of 3 m above ground at the border line between countries; and

8.15.1.2 61 dBµV/m/5 MHz at a height of 3 m above ground at a distance of 6 km inside the neighbouring country.

8.15.2 Base stations of synchronised TDD systems on both sides of the border line with centre frequencies aligned and for non-preferential PCIs may be used without coordination with a neighbouring country if the mean field strength of each cell produced by the base station does not exceed the value of 61 dBµV/m/5 MHz at a height of 3 m above ground at the border line between countries.

8.15.3 The following table gives an overview of the trigger values of the field strength at a height of 3 m above ground between synchronised TDD systems:

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Table 3: Field Strength Trigger Values between Synchronised TDD Systems

SYNCHRONISED CASE		
Centre frequencies aligned		**Centre frequencies not aligned**
Preferential PCIs	**Non-preferential PCI**	**All PCIs**
79 dBµV/m/5 MHz @ 0 km, and 61 dBµV/m/5 MHz @ 6 km	61 dBµV/m/5 MHz @ 0 km	79 dBµV/m/5 MHz @ 0 km, and 61 dBµV/m/5 MHz @ 6 km

@ stands for "at a distance inside the neighbouring country".

Note (1): It should be noted that for NR base station, in case of same PCIs use when centre frequencies are not aligned, the field strength levels for synchronised operation should be further studied. In fact, in NR, if the centre frequencies are not aligned it doesn't imply automatically that SSB blocks are not aligned. In case of LTE centre frequencies alignment is equivalent to synchronisation signals alignment.

Note (2): However, in case of advanced antenna system (AAS) systems, these thresholds are not sufficient to deploy networks in border areas without further measures to be studied.

B. TDD, Unsynchronised case

8.15.4 Base stations of unsynchronised TDD systems on both sides of the border line for all PCIs may be used without coordination with a neighbouring country if the mean field strength of each cell produced by the base station does not exceed a value of 0 dBµV/m/5 MHz at a height of 3 m above ground level at the border line between countries.

8.15.5 If preferential and non-preferential frequency blocks are defined and are distributed between neighbouring countries, the following provisions apply:

8.15.5.1 Base stations of unsynchronised TDD systems on both sides of the border line with preferential frequency blocks and for preferential PCIs may be used without coordination with a neighbouring country if the mean field strength of each cell produced by the base station does not exceed the trigger values of:

- 50 dBµV/m/5 MHz at a height of 3 m above ground at the border line between countries, and
- 32 dBµV/m/5 MHz at a height of 3 m above ground at a distance of 6 km inside the neighbouring country.

8.15.5.2 Base stations of unsynchronised TDD systems on both sides of the border line with preferential frequency blocks and for non-preferential PCIs may be used without coordination with a neighbouring country if the mean field strength of each cell produced by the base station does not exceed the trigger values of 32 dBµV/m/5 MHz at a height of 3 m above ground at the border line between countries.

8.15.6 Base stations of unsynchronised TDD systems on both sides of the border line with non-preferential frequency blocks and for all PCIs may be used without coordination with a neighbouring country if the mean field strength of each cell produced by the base station does not exceed the trigger values of 0 dBµV/m/5 MHz at a height of 3 m above ground level at the border line between countries.

8.16 The following table gives an overview of the trigger values of the field strength at a height of 3 m above ground for preferential frequency blocks of unsynchronised TDD systems:

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Table 4: Field Strength Trigger Values between Unsynchronised TDD Systems

UNSYNCHRONISED CASE		
PREFERENTIAL FREQUENCY BLOCKS		NON-PREFERENTIAL FREQUENCY BLOCKS
Preferential PCIs	Non-preferential PCI	All PCIs
50 dBµV/m/5 MHz @ 0 km and 32 dBµV/m/5 MHz @ 6 km	32 dBµV/m/5 MHz @ 0 km	0 dBµV/m/5 MHz @ 0 km

@ stands for "at a distance inside the neighbouring country"

8.16.1 For field strength predictions, the calculations should be made according to Appendix A. In the case of channel bandwidth other than 5 MHz, a factor of 10 x $\log_{10}$ (channel bandwidth[21] /5 MHz), should be added to the field strength levels.

8.16.2 For this band, due to the low field strength level in the unsynchronised case, in order to enable the field strength measurement, a conversion factor of 23 dB from 3 m to 10 m could be applied for suburban environment.

C. GUIDANCE OPERATORS FOR DEPLOYMENT IN THE BAND 3400-3800MHz:

8.17 In respect of the band 3400-3800MHz, ITU RR 5.434A and 5.434B apply, and the power limits are as follows:

8.17.1 For the protection of the fixed services in 3400-3600MHz, and for the protection of fixed and fixed-satellite services in the frequency bands between 3 600 MHz and 3 800 MHz from mobile, except aeronautical mobile, service in the context of the provisions of Nos. 5.430A, 5.431A, 5.432B and 5.434A, and from IMT in the context of the provisions of No. 5.431B, the PFD of –154.5 dB(W/m^2·4 kHz)^2 produced at the height of 3 m above ground level is used.

8.17.2 Based on the above PFD value the coordination distances are calculated using Recommendation ITU-R P.452-18 at 20% of time with a smooth Earth terrain profile.

8.18 The ITU has identified measures that can be implemented to mitigate interference. Techniques that can be implemented include:[22]

8.18.1 Sector pointing to reduce emission power towards FSS earth station;

8.18.2 Multiple input, multiple output ("MIMO") technique;

8.18.3 Antenna downtilting;

8.18.4 Low/medium power networks for local coverage;

8.18.5 Filtering of unwanted emissions of IMT transmitting stations;

8.18.6 Inter-service frequency separation; and

[21] Not occupied bandwidth.

[22] See ITU Radiocommunication Study Groups. 2024. Mitigation measures between FSS and IMT in the frequency band 3 400-3 600 MHz. Document 4/28-E, available at: https://www.itu.int/dms_pub/itu-r/opb/rep/R-REP-S.2546-2025-PDF-E.pdf

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8.18.7 Distance-based mitigation.

8.19 The ITU also suggests the compilation of a registry of all FSS earth stations to gather information regarding geographical location and radio frequency allocations.[23] This will ensure that regulators are aware of incumbent users and can implement appropriate coordination strategies.

D. GUIDANCE FOR OPERATORS FOR DEPLOYMENT AT THE COAST

8.20 There are radar services operating in the band 3300-3400MHz at the coast. In those areas, licensees shall ensure that IMT base stations do not interfere with radar services. Licensees may also take advantage of mitigation measures described in Section C above.

E. GUIDANCE FOR OPERATORS FOR DEPLOYMENT IN BORDER AREAS

8.21 This section lists different techniques as a guidance for operators that can be used to reduce the interference across the border in case of both TDD and FDD systems. In the context of TDD systems, while these techniques decrease the interference, they may not be sufficient to enable unsynchronised operation of TDD networks across the border.

8.22 *Antenna tilting and restricted beamforming:*[24] The downtilt of the base station antennas is adjusted such that there is suppression of all signals towards the horizon, thereby reducing the horizon component of interference to the base stations. In the case of advanced antenna system (AAS) antennas at the base stations, configured elevation-domain codeword subset restriction may also be used to decrease the interference to the base stations across the border.

8.23 *Downlink power reduction:* Another possible solution could be to reduce the downlink power on the base station sectors which are facing the border or located at sites near the border. One of the main advantages of this technique is that there is less interference radiated across the border. Moreover, since the difference between the uplink and downlink transmit powers is smaller, there is reduced UL/DL imbalance in a cell. The direct consequence of this technique is that the downlink to uplink interference becomes less problematic as there is a smaller area with vulnerable user equipment (UE). Also, smaller cells can be deployed closer to the border, providing a stronger uplink. Additionally, the performance degradation due to downlink power reduction can be compensated for by link adaptation.

8.24 *Minimum inter-cell interference scheduling:* The selection of start Physical Resource Blocks (PRB) or Resource Block Group (RBG) in the scheduler can be enhanced to reduce the inter-cell interference. This can be accomplished through restricted or randomised distributed PRB scheduling in uplink or RBG scheduling in downlink.

9 Assignment

9.1 The unassigned spectrum in this band will be assigned through an Invitation to Apply in line with the regulations developed in terms of section 31(3) of the Act.

9.2 The assignment of the spectrum for the verticals will be considered in accordance with regulation 5 of the Radio Frequency Spectrum Regulations 2015:

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[23] See ITU Radiocommunication Study Groups. 2024. Mitigation measures between FSS and IMT in the frequency band 3 400-3 600 MHz. Document 4/28-E, available at: https://www.itu.int/dms_pub/itu-r/opb/rep/R-REP-S.2546-2025-PDF-E.pdf

[24] See: https://docdb.cept.org/download/1777

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9.2.1 Regulation 5(3) of the Radio Frequency Spectrum Regulations 2015 may apply.

9.2.2 The application shall be subjected to public consultation.

9.2.3 National licenses to be protected on a primary basis;

9.2.4 For private networks with a limited geographic scope on a secondary basis.

10 Amendments

10.1 This band will be assigned exclusively for IMT TDD.

10.2 Existing licensees have been amended from IMT FDD to IMT TDD[25] accordingly, and to provide for contiguous assignment.

11 Radio Frequency Migration

11.1 Systems operating in the frequency band 3 600 – 3 800 MHz not in conformance with ITU-R 56-1 on the Naming for IMT must migrate out of the frequency.

11.2 The Authority will publish an Invitation to Apply (ITA) in terms section 33(3) of the ECA read with Regulations 6 and 7 of the Radio Frequency Spectrum Regulation 2015, taking into consideration the following objectives to:

11.2.1 Encourage investment and innovation (Section 2(d));

11.2.2 Promote competition (Section 2(f) of the ECA); and

11.2.3 Promote the interests of consumers with regard to the price, quality and the variety of electronic communications services (Section 2(n));

12 Synchronisation

12.1 In order to avoid interference between TDD networks operating in adjacent frequency carriers, the radio transmissions of adjacent TDD networks should be synchronized with the uplink and downlink frames aligned in time. Such synchronization of TDD networks is very important because it is the best way to avoid interference between networks and ensures efficient use of spectrum resources by avoiding inter-operator guard bands and additional base station filtering. Otherwise, the uplink and downlink interference cannot be eliminated or avoided in terms of technical measures.

12.2 The Authority will align with the operators to define a unified national uplink and downlink frame as part of a future ITA for unassigned spectrum in this band.

13 Repeals

13.1 The RFSAP for IMT3500 published in Government Gazette Number 47763 (Notice 2879 of 2022) is hereby repealed.

13.2 The RFSAP for IMT3300 published in Government Gazette Number 47788 (Notice 2891 of 2022) is hereby repealed.

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[25] Government Gazette 38640 (Notice 278 of 2015).

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13.3 The moratorium for the licensing the frequency band 3 600 – 3 800 MHz published in Government Gazette 44167 (Notice 47 of 2021) is hereby repealed.

14 Appendix A: Propagation Model

14.1 The following methods are proposed for assessment of anticipated interference inside neighbouring countries based on established trigger values. Due to the complexity of radio-wave propagation, different methods are proposed to be considered by administrations and are included here for guidance purposes only. It should be noted that the following methods provide theoretical predictions based on available terrain knowledge. It is practically impossible to recreate these methods with measurement procedures in the field. Therefore, only some approximation of measurements could be used to check compliance with those methods based on practical measurement procedures. The details of such approximations are not included in this recommendation and should be negotiated between countries based on their radio monitoring practices.

A. Path specific model

14.2 Where appropriately detailed terrain data is available, the propagation model for interference field strength prediction is the latest version of ITU-R Rec. P.452.[26] For the relevant transmitting terminal, predictions of path loss would be made at x km steps along radials of y km at z degree intervals.[27] The values for those receiver locations within the neighbouring country would be used to construct a histogram of path loss – and if more than 10% of predicted values exceed the threshold, the station should be coordinated.

B. Site General model

14.3 If it is not desirable to utilise detailed terrain height data for propagation modelling in the border area, the basic model to be used to trigger coordination between administrations and to decide if coordination is necessary, is ITU-R Rec. P.1546, "Method for point to area predictions for terrestrial services in the frequency range 30 to 4000 MHz".

14.4 This model is to be employed for 50% locations, 10% time and using a receiver height of 3m. For specific reception areas where terrain roughness adjustments for improved accuracy of field strength prediction are needed, administrations may use correction factors according to terrain irregularity and/or an averaged value of the TCA parameter in order to describe the roughness of the area on and around the coordination line.

14.5 Administrations and/or operators concerned may apply to the Authority to deviate from the aforementioned model.

C. Area calculations

14.6 In the case where greater accuracy is required, administrations and operators may use the area calculation below. For calculations, all the pixels of a given geographical area to be agreed between the Administrations concerned in a neighbouring country are taken into consideration.

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[26] Recommendation ITU-R P.452-17 (09/2021, with Editorial corrections on 28 October 2021) "Prediction procedure for the evaluation of interference between stations on the surface of the Earth at frequencies above about 0.1 GHz" (https://www.itu.int/rec/R-REC-P.452/en).

[27] Values for x, y, z, and path specific field strength levels are to be agreed between the administrations concerned.

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For the relevant base station, predictions of path loss should be made for all the pixels of a given geographical area from a base station and at a receiver antenna height of 3 m above ground.

14.7 For evaluation:

14.7.1 Only 10% of the number of the geographical area between the border line (also including the border line) and the 6 km line itself inside the neighbouring country may be interfered by higher field strength than the trigger field strength value given for the border line in the main text above at a height of 3 m above ground:

14.7.2 Only 10% of the number of the geographical area between the 6 km (including also the 6 km line) and 12 km line inside the neighbouring country may be interfered by higher field strength than the trigger field strength value given for the 6 km line in the main text above at a height of 3 m above ground;

14.8 It is recommended that during area calculations, not only detailed terrain data but also clutter data be taken into account. Use of correction factors for clutter is crucial in particular where the border area is 'open' or 'quasi-open' from the point of view of clutter or where the interfering base station is just a few kilometres from a border line.

14.9 If the distance between a base station and a terrain point of a border line is closer than or equal to 1 km, the free space propagation model needs to be applied. Furthermore, if there is no terrain obstacle within the 1st Fresnel zone, the free space propagation model should be applied.

14.10 If clutter data is not available, it is proposed to extend the usage of the free space propagation model to a few kilometres, depending on the clutter situation in border areas.

14.11 For area type interference calculations, propagation models with path specific terrain correction factors are recommended (e.g., the latest Recommendation ITU–R P.1546[28] with the Terrain Clearance Angle correction factor TCA, HCM[29] method with the Terrain Clearance Angle correction factor or Recommendation ITU–R P.1812[30]).

14.12 As to correction factors for clutters 'open area' and 'quasi-open area', 20 dB and 15 dB should be used, respectively. Recommendations ITU–R P.1406[31] and/or ITU-R P.2108[32] should be used if a finer selection of clutter is required.

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[28] ITU-R Recommendation P.1546-6 (08/2019): Method for point-to-area predictions for terrestrial services in the frequency range 30 MHz to 3 000 MHz (https://www.itu.int/rec/R-REC-P.1546/en).

[29] HCM Agreement (Harmonised Calculation Method) between the administrations of Austria, Belgium, the Czech Republic, Germany, France, Hungary, the Netherlands, Croatia, Italy, Liechtenstein, Lithuania, Luxembourg, Poland, Romania, the Slovak Republic, Slovenia, and Switzerland on the Coordination of frequencies between 29.7 MHz and 43.5 GHz for the Fixed Service and the Land Mobile Service. The latest version of this agreement can be found from http://www.hcm-agreement.eu/http/englisch/verwaltung/index_europakarte.htm

[30] Recommendation P.1812-6 (09/2021) "A path-specific propagation prediction method for point-to-area terrestrial services in the frequency range 30 MHz to 6 000 MHz" (https://www.itu.int/rec/R-REC- P.1812/en).

Annex 5: Determination of the interference field strength in the Land Mobile Service (https://www.itu.int/en/ITU-D/Projects/ITU-EC- ACP/HIPSSA/Documents/REGIONAL%20documents/HCM4A-E-Annex05.pdf).

[31] Recommendation P.1406-2 (07/2015) "Propagation effects relating to terrestrial land mobile and broadcasting services in the VHF and UHF bands" (https://www.itu.int/rec/R-REC-P.1406/en).

[32] Recommendation P.2108-1 (09/2021) "Prediction of clutter loss" (https://www.itu.int/rec/R-REC-P.2108/en).

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14.13 It must be noted that terrain irregularity factor Δh is not recommended to be used in area calculations. Administrations and/or operators concerned may agree to deviate from the aforementioned models by mutual consent.

15 Appendix B: Coordination for IMT-Systems

A. PREFERENTIAL PCI FOR IMT SYSTEMS

15.1 The following is extracted from ECC/REC (11)05 as an operational example and can be adapted for the SADC countries for IMT systems. A respective extract from ECC/REC (15)01 may be considered for expanding the same onto NR.

15.2 PCI coordination is only needed when channel centre frequencies are aligned independently of the channel bandwidth.

15.3 3GPP TS 36.211[33] defines 168 "unique physical-layer cell-identity groups" in §6.11, numbered 0...167, hereafter called "PCI groups" for IMT systems. Within each PCI group, there are three separate PCIs giving 504 PCIs in total.

15.4 Administrations should agree on a repartition of these 504 PCIs on an equitable basis when channel centre frequencies are aligned, as shown in the table below. It has to be noted that dividing the PCI groups or PCIs is equivalent. Each country should only use their own preferential PCIs close to the border and can use all PCIs away from the border. This transition distance between "close to the border" and "away from the border" should be agreed between neighbouring countries.

15.5 Administrations may wish to define different field strength levels (than those provided in the main text referring to this Appendix) for non-preferential PCIs.

15.6 As shown in the table below, the PCIs should be divided into 6 sub-sets containing each one sixth of the available PCIs. Each country is allocated three sets (half of the PCIs) in a bilateral case and two sets (one third of the PCIs) in a trilateral case.

15.7 Four types of countries are defined in a way such that no country will use the same code set as any one of its neighbours. The following lists describe a sample distribution for African countries:

15.7.1 Country type 1: Botswana, Cameroon, Comoros, Democratic Republic of the Congo, Ghana, Guinea- Bissau, Kenya, Liberia, Malawi, Mauritius, Niger, Republic of the Sudan, Eswatini;

15.7.2 Country type 2: Algeria, Angola, Benin, Cape Verde, Chad, Cote d'Ivoire, Egypt, Ethiopia, Madagascar, Senegal, United Republic of Tanzania, Zimbabwe;

15.7.3 Country type 3: Burkina Faso, Congo, Djibouti, Equatorial Guinea, Guinea, Mauritania, Nigeria, Rwanda, Sao Tome and Principe, Seychelles, South Africa, South Sudan, Tunisia, Zambia;

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[33] 3GPP TS 36.211 "Evolved Universal Terrestrial Radio Access (E-UTRA); Physical channels and modulation". (https://portal.3gpp.org/desktopmodules/Specifications/SpecificationDetails.aspx?specificationId=2425, also provided in ETSI TS 136 211). In comparison, 3GPP 38.211 (and ETSI TS 138 211) define NR Physical channels and modulation, in NR 2-step identification using PSS/SSS detection of the Physical Cell ID (same as LTE), the number of different cell IDs has been increased from 504 in LTE to 1008 for NR. Thus, for the deployment of LTE systems only the PCIs between 0 to 503 should be used and for NR systems PCIs between 0 to 1007 may be used.

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15.7.4 Country type 4: Burundi, Central African Republic, Eritrea, Gabon, Gambia, Lesotho, Libyan Arab Jamahiriya, Mali, Morocco, Mozambique, Namibia, Sierra Leone, Somalia, Togo, Uganda. (Note: A sample country type map can be found in the figure below).

15.8 For each type of country, the following tables and figure describe the sharing of the PCIs with its neighbouring countries, with the following conventions of writing:

Preferential PCI	
Non-Preferential PCI	

15.9 The 504 physical-layer cell-identities should be divided into the following 6 sub-sets when the carrier frequencies are aligned in border areas:

Table 5: Sharing of PCIs between countries

	Set A	**Set B**	**Set C**	**Set D**	**Set E**	**Set F**
Country 1	0..83	84..167	168..251	252..335	336..419	420..503
Border 1-2						
Zone 1-2-3						
Border 1-3						
Zone 1-2-4						
Border 1-4						
Zone 1-3-4						

PCI	**Set A**	**Set B**	**Set C**	**Set D**	**Set E**	**Set F**
Country 2	0..83	84..167	168..251	252..335	336..419	420..503
Border 2-1						
Zone 2-3-1						
Border 2-3						
Zone 2-1-4						
Border 2-4						
Zone 2-3-4						

PCI	**Set A**	**Set B**	**Set C**	**Set D**	**Set E**	**Set F**
Country 3	0..83	84..167	168..251	252..335	336..419	420..503
Border 3-2						
Zone 3-2-3						
Border 3-1						
Zone 3-1-4						

PCI	**Set A**	**Set B**	**Set C**	**Set D**	**Set E**	**Set F**
Country 4	0..83	84..167	168..251	252..335	336..419	420..503
Border 4-1						
Zone 4-1-2						
Border 4-2						
Zone 4-2-3						

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PCI	Set A	Set B	Set C	Set D	Set E	Set F
Border 3-4						
Zone 3-2-4						

PCI	Set A	Set B	Set C	Set D	Set E	Set F
Border 4-3						
Zone 4-3-1						

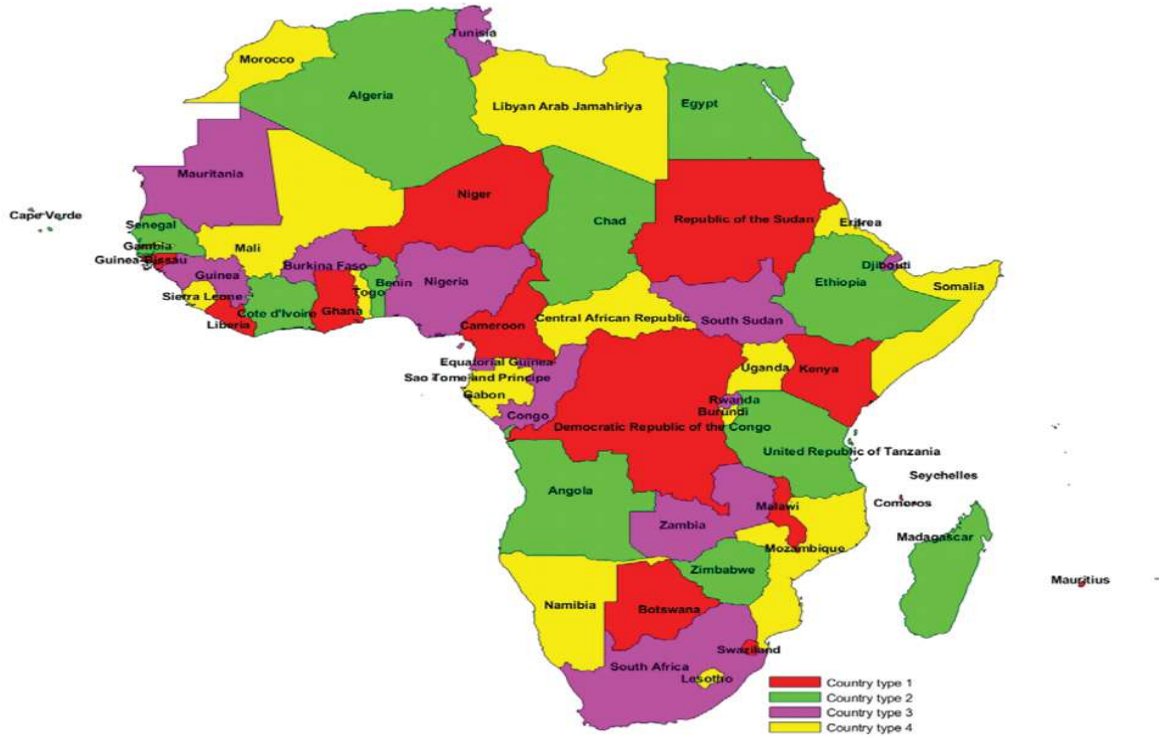
15.10 Note:

15.10.1 All PCIs are available in areas away from the border.

15.10.2 In certain specific cases (e.g., if Angola and Botswana happened to have the same Country type/PCI code) where the distance between two countries of the same type number is very small (below a few tens of kilometres), it may be necessary to address the situation in bilateral /multilateral coordination agreements as necessary and may include further subdivision of the allocated codes in certain areas.

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Figure 4: Country type map/PCI distribution map



16 Appendix C: Guidance on the consideration of IMT system radio parameters for use in bilateral and multilateral agreements

16.1 This section is provided for guidance purposes for use in bi-lateral and multilateral discussions. For IMT systems, it may be beneficial to coordinate other radio parameters besides PCI in order to minimise deteriorating effects of uplink interference.

16.2 The parameters described in this section are usually optimised during IMT system radio network planning of an operator's network. The idea of optimisation is to plan the parameters taking into account specific correlation properties of the uplink control signals, which enable more stable and predictable operation of the network. In the cross-border scenario the optimisation of parameters among neighbouring operators could provide better control of uplink interference. However, because of the difference between intra-network and inter-network interference and due to limited experience in the IMT system cross- border deployment, it is difficult to assess the benefits of such optimisation. The following guidance provides the basis for operators to consider in border areas in case of high levels of uplink interference.

A. DM RS coordination

16.3 DM RS are transmitted in the uplink and used for channel estimation.

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16.4 There is a risk of intercell interference between neighbouring cells even in case of no frame synchronisation. That is why special measures for DM RS allocation between networks in neighbouring countries occupying the same channel may need to be applied.

16.5 The case of partial channel overlap has not been studied but due to DM RS occupying resource blocks of separate users, there is a risk of DM RS collisions between neighbouring networks when the subcarriers' positions coincide (the frequency offset between central carriers of neighbouring networks is multiple of 300 kHz). Some minor benefits from DM RS coordination in these particular cases could be expected.

16.6 There are a number of possible approaches to the coordination of DM RS:

16.6.1 In the basic planning procedure, only 30 DM RS sequence groups with favourable correlation characteristics are available: {0…29}. In this case, each cell could be assigned one of the 30 DM RS sequence groups providing a cluster size of 30.

16.6.2 It is possible to extend each DM RS sequence group to generate up to 12-time shifted sequence groups by applying the cyclic shift parameter stated in 3GPP TS 36.211 for LTE. For example, each tri-sector site could be assigned one DM RS sequence group with each co-sited cell having its own cyclic shift of $2\pi/3$, which provides cluster size 30 only with 10 DM RS sequence groups. The latter case corresponds well to the case of DM RS sequence groups repartition between neighbouring countries when only limited number of groups is available for network planning. The drawback of DM RS sequence group cyclic shift is a loss of orthogonally of DM RS due to fading channels which has been found during first trials of LTE and caused throughput loss as well as time alignment problems.

16.6.3 Another approach for DM RS coordination is to implement dynamic DM RS sequence group allocation, also called pseudo-random group hopping. In this method, nearby cells are grouped into clusters up to 30 cells, and within each cell cluster, the same hopping-pattern is used. At the border of two clusters, inter-cell interference is averaged since two different hopping patterns are utilised.

16.6.4 There are 17 defined hopping patterns, numbered {0…16}, which leads to some minor unfairness in case of apportioning these patterns between neighbouring countries. Even in a trilateral case each operator will have at least 5 hopping patterns available near the border, which should be enough or planning purposes. It should be noted the pseudo-random group hopping option could be absent in the first generations of IMT system equipment.

16.7 The decision of which of these methods to use in cross-border coordination should be agreed upon by the interested parties. Specific DM RS sequence groups or hopping patterns repartition is not provided in this text but could be deduced in a similar manner to the PCI repartition.

B. PRACH coordination

16.8 Another radio network parameter that is considered during radio network planning is PRACH configuration which is needed to distinguish random access requests addressed to different cells.

16.9 PRACH resources are allocated by specifying the PRACH Resource Blocks time positions within the uplink frame, their frequency position within the IMT system channel bandwidth and by apportioning cell- specific root sequences. During radio network planning, these parameters are usually used in the following way:

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16.9.1 Time positions for PRACH resource allocations are usually used to create time collision of PRACH resources of co-sited/frame synchronised cells because PRACH-to-PRACH interference is usually less severe than PUSCH-to-PRACH interference;

16.9.2 Frequency positions within the IMT system channel bandwidth are usually the same for all cells, again because PRACH-to-PRACH interference case is a more favourable one.

16.9.3 Cell-specific root sequences are used to distinguish between PRACH requests addressed to different cells.

16.10 For cross-border coordination, it is proposed to use frequency position offsets to exclude the possibility of so-called "ghost" PRACH requests caused by neighbouring networks. The PRACH is configured in IMT systems to use only 6 Resource Blocks or 1.08 MHz of the IMT system channel bandwidth except in regions used by PUCCH. In case of overlapping or partially overlapping channel bandwidths of neighbouring networks, it is enough to establish non-overlapping PRACH frequency blocks to perform coordination.

16.11 Because it is difficult to establish an implementation dependent procedure for such allocation, it will be the responsibility of operators to manage such frequency separation during coordination discussions.

16.12 In an early implementation, it is possible that a very limited number of frequency positions could be supported by IMT system equipment which will not be enough to coordinate in the trilateral case. In such cases, root-sequence repartition could be used. There are 838 root sequences in total to be distributed between cells, numbered {0...837}. There are two numbering schemes for PRACH root sequences (physical and logical) and that only logical root sequences numbering needs to be used for coordination.

16.13 Unfortunately, the process of root sequences planning doesn't involve direct mapping of root sequences between cells because the number of root sequences needed for one cell is dependent on the cell range.

16.14 The table showing such interdependency is presented below:

Table 6: PRACH – Range Interdependency

PRACH Configuration	Number of root seq. per cell	Cell Range (km)
1	1	0.7
2	2	1
3	2	1.4
4	2	2
5	2	2.5
6	3	3.4
7	3	4.3
8	4	5.4
9	5	7.3
10	6	9.7
11	8	12.1
12	10	15.8
13	13	22.7
14	22	38.7
15	32	58.7

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PRACH Configuration	Number of root seq. per cell	Cell Range (km)
0	64	118.8

16.15 Thus, in the case of root sequence reparation, it will be the responsibility of radio network planners to assign the correct number of root sequences in order to not overlap with the root sequence ranges of other operators. It also should be noted that different root sequences have different cubic metrics and correlation properties, which affect PRACH coverage performance and planning of so-called high-speed cells. For simplicity of cross-border coordination, it is proposed to ignore these properties.

16.16 In summary, it should be stipulated that frequency separation of PRACH resources should be used as the main coordination method. PRACH root sequences repartition should be avoided and used only in exceptional cases. Specific PRACH root sequences repartition is not provided in this text but could be deduced in a similar manner to the PCI repartition.

16.17 Additional guidance for cross-border coordination of synchronised and unsynchronised IMT TDD systems may be found in ECC/REC/ (15)01[34] and ECC Report 296[35].

17 Appendix D: Frequency coordination process

17.1 Technical procedures related to bilateral and multilateral cross-border frequency coordination agreements for 4 geographical sub-regions are defined by the African Union, which includes the Southern African sub-region of 10 countries. Cross-Border Frequency Coordination and interference resolution should follow the HCM4A.[36]

17.2 When requesting coordination, the relevant characteristics of the base station and the code or PCI group number should be forwarded to the Administration affected. All of the following characteristics should be included:

17.2.1 carrier frequency [MHz];

17.2.2 name of transmitter station;

17.2.3 country of location of transmitter station;

17.2.4 geographical coordinates [latitude, longitude];

17.2.5 effective antenna height [m];

17.2.6 antenna polarisation;

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[34] ECC Recommendation (15)01 "Cross-border coordination for Mobile/Fixed Communications Networks (MFCN) in the frequency bands: 694-790 MHz, 1427-1518 MHz, and 3400-3800 MHz". Amended on 14 February 2020.

[35] ECC Report 296: "National synchronisation regulatory framework options in 3400-3800 MHz: a toolbox for coexistence of MFCNs in synchronised, unsynchronised, and semi-synchronised operation in 3400-3800 MHz", March 2019.

[36] Cross-Border Frequency Coordination: Harmonised Calculation Method for Africa (HCM4A), available at: https://www.itu.int/en/ITU-D/Projects/ITU-EC-ACP/HIPSSA/Documents/FINAL%20DOCUMENTS/FINAL%20DOCS%20ENGLISH/hcm4a_agreement.pdf.pdf

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17.2.7 antenna azimuth [degrees];

17.2.8 antenna gain [dBi];

17.2.9 effective radiated power [dBW];

17.2.10 expected coverage zone or radius [km];

17.2.11 date of entry into service [month, year].

17.2.12 code group number used; and

17.2.13 antenna tilt [degrees].

17.3 The Administration affected will evaluate the request for coordination and will, within 30 days, notify the result of the evaluation to the Administration requesting coordination. If, in the course of the coordination procedure, the Administration affected requires additional information, it may request such information.

17.4 If no reply is received by the Administration requesting coordination within 30 days, it may send a reminder to the Administration affected. An Administration having not responded within 30 days following communication of the reminder will be deemed to have given its consent and the code coordination may be put into use with the characteristics given in the request for coordination.

17.5 The periods mentioned above may be extended by common consent.

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GOVERNMENT GAZETTE

GENERAL NOTICE

NOTICE XXXX OF 2026

THE INDEPENDENT COMMUNICATIONS AUTHORITY OF SOUTH AFRICA

ELECTRONIC COMMUNICATIONS ACT, 2005 (ACT NO. 36 OF 2005)

HEREBY ISSUES A NOTICE REGARDING THE RADIO FREQUENCY ASSIGNMENT PLANS FOR THE FREQUENCY BANDS ALLOCATED TO THE MOBILE RADIOCOMMUNICATIONS SERVICES AND IDENTIFIED INTERNATIONAL MOBILE TELECOMMUNICATIONS IN THE NATIONAL RADIO FREQUENCY PLAN.

1. The Independent Communications Authority of South Africa ("the Authority"), on 28 March 2024, published the Draft International Mobile Telecommunications (IMT) Roadmap, in Government Gazette No. 50413 (Notice 4584 of 2024) inviting Written Representations.

2. On 13 September 2024, in Government Gazette 51244 (Notice 5209 of 2024) the Authority published a "Notice Communicating the Outcome of the Consultation Process of the Draft IMT Roadmap 2025.

3. The Authority, in Government Gazette 53883 (Notice 3712 of 2025), published the Second Draft International Mobile Telecommunications (IMT) Roadmap 2025, in terms of section 4(3)(c) of the Independent Communications Authority of South Africa Act, 2000 (Act No. 13 of 2000), read with sections 2(e), 30, 31(4), and 33 of the Electronic Communications Act (Act No 36 of 2005).

4. Now therefore, the Authority, in terms of section 4(3)(c) of the Independent Communications Authority of South Africa Act, 2000 (Act No. 13 of 2000), read with sections 2(e), 30, 31(4), and 33 of the Electronic Communications Act (Act No 36 of 2005) hereby publishes the notice regarding the radio frequency assignment plans for the frequency bands allocated to the mobile radiocommunications services and identified international mobile telecommunications in the national radio frequency plan.

5. Interested persons are hereby invited to submit written representations on the notice regarding the radio frequency assignment plans for the frequency bands allocated to the mobile radiocommunications services and identified international mobile telecommunications in the national

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radio frequency plan in both Microsoft Word (MS) and Portable Document Format (PDF) by no later than 16:00 on **4 September 2026.**

6. Persons making representations are further invited to indicate whether they require an opportunity to make oral representations.

7. Written representations or enquiries may be directed by email to:

Attention:

Mr Manyaapelo Richard Makgotlho

e-mail: rmakgotlho@icasa.org.za

Copy: jdikgale@icasa.org.za

8. Where persons making representations require that their representation, or part thereof, be treated as confidential, then an application in terms of section 4D of the ICASA Act, 2000 (Act No 13 of 2000) must be lodged with the Authority. Such an application must be submitted simultaneously with the representation, together with a non-confidential, redacted version of the submission. If, however, the request for confidentiality is not granted, the person making the request will be allowed to withdraw the representation or document in question.

9. The guidelines for confidentiality requests are contained in Government Gazette Number No 41839 of 17 August 2018.

10. All written representations submitted to the Authority pursuant to this notice will be made available for inspection by interested persons from **11 September 2026** at the Authority's Library. Electronic copies of such representations are obtainable on request and printed versions will be obtainable on payment of a fee.

11. The radio frequency assignment plans for the frequency bands allocated to the mobile radiocommunications services and identified international mobile telecommunications in the national radio frequency plan and the non-confidential representations will be uploaded to the Authority's website under this link: https://www.icasa.org.za/legislation-and-regulations/radio-frequency-spectrum-plans/draft-radio-frequency-spectrum-plans.



Mothibi G. Ramusi

CHAIRPERSON

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Radio Frequency Spectrum Assignment Plan

Rules for Services operating in the Frequency Band

4800 MHz to 4990 MHz

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1 Glossary of Terms, Abbreviations, and Acronyms

1.1 In this Radio Frequency Spectrum Assignment Plan, terms used will have the same meaning as in the Electronic Communications Act 36 of 2005; unless the context indicates otherwise. The definitions and acronyms for additional terms are listed below:

"3GPP"	means the 3rd Generation Partnership Project (3GPP) which consists of six telecommunications standard development organisations
"AAS"	means Active Antenna System
"Act"	means the Electronic Communications Act, 2005 (Act No. 36 of 2005) as amended
"AGM"	means Annual General Meeting
"AU"	means African Union
"BEM"	means Block Edge Masks
"BS"	means Base Stations
"CRASA"	means Communications Regulators' Association of Southern Africa
"CRASA ECC"	means the Communications Regulators' Association of Southern Africa (CRASA) Electronic Communications Committee (ECC)
"DM RS"	means Demodulation Reference Signal
"ECC"	means the Electronic Communications Committee within the European Conference of Postal and Telecommunications Administrations (CEPT)
"ECC/REC (11)04"	means the ECC Recommendation (11)04 - Cross-border Coordination for Mobile/Fixed Communications Networks (MFCN) in the frequency band 790-862 MHz, Edition 3 February 2017
"ECC/REC (15)01"	means the ECC Recommendation (15)01 - (15)01 -ECC Recommendation (15)01 "Cross-border coordination for Mobile/Fixed Communications Networks (MFCN) in the frequency bands: 694-790 MHz, 1427-1518 MHz, and 3400-3800 MHz". Amended on 14 February 2020
"EIRP"	means Effective Isotropic Radiated Power
"FDD"	means the Frequency Division Duplex
"HCM"	means the Harmonised Calculation Method
"HCM4A"	means the Harmonised Calculation Method for Africa
"HDA"	means High-Density Area
"HIBS"	means High-Altitude Platform Stations as IMT Base Stations
"HIPSSA"	means the Sub-Saharan Africa Assessment Report on Harmonisation of ICT Policies in Sub-Saharan Africa
"ICNIRP"	Means the International Commission on Non-Ionizing Radiation Protection (ICNIRP)
"IMT"	means the International Mobile Telecommunications
"IMT-2020"	means International Mobile Telecommunications-2020
"IMT Advanced"	means International Mobile Telecommunications-Advanced
"ITA"	means the Invitation to Apply
"ITU"	means the International Telecommunication Union
"ITU-R"	means the International Telecommunication Union Radiocommunication Sector
"LPI"	means Low Power Indoor
"LoS"	means Line of Sight
"LTE"	means the Long-Term Evolution is a standard for wireless communication of high-speed data for mobile phones and data terminals. It is based on the GSM/EDGE and
"Non-AAS"	means Non-Active Antenna System
"NR"	means New Radio

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"NRFP"	means the National Radio Frequency Plan 2013 for South Africa
"PCI"	means the Physical-Layer Cell Identities
"PFD"	means Power Flux Density
"PPDR"	means the Public Protection and Disaster Relief as defined in ITU-R Report M.2033
"PRACH"	means the Physical Random-Access Channel
"PSTN"	means the Public Switched Telephone Network
"PUCCH"	means the Physical Uplink Control Channel
"PUSCH"	means the Physical Uplink Shared Channel
"RAS"	means Radio Astronomy Service
"RFSAP"	means the Radio Frequency Spectrum Assignment Plan
"RR"	means Radio Regulations
"SADC"	means Southern African Development Community
"TCA"	means the Terrain Clearance Angle
"TRP"	means the Total Radiated Power. The TRP is defined as the integral of the power transmitted in different directions over the entire radiation sphere.
"TDD"	means the Time Division Duplex
"UE"	means User Equipment
"VLP"	means Very Low Power
"WRC-12"	means the World Radiocommunication Conference 2012 held in Geneva
"WRC-15"	means the World Radiocommunication Conference 2015 held in Geneva
"WRC-19"	means the World Radiocommunication Conference 2019 held in Sharm el-Sheikh
"WRC-23"	means the World Radiocommunication Conference 2023 held in Dubai

2 Purpose

2.1 An RFSAP provides information on the requirements attached to the use of a frequency band in line with the allocation and other information in the NRFP. This information includes technical characteristics of radio systems, frequency channelling, coordination, and details on required migration of existing users of the band and the expected method of assignment.

2.2 This RFSAP states the requirements for the utilisation of the frequency band 4800 MHz to 4990 MHz for IMT.

2.3 The ITU states that IMT systems are mobile systems that provide access to a wide range of telecommunication services including advanced mobile services, supported by mobile and fixed networks, which are increasingly packet-based. Key features of the IMT systems are:[37]

- a high degree of commonality of functionality worldwide whilst retaining the flexibility to support a wide range of services and applications in a cost-efficient manner;
- compatibility of services within IMT and with fixed networks;
- capability of interworking with other radio access systems;
- high quality mobile services;
- user equipment suitable for worldwide use;

[37] See ITU-R Frequently Asked Questions on IMT, available at: https://www.itu.int/en/ITU-R/Documents/FAQ-IMT-2024.pdf#:~:text=Key%20features%20of%20IMT%2D2000%20and,in%20a%20cost%20efficient%20manner%3B

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- user-friendly applications, services, and equipment;
- worldwide roaming capability; and
- enhanced peak data rates to support advanced services and applications.

3 General

3.1 Technical characteristics of equipment used in IMT systems will conform to all applicable South African standards, international standards, and ITU (including its radio regulations) as agreed and adopted by South Africa.

3.2 All installations must comply with safety rules as specified in applicable standards.

3.3 The equipment used will be certified under South African law and regulations.

3.4 The allocations of the IMT bands and the information in this RFSAP are subject to review.

3.5 Frequency bands identified for IMT include the bands 4800 MHz to 4990 MHz.

3.6 The requirements for the standard families which licensees can provide services include, but are not limited to:

- IMT-2000;
- IMT-Advanced;
- IMT-2020; and
- IMT-2030.

3.7 Typical technical and operational characteristics identified by the ITU are described in the following documents:

- Recommendation ITU-R M.2012-5 (02/2022): Detailed specifications of the terrestrial radio interfaces of IMT Advanced;
- Report ITU-R M.2074-0 (2006): Report on Radio Aspects for the terrestrial component of
- IMT-2000 and systems beyond IMT-2000;
- Recommendation ITU-R M.1645 (06/2003): Framework and overall objectives of the future development of IMT-2000 and systems beyond IMT-2000;
- Recommendation ITU-R M.1036: Frequency arrangements for implementation of the terrestrial component of IMT in the bands identified for IMT in the RR;
- Recommendation ITU-R M.2150-1 (02/2022): Detailed specifications of the terrestrial radio interfaces of IMT-2020; and
- Recommendation ITU-R M.2160-0 (11/2023): Framework and overall objectives of the future development of IMT for 2030 and beyond.

3.8 The ITU also provides guidelines for modelling and simulation, e.g.

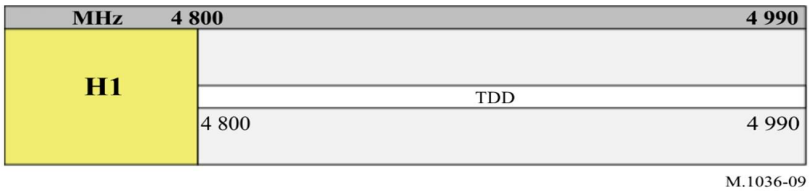
- Recommendation ITU-R M.2070-1 (02/2017): Generic unwanted emission characteristics
- of base stations using the terrestrial radio interfaces of IMT-Advanced;
- Recommendation ITU-R M.2071-1 (02/2017): Generic unwanted emission characteristics of mobile stations using the terrestrial radio interfaces of IMT-Advanced; and
- Recommendation ITU-R M.2101 (02/2017): Modelling and simulation of IMT networks and systems for use in sharing and compatibility studies.

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4 Channelling Plan

4.1 The frequency arrangements for implementation of IMT in the 4800 - 4990 MHz frequency range are summarized below, noting the implementation aspects in this RFSAP.

Figure 5: Frequency arrangements for H1



Source: ITU-R M.1036

5 Requirements for the Usage of the Radio Frequency Spectrum

5.1 This chapter covers the minimum key characteristics considered necessary in order to make the best use of the available frequencies.

5.2 The use of the band is limited to IMT services.

5.3 Only systems using digital technologies that promote spectral efficiency will be issued with an assignment. Capacity-enhancing digital techniques are being rapidly developed together with and such techniques that promote efficient spectrum use without reducing service quality. These techniques are encouraged.

5.4 In some cases, a radio system conforming to the requirements of this RFSAP may require modifications if harmful interference is caused to other radio stations or systems.

5.5 The allocation of spectrum and shared services within these bands are found in the NRFP.

5.6 Maximum radiated power:

5.6.1 TRP spectral density limit of -65 dBm/MHz to protect the RAS.

5.6.2 In addition, for base stations, a maximum in-block EIRP of 68 dBm/MHz per antenna.

5.6.3 For non-AAS base stations in block power: the EIRP limit is 68 dBm/5MHz per antenna.

5.6.4 For AAS base stations in block power: the TRP limit is 60 dBm/5MHz per cell.

5.6.5 For UE: maximum in-block TRP of 25 dBm.

5.6.6 On a case-to-case basis, higher TRP may be permitted if acceptable technical justification is provided.

5.7 Where appropriate, subscriber terminal stations should comply with the technical specification outlined under the latest version of 3GPP specifications, e.g., TS 36.521-1 for LTE, 38.521-1 for 5G NR;

5.8 ICNIRP Guideline compliance is required, where applicable; and

5.9 The criteria and guidelines for interference mitigation are described in Appendices B and D.

6 Commencement

6.1 This RFSAP comes into effect upon publication of this notice.

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6.2 No new assignment for IMT in the band 4800 MHz – 4990 MHz will be approved unless it complies with this RFSAP.

7 Conflict

7.1 In the event of a conflict between this RFSAP and the applicable NRFP and/or Terrestrial Broadcasting Frequency Plan, the NRFP and the Terrestrial Broadcasting Frequency Plan shall prevail.

8 Coordination Requirements

8.1 Cross Border Frequency Coordination will abide by the HCM4A Agreement. This follows the 3rd CRASA AGM that agreed that CRASA should implement the Cross Border Frequency Coordination HCM4A Agreement.

8.2 The ECC had noted the need for greater understanding of the concept and need for harmonisation in the signing of the HCM4A Agreement by the SADC Member States if the implementation of the Agreement is to be effective. The ECC, therefore, agreed to convene a workshop on HCM4A and requested the CRASA Members to consider signing the agreement.

8.3 At the 5th CRASA AGM, Swakopmund, Namibia – 07-08 April 2016 [1], the subject of Cross Border Frequency Coordination using the HCM4A was discussed in detail, following similar efforts in Europe. The Resolution CRASA/AGM/15.16/07 stipulates, "The AGM urged CRASA Members to prioritise the motivation to their administrations who are yet to indicate their interest to sign the HCM4A, to do so as soon as possible".

8.4 Therefore, coordination would follow the HCM4A as detailed in Sub-Saharan Africa Assessment Report on HIPSSA.[38]

8.5 A harmonised calculation method (HCM4A) brings these benefits:

8.5.1 Based on HCM Agreement used in Europe;

8.5.2 Optimise spectrum usage;

8.5.3 Prevent harmful interferences;

8.5.4 Confer an adequate protection for stations;

8.5.5 Define technical provisions and administrative procedures;

8.5.6 Quick assignment of preferential frequencies;

8.5.7 Transparent decisions through agreed assessment procedures;

8.5.8 Quick assessment of interference through data exchange.

8.6 HCM4A involves all 4 sub regions of Africa. This means the HCM4A projects include performing a survey and a comparative analysis of existing administrative and technical procedures related to bilateral and multilateral cross-border frequency coordination agreements across the 4 geographical sub-regions as defined by the AU, namely:

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[38] See: https://www.itu.int/en/ITU-D/Projects/ITU-EC-ACP/HIPSSA/Documents/FINAL%20DOCUMENTS/FINAL%20DOCS%20ENGLISH/hcm4a_agreement.pdf.pdf

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8.6.1 Central Africa [Burundi, Central African Republic, Chad, Congo, Democratic Republic of Congo, Equatorial Guinea, Gabon, Sao Tome, and Principe];

8.6.2 East Africa [Comoros, Djibouti, Eritrea, Ethiopia, Kenya, Madagascar, Mauritius, Rwanda, Seychelles, Somalia, Sudan, Tanzania, Uganda];

8.6.3 Southern Africa [Angola, Botswana, Lesotho, Malawi, Mozambique, Namibia, South Africa, Eswatini, Zambia, Zimbabwe];

8.6.4 West Africa [Benin, Burkina-Faso, Cape Verde, Côte d'Ivoire, Gambia, Ghana, Guinea, Guinea-Bissau, Liberia, Mali, Niger, Nigeria, Sierra Leone, Senegal, Togo].

8.7 HCM4A also comes with a software tool for Sub-Saharan Africa. This has the following features:[39]

8.7.1 Optimise spectrum usage by accurate interference field strength calculations;

8.7.2 Establish general parameters, improvement, and supplementation of technical provisions, individual restrictions;

8.7.3 Establish models for computer-aided interference range calculations; and

8.7.4 Harmonise parameters: objectively predictable towards transparent decisions.

8.8 Use of these frequency bands will require coordination with the neighbouring countries within the coordination zones of 6 kilometres from the neighbouring country. The coordination distance is continuously being reviewed and these may be updated from time to time.

8.9 Use of these frequency bands will require coordination with the neighbouring countries within the coordination zones of 6 kilometres from the neighbouring country. The coordination distance is continuously being reviewed and these may be updated from time to time.

8.10 In the event that the Authority assigns spectrum to private networks on a geographically limited basis in the band in addition to national assignments, the geographically limited private network shall ensure that its systems do not cause interference with those of the national licensee.

8.11 Technical analysis may be conducted by the Authority before an assignment is issued according to Appendix A.

8.12 New assignments would also require coordination with the existing incumbent assignments. See Appendices B and D.

8.13 If neighbouring administrations wish to agree on frequency coordination based on preferential frequencies, while ensuring a fair treatment of different operators within a country the Authority will add these mutual agreements.

8.14 In the event of any interference, the Authority will require affected parties to carry out coordination. In the event that the interference continues to be unresolved after 24 hours, the affected parties may refer the matter to the Authority for a resolution. The Authority will decide

[39] See: https://www.itu.int/en/ITU-D/Regional-Presence/AsiaPacific/Documents/Events/2017/May%20BKK/Presentations/HCM%20and%20HCM4A%20BKK%2020170504%20IB.pdf

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the necessary modifications and schedule of modifications to resolve the dispute. The Authority will be guided by the Frequency Coordination Process as outlined in Appendix C.

8.15 Assignment holders shall take full advantage of interference mitigation techniques such as antenna discrimination, tilt, polarization, frequency discrimination, shielding / blocking (introduce diffraction loss), site selection, and/or power control to facilitate the coordination of systems.

9 Assignment

9.1 The unassigned spectrum in this band will be assigned through an Invitation to Apply in line with the regulations developed in terms of section 31(3) of the Act.

9.2 The assignment of the spectrum for the verticals will be considered in accordance with regulation 5 of the Radio Frequency Spectrum Regulations 2015:

9.2.1 Regulation 5(3) of the Radio Frequency Spectrum Regulations 2015 may apply.

9.2.2 The application shall be subjected to public consultation.

9.2.3 National licenses to be protected on a primary basis;

9.2.4 For private networks with a limited geographic scope on a secondary basis.

10 Amendments

10.1 This band will be assigned exclusively for IMT TDD.

10.2 Applicable licences are hereby amended to conform with this RFSAP upon publication of this notice.

11 Radio Frequency Migration

11.1 Incumbent licensees must migrate out of this band within 24 months of the publication of this notice.

12 Synchronisation

12.1 In order to avoid interference between TDD networks operating in adjacent frequency carriers, the radio transmissions of adjacent TDD networks should be synchronized with the uplink and downlink frames aligned in time. Such synchronization of TDD networks is very important because it is the best way to avoid interference between networks and ensures efficient use of spectrum resources by avoiding inter-operator guard bands and additional base station filtering. Otherwise, the uplink and downlink interference cannot be eliminated or avoided in terms of technical measures.

12.2 The Authority will align with the operators to define a unified national uplink and downlink frame as part of a future ITA for unassigned spectrum in this band.

13 Appendix A: Propagation Model

13.1 The following methods are proposed for assessment of anticipated interference inside neighbouring countries based on established trigger values. Due to the complexity of radio-wave propagation, different methods are proposed to be considered by administrations and are included here for guidance purposes only. It should be noted that the following methods provide theoretical predictions based on available terrain knowledge. It is practically impossible to recreate these

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methods with measurement procedures in the field. Therefore, only some approximation of measurements could be used to check compliance with those methods based on practical measurement procedures. The details of such approximations are not included in this recommendation and should be negotiated between countries based on their radio monitoring practices.

A. Path specific model

13.2 Where appropriately detailed terrain data is available, the propagation model for interference field strength prediction is the latest version of ITU-R Rec. P.452.[40] For the relevant transmitting terminal, predictions of path loss would be made at x km steps along radials of y km at z degree intervals.[41] The values for those receiver locations within the neighbouring country would be used to construct a histogram of path loss – and if more than 10% of predicted values exceed the threshold, the station should be coordinated.

B. Site General model

13.3 If it is not desirable to utilise detailed terrain height data for propagation modelling in the border area, the basic model to be used to trigger coordination between administrations and to decide if coordination is necessary, is ITU-R Rec. P.1546, "Method for point to area predictions for terrestrial services in the frequency range 30 to 4000 MHz".

13.4 This model is to be employed for 50% locations, 10% time and using a receiver height of 3m. For specific reception areas where terrain roughness adjustments for improved accuracy of field strength prediction are needed, administrations may use correction factors according to terrain irregularity and/or an averaged value of the TCA parameter in order to describe the roughness of the area on and around the coordination line.

13.5 Administrations and/or operators concerned may apply to the Authority to deviate from the aforementioned model.

C. Area calculations

13.6 In the case where greater accuracy is required, administrations and operators may use the area calculation below. For calculations, all the pixels of a given geographical area to be agreed between the Administrations concerned in a neighbouring country are taken into consideration. For the relevant base station, predictions of path loss should be made for all the pixels of a given geographical area from a base station and at a receiver antenna height of 3 m above ground.

13.7 For evaluation:

13.7.1 Only 10% of the number of the geographical area between the border line (also including the border line) and the 6 km line itself inside the neighbouring country may be interfered by higher field strength than the trigger field strength value given for the border line in the main text above at a height of 3 m above ground:

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[40] Recommendation ITU-R P.452-17 (09/2021, with Editorial corrections on 28 October 2021) "Prediction procedure for the evaluation of interference between stations on the surface of the Earth at frequencies above about 0.1 GHz" (https://www.itu.int/rec/R-REC-P.452/en).

[41] Values for x, y, z, and path specific field strength levels are to be agreed between the administrations concerned.

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13.7.2 Only 10% of the number of the geographical area between the 6 km (including also the 6 km line) and 12 km line inside the neighbouring country may be interfered by higher field strength than the trigger field strength value given for the 6 km line in the main text above at a height of 3 m above ground;

13.8 It is recommended that during area calculations, not only detailed terrain data but also clutter data be taken into account. Use of correction factors for clutter is crucial in particular where the border area is 'open' or 'quasi-open' from the point of view of clutter or where the interfering base station is just a few kilometres from a border line.

13.9 If the distance between a base station and a terrain point of a border line is closer than or equal to 1 km, the free space propagation model needs to be applied. Furthermore, if there is no terrain obstacle within the 1st Fresnel zone, the free space propagation model should be applied.

13.10 If clutter data is not available, it is proposed to extend the usage of the free space propagation model to a few kilometres, depending on the clutter situation in border areas.

13.11 For area type interference calculations, propagation models with path specific terrain correction factors are recommended (e.g., the latest Recommendation ITU–R P.1546[42] with the Terrain Clearance Angle correction factor TCA, HCM[43] method with the Terrain Clearance Angle correction factor or Recommendation ITU–R P.1812[44]).

13.12 As to correction factors for clutters 'open area' and 'quasi-open area', 20 dB and 15 dB should be used, respectively. Recommendations ITU–R P.1406[45] and/or ITU-R P.2108[46] should be used if a finer selection of clutter is required.

13.13 It must be noted that terrain irregularity factor Δh is not recommended to be used in area calculations. Administrations and/or operators concerned may agree to deviate from the aforementioned models by mutual consent.

14 Appendix B: Coordination for IMT-Systems

A. PREFERENTIAL PCI FOR IMT SYSTEMS

14.1 The following is an operational example and can be adapted for the SADC countries for IMT systems.

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[42] ITU-R Recommendation P.1546-6 (08/2019): Method for point-to-area predictions for terrestrial services in the frequency range 30 MHz to 3 000 MHz (https://www.itu.int/rec/R-REC-P.1546/en).

[43] HCM Agreement (Harmonised Calculation Method) between the administrations of Austria, Belgium, the Czech Republic, Germany, France, Hungary, the Netherlands, Croatia, Italy, Liechtenstein, Lithuania, Luxembourg, Poland, Romania, the Slovak Republic, Slovenia, and Switzerland on the Coordination of frequencies between 29.7 MHz and 43.5 GHz for the Fixed Service and the Land Mobile Service. The latest version of this agreement can be found from http://www.hcm-agreement.eu/http/englisch/verwaltung/index_europakarte.htm

[44] Recommendation P.1812-6 (09/2021) "A path-specific propagation prediction method for point-to-area terrestrial services in the frequency range 30 MHz to 6 000 MHz" (https://www.itu.int/rec/R-REC- P.1812/en).

Annex 5: Determination of the interference field strength in the Land Mobile Service (https://www.itu.int/en/ITU-D/Projects/ITU-EC- ACP/HIPSSA/Documents/REGIONAL%20documents/HCM4A-E-Annex05.pdf).

[45] Recommendation P.1406-2 (07/2015) "Propagation effects relating to terrestrial land mobile and broadcasting services in the VHF and UHF bands" (https://www.itu.int/rec/R-REC-P.1406/en).

[46] Recommendation P.2108-1 (09/2021) "Prediction of clutter loss" (https://www.itu.int/rec/R-REC-P.2108/en).

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14.2 PCI coordination is only needed when channel centre frequencies are aligned independently of the channel bandwidth.

14.3 3GPP TS 36.211[47] defines 168 "unique physical-layer cell-identity groups" in §6.11, numbered 0...167, hereafter called "PCI groups" for IMT systems. Within each PCI group, there are three separate PCIs giving 504 PCIs in total.

14.4 Administrations should agree on a repartition of these 504 PCIs on an equitable basis when channel centre frequencies are aligned, as shown in the table below. It has to be noted that dividing the PCI groups or PCIs is equivalent. Each country should only use their own preferential PCIs close to the border and can use all PCIs away from the border. This transition distance between "close to the border" and "away from the border" should be agreed between neighbouring countries.

14.5 Administrations may wish to define different field strength levels (than those provided in the main text referring to this Appendix) for non-preferential PCIs.

14.6 As shown in the table below, the PCIs should be divided into 6 sub-sets containing each one sixth of the available PCIs. Each country is allocated three sets (half of the PCIs) in a bilateral case and two sets (one third of the PCIs) in a trilateral case.

14.7 Four types of countries are defined in a way such that no country will use the same code set as any one of its neighbours. The following lists describe a sample distribution for African countries:

14.7.1 Country type 1: Botswana, Cameroon, Comoros, Democratic Republic of the Congo, Ghana, Guinea- Bissau, Kenya, Liberia, Malawi, Mauritius, Niger, Republic of the Sudan, Eswatini;

14.7.2 Country type 2: Algeria, Angola, Benin, Cape Verde, Chad, Cote d'Ivoire, Egypt, Ethiopia, Madagascar, Senegal, United Republic of Tanzania, Zimbabwe;

14.7.3 Country type 3: Burkina Faso, Congo, Djibouti, Equatorial Guinea, Guinea, Mauritania, Nigeria, Rwanda, Sao Tome and Principe, Seychelles, South Africa, South Sudan, Tunisia, Zambia;

14.7.4 Country type 4: Burundi, Central African Republic, Eritrea, Gabon, Gambia, Lesotho, Libyan Arab Jamahiriya, Mali, Morocco, Mozambique, Namibia, Sierra Leone, Somalia, Togo, Uganda. (Note: A sample country type map can be found in the figure below).

14.8 For each type of country, the following tables and figure describe the sharing of the PCIs with its neighbouring countries, with the following conventions of writing:

Preferential PCI	
Non-Preferential PCI	

[47] 3GPP TS 36.211 "Evolved Universal Terrestrial Radio Access (E-UTRA); Physical channels and modulation". (https://portal.3gpp.org/desktopmodules/Specifications/SpecificationDetails.aspx?specificationId=2425, also provided in ETSI TS 136 211). In comparison, 3GPP 38.211 (and ETSI TS 138 211) define NR Physical channels and modulation, in NR 2-step identification using PSS/SSS detection of the Physical Cell ID (same as LTE), the number of different cell IDs has been increased from 504 in LTE to 1008 for NR. Thus, for the deployment of LTE systems only the PCIs between 0 to 503 should be used and for NR systems PCIs between 0 to 1007 may be used.

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14.9 The 504 physical-layer cell-identities should be divided into the following 6 sub-sets when the carrier frequencies are aligned in border areas:

Table 7: Sharing of PCIs between countries

	Set A	**Set B**	**Set C**	**Set D**	**Set E**	**Set F**
Country 1	0..83	84..167	168..251	252..335	336..419	420..503
Border 1-2	■	■				■
Zone 1-2-3	■	■				
Border 1-3	■	■	■			
Zone 1-2-4	■					■
Border 1-4	■		■			■
Zone 1-3-4	■		■			

PCI	**Set A**	**Set B**	**Set C**	**Set D**	**Set E**	**Set F**
Country 2	0..83	84..167	168..251	252..335	336..419	420..503
Border 2-1			■	■	■	
Zone 2-3-1			■	■		
Border 2-3		■	■	■		
Zone 2-1-4			■	■		
Border 2-4			■	■		■
Zone 2-3-4			■	■		

PCI	**Set A**	**Set B**	**Set C**	**Set D**	**Set E**	**Set F**
Country 3	0..83	84..167	168..251	252..335	336..419	420..503
Border 3-2	■				■	■
Zone 3-2-3					■	■
Border 3-1				■	■	■
Zone 3-1-4					■	■
Border 3-4			■		■	■
Zone 3-2-4					■	■

PCI	**Set A**	**Set B**	**Set C**	**Set D**	**Set E**	**Set F**
Country 4	0..83	84..167	168..251	252..335	336..419	420..503
Border 4-1		■		■	■	
Zone 4-1-2		■			■	
Border 4-2	■	■			■	
Zone 4-2-3	■	■				
Border 4-3	■	■		■		
Zone 4-3-1		■		■		

14.10 Note:

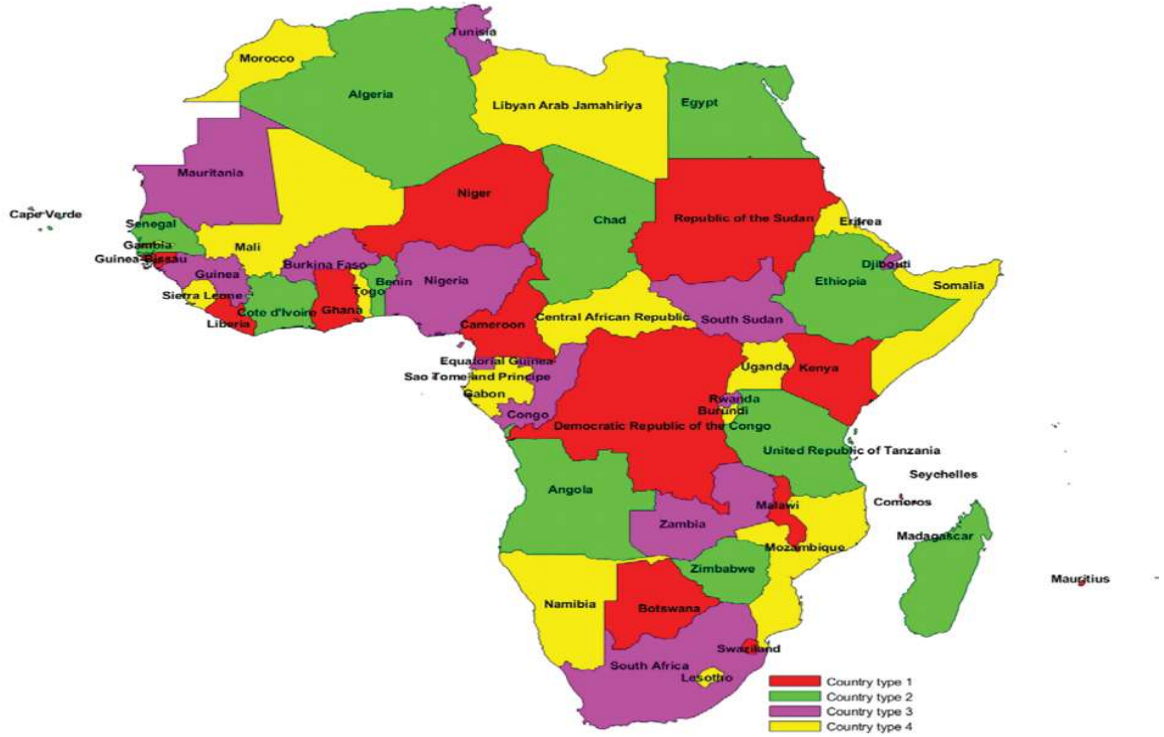
14.10.1 All PCIs are available in areas away from the border.

14.10.2 In certain specific cases (e.g., if Angola and Botswana happened to have the same Country type/PCI code) where the distance between two countries of the same type number is very small

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(below a few tens of kilometres), it may be necessary to address the situation in bilateral /multilateral coordination agreements as necessary and may include further subdivision of the allocated codes in certain areas.

Figure 6: Country type map/PCI distribution map



15 Appendix C: Guidance on the consideration of IMT system radio parameters for use in bilateral and multilateral agreements

15.1 This section is provided for guidance purposes for use in bi-lateral and multilateral discussions. For IMT systems, it may be beneficial to coordinate other radio parameters besides PCI in order to minimise deteriorating effects of uplink interference.

15.2 The parameters described in this section are usually optimised during IMT system radio network planning of an operator's network. The idea of optimisation is to plan the parameters taking into account specific correlation properties of the uplink control signals, which enable more stable and predictable operation of the network. In the cross-border scenario the optimisation of parameters among neighbouring operators could provide better control of uplink interference. However, because of the difference between intra-network and inter-network interference and due to limited experience in the IMT system cross- border deployment, it is difficult to assess the benefits of such optimisation. The following guidance provides the basis for operators to consider in border areas in case of high levels of uplink interference.

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A. DM RS coordination

15.3 DM RS are transmitted in the uplink and used for channel estimation.

15.4 There is a risk of intercell interference between neighbouring cells even in case of no frame synchronisation. That is why special measures for DM RS allocation between networks in neighbouring countries occupying the same channel may need to be applied.

15.5 The case of partial channel overlap has not been studied but due to DM RS occupying resource blocks of separate users, there is a risk of DM RS collisions between neighbouring networks when the subcarriers' positions coincide (the frequency offset between central carriers of neighbouring networks is multiple of 300 kHz). Some minor benefits from DM RS coordination in these particular cases could be expected.

15.6 There are a number of possible approaches to the coordination of DM RS:

15.6.1 In the basic planning procedure, only 30 DM RS sequence groups with favourable correlation characteristics are available: {0…29}. In this case, each cell could be assigned one of the 30 DM RS sequence groups providing a cluster size of 30.

15.6.2 It is possible to extend each DM RS sequence group to generate up to 12-time shifted sequence groups by applying the cyclic shift parameter stated in 3GPP TS 36.211 for LTE. For example, each tri-sector site could be assigned one DM RS sequence group with each co-sited cell having its own cyclic shift of $2\pi/3$, which provides cluster size 30 only with 10 DM RS sequence groups. The latter case corresponds well to the case of DM RS sequence groups repartition between neighbouring countries when only limited number of groups is available for network planning. The drawback of DM RS sequence group cyclic shift is a loss of orthogonally of DM RS due to fading channels which has been found during first trials of LTE and caused throughput loss as well as time alignment problems.

15.6.3 Another approach for DM RS coordination is to implement dynamic DM RS sequence group allocation, also called pseudo-random group hopping. In this method, nearby cells are grouped into clusters up to 30 cells, and within each cell cluster, the same hopping-pattern is used. At the border of two clusters, inter-cell interference is averaged since two different hopping patterns are utilised.

15.6.4 There are 17 defined hopping patterns, numbered {0…16}, which leads to some minor unfairness in case of apportioning these patterns between neighbouring countries. Even in a trilateral case each operator will have at least 5 hopping patterns available near the border, which should be enough or planning purposes. It should be noted the pseudo-random group hopping option could be absent in the first generations of IMT system equipment.

15.7 The decision of which of these methods to use in cross-border coordination should be agreed upon by the interested parties. Specific DM RS sequence groups or hopping patterns repartition is not provided in this text but could be deduced in a similar manner to the PCI repartition.

B. PRACH coordination

15.8 Another radio network parameter that is considered during radio network planning is PRACH configuration which is needed to distinguish random access requests addressed to different cells.

15.9 PRACH resources are allocated by specifying the PRACH Resource Blocks time positions within the uplink frame, their frequency position within the IMT system channel bandwidth and by

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apportioning cell- specific root sequences. During radio network planning, these parameters are usually used in the following way:

15.9.1 Time positions for PRACH resource allocations are usually used to create time collision of PRACH resources of co-sited/frame synchronised cells because PRACH-to-PRACH interference is usually less severe than PUSCH-to-PRACH interference;

15.9.2 Frequency positions within the IMT system channel bandwidth are usually the same for all cells, again because PRACH-to-PRACH interference case is a more favourable one.

15.9.3 Cell-specific root sequences are used to distinguish between PRACH requests addressed to different cells.

15.10 For cross-border coordination, it is proposed to use frequency position offsets to exclude the possibility of so-called "ghost" PRACH requests caused by neighbouring networks. The PRACH is configured in IMT systems to use only 6 Resource Blocks or 1.08 MHz of the IMT system channel bandwidth except in regions used by PUCCH. In case of overlapping or partially overlapping channel bandwidths of neighbouring networks, it is enough to establish non-overlapping PRACH frequency blocks to perform coordination.

15.11 Because it is difficult to establish an implementation dependent procedure for such allocation, it will be the responsibility of operators to manage such frequency separation during coordination discussions.

15.12 In an early implementation, it is possible that a very limited number of frequency positions could be supported by IMT system equipment which will not be enough to coordinate in the trilateral case. In such cases, root-sequence repartition could be used. There are 838 root sequences in total to be distributed between cells, numbered {0...837}. There are two numbering schemes for PRACH root sequences (physical and logical) and that only logical root sequences numbering needs to be used for coordination.

15.13 Unfortunately, the process of root sequences planning doesn't involve direct mapping of root sequences between cells because the number of root sequences needed for one cell is dependent on the cell range.

15.14 The table showing such interdependency is presented below:

Table 8: PRACH – Range Interdependency

PRACH Configuration	Number of root seq. per cell	Cell Range (km)
1	1	0.7
2	2	1
3	2	1.4
4	2	2
5	2	2.5
6	3	3.4
7	3	4.3
8	4	5.4
9	5	7.3
10	6	9.7
11	8	12.1
12	10	15.8
13	13	22.7

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PRACH Configuration	Number of root seq. per cell	Cell Range (km)
14	22	38.7
15	32	58.7
0	64	118.8

15.15 Thus, in the case of root sequence reparation, it will be the responsibility of radio network planners to assign the correct number of root sequences in order to not overlap with the root sequence ranges of other operators. It also should be noted that different root sequences have different cubic metrics and correlation properties, which affect PRACH coverage performance and planning of so-called high-speed cells. For simplicity of cross-border coordination, it is proposed to ignore these properties.

15.16 In summary, it should be stipulated that frequency separation of PRACH resources should be used as the main coordination method. PRACH root sequences repartition should be avoided and used only in exceptional cases. Specific PRACH root sequences repartition is not provided in this text but could be deduced in a similar manner to the PCI repartition.

15.17 Additional guidance for cross-border coordination of synchronised and unsynchronised IMT TDD systems may be found in ECC/REC/ (15)01[48] and ECC Report 296[49].

16 Appendix D: Frequency Coordination Process

16.1 Technical procedures related to bilateral and multilateral cross-border frequency coordination agreements for 4 geographical sub-regions are defined by the African Union, which includes the Southern African sub-region of 10 countries. Cross-Border Frequency Coordination and interference resolution should follow the HCM4A.[50]

16.2 When requesting coordination, the relevant characteristics of the base station and the code or PCI group number should be forwarded to the Administration affected. All of the following characteristics should be included:

16.2.1 carrier frequency [MHz];

16.2.2 name of transmitter station;

16.2.3 country of location of transmitter station;

16.2.4 geographical coordinates [latitude, longitude];

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[48] ECC Recommendation (15)01 "Cross-border coordination for Mobile/Fixed Communications Networks (MFCN) in the frequency bands: 694-790 MHz, 1427-1518 MHz, and 3400-3800 MHz". Amended on 14 February 2020.

[49] ECC Report 296: "National synchronisation regulatory framework options in 3400-3800 MHz: a toolbox for coexistence of MFCNs in synchronised, unsynchronised, and semi-synchronised operation in 3400-3800 MHz", March 2019.

[50] Cross-Border Frequency Coordination: Harmonised Calculation Method for Africa (HCM4A), available at: https://www.itu.int/en/ITU-D/Projects/ITU-EC-ACP/HIPSSA/Documents/FINAL%20DOCUMENTS/FINAL%20DOCS%20ENGLISH/hcm4a_agreement.pdf.pdf

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16.2.5 effective antenna height [m];

16.2.6 antenna polarisation;

16.2.7 antenna azimuth [degrees];

16.2.8 antenna gain [dBi];

16.2.9 effective radiated power [dBW];

16.2.10 expected coverage zone or radius [km];

16.2.11 date of entry into service [month, year].

16.2.12 code group number used; and

16.2.13 antenna tilt [degrees].

16.3 The Administration affected will evaluate the request for coordination and will, within 30 days, notify the result of the evaluation to the Administration requesting coordination. If, in the course of the coordination procedure, the Administration affected requires additional information, it may request such information.

16.4 If no reply is received by the Administration requesting coordination within 30 days, it may send a reminder to the Administration affected. An Administration having not responded within 30 days following communication of the reminder will be deemed to have given its consent and the code coordination may be put into use with the characteristics given in the request for coordination.

16.5 The periods mentioned above may be extended by common consent.

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GOVERNMENT GAZETTE

GENERAL NOTICE

NOTICE XXXX OF 2026

THE INDEPENDENT COMMUNICATIONS AUTHORITY OF SOUTH AFRICA

ELECTRONIC COMMUNICATIONS ACT, 2005 (ACT NO. 36 OF 2005)

HEREBY ISSUES A NOTICE REGARDING THE RADIO FREQUENCY ASSIGNMENT PLANS FOR THE FREQUENCY BANDS ALLOCATED TO THE MOBILE RADIOCOMMUNICATIONS SERVICES AND IDENTIFIED INTERNATIONAL MOBILE TELECOMMUNICATIONS IN THE NATIONAL RADIO FREQUENCY PLAN.

1. The Independent Communications Authority of South Africa ("the Authority"), on 28 March 2024, published the Draft International Mobile Telecommunications (IMT) Roadmap, in Government Gazette No. 50413 (Notice 4584 of 2024) inviting Written Representations.

2. On 13 September 2024, in Government Gazette 51244 (Notice 5209 of 2024) the Authority published a "Notice Communicating the Outcome of the Consultation Process of the Draft IMT Roadmap 2025.

3. The Authority, in Government Gazette 53883 (Notice 3712 of 2025), published the Second Draft International Mobile Telecommunications (IMT) Roadmap 2025, in terms of section 4(3)(c) of the Independent Communications Authority of South Africa Act, 2000 (Act No. 13 of 2000), read with sections 2(e), 30, 31(4), and 33 of the Electronic Communications Act (Act No 36 of 2005).

4. Now therefore, the Authority, in terms of section 4(3)(c) of the Independent Communications Authority of South Africa Act, 2000 (Act No. 13 of 2000), read with sections 2(e), 30, 31(4), and 33 of the Electronic Communications Act (Act No 36 of 2005) hereby publishes the notice regarding the radio frequency assignment plans for the frequency bands allocated to the mobile radiocommunications services and identified international mobile telecommunications in the national radio frequency plan**.**

5. Interested persons are hereby invited to submit written representations on the notice regarding the radio frequency assignment plans for the frequency bands allocated to the mobile radiocommunications services and identified international mobile telecommunications in the national radio frequency plan in both Microsoft Word (MS) and Portable Document Format (PDF) by no later than 16:00 on **4 September 2026.**

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6. Persons making representations are further invited to indicate whether they require an opportunity to make oral representations.

7. Written representations or enquiries may be directed by email to:

Attention:

Mr Manyaapelo Richard Makgotlho

e-mail: rmakgotlho@icasa.org.za

Copy: jdikgale@icasa.org.za

8. Where persons making representations require that their representation, or part thereof, be treated as confidential, then an application in terms of section 4D of the ICASA Act, 2000 (Act No 13 of 2000) must be lodged with the Authority. Such an application must be submitted simultaneously with the representation, together with a non-confidential, redacted version of the submission. If, however, the request for confidentiality is not granted, the person making the request will be allowed to withdraw the representation or document in question.

9. The guidelines for confidentiality requests are contained in Government Gazette Number No 41839 of 17 August 2018.

10. All written representations submitted to the Authority pursuant to this notice will be made available for inspection by interested persons from **11 September 2026** at the Authority's Library. Electronic copies of such representations are obtainable on request and printed versions will be obtainable on payment of a fee.

11. The radio frequency assignment plans for the frequency bands allocated to the mobile radiocommunications services and identified international mobile telecommunications in the national radio frequency plan and the non-confidential representations will be uploaded to the Authority's website under this link: https://www.icasa.org.za/legislation-and-regulations/radio-frequency-spectrum-plans/draft-radio-frequency-spectrum-plans.



Mothibi G. Ramusi

CHAIRPERSON

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Radio Frequency Spectrum Assignment Plan

Rules for Services operating in the Frequency Band

6425 MHz to 7125 MHz

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1 Glossary of Terms, Abbreviations, and Acronyms

1.1 In this Radio Frequency Spectrum Assignment Plan, terms used will have the same meaning as in the Electronic Communications Act 36 of 2005; unless the context indicates otherwise. The definitions and acronyms for additional terms are listed below:

"3GPP"	means the 3rd Generation Partnership Project (3GPP) which consists of six telecommunications standard development organisations
"AAS"	means Active Antenna System
"Act"	means the Electronic Communications Act, 2005 (Act No. 36 of 2005) as amended
"AGM"	means Annual General Meeting
"AU"	means African Union
"BEM"	means Block Edge Masks
"BS"	means Base Stations
"CRASA"	means Communications Regulators' Association of Southern Africa
"CRASA ECC"	means the Communications Regulators' Association of Southern Africa (CRASA) Electronic Communications Committee (ECC)
"DM RS"	means Demodulation Reference Signal
"ECC"	means the Electronic Communications Committee within the European Conference of Postal and Telecommunications Administrations (CEPT)
"ECC/REC (11)04"	means the ECC Recommendation (11)04 - Cross-border Coordination for Mobile/Fixed Communications Networks (MFCN) in the frequency band 790-862 MHz, Edition 3 February 2017
"ECC/REC (15)01"	means the ECC Recommendation (15)01 - (15)01 -ECC Recommendation (15)01 "Cross-border coordination for Mobile/Fixed Communications Networks (MFCN) in the frequency bands: 694-790 MHz, 1427-1518 MHz, and 3400-3800 MHz". Amended on 14 February 2020
"EIRP"	means Effective Isotropic Radiated Power
"FDD"	means the Frequency Division Duplex
"HCM"	means the Harmonised Calculation Method
"HCM4A"	means the Harmonised Calculation Method for Africa
"HDA"	means High-Density Area
"HIBS"	means High-Altitude Platform Stations as IMT Base Stations
"HIPSSA"	means the Sub-Saharan Africa Assessment Report on Harmonisation of ICT Policies in Sub-Saharan Africa
"ICNIRP"	Means the International Commission on Non-Ionizing Radiation Protection (ICNIRP)
"IMT"	means the International Mobile Telecommunications
"IMT-2020"	means International Mobile Telecommunications-2020
"IMT Advanced"	means International Mobile Telecommunications-Advanced
"ITA"	means the Invitation to Apply
"ITU"	means the International Telecommunication Union
"ITU-R"	means the International Telecommunication Union Radiocommunication Sector
"LPI"	means Low Power Indoor
"LoS"	means Line of Sight
"LTE"	means the Long-Term Evolution is a standard for wireless communication of high-speed data for mobile phones and data terminals. It is based on the GSM/EDGE and
"Non-AAS"	means Non-Active Antenna System
"NR"	means New Radio

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"NRFP"	means the National Radio Frequency Plan 2013 for South Africa
"PCI"	means the Physical-Layer Cell Identities
"PFD"	means Power Flux Density
"PPDR"	means the Public Protection and Disaster Relief as defined in ITU-R Report M.2033
"PRACH"	means the Physical Random-Access Channel
"PSTN"	means the Public Switched Telephone Network
"PUCCH"	means the Physical Uplink Control Channel
"PUSCH"	means the Physical Uplink Shared Channel
"RAS"	means Radio Astronomy Service
"RFSAP"	means the Radio Frequency Spectrum Assignment Plan
"RR"	means Radio Regulations
"SADC"	means Southern African Development Community
"TCA"	means the Terrain Clearance Angle
"TRP"	means the Total Radiated Power. The TRP is defined as the integral of the power transmitted in different directions over the entire radiation sphere.
"TDD"	means the Time Division Duplex
"UE"	means User Equipment
"VLP"	means Very Low Power
"WRC-12"	means the World Radiocommunication Conference 2012 held in Geneva
"WRC-15"	means the World Radiocommunication Conference 2015 held in Geneva
"WRC-19"	means the World Radiocommunication Conference 2019 held in Sharm el-Sheikh
"WRC-23"	means the World Radiocommunication Conference 2023 held in Dubai

2 Purpose

2.1 An RFSAP provides information on the requirements attached to the use of a frequency band in line with the allocation and other information in the NRFP. This information includes technical characteristics of radio systems, frequency channelling, coordination, and details on required migration of existing users of the band and the expected method of assignment.

2.2 This RFSAP states the requirements for the utilisation of the frequency band 6425 MHz to 7125 MHz for IMT.

2.3 The ITU states that IMT systems are mobile systems that provide access to a wide range of telecommunication services including advanced mobile services, supported by mobile and fixed networks, which are increasingly packet-based. Key features of the IMT systems are:[51]

- a high degree of commonality of functionality worldwide whilst retaining the flexibility to support a wide range of services and applications in a cost-efficient manner;
- compatibility of services within IMT and with fixed networks;
- capability of interworking with other radio access systems;
- high quality mobile services;
- user equipment suitable for worldwide use;

[51] See ITU-R Frequently Asked Questions on IMT, available at: https://www.itu.int/en/ITU-R/Documents/FAQ-IMT-2024.pdf#:~:text=Key%20features%20of%20IMT%2D2000%20and,in%20a%20cost%20efficient%20manner%3B

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- user-friendly applications, services, and equipment;
- worldwide roaming capability; and
- enhanced peak data rates to support advanced services and applications.

3 General

3.1 Technical characteristics of equipment used in IMT systems will conform to all applicable South African standards, international standards, and ITU (including its radio regulations) as agreed and adopted by South Africa.

3.2 All installations must comply with safety rules as specified in applicable standards.

3.3 The equipment used will be certified under South African law and regulations.

3.4 The allocations of the IMT bands and the information in this RFSAP are subject to review.

3.5 Frequency bands identified for IMT include the bands 6425 MHz to 7125 MHz.

3.6 The requirements for the standard families which licensees can provide services include, but are not limited to:

- IMT-2000;
- IMT-Advanced;
- IMT-2020; and
- IMT-2030.

3.7 Typical technical and operational characteristics identified by the ITU are described in the following documents:

- Recommendation ITU-R M.2012-5 (02/2022): Detailed specifications of the terrestrial radio interfaces of IMT Advanced;
- Report ITU-R M.2074-0 (2006): Report on Radio Aspects for the terrestrial component of
- IMT-2000 and systems beyond IMT-2000;
- Recommendation ITU-R M.1645 (06/2003): Framework and overall objectives of the future development of IMT-2000 and systems beyond IMT-2000;
- Recommendation ITU-R M.1036: Frequency arrangements for implementation of the terrestrial component of IMT in the bands identified for IMT in the RR;
- Recommendation ITU-R M.2150-1 (02/2022): Detailed specifications of the terrestrial radio interfaces of IMT-2020; and
- Recommendation ITU-R M.2160-0 (11/2023): Framework and overall objectives of the future development of IMT for 2030 and beyond.

3.8 The ITU also provides guidelines for modelling and simulation, e.g.

- Recommendation ITU-R M.2070-1 (02/2017): Generic unwanted emission characteristics
- of base stations using the terrestrial radio interfaces of IMT-Advanced;
- Recommendation ITU-R M.2071-1 (02/2017): Generic unwanted emission characteristics of mobile stations using the terrestrial radio interfaces of IMT-Advanced; and

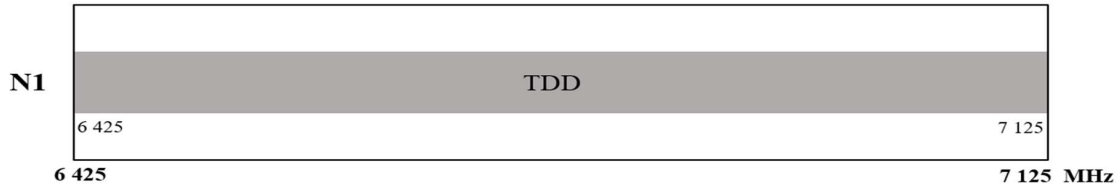
3.9 Recommendation ITU-R M.2101 (02/2017): Modelling and simulation of IMT networks and systems for use in sharing and compatibility studies.

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4 Channelling Plan

4.1 The frequency arrangements for implementation of IMT in the 6425 - 7125 MHz frequency range are summarized below, noting the implementation aspects in this RFSAP.

Figure 7: Frequency arrangements for N1



Source: ITU WG5D

5 Requirements for the usage of the radio frequency spectrum

5.1 This chapter covers the minimum key characteristics considered necessary in order to make the best use of the available frequencies.

5.2 The use of this band is for IMT services, FSS, and FS. FSS and FS shall coexist with IMT services outdoors provided that interference is within tolerable limits. If the latter is not possible, then FSS and FS links will need to migrate to outside of the geographic areas in which interference is being experienced.

5.3 Only systems using digital technologies that promote spectral efficiency will be issued with an assignment. Capacity-enhancing digital techniques are being rapidly developed together with and such techniques that promote efficient spectrum use without reducing service quality. These techniques are encouraged.

5.4 In some cases, a radio system conforming to the requirements of this RFSAP may require modifications if harmful interference is caused to other radio stations or systems.

5.5 The allocation of spectrum and shared services within these bands are found in the NRFP.

5.6 Maximum radiated power:

5.6.1 IMT base stations: For mobile services, studies are underway on potential power limits for base stations. Considerations include limits on expected, average, and maximum EIRP. It is important to note that EIRP includes the antenna gain, while TRP measures the total power radiated from the antenna.

5.6.2 The ECC is currently working to develop harmonized technical conditions, with draft reports expected in 2026. A final decision on the regulatory framework for the 6425–7125 MHz band, including specific TRP and EIRP power limits, is not expected until at least mid-to-late 2027.

5.6.3 On a case-to-case basis, higher TRP may be permitted if acceptable technical justification is provided.

5.7 For the protection of the fixed and fixed-satellite services in the frequency bands from the mobile, except aeronautical mobile, and from IMT:

5.7.1 The Authority may set PFD limits in respect of PFD produced at the height of 3 m above ground level.

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5.7.2 Based on the above PFD value the coordination distances are calculated using Recommendation ITU-R P.452-18 at 20% of time with a smooth Earth terrain profile.

5.8 Where appropriate, subscriber terminal stations should comply with the technical specification outlined under the latest version of 3GPP specifications, e.g., TS 36.521-1 for LTE, 38.521-1 for 5G NR;

5.9 ICNIRP Guideline compliance is required, where applicable; and

5.10 The criteria and guidelines for interference mitigation are described in Appendices B and D.

6 Commencement

6.1 This RFSAP comes into effect upon publication of this notice.

6.2 No new assignment for IMT in the band 6425 MHz – 7125 MHz will be approved unless it complies with this RFSAP.

7 Conflict

7.1 In the event of a conflict between this RFSAP and the applicable NRFP and/or Terrestrial Broadcasting Frequency Plan, the NRFP and the Terrestrial Broadcasting Frequency Plan shall prevail.

8 Coordination Requirements

8.1 Cross Border Frequency Coordination will abide by the HCM4A Agreement. This follows the 3rd CRASA AGM that agreed that CRASA should implement the Cross Border Frequency Coordination HCM4A Agreement.

8.2 The ECC had noted the need for greater understanding of the concept and need for harmonisation in the signing of the HCM4A Agreement by the SADC Member States if the implementation of the Agreement is to be effective. The ECC, therefore, agreed to convene a workshop on HCM4A and requested the CRASA Members to consider signing the agreement.

8.3 At the 5th CRASA AGM, Swakopmund, Namibia – 07-08 April 2016 [1], the subject of Cross Border Frequency Coordination using the Harmonised Calculation Method for Africa (HCM4A) was discussed in detail, following similar efforts in Europe. The Resolution CRASA/AGM/15.16/07 stipulates, "The AGM urged CRASA Members to prioritise the motivation to their administrations who are yet to indicate their interest to sign the HCM4A, to do so as soon as possible".

8.4 Therefore, coordination would follow the HCM4A as detailed in Sub-Saharan Africa Assessment Report on HIPSSA.[52]

8.5 A harmonised calculation method (HCM4A) brings these benefits:

8.5.1 Based on HCM Agreement used in Europe;

8.5.2 Optimise spectrum usage;

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[52] See: https://www.itu.int/en/ITU-D/Projects/ITU-EC-ACP/HIPSSA/Documents/FINAL%20DOCUMENTS/FINAL%20DOCS%20ENGLISH/hcm4a_agreement.pdf.pdf

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8.5.3 Prevent harmful interferences;

8.5.4 Confer an adequate protection for stations;

8.5.5 Define technical provisions and administrative procedures;

8.5.6 Quick assignment of preferential frequencies;

8.5.7 Transparent decisions through agreed assessment procedures;

8.5.8 Quick assessment of interference through data exchange.

8.6 HCM4A involves all 4 sub regions of Africa. This means the HCM4A projects include performing a survey and a comparative analysis of existing administrative and technical procedures related to bilateral and multilateral cross-border frequency coordination agreements across the 4 geographical sub-regions as defined by the AU, namely:

8.6.1 Central Africa [Burundi, Central African Republic, Chad, Congo, Democratic Republic of Congo, Equatorial Guinea, Gabon, Sao Tome, and Principe];

8.6.2 East Africa [Comoros, Djibouti, Eritrea, Ethiopia, Kenya, Madagascar, Mauritius, Rwanda, Seychelles, Somalia, Sudan, Tanzania, Uganda];

8.6.3 Southern Africa [Angola, Botswana, Lesotho, Malawi, Mozambique, Namibia, South Africa, Eswatini, Zambia, Zimbabwe];

8.6.4 West Africa [Benin, Burkina-Faso, Cape Verde, Côte d'Ivoire, Gambia, Ghana, Guinea, Guinea-Bissau, Liberia, Mali, Niger, Nigeria, Sierra Leone, Senegal, Togo].

8.7 HCM4A also comes with a software tool for Sub-Saharan Africa. This has the following features:[53]

8.7.1 Optimise spectrum usage by accurate interference field strength calculations;

8.7.2 Establish general parameters, improvement, and supplementation of technical provisions, individual restrictions;

8.7.3 Establish models for computer-aided interference range calculations; and

8.7.4 Harmonise parameters: objectively predictable towards transparent decisions.

8.8 Use of these frequency bands will require coordination with the neighbouring countries within the coordination zones of 6 kilometres from the neighbouring country. The coordination distance is continuously being reviewed and these may be updated from time to time.

8.9 For the protection of the fixed and fixed-satellite services in the frequency bands 6425-7075MHz from the mobile, except aeronautical mobile, and from IMT:

8.9.1 The Authority may set PFD limits in respect of PFD produced at the height of 3 m above ground level.

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[53] See: https://www.itu.int/en/ITU-D/Regional-Presence/AsiaPacific/Documents/Events/2017/May%20BKK/Presentations/HCM%20and%20HCM4A%20BKK%2020170504%20IB.pdf

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8.9.2 Based on the above PFD value the coordination distances are calculated using Recommendation ITU-R P.452-18 at 20% of time with a smooth Earth terrain profile. The ITU has identified measures that can be implemented to mitigate interference.[54] Techniques that can be implemented include:

8.9.3 Sector pointing to reduce emission power towards FSS earth station;

8.9.4 Multiple input, multiple output ("MIMO") technique;

8.9.5 Antenna downtilting;

8.9.6 Low/medium power networks for local coverage;

8.9.7 Filtering of unwanted emissions of IMT transmitting stations;

8.9.8 Inter-service frequency separation; and

8.9.9 Distance-based mitigation.

8.10 The ITU also suggests the compilation of a registry of all FSS earth stations to gather information regarding geographical location and radio frequency allocations. This will ensure that regulators are aware of incumbent users and can implement appropriate coordination strategies[55].

8.11 In the event that the Authority assigns spectrum to private networks on a geographically limited basis in the band in addition to national assignments, the geographically limited private network shall ensure that its systems do not cause interference with those of the national licensee.

8.12 Technical analysis may be conducted by the Authority before an assignment is issued according to Appendix A.

8.13 New assignments would also require coordination with the existing incumbent assignments. See Appendices B and D.

8.14 If neighbouring administrations wish to agree on frequency coordination based on preferential frequencies, while ensuring a fair treatment of different operators within a country the Authority will add these mutual agreements.

8.15 In the event of any interference, the Authority will require affected parties to carry out coordination. In the event that the interference continues to be unresolved after 24 hours, the affected parties may refer the matter to the Authority for a resolution. The Authority will decide the necessary modifications and schedule of modifications to resolve the dispute. The Authority will be guided by the Frequency Coordination Process as outlined in Appendix D.

8.16 Assignment holders shall take full advantage of interference mitigation techniques such as antenna discrimination, tilt, polarization, frequency discrimination, shielding / blocking (introduce diffraction loss), site selection, and/or power control to facilitate the coordination of systems.

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[54] See ITU Radiocommunication Study Groups. 2024. Mitigation measures between FSS and IMT in the frequency band 3 400-3 600 MHz. Document 4/28-E, available at: https://www.itu.int/dms_pub/itu-r/opb/rep/R-REP-S.2546-2025-PDF-E.pdf

[55] See ITU Radiocommunication Study Groups. 2024. Mitigation measures between FSS and IMT in the frequency band 3 400-3 600 MHz. Document 4/28-E, available at: https://www.itu.int/dms_pub/itu-r/opb/rep/R-REP-S.2546-2025-PDF-E.pdf

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9 Assignment

9.1 The unassigned IMT spectrum in this band will be assigned through an Invitation to Apply in line with the regulations developed in terms of section 31(3) of the Act.

9.2 Licence exempt use of the band may be made if provided for in Annexure B of the Radio Frequency Spectrum Regulations 2015, as amended.[56]

9.3 The assignment of the spectrum for the verticals will be considered in accordance with regulation 5 of the Radio Frequency Spectrum Regulations 2015:

9.3.1 Regulation 5(3) of the Radio Frequency Spectrum Regulations 2015 may apply.

9.3.2 The application shall be subjected to public consultation.

9.3.3 National licenses to be protected on a primary basis;

9.3.4 For private networks with a limited geographic scope on a secondary basis.

10 Amendments

10.1 Applicable licences are hereby amended to conform with this RFSAP upon publication of this notice.

11 Radio Frequency Migration

11.1 Existing licensees are to conform to the requirements of this RFSAP within 24 months of the publication of this notice, and migrate out of the band if necessary within that time period.

12 Synchronisation

12.1 In order to avoid interference between TDD networks operating in adjacent frequency carriers, the radio transmissions of adjacent TDD networks should be synchronized with the uplink and downlink frames aligned in time. Such synchronization of TDD networks is very important because it is the best way to avoid interference between networks and ensures efficient use of spectrum resources by avoiding inter-operator guard bands and additional base station filtering. Otherwise, the uplink and downlink interference cannot be eliminated or avoided in terms of technical measures.

12.2 The Authority will align with the operators to define a unified national uplink and downlink frame as part of a future ITA for unassigned spectrum in this band.

13 Appendix A: Propagation Model

13.1 The following methods are proposed for assessment of anticipated interference inside neighbouring countries based on established trigger values. Due to the complexity of radio-wave propagation, different methods are proposed to be considered by administrations and are included here for guidance purposes only. It should be noted that the following methods provide theoretical predictions based on available terrain knowledge. It is practically impossible to recreate these methods with measurement procedures in the field. Therefore, only some approximation of measurements could be used to check compliance with those methods based on practical measurement procedures. The details of such approximations are not included in this

[56] See Government Gazette 38641, notice 279 of 2015, and Government Gazette 48643, notice 1822 of 2023.

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recommendation and should be negotiated between countries based on their radio monitoring practices.

A. Path specific model

13.2 Where appropriately detailed terrain data is available, the propagation model for interference field strength prediction is the latest version of ITU-R Rec. P.452.[57] For the relevant transmitting terminal, predictions of path loss would be made at x km steps along radials of y km at z degree intervals.[58] The values for those receiver locations within the neighbouring country would be used to construct a histogram of path loss – and if more than 10% of predicted values exceed the threshold, the station should be coordinated.

B. Site General model

13.3 If it is not desirable to utilise detailed terrain height data for propagation modelling in the border area, the basic model to be used to trigger coordination between administrations and to decide if coordination is necessary, is ITU-R Rec. P.1546, "Method for point to area predictions for terrestrial services in the frequency range 30 to 4000 MHz".

13.4 This model is to be employed for 50% locations, 10% time and using a receiver height of 3m. For specific reception areas where terrain roughness adjustments for improved accuracy of field strength prediction are needed, administrations may use correction factors according to terrain irregularity and/or an averaged value of the TCA parameter in order to describe the roughness of the area on and around the coordination line.

13.5 Administrations and/or operators concerned may apply to the Authority to deviate from the aforementioned model.

C. Area calculations

13.6 In the case where greater accuracy is required, administrations and operators may use the area calculation below. For calculations, all the pixels of a given geographical area to be agreed between the Administrations concerned in a neighbouring country are taken into consideration. For the relevant base station, predictions of path loss should be made for all the pixels of a given geographical area from a base station and at a receiver antenna height of 3 m above ground.

13.7 For evaluation:

13.7.1 Only 10% of the number of the geographical area between the border line (also including the border line) and the 6 km line itself inside the neighbouring country may be interfered by higher field strength than the trigger field strength value given for the border line in the main text above at a height of 3 m above ground:

13.7.2 Only 10% of the number of the geographical area between the 6 km (including also the 6 km line) and 12 km line inside the neighbouring country may be interfered by higher field strength than the trigger field strength value given for the 6 km line in the main text above at a height of 3 m above ground;

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[57] Recommendation ITU-R P.452-17 (09/2021, with Editorial corrections on 28 October 2021) "Prediction procedure for the evaluation of interference between stations on the surface of the Earth at frequencies above about 0.1 GHz" (https://www.itu.int/rec/R-REC-P.452/en).

[58] Values for x, y, z, and path specific field strength levels are to be agreed between the administrations concerned.

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13.8 It is recommended that during area calculations, not only detailed terrain data but also clutter data be taken into account. Use of correction factors for clutter is crucial in particular where the border area is 'open' or 'quasi-open' from the point of view of clutter or where the interfering base station is just a few kilometres from a border line.

13.9 If the distance between a base station and a terrain point of a border line is closer than or equal to 1 km, the free space propagation model needs to be applied. Furthermore, if there is no terrain obstacle within the 1st Fresnel zone, the free space propagation model should be applied.

13.10 If clutter data is not available, it is proposed to extend the usage of the free space propagation model to a few kilometres, depending on the clutter situation in border areas.

13.11 For area type interference calculations, propagation models with path specific terrain correction factors are recommended (e.g., the latest Recommendation ITU–R P.1546[59] with the Terrain Clearance Angle correction factor TCA, HCM[60] method with the Terrain Clearance Angle correction factor or Recommendation ITU–R P.1812[61]).

13.12 As to correction factors for clutters 'open area' and 'quasi-open area', 20 dB and 15 dB should be used, respectively. Recommendations ITU–R P.1406[62] and/or ITU-R P.2108[63] should be used if a finer selection of clutter is required.

13.13 It must be noted that terrain irregularity factor Δh is not recommended to be used in area calculations. Administrations and/or operators concerned may agree to deviate from the aforementioned models by mutual consent.

14 Appendix B: Coordination for IMT-Systems

A. PREFERENTIAL PCI FOR IMT SYSTEMS

14.1 The following is as an operational example and can be adapted for the SADC countries for IMT systems.

14.2 PCI coordination is only needed when channel centre frequencies are aligned independently of the channel bandwidth.

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[59] ITU-R Recommendation P.1546-6 (08/2019): Method for point-to-area predictions for terrestrial services in the frequency range 30 MHz to 3 000 MHz (https://www.itu.int/rec/R-REC-P.1546/en).

[60] HCM Agreement (Harmonised Calculation Method) between the administrations of Austria, Belgium, the Czech Republic, Germany, France, Hungary, the Netherlands, Croatia, Italy, Liechtenstein, Lithuania, Luxembourg, Poland, Romania, the Slovak Republic, Slovenia, and Switzerland on the Coordination of frequencies between 29.7 MHz and 43.5 GHz for the Fixed Service and the Land Mobile Service. The latest version of this agreement can be found from http://www.hcm-agreement.eu/http/englisch/verwaltung/index_europakarte.htm

[61] Recommendation P.1812-6 (09/2021) "A path-specific propagation prediction method for point-to-area terrestrial services in the frequency range 30 MHz to 6 000 MHz" (https://www.itu.int/rec/R-REC- P.1812/en).

Annex 5: Determination of the interference field strength in the Land Mobile Service (https://www.itu.int/en/ITU-D/Projects/ITU-EC- ACP/HIPSSA/Documents/REGIONAL%20documents/HCM4A-E-Annex05.pdf).

[62] Recommendation P.1406-2 (07/2015) "Propagation effects relating to terrestrial land mobile and broadcasting services in the VHF and UHF bands" (https://www.itu.int/rec/R-REC-P.1406/en).

[63] Recommendation P.2108-1 (09/2021) "Prediction of clutter loss" (https://www.itu.int/rec/R-REC-P.2108/en).

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14.3 3GPP TS 36.211[64] defines 168 "unique physical-layer cell-identity groups" in §6.11, numbered 0...167, hereafter called "PCI groups" for IMT systems. Within each PCI group, there are three separate PCIs giving 504 PCIs in total.

14.4 Administrations should agree on a repartition of these 504 PCIs on an equitable basis when channel centre frequencies are aligned, as shown in the table below. It has to be noted that dividing the PCI groups or PCIs is equivalent. Each country should only use their own preferential PCIs close to the border and can use all PCIs away from the border. This transition distance between "close to the border" and "away from the border" should be agreed between neighbouring countries.

14.5 Administrations may wish to define different field strength levels (than those provided in the main text referring to this Appendix) for non-preferential PCIs.

14.6 As shown in the table below, the PCIs should be divided into 6 sub-sets containing each one sixth of the available PCIs. Each country is allocated three sets (half of the PCIs) in a bilateral case and two sets (one third of the PCIs) in a trilateral case.

14.7 Four types of countries are defined in a way such that no country will use the same code set as any one of its neighbours. The following lists describe a sample distribution for African countries:

14.7.1 Country type 1: Botswana, Cameroon, Comoros, Democratic Republic of the Congo, Ghana, Guinea- Bissau, Kenya, Liberia, Malawi, Mauritius, Niger, Republic of the Sudan, Eswatini;

14.7.2 Country type 2: Algeria, Angola, Benin, Cape Verde, Chad, Cote d'Ivoire, Egypt, Ethiopia, Madagascar, Senegal, United Republic of Tanzania, Zimbabwe;

14.7.3 Country type 3: Burkina Faso, Congo, Djibouti, Equatorial Guinea, Guinea, Mauritania, Nigeria, Rwanda, Sao Tome and Principe, Seychelles, South Africa, South Sudan, Tunisia, Zambia;

14.7.4 Country type 4: Burundi, Central African Republic, Eritrea, Gabon, Gambia, Lesotho, Libyan Arab Jamahiriya, Mali, Morocco, Mozambique, Namibia, Sierra Leone, Somalia, Togo, Uganda. (Note: A sample country type map can be found in the figure below).

14.8 For each type of country, the following tables and figure describe the sharing of the PCIs with its neighbouring countries, with the following conventions of writing:

Preferential PCI	
Non-Preferential PCI	

14.9 The 504 physical-layer cell-identities should be divided into the following 6 sub-sets when the carrier frequencies are aligned in border areas:

[64] 3GPP TS 36.211 "Evolved Universal Terrestrial Radio Access (E-UTRA); Physical channels and modulation". (https://portal.3gpp.org/desktopmodules/Specifications/SpecificationDetails.aspx?specificationId=2425, also provided in ETSI TS 136 211). In comparison, 3GPP 38.211 (and ETSI TS 138 211) define NR Physical channels and modulation, in NR 2-step identification using PSS/SSS detection of the Physical Cell ID (same as LTE), the number of different cell IDs has been increased from 504 in LTE to 1008 for NR. Thus, for the deployment of LTE systems only the PCIs between 0 to 503 should be used and for NR systems PCIs between 0 to 1007 may be used.

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CONTINUES ON PAGE 386 OF BOOK 4

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Table 9: Sharing of PCIs between countries

	Set A	Set B	Set C	Set D	Set E	Set F
Country 1	0..83	84..167	168..251	252..335	336..419	420..503
Border 1-2	■	■				■
Zone 1-2-3	■	■				
Border 1-3	■	■	■			
Zone 1-2-4	■					■
Border 1-4	■		■			■
Zone 1-3-4	■		■			

PCI	Set A	Set B	Set C	Set D	Set E	Set F
Country 2	0..83	84..167	168..251	252..335	336..419	420..503
Border 2-1			■	■	■	
Zone 2-3-1			■	■		
Border 2-3		■	■	■		
Zone 2-1-4			■	■		
Border 2-4			■	■		■
Zone 2-3-4			■	■		

PCI	Set A	Set B	Set C	Set D	Set E	Set F
Country 3	0..83	84..167	168..251	252..335	336..419	420..503
Border 3-2	■				■	■
Zone 3-2-3					■	■
Border 3-1				■	■	■
Zone 3-1-4					■	■
Border 3-4			■		■	■
Zone 3-2-4					■	■

PCI	Set A	Set B	Set C	Set D	Set E	Set F
Country 4	0..83	84..167	168..251	252..335	336..419	420..503
Border 4-1		■		■	■	
Zone 4-1-2		■			■	
Border 4-2	■	■			■	
Zone 4-2-3	■	■				
Border 4-3	■	■		■		
Zone 4-3-1		■		■		

14.10 Note:

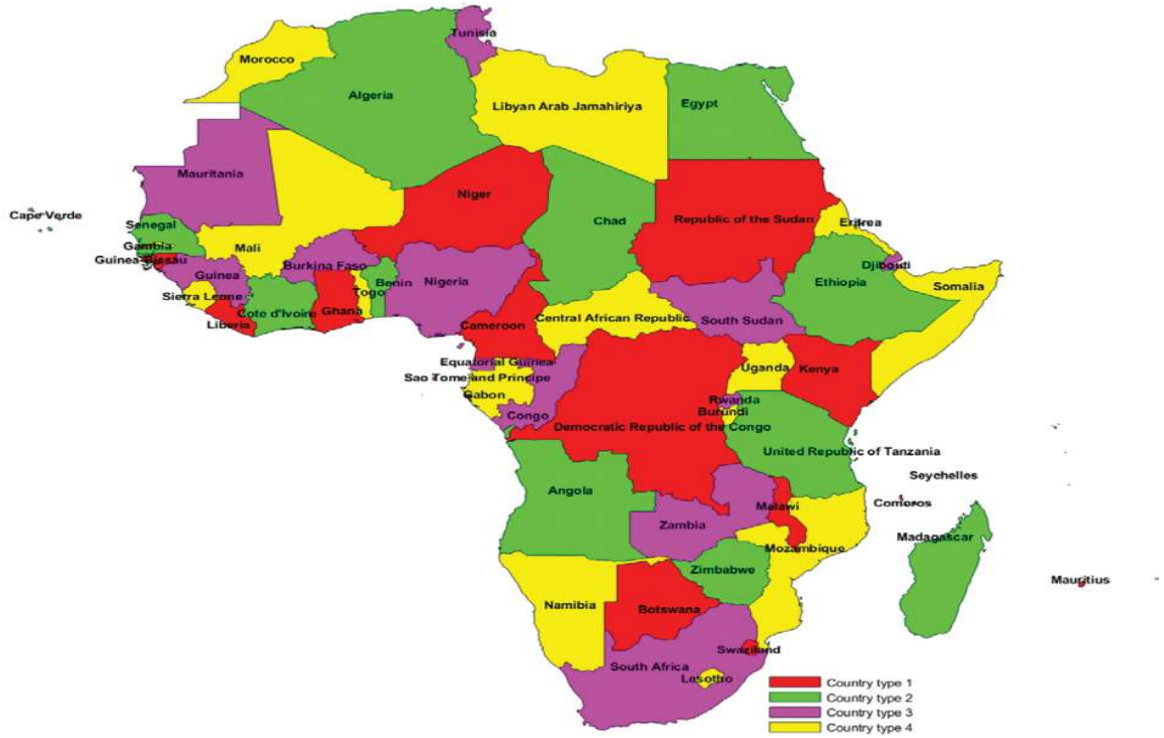
14.10.1 All PCIs are available in areas away from the border.

14.10.2 In certain specific cases (e.g., if Angola and Botswana happened to have the same Country type/PCI code) where the distance between two countries of the same type number is very small (below a few tens of kilometres), it may be necessary to address the situation in bilateral

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/multilateral coordination agreements as necessary and may include further subdivision of the allocated codes in certain areas.

Figure 8: Country type map/PCI distribution map



15 Appendix C: Guidance on the consideration of IMT system radio parameters for use in bilateral and multilateral agreements

15.1 This section is provided for guidance purposes for use in bi-lateral and multilateral discussions. For IMT systems, it may be beneficial to coordinate other radio parameters besides PCI in order to minimise deteriorating effects of uplink interference.

15.2 The parameters described in this section are usually optimised during IMT system radio network planning of an operator's network. The idea of optimisation is to plan the parameters taking into account specific correlation properties of the uplink control signals, which enable more stable and predictable operation of the network. In the cross-border scenario the optimisation of parameters among neighbouring operators could provide better control of uplink interference. However, because of the difference between intra-network and inter-network interference and due to limited experience in the IMT system cross- border deployment, it is difficult to assess the

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benefits of such optimisation. The following guidance provides the basis for operators to consider in border areas in case of high levels of uplink interference.

A. DM RS coordination

15.3 DM RS are transmitted in the uplink and used for channel estimation.

15.4 There is a risk of intercell interference between neighbouring cells even in case of no frame synchronisation. That is why special measures for DM RS allocation between networks in neighbouring countries occupying the same channel may need to be applied.

15.5 The case of partial channel overlap has not been studied but due to DM RS occupying resource blocks of separate users, there is a risk of DM RS collisions between neighbouring networks when the subcarriers' positions coincide (the frequency offset between central carriers of neighbouring networks is multiple of 300 kHz). Some minor benefits from DM RS coordination in these particular cases could be expected.

15.6 There are a number of possible approaches to the coordination of DM RS:

15.6.1 In the basic planning procedure, only 30 DM RS sequence groups with favourable correlation characteristics are available: {0…29}. In this case, each cell could be assigned one of the 30 DM RS sequence groups providing a cluster size of 30.

15.6.2 It is possible to extend each DM RS sequence group to generate up to 12-time shifted sequence groups by applying the cyclic shift parameter stated in 3GPP TS 36.211 for LTE. For example, each tri-sector site could be assigned one DM RS sequence group with each co-sited cell having its own cyclic shift of $2\pi/3$, which provides cluster size 30 only with 10 DM RS sequence groups. The latter case corresponds well to the case of DM RS sequence groups repartition between neighbouring countries when only limited number of groups is available for network planning. The drawback of DM RS sequence group cyclic shift is a loss of orthogonally of DM RS due to fading channels which has been found during first trials of LTE and caused throughput loss as well as time alignment problems.

15.6.3 Another approach for DM RS coordination is to implement dynamic DM RS sequence group allocation, also called pseudo-random group hopping. In this method, nearby cells are grouped into clusters up to 30 cells, and within each cell cluster, the same hopping-pattern is used. At the border of two clusters, inter-cell interference is averaged since two different hopping patterns are utilised.

15.6.4 There are 17 defined hopping patterns, numbered {0…16}, which leads to some minor unfairness in case of apportioning these patterns between neighbouring countries. Even in a trilateral case each operator will have at least 5 hopping patterns available near the border, which should be enough or planning purposes. It should be noted the pseudo-random group hopping option could be absent in the first generations of IMT system equipment.

15.7 The decision of which of these methods to use in cross-border coordination should be agreed upon by the interested parties. Specific DM RS sequence groups or hopping patterns repartition is not provided in this text but could be deduced in a similar manner to the PCI repartition.

B. PRACH coordination

15.8 Another radio network parameter that is considered during radio network planning is PRACH configuration which is needed to distinguish random access requests addressed to different cells.

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15.9 PRACH resources are allocated by specifying the PRACH Resource Blocks time positions within the uplink frame, their frequency position within the IMT system channel bandwidth and by apportioning cell- specific root sequences. During radio network planning, these parameters are usually used in the following way:

15.9.1 Time positions for PRACH resource allocations are usually used to create time collision of PRACH resources of co-sited/frame synchronised cells because PRACH-to-PRACH interference is usually less severe than PUSCH-to-PRACH interference;

15.9.2 Frequency positions within the IMT system channel bandwidth are usually the same for all cells, again because PRACH-to-PRACH interference case is a more favourable one.

15.9.3 Cell-specific root sequences are used to distinguish between PRACH requests addressed to different cells.

15.10 For cross-border coordination, it is proposed to use frequency position offsets to exclude the possibility of so-called "ghost" PRACH requests caused by neighbouring networks. The PRACH is configured in IMT systems to use only 6 Resource Blocks or 1.08 MHz of the IMT system channel bandwidth except in regions used by PUCCH. In case of overlapping or partially overlapping channel bandwidths of neighbouring networks, it is enough to establish non-overlapping PRACH frequency blocks to perform coordination.

15.11 Because it is difficult to establish an implementation dependent procedure for such allocation, it will be the responsibility of operators to manage such frequency separation during coordination discussions.

15.12 In an early implementation, it is possible that a very limited number of frequency positions could be supported by IMT system equipment which will not be enough to coordinate in the trilateral case. In such cases, root-sequence repartition could be used. There are 838 root sequences in total to be distributed between cells, numbered {0...837}. There are two numbering schemes for PRACH root sequences (physical and logical) and that only logical root sequences numbering needs to be used for coordination.

15.13 Unfortunately, the process of root sequences planning doesn't involve direct mapping of root sequences between cells because the number of root sequences needed for one cell is dependent on the cell range.

15.14 The table showing such interdependency is presented below:

Table 10: PRACH – Range Interdependency

PRACH Configuration	Number of root seq. per cell	Cell Range (km)
1	1	0.7
2	2	1
3	2	1.4
4	2	2
5	2	2.5
6	3	3.4
7	3	4.3
8	4	5.4
9	5	7.3
10	6	9.7

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PRACH Configuration	Number of root seq. per cell	Cell Range (km)
11	8	12.1
12	10	15.8
13	13	22.7
14	22	38.7
15	32	58.7
0	64	118.8

15.15 Thus, in the case of root sequence reparation, it will be the responsibility of radio network planners to assign the correct number of root sequences in order to not overlap with the root sequence ranges of other operators. It also should be noted that different root sequences have different cubic metrics and correlation properties, which affect PRACH coverage performance and planning of so-called high-speed cells. For simplicity of cross-border coordination, it is proposed to ignore these properties.

15.16 In summary, it should be stipulated that frequency separation of PRACH resources should be used as the main coordination method. PRACH root sequences repartition should be avoided and used only in exceptional cases. Specific PRACH root sequences repartition is not provided in this text but could be deduced in a similar manner to the PCI repartition.

15.17 Additional guidance for cross-border coordination of synchronised and unsynchronised IMT TDD systems may be found in ECC/REC/ (15)01[65] and ECC Report 296[66].

16 Appendix D: Frequency Coordination Process

16.1 Technical procedures related to bilateral and multilateral cross-border frequency coordination agreements for 4 geographical sub-regions are defined by the African Union, which includes the Southern African sub-region of 10 countries. Cross-Border Frequency Coordination and interference resolution should follow the Harmonised Calculation Method for Africa (HCM4A).[67]

16.2 When requesting coordination, the relevant characteristics of the base station and the code or PCI group number should be forwarded to the Administration affected. All of the following characteristics should be included:

16.2.1 carrier frequency [MHz];

16.2.2 name of transmitter station;

---

[65] ECC Recommendation (15)01 "Cross-border coordination for Mobile/Fixed Communications Networks (MFCN) in the frequency bands: 694-790 MHz, 1427-1518 MHz, and 3400-3800 MHz". Amended on 14 February 2020.

[66] ECC Report 296: "National synchronisation regulatory framework options in 3400-3800 MHz: a toolbox for coexistence of MFCNs in synchronised, unsynchronised, and semi-synchronised operation in 3400-3800 MHz", March 2019.

[67] Cross-Border Frequency Coordination: Harmonised Calculation Method for Africa (HCM4A), available at: https://www.itu.int/en/ITU-D/Projects/ITU-EC-ACP/HIPSSA/Documents/FINAL%20DOCUMENTS/FINAL%20DOCS%20ENGLISH/hcm4a_agreement.pdf.pdf

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16.2.3 country of location of transmitter station;

16.2.4 geographical coordinates [latitude, longitude];

16.2.5 effective antenna height [m];

16.2.6 antenna polarisation;

16.2.7 antenna azimuth [degrees];

16.2.8 antenna gain [dBi];

16.2.9 effective radiated power [dBW];

16.2.10 expected coverage zone or radius [km];

16.2.11 date of entry into service [month, year].

16.2.12 code group number used; and

16.2.13 antenna tilt [degrees].

16.3 The Administration affected will evaluate the request for coordination and will, within 30 days, notify the result of the evaluation to the Administration requesting coordination. If, in the course of the coordination procedure, the Administration affected requires additional information, it may request such information.

16.4 If no reply is received by the Administration requesting coordination within 30 days, it may send a reminder to the Administration affected. An Administration not having responded within 30 days following communication of the reminder will be deemed to have given its consent and the code coordination may be put into use with the characteristics given in the request for coordination.

16.5 The periods mentioned above may be extended by common consent.

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GOVERNMENT GAZETTE

GENERAL NOTICE

NOTICE XXXX OF 2026

THE INDEPENDENT COMMUNICATIONS AUTHORITY OF SOUTH AFRICA

ELECTRONIC COMMUNICATIONS ACT, 2005 (ACT NO. 36 OF 2005)

HEREBY ISSUES A NOTICE REGARDING THE RADIO FREQUENCY ASSIGNMENT PLANS FOR THE FREQUENCY BANDS ALLOCATED TO THE MOBILE RADIOCOMMUNICATIONS SERVICES AND IDENTIFIED INTERNATIONAL MOBILE TELECOMMUNICATIONS IN THE NATIONAL RADIO FREQUENCY PLAN.

1. The Independent Communications Authority of South Africa ("the Authority"), on 28 March 2024, published the Draft International Mobile Telecommunications (IMT) Roadmap, in Government Gazette No. 50413 (Notice 4584 of 2024) inviting Written Representations.

2. On 13 September 2024, in Government Gazette 51244 (Notice 5209 of 2024) the Authority published a "Notice Communicating the Outcome of the Consultation Process of the Draft IMT Roadmap 2025.

3. The Authority, in Government Gazette 53883 (Notice 3712 of 2025), published the Second Draft International Mobile Telecommunications (IMT) Roadmap 2025, in terms of section 4(3)(c) of the Independent Communications Authority of South Africa Act, 2000 (Act No. 13 of 2000), read with sections 2(e), 30, 31(4), and 33 of the Electronic Communications Act (Act No 36 of 2005).

4. Now therefore, the Authority, in terms of section 4(3)(c) of the Independent Communications Authority of South Africa Act, 2000 (Act No. 13 of 2000), read with sections 2(e), 30, 31(4), and 33 of the Electronic Communications Act (Act No 36 of 2005) hereby publishes the notice regarding the radio frequency assignment plans for the frequency bands allocated to the mobile radiocommunications services and identified international mobile telecommunications in the national radio frequency plan**.**

5. Interested persons are hereby invited to submit written representations on the notice regarding the radio frequency assignment plans for the frequency bands allocated to the mobile radiocommunications services and identified international mobile telecommunications in the national radio frequency plan in both Microsoft Word (MS) and Portable Document Format (PDF) by no later than 16:00 on **4 September 2026.**

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6. Persons making representations are further invited to indicate whether they require an opportunity to make oral representations.

7. Written representations or enquiries may be directed by email to:

Attention:

Mr Manyaapelo Richard Makgotlho

e-mail: rmakgotlho@icasa.org.za

Copy: jdikgale@icasa.org.za

8. Where persons making representations require that their representation, or part thereof, be treated as confidential, then an application in terms of section 4D of the ICASA Act, 2000 (Act No 13 of 2000) must be lodged with the Authority. Such an application must be submitted simultaneously with the representation, together with a non-confidential, redacted version of the submission. If, however, the request for confidentiality is not granted, the person making the request will be allowed to withdraw the representation or document in question.

9. The guidelines for confidentiality requests are contained in Government Gazette Number No 41839 of 17 August 2018.

10. All written representations submitted to the Authority pursuant to this notice will be made available for inspection by interested persons from **11 September 2026** at the Authority's Library. Electronic copies of such representations are obtainable on request and printed versions will be obtainable on payment of a fee.

11. The radio frequency assignment plans for the frequency bands allocated to the mobile radiocommunications services and identified international mobile telecommunications in the national radio frequency plan and the non-confidential representations will be uploaded to the Authority's website under this link: https://www.icasa.org.za/legislation-and-regulations/radio-frequency-spectrum-plans/draft-radio-frequency-spectrum-plans.



Mothibi G. Ramusi

CHAIRPERSON

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Radio Frequency Spectrum Assignment Plan

Rules for Services operating in the Frequency Band

24.25 GHz to 27.5 GHz

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1 Glossary of Terms, Abbreviations, and Acronyms

1.1 In this Radio Frequency Spectrum Assignment Plan, terms used will have the same meaning as in the Electronic Communications Act 36 of 2005; unless the context indicates otherwise. The definitions and acronyms for additional terms are listed below:

"3GPP"	means the 3rd Generation Partnership Project (3GPP) which consists of six telecommunications standard development organisations
"AAS"	means Active Antenna System
"Act"	means the Electronic Communications Act, 2005 (Act No. 36 of 2005) as amended
"AGM"	means Annual General Meeting
"AU"	means African Union
"BEM"	means Block Edge Masks
"BS"	means Base Stations
"CRASA"	means Communications Regulators' Association of Southern Africa
"CRASA ECC"	means the Communications Regulators' Association of Southern Africa (CRASA) Electronic Communications Committee (ECC)
"DM RS"	means Demodulation Reference Signal
"ECC"	means the Electronic Communications Committee within the European Conference of Postal and Telecommunications Administrations (CEPT)
"ECC/REC (11)04"	means the ECC Recommendation (11)04 - Cross-border Coordination for Mobile/Fixed Communications Networks (MFCN) in the frequency band 790-862 MHz, Edition 3 February 2017
"ECC/REC (15)01"	means the ECC Recommendation (15)01 - (15)01 -ECC Recommendation (15)01 "Cross-border coordination for Mobile/Fixed Communications Networks (MFCN) in the frequency bands: 694-790 MHz, 1427-1518 MHz, and 3400-3800 MHz". Amended on 14 February 2020
"EIRP"	means Effective Isotropic Radiated Power
"FDD"	means the Frequency Division Duplex
"HCM"	means the Harmonised Calculation Method
"HCM4A"	means the Harmonised Calculation Method for Africa
"HDA"	means High-Density Area
"HIBS"	means High-Altitude Platform Stations as IMT Base Stations
"HIPSSA"	means the Sub-Saharan Africa Assessment Report on Harmonisation of ICT Policies in Sub-Saharan Africa
"ICNIRP"	Means the International Commission on Non-Ionizing Radiation Protection (ICNIRP)
"IMT"	means the International Mobile Telecommunications
"IMT-2020"	means International Mobile Telecommunications-2020
"IMT Advanced"	means International Mobile Telecommunications-Advanced
"ITA"	means the Invitation to Apply
"ITU"	means the International Telecommunication Union
"ITU-R"	means the International Telecommunication Union Radiocommunication Sector
"LPI"	means Low Power Indoor
"LoS"	means Line of Sight
"LTE"	means the Long-Term Evolution is a standard for wireless communication of high-speed data for mobile phones and data terminals. It is based on the GSM/EDGE and
"Non-AAS"	means Non-Active Antenna System
"NR"	means New Radio

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"NRFP"	means the National Radio Frequency Plan 2013 for South Africa
"PCI"	means the Physical-Layer Cell Identities
"PFD"	means Power Flux Density
"PPDR"	means the Public Protection and Disaster Relief as defined in ITU-R Report M.2033
"PRACH"	means the Physical Random-Access Channel
"PSTN"	means the Public Switched Telephone Network
"PUCCH"	means the Physical Uplink Control Channel
"PUSCH"	means the Physical Uplink Shared Channel
"RAS"	means Radio Astronomy Service
"RFSAP"	means the Radio Frequency Spectrum Assignment Plan
"RR"	means Radio Regulations
"SADC"	means Southern African Development Community
"TCA"	means the Terrain Clearance Angle
"TRP"	means the Total Radiated Power. The TRP is defined as the integral of the power transmitted in different directions over the entire radiation sphere.
"TDD"	means the Time Division Duplex
"UE"	means User Equipment
"VLP"	means Very Low Power
"WRC-12"	means the World Radiocommunication Conference 2012 held in Geneva
"WRC-15"	means the World Radiocommunication Conference 2015 held in Geneva
"WRC-19"	means the World Radiocommunication Conference 2019 held in Sharm el-Sheikh
"WRC-23"	means the World Radiocommunication Conference 2023 held in Dubai

2 Purpose

2.1 An RFSAP provides information on the requirements attached to the use of a frequency band in line with the allocation and other information in the NRFP. This information includes technical characteristics of radio systems, frequency channelling, coordination, and details on required migration of existing users of the band and the expected method of assignment.

2.2 This RFSAP states the requirements for the utilisation of the frequency band 24.25 GHz to 27.5 GHz for IMT.

2.3 The ITU states that IMT systems are mobile systems that provide access to a wide range of telecommunication services including advanced mobile services, supported by mobile and fixed networks, which are increasingly packet-based. Key features of the IMT systems are:[68]

- a high degree of commonality of functionality worldwide whilst retaining the flexibility to support a wide range of services and applications in a cost-efficient manner;
- compatibility of services within IMT and with fixed networks;
- capability of interworking with other radio access systems;
- high quality mobile services;
- user equipment suitable for worldwide use;

[68] See ITU-R Frequently Asked Questions on IMT, available at: https://www.itu.int/en/ITU-R/Documents/FAQ-IMT-2024.pdf#:~:text=Key%20features%20of%20IMT%2D2000%20and,in%20a%20cost%20efficient%20manner%3B

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- user-friendly applications, services, and equipment;
- worldwide roaming capability; and
- enhanced peak data rates to support advanced services and applications.

3 General

3.1 Technical characteristics of equipment used in IMT systems will conform to all applicable South African standards, international standards, and ITU (including its radio regulations) as agreed and adopted by South Africa.

3.2 All installations must comply with safety rules as specified in applicable standards.

3.3 The equipment used will be certified under South African law and regulations.

3.4 The allocations of the IMT bands and the information in this RFSAP are subject to review.

3.5 Frequency bands identified for IMT include the band 24.25 GHz to 27.5 GHz.

3.6 The requirements for the standard families which licensees can provide services include, but are not limited to:

- IMT-2000;
- IMT-Advanced;
- IMT-2020; and
- IMT-2030.

3.7 Typical technical and operational characteristics identified by the ITU are described in the following documents:

- Recommendation ITU-R M.2012-5 (02/2022): Detailed specifications of the terrestrial radio interfaces of IMT Advanced;
- Report ITU-R M.2074-0 (2006): Report on Radio Aspects for the terrestrial component of
- IMT-2000 and systems beyond IMT-2000;
- Recommendation ITU-R M.1645 (06/2003): Framework and overall objectives of the future development of IMT-2000 and systems beyond IMT-2000;
- Recommendation ITU-R M.1036: Frequency arrangements for implementation of the terrestrial component of IMT in the bands identified for IMT in the RR;
- Recommendation ITU-R M.2150-1 (02/2022): Detailed specifications of the terrestrial radio interfaces of IMT-2020; and
- Recommendation ITU-R M.2160-0 (11/2023): Framework and overall objectives of the future development of IMT for 2030 and beyond.

3.8 The ITU also provides guidelines for modelling and simulation, e.g.

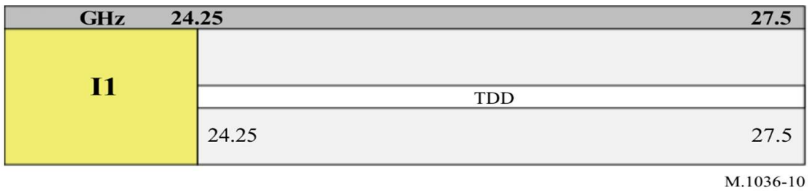
- Recommendation ITU-R M.2070-1 (02/2017): Generic unwanted emission characteristics of base stations using the terrestrial radio interfaces of IMT-Advanced;
- Recommendation ITU-R M.2071-1 (02/2017): Generic unwanted emission characteristics of mobile stations using the terrestrial radio interfaces of IMT-Advanced; and
- Recommendation ITU-R M.2101 (02/2017): Modelling and simulation of IMT networks and systems for use in sharing and compatibility studies.

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4 Channelling Plan

4.1 The frequency arrangements for implementation of IMT in the 24.25 – 27.5 GHz frequency range are summarized below, noting the implementation aspects in this RFSAP.

Figure 9: Frequency arrangements for I1



Source: ITU-R M.1036

5 Requirements for the Usage of the Radio Frequency Spectrum

5.1 This chapter covers the minimum key characteristics considered necessary in order to make the best use of the available frequencies.

5.2 The use of the band is for IMT services, FS, FWA, BFWA, and NPOESS, as follows.

5.2.1 HDAs: In HDAs, use of this band will be limited to IMT services. Licensees must consult the Notice on Exclusive Geographic Areas for MMWave IMT Bands 24.25-27.5 GHz, 37-43.5 GHz, 45.5-47 GHz, 47.2-48.2 GHz.

5.2.2 Low-density areas: In low-density areas (non-HDAs), FSS and FS shall coexist with IMT services outdoors provided that interference is within tolerable limits. If the latter is not possible, then FSS and FS links will need to migrate to outside of the geographic areas in which interference is being experienced. Licensees must consult the Notice on Exclusive Geographic Areas for MMWave IMT Bands 24.25-27.5 GHz, 37-43.5 GHz, 45.5-47 GHz, 47.2-48.2 GHz.

5.3 Only systems using digital technologies that promote spectral efficiency will be issued with an assignment. Capacity-enhancing digital techniques are being rapidly developed together with and such techniques that promote efficient spectrum use without reducing service quality. These techniques are encouraged.

5.4 In some cases, a radio system conforming to the requirements of this RFSAP may require modifications if harmful interference is caused to other radio stations or systems.

5.5 The allocation of spectrum and shared services within these bands are found in the NRFP.

5.6 Maximum radiated power:

5.6.1 In the baseline (in-band): the maximum TRP is 4 dBm.

5.6.2 In the transitional region (0-50 MHz below or above an operator block): the maximum TRP is 12 dBm.

5.6.3 On a case-to-case basis, higher TRP may be permitted if acceptable technical justification is provided.

5.7 For the protection of the fixed and fixed-satellite services in the frequency bands from the mobile, except aeronautical mobile, and from IMT:

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5.7.1 The Authority may set PFD limits in respect of PFD produced at the height of 3 m above ground level.

5.7.2 Based on the above PFD value the coordination distances are calculated using Recommendation ITU-R P.452-18 at 20% of time with a smooth Earth terrain profile.

5.8 Where appropriate, subscriber terminal stations should comply with the technical specification outlined under the latest version of 3GPP specifications, e.g., TS 36.521-1 for LTE, 38.521-1 for 5G NR;

5.9 ICNIRP Guideline compliance is required, where applicable; and

5.10 The criteria and guidelines for interference mitigation are described in Appendices B and D.

6 Commencement

6.1 This RFSAP comes into effect upon publication of this notice.

6.2 No new assignment for IMT in the band 24.25 GHz – 27.5 GHz will be approved unless it complies with this RFSAP.

7 Conflict

7.1 In the event of a conflict between this RFSAP and the applicable NRFP and/or Terrestrial Broadcasting Frequency Plan, the NRFP and the Terrestrial Broadcasting Frequency Plan shall prevail.

8 Coordination Requirements

8.1 Cross Border Frequency Coordination will abide by the HCM4A Agreement. This follows the 3rd CRASA AGM that agreed that CRASA should implement the Cross Border Frequency Coordination HCM4A Agreement.

8.2 The ECC had noted the need for greater understanding of the concept and need for harmonisation in the signing of the HCM4A Agreement by the SADC Member States if the implementation of the Agreement is to be effective. The ECC, therefore, agreed to convene a workshop on HCM4A and requested the CRASA Members to consider signing the agreement.

8.3 At the 5th CRASA AGM, Swakopmund, Namibia – 07-08 April 2016 [1], the subject of Cross Border Frequency Coordination using the Harmonised Calculation Method for Africa (HCM4A) was discussed in detail, following similar efforts in Europe. The Resolution CRASA/AGM/15.16/07 stipulates, "The AGM urged CRASA Members to prioritise the motivation to their administrations who are yet to indicate their interest to sign the HCM4A, to do so as soon as possible".

8.4 Therefore, coordination would follow the HCM4A as detailed in Sub-Saharan Africa Assessment Report on HIPSSA.[69]

8.5 A harmonised calculation method (HCM4A) brings these benefits:

8.5.1 Based on HCM Agreement used in Europe;

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[69] See: https://www.itu.int/en/ITU-D/Projects/ITU-EC-ACP/HIPSSA/Documents/FINAL%20DOCUMENTS/FINAL%20DOCS%20ENGLISH/hcm4a_agreement.pdf.pdf

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8.5.2 Optimise spectrum usage;

8.5.3 Prevent harmful interferences;

8.5.4 Confer an adequate protection for stations;

8.5.5 Define technical provisions and administrative procedures;

8.5.6 Quick assignment of preferential frequencies;

8.5.7 Transparent decisions through agreed assessment procedures;

8.5.8 Quick assessment of interference through data exchange.

8.6 HCM4A involves all 4 sub regions of Africa. This means the HCM4A projects include performing a survey and a comparative analysis of existing administrative and technical procedures related to bilateral and multilateral cross-border frequency coordination agreements across the 4 geographical sub-regions as defined by the AU, namely:

8.6.1 Central Africa [Burundi, Central African Republic, Chad, Congo, Democratic Republic of Congo, Equatorial Guinea, Gabon, Sao Tome, and Principe];

8.6.2 East Africa [Comoros, Djibouti, Eritrea, Ethiopia, Kenya, Madagascar, Mauritius, Rwanda, Seychelles, Somalia, Sudan, Tanzania, Uganda];

8.6.3 Southern Africa [Angola, Botswana, Lesotho, Malawi, Mozambique, Namibia, South Africa, Eswatini, Zambia, Zimbabwe];

8.6.4 West Africa [Benin, Burkina-Faso, Cape Verde, Côte d'Ivoire, Gambia, Ghana, Guinea, Guinea-Bissau, Liberia, Mali, Niger, Nigeria, Sierra Leone, Senegal, Togo].

8.7 HCM4A also comes with a software tool for Sub-Saharan Africa. This has the following features:[70]

8.7.1 Optimise spectrum usage by accurate interference field strength calculations;

8.7.2 Establish general parameters, improvement, and supplementation of technical provisions, individual restrictions;

8.7.3 Establish models for computer-aided interference range calculations; and

8.7.4 Harmonise parameters: objectively predictable towards transparent decisions.

8.8 Use of these frequency bands will require coordination with the neighbouring countries within the coordination zones of 6 kilometres from the neighbouring country. The coordination distance is continuously being reviewed and these may be updated from time to time.

8.9 For the protection of the fixed and fixed-satellite services in the frequency bands from the mobile, except aeronautical mobile, and from IMT:

8.9.1 The Authority may set PFD limits in respect of PFD produced at the height of 3 m above ground level.

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[70] See: https://www.itu.int/en/ITU-D/Regional-Presence/AsiaPacific/Documents/Events/2017/May%20BKK/Presentations/HCM%20and%20HCM4A%20BKK%2020170504%20IB.pdf

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8.9.2 Based on the above PFD value the coordination distances are calculated using Recommendation ITU-R P.452-18 at 20% of time with a smooth Earth terrain profile.

8.10 In the event that the Authority assigns spectrum to private networks on a geographically limited basis in the band in addition to national assignments, the geographically limited private network shall ensure that its systems do not cause interference with those of the national licensee.

8.11 Technical analysis may be conducted by the Authority before an assignment is issued according to Appendix A.

8.12 New assignments would also require coordination with the existing incumbent assignments. See Appendices B and D.

8.13 If neighbouring administrations wish to agree on frequency coordination based on preferential frequencies, while ensuring a fair treatment of different operators within a country the Authority will add these mutual agreements.

8.14 In the event of any interference, the Authority will require affected parties to carry out coordination. In the event that the interference continues to be unresolved after 24 hours, the affected parties may refer the matter to the Authority for a resolution. The Authority will decide the necessary modifications and schedule of modifications to resolve the dispute. The Authority will be guided by the Frequency Coordination Process as outlined in Appendix D.

8.15 Assignment holders shall take full advantage of interference mitigation techniques such as antenna discrimination, tilt, polarization, frequency discrimination, shielding / blocking (introduce diffraction loss), site selection, and/or power control to facilitate the coordination of systems.

8.16 The below field strength thresholds have to be assured. Operator-to-operator coordination may be necessary to avoid interference. The below follows ECC/REC (23)02[71]:

8.16.1 Base stations of unsynchronised TDD systems on both sides of the border line for all PCIs may be used without coordination with a neighbouring country if the median field strength of each cell produced by the base station does not exceed a value of 62 dBµV/m/200 MHz at a height of 3 m above ground level at the border line between countries.

8.16.2 Note that the value of 62 dBµV/m/(200 MHz) corresponds to SSB field strength level of 52 dBµV/m//(120 kHz) for NR considering the SCS of 120 kHz.

8.16.3 For field strength predictions, the calculations should be made according to Appendix A. In the case of channel bandwidth other than 200 MHz, a correction factor of 10 × log10 (channel bandwidth3 in MHz/200 MHz), dB, should be added to the field strength value.

8.16.4 In the case of a SCS other than 120 kHz, a correction factor of 10 × log10 (SCS in kHz/120 kHz), dB, should be added to the SSB field strength value.

9 Assignment

9.1 The unassigned spectrum in this band will be assigned through an Invitation to Apply in line with the regulations developed in terms of section 31(3) of the Act.

[71] See: https://docdb.cept.org/download/4383

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9.2 The assignment of the spectrum for the verticals will be considered in accordance with regulation 5 of the Radio Frequency Spectrum Regulations 2015:

9.2.1 Regulation 5(3) of the Radio Frequency Spectrum Regulations 2015 may apply.

9.2.2 The application shall be subjected to public consultation.

9.2.3 National licenses to be protected on a primary basis;

9.2.4 For private networks with a limited geographic scope on a secondary basis.

10 Amendments

10.1 Applicable licences are hereby amended to conform with this RFSAP upon publication of this notice.

11 Radio Frequency Migration

11.1 Existing licensees are to migrate out of the IMT exclusive areas within 24 months of the publication of this notice.

12 Synchronisation

12.1 In order to avoid interference between TDD networks operating in adjacent frequency carriers, the radio transmissions of adjacent TDD networks should be synchronized with the uplink and downlink frames aligned in time. Such synchronization of TDD networks is very important because it is the best way to avoid interference between networks and ensures efficient use of spectrum resources by avoiding inter-operator guard bands and additional base station filtering. Otherwise, the uplink and downlink interference cannot be eliminated or avoided in terms of technical measures.

12.2 The Authority will align with the operators to define a unified national uplink and downlink frame as part of a future ITA for unassigned spectrum in this band.

13 Appendix A: Propagation Model

13.1 The following methods are proposed for assessment of anticipated interference inside neighbouring countries based on established trigger values. Due to the complexity of radio-wave propagation, different methods are proposed to be considered by administrations and are included here for guidance purposes only. It should be noted that the following methods provide theoretical predictions based on available terrain knowledge. It is practically impossible to recreate these methods with measurement procedures in the field. Therefore, only some approximation of measurements could be used to check compliance with those methods based on practical measurement procedures. The details of such approximations are not included in this recommendation and should be negotiated between countries based on their radio monitoring practices.

A. Path loss model

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13.2 The basic model to be used for assessment of anticipated field strength level and to decide if coordination is necessary, is 3GPP TR 38.901[72](equivalent to Report ITU-R M.2412)[73]. This model includes clutter loss and as such it is not to be combined with other clutter loss models. This model is to be employed using a receiving antenna height hMS = 3 m and LoS probability (Urban Macro LoS probability for base station antenna height above clutters and Urban Micro LoS probability for base station antenna height below clutters).

B. Area calculations

13.3 In the case where greater accuracy is required, administrations and operators may use the area calculation below. For calculations, all the pixels of a given geographical area to be agreed between the Administrations concerned in a neighbouring country are taken into consideration. For the relevant base station, predictions of path loss should be made for all the pixels of a given geographical area from a base station and at a receiver antenna height of 3 m above ground.

13.4 For evaluation:

13.4.1 Only 10% of the number of the geographical area between the border line (also including the border line) and the 6 km line itself inside the neighbouring country may be interfered by higher field strength than the trigger field strength value given for the border line in the main text above at a height of 3 m above ground:

13.4.2 Only 10% of the number of the geographical area between the 6 km (including also the 6 km line) and 12 km line inside the neighbouring country may be interfered by higher field strength than the trigger field strength value given for the 6 km line in the main text above at a height of 3 m above ground;

13.5 It is recommended that during area calculations, not only detailed terrain data but also clutter data be taken into account. Use of correction factors for clutter is crucial in particular where the border area is ‘open’ or ‘quasi-open’ from the point of view of clutter or where the interfering base station is just a few kilometres from a border line.

13.6 If the distance between a base station and a terrain point of a border line is closer than or equal to 1 km, the free space propagation model needs to be applied. Furthermore, if there is no terrain obstacle within the 1st Fresnel zone, the free space propagation model should be applied.

13.7 If clutter data is not available, it is proposed to extend the usage of the free space propagation model to a few kilometres, depending on the clutter situation in border areas.

13.8 For area type interference calculations, propagation models with path specific terrain correction factors are recommended (e.g., the latest Recommendation ITU–R P.1546[74] with the Terrain

[72] 3GPP TR 38.901 V17.0.0 (2022-03): “5G; Study on channel model for frequencies from 0.5 to 100 GHz”.

[73] Report ITU-R M.2412-0 (11/2017): “Guidelines for evaluation of radio interface technologies for IMT-2020”

[74] ITU-R Recommendation P.1546-6 (08/2019): Method for point-to-area predictions for terrestrial services in the frequency range 30 MHz to 3 000 MHz (https://www.itu.int/rec/R-REC-P.1546/en).

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Clearance Angle correction factor TCA, HCM[75] method with the Terrain Clearance Angle correction factor or Recommendation ITU–R P.1812[76]).

13.9 As to correction factors for clutters 'open area' and 'quasi-open area', 20 dB and 15 dB should be used, respectively. Recommendations ITU–R P.1406[77] and/or ITU-R P.2108[78] should be used if a finer selection of clutter is required.

13.10 It must be noted that terrain irregularity factor Δh is not recommended to be used in area calculations. Administrations and/or operators concerned may agree to deviate from the aforementioned models by mutual consent.

14 Appendix B: Coordination for IMT-Systems

A. PREFERENTIAL PCI FOR IMT SYSTEMS

14.1 The following is extracted from the abovementioned ECC recommendation as an operational example and can be adapted for the SADC countries for IMT systems.

14.2 PCI coordination is only needed when channel centre frequencies are aligned independently of the channel bandwidth.

14.3 3GPP TS 36.211[79] defines 168 "unique physical-layer cell-identity groups" in §6.11, numbered 0...167, hereafter called "PCI groups" for IMT systems. Within each PCI group, there are three separate PCIs giving 504 PCIs in total.

14.4 Administrations should agree on a repartition of these 504 PCIs on an equitable basis when channel centre frequencies are aligned, as shown in the table below. It has to be noted that dividing the PCI groups or PCIs is equivalent. Each country should only use their own preferential PCIs close to the border and can use all PCIs away from the border. This transition distance between "close to the border" and "away from the border" should be agreed between neighbouring countries.

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[75] HCM Agreement (Harmonised Calculation Method) between the administrations of Austria, Belgium, the Czech Republic, Germany, France, Hungary, the Netherlands, Croatia, Italy, Liechtenstein, Lithuania, Luxembourg, Poland, Romania, the Slovak Republic, Slovenia, and Switzerland on the Coordination of frequencies between 29.7 MHz and 43.5 GHz for the Fixed Service and the Land Mobile Service. The latest version of this agreement can be found from http://www.hcm-agreement.eu/http/englisch/verwaltung/index_europakarte.htm

[76] Recommendation P.1812-6 (09/2021) "A path-specific propagation prediction method for point-to-area terrestrial services in the frequency range 30 MHz to 6 000 MHz" (https://www.itu.int/rec/R-REC- P.1812/en).

Annex 5: Determination of the interference field strength in the Land Mobile Service (https://www.itu.int/en/ITU-D/Projects/ITU-EC- ACP/HIPSSA/Documents/REGIONAL%20documents/HCM4A-E-Annex05.pdf).

[77] Recommendation P.1406-2 (07/2015) "Propagation effects relating to terrestrial land mobile and broadcasting services in the VHF and UHF bands" (https://www.itu.int/rec/R-REC-P.1406/en).

[78] Recommendation P.2108-1 (09/2021) "Prediction of clutter loss" (https://www.itu.int/rec/R-REC-P.2108/en).

[79] 3GPP TS 36.211 "Evolved Universal Terrestrial Radio Access (E-UTRA); Physical channels and modulation". (https://portal.3gpp.org/desktopmodules/Specifications/SpecificationDetails.aspx?specificationId=2425, also provided in ETSI TS 136 211). In comparison, 3GPP 38.211 (and ETSI TS 138 211) define NR Physical channels and modulation, in NR 2-step identification using PSS/SSS detection of the Physical Cell ID (same as LTE), the number of different cell IDs has been increased from 504 in LTE to 1008 for NR. Thus, for the deployment of LTE systems only the PCIs between 0 to 503 should be used and for NR systems PCIs between 0 to 1007 may be used.

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14.5 Administrations may wish to define different field strength levels (than those provided in the main text referring to this Appendix) for non-preferential PCIs.

14.6 As shown in the table below, the PCIs should be divided into 6 sub-sets containing each one sixth of the available PCIs. Each country is allocated three sets (half of the PCIs) in a bilateral case and two sets (one third of the PCIs) in a trilateral case.

14.7 Four types of countries are defined in a way such that no country will use the same code set as any one of its neighbours. The following lists describe a sample distribution for African countries:

14.7.1 Country type 1: Botswana, Cameroon, Comoros, Democratic Republic of the Congo, Ghana, Guinea- Bissau, Kenya, Liberia, Malawi, Mauritius, Niger, Republic of the Sudan, Eswatini;

14.7.2 Country type 2: Algeria, Angola, Benin, Cape Verde, Chad, Cote d'Ivoire, Egypt, Ethiopia, Madagascar, Senegal, United Republic of Tanzania, Zimbabwe;

14.7.3 Country type 3: Burkina Faso, Congo, Djibouti, Equatorial Guinea, Guinea, Mauritania, Nigeria, Rwanda, Sao Tome and Principe, Seychelles, South Africa, South Sudan, Tunisia, Zambia;

14.7.4 Country type 4: Burundi, Central African Republic, Eritrea, Gabon, Gambia, Lesotho, Libyan Arab Jamahiriya, Mali, Morocco, Mozambique, Namibia, Sierra Leone, Somalia, Togo, Uganda. (Note: A sample country type map can be found in the figure below).

14.8 For each type of country, the following tables and figure describe the sharing of the PCIs with its neighbouring countries, with the following conventions of writing:

Preferential PCI	
Non-Preferential PCI	

14.9 The 504 physical-layer cell-identities should be divided into the following 6 sub-sets when the carrier frequencies are aligned in border areas:

Table 11: Sharing of PCIs between countries

	Set A	**Set B**	**Set C**	**Set D**	**Set E**	**Set F**
Country 1	0..83	84..167	168..251	252..335	336..419	420..503
Border 1-2						
Zone 1-2-3						
Border 1-3						
Zone 1-2-4						
Border 1-4						
Zone 1-3-4						

PCI	**Set A**	**Set B**	**Set C**	**Set D**	**Set E**	**Set F**
Country 2	0..83	84..167	168..251	252..335	336..419	420..503
Border 2-1						
Zone 2-3-1						
Border 2-3						
Zone 2-1-4						
Border 2-4						
Zone 2-3-4						

PCI	**Set A**	**Set B**	**Set C**	**Set D**	**Set E**	**Set F**
Country 3	0..83	84..167	168..251	252..335	336..419	420..503
Border 3-2						

PCI	**Set A**	**Set B**	**Set C**	**Set D**	**Set E**	**Set F**
Country 4	0..83	84..167	168..251	252..335	336..419	420..503
Border 4-1						

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PCI	Set A	Set B	Set C	Set D	Set E	Set F
Zone 3-2-3						
Border 3-1						
Zone 3-1-4						
Border 3-4						
Zone 3-2-4						

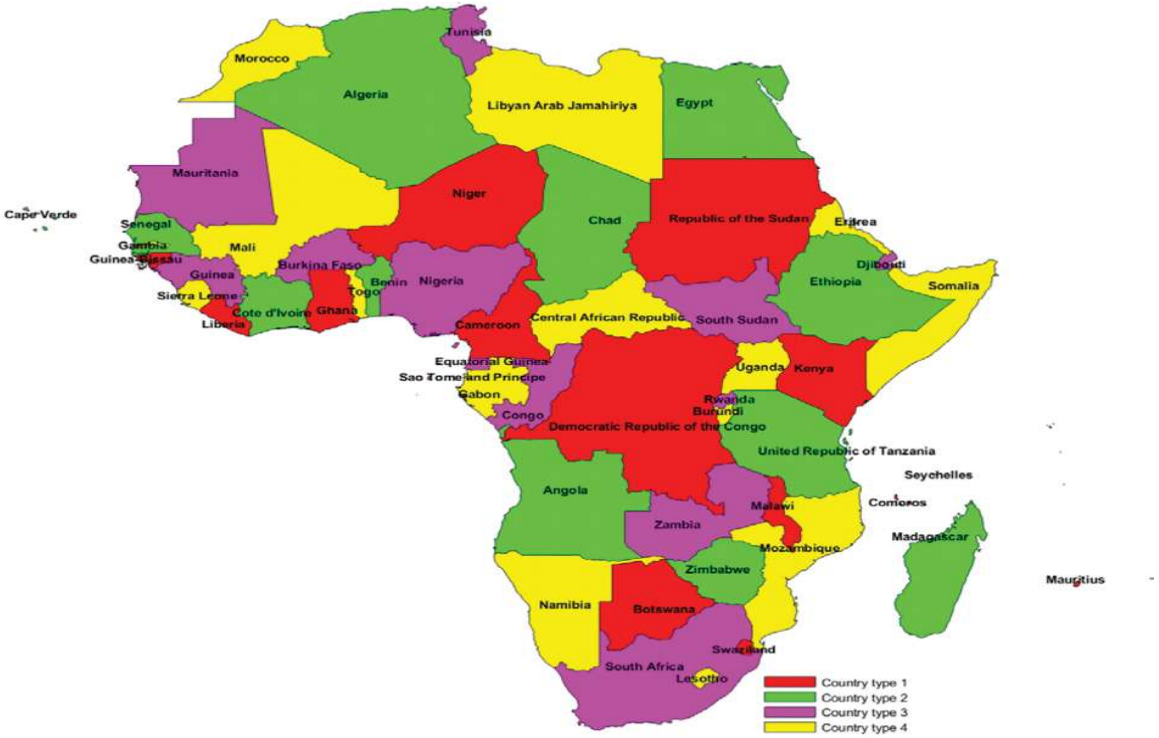
PCI	Set A	Set B	Set C	Set D	Set E	Set F
Zone 4-1-2						
Border 4-2						
Zone 4-2-3						
Border 4-3						
Zone 4-3-1						

14.10 Note:

14.10.1 All PCIs are available in areas away from the border.

14.10.2 In certain specific cases (e.g., if Angola and Botswana happened to have the same Country type/PCI code) where the distance between two countries of the same type number is very small (below a few tens of kilometres), it may be necessary to address the situation in bilateral /multilateral coordination agreements as necessary and may include further subdivision of the allocated codes in certain areas.

Figure 10: Country type map/PCI distribution map



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15 Appendix C: Guidance on the consideration of IMT system radio parameters for use in bilateral and multilateral agreements

15.1 This section is provided for guidance purposes for use in bi-lateral and multilateral discussions. For IMT systems, it may be beneficial to coordinate other radio parameters besides PCI in order to minimise deteriorating effects of uplink interference.

15.2 The parameters described in this section are usually optimised during IMT system radio network planning of an operator's network. The idea of optimisation is to plan the parameters taking into account specific correlation properties of the uplink control signals, which enable more stable and predictable operation of the network. In the cross-border scenario the optimisation of parameters among neighbouring operators could provide better control of uplink interference. However, because of the difference between intra-network and inter-network interference and due to limited experience in the IMT system cross- border deployment, it is difficult to assess the benefits of such optimisation. The following guidance provides the basis for operators to consider in border areas in case of high levels of uplink interference.

A. DM RS coordination

15.3 DM RS are transmitted in the uplink and used for channel estimation.

15.4 There is a risk of intercell interference between neighbouring cells even in case of no frame synchronisation. That is why special measures for DM RS allocation between networks in neighbouring countries occupying the same channel may need to be applied.

15.5 The case of partial channel overlap has not been studied but due to DM RS occupying resource blocks of separate users, there is a risk of DM RS collisions between neighbouring networks when the subcarriers' positions coincide (the frequency offset between central carriers of neighbouring networks is multiple of 300 kHz). Some minor benefits from DM RS coordination in these particular cases could be expected.

15.6 There are a number of possible approaches to the coordination of DM RS:

15.6.1 In the basic planning procedure, only 30 DM RS sequence groups with favourable correlation characteristics are available: {0…29}. In this case, each cell could be assigned one of the 30 DM RS sequence groups providing a cluster size of 30.

15.6.2 It is possible to extend each DM RS sequence group to generate up to 12-time shifted sequence groups by applying the cyclic shift parameter stated in 3GPP TS 36.211 for LTE. For example, each tri-sector site could be assigned one DM RS sequence group with each co-sited cell having its own cyclic shift of $2\pi/3$, which provides cluster size 30 only with 10 DM RS sequence groups. The latter case corresponds well to the case of DM RS sequence groups repartition between neighbouring countries when only limited number of groups is available for network planning. The drawback of DM RS sequence group cyclic shift is a loss of orthogonally of DM RS due to fading channels which has been found during first trials of LTE and caused throughput loss as well as time alignment problems.

15.6.3 Another approach for DM RS coordination is to implement dynamic DM RS sequence group allocation, also called pseudo-random group hopping. In this method, nearby cells are grouped into clusters up to 30 cells, and within each cell cluster, the same hopping-pattern is used. At the border of two clusters, inter-cell interference is averaged since two different hopping patterns are utilised.

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15.6.4 There are 17 defined hopping patterns, numbered {0…16}, which leads to some minor unfairness in case of apportioning these patterns between neighbouring countries. Even in a trilateral case each operator will have at least 5 hopping patterns available near the border, which should be enough or planning purposes. It should be noted the pseudo-random group hopping option could be absent in the first generations of IMT system equipment.

15.7 The decision of which of these methods to use in cross-border coordination should be agreed upon by the interested parties. Specific DM RS sequence groups or hopping patterns repartition is not provided in this text but could be deduced in a similar manner to the PCI repartition.

B. PRACH coordination

15.8 Another radio network parameter that is considered during radio network planning is PRACH configuration which is needed to distinguish random access requests addressed to different cells.

15.9 PRACH resources are allocated by specifying the PRACH Resource Blocks time positions within the uplink frame, their frequency position within the IMT system channel bandwidth and by apportioning cell- specific root sequences. During radio network planning, these parameters are usually used in the following way:

15.9.1 Time positions for PRACH resource allocations are usually used to create time collision of PRACH resources of co-sited/frame synchronised cells because PRACH-to-PRACH interference is usually less severe than PUSCH-to-PRACH interference;

15.9.2 Frequency positions within the IMT system channel bandwidth are usually the same for all cells, again because PRACH-to-PRACH interference case is a more favourable one.

15.9.3 Cell-specific root sequences are used to distinguish between PRACH requests addressed to different cells.

15.10 For cross-border coordination, it is proposed to use frequency position offsets to exclude the possibility of so-called “ghost” PRACH requests caused by neighbouring networks. The PRACH is configured in IMT systems to use only 6 Resource Blocks or 1.08 MHz of the IMT system channel bandwidth except in regions used by PUCCH. In case of overlapping or partially overlapping channel bandwidths of neighbouring networks, it is enough to establish non-overlapping PRACH frequency blocks to perform coordination.

15.11 Because it is difficult to establish an implementation dependent procedure for such allocation, it will be the responsibility of operators to manage such frequency separation during coordination discussions.

15.12 In an early implementation, it is possible that a very limited number of frequency positions could be supported by IMT system equipment which will not be enough to coordinate in the trilateral case. In such cases, root-sequence repartition could be used. There are 838 root sequences in total to be distributed between cells, numbered {0...837}. There are two numbering schemes for PRACH root sequences (physical and logical) and that only logical root sequences numbering needs to be used for coordination.

15.13 Unfortunately, the process of root sequences planning doesn’t involve direct mapping of root sequences between cells because the number of root sequences needed for one cell is dependent on the cell range.

15.14 The table showing such interdependency is presented below:

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Table 12: PRACH – Range Interdependency

PRACH Configuration	Number of root seq. per cell	Cell Range (km)
1	1	0.7
2	2	1
3	2	1.4
4	2	2
5	2	2.5
6	3	3.4
7	3	4.3
8	4	5.4
9	5	7.3
10	6	9.7
11	8	12.1
12	10	15.8
13	13	22.7
14	22	38.7
15	32	58.7
0	64	118.8

15.15 Thus, in the case of root sequence reparation, it will be the responsibility of radio network planners to assign the correct number of root sequences in order to not overlap with the root sequence ranges of other operators. It also should be noted that different root sequences have different cubic metrics and correlation properties, which affect PRACH coverage performance and planning of so-called high-speed cells. For simplicity of cross-border coordination, it is proposed to ignore these properties.

15.16 In summary, it should be stipulated that frequency separation of PRACH resources should be used as the main coordination method. PRACH root sequences repartition should be avoided and used only in exceptional cases. Specific PRACH root sequences repartition is not provided in this text but could be deduced in a similar manner to the PCI repartition.

15.17 Additional guidance for cross-border coordination of synchronised and unsynchronised IMT TDD systems may be found in ECC/REC/ (15)01[80] and ECC Report 296[81].

16 Appendix D: Frequency Coordination Process

16.1 Technical procedures related to bilateral and multilateral cross-border frequency coordination agreements for 4 geographical sub-regions are defined by the African Union, which includes the Southern African sub-region of 10 countries. Cross-Border Frequency Coordination and

[80] ECC Recommendation (15)01 "Cross-border coordination for Mobile/Fixed Communications Networks (MFCN) in the frequency bands: 694-790 MHz, 1427-1518 MHz, and 3400-3800 MHz". Amended on 14 February 2020.

[81] ECC Report 296: "National synchronisation regulatory framework options in 3400-3800 MHz: a toolbox for coexistence of MFCNs in synchronised, unsynchronised, and semi-synchronised operation in 3400-3800 MHz", March 2019.

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interference resolution should follow the Harmonised Calculation Method for Africa (HCM4A).[82]

16.2 When requesting coordination, the relevant characteristics of the base station and the code or PCI group number should be forwarded to the Administration affected. All of the following characteristics should be included:

16.2.1 carrier frequency [MHz];

16.2.2 name of transmitter station;

16.2.3 country of location of transmitter station;

16.2.4 geographical coordinates [latitude, longitude];

16.2.5 effective antenna height [m];

16.2.6 antenna polarisation;

16.2.7 antenna azimuth [degrees];

16.2.8 antenna gain [dBi];

16.2.9 effective radiated power [dBW];

16.2.10 expected coverage zone or radius [km];

16.2.11 date of entry into service [month, year].

16.2.12 code group number used; and

16.2.13 antenna tilt [degrees].

16.3 The Administration affected will evaluate the request for coordination and will, within 30 days, notify the result of the evaluation to the Administration requesting coordination. If, in the course of the coordination procedure, the Administration affected requires additional information, it may request such information.

16.4 If no reply is received by the Administration requesting coordination within 30 days, it may send a reminder to the Administration affected. An Administration not having responded within 30 days following communication of the reminder will be deemed to have given its consent and the code coordination may be put into use with the characteristics given in the request for coordination.

16.5 The periods mentioned above may be extended by common consent.

[82] Cross-Border Frequency Coordination: Harmonised Calculation Method for Africa (HCM4A), available at: https://www.itu.int/en/ITU-D/Projects/ITU-EC-ACP/HIPSSA/Documents/FINAL%20DOCUMENTS/FINAL%20DOCS%20ENGLISH/hcm4a_agreement.pdf.pdf

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ELECTRONIC COMMUNICATIONS ACT, 2005 (ACT NO. 36 OF 2005)

HEREBY ISSUES A NOTICE REGARDING THE RADIO FREQUENCY ASSIGNMENT PLANS FOR THE FREQUENCY BANDS ALLOCATED TO THE MOBILE RADIOCOMMUNICATIONS SERVICES AND IDENTIFIED INTERNATIONAL MOBILE TELECOMMUNICATIONS IN THE NATIONAL RADIO FREQUENCY PLAN.

1. The Independent Communications Authority of South Africa ("the Authority"), on 28 March 2024, published the Draft International Mobile Telecommunications (IMT) Roadmap, in Government Gazette No. 50413 (Notice 4584 of 2024) inviting Written Representations.

2. On 13 September 2024, in Government Gazette 51244 (Notice 5209 of 2024) the Authority published a "Notice Communicating the Outcome of the Consultation Process of the Draft IMT Roadmap 2025.

3. The Authority, in Government Gazette 53883 (Notice 3712 of 2025), published the Second Draft International Mobile Telecommunications (IMT) Roadmap 2025, in terms of section 4(3)(c) of the Independent Communications Authority of South Africa Act, 2000 (Act No. 13 of 2000), read with sections 2(e), 30, 31(4), and 33 of the Electronic Communications Act (Act No 36 of 2005).

4. Now therefore, the Authority, in terms of section 4(3)(c) of the Independent Communications Authority of South Africa Act, 2000 (Act No. 13 of 2000), read with sections 2(e), 30, 31(4), and 33 of the Electronic Communications Act (Act No 36 of 2005) hereby publishes the notice regarding the radio frequency assignment plans for the frequency bands allocated to the mobile radiocommunications services and identified international mobile telecommunications in the national radio frequency plan.

5. Interested persons are hereby invited to submit written representations on the notice regarding the radio frequency assignment plans for the frequency bands allocated to the mobile radiocommunications services and identified international mobile telecommunications in the national radio frequency plan in both Microsoft Word (MS) and Portable Document Format (PDF) by no later than 16:00 on **4 September 2026.**

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6. Persons making representations are further invited to indicate whether they require an opportunity to make oral representations.

7. Written representations or enquiries may be directed by email to:

Attention:

Mr Manyaapelo Richard Makgotlho

e-mail: rmakgotlho@icasa.org.za

Copy: jdikgale@icasa.org.za

8. Where persons making representations require that their representation, or part thereof, be treated as confidential, then an application in terms of section 4D of the ICASA Act, 2000 (Act No 13 of 2000) must be lodged with the Authority. Such an application must be submitted simultaneously with the representation, together with a non-confidential, redacted version of the submission. If, however, the request for confidentiality is not granted, the person making the request will be allowed to withdraw the representation or document in question.

9. The guidelines for confidentiality requests are contained in Government Gazette Number No 41839 of 17 August 2018.

10. All written representations submitted to the Authority pursuant to this notice will be made available for inspection by interested persons from **11 September 2026** at the Authority's Library. Electronic copies of such representations are obtainable on request and printed versions will be obtainable on payment of a fee.

11. The radio frequency assignment plans for the frequency bands allocated to the mobile radiocommunications services and identified international mobile telecommunications in the national radio frequency plan and the non-confidential representations will be uploaded to the Authority's website under this link: https://www.icasa.org.za/legislation-and-regulations/radio-frequency-spectrum-plans/draft-radio-frequency-spectrum-plans.



Mothibi G. Ramusi

CHAIRPERSON

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Radio Frequency Spectrum Assignment Plan

Rules for Services operating in the Frequency Band

37 GHz to 43.5 GHz

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1 Glossary of Terms, Abbreviations, and Acronyms

1.1 In this Radio Frequency Spectrum Assignment Plan, terms used will have the same meaning as in the Electronic Communications Act 36 of 2005; unless the context indicates otherwise. The definitions and acronyms for additional terms are listed below:

"3GPP"	means the 3rd Generation Partnership Project (3GPP) which consists of six telecommunications standard development organisations
"AAS"	means Active Antenna System
"Act"	means the Electronic Communications Act, 2005 (Act No. 36 of 2005) as amended
"AGM"	means Annual General Meeting
"AU"	means African Union
"BEM"	means Block Edge Masks
"BS"	means Base Stations
"CRASA"	means Communications Regulators' Association of Southern Africa
"CRASA ECC"	means the Communications Regulators' Association of Southern Africa (CRASA) Electronic Communications Committee (ECC)
"DM RS"	means Demodulation Reference Signal
"ECC"	means the Electronic Communications Committee within the European Conference of Postal and Telecommunications Administrations (CEPT)
"ECC/REC (11)04"	means the ECC Recommendation (11)04 - Cross-border Coordination for Mobile/Fixed Communications Networks (MFCN) in the frequency band 790-862 MHz, Edition 3 February 2017
"ECC/REC (15)01"	means the ECC Recommendation (15)01 - (15)01 -ECC Recommendation (15)01 "Cross-border coordination for Mobile/Fixed Communications Networks (MFCN) in the frequency bands: 694-790 MHz, 1427-1518 MHz, and 3400-3800 MHz". Amended on 14 February 2020
"EIRP"	means Effective Isotropic Radiated Power
"FDD"	means the Frequency Division Duplex
"HCM"	means the Harmonised Calculation Method
"HCM4A"	means the Harmonised Calculation Method for Africa
"HDA"	means High-Density Area
"HIBS"	means High-Altitude Platform Stations as IMT Base Stations
"HIPSSA"	means the Sub-Saharan Africa Assessment Report on Harmonisation of ICT Policies in Sub-Saharan Africa
"ICNIRP"	Means the International Commission on Non-Ionizing Radiation Protection (ICNIRP)
"IMT"	means the International Mobile Telecommunications
"IMT-2020"	means International Mobile Telecommunications-2020
"IMT Advanced"	means International Mobile Telecommunications-Advanced
"ITA"	means the Invitation to Apply
"ITU"	means the International Telecommunication Union
"ITU-R"	means the International Telecommunication Union Radiocommunication Sector
"LPI"	means Low Power Indoor
"LoS"	means Line of Sight
"LTE"	means the Long-Term Evolution is a standard for wireless communication of high-speed data for mobile phones and data terminals. It is based on the GSM/EDGE and
"Non-AAS"	means Non-Active Antenna System
"NR"	means New Radio

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"NRFP"	means the National Radio Frequency Plan 2013 for South Africa
"PCI"	means the Physical-Layer Cell Identities
"PFD"	means Power Flux Density
"PPDR"	means the Public Protection and Disaster Relief as defined in ITU-R Report M.2033
"PRACH"	means the Physical Random-Access Channel
"PSTN"	means the Public Switched Telephone Network
"PUCCH"	means the Physical Uplink Control Channel
"PUSCH"	means the Physical Uplink Shared Channel
"RAS"	means Radio Astronomy Service
"RFSAP"	means the Radio Frequency Spectrum Assignment Plan
"RR"	means Radio Regulations
"SADC"	means Southern African Development Community
"TCA"	means the Terrain Clearance Angle
"TRP"	means the Total Radiated Power. The TRP is defined as the integral of the power transmitted in different directions over the entire radiation sphere.
"TDD"	means the Time Division Duplex
"UE"	means User Equipment
"VLP"	means Very Low Power
"WRC-12"	means the World Radiocommunication Conference 2012 held in Geneva
"WRC-15"	means the World Radiocommunication Conference 2015 held in Geneva
"WRC-19"	means the World Radiocommunication Conference 2019 held in Sharm el-Sheikh
"WRC-23"	means the World Radiocommunication Conference 2023 held in Dubai

2 Purpose

2.1 An RFSAP provides information on the requirements attached to the use of a frequency band in line with the allocation and other information in the NRFP. This information includes technical characteristics of radio systems, frequency channelling, coordination, and details on required migration of existing users of the band and the expected method of assignment.

2.2 This RFSAP states the requirements for the utilisation of the frequency band 37 GHz to 43.5 GHz for IMT.

2.3 The ITU states that IMT systems are mobile systems that provide access to a wide range of telecommunication services including advanced mobile services, supported by mobile and fixed networks, which are increasingly packet-based. Key features of the IMT systems are:[83]

- a high degree of commonality of functionality worldwide whilst retaining the flexibility to support a wide range of services and applications in a cost-efficient manner;
- compatibility of services within IMT and with fixed networks;
- capability of interworking with other radio access systems;
- high quality mobile services;
- user equipment suitable for worldwide use;

[83] See ITU-R Frequently Asked Questions on IMT, available at: https://www.itu.int/en/ITU-R/Documents/FAQ-IMT-2024.pdf#:~:text=Key%20features%20of%20IMT%2D2000%20and,in%20a%20cost%20efficient%20manner%3B

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- user-friendly applications, services, and equipment;
- worldwide roaming capability; and
- enhanced peak data rates to support advanced services and applications.

3 General

3.1 Technical characteristics of equipment used in IMT systems will conform to all applicable South African standards, international standards, and ITU (including its radio regulations) as agreed and adopted by South Africa.

3.2 All installations must comply with safety rules as specified in applicable standards.

3.3 The equipment used will be certified under South African law and regulations.

3.4 The allocations of the IMT bands and the information in this RFSAP are subject to review.

3.5 Frequency bands identified for IMT include the bands 37 GHz to 43.5 GHz.

3.6 The requirements for the standard families which can provide IMT services include, but are not limited to:

- IMT-2000;
- IMT-Advanced;
- IMT-2020;
- IMT-2030.

3.7 Typical technical and operational characteristics identified by the ITU are described in the following documents:

- Recommendation ITU-R M.2012-5 (02/2022): Detailed specifications of the terrestrial radio interfaces of IMT Advanced;
- Report ITU-R M.2074-0 (2006): Report on Radio Aspects for the terrestrial component of IMT-2000 and systems beyond IMT-2000;
- Recommendation ITU-R M.1645 (06/2003): Framework and overall objectives of the future development of IMT-2000 and systems beyond IMT-2000;
- Recommendation ITU-R M.1036: Frequency arrangements for implementation of the terrestrial component of IMT in the bands identified for IMT in the RR;
- Recommendation ITU-R M.2150-1 (02/2022): Detailed specifications of the terrestrial radio interfaces of IMT-2020; and
- Recommendation ITU-R M.2160-0 (11/2023): Framework and overall objectives of the future development of IMT for 2030 and beyond.

3.8 The ITU also provides guidelines for modelling and simulation, e.g.

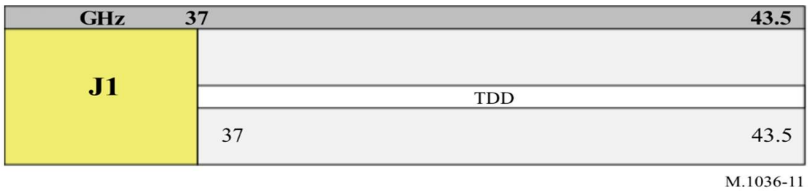
- Recommendation ITU-R M.2070-1 (02/2017): Generic unwanted emission characteristics
- of base stations using the terrestrial radio interfaces of IMT-Advanced;
- Recommendation ITU-R M.2071-1 (02/2017): Generic unwanted emission characteristics of mobile stations using the terrestrial radio interfaces of IMT-Advanced; and
- Recommendation ITU-R M.2101 (02/2017): Modelling and simulation of IMT networks and systems for use in sharing and compatibility studies.

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4 Channelling Plan

4.1 The frequency arrangements for implementation of IMT in the 37 – 43.5 GHz frequency range are summarized below, noting the implementation aspects in this RFSAP.

Figure 11: Frequency arrangements for J1



Source: ITU-R M.1036

5 Requirements for the Usage of the Radio Frequency Spectrum

5.1 This chapter covers the minimum key characteristics considered necessary in order to make the best use of the available frequencies.

5.2 The use of the band is for IMT services, FS, and FSS, as follows.

5.2.1 HDAs: In HDAs, use of this band will be limited to IMT services. Licensees must consult the Notice on Exclusive Geographic Areas for MMWave IMT Bands 24.25-27.5 GHz, 37-43.5 GHz, 45.5-47 GHz, 47.2-48.2 GHz .

5.2.2 Low-density areas: In low-density areas (non-HDAs), FSS and FS shall coexist with IMT services outdoors provided that interference is within tolerable limits. If the latter is not possible, then FSS and FS links will need to migrate to outside of the geographic areas in which interference is being experienced. Licensees must consult the Notice on Exclusive Geographic Areas for MMWave IMT Bands 24.25-27.5 GHz, 37-43.5 GHz, 45.5-47 GHz, 47.2-48.2 GHz.

5.3 Only systems using digital technologies that promote spectral efficiency will be issued with an assignment. Capacity-enhancing digital techniques are being rapidly developed together with and such techniques that promote efficient spectrum use without reducing service quality. These techniques are encouraged.

5.4 In some cases, a radio system conforming to the requirements of this RFSAP may require modifications if harmful interference is caused to other radio stations or systems.

5.5 The allocation of spectrum and shared services within these bands are found in the NRFP.

5.6 Maximum radiated power:[84]

5.6.1 AAS base stations: The maximum TRP limit for each cell is 50 dBm/50 MHz.

5.6.2 Non-AAS base stations: The maximum EIRP limit is 65 dBm/50 MHz.

[84] The ECC Decision (22)06 addresses the 40.5–43.5 GHz band.

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5.6.3 On a case-to-case basis, higher TRP may be permitted if acceptable technical justification is provided.

5.7 For the protection of the fixed and fixed-satellite services in the frequency bands from the mobile, except aeronautical mobile, and from IMT:

5.7.1 The Authority may set PFD limits in respect of PFD produced at the height of 3 m above ground level.

5.7.2 Based on the above PFD value the coordination distances are calculated using Recommendation ITU-R P.452-18 at 20% of time with a smooth Earth terrain profile.

5.8 Where appropriate, subscriber terminal stations should comply with the technical specification outlined under the latest version of 3GPP specifications, e.g., TS 36.521-1 for LTE, 38.521-1 for 5G NR;

5.9 ICNIRP Guideline compliance is required, where applicable; and

5.10 The criteria and guidelines for interference mitigation are described in Appendices B and D.

6 Commencement

6.1 This RFSAP comes into effect upon publication of this notice.

6.2 No new assignment for IMT in the band 37 GHz – 43.5 GHz will be approved unless it complies with this RFSAP.

7 Conflict

7.1 In the event of a conflict between this RFSAP and the applicable NRFP and/or Terrestrial Broadcasting Frequency Plan, the NRFP and the Terrestrial Broadcasting Frequency Plan shall prevail.

8 Coordination Requirements

8.1 Cross Border Frequency Coordination will abide by the HCM4A Agreement. This follows the 3rd CRASA AGM that agreed that CRASA should implement the Cross Border Frequency Coordination HCM4A Agreement.

8.2 The ECC had noted the need for greater understanding of the concept and need for harmonisation in the signing of the HCM4A Agreement by the SADC Member States if the implementation of the Agreement is to be effective. The ECC, therefore, agreed to convene a workshop on HCM4A and requested the CRASA Members to consider signing the agreement.

8.3 At the 5th CRASA AGM, Swakopmund, Namibia – 07-08 April 2016 [1], the subject of Cross Border Frequency Coordination using the Harmonised Calculation Method for Africa (HCM4A) was discussed in detail, following similar efforts in Europe. The Resolution CRASA/AGM/15.16/07 stipulates, "The AGM urged CRASA Members to prioritise the motivation to their administrations who are yet to indicate their interest to sign the HCM4A, to do so as soon as possible".

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8.4 Therefore, coordination would follow the HCM4A as detailed in Sub-Saharan Africa Assessment Report on HIPSSA.[85]

8.5 A harmonised calculation method (HCM4A) brings these benefits:

8.5.1 Based on HCM Agreement used in Europe;

8.5.2 Optimise spectrum usage;

8.5.3 Prevent harmful interferences;

8.5.4 Confer an adequate protection for stations;

8.5.5 Define technical provisions and administrative procedures;

8.5.6 Quick assignment of preferential frequencies;

8.5.7 Transparent decisions through agreed assessment procedures;

8.5.8 Quick assessment of interference through data exchange.

8.6 HCM4A involves all 4 sub regions of Africa. This means the HCM4A projects include performing a survey and a comparative analysis of existing administrative and technical procedures related to bilateral and multilateral cross-border frequency coordination agreements across the 4 geographical sub-regions as defined by the AU, namely:

8.6.1 Central Africa [Burundi, Central African Republic, Chad, Congo, Democratic Republic of Congo, Equatorial Guinea, Gabon, Sao Tome, and Principe];

8.6.2 East Africa [Comoros, Djibouti, Eritrea, Ethiopia, Kenya, Madagascar, Mauritius, Rwanda, Seychelles, Somalia, Sudan, Tanzania, Uganda];

8.6.3 Southern Africa [Angola, Botswana, Lesotho, Malawi, Mozambique, Namibia, South Africa, Eswatini, Zambia, Zimbabwe];

8.6.4 West Africa [Benin, Burkina-Faso, Cape Verde, Côte d'Ivoire, Gambia, Ghana, Guinea, Guinea-Bissau, Liberia, Mali, Niger, Nigeria, Sierra Leone, Senegal, Togo].

8.7 HCM4A also comes with a software tool for Sub-Saharan Africa. This has the following features:[86]

8.7.1 Optimise spectrum usage by accurate interference field strength calculations;

8.7.2 Establish general parameters, improvement, and supplementation of technical provisions, individual restrictions;

8.7.3 Establish models for computer-aided interference range calculations; and

8.7.4 Harmonise parameters: objectively predictable towards transparent decisions.

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[85] See: https://www.itu.int/en/ITU-D/Projects/ITU-EC-ACP/HIPSSA/Documents/FINAL%20DOCUMENTS/FINAL%20DOCS%20ENGLISH/hcm4a_agreement.pdf.pdf

[86] See: https://www.itu.int/en/ITU-D/Regional-Presence/AsiaPacific/Documents/Events/2017/May%20BKK/Presentations/HCM%20and%20HCM4A%20BKK%2020170504%20IB.pdf

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8.8 Use of these frequency bands will require coordination with the neighbouring countries within the coordination zones of 6 kilometres from the neighbouring country. The coordination distance is continuously being reviewed, and these may be updated from time to time.

8.9 For the protection of the fixed and fixed-satellite services in the frequency bands from the mobile, except aeronautical mobile, and from IMT:

8.9.1 The Authority may set PFD limits in respect of PFD produced at the height of 3 m above ground level.

8.9.2 Based on the above PFD value the coordination distances are calculated using Recommendation ITU-R P.452-18 at 20% of time with a smooth Earth terrain profile.

8.10 In the event that the Authority assigns spectrum to private networks on a geographically limited basis in the band in addition to national assignments, the geographically limited private network shall ensure that its systems do not cause interference with those of the national licensee.

8.11 Technical analysis may be conducted by the Authority before an assignment is issued according to Appendix A.

8.12 New assignments would also require coordination with the existing incumbent assignments. See Appendices B and D.

8.13 If neighbouring administrations wish to agree on frequency coordination based on preferential frequencies, while ensuring a fair treatment of different operators within a country the Authority will add these mutual agreements.

8.14 In the event of any interference, the Authority will require affected parties to carry out coordination. In the event that the interference continues to be unresolved after 24 hours, the affected parties may refer the matter to the Authority for a resolution. The Authority will decide the necessary modifications and schedule of modifications to resolve the dispute. The Authority will be guided by the Frequency Coordination Process as outlined in Appendix D.

8.15 Assignment holders shall take full advantage of interference mitigation techniques such as antenna discrimination, tilt, polarization, frequency discrimination, shielding / blocking (introduce diffraction loss), site selection, and/or power control to facilitate the coordination of systems.

9 Assignment

9.1 The unassigned spectrum in this band will be assigned through an Invitation to Apply in line with the regulations developed in terms of section 31(3) of the Act.

9.2 The assignment of the spectrum for the verticals will be considered in accordance with regulation 5 of the Radio Frequency Spectrum Regulations 2015:

9.2.1 Regulation 5(3) of the Radio Frequency Spectrum Regulations 2015 may apply.

9.2.2 The application shall be subjected to public consultation.

9.2.3 National licenses to be protected on a primary basis;

9.2.4 For private networks with a limited geographic scope on a secondary basis.

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10 Amendments

10.1 Applicable licences are hereby amended to conform with this RFSAP upon publication of this notice.

11 Radio Frequency Migration

11.1 Existing licensees are to migrate out of the IMT exclusive areas within 24 months of the publication of this notice.

12 Synchronisation

12.1 In order to avoid interference between TDD networks operating in adjacent frequency carriers, the radio transmissions of adjacent TDD networks should be synchronized with the uplink and downlink frames aligned in time. Such synchronization of TDD networks is very important because it is the best way to avoid interference between networks and ensures efficient use of spectrum resources by avoiding inter-operator guard bands and additional base station filtering. Otherwise, the uplink and downlink interference cannot be eliminated or avoided in terms of technical measures.

12.2 The Authority will align with the operators to define a unified national uplink and downlink frame as part of a future ITA for unassigned spectrum in this band.

13 Appendix A: Propagation Model

13.1 The following methods are proposed for assessment of anticipated interference inside neighbouring countries based on established trigger values. Due to the complexity of radio-wave propagation, different methods are proposed to be considered by administrations and are included here for guidance purposes only. It should be noted that the following methods provide theoretical predictions based on available terrain knowledge. It is practically impossible to recreate these methods with measurement procedures in the field. Therefore, only some approximation of measurements could be used to check compliance with those methods based on practical measurement procedures. The details of such approximations are not included in this recommendation and should be negotiated between countries based on their radio monitoring practices.

A. Path specific model

13.2 Where appropriately detailed terrain data is available, the propagation model for interference field strength prediction is the latest version of ITU-R Rec. P.452.[87] For the relevant transmitting terminal, predictions of path loss would be made at x km steps along radials of y km at z degree intervals.[88] The values for those receiver locations within the neighbouring country would be used to construct a histogram of path loss – and if more than 10% of predicted values exceed the threshold, the station should be coordinated.

B. Site General model

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[87] Recommendation ITU-R P.452-17 (09/2021, with Editorial corrections on 28 October 2021) "Prediction procedure for the evaluation of interference between stations on the surface of the Earth at frequencies above about 0.1 GHz" (https://www.itu.int/rec/R-REC-P.452/en).

[88] Values for x, y, z, and path specific field strength levels are to be agreed between the administrations concerned.

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13.3 If it is not desirable to utilise detailed terrain height data for propagation modelling in the border area, the basic model to be used to trigger coordination between administrations and to decide if coordination is necessary, is ITU-R Rec. P.1546, "Method for point to area predictions for terrestrial services in the frequency range 30 to 4000 MHz".

13.4 This model is to be employed for 50% locations, 10% time and using a receiver height of 3m. For specific reception areas where terrain roughness adjustments for improved accuracy of field strength prediction are needed, administrations may use correction factors according to terrain irregularity and/or an averaged value of the TCA parameter in order to describe the roughness of the area on and around the coordination line.

13.5 Administrations and/or operators concerned may apply to the Authority to deviate from the aforementioned model.

C. Area calculations

13.6 In the case where greater accuracy is required, administrations and operators may use the area calculation below. For calculations, all the pixels of a given geographical area to be agreed between the Administrations concerned in a neighbouring country are taken into consideration. For the relevant base station, predictions of path loss should be made for all the pixels of a given geographical area from a base station and at a receiver antenna height of 3 m above ground.

13.7 For evaluation:

13.7.1 Only 10% of the number of the geographical area between the border line (also including the border line) and the 6 km line itself inside the neighbouring country may be interfered by higher field strength than the trigger field strength value given for the border line in the main text above at a height of 3 m above ground:

13.7.2 Only 10% of the number of the geographical area between the 6 km (including also the 6 km line) and 12 km line inside the neighbouring country may be interfered by higher field strength than the trigger field strength value given for the 6 km line in the main text above at a height of 3 m above ground;

13.8 It is recommended that during area calculations, not only detailed terrain data but also clutter data be taken into account. Use of correction factors for clutter is crucial in particular where the border area is 'open' or 'quasi-open' from the point of view of clutter or where the interfering base station is just a few kilometres from a border line.

13.9 If the distance between a base station and a terrain point of a border line is closer than or equal to 1 km, the free space propagation model needs to be applied. Furthermore, if there is no terrain obstacle within the 1st Fresnel zone, the free space propagation model should be applied.

13.10 If clutter data is not available, it is proposed to extend the usage of the free space propagation model to a few kilometres, depending on the clutter situation in border areas.

13.11 For area type interference calculations, propagation models with path specific terrain correction factors are recommended (e.g., the latest Recommendation ITU–R P.1546[89] with the Terrain

[89] ITU-R Recommendation P.1546-6 (08/2019): Method for point-to-area predictions for terrestrial services in the frequency range 30 MHz to 3 000 MHz (https://www.itu.int/rec/R-REC-P.1546/en).

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Clearance Angle correction factor TCA, HCM[90] method with the Terrain Clearance Angle correction factor or Recommendation ITU–R P.1812[91]).

13.12 As to correction factors for clutters 'open area' and 'quasi-open area', 20 dB and 15 dB should be used, respectively. Recommendations ITU–R P.1406[92] and/or ITU-R P.2108[93] should be used if a finer selection of clutter is required.

13.13 It must be noted that terrain irregularity factor Δh is not recommended to be used in area calculations. Administrations and/or operators concerned may agree to deviate from the aforementioned models by mutual consent.

14 Appendix B: Coordination for IMT-Systems

A. PREFERENTIAL PCI FOR IMT SYSTEMS

14.1 The following is an operational example and can be adapted for the SADC countries for IMT systems.

14.2 PCI coordination is only needed when channel centre frequencies are aligned independently of the channel bandwidth.

14.3 3GPP TS 36.211[94] defines 168 "unique physical-layer cell-identity groups" in §6.11, numbered 0...167, hereafter called "PCI groups" for IMT systems. Within each PCI group, there are three separate PCIs giving 504 PCIs in total.

14.4 Administrations should agree on a repartition of these 504 PCIs on an equitable basis when channel centre frequencies are aligned, as shown in the table below. It has to be noted that dividing the PCI groups or PCIs is equivalent. Each country should only use their own preferential PCIs close to the border and can use all PCIs away from the border. This transition distance between "close to the border" and "away from the border" should be agreed between neighbouring countries.

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[90] HCM Agreement (Harmonised Calculation Method) between the administrations of Austria, Belgium, the Czech Republic, Germany, France, Hungary, the Netherlands, Croatia, Italy, Liechtenstein, Lithuania, Luxembourg, Poland, Romania, the Slovak Republic, Slovenia, and Switzerland on the Coordination of frequencies between 29.7 MHz and 43.5 GHz for the Fixed Service and the Land Mobile Service. The latest version of this agreement can be found from http://www.hcm-agreement.eu/http/englisch/verwaltung/index_europakarte.htm

[91] Recommendation P.1812-6 (09/2021) "A path-specific propagation prediction method for point-to-area terrestrial services in the frequency range 30 MHz to 6 000 MHz" (https://www.itu.int/rec/R-REC- P.1812/en).

Annex 5: Determination of the interference field strength in the Land Mobile Service (https://www.itu.int/en/ITU-D/Projects/ITU-EC- ACP/HIPSSA/Documents/REGIONAL%20documents/HCM4A-E-Annex05.pdf).

[92] Recommendation P.1406-2 (07/2015) "Propagation effects relating to terrestrial land mobile and broadcasting services in the VHF and UHF bands" (https://www.itu.int/rec/R-REC-P.1406/en).

[93] Recommendation P.2108-1 (09/2021) "Prediction of clutter loss" (https://www.itu.int/rec/R-REC-P.2108/en).

[94] 3GPP TS 36.211 "Evolved Universal Terrestrial Radio Access (E-UTRA); Physical channels and modulation". (https://portal.3gpp.org/desktopmodules/Specifications/SpecificationDetails.aspx?specificationId=2425, also provided in ETSI TS 136 211). In comparison, 3GPP 38.211 (and ETSI TS 138 211) define NR Physical channels and modulation, in NR 2-step identification using PSS/SSS detection of the Physical Cell ID (same as LTE), the number of different cell IDs has been increased from 504 in LTE to 1008 for NR. Thus, for the deployment of LTE systems only the PCIs between 0 to 503 should be used and for NR systems PCIs between 0 to 1007 may be used.

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14.5 Administrations may wish to define different field strength levels (than those provided in the main text referring to this Appendix) for non-preferential PCIs.

14.6 As shown in the table below, the PCIs should be divided into 6 sub-sets containing each one sixth of the available PCIs. Each country is allocated three sets (half of the PCIs) in a bilateral case and two sets (one third of the PCIs) in a trilateral case.

14.7 Four types of countries are defined in a way such that no country will use the same code set as any one of its neighbours. The following lists describe a sample distribution for African countries:

14.7.1 Country type 1: Botswana, Cameroon, Comoros, Democratic Republic of the Congo, Ghana, Guinea- Bissau, Kenya, Liberia, Malawi, Mauritius, Niger, Republic of the Sudan, Eswatini;

14.7.2 Country type 2: Algeria, Angola, Benin, Cape Verde, Chad, Cote d'Ivoire, Egypt, Ethiopia, Madagascar, Senegal, United Republic of Tanzania, Zimbabwe;

14.7.3 Country type 3: Burkina Faso, Congo, Djibouti, Equatorial Guinea, Guinea, Mauritania, Nigeria, Rwanda, Sao Tome and Principe, Seychelles, South Africa, South Sudan, Tunisia, Zambia;

14.7.4 Country type 4: Burundi, Central African Republic, Eritrea, Gabon, Gambia, Lesotho, Libyan Arab Jamahiriya, Mali, Morocco, Mozambique, Namibia, Sierra Leone, Somalia, Togo, Uganda. (Note: A sample country type map can be found in the figure below).

14.8 For each type of country, the following tables and figure describe the sharing of the PCIs with its neighbouring countries, with the following conventions of writing:

Preferential PCI	
Non-Preferential PCI	

14.9 The 504 physical-layer cell-identities should be divided into the following 6 sub-sets when the carrier frequencies are aligned in border areas:

Table 13: Sharing of PCIs between countries

	Set A	**Set B**	**Set C**	**Set D**	**Set E**	**Set F**
Country 1	0..83	84..167	168..251	252..335	336..419	420..503
Border 1-2						
Zone 1-2-3						
Border 1-3						
Zone 1-2-4						
Border 1-4						

PCI	**Set A**	**Set B**	**Set C**	**Set D**	**Set E**	**Set F**
Country 2	0..83	84..167	168..251	252..335	336..419	420..503
Border 2-1						
Zone 2-3-1						
Border 2-3						
Zone 2-1-4						
Border 2-4						

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	Set A	Set B	Set C	Set D	Set E	Set F
Zone 1-3-4						

PCI	Set A	Set B	Set C	Set D	Set E	Set F
Zone 2-3-4						

PCI	Set A	Set B	Set C	Set D	Set E	Set F
Country 3	0..83	84..167	168..251	252..335	336..419	420..503
Border 3-2						
Zone 3-2-3						
Border 3-1						
Zone 3-1-4						
Border 3-4						
Zone 3-2-4						

PCI	Set A	Set B	Set C	Set D	Set E	Set F
Country 4	0..83	84..167	168..251	252..335	336..419	420..503
Border 4-1						
Zone 4-1-2						
Border 4-2						
Zone 4-2-3						
Border 4-3						
Zone 4-3-1						

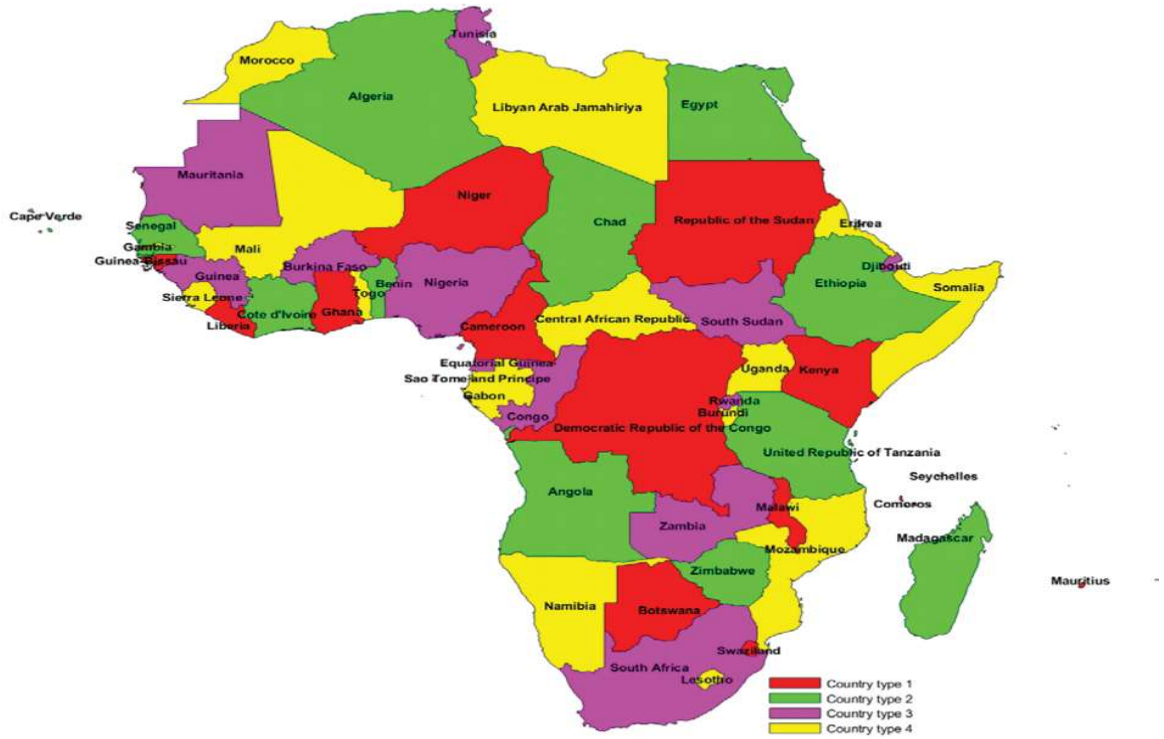
14.10 Note:

14.10.1 All PCIs are available in areas away from the border.

14.10.2 In certain specific cases (e.g., if Angola and Botswana happened to have the same Country type/PCI code) where the distance between two countries of the same type number is very small (below a few tens of kilometres), it may be necessary to address the situation in bilateral /multilateral coordination agreements as necessary and may include further subdivision of the allocated codes in certain areas.

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Figure 12: Country type map/PCI distribution map



15 Appendix C: Guidance on the consideration of IMT system radio parameters for use in bilateral and multilateral agreements

15.1 This section is provided for guidance purposes for use in bi-lateral and multilateral discussions. For IMT systems, it may be beneficial to coordinate other radio parameters besides PCI in order to minimise deteriorating effects of uplink interference.

15.2 The parameters described in this section are usually optimised during IMT system radio network planning of an operator's network. The idea of optimisation is to plan the parameters taking into account specific correlation properties of the uplink control signals, which enable more stable and predictable operation of the network. In the cross-border scenario the optimisation of parameters among neighbouring operators could provide better control of uplink interference. However, because of the difference between intra-network and inter-network interference and due to limited experience in the IMT system cross- border deployment, it is difficult to assess the benefits of such optimisation. The following guidance provides the basis for operators to consider in border areas in case of high levels of uplink interference.

A. DM RS coordination

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15.3 DM RS are transmitted in the uplink and used for channel estimation.

15.4 There is a risk of intercell interference between neighbouring cells even in case of no frame synchronisation. That is why special measures for DM RS allocation between networks in neighbouring countries occupying the same channel may need to be applied.

15.5 The case of partial channel overlap has not been studied but due to DM RS occupying resource blocks of separate users, there is a risk of DM RS collisions between neighbouring networks when the subcarriers' positions coincide (the frequency offset between central carriers of neighbouring networks is multiple of 300 kHz). Some minor benefits from DM RS coordination in these particular cases could be expected.

15.6 There are a number of possible approaches to the coordination of DM RS:

15.6.1 In the basic planning procedure, only 30 DM RS sequence groups with favourable correlation characteristics are available: {0…29}. In this case, each cell could be assigned one of the 30 DM RS sequence groups providing a cluster size of 30.

15.6.2 It is possible to extend each DM RS sequence group to generate up to 12-time shifted sequence groups by applying the cyclic shift parameter stated in 3GPP TS 36.211 for LTE. For example, each tri-sector site could be assigned one DM RS sequence group with each co-sited cell having its own cyclic shift of $2\pi/3$, which provides cluster size 30 only with 10 DM RS sequence groups. The latter case corresponds well to the case of DM RS sequence groups repartition between neighbouring countries when only limited number of groups is available for network planning. The drawback of DM RS sequence group cyclic shift is a loss of orthogonally of DM RS due to fading channels which has been found during first trials of LTE and caused throughput loss as well as time alignment problems.

15.6.3 Another approach for DM RS coordination is to implement dynamic DM RS sequence group allocation, also called pseudo-random group hopping. In this method, nearby cells are grouped into clusters up to 30 cells, and within each cell cluster, the same hopping-pattern is used. At the border of two clusters, inter-cell interference is averaged since two different hopping patterns are utilised.

15.6.4 There are 17 defined hopping patterns, numbered {0…16}, which leads to some minor unfairness in case of apportioning these patterns between neighbouring countries. Even in a trilateral case each operator will have at least 5 hopping patterns available near the border, which should be enough or planning purposes. It should be noted the pseudo-random group hopping option could be absent in the first generations of IMT system equipment.

15.7 The decision of which of these methods to use in cross-border coordination should be agreed upon by the interested parties. Specific DM RS sequence groups or hopping patterns repartition is not provided in this text but could be deduced in a similar manner to the PCI repartition.

B. PRACH coordination

15.8 Another radio network parameter that is considered during radio network planning is PRACH configuration which is needed to distinguish random access requests addressed to different cells.

15.9 PRACH resources are allocated by specifying the PRACH Resource Blocks time positions within the uplink frame, their frequency position within the IMT system channel bandwidth and by apportioning cell- specific root sequences. During radio network planning, these parameters are usually used in the following way:

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15.9.1 Time positions for PRACH resource allocations are usually used to create time collision of PRACH resources of co-sited/frame synchronised cells because PRACH-to-PRACH interference is usually less severe than PUSCH-to-PRACH interference;

15.9.2 Frequency positions within the IMT system channel bandwidth are usually the same for all cells, again because PRACH-to-PRACH interference case is a more favourable one.

15.9.3 Cell-specific root sequences are used to distinguish between PRACH requests addressed to different cells.

15.10 For cross-border coordination, it is proposed to use frequency position offsets to exclude the possibility of so-called "ghost" PRACH requests caused by neighbouring networks. The PRACH is configured in IMT systems to use only 6 Resource Blocks or 1.08 MHz of the IMT system channel bandwidth except in regions used by PUCCH. In case of overlapping or partially overlapping channel bandwidths of neighbouring networks, it is enough to establish non-overlapping PRACH frequency blocks to perform coordination.

15.11 Because it is difficult to establish an implementation dependent procedure for such allocation, it will be the responsibility of operators to manage such frequency separation during coordination discussions.

15.12 In an early implementation, it is possible that a very limited number of frequency positions could be supported by IMT system equipment which will not be enough to coordinate in the trilateral case. In such cases, root-sequence repartition could be used. There are 838 root sequences in total to be distributed between cells, numbered {0...837}. There are two numbering schemes for PRACH root sequences (physical and logical) and that only logical root sequences numbering needs to be used for coordination.

15.13 Unfortunately, the process of root sequences planning doesn't involve direct mapping of root sequences between cells because the number of root sequences needed for one cell is dependent on the cell range.

15.14 The table showing such interdependency is presented below:

Table 14: PRACH – Range Interdependency

PRACH Configuration	Number of root seq. per cell	Cell Range (km)
1	1	0.7
2	2	1
3	2	1.4
4	2	2
5	2	2.5
6	3	3.4
7	3	4.3
8	4	5.4
9	5	7.3
10	6	9.7
11	8	12.1
12	10	15.8
13	13	22.7
14	22	38.7
15	32	58.7

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PRACH Configuration	Number of root seq. per cell	Cell Range (km)
0	64	118.8

15.15 Thus, in the case of root sequence reparation, it will be the responsibility of radio network planners to assign the correct number of root sequences in order to not overlap with the root sequence ranges of other operators. It also should be noted that different root sequences have different cubic metrics and correlation properties, which affect PRACH coverage performance and planning of so-called high-speed cells. For simplicity of cross-border coordination, it is proposed to ignore these properties.

15.16 In summary, it should be stipulated that frequency separation of PRACH resources should be used as the main coordination method. PRACH root sequences repartition should be avoided and used only in exceptional cases. Specific PRACH root sequences repartition is not provided in this text but could be deduced in a similar manner to the PCI repartition.

15.17 Additional guidance for cross-border coordination of synchronised and unsynchronised IMT TDD systems may be found in ECC/REC/ (15)01[95] and ECC Report 296[96].

16 Appendix D: Frequency Coordination Process

16.1 Technical procedures related to bilateral and multilateral cross-border frequency coordination agreements for 4 geographical sub-regions are defined by the African Union, which includes the Southern African sub-region of 10 countries. Cross-Border Frequency Coordination and interference resolution should follow the Harmonised Calculation Method for Africa (HCM4A).[97]

16.2 When requesting coordination, the relevant characteristics of the base station and the code or PCI group number should be forwarded to the Administration affected. All of the following characteristics should be included:

16.2.1 carrier frequency [MHz];

16.2.2 name of transmitter station;

16.2.3 country of location of transmitter station;

16.2.4 geographical coordinates [latitude, longitude];

16.2.5 effective antenna height [m];

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[95] ECC Recommendation (15)01 "Cross-border coordination for Mobile/Fixed Communications Networks (MFCN) in the frequency bands: 694-790 MHz, 1427-1518 MHz, and 3400-3800 MHz". Amended on 14 February 2020.

[96] ECC Report 296: "National synchronisation regulatory framework options in 3400-3800 MHz: a toolbox for coexistence of MFCNs in synchronised, unsynchronised, and semi-synchronised operation in 3400-3800 MHz", March 2019.

[97] Cross-Border Frequency Coordination: Harmonised Calculation Method for Africa (HCM4A), available at: https://www.itu.int/en/ITU-D/Projects/ITU-EC-ACP/HIPSSA/Documents/FINAL%20DOCUMENTS/FINAL%20DOCS%20ENGLISH/hcm4a_agreement.pdf.pdf

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16.2.6 antenna polarisation;

16.2.7 antenna azimuth [degrees];

16.2.8 antenna gain [dBi];

16.2.9 effective radiated power [dBW];

16.2.10 expected coverage zone or radius [km];

16.2.11 date of entry into service [month, year].

16.2.12 code group number used; and

16.2.13 antenna tilt [degrees].

16.3 The Administration affected will evaluate the request for coordination and will, within 30 days, notify the result of the evaluation to the Administration requesting coordination. If, in the course of the coordination procedure, the Administration affected requires additional information, it may request such information.

16.4 If no reply is received by the Administration requesting coordination within 30 days, it may send a reminder to the Administration affected. An Administration not having responded within 30 days following communication of the reminder will be deemed to have given its consent and the code coordination may be put into use with the characteristics given in the request for coordination.

16.5 The periods mentioned above may be extended by common consent.

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ELECTRONIC COMMUNICATIONS ACT, 2005 (ACT NO. 36 OF 2005)

HEREBY ISSUES A NOTICE REGARDING THE RADIO FREQUENCY ASSIGNMENT PLANS FOR THE FREQUENCY BANDS ALLOCATED TO THE MOBILE RADIOCOMMUNICATIONS SERVICES AND IDENTIFIED INTERNATIONAL MOBILE TELECOMMUNICATIONS IN THE NATIONAL RADIO FREQUENCY PLAN.

1. The Independent Communications Authority of South Africa ("the Authority"), on 28 March 2024, published the Draft International Mobile Telecommunications (IMT) Roadmap, in Government Gazette No. 50413 (Notice 4584 of 2024) inviting Written Representations.

2. On 13 September 2024, in Government Gazette 51244 (Notice 5209 of 2024) the Authority published a "Notice Communicating the Outcome of the Consultation Process of the Draft IMT Roadmap 2025.

3. The Authority, in Government Gazette 53883 (Notice 3712 of 2025), published the Second Draft International Mobile Telecommunications (IMT) Roadmap 2025, in terms of section 4(3)(c) of the Independent Communications Authority of South Africa Act, 2000 (Act No. 13 of 2000), read with sections 2(e), 30, 31(4), and 33 of the Electronic Communications Act (Act No 36 of 2005).

4. Now therefore, the Authority, in terms of section 4(3)(c) of the Independent Communications Authority of South Africa Act, 2000 (Act No. 13 of 2000), read with sections 2(e), 30, 31(4), and 33 of the Electronic Communications Act (Act No 36 of 2005) hereby publishes the notice regarding the radio frequency assignment plans for the frequency bands allocated to the mobile radiocommunications services and identified international mobile telecommunications in the national radio frequency plan**.**

5. Interested persons are hereby invited to submit written representations on the notice regarding the radio frequency assignment plans for the frequency bands allocated to the mobile radiocommunications services and identified international mobile telecommunications in the national radio frequency plan in both Microsoft Word (MS) and Portable Document Format (PDF) by no later than 16:00 on **4 September 2026.**

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6. Persons making representations are further invited to indicate whether they require an opportunity to make oral representations.

7. Written representations or enquiries may be directed by email to:

Attention:

Mr Manyaapelo Richard Makgotlho

e-mail: rmakgotlho@icasa.org.za

Copy: jdikgale@icasa.org.za

8. Where persons making representations require that their representation, or part thereof, be treated as confidential, then an application in terms of section 4D of the ICASA Act, 2000 (Act No 13 of 2000) must be lodged with the Authority. Such an application must be submitted simultaneously with the representation, together with a non-confidential, redacted version of the submission. If, however, the request for confidentiality is not granted, the person making the request will be allowed to withdraw the representation or document in question.

9. The guidelines for confidentiality requests are contained in Government Gazette Number No 41839 of 17 August 2018.

10. All written representations submitted to the Authority pursuant to this notice will be made available for inspection by interested persons from **11 September 2026** at the Authority's Library. Electronic copies of such representations are obtainable on request and printed versions will be obtainable on payment of a fee.

11. The radio frequency assignment plans for the frequency bands allocated to the mobile radiocommunications services and identified international mobile telecommunications in the national radio frequency plan and the non-confidential representations will be uploaded to the Authority's website under this link: https://www.icasa.org.za/legislation-and-regulations/radio-frequency-spectrum-plans/draft-radio-frequency-spectrum-plans.



Mothibi G. Ramusi

CHAIRPERSON

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Radio Frequency Spectrum Assignment Plan

Rules for Services operating in the Frequency Band

45.5 GHz to 47 GHz

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1 Glossary of Terms, Abbreviations, and Acronyms

1.1 In this Radio Frequency Spectrum Assignment Plan, terms used will have the same meaning as in the Electronic Communications Act 36 of 2005; unless the context indicates otherwise. The definitions and acronyms for additional terms are listed below:

"3GPP"	means the 3rd Generation Partnership Project (3GPP) which consists of six telecommunications standard development organisations
"AAS"	means Active Antenna System
"Act"	means the Electronic Communications Act, 2005 (Act No. 36 of 2005) as amended
"AGM"	means Annual General Meeting
"AU"	means African Union
"BEM"	means Block Edge Masks
"BS"	means Base Stations
"CRASA"	means Communications Regulators' Association of Southern Africa
"CRASA ECC"	means the Communications Regulators' Association of Southern Africa (CRASA) Electronic Communications Committee (ECC)
"DM RS"	means Demodulation Reference Signal
"ECC"	means the Electronic Communications Committee within the European Conference of Postal and Telecommunications Administrations (CEPT)
"ECC/REC (11)04"	means the ECC Recommendation (11)04 - Cross-border Coordination for Mobile/Fixed Communications Networks (MFCN) in the frequency band 790-862 MHz, Edition 3 February 2017
"ECC/REC (15)01"	means the ECC Recommendation (15)01 - (15)01 -ECC Recommendation (15)01 "Cross-border coordination for Mobile/Fixed Communications Networks (MFCN) in the frequency bands: 694-790 MHz, 1427-1518 MHz, and 3400-3800 MHz". Amended on 14 February 2020
"EIRP"	means Effective Isotropic Radiated Power
"FDD"	means the Frequency Division Duplex
"HCM"	means the Harmonised Calculation Method
"HCM4A"	means the Harmonised Calculation Method for Africa
"HDA"	means High-Density Area
"HIBS"	means High-Altitude Platform Stations as IMT Base Stations
"HIPSSA"	means the Sub-Saharan Africa Assessment Report on Harmonisation of ICT Policies in Sub-Saharan Africa
"ICNIRP"	Means the International Commission on Non-Ionizing Radiation Protection (ICNIRP)
"IMT"	means the International Mobile Telecommunications
"IMT-2020"	means International Mobile Telecommunications-2020
"IMT Advanced"	means International Mobile Telecommunications-Advanced
"ITA"	means the Invitation to Apply
"ITU"	means the International Telecommunication Union
"ITU-R"	means the International Telecommunication Union Radiocommunication Sector
"LPI"	means Low Power Indoor
"LoS"	means Line of Sight
"LTE"	means the Long-Term Evolution is a standard for wireless communication of high-speed data for mobile phones and data terminals. It is based on the GSM/EDGE and
"Non-AAS"	means Non-Active Antenna System
"NR"	means New Radio

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"NRFP"	means the National Radio Frequency Plan 2013 for South Africa
"PCI"	means the Physical-Layer Cell Identities
"PFD"	means Power Flux Density
"PPDR"	means the Public Protection and Disaster Relief as defined in ITU-R Report M.2033
"PRACH"	means the Physical Random-Access Channel
"PSTN"	means the Public Switched Telephone Network
"PUCCH"	means the Physical Uplink Control Channel
"PUSCH"	means the Physical Uplink Shared Channel
"RAS"	means Radio Astronomy Service
"RFSAP"	means the Radio Frequency Spectrum Assignment Plan
"RR"	means Radio Regulations
"SADC"	means Southern African Development Community
"TCA"	means the Terrain Clearance Angle
"TRP"	means the Total Radiated Power. The TRP is defined as the integral of the power transmitted in different directions over the entire radiation sphere.
"TDD"	means the Time Division Duplex
"UE"	means User Equipment
"VLP"	means Very Low Power
"WRC-12"	means the World Radiocommunication Conference 2012 held in Geneva
"WRC-15"	means the World Radiocommunication Conference 2015 held in Geneva
"WRC-19"	means the World Radiocommunication Conference 2019 held in Sharm el-Sheikh
"WRC-23"	means the World Radiocommunication Conference 2023 held in Dubai

2 Purpose

2.1 An RFSAP provides information on the requirements attached to the use of a frequency band in line with the allocation and other information in the NRFP. This information includes technical characteristics of radio systems, frequency channelling, coordination, and details on required migration of existing users of the band and the expected method of assignment.

2.2 This RFSAP states the requirements for the utilisation of the frequency band 45.5 GHz to 47 GHz for IMT.

2.3 The ITU states that IMT systems are mobile systems that provide access to a wide range of telecommunication services including advanced mobile services, supported by mobile and fixed networks, which are increasingly packet-based. Key features of the IMT systems are:[98]

- a high degree of commonality of functionality worldwide whilst retaining the flexibility to support a wide range of services and applications in a cost-efficient manner;
- compatibility of services within IMT and with fixed networks;
- capability of interworking with other radio access systems;
- high quality mobile services;
- user equipment suitable for worldwide use;

[98] See ITU-R Frequently Asked Questions on IMT, available at: https://www.itu.int/en/ITU-R/Documents/FAQ-IMT-2024.pdf#:~:text=Key%20features%20of%20IMT%2D2000%20and,in%20a%20cost%20efficient%20manner%3B

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- user-friendly applications, services, and equipment;
- worldwide roaming capability; and
- enhanced peak data rates to support advanced services and applications.

3 General

3.1 Technical characteristics of equipment used in IMT systems will conform to all applicable South African standards, international standards, and ITU (including its radio regulations) as agreed and adopted by South Africa.

3.2 All installations must comply with safety rules as specified in applicable standards.

3.3 The equipment used will be certified under South African law and regulations.

3.4 The allocations of the IMT bands and the information in this RFSAP are subject to review.

3.5 Frequency bands identified for IMT include the band 45.5 GHz to 47 GHz.

3.6 The requirements for the standard families which can provide IMT services include, but are not limited to:

- IMT-2000;
- IMT-Advanced;
- IMT-2020;
- IMT-2030.

3.7 Typical technical and operational characteristics identified by the ITU are described in the following documents:

- Recommendation ITU-R M.2012-5 (02/2022): Detailed specifications of the terrestrial radio interfaces of IMT Advanced;
- Report ITU-R M.2074-0 (2006): Report on Radio Aspects for the terrestrial component of IMT-2000 and systems beyond IMT-2000;
- Recommendation ITU-R M.1645 (06/2003): Framework and overall objectives of the future development of IMT-2000 and systems beyond IMT-2000;
- Recommendation ITU-R M.1036: Frequency arrangements for implementation of the terrestrial component of IMT in the bands identified for IMT in the RR;
- Recommendation ITU-R M.2150-1 (02/2022): Detailed specifications of the terrestrial radio interfaces of IMT-2020; and
- Recommendation ITU-R M.2160-0 (11/2023): Framework and overall objectives of the future development of IMT for 2030 and beyond.

3.8 The ITU also provides guidelines for modelling and simulation, e.g.

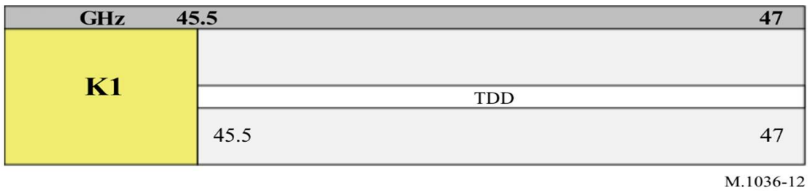
- Recommendation ITU-R M.2070-1 (02/2017): Generic unwanted emission characteristics
- of base stations using the terrestrial radio interfaces of IMT-Advanced;
- Recommendation ITU-R M.2071-1 (02/2017): Generic unwanted emission characteristics of mobile stations using the terrestrial radio interfaces of IMT-Advanced; and
- Recommendation ITU-R M.2101 (02/2017): Modelling and simulation of IMT networks and systems for use in sharing and compatibility studies.

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4 Channelling Plan

4.1 The frequency arrangements for implementation of IMT in the 45.5 – 47 GHz frequency range are summarized below, noting the implementation aspects in this RFSAP.

Figure 13: Frequency arrangements for K1



Source: ITU-R M.1036

5 Requirements for the Usage of the Radio Frequency Spectrum

5.1 This chapter covers the minimum key characteristics considered necessary in order to make the best use of the available frequencies.

5.2 The use of the band is for IMT and government services, as follows.

5.2.1 HDAs: In HDAs, use of this band will be limited to IMT services. Licensees must consult the Notice on Exclusive Geographic Areas for MMWave IMT Bands 24.25-27.5 GHz, 37-43.5GHz, 45.5-47GHz, 47.2-48.2GHz.

5.2.2 Low-density areas: In low-density areas (non-HDAs), government services shall coexist with IMT services outdoors provided that interference is within tolerable limits. If the latter is not possible, then government services will need to migrate to outside of the geographic areas in which interference is being experienced. Licensees must consult the Notice on Exclusive Geographic Areas for MMWave IMT Bands 24.25-27.5 GHz, 37-43.5GHz, 45.5-47GHz, 47.2-48.2GHz .

5.3 Only systems using digital technologies that promote spectral efficiency will be issued with an assignment. Capacity-enhancing digital techniques are being rapidly developed together with and such techniques that promote efficient spectrum use without reducing service quality. These techniques are encouraged.

5.4 In some cases, a radio system conforming to the requirements of this RFSAP may require modifications if harmful interference is caused to other radio stations or systems.

5.5 The allocation of spectrum and shared services within these bands are found in the NRFP.

5.6 Maximum radiated power:

5.6.1 Mobile BS transmissions should not exceed the TRP limit of 29 dBm;

5.6.2 On a case-to-case basis, higher TRP may be permitted if acceptable technical justification is provided.

5.7 For the protection of the fixed and fixed-satellite services in the frequency bands from the mobile, except aeronautical mobile, and from IMT:

5.7.1 The Authority may set PFD limits in respect of PFD produced at the height of 3 m above ground level.

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5.7.2 Based on the above PFD value the coordination distances are calculated using Recommendation ITU-R P.452-18 at 20% of time with a smooth Earth terrain profile.

5.8 Where appropriate, subscriber terminal stations should comply with the technical specification outlined under the latest version of 3GPP specifications, e.g., TS 36.521-1 for LTE, 38.521-1 for 5G NR;

5.9 ICNIRP Guideline compliance is required, where applicable; and

5.10 The criteria and guidelines for interference mitigation are described in Appendices B and D.

6 Commencement

6.1 This RFSAP comes into effect upon publication of this notice.

6.2 No new assignment for IMT in the band 45.5 GHz – 47 GHz will be approved unless it complies with this RFSAP.

7 Conflict

7.1 In the event of a conflict between this RFSAP and the applicable NRFP and/or Terrestrial Broadcasting Frequency Plan, the NRFP and the Terrestrial Broadcasting Frequency Plan shall prevail.

8 Coordination Requirements

8.1 Cross Border Frequency Coordination will abide by the HCM4A Agreement. This follows the 3rd CRASA AGM that agreed that CRASA should implement the Cross Border Frequency Coordination HCM4A Agreement.

8.2 The ECC had noted the need for greater understanding of the concept and need for harmonisation in the signing of the HCM4A Agreement by the SADC Member States if the implementation of the Agreement is to be effective. The ECC, therefore, agreed to convene a workshop on HCM4A and requested the CRASA Members to consider signing the agreement.

8.3 At the 5th CRASA AGM, Swakopmund, Namibia – 07-08 April 2016 [1], the subject of Cross Border Frequency Coordination using the Harmonised Calculation Method for Africa (HCM4A) was discussed in detail, following similar efforts in Europe. The Resolution CRASA/AGM/15.16/07 stipulates, "The AGM urged CRASA Members to prioritise the motivation to their administrations who are yet to indicate their interest to sign the HCM4A, to do so as soon as possible".

8.4 Therefore, coordination would follow the HCM4A as detailed in Sub-Saharan Africa Assessment Report on HIPSSA.[99]

8.5 A harmonised calculation method (HCM4A) brings these benefits:

8.5.1 Based on HCM Agreement used in Europe;

8.5.2 Optimise spectrum usage;

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[99] See: https://www.itu.int/en/ITU-D/Projects/ITU-EC-ACP/HIPSSA/Documents/FINAL%20DOCUMENTS/FINAL%20DOCS%20ENGLISH/hcm4a_agreement.pdf.pdf

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8.5.3 Prevent harmful interferences;

8.5.4 Confer an adequate protection for stations;

8.5.5 Define technical provisions and administrative procedures;

8.5.6 Quick assignment of preferential frequencies;

8.5.7 Transparent decisions through agreed assessment procedures;

8.5.8 Quick assessment of interference through data exchange.

8.6 HCM4A involves all 4 sub regions of Africa. This means the HCM4A projects include performing a survey and a comparative analysis of existing administrative and technical procedures related to bilateral and multilateral cross-border frequency coordination agreements across the 4 geographical sub-regions as defined by the AU, namely:

8.6.1 Central Africa [Burundi, Central African Republic, Chad, Congo, Democratic Republic of Congo, Equatorial Guinea, Gabon, Sao Tome, and Principe];

8.6.2 East Africa [Comoros, Djibouti, Eritrea, Ethiopia, Kenya, Madagascar, Mauritius, Rwanda, Seychelles, Somalia, Sudan, Tanzania, Uganda];

8.6.3 Southern Africa [Angola, Botswana, Lesotho, Malawi, Mozambique, Namibia, South Africa, Eswatini, Zambia, Zimbabwe];

8.6.4 West Africa [Benin, Burkina-Faso, Cape Verde, Côte d'Ivoire, Gambia, Ghana, Guinea, Guinea-Bissau, Liberia, Mali, Niger, Nigeria, Sierra Leone, Senegal, Togo].

8.7 HCM4A also comes with a software tool for Sub-Saharan Africa. This has the following features:[100]

8.7.1 Optimise spectrum usage by accurate interference field strength calculations;

8.7.2 Establish general parameters, improvement, and supplementation of technical provisions, individual restrictions;

8.7.3 Establish models for computer-aided interference range calculations; and

8.7.4 Harmonise parameters: objectively predictable towards transparent decisions.

8.8 Use of these frequency bands will require coordination with the neighbouring countries within the coordination zones of 6 kilometres from the neighbouring country. The coordination distance is continuously being reviewed, and these may be updated from time to time.

8.9 For the protection of the fixed and fixed-satellite services in the frequency bands from the mobile, except aeronautical mobile, and from IMT:

8.9.1 The Authority may set PFD limits in respect of PFD produced at the height of 3 m above ground level.

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[100] See: https://www.itu.int/en/ITU-D/Regional-Presence/AsiaPacific/Documents/Events/2017/May%20BKK/Presentations/HCM%20and%20HCM4A%20BKK%2020170504%20IB.pdf

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8.9.2 Based on the above PFD value the coordination distances are calculated using Recommendation ITU-R P.452-18 at 20% of time with a smooth Earth terrain profile.

8.10 In the event that the Authority assigns spectrum to private networks on a geographically limited basis in the band in addition to national assignments, the geographically limited private network shall ensure that its systems do not cause interference with those of the national licensee.

8.11 Technical analysis may be conducted by the Authority before an assignment is issued according to Appendix A.

8.12 New assignments would also require coordination with the existing incumbent assignments. See Appendices B and D.

8.13 If neighbouring administrations wish to agree on frequency coordination based on preferential frequencies, while ensuring a fair treatment of different operators within a country the Authority will add these mutual agreements.

8.14 In the event of any interference, the Authority will require affected parties to carry out coordination. In the event that the interference continues to be unresolved after 24 hours, the affected parties may refer the matter to the Authority for a resolution. The Authority will decide the necessary modifications and schedule of modifications to resolve the dispute. The Authority will be guided by the Frequency Coordination Process as outlined in Appendix D.

8.15 Assignment holders shall take full advantage of interference mitigation techniques such as antenna discrimination, tilt, polarization, frequency discrimination, shielding / blocking (introduce diffraction loss), site selection, and/or power control to facilitate the coordination of systems.

9 Assignment

9.1 The unassigned spectrum in this band will be assigned through an Invitation to Apply in line with the regulations developed in terms of section 31(3) of the Act.

9.2 The assignment of the spectrum for the verticals will be considered in accordance with regulation 5 of the Radio Frequency Spectrum Regulations 2015:

9.2.1 Regulation 5(3) of the Radio Frequency Spectrum Regulations 2015 may apply.

9.2.2 The application shall be subjected to public consultation.

9.2.3 National licenses to be protected on a primary basis;

9.2.4 For private networks with a limited geographic scope on a secondary basis.

10 Amendments

10.1 Applicable licences are hereby amended to conform with this RFSAP upon publication of this notice.

11 Radio Frequency Migration

11.1 Existing licensees are to conform to the requirements of this RFSAP upon publication of this notice.

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12 Synchronisation

12.1 In order to avoid interference between TDD networks operating in adjacent frequency carriers, the radio transmissions of adjacent TDD networks should be synchronized with the uplink and downlink frames aligned in time. Such synchronization of TDD networks is very important because it is the best way to avoid interference between networks and ensures efficient use of spectrum resources by avoiding inter-operator guard bands and additional base station filtering. Otherwise, the uplink and downlink interference cannot be eliminated or avoided in terms of technical measures.

12.2 The Authority will align with the operators to define a unified national uplink and downlink frame as part of a future ITA for unassigned spectrum in this band.

13 Appendix A: Propagation Model

13.1 The following methods are proposed for assessment of anticipated interference inside neighbouring countries based on established trigger values. Due to the complexity of radio-wave propagation, different methods are proposed to be considered by administrations and are included here for guidance purposes only. It should be noted that the following methods provide theoretical predictions based on available terrain knowledge. It is practically impossible to recreate these methods with measurement procedures in the field. Therefore, only some approximation of measurements could be used to check compliance with those methods based on practical measurement procedures. The details of such approximations are not included in this recommendation and should be negotiated between countries based on their radio monitoring practices.

A. Path specific model

13.2 Where appropriately detailed terrain data is available, the propagation model for interference field strength prediction is the latest version of ITU-R Rec. P.452.[101] For the relevant transmitting terminal, predictions of path loss would be made at x km steps along radials of y km at z degree intervals.[102] The values for those receiver locations within the neighbouring country would be used to construct a histogram of path loss – and if more than 10% of predicted values exceed the threshold, the station should be coordinated.

B. Site General model

13.3 If it is not desirable to utilise detailed terrain height data for propagation modelling in the border area, the basic model to be used to trigger coordination between administrations and to decide if coordination is necessary, is ITU-R Rec. P.1546, "Method for point to area predictions for terrestrial services in the frequency range 30 to 4000 MHz".

13.4 This model is to be employed for 50% locations, 10% time and using a receiver height of 3m. For specific reception areas where terrain roughness adjustments for improved accuracy of field strength prediction are needed, administrations may use correction factors according to terrain

[101] Recommendation ITU-R P.452-17 (09/2021, with Editorial corrections on 28 October 2021) "Prediction procedure for the evaluation of interference between stations on the surface of the Earth at frequencies above about 0.1 GHz" (https://www.itu.int/rec/R-REC-P.452/en).

[102] Values for x, y, z, and path specific field strength levels are to be agreed between the administrations concerned.

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irregularity and/or an averaged value of the TCA parameter in order to describe the roughness of the area on and around the coordination line.

13.5 Administrations and/or operators concerned may apply to the Authority to deviate from the aforementioned model.

C. Area calculations

13.6 In the case where greater accuracy is required, administrations and operators may use the area calculation below. For calculations, all the pixels of a given geographical area to be agreed between the Administrations concerned in a neighbouring country are taken into consideration. For the relevant base station, predictions of path loss should be made for all the pixels of a given geographical area from a base station and at a receiver antenna height of 3 m above ground.

13.7 For evaluation:

13.7.1 Only 10% of the number of the geographical area between the border line (also including the border line) and the 6 km line itself inside the neighbouring country may be interfered by higher field strength than the trigger field strength value given for the border line in the main text above at a height of 3 m above ground:

13.7.2 Only 10% of the number of the geographical area between the 6 km (including also the 6 km line) and 12 km line inside the neighbouring country may be interfered by higher field strength than the trigger field strength value given for the 6 km line in the main text above at a height of 3 m above ground;

13.8 It is recommended that during area calculations, not only detailed terrain data but also clutter data be taken into account. Use of correction factors for clutter is crucial in particular where the border area is 'open' or 'quasi-open' from the point of view of clutter or where the interfering base station is just a few kilometres from a border line.

13.9 If the distance between a base station and a terrain point of a border line is closer than or equal to 1 km, the free space propagation model needs to be applied. Furthermore, if there is no terrain obstacle within the 1st Fresnel zone, the free space propagation model should be applied.

13.10 If clutter data is not available, it is proposed to extend the usage of the free space propagation model to a few kilometres, depending on the clutter situation in border areas.

13.11 For area type interference calculations, propagation models with path specific terrain correction factors are recommended (e.g., the latest Recommendation ITU–R P.1546[103] with the Terrain Clearance Angle correction factor TCA, HCM[104] method with the Terrain Clearance Angle correction factor or Recommendation ITU–R P.1812[105]).

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[103] ITU-R Recommendation P.1546-6 (08/2019): Method for point-to-area predictions for terrestrial services in the frequency range 30 MHz to 3 000 MHz (https://www.itu.int/rec/R-REC-P.1546/en).

[104] HCM Agreement (Harmonised Calculation Method) between the administrations of Austria, Belgium, the Czech Republic, Germany, France, Hungary, the Netherlands, Croatia, Italy, Liechtenstein, Lithuania, Luxembourg, Poland, Romania, the Slovak Republic, Slovenia, and Switzerland on the Coordination of frequencies between 29.7 MHz and 43.5 GHz for the Fixed Service and the Land Mobile Service. The latest version of this agreement can be found from http://www.hcm-agreement.eu/http/englisch/verwaltung/index_europakarte.htm

[105] Recommendation P.1812-6 (09/2021) "A path-specific propagation prediction method for point-to-area terrestrial services in the frequency range 30 MHz to 6 000 MHz" (https://www.itu.int/rec/R-REC- P.1812/en).

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13.12 As to correction factors for clutters 'open area' and 'quasi-open area', 20 dB and 15 dB should be used, respectively. Recommendations ITU–R P.1406[106] and/or ITU-R P.2108[107] should be used if a finer selection of clutter is required.

13.13 It must be noted that terrain irregularity factor Δh is not recommended to be used in area calculations. Administrations and/or operators concerned may agree to deviate from the aforementioned models by mutual consent.

14 Appendix B: Coordination for IMT-Systems

A. PREFERENTIAL PCI FOR IMT SYSTEMS

14.1 The following is extracted from the abovementioned ECC recommendations as an operational example and can be adapted for the SADC countries for IMT systems.

14.2 PCI coordination is only needed when channel centre frequencies are aligned independently of the channel bandwidth.

14.3 3GPP TS 36.211[108] defines 168 "unique physical-layer cell-identity groups" in §6.11, numbered 0...167, hereafter called "PCI groups" for IMT systems. Within each PCI group, there are three separate PCIs giving 504 PCIs in total.

14.4 Administrations should agree on a repartition of these 504 PCIs on an equitable basis when channel centre frequencies are aligned, as shown in the table below. It has to be noted that dividing the PCI groups or PCIs is equivalent. Each country should only use their own preferential PCIs close to the border and can use all PCIs away from the border. This transition distance between "close to the border" and "away from the border" should be agreed between neighbouring countries.

14.5 Administrations may wish to define different field strength levels (than those provided in the main text referring to this Appendix) for non-preferential PCIs.

14.6 As shown in the table below, the PCIs should be divided into 6 sub-sets containing each one sixth of the available PCIs. Each country is allocated three sets (half of the PCIs) in a bilateral case and two sets (one third of the PCIs) in a trilateral case.

14.7 Four types of countries are defined in a way such that no country will use the same code set as any one of its neighbours. The following lists describe a sample distribution for African countries:

Annex 5: Determination of the interference field strength in the Land Mobile Service (https://www.itu.int/en/ITU-D/Projects/ITU-EC- ACP/HIPSSA/Documents/REGIONAL%20documents/HCM4A-E-Annex05.pdf).

[106] Recommendation P.1406-2 (07/2015) "Propagation effects relating to terrestrial land mobile and broadcasting services in the VHF and UHF bands" (https://www.itu.int/rec/R-REC-P.1406/en).

[107] Recommendation P.2108-1 (09/2021) "Prediction of clutter loss" (https://www.itu.int/rec/R-REC-P.2108/en).

[108] 3GPP TS 36.211 "Evolved Universal Terrestrial Radio Access (E-UTRA); Physical channels and modulation". (https://portal.3gpp.org/desktopmodules/Specifications/SpecificationDetails.aspx?specificationId=2425, also provided in ETSI TS 136 211). In comparison, 3GPP 38.211 (and ETSI TS 138 211) define NR Physical channels and modulation, in NR 2-step identification using PSS/SSS detection of the Physical Cell ID (same as LTE), the number of different cell IDs has been increased from 504 in LTE to 1008 for NR. Thus, for the deployment of LTE systems only the PCIs between 0 to 503 should be used and for NR systems PCIs between 0 to 1007 may be used.

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14.7.1 Country type 1: Botswana, Cameroon, Comoros, Democratic Republic of the Congo, Ghana, Guinea- Bissau, Kenya, Liberia, Malawi, Mauritius, Niger, Republic of the Sudan, Eswatini;

14.7.2 Country type 2: Algeria, Angola, Benin, Cape Verde, Chad, Cote d'Ivoire, Egypt, Ethiopia, Madagascar, Senegal, United Republic of Tanzania, Zimbabwe;

14.7.3 Country type 3: Burkina Faso, Congo, Djibouti, Equatorial Guinea, Guinea, Mauritania, Nigeria, Rwanda, Sao Tome and Principe, Seychelles, South Africa, South Sudan, Tunisia, Zambia;

14.7.4 Country type 4: Burundi, Central African Republic, Eritrea, Gabon, Gambia, Lesotho, Libyan Arab Jamahiriya, Mali, Morocco, Mozambique, Namibia, Sierra Leone, Somalia, Togo, Uganda. (Note: A sample country type map can be found in the figure below).

14.8 For each type of country, the following tables and figure describe the sharing of the PCIs with its neighbouring countries, with the following conventions of writing:

Preferential PCI	
Non-Preferential PCI	

14.9 The 504 physical-layer cell-identities should be divided into the following 6 sub-sets when the carrier frequencies are aligned in border areas:

Table 15: Sharing of PCIs between countries

	Set A	**Set B**	**Set C**	**Set D**	**Set E**	**Set F**
Country 1	0..83	84..167	168..251	252..335	336..419	420..503
Border 1-2						
Zone 1-2-3						
Border 1-3						
Zone 1-2-4						
Border 1-4						
Zone 1-3-4						

PCI	**Set A**	**Set B**	**Set C**	**Set D**	**Set E**	**Set F**
Country 2	0..83	84..167	168..251	252..335	336..419	420..503
Border 2-1						
Zone 2-3-1						
Border 2-3						
Zone 2-1-4						
Border 2-4						
Zone 2-3-4						

PCI	**Set A**	**Set B**	**Set C**	**Set D**	**Set E**	**Set F**
Country 3	0..83	84..167	168..251	252..335	336..419	420..503

PCI	**Set A**	**Set B**	**Set C**	**Set D**	**Set E**	**Set F**
Country 4	0..83	84..167	168..251	252..335	336..419	420..503

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PCI	Set A	Set B	Set C	Set D	Set E	Set F
Border 3-2	■				■	■
Zone 3-2-3					■	■
Border 3-1				■	■	■
Zone 3-1-4					■	■
Border 3-4			■		■	■
Zone 3-2-4					■	■

PCI	Set A	Set B	Set C	Set D	Set E	Set F
Border 4-1		■		■	■	
Zone 4-1-2		■			■	
Border 4-2	■	■			■	
Zone 4-2-3	■	■				
Border 4-3	■	■		■		
Zone 4-3-1		■		■		

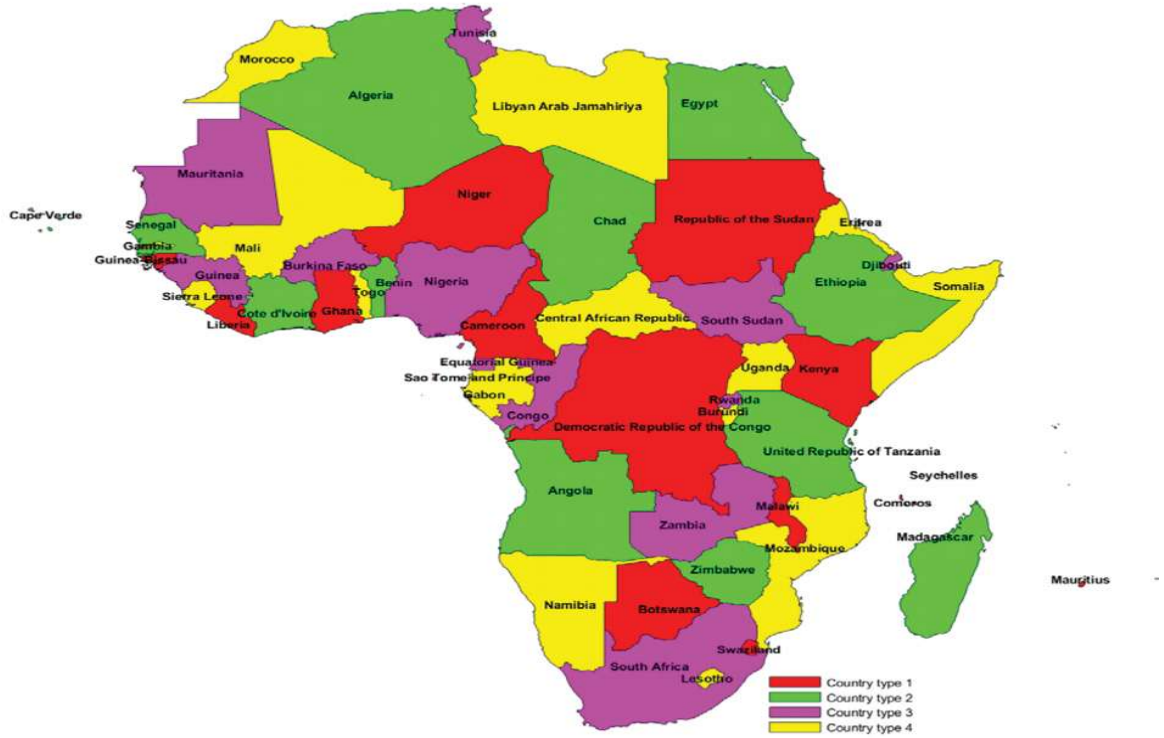
14.10 Note:

14.10.1 All PCIs are available in areas away from the border.

14.10.2 In certain specific cases (e.g., if Angola and Botswana happened to have the same Country type/PCI code) where the distance between two countries of the same type number is very small (below a few tens of kilometres), it may be necessary to address the situation in bilateral /multilateral coordination agreements as necessary and may include further subdivision of the allocated codes in certain areas.

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Figure 14: Country type map/PCI distribution map



15 Appendix C: Guidance on the consideration of IMT system radio parameters for use in bilateral and multilateral agreements

15.1 This section is provided for guidance purposes for use in bi-lateral and multilateral discussions. For IMT systems, it may be beneficial to coordinate other radio parameters besides PCI in order to minimise deteriorating effects of uplink interference.

15.2 The parameters described in this section are usually optimised during IMT system radio network planning of an operator's network. The idea of optimisation is to plan the parameters taking into account specific correlation properties of the uplink control signals, which enable more stable and predictable operation of the network. In the cross-border scenario the optimisation of parameters among neighbouring operators could provide better control of uplink interference. However, because of the difference between intra-network and inter-network interference and due to limited experience in the IMT system cross- border deployment, it is difficult to assess the benefits of such optimisation. The following guidance provides the basis for operators to consider in border areas in case of high levels of uplink interference.

A. DM RS coordination

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15.3 DM RS are transmitted in the uplink and used for channel estimation.

15.4 There is a risk of intercell interference between neighbouring cells even in case of no frame synchronisation. That is why special measures for DM RS allocation between networks in neighbouring countries occupying the same channel may need to be applied.

15.5 The case of partial channel overlap has not been studied but due to DM RS occupying resource blocks of separate users, there is a risk of DM RS collisions between neighbouring networks when the subcarriers' positions coincide (the frequency offset between central carriers of neighbouring networks is multiple of 300 kHz). Some minor benefits from DM RS coordination in these particular cases could be expected.

15.6 There are a number of possible approaches to the coordination of DM RS:

15.6.1 In the basic planning procedure, only 30 DM RS sequence groups with favourable correlation characteristics are available: {0…29}. In this case, each cell could be assigned one of the 30 DM RS sequence groups providing a cluster size of 30.

15.6.2 It is possible to extend each DM RS sequence group to generate up to 12-time shifted sequence groups by applying the cyclic shift parameter stated in 3GPP TS 36.211 for LTE. For example, each tri-sector site could be assigned one DM RS sequence group with each co-sited cell having its own cyclic shift of $2\pi/3$, which provides cluster size 30 only with 10 DM RS sequence groups. The latter case corresponds well to the case of DM RS sequence groups repartition between neighbouring countries when only limited number of groups is available for network planning. The drawback of DM RS sequence group cyclic shift is a loss of orthogonally of DM RS due to fading channels which has been found during first trials of LTE and caused throughput loss as well as time alignment problems.

15.6.3 Another approach for DM RS coordination is to implement dynamic DM RS sequence group allocation, also called pseudo-random group hopping. In this method, nearby cells are grouped into clusters up to 30 cells, and within each cell cluster, the same hopping-pattern is used. At the border of two clusters, inter-cell interference is averaged since two different hopping patterns are utilised.

15.6.4 There are 17 defined hopping patterns, numbered {0…16}, which leads to some minor unfairness in case of apportioning these patterns between neighbouring countries. Even in a trilateral case each operator will have at least 5 hopping patterns available near the border, which should be enough or planning purposes. It should be noted the pseudo-random group hopping option could be absent in the first generations of IMT system equipment.

15.7 The decision of which of these methods to use in cross-border coordination should be agreed upon by the interested parties. Specific DM RS sequence groups or hopping patterns repartition is not provided in this text but could be deduced in a similar manner to the PCI repartition.

B. PRACH coordination

15.8 Another radio network parameter that is considered during radio network planning is PRACH configuration which is needed to distinguish random access requests addressed to different cells.

15.9 PRACH resources are allocated by specifying the PRACH Resource Blocks time positions within the uplink frame, their frequency position within the IMT system channel bandwidth and by apportioning cell- specific root sequences. During radio network planning, these parameters are usually used in the following way:

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15.9.1 Time positions for PRACH resource allocations are usually used to create time collision of PRACH resources of co-sited/frame synchronised cells because PRACH-to-PRACH interference is usually less severe than PUSCH-to-PRACH interference;

15.9.2 Frequency positions within the IMT system channel bandwidth are usually the same for all cells, again because PRACH-to-PRACH interference case is a more favourable one.

15.9.3 Cell-specific root sequences are used to distinguish between PRACH requests addressed to different cells.

15.10 For cross-border coordination, it is proposed to use frequency position offsets to exclude the possibility of so-called "ghost" PRACH requests caused by neighbouring networks. The PRACH is configured in IMT systems to use only 6 Resource Blocks or 1.08 MHz of the IMT system channel bandwidth except in regions used by PUCCH. In case of overlapping or partially overlapping channel bandwidths of neighbouring networks, it is enough to establish non-overlapping PRACH frequency blocks to perform coordination.

15.11 Because it is difficult to establish an implementation dependent procedure for such allocation, it will be the responsibility of operators to manage such frequency separation during coordination discussions.

15.12 In an early implementation, it is possible that a very limited number of frequency positions could be supported by IMT system equipment which will not be enough to coordinate in the trilateral case. In such cases, root-sequence repartition could be used. There are 838 root sequences in total to be distributed between cells, numbered {0...837}. There are two numbering schemes for PRACH root sequences (physical and logical) and that only logical root sequences numbering needs to be used for coordination.

15.13 Unfortunately, the process of root sequences planning doesn't involve direct mapping of root sequences between cells because the number of root sequences needed for one cell is dependent on the cell range.

15.14 The table showing such interdependency is presented below:

Table 16: PRACH – Range Interdependency

PRACH Configuration	Number of root seq. per cell	Cell Range (km)
1	1	0.7
2	2	1
3	2	1.4
4	2	2
5	2	2.5
6	3	3.4
7	3	4.3
8	4	5.4
9	5	7.3
10	6	9.7
11	8	12.1
12	10	15.8
13	13	22.7
14	22	38.7
15	32	58.7

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PRACH Configuration	Number of root seq. per cell	Cell Range (km)
0	64	118.8

15.15 Thus, in the case of root sequence reparation, it will be the responsibility of radio network planners to assign the correct number of root sequences in order to not overlap with the root sequence ranges of other operators. It also should be noted that different root sequences have different cubic metrics and correlation properties, which affect PRACH coverage performance and planning of so-called high-speed cells. For simplicity of cross-border coordination, it is proposed to ignore these properties.

15.16 In summary, it should be stipulated that frequency separation of PRACH resources should be used as the main coordination method. PRACH root sequences repartition should be avoided and used only in exceptional cases. Specific PRACH root sequences repartition is not provided in this text but could be deduced in a similar manner to the PCI repartition.

15.17 Additional guidance for cross-border coordination of synchronised and unsynchronised IMT TDD systems may be found in ECC/REC/ (15)01[109] and ECC Report 296[110].

16 Appendix D: Frequency Coordination Process

16.1 Technical procedures related to bilateral and multilateral cross-border frequency coordination agreements for 4 geographical sub-regions are defined by the African Union, which includes the Southern African sub-region of 10 countries. Cross-Border Frequency Coordination and interference resolution should follow the Harmonised Calculation Method for Africa (HCM4A).[111]

16.2 When requesting coordination, the relevant characteristics of the base station and the code or PCI group number should be forwarded to the Administration affected. All of the following characteristics should be included:

16.2.1 carrier frequency [MHz];

16.2.2 name of transmitter station;

16.2.3 country of location of transmitter station;

16.2.4 geographical coordinates [latitude, longitude];

16.2.5 effective antenna height [m];

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[109] ECC Recommendation (15)01 "Cross-border coordination for Mobile/Fixed Communications Networks (MFCN) in the frequency bands: 694-790 MHz, 1427-1518 MHz, and 3400-3800 MHz". Amended on 14 February 2020.

[110] ECC Report 296: "National synchronisation regulatory framework options in 3400-3800 MHz: a toolbox for coexistence of MFCNs in synchronised, unsynchronised, and semi-synchronised operation in 3400-3800 MHz", March 2019.

[111] Cross-Border Frequency Coordination: Harmonised Calculation Method for Africa (HCM4A), available at: https://www.itu.int/en/ITU-D/Projects/ITU-EC-ACP/HIPSSA/Documents/FINAL%20DOCUMENTS/FINAL%20DOCS%20ENGLISH/hcm4a_agreement.pdf.pdf

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16.2.6 antenna polarisation;

16.2.7 antenna azimuth [degrees];

16.2.8 antenna gain [dBi];

16.2.9 effective radiated power [dBW];

16.2.10 expected coverage zone or radius [km];

16.2.11 date of entry into service [month, year].

16.2.12 code group number used; and

16.2.13 antenna tilt [degrees].

16.3 The Administration affected will evaluate the request for coordination and will, within 30 days, notify the result of the evaluation to the Administration requesting coordination. If, in the course of the coordination procedure, the Administration affected requires additional information, it may request such information.

16.4 If no reply is received by the Administration requesting coordination within 30 days, it may send a reminder to the Administration affected. An Administration not having responded within 30 days following communication of the reminder will be deemed to have given its consent and the code coordination may be put into use with the characteristics given in the request for coordination.

16.5 The periods mentioned above may be extended by common consent.

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ELECTRONIC COMMUNICATIONS ACT, 2005 (ACT NO. 36 OF 2005)

HEREBY ISSUES A NOTICE REGARDING THE RADIO FREQUENCY ASSIGNMENT PLANS FOR THE FREQUENCY BANDS ALLOCATED TO THE MOBILE RADIOCOMMUNICATIONS SERVICES AND IDENTIFIED INTERNATIONAL MOBILE TELECOMMUNICATIONS IN THE NATIONAL RADIO FREQUENCY PLAN.

1. The Independent Communications Authority of South Africa ("the Authority"), on 28 March 2024, published the Draft International Mobile Telecommunications (IMT) Roadmap, in Government Gazette No. 50413 (Notice 4584 of 2024) inviting Written Representations.

2. On 13 September 2024, in Government Gazette 51244 (Notice 5209 of 2024) the Authority published a "Notice Communicating the Outcome of the Consultation Process of the Draft IMT Roadmap 2025.

3. The Authority, in Government Gazette 53883 (Notice 3712 of 2025), published the Second Draft International Mobile Telecommunications (IMT) Roadmap 2025, in terms of section 4(3)(c) of the Independent Communications Authority of South Africa Act, 2000 (Act No. 13 of 2000), read with sections 2(e), 30, 31(4), and 33 of the Electronic Communications Act (Act No 36 of 2005).

4. Now therefore, the Authority, in terms of section 4(3)(c) of the Independent Communications Authority of South Africa Act, 2000 (Act No. 13 of 2000), read with sections 2(e), 30, 31(4), and 33 of the Electronic Communications Act (Act No 36 of 2005) hereby publishes the notice regarding the radio frequency assignment plans for the frequency bands allocated to the mobile radiocommunications services and identified international mobile telecommunications in the national radio frequency plan**.**

5. Interested persons are hereby invited to submit written representations on the notice regarding the radio frequency assignment plans for the frequency bands allocated to the mobile radiocommunications services and identified international mobile telecommunications in the national radio frequency plan in both Microsoft Word (MS) and Portable Document Format (PDF) by no later than 16:00 on **4 September 2026.**

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6. Persons making representations are further invited to indicate whether they require an opportunity to make oral representations.

7. Written representations or enquiries may be directed by email to:

Attention:

Mr Manyaapelo Richard Makgotlho

e-mail: rmakgotlho@icasa.org.za

Copy: jdikgale@icasa.org.za

8. Where persons making representations require that their representation, or part thereof, be treated as confidential, then an application in terms of section 4D of the ICASA Act, 2000 (Act No 13 of 2000) must be lodged with the Authority. Such an application must be submitted simultaneously with the representation, together with a non-confidential, redacted version of the submission. If, however, the request for confidentiality is not granted, the person making the request will be allowed to withdraw the representation or document in question.

9. The guidelines for confidentiality requests are contained in Government Gazette Number No 41839 of 17 August 2018.

10. All written representations submitted to the Authority pursuant to this notice will be made available for inspection by interested persons from **11 September 2026** at the Authority's Library. Electronic copies of such representations are obtainable on request and printed versions will be obtainable on payment of a fee.

11. The radio frequency assignment plans for the frequency bands allocated to the mobile radiocommunications services and identified international mobile telecommunications in the national radio frequency plan and the non-confidential representations will be uploaded to the Authority's website under this link: https://www.icasa.org.za/legislation-and-regulations/radio-frequency-spectrum-plans/draft-radio-frequency-spectrum-plans.



Mothibi G. Ramusi

CHAIRPERSON

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Radio Frequency Spectrum Assignment Plan

Rules for Services operating in the Frequency Band

47.2 GHz to 48.2 GHz

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1 Glossary of Terms, Abbreviations, and Acronyms

1.1 In this Radio Frequency Spectrum Assignment Plan, terms used will have the same meaning as in the Electronic Communications Act 36 of 2005; unless the context indicates otherwise. The definitions and acronyms for additional terms are listed below:

"3GPP"	means the 3rd Generation Partnership Project (3GPP) which consists of six telecommunications standard development organisations
"AAS"	means Active Antenna System
"Act"	means the Electronic Communications Act, 2005 (Act No. 36 of 2005) as amended
"AGM"	means Annual General Meeting
"AU"	means African Union
"BEM"	means Block Edge Masks
"BS"	means Base Stations
"CRASA"	means Communications Regulators' Association of Southern Africa
"CRASA ECC"	means the Communications Regulators' Association of Southern Africa (CRASA) Electronic Communications Committee (ECC)
"DM RS"	means Demodulation Reference Signal
"ECC"	means the Electronic Communications Committee within the European Conference of Postal and Telecommunications Administrations (CEPT)
"ECC/REC (11)04"	means the ECC Recommendation (11)04 - Cross-border Coordination for Mobile/Fixed Communications Networks (MFCN) in the frequency band 790-862 MHz, Edition 3 February 2017
"ECC/REC (15)01"	means the ECC Recommendation (15)01 - (15)01 -ECC Recommendation (15)01 "Cross-border coordination for Mobile/Fixed Communications Networks (MFCN) in the frequency bands: 694-790 MHz, 1427-1518 MHz, and 3400-3800 MHz". Amended on 14 February 2020
"EIRP"	means Effective Isotropic Radiated Power
"FDD"	means the Frequency Division Duplex
"HCM"	means the Harmonised Calculation Method
"HCM4A"	means the Harmonised Calculation Method for Africa
"HDA"	means High-Density Area
"HIBS"	means High-Altitude Platform Stations as IMT Base Stations
"HIPSSA"	means the Sub-Saharan Africa Assessment Report on Harmonisation of ICT Policies in Sub-Saharan Africa
"ICNIRP"	Means the International Commission on Non-Ionizing Radiation Protection (ICNIRP)
"IMT"	means the International Mobile Telecommunications
"IMT-2020"	means International Mobile Telecommunications-2020
"IMT Advanced"	means International Mobile Telecommunications-Advanced
"ITA"	means the Invitation to Apply
"ITU"	means the International Telecommunication Union
"ITU-R"	means the International Telecommunication Union Radiocommunication Sector
"LPI"	means Low Power Indoor
"LoS"	means Line of Sight
"LTE"	means the Long-Term Evolution is a standard for wireless communication of high-speed data for mobile phones and data terminals. It is based on the GSM/EDGE and
"Non-AAS"	means Non-Active Antenna System
"NR"	means New Radio

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"NRFP"	means the National Radio Frequency Plan 2013 for South Africa
"PCI"	means the Physical-Layer Cell Identities
"PFD"	means Power Flux Density
"PPDR"	means the Public Protection and Disaster Relief as defined in ITU-R Report M.2033
"PRACH"	means the Physical Random-Access Channel
"PSTN"	means the Public Switched Telephone Network
"PUCCH"	means the Physical Uplink Control Channel
"PUSCH"	means the Physical Uplink Shared Channel
"RAS"	means Radio Astronomy Service
"RFSAP"	means the Radio Frequency Spectrum Assignment Plan
"RR"	means Radio Regulations
"SADC"	means Southern African Development Community
"TCA"	means the Terrain Clearance Angle
"TRP"	means the Total Radiated Power. The TRP is defined as the integral of the power transmitted in different directions over the entire radiation sphere.
"TDD"	means the Time Division Duplex
"UE"	means User Equipment
"VLP"	means Very Low Power
"WRC-12"	means the World Radiocommunication Conference 2012 held in Geneva
"WRC-15"	means the World Radiocommunication Conference 2015 held in Geneva
"WRC-19"	means the World Radiocommunication Conference 2019 held in Sharm el-Sheikh
"WRC-23"	means the World Radiocommunication Conference 2023 held in Dubai

2 Purpose

2.1 An RFSAP provides information on the requirements attached to the use of a frequency band in line with the allocation and other information in the NRFP. This information includes technical characteristics of radio systems, frequency channelling, coordination, and details on required migration of existing users of the band and the expected method of assignment.

2.2 This RFSAP states the requirements for the utilisation of the frequency band 47.2 GHz to 48.2 GHz for IMT.

2.3 The ITU states that IMT systems are mobile systems that provide access to a wide range of telecommunication services including advanced mobile services, supported by mobile and fixed networks, which are increasingly packet-based. Key features of the IMT systems are:[112]

- a high degree of commonality of functionality worldwide whilst retaining the flexibility to support a wide range of services and applications in a cost-efficient manner;
- compatibility of services within IMT and with fixed networks;
- capability of interworking with other radio access systems;
- high quality mobile services;
- user equipment suitable for worldwide use;

[112] See ITU-R Frequently Asked Questions on IMT, available at: https://www.itu.int/en/ITU-R/Documents/FAQ-IMT-2024.pdf#:~:text=Key%20features%20of%20IMT%2D2000%20and,in%20a%20cost%20efficient%20manner%3B

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- user-friendly applications, services, and equipment;
- worldwide roaming capability; and
- enhanced peak data rates to support advanced services and applications.

3 General

3.1 Technical characteristics of equipment used in IMT systems will conform to all applicable South African standards, international standards, and ITU (including its radio regulations) as agreed and adopted by South Africa.

3.2 All installations must comply with safety rules as specified in applicable standards.

3.3 The equipment used will be certified under South African law and regulations.

3.4 The allocations of the IMT bands and the information in this RFSAP are subject to review.

3.5 Frequency bands identified for IMT include the band 47.2 GHz to 48.2 GHz.

3.6 The requirements for the standard families which can provide IMT services include, but are not limited to:

- IMT-2000;
- IMT-Advanced;
- IMT-2020;
- IMT-2030.

3.7 Typical technical and operational characteristics identified by the ITU are described in the following documents:

- Recommendation ITU-R M.2012-5 (02/2022): Detailed specifications of the terrestrial radio interfaces of IMT Advanced;
- Report ITU-R M.2074-0 (2006): Report on Radio Aspects for the terrestrial component of IMT-2000 and systems beyond IMT-2000;
- Recommendation ITU-R M.1645 (06/2003): Framework and overall objectives of the future development of IMT-2000 and systems beyond IMT-2000;
- Recommendation ITU-R M.1036: Frequency arrangements for implementation of the terrestrial component of IMT in the bands identified for IMT in the RR;
- Recommendation ITU-R M.2150-1 (02/2022): Detailed specifications of the terrestrial radio interfaces of IMT-2020; and
- Recommendation ITU-R M.2160-0 (11/2023): Framework and overall objectives of the future development of IMT for 2030 and beyond.

3.8 The ITU also provides guidelines for modelling and simulation, e.g.

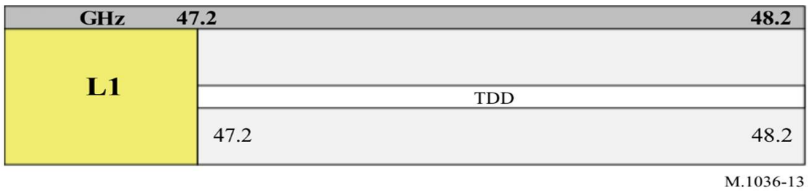
- Recommendation ITU-R M.2070-1 (02/2017): Generic unwanted emission characteristics
- of base stations using the terrestrial radio interfaces of IMT-Advanced;
- Recommendation ITU-R M.2071-1 (02/2017): Generic unwanted emission characteristics of mobile stations using the terrestrial radio interfaces of IMT-Advanced; and
- Recommendation ITU-R M.2101 (02/2017): Modelling and simulation of IMT networks and systems for use in sharing and compatibility studies.

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4 Channelling Plan

4.1 The frequency arrangements for implementation of IMT in the 47.2 – 48.2 GHz frequency range are summarized below, noting the implementation aspects in this RFSAP.

Figure 15: Frequency arrangements for L1



Source: ITU-R M.1036

5 Requirements for the Usage of the Radio Frequency Spectrum

5.1 This chapter covers the minimum key characteristics considered necessary in order to make the best use of the available frequencies.

5.2 The use of the band is limited to IMT services, FS, and FSS, as follows.

5.2.1 HDAs: In HDAs, use of this band will be limited to IMT services. Licensees must consult the Notice on Exclusive Geographic Areas for MMWave IMT Bands 24.25-27.5 GHz, 37-43.5 GHz, 45.5-47 GHz, 47.2-48.2 GHz .

5.2.2 Low-density areas: In low-density areas (non-HDAs), FSS and FS shall coexist with IMT services outdoors provided that interference is within tolerable limits. If the latter is not possible, then FSS and FS links will need to migrate to outside of the geographic areas in which interference is being experienced. Licensees must consult the Notice on Exclusive Geographic Areas for MMWave IMT Bands 24.25-27.5 GHz, 37-43.5 GHz, 45.5-47 GHz, 47.2-48.2 GHz.

5.3 Only systems using digital technologies that promote spectral efficiency will be issued with an assignment. Capacity-enhancing digital techniques are being rapidly developed together with and such techniques that promote efficient spectrum use without reducing service quality. These techniques are encouraged.

5.4 In some cases, a radio system conforming to the requirements of this RFSAP may require modifications if harmful interference is caused to other radio stations or systems.

5.5 The allocation of spectrum and shared services within these bands are found in the NRFP.

5.6 Maximum radiated power:

5.6.1 Mobile BS transmissions should not exceed 29 dBm TRP;

5.6.2 On a case-to-case basis, higher TRP may be permitted if acceptable technical justification is provided.

5.7 For the protection of the fixed and fixed-satellite services in the frequency bands from the mobile, except aeronautical mobile, and from IMT:

5.7.1 The Authority may set PFD limits in respect of PFD produced at the height of 3 m above ground level.

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5.7.2 Based on the above PFD value the coordination distances are calculated using Recommendation ITU-R P.452-18 at 20% of time with a smooth Earth terrain profile.

5.8 Where appropriate, subscriber terminal stations should comply with the technical specification outlined under the latest version of 3GPP specifications, e.g., TS 36.521-1 for LTE, 38.521-1 for 5G NR;

5.9 ICNIRP Guideline compliance is required, where applicable; and

5.10 The criteria and guidelines for interference mitigation are described in Appendices B and D.

6 Commencement

6.1 This RFSAP comes into effect upon publication of this notice.

6.2 No new assignment for IMT in the band 47.2 GHz – 48.2 GHz will be approved unless it complies with this RFSAP.

7 Conflict

7.1 In the event of a conflict between this RFSAP and the applicable NRFP and/or Terrestrial Broadcasting Frequency Plan, the NRFP and the Terrestrial Broadcasting Frequency Plan shall prevail.

8 Coordination Requirements

8.1 Cross Border Frequency Coordination will abide by the HCM4A Agreement. This follows the 3rd CRASA AGM that agreed that CRASA should implement the Cross Border Frequency Coordination HCM4A Agreement.

8.2 The ECC had noted the need for greater understanding of the concept and need for harmonisation in the signing of the HCM4A Agreement by the SADC Member States if the implementation of the Agreement is to be effective. The ECC, therefore, agreed to convene a workshop on HCM4A and requested the CRASA Members to consider signing the agreement.

8.3 At the 5th CRASA AGM, Swakopmund, Namibia – 07-08 April 2016 [1], the subject of Cross Border Frequency Coordination using the Harmonised Calculation Method for Africa (HCM4A) was discussed in detail, following similar efforts in Europe. The Resolution CRASA/AGM/15.16/07 stipulates, "The AGM urged CRASA Members to prioritise the motivation to their administrations who are yet to indicate their interest to sign the HCM4A, to do so as soon as possible".

8.4 Therefore, coordination would follow the HCM4A as detailed in Sub-Saharan Africa Assessment Report on HIPSSA.[113]

8.5 A harmonised calculation method (HCM4A) brings these benefits:

8.5.1 Based on HCM Agreement used in Europe;

8.5.2 Optimise spectrum usage;

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[113] See: https://www.itu.int/en/ITU-D/Projects/ITU-EC-ACP/HIPSSA/Documents/FINAL%20DOCUMENTS/FINAL%20DOCS%20ENGLISH/hcm4a_agreement.pdf.pdf

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8.5.3 Prevent harmful interferences;

8.5.4 Confer an adequate protection for stations;

8.5.5 Define technical provisions and administrative procedures;

8.5.6 Quick assignment of preferential frequencies;

8.5.7 Transparent decisions through agreed assessment procedures;

8.5.8 Quick assessment of interference through data exchange.

8.6 HCM4A involves all 4 sub regions of Africa. This means the HCM4A projects include performing a survey and a comparative analysis of existing administrative and technical procedures related to bilateral and multilateral cross-border frequency coordination agreements across the 4 geographical sub-regions as defined by the AU, namely:

8.6.1 Central Africa [Burundi, Central African Republic, Chad, Congo, Democratic Republic of Congo, Equatorial Guinea, Gabon, Sao Tome, and Principe];

8.6.2 East Africa [Comoros, Djibouti, Eritrea, Ethiopia, Kenya, Madagascar, Mauritius, Rwanda, Seychelles, Somalia, Sudan, Tanzania, Uganda];

8.6.3 Southern Africa [Angola, Botswana, Lesotho, Malawi, Mozambique, Namibia, South Africa, Eswatini, Zambia, Zimbabwe];

8.6.4 West Africa [Benin, Burkina-Faso, Cape Verde, Côte d'Ivoire, Gambia, Ghana, Guinea, Guinea-Bissau, Liberia, Mali, Niger, Nigeria, Sierra Leone, Senegal, Togo].

8.7 HCM4A also comes with a software tool for Sub-Saharan Africa. This has the following features:[114]

8.7.1 Optimise spectrum usage by accurate interference field strength calculations;

8.7.2 Establish general parameters, improvement, and supplementation of technical provisions, individual restrictions;

8.7.3 Establish models for computer-aided interference range calculations; and

8.7.4 Harmonise parameters: objectively predictable towards transparent decisions.

8.8 Use of these frequency bands will require coordination with the neighbouring countries within the coordination zones of 6 kilometres from the neighbouring country. The coordination distance is continuously being reviewed, and these may be updated from time to time.

8.9 For the protection of the fixed and fixed-satellite services in the frequency bands from the mobile, except aeronautical mobile, and from IMT:

8.9.1 The Authority may set power flux density ("PFD") limits in respect of PFD produced at the height of 3 m above ground level.

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[114] See: https://www.itu.int/en/ITU-D/Regional-Presence/AsiaPacific/Documents/Events/2017/May%20BKK/Presentations/HCM%20and%20HCM4A%20BKK%2020170504%20IB.pdf

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8.9.2 Based on the above PFD value the coordination distances are calculated using Recommendation ITU-R P.452-18 at 20% of time with a smooth Earth terrain profile.

8.10 In the event that the Authority assigns spectrum to private networks on a geographically limited basis in the band in addition to national assignments, the geographically limited private network shall ensure that its systems do not cause interference with those of the national licensee.

8.11 Technical analysis may be conducted by the Authority before an assignment is issued according to Appendix A.

8.12 New assignments would also require coordination with the existing incumbent assignments. See Appendices B and D.

8.13 If neighbouring administrations wish to agree on frequency coordination based on preferential frequencies, while ensuring a fair treatment of different operators within a country the Authority will add these mutual agreements.

8.14 In the event of any interference, the Authority will require affected parties to carry out coordination. In the event that the interference continues to be unresolved after 24 hours, the affected parties may refer the matter to the Authority for a resolution. The Authority will decide the necessary modifications and schedule of modifications to resolve the dispute. The Authority will be guided by the Frequency Coordination Process as outlined in Appendix D.

8.15 Assignment holders shall take full advantage of interference mitigation techniques such as antenna discrimination, tilt, polarization, frequency discrimination, shielding / blocking (introduce diffraction loss), site selection, and/or power control to facilitate the coordination of systems.

9 Assignment

9.1 The unassigned spectrum in this band will be assigned through an Invitation to Apply in line with the regulations developed in terms of section 31(3) of the Act.

9.2 The assignment of the spectrum for the verticals will be considered in accordance with regulation 5 of the Radio Frequency Spectrum Regulations 2015:

9.2.1 Regulation 5(3) of the Radio Frequency Spectrum Regulations 2015 may apply.

9.2.2 The application shall be subjected to public consultation.

9.2.3 National licenses to be protected on a primary basis;

9.2.4 For private networks with a limited geographic scope on a secondary basis.

10 Amendments

10.1 Applicable licences are hereby amended to conform with this RFSAP upon publication of this notice.

11 Radio Frequency Migration

11.1 Existing licensees are to migrate out of the IMT exclusive areas within 24 months of the publication of this notice.

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12 Synchronisation

12.1 In order to avoid interference between TDD networks operating in adjacent frequency carriers, the radio transmissions of adjacent TDD networks should be synchronized with the uplink and downlink frames aligned in time. Such synchronization of TDD networks is very important because it is the best way to avoid interference between networks and ensures efficient use of spectrum resources by avoiding inter-operator guard bands and additional base station filtering. Otherwise, the uplink and downlink interference cannot be eliminated or avoided in terms of technical measures.

12.2 The Authority will align with the operators to define a unified national uplink and downlink frame as part of a future ITA for unassigned spectrum in this band.

13 Appendix A: Propagation Model

13.1 The following methods are proposed for assessment of anticipated interference inside neighbouring countries based on established trigger values. Due to the complexity of radio-wave propagation, different methods are proposed to be considered by administrations and are included here for guidance purposes only. It should be noted that the following methods provide theoretical predictions based on available terrain knowledge. It is practically impossible to recreate these methods with measurement procedures in the field. Therefore, only some approximation of measurements could be used to check compliance with those methods based on practical measurement procedures. The details of such approximations are not included in this recommendation and should be negotiated between countries based on their radio monitoring practices.

A. Path specific model

13.2 Where appropriately detailed terrain data is available, the propagation model for interference field strength prediction is the latest version of ITU-R Rec. P.452.[115] For the relevant transmitting terminal, predictions of path loss would be made at x km steps along radials of y km at z degree intervals.[116] The values for those receiver locations within the neighbouring country would be used to construct a histogram of path loss – and if more than 10% of predicted values exceed the threshold, the station should be coordinated.

B. Site General model

13.3 If it is not desirable to utilise detailed terrain height data for propagation modelling in the border area, the basic model to be used to trigger coordination between administrations and to decide if coordination is necessary, is ITU-R Rec. P.1546, "Method for point to area predictions for terrestrial services in the frequency range 30 to 4000 MHz".

13.4 This model is to be employed for 50% locations, 10% time and using a receiver height of 3m. For specific reception areas where terrain roughness adjustments for improved accuracy of field strength prediction are needed, administrations may use correction factors according to terrain

[115] Recommendation ITU-R P.452-17 (09/2021, with Editorial corrections on 28 October 2021) "Prediction procedure for the evaluation of interference between stations on the surface of the Earth at frequencies above about 0.1 GHz" (https://www.itu.int/rec/R-REC-P.452/en).

[116] Values for x, y, z, and path specific field strength levels are to be agreed between the administrations concerned.

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irregularity and/or an averaged value of the TCA parameter in order to describe the roughness of the area on and around the coordination line.

13.5 Administrations and/or operators concerned may apply to the Authority to deviate from the aforementioned model.

C. Area calculations

13.6 In the case where greater accuracy is required, administrations and operators may use the area calculation below. For calculations, all the pixels of a given geographical area to be agreed between the Administrations concerned in a neighbouring country are taken into consideration. For the relevant base station, predictions of path loss should be made for all the pixels of a given geographical area from a base station and at a receiver antenna height of 3 m above ground.

13.7 For evaluation:

13.7.1 Only 10% of the number of the geographical area between the border line (also including the border line) and the 6 km line itself inside the neighbouring country may be interfered by higher field strength than the trigger field strength value given for the border line in the main text above at a height of 3 m above ground:

13.7.2 Only 10% of the number of the geographical area between the 6 km (including also the 6 km line) and 12 km line inside the neighbouring country may be interfered by higher field strength than the trigger field strength value given for the 6 km line in the main text above at a height of 3 m above ground;

13.8 It is recommended that during area calculations, not only detailed terrain data but also clutter data be taken into account. Use of correction factors for clutter is crucial in particular where the border area is 'open' or 'quasi-open' from the point of view of clutter or where the interfering base station is just a few kilometres from a border line.

13.9 If the distance between a base station and a terrain point of a border line is closer than or equal to 1 km, the free space propagation model needs to be applied. Furthermore, if there is no terrain obstacle within the 1st Fresnel zone, the free space propagation model should be applied.

13.10 If clutter data is not available, it is proposed to extend the usage of the free space propagation model to a few kilometres, depending on the clutter situation in border areas.

13.11 For area type interference calculations, propagation models with path specific terrain correction factors are recommended (e.g., the latest Recommendation ITU–R P.1546[117] with the Terrain Clearance Angle correction factor TCA, HCM[118] method with the Terrain Clearance Angle correction factor or Recommendation ITU–R P.1812[119]).

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[117] ITU-R Recommendation P.1546-6 (08/2019): Method for point-to-area predictions for terrestrial services in the frequency range 30 MHz to 3 000 MHz (https://www.itu.int/rec/R-REC-P.1546/en).

[118] HCM Agreement (Harmonised Calculation Method) between the administrations of Austria, Belgium, the Czech Republic, Germany, France, Hungary, the Netherlands, Croatia, Italy, Liechtenstein, Lithuania, Luxembourg, Poland, Romania, the Slovak Republic, Slovenia, and Switzerland on the Coordination of frequencies between 29.7 MHz and 43.5 GHz for the Fixed Service and the Land Mobile Service. The latest version of this agreement can be found from http://www.hcm-agreement.eu/http/englisch/verwaltung/index_europakarte.htm

[119] Recommendation P.1812-6 (09/2021) "A path-specific propagation prediction method for point-to-area terrestrial services in the frequency range 30 MHz to 6 000 MHz" (https://www.itu.int/rec/R-REC- P.1812/en).

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13.12 As to correction factors for clutters 'open area' and 'quasi-open area', 20 dB and 15 dB should be used, respectively. Recommendations ITU–R P.1406[120] and/or ITU-R P.2108[121] should be used if a finer selection of clutter is required.

13.13 It must be noted that terrain irregularity factor Δh is not recommended to be used in area calculations. Administrations and/or operators concerned may agree to deviate from the aforementioned models by mutual consent.

14 Appendix B: Coordination for IMT-Systems

A. PREFERENTIAL PCI FOR IMT SYSTEMS

14.1 The following is as an operational example and can be adapted for the SADC countries for IMT systems.

14.2 PCI coordination is only needed when channel centre frequencies are aligned independently of the channel bandwidth.

14.3 3GPP TS 36.211[122] defines 168 "unique physical-layer cell-identity groups" in §6.11, numbered 0...167, hereafter called "PCI groups" for IMT systems. Within each PCI group, there are three separate PCIs giving 504 PCIs in total.

14.4 Administrations should agree on a repartition of these 504 PCIs on an equitable basis when channel centre frequencies are aligned, as shown in the table below. It has to be noted that dividing the PCI groups or PCIs is equivalent. Each country should only use their own preferential PCIs close to the border and can use all PCIs away from the border. This transition distance between "close to the border" and "away from the border" should be agreed between neighbouring countries.

14.5 Administrations may wish to define different field strength levels (than those provided in the main text referring to this Appendix) for non-preferential PCIs.

14.6 As shown in the table below, the PCIs should be divided into 6 sub-sets containing each one sixth of the available PCIs. Each country is allocated three sets (half of the PCIs) in a bilateral case and two sets (one third of the PCIs) in a trilateral case.

14.7 Four types of countries are defined in a way such that no country will use the same code set as any one of its neighbours. The following lists describe a sample distribution for African countries:

Annex 5: Determination of the interference field strength in the Land Mobile Service (https://www.itu.int/en/ITU-D/Projects/ITU-EC- ACP/HIPSSA/Documents/REGIONAL%20documents/HCM4A-E-Annex05.pdf).

[120] Recommendation P.1406-2 (07/2015) "Propagation effects relating to terrestrial land mobile and broadcasting services in the VHF and UHF bands" (https://www.itu.int/rec/R-REC-P.1406/en).

[121] Recommendation P.2108-1 (09/2021) "Prediction of clutter loss" (https://www.itu.int/rec/R-REC-P.2108/en).

[122] 3GPP TS 36.211 "Evolved Universal Terrestrial Radio Access (E-UTRA); Physical channels and modulation". (https://portal.3gpp.org/desktopmodules/Specifications/SpecificationDetails.aspx?specificationId=2425, also provided in ETSI TS 136 211). In comparison, 3GPP 38.211 (and ETSI TS 138 211) define NR Physical channels and modulation, in NR 2-step identification using PSS/SSS detection of the Physical Cell ID (same as LTE), the number of different cell IDs has been increased from 504 in LTE to 1008 for NR. Thus, for the deployment of LTE systems only the PCIs between 0 to 503 should be used and for NR systems PCIs between 0 to 1007 may be used.

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14.7.1 Country type 1: Botswana, Cameroon, Comoros, Democratic Republic of the Congo, Ghana, Guinea- Bissau, Kenya, Liberia, Malawi, Mauritius, Niger, Republic of the Sudan, Eswatini;

14.7.2 Country type 2: Algeria, Angola, Benin, Cape Verde, Chad, Cote d'Ivoire, Egypt, Ethiopia, Madagascar, Senegal, United Republic of Tanzania, Zimbabwe;

14.7.3 Country type 3: Burkina Faso, Congo, Djibouti, Equatorial Guinea, Guinea, Mauritania, Nigeria, Rwanda, Sao Tome and Principe, Seychelles, South Africa, South Sudan, Tunisia, Zambia;

14.7.4 Country type 4: Burundi, Central African Republic, Eritrea, Gabon, Gambia, Lesotho, Libyan Arab Jamahiriya, Mali, Morocco, Mozambique, Namibia, Sierra Leone, Somalia, Togo, Uganda. (Note: A sample country type map can be found in the figure below).

14.8 For each type of country, the following tables and figure describe the sharing of the PCIs with its neighbouring countries, with the following conventions of writing:

Preferential PCI	
Non-Preferential PCI	

14.9 The 504 physical-layer cell-identities should be divided into the following 6 sub-sets when the carrier frequencies are aligned in border areas:

Table 17: Sharing of PCIs between countries

	Set A	**Set B**	**Set C**	**Set D**	**Set E**	**Set F**
Country 1	0..83	84..167	168..251	252..335	336..419	420..503
Border 1-2	■	■				■
Zone 1-2-3	■	■				
Border 1-3	■	■	■			
Zone 1-2-4	■					■
Border 1-4	■		■			■
Zone 1-3-4	■		■			

PCI	**Set A**	**Set B**	**Set C**	**Set D**	**Set E**	**Set F**
Country 2	0..83	84..167	168..251	252..335	336..419	420..503
Border 2-1			■	■	■	
Zone 2-3-1			■	■		
Border 2-3		■	■	■		
Zone 2-1-4			■	■		
Border 2-4			■	■		■
Zone 2-3-4			■	■		

PCI	**Set A**	**Set B**	**Set C**	**Set D**	**Set E**	**Set F**
Country 3	0..83	84..167	168..251	252..335	336..419	420..503

PCI	**Set A**	**Set B**	**Set C**	**Set D**	**Set E**	**Set F**
Country 4	0..83	84..167	168..251	252..335	336..419	420..503

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PCI	Set A	Set B	Set C	Set D	Set E	Set F
Border 3-2	■				■	■
Zone 3-2-3					■	■
Border 3-1				■	■	■
Zone 3-1-4					■	■
Border 3-4			■		■	■
Zone 3-2-4					■	■

PCI	Set A	Set B	Set C	Set D	Set E	Set F
Border 4-1		■		■	■	
Zone 4-1-2		■			■	
Border 4-2	■	■			■	
Zone 4-2-3	■	■				
Border 4-3	■	■		■		
Zone 4-3-1		■		■		

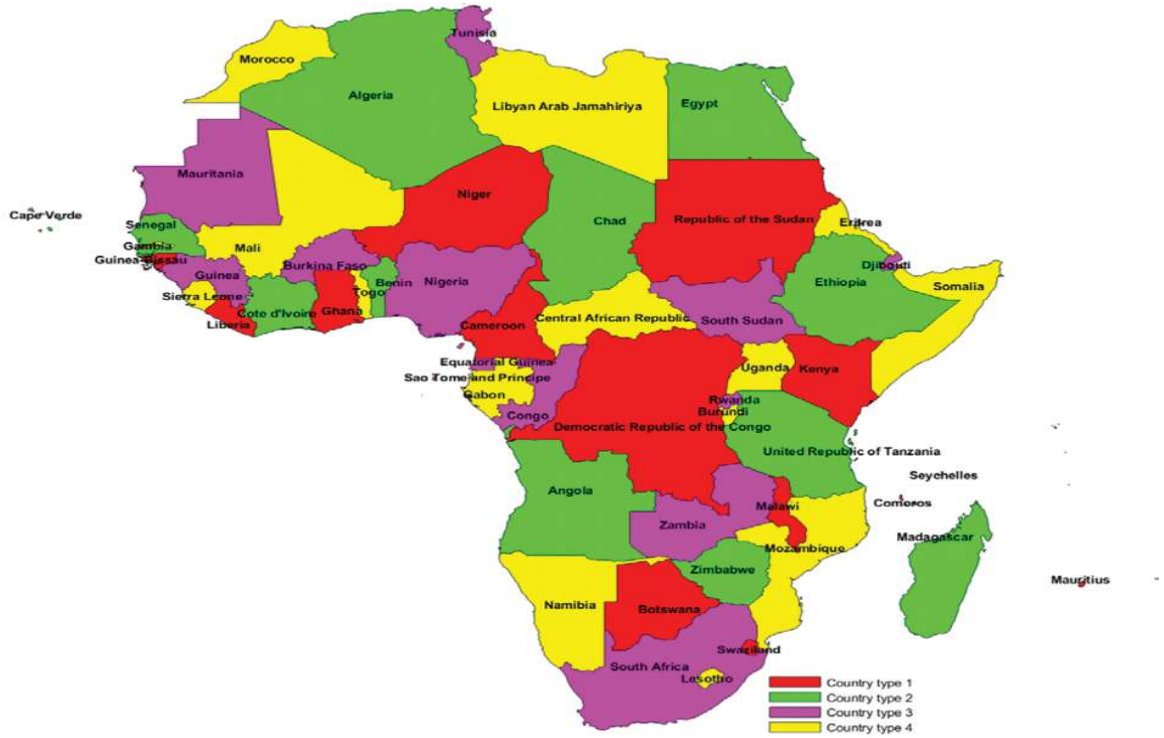
14.10 Note:

14.10.1 All PCIs are available in areas away from the border.

14.10.2 In certain specific cases (e.g., if Angola and Botswana happened to have the same Country type/PCI code) where the distance between two countries of the same type number is very small (below a few tens of kilometres), it may be necessary to address the situation in bilateral /multilateral coordination agreements as necessary and may include further subdivision of the allocated codes in certain areas.

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Figure 16: Country type map/PCI distribution map



15 Appendix C: Guidance on the consideration of IMT system radio parameters for use in bilateral and multilateral agreements

15.1 This section is provided for guidance purposes for use in bi-lateral and multilateral discussions. For IMT systems, it may be beneficial to coordinate other radio parameters besides PCI in order to minimise deteriorating effects of uplink interference.

15.2 The parameters described in this section are usually optimised during IMT system radio network planning of an operator's network. The idea of optimisation is to plan the parameters taking into account specific correlation properties of the uplink control signals, which enable more stable and predictable operation of the network. In the cross-border scenario the optimisation of parameters among neighbouring operators could provide better control of uplink interference. However, because of the difference between intra-network and inter-network interference and due to limited experience in the IMT system cross- border deployment, it is difficult to assess the benefits of such optimisation. The following guidance provides the basis for operators to consider in border areas in case of high levels of uplink interference.

A. DM RS coordination

15.3 DM RS are transmitted in the uplink and used for channel estimation.

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15.4 There is a risk of intercell interference between neighbouring cells even in case of no frame synchronisation. That is why special measures for DM RS allocation between networks in neighbouring countries occupying the same channel may need to be applied.

15.5 The case of partial channel overlap has not been studied but due to DM RS occupying resource blocks of separate users, there is a risk of DM RS collisions between neighbouring networks when the subcarriers' positions coincide (the frequency offset between central carriers of neighbouring networks is multiple of 300 kHz). Some minor benefits from DM RS coordination in these particular cases could be expected.

15.6 There are a number of possible approaches to the coordination of DM RS:

15.6.1 In the basic planning procedure, only 30 DM RS sequence groups with favourable correlation characteristics are available: {0…29}. In this case, each cell could be assigned one of the 30 DM RS sequence groups providing a cluster size of 30.

15.6.2 It is possible to extend each DM RS sequence group to generate up to 12-time shifted sequence groups by applying the cyclic shift parameter stated in 3GPP TS 36.211 for LTE. For example, each tri-sector site could be assigned one DM RS sequence group with each co-sited cell having its own cyclic shift of $2\pi/3$, which provides cluster size 30 only with 10 DM RS sequence groups. The latter case corresponds well to the case of DM RS sequence groups repartition between neighbouring countries when only limited number of groups is available for network planning. The drawback of DM RS sequence group cyclic shift is a loss of orthogonally of DM RS due to fading channels which has been found during first trials of LTE and caused throughput loss as well as time alignment problems.

15.6.3 Another approach for DM RS coordination is to implement dynamic DM RS sequence group allocation, also called pseudo-random group hopping. In this method, nearby cells are grouped into clusters up to 30 cells, and within each cell cluster, the same hopping-pattern is used. At the border of two clusters, inter-cell interference is averaged since two different hopping patterns are utilised.

15.6.4 There are 17 defined hopping patterns, numbered {0…16}, which leads to some minor unfairness in case of apportioning these patterns between neighbouring countries. Even in a trilateral case each operator will have at least 5 hopping patterns available near the border, which should be enough or planning purposes. It should be noted the pseudo-random group hopping option could be absent in the first generations of IMT system equipment.

15.7 The decision of which of these methods to use in cross-border coordination should be agreed upon by the interested parties. Specific DM RS sequence groups or hopping patterns repartition is not provided in this text but could be deduced in a similar manner to the PCI repartition.

B. PRACH coordination

15.8 Another radio network parameter that is considered during radio network planning is PRACH configuration which is needed to distinguish random access requests addressed to different cells.

15.9 PRACH resources are allocated by specifying the PRACH Resource Blocks time positions within the uplink frame, their frequency position within the IMT system channel bandwidth and by apportioning cell- specific root sequences. During radio network planning, these parameters are usually used in the following way:

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15.9.1 Time positions for PRACH resource allocations are usually used to create time collision of PRACH resources of co-sited/frame synchronised cells because PRACH-to-PRACH interference is usually less severe than PUSCH-to-PRACH interference;

15.9.2 Frequency positions within the IMT system channel bandwidth are usually the same for all cells, again because PRACH-to-PRACH interference case is a more favourable one.

15.9.3 Cell-specific root sequences are used to distinguish between PRACH requests addressed to different cells.

15.10 For cross-border coordination, it is proposed to use frequency position offsets to exclude the possibility of so-called "ghost" PRACH requests caused by neighbouring networks. The PRACH is configured in IMT systems to use only 6 Resource Blocks or 1.08 MHz of the IMT system channel bandwidth except in regions used by PUCCH. In case of overlapping or partially overlapping channel bandwidths of neighbouring networks, it is enough to establish non-overlapping PRACH frequency blocks to perform coordination.

15.11 Because it is difficult to establish an implementation dependent procedure for such allocation, it will be the responsibility of operators to manage such frequency separation during coordination discussions.

15.12 In an early implementation, it is possible that a very limited number of frequency positions could be supported by IMT system equipment which will not be enough to coordinate in the trilateral case. In such cases, root-sequence repartition could be used. There are 838 root sequences in total to be distributed between cells, numbered {0...837}. There are two numbering schemes for PRACH root sequences (physical and logical) and that only logical root sequences numbering needs to be used for coordination.

15.13 Unfortunately, the process of root sequences planning doesn't involve direct mapping of root sequences between cells because the number of root sequences needed for one cell is dependent on the cell range.

15.14 The table showing such interdependency is presented below:

Table 18: PRACH – Range Interdependency

PRACH Configuration	Number of root seq. per cell	Cell Range (km)
1	1	0.7
2	2	1
3	2	1.4
4	2	2
5	2	2.5
6	3	3.4
7	3	4.3
8	4	5.4
9	5	7.3
10	6	9.7
11	8	12.1
12	10	15.8
13	13	22.7
14	22	38.7
15	32	58.7

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PRACH Configuration	Number of root seq. per cell	Cell Range (km)
0	64	118.8

15.15 Thus, in the case of root sequence reparation, it will be the responsibility of radio network planners to assign the correct number of root sequences in order to not overlap with the root sequence ranges of other operators. It also should be noted that different root sequences have different cubic metrics and correlation properties, which affect PRACH coverage performance and planning of so-called high-speed cells. For simplicity of cross-border coordination, it is proposed to ignore these properties.

15.16 In summary, it should be stipulated that frequency separation of PRACH resources should be used as the main coordination method. PRACH root sequences repartition should be avoided and used only in exceptional cases. Specific PRACH root sequences repartition is not provided in this text but could be deduced in a similar manner to the PCI repartition.

15.17 Additional guidance for cross-border coordination of synchronised and unsynchronised IMT TDD systems may be found in ECC/REC/ (15)01[123] and ECC Report 296[124].

16 Appendix D: Frequency Coordination Process

16.1 Technical procedures related to bilateral and multilateral cross-border frequency coordination agreements for 4 geographical sub-regions are defined by the African Union, which includes the Southern African sub-region of 10 countries. Cross-Border Frequency Coordination and interference resolution should follow the Harmonised Calculation Method for Africa (HCM4A).[125]

16.2 When requesting coordination, the relevant characteristics of the base station and the code or PCI group number should be forwarded to the Administration affected. All of the following characteristics should be included:

16.2.1 carrier frequency [MHz];

16.2.2 name of transmitter station;

16.2.3 country of location of transmitter station;

16.2.4 geographical coordinates [latitude, longitude];

16.2.5 effective antenna height [m];

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[123] ECC Recommendation (15)01 "Cross-border coordination for Mobile/Fixed Communications Networks (MFCN) in the frequency bands: 694-790 MHz, 1427-1518 MHz, and 3400-3800 MHz". Amended on 14 February 2020.

[124] ECC Report 296: "National synchronisation regulatory framework options in 3400-3800 MHz: a toolbox for coexistence of MFCNs in synchronised, unsynchronised, and semi-synchronised operation in 3400-3800 MHz", March 2019.

[125] Cross-Border Frequency Coordination: Harmonised Calculation Method for Africa (HCM4A), available at: https://www.itu.int/en/ITU-D/Projects/ITU-EC-ACP/HIPSSA/Documents/FINAL%20DOCUMENTS/FINAL%20DOCS%20ENGLISH/hcm4a_agreement.pdf.pdf

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16.2.6 antenna polarisation;

16.2.7 antenna azimuth [degrees];

16.2.8 antenna gain [dBi];

16.2.9 effective radiated power [dBW];

16.2.10 expected coverage zone or radius [km];

16.2.11 date of entry into service [month, year].

16.2.12 code group number used; and

16.2.13 antenna tilt [degrees].

16.3 The Administration affected will evaluate the request for coordination and will, within 30 days, notify the result of the evaluation to the Administration requesting coordination. If, in the course of the coordination procedure, the Administration affected requires additional information, it may request such information.

16.4 If no reply is received by the Administration requesting coordination within 30 days, it may send a reminder to the Administration affected. An Administration not having responded within 30 days following communication of the reminder will be deemed to have given its consent and the code coordination may be put into use with the characteristics given in the request for coordination.

16.5 The periods mentioned above may be extended by common consent.

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ELECTRONIC COMMUNICATIONS ACT, 2005 (ACT NO. 36 OF 2005)

HEREBY ISSUES A NOTICE REGARDING THE RADIO FREQUENCY ASSIGNMENT PLANS FOR THE FREQUENCY BANDS ALLOCATED TO THE MOBILE RADIOCOMMUNICATIONS SERVICES AND IDENTIFIED INTERNATIONAL MOBILE TELECOMMUNICATIONS IN THE NATIONAL RADIO FREQUENCY PLAN.

1. The Independent Communications Authority of South Africa ("the Authority"), on 28 March 2024, published the Draft International Mobile Telecommunications (IMT) Roadmap, in Government Gazette No. 50413 (Notice 4584 of 2024) inviting Written Representations.

2. On 13 September 2024, in Government Gazette 51244 (Notice 5209 of 2024) the Authority published a "Notice Communicating the Outcome of the Consultation Process of the Draft IMT Roadmap 2025.

3. The Authority, in Government Gazette 53883 (Notice 3712 of 2025), published the Second Draft International Mobile Telecommunications (IMT) Roadmap 2025, in terms of section 4(3)(c) of the Independent Communications Authority of South Africa Act, 2000 (Act No. 13 of 2000), read with sections 2(e), 30, 31(4), and 33 of the Electronic Communications Act (Act No 36 of 2005).

4. Now therefore, the Authority, in terms of section 4(3)(c) of the Independent Communications Authority of South Africa Act, 2000 (Act No. 13 of 2000), read with sections 2(e), 30, 31(4), and 33 of the Electronic Communications Act (Act No 36 of 2005) hereby publishes the notice regarding the radio frequency assignment plans for the frequency bands allocated to the mobile radiocommunications services and identified international mobile telecommunications in the national radio frequency plan**.**

5. Interested persons are hereby invited to submit written representations on the notice regarding the radio frequency assignment plans for the frequency bands allocated to the mobile radiocommunications services and identified international mobile telecommunications in the national radio frequency plan in both Microsoft Word (MS) and Portable Document Format (PDF) by no later than 16:00 on **4 September 2026.**

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6. Persons making representations are further invited to indicate whether they require an opportunity to make oral representations.

7. Written representations or enquiries may be directed by email to:

Attention:

Mr Manyaapelo Richard Makgotlho

e-mail: rmakgotlho@icasa.org.za

Copy: jdikgale@icasa.org.za

8. Where persons making representations require that their representation, or part thereof, be treated as confidential, then an application in terms of section 4D of the ICASA Act, 2000 (Act No 13 of 2000) must be lodged with the Authority. Such an application must be submitted simultaneously with the representation, together with a non-confidential, redacted version of the submission. If, however, the request for confidentiality is not granted, the person making the request will be allowed to withdraw the representation or document in question.

9. The guidelines for confidentiality requests are contained in Government Gazette Number No 41839 of 17 August 2018.

10. All written representations submitted to the Authority pursuant to this notice will be made available for inspection by interested persons from **11 September 2026** at the Authority's Library. Electronic copies of such representations are obtainable on request and printed versions will be obtainable on payment of a fee.

11. The radio frequency assignment plans for the frequency bands allocated to the mobile radiocommunications services and identified international mobile telecommunications in the national radio frequency plan and the non-confidential representations will be uploaded to the Authority's website under this link: https://www.icasa.org.za/legislation-and-regulations/radio-frequency-spectrum-plans/draft-radio-frequency-spectrum-plans.



Mothibi G. Ramusi

CHAIRPERSON

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Radio Frequency Spectrum Assignment Plan

Rules for Services operating in the Frequency Band

66 GHz to 71 GHz

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1 Glossary of Terms, Abbreviations, and Acronyms

1.1 In this Radio Frequency Spectrum Assignment Plan, terms used will have the same meaning as in the Electronic Communications Act 36 of 2005; unless the context indicates otherwise. The definitions and acronyms for additional terms are listed below:

"3GPP"	means the 3rd Generation Partnership Project (3GPP) which consists of six telecommunications standard development organisations
"AAS"	means Active Antenna System
"Act"	means the Electronic Communications Act, 2005 (Act No. 36 of 2005) as amended
"AGM"	means Annual General Meeting
"AU"	means African Union
"BEM"	means Block Edge Masks
"BS"	means Base Stations
"CRASA"	means Communications Regulators' Association of Southern Africa
"CRASA ECC"	means the Communications Regulators' Association of Southern Africa (CRASA) Electronic Communications Committee (ECC)
"DM RS"	means Demodulation Reference Signal
"ECC"	means the Electronic Communications Committee within the European Conference of Postal and Telecommunications Administrations (CEPT)
"ECC/REC (11)04"	means the ECC Recommendation (11)04 - Cross-border Coordination for Mobile/Fixed Communications Networks (MFCN) in the frequency band 790-862 MHz, Edition 3 February 2017
"ECC/REC (15)01"	means the ECC Recommendation (15)01 - (15)01 -ECC Recommendation (15)01 "Cross-border coordination for Mobile/Fixed Communications Networks (MFCN) in the frequency bands: 694-790 MHz, 1427-1518 MHz, and 3400-3800 MHz". Amended on 14 February 2020
"EIRP"	means Effective Isotropic Radiated Power
"FDD"	means the Frequency Division Duplex
"HCM"	means the Harmonised Calculation Method
"HCM4A"	means the Harmonised Calculation Method for Africa
"HDA"	means High-Density Area
"HIBS"	means High-Altitude Platform Stations as IMT Base Stations
"HIPSSA"	means the Sub-Saharan Africa Assessment Report on Harmonisation of ICT Policies in Sub-Saharan Africa
"ICNIRP"	Means the International Commission on Non-Ionizing Radiation Protection (ICNIRP)
"IMT"	means the International Mobile Telecommunications
"IMT-2020"	means International Mobile Telecommunications-2020
"IMT Advanced"	means International Mobile Telecommunications-Advanced
"ITA"	means the Invitation to Apply
"ITU"	means the International Telecommunication Union
"ITU-R"	means the International Telecommunication Union Radiocommunication Sector
"LPI"	means Low Power Indoor
"LoS"	means Line of Sight
"LTE"	means the Long-Term Evolution is a standard for wireless communication of high-speed data for mobile phones and data terminals. It is based on the GSM/EDGE and
"Non-AAS"	means Non-Active Antenna System
"NR"	means New Radio

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"NRFP"	means the National Radio Frequency Plan 2013 for South Africa
"PCI"	means the Physical-Layer Cell Identities
"PFD"	means Power Flux Density
"PPDR"	means the Public Protection and Disaster Relief as defined in ITU-R Report M.2033
"PRACH"	means the Physical Random-Access Channel
"PSTN"	means the Public Switched Telephone Network
"PUCCH"	means the Physical Uplink Control Channel
"PUSCH"	means the Physical Uplink Shared Channel
"RAS"	means Radio Astronomy Service
"RFSAP"	means the Radio Frequency Spectrum Assignment Plan
"RR"	means Radio Regulations
"SADC"	means Southern African Development Community
"TCA"	means the Terrain Clearance Angle
"TRP"	means the Total Radiated Power. The TRP is defined as the integral of the power transmitted in different directions over the entire radiation sphere.
"TDD"	means the Time Division Duplex
"UE"	means User Equipment
"VLP"	means Very Low Power
"WRC-12"	means the World Radiocommunication Conference 2012 held in Geneva
"WRC-15"	means the World Radiocommunication Conference 2015 held in Geneva
"WRC-19"	means the World Radiocommunication Conference 2019 held in Sharm el-Sheikh
"WRC-23"	means the World Radiocommunication Conference 2023 held in Dubai

2 Purpose

2.1 An RFSAP provides information on the requirements attached to the use of a frequency band in line with the allocation and other information in the NRFP. This information includes technical characteristics of radio systems, frequency channelling, coordination, and details on required migration of existing users of the band and the expected method of assignment.

2.2 This RFSAP states the requirements for the utilisation of the frequency band 66 GHz to 71 GHz for IMT.

2.3 The ITU states that IMT systems are mobile systems that provide access to a wide range of telecommunication services including advanced mobile services, supported by mobile and fixed networks, which are increasingly packet-based. Key features of the IMT systems are:[126]

- a high degree of commonality of functionality worldwide whilst retaining the flexibility to support a wide range of services and applications in a cost-efficient manner;
- compatibility of services within IMT and with fixed networks;
- capability of interworking with other radio access systems;
- high quality mobile services;
- user equipment suitable for worldwide use;

[126] See ITU-R Frequently Asked Questions on IMT, available at: https://www.itu.int/en/ITU-R/Documents/FAQ-IMT-2024.pdf#:~:text=Key%20features%20of%20IMT%2D2000%20and,in%20a%20cost%20efficient%20manner%3B

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- user-friendly applications, services, and equipment;
- worldwide roaming capability; and
- enhanced peak data rates to support advanced services and applications.

3 General

3.1 Technical characteristics of equipment used in IMT systems will conform to all applicable South African standards, international standards, and ITU (including its radio regulations) as agreed and adopted by South Africa.

3.2 All installations must comply with safety rules as specified in applicable standards.

3.3 The equipment used will be certified under South African law and regulations.

3.4 The allocations of the IMT bands and the information in this RFSAP are subject to review.

3.5 Frequency bands identified for IMT include the band 66 GHz to 71 GHz.

3.6 The requirements for the standard families which can provide IMT services include, but are not limited to:

- IMT-2000;
- IMT-Advanced;
- IMT-2020;
- IMT-2030.

3.7 Typical technical and operational characteristics identified by the ITU are described in the following documents:

- Recommendation ITU-R M.2012-5 (02/2022): Detailed specifications of the terrestrial radio interfaces of IMT Advanced;
- Report ITU-R M.2074-0 (2006): Report on Radio Aspects for the terrestrial component of IMT-2000 and systems beyond IMT-2000;
- Recommendation ITU-R M.1645 (06/2003): Framework and overall objectives of the future development of IMT-2000 and systems beyond IMT-2000;
- Recommendation ITU-R M.1036: Frequency arrangements for implementation of the terrestrial component of IMT in the bands identified for IMT in the RR;
- Recommendation ITU-R M.2150-1 (02/2022): Detailed specifications of the terrestrial radio interfaces of IMT-2020; and
- Recommendation ITU-R M.2160-0 (11/2023): Framework and overall objectives of the future development of IMT for 2030 and beyond.

3.8 The ITU also provides guidelines for modelling and simulation, e.g.

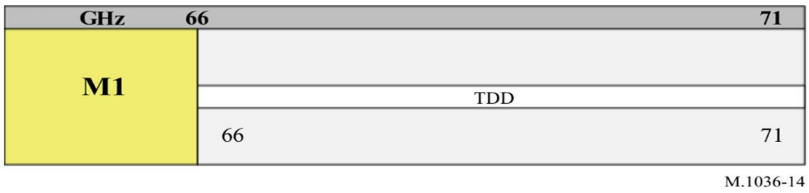
- Recommendation ITU-R M.2070-1 (02/2017): Generic unwanted emission characteristics
- of base stations using the terrestrial radio interfaces of IMT-Advanced;
- Recommendation ITU-R M.2071-1 (02/2017): Generic unwanted emission characteristics of mobile stations using the terrestrial radio interfaces of IMT-Advanced; and
- Recommendation ITU-R M.2101 (02/2017): Modelling and simulation of IMT networks and systems for use in sharing and compatibility studies.

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4 Channelling Plan

4.1 The frequency arrangements for implementation of IMT in the 66 – 71 GHz frequency range are summarized below, noting the implementation aspects in this RFSAP.

Figure 17: Frequency arrangements for M1



Source: ITU-R M.1036

5 Requirements for the Usage of the Radio Frequency Spectrum

5.1 This chapter covers the minimum key characteristics considered necessary in order to make the best use of the available frequencies.

5.2 The use of the band is for IMT services and WAS/RLAN, as follows.

5.2.1 Outdoor use: IMT and WAS/RLAN services shall coexist outdoors provided that interference is within tolerable limits. If the latter is not possible, then WAS/RLAN links will need to migrate to outside of the geographic areas in which interference is being experienced.

5.2.2 Indoor use: WAS/RLAN services are permitted for low-power indoor use provided that it is included in the NRFP, noting that the RFSR Appendix A may be amended to reflect this. Access points must be low-power and indoor.

5.3 Only systems using digital technologies that promote spectral efficiency will be issued with an assignment. Capacity-enhancing digital techniques are being rapidly developed together with and such techniques that promote efficient spectrum use without reducing service quality. These techniques are encouraged.

5.4 In some cases, a radio system conforming to the requirements of this RFSAP may require modifications if harmful interference is caused to other radio stations or systems.

5.5 The allocation of spectrum and shared services within these bands are found in the NRFP.

5.6 Maximum radiated power:

5.6.1 Mobile BS transmissions should not exceed 68dBm/5MHz EIRP per antenna for non-AAS or 47dBm/5MHz the TRP for AAS;

5.6.2 Power limits for RLAN/WAS systems will be determined by the Authority if necessary.

5.6.3 On a case-to-case basis, higher TRP may be permitted if acceptable technical justification is provided.

5.7 Where appropriate, subscriber terminal stations should comply with the technical specification outlined under the latest version of 3GPP specifications, e.g., TS 36.521-1 for LTE, 38.521-1 for 5G NR;

5.8 ICNIRP Guideline compliance is required, where applicable; and

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5.9 The criteria and guidelines for interference mitigation are described in Appendices B and D.

6 Commencement

6.1 This RFSAP comes into effect upon publication of this notice.

6.2 No new assignment for IMT in the band 66 GHz – 71 GHz will be approved unless it complies with this RFSAP.

7 Conflict

7.1 In the event of a conflict between this RFSAP and the applicable NRFP and/or Terrestrial Broadcasting Frequency Plan, the NRFP and the Terrestrial Broadcasting Frequency Plan shall prevail.

8 Coordination Requirements

8.1 Cross Border Frequency Coordination will abide by the HCM4A Agreement. This follows the 3rd CRASA AGM that agreed that CRASA should implement the Cross Border Frequency Coordination HCM4A Agreement.

8.2 The ECC had noted the need for greater understanding of the concept and need for harmonisation in the signing of the HCM4A Agreement by the SADC Member States if the implementation of the Agreement is to be effective. The ECC, therefore, agreed to convene a workshop on HCM4A and requested the CRASA Members to consider signing the agreement.

8.3 At the 5th CRASA AGM, Swakopmund, Namibia – 07-08 April 2016 [1], the subject of Cross Border Frequency Coordination using the Harmonised Calculation Method for Africa (HCM4A) was discussed in detail, following similar efforts in Europe. The Resolution CRASA/AGM/15.16/07 stipulates, "The AGM urged CRASA Members to prioritise the motivation to their administrations who are yet to indicate their interest to sign the HCM4A, to do so as soon as possible".

8.4 Therefore, coordination would follow the HCM4A as detailed in Sub-Saharan Africa Assessment Report on HIPSSA.[127]

8.5 A harmonised calculation method (HCM4A) brings these benefits:

8.5.1 Based on HCM Agreement used in Europe;

8.5.2 Optimise spectrum usage;

8.5.3 Prevent harmful interferences;

8.5.4 Confer an adequate protection for stations;

8.5.5 Define technical provisions and administrative procedures;

8.5.6 Quick assignment of preferential frequencies;

8.5.7 Transparent decisions through agreed assessment procedures;

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[127] See: https://www.itu.int/en/ITU-D/Projects/ITU-EC-ACP/HIPSSA/Documents/FINAL%20DOCUMENTS/FINAL%20DOCS%20ENGLISH/hcm4a_agreement.pdf.pdf

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8.5.8 Quick assessment of interference through data exchange.

8.6 HCM4A involves all 4 sub regions of Africa. This means the HCM4A projects include performing a survey and a comparative analysis of existing administrative and technical procedures related to bilateral and multilateral cross-border frequency coordination agreements across the 4 geographical sub-regions as defined by the AU, namely:

8.6.1 Central Africa [Burundi, Central African Republic, Chad, Congo, Democratic Republic of Congo, Equatorial Guinea, Gabon, Sao Tome, and Principe];

8.6.2 East Africa [Comoros, Djibouti, Eritrea, Ethiopia, Kenya, Madagascar, Mauritius, Rwanda, Seychelles, Somalia, Sudan, Tanzania, Uganda];

8.6.3 Southern Africa [Angola, Botswana, Lesotho, Malawi, Mozambique, Namibia, South Africa, Eswatini, Zambia, Zimbabwe];

8.6.4 West Africa [Benin, Burkina-Faso, Cape Verde, Côte d'Ivoire, Gambia, Ghana, Guinea, Guinea-Bissau, Liberia, Mali, Niger, Nigeria, Sierra Leone, Senegal, Togo].

8.7 HCM4A also comes with a software tool for Sub-Saharan Africa. This has the following features:[128]

8.7.1 Optimise spectrum usage by accurate interference field strength calculations;

8.7.2 Establish general parameters, improvement, and supplementation of technical provisions, individual restrictions;

8.7.3 Establish models for computer-aided interference range calculations; and

8.7.4 Harmonise parameters: objectively predictable towards transparent decisions.

8.8 Use of these frequency bands will require coordination with the neighbouring countries within the coordination zones of 6 kilometres from the neighbouring country. The coordination distance is continuously being reviewed, and these may be updated from time to time.

8.9 In the event that the Authority assigns spectrum to private networks on a geographically limited basis in the band in addition to national assignments, the geographically limited private network shall ensure that its systems do not cause interference with those of the national licensee.

8.10 Technical analysis may be conducted by the Authority before an assignment is issued according to Appendix A.

8.11 New assignments would also require coordination with the existing incumbent assignments. See Appendices B and D.

8.12 If neighbouring administrations wish to agree on frequency coordination based on preferential frequencies, while ensuring a fair treatment of different operators within a country the Authority will add these mutual agreements.

8.13 In the event of any interference, the Authority will require affected parties to carry out coordination. In the event that the interference continues to be unresolved after 24 hours, the

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[128] See: https://www.itu.int/en/ITU-D/Regional-Presence/AsiaPacific/Documents/Events/2017/May%20BKK/Presentations/HCM%20and%20HCM4A%20BKK%2020170504%20IB.pdf

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affected parties may refer the matter to the Authority for a resolution. The Authority will decide the necessary modifications and schedule of modifications to resolve the dispute. The Authority will be guided by the Frequency Coordination Process as outlined in Appendix D.

8.14 Assignment holders shall take full advantage of interference mitigation techniques such as antenna discrimination, tilt, polarization, frequency discrimination, shielding / blocking (introduce diffraction loss), site selection, and/or power control to facilitate the coordination of systems.

9 Assignment

9.1 The unassigned spectrum in this band will be assigned through an Invitation to Apply in line with the regulations developed in terms of section 31(3) of the Act.

9.2 The assignment of the spectrum for the verticals will be considered in accordance with regulation 5 of the Radio Frequency Spectrum Regulations 2015:

9.2.1 Regulation 5(3) of the Radio Frequency Spectrum Regulations 2015 may apply.

9.2.2 The application shall be subjected to public consultation.

9.2.3 National licenses to be protected on a primary basis;

9.2.4 For private networks with a limited geographic scope on a secondary basis.

10 Amendments

10.1 Applicable licences are hereby amended to conform with this RFSAP upon publication of this notice.

11 Radio Frequency Migration

11.1 Existing licensees are to conform to the requirements of this RFSAP upon publication of this notice.

12 Synchronisation

12.1 In order to avoid interference between TDD networks operating in adjacent frequency carriers, the radio transmissions of adjacent TDD networks should be synchronized with the uplink and downlink frames aligned in time. Such synchronization of TDD networks is very important because it is the best way to avoid interference between networks and ensures efficient use of spectrum resources by avoiding inter-operator guard bands and additional base station filtering. Otherwise, the uplink and downlink interference cannot be eliminated or avoided in terms of technical measures.

12.2 The Authority will align with the operators to define a unified national uplink and downlink frame as part of a future ITA for unassigned spectrum in this band.

13 Appendix A: Propagation Model

13.1 The following methods are proposed for assessment of anticipated interference inside neighbouring countries based on established trigger values. Due to the complexity of radio-wave propagation, different methods are proposed to be considered by administrations and are included here for guidance purposes only. It should be noted that the following methods provide theoretical predictions based on available terrain knowledge. It is practically impossible to recreate these

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methods with measurement procedures in the field. Therefore, only some approximation of measurements could be used to check compliance with those methods based on practical measurement procedures. The details of such approximations are not included in this recommendation and should be negotiated between countries based on their radio monitoring practices.

A. Path specific model

13.2 Where appropriately detailed terrain data is available, the propagation model for interference field strength prediction is the latest version of ITU-R Rec. P.452.[129] For the relevant transmitting terminal, predictions of path loss would be made at x km steps along radials of y km at z degree intervals.[130] The values for those receiver locations within the neighbouring country would be used to construct a histogram of path loss – and if more than 10% of predicted values exceed the threshold, the station should be coordinated.

B. Site General model

13.3 If it is not desirable to utilise detailed terrain height data for propagation modelling in the border area, the basic model to be used to trigger coordination between administrations and to decide if coordination is necessary, is ITU-R Rec. P.1546, "Method for point to area predictions for terrestrial services in the frequency range 30 to 4000 MHz".

13.4 This model is to be employed for 50% locations, 10% time and using a receiver height of 3m. For specific reception areas where terrain roughness adjustments for improved accuracy of field strength prediction are needed, administrations may use correction factors according to terrain irregularity and/or an averaged value of the TCA parameter in order to describe the roughness of the area on and around the coordination line.

13.5 Administrations and/or operators concerned may apply to the Authority to deviate from the aforementioned model.

C. Area calculations

13.6 In the case where greater accuracy is required, administrations and operators may use the area calculation below. For calculations, all the pixels of a given geographical area to be agreed between the Administrations concerned in a neighbouring country are taken into consideration. For the relevant base station, predictions of path loss should be made for all the pixels of a given geographical area from a base station and at a receiver antenna height of 3 m above ground.

13.7 For evaluation:

13.7.1 Only 10% of the number of the geographical area between the border line (also including the border line) and the 6 km line itself inside the neighbouring country may be interfered by higher field strength than the trigger field strength value given for the border line in the main text above at a height of 3 m above ground:

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[129] Recommendation ITU-R P.452-17 (09/2021, with Editorial corrections on 28 October 2021) "Prediction procedure for the evaluation of interference between stations on the surface of the Earth at frequencies above about 0.1 GHz" (https://www.itu.int/rec/R-REC-P.452/en).

[130] Values for x, y, z, and path specific field strength levels are to be agreed between the administrations concerned.

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13.7.2 Only 10% of the number of the geographical area between the 6 km (including also the 6 km line) and 12 km line inside the neighbouring country may be interfered by higher field strength than the trigger field strength value given for the 6 km line in the main text above at a height of 3 m above ground;

13.8 It is recommended that during area calculations, not only detailed terrain data but also clutter data be taken into account. Use of correction factors for clutter is crucial in particular where the border area is 'open' or 'quasi-open' from the point of view of clutter or where the interfering base station is just a few kilometres from a border line.

13.9 If the distance between a base station and a terrain point of a border line is closer than or equal to 1 km, the free space propagation model needs to be applied. Furthermore, if there is no terrain obstacle within the 1st Fresnel zone, the free space propagation model should be applied.

13.10 If clutter data is not available, it is proposed to extend the usage of the free space propagation model to a few kilometres, depending on the clutter situation in border areas.

13.11 For area type interference calculations, propagation models with path specific terrain correction factors are recommended (e.g., the latest Recommendation ITU–R P.1546[131] with the Terrain Clearance Angle correction factor TCA, HCM[132] method with the Terrain Clearance Angle correction factor or Recommendation ITU–R P.1812[133]).

13.12 As to correction factors for clutters 'open area' and 'quasi-open area', 20 dB and 15 dB should be used, respectively. Recommendations ITU–R P.1406[134] and/or ITU-R P.2108[135] should be used if a finer selection of clutter is required.

13.13 It must be noted that terrain irregularity factor Δh is not recommended to be used in area calculations. Administrations and/or operators concerned may agree to deviate from the aforementioned models by mutual consent.

14 Appendix B: Coordination for IMT-Systems

A. PREFERENTIAL PCI FOR IMT SYSTEMS

14.1 The following is an operational example and can be adapted for the SADC countries for IMT systems.

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[131] ITU-R Recommendation P.1546-6 (08/2019): Method for point-to-area predictions for terrestrial services in the frequency range 30 MHz to 3 000 MHz (https://www.itu.int/rec/R-REC-P.1546/en).

[132] HCM Agreement (Harmonised Calculation Method) between the administrations of Austria, Belgium, the Czech Republic, Germany, France, Hungary, the Netherlands, Croatia, Italy, Liechtenstein, Lithuania, Luxembourg, Poland, Romania, the Slovak Republic, Slovenia, and Switzerland on the Coordination of frequencies between 29.7 MHz and 43.5 GHz for the Fixed Service and the Land Mobile Service. The latest version of this agreement can be found from http://www.hcm-agreement.eu/http/englisch/verwaltung/index_europakarte.htm

[133] Recommendation P.1812-6 (09/2021) "A path-specific propagation prediction method for point-to-area terrestrial services in the frequency range 30 MHz to 6 000 MHz" (https://www.itu.int/rec/R-REC- P.1812/en).

Annex 5: Determination of the interference field strength in the Land Mobile Service (https://www.itu.int/en/ITU-D/Projects/ITU-EC- ACP/HIPSSA/Documents/REGIONAL%20documents/HCM4A-E-Annex05.pdf).

[134] Recommendation P.1406-2 (07/2015) "Propagation effects relating to terrestrial land mobile and broadcasting services in the VHF and UHF bands" (https://www.itu.int/rec/R-REC-P.1406/en).

[135] Recommendation P.2108-1 (09/2021) "Prediction of clutter loss" (https://www.itu.int/rec/R-REC-P.2108/en).

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14.2 PCI coordination is only needed when channel centre frequencies are aligned independently of the channel bandwidth.

14.3 3GPP TS 36.211[136] defines 168 "unique physical-layer cell-identity groups" in §6.11, numbered 0...167, hereafter called "PCI groups" for IMT systems. Within each PCI group, there are three separate PCIs giving 504 PCIs in total.

14.4 Administrations should agree on a repartition of these 504 PCIs on an equitable basis when channel centre frequencies are aligned, as shown in the table below. It has to be noted that dividing the PCI groups or PCIs is equivalent. Each country should only use their own preferential PCIs close to the border and can use all PCIs away from the border. This transition distance between "close to the border" and "away from the border" should be agreed between neighbouring countries.

14.5 Administrations may wish to define different field strength levels (than those provided in the main text referring to this Appendix) for non-preferential PCIs.

14.6 As shown in the table below, the PCIs should be divided into 6 sub-sets containing each one sixth of the available PCIs. Each country is allocated three sets (half of the PCIs) in a bilateral case and two sets (one third of the PCIs) in a trilateral case.

14.7 Four types of countries are defined in a way such that no country will use the same code set as any one of its neighbours. The following lists describe a sample distribution for African countries:

14.7.1 Country type 1: Botswana, Cameroon, Comoros, Democratic Republic of the Congo, Ghana, Guinea- Bissau, Kenya, Liberia, Malawi, Mauritius, Niger, Republic of the Sudan, Eswatini;

14.7.2 Country type 2: Algeria, Angola, Benin, Cape Verde, Chad, Cote d'Ivoire, Egypt, Ethiopia, Madagascar, Senegal, United Republic of Tanzania, Zimbabwe;

14.7.3 Country type 3: Burkina Faso, Congo, Djibouti, Equatorial Guinea, Guinea, Mauritania, Nigeria, Rwanda, Sao Tome and Principe, Seychelles, South Africa, South Sudan, Tunisia, Zambia;

14.7.4 Country type 4: Burundi, Central African Republic, Eritrea, Gabon, Gambia, Lesotho, Libyan Arab Jamahiriya, Mali, Morocco, Mozambique, Namibia, Sierra Leone, Somalia, Togo, Uganda. (Note: A sample country type map can be found in the figure below).

14.7.5 For each type of country, the following tables and figure describe the sharing of the PCIs with its neighbouring countries, with the following conventions of writing:

Preferential PCI	
Non-Preferential PCI	

[136] 3GPP TS 36.211 "Evolved Universal Terrestrial Radio Access (E-UTRA); Physical channels and modulation". (https://portal.3gpp.org/desktopmodules/Specifications/SpecificationDetails.aspx?specificationId=2425, also provided in ETSI TS 136 211). In comparison, 3GPP 38.211 (and ETSI TS 138 211) define NR Physical channels and modulation, in NR 2-step identification using PSS/SSS detection of the Physical Cell ID (same as LTE), the number of different cell IDs has been increased from 504 in LTE to 1008 for NR. Thus, for the deployment of LTE systems only the PCIs between 0 to 503 should be used and for NR systems PCIs between 0 to 1007 may be used.

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14.8 The 504 physical-layer cell-identities should be divided into the following 6 sub-sets when the carrier frequencies are aligned in border areas:

Table 19: Sharing of PCIs between countries

	Set A	**Set B**	**Set C**	**Set D**	**Set E**	**Set F**
Country 1	0..83	84..167	168..251	252..335	336..419	420..503
Border 1-2	■	■				■
Zone 1-2-3	■	■				
Border 1-3	■	■	■			
Zone 1-2-4	■					■
Border 1-4	■		■			■
Zone 1-3-4	■		■			

PCI	**Set A**	**Set B**	**Set C**	**Set D**	**Set E**	**Set F**
Country 2	0..83	84..167	168..251	252..335	336..419	420..503
Border 2-1			■	■	■	
Zone 2-3-1			■	■		
Border 2-3		■	■	■		
Zone 2-1-4			■	■		
Border 2-4			■	■		■
Zone 2-3-4			■	■		

PCI	**Set A**	**Set B**	**Set C**	**Set D**	**Set E**	**Set F**
Country 3	0..83	84..167	168..251	252..335	336..419	420..503
Border 3-2	■				■	■
Zone 3-2-3					■	■
Border 3-1				■	■	■
Zone 3-1-4					■	■
Border 3-4			■		■	■
Zone 3-2-4					■	■

PCI	**Set A**	**Set B**	**Set C**	**Set D**	**Set E**	**Set F**
Country 4	0..83	84..167	168..251	252..335	336..419	420..503
Border 4-1		■		■	■	
Zone 4-1-2		■			■	
Border 4-2	■	■			■	
Zone 4-2-3	■	■				
Border 4-3	■	■		■		
Zone 4-3-1		■		■		

14.9 Note:

14.9.1 All PCIs are available in areas away from the border.

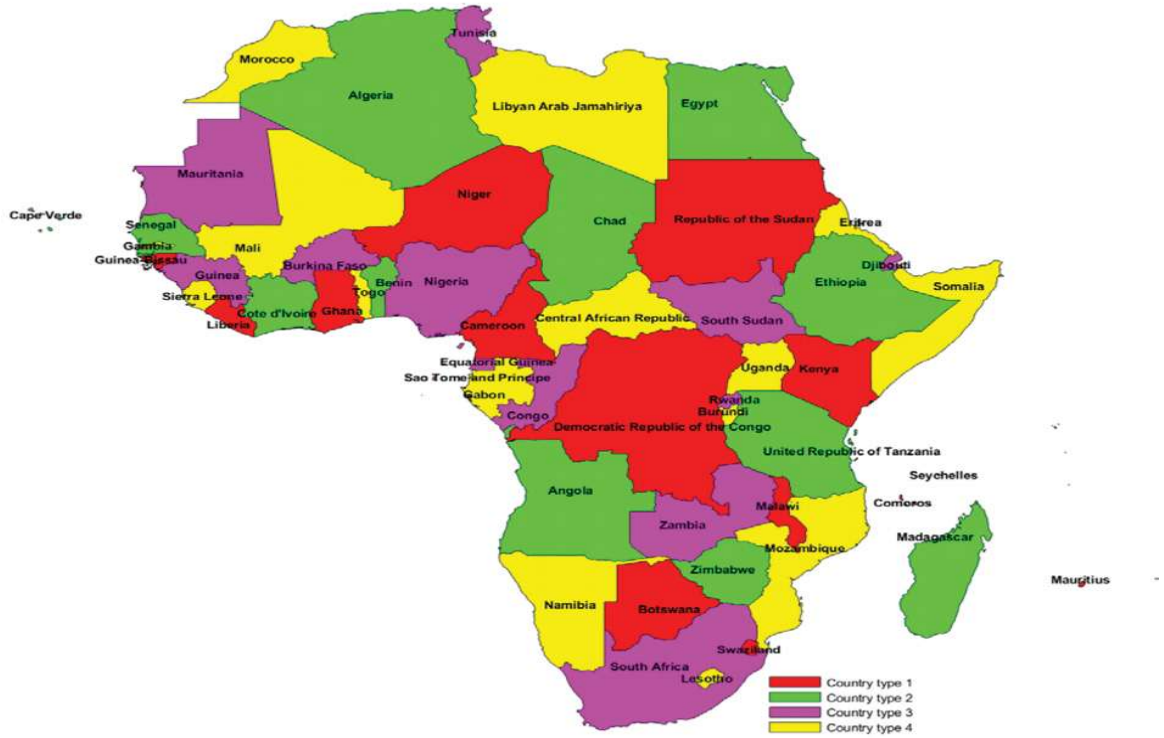
14.9.2 In certain specific cases (e.g., if Angola and Botswana happened to have the same Country type/PCI code) where the distance between two countries of the same type number is very small

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(below a few tens of kilometres), it may be necessary to address the situation in bilateral /multilateral coordination agreements as necessary and may include further subdivision of the allocated codes in certain areas.

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Figure 18: Country type map/PCI distribution map



15 Appendix C: Guidance on the consideration of IMT system radio parameters for use in bilateral and multilateral agreements

15.1 This section is provided for guidance purposes for use in bi-lateral and multilateral discussions. For IMT systems, it may be beneficial to coordinate other radio parameters besides PCI in order to minimise deteriorating effects of uplink interference.

15.2 The parameters described in this section are usually optimised during IMT system radio network planning of an operator's network. The idea of optimisation is to plan the parameters taking into account specific correlation properties of the uplink control signals, which enable more stable and predictable operation of the network. In the cross-border scenario the optimisation of parameters among neighbouring operators could provide better control of uplink interference. However, because of the difference between intra-network and inter-network interference and due to limited experience in the IMT system cross- border deployment, it is difficult to assess the benefits of such optimisation. The following guidance provides the basis for operators to consider in border areas in case of high levels of uplink interference.

A. DM RS coordination

15.3 DM RS are transmitted in the uplink and used for channel estimation.

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15.4 There is a risk of intercell interference between neighbouring cells even in case of no frame synchronisation. That is why special measures for DM RS allocation between networks in neighbouring countries occupying the same channel may need to be applied.

15.5 The case of partial channel overlap has not been studied but due to DM RS occupying resource blocks of separate users, there is a risk of DM RS collisions between neighbouring networks when the subcarriers' positions coincide (the frequency offset between central carriers of neighbouring networks is multiple of 300 kHz). Some minor benefits from DM RS coordination in these particular cases could be expected.

15.6 There are a number of possible approaches to the coordination of DM RS:

15.6.1 In the basic planning procedure, only 30 DM RS sequence groups with favourable correlation characteristics are available: {0…29}. In this case, each cell could be assigned one of the 30 DM RS sequence groups providing a cluster size of 30.

15.6.2 It is possible to extend each DM RS sequence group to generate up to 12-time shifted sequence groups by applying the cyclic shift parameter stated in 3GPP TS 36.211 for LTE. For example, each tri-sector site could be assigned one DM RS sequence group with each co-sited cell having its own cyclic shift of $2\pi/3$, which provides cluster size 30 only with 10 DM RS sequence groups. The latter case corresponds well to the case of DM RS sequence groups repartition between neighbouring countries when only limited number of groups is available for network planning. The drawback of DM RS sequence group cyclic shift is a loss of orthogonally of DM RS due to fading channels which has been found during first trials of LTE and caused throughput loss as well as time alignment problems.

15.6.3 Another approach for DM RS coordination is to implement dynamic DM RS sequence group allocation, also called pseudo-random group hopping. In this method, nearby cells are grouped into clusters up to 30 cells, and within each cell cluster, the same hopping-pattern is used. At the border of two clusters, inter-cell interference is averaged since two different hopping patterns are utilised.

15.6.4 There are 17 defined hopping patterns, numbered {0…16}, which leads to some minor unfairness in case of apportioning these patterns between neighbouring countries. Even in a trilateral case each operator will have at least 5 hopping patterns available near the border, which should be enough or planning purposes. It should be noted the pseudo-random group hopping option could be absent in the first generations of IMT system equipment.

15.7 The decision of which of these methods to use in cross-border coordination should be agreed upon by the interested parties. Specific DM RS sequence groups or hopping patterns repartition is not provided in this text but could be deduced in a similar manner to the PCI repartition.

B. PRACH coordination

15.8 Another radio network parameter that is considered during radio network planning is PRACH configuration which is needed to distinguish random access requests addressed to different cells.

15.9 PRACH resources are allocated by specifying the PRACH Resource Blocks time positions within the uplink frame, their frequency position within the IMT system channel bandwidth and by apportioning cell- specific root sequences. During radio network planning, these parameters are usually used in the following way:

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15.9.1 Time positions for PRACH resource allocations are usually used to create time collision of PRACH resources of co-sited/frame synchronised cells because PRACH-to-PRACH interference is usually less severe than PUSCH-to-PRACH interference;

15.9.2 Frequency positions within the IMT system channel bandwidth are usually the same for all cells, again because PRACH-to-PRACH interference case is a more favourable one.

15.9.3 Cell-specific root sequences are used to distinguish between PRACH requests addressed to different cells.

15.10 For cross-border coordination, it is proposed to use frequency position offsets to exclude the possibility of so-called "ghost" PRACH requests caused by neighbouring networks. The PRACH is configured in IMT systems to use only 6 Resource Blocks or 1.08 MHz of the IMT system channel bandwidth except in regions used by PUCCH. In case of overlapping or partially overlapping channel bandwidths of neighbouring networks, it is enough to establish non-overlapping PRACH frequency blocks to perform coordination.

15.11 Because it is difficult to establish an implementation dependent procedure for such allocation, it will be the responsibility of operators to manage such frequency separation during coordination discussions.

15.12 In an early implementation, it is possible that a very limited number of frequency positions could be supported by IMT system equipment which will not be enough to coordinate in the trilateral case. In such cases, root-sequence repartition could be used. There are 838 root sequences in total to be distributed between cells, numbered {0...837}. There are two numbering schemes for PRACH root sequences (physical and logical) and that only logical root sequences numbering needs to be used for coordination.

15.13 Unfortunately, the process of root sequences planning doesn't involve direct mapping of root sequences between cells because the number of root sequences needed for one cell is dependent on the cell range.

15.14 The table showing such interdependency is presented below:

Table 20: PRACH – Range Interdependency

PRACH Configuration	Number of root seq. per cell	Cell Range (km)
1	1	0.7
2	2	1
3	2	1.4
4	2	2
5	2	2.5
6	3	3.4
7	3	4.3
8	4	5.4
9	5	7.3
10	6	9.7
11	8	12.1
12	10	15.8
13	13	22.7
14	22	38.7
15	32	58.7

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PRACH Configuration	Number of root seq. per cell	Cell Range (km)
0	64	118.8

15.15 Thus, in the case of root sequence reparation, it will be the responsibility of radio network planners to assign the correct number of root sequences in order to not overlap with the root sequence ranges of other operators. It also should be noted that different root sequences have different cubic metrics and correlation properties, which affect PRACH coverage performance and planning of so-called high-speed cells. For simplicity of cross-border coordination, it is proposed to ignore these properties.

15.16 In summary, it should be stipulated that frequency separation of PRACH resources should be used as the main coordination method. PRACH root sequences repartition should be avoided and used only in exceptional cases. Specific PRACH root sequences repartition is not provided in this text but could be deduced in a similar manner to the PCI repartition.

15.17 Additional guidance for cross-border coordination of synchronised and unsynchronised IMT TDD systems may be found in ECC/REC/ (15)01[137] and ECC Report 296[138].

16 Appendix D: Frequency Coordination Process

16.1 Technical procedures related to bilateral and multilateral cross-border frequency coordination agreements for 4 geographical sub-regions are defined by the African Union, which includes the Southern African sub-region of 10 countries. Cross-Border Frequency Coordination and interference resolution should follow the Harmonised Calculation Method for Africa (HCM4A).[139]

16.2 When requesting coordination, the relevant characteristics of the base station and the code or PCI group number should be forwarded to the Administration affected. All of the following characteristics should be included:

16.2.1 carrier frequency [MHz];

16.2.2 name of transmitter station;

16.2.3 country of location of transmitter station;

16.2.4 geographical coordinates [latitude, longitude];

16.2.5 effective antenna height [m];

---

[137] ECC Recommendation (15)01 "Cross-border coordination for Mobile/Fixed Communications Networks (MFCN) in the frequency bands: 694-790 MHz, 1427-1518 MHz, and 3400-3800 MHz". Amended on 14 February 2020.

[138] ECC Report 296: "National synchronisation regulatory framework options in 3400-3800 MHz: a toolbox for coexistence of MFCNs in synchronised, unsynchronised, and semi-synchronised operation in 3400-3800 MHz", March 2019.

[139] Cross-Border Frequency Coordination: Harmonised Calculation Method for Africa (HCM4A), available at: https://www.itu.int/en/ITU-D/Projects/ITU-EC-ACP/HIPSSA/Documents/FINAL%20DOCUMENTS/FINAL%20DOCS%20ENGLISH/hcm4a_agreement.pdf.pdf

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16.2.6 antenna polarisation;

16.2.7 antenna azimuth [degrees];

16.2.8 antenna gain [dBi];

16.2.9 effective radiated power [dBW];

16.2.10 expected coverage zone or radius [km];

16.2.11 date of entry into service [month, year].

16.2.12 code group number used; and

16.2.13 antenna tilt [degrees].

16.3 The Administration affected will evaluate the request for coordination and will, within 30 days, notify the result of the evaluation to the Administration requesting coordination. If, in the course of the coordination procedure, the Administration affected requires additional information, it may request such information.

16.4 If no reply is received by the Administration requesting coordination within 30 days, it may send a reminder to the Administration affected. An Administration not having responded within 30 days following communication of the reminder will be deemed to have given its consent and the code coordination may be put into use with the characteristics given in the request for coordination.

16.5 The periods mentioned above may be extended by common consent.

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INDEPENDENT COMMUNICATIONS AUTHORITY OF SOUTH AFRICA

NOTICE 4043 OF 2026

FEASIBILITY STUDIES FOR ADDITIONAL IMT BANDS

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About this document

1. This document contains feasibility studies for international mobile telecommunications ("IMT") services the following bands:

1.1 1880 - 1920 MHz;

1.2 3600 - 3800 MHz;

1.3 4800 - 4990 MHz;

1.4 6425 - 7125 MHz;

1.5 24.25 - 27.5 GHz;

1.6 37 - 43.5 GHz;

1.7 45.5 - 47 GHz;

1.8 47.2 - 48.2 GHz; and

1.9 66 - 71 GHz (E-Band).

The structure of the feasibility studies is as set out in the draft IMT Roadmap 2025, and is as follows:

1.10 Introduction;

1.11 Regulatory context;

1.12 Economic feasibility for IMT;

1.13 Technical feasibility;

1.14 Maturity of the IMT ecosystem;

1.15 International considerations;

1.16 Stakeholder comments; and

1.17 Considerations in favour of and against IMT allocation.

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ELECTRONIC COMMUNICATIONS ACT, 2005 (ACT NO. 36 OF 2005)

HEREBY ISSUES A NOTICE REGARDING THE FEASIBILITY STUDIES FOR THE FREQUENCY BANDS ALLOCATED TO THE MOBILE RADIOCOMMUNICATIONS SERVICES AND IDENTIFIED INTERNATIONAL MOBILE TELECOMMUNICATIONS IN THE NATIONAL RADIO FREQUENCY PLAN.

1. The Independent Communications Authority of South Africa ("the Authority"), on 28 March 2024, published the Draft International Mobile Telecommunications (IMT) Roadmap, in Government Gazette No. 50413 (Notice 4584 of 2024) inviting Written Representations.

2. On 13 September 2024, in Government Gazette 51244 (Notice 5209 of 2024) the Authority published a "Notice Communicating the Outcome of the Consultation Process of the Draft IMT Roadmap 2025.

3. The Authority, in Government Gazette 53883 (Notice 3712 of 2025), published the Second Draft International Mobile Telecommunications (IMT) Roadmap 2025, in terms of section 4(3)(c) of the Independent Communications Authority of South Africa Act, 2000 (Act No. 13 of 2000), read with sections 2(e), 30, 31(4), and 33 of the Electronic Communications Act (Act No 36 of 2005).

4. Now therefore, the Authority, in terms of section 4(3)(c) of the Independent Communications Authority of South Africa Act, 2000 (Act No. 13 of 2000), read with sections 2(e), 30, 31(4), and 33 of the Electronic Communications Act (Act No 36 of 2005) hereby publishes the notice regarding the feasibility studies for the frequency bands allocated to the mobile radiocommunications services and identified international mobile telecommunications in the national radio frequency plan**.**

5. Interested persons are hereby invited to submit written representations on the notice regarding the feasibility studies for the frequency bands allocated to the mobile radiocommunications services and identified international mobile telecommunications in the national radio frequency plan in both

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Microsoft Word (MS) and Portable Document Format (PDF) by no later than 16:00 on **4 September 2026.**

6. Persons making representations are further invited to indicate whether they require an opportunity to make oral representations.

7. Written representations or enquiries may be directed by email to:

Attention:

Mr Manyaapelo Richard Makgotlho

e-mail: rmakgotlho@icasa.org.za

Copy: jdikgale@icasa.org.za

8. Where persons making representations require that their representation, or part thereof, be treated as confidential, then an application in terms of section 4D of the ICASA Act, 2000 (Act No 13 of 2000) must be lodged with the Authority. Such an application must be submitted simultaneously with the representation, together with a non-confidential, redacted version of the submission. If, however, the request for confidentiality is not granted, the person making the request will be allowed to withdraw the representation or document in question.

9. The guidelines for confidentiality requests are contained in Government Gazette Number No 41839 of 17 August 2018.

10. All written representations submitted to the Authority pursuant to this notice will be made available for inspection by interested persons from **11 September 2026** at the Authority's Library. Electronic copies of such representations are obtainable on request and printed versions will be obtainable on payment of a fee.

11. The feasibility studies for the frequency bands allocated to the mobile radiocommunications services and identified international mobile telecommunications in the national radio frequency plan and the non-confidential representations will be uploaded to the Authority's website under this link: https://www.icasa.org.za/legislation-and-regulations/radio-frequency-spectrum-plans/draft-radio-frequency-spectrum-plans.



Mothibi G. Ramusi

CHAIRPERSON

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Feasibility Study

1880 MHz to 1900 MHz

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1 Glossary of Terms, Abbreviations, and Acronyms

Acronym	Explanation
3G	Third generation mobile telecommunications is a generation of standards for mobile phones and mobile telecommunication relating to the ITU-R IMT-2000 specifications.
4G	Fourth Generation Network Technology relating to ITU-R IMT-Advanced specifications.
5G	Fifth Generation Network Technology, relating to the ITU-R IMT-2020 specifications.
6G	Sixth Generation Network Technology, relating to the ITU-R IMT-2030 specifications.
Act	Electronic Communications Act, 2005 (Act No. 36 of 2005).
AAS	Active antennae systems.
Administration	Members States of the International Telecommunications Union.
Allocation	Entry in the Table of Frequency Allocations of a given frequency band for the purpose of its use by one or more terrestrial or space *radiocommunication services* or the *radio astronomy service* under specified conditions.
Assignment	The authorisation given by the authority to a licensee to use a radio frequency or radio frequency channel under specified conditions.
ATU	African Telecommunications Union.
Authority	The Independent Communications Authority of South Africa.
BFWA	Broadband Fixed Wireless Access.
CEPT	Conference of European Posts and Telecommunications Authorities.
CRASA	Communications Regulators' Association of Southern Africa.
DC-MSS-IMT	Direct Connectivity between Mobile-Satellite Service space station and IMT UEs.
DECT	Digital Enhanced Cordless Telecommunications 1880 - 1900 MHz which is a digital communication standard, primarily used for creating cordless phone systems.
ECA	The Electronic Communications Act of South Africa, Act No 36 of 2005.
EIRP	Effective isotropically radiated power.
ERP	Effective radiated power, which is the product of the power supplied to an antenna and its gain relative to a half wave dipole in a given direction.
FDD	Frequency Division Duplex.
FWA	Fixed Wireless Access.
FS	Fixed Service.
FSS	Fixed Satellite Service.
Gbps	Gigabits per second.
GHz	Gigahertz of Radio Frequency Spectrum.
GSM	Global System for Mobile Communications, (originally Groupe Spécial Mobile), and is a standard set developed by the European Telecommunications Standards Institute (ETSI) to describe technologies for second generation (2G) digital cellular networks.
GSMA	Global System for Mobile Communications Association.
IMT	The name that encompasses IMT-2000, IMT-Advanced, IMT-2020 and IMT-2030 collectively known as International Mobile Telecommunications.
IMT-2000	The International Mobile Telecommunications, as envisioned in ITU-R Recommendation ITU-R M.687 and M.816.
IMT-Advanced	The International Mobile Telecommunications, as envisioned in Recommendation ITU-R M.1645.
IMT-2020	The International Mobile Telecommunications, as envisioned in Recommendation ITU-R M.2083.

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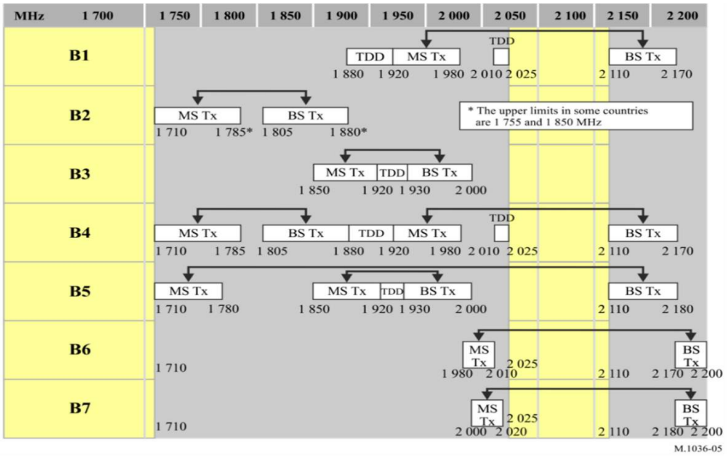
Acronym	Explanation
IMT-2030	The International Mobile Telecommunications, as envisioned in Recommendation ITU-R M.2160.
IoT	Internet of Things.
ITU	International Telecommunication Union.
ITU RR	International Telecommunication Union Radio Regulations.
kHz	Kilohertz of Radio Frequency Spectrum.
LTE	Long Term Evolution and is a standard for wireless communication of high-speed data for mobile phones and data terminals. It is based on the GSM/EDGE and UMTS/HSPA network technologies.
M2M	Machine to Machine.
MHz	Megahertz of Radio Frequency Spectrum.
MIMO	Multiple-Input and Multiple-Output and is the use of multiple antennas at both the transmitter and receiver to improve communication performance.
NRFP	The National Radio Frequency Plan for South Africa.
NTN	Non-terrestrial Network
PMSE	Programme making and special events applications (PMSE)
PRASA	Passenger Rail Agency of South Africa.
PTM	Point to Multipoint.
PTP	Point to Point.
Radio-communication	All electronic communication by means of radio waves.
RATG	Radio Access Technology Group.
Revocation Period	A period of transition during which incumbent users are migrated out of the band in question to clear sufficient spectrum for new service providers.
RFSAP	Radio Frequency Spectrum Assignment Plan.
RLAN	Radio Local Access Network and is the high data rate two-way (duplex) wireless data communications network.
SABRE	South African Band Re-Planning Exercise.
SADC	Southern African Development Community.
SADC RFSAP	Southern African Development Community Frequency Allocation Plan.
SAPS	South African Police Service.
Service licence	BS, ECS or ECNS licence.
SF	Single Frequency.
SFN	Single Frequency Network.
TDD	Time Division Duplex.
VSAT	Very small aperture terminal used for fixed satellite services.
WAS	Wireless Access Systems and is end-user radio connections to public or private core networks.

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2 Introduction

2.1 The frequency arrangements for this band are set out in Section 5 of ITU-R M.1036-7. This band forms part of Band 4 for the overall range between 1710MHz and 2200MHz (see Figure 1). There are other users of this band, such as for Digital Enhanced Cordless Telecommunications ("DECT") technologies.

Figure 1: Frequency arrangements between 1710MHz-2200MHz



Source: ITU M.1036

3 Regulatory context

3.1 The NRFP allocations for this band are shown in the NRFP.

3.2 The IMT1900 TDD (1880 – 1900 MHz) band is allocated to mobile services on a primary basis in the NRFP.

4 Economic feasibility for IMT

4.1 The 1880-1900 MHz band is currently allocated to DECT. Shure has proposed expanding the DECT band to include using the band 1910-1920 MHz for DECT services, at least in the United Kingdom ("UK")[1], however it is not clear how many users would be served by allocating parts of the band to DECT services.

4.2 Given that it is unlikely that a significant number of consumers use DECT services in South Africa, it is unlikely that the band should remain allocated to DECT. Furthermore, given the scarcity of mid-band spectrum between 1GHz and 6GHz, it is likely that this band would be highly valued for IMT services. In addition, the adjacent band 1900-

[1] See: https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-1-10-weeks/future-authorisation-of-the-19001920-mhz-band/responses/shure-uk-ltd.pdf?v=403939

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1915MHz is likely to be allocated to IMT services (FRMCS). Accordingly, the band is likely to be highly valued for IMT services.

5 Technical feasibility

5.1 There are risks of interference between DECT and IMT services in the 1880-1900MHz band.

6 Maturity of the IMT ecosystem

6.1 There is already a strong device ecosystem that supports this band (n39), which is likely to grow further given the identification of the band 1880-1900 MHz for IMT services by the ITU, as shown on Figure 1 above.

7 International considerations

7.1 South Africa has an obligation in accordance with the Act to harmonise its allocations of spectrum with other countries in Region 1, including countries in the EU and the UK, which are in the process of allocating the band to mobile services.

8 Stakeholder comments

8.1 Refer to Table 1 below for a summary of the stakeholders' comments on the Draft IMT Roadmap 2024, Second Draft IMT Roadmap 2025, and Draft Radio Frequency Migration Plan 2024, alongside the Authority's response.

Table 1: Stakeholder comments and the Authority's responses for the 1880 – 1900 MHz band

Stakeholder comments	Authority's comment
Vodacom and Cell C support the allocation of this band for IMT. Vodacom expresses scepticism about the band's use for DECT services and considers that the IMT1900 band has strong terminal support, and recommends a deployment of band b/n39. Vodacom further asserts that there already exists a strong device ecosystem for this band. Cell C recommends that incumbent users should be mandated to reapply for IMT spectrum.	The Authority will consider information on the value of this band for IMT use, such as potential auction values, the network costs avoided by using this band for IMT, and any other benefits that stakeholders may wish to provide information on.
The DECT Forum has previously expressed concern, when commenting on the Draft Radio Frequency Migration Plan 2024, regarding the interference of new technologies with incumbent DECT users in the 1880-1900 MHz subrange. The Forum has further expressed their interest in introducing DECT NR+ to this subrange, which may be used for technologies such as Programme Making and Special Events (PMSE). Their recommendation is to allocate the entire 1880-1920 MHz band to DECT.	There is substantial demand for additional spectrum for IMT use including for railway mobile communications, as set out in the feasibility study for FRMCS, and it is improbable that alternative niche uses such as DECT and PMSE command equally high demand. Nonetheless, the Authority is considering information on the value of the use of these bands for alternative services, and stakeholders are
Shure has previously alluded, when commenting on the Draft Radio Frequency Migration Plan 2024, to the importance of PMSE in the 1880-1900 MHz band, suggesting that the Authority studies the compatibility of IMT services with the	

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Stakeholder comments	Authority's comment
band's incumbent DECT technologies.	encouraged to provide information on this. Stakeholders are encouraged to comment in this regard.
Telkom is of the view that only the band 1900-1920MHz is currently available for IMT use.	
Telkom advised that no VSAT services have been deployed in this band.	The Authority has made this correction.

9 Considerations in favour of and against IMT allocation

9.1 The advantages of allocating the band for IMT are:

9.1.1 The NRFP has proposed the allocation of the 1880-1900 MHz band to IMT;

9.1.2 There is a high likelihood that the highest value use of the band is for IMT rather than alternatives such as DECT;

9.1.3 The allocation of this band to IMT is technically feasible, i.e. that this will not interfere with systems in adjacent bands;

9.1.4 There are a number of jurisdictions proposing the allocation of the band for IMT, and thus there is a likely developing ecosystem;

9.1.5 Other countries in Region 1 are allocating the band for IMT, and South Africa must harmonise its allocations with other countries in Region 1;

9.1.6 Several stakeholders consider that the band should be allocated for IMT.

9.2 The disadvantage of allocating the band to IMT is that DECT users will have to migrate out of the band. Nevertheless, given the likely very small number of DECT users, compared to the very large number of potential mobile users in the band, it is highly unlikely that the disadvantages of allocating the band to IMT outweigh the advantages, and so this band ought to be allocated to IMT.

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Mothibi G. Ramusi

CHAIRPERSON

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Feasibility Study

3600 MHz to 3800 MHz

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6G	Sixth Generation Network Technology, relating to the ITU-R IMT-2030 specifications.
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IMT-2000	The International Mobile Telecommunications, as envisioned in ITU-R Recommendation ITU-R M.687 and M.816.
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IMT-2020	The International Mobile Telecommunications, as envisioned in Recommendation ITU-R M.2083.

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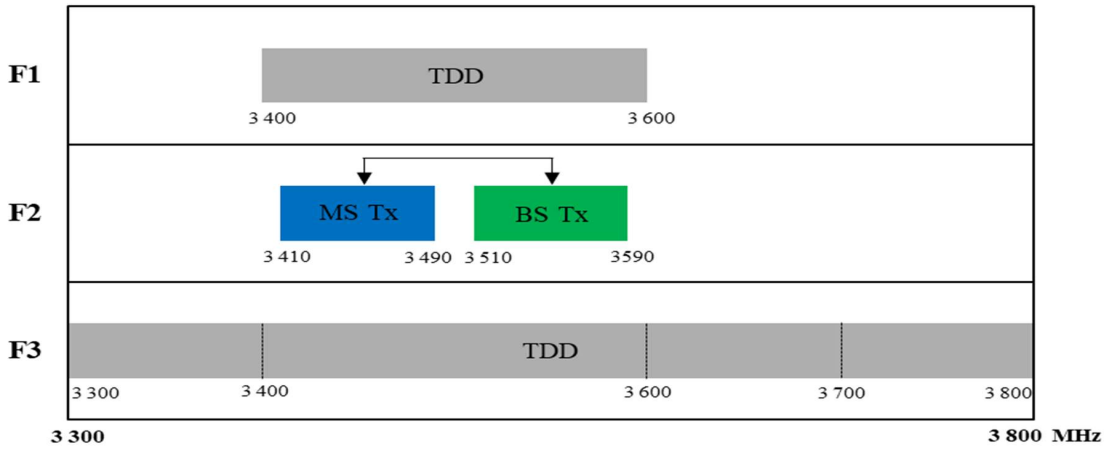
Acronym	Explanation
IMT-2030	The International Mobile Telecommunications, as envisioned in Recommendation ITU-R M.2160.
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ITU	International Telecommunication Union.
ITU RR	International Telecommunication Union Radio Regulations.
kHz	Kilohertz of Radio Frequency Spectrum.
LTE	Long Term Evolution and is a standard for wireless communication of high-speed data for mobile phones and data terminals. It is based on the GSM/EDGE and UMTS/HSPA network technologies.
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PRASA	Passenger Rail Agency of South Africa.
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Radio-communication	All electronic communication by means of radio waves.
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SAPS	South African Police Service.
Service licence	BS, ECS or ECNS licence.
SF	Single Frequency.
SFN	Single Frequency Network.
TDD	Time Division Duplex.
VSAT	Very small aperture terminal used for fixed satellite services.
WAS	Wireless Access Systems and is end-user radio connections to public or private core networks.

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2 Introduction

2.1 This band forms part of Band F3 for the overall range between 3300-3800MHz. F3 has a Time Division Duplex ("TDD") band plan (see Figure 2).[2] There are other uses of this band, such as for Fixed Services ("FS"), Fixed-Satellite Services ("FSS"), and Broadband Fixed Wireless Access ("BFWA").

Figure 2: Frequency arrangements between 3300MHz-3800MHz



Source: ITU-R M.1036-7

3 Regulatory context

3.1 The 3600-3800MHz band has been allocated to IMT in Region 1.[3] The band is allocated to mobile services (excluding aeronautical mobile services) on a co-primary basis with FS and FSS in the NRFP. There is provision for IMT in the entire 3600-3800MHz band. Within F3, spectrum can be allocated either wholly or partially to IMT.

[2] See Section 8 of ITU-R M.1036-7.

[3] See WRC-19 Resolution 223: Footnotes 5.343A and 5.343B.

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4 Economic feasibility

4.1 The indications are that the highest value use for this band is for IMT services. Auction results in Australia[4], Croatia[5], Nigeria[6], Tanzania[7], and the UK[8], suggest that the band is highly valued for IMT. While there are other users of this band, including BFWA, FS, and FSS, various approaches to shared use of this band ensure encouraged investment into mobile communications.[9] The aforementioned auction results are as follows, expressed in 2025 Rands:

4.1.1 In Australia, 1035 MHz of spectrum were awarded within the 3600-3800 MHz range to three licensees during the 2018 auction, with an approximate value of R62.06 million per 10 MHz.[10]

4.1.2 In Croatia, 200 MHz of spectrum were awarded within the 3600-3800 MHz range to two licensees during the 2021 auction, with an approximate value of R15.22 million per 10 MHz.[11]

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[4] Australia Communications and Media Authority Auction summary - 3.6 GHz band (2018), available at: https://www.acma.gov.au/auction-summary-36-ghz-band-2018

[5] See HAKOM awarded radio frequency spectrum for the fifth-generation mobile communications, available at: https://www.hakom.hr/en/hakom-awarded-radio-frequency-spectrum-for-the-fifth-generation-mobile-communications/9081

[6] See: 5G: Mafab, MTN Emerge Winners in Nigeria's 3.5GHz Spectrum Auction, available at: https://ncc.gov.ng/media-centre/press-releases/breaking-press-statement-35ghz-spectrum-mtn-mafab-pay-licences

[7] See Tanzania Communications Regulatory Authority Public Notice: Results of the auction of radio frequency spectrum in IMT band (3600-3800 MHz), available at: https://tcra.go.tz/uploads/documents/en-1752158214-Public_Notice_Spectrum_Auction_1032107643381814476641029946369102376331752154874696.pdf

[8] See Ofcom Award of the 700 MHz and 3.6-3.8 GHz spectrum bands, available at: https://www.ofcom.org.uk/spectrum/spectrum-awards/700-mhz-and-3.6-3.8-ghz-auction

[9] See GSMA Spectrum Policy Trends 2023, available at: https://www.gsma.com/connectivity-for-good/spectrum/wp-content/uploads/2023/02/Spectrum-Policy-Trends-2023-1.pdf

[10] In Australia's 2018 auction, 1035 MHz of spectrum were awarded for the value of AUD 4.51 million per 10 MHz. This figure is converted to 2018 rands using an exchange rate of AUD 0.0996/R and subsequently inflated to 2025 Rands. For exchange rate data, see: https://www.resbank.co.za/en/home/what-we-do/statistics/key-statistics/selected-historical-rates ; for CPI data see: https://www.statssa.gov.za/publications/P0141/CPIHistory.pdf

[11] In Croatia's 2021 auction, 200 MHz of spectrum were awarded for the value of HRK 5.37 million per 10 MHz. This figure is converted to 2021 USD using an exchange rate of HRK 6.4/USD, then from USD to Rands using R14.8/USD and subsequently inflated to 2025 Rands. For exchange rate data, see: https://data.worldbank.org/indicator/PA.NUS.FCRF ; for CPI data see: https://www.statssa.gov.za/publications/P0141/CPIHistory.pdf

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4.1.3 In Nigeria, 200 MHz of spectrum in the 3700-3800 MHz range were awarded to two licensees during the 2022 auction, with an approximate value of R476.75 million per 10 MHz.[12]

4.1.4 In Tanzania, 200 MHz of spectrum were awarded to three licensees during the 2025 auction, with an approximate value of R81.06 million per 10 MHz.[13]

4.1.5 In the UK, Ofcom awarded 120 MHz of spectrum within the 3600-3800 MHz range to three licensees during the 2021 auction, with an approximate value of R1.07 billion per 10 MHz.[14]

4.1.6 These assignments reflect the potential high value of this band for IMT services in South Africa.

4.2 In the United States of America (the "US"), satellite operators Intelstat and SES received 4.9 billion USD[15] and 3.99 billion USD[16], respectively, from 2021 to 2023 to clear spectrum in the 3.7-4.0GHz range for IMT deployment. This translates to R0.84/MHz per person in South Africa for Intelstat (approximately R16 billion) and R0.68/MHz per person in South Africa for SES (approximately R13 billion)[17]. At the same time, the true valuation of the spectrum in South Africa in the hands of satellite operators is not clear, since:

4.2.1 The US example related to 300MHz rather than the 200MHz being considered here,

4.2.2 The US has significantly higher demand for data services given the substantially higher gross domestic product per capita.

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[12] In Nigeria's 2022 auction, 200 MHz of spectrum were awarded for the value of USD 27.36 million per 10MHz. This figure is converted to 2022 Rands using an exchange rate of R15.27/USD and subsequently inflated to 2025 Rands. For exchange rate data, see: https://www.resbank.co.za/en/home/what-we-do/statistics/key-statistics/selected-historical-rates ; for CPI data see: https://www.statssa.gov.za/publications/P0141/CPIHistory.pdf

[13] In Tanzania's 2025 auction, 200 MHz were awarded for the value of TZS 11.79 billion per 10 MHz. This figure is converted to 2025 Rands using an exchange rate of TZS149.37/R. For exchange rate data, see: https://ws15.standardbank.co.za/finSnapShot/GetforexServlet

[14] In the UK's 2021 action, the 3720-3760 MHz range was awarded for the value of £176.4 million, equivalent to £44.1 million per 10 MHz. This figure is converted to 2021 Rands using an exchange rate of R19.81/£ and subsequently inflated to 2025 Rands. For exchange rate data, see: https://www.resbank.co.za/en/home/what-we-do/statistics/key-statistics/selected-historical-rates ; for CPI data see: https://www.statssa.gov.za/publications/P0141/CPIHistory.pdf

[15] See https://www.intelsat.com/newsroom/intelsat-completes-c-band-spectrum-clearing-for-5g-deployment/

[16] See https://www.ses.com/press-release/ses-completes-fccs-c-band-transition-clearing-and-relocation-plan-us

[17] These amounts were calculated by dividing the USD amount by the amount of spectrum (300MHz) and the 2023 US population (roughly 333 million) and converting to South African Rands (ZAR) at an exchange rate of R17.11 to the USD. These amounts were then multiplied by the amount of spectrum (300MHz) and the South African population (64 million).

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4.3 It is also important to note that there are three broadband fixed wireless access ("BWFA") licensees in the band, licensed on a secondary basis, that have rolled out IMT systems in the band. These stakeholders, including rain, Mthinte, and One Telecom, provided information to the effect that they have invested large sums of money in innovative network infrastructure that services large numbers of consumers. Changing the primary allocation to IMT may trigger a need for them to migrate out of the band, unless they were to bid for and successfully win radio frequency spectrum through a competitive assignment process. Their rollout of IMT infrastructure in the band provides further evidence that the band's highest value use is for IMT.

4.4 Overall, while there is some uncertainty on the valuation of 200MHz of 3.6GHz spectrum in South Africa, given the auctions of the spectrum to IMT providers in other African countries, it is likely that its highest value use is for IMT.

5 Technical feasibility

5.1 There may be concerns of interference or incompatibility between IMT services and incumbent users, particularly with FS and FSS. The ITU has identified measures that can be implemented to mitigate interference.[18] Techniques that can be implemented include:

5.1.1 Sector pointing to reduce emission power towards FSS earth station;

5.1.2 Multiple input, multiple output (“MIMO”) technique;

5.1.3 Antenna downtilting;

5.1.4 Low/medium power networks for local coverage;

5.1.5 Filtering of unwanted emissions of IMT transmitting stations;

5.1.6 Inter-service frequency separation; and

5.1.7 Distance-based mitigation.

5.2 The ITU also suggests the compilation of a registry of all FSS earth stations to gather information regarding geographical location and radio frequency allocations. This will ensure that regulators are aware of incumbent users and can implement appropriate

[18] See ITU Radiocommunication Study Groups. 2024. Mitigation measures between FSS and IMT in the frequency band 3 400-3 600 MHz. Document 4/28-E, available at: https://www.itu.int/dms_pub/itu-r/opb/rep/R-REP-S.2546-2025-PDF-E.pdf

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coordination strategies[19]. The Global Satellite Operators' Association supports this recommendation.[20]

5.3 Alternatively, incumbent users may be migrated from the band to allocate more spectrum to IMT. This transition may be difficult in some African countries, where satellite service providers are reliant on C-band frequencies (3400-4200MHz).[21]

5.4 There have been different approaches to shared use of this band, including for private networks in Finland and Germany. For instance, mobile operators were permitted to deploy a private network on request, or sub-license the spectrum for that area, which has ensured efficient spectrum use.[22] In Tanzania, the 3600-3800MHz range has been reserved for mobile services, while other ranges of the C-band have been assigned to FS and FSS[23]. In South Africa, incumbent users may need to be migrated from the band to clear more spectrum for IMT.[24]

6 Maturity of the IMT ecosystem

6.1 The 3600-3800MHz has been allocated to mobile on a co-primary basis in all three ITU Regions. There are already many devices that support C-band frequencies.[25] As more countries allocate the band to IMT, either on a primary or secondary basis, the ecosystem is likely to continue growing.

7 International considerations

7.1 The band has been harmonised for mobile services in Europe since 2008[26]. Other non-African countries in Region 1 that have already allocated the band to IMT include the

[19] See ITU Radiocommunication Study Groups. 2024. Mitigation measures between FSS and IMT in the frequency band 3 400-3 600 MHz. Document 4/28-E, available at: https://www.itu.int/dms_pub/itu-r/opb/rep/R-REP-S.2546-2025-PDF-E.pdf

[20] See GSOA Adjacent band sharing 5G and FSS receiving stations in C-band, available at: https://www.icasa.org.za/uploads/files/GSOA-supplementary-submission-on-Draft-Consultation-Document-on-Spectrum-Outlook.pdf

[21] See WRC-19 Resolution 246.

[22] See GSMA Spectrum Policy Trends 2023, available at: https://www.gsma.com/connectivity-for-good/spectrum/wp-content/uploads/2023/02/Spectrum-Policy-Trends-2023-1.pdf

[23] See https://tcra.go.tz/uploads/text-editor/files/NATIONAL%20FREQUENCY%20ALLOCATION%20CHART,%202024_1717745723.pdf

[24] See Miller et al. 2021, available at: https://www.gsma.com/connectivity-for-good/spectrum/wp-content/uploads/2023/07/Sub-Saharan-Africa-Roadmaps-for-5G-Spectrum.pdf

[25] See ATU-R recommendation relating to International Mobile Telecommunications (IMT) Spectrum Roadmap For Africa. 2025, available at: https://atuuat.africa/wp-content/uploads/2025/08/Project-4-IMT-Spectrum-Roadmap-for-Africa-Final.pdf

[26] See CEPT Decision 2008/411/EC.

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United Arab Emirates, Qatar, and Kuwait[27]. In Africa, Tanzania[28] and Nigeria[29] have auctioned spectrum to mobile service providers. South Africa has an obligation, as per the Act, to harmonise its allocations of spectrum with other countries in Region 1.

8 Stakeholder comments

8.1 Refer to Table 2 for a summary of stakeholders' comments on the Draft IMT Roadmap 2024, Second Draft IMT Roadmap 2025, and Draft Radio Frequency Migration Plan 2024, alongside the Authority's response.

Table 2: Stakeholder comments and the Authority's responses for the 3600 – 3800 MHz band

Stakeholder comments	Authority's comment
Vodacom, Comsol, Cell C, Huawei, MTN, Qualcomm, rain, and Telkom support the allocation of this band for IMT. MTN explains that the band is adjacent to the 3500MHz band which was sold at high values at auction by the Authority. Huawei considers that allocating this band to IMT will complete the 3300-3800MHz corridor of IMT spectrum.	The Authority is in the process of developing an RFSAP for IMT services in this band.
Rain previously suggested, in their comment on the Draft IMT Roadmap 2024, that due to their deployment of the latest compatible 5G equipment, licensees such as themselves, Mthinte, and One Telecom, do not need to be migrated from this band. rain further requests their direct participation in the feasibility study for this band, as they currently control 80MHz within this band. Rain's submission regarding the Second Draft IMT Roadmap 2025 contains similar comments.	It is not possible for coexistence between BFWA licensee incumbents and IMT within this band. Thus, incumbents licensed for BFWA in this band may need to migrate their services outside of the band.
MTN and Vodacom support the migration of incumbents from this band. Vodacom proposes that this should take place because some BWFA incumbents have small numbers of users, and the band is being denied to mass-market users. MTN proposes that migration recommendations take into account the life of the equipment deployed by licensees in this band.	
MTN, Telkom, and Comsol note that this band is allocated for BFWA use on a secondary basis, and that there are also FS PTP and/or FSS. Comsol explained that the European Conference of Postal and Telecommunications Regulators ("CEPT") supports allocation of the band to IMT, with the same conditions applying across the 3400-3800MHz band, and provided that there are no undue constraints on existing services. There is a PFD-limit and coordination procedures that protect fixed-satellite services. If the PFD limit at the border is exceeded, then coordination under no. 9.21 applies.	Stakeholders are encouraged to comment on coexistence with FS PTP and FSS in this band.

[27] See Kirtay et al. 2020. Upgrading mobile service allocation in 3600-3800 MHz, available at: https://plumconsulting.co.uk/upgrading-mobile-service-allocation-in-3600-3800-mhz/

[28] See https://tcra.go.tz/uploads/documents/en-1752158214-Public_Notice_Spectrum_Auction_1032107643381814476641029946369102376331752154874696.pdf

[29] See https://www.ncc.gov.ng/media-centre/press-releases/5g-mafab-mtn-emerge-winners-nigerias-35ghz-spectrum-auction?utm_source=chatgpt.com

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Stakeholder comments	Authority's comment
GSOA previously expressed concern, in its response to the 2024 Draft IMT Roadmap, that deploying IMT services could create incompatibility issues for satellite uses, potentially resulting in the displacement of the latter from this band. The GSOA requested information on what protection would be put in place for satellite operators in this band. Further, C-band currently comprises 31% of satellite capacity in Africa. MTN notes that where allocations to different BFWA operators overlap, coordination is required between these operators, as well as FS PTP and FSS systems. Cell C urges the importance of setting out co-existence guidelines.	
Huawei has advised against the use of this band for private networks.	Private network licenses are currently being considered only a limited geographic basis. Stakeholders are encouraged to comment on this question.

9 Considerations in favour of and against IMT allocation

9.1 There are a number of advantages to allocating this band to IMT:

9.1.1 The NRFP proposed the allocation of the 3600-3800 MHz to IMT;

9.1.2 The allocation of this band to IMT is economically feasible;

9.1.3 The IMT ecosystem is likely to continue growing;

9.1.4 Other countries in Region 1 have already or are in the process of allocating this band to mobile services;

9.1.5 While some stakeholders voice concern, several stakeholders consider that the band should be allocated to IMT;

9.1.6 However, there are some disadvantages:

9.1.7 There is risk of interference when the band is shared amongst IMT and other users;

9.1.8 Other African countries are reliant on FS and FSS that operate within this band;

9.1.9 Incompatibility with satellite users is likely;

9.1.10 Incumbent users will potentially need to migrate outside of this band.

9.2 Despite the risk of interference with other users and likely incompatibility with satellite incumbents which means migration of incumbent users is probable, as well as the reliance of African countries on FS and FSS, auction results from other countries clearly indicate that the band is valuable for IMT which is supported by allocations in other Region 1 countries and stakeholder backing. The considerations in favour of the allocation of this band for IMT, therefore, outweigh those against doing so.

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ELECTRONIC COMMUNICATIONS ACT, 2005 (ACT NO. 36 OF 2005)

HEREBY ISSUES A NOTICE REGARDING THE FEASIBILITY STUDIES FOR THE FREQUENCY BANDS ALLOCATED TO THE MOBILE RADIOCOMMUNICATIONS SERVICES AND IDENTIFIED INTERNATIONAL MOBILE TELECOMMUNICATIONS IN THE NATIONAL RADIO FREQUENCY PLAN.

1. The Independent Communications Authority of South Africa ("the Authority"), on 28 March 2024, published the Draft International Mobile Telecommunications (IMT) Roadmap, in Government Gazette No. 50413 (Notice 4584 of 2024) inviting Written Representations.

2. On 13 September 2024, in Government Gazette 51244 (Notice 5209 of 2024) the Authority published a "Notice Communicating the Outcome of the Consultation Process of the Draft IMT Roadmap 2025.

3. The Authority, in Government Gazette 53883 (Notice 3712 of 2025), published the Second Draft International Mobile Telecommunications (IMT) Roadmap 2025, in terms of section 4(3)(c) of the Independent Communications Authority of South Africa Act, 2000 (Act No. 13 of 2000), read with sections 2(e), 30, 31(4), and 33 of the Electronic Communications Act (Act No 36 of 2005).

4. Now therefore, the Authority, in terms of section 4(3)(c) of the Independent Communications Authority of South Africa Act, 2000 (Act No. 13 of 2000), read with sections 2(e), 30, 31(4), and 33 of the Electronic Communications Act (Act No 36 of 2005) hereby publishes the notice regarding the feasibility studies for the frequency bands allocated to the mobile radiocommunications services and identified international mobile telecommunications in the national radio frequency plan**.**

5. Interested persons are hereby invited to submit written representations on the notice regarding the feasibility studies for the frequency bands allocated to the mobile radiocommunications services and identified international mobile telecommunications in the national radio frequency plan in both

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Microsoft Word (MS) and Portable Document Format (PDF) by no later than 16:00 on **4 September 2026.**

6. Persons making representations are further invited to indicate whether they require an opportunity to make oral representations.

7. Written representations or enquiries may be directed by email to:

Attention:

Mr Manyaapelo Richard Makgotlho

e-mail: rmakgotlho@icasa.org.za

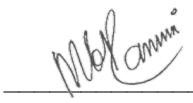
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8. Where persons making representations require that their representation, or part thereof, be treated as confidential, then an application in terms of section 4D of the ICASA Act, 2000 (Act No 13 of 2000) must be lodged with the Authority. Such an application must be submitted simultaneously with the representation, together with a non-confidential, redacted version of the submission. If, however, the request for confidentiality is not granted, the person making the request will be allowed to withdraw the representation or document in question.

9. The guidelines for confidentiality requests are contained in Government Gazette Number No 41839 of 17 August 2018.

10. All written representations submitted to the Authority pursuant to this notice will be made available for inspection by interested persons from **11 September 2026** at the Authority's Library. Electronic copies of such representations are obtainable on request and printed versions will be obtainable on payment of a fee.

11. The feasibility studies for the frequency bands allocated to the mobile radiocommunications services and identified international mobile telecommunications in the national radio frequency plan and the non-confidential representations will be uploaded to the Authority's website under this link: https://www.icasa.org.za/legislation-and-regulations/radio-frequency-spectrum-plans/draft-radio-frequency-spectrum-plans.



Mothibi G. Ramusi

CHAIRPERSON

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Feasibility Study

4800 MHz to 4990 MHz

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1 Glossary of Terms, Abbreviations, and Acronyms

Acronym	Explanation
3G	Third generation mobile telecommunications is a generation of standards for mobile phones and mobile telecommunication relating to the ITU-R IMT-2000 specifications.
4G	Fourth Generation Network Technology relating to ITU-R IMT-Advanced specifications.
5G	Fifth Generation Network Technology, relating to the ITU-R IMT-2020 specifications.
6G	Sixth Generation Network Technology, relating to the ITU-R IMT-2030 specifications.
Act	Electronic Communications Act, 2005 (Act No. 36 of 2005).
AAS	Active antennae systems.
Administration	Members States of the International Telecommunications Union.
Allocation	Entry in the Table of Frequency Allocations of a given frequency band for the purpose of its use by one or more terrestrial or space *radiocommunication services* or the *radio astronomy service* under specified conditions.
Assignment	The authorisation given by the authority to a licensee to use a radio frequency or radio frequency channel under specified conditions.
ATU	African Telecommunications Union.
Authority	The Independent Communications Authority of South Africa.
BFWA	Broadband Fixed Wireless Access.
CEPT	Conference of European Posts and Telecommunications Authorities.
CRASA	Communications Regulators' Association of Southern Africa.
DC-MSS-IMT	Direct Connectivity between Mobile-Satellite Service space station and IMT UEs.
DECT	Digital Enhanced Cordless Telecommunications 1880 - 1900 MHz which is a digital communication standard, primarily used for creating cordless phone systems.
ECA	The Electronic Communications Act of South Africa, Act No 36 of 2005.
EIRP	Effective isotropically radiated power.
ERP	Effective radiated power, which is the product of the power supplied to an antenna and its gain relative to a half wave dipole in a given direction.
FDD	Frequency Division Duplex.
FWA	Fixed Wireless Access.
FS	Fixed Service.
FSS	Fixed Satellite Service.
Gbps	Gigabits per second.
GHz	Gigahertz of Radio Frequency Spectrum.
GSM	Global System for Mobile Communications, (originally Groupe Spécial Mobile), and is a standard set developed by the European Telecommunications Standards Institute (ETSI) to describe technologies for second generation (2G) digital cellular networks.
GSMA	Global System for Mobile Communications Association.
IMT	The name that encompasses IMT-2000, IMT-Advanced, IMT-2020 and IMT-2030 collectively known as International Mobile Telecommunications.
IMT-2000	The International Mobile Telecommunications, as envisioned in ITU-R Recommendation ITU-R M.687 and M.816.
IMT-Advanced	The International Mobile Telecommunications, as envisioned in Recommendation ITU-R M.1645.
IMT-2020	The International Mobile Telecommunications, as envisioned in Recommendation ITU-R M.2083.

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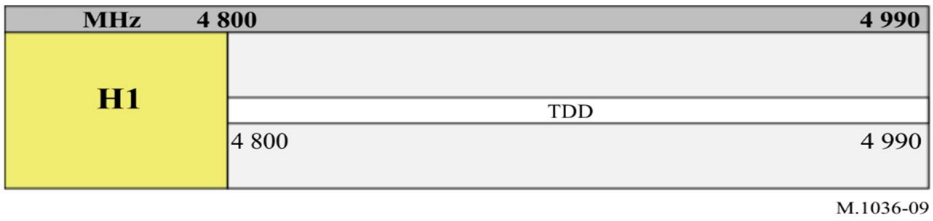
Acronym	Explanation
IMT-2030	The International Mobile Telecommunications, as envisioned in Recommendation ITU-R M.2160.
IoT	Internet of Things.
ITU	International Telecommunication Union.
ITU RR	International Telecommunication Union Radio Regulations.
kHz	Kilohertz of Radio Frequency Spectrum.
LTE	Long Term Evolution and is a standard for wireless communication of high-speed data for mobile phones and data terminals. It is based on the GSM/EDGE and UMTS/HSPA network technologies.
M2M	Machine to Machine.
MHz	Megahertz of Radio Frequency Spectrum.
MIMO	Multiple-Input and Multiple-Output and is the use of multiple antennas at both the transmitter and receiver to improve communication performance.
NRFP	The National Radio Frequency Plan for South Africa.
NTN	Non-terrestrial Network
PMSE	Programme making and special events applications (PMSE)
PRASA	Passenger Rail Agency of South Africa.
PTM	Point to Multipoint.
PTP	Point to Point.
Radio-communication	All electronic communication by means of radio waves.
RATG	Radio Access Technology Group.
Revocation Period	A period of transition during which incumbent users are migrated out of the band in question to clear sufficient spectrum for new service providers.
RFSAP	Radio Frequency Spectrum Assignment Plan.
RLAN	Radio Local Access Network and is the high data rate two-way (duplex) wireless data communications network.
SABRE	South African Band Re-Planning Exercise.
SADC	Southern African Development Community.
SADC RFSAP	Southern African Development Community Frequency Allocation Plan.
SAPS	South African Police Service.
Service licence	BS, ECS or ECNS licence.
SF	Single Frequency.
SFN	Single Frequency Network.
TDD	Time Division Duplex.
VSAT	Very small aperture terminal used for fixed satellite services.
WAS	Wireless Access Systems and is end-user radio connections to public or private core networks.

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2 Introduction

2.1 The frequency arrangements for this band are set out in Section 9 of ITU-R M.1036-7. The frequency range 4800-4990MHz falls under band H1, which has a TDD band plan (see Figure 3)[30]. This arrangement is suitable for IMT and has been identified as "*key mid-band spectrum for 5G expansion.*"[31] The ITU has allocated this band to mobile services and FS on a primary basis, and to radio astronomy on a secondary basis.

Figure 3: Frequency arrangements between 4800MHz-4990MHz



Source: ITU-R M.1036

3 Regulatory context

3.1 This band has been allocated to mobile services on a primary basis in all three Regions, and has been identified for IMT in the NRFP. In Region 1 and in SA, the band is allocated to FS and mobile services on a co-primary basis, and to radio astronomy on a secondary basis. There is provision for IMT in the entire band. Spectrum can be allocated either wholly or partially to IMT.

4 Economic feasibility for IMT

4.1 The indications are that the highest value use for this band is for IMT services. While there are other users of this band, auction results in Hong Kong[32] suggest that the band is highly valued for IMT. The auction results are as follows, expressed in 2025 Rands:

4.1.1 In Hong Kong, 80 MHz of spectrum in the 4840-4920 MHz range were awarded to two licensees during the 2019 auction, with an approximate value of R73.82 million per 10 MHz.[33]

[30] See Section 9 of ITU-R M.1036-7.

[31] See Miller et al. 2021, available at: https://www.gsma.com/connectivity-for-good/spectrum/wp-content/uploads/2023/07/Sub-Saharan-Africa-Roadmaps-for-5G-Spectrum.pdf

[32] See Hong Kong Office of Communications Authority Auction of Radio Spectrum in the 4.9 GHz Band for the Provision of Public Mobile Services: Successful Bidder Notice, available at: https://www.ofca.gov.hk/en/news_info/press_releases/index_id_2014.html

[33] In Hong Kong's 2019 auction, 80 MHz of spectrum were awarded for the value of HK$30 000 000 per 10MHz. This figure is converted to 2019 Rands using an exchange rate of HK$0.5354/R and subsequently inflated to 2025

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5 Technical feasibility

5.1 While the band has been identified for IMT, the identification does not establish priority for IMT. Any IMT use is subject to agreement with incumbent users.[34] This may pose a risk of interference. If the band is allocated to IMT, coordination strategies within the band and compatibility measures with adjacent frequency bands may be necessary.

6 Maturity of the IMT ecosystem

6.1 This band has a growing device ecosystem, with new IMT assignments in China and Japan.[35] There are 993 devices that support this band (n79).[36]

7 International considerations

7.1 The band has been identified for IMT use in all 3 Regions. South Africa has an obligation, as per the Act, to harmonise spectrum allocation with other countries in Region 1.

8 Stakeholder comments

8.1 Refer to Table 3 below for a summary of stakeholders' comments on the Draft IMT Roadmap 2024, Second Draft IMT Roadmap 2025, and Draft Radio Frequency Migration Plan 2024, alongside the Authority's response.

Table 3: Stakeholder comments and the Authority's responses for the 4800 – 4990 MHz band

Stakeholder comments	Authority's comment
Vodacom, Huawei, MTN, Cell C, and Telkom support the allocation of this band for IMT. Vodacom further recommends the expedited migration of current incumbents who are not licensed to provide IMT services in this band. Cell C recommends that coexistence and migration guidelines are issued for this band. MTN, Vodacom, and Huawei note the moderate, but growing device ecosystem due to increased assignments in the Asia-Pacific and Latin American regions, most notably in China. MTN comments that the band is likely to have similar characteristics to the highly-valued IMT3500MHz band. Similarly, Huawei comments that this band complements the 3300-3800MHz corridor.	The Authority is in the process of developing an RFSAP for IMT services in this band.

Rands. For exchange rate data, see: https://www.resbank.co.za/en/home/what-we-do/statistics/key-statistics/selected-historical-rates ; for CPI data see: https://www.statssa.gov.za/publications/P0141/CPIHistory.pdf

[34] See WRC-19 Footnote 5.441B.

[35] See GSMA Spectrum Policy Trends 2023, available at: https://www.gsma.com/connectivity-for-good/spectrum/wp-content/uploads/2023/02/Spectrum-Policy-Trends-2023-1.pdf

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9 Considerations in favour of and against IMT allocation

9.1 There are a number of advantages to allocating this band to IMT, including:

9.1.1 The NRFP identified 4800-4990 MHz for IMT;

9.1.2 The allocation of the band to IMT is economically feasible;

9.1.3 Most stakeholders consider the band to be suitable for IMT;

9.1.4 There is a moderate, but growing, device ecosystem;

9.2 However, there is risk of interference with incumbent users if they are not migrated from the band.

9.3 Despite the risk of interference with incumbent users, the band is clearly valuable for IMT, and its allocation is supported by stakeholders. The considerations in favour of the allocation of this band for IMT, therefore, outweigh those against doing so.

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Mothibi G. Ramusi

CHAIRPERSON

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Feasibility Study

6425 MHz to 7125 MHz

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Act	Electronic Communications Act, 2005 (Act No. 36 of 2005).
AAS	Active antennae systems.
Administration	Members States of the International Telecommunications Union.
Allocation	Entry in the Table of Frequency Allocations of a given frequency band for the purpose of its use by one or more terrestrial or space *radiocommunication services* or the *radio astronomy service* under specified conditions.
Assignment	The authorisation given by the authority to a licensee to use a radio frequency or radio frequency channel under specified conditions.
ATU	African Telecommunications Union.
Authority	The Independent Communications Authority of South Africa.
BFWA	Broadband Fixed Wireless Access.
CEPT	Conference of European Posts and Telecommunications Authorities.
CRASA	Communications Regulators' Association of Southern Africa.
DC-MSS-IMT	Direct Connectivity between Mobile-Satellite Service space station and IMT UEs.
DECT	Digital Enhanced Cordless Telecommunications 1880 - 1900 MHz which is a digital communication standard, primarily used for creating cordless phone systems.
ECA	The Electronic Communications Act of South Africa, Act No 36 of 2005.
EIRP	Effective isotropically radiated power.
ERP	Effective radiated power, which is the product of the power supplied to an antenna and its gain relative to a half wave dipole in a given direction.
FDD	Frequency Division Duplex.
FWA	Fixed Wireless Access.
FS	Fixed Service.
FSS	Fixed Satellite Service.
Gbps	Gigabits per second.
GHz	Gigahertz of Radio Frequency Spectrum.
GSM	Global System for Mobile Communications, (originally Groupe Spécial Mobile), and is a standard set developed by the European Telecommunications Standards Institute (ETSI) to describe technologies for second generation (2G) digital cellular networks.
GSMA	Global System for Mobile Communications Association.
IMT	The name that encompasses IMT-2000, IMT-Advanced, IMT-2020 and IMT-2030 collectively known as International Mobile Telecommunications.
IMT-2000	The International Mobile Telecommunications, as envisioned in ITU-R Recommendation ITU-R M.687 and M.816.
IMT-Advanced	The International Mobile Telecommunications, as envisioned in Recommendation ITU-R M.1645.
IMT-2020	The International Mobile Telecommunications, as envisioned in Recommendation ITU-R M.2083.

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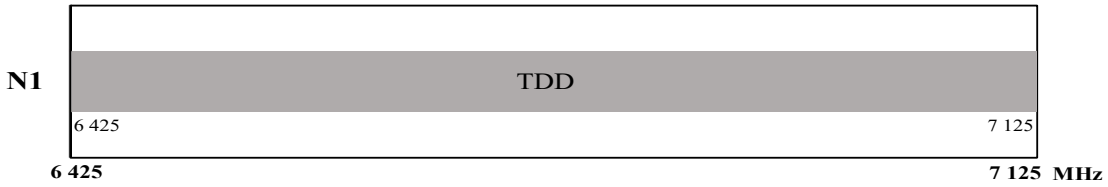
Acronym	Explanation
IMT-2030	The International Mobile Telecommunications, as envisioned in Recommendation ITU-R M.2160.
IoT	Internet of Things.
ITU	International Telecommunication Union.
ITU RR	International Telecommunication Union Radio Regulations.
kHz	Kilohertz of Radio Frequency Spectrum.
LTE	Long Term Evolution and is a standard for wireless communication of high-speed data for mobile phones and data terminals. It is based on the GSM/EDGE and UMTS/HSPA network technologies.
M2M	Machine to Machine.
MHz	Megahertz of Radio Frequency Spectrum.
MIMO	Multiple-Input and Multiple-Output and is the use of multiple antennas at both the transmitter and receiver to improve communication performance.
NRFP	The National Radio Frequency Plan for South Africa.
NTN	Non-terrestrial Network
PMSE	Programme making and special events applications (PMSE)
PRASA	Passenger Rail Agency of South Africa.
PTM	Point to Multipoint.
PTP	Point to Point.
Radio-communication	All electronic communication by means of radio waves.
RATG	Radio Access Technology Group.
Revocation Period	A period of transition during which incumbent users are migrated out of the band in question to clear sufficient spectrum for new service providers.
RFSAP	Radio Frequency Spectrum Assignment Plan.
RLAN	Radio Local Access Network and is the high data rate two-way (duplex) wireless data communications network.
SABRE	South African Band Re-Planning Exercise.
SADC	Southern African Development Community.
SADC RFSAP	Southern African Development Community Frequency Allocation Plan.
SAPS	South African Police Service.
Service licence	BS, ECS or ECNS licence.
SF	Single Frequency.
SFN	Single Frequency Network.
TDD	Time Division Duplex.
VSAT	Very small aperture terminal used for fixed satellite services.
WAS	Wireless Access Systems and is end-user radio connections to public or private core networks.

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2 Introduction

2.1 The frequency range 6425-7125MHz has a TDD band plan (N1). The frequency arrangement is shown below on Figure 4. The band is used for FS and FSS. This band is considered to be "*key mid-band spectrum for 5G expansion*" in Africa.[37]

Figure 4: Frequency arrangements between 6425MHz-7125MHz



Source: ITU WG5D

3 Regulatory context

3.1 The ITU has identified this band for IMT. The NRFP for this band has primary allocations for FS, FSS, and mobile services.

4 Economic feasibility

4.1 It is likely that the highest value use for this band is a combination of outdoor IMT services and FSS and FS links being deployed on a coordinated basis.

4.2 Auction results in Hong Kong[38] suggest that the band is highly valued for IMT. Specifically, 300 MHz of spectrum in the 6570-7025 MHz range were awarded to three licensees during the 2024 auction, with an approximate value of R50.25 million per 10 MHz (expressed in 2025 Rands).[39]

4.3 In order to provide an indicative valuation of assigning the band to IMT, 500MHz of mid-band spectrum was added to the Authority's call termination rate cost model.[40] This

[37] See Miller et al. 2021, available at: https://www.gsma.com/connectivity-for-good/spectrum/wp-content/uploads/2023/07/Sub-Saharan-Africa-Roadmaps-for-5G-Spectrum.pdf

[38] See Hong Kong Office of Communications Authority Auction of Radio Spectrum in the 6/7 GHz Band for the Provision of Public Mobile Services: Successful Bidder Notice, available at: https://www.ofca.gov.hk/en/news_info/press_releases/index_id_2365.html

[39] In Hong Kong's 2024 auction, 300 MHz of spectrum were awarded for the value of HK$21 000 000 per 10MHz. This figure is converted to 2024 Rands using an exchange rate of HK$0.4314/R and subsequently inflated to 2025 Rands. For exchange rate data, see: https://www.resbank.co.za/en/home/what-we-do/statistics/key-statistics/selected-historical-rates ; for CPI data see: https://www.statssa.gov.za/publications/P0141/CPIHistory.pdf

[40] See https://www.icasa.org.za/legislation-and-regulations/bu-mobile-cost-model-v6-2

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resulted in additional TDD spectrum being used by the hypothetical mobile network operator, which is able to avoid costs of approximately R2.3bn. This would result in avoided costs of almost R7bn if awarded to three operators. This suggests that this spectrum is highly valued for IMT.

4.4 The band is thus highly valued for IMT services.

5 Technical feasibility

5.1 The use of this band for IMT may not come at the expense of migration of all other services (FS in the entire band, and FSS in the band 6425-7075MHz), given the opportunities for coordination and coexistence. In particular, the ITU has drafted a document that provides guidance on coordination between FS and IMT stations.[41] The ITU has also identified measures that can be implemented to mitigate interference in related bands.[42] Techniques that can be implemented include:

5.1.1 Sector pointing to reduce emission power towards FSS earth station;

5.1.2 Multiple input, multiple output ("MIMO") technique;

5.1.3 Antenna downtilting;

5.1.4 Low/medium power networks for local coverage;

5.1.5 Filtering of unwanted emissions of IMT transmitting stations;

5.1.6 Inter-service frequency separation; and

5.1.7 Distance-based mitigation.

5.2 The ITU also suggests the compilation of a registry of all FSS earth stations to gather information regarding geographical location and radio frequency allocations. This will ensure that regulators are aware of incumbent users and can implement appropriate coordination strategies[43]. The Global Satellite Operators' Association supports this recommendation.[44]

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[41] See ITU Radiocommunication Study Groups. 2025. Guidance for national and bilateral coordination of stations in the fixed service with IMT stations in the frequency band 6 425-7 125 MHz. Document 5/88-E

[42] See ITU Radiocommunication Study Groups. 2024. Mitigation measures between FSS and IMT in the frequency band 3 400-3 600 MHz. Document 4/28-E, available at: https://www.itu.int/dms_pub/itu-r/opb/rep/R-REP-S.2546-2025-PDF-E.pdf

[43] See ITU Radiocommunication Study Groups. 2024. Mitigation measures between FSS and IMT in the frequency band 3 400-3 600 MHz. Document 4/28-E, available at: https://www.itu.int/dms_pub/itu-r/opb/rep/R-REP-S.2546-2025-PDF-E.pdf

[44] See GSOA Adjacent band sharing 5G and FSS receiving stations in C-band, available at: https://www.icasa.org.za/uploads/files/GSOA-supplementary-submission-on-Draft-Consultation-Document-on-Spectrum-Outlook.pdf

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5.3 Alternatively, incumbent users may be migrated from the band to allocate more spectrum to IMT.

6 Maturity of the IMT ecosystem

6.1 The device ecosystem is limited. There are no devices that support this band.[45]

7 International considerations

7.1 The band 6425-7125MHz was identified for IMT at WRC-23 (Resolution 220). The allocation of the band for IMT was also the African common proposal to WRC-23 in relation to allocation to mobile and identification for IMT.

8 Stakeholder comments

8.1 Refer to Table 4 for a summary of stakeholders' comments on the Draft IMT Roadmap 2024, Second Draft IMT Roadmap 2025, and Draft Radio Frequency Migration Plan 2024, alongside the Authority's response.

Table 4: Stakeholder comments and the Authority's responses for the 6425 – 7125 MHz band

Stakeholder comments	Authority's comment
Huawei, Telkom, Cell C, Qualcomm, and MTN support the allocation of this band for IMT. Vodacom supports the feasibility study yet recommends a consultative process before the migration of existing incumbents. MTN and Vodacom also explain that this is a key capacity expansion band for IMT services. MTN explains that the large and contiguous nature of the block means that it is valuable for IMT, suggesting that large blocks of 200MHz may be needed by mobile network operators in future. Huawei comments on a range of countries that are in the process of allocating either the entire band or the bulk of it to IMT.	The Authority is in the process of developing an RFSAP for IMT services in this band given that it has been identified for IMT in WRC-23.
Huawei supports a feasibility study regarding the coexistence and migration frameworks for fixed services.	The Authority will consider how coexistence / shared use of the band could be included in the RFSAP. See Section 5. Stakeholders are encouraged to share further comment in this regard.
MTN encourages the development of a migration plan for incumbent FS links, taking into account equipment life and alternative spectrum allocations. Telkom cites studies indicating not all FS links will need to be migrated, as these could coexist with IMT in rural areas. Vodacom comments that a feasibility needs to be carried out on how microwave assignments in 6GHz and lower 7GHz can be migrated to suitable alternatives sub-8GHz that achieve similar throughputs and distances.	
Viasat has previously expressed, in its response to the Draft Radio Frequency Migration Plan 2024, that it does not support the deployment of this band for IMT due to its current use for	

[45] See ATU-R recommendation relating to International Mobile Telecommunications (IMT) Spectrum Roadmap For Africa. 2025, available at: https://atuuat.africa/wp-content/uploads/2025/08/Project-4-IMT-Spectrum-Roadmap-for-Africa-Final.pdf

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Stakeholder comments	Authority's comment
mobile satellite services.	
The Dynamic Spectrum Alliance (DSA) previously disputed, in its response to the Draft Radio Frequency Migration Plan 2024, that the WRC-23 has allocated the use of this band for IMT on a primary basis, citing that as per WRC-23, identification for IMT should not take preference over the current allocation of the band to RLAN/WAS. The DSA further urged that the band should be used for RLAN/WAS to avoid migration costs. Similarly, the Wireless Access Providers' Association of South Africa (WAPA) suggests that despite the identification by WRC-23, this band is not suitable for IMT, citing the lack of device ecosystem. WAPA further suggests that IMT allocation will unavoidably result in interference for incumbents. WAPA further notes that 25% of the spectrum available in the band was unsold in the Hong Kong auction, and the assignment process in Brazil has been delayed. The Wi-Fi Alliance (WFA) previously proposed using the band for RLAN/WAS, in its response to the 2024 Draft Radio Frequency Migration Plan. The WFA reiterated the high costs involved in an unavoidable migration process should the band be deployed for IMT. The WFA further cited the advantages of the use of this band by RLAN/WAS, such as the support of over 296 million devices that will be introduced to the Wi-Fi 7 market in 2024. The performance of Wi-Fi 7, as per the WFA, would be reduced substantively without access to the entire band. However, Telkom does not support the use of this band for RLAN/WAS systems, since coordination is not possible between IMT and RLAN/WAS in the same area, and permitting RLAN/WAS will thus negatively impact on the valuation of spectrum for IMT. Similarly, Vodacom considers that there is a proliferation of RLAN/WAS devices that would make future use of IMT difficult in this band, and it is thus important for the Authority not to permit RLAN/WAS in the band. MTN adopts a similar position, setting out that coordination between IMT and RLAN/WAS is not feasible. Huawei suggests that while there are possibilities for shared use, this requires the deployment of sophisticated methods. Huawei also comments that the lower-6GHz band, already allocated to RLAN/WAS, is currently unlikely to be substantially used, and so it is unnecessary to expand the use of RLAN/WAS to the upper-GHz band too.	The Authority will not consider spectrum usage by RLAN/WAS systems as this band has been allocated to IMT on a primary basis in the NRFP.

9 Considerations in favour of and against IMT allocation

9.1 There are a number of advantages to allocating this band to IMT services:

9.1.1 The band has been identified for IMT use by the ITU and in the NRFP;

9.1.2 The band is likely of high value for IMT;

9.1.3 Shared use with incumbent users is technically feasible;

9.2 There are also several disadvantages:

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9.2.1 The device ecosystem is limited;

9.2.2 There is a lack of regional harmonisation of this band;

9.2.3 While most IMT stakeholders consider the band suitable for IMT, some stakeholders do not.

9.3 Despite the limited device ecosystem and concern from incumbent stakeholders regarding alternative applications, it is evident from auction results in Hong Kong and the estimated avoided costs of using the band for IMT suggest that it is highly valued for IMT. The considerations in favour of the allocation of this band for IMT, therefore, outweigh those against doing so.

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ELECTRONIC COMMUNICATIONS ACT, 2005 (ACT NO. 36 OF 2005)

HEREBY ISSUES A NOTICE REGARDING THE FEASIBILITY STUDIES FOR THE FREQUENCY BANDS ALLOCATED TO THE MOBILE RADIOCOMMUNICATIONS SERVICES AND IDENTIFIED INTERNATIONAL MOBILE TELECOMMUNICATIONS IN THE NATIONAL RADIO FREQUENCY PLAN.

1. The Independent Communications Authority of South Africa ("the Authority"), on 28 March 2024, published the Draft International Mobile Telecommunications (IMT) Roadmap, in Government Gazette No. 50413 (Notice 4584 of 2024) inviting Written Representations.

2. On 13 September 2024, in Government Gazette 51244 (Notice 5209 of 2024) the Authority published a "Notice Communicating the Outcome of the Consultation Process of the Draft IMT Roadmap 2025.

3. The Authority, in Government Gazette 53883 (Notice 3712 of 2025), published the Second Draft International Mobile Telecommunications (IMT) Roadmap 2025, in terms of section 4(3)(c) of the Independent Communications Authority of South Africa Act, 2000 (Act No. 13 of 2000), read with sections 2(e), 30, 31(4), and 33 of the Electronic Communications Act (Act No 36 of 2005).

4. Now therefore, the Authority, in terms of section 4(3)(c) of the Independent Communications Authority of South Africa Act, 2000 (Act No. 13 of 2000), read with sections 2(e), 30, 31(4), and 33 of the Electronic Communications Act (Act No 36 of 2005) hereby publishes the notice regarding the feasibility studies for the frequency bands allocated to the mobile radiocommunications services and identified international mobile telecommunications in the national radio frequency plan.

5. Interested persons are hereby invited to submit written representations on the notice regarding the feasibility studies for the frequency bands allocated to the mobile radiocommunications services and identified international mobile telecommunications in the national radio frequency plan in both

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Microsoft Word (MS) and Portable Document Format (PDF) by no later than 16:00 on **4 September 2026.**

6. Persons making representations are further invited to indicate whether they require an opportunity to make oral representations.

7. Written representations or enquiries may be directed by email to:

Attention:

Mr Manyaapelo Richard Makgotlho

e-mail: rmakgotlho@icasa.org.za

Copy: jdikgale@icasa.org.za

8. Where persons making representations require that their representation, or part thereof, be treated as confidential, then an application in terms of section 4D of the ICASA Act, 2000 (Act No 13 of 2000) must be lodged with the Authority. Such an application must be submitted simultaneously with the representation, together with a non-confidential, redacted version of the submission. If, however, the request for confidentiality is not granted, the person making the request will be allowed to withdraw the representation or document in question.

9. The guidelines for confidentiality requests are contained in Government Gazette Number No 41839 of 17 August 2018.

10. All written representations submitted to the Authority pursuant to this notice will be made available for inspection by interested persons from **11 September 2026** at the Authority's Library. Electronic copies of such representations are obtainable on request and printed versions will be obtainable on payment of a fee.

11. The feasibility studies for the frequency bands allocated to the mobile radiocommunications services and identified international mobile telecommunications in the national radio frequency plan and the non-confidential representations will be uploaded to the Authority's website under this link: https://www.icasa.org.za/legislation-and-regulations/radio-frequency-spectrum-plans/draft-radio-frequency-spectrum-plans.



Mothibi G. Ramusi

CHAIRPERSON

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Feasibility Study

24.25 GHz to 27.5 GHz

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1 Glossary of Terms, Abbreviations, and Acronyms

Acronym	**Explanation**
3G	Third generation mobile telecommunications is a generation of standards for mobile phones and mobile telecommunication relating to the ITU-R IMT-2000 specifications.
4G	Fourth Generation Network Technology relating to ITU-R IMT-Advanced specifications.
5G	Fifth Generation Network Technology, relating to the ITU-R IMT-2020 specifications.
6G	Sixth Generation Network Technology, relating to the ITU-R IMT-2030 specifications.
Act	Electronic Communications Act, 2005 (Act No. 36 of 2005).
AAS	Active antennae systems.
Administration	Members States of the International Telecommunications Union.
Allocation	Entry in the Table of Frequency Allocations of a given frequency band for the purpose of its use by one or more terrestrial or space *radiocommunication services* or the *radio astronomy service* under specified conditions.
Assignment	The authorisation given by the authority to a licensee to use a radio frequency or radio frequency channel under specified conditions.
ATU	African Telecommunications Union.
Authority	The Independent Communications Authority of South Africa.
BFWA	Broadband Fixed Wireless Access.
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CRASA	Communications Regulators' Association of Southern Africa.
DC-MSS-IMT	Direct Connectivity between Mobile-Satellite Service space station and IMT UEs.
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EIRP	Effective isotropically radiated power.
ERP	Effective radiated power, which is the product of the power supplied to an antenna and its gain relative to a half wave dipole in a given direction.
FDD	Frequency Division Duplex.
FWA	Fixed Wireless Access.
FS	Fixed Service.
FSS	Fixed Satellite Service.
Gbps	Gigabits per second.
GHz	Gigahertz of Radio Frequency Spectrum.
GSM	Global System for Mobile Communications, (originally Groupe Spécial Mobile), and is a standard set developed by the European Telecommunications Standards Institute (ETSI) to describe technologies for second generation (2G) digital cellular networks.
GSMA	Global System for Mobile Communications Association.
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IMT-2020	The International Mobile Telecommunications, as envisioned in Recommendation ITU-R M.2083.

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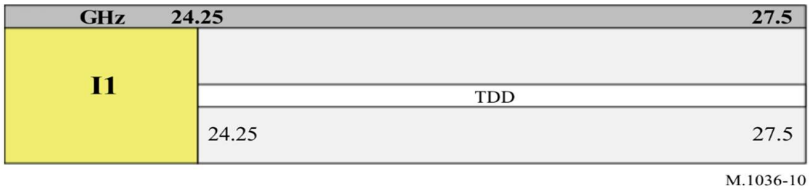
Acronym	Explanation
IMT-2030	The International Mobile Telecommunications, as envisioned in Recommendation ITU-R M.2160.
IoT	Internet of Things.
ITU	International Telecommunication Union.
ITU RR	International Telecommunication Union Radio Regulations.
kHz	Kilohertz of Radio Frequency Spectrum.
LTE	Long Term Evolution and is a standard for wireless communication of high-speed data for mobile phones and data terminals. It is based on the GSM/EDGE and UMTS/HSPA network technologies.
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MHz	Megahertz of Radio Frequency Spectrum.
MIMO	Multiple-Input and Multiple-Output and is the use of multiple antennas at both the transmitter and receiver to improve communication performance.
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NTN	Non-terrestrial Network
PMSE	Programme making and special events applications (PMSE)
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PTM	Point to Multipoint.
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Radio-communication	All electronic communication by means of radio waves.
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Revocation Period	A period of transition during which incumbent users are migrated out of the band in question to clear sufficient spectrum for new service providers.
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RLAN	Radio Local Access Network and is the high data rate two-way (duplex) wireless data communications network.
SABRE	South African Band Re-Planning Exercise.
SADC	Southern African Development Community.
SADC RFSAP	Southern African Development Community Frequency Allocation Plan.
SAPS	South African Police Service.
Service licence	BS, ECS or ECNS licence.
SF	Single Frequency.
SFN	Single Frequency Network.
TDD	Time Division Duplex.
VSAT	Very small aperture terminal used for fixed satellite services.
WAS	Wireless Access Systems and is end-user radio connections to public or private core networks.

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2 Introduction

2.1 This band is arrangement I1, the frequency range 24.25-27.5 GHz ("26 GHz"), as shown on Figure 5 below. I1 has a TDD band plan. This band is suitable for IMT. It falls under the high-frequency range from 24-100GHz known as millimetre wave ("mmWave") which is ideal for IMT use[46]. The band is currently mainly used for FS links, and it is also used for mobile and inter-satellite services (excluding aeronautical mobile), and FSS.

Figure 5: Frequency arrangements between 24.25GHz-27.5GHz



Source: ITU-R M.1036

3 Regulatory context

3.1 The 26 GHz band is allocated to mobile services on a primary basis in all three ITU regions. This band has been identified for IMT in the NRFP. There is provision for IMT in the entire band.

4 Economic feasibility for IMT

4.1 The benefits of using this band for IMT are considerable. While there are other users of this band, such as FS and FSS, auction results in the Austria[47], Croatia[48], Finland[49], and the UK[50] suggest that the band is highly valued for IMT.[51] The 26 GHz band is

[46] See GSA. 2025. Hot Topic Millimetre Wave, available at: https://gsacom.com/paper/millimetre-wave-spectrum-july-2025/

[47] See Austria Telecommunications and Postal Division Auction result 26 GHz/3600 MHz., available at: https://www.rtr.at/TKP/was_wir_tun/telekommunikation/spectrum/procedures/26G_3600M_2024/Results.en.html

[48] See HAKOM awarded radio frequency spectrum for the fifth generation mobile communications, available at:https://www.hakom.hr/en/hakom-awarded-radio-frequency-spectrum-for-the-fifth-generation-mobile-communications/9081

[49] See Finland Ministry of Transport and Communications Press Release: 5G spectrum auction concluded, available at: https://valtioneuvosto.fi/en/-/1410829/5g-spectrum-auction-concluded-1206517

[51] Note that a value per 10 MHz cannot be calculated from the UK auction results due to the reporting format used by Ofcom.

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considered to be one of the "*most promising*" bands for IMT-2020 services.[52] The aforementioned auction results are as follows, expressed in 2025 Rands:

4.1.1 In Austria, 1 400 MHz of spectrum in the 26 GHz range were awarded to three licensees during the 2024 auction, with an approximate value of R2.45 million per 10 MHz.[53]

4.1.2 In Croatia, 1 000 MHz of spectrum were awarded to four licensees during the 2021 auction, with an approximate value of R1.07 million per 10MHz.[54]

4.1.3 In Finland, 2 400 MHz of spectrum in the 25.1-27.5 GHz were awarded to three licensees during the 2020 auction, with an approximate value of R2.11 million per 10 MHz.[55]

4.2 Although the African Telecommunications Union ("ATU") has encouraged the allocation of this band to IMT[56], the use of mmWave in Africa is hampered by deployment costs and economic barriers.[57]

5 Technical feasibility

5.1 While the band has been identified for IMT in all three regions, IMT services do not have priority use of the band, nor does the identification prevent the application of other services within the band.[58] Therefore, there is a risk of interference with incumbent users. In the UK, Ofcom has allocated the bulk of the band (25.1GHz-27.5GHz) to IMT in

[52] See GSMA. 2018. IMT Spectrum Between 24.25 and 86 GHz GSMA Public Policy Position. 2018. Available at: https://www.gsma.com/connectivity-for-good/spectrum/wp-content/uploads/2018/12/AI-1.13-Positions.pdf

[53] In Austria's 2024 auction, 1400 MHz of spectrum were awarded for the value of EUR115 736 per 10MHz. This figure is converted to 2024 Rands using an exchange rate of R20.5562/EUR and subsequently inflated to 2025 Rands. For exchange rate data, see: https://www.resbank.co.za/en/home/what-we-do/statistics/key-statistics/selected-historical-rates ; for CPI data see: https://www.statssa.gov.za/publications/P0141/CPIHistory.pdf

[54] In Croatia's 2021 auction, 1000 MHz of spectrum were awarded for the value of HRK376 881 per 10 MHz. This figure is converted to 2021 USD using an exchange rate of HRK 6.4/USD, then from USD to Rands using R14.8/USD and subsequently inflated to 2025 Rands. For exchange rate data, see: https://data.worldbank.org/indicator/PA.NUS.FCRF ; for CPI data see: https://www.statssa.gov.za/publications/P0141/CPIHistory.pdf

[55] In Finland's 2020 Auction, 2400 MHz of spectrum were awarded for the value of EUR87 500 per 10 MHz. This figure is converted to 2020 Rands using an exchange rate of R18.9371/EUR and subsequently inflated to 2025 Rands. For exchange rate data, see: https://www.resbank.co.za/en/home/what-we-do/statistics/key-statistics/selected-historical-rates ; for CPI data see: https://www.statssa.gov.za/publications/P0141/CPIHistory.pdf

[56] See ATU-R Recommendation 005-0. 2021, available at: https://atuuat.africa/wp-content/uploads/2021/08/En_ATU-R-Recommendation-005-0.pdf

[57] See GSA. 2025. Hot Topic Millimetre Wave, available at: https://gsacom.com/paper/millimetre-wave-spectrum-july-2025/ 4646

[58] See WRC-19 Footnote 5.532AB.

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dense areas where mmWave deployments are most likely, while permitting shared access in 25.25GHz-25.1GHz across the country, and shared access in the remainder of the band outside of dense urban areas[59]. Incumbents in dense urban areas in the exclusive part of the band must migrate out of the band.

5.2 If this band is allocated to IMT in South Africa, it is likely that incumbent users in high-demand areas, such as towns and metropolitan areas, will need to be migrated. This transition process may be informed by Ofcom's interference and coordination strategy for the 26GHz range[60]:

5.2.1 A Revocation Period (i.e., period of transition) is defined. By the end of this period, incumbent users will be transitioned out of the band to clear sufficient spectrum for mobile services.

5.2.2 During the Revocation Period, coordination zone maps are developed to determine whether IMT deployment will cause harmful interference to incumbent users.

5.2.3 If there is no risk of interference, the operator can proceed with deployment.

5.2.4 If there is a risk of interference, the operator must submit a detailed technical coordination plan and can only proceed with deployment once the coordination plan has been approved.

5.3 This strategy can help to ensure that harmful interference between mobile services and incumbent users is minimized, and to assist with the smooth transition of FS and FSS outside of the band.

6 Maturity of the IMT ecosystem

6.1 The device ecosystem is moderately developed and growing. There are 57 devices that support band plan n258 (24.25-27.5GHz), and the ATU notes that this band is already allocated to IMT under regional or national licenses in countries outside of Africa.[61] However, spectrum allocation is not as harmonised as it is for the mid-band frequency

[59] See Ofcom. 2025, Enabling mmWave spectrum for new uses, available at: https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-1-10-weeks/237135-enabling-mmwave-spectrum-for-new-uses/associated-documents/nov-204-updates/annex-5-coordination-procedures-under-the-spectrum-access-high-density-26-ghz-and-40-ghz-licences-sept-25.pdf?v=402787

[60] See Ofcom. 2025, Enabling mmWave spectrum for new uses, available at: https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-1-10-weeks/237135-enabling-mmwave-spectrum-for-new-uses/associated-documents/nov-204-updates/annex-5-coordination-procedures-under-the-spectrum-access-high-density-26-ghz-and-40-ghz-licences-sept-25.pdf?v=402787

[61] See ATU-R recommendation relating to International Mobile Telecommunications (IMT) Spectrum Roadmap For Africa. 2025, available at: https://atuuat.africa/wp-content/uploads/2025/08/Project-4-IMT-Spectrum-Roadmap-for-Africa-Final.pdf

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ranges. Europe has pioneered 26GHz IMT allocation in Region 1, while in Africa and the Middle East, the use of mmWave has been conducted primarily on a trial basis[62].

7 International considerations

7.1 This band was identified for IMT in Resolution 224 of WRC-19. The ATU has recommended that a contiguous block of 800-1000MHz of spectrum within this band be assigned to licensees[63] In the UK, three operators have each been assigned blocks of 800MHz of spectrum in this range for IMT services in high density areas.[64] South Africa is obligated, as per the Act, to harmonise its frequency allocation with those of other countries in the Region.

8 Stakeholder comments

8.1 Table 5 below shows a summary of various stakeholder comments on the Draft IMT Roadmap 2024, Second Draft IMT Roadmap 2025, and Draft Radio Frequency Migration Plan 2024, alongside the Authority's response.

Table 5: Stakeholder comments and the Authority's responses for the 24.25 – 27.5 GHz band

Stakeholder comments	Authority's comment
MTN, Telkom, Vodacom, Huawei, Qualcomm, and Cell C support the allocation of this band for IMT. Vodacom cites that the device ecosystem for this band already encompasses a fairly wide selection. Further, MTN and Vodacom recommend that the Authority places focus on the 26.5-27.5 GHz subrange due to its popularity in a number of countries. Vodacom comments that there are 60 devices supporting band n257 and 64 device variants supporting n258. Huawei notes that this band has the most developed ecosystem of the mmWave bands, but that even though spectrum in the band has been released in European markets, deployments are modest.	The Authority is in the process of developing an RFSAP for IMT services in this band given that is has been recommended for IMT in WRC-23.
Telkom proposes that coordination with FS links may be possible in this band, particularly outside of high-density areas. Telkom further notes that the current main use of this band is for FS links. MTN notes that while migration may need to take place for some users, there are portions of the band that can be fast-tracked for assignment. Vodacom proposes that detailed use of the band for fixed links be provided for transparency purposes. Cell C notes that measures should be put in place to ensure compatibility with passive services and FSS gateway stations in adjacent bands.	Coordination / coexistence will be considered during the course of developing the feasibility study and RFSAP for the band, as discussed in Section 5. The current main use of this band has been reflected as FS links. Stakeholders are encouraged to provide comments in this regard.

[62] See GSA. 2025. Hot Topic Millimetre Wave, available at: https://gsacom.com/paper/millimetre-wave-spectrum-july-2025/

[63] See ATU Recommendation 005. 2021, available at: https://atuuat.africa/wp-content/uploads/2021/08/En_ATU-R-Recommendation-005-0.pdf

[64] See Ofcom. 2025. Award of the mmWave (26 GHz and 40 GHz) spectrum bands, available at: https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-1-10-weeks/237135-enabling-mmwave-spectrum-for-new-uses/associated-documents/oct-25-updates/regulation-120-results-of-the-mmwave-auction.pdf?v=406750

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9 Considerations in favour of and against IMT allocation

9.1 There are a number of advantages to allocating the band for IMT:

9.1.1 The band has been allocated to mobile services in all three regions;

9.1.2 The band has been identified for IMT in the NRFP;

9.1.3 There is a high likelihood that the highest value use of the band is for IMT rather than alternatives such as FS or FSS;

9.1.4 There is a possibility of shared/coordinated use, including on a geographic basis;

9.1.5 There is a growing device ecosystem;

9.1.6 Various jurisdictions in Region 1 have identified the band for IMT use;

9.1.7 Countries in Region 1 plan to (or have already) allocate large blocks in the 24.25-27.5 MHz range to IMT operators;

9.1.8 Several stakeholders consider the band suitable for IMT;

9.2 However, there are costs and economic barriers that may hinder the deployment of mmWave for IMT;

9.3 Despite barriers to deployment of mmWave for IMT, is it evident from auctions in other countries that this band is valuable for IMT, in addition to the possibility for spectrum sharing on a geographic basis, a growing device ecosystem, and stakeholder support. The considerations in favour of the allocation of this band for IMT, therefore, outweigh those against doing so.

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ELECTRONIC COMMUNICATIONS ACT, 2005 (ACT NO. 36 OF 2005)

HEREBY ISSUES A NOTICE REGARDING THE FEASIBILITY STUDIES FOR THE FREQUENCY BANDS ALLOCATED TO THE MOBILE RADIOCOMMUNICATIONS SERVICES AND IDENTIFIED INTERNATIONAL MOBILE TELECOMMUNICATIONS IN THE NATIONAL RADIO FREQUENCY PLAN.

1. The Independent Communications Authority of South Africa ("the Authority"), on 28 March 2024, published the Draft International Mobile Telecommunications (IMT) Roadmap, in Government Gazette No. 50413 (Notice 4584 of 2024) inviting Written Representations.

2. On 13 September 2024, in Government Gazette 51244 (Notice 5209 of 2024) the Authority published a "Notice Communicating the Outcome of the Consultation Process of the Draft IMT Roadmap 2025.

3. The Authority, in Government Gazette 53883 (Notice 3712 of 2025), published the Second Draft International Mobile Telecommunications (IMT) Roadmap 2025, in terms of section 4(3)(c) of the Independent Communications Authority of South Africa Act, 2000 (Act No. 13 of 2000), read with sections 2(e), 30, 31(4), and 33 of the Electronic Communications Act (Act No 36 of 2005).

4. Now therefore, the Authority, in terms of section 4(3)(c) of the Independent Communications Authority of South Africa Act, 2000 (Act No. 13 of 2000), read with sections 2(e), 30, 31(4), and 33 of the Electronic Communications Act (Act No 36 of 2005) hereby publishes the notice regarding the feasibility studies for the frequency bands allocated to the mobile radiocommunications services and identified international mobile telecommunications in the national radio frequency plan**.**

5. Interested persons are hereby invited to submit written representations on the notice regarding the feasibility studies for the frequency bands allocated to the mobile radiocommunications services and identified international mobile telecommunications in the national radio frequency plan in both

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Microsoft Word (MS) and Portable Document Format (PDF) by no later than 16:00 on **4 September 2026.**

6. Persons making representations are further invited to indicate whether they require an opportunity to make oral representations.

7. Written representations or enquiries may be directed by email to:

Attention:

Mr Manyaapelo Richard Makgotlho

e-mail: rmakgotlho@icasa.org.za

Copy: jdikgale@icasa.org.za

8. Where persons making representations require that their representation, or part thereof, be treated as confidential, then an application in terms of section 4D of the ICASA Act, 2000 (Act No 13 of 2000) must be lodged with the Authority. Such an application must be submitted simultaneously with the representation, together with a non-confidential, redacted version of the submission. If, however, the request for confidentiality is not granted, the person making the request will be allowed to withdraw the representation or document in question.

9. The guidelines for confidentiality requests are contained in Government Gazette Number No 41839 of 17 August 2018.

10. All written representations submitted to the Authority pursuant to this notice will be made available for inspection by interested persons from **11 September 2026** at the Authority's Library. Electronic copies of such representations are obtainable on request and printed versions will be obtainable on payment of a fee.

11. The feasibility studies for the frequency bands allocated to the mobile radiocommunications services and identified international mobile telecommunications in the national radio frequency plan and the non-confidential representations will be uploaded to the Authority's website under this link: https://www.icasa.org.za/legislation-and-regulations/radio-frequency-spectrum-plans/draft-radio-frequency-spectrum-plans.



Mothibi G. Ramusi

CHAIRPERSON

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Feasibility Study

37 GHz to 43.5 GHz

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1 Glossary of Terms, Abbreviations, and Acronyms

Acronym	**Explanation**
3G	Third generation mobile telecommunications is a generation of standards for mobile phones and mobile telecommunication relating to the ITU-R IMT-2000 specifications.
4G	Fourth Generation Network Technology relating to ITU-R IMT-Advanced specifications.
5G	Fifth Generation Network Technology, relating to the ITU-R IMT-2020 specifications.
6G	Sixth Generation Network Technology, relating to the ITU-R IMT-2030 specifications.
Act	Electronic Communications Act, 2005 (Act No. 36 of 2005).
AAS	Active antennae systems.
Administration	Members States of the International Telecommunications Union.
Allocation	Entry in the Table of Frequency Allocations of a given frequency band for the purpose of its use by one or more terrestrial or space *radiocommunication services* or the *radio astronomy service* under specified conditions.
Assignment	The authorisation given by the authority to a licensee to use a radio frequency or radio frequency channel under specified conditions.
ATU	African Telecommunications Union.
Authority	The Independent Communications Authority of South Africa.
BFWA	Broadband Fixed Wireless Access.
CEPT	Conference of European Posts and Telecommunications Authorities.
CRASA	Communications Regulators' Association of Southern Africa.
DC-MSS-IMT	Direct Connectivity between Mobile-Satellite Service space station and IMT UEs.
DECT	Digital Enhanced Cordless Telecommunications 1880 - 1900 MHz which is a digital communication standard, primarily used for creating cordless phone systems.
ECA	The Electronic Communications Act of South Africa, Act No 36 of 2005.
EIRP	Effective isotropically radiated power.
ERP	Effective radiated power, which is the product of the power supplied to an antenna and its gain relative to a half wave dipole in a given direction.
FDD	Frequency Division Duplex.
FWA	Fixed Wireless Access.
FS	Fixed Service.
FSS	Fixed Satellite Service.
Gbps	Gigabits per second.
GHz	Gigahertz of Radio Frequency Spectrum.
GSM	Global System for Mobile Communications, (originally Groupe Spécial Mobile), and is a standard set developed by the European Telecommunications Standards Institute (ETSI) to describe technologies for second generation (2G) digital cellular networks.
GSMA	Global System for Mobile Communications Association.
IMT	The name that encompasses IMT-2000, IMT-Advanced, IMT-2020 and IMT-2030 collectively known as International Mobile Telecommunications.
IMT-2000	The International Mobile Telecommunications, as envisioned in ITU-R Recommendation ITU-R M.687 and M.816.
IMT-Advanced	The International Mobile Telecommunications, as envisioned in Recommendation ITU-R M.1645.
IMT-2020	The International Mobile Telecommunications, as envisioned in Recommendation ITU-R M.2083.

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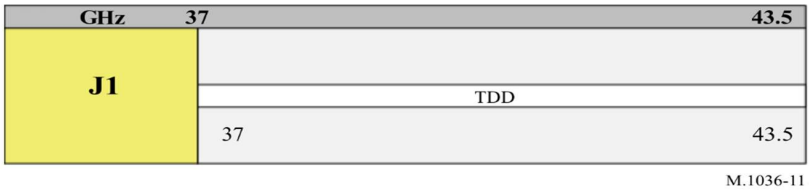
Acronym	Explanation
IMT-2030	The International Mobile Telecommunications, as envisioned in Recommendation ITU-R M.2160.
IoT	Internet of Things.
ITU	International Telecommunication Union.
ITU RR	International Telecommunication Union Radio Regulations.
kHz	Kilohertz of Radio Frequency Spectrum.
LTE	Long Term Evolution and is a standard for wireless communication of high-speed data for mobile phones and data terminals. It is based on the GSM/EDGE and UMTS/HSPA network technologies.
M2M	Machine to Machine.
MHz	Megahertz of Radio Frequency Spectrum.
MIMO	Multiple-Input and Multiple-Output and is the use of multiple antennas at both the transmitter and receiver to improve communication performance.
NRFP	The National Radio Frequency Plan for South Africa.
NTN	Non-terrestrial Network
PMSE	Programme making and special events applications (PMSE)
PRASA	Passenger Rail Agency of South Africa.
PTM	Point to Multipoint.
PTP	Point to Point.
Radio-communication	All electronic communication by means of radio waves.
RATG	Radio Access Technology Group.
Revocation Period	A period of transition during which incumbent users are migrated out of the band in question to clear sufficient spectrum for new service providers.
RFSAP	Radio Frequency Spectrum Assignment Plan.
RLAN	Radio Local Access Network and is the high data rate two-way (duplex) wireless data communications network.
SABRE	South African Band Re-Planning Exercise.
SADC	Southern African Development Community.
SADC RFSAP	Southern African Development Community Frequency Allocation Plan.
SAPS	South African Police Service.
Service licence	BS, ECS or ECNS licence.
SF	Single Frequency.
SFN	Single Frequency Network.
TDD	Time Division Duplex.
VSAT	Very small aperture terminal used for fixed satellite services.
WAS	Wireless Access Systems and is end-user radio connections to public or private core networks.

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2 Introduction

2.1 The frequency range 37-43.5.5GHz ("40GHz") has a TDD band plan (J1) as shown on Figure 6 below. The arrangements for the band are set out in Section 11 of ITU-R M.1036-7. This band falls under the mmWave frequency range and is suitable for IMT. It has been identified as one of the "*most promising*" bands for IMT-2020.[65] The band is used for many other services, including FS, FSS, space research, and broadcasting.

Figure 6: Frequency arrangements between 37GHz-43.5GHz



Source: ITU-R M.1036

3 Regulatory context

3.1 In Region 1, this band is allocated to FS, FSS, mobile services, and space-to-earth research and exploration. In South Africa, the 40GHz band is allocated to mobile services on a primary basis, with some sub-bands being allocated to aeronautical and maritime mobile on a secondary basis. In the NRFP, this band has been identified for IMT.

4 Economic feasibility for IMT

4.1 The band is highly valued for IMT services. Auction results from the US[66] and the UK[67] suggest that the band is highly valued for IMT.[68] India also plans to hold auctions for

[65] See GSMA. 218. IMT Spectrum Between 24.25 and 86 GHz GSMA Public Policy Position. 2018, available at: https://www.gsma.com/connectivity-for-good/spectrum/wp-content/uploads/2018/12/AI-1.13-Positions.pdf 5252

[66] See United States Federal Communications Commission Auction 103 Winning Bidders and Incentive Payments. 2020, available at: https://www.fcc.gov/auction/103

[67] See Ofcom. 2025. Award of the mmWave (26 GHz and 40 GHz) spectrum bands, available at: https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-1-10-weeks/237135-enabling-mmwave-spectrum-for-new-uses/associated-documents/oct-25-updates/regulation-120-results-of-the-mmwave-auction.pdf?v=406750

[68] Note that a value per 10 MHz cannot be calculated from these auction results due to the reporting format used by the US and UK regulators.

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spectrum in the 37-40GHz range in 2026.[69] This suggests that the band is feasible for IMT.

5 Technical feasibility

5.1 Incumbent users may pose an interference risk for IMT. The UK has decided to phase out fixed services in a substantial part of this band in 'dense geographic areas', in favour of allocating it to mobile use.[70] Outside of those areas, licensees may use the band in accordance with its shared access licensing framework. If this band is allocated to IMT in South Africa, it is likely that incumbent users in dense urban areas may need to be migrated. This transition process may be informed by Ofcom's interference and coordination strategy for the 40GHz range[71]:

5.1.1 A Revocation Period is defined. By the end of this period, incumbent users will be transitioned out of the band to clear sufficient spectrum for mobile services. In the UK strategy, the Revocation Period is longer for the 40GHz range than for the 26GHz range.

5.1.2 Operators must submit a coordination request with a technical coordination plan before IMT deployment.

5.1.3 If the request is approved, the operator can continue with deployment.

5.1.4 If the request is denied due to a risk of harmful interference, operators will not be allowed to transmit on any frequency in the 40GHz range. The operator may resubmit a coordination request if it is initially denied.

5.2 This strategy can help to ensure that harmful interference between mobile services and incumbent users is minimized during the Revocation Period.

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[69] See Telecom Regulatory Authority of India. 2025. Recommendations on the Frequency Spectrum in 37-37.5 GHz, 37.5-40 GHz, and 42.5-43.5 GHz bands Identified for IMT, available at: https://www.trai.gov.in/sites/default/files/2025-02/Recommendations_04022025.pdf 46

[70] See Ofcom Information Memorandum on 26GHz and 40GHz bands, available at: https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-1-10-weeks/237135-enabling-mmwave-spectrum-for-new-uses/associated-documents/nov-204-updates/mmwave-information-memorandum-v3.0-002.pdf?v=402790

[71] See Ofcom. 2025, Enabling mmWave spectrum for new uses, available at: https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-1-10-weeks/237135-enabling-mmwave-spectrum-for-new-uses/associated-documents/nov-204-updates/annex-5-coordination-procedures-under-the-spectrum-access-high-density-26-ghz-and-40-ghz-licences-sept-25.pdf?v=402787

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6 Maturity of the IMT ecosystem

6.1 Like most bands in the mmWave frequency range, the device ecosystem is relatively underdeveloped, especially in comparison to the mid-band frequencies. There is only 1 device that supports the band[72].

7 International considerations

7.1 This band is allocated to mobile services on a primary basis in all three regions, aside from sub-bands 40.5-41MHz (which is allocated to aeronautical and maritime on a secondary basis in Region 1) and 47.47MHz (which is allocated to amateur and amateur-satellite services). While the ITU has identified the 40GHz band for the terrestrial component of IMT, this identification does not give IMT services priority use of the band, nor does it prevent the application of other services within the band.[73]

7.2 Only the UK and the US have conducted spectrum auctions for IMT in this band. In India, the 42.5-43.5 frequency range will not be considered for auction due to the limited device ecosystem.[74] However, many countries in Region 1 have identified the band for IMT, and plan to assign spectrum in the mmWave frequency range in future.

8 Stakeholder comments

8.1 Table 6 contains a summary of stakeholders' comments on the Draft IMT Roadmap 2024, Second Draft IMT Roadmap 2025, and Draft Radio Frequency Migration Plan 2024, alongside the Authority's response.

Table 6: Stakeholder comments and the Authority's responses for the 37 – 43.5 GHz band

Stakeholder comments	Authority's comment
Cell C, Vodacom, and MTN support the allocation of this band for IMT. Vodacom supports the development of a feasibility study for the band. MTN notes that AT&T is deploying services in the 39GHz band in the USA.	An RFSAP is in the process of being developed for this band given that is has been recommended for IMT in WRC-23.
Cell C advises the development of a clear coordination procedures and a possible migration plan for incumbent users. Telkom acknowledges the possible coordination of IMT with incumbents on a geographical basis, resulting in the need for FS links to migrate only in dense urban areas.	Coordination / coexistence will be considered during the course of developing the feasibility study and RFSAP for the band, as discussed in Section 5.

[72] See ATU-R recommendation relating to International Mobile Telecommunications (IMT) Spectrum Roadmap For Africa. 2025. https://atuuat.africa/wp-content/uploads/2025/08/Project-4-IMT-Spectrum-Roadmap-for-Africa-Final.pdf

73 See WRC-19 Footnote 5.550B.

74 See Telecom Regulatory Authority of India. 2025. Recommendations on the Frequency Spectrum in 37-37.5 GHz, 37.5-40 GHz, and 42.5-43.5 GHz bands Identified for IMT, available at: https://www.trai.gov.in/sites/default/files/2025-02/Recommendations_04022025.pdf

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Stakeholder comments	Authority's comment
	Stakeholders are encouraged to provide comments in this regard.
Huawei, however, notes the limited device ecosystem.	The Authority is considering information on the maturity of this band for IMT. Stakeholders are encouraged to provide comments in this regard.
Viasat previously commented, in its response to the 2024 Draft Radio Frequency Migration Plan, that it is carrying out tests in this band and requested that the Authority considers recent developments regarding high throughput satellite services when conducting a feasibility study, as well as when designing the RFSAP. MTN notes the protections provided for passive earth-exploration satellite services in this band.	The Authority is gathering information on test results and other information that could assist in the development of an RFSAP for this band, including on how coordination with satellite services could take place. Stakeholders are encouraged to provide comment in this regard.

9 Considerations in favour of and against IMT allocation

9.1 There are a number of advantages to allocating the band for IMT:

9.1.1 The band has been allocated for IMT in the NRFP;

9.1.2 The allocation of this band to IMT is economically feasible;

9.1.3 There is a possibility of shared use of the band with incumbent users, including on a geographic basis;

9.1.4 There is potential for the implementation of short-term coordination and long-term migration strategies;

9.1.5 There is a limited, but growing number of devices suitable for this band;

9.1.6 There is growing interest in the band globally and within Region 1;

9.1.7 Stakeholders have expressed interest in the band.

9.2 Given the evident lack of disadvantages regarding the allocation of this band for IMT, the considerations in favour of the allocation outweigh those against doing so.

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3. The Authority, in Government Gazette 53883 (Notice 3712 of 2025), published the Second Draft International Mobile Telecommunications (IMT) Roadmap 2025, in terms of section 4(3)(c) of the Independent Communications Authority of South Africa Act, 2000 (Act No. 13 of 2000), read with sections 2(e), 30, 31(4), and 33 of the Electronic Communications Act (Act No 36 of 2005).

4. Now therefore, the Authority, in terms of section 4(3)(c) of the Independent Communications Authority of South Africa Act, 2000 (Act No. 13 of 2000), read with sections 2(e), 30, 31(4), and 33 of the Electronic Communications Act (Act No 36 of 2005) hereby publishes the notice regarding the feasibility studies for the frequency bands allocated to the mobile radiocommunications services and identified international mobile telecommunications in the national radio frequency plan**.**

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Mothibi G. Ramusi

CHAIRPERSON

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Feasibility Study

45.5 GHz to 47 GHz

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1 Glossary of Terms, Abbreviations, and Acronyms

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Act	Electronic Communications Act, 2005 (Act No. 36 of 2005).
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IMT-Advanced	The International Mobile Telecommunications, as envisioned in Recommendation ITU-R M.1645.
IMT-2020	The International Mobile Telecommunications, as envisioned in Recommendation ITU-R M.2083.

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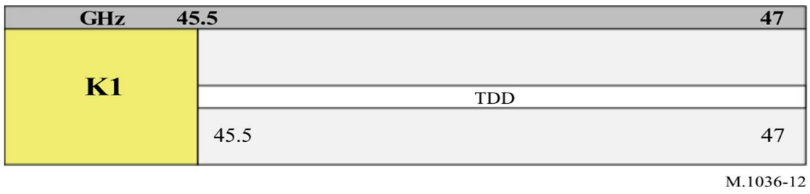
Acronym	**Explanation**
IMT-2030	The International Mobile Telecommunications, as envisioned in Recommendation ITU-R M.2160.
IoT	Internet of Things.
ITU	International Telecommunication Union.
ITU RR	International Telecommunication Union Radio Regulations.
kHz	Kilohertz of Radio Frequency Spectrum.
LTE	Long Term Evolution and is a standard for wireless communication of high-speed data for mobile phones and data terminals. It is based on the GSM/EDGE and UMTS/HSPA network technologies.
M2M	Machine to Machine.
MHz	Megahertz of Radio Frequency Spectrum.
MIMO	Multiple-Input and Multiple-Output and is the use of multiple antennas at both the transmitter and receiver to improve communication performance.
NRFP	The National Radio Frequency Plan for South Africa.
NTN	Non-terrestrial Network
PMSE	Programme making and special events applications (PMSE)
PRASA	Passenger Rail Agency of South Africa.
PTM	Point to Multipoint.
PTP	Point to Point.
Radio-communication	All electronic communication by means of radio waves.
RATG	Radio Access Technology Group.
Revocation Period	A period of transition during which incumbent users are migrated out of the band in question to clear sufficient spectrum for new service providers.
RFSAP	Radio Frequency Spectrum Assignment Plan.
RLAN	Radio Local Access Network and is the high data rate two-way (duplex) wireless data communications network.
SABRE	South African Band Re-Planning Exercise.
SADC	Southern African Development Community.
SADC RFSAP	Southern African Development Community Frequency Allocation Plan.
SAPS	South African Police Service.
Service licence	BS, ECS or ECNS licence.
SF	Single Frequency.
SFN	Single Frequency Network.
TDD	Time Division Duplex.
VSAT	Very small aperture terminal used for fixed satellite services.
WAS	Wireless Access Systems and is end-user radio connections to public or private core networks.

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2 Introduction

2.1 The frequency arrangements for this band are set out in Section 12 of ITU-R M.1036-7. The frequency range 45.5-47GHz has a TDD band plan (K1), as shown on Figure 7. This band is suitable for IMT and falls under the mmWave frequency range. Uses of this band include mobile and radionavigation services.

Figure 7: Frequency arrangements between 45.5GHz-47GHz



Source: ITU-R M.1036

3 Regulatory context

3.1 This band is allocated to mobile services on a primary basis in Region 1. It has been identified as a band for IMT in the NRFP.

4 Economic feasibility for IMT

4.1 The GSMA has indicated the potential use of this band for IMT following initial feasibility studies. However, no spectrum auctions have been held for IMT, and no licensees have been recorded for this band.

4.2 As is the case with other mmWave bands, the feasibility of IMT deployment is hindered by economic barriers and deployment costs.[75]

5 Technical feasibility

5.1 The identification of this band for IMT does not preclude the application of other services within the band, nor does it give IMT services priority use of the band.[76] Incumbent users may pose an interference risk for IMT, and compatibility with adjacent bands must also be considered.

[75] See GSA. 2025. Hot Topic Millimetre Wave, available at: https://gsacom.com/paper/millimetre-wave-spectrum-july-2025/

[76] See WRC-19 Footnote 5.553A.

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6 Maturity of the IMT ecosystem

6.1 The device ecosystem is limited at present. There are no devices that are compatible with this band.[77]

7 International considerations

7.1 The ITU has identified the band for IMT use and the GSMA supports the consideration of this band for IMT following initial feasibility studies.[78]

8 Stakeholder comments

8.1 Table 7 below for a summary of stakeholders' comments on the Draft IMT Roadmap 2024, Second Draft IMT Roadmap 2025, and Draft Radio Frequency Migration Plan 2024, alongside the Authority's response.

Table 7: Stakeholder comments and the Authority's responses for the 45.5 – 47 GHz band

Stakeholder comments	Authority's comment
Cell C and Vodacom support the allocation of this band for IMT, following the development of a feasibility study and RFSAP. Telkom supports RFSAP development for this band, however, notes that this band is of lesser priority in terms of licensing than the 26 GHz and 40 GHz bands. Telkom also proposes that in fact no feasibility study is needed for this band because it is either unused, or there is minimal use of it currently.	The Authority is in the process of developing an RFSAP for this band given that is has been recommended for IMT in WRC-23. While the band may be unused, part of the reason for preparing this feasibility study is to solicit feedback from stakeholders on the use or otherwise of the band.

9 Considerations for and against IMT allocation

9.1 The ITU has identified the band for IMT, and the band has been allocated to IMT in the NRFP.

9.2 However, the device ecosystem is limited.

9.3 The advantages arising from the ITU's identification and the NRFP's proposal to allocate the band to IMT, outweigh the limited device ecosystem, since the latter may develop in the coming years given the identification of the band for IMT. The band should therefore be allocated for IMT.

[77] See ATU-R recommendation relating to International Mobile Telecommunications (IMT) Spectrum Roadmap For Africa. 2025, available at: https://atuuat.africa/wp-content/uploads/2025/08/Project-4-IMT-Spectrum-Roadmap-for-Africa-Final.pdf

[78] See GSMA. 2018. IMT Spectrum Between 24.25 and 86 GHz GSMA Public Policy Position. 2018, available at: https://www.gsma.com/connectivity-for-good/spectrum/wp-content/uploads/2018/12/AI-1.13-Positions.pdf

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ELECTRONIC COMMUNICATIONS ACT, 2005 (ACT NO. 36 OF 2005)

HEREBY ISSUES A NOTICE REGARDING THE FEASIBILITY STUDIES FOR THE FREQUENCY BANDS ALLOCATED TO THE MOBILE RADIOCOMMUNICATIONS SERVICES AND IDENTIFIED INTERNATIONAL MOBILE TELECOMMUNICATIONS IN THE NATIONAL RADIO FREQUENCY PLAN.

1. The Independent Communications Authority of South Africa ("the Authority"), on 28 March 2024, published the Draft International Mobile Telecommunications (IMT) Roadmap, in Government Gazette No. 50413 (Notice 4584 of 2024) inviting Written Representations.

2. On 13 September 2024, in Government Gazette 51244 (Notice 5209 of 2024) the Authority published a "Notice Communicating the Outcome of the Consultation Process of the Draft IMT Roadmap 2025.

3. The Authority, in Government Gazette 53883 (Notice 3712 of 2025), published the Second Draft International Mobile Telecommunications (IMT) Roadmap 2025, in terms of section 4(3)(c) of the Independent Communications Authority of South Africa Act, 2000 (Act No. 13 of 2000), read with sections 2(e), 30, 31(4), and 33 of the Electronic Communications Act (Act No 36 of 2005).

4. Now therefore, the Authority, in terms of section 4(3)(c) of the Independent Communications Authority of South Africa Act, 2000 (Act No. 13 of 2000), read with sections 2(e), 30, 31(4), and 33 of the Electronic Communications Act (Act No 36 of 2005) hereby publishes the notice regarding the feasibility studies for the frequency bands allocated to the mobile radiocommunications services and identified international mobile telecommunications in the national radio frequency plan**.**

5. Interested persons are hereby invited to submit written representations on the notice regarding the feasibility studies for the frequency bands allocated to the mobile radiocommunications services

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and identified international mobile telecommunications in the national radio frequency plan in both Microsoft Word (MS) and Portable Document Format (PDF) by no later than 16:00 on **4 September 2026.**

6. Persons making representations are further invited to indicate whether they require an opportunity to make oral representations.

7. Written representations or enquiries may be directed by email to:

Attention:

Mr Manyaapelo Richard Makgotlho

e-mail: rmakgotlho@icasa.org.za

Copy: jdikgale@icasa.org.za

8. Where persons making representations require that their representation, or part thereof, be treated as confidential, then an application in terms of section 4D of the ICASA Act, 2000 (Act No 13 of 2000) must be lodged with the Authority. Such an application must be submitted simultaneously with the representation, together with a non-confidential, redacted version of the submission. If, however, the request for confidentiality is not granted, the person making the request will be allowed to withdraw the representation or document in question.

9. The guidelines for confidentiality requests are contained in Government Gazette Number No 41839 of 17 August 2018.

10. All written representations submitted to the Authority pursuant to this notice will be made available for inspection by interested persons from **11 September 2026** at the Authority's Library. Electronic copies of such representations are obtainable on request and printed versions will be obtainable on payment of a fee.

11. The feasibility studies for the frequency bands allocated to the mobile radiocommunications services and identified international mobile telecommunications in the national radio frequency plan and the non-confidential representations will be uploaded to the Authority's website under this link: https://www.icasa.org.za/legislation-and-regulations/radio-frequency-spectrum-plans/draft-radio-frequency-spectrum-plans.



Mothibi G. Ramusi

CHAIRPERSON

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Feasibility Study

47.2 GHz to 48.2 GHz

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1 Glossary of Terms, Abbreviations, and Acronyms

Acronym	**Explanation**
3G	Third generation mobile telecommunications is a generation of standards for mobile phones and mobile telecommunication relating to the ITU-R IMT-2000 specifications.
4G	Fourth Generation Network Technology relating to ITU-R IMT-Advanced specifications.
5G	Fifth Generation Network Technology, relating to the ITU-R IMT-2020 specifications.
6G	Sixth Generation Network Technology, relating to the ITU-R IMT-2030 specifications.
Act	Electronic Communications Act, 2005 (Act No. 36 of 2005).
AAS	Active antennae systems.
Administration	Members States of the International Telecommunications Union.
Allocation	Entry in the Table of Frequency Allocations of a given frequency band for the purpose of its use by one or more terrestrial or space *radiocommunication services* or the *radio astronomy service* under specified conditions.
Assignment	The authorisation given by the authority to a licensee to use a radio frequency or radio frequency channel under specified conditions.
ATU	African Telecommunications Union.
Authority	The Independent Communications Authority of South Africa.
BFWA	Broadband Fixed Wireless Access.
CEPT	Conference of European Posts and Telecommunications Authorities.
CRASA	Communications Regulators' Association of Southern Africa.
DC-MSS-IMT	Direct Connectivity between Mobile-Satellite Service space station and IMT UEs.
DECT	Digital Enhanced Cordless Telecommunications 1880 - 1900 MHz which is a digital communication standard, primarily used for creating cordless phone systems.
ECA	The Electronic Communications Act of South Africa, Act No 36 of 2005.
EIRP	Effective isotropically radiated power.
ERP	Effective radiated power, which is the product of the power supplied to an antenna and its gain relative to a half wave dipole in a given direction.
FDD	Frequency Division Duplex.
FWA	Fixed Wireless Access.
FS	Fixed Service.
FSS	Fixed Satellite Service.
Gbps	Gigabits per second.
GHz	Gigahertz of Radio Frequency Spectrum.
GSM	Global System for Mobile Communications, (originally Groupe Spécial Mobile), and is a standard set developed by the European Telecommunications Standards Institute (ETSI) to describe technologies for second generation (2G) digital cellular networks.
GSMA	Global System for Mobile Communications Association.
IMT	The name that encompasses IMT-2000, IMT-Advanced, IMT-2020 and IMT-2030 collectively known as International Mobile Telecommunications.
IMT-2000	The International Mobile Telecommunications, as envisioned in ITU-R Recommendation ITU-R M.687 and M.816.
IMT-Advanced	The International Mobile Telecommunications, as envisioned in Recommendation ITU-R M.1645.
IMT-2020	The International Mobile Telecommunications, as envisioned in Recommendation ITU-R M.2083.

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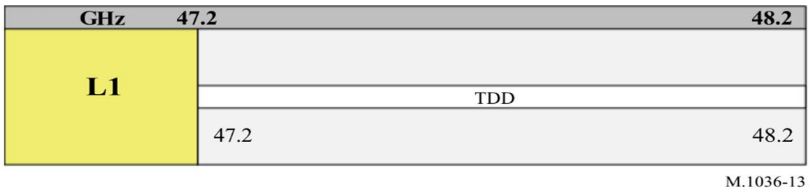
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IMT-2030	The International Mobile Telecommunications, as envisioned in Recommendation ITU-R M.2160.
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ITU	International Telecommunication Union.
ITU RR	International Telecommunication Union Radio Regulations.
kHz	Kilohertz of Radio Frequency Spectrum.
LTE	Long Term Evolution and is a standard for wireless communication of high-speed data for mobile phones and data terminals. It is based on the GSM/EDGE and UMTS/HSPA network technologies.
M2M	Machine to Machine.
MHz	Megahertz of Radio Frequency Spectrum.
MIMO	Multiple-Input and Multiple-Output and is the use of multiple antennas at both the transmitter and receiver to improve communication performance.
NRFP	The National Radio Frequency Plan for South Africa.
NTN	Non-terrestrial Network
PMSE	Programme making and special events applications (PMSE)
PRASA	Passenger Rail Agency of South Africa.
PTM	Point to Multipoint.
PTP	Point to Point.
Radio-communication	All electronic communication by means of radio waves.
RATG	Radio Access Technology Group.
Revocation Period	A period of transition during which incumbent users are migrated out of the band in question to clear sufficient spectrum for new service providers.
RFSAP	Radio Frequency Spectrum Assignment Plan.
RLAN	Radio Local Access Network and is the high data rate two-way (duplex) wireless data communications network.
SABRE	South African Band Re-Planning Exercise.
SADC	Southern African Development Community.
SADC RFSAP	Southern African Development Community Frequency Allocation Plan.
SAPS	South African Police Service.
Service licence	BS, ECS or ECNS licence.
SF	Single Frequency.
SFN	Single Frequency Network.
TDD	Time Division Duplex.
VSAT	Very small aperture terminal used for fixed satellite services.
WAS	Wireless Access Systems and is end-user radio connections to public or private core networks.

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2 Introduction

2.1 The frequency range 47.2-48.2GHz has a TDD band plan (L1), as shown on Figure 8 below. The arrangements for the band are set out in Section 13 of ITU-R M.1036-7. This band is suitable for IMT and falls under the mmWave frequency range. The band is used for FS, FSS, and mobile services.

Figure 8: Frequency arrangements between 47.2GHz-48.2GHz



Source: ITU-R M.1036-7

3 Regulatory context

3.1 In Region 1, this band has been allocated to mobile services, FS, and FSS on a co-primary basis. The same allocation is applied in the NRFP. The band has been identified for IMT in the NRFP.

4 Economic feasibility for IMT

4.1 The indications are that the highest value use for this band is for IMT services. For instance, auction results in the US[79] suggest that this band is highly valued for IMT.[80]

4.2 As is the case with other mmWave bands, the economic viability of this band to IMT is hindered by deployment costs.[81]

5 Technical feasibility

5.1 The identification of this band for IMT does not preclude the application of other services within the band, nor does it give IMT services priority use of the band.[82] Incumbent users may pose an interference risk for IMT. Compatibility with adjacent bands must also be considered.

[79] See United States Federal Communications Commission Auction 103 Winning Bidders and Incentive Payments. 2020, available at: https://www.fcc.gov/auction/103

[80] Note that a value per 10 MHz cannot be calculated from these auction results due to the reporting format used by the US regulator.

[81] See GSA. 2025. Hot Topic Millimetre Wave, available at: https://gsacom.com/paper/millimetre-wave-spectrum-july-2025/

[82] See WRC-19 Footnote 5.553B.

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5.2 Co-existence between IMT and incumbent users (particularly FSS) can be achieved. The ITU recommends the establishment of coordination areas to mitigate the risk of harmful interference. The exact calculation of a coordination area is case-specific and is determined by the level interference. However, a general outline on how to calculate the coordination area is available in Recommendation ITU-R M.2161-0.[83]

6 Maturity of the IMT ecosystem

6.1 The device ecosystem is limited. There are no devices that support this band.[84]

7 International considerations

7.1 This band has been identified for IMT, and the US has assigned spectrum in this band to IMT operators. However, there have been no spectrum auctions or licenses recorded in Region 1.

8 Stakeholder comments

8.1 Refer to Table 8 below for a summary of stakeholders' comments on the Draft IMT Roadmap 2024, Second Draft IMT Roadmap 2025, and Draft Radio Frequency Migration Plan 2024, alongside the Authority's response.

Table 8: Stakeholder comments and the Authority's responses for the 47.2 – 48.2 GHz band

Stakeholder comments	Authority's comment
Cell C, MTN, and Vodacom support the assignment of this band for IMT, following the development of a RFSAP. Telkom supports RFSAP development for this band, however, notes that this band is of lesser priority in terms of licensing than the 26 GHz and 40 GHz bands. Telkom also proposes that in fact no feasibility study is needed for this band because it is either unused, or there is minimal use of it currently.	The Authority is in the process of developing an RFSAP for this band given that is has been recommended for IMT in WRC-23. Given that the band is highly valuable for IMT, the Authority expects there to soon be a growing device ecosystem. While the band may be unused, part of the reason for preparing this feasibility study is to solicit feedback from stakeholders on the use or otherwise of the band.
Huawei, however, note the limited device ecosystem for this band.	
Viasat previously requested, when commenting on the 2024 Draft Radio Frequency Migration Plan, that the Authority considers recent developments regarding high throughput satellite services when conducting a feasibility study, as well as when designing the RFSAP. Cell C advises that coexistence	The Authority is considering whether and how coordination with satellite services could take place. Stakeholders are encouraged to provide comment

[83] See ITU-R M.2161-0, available at: https://www.itu.int/dms_pubrec/itu-r/rec/m/R-REC-M.2161-0-202312-I!!PDF-E.pdf

[84] See ATU-R recommendation relating to International Mobile Telecommunications (IMT) Spectrum Roadmap For Africa. 2025, available at: https://atuuat.africa/wp-content/uploads/2025/08/Project-4-IMT-Spectrum-Roadmap-for-Africa-Final.pdf

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Stakeholder comments	**Authority's comment**
with incumbent users be considered.	in this regard.

9 Considerations in favour of and against IMT allocation

9.1 The band was identified for IMT by the ITU and in the NRFP;

9.2 The band is likely of high value for IMT;

9.3 However, the device ecosystem is limited;

9.4 Despite the limited device ecosystem and absence of recorded IMT licenses in Region 1, auction results from the US suggest that this band is highly valued for IMT and thus the considerations in favour of the allocation to IMT outweigh those against doing so.

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3. The Authority, in Government Gazette 53883 (Notice 3712 of 2025), published the Second Draft International Mobile Telecommunications (IMT) Roadmap 2025, in terms of section 4(3)(c) of the Independent Communications Authority of South Africa Act, 2000 (Act No. 13 of 2000), read with sections 2(e), 30, 31(4), and 33 of the Electronic Communications Act (Act No 36 of 2005).

4. Now therefore, the Authority, in terms of section 4(3)(c) of the Independent Communications Authority of South Africa Act, 2000 (Act No. 13 of 2000), read with sections 2(e), 30, 31(4), and 33 of the Electronic Communications Act (Act No 36 of 2005) hereby publishes the notice regarding the feasibility studies for the frequency bands allocated to the mobile radiocommunications services and identified international mobile telecommunications in the national radio frequency plan**.**

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Microsoft Word (MS) and Portable Document Format (PDF) by no later than 16:00 on **4 September 2026.**

6. Persons making representations are further invited to indicate whether they require an opportunity to make oral representations.

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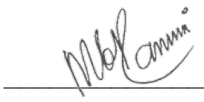
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Mothibi G. Ramusi

CHAIRPERSON

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Feasibility Study

66 GHz to 71 GHz

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1 Glossary of Terms, Abbreviations, and Acronyms

Acronym	**Explanation**
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4G	Fourth Generation Network Technology relating to ITU-R IMT-Advanced specifications.
5G	Fifth Generation Network Technology, relating to the ITU-R IMT-2020 specifications.
6G	Sixth Generation Network Technology, relating to the ITU-R IMT-2030 specifications.
Act	Electronic Communications Act, 2005 (Act No. 36 of 2005).
AAS	Active antennae systems.
Administration	Members States of the International Telecommunications Union.
Allocation	Entry in the Table of Frequency Allocations of a given frequency band for the purpose of its use by one or more terrestrial or space *radiocommunication services* or the *radio astronomy service* under specified conditions.
Assignment	The authorisation given by the authority to a licensee to use a radio frequency or radio frequency channel under specified conditions.
ATU	African Telecommunications Union.
Authority	The Independent Communications Authority of South Africa.
BFWA	Broadband Fixed Wireless Access.
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CRASA	Communications Regulators' Association of Southern Africa.
DC-MSS-IMT	Direct Connectivity between Mobile-Satellite Service space station and IMT UEs.
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GSMA	Global System for Mobile Communications Association.
IMT	The name that encompasses IMT-2000, IMT-Advanced, IMT-2020 and IMT-2030 collectively known as International Mobile Telecommunications.
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IMT-Advanced	The International Mobile Telecommunications, as envisioned in Recommendation ITU-R M.1645.
IMT-2020	The International Mobile Telecommunications, as envisioned in Recommendation ITU-R M.2083.

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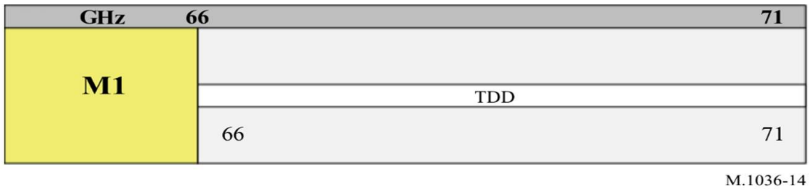
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PMSE	Programme making and special events applications (PMSE)
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RATG	Radio Access Technology Group.
Revocation Period	A period of transition during which incumbent users are migrated out of the band in question to clear sufficient spectrum for new service providers.
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RLAN	Radio Local Access Network and is the high data rate two-way (duplex) wireless data communications network.
SABRE	South African Band Re-Planning Exercise.
SADC	Southern African Development Community.
SADC RFSAP	Southern African Development Community Frequency Allocation Plan.
SAPS	South African Police Service.
Service licence	BS, ECS or ECNS licence.
SF	Single Frequency.
SFN	Single Frequency Network.
TDD	Time Division Duplex.
VSAT	Very small aperture terminal used for fixed satellite services.
WAS	Wireless Access Systems and is end-user radio connections to public or private core networks.

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2 Introduction

2.1 The frequency range 66-71GHz falls under TDD band plan M1, as shown on Figure 9 below. The arrangements for the band are set out in Section 14 of ITU-R M.1036-7. This frequency range falls under the E-band, which is the frequency range from 60-90GHz band has been allocated to mobile, inter-satellite, and radionavigation-satellite services in Region 1. This band also falls under the mmWave frequency range and is suitable for IMT.

Figure 9: Frequency arrangements between 66GHz-71GHz



Source: ITU-R 1036

3 Regulatory context

3.1 This band is allocated to mobile services and has been identified for IMT in all three Regions.[85] The band is allocated to inter-satellite, mobile, mobile-satellite, and radionavigation-satellite services in the NRFP. There is provision for IMT allocation in the entire band.

4 Economic feasibility for IMT

4.1 No spectrum auctions for IMT have been held for this band, and no licenses have been recorded. However, the US Federal Communications Commission ("FCC") has allowed unlicensed IMT services within the band.[86] The highest value use of the band is somewhat uncertain at this stage.

5 Technical feasibility

5.1 While the band has been identified for the terrestrial component of IMT, the ITU has not established protection for IMT services in this band. Therefore, there is a risk of interference with incumbent users. For example, there may be licensees operating in this band in terms of the 2021 amendment to the Radio Frequency Spectrum Regulations[87],

[85] See WRC-19 Footnote 5.559AA.

[86] See GSMA. 2018. IMT Spectrum Between 24.25 and 86 GHz GSMA Public Policy Position. 2018, available at: https://www.gsma.com/connectivity-for-good/spectrum/wp-content/uploads/2018/12/AI-1.13-Positions.pdf

[87] See Government Gazette 45690 (Notice 737 of 2021).

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which permits Multi-Gigabit Wireless Systems ("MGWS"). Mitigation and coordination strategies may be necessary.

6 Maturity of the IMT ecosystem

6.1 The device ecosystem is limited. There are no devices that support this band.[88]

7 International considerations

7.1 This band is identified for IMT in all three Regions. However, no licenses have been granted to IMT operators in Region 1. The GSMA recommends that licenses be awarded flexibly in this band to encourage both IMT and non-IMT use.[89]

8 Stakeholder comments

8.1 Table 9 below for a summary of stakeholders' comments on the Draft IMT Roadmap 2024, Second Draft IMT Roadmap 2025, and Draft Radio Frequency Migration Plan 2024, alongside the Authority's response.

Table 9: Stakeholder comments and the Authority's response for the 66-71GHz band

Stakeholder comments	Authority's comment
Cell C, Vodacom, and MTN support the assignment of this band for IMT, following the development of a RFSAP. Telkom supports RFSAP development for this band, however, notes that this band is of lesser priority in terms of licensing than the 26 GHz and 40 GHz bands. Telkom also proposes that in fact no feasibility study is needed for this band because it is either unused, or there is minimal use of it currently.	The Authority is in the process of developing an RFSAP for this band given that is has been recommended for IMT in WRC-23. While the band may be unused, part of the reason for preparing this feasibility study is to solicit feedback from stakeholders on the use or otherwise of the band.
Cell C advises that coexistence with incumbent users be considered, proposes technology neutrality, and recommends that timelines be developed for consultation, assignment, and implementation.	Coordination / coexistence will be considered during the course of developing the feasibility study and RFSAP for the band. Stakeholders are encouraged to provide comments in this regard.
Huawei, however, notes the limited device ecosystem for this band.	Despite the current limited device ecosystem, it is likely that devices will be developed for the band given the licence-free IMT allocation in the USA.

[88] See ATU-R recommendation relating to International Mobile Telecommunications (IMT) Spectrum Roadmap For Africa. 2025, available at: https://atuuat.africa/wp-content/uploads/2025/08/Project-4-IMT-Spectrum-Roadmap-for-Africa-Final.pdf

[89] See GSMA. 2018. IMT Spectrum Between 24.25 and 86 GHz GSMA Public Policy Position, available at: https://www.gsma.com/connectivity-for-good/spectrum/wp-content/uploads/2018/12/AI-1.13-Positions.pdf

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9 Considerations in favour of and against IMT allocation

9.1 The advantage of using this band for IMT is that it has been identified for IMT by the ITU, as well as the NRFP.

9.2 At the same time, there is potential for coexistence between IMT and unlicensed use for WAS/RLAN.

9.3 However, there is a lack of devices that support this band, and stakeholders' views on the suitability of the band for IMT are mixed.

9.4 Given the advantages arising from the allocation of the band for IMT in other regions, and the potential for coexistence with unlicensed use for WAS/RLAN, the considerations in favour of the allocation of the band to IMT on a shared basis with WAS/RLAN, outweigh those in favour of not doing so.

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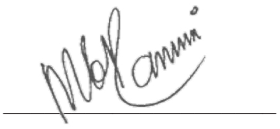
INDEPENDENT COMMUNICATIONS AUTHORITY OF SOUTH AFRICA

NOTICE 4044 OF 2026

PURSUANT TO SECTIONS 34 (2) AND (5) OF THE ELECTRONIC COMMUNICATIONS ACT, 2005 (ACT NO. 36 OF 2005)

HEREBY ISSUES THE NATIONAL RADIO FREQUENCY PLAN 2026

The Independent Communications Authority of South Africa in terms of section 34 (2) and (5) of the Electronic Communications Act, 2005 (Act No. 36 of 2005) (as amended) hereby publishes the National Radio Frequency Plan 2026.



Mothibi G Ramusi

CHAIRPERSON

NATIONAL RADIO FREQUENCY PLAN 2026
(NRFP-26)

8.3 kHz - 3000 GHz

INDEPENDENT COMMUNICATIONS AUTHORITY OF SOUTH AFRICA

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1 TERMS, DEFINITIONS AND ACRONYMS

1.1 Terms and definitions

Term	***Definition***
accepted interference[1]*:*	*Interference* at a higher level than that defined as *permissible interference* and which has been agreed upon between two or more *administrations* without prejudice to other *administrations*.
active satellite:	A *satellite* carrying a *station* intended to transmit or retransmit *radiocommunication* signals.
active sensor:	A measuring instrument in the *earth exploration-satellite service* or in the *space research service* by means of which information is obtained by transmission and reception of *radio waves*.
adaptive system:	A *radiocommunication* system which varies its radio characteristics according to channel quality.
administration	Any governmental department or service responsible for discharging the obligations undertaken in the Constitution of the International Telecommunication Union, in the Convention of the International Telecommunication Union and in the Administrative Regulations (CS 1002).
aeronautical earth station:	An *earth station* in the *fixed-satellite service*, or, in some cases, in the *aeronautical mobile-satellite service*, located at a specified fixed point on land to provide a *feeder link* for the *aeronautical mobile-satellite service*.
*aeronautical mobile (OR)*** *service:*	An *aeronautical mobile service* intended for communications, including those relating to flight coordination, primarily outside national or international civil air routes.
*aeronautical mobile (R)** *service:*	An *aeronautical mobile service* reserved for communications relating to safety and regularity of flight, primarily along national or international civil air routes
aeronautical mobile service:	A *mobile service* between *aeronautical stations* and *aircraft stations*, or between *aircraft stations*, in which *survival craft stations* may participate; *emergency position-indicating radiobeacon stations* may also participate in this service on designated distress and emergency frequencies.
*aeronautical mobile-satellite (OR)*** *service:*	An *aeronautical mobile-satellite service* intended for communications, including those relating to flight coordination, primarily outside national and international civil air routes.
*aeronautical mobile-satellite (R)** *service:*	An *aeronautical mobile-satellite service* reserved for communications relating to safety and regularity of flights, primarily along national or international civil air routes.
aeronautical mobile-satellite service:	A *mobile-satellite service* in which *mobile earth stations* are located on board aircraft; *survival craft stations* and *emergency position-indicating radiobeacon stations* may also participate in this service.
aeronautical radionavigation service:	A *radionavigation service* intended for the benefit and for the safe operation of aircraft.
aeronautical radionavigation-satellite service:	A *radionavigation-satellite service* in which *earth stations* are located on board aircraft.

[1] The terms "permissible interference" and "accepted interference" are used in the coordination of frequency assignments between *administrations*

*(R): route.
**(OR): off-route.

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Term	***Definition***
aeronautical station:	A *land station* in the *aeronautical mobile service*. In certain instances, an aeronautical station may be located, for example, on board a ship or on a platform at sea.
aircraft earth station:	A *mobile earth station* in the *aeronautical mobile-satellite service* located on board an aircraft.
aircraft station:	A *mobile station* in the *aeronautical mobile service*, other than a *survival craft station*, located on board an aircraft.
allocation (of a frequency band):	Entry in the Table of Frequency Allocations of a given frequency band for the purpose of its use by one or more terrestrial or space *radiocommunication services* or the *radio astronomy service* under specified conditions. This term shall also be applied to the frequency band concerned.
allotment (of a radio frequency or radio frequency channel):	Entry of a designated frequency channel in an agreed plan, adopted by a competent conference, for use by one or more *administrations* for a terrestrial or space *radiocommunication service* in one or more identified countries or geographical areas and under specified conditions.
altitude of the apogee or *of the perigee:*	The altitude of the apogee or perigee above a specified reference surface serving to represent the surface of the Earth.
amateur service:	A *radiocommunication service* for the purpose of self-training, intercommunication and technical investigations carried out by amateurs, that is, by duly authorized persons interested in radio technique solely with a personal aim and without pecuniary interest.
amateur station:	A *station* in the *amateur service*.
amateur-satellite service:	A *radiocommunication service* using *space stations* on earth *satellites* for the same purposes as those of the *amateur service*.
assigned frequency band:	The frequency band within which the *emission* of a *station* is authorized; the width of the band equals the *necessary bandwidth* plus twice the absolute value of the *frequency tolerance*. Where *space stations* are concerned, the assigned frequency band includes twice the maximum Doppler shift that may occur in relation to any point of the Earth's surface.
assigned frequency:	The centre of the frequency band assigned to a *station*.
assignment (of a radio frequency or radio frequency channel):	Authorization given by an *administration* for a radio *station* to use a radio frequency or radio frequency channel under specified conditions.
base earth station:	An *earth station* in the *fixed-satellite service* or, in some cases, in the *land mobile-satellite service,* located at a specified fixed point or within a specified area on land to provide a *feeder link* for the *land mobile-satellite service*.
base station:	A *land station* in the *land mobile service*.
broadcasting service:	A *radiocommunication service* in which the transmissions are intended for direct reception by the general public. This service may include sound transmissions, *television* transmissions, or other types of transmission (CS).
broadcasting station:	A *station* in the *broadcasting service*.
broadcasting-satellite service:	A *radiocommunication service* in which signals transmitted or retransmitted by *space stations* are intended for direct reception by the general public. In the broadcasting-satellite service, the term "direct reception" shall encompass both *individual reception* and *community reception*.
carrier power (of a radio transmitter):	The average power supplied to the antenna transmission line by a transmitter during one radio frequency cycle taken under the condition of no modulation.

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Term	***Definition***
characteristic frequency:	A frequency which can be easily identified and measured in a given *emission*. A carrier frequency may, for example, be designated as the characteristic frequency.
class of emission:	The set of characteristics of an *emission*, designated by standard symbols, e.g. type of modulation of the main carrier, modulating signal, type of information to be transmitted, and also, if appropriate, any additional signal characteristics.
coast earth station:	An *earth station* in the *fixed-satellite service* or, in some cases, in the *maritime mobile-satellite service*, located at a specified fixed point on land to provide a *feeder link* for the *maritime mobile-satellite service*.
coast station:	A *land station* in the *maritime mobile service*.
community reception (in the broadcasting-satellite service):	The reception of *emissions* from a *space station* in the *broadcasting-satellite service* by receiving equipment, which in some cases may be complex and have antennas larger than those used for *individual reception*, and intended for use: – by a group of the general public at one location; or – through a distribution system covering a limited area.
coordinated universal time (UTC):	Time scale, based on the second (SI), as described in Resolution 655 (Rev.WRC-23).
coordination area:	When determining the need for coordination, the area surrounding an *earth station* sharing the same frequency band with *terrestrial stations*, or surrounding a transmitting *earth station* sharing the same bi-directionally allocated frequency band with receiving *earth stations*, beyond which the level of *permissible interference* will not be exceeded, and coordination is therefore not required. (WRC-2000)
coordination contour:	The line enclosing the *coordination area*.
coordination distance:	When determining the need for coordination, the distance on a given azimuth from an *earth station* sharing the same frequency band with *terrestrial stations*, or from a transmitting *earth station* sharing the same bi-directionally allocated frequency band with receiving *earth stations*, beyond which the level of *permissible interference* will not be exceeded and coordination is therefore not required. (WRC-2000)
deep space:	Space at distances from the Earth equal to, or greater than, 2×10^6 km.
duplex operation:	Operating method in which transmission is possible simultaneously in both directions of a *telecommunication* channel[2].
earth exploration-satellite service:	A *radiocommunication service* between *earth stations* and one or more *space stations*, which may include links between *space stations*, in which: – information relating to the characteristics of the Earth and its natural phenomena, including data relating to the state of the environment, is obtained from *active sensors* or *passive sensors* on Earth *satellites*; – similar information is collected from airborne or Earth-based platforms; – such information may be distributed to *earth stations* within the system concerned; – platform interrogation may be included. This service may also include *feeder links* necessary for its operation.

[2] In general, *duplex operation* require two frequencies in *radiocommunication*

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Term	***Definition***
earth station:	A *station* located either on the Earth's surface or within the major portion of the Earth's atmosphere and intended for communication: – with one or more *space stations*; or – with one or more *stations* of the same kind by means of one or more *reflecting satellites* or other objects in space.
effective antenna gain contour (of a steerable satellite beam):	An envelope of antenna gain contours resulting from moving the boresight of a *steerable satellite beam* along the limits of the *effective boresight area*.
effective boresight area (of a steerable satellite beam):	An area on the surface of the Earth within which the boresight of a *steerable satellite beam* is intended to be pointed. There may be more than one unconnected effective boresight area to which a single *steerable satellite beam* is intended to be pointed.
effective monopole radiated power (e.m.r.p.) (in a given direction)*:*	The product of the power supplied to the antenna and its *gain relative to a short vertical antenna* in a given direction.
effective radiated power (e.r.p.) (in a given direction)*:*	The product of the power supplied to the antenna and its *gain relative to a half-wave dipole* in a given direction.
emergency position-indicating radiobeacon station:	A *station* in the *mobile service* the *emissions* of which are intended to facilitate search and rescue operations.
emission:	*Radiation* produced, or the production of *radiation*, by a radio transmitting *station*. For example, the energy radiated by the local oscillator of a radio receiver would not be an emission but a *radiation*.
equivalent isotropically radiated power (e.i.r.p.):	The product of the power supplied to the antenna and the antenna gain in a given direction relative to an isotropic antenna *(absolute or isotropic gain)*.
equivalent satellite link noise temperature:	The noise temperature referred to the output of the receiving antenna of the *earth station* corresponding to the radio frequency noise power which produces the total observed noise at the output of the *satellite link* excluding noise due to *interference* coming from *satellite links* using other *satellites* and from terrestrial systems.
experimental station:	A *station* utilizing *radio waves* in experiments with a view to the development of science or technique. This definition does not include *amateur stations.*
facsimile:	A form of *telegraphy* for the transmission of fixed images, with or without half-tones, with a view to their reproduction in a permanent form.
FAR147 Overberg (CP):	Proclaimed flight area in Overberg, South Africa. Controlled by the South African Air Force.
feeder link:	A radio link from an *earth station* at a given location to a *space station*, or vice versa, conveying information for a *space radiocommunication service* other than for the *fixed-satellite service*. The given location may be at a specified fixed point, or at any fixed point within specified areas.
fixed service:	*A radiocommunication service* between specified fixed points.
fixed station:	A *station* in the *fixed service*.
fixed-satellite service:	A *radiocommunication service* between *earth stations* at given positions, when one or more *satellites* are used; the given position may be a specified fixed point or any fixed point within specified areas; in some cases this service includes satellite-to-satellite links, which may also be operated in the *inter-satellite service*; the fixed-satellite service may also include *feeder links* for other *space radiocommunication services*.

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Term	***Definition***
frequency tolerance:	The maximum permissible departure by the centre frequency of the frequency band occupied by an *emission* from the *assigned frequency* or, by the *characteristic frequency* of an *emission* from the *reference frequency*. The frequency tolerance is expressed in parts in 10^6 or in hertz.
frequency-shift telegraphy:	*Telegraphy* by frequency modulation in which the telegraph signal shifts the frequency of the carrier between predetermined values.
full carrier single-sideband emission:	A *single-sideband emission* without reduction of the carrier.
gain of an antenna:	The ratio, usually expressed in decibels, of the power required at the input of a loss-free reference antenna to the power supplied to the input of the given antenna to produce, in a given direction, the same field strength or the same power flux-density at the same distance. When not specified otherwise, the gain refers to the direction of maximum *radiation*. The gain may be considered for a specified polarization. Depending on the choice of the reference antenna a distinction is made between: a) absolute or isotropic gain (*Gi*), when the reference antenna is an isotropic antenna isolated in space; b) gain relative to a half-wave dipole (*Gd*), when the reference antenna is a half-wave dipole isolated in space whose equatorial plane contains the given direction; c) gain relative to a short vertical antenna (*Gv*), when the reference antenna is a linear conductor, much shorter than one quarter of the wavelength, normal to the surface of a perfectly conducting plane which contains the given direction.
geostationary satellite:	A *geosynchronous satellite* whose circular and direct *orbit* lies in the plane of the Earth's equator, and which thus remains fixed relative to the Earth; by extension, a *geosynchronous satellite* which remains approximately fixed relative to the Earth. (WRC-03)
geostationary-satellite orbit:	The *orbit* of a *geosynchronous satellite* whose circular and direct *orbit* lies in the plane of the Earth's equator.
geosynchronous satellite:	An earth *satellite* whose period of revolution is equal to the period of rotation of the Earth about its axis.
harmful interference:	*Interference* which endangers the functioning of a *radionavigation service* or of other *safety services* or seriously degrades, obstructs, or repeatedly interrupts a *radiocommunication service* operating in accordance with Radio Regulations (CS).
high altitude platform station:	A *station* located on an object at an altitude of 20 to 50 km and at a specified, nominal, fixed point relative to the Earth.
inclination of an orbit (of an earth satellite):	The angle determined by the plane containing the *orbit* and the plane of the Earth's equator measured in degrees between 0º and 180º and in counter-clockwise direction from the Earth's equatorial plane at the ascending node of the *orbit*. (WRC-2000)
individual reception (in the broadcasting-satellite service):	The reception of *emissions* from a *space station* in the *broadcasting-satellite service* by simple domestic installations and in particular those possessing small antennas.
industrial, scientific and medical (ISM) applications (of radio frequency energy):	Operation of equipment or appliances designed to generate and use locally radio frequency energy for industrial, scientific, medical, domestic or similar purposes, excluding applications in the field of *telecommunications*.

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Term	***Definition***
instrument landing system (ILS):	A *radionavigation* system which provides aircraft with horizontal and vertical guidance just before and during landing and, at certain fixed points, indicates the distance to the reference point of landing.
instrument landing system glide path:	A system of vertical guidance embodied in the *instrument landing system* which indicates the vertical deviation of the aircraft from its optimum path of descent.
instrument landing system localizer:	A system of horizontal guidance embodied in the *instrument landing system* which indicates the horizontal deviation of the aircraft from its optimum path of descent along the axis of the runway.
interference:	The effect of unwanted energy due to one or a combination of *emissions*, *radiations*, or inductions upon reception in a *radiocommunication* system, manifested by any performance degradation, misinterpretation, or loss of information which could be extracted in the absence of such unwanted energy.
inter-satellite service:	A *radiocommunication service* providing links between artificial *satellites*.
ionospheric scatter:	The propagation of *radio waves* by scattering as a result of irregularities or discontinuities in the ionization of the ionosphere.
land earth station:	An *earth station* in the *fixed-satellite service* or, in some cases, in the *mobile-satellite service,* located at a specified fixed point or within a specified area on land to provide a *feeder link* for the *mobile-satellite service*.
land mobile earth station:	A *mobile earth station* in the *land mobile-satellite service* capable of surface movement within the geographical limits of a country or continent.
land mobile service:	A *mobile service* between *base stations* and *land mobile stations*, or between *land mobile stations*.
land mobile station:	A *mobile station* in the *land mobile service* capable of surface movement within the geographical limits of a country or continent.
land mobile-satellite service:	A *mobile-satellite service* in which *mobile earth stations* are located on land.
land station:	A station in the mobile service not intended to be used while in motion.
left-hand (anticlockwise) *polarized wave:*	An elliptically- or circularly-polarized wave, in which the electric field vector, observed in any fixed plane, normal to the direction of propagation, whilst looking in the direction of propagation, rotates with time in a left-hand or anticlockwise direction.
maritime mobile service:	A *mobile service* between *coast stations* and *ship stations*, or between *ship stations*, or between associated *on-board communication stations*; *survival craft stations* and *emergency position-indicating radiobeacon stations* may also participate in this service.
maritime mobile-satellite service:	A *mobile-satellite service* in which *mobile earth stations* are located on board ships; *survival craft stations* and *emergency position-indicating radiobeacon stations* may also participate in this service.
maritime radionavigation service:	A *radionavigation service* intended for the benefit and for the safe operation of ships.
maritime radionavigation-satellite service:	A *radionavigation-satellite service* in which *earth stations* are located on board ships.
marker beacon:	A transmitter in the *aeronautical radionavigation service* which radiates vertically a distinctive pattern for providing position information to aircraft.
mean power (of a radio transmitter):	The average power supplied to the antenna transmission line by a transmitter during an interval of time sufficiently long compared with the

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Term	***Definition***
	lowest frequency encountered in the modulation taken under normal operating conditions.
meteorological aids land station:	A *station* in the *meteorological aids service* not intended to be used while in motion. (WRC-15)
meteorological aids mobile station:	A *station* in the *meteorological aids service* intended to be used while in motion or during halts at unspecified points. (WRC-15)
meteorological aids service:	A *radiocommunication service* used for meteorological, including hydrological, observations and exploration.
meteorological-satellite service:	An *earth exploration-satellite service* for meteorological purposes.
mobile earth station:	An *earth station* in the *mobile-satellite service* intended to be used while in motion or during halts at unspecified points.
mobile service:	A *radiocommunication service* between *mobile* and *land stations*, or between *mobile stations* (CV).
mobile station:	A *station* in the *mobile service* intended to be used while in motion or during halts at unspecified points.
mobile-satellite service:	A *radiocommunication service:* – between *mobile earth stations* and one or more *space stations*, or between *space stations* used by this service; or – between *mobile earth stations* by means of one or more *space stations*. This service may also include *feeder links* necessary for its operation.
multi-satellite link:	A radio link between a transmitting *earth station* and a receiving *earth station* through two or more *satellites*, without any intermediate *earth station*. A multi-satellite link comprises one up-link, one or more satellite-to-satellite links and one down-link.
necessary bandwidth:	For a given *class of emission*, the width of the frequency band which is just sufficient to ensure the transmission of information at the rate and with the quality required under specified conditions.
occupied bandwidth:	The width of a frequency band such that, below the lower and above the upper frequency limits, the *mean powers* emitted are each equal to a specified percentage b/2 of the total *mean power* of a given *emission*. Unless otherwise specified in an ITU-R Recommendation for the appropriate *class of emission*, the value of b/2 should be taken as 0.5%.
on-board communication station:	A low-powered *mobile station* in the *maritime mobile service* intended for use for internal communications on board a ship, or between a ship and its lifeboats and life-rafts during lifeboat drills or operations, or for communication within a group of vessels being towed or pushed, as well as for line handling and mooring instructions.
orbit:	The path, relative to a specified frame of reference, described by the centre of mass of a *satellite* or other object in space subjected primarily to natural forces, mainly the force of gravity.
out-of-band domain (of an emission):	The frequency range, immediately outside the *necessary bandwidth* but excluding the *spurious domain*, in which *out-of-band emissions* generally predominate. *Out-of-band emissions*, defined based on their source, occur in the out-of-band domain and, to a lesser extent, in the *spurious domain*. *Spurious emissions* likewise may occur in the out-of-band domain as well as in the *spurious domain*. (WRC-03)
out-of-band emission:	*Emission* on a frequency or frequencies immediately outside the *necessary bandwidth* which results from the modulation process, but excluding *spurious emissions*.

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Term	***Definition***
passive sensor:	A measuring instrument in the *earth exploration-satellite service* or in the *space research service* by means of which information is obtained by reception of *radio waves* of natural origin.
peak envelope power (of a radio transmitter):	The average power supplied to the antenna transmission line by a transmitter during one radio frequency cycle at the crest of the modulation envelope taken under normal operating conditions.
period (of a satellite):	The time elapsing between two consecutive passages of a *satellite* through a characteristic point on its *orbit*.
permissible interference[3]*:*	Observed or predicted *interference* which complies with quantitative *interference* and sharing criteria contained in these Regulations or in ITU-R Recommendations or in special agreements as provided for in these Regulations.
Programme Making and Special Events:	*Programme making*: The creation of content for broadcast, the production of films, presentations, advertisements, audio or video recordings; and the staging or performance of an entertainment, sporting, social or other public/private event. *Special events*: Occurrences of limited duration, typically from one day to several weeks or longer, which take place in specifically defined locations. Also known as Services Ancillary to Broadcasting (SAB)/ Services Ancillary to Programme making (SAP).
port operations service:	A *maritime mobile service* in or near a port, between *coast stations* and *ship stations*, or between *ship stations*, in which messages are restricted to those relating to the operational handling, the movement and the safety of ships and, in emergency, to the safety of persons. Messages which are of a *public correspondence* nature shall be excluded from this service.
port station:	A *coast station* in the *port operations service*.
power:	Whenever the power of a radio transmitter, etc. is referred to it shall be expressed in one of the following forms, according to the class of *emission*, using the arbitrary symbols indicated: – *peak envelope power* (*P*X or *p*X); – *mean power* (*P*Y or *p*Y); – *carrier power* (*P*Z or *p*Z). For different *classes of emission*, the relationships between *peak envelope power*, *mean power* and *carrier power*, under the conditions of normal operation and of no modulation, are contained in ITU-R Recommendations which may be used as a guide. For use in formulae, the symbol *p* denotes power expressed in watts and the symbol *P* denotes power expressed in decibels relative to a reference level.
primary radar:	A *radiodetermination* system based on the comparison of reference signals with radio signals reflected from the position to be determined.
protection ratio (R.F.):	The minimum value of the wanted-to-unwanted signal ratio, usually expressed in decibels, at the receiver input, determined under specified conditions such that a specified reception quality of the wanted signal is achieved at the receiver output.
public correspondence:	Any *telecommunication* which the offices and *stations* must, by reason of their being at the disposal of the public, except for transmission (CS).

[3] The terms "permissible interference" and "accepted interference" are used in the coordination of frequency assignments between *administrations*.

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Term	***Definition***
radar beacon (racon):	A transmitter-receiver associated with a fixed navigational mark which, when triggered by a *radar*, automatically returns a distinctive signal which can appear on the display of the triggering *radar*, providing range, bearing and identification information.
radar:	A *radiodetermination* system based on the comparison of reference signals with radio signals reflected, or retransmitted, from the position to be determined.
radiation:	The outward flow of energy from any source in the form of *radio waves*.
radio altimeter:	*Radionavigation* equipment, on board an aircraft or *spacecraft,* used to determine the height of the aircraft or the *spacecraft* above the Earth's surface or another surface.
radio astronomy service:	A service involving the use of *radio astronomy*.
radio astronomy station:	A *station* in the *radio astronomy service*.
radio astronomy:	Astronomy based on the reception of *radio waves* of cosmic origin.
radio direction-finding station:	A *radiodetermination station* using *radio direction-finding*.
radio direction-finding:	*Radiodetermination* using the reception of *radio waves* for the purpose of determining the direction of a *station* or object.
radio waves or *hertzian waves:*	Electromagnetic waves of frequencies arbitrarily lower than 3 000 GHz, propagated in space without artificial guide.
radio:	A general term applied to the use of *radio waves*.
radiobeacon station:	A *station* in the *radionavigation service* the *emissions* of which are intended to enable a *mobile station* to determine its bearing or direction in relation to the radiobeacon station.
radiocommunication service:	A service as defined in this Section involving the transmission, *emission* and/or reception of *radio waves* for specific *telecommunication* purposes. In these Regulations, unless otherwise stated, any radiocommunication service relates to *terrestrial radiocommunication*.
radiocommunication:	*Telecommunication* by means of *radio waves* (CS) (CV).
radiodetermination service:	A *radiocommunication service* for the purpose of *radiodetermination*.
radiodetermination station:	A *station* in the *radiodetermination service*.
radiodetermination:	The determination of the position, velocity and/or other characteristics of an object, or the obtaining of information relating to these parameters, by means of the propagation properties of *radio waves*.
radiodetermination-satellite service:	*A radiocommunication service* for the purpose of *radiodetermination* involving the use of one or more *space stations*. This service may also include *feeder links* necessary for its own operation.
radiolocation land station:	A *station* in the *radiolocation service* not intended to be used while in motion.
radiolocation mobile station:	A *station* in the *radiolocation service* intended to be used while in motion or during halts at unspecified points.
radiolocation service:	A *radiodetermination service* for the purpose of *radiolocation*.
radiolocation:	*Radiodetermination* used for purposes other than those of *radionavigation*.
radiolocation-satellite service:	A *radiodetermination-satellite service* used for the purpose of *radiolocation*. This service may also include the *feeder links* necessary for its operation.

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Term	***Definition***
radionavigation land station:	A *station* in the *radionavigation service* not intended to be used while in motion.
radionavigation mobile station:	A *station* in the *radionavigation service* intended to be used while in motion or during halts at unspecified points.
radionavigation service:	A *radiodetermination service* for the purpose of *radionavigation*.
radionavigation:	*Radiodetermination* used for the purposes of navigation, including obstruction warning.
radionavigation-satellite service:	A *radiodetermination-satellite service* used for the purpose of *radionavigation*. This service may also include *feeder links* necessary for its operation.
radiosonde:	An automatic radio transmitter in the *meteorological aids service* usually carried on an aircraft, free balloon, kite or parachute, and which transmits meteorological data.
radiotelegram:	A *telegram*, originating in or intended for a *mobile station* or a *mobile earth station* transmitted on all or part of its route over the *radiocommunication* channels of the *mobile service* or of the *mobile-satellite service*.
radiotelemetry:	*Telemetry* by means of *radio waves*.
radiotelephone call:	A telephone call, originating in or intended for a *mobile station* or a *mobile earth station*, transmitted on all or part of its route over the *radiocommunication* channels of the *mobile service* or of the *mobile-satellite service*.
radiotelex call:	A telex call, originating in or intended for a *mobile station* or a *mobile earth station*, transmitted on all or part of its route over the *radiocommunication* channels of the *mobile service* or the *mobile-satellite service*.
reduced carrier single-sideband emission:	A *single-sideband emission* in which the degree of carrier suppression enables the carrier to be reconstituted and to be used for demodulation.
reference frequency:	A frequency having a fixed and specified position with respect to the *assigned frequency*. The displacement of this frequency with respect to the *assigned frequency* has the same absolute value and sign that the displacement of the *characteristic frequency* has with respect to the centre of the frequency band occupied by the *emission*.
reflecting satellite:	A *satellite* intended to reflect *radiocommunication* signals.
right-hand (clockwise) *polarized wave:*	An elliptically- or circularly-polarized wave, in which the electric field vector, observed in any fixed plane, normal to the direction of propagation, whilst looking in the direction of propagation, rotates with time in a right-hand or clockwise direction.
safety service:	Any *radiocommunication service* used permanently or temporarily for the safeguarding of human life and property.
satellite emergency position-indicating radiobeacon:	An *earth station* in the *mobile-satellite service* the *emissions* of which are intended to facilitate search and rescue operations.
satellite link:	A radio link between a transmitting *earth station* and a receiving *earth station* through one *satellite*. A satellite link comprises one up-link and one down-link.
satellite network:	A *satellite system* or a part of a *satellite system*, consisting of only one *satellite* and the cooperating *earth stations*.
satellite system:	A *space system* using one or more artificial earth *satellites*.
satellite:	A body which revolves around another body of preponderant mass, and which has a motion primarily and permanently determined by the force of attraction of that other body.

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Term	***Definition***
secondary radar:	A *radiodetermination* system based on the comparison of reference signals with radio signals retransmitted from the position to be determined.
semi-duplex operation:	A method which is *simplex operation* at one end of the circuit and *duplex operation* at the other[4].
ship earth station:	A *mobile earth station* in the *maritime mobile-satellite service* located on board ship.
ship movement service:	A *safety service* in the *maritime mobile service* other than a *port operations service*, between *coast stations* and *ship stations*, or between *ship stations*, in which messages are restricted to those relating to the movement of ships. Messages which are of a *public correspondence* nature shall be excluded from this service.
ship station:	A *mobile station* in the *maritime mobile service* located on board a vessel which is not permanently moored, other than a *survival craft station*.
ship's emergency transmitter:	A ship's transmitter to be used exclusively on a distress frequency for distress, urgency, or safety purposes.
simplex operation:	Operating method in which transmission is made possible alternately in each direction of a *telecommunication* channel, for example, by means of manual control. [5]
single-sideband emission:	An amplitude modulated *emission* with one sideband only.
space operation service:	A *radiocommunication service* concerned exclusively with the operation of *spacecraft*, in particular *space tracking, space telemetry* and *space telecommand*. These functions will normally be provided within the service in which the *space station* is operating.
space radiocommunication:	Any *radiocommunication* involving the use of one or more *space stations* or the use of one or more *reflecting satellites* or other objects in space.
space research service:	A *radiocommunication service* in which *spacecraft* or other objects in space are used for scientific or technological research purposes.
space station:	A *station* located on an object which is beyond, is intended to go beyond, or has been beyond, the major portion of the Earth's atmosphere.
space system:	Any group of cooperating *earth stations* and/or *space stations* employing *space radiocommunication* for specific purposes.
space telecommand:	The use of *radiocommunication* for the transmission of signals to a *space station* to initiate, modify or terminate functions of equipment on an associated space object, including the *space station*.
space telemetry:	The use of *telemetry* for the transmission from a *space station* of results of measurements made in a *spacecraft*, including those relating to the functioning of the *spacecraft*.
space tracking:	Determination of the *orbit*, velocity, or instantaneous position of an object in space by means of *radiodetermination*, excluding *primary radar*, for the purpose of following the movement of the object.
spacecraft:	A man-made vehicle which is intended to go beyond the major portion of the Earth's atmosphere.
special service:	A *radiocommunication service*, not otherwise defined in this Section, carried on exclusively for specific needs of general utility, and not open to *public correspondence*.

[4] In general, *semi-duplex operation* require two frequencies in *radiocommunication*;

[5] In general, *simplex operation* may use either one or two frequencies in *radiocommunication*;

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Term	***Definition***
spurious domain (of an emission):	The frequency range beyond the *out-of-band domain* in which *spurious emissions* generally predominate. (WRC-03)
spurious emission:	*Emission* on a frequency or frequencies which are outside the *necessary bandwidth* and the level of which may be reduced without affecting the corresponding transmission of information. Spurious emissions include harmonic *emissions*, parasitic *emissions*, intermodulation products, and frequency conversion products, but exclude *out-of-band emissions*.
standard frequency and time signal service:	A *radiocommunication service* for scientific, technical, and other purposes, providing the transmission of specified frequencies, time signals, or both, of stated high precision, intended for general reception.
standard frequency and time signal station:	A *station* in the *standard frequency and time signal service*.
station:	One or more transmitters or receivers or a combination of transmitters and receivers, including the accessory equipment, necessary at one location for carrying on a *radiocommunication service*, or the *radio astronomy service*. Each station shall be classified by the service in which it operates permanently or temporarily.
steerable satellite beam:	A *satellite* antenna beam that can be re-pointed.
suppressed carrier single-sideband emission:	A *single-sideband emission* in which the carrier is virtually suppressed and not intended to be used for demodulation.
survival craft station:	A *mobile station* in the *maritime mobile service* or the *aeronautical mobile service* intended solely for survival purposes and located on any lifeboat, life-raft or other survival equipment.
telecommand:	The use of *telecommunication* for the transmission of signals to initiate, modify or terminate functions of equipment at a distance.
telecommunication:	Any transmission, emission or reception of signs, signals, writings, images and sounds or intelligence of any nature by wire, radio, optical or other electromagnetic systems (CS).
telegram:	Written matter intended to be transmitted by *telegraphy* for delivery to the addressee. This term also includes *radiotelegrams* unless otherwise specified (CS). In this definition the term *telegraphy* has the same general meaning as defined in the Convention.
telegraphy[6]	A form of *telecommunication* in which the transmitted information is intended to be recorded on arrival as a graphic document; the transmitted information may sometimes be presented in an alternative form or may be stored for subsequent use (CS 1016).
telemetry:	The use of *telecommunication* for automatically indicating or recording measurements at a distance from the measuring instrument.
telephony:	A form of *telecommunication* primarily intended for the exchange of information in the form of speech (CS 1017).
television:	A form of *telecommunication* for the transmission of transient images of fixed or moving objects.
terrestrial radiocommunication:	Any *radiocommunication* other than *space radiocommunication* or *radio astronomy*.
terrestrial station:	A *station* effecting *terrestrial radiocommunication*. In these Regulations, unless otherwise stated, any *station* is a terrestrial station.

[6] A graphic document records information in a permanent form and is capable of being filed and consulted; it may take the form of written or printed matter or of a fixed image.

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Term	***Definition***
tropospheric scatter:	The propagation of *radio waves* by scattering as a result of irregularities or discontinuities in the physical properties of the troposphere.
unwanted emissions:	Consist of *spurious emissions* and *out-of-band emissions*.

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1.2 Acronyms

AAA	Astronomy Advantage Area
ACS	Automatic Connection System
AES	Aeronautical Earth Station
AGAA	Astronomy Geographic Advantage Act, 2007 (Act No. 21 of 2007)
AIS	Automatic Identification System
A-ESIM	Aeronautical Earth Station in Motion
AMESIM	Aeronautical and Maritime Earth Station in Motion
APP30A	Appendix 30A to the ITU Radio Regulations (BSS feeder-link plan/list provisions).
ASDE	Airports Surface Detection Equipment
ATC/CGC	Auxiliary Terrestrial Component /Complimentary Ground Component
BFWA	Broadband Fixed Wireless Access
BSS	Broadcast Satellite Service
BR	ITU Radiocommunication Bureau
BTX	Base Transmit
C-band	Frequency range between about 4 and 8 GHz
CEPT	European Conference of Postal and Telecommunications Administrations
CNPC	Control and Non-Payload Communication
CP	(Base) Command Post
CT2	Second generation cordless telephones operating to specification MPT1334.
DAB	Digital Audio Broadcasting
DAB+	Digital Audio Broadcasting Plus
dBW	Decibels relative to one Watt of power.

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DECT	Digital European Cordless Telecommunication system. ERC Decision ERC/DEC/ (94)03 refers.
DF	Duplex Frequency
DRM[7]	Digital Radio Mondiale
DSB	Digital Sound Broadcasting
DSC	Digital Selective Calling
DSSS	Direct Sequence Spread Spectrum
DTH	Direct-to-Home (satellite reception context)
DTT	Digital Terrestrial Television
FRMCS	Future Railway Mobile Communication System
ECA	Electronic Communications Act, 2005 (No 36. of 2005) (also, the "Act").
ECC	Electronic Communications Committee
EESS	Earth Exploration-Satellite Service
ENG	Electronic News Gathering
EN	European Norm / European Standard (as used in "ETSI EN …")
ENG/OB	Electronic News Gathering / Outside Broadcasting
ENR	En Route
EPIRB	Emergency Position Indicating Radio Beacon
ERC	European Radiocommunications Committee
ESIM	Earth stations in motion
ESV	Earth Station (on board) Vessel(s)
ETSI	European Telecommunications Standards Institute
FDDA	Field Disturbance and Doppler Apparatus

[7] Historically, the terms 'DRM30' and 'DRM+' were used to differentiate the technical parameter sets for DRM transmissions below and above 30 MHz, respectively. These terms are no longer used, as DRM is a single international standard applicable across multiple frequency bands.

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FM	Frequency Modulation
FSS	Fixed Satellite Service
FWA	Fixed Wireless Access
GE06[8]	The Geneva 2006 Agreement
GE75	Geneva 1975 (GE75) Plan for LF/MF broadcasting (Regions 1 & 3 for MF; Region 1 for LF).
GE84	Geneva 1984 (GE84) Agreement relating to use of 87.5–108 MHz for FM sound broadcasting (Region 1 and part of Region 3)
GE89[9]	The Geneva 1989 Agreement
GG	Government Gazette
GLONASS	Global Navigation Satellite System
GMDSS	Global Maritime Distress and Safety System.
GPS	Global Positioning System - a satellite radio navigation system.
GSM	Global System for Mobile Communications. Originally Groupe Spécial Mobile. See ERC Decision ERC/DEC/ (94)01.
GSM-R	GSM Railways
GSO	Geostationary Satellite Orbit
HAP/HAPS	High Altitude Platform Station
HDFS	High Density Fixed Service
HDFSS	High Density Fixed Satellite Service
HERA	Hydrogen Epoch of Reionization Array
HF	High Frequency (3 to 30 MHz)

[8] GE06 is an international treaty adopted in 2006 by the International Telecommunication Union (ITU) that governs the planning of digital terrestrial broadcasting services. It established a comprehensive frequency plan for digital radio (T-DAB) and television (DVB-T) in the VHF (174–230 MHz) and UHF (470–862 MHz) bands.

[9] GE89 is the Regional Agreement relating to the planning of VHF/UHF television broadcasting in the African Broadcasting Area and neighbouring countries (Geneva, 1989).

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HIBS	High-altitude platform station as IMT Base Station
ICAO	International Civil Aviation Organisation
ILS	Instrument Landing System-aeronautical radio navigation system.
IMO	International Maritime Organisation
IMT	International Mobile Telecommunications
ISM	Industrial, Scientific and Medical equipment. The use of radio for non-communication purposes such as microwave heating etc.
ISS	Inter-Satellite service
ITS	Intelligent Transportation Systems
ITU	International Telecommunication Union.
Ku-band	Part of the frequency band between about 12 and 18 GHz
LEO	Low Earth Orbit satellite
L-ESIM	Land Earth Station in Motion
LMDS	Local Multipoint Distribution Services
LMS	Land Mobile Service
LPVS	Low Power Video Surveillance
LTE	Long Term Evolution
M-ESIM	Maritime Earth Station in Motion
MF	Medium Frequency (300 to 3000 kHz)
MGWS	Multiple GIGABIT wireless systems
MIFR	Master International Frequency Register
MMS	Maritime Mobile Service
MSI	Maritime Safety Information
MSS	Mobile Satellite Service

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MTX	Mobile Transmit
MWS	Multimedia Wireless Systems
NAVDAT	Digital broadcasting of safety/security related information from shore to ships in the maritime mobile service
NAVTEX	System for broadcast and automatic reception of maritime safety information using narrow-band direct-printing telegraphy
NBDP	Narrow-band direct-printing telegraphy
NF	National Footnote (South African footnote identifier format "NFxx")
NGSO	Non-geostationary Satellite Orbit
NINP	Non-interference and non-protection
OB	Outside Broadcast.
PAMR	Public Access Mobile Radio.
RAS	Radio Astronomy Service
PMR	Private Mobile Radio.
PMSE	Programme Making and Special Events
PPDR	Public Protection and Disaster Relief
PSTN	Public Switched Telephone Network
PTP	Point-to-point
PTMP	Point-to-multipoint
Rec.	Recommendation
Res.	Resolution
RFID	Radio Frequency Identification systems
RFSAP	Radio Frequency Spectrum Assignment Plan
RFSR	Radio Frequency Spectrum Regulations
RLAN	Radio Local Area Network

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RNSS	Radio Navigation Satellite Service
RR	Radio Regulation of the International Telecommunication Union (edition 2024)
RMR	Railway Mobile Radio
RTT	Road Transport Telematics
RTTT	Road Transport and Traffic Telematics
RX	Receiver/receive
SAB	Services Ancillary to Broadcasting
SABRE	South African Band Replanning Exercise
SADC	Southern African Development Community
SAP	Services Ancillary to Programme-making
SDL	Supplemental Downlink (uses unpaired spectrum to increase downlink capacity; used in IMT context)
SHF	Super High Frequency (3 to 30 GHz)
SKA	Square Kilometre Array
SNG	Satellite News Gathering
SRD	Short Range Devices, sometimes also referred to as Low Power Devices (LPDs).
SRR	Short Range Radars
SRS	Space research service (RR No. 1.55)
T-DAB	Terrestrial Digital Audio Broadcasting.
TDD	Time Division Duplex
TTT	Transport and Traffic Telematics
TX	Transmit / Transmitter
UHF	Ultra-High Frequency (300 to 3000 MHz)

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UAS	Unmanned Aircraft Systems
UAV	Unmanned Aerial Vehicle
VHF	Very High Frequency (30 to 300 MHz)
VLF	Very Low Frequency (3 to 30 kHz)
VOR	Very high frequency Omnidirectional Range (aeronautical radionavigation system).
VSAT	Very Small Aperture Terminal
WAS	Wireless Access Services
WARC	World Administrative Radio Conference. The last WARC was held in 1992. WARCs are now superseded by WRCs.
WLAN	Wireless Local Area Network
WMAS	Wireless Multichannel Audio Systems
WRC	World Radiocommunication Conference.

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2 PREAMBLE

2.1 Legislative Framework

The Authority in terms of section 30 (1) of the Electronic Communications Act, 2005 (Act No. 36 of 2005) (the "ECA" or "Act)" is empowered to control, plan, administer and manage the use and licensing of the radio frequency spectrum.

In accordance with section 34 (2) and (5) of the ECA the Authority has developed the National Radio Frequency Plan 2026 (NRFP-26) to ensure efficient spectrum management. The Minister approved this Plan on 2 July 2026, as recorded in the Minister's letter to the Authority dated 2 July 2026**.**

Public Consultation Process
Pursuant to Section 34(8) of the Act, the Authority conducted a two-phase consultation:

- *First Phase*: The Draft National Radio Frequency Plan 2026 was published on 4 April 2025 (Government Gazette No. 52449, General Notice 3109 of 2025). Following stakeholder requests, the submission deadline was extended from 30 May 2025 to 13 June 2025.

- *Second Phase:* The Second Draft NRFP-26 was published for public comment on 10 November 2025 (GG 53637, Notice 3585), with submissions closing on 11 December 2025. Public hearings were subsequently held on 15–16 January 2026. The Authority has considered all submissions received in finalising this Plan, and Column 4, *Notes and Comments*, of Section 4, *Table of Frequency Allocations*, of this document summarises the Authority's decisions in the implementation of the Section 30, 31, and 32 provisions of the ECA.

International Agreement and Constitutional Alignment
In line with section 231 (2) of the Constitution of the Republic of South Africa, 1996 this Plan harmonises national allocations with international obligations. The NRFP-26 incorporates the decisions taken by the 2023 World Radiocommunication Conference (WRC-23) including supporting Circular Letters from the ITU Radiocommunication Bureau (BR). The revision reflects the 2024 Edition of the ITU Radio Regulations, including the frequency allocations relevant to Region 1 and its associated footnotes. It also includes updates on the Table of Frequency Allocations extending up to 3000 GHz in addition to associated international and South African National Footnotes.

The NRFP-26 allocates the Radio Frequency Spectrum to Radiocommunication Services in the Frequency Bands between 8.3 kHz and 3000 GHz. All frequency assignments must be in accordance with the national radio frequency plan. It includes updated International and South African National Footnotes, as well as relevant ITU Resolutions and Recommendations from the 2024 Edition of the ITU Radio Regulations.

Repeal, Savings and Transitional Provisions
The National Radio Frequency Plan 2021, published in Government Gazette No. 44337 (Notice 163 of 2021), is hereby repealed from the date of publication of NRFP-26. Notwithstanding the repeal, any radio frequency spectrum assignment or licence issued under the repealed Plan (or any previous Plan) remains valid and in force until its expiry date or until it is amended or revoked by the Authority.

In the event of any conflict between the provisions of the NRFP-26 and any previous Plan, the provisions of this Plan shall prevail.

Any application for a radio frequency spectrum licence submitted to the Authority before the publication of this Plan, and not yet finalised, shall be processed and determined with the provisions of this Plan.

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2.1.1 Treatment of MSS earth station applications near declared astronomy areas

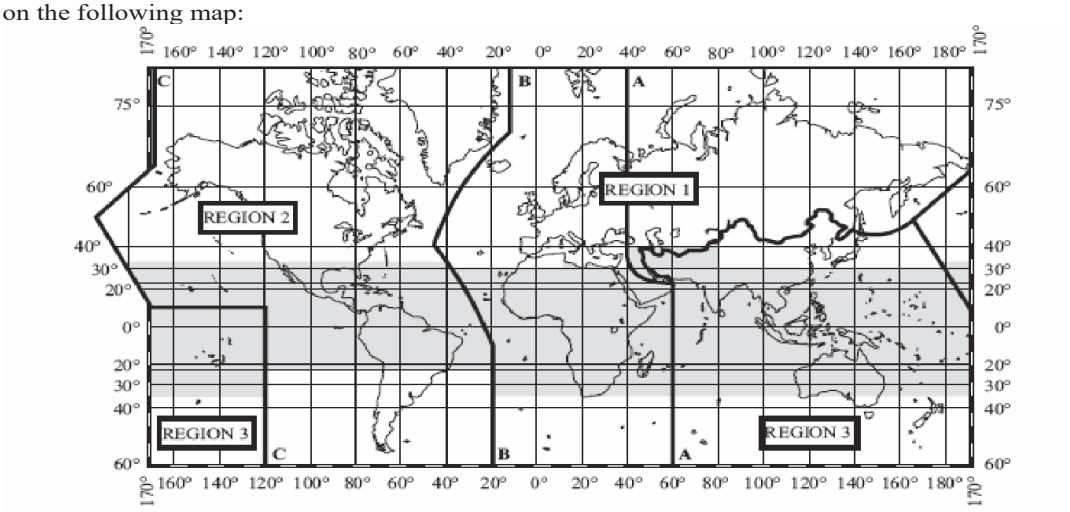
Where an MSS earth station application or modification in the band 1610.00–1621.35 MHz concerns a site located within a declared astronomy advantage area or within a defined proximity threshold of such an area, the Authority shall follow a transparent, evidence-based process when assessing any potential impact on protected radio astronomy facilities. The Authority shall ensure that applicants are afforded a clear opportunity to provide technical information, mitigation proposals and siting justifications before any licensing decision is made.

The following updates and amendments amongst others have been implemented in NRFP-26:

- National footnotes have been revised.
- The resolutions and decisions taken by World Radiocommunication Conferences preceding WRC-23.
- The resolutions and decisions taken by the WRC-23, as ratified by South Africa (Republic of), have been reflected.
- Incorporated references to the SADC Frequency Allocation Plan (FAP) and SADC Harmonised Guidelines
- Incorporated the published RFSAPs where applicable.
- Circular Letters from the BR.

2.2 ITU-R Radio Regions

For the purposes of allocating frequencies, the ITU has divided the world into three Regions as shown on the following map:



Region 1: Region 1 includes the area limited on the east by line A (lines A, B and C are defined below) and on the west by line B, excluding any of the territory of the Islamic Republic of Iran which lies between these limits. It also includes the whole of the territory of Armenia, Azerbaijan, the Russian Federation, Georgia, Kazakhstan, Mongolia, Uzbekistan, Kyrgyzstan, Tajikistan, Turkmenistan, Turkey and Ukraine and the area to the north of Russian Federation which lies between lines A and C.

Region 2: Region 2 includes the area limited on the east by line B and on the west by line C.

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Region 3: Region 3 includes the area limited on the east by line C and on the west by line A, except any of the territory of Armenia, Azerbaijan, the Russian Federation, Georgia, Kazakhstan, Mongolia, Uzbekistan, Kyrgyzstan, Tajikistan, Turkmenistan, Turkey and Ukraine and the area to the north of Russian Federation. It also includes that part of the territory of the Islamic Republic of Iran lying outside of those limits.

The Republic of South Africa falls under ITU Region 1 and thus aligns its frequency allocations with those specified for ITU Region 1 in the ITU Radio Regulations as required by the Act.

2.3 Structure of the Table of Frequency Allocations

The Table of Frequency Allocations (Section 4) lists all the allocations in the radio-frequency spectrum in the Republic of South Africa. The structure of the Table, which is outlined below, is similar to that of the International Table of Frequency Allocations as it appears in Article **5** of the ITU Radio Regulations.

The Table of Frequency Allocations covers the frequency range 8.3 kilohertz (kHz) to 3 000 Gigahertz (GHz). The table of frequency allocations list for each frequency range the radiocommunication services that are permitted, and which ones are currently in use in South Africa. Information is also given on possible future uses or changes in use of particular frequency bands.

2.3.1 Column 1 - ITU Region 1 Allocations and footnotes

This column shows the type of radiocommunications service allocated to the frequency band by ITU. These allocations are defined in the ITU Radio Regulations. Entries in UPPER CASE denote primary services while entries in lower case denote secondary services as defined in the ITU Radio Regulations. Footnotes (e.g., **5.149**) are the footnotes to the Table of Frequency Allocations as detailed in Article **5** of the Radio Regulations.

Values in this column denote the radio-frequency band. The magnitude of frequency units used in the column header are: kHz indicates kilohertz, MHz indicates Megahertz and GHz indicates Gigahertz.

Secondary services are on a non-interference and non-protection basis (NINP) to the primary services[10]. Spectrum assigned on a secondary basis means that the secondary station:

(i) cannot cause harmful interference to stations of primary services to which frequencies are already assigned or to which frequencies may be assigned at a later date;
(ii) cannot claim protection from harmful interference from stations of a primary service to which frequencies are already assigned or may be assigned at a later date, however;
(iii) can claim protection from interference from stations of the secondary service(s) to which frequencies may be assigned at a later date.

The frequency band referred to in each allocation is indicated in the left hand top corner of the part of the Table concerned.

The order of listing does not indicate relative priority within each category.

The footnote references are those that appear in Article 5 of the ITU Radio Regulations and are applicable to Region 1.

[10] Article **4.4** of the Radio Regulations: Administrations of the Member States shall not assign to a station any frequency in derogation of either the Table of Frequency Allocations in this Chapter or the other provisions of these Regulations, except on the express condition that such a station, when using such a frequency assignment, shall not cause harmful interference to, and shall not claim protection from harmful interference caused by, a station operating in accordance with the provisions of the Constitution, the Convention and these Regulations.

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- The footnote references which appear in the bottom of the table reflect the allocated service or services which apply to more than one of the allocated services, or to the whole of the allocation concerned.
- The footnote references which appear to the right of the name of a service are applicable only to that particular service.

2.3.2 Column 2 - South African allocations and footnotes

This column indicates the allocations of radiocommunication service(s) specified for South Africa, based on Article **5** of the ITU Radio Regulations. Names of services are based on the definitions in the ITU Radio Regulations and footnotes relevant to South Africa are included. The allocations highlighted with UPPER-CASE letters correspond to primary status allocations; the allocations with secondary status are written in lower-case.

Values in this column denote the radio-frequency band. The magnitude of the frequency units used in the column header are: kilohertz (kHz), Megahertz (MHz) and GHz indicates Gigahertz.

Whilst the South African allocations are broadly aligned with the ITU Region 1 allocations, several variations exist. In accordance with Radio Regulations No. **4.4**, such variations are subject to the condition that the associated radio installations do not cause harmful interference to the radio services or communications of other ITU Member States that operate in accordance with the provisions of the Radio Regulations, and that the possibility of harmful interference from such services and communications is accepted.

The column further makes reference to national footnotes (e.g., NF xx) that are indicated as 'NF' and appear in the table of allocation on the same basis as the ITU footnotes.

Where required, the ITU radio frequency bands could be sub-divided for South Africa as indicated in Column 2.

2.3.3 Column 3 - Typical Applications

This column indicates the current and intended national usage of the frequency band in South Africa and contains allowed applications. This column contains the main service, systems and application(s) of this frequency band or a part of it, authorized in South Africa. This column also reflects potential future applications that are envisaged. Introduction of new services or applications shall be done in a coordinated manner to ensure that incumbent services are protected from harmful interference.

If the use covers more than one frequency band or concerns only one part of the band, the frequency range is generally indicated.

2.3.4 Column 4 - Notes and comments

This column gives relevant document references as well as other additional information applicable to the frequency band and the services that are operating in the band. This column contains information about reference documents and relevant standards as well as other guidelines applicable to the frequency band, e.g., GG Notices pertinent to specific frequency bands, future requirements in specific bands, and ITU-R Recommendations or ITU Resolutions which require implementation.

2.3.5 ITU-R Region 1 and National Footnotes

South African National Footnotes and ITU-R footnotes applicable to Region 1 are contained in Sections 6 and 7, respectively.

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2.3.6 List of frequency bands used for Maritime services

The summary list of frequency bands used for Maritime services is contained in Section 8.

2.3.7 Frequency and wavelength bands

The radio spectrum shall be subdivided into nine frequency bands, which shall be designated by progressive whole numbers in accordance with the following table. As the unit of frequency is the hertz (Hz), frequencies shall be expressed:

– in kilohertz (kHz), up to and including 3 000 kHz;

– in megahertz (MHz), above 3 MHz, up to and including 3 000 MHz;

– in gigahertz (GHz), above 3 GHz, up to and including 3 000 GHz.

However, where adherence to these provisions would introduce serious difficulties, for example in connection with the notification and registration of frequencies, the lists of frequencies and related matters, reasonable departures may be made (WRC-15).

Table 1: Frequency and wavelength bands

Band number	Symbols	Designations	Frequency Range (lower limit exclusive, upper limit inclusive)	Corresponding metric Subdivision=
-1		0.03-0.3 Hz	0.3-3 Hz	gigametric waves
0	TLF	Tremendously low frequency	3-30 Hz	sub-gigametric waves
1	ELF	Extremely low frequency	30-300 Hz	super-megametric waves
2	SLF	Super low frequency	300-3 000 Hz	megametric waves
3	ULF	Ultra low frequency	300-3 000 Hz	sub-megametric waves
4	VLF	Very low frequency	3-30 kHz	super-kilometric waves
5	LF	Low frequency	30-300 kHz	kilometric waves
6	MF	Medium frequency	300-3 000 kHz	hectometric waves
7	HF	High frequency	3-30 MHz	decametric waves
8	VHF	Very high frequency	30-300 MHz	metric waves
9	UHF	Ultra high frequency	300-3 000 MHz	decimetric waves
10	SHF	Super high frequency	3-30 GHz	centimetric waves
11	EHF	Extremely high frequency	30-300 GHz	millimetric waves
12	THF	Tremendously high frequency	300-3 000 GHz	sub-millimetric waves

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Band number	Symbols	Designations	Frequency Range (lower limit exclusive, upper limit inclusive)	Corresponding metric Subdivision=
13			3-30 THz	super-micrometric waves
14			30-300 THz	micrometric waves
15			300-3 000 THz	sub-micrometric waves

NOTE 1-"Band number N" extends from 0.3 x 10^N to 3 x 10^N Hz.

NOTE 2-Symbols: Hz: hertz
k: kilo (10^3), M: mega (10^6), G: giga (10^9), T: tera (10^{12})
μ: micro (10^{-6}), m: milli (10^{-3}), c: centi (10^{-2}), d: deci (10^{-1})
da: deca (10), h: hecto (10^2).

Table 2 below illustrates the standard letter-band designations. Other designations are also used.

Table 2: Standard ITU/IEEE Frequency Band Nomenclature

Band	Frequency Range (GHz)	Wavelength in Free Space (centimeters)
HF band	0.003–0.03	10000–1000
VHF band	0.03–0.3	1000–100
UHF band	0.3–3	100–10
L band	1 to 2	30.0 to 15.0
S band	2 to 4	15 to 7.5
C band	4 to 8	7.5 to 3.8
X band	8 to 12	3.8 to 2.5
Ku band	12 to 18	2.5 to 1.7
K band	18 to 27	1.7 to 1.1
Ka band	27 to 40	1.1 to 0.75
V band	40 to 75	0.75 to 0.40
W band	75 to 110	0.40 to 0.27
Millimetre band	110 to 300	0.27 to 0.10

Table 3: Frequency band letter designations used by some international organizations

Letter symbols	Radar		Space radiocommunications		Wavelength in free space (centimeters)
	Frequency ranges (GHz)	Examples of frequency ranges (GHz)	Nominal designations of frequency bands/ranges	Examples of frequency ranges (GHz)	
L	1-2	1.215-1.4	1.5 GHz band	1.525-1.710	30.0-5.0
S	2-4	2.3-2.5 2.7-3.4	2.5 GHz band	2.5-2.690	15-7.5

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Letter symbols	Radar		Space radiocommunications		Wavelength in free space (centimeters)
	Frequency ranges (GHz)	Examples of frequency ranges (GHz)	Nominal designations of frequency bands/ranges	Examples of frequency ranges (GHz)	
C	4-8	5.25-5.85	4/6 GHz band	3.4-4.2 4.5-4.8 5.85-7.075	7.5-3.8
X	8-12	8.5-10.5	–	–	3.8-2.5
Ku	12-18	13.4-14.0 15.3-17.3	11/14 GHz band 12/14 GHz band	10.7-13.25 14.0-14.5	2.5-1.7
K [(1)]	18-27	24.05-24.25	20 GHz band	17.7-20.2	1.7-1.1
K_a [(1)]	27-40	33.4-36.0	30 GHz band	27.5-30.0	1.1-0.75
V	–	–	40 GHz band	37.5-42.5 47.2-50.2	0.75-0.40

[(1)] For space radiocommunications, K and Ka bands are often designated by the single symbol K_a.

NOTE 3-Certain frequency bands are sometimes designated by letter other than the symbols and abbreviations recommended in Tables 1 and 2. The symbols in question consist of capital letters which may be accompanied by an index (usually a small letter). There is at present no standard correspondence between the letters and the frequency bands concerned, and the same letter may be used to designate a number of different bands. It is not advisable to use these symbols in ITU publications. If, however, a letter symbol is used, reference should be made to the corresponding frequency band limits or at least to a frequency in the band, if that information is sufficient in itself, the first time the symbol appears in the text. For information, letter designations used by some international organizations, mainly in the field of radar and space radiocommunications, are indicated in Table 3.

3 CONTACT DETAILS

Further information on the South African Table of Frequency Allocations and its interpretation can be obtained by contacting:

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4 TABLE OF FREQUENCY ALLOCATIONS

ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
Below 8.3 kHz (Not allocated) 5.53 5.54	**Below 8.3 kHz** (Not allocated) 5.53 5.54		Frequency bands below 8.3 kHz are not allocated in South Africa
8.3-9 kHz METEOROLOGICAL AIDS 5.54A 5.54B 5.54C	**8.3-9 kHz** METEOROLOGICAL AIDS 5.54A	Thunderstorm detection stations	
9-11.3 kHz METEOROLOGICAL AIDS 5.54A RADIONAVIGATION	**9-11.3 kHz** METEOROLOGICAL AIDS 5.54A RADIONAVIGATION	Thunderstorm detection stations Navigational Aids Inductive Loop Systems (9-135 kHz)	Radio Frequency Spectrum Regulations (GG. No. 38641, Notice 279 of 30 March 2015), Annex B as amended by GG 48643 Notice 1822 of 23 May 2023.
11.3-14 kHz RADIONAVIGATION	**11.3-14 kHz** RADIONAVIGATION	Navigational Aids Inductive Loop Systems (9-135 kHz)	Radio Frequency Spectrum Regulations (GG. No. 38641, Notice 279 of 30 March 2015), Annex B as amended by GG 48643 Notice 1822 of 23 May 2023.

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
		SRD - inductive short-range radiocommunications (9-135 kHz)	SRD - see ITU-R Rec.SM. 1896-1 latest version.
14-19.95 kHz FIXED MARITIME MOBILE 5.57 5.55 5.56	**14-19.95 kHz** FIXED MARITIME MOBILE 5.57 5.56	 Maritime mobile communications Inductive Loop Systems (9-135 kHz) SRD - inductive short-range radiocommunications (9-135 kHz)	 Radio Frequency Spectrum Regulations (GG. No. 38641, Notice 279 of 30 March 2015), Annex B as amended by GG 48643 Notice 1822 of 23 May 2023. SRD - see ITU-R Rec.SM. 2153-7 latest version.
19.95-20.05 kHz STANDARD FREQUENCY AND TIME SIGNAL (20 kHz)	**19.95-20.05 kHz** STANDARD FREQUENCY AND TIME SIGNAL (20 kHz)	 Standard frequency and time Inductive 9–135 kHz; ULP-AMI 9–315 kHz. SRD - inductive short-range radiocommunications (9-135 kHz)	 Radio Frequency Spectrum Regulations (GG. No. 38641, Notice 279 of 30 March 2015), Annex B as amended by GG 48643 Notice 1822 of 23 May 2023. SRD - see ITU-R Rec.SM. 1896-1 latest version.
20.05-70 kHz	**20.05-70 kHz**		

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
FIXED MARITIME MOBILE 5.57 5.56 5.58	FIXED MARITIME MOBILE 5.57 STANDARD FREQUENCY AND TIME SIGNAL 5.56	 Maritime mobile communications Inductive Loop Systems (9-135 kHz) RFID (59.75-60.25 kHz) SRD - inductive short-range radiocommunications (9-135 kHz)	 Radio Frequency Spectrum Regulations (GG. No. 38641, Notice 279 of 30 March 2015), Annex B as amended by GG 48643 Notice 1822 of 23 May 2023. SRD - see ITU-R Rec.SM. 1896-1 latest version.
70-72 kHz RADIONAVIGATION 5.60	**70-72 kHz** RADIONAVIGATION 5.60	 Navigational Aids (pulsed radionavigation per RR 5.60 in 70-86 kHz) RFID (70-135 kHz) SRD - inductive short-range radiocommunications (9-135 kHz) Ultra-Low Power Active Medical implants (ULP-AMI) inductive applications (9-148.5 kHz)	 Radio Frequency Spectrum Regulations (GG. No. 38641, Notice 279 of 30 March 2015), Annex B as amended by GG 48643 Notice 1822 of 23 May 2023. SRD - see ITU-R Rec.SM.1896-1 (09/2018) Report ITU-R SM.2153 Inductive SRD: ETSI EN 300 330 ULP-AMI (9-315 kHz) ETSI EN 302 195
72-84 kHz FIXED	**72-84 kHz** FIXED		

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
MARITIME MOBILE 5.57 RADIONAVIGATION 5.60	MARITIME MOBILE 5.57 RADIONAVIGATION 5.60	Maritime mobile communications Navigational Aids Inductive Loop Systems (9-135 kHz) RFID (70-135 kHz) Ultra-Low Power Active Medical Implants (ULP-AMI) inductive applications (9 kHz-148.5 kHz) SRD - inductive short-range radiocommunications (9-135 kHz)	Radio Frequency Spectrum Regulations as amended (Annex B) (GG. No. 38641, Notice 279, 30 March 2015), as amended (latest GG 48643, Notice 1822, 23 May 2023). SRD - see ITU-R Rec.SM. 1896 - latest version. Inductive SRD: ETSI EN 300 330 Report ITU-R SM. 2153
5.56	STANDARD FREQUENCY AND TIME SIGNAL 5.56		
84-86 kHz RADIONAVIGATION 5.60	**84-86 kHz** RADIONAVIGATION 5.60	Navigational Aids Inductive Loop Systems (9-135 kHz) RFID (70-135 kHz) SRD - inductive short-range radiocommunications (9-135 kHz)	Radio Frequency Spectrum Regulations (GG. No. 38641, Notice 279 of 30 March 2015), Annex B as amended by GG 48643 Notice 1822 of 23 May 2023. SRD - see ITU-R Rec.SM. 1896-1 latest version.
86-90 kHz	**86-90 kHz**		

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
FIXED	FIXED		
MARITIME MOBILE 5.57	MARITIME MOBILE 5.57	Maritime mobile communications	
RADIONAVIGATION	RADIONAVIGATION	Navigational Aids	
		Inductive Loop Systems (9-135 kHz) RFID (70-135 kHz)	Radio Frequency Spectrum Regulations (GG. No. 38641, Notice 279 of 30 March 2015), Annex B as amended by GG 48643 Notice 1822 of 23 May 2023.
		SRD - inductive short-range radiocommunications (9-135 kHz)	SRD - see ITU-R Rec.SM. 1896-1 latest version.
	STANDARD FREQUENCY AND TIME SIGNAL		
5.56	5.56		
90-110 kHz	**90-110 kHz**		
RADIONAVIGATION 5.62	RADIONAVIGATION 5.62	Navigational Aids	
Fixed	Fixed		
		Inductive Loop Systems (9-135 kHz) RFID (70-135 kHz)	Radio Frequency Spectrum Regulations (GG. No. 38641, Notice 279 of 30 March 2015), Annex B as amended by GG 48643 Notice 1822 of 23 May 2023.
		SRD - inductive short-range radiocommunications (9-135 kHz)	SRD - see ITU-R Rec.SM. 1896-1 latest version.
5.64	5.64		
110-112 kHz	**110-112 kHz**		
FIXED	FIXED		

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
MARITIME MOBILE RADIONAVIGATION 5.64	MARITIME MOBILE RADIONAVIGATION 5.64	Maritime mobile communications Navigational Aids Inductive Loop Systems (9-135 kHz) RFID (70-135 kHz) SRD - inductive short-range radiocommunications (9-135 kHz)	 Radio Frequency Spectrum Regulations (GG. No. 38641, Notice 279 of 30 March 2015), Annex B as amended by GG 48643 Notice 1822 of 23 May 2023. SRD - see ITU-R Rec.SM. 1896-1 latest version.
112-115 kHz RADIONAVIGATION 5.60	**112-115 kHz** RADIONAVIGATION 5.60	 Navigational Aids Inductive Loop Systems (9-135 kHz) RFID (70-135 kHz) SRD - inductive short-range radiocommunications (9-135 kHz)	 Radio Frequency Spectrum Regulations (GG. No. 38641, Notice 279 of 30 March 2015), Annex B as amended by GG 48643 Notice 1822 of 23 May 2023. SRD - see ITU-R Rec.SM. 1896-1 latest version.
115-117.6 kHz RADIONAVIGATION 5.60 Fixed Maritime mobile	**115-117.6 kHz** RADIONAVIGATION 5.60 Fixed Maritime mobile	 Navigational Aids Maritime mobile communications Inductive Loop Systems (9-135 kHz) RFID (70-135 kHz)	 Radio Frequency Spectrum Regulations (GG. No. 38641, Notice 279 of 30 March 2015), Annex B as amended by GG 48643 Notice 1822 of 23 May 2023.

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
5.64 5.66	5.64	SRD - inductive short-range radiocommunications (9-135 kHz)	SRD - see ITU-R Rec.SM. 1896-1 latest version.
117.6-126 kHz FIXED MARITIME MOBILE RADIONAVIGATION 5.60 5.64	**117.6-126 kHz** FIXED MARITIME MOBILE RADIONAVIGATION 5.60 5.64	Maritime mobile communications Navigational Aids Inductive Loop Systems (9-135 kHz) RFID (70-135 kHz) SRD - inductive short-range radiocommunications (9-135 kHz)	Radio Frequency Spectrum Regulations (GG. No. 38641, Notice 279 of 30 March 2015), Annex B as amended by GG 48643 Notice 1822 of 23 May 2023. SRD - see ITU-R Rec.SM. 1896-1 latest version.
126-129 kHz RADIONAVIGATION 5.60	**126-129 kHz** RADIONAVIGATION 5.60	Navigational Aids Inductive Loop Systems (9-135 kHz) RFID (70-135 kHz) SRD - inductive short-range radiocommunications (9-135 kHz)	Radio Frequency Spectrum Regulations (GG. No. 38641, Notice 279 of 30 March 2015), Annex B as amended by GG 48643 Notice 1822 of 23 May 2023. SRD - see ITU-R Rec.SM. 1896-1 latest version.

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
129-130 kHz FIXED MARITIME MOBILE RADIONAVIGATION 5.60 5.64	**129-130 kHz** FIXED MARITIME MOBILE RADIONAVIGATION 5.60 5.64	 Maritime mobile communications Navigational Aids Inductive Loop Systems (9-135 kHz) RFID (70-135 kHz) SRD - inductive short-range radiocommunications (9-135 kHz)	 Radio Frequency Spectrum Regulations (GG. No. 38641, Notice 279 of 30 March 2015), Annex B as amended by GG 48643 Notice 1822 of 23 May 2023. SRD - see ITU-R Rec.SM. 1896-1 latest version.
130-135.7 kHz FIXED MARITIME MOBILE 5.64 5.67	**130-135.7 kHz** FIXED MARITIME MOBILE 5.64	 Maritime mobile communications Inductive Loop Systems (9-135 kHz) RFID (70-135 kHz) SRD - inductive short-range radiocommunications (9-135 kHz)	 Radio Frequency Spectrum Regulations (GG. No. 38641, Notice 279 of 30 March 2015), Annex B as amended by GG 48643 Notice 1822 of 23 May 2023. SRD - see ITU-R Rec.SM. 1896-1 latest version.
135.7-137.8 kHz FIXED MARITIME MOBILE	**135.7-137.8 kHz** FIXED MARITIME MOBILE	 Maritime mobile communications	

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
Amateur 5.67A 5.64 5.67 5.67B	Amateur 5.67A 5.64	Amateur	Amateur (135.7-137.8 kHz) services are limited to maximum radiated power of 1 W (e.i.r.p). Radio Frequency Spectrum Regulations (Annex I) (GG. No.38641, 30 March 2015). RFSR 2015, including Annexes, to be reviewed
137.8-148.5 kHz FIXED MARITIME MOBILE 5.64 5.67	**137.8-148.5 kHz** FIXED MARITIME MOBILE 5.64	Maritime mobile communications	
148.5-255 kHz BROADCASTING 5.68 5.69 5.70	**148.5-160 kHz** BROADCASTING **160-200 kHz** FIXED 5.68 **200-255 kHz** AERONAUTICAL RADIONAVIGATION 5.70	Broadcasting Navigational Aids	Frequency Assignment Plan (GE75) applies.
255-283.5 kHz BROADCASTING AERONAUTICAL	**255-283.5 kHz** AERONAUTICAL		

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
RADIONAVIGATION 5.70	RADIONAVIGATION 5.70	Navigational Aids	
283.5-315 kHz AERONAUTICAL RADIONAVIGATION MARITIME RADIONAVIGATION (radiobeacons) 5.73	**283.5- 285.3 kHz** AERONAUTICAL RADIONAVIGATION MARITIME RADIONAVIGATION (radiobeacons) 5.73 MARITIME RADIONAVIGATION 5.74	Navigational Aids Supplementary navigational information using narrow-band	
	285.3-285.7 kHz AERONAUTICAL RADIONAVIGATION MARITIME RADIONAVIGATION (radiobeacons) 5.73 5.74	Navigational Aids Supplementary navigational information using narrow-band	
	285.7-315 kHz AERONAUTICAL RADIONAVIGATION MARITIME RADIONAVIGATION (radiobeacons) 5.73 5.74	Navigational Aids Supplementary navigational information using narrow-band	

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
315-325 kHz AERONAUTICAL RADIONAVIGATION Maritime radionavigation (radiobeacons) 5.73 5.75	**315-325 kHz** AERONAUTICAL RADIONAVIGATION Maritime radionavigation (radiobeacons) 5.73	 Navigational Aids Coast Radio Telegraph Stations Radionavigation	
325-405 kHz AERONAUTICAL RADIONAVIGATION	**325-405 kHz** AERONAUTICAL RADIONAVIGATION	 Navigational Aids	
405-415 kHz RADIONAVIGATION 5.76	**405-415 kHz** RADIONAVIGATION 5.76	 Navigational Aids	
415-435 kHz MARITIME MOBILE 5.79 AERONAUTICAL RADIONAVIGATION	**415-435 kHz** MARITIME MOBILE 5.79 AERONAUTICAL RADIONAVIGATION	 Maritime mobile communications Limited to radiotelegraphy	 NAVDAT System (TX for coast stations only) Under the MMS, the use of the band 415-495 kHz and 505-526.5 kHz are limited to radiotelegraphy
435-472 kHz MARITIME MOBILE 5.79	**435-472 kHz** MARITIME MOBILE 5.79	 Maritime mobile communications	 NAVDAT System (TX for coast stations only)

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
		Coast Stations in the NAVTEX service on 490 kHz; Res.339 applies. Transmission of navigational and meteorological warnings and urgent info for ships (NBDP telegraphy).	Article 31 and Article 52 apply.
Aeronautical radionavigation 5.77 5.82	Aeronautical radionavigation 5.82	Limited to radiotelegraphy	Under the MMS, the use of the band 415-495 kHz and 505-526.5 kHz are limited to radiotelegraphy
472-479 kHz	**472-479 kHz**		
MARITIME MOBILE 5.79 Amateur 5.80A	MARITIME MOBILE 5.79 Amateur 5.80A	Limited to radiotelegraphy	NAVDAT System (TX for coast stations only) Under the MMS, the use of the band 415-495 kHz and 505-526.5 kHz are limited to radiotelegraphy
Aeronautical radionavigation 5.77 5.80 5.80B 5.82	Aeronautical radionavigation 5.82	Navigational Aids	Radio Frequency Spectrum Regulations (Annex I) (GG. No.38641, 30 March 2015). RFSR 2015, including Annexes, to be reviewed
479-495 kHz	**479-495 kHz**		
MARITIME MOBILE 5.79 5.79A	MARITIME MOBILE 5.79 5.79A	NAVTEX service on 490 kHz	NAVDAT System (TX for coast stations only) Article 31 and Article 52 apply

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
Aeronautical radionavigation 5.77 5.82	Aeronautical radionavigation 5.82	Limited to radiotelegraphy	Under the MMS, the use of the band 415-495 kHz and 505-526.5 kHz are limited to radiotelegraphy
495-505 kHz MARITIME MOBILE 5.82C 5.82D	**495-505 kHz** MARITIME MOBILE 5.82C 5.82D	Navigational Data	NAVDAT System (TX for coast stations only) Article 31 and Article 52 apply. Resolution 364 (WRC-23) apply.
505-526.5 kHz MARITIME MOBILE 5.79 5.79A 5.84 AERONAUTICAL RADIONAVIGATION	**505-526.5 kHz** MARITIME MOBILE 5.79 5.79A 5.84 AERONAUTICAL RADIONAVIGATION	Maritime mobile communications Maritime Radio Telegraphy NAVTEX service on 518 kHz Coast Stations in the NAVTEX service on 518 kHz; Navigational Aids	NAVDAT System (TX for coast stations only) Articles 31 and 52 apply. Resolution 339 Rev.WRC-07) applies. The use of the band 505-526.5 kHz in the MMS is limited to radiotelegraphy.
526.5-1 606.5 kHz BROADCASTING	**526.5-1 606.5 kHz** BROADCASTING	Medium Wave Sound Broadcasting (535.5 -1606.5 kHz)	The Terrestrial Broadcasting Frequency Plan as amended (GG No. 36321) 02 April 2013

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
5.87 5.87A		Digital Sound Broadcasting (DSB) services: DRM	Radio Frequency Spectrum Regulations (Annex B) (GG. No.38641, 30 March 2015) GG 44469 Notice 215 of 23 April 2021, Digital Sound Broadcasting (DSB) Services Regulations, 2021 Recommendation ITU-R BS.1514
1 606.5-1 625 kHz FIXED MARITIME MOBILE 5.90 LAND MOBILE 5.92	**1 606.5-1 625 kHz** FIXED MARITIME MOBILE 5.90 LAND MOBILE RADIODETERMINATION 5.92	Maritime mobile communications Land mobile communications	
1 625-1 635 kHz RADIOLOCATION 5.93	**1 625-1 635 kHz** RADIOLOCATION	Navigational Aids	
1 635-1 800 kHz FIXED MARITIME MOBILE 5.90 LAND MOBILE 5.92 5.96	**1 635-1 800 kHz** FIXED MARITIME MOBILE 5.90 LAND MOBILE RADIODETERMINATION 5.92	Maritime mobile communications Land mobile communications	
1 800-1 810 kHz	**1 800-1 810 kHz**		

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
RADIOLOCATION 5.93	RADIOLOCATION	Navigational Aids	
1 810-1 850 kHz AMATEUR 5.98 5.99 5.100	**1 810-1 850 kHz** AMATEUR	Amateur communications	Radio Frequency Spectrum Regulations (Annex I) (GG. No.38641, 30 March 2015). RFSR 2015, including Annexes, to be reviewed.
1 850-2 000 kHz FIXED MOBILE except aeronautical mobile 5.92 5.96 5.103	**1 850-2 000 kHz** FIXED MOBILE except aeronautical mobile RADIODETERMINATION AMATEUR 5.92 5.103	 Maritime mobile applications. Maritime mobile communications Land mobile communications Amateur communications	 1850-1950 kHz is used for Maritime Coast Stations; 1950-2045 kHz is used by ship stations SSB Radio Telephony. Radio Frequency Spectrum Regulations (Annex I) (GG. No.38641, 30 March 2015). RFSR 2015, including Annexes, to be reviewed.
2 000-2 025 kHz FIXED MOBILE except aeronautical mobile (R)	**2 000-2 025 kHz** FIXED MOBILE except aeronautical mobile (R) RADIODETERMINATION	 Maritime mobile communications Land mobile communications	 1950-2045 kHz is used by ship stations SSB Radio Telephony

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
5.92 5.103	5.92 5.103		
2 025-2 045 kHz FIXED MOBILE except aeronautical mobile (R) Meteorological aids 5.104 5.92 5.103	**2 025-2 045 kHz** FIXED MOBILE except aeronautical mobile (R) Meteorological aids 5.104 RADIODETERMINATION 5.92 5.103	 Maritime mobile communications Limited to Oceanographic buoy stations	 1950-2045 kHz is used by ship stations SSB Radio Telephony
2 045-2 160 kHz FIXED MARITIME MOBILE LAND MOBILE 5.92	**2 045-2 160 kHz** FIXED MARITIME MOBILE LAND MOBILE RADIODETERMINATION 5.92	 Maritime mobile communications Land mobile communication	
2 160-2 170 kHz RADIOLOCATION 5.93 5.107	**2 160-2 170 kHz** RADIOLOCATION	 Navigational Aids	
2 170-2 173.5 kHz MARITIME MOBILE	**2 170-2 173.5 kHz** MARITIME MOBILE	 Maritime mobile communications	

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
2 173.5-2 190.5 kHz MOBILE (distress and calling) 5.108 5.109 5.110 5.111	**2 173.5-2 190.5 kHz** MOBILE (distress and calling) 5.108 5.109 5.110 5.111	 Distress & Watch keeping (2182 kHz) 2 182 kHz is an international distress and calling frequency for radiotelephony. 2 187.5 kHz-DSC for distress and calling; 2 174.5 kHz-international distress frequency for NBDP telegraphy Automatic connection system.	 Article 31 and Article 52 applies South Africa no longer provides watchkeeping on 2182 kHz 2 174.5 kHz - Recommendation ITU-R M.541
2 190.5-2 194 kHz MARITIME MOBILE	**2 190.5-2 194 kHz** MARITIME MOBILE	 Maritime mobile communications	
2 194-2 300 kHz FIXED MOBILE except aeronautical mobile (R) 5.92 5.103	**2 194-2 300 kHz** FIXED MOBILE except aeronautical mobile (R) RADIODETERMINATION 5.92 5.103	 Maritime mobile communications Land mobile communications	
2 300-2 498 kHz	**2 300-2 498 kHz**		

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
FIXED MOBILE except aeronautical mobile (R) BROADCASTING 5.113 5.103	FIXED MOBILE except aeronautical mobile (R) BROADCASTING 5.113 5.103	 Land Mobile and Maritime applications Sound Broadcasting	Terrestrial Broadcasting Frequency Plan 2013
2 498-2 501 kHz STANDARD FREQUENCY AND TIME SIGNAL (2 500 kHz)	**2 498-2 501 kHz** STANDARD FREQUENCY AND TIME SIGNAL (2 500 kHz)		
2 501-2 502 kHz STANDARD FREQUENCY AND TIME SIGNAL Space Research	**2 501-2 502 kHz** STANDARD FREQUENCY AND TIME SIGNAL Space Research		
2 502-2 625 kHz FIXED MOBILE except aeronautical mobile (R) 5.92 5.103	**2 502-2 625 kHz** FIXED MOBILE except aeronautical mobile (R) RADIODETERMINATION 5.92 5.103	 Land Mobile and Maritime applications	
2 625-2 650 kHz MARITIME MOBILE	**2 625-2 650 kHz** MARITIME MOBILE	 Maritime mobile communications	

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
MARITIME RADIONAVIGATION 5.92	MARITIME RADIONAVIGATION RADIODETERMINATION 5.92	 Sonobuoys	
2 650-2 850 kHz FIXED MOBILE except aeronautical mobile (R) 5.92 5.103	**2 650-2 850 kHz** FIXED MOBILE except aeronautical mobile (R) RADIODETERMINATION 5.92 5.103	 Fixed Services links Maritime mobile communications Land mobile communications	
2 850-3 025 kHz AERONAUTICAL MOBILE (R) 5.111 5.115	**2 850-3 025 kHz** AERONAUTICAL MOBILE (R) 5.111 5.115	 Aeronautical mobile (R) 3 023 kHz may be used under the MMS for search and rescue operations	 Appendix 27 Allotment Plan applies Article 31 applies
3 025-3 155 kHz AERONAUTICAL MOBILE (OR)	**3 025-3 155 kHz** AERONAUTICAL MOBILE (OR)	 Aeronautical mobile (OR)	 Appendix 26 Allotment Plan applies
3 155-3 200 kHz FIXED MOBILE except aeronautical mobile (R)	**3 155-3 200 kHz** FIXED MOBILE except aeronautical mobile (R)	 Maritime mobile communications Land mobile communications	 Radio Frequency Spectrum

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
		SRD	Regulations (Annex B) (GG. No.38641, 30 March 2015), as amended (latest GG 48643, Notice 1822, 23 May 2023).
		Low power wireless hearing aids	Worldwide channel for low power hearing aids (3155 to 3195 kHz). Additional channels may be assigned in the band 3155-3400 kHz.
5.116 5.117	5.116		
3 200-3 230 kHz	**3 200-3 230 kHz**		
FIXED	FIXED		
MOBILE except aeronautical mobile (R)	MOBILE except aeronautical mobile (R)	Maritime mobile communications Land mobile communications	Radio Frequency Spectrum Regulations (Annex B) (GG. No.38641, 30 March 2015), as amended (latest GG 48643, Notice 1822, 23 May 2023).
BROADCASTING 5.113	BROADCASTING 5.113	HF Sound Broadcasting	The Terrestrial Broadcasting Frequency Plan (GG no.36321) 02 April 2013
		Low power wireless hearing aids	Worldwide channel for low power hearing aids (3155 to 3195 kHz). Additional channels may be assigned in the band 3155-3400 kHz.
5.116	5.116		
3 230-3 400 kHz	**3 230-3 400 kHz**		
FIXED	FIXED		
MOBILE except aeronautical mobile	MOBILE except aeronautical mobile		
BROADCASTING 5.113	BROADCASTING 5.113	HF Sound Broadcasting	The Terrestrial Broadcasting Frequency Plan (GG no.36321) 02 April 2013

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
		Low power wireless hearing aids Sound Broadcasting	Worldwide channel for low power hearing aids (3155 to 3195 kHz). Additional channels may be assigned in the band 3155-3400 kHz.
5.116	5.116		
3 400-3 500 kHz AERONAUTICAL MOBILE (R)	**3 400-3 500 kHz** AERONAUTICAL MOBILE (R)	Aeronautical mobile (R)	Appendix 27 Allotment Plan applies
3 500-3 800 kHz AMATEUR FIXED MOBILE except aeronautical mobile 5.92	**3 500-3 800 kHz** AMATEUR FIXED MOBILE except aeronautical mobile RADIODETERMINATION 5.92	Amateur communications Maritime communications Land mobile communications	Radio Frequency Spectrum Regulations (Annex B) (GG. No.38641, 30 March 2015), as amended (latest GG 48643, Notice 1822, 23 May 2023).
3 800-3 900 kHz FIXED AERONAUTICAL MOBILE (OR) LAND MOBILE	**3 800-3 900 kHz** FIXED AERONAUTICAL MOBILE (OR) LAND MOBILE	Aeronautical mobile (OR)	Appendix 26 Allotment Plan applies

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
3 900-3 950 kHz AERONAUTICAL MOBILE (OR) 5.123	**3 900-3 950 kHz** AERONAUTICAL MOBILE (OR) BROADCASTING 5.123	Aeronautical mobile (OR)	Appendix 26 Allotment Plan applies
3 950-4 000 kHz FIXED BROADCASTING	**3 950-4 000 kHz** FIXED BROADCASTING	HF Sound Broadcasting	The Terrestrial Broadcasting Frequency Plan (GG no.36321) 02 April 2013
4 000-4 063 kHz FIXED MARITIME MOBILE 5.127 5.126	**4 000-4 063 kHz** FIXED MARITIME MOBILE 5.127	Maritime mobile communications	Use of the band 4000-4063 kHz by the MMS is limited to ship stations using radiotelephony
4 063-4 438 kHz MARITIME MOBILE 5.79A 5.82D 5.109 5.110 5.130 5.131 5.132	**4 063-4 438 kHz** MARITIME MOBILE 5.79A 5.82D 5.109 5.110 5.130 5.131 5.132	Maritime mobile communications 4125 kHz - use of this frequency prescribed in Article 31. 4209.5 kHz - Coast Stations in the NAVTEX service; Res.339 applies. 4207.5 kHz - DSC for distress and calling;	See Section 7 for details ITU RR Appendix 17 Channelling Plan applies ITU RR Appendix 25 Allotment Plan applies Resolution 339 (Rev. WRC-07) applies

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
		4177.5 kHz - ACS; 4209.5 kHz - exclusive for transmission by coast stations of meteorological and navigational warnings and urgent information to ships (NBDP). 4210 kHz-maritime safety information (MSI) 4226 kHz-Coast stations in the NAVDAT system-Resolution 364 (WRC-23) applies	Articles 31 and Article 52 applies Resolution 364 (WRC-23) Recommendation ITU-R M.541 applies
	FIXED		
5.128	5.128		
4 438-4 488 kHz	**4 438-4 488 kHz**		
FIXED MOBILE except aeronautical mobile (R) Radiolocation 5.132A	FIXED MOBILE except aeronautical mobile (R) Radiolocation 5.132A	Maritime communications Land mobile communications Oceanographic Radars	
4 488-4 650 kHz	**4 488-4 650 kHz**		
FIXED MOBILE except aeronautical mobile (R)	FIXED MOBILE except aeronautical mobile (R)		
4 650-4 700 kHz	**4 650-4 700 kHz**		
AERONAUTICAL MOBILE (R)	AERONAUTICAL MOBILE (R)	Aeronautical mobile (R)	Appendix 27 Allotment Plan applies

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
4 700-4 750 kHz AERONAUTICAL MOBILE (OR)	**4 700-4 750 kHz** AERONAUTICAL MOBILE (OR)	Aeronautical mobile (OR)	Appendix 26 Allotment Plan applies
4 750-4 850 kHz FIXED AERONAUTICAL MOBILE (OR) LAND MOBILE BROADCASTING 5.113	**4 750-4 850 kHz** FIXED AERONAUTICAL MOBILE (OR) LAND MOBILE BROADCASTING 5.113	Aeronautical mobile (OR) Land mobile HF Sound Broadcasting	Appendix 26 Allotment Plan applies The Terrestrial Broadcasting Frequency Plan (GG no.36321) 02 April 2013
4 850-4 995 kHz FIXED LAND MOBILE BROADCASTING 5.113	**4 850-4 995 kHz** FIXED LAND MOBILE BROADCASTING 5.113	Land mobile HF Sound Broadcasting	The Terrestrial Broadcasting Frequency Plan (GG no.36321) 02 April 2013
4 995-5 003 kHz STANDARD FREQUENCY AND TIME SIGNAL (5 000 kHz)	**4 995-5 003 kHz** STANDARD FREQUENCY AND TIME SIGNAL (5 000 kHz)		
5 003-5 005 kHz	**5 003-5 005 kHz**		

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
STANDARD FREQUENCY AND TIME SIGNAL Space research	STANDARD FREQUENCY AND TIME SIGNAL Space research		
5 005-5 060 kHz FIXED BROADCASTING 5.113	**5 005-5 060 kHz** FIXED BROADCASTING 5.113	HF Sound Broadcasting	The Terrestrial Broadcasting Frequency Plan (GG no.36321) 02 April 2013
5 060-5 250 kHz FIXED Mobile except aeronautical mobile 5.133	**5 060-5 250 kHz** FIXED Mobile except aeronautical mobile	SADC harmonised HF frequencies for cross-border mobile communications	
5 250-5 275 kHz FIXED MOBILE except aeronautical mobile Radiolocation 5.132A	**5 250-5 275 kHz** FIXED MOBILE except aeronautical mobile Radiolocation 5.132A	SADC harmonised HF frequencies for cross-border mobile communications Oceanographic Radar	Oceanographic Radars are used in accordance with ITU Res. 612 (Rev. WRC-12).
5 275-5 351.5 kHz FIXED	**5 275- 5 351.5 kHz** FIXED		

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
MOBILE except aeronautical mobile	MOBILE except aeronautical mobile Amateur NF0	Amateur communications (incl. the channel 5 290 kHz)	Radio Frequency Spectrum Regulations (Annex I) (GG. No.38641, 30 March 2015). RFSR 2015, including Annexes, to be reviewed
5 351.5-5 366.5 kHz FIXED MOBILE except aeronautical mobile Amateur 5.133B	**5 351.5-5 366.5 kHz** FIXED MOBILE except aeronautical mobile Amateur NF0	Amateur communications (5 350-5 450 MHz)	Radio Frequency Spectrum Regulations (Annex I) (GG. No.38641, 30 March 2015). RFSR 2015, including Annexes, to be reviewed.
5 366.5-5 450 kHz FIXED MOBILE except aeronautical mobile	**5 366.5-5 450 kHz** FIXED MOBILE except aeronautical mobile Amateur NF0	Amateur communications (5 350-5 450 MHz)	Radio Frequency Spectrum Regulations (Annex I) (GG. No.38641, 30 March 2015). RFSR 2015, including Annexes, to be reviewed
5 450-5 480 kHz FIXED	**5 450-5 480 kHz** FIXED		

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
AERONAUTICAL MOBILE (OR) LAND MOBILE	AERONAUTICAL MOBILE (OR) LAND MOBILE	Aeronautical mobile (OR)	Appendix 27 Allotment plan applies
5 480-5 680 kHz AERONAUTICAL MOBILE (R) 5.111 5.115	**5 480-5 680 kHz** AERONAUTICAL MOBILE (R) 5.111 5.115	Aeronautical mobile (R)	Appendix 27 Allotment plan applies
5 680-5 730 kHz AERONAUTICAL MOBILE (OR) 5.111 5.115	**5 680-5 730 kHz** AERONAUTICAL MOBILE (OR) 5.111 5.115	Aeronautical mobile (OR) 5 680 kHz may be used under the MMS for search and rescue operations SRD applications (5 725-5 875 kHz)	Appendix 26 Allotment plan applies Article 31 applies on the use of 6215 kHz Common international SRD band; see ITU-R Rec.SM 1896-1 latest version. Radio Frequency Spectrum Regulations (Annex B) (GG. No.38641, 30 March 2015), as amended (latest GG 48643, Notice 1822, 23 May 2023).
5 730-5 900 kHz FIXED LAND MOBILE	**5 730-5 900 kHz** FIXED LAND MOBILE	Land mobile communications	

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
5 900-5 950 kHz	**5 900-5 950 kHz**		
BROADCASTING 5.134	BROADCASTING 5.134	HF Sound Broadcasting	The Terrestrial Broadcasting Frequency Plan (GG no.36321) 02 April 2013 Article 12 Planning Procedures and Res.517 apply.
	Fixed 5.136		
	Land Mobile 5.136		
5.136	5.136		
5 950-6 200 kHz	**5 950-6 200 kHz**		
BROADCASTING	BROADCASTING	HF Sound Broadcasting	The Terrestrial Broadcasting Frequency Plan (GG no.36321) 02 April 2013 Article 12 Planning Procedures and Res.517 apply.
6 200-6 525 kHz	**6 200-6 213.5 kHz**		
MARITIME MOBILE 5.109 5.110 5.130 5.132 5.137A	MARITIME MOBILE 5.109 5.110 5.130 5.132	Maritime mobile communications 6312 kHz-DSC for distress and calling	ITU-RR Article 31 applies ITU RR Appendices 15 and 17 Channelling Plan applies ITU RR Appendix 25 Allotment Plan applies
	Fixed	Fixed Services (6 200-6 213.5 kHz and 6 220.5-6 525 kHz)	FS may be used on a secondary basis in the band 6 200-6 213.5 kHz and 6 220.5-6 525 kHz
	5.137		
	6 213.5-6 220.5 kHz		

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
	MARITIME MOBILE 5.109 5.110 5.130 5.132 5.137	Maritime mobile communications 6215 kHz DSC for distress and calling	ITU RR Appendix 17 Channelling Plan applies ITU RR Appendix 25 Allotment Plan applies
5.137	**6 220.5-6 525 kHz** MARITIME MOBILE 5.109 5.110 5.130 5.132 5.137A Fixed 5.137	Maritime mobile communications 6 312 kHz and 6 215 kHz-DSC for distress and calling; 6 268 kHz-international distress frequency for NBDP telegraphy; 6 337.5 kHz-MSI; App.17 applies Fixed Services (6 200-6 213.5 kHz and 6 220.5-6 525 kHz)	ITU RR Appendix 17 Channelling Plan applies ITU RR Appendix 25 Allotment Plan applies Article 31 applies FS may be used on a secondary basis in the band 6 200-6 213.5 kHz and 6 220.5-6 525 kHz
6 525-6 685 kHz AERONAUTICAL MOBILE (R)	**6 525-6 685 kHz** AERONAUTICAL MOBILE (R)	Aeronautical mobile communications (R)	Appendix 27 Allotment Plan applies
6 685-6 765 kHz AERONAUTICAL MOBILE (OR)	**6 685-6 765 kHz** AERONAUTICAL MOBILE (OR)	Aeronautical mobile communications (OR)	Appendix 26 Allotment Plan applies
6 765-7 000 kHz FIXED	**6 765-7 000 kHz** FIXED		

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
MOBILE except aeronautical mobile (R) 5.138	MOBILE except aeronautical mobile (R) 5.138	Inductive Loop Systems (6765-6795 kHz)	
7 000-7 100 kHz AMATEUR AMATEUR-SATELLITE 5.140 5.141 5.141A	**7 000-7 100 kHz** AMATEUR AMATEUR-SATELLITE	Amateur communications Amateur-satellite communications	Radio Frequency Spectrum Regulations (Annex B) (GG. No.38641, 30 March 2015), as amended (latest GG 48643, Notice 1822, 23 May 2023).
7 100-7 200 kHz AMATEUR 5.141A 5.141B	**7 100-7 200 kHz** AMATEUR	Amateur communications	Radio Frequency Spectrum Regulations (Annex B) (GG. No.38641, 30 March 2015), as amended (latest GG 48643, Notice 1822, 23 May 2023).
7 200-7 300 kHz BROADCASTING	**7 200-7 300 kHz** BROADCASTING	HF Sound Broadcasting	ITU RR Article 12 Planning Procedures applies
7 300-7 400 kHz BROADCASTING 5.134	**7 300-7 350 kHz** BROADCASTING 5.134	HF Sound Broadcasting	The Terrestrial Broadcasting Frequency Plan (GG no.36321) 02 April 2013

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
	5.143B 5.143		Article 12 Planning Procedures and Res.517 apply. NINP basis to broadcasting FS and LMS may operate in the band 7 300-7 450 kHz on a secondary basis
5.143 5.143A 5.143B 5.143C 5.143D	**7 350-7 400 kHz** BROADCASTING 5.134 FIXED 5.143 LAND MOBILE 5.143 5.143A 5.143B 5.143D	HF Sound Broadcasting	The Terrestrial Broadcasting Frequency Plan (GG no.36321) 02 April 2013 Article 12 Planning Procedures and Res.517 apply. NINP basis to broadcasting
7 400-7 450 kHz BROADCASTING	**7 400-7 450 kHz** BROADCASTING	HF Sound Broadcasting	The Terrestrial Broadcasting Frequency Plan (GG no.36321) 02 April 2013 Article 12 Planning Procedures and Res.517 apply.
		Inductive Loop Systems (7400-8800 kHz)	Radio Frequency Spectrum Regulations (GG. No. 38641, Notice 279 of 30 March 2015), Annex B as amended by GG 48643 Notice 1822 of 23 May 2023. FS and LMS may operate in the band 7 350-7 450 kHz on a secondary basis

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
5.143B 5.143C	5.143B		
7 450-8 100 kHz FIXED MOBILE except aeronautical mobile (R) 5.144	**7 450-8 100 kHz** FIXED MOBILE except aeronautical mobile (R)	Inductive Loop Systems (7400-8800 kHz)	SADC harmonised HF frequencies for cross-border mobile communications Radio Frequency Spectrum Regulations (GG. No. 38641, Notice 279 of 30 March 2015), Annex B as amended by GG 48643 Notice 1822 of 23 May 2023.
8 100-8 195 kHz FIXED MARITIME MOBILE	**8 100-8 195 kHz** FIXED MARITIME MOBILE	Maritime mobile communications Inductive Loop Systems (7400-8800 kHz)	Radio Frequency Spectrum Regulations (GG. No. 38641, Notice 279 of 30 March 2015), Annex B as amended by GG 48643 Notice 1822 of 23 May 2023.
8 195-8 815 kHz MARITIME MOBILE 5.109 5.110 5.132 5.137A 5.145	**8 195-8 815 kHz** MARITIME MOBILE 5.109 5.110 5.132 5.137A 5.145	Digital Selective Calling (GMDSS) Distress Watch keeping on 8414.5 kHz Transmission of meteorological bulletins and notices to navigators	Appendix 15 of ITU RR See Section 7 for details ITU RR Appendix 17 Channelling Plan applies ITU RR Appendix 25 Allotment Plan applies Article 31 applies

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
5.111	5.111	Maritime mobile communications 8 414.5 kHz-DSC for distress and calling; 8 376.5 kHz-ACS; 8 416.5 and 8 443 kHz-MSI Inductive Loop Systems (7 400- 8 800 kHz)	Recommendation ITU-R M.541 applies Radio Frequency Spectrum Regulations (GG. No. 38641, Notice 279 of 30 March 2015), Annex B as amended by GG 48643 Notice 1822 of 23 May 2023.
8 815-8 965 kHz AERONAUTICAL MOBILE (R)	**8 815-8 965 kHz** AERONAUTICAL MOBILE (R)	Aeronautical mobile communications	Appendix 27 Allotment Plan applies
8 965-9 040 kHz AERONAUTICAL MOBILE (OR)	**8 965-9 040 kHz** AERONAUTICAL MOBILE (OR)	Aeronautical mobile communications	Appendix 26 Allotment Plan applies
9 040-9 305 kHz FIXED	**9 040-9 305 kHz** FIXED	Fixed Applications	
9 305-9 355 kHz FIXED Radiolocation 5.145A 5.145B	**9 305-9 355 kHz** FIXED Radiolocation 5.145A	Fixed Applications Oceanographic radars	
9 355-9 400 kHz	**9 355-9 400 kHz**		

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
FIXED	FIXED		
9 400-9 500 kHz BROADCASTING 5.134 5.146	**9 400-9 500 kHz** BROADCASTING 5.134 5.146	HF Sound Broadcasting	The Terrestrial Broadcasting Frequency Plan (GG no.36321) 02 April 2013 Fixed services may be used on a secondary basis
9 500-9 900 kHz BROADCASTING	**9 500-9 775 kHz** BROADCASTING 5.147	HF Sound Broadcasting	The Terrestrial Broadcasting Frequency Plan (GG no.36321) 02 April 2013 ITU RR Article 12 Planning Procedures applies
	9 775-9 900 kHz BROADCASTING FIXED 5.147	HF Sound Broadcasting	The Terrestrial Broadcasting Frequency Plan (GG no.36321) 02 April 2013 ITU RR Article 12 Planning Procedures applies
9 900-9 995 kHz FIXED	**9 900-9 995 kHz** FIXED	Fixed Applications	
9 995-10 003 kHz	**9 995-10 003 kHz**		

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
STANDARD FREQUENCY AND TIME SIGNAL (10 000 kHz) 5.111	STANDARD FREQUENCY AND TIME SIGNAL (10 000 kHz) 5.111		
10 003-10 005 kHz STANDARD FREQUENCY AND TIME SIGNAL Space research 5.111	**10 003-10 005 kHz** STANDARD FREQUENCY AND TIME SIGNAL Space research 5.111	Passive sensing	
10 005-10 100 kHz AERONAUTICAL MOBILE (R) 5.111	**10 005-10 100 kHz** AERONAUTICAL MOBILE (R) 5.111	Aeronautical mobile communications	Appendix 27 Allotment Plan applies
10 100-10 150 kHz FIXED Amateur	**10 100-10 150 kHz** FIXED Amateur	Fixed Applications Amateur communications	Radio Frequency Spectrum Regulations (Annex B) (GG. No.38641, 30 March 2015)
10 150-11 175 kHz FIXED Mobile except aeronautical mobile (R)	**10 150-11 175 kHz** FIXED Mobile except aeronautical mobile (R)	SADC harmonised HF frequencies for cross-border mobile communications	

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
11 175-11 275 kHz AERONAUTICAL MOBILE (OR)	**11 175-11 275 kHz** AERONAUTICAL MOBILE (OR)	Aeronautical mobile communications	Appendix 26 Allotment Plan applies
11 275-11 400 kHz AERONAUTICAL MOBILE (R)	**11 275-11 400 kHz** AERONAUTICAL MOBILE (R)	Aeronautical mobile communications	Appendix 27 Allotment Plan applies
11 400-11 600 kHz FIXED	**11 400-11 600 kHz** FIXED	Fixed Applications	
11 600-11 650 kHz BROADCASTING 5.134 5.146	**11 600-11 650 kHz** BROADCASTING 5.134 FIXED	HF Sound Broadcasting	Article 12 Planning Procedures and Res.517 apply.
11 650-12 050 kHz BROADCASTING	**11 650-11 700 kHz** BROADCASTING FIXED	HF Sound Broadcasting	ITU RR Article 12 Planning Procedures applies
	11 700-11 975 kHz		

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
	BROADCASTING 5.147	HF Sound Broadcasting	ITU RR Article 12 Planning Procedures applies
5.147	**11 975-12 050 kHz** BROADCASTING FIXED 5.147	HF Sound Broadcasting	ITU RR Article 12 Planning Procedures applies
12 050-12 100 kHz BROADCASTING 5.134 5.146	**12 050-12 100 kHz** BROADCASTING 5.134 FIXED 5.146	HF Sound Broadcasting	Article 12 Planning Procedures and Res.517 apply.
12 100-12 230 kHz FIXED	**12 100-12 230 kHz** FIXED	Fixed Applications	
12 230-13 200 kHz MARITIME MOBILE 5.109	**12 230-13 200 kHz** MARITIME MOBILE 5.109	Maritime mobile communications Digital Selective Calling (GMDSS) Distress Watch keeping (12 577 kHz) 12 577 kHz-DSC for distress and calling; 12 520 kHz-ACS;	Appendix 15 of ITU RR Transmission of meteorological bulletins and notices to navigators. See Section 7 for details ITU RR Appendix 17 Channelling Plan and Article 31 applies. Recommendation ITU-R M.541 applies

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
5.110 5.132 5.137A 5.145	5.110 5.132 5.137A 5.145	12 663.5 and 12579 kHz-MSI	ITU RR Appendix 25 Allotment Plan applies
13 200-13 260 kHz AERONAUTICAL MOBILE (OR)	**13 200-13 260 kHz** AERONAUTICAL MOBILE (OR)	Aeronautical mobile communications	Appendix 26 Allotment Plan applies
13 260-13 360 kHz AERONAUTICAL MOBILE (R)	**13 260-13 360 kHz** AERONAUTICAL MOBILE (R)	Aeronautical mobile communications	Appendix 27 Allotment Plan applies
13 360-13 410 kHz FIXED RADIO ASTRONOMY 5.149	**13 360-13 410 kHz** FIXED RADIO ASTRONOMY 5.149	Radio astronomy Observations of decametric radiation)	See Section 5 for coordination with radio astronomy
13 410-13 450 kHz FIXED Mobile except aeronautical mobile (R)	**13 410-13 450 kHz** FIXED Mobile except aeronautical mobile (R)	Maritime and/or land mobile communications	Radio Frequency Spectrum Regulations (Annex B) (GG. No.38641, 30 March 2015), as amended (latest GG 48643, Notice 1822, 23 May 2023)
13 450-13 550 kHz FIXED	**13 450-13 550 kHz** FIXED		

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
Mobile except aeronautical mobile (R) Radiolocation 5.132A 5.149A	Mobile except aeronautical mobile (R) Radiolocation 5.132A	Oceanographic radars	
13 550-13 570 kHz FIXED Mobile except aeronautical mobile (R) 5.150	**13 550-13 570 kHz** FIXED Mobile except aeronautical mobile (R) 5.150	 Inductive Loop Systems (13 553-13 567 kHz) RFID and EAS systems (13 553-13 567 kHz) SRD applications (13 553-13 567 kHz)	 Radio Frequency Spectrum Regulations (Annex B) (GG. No.38641, 30 March 2015), as amended (latest GG 48643, Notice 1822, 23 May 2023) Common international SRD band; see ITU-R Rec.SM. 1896-1 latest version
13 570-13 600 kHz BROADCASTING 5.134 5.151	**13 570-13 600 kHz** BROADCASTING 5.134 Fixed Mobile except aeronautical mobile (R)	HF Sound Broadcasting	Article 12 Planning Procedures and Res.517 apply
13 600-13 800 kHz	**13 600-13 800 kHz**		

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
BROADCASTING	BROADCASTING	HF Sound Broadcasting	ITU RR Article 12 Planning Procedures applies
13 800-13 870 kHz BROADCASTING 5.134 5.151	**13 800-13 870 kHz** BROADCASTING 5.134	HF Sound Broadcasting	Article 12 Planning Procedures and Res.517 apply.
13 870-14 000 kHz FIXED Mobile except aeronautical mobile (R)	**13 870-14 000 kHz** FIXED Mobile except aeronautical mobile (R)	Fixed Applications Land mobile communications Maritime communications	
14 000-14 250 kHz AMATEUR AMATEUR-SATELLITE	**14 000-14 250 kHz** AMATEUR AMATEUR-SATELLITE	Amateur communications Amateur-satellite communications	Radio Frequency Spectrum Regulations (Annex B) (GG. No.38641, 30 March 2015), as amended (latest GG 48643, Notice 1822, 23 May 2023)
14 250-14 350 kHz AMATEUR 5.152	**14 250-14 350 kHz** AMATEUR	Amateur communications	Radio Frequency Spectrum Regulations (Annex B) (GG. No.38641, 30 March 2015), as amended (latest GG 48643, Notice 1822, 23 May 2023)
14 350-14 990 kHz FIXED	**14 350-14 990 kHz** FIXED		

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
Mobile except aeronautical mobile (R)	Mobile except aeronautical mobile (R)	SADC harmonised HF frequencies for cross-border mobile communications	
14 990-15 005 kHz STANDARD FREQUENCY AND TIME SIGNAL (15 000 kHz) 5.111	**14 990-15 005 kHz** STANDARD FREQUENCY AND TIME SIGNAL (15 000 kHz) 5.111		
15 005-15 010 kHz STANDARD FREQUENCY AND TIME SIGNAL Space research	**15 005-15 010 kHz** STANDARD FREQUENCY AND TIME SIGNAL Space research		
15 010-15 100 kHz AERONAUTICAL MOBILE (OR)	**15 010-15 100 kHz** AERONAUTICAL MOBILE (OR)	Aeronautical mobile communications	Appendix 26 Allotment Plan applies
15 100-15 600 kHz BROADCASTING	**15 100-15 600 kHz** BROADCASTING	HF Sound Broadcasting	The Terrestrial Broadcasting Frequency Plan (GG no.36321) 02 April 2013. ITU RR Article 12 Planning Procedures applies
15 600-15 800 kHz	**15 600-15 800 kHz**		

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
BROADCASTING 5.134 5.146	BROADCASTING 5.134 FIXED 5.146	HF Sound Broadcasting	The Terrestrial Broadcasting Frequency Plan (GG no.36321) 02 April 2013. Article 12 Planning Procedures and Res.517 apply
15 800-16 100 kHz FIXED 5.153	**15 800-16 100 kHz** FIXED	Fixed Applications	
16 100-16 200 kHz FIXED Radiolocation 5.145A 5.145B	**16 100-16 200 kHz** FIXED Radiolocation 5.145A	Oceanographic radars	
16 200-16 360 kHz FIXED	**16 200-16 360 kHz** FIXED	Fixed Applications	
16 360-17 410 kHz MARITIME MOBILE 5.109	**16 360-17 410 kHz** MARITIME MOBILE 5.109	Maritime mobile communications Digital Selective Calling (GMDSS) Transmission of meteorological bulletins and notices to navigators. 16 804.5 kHz-DSC for distress and calling;	Appendix 15 of ITU RR See Section 7 for details ITU RR Appendix 17 Channelling Plan applies ITU RR Appendix 25 Allotment Plan applies Article 31 applies. Recommendation ITU-R M.541 applies

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
5.110 5.132 5.137A 5.145	5.110 5.132 5.137A 5.145	16 695 kHz-ACS; 16 806.5 and 16 909.5 kHz Maritime Safety Information (MSI)	
17 410-17 480 kHz FIXED	**17 410-17 480 kHz** FIXED	Fixed	
17 480-17 550 kHz BROADCASTING 5.134 5.146	**17 480-17 550 kHz** BROADCASTING 5.134 FIXED 5.146	HF Sound Broadcasting	The Terrestrial Broadcasting Frequency Plan (GG no.36321) 02 April 2013. Article 12 Planning Procedures and Res.517 apply.
17 550-17 900 kHz BROADCASTING	**17 550-17 900 kHz** BROADCASTING	HF Sound Broadcasting	The Terrestrial Broadcasting Frequency Plan (GG no.36321) 02 April 2013. ITU RR Article 12 Planning Procedures applies
17 900-17 970 kHz AERONAUTICAL MOBILE (R)	**17 900-17 970 kHz** AERONAUTICAL MOBILE (R)	Aeronautical mobile communications	Appendix 27 Allotment Plan applies

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
17 970-18 030 kHz AERONAUTICAL MOBILE (OR)	**17 970-18 030 kHz** AERONAUTICAL MOBILE (OR)	Aeronautical mobile communications	Appendix 26 Allotment Plan applies
18 030-18 052 kHz FIXED	**18 030-18 052 kHz** FIXED	Fixed Applications	
18 052-18 068 kHz FIXED Space research	**18 052-18 068 kHz** FIXED Space research	Fixed Applications	
18 068-18 168 kHz AMATEUR AMATEUR-SATELLITE 5.154	**18 068-18 168 kHz** AMATEUR AMATEUR-SATELLITE	Amateur communications Amateur-satellite communications	Radio Frequency Spectrum Regulations (Annex B) (GG. No.38641, 30 March 2015), as amended (latest GG 48643, Notice 1822, 23 May 2023).
18 168-18 780 kHz FIXED Mobile except aeronautical mobile	**18 168-18 780 kHz** FIXED Mobile except aeronautical mobile	Land mobile communications	
18 780-18 900 kHz MARITIME MOBILE	**18 780-18 900 kHz** MARITIME MOBILE	Maritime communications	ITU RR Appendix 17 Channelling Plan applies

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
18 900-19 020 kHz BROADCASTING 5.134 5.146	**18 900-19 020 kHz** BROADCASTING 5.134 FIXED 5.146	HF Sound Broadcasting	The Terrestrial Broadcasting Frequency Plan (GG no.36321) 02 April 2013. Article 12 Planning Procedures and Res.517 apply.
19 020-19 680 kHz FIXED	**19 020-19 680 kHz** FIXED	Fixed Applications	
19 680-19 800 kHz MARITIME MOBILE 5.132	**19 680-19 800 kHz** MARITIME MOBILE 5.132	19 680.5 kHz-MSI; App.17 applies	The frequency 19 680.5 kHz is the international frequency for transmission of MSI.
19 800-19 990 kHz FIXED	**19 800-19 990 kHz** FIXED	Fixed Applications	
19 990-19 995 kHz STANDARD FREQUENCY AND TIME SIGNAL Space research 5.111	**19 990-19 995 kHz** STANDARD FREQUENCY AND TIME SIGNAL Space research 5.111		
19 995-20 010 kHz	**19 995-20 010 kHz**		

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
STANDARD FREQUENCY AND TIME SIGNAL (20 000 kHz) 5.111	STANDARD FREQUENCY AND TIME SIGNAL (20 000 kHz) 5.111		
20 010-21 000 kHz FIXED Mobile	**20 010-21 000 kHz** FIXED Mobile		
21 000-21 450 kHz AMATEUR AMATEUR-SATELLITE	**21 000-21 450 kHz** AMATEUR AMATEUR-SATELLITE	Amateur communications Amateur-satellite communications	Radio Frequency Spectrum Regulations (Annex B) (GG. No.38641, 30 March 2015), as amended (latest GG 48643, Notice 1822, 23 May 2023).
21 450-21 850 kHz BROADCASTING	**21 450-21 850 kHz** BROADCASTING	HF Sound Broadcasting	The Terrestrial Broadcasting Frequency Plan (GG no.36321) 02 April 2013. ITU RR Article 12 Planning Procedures applies
21 850-21 870 kHz FIXED 5.155A 5.155	**21 850-21 870 kHz** FIXED	Fixed Applications	
21 870-21 924 kHz FIXED 5.155B	**21 870-21 924 kHz** FIXED 5.155B	Fixed Applications	This band is used by the FS for services related to aircraft flight safety (5.155B)

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
21 924-22 000 kHz AERONAUTICAL MOBILE (R)	**21 924-22 000 kHz** AERONAUTICAL MOBILE (R)	Aeronautical mobile communications	Appendix 27 Allotment Plan applies
22 000-22 855 kHz MARITIME MOBILE 5.132 5.137A 5.156	**22 000-22 855 kHz** MARITIME MOBILE 5.132 5.137A	22 450.5 kHz - MSI; 22 376 kHz - MSI.	ITU RR Appendix 17 Channelling Plan applies. ITU RR Appendix 25 Allotment Plan applies. The international frequency for transmission of MSI. See Section 7 for details
22 855-23 000 kHz FIXED 5.156	**22 855-23 000 kHz** FIXED	Fixed Applications	
23 000-23 200 kHz FIXED Mobile except aeronautical mobile (R) 5.156	**23 000-23 200 kHz** FIXED Mobile except aeronautical mobile (R)		
23 200-23 350 kHz	**23 200-23 350 kHz**		

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
FIXED 5.156A AERONAUTICAL MOBILE (OR)	FIXED 5.156A AERONAUTICAL MOBILE (OR)	 Aeronautical mobile communications	The use of this band by the FS is limited to the provision of services related to aircraft flight safety (5.156A)
23 350-24 000 kHz FIXED MOBILE except aeronautical mobile 5.157	**23 350-24 000 kHz** FIXED MARITIME MOBILE 5.157	 Inter-ship radiotelegraphy	 The use of this band by the MMS is limited to inter-ship radiotelegraphy (5.157)
24 000-24 450 kHz FIXED LAND MOBILE	**24 000-24 450 kHz** FIXED LAND MOBILE		
24 450-24 600 kHz FIXED LAND MOBILE Radiolocation 5.132A 5.158	**24 450-24 600 kHz** FIXED LAND MOBILE Radiolocation 5.132A	 Oceanographic radars	
24 600-24 890 kHz FIXED LAND MOBILE	**24 600-24 890 kHz** FIXED LAND MOBILE		

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
24 890-24 990 kHz AMATEUR AMATEUR-SATELLITE	**24 890-24 990 kHz** AMATEUR AMATEUR-SATELLITE		Radio Frequency Spectrum Regulations (Annex B) (GG. No.38641, 30 March 2015).
24 990-25 005 kHz STANDARD FREQUENCY AND TIME SIGNAL (25 000 kHz)	**24 990-25 005 kHz** STANDARD FREQUENCY AND TIME SIGNAL (25 000 kHz)		
25 005-25 010 kHz STANDARD FREQUENCY AND TIME SIGNAL Space research	**25 005-25 010 kHz** STANDARD FREQUENCY AND TIME SIGNAL Space research		
25 010-25 070 kHz FIXED MOBILE except aeronautical mobile	**25 010-25 070 kHz** FIXED MOBILE except aeronautical mobile		
25 070-25 210 kHz MARITIME MOBILE	**25 070-25 210 kHz** MARITIME MOBILE	Maritime mobile communications	ITU RR Appendix 17 Channelling Plan applies
25 210-25 550 kHz FIXED	**25 210-25 550 kHz** FIXED		

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
MOBILE except aeronautical mobile	MOBILE except aeronautical mobile		
25 550-25 670 kHz RADIO ASTRONOMY 5.149	**25 550-25 670 kHz** RADIO ASTRONOMY 5.149	Radio astronomy (Observations of decametric radiation)	See Section 5 for coordination with radio astronomy
25 670-26 100 kHz BROADCASTING	**25 670-26 100 kHz** BROADCASTING	HF Sound Broadcasting	The Terrestrial Broadcasting Frequency Plan (GG no.36321) 02 April 2013 ITU RR Article 12 Planning Procedures applies.
26 100-26 175 kHz MARITIME MOBILE 5.132	**26 100-26 175 kHz** MARITIME MOBILE 5.132	26 100.5 kHz MSI; App.17 applies	ITU RR Appendix 17 Channelling Plan applies. ITU RR Appendix 25 Allotment Plan applies. The frequency 26 100.5 kHz is the international frequency for transmission of MSI.
26 175-26 200 kHz FIXED MOBILE except aeronautical mobile	**26 175-26 200 kHz** FIXED MOBILE except aeronautical mobile	Single Frequency Mobile Mobile systems (single frequency)	

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
		CB Radio (26.96-27.410 MHz) ISM applications (26.975-27.283 MHz) SRD applications (26 957-27 283 kHz)	Radio Frequency Spectrum Regulations (Annex B) (GG. No.38641, 30 March 2015). Common international SRD band; see ITU-R Rec.SM. 1896-1 latest version.
26 200-26 350 kHz FIXED MOBILE except aeronautical mobile Radiolocation 5.132A 5.133A	**26 200-26 350 kHz** FIXED MOBILE except aeronautical mobile Radiolocation 5.132A	Single Frequency Mobile Oceanography radars	
26 350-27 500 kHz FIXED MOBILE except aeronautical mobile 5.150	**26 350-27 500 kHz** FIXED MOBILE except aeronautical mobile 5.150	Single Frequency Mobile Inductive Loop Systems, Non-specific SRD's (26.957-27.283 MHz) Surface Model Control (26.995 MHz, 27.045 MHz, 27.095 MHz, 27.145 MHz and 27.195 MHz)	Radio Frequency Spectrum Regulations (Annex B) (GG. No.38641, 30 March 2015), as amended (latest GG 48643, Notice 1822, 23 May 2023).

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
27.5-28 MHz METEOROLOGICAL AIDS FIXED MOBILE	**27.5-28 MHz** METEOROLOGICAL AIDS FIXED MOBILE	 Radiosondes	
28-29.7 MHz AMATEUR AMATEUR-SATELLITE	**28-29.7 MHz** AMATEUR AMATEUR-SATELLITE	 Amateur communications Amateur-satellite communications	 Radio Frequency Spectrum Regulations (Annex B) (GG. No.38641, 30 March 2015), as amended (latest GG 48643, Notice 1822, 23 May 2023).
29.7-30.005 MHz FIXED MOBILE	**29.7-30.005 MHz** FIXED MOBILE Amateur NF1	 Single frequency mobile (29.7-29.99 MHz) Government Services	 Amateur-disaster and emergencies Radio Frequency Spectrum Regulations (Annex B) (GG. No.38641, 30 March 2015), as amended (latest GG 48643, Notice 1822, 23 May 2023)
30.005-30.01 MHz SPACE OPERATION (satellite identification) FIXED	**30.005-30.01 MHz** SPACE OPERATION (satellite identification) FIXED	 Government Services	

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
MOBILE SPACE RESEARCH	MOBILE SPACE RESEARCH		
30.01-37.5 MHz FIXED MOBILE	**30.01-37.5 MHz** FIXED MOBILE	Single Frequency Mobile (32-32.325 MHz) Government Services Mobile 1 MTX (32.325-33.675 MHz) Single Frequency Mobile (33.675-34.175 MHz) Mobile 2 MTX (34.175-35 MHz) Model Aircraft Control (35-35.5 MHz) Wireless microphone (36.65-36.75 MHz) Single Frequency Mobile (33.25-33.5 MHz) Mobile 3 BTX 35.5-36.825 MHz Single Frequency Mobile 36.825-38.5 MHz PMR	Paired with 41.65-43 MHz Paired with 40.625-41.25 MHz Exclusive use by Model Aircraft Control Radio Frequency Spectrum Regulations (Annex B) (GG. No.38641, 30 March 2015). Paired with 38.5-39.825 MHz
37.5-38.25 MHz	**37.5-38.25 MHz**		

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
FIXED MOBILE Radio astronomy 5.149	FIXED MOBILE Radio astronomy 5.149	 Single Frequency Mobile (36.825-38.5 MHz) Government Services Radio Astronomy (Observations of decametric radiation)	 See Section 5 for coordination with radio astronomy
38.25-39 MHz FIXED MOBILE	**38.25-39 MHz** FIXED MOBILE	 Single Frequency Mobile (36.825-38.5 MHz) Government Services Mobile 3 MTX (38.5-39.825 MHz)	 Paired with 35.5-36.825 MHz
39-39.5 MHz FIXED MOBILE Space research	**39-39.5 MHz** FIXED MOBILE Space research	 Mobile 3 MTX (38.5-39.825 MHz) Single Frequency Mobile (39.825-40.625 MHz) Oceanographic radars	 Paired with 35.5-36.825 MHz
39.5-39.986 MHz FIXED	**39.5-39.986 MHz** FIXED		

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
MOBILE Space research	MOBILE Space research	Mobile 3 MTX (38.5-39.825 MHz) Single Frequency Mobile (39.825-40.625 MHz) PMR	Paired with 35.5-36.825 MHz
39.986-40.0 MHz FIXED MOBILE Space research	**39.986-40.0 MHz** FIXED MOBILE Space research	Single Frequency Mobile (39.825-40.625 MHz) PMR	
40-40.02 MHz FIXED MOBILE Earth exploration satellite (active) 5.159A Space research	**40-40.02 MHz** FIXED MOBILE Earth exploration satellite (active) 5.159A Space research	Fixed applications PMR Model Control Devices (40.66-40.7 MHz): Radio Microphone Wireless control devices Measurement equipment Earth exploration - satellite (active)	Radio Frequency Spectrum Regulations (GG. No. 38641, Notice 279 of 30 March 2015), Annex B as amended by GG 48643 Notice 1822 of 23 May 2023.
40.02-40.98 MHz FIXED	**40.02-40.98 MHz** FIXED		

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
MOBILE	MOBILE	Single Frequency Mobile (39.825-40.625 MHz)	
		Mobile 2 BTX (40.625-41.45 MHz)	Paired with 34.175-35 MHz
		PMR	
		Wireless microphones (40.65-40.7 MHz) Non-specific SRD's (40.66-40.7 MHz) Surface Model Control (40.665 MHz, 40.675 MHz, 40.685 MHz, 40.695 MHz)	Radio Frequency Spectrum Regulations (Annex B) (GG. No.38641, 30 March 2015), as amended (latest GG 48643, Notice 1822, 23 May 2023).
		SRD applications (40.66 - 40.77 MHz)	Common international SRD band; see ITU-R Rec.SM.1896-1
		ISM applications (40.66-40.7 MHz)	RR No. 5.150 (ISM band 40.66–40.70 MHz)
	AMATEUR	Amateur propagation studies / beacons (8 m): 40.675–40.685 MHz	Radio Frequency Spectrum Regulations, 2015 (Annexure I)
Earth exploration-satellite (active) 5.159A 5.150	Earth exploration-satellite (active) 5.159A 5.150		
40.98-41.015 MHz FIXED MOBILE	**40.98-41.015 MHz** FIXED MOBILE	Mobile 2 BTX (40.625-41.45 MHz)	Paired with 34.175-35 MHz
		PMR	

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
Earth exploration-satellite (active) 5.159A Space research 5.160 5.161	Earth exploration-satellite (active) 5.159A Space research		
41.015-42 MHz FIXED MOBILE	**41.015-42 MHz** FIXED MOBILE	Mobile 2 BTX (40.625-41.45 MHz) Single Frequency Mobile (41.45-41.65 MHz) Mobile 1 BTX (41.65-43 MHz) Government Services PMR	Paired with 34.175-35 MHz Paired with 32.325-33.675 MHz
Earth exploration-satellite (active) 5.159A 5.160 5.161 5.161A	Earth exploration-satellite (active) 5.159A		
42-42.5 MHz FIXED MOBILE	**42-42.5 MHz** FIXED MOBILE	Mobile 1 BTX (41.65-43 MHz) Government Services	Paired with 32.325-33.675 MHz
Earth exploration-satellite (active) 5.159A Radiolocation 5.132A 5.160 5.161B	Earth exploration-satellite (active) 5.159A Radiolocation 5.132A	Oceanographic radars	
42.5-44 MHz	**42.5-44 MHz**		

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
FIXED MOBILE Earth exploration-satellite (active) 5.159A 5.160 5.161 5.161A	FIXED MOBILE Earth exploration-satellite (active) 5.159A	 Mobile 1 BTX (41.65-43 MHz) Government Services	 Paired with 32.325-33.675 MHz
44-47 MHz FIXED MOBILE Earth exploration-satellite (active) 5.159A 5.162 5.162A	**44-47 MHz** FIXED MOBILE Earth exploration-satellite (active) 5.159A	 Meteor Burst (45.3-46.9 MHz) CT0 Cordless Telephones BTX (46.61-46.97 MHz) Government Services PMR	 Paired with 47.5-49.1 MHz 10 frequency pairs assigned to CT0; paired with 49.67-49.97 MHz; Radio Frequency Spectrum Regulations (Annex B) (GG. No.38641, 30 March 2015).
47-50 MHz BROADCASTING

ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
		Government	Radio Frequency Spectrum Regulations (Annex B) (GG. No.38641, 30 March 2015), as amended (latest GG 48643, Notice 1822, 23 May 2023).
Earth exploration-satellite (active) 5.159A 5.162A 5.163 5.164 5.165	Earth exploration-satellite (active) 5.159A		
50-52 MHz BROADCASTING	**50-54 MHz**	Government Services Wireless microphones (53-54 MHz)	Radio Frequency Spectrum Regulations (GG. No. 38641, Notice 279 of 30 March 2015), Annex B as amended by GG 48643 Notice 1822 of 23 May 2023
Amateur 5.166A 5.166B 5.166C 5.166D 5.166E 5.169 5.169A 5.169B 5.162A 5.164 5.165	AMATEUR 5.169		
52-68 MHz	**54-68 MHz** BROADCASTING		The Terrestrial Broadcasting Frequency Plan (GG no.36321) 02 April 2013
	FIXED 5.171	Government Services	
	MOBILE except aeronautical mobile 5.171	Model control (54.45-54.55 MHz)	Radio Frequency Spectrum Regulations (Annex B) (GG. No.38641, 30 March 2015), as amended (latest GG 48643, Notice 1822, 23 May 2023).

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
		PMR	
		Single Frequency Mobile (54-54.325 MHz)	
		Mobile 1 BTX (54.325-54.45 MHz)	Paired with 59.9-60.025 MHz
		Mobile 2 BTX (55.45-56.85 MHz)	Paired with 58.5-59.9 MHz
		Single Frequency Mobile (56.85-58.5 MHz)	
		Mobile 2 MTX (58.5-59.9 MHz)	Paired with 55.45-56.85 MHz
		Mobile 1 MTX (59.9-60.025 MHz)	Paired with 54.325-54.45 MHz
		Spare 60.025-60.215 MHz	
		Sport Stadium Communications (62.8-62.85 MHz)	
		National Emergency Alarm Radio (NEAR) (66-68 MHz)	
5.162A 5.163 5.164 5.165 5.169 5.169A 5.169B 5.171			
68-74.8 MHz	**68-74.8 MHz**		
FIXED	FIXED		
MOBILE except aeronautical mobile	MOBILE except aeronautical mobile	Single Frequency Mobile (68-69.25 MHz)	
		Mobile 1 BTX (69.25-70 MHz)	Paired with 76.175-76.925 MHz
		Mobile 2 BTX (70-70.975 MHz)	Paired with 75.2-76.175 MHz
		Single Frequency Mobile (70.975-71.475 MHz)	Current assignments for fire fighting

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
		Mobile 3 BTX (71.475-72.525 MHz)	Paired with 76.925-77.975 MHz
		Single Frequency Mobile (72.525-73.425 MHz)	
		Mobile 4 BTX (73.425-74.8 MHz)	Paired with 78.625-80 MHz
		PMR and/or PAMR	Radio Frequency Spectrum Regulations (Annex B) (GG. No.38641, 30 March 2015), as amended (latest GG 48643, Notice 1822, 23 May 2023).
	Amateur (70-70.3 MHz) NF2 Radio Astronomy (73-74.6 MHz)		
5.149 5.175 5.177 5.179	5.149		
74.8-75.2 MHz	**74.8-75.2 MHz**		
AERONAUTICAL RADIONAVIGATION	AERONAUTICAL RADIONAVIGATION	Instrument Landing System Markers 74.80-75.20 Marker beacons (75 MHz)	
5.180 5.181	5.180		
75.2-87.5 MHz	**75.2-87.5 MHz**		
FIXED	FIXED		
MOBILE except aeronautical mobile	MOBILE except aeronautical mobile	Mobile 2 MTX (75.2-76.175 MHz)	Paired with 70-70.975 MHz
		Mobile 1 MTX (76.175-76.925 MHz)	Paired with 69.25-70 MHz
		Mobile 3 MTX (76.925-77.975 MHz)	Paired with 71.475-72.525 MHz
		Mobile 4 MTX (78.625-80 MHz)	Paired with 73.425-74.8 MHz

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
		Mobile 5 BTX (77.975-78.625 MHz)	Paired with 82.975-83.625 MHz
		Mobile 6 BTX (80-80.5 MHz)	Paired with 87-87.5 MHz
		Single Frequency Mobile (80.5-81 MHz)	
		Mobile 7 BTX (81-81.625 MHz)	Paired with 86.375 - 87 MHz
		Mobile 8 BTX (81.625-82.975 MHz)	Paired with 85.025 - 86.375 MHz
		Mobile 5 MTX (82.975-83.625 MHz)	Paired with 77.975 - 78.625 MHz
		Single Frequency Mobile (83.625-85.025 MHz)	
		Mobile 8 MTX (85.025-86.375 MHz)	Paired with 81.625 - 82.975 MHz
		Mobile 7 MTX (86.375-87 MHz)	Paired with 81 - 81.625 MHz
		Mobile 6 MTX (87-87.5 MHz)	Paired with 80 - 80.5 MHz
		PMR and/or PAMR	Radio Frequency Spectrum Assignment Plan GG 42286 Notice 124 of 2019
5.175 5.179 5.187			
87.5-100 MHz	**87.5-100 MHz**		
BROADCASTING	BROADCASTING	FM Sound Broadcasting (87.5-108 MHz)	The Terrestrial Broadcasting Frequency Plan (GG no.36321) 02 April 2013 Geneva agreement GE84
		Digital sound broadcasting (DSB) services: DRM	GG 44469 Notice 215 of 23 April 2021, Digital Sound Broadcasting Services Regulations, 2021

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
5.190			Recommendation ITU-R BS.1114 Recommendation ITU-R BS.450 Low power campus sound Broadcasting
100-108 MHz BROADCASTING 5.192 5.194	**100-108 MHz** BROADCASTING	FM Sound Broadcasting (87.5-108 MHz) Digital sound broadcasting (DSB) services: DRM	The Terrestrial Broadcasting Frequency Plan (GG no.36321) 02 April 2013 Geneva agreement GE84 applies. Low power campus Sound Broadcasting GG 44469 Notice 215 of 23 April 2021, Digital Sound Broadcasting (DSB) Services Regulations, 2021 Recommendation ITU-R BS.1114 Recommendation ITU-R BS.450
108-117.975 MHz AERONAUTICAL RADIONAVIGATION	**108-112 MHz** AERONAUTICAL RADIONAVIGATION AERONAUTICAL MOBILE (R) (ground to air) (ground-based TX and associated RX for navigational information for navigational functions) 5.197A	ILS localiser (108-112 MHz) Aeronautical mobile communications (108-117.975 MHz	AM(R)S shall operate in accordance with Res.413(Rev.WRC-07). Safety and regularity of flights; in the band 108-112 MHz AM(R)S limited to ground-based transmitters.

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
	112-117.975 MHz		
	AERONAUTICAL MOBILE (R)	Aeronautical mobile communications (108-117.975 MHz	
	AERONAUTICAL RADIONAVIGATION	VOR (VHF Omni-directional Range) (112-117.975 MHz)	
	5.197A		
5.197 5.197A			
117.975-137 MHz	**117.975-137 MHz**		
AERONAUTICAL MOBILE (R)	AERONAUTICAL MOBILE (R)	Aeronautical mobile communications (117.975-121.450 MHz)	Safety and regularity of flights
		Aeronautical emergency Frequency (121.5 MHz)	ITU RR Article 31 applies
		Aeronautical frequency auxiliary to 121.5 MHz (123.1 MHz)	123.1 MHz - auxiliary emergency frequency
		Aeronautical mobile communications (121.550-137.000 MHz)	
AERONAUTICAL MOBILE-SATELLITE (R)	AERONAUTICAL MOBILE-SATELLITE (R)	Aeronautical mobile communications (R) (117.975 - 137 MHz)	Resolution 406 (WRC-23) applies
5.198A 5.198B 5.111 5.200 5.201 5.202	5.198A 5.198B 5.111 5.200 5.201		

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
137-137.025 MHz	**137-137.025 MHz**		
SPACE OPERATION (space-to-Earth) 5.203C	SPACE OPERATION (space-to-Earth) 5.203C		
METEOROLOGICAL-SATELLITE (space-to-Earth)	METEOROLOGICAL-SATELLITE (space-to-Earth)	MET SAT	
MOBILE-SATELLITE (space-to-Earth) 5.208A 5.208B 5.209	MOBILE-SATELLITE (space-to-Earth) (non-GSO) 5.208A 5.208B 5.209 NF3		As per 5.208A, MSS assignments to space stations in the 137-138 MHz frequency band, administrations shall take all practicable steps to protect the radio astronomy service in the frequency band 150.05-153 MHz. Seeking MIFR registration (cf. Section 5.7)
SPACE RESEARCH (space-to-Earth)	SPACE RESEARCH (space-to-Earth)		
Fixed	Fixed		
Mobile except aeronautical mobile (R)	Mobile except aeronautical mobile (R)		
5.204 5.205 5.206 5.207 5.208	5.208		
137.025-137.175 MHz	**137.025-137.175 MHz**		
SPACE OPERATION (space-to-Earth) 5.203C	SPACE OPERATION (space-to-Earth) 5.203C		
METEOROLOGICAL-SATELLITE (space-to-Earth)	METEOROLOGICAL-SATELLITE (space-to-Earth)		
SPACE RESEARCH (space-to-Earth)	SPACE RESEARCH (space-to-Earth)		

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
Fixed	Fixed		
Mobile-satellite (space-to-Earth) 5.208A 5.208B 5.209	Mobile-satellite (space-to-Earth) (non-GSO) 5.208A 5.208B 5.209 NF3		As per 5.208A, MSS assignments to space stations in the 137-138 MHz frequency band, administrations shall take all practicable steps to protect the radio astronomy service in the frequency band 150.05-153 MHz. Seeking MIFR registration (cf. Section 5.7)
Mobile except aeronautical mobile (R)	Mobile except aeronautical mobile (R)		
5.204 5.205 5.206 5.207 5.208	5.208		
137.175-137.825 MHz	**137.175-137.825 MHz**		
SPACE OPERATION (space-to-Earth) 5.203C 5.209A	SPACE OPERATION (space-to-Earth) 5.203C 5.209A		
METEOROLOGICAL-SATELLITE (space-to-Earth)	METEOROLOGICAL-SATELLITE (space-to-Earth)	NOAA meteorological satellite (137.5-137.62 MHz)	
MOBILE-SATELLITE (space-to-Earth) 5.208A 5.208B 5.209	MOBILE-SATELLITE (space-to-Earth) (non-GSO) 5.208A 5.208B 5.209 NF3		As per 5.208A, MSS assignments to space stations in the 137-138 MHz frequency band, administrations shall take all practicable steps to protect the radio astronomy service in the frequency band 150.05-153 MHz. Seeking MIFR registration (cf. Section 5.7)
SPACE RESEARCH (space-to-Earth)	SPACE RESEARCH (space-to-Earth)		

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
Fixed Mobile except aeronautical mobile (R) 5.204 5.205 5.206 5.207 5.208	Fixed Mobile except aeronautical mobile (R) 5.208		
137.825-138 MHz SPACE OPERATION (space-to-Earth) 5.203C METEOROLOGICAL-SATELLITE (space-to-Earth) SPACE RESEARCH (space-to-Earth) Fixed Mobile-satellite (space-to-Earth) 5.208A 5.208B 5.209 Mobile except aeronautical mobile (R) 5.204 5.205 5.206 5.207 5.208	**137.825-138 MHz** SPACE OPERATION (space-to-Earth) 5.203C METEOROLOGICAL-SATELLITE (space-to-Earth) SPACE RESEARCH (space-to-Earth) Fixed Mobile-satellite (space-to-Earth) (non-GSO) 5.208A 5.208B 5.209 NF3 Mobile except aeronautical mobile (R) 5.208		As per 5.208A, MSS assignments to space stations in the 137-138 MHz frequency band, administrations shall take all practicable steps to protect the radio astronomy service in the frequency band 150.05-153 MHz. Seeking MIFR registration (cf. Section 5.7)

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
138-143.6 MHz AERONAUTICAL MOBILE (OR) 5.210 5.211 5.212 5.214	**138-144 MHz** FIXED MOBILE	Single Frequency Alarms (140.5-141 MHz) Mobile 1 MTX (138-140.5 MHz) Single Frequency Mobile (141-141.5 MHz) Mobile 1 BTX (141.5-144 MHz) Remote control industrial apparatus (141-142 MHz) Mobile 1 BTX (141.5-144 MHz) PMR and / or PAMR	Paired with 141.5 - 144 MHz Paired with 138-140.5 MHz Radio Frequency Spectrum Regulations (Annex B) (GG. No.38641, 30 March 2015), as amended (latest GG 48643, Notice 1822, 23 May 2023) Allocation includes BTX assignments at 142.8-143.270 MHz and 143.325 - 143.975 MHz Draft Frequency Migration Plan (GG 50389, Notice 4559 of 24 March 2024) Radio Frequency Spectrum Assignment Plan GG 41512 Notice 146 of 2018
143.6-143.65 MHz AERONAUTICAL MOBILE (OR) SPACE RESEARCH (space-to-Earth) 5.211 5.212 5.214			

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
143.65-144 MHz AERONAUTICAL MOBILE (OR) 5.210 5.211 5.212 5.214			
144-146 MHz AMATEUR AMATEUR-SATELLITE 5.216	**144-146 MHz** AMATEUR AMATEUR-SATELLITE		
146-148 MHz FIXED MOBILE except aeronautical mobile (R)	**146-148 MHz** FIXED MOBILE except aeronautical mobile (R)	Mobile 2 MTX (146-148.95 MHz) PMR and / or PAMR	Paired with 153.05-156 MHz
148-149.9 MHz FIXED MOBILE except aeronautical mobile (R) MOBILE-SATELLITE (Earth-to-space) 5.209	**148-149.9 MHz** FIXED MOBILE except aeronautical mobile (R) MOBILE-SATELLITE (Earth-to-space) (non-GSO) 5.209 NF3	Mobile 2 MTX (146-148.95 MHz) Single Frequency Mobile (148.950-151 MHz) Wildlife telemetry Tracking (148-152 MHz) Low Earth Orbit systems	Paired with 153.05-156 MHz Radio Frequency Spectrum Regulations (Annex B) (GG. No.38641, 30 March 2015) Systems are paired with either 137-138 MHz or 400.15-401 MHz

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
			For some small LEO systems this band is supplemented by the band 149.9-150.05 MHz
	SPACE OPERATION (Earth-to-space)		
5.218 5.218A 5.219 5.221	5.218 5.219 5.221		
149.9-150.05 MHz	**149.9-150.05 MHz**		
MOBILE-SATELLITE (Earth-to-space) 5.209 5.220	MOBILE-SATELLITE (Earth-to-space) (non-GSO) 5.209 5.220 NF3	Low Earth Orbit systems	
		Mobile-satellite communications	
		Wildlife telemetry Tracking (148-152 MHz)	Radio Frequency Spectrum Regulations (Annex B) (GG. No.38641, 30 March 2015).
		Single Frequency Mobile (148.950-151 MHz)	Radio Frequency Spectrum Assignment Plan GG 41512 Notice 149 of 2018
150.05-153 MHz	**150.05-153 MHz**		
FIXED	FIXED		
MOBILE except aeronautical mobile	MOBILE except aeronautical mobile	Single frequency alarms (152.05-152.55 MHz)	
		Alarms, Single Frequency Mobile and Load Shedding (148.950-151 MHz)	Channels 150.550 MHz and 150.5625 MHz are used for load shedding.
		PMR and PAMR	
		Paging	Channels 150.625 MHz and 150.675 MHz are reserved for in-house paging
		Government Services	

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
		Wildlife Telemetry Tracking (148-152 MHz) Single Frequency Mobile (152.55-153.05 MHz)	Radio Frequency Spectrum Regulations (Annex B) (GG. No.38641, 30 March 2015), as amended (latest GG 48643, Notice 1822, 23 May 2023). RFSAP was published in GG 41512 Notice 149 0f 2018.
RADIO ASTRONOMY 5.149	RADIO ASTRONOMY 5.149	Radio Astronomy (continuum band and also used for pulsar and solar observations)	See Section 5 for coordination with radio astronomy
153-154 MHz FIXED MOBILE except aeronautical mobile (R) Meteorological aids	**153-154 MHz** FIXED MOBILE except aeronautical mobile (R) Meteorological aids	Single Frequency Mobile (152.55-153.05 MHz) Mobile 2 BTX (153.05-156 MHz) PMR and/or PAMR	Paired with 146-148.95 MHz
154-156.4875 MHz FIXED MOBILE except aeronautical mobile (R)	**154-156.4875 MHz** FIXED MOBILE except aeronautical mobile (R)	PMR and/or PAMR (154-156 MHz) Maritime Mobile 2 BTX (153.05-156 MHz)	See Section 7 for details Paired with 146-148.95 MHz

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
		Mobile 3 MTX (156-156.7625 MHz)	Paired with 160.6-160.975 MHz
		Single Frequency Mobile (156.375-156.7625 MHz)	(156-156.375 MHz allocated to Land Mobile MTX in inland areas) Limited to inland areas
		Maritime mobile communications (Ship stations) (156.00-156.4875 MHz)	Paired with 160.625-160.950 MHz, single frequency 156.3 MHz and in the band 156.375-156.475 MHz
		Land mobile in areas remote from coast (156.00-156.4875 MHz)	ITU RR Articles 31 and 52 and Appendix 18 apply
5.225A 5.226	5.226		
156.4875-156.5625 MHz	**156.4875-156.5125 MHz**		
MARITIME MOBILE (distress and calling via DSC)	MARITIME MOBILE (distress and calling via DSC).		The use of this band by the maritime services shall be in accordance with ITU Appendix 18. ITU RR Articles 31 and 52 and Appendix 18 apply.
	FIXED 5.227		
	LAND MOBILE 5.227	Single Frequency Mobile (156.375-156.7625 MHz)	NINP basis to Maritime Mobile Service; Limited to inland areas
		The band 156.4875-156.5125 MHz may also be used for land mobile services while protecting the maritime mobile service.	
	5.111 5.226 5.227		
	156.5125-156.5375 MHz		

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
	MARITIME MOBILE (distress and calling via DSC) 5.111 5.111 5.226 5.227	Maritime mobile distress, safety and calling frequency 156.525 MHz for maritime mobile VHF radiotelephone service using DSC. Single Frequency Mobile (156.375-156.7625 MHz)	The use of this band by the maritime services shall be in accordance with ITU Appendix 18. ITU RR Articles 31 and 52 and Appendix 18 apply.
	156.5375-156.5625 MHz FIXED LAND MOBILE MARITIME MOBILE (distress and calling via DSC) 5.111 5.226 5.227	The bands 156.5375-156.5625 MHz may also be used for land mobile services while protecting the maritime mobile service. Single Frequency Mobile (156.375-156.7625 MHz)	The use of this band by the maritime services shall be in accordance with ITU Appendix 18. ITU RR Articles 31 and 52 and Appendix 18 apply.
156.5625-156.7625 MHz FIXED MOBILE except aeronautical mobile (R)	**156.5625-156.7625 MHz** FIXED MOBILE except aeronautical mobile (R)	Fixed and Mobile applications. Maritime mobile communications (156.5625-156.7625 MHz).	Single frequency applications ITU RR Articles 31 and 52 and Appendix 18 apply.

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
5.226	5.226	Land mobile in areas remote from the coast.	
156.7625-156.7875 MHz MARITIME MOBILE Mobile-satellite (Earth-to-space) 5.111 5.226 5.228	**156.7625-156.7875 MHz** MARITIME MOBILE Mobile-satellite (Earth-to-space) 5.111 5.226 5.228	International distress, safety and calling frequency at 156.8 MHz for the maritime mobile VHF radiotelephone service. Distress safety and calling (156.76250-156.8375 MHz) Reception of AIS emissions of long-range AIS broadcast messages	ITU RR Article 31 and Appendix 18 apply to the use of the frequency 156.8 MHz and this band.
156.7875-156.8125 MHz MARITIME MOBILE (distress and calling) 5.111 5.226	**156.7875-156.8125 MHz** MARITIME MOBILE (distress and calling) 5.111 5.226	Distress safety and calling (156.76250-156.8375 MHz, channel 16)	See Section 7 for details
156.8125-156.8357 MHz MARITIME MOBILE	**156.8125-156.8375 MHz** MARITIME MOBILE	Distress safety and calling (156.76250-156.8375 MHz)	See Section 7 for details.

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
Mobile-satellite (Earth-to-space) 5.111 5.226 5.228	Mobile-satellite (Earth-to-space)	Reception of AIS emissions of long-range AIS broadcast messages	
156.8357-156.8375 MHz MARITIME MOBILE Mobile-satellite (Earth-to-space) 5.111 5.226 5.228	5.111 5.226 5.228		
156.8375-157.1875 MHz FIXED MOBILE except aeronautical mobile 5.226	**156.8375-157.1875 MHz** FIXED MOBILE except aeronautical mobile 5.226	Government Services 156.8375-157.45 MHz Maritime mobile communications (ship stations) Land mobile in areas remote from the coast.	Paired with 161.5-162.0 MHz and single frequency applications; ITU RR Articles 31 and 52 and Appendix 18 apply
157.1875-157.3375 MHz FIXED MOBILE except aeronautical mobile	**157.1875-157.3375 MHz** FIXED MOBILE except aeronautical mobile	Government Services	

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
Maritime mobile-satellite 5.208A 5.208B 5.228AB 5.228AC	Maritime mobile-satellite (Earth-to-space) (non-GSO)		Resolution 739 (Rev.WRC-19) apply
	Maritime mobile-satellite (space-to-Earth) (non-GSO)		As per 5.208A, maritime MSS (space-to-Earth) assignments in the frequency bands 157.1875-157.3375 MHz, administrations shall take all practicable steps to protect the RAS in the frequency band 150.05-153 MHz.
	5.228AB 5.228AC 5.208A 5.208B		
5.226	5.226		
157.3375-161.7875 MHz	**157.3375-161.7875 MHz**		
FIXED	FIXED	Government Services (157.450-160.6 MHz)	Single frequency applications
MOBILE except aeronautical mobile	MOBILE except aeronautical mobile	PMR and/or PAMR (160.600-160.975 MHz)	Paired with 156.025-156.350 MHz;
		Maritime mobile communications (Coast stations)	ITU RR Article 31 and Article 52 apply Appendix 18 applies.
		Land mobile in areas remote from coast (160.975-161.475 MHz)	
		PMR and/or PAMR (161.475-162.050 MHz)	Paired with 156.9-157.4 MHz
5.226	5.226		
161.7875-161.9375 MHz	**161.7875-161.9375 MHz**		
FIXED	FIXED	Government Services (161.475-162.050 MHz)	

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
MOBILE except aeronautical mobile	MOBILE except aeronautical mobile NF4	Sonobuoy (161.875-173.875)	
		Maritime mobile communications (Coast stations)	ITU RR Article 31 and Article 52 Appendix 18 apply.
		Land mobile in areas remote from coast	
		PMR and/or PAMR	
Maritime mobile-satellite 5.208A 5.208B 5.228AB 5.228AC	Maritime mobile-satellite (Earth-to-space) (non-GSO) 5.228A 5.228B 5.228AB 5.228AC	Automatic Identification System (AIS) at 161.975 MHz, 162.025 MHz and 162.050-174 MHz	As per 5.208A, maritime MSS (space-to-Earth) assignments in the frequency bands 161.7875-161.9375 MHz, administrations shall take all practicable steps to protect the RAS in the frequency band 150.05-153 MHz
	Maritime mobile-satellite (space-to-Earth) 5.208A (non-GSO) 5.228A 5.228B 5.228AB 5.228AC		
5.226	5.226		
161.9375 -161.9625 MHz	**161.9375 -161.9625 MHz**		
FIXED	FIXED		See Section 7 for details
MOBILE except aeronautical mobile	MOBILE except aeronautical mobile NF4	Sonobuoy (161.875-173.875)	
		Transmission of meteorological bulletins and notice to navigators	
		Mobile 1 MTX-DF (161.475-165.0375 MHz)	
		Single Frequency Mobile (160.45-161.475 MHz)	Paired with Mobile 1 BTX-DF (156.875-160.4375 MHz)

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
		Single Frequency Mobile (156.8375-156.875 MHz) Private Maritime MTX (157.45-157.95 MHz)	Inland areas only Paired with 162.05-162.55 MHz
Maritime mobile-satellite (Earth-to-space) 5.228AA 5.226	Maritime mobile-satellite (Earth-to-space) 5.228AA 5.226		
161.9625-161.9875 MHz	**161.9625-161.9875 MHz**		
FIXED	FIXED	Search and rescue (air to ground)	Search and rescue operations and other safety-related communications (air to ground)
MOBILE except aeronautical mobile	MOBILE except aeronautical mobile NF4	Mobile 1 MTX-DF (161.475-165.0375 MHz) Sonobuoy (161.875-173.875 MHz)	Paired with Mobile 1 BTX-DF (156.875-160.4375 MHz)
Mobile-satellite (Earth-to-space) 5.228F 5.226 5.228A 5.228B	Mobile-satellite (Earth-to-space) 5.228F 5.226 5.228A 5.228B	Reception of AIS emissions from stations in the mms	
161.9875-162.0125 MHz	**161.9875-162.0125 MHz**		
FIXED	FIXED		See Section 7 for details
MOBILE except aeronautical mobile	MOBILE except aeronautical mobile NF4	Mobile 1 MTX-DF (161.475-165.0375 MHz) Sonobuoy (161.875-173.875) Transmission of meteorological bulletins and notice to navigators	Paired with Mobile 1 BTX-DF (156.875-160.4375 MHz)

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
Maritime mobile-satellite (Earth-to-space) 5.228AA 5.226	Maritime mobile-satellite (Earth-to-space) 5.228AA 5.226		
162.0125-162.0375 MHz FIXED MOBILE except aeronautical mobile Mobile-satellite (Earth-to-space) 5.228F 5.226 5.228A 5.228B	**162.0125-162.0375 MHz** FIXED MOBILE except aeronautical mobile NF4 Mobile-satellite (Earth-to-space) 5.228F 5.226 5.228A 5.228B	Mobile 1 MTX-DF (161.475-165.0375 MHz) Sonobuoy (161.875-173.875 MHz) Reception of AIS emissions from stations in the mms. Search and rescue (air to ground)	Paired with Mobile 1 BTX-DF (156.875-160.4375 MHz) Search and rescue operations and other safety-related communications (air to ground)
162.0375-174 MHz FIXED MOBILE except aeronautical mobile	**162.0375-174 MHz** FIXED MOBILE except aeronautical mobile NF4	Sonobuoy in maritime service (161.875-173.875 MHz) Mobile 1 MTX-DF (161.475-165.0375 MHz) Mobile 2 MTX-DF (165.05-165.5375 MHz) Single Frequency Mobile (168.95-170.05 MHz) Mobile 3 MTX-DF (165.55-167.4875 MHz)	 Paired with Mobile 1 BTX-DF (156.875-160.4375 MHz) Paired with Mobile 2 BTX-DF (170.05-170.5375 MHz) Paired with Mobile 3 BTX-DF (172.05-173.9875 MHz)

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
		Single Frequency Mobile (172-172.0375 MHz)	
		Mobile 4 MTX-DF (167.5-168.9375 MHz)	Paired with Mobile 4 BTX (170.55-171.9875 MHz)
		Meter Reading (169.4-169.475 MHz)	
		Non-specific SRDs-Telecommand only (173.2125-173.2375 MHz) Non-specific SRDs (173.2375-173.2875 MHz)	Radio Frequency Spectrum Regulations (Annex B) GG No. 48643 (Notice 1822) of 23 May 2023
		Wireless microphones and assistive listening devices (173.7-175.1 MHz)	
		SAB/SAP (173.7-175.1 MHz)	
5.226	5.226 NF5		
174-223 MHz	**174-223 MHz**		
BROADCASTING	BROADCASTING	T-DAB (214-230 MHz)	Geneva 06 (GE06) applies Digital Sound Broadcasting (DSB) planned for this band.
		Digital Sound-Broadcasting (DSB) services: DAB+ (214-240 MHz)	GG 44469 Notice 215 of 23 April 2021, Digital Sound Broadcasting (DSB) Services Regulations, 2021 Recommendation ITU-R BS.1114 Recommendation ITU-R BS.450
		Digital Television Broadcasting (174-214 MHz)	The Terrestrial Broadcasting Frequency Plan as amended (GG no.36321) 02 April 2013

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
5.235 5.237 5.243	NF5	Wireless microphones (173.7-175.1 MHz) Audio links and talkback (174-216 MHz) SAB/SAP (173.7-175.1 MHz)	Radio Frequency Spectrum Regulations (Annex B) GG No. 48643 (Notice 1822) of 23 May 2023
223-230 MHz BROADCASTING Fixed Mobile 5.243 5.246 5.247	**223-230 MHz** BROADCASTING Fixed Mobile	 T-DAB (214-230 MHz) Digital Sound Broadcasting (DSB) services: DAB+(214-240 MHz)	 Geneva 06 applies for TV in Band III The Terrestrial Broadcasting Frequency Plan as amended (GG no.36321), 02 April 2013 Digital sound broadcasting is being planned in this band. GG 44469 Notice 215 of 23 April 2021, Digital Sound Broadcasting (DSB) Services Regulations, 2021 Recommendation ITU-R BS.1114 Recommendation ITU-R BS.450
230-235 MHz	**230-238 MHz** BROADCASTING 5.252	 Digital Television Broadcasting Digital Sound Broadcasting (DSB) services: DAB+(214-240 MHz)	GE89 applies for TV in this band The Terrestrial Broadcasting Frequency Plan as amended (GG no.36321) 02 April 2013 GG 44469 Notice 215 of 23 April 2021, Digital Sound Broadcasting (DSB) Services Regulations, 2021

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
			Recommendation ITU-R BS.1114 Recommendation ITU-R BS.450
FIXED MOBILE 5.247 5.251 5.252	Mobile-satellite		Mobile-satellite may be used in (235 -322 MHz) and (335.4 -399.9 MHz)
235-267 MHz			
	238-246 MHz		
FIXED	FIXED	PMR and/or PAMR (238- 242.95 MHz)	Band available for distress and safety purposes.
MOBILE	MOBILE	International Distress Frequency at 243 MHz (242.95-243.05 MHz)	
		Low-power devices (243.05-246.00 MHz)	Low-power devices ancillary to the broadcasting service.
	Mobile-satellite		Mobile-satellite may be used in (235 -322 MHz) and (335.4 -399.9 MHz)
	BROADCASTING 5.252	(DSB) services: DAB+ (214-240 MHz)	GG 44469 Notice 215 of 23 April 2021, Digital Sound Broadcasting (DSB) Services Regulations, 2021 Channel 13F (239.2 MHz) can be used nationally for DAB+ as currently used during DAB+ trials Radio Frequency Spectrum Regulations (Annex B) GG No. 48643 (Notice 1822) of 23 May 2023
	5.111 5.254 5.256		

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
	246-254 MHz		Geneva 89 (GE89) applies for TV in this band
	BROADCASTING 5.254 5.252	Digital Television broadcasting (246-254 MHz)	The Terrestrial Broadcasting Frequency Plan as amended (GG no.36321) 02 April 2013
	254-267 MHz		
	MOBILE	Trunking BTX (254-259.4 MHz)	Paired with 262-267.4 MHz
		Trunking MTX (262-267.4 MHz)	Paired with 254-259.4 MHz
	FIXED	Government Services (267.4-272 MHz)	
	Mobile-satellite		Mobile-satellite may be used in (235 -322 MHz) and (335.4 -399.9 MHz)
	5.111 5.254 5.256		
5.111 5.252 5.254 5.256 5.256A			
267-272 MHz	**267-272 MHz**		
FIXED	FIXED	Government Services	
MOBILE	MOBILE	Trunking MTX (262-267.4 MHz)	Paired with 254-259.4 MHz
Space operation (space-to-Earth)	SPACE OPERATION (telemetry)	Space Telemetry (267-272 MHz)	
	Mobile-satellite Space operation (space-to-Earth)		Mobile-satellite may be used in (235 -322 MHz) and (335.4 -399.9 MHz)
5.254 5.257	5.254 5.257		

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
272-273 MHz	**272-273 MHz**		
SPACE OPERATION (space-to-Earth)	SPACE OPERATION (space-to-Earth)		
FIXED	FIXED	Government Services	
MOBILE	MOBILE		
	Mobile-satellite		Mobile-satellite may be used in (235 -322 MHz) and (335.4 -399.9 MHz)
5.254	5.254		
273-312 MHz	**273-312 MHz**		
FIXED	FIXED	Government Services	
MOBILE	MOBILE	Single Frequency Mobile (278-286 MHz)	
	Mobile-satellite		Mobile-satellite may be used in (235 -322 MHz) and (335.4 -399.9 MHz)
5.254	5.254		
312-315 MHz	**312-315 MHz**		
FIXED	FIXED	Government Services	
MOBILE	MOBILE		
Mobile-satellite (Earth-to-space)	Mobile-satellite (Earth-to-space)		Mobile-satellite may be used in (235 -322 MHz) and (335.4 -399.9 MHz)
5.254 5.255	5.254 5.255		
315-322 MHz	**315-322 MHz**		
FIXED	FIXED	Government Services	
MOBILE	MOBILE		

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
5.254	Mobile-satellite 5.254		Mobile-satellite may be used in (235 -322 MHz) and (335.4 -399.9 MHz)
322-328.6 MHz FIXED MOBILE RADIO ASTRONOMY 5.149	**322-328.6 MHz** FIXED MOBILE RADIO ASTRONOMY 5.149	Government Services Radio Astronomy (Observation of deuterium)	See Section 5 coordination with radio astronomy
328.6-335.4 MHz AERONAUTICAL RADIONAVIGATION 5.258 5.259	**328.6-335.4 MHz** AERONAUTICAL RADIONAVIGATION 5.258	ILS Glide Path	
335.4-387 MHz	**335.4-387 MHz**		Radio Frequency Spectrum Assignment Plan (RFSAP) GG 49079 Notice 3764 of 4th of August 2023
FIXED	FIXED NF6	PTP/PTMP	
		FWA (336-346 MHz)	Paired with 356-366 MHz
		FWA (356-366 MHz)	Paired with 336-346 MHz
		Government Services (366-380 MHz)	Paired with 390-397 MHz

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
MOBILE	MOBILE NF7	Digital Trunking (Emergency) (380-387 MHz) (PPDR)	
		PMR and/or PAMR (335.4-336 MHz)	(Coordination is required with PTP/PTMP in the implement of UAV)
		PPDR	The Authority intends to assess future PPDR spectrum needs in 380–470 MHz (primarily narrowband) and evaluate broadband requirements in accordance with ITU-R M.2015 and harmonised ranges identified under Resolution 646 (694–894 MHz and 4 940–4 990 MHz).
	Mobile-satellite	Unmanned Aerial Vehicle (UAV) (366.0-380.0 MHz)	
5.254	5.254		
387-390 MHz	**387-390 MHz**		
			Radio Frequency Spectrum Assignment Plan GG 49079 Notice 3764 of 4th of August 2023
			Draft Frequency Migration Plan (GG 50389, Notice 4559 of 24 March 2024)
FIXED	FIXED		
MOBILE	MOBILE NF7	PPDR	The Authority intends to assess future PPDR spectrum needs in 380–470 MHz (primarily narrowband) and evaluate broadband requirements in accordance with ITU-R M.2015 and harmonised ranges identified under Resolution 646 (694–894 MHz and 4 940–4 990 MHz)

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
Mobile-satellite (space-to-Earth) 5.208A 5.208B 5.254 5.255	Mobile-satellite (space-to-Earth) 5.208A 5.208B 5.254 5.255		As per 5.208A, MSS assignments to space stations in the 387-390 MHz frequency band, administrations shall take all practicable steps to protect the radio astronomy service in the frequency band 150.05-153 MHz. Seeking MIFR registration (cf. Section 5.7)
390-399.9 MHz FIXED MOBILE 5.254	**390-399.9 MHz** FIXED MOBILE NF7 Mobile-satellite 5.254	 PPDR	Radio Frequency Spectrum Assignment Plan GG 49079 Notice 3764 of 4th of August 2023 Draft Frequency Migration Plan (GG 50389, Notice 4559 of 24 March 2024) The Authority intends to assess future PPDR spectrum needs in 380–470 MHz (primarily narrowband) and evaluate broadband requirements in accordance with ITU-R M.2015 and harmonised ranges identified under Resolution 646 (694–894 MHz and 4 940–4 990 MHz)

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
399.9-400.05 MHz MOBILE-SATELLITE (Earth-to-space) 5.209 5.220 5.260A 5.260B	**399.9-400.05 MHz** MOBILE-SATELLITE (Earth-to-space) (non-GSO) 5.209 5.220 5.260A 5.260B		Radio Frequency Spectrum Assignment Plan GG 49079 Notice 3764 of 4th of August 2023
400.05-400.15 MHz STANDARD FREQUENCY AND TIME SIGNAL-SATELLITE (400.1 MHz) 5.261 5.262	**400.05-400.15 MHz** STANDARD FREQUENCY AND TIME SIGNAL-SATELLITE (400.1 MHz) 5.261 5.262		
400.15-401 MHz METEOROLOGICAL AIDS METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) 5.208A 5.208B 5.209 SPACE RESEARCH (space-to-space) 5.263	**400.15-401 MHz** METEOROLOGICAL AIDS METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) (non-GSO) 5.208A 5.208B 5.209 NF3 SPACE RESEARCH (space-to-space) 5.263	Radiosonde Communication with manned space vehicles Space-to-Earth - non-GSO	As per 5.208A, MSS assignments to space stations in the 400.15-401 MHz frequency band, administrations shall take all practicable steps to protect the radio astronomy service in the frequency band 322-328.6 MHz. Seeking MIFR registration (cf. Section 5.7)

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
Space operation (space-to-Earth) 5.262 5.264	Space operation (space-to-Earth) 5.264		
401-402 MHz	**401-402 MHz**		
METEOROLOGICAL AIDS SPACE OPERATION (space-to-Earth) EARTH EXPLORATION-SATELLITE (Earth-to-space) METEOROLOGICAL-SATELLITE (Earth-to-space) Fixed Mobile except aeronautical mobile 5.264A 5.264B	METEOROLOGICAL AIDS SPACE OPERATION (space-to-Earth) EARTH EXPLORATION-SATELLITE (Earth-to-space) METEOROLOGICAL-SATELLITE (Earth-to-space) Fixed Mobile except aeronautical mobile 5.264A 5.264B	Radiosonde Data uplink to Geostationary Satellite orbit	Note limitations in e.i.r.p 5.264A
402-403 MHz	**402-403 MHz**		
METEOROLOGICAL AIDS EARTH EXPLORATION-SATELLITE (Earth-to-space)	METEOROLOGICAL AIDS EARTH EXPLORATION-SATELLITE (Earth-to-space)	Radiosonde	Radio Frequency Spectrum Regulations (Annex B) (GG. No.38641, 30 March 2015), as amended (latest GG 48643, Notice 1822, 23 May 2023). Note limitations in e.i.r.p 5.264A

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
METEOROLOGICAL-SATELLITE (Earth-to-space)	METEOROLOGICAL-SATELLITE (Earth-to-space)		
Fixed	Fixed	Medical implants (402-405 MHz)	
		Various SRDs (402-406 MHz) SRD - ultra low power active medical implants	SRD (402-405 MHz) ITU-R Recommendation. SM.1896-1 ITU-R Recommendation. RS.1346 latest version.
Mobile except aeronautical mobile	Mobile except aeronautical mobile		
5.264A 5.264B	5.264A 5.264B		
403-406 MHz	**403-406 MHz**		
METEOROLOGICAL AIDS	METEOROLOGICAL AIDS	Radiosonde	Note limitations in e.i.r.p 5.264A
Fixed	Fixed		
Mobile except aeronautical mobile	Mobile except aeronautical mobile	Medical implants (402-405 MHz)	Radio Frequency Spectrum Regulations (Annex B) (GG. No.38641, 30 March 2015), as amended (latest GG 48643, Notice 1822, 23 May 2023).
		Various SRD's (402-406 MHz)	SRD (402-405 MHz) ITU-R Recommendation. SM.1896-1 latest version ITU-R Recommendation. RS.1346 latest version
5.265	5.265		

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
406-406.1 MHz	**406-406.1 MHz**		
MOBILE-SATELLITE (Earth-to-space)	MOBILE-SATELLITE (Earth-to-space)	COSPAS-SARSAT: Emergency Position Indicating Radio Beacon (EPIRB)	Personal Locator Beacon
		Low power satellite EPIRBs (distress and safety purposes)	ITU RR Articles 32 apply ITU RR Articles 34 apply Appendix 15 apply
5.265 5.266 5.267	5.265 5.266 5.267		
406.1-410 MHz	**406.1-410 MHz**		
FIXED	FIXED	Fixed Links (406.1-407.625 MHz)	Paired with 416.1-417.625 MHz
MOBILE except aeronautical mobile	MOBILE except aeronautical mobile	Mobile MTX (407.625-410 MHz)	Paired with BTX (417.625-420 MHz)
		Government use for public safety	
		PMR and/or PAMR	
		PPDR	The Authority intends to assess future PPDR spectrum needs in 380–470 MHz (primarily narrowband) and evaluate broadband requirements in accordance with ITU-R M.2015 and harmonised ranges identified under Resolution 646 (694–894 MHz and 4 940–4 990 MHz)
RADIO ASTRONOMY	RADIO ASTRONOMY	Radio Astronomy (continuum observations)	See Section 5 for coordination with radio astronomy
5.149 5.265	5.149 5.265		

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
410-420 MHz	**410-420 MHz**		Radio Frequency Spectrum Assignment Plan GG 49079 Notice 3766 of 4th of August 2023 Draft Frequency Migration Plan (GG 50389, Notice 4559 of 24 March 2024)
FIXED	FIXED		
MOBILE except aeronautical mobile	MOBILE except aeronautical mobile	Digital Trunking MTX (413.7625-416.1 MHz) PAMR/PMR IoT	Paired with 423.7625-426.1 MHz
		PPDR	The Authority intends to assess future PPDR spectrum needs in 380–470 MHz (primarily narrowband) and evaluate broadband requirements in accordance with ITU-R M.2015 and harmonised ranges identified under Resolution 646 (694–894 MHz and 4 940–4 990 MHz).
SPACE RESEARCH (space-to-space) 5.268	SPACE RESEARCH (space-to-space) 5.268	Communication links with an orbiting, manned space vehicle	
420-430 MHz	**420-430 MHz**		Radio Frequency Spectrum Assignment Plan GG 49079 Notice 3766 of 4th of August Draft Frequency Migration Plan (GG 50389, Notice 4559 of 24 March 2024)
FIXED	FIXED	Digital Trunking BTX (423.7625-426.1 MHz)	Paired with MTX (413.7626-416.1 MHz)
MOBILE except aeronautical mobile	MOBILE except aeronautical mobile	PAMR/PMR IoT	

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
		PPDR	The Authority intends to assess future PPDR spectrum needs in 380–470 MHz (primarily narrowband) and evaluate broadband requirements in accordance with ITU-R M.2015 and harmonised ranges identified under Resolution 646 (694–894 MHz and 4 940–4 990 MHz)
Radiolocation 5.269 5.270 5.271	Radiolocation		
430-432 MHz	**430-432 MHz**		
AMATEUR	AMATEUR NF8	Amateur Applications	Radio Frequency Spectrum Regulations (Annex I) (GG. No.38641, 30 March 2015). RFSR 2015, including Annexes, to be reviewed
RADIOLOCATION 5.271 5.274 5.275 5.276 5.277	RADIOLOCATION		
432-438 MHz	**432-438 MHz**		
AMATEUR	AMATEUR NF8	Amateur (432-438 MHz)	Radio Frequency Spectrum Regulations (Annex I) (GG. No.38641, 30 March 2015). RFSR 2015, including Annexes, to be reviewed
		ISM (433.0-434.79 MHz) Non-Specific SRD including RFID (433.05-434.79 MHz) ISM applications	Radio Frequency Spectrum Regulations (Annex B) (GG. No.38641, 30 March 2015)
RADIOLOCATION	RADIOLOCATION		

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
Earth exploration-satellite (active) 5.279A 5.138 5.271 5.276 5.277 5.280 5.281 5.282	Earth exploration-satellite (active) 5.279A Amateur -satellite 5.138 5.282	Amateur-satellite (435-438 MHz)	For earth exploration-satellite see Rec. ITU-R RS.1260-2 latest version Conditions for amateur satellite service are given in 5.282
438-440 MHz AMATEUR RADIOLOCATION 5.271 5.274 5.275 5.276 5.277 5.283	**438-440 MHz** AMATEUR NF8 RADIOLOCATION	Amateur	Radio Frequency Spectrum Regulations (Annex I) (GG. No.38641, 30 March 2015). RFSR 2015, including Annexes, to be reviewed
440-450 MHz FIXED	**440-450 MHz** FIXED	Telemetry / Data BTX (440-441 MHz) FIXED (telemetry, dual frequency alarm systems) Agricultural Telemetry Application	Radio Frequency Spectrum Assignment Plan GG 49079 Notice 3767 of 4th of August 2023 Draft Frequency Migration Plan (GG 50389, Notice 4559 of 24 March 2024) Paired with MTX (445-446 MHz) Channels 440.0125, 440.3625, 445.0125 and 445.3625 MHz are used for Agricultural Telemetry

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
		Roving simplex Application	Channels 440.275 MHz, 440.2875 MHz, 445.2750 MHz, 445.2875 MHz, 440.375 MHz and 445.375 MHz are roving simplex channels.
		Simplex Applications	Channels 440 - 440.100 MHz and 445-445.1 MHz are used as simplex
MOBILE except aeronautical mobile	MOBILE except aeronautical mobile	Mobile MTX (441.1-445 MHz)	Paired with BTX (446.1-450 MHz) 8 channels
		Single Frequency Mobile (441-441.1 MHz)	
		PMR and/or PAMR446 (446-446.1 MHz)	Radio Frequency Spectrum Regulations (Annex B) (GG. No.38641, 30 March 2015), as amended (latest GG 48643, Notice 1822, 23 May 2023). PMR446-ERC/DEC/ (98)25
		PPDR	The Authority intends to assess future PPDR spectrum needs in 380–470 MHz (primarily narrowband) and evaluate broadband requirements in accordance with ITU-R M.2015 and harmonised ranges identified under Resolution 646 (694–894 MHz and 4 940–4 990 MHz)
Radiolocation 5.269 5.285	Radiolocation 5.269 5.285		
5.270 5.271 5.284 5.286	5.270 5.271 5.284 5.286		
450-455 MHz	**450-455 MHz**		RFSAP- GG No. 48353, 31 March 2023 (Notice 3246 of 2023)
FIXED	FIXED	Government Services (Fixed Links)	Draft Frequency Migration Plan (GG 50389, Notice 4559 of 24 March 2024)

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
MOBILE 5.286AA	MOBILE 5.286AA NF9	IMT450 (450-470 MHz) IoT M2M PPDR	ITU-R Recommendation M.1036-8 Resolution 224 (Rev. WRC-23) Radio Frequency Spectrum Regulations as amended (Annex B) (GG. No. 38641, Notice 279, 30 March 2015), as amended (latest GG 48643, Notice 1822, 23 May 2023). The Authority intends to assess future PPDR spectrum needs in 380–470 MHz (primarily narrowband) and evaluate broadband requirements in accordance with ITU-R M.2015 and harmonised ranges identified under Resolution 646 (694–894 MHz and 4 940–4 990 MHz)
	SPACE OPERATION (Earth-to-space) SPACE RESEARCH (Earth-to-space)		
5.209 5.271 5.286 5.286A 5.286B 5.286C 5.286D 5.286E	5.209 5.286 5.286A 5.286B 5.286C		
455-456 MHz FIXED	**455-456 MHz** FIXED		RFSAP- GG No. 48353, 31 March 2023 (Notice 3246 of 2023)
MOBILE 5.286AA	MOBILE 5.286AA NF9	IMT450 (450-470 MHz) IoT M2M	ITU-R Recommendation M.1036-8 Resolution 224 (Rev. WRC-23) Radio Frequency Spectrum Regulations as amended (Annex B) (GG. No. 38641,

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
			Notice 279, 30 March 2015), as amended (latest GG 48643, Notice 1822, 23 May 2023). IMT Roadmap (GG No.42829 Notice 600 of 2019).
		PPDR	The Authority intends to assess future PPDR spectrum needs in 380–470 MHz (primarily narrowband) and evaluate broadband requirements in accordance with ITU-R M.2015 and harmonised ranges identified under Resolution 646 (694–894 MHz and 4 940–4 990 MHz)
5.209 5.271 5.286A 5.286B 5.286C 5.286E	5.209 5.286A 5.286B 5.286C		
456-459 MHz	**456-459 MHz**		RFSAP - GG No.48353 of 31 March 2023 (Notice 3246 of 2023)
FIXED	FIXED		
MOBILE 5.286AA	MOBILE 5.286AA NF9	IMT450 (450-470 MHz)	ITU-R Recommendation M.1036-8 Resolution 224 (Rev. WRC-23)
		IoT M2M	Radio Frequency Spectrum Regulations as amended (Annex B) (GG. No. 38641, Notice 279, 30 March 2015), as amended (latest GG 48643, Notice 1822, 23 May 2023)
		PPDR	The Authority intends to assess future PPDR spectrum needs in 380–470 MHz (primarily narrowband) and evaluate broadband requirements in accordance

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
5.271 5.287 5.288	5.287		with ITU-R M.2015 and harmonised ranges identified under Resolution 646 (694–894 MHz and 4 940–4 990 MHz).
459-460 MHz	**459-460 MHz**		RFSAP- GG No. 48353 of 31 March of 2023 (Notice 3246 of 2023)
FIXED	FIXED	Government Services (Fixed links)	
MOBILE 5.286AA	MOBILE 5.286AA NF9	IMT450 (450-470 MHz)	ITU-R Recommendation M.1036-8 Resolution 224 (Rev. WRC-23)
		PPDR	The Authority intends to assess future PPDR spectrum needs in 380–470 MHz (primarily narrowband) and evaluate broadband requirements in accordance with ITU-R M.2015 and harmonised ranges identified under Resolution 646 (694–894 MHz and 4 940–4 990 MHz).
5.209 5.271 5.286A 5.286B 5.286C 5.286E	5.209 5.286A 5.286B 5.286C		
460-470 MHz	**460-470 MHz**		RFSAP- GG No. 48353 of 31 March 2023. (Notice 3246 of 2023)
FIXED	FIXED	Government Services (Fixed Links)	
MOBILE 5.286AA 5.287 5.288	MOBILE 5.286AA 5.287 NF9	IMT450 (450-470 MHz)	ITU-R Recommendation M.1036-8 Resolution 224 (Rev. WRC-23)
		IoT M2M	Radio Frequency Spectrum Regulations as amended (Annex B) (GG. No. 38641,

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
			Notice 279, 30 March 2015), as amended (latest GG 48643, Notice 1822, 23 May 2023).
		PPDR	The Authority intends to assess future PPDR spectrum needs in 380–470 MHz (primarily narrowband) and evaluate broadband requirements in accordance with ITU-R M.2015 and harmonised ranges identified under Resolution 646 (694–894 MHz and 4 940–4 990 MHz)
Meteorological-satellite (space-to-Earth) 5.290 5.289	Meteorological-satellite (space-to-Earth) Earth exploration-satellite (space-to-Earth) 5.289		
470-694 MHz	**470-606 MHz**		Radio Frequency Spectrum Assignment Plan, GG 43341 (Notice 284 of 2020) Geneva 06 Agreement applies.
BROADCASTING	BROADCASTING	DTT Broadcasting (470-694 MHz)	Broadcasting Allotments in accordance with GE89 and GE06. Broadcast assignments in accordance with the latest version of the Terrestrial Broadcasting Frequency Plan as amended (GG No.36321) 02 April 2013.
		PMSE e.g. Wireless microphones (470-786 MHz)	Radio Frequency Spectrum Regulations as amended (Annex B) (GG. No. 38641, 30 March 2015, amended by GG 48643 included Notice No 1822, 23 May 2023)

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
		Services Ancillary to Programme making and Services Ancillary to Broadcasting (SAP/SAB)	Res. ITU-R 59-3 (WRC-23) (ENG)
	Land mobile	Terrestrial broadband services	The use of land mobiles in accordance with footnote No. 5.296) ITU Article 1.26 applies: the transmission is restricted to terrestrial only, i.e. a mobile service between base stations and land mobile stations.
		TV Whitespaces	Regulations Television Whitespaces-GG 44373 (Notice 164 of 2021) and GG No. 41512 (Notice 147 of 2018)
	5.149 5.296 5.304 5.306		
	606-614 MHz		Radio Frequency Spectrum Assignment Plan, GG 43341 Notice 284 of 2020 Geneva 06 Agreement applies.
	BROADCASTING	DTT Broadcasting (470-694 MHz)	Broadcasting Allotments in accordance with GE89 and GE06. Broadcast assignments in accordance with the latest version of the Terrestrial Broadcasting Frequency Plan as amended (GG No.36321) 02 April 2013
		PMSE e.g. Wireless microphones (470-786 MHz)	Radio Frequency Spectrum Regulations as amended (Annex B) (GG. No. 38641, 30 March 2015, amended by GG 48643, Notice No 1822, 23 May 2023)
		Services Ancillary to Programme making and Services Ancillary to Broadcasting (SAP/SAB)	Res. ITU-R 59-3 (WRC-23) (ENG)
	Land mobile	Terrestrial broadband services	The use of land mobiles in accordance with footnote No. 5.296).

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
			ITU Article 1.26 applies: the transmission is restricted to terrestrial only, i.e. a mobile service between base stations and land mobile stations.
	RADIO ASTRONOMY 5.149 5.296 5.304 5.306	Radio Astronomy (606-614 MHz)	RAS VLBI Observations (608-614 MHz). See Section 5 for coordination with radio astronomy.
	614-694 MHz		Radio Frequency Spectrum Assignment Plan, GG 43341 Notice 284 of 2020
	BROADCASTING	DTT Broadcasting (470-694 MHz)	Geneva 06 Agreement applies. Broadcasting Allotments in accordance with GE89 and GE06. Broadcast assignments in accordance with the latest version of the Terrestrial Broadcasting Frequency Plan as amended (GG No.36321) 02 April 2013.
		PMSE e.g. Wireless microphones (470-786 MHz)	Radio Frequency Spectrum Regulations as amended (Annex B) (GG. No. 38641, 30 March 2015, amended by GG 48643 included Notice No 1822, 23 May 2023)
		Services Ancillary to Programme making and Services Ancillary to Broadcasting (SAP/SAB)	Res. ITU-R 59-3 (WRC-23) (ENG)
	Land mobile	Terrestrial broadband services	The use of land mobiles in accordance with footnote No. 5.296). ITU Article 1.26 applies: the transmission is restricted to terrestrial only, i.e. a mobile

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
			service between base stations and land mobile stations.
		TV Whitespaces	Regulations Television Whitespaces-GG 44373 (Notice 164 of 2021) and GG No. 41512 (Notice 147 of 2018)
5.149 5.291A 5.294 5.295A 5.296 5.300 5.304 5.306 5.307A 5.307B 5.312	5.149 5.296 5.304 5.306		
694-790 MHz	**694-790 MHz**		
MOBILE except aeronautical mobile 5.312A 5.312B 5.317A	MOBILE except aeronautical mobile 5.312A 5.312B 5.317A NF9	IMT700 MTX (703-733 MHz)	Paired with BTX (758-788 MHz)
			Radio Frequency Spectrum Assignment Plan IMT700 (GG 47788 Notice 2886 of 2022)
		IMT750 (733 to 758 MHz)	Radio Frequency Spectrum Assignment Plan IMT750 (GG 47788 Notice 2887 2022)
		SDL	Res. 224 (Rev. WRC-23), Res. 760 (Rev. WRC-23) and Res. 749 (Rev. WRC-23), apply
			Recommendation ITU-R M.1036-8
			HCM4A for cross-border coordination
		PPDR	The Authority intends to The Authority intends to assess future PPDR spectrum needs in 380–470 MHz (primarily narrowband) and evaluate broadband requirements in accordance with ITU-R M.2015 and further harmonised ranges identified under Resolution 646 (694–894 MHz and 4 940–4 990 MHz).

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
			SADC PPDR recommendation Framework for Harmonisation of Radio Frequency Spectrum for Public Protection and Disaster Relief (PPDR) in SADC Edition 2020
		HIBS (694-960 MHz)	Resolution 213 (WRC-23) applies. The Authority intends to develop the Regulatory Framework & Guidelines for HIBS vs. IMT and update existing and/or formulate new RFSAPs
		Wireless microphones (470-786 MHz)	Radio Frequency Spectrum Regulations as amended (Annex B) (GG. No. 38641, 30 March 2015, amended by GG 48643 included Notice No 1822, 23 May 2023)
BROADCASTING 5.300 5.312			Res. ITU-R 59-3 (WRC-23) (ENG)
790-862 MHz	**790-862 MHz**		
FIXED	FIXED		Paired with BTX (791-821 MHz)
MOBILE except aeronautical mobile 5.312B 5.316B 5.317A	MOBILE except aeronautical mobile 5.312B 5.316B 5.317A NF9	IMT800 MTX (832 - 862 MHz)	Radio Frequency Spectrum Assignment Plan (GG No 47788, Notice 2888 of 20th December 2022) IMT 850 RFSAP GG No 48353, Notice 3245 of 31st March 2023 was Repealed. This followed the publication of the Reasons Document GG 48353 (Notice 3243) of 31st March 2023

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
			Res. 224 (Rev. WRC-23), Res. 760 (Rev. WRC-23) and Res. 749 (Rev. WRC-23) apply IMT in accordance with ITU-R Recommendation M.2090 latest version and Resolution 760 (Rev.WRC-23) apply Recommendation ITU-R M.1036-8 HCM4A for cross-border coordination
		HIBS (694-960 MHz)	Resolution 213 (WRC-23) applies. The Authority intends to develop the Regulatory Framework & Guidelines for HIBS vs. IMT and update existing and/or formulate new RFSAPs.
		PMSE (823–832 MHz)	Radio Frequency Spectrum Regulations as amended (Annex B) (GG. No. 38641, 30 March 2015, amended by GG 48643 included Notice No 1822, 23 May 2023)
		PPDR	The Authority intends to assess the future PPDR spectrum needs in 380–470 MHz (primarily narrowband) and evaluate broadband requirements in accordance with ITU-R M.2015 and harmonised ranges identified under Resolution 646 (694–894 MHz and 4 940–4 990 MHz). SADC PPDR recommendation Framework for Harmonisation of Radio Frequency Spectrum for Public Protection and

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
			Disaster Relief (PPDR) in SADC Edition 2020
		Body Worn Equipment (823-826 MHz)	GG No. 45690, Notice 737 of 2021
BROADCASTING 5.312 5.319			
862-890 MHz FIXED MOBILE except aeronautical mobile 5.312B 5.317A	**862-890 MHz** FIXED MOBILE except aeronautical mobile 5.312B 5.317A NF9 NF10	GSM-R MTX (877.695- 880 MHz)	Paired with 921-925 MHz
		IMT900 MTX (880-915 MHz)	Paired with BTX (925-960 MHz) Radio Frequency Spectrum Assignment Plan GG 49556, 27 Oct 2023 Notice 3999) IMT 850 RFSAP GG No 48353, Notice 3245 of 31st March 2023 was repealed. This followed the publication of the Reasons Document GG 48353 (Notice 3243) of 31st March 2023 Recommendation ITU-R M.1036-8 Res. 224 (Rev. WRC-23), Res. 760 (Rev. WRC-23) and Res. 749 (Rev. WRC-23) apply Radio Frequency Spectrum Regulations as amended (Annex B) (GG. No. 38641, Notice 279, 30 March 2015), as amended

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
			(latest GG 48643, Notice 1822, 23 May 2023). HCM4A for cross-border coordination
		Wireless Audio systems and Wireless microphones (863-865 MHz) CT2 cordless phones (864.1-868.1 MHz) RFID (865-868 MHz) Non-specific SRD and RFID (869.4-869.65 MHz) Non-Specific SRD (862-863. 863-870, 868-868.6 MHz, 868.7-869.2 MHz, 869.4-869.65 MHz, 869.7-870.0 MHz) Alarms (868.6-868.7 MHz, 869.25-869.3 MHz, 869.65-869.7 MHz) Social Alarms (869.2-869.25 MHz)	Radio Frequency Spectrum Regulations as amended (Annex B) (GG. No. 38641, 30 March 2015, amended by GG 48643 included Notice No 1822, 23 May 2023)
		HIBS (694-960 MHz)	Resolution 213 (WRC-23) applies The Authority intends to develop the Regulatory Framework & Guidelines for HIBS vs. IMT and update existing and/or formulate new RFSAPs.
BROADCASTING 5.322 5.319 5.323		RMR/FRMCS (874.4-880.0 MHz paired with 919.4-925.0 MHz)	CEPT Report 90
890-942 MHz	**890-942 MHz**		

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
FIXED	FIXED		
MOBILE except aeronautical mobile 5.312B 5.317A	MOBILE except aeronautical mobile 5.312B 5.317A NF9 NF10	IMT900 MTX (880-915 MHz)	Paired with BTX (925-960 MHz) Recommendation ITU-R M.1036-8 Res. 224 (Rev. WRC-23), Res. 760 (Rev. WRC-23) and Res. 749 (Rev. WRC-23) apply
		HIBS (694-960 MHz)	Resolution 213 (WRC-23) applies. The Authority intends to develop the Regulatory Framework & Guidelines for HIBS vs. IMT and update existing and/or formulate new RFSAPs.
		GSM-R (BTX) (921 - 925 MHz)	Paired with MTX (877.695- 880 MHz) Radio Frequency Spectrum Assignment Plan (GG 49556, 27 Oct 2023 Notice 3999) RFSR as amended (Annex B) (GG. No. 38641, 30 March 2015) GG No. 48643, Notice 1822 of 2023
		RMR/FRMCS (919.4-925.0 MHz paired with 874.4-880.0 MHz)	CEPT Report 90
BROADCASTING 5.322			
Radiolocation 5.323	Radiolocation	RFID (including, passive tags and vehicle location) (915.1-921 MHz)	
942-960 MHz	**942-960 MHz**		
FIXED	FIXED		

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
MOBILE except aeronautical mobile 5.312B 5.317A	MOBILE except aeronautical mobile 5.312B 5.317A NF9	IMT900 BTX (925-960 MHz)	Paired with MTX (880-915 MHz) Recommendation ITU-R M.1036-8 Radio Frequency Spectrum Assignment Plan (GG 49556, 27 Oct 2023 Notice 3999) Res. 224 (Rev. WRC-23), Res. 760 (Rev. WRC-23) and Res. 749 (Rev. WRC-23) apply
		HIBS (694-960 MHz)	Resolution 213 (WRC-23) applies The Authority intends to develop the Regulatory Framework & Guidelines for HIBS vs. IMT and update existing and/or formulate new RFSAPs.
BROADCASTING 5.322 5.323			
960-1 164 MHz AERONAUTICAL MOBILE (R) 5.327A AERONAUTICAL RADIONAVIGATION 5.328	**960-1 087.7 MHz** AERONAUTICAL MOBILE (R) 5.327A AERONAUTICAL RADIONAVIGATION 5.328	Distance measuring equipment / Secondary surveillance radar (Airborne electronic aids to air navigation and any directly associated ground-based facilities	Resolution 425 (Rev. WRC-19) applies.
	1087.7 -1 093.3 MHz AERONAUTICAL MOBILE (R) 5.327A AERONAUTICAL MOBILE-SATELLITE (R) (Earth-to-space)	Space station reception of ADS-B emissions from aircraft transmitters)	Resolution 425 (Rev. WRC-19) applies.

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
	AERONAUTICAL RADIONAVIGATION 5.328	Airborne electronic aids to air navigation and any directly associated ground-based facilities	
	1093.3 -1 164 MHz		
	AERONAUTICAL MOBILE (R) 5.327A		Resolution 425 (Rev. WRC-19) applies.
	AERONAUTICAL RADIONAVIGATION 5.328	Airborne electronic aids to air navigation and any directly associated ground-based facilities	
5.328AA			
1 164-1 215 MHz	**1 164-1 215 MHz**		
AERONAUTICAL RADIONAVIGATION 5.328	AERONAUTICAL RADIONAVIGATION 5.328	Galileo (1164-1214 MHz) GLONASS (1190.3-1213.8 MHz)	
RADIONAVIGATION-SATELLITE (space-to-Earth) (space-to-space) 5.328B	RADIONAVIGATION-SATELLITE (space-to-Earth) (space-to-space)	Airborne electronic aids to air navigation and any directly associated ground-based facilities	
5.328A	5.328A		
1 215-1 240 MHz	**1 215-1 240 MHz**		
EARTH EXPLORATION-SATELLITE (active)	EARTH EXPLORATION-SATELLITE (active)		
RADIOLOCATION	RADIOLOCATION	Radar/navigation systems (1 215 - 1 300 MHz)	

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
RADIONAVIGATION-SATELLITE (space-to-Earth) (space-to-space) 5.328B 5.329 5.329A SPACE RESEARCH (active) 5.330 5.331 5.332	RADIONAVIGATION-SATELLITE (space-to-Earth) (space-to-space) 5.328B 5.329 5.329A SPACE RESEARCH (active) 5.331 5.332	GPS (1 215-1 260 MHz) GLONASS (1 237.8-1 253.8 MHz)	
1 240-1 300 MHz EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION	**1 240-1 260 MHz** EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION RADIONAVIGATION	Air Traffic Control Radar (1240-1350 MHz) Radar/navigation systems (1215-1300 MHz)	
RADIONAVIGATION-SATELLITE (space-to-Earth) (space-to-space) 5.328B 5.329 5.329A	RADIONAVIGATION-SATELLITE (space-to-Earth) (space-to-space) 5.328B 5.329 5.329A	GPS (1215-1260 MHz) GLONASS (1237.8-1253.8 MHz)	
SPACE RESEARCH (active)	SPACE RESEARCH (active)		
Amateur	Amateur 5.282 5.331 5.332 5.332A 5.335A	Amateur (1 240-1 300 MHz)	
	1 260-1 270 MHz EARTH EXPLORATION-SATELLITE (active)		

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
	RADIOLOCATION	Air Traffic Control Radar (1 240-1 350 MHz)	
	RADIONAVIGATION	Radar/navigation systems (1215-1300 MHz)	
	RADIONAVIGATION-SATELLITE (space-to-Earth) (space-to-space) 5.329A	Galileo (1260-1300 MHz)	
	SPACE RESEARCH (active)		
	Amateur	Amateur (1 240-1 300 MHz)	
	Amateur-Satellite (Earth-to-space)		
	5.282 5.331 5.332 5.332A 5.335A		
5.282 5.330 5.331 5.332 5.332A 5.335 5.335A			
	1 270-1 300 MHz		
	EARTH EXPLORATION-SATELLITE (active)		
	RADIOLOCATION	Air Traffic Control Radar (1 240-1 350 MHz)	
	RADIONAVIGATION	Radar/navigation systems (1215-1300 MHz)	
	RADIONAVIGATION-SATELLITE (space-to-Earth) (space-to-space) 5.328B 5.329 5.329A	Galileo (1260-1300 MHz)	

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
	SPACE RESEARCH (active) Amateur 5.282 5.331 5.332 5.332A 5.335A	Amateur (1 240-1 300 MHz)	
1 300-1 350 MHz	**1 300-1 350 MHz**		
AERONAUTICAL RADIONAVIGATION 5.337 RADIOLOCATION RADIONAVIGATION-SATELLITE (Earth-to-space) 5.149 5.337A	AERONAUTICAL RADIONAVIGATION 5.337 RADIOLOCATION RADIONAVIGATION-SATELLITE (Earth-to-space) Radio Astronomy 5.149 5.337A	Air Traffic Control Radar (1 240-1 350 MHz) Ground-based radars and associated airborne transponders Radio Astronomy (Doppler shifted radiation from hydrogen	See Section 5 for coordination with radio astronomy
1 350-1 400 MHz	**1 350-1 400 MHz**		
FIXED MOBILE	FIXED NF14 MOBILE	1 350-1 375 MHz Fixed links (duplex) 1 375-1 400 MHz Fixed links (duplex) Audio applications, specifically wireless microphones	Paired with 1492-1517 MHz; ITU-R F.1242 refers. Paired with 1427-1452 MHz; ITU-R F.1242 refers. Resolution 528 (Rev. WRC-19) Resolution 739 (Rev. WRC-19). ITU-R BT.2338-1 (2014) ITU-R Resolution 59 (Rev.WRC-19)

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
		DECT Based Audio (Wireless Applications)	ECC Report 245
RADIOLOCATION	RADIOLOCATION	Radio Astronomy applicable to band 1350 to 1370 MHz.	See Section 5 for coordination with radio astronomy
	Radio Astronomy	Radio Astronomy (Doppler shifted radiation from hydrogen	
5.149 5.338 5.338A 5.339	5.149 5.338A 5.339		
1 400-1 427 MHz	**1 400-1 427 MHz**		
EARTH EXPLORATION-SATELLITE (passive)	EARTH EXPLORATION-SATELLITE (passive)		
RADIO ASTRONOMY	RADIO ASTRONOMY	Radio Astronomy (Doppler shifted radiation from hydrogen	All emissions are prohibited in this band
SPACE RESEARCH (passive)	SPACE RESEARCH (passive)	Passive sensing	
5.340 5.341	5.340 5.341		
1 427-1 429 MHz	**1 427-1 429 MHz**		RFSAP (GG 48353 Notice 3244, 31 March 2023). This followed the publication of the Reasons Document GG 48353 (Notice 3243) of 31st March 2023. The Authority intends to review the RFSAP.
SPACE OPERATION (Earth-to-space)	SPACE OPERATION (Earth-to-space)		Res. 750 (Rev.WRC-19) (passive)
FIXED	FIXED NF14		
MOBILE except aeronautical mobile 5.341A 5.341B 5.341C	MOBILE except aeronautical mobile 5.341A NF9	IMT TDD/SDL (1 427-1 517 MHz)	ITU Res. 223 (Rev.WRC-23) Recommendation ITU-R M.1036-8
		MFCN SDL	

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
5.338A 5.341	5.338A 5.341		Final Frequency Migration Plan 2019 (GG No.42337 Notice 36 of 2019)
1 429-1 452 MHz FIXED MOBILE except aeronautical mobile 5.341A 5.338A 5.341 5.342	**1 429-1 452 MHz** FIXED MOBILE except aeronautical mobile 5.341A NF9 5.338A 5.341	IMT (1427-1517)	RFSAP (GG 48353 Notice 3244, 31 March 2023). This followed the publication of the Reasons Document GG 48353 (Notice 3243) of 31st March 2023.The Authority intends to amend the RFSAP considering private networks for power grid operations etc. Resolution 223 (Rev. WRC-23) Recommendation ITU-R M.1036-8 Res. 750 (Rev. WRC-19) (passive)
1 452-1 492 MHz FIXED MOBILE except aeronautical mobile 5.346	**1 452-1 492 MHz** FIXED NF14 MOBILE except aeronautical mobile 5.346 NF9	IMT1500 (1 427-1 517 MHz)	RFSAP (GG 48353 Notice 3244, 31 March 2023). This followed the publication of the Reasons Document GG 48353 (Notice 3243) of 31st March 2023. The Authority intends to amend the RFSAP and consider the guard band and mitigation factors for interference. Res. 223 (Rev. WRC-23) Resolution 761 (Rev. WRC-19) Res. 750 (Rev. WRC-19). (passive)

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
BROADCASTING BROADCASTING-SATELLITE 5.208B 5.341 5.342 5.345	5.341 5.345		Recommendation ITU-R M.1036-8 Final Frequency Migration Plan 2019 (GG No.42337 Notice 36 of 2019) Draft Frequency Migration Plan (GG 50389, Notice 4559 of 24 March 2024)
1 492-1 518 MHz FIXED MOBILE except aeronautical mobile 5.341A 5.341 5.342	**1 492-1 518 MHz** FIXED MOBILE except aeronautical mobile 5.341A NF9 5.341	IMT1500 (1 427-1 517 MHz)	ITU-R Res. 223 (Rev.WRC-23) Radio Frequency Spectrum Assignment Plan (GG 48353 Notice 3244 of 31st March 2023) Recommendation ITU-R M.1036-8
1 518-1 525 MHz FIXED MOBILE except aeronautical mobile MOBILE-SATELLITE (space-to-Earth) 5.348 5.348A 5.348B 5.351A	**1 518-1 525 MHz** FIXED MOBILE except aeronautical mobile MOBILE-SATELLITE (space-to-Earth) 5.348 5.348A 5.351A	Fixed links IMT Satellite component	Radio Frequency Spectrum Assignment Plan GG No. 49079 Notice 3768 of 4 August 2023. ECC Report 263. The Authority intends to review the RFSAP. The band 1518-1559 MHz is identified for the satellite component of IMT; Res.225 (Rev.WRC-23) applies.

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
5.341 5.342	5.341		Final Frequency Migration Plan 2019 (GG No.42337 Notice 36 of 2019) Draft Frequency Migration Plan (GG 50389, Notice 4559 of 24 March 2024). The Authority intends to review the RFSAP
1 525-1 530 MHz SPACE OPERATION (space-to-Earth) FIXED MOBILE-SATELLITE (space-to-Earth) 5.208B 5.351A Earth exploration-satellite Mobile except aeronautical mobile 5.349 5.341 5.342 5.350 5.351 5.352A 5.354	**1 525-1 530 MHz** SPACE OPERATION (space-to-Earth) FIXED MOBILE-SATELLITE (space-to-Earth) 5.208B 5.351A Earth exploration-satellite Mobile except aeronautical mobile 5.341 5.351 5.354	GMDSS Maritime satellite (1 525-1 544 MHz) Mobile satellite (1544-1545 MHz) Aeronautical Mobile satellite (1545-1555 MHz) Land Mobile satellite (1555-1559 MHz)	ITU Res. 212 (Rev.WRC-19) and 225 (Rev. WRC-07) Paired with 1 626.5-1 660.5 MHz The band 1518-1559 MHz is identified for the satellite component of IMT; Res.225 (Rev.WRC-23) applies.
1 530-1 535 MHz SPACE OPERATION (space-to-Earth)	**1 530-1 535 MHz** SPACE OPERATION (space-to-Earth)	GMDSS Maritime satellite (1 525-1 544 MHz)	Paired with 1 626.5-1 660.5 MHz

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
MOBILE-SATELLITE (space-to-Earth) 5.208B 5.351A 5.353A Earth exploration-satellite Fixed Mobile except aeronautical mobile 5.341 5.342 5.351 5.354	MOBILE-SATELLITE (space-to-Earth) 5.208B 5.351A 5.353A Earth exploration-satellite Fixed Mobile except aeronautical mobile 5.341 5.351 5.354	Mobile satellite (1544-1545 MHz) Aeronautical Mobile satellite (1545-1555 MHz) Land Mobile satellite (1555-1559 MHz)	The band 1518-1559 MHz is identified for the satellite component of IMT; Res.225 (Rev.WRC-23) applies. In the band 1530-1544 MHz priority for maritime mobile distress, urgency and safety communications (GMDSS); Res.222 (Rev.WRC-23) applies.
1 535-1 559 MHz	**1 535-1 544 MHz** MOBILE-SATELLITE (space-to-Earth) 5.208B 5.351A 5.341 5.351 5.353A 5.354 5.356 5.357 5.357A	GMDSS Maritime satellite (1 525-1 544 MHz)	Paired with 1 626.5-1 660.5 MHz The band 1518-1559 MHz is identified for the satellite component of IMT; Res.225 (Rev.WRC-23) applies. In the band 1530-1544 MHz priority for maritime mobile distress, urgency and safety communications (GMDSS); Res.222 (Rev.WRC-23) applies.
	1 544-1 545 MHz MOBILE-SATELLITE (space-to-Earth) 5.208B 5.351A	Mobile satellite (1544-1545 MHz) (Distress and safety)	The band 1518-1559 MHz is identified for the satellite component of IMT; Res.225 (Rev.WRC-23) applies.

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
	5.341 5.351 5.353A 5.354 5.356 5.357 5.357A		
	1 545-1 555 MHz AERONAUTICAL MOBILE (R) MOBILE-SATELLITE (space-to-Earth) 5.208B 5.351A 5.341 5.351 5.353A 5.354 5.356 5.357 5.357A	Aeronautical Mobile satellite (1545-1555 MHz) (Air to air) (Ground to air)	The band 1518-1559 MHz is identified for the satellite component of IMT; Res.225 applies.
5.341 5.351 5.353A 5.354 5.355 5.356 5.357 5.357A 5.359 5.362A	**1 555-1 559 MHz** MOBILE-SATELLITE (space-to-Earth) 5.208B 5.351A 5.341 5.351 5.353A 5.354 5.356 5.357 5.357A	Land Mobile satellite (1555-1559 MHz)	The band 1518-1559 MHz is identified for the satellite component of IMT; Res.225 (Rev.WRC-23) applies.
1 559-1 610 MHz AERONAUTICAL RADIONAVIGATION	**1 559-1 610 MHz** AERONAUTICAL RADIONAVIGATION		

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
RADIONAVIGATION-SATELLITE (space-to-Earth) (space-to-space) 5.208B 5.328B 5.329A 5.341	RADIONAVIGATION-SATELLITE (space-to-Earth) (space-to-space) 5.208B 5.328B 5.329A 5.341	Global Positioning System (1 563.42-1 587.42 MHz) GALILEO (1559.42-1591.42 MHz) GLONAS (1592.9-1610.5 MHz)	
1 610-1 610.6 MHz	**1 610-1 610.6 MHz**		
MOBILE-SATELLITE (Earth-to-space) 5.351A	MOBILE-SATELLITE (Earth-to-space) 5.351A	MSS (1 610-1 626.5 MHz) GLONASS (1 592.9-1610.5 MHz)	Paired with 2 483.5-2 500 MHz for some systems The band 1610-1645.5 MHz is identified for the satellite component of IMT; Res.225 (Rev.WRC-23) applies. This band is designated world-wide for the MSS. Paired with 2483.5-2484.1 MHz for some systems.
AERONAUTICAL RADIONAVIGATION 5.341 5.355 5.359 5.364 5.366 5.367 5.368 5.369 5.371 5.372	AERONAUTICAL RADIONAVIGATION Radiodetermination-satellite 5.341 5.364 5.366 5.367 5.368 5.371 5.372	Airborne electronic aids to air navigation and any directly associated ground-based or satellite-borne facilities	
1 610.6-1 613.8 MHz	**1 610.6-1 613.8 MHz**		
MOBILE-SATELLITE (Earth-to-space) 5.351A	MOBILE-SATELLITE (Earth-to-space) 5.351A	MSS (1 610-1 626.5 MHz)	Paired with 2 483.5-2 500 MHz for some systems

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
			The band 1610-1645.5 MHz is identified for the satellite component of IMT; Res.225 (Rev.WRC-23) applies. This band is designated world-wide for the MSS. Paired with 2484.1-2487.3 MHz for some systems.
RADIO ASTRONOMY	RADIO ASTRONOMY	Radio Astronomy (Observation of OH radical and molecules) Airborne electronic aids to air navigation and any directly associated ground-based or satellite-borne facilities	See Section 5 for coordination with radio astronomy
AERONAUTICAL RADIONAVIGATION	AERONAUTICAL RADIONAVIGATION Radiodetermination-satellite		
5.149 5.341 5.355 5.359 5.364 5.366 5.367 5.368 5.369 5.371 5.372	5.149 5.341 5.364 5.366 5.367 5.368 5.371 5.372		
1 613.8-1 621.35 MHz	**1 613.8-1 621.35 MHz**		
MOBILE-SATELLITE (Earth-to-space) 5.351A	MOBILE-SATELLITE (Earth-to-space) 5.351A	MSS (1 610-1 626.5 MHz)	Paired with 2 483.5-2 500 MHz for some systems The band 1610-1645.5 MHz is identified for the satellite component of IMT; Res.225 (Rev.WRC-23) applies.
AERONAUTICAL RADIONAVIGATION	AERONAUTICAL RADIONAVIGATION	Airborne electronic aids to air navigation and any directly associated ground-based or satellite-borne facilities	Paired with 1593-1594 MHz for aeronautical public correspondence

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
Mobile-satellite (space-to-Earth) 5.208B 5.341 5.355 5.359 5.364 5.365 5.366 5.367 5.368 5.369 5.371 5.372 5.372A	Mobile-satellite (space-to-Earth) 5.208B Radiodetermination-satellite 5.341 5.364 5.365 5.366 5.367 5.368 5.371 5.372 5.372A		
1 621.35-1 626.5 MHz	**1 621.35-1 626.5 MHz**		
MOBILE-SATELLITE (Earth-to-space) 5.351A	MOBILE-SATELLITE (Earth-to-space) 5.351A	MSS (1 610-1 626.5 MHz)	Paired with 2 483.5-2 500 MHz for some systems The band 1610-1645.5 MHz is identified for the satellite component of IMT; Res.225 (Rev.WRC-23) applies.
AERONAUTICAL RADIONAVIGATION	AERONAUTICAL RADIONAVIGATION	Airborne electronic aids to air navigation and any directly associated ground-based or satellite-borne facilities	Recommendation ITU-R RA769-2 and ITU-R RA.1513-2 and Recommendation ITU-R M.1583-1 and Recommendation ITU-R RA.1631-0 all apply to this band.
MARITIME MOBILE-SATELLITE (space-to-Earth) 5.373 5.373A	MARITIME MOBILE-SATELLITE (space-to-Earth) 5.373 5.373A		
Mobile-satellite (space-to-Earth) except maritime mobile-satellite (space-to-Earth) 5.208B 5.341 5.355 5.359 5.364 5.365 5.366 5.367 5.368 5.369 5.371 5.372	Mobile-satellite (space-to-Earth) except maritime mobile-satellite (space-to-Earth) 5.365 Radiodetermination-satellite 5.371 5.208B 5.341 5.364 5.366 5.368 5.372		

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
1 626.5-1 660 MHz	**1 626.5-1 645.5 MHz**		
MOBILE-SATELLITE (Earth-to-space) 5.351A	MOBILE-SATELLITE (Earth-to-space) 5.351A	GMDSS Maritime satellite (1 525-1 544 MHz)	In the band 1626.5-1645.5 MHz priority is given to maritime mobile distress, urgency and safety communications (GMDSS); Res.222 (Rev.WRC-23) applies.
		Mobile satellite (1544-1545 MHz)	1 544-1 545 MHz by the MSS (space-to-Earth) is limited to distress and safety communications (see Article 31) Res.222 (Rev.WRC-23)
		Aeronautical Mobile satellite (1545-1555 MHz) 1 525-1 559 MHz	Paired with 1 646.5-1 656.5 MHz (Earth-to-space) Res.222 (Rev.WRC-23)
		Land Mobile satellite (1555-1559 MHz)	The bands 1610-1645.5 MHz and 1646.5-1660.5 MHz are identified for the satellite component of IMT; Res.225 (Rev.WRC-23) applies.
	5.341 5.351 5.353A 5.354 5.357A 5.374 5.375 5.376		
	1 645.5-1 646.5 MHz		
	MOBILE-SATELLITE (Earth-to-space) 5.351A	GMDSS Maritime satellite (1 525-1 544 MHz) Mobile satellite (1544-1545 MHz) Aeronautical Mobile satellite (1545-1555 MHz) Land Mobile satellite (1555-1559 MHz) Distress and safety	Paired with 1 626.5-1 660.5 MHz The bands 1610-1645.5 MHz and 1646.5-1660.5 MHz are identified for the satellite component of IMT; Res.225 (Rev.WRC-23) applies. In the band 1626.5-1645.5 MHz priority is given to maritime mobile distress, urgency and safety communications (GMDSS); Res.222 (Rev.WRC-23) applies.

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
	5.341 5.351 5.353A 5.354 5.357A 5.374 5.375 5.376		
	1 646.5-1 656.5 MHz AERONAUTICAL MOBILE (R) MOBILE-SATELLITE (Earth-to-space) 5.351A 5.341 5.351 5.353A 5.354 5.357A 5.374 5.375 5.376	GMDSS Maritime satellite (1 525-1 544 MHz) Mobile satellite (1544-1545 MHz) Aeronautical Mobile satellite (1545-1555 MHz) Land Mobile satellite (1555-1559 MHz) Air to air Air to ground	Paired with 1 626.5-1 660.5 MHz The bands 1610-1645.5 MHz and 1646.5-1660.5 MHz are identified for the satellite component of IMT; Res.225 (Rev.WRC-23) applies. In the band 1626.5-1645.5 MHz priority is given to maritime mobile distress, urgency and safety communications (GMDSS); Res.222 (Rev.WRC-23) applies.
5.341 5.351 5.353A 5.354 5.355 5.357A 5.359 5.362A 5.374 5.375 5.376	**1 656.5-1 660 MHz** MOBILE-SATELLITE (Earth-to-space) 5.351A 5.341 5.351 5.353A 5.354 5.357A 5.374 5.375 5.376	GMDSS Maritime satellite (1 525-1 544 MHz) Mobile satellite (1544-1545 MHz) Aeronautical Mobile satellite (1545-1555 MHz) Land Mobile satellite (1555-1559 MHz)	Paired with 1 626.5-1 660.5 MHz The bands 1610-1645.5 MHz and 1646.5-1660.5 MHz are identified for the satellite component of IMT; Res.225 (Rev.WRC-23) applies. In the band 1626.5-1645.5 MHz priority is given to maritime mobile distress, urgency and safety communications (GMDSS); Res.222 (Rev.WRC-23) applies.

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
1 660-1 660.5 MHz	**1 660-1 660.5 MHz**		
MOBILE-SATELLITE (Earth-to-space) 5.351A	MOBILE-SATELLITE (Earth-to-space) 5.351A	GMDSS Maritime satellite (1 525-1 544 MHz) Mobile satellite (1544-1545 MHz) Aeronautical Mobile satellite (1545-1555 MHz) Land Mobile satellite (1555-1559 MHz)	Paired with 1 626.5-1 660.5 MHz The band 1610-1645.5 MHz and 1646.5-1660.5 MHz are identified for the satellite component of IMT; Res.225 (Rev.WRC-23) applies.
RADIO ASTRONOMY	RADIO ASTRONOMY	Radio Astronomy (Observation of OH radical and molecules)	See Section 5 for coordination with radio astronomy
5.149 5.341 5.351 5.354 5.362A 5.376A	5.149 5.341 5.351 5.354 5.376A		
1 660.5-1 668 MHz	**1 660.5-1 668 MHz**		
RADIO ASTRONOMY	RADIO ASTRONOMY	Radio Astronomy (Observation of OH radical and molecules)	See Section 5 for coordination with radio astronomy
SPACE RESEARCH (passive)	SPACE RESEARCH (passive)		
Fixed	Fixed	Fixed Applications	
Mobile except aeronautical mobile	Mobile except aeronautical mobile		
5.149 5.341 5.379 5.379A	5.149 5.341 5.379A		
1 668-1 668.4 MHz	**1 668-1 668.4 MHz**		

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
MOBILE-SATELLITE (Earth-to-space) 5.351A 5.379B 5.379C	MOBILE-SATELLITE (Earth-to-space) 5.351A 5.379B 5.379C	IMT satellite component (1 668-1 675 MHz)	The band 1668-1675 MHz is identified for the satellite component of IMT; Res.225 (Rev.WRC-23) applies.
RADIO ASTRONOMY	RADIO ASTRONOMY	Radio Astronomy (Observation of OH radical and molecules)	See Section 5 for coordination with radio astronomy
SPACE RESEARCH (passive)	SPACE RESEARCH (passive)		
Fixed	Fixed		
Mobile except aeronautical mobile	Mobile except aeronautical mobile		
5.149 5.341 5.379 5.379A	5.149 5.341 5.379A		
1 668.4-1 670 MHz	**1 668.4-1 670 MHz**		
METEOROLOGICAL AIDS	METEOROLOGICAL AIDS	Radiosonde (1 668-1 700 MHz)	
FIXED	FIXED		
MOBILE except aeronautical mobile	MOBILE except aeronautical mobile		
MOBILE-SATELLITE (Earth-to-space) 5.351A 5.379B 5.379C	MOBILE-SATELLITE (Earth-to-space) 5.351A 5.379B 5.379C	IMT satellite component (1 668-1 675 MHz)	The band 1668-1675 MHz is identified for the satellite component of IMT; Res.225 (Rev.WRC-23) applies.
RADIO ASTRONOMY	RADIO ASTRONOMY	Radio Astronomy (Observation of OH radical and molecules)	See Section 5 for coordination with radio astronomy Final Frequency Migration Plan 2019 (GG No.42337 Notice 36 of 2019) Draft Frequency Migration Plan (GG 50389, Notice 4559 of 24 March 2024)

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
5.149 5.341 5.379D 5.379E	5.149 5.341 5.379D 5.379E		
1 670-1 675 MHz	**1 670-1 675 MHz**		
METEOROLOGICAL AIDS FIXED METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE	METEOROLOGICAL AIDS FIXED METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE	Radiosonde (1 668-1 700 MHz)	Final Frequency Migration Plan 2019 (GG No.42337 Notice 36 of 2019) Draft Frequency Migration Plan (GG 50389, Notice 4559 of 24 March 2024)
MOBILE-SATELLITE (Earth-to-space) 5.351A 5.379B 5.341 5.379D 5.379E 5.380A	MOBILE-SATELLITE (Earth-to-space) 5.351A 5.379B 5.341 5.379D 5.379E 5.380A	IMT satellite component (1 668-1 675 MHz)	The band 1668-1675 MHz is identified for the satellite component of IMT; Res.225 (Rev.WRC-23) applies.
1 675-1 690 MHz	**1 675-1 690 MHz**		
METEOROLOGICAL AIDS FIXED METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile 5.341	METEOROLOGICAL AIDS FIXED METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile 5.341	Radiosonde (1 668-1 700 MHz) Fixed Applications	
1 690-1 700 MHz	**1 690-1 700 MHz**		
METEOROLOGICAL AIDS	METEOROLOGICAL AIDS	Radiosonde (1 668-1 700 MHz)	Channels 1695.6938 MHz; 1695.7250 MHz; 1695.7562 MHz; 1695.7874 MHz; 1691 MHz and 1694.5 MHz

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
METEOROLOGICAL-SATELLITE (space-to-Earth) Fixed Mobile except aeronautical mobile 5.289 5.341 5.382	METEOROLOGICAL-SATELLITE (space-to-Earth) Fixed Mobile except aeronautical mobile Earth exploration-satellite (space-to-Earth) 5.289 5.341		
1 700-1 710 MHz FIXED METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile 5.289 5.341	**1 700-1 710 MHz** FIXED METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile Earth exploration-satellite (space-to-Earth) 5.289 5.341	 Fixed links (single frequency)	
1 710-1 930 MHz FIXED	**1 710-1 930 MHz** FIXED	 FWA TDD (1 880-1 900 MHz) FWA TDD (1 900-1 920 MHz) Fixed Broadband data applications (1 785-1 805 MHz)	Second Draft IMT Roadmap (GG 53883 Notice 3712 of 2025). The Authority intends to conduct the feasibility study and develop the RFSAP.

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
MOBILE 5.384A 5.388 5.388A	MOBILE 5.384A 5.388 5.388A NF9	IMT1800 MTX (1710-1785 MHz) IMT2100 MTX (1920-1980 MHz) IMT1900 TDD (1900-1920 MHz)	Paired with IMT 1800 BTX (1805-1880 MHz) Paired with IMT2100 BTX (2110-2170 MHz) Radio Frequency Spectrum Regulations as amended (Annex B) (GG. No. 38641, Notice 279, 30 March 2015), amended by GG 45690, 24 Dec 2021 and then in GG 48643, 18 May 2023) Res. 212 (Rev. WRC-23) Res. 223 (Rev. WRC-23) Recommendation ITU-R M.1036-8
		DECT Cordless telephones (1 880-1 900 MHz) DECT Cordless Telecommunications Systems DECT-based audio applications	ITU-R Report BT.2338 (2014); ITU-R Resolution 59 (Rev.WRC-19)
		RMR/FRMCS (1900-1910 MHz)	CEPT Report 90, ECC/DEC/(20)02 and ECC/REC/(23)01. RMR encompasses GSM-R and its successor(s), including FRMCS.
		HIBS (1 710-1 980, 2 010-2 025 and 2 110-2 170 MHz)	Resolution 221 (Rev.WRC-23) The Authority intends to develop the Regulatory Framework & Guidelines for HIBS vs. IMT and update existing and/or formulate new RFSAPs.
		PMSE e.g. WMAS (1785-1805 MHz)	CEPT Report 85

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
5.149 5.341 5.385 5.386 5.387	Radio astronomy 5.149 5.341 5.385	Radio astronomy (1718.8-1722.2 MHz) Radio astronomy (OH radical and molecules)	See Section 5 of this NRFP for coordination with radio astronomy
1 930-1 970 MHz FIXED MOBILE 5.388 5.388A	**1 930-1 970 MHz** FIXED MOBILE 5.388 5.388A NF9	IMT2100 MTX (1920-1980 MHz) HIBS (1 710-1 980, 2 010-2 025 MHz and 2 110-2 170 MHz)	Paired with BTX (2110-2170 MHz) Res. 212 (Rev. WRC-23) Res. 223 (Rev. WRC-23) Recommendation ITU-R M.1036-8 Second Draft IMT Roadmap (GG 53883 Notice 3712 of 2025) The Authority intends to develop the RFSAP. Res. 221 (Rev. WRC-23) The Authority intends to develop the Regulatory Framework & Guidelines for HIBS vs. IMT and update existing and/or formulate new RFSAPs.
1 970-1 980 MHz FIXED	**1 970-1 980 MHz** FIXED		FIXED (HAPS) (base stations for IMT)

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
MOBILE 5.388 5.388A	MOBILE 5.388 5.388A NF9	IMT2100 MTX (1 920-1 980 MHz)	Paired with BTX (2110-2170 MHz) Res. 212 (Rev. WRC-23) Res. 223 (Rev. WRC-23) Recommendation ITU-R M.1036-8 Second Draft IMT Roadmap (GG 53883 Notice 3712 of 2025) The Authority intends to develop the RFSAP.
		HIBS (1 710-1 980, 2 010-2 025 MHz and 2 110-2 170 MHz1)	Resolution 221 (Rev.WRC-23) The Authority intends to develop the Regulatory Framework & Guidelines for HIBS vs. IMT and update existing and/or formulate new RFSAPs.
1 980-2 010 MHz	**1 980-2 010 MHz**		
FIXED	FIXED	Fixed links (1 980-2 010 MHz)	Paired with 2 170-2 200 MHz
MOBILE 5.388	MOBILE 5.388	CGC/ATC fixed systems (1 980-2010 MHz) (IMT)	Res. 212 (Rev. WRC-23) Res. 223 (Rev. WRC-23)
MOBILE-SATELLITE (Earth-to-space) 5.351A	MOBILE-SATELLITE (Earth-to-space) 5.351A	IMT (satellite) (1980-2010 MHz)	The development of satellites for IMT services to be monitored. Res. 716 (Rev.WRC-23) Res. 225 (Rev.WRC-23) Final Frequency Migration Plan 2019 (GG No.42337 Notice 36 of 2019)

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
5.389A 5.389B 5.389F	5.389A NF13		Draft Frequency Migration Plan (GG 50389, Notice 4559 of 24 March 2024) Recommendation ITU-R M.1036-8 The Authority intends to conduct a feasibility study and develop the RFSAP.
2 010-2 025 MHz FIXED MOBILE 5.388A 5.388	**2 010-2 025 MHz** FIXED MOBILE 5.388A NF9 5.388	IMT (2 010-2 025 MHz) HIBS (1 710-1 980, 2 010-2 025 MHz and 2 110-2 170 MHz)	IMT TDD applications Rec. ITU-R M.1036-8 Res. 221 (Rev. WRC-23) Res. 212 (Rev. WRC-23) Res. 223 (Rev. WRC-23) Second Draft IMT Roadmap (GG 53883 Notice 3712 of 2025) The Authority intends to develop the RFSAP. Res. 221 (Rev. WRC-23) The Authority intends to develop the Regulatory Framework & Guidelines for HIBS vs. IMT and update existing and/or formulate new RFSAPs.
2 025-2 110 MHz	**2 025-2 110 MHz**		

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
SPACE OPERATION (Earth-to-space) (space-to-space)	SPACE OPERATION (Earth-to-space) (space-to-space)		
EARTH EXPLORATION-SATELLITE (Earth-to-space) (space-to-space)	EARTH EXPLORATION-SATELLITE (Earth-to-space) (space-to-space)	Earth exploration satellite applications	
FIXED	FIXED NF14	Fixed Links (2025-2110 MHz)	Paired with 2 200-2 285 MHz RFSAP (GG 42230. Notice 75 of 2019) Final Frequency Migration Plan 2019 (GG No.42337 Notice 36 of 2019) Draft Frequency Migration Plan (GG 50389, Notice 4559 of 24 March 2024)
MOBILE 5.391	MOBILE 5.391		
SPACE RESEARCH (Earth-to-space) (space-to-space)	SPACE RESEARCH (Earth-to-space) (space-to-space)		
5.392	5.392		
2 110-2 120 MHz	**2 110-2 120 MHz**		
FIXED	FIXED		FIXED (HAPS) (base stations for IMT)
MOBILE 5.388 5.388A	MOBILE 5.388 5.388A NF9	IMT2100 BTX (2110-2170 MHz)	Paired with MTX (1920-1980 MHz) Recommendation ITU-R M.1036-8 Res. 212 (Rev. WRC-23) Res. 223 (Rev. WRC-23) Second Draft IMT Roadmap (GG 53883 Notice 3712 of 2025)
		HIBS (1 710-1 980, 2 010-2 025 MHz and 2 110-2 170 MHz)	The Authority intends to develop the RFSAP.

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
SPACE RESEARCH (deep space) (Earth-to-space)	SPACE RESEARCH (deep space) (Earth-to-space)		Res. 221 (Rev.WRC-23) The Authority intends to develop the Regulatory Framework & Guidelines for HIBS vs. IMT and update existing and/or formulate new RFSAPs.
2 120-2 160 MHz	**2 120-2 160 MHz**		
FIXED	FIXED		FIXED (HAPS) (base stations for IMT)
MOBILE 5.388 5.388A	MOBILE 5.388 5.388A NF9	IMT-2100 BTX (2 110-2 170 MHz)	Paired with MTX (1920-1980 MHz) Recommendation ITU-R M.1036-8 Res. 212 (Rev. WRC-23) Res. 223 (Rev. WRC-23) Second Draft IMT Roadmap (GG 53883 Notice 3712 of 2025) The Authority intends to develop the RFSAP.
		HIBS (1 710-1 980, 2 010-2 025 MHz and 2 110-2 170 MHz)	Res. 221 (Rev.WRC-23) The Authority intends to develop the Regulatory Framework & Guidelines for HIBS vs. IMT and update existing and/or formulate new RFSAPs.
2 160-2 170 MHz	**2 160-2 170 MHz**		
FIXED	FIXED		FIXED (HAPS) (base stations for IMT)

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
MOBILE 5.388 5.388A	MOBILE 5.388 5.388A NF9	IMT2100 BTX (2 110-2 170 MHz)	Paired with MTX (1920-1980 MHz) Recommendation ITU-R M.1036-8 Res. 212 (Rev. WRC-23) Res. 223 (Rev. WRC-23) Second Draft IMT Roadmap (GG 53883 Notice 3712 of 2025) The Authority intends to develop the RFSAP.
		HIBS (1 710-1 980, 2 010-2 025 MHz and 2 110-2 170 MHz)	Res. 221 (Rev.WRC-23) The Authority intends to develop the Regulatory Framework & Guidelines for HIBS vs. IMT and update existing and/or formulate new RFSAPs.
2 170-2 200 MHz	**2 170-2 200 MHz**		Final Frequency Migration Plan 2019 (GG No.42337 Notice 36 of 2019) Draft Frequency Migration Plan (GG 50389, Notice 4559 of 24 March 2024)
FIXED	FIXED	CGC/ATC fixed systems (1980-2010 MHz) (IMT)	
MOBILE 5.388	MOBILE 5.388		Res. 212 (Rev. WRC-23) Res. 223 (Rev. WRC-23)
MOBILE-SATELLITE (space-to-Earth) 5.351A	MOBILE-SATELLITE (space-to-Earth) 5.351A	IMT (satellite) (2170-2200 MHz)	Paired with 1980-2010 MHz IMT (satellite) Res. 716 (Rev.WRC-23) Res. 225 (Rev.WRC-23)
5.389A 5.389F	5.389A 5.389F NF13		

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
2 200-2 290 MHz	**2 200-2 290 MHz**		
EARTH EXPLORATION-SATELLITE (space-to-Earth) (space-to-space)	EARTH EXPLORATION-SATELLITE (space-to-Earth) (space-to-space)	Earth exploration satellite applications	
FIXED	FIXED NF14	Fixed Links (2 200-2 285 MHz) BFWA (2 285-2 300 MHz)	Paired with 2 025-2 110 MHz Radio Frequency Spectrum Assignment Plan (GG 42230 Notice 75 of 2019). Final Frequency Migration Plan 2019 (GG No.42337 Notice 36 of 2019) Draft Frequency Migration Plan (GG 50389, Notice 4559 of 24 March 2024)
MOBILE 5.391	MOBILE 5.391		
SPACE OPERATION (space-to-Earth) (space-to-space)	SPACE OPERATION (space-to-Earth) (space-to-space)	TT&C received from space	
SPACE RESEARCH (space-to-Earth) (space-to-space)	SPACE RESEARCH (space-to-Earth) (space-to-space)		
5.392	5.392		
2 290-2 300 MHz	**2 290-2 300 MHz**		
FIXED	FIXED	Fixed Links, BFWA (2 285-2 300 MHz)	Radio Frequency Spectrum Assignment Plan GG 41512 Notice 145 of 2018
MOBILE except aeronautical mobile	MOBILE except aeronautical mobile	(Coordination is expected prior to the implementation of Fixed links and BFWA services)	

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
SPACE RESEARCH (deep space) (space-to-Earth)	SPACE RESEARCH (deep space) (space-to-Earth)		
2 300-2 450 MHz	**2 300-2 450 MHz**		RFSAP (GG 50657, Notice No.4824 of 2024)
FIXED	FIXED	Aeronautical Mobile Flight Testing	FAR147 Overberg (CP) (ENR 5.1)
MOBILE 5.384A	MOBILE 5.384A NF9	IMT2300 TDD (2 300-2 400 MHz)	Res. 223 (Rev. WRC-23)
		WLAN, FDDA and model ctrl. (2 400-2 483.5 MHz)	Radio Frequency Spectrum Regulations as amended (Annex B) (GG. No. 38641, Notice 279, 30 March 2015), as amended GG No. 48643 (Notice 1822) of 23 May 2023 Recommendation ITU-R M.1036-8 Final Frequency Migration Plan 2019 (GG No.42337 Notice 36 of 2019) Draft Frequency Migration Plan (GG 50389, Notice 4559 of 24 March 2024)
		Non-Specific SRD and low power video surveillance (2 400-2 483.5 MHz) RFID (2 400-2 483.5 MHz) ISM applications (2 400-2 500 MHz)	Common international SRD band; see ITU-R Rec.SM.1896-1 (09/2018) (above 2 400 MHz)

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
Amateur Radiolocation 5.150 5.282 5.395	Amateur Radiolocation Amateur-satellite 5.150 5.282	Amateur-satellite (2400-2450 MHz)	
2 450-2 483.5 MHz FIXED MOBILE Radiolocation 5.150	**2 450-2 483.5 MHz** FIXED MOBILE Radiolocation 5.150	 WLAN, FDDA and model ctrl. (2 400-2 483.5 MHz) RFID (2 400-2 483.5 MHz) Non-Specific SRD and low power video surveillance (2 400-2483.5 MHz) ISM applications (2 400-2 500 MHz)	Radio Frequency Spectrum Regulations as amended (Annex B) (GG. No. 38641, Notice 279, 30 March 2015). Common international SRD band; see ITU-R Rec.SM.1896-1 (09/2018)
2 483.5-2 500 MHz FIXED MOBILE	**2 483.5-2 500 MHz** FIXED MOBILE	 ISM applications (2 483.5-2 500 MHz) SRD	 RFSR (2483.5-2500 MHz) as amended (Annex B) (GG. No. 38641, 30 March 2015) Common international SRD band; see ITU-R Rec.SM.1896-1 (09/2018)

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
		Aeronautical Mobile Video surveillance	Unmanned aerial vehicles only
MOBILE-SATELLITE (space-to-Earth) 5.351A	MOBILE-SATELLITE (space-to-Earth) 5.351A	MSS (2483.5-2500 MHz)	The band 2 483.5-2 500 MHz is identified for satellite component of IMT; Res.225 (Rev.WRC-23) Exclusion zones for Earth stations near Karoo Central Astronomy Advantage Area or Hartebeesthoek Some MSS systems are paired with 1610-1626.5 MHz Res. 365 (WRC-23) (MMSS) Res. 212 (Rev.WRC-23) (MSS) Res. 225 (Rev.WRC-23) (MSS) The Authority shall take all practicable steps to protect the RAS in the frequency band
RADIODETERMINATION-SATELLITE (space-to-Earth) 5.398	RADIODETERMINATION-SATELLITE (space-to-Earth) 5.398		
Radiolocation 5.398A	Radiolocation		
5.150 5.368 5.372A 5.399 5.401 5.402	5.150 5.368 5.401 5.402		
2 500-2 520 MHz	**2 500-2 520 MHz**		Radio Frequency Spectrum Assignment Plan on 22 May 2020 (GG 43341, Notice 285 of 2020).
FIXED 5.410			
MOBILE except aeronautical mobile 5.384A 5.409A	MOBILE except aeronautical mobile 5.384A 5.409A NF9	IMT2600 TDD (2 500-2 690 MHz)	Recommendation ITU-R M.1036-8 Res. 223 (Rev. WRC-23)

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
5.412		HIBS (2 500-2 690 MHz)	Res. 218 (WRC-23) The Authority intends to develop the Regulatory Framework & Guidelines for HIBS vs. IMT and update existing and/or formulate new RFSAPs.
2 520-2 655 MHz FIXED 5.410	**2 520-2 655 MHz**		RFSAP on 22 May 2020 (GG 43341, Notice 285 of 2020).
MOBILE except aeronautical mobile 5.384A 5.409A	MOBILE except aeronautical mobile 5.384A 5.409A NF9	IMT2600 TDD (2 500-2 690 MHz) HIBS (2 500-2 690 MHz)	Recommendation ITU-R M.1036 -7 Res. 223 (Rev. WRC-23) Res. 218 (WRC-23) The Authority intends to develop the Regulatory Framework & Guidelines for HIBS vs. IMT and update existing and/or formulate new RFSAPs.
BROADCASTING-SATELLITE 5.413 5.416 5.339 5.412 5.418B 5.418C	Earth exploration-satellite (passive) Space research (passive) 5.339 5.418B 5.418C	Earth exploration-satellite (passive) (2 640-2 655 MHz) Space research (passive) (2 640-2 655 MHz)	
2 655-2 670 MHz FIXED 5.410	**2 655-2 670 MHz**		
MOBILE except aeronautical mobile 5.384A 5.409A	MOBILE except aeronautical mobile 5.384A 5.409A NF9	IMT2600 (2 500-2 690 MHz)	Res. 223 (Rev. WRC-23)

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
			Radio Frequency Spectrum Assignment Plan (GG 43341, Notice 285 of 2020).
			Recommendation ITU-R M.1036-8
		HIBS (2 500-2 690 MHz)	Res. 218 (WRC-23) The Authority intends to develop the Regulatory Framework & Guidelines for HIBS vs. IMT and update existing and/or formulate new RFSAPs.
BROADCASTING-SATELLITE 5.208B 5.413 5.416			
Earth exploration-satellite (passive)	Earth exploration-satellite (passive)		
Radio astronomy	Radio astronomy	Radio Astronomy (2 655-2 690 MHz) (Continuum measurement and galactic studies)	See Section 5 for coordination with radio astronomy
Space research (passive)	Space research (passive)		
5.149 5.412	5.149		
2 670-2 690 MHz	**2 670-2 690 MHz**		Radio Frequency Spectrum Assignment Plan on 22 May 2020 (GG 43341, Notice 285 of 2020)
FIXED 5.410			
MOBILE except aeronautical mobile 5.384A 5.409A	MOBILE except aeronautical mobile 5.384A 5.409A NF9	IMT2600 (2 500-2 690 MHz)	Res. 223 (Rev. WRC-23) Recommendation ITU-R M.1036-8
		HIBS (2 500-2 690 MHz)	Res. 218 (WRC-23) The Authority intends to develop the Regulatory Framework & Guidelines for HIBS vs. IMT and update existing and/or formulate new RFSAPs.

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
Earth exploration-satellite (passive)	Earth exploration-satellite (passive)		
Radio astronomy	Radio astronomy	Radio Astronomy (Continuum measurement and galactic studies)	See Section 5 for coordination with radio astronomy
Space research (passive)	Space research (passive)		
5.149 5.412	5.149		
2 690-2 700 MHz	**2 690-2 700 MHz**		
EARTH EXPLORATION-SATELLITE (passive)	EARTH EXPLORATION-SATELLITE (passive)	Passive sensing	
RADIO ASTRONOMY	RADIO ASTRONOMY	Radio Astronomy (Continuum measurement and galactic studies)	
SPACE RESEARCH (passive)	SPACE RESEARCH (passive)		
5.340 5.422	5.340		
2 700-2 900 MHz	**2 700-2 900 MHz**		
AERONAUTICAL RADIONAVIGATION 5.337	AERONAUTICAL RADIONAVIGATION 5.337	Aeronautical radionavigation radars: • Primary surveillance radar • Meteorological radar	
	METEOROLOGICAL AIDS	Government Services	
		Ground-based radars and associated airborne transponders	
Radiolocation	Radiolocation		

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
5.423 5.424	5.423		
2 900-3 100 MHz RADIOLOCATION 5.424A RADIONAVIGATION 5.426 5.425 5.427	**2 900-3 100 MHz** RADIOLOCATION 5.424A AERONAUTICAL RADIONAVIGATION 5.337 5.425 5.427	Aeronautical radionavigation radars: • Primary surveillance radar • Meteorological radar	
3 100-3 300 MHz RADIOLOCATION Earth exploration-satellite (active) Space research (active) 5.149 5.428	**3 100-3 300 MHz** RADIOLOCATION Earth exploration-satellite (active) Space research (active) 5.149		
3 300-3 400 MHz RADIOLOCATION 5.149 5.429 5.429A 5.429B 5.430	**3 300-3 400 MHz** RADIOLOCATION MOBILE except aeronautical mobile NF9 5.149 5.429A 5.429B	Radio astronomy (CH Molecules) IMT (3 300-3 400 MHz)	See Section 5 for coordination with radio astronomy RFSAP (GG. 47788, Notice 2891 of 20 December 2022). RFSAP to be reviewed Res. 223 (Rev.WRC-23) Recommendation ITU-R M.1036-8

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
3 400-3 600 MHz	**3 400-3 600 MHz**		RFSAP (GG. 47763, Notice 2879 of 19 December 2022) RFSAP to be reviewed
FIXED FIXED-SATELLITE (space-to-Earth)	FIXED		
MOBILE except aeronautical mobile 5.430A Radiolocation 5.431	MOBILE except aeronautical mobile 5.430A NF9 Radiolocation	IMT3500 TDD (3 400-3 600 MHz)	Res. 223 (Rev.WRC-23) Recommendation ITU-R M.1036-8
3 600-3 800 MHz	**3 600-3 800 MHz**		
FIXED	FIXED NF14	Fixed links (4 GHz) (3600-3800 MHz) BFWA (3600-3800 MHz)	The channelling arrangement for PTP links in this band is based on ITU-R Recommendation F.635 latest version Annex 1. 3 600-3 800 MHz band is still used for medium and high capacity PTP links and FSS. In the band 3 600-3 800 MHz, FS PTP and FSS applications will have to operate on a coordinated basis.
FIXED-SATELLITE (space-to-Earth)	FIXED-SATELLITE (space-to-Earth)	C-band downlink (VSAT/SNG/PTP links 3600-3800 MHz)	Licensees/users of this band are encouraged to register all C-Band licenses/usage on the ICASA online database
MOBILE except aeronautical mobile 5.433B 5.434A 5.434B 5.435A	MOBILE except aeronautical mobile 5.433B 5.434A 5.434B NF9	IMT3700 (3 600-3 800 MHz)	The band 3 600-3 800 MHz shall be used for IMT noting ITU-R Recommendation M.1036-8

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
			Second Draft IMT Roadmap (GG 53883 Notice 3712 of 2025) The Authority intends to develop the RFSAP.
3 800-4 200 MHz	**3 800-4 200 MHz**		Spectrum sharing regulations in progress. e.g. The development of Draft Regulations on Dynamic Spectrum Access and Opportunistic Spectrum Management in the Innovation Spectrum is in progress (GG 52415 No 6066 of 28 March 2025)
FIXED	FIXED NF14	Fixed links (4 GHz) (3 800-4 200 MHz)	The channelling arrangement for PTP links in this band is based on ITU-R Recommendation F.635 Annex 1 latest version The frequency band 3 800-4 200 MHz is used for medium and high capacity PTP links and FSS. Licensees/users are encouraged to register all C-Band licenses/usage including Earth stations on the ICASA online database
FIXED-SATELLITE (space-to-Earth)	FIXED-SATELLITE (space-to-Earth)	Fixed-satellite (space-to-Earth) (PTP/VSAT/SNG) (3800-4200 MHz) C-band downlink (3 800-4 200 MHz)	
Mobile	Mobile		

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
4 200-4 400 MHz	**4 200-4 204 MHz**		
AERONAUTICAL MOBILE (R) 5.436 AERONAUTICAL RADIONAVIGATION 5.438	AERONAUTICAL MOBILE (R) 5.436 AERONAUTICAL RADIONAVIGATION 5.438 STANDARD FREQUENCY AND TIME SIGNAL-SATELLITE (4 202 MHz) (space-to-Earth) Earth exploration-satellite (passive) Space research (passive) 5.437 5.440	Wireless avionics intra-communication systems Radio altimeters on board aircraft and associated ground transponders) Radars	
	4 204-4 400 MHz		
5.437 5.439 5.440	AERONAUTICAL MOBILE (R) 5.436 AERONAUTICAL RADIONAVIGATION 5.438 Earth exploration-satellite (passive) Space research (passive) 5.437 5.440	Wireless avionics intra-communication systems Radio altimeters on board aircraft and associated ground transponders)	

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
4 400-4 500 MHz	**4 400-4 500 MHz**		
FIXED	FIXED NF14 NF15	Fixed links (4.8 GHz) (4400-5000 MHz) Government services Outside Broadcast links	
MOBILE 5.440A	MOBILE NF15	Electronic News Gathering	
4 500-4 800 MHz	**4 500-4 800 MHz**		
FIXED	FIXED NF14 NF15	Fixed links (4.8 GHz) (4400-5000 MHz) Government services (FS) Outside Broadcast links	The band 4 500-4 800 MHz is part of the APP30B Plan (FSS space-to-Earth).
FIXED-SATELLITE (space-to-Earth) 5.441	FIXED-SATELLITE (space-to-Earth) 5.441	Electronic News Gathering SRD (reservoir level probing radar)	Ultra-wideband applications (UWB) see ITU-R Recommendation SN.1896-1. Rec SM.1755 and Rep SM.2153-7 (latest versions)
MOBILE 5.440A	MOBILE NF15		
4 800-4 990 MHz	**4 800-4 825 MHz**		
FIXED	FIXED NF14 NF15	Fixed links (4.8 GHz) (4400-5000 MHz) Government services Outside Broadcast Links	Rec. ITU-R F.1099, Annex 1
MOBILE 5.440A 5.441A 5.441B 5.442	MOBILE 5.441B NF9 NF15	IMT4800 TDD (4800-4990 MHz)	Res. 223 (Rev. WRC-23) Rec. ITU-R M.1036-8

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
		Electronic News Gathering Mobile ENG (e.g. RF cameras, mobile uplinks, portable links)	Second Draft IMT Roadmap (GG 53883 Notice 3712 of 2025) The Authority intends to develop the RFSAP for the band 4800-4990 MHz
Radio astronomy 5.443	Radio astronomy 5.443	Radio astronomy (Observations of formaldehyde (H2CO) interstellar clouds)	See Section 5 for coordination with radio astronomy
	4 825-4 835 MHz		
	FIXED NF14 NF15	Fixed links (4.8 GHz) (4400-5000 MHz) Government services Outside Broadcast Links and Electronic News Gathering	Rec. ITU-R F.1099, Annex 1
	MOBILE except aeronautical mobile 5.441B NF9 NF15	IMT4800 TDD (4800-4990 MHz)	Res. 223 (Rev. WRC-23) Rec. ITU-R M.1036-8 Second Draft IMT Roadmap (GG 53883, Notice 3712 of 2025) The Authority intends to develop the RFSAP for the band 4800-4990 MHz
	Radio astronomy 5.149	Radio astronomy (Observations of formaldehyde (H2CO) interstellar clouds)	See Section 5 for coordination with radio astronomy
	4 835-4 950 MHz		
	FIXED NF14 NF15	Fixed links (4.8 GHz) (4400-5000 MHz)	Rec. ITU-R F.1099, Annex 1

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
		Government services Outside Broadcast Links (Point-to-point ENG links)	
	MOBILE 5.441B NF9 NF15	IMT4800 TDD (4 800-4 990 MHz)	Res. 223 (Rev. WRC-23) Rec. ITU-R M.1036-8 Second Draft IMT Roadmap (GG 53883 Notice 3712 of 2025)
		Electronic News Gathering: Mobile ENG (e.g. RF cameras, mobile uplinks, portable links)	
		PPDR (4 940-4 990 MHz)	The Authority intends to assess future PPDR spectrum needs in 380-470 MHz (primarily narrowband) and evaluate broadband requirements in accordance with ITU-R M.2015 and harmonised ranges identified under Res. 646 (694-894 MHz and 4 940-4 990 MHz). SADC PPDR recommendation Framework for Harmonisation of Radio Frequency Spectrum for Public Protection and Disaster Relief (PPDR) in SADC Edition 2020 The Authority intends to develop the RFSAP for the band 4 800-4 990 MHz
	Radio astronomy	Radio astronomy (Observations of formaldehyde (H2CO) interstellar clouds)	See Section 5 for coordination with radio astronomy

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
	4 950-4 990 MHz		
	FIXED NF14 NF15	Fixed links (4.8 GHz) (4400-5000 MHz)	Rec. ITU-R F.1099, Annex 1
		Government services	
		Outside Broadcast Links	
	MOBILE except aeronautical mobile 5.441B 5.442 NF9 NF15	Electronic News Gathering: Mobile ENG (e.g. RF cameras, mobile uplinks, portable links)	
		IMT4800 TDD (4800-4990 MHz)	Res. 223 (Rev. WRC-23) Recommendation ITU-R M.1036-8 Second Draft IMT Roadmap (GG 53883 Notice 3712 of 2025)
		PPDR (4940-4990 MHz)	The Authority intends to assess future PPDR spectrum needs in 380–470 MHz (primarily narrowband) and evaluate broadband requirements in accordance with ITU-R M.2015 and harmonised ranges identified under Res. 646 (694–894 MHz and 4 940–4 990 MHz). SADC PPDR recommendation Framework for Harmonisation of Radio Frequency Spectrum for Public Protection and Disaster Relief (PPDR) in SADC Edition 2020 The Authority intends to develop the RFSAP for the band 4800-4990 MHz
	Earth exploration-satellite (passive)		

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
	Radio astronomy	Radio astronomy (Observations of formaldehyde (H2CO) interstellar clouds)	See Section 5 for coordination with radio astronomy
	Space research (passive)		
5.149 5.339 5.443	5.149 5.339		
4 990-5 000 MHz	**4 990-5 000 MHz**		
FIXED	FIXED NF14 NF15	Fixed links (4.8 GHz) (4400-5000 MHz)	Recommendation ITU-R F.1099, Annex 1
		Outside Broadcast links	
		Government	
MOBILE except aeronautical mobile	MOBILE except aeronautical mobile NF15	Electronic News Gathering	
RADIO ASTRONOMY	RADIO ASTRONOMY	Radio astronomy (Observations of formaldehyde (H2CO) interstellar clouds)	See Section 5 for coordination with radio astronomy
Space research (passive)	Space research (passive)		
5.149	5.149		
5 000-5 010 MHz	**5 000-5 010 MHz**		
AERONAUTICAL MOBILE-SATELLITE (R) 5.443AA	AERONAUTICAL MOBILE-SATELLITE (R) 5.443AA		
AERONAUTICAL RADIONAVIGATION RADIONAVIGATION-SATELLITE (Earth-to-space)	AERONAUTICAL RADIONAVIGATION RADIONAVIGATION-SATELLITE (Earth-to-space)		

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
5 010-5 030 MHz AERONAUTICAL MOBILE-SATELLITE (R) 5.443AA AERONAUTICAL RADIONAVIGATION RADIONAVIGATION-SATELLITE (space-to-Earth) (space-to-space) 5.328B 5.443B	**5 010-5 030 MHz** AERONAUTICAL MOBILE-SATELLITE (R) 5.443AA AERONAUTICAL RADIONAVIGATION RADIONAVIGATION-SATELLITE (space-to-Earth) (space-to-space) 5.443B 5.328B		
5 030-5 091 MHz AERONAUTICAL MOBILE (R) 5.443C AERONAUTICAL MOBILE-SATELLITE (R) 5.443D AERONAUTICAL RADIONAVIGATION 5.444	**5 030-5 091 MHz** AERONAUTICAL MOBILE (R) 5.443C AERONAUTICAL MOBILE-SATELLITE (R) 5.443D AERONAUTICAL RADIONAVIGATION 5.444	 Microwave Landing System AERONAUTICAL RADIONAVIGATION (MLS) (precision approach and landing)	
5 091-5 150 MHz FIXED-SATELLITE (Earth-to-space) 5.444A	**5 091-5 150 MHz** FIXED-SATELLITE (Earth-to-space) 5.444A	 NGSO MSS feeder links (5091-5150 MHz) Surface applications at airports	 Res. 748 (Rev.WRC-19) (AM(R)) Res. 114 (Rev.WRC-15) (NGSO MSS)

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
AERONAUTICAL MOBILE 5.444B	AERONAUTICAL MOBILE 5.444B	AMT (Air to ground) (5091-5250 MHz)	Res. 418 (Rev.WRC-19) (AMT)
	AERONAUTICAL MOBILE (telemetry)		
AERONAUTICAL MOBILE-SATELLITE (R) 5.443AA	AERONAUTICAL MOBILE-SATELLITE (R) 5.443AA		
AERONAUTICAL RADIONAVIGATION	AERONAUTICAL RADIONAVIGATION	AERONAUTICAL RADIONAVIGATION (MLS) (precision approach and landing) (5030-5150 MHz)	
5.444	5.444		
5 150-5 250 MHz	**5 150-5 216 MHz**		
			ITU Res. 229 (Rev.WRC-19)
AERONAUTICAL RADIONAVIGATION	AERONAUTICAL RADIONAVIGATION		
FIXED-SATELLITE (Earth-to-space) 5.447A	FIXED-SATELLITE (Earth-to-space) 5.447A	Feeder links of non-GSO-satellite systems in the MSS (5150-5250 MHz)	
	FIXED-SATELLITE (space-to-Earth)	NGSO MSS feeder links (5150-5216 MHz)	
MOBILE except aeronautical mobile 5.446A 5.446B	MOBILE except aeronautical mobile 5.446A 5.446B	WAS / RLAN (5150-5350 MHz)	Radio Frequency Spectrum Regulations as amended (Annex B) (GG. No. 38641, Notice 279, 30 March 2015), as amended (latest GG 48643, Notice 1822, 23 May 2023).
	AERONAUTICAL MOBILE (telemetry)	AMT Air-to-ground (5091-5250 MHz)	Res. 418 (Rev.WRC-19) (AMT)

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
	Radiodetermination-satellite (space-to-Earth) 5.446 5.446C 5.447B 5.447C		
	5 216-5 250 MHz MOBILE except aeronautical mobile 5.446A 5.446B	WAS / RLAN (5150-5350 MHz) (indoor use only-ITU Res229 WRC-19)	Res. 229 (Rev.WRC-19) Radio Frequency Spectrum Regulations as amended (Annex B) (GG. No. 38641, Notice 279, 30 March 2015), as amended (latest GG 48643, Notice 1822, 23 May 2023).
	AERONAUTICAL MOBILE (telemetry) (air to ground) AERONAUTICAL RADIONAVIGATION	AMT Air-to-ground (5091-5250 MHz)	Res. 418 (Rev.WRC-19) (AMT)
	FIXED-SATELLITE (Earth-to-space) 5.447A	Feeder links of non-GSO-satellite systems in the MSS (Earth-to-space) (5150-5250 MHz)	
5.446 5.446C 5.446D 5.447 5.447B 5.447C	5.446 5.446C 5.447C		
5 250-5 255 MHz EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION SPACE RESEARCH 5.447D	**5 250-5 255 MHz** EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION SPACE RESEARCH 5.447D	 Active spaceborne sensors Other than active spaceborne	

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
MOBILE except aeronautical mobile 5.446A 5.447F 5.447E 5.448 5.448A	MOBILE except aeronautical mobile 5.446A 5.447F Space research 5.448A	WAS / RLAN (5 150-5 350 MHz) (indoor use only) sensors (secondary basis)	Res. 229 (Rev.WRC-23) (WAS/RLAN) Radio Frequency Spectrum Regulations as amended (Annex B) (GG. No. 38641, Notice 279, 30 March 2015), as amended (latest GG 48643, Notice 1822, 23 May 2023).
5 255-5 350 MHz EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION SPACE RESEARCH (active) MOBILE except aeronautical mobile 5.446A 5.447F 5.447E 5.448 5.448A	**5 255-5 350 MHz** EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION SPACE RESEARCH (active) MOBILE except aeronautical mobile 5.446A 5.447F 5.448A	WAS / RLAN (5150-5350 MHz) Indoor use only	Res. 229 (Rev.WRC-23) (WAS/RLAN) Radio Frequency Spectrum Regulations as amended (Annex B) (GG. No. 38641, Notice 279, 30 March 2015), as amended (latest GG 48643, Notice 1822, 23 May 2023).
5 350-5 460 MHz EARTH EXPLORATION-SATELLITE (active) 5.448B SPACE RESEARCH (active) 5.448C	**5 350-5 460 MHz** EARTH EXPLORATION-SATELLITE (active) 5.448B SPACE RESEARCH (active) 5.448C		

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
AERONAUTICAL RADIONAVIGATION 5.449 RADIOLOCATION 5.448D	AERONAUTICAL RADIONAVIGATION 5.449 RADIOLOCATION 5.448D	Ground based airborne weather radars and associated airborne beacons	
5 460-5 470 MHz	**5 460-5 470 MHz**		
RADIONAVIGATION 5.449	AERONAUTICAL RADIONAVIGATION 5.449		
EARTH EXPLORATION-SATELLITE (active)	EARTH EXPLORATION-SATELLITE (active)		
SPACE RESEARCH (active)	SPACE RESEARCH (active)		
RADIOLOCATION 5.448D	RADIOLOCATION 5.448D	Ground based airborne weather radars and associated airborne beacons	
	RADIONAVIGATION except aeronautical radionavigation		
5.448B	5.448B		
5 470-5 570 MHz	**5 470-5 570 MHz**		
MARITIME RADIONAVIGATION	MARITIME RADIONAVIGATION		
MOBILE except aeronautical mobile 5.446A 5.450A	MOBILE except aeronautical mobile 5.446A 5.450A	WAS / RLAN (5470-5725 MHz)	Res. 229 (Rev.WRC-23) Radio Frequency Spectrum Regulations as amended (Annex B) (GG. No. 38641, Notice 279, 30 March 2015), as amended (Notice 1822 of 2023 in GG 48643 (23 May 2023).

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
EARTH EXPLORATION-SATELLITE (active) SPACE RESEARCH (active) RADIOLOCATION 5.450B 5.448B 5.450 5.451	EARTH EXPLORATION-SATELLITE (active) SPACE RESEARCH (active) RADIOLOCATION 5.450B 5.448B		
5 570-5 650 MHz MARITIME RADIONAVIGATION MOBILE except aeronautical mobile 5.446A 5.450A RADIOLOCATION 5.450B	**5 570-5 600 MHz** MARITIME RADIONAVIGATION MOBILE except aeronautical mobile 5.446A 5.450A RADIOLOCATION 5.450B 5.452	 WAS / RLAN (5470-5725 MHz) Location Radar	 Res. 229 (Rev.WRC-23) Radio Frequency Spectrum Regulations as amended (Annex B) (GG. No. 38641, Notice 279, 30 March 2015), as amended (Notice 1822 of 2023 in GG 48643 (23 May 2023).
	5 600-5 650 MHz MARITIME RADIONAVIGATION METEOROLOGICAL AIDS MOBILE except aeronautical mobile 5.446A 5.450A	 WAS / RLAN (5470-5725 MHz)	 ITU Res. 229 (Rev.WRC-23) Radio Frequency Spectrum Regulations as amended (Annex B) (GG. No. 38641, Notice 279, 30 March 2015), as amended (Notice 1822 of 2023 in GG 48643 (23 May 2023).

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
5.450 5.451 5.452	RADIOLOCATION 5.450B 5.452	Ground based meteorological radars (5600-5650 MHz)	
5 650-5 725 MHz	**5 650-5 670 MHz**		
MOBILE except aeronautical mobile 5.446A 5.450A	MOBILE except aeronautical mobile 5.446A 5.450A	WAS / RLAN (5470-5725 MHz)	Res. 229 (Rev. WRC-23) (WAS/RLAN) Radio Frequency Spectrum Regulations as amended (Annex B) (GG. No. 38641, Notice 279, 30 March 2015), as amended (Notice 1822 of 2023 in GG 48643 (23 May 2023).
RADIOLOCATION	RADIOLOCATION		
Amateur	Amateur		
	Amateur-satellite (Earth-to-space)		
Space research (deep space) 5.454	Space research (deep space) 5.282		
	5 670-5 725 MHz		
	RADIOLOCATION		
	MOBILE except aeronautical mobile 5.446A 5.450A	WAS / RLAN (5470-5725 MHz)	Res. 229 (Rev.WRC-23) (WAS/RLAN) Radio Frequency Spectrum Regulations as amended (Annex B) (GG. No. 38641, Notice 279, 30 March 2015) as amended (Notice 1822 of 2023 in GG 48643 (23 May 2023).
	Amateur		

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
	Space research (deep space)		
5.282 5.451 5.453 5.455	5.453		
5 725-5 830 MHz	**5 725-5 830 MHz**		
FIXED-SATELLITE (Earth-to-space)	FIXED-SATELLITE (Earth-to-space)		
RADIOLOCATION	RADIOLOCATION	RTT data (5795-5815 MHz)	
Amateur	Amateur		
	Fixed (5725-5850 MHz) NF16 5.453	Fixed links (5725-5850 MHz) BFWA (5725-5850 MHz)	BFWA in some SADC countries, incl. South Africa, is limited to below 5850 MHz in order to protect FSS in the band 5850-6425 MHz.
		ISM applications (5725-5875 MHz) RTTT (Road Transport and Traffic Telematics) (5795-5815 MHz) Transport and Traffic Telematics (TTT) Devices (5795-5805 MHz, 5805-5815 MHz)	Radio Frequency Spectrum Regulations as amended (Annex B) (GG. No. 38641, Notice 279, 30 March 2015), as amended (Notice 1822 of 2023 in GG 48643 (23 May 2023).
		SRD applications (5725-5875 MHz) SRD - Transport and information control systems (5805-5815 MHz)	Common international SRD band; see ITU-R Rec.SM.1896-1 Transport information and control systems Rec. ITU-R M.1453
5.150 5.451 5.453 5.455	5.150		
5 830-5 850 MHz	**5 830-5 850 MHz**		

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
FIXED-SATELLITE (Earth-to-space) RADIOLOCATION Amateur Amateur-satellite (space-to-Earth)	FIXED-SATELLITE (Earth-to-space) RADIOLOCATION Amateur Amateur-satellite (space-to-Earth)		
	Fixed (5725-5850 MHz) NF16 5.453	Fixed links BFWA (5725-5850 MHz)	BFWA in some SADC countries, incl. South Africa, is limited to below 5850 MHz in order to protect FSS in the band 5850-6425 MHz
		ISM applications (5725-5875 MHz)	Radio Frequency Spectrum Regulations as amended (Annex B) (GG. No. 38641, 31 March 2015) as amended (Notice 1822 of 2023 in GG 48643 (23 May 2023).
		SRD's-Reservoir Level Probing Radars	
5.150 5.451 5.453 5.455	5.150		
5 850-5 925 MHz	**5 850-5 925 MHz**		
FIXED	FIXED	FIXED links (5850-5925 MHz)	FS could be used for temporary OB links.
FIXED-SATELLITE (Earth-to-space)	FIXED-SATELLITE (Earth-to-space)	C-band uplink (VSAT/SNG links)	
		Fixed-satellite uplinks (PTP/VSAT/SNG) (5850-6425 MHz)	
		ISM applications (5725-5875 MHz)	Radio Frequency Spectrum Regulations as amended (Annex B) (GG. No. 38641, 31 March 2015) as amended (Notice 1822 of 2023 in GG 48643 (23 May 2023).

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
MOBILE 5.150	MOBILE 5.150		
5 925-6 700 MHz FIXED 5.457 FIXED-SATELLITE (Earth-to-space) 5.457A 5.457B MOBILE 5.457C 5.457D 5.457E 5.457F	**5 925-6 425 MHz** FIXED NF14 FIXED-SATELLITE (Earth-to-space) 5.457A MOBILE 5.149 5.440	Fixed links - Lower 6 GHz (5925-6425 MHz) BFWA Fixed-satellite uplinks (PTP/VSAT/SNG) (5850-6425 MHz) ESVs (5925-6425 MHz) Radio astronomy (observation of Methanol) WAS/RLAN (5925-6425 MHz)	Channelling plan for L6 GHz band in accordance with ITU-R Rec. F.383 latest version Res. 902 (Rev.WRC-23) (ESVs) Radio Frequency Spectrum Regulations, 2015-Annexure B as amended by GG No. 48643 (Notice 1822) of 23 May 2023 The development of Draft Regulations on Dynamic Spectrum Access and Opportunistic Spectrum Management in the Innovation Spectrum is in progress (GG 52415 No 6066 of 28 March 2025) The Authority intends to develop the RFSAP for this band (5925-6425 MHz).
	6 425-6 429 MHz FIXED NF14	Fixed links - Upper 6 GHz (6425-7110 MHz), incl. BFWA subject	Channelling plan for U6 GHz band in accordance with ITU-R Rec. F.384 latest version.

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
		to coordination incumbent services Radio astronomy (observation of Methanol) - see RR 5.149 / 5.458A	
	FIXED-SATELLITE (Earth-to-space) MOBILE NF9 5.457E STANDARD FREQUENCY AND TIME SIGNAL-SATELLITE (6 427 MHz) (Earth-to-space) 5.149 5.440 5.458	IMT TDD (6425 - 6429 MHz)	Res. 220 (WRC-23) The Authority intends to develop the Channel Plan in accordance ITU-R Rec. M.1036–8 Second Draft IMT Roadmap (GG 53883 Notice 3712 of 2025) The Authority intends to conduct the feasibility study and develop the RFSAP for the band 6425- 7125 MHz
	6 429-6 700 MHz FIXED	Fixed links - Upper 6 GHz (6 425-7 110 MHz), incl. BFWA subject to coordination incumbent services Radio astronomy (observation of Methanol) - see RR 5.149 / 5.458A	Channelling plan for U6 GHz band in accordance with ITU-R Rec. F.384 latest version.

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
5.149 5.440 5.458	MOBILE NF9 5.457E 5.458	IMT TDD (6 429 -6 700 MHz)	Res. 220 (WRC-23) The Authority intends to develop the Channel Plan in accordance with ITU-R Recommendation M.1036-8 Second Draft IMT Roadmap (GG 53883 Notice 3712 of 2025) The Authority intends to conduct the feasibility study and develop the RFSAP for the band 6 425- 7 125 MHz
6 700-7 075 MHz	**6 700-7 075 MHz**		
FIXED	FIXED NF14	Fixed Links (U6) (6 425-7 110 MHz)	Channelling plan for U6 GHz band in accordance with ITU-R Rec. F.384 latest version.
FIXED-SATELLITE (Earth-to-space) (space-to-Earth) 5.441	FIXED-SATELLITE (Earth-to-space) (space-to-Earth) 5.441		The band 6 725-7 025 MHz is part of the APP30B Plan (FSS Earth-to-space)
MOBILE 5.457E 5.458 5.458A 5.458B	MOBILE NF9 5.457E 5.458 5.458A 5.458B	IMT TDD (6 700 -7 125 MHz)	Res. 220 (WRC-23) (IMT) ITU-R Recommendation M.1036-8. Second Draft IMT Roadmap (GG 53883 Notice 3712 of 2025) The Authority intends to conduct the feasibility study and develop the RFSAP for the band 6 425- 7 125 MHz
7 075-7 145 MHz	**7 075-7 145 MHz**		

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
FIXED	FIXED NF14	Fixed Links (U6) (6 425-7 110 MHz) Fixed Links (L7) (7 110-7 425 MHz)	Channelling plan for U6 band in accordance with ITU-R Rec. F.384 latest version. Channelling plan for L7 band is in accordance with ITU-R Rec. F.385 Annex 3, latest version.
MOBILE 5.457E 5.458 5.459	MOBILE NF9 5.457E (7 075–7 125 MHz) 5.458	IMT (6700 -7125 MHz)	Res. 220 (WRC-23) ITU-R Recommendation M.1036-8 Second Draft IMT Roadmap (GG 53883 Notice 3712 of 2025) The Authority intends to conduct the feasibility study and develop the RFSAP for the band 6 425-7 125 MHz
7 145-7 190 MHz	**7 145-7 190 MHz**		
FIXED MOBILE SPACE RESEARCH (deep space) (Earth-to-space) 5.458 5.459	FIXED MOBILE SPACE RESEARCH (deep space) (Earth-to-space) 5.458	Fixed links (7110-7425 MHz)	Channelling plan for L7 band in accordance with ITU-R Rec. F.385 Annex 3, latest version. SANAS to erect a facility near Matjiesfontein
7 190-7 235 MHz	**7 190-7 235 MHz**		
EARTH EXPLORATION-SATELLITE (Earth-to-space) 5.460A 5.460B	EARTH EXPLORATION-SATELLITE (Earth-to-space) 5.460A 5.460B	Tracking, telemetry and command for spacecraft operation	SANAS to erect a facility near Matjiesfontein

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
FIXED MOBILE SPACE RESEARCH (Earth-to-space) 5.460 5.458 5.459	FIXED NF14 MOBILE SPACE RESEARCH (except deep space) (Earth-to-space) 5.460 5.458	Fixed Links (L7) (7 110-7 425 MHz)	Channelling plan for L7 band in according to ITU-R Rec. F.385 Annex 3, latest version
7 235-7 250 MHz EARTH EXPLORATION-SATELLITE (Earth-to-space) 5.460A FIXED MOBILE 5.458	**7 235-7 250 MHz** EARTH EXPLORATION-SATELLITE (Earth-to-space) 5.460A FIXED NF14 MOBILE 5.458	Tracking, telemetry and command for spacecraft operation Fixed links (7 110-7 425 MHz)	SANAS to erect a facility near Matjiesfontein Channelling plan for L7 band in accordance with ITU-R Rec. F.385 Annex 3, latest version
7 250-7 300 MHz FIXED FIXED-SATELLITE (space-to-Earth) MOBILE	**7 250-7 300 MHz** FIXED NF14 FIXED-SATELLITE (space-to-Earth) MOBILE	Fixed links (7 110-7 425 MHz)	Channelling plan for L7 band in accordance with ITU-R Rec. F.385 Annex 3, latest version.

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
	MOBILE-SATELLITE (space-to-Earth)	MSS (7 250-7 375 MHz)	
5.461	5.461		
7 300-7 375 MHz	**7 300-7 375 MHz**		
FIXED	FIXED	Fixed links - (7 110-7 425 MHz) and (7 425-7 750 MHz)	Channelling plan for (7 110-7 425 MHz) and (7 425-7 750 MHz) in accordance with ITU-R Rec. F.385 Annex 3, latest version.
FIXED-SATELLITE (space-to-Earth)	FIXED-SATELLITE (space-to-Earth)		
MOBILE except aeronautical mobile	MOBILE except aeronautical mobile		
	MOBILE-SATELLITE (space-to-Earth) (7 250-7 375 MHz)	MSS (7 250-7 375 MHz)	
5.461	5.461		
7 375-7 450 MHz	**7 375-7 450 MHz**		
FIXED	FIXED NF14	Fixed links (7 110-7 425 MHz) and (7 425-7 750 MHz)	Channelling plan for (7 110-7 425 MHz) and (7 425-7 750 MHz) in accordance with ITU-R Rec. F.385 Annex 3, latest version.
FIXED-SATELLITE (space-to-Earth)	FIXED-SATELLITE (space-to-Earth)		
MOBILE except aeronautical mobile	MOBILE except aeronautical mobile		
MARITIME MOBILE-SATELLITE (space-to-Earth) 5.461AA 5.461AB	MARITIME MOBILE-SATELLITE (space-to-Earth) 5.461AA 5.461AB		

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
5.461AC	5.461AC		
7 450-7 550 MHz	**7 450-7 550 MHz**		
FIXED	FIXED NF14	Fixed links (7 425-7 750 MHz)	Channelling plan for U7 band in accordance with ITU-R Rec. F.385 Annex 3, latest version.
FIXED-SATELLITE (space-to-Earth)	FIXED-SATELLITE (space-to-Earth)		
METEOROLOGICAL-SATELLITE (space-to-Earth)	METEOROLOGICAL-SATELLITE (GSO) (space-to-Earth)		
MOBILE except aeronautical mobile	MOBILE except aeronautical mobile		
MARITIME MOBILE-SATELLITE (space-to-Earth) 5.461AA 5.461AB	MARITIME MOBILE-SATELLITE (space-to-Earth) (GSO) 5.461AA 5.461AB		
5.461A 5.461AC	5.461A 5.461AC		
7 550-7 750 MHz	**7 550-7 750 MHz**		
FIXED	FIXED NF14	Fixed links (7 425-7 750 MHz)	Channelling plan for U7 band in accordance with ITU-R Rec. F.385 Annex 3, latest version.
FIXED-SATELLITE (space-to-Earth)	FIXED-SATELLITE (space-to-Earth)		
MOBILE except aeronautical mobile	MOBILE except aeronautical mobile		

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
MARITIME MOBILE-SATELLITE (space-to-Earth) 5.461AA 5.461AB 5.461AC	MARITIME MOBILE-SATELLITE (space-to-Earth) 5.461AC		
7 750-7 900 MHz FIXED METEOROLOGICAL-SATELLITE (space-to-Earth) 5.461B MOBILE except aeronautical mobile	**7 750-7 900 MHz** FIXED NF14 METEOROLOGICAL-SATELLITE (non-GSO) (space-to-Earth) 5.461B MOBILE except aeronautical mobile	Fixed links (7 725-8 275 MHz)	Channelling plan for L8 band in accordance with ITU-R Rec. F.386 Annex 2, latest version
7 900-8 025 MHz FIXED FIXED-SATELLITE (Earth-to-space) MOBILE 5.461	**7 900-8 025 MHz** FIXED NF14 FIXED-SATELLITE (Earth-to-space) MOBILE MOBILE-SATELLITE (Earth-to-space) 5.461	Fixed links - (7 725-8 275 MHz)	Channelling plan for L8 band in accordance with ITU-R Rec. F.386 Annex 2, latest version.
8 025-8 175 MHz	**8 025-8 175 MHz**		

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
EARTH EXPLORATION-SATELLITE (space-to-Earth) FIXED FIXED-SATELLITE (Earth-to-space) MOBILE 5.463 5.462A	EARTH EXPLORATION-SATELLITE (space-to-Earth) FIXED NF14 FIXED-SATELLITE (Earth-to-space) MOBILE 5.463 5.462A	Earth exploration satellite systems Fixed links - Lower 8 GHz (7725-8275 MHz)	Channelling plan for L8 band in accordance with ITU-R Rec. F.386 Annex 2, latest version.
8 175-8 215 MHz	**8 175-8 215 MHz**		
EARTH EXPLORATION-SATELLITE (space-to-Earth) FIXED FIXED-SATELLITE (Earth-to-space) METEOROLOGICAL-SATELLITE (Earth-to-space) MOBILE 5.463 5.462A	EARTH EXPLORATION-SATELLITE (space-to-Earth) FIXED NF14 FIXED-SATELLITE (Earth-to-space) METEOROLOGICAL-SATELLITE (Earth-to-space) MOBILE 5.463 5.462A	Earth exploration satellite systems Fixed links (7 725-8 275 MHz) Ground to air	Channelling plan for L8 band in accordance with ITU-R Rec. F.386 Annex 2, latest version.
8 215-8 400 MHz	**8 215-8 400 MHz**		

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
EARTH EXPLORATION-SATELLITE (space-to-Earth)	EARTH EXPLORATION-SATELLITE (space-to-Earth)	Ground to air	
FIXED	FIXED NF14	Fixed links (7 725-8 275 MHz) and (8 275-8 500 MHz)	Channelling plan for L8 band in accordance with ITU-R Rec. F.386 Annex 2, latest version. Channelling plan for U8 band in accordance with ITU-R Rec. F.386 Annex 2, latest version.
FIXED-SATELLITE (Earth-to-space)	FIXED-SATELLITE (Earth-to-space)		
MOBILE 5.463	MOBILE 5.463		
5.462A	5.462A		
8 400-8 500 MHz	**8 400-8 450 MHz**		
FIXED	FIXED NF14	Fixed links (8 275-8 500 MHz)	Channelling plan for L8 band in accordance with ITU-R Rec. F.386 Annex 2, latest version.
MOBILE except aeronautical mobile	MOBILE except aeronautical mobile		
SPACE RESEARCH (space-to-Earth) 5.465 5.466	SPACE RESEARCH (deep space) (space-to-Earth) 5.465		
	8 450-8 500 MHz		
	FIXED NF14	Fixed links (8 275-8 500 MHz)	Channelling plan for L8 band in accordance with ITU-R Rec. F.386 Annex 2, latest version.
	MOBILE except aeronautical mobile		

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
	SPACE RESEARCH (space-to-Earth)		
8 500-8 550 MHz RADIOLOCATION 5.468 5.469	**8 500-8 550 MHz** RADIOLOCATION	RADARS. aeronautical radio navigation e.g. precision airfield approach radars.	
8 550-8 650 MHz EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION SPACE RESEARCH (active) 5.468 5.469 5.469A	**8 550-8 650 MHz** EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION SPACE RESEARCH (active) 5.469A	RADARS. aeronautical radionavigation e.g. precision airfield approach radars	
8 650-8 750 MHz RADIOLOCATION 5.468 5.469	**8 650-8 750 MHz** RADIOLOCATION	RADARS. aeronautical radio navigation e.g. precision airfield approach radars	
8 750-8 850 MHz RADIOLOCATION	**8 750-8 850 MHz** RADIOLOCATION	RADARS. aeronautical radionavigation e.g. precision airfield approach radars	

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
AERONAUTICAL RADIONAVIGATION 5.470 5.471	AERONAUTICAL RADIONAVIGATION 5.470	Airborne Doppler navigation aids (8 800 MHz)	
8 850-9 000 MHz RADIOLOCATION MARITIME RADIONAVIGATION 5.472 5.473	**8 850-9 000 MHz** RADIOLOCATION MARITIME RADIONAVIGATION 5.472	 RADARS. aeronautical radionavigation e.g. precision airfield approach radars Shore-based radars	
9 000-9 200 MHz AERONAUTICAL RADIONAVIGATION 5.337 RADIOLOCATION 5.471 5.473A	**9 000-9 200 MHz** AERONAUTICAL RADIONAVIGATION 5.337 RADIOLOCATION 5.473A	 Approach radars RADARS. aeronautical radionavigation e.g. precision airfield approach radars Ground-based radars and associated airborne transponders	

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
9 200-9 300 MHz	**9 200-9 225 MHz**		Radio Frequency Spectrum Regulations as amended (Annex B) (GG. No. 38641, Notice 279, 30 March 2015), as amended (most recently GG 48643 Notice 1822 of 23 May 2023).
EARTH EXPLORATION-SATELLITE (active) 5.474A 5.474B 5.474C	EARTH EXPLORATION-SATELLITE (active) 5.474A 5.474B 5.474C		
RADIOLOCATION	RADIOLOCATION	Field Disturbance and Doppler Apparatus (9200-9975 MHz) RADARS. aeronautical radionavigation e.g. precision airfield approach radars	
MARITIME RADIONAVIGATION 5.472	MARITIME RADIONAVIGATION 5.472 5.474 5.474D	Harbour radars Shore-based radars	
	9 225-9 300 MHz		Radio Frequency Spectrum Regulations as amended (Annex B) (GG. No. 38641, Notice 279, 30 March 2015), as amended (most recently GG 48643 Notice 1822 of 23 May 2023).
	EARTH EXPLORATION-SATELLITE (active) 5.474A 5.474B 5.474C		
	RADIOLOCATION	RADARS. aeronautical radionavigation e.g. precision airfield approach radars	

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
		Field Disturbance and Doppler Apparatus (9 200-9 975 MHz)	
	MARITIME RADIONAVIGATION	Harbour radars Shore-based radars	
5.473 5.474 5.474D	5.474 5.474D		
9 300-9 500 MHz	**9 300-9 320 MHz**		
RADIONAVIGATION 5.475	RADIONAVIGATION except aeronautical radionavigation		Radio Frequency Spectrum Regulations as amended (Annex B) (GG. No. 38641, Notice 279, 30 March 2015), as amended (most recently GG 48643 Notice 1822 of 23 May 2023).
EARTH EXPLORATION-SATELLITE (active)	EARTH EXPLORATION-SATELLITE (active)		
SPACE RESEARCH (active)	SPACE RESEARCH (active)		
RADIOLOCATION	RADIOLOCATION	Shore based radars (9380-9440 MHz)	
		Search and rescue transponders (SART) (9 200–9 500 MHz)	RR No. 5.474; ITU-R M.628-5 (SART)
		Field Disturbance and Doppler Apparatus (9200-9975 MHz)	
	AERONAUTICAL RADIONAVIGATION	RADARS. aeronautical radionavigation e.g. precision airfield approach radars	
		Airborne weather radars	
		Ground-based radar beacons	
		Ground-based radars	

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
	5.427 5.474 5.475 5.475A 5.475B 5.476A		
	9 320-9 500 MHz		
	RADIONAVIGATION except aeronautical radionavigation	Shore based radars (9 380-9 440 MHz)	Radio Frequency Spectrum Regulations as amended (Annex B) (GG. No. 38641, Notice 279, 30 March 2015), as amended (most recently GG 48643 Notice 1822 of 23 May 2023).
	EARTH EXPLORATION-SATELLITE (active)		
	SPACE RESEARCH (active)		
	RADIOLOCATION	Field Disturbance and Doppler Apparatus (9200-9975 MHz)	
		Search and rescue transponders (SART) (9 200–9 500 MHz)	RR No. 5.474; ITU-R M.628-5 (SART)
	AERONAUTICAL RADIONAVIGATION	RADARS. aeronautical radionavigation e.g. precision airfield approach radars	
		Airborne weather radars	
		Ground-based radar beacons	
		Ground-based radars	
5.427 5.474 5.475A 5.475B 5.476A	5.427 5.474 5.475 5.475A 5.475B 5.476A		
9 500-9 800 MHz	**9 500-9 800 MHz**		

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
EARTH EXPLORATION-SATELLITE (active)	EARTH EXPLORATION-SATELLITE (active)		
RADIOLOCATION	RADIOLOCATION	Field Disturbance and Doppler Apparatus (9200-9975 MHz)	Radio Frequency Spectrum Regulations as amended (Annex B) (GG. No. 38641, Notice 279, 30 March 2015), as amended (most recently GG 48643 Notice 1822 of 23 May 2023).
RADIONAVIGATION	RADIONAVIGATION	RADARS. aeronautical radionavigation e.g. precision airfield approach radars	
SPACE RESEARCH (active)	SPACE RESEARCH (active)		
5.476A	5.476A		
9 800-9 900 MHz	**9 800-9 900 MHz**		
RADIOLOCATION	RADIOLOCATION	Field Disturbance and Doppler Apparatus (9200-9975 MHz)	Radio Frequency Spectrum Regulations as amended (Annex B) (GG. No. 38641, Notice 279, 30 March 2015), as amended (most recently GG 48643 Notice 1822 of 23 May 2023).
Earth exploration-satellite (active)	Earth exploration-satellite (active)		
Space research (active)	Space research (active)		
Fixed	Fixed		
5.477 5.478 5.478A 5.478B	5.478A 5.478B		
9 900-10 000 MHz	**9 900-9 975 MHz**		
EARTH EXPLORATION-SATELLITE (active) 5.474A 5.474B 5.474C	EARTH EXPLORATION-SATELLITE (active) 5.474A 5.474B 5.474C		
RADIOLOCATION	RADIOLOCATION	Field Disturbance and Doppler Apparatus (9 200-9 975 MHz)	Radio Frequency Spectrum Regulations as amended (Annex B) (GG. No. 38641, Notice 279, 30 March 2015), as amended

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
		RADARS. aeronautical radionavigation e.g. precision airfield approach radars	(most recently GG 48643 Notice 1822 of 23 May 2023).
Fixed	Fixed		
	5.474D		
	9 975-10 000 MHz		
	EARTH EXPLORATION-SATELLITE (active) 5.474A 5.474B 5.474C		
	RADIOLOCATION	RADARS. aeronautical radionavigation e.g. precision airfield approach radars Weather radars	Radio Frequency Spectrum Regulations as amended (Annex B) (GG. No. 38641, Notice 279, 30 March 2015), as amended (most recently GG 48643 Notice 1822 of 23 May 2023).
	Fixed	Fixed	
	Meteorological-satellite	Meteorological (9 975-10 025 MHz)	
5.474D 5.477 5.478 5.479	5.474D 5.479		
10-10.4 GHz	**10-10.025 GHz**		
EARTH EXPLORATION-SATELLITE (active) 5.474A 5.474B 5.474C	EARTH EXPLORATION-SATELLITE (active) 5.474A 5.474B 5.474C		Rec. ITU-R RS.2066 (EESS) Rec. ITU-R RS.2065 (EESS)
FIXED	FIXED	Fixed PtP Links Low power video links (10.0-10.15) GHz	
MOBILE	MOBILE		
RADIOLOCATION	RADIOLOCATION		

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
Amateur	Amateur Meteorological-satellite (9975-10025 MHz) 5.474D 5.479		
	10.025-10.4 GHz EARTH EXPLORATION-SATELLITE (active) 5.474A 5.474B 5.474C		Rec. ITU-R RS.2066-1 (EESS) Rec. ITU-R RS.2065-1 (EESS)
	FIXED NF14	Fixed PtP Links Low power video links (10.0-10.15 GHz)	Paired with 10.5-10.65 GHz
		FS links or BFWA (10.15-10.3 GHz)	FS links channelling plan for 10.15-10.3 GHz band in accordance with ITU-R Rec. F.1568 Annex 1, latest version
	MOBILE RADIOLOCATION Amateur		
5.474D 5.479	5.474D 5.479		
10.4-10.45 GHz	**10.4-10.45 GHz**		Radio Frequency Spectrum Regulations (Annex B) (GG. No. 38641, Notice 279, 30 March 2015), as amended (most recently GG 48643 Notice 1822 of 23 May 2023).
FIXED	FIXED	Low power video links (10.0-10.15 GHz)	Paired with 10.50-10.65 GHz Channelling plan for 10.5 GHz band in accordance with ITU-R Rec. F.1568-2, Annex 1.

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
MOBILE	MOBILE		
RADIOLOCATION	RADIOLOCATION	Motion sensors (Radiodetermination Applications in 8500 MHz–10.6 GHz)	
		Radiolocation radars	
Amateur	Amateur		
10.45-10.5 GHz	**10.45-10.5 GHz**		Radio Frequency Spectrum Regulations (Annex B) (GG. No. 38641, Notice 279, 30 March 2015), as amended (most recently GG 48643 Notice 1822 of 23 May 2023).
RADIOLOCATION	RADIOLOCATION	Radiolocation Radars	
		Motion Sensors (as Radiodetermination Applications in 8500 MHz–10.6 GHz)	
		Radiolocation radars	
Amateur	Amateur		
Amateur-satellite	Amateur-satellite		
5.481			
10.5-10.55 GHz	**10.5-10.55 GHz**		Radio Frequency Spectrum Regulations (Annex B) (GG. No. 38641, Notice 279, 30 March 2015), as amended (most recently GG 48643 Notice 1822 of 23 May 2023).
FIXED	FIXED NF14	BFWA (10.5-10.65 GHz)	Paired with 10.15-10.30 GHz

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
		SAP/SAB Applications (Video connections) (10.5-10.68 GHz)	Channelling plan for 10.5-10.65 GHz band in accordance with ITU-R Rec. F.1568 Annex 1, latest version.
MOBILE	MOBILE		
Radiolocation	Radiolocation	FDDA (10.5-10.6 GHz)	
10.55-10.6 GHz	**10.55-10.6 GHz**		
FIXED	FIXED NF14	BFWA (10.5-0.65 GHz)	Paired with 10.15-10.3 GHz
		SAP/SAB Applications (video connections) (10.5-10.68 GHz)	Radio Frequency Spectrum Regulations (Annex B) (GG. No. 38641, Notice 279, 30 March 2015), as amended (most recently GG 48643 Notice 1822 of 23 May 2023).
			Channelling plan for 10.5 GHz band in accordance with ITU-R Rec. F.1568-2, Annex 1
MOBILE except aeronautical mobile	MOBILE except aeronautical mobile		
Radiolocation	Radiolocation	FDDA (10.5-10.6 GHz)	
10.6-10.68 GHz	**10.6-10.68 GHz**		
EARTH EXPLORATION-SATELLITE (passive)	EARTH EXPLORATION-SATELLITE (passive)		For sharing between EESS (passive) and the fixed and mobile services, RR No. 5.482A / 5.482 / Res.751 (WRC-07) applies
FIXED	FIXED NF14	BFWA (10.5-10.65 GHz)	Paired with 10.15-10.3 GHz
		SAP/SAB Applications (video connections) (10.5-10.68 GHz)	Channelling plan for 10.5 GHz band in accordance with ITU-R Rec. F.1568-2, Annex 1

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
MOBILE except aeronautical mobile	MOBILE except aeronautical mobile		
RADIO ASTRONOMY	RADIO ASTRONOMY	Radio astronomy (Non thermal synchrotron and enigmatic quasars)	See Section 5 for coordination with radio astronomy
SPACE RESEARCH (passive)	SPACE RESEARCH (passive)		
Radiolocation	Radiolocation	Motion sensors	
5.149 5.482 5.482A	5.149 5.482 5.482A		
10.68-10.7 GHz	**10.68-10.7 GHz**		
EARTH EXPLORATION-SATELLITE (passive)	EARTH EXPLORATION-SATELLITE (passive)		
RADIO ASTRONOMY	RADIO ASTRONOMY	Radio astronomy (Non thermal synchrotron and enigmatic quasars)	See Section 5 for coordination with radio astronomy
SPACE RESEARCH (passive)	SPACE RESEARCH (passive)		
5.340 5.483	5.340		
10.7-10.95 GHz	**10.7-10.95 GHz**		
FIXED	FIXED NF14	Feeder links in the BSS (UL) Fixed Links (11 GHz) (10.7-11.7 GHz)	The channelling plan for FS Links are in accordance with ITU-R Rec. F387-13 The use of the band 10.7-11.7 GHz by the fixed-satellite service (Earth-to-space) is limited to BSS feeder links (see 5.484).

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
FIXED-SATELLITE (space-to-Earth) 5.441 (Earth-to-space) 5.484 MOBILE except aeronautical mobile	FIXED-SATELLITE (space-to-Earth) 5.441 (Earth-to-space) 5.484 MOBILE except aeronautical mobile	The band is available for FSS Planned services (see Appendix 30B)	The Authority intends to develop the RFSAP for the band (10.7-11.7 GHz)
10.95-11.2 GHz	**10.95-11.2 GHz**		
FIXED	FIXED NF14	Feeder links in the BSS (uplink) Fixed Links (11 GHz) (10.7-11.7 GHz)	The channelling plan for FS Links are in accordance with ITU-R Rec. F387-13
FIXED-SATELLITE (space-to-Earth) 5.484A 5.484B (Earth-to-space) 5.484 MOBILE except aeronautical mobile	FIXED-SATELLITE (space-to-Earth) 5.484A 5.484B (Earth-to-space) 5.484 MOBILE except aeronautical mobile	DTH Applications under the FSS Ku-band downlink (VSAT/SNG/satellite PTP)	Res. 155 (WRC-19) (unmanned aircraft). The use of the band 10.7-11.7 GHz by the FSS (Earth-to-space) is limited to BSS feeder links (see 5.484). The Authority intends to develop the RFSAP for the band (10.7-11.7 GHz)
11.2-11.45 GHz	**11.2-11.45 GHz**		
FIXED	FIXED NF14	Feeder links in the BSS (uplink) Fixed Links (11 GHz) (10.7-11.7 GHz)	The channelling plan for FS Links are in accordance with ITU-R Rec.F387-13 The use of the band 10.7-11.7 GHz by the FSS (Earth-to-space) is limited to BSS feeder links (see 5.484).

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
FIXED-SATELLITE (space-to-Earth) 5.441 (Earth-to-space) 5.484 MOBILE except aeronautical mobile	FIXED-SATELLITE (space-to-Earth) 5.441 (Earth-to-space) 5.484 MOBILE except aeronautical mobile	The band is also available for FSS Planned services (see Appendix 30B).	The Authority intends to develop the RFSAP for the band (10.7-11.7 GHz)
11.45-11.7 GHz	**11.45-11.7 GHz**		
FIXED	FIXED NF14	Fixed links (11 GHz) (10.7-11.7 GHz)	The channelling plan for FS Links are in accordance with ITU-R Rec. F387-13
FIXED-SATELLITE (space-to-Earth) 5.484A 5.484B (Earth-to-space) 5.484 MOBILE except aeronautical mobile	FIXED-SATELLITE (space-to-Earth) 5.484A 5.484B (Earth-to-space) 5.484 MOBILE except aeronautical mobile	Fixed-satellite downlinks (PTP/VSAT/SNG), Feeder links in the BSS (uplink) DTH Applications under the FSS	The use of the band 10.7-11.7 GHz by the FSS (Earth-to-space) is limited to BSS feeder links (see 5.484). The Authority intends to develop the RFSAP for the band (10.7-11.7 GHz)
11.7-12.5 GHz	**11.7-12.5 GHz**		
FIXED MOBILE except aeronautical mobile BROADCASTING BROADCASTING-SATELLITE 5.492	FIXED MOBILE except aeronautical mobile BROADCASTING BROADCASTING-SATELLITE 5.492	Fixed links OB links Broadcast satellite systems BSS feeder links	This band is available for BSS in accordance with Appendix 30 of ITU RR. Refer to Annex B.

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
5.487 5.487A	FIXED-SATELLITE (non-GSO) (space-to-Earth) 5.487 5.487A	ENG	
12.5-12.75 GHz FIXED-SATELLITE (space-to-Earth) 5.484A 5.484B (Earth-to-space) 5.494 5.495 5.496	**12.5-12.75 GHz** FIXED-SATELLITE (space-to-Earth) 5.484A 5.484B (Earth-to-space)	FSS uplinks (VSAT/SNG) (12.5-12.75 GHz) A-ESIM/ESV/ESIM Applications NGSO FSS	Article 9.12 applies (per 5.484A) Res. 155 (Rev. WRC-19) applies
12.75-13.25 GHz FIXED FIXED-SATELLITE (Earth-to-space) 5.441 5.496A MOBILE Space research (deep space) (space-to-Earth)	**12.75-13.25 GHz** FIXED NF14 FIXED-SATELLITE (Earth-to-space) 5.441 5.496A MOBILE Space research (deep space) (space-to-Earth)	Fixed Links (13 GHz) (12.75-13.25 GHz) The band 12.75-13.25 GHz is part of the APP30B Plan (FSS Earth-to-space)	Channelling plan for 13 GHz band in accordance with ITU-R Rec. F.497 latest version. 5.496A / Res. 121 (WRC-23) (ESVs)
13.25-13.4 GHz EARTH EXPLORATION-SATELLITE (active)	**13.25-13.4 GHz** EARTH EXPLORATION-SATELLITE (active)		

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
AERONAUTICAL RADIONAVIGATION 5.497 SPACE RESEARCH (active) 5.498A 5.499	AERONAUTICAL RADIONAVIGATION 5.497 SPACE RESEARCH (active) 5.498A	Airborne Doppler Radar Doppler navigation aids	
13.4-13.65 GHz	**13.4-13.65 GHz**		
EARTH EXPLORATION-SATELLITE (active)	EARTH EXPLORATION-SATELLITE (active)	SRD: Radio Determination Allocations	Radio Frequency Spectrum Regulations (Annex B) (GG. No. 38641, Notice 279, 30 March 2015), as amended (most recently GG 48643 Notice 1822 of 23 May 2023).
		Active spaceborne sensors	ITU-R Rec SM 1896-1 and Report ITU-R SM.2153-7
FIXED SATELLITE (space-to-Earth) 5.499A 5.499B	FIXED SATELLITE (GSO) (space-to-Earth) 5.499A 5.499B	Relay data from GSO space stations to associated Earth stations Relay data from GSO space stations to associated non-GSO space stations	
RADIOLOCATION	RADIOLOCATION		
SPACE RESEARCH 5.499C 5.499D	SPACE RESEARCH 5.499C 5.499D SPACE RESEARCH (space-to-Earth)	Space research	
Standard frequency and time signal-satellite (Earth-to-space)	Standard frequency and time signal-satellite (Earth-to-space)		

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
5.499E 5.500 5.501 5.501B	5.499E 5.501B 5.499 5.499E 5.500 5.5015.501B		
13.65-13.75 GHz	**13.65-13.75 GHz**		Radio Frequency Spectrum Regulations as amended (Annex B) (GG. No. 38641, Notice 279, 30 March 2015), as amended (most recently GG 48643 Notice 1822 of 23 May 2023).
EARTH EXPLORATION-SATELLITE (active)	EARTH EXPLORATION-SATELLITE (active)		
RADIOLOCATION	RADIOLOCATION	FDDA (13.4-14 GHz) Active spaceborne sensors Other than active spaceborne sensors	
SPACE RESEARCH 5.501A	SPACE RESEARCH 5.501A		
Standard frequency and time signal-satellite (Earth-to-space)	Standard frequency and time signal-satellite (Earth-to-space)		
5.499 5.500 5.501 5.501B	5.501B		
13.75-14 GHz	**13.75-14 GHz**		Radio Frequency Spectrum Regulations as amended (Annex B) (GG. No. 38641, Notice 279, 30 March 2015), as amended (most recently GG 48643 Notice 1822 of 23 May 2023).
FIXED-SATELLITE (Earth-to-space) 5.484A	FIXED-SATELLITE (Earth-to-space) 5.484A	FSS uplinks (PTP/VSAT/SNG) (13.75-14.5 GHz)	

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
RADIOLOCATION Earth exploration-satellite Standard frequency and time signal-satellite (Earth-to-space) Space research 5.499 5.500 5.501 5.502 5.503	RADIOLOCATION Earth exploration-satellite Standard frequency and time signal-satellite (Earth-to-space) Space research 5.502 5.503	FDDA (13.4-14 GHz)	
14-14.25 GHz	**14-14.25 GHz**		
FIXED-SATELLITE (Earth-to-space) 5.457A 5.457B 5.484A 5.484B 5.506 5.506B	FIXED-SATELLITE (Earth-to-space) 5.457A 5.484A 5.484B 5.506 5.506B NF17	FSS uplinks (PTP/VSAT/SNG) (13.75-14.5 GHz) incl. AES and UAS CNPC (14.0–14.47 GHz, subject to RR conditions) ESVs (14 -14.5 GHz) Feeder links for the BSS (14-14.5 GHz)	Res. 155 (Rev.WRC-19) (unmanned aircraft) Rec. ITU-R M.1643-0 (aircraft earth stations) Res. 902 (Rev.WRC-23) (ESVs) The band 14.0-14.5 GHz may also be used for UAS CNPC (aircraft-to-space station).
RADIONAVIGATION 5.504	RADIONAVIGATION 5.504		
Mobile-satellite (Earth-to-space) 5.504B 5.504C 5.506A Space research 5.504A 5.505	Mobile-satellite (Earth-to-space) 5.504B 5.504C 5.506A Space research 5.504A		The Authority intends to develop the RFSAP for the band (14-14.0 GHz).
14.25-14.3 GHz	**14.25-14.3 GHz**		

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
FIXED-SATELLITE (Earth-to-space) 5.457A 5.457B 5.484A 5.484B 5.506 5.506B	FIXED-SATELLITE (Earth-to-space) 5.457A 5.484A 5.484B 5.506 5.506B NF17	FSS uplinks (satellite PTP/VSAT/SNG) (13.75-14.5 GHz)	Res. 155 (WRC-19) (unmanned aircraft). Rec. ITU-R M.1643-0 (aircraft earth stations).
		ESVs (14-14.5 GHz)	Res. 902 (Rev.WRC-23) (ESVs)
		Feeder links for the BSS (14-14.5 GHz)	The band 14.0-14.5 GHz may also be used for UAS CNPC (aircraft-to-space station).
RADIONAVIGATION 5.504	RADIONAVIGATION 5.504		
Mobile-satellite (Earth-to-space) 5.504B 5.506A 5.508A	Mobile-satellite (Earth-to-space) 5.504B 5.506A		
Space research	Space research		
			The Authority intends to develop the RFSAP for band (14-14.5GHz).
5.504A 5.505 5.508	5.504A		
14.3-14.4 GHz	**14.3-14.4 GHz**		
FIXED	FIXED		
FIXED-SATELLITE (Earth-to-space) 5.457A 5.457B 5.484A 5.484B 5.506 5.506B	FIXED-SATELLITE (Earth-to-space) 5.457A 5.484A 5.484B 5.506 5.506B NF17	FSS uplinks (PTP/VSAT/SNG) (13.75-14.5 GHz)	Res. 155 (WRC-19) (unmanned aircraft)
		ESVs (14 -14.5 GHz)	Res. 902 (Rev.WRC-23) (ESVs)
		Feeder links for the BSS (14-14.5 GHz)	The band 14.0-14.5 GHz may also be used for UAS CNPC (aircraft-to-space station).
			Rec. ITU-R M.1643-0 (aircraft earth station)
MOBILE except aeronautical mobile	MOBILE except aeronautical mobile		

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
Mobile-satellite (Earth-to-space) 5.504B 5.506A 5.509A	Mobile-satellite (Earth-to-space) 5.504B 5.506A		
Radionavigation-satellite 5.504A	Radionavigation-satellite 5.504A		
			The Authority intends to develop the RFSAP for band (14-14.5GHz).
14.4-14.47 GHz	**14.4-14.47 GHz**		
FIXED	FIXED		
FIXED-SATELLITE (Earth-to-space) 5.457A 5.457B 5.484A 5.484B 5.506 5.506B	FIXED-SATELLITE (Earth-to-space) 5.457A 5.484A 5.484B 5.506 5.506B NF17	FSS uplinks (PTP/VSAT/SNG) (13.75-14.5 GHz)	
		ESVs (14 -14.5 GHz)	Res. 902 (Rev.WRC-23) (ESVs).
		Feeder links for the BSS (14 - 14.5 GHz)	The band 14.0-14.5 GHz may also be used for UAS CNPC (aircraft-to-space station).
			Rec. ITU-R M.1643-0 (aircraft earth station).
MOBILE except aeronautical mobile	MOBILE except aeronautical mobile		
Mobile-satellite (Earth-to-space) 5.504B 5.506A 5.509A	Mobile-satellite (Earth-to-space) 5.504B 5.506A 5.509A		
Space research (space-to-Earth)	Space research (space-to-Earth)		
			The Authority intends to develop the RFSAP for band (14-14.5GHz).

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
5.504A	5.504A		
14.47-14.5 GHz	**14.47-14.5 GHz**		
FIXED	FIXED	Fixed links	Channelling plan available in Rec. ITU-R F.636, latest version
FIXED-SATELLITE (Earth-to-space) 5.457A 5.457B 5.484A 5.506 5.506B	FIXED-SATELLITE (Earth-to-space) 5.457A 5.484A 5.506 NF17	FSS uplinks (PTP/VSAT/SNG) (13.75-14.5 GHz)	ITU-R M.1643-0 (aircraft earth station)
		ESVs (14 -14.5 GHz)	Res. 902 (Rev.WRC-23) (ESVs
		Feeder links for the BSS (14 - 14.5 GHz)	The band 14.0-14.5 GHz may also be used for UAS CNPC (aircraft-to-space station).
MOBILE except aeronautical mobile	MOBILE except aeronautical mobile		
Mobile-satellite (Earth-to-space) 5.504B 5.506A 5.509A	Mobile-satellite (Earth-to-space) 5.504B 5.506A 5.509A		
Radio astronomy	Radio astronomy	Radio Astronomy (non-thermal synchrotron and enigmatic quasars	See Section 5 for coordination with radio astronomy
			The Authority intends to develop the RFSAP for band (14-14.5GHz).
5.149 5.504A	5.149 5.504A		
14.5-14.75 GHz	**14.5-14.75 GHz**		
FIXED	FIXED NF14	Fixed links, 15 GHz (14.5-15.35 GHz)	Channelling plan for 15GHz in accordance with ITU-R Rec. F.636, latest version
FIXED-SATELLITE (Earth-to-space) 5.509B 5.509C	FIXED-SATELLITE (Earth-to-space) 5.510	Feeder links for the BSS (14.5 - 14.8 GHz)	The band 14.5-14.8 GHz is part of the Appendix 30A Plan (Feeder Links for BSS) for some SADC countries.

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
5.509D 5.509E 5.509F 5.510			
MOBILE	MOBILE		
Space research 5.509G	SPACE RESEARCH (Earth-to-space) 5.509G	Relay data to GSO space stations from associated Earth stations (under SRS on a primary basis) All uses other than relay data to GSO space stations from associated Earth stations is on a secondary basis.	
14.75-14.8 GHz	**14.75-14.8 GHz**		
FIXED	FIXED NF14	Fixed links 15 GHz (14.5-15.35 GHz)	Channelling plan for 15GHz in accordance with ITU-R Rec. F.636, latest version.
FIXED-SATELLITE (Earth-to-space) 5.510	FIXED-SATELLITE (Earth-to-space) 5.510	Feeder links for the BSS (14.5 - 14.8 GHz)	The band 14.5-14.8 GHz is part of the APP30A Plan (Feeder Links for BSS) for some SADC countries.
MOBILE	MOBILE		
Space research 5.509G	SPACE RESEARCH (Earth-to-space) 5.509G	Relay data to GSO space stations from associated Earth stations (under SRS on a primary basis) All uses other than relay data to GSO space stations from associated Earth stations is on a secondary basis.	
14.8-15.35 GHz	**14.8-15.2 GHz**		
FIXED	FIXED NF14	Fixed Links (15 GHz) (14.5-15.35 GHz)	Channelling plan in accordance with ITU-R Rec. F.636, latest version.

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
MOBILE SPACE RESEARCH 5.510A	MOBILE SPACE RESEARCH 5.510A		
	15.2-15.35 GHz		
	FIXED NF14 MOBILE Earth exploration-satellite (passive) SPACE RESEARCH 5.510A Space research (passive)	Fixed Links (15 GHz) (14.5-15.35 GHz)	Channel arrangement for 15 GHz band in accordance with ITU-R Rec. F.636, latest version.
5.339	5.339		
15.35-15.4 GHz	**15.35-15.4 GHz**		
EARTH EXPLORATION-SATELLITE (passive)	EARTH EXPLORATION-SATELLITE (passive)	Very long base interferometry Observations	
RADIO ASTRONOMY	RADIO ASTRONOMY	Radio Astronomy (non-thermal synchrotron and enigmatic quasars	
SPACE RESEARCH (passive)	SPACE RESEARCH (passive)	Passive sensing	
5.340 5.511	5.340		
15.4-15.41 GHz	**15.4-15.41 GHz**		
RADIOLOCATION 5.511E 5.511F	RADIOLOCATION 5.511E 5.511F	Radio Altimeters/Doppler Radars	

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
AERONAUTICAL RADIONAVIGATION	AERONAUTICAL RADIONAVIGATION		
15.41-15.43 GHz	**15.41-15.43 GHz**		
RADIOLOCATION 5.511E 5.511F	RADIOLOCATION 5.511E 5.511F	Radio Altimeters/ Doppler Radars	
AERONAUTICAL RADIONAVIGATION	AERONAUTICAL RADIONAVIGATION		ICAO: Guidelines on Radiocommunication (Annex 10)
Aeronautical mobile (OR) 5.511G	Aeronautical mobile (OR) 5.511G		
15.43-15.63 GHz	**15.43-15.63 GHz**		
FIXED-SATELLITE (Earth-to-space) 5.511A	FIXED-SATELLITE (Earth-to-space) 5.511A	Feeder links of non-GSO-satellite systems in the MSS	
		Radio Altimeters	
RADIOLOCATION 5.511E 5.511F	RADIOLOCATION 5.511E 5.511F	Doppler Radars	
AERONAUTICAL RADIONAVIGATION	AERONAUTICAL RADIONAVIGATION		ICAO: Guidelines on Radiocommunication (Annex 10)
Aeronautical mobile (OR) 5.511G	Aeronautical mobile (OR) 5.511G		
5.511C	5.511C		
15.63-15.7 GHz	**15.63-15.7 GHz**		
RADIOLOCATION 5.511E 5.511F	RADIOLOCATION 5.511E 5.511F	Radio Altimeters Doppler Radars	

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
AERONAUTICAL RADIONAVIGATION Aeronautical mobile (OR) 5.511G	AERONAUTICAL RADIONAVIGATION Aeronautical mobile (OR) 5.511G		ICAO: Guidelines on Radiocommunication (Annex 10)
15.7-16.6 GHz RADIOLOCATION 5.512 5.513	**15.7-16.6 GHz** RADIOLOCATION	Doppler Radars Government Services	Altimeters / Distance measuring equipment
16.6-17.1 GHz RADIOLOCATION Space research (deep space) (Earth-to-space) 5.512 5.513	**16.6-17.1 GHz** RADIOLOCATION Space research (deep space) (Earth-to-space)		
17.1-17.2 GHz RADIOLOCATION 5.512 5.513	**17.1-17.2 GHz** RADIOLOCATION	HiperLAN (17.1-17.3 GHz)	Radio Frequency Spectrum Regulations as amended (Annex B) (GG. No. 38641, Notice 279, 30 March 2015), as amended (most recently GG 48643 Notice 1822 of 23 May 2023). CEPT/ERC/REC 70-03
17.2-17.3 GHz EARTH EXPLORATION-SATELLITE (active)	**17.2-17.3 GHz** EARTH EXPLORATION-SATELLITE (active)		

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
RADIOLOCATION SPACE RESEARCH (active) 5.512 5.513 5.513A	RADIOLOCATION SPACE RESEARCH (active) 5.513A	HiperLAN (17.1-17.3 GHz)	Radio Frequency Spectrum Regulations as amended (Annex B) (GG. No. 38641, Notice 279, 30 March 2015), as amended (most recently GG 48643 Notice 1822 of 23 May 2023). CEPT/ERC/REC 70-03
17.3-17.7 GHz FIXED-SATELLITE (Earth-to-space) 5.515 5.516 (space-to-Earth) 5.516A 5.516B Radiolocation 5.514	**17.3-17.7 GHz** FIXED-SATELLITE (Earth-to-space) 5.515 5.516 (space-to-Earth) 5.516A 5.516B (non-GSO) (Earth-to-space) Radiolocation	Feeder links of GSO-satellite systems in the BSS HDFSS (space-to-Earth)	The band 17.3-17.7 GHz is part of the APP30A Plan (Feeder Links for BSS) for many SADC countries; refer to Annex B. The band 17.3-17.7 GHz is identified for HDFSS; Res.143 (Rev.WRC-19) applies.
17.7-18.1 GHz FIXED FIXED-SATELLITE (space-to-Earth) 5.484A 5.517A 5.517B (Earth-to-space) 5.515 5.516 MOBILE	**17.7-18.1 GHz** FIXED NF14 FIXED-SATELLITE (space-to-Earth) 5.484A 5.517A 5.517B (Earth-to-space) 5.515 5.516 MOBILE	Fixed Links (18 GHz) (17.7-19.7 GHz) ESIM (under the FSS) (17.7-18.6 GHz) BSS Feeder Links (17.3-18.1 GHz)	Channelling plan for 18 GHz band in accordance with ITU-R Rec. F.595 Annex 1, latest version Res. 169 (Rev.WRC-23) (GSO ESIM FSS) Res. 123 (WRC-23) (NGSO ESIM FSS)

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
18.1-18.4 GHz	**18.1-18.4 GHz**		
FIXED	FIXED NF14	Fixed Links (18 GHz) (17.7-19.7 GHz)	Channelling plan for 18 GHz band in accordance with ITU-R Rec. F.595 Annex 1, latest version
FIXED-SATELLITE (space-to-Earth) 5.484A 5.516B 5.517A 5.517B (Earth-to-space) 5.520	FIXED-SATELLITE (space-to-Earth) 5.484A 5.517A 5.517B (Earth-to-space) 5.520	ESIMs (under the FSS) BSS Feeder Links (18.1-18.4 GHz)	Res. 169 (Rev.WRC-23) (GSO ESIM FSS) Res. 123 (WRC-23) (NGSO ESIM FSS)
INTER-SATELLITE 5.521A MOBILE 5.519 5.521	INTER-SATELLITE 5.521A MOBILE METEOROLOGICAL-SATELLITE (GSO) (space-to-Earth) 5.519	Inter-satellite (18.1-18.6 GHz)	Res. 679 (WRC-23) Inter-sat service
18.4-18.6 GHz	**18.4-18.6 GHz**		
FIXED	FIXED NF14	Fixed Links (18 GHz) (17.7-19.7 GHz)	Channelling plan for 18 GHz band in accordance with ITU-R Rec. F.595 Annex 1, latest version
FIXED-SATELLITE (space-to-Earth) 5.484A 5.516B 5.517A 5.517B	FIXED-SATELLITE (space-to-Earth) 5.484A 5.517A 5.517B	ESIMs (GSO and NGSO, under the FSS)	Res. 169 (Rev.WRC-23) (GSO ESIM FSS) Res. 123 (WRC-23) (NGSO ESIM FSS)
INTER-SATELLITE 5.521A MOBILE	INTER-SATELLITE 5.521A MOBILE	Inter-satellite (18.1-18.6 GHz)	Res. 679 (WRC-23) (ISS)
18.6-18.8 GHz	**18.6-18.8 GHz**		

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
EARTH EXPLORATION-SATELLITE (passive)	EARTH EXPLORATION-SATELLITE (passive)		Channelling plan for 18 GHz band in accordance with ITU-R Rec. F.595 Annex 1, latest version
FIXED	FIXED NF14	Fixed Links (18 GHz) (17.7-19.7 GHz)	
FIXED-SATELLITE (space-to-Earth) 5.517A 5.522B	FIXED-SATELLITE (space-to-Earth) 5.517A 5.522B	Under FSS, only GSO and systems with orbit apogee greater than 20 000 km ESIMs (under the FSS)	Res. 169 (Rev.WRC-23) (GSO ESIM FSS)
MOBILE except aeronautical mobile	MOBILE except aeronautical mobile		
Space research (passive)	Space research (passive)	Passive Sensing	
5.522A 5.522C	5.522A		
18.8-19.3 GHz	**18.8-19.3 GHz**		
FIXED	FIXED NF14	Fixed Links (18 GHz) (17.7-19.7 GHz)	Channelling plan for 18 GHz band in accordance with ITU-R Rec. F.595 Annex 1, latest version
FIXED-SATELLITE (space-to-Earth) 5.516B 5.517A 5.517B 5.523A	FIXED-SATELLITE (space-to-Earth) 5.517A 5.517B 5.523A	ESIMS (under the FSS)	Res. 169 (Rev.WRC-23) (GSO ESIM FSS) Res. 123 (WRC-23) (NGSO ESIM FSS)
INTER-SATELLITE 5.521A MOBILE	INTER-SATELLITE 5.521A MOBILE	Inter-satellite (18.8-20.2 GHz)	Res. 679 (WRC-23) (ISS)
19.3-19.7 GHz	**19.3-19.7 GHz**		
FIXED	FIXED NF14	Fixed Links (18 GHz) (17.7-19.7 GHz)	Channelling plan for 18 GHz band in accordance with ITU-R Rec. F.595 Annex 1, latest version

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
FIXED-SATELLITE (space-to-Earth) (Earth-to-space) 5.517A 5.523B 5.523C 5.523D 5.523E	FIXED-SATELLITE (space-to-Earth) (Earth-to-space) 5.517A 5.523B 5.523C 5.523D 5.523E	FSS (Earth-to-space) is limited to feeder links of non-GSO-satellite systems in the MSS ESIMs (under the FSS)	 Res. 169 (Rev.WRC-23) (ESIMs GSO FSS)
INTER-SATELLITE 5.521A 5.523DA MOBILE	INTER-SATELLITE 5.521A 5.523DA MOBILE	Inter-satellite (18.8-20.2 GHz)	Res. 679 (WRC-23) (ISS)
19.7-20.1 GHz	**19.7-20.1 GHz**		
FIXED-SATELLITE (space-to-Earth) 5.484A 5.484B 5.516B 5.517B 5.527A	FIXED-SATELLITE (space-to-Earth) 5.484A 5.484B 5.516B 5.517B 5.527A	ESIMs (under the FSS) HDFSS (space-to-Earth) (19.7-20.2 GHz) GSO/FSS	Res. 156 (Rev.WRC-23) applies to ESIMs Res. 123 (WRC-23) AMESIM NGSO FSS Res. 143 (Rev.WRC-19) (HDFSS) Res. 155 (Rev.WRC-19) (unmanned aircraft)
INTER-SATELLITE 5.521A	INTER-SATELLITE 5.521A	Inter-satellite (18.8-20.2 GHz)	Res. 679 (WRC-23) (ISS)
Mobile-satellite (space-to-Earth) 5.524	Mobile-satellite (space-to-Earth)		
20.1-20.2 GHz	**20.1-20.2 GHz**		
FIXED-SATELLITE (space-to-Earth) 5.484A 5.484B 5.516B 5.517B 5.527A	FIXED-SATELLITE (space-to-Earth) 5.484A 5.484B 5.516B 5.517B 5.527A	ESIMs (under the FSS) HDFSS (space-to-Earth) (19.7-20.2 GHz)	Res. 156 (Rev.WRC-23) applies to ESIMs GSO FSS Res. 123 (WRC-23) AMESIM NGSO FSS Res. 143 (Rev.WRC-19) (HDFSS)
INTER-SATELLITE 5.521A MOBILE-SATELLITE (space-to-Earth)	INTER-SATELLITE 5.521A MOBILE-SATELLITE (space-to-Earth)	Inter-satellite (18.8-20.2 GHz)	Res. 679 (WRC-23) Inter-sat service

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
5.524 5.525 5.526 5.527 5.528	5.525 5.526 5.527 5.528		
20.2-21.2 GHz FIXED-SATELLITE (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) Standard frequency and time signal-satellite (space-to-Earth) 5.524 5.529A	**20.2-21.2 GHz** FIXED-SATELLITE (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) Standard frequency and time signal-satellite (space-to-Earth) 5.529A	Fixed Satellite Systems (TVRO)	
21.2-21.4 GHz EARTH EXPLORATION-SATELLITE (passive) FIXED MOBILE SPACE RESEARCH (passive	**21.2-21.4 GHz** EARTH EXPLORATION-SATELLITE (passive) FIXED NF14 MOBILE SPACE RESEARCH (passive)	Passive Sensing Fixed Links (23 GHz) (21.2-23.6 GHz)	Channelling plan for 23 GHz band in accordance with ITU-R Rec. F.637 Annex 1, latest version
21.4-22 GHz FIXED MOBILE	**21.4-22 GHz** FIXED NF14 MOBILE	Fixed Links (23 GHz) (21.2-23.6 GHz)	Channelling plan for 23 GHz band in accordance with ITU-R Rec. F.637 Annex 1, latest version.

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
			5.530B encourages no stations deployed in the mobile service in this band
BROADCASTING-SATELLITE 5.208B	BROADCASTING-SATELLITE 5.208B	Broadcast satellite systems	Use of BSS in this band is subject to Res. 552 (Rev. WRC-23), Res. 553 (Rev. WRC-23) and Res. 554 (WRC-12). Res. 555 (Rev. WRC-15) was abrogated on 23 November 2019 by Res. 99 (Rev. WRC-19).
5.530A 5.530B	5.530A 5.530B		
22-22.2 GHz	**22-22.2 GHz**		
FIXED	FIXED NF14	Fixed Links (23 GHz) (21.2-23.6 GHz)	Channelling plan for 23 GHz band in accordance with ITU-R Rec. F.637 Annex 1, latest version
MOBILE except aeronautical mobile (R) 5.531A 5.531B 5.531C 5.531D 5.531F	MOBILE except aeronautical mobile (R) 5.531A 5.531B 5.531C 5.531D 5.531F		
		Radio astronomy (red-shifted H_2O Passive Sensing)	See Section 5 for coordination with radio astronomy
5.149	5.149		
22.2-22.21 GHz	**22.2-22.21 GHz**		
FIXED	FIXED NF14	Fixed Links (23 GHz) (21.2- 23.6 GHz)	Channelling plan for 23 GHz band in accordance with ITU-R Rec. F.637 Annex 1, latest version
MOBILE except aeronautical mobile	MOBILE except aeronautical mobile		
		Radio astronomy (red-shifted H_2O Passive Sensing)	See Section 5 for coordination with radio astronomy

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
5.149	5.149		
22.21-22.5 GHz	**22.21-22.5 GHz**		
EARTH EXPLORATION-SATELLITE (passive)	EARTH EXPLORATION-SATELLITE (passive)		
FIXED	FIXED NF14	Fixed Links (23 GHz) (21.2-23.6 GHz)	Channelling plan for 23 GHz band in accordance with ITU-R Rec. F.637 Annex 1, latest version
MOBILE except aeronautical mobile	MOBILE except aeronautical mobile		
RADIO ASTRONOMY	RADIO ASTRONOMY	Radio astronomy (red-shifted H_2O)	See Section 5 for coordination with radio astronomy
SPACE RESEARCH (passive)	SPACE RESEARCH (passive)	Passive Sensing	
5.149 5.532	5.149 5.532		
22.5-22.55 GHz	**22.5-22.55 GHz**		
FIXED	FIXED NF14	Fixed Links (23 GHz) (21.2-23.6 GHz)	Channelling plan for 23 GHz band in accordance with ITU-R Rec. F.637 Annex 1, latest version
MOBILE	MOBILE		
22.55-23.15 GHz	**22.55-23.15 GHz**		
FIXED	FIXED NF14	Fixed Links (23 GHz) (21.2-23.6 GHz)	Channelling plan for 23 GHz band in accordance with ITU-R Rec. F.637 Annex 1, latest version
INTER-SATELLITE 5.338A	INTER-SATELLITE 5.338A		
MOBILE	MOBILE		

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
SPACE RESEARCH (Earth-to-space) 5.532A 5.149	SPACE RESEARCH (Earth-to-space) 5.532A 5.149		See Section 5 for coordination with radio astronomy Res. 750 (Rev.WRC-19) (passive protection)
23.15-23.55 GHz FIXED INTER-SATELLITE 5.338A MOBILE	**23.15-23.55 GHz** FIXED NF14 INTER-SATELLITE 5.338A MOBILE	Fixed Links (23 GHz) (21.2-23.6 GHz)	Channelling plan for 23 GHz band in accordance with ITU-R Rec. F.637 Annex 1, latest version
23.55-23.6 GHz FIXED MOBILE	**23.55-23.6 GHz** FIXED NF14 MOBILE	Fixed Links (23 GHz) (21.2-23.6 GHz)	Channelling plan for 23 GHz band in accordance with ITU-R Rec. F.637 Annex 1, latest version
23.6-24 GHz EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340	**23.6-24 GHz** EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340	Radio astronomy (observation of ammonia and continuum observations) Passive Sensing	See Section 5 for coordination with radio astronomy

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
24-24.05 GHz AMATEUR AMATEUR-SATELLITE 5.150	**24-24.05 GHz** AMATEUR AMATEUR-SATELLITE 5.150	 Non-specific SRD (24-24.25 GHz) SRD applications (24-24.25 GHz) ISM (24.0-24.25 GHz)	 Radio Frequency Spectrum Regulations as amended (Annex B) (GG. No. 38641, Notice 279, 30 March 2015); Annexure B (apparatus exempt from radio frequency spectrum licences), as amended (most recently GG 48643, Notice 1822 of 23 May 2023). Common international SRD band; see ITU-R Rec.SM.1896-1. Report ITU-R SM.2153-9. The band 24-24.25 GHz is designated for ISM applications (5.150).
24.05-24.25 GHz RADIOLOCATION Amateur	**24.05-24.25 GHz** RADIOLOCATION Amateur	 FDDA (24.05-24.25 GHz) SRD (24-24.25 GHz) (Reservoir Level Probing Radar ISM (24.0-24.25 GHz)	 Radio Frequency Spectrum Regulations as amended (Annex I) (GG. No. 38641, Notice 279, 30 March 2015); Annexure B (apparatus exempt from radio frequency spectrum licences), as amended (most recently GG 48643, Notice 1822 of 23 May 2023). Common international ISM/SRD band; see ITU-R Rec.SM.1896-1. ITU-R Report SM.2153-9, latest version applies

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
Earth exploration-satellite (active) 5.150	Earth exploration-satellite (active) 5.150		
24.25-24.45 GHz	**24.25-24.45 GHz**		
FIXED	FIXED NF14	Fixed links-26 GHz (24.25-26.5 GHz)	Channelling plan for 26 GHz band in accordance with ITU-R Rec. F.748 Annex 1, latest version Temporary fixed links for ENG/OB Res. 242 (Rev.WRC-23) (IMT)
MOBILE except aeronautical mobile 5.338A 5.532AB	MOBILE except aeronautical mobile 5.338A 5.532AB NF9	IMT TDD (24.25-27.5 GHz)	Recommendation ITU-R M.1036-8 Second Draft IMT Roadmap (GG 53883, Notice 3712 of 18 Dec 2025) Res. 750 (Rev.WRC-19) (passive protection) The Authority intends to develop the RFSAP for the band 24.25-27.5 GHz
24.45-24.65 GHz	**24.45-24.65 GHz**		
FIXED	FIXED NF14	Fixed links-26 GHz (24.5-26.5 GHz) BFWA (24.5-26.5 GHz)	Channelling plan for 26 GHz band in accordance with ITU-R Rec. F.748 Annex 1, latest version
INTER-SATELLITE	INTER-SATELLITE		
MOBILE except aeronautical mobile 5.338A 5.532AB	MOBILE except aeronautical mobile 5.338A 5.532AB NF9	IMT TDD (24.25-27.5 GHz)	Res. 242 (Rev.WRC-23) (IMT) Rec. ITU-R M.1036-8 Second Draft IMT Roadmap (GG 53883, Notice 3712 of 18 Dec 2025) Res. 750 (Rev.WRC-19) (passive protection)

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
			The Authority intends to develop the RFSAP for the band 24.25-27.5 GHz
24.65-24.75 GHz	**24.65-24.75 GHz**		
FIXED	FIXED NF14	Fixed links-26 GHz (24.5-26.5 GHz) BFWA (24.5-26.5 GHz)	Channelling plan for 26 GHz band in accordance with ITU-R Rec. F.748 Annex 1, latest version
FIXED-SATELLITE (Earth-to-space) 5.532B	FIXED-SATELLITE (Earth-to-space) 5.532B		
INTER-SATELLITE	INTER-SATELLITE 5.533		
MOBILE except aeronautical mobile 5.338A 5.532AB	MOBILE except aeronautical mobile 5.338A 5.532AB NF9	IMT TDD (24.25-27.5 GHz)	Second Draft IMT Roadmap (GG 53883, Notice 3712 of 18 Dec 2025) Res. 242 (Rev. WRC-23) (IMT) Rec. ITU-R M.1036-8 Res. 750 (Rev.WRC-19) (passive protection) The Authority intends to develop the RFSAP for the band 24.25-27.5 GHz
24.75-25.25 GHz	**24.75-25.25 GHz**		
FIXED	FIXED NF14	Fixed links - 26 GHz (24.5-26.5 GHz) BFWA (24.5-26.5 GHz)	Channelling plan for 26 GHz band in accordance with ITU-R Rec. F.748 Annex 1, latest version
FIXED-SATELLITE (Earth-to-space) 5.532B	FIXED-SATELLITE (Earth-to-space) 5.532B		
MOBILE except aeronautical mobile 5.338A 5.532AB	MOBILE except aeronautical mobile 5.338A 5.532AB NF9	IMT TDD (24.25-27.5 GHz)	Rec. 242 (WRC-23) (IMT) Rec. ITU-R M.1036-8

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
			Second Draft IMT Roadmap (GG 53883 Notice 3712 of 18 Dec 2025) The Authority intends to develop the RFSAP for the band 24.25-27.5 GHz Res. 750 (Rev.WRC-19) (passive protection)
25.25-25.5 GHz	**25.25-25.5 GHz**		
FIXED 5.534A	FIXED NF14	Fixed Links (26 GHz) (24.5-26.5 GHz) BFWA (24.5-26.5 GHz)	Channelling plan for 26 GHz band in accordance with ITU-R Rec. F.748 Annex 1, latest version
INTER-SATELLITE 5.536	INTER-SATELLITE (Earth exploration-satellite applications) 5.536 INTER-SATELLITE (space research applications) 5.536 INTER-SATELLITE (transmissions of data originating from industrial and medical activities in space) 5.536		
MOBILE 5.338A 5.532AB	MOBILE 5.338A 5.532AB NF9	IMT TDD (24.25-27.5 GHz)	Rec. 242 (WRC-23) (IMT) Rec ITU-R M.1036-8 Second Draft IMT Roadmap (GG 53883 Notice 3712 of 18 Dec 2025) Res. 750 (Rev.WRC-19) (passive protection)

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
Standard frequency and time signal-satellite (Earth-to-space)	Standard frequency and time signal-satellite (Earth-to-space)		The Authority intends to develop the RFSAP for the band 24.25-27.5 GHz
25.5-27 GHz	**25.5-27 GHz**		
EARTH EXPLORATION-SATELLITE (space-to Earth) 5.536B	EARTH EXPLORATION-SATELLITE (space-to Earth) 5.536B	National Polar-Orbiting Operational Environment Satellite System (NPOESS) 25.5-27 GHz	
FIXED 5.534A	FIXED NF14	Fixed Links (26 GHz) (24.5-26.5 GHz) FWA (24.5-26.5 GHz)	Channelling plan for 26 GHz band in accordance with ITU-R Rec. F.748 latest version Annex 1, latest version
INTER-SATELLITE 5.536	INTER-SATELLITE (Earth exploration-satellite applications) 5.536 INTER-SATELLITE (space research applications) 5.536 INTER-SATELLITE (transmissions of data originating from industrial and medical activities in space) 5.536		
MOBILE 5.338A 5.532AB	MOBILE 5.338A 5.532AB NF9	IMT TDD (24.25-27.5 GHz)	Second Draft IMT Roadmap (GG 53883 Notice 3712 of 18 Dec 2025) Res. 242 (Rev.WRC-23) (IMT) Rec ITU-R M.1036-8 Res. 750 (Rev.WRC-19) (passive protection)

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
SPACE RESEARCH (space-to-Earth) 5.536C Standard frequency and time signal-satellite (Earth-to-space) 5.536A	SPACE RESEARCH (space-to-Earth) 5.536C Standard frequency and time signal-satellite (Earth-to-space) 5.536A		The Authority intends to develop the RFSAP for the band 24.25-27.5 GHz.
27-27.5 GHz FIXED INTER-SATELLITE 5.536 MOBILE 5.338A 5.532AB	**27-27.5 GHz** FIXED INTER-SATELLITE (Earth exploration-satellite applications) 5.536 INTER-SATELLITE (space research applications) 5.536 INTER-SATELLITE (transmissions of data originating from industrial and medical activities in space) 5.536 5.537 MOBILE 5.338A 5.532AB NF9	IMT TDD (24.25-27.5 GHz)	Second Draft IMT Roadmap (GG 53883 Notice 3712 of 18 Dec 2025) Rec. ITU-R M.1036 - latest version Res. 750 (Rev.WRC-19) (passive protection) RFSAP for the band 24.25 - 27.5 GHz to be developed.

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
27.5-28.5 GHz	**27.5-27.501 GHz**		
FIXED 5.537A	FIXED 5.537A NF14 NF18	Fixed Links (28 GHz) (27.5-29.5 GHz)	Channelling plan for 28 GHz band in accordance with ITU-R Rec. F.748 Annex 2, latest version
FIXED-SATELLITE (Earth-to-space) 5.484A 5.516B 5.517A 5.517B 5.539	FIXED-SATELLITE (Earth-to-space) 5.484A 5.516B 5.517A 5.517B 5.539	HDFSS (Earth-to-space) (27.5-27.82 GHz)	Res.143 (Rev.WRC-19) (HDFSS). The band 27.5-30 GHz may be used by the FSS for BSS feeder links under the FSS (Earth-to-space).
		ESIMS (under the FSS) GSO (27.5-29.5 GHz) and NGSO (27.5-29.1 GHz)	Res. 169 (Rev.WRC-23) (ESIMs GSO FSS) Res. 123 (WRC-23) (ESIMs NGSO FSS)
INTER-SATELLITE 5.521A	INTER-SATELLITE 5.521A		Res. 679 (WRC-23) (ISS)
	FIXED-SATELLITE (space-to-Earth) (27.5-27.501 GHz) 5.538	Beacon transmission for uplink power control) (FSS (space-to-Earth)	
MOBILE	MOBILE		
	27.501-27.82 GHz		
	FIXED 5.537A NF14 NF18	Fixed Links (28 GHz) (27.5-29.5 GHz)	Paired with 31.0-31.3 GHz (subscriber to base station) Channelling plan for 28 GHz band in accordance with ITU-R Rec. F.748 Annex 2 latest version
	FIXED-SATELLITE (Earth-to-space) 5.484A 5.516B 5.517A 5.517B 5.539	Beacon transmission for up-link power control) (FSS (space-to-Earth))	

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
		HDFSS (Earth-to-space) (27.5-27.82 GHz)	The band 27.5-30 GHz may be used by the FSS for BSS feeder links under the FSS (Earth-to-space). Res. 143 (Rev.WRC-19) (HDFSS)
		ESIMs (under the FSS) GSO (27.5-29.5 GHz) and NGSO (27.5-29.1 GHz)	Res. 169 (Rev.WRC-23) (ESIMs GSO FSS) Res. 123 (WRC-23) (ESIMs NGSO FSS)
	INTER-SATELLITE 5.521A	Inter-satellite (27.5-30 GHz)	Res. 679 (WRC-23) (ISS)
	Fixed-satellite (space-to-Earth) (27.501-29.999 GHz) 5.540 MOBILE 5.540		
	27.82-28.45 GHz		
	FIXED 5.537A NF14 NF18	Fixed Links (28 GHz) (27.5-29.5 GHz)	Paired with 31.0-31.3 GHz (subscriber to base station) Channelling plan for 28 GHz band in accordance with ITU-R Rec. F.748 Annex 2, latest version
	FIXED-SATELLITE (Earth-to-space) 5.484A 5.517A 5.517B 5.539	Beacon transmission for up-link power control FSS (space-to-Earth)	
		ESIMs (under the FSS) GSO (27.5-29.5 GHz) and NGSO (27.5-29.1 GHz)	Res. 169 (Rev.WRC-23) (ESIMs GSO FSS) Res. 123 (WRC-23) (ESIMs NGSO FSS)
		FSS for BSS feeder links	
	INTER-SATELLITE 5.521A	Inter-satellite (27.5-30 GHz)	Res. 679 (WRC-23) (ISS)

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
	Fixed-satellite (space-to-Earth) (27.501-29.999 GHz) MOBILE 5.540		
	28.45-28.5 GHz		
	FIXED NF14	Fixed Links (28 GHz) (27.5-29.5 GHz)	Channelling plan for 28 GHz band in accordance with ITU-R Rec. F.748 Annex 2, latest version
	FIXED-SATELLITE (Earth-to-space) 5.484A 5.516B 5.517A 5.517B 5.539	Beacon transmission for up-link power control) FSS (space-to-Earth (27.501-29.999 GHz)	
		HDFSS (Earth-to-space) (28.45-28.94 GHz)	Res.143 (Rev.WRC-19) (HDFSS).
		FSS for BSS feeder links	
		ESIMs (under the FSS) GSO (27.5-29.5 GHz) and NGSO (27.5-29.1 GHz)	Res. 169 (Rev.WRC-23) (ESIMs GSO FSS) Res. 123 (WRC-23) (ESIMs NGSO FSS)
	INTER-SATELLITE 5.521A	Inter-satellite (27.5-30 GHz)	Res. 679 (WRC-23) (ISS)
	Fixed-satellite (space-to-Earth) 5.540 MOBILE		
5.538 5.540			
28.5-29.1 GHz	**28.5-28.94 GHz**		

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
FIXED	FIXED NF14	Fixed Links (28 GHz) (27.5-29.5 GHz)	Channelling plan for 28 GHz band in accordance with ITU-R Rec. F.748 Annex 2, latest version.
FIXED-SATELLITE (Earth-to-space) 5.484A 5.516B 5.517A 5.517B 5.523A 5.539	FIXED-SATELLITE (Earth-to-space) 5.484A 5.516B 5.517A 5.517B 5.523A 5.539	Beacon transmission for up-link power control) (FSS (space-to Earth))	
		HDFSS (Earth-to-space) (under the FSS) (28.45-28.94 GHz)	Res.143 (Rev.WRC19)
		ESIMs (under the FSS) GSO (27.5-29.5 GHz) and NGSO (27.5-29.1 GHz)	Res. 169 (Rev.WRC-23) (ESIMs GSO FSS) Res. 123 (WRC-23) (ESIMs NGSO FSS)
		FSS for BSS feeder links	
INTER-SATELLITE 5.521A	INTER-SATELLITE 5.521A	Inter-satellite (27.5-30 GHz)	Res. 679 (WRC-23) (ISS)
MOBILE	MOBILE		
Earth exploration-satellite (Earth-to-space) 5.541	Earth exploration-satellite (Earth-to-space) 5.541 Fixed-satellite (space-to-Earth) 5.540	Transfer of data between stations (EESS)	
	28.94-29.1 GHz		
	FIXED NF14	Fixed Links (28 GHz) (27.5-29.5 GHz)	Channelling plan for 28 GHz band in accordance with ITU-R Rec. F.748 Annex 2, latest version
	FIXED-SATELLITE (Earth-to-space) 5.484A 5.517A 5.523A 5.517B 5.539	Beacon transmission for up-link power control (FSS (space-to-Earth) (27.501-29.999 GHz)	

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
		ESIMs (under the FSS) GSO (27.5-29.5 GHz) and NGSO (27.5-29.1 GHz) FSS for BSS feeder links	Res. 169 (Rev.WRC-23) (ESIMs GSO FSS) Res. 123 (WRC-23) (ESIMs NGSO FSS)
	INTER-SATELLITE 5.521A MOBILE	Inter-satellite (27.5-30 GHz)	Res. 679 (WRC-23) (ISS)
	Earth exploration-satellite (Earth-to-space) 5.541 Fixed-satellite (space-to-Earth)	Transfer of data between stations (EESS)	
5.540	5.540		
29.1-29.5 GHz	**29.1-29.46 GHz**		
FIXED	FIXED NF14	Fixed Links (28 GHz) (27.5-29.5 GHz)	Channelling plan for 28 GHz band in accordance with ITU-R Rec. F.748 latest version Annex 2.
FIXED-SATELLITE (Earth-to-space) 5.516B 5.517A 5.523C 5.523E 5.535A 5.539 5.541A	FIXED-SATELLITE (Earth-to-space) 5.517A 5.523C 5.523E 5.535A 5.539 5.541A	ESIMs (under the FSS) (27.5-29.5 GHz) Fixed-satellite (space-to-Earth) (27.501-29.999 GHz) FSS (uplink)-limited to GSO systems and feeder links of non-NGSO-satellite systems in the MSS Transfer of data between stations (EESS)	Res. 169 (Rev.WRC-23)

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
		Beacon transmission for up-link power control FSS for BSS feeder links	
INTER-SATELLITE 5.521A MOBILE	INTER-SATELLITE 5.521A MOBILE	Inter-satellite (27.5-30 GHz)	Res. 679 (WRC-23)
Earth exploration-satellite (Earth-to-space) 5.541	Earth exploration-satellite (Earth-to-space) 5.541 Fixed-satellite (space-to-Earth) 5.540		
	29.46-29.5 GHz		
	FIXED NF14		Channelling plan for 28 GHz band in accordance with ITU-R Rec. F.748 latest Annex 2 latest version.
	FIXED-SATELLITE (Earth-to-space) 5.516B 5.517A 5.523C 5.523E 5.535A 5.539 5.541A	ESIMs (under the FSS) (27.5-29.5 GHz)	Res. 123 (WRC-23) (ESIMs NGSO FSS) Res. 156 (Rev.WRC-23) (ESIMs GSO FSS) Res. 169 (Rev.WRC-23)
		FSS (uplink)-limited to GSO systems and feeder links of non-NGSO-satellite systems in the MSS	Res. 155 (Rev.WRC-19) (unmanned aircraft)
		Beacon transmission for up-link power control (FSS space-to-earth)	
		HDFSS (in the FSS) (space-to-Earth) FSS for BSS feeder links	Res. 143 (Rev.WRC19) (HDFSS)
	INTER-SATELLITE 5.521A	Inter-satellite (27.5-30 GHz)	Res. 679 (WRC-23) (ISS)

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
	FIXED-SATELLITE (GSO) (Earth-to-space) MOBILE Earth exploration-satellite (Earth-to-space) 5.541 Fixed-satellite (space-to-Earth) 5.540	 Transfer of data between stations (EESS)	
29.5-29.9 GHz	**29.5-29.9 GHz**		
FIXED-SATELLITE (Earth-to-space) 5.484A 5.484B 5.516B 5.517B 5.527A 5.539	FIXED-SATELLITE (Earth-to-space) 5.484A 5.484B 5.516B 5.517B 5.527A 5.539	Fixed-satellite (space-to-Earth) (27.501-29.999 GHz) ESIMS (under the FSS) GSO and NGSO (29.5-30 MHz) Beacon transmission for up-link power control (FSS (space-to-Earth)) High Density FSS (Earth-to-space) (29.46-30 GHz)	Res. 155 (Rev.WRC-19) (unmanned aircraft) Res. 123 (WRC-23) (ESIMs NGSO FSS) Res. 156 (Rev.WRC-23) (ESIMs GSO FSS) Res.143 applies for HDFSS
INTER-SATELLITE 5.521A Earth exploration-satellite (Earth-to-space) 5.541 Mobile-satellite (Earth-to-space) 5.540 5.542	INTER-SATELLITE 5.521A Earth exploration-satellite (Earth-to-space) 5.541 Fixed-satellite (space-to-Earth) Mobile-satellite (Earth-to-space) 5.540	Inter-satellite (27.5-30 GHz) Transfer of data between stations (EESS)	Res. 679 (WRC-23)

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
29.9-30 GHz	**29.9-29.95 GHz**		
FIXED-SATELLITE (Earth-to-space) 5.484A 5.484B 5.516B 5.517B 5.527A 5.539	FIXED-SATELLITE (Earth-to-space) 5.484A 5.484B 5.516B 5.517B 5.527A 5.539	ESIMs (under the FSS) Beacon transmission for up-link power control High Density FSS (space-to-Earth) (29.46-30 GHz)	Res. 156 (Rev.WRC-23) applies for ESIM Res. 123 (WRC-23) Res. 155 (Rev.WRC-19) (unmanned aircraft) Res. 143 (Rev.WRC19) (HDFSS)
INTER-SATELLITE 5.521A MOBILE-SATELLITE (Earth-to-space) Earth exploration-satellite (Earth-to-space) 5.541 5.543	INTER-SATELLITE 5.521A MOBILE-SATELLITE (Earth-to-space) Earth exploration-satellite (Earth-to-space) 5.541 5.543 Fixed-satellite (space-to-Earth) 5.525 5.526 5.527 5.540	Inter-satellite (27.5-30 GHz) Transfer of data between stations	Res. 679 (WRC-23) The Authority intends to develop the RFSAP for the band 27.5-31 GHz.
	29.95-29.999 GHz		
	FIXED-SATELLITE (Earth-to-space) 5.484A 5.484B 5.516B 5.527A 5.517B 5.539	ESIMs (under the FSS) Fixed-satellite (space-to-Earth) (27.501-29.999 GHz) Transfer of data between stations Telemetry, tracking and control Beacon transmission for up-link power control	Res. 156 (Rev.WRC-23) applies for ESIM Res. 123 (WRC-23) Res. 155 (Rev.WRC-19) (unmanned aircraft)

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
		High Density FSS (space-to-Earth) (29.46-30 GHz)	Res. 143 (Rev.WRC-19) (HDFSS)
	INTER-SATELLITE 5.521A	Inter-satellite (27.5-30 GHz)	Res. 679 (WRC-23)
	MOBILE-SATELLITE (Earth-to-space)		
	Earth exploration-satellite (Earth-to-space) 5.541 5.543		
	Earth exploration-satellite (space-to-space)		
	Fixed-satellite (space-to-Earth)		
	5.525 5.526 5.527 5.540		
	29.999-30 GHz		
	FIXED-SATELLITE (Earth-to-space) 5.484A 5.484B 5.516B 5.527A 5.517B 5.539	ESIMs (under the FSS) NGSO (29.5-30 GHz)	Res. 155 (WRC-19) (unmanned aircraft) Res. 156 (Rev.WRC-23) applies for ESIM Res. 123 (WRC-23)
	FIXED-SATELLITE (space-to-Earth)	Beacon transmission for up-link power control Fixed-satellite (space-to-Earth) Transfer of data between stations (EESS) Telemetry, tracking and control (EESS)	
		High Density FSS (space-to-Earth) (29.46-30 GHz)	Res.143 (Rev.WRC-19) applies for HDFSS
	INTER-SATELLITE 5.521A	Inter-satellite (27.5-30 GHz)	Res. 679 (WRC-23)

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
	MOBILE-SATELLITE (Earth-to-space) Earth exploration-satellite (Earth-to-space) 5.541 5.543 Earth exploration-satellite (space-to-space) 5.525 5.526 5.527 5.538		
5.525 5.526 5.527 5.538 5.540 5.542	5.525 5.526 5.527 5.538		
30-31 GHz FIXED-SATELLITE (Earth-to-space) 5.338A MOBILE-SATELLITE (Earth-to-space) Standard frequency and time signal-satellite (space-to-Earth) 5.529A 5.542	**30-31 GHz** FIXED-SATELLITE (Earth-to-space) 5.338A MOBILE-SATELLITE (Earth-to-space) Standard frequency and time signal-satellite (space-to-Earth) 5.529A		 Res. 750 (Rev. WRC-19) The Authority intends to develop the RFSAP for the band 27.5-31 GHz.
31-31.3 GHz FIXED 5.338A 5.543B MOBILE	**31-31.3 GHz** FIXED NF18 5.338A MOBILE	 Fixed Links HAPS	 Paired with 27.5-28.35 GHz (base station to subscriber) Res. 167 (Rev.WRC-23) (HAPS)

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
Standard frequency and time signal-satellite (space-to-Earth)	Standard frequency and time signal-satellite (space-to-Earth)		
Space research 5.544 5.545 5.149	Space research 5.544 5.149	Radio astronomy (Continuum Observations)	See Section 5 for coordination with radio astronomy Res. 750 (Rev.WRC-19) (passive protection)
31.3-31.5 GHz EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340	**31.3-31.5 GHz** EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340	 Radio astronomy (Continuum Observations)	 Radio astronomy (Continuum Observations)
31.5-31.8 GHz EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) Fixed	**31.5-31.8 GHz** EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) Fixed 5.546	 Radio astronomy (Continuum Observations) Passive Sensing	 Radio astronomy (Continuum Observations)

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
Mobile except aeronautical mobile 5.149 5.546	Mobile except aeronautical mobile 5.546 5.149		
31.8-32 GHz FIXED 5.547A RADIONAVIGATION SPACE RESEARCH (deep space) (space-to-Earth) 5.547 5.547B 5.548	**31.8-32 GHz** FIXED 5.547A NF14 RADIONAVIGATION SPACE RESEARCH (deep space) (space-to-Earth) 5.547 5.548	HDFS (31.8-33.4 GHz)	Channelling plan for 32 GHz band in accordance with ITU-R Rec. F.1520 Annex 1, latest version
32-32.3 GHz FIXED 5.547A RADIONAVIGATION SPACE RESEARCH (deep space) (space-to-Earth) 5.547 5.547C 5.548	**32-32.3 GHz** FIXED 5.547A NF14 RADIONAVIGATION SPACE RESEARCH (deep space) (space-to-Earth) 5.547 5.548	HDFS (31.8-33.4 GHz)	Channelling plan for 32 GHz band in accordance with ITU-R Rec. F.1520 Annex 1, latest version
32.3-33 GHz FIXED 5.547A INTER-SATELLITE RADIONAVIGATION	**32.3-33 GHz** FIXED 5.547A NF14 INTER-SATELLITE RADIONAVIGATION	HDFS (31.8-33.4 GHz)	Channelling plan for 32 GHz band in accordance with ITU-R Rec. F.1520 Annex 1, latest version

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
5.547 5.547D 5.548	5.547 5.548		
33-33.4 GHz FIXED 5.547A RADIONAVIGATION 5.547 5.547E	**33-33.4 GHz** FIXED 5.547A NF14 RADIONAVIGATION 5.547	HDFS (31.8-33.4 GHz)	Channelling plan for 32 GHz band in accordance with ITU-R Rec. F.1520 Annex 1 latest version
33.4-34.2 GHz RADIOLOCATION 5.549	**33.4-34.2 GHz** RADIOLOCATION	Government Services	
34.2-34.7 GHz RADIOLOCATION SPACE RESEARCH (deep space) (Earth-to-space) 5.549	**34.2-34.7 GHz** RADIOLOCATION SPACE RESEARCH (deep space) (Earth-to-space)	Government Services	
34.7-35.2 GHz RADIOLOCATION Space research 5.550 5.549	**34.7-35.2 GHz** RADIOLOCATION Space research	Government Services	
35.2-35.5 GHz METEOROLOGICAL AIDS RADIOLOCATION	**35.2-35.5 GHz** METEOROLOGICAL AIDS RADIOLOCATION	Government Services	

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
5.549			
35.5-36 GHz METEOROLOGICAL AIDS EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION SPACE RESEARCH (active) 5.549 5.549A	**35.5-36 GHz** METEOROLOGICAL AIDS EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION SPACE RESEARCH (active) 5.549A	Government Services	
36-37 GHz EARTH EXPLORATION-SATELLITE (passive) FIXED MOBILE SPACE RESEARCH (passive) 5.149 5.550A	**36-37 GHz** EARTH EXPLORATION-SATELLITE (passive) FIXED MOBILE SPACE RESEARCH (passive) 5.149 5.550A	Government Services Passive Sensing Radio astronomy (HC3N and OH lines)	See Section 5 for coordination with radio astronomy
37-37.5 GHz FIXED MOBILE except aeronautical mobile 5.550B SPACE RESEARCH (space-to-Earth)	**37-37.5 GHz** FIXED NF14 MOBILE except aeronautical mobile 5.550B NF9 SPACE RESEARCH (space-to-Earth)	Fixed Links (38 GHz) (37.0-39.5 GHz) HDFS (37-40 GHz) (5.547) IMT TDD (37-43.5 GHz)	Res. 243 (Rev.WRC-23) Second Draft IMT Roadmap (GG 53883 Notice 3712 of 2025) Recommendation ITU-R M. 1036-8

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
5.547	5.547		RFSAP for the frequency range 37-43.5 GHz to be developed.
37.5-38 GHz	**37.5-38 GHz**		
FIXED	FIXED NF14	Fixed Links (38 GHz) (37.0-39.5 GHz) HDFS (37-40 GHz) (5.547)	Channelling plan for 38 GHz band in accordance with ITU Rec. F.749 Annex 1.
FIXED-SATELLITE (space-to-Earth) 5.550C 5.550CA	FIXED-SATELLITE (space-to-Earth) 5.550C 5.550CA		Res. 770 (Rev.WRC-23) (FSS) Res. 76 (Rev. WRC-12) applies.
MOBILE except aeronautical mobile 5.550B	MOBILE except aeronautical mobile 5.550B NF9	IMT TDD (37-43.5 GHz)	Recommendation ITU-R M. 1036-8 Second Draft IMT Roadmap (GG 53883 Notice 3712 of 2025) Res. 243 (Rev.WRC-23) (IMT)
SPACE RESEARCH (space-to-Earth)	SPACE RESEARCH (space-to-Earth)		
Earth exploration-satellite (space-to-Earth)	Earth exploration-satellite (space-to-Earth)		
5.547	5.547		RFSAP for the frequency range 37-43.5 GHz to be developed.
38-39.5 GHz	**38-39.5 GHz**		
FIXED 5.550D	FIXED 5.550D NF14	Fixed Links (38 GHz) (37.0-39.5 GHz) HDFS (37-40 GHz) (5.547) FIXED (HAPS) (38-39.5 GHz)	Channelling plan for 38 GHz band in accordance with ITU-R Rec. F.749 Annex 1. Res. 168 (Rev. WRC-23) (HAPS)

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
FIXED-SATELLITE (space-to-Earth) 5.550C	FIXED-SATELLITE (space-to-Earth) 5.550C		Res. 770 (Rev. WRC-23) (FSS)
MOBILE 5.550B	MOBILE 5.550B NF9	IMT TDD (37-43.5 GHz)	Second Draft IMT Roadmap (GG 53883 Notice 3712 of 2025) Recommendation ITU-R M.1036-8 Res. 243 (Rev.WRC-23) (IMT)
Earth exploration-satellite (space-to-Earth)	Earth exploration-satellite (space-to-Earth)		
5.547	5.547		RFSAP for the frequency range 37-43.5 GHz to be developed.
39.5-40 GHz	**39.5-40 GHz**		
FIXED	FIXED	Fixed links HDFS (37-40 GHz) (5.547)	
FIXED-SATELLITE (space-to-Earth) 5.516B 5.550C	FIXED-SATELLITE (space-to-Earth) 5.516B 5.550C	HDFSS (space-to-Earth) (39.5-40.5 GHz)	Res. 143 (Rev. WRC-19) (HDFSS) Res. 770 (Rev.WRC-23) (FSS)
MOBILE 5.550B	MOBILE 5.550B NF9	IMT TDD (37-43.5 GHz)	Res. 243 (Rev.WRC-23) (IMT) Recommendation ITU-R M. 1036-8 Second Draft IMT Roadmap (GG 53883 Notice 3712 of 2025)
MOBILE-SATELLITE (space-to-Earth)	MOBILE-SATELLITE (space-to-Earth)		
Earth exploration-satellite (space-to-Earth)	Earth exploration-satellite (space-to-Earth)		
5.547 5.550E	5.547 5.550E		RFSAP for the frequency range 37-43.5 GHz to be developed.

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
40-40.5 GHz	**40-40.5 GHz**		
EARTH EXPLORATION-SATELLITE (Earth-to-space)	EARTH EXPLORATION-SATELLITE (Earth-to-space)	Government Services	
FIXED	FIXED		
FIXED-SATELLITE (space-to-Earth) 5.516B 5.550C	FIXED-SATELLITE (space-to-Earth) 5.516B 5.550C	HDFSS (space-to-Earth) (39.5-40.5 GHz)	Res. 143 (Rev.WRC-19) (HDFSS) Res. 770 (Rev.WRC-23) (FSS)
MOBILE 5.550B	MOBILE 5.550B NF9	IMT (TDD) (37-43.5 GHz)	Res. 243 (Rev.WRC-23) (IMT) Recommendation ITU-R M. 1036-8 Second Draft IMT Roadmap (GG 53883 Notice 3712 of 2025)
MOBILE-SATELLITE (space-to-Earth)	MOBILE-SATELLITE (space-to-Earth)		
SPACE RESEARCH (Earth-to-space)	SPACE RESEARCH (Earth-to-space)		
Earth exploration-satellite (space-to-Earth)	Earth exploration-satellite (space-to-Earth)		
			RFSAP for the frequency range 37 - 43.5 GHz to be developed.
5.550E	5.550E		
40.5-41 GHz	**40.5-41 GHz**		
FIXED	FIXED NF14	Fixed links (42 GHz) (40.5-43.5 GHz)	ITU-R Rec. F.2005 Annex 1 (channel plan)
		HDFS (40.5-43.5 GHz) (5.547)	
FIXED-SATELLITE (space-to-Earth) 5.550C	FIXED-SATELLITE (space-to-Earth) 5.550C		Res. 770 (Rev.WRC-23) (NGSO FSS)
LAND MOBILE 5.550B	LAND MOBILE 5.550B NF9	IMT (TDD) (37-43.5 GHz)	Res. 243 (Rev.WRC-23) (IMT) Recommendation ITU-R M. 1036-8

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
			Second Draft IMT Roadmap (GG 53883 Notice 3712 of 2025)
BROADCASTING	BROADCASTING		
BROADCASTING-SATELLITE	BROADCASTING-SATELLITE		
Aeronautical mobile	Aeronautical mobile		
Maritime mobile	Maritime mobile		
			RFSAP for the frequency range 37 - 43.5 GHz to be developed.
5.547	5.547		
41-42.5 GHz	**41-42.5 GHz**		
FIXED	FIXED NF14	Fixed links (42 GHz) (40.5-43.5 GHz)	ITU-R Rec. F.2005 Annex 1 (channel plan)
		HDFS (40.5-43.5 GHz) (5.547)	
FIXED-SATELLITE (space-to-Earth) 5.516B 5.550C	FIXED-SATELLITE (space-to-Earth) 5.550C		Res. 770 (Rev.WRC-23) (NGSO FSS)
LAND MOBILE 5.550B	LAND MOBILE 5.550B NF9	IMT (TDD) (37-43.5 GHz)	Res. 243 (Rev.WRC-23) (IMT) Recommendation ITU-R M. 1036-8 Second Draft IMT Roadmap (GG 53883 Notice 3712 of 2025)
BROADCASTING	BROADCASTING		
BROADCASTING-SATELLITE	BROADCASTING-SATELLITE		
			RFSAP for the frequency range 37 - 43.5 GHz to be developed.
5.547 5.551F 5.551H 5.551I	5.547 5.551H 5.551I		
42.5-43.5 GHz	**42.5-43.5 GHz**		

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
FIXED	FIXED NF14	Fixed links (42 GHz) (40.543.5 GHz) HDFS (40.5-43.5 GHz) (5.547)	Channelling plan for 42 GHz band in accordance with ITU-R Rec. F.2005 Annex 1.
FIXED-SATELLITE (Earth-to-space) 5.552	FIXED-SATELLITE (Earth-to-space) 5.552		
MOBILE except aeronautical mobile 5.550B	MOBILE except aeronautical mobile 5.550B	IMT (TDD) (37-43.5 GHz)	Res. 243 (Rev.WRC-23) (IMT) Recommendation ITU-R M. 1036-8 Second Draft IMT Roadmap (GG 53883 Notice 3712 of 2025)
RADIO ASTRONOMY	RADIO ASTRONOMY	Radio astronomy (Observation of silicon monoxide)	See Section 5 for coordination with radio astronomy RFSAP for the frequency range 37 - 43.5 GHz to be developed.
5.149 5.547	5.149 5.547		
43.5-47 GHz	**43.5-45.5 GHz**	Government Services (43.5-45.5 GHz)	
MOBILE 5.553 5.553A	MOBILE 5.553 5.553A		
MOBILE-SATELLITE	MOBILE-SATELLITE		
RADIONAVIGATION	RADIONAVIGATION		
RADIONAVIGATION-SATELLITE	RADIONAVIGATION-SATELLITE		
	5.554		
	45.5-47 GHz		
	MOBILE 5.553 5.553A NF9	IMT (TDD) (45.5-47 GHz)	Res. 244 (Rev.WRC-23) (IMT)

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
			Recommendation ITU-R M. 1036-8 Second Draft IMT Roadmap (GG 53883 Notice 3712 of 2025)
	MOBILE-SATELLITE RADIONAVIGATION RADIONAVIGATION-SATELLITE		
5.554	5.554		RFSAP for the band 45.5-47 GHz to be developed.
47-47.2 GHz AMATEUR AMATEUR-SATELLITE	**47-47.2 GHz** AMATEUR AMATEUR-SATELLITE	Amateur Amateur satellite	
47.2-47.5 GHz FIXED	**47.2-47.5 GHz** FIXED	FIXED (HAPS) (47.2-47.5 GHz)	Res. 122 (Rev.WRC-19) ITU-R F.1500 (HAPS)
FIXED-SATELLITE (Earth-to-space) 5.550C 5.552	FIXED-SATELLITE (Earth-to-space) 5.550C 5.552		Res. 770 (Rev.WRC-23) for NGSO in 47.2-50.2 GHz (E-to-s) NGSO/GSO sharing: Res. 770 (Rev.WRC-23) and Res. 771 (WRC-19) apply for NGSO FSS in 47.2-50.2 GHz
MOBILE 5.553B	MOBILE 5.553B NF9	IMT (TDD) (47.2-48.2 GHz)	Res. 243 (Rev.WRC-23) (IMT) Recommendation ITU-R M. 1036-8 Second Draft IMT Roadmap (GG 53883, Notice 3712 of 2025)

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
5.552A	5.552A		RFSAP for the frequency range 47.2-48.2 GHz to be developed
47.5-47.9 GHz	**47.5-47.9 GHz**		
FIXED	FIXED		
FIXED-SATELLITE (Earth-to-space) 5.550C 5.552	FIXED-SATELLITE (Earth-to-space) 5.550C 5.552		
(space-to-Earth) 5.516B 5.554A	(GSO) (space-to-Earth) 5.516B 5.554A	(HDFSS) (space-to-Earth)	Res. 770 (Rev.WRC-23) for NGSO in 47.2-50.2 GHz (E-to-s) Res. 143 (Rev.WRC-19) (HDFSS s-to-E) ITU-R S.2461 (2019) (HDFSS spectrum needs; 47.5-47.9 GHz s-to-E, GSO-only)
MOBILE 5.553B	MOBILE 5.553B NF9	IMT (TDD) 47.2-48.2 GHz	Res. 243 (Rev.WRC-23) (IMT) Recommendation ITU-R M. 1036-8 Second Draft IMT Roadmap (GG 53883 Notice 3712 of 2025) RFSAP for the frequency range 47.2-48.2 GHz to be developed.
47.9-48.2 GHz	**47.9-48.2 GHz**		
FIXED	FIXED	FIXED (HAPS) (47.9-48.2 GHz)	ITU-R F.1500 (HAPS) Res. 122 (Rev.WRC-19) (HAPS)
FIXED-SATELLITE (Earth-to-space) 5.550C 5.552	FIXED-SATELLITE (Earth-to-space) 5.550C 5.552	FSS uplinks (E-to-s), especially BSS feeder uplinks (within 47.2–49.2 GHz per 5.552).	Res. 770 (Rev.WRC-23) for NGSO FSS in 47.2-50.2 GHz (E-to-s)
MOBILE 5.553B	MOBILE 5.553B NF9	IMT (TDD) (47.2-48.2 GHz)	Res. 243 (Rev.WRC-23) (IMT) Recommendation ITU-R M. 1036-8

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
5.552A	5.552A		Second Draft IMT Roadmap (GG 53883 Notice 3712 of 2025) RFSAP for the frequency range 47.2-48.2 GHz to be developed.
48.2-48.54 GHz FIXED FIXED-SATELLITE (Earth-to-space) 5.550C 5.552 (space-to-Earth) 5.516B 5.554A 5.555B MOBILE	**48.2-48.54 GHz** FIXED FIXED-SATELLITE (Earth-to-space) 5.550C 5.552 (space-to-Earth) 5.516B 5.554A 5.555B MOBILE	FSS uplinks (E-to-s) (incl. NGSO) HDFSS (space-to-Earth) (48.2-48.54 GHz) FSS (space-to-Earth) (48.2-48.54 GHz) is limited to GSO	Res. 770 (Rev.WRC-23) for NGSO FSS in 47.2-50.2 GHz (E-to-s) Res.143 (WRC-19) (HDFSS) Res. 771 (Rev.WRC-19)
48.54-49.44 GHz FIXED FIXED-SATELLITE (Earth-to-space) 5.550C 5.552 MOBILE	**48.54-48.94 GHz** FIXED FIXED-SATELLITE (Earth-to-space) 5.550C 5.552 MOBILE 5.149 5.340 5.555		Res. 770 (Rev.WRC-23) for NGSO in 47.2-50.2 GHz (E-to-s) Res. 771 (Rev.WRC-19)
	48.94-49.04 GHz FIXED		

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
	FIXED-SATELLITE (Earth-to-space) 5.550C 5.552 MOBILE RADIO ASTRONOMY 5.149 5.340 5.555	 Radio astronomy (diatomic molecules and other molecules)	Res. 770 (Rev.WRC-23) applies (non-GSO FSS) Res. 771 (Rev.WRC-19) See Section 5 for coordination with radio astronomy
5.149 5.340 5.555	**49.04-49.44 GHz** FIXED FIXED-SATELLITE (Earth-to-space) 5.550C 5.552 MOBILE 5.149 5.340 5.555		 Res.770 (Rev.WRC-23) for non-GSO in 47.2-50.2 GHz (E-to-s) Res. 771 (Rev.WRC-19)
49.44-50.2 GHz FIXED FIXED-SATELLITE (Earth-to-space) 5.338A 5.550C 5.552 (space-to-Earth) 5.516B 5.554A 5.555B MOBILE	**49.44-50.2 GHz** FIXED FIXED-SATELLITE (Earth-to-space) 5.338A 5.550C 5.552 (space-to-Earth) 5.516B 5.554A 5.555B MOBILE	 HDFSS (space-to-Earth) (49.44-50.2 GHz) FSS (space-to-Earth) (49.44-50.2 GHz) is limited to GSO	 Res. 770 (Rev.WRC-23) for non-GSO in 47.2-50.2 GHz (E-to-s) Res.143 (WRC-19) applies (HDFSS) Res. 750 (WRC-19) applies. Rec. ITU-R S.1783 (2007)
50.2-50.4 GHz	**50.2-50.4 GHz**		

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
EARTH EXPLORATION-SATELLITE (passive) SPACE RESEARCH (passive) 5.340	EARTH EXPLORATION-SATELLITE (passive) SPACE RESEARCH (passive) 5.340		
50.4-51.4 GHz FIXED FIXED-SATELLITE (Earth-to-space) 5.338A 5.550C MOBILE Mobile-satellite (Earth-to-space)	**50.4-51.4 GHz** FIXED FIXED-SATELLITE (Earth-to-space) 5.338A 5.550C MOBILE Mobile-satellite (Earth-to-space)	Fixed links	Res. 770 (Rev.WRC-23) 50.4-51.4 GHz (Earth-to-space) Res. 750 (WRC-19) applies.
51.4-52.4 GHz FIXED FIXED-SATELLITE (Earth-to-space) 5.555C MOBILE 5.338A 5.547 5.556	**51.4-52.4 GHz** FIXED 5.338A NF14 FIXED-SATELLITE (Earth-to-space) 5.555C MOBILE 5.547 5.556	Fixed links (52 GHz) (51.4-52.6 GHz) HDFS (51.4-52.6 GHz) (5.547)	Channelling plan for the 52 GHz band is in accordance with ITU Rec. F.1496, Annex 1 (latest version). ITU-R S.2461 (2019) Res. 750 (WRC-19) (passive) FSS (Earth-to-space) is limited to GSO networks (antenna size min 2.4m).
52.4-52.6 GHz	**52.4-52.6 GHz**		

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
FIXED 5.338A MOBILE 5.547 5.556	FIXED 5.338A NF14 MOBILE 5.547 5.556	Fixed links (52 GHz) (51.4-52.6 GHz) incl. HDFS (51.4-52.6 GHz) (5.547)	ITU-R Rec. F.1496, Annex 1 Res. 750 (WRC-19) applies.
52.6-54.25 GHz EARTH EXPLORATION-SATELLITE (passive) SPACE RESEARCH (passive) 5.340 5.556	**52.6-54.25 GHz** EARTH EXPLORATION-SATELLITE (passive) SPACE RESEARCH (passive) 5.340 5.556	Passive Sensing (53.6-59.3 GHz) (EESS/SRS)	Res. 750 (WRC-19) applies.
54.25-55.78 GHz EARTH EXPLORATION-SATELLITE (passive) INTER-SATELLITE 5.556A SPACE RESEARCH (passive) 5.556B	**54.25-55.78 GHz** EARTH EXPLORATION-SATELLITE (passive) INTER-SATELLITE (GSO) 5.556A SPACE RESEARCH (passive)	Passive Sensing (53.6-59.3 GHz) (EESS/SRS) GSO inter-satellite links (per 5.556A)	
55.78-56.9 GHz EARTH EXPLORATION-SATELLITE (passive) FIXED 5.557A	**55.78-56.9 GHz** EARTH EXPLORATION-SATELLITE (passive) FIXED 5.557A NF14	Passive Sensing (53.6-59.3 GHz) (EESS/SRS) Fixed links (55.78-57.0 GHz) HDFS (55.78-59 GHz) (5.547)	Channelling plan for the 55.78-57.0 GHz band is in accordance with ITU Rec. F.1497, Annex 1 (latest version).

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
INTER-SATELLITE 5.556A MOBILE 5.558 SPACE RESEARCH (passive) 5.547 5.557	INTER-SATELLITE (GSO) 5.556A MOBILE 5.558 SPACE RESEARCH (passive) 5.547		
56.9-57 GHz EARTH EXPLORATION-SATELLITE (passive) FIXED INTER-SATELLITE 5.558A MOBILE 5.558 SPACE RESEARCH (passive) 5.547 5.557	**56.9-57 GHz** EARTH EXPLORATION-SATELLITE (passive) FIXED NF14 INTER-SATELLITE (GSO) 5.558A INTER-SATELLITE (non-GSO) 5.558A MOBILE 5.558 SPACE RESEARCH (passive) 5.547	Passive Sensing (53.6-59.3 GHz) (EESS/SRS) Fixed links (55.78-57.0 GHz) HDFS (55.78-59 GHz) (5.547) Transmission from HEO to LEO	Channelling plan for the 55.78-57.0 GHz band is in accordance with ITU Rec. F.1497, Annex 1 (latest version)
57-58.2 GHz EARTH EXPLORATION-SATELLITE (passive) FIXED	**57-58.2 GHz** EARTH EXPLORATION-SATELLITE (passive) FIXED NF14	Passive Sensing (53.6-59.3 GHz) Fixed links (62 GHz or V-Band) (57-66 GHz) Point-to-Point Digital Fixed Radio Systems (DFRS) (57-64 GHz)	Channelling plan for the 57-66 GHz band is in accordance with ITU-R Rec. F.1497, Annex 2 (latest version).

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
		HDFS (55.78-59 GHz) (5.547) MGWS (57-71 GHz)	Radio Frequency Spectrum Regulations, 2015 (as amended): GN 279, GG 38641 (30 Mar 2015) ITU-R Rec. M.2003 MGWS
INTER-SATELLITE 5.556A	INTER-SATELLITE (GSO) 5.556A		Inter-satellite limits: 5.556A.
		SRD applications (57-64 GHz), incl. Level Probing Radar (LPR) 57-64 GHz	ETSI EN 302 729 (V2.1.1) Radio Frequency Spectrum Regulations, 2015 (as amended): GN 279, GG 38641 (30 Mar 2015), as amended
		Passive Sensing (53.6-59.3 GHz) (EESS/SRS)	
MOBILE 5.558	MOBILE 5.558		
SPACE RESEARCH (passive)	SPACE RESEARCH (passive)	Radiodetermination Applications 57-64 GHz (per Annex. B)	
5.547 5.557	5.547		
58.2-59 GHz	**58.2-59 GHz**		
EARTH EXPLORATION-SATELLITE (passive)	EARTH EXPLORATION-SATELLITE (passive)		
FIXED	FIXED NF14	Fixed links (62 GHz or V-Band) (57-66 GHz)	Channelling plan for the 57-66 GHz band is in accordance with ITU Rec. F.1497, Annex 2 (latest version).
		Point-to-Point Digital Fixed Radio Systems (DFRS) (57–64 GHz)	
		HDFS (55.78-59 GHz) (5.547)	
		MGWS (57-71 GHz)	ITU-R Rec. M.2003 MGWS
MOBILE	MOBILE	Radiodetermination Applications 57-64 GHz (per Annex. B)	Radio Frequency Spectrum Regulations 2015, (GG. No. 38641, Notice 279 of 30 March

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
		SRD applications (57-64 GHz), incl. Level Probing Radar (LPR) 57-64 GHz	2015), Annex B as amended by GG 48643 Notice 1822 of 23 May 2023.
SPACE RESEARCH (passive) 5.547 5.556	SPACE RESEARCH (passive) 5.547 5.556	Passive Sensing (53.6-59.3 GHz) (EESS/SRS)	Radio astronomy observations may be carried out under national arrangements (5.556)
59-59.3 GHz	**59-59.3 GHz**	Government Services	The band 59-61 GHz reserved for government use.
EARTH EXPLORATION-SATELLITE (passive)	EARTH EXPLORATION-SATELLITE (passive)	Passive Sensing (53.6-59.3 GHz)	
FIXED	FIXED NF14	Fixed links (62 GHz or V-Band) (57-66 GHz)	Channelling plan for the 57-66 GHz band is in accordance with ITU Rec. F.1497, Annex 2 (latest version).
		Point-to-Point Digital Fixed Radio Systems (DFRS) (57-64 GHz)	ITU-R Rec. M.2003
INTER-SATELLITE 5.556A	INTER-SATELLITE (GSO) 5.556A	Inter-satellite links (per 5.556A)	Inter-satellite limits: 5.556A.
MOBILE 5.558	MOBILE 5.558	SRD applications (57-64 GHz) MGWS (57-71 GHz) Radiodetermination Applications 57-64 GHz (per Annex. B)	Radio Frequency Spectrum Regulations, 2015 (as amended): GN 279, GG 38641 (30 Mar 2015), as amended
RADIOLOCATION 5.559	RADIOLOCATION 5.559		
SPACE RESEARCH (passive)	SPACE RESEARCH (passive)		
59.3-64 GHz	**59.3-64 GHz**	Government Services	The band 59-61 GHz reserved for government use.

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
FIXED	FIXED NF14	Fixed links (62 GHz or V-Band) (57-66 GHz)	Channelling plan for the 57-66 GHz band is in accordance with ITU Rec. F.1497, Annex 2 (latest version).
		Point-to-Point Digital Fixed Radio Systems (DFRS) (57-64 GHz)	EN 302 217 (Point-to-Point Fixed Radio)
		MGWS (57-71 GHz)/WAS/RLANs	EN 302 567 (MGWS, 60 GHz)
		SRD applications (57-64 GHz) The band 61-61.5 GHz is designated for ISM applications (5.138).	Common international SRD band; see ITU-R Rec.SM. 1896 ITU-R Rec. M.2003 MGWS
		Radiodetermination Applications 57-60 MHz (per Annex. B)	Radio Frequency Spectrum Regulations, 2015 (as amended): GN 279, GG 38641 (30 Mar 2015), as amended.
		Intelligent Transport Systems (ITS) 63.72-65.88 GHz (per Annex. B)	EN 302 372 (Tank Level Probing Radar) ITU-R M.1452-2; ITU-R M.2445.
INTER-SATELLITE	INTER-SATELLITE		
MOBILE 5.558	MOBILE 5.558		
RADIOLOCATION 5.559	RADIOLOCATION 5.559		
5.138	5.138		
64-65 GHz	**64-65 GHz**		
FIXED	FIXED NF14	Fixed links	ITU-R F.1497 (Annex 3)
		Point-to-Point, Digital Fixed Radio Systems (DFRS) 64-66 GHz	
		The band 64-66 GHz is identified for HDFS	
		MGWS (57-71 GHz)	ITU-R Rec. M.2003 MGWS

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
		WAS/RLANs Intelligent Transport Systems (ITS) 63.72-65.88 GHz (per Annex. B)	Radio Frequency Spectrum Regulations, 2015 (GG. No. 38641, Notice 279 of 30 March 2015), Annex B as amended by GG 48643 Notice 1822 of 23 May 2023.
INTER-SATELLITE MOBILE except aeronautical mobile 5.547 5.556	INTER-SATELLITE MOBILE except aeronautical mobile 5.547 5.556		
65-66 GHz EARTH EXPLORATION-SATELLITE FIXED	**65-66 GHz** EARTH EXPLORATION-SATELLITE FIXED NF14	Fixed links (57-66 GHz) Point-to-Point, Digital Fixed Radio Systems (DFRS) 64-66 GHz The band 64-66 GHz is identified for HDFS	Channelling arrangement for the 57-66 GHz band - ITU-R F.1497 (Annex 3), latest version
		MGWS (57-71 GHz)	ITU-R Rec. M.2003 MGWS
		WAS/RLANs Intelligent Transport Systems (ITS) 63.72-65.88 GHz (per Annex. B)	Radio Frequency Spectrum Regulations 2015, (GG. No. 38641, Notice 279 of 30 March 2015), Annex B as amended by GG 48643 Notice 1822 of 23 May 2023.
INTER-SATELLITE MOBILE except aeronautical mobile	INTER-SATELLITE MOBILE except aeronautical mobile		

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
SPACE RESEARCH 5.547	SPACE RESEARCH 5.547		The Authority intends to develop the RFSAP for this band
66-71 GHz INTER-SATELLITE MOBILE 5.553 5.558 5.559AA MOBILE-SATELLITE RADIONAVIGATION RADIONAVIGATION-SATELLITE 5.554	**66-71 GHz** INTER-SATELLITE MOBILE 5.553 5.558 5.559AA NF9 MOBILE-SATELLITE RADIONAVIGATION RADIONAVIGATION-SATELLITE 5.554	IMT (TDD) (66-71 GHz) MGWS (57-71 GHz) WAS/RLANs	Res. 241 (WRC 23) Recommendation ITU-R M. 1036-8 Second Draft IMT Roadmap (GG 53883 Notice 3712 of 2025) ITU-R Rec. M.2003 MGWS Radio Frequency Spectrum Regulations 2015 (GG. No. 38641, Notice 279 of 30 March 2015), Annex B as amended by GG 48643 Notice 1822 of 23 May 2023. The Authority intends to develop the RFSAP for the band (66-70 GHz).
71-74 GHz FIXED	**71-74 GHz** FIXED NF14	Fixed Links (80 GHz) (71-76 GHz)	Paired with 81-86 GHz.

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
		Government use	Channelling plan as per ITU-R F.2006 (71-76 GHz and 81-86 GHz) (03/2012) Radio Frequency Spectrum Regulations Amendments (GG Number 40436, Notice 781, 22 November 2016), as amended (latest GG 48643, Notice 1822, 23 May 2023).
FIXED-SATELLITE (space-to-Earth) MOBILE MOBILE-SATELLITE (space-to-Earth)	FIXED-SATELLITE (space-to-Earth) MOBILE MOBILE-SATELLITE (space-to-Earth)		
74-76 GHz	**74-76 GHz**		
FIXED	FIXED NF14	Fixed Links (80 GHz or E-band) (71-76 GHz) Radiodetermination Applications 75-85 GHz (per Annex. B)	Paired with 81-86 GHz. Channelling plan as per ITU-R F.2006 (71-76 GHz and 81-86 GHz) (03/2012) Radio Frequency Spectrum Regulations Amendments (GG Number 40436, Notice 781, 22 November 2016), as amended (latest GG 48643, Notice 1822, 23 May 2023).
FIXED-SATELLITE (space-to-Earth) MOBILE BROADCASTING BROADCASTING-SATELLITE Space research (space-to-Earth)	FIXED-SATELLITE (space-to-Earth) MOBILE BROADCASTING BROADCASTING-SATELLITE Space research (space-to-Earth)		

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
5.561	5.561		
76-77.5 GHz RADIO ASTRONOMY RADIOLOCATION Amateur Amateur-satellite Space research (space-to-Earth) 5.149	**76-77.5 GHz** RADIO ASTRONOMY RADIOLOCATION Amateur Amateur-satellite Space research (space-to-Earth) 5.149	 Radiodetermination Applications 75-85 GHz (per Annex. B) RTTT (76-77 GHz) SRD - Road Transport and Traffic Telematics Radar (76-77 GHz)	 Radio Frequency Spectrum Regulations as amended (Annex B) (GG. No. 38641, Notice 279, 30 March 2015), as amended (latest GG 48643, Notice 1822, 23 May 2023). Common international SRD band; see ITU-R Rec.SM.1896-1 and Rec. M.1452 latest version applies.
77.5-78 GHz AMATEUR AMATEUR-SATELLITE RADIOLOCATION 5.559B Radio astronomy Space research (space-to-Earth)

ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
		Radars 76–77 GHz (as per Annex. B)	(latest GG 48643, Notice 1822, 23 May 2023). ITU-R M.1452-2 (2012) (76-81 GHz) collision avoidance radars and radiocomm. for intel. transport systems (ITS) ITU-R M.2057-1 (2018) (76-81 GHz) autom. radars for ITS
5.149	5.149		
78-79 GHz	**78-79 GHz**		
RADIOLOCATION	RADIOLOCATION	Radiodetermination Applications 75-85 GHz (per Annex. B)	
Amateur	Amateur		
Amateur-satellite	Amateur-satellite		
Radio astronomy	Radio astronomy		
Space research (space-to-Earth)	Space research (space-to-Earth)		
		Transport and Traffic Telematics (TTT) Obstacle-Detection Radars 76–77 GHz (as per Annex. B)	Radio Frequency Spectrum Regulations as amended (Annex B) (GG. No. 38641, Notice 279, 30 March 2015), as amended (latest GG 48643, Notice 1822, 23 May 2023). ITU-R M.1452-2 (2012) (76-81 GHz) collision avoidance radars and radiocomm. for intel. transport systems (ITS) ITU-R M.2057-1 (2018) (76-81 GHz) autom. radars for ITS
5.149 5.560	5.149 5.560		

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
79-81 GHz	**79-81 GHz**		
RADIO ASTRONOMY RADIOLOCATION	RADIO ASTRONOMY RADIOLOCATION		
		TTT Applications for Automotive SRR 77-81 GHz (per Annex. B	Radio Frequency Spectrum Regulations as amended (Annex B) (GG. No. 38641, Notice 279, 30 March 2015), as amended (latest GG 48643, Notice 1822, 23 May 2023). ITU-R M.1452-2 (2012) (76-81 GHz) collision avoidance radars and radiocomm. for intel. transport systems (ITS)
Amateur Amateur-satellite Space research (space-to-Earth) 5.149	Amateur Amateur-satellite Space research (space-to-Earth) 5.149		ITU-R M.2057-1 (2018) (76-81 GHz) autom. radars for ITS
81-84 GHz	**81-81.5 GHz**		
FIXED 5.338A	FIXED 5.338A NF14	Fixed Links (80 GHz or E-band) (81-86 GHz)	Paired with 71-76 GHz. Channelling plan as per ITU-R F.2006 (71-76 GHz and 81-86 GHz) (03/2012) Res. 750 (Rev. WRC-19)
FIXED-SATELLITE (Earth-to-space)	FIXED-SATELLITE (Earth-to-space)		
		Radiodetermination Applications 75-85 GHz (per Annex. B)	Radio Frequency Spectrum Regulations Amendments (GG Number 40436 Notice 781, 22 November 2016), as amended (latest GG 48643, Notice 1822, 23 May 2023)

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
MOBILE MOBILE-SATELLITE (Earth-to-space) RADIO ASTRONOMY Space research (space-to-Earth) 5.149 5.561A	MOBILE MOBILE-SATELLITE (Earth-to-space) RADIO ASTRONOMY Amateur Amateur-satellite Space research (space-to-Earth) 5.149 5.561A		
	81.5-84 GHz FIXED 5.338A NF14 FIXED-SATELLITE (Earth-to-space) MOBILE MOBILE-SATELLITE (Earth-to-space) RADIO ASTRONOMY Space research (space-to-Earth) 5.149 5.561A	Fixed Links (80 GHz or E-band) (81-86 GHz) Radiodetermination Applications 75-85 GHz (per Annex. B)	Paired with 71-76 GHz. Res. 750 (Rev. WRC-19) Radio Frequency Spectrum Regulations Amendments (GG Number 40436, Notice 781, 22 November 2016), as amended (latest GG 48643, Notice 1822, 23 May 2023)
84-86 GHz	**84-86 GHz**		

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
FIXED 5.338A	FIXED 5.338A NF14	Radiodetermination Applications 75-85 GHz (per Annex. B) Fixed Links (80 GHz or E-band) (81-86 GHz)	Radio Frequency Spectrum Regulations Amendments (GG Number 40436, Notice 781, 22 November 2016) as amended (latest GG 48643, Notice 1822, 23 May 2023) Res. 750 (Rev. WRC-19) (passive protection)
FIXED-SATELLITE (Earth-to-space) 5.561B	FIXED-SATELLITE (Earth-to-space)		
MOBILE	MOBILE		
RADIO ASTRONOMY	RADIO ASTRONOMY		
5.149	5.149		
86-92 GHz	**86-92 GHz**		
EARTH EXPLORATION-SATELLITE (passive)	EARTH EXPLORATION-SATELLITE (passive)		
RADIO ASTRONOMY	RADIO ASTRONOMY		
SPACE RESEARCH (passive)	SPACE RESEARCH (passive)		
5.340	5.340		
92-94 GHz	**92-94 GHz**		
FIXED 5.338A	FIXED 5.338A NF14	Fixed links	Draft new Recommendation ITU-R F.[W-BAND]/ ECC Report 282 FS channelling plan: ECC Rec 18(02) on FS channel/block arrangements for 92–94, 94.1–100, 102–109.5, 111.8–114.25 GHz. Adopted 14 Sep 2018 and added to the European Table of Frequency Allocations (ECA Report 25) on 27 Jun 2025
MOBILE	MOBILE		Res. 750 (Rev. WRC-19)

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
RADIO ASTRONOMY RADIOLOCATION 5.149	RADIO ASTRONOMY RADIOLOCATION 5.149		
94-94.1 GHz EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION SPACE RESEARCH (active) Radio astronomy 5.562 5.562A	**94-94.1 GHz** EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION SPACE RESEARCH (active) Radio astronomy 5.562 5.562A	 Spaceborne cloud radars Short Range Radar. Cloud profile radar. Spaceborne cloud radars	
94.1-95 GHz FIXED MOBILE RADIO ASTRONOMY RADIOLOCATION 5.149	**94.1-95 GHz** FIXED NF14 MOBILE RADIO ASTRONOMY RADIOLOCATION 5.149	 Fixed links Short Range Radar	 Draft new Recommendation ITU-R F.[W-BAND]/ ECC Report 282 FS channelling plan: ECC Rec 18(02) on FS channel/block arrangements for 92–94, 94.1–100, 102–109.5, 111.8–114.25 GHz. Adopted 14 Sep 2018 and added to the European Table of Frequency Allocations (ECA Report 25) on 27 Jun 2025 ITU-R M.2162-0 (2023) (radiolocation and radionavigation)

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
95-100 GHz	**95-100 GHz**		
FIXED	FIXED NF14	Fixed links	Draft new Recommendation ITU-R F.[W-BAND]/ ECC Report 282 FS channelling plan: ECC Rec 18(02) on FS channel/block arrangements for 92–94, 94.1–100, 102–109.5, 111.8–114.25 GHz. Adopted 14 Sep 2018 and added to the European Table of Frequency Allocations (ECA Report 25) on 27 Jun 2025
MOBILE	MOBILE		
RADIO ASTRONOMY	RADIO ASTRONOMY		
RADIOLOCATION	RADIOLOCATION		
RADIONAVIGATION	RADIONAVIGATION		
RADIONAVIGATION-SATELLITE	RADIONAVIGATION-SATELLITE		
5.149 5.554	5.149 5.554		
100-102 GHz	**100-102 GHz**		
EARTH EXPLORATION-SATELLITE (passive)	EARTH EXPLORATION-SATELLITE (passive)	Passive sensing	
RADIO ASTRONOMY	RADIO ASTRONOMY		
SPACE RESEARCH (passive)	SPACE RESEARCH (passive)		
5.340 5.341	5.340 5.341		
102-105 GHz	**102-105 GHz**		
FIXED	FIXED NF14	Fixed links	Draft new Recommendation ITU-R F.[W-BAND]/ ECC Report 282

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
			FS channelling plan: ECC Rec 18(02) on FS channel/block arrangements for 92–94, 94.1–100, 102–109.5, 111.8–114.25 GHz. Adopted 14 Sep 2018 and added to the European Table of Frequency Allocations (ECA Report 25) on 27 Jun 2025
MOBILE RADIO ASTRONOMY 5.149 5.341	MOBILE RADIO ASTRONOMY 5.149 5.341		
105-109.5 GHz	**105-109.5 GHz**		
FIXED	FIXED NF14	Fixed links	Draft new Recommendation ITU-R F.[W-BAND]/ ECC Report 282 FS channelling plan: ECC Rec 18(02) on FS channel/block arrangements for 92–94, 94.1–100, 102–109.5, 111.8–114.25 GHz. Adopted 14 Sep 2018 and added to the European Table of Frequency Allocations (ECA Report 25) on 27 Jun 2025
MOBILE RADIO ASTRONOMY SPACE RESEARCH (passive) 5.562B 5.149 5.341	MOBILE RADIO ASTRONOMY SPACE RESEARCH (passive) 5.562B 5.149 5.341	Space-based radio astronomy	
109.5-111.8 GHz	**109.5-111.8 GHz**		
EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY	EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY	Passive Sensing	

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
SPACE RESEARCH (passive) 5.340 5.341	SPACE RESEARCH (passive) 5.340 5.341		
111.8-114.25 GHz FIXED	**111.8-114.25 GHz** FIXED NF14	Fixed links	Draft new Recommendation ITU-R F.[W-BAND]/ ECC Report 282 FS channelling plan: ECC Rec 18(02) on FS channel/block arrangements for 92–94, 94.1–100, 102–109.5, 111.8–114.25 GHz. Adopted 14 Sep 2018 and added to the European Table of Frequency Allocations (ECA Report 25) on 27 Jun 2025
MOBILE	MOBILE		
RADIO ASTRONOMY	RADIO ASTRONOMY	Space-based radio astronomy	
SPACE RESEARCH (passive) 5.562B 5.149 5.341	SPACE RESEARCH (passive) 5.562B 5.149 5.341		
114.25-116 GHz EARTH EXPLORATION-SATELLITE (passive)	**114.25-116 GHz** EARTH EXPLORATION-SATELLITE (passive)		
RADIO ASTRONOMY	RADIO ASTRONOMY		
SPACE RESEARCH (passive) 5.340 5.341	SPACE RESEARCH (passive) 5.340 5.341		
116-119.98 GHz EARTH EXPLORATION-SATELLITE (passive)	**116-119.98 GHz** EARTH EXPLORATION-SATELLITE (passive)	Passive Sensing	

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
INTER-SATELLITE 5.562C SPACE RESEARCH (passive) 5.341	INTER-SATELLITE (GSO) 5.562C SPACE RESEARCH (passive) 5.341		
119.98-122.25 GHz EARTH EXPLORATION-SATELLITE (passive) INTER-SATELLITE 5.562C SPACE RESEARCH (passive) 5.138 5.341	**119.98-122.25 GHz** EARTH EXPLORATION-SATELLITE (passive) INTER-SATELLITE 5.562C SPACE RESEARCH (passive) 5.138 5.341	 Passive Sensing (114.25-122.25 GHz) SRD 122-122.25 GHz (per Annex. B)	 Radio Frequency Spectrum Regulations-Annexure B (GG 48643, Notice 1822 of 23 May 2023)
122.25-123 GHz FIXED INTER-SATELLITE MOBILE 5.558 Amateur 5.138	**122.25-123 GHz** FIXED INTER-SATELLITE MOBILE 5.558 Amateur 5.138	 SRDs (as per Annex B) - licence-exempt short-range radars (e.g., collision-avoidance and industrial sensors in 122.25–123 GHz)	 Radio Frequency Spectrum Regulations-Annexure B (GG 48643, Notice 1822 of 23 May 2023)
123-130 GHz	**123-130 GHz**		

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
FIXED-SATELLITE (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) RADIONAVIGATION RADIONAVIGATION-SATELLITE Radio astronomy 5.562D 5.149 5.554	FIXED-SATELLITE (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) RADIONAVIGATION RADIONAVIGATION-SATELLITE Radio astronomy 5.149 5.554		
130-134 GHz EARTH EXPLORATION-SATELLITE (active) 5.562E	**130-133.5 GHz**		
FIXED	FIXED NF14	Fixed links	Draft new Recommendation ITU-R F.[D-BAND]/ ECC Report 282 FS channelling plan: ECC Rec 18(01) on FS channel/block arrangements for 130-134 GHz, 141-148.5 GHz, 151.5-164 GHz and 167-174.8 GHz. Adopted 27 April 2018 and added to the European Table of Frequency Allocations (ECA Report 25) on 27 Jun 2025
INTER-SATELLITE MOBILE 5.558 RADIO ASTRONOMY	INTER-SATELLITE MOBILE 5.558 RADIO ASTRONOMY 5.149 5.562A		
	133.5-134 GHz		

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
	EARTH EXPLORATION-SATELLITE (active) 5.562E FIXED NF14 INTER-SATELLITE MOBILE 5.558 RADIO ASTRONOMY 5.149 5.562A	Fixed links	Draft new Recommendation ITU-R F.[D-BAND]/ ECC Report 282 FS channelling plan: ECC Rec 18(01) on FS channel/block arrangements for 130-134 GHz, 141-148.5 GHz, 151.5-164 GHz and 167-174.8 GHz. Adopted 27 April 2018 and added to the European Table of Frequency Allocations (ECA Report 25) on 27 Jun 2025
134-136 GHz AMATEUR AMATEUR-SATELLITE Radio astronomy	**134-136 GHz** AMATEUR AMATEUR-SATELLITE Radio astronomy		
136-141 GHz RADIO ASTRONOMY RADIOLOCATION Amateur Amateur-satellite 5.149	**136-141 GHz** RADIO ASTRONOMY RADIOLOCATION Amateur Amateur-satellite 5.149		
141-148.5 GHz	**141-148.5 GHz**		

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
FIXED MOBILE RADIO ASTRONOMY RADIOLOCATION 5.149	FIXED NF14 MOBILE RADIO ASTRONOMY RADIOLOCATION 5.149	Fixed links	Draft new Recommendation ITU-R F.[D-BAND]/ ECC Report 282 FS channelling plan: ECC Rec 18(01) on FS channel/block arrangements for 130-134 GHz, 141-148.5 GHz, 151.5-164 GHz and 167-174.8 GHz. Adopted 27 April 2018 and added to the European Table of Frequency Allocations (ECA Report 25) on 27 Jun 2025
148.5-151.5 GHz EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340	**148.5-151.5 GHz** EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340	Passive Sensing	
151.5-155.5 GHz FIXED MOBILE	**151.5-155.5 GHz** FIXED NF14 MOBILE	Fixed links	Draft new Recommendation ITU-R F.[D-BAND]/ ECC Report 282 FS channelling plan: ECC Rec 18(01) on FS channel/block arrangements for 130-134 GHz, 141-148.5 GHz, 151.5-164 GHz and 167-174.8 GHz. Adopted 27 April 2018 and added to the European Table of Frequency Allocations (ECA Report 25) on 27 Jun 2025

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
RADIO ASTRONOMY RADIOLOCATION 5.149	RADIO ASTRONOMY RADIOLOCATION 5.149		
155.5-158.5 GHz FIXED MOBILE RADIO ASTRONOMY 5.149	**155.5-158.5 GHz** FIXED NF14 MOBILE RADIO ASTRONOMY 5.149	Fixed links	Draft new Recommendation ITU-R F.[D-BAND]/ ECC Report 282 FS channelling plan: ECC Rec 18(01) on FS channel/block arrangements for 130-134 GHz, 141-148.5 GHz, 151.5-164 GHz and 167-174.8 GHz. Adopted 27 April 2018 and added to the European Table of Frequency Allocations (ECA Report 25) on 27 Jun 2025
158.5-164 GHz FIXED FIXED-SATELLITE (space-to-Earth) MOBILE	**158.5-164 GHz** FIXED NF14 FIXED-SATELLITE (space-to-Earth) MOBILE	Fixed links	Draft new Recommendation ITU-R F.[D-BAND]/ ECC Report 282 FS channelling plan: ECC Rec 18(01) on FS channel/block arrangements for 130-134 GHz, 141-148.5 GHz, 151.5-164 GHz and 167-174.8 GHz. Adopted 27 April 2018 and added to the European Table of Frequency Allocations (ECA Report 25) on 27 Jun 2025

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
MOBILE-SATELLITE (space-to-Earth)	MOBILE-SATELLITE (space-to-Earth)		
164-167 GHz EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340	**164-167 GHz** EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340	Passive Sensing	
167-174.5 GHz FIXED FIXED-SATELLITE (space-to-Earth) INTER-SATELLITE MOBILE 5.558 5.149 5.562D	**167-174.5 GHz** FIXED FIXED-SATELLITE (space-to-Earth) INTER-SATELLITE MOBILE 5.558 5.149	Fixed links	FS channelling plan: ECC Rec 18(01) on FS channel/block arrangements for 130-134 GHz, 141-148.5 GHz, 151.5-164 GHz and 167-174.8 GHz. Adopted 27 April 2018 and added to the European Table of Frequency Allocations (ECA Report 25) on 27 Jun 2025
174.5-174.8 GHz FIXED	**174.5-174.8 GHz** FIXED	Fixed links	FS channelling plan: ECC Rec 18(01) on FS channel/block arrangements for 130-134 GHz, 141-148.5 GHz, 151.5-164 GHz and 167-174.8 GHz. Adopted 27 April 2018 and

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
INTER-SATELLITE MOBILE 5.558	INTER-SATELLITE MOBILE 5.558		added to the European Table of Frequency Allocations (ECA Report 25) on 27 Jun 2025
174.8-182 GHz EARTH EXPLORATION-SATELLITE (passive) INTER-SATELLITE 5.562H SPACE RESEARCH (passive)	**174.8-182 GHz** EARTH EXPLORATION-SATELLITE (passive) INTER-SATELLITE (GSO) 5.562H SPACE RESEARCH (passive)	Passive sensing (174.8-191.8 GHz)	
182-185 GHz EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340	**182-185 GHz** EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340	Passive sensing (174.8-191.8 GHz)	
185-190 GHz EARTH EXPLORATION-SATELLITE (passive) INTER-SATELLITE 5.562H SPACE RESEARCH (passive)	**185-190 GHz** EARTH EXPLORATION-SATELLITE (passive) INTER-SATELLITE (GSO) 5.562H SPACE RESEARCH (passive)	Passive sensing (174.8-191.8 GHz)	
190-191.8 GHz	**190-191.8 GHz**		

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
EARTH EXPLORATION-SATELLITE (passive) SPACE RESEARCH (passive) 5.340	EARTH EXPLORATION-SATELLITE (passive) SPACE RESEARCH (passive) 5.340	Passive sensing (174.8-191.8 GHz)	
191.8-200 GHz FIXED INTER-SATELLITE MOBILE 5.558 MOBILE-SATELLITE RADIONAVIGATION RADIONAVIGATION-SATELLITE 5.149 5.341 5.554	**191.8-200 GHz** FIXED INTER-SATELLITE MOBILE 5.558 MOBILE-SATELLITE RADIONAVIGATION RADIONAVIGATION-SATELLITE 5.149 5.341 5.554		
200-209 GHz EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340 5.341 5.563A	**200-209 GHz** EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340 5.341 5.563A	Passive sensing.	
209-217 GHz FIXED FIXED-SATELLITE (Earth-to-space) MOBILE	**209-217 GHz** FIXED FIXED-SATELLITE (Earth-to-space) MOBILE		

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
RADIO ASTRONOMY 5.149 5.341	RADIO ASTRONOMY 5.149 5.341		
217-226 GHz FIXED FIXED-SATELLITE (Earth-to-space) MOBILE RADIO ASTRONOMY SPACE RESEARCH (passive) 5.562B 5.149 5.341	**217-226 GHz** FIXED FIXED-SATELLITE (Earth-to-space) MOBILE RADIO ASTRONOMY SPACE RESEARCH (passive) 5.562B 5.149 5.341	 Space-based radio astronomy 	
226-231.5 GHz EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340	**226-231.5 GHz** EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340	 Passive Sensing (226-232 GHz) 	
231.5-232 GHz FIXED MOBILE Radiolocation	**231.5-232 GHz** FIXED MOBILE Radiolocation		
232-235 GHz FIXED	**232-235 GHz** FIXED		

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
FIXED-SATELLITE (space-to-Earth) MOBILE Radiolocation	FIXED-SATELLITE (space-to-Earth) MOBILE Radiolocation		
235-238 GHz EARTH EXPLORATION-SATELLITE (passive) 5.563AA FIXED FIXED-SATELLITE (space-to-Earth) MOBILE SPACE RESEARCH (passive)	**235-237.9 GHz** EARTH EXPLORATION-SATELLITE (passive) 5.563AA FIXED FIXED-SATELLITE (space-to-Earth) MOBILE SPACE RESEARCH (passive) 5.563A	Passive Sensing	
	237.9-238 GHz EARTH EXPLORATION-SATELLITE (active) EARTH EXPLORATION-SATELLITE (passive) 5.563AA FIXED FIXED-SATELLITE (space-to-Earth) MOBILE SPACE RESEARCH (active) SPACE RESEARCH (passive)		

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
5.563A 5.563B	5.563A 5.563B		
238-239.2 GHz FIXED FIXED-SATELLITE (space-to-Earth) MOBILE RADIOLOCATION RADIONAVIGATION RADIONAVIGATION-SATELLITE	**238-239.2 GHz** FIXED FIXED-SATELLITE (space-to-Earth) MOBILE RADIOLOCATION RADIONAVIGATION RADIONAVIGATION-SATELLITE		
239.2-240 GHz EARTH EXPLORATION-SATELLITE (passive) FIXED-SATELLITE (space-to-Earth) RADIOLOCATION RADIONAVIGATION RADIONAVIGATION-SATELLITE	**239.2-240 GHz** EARTH EXPLORATION-SATELLITE (passive) FIXED-SATELLITE (space-to-Earth) RADIOLOCATION RADIONAVIGATION RADIONAVIGATION-SATELLITE		
240-241 GHz EARTH EXPLORATION-SATELLITE (passive) RADIOLOCATION	**240-241 GHz** EARTH EXPLORATION-SATELLITE (passive) RADIOLOCATION		

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
241-242.2 GHz EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY RADIOLOCATION Amateur Amateur-satellite 5.149	**241-242.2 GHz** EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY RADIOLOCATION Amateur Amateur-satellite 5.149		
242.2-244.2 GHz RADIO ASTRONOMY RADIOLOCATION Amateur Amateur-satellite 5.138 5.149	**242.2-244.2 GHz** RADIO ASTRONOMY RADIOLOCATION Amateur Amateur-satellite 5.138 5.149	SRD 244-246 GHz (per Annex. B)	Radio Frequency Spectrum Regulations, Annexure B (as amended-most recently GG 48643, Notice 1822 of 23 May 2023)
244.2-247.2 GHz EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY RADIOLOCATION	**244.2-247.2 GHz** EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY RADIOLOCATION	SRD 244-246 GHz (per Annex. B)	Radio Frequency Spectrum Regulations, Annexure B (as amended-most recently GG 48643, Notice 1822 of 23 May 2023)

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
Amateur Amateur-satellite 5.138 5.149	Amateur Amateur-satellite 5.138 5.149		
247.2-248 GHz RADIO ASTRONOMY RADIOLOCATION Amateur Amateur-satellite 5.149	**247.2-248 GHz** RADIO ASTRONOMY RADIOLOCATION Amateur Amateur-satellite 5.149		
248-250 GHz AMATEUR AMATEUR-SATELLITE Radio astronomy 5.149	**248-250 GHz** AMATEUR AMATEUR-SATELLITE Radio astronomy 5.149		
250-252 GHz EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340 5.563A	**250-252 GHz** EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340 5.563A	Passive Sensing	
252-265 GHz FIXED MOBILE	**252-265 GHz** FIXED MOBILE		

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ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
MOBILE-SATELLITE (Earth-to-space) RADIO ASTRONOMY RADIONAVIGATION RADIONAVIGATION-SATELLITE 5.149 5.554	MOBILE-SATELLITE (Earth-to-space) RADIO ASTRONOMY RADIONAVIGATION RADIONAVIGATION-SATELLITE 5.149 5.554		
265-275 GHz FIXED FIXED-SATELLITE (Earth-to-space) MOBILE RADIO ASTRONOMY 5.149 5.563A	**265-275 GHz** FIXED FIXED-SATELLITE (Earth-to-space) MOBILE RADIO ASTRONOMY 5.149 5.563A		
275-3 000 GHz (Not allocated) 5.565 5.564A 5.565	**275-1 000 GHz** (Not allocated) 5.565 5.564A	Radio astronomy service Earth exploration-satellite service (passive) Space research (passive)	
	1 000-3 000 GHz (Not allocated) 5.565		Assignments may be considered for Amateur services on a secondary basis above 1000 GHz

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5 RADIO ASTRONOMY

The Astronomy Geographic Advantage Act, 2007 (AGA Act No. 21 of 2007) provides the legal basis and framework for the declaration of astronomy advantage areas and protection of such areas from harmful radio frequency interference that may hamper the cosmic observations by scientific instruments located within those areas. The Authority develops the national spectrum allocations (which is approved by the Minister), assigns frequencies to licensees, and monitor compliance with licence terms. The Astronomy Management Authority (AMA) within the Department of Science and Innovation was assigned to manage the declared Karoo Central Astronomy Advantage Areas (KCAAAs). The Authority gave notice to all radio frequency spectrum licensees operating within the KCAAAs to apply for a permit with the AMA in terms of the KCAAAs Regulations; through GG No. 42080 under Notice No. 765 of 4 December 2018.

This Section provides information on the regulatory framework established for the protection of radio astronomy in South Africa.

5.1 DECLARATION OF ASTRONOMY ADVANTAGE AREAS

The Minister of Science, Technology and Innovation, may declare any area or part of an area in the Province of the Northern Cape (excluding Sol Plaatjie Municipality) as an astronomy advantage area to be protected, preserved and properly maintained in respect of radio frequency interference or interference in any other way.

i. The whole of the territory of the Northern Cape Province excluding Sol Plaatje Municipality is declared for radio astronomy purpose, as Declared in GG No. 32951 Notice No. 115 of 19 February 2010.

ii. The Karoo Core Astronomy Advantage Area (KCoreAAA) is used for the purposes of radio astronomy and related scientific endeavours, as declared in GG No. 33462 Notice No. 723 of 20 August 2010.

iii. The Karoo Central Astronomy Advantage Area (KCAAAs) is used for the purpose of radio astronomy and related scientific endeavours, as declared in GG No. 37434 Notice No. 198 of 12 March 2014.

The purpose of the declaration of areas as astronomy advantage areas is to ensure that the geographic area, which are suitable for astronomy and related scientific endeavours, is protected, preserved, and properly maintained in accordance with good national and international practices.

5.2 REGULATIONS OF ASTRONOMY ADVANTAGE AREAS

The Minister of Science, Technology and Innovation, may make regulations for the management and protection of astronomy advantage areas.

i. Regulations on radio astronomy protection levels in astronomy advantage areas declared for the purpose of radio astronomy were published in GG No. 35007 under Notice No. R. 90 of 10 February 2012.

ii. Regulations to prohibit or restrict certain activities in the core astronomy advantage areas declared for the radio astronomy purposes were published in GG No. 35450, under notice No. R. 465 of 22 June 2012.

iii. Regulations on the protection of the Karoo central astronomy advantage areas declared for the purpose of radio astronomy were published in GG No. 41321, under Notice No.

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1411 of 15 December 2017, as amended by GG No. 50527 (Notice No. 4726) of 17 April 2024.

The Minister obtained concurrence of ICASA when making regulations for prohibiting or restricting activities that have an adverse effect on astronomy and related scientific endeavours.

5.3 ASTRONOMY DEVICES

The Minister of Science, Technology and Innovation, may declare any existing or proposed scientific endeavour to be astronomy and related scientific endeavours for the purpose of the Astronomy Geographic Advantage Act.

i. The establishment and operation of MeerKAT telescope is declared a scientific endeavour in GG No. 33614, under Notice No. 897 of 15 October 2010.

ii. The establishment and operation of Square Kilometre Array (SKA) telescope is declared a scientific endeavour in GG No. 33614, under Notice No. 897 of 15 October 2010.

iii. The operation of C-BASS telescope within the spectrum between 4.5 GHz and 6.5 GHz is declared a scientific endeavour in GG No. 36826, under Notice No. 684 of 13 September 2013.

iv. The development and operation of PAPER telescope and HERA telescope within the spectrum between 100 MHz and 200 MHz is declared a scientific endeavour in GG No. 36826, under Notice No. 684 of 13 September 2013.

5.4 SPECTRUM LIST EXEMPTED FROM PROHIBITION

From one (1) year after the date that KCAAAs Regulations become operational, no licensee or licence exempted operator shall use, or continue to use, the radio frequency spectrum from 100 MHz to 25.5 GHz to conduct radio transmissions within the declared KCAAAs, unless the spectrum is exempted from prohibition. The Minister published a list of the radio frequency spectrum and applications that are exempted from the prohibition of use for transmissions located within the KCAAAs in GG No. 45045, under Notice No. 753 of 26 August 2021.

5.5 ASTRONOMY FACILITIES WITHIN THE DECLARED AREAS

The use of radio frequency bands in the areas declared as Karoo Core and Central Astronomy Advantage Areas are regulated as follows:

Unless required for the purpose of radio astronomy and related scientific endeavours the use of the radio frequency spectrum in Table 2 is restricted within the declared Karoo Core and Central Astronomy Advantage Areas.

Table 2: Restrictions on the use of radio frequency spectrum

Declared Area	Prohibited Band[11]
KCoreAAA	9 kHz to 3 000 GHz
KCAAA 1	100 MHz to 2 170 MHz
KCAAA 2	2170 MHz to 6 GHz
KCAAA 3	6000 MHz to 25.5 GHz

[11] This reflects the regulations in GG 41321 of 15 December 2017

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Note: KCAAA 1 and KCAAA 2 ranges updated to reflect GG 41321 of 15 December 2017

In terms of Section 22(6) of the AGA read with Section 30(1) and Section 31 of the Electronic Communications Act, 2005 (Act No. 36 of 2005) ("ECA"), the Authority has an obligation not to issue Radio Frequency Spectrum Licences where frequency used could cause radio frequency interference ("RFI") in the KCAAA. As a result, the Authority has put measures in place to ensure that it fulfils its role of preventing RFI in the KCAAA when licensing radio communication and broadcasting spectrum licenses. The Authority shall apply the necessary enforcement steps in terms of Section 31 of the ECA and relevant regulations pertaining to the failure by a Radio Frequency Spectrum Licensees to comply with the provisions of the ECA including Notice No. 765 in GG No. 42080 of 4 December 2018.

5.6 ASTRONOMY FACILITIES OUTSIDE THE DECLARED AREAS

The radio instruments located at Hartebeesthoek Radio Astronomy Observatory near Pretoria are registered in the ITU-R MIFR and they include HART15M, HARTRAO and HARTVGS. The observations undertaken by these instruments in RAS bands are globally recognised and internationally protected. The applications and services operating within a 15 km radius from the location; Latitude 25°53'24.06"S and Longitude 27°41'7.45"E; must coordinate with SARAO and give due consideration when operating stations in frequency bands listed under No. 5.149, also identified in the previous NRFP2021 table of frequency allocation.

5.7 REGISTRATION OF THE SKA

ICASA notes that it is working closely with the South African Radio Astronomy Observatory (SARAO) to secure the registration of the SKA-Mid radio telescope in the ITU Master International Frequency Register (MIFR). This initiative complements existing national protections - such as the radio-quiet zone for MeerKAT and SKA-Mid - and aims to ensure effective protection from harmful interference not only from domestic transmitters, but also from international services including aircraft, satellite systems (particularly in Low Earth Orbit), and High-Altitude Platform Stations (HAPS). The MIFR registration will recognise SKA-Mid's full operational frequency range to protect the radio astronomy service in the bands 150.05-153 MHz, 322-328.6 MHz, 406.1-410 MHz and 608-614 MHz from harmful interference from unwanted emissions, as well as other frequencies not traditionally allocated to radio astronomy but essential for breakthrough science. Considering the rapid growth of non-geostationary satellite constellations and emerging HAPS deployments, ICASA and SARAO consider timely MIFR recognition a key safeguard to preserve South Africa's unique investment in world-leading radio astronomy infrastructure.

Footnotes

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6 NATIONAL FOOTNOTES TO THE TABLE OF FREQUENCY ALLOCATIONS

NF0 (5350 - 5450 kHz)

The band 5350-5450 kHz and the channel 5290 kHz is allocated on secondary basis to radio amateurs under the Article 4.4 of the ITU Radio Regulations.

NF1 (29.7 - 30 MHz)

This portion of the spectrum is allocated to the amateur service on a secondary basis for use during disaster exercises and emergency situations. This is in addition to the existing exclusive amateur band 28 - 29.7 MHz, which retains its primary status. The additional spectrum is used for single frequency mobile applications.

NF2 (70 - 70.3 MHz)
This sub-band is allocated to the amateur service on a secondary basis in order to undertake experimental work on propagation. The channels 70.025-70.150 MHz are used for civil defence purposes.

NF3 (148 - 150.05 MHz)

This frequency band was allocated internationally at WARC-92 for the mobile satellite service (MSS) in the Earth-to-space direction. The space-to-Earth link is provided at either 137-138 MHz or 400.15 - 401 MHz, depending on the satellite system.

NF4 (161.875 - 173.875 MHz)

The frequency band is used for sonobouy in the maritime service. Assignments were previously not allowed within a distance of 200 km from the coast. It is generally agreed that there is scope for increased sharing even near the coast. Proper care will be taken in making assignments near the coast in this frequency band and frequency coordination is to be performed with existing services on case-by-case basis.

NF5 (173.7-175.1 MHz)
This frequency band may be used for wireless microphones for services ancillary to Broadcasting (SAB) and services ancillary to programme (SAP) making. Use of wireless microphones must be co-ordinated and licensed.

NF6 (336 - 366 MHz)

The frequency band 336-346 MHz, paired with the frequency band 356-366 MHz, is allocated to fixed services on a primary basis and is applicable for use by Fixed Wireless Access (FWA) systems. Within this frequency band, the sub-band 337-344 MHz paired with 357-364 MHz is to be used for WAS whereas the sub-band 344-346 MHz paired with 364-366 MHz is to be used for alarm monitoring and tracking services using DSSS. The band is also considered for use by the Unmanned Aerial Vehicle (UAV) including Remotely Piloted Aircraft System (RPAS) within the sub band 336-346 paired with 356-366 MHz. This spectrum is potentially very useful for providing electronic communications services, in particular in rural areas considering its excellent propagation conditions.

NF7 (380-399.9 MHz)

The frequency band 380 –399.9 MHz is allocated through ITU Resolution 646 (Rev.WRC-19) to Public Protection and Disaster Relief (p) applications in line with ITU-R M.2015.

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NF8 (430 - 440 MHz)

This frequency band is allocated to the amateur service in South Africa in line with ITU Region 1. The sub-band 433.05 - 434.79 MHz, however, is also designated as an ISM band in Region 1, subject to the special authorisation of the administration concerned (see RR 5.138). Furthermore, the sub-band 433.05 - 434.79 MHz can be used for non-specific short-range devices on an licence-exempt basis in accordance with the prescribed Regulations. The consequence of this is that the amateur service may not claim protection from (in-band) emissions from ISM equipment operating in the band, nor can ISM equipment and low power devices claim protection from amateur users operating in the band.

NF9 (IMT Frequency Bands - Terrestrial)

The table below lists all possible IMT frequency bands identified by the ITU, relevant ITU Radio Regulation footnote as well as the applicable ITU-R channel plan. The reference to the ITU channel plan refers to the latest edition as adopted by the ITU. See also notes regarding the application of the table at the end of the table.

Band	Frequency band	Bandwidth (MHz)	ITU RR FN	Channel Plan	WRC Resolution/s
450 MHz	452.5-457.5 MHz // 462.5-467.5 MHz	2x5 MHz	5.286AA	Rec. ITU-R M.1036-8 D14 / B31	224 (Rev. WRC-23)
700 MHz	703-733 MHz // 758 - 788 MHz	2x30 MHz	5.312A 5.317A	Rec. ITU-R M.1036-8 A7 / B28	224 (Rev. WRC-23); 760 (Rev. WRC-23)
750 MHz	738-758 MHz	20 MHz	5.312A 5.317A	Rec. ITU-R M.1036-8 A10 / B67	224 (Rev. WRC-23); 760 (Rev. WRC-23)
800 MHz	791-821 MHz // 832-862 MHz	72 MHz 2x30 MHz	5.312A 5.316B 5.317A	Rec. ITU-R M.1036-8 A3 / B20	224 (Rev. WRC-23), 749 (Rev. WRC-23); 760 (Rev. WRC-23)
900 MHz	880- 915 MHz // 925-960 MHz	2x 35 MHz	5.317A	Rec. ITU-R M.1036-8 A2 / B8	224 (Rev. WRC-23); 749 (Rev. WRC-23); 760 (Rev. WRC-23)
1500 MHz	1427-1517 MHz	90 MHz	5.341A 5.346	Rec. ITU-R M.1036-8 G3 / B75	223 (Rev. WRC-23), 750 (Rev. WRC-19), 761 (Rev. WRC-19)
1800 MHz	1710-1785 MHz // 1805-1880 MHz	2x 75 MHz	5.384A	Rec. ITU-R M.1036-8 B2 / B3	223 (Rev. WRC-23)
2100 MHz	1920-1980 MHz // 2110-2170 MHz	2x 60 MHz	5.388	Rec. ITU-R M.1036-8 B1 / B1	212 (Rev. WRC-23), 223 (Rev. WRC-23)
2100 MHz (TDD)	1900-1920 MHz, 2010-2025 MHz	20 MHz 15 MHz	5.388	Rec. ITU-R M.1036-8	212 (Rev. WRC-23), 223 (Rev. WRC-23)

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Band	Frequency band	Bandwidth (MHz)	ITU RR FN	Channel Plan	WRC Resolution/s
				B1(subset) / B4 / B33 / B34	
2300 MHz	2300-2400 MHz	100 MHz	5.384A	Rec. ITU-R M.1036-8 E1 / B40	223 (Rev. WRC-23)
2600 MHz	2500-2690 MHz	190 MHz	5.384A	Rec. ITU-R M.1036-8. C3 / B38	223 (Rev. WRC-23)
3.5 GHz	3300-3800 MHz	500 MHz	5.429B 5.430A 5.434A 5.434B	Rec. ITU-R M.1036-8 F3 / n78	223 (Rev. WRC-23)
3.7 GHz	3600-3800 MHz	200 MHz	5.434A 5.434B	Rec. ITU-R M.1036-8 F3	
4.9 GHz	4800-4990 MHz	190 MHz	5.441B	Rec. ITU-R M.1036-8 H1	223 (Rev. WRC-23)
6 GHz	6425-7125 MHz	700 MHz	5.457E	N1 / n104	220 (WRC-23)
26 GHz	24.25-27.5 GHz	3250 MHz	5.532AB	Rec. ITU-R M.1036-8 I1 / n258	242 (Rev. WRC-23)
40 GHz	37-43.5 GHz	6500 MHz	5.550B	Rec. ITU-R M.1036-8 J1 / n259/n260	243 (Rev. WRC-23)
45 GHz	45.5-47 GHz	1500 MHz	5.553A	Rec. ITU-R M.1036-8 K1	244 (Rev. WRC-23)
48 GHz	47.2-48.2 GHz	1000 MHz	5.553B	Rec. ITU-R M.1036-8 L1 / n262	243 (Rev. WRC-23)
66 GHz	66-71 GHz	5000 MHz	5.559AA	Rec. ITU-R M.1036-8 M1 / n263	241 (Rev. WRC-23)

*Notes to the table:

- Frequency band: This reflects the IMT frequencies that is relevant to South Africa, either as FDD or TDD.
- Bandwidth: this is the amount of IMT spectrum that is licensed or will be available for licensing for IMT.
- RR FN: This is a list of ITU RR footnotes relevant to IMT; see also table of frequency allocations for additional information.
- Channel Plan: ITU-R plan, normally linked to ITU-R M.1036 and the 3GPP band plan.

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NF10 (876 - 880 // 921 - 925 MHz)

This paired frequency band is used by railway (GSM-R) systems.

NF11 (915 - 921 MHz)-Suppressed

NF12 (1452 - 1492 MHz)-Suppressed

NF13 (1980-2010 MHz paired with 2170-2200 MHz)

These frequency bands are allocated, amongst others, to both the mobile and mobile-satellite services and are also earmarked for the satellite component of IMT. Further, guidance on the implementation of technical and operational measures to facilitate coexistence between terrestrial and satellite components of IMT in the frequency bands 1 980- 2 010 MHz and 2 170-2 200 MHz is addressed in Resolution 212 (Rev. WRC-23),

NF14 (Channel arrangements for Fixed Services Systems)

The table below lists the main fixed services frequency bands and the applicable ITU-R Recommendation specifying the applicable frequency channel arrangement. Different channel spacing for each frequency band will be allowed in accordance with the relevant ITU-R Recommendation. Sub-division of channels will also be allowed to cater for smaller bandwidth systems. Hop distances will be determined, amongst others, by propagation conditions. Sharing with services other than fixed services is indicated in the comments column. Also refer to the Table of Frequency Allocations for further details pertaining to sharing and compatibility with other radiocommunication services.

Band	Band limits	Channel Plan	Comments
1-2 GHz	1350 - 1375 MHz // 1492-1517 MHz 1375-1400 MHz // 1427-1452 MHz	ITU-R F.1242	The migration of fixed links from these bands to be included in the FMP, as amended
2 GHz	2025-2110 MHz // 2200-2285 MHz	ITU-R F.1098	
4 GHz	3600-4200 MHz	ITU-R F.635, Annex 1	Shared with FSS (downlink) (Note 1)
4.8 GHz	4400-5000 MHz	ITU-R F.1099, Annex 1	Government Services
Lower 6 GHz	5925-6425 MHz	ITU-R F.383	Shared with FSS (uplink) (Note 2)
Upper 6 GHz	6425-7110 MHz	ITU-R F.384	Shared with FSS (Note 3)
7 GHz (L7 + U7)	7110-7750 MHz	ITU-R F385, Annex 3	L7 band sharing with Space Research services (Note 3bis)
Lower 8 GHz	7725-8275 MHz	ITU-R F.386, Annex 2	
Upper 8 GHz	8275-8500 MHz	ITU-R F.386, Annex 2	
10.5 GHz	10.15-10.3 GHz // 10.5-10.65 GHz	ITU-R F.1568, Annex 1	
11 GHz	10.7-11.7 GHz	ITU-R F.387	Shared with FSS (Note 4)

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Band	Band limits	Channel Plan	Comments
13 GHz	12.75-13.25 GHz	ITU-R F.497	
15 GHz	14.5-15.35 GHz	ITU-R F.636	
18 GHz	17.7-19.7 GHz	ITU-R F.595, Annex 1	
23 GHz	21.2-23.6 GHz	ITU-R F.637, Annex 1	Shared with BSS (Note 5)
26 GHz	24.5-26.5 GHz	ITU-R F.748-4, Annex 1	Shared with EESS (Note 6)
28 GHz	27.5-29.5 GHz	ITU-R F.748-4, Annex 2	
32 GHz	31.8-33.4 GHz	ITU-R F.1520, Annex 1	This band is identified for HDFS
38 GHz	37.0-39.5 GHz	ITU-R F.749 Annex 1	
42 GHz	40.5-43.5 GHz	ITU-R F.2005 Annex 1	
52 GHz	51.4-52.6 GHz	ITU-R F.1496 Annex 1	
62 GHz	55.78-57 GHz	ITU-R F.1497 Annex 1	(Note 6bis)
	57 - 64 GHz	ITU-R F.1497 Annex 2	(Note 6bis)
	64 - 66 GHz	ITU-R F.1497 Annex 3	(Note 6bis)
80 GHz	71-76 GHz // 81-86 GHz	ITU-R F.2006	(E-band) (Note 7)
94 GHz	92-94 GHz 94.1-100 GHz	ITU-R F.2004 Draft new Recommendation ITU-R F.[W-BAND] ECA Report 25/ ECC Report 282	(W- Band)
102–109.5 GHz	102–109.5 GHz	Draft new Recommendation ITU-R F.[W-BAND] ECA Report 25/ ECC Report 282	(W- Band)
111.8–114.25 GHz	111.8–114.25 GHz	Draft new Recommendation ITU-R F.[W-BAND] ECA Report 25/ ECC Report 282	(W- Band)
130-134 GHz	130-134 GHz	Draft new Recommendation ITU-R F.[D-BAND] ECA Report 25	(D- Band)

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Band	Band limits	Channel Plan	Comments
141-148.5 GHz	141-148.5 GHz	Draft new Recommendation ITU-R F.[D-BAND] ECA Report 25/ ECC Report 282	(D- Band)
151.5-164 GHz	151.5-164 GHz	Draft new Recommendation ITU-R F.[D-BAND] ECA Report 25/ ECC Report 282	(D- Band)
167-174.8 GHz	167-174.8 GHz	Draft new Recommendation ITU-R F.[D-BAND] ECA Report 25/ ECC Report 282	(D- Band)

Note 1: The band 3 600-4 200 MHz is used on a national basis for high capacity, core network telecommunication services under the fixed service for fixed services links generally over long hop lengths. The band 3 625-4 200 MHz, part of the C-band, is used extensively for FSS (space-to-Earth) applications. This band is shared between FS and FSS. The band 3 800-4 200 MHz may also be used for DSA on a non-interference and non-protection basis.

Note 2: In addition to the deployment of fixed services links under the fixed services, the band 5 850-6 425 MHz, part of the C-band, is also used for FSS (Earth-to-space) applications on a shared basis with FS. The C-band is also used for satellite news gathering (SNG) operations, which will require frequency co-ordination with fixed links on a case-by-case basis. Users are encouraged to, as far as possible, use the Ku-band for SNG operations in South Africa in order to avoid the need for frequency coordination and the interference problems associated with C-band SNG operations. The band 5 850-5 925 MHz may also be used for temporary deployment for ENG and OB links under the mobile and fixed services respectively on a strictly coordinated basis. The band 5925-6425 MHz may also to be used for DSA on a non-interference and non-protection basis. The band is also available for WAS/RLAN systems as stipulated in the latest version of the RFSR, Annexure B.

Note 3: This band is used on a national basis for fixed services links under the fixed service. Fixed links are shared with NGSO MSS (space-to-Earth) feeder links and geo-stationary satellite orbit (GSO) FSS (Earth-to-space) systems on a strictly controlled and co-ordinated basis.

Note 3bis: The band 7 145-7 235 MHz is used under the space research services at a site being developed at Matjiesfontein, Karoo. Sharing with fixed links in the area is required.

Note 4: This band is used on a national basis for fixed services links under the fixed service. The sub-bands 10.95-11.2 GHz and 11.45-11.7 GHz are also shared with FSS (space-to-Earth) systems (typically VSAT/SNG and satellite PTP links). The sub-bands 10.95-11.2 GHz and 11.45-11.7 GHz are also used DTH satellite broadcasting services on a secondary basis to the FS and FSS services. The sub-bands 10.7-10.95 GHz and 11.2-11.45 GHz form part of the Appendix 30B Plan.

Note 5: In accordance with 5.530A, all fixed links must comply to the prescribed pfd limits at national borders, unless otherwise agreed with the administration concerned. In line with 5.530B, the band 21.4-22 GHz will not be used for mobile services in South Africa and fixed service deployments will be restricted to point-to-point links.

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Note 6: An unmanned receive only earth station, forming part of the National Polar-Orbiting Operational Environmental Satellite System (NPOESS) is located in South Africa, and this system operates within the frequency band 25.5-27 GHz in the Earth Exploration Satellite (space-to-earth) service.

Note 6bis: The 62 GHz band is divided into three sub-bands as indicated in the table above. The band 55.78-57 GHz is available for fixed services links on a licensed basis. The bands 57-64 GHz and 64-66 GHz, also known as the V-band, can be used on a licensed exempt basis as per the RFSR, 2015 as amended. All three bands can be used for either TDD or FDD.

Note 7: The frequency bands 71-76 GHz paired with 81-86 GHz are allocated to the fixed services and are used extensively for very high-capacity Broadband Fixed Wireless Systems over very short hop lengths. Radio frequency channel arrangements for fixed service systems operating in the bands 71-76 GHz and 81-86 GHz are according to the Radio Frequency Spectrum Regulations (GG. No.38641, 30 March 2015, as amended).

NF15 (4400-5000 MHz)

The frequency band 4 400-5 000 MHz is allocated to electronic news gathering (ENG) and outside broadcasting (OB) services under the mobile and fixed services respectively and is shared with Government Services.

NF16 (5725-5850 MHz)
The band 5 725-5 875 MHz is designated as an ISM band through ITU-R RR footnote 5.150. In addition to ISM applications, the band 5 725-5 850 MHz is also available for fixed links on a license-exempt basis, provided adherence to the provisions indicated below. Type Approval of these systems is mandatory. See also Radio Frequency Spectrum Regulations (RFSR) (Annexure B) (GG. No.38641, 30 March 2015), as amended.
The Authority reserves the right to require users to change the frequency, reduce the power, or cease operations, where harmful interference is caused.

NF17 (14.0-14.5 GHz)

The frequency band 14.0-14.5 GHz, part of the Ku-band is used extensively for FSS (Earth-to-space) applications (VSAT/SNG/satellite PTP links).

NF18 (27.5-28.35 GHz)

The frequency bands 27.5-28.35 GHz (base station to subscriber) and 31.0-31.3 GHz (subscriber to base station) are allocated to broadband service - local multipoint distribution services (LMDS) under the fixed service using a PTMP topology.

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7 ITU RADIO REGULATIONS FOOTNOTES

The ITU Radio Regulations footnote listed are those that are applicable to Region 1.

5.53	Administrations authorising the use of frequencies below 8.3 kHz shall ensure that no harmful interference is caused to services to which the bands above 8.3 kHz are allocated. (WRC-12)
5.54	Administrations conducting scientific research using frequencies below 8.3 kHz are urged to advise other administrations that may be concerned in order that such research may be afforded all practicable protection from harmful interference. (WRC-12)
5.54A	Use of the 8.3-11.3 kHz frequency band by stations in the meteorological aids service is limited to passive use only. In the band 9-11.3 kHz, meteorological aids stations shall not claim protection from stations of the radionavigation service submitted for notification to the Bureau prior to 1 January 2013. For sharing between stations of the meteorological aids service and stations in the radionavigation service submitted for notification after this date, the most recent version of Recommendation ITU-R RS.1881 should be applied. (WRC-12)
5.54B	*Additional allocation:* in Algeria, Saudi Arabia, Bahrain, Egypt, the United Arab Emirates, the Russian Federation, Iran (Islamic Republic of), Iraq, Kuwait, Lebanon, Morocco, Qatar, the Syrian Arab Republic, Sudan and Tunisia, the frequency band 8.3-9 kHz is also allocated to the radionavigation, fixed and mobile services on a primary basis. (WRC-15)
5.54C	Additional allocation: in China, the frequency band 8.3-9 kHz is also allocated to the maritime radionavigation and maritime mobile services on a primary basis. (WRC-12)
5.55	*Additional allocation:* in Armenia, the Russian Federation, Georgia, Kyrgyzstan, Tajikistan and Turkmenistan, the frequency band 14-17 kHz is also allocated to the radionavigation service on a primary basis. (WRC-15)
5.56	The stations of services to which the frequency bands 14-19.95 kHz and 20.05-70 kHz and in Region 1 also the frequency bands 72-84 kHz and 86-90 kHz are allocated may transmit standard frequency and time signals. Such stations shall be afforded protection from harmful interference. In Armenia, Azerbaijan, Belarus, the Russian Federation, Georgia, Kyrgyzstan, Tajikistan and Turkmenistan, the frequencies 25 kHz and 50 kHz will be used for this purpose under the same conditions. (WRC-23)
5.57	The use of the bands 14-19.95 kHz, 20.05-70 kHz and 70-90 kHz (72-84 kHz and 86-90 kHz in Region 1) by the maritime mobile service is limited to coast radiotelegraph stations (A1A and F1B only). Exceptionally, the use of class J2B or J7B emissions is authorized subject to the necessary bandwidth not exceeding that normally used for class A1A or F1B emissions in the band concerned.
5.58	*Additional allocation: in Armenia, Azerbaijan, the Russian Federation, Georgia, Kyrgyzstan, Tajikistan and Turkmenistan, the frequency band 67-70 kHz is also allocated to the radionavigation service on a primary basis. (WRC-23)*
5.59	*Different category of service:* in Bangladesh and Pakistan, the allocation of the bands 70-72 kHz and 84-86 kHz to the fixed and maritime mobile services is on a primary basis (see No. **5.33**). (WRC-2000)
5.60	In the bands 70-90 kHz (70-86 kHz in Region 1) and 110-130 kHz (112-130 kHz in Region 1), pulsed radionavigation systems may be used on condition that they do not cause harmful interference to other services to which these bands are allocated.
5.61	In Region 2, the establishment and operation of stations in the maritime radionavigation service in the bands 70-90 kHz and 110-130 kHz shall be subject to agreement obtained under No. **9.21** with administrations whose services, operating in accordance with the Table, may be affected. However, stations of the fixed, maritime mobile and

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	radiolocation services shall not cause harmful interference to stations in the maritime radionavigation service established under such agreements.
5.62	Administrations which operate stations in the radionavigation service in the band 90-110 kHz are urged to coordinate technical and operating characteristics in such a way as to avoid harmful interference to the services provided by these stations.
5.63	SUP (WRC-97)
5.64	Only classes A1A or F1B, A2C, A3C, F1C or F3C emissions are authorized for stations of the fixed service in the bands allocated to this service between 90 kHz and 160 kHz (148.5 kHz in Region 1) and for stations of the maritime mobile service in the bands allocated to this service between 110 kHz and 160 kHz (148.5 kHz in Region 1). Exceptionally, class J2B or J7B emissions are also authorized in the bands between 110 kHz and 160 kHz (148.5 kHz in Region 1) for stations of the maritime mobile service.
5.65	Different category of service: in Bangladesh, the allocation of the bands 112-117.6 kHz and 126-129 kHz to the fixed and maritime mobile services is on a primary basis (see No. 5.33). (WRC-2000)
5.66	*Different category of service:* in Germany, the allocation of the band 115-117.6 kHz to the fixed and maritime mobile services is on a primary basis (see No. **5.33**) and to the radionavigation service on a secondary basis (see No. **5.32**).
5.67	*Additional allocation:* in Kyrgyzstan and Turkmenistan, the frequency band 130-148.5 kHz is also allocated to the radionavigation service on a secondary basis. Within and between these countries this service shall have an equal right to operate. (WRC-19)
5.67A	Stations in the amateur service using frequencies in the band 135.7-137.8 kHz shall not exceed a maximum radiated power of 1 W (e.i.r.p.) and shall not cause harmful interference to stations of the radionavigation service operating in countries listed in No. **5.67**. (WRC-07)
5.67B	The use of the frequency band 135.7-137.8 kHz in Algeria, Egypt, Iraq, Lebanon, Syrian Arab Republic, Sudan, South Sudan, and Tunisia is limited to the fixed and maritime mobile services. The amateur service shall not be used in the above-mentioned countries in the frequency band 135.7-137.8 kHz, and this should be taken into account by the countries authorizing such use. (WRC-19)
5.68	*Alternative allocation:* in Congo (Rep. of the), the Dem. Rep. of the Congo and South Africa, the frequency band 160- 200 kHz is allocated to the fixed service on a primary basis. (WRC-15)
5.69	*Additional allocation:* in Somalia, the band 200-255 kHz is also allocated to the aeronautical radionavigation service on a primary basis.
5.70	*Alternative allocation:* in Angola, Botswana, Burundi, the Central African Rep., Congo (Rep. of the), Eswatini, Ethiopia, Kenya, Lesotho, Madagascar, Malawi, Mozambique, Namibia, Nigeria, Oman, the Dem. Rep. of the Congo, South Africa, Tanzania, Chad, Zambia and Zimbabwe, the frequency band 200-283.5 kHz is allocated to the aeronautical radionavigation service on a primary basis. (WRC-19)
5.71	SUP (WRC-19)
5.72	SUP (WRC-12)
5.73	The band 285-325 kHz (283.5-325 kHz in Region 1) in the maritime radionavigation service may be used to transmit supplementary navigational information using narrow-band techniques, on condition that no harmful interference is caused to radiobeacon stations operating in the radionavigation service. (WRC-97)
5.74	*Additional Allocation:* in Region 1, the frequency band 285.3-285.7 kHz is also allocated to the maritime radionavigation service (other than radiobeacons) on a primary basis.
5.75	*Different category of service:* in Armenia, Azerbaijan, Belarus, the Russian Federation, Georgia, Moldova, Kyrgyzstan, Tajikistan, Turkmenistan, Ukraine and the Black Sea areas of Romania, the allocation of the band 315-325 kHz to the maritime radionavigation service is on a primary basis under the condition that in the Baltic Sea area, the assignment of frequencies in this band to new stations in the maritime or

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	aeronautical radionavigation services shall be subject to prior consultation between the administrations concerned. (WRC-07)
5.76	The frequency 410 kHz is designated for radio direction-finding in the maritime radionavigation service. The other radionavigation services to which the band 405-415 kHz is allocated shall not cause harmful interference to radio direction-finding in the band 406.5-413.5 kHz.
5.77	*Different category of service:* in Australia, China, the French overseas communities of Region 3, Korea (Rep. of), India, Iran (Islamic Republic of), Japan, Pakistan, Papua New Guinea, the Dem. People's Rep. of Korea and Sri Lanka, the allocation of the frequency band 415-495 kHz to the aeronautical radionavigation service is on a primary basis. In Armenia, Azerbaijan, Belarus, the Russian Federation, Kazakhstan, Latvia, Uzbekistan and Kyrgyzstan, the allocation of the frequency band 435-495 kHz to the aeronautical radionavigation service is on a primary basis. Administrations in all the aforementioned countries shall take all practical steps necessary to ensure that aeronautical radionavigation stations in the frequency band 435-495 kHz do not cause interference to reception by coast stations of transmissions from ship stations on frequencies designated for ship stations on a worldwide basis. (WRC-19)
5.78	*Different category of service:* in Cuba, the United States of America and Mexico, the allocation of the band 415-435 kHz to the aeronautical radionavigation service is on a primary basis.
5.79	In the maritime mobile service, the frequency bands 415-495 kHz and 505-526.5 kHz are limited to radiotelegraphy and may also be used for the NAVDAT system in accordance with the most recent version of Recommendation ITU-R. M.2010, subject to agreement between interested and affected administrations. NAVDAT transmitting stations are limited to coast stations. (WRC-19)
5.79A	When establishing coast stations in the NAVTEX service on the frequencies 490 kHz, 518 kHz and 4 209.5 kHz, administrations are strongly recommended to coordinate the operating characteristics in accordance with the procedures of the International Maritime Organization (IMO) (see Resolution **339 (Rev.WRC-07)**). (WRC-07)
5.80	In Region 2, the use of the band 435-495 kHz by the aeronautical radionavigation service is limited to non-directional beacons not employing voice transmission.
5.80A	The maximum equivalent isotropically radiated power (e.i.r.p.) of stations in the amateur service using frequencies in the band 472-479 kHz shall not exceed 1 W. Administrations may increase this limit of e.i.r.p. to 5 W in portions of their territory which are at a distance of over 800 km from the borders of Algeria, Saudi Arabia, Azerbaijan, Bahrain, Belarus, China, Comoros, Djibouti, Egypt, United Arab Emirates, the Russian Federation, Iran (Islamic Republic of), Iraq, Jordan, Kazakhstan, Kuwait, Lebanon, Libya, Morocco, Mauritania, Oman, Uzbekistan, Qatar, Syrian Arab Republic, Kyrgyzstan, Somalia, Sudan, Tunisia, Ukraine and Yemen. In this frequency band, stations in the amateur service shall not cause harmful interference to, or claim protection from, stations of the aeronautical radionavigation service. (WRC-12)
5.80B	The use of the frequency band 472-479 kHz in Algeria, Saudi Arabia, Azerbaijan, Bahrain, Belarus, China, Comoros, Djibouti, Egypt, United Arab Emirates, the Russian Federation, Iraq, Jordan, Kazakhstan, Kuwait, Lebanon, Libya, Mauritania, Oman, Uzbekistan, Qatar, Syrian Arab Republic, Kyrgyzstan, Somalia, Sudan, Tunisia and Yemen is limited to the maritime mobile and aeronautical radionavigation services. The amateur service shall not be used in the abovementioned countries in this frequency band, and this should be taken into account by the countries authorizing such use. (WRC-12)
5.81	SUP (WRC-2000)
5.82	In the maritime mobile service, the frequency 490 kHz is to be used exclusively for the transmission by coast stations of navigational and meteorological warnings and urgent information to ships, by means of narrow-band direct-printing telegraphy. The conditions for use of the frequency 490 kHz are prescribed in Articles 31 and 52. In

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	using the frequency band 415-495 kHz for the aeronautical radionavigation service, administrations are requested to ensure that no harmful interference is caused to the frequency 490 kHz. In using the frequency band 472-479 kHz for the amateur service, administrations shall ensure that no harmful interference is caused to the frequency 490 kHz. (WRC-12)
5.82A	SUP (WRC-12)
5.82B	SUP (WRC-12)
5.82C	The frequency band 495-505 kHz is used for the international NAVDAT system as described in the most recent version of Recommendation ITU-R M.2010. NAVDAT transmitting stations are limited to coast stations. (WRC-19)
5.82D	When establishing coast stations in the NAVDAT system on the frequencies 500 kHz and 4 226 kHz, the conditions for the use of the frequencies 500 kHz and 4 226 kHz are prescribed in Articles **31** and **52**. Administrations are strongly recommended to coordinate the NAVDAT systems operating characteristics in accordance with the procedures of the International Maritime Organization (IMO) (see Resolution **364 (WRC-23)**). (WRC-23)
5.83	SUP (WRC-07)
5.84	The conditions for the use of the frequency 518 kHz by the maritime mobile service are prescribed in Articles **31** and **52**. (WRC-07)
5.85	Not used.
5.86	In Region 2, in the band 525-535 kHz the carrier power of broadcasting stations shall not exceed 1 kW during the day and 250 W at night.
5.87	*Additional allocation:* in Angola, Botswana, Eswatini, Lesotho, Malawi, Mozambique, Namibia and Niger, the frequency band 526.5-535 kHz is also allocated to the mobile service on a secondary basis. (WRC-19)
5.87A	*Additional allocation:* in Uzbekistan, the band 526.5-1 606.5 kHz is also allocated to the radionavigation service on a primary basis. Such use is subject to agreement obtained under No. **9.21** with administrations concerned and limited to ground-based radiobeacons in operation on 27 October 1997 until the end of their lifetime. (WRC-97)
5.88	*Additional allocation:* in China, the band 526.5-535 kHz is also allocated to the aeronautical radionavigation service on a secondary basis.
5.89	In Region 2, the use of the band 1 605-1 705 kHz by stations of the broadcasting service is subject to the Plan established by the Regional Administrative Radio Conference (Rio de Janeiro, 1988). The examination of frequency assignments to stations of the fixed and mobile services in the band 1 625-1 705 kHz shall take account of the allotments appearing in the Plan established by the Regional Administrative Radio Conference (Rio de Janeiro, 1988).
5.90	In the band 1 605-1 705 kHz, in cases where a broadcasting station of Region 2 is concerned, the service area of the maritime mobile stations in Region 1 shall be limited to that provided by ground-wave propagation.
5.91	*Additional allocation:* in the Philippines and Sri Lanka, the band 1 606.5-1 705 kHz is also allocated to the broadcasting service on a secondary basis. (WRC-97)
5.92	Some countries of Region 1 use radiodetermination systems in the bands 1 606.5-1 625 kHz, 1 635-1 800 kHz, 1 850- 2 160 kHz, 2 194-2 300 kHz, 2 502-2 850 kHz and 3 500-3 800 kHz, subject to agreement obtained under No. **9.21**. The radiated mean power of these stations shall not exceed 50 W.
5.93	*Additional allocation:* in Armenia, Azerbaijan, Belarus, the Russian Federation, Georgia, Hungary, Kazakhstan, Latvia, Lithuania, Mongolia, Nigeria, Uzbekistan, Poland, Kyrgyzstan, Slovakia, Tajikistan, Chad, Turkmenistan and Ukraine, the frequency bands 1 625-1 635 kHz, 1 800-1 810 kHz and 2 160-2 170 kHz are also allocated to the fixed and land mobile services on a primary basis, subject to agreement obtained under No. **9.21**. (WRC-15)
5.94	Not used
5.95	Not used.

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5.96	In Germany, Armenia, Austria, Azerbaijan, Belarus, Croatia, Denmark, Estonia, the Russian Federation, Finland, Georgia, Hungary, Ireland, Iceland, Israel, Kazakhstan, Latvia, Liechtenstein, Lithuania, Malta, Moldova, Norway, Uzbekistan, Poland, Kyrgyzstan, Slovakia, the Czech Rep., the United Kingdom, Sweden, Switzerland, Tajikistan, Turkmenistan and Ukraine, administrations may allocate up to 200 kHz to their amateur service in the frequency bands 1 715-1 800 kHz and 1 850-2 000 kHz. However, when allocating the frequency bands within this range to their amateur service, administrations shall, after prior consultation with administrations of neighbouring countries, take such steps as may be necessary to prevent harmful interference from their amateur service to the fixed and mobile services of other countries. The mean power of any amateur station shall not exceed 10 W. (WRC-15)
5.97	In Region 3, the Loran system operates either on 1 850 kHz or 1 950 kHz, the bands occupied being 1 825-1 875 kHz and 1 925-1 975 kHz respectively. Other services to which the band 1 800-2 000 kHz is allocated may use any frequency therein on condition that no harmful interference is caused to the Loran system operating on 1 850 kHz or 1 950 kHz.
5.98	*Alternative allocation:* in Armenia, Azerbaijan, Belarus, Belgium, Cameroon, Congo (Rep. of the), Denmark, Eritrea, Spain, Ethiopia, the Russian Federation, Georgia, Greece, Italy, Kazakhstan, Lebanon, Lithuania, the Syrian Arab Republic, Türkiye, Kyrgyzstan, Somalia, Tajikistan, Tunisia and Turkmenistan, the frequency band 1 810-1 830 Kh z is allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis. (WRC-23)
5.99	*Additional allocation:* in Saudi Arabia, Austria, Egypt, Iraq, Libya, Uzbekistan, Romania, Slovakia, Slovenia, Chad, and Togo, the frequency band 1 810-1 830 kHz is also allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis. (WRC-23)
5.100	In Region 1, the authorization to use the band 1 810-1 830 kHz by the amateur service in countries situated totally or partially north of 40° N shall be given only after consultation with the countries mentioned in Nos. **5.98** and **5.99** to define the necessary steps to be taken to prevent harmful interference between amateur stations and stations of other services operating in accordance with Nos. **5.98** and **5.99**.
5.101	SUP (WRC12)
5.102	*Alternative allocation:* in Bolivia, Chile, Paraguay and Peru, the frequency band 1 850-2 000 kHz is allocated to the fixed, mobile except aeronautical mobile, radiolocation and radionavigation services on a primary basis. (WRC-15)
5.103	In Region 1, in making assignments to stations in the fixed and mobile services in the bands 1 850-2 045 kHz, 2 194-2 498 kHz, 2 502-2 625 kHz and 2 650-2 850 kHz, administrations should bear in mind the special requirements of the maritime mobile service.
5.104	In Region 1, the use of the band 2 025-2 045 kHz by the meteorological aids service is limited to oceanographic buoy stations.
5.105	In Region 2, except in Greenland, coast stations and ship stations using radiotelephony in the band 2 065-2 107 kHz shall be limited to class J3E emissions and to a peak envelope power not exceeding 1 kW. Preferably, the following carrier frequencies should be used: 2 065.0 kHz, 2 079.0 kHz, 2 082.5 kHz, 2 086.0 kHz, 2 093.0 kHz, 2 096.5 kHz, 2 100.0 kHz and 2 103.5 kHz. In Argentina and Uruguay, the carrier frequencies 2 068.5 kHz and 2 075.5 kHz are also used for this purpose, while the frequencies within the band 2 072-2 075.5 kHz are used as provided in No. **52.165**.
5.106	In Regions 2 and 3, provided no harmful interference is caused to the maritime mobile service, the frequencies between 2 065 kHz and 2 107 kHz may be used by stations of the fixed service communicating only within national borders and whose mean power does not exceed 50 W. In notifying the frequencies, the attention of the Bureau should be drawn to these provisions.

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5.107	*Additional allocation:* in Saudi Arabia, Eritrea, Eswatini, Ethiopia, Iraq, Libya and Somalia, the frequency band 2 160-2 170 kHz is also allocated to the fixed and mobile, except aeronautical mobile (R), services on a primary basis. The mean power of stations in these services shall not exceed 50 W. (WRC-19)
5.108	The carrier frequency 2 182 kHz is an international distress and calling frequency for radiotelephony. The conditions for the use of the band 2 173.5-2 190.5 kHz are prescribed in Articles **31** and **52**. (WRC-07)
5.109	The frequencies 2 187.5 kHz, 4 207.5 kHz, 6 312 kHz, 8 414.5 kHz, 12 577 kHz and 16 804.5 kHz are international distress frequencies for digital selective calling. The conditions for the use of these frequencies are prescribed in Article **31**.
5.110	The frequencies 2 174.5 kHz, 4 177.5 kHz, 6 268 kHz, 8 376.5 kHz, 12 520 kHz and 16 695 kHz are used for the automatic connection system (ACS), as described in the most recent version of Recommendation ITU-R M.541. (WRC-23)
5.111	The carrier frequencies 2 182 kHz, 3 023 kHz, 5 680 kHz, 8 364 kHz and the frequencies 121.5 MHz, 156.525 MHz, 156.8 MHz and 243 MHz may also be used, in accordance with the procedures in force for terrestrial radiocommunication services, for search and rescue operations concerning manned space vehicles. The conditions for the use of the frequencies are prescribed in Article **31**. The same applies to the frequencies 10 003 kHz, 14 993 kHz and 19 993 kHz, but in each of these cases emissions must be confined in a band of ±3 kHz about the frequency. (WRC-07)
5.112	*Alternative allocation:* in Sri Lanka, the frequency band 2 194-2 300 kHz is allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis. (WRC-19)
5.113	For the conditions for the use of the bands 2 300-2 495 kHz (2 498 kHz in Region 1), 3 200-3 400 kHz, 4 750-4 995 kHz and 5 005-5 060 kHz by the broadcasting service, see Nos. **5.16** to **5.20**, **5.21** and **23.3** to **23.10**.
5.114	*Alternative allocation*: in Iraq, the frequency band 2 502-2 625 kHz is allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis. (WRC-19)
5.115	The carrier (reference) frequencies 3 023 kHz and 5 680 kHz may also be used, in accordance with Article **31**, by stations of the maritime mobile service engaged in coordinated search and rescue operations. (WRC-07)
5.116	Administrations are urged to authorize the use of the band 3 155-3 195 kHz to provide a common worldwide channel for low power wireless hearing aids. Additional channels for these devices may be assigned by administrations in the bands between 3 155 kHz and 3 400 kHz to suit local needs. It should be noted that frequencies in the range 3 000 kHz to 4 000 kHz are suitable for hearing aid devices which are designed to operate over short distances within the induction field.
5.117	*Alternative allocation:* in Liberia, Sri Lanka and Togo, the frequency band 3 155-3 200 kHz is allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis. (WRC-23)
5.118	*Additional allocation:* in the United States, Mexico and Peru, the frequency band 3 230-3 400 kHz is also allocated to the radiolocation service on a secondary basis. (WRC-19)
5.119	*Additional allocation:* in Peru, the frequency band 3 500-3 750 kHz is also allocated to the fixed and mobile services on a primary basis. (WRC-15)
5.120	SUP (WRC-2000)
5.121	Not used.
5.122	*Alternative allocation:* in Bolivia, Chile, Ecuador, Paraguay and Peru, the frequency band 3 750-4 000 kHz is allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis. (WRC-15)
5.123	*Additional allocation:* in Botswana, Eswatini, Lesotho, Malawi, Mozambique, Namibia, South Africa, Zambia and Zimbabwe, the frequency band 3 900-3 950 kHz is also allocated to the broadcasting service on a primary basis, subject to agreement obtained under No. **9.21**. (WRC-19)

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5.124	SUP (WRC-2000)
5.125	*Additional allocation:* in Greenland, the band 3 950-4 000 kHz is also allocated to the broadcasting service on a primary basis. The power of the broadcasting stations operating in this band shall not exceed that necessary for a national service and shall in no case exceed 5 kW.
5.126	In Region 3, the stations of those services to which the band 3 995-4 005 kHz is allocated may transmit standard frequency and time signals.
5.127	The use of the band 4 000-4 063 kHz by the maritime mobile service is limited to ship stations using radiotelephony (see No. **52.220** and Appendix **17**).
5.128	Frequencies in the frequency bands 4 063-4 123 kHz and 4 130-4 438 kHz may be used exceptionally by stations in the fixed service, communicating only within the boundary of the country in which they are located, with a mean power not exceeding 50 W, on condition that harmful interference is not caused to the maritime mobile service. In addition, in Afghanistan, Argentina, Armenia, Belarus, Botswana, Burkina Faso, the Central African Rep., China, the Russian Federation, Georgia, India, Kazakhstan, Mali, Niger, Pakistan, Kyrgyzstan, Tajikistan, Chad, Turkmenistan and Ukraine, in the frequency bands 4 063-4 123 kHz, 4 130-4 133 kHz and 4 408-4 438 kHz, stations in the fixed service, with a mean power not exceeding 1 kW, can be operated on condition that they are situated at least 600 km from the coast and that harmful interference is not caused to the maritime mobile service. (WRC-19)
5.129	SUP (WRC-07)
5.130	The conditions for the use of the carrier frequencies 4 125 kHz and 6 215 kHz are prescribed in Articles **31** and **52**. (WRC-07)
5.131	The frequency 4 209.5 kHz is used exclusively for the transmission by coast stations of meteorological and navigational warnings and urgent information to ships by means of narrow-band direct-printing techniques. (WRC-97)
5.132	The frequencies 4 210 kHz, 6 314 kHz, 8 416.5 kHz, 12 579 kHz, 16 806.5 kHz, 19 680.5 kHz,22 376 kHz and 26 100.5 kHz are the international frequencies for the transmission of maritime safety information (MSI) (see Appendices **15** and **17**). (WRC-23)
5.132A	Stations in the radiolocation service shall not cause harmful interference to, or claim protection from, stations operating in the fixed or mobile services. Applications of the radiolocation service are limited to oceanographic radars operating in accordance with Resolution **612 (**WRC-12). (WRC-12)
5.132B	*Alternative allocation:* in Armenia, Belarus, Moldova and Kyrgyzstan, the frequency band 4 438-4 488 kHz is allocated to the fixed and mobile, except aeronautical mobile (R), services on a primary basis. (WRC-19)
5.133	*Different category of service:* in Armenia, Azerbaijan, Belarus, the Russian Federation, Georgia, Kazakhstan, Latvia, Lithuania, Niger, Uzbekistan, Kyrgyzstan, Tajikistan, Turkmenistan and Ukraine, the allocation of the band 5 130-5 250 kHz to the mobile, except aeronautical mobile, service is on a primary basis (see No. **5.33**). (WRC-12)
5.133A	*Alternative allocation:* in Armenia, Belarus, Moldova and Kyrgyzstan, the frequency bands 5 250-5 275 kHz and 26 200- 26 350 kHz are allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis. (WRC-19)
5.133B	Stations in the amateur service using the frequency band 5 351.5-5 366.5 kHz shall not exceed a maximum radiated power of 15 W (e.i.r.p.). However, in Region 2 in Mexico, stations in the amateur service using the frequency band 5 351.5-5 366.5 kHz shall not exceed a maximum radiated power of 20 W (e.i.r.p.). In the following Region 2 countries: Antigua and Barbuda, Argentina, Bahamas, Barbados, Belize, Bolivia, Brazil, Chile, Colombia, Costa Rica, Cuba, Dominican Republic, Dominica, El Salvador, Ecuador, Grenada, Guatemala, Guyana, Haiti, Honduras, Jamaica, Nicaragua, Panama, Paraguay, Peru, Saint Lucia, Saint Kitts and Nevis, Saint Vincent and the Grenadines, Suriname, Trinidad and Tobago, Uruguay, Venezuela, as well as the overseas countries and territories within the Kingdom of the Netherlands in Region 2, stations in the

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	amateur service using the frequency band 5 351.5-5 366.5 kHz shall not exceed a maximum radiated power of 25 W (e.i.r.p.). (WRC-19)
5.134	The use of the frequency bands 5 900-5 950 kHz, 7 300-7 350 kHz, 9 400-9 500 kHz, 11 600-11 650 kHz, 12 050-12 100 kHz, 13 570-13 600 kHz, 13 800-13 870 kHz, 15 600 15 800 kHz, 17 480-17 550 kHz and 18 900-19 020 kHz by the broadcasting service is subject to the application of the procedure of Article **12**. Administrations are encouraged to use these frequency bands to facilitate the introduction of digitally modulated emissions in accordance with the provisions of Resolution **517 (Rev.WRC-19)**. (WRC-19)
5.135	SUP (WRC-97)
5.136	*Additional allocation:* frequencies in the band 5 900-5 950 kHz may be used by stations in the following services, communicating only within the boundary of the country in which they are located: fixed service (in all three Regions), land mobile service (in Region 1), mobile except aeronautical mobile (R) service (in Regions 2 and 3), on condition that harmful interference is not caused to the broadcasting service. When using frequencies for these services, administrations are urged to use the minimum power required and to take account of the seasonal use of frequencies by the broadcasting service published in accordance with the Radio Regulations. (WRC-07)
5.137	On condition that harmful interference is not caused to the maritime mobile service, the bands 6 200-6 213.5 kHz and 6 220.5-6 525 kHz may be used exceptionally by stations in the fixed service, communicating only within the boundary of the country in which they are located, with a mean power not exceeding 50 W. At the time of notification of these frequencies, the attention of the Bureau will be drawn to the above conditions.
5.137A	The frequencies 6 337.5 kHz, 8 443 kHz, 12 663.5 kHz, 16 909.5 kHz and 22 450.5 kHz are the regional frequencies for the transmission of maritime safety information (MSI) by means of the NAVDAT system (see Appendices **15** and **17**). (WRC-23)
5.138	The following bands: 6 765-6 795 kHz (centre frequency 6 780 kHz), 433.05-434.79 MHz (centre frequency 433.92 MHz) in Region 1 except in the countries mentioned in No. **5.280**, 61-61.5 GHz (centre frequency 61.25 GHz), 122-123 GHz (centre frequency 122.5 GHz), and 244-246 GHz (centre frequency 245 GHz) are designated for industrial, scientific and medical (ISM) applications. The use of these frequency bands for ISM applications shall be subject to special authorization by the administration concerned, in agreement with other administrations whose radiocommunication services might be affected. In applying this provision, administrations shall have due regard to the latest relevant ITU-R Recommendations.
5.138A	SUP (WRC-12)
5.139	SUP (WRC-12)
5.140	*Additional allocation:* in Angola, Iraq, Somalia and Togo, the frequency band 7 000-7 050 kHz is also allocated to the fixed service on a primary basis. (WRC-15)
5.141	*Alternative allocation:* in Egypt, Eritrea, Ethiopia, Guinea, Libya, Madagascar and Niger, the band 7 000-7 050 kHz is allocated to the fixed service on a primary basis. (WRC-12)
5.141A	*Additional allocation:* in Uzbekistan and Kyrgyzstan, the bands 7 000-7 100 kHz and 7 100-7 200 kHz are also allocated to the fixed and land mobile services on a secondary basis. (WRC-03)
5.141B	*Additional allocation:* in Algeria, Saudi Arabia, Australia, Bahrain, Botswana, Brunei Darussalam, China, Comoros, Korea (Rep. of), Diego Garcia, Djibouti, Egypt, United Arab Emirates, Eritrea, Guinea, Indonesia, Iran (Islamic Republic of), Japan, Jordan, Kuwait, Libya, Mali, Morocco, Mauritania, Niger, New Zealand, Oman, Papua New Guinea, Qatar, the Syrian Arab Republic, the Dem. People's Rep. of Korea, Singapore, Sudan, South Sudan, Tunisia, Viet Nam and Yemen, the frequency band 7 100-7 200

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	kHz is also allocated to the fixed and the mobile, except aeronautical mobile (R), services on a primary basis. (WRC-19)
5.141C	SUP (WRC-12)
5.142	the use of the band 7 100-7 300 kHz in Region 2 by the amateur service shall not impose constraints on the broadcasting service intended for use within Region 1 and Region 3. (WRC-12)
5.143	*Additional allocation:* frequencies in the band 7 300-7 350 kHz may be used by stations in the fixed service and in the land mobile service, communicating only within the boundary of the country in which they are located, on condition that harmful interference is not caused to the broadcasting service. When using frequencies for these services, administrations are urged to use the minimum power required and to take account of the seasonal use of frequencies by the broadcasting service published in accordance with the Radio Regulations. (WRC-07)
5.143A	In Region 3, the band 7 350-7 450 kHz may be used by stations in the fixed service on a primary basis and to the land mobile service on a secondary basis. , communicating only within the boundary of the country in which they are located, on condition that harmful interference is not caused to the broadcasting service. When using frequencies for these services, administrations are urged to use the minimum power required and to take account of the seasonal use of frequencies by the broadcasting service published in accordance with the Radio Regulations. (WRC-12)
5.143B	In Region 1, frequencies in the band 7 350-7 450 kHz may be used by stations in the fixed and land mobile services communicating only within the boundary of the country in which they are located on condition that harmful interference is not caused to the broadcasting service. The total radiated power of each station shall not exceed 24 dBW. (WRC-12)
5.143C	Additional allocation: in Algeria, Saudi Arabia, Bahrain, Comoros, Djibouti, Egypt, United Arab Emirates, Iran (Islamic Republic of), Libya, Jordan, Kuwait, Morocco, Mauritania, Oman, Qatar, the Syrian Arab Republic, Sudan, South Sudan, Tunisia and Yemen, the bands 7 350-7 400 kHz and 7 400-7 450 kHz are also allocated to the fixed service on a primary basis. (WRC-12)
5.143D	In Region 2, frequencies in the band 7 350-7 400 kHz may be used by stations in the fixed service and in the land mobile service, communicating only within the boundary of the country in which they are located, on condition that harmful interference is not caused to the broadcasting service. When using frequencies for these services, administrations are urged to use the minimum power required and to take account of the seasonal use of frequencies by the broadcasting service published in accordance with the Radio Regulations. (WRC-12)
5.143E	(SUP - WRC-12)
5.144	In Region 3, the stations of those services to which the band 7 995-8 005 kHz is allocated may transmit standard frequency and time signals.
5.145	The conditions for the use of the carrier frequencies 8 291 kHz, 12 290 kHz and 16 420 kHz are prescribed in Articles 31 and 52. (WRC-07)
5.145A	Stations in the radiolocation service shall not cause harmful interference to, or claim protection from, stations operating in the fixed service. Applications of the radiolocation service are limited to oceanographic radars operating in accordance with Resolution **612** (WRC-12).
5.145B	*Alternative allocation:* in Armenia, Belarus, Moldova and Kyrgyzstan, the frequency bands 9 305-9 355 kHz and 16 100- 16 200 kHz are allocated to the fixed service on a primary basis. (WRC-19)
5.146	*Additional allocation:* frequencies in the bands 9 400-9 500 kHz, 11 600-11 650 kHz, 12 050-12 100 kHz, 15 600-15 800 kHz, 17 480-17 550 kHz and 18 900-19 020 kHz may be used by stations in the fixed service, communicating only within the boundary of the country in which they are located, on condition that harmful interference is not

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	caused to the broadcasting service. When using frequencies in the fixed service, administrations are urged to use the minimum power required and to take account of the seasonal use of frequencies by the broadcasting service published in accordance with the Radio Regulations. (WRC-07)
5.147	On condition that harmful interference is not caused to the broadcasting service, frequencies in the bands 9 775-9 900 kHz, 11 650-11 700 kHz and 11 975-12 050 kHz may be used by stations in the fixed service communicating only within the boundary of the country in which they are located, each station using a total radiated power not exceeding 24 dBW.
5.148	SUP (WRC-97)
5.149	In making assignments to stations of other services to which the bands: 13 360-13 410 kHz, 25 550-25 670 kHz, 37.5-38.25 MHz, 73-74.6 MHz in Regions 1 and 3, 150.05-153 MHz in Region 1, 322-328.6 MHz, 406.1-410 MHz, 608-614 MHz in Regions 1 and 3, 1 330-1 400 MHz, 1 610.6-1 613.8 MHz, 1 660-1 670 MHz, 1 718.8-1 722.2 MHz, 2 655-2 690 MHz, 3 260-3 267 MHz, 3 332-3 339 MHz, 3 345.8-3 352.5 MHz, 4 825-4 835 MHz, 4 950-4 990 MHz, 4 990-5 000 MHz, 6 650-6 675.2 MHz, 10.6-10.68 GHz, 14.47-14.5 GHz, 22.01-22.21 GHz, 22.21-22.5 GHz, 22.81-22.86 GHz, 23.07-23.12 GHz, 31.2-31.3 GHz, 31.5-31.8 GHz in Regions 1 and 3, 36.43-36.5 GHz, 42.5-43.5 GHz, 48.94-49.04 GHz, 76-86 GHz, 92-94 GHz, 94.1-100 GHz, 102-109.5 GHz, 111.8-114.25 GHz, 128.33-128.59 GHz, 129.23-129.49 GHz, 130-134 GHz, 136-148.5 GHz, 151.5-158.5 GHz, 168.59-168.93 GHz, 171.11-171.45 GHz, 172.31-172.65 GHz, 173.52-173.85 GHz, 195.75-196.15 GHz, 209-226 GHz, 241-250 GHz, 252-275 GHz are allocated, administrations are urged to take all practicable steps to protect the radio astronomy service from harmful interference. Emissions from spaceborne or airborne stations can be particularly serious sources of interference to the radio astronomy service (see Nos. **4.5** and **4.6** and Article **29**). (WRC-07)
5.149A	*Alternative allocation:* in Armenia, Belarus, Moldova and Kyrgyzstan, the frequency band 13 450-13 550 kHz is allocated to the fixed service on a primary basis and to the mobile, except aeronautical mobile (R), service on a secondary basis. (WRC-19)
5.150	The following bands:

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	13 553-13 567 kHz (centre frequency 13 560 kHz), 26 957-27 283 kHz (centre frequency 27 120 kHz), 40.66-40.70 MHz (centre frequency 40.68 MHz), 902-928 MHz in Region 2 (centre frequency 915 MHz), 2 400-2 500 MHz (centre frequency 2 450 MHz), 5 725-5 875 MHz (centre frequency 5 800 MHz), and 24-24.25 GHz (centre frequency 24.125 GHz) are also designated for industrial, scientific and medical (ISM) applications. Radiocommunication services operating within these bands must accept harmful interference which may be caused by these applications. ISM equipment operating in these bands is subject to the provisions of No. **15.13**.
5.151	*Additional allocation:* frequencies in the bands 13 570-13 600 kHz and 13 800-13 870 kHz may be used by stations in the fixed service and in the mobile except aeronautical mobile (R) service, communicating only within the boundary of the country in which they are located, on the condition that harmful interference is not caused to the broadcasting service. When using frequencies in these services, administrations are urged to use the minimum power required and to take account of the seasonal use of frequencies by the broadcasting service published in accordance with the Radio Regulations. (WRC-07)
5.152	*Additional allocation:* in Armenia, Azerbaijan, China, Côte d'Ivoire, the Russian Federation, Georgia, Iran (Islamic Republic of), Kazakhstan, Uzbekistan, Kyrgyzstan, Tajikistan, Turkmenistan and Ukraine, the band 14 250-14 350 kHz is also allocated to the fixed service on a primary basis. Stations of the fixed service shall not use a radiated power exceeding 24 dBW. (WRC-03)
5.153	In Region 3, the stations of those services to which the band 15 995-16 005 kHz is allocated may transmit standard frequency and time signals.
5.154	*Additional allocation:* in Armenia, Azerbaijan, the Russian Federation, Georgia, Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Ukraine, the band 18 068-18 168 kHz is also allocated to the fixed service on a primary basis for use within their boundaries, with a peak envelope power not exceeding 1 kW. (WRC-03)
5.155	*Additional allocation:* in Armenia, Azerbaijan, Belarus, the Russian Federation, Georgia, Moldova, Uzbekistan, Kyrgyzstan, Slovakia, Tajikistan, Turkmenistan and Ukraine, the frequency band 21 850-21 870 kHz is also allocated to the aeronautical mobile (R) service on a primary basis. (WRC-23)
5.155A	In Armenia, Azerbaijan, Belarus, the Russian Federation, Georgia, Moldova, Uzbekistan, Kyrgyzstan, Slovakia, Tajikistan, Turkmenistan and Ukraine, the use of the frequency band 21 850-21 870 kHz by the fixed service is limited to provision of services related to aircraft flight safety. (WRC-23)
5.155B	The band 21 870-21 924 kHz is used by the fixed service for provision of services related to aircraft flight safety.
5.156	*Additional allocation:* in Nigeria, the band 22 720-23 200 kHz is also allocated to the meteorological aids service (radiosondes) on a primary basis.
5.156A	The use of the band 23 200-23 350 kHz by the fixed service is limited to provision of services related to aircraft flight safety.
5.157	The use of the band 23 350-24 000 kHz by the maritime mobile service is limited to inter-ship radiotelegraphy.
5.158	*Alternative allocation:* in Armenia, Belarus, Moldova and Kyrgyzstan, the frequency band 24 450-24 600 kHz is allocated to the fixed and land mobile services on a primary basis. (WRC-19)
5.159	*Alternative allocation:* in Armenia, Belarus, Moldova and Kyrgyzstan, the frequency band 39-39.5 MHz is allocated to the fixed and mobile services on a primary basis. (WRC-19)
5.159A	The use of the frequency band 40-50 MHz by the Earth exploration-satellite service (active) shall be in accordance with the geographical area restrictions and the operational

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	and technical conditions defined in Resolution **677 (WRC-23)**. The provisions of this footnote in no way diminish the obligation of the Earth exploration-satellite service (active) to operate as a secondary service in accordance with Nos. **5.29** and **5.30**. (WRC-23)
5.160	*Additional allocation:* in Botswana, Burundi, Dem. Rep. of the Congo and Rwanda, the band 41-44 MHz is also allocated to the aeronautical radionavigation service on a primary basis. (WRC-12)
5.161	*Additional allocation:* in Iran (Islamic Republic of) and Japan, the band 41-44 MHz is also allocated to the radiolocation service on a secondary basis.
5.161A	*Additional allocation:* in Korea (Rep. of), the United States and Mexico, the frequency bands 41.015-41.665 MHz and 43.35-44 MHz are also allocated to the radiolocation service on a primary basis. Stations in the radiolocation service shall not cause harmful interference to, or claim protection from, stations operating in the fixed or mobile services. Applications of the radiolocation service are limited to oceanographic radars operating in accordance with Resolution **612 (Rev.WRC-12)**. (WRC-19)
5.161B	*Alternative allocation:* in Albania, Germany, Armenia, Austria, Belarus, Belgium, Bosnia and Herzegovina, Cyprus, Vatican, Croatia, Denmark, Spain, Estonia, Finland, France, Greece, Hungary, Ireland, Iceland, Italy, Latvia, Liechtenstein, Lithuania, Luxembourg, North Macedonia, Malta, Moldova, Monaco, Montenegro, Norway, Uzbekistan, Netherlands, Portugal, Kyrgyzstan, Slovakia, Czech Rep., Romania, United Kingdom, San Marino, Slovenia, Sweden, Switzerland, Turkey and Ukraine, the frequency band 42-42.5 MHz is allocated to the fixed and mobile services on a primary basis. (WRC-23)
5.162	*Additional allocation:* in Australia, the band 44-47 MHz is also allocated to the broadcasting service on a primary basis. (WRC-12)
5.162A	*Additional allocation:* in Germany, Australia, Austria, Belgium, Bosnia and Herzegovina, China, Vatican, Korea (Rep. of), Denmark, Spain, Estonia, the Russian Federation, Finland, France, Indonesia, Ireland, Iceland, Italy, Japan, Latvia, Liechtenstein, Lithuania, Luxembourg, North Macedonia, Monaco, Montenegro, Norway, the Netherlands, Poland, Portugal, the Dem. People's Rep. of Korea, the Czech Rep., the United Kingdom, Serbia, Slovenia, Sweden and Switzerland, the frequency band 46-68 MHz is also allocated to the radiolocation service on a secondary basis. This use is limited to the operation of wind profiler radars in accordance with Resolution **217 (Rev.WRC-23)**.
5.163	Additional allocation: in Armenia, Belarus, the Russian Federation, Georgia, Kazakhstan, Latvia, Moldova, Uzbekistan, Kyrgyzstan, Tajikistan, Turkmenistan and Ukraine, the frequency bands 47-48.5 MHz and 56.5-58 MHz are also allocated to the fixed and land mobile services on a secondary basis. (WRC-19)
5.164	*Additional allocation:* in Albania, Algeria, Germany, Austria, Belgium, Bosnia and Herzegovina, Botswana, Bulgaria, Côte d'Ivoire, Croatia, Denmark, Spain, Estonia, Eswatini, Finland, France, Gabon, Greece, Hungary, Ireland, Israel, Italy, Jordan, Lebanon, Libya, Liechtenstein, Lithuania, Luxembourg, Madagascar, Mali, Malta, Morocco, Mauritania, Monaco, Montenegro, Nigeria, Norway, the Netherlands, Poland, Syrian Arab Republic, Slovakia, Czech Rep., Romania, the United Kingdom, Serbia, Slovenia, Sweden, Switzerland, Chad, Togo, Tunisia and Turkey, the frequency band 47-68 MHz, in South Africa the frequency band 47-50 MHz, and in Latvia the frequency bands 48.5-56.5 MHz and 58-68 MHz, are also allocated to the land mobile service on a primary basis. However, stations of the land mobile service in the countries mentioned in connection with each frequency band referred to in this footnote shall not cause harmful interference to, or claim protection from, existing or planned broadcasting stations of countries other than those mentioned in connection with the frequency band. (WRC-23)
5.165	*Additional allocation:* in Angola, Cameroon, Congo (Rep. of the), Egypt, Madagascar, Mozambique, Niger, Somalia, Sudan, South Sudan, Tanzania and Chad, the frequency

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	band 47-68 MHz is also allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis. (WRC-19)
5.166	SUP (WRC-15)
5.166A	*Different category of service:* in Austria, Cyprus, the Vatican, Croatia, Denmark, Spain, Finland, Hungary, Latvia, the Netherlands, the Czech Republic, the United Kingdom, Slovakia and Slovenia, the frequency band 50.0-50.5 MHz is allocated to the amateur service on a primary basis. Stations in the amateur service in these countries shall not cause harmful interference to, or claim protection from, stations of the broadcasting, fixed and mobile services operating in accordance with the Radio Regulations in the frequency band 50.0-50.5 MHz in the countries not listed in this provision. For a station of these services, the protection criteria in No. **5.169B** shall also apply. In Region 1, with the exception of those countries listed in No. **5.169**, wind profiler radars operating in the radiolocation service under No. **5.162A** are authorized to operate on the basis of equality with stations in the amateur service in the frequency band 50.0-50.5 MHz. (WRC-19)
5.166B	In Region 1, stations in the amateur service operating on a secondary basis shall not cause harmful interference to, or claim protection from, stations of the broadcasting service. The field strength generated by an amateur station in Region 1 in the frequency band 50-52 MHz shall not exceed a calculated value of +6 dB(μV/m) at a height of 10 m above ground for more than 10% of time along the border of a country with operational analogue broadcasting stations in Region 1 and of neighbouring countries with broadcasting stations in Region 3 listed in Nos. **5.167** and **5.168**. (WRC-19)
5.166C	In Region 1, stations in the amateur service in the frequency band 50-52 MHz, with the exception of those countries listed in No. **5.169**, shall not cause harmful interference to, or claim protection from, wind profiler radars operating in the radiolocation service under No. **5.162A**. (WRC-19)
5.166D	*Different category of service:* in Lebanon, the frequency band 50-52 MHz is allocated to the amateur service on a primary basis. Stations in the amateur service in Lebanon shall not cause harmful interference to, or claim protection from, stations of the broadcasting, fixed and mobile services operating in accordance with the Radio Regulations in the frequency band 50-52 MHz in the countries not listed in this provision. (WRC-19)
5.166E	In the Russian Federation, only the frequency band 50.080-50.280 MHz is allocated to the amateur service on a secondary basis. The protection criteria for the other services in the countries not listed in this provision are specified in Nos. **5.166B** and **5.169B**. (WRC-19)
5.167	*Alternative allocation:* in Bangladesh, Brunei Darussalam, India, Iran (Islamic Republic of), Pakistan and Singapore, the frequency band 50-54 MHz is allocated to the fixed, mobile and broadcasting services on a primary basis. (WRC-15)
5.167A	Additional allocation: in Indonesia and Thailand, the frequency band 50-54 MHz is also allocated to the fixed, mobile and broadcasting services on a primary basis. (WRC-15)
5.168	*Additional allocation:* in Australia, China, and the Dem. People's Rep. of Korea, the band 50-54 MHz is also allocated to the broadcasting service on a primary basis.
5.169	*Alternative allocation:* in Botswana, Eswatini, Lesotho, Malawi, Namibia, Rwanda, South Africa, Zambia and Zimbabwe, the frequency band 50-54 MHz is allocated to the amateur service on a primary basis. In Senegal, the frequency band 50-51 MHz is allocated to the amateur service on a primary basis. (WRC-19)
5.169A	*Alternative allocation:* in the following countries in Region 1: Angola, Saudi Arabia, Bahrain, Burkina Faso, Burundi, the United Arab Emirates, Gambia, Jordan, Kenya, Kuwait, Mauritius, Mozambique, Oman, Uganda, Qatar, South Sudan and Tanzania, the frequency band 50-54 MHz is allocated to the amateur service on a primary basis. In Guinea-Bissau, the frequency band 50.0-50.5 MHz is allocated to the amateur service on a primary basis. In Djibouti, the frequency band 50-52 MHz is allocated to the amateur service on a primary basis. With the exception of those countries listed in No.

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	5.169, stations in the amateur service operating in Region 1 under this footnote, in all or part of the frequency band 50- 54 MHz, shall not cause harmful interference to, or claim protection from, stations of other services operating in accordance with the Radio Regulations in Algeria, Egypt, Iran (Islamic Republic of), Iraq, Israel, Libya, Palestine*, the Syrian Arab Republic, the Dem. People's Republic of Korea, Sudan, and Tunisia. The field strength generated by an amateur station in the frequency band 50-54 MHz shall not exceed a value of +6 dB(μV/m) at a height of 10 m above ground for more than 10% of time along the borders of listed countries requiring protection. (WRC-19)
5.169B	Except countries listed under No. **5.169**, stations in the amateur service used in Region 1, in all or part of the 50-54 MHz frequency band, shall not cause harmful interference to, or claim protection from, stations of other services used in accordance with the Radio Regulations in Algeria, Armenia, Azerbaijan, Belarus, Egypt, Russian Federation, Iran (Islamic Republic of), Iraq, Kazakhstan, Kyrgyzstan, Libya, Uzbekistan, Palestine*, the Syrian Arab Republic, Sudan, Tunisia and Ukraine. The field strength generated by an amateur station in the frequency band 50-54 MHz shall not exceed a value of +6 dB(μV/m) at a height of 10 m above ground for more than 10% of time along the borders of the countries listed in this provision. (WRC-19)
5.170	*Additional allocation:* in New Zealand, the frequency band 51-54 MHz is also allocated to the fixed and mobile services on a primary basis. (WRC-15)
5.171	*Additional allocation:* in Botswana, Eswatini, Lesotho, Malawi, Mali, Namibia, Dem. Rep. of the Congo, Rwanda, South Africa, Zambia and Zimbabwe, the frequency band 54-68 MHz is also allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis. (WRC-19)
5.172	*Different category of service:* in the French overseas departments and communities in Region 2 and Guyana, the allocation of the frequency band 54-68 MHz to the fixed and mobile services is on a primary basis (see No. **5.33**). (WRC-15)
5.173	*Different category of service:* in the French overseas departments and communities in Region 2 and Guyana, the allocation of the frequency band 68-72 MHz to the fixed and mobile services is on a primary basis (see No. **5.33**). (WRC-15)
5.174	SUP (WRC-07)
5.175	*Alternative allocation:* in Armenia, Belarus, the Russian Federation, Kazakhstan, Moldova, Uzbekistan, Kyrgyzstan, Tajikistan, Turkmenistan and Ukraine, the frequency bands 68-73 MHz and 76-87.5 MHz are allocated to the broadcasting service on a primary basis. In Latvia and Lithuania, the frequency bands 68-73 MHz and 76-87.5 MHz are allocated to the broadcasting and mobile, except aeronautical mobile, services on a primary basis. In Mongolia, the frequency band 76-87.5 MHz is allocated to the broadcasting service on a primary basis; the stations of the broadcasting service shall not cause harmful interference to, or claim protection from, existing or planned fixed and mobile stations in the neighbouring countries. The services to which these frequency bands are allocated in other countries and the broadcasting service in the countries listed above are subject to agreements with the neighbouring countries concerned. (WRC-23)
5.176	*Additional allocation:* in Australia, China, Korea (Rep. of), the Philippines, the Dem. People's Rep. of Korea and Samoa, the band 68-74 MHz is also allocated to the broadcasting service on a primary basis. (WRC-07)
5.177	*Additional allocation:* in Armenia, Belarus, the Russian Federation, Kazakhstan, Uzbekistan, Kyrgyzstan, Tajikistan, Turkmenistan and Ukraine, the band 73-74 MHz is also allocated to the broadcasting service on a primary basis, subject to agreement obtained under No. **9.21**. (WRC-23)
5.178	*Additional allocation:* in Colombia, Cuba, El Salvador, Guatemala, Guyana, Honduras and Nicaragua, the band 73-74.6 MHz is also allocated to the fixed and mobile services on a secondary basis. (WRC-12)
5.179	*Additional allocation:* in Armenia, Azerbaijan, Belarus, China, the Russian Federation, Georgia, Kazakhstan, Lithuania, Mongolia, Kyrgyzstan, Slovakia, Tajikistan, Turkmenistan and Ukraine, the bands 74.6-74.8 MHz and 75.2-75.4 MHz are also

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	allocated to the aeronautical radionavigation service, on a primary basis, for ground-based transmitters only. (WRC-12)
5.180	The frequency 75 MHz is assigned to marker beacons. Administrations shall refrain from assigning frequencies close to the limits of the guardband to stations of other services which, because of their power or geographical position, might cause harmful interference or otherwise place a constraint on marker beacons. Every effort should be made to improve further the characteristics of airborne receivers and to limit the power of transmitting stations close to the limits 74.8 MHz and 75.2 MHz.
5.181	*Additional allocation:* in Egypt, Israel and the Syrian Arab Republic, the band 74.8-75.2 MHz is also allocated to the mobile service on a secondary basis, subject to agreement obtained under No. **9.21**. In order to ensure that harmful interference is not caused to stations of the aeronautical radionavigation service, stations of the mobile service shall not be introduced in the band until it is no longer required for the aeronautical radionavigation service by any administration which may be identified in the application of the procedure invoked under No. **9.21**. (WRC-03)
5.182	*Additional allocation:* in Western Samoa, the band 75.4-87 MHz is also allocated to the broadcasting service on a primary basis. (WRC-23)
5.183	*Additional allocation:* in China, Korea (Rep. of), Japan, the Philippines, and the Dem. People's Rep. of Korea, the band 76-87 MHz is also allocated to the broadcasting service on a primary basis.
5.184	SUP (WRC-07)
5.185	*Different category of service: in the United States, the French overseas departments and communities in Region 2 and Guyana, the allocation of the frequency band 76-88 MHz to the fixed and mobile services is on a primary basis (see No. **5.33**). (WRC-23)*
5.186	SUP (WRC-97)
5.187	*Alternative allocation:* in Albania, the band 81-87.5 MHz is allocated to the broadcasting service on a primary basis and used in accordance with the decisions contained in the Final Acts of the Special Regional Conference (Geneva, 1960).
5.188	*Additional allocation:* in Australia, the band 85-87 MHz is also allocated to the broadcasting service on a primary basis. The introduction of the broadcasting service in Australia is subject to special agreements between the administrations concerned.
5.189	Not used.
5.190	*Additional allocation:* in Monaco, the band 87.5-88 MHz is also allocated to the land mobile service on a primary basis, subject to agreement obtained under No. **9.21**. (WRC-97)
5.191	Not used.
5.192	*Additional allocation:* in China and Korea (Rep. of), the band 100-108 MHz is also allocated to the fixed and mobile services on a primary basis. (WRC-97)
5.193	Not used.
5.194	*Additional allocation:* in Kyrgyzstan, Somalia and Turkmenistan, the frequency band 104-108 MHz is also allocated to the mobile, except aeronautical mobile (R), service on a secondary basis. (WRC-19)
5.195	Not used
5.196	Not used.
5.197	*Additional allocation:* in the Syrian Arab Republic, the band 108-111.975 MHz is also allocated to the mobile service on a secondary basis, subject to agreement obtained under No. **9.21**. In order to ensure that harmful interference is not caused to stations of the aeronautical radionavigation service, stations of the mobile service shall not be introduced in the band until it is no longer required for the aeronautical radionavigation service by any administration which may be identified in the application of the procedures invoked under No. **9.21**. (WRC-12)
5.197A	Additional allocation: the frequency band 108-117.975 MHz is also allocated on a primary basis to the aeronautical mobile (R) service, limited to systems operating in accordance with recognized international aeronautical standards. Such use shall be in

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	accordance with Resolution 413 (Rev.WRC-23). The use of the frequency band 108-112 MHz by the aeronautical mobile (R) service shall be limited to systems composed of ground-based transmitters and associated receivers that provide navigational information in support of air navigation functions in accordance with recognized international aeronautical standards. (WRC-23)
5.198	SUP (WRC-07)
5.198A	The use of the frequency band 117.975-137 MHz by the aeronautical mobile-satellite (R) service is subject to coordination under No. 9.11A. No. 9.16 does not apply. Such use shall be limited to non-geostationary-satellite systems operated in accordance with international aeronautical standards. Resolution 406 (WRC-23) applies. (WRC-23)
5.198B	The use of the frequency band 117.975-137 MHz by the aeronautical mobile (R) service shall have priority over use by the aeronautical mobile-satellite (R) service. (WRC-23)
5.199	SUP (WRC-07)
5.200	In the frequency band 117.975-137 MHz, the frequency 121.5 MHz is the aeronautical emergency frequency and, where required, the frequency 123.1 MHz is the aeronautical frequency auxiliary to 121.5 MHz. Mobile stations of the maritime mobile service may communicate on these frequencies under the conditions laid down in Article 31 for distress and safety purposes with stations of the aeronautical mobile service and the aeronautical mobile-satellite service. (WRC-23)
5.201	*Additional allocation:* in Saudi Arabia, Armenia, Azerbaijan, Bahrain, Egypt, Estonia, the Russian Federation, Georgia, Hungary, Iran (Islamic Republic of), Iraq (Republic of), Japan, Kazakhstan, Mali, Mongolia, Mozambique, Uzbekistan, Papua New Guinea, Poland, Qatar, Kyrgyzstan, Romania, Senegal, Somalia, Tajikistan and Turkmenistan, the frequency band 132-136 MHz is also allocated to the aeronautical mobile (OR) service on a primary basis. In assigning frequencies to stations of the aeronautical mobile (OR) service, the administration shall take account of the frequencies assigned to stations in the aeronautical mobile (R) service. (WRC-23)
5.202	*Additional allocation:* in Saudi Arabia, Armenia, Azerbaijan, Bahrain, the United Arab Emirates, the Russian Federation, Georgia, Iran (Islamic Republic of), Jordan, Mali, Oman, Uzbekistan, Poland, the Syrian Arab Republic, Kyrgyzstan, Romania, Senegal, Tajikistan and Turkmenistan, the frequency band 136-137 MHz is also allocated to the aeronautical mobile (OR) service on a primary basis. In assigning frequencies to stations of the aeronautical mobile (OR) service, the administration shall take account of the frequencies assigned to stations in the aeronautical mobile (R) service. (WRC-23)
5.203	SUP (WRC-07)
5.203A	SUP(WRC-07)
5.203B	SUP(WRC-07)
5.203C	The use of the space operation service (space-to-Earth) with non-geostationary-satellite short-duration mission systems in the frequency band 137-138 MHz is subject to Resolution **660 (WRC-19)**. Resolution **32 (WRC-19)** applies. These systems shall not cause harmful interference to, or claim protection from, the existing services to which the frequency band is allocated on a primary basis. (WRC-19)
5.204	*Different category of service:* in Afghanistan, Saudi Arabia, Bahrain, Bangladesh, Brunei Darussalam, China, Cuba, the United Arab Emirates, India, Indonesia, Iran (Islamic Republic of), Iraq, Kuwait, Montenegro, Oman, Pakistan, the Philippines, Qatar, Singapore, Thailand and Yemen, the frequency band 137-138 MHz is allocated to the fixed and mobile, except aeronautical mobile (R), services on a primary basis (see No. **5.33**). (WRC-19)
5.205	*Different category of service:* in Israel and Jordan, the allocation of the band 137-138 MHz to the fixed and mobile, except aeronautical mobile, services is on a primary basis (see No. **5.33**).
5.206	*Different category of service:* in Armenia, Azerbaijan, Belarus, Bulgaria, Egypt, the Russian Federation, Finland, France, Georgia, Greece, Kazakhstan, Lebanon, Moldova,

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	Mongolia, Uzbekistan, Poland, Kyrgyzstan, the Syrian Arab Republic, Slovakia, the Czech Rep., Romania, Tajikistan, Turkmenistan and Ukraine, the allocation of the band 137-138 MHz to the aeronautical mobile (OR) service is on a primary basis (see No. **5.33**). (WRC-2000)
5.207	*Additional allocation:* in Australia, the band 137-144 MHz is also allocated to the broadcasting service on a primary basis until that service can be accommodated within regional broadcasting allocations.
5.208	The use of the band 137-138 MHz by the mobile-satellite service is subject to coordination under No. **9.11A**. (WRC-97)
5.208A	In making assignments to space stations in the mobile-satellite service in the frequency bands 137-138 MHz, 387-390 MHz and 400.15-401 MHz and in the maritime mobile-satellite service (space-to-Earth) in the frequency bands 157.1875-157.3375 MHz and 161.7875- 161.9375 MHz, administrations shall take all practicable steps to protect the radio astronomy service in the frequency bands 150.05-153 MHz, 322-328.6 MHz, 406.1-410 MHz and 608-614 MHz from harmful interference from unwanted emissions as shown in the most recent version of Recommendation ITU-R RA.769. (WRC-19)
5.208B*	In the frequency bands: 137-138 MHz, 157.1875-157.3375 MHz, 161.7875-161.9375 MHz, 387-390 MHz, 400.15-401 MHz, 1 452-1 492 MHz, 1 525-1 610 MHz, 1 613.8-1 626.5 MHz, 2 655-2 690 MHz, 21.4-22 GHz, Resolution **739 (Rev.WRC-19)** applies. (WRC-19)
5.209	The use of the bands 137-138 MHz, 148-150.05 MHz, 399.9-400.05 MHz, 400.15-401 MHz, 454-456 MHz, and 459-460 MHz by the mobile-satellite service is limited to non-geostationary-satellite systems. (WRC-97)
5.209A	The use of the frequency band 137.175-137.825 MHz by non-geostationary-satellite systems in the space operation service identified as short-duration mission in accordance with Appendix 4 is not subject to No. 9.11A. (WRC-19)
5.210	*Additional allocation:* in Italy and the United Kingdom, the bands 138-143.6 MHz and 143.65-144 MHz are also allocated to the space research service (space-to-Earth) on a secondary basis. (WRC-23)
5.211	*Additional allocation:* in Germany, Saudi Arabia, Austria, Bahrain, Belgium, Denmark, the United Arab Emirates, Spain, Finland, Greece, Guinea, Ireland, Israel, Kenya, Kuwait, Lebanon, Liechtenstein, Luxembourg, North Macedonia, Mali, Malta, Montenegro, Norway, the Netherlands, Qatar, Slovakia, the United Kingdom, Serbia, Slovenia, Somalia, Sweden, Switzerland, Tanzania, Tunisia and Turkey, the frequency band 138-144 MHz is also allocated to the maritime mobile and land mobile services on a primary basis. (WRC-23)
5.212	*Alternative allocation:* in Angola, Botswana, Cameroon, the Central African Rep., Congo (Rep. of the), Eswatini, Gabon, Gambia, Ghana, Guinea, Iraq, Jordan, Lesotho, Liberia, Libya, Malawi, Mozambique, Namibia, Niger, Oman, Uganda, Syrian Arab Republic, the Dem. Rep. of the Congo, Rwanda, Sierra Leone, South Africa, Chad, Togo, Zambia and Zimbabwe, the frequency band 138-144 MHz is allocated to the fixed and mobile services on a primary basis. (WRC-19)
5.213	*Additional allocation:* in China, the band 138-144 MHz is also allocated to the radiolocation service on a primary basis.

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5.214	*Additional allocation:* in Eritrea, Ethiopia, Kenya, North Macedonia, Montenegro, Serbia, Somalia, Sudan, South Sudan and Tanzania, the frequency band 138-144 MHz is also allocated to the fixed service on a primary basis. (WRC-19)
5.215	Not used.
5.216	*Additional allocation:* in China, the band 144-146 MHz is also allocated to the aeronautical mobile (OR) service on a secondary basis.
5.217	*Alternative allocation:* in Afghanistan, Bangladesh, Cuba, Guyana and India, the band 146-148 MHz is allocated to the fixed and mobile services on a primary basis.
5.218	*Additional allocation:* the band 148-149.9 MHz is also allocated to the space operation service (Earth-to-space) on a primary basis, subject to agreement obtained under No. **9.21**. The bandwidth of any individual transmission shall not exceed ±25 kHz.
5.218A	The frequency band 148-149.9 MHz in the space operation service (Earth-to-space) may be used by non-geostationary-satellite systems with short-duration missions. Non-geostationary-satellite systems in the space operation service used for a short-duration mission in accordance with Resolution **32 (WRC-19)** of the Radio Regulations are not subject to agreement under No. **9.21**. At the stage of coordination, the provisions of Nos. **9.17** and **9.18** also apply. In the frequency band 148-149.9 MHz, non-geostationary-satellite systems with short-duration missions shall not cause unacceptable interference to, or claim protection from, existing primary services within this frequency band, or impose additional constraints on the space operation and mobile-satellite services. In addition, earth stations in non-geostationary-satellite systems in the space operation service with short-duration missions in the frequency band 148-149.9 MHz shall ensure that the power flux-density does not exceed −149 dB(W/(m2 · 4 kHz)) for more than 1% of time at the border of the territory of the following countries: Armenia, Azerbaijan, Belarus, China, Korea (Rep. of), Cuba, Russian Federation, India, Iran (Islamic Republic of), Japan, Kazakhstan, Malaysia, Uzbekistan, Kyrgyzstan, Thailand and Viet Nam. In case this power flux-density limit is exceeded, agreement under No. **9.21** is required to be obtained from countries mentioned in this footnote. (WRC-19)
5.219	The use of the frequency band 148-149.9 MHz by the mobile-satellite service is subject to coordination under No. **9.11A**. The mobile-satellite service shall not constrain the development and use of the fixed, mobile and space operation services in the frequency band 148-149.9 MHz. The use of the frequency band 148-149.9 MHz by non-geostationary-satellite systems in the space operation service identified as short-duration mission is not subject to No. **9.11A**. (WRC-19)
5.220	The use of the frequency bands 149.9-150.05 MHz and 399.9-400.05 MHz by the mobile-satellite service is subject to coordination under No. **9.11A**. (WRC-15)
5.221	Stations of the mobile-satellite service in the frequency band 148-149.9 MHz shall not cause harmful interference to, or claim protection from, stations of the fixed or mobile services operating in accordance with the Table of Frequency Allocations in the following countries: Albania, Algeria, Germany, Saudi Arabia, Australia, Austria, Bahrain, Bangladesh, Barbados, Belarus, Belgium, Benin, Bosnia and Herzegovina, Botswana, Brunei Darussalam, Bulgaria, Cameroon, China, Cyprus, Congo (Rep. of the), Korea (Rep. of), Côte d'Ivoire, Croatia, Cuba, Denmark, Djibouti, Egypt, the United Arab Emirates, Eritrea, Spain, Estonia, Eswatini, Ethiopia, the Russian Federation, Finland, France, Gabon, Georgia, Ghana, Greece, Guinea, Guinea Bissau, Hungary, India, Iran (Islamic Republic of), Ireland, Iceland, Israel, Italy, Jamaica, Japan, Jordan, Kazakhstan, Kenya, Kuwait, Lesotho, Latvia, Lebanon, Libya, Liechtenstein, Lithuania, Luxembourg, North Macedonia, Malaysia, Mali, Malta, Mauritania, Moldova, Mongolia, Montenegro, Mozambique, Namibia, Norway, New Zealand, Oman, Uganda, Uzbekistan, Pakistan, Panama, Papua New Guinea, Paraguay, the Netherlands, the Philippines, Poland, Portugal, Qatar, the Syrian Arab Republic, Türkiye, Kyrgyzstan, Dem. People's Rep. of Korea, Slovakia, Romania, the United Kingdom, Senegal, Serbia, Sierra Leone, Singapore, Slovenia, Somalia, Sudan, Sri

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	Lanka, South Africa, Sweden, Switzerland, Tanzania, Chad, Togo, Tonga, Trinidad and Tobago, Tunisia, Ukraine, Viet Nam, Yemen, Zambia and Zimbabwe. (WRC-23)
5.222	SUP (WRC-15)
5.223	SUP (WRC-15)
5.224	SUP (WRC-97)
5.224A	SUP (WRC-15)
5.224B	SUP (WRC-15)
5.225	*Additional allocation:* in Australia and India, the band 150.05-153 MHz is also allocated to the radio astronomy service on a primary basis.
5.225A	*Additional allocation:* in Algeria, Armenia, Azerbaijan, Belarus, China, the Russian Federation, France, Iran (Islamic Republic of), Kazakhstan, Uzbekistan, Kyrgyzstan, Tajikistan, Turkmenistan, Ukraine and Viet Nam, the frequency band 154-156 MHz is also allocated to the radiolocation service on a primary basis. The usage of the frequency band 154-156 MHz by the radiolocation service shall be limited to space-object detection systems operating from terrestrial locations. The operation of stations in the radiolocation service in the frequency band 154-156 MHz shall be subject to agreement obtained under No. **9.21**. For the identification of potentially affected administrations in Region 1, the instantaneous field-strength value of 12 dB(V/m) for 10% of the time produced at 10 m above ground level in the 25 kHz reference frequency band at the border of the territory of any other administration shall be used. For the identification of potentially affected administrations in Region 3, the interference-to-noise ratio (I/N) value of 6 dB (N = 161 dBW/4 kHz), or 10 dB for applications with greater protection requirements, such as public protection and disaster relief (PPDR (N = 161 dBW/4 kHz)), for 1% of the time produced at 60 m above ground level at the border of the territory of any other administration shall be used. In the frequency bands 156.7625-156.8375 MHz, 156.5125-156.5375 MHz, 161.9625- 161.9875 MHz, 162.0125-162.0375 MHz, out-of-band e.i.r.p. of space surveillance radars shall not exceed 16 dBW. Frequency assignments to the radiolocation service under this allocation in Ukraine shall not be used without the agreement of Moldova. (WRC-12)
5.226	The frequency 156.525 MHz is the international distress, safety and calling frequency for the maritime mobile VHF radiotelephone service using digital selective calling (DSC). The conditions for the use of this frequency and the band 156.4875-156.5625 MHz are contained in Articles **31** and **52**, and in Appendix **18**. The frequency 156.8 MHz is the international distress, safety and calling frequency for the maritime mobile VHF radiotelephone service. The conditions for the use of this frequency and the band 156.7625-156.8375 MHz are contained in Article **31** and Appendix **18**. In the bands 156-156.4875 MHz, 156.5625-156.7625 MHz, 156.8375-157.45 MHz, 160.6-160.975 MHz and 161.475-162.05 MHz, each administration shall give priority to the maritime mobile service on only such frequencies as are assigned to stations of the maritime mobile service by the administration (see Articles **31** and **52**, and Appendix **18**). Any use of frequencies in these bands by stations of other services to which they are allocated should be avoided in areas where such use might cause harmful interference to the maritime mobile VHF radiocommunication service. However, the frequencies 156.8 MHz and 156.525 MHz and the frequency bands in which priority is given to the maritime mobile service may be used for radiocommunications on inland waterways subject to agreement between interested and affected administrations and taking into account current frequency usage and existing agreements. (WRC-07)

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5.227	*Additional allocation:* the bands 156.4875-156.5125 MHz and 156.5375-156.5625 MHz are also allocated to the fixed and land mobile services on a primary basis. The use of these bands by the fixed and land mobile services shall not cause harmful interference to nor claim protection from the maritime mobile VHF radiocommunication service. (WRC-07)
5.227A	SUP (WRC-12)
5.228	The use of the frequency bands 156.7625-156.7875 MHz and 156.8125-156.8375 MHz by the mobile-satellite service (Earth-to-space) is limited to the reception of automatic identification system (AIS) emissions of long-range AIS broadcast messages (Message 27, see the most recent version of Recommendation ITU-R M.1371). With the exception of AIS emissions, emissions in these frequency bands by systems operating in the maritime mobile service for communications shall not exceed 1W. (WRC-12)
5.228A	The frequency bands 161.9625-161.9875 MHz and 162.0125-162.0375 MHz may be used by aircraft stations for the purpose of search and rescue operations and other safety-related communications. (WRC-12)
5.228AA	The use of the frequency bands 161.9375-161.9625 MHz and 161.9875-162.0125 MHz by the maritime mobile-satellite (Earth-to-space) service is limited to the systems which operate in accordance with Appendix 18. (WRC-15)
5.228AB	The use of the frequency bands 157.1875-157.3375 MHz and 161.7875-161.9375 MHz by the maritime mobile-satellite service (Earth-to-space) is limited to non-GSO satellite systems operating in accordance with Appendix 18. (WRC-19)
5.228AC	The use of the frequency bands 157.1875-157.3375 MHz and 161.7875-161.9375 MHz by the maritime mobile-satellite service (space-to-Earth) is limited to non-GSO satellite systems operating in accordance with Appendix **18**. Such use is subject to agreement obtained under No. **9.21** with respect to the terrestrial services in Azerbaijan, Belarus, China, Korea (Rep. of), Cuba, the Russian Federation, the Syrian Arab Republic, the Dem. People's Rep. of Korea, South Africa and Viet Nam. (WRC-19)
5.228B	The use of the frequency bands 161.9625-161.9875 MHz and 162.0125-162.0375 MHz by the fixed and land mobile services shall not cause harmful interference to, or claim protection from, the maritime mobile service. (WRC-12)
5.228C	The use of the frequency bands 161.9625-161.9875 MHz and 162.0125-162.0375 MHz by the maritime mobile service and the mobile-satellite (Earth-to-space) service is limited to the automatic identification system (AIS), including AIS search and rescue transmitters (AIS-SART) and satellite emergency position indicating radio beacons with AIS (EPIRB-AIS). The use of these frequency bands by the aeronautical mobile (OR) service is limited to AIS emissions from search and rescue aircraft operations. The AIS, AIS-SART and EPIRB-AIS operations in these frequency bands shall not constrain the development and use of the fixed and mobile services operating in the adjacent frequency bands. (WRC-23)
5.228D	The frequency bands 161.9625-161.9875 MHz (AIS 1) and 162.0125-162.0375 MHz (AIS 2) may continue to be used by the fixed and mobile services on a primary basis until 1 January 2025, at which time this allocation shall no longer be valid. Administrations are encouraged to make all practicable efforts to discontinue the use of these bands by the fixed and mobile services prior to the transition date. During this transition period, the maritime mobile service in these frequency bands has priority over the fixed, land mobile and aeronautical mobile services. (WRC-12)
5.228E	The use of the automatic identification system in the frequency bands 161.9625-161.9875 MHz and 162.0125-162.0375 MHz by the aeronautical mobile (OR) service is limited to aircraft stations for the purpose of search and rescue operations and other safety-related communications. (WRC-12)
5.228F	The use of the frequency bands 161.9625-161.9875 MHz and 162.0125-162.0375 MHz by the mobile-satellite service (Earth-to-space) is limited to the reception of automatic identification system emissions from stations operating in the maritime mobile service. (WRC-12)

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	SUP (WRC-23)
5.230	*Additional allocation:* in China, the band 163-167 MHz is also allocated to the space operation service (space-to-Earth) on a primary basis, subject to agreement obtained under No. **9.21**.
5.231	*Additional allocation:* in Afghanistan, and China, the band 167-174 MHz is also allocated to the broadcasting service on a primary basis. The introduction of the broadcasting service into this band shall be subject to agreement with the neighbouring countries in Region 3 whose services are likely to be affected. (WRC 12)
5.232	SUP (WRC-12)
5.233	*Additional allocation:* in China, the band 174-184 MHz is also allocated to the space research (space-to-Earth) and the space operation (space-to-Earth) services on a primary basis, subject to agreement obtained under No. **9.21**. These services shall not cause harmful interference to, or claim protection from, existing or planned broadcasting stations.
5.234	SUP (WRC-12)
5.235	*Additional allocation:* in Germany, Austria, Belgium, Denmark, Spain, Finland, France, Israel, Italy, Liechtenstein, Malta, Monaco, Norway, the Netherlands, the United Kingdom, Sweden and Switzerland, the band 174-223 MHz is also allocated to the land mobile service on a primary basis. However, the stations of the land mobile service shall not cause harmful interference to, or claim protection from, broadcasting stations, existing or planned, in countries other than those listed in this footnote.
5.236	Not used
5.237	*Additional allocation:* in Congo (Rep. of the), Egypt, Eritrea, Ethiopia, Gambia, Guinea, Libya, Mali, Sierra Leone, Somalia and Chad, the band 174-223 MHz is also allocated to the fixed and mobile services on a secondary basis. (WRC-12)
5.238	*Additional allocation:* in Bangladesh, India, Pakistan and the Philippines, the band 200-216 MHz is also allocated to the aeronautical radionavigation service on a primary basis.
5.239	Not used.
5.240	*Additional allocation:* in China and India, the band 216-223 MHz is also allocated to the aeronautical radionavigation service on a primary basis and to the radiolocation service on a secondary basis.
5.241	In Region 2, no new stations in the radiolocation service may be authorized in the band 216-225 MHz. Stations authorized prior to 1 January 1990 may continue to operate on a secondary basis.
5.242	*Additional allocation:* in Canada and Mexico, the frequency band 216-220 MHz is also allocated to the land mobile service on a primary basis. (WRC-19)
5.243	*Additional allocation:* in Somalia, the band 216-225 MHz is also allocated to the aeronautical radionavigation service on a primary basis, subject to not causing harmful interference to existing or planned broadcasting services in other countries.
5.244	SUP (WRC-97)
5.245	*Additional allocation:* in Japan, the band 222-223 MHz is also allocated to the aeronautical radionavigation service on a primary basis and to the radiolocation service on a secondary basis.
5.246	*Alternative allocation:* in Spain, France, Israel and Monaco, the band 223-230 MHz is allocated to the broadcasting and land mobile services on a primary basis (see No. **5.33**) on the basis that, in the preparation of frequency plans, the broadcasting service shall have prior choice of frequencies; and allocated to the fixed and mobile, except land mobile, services on a secondary basis. However, the stations of the land mobile service shall not cause harmful interference to, or claim protection from, existing or planned broadcasting stations in Morocco and Algeria.
5.247	*Additional allocation:* in Saudi Arabia, Bahrain, the United Arab Emirates, Jordan, Oman, Qatar and Syrian Arab Republic, the band 223-235 MHz is also allocated to the aeronautical radionavigation service on a primary basis.

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5.248	Not used
5.249	Not used
5.250	*Additional allocation*: in China, the band 225-235 MHz is also allocated to the radio astronomy service on a secondary basis.
5.251	*Additional allocation:* in Nigeria, the band 230-235 MHz is also allocated to the aeronautical radionavigation service on a primary basis, subject to agreement obtained under No. **9.21.**
5.252	*Alternative allocation:* in Botswana, Eswatini, Lesotho, Malawi, Mozambique, Namibia, South Africa, Zambia and Zimbabwe, the frequency bands 230-238 MHz and 246-254 MHz are allocated to the broadcasting service on a primary basis, subject to agreement obtained under No. **9.21**. (WRC-19)
5.253	Not used.
5.254	The bands 235-322 MHz and 335.4-399.9 MHz may be used by the mobile-satellite service, subject to agreement obtained under No. **9.21**, on condition that stations in this service do not cause harmful interference to those of other services operating or planned to be operated in accordance with the Table of Frequency Allocations except for the additional allocation made in footnote No. **5.256A**. (WRC-03)
5.255	The bands 312-315 MHz (Earth-to-space) and 387-390 MHz (space-to-Earth) in the mobile-satellite service may also be used by non-geostationary-satellite systems. Such use is subject to coordination under No. **9.11A**.
5.256	The frequency 243 MHz is the frequency in this band for use by survival craft stations and equipment used for survival purposes. (WRC-07)
5.256A	*Additional allocation:* in China, the Russian Federation and Kazakhstan, the frequency band 258-261 MHz is also allocated to the space research service (Earth-to-space) and space operation service (Earth-to-space) on a primary basis. Stations in the space research service (Earth-to-space) and space operation service (Earth-to-space) shall not cause harmful interference to, or claim protection from, or constrain the use and development of, the mobile service systems and mobile-satellite service systems operating in the frequency band. Stations in space research service (Earth-to-space) and space operation service (Earth-to-space) shall not constrain the future development of fixed service systems of other countries. (WRC-15)
5.257	The band 267-272 MHz may be used by administrations for space telemetry in their countries on a primary basis, subject to agreement obtained under No. **9.21**.
5.258	The use of the band 328.6-335.4 MHz by the aeronautical radionavigation service is limited to Instrument Landing Systems (glide path).
5.259	*Additional allocation:* in Egypt, and the Syrian Arab Republic, the band 328.6-335.4 MHz is also allocated to the mobile service on a secondary basis, subject to agreement obtained under No. **9.21**. In order to ensure that harmful interference is not caused to stations of the aeronautical radionavigation service, stations of the mobile service shall not be introduced in the band until it is no longer required for the aeronautical radionavigation service by any administration which may be identified in the application of the procedure invoked under No. **9.21**. (WRC-12)
5.260	
5.260A	In the frequency band 399.9-400.05 MHz, the maximum e.i.r.p. of any emission of earth stations in the mobile-satellite service shall not exceed 5 dBW in any 4 kHz band and the maximum e.i.r.p. of each earth station in the mobile-satellite service shall not exceed 5 dBW in the whole 399.9-400.05 MHz frequency band. Until 22 November 2022, this limit shall not apply to satellite systems for which complete notification information has been received by the Radiocommunication Bureau by 22 November 2019 and that have been brought into use by that date. After 22 November 2022, these limits shall apply to all systems within the mobile-satellite service operating in this frequency band. In the frequency band 399.99-400.02 MHz, the e.i.r.p. limits as specified above shall apply after 22 November 2022 to all systems within the mobile-satellite service.

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	Administrations are requested that their mobile-satellite service satellite links in the 399.99-400.02 MHz frequency band comply with the e.i.r.p. limits as specified above, after 22 November 2019. (WRC-19)
5.260B	In the frequency band 400.02-400.05 MHz, the provisions of No. **5.A12** are not applicable for telecommand uplinks within the mobile-satellite service. (WRC-19)
5.261	Emissions shall be confined in a band of ± 25 kHz about the standard frequency 400.1 MHz.
5.262	*Additional allocation:* in Saudi Arabia, Armenia, Azerbaijan, Bahrain, Belarus, Botswana, Colombia, Cuba, Egypt, the United Arab Emirates, Ecuador, the Russian Federation, Georgia, Hungary, Iran (Islamic Republic of), Iraq, Israel, Jordan, Kazakhstan, Kuwait, Liberia, Malaysia, Moldova, Uzbekistan, Pakistan, the Philippines, Qatar, the Syrian Arab Republic, Kyrgyzstan, Romania, Singapore, Somalia, Tajikistan, Chad, Turkmenistan and Ukraine, the band 400.05-401 MHz is also allocated to the fixed and mobile services on a primary basis. (WRC-12)
5.263	The band 400.15-401 MHz is also allocated to the space research service in the space-to-space direction for communications with manned space vehicles. In this application, the space research service will not be regarded as a safety service.
5.264	The use of the band 400.15-401 MHz by the mobile-satellite service is subject to coordination under No. **9.11A**. The power flux-density limit indicated in Annex 1 of Appendix **5** shall apply until such time as a competent world radiocommunication conference revises it.
5.264A	In the frequency band 401-403 MHz, the maximum e.i.r.p. of any emission of each earth station in the meteorological- satellite service and the Earth exploration-satellite service shall not exceed 22 dBW in any 4 kHz band for geostationary systems and non-geostationary systems with an orbit of apogee equal or greater than 35 786 km. The maximum e.i.r.p. of any emission of each earth station in the meteorological-satellite service and the Earth exploration-satellite service shall not exceed 7 dBW in any 4 kHz band for non-geostationary systems with an orbit of apogee lower than 35 786 km. The maximum e.i.r.p. of each earth station in the meteorological-satellite service and the Earth exploration-satellite service shall not exceed 22 dBW for geostationary systems and non-geostationary systems with an orbit of apogee equal or greater than 35 786 km in the whole 401-403 MHz frequency band. The maximum e.i.r.p. of each earth station in the meteorological-satellite service and the Earth exploration-satellite service shall not exceed 7 dBW for non-geostationary systems with an orbit of apogee lower than 35 786 km in the whole 401-403 MHz frequency band. Until 22 November 2029, these limits shall not apply to satellite systems for which complete notification information has been received by the Radiocommunication Bureau by 22 November 2019 and that have been brought into use by that date. After 22 November 2029, these limits shall apply to all systems within the meteorological-satellite service and the Earth exploration-satellite service operating in this frequency band. (WRC-19)
5.264B	Non-geostationary-satellite systems in the meteorological-satellite service and the Earth exploration satellite service for which complete notification information has been received by the Radiocommunication Bureau no later than 28 April 2007 are exempt from provisions of No. **5.264A** and may continue to operate in the frequency band 401.898-402.522 MHz on a primary basis without exceeding a maximum e.i.r.p. level of 12 dBW. (WRC-23)
5.265	In the frequency band 403-410 MHz, Resolution **205 (Rev.WRC-19)** applies. (WRC-19)

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5.266	The use of the band 406-406.1 MHz by the mobile-satellite service is limited to low power satellite emergency position- indicating radiobeacons (see also Article **31**). (WRC-07)
5.267	Any emission capable of causing harmful interference to the authorized uses of the band 406-406.1 MHz is prohibited.
5.268	Use of the frequency band 410-420 MHz by the space research service is limited to space-to-space communication links with an orbiting, manned space vehicle. The power flux-density at the surface of the Earth produced by emissions from transmitting stations of the space research service (space-to-space) in the frequency band 410-420 MHz shall not exceed –153 dB(W/m^2) for $0^o \leq \delta \leq 5^o$, -153+ 0.077 (d-5) dB(W/m^2) for $5^o \leq \delta \leq 70^o$ and –148 dB(W/m^2) for $70^o \leq \delta \leq 90^o$, where δ is the angle of arrival of the radio-frequency wave and the reference bandwidth is 4 kHz. In this frequency band, stations of the space research service (space-to-space) shall not claim protection from, nor constrain the use and development of, stations of the fixed and mobile services. No. **4.10** does not apply. (WRC-15)
5.269	*Different category of service:* in Australia, Brazil, the United States, India, Japan and the United Kingdom, the allocation of the frequency bands 420-430 MHz and 440-450 MHz to the radiolocation service is on a primary basis (see No. **5.33**). (WRC-23)
5.270	*Additional allocation:* in Australia, the United States, Jamaica and the Philippines, the bands 420-430 MHz and 440- 450 MHz are also allocated to the amateur service on a secondary basis.
5.271	*Additional allocation:* in Belarus, China, India, Kyrgyzstan and Turkmenistan, the band 420-460 MHz is also allocated to the aeronautical radionavigation service (radio altimeters) on a secondary basis. (WRC-07)
5.272	SUP (WRC-12)
5.273	SUP (WRC-12)
5.274	*Alternative allocation:* in Denmark, Norway, Sweden, and Chad the bands 430-432 MHz and 438-440 MHz are allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis. (WRC12)
5.275	*Additional allocation:* in Croatia, Estonia, Finland, Libya, North Macedonia, Montenegro and Serbia, the frequency bands 430-432 MHz and 438-440 MHz are also allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis. (WRC-19)
5.276	*Additional allocation:* in Afghanistan, Algeria, Saudi Arabia, Bahrain, Bangladesh, Brunei Darussalam, Burkina Faso, Djibouti, Egypt, the United Arab Emirates, Ecuador, Eritrea, Ethiopia, Greece, Guinea, India, Indonesia, Iran (Islamic Republic of), Iraq, Israel, Italy, Jordan, Kenya, Kuwait, Libya, Malaysia, Niger, Nigeria, Oman, Pakistan, the Philippines, Qatar, the Syrian Arab Republic, the Dem. People's Rep. of Korea, Singapore, Somalia, Sudan, Switzerland, Thailand, Togo, Turkey and Yemen, the frequency band 430-440 MHz is also allocated to the fixed service on a primary basis and the frequency bands 430-435 MHz and 438-440 MHz are also allocated, except in Ecuador, to the mobile, except aeronautical mobile, service on a primary basis. (WRC-23)
5.277	*Additional allocation:* in Angola, Armenia, Azerbaijan, Belarus, Cameroon, Congo (Rep. of the), Djibouti, the Russian Federation, Georgia, Hungary, Israel, Kazakhstan, Mali, Uzbekistan, Poland, the Dem. Rep. of the Congo, Kyrgyzstan, Slovakia, Romania, Rwanda, Tajikistan, Chad, Turkmenistan and Ukraine, the frequency band 430-440 MHz is also allocated to the fixed service on a primary basis. (WRC-19)
5.278	*Different category of service:* in Argentina, Brazil, Colombia, Costa Rica, Cuba, Guyana, Honduras, Panama, Paraguay, Uruguay and Venezuela, the allocation of the frequency band 430-440 MHz to the amateur service is on a primary basis (see No. **5.33**). (WRC-19)
5.279	*Additional allocation:* in Mexico, the frequency bands 430-435 MHz and 438-440 MHz are also allocated on a primary basis to the mobile, except aeronautical mobile, service,

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	and on a secondary basis to the fixed service, subject to agreement obtained under No. **9.21**. (WRC-19)
5.279A	The use of the frequency band 432-438 MHz by sensors in the Earth exploration-satellite service (active) shall be in accordance with Recommendation ITU-R RS.1260-2. Additionally, the Earth exploration-satellite service (active) in the frequency band 432-438 MHz shall not cause harmful interference to the aeronautical radionavigation service in China. The provisions of this footnote in no way diminish the obligation of the Earth exploration-satellite service (active) to operate as a secondary service in accordance with Nos. **5.29** and **5.30**. (WRC-19)
5.280	In Germany, Austria, Bosnia and Herzegovina, Croatia, Liechtenstein, North Macedonia, Montenegro, Portugal, Serbia, Slovenia and Switzerland, the frequency band 433.05-434.79 MHz (centre frequency 433.92 MHz) is designated for industrial, scientific, and medical (ISM) applications. Radiocommunication services of these countries operating within this frequency band must accept harmful interference which may be caused by these applications. ISM equipment operating in this frequency band is subject to the provisions of No. **15.13**. (WRC-19)
5.281	*Additional allocation:* in the French overseas departments and communities in Region 2 and India, the band 433.75-434.25 MHz is also allocated to the space operation service (Earth-to-space) on a primary basis. In France and in Brazil, the band is allocated to the same service on a secondary basis.
5.282	In the bands 435-438 MHz, 1 260-1 270 MHz, 2 400-2 450 MHz, 3 400-3 410 MHz (in Regions 2 and 3 only) and 5 650- 5 670 MHz, the amateur-satellite service may operate subject to not causing harmful interference to other services operating in accordance with the Table (see No. **5.43**). Administrations authorizing such use shall ensure that any harmful interference caused by emissions from a station in the amateur-satellite service is immediately eliminated in accordance with the provisions of No. **25.11**. The use of the bands 1 260-1 270 MHz and 5 650-5 670 MHz by the amateur-satellite service is limited to the Earth-to-space direction.
5.283	*Additional allocation:* in Austria, the band 438-440 MHz is also allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis.
5.284	*Additional allocation:* in Canada, the band 440-450 MHz is also allocated to the amateur service on a secondary basis.
5.285	*Different category of service:* in Canada, the allocation of the band 440-450 MHz to the radiolocation service is on a primary basis (see No. **5.33**).
5.286	The band 449.75-450.25 MHz may be used for the space operation service (Earth-to-space) and the space research service (Earth-to-space), subject to agreement obtained under No. **9.21**.
5.286A	The use of the bands 454-456 MHz and 459-460 MHz by the mobile-satellite service is subject to coordination under No. **9.11A**. (WRC-97)
5.286AA	The frequency band 450-470 MHz is identified for use by administrations wishing to implement International Mobile Telecommunications (IMT) - see Resolution **224 (Rev.WRC-19)**. This identification does not preclude the use of this frequency band by any application of the services to which it is allocated and does not establish priority in the Radio Regulations. (WRC-19)
5.286B	The use of the band 454-455 MHz in the countries listed in No. **5.286D**, 455-456 MHz and 459-460 MHz in Region 2, and 454-456 MHz and 459-460 MHz in the countries listed in No. **5.286E**, by stations in the mobile-satellite service, shall not cause harmful interference to, or claim protection from, stations of the fixed or mobile services operating in accordance with the Table of Frequency Allocations. (WRC-97)
5.286C	The use of the band 454-455 MHz in the countries listed in No. **5.286D**, 455-456 MHz and 459-460 MHz in Region 2, and 454-456 MHz and 459-460 MHz in the countries listed in No. **5.286E**, by stations in the mobile-satellite service, shall not constrain the development and use of the fixed and mobile services operating in accordance with the Table of Frequency Allocations. (WRC-97)

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5.286D	Additional allocation: in Canada, the United States and Panama, the band 454-455 MHz is also allocated to the mobile- satellite service (Earth-to-space) on a primary basis. (WRC-07)
5.286E	Additional allocation: in Cape Verde, Nepal and Nigeria, the bands 454-456 MHz and 459-460 MHz are also allocated to the mobile-satellite (Earth-to-space) service on a primary basis. (WRC-23)
5.287	Use of the frequency bands 457.5125-457.5875 MHz and 467.5125-467.5875 MHz by the maritime mobile service is limited to on-board communication stations. The characteristics of the equipment and the channelling arrangement shall be in accordance with Recommendation ITU-R M.1174-4. The use of these frequency bands in territorial waters is subject to the national regulations of the administration concerned. (WRC-19)
5.288	In the territorial waters of the United States and the Philippines, the preferred frequencies for use by on-board communication stations shall be 457.525 MHz, 457.550 MHz, 457.575 MHz and 457.600 MHz paired, respectively, with 467.750 MHz, 467.775 MHz, 467.800 MHz and 467.825 MHz. The characteristics of the equipment used shall conform to those specified in Recommendation ITU-R M.1174-4. (WRC-19)
5.289	Earth exploration-satellite service applications, other than the meteorological-satellite service, may also be used in the bands 460-470 MHz and 1 690-1 710 MHz for space-to-Earth transmissions subject to not causing harmful interference to stations operating in accordance with the Table.
5.290	*Different category of service:* in Afghanistan, Azerbaijan, Belarus, China, the Russian Federation, Japan, Kyrgyzstan, , Tajikistan and, Turkmenistan the allocation of the band 460-470 MHz to the meteorological-satellite service (space- to-Earth) is on a primary basis (see No. **5.33**), subject to agreement obtained under No. **9.21**. (WRC-12)
5.291	*Additional allocation:* in China, the band 470-485 MHz is also allocated to the space research (space-to-Earth) and the space operation (space-to-Earth) services on a primary basis subject to agreement obtained under No. **9.21** and subject to not causing harmful interference to existing and planned broadcasting stations.
5.291A	*Additional allocation:* in Germany, Austria, Denmark, Estonia, Liechtenstein, Serbia and Switzerland, the frequency band 470-494 MHz is also allocated to the radiolocation service on a secondary basis. This use is limited to the operation of wind profiler radars in accordance with Resolution **217 (Rev.WRC-23)**. (WRC-23)
5.292	*Different category of service:* in Argentina, Uruguay and Venezuela, the allocation of the frequency band 470-512 MHz to the mobile service is on a primary basis (see No. **5.33**), subject to agreement obtained under No. **9.21**. (WRC-15)
5.293	*Different category of service:* in Canada, Chile, Cuba, the United States, Guyana and Panama, the allocation of the frequency bands 470-512 MHz and 614-806 MHz to the fixed service is on a primary basis (see No. **5.33**), subject to agreement obtained under No. **9.21**. In the Bahamas, Barbados, Canada, Chile, Cuba, the United States, Guyana, Jamaica, Mexico and Panama, the allocation of the frequency bands 470-512 MHz and 614-698 MHz to the mobile service is on a primary basis (see No. **5.33**), subject to agreement obtained under No. **9.21**. In Argentina and Ecuador, the allocation of the frequency band 470-512 MHz to the fixed and mobile services is on a primary basis (see No. **5.33**), subject to agreement obtained under No. **9.21**. (WRC-23)
5.294	*Additional allocation:* in Saudi Arabia, Cameroon, Côte d'Ivoire, Egypt, Ethiopia, Israel, Libya, Palestine*, the Syrian Arab Republic, Chad and Yemen, the frequency band 470-582 MHz is also allocated to the fixed service on a secondary basis. (WRC-23)
5.295	In the Bahamas, Barbados, Canada, the United States and Mexico, the frequency band 470-608 MHz, or portions thereof, is identified for International Mobile Telecommunications (IMT)-see Resolution **224 (Rev.WRC-19)**. This identification does not preclude the use of these frequency bands by any application of the services to which they are allocated and does not establish priority in the Radio Regulations. Mobile service stations of the IMT system within the frequency band are subject to agreement

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	obtained under No. **9.21** and shall not cause harmful interference to, or claim protection from, the broadcasting service of neighbouring countries. Nos. **5.43** and **5.43A** apply. (WRC-19)
5.295A	*Additional allocation:* in Albania, Germany, Andorra, Austria, Belgium, Bosnia and Herzegovina, Bulgaria, Cyprus, Vatican, Croatia, Denmark, Estonia, Finland, France, Georgia, Greece, Hungary, Ireland, Iceland, Latvia, Liechtenstein, Lithuania, Luxembourg, North Macedonia, Malta, Moldova, Monaco, Montenegro, Norway, Uzbekistan, Kingdom of the Netherlands, Poland, Portugal, Türkiye, Slovakia, the Czech Republic, Romania, the United Kingdom, San Marino, Serbia, Slovenia, Sweden, Switzerland and Ukraine, the frequency band 470-694 MHz is allocated to the mobile, except aeronautical mobile, service on a secondary basis, subject to agreement obtained under No. **9.21**. For the protection of the broadcasting service, stations in the mobile service shall not create a field strength for more than 1% of the time at the highest of the clutter height or 10 m above ground level at the border of the territory of any other administration that exceeds the field strength value as calculated using § 4.1.3.2 of Annex 2 to the GE06 Agreement with regard to allowance for multiple interference, Table A.1.10 and the methodology given in the GE06 Agreement. These limits may be exceeded on the territory of any country whose administration has so agreed. This allocation shall in no way adversely affect the broadcast development or undermine new entries of the broadcasting service to the GE06 Plan. (WRC-23)
5.296	*Additional allocation:* in Albania, Algeria, Germany, Angola, Saudi Arabia, Austria, Bahrain, Belgium, Benin, Bosnia and Herzegovina, Botswana, Bulgaria, Burkina Faso, Burundi, Cameroon, Vatican, Congo (Rep. of the), Côte d'Ivoire, Croatia, Denmark, Djibouti, Egypt, United Arab Emirates, Spain, Estonia, Eswatini, Finland, France, Gabon, Gambia, Georgia, Ghana, Hungary, Iraq, Ireland, Iceland, Israel, Italy, Jordan, Kenya, Kuwait, Lesotho, Latvia, Lebanon, Libya, Liechtenstein, Lithuania, Luxembourg, North Macedonia, Malawi, Mali, Malta, Morocco, Mauritius, Mauritania, Moldova, Monaco, Mozambique, Namibia, Niger, Nigeria, Norway, Oman, Uganda, Palestine*, the Netherlands, Poland, Portugal, Qatar, the Syrian Arab Republic, Türkiye, Slovakia, the Czech Republic, Romania, the United Kingdom, Rwanda, San Marino, Senegal, Serbia, Sudan, South Africa, Sweden, Switzerland, Tanzania, Chad, Togo, Tunisia, Ukraine, Zambia and Zimbabwe, the frequency band 470-694 MHz is also allocated on a secondary basis to the land mobile service, intended for applications ancillary to broadcasting and programme-making. Stations of the land mobile service in the countries listed in this footnote shall not cause harmful interference to existing or planned stations operating in accordance with the Table in countries other than those listed in this footnote. (WRC-23)
5.296A	In Micronesia, the Solomon Islands, Tuvalu and Vanuatu, the frequency band 470-698 MHz, or portions thereof, and in Bangladesh, Lao P.D.R., Maldives, New Zealand and Viet Nam, the frequency band 610-698 MHz, or portions thereof, are identified for use by these administrations wishing to implement International Mobile Telecommunications (IMT)-see Resolution **224 (Rev.WRC-23)**. This identification does not preclude the use of these frequency bands by any application of the services to which they are allocated and does not establish priority in the Radio Regulations. The mobile allocation in this frequency band shall not be used for IMT systems unless subject to agreement obtained under No. **9.21** and shall not cause harmful interference to, or claim protection from, the broadcasting service of neighbouring countries. Nos. **5.43** and **5.43A** apply. (WRChttps://www.itu.int/pub/R-ACT-WRC.16-2024-23)
5.297	*Additional allocation:* in Canada, Costa Rica, Cuba, El Salvador, the United States, Guatemala, Guyana and Jamaica, the frequency band 512-608 MHz is also allocated to the fixed and mobile services on a primary basis, subject to agreement obtained under No. **9.21**. In the Bahamas, Barbados and Mexico, the frequency band 512-608 MHz is also allocated to the mobile service on a primary basis, subject to agreement obtained

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	under No. **9.21**. In Mexico, the frequency band 512-608 MHz is also allocated on a secondary basis to the fixed service (see No. **5.32**). (WRC-19)
5.298	*Additional allocation:* in India, the band 549.75-550.25 MHz is also allocated to the space operation service (space-to- Earth) on a secondary basis.
5.299	Not used.
5.300	*Additional allocation:* in Saudi Arabia, Cameroon, Egypt, United Arab Emirates, Iraq, Israel, Jordan, Libya, Oman, Palestine*, Qatar, the Syrian Arab Republic and Sudan, the frequency band 582-790 MHz is also allocated to the fixed and mobile, except aeronautical mobile, services on a secondary basis. (WRC-23)
5.301	Not used.
5.302	SUP (WRC-12)
5.303	Not used.
5.304	*Additional allocation:* in the African Broadcasting Area (see Nos. **5.10** to **5.13**), the band 606-614 MHz is also allocated to the radio astronomy service on a primary basis.
5.305	*Additional allocation:* in China, the band 606-614 MHz is also allocated to the radio astronomy service on a primary basis.
5.306	*Additional allocation:* in Region 1, except in the African Broadcasting Area (see Nos. **5.10** to **5.13**), and in Region 3, except in China and India, the band 608-614 MHz is also allocated to the radio astronomy service on a secondary basis. (WRC-23)
5.307	*Additional allocation:* in India, the band 608-614 MHz is also allocated to the radio astronomy service on a primary basis.
5.307A	*Additional allocation*: in Saudi Arabia, Bahrain, Egypt, the United Arab Emirates, Iraq, Jordan, Kuwait, Oman, Palestine*, Qatar and the Syrian Arab Republic, the frequency band 614-694 MHz is allocated to the mobile, except aeronautical mobile, service on a primary basis and identified for International Mobile Telecommunications (IMT)-see Resolution **224 (Rev.WRC-23)** subject to the agreement obtained under No. **9.21.** Stations in the mobile service shall not create a field strength for more than 1% of the time at the highest of the clutter height or 10 m above ground level at the border of the territory of any other administration that exceeds the field strength value as calculated using § 4.1.3.2 of Annex 2 to the GE06 Agreement with regard to allowance for multiple interference, Table A.1.10 and the methodology given in the GE06 Agreement. Stations in the mobile service of the countries listed in this footnote shall not cause harmful interference to, or claim protection from the existing and future broadcasting stations of the neighbouring countries operating in accordance with the GE06 Plan. This identification does not preclude the use of these frequency bands by any application of the services to which they are allocated and does not establish priority in the Radio Regulations and shall in no way adversely affect the development of the existing and future broadcasting service in accordance with the GE06 Agreement. For countries party to the GE06 Agreement, the use of stations in the mobile service is also subject to the successful application of the procedures of that Agreement. This allocation does not establish priority in the Radio Regulations and shall allow the implementation and development of the broadcasting service in accordance with the GE06 Agreement. The countries listed in this footnote and located in the African Broadcasting Area should ensure protection of the radio astronomy service within the frequency band 606-614 MHz, as allocated in No. **5.304**, consistent with the most recent version of Recommendation ITU-R RA.769. The countries listed in this footnote, which are neighbouring to the countries listed in No. **5.312**, should ensure the protection of the aeronautical radionavigation service in the frequency band 645-862 MHz. (WRC-23)
5.307B	*Additional allocation:* in Gambia, Mauritania, Namibia, Nigeria, Senegal, Somalia, Tanzania and Chad, the frequency band 614-694 MHz is allocated to the mobile service on a secondary basis. For the protection of the broadcasting service, stations in the mobile service shall not create a field strength for more than 1% of the time at the highest of the clutter height or 10 m above ground level at the border of the territory of any other

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	administration that exceeds the field strength value as calculated using § 4.1.3.2 of Annex 2 to the GE06 Agreement with regard to allowance for multiple interference, Table A.1.10 and the methodology given in the GE06 Agreement. This allocation shall in no way adversely affect the broadcast development or undermine new entries of the broadcasting service to the GE06 Plan. Additional measures shall be used by administrations implementing stations in the mobile services to protect stations in the broadcasting service of neighbouring administrations such as a distance limitation from the border of a neighbouring country. (WRC-23)
5.308	*Additional allocation Different category of service:* in Belize, Colombia, El Salvador and Guatemala, the frequency band 614-698 MHz is also allocated to the mobile service on a primary basis. Stations of the mobile service within the frequency band are subject to agreement obtained under No. **9.21**. (WRC-23)
5.308A	In the Bahamas, Barbados, Belize, Canada, Colombia, El Salvador, the United States, Guatemala and Mexico, the frequency band 614-698 MHz, or portions thereof, is identified for International Mobile Telecommunications (IMT)-see Resolution **224 (Rev.WRC-23)**. This identification does not preclude the use of these frequency bands by any application of the services to which they are allocated and does not establish priority in the Radio Regulations. Mobile service stations of the IMT system within the frequency band are subject to agreement obtained under No. **9.21** and shall not cause harmful interference to, or claim protection from, the broadcasting service of neighbouring countries. Nos. **5.43** and **5.43A** apply. (WRC-23)
5.309	*Different category of service*: in El Salvador, the allocation of the frequency band 614-806 MHz to the fixed service is on a primary basis (see No. **5.33**), subject to agreement obtained under No. **9.21**. (WRC-15)
5.310	SUP (WRC-97)
5.311	SUP (WRC-07)
5.311A	SUP (WRC-19)
5.312	*Additional allocation*: in Armenia, Azerbaijan, Belarus, the Russian Federation, georgia, Kazakhstan, Uzbekistan, Kyrgyzstan, Tajikistan, Turkmenistan and Ukraine, the frequency band 645-862 MHz, and in Bulgaria the frequency bands 726-753 MHz, 778-811 MHz and 822-852 MHz, are also allocated to the aeronautical radionavigation service on a primary basis. (WRC-23)
5.312A	In Region 1, the use of the frequency band 694-790 MHz by the mobile, except aeronautical mobile, service is subject to the provisions of Resolution 760 (Rev.WRC-23). See also Resolution 224 (Rev.WRC-23). (WRC-23)
5.312B	The frequency band 698-960 MHz, or portions thereof, in Region 2, and the frequency band 694-960 MHz, or portions thereof, in Region 1, are identified for use by high-altitude platform stations as International Mobile Telecommunications (IMT) base stations (HIBS). This identification does not preclude the use of these frequency bands by any application of the services to which they are allocated and does not establish priority in the Radio Regulations. Resolution **213 (WRC-23)** shall apply. HIBS shall not claim protection from existing primary services. No. **5.43A** does not apply, see *resolves* 2 of Resolution **213 (WRC-23)**. Such use of HIBS in the frequency bands 694-728 MHz, 830- 835 MHz and 805.3-806.9 MHz is limited to reception by HIBS. (WRC-23)
5.313	SUP (WRC-97)
5.313A	The frequency band, or portions of the frequency band 698-790 MHz, in Australia, Bangladesh, Brunei Darussalam, Cambodia, China, Korea (Rep. of), Fiji, India, Indonesia, Japan, Kiribati, Lao P.D.R., Malaysia, Myanmar (Union of), New Zealand, Pakistan, Papua New Guinea, the Philippines, the Dem. People's Rep. of Korea, Solomon Islands, Samoa, Singapore, Thailand, Tonga, Tuvalu, Vanuatu and Viet Nam, are identified for use by these administrations wishing to implement International Mobile Telecommunications (IMT). This identification does not preclude the use of these frequency bands by any application of the services to which they are allocated and does not establish priority in the Radio Regulations. (WRC-19)

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5.313B	SUP (WRC-15)
5.314	SUP (WRC-15)
5.314A	The frequency band 698-960 MHz, or portions thereof, in Australia, Maldives, Micronesia, Papua New Guinea, Tonga and Vanuatu, and the frequency bands 703-733 MHz, 758-788 MHz, 890-915 MHz and 935-960 MHz, or portions thereof, in China, India, Indonesia, Japan, Korea (Rep. of), Malaysia, the Philippines and Thailand are identified for use by high-altitude platform stations as International Mobile Telecommunications (IMT) base stations (HIBS). This identification does not preclude the use of these frequency bands by any application of the services to which they are allocated and does not establish priority in the Radio Regulations. Resolution **213 (WRC-23)** shall apply. HIBS shall not claim protection from existing primary services. No. **5.43A** does not apply, see *resolves* 2 of Resolution **213 (WRC-23)**. Such use of HIBS in the frequency bands 698-728 MHz and 830-835 MHz is limited to reception by HIBS. (WRC-23)
5.315	SUP (WRC-15)
5.316	SUP (WRC-15)
5.316A	SUP (WRC-15)
5.316B	In Region 1, the allocation to the mobile, except aeronautical mobile, service in the frequency band 790-862 MHz is subject to agreement obtained under No. **9.21** with respect to the aeronautical radionavigation service in countries mentioned in No. **5.312**. For countries party to the GE06 Agreement, the use of stations of the mobile service is also subject to the successful application of the procedures of that Agreement. Resolutions **224 (Rev.WRC-23)** and **749 (Rev.WRC-23)** shall apply, as appropriate. (WRC-23)
5.317	*Additional allocation*: in Region 2 (except Brazil, the United States and Mexico), the frequency band 806-890 MHz is also allocated to the mobile-satellite service on a primary basis, subject to agreement obtained under No. **9.21**. The use of this service is intended for operation within national boundaries. (WRC-15)
5.317A	The parts of the frequency band 698-960 MHz in Region 2 and the frequency bands 694-790 MHz in Region 1 and 790- 960 MHz in Regions 1 and 3 which are allocated to the mobile service on a primary basis are identified for use by administrations wishing to implement International Mobile Telecommunications (IMT)-see Resolutions **224 (Rev.WRC-23)**, **760 (Rev.WRC-23)** and **749 (Rev.WRC-23)**, where applicable. This identification does not preclude the use of these frequency bands by any application of the services to which they are allocated and does not establish priority in the Radio Regulations. (WRC-23)
5.318	*Additional allocation*: in Canada, the United States and Mexico, the bands 849-851 MHz and 894-896 MHz are also allocated to the aeronautical mobile service on a primary basis, for public correspondence with aircraft. The use of the band 849-851 MHz is limited to transmissions from aeronautical stations and the use of the band 894-896 MHz is limited to transmissions from aircraft stations.
5.319	*Additional allocation*: in Belarus, the Russian Federation and Ukraine, the bands 806-840 MHz (Earth-to-space) and 856-890 MHz (space-to-Earth) are also allocated to the mobile-satellite, except aeronautical mobile-satellite (R), service. The use of these bands by this service shall not cause harmful interference to, or claim protection from, services in other countries operating in accordance with the Table of Frequency Allocations and is subject to special agreements between the administrations concerned.
5.320	Additional allocation: in Region 3, the bands 806-890 MHz and 942-960 MHz are also allocated to the mobile-satellite, except aeronautical mobile-satellite (R), service on a primary basis, subject to agreement obtained under No. **9.21.** The use of this service is limited to operation within national boundaries. In seeking such agreement, appropriate protection shall be afforded to services operating in accordance with the Table, to ensure that no harmful interference is caused to such services.
5.321	SUP (WRC-07)

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5.322	In Region 1, in the band 862-960 MHz, stations of the broadcasting service shall be operated only in the African Broadcasting Area (see Nos. **5.10** to **5.13**) excluding Algeria, Burundi, Egypt, Spain, Lesotho, Libya, Morocco, Malawi, Namibia, Nigeria, South Africa, Tanzania, Zimbabwe and Zambia, subject to agreement obtained under No. **9.21**. (WRC-23)
5.323	*Additional allocation:* in Armenia, Azerbaijan, Belarus, the Russian Federation, Kazakhstan, Uzbekistan, Kyrgyzstan, Tajikistan, Turkmenistan and Ukraine, the frequency band 862-960 MHz, in Bulgaria the frequency bands 862-880 MHz and 915-925 MHz, and in Romania the frequency bands 862-880 MHz and 915-925 MHz, are also allocated to the aeronautical radionavigation service on a primary basis. Such use is subject to agreement obtained under No. **9.21** with administrations concerned and limited to ground-based radiobeacons in operation on 27 October 1997 until the end of their lifetime. (WRC-19)
5.324	Not used.
5.325	*Different category of service*: in the United States, the allocation of the band 890-942 MHz to the radiolocation service is on a primary basis (see No. **5.33**), subject to agreement obtained under No. **9.21**.
5.325A	*Different category of service:* in Argentina, Brazil, Costa Rica, Cuba, Dominican Republic, El Salvador, Ecuador, the French overseas departments and communities in Region 2, Guatemala, Paraguay, Uruguay and Venezuela, the frequency band 902-928 MHz is allocated to the land mobile service on a primary basis. In Mexico, the frequency band 902-928 MHz is allocated to the mobile, except aeronautical mobile, service on a primary basis. In Colombia, the frequency band 902-915 MHz is allocated to the land mobile service on a primary basis. (WRC-23)
5.326	*Different category of service*: in Chile, the band 903-905 MHz is allocated to the mobile, except aeronautical mobile, service on a primary basis, subject to agreement obtained under No. **9.21**.
5.327	*Different category of service*: in Australia, the allocation of the band 915-928 MHz to the radiolocation service is on a primary basis (see No. **5.33**).
5.327A	The use of the frequency band 960-1 164 MHz by the aeronautical mobile (R) service is limited to systems that operate in accordance with recognized international aeronautical standards. Such use shall be in accordance with Resolution **417 (Rev.WRC-15)**. (WRC-15)
5.328	The use of the band 960-1 215 MHz by the aeronautical radionavigation service is reserved on a worldwide basis for the operation and development of airborne electronic aids to air navigation and any directly associated ground-based facilities. (WRC-2000)
5.328A	Stations in the radionavigation-satellite service in the band 1 164-1 215 MHz shall operate in accordance with the provisions of Resolution **609 (Rev.WRC-07)** and shall not claim protection from stations in the aeronautical radionavigation service in the band 960-1 215 MHz. No. **5.43A** does not apply. The provisions of No. **21.18** shall apply. (WRC-07)
5.328AA	The frequency band 1 087.7-1 092.3 MHz is also allocated to the aeronautical mobile-satellite (R) service (Earth-to- space) on a primary basis, limited to the space station reception of Automatic Dependent Surveillance-Broadcast (ADS-B) emissions from aircraft transmitters that operate in accordance with recognized international aeronautical standards. Stations operating in the aeronautical mobile-satellite (R) service shall not claim protection from stations operating in the aeronautical radionavigation service. Resolution **425 (Rev.WRC-19)** shall apply. (WRC-19)
5.328B	The use of the bands 1 164-1 300 MHz, 1 559-1 610 MHz and 5 010-5 030 MHz by systems and networks in the radionavigation-satellite service for which complete coordination or notification information, as appropriate, is received by the Radiocommunication Bureau after 1 January 2005 is subject to the application of the provisions of Nos. **9.12**, **9.12A** and **9.13**. Resolution **610 (WRC-03)** shall also apply; however, in the case of radionavigation-satellite service (space-to-space) networks and

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	systems, Resolution **610 (WRC-03)** shall only apply to transmitting space stations. In accordance with No. **5.329A**, for systems and networks in the radionavigation-satellite service (space-to-space) in the bands 1 215-1 300 MHz and 1 559-1 610 MHz, the provisions of Nos. **9.7**, **9.12**, **9.12A** and **9.13** shall only apply with respect to other systems and networks in the radionavigation-satellite service (space-to-space). (WRC-07)
5.329	Use of the radionavigation-satellite service in the frequency band 1 215-1 300 MHz shall be subject to the condition that no harmful interference is caused to, and no protection is claimed from, the radionavigation service authorized under No. **5.331**. Furthermore, the use of the radionavigation-satellite service in the frequency band 1 215-1 300 MHz shall be subject to the condition that no harmful interference is caused to the radiolocation service. No. **5.43** shall not apply in respect of the radiolocation service. Resolution **608 (Rev.WRC-19)** shall apply. (WRC-19)
5.329A	Use of systems in the radionavigation-satellite service (space-to-space) operating in the bands 1 215-1 300 MHz and 1 559-1 610 MHz is not intended to provide safety service applications, and shall not impose any additional constraints on radionavigation-satellite service (space-to-Earth) systems or on other services operating in accordance with the Table of Frequency Allocations. (WRC-07)
5.330	*Additional allocation:* in Angola, Saudi Arabia, Bahrain, Bangladesh, Cameroon, China, Djibouti, Egypt, the United Arab Emirates, Eritrea, Ethiopia, Guyana, India, Indonesia, Iran (Islamic Republic of), Iraq, Israel, Japan, Jordan, Kuwait, Nepal, Oman, Pakistan, Palestine*, the Philippines, Qatar, the Syrian Arab Republic, Somalia, Sudan, South Sudan, Chad, Togo and Yemen, the frequency band 1 215-1 300 MHz is also allocated to the fixed and mobile services on a primary basis. (WRC-23)
5.331	*Additional allocation:* in Algeria, Germany, Saudi Arabia, Australia, Austria, Bahrain, Belarus, Belgium, Benin, Bosnia and Herzegovina, Brazil, Burkina Faso, Burundi, Cameroon, China, Korea (Rep. of), Croatia, Denmark, Djibouti, Egypt, the United Arab Emirates, Estonia, the Russian Federation, Finland, France, Ghana, Greece, Guinea, Equatorial Guinea, Hungary, India, Indonesia, Iran (Islamic Republic of), Iraq, Ireland, Israel, Jordan, Kenya, Kuwait, Lesotho, Latvia, Lebanon, Liechtenstein, Lithuania, Luxembourg, North Macedonia, Madagascar, Mali, Mauritania, Montenegro, Nigeria, Norway, Oman, Pakistan, Palestine*, the Kingdom of the Netherlands, Poland, Portugal, Qatar, the Syrian Arab Republic, Türkiye, Dem. People's Rep. of Korea, Slovakia, the United Kingdom, Serbia, Slovenia, Somalia, Sudan, South Sudan, Sri Lanka, South Africa, Sweden, Switzerland, Thailand, Togo, Venezuela and Viet Nam, the frequency band 1 215-1 300 MHz is also allocated to the radionavigation service on a primary basis. In Canada and the United States, the frequency band 1 240-1 300 MHz is also allocated to the radionavigation service, and use of the radionavigation service shall be limited to the aeronautical radionavigation service. (WRC-23)
5.332	In the band 1 215-1 260 MHz, active spaceborne sensors in the Earth exploration-satellite and space research services shall not cause harmful interference to, claim protection from, or otherwise impose constraints on operation or development of the radiolocation service, the radionavigation-satellite service and other services allocated on a primary basis. (WRC-2000)
5.332A	Administrations authorizing operation of the amateur and amateur-satellite services in the frequency band 1 240-1 300 MHz, or portions thereof, shall ensure that the amateur and amateur-satellite services do not cause harmful interference to radionavigation-satellite service (space-to-Earth) receivers in accordance with No. **5.29** (see the most recent version of Recommendation ITU-R M.2164). The authorizing administration, upon receipt of a report of harmful interference caused by a station of the amateur or amateur-satellite services, shall take all necessary steps to rapidly eliminate such interference. (WRC-23)
5.333	SUP (WRC-97)

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5.334	*Additional allocation:* in Canada and the United States, the band 1 350-1 370 MHz is also allocated to the aeronautical radionavigation service on a primary basis. (WRC-03)
5.335	In Canada and the United States in the band 1 240-1 300 MHz, active spaceborne sensors in the earth exploration- satellite and space research services shall not cause interference to, claim protection from, or otherwise impose constraints on operation or development of the aeronautical radionavigation service. (WRC-97)
5.335A	In the band 1 260-1 300 MHz, active spaceborne sensors in the Earth exploration-satellite and space research services shall not cause harmful interference to, claim protection from, or otherwise impose constraints on operation or development of the radiolocation service and other services allocated by footnotes on a primary basis. (WRC-2000)
5.336	Not used.
5.337	The use of the bands 1 300-1 350 MHz, 2 700-2 900 MHz and 9 000-9 200 MHz by the aeronautical radionavigation service is restricted to ground-based radars and to associated airborne transponders which transmit only on frequencies in these bands and only when actuated by radars operating in the same band.
5.337A	The use of the band 1 300-1 350 MHz by earth stations in the radionavigation-satellite service and by stations in the radiolocation service shall not cause harmful interference to, nor constrain the operation and development of, the aeronautical-radionavigation service. (WRC-2000)
5.338	In Kyrgyzstan, Slovakia, and Turkmenistan, existing installations of the radionavigation service may continue to operate in the band 1 350-1 400 MHz. (WRC-12)
5.338A	In the frequency bands 1 350-1 400 MHz, 1 427-1 452 MHz, 22.55-23.55 GHz, 24.25-27.5 GHz, 30-31.3 GHz, 49.7-50.2 GHz, 50.4-50.9 GHz, 51.4-52.6 GHz, 81-86 GHz and 92-94 GHz, Resolution **750 (Rev.WRC-19)** applies. (WRC-19)
5.339	The bands 1 370-1 400 MHz, 2 640-2 655 MHz, 4 950-4 990 MHz and 15.20-15.35 GHz are also allocated to the space research (passive) and Earth exploration-satellite (passive) services on a secondary basis.
5.339A	SUP (WRC-07)
5.340	All emissions are prohibited in the following bands: 1 400-1 427 MHz, 2 690-2 700 MHz, except those provided for by No. **5.422,** 10.68-10.7 GHz, except those provided for by No. **5.483**, 15.35-15.4 GHz, except those provided for by No. **5.511**, 23.6-24 GHz, 31.3-31.5 GHz, 31.5-31.8 GHz, in Region 2, 48.94-49.04 GHz, from airborne stations 50.2-50.4 GHz[2], 52.6-54.25 GHz, 86-92 GHz, 100-102 GHz, 109.5-111.8 GHz, 114.25-116 GHz, 148.5-151.5 GHz, 164-167 GHz, 182-185 GHz, 190-191.8 GHz, 200-209 GHz, 226-231.5 GHz, 250-252 GHz. (WRC-03) [2] **5.340.1** The allocation to the Earth exploration-satellite service (passive) and the space research service (passive) in the band 50.2-50.4 GHz should not impose undue

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	constraints on the use of the adjacent bands by the primary allocated services in those bands. (WRC-97)
5.341	In the bands 1 400-1 727 MHz, 101-120 GHz and 197-220 GHz, passive research is being conducted by some countries in a programme for the search for intentional emissions of extraterrestrial origin.
5.341A	In Region 1, the frequency bands 1 427-1 452 MHz and 1 492-1 518 MHz are identified for use by administrations wishing to implement International Mobile Telecommunications (IMT) in accordance with Resolution **223 (Rev.WRC-15)**. This identification does not preclude the use of these frequency bands by any other application of the services to which it is allocated and does not establish priority in the Radio Regulations. The use of IMT stations is subject to agreement obtained under No. **9.21** with respect to the aeronautical mobile service used for aeronautical telemetry in accordance with No. **5.342**. (WRC-15)
5.341B	In Region 2, the frequency band 1 427-1 518 MHz is identified for use by administrations wishing to implement International Mobile Telecommunications (IMT) in accordance with Resolution **223 (Rev.WRC-15)**. This identification does not preclude the use of this frequency band by any application of the services to which they are allocated and does not establish priority in the Radio Regulations. (WRC-15)
5.341C	The frequency bands 1 427-1 452 MHz and 1 492-1 518 MHz are identified for use by administrations in Region 3 wishing to implement International Mobile Telecommunications (IMT) in accordance with Resolution **223 (Rev.WRC-15)**. The use of these frequency bands by the above administrations for the implementation of IMT in the frequency bands 1 429-1 452 MHz and 1 492-1 518 MHz is subject to agreement obtained under No. **9.21** from countries using stations of the aeronautical mobile service. This identification does not preclude the use of these frequency bands by any application of the services to which it is allocated and does not establish priority in the Radio Regulations. (WRC-15)
5.342	*Additional allocation:* in Armenia, Azerbaijan, Belarus, the Russian Federation, Uzbekistan, Kyrgyzstan and Ukraine, the frequency band 1 429-1 535 MHz is also allocated to the aeronautical mobile service on a primary basis, exclusively for the purposes of aeronautical telemetry within the national territory. As of 1 April 2007, the use of the frequency band 1 452-1 492 MHz is subject to agreement between the administrations concerned. (WRC-15)
5.343	In Region 2, the use of the band 1 435-1 535 MHz by the aeronautical mobile service for telemetry has priority over other uses by the mobile service.
5.344	*Alternative allocation:* in the United States, the band 1 452-1 525 MHz is allocated to the fixed and mobile services on a primary basis (see also No. **5.343**).
5.345	Use of the frequency band 1 452-1 492 MHz by the broadcasting-satellite service, and by the broadcasting service, is limited to digital audio broadcasting and is subject to the provisions of Resolution **528 (Rev.WRC-19)**. (WRC-19)
5.346	In Algeria, Angola, Saudi Arabia, Bahrain, Benin, Botswana, Burkina Faso, Burundi, Cameroon, Central African Republic, Congo (Rep. of the), Côte d'Ivoire, Djibouti, Egypt, United Arab Emirates, Eswatini, Gabon, Gambia, Ghana, Guinea, Iraq, Jordan, Kenya, Kuwait, Lesotho, Lebanon, Liberia, Madagascar, Malawi, Mali, Morocco, Mauritius, Mauritania, Mozambique, Namibia, Niger, Nigeria, Oman, Uganda, Palestine**, Qatar, Dem. Rep. of the Congo, Rwanda, Senegal, Seychelles, Somalia, Sudan, South Sudan, South Africa, Tanzania, Chad, Togo, Tunisia, Zambia, and Zimbabwe, the frequency band 1 452-1 492 MHz is identified for use by administrations listed above wishing to implement International Mobile Telecommunications (IMT) in accordance with Resolution **223 (Rev.WRC-23)**. This identification does not preclude the use of this frequency band by any other application of the services to which it is allocated and does not establish priority in the Radio Regulations. The use of this frequency band for the implementation of IMT is subject to agreement obtained under

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	No. **9.21** with respect to the aeronautical mobile service used for aeronautical telemetry in accordance with No. **5.342**. See also Resolution **761 (Rev.WRC-19)**. (WRC-23)
5.346A	The frequency band 1 452-1 492 MHz is identified for use by administrations in Region 3 wishing to implement International Mobile Telecommunications (IMT) in accordance with Resolution **223 (Rev.WRC-19)** and Resolution **761 (Rev.WRC-19)**. The use of this frequency band by the above administrations for the implementation of IMT is subject to agreement obtained under No. **9.21** from countries using stations of the aeronautical mobile service. This identification does not preclude the use of this frequency band by any application of the services to which it is allocated and does not establish priority in the Radio Regulations. (WRC-19)
5.347	SUP (WRC-07)
5.347A	SUP (WRC-07)
5.348	The use of the band 1 518-1 525 MHz by the mobile-satellite service is subject to coordination under No. **9.11A**. In the band 1 518-1 525 MHz stations in the mobile-satellite service shall not claim protection from the stations in the fixed service. No. **5.43A** does not apply. (WRC-03)
5.348A	In the band 1 518-1 525 MHz, the coordination threshold in terms of the power flux-density levels at the surface of the Earth in application of No. **9.11A** for space stations in the mobile-satellite (space-to-Earth) service, with respect to the land mobile service use for specialized mobile radios or used in conjunction with public switched telecommunication networks (PSTN) operating within the territory of Japan, shall be –150 dB(W/m2) in any 4 kHz band for all angles of arrival, instead of those given in Table 5-2 of Appendix **5**. In the band 1 518-1 525 MHz stations in the mobile-satellite service shall not claim protection from stations in the mobile service in the territory of Japan. No. **5.43A** does not apply. (WRC-03)
5.348B	In the band 1 518-1 525 MHz, stations in the mobile-satellite service shall not claim protection from aeronautical mobile telemetry stations in the mobile service in the territory of the United States (see Nos. **5.343** and **5.344**) and in the countries listed in No. **5.342**. No. **5.43A** does not apply. (WRC-03)
5.348C	SUP (WRC-07)
5.349	*Different category of service:* in Saudi Arabia, Azerbaijan, Bahrain, Cameroon, Egypt, Iran (Islamic Republic of), Iraq, Israel, Kuwait, Lebanon, North Macedonia, Morocco, Qatar, Syrian Arab Republic, Kyrgyzstan, Turkmenistan and Yemen, the allocation of the frequency band 1 525-1 530 MHz to the mobile, except aeronautical mobile, service is on a primary basis (see No. **5.33**). (WRC-23)
5.350	*Additional allocation:* in Kyrgyzstan and Turkmenistan, the frequency band 1 525-1 530 MHz is also allocated to the aeronautical mobile service on a primary basis. (WRC-19)
5.351	The bands 1 525-1 544 MHz, 1 545-1 559 MHz, 1 626.5-1 645.5 MHz and 1 646.5-1 660.5 MHz shall not be used for feeder links of any service. In exceptional circumstances, however, an earth station at a specified fixed point in any of the mobile-satellite services may be authorized by an administration to communicate via space stations using these bands.
5.351A	For the use of the bands 1 518-1 544 MHz, 1 545-1 559 MHz, 1 610-1 645.5 MHz, 1 646.5-1 660.5 MHz, 1 668-1 675 MHz, 1 980-2 010 MHz, 2 170-2 200 MHz, 2 483.5-2 520 MHz and 2 670-2 690 MHz by the mobile-satellite service, see Resolutions **212 (Rev.WRC-23)** and **225 (Rev.WRC-23)**. (WRC-23)
5.352	SUP (WRC-97)
5.352A	In the frequency band 1 525-1 530 MHz, stations in the mobile-satellite service, except stations in the maritime mobile- satellite service, shall not cause harmful interference to, or claim protection from, stations of the fixed service in Algeria, Saudi Arabia, Egypt, Guinea, India, Israel, Italy, Jordan, Kuwait, Mali, Morocco, Mauritania, Nigeria, Oman, Pakistan, the Philippines, Qatar, Syrian Arab Republic, Viet Nam and Yemen notified prior to 1 April 1998. (WRC-19)

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5.353	SUP (WRC-97)
5.353A	In applying the procedures of Section II of Article **9** to the mobile-satellite service in the bands 1 530-1 544 MHz and 1 626.5-1 645.5 MHz, priority shall be given to accommodating the spectrum requirements for distress, urgency and safety communications of the Global Maritime Distress and Safety System (GMDSS). Maritime mobile-satellite distress, urgency and safety communications shall have priority access and immediate availability over all other mobile satellite communications operating within a network. Mobile-satellite systems shall not cause unacceptable interference to, or claim protection from, distress, urgency and safety communications of the GMDSS. Account shall be taken of the priority of safety-related communications in the other mobile-satellite services. (The provisions of Resolution **222 (Rev.WRC-23)** shall apply.) (WRC-23)
5.354	The use of the bands 1 525-1 559 MHz and 1 626.5-1 660.5 MHz by the mobile-satellite services is subject to coordination under No. **9.11A**.
5.355	*Additional allocation:* in Bahrain, Bangladesh, Congo (Rep. of the), Djibouti, Egypt, Eritrea, Iraq, Israel, Kuwait, , Qatar, Syrian Arab Republic, Somalia, Sudan, South Sudan, Chad, Togo and Yemen, the bands 1 540-1 559 MHz, 1 610-1 645.5 MHz and 1 646.5-1 660 MHz are also allocated to the fixed service on a secondary basis. (WRC-12)
5.356	The use of the band 1 544-1 545 MHz by the mobile-satellite service (space-to-Earth) is limited to distress and safety communications (see Article **31**).
5.357	Transmissions in the band 1 545-1 555 MHz from terrestrial aeronautical stations directly to aircraft stations, or between aircraft stations, in the aeronautical mobile (R) service are also authorized when such transmissions are used to extend or supplement the satellite-to-aircraft links.
5.357A	In applying the procedures of Section II of Article **9** to the mobile-satellite service in the frequency bands 1 545-1 555 MHz and 1 646.5-1 656.5 MHz, priority shall be given to accommodating the spectrum requirements of the aeronautical mobile-satellite (R) service providing transmission of messages with priority 1 to 6 in Article **44**. Aeronautical mobile-satellite (R) service communications with priority 1 to 6 in Article **44** shall have priority access and immediate availability, by pre-emption if necessary, over all other mobile-satellite communications operating within a network. Mobile-satellite systems shall not cause unacceptable interference to, or claim protection from, aeronautical mobile-satellite (R) service communications with priority 1 to 6 in Article **44**. Account shall be taken of the priority of safety-related communications in the other mobile-satellite services. The provisions of Resolution **222 (Rev.WRC-23)** shall apply. (WRC-23)
5.358	SUP (WRC-97)
5.359	*Additional allocation:* in Germany, Saudi Arabia, Armenia, Azerbaijan, Belarus, Cameroon, the Russian Federation, Georgia, Guinea, Guinea-Bissau, Jordan, Kazakhstan, Kuwait, Lithuania, Mauritania, Uganda, Uzbekistan, Pakistan, Poland, the Syrian Arab Republic, Kyrgyzstan, the Dem. People's Rep. of Korea, Romania, Tajikistan, Tunisia and Turkmenistan, the frequency bands 1 550-1 559 MHz, 1 610-1 645.5 MHz and 1 646.5-1 660 MHz are also allocated to the fixed service on a primary basis. Administrations are urged to make all practicable efforts to avoid the implementation of new fixed-service stations in these frequency bands. (WRC-23)
5.360 to 5.362	SUP (WRC-97)
5.362A	In the United States, in the bands 1 555-1 559 MHz and 1 656.5-1 660.5 MHz, the aeronautical mobile-satellite (R) service shall have priority access and immediate availability, by pre-emption if necessary, over all other mobile-satellite communications operating within a network. Mobile-satellite systems shall not cause unacceptable

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	interference to, or claim protection from, aeronautical mobile-satellite (R) service communications with priority 1 to 6 in Article **44**. Account shall be taken of the priority of safety-related communications in the other mobile-satellite services. (WRC-97)
5.362B	SUP (WRC-15)
5.362C	SUP (WRC-15)
5.363	SUP (WRC-07)
5.364	The use of the band 1 610-1 626.5 MHz by the mobile-satellite service (Earth-to-space) and by the radiodetermination- satellite service (Earth-to-space) is subject to coordination under No. **9.11A**. A mobile earth station operating in either of the services in this band shall not produce a peak e.i.r.p. density in excess of -15 dB(W/4 kHz) in the part of the band used by systems operating in accordance with the provisions of No. **5.366** (to which No. **4.10** applies), unless otherwise agreed by the affected administrations. In the part of the band where such systems are not operating, the mean e.i.r.p. density of a mobile earth station shall not exceed –3 dB (W/4 kHz). Stations of the mobile-satellite service shall not claim protection from stations in the aeronautical radionavigation service, stations operating in accordance with the provisions of No. **5.366** and stations in the fixed service operating in accordance with the provisions of No. **5.359**. Administrations responsible for the coordination of mobile-satellite networks shall make all practicable efforts to ensure protection of stations operating in accordance with the provisions of No. **5.366**.
5.365	The use of the band 1 613.8-1 626.5 MHz by the mobile-satellite service (space-to-Earth) is subject to coordination under No. **9.11A**.
5.366	The band 1 610-1 626.5 MHz is reserved on a worldwide basis for the use and development of airborne electronic aids to air navigation and any directly associated ground-based or satellite-borne facilities. Such satellite use is subject to agreement obtained under No. **9.21**.
5.367	*Additional allocation*: The frequency bands 1 610-1 626.5 MHz is also allocated to the aeronautical mobile-satellite (R) service on a primary basis, subject to agreement obtained under No. **9.21**. (WRC-12)
5.368	The provisions of No. **4.10** do not apply with respect to the radiodetermination-satellite and mobile-satellite services in the frequency band 1 610-1 626.5 MHz. However, No. **4.10** applies in the frequency band 1 610-1 626.5 MHz with respect to the aeronautical radionavigation-satellite service when operating in accordance with No. **5.366**, the aeronautical mobile-satellite (R) service when operating in accordance with No. **5.367**, and in the frequency bands 1 614.4225-1 618.725 MHz or 1 616.3-1 620.38 MHz (Earth-to-space) (see *resolves* 5 of Resolution **365 (WRC-23)**) and 1 621.35-1 626.5 MHz with respect to the maritime mobile-satellite service when used for the global maritime distress and safety system (GMDSS). In applying the procedure of Section II of Article **9**, the provisions of No. **4.10** do not apply for the frequency bands 1 614.4225-1 618.725 MHz or 1 616.3-1 620.38 MHz (Earth-to-space) (see *resolves* 5 of Resolution **365 (WRC-23)**) and 2 483.59-2 499.91 MHz (space-to-Earth) for the maritime mobile-satellite service when used for the GMDSS with satellite networks or systems for which complete coordination information has been received by the Radiocommunication Bureau before 20 November 2023. Resolution **365 (WRC-23)** applies. (WRC-23)
5.369	*Different category of service:* in Angola, Australia, China, Eritrea, Ethiopia, India, Iran (Islamic Republic of), Israel, Lebanon, Liberia, Madagascar, Mali, Pakistan, Papua New Guinea, Syrian Arab Republic, the Dem. Rep. of the Congo, Sudan, South Sudan ,Togo and Zambia, the allocation of the band 1 610-1 626.5 MHz to the radiodetermination-satellite service (Earth-to-space) is on a primary basis (see No. **5.33**), subject to agreement obtained under No. **9.21** from countries not listed in this provision. (WRC-12)
5.370	*Different category of service:* in Venezuela, the allocation to the radiodetermination-satellite service in the band 1 610- 1 626.5 MHz (Earth-to-space) is on a secondary basis.

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5.371	*Additional allocation:* in Region 1, the bands 1 610-1 626.5 MHz (Earth-to-space) (space-to-Earth) is also allocated to the radiodetermination-satellite service on a secondary basis, subject to agreement obtained under No. **9.21**. (WRC 12)
5.372	Harmful interference shall not be caused to stations of the radio astronomy service using the frequency band 1 610.6- 1 613.8 MHz by stations of the radiodetermination-satellite and mobile satellite services (No. **29.13** applies). The equivalent power flux-density (epfd) produced in the frequency band 1 610.6-1 613.8 MHz by all space stations of a non-geostationary-satellite system in the mobile-satellite service (space-to-Earth) operating in frequency band 1 613.8- 1 626.5 MHz shall be in compliance with the protection criteria provided in Recommendations ITU-R RA.769-2 and ITU- R RA.1513-2, using the methodology given in Recommendation ITU-R M.1583-1, and the radio astronomy antenna pattern described in Recommendation ITU-R RA.1631-0. (WRC-19)
5.372A	The maritime mobile-satellite service in the frequency bands 1 614.4225-1 618.725 MHz or 1 616.3-1 620.38 MHz (Earth-to-space) (see *resolves* 5 of Resolution **365 (WRC-23)**) and 2 483.59-2 499.91 MHz (space-to-Earth) when they are used for the global maritime distress and safety system (GMDSS) is limited to the geostationary satellite networks identified in Resolution **365 (WRC-23)** and their associated earth stations located within a service area from 75°E to 135°E longitude and from 10°N to 55°N latitude. Resolution **365 (WRC-23)** applies. (WRC-23)
5.373	Maritime mobile earth stations receiving in the frequency band 1 621.35-1 626.5 MHz shall not impose additional constraints on earth stations operating in the maritime mobile-satellite service or maritime earth stations of the radiodetermination-satellite service operating in accordance with the Radio Regulations in the frequency band 1 610-1621.35 MHz or on earth stations operating in the maritime mobile-satellite service operating in accordance with the Radio Regulations in the frequency band 1 626.5-1 660.5 MHz, unless otherwise agreed between the notifying administrations. (WRC-19)
5.373A	Maritime mobile earth stations receiving in the frequency band 1 621.35-1 626.5 MHz shall not impose constraints on the assignments of earth stations of the mobile-satellite service (Earth-to-space) and the radiodetermination satellite service (Earth-to-space) in the frequency band 1 621.35-1 626.5 MHz in networks for which complete coordination information has been received by the Radiocommunication Bureau before 28 October 2019. (WRC-19)
5.374	Mobile earth stations in the mobile-satellite service operating in the bands 1 631.5-1 634.5 MHz and 1 656.5-1 660 MHz shall not cause harmful interference to stations in the fixed service operating in the countries listed in No. **5.359**. (WRC-97)
5.375	The use of the frequency band 1 645.5-1 646.5 MHz by the mobile-satellite service (Earth-to-space) and for inter-satellite links is limited to distress, urgency, and safety communications (see Article **31**). (WRC-23)
5.376	Transmissions in the band 1 646.5-1 656.5 MHz from aircraft stations in the aeronautical mobile (R) service directly to terrestrial aeronautical stations, or between aircraft stations, are also authorized when such transmissions are used to extend or supplement the aircraft-to-satellite links.
5.376A	Mobile earth stations operating in the band 1 660-1 660.5 MHz shall not cause harmful interference to stations in the radio astronomy service. (WRC-97)
5.377	SUP (WRC-03)
5.378	Not used.
5.379	*Additional allocation:* in Bangladesh, India, Indonesia, Nigeria and Pakistan, the band 1 660.5-1 668.4 MHz is also allocated to the meteorological aids service on a secondary basis.
5.379A	Administrations are urged to give all practicable protection in the band 1 660.5-1 668.4 MHz for future research in radio astronomy, particularly by eliminating air-to-ground

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	transmissions in the meteorological aids service in the band 1 664.4-1 668.4 MHz as soon as practicable.
5.379B	The use of the frequency band 1 668-1 675 MHz by the mobile-satellite service is subject to coordination under No. **9.11A**. (WRC-23)
5.379C	In order to protect the radio astronomy service in the band 1 668-1 670 MHz, the aggregate power flux-density values produced by mobile earth stations in a network of the mobile-satellite service operating in this band shall not exceed-181 dB(W/m2) in 10 MHz and -194 dB(W/m2) in any 20 kHz at any radio astronomy station recorded in the Master International Frequency Register, for more than 2% of integration periods of 2 000 s. (WRC-03)
5.379D	For sharing of the frequency band 1 668.4-1 675 MHz between the mobile-satellite service and the fixed and mobile services, Resolution **744 (Rev.WRC-23)** shall apply. (WRC-23)
5.379E	In the band 1 668.4-1 675 MHz, stations in the mobile-satellite service shall not cause harmful interference to stations in the meteorological aids service in China, Iran (Islamic Republic of), Japan and Uzbekistan. In the band 1 668.4-1 675 MHz, administrations are urged not to implement new systems in the meteorological aids service and are encouraged to migrate existing meteorological aids service operations to other bands as soon as practicable. (WRC-03)
5.380	SUP (WRC-07)
5.380A	In the band 1 670-1 675 MHz, stations in the mobile-satellite service shall not cause harmful interference to, nor constrain the development of, existing earth stations in the meteorological-satellite service notified before 1 January 2004. Any new assignment to these earth stations in this band shall also be protected from harmful interference from stations in the mobile-satellite service. (WRC-07)
5.381	*Additional allocation:* in Afghanistan, Cuba, India, Iran (Islamic Republic of) and Pakistan, the band 1 690-1 700 MHz is also allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis, and in the Dem. People's Rep. of Korea the frequency band 1 690-1 700 MHz is also allocated to the fixed service on a primary basis (see No. **5.33**) and to the mobile, except aeronautical mobile, service on a secondary basis. (WRC-23)
5.382	*Different category of service:* in Saudi Arabia, Armenia, Azerbaijan, Bahrain, Belarus, Congo (Rep. of the), Egypt, the United Arab Emirates, Eritrea, Ethiopia, the Russian Federation, Guinea, Iraq, Israel, Jordan, Kazakhstan, Kuwait, Lebanon, North Macedonia, Mauritania, Moldova, Mongolia, Oman, Uzbekistan, Poland, Qatar, the Syrian Arab Republic, Kyrgyzstan, Somalia, Tajikistan, Turkmenistan, Ukraine and Yemen, the allocation of the frequency band 1 690-1 700 MHz to the fixed and mobile, except aeronautical mobile, services is on a primary basis (see No. **5.33**), a (WRC-23)
5.383	Not used.
5.384	*Additional allocation:* in India, Indonesia and Japan, the band 1 700-1 710 MHz is also allocated to the space research service (space-to-Earth) on a primary basis. (WRC-97)
5.384A	The frequency bands 1 710-1 885 MHz, 2 300-2 400 MHz and 2 500-2 690 MHz, or portions thereof, are identified for use by administrations wishing to implement International Mobile Telecommunications (IMT) in accordance with Resolution **223 (Rev.WRC-15)**. This identification does not preclude the use of these by any application of the services to which they are allocated and does not establish priority in the Radio Regulations. (WRC-15)
5.385	*Additional allocation:* the band 1 718.8-1 722.2 MHz is also allocated to the radio astronomy service on a secondary basis for spectral line observations. (WRC-2000)
5.386	*Additional allocation:* the frequency band 1 750-1 850 MHz is also allocated to the space operation (Earth-to- space) and space research (Earth-to-space) services in Region 2 (except in Mexico), in Australia, Guam, India, Indonesia and Japan on a primary basis,

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	subject to agreement obtained under No. **9.21**, having particular regard to troposcatter systems. (WRC-15)
5.387	*Additional allocation:* in Belarus, Georgia, Kyrgyzstan, Romania, Tajikistan and Turkmenistan, the frequency band 1 770-1 790 MHz is also allocated to the meteorological-satellite service on a primary basis, subject to agreement obtained under No. 9.21. (WRC-23)
5.388	The frequency bands 1 885-2 025 MHz and 2 110-2 200 MHz are intended for use, on a worldwide basis, by administrations wishing to implement International Mobile Telecommunications (IMT). Such use does not preclude the use of these frequency bands by other services to which they are allocated. The frequency bands should be made available for IMT in accordance with Resolution **212 (Rev.WRC-23)** (see also Resolution **223 (Rev.WRC-23)**). (WRC-23)
5.388A	The frequency bands 1 710-1 980 MHz, 2 010-2 025 MHz and 2 110-2 170 MHz in Regions 1 and 3 and the frequency bands 1 710-1 980 MHz and 2 110-2 160 MHz in Region 2 are identified for the use by high altitude platform stations as International Mobile Telecommunications (IMT) base stations (HIBS). This identification does not preclude the use of these frequency bands by any application of the services to which they are allocated and does not establish priority in the Radio Regulations. Resolution **221 (Rev.WRC-23)** shall apply. HIBS shall not claim protection from existing primary services. No. **5.43A** does not apply. Such use of HIBS in the frequency bands 1 710-1 785 MHz in Regions 1 and 2, and 1 710-1 815 MHz in Region 3 is limited to reception by HIBS, and in the frequency band 2 110-2 170 MHz is limited to transmission from HIBS. (WRC-23)
5.388B	SUP (WRC-23)
5.389	Not used.
5.389A	The use of the frequency bands 1 980-2 010 MHz and 2 170-2 200 MHz by the mobile-satellite service is subject to coordination under No. **9.11A** and to the provisions of Resolution **716 (Rev.WRC-23)**. (WRC-23)
5.389B	The use of the frequency band 1 980-1 990 MHz by the mobile-satellite service shall not cause harmful interference to or constrain the development of the fixed and mobile services in Argentina, Brazil, Canada, Chile, Ecuador, the United States, Honduras, Jamaica, Mexico, Paraguay, Peru, Suriname, Trinidad and Tobago, Uruguay, and Venezuela. (WRC-19)
5.389C	The use of the frequency bands 2 010-2 025 MHz and 2 160-2 170 MHz in Region 2 by the mobile-satellite service is subject to coordination under No. **9.11A** and to the provisions of Resolution **716 (Rev.WRC-23)**. (WRC-23)
5.389CD	SUP (WRC-03)
5.389E	The use of the bands 2 010-2 025 MHz and 2 160-2 170 MHz by the mobile-satellite service in Region 2 shall not cause harmful interference to or constrain the development of the fixed and mobile services in Regions 1 and 3.
5.389F	In Algeria, Cape Verde, Egypt, Iran (Islamic Republic of), Mali, Syrian Arab Republic and Tunisia, the use of the frequency bands 1 980-2 010 MHz and 2 170-2 200 MHz by the mobile-satellite service shall neither cause harmful interference to the fixed and mobile services, brought into use prior to 1 January 2005, nor hamper the development of those services, nor shall the former service request protection from the latter services. (WRC-23)
5.390	SUP (WRC-07)
5.391	In making assignments to the mobile service in the frequency bands 2 025-2 110 MHz and 2 200-2 290 MHz, administrations shall not introduce high-density mobile systems, as described in Recommendation ITU-R SA.1154-0, and shall take that Recommendation into account for the introduction of any other type of mobile system. (WRC-15)

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5.392	Administrations are urged to take all practicable measures to ensure that space-to-space transmissions between two or more non-geostationary satellites, in the space research, space operations and Earth exploration-satellite services in the bands 2 025-2 110 MHz and 2 200-2 290 MHz, shall not impose any constraints on Earth-to-space, space-to-Earth and other space-to-space transmissions of those services and in those bands between geostationary and non- geostationary satellites.
5.392A	SUP (WRC-07)
5.393	*Additional allocation:* in Canada, the United States and India, the frequency band 2 310-2 360 MHz is also allocated to the broadcasting-satellite service (sound) and complementary terrestrial sound broadcasting service on a primary basis. Such use is limited to digital audio broadcasting and is subject to the provisions of Resolution **528 (Rev.WRC-19)**, with the exception of *resolves* 3 in regard to the limitation on broadcasting-satellite systems in the upper 25 MHz. Complementary terrestrial sound broadcasting stations shall be subject to bilateral coordination with neighbouring countries prior to their bringing into use. (WRC-19)
5.394	In the United States, the use of the frequency band 2 360-2 395 MHz by the aeronautical mobile service for telemetry has priority over other uses by the mobile services. In Canada, the use of the frequency band 2 360-2 400 MHz by the aeronautical mobile service for telemetry has priority over other uses by the mobile services. (WRC-23)
5.395	In France and Turkey, the use of the band 2 310-2 360 MHz by the aeronautical mobile service for telemetry has priority over other uses by the mobile service. (WRC-03)
5.396	SUP (WRC-19)
5.397	SUP (WRC-12)
5.398	In respect of the radiodetermination-satellite service in the band 2 483.5-2 500 MHz, the provisions of No. **4.10** do not apply
5.398A	*Different category of service:* In Armenia, Azerbaijan, Belarus, the Russian Federation, Kazakhstan, Uzbekistan, Kyrgyzstan, Tajikistan and Ukraine, the band 2 483.5-2 500 MHz is allocated on a primary basis to the radiolocation service. The radiolocation stations in these countries shall not cause harmful interference to, or claim protection from, stations of the fixed, mobile and mobile-satellite services operating in accordance with the Radio Regulations in the frequency band 2 483.5-2 500 MHz. (WRC-12
5.399	Except for cases referred to in No., **5.401**, stations of the radiodetermination-satellite service operating in the frequency band 2 483.5-2 500 MHz for which notification information is received by the Bureau after 17 February 2012, and the service area of which includes Armenia, Azerbaijan, Belarus, the Russian Federation, Kazakhstan, Uzbekistan, Kyrgyzstan, Tajikistan and Ukraine, shall not cause harmful interference to, and shall not claim protection from stations of the radiolocation service operating in these countries in accordance with No. **5.398A**. (WRC-12)
5.400	SUP (WRC-12)
5.401	In Angola, Australia, Bangladesh, China, Eritrea, Eswatini, Ethiopia, India, Lebanon, Liberia, Libya, Madagascar, Mali, Pakistan, Papua New Guinea, Syrian Arab Republic, Dem. Rep. of the Congo, Sudan, Togo and Zambia, the frequency band 2 483.5-2 500 MHz was already allocated on a primary basis to the radiodetermination-satellite service before WRC-12, subject to agreement obtained under No. **9.21** from countries not listed in this provision. Systems in the radiodetermination-satellite service for which complete coordination information has been received by the Radiocommunication Bureau before 18 February 2012 will retain their regulatory status, as of the date of receipt of the coordination request information. (WRC-19)
5.402	The use of the band 2 483.5-2 500 MHz by the mobile-satellite and the radiodetermination-satellite services is subject to the coordination under No. **9.11A**. Administrations are urged to take all practicable steps to prevent harmful interference to the radio astronomy service from emissions in the 2 483.5-2 500 MHz band, especially those caused by second-harmonic radiation that would fall into the 4 990-5 000 MHz band allocated to the radio astronomy service worldwide.

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5.403	Subject to agreement obtained under No. **9.21**, the band 2 520-2 535 MHz may also be used for the mobile-satellite (space-to-Earth), except aeronautical mobile-satellite, service for operation limited to within national boundaries. The provisions of No. **9.11A** apply. (WRC-07)
5.404	*Additional allocation:* in India and Iran (Islamic Republic of), the band 2 500-2 516.5 MHz may also be used for the radiodetermination-satellite service (space-to-Earth) for operation limited to within national boundaries, subject to agreement obtained under No. **9.21**
5.405	SUP (WRC-12)
5.406	Not used.
5.407	In the band 2 500-2 520 MHz, the power flux-density at the surface of the Earth from space stations operating in the mobile-satellite (space-to-Earth) service shall not exceed –152 dB (W/(m2 Ill 4 kHz)) in Argentina, unless otherwise agreed by the administrations concerned.
5.408	SUP (WRC-2000)
5.409	SUP (WRC-07)
5.409A	The frequency band 2 500-2 690 MHz in Regions 1 and 2, and the frequency band 2 500-2 655 MHz in Region 3 are identified for use by high-altitude platform stations as International Mobile Telecommunications (IMT) base stations (HIBS). This identification does not preclude the use of these frequency bands by any application of the services to which they are allocated and does not establish priority in the Radio Regulations. Resolution **218 (WRC-23)** shall apply. HIBS shall not claim protection from existing primary services. No. **5.43A** does not apply. Such use of HIBS in the frequency bands 2 500-2 510 MHz in Regions 1 and 2, and 2 500-2 535 MHz in Region 3 is limited to reception by HIBS. (WRC-23)
5.410	The band 2 500-2 690 MHz may be used for tropospheric scatter systems in Region 1, subject to agreement obtained under No. **9.21**. No. **9.21** does not apply to tropospheric scatter links situated entirely outside Region 1. Administrations shall make all practicable efforts to avoid developing new tropospheric scatter systems in this band. When planning new tropospheric scatter radio-relay links in this band, all possible measures shall be taken to avoid directing the antennas of these links towards the geostationary-satellite orbit. (WRC-12)
5.412	*Alternative allocation:* in Kyrgyzstan and Turkmenistan, the band 2 500-2 690 MHz is allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis. (WRC-12)
5.413	In the design of systems in the broadcasting-satellite service in the bands between 2 500 MHz and 2 690 MHz, administrations are urged to take all necessary steps to protect the radio astronomy service in the band 2 690- 2 700 MHz.
5.414	The allocation of the frequency band 2 500-2 520 MHz to the mobile-satellite service (space-to-Earth) is subject to coordination under No. **9.11A**. (WRC-07)
5.414A	In Japan and India, the use of the bands 2 500-2 520 MHz and 2 520-2 535 MHz, under **No. 5.403**, by a satellite network in the mobile-satellite service (space-to-Earth) is limited to operation within national boundaries and subject to the application of No. 9.11A. The following pfd values shall be used as a threshold for coordination under **No. 9.11A**, for all conditions and for all methods of modulation, in an area of 1 000 km around the territory of the administration notifying the mobile-satellite service network: -136 dB (W/(m^2 · MHz)) for $0° \leq \theta \leq 5°$ $-136 + 0.55\,(\theta - 5)$ dB (W/(m^2 · MHz)) for $5° < \theta \leq 25°$ -125 dB (W/(m^2 · MHz)) for $25° < \theta \leq 90°$ where θ is the angle of arrival of the incident wave above the horizontal plane, in degrees. Outside this area Table 21-4 of Article 21 shall apply. Furthermore, the coordination thresholds in Table 5-2 of Annex 1 to Appendix 5 of the Radio Regulations (Edition of 2004), in conjunction with the applicable provisions of Articles 9 and 11 associated with

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	No. 9.11A, shall apply to systems for which complete notification information has been received by the Radicommunication Bureau by 14 November 2007 and that have been brought into use by that date. (WRC-07)
5.415	The use of the bands 2 500-2 690 MHz in Region 2 and 2 500-2 535 MHz and 2 655-2 690 MHz in Region 3 by the fixed- satellite service is limited to national and regional systems, subject to agreement obtained under No. 9.21, giving particular attention to the broadcasting-satellite service in Region 1. (WRC-07)
5.415A	Additional allocation: in India and Japan, subject to agreement obtained under No. 9.21, the band 2 520-2 535 MHz may also be used for the aeronautical mobile-satellite service (space-to-Earth) for operation limited to within their national boundaries. (WRC-23)
5.416	The use of the band 2 520-2 670 MHz by the broadcasting-satellite service is limited to national and regional systems for community reception, subject to agreement obtained under No. **9.21**. The provisions of No. **9.19** shall be applied by administrations in this band in their bilateral and multilateral negotiations. (WRC-07)
5.417	SUP (WRC-2000)
5.417A	SUP (WRC-15)
5.417B	SUP (WRC-15)
5.417C	SUP (WRC-15)
5.417D	SUP (WRC-15)
5.418	*Additional allocation:* in India, the frequency band 2 535-2 655 MHz is also allocated to the broadcasting-satellite service (sound) and complementary terrestrial broadcasting service on a primary basis. Such use is limited to digital audio broadcasting and is subject to the provisions of Resolution **528 (Rev.WRC-19)**. The provisions of No. **5.416** and Table **21-4** of Article **21** do not apply to this additional allocation. Use of non-geostationary-satellite systems in the broadcasting-satellite service (sound) is subject to Resolution **539 (Rev.WRC-19)**. Geostationary broadcasting-satellite service (sound) systems for which complete Appendix **4** coordination information has been received after 1 June 2005 are limited to systems intended for national coverage. The power flux-density at the Earth's surface produced by emissions from a geostationary broadcasting-satellite service (sound) space station operating in the frequency band 2 630-2 655 MHz, and for which complete Appendix **4** coordination information has been received after 1 June 2005, shall not exceed the following limits, for all conditions and for all methods of modulation: -130 dB (W/(m^2 · MHz)) for $0^o \le \theta \le 5^o$ $-130 + 0.4(\theta - 5)$ dB(W/(m^2 · MHz)) for $5^o < \theta \le 25^o$ -122 dB (W/(m^2 · MHz)) for $25^o < \theta \le 90^o$ where θ is the angle of arrival of the incident wave above the horizontal plane, in degrees. These limits may be exceeded on the territory of any country whose administration has so agreed. As an exception to the limits above, the pfd value f -122 dB(W/(m2 · MHz)) shall be used as a threshold for coordination under No. **9.11** in an area of 1 500 km around the territory of the administration notifying the broadcasting-satellite service (sound) system. In addition, an administration listed in this provision shall not have simultaneously two frequency assignments, one under this provision and the other under No. **5.416** for systems for which complete Appendix **4** coordination information has been received after 1 June 2005. (WRC-19)
5.418A	In certain Region 3 countries listed in No. **5.418**, use of the band 2 630-2 655 MHz by non-geostationary-satellite systems in the broadcasting-satellite service (sound) for which complete Appendix **4** coordination information, or notification information, has been received after 2 June 2000, is subject to the application of the provisions of No.

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	9.12A, in respect of geostationary-satellite networks for which complete Appendix **4** coordination information, or notification information, is considered to have been received after 2 June 2000, and No. **22.2** does not apply. No. **22.2** shall continue to apply with respect to geostationary-satellite networks for which complete Appendix **4** coordination information, or notification information, is considered to have been received before 3 June 2000. (WRC-03)
5.418B	Use of the band 2 630-2 655 MHz by non-geostationary-satellite systems in the broadcasting-satellite service (sound), pursuant to No. **5.418**, for which complete Appendix **4** coordination information, or notification information, has been received after 2 June 2000, is subject to the application of the provisions of No. **9.12**. (WRC-03)
5.418C	Use of the band 2 630-2 655 MHz by geostationary-satellite networks for which complete Appendix **4** coordination information, or notification information, has been received after 2 June 2000 is subject to the application of the provisions of No. **9.13** with respect to non-geostationary-satellite systems in the broadcasting-satellite service (sound), pursuant to No. **5.418** and No. **22.2** does not apply. (WRC-03)
5.419	The use of the frequency band 2 670-2 690 MHz by the mobile-satellite service is subject to coordination under No. **9.11A**. (WRC-23).
5.420	The band 2 655-2 670 MHz may also be used for the mobile-satellite (Earth-to-space), except aeronautical mobile- satellite, service for operation limited to within national boundaries, subject to agreement obtained under No. **9.21**. The coordination under No. **9.11A** applies. (WRC-07)
5.420A	SUP (WRC-07)
5.421	SUP (WRC-03)
5.422	*Additional allocation:* in Saudi Arabia, Armenia, Azerbaijan, Bahrain, Belarus, Brunei Darussalam, Congo (Rep. of the), Côte d'Ivoire, Cuba, Djibouti, Egypt, the United Arab Emirates, Eritrea, Ethiopia, Gabon, Georgia, Guinea, Guinea-Bissau, Iran (Islamic Republic of), Iraq, Israel, Jordan, Kuwait, Lebanon, Mauritania, , Mongolia, Montenegro, Nigeria, Oman, Pakistan, the Philippines, Qatar, Syrian Arab Republic, Kyrgyzstan, the Dem. Rep. of the Congo, Romania, Somalia, Tajikistan, Tunisia, Turkmenistan, Ukraine and Yemen, the band 2 690-2 700 MHz is also allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis. Such use is limited to equipment in operation by 1 January 1985. (WRC-12)
5.423	In the band 2 700-2 900 MHz, ground-based radars used for meteorological purposes are authorized to operate on a basis of equality with stations of the aeronautical radionavigation service.
5.424	*Additional allocation:* in Canada, the band 2 850-2 900 MHz is also allocated to the maritime radionavigation service, on a primary basis, for use by shore-based radars.
5.424A	In the band 2 900-3 100 MHz, stations in the radiolocation service shall not cause harmful interference to, nor claim protection from, radar systems in the radionavigation service. (WRC-03)
5.425	In the band 2 900-3 100 MHz, the use of the shipborne interrogator-transponder (SIT) system shall be confined to the sub-band 2 930 -2 950 MHz.
5.426	The use of the band 2 900-3 100 MHz by the aeronautical radionavigation service is limited to ground-based radars.
5.427	In the bands 2 900-3 100 MHz and 9 300-9 500 MHz, the response from radar transponders shall not be capable of being confused with the response from radar beacons (racons) and shall not cause interference to ship or aeronautical radars in the radionavigation service, having regard, however, to No. **4.9**.
5.428	*Additional allocation:* in Kyrgyzstan and Turkmenistan, the frequency band 3 100-3 300 MHz is also allocated to the radionavigation service on a primary basis. (WRC-19)
5.429	*Additional allocation: in Saudi Arabia, Bahrain, Bangladesh, Benin, Brunei Darussalam, Cambodia, Cameroon, China, Congo (Rep. of the), Korea (Rep. of), Côte d'Ivoire, Djibouti, Egypt, the United Arab Emirates, India, Indonesia, Iran (Islamic*

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	Republic of), Iraq, Japan, Jordan, Kenya, Kuwait, Lao P.D.R., Lebanon, Libya, Malaysia, Mongolia, Myanmar, New Zealand, Oman, Uganda, Pakistan, Palestine, Qatar, the Syrian Arab Republic, the Dem. Rep.of the Congo, the Dem. People's Rep. of Korea, Singapore, Somalia, Sudan, Thailand, Viet Nam and Yemen, the frequency band 3 300-3 400 MHz is also allocated to the fixed and mobile services on a primary basis. Mongolia, New Zealand and the countries bordering the Mediterranean shall not claim protection for their fixed and mobile services from the radiolocation service. (WRC-23)*
5.429A	*Additional allocation: in Angola, Botswana, Burkina Faso, Burundi, Cabo Verde, Central African Republic, Comoros, Djibouti, Eritrea, Eswatini, Ethiopia, Gambia, Ghana, Guinea, Guinea-Bissau, Equatorial Guinea, Lesotho, Liberia, Madagascar, Malawi, Mauritius, Mauritania, Mozambique, Namibia, Niger, Nigeria, Palestine*, the Dem. Rep. of the Congo, Rwanda, Sao Tomé and Principe, Senegal, Seychelles, Sierra Leone, Somalia, South Sudan, South Africa, Tanzania, Chad, Togo, Zambia and Zimbabwe, the frequency band 3 300-3 400 MHz is allocated to the mobile, except aeronautical mobile, service on a primary basis. Stations in the mobile service operating in the frequency band 3 300-3 400 MHz shall not cause harmful interference to, or claim protection from, stations operating in the radiolocation service. (WRC-23)*
5.429B	In the following countries of Region 1: Angola, Benin, Botswana, Burkina Faso, Burundi, Cabo Verde, Cameroon, Central African Republic, Comoros, Congo (Rep. of the), Côte d'Ivoire, Djibouti, Egypt, Eritrea, Eswatini, Ethiopia, Gambia, Ghana, Guinea, Guinea-Bissau, Equatorial Guinea, Kenya, Lesotho, Liberia, Madagascar, Malawi, Mauritius, Mauritania, Mongolia, Mozambique, Namibia, Niger, Nigeria, Uganda, the Dem. Rep. of the Congo, Rwanda, Sao Tome and Principe, Senegal, Seychelles, Sierra Leone, Somalia, Sudan, South Sudan, South Africa, Tanzania, Chad, Togo, Zambia and Zimbabwe, the frequency band 3 300-3 400 MHz is identified for the implementation of International Mobile Telecommunications (IMT). The use of this frequency band shall be in accordance with Resolution **223 (Rev.WRC-23)**. The use of the frequency band 3 300-3 400 MHz by IMT stations in the mobile service shall not cause harmful interference to, or claim protection from, systems in the radiolocation service, and administrations wishing to implement IMT shall obtain the agreement of neighbouring countries to protect operations within the radiolocation service. This identification does not preclude the use of this frequency band by any application of the services to which it is allocated and does not establish priority in the Radio Regulations. (WRC-23)
5.429C	*Different category of service: in Argentina, Brazil, Cuba, the Dominican Republic, Guatemala, Mexico, Paraguay and Uruguay, the frequency band 3 300-3 400 MHz is allocated to the fixed service on a primary basis. Stations in the fixed service operating in the frequency band 3 300-3 400 MHz shall not cause harmful interference to, or claim protection from, stations operating in the radiolocation service. (WRC-23)*
5.429D	In Region 2, the use of the mobile, except aeronautical mobile, service in the frequency band 3 300-3 400 MHz is identified for the implementation of International Mobile Telecommunications (IMT). Such use shall be in accordance with Resolution **223 (Rev.WRC-23)**. The use of the frequency band 3 300-3 400 MHz by IMT stations in the mobile service shall not cause harmful interference to, or claim protection from, systems in the radiolocation service, and administrations wishing to implement IMT shall obtain the agreement of neighbouring countries to protect operations within the radiolocation service. This identification does not preclude the use of this frequency band by any application of the services to which it is allocated and does not establish priority in the Radio Regulations. (WRC-23)
5.429E	*Additional allocation*: in Papua New Guinea, the frequency band 3 300-3 400 MHz is allocated to the mobile, except aeronautical mobile, service on a primary basis. Stations in the mobile service operating in the frequency band 3 300-3 400 MHz shall not cause

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	harmful interference to, or claim protection from, stations operating in the radiolocation service. (WRC-15)
5.429F	In the following countries in Region 3: Cambodia, India, Indonesia, Lao P.D.R., Pakistan, the Philippines, Singapore and Viet Nam, the use of the frequency band 3 300-3 400 MHz is identified for the implementation of International Mobile Telecommunications (IMT). Such use shall be in accordance with Resolution **223 (Rev.WRC-23)**. The use of the frequency band 3 300-3 400 MHz by IMT stations in the mobile service shall not cause harmful interference to, or claim protection from, systems in the radiolocation service. Before an administration brings into use a base or mobile station of an IMT system in this frequency band, it shall seek agreement under No. **9.21** with neighbouring countries to protect the radiolocation service. This identification does not preclude the use of this frequency band by any application of the services to which it is allocated and does not establish priority in the Radio Regulations. (WRC-23)
5.429G	Stations in the mobile, except aeronautical mobile, service operating in the frequency band 3 300-3 400 MHz in Region 2 shall not cause harmful interference to, or claim protection from, systems operating in the radiolocation service. (WRC-23)
5.430	*Additional allocation:* in Kyrgyzstan and Turkmenistan, the frequency band 3 300-3 400 MHz is also allocated to the radionavigation service on a primary basis. (WRC-19)
5.430A	The allocation of the frequency band 3 400-3 600 MHz to the mobile, except aeronautical mobile, service is subject to agreement obtained under No. 9.21. This frequency band is identified for International Mobile Telecommunications (IMT). This identification does not preclude the use of this frequency band by any application of the services to which it is allocated and does not establish priority in the Radio Regulations. The provisions of Nos. 9.17 and 9.18 shall also apply in the coordination phase. Before an administration brings into use a (base or mobile) station of the mobile service in this frequency band, it shall ensure that the power flux-density (pfd) produced at 3 m above ground does not exceed -154.5 dB(W/(m2 · 4 kHz)) for more than 20% of time at the border of the territory of any other administration. This limit may be exceeded on the territory of any country whose administration has so agreed. In order to ensure that the pfd limit at the border of the territory of any other administration is met, the calculations and verification shall be made, taking into account all relevant information, with the mutual agreement of both administrations (the administration responsible for the terrestrial station and the administration responsible for the earth station) and with the assistance of the Bureau if so requested. In case of disagreement, calculation and verification of the pfd shall be made by the Bureau, taking into account the information referred to above. Stations of the mobile service in the frequency band 3 400-3 600 MHz shall not claim more protection from space stations than that provided in Table 21-4 of the Radio Regulations (Edition of 2004). (WRC-15)
5.431	*Additional allocation:* in Germany, the frequency band 3 400-3 475 MHz is also allocated to the amateur service on a secondary basis. (WRC-19)
5.431A	In Region 2, the allocation of the frequency band 3 400-3 500 MHz to the mobile, except aeronautical mobile, service on a primary basis is subject to agreement obtained under No. 9.21. (WRC-15)
5.431B	In Region 2, the frequency band 3 400-3 600 MHz is identified for use by administrations wishing to implement International Mobile Telecommunications (IMT). This identification does not preclude the use of this frequency band by any application of the services to which it is allocated and does not establish priority in the Radio Regulations. At the stage of coordination the provisions of Nos. **9.17** and **9.18** also apply. Before an administration brings into use a base or mobile station of an IMT system, it shall seek agreement under No. **9.21** with other administrations and ensure that the power flux-density (pfd) produced at 3 m above ground does not exceed +154.5 dB(W/(m2 · 4 kHz)) for more than 20% of time at the border of the territory of any other administration. This limit may be exceeded on the territory of any country whose

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	administration has so agreed. In order to ensure that the pfd limit at the border of the territory of any other administration is met, the calculations and verification shall be made, taking into account all relevant information, with the mutual agreement of both administrations (the administration responsible for the terrestrial station and the administration responsible for the earth station), with the assistance of the Bureau if so requested. In case of disagreement, the calculation and verification of the pfd shall be made by the Bureau, taking into account the information referred to above. Stations of the mobile service, including IMT systems, in the frequency band 3 400-3 600 MHz shall not claim more protection from space stations than that provided in Table **21-4** of the Radio Regulations (Edition of 2004). (WRC-15) (Edition of 2004). (WRC-15)
5.432	*Different category of service:* in Korea (Rep. of), Japan, Pakistan and the Dem.People's Rep. of Korea, the allocation of the frequency band 3 400-3 500 MHz to the mobile, except aeronautical mobile, service is on a primary basis (see No. **5.33**). (WRC-19)
5.432A	In Korea (Rep. of), Japan, Pakistan and the Dem. People's Rep. of Korea, the frequency band 3 400-3 500 MHz is identified for International Mobile Telecommunications (IMT). This identification does not preclude the use of this frequency band by any application of the services to which it is allocated and does not establish priority in the Radio Regulations. At the stage of coordination the provisions of Nos. **9.17** and **9.18** also apply. Before an administration brings into use a (base or mobile) station of the mobile service in this frequency band it shall ensure that the power flux-density (pfd) produced at 3 m above ground does not exceed −154.5 dB(W/(m2 · 4 kHz)) for more than 20% of time at the border of the territory of any other administration. This limit may be exceeded on the territory of any country whose administration has so agreed. In order to ensure that the pfd limit at the border of the territory of any other administration is met, the calculations and verification shall be made, taking into account all relevant information, with the mutual agreement of both administrations (the administration responsible for the terrestrial station and the administration responsible for the earth station), with the assistance of the Bureau if so requested. In case of disagreement, the calculation and verification of the pfd shall be made by the Bureau, taking into account the information referred to above. Stations of the mobile service in the frequency band 3 400-3 500 MHz shall not claim more protection from space stations than that provided in Table 21-4 of the Radio Regulations (Edition of 2004). (WRC-19)
5.432B	*Different category of service:* in Australia, Bangladesh, Brunei Darussalam, China, French overseas communities of Region 3, India, Indonesia, Iran (Islamic Republic of), Malaysia, New Zealand, the Philippines, Singapore and Thailand, the frequency band 3 400-3 500 MHz is allocated to the mobile, except aeronautical mobile, service on a primary basis, subject to agreement obtained under No. **9.21** with other administrations and is identified for International Mobile Telecommunications (IMT). This identification does not preclude the use of this frequency band by any application of the services to which it is allocated and does not establish priority in the Radio Regulations. At the stage of coordination, the provisions of Nos. **9.17** and **9.18** also apply. Before an administration brings into use a (base or mobile) station of the mobile service in this frequency band it shall ensure that the power flux-density (pfd) produced at 3 m above ground does not exceed −154.5 dB(W/(m2 · 4 kHz)) for more than 20% of time at the border of the territory of any other administration. This limit may be exceeded on the territory of any country whose administration has so agreed. In order to ensure that the pfd limit at the border of the territory of any other administration is met, the calculations and verification shall be made, taking into account all relevant information, with the mutual agreement of both administrations (the administration responsible for the terrestrial station and the administration responsible for the earth station), with the assistance of the Bureau if so requested. In case of disagreement, the calculation and verification of the pfd shall be made by the Bureau, taking into account the information referred to above. Stations of the mobile service in the frequency band 3 400-3 500 MHz

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	shall not claim more protection from space stations than that provided in Table 21-4 of the Radio Regulations (Edition of 2004). (WRC-19)
5.433	In Regions 2 and 3, in the band 3 400-3 600 MHz the radiolocation service is allocated on a primary basis. However, all administrations operating radiolocation systems in this band are urged to cease operations by 1985. Thereafter, administrations shall take all practicable steps to protect the fixed-satellite service and coordination requirements shall not be imposed on the fixed-satellite service.
5.433A	In Australia, Bangladesh, Brunei Darussalam, China, French overseas communities of Region 3, Korea (Rep. of), India, Indonesia, Iran (Islamic Republic of), Japan, New Zealand, Pakistan, the Philippines, the Dem. People's Rep. of Korea and Singapore, the frequency band 3 500-3 600 MHz is identified for International Mobile Telecommunications (IMT). This identification does not preclude the use of this frequency band by any application of the services to which it is allocated and does not establish priority in the Radio Regulations. At the stage of coordination the provisions of Nos. **9.17** and **9.18** also apply. Before an administration brings into use a (base or mobile) station of the mobile service in this frequency band it shall ensure that the power flux-density (pfd) produced at 3 m above ground does not exceed −154.5 dB(W/(m^2 .4 kHz)) for more than 20% of time at the border of the territory of any other administration. This limit may be exceeded on the territory of any country whose administration has so agreed. In order to ensure that the pfd limit at the border of the territory of any other administration is met, the calculations and verification shall be made, taking into account all relevant information, with the mutual agreement of both administrations (the administration responsible for the terrestrial station and the administration responsible for the earth station), with the assistance of the Bureau if so requested. In case of disagreement, the calculation and verification of the pfd shall be made by the Bureau, taking into account the information referred to above. Stations of the mobile service in the frequency band 3 500-3 600 MHz shall not claim more protection from space stations than that provided in Table **21-4** of the Radio Regulations (Edition of 2004). (WRC-23)
5.433B	In Angola, Botswana, Guinea, Lesotho, Malawi and South Sudan, the frequency band 3 600-3 700 MHz is identified for International Mobile Telecommunications (IMT). This identification does not preclude the use of the frequency band by any application of the services to which it is allocated and does not establish priority in the Radio Regulations. The conditions of No. **5.434A** shall apply. (WRC-23)
5.434	In Region 2, the frequency band 3 600-3 700 MHz is identified for use by administrations wishing to implement International Mobile Telecommunications (IMT). This identification does not preclude the use of this frequency band by any application of the services to which it is allocated and does not establish priority in the Radio Regulations. Administrations wishing to implement IMT shall obtain the agreement of neighbouring countries to ensure the protection of the fixed-satellite service (space-to-Earth). (WRC-23)
5.434A	The use of the frequency band 3 600-3 800 MHz by the mobile, except aeronautical mobile, service on a primary basis in Region 1 is subject to agreement obtained under No. **9.21** if the power flux-density (pfd) limit below is exceeded. The provisions of Nos. **9.17** and **9.18** shall also apply in the coordination phase. Before an administration in Region 1 brings into use a station in the mobile service in the frequency band 3 600-3 800 MHz, for the protection of stations in the fixed and fixed-satellite services, it shall ensure that the pfd produced at 3 m above ground does not exceed −154.5 dB (W/(m2 . 4 kHz)) for more than 20% of the time at the border of the territory of any other administration. Stations in the mobile service operating in the frequency band 3 600-3 800 MHz shall not claim more protection from space stations than that provided in Table **21-4** of the Radio Regulations. (WRC-23)
5.434B	In Algeria, Saudi Arabia, Azerbaijan, Bahrain, Belarus, Benin, Burkina Faso, Burundi, Cameroon, Central African Rep., Comoros, Congo (Rep. of the), Côte d'Ivoire, Djibouti,

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	Egypt, United Arab Emirates, Eswatini, Gabon, Gambia, Ghana, Guinea, Iraq, Jordan, Kazakhstan, Kenya, Kuwait, Lebanon, Liberia, Libya, Madagascar, Mali, Morocco, Mauritius, Mauritania, Mozambique, Namibia, Niger, Nigeria, Oman, Uganda, Uzbekistan, Palestine*, Qatar, the Syrian Arab Republic, the Dem. Rep. of the Congo, Rwanda, Sao Tome and Principe, Senegal, Sierra Leone, Somalia, Sudan, South Africa, Tanzania, Chad, Togo, Tunisia, Yemen, Zambia and Zimbabwe, the frequency band 3 600-3 800 MHz is identified for International Mobile Telecommunications (IMT). This identification does not preclude the use of the frequency band by any application of the services to which it is allocated and does not establish priority in the Radio Regulations. The conditions of No. **5.434A** shall apply. (WRC-23)
5.435	In Japan, in the band 3 620-3 700 MHz, the radiolocation service is excluded.
5.435A	*Different category of service:* In Angola, Botswana, Guinea, Lesotho, Malawi and South Sudan, the frequency band 3 700-3 800 MHz is allocated to the mobile service on a secondary basis. (WRC-23)
5.435B	In the Bahamas, Belize, Brazil, Canada, Colombia, Costa Rica, United States, Guatemala, the French overseas departments and communities in Region 2, Greenland, the overseas countries and territories within the Kingdom of the Netherlands in Region 2, Paraguay, Peru, Trinidad and Tobago and Uruguay, the frequency band 3 700-3 800 MHz is identified for use by any of these administrations wishing to implement International Mobile Telecommunications (IMT). This identification does not preclude the use of this frequency band by any application of the services to which it is allocated and does not establish priority in the Radio Regulations. Administrations wishing to implement IMT shall obtain the agreement of neighbouring countries to ensure the protection of the fixed-satellite service (space-to-Earth). (WRC-23)
5.436	Use of the frequency band 4 200-4 400 MHz by stations in the aeronautical mobile (R) service is reserved exclusively for wireless avionics intra-communication systems that operate in accordance with recognized international aeronautical standards. Such use shall be in accordance with Resolution **424 (Rev.WRC-23)**. (WRC-23)
5.437	Passive sensing in the Earth exploration-satellite and space research services may be authorized in the frequency band 4 200-4 400 MHz on a secondary basis. (WRC-15)
5.438	Use of the frequency band 4 200-4 400 MHz by the aeronautical radionavigation service is reserved exclusively for radio altimeters installed on board aircraft and for the associated transponders on the ground. (WRC-15)
5.439	*Additional allocation:* in Iran (Islamic Republic of), the band 4 200-4 400 MHz is also allocated to the fixed service on a secondary basis. (WRC-12)
5.440	The standard frequency and time signal-satellite service may be authorized to use the frequency 4 202 MHz for space- to-Earth transmissions and the frequency 6 427 MHz for Earth-to-space transmissions. Such transmissions shall be confined within the limits of ± 2 MHz of these frequencies, subject to agreement obtained under No. **9.21**.
5.440A	In Region 2 (except Brazil, Cuba, French overseas departments and communities, Guatemala, Paraguay, Uruguay and Venezuela), and in Australia, the band 4 400-4 940 MHz may be used for aeronautical mobile telemetry for flight testing by aircraft stations (see No. **1.83**). Such use shall be in accordance with Resolution **416 (WRC-07)** and shall not cause harmful interference to, nor claim protection from, the fixed-satellite and fixed services. Any such use does not preclude the use of these bands by other mobile service applications or by other services to which these bands are allocated on a co-primary basis and does not establish priority in the Radio Regulations. (WRC-07)
5.441	The use of the bands 4 500-4 800 MHz (space-to-Earth), 6 725-7 025 MHz (Earth-to-space) by the fixed-satellite service shall be in accordance with the provisions of Appendix **30B**. The use of the bands 10.7-10.95 GHz (space-to-Earth), 11.2- 11.45 GHz (space-to-Earth) and 12.75-13.25 GHz (Earth-to-space) by geostationary-satellite systems in the fixed- satellite service shall be in accordance with the provisions of Appendix **30B**. The use of the bands 10.7-10.95 GHz (space- to-Earth), 11.2-11.45 GHz

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	(space-to-Earth) and 12.75-13.25 GHz (Earth-to-space) by a non-geostationary-satellite system in the fixed-satellite service is subject to application of the provisions of No. **9.12** for coordination with other non-geostationary-satellite systems in the fixed-satellite service. Non-geostationary-satellite systems in the fixed- satellite service shall not claim protection from geostationary-satellite networks in the fixed-satellite service operating in accordance with the Radio Regulations, irrespective of the dates of receipt by the Bureau of the complete coordination or notification information, as appropriate, for the non-geostationary-satellite systems in the fixed- satellite service and of the complete coordination or notification information, as appropriate, for the geostationary- satellite networks, and No. **5.43A** does not apply. Non-geostationary-satellite systems in the fixed-satellite service in the above bands shall be operated in such a way that any unacceptable interference that may occur during their operation shall be rapidly eliminated. (WRC-2000)
5.441A	In Brazil, Paraguay and Uruguay, the frequency band 4 800-4 900 MHz, or portions thereof, is identified for the implementation of International Mobile Telecommunications (IMT). This identification does not preclude the use of this frequency band by any application of the services to which it is allocated and does not establish priority in the Radio Regulations. The use of this frequency band for the implementation of IMT is subject to agreement obtained with neighbouring countries, and IMT stations shall not claim protection from stations of other applications of the mobile service. Such use shall be in accordance with Resolution **223 (Rev.WRC-19)**. (WRC-19)
5.441B	In Angola, Argentina, Armenia, Azerbaijan, Benin, Botswana, Brazil, Burkina Faso, Burundi, Cabo Verde, Cambodia, Cameroon, Chile, China, Colombia, Congo (Rep. of the), Côte d'Ivoire, Djibouti, Eswatini, Russian Federation, Gabon, Ghana, Guinea, Iran (Islamic Republic of), Iraq, Kazakhstan, Lao P.D.R., Lesotho, Liberia, Madagascar, Malawi, Mali, Mongolia, Namibia, Niger, Uganda, Uzbekistan, the Dem. Rep. of the Congo, Kyrgyzstan, the Dem. People's Rep. of Korea, South Sudan, South Africa, Chad, Togo, Viet Nam, Zambia and Zimbabwe, the frequency band 4 800-4 990 MHz, or portions thereof, is identified for use by administrations wishing to implement International Mobile Telecommunications (IMT). This identification does not preclude the use of this frequency band by any application of the services to which it is allocated and does not establish priority in the Radio Regulations. The use of IMT stations is subject to agreement obtained under No. **9.21** with concerned administrations, and IMT stations shall not claim protection from stations of other applications of the mobile service. In addition, before an administration brings into use an IMT station in the mobile service, it shall ensure that the power flux-density (pfd) produced by this station does not exceed −155 dB(W/(m2 · 1 MHz)) produced up to 19 km above sea level at 20 km from the coast, defined as the low-water mark, as officially recognized by the coastal State. Resolution **223 (Rev.WRC-23)** applies. (WRC-23)
5.442	In the frequency bands 4 825-4 835 MHz and 4 950-4 990 MHz, the allocation to the mobile service is restricted to the mobile, except aeronautical mobile, service. In Region 2 (except Brazil, Cuba, Guatemala, Mexico, Paraguay, Uruguay, and Venezuela), and in Australia, the frequency band 4 825-4 835 MHz is also allocated to the aeronautical mobile service, limited to aeronautical mobile telemetry for flight testing by aircraft stations. Such use shall be in accordance with Resolution **416 (WRC-07)** and shall not cause harmful interference to the fixed service. (WRC-15)
5.443	Different category of service: in Argentina, Australia and Canada, the allocation of the bands 4 825-4 835 MHz and 4 950-4 990 MHz to the radio astronomy service is on a primary basis (see No. 5.33).
5.443A	SUP (WRC-0 3)
5.443AA	In the frequency bands 5 000-5 030 MHz and 5 091-5 150 MHz, the aeronautical mobile-satellite (R) service is subject to agreement obtained under No. 9.21. The use of these

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	bands by the aeronautical mobile-satellite (R) service is limited to internationally standardized aeronautical systems. (WRC-12)
5.443B	In order not to cause harmful interference to the microwave landing system operating above 5 030 MHz, the aggregate power flux-density produced at the Earth's surface in the frequency band 5 030-5 150 MHz by all the space stations within any radionavigation-satellite service system (space-to-Earth) operating in the frequency band 5 010-5 030 MHz shall not exceed -124.5 dB(W/m2) in a 150 kHz band. In order not to cause harmful interference to the radio astronomy service in the frequency band 4 990-5 000 MHz, radionavigation-satellite service systems operating in the frequency band 5 010-5 030 MHz shall comply with the limits in the frequency band 4 990-5 000 MHz defined in Resolution **741 (Rev.WRC-15)**. (WRC-15)
5.443C	The use of the frequency band 5 030-5 091 MHz by the aeronautical mobile (R) service is limited to internationally standardized aeronautical systems. Unwanted emissions from the aeronautical mobile (R) service in the frequency band 5 030-5 091 MHz shall be limited to protect RNSS system downlinks in the adjacent 5 010-5 030 MHz band. Until such time that an appropriate value is established in a relevant ITU-R Recommendation, the e.i.r.p. density limit of −75 dBW/MHz in the frequency band 5 010-5 030 MHz for any AM(R)S station unwanted emission should be used. (WRC-12)
5.443D	In the frequency band 5 030-5 091 MHz, the aeronautical mobile-satellite (R) service is subject to coordination under No. **9.11A**. The use of this frequency band by the aeronautical mobile-satellite (R) service is limited to internationally standardized aeronautical systems. (WRC-12)
5.444	The frequency band 5 030-5 150 MHz is to be used for the operation of the international standard system (microwave landing system) for precision approach and landing. In the frequency band 5 030-5 091 MHz, the requirements of this system shall have priority over other uses of this frequency band. For the use of the frequency band 5 091-5 150 MHz, No. **5.444A** and Resolution **114 (Rev.WRC-15)** apply. (WRC-15)
5.444A	The use of the allocation to the fixed-satellite service (Earth-to-space) in the frequency band 5 091-5 150 MHz is limited to feeder links of non-geostationary satellite systems in the mobile-satellite service and is subject to coordination under No. **9.11A**. The use of the frequency band 5 091-5 150 MHz by feeder links of non-geostationary satellite systems in the mobile-satellite service shall be subject to application of Resolution **114 (Rev.WRC-15)**. Moreover, to ensure that the aeronautical radionavigation service is protected from harmful interference, coordination is required for feeder-link earth stations of the non-geostationary satellite systems in the mobile-satellite service which are separated by less than 450 km from the territory of an administration operating ground stations in the aeronautical radionavigation service. (WRC-15)
5.444B	The use of the frequency band 5 091-5 150 MHz by the aeronautical mobile service is limited to: – systems operating in the aeronautical mobile (R) service and in accordance with international aeronautical standards, limited to surface applications at airports. Such use shall be in accordance with Resolution **748 (Rev.WRC-19)**; – aeronautical telemetry transmissions from aircraft stations (see No. **1.83**) in accordance with Resolution **418 (Rev.WRC-19)**. (WRC-19)
5.445	Not used.
5.446	*Additional allocation:* in the countries listed in No. **5.369**, the frequency band 5 150-5 216 MHz is also allocated to the radiodetermination-satellite service (space-to-Earth) on a primary basis, subject to agreement obtained under No. **9.21**. In Region 2 (except in Mexico), the frequency band is also allocated to the radiodetermination-satellite service (space- to-Earth) on a primary basis. In Regions 1 and 3, except those countries listed in No. **5.369** and Bangladesh, the frequency band is also allocated to the radiodetermination-satellite service (space-to-Earth) on a secondary basis. The use by the radiodetermination-satellite service is limited to feeder links in conjunction with the radiodetermination-satellite service operating in the frequency bands 1 610-1 626.5

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	MHz and/or 2 483.5-2 500 MHz. The total power flux-density at the Earth's surface shall in no case exceed -159 dB(W/m2) in any 4 kHz band for all angles of arrival. (WRC-15)
5.446A	The use of the frequency bands 5 150-5 350 MHz and 5 470-5 725 MHz by the stations in the mobile, except aeronautical mobile, service shall be in accordance with Resolution **229 (Rev.WRC-23)**. (WRC-23)
5.446B	In the band 5 150-5 250 MHz, stations in the mobile service shall not claim protection from earth stations in the fixed- satellite service. No. **5.43A** does not apply to the mobile service with respect to fixed-satellite service earth stations. (WRC-03)
5.446C	Additional allocation: in Region 1 (except in Algeria, Saudi Arabia, Bahrain, Egypt, United Arab Emirates, Iraq, Jordan, Kuwait, Lebanon, Morocco, Oman, Qatar, Syrian Arab Republic, Sudan, South Sudan and Tunisia), the frequency band 5 150-5 250 MHz is also allocated to the aeronautical mobile service on a primary basis, limited to aeronautical telemetry transmissions from aircraft stations (see No. 1.83), in accordance with Resolution 418 (Rev.WRC-19). These stations shall not claim protection from other stations operating in accordance with Article 5. No. 5.43A does not apply. (WRC-19)
5.446D	Additional allocation: in Brazil, the band 5 150-5 250 MHz is also allocated to the aeronautical mobile service on a primary basis, limited to aeronautical telemetry transmissions from aircraft stations (see No. 1.83), in accordance with Resolution 418 (Rev.WRC-19). (WRC-19)
5.447	Additional allocation: in Côte d'Ivoire, Egypt, Lebanon, the Syrian Arab Republic and Tunisia, the frequency band 5 150-5 250 MHz is also allocated to the mobile service, on a primary basis, subject to agreement obtained under No. 9.21. In this case, the provisions of Resolution 229 (Rev.WRC-23) do not apply. (WRC-23)
5.447A	The allocation to the fixed-satellite service (Earth-to-space) in the band 5 150-5 250 MHz is limited to feeder links of non-geostationary-satellite systems in the mobile-satellite service and is subject to coordination under No. **9.11A**.
5.447B	*Additional allocation*: the band 5 150-5 216 MHz is also allocated to the fixed-satellite service (space-to-Earth) on a primary basis. This allocation is limited to feeder links of non-geostationary-satellite systems in the mobile-satellite service and is subject to provisions of No. **9.11A**. The power flux-density at the Earth's surface produced by space stations of the fixed-satellite service operating in the space-to-Earth direction in the band 5 150-5 216 MHz shall in no case exceed –164 dB(W/m2) in any 4 kHz band for all angles of arrival.
5.447C	Administrations responsible for fixed-satellite service networks in the band 5 150-5 250 MHz operated under Nos. **5.447A** and **5.447B** shall coordinate on an equal basis in accordance with No. **9.11A** with administrations responsible for non-geostationary-satellite networks operated under No. **5.446** and brought into use prior to 17 November 1995. Satellite networks operated under No. **5.446** brought into use after 17 November 1995 shall not claim protection from, and shall not cause harmful interference to, stations of the fixed-satellite service operated under Nos. **5.447A** and **5.447B**.
5.447D	The allocation of the band 5 250-5 255 MHz to the space research service on a primary basis is limited to active spaceborne sensors. Other uses of the band by the space research service are on a secondary basis. (WRC-97)
5.447E	Additional allocation: The frequency band 5 250-5 350 MHz is also allocated to the fixed service on a primary basis in the following countries in Region 3: Australia, Korea (Rep. of), India, Indonesia, Iran (Islamic Republic of), Japan, Malaysia, Papua New Guinea, the Philippines, Dem. People's Rep. of Korea, Sri Lanka, Thailand and Viet Nam. The use of this frequency band by the fixed service is intended for the implementation of fixed wireless access systems and shall comply with Recommendation ITU-R F.1613-0. In addition, the fixed service shall not claim protection from the radiodetermination, Earth exploration-satellite (active) and space research (active) services, but the provisions of No. 5.43A do not apply to the fixed

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	service with respect to the Earth exploration-satellite (active) and space research (active) services. After implementation of fixed wireless access systems in the fixed service with protection for the existing radiodetermination systems, no more stringent constraints should be imposed on the fixed wireless access systems by future radiodetermination implementations. (WRC-15)
5.447F	In the frequency band 5 250-5 350 MHz, stations in the mobile service shall not claim protection from the radiolocation service, the Earth exploration-satellite service (active) and the space research service (active). The radiolocation service, the Earth exploration-satellite service (active) and the space research service (active) shall not impose more stringent conditions upon the mobile service than those stipulated in Resolution **229 (Rev.WRC-23)**. (WRC-23)
5.448	Additional allocation: in Kyrgyzstan, Romania and Turkmenistan, the frequency band 5 250-5 350 MHz is also allocated to the radionavigation service on a primary basis. (WRC-19)
5.448A	The Earth exploration-satellite (active) and space research (active) services in the frequency band 5 250-5 350 MHz shall not claim protection from the radiolocation service. **No. 5.43A** does not apply. (WRC-03)
5.448B	The Earth exploration-satellite service (active) operating in the band 5 350-5 570 MHz and space research service (active) operating in the band 5 460-5 570 MHz shall not cause harmful interference to the aeronautical radionavigation service in the band 5 350-5 460 MHz, the radionavigation service in the band 5 460-5 470 MHz and the maritime radionavigation service in the band 5 470-5 570 MHz. (WRC-03)
5.448C	The space research service (active) operating in the band 5 350-5 460 MHz shall not cause harmful interference to nor claim protection from other services to which this band is allocated. (WRC-03
5.448D	In the frequency band 5 350-5 470 MHz, stations in the radiolocation service shall not cause harmful interference to, nor claim protection from, radar systems in the aeronautical radionavigation service operating in accordance with No. **5.449.** (WRC-03)
5.449	The use of the band 5 350-5 470 MHz by the aeronautical radionavigation service is limited to airborne radars and associated airborne beacons.
5.450	*Additional allocation:* in Austria, Azerbaijan, Iran (Islamic Republic of), Kyrgyzstan, Romania, Turkmenistan and Ukraine, the band 5 470-5 650 MHz is also allocated to the aeronautical radionavigation service on a primary basis. (WRC-12)
5.450A	In the frequency band 5 470-5 725 MHz, stations in the mobile service shall not claim protection from radiodetermination services. The radiodetermination services shall not impose more stringent conditions upon the mobile service than those stipulated in Resolution **229 (Rev.WRC-23)**. (WRC-23)
5.450B	In the frequency band 5 470-5 650 MHz, stations in the radiolocation service, except ground-based radars used for meteorological purposes in the band 5 600-5 650 MHz, shall not cause harmful interference to, nor claim protection from, radar systems in the maritime radionavigation service. (WRC-03)
5.451	Additional allocation: in the United Kingdom, the band 5470-5 850 MHz is also allocated to the land mobile service on a secondary basis. The power limits specified in Nos. **21.2, 21.3, 21.4** and **21.5** shall apply in the band 5 725-5 850 MHz.
5.452	Between 5 600 MHz and 5 650 MHz, ground-based radars used for meteorological purposes are authorized to operate on a basis of equality with stations of the maritime radionavigation service.
5.453	*Additional allocation:* in Saudi Arabia, Bahrain, Bangladesh, Brunei Darussalam, Cameroon, China, Congo (Rep. of the), Korea (Rep. of), Côte d'Ivoire, Djibouti, Egypt, the United Arab Emirates, Eswatini, Gabon, Guinea, Equatorial Guinea, India, Indonesia, Iran (Islamic Republic of), Iraq, Japan, Jordan, Kenya, Kuwait, Lebanon, Libya, Madagascar, Malaysia, Niger, Nigeria, Oman, Uganda, Pakistan, the Philippines, Qatar, the Syrian Arab Republic, the Dem. People's Rep. of Korea, Singapore, Somalia,

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	Sri Lanka, Tanzania, Chad, Thailand, Togo, Viet Nam and Yemen, the frequency band 5 650-5 850 MHz is also allocated to the fixed and mobile services on a primary basis. In this case, the provisions of Resolution **229 (Rev.WRC-23)** do not apply. In addition, in Afghanistan, Angola, Benin, Bhutan, Botswana, Burkina Faso, Burundi, Dem. Rep. of the Congo, Fiji, Ghana, Kiribati, Lesotho, Malawi, Maldives, Mauritius, Micronesia, Mongolia, Mozambique, Myanmar, Namibia, Nauru, New Zealand, Papua New Guinea, Rwanda, Solomon Islands, South Sudan, South Africa, Tonga, Vanuatu, Zambia and Zimbabwe, the frequency band 5 725-5 850 MHz is allocated to the fixed service on a primary basis, and stations operating in the fixed service shall not cause harmful interference to and shall not claim protection from other primary services in the frequency band. (WRC-23)
5.454	*Different category of service:* in Azerbaijan, the Russian Federation, Georgia, Kyrgyzstan, Tajikistan and Turkmenistan, the allocation of the band 5 670-5 725 MHz to the space research service is on a primary basis (see No. **5.33**). (WRC-12)
5.455	*Additional allocation:* in Armenia, Azerbaijan, Belarus, Cuba, the Russian Federation, Georgia, Hungary, Kazakhstan, Moldova, Uzbekistan, Kyrgyzstan, Romania, Tajikistan, Turkmenistan and Ukraine, the frequency band 5 670-5 850 MHz is also allocated to the fixed service on a primary basis. (WRC-19)
5.456	SUP (WRC-15)
5.457	In Australia, Burkina Faso, Cote d'Ivoire, Mali and Nigeria, the allocation to the fixed service in the bands 6 440-6 520 MHz (HAPS-to-ground direction) and 6 560-6 640 MHz (ground-to- HAPS direction) may also be used by gateway links for high-altitude platform stations (HAPS) within the territory of these countries. Such use is limited to operation in HAPS gateway links and shall not cause harmful interference to, and shall not claim protection from, existing services, and shall be in compliance with Resolution **150 (WRC-12)**. Existing services shall not be constrained in future development by HAPS gateway links. The use of HAPS gateway links in these bands requires explicit agreement with other administrations whose territories are located within 1 000 kilometres from the border of an administration intending to use the HAPS gateway links. (WRC-12)
5.457A	In the frequency bands 5 925-6 425 MHz and 14-14.5 GHz, earth stations located on board vessels may communicate with space stations of the fixed-satellite service. Such use shall be in accordance with Resolution **902 (Rev.WRC-23)**. In the frequency band 5 925-6 425 MHz, earth stations located on board vessels and communicating with space stations of the fixed-satellite service may employ transmit antennas with minimum diameter of 1.2 m and operate without prior agreement of any administration if located at least 330 km away from the low-water mark as officially recognized by the coastal State. All other provisions of Resolution **902 (Rev.WRC-23)** shall apply. (WRC-23)
5.457B	In the frequency bands 5 925-6 425 MHz and 14-14.5 GHz, earth stations located on board vessels may operate with the characteristics and under the conditions contained in Resolution **902 (Rev.WRC-23)** in Algeria, Saudi Arabia, Bahrain, Comoros, Djibouti, Egypt, United Arab Emirates, Jordan, Kuwait, Libya, Morocco, Mauritania, Oman, Qatar, the Syrian Arab Republic, Sudan, Tunisia and Yemen, in the maritime mobile-satellite service on a secondary basis. Such use shall be in accordance with Resolution **902 (Rev.WRC-23)**. (WRC-23)
5.457C	In Region 2 (except Brazil, Cuba, French overseas departments and communities, Guatemala, Mexico, Paraguay, Uruguay, and Venezuela), the frequency band 5 925-6 700 MHz may be used for aeronautical mobile telemetry for flight testing by aircraft stations (see No. **1.83**). Such use shall be in accordance with Resolution **416 (WRC-07)** and shall not cause harmful interference to, or claim protection from, the fixed-satellite and fixed services. Any such use does not preclude the use of this frequency band by other mobile service applications or by other services to which this frequency band is allocated on a co-primary basis and does not establish priority in the Radio Regulations. (WRC-15)

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5.457D	In Cambodia, Lao P.D.R. and the Maldives, the frequency band 6 425-7 025 MHz is identified for the terrestrial component of International Mobile Telecommunications (IMT). This identification does not preclude the use of this frequency band by any application of the services to which it is allocated and does not establish priority in the Radio Regulations. Resolution **220 (WRC-23)** applies. (WRC-23)
5.457E	The frequency bands 6 425-7 125 MHz in Region 1 and 7 025-7 125 MHz in Region 3 are identified for use by administrations wishing to implement the terrestrial component of International Mobile Telecommunications (IMT). This identification does not preclude the use of these frequency bands by any application of the services to which they are allocated and does not establish priority in the Radio Regulations. Resolution **220 (WRC-23)** applies. The frequency bands are also used for the implementation of wireless access systems (WAS), including radio local area networks (RLANs). (WRC-23)
5.457F	In Brazil and Mexico, the frequency band 6 425-7 125 MHz is identified for the terrestrial component of International Mobile Telecommunications (IMT). The use of this frequency band for the implementation of IMT is subject to seeking agreement under No. **9.21** with neighbouring countries. This identification does not preclude the use of this frequency band by any application of the services to which it is allocated and does not establish priority in the Radio Regulations. Resolution **220 (WRC-23)** applies. The frequency band is also used for the implementation of wireless access systems (WAS), including radio local area networks (RLANs). (WRC-23)
5.458	In the band 6 425-7 075 MHz, passive microwave sensor measurements are carried out over the oceans. In the band 7 075-7 250 MHz, passive microwave sensor measurements are carried out. Administrations should bear in mind the needs of the Earth exploration-satellite (passive) and space research (passive) services in their future planning of the bands 6 425-7 075 MHz and 7 075-7 250 MHz.
5.458A	In making assignments in the band 6 700-7 075 MHz to space stations of the fixed-satellite service, administrations are urged to take all practicable steps to protect spectral line observations of the radio astronomy service in the band 6 650- 6 675.2 MHz from harmful interference from unwanted emissions.
5.458B	The space-to-Earth allocation to the fixed-satellite service in the band 6 700-7 075 MHz is limited to feeder links for non- geostationary satellite systems of the mobile-satellite service and is subject to coordination under No. **9.11A**. The use of the band 6 700-7 075 MHz (space-to-Earth) by feeder links for non-geostationary satellite systems in the mobile- satellite service is not subject to No. **22.2**.
5.458C	SUP (WRC-15)
5.459	*Additional allocation:* in the Russian Federation, the frequency bands 7 100-7 155 MHz and 7 190-7 235 MHz are also allocated to the space operation service (Earth-to-space) on a primary basis, subject to agreement obtained under **No.9.21**. In the frequency band 7 190-7 235 MHz, with respect to the Earth exploration satellite service (Earth-to-space), **No. 9.21** does not apply. (WRC-15)
5.460	No emissions from space research service (Earth-to-space) systems intended for deep space shall be effected in the frequency band 7 190-7 235 MHz. Geostationary satellites in the space research service operating in the frequency band 7 190-7 235 MHz shall not claim protection from existing and future stations of the fixed and mobile services and No. **5.43A** does not apply. (WRC-15)
5.460A	The use of the frequency band 7 190-7 250 MHz (Earth-to-space) by the Earth exploration-satellite service shall be limited to tracking, telemetry and command for the operation of spacecraft. Space stations operating in the Earth exploration-satellite service (Earth-to-space) in the frequency band 7 190-7 250 MHz shall not claim protection from existing and future stations in the fixed and mobile services, and No. **5.43A** does not apply. No. **9.17** applies. Additionally, to ensure protection of the existing and future deployment of fixed and mobile services, the location of earth stations supporting spacecraft in the Earth exploration-satellite service in non-geostationary

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	orbits or geostationary orbit shall maintain a separation distance of at least 10 km and 50 km, respectively, from the respective border(s) of neighbouring countries, unless a shorter distance is otherwise agreed between the corresponding administrations. (WRC-15)
5.460B	Space stations on the geostationary orbit operating in the Earth exploration-satellite service (Earth-to-space) in the frequency band 7 190-7 235 MHz shall not claim protection from existing and future stations of the space research service, and No. **5.43A** does not apply. (WRC-15)
5.461	*Additional allocation:* the frequency bands 7 250-7 375 MHz (space-to-Earth) and 7 900-8 025 MHz (Earth-to-space) are also allocated to the mobile-satellite service on a primary basis, subject to agreement obtained under No. **9.21**, with the exception that No. **9.21** shall not apply to the geostationary-satellite networks in the mobile-satellite service for which complete coordination information is received by the Bureau as of 1 January 2025 with respect to nongeostationary- satellite systems for which complete coordination or notification information, according to the case, is received by the Bureau as of 1 January 2025. Non-geostationary-satellite systems for which complete coordination or notification information, according to the case, is received by the Bureau as of 1 January 2025 shall not cause unacceptable interference to and shall not claim protection from geostationary- satellite networks in the mobile-satellite service operating in accordance with these Regulations. No. **5.43A** does not apply. (WRC-23)
5.461A	The use of the band 7 450-7 550 MHz by the meteorological-satellite service (space-to-Earth) is limited to geostationary- satellite systems. (WRC-23)
5.461AA	The use of the frequency band 7 375-7 750 MHz by the maritime mobile-satellite service is limited to geostationary- satellite networks. (WRC-15)
5.461AB	In the frequency band 7 375-7 750 MHz, earth stations in the maritime mobile-satellite service shall not claim protection from, nor constrain the use and development of, stations in the fixed and mobile, except aeronautical mobile, services. No. **5.43A** does not apply. (WRC-15)
5.461AC	In the frequency band 7 375-7 750 MHz, non-geostationary-satellite systems operating in the fixed-satellite service for which complete coordination or notification information, according to the case, is received by the Bureau as of 1 January 2025 shall not cause unacceptable interference to and shall not claim protection from geostationary-satellite networks in the maritime mobile-satellite service operating in accordance with these Regulations. No. **5.43A** does not apply. (WRC-23)
5.461B	The use of the band 7 750-7 900 MHz by the meteorological-satellite service (space-to-Earth) is limited to non- geostationary satellite systems. (WRC-12)
5.462	SUP (WRC-97)
5.462A	In Regions 1 and 3 (except for Japan), in the band 8 025-8 400 MHz, the Earth exploration-satellite service using geostationary satellites shall not produce a power flux-density in excess of the following provisional values for angles of arrival (θ), without the consent of the affected administration: -135 dB(W/m^2) in a 4 kHz band for $0^\circ \le \theta < 5^\circ$ $-135 + 0.5\,(\theta-5)$ dB(W/m^2) in a 4 kHz band for $5^\circ \le \theta < 25^\circ$ -125 dB(W/m^2) in a 1 MHz band for $25^\circ \le \theta \le 90^\circ$ (WRC-12)
5.463	Aircraft stations are not permitted to transmit in the band 8025-8 400 MHz. (WRC-97)
5.464	SUP (WRC-97)
5.465	In the space research service, the use of the band 8 400-8 450 MHz is limited to deep space.

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5.466	*Different category of service:* in Singapore and Sri Lanka, the allocation of the band 8 400-8 500 MHz to the space research service is on a secondary basis (see No. 5.32). (WRC-12)
5.467	SUP (WRC-03)
5.468	*Additional allocation:* in Saudi Arabia, Bahrain, Bangladesh, Brunei Darussalam, Burundi, Cameroon, China, Congo (Rep. of the), Djibouti, Egypt, the United Arab Emirates, Eswatini, Gabon, Guyana, Indonesia, Iran (Islamic Republic of), Iraq, Jamaica, Jordan, Kenya, Kuwait, Lebanon, Libya, Malaysia, Mali, Morocco, Mauritania, Nepal, Nigeria, Oman, Uganda, Pakistan, Qatar, Syrian Arab Republic, the Dem. People's Rep. of Korea, Senegal, Singapore, Somalia, Sudan, Chad, Togo, Tunisia and Yemen, the frequency band 8 500-8 750 MHz is also allocated to the fixed and mobile services on a primary basis. (WRC-19)
5.469	*Additional allocation:* in Armenia, Azerbaijan, Belarus, the Russian Federation, Georgia, Hungary, Lithuania, Uzbekistan, Poland, Kyrgyzstan, the Czech Rep., Romania, Tajikistan, Turkmenistan and Ukraine, the frequency band 8 500-8 750 MHz is also allocated to the land mobile and radionavigation services on a primary basis. (WRC-23)
5.469A	In the band 8 550-8 650 MHz, stations in the Earth exploration-satellite service (active) and space research service (active) shall not cause harmful interference to, or constrain the use and development of, stations of the radiolocation service. (WRC-97)
5.470	The use of the band 8 750-8 850 MHz by the aeronautical radionavigation service is limited to airborne Doppler navigation aids on a centre frequency of 8 800 MHz.
5.471	Additional allocation: in Algeria, Germany, Bahrain, Belgium, China, Egypt, the United Arab Emirates, France, Greece, Indonesia, Iran (Islamic Republic of), Libya, the Netherlands, Qatar and Sudan, the frequency bands 8 825-8 850 MHz and 9 000-9 200 MHz are also allocated to the maritime radionavigation service, on a primary basis, for use by shore- based radars only. (WRC-15)
5.472	In the bands 8 850-9 000 MHz and 9 200-9 225 MHz, the maritime radionavigation service is limited to shore-based radars.
5.473	*Additional allocation:* in Armenia, Austria, Azerbaijan, Belarus, Cuba, the Russian Federation, Georgia, Hungary, Mongolia, Uzbekistan, Poland, Kyrgyzstan, Romania, Tajikistan, Turkmenistan and Ukraine, the bands 8 850-9 000 MHz and 9 200-9 300 MHz are also allocated to the radionavigation service on a primary basis. (WRC-19)
5.473A	In the band 9 000-9 200 MHz, stations operating in the radiolocation service shall not cause harmful interference to, nor claim protection from, systems identified in No. **5.337** operating in the aeronautical radionavigation service, or radar systems in the maritime radionavigation service operating in this band on a primary basis in the countries listed in No. **5.471**. (WRC-07)
5.474	In the band 9 200-9 500 MHz, search and rescue transponders (SART) may be used, having due regard to the appropriate ITU-R Recommendation (see also Article **31**).
5.474A	The use of the frequency bands 9 200-9 300 MHz and 9 900-10 400 MHz by the Earth exploration-satellite service (active) is limited to systems requiring necessary bandwidth greater than 600 MHz that cannot be fully accommodated within the frequency band 9 300-9 900 MHz. Such use is subject to agreement to be obtained under No. **9.21** from Algeria, Saudi Arabia, Bahrain, Egypt, Indonesia, Iran (Islamic Republic of), Lebanon, and Tunisia. An administration that has not replied under No. 9.52 is considered as not having agreed to the coordination request. In this case, the notifying administration of the satellite system operating in the Earth exploration-satellite service (active) may request the assistance of the Bureau under Sub-Section IID of Article 9. (WRC-15)
5.474B	Stations operating in the Earth exploration-satellite (active) service shall comply with Recommendation ITU-R RS.2066- 0. (WRC-15)
5.474C	Stations operating in the Earth exploration-satellite (active) service shall comply with Recommendation ITU-R RS.2065- 0. (WRC-15)

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5.474D	Stations in the Earth exploration-satellite service (active) shall not cause harmful interference to, or claim protection from, stations of the maritime radionavigation and radiolocation services in the frequency band 9 200-9 300 MHz, the radionavigation and radiolocation services in the frequency band 9 900-10 000 MHz and the radiolocation service in the frequency band 10.0-10.4 GHz. (WRC-15)
5.475	The use of the band 9 300-9 500 MHz by the aeronautical radionavigation service is limited to airborne weather radars and ground-based radars. In addition, ground-based radar beacons in the aeronautical radionavigation service are permitted in the band 9 300-9 320 MHz on condition that harmful interference is not caused to the maritime radionavigation service. (WRC-07)
5.475A	The use of the band 9 300-9 500 MHz by the Earth exploration-satellite service (active) and the space research service (active) is limited to systems requiring necessary bandwidth greater than 300 MHz that cannot be fully accommodated within the 9 500-9 800 MHz band. (WRC-07)
5.475B	In the band 9 300-9 500 MHz, stations operating in the radiolocation service shall not cause harmful interference to, nor claim protection from, radars operating in the radionavigation service in conformity with the Radio Regulations. Ground-based radars used for meteorological purposes have priority over other radiolocation uses. (WRC-07)
5.476	SUP (WRC-07)
5.476A	In the band 9 300-9 800 MHz, stations in the Earth exploration-satellite service (active) and space research service (active) shall not cause harmful interference to, nor claim protection from, stations of the radionavigation and radiolocation services. (WRC-07)
5.477	*Different category of service:* in Algeria, Saudi Arabia, Bahrain, Bangladesh, Brunei Darussalam, Cameroon, Djibouti, Egypt, the United Arab Emirates, Eritrea, Ethiopia, Guyana, India, Indonesia, Iran (Islamic Republic of), Iraq, Jamaica, Japan, Jordan, Kuwait, Lebanon, Liberia, Malaysia, Nigeria, Oman, Uganda, Pakistan, Qatar, Syrian Arab Republic, the Dem. People's Rep. of Korea, Singapore, Somalia, Sudan, South Sudan, Trinidad and Tobago, and Yemen, the allocation of the frequency band 9 800-10 000 MHz to the fixed service is on a primary basis (see No. **5.33**). (WRC-15)
5.478	*Additional allocation:* in Azerbaijan, Kyrgyzstan, Romania, Turkmenistan and Ukraine, the frequency band 9 800-10 000 MHz is also allocated to the radionavigation service on a primary basis. (WRC-19)
5.478A	The use of the band 9 800-9 900 MHz by the Earth exploration-satellite service (active) and the space research service (active) is limited to systems requiring necessary bandwidth greater than 500 MHz that cannot be fully accommodated within the 9 300-9 800 MHz band. (WRC-07)
5.478B	In the band 9 800-9 900 MHz, stations in the Earth exploration-satellite service (active) and space research service (active) shall not cause harmful interference to, nor claim protection from stations of the fixed service to which this band is allocated on a secondary basis. (WRC-07)
5.479	The band 9 975-10 025 MHz is also allocated to the meteorological-satellite service on a secondary basis for use by weather radars.
5.480	*Additional allocation:* in Argentina, Brazil, Chile, Colombia, Costa Rica, Cuba, the Dominican Republic, El Salvador, Ecuador, Guatemala, Honduras, Jamaica, Mexico, Paraguay, the overseas countries and territories within the Kingdom of the Netherlands in Region 2, Peru, Suriname and Uruguay, the frequency band 10-10.45 GHz is also allocated to the fixed and mobile services on a primary basis. In Venezuela, the frequency band 10-10.45 GHz is also allocated to the fixed service on a primary basis. (WRC-23)
5.480A	In the following countries in Region 2: Brazil, Colombia, Costa Rica, Cuba, the Dominican Republic, Ecuador, Guatemala, Jamaica, Mexico, Paraguay, Peru and Uruguay, the frequency band 10-10.5 GHz is identified for the implementation of the terrestrial component of International Mobile Telecommunications (IMT). The implementation of this identification in Mexico is subject to seeking agreement with the

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	United States under No. 9.21. The use of the frequency band 10-10.5 GHz by IMT stations in the mobile service shall not claim protection from systems in the radiolocation service. This identification does not preclude the use of this frequency band by any application of the services to which it is allocated and does not establish priority in the Radio Regulations. Resolution 219 (WRC-23) applies. (WRC-23)
5.481	*Additional allocation*: in Algeria, Germany, Angola, Brazil, China, Colombia, Costa Rica, Côte d'Ivoire, Cuba, Djibouti, the Dominican Republic, Egypt, El Salvador, Ecuador, Spain, Guatemala, Hungary, Jamaica, Japan, Kenya, Morocco, Mexico, Nigeria, Oman, Uzbekistan, Pakistan, Palestine*, Paraguay, Peru, the Dem. People's Rep. of Korea, Romania, Somalia, Suriname, Tunisia and Uruguay, the frequency band 10.45-10.5 GHz is also allocated to the fixed and mobile services on a primary basis. (WRC-23)
5.482	In the band 10.6-10.68 GHz, the power delivered to the antenna of stations of the fixed and mobile, except aeronautical mobile, services shall not exceed −3 dBW. This limit may be exceeded, subject to agreement obtained under No. **9.21**. However, in Algeria, Saudi Arabia, Armenia, Azerbaijan, Bahrain, Bangladesh, Belarus, Egypt, United Arab Emirates, Georgia, India, Indonesia, Iran (Islamic Republic of), Iraq, Jordan, Libyan Arab Jamahiriya, Kazakhstan, Kuwait, Lebanon, Morocco, Mauritania, Moldova, Nigeria, Oman, Uzbekistan, Pakistan, Philippines, Qatar, Syrian Arab Republic, Kyrgyzstan, Singapore, Tajikistan, Tunisia, Turkmenistan and Viet Nam, this restriction on the fixed and mobile, except aeronautical mobile, service is not applicable. (WRC-07)
5.482A	For sharing of the band 10.6-10.68 GHz between the Earth exploration-satellite (passive) service and the fixed and mobile, except aeronautical mobile, services, Resolution 751 (WRC-07) applies. (WRC-07)
5.483	*Additional allocation:* in Saudi Arabia, Armenia, Azerbaijan, Bahrain, Belarus, China, Colombia, Korea (Rep. of), Egypt, the United Arab Emirates, Georgia, Iran (Islamic Republic of) Iraq, Israel, Jordan, Kazakhstan, Kuwait, Lebanon, Mongolia, Qatar, Kyrgyzstan, the Dem People's Rep. of Korea, Tajikistan, Turkmenistan and Yemen, the frequency band 10.68-10.7 GHz is also allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis. Such use is limited to equipment in operation by 1 January 1985. (WRC-19)
5.484	In Region 1, the use of the band 10.7-11.7 GHz by the fixed-satellite service (Earth-to-space) is limited to feeder links for the broadcasting-satellite service.
5.484A	The use of the frequency bands 10.95-11.2 GHz (space-to-Earth), 11.45-11.7 GHz (space-to-Earth), 11.7- 12.2 GHz (space-to-Earth) in Region 2, 12.2-12.75 GHz (space-to-Earth) in Region 3, 12.5-12.75 GHz (space-to-Earth) in Region 1, 13.75-14.5 GHz (Earth-to-space), 17.3-17.7 GHz (space-to-Earth) in Region 2, 17.8-18.6 GHz (space-to- Earth), 19.7-20.2 GHz (space-to-Earth), 27.5-28.6 GHz (Earth-to-space), 29.5-30 GHz (Earth-to-space) by a nongeostationary- satellite system in the fixed-satellite service is subject to application of the provisions of No. **9.12** for coordination with other non-geostationary-satellite systems in the fixed-satellite service. Non-geostationary-satellites systems in the fixed-satellite service shall not claim protection from geostationary-satellite networks in the fixed-satellite service operating in accordance with the Radio Regulations, irrespective of the dates of receipt by the Bureau of the complete coordination or notification information, as appropriate, for the non-geostationary-satellite systems in the fixed satellite service and of the complete coordination or notification information, as appropriate, for the geostationary-satellite networks, and No. **5.43A** does not apply. Non-geostationary-satellite systems in the fixed-satellite service in the above bands shall be operated in such a way that any unacceptable interference that may occur during their operation shall be rapidly eliminated. In Region 2, No. **22.2** shall continue to apply in the frequency band 17.3-17.7 GHz. (WRC-23)
5.484B	Resolution **155 (WRC-15)** shall apply. (WRC-15)

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	* Note by the Secretariat: This Resolution was revised by WRC-19
5.485	In Region 2, in the band 11.7-12.2 GHz, transponders on space stations in the fixed-satellite service may be used additionally for transmissions in the broadcasting-satellite service, provided that such transmissions do not have a maximum e.i.r.p. greater than 53 dBW per television channel and do not cause greater interference or require more protection from interference than the coordinated fixed-satellite service frequency assignments. With respect to the space services, this band shall be used principally for the fixed-satellite service.
5.486	*Different category of service:* in the United States, the allocation of the frequency band 11.7-12.1 GHz to the fixed service is on a secondary basis (see No. 5.32). (WRC-15)
5.487	In the band 11.7-12.5 GHz in Regions 1 and 3, the fixed, fixed-satellite, mobile, except aeronautical mobile, and broadcasting services, in accordance with their respective allocations, shall not cause harmful interference to, or claim protection from, broadcasting-satellite stations operating in accordance with the Regions 1 and 3 Plan in Appendix **30**. (WRC-03)
5.487A	*Additional allocation:* in Region 1, the band 11.7-12.5 GHz, in Region 2, the band 12.2-12.7 GHz and, in Region 3, the band 11.7-12.2 GHz, are also allocated to the fixed-satellite service (space-to-Earth) on a primary basis, limited to non- geostationary systems and subject to application of the provisions of No. **9.12** for coordination with other non- geostationary-satellite systems in the fixed-satellite service. Non-geostationary-satellite systems in the fixed-satellite service shall not claim protection from geostationary-satellite networks in the broadcasting-satellite service operating in accordance with the Radio Regulations, irrespective of the dates of receipt by the Bureau of the complete coordination or notification information, as appropriate, for the non-geostationary-satellite systems in the fixed- satellite service and of the complete coordination or notification information, as appropriate, for the geostationary- satellite networks, and No. **5.43A** does not apply. Non-geostationary-satellite systems in the fixed-satellite service in the above bands shall be operated in such a way that any unacceptable interference that may occur during their operation shall be rapidly eliminated. (WRC-03)
5.488	The use of the band 11.7-12.2 GHz by geostationary-satellite networks in the fixed-satellite service in Region 2 is subject to application of the provisions of No. **9.14** for coordination with stations of terrestrial services in Regions 1, 2 and 3. For the use of the band 12.2-12.7 GHz by the broadcasting-satellite service in Region 2, see Appendix **30**. (WRC-03)
5.489	*Additional allocation:* in Peru, the band 12.1-12.2 GHz is also allocated to the fixed service on a primary basis.
5.490	In Region 2, in the band 12.2-12.7 GHz, existing and future terrestrial radiocommunication services shall not cause harmful interference to the space services operating in conformity with the broadcasting-satellite Plan for Region 2 contained in Appendix **30**.
5.491	SUP (WRC-03)
5.492	Assignments to stations of the broadcasting-satellite service which are in conformity with the appropriate regional Plan or included in the Regions 1 and 3 List in Appendix **30** may also be used for transmissions in the fixed-satellite service (space-to-Earth), provided that such transmissions do not cause more interference, or require more protection from interference, than the broadcasting-satellite service transmissions operating in conformity with the Plan or the List, as appropriate. (WRC-2000)
5.493	The broadcasting-satellite service in the band 12.5-12.75 GHz in Region 3 is limited to a power flux-density not exceeding –111 dB (W/(m^2 . 27 MHz)) for all conditions and for all methods of modulation at the edge of the service area. (WRC-97)
5.494	*Additional allocation:* in Algeria, Saudi Arabia, Bahrain, Cameroon, the Central African Rep., Congo (Rep. of the), Côte d'Ivoire, Djibouti, Egypt, the United Arab Emirates, Eritrea, Ethiopia, Gabon, Ghana, Guinea, Iraq, Israel, Jordan, Kuwait,

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	Lebanon, Libya, Madagascar, Mali, Morocco, Mongolia, Nigeria, Oman, Palestine*, Qatar, the Syrian Arab Republic, the Dem. Rep. of the Congo, Somalia, Sudan, South Sudan, Chad, Togo and Yemen, the frequency band 12.5-12.75 GHz is also allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis. (WRC-23)
5.495	*Additional allocation:* in Greece, Monaco, Montenegro, Uganda and Tunisia, the frequency band 12.5-12.75 GHz is also allocated to the fixed and mobile, except aeronautical mobile, services on a secondary basis. (WRC-19)
5.496	*Additional allocation:* in Austria, Azerbaijan, Kyrgyzstan and Turkmenistan, the band 12.5-12.75 GHz is also allocated to the fixed service and the mobile, except aeronautical mobile, service on a primary basis. However, stations in these services shall not cause harmful interference to fixed-satellite service earth stations of countries in Region 1 other than those listed in this footnote. Coordination of these earth stations is not required with stations of the fixed and mobile services of the countries listed in this footnote. The power flux-density limit at the Earth's surface given in Table **21-4** of Article **21**, for the fixed-satellite service shall apply on the territory of the countries listed in this footnote. (WRC-2000)
5.496A	The frequency band 12.75-13.25 GHz (Earth-to-space) may be used by earth stations in motion, limited to earth stations on aircraft and vessels, communicating with geostationary space stations in the fixed-satellite service. Resolution **121 (WRC-23)** shall apply. (WRC-23)
5.497	The use of the band 13.25-13.4 GHz by the aeronautical radionavigation service is limited to Doppler navigation aids.
5.498	SUP (WRC-97)
5.498A	The Earth exploration-satellite (active) and space research (active) services operating in the band 13.25-13.4 GHz shall not cause harmful interference to, or constrain the use and development of, the aeronautical radionavigation service. (WRC-97)
5.499	*Additional allocation:* in Bangladesh, and India, the band 13.25-14 GHz is also allocated to the fixed service on a primary basis. In Pakistan, the band 13.25-13.75 GHz is allocated to the fixed service on a primary basis. (WRC 12)
5.499A	The use of the frequency band 13.4-13.65 GHz by the fixed-satellite service (space-to-Earth) is limited to geostationary- satellite systems and is subject to agreement obtained under No. **9.21** with respect to satellite systems operating in the space research service (space-to-space) to relay data from space stations in the geostationary-satellite orbit to associated space stations in non-geostationary satellite orbits for which advance publication information has been received by the Bureau by 27 November 2015. (WRC-15)
5.499B	Administrations shall not preclude the deployment and operation of transmitting earth stations in the standard frequency and time signal-satellite service (Earth-to-space) allocated on a secondary basis in the frequency band 13.4-13.65 GHz due to the primary allocation to FSS (space-to-Earth). (WRC-15)
5.499C	The allocation of the frequency band 13.4-13.65 GHz to the space research service on a primary basis is limited to: – satellite systems operating in the space research service (space-to-space) to relay data from space stations in the geostationary-satellite orbit to associated space stations in non-geostationary satellite orbits for which advance publication information has been received by the Bureau by 27 November 2015, – active spaceborne sensors, – satellite systems operating in the space research service (space-to-Earth) to relay data from space stations in the geostationary-satellite orbit to associated earth stations. Other uses of the frequency band by the space research service are on a secondary basis. (WRC-15)
5.499D	In the frequency band 13.4-13.65 GHz, satellite systems in the space research service

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	(space-to-Earth) and/or the space research service (space-to-space) shall not cause harmful interference to, nor claim protection from, stations in the fixed, mobile, radiolocation and Earth exploration-satellite (active) services. (WRC-15)
5.499E	In the frequency band 13.4-13.65 GHz, geostationary-satellite networks in the fixed-satellite service (space-to- Earth) shall not claim protection from space stations in the Earth exploration-satellite service (active) operating in accordance with these Regulations, and No. **5.43A** does not apply. The provisions of No. **22.2** do not apply to the Earth exploration- satellite service (active) with respect to the fixed-satellite service (space-to-Earth) in this frequency band. (WRC-15)
5.500	*Additional allocation:* in Algeria, Saudi Arabia, Bahrain, Brunei Darussalam, Cameroon, Djibouti, Egypt, the United Arab Emirates, Gabon, Indonesia, Iran (Islamic Republic of), Iraq, Israel, Jordan, Kuwait, Lebanon, Madagascar, Malaysia, Mali, Morocco, Mauritania, Niger, Nigeria, Oman, Qatar, the Syrian Arab Republic, Singapore, Somalia, Sudan, South Sudan, Chad and Tunisia, the frequency band 13.4-14 GHz is also allocated to the fixed and mobile services on a primary basis. In Pakistan, the frequency band 13.4-13.75 GHz is also allocated to the fixed and mobile services on a primary basis. (WRC-23)
5.501	*Additional allocation:* in Hungary, Japan, Kyrgyzstan, Romania and Turkmenistan, the frequency band 13.4-14 GHz is also allocated to the radionavigation service on a primary basis. (WRC-23)
5.501A	The allocation of the frequency band 13.65-13.75 GHz to the space research service on a primary basis is limited to active spaceborne sensors. Other uses of the frequency band by the space research service are on a secondary basis. (WRC-15)
5.501B	In the band 13.4-13.75 GHz, the Earth exploration-satellite (active) and space research (active) services shall not cause harmful interference to, or constrain the use and development of, the radiolocation service. (WRC-97)
5.502	In the band 13.75-14 GHz, an earth station of a geostationary fixed-satellite service network shall have a minimum antenna diameter of 1.2 m and an earth station of a non-geostationary fixed-satellite service system shall have a minimum antenna diameter of 4.5 m. In addition, the e.i.r.p., averaged over one second, radiated by a station in the radiolocation or radionavigation services shall not exceed 59 dBW for elevation angles above 2° and 65 dBW at lower angles. Before an administration brings into use an earth station in a geostationary-satellite network in the fixed- satellite service in this band with an antenna diameter smaller than 4.5 m, it shall ensure that the power flux-density produced by this earth station does not exceed: – –115 dB(W/(m^2 · 10 MHz)) for more than 1% of the time produced at 36 m above sea level at the low water mark, as officially recognized by the coastal State; – –115 dB(W/(m^2 · 10 MHz)) for more than 1% of the time produced 3 m above ground at the border of the territory of an administration deploying or planning to deploy land mobile radars in this band, unless prior agreement has been obtained. For earth stations within the fixed-satellite service having an antenna diameter greater than or equal to 4.5 m, the e.i.r.p. of any emission should be at least 68 dBW and should not exceed 85 dBW. (WRC-03)
5.503	In the band 13.75-14 GHz, geostationary space stations in the space research service for which information for advance publication has been received by the Bureau prior to 31 January 1992 shall operate on an equal basis with stations in the fixed-satellite service; after that date, new geostationary space stations in the space research service will operate on a secondary basis. Until those geostationary space stations in the space research service for which information for advance publication has been received by

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	the Bureau prior to 31 January 1992 cease to operate in this band: – in the band 13.77-13.78 GHz, the e.i.r.p. density of emissions from any earth station in the fixed-satellite service operating with a space station in geostationary-satellite orbit shall not exceed: i) 4.7*D* + 28 dB(W/40 kHz), where *D* is the fixed-satellite service earth station antenna diameter (m) for antenna diameters equal to or greater than 1.2 m and less than 4.5 m; ii) 49.2 + 20 log(*D*/4.5) dB(W/40 kHz), where *D* is the fixed-satellite service earth station antenna diameter (m) for antenna diameters equal to or greater than 4.5 m and less than 31.9 m; iii) 66.2 dB(W/40 kHz) for any fixed-satellite service earth station for antenna diameters (m) equal to or greater than 31.9 m; iv) 56.2 dB(W/4 kHz) for narrow-band (less than 40 kHz of necessary bandwidth) fixed-satellite service earth station emissions from any fixed-satellite service earth station having an antenna diameter of 4.5 m or greater; – the e.i.r.p. density of emissions from any earth station in the fixed-satellite service operating with a space station in non-geostationary-satellite orbit shall not exceed 51 dBW in the 6 MHz band from 13.772 to 13.778 GHz. Automatic power control may be used to increase the e.i.r.p. density in these frequency ranges to compensate for rain attenuation, to the extent that the power flux-density at the fixed-satellite service space station does not exceed the value resulting from use by an earth station of an e.i.r.p. meeting the above limits in clear-sky conditions. (WRC-03)
5.503A	SUP (WRC-03)
5.504	The use of the band 14-14.3 GHz by the radionavigation service shall be such as to provide sufficient protection to space stations of the fixed-satellite service.
5.504A	In the band 14-14.5 GHz, aircraft earth stations in the secondary aeronautical mobile-satellite service may also communicate with space stations in the fixed-satellite service. The provisions of Nos. **5.29**, **5.30** and **5.31** apply. (WRC-03)
5.504B	Aircraft earth stations operating in the aeronautical mobile-satellite service in the frequency band 14-14.5 GHz shall comply with the provisions of Annex 1, Part C of Recommendation ITU-R M.1643-0, with respect to any radio astronomy station performing observations in the 14.47-14.5 GHz frequency band located on the territory of Spain, France, India, Italy, the United Kingdom and South Africa. (WRC-15)
5.504C	In the frequency band 14-14.25 GHz, the power flux-density produced on the territory of the countries of Saudi Arabia, Bahrain, Botswana, Côte d'Ivoire, Egypt, Guinea, India, Iran (Islamic Republic of), Kuwait, Nigeria, Oman, the Syrian Arab Republic and Tunisia by any aircraft earth station in the aeronautical mobile-satellite service shall not exceed the limits given in Annex 1, Part B of Recommendation ITU-R M.1643-0, unless otherwise specifically agreed by the affected administration(s). The provisions of this footnote in no way derogate the obligations of the aeronautical mobile-satellite service to operate as a secondary service in accordance with No. **5.29**. (WRC-15)
5.505	*Additional allocation:* in Algeria, Saudi Arabia, Bahrain, Botswana, Brunei, Darussalam, Cameroon, China, Congo (Rep. of the), Korea (Rep. of), Djibouti, Egypt, the United Arab Emirates, Eswatini, Gabon, Guinea, India, Indonesia, Iran (Islamic Republic of), Iraq, Israel, Japan, Jordan, Kuwait, Lebanon, Malaysia, Mali, Morocco, Mauritania, Oman, the Philippines, Qatar, the Syrian Arab Republic, the Dem. People's Rep. of Korea, Singapore, Somalia, Sudan, South Sudan, Chad, Viet Nam and Yemen, the frequency band 14-14.3 GHz is also allocated to the fixed service on a primary basis. (WRC-19)

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5.506	The band 14-14.5 GHz may be used, within the fixed-satellite service (Earth-to-space), for feeder links for the broadcasting-satellite service, subject to coordination with other networks in the fixed-satellite service. Such use of feeder links is reserved for countries outside Europe.
5.506A	In the frequency band 14-14.5 GHz, ship earth stations with an equivalent isotropically radiated power (e.i.r.p.) greater than 21 dBW shall operate under the same conditions as earth stations located on board vessels, as provided in Resolution **902 (Rev.WRC-23)**. This footnote shall not apply to ship earth stations for which the complete Appendix **4** information has been received by the Bureau prior to 5 July 2003. (WRC-23)
5.506B	Earth stations located on board vessels communicating with space stations in the fixed-satellite service may operate in the frequency band 14-14.5 GHz without the need for prior agreement from Cyprus and Malta, within the minimum distance given in Resolution **902 (Rev.WRC-23)** from these countries. (WRC-23)
5.507	Not used.
5.508	*Additional allocation: in Germany, Italy, Libya, North Macedonia and the United Kingdom, the frequency band 14.25-14.3 GHz is also allocated to the fixed service on a primary basis. (WRC-23)*
5.508A	In the frequency band 14.25-14.3 GHz, the power flux-density produced on the territory of the countries of Saudi Arabia, Bahrain, Botswana, China, Côte d'Ivoire, Egypt, Guinea, India, Iran (Islamic Republic of), Italy, Kuwait, Nigeria, Oman, the Syrian Arab Republic, the United Kingdom and Tunisia by any aircraft earth station in the aeronautical mobile-satellite service shall not exceed the limits given in Annex 1, Part B of Recommendation ITU-R M.1643-0, unless otherwise specifically agreed by the affected administration(s). The provisions of this footnote in no way derogate the obligations of the aeronautical mobile-satellite service to operate as a secondary service in accordance with No. **5.29**. (WRC-23)
5.509	SUP (WRC-07)
5.509A	In the frequency band 14.3-14.5 GHz, the power flux-density produced on the territory of the countries of Saudi Arabia, Bahrain, Botswana, Cameroon, China, Côte d'Ivoire, Egypt, Gabon, Guinea, India, Iran (Islamic Republic of), Italy, Kuwait, Morocco, Nigeria, Oman, the Syrian Arab Republic, the United Kingdom, Sri Lanka, Tunisia and Viet Nam by any aircraft earth station in the aeronautical mobile-satellite service shall not exceed the limits given in Annex 1, Part B of Recommendation ITU-R M.1643-0, unless otherwise specifically agreed by the affected administration(s). The provisions of this footnote in no way derogate the obligations of the aeronautical mobile-satellite service to operate as a secondary service in accordance with No. **5.29**. (WRC-23)
5.509B	The use of the frequency bands 14.5-14.75 GHz in countries listed in Resolution **163 (WRC-15)** and 14.5-14.8 GHz in countries listed in Resolution **164 (WRC-15)** by the fixed-satellite service (Earth-to-space) not for feeder links for the broadcasting-satellite service is limited to geostationary-satellites. (WRC-15)
5.509C	For the use of the frequency bands 14.5-14.75 GHz in countries listed in Resolution 163 (WRC-15) and 14.5-14.8 GHz in countries listed in Resolution 164 (WRC-15) by the fixed-satellite service (Earth-to-space) not for feeder links for the broadcasting-satellite service, the fixed-satellite service earth stations shall have a minimum antenna diameter of 6 m and a maximum power spectral density of -44.5 dBW/Hz at the input of the antenna. The earth stations shall be notified at known locations on land. (WRC-15)
5.509D	Before an administration brings into use an earth station in the fixed-satellite service (Earth-to-space) not for feeder links for the broadcasting-satellite service in the frequency bands 14.5-14.75 GHz (in countries listed in Resolution 163 (WRC-15)) and 14.5-14.8 GHz (in countries listed in Resolution 164 (WRC-15)), it shall ensure that the power flux-density produced by this earth station does not exceed -151.5 dB(W/(m2 · 4 kHz)) produced at all altitudes from 0 m to 19 000 m above sea level at 22 km seaward

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	from all coasts, defined as the low-water mark, as officially recognized by each coastal State. (WRC-15)
5.509E	In the frequency bands 14.50-14.75 GHz in countries listed in Resolution **163 (WRC-15)** and 14.50-14.8 GHz in countries listed in Resolution **164 (WRC-15)**, the location of earth stations in the fixed-satellite service (Earth-to-space) not for feeder links for the broadcasting-satellite service shall maintain a separation distance of at least 500 km from the border(s) of other countries unless shorter distances are explicitly agreed by those administrations. No. **9.17** does not apply. When applying this provision, administrations should consider the relevant parts of these Regulations and the latest relevant ITU-R Recommendations. (WRC-15)
5.509F	In the frequency bands 14.50-14.75 GHz in countries listed in Resolution 163 (WRC-15) and 14.50-14.8 GHz in countries listed in Resolution 164 (WRC-15), earth stations in the fixed-satellite service (Earth-to-space) not for feeder links for the broadcasting-satellite service shall not constrain the future deployment of the fixed and mobile services. (WRC-15)
5.509G	The frequency band 14.5-14.8 GHz is also allocated to the space research service on a primary basis. However, such use is limited to the satellite systems operating in the space research service (Earth-to-space) to relay data to space stations in the geostationary-satellite orbit from associated earth stations. Stations in the space research service shall not cause harmful interference to, or claim protection from, stations in the fixed and mobile services and in the fixed satellite service limited to feeder links for the broadcasting-satellite service and associated space operations functions using the guardbands under Appendix 30A and feeder links for the broadcasting-satellite service in Region 2. Other uses of this frequency band by the space research service are on a secondary basis. (WRC-15)
5.510	Except for use in accordance with Resolution **163 (WRC-15)** and Resolution **164 (WRC-15)**, the use of the frequency band 14.5-14.8 GHz by the fixed-satellite service (Earth-to-space) is limited to feeder links for the broadcasting-satellite service. This use is reserved for countries outside Europe. Uses other than feeder links for the broadcasting-satellite service are not authorized in Regions 1 and 2 in the frequency band 14.75-14.8 GHz. (WRC-15)
5.510A	The allocation of the frequency band 14.8-15.35 GHz to the space research service on a primary basis is limited to satellite systems operating in the space-to-space, space-to-Earth and Earth-to-space directions at distances from the Earth of less than 2×10^6 km in accordance with Resolution **678 (WRC-23)**. Other uses of the frequency band by the space research service are on a secondary basis. The use of the frequency band 14.8-15.35 GHz by the space research. (WRC-23) service (space-to-Earth) (Earth-to-space) is on a secondary basis with respect to the terrestrial services in Algeria, Saudi Arabia, Bahrain, Korea (Rep. of), Egypt, the United Arab Emirates, the United States, India, Iraq, Japan, Kuwait, Libya, Morocco, Mauritania, Oman, Qatar, the Syrian Arab Republic, Tunisia, and Yemen. (WRC-23)
5.511	*Additional allocation:* in Saudi Arabia, Bahrain, Cameroon, Djibouti, Egypt, the United Arab Emirates, Guinea, Iran (Islamic Republic of), Iraq, Israel, Kuwait, Lebanon, Oman, Pakistan, Qatar, the Syrian Arab Republic and Somalia, the frequency band 15.35-15.4 GHz is also allocated to the fixed and mobile services on a secondary basis. (WRC-23)
5.511A	Use of the frequency band 15.43-15.63 GHz by the fixed-satellite service (Earth-to-space) is limited to feeder links of non-geostationary systems in the mobile-satellite service, subject to coordination under No. **9.11A**. (WRC-15)
5.511B	SUP (WRC-97)
5.511C	Stations operating in the aeronautical radionavigation service shall limit the effective e.i.r.p. in accordance with Recommendation ITU-R S.1340-0. The minimum coordination distance required to protect the aeronautical radionavigation stations (No. 4.10 applies) from harmful interference from feeder-link earth stations and the maximum

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	e.i.r.p. transmitted towards the local horizontal plane by a feeder-link earth station shall be in accordance with Recommendation ITU-R S.1340-0. (WRC-15)
5.511D	SUP (WRC-15)
5.511E	In the frequency band 15.4-15.7 GHz, stations operating in the radiolocation service shall not cause harmful interference to, or claim protection from, stations operating in the aeronautical radionavigation service. (WRC-12)
5.511F	In order to protect the radio astronomy service in the frequency band 15.35-15.4 GHz, radiolocation stations operating in the frequency band 15.4-15.7 GHz shall not exceed the power flux-density level of −156 dB(W/m2) in a 50 MHz bandwidth in the frequency band 15.35-15.4 GHz, at any radio astronomy observatory site for more than 2 per cent of the time. (WRC-12)
5.511G	Stations in the aeronautical mobile (OR) service operating in the frequency band 15.41-15.7 GHz shall not cause harmful interference to the radio astronomy service operating in the frequency band 15.35-15.4 GHz. The aggregate power flux-density (pfd) received from stations in the aeronautical mobile (OR) service operating in the frequency band 15.41-15.7 GHz at any radio astronomy station operating in the frequency band 15.35-15.4 GHz shall be in compliance with the protection criteria provided in Recommendations ITU-R RA.769-2 and ITU-R RA.1513-2, unless specifically agreed by the affected administration(s). (WRC-23)
5.511H	*Additional allocation*: in Indonesia, the frequency band 15.41-15.7 GHz is also allocated to the aeronautical mobile (OR) service on a secondary basis. Stations in the aeronautical mobile (OR) service operating in the frequency band 15.41-15.7 GHz shall not cause harmful interference to the radio astronomy service operating in the frequency band 15.35-15.4 GHz. The aggregate power flux-density (pfd) received from stations in the aeronautical mobile (OR) service operating in the frequency band 15.41-15.7 GHz at any radio astronomy station operating in the frequency band 15.35- 15.4 GHz shall be in compliance with the protection criteria provided in Recommendations ITU-R RA.769-2 and ITU-R RA.1513-2, unless specifically agreed by the affected administration(s). (WRC-23)
5.512	*Additional allocation:* in Algeria, Saudi Arabia, Austria, Bahrain, Bangladesh, Brunei Darussalam, Cameroon, Congo (Rep. of the), Egypt, El Salvador, the United Arab Emirates, Eritrea, Finland, Guatemala, India, Indonesia, Iran (Islamic Republic of), Jordan, Kenya, Kuwait, Lebanon, Libya, Malaysia, Mali, Morocco, Mauritania, Montenegro, Nepal, Nicaragua, Niger, Oman, Pakistan, Qatar, Syrian Arab Republic, the Dem. Rep. of the Congo, Singapore, Somalia, Sudan, South Sudan, Chad, Togo and Yemen, the frequency band 15.7-17.3 GHz is also allocated to the fixed and mobile services on a primary basis. (WRC-15)
5.513	*Additional allocation:* in Israel, the band 15.7-17.3 GHz is also allocated to the fixed and mobile services on a primary basis. These services shall not claim protection from or cause harmful interference to services operating in accordance with the Table in countries other than those included in No. **5.512**.
5.513A	Spaceborne active sensors operating in the band 17.2-17.3 GHz shall not cause harmful interference to, or constrain the development of, the radiolocation and other services allocated on a primary basis. (WRC-97)
5.514	*Additional allocation:* in Algeria, Saudi Arabia, Bahrain, Bangladesh, Cameroon, Djibouti, El Salvador, the United Arab Emirates, Guatemala, India, Iran (Islamic Republic of), Iraq, Israel, Italy, Japan, Jordan, Kuwait, Libya, Lithuania, Nepal, Nicaragua, Nigeria, Oman, Uzbekistan, Pakistan, Qatar, Kyrgyzstan, Somalia, Sudan and South Sudan, the frequency band 17.3-17.7 GHz is also allocated to the fixed and mobile services on a secondary basis. The power limits given in Nos. **21.3** and **21.5** shall apply. (WRC-23)
5.515	In the band 17.3-17.8 GHz, sharing between the fixed-satellite service (Earth-to-space) and the broadcasting-satellite service shall also be in accordance with the provisions of § 1 of Annex 4 of Appendix **30A**.

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5.515A	In addition to the need to comply with the coordination criteria in Annex 4 to Appendix **30A**, under assumed free-space propagation conditions, the power flux-density of an assignment in the fixed-satellite service (space to-Earth) of a geostationary-satellite network in the frequency band 17.3-17.7 GHz in Region 2 shall not exceed the value of −98 dB(W/(m2 · 27 MHz)) at points in the geostationary-satellite orbit with geocentric orbital separation angles between 152.6° and 162.6°. (WRC-23)
5.515B	In the frequency band 17.3-17.7 GHz, the use of the fixed-satellite service (space-to-Earth) by geostationary-satellite space stations in Region 2 shall not cause harmful interference to space station receivers nor claim protection from the broadcasting-satellite service feeder-link earth stations operating under Appendix **30A** in all three Regions, nor put any limitations or restrictions on the locations of the broadcasting-satellite service feeder-link earth stations anywhere within the service area of the feeder link. The notifying administration for the fixed-satellite service (space-to-Earth), when submitting Appendix **4** information elements, shall provide a firm, objective, actionable, measurable and enforceable commitment that, in the event of harmful interference being reported to space station receivers in Appendix **30A**, it shall take immediate action to eliminate the interference or reduce it to an acceptable level. (WRC-23)
5.516	The use of the band 17.3-18.1 GHz by geostationary-satellite systems in the fixed-satellite service (Earth-to-space) is limited to feeder links for the broadcasting-satellite service. The use of the band 17.3-17.8 GHz in Region 2 by systems in the fixed-satellite service (Earth-to-space) is limited to geostationary satellites. For the use of the band 17.3-17.8 GHz in Region 2 by feeder links for the broadcasting-satellite service in the band 12.2-12.7 GHz, see Article **11**. The use of the bands 17.3-18.1 GHz (Earth-to-space) in Regions 1 and 3 and 17.8-18.1 GHz (Earth-to-space) in Region 2 by non-geostationary-satellite systems in the fixed-satellite service is subject to application of the provisions of No. **9.12** for coordination with other non-geostationary-satellite systems in the fixed-satellite service. Non-geostationary- satellite systems in the fixed-satellite service shall not claim protection from geostationary-satellite networks in the fixed-satellite service operating in accordance with the Radio Regulations, irrespective of the dates of receipt by the Bureau of the complete coordination or notification information, as appropriate, for the non-geostationary-satellite systems in the fixed-satellite service and of the complete coordination or notification information, as appropriate, for the geostationary-satellite networks, and No. **5.43A** does not apply. Non-geostationary-satellite systems in the fixed- satellite service in the above bands shall be operated in such a way that any unacceptable interference that may occur during their operation shall be rapidly eliminated. (WRC-2000)
5.516A	In the band 17.3-17.7 GHz, earth stations of the fixed-satellite service (space-to-Earth) in Region 1 shall not claim protection from the broadcasting-satellite service feeder-link earth stations operating under Appendix **30A**, nor put any limitations or restrictions on the locations of the broadcasting-satellite service feeder-link earth stations anywhere within the service area of the feeder link. (WRC-03)
5.516B	The following bands are identified for use by high-density applications in the fixed-satellite service: 17.3-17.7 GHz (space-to-Earth) in Region 1, 18.3-19.3 GHz (space-to-Earth) in Region 2, 19.7-20.2 GHz (space-to-Earth) in all Regions, 39.5-40 GHz (space-to-Earth) in Region 1, 40-40.5 GHz (space-to-Earth) in all Regions, 40.5-42 GHz (space-to-Earth) in Region 2, 47.5-47.9 GHz (space-to-Earth) in Region 1,

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	48.2-48.54 GHz (space-to-Earth) in Region 1 49.44-50.2 GHz (space-to-Earth) in Region 1, and 27.5-27.82 GHz (Earth-to-space) in Region 1, 28.35-28.45 GHz (Earth-to-space) in Region 2, 28.45-28.94 GHz (Earth-to-space) in all Regions, 28.94-29.1 GHz (Earth-to-space) in Region 2 and 3, 29.25-29.46 GHz (Earth-to-space) in Region 2, 29.46-30 GHz (Earth-to-space) in all Regions, 48.2-50.2 GHz (Earth-to-space) in Region 2. This identification does not preclude the use of these frequency bands by other fixed-satellite service applications or by other services to which these frequency bands are allocated on a co-primary basis and does not establish priority in these Radio Regulations among users of the frequency bands. Administrations should take this into account when considering regulatory provisions in relation to these frequency bands. See Resolution **143 (Rev.WRC-19)**. (WRC-19)
5.517	In Region 2, use of the fixed-satellite (space-to-Earth) service in the frequency band 17.3-17.8 GHz shall not cause harmful interference to nor claim protection from assignments in the broadcasting-satellite service operating in conformity with the Radio Regulations. (WRC-23)
5.517A	The operation of earth stations in motion communicating with geostationary fixed-satellite service space stations within the frequency bands 17.7-19.7 GHz (space-to-Earth) and 27.5-29.5 GHz (Earth-to-space) shall be subject to the application of Resolution **169 (Rev.WRC-23)**. (WRC-23)
5.517B	The operation of aeronautical and maritime earth stations in motion communicating with non-geostationary space stations in the fixed-satellite service in the frequency bands 17.7-18.6 GHz, 18.8-19.3 GHz and 19.7-20.2 GHz (space-to-Earth) and 27.5-29.1 GHz and 29.5-30 GHz (Earth-to-space) shall be subject to the application of Resolution **123 (WRC-23)**. (WRC-23)
5.518	SUP (WRC-07)
5.519	*Additional allocation:* the bands 18-18.3 GHz in Region 2 and 18.1-18.4 GHz in Regions 1 and 3 are also allocated to the meteorological-satellite service (space-to-Earth) on a primary basis. Their use is limited to geostationary satellites. (WRC-07)
5.520	The use of the band 18.1-18.4 GHz by the fixed-satellite service (Earth-to-space) is limited to feeder links of geostationary-satellite systems in the broadcasting-satellite service. (WRC-2000)
5.521	*Alternative allocation: in the United Arab Emirates, the frequency band 18.1-18.4 GHz is allocated to the fixed, fixed-satellite (space-to-Earth) and mobile services on a primary basis (see No. **5.33**). The provisions of No. **5.519** also apply. (WRC-23)*
5.521A	For use of the frequency bands 18.1-18.6 GHz, 18.8-20.2 GHz and 27.5-30 GHz, or parts thereof, by space stations in the inter-satellite service, Resolution **679 (WRC-23)** shall apply. Such use is limited to space research, space operation and/or Earth exploration-satellite applications, and also transmissions of data originating from industrial and medical activities in space. When using these frequencies, administrations shall ensure that this inter-satellite service is used only for the aforementioned purposes and is not subject to coordination under No. **9.11A**. For use of the frequency bands 18.1-18.6 GHz, 18.8-20.2 GHz, 27.5-29.1 GHz and 29.5-30 GHz by space stations, the allocation is

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	limited to inter-satellite links between non-geostationary satellites or between non-geostationary satellites and geostationary satellites. For use of the frequency band 29.1-29.5 GHz by space stations, the allocation is limited to inter-satellite links between non-geostationary satellites and geostationary satellites. No. **4.10** does not apply. (WRC-23)
5.522	SUP (WRC-2000)
5.522A	The emissions of the fixed service and the fixed-satellite service in the band 18.6-18.8 GHz are limited to the values given in Nos. **21.5A** and **21.16.2**, respectively. (WRC-2000)
5.522B	The use of the band 18.6-18.8 GHz by the fixed-satellite service is limited to geostationary systems and systems with an orbit of apogee greater than 20 000 km. (WRC-2000)
5.522C	In the band 18.6-18.8 GHz, in Algeria, Saudi Arabia, Bahrain, Egypt, the United Arab Emirates, Libya, Jordan, Lebanon, Morocco, Oman, Qatar, the Syrian Arab Republic, Tunisia and Yemen, fixed-service systems in operation at the date of entry into force of the Final Acts of WRC-2000 are not subject to the limits of No. **21.5A**. (WRC-2000)
5.523	SUP (WRC-2000)
5.523A	The use of the bands 18.8-19.3 GHz (space-to-Earth) and 28.6-29.1 GHz (Earth-to-space) by geostationary and non- geostationary fixed-satellite service networks is subject to the application of the provisions of No. **9.11A** and No. **22.2** does not apply. Non-geostationary-satellite networks shall not cause unacceptable interference to geostationary fixed-satellite service networks for which complete Appendix **4** notification information is considered as having been received by the Bureau prior to 18 November 1995. (WRC-97)
5.523B	The use of the band 19.3-19.6 GHz (Earth-to-space) by the fixed-satellite service is limited to feeder links for non- geostationary-satellite systems in the mobile-satellite service. Such use is subject to the application of the provisions of No. **9.11A**, and No. **22.2** does not apply.
5.523C	No. **22.2** shall continue to apply in the bands 19.3-19.6 GHz and 29.1-29.4 GHz, between feeder links of non- geostationary mobile-satellite service networks and those fixed-satellite service networks for which complete Appendix **4** coordination information, or notification information, is considered as having been received by the Bureau prior to 18 November 1995. (WRC-97)
5.523D	The use of the band 19.3-19.7 GHz (space-to-Earth) by geostationary fixed-satellite service systems and by feeder links for non-geostationary-satellite systems in the mobile-satellite service is subject to the application of the provisions of No. 9.11A, but not subject to the provisions of No. 22.2. The use of this band for other non-geostationary fixed-satellite service systems, or for the cases indicated in Nos. 5.523C and 5.523E, is not subject to the provisions of No. 9.11A and shall continue to be subject to Articles 9 (except No. 9.11A) and 11 procedures, and to the provisions of No. 22.2. (WRC-97)
5.523DA	In order to protect feeder links of non-geostationary networks in the mobile-satellite service in the frequency band 19.3-19.7 GHz, the power flux-density values produced at the surface of the Earth for all angles of arrival by a space station in the inter-satellite service operating in this band in accordance with Resolution **679 (WRC-23)** shall not exceed −140 dB(W/m2) in any 1 MHz within 150 km of any of the above feeder-link earth stations recorded in the Master International Frequency Register. (WRC-23)
5.523E	No. **22.2** shall continue to apply in the bands 19.6-19.7 GHz and 29.4-29.5 GHz, between feeder links of non- geostationary mobile-satellite service networks and those fixed-satellite service networks for which complete Appendix **4** coordination information, or notification information, is considered as having been received by the Bureau by 21 November 1997. (WRC-97)
5.524	*Additional allocation:* in Afghanistan, Algeria, Saudi Arabia, Bahrain, Brunei Darussalam, Cameroon, China, Congo (Rep. of the), Costa Rica, Djibouti, Egypt, the United Arab Emirates, Gabon, Guatemala, Guinea, India, Iran (Islamic Republic of), Iraq, Israel, Japan, Jordan, Kuwait, Lebanon, Malaysia, Mali, Morocco, Mauritania,

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	Nepal, Nigeria, Oman, Pakistan, Palestine*, the Philippines, Qatar, the Syrian Arab Republic, the Dem. Rep. of the Congo, the Dem. People's Rep. of Korea, Singapore, Somalia, Sudan, South Sudan, Chad, Togo and Tunisia, the frequency band 19.7-21.2 GHz is also allocated to the fixed and mobile services on a primary basis. This additional use shall not impose any limitation on the power flux-density of space stations in the fixed-satellite service in the frequency band 19.7- 21.2 GHz and of space stations in the mobile-satellite service in the frequency band 19.7-20.2 GHz where the allocation to the mobile-satellite service is on a primary basis in the latter frequency band. (WRC-23)
5.525	In order to facilitate interregional coordination between networks in the mobile-satellite and fixed-satellite services, carriers in the mobile-satellite service that are most susceptible to interference shall, to the extent practicable, be located in the higher parts of the bands 19.7-20.2 GHz and 29.5-30 GHz.
5.526	In the bands 19.7-20.2 GHz and 29.5-30 GHz in Region 2, and in the bands 20.1-20.2 GHz and 29.9-30 GHz in Regions 1 and 3, networks which are both in the fixed-satellite service and in the mobile-satellite service may include links between earth stations at specified or unspecified points or while in motion, through one or more satellites for point- to-point and point-to-multipoint communications.
5.527	In the bands 19.7-20.2 GHz and 29.5-30 GHz, the provisions of No. **4.10** do not apply with respect to the mobile-satellite service.
5.527A	The operation of earth stations in motion communicating with the FSS is subject to Resolution **156 (Rev.WRC-23)**. (WRC-23)
5.528	The allocation to the mobile-satellite service is intended for use by networks which use narrow spot-beam antennas and other advanced technology at the space stations. Administrations operating systems in the mobile-satellite service in the band 19.7-20.1 GHz in Region 2 and in the band 20.1-20.2 GHz shall take all practicable steps to ensure the continued availability of these bands for administrations operating fixed and mobile systems in accordance with the provisions of No. **5.524**.
5.529	The use of the bands 19.7-20.1 GHz and 29.5-29.9 GHz by the mobile-satellite service in Region 2 is limited to satellite networks which are both in the fixed-satellite service and in the mobile-satellite service as described in No. **5.526**.
5.529A	In the frequency bands 20.2-21.2 GHz and 30-31 GHz, non-geostationary-satellite systems for which complete coordination or notification information, according to the case, is received by the Bureau as of 1 January 2025 shall not cause unacceptable interference to and shall not claim protection from geostationary-satellite networks in the mobile-satellite service operating in accordance with these Regulations. No. **5.43A** does not apply. (WRC-23)
5.530	SUP (WRC-12)
5.530A	Unless otherwise agreed between the administrations concerned, any station in the fixed or mobile services of an administration shall not produce a power flux-density in excess of -120.4 dB(W/(m2 · MHz)) at 3 m above the ground of any point of the territory of any other administration in Regions 1 and 3 for more than 20% of the time. In conducting the calculations, administrations should use the most recent version of Recommendation ITU-R P.452 (see also the most recent version of Recommendation ITU-R BO.1898). (WRC-15)
5.530B	In the band 21.4-22 GHz, in order to facilitate the development of the broadcasting satellite service, administrations in Regions 1 and 3 are encouraged not to deploy stations in the mobile service and are encouraged to limit the deployment of stations in the fixed service to point to-point links. (WRC-12)
5.530C	SUP (WRC-15)
5.530D	SUP (WRC-19)
5.530E	The allocation to the fixed service in the frequency band 21.4-22 GHz is identified for use in Region 2 by high-altitude platform stations (HAPS). This identification does not preclude the use of this frequency band by other fixed-service applications or by other services to which it is allocated on a co-primary basis and does not establish priority in

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	the Radio Regulations. Such use of the fixed-service allocation by HAPS is limited to the HAPS-to-ground direction and shall be in accordance with the provisions of Resolution **165 (Rev.WRC-23)**. (WRC-23)
5.531	*Additional allocation:* in Japan, the band 21.4-22 GHz is also allocated to the broadcasting service on a primary basis.
5.531A	The use of the aeronautical mobile (OR) service in the frequency band 22-22.2 GHz is limited to non-safety applications. (WRC-23)
5.531B	Aircraft stations in the aeronautical mobile (OR) service operating in the frequency band 22-22.2 GHz are subject to agreement obtained under No. **9.21** with respect to the fixed service and shall not cause harmful interference to, nor claim protection from, the fixed service. The following power flux-density values shall be used as a threshold for coordination under No. **9.21**: −110 dB (W/(m2 · MHz)) for $0° \le \theta \le 12.6°$ $2.86\ \theta - 146$ dB (W/(m2 · MHz)) for $12.6° < \theta \le 15°$ $0.87\ \theta - 116$ dB (W/(m2 · MHz)) for $15° < \theta \le 30°$ $0.067\ \theta - 92$ dB (W/(m2 · MHz)) for $30° < \theta \le 90°$ where θ is the angle of arrival of the incident wave above the horizontal plane, in degrees. This criterion should be applied at the border of the territory of another administration for any aircraft station located at an altitude of up to 15 km above the ground. In conducting the calculations, the most recent version of Recommendation ITU-R P.525 should be used. (WRC-23)
5.531C	Stations in the aeronautical mobile (OR) service operating in the frequency band 22-22.2 GHz shall not cause harmful interference to the radio astronomy service operating in the frequency band 22.21-22.5 GHz. The aggregate power flux-density (pfd) received from these stations at any radio astronomy station operating in the frequency band 22.21-22.5 GHz shall be in compliance with the protection criteria provided in Recommendations ITU-R RA.769-2 and ITU-R RA.1513-2, unless specifically agreed by the affected administration(s). (WRC-23)
5.531D	The use of the aeronautical mobile (OR) service in the frequency band 22-22.2 GHz outside national boundaries shall not cause harmful interference to, or claim protection from, services in other countries operating in accordance with the Table of Frequency Allocations. (WRC-23)
5.531E	*Alternative allocation*: in Brunei Darussalam, Iran (Islamic Republic of), Malaysia, Singapore and Thailand, the frequency band 22-22.2 GHz is allocated to the mobile, except aeronautical mobile (R), service on a primary basis. The use of the service is limited to non-safety applications within national boundaries. The use of the aeronautical mobile (OR) service in the frequency band 22-22.2 GHz shall not cause harmful interference to, or claim protection from, services in other countries operating in accordance with the Table of Frequency Allocations. Furthermore, stations in the aeronautical mobile (OR) service operating in the frequency band 22-22.2 GHz shall not cause harmful interference to the radio astronomy service operating in the frequency band 22.21-22.5 GHz in other countries in accordance with the Table of Frequency Allocations. The aggregate power flux-density (pfd) received from these stations at any radio astronomy station operating in the frequency band 22.21-22.5 GHz shall be in compliance with the protection criteria provided in Recommendations ITU-R RA.769-2 and ITU-R RA.1513-2, unless specifically agreed by the affected administration(s). In order to protect stations of the Earth exploration-satellite service (passive) operating in the frequency band 22.21-22.5 GHz, the unwanted equivalent isotropically radiated power (e.i.r.p.) of stations operating in the aeronautical mobile (OR) service shall not exceed −23 dBW in any 100 MHz band in the frequency band 22.21-22.5 GHz. Aircraft stations in the aeronautical mobile (OR) service operating in the frequency band 22-22.2 GHz are subject to agreement obtained under No. **9.21** with respect to the fixed service and shall not cause harmful interference to, nor claim protection from, the fixed service. The following pfd values shall be used as a threshold for coordination under No. **9.21**:

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	−110 dB (W/(m2 · MHz)) for 0° ≤ θ ≤ 12.6° 2.86 θ − 146 dB (W/(m2 · MHz)) for 12.6° < θ ≤ 15° 0.87 θ − 116 dB (W/(m2 · MHz)) for 15° < θ ≤ 30° 0.067 θ − 92 dB (W/(m2 · MHz)) for 30° < θ ≤ 90° where θ is the angle of arrival of the incident wave above the horizontal plane, in degrees. This criterion should be applied at the border of the territory of another administration for any aircraft station located at an altitude of up to 15 km above the ground. In conducting the calculations, the most recent version of Recommendation ITU-R P.525 should be used. (WRC-23)
5.531F	In order to protect stations of the Earth exploration-satellite service (passive) operating in the frequency band 22.21-22.5 GHz, the unwanted equivalent isotropically radiated power (e.i.r.p.) of stations operating in the aeronautical mobile (OR) service shall not exceed −23 dBW in any 100 MHz band in the frequency band 22.21-22.5 GHz. (WRC-23)
5.532	The use of the band 22.21-22.5 GHz by the Earth exploration-satellite (passive) and space research (passive) services shall not impose constraints upon the fixed and mobile, except aeronautical mobile, services.
5.532A	The location of earth stations in the space research service shall maintain a separation distance of at least 54 km from the respective border(s) of neighbouring countries to protect the existing and future deployment of fixed and mobile services unless a shorter distance is otherwise agreed between the corresponding administrations. Nos. **9.17** and **9.18** do not apply. (WRC 12)
5.532AA	The allocation to the fixed service in the frequency band 24.25-25.25 GHz is identified for use in Region 2 by high-altitude platform stations (HAPS). This identification does not preclude the use of this frequency band by other fixed-service applications or by other services to which this frequency band is allocated on a co-primary basis and does not establish priority in the Radio Regulations. Such use of the fixed-service allocation by HAPS is limited to the HAPS to- ground direction and shall be in accordance with the provisions of Resolution **166 (Rev.WRC-23)**. (WRC-23)
5.532AB	The frequency band 24.25-27.5 GHz is identified for use by administrations wishing to implement the terrestrial component of International Mobile Telecommunications (IMT). This identification does not preclude the use of this frequency band by any application of the services to which it is allocated and does not establish priority in the Radio Regulations. Resolution **242 (Rev.WRC-23)** applies. (WRC-23)
5.532B	Use of the band 24.65-25.25 GHz in Region 1 and the band 24.65-24.75 GHz in Region 3 by the fixed-satellite service (Earth-to-space) is limited to earth stations using a minimum antenna diameter of 4.5m. (WRC-12)
5.533	The inter-satellite service shall not claim protection from harmful interference from airport surface detection equipment stations of the radionavigation service.
5.534	SUP (WRC-03)
5.534A	The allocation to the fixed service in the frequency band 25.25-27.5 GHz is identified in Region 2 for use by high-altitude platform stations (HAPS) in accordance with the provisions of Resolution **166 (Rev.WRC-23)**. Such use of the fixed-service allocation by HAPS shall be limited to the ground-to-HAPS direction in the frequency band 25.25-27.0 GHz and to the HAPS-to-ground direction in the frequency band 27.0-27.5 GHz. Furthermore, the use of the frequency band 25.5-27.0 GHz by HAPS shall be limited to gateway links. This identification does not preclude the use of this frequency band by other fixed-service applications or by other services to which this band is allocated on a co-primary basis and does not establish priority in the Radio Regulations. (WRC-23)
5.535	In the band 24.75-25.25 GHz, feeder links to stations of the broadcasting-satellite service shall have priority over other uses in the fixed-satellite service (Earth-to-space). Such other uses shall protect and shall not claim protection from existing and future operating feeder-link networks to such broadcasting satellite stations.

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5.535A	The use of the band 29.1-29.5 GHz (Earth-to-space) by the fixed-satellite service is limited to geostationary-satellite systems and feeder links to non-geostationary-satellite systems in the mobile-satellite service. Such use is subject to the application of the provisions of No. **9.11A**, but not subject to the provisions of No. **22.2**, except as indicated in Nos. **5.523C** and **5.523E** where such use is not subject to the provisions of No. **9.11A** and shall continue to be subject to Articles **9** (except No. **9.11A**) and **11** procedures, and to the provisions of No. **22.2**. (WRC-97)
5.536	Use of the 25.25-27.5 GHz band by the inter-satellite service is limited to space research and Earth exploration-satellite applications, and also transmissions of data originating from industrial and medical activities in space.
5.536A	Administrations operating earth stations in the Earth exploration-satellite service or the space research service shall not claim protection from stations in the fixed and mobile services operated by other administrations. In addition, earth stations in the Earth exploration-satellite service or in the space research service should be operated taking into account the most recent version of Recommendation ITU-R SA.1862. Resolution **242 (Rev.WRC-23)** applies. (WRC-23)
5.536B	In Algeria, Saudi Arabia, Austria, Bahrain, Belgium, Brazil, China, Korea (Rep. of), Denmark, Egypt, United Arab Emirates, Estonia, Finland, Hungary, India, Iran (Islamic Republic of), Iraq, Ireland, Israel, Italy, Jordan, Kenya, Kuwait, Lebanon, Libya, Lithuania, Moldova, Norway, Oman, Uganda, Pakistan, the Philippines, Poland, Portugal, Qatar, the Syrian Arab Republic, Türkiye, Dem. People's Rep. of Korea, Slovakia, the Czech Rep., Romania, the United Kingdom, Singapore, Slovenia, Somalia, Sudan, Sweden, Tanzania, Viet Nam and Zimbabwe, earth stations operating in the Earth exploration-satellite service in the frequency band 25.5-27 GHz shall not claim protection from, or constrain the use and deployment of, stations of the fixed and mobile services. Resolution **242 (Rev.WRC-23)** applies. (WRC-23)
5.536C	In Algeria, Saudi Arabia, Bahrain, Botswana, Brazil, Cameroon, Comoros, Cuba, Djibouti, Egypt, United Arab Emirates, Estonia, Finland, Iran (Islamic Republic of), Israel, Jordan, Kenya, Kuwait, Lithuania, Malaysia, Morocco, Nigeria, Oman, Qatar, Syrian Arab Republic, Somalia, Sudan, South Sudan, Tanzania, Tunisia, Uruguay, Zambia and Zimbabwe, earth stations operating in the space research service in the band 25.5-27 GHz shall not claim protection from, or constrain the use and deployment of, stations of the fixed and mobile services. (WRC-12)
5.537	Space services using non-geostationary satellites operating in the inter-satellite service in the band 27-27.5 GHz are exempt from the provisions of No. **22.2**.
5.537A	In Bhutan, Cameroon, China, Korea (Rep. of), the Russian Federation, India, Indonesia, Iran (Islamic Republic of), Iraq, Japan, Kazakhstan, Malaysia, Maldives, Mongolia, Myanmar, Uzbekistan, Pakistan, the Philippines, Kyrgyzstan, the Dem. People's Rep. of Korea, Sudan, Sri Lanka, Thailand and Viet Nam, the allocation to the fixed service in the band 27.9- 28.2 GHz may also be used by high altitude platform stations (HAPS) within the territory of these countries. Such use of 300 MHz of the fixed-service allocation by HAPS in the above countries is further limited to operation in the HAPS-to- ground direction and shall not cause harmful interference to, nor claim protection from, other types of fixed-service systems or other co-primary services. Furthermore, the development of these other services shall not be constrained by HAPS. See Resolution **145 (Rev.WRC-19)**. (WRC-19)
5.538	*Additional allocation:* the bands 27.500-27.501 GHz and 29.999-30.000 GHz are also allocated to the fixed-satellite service (space-to-Earth) on a primary basis for the beacon transmissions intended for up-link power control. Such space- to-Earth transmissions shall not exceed an equivalent isotropically radiated power (e.i.r.p.) of ±10 dBW in the direction of adjacent satellites on the geostationary-satellite orbit. (WRC-07)
5.539	The band 27.5-30 GHz may be used by the fixed-satellite service (Earth-to-space) for the provision of feeder links for the broadcasting-satellite service.

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5.540	*Additional allocation:* the band 27.501-29.999 GHz is also allocated to the fixed-satellite service (space-to-Earth) on a secondary basis for beacon transmissions intended for up-link power control.
5.541	In the band 28.5-30 GHz, the earth exploration-satellite service is limited to the transfer of data between stations and not to the primary collection of information by means of active or passive sensors.
5.541A	Feeder links of non-geostationary networks in the mobile-satellite service and geostationary networks in the fixed- satellite service operating in the band 29.1-29.5 GHz (Earth-to-space) shall employ uplink adaptive power control or other methods of fade compensation, such that the earth station transmissions shall be conducted at the power level required to meet the desired link performance while reducing the level of mutual interference between both networks. These methods shall apply to networks for which Appendix **4** coordination information is considered as having been received by the Bureau after 17 May 1996 and until they are changed by a future competent world radiocommunication conference. Administrations submitting Appendix **4** information for coordination before this date are encouraged to utilize these techniques to the extent practicable. (WRC-2000)
5.542	*Additional allocation:* in Algeria, Saudi Arabia, Bahrain, Brunei Darussalam, Cameroon, China, Congo (Rep. of the), Djibouti, Egypt, the United Arab Emirates, Eritrea, Ethiopia, Guinea, India, Iran (Islamic Republic of), Iraq, Japan, Jordan, Kuwait, Lebanon, Malaysia, Mali, Morocco, Mauritania, Nepal, Oman, Pakistan, Palestine*, Philippines, Qatar, the Syrian Arab Republic, the Dem. People's Rep. of Korea, Somalia, Sudan, South Sudan, Sri Lanka and Chad, the frequency band 29.5-31 GHz is also allocated to the fixed and mobile services on a secondary basis. The power limits specified in Nos. **21.3** and **21.5** shall apply. (WRC-23)
5.543	The band 29.95-30 GHz may be used for space-to-space links in the Earth exploration-satellite service for telemetry, tracking, and control purposes, on a secondary basis.
5.543A	SUP (WRC-19)
5.543B	The allocation to the fixed service in the frequency band 31-31.3 GHz is identified for worldwide use by high-altitude platform stations (HAPS). This identification does not preclude the use of this frequency band by other fixed-service applications or by other services to which this frequency band is allocated on a co-primary basis and does not establish priority in the Radio Regulations. Such use of the fixed-service allocation by HAPS shall be in accordance with the provisions of Resolution **167 (Rev.WRC-23)**. (WRC-23)
5.544	In the band 31-31.3 GHz the power flux-density limits specified in Article **21**, Table **21-4** shall apply to the space research service.
5.545	*Different category of service:* in Armenia, Georgia, Mongolia, Kyrgyzstan, Tajikistan and Turkmenistan, the allocation of the band 31-31.3 GHz to the space research service is on a primary basis (see No. **5.33**). (WRC-12)
5.546	*Different category of service:* in Saudi Arabia, Armenia, Azerbaijan, Bahrain, Belarus, Djibouti, Egypt, the United Arab Emirates, Spain, Estonia, the Russian Federation, Georgia, Hungary, Iran (Islamic Republic of), Israel, Jordan, Lebanon, Moldova, Mongolia, Oman, Uzbekistan, Poland, the Syrian Arab Republic, Türkiye, Kyrgyzstan, Romania, the United Kingdom, Somalia, South Africa, Tajikistan and Turkmenistan, the allocation of the frequency band 31.5-31.8 GHz to the fixed and mobile, except aeronautical mobile, services is on a primary basis (see No. 5.33). (WRC-23*)*
5.547	The frequency bands 31.8-33.4 GHz, 37-40 GHz, 40.5-43.5 GHz, 51.4-52.6 GHz, 55.78-59 GHz and 64-66 GHz are available for high-density applications in the fixed service. Administrations should take this into account when considering regulatory provisions in relation to these bands. Because of the potential deployment of high-density applications in the fixed-satellite service in the frequency bands 39.5-40 GHz and 40.5-42 GHz (see No. **5.516B**), administrations should further take into account potential constraints to high-density applications in the fixed service, as appropriate. (WRC-23)

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5.547A	Administrations should take practical measures to minimize the potential interference between stations in the fixed service and airborne stations in the radionavigation service in the 31.8-33.4 GHz band, taking into account the operational needs of the airborne radar systems. (WRC-2000)
5.547B	*Alternative allocation*: in the United States, the band 31.8-32 GHz is allocated to the radionavigation and space research (deep space) (space-to-Earth) services on a primary basis. (WRC-97)
5.547C	*Alternative allocation*: in the United States, the band 32-32.3 GHz is allocated to the radionavigation and space research (deep space) (space-to-Earth) services on a primary basis. (WRC-03)
5.547D	Alternative allocation: in the United States, the band 32.3-33 GHz is allocated to the inter-satellite and radionavigation services on a primary basis. (WRC-97)
5.547E	*Alternative allocation*: in the United States, the band 33-33.4 GHz is allocated to the radionavigation service on a primary basis. (WRC-97)
5.548	In designing systems for the inter-satellite service in the frequency band 32.3-33 GHz, for the radionavigation service in the frequency band 32-33 GHz, and for the space research service (deep space) in the frequency band 31.8-32.3 GHz, administrations shall take all necessary measures to prevent harmful interference between these services, bearing in mind the safety aspects of the radionavigation service (see Recommendation **707 (Rev.WRC-23)**). (WRC-23)
5.549	*Additional allocation:* in Saudi Arabia, Bahrain, Bangladesh, Egypt, the United Arab Emirates, Gabon, Indonesia, Iran (Islamic Republic of), Iraq, Israel, Jordan, Kuwait, Lebanon, Libya, Malaysia, Mali, , Morocco, Mauritania, Nepal, Nigeria, Oman, Pakistan, the Philippines, Qatar, the Syrian Arab Republic, the Dem. Rep. of the Congo, Singapore, Somalia, Sudan, South Sudan Sri Lanka, Togo, Tunisia and Yemen, the band 33.4-36 GHz is also allocated to the fixed and mobile services on a primary basis. (WRC-12)
5.549A	In the band 35.5-36.0 GHz, the mean power flux-density at the Earth's surface, generated by any spaceborne sensor in the Earth exploration-satellite service (active) or space research service (active), for any angle greater than 0.8° from the beam centre shall not exceed -73.3 dB(W/m2) in this band. (WRC-03)
5.550	*Different category of service:* in Armenia, Azerbaijan, Belarus, the Russian Federation, Georgia, Kyrgyzstan, Tajikistan and Turkmenistan, the allocation of the band 34.7-35.2 GHz to the space research service is on a primary basis (see No. 5.33). (WRC-12)
5.550A	For sharing of the band 36-37 GHz between the Earth exploration-satellite (passive) service and the fixed and mobile services, Resolution **752 (WRC-07)** shall apply. (WRC-07)
5.550B	The frequency band 37-43.5 GHz, or portions thereof, is identified for use by administrations wishing to implement the terrestrial component of International Mobile Telecommunications (IMT). This identification does not preclude the use of this frequency band by any application of the services to which it is allocated and does not establish priority in the Radio Regulations. Because of the potential deployment of FSS earth stations within the frequency range 37.5-42.5 GHz and high-density applications in the fixed-satellite service in the frequency bands 39.5-40 GHz in Region 1, 40-40.5 GHz in all Regions and 40.5-42 GHz in Region 2 (see No. **5.516B**), administrations should further take into account potential constraints to IMT in these frequency bands, as appropriate. Resolution **243 (Rev.WRC-23)** applies. (WRC-23)
5.550C	The use of the frequency bands 37.5-39.5 GHz (space-to-Earth), 39.5-42.5 GHz (space-to-Earth), 47.2-50.2 GHz (Earth- to-space) and 50.4-51.4 GHz (Earth-to-space) by a non-geostationary-satellite system in the fixed-satellite service is subject to the application of the provisions of No. **9.12** for coordination with other non-geostationary-satellite systems in the fixed-satellite service but not with non-geostationary-satellite systems in other services. Resolution **770 (**Rev.**WRC**-23**) shall also apply, and No. 22.2** shall continue to apply. (WRC-19)

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5.550CA	Non-geostationary-satellite systems in the fixed-satellite service operating with an apogee altitude above 407 km and below 2 000 km in the frequency band 37.5-38 GHz shall not exceed an unwanted emission e.i.r.p. density of −21 dB(W/100 MHz) per space station for angles greater than 65.0° from nadir relative to the space station in the fixed satellite service in the frequency band 36-37 GHz in order to protect the Earth exploration-satellite service (passive) operating in the latter frequency band. (WRC-23)
5.550D	The allocation to the fixed service in the frequency band 38-39.5 GHz is identified for worldwide use by administrations wishing to implement high-altitude platform stations (HAPS). In the HAPS-to-ground direction, the HAPS ground station shall not claim protection from stations in the fixed, mobile and fixed-satellite services; and No. **5.43A** does not apply. This identification does not preclude the use of this frequency band by other fixed-service applications or by other services to which this frequency band is allocated on a co-primary basis and does not establish priority in the Radio Regulations. Furthermore, the development of the fixed-satellite, fixed and mobile services shall not be unduly constrained by HAPS. Such use of the fixed-service allocation by HAPS shall be in accordance with the provisions of Resolution **168 (Rev.WRC-23)**. (WRC-23)
5.550E	The use of the frequency bands 39.5-40 GHz and 40-40.5 GHz by non-geostationary-satellite systems in the mobile- satellite service (space-to-Earth) and by non-geostationary-satellite systems in the fixed-satellite service (space-to- Earth) is subject to the application of the provisions of No. **9.12** for coordination with other non-geostationary-satellite systems in the fixed-satellite and mobile-satellite services but not with non-geostationary-satellite systems in other services. No. **22.2** shall continue to apply for non-geostationary-satellite-systems. (WRC-19)
5.551	SUP (WRC-97)
5.551A	SUP (WRC-03)
5.551AA	SUP (WRC-03)
5.551B	SUP (WRC-2000)
5.551C	SUP (WRC-2000)
5.551D	SUP (WRC-2000)
5.551E	SUP (WRC-2000)
5.551F	*Different category of service*: in Japan, the allocation of the band 41.5-42.5 GHz to the mobile service is on a primary basis (see No. **5.33**). (WRC-97)
5.551G	SUP (WRC-03)
5.551H	The equivalent power flux-density (epfd) produced in the frequency band 42.5-43.5 GHz by all space stations in any non-geostationary-satellite system in the fixed-satellite service (space-to-Earth), or in the broadcasting-satellite service operating in the frequency band 42-42.5 GHz, shall not exceed the following values at the site of any radio astronomy station for more than 2% of the time: – 230 dB(W/m^2) in 1 GHz and –246 dB(W/m^2) in any 500 kHz of the 42.5-43.5 GHz band at the site of any radio astronomy station registered as a single-dish telescope; and – 209 dB(W/m^2) in any 500 kHz of the 42.5-43.5 GHz band at the site of any radio astronomy station registered as a very long baseline interferometry station. These epfd values shall be evaluated using the methodology given in Recommendation ITU-R S.1586-1 and the reference antenna pattern and the maximum gain of an antenna in the radio astronomy service given in Recommendation ITU-R RA.1631-0 and shall apply over the whole sky and for elevation angles higher than the minimum operating angle θ*min* of the radiotelescope (for which a default value of 5° should be adopted in the absence of notified information). These values shall apply at any radio astronomy station that either:

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	– was in operation prior to 5 July 2003 and has been notified to the Bureau before 4 January 2004; or – was notified before the date of receipt of the complete Appendix 4 information for coordination or notification, as appropriate, for the space station to which the limits apply. Other radio astronomy stations notified after these dates may seek an agreement with administrations that have authorized the space stations. In Region 2, Resolution **743 (WRC-03)** shall apply. The limits in this footnote may be exceeded at the site of a radio astronomy station of any country whose administration so agreed. (WRC-23)
5.551I	The power flux-density in the band 42.5-43.5 GHz produced by any geostationary space station in the fixed-satellite service (space-to-Earth), or the broadcasting-satellite service operating in the 42-42.5 GHz band, shall not exceed the following values at the site of any radio astronomy station: – 137 dB(W/m^2) in 1 GHz and –153 dB(W/m^2) in any 500 kHz of the 42.5-43.5 GHz band at the site of any radio astronomy station registered as a single-dish telescope; and – 116 dB(W/m^2) in any 500 kHz of the 42.5-43.5 GHz band at the site of any radio astronomy station registered as a very long baseline interferometry station. These values shall apply at the site of any radio astronomy station that either: – was in operation prior to 5 July 2003 and has been notified to the Bureau before 4 January 2004; or – was notified before the date of receipt of the complete Appendix 4 information for coordination or notification, as appropriate, for the space station to which the limits apply. Other radio astronomy stations notified after these dates may seek an agreement with administrations that have authorized the space stations. In Region 2, Resolution **743 (WRC-03)** shall apply. The limits in this footnote may be exceeded at the site of a radio astronomy station of any country whose administration so agreed. (WRC-03)
5.552	The allocation of the spectrum for the fixed-satellite service in the bands 42.5-43.5 GHz and 47.2-50.2 GHz for Earth-to- space transmission is greater than that in the band 37.5-39.5 GHz for space-to-Earth transmission in order to accommodate feeder links to broadcasting satellites. Administrations are urged to take all practicable steps to reserve the band 47.2-49.2 GHz for feeder links for the broadcasting-satellite service operating in the band 40.5-42.5 GHz.
5.552A	The allocation to the fixed service in the frequency bands 47.2-47.5 GHz and 47.9-48.2 GHz is identified for use by high- altitude platform stations (HAPS). This identification does not preclude the use of this frequency band by any application of the services to which it is allocated on a co-primary basis, and does not establish priority in the Radio Regulations. Such use of the fixed-service allocation in the frequency bands 47.2-47.5 GHz and 47.9-48.2 GHz by HAPS shall be in accordance with the provisions of Resolution **122 (Rev.WRC-19)**. (WRC-19)
5.553	In the bands 43.5-47 GHz and 66-71 GHz, stations in the land mobile service may be operated subject to not causing harmful interference to the space radiocommunication services to which these bands are allocated (see No. **5.43**). (WRC-2000)
5.553A	In Algeria, Angola, Bahrain, Belarus, Benin, Botswana, Brazil, Burkina Faso, Cabo Verde, Korea (Rep. of), Côte d'Ivoire, Croatia, Djibouti, Egypt, United Arab Emirates, Estonia, Eswatini, Gabon, Gambia, Ghana, Greece, Guinea, Guinea-Bissau, Hungary, Iran (Islamic Republic of), Iraq, Jordan, Kuwait, Lesotho, Latvia, Liberia, Lithuania, Madagascar, Malawi, Mali, Morocco, Mauritius, Mauritania, Mozambique, Namibia,

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	Niger, Nigeria, Oman, Qatar, Senegal, Seychelles, Sierra Leone, Slovenia, Somalia, Sudan, South Africa, Sweden, Tanzania, Togo, Tunisia, Zambia and Zimbabwe, the frequency band 45.5-47 GHz is identified for use by administrations wishing to implement the terrestrial component of International Mobile Telecommunications (IMT), taking into account No. **5.553**. With respect to the aeronautical mobile service and radionavigation service, the use of this frequency band for the implementation of IMT is subject to agreement obtained under No. **9.21** with concerned administrations and shall not cause harmful interference to, or claim protection from these services. This identification does not preclude the use of this frequency band by any application of the services to which it is allocated and does not establish priority in the Radio Regulations. Resolution **244 (Rev.WRC-23**) applies. (WRC-23)
5.553B	In Region 2 and Algeria, Angola, Saudi Arabia, Australia, Bahrain, Benin, Botswana, Burkina Faso, Burundi, Cameroon, Central African Rep., Comoros, Congo (Rep. of the), Korea (Rep. of), Côte d'Ivoire, Djibouti, Egypt, United Arab Emirates, Eswatini, Ethiopia, Gabon, Gambia, Ghana, Guinea, Guinea-Bissau, Equatorial Guinea, India, Iran (Islamic Republic of), Iraq, Japan, Jordan, Kenya, Kuwait, Lesotho, Liberia, Libya, Lithuania, Madagascar, Malaysia, Malawi, Mali, Morocco, Mauritius, Mauritania, Mozambique, Namibia, Niger, Nigeria, Oman, Uganda, Qatar, the Syrian Arab Republic, the Dem. Rep. of the Congo, Rwanda, Sao Tome and Principe, Senegal, Seychelles, Sierra Leone, Singapore, Slovenia, Somalia, Sudan, South Sudan, South Africa, Sweden, Tanzania, Chad, Togo, Tunisia, Zambia and Zimbabwe, the frequency band 47.2-48.2 GHz is identified for use by administrations wishing to implement International Mobile Telecommunications (IMT). This identification does not preclude the use of this frequency band by any application of the services to which it is allocated and does not establish any priority in the Radio Regulations. Resolution **243 (Rev.WRC-23)** applies. (WRC-23)
5.554	In the bands 43.5-47 GHz, 66-71 GHz, 95-100 GHz, 123-130 GHz, 191.8-200 GHz and 252-265 GHz, satellite links connecting land stations at specified fixed points are also authorized when used in conjunction with the mobile-satellite service or the radionavigation-satellite service. (WRC-2000)
5.554A	The use of the bands 47.5-47.9 GHz, 48.2-48.54 GHz and 49.44-50.2 GHz by the fixed-satellite service (space-to-Earth) is limited to geostationary satellites. (WRC-03)
5.555	*Additional allocation:* the band 48.94-49.04 GHz is also allocated to the radio astronomy service on a primary basis. (WRC-2000)
5.555A	SUP (WRC-03)
5.555B	The power flux-density in the band 48.94-49.04 GHz produced by any geostationary space station in the fixed-satellite service (space-to-Earth) operating in the bands 48.2-48.54 GHz and 49.44-50.2 GHz shall not exceed –151.8 dB(W/m2) in any 500 kHz band at the site of any radio astronomy station. (WRC-03)
5.555C	The use of the frequency band 51.4-52.4 GHz by the fixed-satellite service (Earth-to-space) is limited to geostationary- satellite networks. The earth stations shall be limited to gateway earth stations with a minimum antenna diameter of 2.4 metres. (WRC-19)
5.556	In the bands 51.4-54.25 GHz, 58.2-59 GHz and 64-65 GHz, radio astronomy observations may be carried out under national arrangements. (WRC-2000)
5.556A	Use of the bands 54.25-56.9 GHz, 57-58.2 GHz and 59-59.3 GHz by the inter-satellite service is limited to satellites in the geostationary-satellite orbit. The single-entry power flux-density at all altitudes from 0 km to 1 000 km above the Earth's surface produced by a station in the inter-satellite service, for all conditions and for all methods of modulation, shall not exceed –147 dB (W/(m^2 x 100 MHz)) for all angles of arrival. (WRC-97)
5.556B	*Additional allocation:* in Japan, the band 54.25-55.78 GHz is also allocated to the mobile service on a primary basis for low-density use. (WRC-97)
5.557	*Additional allocation:* in Japan, the band 55.78-58.2 GHz is also allocated to the radiolocation service on a primary basis. (WRC-97)

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5.557A	In the band 55.78-56.26 GHz, in order to protect stations in the Earth exploration-satellite service (passive), the maximum power density delivered by a transmitter to the antenna of a fixed service station is limited to-26 dB(W/MHz). (WRC-2000)
5.558	In the bands 55.78-58.2 GHz, 59-64 GHz, 66-71 GHz, 122.25-123 GHz, 130-134 GHz, 167-174.8 GHz and 191.8-200 GHz, stations in the aeronautical mobile service may be operated subject to not causing harmful interference to the inter- satellite service (see **No. 5.43**). (WRC-2000)
5.558A	Use of the band 56.9-57 GHz by inter-satellite systems is limited to links between satellites in geostationary-satellite orbit and to transmissions from non-geostationary satellites in high-Earth orbit to those in low-Earth orbit. For links between satellites in the geostationary-satellite orbit, the single entry power flux-density at all altitudes from 0 km to 1 000 km above the Earth's surface, for all conditions and for all methods of modulation, shall not exceed –147 dB (W/(m^2 x 100 MHz)) for all angles of arrival. (WRC-97)
5.559	In the band 59-64 GHz, airborne radars in the radiolocation service may be operated subject to not causing harmful interference to the inter-satellite service (see No. **5.43**). (WRC-2000)
5.559A	SUP (WRC-07)
5.559AA	The frequency band 66-71 GHz is identified for use by administrations wishing to implement the terrestrial component of International Mobile Telecommunications (IMT). This identification does not preclude the use of this frequency band by any application of the services to which this frequency band is allocated and does not establish priority in the Radio Regulations. Resolution **241 (Rev.WRC-23)** applies. (WRC-23)
5.559B	The use of the frequency band 77.5-78 GHz by the radiolocation service shall be limited to short-range radar for ground-based applications, including automotive radars. The technical characteristics of these radars are provided in the most recent version of Recommendation ITU-R M.2057. The provisions of No. **4.10** do not apply. (WRC-15)
5.560	In the band 78-79 GHz radars located on space stations may be operated on a primary basis in the Earth exploration- satellite service and in the space research service.
5.561	In the band 74-76 GHz, stations in the fixed, mobile and broadcasting services shall not cause harmful interference to stations of the fixed-satellite service or stations of the broadcasting-satellite service operating in accordance with the decisions of the appropriate frequency assignment planning conference for the broadcasting-satellite service. (WRC-2000)
5.561A	The 81-81.5 GHz band is also allocated to the amateur and amateur-satellite services on a secondary basis. (WRC-2000)
5.561B	In Japan, use of the band 84-86 GHz, by the fixed-satellite service (Earth-to-space) is limited to feeder links in the broadcasting-satellite service using the geostationary-satellite orbit. (WRC-2000)
5.562	The use of the band 94-94.1 GHz by the Earth exploration-satellite (active) and space research (active) services is limited to spaceborne cloud radars. (WRC-97)
5.562A	In the bands 94-94.1 GHz and 130-134 GHz, transmissions from space stations of the Earth exploration-satellite service (active) that are directed into the main beam of a radio astronomy antenna have the potential to damage some radio astronomy receivers. Space agencies operating the transmitters and the radio astronomy stations concerned should mutually plan their operations so as to avoid such occurrences to the maximum extent possible. (WRC-2000)
5.562B	In the bands 105-109.5 GHz, 111.8-114.25 GHz and 217-226 GHz, the use of this allocation is limited to space-based radio astronomy only. (WRC-19)
5.562C	Use of the band 116-122.25 GHz by the inter-satellite service is limited to satellites in the geostationary-satellite orbit. The single-entry power flux-density produced by a station in the inter-satellite service, for all conditions and for all methods of modulation, at all altitudes from 0 km to 1 000 km above the Earth's surface and in the vicinity of all

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	geostationary orbital positions occupied by passive sensors, shall not exceed –148 dB(W/(m2 · MHz)) for all angles of arrival. (WRC-2000)
5.562D	Additional allocation: In Korea (Rep. of), the frequency bands 128-130 GHz, 171-171.6 GHz, 172.2-172.8 GHz and 173.3- 174 GHz are also allocated to the radio astronomy service on a primary basis. Radio astronomy stations in Korea (Rep. of) operating in the frequency bands referred to in this footnote shall not claim protection from, or constrain the use and development of, services in other countries operating in accordance with the Radio Regulations. (WRC-15)
5.562E	The allocation to the Earth exploration-satellite service (active) is limited to the band 133.5-134 GHz. (WRC-2000)
5.562F	SUP (WRC-19)
5.562G	SUP (WRC-19)
5.562H	Use of the bands 174.8-182 GHz and 185-190 GHz by the inter-satellite service is limited to satellites in the geostationary-satellite orbit. The single-entry power flux-density produced by a station in the inter-satellite service, for all conditions and for all methods of modulation, at all altitudes from 0 to 1 000 km above the Earth's surface and in the vicinity of all geostationary orbital positions occupied by passive sensors, shall not exceed -144 dB(W/(m2 · MHz)) for all angles of arrival. (WRC-2000)
5.563	SUP (WRC-03)
5.563A	In the bands 200-209 GHz, 235-238 GHz, 250-252 GHz and 265-275 GHz, ground-based passive atmospheric sensing is carried out to monitor atmospheric constituents. (WRC-2000)
5.563AA	In the frequency band 235-238 GHz, stations in the Earth exploration-satellite service (passive) shall not claim protection from stations in the fixed and mobile services. (WRC-23)
5.563B	The band 237.9-238 GHz is also allocated to the Earth exploration-satellite service (active) and the space research service (active) for spaceborne cloud radars only. (WRC-2000)
5.564	SUP (WRC-2000)
5.564A	For the operation of fixed and land mobile service applications in frequency bands in the range 275-450 GHz: The frequency bands 275-296 GHz, 306-313 GHz, 318-333 GHz and 356-450 GHz are identified for use by administrations for the implementation of land mobile and fixed service applications, where no specific conditions are necessary to protect Earth exploration-satellite service (passive) applications. The frequency bands 296-306 GHz, 313-318 GHz and 333-356 GHz may only be used by fixed and land mobile service applications when specific conditions to ensure the protection of Earth exploration-satellite service (passive) applications are determined in accordance with Resolution **731 (Rev.WRC-23)**. In those portions of the frequency range 275-450 GHz where radio astronomy applications are used, specific conditions (e.g. minimum separation distances and/or avoidance angles) may be necessary to ensure protection of radio astronomy sites from land mobile and/or fixed service applications, on a case-by-case basis, in accordance with Resolution **731 (Rev.WRC-23)**. The use of the above-mentioned frequency bands by land mobile and fixed service applications does not preclude use by, and does not establish priority over, any other applications of radio services in the range of 275-450 GHz. (WRC-23)
5.565	The following frequency bands in the range 275-1 000 GHz are identified for use by administrations for passive service applications: – radio astronomy service: 275-323 GHz, 327-371 GHz, 388-424 GHz, 426-442 GHz, 453-510 GHz, 623-711 GHz, 795-909 GHz and 926-945 GHz; – Earth exploration-satellite service (passive) and space research service (passive): 275-286 GHz, 296-306 GHz, 313-356 GHz, 361-365 GHz, 369-392 GHz, 397-399 GHz, 409-411 GHz, 416-434 GHz, 439-467 GHz, 477-502 GHz, 523-527 GHz, 538-581 GHz, 611-630 GHz, 634-654 GHz, 657-692 GHz,

Footnotes

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	713-718 GHz, 729-733 GHz, 750-754 GHz, 771-776 GHz, 823-846 GHz, 850-854 GHz, 857-862 GHz, 866-882 GHz, 905-928 GHz, 951-956 GHz, 968-973 GHz and 985-990 GHz. The use of the range 275-1 000 GHz by the passive services does not preclude use of this range by active services. Administrations wishing to make frequencies in the 275-1 000 GHz range available for active service applications are urged to take all practicable steps to protect these passive services from harmful interference until the date when the Table of Frequency Allocations is established in the above-mentioned 275-1 000 GHz frequency range. All frequencies in the range 1 000-3 000 GHz may be used by both active and passive services. (WRC-12)

Footnotes

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8 LIST OF FREQUENCY BANDS USED FOR MARITIME SERVICES

Frequency Band	Frequency Used	Services
505-526.5 kHz	518 kHz	[Transmission of MSI (Appendix 15 of ITU RR)[12] (Meteorological, navigational, and other urgent information)
2 173.5-2 190.5 kHz	2 182 kHz	Distress, Urgency and Safety communications (traffic) by radio telephony (voice) (Appendix 15 of ITU RR)
	2 187 kHz	DSC Watchkeeping (Article 31) (Appendix 15 of ITU RR)
4 063-4 438 kHz		(Appendix 17)[13]
		(Appendix 17)
	4 125 kHz	Distress, Urgency and Safety communications (traffic) by radio telephony (voice) (Appendix 15 of ITU RR)
	4 207.5 kHz	DSC watchkeeping (Article 31) (Appendix 15 of ITU RR)
	4 369 kHz	(Appendix 17)
	4 375 kHz	Transmission of meteorological bulletins; notices to navigators; (Appendix 17)
	4 417 kHz	Coast Station duplex transmission of Channel 421.
6 200-6 525 kHz	6 203 kHz	(Appendix 17)
	6 215 kHz	Distress, Urgency and Safety communications (traffic) by radio telephony (voice) (Appendix 15 of ITU RR)
	6 312 kHz	DSC watchkeeping (Article 31) (Appendix 15 of ITU RR)
	6 504 kHz	(Appendix 17)
8 195-8 815 kHz	8 207 kHz	(Appendix 17)
	8 216 kHz	(Appendix 17)
	8 255 kHz	(Appendix 17)
	8 291 kHz	Distress, Urgency and Safety communications (traffic) by radio telephony (voice) (Appendix 15 of ITU RR)

[12] Only distress and safety communications are provided, with MSI and Medical Assistance at sea. All MF/HF public correspondence ceased as it was no longer commercially viable and sustainable. Other technologies accommodate this type of communications. (Satellite, GSM, Trunked radio networks, etc.).

[13] Public Correspondence facilities with effect from 1 September 2014 has been discontinued.

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Frequency Band	Frequency Used	Services
	8 731 kHz	(Appendix 17)
	8 740 kHz	Transmission of meteorological bulletins; notices to navigators; (Appendix 17)
	8 779 kHz	(Appendix 17)
	8 414.5 kHz	DSC watchkeeping (Article 31)
12 230-13 200 kHz	12 254 kHz	(Appendix 17)
	12 290 kHz	(Appendix 17)
	12 299 kHz	(Appendix 17)
	12 359 kHz	(Appendix 17)
	12 577 kHz	DSC watchkeeping (Article 31) (Appendix 15 of ITU RR)
	13 101 kHz	(Appendix 17)
	13 146 kHz	Transmission of meteorological bulletins; notices to navigators; (Appendix 17)
16 360-17 410 kHz	16 381 kHz	(Appendix 17)
	16 420 kHz	Distress, Urgency and Safety communications (traffic) by radio telephony (voice) (Appendix 15 of ITU RR)
	16 456 kHz	(Appendix 17)
	16 537 kHz	(Appendix 17)
	16 804.5 kHz	DSC watchkeeping (Appendix 15 of ITU RR)
	17 263 kHz	(Appendix 17)
	17 338 kHz	(Appendix 17)

Frequency Band as per NRFP	Frequency Used	Services
154-156.4875 MHz	Several channels used within this range in accordance with Appendix 18 of the ITU RR **Channel 2006-160.900 MHz**	APPENDIX 18 Channel 2006 allocated for Man Overboard Devices used for search and rescue operations. New AIS technologies.
156.7875-156.8125 MHz	Channel 16 in accordance with Appendix 18 of the ITU RR **156.7750** **156.8250**	**Appendix 18.** **Mobile Satellite Earth to Space for long range AIS broadcasts (ship stations)**

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156.8375-162.0250 MHz	Several channels used within this range in accordance with Appendix 18 of the ITU RR	
	Channel 28 in accordance with Appendix 18 of the ITU RR	**APPENDIX 18** services allocated: Coast Station Analogue Maritime Safety Information (MSI) transmissions using Simplex configurations - 01 to 05; and 60 to 65. Priority to digital transmissions as per Footnote w) from 1 January 2017. Protection of Channel 70 for DSC and Channel 16 distress communications, AIS1 (161.970 MHz) and AIS2 (162.025) for navigational safety

Short Title and Commencement

This document shall be called the "*National Radio Frequency Plan 2026"* and will come into force upon publication in the Government Gazette.

Repeals

1. The National Radio Frequency Plan 2021.

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9 REFERENCE INFORMATION SOURCES

ITU documents

- SM.2015: Methods for determining national long-term strategies for spectrum utilization
- Report ITU-R SM.2012-7 (06/2025)
- Final Acts from WRC-2023
- Report ITU-R M.2290-0 (12/2013) Future spectrum requirements estimate for terrestrial IMT
- Report ITU-R M.2078, "Estimated Spectrum Bandwidth Requirements for the Future Development of IMT-2000 and IMT-Advanced," 2006
- The Radio Regulations from 2016
- The Radio Regulations from 2020
- The Radio Regulations 2024

The Authority published similar Documents

- SABRE I
- SABRE II
- SATFA 1997
- NRFP 2010
- NRFP 2013
- NRFP 2018
- NRFP 2021
- ECA and associated documents
- The Frequency Migration Plan 2013
- The Frequency Migration Plan 2019
- The Frequency Migration Plan 2019 as amended/The Draft Frequency Migration Plan 2024 (still to be concluded)
- Reference RFSAPs will be included in the NRFP 2026.
- IMT RoadMap 2014
- IMT Roadmaps 2019

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DEPARTMENT OF EMPLOYMENT AND LABOUR

NOTICE 4045 OF 2026

Notice published by the Essential Services Committee ('the Committee') in terms of Section 71, read with Section 70(B)(1)(d) of the Labour Relations Act, 1995 (Act No 66 of 1995 as amended)

A. Notice is hereby given in terms of Section 71, read with Section 70(B)(1)(d) of the Labour Relations Act, 1995 (Act No 66 of 1995 as amended), that the Committee is in the process of conducting an investigation as to whether the following services are essential:

1. **The psychosocial support services, technical support services, and quality assurance services rendered through the Gender-Based Violence Command Centres**
2. **Child protection services including investigating allegations of abuse; removal of a child from an unsafe environment; obtaining urgent Children's Court intervention; placing a child in alternative care; and any action necessary to protect the life, health and safety of children;**
3. **Integrated and smart waste management services;**
4. **The services of transportation, emergency delivery and logistical supply of specialised hazardous water treatment and purification chemicals to municipal water treatment facilities, wastewater treatment facilities and entities responsible for the purification and distribution of potable water; and**
5. **The lamproom safety functions including maintenance, repairs, calibration and testing the equipment and the associated electronic systems upon which the safety function depends.**

B. **Notice is hereby given in terms of Section 71(9) read with Section 70B(1)(d) for the investigation on the possible variation or cancellation of the following designation rendered by the Committee:**

1. **11 May 2018, under GN 41621, the designation of the service described as "services rendered at the Safari 1 Research Reactor" under the nuclear services designation.**

The Committee is conducting this investigation with the view of considering, amongst others, the necessity to limit the designation only to Safari 1 Research Reactor or include other research reactors.

C. **Notice is hereby given that the Committee will hear oral representations as follows:**

(i) Date: 26 August 2026
Venue: CCMA Offices, 78 Darling Street **Cape Town**
Sector: Psychosocial support, technical support, and quality assurance services rendered through the Gender-Based Violence Command Centres **@ 10:00**
Child protection services **@ 10:00**
Integrated and smart waste management services **@ 12:00**
Transportation, emergency delivery and logistical supply of critical chemicals used for water purification **@ 12:00**
The services rendered at the Safari 1 Research Reactor **@ 14:00**
The lamproom safety functions **@ 14:00**

(ii) Date: 27 August 2026
Venue: CCMA Offices, 97 Govan Mbeki Avenue **Gqeberha**
Sector: Psychosocial support, technical support, and quality assurance services rendered through the Gender-Based Violence Command Centres **@ 10:00**
Child protection services **@ 10:00**
Integrated and smart waste management services **@ 12:00**
Transportation, emergency delivery and logistical supply of critical chemicals used for water purification **@ 12:00**
The services rendered at the Safari 1 Research Reactor **@ 14:00**
The lamproom safety functions **@ 14:00**

(iii) Date: 01 September 2026
Venue: CCMA Offices, 275 Anton Lembede Street, Embassy House **Durban**
Sector: Psychosocial support, technical support, and quality assurance services rendered through the Gender-Based Violence Command Centres **@ 10:00**
Child protection services **@ 10:00**
Integrated and smart waste management services **@ 12:00**
Transportation, emergency delivery and logistical supply of critical chemicals used for water purification **@ 12:00**
The services rendered at the Safari 1 Research Reactor **@ 14:00**
The lamproom safety functions **@ 14:00**

(iv) Date: 02 September 2026
Venue: CCMA Offices, 28 Harrison Street, 13th floor, **Johannesburg**
Sector: Psychosocial support, technical support, and quality assurance services rendered through the Gender-Based Violence Command Centres **@ 10:00**
Child protection services **@ 10:00**
Integrated and smart waste management services **@ 12:00**
Transportation, emergency delivery and logistical supply of critical chemicals used for water purification **@ 12:00**
The services rendered at the Safari 1 Research Reactor **@ 14:00**
The lamproom safety functions **@ 14:00**

D. The hearings will be conducted physically at the above offices, and virtually for any interested party to access the hearings and participate from anywhere. Any interested party requiring an opportunity to participate in the hearings must submit written representations and indicate if it requires an opportunity to make oral representations in terms of the ESC Regulations on or before the 21st of August 2026. In the written submissions, the parties must:

1. Submit the above to either ZamangwevuM@CCMA.org.za or to fax: 086 660 6132;
2. Comply with ESC Regulation 2, i.e. state the nature of the interest in the investigation in their written representations; state whether it relies or intends to rely on any expert evidence, and if so, provide a brief summary of that expert evidence; etc and
3. Specify its address, telephone, telefax numbers and e-mail contact address.
4. In line with ESC Regulation 3(2) the ESC hereby (in this notice) also confirms the place and time for the different hearings to be held in this investigation.

NB: Kindly note that the ESC will convene an information sharing session regarding the above investigations on the 13th of August 2026 @ 10:00 at the CCMA National Office 28 Harrison Street and virtually. Kindly confirm your attendance to the briefing session no later than the 6th of August 2026 to ZamangwevuM@ccma.org.za.

For all Inquiries, please contact Zamangwevu Moshani on ZamangwevuM@ccma.org.za.



Ms Grace Mafa-Chali

ESC Chairperson

DEPARTMENT OF RURAL DEVELOPMENT AND LAND REFORM

NOTICE 4046 OF 2026

land reform & rural development
Department:
Land Reform and Rural Development
REPUBLIC OF SOUTH AFRICA

Private Bag X833, PRETORIA, 0001; 600 Lillian Ngoyi Street, PRETORIA, 0002
Tel: 012 – 312 8911; E-mail: queries@dlrrd.gov.za; Website: www.dlrrd.gov.za

Form 2

(Regulation 2(1))

DEPARTMENT OF LAND REFORM AND RURAL DEVELOPMENT

UPGRADING OF LAND TENURE RIGHTS ACT, 1991 (ACT NO. 112 OF 1991): SECTION **2**

Notice of an application for conversion of a land tenure right by the Minister

I, Terries Ndove, Deputy Director General of Land Redistribution and Tenure Reform Branch, received an application for the conversion of a land tenure right described below.

Interested persons are hereby informed of the application for the conversion of the land tenure right.

Any person interested in the application may object to such application within a period of (30) thirty days from the publication of this notice. An objection to the application must be lodged at the address below.

1. The name, surname, identity number and residential address of the applicant:
Hlogwana Rabela Dorcus, Identity Number: , Erf Number 1418, Daveyton, Gauteng Province

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No	Name & Surname	Erf Number	Title Number	Identity Number
1.	Hlogwana Rabela Dorcus	1418 Daveyton	TL69908/1997	400520****082
2.	Thimane Josua Zacharia Maretela Grace Kebudihile	13962 Kagiso Ext 10	TL6101/1992	641127****082 621212****087
3.	Gatyeni Kuduhane Elizabeth	2020 Daveyton	TL31993/1998	370415****088
4.	Masombuka Pauline Julia	11895 Daveyton	TL33014/1998	260303****080
5.	Ntuli Tiki Anna	7313 Kwa-Thema	TL9405/1989	280101****085
6.	Mphahlele Nkagisang Lydia	4388 Emdeni	TL11331/1998	570518****082
7.	Manyane Elmon Lonas	11318 Tokoza Ext 2	TL38615/2010	600920****086
8.	Nyathikazi Lilian Selafa	13236 Tsakane Ext 9	TL59878/1997	591117****084
9.	Moagi Thusoitsile Maxwell	1899 Protea North	TL3990/1986	471015****089
10.	Mangwane Salani Daniel Mangwane Catherine	23245 Diepkloof	TL22332/1995	36050****081 440422****086
11.	Ncelekazi Goodman Mhlauli	245 Maluti	G171/1989	541217****707
12.	Mlangeni Alfred Mlangeni Thokozile Lizzy	74 Thinthwa Village	TL39940/1996	590209****081 660112****085
13.	Monthato Dineo Getrude	904 Kagiso	TL3069/1988	470919****083
14.	Kuduhane Elizabeth Gatyeni	2020 Daveyton	TL31993/1998	370415****088
15.	Nonhlahla Bridget Lekubu	13738 Tsakane Ext 9	TL21136/1999	710217****084
16.	Ncube Lehlohonolo Josiah Ncube Desire Nthopo	6357 Kagiso	TL83553/1998	571210****085 570426****086
17.	Sifiso Aubrey Buthelezi Bongani Buthelezi	13523 Diepkloof SOWETO	TL18772/2014	751127****087 780622****089

2. The nature of the land tenure right:

Lease Hold

3. The location of the property by stand number, known name for the area; name of local municipality and the province:

Erf Number 1418, Daveyton, Township, City of Ekurhuleni Metropolitan Municipality, Gauteng Province

4. The description of the property:

House

5. The capacity in which the land tenure right is being held or could have been held by the applicant:

Owner

6. If the application is made on behalf of more than one-person, personal particulars of such other persons:

N/A

7. Address at which objection can be lodged:

(Physical address): Department of Land Reform and Rural Development
600, Lilian Ngoyi, Berea Park
Pretoria
0001
(Email address): queen.filani@dlrrd.gov.za

MR. TERRIES NDOVE
DEPUTY DIRECTOR GENERAL: LAND REDISTRIBUTION AND TENURE REFORM
DATE: 2026/07/01

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DEPARTMENT OF RURAL DEVELOPMENT AND LAND REFORM

NOTICE 4047 OF 2026

land reform &
rural development
Department:
Land Reform and Rural Development
REPUBLIC OF SOUTH AFRICA

Private Bag X833, PRETORIA, 0001; 600 Lillian Ngoyi Street, PRETORIA, 0002
Tel: 012 – 312 8911; E-mail: queries@dlrrd.gov.za; Website: www.dlrrd.gov.za

Form 2

(Regulation 2(1))

DEPARTMENT OF LAND REFORM AND RURAL DEVELOPMENT

UPGRADING OF LAND TENURE RIGHTS ACT, 1991 (ACT NO. 112 OF 1991): SECTION **2**

Notice of an application for conversion of a land tenure right by the Minister

I, Terries Ndove, Deputy Director General of Land Redistribution and Tenure Reform Branch, received an application for the conversion of a land tenure right described below.
Interested persons are hereby informed of the application for the conversion of the land tenure right.

Any person interested in the application may object to such application within a period of (30) thirty days from the publication of this notice. An objection to the application must be lodged at the address below.

1. The name, surname, identity number and residential address of the applicant:
   Zondo linda William, Identity Number:
   Erf Number 30959 Daveyton Ext 6 township, Gauteng Province

2. The nature of the land tenure right:
   LeaseHold

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No	Name & Surname	Erf Number	Title Number	Identity Number
1.	Zondo linda William Ratshalingwa Azwihangwisi Lilly	30959 Daveyton Ext 6	TL24844/2007	750808****084 780824****088
2.	Zwane Michack Israel Zwane Faith Sebezile	1424 Etwatwa Ext 2	TL3672/1989	551005****082 591126****085
3.	Ndlovu Fana Johannes Ndlovu Galu Johanna	16483 Vosloorus Ext 4	TL26656/1989	500421****085 511025****084
4.	Molala Saphrat Petrus	18711 Tsakane Ext 8	TL48671/1989	360912****086
5.	Mazibuko Madoda Theophinus Mazibuko Lettie Poppy	2415 Vosloorus	TL1587/1991	421024****080 421213****087
6.	Makoko Masenehe Melitta	83 Mngadi, Katlehong	TL27799/1986	460914****080
7.	Marule Tumelo Ignatias Marule Cedric Neo	201 Mngadi, Katlehong	T23774/2014	770513****083 830814****087
8.	Twala Ditshego Isaac Twala Louisa Mpola	8827 Daveyton Ext 2	TL7506/1987	600228****087 630919****086
9.	Matshuisa Masing Pauline	2334 Mohlakeng.	TL3820/1991	480710****085
10.	Ndlovu Siphiwo Raphael Ndlovu Bantswele Grace	16371 Daveyton Ext 2	TL31883/1986	01/01/1951 500412****087
11.	Mahlangu Sarah Namsizi	101Kwenele Katlehong	TL26127/2001	700603****086
12.	Dhlamini Thibaza Gloria	1496 Etwatwa Ext 2	TL69768/2005	770211****085
13.	Themba Ntlaka Jerry	14823 Daveyton Ext 3	TL11352/2000	611022****087
14.	Mokoena Fanyana Bennett Mokoena Nomasonto Emma	9120 Kwa-Thema	TL9237/1987	420319****085 400629****087
15.	Moepye Ben	6257 Tokoza	TL35451/2000	600511****089

16.	Mashabane Fisokuhle Sphiwe	5286 Orlando East SOWETO	T37403/2025	941223****081
17.	Dumse Thabiso Clarington	10573 Kwa-thema	TL31399/1985	470307****082
18.	Mahlangu Simon Mthunzi Elsie Lettie	15558 Etwatwa Ext 8	TL1741/1993	480325****087 570113****082
19.	Mahlangu Dorah Dolly Mahlangu Khwisha Michael	2885 Wattville	TL1024/2000	581219****087 501127****080
20.	Mekgoe Moeketsi Bennett	5626 Pimville Zone 5 SOWETO	TL2859/1986	440828****081
21.	Mbokane Sydney Sekete	2538 Wattville	TL9297/2003	620928****080
22.	Loti Dorothy Loti Moloi Joseph	442 MMesi Park SOWETO	TL49936/1990	620718****081 551209****085
23.	C. Mabunda INC	1974 Protea North SOWETO	T15177/2024	201940****121
24.	Mbazima Thomas Rikhotso Ramasela Rikhotso	1821 Klipspruit Ext 2 SOWETO	TL33003/1987	590930****088 590731****081
25.	Midjadji Annie Mabunda	1004 Chiawelo SOWETO	TL11443/1992	290701****080

3. The location of the property by stand number, known name for the area; name of local municipality and the province:

Erf Number 30959 Daveyton Ext 6 township, City of Ekurhuleni Metropolitan Municipality

Gauteng Province

4. The description of the property:

House

5. The capacity in which the land tenure right is being held or could have been held by the applicant:

Owner

6. If the application is made on behalf of more than one-person, personal particulars of such other persons:

Ratshalingwa Azwihangwisi Lilly, Identity Number: 7808240356088

7. Address at which objection can be lodged:

(Physical address): Department of Land Reform and Rural Development

600, Lilian Ngoyi, Berea Park

Pretoria

0001

(Email address): queen.filani@dlrrd.gov.za

MR. TERRIES NDOVE
DEPUTY DIRECTOR GENERAL: LAND REDISTRIBUTION AND TENURE REFORM
DATE: 2026/06/22

BOARD NOTICES • RAADSKENNISGEWINGS

BOARD NOTICE 963 OF 2026

CONSTRUCTION INDUSTRY DEVELOPMENT BOARD

PUBLICATION OF THE DRAFT SECOND EDITION OF THE STANDARD FOR UNIFORMITY IN CONSTRUCTION PROCUREMENT FOR PUBLIC COMMENT

1. The Construction Industry Development Board has, under sections 4(f), 5(3)(c) and 5(4)(b) of the Construction Industry Development Board Act, 2000 (Act No. 38 of 2000) (the Act), read with Regulation 24 of the Construction Industry Development Regulations issued in terms of section 33 of the Act, published the first edition of the *Standard for Uniformity in Construction Procurement* in Board Notice 62 of 2004 in Government Gazette No. 2647 of 9 June 2004. Several amendments were subsequently made to this Standard, with the last amendment issued in Board Notice No. 136 of 2015 in Government Gazette No. 38960 of 10 July 2015. The second edition, as set out in Schedule 1, replaces the first edition of 2004 and the *Standard for Uniformity in Engineering and Construction Works Contracts* issued in terms of Notice 423 of 2019 in Government Gazette No. 42622 of 8 August 2019.

2. A copy of the draft second edition of the *Standard for Uniformity in Construction Procurement* will be made available on the cidb website at www.cidb.org.za. Written comments on the draft standard must be submitted using the following link: CIDB Standard for Uniformity in Construction Procurement - Version 2 - Public Comments by **31 August 2026**. Enquiries may be submitted to cidbSFU2026PublicComments@CIDBoard.onmicrosoft.com.

3. Comments must clearly indicate the clause, paragraph or section of the draft standard to which the comment relates, together with the proposed amendment or recommendation, where applicable. Late submissions may not be considered.

Construction Industry Development Board

Standard for Uniformity in Construction Procurement

Draft Second edition

2 April 2026

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Standard for Uniformity in Construction Procurement

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Introduction

The Construction Industry Development Board (CIDB) has a mandate in terms of its founding Act (Act no 38 of 2000) to:

- determine and establish best practices that promotes procurement and delivery management reform and improved public sector delivery management; and
- promote best practices through the development and implementation of appropriate programmes and measures aimed at participants in the construction delivery process.

The construction industry comprises the broad conglomeration of industries which add value in the creation and maintenance of fixed assets within the built environment including building and engineering infrastructure. The way clients approach procurement in this industry has a major influence on how the industry behaves, performs, and ultimately delivers value in projects. For each individual project or group of projects, the client's procurement strategy and delivery management arrangements is what orchestrates the collaboration between design professionals, contractors, and subcontractors, ensuring that client requirements are met efficiently and effectively. Procurement processes not only bring together these various contributors but also establish the terms of engagement, defining the roles, responsibilities, and risks that bind the parties, with the aim of achieving value for money and optimizing project outcomes.

Projects and programmes associated with the development, extension, installation, repair, maintenance, renewal, removal, renovation, alteration, dismantling or demolition of a fixed asset including building and engineering infrastructure are delivered through a supply chain. Contracts bind the participants in the supply chain. The delivery of such projects embraces:

- a "buying" or client delivery management function focusing on client delivery management practices (plan, specify, procure and oversee delivery);
- a "supply" or delivery function focussing on the management and integration of the resources required to deliver the project.

The specificities relating to project delivery within the construction industry include:

- the need to simultaneously address the geography, site conditions, communities, physical environments, existing construction works, as well as a wide range of stakeholder requirements, client value propositions and project constraints;
- an ever-changing, complex environment, often with a high degree of known and unknown risks;
- the scale and complexity of projects require high-impact evidence-based decision making with material implications for cost and outcomes;
- the frequent one-of-a-kind product which is delivered on a particular site rather than mass-produced items delivered in a factory environment;
- the unique design of engineering infrastructure within a system of interdependent assets which invariably requires optimization within the environment within which it operates and alignment of interfaces with the operational characteristics and parameters of its components;
- the frequent integration of built environment professions and engineering disciplines and specialists in the design and delivery processes;
- the delivery of a project in phases, which provides an opportunity to review and refine the project design and implementation strategy, as well as to validate the investment intention;

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- the industry being almost entirely based on a competitive market environment for project cost, schedule and performance delivery;
- the nature of the contracting construction businesses which are paid for work in progress and become a conduit for payment to those businesses who do the actual work;
- projects being delivered through multiple contracts where:
    - the individual pieces in a single project have no value without every other piece being successfully completed;
    - requirements (specifications), availability of resources (supply-side issues) and the context (how and why projects take place) can change between project inception and completion, particularly where there is an appreciable time between these milestones;
- the involvement of different combinations of funders, professionals, site conditions, materials and technologies and general contractors, specialist contractors, skills and workforces on each project;
- the development or utilization of land;
- the magnitude of individual transactions which can form a major portion of the annual turnover or the assets of organizations and stakeholders involved in the process;
- construction works, with a few exceptions, being acquired to support social and economic activities and, as such, forming inputs into broader projects, beyond the construction sector; and
- the buying or client function requires significant built environment professional capability throughout the process of conceptualisation, implementation and maintenance i.e., throughout the full life-cycle of a project.

The second edition of the CIDB Standard for Uniformity in Construction, which replaces the first edition which was first published in 2004 and last amended in 2015, expands the scope of the first edition to:

- embrace the delivery management function associated with project delivery within the construction industry and aligns it with the specificities of the construction industry;
- standardize processes and procedures for a procurement system as envisaged in the Public Procurement Act of 2024; and
- give effect to the call for government to be a sophisticated client and to make a step change in the planning, procurement and execution systems with capabilities to be operating at the highest global standard as articulated in the National Infrastructure Plan 2050 (NIP 2050) published in terms of the Infrastructure Development Act of 2014.

This standard must be implemented by all organs of state as defined in section 239 of the Constitution of the Republic of South Africa. Given that it is framed around national and international best practices it is suitable for implementation in the private sector in whole or part as a best practice as well as organisations operating in the public sector which are not organs of state.

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Standard for Uniformity in Construction Procurement

1 Scope

1.1 This standard establishes requirements for a construction procurement system for:

a) the delivery of an organisation's construction works projects; and

b) the contracting of goods or services which add value in the creation and maintenance of construction works including professional services.

1.2 This standard provides:

a) uniform and standard processes, methods and procedures to perform procurement and delivery management functions in the delivery or maintenance of construction works;

b) generally applicable requirements for an organisation's procurement system as provided for in the Public Procurement Act of 2024;

c) control frameworks within which decisions may be made in relation to:

1) project delivery from project inception or the initiation of a contract to the close out of the project or contract; and

2) procurement tasks associated with the initiation of a procurement process, the preparation of procurement documents, the evaluation of submissions and the award and management of contracts;

d) a framework for the standardisation of procurement documents; and

e) ethical practices that regulate the actions, practices and procedures of those engaged in the procurement system for project delivery.

1.3 This standard:

a) includes the procurement of goods and / or services necessary for a new facility, structure or system as delivered to be used or occupied as a functional entity; and

b) excludes digital or analogue communication systems and petty cash purchases.

Note: Annex A provides guidance on the implementation of this standard.

2 Normative references

The following documents are referred to in the text in such a way that some or all their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

AACE International (2020a). Cost Estimate Classification System – as applied in Engineering, Procurement, and Construction for the Building and General Construction Industries. Recommended Practice No 56-R08

AACE International (2020b). Cost Estimate Classification System – as applied in Engineering, Procurement, and Construction for the Process Industries. Recommended Practice No 18R-97

CIDB Code of Conduct for all parties engaged in construction procurement as published by CIDB Notice No 127 in Gazette No. 25656 of 31 October 2003

Construction Industry Regulations issued in terms of the Construction Industry Development Board Act of 2000 (Act 38 of 2000)

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HM Treasury, Infrastructure and Projects Authority, Infrastructure Business Case: International Guidance

ISO 6082, Construction project governance — Guidance on delivery management

ISO 21502, Project, programme and portfolio management — Guidance on project management

SANS 10845-1/ ISO 10845-1, Construction procurement — Part 1: Processes, methods and procedures

SANS 10845-2/ ISO 10845-2:, Construction procurement — Part 2: Formatting and compilation of procurement documents

SANS 10845-3/ ISO 10845-3, Construction procurement — Part 3: Standard Conditions of Tender

SANS 10845-4/ ISO 10845-4, Construction procurement — Part 4: Standard Conditions for the Calling for Expressions of Interest

SANS 22058:2024 / ISO 22058:2022, Construction procurement — Guidance on strategy and tactics

SANS 55001 / ISO 55001, Asset Management — Management systems — Requirements

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

advance payment: sum of money paid to the contractor after the contract is signed but before work starts or goods or services or any combination thereof are supplied

agent: a person who is not an employee of an employer who engages in procurement activities on behalf of the employer

asset: completed construction works put into use or operations

asset management plan: documented information that specifies the activities, resources and timescales required for an individual asset, or a grouping of assets, to achieve the client's asset management objectives

authorised amount: the sum of money authorised by the governing body for a project or programme which may not be exceed without authorisation

benefit: created advantage, value or other positive effect

built environment professional: a person registered in one of the following professional category of registration:

a) professional architect or professional senior architectural technologist in terms of the Architectural Profession Act of 2000;

b) professional landscape architect or a professional landscape technologist in terms of the Landscape Architectural Profession of 2000;

c) a professional engineer, professional engineering technologist or professional engineering technician in terms of the Engineering Profession Act of 2000;

d) a professional construction project manager or professional construction manager in terms of the South African Council for the Project Management and Construction Management Council; or

e) a professional quantity surveyor in terms of the Quantity Surveying Professions Act.

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business case: a proposition that explains why a project or programme is necessary or a documented justification to support decision making about the commitment to a project

Note: A business case is a management tool for scoping, planning and evaluating that proposition

class estimate: a categorization of cost estimates into five classes based on their accuracy and project definition level

Note: AACE International publishes class estimate classification systems for various industries

client organisation: the organisation requiring construction works to support a business case or a service delivery mandate which approves the requirements for project delivery

client delivery management team: resources who, through coordinated actions, are responsible for performing the delivery management functions associated with project delivery

Note: A client delivery management team commonly comprises a client delivery manager, a technical team and an administrative team (see ISO 6082)

conflict of interest: a situation where business, financial, family, political or personal interests could interfere with the judgment of persons in carrying out their duties for an organization

Note: a conflict of interest includes any situation in which someone in a position of trust has competing professional or personal interests which make it difficult for them to fulfil their duties impartially, an individual or organization is in a position to exploit a professional or official capacity in some way for their personal or for corporate benefit, or incompatibility or contradictory interests exist between an employee and the organization which employs that employee

contingency sum: a sum of money budgeted for to cover required work that cannot be foreseen or predicted with certainty

contract data: document that identifies the applicable conditions of a contract and states the associated contract-specific data

contract management: application of the terms and conditions of a contract, monitoring of compliance with requirements, management of changes in requirements, determining corrective action and assessing adjustments to cost and schedule occasioned by risk events

contractor: person or body of persons that contracts to supply goods, carry out construction works, provide services or undertake disposals or any combination thereof;

Note: the use of the generic term "contractor" eliminates the need to introduce the terms "service provider" and "supplier" as it has been defined to cover these terms.

control budget: the amount of money which is allocated or made available to deliver or maintain construction works associated with a project, contract or order, including any site costs, professional fees, all service and planning charges, furniture, fittings and equipment, applicable taxes, risk allowances and provision for price adjustment for inflation

control framework: the organisation of activities and actions within a process into discrete tasks or stages which incorporate decision gates enabling informed decision-making relating to authorizations to proceed or confirming compliance with governance requirements

construction procurement: the acquisition of goods, services or any combination thereof in accordance with a procurement system envisaged in Section 24(3) the Public Procurement Act of 2024 aligned with the specificities of the construction industry

construction procurement policy: intensions and directions and accepted principles or instructions which state the client organisation's and / or procuring entity's expectations on what ought to be done and what is allowed or not allowed in implementing this standard

construction works: fixed assets including building and engineering infrastructure

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decision gate: a control point within a process where a decision is required from a person authorised to do so before proceeding to the next process, activity or task

delivery management: critical leadership role played by a knowledgeable client organisation to plan, specify, procure and oversee the delivery of construction works projects including knowledgeable leadership, consistent governance and systematic administration of procurement, contracts and project finances

demand management: co-ordinated activities, based on asset management plans and strategic planning processes, which forecast demand for new and functionality of existing construction works, and reduce, increase, delay or switch demand in response to resource constraints with forecasted consequences

emergency: an event which is unexpected and usually a dangerous situation that poses an immediate risk to health, life, human rights, property, financial loss, livestock, environment or the ability of the organization to maintain critical business functions and requires immediate action

employer: person or body of persons intending to or entering a contract with a contractor to supply goods, carry out construction works, provide services or undertake disposals or any combination thereof

Note: The employer can be the client organisation or the implementing agent

facility: physical structure or installation, including related site works

framework agreement: an agreement between an employer and a contractor, the purpose of which is to establish the terms governing orders to be awarded during a given period, in particular with regard to price and, where appropriate, the quantity envisaged

family member: a person's spouse, whether in a marriage or in a customary union according to indigenous law, domestic partner in a civil union, or child, parent, brother, sister, whether such a relationship results from birth, marriage or adoption

Five Case Model (5CM): a framework for the development and presentation of a business case, comprising the strategic, economic, commercial, financial and management cases – the five dimensions of the case

Note: The Infrastructure Business Case: International Guidance provides guidance on the 5CM which is aligned with the G20 Principles for the Infrastructure Project Preparation Phase

governing body: person or group of people who have ultimate accountability for a whole organization

Note: a governing body includes an accounting authority or an accounting officer as defined in section 1 of the Public Finance Management Act of 1999 and the municipal official referred to in section 60 or section 93 of the Municipal Finance Management Act of 2003 in relation to a municipality and a municipal entity

gratification: an inducement to perform an improper act

infrastructure: physical facilities or structures

maintenance: work undertaken to ensure the continuing performance of completed construction works and made available for use to achieve their expected useful lives in line with the asset management plan**order (call off):** instruction to supply goods, carry out construction works and/or provide services under a framework agreement

package: work which is grouped together for delivery under a single contract or an order issued in terms of a framework agreement

preferential procurement: procurement implemented in accordance with a procuring entity's preferential procurement policy which provides for categories of preference in the allocation of

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contracts and the protection or advancement of persons, or categories of persons, disadvantaged by unfair discrimination

procurement document: documentation used to initiate or conclude (or both) a contract or the issuing of an order (call off)

procurement strategy: selected packaging, contracting, pricing and targeting strategy and selection method for a particular procurement

procuring entity: the client organisation or the organisation which implements elements of a procurement system on behalf of the client organisation

professional services: services including design and consultancy services which are provided with the skill and care normally used by professionals providing services similar to the required service

programme: group of programme components managed in a coordinated way to realize benefits

project: an undertaking which maintains or creates construction works or a series of related construction works including professional services

project delivery: actions and activities associated with the creation or maintenance of construction works

project delivery management plan: a plan which, as a minimum, summarizes the asset management plan, provides a credible forecast of current and net demand for construction works or requirements for functionality and prioritizes projects against a forecasted budget over a number of years

project delivery team: individuals or entities who, through coordinated activities, are collectively responsible for producing project deliverables

project preparation: the actions necessary to ensure that a project is well conceptualised, aligned with client organisation's strategic objectives, is feasible and can be successfully implemented

respondent: person or body that submits an expression of interest in response to an invitation to do so

risk: exposure to the chance of loss, harm or failure to achieve objectives

social facilitation: a structured set of interventions and professional services aimed at mobilising, engaging, and integrating communities into the project delivery processes

stage: a collection of logically related activities in the project delivery cycle that culminates in a major deliverable

stakeholder: person, group or organisation that has interests in, or can affect, be affected by, or perceive itself to be affected by, any aspect of the project

structure: organized combination of connected parts designed to provide some measure of strength and rigidity

submission data: document that establishes the respondent's obligations in responding to a call for an expression of interest and the employer's undertakings in administering the process of calling for and receiving expressions of interest

tenderer: person or body that submits a tender offer

tender data: document that establishes the tenderer's obligations in submitting a tender and the employer's undertakings in administering the tender process and evaluating tender offers

variation: instructed alteration to the nature or the extent of the work as provided for in the contract, or to the conditions under which they will be carried out

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value for money: optimal use of resources to achieve intended outcomes

Note: optimal use of resources results in the most desirable possible outcomes given expressed or implied restrictions or constraints.

work package: the work defined at the lowest level of the work breakdown structure for which cost and duration are estimated and managed

4 System requirements

4.1 General principles

4.1.1 A client organisation requiring project delivery shall ensure that the system as implemented:

a) is fair, equitable, transparent, competitive and cost effective in accordance with the provisions of Table 1 and embrace a construction procurement policy providing for categories of preference in the allocation of contracts and the protection or advancement of persons, or categories of persons, disadvantaged by unfair discrimination as provided for in a framework prescribed by national legislation within which such a policy must be implemented;

b) promotes the efficient, effective and economic use of available resources in an accountable, ethical and development orientated manner; and

c) enables administrative action that is lawful, procedurally fair and reasonable.

Note: 4.1.1a), b) and c) capture the Constitutional imperatives included in Sections 217, 195 and 33 of the Constitution.

Table 1: Procurement system parameters

Parameter	Basic system requirement
Fair	The process of offer and acceptance is conducted impartially without bias and provides participating parties simultaneous and timely access to the same information. Terms and conditions for performing the work do not unfairly prejudice the interests of the parties.
Equitable	The process of offer and acceptance is reasonable, fair and just. The only grounds for not awarding a contract to a tenderer who complies with all requirements are restrictions from doing business with the procuring entity, lack of capability or capacity, legal impediments and conflicts of interest. Procurement is sustainable and has the most positive environmental, social and economic impacts possible.
Transparent	The procurement process and criteria upon which decisions are to be made are publicized. Decisions (award and intermediate) are made publicly available. Reasons for decisions are provided. It is possible to verify that criteria were applied. The requirements of procurement documents are presented in a clear, unambiguous, comprehensive and understandable manner.
Competitive	The system provides for: • open competition as the default procurement method. • a range of procurement methods which facilitate appropriate levels of competition within particular procurement contexts to ensure fair and cost-effective outcomes. Contracts are only concluded at market related prices
Cost-effective	The processes, procedures and methods are standardized with sufficient flexibility enabling best- value outcomes in respect of quality, timing and cost and least resources to effectively manage and control procurement processes. Decision making focusses on the attainment of value for money through the evaluation of relevant costs and benefits together with the assessment of risks.
Promotion of other objectives	The system may incorporate measures to promote objectives associated with a preferential procurement policy in accordance with the framework prescribed in national legislation subject to objectives being measurable, quantifiable and monitored for compliance.

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4.1.2 A governing body requiring project delivery shall, based on the provisions of this standard, develop its construction procurement policy including its preferential procurement policy aligned with applicable national legislation and its delivery capabilities and competencies. Such a policy must as a minimum address the issues identified in Annex A.

Note: This standard needs to be read in conjunction with an organisation's construction procurement policy. It establishes generic and uniform construction procurement system requirements in the form of rules, planning instruments, delegation frameworks which include decision gates, control sequencing and oversight mechanisms. Each organisation has its own governance arrangements, capabilities, capacities and needs for project delivery. It is therefore not possible to standardise the governance arrangement and use of options. At the same time, public sector procurement is in a state of transition in moving towards the implementation of the Public Procurement Act of 2024. As a result, variables such as the number of days are omitted from the text of the standard and need to be stated in a construction procurement policy. Annex A identifies what needs to be included or considered in a construction procurement policy.

4.2 Institutional arrangements

4.2.1 The procurement system established by a client organisation shall include:

a) an effective and efficient planning system which:
   1) provides for the identification and analysis of the procurement needs of the organisation;
   2) ensures that procurement needs support the strategic and operational commitments of the organisation; and
   3) considers the total cost of owning an asset over its useful life from its acquisition to its disposal including its acquisition, operating, maintenance and disposal costs as well as indirect costs such as those associated with environmental and social impacts;

b) effective governance processes to ensure that:
   1) there are proper management and control systems implemented for project delivery including demand management;
   2) all the various parts of the organisation which play a role in project delivery work together in a coordinated, efficient and effective manner;
   3) project delivery is, wherever possible, managed as a long term and strategic system of individual yet interlinked projects aimed at meeting the client organisation's objectives;
   4) there is timeous decision-making and both individual and organisational accountability for project delivery;
   5) single point accountability is assigned to a suitably qualified and experienced practitioner (client delivery manager) to provide executive level leadership in the planning, specifying, procuring and overseeing of project delivery;
   6) control frameworks are established which include decision gates to enable risks to be appropriately and proactively managed and enable the delivery system to be audited;
   7) there is a separation in duties from those:
      i) accounting for the organisation's expenditure and those certifying payments in accordance with the provisions of a contract; and
      ii) managing and accounting for the organisation's expenditure and those managing and accounting for project expenditure; and
   8) procurement is recognized as a central competency of those responsible for project delivery; and

c) a suitable means for the tracking of the progress of projects, the monitoring of performance and at least quarterly reporting to the governance structures.

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Note: Client leadership (see Annex A) and governance are closely connected. Client governance processes should ensure that the client organisation takes ownership of the delivery of construction works projects. Annex A illustrates an appropriate allocation of roles and responsibilities whereby a client delivery manager has single point accountability for project delivery based on ISO 6082.

4.2.2 The client organisation shall appoint a client delivery management team comprising individuals or entities who through coordinated actions are responsible for performing the necessary delivery management functions associated with project delivery in accordance with the guidance provided in ISO 6082. Such a team shall include suitably experienced and qualified built environment professionals to provide advice and to support decision making from project inception to project completion.

4.2.3 Responsibility to perform functions of the client's delivery management team may be performed by internal resources (employees of the client organisation) or external resources (another organ of state or contracted individuals or entities on a full or part time basis). Contracted individuals and entities who function as members of the client delivery management team shall not provide services relating to the project delivery team save as otherwise approved by the procuring entity's governing body on good grounds.

Note: ISO 6082 provides guidance on the roles and responsibilities of those who support project delivery including the client delivery management team.

4.2.4 A client organization may appoint an organ of state (implementing agent) to perform functions associated with a procurement system on their behalf provided that an agency agreement is put in place assigning responsibilities and delegations. Such an agreement shall:

a) establish principles and requirements relating to the recovery of costs associated with the rendering of the service, claims for payments made on an agency basis including the release of retention sums, the settling of claims for payment and the documentation required to accompany such claims; and

b) contain as necessary:

1) overall aims, objectives and priorities;

2) governance structures;

3) reporting requirements;

4) the scope of the services to be performed by the implementer during each financial year;

5) the projects and packages which are included in a project delivery management plan and which are to be delivered, and the timeframes for doing so;

6) the roles and responsibilities of the parties to the agreement, including requirements for the engagement and management of stakeholders;

7) delegations to the implementer to accept end-of-stage deliverables on an agency basis;

8) contributing resources, including human resources; and

9) dispute resolution procedures.

4.3 Governance arrangements

4.3.1 Establishment of control frameworks

4.3.1.1 The client organisation shall put in place suitable control frameworks which are substantially similar to those established in terms of 4.3.2 to 4.3.5 and assign responsibility for decision making at control gates in its construction procurement policy. Additional decision gates may be added to the control framework to address organisational specificities.

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4.3.1.2 Decisions to proceed to the next stage at each decision gate shall be based on the acceptability or approval of the end-of-stage deliverable. The level of detail contained in such deliverables shall be sufficient to enable decision makers to make informed decisions whether to proceed to the next stage or task.

4.3.1.3 All relevant approvals and acceptances that are obtained shall be recorded on suitable templates and retained for record and potential audit purposes in a secure environment for a period of not less than the number of years stated in a construction procurement policy after such approval or acceptance.

4.3.2 Control framework for project preparation

4.3.2.1 Projects shall:

a) be identified through demand management and strategic planning processes (see 4.4 and Figure 1); and

b) following a decision being taken at Stage P0 to advance a project, be prepared for implementation through the project preparation control framework provided for in Figure 1 and Table 3 by:

1) process 1 - being admitted to portfolio planning processes (see 4.5.1 and 4.5.2) ; or

2) process 2 - having the early business case developed before a decision to proceed is made (see 4.3.2.2).

Table 3: Project preparation stages and associated deliverables

Stage	End of stage deliverable
PO Project initiation	An initiation report that outlines the high-level business case which the project seeks to meet with the estimated project cost and proposed schedule for a single project or a group of projects having a similar high-level scope which should as a minimum: • describe why the project is necessary and provide a rationale for the project • provide a project description and high-level scope of work; • outline key issues and solution options that were interrogated and the options that were evaluated; and • decision-making criteria, findings, assumptions and recommendations
P1 Project prioritization and scheduling	Project delivery management plan which identifies and prioritizes projects and work packages against a forecasted budget over a three-to-five-year horizon which should include for each project a high level scope, the proposed time schedule, the estimated total cost and annual budget requirement, the geographical location and any known encumbrances with the estimated time frames for their removal.
P2 Strategic resourcing	A procurement strategy for each project or work package in at least the first year of the project delivery management plan together with the structure and composition of the client delivery management team to oversee the implementation of such strategy
B1 Scoping	Early business case (first stage in developing a project's business case) which focuses primarily on the strategic and economic cases, establishing the 'strategic need' for the project, and a shortlist of options together with high-level costs, benefits and risks
B2 Planning stage leading to procurement	Intermediate Business Case (second, and most substantial, stage in developing the project's Five Case Model (5CM)) which focuses on the economic, commercial, financial and management cases, assesses the shortlist of options through cost benefit analysis to determine a 'preferred option', considers the affordability and commercial viability of the 'preferred option', and identifies the expected resources and management arrangements for the project.
B3 Delivery stage where the procurement leads to contracting	Full business case (third stage in developing a project's Five Case Model (5CM)) which focuses primarily on the procurement process, and updates the economic, commercial, financial and management cases to reflect the negotiated deal.

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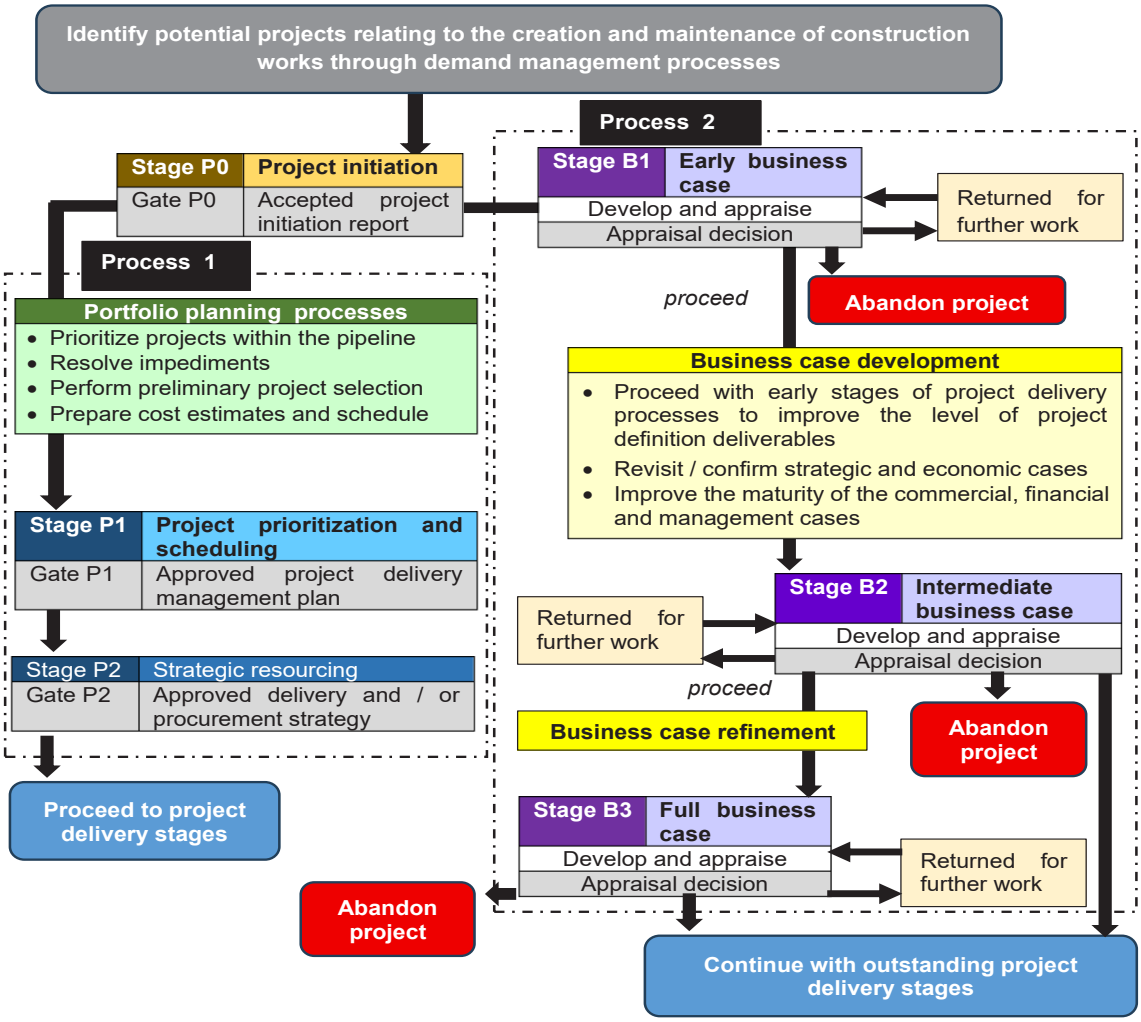


Figure 1: Control framework for project preparation

4.3.2.2 An early business case (process 2) shall be prepared in accordance with the Five Case Model (5CM) (Stage 1) following acceptance of Stage P0 and further refined through Stage B2 and, where necessary, Stage B3, should a project meet one of more of the following conditions:

a) the project or series of interrelated projects on a single site has an estimated cost above a threshold established in terms of legislation or a construction procurement policy;

b) there are several solutions available to satisfy needs and opportunities with significantly different financial and non-financial benefits and risks;

c) there is a need to demonstrate that capital investment and operating costs are affordable from public and/or private resources;

d) possible sources of finance, suitability of the project for green or climate financing, or affordability of options need to be considered including any expected income which the state may generate from the project;

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e) technological novelty such as first-of-a-kind technologies is central to the project;

f) project scope, organisational or stakeholder complexity is high; or

g) required by a construction procurement policy or legislation.

4.3.2.3 Early, intermediate and final business cases shall be developed in accordance with the Five Case Model (5CM) described in the HM Infrastructure and Project's Authority's Infrastructure Business Case: International Guidance as outlined in Table 4 and illustrated in Figure 2. An intermediate business case shall be prepared prior to proceeding with the procurement of a contractor. A full business case shall, if necessary, be developed following the receipt of tenders (see Table 3).

4.3.2.4 The project delivery management plan developed during the portfolio planning processes shall be updated at least annually and supplemented as necessary with periodic structured risk reviews.

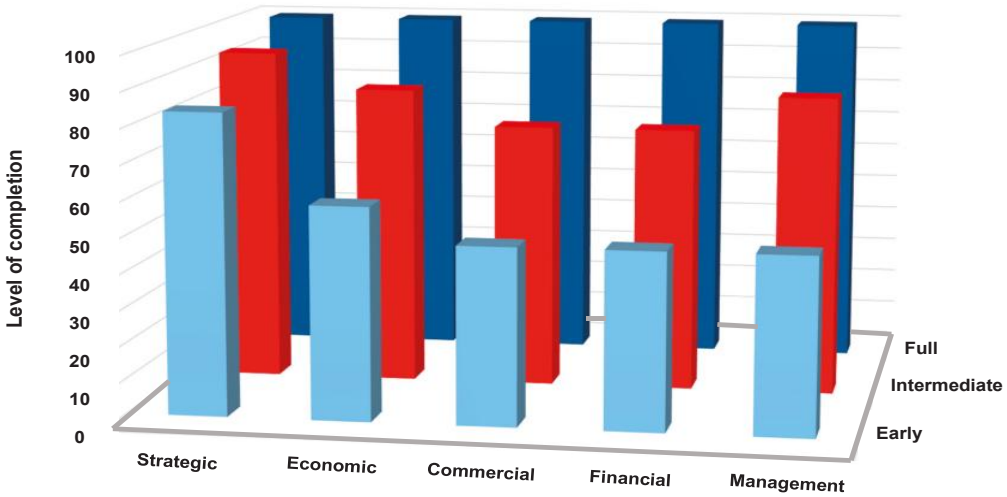


Figure 2: Illustration of the evolution of the full business case form the early business case

4.3.3 Control framework for project delivery

4.3.3.1 Projects shall be delivered within authorised amounts which are included in project delivery management plans (process 1 in Figure 1) or which are approved following the development of a business case (process 2 in Figure 1) when a decision is taken to implement a project. Any increase in the authorised amount must be approved by the governing body.

Note 1: A client organisation can include in the project delivery management plan authorised amounts to cover project preparation processes (process 1 and process 2) and project delivery processes to enable a project to progress to a stage when a decision can be taken to execute the project or not within an authorised amount (see Annex A).

Note 2: The authorised amounts included in the project delivery management plan for project preparation can apply to multiple projects grouped into programmes and need not be separately allocated to a particular project (see Annex A).

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Table 4: Five Case Model

Case	**Early business case** (Scoping stage)	**Intermediate business case** (Planning stage leading to procurement)	**Full business case** (Planning stage where the procurement leads to contracting)
Strategic Case (describes why the project is necessary)	Provides the rationale for the project, evidences the strategic fit, defines the project objectives and outlines the potential scope for the project	Revisits and confirms the project rationale, strategic fit, and objectives, and updates the potential scope accordingly	Confirms and updates as necessary the project rationale, strategic fit, objectives, and the agreed scope
Economic Case (determines how the project will deliver the economic, social, and environmental objectives while achieving the most value for money for society, or public value)	Appraises a range of possible option choices, refines these to a shortlist with high level estimates of costs and benefits and identifies a 'Preferred Approach'	Revisits the longlist of project options, subjects the shortlisted options to detailed cost benefit analysis based on values for Environmental Social Impact Assessments and technical studies and confirms the Preferred Option	Reconsiders and confirms the economic case options based on cost data received from tenderers together with associated whole-life costs.
Commercial Case (demonstrates that the project is commercially viable)	Gives initial thought to the potential commercial and procurement arrangements for the preferred approach.	Sets out the service requirements and outputs for the procurement, including potential arrangements for the allocation of risk between the contracting parties. Provides analysis of the associated charging arrangements and contractual arrangements for the potential deal between the public sector and supply side partners.	Sets out the agreed service requirements and outputs for the procurement. It describes the agreed charging arrangements and contractual arrangements for the deal between the public sector and appointed supplier(s).
Financial Case (demonstrates that capital investment and operating costs are affordable from public and/or private resources, and that sufficient allowance has been made for risk management, monitoring and unexpected events)	Provides indicative whole-life costs (capital plus operating costs) for the preferred approach and considers potential funding and financing options.	Provides best estimates of the whole-life costs (capital plus operating costs, including project contingency sums) for the preferred option, to test the affordability of the project and describes how the project will be funded and financed.	Provides agreed contract costs together with associated public sector costs and describes how the whole-life costs (capital plus operating costs, including project contingency sums) will be funded and financed, as agreed and expected.
Management Case (describes the project delivery team and demonstrates it has the right skills and experience, appropriate governance, and a realistic project delivery plan)	Gives initial thought to delivery arrangements, and the capacity and capability resources required for the preferred approach	Details the expected project management arrangements, including governance, roles and responsibilities, project implementation approach and required resources, and the assurance and evaluation plans	Reviews and finalizes the plans developed at the intermediate stage and show how they will be fit for purpose once the contract has been signed and the project moves into delivery

4.3.3.2 Projects shall be delivered through the project delivery control framework provided for in Figure 3 and Table 5 provided that:

a) where projects are processed through portfolio planning processes (process 1 in Figure 1),

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Stage 1 may only commence following the approval of the project delivery management plan in whole if the budgets are approved; and

b) Stage 1 may be omitted should an early business case have been prepared (process 2 in Figure 1) which incorporates the contents of the end of stage deliverable for Stage 1.

Note ISO 6082 provides guidance on the application of the project delivery control framework for building and construction projects.

Table 5: Stages associated with project delivery

Stage No (AACE class estimate)	**Building and construction projects**		**Process projects**	
	Name	**Typical description of end-of-stage deliverable**	**Name**	**Typical description of end-of-stage deliverable**
1 (class 5)	Preparation and briefing	A strategic brief that defines project objectives, needs, acceptance criteria and client organisation priorities and aspirations, and that sets out the basis for the development of the concept report for one or more work packages	Preliminary concept design (FEL1)	Feasible technical solutions identified, high-level design approaches outlined, block flow diagrams provided and preferred solution selected
2 (class 4)	Concept and viability	A concept report which establishes the detailed brief, scope, scale, form and control budget, and sets out the integrated concept for one or more work packages	Concept design (FEL2)	Conceptual engineering proposal developed which establish the initial project scope, the technical basis for the works including a process flow diagram and mass and energy balance for the adopted solution and "freezes" the out-put level scope
3 (class 3)	Design development	A design development report which develops in detail the approved concept to finalize the design and definition criteria, sets out the integrated design, and contains the cost plan and schedule for one or more work packages	Basic engineering design (FEL3)	Basic engineering package which includes the design philosophy including the process and instrumentation diagram, the detailed scope and "freezes" the design.
4 (Class 2)	Design documentation	Production information and manufacture, fabrication and construction information	Detailed engineering design	Completed detailed engineering design for execution
5	Works	Completed works which are capable of being occupied or used	Works	Completed works which are commissioned
6	Handover	Works which have been taken over by the user or owner complete with record information	Handover	Works which have been taken over by the user or owner complete with record information
7	Close out	Works with notified defects corrected, final account settled and the close out report issued	Package completion	Works with notified defects corrected, final account settled and the close out report issued

Note: FEL (Front-End Loading is also referred to as FEED (Front-End Engineering Design) or FEP (Front End Planning)

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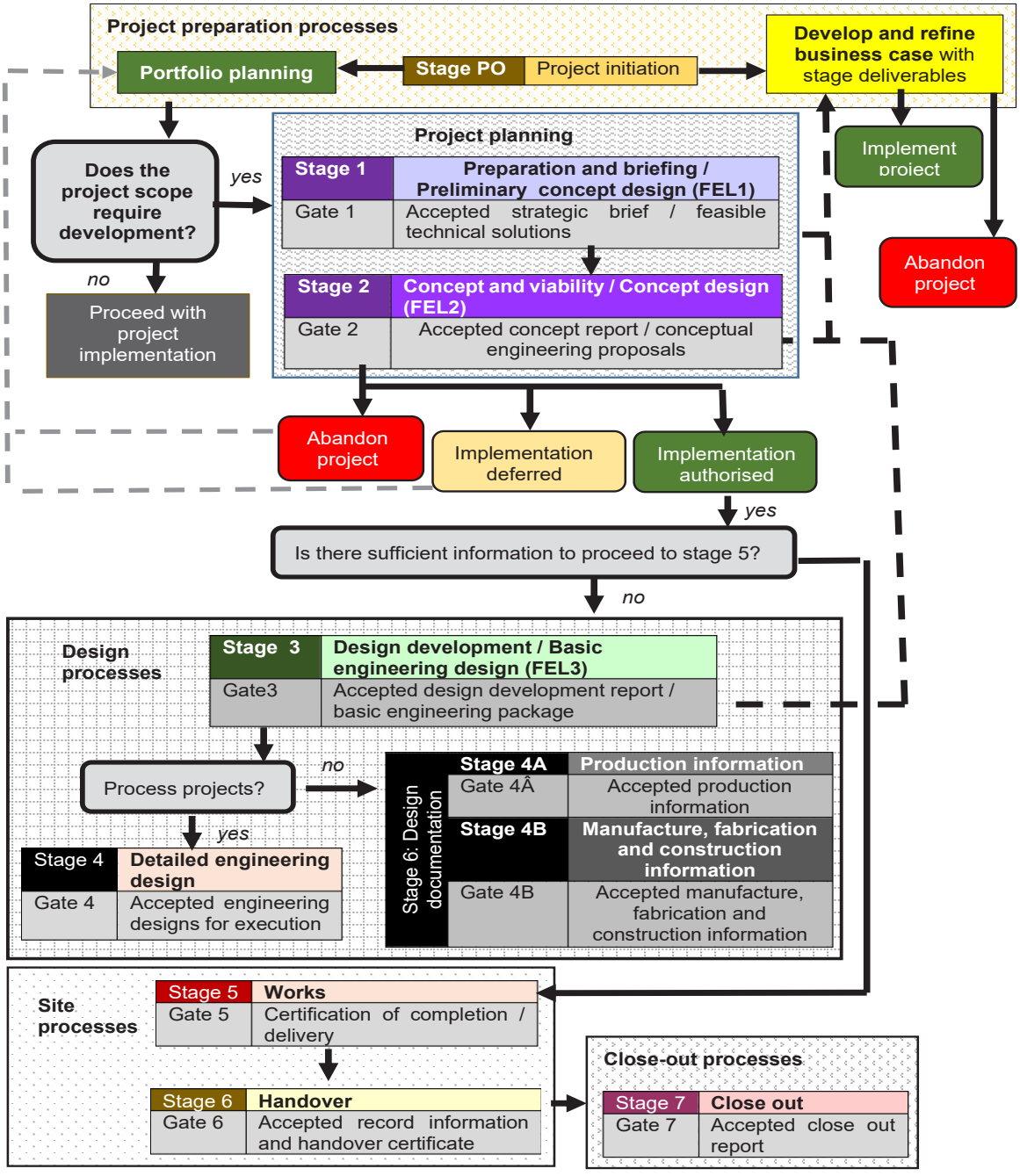


Figure 3: Control framework for project delivery

4.3.3.3 Stages 1 to 7 may be omitted where the project scope does not need to be developed. Stages 3 and 4 may be omitted following the conclusion of Stage 2 if there is sufficient information to proceed to Stage 5.

4.3.3.4 A stage shall only be complete when the deliverable has been approved or accepted by the

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person or persons designated in a construction procurement policy to do so. Activities within stages 4 to 6 may be undertaken in parallel or series, provided that each stage is completed in sequence.

4.3.3.5 The level of detail contained in a deliverable associated with the end of a stage shall in addition to being sufficient to enable informed decisions to be made:

a) be capable of being used to form the basis of the scope of work for a construction contract framed around the adopted procurement strategy should a contractor be appointed following the conclusion of Stages 2, 3 or 4;

b) enable a class 1, 2, 3 or 4 estimate to be made at Stages 1, 2, 3 and 4, respectively, in accordance with the provisions of the relevant AACE International cost estimation system.

Note: The AACE International cost estimation system links classes of estimates to the maturity of project definition deliverables linked to an expected range of accuracy as indicated in Annex A.

4.3.3.6 Procurement processes associated with long lead items of plant, equipment and materials may be initiated before the conclusion of stage 2 (concept and viability or feasibility). No contract may be entered into following such processes until stage 2 has been concluded and the budgets are in place to proceed.

4.3.3.7 Gateway reviews (assurance review point) may be initiated by a client organisation at any of the gates established or identified in Figure 3. Where a gateway review is performed, the procuring entity shall appoint a gateway review team comprising not less than three persons who are not involved in the project and who are familiar with various aspects of the subject matter of the deliverable at the end of the stage under review. The members of the team should, as relevant, have expertise in key technical areas, cost estimating, scheduling and implementation of similar projects and be led by a built environment professional. The independent assurance team shall develop an assessment report of the project which:

a) shows the team's confidence in the project's ability to meet its aims and objectives;

b) offers advice as to whether it has reached a sufficient stage of maturity to proceed to the next stage.

Note: Gateway reviews at the end of stage 2 in Figure 3 provides an effective means for moderating the planned project outcomes and identifying gaps and shortcomings in the information upon which a decision is made to proceed to implementation. Such a review can provide client organisations with the necessary confidence to proceed. ISO 6082 provides guidance on the conducting of gateway reviews.

4.3.3.8 The contents of the gateway review report shall be considered when accepting the end of stage deliverable. A stage deliverable should not be accepted until such time that all risks that pose a significant risk to the project have been addressed.

4.3.4 Control framework for initiating, creating and fulfilling contracts

4.3.4.1 Procurement shall, whenever a negotiated, competitive selection or competitive negotiations selection method is applied, be implemented in accordance with the processes included in Table 6 and the control framework indicated in Figure 4.

Note: SANS ISO 10845-1 provides guidance on the application of the control framework in Annexes D and E.

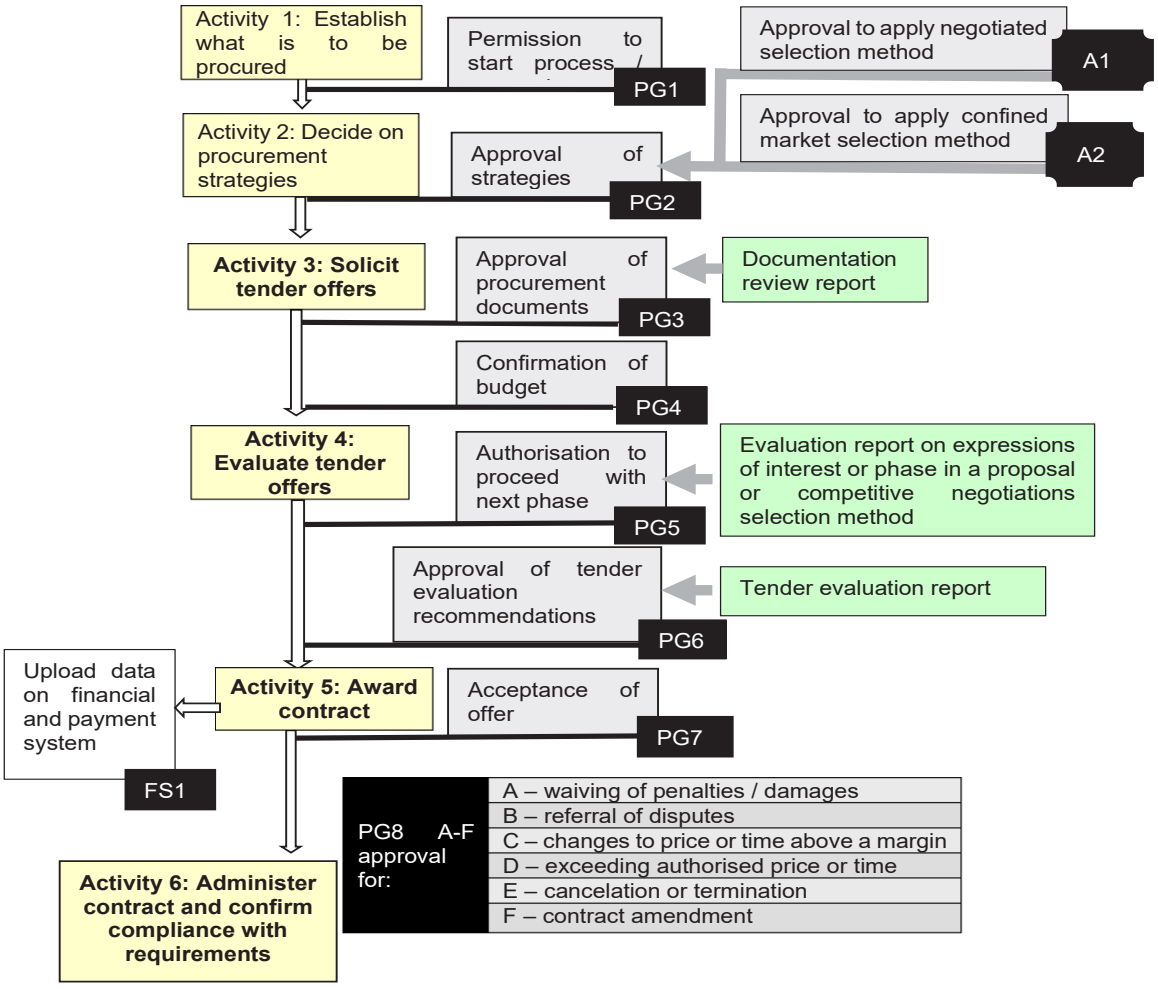
4.3.4.2 Notwithstanding the provisions of 4.2.4.1, where the contract value of the transaction is equal to or less than the prescribed threshold for quotations, the acceptance of an offer shall be based on the evaluation report prepared by the evaluation committee.

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Table 6: Principal actions and sub activities for initiating, creating and fulfilling contracts

Activity		Subactivity	
No.	**Description**		
1	Establish what is to be procured	1. Prepare broad scope of work for procurement	
		2. Estimate financial value of proposed procurement	
		3. Obtain permission to start with the procurement process (PG1)	
2	Decide on procurement strategies	1. Establish opportunities for promoting secondary procurement policies, if any	
		2. Establish contracting strategy	
		3. Establish targeting strategy	
		4. Establish selection method	
		5. Obtain approval for procurement strategies that are to be adopted (PG2)	
	Solicit tender offers	1. Prepare procurement documents	
		2. Obtain approval for procurement documents (PG3)	
		3. Confirm that budgets are in place (PG4)	
		4. Invite contractors to submit tender offers or expressions of interest	
		5. Receive submissions	
		6. Open and record submissions received	
4	Evaluate tender offers	Qualified, proposal or competitive negotiations selection methods only	1. Evaluate and prepare evaluation report on submissions received
			2. Obtain authorization to proceed with next phase of the procurement process (PG5)
			3. Invite tender offers from qualified respondents or selected tenderers
			4. Open and record submissions received and, if necessary, repeat 1 to 4 above
		5. Evaluate tender offers and prepare a tender evaluation report	
		6. Confirm recommendations contained in tender evaluation report (PG6)	
5	Award contract	1. Notify unsuccessful tenderers of the outcome	
		2. Compile contract document	
		3. Award contract (PG7)	
		4. Capture contract award data data (including provisions for contingency amount, escalation, and currency fluctuations)	
		5 Upload data in financial management and payment systems (FS1)	
6	Administer contracts and confirm compliance with requirements	1. Administer contract in accordance with the terms and provisions of the contract	
		2. Confirm compliance with requirements	
		3. Capture contract completion/ termination data	
		4. Obtain approval to waive penalties or low performance damages (PG8A)	
		5. Obtain approval to notify and refer a dispute to an adjudicator, or for final settlement to an arbitrator or court of law (PG8B)	
		6. Obtain approval to increase the total of prices, excluding contingency sums and price adjustment for inflation, or the time for completion at the award of a contract or the issuing of an order up to a specified percentage stated in a construction procurement policy (PG8C)	
		7. Obtain approval to exceed the total of prices, excluding contingency sums and price adjustment for inflation, or the time for completion at award of a contract or the issuing of an order by more than percentages stated in a construction procurement policy (PG8D)	
		8. Obtain approval to cancel or terminate a contract (PG8E)	
		9. Obtain approval to amend a contract (PG8F)	
		10 Close out the contract	

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Legend
PG1 to PG8 are procurement gates
A1 and A2 are approval gates for selection methods
FS1 is a form to capture the contract award data in the financial system for payment purposes

Figure 4: Control framework for initiating, creating and fulfilling contracts

4.3.4.3 Prior approval shall be obtained for the use of the negotiated and confined market selection methods from the person named in a construction procurement policy, unless:

a) these procedures are already provided for in the approved procurement strategy developed during stage P2 of the control framework for project preparation (see Figure 1); or

b) where a rapid response is required in an emergency which can be dealt with, or the risks relating thereto arrested, within 48 hours, and the person delegated authority in a construction procurement policy has granted approval to do so.

4.3.4.4 The governing body shall approve an increase in the total of prices excluding price adjustment for inflation and contingency sums at gate PG8D in Table 6 which exceeds a percentage

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stated in the organisation's construction procurement policy. The procuring entity shall record in their annual report any such increase which is occasioned by an expansion in the scope of work or a variation indicating the reasons associated therewith.

Note: The intention of the 4.3.3.4 is to curb the expansion or variation of the scope of work associated with a contract to avoid approaching the market for the additional / unplanned work. However, there are several reasons for the original value of a contract to be increased and the end date of a contract to be extended for reasons other than those relating to the expansion or variation of the scope of work. For example, any of the following contractual provisions if included in a contract can lead to cost and time increases:

a) price adjustment for inflation;
b) foreign currency fluctuations;
c) various risk events that materialise during the contract period which the contractor is not at risk;
d) changes in quantities;
e) exclusion of items which ought to have been included in the bill of quantities but for whatever reason were omitted;
f) correction of assumptions made regarding items which were identified but could not be fully priced at the time of tender e.g., specialist subcontracts; and
g) the application of a "pain and gain" (risk sharing) mechanism in target contracts.

4.3.5 Control framework for issuing orders in terms of framework agreements

Orders issued in terms of framework agreements shall be implemented in accordance with the processes included in Table 7 and the control framework indicated in Figure 5.

Table 7: Principal actions and sub activities for issuing an order under a framework agreement

Activity		**Sub-activity**	
#	**Description**		
1	Budget confirmation	**Confirm that budgets are in place (FG1)**	
2	Motivation for selecting a framework contractor	**1.** Prepare motivation for selecting a framework contractor where there is more than one framework agreement covering the same scope of work	
		2. Confirm justifiable reasons provided in motivation (FG2)	
3	Inviting quotations for an order	Competition not reopened amongst framework contractors	1a. Prepare draft order
			2a. Consult framework contractor and prepare draft priced order
			3a. Review the procurement document prior to the submission for approval
			4a. Obtain approval for procurement documents (FG 3)
		Competition reopened amongst framework contractors	1b. Prepare procurement documents
			2b. Review the procurement document prior to the submission for approval
			3b. Obtain approval for procurement documents (FG3a)
			4b. Invite all framework contractors having the same scope of work to submit quotations and receive submissions
			5b. Open and record submissions received
			6b. Evaluate and prepare draft evaluation report on submissions received
			7b. Approve evaluation report (FG3b)
4	Issue order	**Issue order to framework contractor (FG4)**	
5	Administer contract	Administer order and confirm compliance with requirements	

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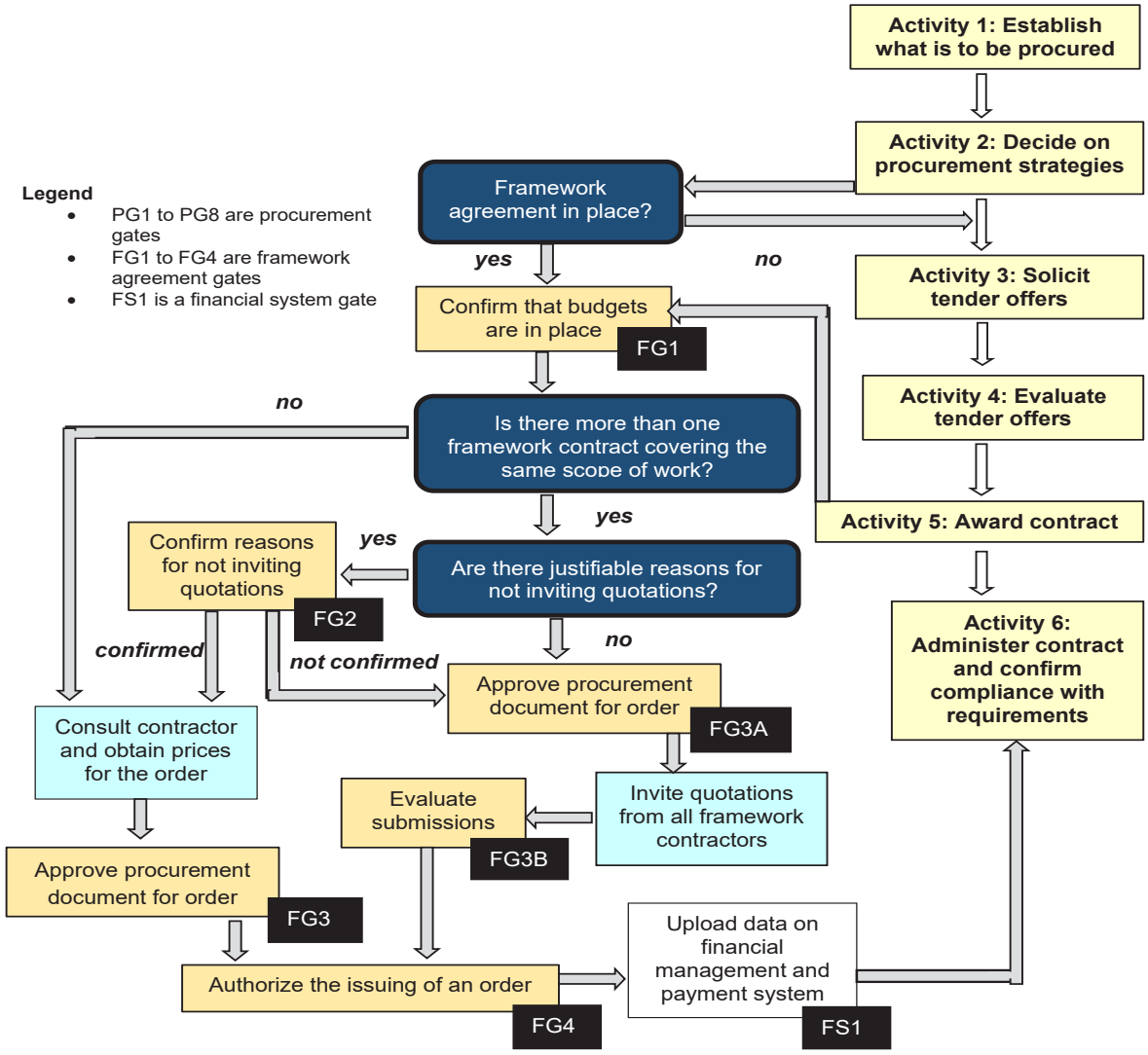


Figure 5: Control framework for issuing orders for framework agreements

4.4 Demand management

4.4.1 The demand for projects relating to the creation and maintenance of fixed assets within the built environment shall be identified through:

a) asset management activities based on an asset management system informed by SANS ISO 55001; and

b) strategic planning activities.

Note: Where there are significant constraints on available funding and resources, the nature and scope of projects and programmes should be reconfigured based on risk management considerations.

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4.4.2 Demand for projects established in 4.4.1 shall be:

a) managed through asset management plans which provide a credible forecast of current and net demand for or requirements for system functionality and associated life-cycle management projects of such assets over a period of not less than ten years and which are informed by:

   1) the assessment of current performance against desired levels of service and functionality;

   2) a needs analysis informed by factors such as policies, norms and standards, condition assessments, functional performance, demographic trends, current and forecasted levels of optimisation; and

   3) cost estimates for the life cycle activities comprising acquisition, operations, maintenance, refurbishment, rehabilitation or alteration as relevant; and

b) based on the following principles:

   1) construction works shall be used efficiently and when they become surplus to requirements and disposed of or repurposed if it does not support its service delivery objectives or the organization's strategic objectives at an efficient level and if it not in the organization's best interest to be upgraded to that level;

   2) alternative service delivery methods or solutions that do not require infrastructure or reduce the demand for infrastructure such as maximising utilisation, improving efficiencies, reducing peak demand, repurposing, promoting alternatives and changing behaviour, shall be identified and considered to minimise the demand for infrastructure;

   3) the cost of the construction works as well as operational and maintenance cost throughout its life cycle shall be considered when acquiring infrastructure;

   4) construction works that are currently used shall be kept operational to function in a manner that supports safe use in accordance with legislative requirements within acceptable levels of reliability / non-availability; and

   5) construction works shall be disposed of and / or decommissioned when:

      i) no longer required or fails to provide best use of funds;

      ii) is financially unsustainable; or

      iii) other methods of delivering the service or outputs become more economical or environmentally acceptable to do so.

4.4.2 Goods which are required to maintain infrastructure, and which are issued to the client organisation's staff or are issued to contractors shall be delivered at the right price, time and place and of be of the right quality and compatible with existing components, elements and subsystems.

4.4.3 Demand for enhancements or additional construction works shall be proactively managed through project planning and contract management phases to:

a) resist insistent and peremptory requests for modifications and additions or statutory approvals; and

b) prevent scope creep, i.e. changes, continuous or uncontrolled growth in a project's scope.

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4.5 Procurement planning and budgeting

4.5.1 Project preparation

4.5.1.1 Potential projects relating to the creation or maintenance of construction works shall be identified through strategic planning and demand management processes. A project initiation report (see Table 3) shall be developed to inform the decision as to whether resources should be made available to further prepare projects prior to taking a decision to proceed with implementation.

4.5.1.2 All projects which are subjected to portfolio planning processes must be prioritized as relevant on a risk-based approach in terms of:

a) extent of impact;

b) benefits of the project;

c) urgency of the project;

c) potential consequences of not undertaking the work;

d) alignment with broader planning and strategic considerations including spatial planning strategies;

e) interdependencies with other projects;

f) affordability in terms of initial and whole-life costs; and

e) the resolution of impediments to their implementation such as those relating to land, planning, environmental, heritage and other legislative approvals and licencing.

4.5.2 Project prioritization and scheduling

4.5.2.1 A project delivery management plan which identifies and prioritises projects and work packages against a forecasted budget shall be developed over a 3 to 5 year horizon (see Annex B of ISO 6082) and updated preferably on a quarterly basis but at least annually.

4.5.2.2 An annual procurement plan of all planned procurement which is aligned to the budget of the organisation shall be developed, updated as necessary, and made available to procurement committees.

4.5.3 Procurement strategy

Procurement strategies shall be:

a) aimed at achieving value for money and cost-effective project outcomes, taking into account risks and organisational policy including social and environmental objectives, and

b) developed and documented in accordance with the provisions of SANS ISO 22058 except where business cases are developed in accordance with the provisions of the Five Case Model .

Note:

1) Value for money addresses the following four Es, namely economy (minimizing the cost of resources used to achieve a desired project outcome), effectiveness (extent to which planned project outcomes are realized or achieved), efficiency (resources used in relation to the results achieved) and equity (balanced and objective consideration of intergenerational, interregional and intra-societal ethics, including environmental protection, economic efficiency and social needs).

2) SANS ISO 22058 provides a framework for developing a procurement strategy framed around strategic considerations, procurement objectives, a spend, organisational, market and stakeholder analysis, packaging

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strategy, contracting strategy, targeting strategy and selection method. It also provides a standard format for documenting a procurement strategy.

3) SANS ISO 22058 provides a structured approach to deal with decisions and descriptions of procurement approaches. Rather than focusing on contracting methods, the distinguishing features of each have been identified in a way that leads to the answering of the six underlying questions which explain how any specific project is being procured, namely. source of funding, selection method, responsibility for design, responsibility for co-ordination, price basis and supply chain integration.

4.5.4 Budgets

4.5.4.1 Project budgets shall be realistic and based on cost estimates, reliable benchmarks, cost norms or elemental cost estimates which provide for all project costs including land costs, professional fees, furniture, fittings and equipment and contingency sums to cover costs which cannot be foreseen or predicted with certainty, price adjustment for inflation and exchange rate fluctuations.

4.5.4.2 Costs shall be proactively managed through the setting and proactive monitoring of control budgets for projects through the project planning, detailed design and site processes. Control budgets within authorised amounts shall be established for each project. Contingency amounts included in such budgets shall be managed at a project level and not at a contract level.

Note: Annex A provides guidance on managing multi-year construction works projects over a three year horizon. Annex E of SANS ISO 10845-1 provides guidance on managing contingency sums.

4.5.4.3 The budgets for multi-year projects may be appropriated to programmes rather than individual projects to allow for the management of cash flows within a financial year provided that expenditure for individual projects does not exceed the authorised amounts for projects (see Annex A).

4.5.5 Social facilitation

4.5.5.1 The procuring entity shall during the project preparation processes identify which projects require social facilitation to mitigate potential site-based disruptions and community conflicts that can hinder project delivery. Where necessary and appropriate, social facilitation identification should include:

a) stakeholder mapping and analysis which identifies all project stakeholders, documents their demographics and assesses their interest and influence;

b) community profiling and needs assessments to understand the unique needs of each community to inform project delivery and social facilitation responses;

c) the development and implementation of a community engagement and consultation plan to interface with the community throughout the project delivery life cycle, given the local context and dynamics

d) the development of a communication strategy to clearly communicate project benefits and to manage expectations;

e) the identification and implementation of strategies to provide for the participation of targeted enterprises and targeted labour in the execution of contracts and opportunities for skills development; and

f) the establishment of a conflict management and site security plan to proactively manage conflict in hostile environments , engage with law enforcement agencies and apply site disruption protocols.

4.5.5.2 Where social facilitation is necessary, the procuring entity shall develop and implement:

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a) site-level incident reporting protocols

b) escalation pathways to law enforcement; and

c) a system for monitoring and evaluating social facilitation processes and efforts and documenting lessons learned.

4.6 Acquisition management

4.6.1 Conducting of acquisition processes

4.6.1.1 Advertisements

4.6.1.1.1 An invitation for prospective respondents and tenderers to submit expressions of interest or tenders, respectively, shall be advertised in accordance with the requirements and time frames stated in a construction procurement policy.

4.6.1.2 Contacting of participants before the closing time for submissions

All communications with respondents and tenderers during the procurement process to obtain information and clarifications shall be made in writing through the employer's agent named in the submission or tender data. Records of all communications shall be retained for auditing purposes.

4.6.1.3 Receipt of tender submissions

4.6.1.3.1 Tenders may be submitted electronically in terms of a device satisfying the requirements of clause 4.7 of SANS ISO 10845-1 or deposited in a secure and dedicated tender box in accordance with a construction procurement policy.

4.6.1.3.2 Submissions shall be opened by an opening panel named in a construction procurement policy who have declared their interest or confirmed that they have no interest in the submissions that are to be opened.

4.6.1.3.3 The opening panel shall open the tenders received at tender box at the stipulated closing time. Electronic submissions may be opened only after the closing time for submissions.

4.6.1.3.4 The opening panel shall as relevant:

a) sort through the submissions and return those submissions to the box that are not yet due to be opened including those whose closing date has been extended;

b) returns submissions unopened and suitably annotated where submissions:

   1) are received late, unless otherwise permitted in terms of the submission data;

   2) were submitted by a method other than the stated method,

   3) were withdrawn in accordance with the procedures contained in SANS 10845-3; and

   4) only one tender submission is received and it is decided not to open it and to call for fresh tender submissions;

c) record in the register submissions that were returned unopened;

d) open submissions if received in sealed envelopes and annotated with the required particulars and read out the name of and record in the register the name of the tenderer or respondent and, if relevant, the total of prices including VAT where this is possible;

e) record in the register the name of any submissions that is returned with the reasons for doing so;

f) record the names of the tenderer's representatives that attend the public opening;

g) sign the entries into the register; and

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h) mark each returnable document in each tender submission.

4.6.1.3.5 Submissions shall be safeguarded from the time of receipt until the conclusion of the procurement process.

4.6.1.4 Publication of submissions received and the award of contracts

4.6.1.4.1 Within the number of days of the closure of any advertised call for an expression of interest or an invitation to tender stated in a construction procurement policy, the names of all respondents or tenderers that made submissions to that advertisement, and if practical or applicable, the total of the prices and the preferences claimed, shall be published on the procuring entity's website. Such information should remain on the website for at least 30 days.

4.6.1.4.2 The following shall as a minimum be published on the procuring entity's website within the number of days of the award of a contract stated in a construction procurement policy:

a) the contract number and title;

b) the total of the prices, if practical;

c) the names of successful tenderers; and

d) the duration of the contract.

4.6.1.4.3 The award of contracts and orders in terms of a framework agreement relating to construction works which are subject to the Construction Industry Development Regulations issued in terms of the Construction Industry Development Act of 2000 shall in addition to the requirements of 4.6.1.4.2 be notified on the CIDB website. The notification shall be placed by the person named in a construction procurement policy.

4.6.1.5 Notification of award

The person named in a construction procurement policy shall ensure that the outcome of the tender process is communicated to all participants under his or her signature. Any communication to the recommended tenderer notifying them of their preferred tenderer status shall stipulate that no contract and / or contractual obligation of any kind whatsoever exists until such time as a formal written contract is concluded and entered into.

4.6.2 Committee system

4.6.2.1 General

4.6.2.1.1 A committee system comprising a procurement documentation committee, evaluation committee and tender committee shall be applied to all selection methods where the estimated value of the procurement exceeds the value stipulated in a construction procurement policy for the quotation procedure. A construction procurement policy shall establish requirements for the quotation procedure.

4.6.2.1.2 The membership of the committees referred to in 4.6.2.1.1 shall be drawn from employees of the procuring entity as set out in a construction procurement policy. Persons appointed as technical advisors and subject matter experts who are not employees of the procuring entity may attend any committee meeting but not participate in the decision-making proceedings.

4.6.2.1.3 No person who has a conflict of interest shall be appointed to a committee. No person who is a member of the documentation committee or the evaluation committee may serve on tender committee but may participate as a technical advisor or subject matter expert. The person authorised to take a decision on the award of a contractor may not serve on any of the three committees.

4.6.2.1.4 Committee decisions shall be:

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a) as far as possible based on the consensus principle, namely the general agreement characterized by the lack of sustained opposition to substantial issues; and

b) recorded in writing on an appropriate standard template and retained for a period stated in 4.3.1.3.

4.6.2.1.5 Committees shall make decisions at meetings or, subject to the committee chairperson's approval, on the basis of responses to documents circulated to committee members provided that not less than sixty percent of the members are present or respond to the request for responses.

4.6.2.1.6 No member of, technical adviser or subject matter expert who participates in the work of the any of the procurement committees or a family member or associate of such a member, shall be permitted to tender for any work associated with the tender which is considered by these committees.

4.6.2.2 Approval of procurement documents

4.6.2.2.1 A procurement documentation committee shall approve procurement documents before they are issued to the market in terms of a competitive or competitive negotiation selection method, are finalised in the negotiated selection method or issued to framework contractors. Such approval should take place following the review of the procurement documents in the case of a project by a documentation review team.

4.6.2.2.2 The procurement documentation committee shall when approving a procurement document:

a) consider the contents of the documentation review report (see 4.6.2.2.3 to 4.6.2.2.6);

b) confirm that the procurement documents are fair, transparent and equitable and are likely to result in a cost-effective procurement outcome; and

c) confirm the following as relevant:

1) the proposed eligibility criteria do not unfairly eliminate tenderers from consideration;

2) compulsory clarification meetings are justifiable in the context of the procurement;

3) the weightings, if any, included in the evaluation of submissions are reasonable;

4) the quality criteria and any weightings between sub-criteria which are to be scored in the evaluation of tenders are fair and reasonable and are justifiable in terms of procurement outcomes, and

5) the provisions for applying preferential procurement are feasible and are likely to result in the tendering of market related prices.

4.6.2.2.3 The review of procurement documents associated with the negotiation, competitive selection or competitive negotiation procedure should confirm that:

a) the procurement documents have been formatted and compiled in accordance with the requirements of this standard and a construction procurement policy and are aligned with the approved procurement strategy;

b) appropriate prompts for judgement are included in accordance with the requirements of this standard whenever quality is evaluated and scored in the evaluation of calls for expressions of interest or tender offers;

c) the selected form of contract is in accordance with the requirements of this standard and the construction procurement policy and any organizational standard templates have been correctly applied;

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d) the selected submission data in the case of a call for an expression of interest, or tender data and contract data options in the case of a draft contract, are likely to yield best value outcomes;

e) the scope of work adequately establishes what is required and the constraints to the way in which the contract work is to be provided, and satisfies the drafting requirements of this standard;

f) the submission or returnable documents are necessary and will enable submissions to be evaluated fairly and efficiently, and

g) the risk allocations in the contract and pricing data are appropriate.

4.6.2.2.4 The review of procurement documentation associated with the issuing of an order needs to confirm that

a) any standard organizational templates have been correctly applied;

b) the scope of work adequately establishes what is required and the constraints to the way the contract work is to be provided;

c) the provisions for competition amongst framework contractors, if relevant, and the selected options are likely to yield best value outcomes; and

d) the risk allocations are appropriate.

4.6.2.2.5 One or more built environment professionals shall be appointed in the case of a project to review the procurement documents and to develop a procurement documentation review report.

4.6.2.2.6 The documentation review report needs to:

a) list the name(s) and qualifications of person(s) that undertook the review;

b) confirm that the documents are in accordance with the requirements of this standard;

c) identify sections, if any, which require amendments or improvements;

d) capture any comments or opinions which the reviewer(s) may wish to express; and

e) make recommendations whether the document be accepted with or without modifications.

4.6.2.3 Evaluation of tenders and submissions

4.6.2.3.1 An evaluation committee shall:

a) finalize evaluation reports prepared in accordance with 4.6.2.3.2 to 4.6.2.3.5 and address any areas in the report should a report be referred back to the committee by the tender committee;

b) authorize admission to an electronic data base and the proceeding with the next phase of a procurement process in the qualified and two-stage competitive and the restricted and open competitive negotiation selection methods following the:

   i) confirmation that the evaluation report is complete and addresses all considerations necessary to make a decision,

   ii) confirmation of the validity and reasonableness of reasons provided for the elimination of tenderers or respondents, and

   iii) the identification and consideration of any risks that have been overlooked which warrant investigation prior to taking a final decision.

4.6.2.3.2 Submissions shall be evaluated strictly in accordance with:

a) the approved procurement documents and any addenda relating thereto; and

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b) the processes set out in Annex C of SANS ISO 10845-4 in the case of expressions of interest; and Annex C of SANS ISO 10845-3 in the case of tender offers.

4.6.2.3.3 Evaluation reports shall be prepared in accordance with the content headings and relevant guidelines contained in:

a) Annex D of SANS ISO 10845-4 in the case of an expression of interest; or

b) Annex E of SANS ISO 10845-3 in the case of tender offers, with modifications as necessary where a two-envelope, two-stage process or competitive negotiation selection method is followed or competition is reopened amongst those having framework agreements covering the same scope of work.

4.6.2.3.4 The reports referred to in subclause 4.6.2.3.2 shall:

a) contain extracts from the procurement documents which are linked to the evaluation of submissions, such as eligibility criteria, criteria associated with evaluation methods, preferencing, quality criteria (including prompts for judgement), the method by which tenders are reduced to a common base and lists of returnable documents to enable those tasked with making decisions based on these documents to do so without having to refer back to submissions to understand the content of the report; and

b) include in annexures the evaluation reports of any prior processes, e.g. a call for an expression of interest, a round in a competitive negotiation procedure or a stage in a competitive selection procedure.

4.6.2.3.5 The evaluation report shall be prepared by one or more persons who are conversant with the nature and subject matter of the procurement documents. Where the procurement relates to a project, the evaluation report shall be prepared by a person registered in the categories of professional registration identified in 4.6.1.2.2**.**

4.6.2.3.6 Where quality is evaluated, at least three persons who are conversant with the nature and subject matter of the procurement documents and are built environment professionals shall undertake such an evaluation. Quality shall be scored by each evaluator separately in terms of the prompts for judgement, with fixed scores assigned to each prompt preferably with notes to substantiate the score. The evaluators may discuss and moderate scores where there is a significant difference in a score between evaluators for a criteria prior to the scores being averaged. Such individual evaluation documents shall be placed on file as an audit trail and may form the basis of any contractor debriefing that takes place.

4.6.2.3.7 An evaluation report covering the application of the negotiated procedure for the award of a contract or the issuing of an order, shall specifically confirm that the negotiated amounts are market-related and represent value for money. Where the total of the prices associated with a target cost contract is negotiated, the total of prices shall be certified as being fair and reasonable (market related). Confirmations and certifications shall be made by a professional quantity surveyor registered in terms of the Quantity Surveying Profession Act of 2000 or a professional engineer or a professional engineering technologist registered in terms of the Engineering Profession Act of 2000.

4.6.2.4 Recommendation for the award of a contract

4.6.2.4.1 The tender committee should

a) consider the report and recommendations of the evaluation committee and

1) verify that the procurement process which was followed complies with the provisions of this policy;

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2) confirm that the report is complete and addresses all considerations necessary to make a recommendation;

3) confirm the validity and reasonableness of reasons provided for the elimination of tenderers; and

4) consider risks indicated in the report and identify any risks that have been overlooked or fall outside of the scope of the report which warrant investigation prior to taking a final decision; and

b) refer the report back to the evaluation committee for their reconsideration together with their reasons for doing so or make a recommendation to the authorized person on the award of a tender, with or without conditions, together with reasons for such recommendation.

Note: The tender committee should rely on the documented evaluation report prepared by the evaluation committee to reach a decision.

4.6.2.5 Award of contracts and issuing of orders

4.6.2.5.1 The persons authorised in a construction procurement policy to award a contract shall, if the value of the contract is within his or her delegation, consider the report(s) and recommendations of the tender committee, or in the case of the awards for contracts below the quotation procedure threshold, the recommendation of the evaluation report and either:

a) award the contract after confirming that the report is complete and addresses all considerations necessary to make a recommendation and budgetary provisions are in place; or

b) decide not to proceed or to start afresh with the process.

4.6.2.5.2 The award of a construction contract shall be notified on the CIDB website in accordance with the provisions of the Construction Industry Development Regulations.

4.6.2.6 Issuing of an order

4.6.2.6.1 The persons authorised in a construction procurement policy to issue an order, should, if the value of an order issued in terms of a framework contract is within his or her delegation either:

a) decide not to proceed or to start afresh with the process, or

b) authorize the issuing of an order after

1) confirming that the required goods or services, or any combination thereof, are within the scope of work associated with the relevant framework contract, and

2) considering the recommendations of the evaluation report where competition amongst framework contractors takes place or a significant proportion of the total of the prices is negotiated, based on the financial parameter contained in the framework contract, and either confirm the reasonableness of such recommendations and sign the acceptance of the order, or refer the evaluation report and recommendation back to those who prepared it.

4.6.2.6.2 The issuing of an order shall be notified on the CIDB website in accordance with the provisions of the Construction Industry Development Regulations.

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4.6.3 Unsolicited proposals

A procuring entity may consider unsolicited offers received outside a normal procurement process but may consider such an offer only if:

a) the goods, services or any combination thereof that is offered is a demonstrably or proven unique innovative concept;

b) proof of ownership of design, manufacturing, intellectual property, copyright or any other proprietary right of ownership or entitlement is vested in the person who made the offer; and

c) the offer presents a value proposition which demonstrates a clear, measurable and foreseeable benefit for the client organisation;

d) the procuring entity's governing body finds the reasons for not going through the normal tender processes to be sound.

4.6.4 Emergency procurement

The procuring entity shall incorporate in their construction procurement policy emergency procurement procedures based on the recommended methods aligned with different types of emergencies as indicated in Table 8.

Table 8: Recommended emergency procurement procedures

Category of emergency		**Recommended method to acquire resources**
Type	**Description**	
I Localised failure	**Localised failures** which can readily be remedied within 48 hours.	• Negotiation procedure (see 4.3.4.3b)) • Issuing of orders in terms of a framework agreement
II Localised reconstruction	**Localised reconstruction** of an element or component	• Nominated procedure • Issuing of orders in terms of a framework agreement • Qualified procedure
III Widespread failure	**Widespread failure** commonly associated with an extreme event which requires extensive reconstruction	• Issuing of orders in terms of a framework agreement • Qualified procedure

4.7 Contract management and assessment of projects against outcomes

4.7.1 Oversight requirements

4.7.1.1 The client delivery manager shall, appropriate to the adopted procurement strategy for the delivery of new or altered, refurbished or rehabilitated infrastructure (see SANS ISO 22058), ensure that there is a level of expertise and resources that are available to ensure that:

a) contracts are entered into as an informed client organisation;

b) due diligence is undertaken at an appropriate level to confirm that the requirement of a contract is delivered in accordance with the terms of that contract; and

c) an appropriate level of independent scrutiny is undertaken in relation to all aspects of design and construction or installation that are in effect largely or partly self-certified by those producing them.

4.7.1.2 The client delivery manager shall ensure that financial data is gathered to enable a financial report to be generated at regular intervals (see 4.12 and Annex A).

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4.7.1.3 The client delivery manager shall ensure that an implementation plan is produced, for all projects for which he or she is responsible, to enable a project delivery management plan to be implemented incrementally. Implementation plans shall be prepared or updated prior to the start of a financial year which should indicate the information indicated in Table 9 (see ISO 6082). The client delivery manager shall update the implementation plan at least quarterly.

Table 9: Content of implementation plan

Suggested heading		**Content**
No	**Title**	
1	Programme / project objectives	An overview of the programme / project and identified objectives
2	Scope, budget and schedule	In respect of each project, contract or work package for the financial year under consideration: • outline of the scope, • the authorised expenditure, broken down into financial years • the control budget for each project, broken down into financial years • the overarching control budget and authorised expenditure for each financial year • proposed / actual start and end date for the project
3	Key success factors and Key Performance Indicators	Key success factors and the key performance indicators which should be measured, monitored and evaluated
4	Outline of procurement strategy	Procurement strategy in summary form for each project or order issued in terms of a framework contract, i.e. • The selected option to engage the market (if applicable) - design strategy and interface management strategy • Packaging strategy - framework / non-framework • Contracting strategy – contract type, standard form of contract and procurement strategy • Targeting strategy • Selection method
5	Time management plan	A time management plan for each project in the form of a Gantt Chart for the financial year under consideration, i.e. the baseline against which progress towards the attainment of milestone (key deliverables) target dates can be measured.
6	Projected budget and cash flow	The projected budget and cash flows for the financial year under consideration and subsequent financial years, which will enable planned and actual expenditure to be compared and revisions to the budget to be approved, and multiple project budgets to be managed
7	Procurement plan	The timeline for the financial year under consideration for advertising and closing of tenders and the obtaining of gate approvals leading up to • the award of the contract including information such as: - Tender number, title, broad scope of work - Estimated total of the prices for the contract / order - Proposed dates for approvals (see ISO 10845-1) • the issuing of an order in terms of a framework agreement including information (see ISO 10845-1)
8	Major risks	The identification of major risks and how such risks are to be mitigated or managed
9	Health, safety and environmental and socio-economic risks	An outline of the controls and measures which will address health, safety, socio-economic or environmental risks
10	Quality plan	An indication as to how quality requirements and expectations are to be met and managed
11	Communication plan	A communication plan which determines the lines of communication and the key activities associated therewith
12	Allocation of resources	An indication of the assigned internal and external resources with implementation responsibilities

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4.7.1.4 The client delivery manager shall establish an annual control budget for all projects for which he or she is responsible for delivering in a financial year as well as for each individual project (see Annex A). Such a budget shall include all costs associated with the delivery of a work package including professional fees, furniture, fittings and equipment and make provision for contingency sums and price adjustment for inflation.

4.7.1.5 The client delivery management team shall monitor and measure performance against agreed plans, including authorized changes, in accordance with the practices established in ISO 21502.

4.7.2 Duties of a contract manager

4.7.2.1 A contract manager, who may or may not be a member of the procuring entity's staff, shall be responsible for applying the terms and conditions of a contract, including the agreed procedures for the management thereof, subject to any constraints that may be imposed by the procuring entity.

4.7.2.2 The contract manager, shall

a) act as stated in the contract as the agent of the employer, subject to any constraints that may be imposed by the procuring entity in terms of its construction procurement policy;

b) timeously obtain approvals at procurement gates for taking actions to increase the total of the prices or time for completion when administering contract or order issued in terms of a framework agreement so that the work is not disrupted while approvals are being sought (see Procurement Gates 8A to 8F in Figure 4 and Table 6);

c) promptly provide all information for a contract or order required to populate and maintain registers for governance purposes including:

   1) the agreed time for completion or delivery at the start of the contract or order and any changes to such times made in accordance with the provisions of the contract;

   2) an initial and a revised cash flow forecast;

   3) the agreed and forecasted total of prices;

   4) where applicable, the estimated price adjustment for inflation; and

   5) final delay damages and retention amounts;

   d) manage the interface between the contractor and those responsible for providing client organisation inputs;

   e) develop and maintain a contract risk register;

   f) provide a monthly report on events which, in terms of the contract, cause the total of prices to increase or the contract completion date to be changed;

   g) report monthly on specific key performance indicators required by a procuring entity, funder or in terms of legislation;

   h) immediately notify the client delivery manager of any health and safety events that impact on the work undertaken in terms of the contract;

   i) provide the client delivery manager with adequate notice of the anticipated date of completion of a part or the whole of the works so that the necessary handover arrangements with the client organisation or end user may be made; and

   j) ensure that the necessary CIDB best practice assessment scheme reports are developed in accordance with the provisions of the Construction Industry Development Regulations;

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k) make inputs into the close out report, including those relating to cost norms or benchmarks, contractor / supplier performance and the attainment, or not, of project objectives; and

l) coordinate the social facilitation requirements for the contract, and maintain a record of all stakeholder engagements.

4.7.3 Qualifications of a contract manager

The contract manager responsible for the contract management of a construction works contract or order relating to the provision of new infrastructure or the rehabilitation, refurbishment or alteration of existing infrastructure, shall be a built environment professional .

4.7.4 Payment against certified amounts

Payment shall be made by the procuring entity against the amount certified by the contract manager. Any corrections to a certified amount other than a final amount shall be affected in the subsequent payment certificate.

4.7.5 Meetings on construction contracts

The focus of site meetings relating to construction contracts between the contract manager and the contractor in site meetings shall be on how the effects of project risks which can:

a) increase the contract amount;

b) delay the time for completion, the client organisation from realising benefits or others from doing their work;

c) adversely affect the performance of works in use; or.

d) cause the works for whatever reason to cease

can be avoided or reduced.

4.8 Risk management

4.8.1 Risk management by a procuring entity of risks which have a significant chance of occurring shall include :

a) an identification of risks, including possible consequential risks;

b) an analysis of risks to determine the probabilities of occurrence and the likely impacts thereof;

c) decisions as to how risks are to be allocated and managed through the life of a project to contain them within acceptable limits;

d) monitoring and controlling changes in risks; and

e) gathering and analysing data enabling informed decisions to be made.

4.8.2 A procuring entity shall manage risks on projects through the following as applicable:

a) focussing decision making on:

1) the attainment of value for money through the evaluation of relevant costs and benefits together with the assessment of risks;

2) the final contract amount (outturn cost) which equates to the sum of the initial contract price for work, contract price adjustment for inflation and the cost of risk events that materialise in the execution of a contract for which the contractor is not responsible;

3) the management of risk events which impact negatively on time, cost and quality or performance and which may be foreseen or unforeseen and have the potential to negatively

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impact project outcomes during the protracted delivery process;

4) proactive management of project contingency sums in a stepped manner as provided for in 4.3.4 at Procurement Gates 8C and 8D to fund risks for which the client organisation is financially liable;

b) the proactive mitigation of risks which threaten project outcomes through:

1) the application of the control frameworks established in 4.3;

2) the formulation of appropriate procurement strategies and tactics for projects aimed at achieving value for money and cost effective project outcomes taking into account risks, policy objectives and the total cost of ownership or the life cycle of that which is procured (see 4.5.3 and 5.7.1.2);

3) the framing of delivery models around the following:

i) the contractual transfer or retention of risk, based on the allocation of risk to the part best able to manage such risk or where the efficiency gains by transferring risk are higher than the losses from inefficient risk pricing;

ii) the mitigation of risk through collaborative approaches and making use of competitive negotiations to address uncertainties in tender processes;

iii) the degree to which externalised project activities are bundled;

iv) the appropriate identification of work packages associated with the scope of the project and the arrangements for interface management between work packages;

v) the approach to remuneration on a cost or price basis;

vi) the introduction in contracts of positive / negative incentives such as pain/ gain share regimes and performance bonds; and

vii) when in the project cycle are contractors involved in the design process or assigned design responsibilities;

4) establishment of contingency plans to deal with risks should they occur;

5) having in place emergency procedures which may be rapidly activated when an emergency arises; and

c) risk transfer to insurers.

d) processes and procedures to deal with social disruptions and corruption and avoid non-compliance with labour, environmental, planning, and health and safety legislation which can delay projects or increase costs.

4.8.3 Risk registers shall be established and maintained to enable risk relating to the procurement system to be identified proactively mitigated and managed at both a project and senior executive level.

4.8.4 Risks that have a significant negative impact upon project outcomes shall be escalated through the project governance structures established in 4.2 to mitigate the risk.

4.9 Logistics management

4.9.1 The logistics management system shall address at least the following:

a) the requisitioning of goods or services;

b) the placing of orders for goods or services;

c) the receipt of goods or services;

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d) the distribution of goods;

e) the preparation of payment vouchers;

f) the reconciliation of inventory records with financial accounts; and

g) inventory management including:

1) the measurement of inventory for reporting in the annual financial statements and in associated disclosures;

2) a coding system for the recording of inventory items;

3) manual or computerised systems for demand forecasting and material requirement planning;

4) approaches for inventory control;

5) stock levels for the different categories of inventory items;

6) quality and re-order point models to be used for categories of inventory items;

7) stocktake requirements;

8) mechanisms to prevent theft, losses, wastage and misuse for each category of items;

9) warehouse and stockroom organisation; and

10) systems, whether manual or computerised, for the recording of inventory transactions.

4.9.2 Materials, equipment and plant may be procured and issued free of charge to a contractor for incorporation into the works. Care shall be taken to ensure that suitable arrangements or measures are in place to minimise:

1) loss, degradation or damage to such items until the contractor has received and accepted them; and

2) delays in supply which can result in increases in the contractor's prices for providing the works.

4.10 Disposal management

The procuring entity shall appoint a disposal committee to decide on how best to undertake disposals who shall make recommendations on disposals.

Note: 5.6.9 establishes disposal methods

4.11 Monitoring and assessment of procurement performance

4.11.1 The client delivery manager shall ensure that the following registers are developed, maintained and kept up to date (see Annex A):

a) a planned procurement and commitment register to record for each project the contract value for all the contracts or orders issued in terms of a framework agreement, and the estimated value of a planned procurement so that at any point in time the total value of work that is committed for a project can be compared with the authorised project expenditure;

b) a contracts register to provide particulars of all contracts and orders issued in terms of a framework agreement, including information relating to the starting price, details relating to the time for completion and any changes in the prices and time for completion;

c) a payment register to record all the payments that have been certified for payment against each contract or order issued in terms of a framework agreement; and

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d) a purchase order register (or the equivalent thereof) which links contracts and orders and payments relating thereto to the authorised amounts within the procuring entity's financial management system.

4.11.2 The client delivery manager shall ensure proper feedback on projects so that all the role players are fully aware of everything taking place and can take any corrective action that may be required in accordance with the provisions of ISO 21502.

4.11.3 The client delivery management team shall:

a) review, as necessary progress towards the attainment of project deliverables, outcomes, outputs and benefits as well as deviations from the expected or anticipated progress

b) review, on at least a monthly basis project timelines, budgets and cash flows and carefully monitor any potential deviations and the effect of corrective actions taken;

c) continuously monitor the status of project contingency sums and reduce unused contingency sums as the work progresses; and

d) propose mitigation measures to bring projects closer to what was planned or prepare proposed changes to reflect the changed circumstances for consideration by the governance structures.

4.12 Reporting

4.12.1 Reports prepared by the client delivery management team for senior executives and the governing body should focus on providing the status, analysis of variances, and forecasts of future performance for projects in relation to project plans (see ISO 21502). They should also, as relevant, report on the progress towards the attainment of benefits including those associated with targets (key performance indicators) associated with the implementation of preferential procurement policy.

4.12.2 The client delivery management team shall ensure that financial data is gathered to enable a finnacial report to be generated at quarterly intervals which:

a) lists the packages which have completed stage 5 (works) together with actual expenditure;

b) indicates the following for packages which have advanced beyond stage 2 (concept and viability or stage 2 (concept design) but have not yet completed stage 5 (works):

   1) budget for the financial year;

   2) expenditure committed to date;

   3) actual expenditure to date;

   4) remaining budget for the year;

   5) forecast expenditure for the remainder of the year; and

   6) forecast over/under expenditure for the year;

c) indicates professional fees and any furniture, fittings and equipment associated with a project or package; and

d) enables "actual" versus "committed" and "planned" expenditure to be compared.

5 Procurement methods and procedures

5.1 General

5.1.1 Procurement shall be undertaken in accordance with:

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a) the relevant requirements of SANS ISO 10845-1, SANS ISO 10845-2, SANS ISO 10845-3 and SANS ISO10845-4; and

b) the administrative procedures embedded in the standard forms of contract and associated contract data incorporated in a contract; and

c) the guidance provided in SANS ISO 22058 and ISO 6082.

5.1.2 All contracts that are entered into following a procurement process shall be in writing.

5.1.3 Written reasons shall upon request be made to respondents and tenderers for any decisions that are taken during a call for an expression of interest and an invitation to tender. Such reasons for actions taken should be as brief as possible and where relevant be framed around the clauses in:

a) SANS ISO 10845-4 which give rise to the reason why a respondent was not admitted to a data base, short listed or prequalified to be invited to submit tender offers; and

b) SANS ISO 10845-3, as to why a tenderer was not considered for the award of a contract or not awarded a contract.

5.2 Selection methods

5.2.1 The methods by which tenders are solicited from the market shall be in accordance with the provisions of Table 10 and the corresponding requirements of SANS ISO 10845-1. The open selection method shall be the default method. Other selection methods may be used where the conditions associated with a method in Table 10 are satisfied unless otherwise stated in a construction procurement policy.

5.2.2 Approval for the use of a confined market selection method shall only be valid for a period not exceeding 18 months.

5.2.3 The period between calling for expressions of interest and the inviting of submissions in the qualified procedure shall not exceed 18 months.

5.2.4 The nominated procedure may only be used where the procuring entity has in place a rotating electronic data base which substantially satisfies the provisions of 4.5.1 and 4.5.2 of SANS ISO 10845-1. Calls for expressions of interest for admission to the rotating electronic data base shall be made at least once a year. Respondents shall be admitted to the data base for a period of three years whenever they make an application and comply with the entry requirements and are removed from the data base after the expiry of this period.

Note: A rotating electronic data base is a form of a panel that satisfies the system requirements established in Table 1. It ensures that those on the data base are afforded an opportunity to submit tenders when requested to do so.

5.2.5 Quotations in the quotation procedure shall only be invited from prospective contractors whose core business is to supply the required goods or services or any combination thereof in a manner which is consistent with the system objectives identified in Table 1, giving tenderers the minimum number of working days stated in a construction procurement policy to respond to the invitation.

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Table 10: Standard selection methods and the conditions under which they may be applied

Selection method (see clause in SANS ISO 10845-1)	**Description**	**Conditions which need to be satisfied to utilise the procedure unless otherwise stated in a construction procurement policy**
1 Negotiation (6.3.3)	A tender offer is solicited from a single tenderer.	Any procurement where it is established with reasonable certainty that: 1) a rapid response is required due an emergency and there is insufficient time to mitigate the risks relating thereto using a competitive selection method (see Table 8) ; 2) the required goods, services or works cannot technically or economically be separated from another contract previously performed by a specific contractor; 3) only one contractor has been identified following market research as possessing the necessary experience and qualifications or product to deliver value for money in relation to a particular need; 4) the service or works being procured are largely identical to work previously executed by that contractor and it is not in the interest of the public or the procuring entity to solicit other tender offers; 5) the nature of the works, goods or services, or the risks attached thereto, do not permit prior overall pricing; 6) it is impractical to pursue a competitive selection method due to artistic, technical reasons, exclusive rights or achieving compatibility with other members of or balanced skills sets within a client delivery management team; 7) specialist or strategic inputs are required to address gaps and shortcomings in initiating and implementing projects or overseeing delivery which threatens cost effective project outcomes; or 8) none or only one responsive tender is received in response to a competitive selection method and it is unlikely that fresh tenders will result in a different outcome An unsolicited proposal is converted into a contract.
2 Competitive selection (6.3.2.1)	Any selection method in which the contract is normally awarded to the contractor who submits the lowest financial offer or obtains the highest number of tender-evaluation points.	A competitive selection method is the default option. A negotiated and competitive negotiation method should only be used were justified
2A Nominated (6.3.2.2)	Tenderers that satisfy stipulated criteria are entered into an electronic database. Tenderers are invited to submit tender offers based on search criteria and, if relevant, their position in the database. Tenderers are repositioned in the database upon appointment or upon submission of a tender offer.	Any procurement where: 1) large numbers of procurement transactions are required for work that is relatively simple and routine in nature or the goods or services are readily obtainable form the market; 2) the employer's exposure to risks are low; 3) the procurement transactions are below a prescribed threshold; and 4) the employer has in place a rotating data base which satisfies the requirements of SANS ISO 10845-1

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Selection method (see clause in SANS ISO 10845-1)	**Description**	**Conditions which need to be satisfied to utilise the procedure unless otherwise stated in a construction procurement policy**	
2B Open (6.3.2.3)	Tenderers may submit tender offers in response to an advertisement by the procuring entity to do so.	Any procurement, except where the cost of the evaluation of a large number of tender submissions is disproportionate to the value of the work.	
2C Qualified (6.3.2.4)	A call for expressions of interest is advertised and thereafter only those tenderers who have expressed interest, satisfy objective criteria and who are selected to submit tender offers, are invited to do so.	Any procurement where: 1) a contract requires for its execution a high degree of specialised input, skills or expertise which are not readily available, or requires exceptional management skills or quality; 2) a tender submission requires significant tenderer inputs to respond appropriately to requirements and make a tender offer; 3) it is desirable, in a large programme or project, to link packages of work to tenderers who have the appropriate capacity and capability to compete against one another; or 4) the time and cost required to examine and evaluate a large number of tender offers is excessively high.	
2D Quotation (6.3.2.5)	Tender offers are solicited from not less than three tenderers, subject to the procedures being fair, equitable, transparent, competitive and cost-effective.	Any procurement where the estimated contract value does not exceed a prescribed threshold	
2E Proposal procedure using the two-envelope system (6.3.2.6)	Tenderers submit technical and financial proposals in two envelopes. The financial proposal is only opened if the technical proposal is found to attain the minimum threshold score.	Any procurement involving the provision of services including professional services where tenderers are required to develop a scope of work and price proposals to satisfy a broad scope of work.	
2F Proposal procedure using the two-stage system (6.3.2.7)	Non-financial proposals are called for. Tender offers are then invited from those tenderers that submit acceptable proposals based on revised procurement documents. Alternatively, a contract is negotiated with the tenderer scoring the highest number of evaluation points.	Option 1	Any procurement in which tenderers are required to submit technical proposals and, if required, cost parameters around which a contract may be negotiated.
		Option 2	Any procurement in which tenderers are invited to submit technical proposals in the first stage and to submit tender offers based on procurement documents issued during the second stage.
2G Confined market (6.3.2.8)	Tenders are invited from a limited number of tenderers who can provide goods, services or construction works which are not freely available in the market, or which are provided solely for the client organisation in accordance with unique requirements.	It is established following market research that there are only a very limited number of contractors who are able to provide the required goods, services or works which: 1) are not freely available in the market, or which are provided solely for the client organisation in accordance with unique requirements; or 2) there is justification for standardising goods or making use of manufacturer-accredited contractors	

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Selection method (see clause in SANS ISO 10845-1)	**Description**	**Conditions which need to be satisfied to utilise the procedure unless otherwise stated in a construction procurement policy**
3 Competitive negotiation (6.3.4)	A selection method which reduces the number of tenderers competing for the contract through a series of negotiations until the remaining tenderers are invited to submit their final offers.	Procurements where tenderers: 1) need to discuss aspects of the service, goods or construction works which might influence their financial and non-financial proposals; 2) might benefit from interactions with designers before finalizing their proposals and in design and construct construction contracts or supply contracts.
3A Restricted competitive negotiations	A call for expressions of interest is advertised and thereafter only those tenderers who have expressed interest, satisfy objective criteria and who are selected to submit tender offers, are invited to do so. The procuring entity evaluates the offers and determines who may enter into competitive negotiations.	As for open competitive negotiations, but where: 1) a contract requires for its execution a high degree of specialised input, skills or expertise which is not readily available, or requires exceptional management skills or quality; 2) a tender submission requires significant tenderer inputs to respond appropriately to requirements and make a tender offer; 3) it is desirable, in a large programme or project, to link packages of work to tenderers who have the appropriate capacity and capability to compete against one another; or 4) the time and cost required to examine and evaluate a large number of tender offers is high.
3B Open competitive negotiations (6.3.4)	Tenderers may submit tender offers in response to an advertisement by the procuring entity to do so. The procuring entity evaluates the offers and determines who may enter into competitive negotiations.	Any procurement where: 1) it is not feasible to formulate detailed specifications for the work or to identify the characteristics of goods or works to obtain the most satisfactory solution to procurement needs; 2) there are various possible means of satisfying procurement needs; 3) the technical character of the goods or works, or the nature of the services, warrants the use of competitive negotiations to realise the most satisfactory solution to procurement needs; 4) the purpose of the contract is research, experimentation, study or development; or 5) all the tenders received in a competitive selection procedure are non-responsive and the calling for fresh tenders is likely to result in a similar outcome.

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5.3 Framework agreements

5.3.1 A framework agreement for goods, works or services shall:

a) be put in place using an appropriate selection method in accordance with the provisions of 5.2;

b) be entered into in a single-stage with all the terms which may be called off over the term of the agreement being agreed at the time that the agreement is concluded;

c) be implemented in accordance with the provisions of clause 6.4 of SANS ISO 10845-1;

d) have a term not exceed 4 years unless a shorter period is stated in a construction procurement policy or the procuring entity can on good grounds justify a longer period.

Note: A framework agreement is a contractual arrangement for variable volumes of goods, services or works which may be instructed over a term.

5.3.2 Orders may be issued in accordance with 4.3.5 with or without reopening competition amongst contractors. Competition is not reopened where there is only one contractor or where the framework agreement sets out all the terms governing orders and objective criteria or a mechanism exists which can be applied to choose one contractor over other contractors. Competition shall take the form of a mini-competition, based on quotes or proposals.

5.3.3 A contracting entity may:

a) enter into a framework agreement covering the same scope of work with more than one contractor and may put in place further agreements with the same scope of work during the term of such agreements;

b) approach the market for goods, works or services covered by a framework agreement during the term of such agreement whenever it considers that better value in terms of time, cost and quality may be obtained;

5.3.4 A procuring entity may request in writing to make use of one or more framework agreements entered into by another procuring entity. Such a request, signed by the governing body of that organisation shall:

a) outline the scope and anticipated quantum of work associated with the work that is required;

b) provide a motivation for the use of the framework agreement; and

c) detail the benefit for the state to be derived from making use of the framework agreement.

5.3.5 The governing body of the procuring entity may approve a request made in terms of 5.3.4 to make use of the organisation's framework contract, conditionally or unconditionally, if:

a) the framework agreement was put in place following a competitive tender process;

b) confirmation is obtained that the framework agreement is suitable for the intended use, and the required goods, services and works fall within the scope of such contract;

c) the other party to the agreement (contractor) agrees in writing to accept an order from that procuring entity;

d) the requesting procuring entity undertakes to pay the contractor in accordance with the terms and conditions of the agreement; and

e) the term of the framework agreement does not expire before the issuing of the required orders.

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5.4 Design competitions

Design competitions shall be conducted in accordance with the provisions of clause 6.5 of SANS ISO 10845-1.

5.5 Targeted procurement procedures

Targeted procurement procedures described in SANS ISO 10845-1, SANS ISO 22058 and ISO 6082 may be used provided they do not breach the system requirements expressed in Table 1. Where they breach these system parameters, the provisions of 5.6 apply**.**

5.6 Preferential procurement

5.6.1 General

A procuring entity shall where possible, permitted and provided for in a construction procurement policy implement any or all of the following:

a) set-asides in accordance with the provisions of 5.6.2;

b) pre-qualification in accordance with the provisions of 5.6.3; or

c) subcontract in accordance with the provisions of 5.6.4;

d) requirements that only locally produced goods or locally manufactured goods meet a threshold for minimum local production and content in accordance with the provisions of 5.6.5; and

e) measures to advance sustainable development in accordance with the provisions of 5.6.6; and

f) measures to address specified developmental objectives in accordance with the provisions of 5.6.7.

5.6.2 Set-asides for preferential procurement

5.6.2.1 A procuring entity shall, where possible, set-aside contracts having an estimated contract value below a threshold stipulated in a construction procurement policy for targeted categories of persons. The targeted categories of persons shall be:

a) limited to the categories of persons identified in the Public Procurement Act of 2024 who have the relevant prescribed ownership and membership percentages; and

b) prescribed or identified in the procuring entity's construction procurement policy provisions for set-asides.

5.6.2.2 Only targeted categories of persons are eligible to be invited to submit tender offers. At least the number of persons stated in a construction procurement policy who have the capability and capacity to perform the proposed contract shall be invited to submit tender offers. Submissions shall be evaluated in accordance with method 1 (financial offer) as provided for in SANS ISO 10845-1.

5.6.2.3 Where it is not possible to identify the minimum number of suitable targeted categories of persons to perform the contract stated in a construction procurement policy the prequalifying provisions of 5.6.3 shall be applied.

5.6.3 Prequalification criteria for preferential procurement

5.6.3.1 A procuring entity shall, where possible, apply prequalifying criteria for the award of a contract having an estimated contract value not exceeding a value stipulated in a construction

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procurement policy if there is a strong likelihood that at least 5 tenders will satisfy such criteria. A tenderer shall, in order to have their tender evaluated:

a) satisfy a minimum percentage of preferential procurement from enterprises that are owned and managed by black people in terms of the applicable code of good practice on black economic empowerment issued in terms of section 9(1) of the Broad-Based Black Economic Empowerment Act, 2003 (Act No. 53 of 2003); and

b) undertake if considered feasible by the procuring entity, to subcontract a prescribed minimum percentage of the contract to categories of persons identified in the Public Procurement Act of 2024 which satisfy prescribed ownership and member percentages; provided that in the case of construction contracts, subcontractors so engaged are registered in terms of the Construction Industry Development Board Act of 2000.

5.6.3.2 Submissions shall, as relevant, be evaluated in accordance with method 1 (financial offer) or method 2 (financial offer and quality) as provided for in SANS ISO 10845-1.

5.6.3.3 Subcontractors shall not be engaged in terms of a written subcontract which contains any of the following:

a) a right to set off in favour of the employing contractor not provided for by law;

b) authoritarian rights given to the employing contractor or his agent, with no recourse to independent adjudication in the event of a dispute arising;

c) payment procedures based on a pay-when-paid system;

d) a dispute resolution process which only makes use of formal proceedings such as arbitration or litigation and excludes inexpensive alternative dispute resolution procedures such as arbitration or litigation; or

e) conditions which are more onerous than those which exist in the main contract.

5.6.3.4 Justifiable reasons for a procuring entity not applying the subcontracting portion of the prequalification criteria (5.2.6.2.1b)) include the inappropriate division of responsibilities, increased contractual risk, duplication of establishment charges, under-utilization of resources and practicalities of subcontracting a portion of the contract.

5.6.4 Subcontracting as a condition of contract

5.6.4.1 A procuring entity shall, where feasible, require subcontracting as a condition of contract where a contract has an estimated contract value and only if there is a strong likelihood that the minimum number of tenders will be able to comply with such a requirement as stated in a construction procurement policy. A tenderer shall, in order to have their tender evaluated undertake to subcontract a prescribed minimum percentage of the contract to categories of persons identified in the Public Procurement Act of 2024 which satisfy prescribed ownership and member percentages; provided that in the case of construction contracts, subcontractors so engaged are registered in terms of the Construction Industry Development Board Act of 2000.

5.6.4.2 A procuring entity may, to encouraging the tendering of a beyond minimum subcontracting percentage, offer a preference in terms of a points scoring tender evaluation system. The total preference points in such a system shall not exceed 10% of the total tender evaluation points in accordance with the provisions of SANS ISO 10845-1.

5.6.4.3 Submissions shall, as relevant, be evaluated in accordance with method 1 (financial offer), method 2 (financial offer and quality), method 3 (financial offer and preference) or method 4 (financial offer, quality and preferences) as provided for in SANS ISO 10845-1.

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5.6.4.4 The successful tenderer shall be free to identify and engage subcontractors in terms of a written subcontract which does not contain any of the following:

a) a right to set off in favour of the employing contractor not provided for by law;

b) authoritarian rights given to the employing contractor or his agent, with no recourse to independent adjudication in the event of a dispute arising;

c) payment procedures based on a pay-when-paid system;

d) a dispute resolution process which does not include inexpensive alternative dispute resolution procedures, such as mediation or adjudication, but which only makes use of formal proceedings such as arbitration or litigation; or

e) conditions which are more onerous than those which exist in the main contract.

5.6.4.5 Justifiable reasons for a procuring entity not applying subcontracting as a condition of contract include the inappropriate division of responsibilities, increased contractual risk, duplication of establishment charges, under-utilization of resources, practicalities of subcontracting a portion of the contract.

5.6.5 Designation of sectors for local production and content

5.6.5.1 The procuring entity shall, where the Minister for Trade, Industry and Competition, has designated a sector, sub-sector or product for local production and content, advertise the tender with a specific condition that only locally produced goods or locally manufactured goods meeting the stipulated minimum threshold for local production and content will be considered. Any submission which fails to meet the stipulated minimum threshold for local production and content shall not be eligible to be evaluated.

5.6.5.2 The provisions of 5.6.4.1 shall not apply or only apply in part where the procuring entity has obtained a waiver in accordance with the provisions of the Public Procurement Act of 2024.

5.6.5.3 Submissions shall, as relevant, be evaluated in accordance with method 1 (financial offer), method 2 (financial offer and quality), method 3 (financial offer and preference) or method 4 (financial offer, quality and preferences) as provided for in SANS ISO 10845-1.

5.6.6 Measures to advance sustainable development

5.6.6.1 A procuring entity may develop Key Performance Indicators (KPI) or identify practices to promote sustainable development i.e. development that meets the environmental, social and economic needs of the present without compromising the ability of future generations to meet their own needs. Such KPIs and practices may be linked to a preference points system in the evaluation of tenders to offer a preference to tenderers who undertake to equal or exceed a KPI or embrace identified practices subject to:

a) KPIs being formulated in accordance with the provision of SANS ISO 22058 and are incorporated into the scope of work associated with a contract;

b) identified practices are fully specified in the scope of work;

c) the total preference points in the tender evaluation system do not exceed 10% of the total tender evaluation points in accordance with the provisions of SANS ISO 10845-1; and

d) penalties are included in the contract should the KPIs not be achieved or the practices fail to be implemented.

5.6.6.2 Submissions shall, as relevant, be evaluated in accordance with method 1 (financial offer), method 2 (financial offer and quality), method 3 (financial offer and preference) or method 4 (financial offer, quality and preference).

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5.6.7 Measures to address specified developmental objectives

5.6.7.1 A procuring entity may develop Key Performance Indicators (KPI) or identify practices to promote beneficiation and innovation, advancing creation of jobs, intensification of labour absorption and development of small enterprises within geographical areas. Such KPIs and practices may be linked to a preference points system in the evaluation of tenders to offer a preference to tenderers who undertake to equal or exceed a KPI or embrace identified practices subject to:

a) KPIs being formulated in accordance with the provision of SANS ISO 22058 and are incorporated into the scope of work associated with a contract;

b) identified practices are fully specified in the scope of work;

c) the preference points in the tender evaluation system do not exceed more than 10% of the total tender evaluation points in accordance with the provisions of SANS ISO 10845-1; and

d) penalties are included in the contract should the KPIs not be achieved or the practices fail to be implemented.

5.6.7.2 Submissions shall be evaluated, as relevant, in accordance with method 1 (financial offer), method 2 (financial offer and quality), method 3 (financial offer and preference) or method 4 (financial offer, quality and preferences)

5.6.8 Preferential procurement reporting

A procuring entity shall:

a) verify that the conditions associated with preferential treatment were met maintain records regarding the use of the different procedures and what preference was applied and

b) the measurable benefits that were achieved.

5.6.9 Disposal methods

Disposals may be undertaken using:

a) a suitable selection method as provided for in clause 6.3.5 of SANS ISO 10845-1;

b) a public auction (see Annex H of SANS ISO 10845-1);

c) transfers to other organs of state;

d) recycling or re-use of component materials; or

e) controlled dumping.

5.7 Procurement documents

5.7.1 General requirements

5.7.1.1 Procurement documents shall as relevant:

a) require those making submissions to submit particulars sufficient for the procuring entity to evaluate their submissions, establish their credentials and assess their capabilities and capacities to perform a contract;

b) establish the risks, liabilities and obligations of the parties to the contract, the procedures for the management of the contract and how the contractor is to be remunerated in terms of the contract; and

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c) define the nature, quality and quantity of goods, services or any combination thereof to be provided in the performance of the contract.

5.7.1.2 Procurement documents shall be:

a) prepared in English;

b) developed in accordance with the relevant provisions of clause 6.2 of SANS ISO 10845-1 and clause 4 of SANS 10845-2;

c) formatted and compiled under the headings in accordance with the provisions of clauses 5 and 6 of SANS ISO 10845-2 as relevant, using the headings and contents aligned with the provisions of Tables 11, 12 and 13; and

d) framed around suitable tactics which enable identified procurement strategies to be effectively implemented (see ISO 22058).

Table 11: Documents that relate to a call for expressions of interest

Contents		**Function and broad outline of contents**
Number	**Heading**	
E1: Submission procedures		
E1.1	Notice and invitation to submit an expression of interest	Alerts respondents to submit their credentials in order to be admitted to an electronic database or to be invited to submit tenders should they satisfy the stated criteria.
E1.2	Submission data	Establishes the rules from the time a call for an expression of interest is advertised to the time a submission is evaluated.
E2: Returnable documents		
E2.1	List of returnable documents	Ensures that everything the employer requires a respondent to include in his submission is included in, or returned with, such a submission.
E2.2	Submission schedules	Contains documents that the respondent is required to complete for the purpose of evaluating submissions.
E3: Indicative scope of work (where appropriate)		
E3	Indicative scope of work	Indicates to respondents what the contract is likely to entail so that they can make an informed decision as to whether or not they wish to respond and, if so, structure their submission around the likely demands of the project.

Table 12: Documents that relate to the tender

Contents		**Function and broad outline of contents**
Number	**Heading**	
T1: Tendering procedures		
T1.1	Tender notice and invitation to tender	Alerts tenderers to the nature of the goods, services and construction works required by the employer and should contain sufficient information to enable them to respond appropriately.
T1.2	Tender data	Establishes the rules from the time a tender is invited to the time a tender is awarded.
T2: Returnable documents		
T2.1	List of returnable documents	Ensures that everything the employer requires a tenderer to submit with his tender is included in, or returned with, his tender submission.
T2.2	Returnable schedules	Contains documents that the tenderer is required to complete for the purpose of evaluating tenders and other schedules which, upon acceptance, become part of the subsequent contract.

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Table 13: Documents that relate to the contract

Contents		**Broad outline of contents**
Number	**Heading**	
C1: Agreements and contract data		
C1.1	Form of offer and acceptance	Formalizes the legal process of offer and acceptance.
C1.2	Contract data	Identifies the applicable conditions of contract and associated contract-specific data that collectively describe the risks, liabilities and obligations of the contracting parties and the procedures for the administration of the contract.
C2: Pricing data		
C2.1	Pricing assumptions	Provides the criteria and assumptions which it is assumed (in the contract) that the tenderer has taken into account when developing his prices and fee percentages in the case of cost-reimbursable contracts.
C2.2	Pricing schedules/ activity schedule/ bill of quantities	Records the contractor's prices for providing goods, services or construction works which are described in the scope of work section of the contract.
C3: Scope of work		
C3	Scope of work	Specifies and describes the goods, services or construction works which are to be provided and any other requirements and constraints relating to the manner in which the contract work shall be performed.
C4: Site information (construction contracts only)		
C4	Site information	Describes the site at the time of tender to enable the tenderer to price his tender and to decide upon his method of working and programming, and risks.

5.7.1.3 Procurement documents shall incorporate requirements to enable the implementation of the register of contractors and the best practice project assessment schemes established in terms of the Construction Industry Development Act.

5.7.2 Notice and Invitation to submit an Expression of Interest or Tender

The notice and invitation to submit an expression of interest or tender shall comply with the minimum requirements established in subclauses 5.2.1 and 5.3.1 of SANS ISO 10845-2 and as a minimum contain the wording of the progorma documents published on the CIDB website.

5.7.3 Submission and tender data

5.3.2.1 The submission data shall reference the Standard Conditions for the Calling for Expressions of Interest contained in SANS ISO 10845-4. The tender data shall reference the Standard Conditions of Tender contained in SANS ISO 10845-3.

5.3.2.2 The tender offer validity period provided for in the tender data shall generally not exceed eight weeks, and in exceptional circumstances shall not exceed 12 weeks, unless otherwise authorised by the procuring entity.

5.3.2.3 The submission data and tender data for a construction works contract shall include the CIDB contractor grading criteria as provided for in the Construction Industry Development Regulations.

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5.7.4 Returnable documents

5.7.3.1 Standard returnable documents which are incorporated into expressions of interest and tender documents shall not conflict with the provisions of SANS ISO 10845-2 and be compatible with the contents of SANS ISO 10845-4 and SANS ISO 10845-3, respectively, as well as any standard conditions of contract referenced in the draft contract.

5.7.3.2 Tender assessment schedules shall, where appropriate, be used to take account of all tendered financial parameters that have an impact upon the final value of the contract to facilitate the reducing of tender offers to a comparative amount in the evaluation of submissions.

5.7.3.3 The Compulsory Declaration, Proposed amendments and qualifications and the Record of Addenda to Tender Documents obtainable from the CIDB website , shall be included in the tender portion of procurement documents.

5.7.5 Form of offer and acceptance

5.7.5.1 The Form of Offer and Acceptance contained in SANS ISO 10845-2 shall be used, with minimal contract-specific amendments, to form the basis of agreement arising from the solicitation of tender offers. The formation of a contract (see SANS 10845-2) shall occur once:

a) each and every amendment to the tender documents made in terms of addenda issued prior to the close of tenders and permitted in terms of the conditions of tender, and agreed to in the process of offer and acceptance has either:

   1) been reflected in the schedule of deviations; or

   2) been incorporated into the final contract and a brief summary of the changes made in the final contract document is included in the schedule of deviations so as to allow the reader to understand the nature and extent of the changes; and

b) the acceptance portion of the Form of Offer and Acceptance has been signed by the person authorised to do so.

5.7.5.2 A tenderer's covering letter may not be included in the final contract document or referenced in the schedule of deviations. The agreed provisions of such a letter shall be reflected in the schedule of deviations.

5.7.6 Contract data

5.7.6.1 The contract data shall reference a suitable standard form of contract which is listed in Table 14 or an amended version of Table 14 published on the CIDB website, unless the procuring entity can on good grounds justify the use of a bespoke contract.

5.7.6.2 The selected standard form of contract shall be used with minimal contract amendments which do not change their intended usage and shall only be amended when necessary to accommodate special needs.

5.7.6.3 An alternative dispute resolution procedure shall be used to resolve disputes arising during the performance of a contract prior to proceeding to either arbitration or litigation.

5.7.6.4 Bonds which guarantee performance with a stated financial benefit in the event of non-performance shall unless otherwise directed by the procuring entity on good grounds:

a) not be required in service, professional service and supply contracts; and

b) be between 5% and 12,5% of the contract or package order value, excluding VAT, and may be either a fixed or variable guarantee.

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Table 14: Standard forms of contract

Contract type	Scope and nature of the contract	Document
Construction contract	Construct, alter, refurbish or rehabilitate construction works on a site including any level of design responsibility. The contractor is generally responsible for loss of or damage to the works from the time that access is granted to provide the works until the works are completed and taken over by the client orgnaisation	1) SAICE's General Conditions of Contract for Construction Works 2) JBCC Principal Building Agreement 3) NEC Contracts published by the Institution of Civil Engineering 4) FIDIC Contracts published by the International Federation of Consulting Engineers
Design, build and operate contract	Design, build and operate or maintain construction works over a defined period of time	1) NEC Contracts published by the Institution of Civil Engineering 2) FIDIC Contracts published by the International Federation of Consulting Engineers
Professional service contract	Provide construction works related services with the skill and care normally used by professionals providing services similar to the required services	1) NEC Contracts published by the Institution of Civil Engineering 2) Standard contract published by the CIDB
Service contract	Manage and provide a construction works related service other than a professional service or maintain construction works and plant in an existing state, typically over a term, which may involve a modest amount of improvement through renewal and replacement	1) NEC Contracts published by the Institution of Civil Engineering 2) FIDIC Contracts published by the International Federation of Consulting Engineers
Supply contract	Supply local and international construction works related goods and provide any associated services, if any, including design	NEC Contracts published by the Institution of Civil Engineering

5.7.6.5 Advance payment, where required in construction and supply contracts, may only be made to contractors against the lodging of a suitable advance payment bond and with the approval a person nominated in a construction procurement policy.

5.7.6.6 Retention monies that are held shall not exceed 10% of any amount due to a contractor. The total amount of retention monies held shall not exceed 5% of the contract or order price.

5.7.6.7 Professional service appointments shall, unless otherwise directed by the procuring entity on good grounds, be subject to proof of current professional indemnity insurance being submitted by the contractor in an amount of not less than an amount stipulated by the procuring entity in respect of each claim, without limit to the number of claims.

5.7.7 Scope of work

5.7.7.1 The topics included in the checklist included in Annex C of SANS ISO 10845-2 should be considered when developing a scope of work for a supply, service, professional service or construction contract.

5.7.7.2 The scope of work shall not reference a particular trademark or trade name, patent, design or type, specific origin or producer unless:

a) there is not a sufficiently precise or intelligible way of describing the characteristics of the subject matter of the procurement in which case words such as "or equivalent" must be included;

b) there are clear advantages to do so or there is justification for standardising goods or making use of manufacturer-accredited contractors;

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c) a change in product or manufacturer requires modifications to related equipment and fixtures; or

d) a replacement model requires the holding of additional spares or maintenance personnel.

5.7.7.3 The scope of work shall include the following where:

a) it is estimated that a grade 7 or higher contractor grading designation construction contracts in all classes of construction works is required and the time for completion is at least 12 months; and

b) professional service and term service contracts where the estimated tender value exceeds R 5,0 including VAT and the time for completion is at least 12 months.

The provisions of the Standard for Indirect Targeting for Enterprise Development through Construction Works Contracts shall apply.

5.7.7.4 The scope of work included in a procurement document for a construction works contract in the general building (GB) or civil engineering (CE) class of construction works shall include the following where:

a) it is estimated that a grade 7 or higher contractor grading designation is required and the time for completion is at least 6 months; and

b) at least 25% of the main contract can reasonably be expected to be subcontracted to one or more of the following CIDB classes of construction works:

1) general building works (GB);

2) civil engineering works (CE);

3) electrical engineering works (buildings) (EB); or

4) mechanical engineering works (ME).

The provisions of the Standard for Indirect Targeting for Enterprise Development through Construction Works Contracts shall apply with the following specification data: The contract participation goal (CPG) is .... % [*insert a value not less than 5%*] The employer's representative is ..... [*insert name*]

5.7.8 Budgetary items

5.7.7.1 Provision for budgetary items in procurement documents should as far as possible be avoided. Assumptions should rather be stated in the pricing data so that they can be priced and adjusted in terms of the contract, should these assumptions be incorrect. Where unavoidable, estimates of the likely costs may be included in the contract to cover identified work or services to be performed by a subcontractor appointed in terms of the contract.

5.7.7.2 No provision for contingency sums or price adjustment for inflation shall be made in the pricing data or included in the contract price at the time that the contract is awarded or an order is issued.

5.8 Applying the CIDB register of contractors to public contracts

5.8.1 Contractor grading designations shall, where required in terms of the Construction Industry Regulations issued in terms of the Construction Industry Development Board Act, be described in all procurement documents by a three digit alpha-numeric where the first character is a number representing the tender value designation and the next two characters are capital letters representing the designation for the class of construction works indicated in the Construction Industry Development Regulations.

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5.8.2 The following wording shall be included in the Notice and Invitation to Tender in all construction contracts:

It is estimated that tenderers should have a CIDB contractor grading designation of ….. or ……. or higher..
Note: Delete "or …." where only one class of construction works is applicable.

5.8.3 The following wording shall be included in the Tender Data, where the class of work is designated in accordance with the provisions of the Construction Industry Development Regulations:

Clause number (refer to SANS ISO 10845-3)	
5.1	Only those tenderers who are registered with the CIDB, or are capable of being so prior to the evaluation of submissions, in a contractor grading designation equal to or higher than a contractor grading designation determined in accordance with the sum tendered, or a value determined in accordance with Regulation 25 (1B) or 25(7A) of the Construction Industry Development Regulations, for a ….. or …….*. class of construction work, are eligible to have their tenders evaluated. Joint ventures are eligible to submit tenders provided that**: every member of the joint venture is registered with the CIDB; the lead partner has a contractor grading designation in the ….. or …….* class of construction work; and the combined contractor grading designation calculated in accordance with the Construction Industry Development Regulations is equal to or higher than a contractor grading designation determined in accordance with the sum tendered for a or ….* class of construction work or a value determined in accordance with Regulation 25 (1B) or 25(7A) of the Construction Industry Development Regulations.

* insert class of construction work (see Table G2). Delete "or …." where only one class of construction works is applicable.

** include where joint ventures are eligible to submit tenders

5.8.4 The following wording shall be included in the Notice and Invitation to Submit an Expression of Interest in respect of engineering and construction works, where the contractor grading designation is based on the estimated value of a tender that may arise:

Respondents must have a contractor grading designation of … or ……or higher.
Note: Delete "or …." where only one class of construction works is applicable.

5.8.5 The following wording shall be included in the Submission Data:

Clause number (refer to SANS ISO 10845-4)	
5.1	Only those respondents who are registered with the Construction Industry Development Board, or are capable of being so registered within 21 working days from the closing date for submission of tenders, in a contractor grading designation of . . . . or . . . . * or higher, are eligible to have their submissions evaluated.

*insert contractor grading designation for one or two classes of construction works. Delete "or …." where only one class of construction works is applicable.

5.8.6 The following wording may be included in the Submission Data:

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Clause number (refer to SANS ISO 10845-4)	
5.1	Joint ventures are eligible to have their submissions evaluated provided that: 1) every member of the joint venture is registered with the CIDB not later than 21 working days from the closing date for tenders; 2) the lead partner has a contractor grading designation in the . . . or . . . . . * class of construction work; and 3) the combined contractor grading designation calculated in accordance with the Construction Industry Development Regulations is equal to or higher than the required contractor grading designation..

* insert class of construction work (see Table L2). Delete "or …." where only one class of construction works is applicable.

5.8.7 Where a client or employer promotes potentially emerging enterprises within a framework of a targeted development programme as contemplated in terms of Regulation 25(8) of the Construction Industry Development Regulations:

a) the wording provided in the Notice and Invitation to Tender in terms of 5.8.2 shall be amended as follows:

It is estimated that tenderers should have a CIDB contractor grading designation of ……. or ……..* or higher. ….. or ……..** potentially emerging enterprises who satisfy criteria stated in the Tender Data may submit tender offers. * insert estimated contractor grading designation in one or two construction classes, as relevant. ** insert one contractor grading designation below estimated contractor grading designation Note: Delete "or …." where only one class of construction works is applicable.

b) the wording in the Tender Data provided in terms of 5.8.3 shall be amended as follows:

Clause number (SANS ISO 10845-4)	
5.1	The following tenderers who are registered with the CIDB, or are capable of being so registered prior to the evaluation of submissions, are eligible to have their tenders evaluated: a) contractors who have a contractor grading designation equal to or higher than a contractor grading designation determined in accordance with the sum tendered, or a value determined in accordance with Regulation 25 (1B) or 25(7A) of the Construction Industry Development Regulations, for a ….. or ……..*. class of construction work; and b) contractors registered as potentially emerging enterprises with the CIDB who are registered in one contractor grading designation lower than that required in terms of a) above and who satisfy the following criteria: ……**

* insert class of construction work (see Table L2). Delete "or …." where only one class of construction works is applicable.

**state criteria relevant to employer's targeted development programme

b) the wording provided in terms of 5.8.4 shall be amended as follows:

Respondents must have a contractor grading designation of … or ….. or higher. ….. or ……. potentially emerging enterprises who satisfy criteria stated in the Submission Data may submit expressions of interest. Note: Delete "or …." where only one class of construction works is applicable.

c) the wording in the Submission Data provided in terms of 5.8.5 shall be amended as follows:

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Clause number (refer to SANS ISO 10845-4)	
5.1	The following respondents who are registered with the CIDB, or are capable of being so registered not later than 21 working days from the closing date for the submission of tenders, are eligible to have their submissions evaluated: a) those respondents who are registered with the Construction Industry Development Board, or are capable of being so registered within 21 working days from the closing date for submission of tenders, in a contractor grading designation of ….. or ……*or higher; and b) contractors registered as potentially emerging enterprises with the CIDB who are registered in one contractor grading designation lower than that required in terms of a) above and who satisfy the following criteria: ……..** .

* insert contractor grading designation for one or two classes of construction works. Delete "or …." where only one class of construction works is applicable.

**state criteria relevant to employer's targeted development programme

d) details appropriate to any support provided shall be stated in the Contract Data, the Pricing Data and the Scope of Work, as relevant.

5.8.8 Employers, wherever appropriate, in support of industry development, shall in the application of the register of contractors, promote the participation and development of registered contractors by means of one or more of the following:

a) unbundling projects into smaller contracts;

b) implementing targeted development programmes to support potentially emerging contractors in accordance with the provisions of the Construction Industry Development Regulations;

c) offering preferences to contractors who undertake to enter into joint ventures with or subcontract portions of the works to such contractors; and

d) requiring a prime contractor to subcontract defined portions of the works to such contractors.

6 Conduct of those engaged in procurement and delivery management

6.1 General

6.1.1 All agents and employees shall:

a) behave equitably, honestly and transparently;

b) discharge duties and obligations timeously and with integrity;

c) comply with all applicable legislation and associated regulations;

d) satisfy all relevant requirements established in procurement documents;

e) avoid conflicts of interest; and

f) not maliciously or recklessly injure or attempt to injure the reputation of another party.

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Note: These general requirements are aligned with those contained in CIDB Code of Conduct published in terms of section 5(4) of the Construction Industry Development Board Act for all parties engaged in construction procurement and SANS ISO 10845-1. The parties that may be directly and indirectly involved in construction procurement include agents, contractors, employers, employees, representatives (an elected person who holds a public office or a member of a board or controlling body of an employer who is not an employee), subcontractors and tenderers. The CIDB Code of Conduct targets all those involved in construction procurement i.e. natural persons, juristic persons and partnerships, as relevant. It is published with a set of examples that illustrate good conduct and, by implication, conduct that would breach this code.

6.1.2 All employees and agents engaged in the procurement system shall:

a) exercise powers and perform duties impartially and with the degree of care and diligence that a reasonable person would exercise in similar circumstances;

b) not use their position, or information obtained because of their position improperly to gain an advantage for themselves or someone else or cause prejudice to any other person;

c) not interfere with or exert undue influence on any person involved in procurement;

d) if a conflict of interest exists in a procurement matter, disclose such conflict and recuse himself or herself from participating in the process of that procurement matter.

e) not perform any duties to unlawfully gain any form of compensation, payment or gratification from any person for themselves or a family member or an associate;

f) perform their duties efficiently, effectively and with integrity and may not use their position for private gain or to improperly benefit another person;

g) strive to be familiar with and abide by all statutory and other instructions applicable to their duties;

h) furnish information in the course of their duties that is complete, true and fair and not intended to mislead;

i) ensure that resources are administered responsibly;

j) at no time afford any undue preferential treatment to any group or individual or unfairly discriminate against any group or individual;

k) not abuse the power vested in them;

l) not place themselves under any financial or other obligation to external individuals or firms that might seek to influence them in the performance of their duties;

m) assist the procuring entity in combating corruption and fraud within the procuring entity's procurement system;

n) not disclose information obtained in connection with a project except when necessary to carry out assigned duties;

o) not make false or misleading entries in reports or accounting systems; and

p) keep matters of a confidential nature in their possession confidential unless legislation, the performance of duty or the provision of the law require otherwise.

6.2 Conflicts of interest

6.2.1 Employees and agents who are connected in any way to the procuring entity's procurement system activities shall:

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a) disclose in writing to the staff member to whom they report, or to the person responsible for managing their contract, if they have, or a family member or associate has, any conflict of interest; and

b) not participate in any activities that might compromise the integrity of the procuring entity's procurement system.

6.2.2 Employees and agents shall declare and address any perceived or known conflict of interest, indicating the nature of such conflict to those responsible for acquisition management at the start of any deliberations relating to the evaluation and award of contract or as soon as they become aware of such conflict, and abstain from any decisions where such conflict exists or recuse themselves from the procurement process, as appropriate.

6.3 Evaluation of submissions received from respondents and tenderers

6.3.1 An employee or agent of the procuring entity:

a) may not amend or tamper with any submission, tender or contract in any manner whatsoever.

b) shall immediately withdraw from participating in any manner whatsoever in a procurement process in which they, or any close family member, partner or associate, has any private or business interest.

6.3.2 The confidentiality of the outcome of the processes associated with the calling for expressions of interest, quotations or tenders shall be preserved. Those engaged in the evaluation process shall:

a) not have any conflict between their duties as an employee or an agent and their private interest;

b) may not be influenced by a gift or consideration (including acceptance of hospitality) to show favour or disfavour to any person;

c) deal with respondents and tenderers in an equitable and even-handed manner at all times; and

d) not use any confidential information obtained for personal gain and may not discuss with, or disclose to outsiders, prices which have been quoted or charged to the procuring entity.

6.4 Gratifications, hospitality and gifts

6.4.1 Employees and agents of the procuring entity shall not, directly or indirectly, accept or agree or offer to accept any gratification from any other person including a commission, whether for the benefit of themselves or for the benefit of another person, as an inducement to improperly influence in any way a procurement process, procedure or decision.

6.4.2 Employees and agents of the procuring entity as well as their family members or associates shall not receive any of the following from any tenderer, respondent or contractor or any potential contractor:

a) money, loans, equity, personal favours, benefits or services;

b) overseas trips; or

c) any gifts or hospitality irrespective of value from tenderers or respondents prior to the conclusion of the processes associated with a call for an expression of interest or a tender.

6.4.3 Employees and agents of the procuring entity shall not purchase any items at artificially low prices from any tenderer, respondent or contractor or any potential contractor at artificially low prices which are not available to the public.

6.4.4 Employees and agents of the procuring entity may for the purpose of fostering inter-personal business relations accept the following:

a) meals and entertainment, but excluding the cost of transport and accommodation;

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b) promotional material of small intrinsic value such as pens, paper-knives, diaries, calendars, etc; and

c) complimentary tickets to sports meetings and other public events, but excluding the cost of transport and accommodation, provided that such tickets are not of a recurrent nature.

6.4.5 Under no circumstances shall gifts be accepted from prospective contractors during the evaluation of calls for expressions of interest, quotations or tenders that could be perceived as undue and improper influence of such processes.

6.4.6 All agents and employees of the procuring entity shall without delay report any incidences of a respondent, tenderer or contractor who directly or indirectly offers a gratification to them or any other person to improperly influence in any way a procurement process, procedure or decision.

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Annex A: Implementation guide

A1 Introduction

Construction works are, except for certain types of residential buildings, necessary to support the strategic and business objectives of client organisations according to their purpose and values. Accordingly, projects involving construction works with a few exceptions form inputs into broader projects, beyond the construction sector. The implications of this, apart from pointing to the linkage between the role played by the client and project outcomes, are that:

- governance processes within the client organisation are required to take ownership of project delivery as an important component of the organisation's business; and
- project delivery is managed as a business rather than as an ad-hoc collection of projects.

Project delivery takes place through a supply chain. Contracts bind the participants in the supply chain. Such projects embrace:

- a "buying" or client delivery management function focusing on client delivery management practices (plan, specify, procure and oversee delivery); and
- a "supply" or delivery function focussing on the management and integration of the resources required to physically deliver the project.

Effective delivery management shaped by strategic decision-making is central to transforming a client's business case and value proposition into successful project outcomes across the entire project lifecycle.

A2 Structure and purpose of the standard

The Public Finance Management Act of 1999 requires an accounting officer or accounting authority to ensure that their organisation has in place an appropriate procurement and provisioning system. The Local Government Municipal Finance Management Act of 2023 requires a council to adopt and implement a supply chain management policy which is in accordance with the provisions of that Act. The Public Procurement Act of 2024 makes the accounting officer or accounting authority of a procuring entity responsible for making decisions on behalf of the entity in terms of the Act. This Act makes the procuring entity responsible for implementing an effective and efficient procurement system including a procurement policy which provides for:

- institutional and governance arrangements;
- demand management;
- procurement planning and budgeting;
- acquisition management;
- contract management, including assessment of projects against outcomes;
- risk management;
- logistics management;
- disposal management;
- monitoring and assessment of procurement performance; and
- reporting.

A construction procurement system as envisaged in the Public Procurement Act of 2024 operates within a structured system of rules, delegation frameworks, control sequencing and oversight mechanisms. The purpose of this standard is to provide a coherent architecture within which procurement decisions are framed, authorised, implemented and, where necessary, corrected. It

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establishes a system of planning instruments, control points and procurement processes which together form an integrated control environment for project delivery.

This standard represents a significant and necessary evolution from a procedural procurement standard toward a structured control framework for project delivery. The inclusion of planning instruments, procurement gates and broader delivery management considerations collectively provide a solid platform for consistently delivering value for money. This is made possible through the provision of a structured control framework within which procurement and delivery decisions are taken, and progression is conditional on defined information, authority and confirmation.

This standard does not include proforma documents of the endorsement of standard froms of contract. for inclusion in procurement documents. Such documents are available from the CIDB website.

A3 Tailoring

The provisions of this standard are generic in nature and can be applied across the spectrum of construction works projects from the simplest to the most complex in both the public and private sectors. It is recognised that each organisation has its own governance arrangements, capabilities, capacities and needs for project delivery. At the same time, public sector procurement is in a state of transition in moving towards the implementation of the Public Procurement Act of 2024. As a result, variables such as the number of days is omitted from the text of the standard.

It is therefore not possible to standardise the construction procurement system for all public and private sector organisations. What is possible is to provide:

- uniform and standard processes, methods and procedures to perform procurement and delivery management functions in the delivery or maintenance of construction works;
- generally applicable requirements for an organisation's procurement system;
- control frameworks within which decisions may be made in relation
- a framework for the standardisation of procurement documents; and
- ethical practices that regulate the actions, practices and procedures of those engaged in the procurement system for project delivery.

However, there are several policy choices and alignments required to make it organisation specific. It is necessary to:

- tailor some of the principles and provision to the specificities of client organisational needs;
- discard the application of some of the options or implement them incrementally over time due to organisational capacity and capability constraints;
- make several policy choices and alignments required with the parameters of the current and future public sector procurement regimes

Such adjustments and tailoring may be performed through the development of the organisation's construction procurement policy, a proforma of which is available from the CIDB website.

Table A1 identifies what needs to be included or considered in a construction procurement policy to align it with the provisions of the standard

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Table A1: Minimum policy requirements to align a construction procurement policy with the standard

General clause	Construction procurement policy requirements	Specific clauses
4.1 General principles	The policy must, based on the provisions of the standard, include a preferential procurement policy aligned with applicable national legislation and organisational delivery capabilities and competencies	4.1.1 a} 4.1.3
4.3 Governance arrangements	Assign responsibility for decision making at control gates and add any additional gates if necessary	4.3.1.1
	The number of years that documents relating to approvals and acceptance are retained for record or potential audit purposes	4.3.1.3
	The estimated cost of project or series of interrelated projects on a single site, if any, policy requirements or legislative requirements which triggers the development of business cases in terms of the Five Case Model	4.3.2.2a) and g)
	Delegations relating to percentage increases in the total of prices or time for completion at Procurement Gates PG8C or PG8D	Table 6; Activity 6 4.3.4.4
	Identity of person who approves the use of the negotiated and confined market selection method	4.3.4.3`
	Identity of person who is empowered to authorise a rapid response in an emergency which can be dealt with in 48 hours	4.3.4.3b)`
4.6 Acquisition management	Requirements for placing of advertisements and the timing of advertisements	4.6.1.1.1
	Permit or prohibit electronic submissions Arrangements for a tender box	4.6.1.3.1
	The identity of the opening panel	4.6.1.3.2
	The number of days following the closure of any advertised call for an expression of interest or an invitation to tender within which data associated therewith must be published on the organisation's website	4.6.1.4.1 4.6.1.4.2
	The identity of the person who notifies the award of contracts and orders in terms of framework agreements on the CIDB website in accordance with the provisions of the Construction Industry Development Regulations	4.6.1.4.3
	The identity of the person who communicates the outcome of the tender process to all participants	4.6.1.5
	Establish: • the estimated value of a procurement above which the quotation procedure may not be applied; and • requirements for the application of the quotation procedure	4.6.2.1.1
	Establish the membership of the procurement documentation committee, evaluation committee and tender committee	4.6.2.1.2
	Establish requirements for procurement documents which are beyond the minimum requirements of the standard including which standard forms of contract endorsed by the CIDB on their website may be used and requirements to apply standard templates	4.6.2.2.3
	The identity of the person(s) who are authorised to award a contract	4.6.2.5.1
	The identity of the person(s) who are authorised to issue an order in terms of a framework agreement	4.6.2.6.1
	Establish emergency procurement procedures	4.6.4
4.7 Contract management	Identify constraints if any that may be imposed on the contracts manager when acting in terms of the contract	4.7.2.2a)

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General clause	Construction procurement policy requirements	Specific clauses
5 Procurement methods and procedures	Identify selection methods which may not be applied and / or modifications to the conditions under which a selection method may be applied	5.2.1
	State the minimum number of working days which tenderers must be given to prepare and submit quotations under the quotation procedure	5.2.5
	State the maximum term of a framework agreement	5.3.1d)
	Identify which instruments may where possible and permitted in terms of legislation may be applied to implement a preferential procurement policy	5.6.1
	State the value of the threshold below which set asides where permitted may be implemented Identify the targeted categories of persons for which contracts may be set aside Establish the minimum number of persons who must have the capability and capacity to perform the contract to be invited to submit tenders	5.6.2
	State the value of the threshold below which prequalification criteria may be implemented	5.6.3.1
	State the value, the minimum number of tenderers required to comply with requirements and the estimated value to apply subcontracting as a condition of contract	5.6.4.1
	Identify the person who approves advance payments to contractors	5.7.6.5

A4 Critical leadership role of the client

A4.1 Principal function of a client organisation

An organization, functioning as a client in a project delivery context, initiates and finances a project and approves the requirements as captured in a brief and any changes thereto. The principal function of the client organization is to ensure that a solution to the business case for a construction works project is achieved. The client, as such, owns the business case of the project and is accountable for project outcomes.

The role of the client is widely held as the primary determinant of project success in project delivery irrespective of scale, technical complexity or geographic variables. Effective alignment of the project objectives with broader business outcomes is predicated on the client's active engagement, the strategic selection of project teams and procurement options, and the implementation of robust management systems characterised by consistent decision-making and transparent communication. Effective governance, clear roles, and structured processes help transform a client's value proposition into successful project outcomes across the full project delivery cycle as indicated in Figure A1.

Table A2 outlines the key actions associated with the project cycle indicated in Figure A1. Table A3 maps the topics covered in this standard in relation to the project cycle.

A4.2 Translating a value proposition into project outcomes

The client's organisation's business case, vision, values and project priorities collectively make up the client's value proposition for a project i.e. the promise of measurable benefits. Figure A2 illustrates the process whereby a client's value proposition is transformed into project delivery outcomes. Activities associated with the planning, designing, manufacturing, fabrication, construction, installation and commissioning need to translate the client's value proposition into project outcomes i.e. the change resulting from the use of the output from a project. Project outcomes include construction works with the required functionality, performance, and quality in all its forms, ready for use, with a concomitant impact on the three aspects of sustainability (economic, environmental and social) and public value. Project value is the outcome of client decision making to achieve an optimal balance of the project benefits, risks and costs.

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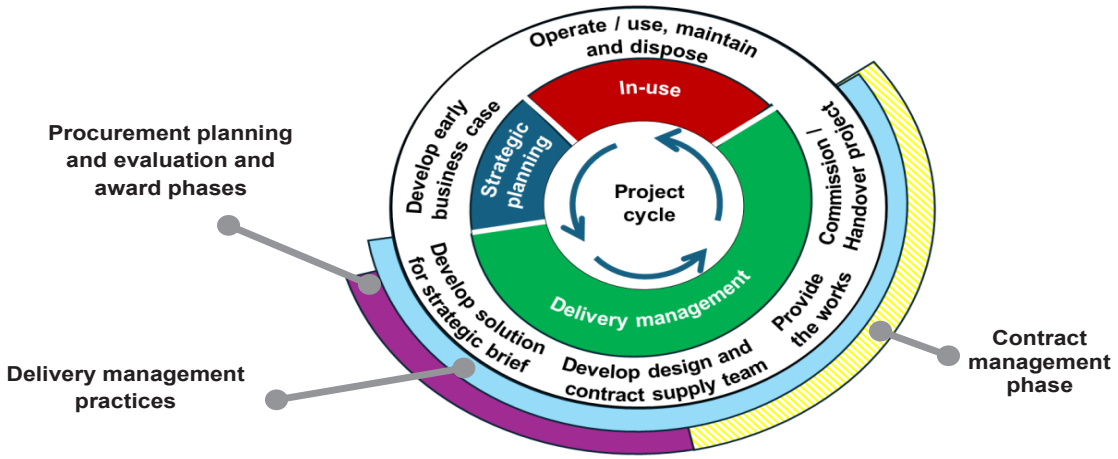


Figure A1: Stages and principal activities in the project cycle

Table A2: Descriptions and associated key actions in the project cycle

Stage	Description	Key actions associated with a principal activities
In-use	Stage during which construction works performs its intended functions and is maintained in a condition to do so reliably	• Operate / use as intended • Maintain in a condition as intended • Dispose when no longer required
Strategic planning	Stage when projects involving the creation and maintenance of projects are identified and motivated through organisational processes aimed at meeting strategic or critical asset management objectives	Develop as necessary • project initiation report that outlines the high-level business case, costs and schedule • early business case which focuses primarily on the strategic and economic cases, establishing the 'strategic need' for the project, and a shortlist of options.
Delivery management	Stage when projects are planned, specified, procured and their delivery overseen through knowledgeable leadership, consistent governance and systematic administration of procurement processes, contracts and project finances	• Develop a viable solution which enables decisions to be made to proceed or develop an intermediate business case before proceeding • Procure contractor(s) and professionals as per adopted procurement strategy • Develop design and associated documentation, as necessary • Provide, commission and / or hand over works to those who will operate / use and maintain the works

Table A3: Project cycle topics addressed in the standard

Stage	Clause	Topic
Operate / use, maintain and dispose	4.3.2.1	Linkage between strategic planning and demand management processes to project identification
	4.4	Principles associated with the establishment of the demand for projects linked to asset management and strategic planning activities
	4.6.4	Arrangements for obtaining external resources to address emergencies which result in local failure, localised reconstruction or widespread failure of construction works
	4.10 and 5.6.9	Options for disposal of materials and construction works which are surplus to requirements

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Stage	Clause	Topic
Develop early business case	4.3.1 and 4.3.2	Organisation of activities and actions within project preparation processes into discrete tasks which incorporate decision gates (control framework)
	4.4	Principles associated with managing the demand for projects linked to asset management and strategic planning activities
	4.5.1	Informing of decision making through the preparation of a project initiation report and the criteria by which projects are prioritised
	4.5.2	Tools for project prioritisation and scheduling through project delivery management plans and annual procurement plans
	4.5.3	Considerations in the development of a construction procurement strategy
	4.6.3	Principles for considering and accepting unsolicited proposals
Develop solution for strategic brief	4.3.1 and 4.3.3	Organisation of activities and actions within project planning processes into discrete tasks which incorporate decision gates (control framework) for project preparation
	4.3.2	Criteria for admission to portfolio planning processes and business case development established as well as what is required in terms of these two front end planning regimes
	4.3.3	Minimum stage deliverables associated with project planning processes which inform project viability or enable business cases to be refined
	4.3.3.6 and 4.3.3.7	Assurance review points in the form of gateway reviews which are usually applied at the end of the project planning phases
	4.5.4	Principles for development and management of budgets
	4.5.5	Mitigation of potential site based disruptions and community conflicts through social facilitation
Develop design and contract supply team	4.3.1 and 4.4.3	Organisation of activities and actions within design development processes into discrete tasks which incorporate decision gates (control framework) for project preparation
	4.3.4	Organisation of activities and actions within processes associated with the initiating, creating and fulfilling contracts into discrete tasks which incorporate decision gates (control framework)
	4.3.5	Organisation of activities and actions within processes associated with the issuing of orders for framework agreements into discrete tasks which incorporate decision gates (control framework)
	4.6	Principles and requirements associated with the conducting of acquisition processes Application of the committee system to approve procurement documents, evaluate submissions and make recommendations to award a contract Award of contracts and issuing of orders in terms of framework agreements
	4.7	Oversight responsibilities of the client delivery manager Duties of a contract manager Payment against certified amounts
	5.3	Framework agreements
Provide the works	4.3.1 and 4.3.3	Organisation of activities and actions within site processes into discrete tasks which incorporate decision gates (control framework)
	4.3.3.5	Procurement of long lead items
	4.5.5	Mitigation of potential site based disruptions and community conflicts through social facilitation
	4.7	Oversight responsibilities of the client delivery manager Duties of a contract manager Payment against certified amounts Focus of meetings on construction contracts
Commission / handover project	4.3.1	Organisation of activities and actions within handover / commissioning and close out processes into discrete tasks which incorporate decision gates (control framework)
	4.7	Payment against certified amounts

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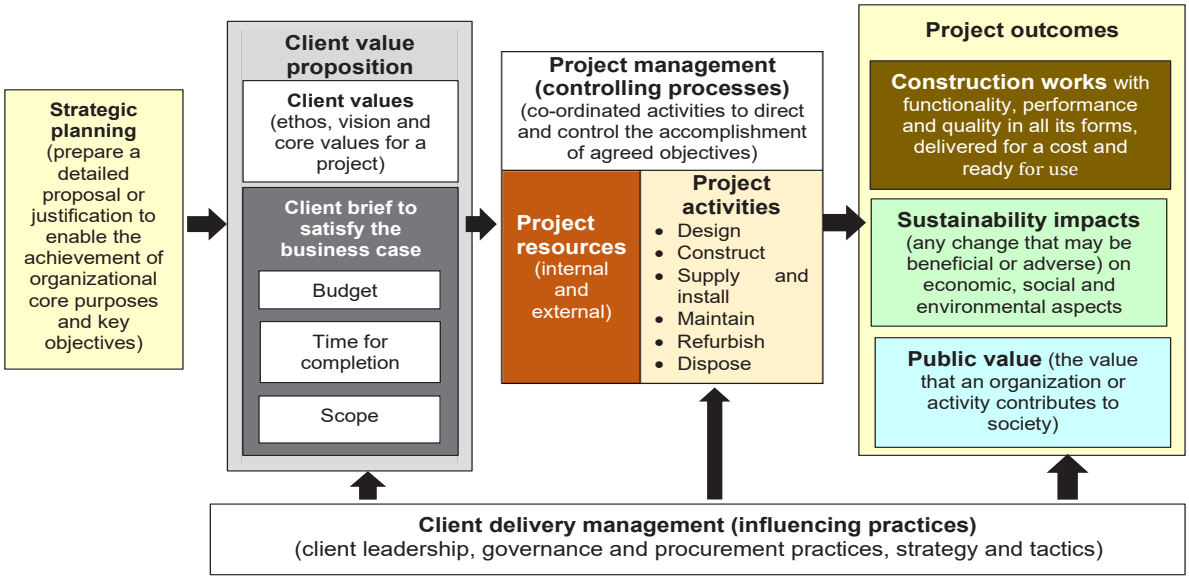


Figure A2: Translating the client value proposition into project outcomes

During the process of converting a value proposition into project outcomes, the client should perform the following delivery management (influencing) practices to realize project value:

- plan – decide on what should be done, how it is to be resourced and achieved and in what time frames, and set a budget;
- specify – define the organisation's functional and other requirements for the project clearly and precisely;
- procure – obtain project resources (internal and external) to execute project activities with care and effort; and
- oversee delivery – observe and define the execution of the project to realise the client's value proposition associated with a business case.

The project management function associated with projects coordinates activities to direct and control the accomplishment of agreed objectives in support of the supply function. The delivery management function, on the other hand, focuses on knowledgeable leadership, consistent governance and systematic administration of procurement, contracts and project finances.

A client needs to provide effective leadership of the project throughout the delivery cycle, commencing at a strategic level and ending at the close out of a project.

A4.3 Functions of principal role players in project delivery

There is no 'one size fits all' allocation of roles and responsibilities to support project delivery as project governance arrangements vary between projects and client organizations. Figure A3, nevertheless, illustrates an appropriate allocation of roles and responsibilities aligned with the project governance arrangements whereby a client delivery manager has single-point accountability for project delivery and reports to a senior line manager and a project delivery steering committee. The line manager in turn reports to the governing body.

A5.4 Client leadership

The key purpose of project delivery control frameworks (see 4.3.3) that impose decision gates is to undertake work incrementally to promote informed decision-making as the project progresses and its definition is developed. As the project definition deliverables mature over time, the estimating methods change and the expected range of accuracy improve as indicated in Table 4. The

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procurement of the entity responsible for the works stage (stage 5) can be appointed following the completion of stages 1, 2, 3 or 4, depending on whether they are assigned design responsibilities for the permanent works and how contractors are to be contracted and remunerated.

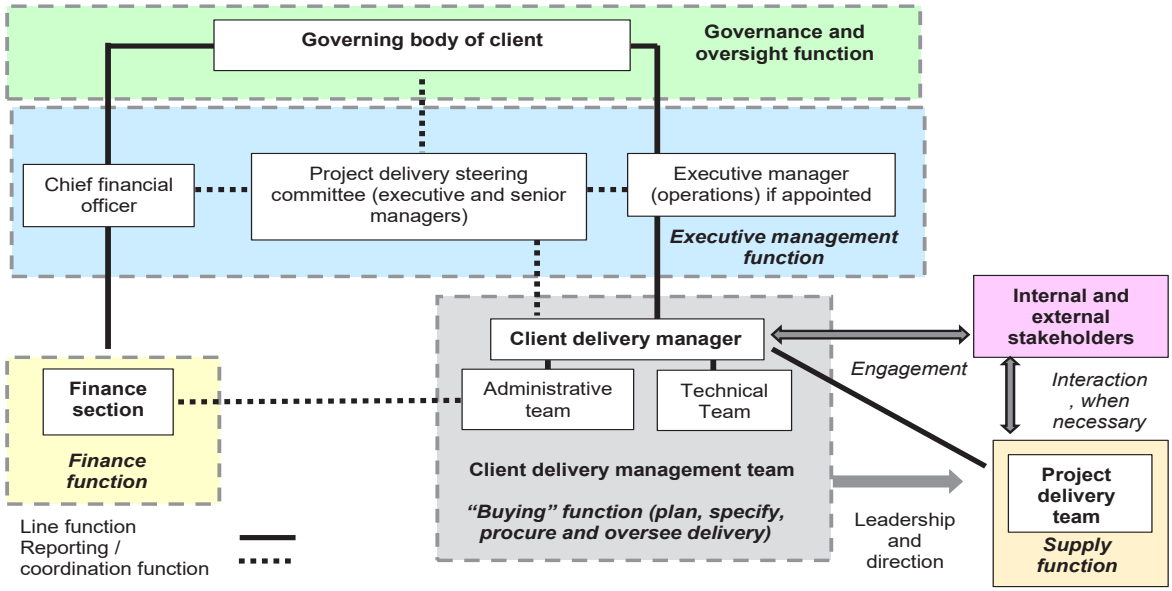


Figure A3: Example of the allocation of roles and responsibilities in project delivery

Note: ISO 6082 provides guidance on the roles and responsibilities of the role players in project delivery

Table A4: AACE International Cost Estimate Classification System

Class estimate / approximate stage	General building and construction industries (56R-08, 2020)			Process industries (18R-97, 2020)		
	Maturity level of project definition deliverables (%)	**End usage** (Typical purpose of estimate)	**Expected accuracy range** (typical variation in low and high ranges)	**Maturity level of project definition deliverables** (%)	**End usage** (Typical purpose of estimate)	**Expected accuracy range** (typical variation in low and high ranges
Class 5 / Stage 1	0% to 2%	Functional area, or concept screening	L: -20% to – 30% H: +30% to +50%	0% to 2%	Concept screening	L:- 20 to – 50% H:+30 to +100%
Class 4 / Stage 2	1% to 15%	Schematic design or concept study	L: -10% to – 20% H: +20% to +30%	1% to 15%	Study or Feasibility	L: -15 to -30% +20 to +50%
Class 3 / Stage 3	10% to 40%	Design development, budget authorization, feasibility	L: -5% to – 15% H: +10% to +20%	10% to 40%	Budget, Authorisation, or Control	L: -10 to -20% H: +10 to +30%
Class 2 / Stage 4	30% to 75%	Control or bid/tender, semi-detailed	L: -5% to – 10% H: +5% to +15%	30% to 70%	Control or Bid/Tender	L: -5 to -15% H: +5 to +20%
Class 1 / Stage 5	65% to 100%	Check estimate or pre bid/tender, change order	L: -3% to – 5% H: +3% to +10%	70% to 100%	Check Estimate or Bid/Tender	L: -3 to -10% H: +3 to +15%

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Mature control frameworks consider more than the technical, solution, considering the ongoing development and refinement as necessary of the business case, project execution planning and the role of the project owner in decision making throughout the lifecycle.

There are also several approaches to the allocation of risks which may manifest in the execution of a contract. Risks for which a contractor is not financially responsible for may manifest during the execution of the works. At the same time, the demand for insistent and peremptory requests for modifications and additions and additional features or functions not authorised (scope creep) may flare up. These risks if not carefully monitored and overseen can lead to considerable cost overruns.

Knowledgeable leadership is required to guide the client through the maze of decision making required to guide a project to achieve project value.

A5 Managing multi-year construction works projects over a three year horizon

A5.1 General

A client delivery management team needs to oversee and manage budgets and cash flows, the procurement of implementation resources, payment of contracted persons and the accounting for expenditure. This requires cost and time management across multiple construction works projects which is dependent on having accurate, reliable and up to date information to make informed decisions. The focus of such management is on:

- managing the overall budget available for the current financial year and, if necessary, over subsequent years;
- delivering projects within a budget; and
- aligning the completion of projects within user requirements.

A5.2 Contingencies, project control budgets and authorised amounts

Risk can influence the delivery of a project in terms of time, cost and quality, and in extreme cases, the completion of the contract. Risk taking is unavoidable in project delivery. A central issue that needs to be dealt with is the financial liability relating to the uncertainty of future events. Standard forms of contract establish the allocation of risks between the parties and make provision for any necessary adjustments to the contract amount and time for completion arising from risk events for which the contractor is not responsible.

A control budget needs to be established for each project. Such budgets are concerned with the estimation of the outturn (final) cost of a project and include costs for all external resources required to deliver or maintain identified construction works as indicated in Table A5. Such a budget needs to include contingency sums to fund the client organisation's liabilities (risk allocations) in terms of the contract. Control budgets as such set a target or benchmark against which projects are delivered. They are set and adjusted / amended at decision gates (control points) within the control framework for project delivery.

The authorised amount is the amount made available and authorised by the governing body for a project following a decision to implement a project. It represents the total cost of an investment to achieve a value proposition for a project. Such an amount includes delivery management costs and the project control budget as indicated in Table A6.

The difference between the authorised amount (see Table A6) and the control budget (see Table A5) enables the surplus / deficit to be established.

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Table A5: Example of a control budget for a project

Item			Amount (Rands)
Service and planning charges			**R** . . . . .
Cumulative value of planned procurements, contracts and orders issued in terms of a framework agreement excluding contingencies and price adjustment for inflation for:			
• work packages	**R**		
• professional services and other services	**R**		
• furniture fittings and equipment	**R**		
Total cumulative planned procurements, contracts and orders (A)			**R** . . . . .
Add contingency amount	. . . . .	% of A	**R** . . . . .
Add allowance for price adjustment for inflation	. . . . .	% of A	**R** . . . . .
Add allowance for currency fluctuations	. . . . .	% of A	**R** . . . . .
Total excluding VAT			**R** . . . . .
VAT@ . . . . %			**R** . . . . .
Project control budget			**R** . . . . .

Table A6: Example of the authorised amount for a project

Item		Amount (Rands)
A Contribution from own resources e.g. revenue	**R**	
B Contribution from other resources e.g. annual budget	**R**	
C Grant funding	**R**	
Total amount available for the project (A + B + C)		**R** . . . . .
D Expenses relating to insurance, audit fees etc.	**R**	
E Expenses relating to delivery management team services / implementing agent fees	**R**	
F Expenses relating to technical advisory services	**R**	
G Other	**R**	
Total expenses (D + E + F + G)		**R** . . . . .
Less total expenses		**R** . . . . .
H Total authorised amount available for the project		**R** . . . . .

A5.3 Multi-year budgeting for projects

It is seldom possible to complete the planning, design, procurement and implementation of a construction works project in a single financial year. A multi-year approach needs to be taken to the planning of project delivery as a procuring entity in any one year may be engaged in:

- closure and reporting activities for the previous year's project implementation;
- managing implementation, monitoring and reporting for the current year's project implementation;
- managing procurement processes for the current, next or future year's implementation;
- planning for next and future year's implementation; and
- updating the project delivery management plan.

The budget for a multi-year project should be spread over the years for which the project is planned. Project plans should therefore include cashflow projections which indicate when project budgets

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are required and what portion of each project will be completed within each financial year and therefore how much budget should be allocated to each project each year.

Delays in project delivery are common, and not just due to poor management. Often delays are caused by unforeseen events, such as unforeseen ground conditions which are only discovered after the project has started. To avoid under-expenditure of construction works budgets during a particular financial year, the procuring entity needs a degree of flexibility to change annual project cash-flow projections during the year, so that more money can be spent on faster moving projects in a particular financial year. This does not mean that overall project budgets or the purpose for which funds were approved would change, but that the rate of expenditure of approved project budgets can be allowed to vary.

One way of achieving this cash-flow flexibility is to appropriate budgets to programmes (group of projects managed in a coordinated way) rather than individual projects, to allow for movement of funds between projects as illustrated in Figure A4.

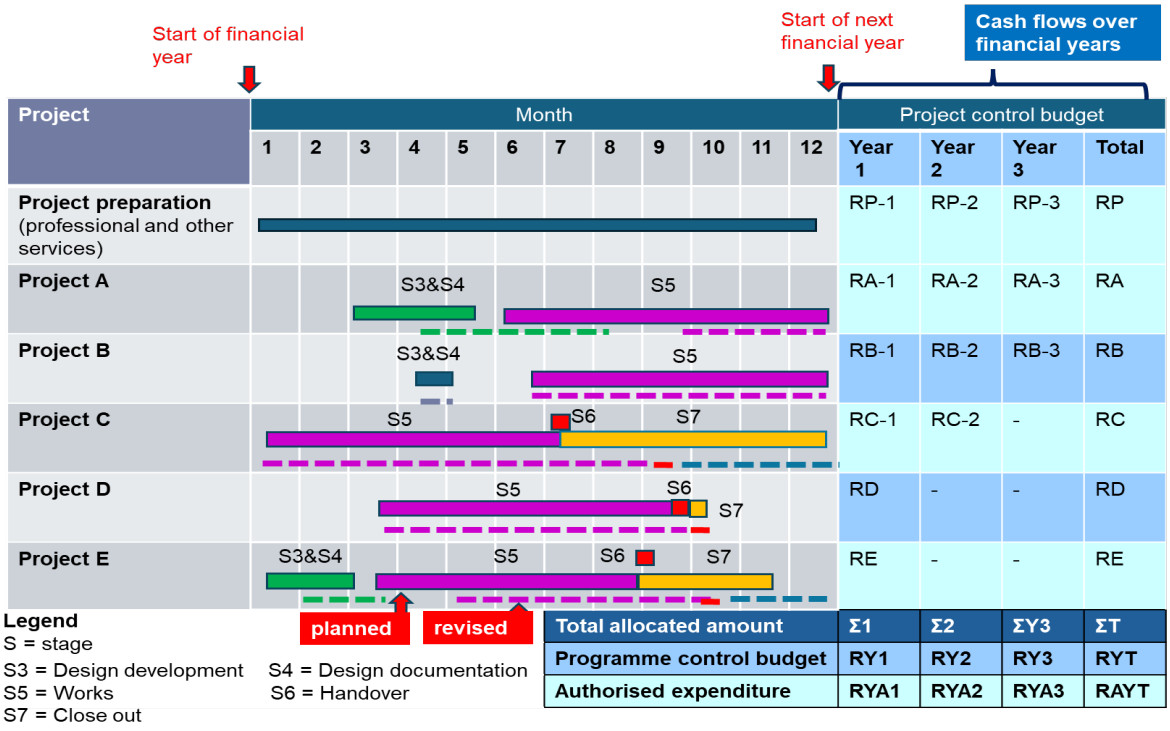


Figure A4: An example of a high-level multi-year project delivery management plan for a programme of projects

A5.4 Data gathering to manage commitments and expenditure

Cost data needs to be gathered on a continuous basis to ensure that at any point in time the amount paid on a project and the quantum of monies set aside for the projected expenditure within each financial year is known. Much of this data can be obtained from well formulated payment certificates issued in terms of the contract as the contract manager has all the required information i.e. the data relating to the time for completion and the total of the prices at the start of the contract and any changes to these values which are made in accordance with the provisions of the contract.

A management system to enable oversight and control of procurements, contract commitments, authorised budgets, payments and expenditure needs to be put in place by the client delivery manager's administrative team at both a project and programme level. Such a system should

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comprise the following four registers indicated in Figure A5 to seamlessly link project finances to the overarching financial management system:

1) a **planned procurement and commitment register** to record for each project the estimated value of planned procurements together with the contracts entered (or orders issued in terms of a framework agreement) so that at any point in time the total value of a project can be compared with the planned project budget;

2) a **contracts register** which ensures that contract numbers are never duplicated and contains particulars of all contracts and orders issued in terms of a framework agreements and can, if required, include additional information relating to the starting price, details relating to the time for completion and any changes in the time for completion;

3) a **payment register** to record all the payments that have been authorised against each contract and purchase order and enable time between receipt of invoice and making of payment to be established; and

4) a **purchase order register** to link contracts or orders issued in terms of framework agreements and the payments relating thereto to the amounts authorised within the financial management system to ensure that approved contract budgets are not exceeded.

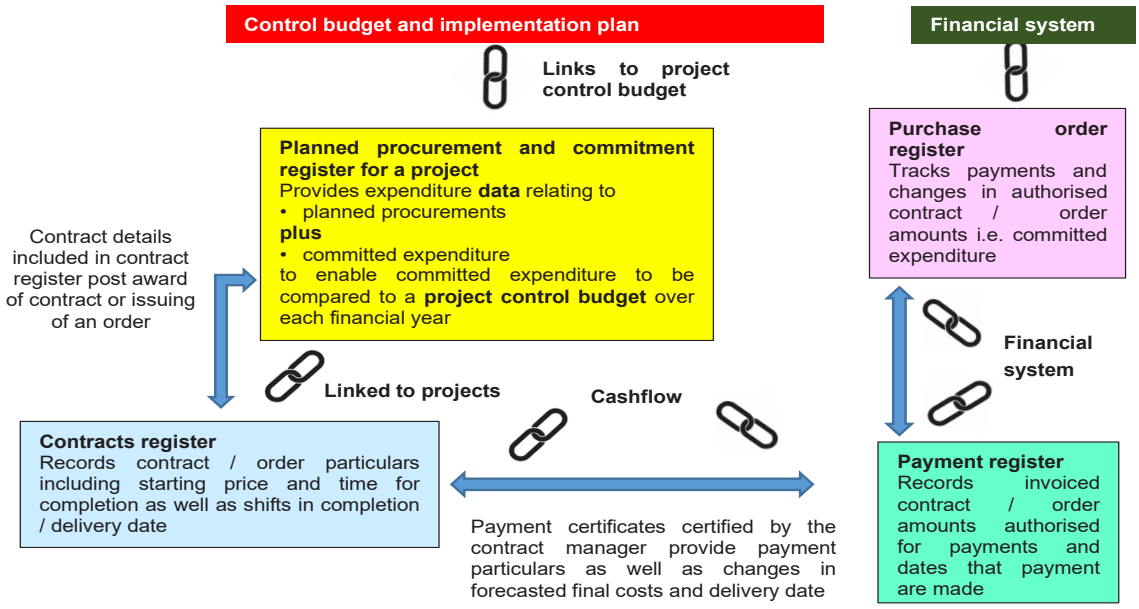


Figure A5: Managing the overall programme of commitments and expenditure

Underpinning these registers is a Payment Authorisation Form that spells out what is being paid against which contract or order, which purchase order, how much has been paid in total and how much is remaining.

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