

INDEPENDENT COMMUNICATIONS AUTHORITY OF SOUTH AFRICA
NOTICE 75 OF 2019



NOTICE REGARDING THE RADIO FREQUENCY SPECTRUM ASSIGNMENT PLAN FOR THE FREQUENCY BAND 2025 TO 2110 MHZ PAIRED WITH 2200 TO 2285 MHZ FOR CONSULTATION.

1. The Independent Communications Authority of South Africa ("the Authority"), hereby publishes **Radio Frequency Spectrum Assignment Plan for the frequency band 2025 to 2110 MHz paired with 2200 to 2285 MHz** in terms of Regulation 3 of the Radio Frequency Spectrum Regulations 2015, as amended, read with the Frequency Migration Plan 2013.
2. This Radio Frequency Spectrum Assignment Plan supersedes any previous spectrum assignment arrangements for the same spectrum location.

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CHAIRPERSON



Radio Frequency Spectrum Assignment Plan

Rules for Services operating in the Frequency Band 2025 to 2110 MHz paired with 2200 to 2285 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:

“Act”	means the Electronic Communications Act, 2005 (Act No. 36 of 2005) as amended
“BFWA”	“ Means Broadband Fixed Wireless Access
“BTX”	means Base Transceiver
“CEPT”	means European Conference of Postal and Telecommunications Administrations
“DF”	means Dual Frequency
“DM RS”	means Demodulation Reference Signal
“IMT”	means International Mobile Telecommunications
“ITU”	means the International Telecommunication Union;
“ITU-R”	means the International Telecommunication Union Radiocommunication Sector
“MTX”	means Mobile Transceiver
“NRFP”	means the National Radio Frequency Plan 2013 for South Africa
“PPDR”	means Public Protection and Disaster Relief as defined in ITU-R Report M.2033.
“RFSAP”	means Radio Frequency Spectrum Assignment Plan
“SF”	means Single Frequency
“STL”	means Studio Transmitter Link

2. Purpose

2.1 The 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 utilization of the frequency band between 2025-2110 MHz paired with 2200-2285MHz.

3. General

3.1 This RFSAP:

3.1.1 retains the existing assignments for fixed links and migrate other fixed links from other bands into this band where appropriate.

3.1.2 Provides assignments for BFWA where the band continues to be under-utilized and allows co-existence between BFWA systems and point-to-point (PtP) links (i.e. the implementation of BFWA where PtP links are absent).

3.2 Technical characteristics of equipment used in fixed links and BFWA systems shall conform to all applicable South African standards, international standards, ITU and its radio regulations as agreed and adopted by South Africa.

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

3.4 The equipment used must be certified under South African law and regulations.

3.5 The allocation of this frequency band and the information in this RFSAP are subject to amendments to the National Radio Frequency Plan.

3.6 Frequency bands assigned for fixed links and include bands 2025-2110MHz paired with 2200-2285 MHz.

3.7 Use of this band will be for fixed links.

3.8 In the event of continued under-utilization of this band, consideration will be given to assignments for broadband fixed wireless access in localities where there is no danger of harmful interference to point-to-point links.

4 Channelling Plan

- 4.1 The frequency band 2025-2110 MHz paired with 2200-2285MHz provides a total bandwidth of 2×85 MHz.
- 4.2 The list of channel arrangements and the proposed RF channel centre frequencies for the 2 GHz band (using 14 MHz Bandwidth channels) are tabled below.

Table 1: Channel Arrangement

Channel Nr	Centre Frequency	Channel Nr	Centre Frequency
1	2032.5 MHz	1'	2207.5 MHz
2	2046.5 MHz	2'	2221.5 MHz
3	2060.5 MHz	3'	2235.5 MHz
4	2074.5 MHz	4'	2249.5 MHz
5	2088.5 MHz	5'	2263.5 MHz
6	2102.5 MHz	6'	2277.5 MHz

- 4.3 Recommendation ITU-R F.1098 provides for 6 return channels of 14 MHz each. These channels can be further sub-divided into channels of 7MHz, 3.5 MHz or 1.75 MHz, depending on the system capacity requirements

5 Requirements for usage of 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 P2P links. The bands 2025-2110MHz and 2200-2285MHz **shall not be used for high-density mobile systems**, as described in Recommendation ITU R SA.1154, and shall take that Recommendation into account for the introduction of any other type of mobile system (WRC 97).

- 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 and such techniques that promote efficient use of spectrum, without reducing quality of service 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 National Radio Frequency Plan (NRFP) and an extract of NRFP is shown in Error! Reference source not found..
- 5.6 Maximum radiated power is determined in the type approval process for equipment in this band.
- 5.7 Maximum radiated power:
- 5.7.1 Base Station transmissions should not exceed dBm/5MHz EIRP.
- 5.7.2 On a case to case basis, higher EIRP may be permitted if acceptable technical justification is provided.
- 5.8 From ITU-R F.1247-3, several interference mitigation techniques that might be used by the fixed service have been evaluated. Techniques applicable to both the 2025-2110MHz and 2200-2285MHz bands are:
- 5.8.1 Automatic transmit-power control (ATPC).
- 5.8.2 Lowest practical transmitted power spectral density.
- 5.8.3 Transmitting antenna mounting location.
- 5.8.4 transmitting antennas with good radiation patterns.
- 5.8.5 Techniques applicable to the upper band (i.e. 2200-2285MHz) are:
- 5.8.5.1 Limit the E.I.R.P. spectral density radiated towards the orbital locations of DRS satellites.

5.8.5.2 Assign high power fixed service stations channels towards the lower part of the band 2200 2285MHz.

6. Implementation

- 6.1.1 This RFSAP shall be effective on the date of publication.
- 6.1.2 No new assignment for fixed links in the band 2025-2110MHz paired with 2200-2285MHz shall be approved unless they comply with this RFSAP.

7. Co-ordination Requirements

- 7.1 Co-ordination with respect to non-shared spectrum shall be performed by the Authority during the process of assignment.
- 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 Error! Reference source not found..
- 7.3 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. Assignment

- 8.1 Standard Approach of the assignment of frequency will take place according to the Standard Application Procedures in the Radio Frequency Spectrum Regulations 2015, as amended.

9. Revocation

- 9.1 Not applicable.

10. Frequency Migration

- 10.1 The specific procedure is as follows:

- 10.1.1 Fixed links (DF) from other bands may be migrated into this band.

Appendix A: National Radio Frequency Plan

ITU Region 1 allocations and footnotes	South African allocations and footnotes	Typical Applications	Comments
<p>2 025-2 110 MHz</p> <p>SPACE OPERATION (Earth-to-space) (space-to-space)</p> <p>EARTH EXPLORATION-SATELLITE (Earth-to-space) (space-to-space)</p> <p>FIXED</p> <p>MOBILE 5.391</p> <p>SPACE RESEARCH (Earth-to-space) (space-to-space)</p> <p>5.392</p>	<p>2 025-2 110 MHz</p> <p>FIXED NF14</p> <p>5.392</p>	<p>Fixed Links (2025 – 2110 MHz)</p>	<p>Paired with 2200 – 2285 MHz</p> <p>Radio Frequency channel arrangement according to ITU-R F.1098.</p>
<p>2 200-2 290 MHz</p> <p>SPACE OPERATION (space-to-Earth) (space-to-space)</p> <p>EARTH EXPLORATION-SATELLITE (space-to-Earth) (space-to-space)</p> <p>FIXED</p> <p>MOBILE 5.391</p> <p>SPACE RESEARCH (space-to-Earth) (space-to-space)</p> <p>5.392</p>	<p>2 200-2 290 MHz</p> <p>SPACE OPERATION (space-to-Earth) (space-to-space)</p> <p>FIXED NF14</p> <p>MOBILE 5.391</p> <p>5.392</p>	<p>TT&C received from space</p> <p>Fixed Links (2025 – 2110 MHz paired with 2200 – 2285)</p> <p>Fixed Links (2200 – 2285 MHz)</p> <p>BFWA (2 285-2 300 MHz)</p>	<p>Radio Frequency Channel arrangements in accordance with ITU-R F.1098</p> <p>Paired with 2025 – 2110 MHz ITU-R Rec. F.1098 refers.</p>

Appendix B: Interference Resolution Process

When requesting coordination, the relevant characteristics of the base station should be forwarded to the Administration affected. All 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 [deg]
- 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
- m) antenna tilt [deg]

The Administration affected shall evaluate the request for coordination and shall within 30 days notify the result of the evaluation to the Administration requesting coordination. If during the coordination procedure the Administration affected requires additional information, it may request such information.

If in the course of the coordination procedure, an Administration may request additional information.

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 shall 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 periods mentioned above may be extended by common consent.