

## INDEPENDENT COMMUNICATIONS AUTHORITY OF SOUTH AFRICA

NO. 3762

4 August 2023



**HEREBY ISSUES A NOTICE REGARDING RADIO FREQUENCY ASSIGNMENT PLANS FOR THE FREQUENCY BAND 156.8375 MHz TO 174 MHz IN TERMS OF REGULATION 3 OF THE RADIO FREQUENCY SPECTRUM REGULATIONS, 2015**

1. The Independent Communications Authority of South Africa ("the Authority"), hereby publishes the Final **Radio Frequency Spectrum Assignment Plan for the frequency band 156.8375 MHz to 174 MHz** in terms of regulation 3 of the Radio Frequency Spectrum Regulations, 2015, read with the Radio Frequency Migration Regulation 2013, the 2013 and 2019 Radio Frequency Migration Plans.

A handwritten signature in black ink, appearing to read 'Yolisa Kedama', written over a horizontal line.

**YOLISA KEDAMA**  
**ACTING CHAIRPERSON**



Radio Frequency Spectrum Assignment Plan

Rules for Services operating in the Frequency Band  
156.8375 MHz to 174 MHz

156.8375 -174 MHz

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## 1 Glossary

In this Radio Frequency Spectrum Assignment Plan, terms used shall have the same meaning as in the Electronic Communications Act 2005 (no. 36 of 2005); unless the context indicates otherwise:

<b>“Act”</b>	means the Electronic Communications Act, 2005 (Act No. 36 of 2005) as amended
<b>“Administration”</b>	means 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).
<b>“BTX”</b>	means Base Transceiver
<b>“dBc”</b>	means decibels relative to carrier
<b>“DMR”</b>	Digital Mobile Radio
<b>“FAP”</b>	means Frequency Allocation Plan
<b>“FWA”</b>	means Fixed Wireless Access
<b>“GMDSS”</b>	means Global Maritime Distress and Safety System
<b>“IMO”</b>	means International Maritime Organisation
<b>“ITU”</b>	means the International Telecommunication Union;
<b>“ITU-R”</b>	means the International Telecommunication Union Radiocommunication Sector
<b>“MTX”</b>	means Mobile Transceiver
<b>“NRFP”</b>	means the National Radio Frequency Plan 2021 for South Africa
<b>“RFSAP”</b>	means Radio Frequency Spectrum Assignment Plan
<b>“SF”</b>	means Single Frequency
<b>“WRC-12”</b>	means the World Radiocommunications Conference held in Geneva in 2012
<b>“WRC-15”</b>	means the World Radiocommunications Conference held in Geneva in 2015
<b>“WRC-19”</b>	means the World Radiocommunications Conference held in Sharm el-Sheikh in 2019

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## 2 Purpose

- 2.1** The Radio Frequency Spectrum Assignment Plan (RFSAP) provides information on the requirements attached to the use of a frequency band in line with the allocation and other information in the National Radio Frequency Plan (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 Radio Frequency Spectrum Assignment Plan (RFSAP) provides information on the requirements attached to the use of a frequency band in line with the allocation and other information in the National Radio Frequency Plan (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
- 2.3** This Frequency Assignment Plan states the requirements for the utilization of the frequency band between 156.8375-174 MHz for primary Fixed and Mobile (except Aeronautical mobile for all sub bands and Maritime mobile satellite for some sub bands) services. As per Appendix A, some sub bands of this band are allocated to Maritime Mobile Satellite and Mobile-Satellite (Earth to Space) services on a secondary basis.
- 2.4** This follows the feasibility study concerning the 156.8375-174 MHz band<sup>1</sup>, as mandated by the 2013<sup>2</sup> and 2019<sup>3</sup> RF migration plans.
- 2.5** Key to the feasibility consultation into this band is the MTX-DF and BTX-DF challenge as shown in Figure 1. As per the Government Gazette 36031, the MTX-DF (165.55-167.5 MHz) and BTX-DF (172.05-174 MHz) were interchanged in this band<sup>4</sup>. The outcome of the consultation in 2012 into this challenge recommended the following (which are all consistent with the 2013<sup>5</sup> and 2019<sup>6</sup> RF migration plans):
- 2.5.1** Step 1: swapping MTX and BTX to optimise the usage of the band through aggregating the MTX mobile frequencies in the centre of the band, leading to minimised interference between the four FDD pairs of frequencies.
- 2.5.2** Step 2: conducting a feasibility study into simplex frequencies (FDMA or TDMA) with different channel spacing, including coexistence of multiple technologies, bandwidths

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<sup>1</sup> Implementation of the Radio Frequency Migration Plan and the International Mobile Telecommunications (IMT) Roadmap for public consultation, Government Gazette No. 45690, 24 December 2021.

<sup>2</sup> Frequency Migration regulation and Radio Frequency Migration Plan March 2013, Government Gazette No 36334, 3 April 2013

<sup>3</sup> ICASA. 2019. Radio Frequency Migration Plan 2019. Government Gazette No 42337, 29 March 2019

<sup>4</sup> [https://www.gov.za/sites/default/files/gcis\\_document/201409/36031gen10641.pdf](https://www.gov.za/sites/default/files/gcis_document/201409/36031gen10641.pdf). Government Gazette No 36031, 24 December 2012?

<sup>5</sup> Frequency Migration regulation and Radio Frequency Migration Plan March 2013, Government Gazette No 36334, 3 April 2013

<sup>6</sup> ICASA. 2019. Radio Frequency Migration Plan 2019. Government Gazette No 42337, 29 March 2019

etc. Depending on the outcome, the band would need to be re-planned (year 2 + after studies have been completed).

**2.5.3** Step 3: Develop RFSAP (realised by this document)

**2.6** However, at the conclusion of the feasibility study into this band<sup>7</sup>, the Authority has concluded the following:

**2.6.1** The MTX DF and BTX DF swap shown in Figure 1 may be desirable but not very feasible; and that

**2.6.2** It may be feasible, but it would require significant stakeholder galvanisation on the part of the Authority - particularly the thousands of non-specific SRDs, wireless microphones and assistant listening devices - with a likely low probability of success.

**2.7** Therefore, the Authority has concluded that proceeding with the MTX-DF/BTX-DF swap would not be optimal – leaving the current arrangement as is (see Figure 1).

**2.8** So, the intention of this RFSAP is to leave the band as it is today, i.e., no swap would happen going forward.

### **3 General**

**3.1** Technical characteristics of equipment used for Fixed, Mobile, Aeronautical Mobile, Maritime Mobile and Mobile-Satellite (Earth to Space) across miscellaneous sub-bands of this wider band as seen in Appendix A shall conform to all applicable South African standards, international standards, International Telecommunications Union (ITU) and its radio regulations as agreed to and adopted by South Africa

**3.2** All installations must comply with safety rules as specified in applicable standards.

**3.3** The equipment used shall be certified under South African law and regulations.

**3.4** The allocation of this frequency band and the information in this Radio Frequency Spectrum Assignment Plan (RFSAP) are subject to review.

**3.5** Frequency bands sub-allocations will be as per the SADC sub-allocations/utilisations as shown in Appendix A (Tables 2 and 3).

**3.6** The following documents may also be useful when considering the 156.8375 - 174 MHz band:

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<sup>7</sup> Implementation of the Radio Frequency Migration Plan and the International Mobile Telecommunications (IMT) Roadmap for public consultation, Government Gazette No. 45690, 24 December 2021.

- 3.6.1** ERC/REC 70-03, ERC Recommendation of 6 October 1997 on relating to the use of Short-Range Devices (SRD) editorial update on 11 February 2022. <https://docdb.cept.org/document/845> .
- 3.6.2** ECC/DEC/ (05)02, ECC Decision of 18 March 2005 on the use of the frequency band 169.4-169.8125 MHz, Amended 5 July 2019. <https://docdb.cept.org/document/385> .
- 3.6.3** ECC/DEC/ (19)02, ECC Decision of 8 March 2019 on Land mobile systems in the frequency ranges 68-87.5 MHz, 146-174 MHz, 406.1-410 MHz, 410-430 MHz, 440-450 MHz, and 450-470 MHz, 8 March 2019. <https://docdb.cept.org/document/9680> .
- 3.6.4** ECC/DEC/ (19)03, ECC Decision of 8 March 2019 on the harmonised usage of the channels of the Radio Regulations Appendix 18 (transmitting frequencies in the VHF maritime mobile band), 8 March 2019. <https://docdb.cept.org/document/9681> .
- 3.6.5** T/R 25-08, Recommendation T/R of 30 May 2008 on Planning criteria and cross-border coordination of frequencies for land mobile systems in the range 29.7-470 MHz. Latest amended on 28 September 2018. <https://docdb.cept.org/document/909> .
- 3.6.6** CEPT Report 059, Annual update of the technical annex of the Commission Decision on the technical harmonisation of radio spectrum for use by short range device Addendum to the report is also to be found here, 17 June 2016. <https://docdb.cept.org/document/945> .
- 3.6.7** CEPT Report 044, In response to the EC Permanent Mandate on the” Annual update of the technical annex of the Commission Decision on the technical harmonisation of

radio spectrum for use by short range devices”, 8 March 2013.  
<https://docdb.cept.org/document/44> .

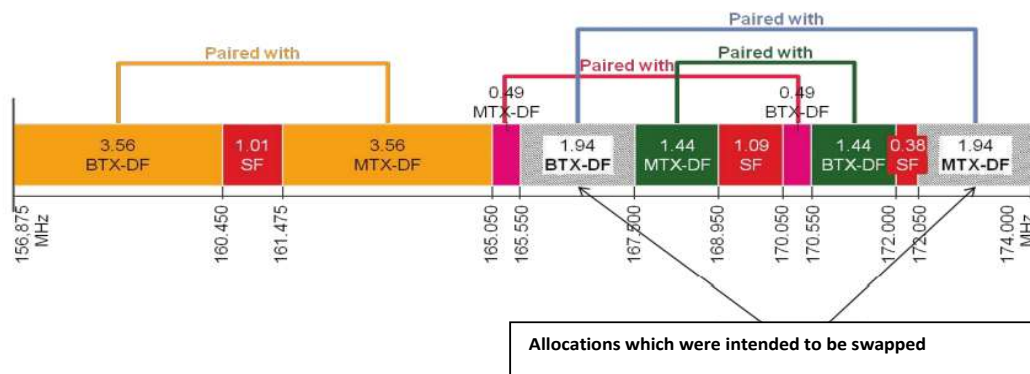
- 3.6.8** ECC Report 097 Cross Border Interference for Land Mobile Technologies, 20 February 2007. <https://docdb.cept.org/document/205> .
- 3.6.9** ECC Report 055 Compatibility between existing and proposed SRDs and other radiocommunication applications in the 169.4-169.8 MHz frequency band, 25 Oct 2004. <https://docdb.cept.org/document/165> .
- 3.6.10** Recommendation ITU-R M.2092-1 (02/2022): “Technical characteristics for a VHF data exchange system in the VHF maritime mobile band”, <https://www.itu.int/rec/R-REC-M.2092> .
- 3.6.11** Recommendation M.2135 (10/2019): “Technical characteristics of autonomous maritime radio devices operating in the frequency band 156-162.05 MHz”, <https://www.itu.int/rec/R-REC-M.2135/en>.
- 3.6.12** Recommendation ITU-R M.1371-5 (02/2014): “Technical characteristics for an automatic identification system using time-division multiple access in the VHF maritime mobile band”, <https://www.itu.int/rec/R-REC-M.1371>.
- 3.6.13** Recommendation ITU-R M.1084-5 (03/2012): “Interim solutions for improved efficiency in the use of the band 156-174 MHz by stations in the maritime mobile service”, <https://www.itu.int/rec/R-REC-M.1084>.
- 3.6.14** Recommendation ITU-R M.1842-1 (06/2009): “Characteristics of VHF radio systems and equipment for the exchange of data and electronic mail in the maritime mobile service RR Appendix 18 channels”, <https://www.itu.int/rec/R-REC-M.1842>.
- 3.6.15** Report M.2010-1 (1997): “Improved efficiency in the use of the band 156-174 MHz by stations in the maritime mobile service”, <https://www.itu.int/pub/R-REP-M.2010-1-1997>.
- 3.6.16** Recommendation M.1312-0 (10/97): “A long-term solution for improved efficiency in the use of the band 156-174 MHz by stations in the maritime mobile service”, <https://www.itu.int/rec/R-REC-M.1312/en>.
- 3.6.17** Recommendation M.586-1 (07/86): Automated VHF/UHF maritime mobile telephone system, <https://www.itu.int/rec/R-REC-M.586>.
- 3.6.18** A complete list of ITU Maritime related recommendations is available at <https://www.itu.int/en/ITU-R/terrestrial/mars/Pages/References.aspx>.

#### **4 Channelling Plan**

- 4.1** The frequency band 156.8375 to 174 MHz will be assigned in line with the frequency allocations (see Appendix A), with Figure 1 (minus the swap) illustrating the assignment. In other words, there is no change.

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**Figure 1: Illustration of channel arrangements for some of the allocations in the 156.8375 – 174 MHz band<sup>8</sup>**

Sample detailed channel plans for the frequency allocation are provided on pages 159-161 of the Final Radio Frequency Plan 2019<sup>9</sup> (pages 539-541 of the Gazette).

## 5 Requirements for usage of radio frequency spectrum

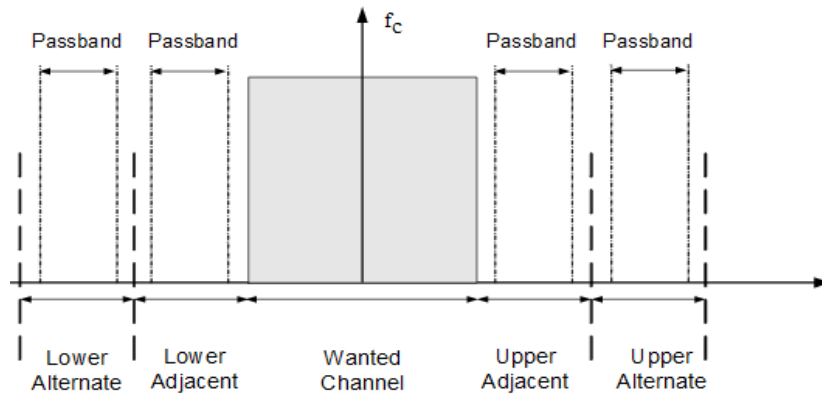
- 5.1 This chapter covers the minimum key characteristics considered necessary to make the best use of the available frequencies.
- 5.2 The use of the band is limited for Fixed, Mobile, Aeronautical Mobile, Maritime Mobile and Mobile-Satellite (Earth to Space) services across miscellaneous sub-bands of this wider band as seen in Appendix A.
- 5.3 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.
- 5.4 The allocation of spectrum and shared services within these bands are found in the National Radio Frequency Plan (NRFP), and an extract of the NRFP is shown in Appendix A.
- 5.5 Maximum radiated powers are specified through the type approval process for the equipment used.
- 5.6 On a case-by-case basis, higher EIRP may be permitted. In some cases, a radio system conforming to the requirements of this RFSAP may require modifications if major interference is caused to other radio stations or systems.
- 5.7 The Technical Requirements for land mobile systems with channel bandwidth of 6.25 kHz, 12.5 kHz and 25 kHz, 50 kHz, 100 kHz, 150 kHz, and 200 kHz, as well as the technical requirements

<sup>8</sup> ICASA. 2019. Radio Frequency Migration Plan 2019. Government Gazette, No. 42337, 29 March 2019

<sup>9</sup> Government Gazette No 42337, 29 March 2019. <https://www.icasa.org.za/uploads/files/final-radio-frequency-migration-plan-2019.pdf>

for land mobile systems operating with channel bandwidth between 6.25 kHz and 200 kHz are provided in ECC/DEC/ (19)02 <sup>10</sup>:

#### 5.7.1 Adjacent and Alternate Channel Power



**Figure 2: Wanted channel, adjacent and alternate adjacent channels**

Within the wanted channel, the effective radiated power used shall comply with the authorisation conditions. Normal effective radiated power emissions within the wanted channel do normally not exceed 40 dBm for user equipment and 53 dBm for base station equipment.

#### 5.7.2 Adjacent and Alternate Adjacent Channel Power

The power in the lower and upper adjacent channels, as well as in the lower and upper alternate adjacent channels, shall not exceed a value of 60 dBc below the transmitter output power without the need to be below -36 dBm ERP.

These limits are valid for all base stations, user equipment and repeaters.

#### 5.7.3 Unwanted Emissions in The Spurious Domain

The unwanted emissions within the spurious domain during operation shall not exceed -36 dBm for frequencies up to 1 GHz and shall not exceed -30 dBm for frequencies above 1 GHz. In standby mode, the unwanted emissions shall not exceed -57 dBm for frequencies up to 1 GHz and shall not exceed -47 dBm for frequencies above 1 GHz.

#### 5.7.4 Intermodulation Attenuation

This requirement applies only to transmitters to be used in base stations or repeaters.

<sup>10</sup> ECC/DEC/ (19)02, ECC Decision of 8 March 2019 on Land mobile systems in the frequency ranges 68-87.5 MHz, 146-174 MHz, 406.1-410 MHz, 410-430 MHz, 440-450 MHz, and 450-470 MHz, 8 March 2019. <https://docdb.cept.org/download/1455>

Intermodulation attenuation is a measure of the capability of a transmitter to inhibit the generation of signals in its non-linear elements caused by the presence of the transmitter power and an interfering signal entering the transmitter via its antenna.

In general, the intermodulation attenuation ratio shall be at least 40 dB for any intermodulation component.

Note that ICASA may require a more stringent intermodulation attenuation requirement for base station equipment to be used in special service conditions, e.g., at sites where more than one transmitter will be in service, this is recommended to be at least 70 dB for any intermodulation component.

#### 5.7.5 Adjacent Channel Transient Power

Transient power is the power falling into adjacent spectrum due to switching the transmitter on and off. The transient power in the adjacent channels (e.g., caused by push-to-talk functionality) shall not exceed -60 dBc in the adjacent channels, or -50 dBc for equipment, without the need to be below -36 dBm.

#### 5.7.6 Receiver Requirements

##### 5.7.6.1 Adjacent channel selectivity

The adjacent channel selectivity is the measure of the capability of the receiver of the land mobile system to receive a wanted modulated signal at the nominal operating frequency without exceeding a given degradation due to the presence of another land mobile system in assumed 25 kHz channels adjacent to the channel bandwidth for which the equipment is intended. E.g., the centre of an adjacent channel relative to the centre of the nominal channel is at +/- 62.5 kHz for a land mobile system operating with a 100 kHz channel bandwidth.

Table 1: Adjacent channel selectivity

Channel bandwidth	Unwanted signal levels
Up to 200 kHz	-37 dBm

##### 5.7.6.2 Receiver blocking

Blocking is the measure of the capability of the receiver to receive a wanted modulated signal without exceeding a given degradation due to the presence of an unwanted input signal at any frequencies outside the wanted channel and the lower and upper adjacent and alternate adjacent channels (see “Adjacent channel selectivity” above).

The blocking level shall not be less than -27 dBm.

## 6 Implementation

- 6.1 This RFSAP shall be effective on the date of issue.
- 6.2 No new assignment in the band 156.8375 – 174 MHz shall be approved unless they comply with the RFSAP.

## 7 Co-ordination Requirements

- 7.1 Coordination is performed by the Authority during the process of assignment using HCM or any other appropriate method.
- 7.2 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 interference resolution process as shown in Appendix B.
- 7.3 Assignment holders shall take full advantage of interference mitigation techniques such as antenna discrimination, tilt, polarisation, frequency discrimination, shielding / blocking (introduce diffraction loss), site selection, and/or power control to facilitate the coordination of systems.
- 7.4 Indicative coordination thresholds for analogue or digital land mobile systems are as follows <sup>11</sup>.

The aim of a coordination threshold is to avoid harmful interference between stations located in neighbouring countries. To achieve this, an indicative coordination threshold is established which should not be exceeded without coordination between neighbouring countries.

The indicative coordination threshold for land mobile systems (co-channel, 50% locations, 10% time<sup>12</sup>, 10 m receiving antenna height, within a reference bandwidth of 25 kHz, at the borderline) is: 12 dB (µV/m).

For systems using a channel spacing greater than 25 kHz, the following bandwidth conversion formula can be used provided that the spectral power distribution within this channel spacing is uniform within the channel:

$$BC = 10 \times \log_{10} (\text{channel spacing} / 25 \text{ kHz}), \text{ dB}$$

The value (BC) resulting from the formula should be added to the indicative coordination threshold as listed above.

For all other spectral power distributions, indicative coordination threshold levels should be applied within every 25 kHz bandwidth within the channel spacing.

<sup>11</sup> Recommendation T/R 25-08: "Planning criteria and cross-border coordination of frequencies for land mobile systems in the range 29.7-470 MHz", Approved 15 January 1990, Amended 28 September 2018, <https://docdb.cept.org/document/909>

<sup>12</sup> In certain situations, the 1%-time curves should be used for digital systems, e.g., to better protect analogue systems.

**7.5** Some information on levels of interference and required separation distances from and to several traditional technologies (narrowband FM, TETRA, CDMA-PAMR, and Flash OFDM) may be found in ECC Report 097<sup>13</sup>.

**7.6** Planning characteristics in border areas.

The location, the power, and the antenna heights of all stations in the network should be selected in such a way that their range is confined, as far as possible, to the zone to be covered by the intended service.

Excessive antenna heights and transmitter outputs should be avoided, by using several locations of reduced height wherever possible. In border areas directional antennas should be used to minimise the interference potential.

The effective radiated power and the height of the antenna should be as low as possible in relation to the area to be served.

## **8 Assignment**

**8.1** Standard Approach

The assignment of frequency will take place according to the Standard Application Procedures in the Radio Frequency Spectrum Regulations 2015.

## **9 Amendments**

**9.1** Not applicable.

## **10 Frequency Migration**

**10.1** Specific Procedure

There is no specific technical procedure needed.

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<sup>13</sup> ECC Report 097, Cross Border Interference for Land Mobile Technologies, 20 February 2007.  
<https://docdb.cept.org/document/205>.

**Appendix A National Radio Frequency Plan**

Table 2 shows an extract from the National Frequency Plan for South Africa.

ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Notes and Comments
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 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 Maritime mobile-satellite 5.208A 5.208B 5.228AB 5.228AC  5.226	157.1875-157.3375 MHz  FIXED MOBILE -except aeronautical mobile Maritime mobile-satellite (Earth-to-space) (non-GSO) Maritime mobile-satellite (space-to-Earth) (non-GSO) 5.228AB 5.228AC 5.208A 5.208B 5.226	Government Services	Resolution 739 (Rev.WRC-19) apply MSS and Maritime mobile-satellite shall protect RAS in line with 5.208A
157.3375-161.7875 MHz  FIXED MOBILE -except aeronautical mobile	157.3375-161.7875 MHz  FIXED MOBILE -except aeronautical mobile	Government Services (157.450-160.6 MHz) PMR and/or PAMR (160.600-160.975 MHz) Maritime mobile communications (Coast stations). Land mobile in areas remote from coast (160.975-161.475 MHz)	Single frequency applications  Paired with 156.025-156.350 MHz;  Paired with 156.9-157.4 MHz;

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5.226	5.226	PMR and/or PAMR (161.475-162.050 MHz)	ITU RR Article 31 and Article 52 apply Appendix 18 apply.
161.7875- 161.9375 MHz  FIXED MOBILE -except aeronautical mobile  Maritime mobile- satellite 5.208A 5.208B 5.228AB 5.228AC  5.226	161.7875-161.9375 MHz  FIXED MOBILE -except aeronautical mobile  Maritime mobile- satellite (Earth-to- space) (non-GSO) 5.228A 5.228B 5.228AB 5.228AC Maritime mobile- satellite (space-to- Earth) (non-GSO) 5.228A 5.228B 5.228AB 5.228AC  5.226	Government Services (161.475-162.050 MHz)  Maritime mobile communications (Coast stations)  Land mobile in areas remote from coast Automatic Identification System (AIS) at 161.975 MHz, 162.025 MHz and 162.050-174 MHz PMR and/or PAMR	ITU RR Article 31 and Article 52 Appendix 18 apply.
161.9375 - 161.9625 MHz  FIXED MOBILE except aeronautical mobile Maritime mobile- satellite (Earth- to-space) 5.228AA  5.226	161.9375 - 161.9625 MHz  FIXED MOBILE except aeronautical mobile NF4 Maritime mobile- satellite (Earth-to- space) 5.228AA  5.226	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) Single Frequency Mobile (156.8375 – 156.875 MHz) Private Maritime MTX (157.45 – 157.95 MHz)	See Section 7 for details  Paired with Mobile 1 BTX- DF (156.875 – 160.4375 MHz) Inland areas only  Paired with 162.05 – 162.55 MHz

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161.9625-161.9875 MHz  FIXED  MOBILE except aeronautical mobile  Mobile-satellite (Earth-to-space) 5.228F 5.226 5.228A 5.228B	161.9625-161.9875 MHz  FIXED  MOBILE except aeronautical mobile NF4  Mobile-satellite (Earth-to-space) 5.228F 5.226 5.228A 5.228B	Search and rescue (air to ground)  Mobile 1 MTX-DF (161.475 – 165.0375 MHz)  Reception of AIS emissions from stations in the mms	Search and rescue operations and other safety-related communications (air to ground) Paired with Mobile 1 BTX-DF (156.875 – 160.4375 MHz)
161.9875-162.0125 MHz  FIXED MOBILE except aeronautical mobile Maritime mobile-satellite (Earth-to-space) 5.228AA 5.226 5.229	161.9875-162.0125 MHz  FIXED MOBILE except aeronautical mobile NF4 Maritime mobile-satellite (Earth-to-space) 5.228AA 5.226	Transmission of meteorological bulletins and notice to navigators Mobile 1 MTX-DF (161.475 – 165.0375 MHz)	See Section 7 for details  Paired with Mobile 1 BTX-DF (156.875 – 160.4375 MHz)
162.0125-162.0375 MHz  FIXED MOBILE except aeronautical mobile  Mobile-satellite (Earth-to-space) 5.228F  5.226 5.228A 5.228B 5.229	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)  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	162.0375-174 MHz		

156.8375 -174 MHz



<p>FIXED MOBILE except aeronautical mobile</p> <p>5.226 5.229</p>	<p>FIXED MOBILE except aeronautical mobile NF4</p> <p>5.226 NF5</p>	<p>Sonobuoy in maritime service Mobile 1 MTX-DF (161.475 – 165.0375 MHz) Mobile 2 MTX-DF (165.05 – 165.5375 MHz)</p> <p>Single Frequency Mobile (168.95 – 170.05 MHz) Mobile 3 MTX-DF (165.55 – 167.4875 MHz) Single Frequency Mobile (172 – 172.0375 MHz) Mobile 4 MTX-DF (167.5 – 168.9375 MHz) Meter Reading (169.4 – 169.475 MHz) Non-specific SRD's – Telecommand only (173.2125 – 173.2375 MHz) Non-specific SRDs (173.2375 – 173.2875 MHz) Wireless microphones and assistive listening devices (173.7 – 175.1 MHz)</p>	<p>Paired with Mobile 1 BTX- DF (156.875 – 160.4375 MHz) Paired with Mobile 2 BTX- DF (170.05 – 170.5375 MHz)</p> <p>Paired with Mobile 3 BTX- DF (172.05 – 173.9875 MHz)</p> <p>Paired with Mobile 4 BTX (170.55 – 171.9875 MHz)</p> <p>Radio Frequency Spectrum Regulations (Annex B) (GG. No. 38641, 30 March 2015). .</p>
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**Table 2: National Radio Frequency Plan for South Africa for 156.8375 to 174 MHz band**

## Appendix B Process

Technical procedures related to bilateral and multilateral cross-border frequency coordination agreements for four (4) geographical sub-regions are defined by the African Union, which includes the Southern African sub-region of ten (10) countries. Cross-Border Frequency Coordination and interference resolution should follow the HIPSSA<sup>14</sup> and Harmonized Calculation Method for Africa (HCM4A)<sup>15</sup> or any appropriate methods applicable.

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:

- a) carrier frequency (MHz);
- b) name of transmitter station;
- c) country of location of transmitter station;
- d) geographical coordinates (latitude, longitude);
- e) effective antenna height (m);
- f) antenna polarisation;
- g) antenna azimuth (degrees);
- h) antenna gain (dBi);
- i) effective radiated power (dBW);
- j) expected coverage zone or radius (km);
- k) date of entry into service (month, year);
- l) code group number used; and
- m) antenna tilt (degrees).

The Administration affected will evaluate the request for coordination and will, within thirty (30) days, notify the Administration requesting coordination the result of the evaluation. If, in the course of the coordination procedure, the Administration affected requires additional information, it may request such information.

If no reply is received by the Administration requesting coordination within (30) days, it may send a reminder to the Administration affected. Where the Administration fails to respond within thirty (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.

The above-mentioned periods are subject to extension by common consent.

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<sup>14</sup> Cross-Border Frequency Coordination: Harmonized Calculation Method for Africa (HCM4A), Agreement. HIPSSA - Harmonization of ICT Policies in Sub-Saharan Africa, ITU, 2013, 54pp. Available online at [https://www.itu.int/en/ITU-D/Projects/ITU-EC-ACP/HIPSSA/Documents/FINAL%20DOCUMENTS/FINAL%20DOCS%20ENGLISH/hcm4a\\_agreement.pdf](https://www.itu.int/en/ITU-D/Projects/ITU-EC-ACP/HIPSSA/Documents/FINAL%20DOCUMENTS/FINAL%20DOCS%20ENGLISH/hcm4a_agreement.pdf)

<sup>15</sup> Cross-Border Frequency Coordination Agreement Harmonized Calculation Method for Africa (HCM4A): On the coordination of frequencies between 29.7 MHz and 43.5 GHz For the fixed service and the land mobile service. Adopted on (01.01.2022). DRAFT, 25 pp. Available online at [https://www.itu.int/en/ITU-D/Projects/ITU-EC-ACP/PRIDA/PublishingImages/Pages/default/HCM4A\\_2022\\_%20Main%20text\\_and%20annex%2012%20EN\\_v.0.pdf](https://www.itu.int/en/ITU-D/Projects/ITU-EC-ACP/PRIDA/PublishingImages/Pages/default/HCM4A_2022_%20Main%20text_and%20annex%2012%20EN_v.0.pdf)