

INDEPENDENT COMMUNICATIONS AUTHORITY OF SOUTH AFRICA

NOTICE 782 OF 2017



PURSUANT TO SECTION 4 (1) OF THE ELECTRONIC COMMUNICATIONS ACT  
2005, (ACT NO. 36 OF 2005)

HEREBY ISSUES A NOTICE REGARDING THE DRAFT 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 **Draft Radio Frequency Spectrum Assignment Plan for the frequency band 2025 to 2110 MHz paired with 2200 to 2285 MHz for consultation** in terms of sections 2 (d), (e) and 4, read with sections 30, 31(4), and 33 of the Electronic Communications Act (Act No. 36 of 2005) and read with Regulation 3 of the Radio Frequency Spectrum Regulations 2015 and 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.
3. Interested persons are hereby invited to submit written representations, including an electronic version of the representation in Microsoft Word, of their views on the **Draft Radio Frequency Spectrum Assignment Plan for the frequency band 2025 to**

**2110 MHz paired with 2200 to 2285 MHz** by no by later than 16h00 on Friday 01 December 2017. Written representations or enquiries may be directed to:

The Independent Communications Authority of South Africa (ICASA)

*Pinmill Farm Block A*

*164 Katherine Street*

*South Africa*

*or*

Private Bag XI0002

Sandton

2146

**Attention:**

Mr Manyapelo Richard Makgotlho

e-mail: [rmakgotlho@icasa.org.za](mailto:rmakgotlho@icasa.org.za)

5. All written representations submitted to the Authority pursuant to this notice shall be made available for inspection by interested persons from 15 December 2017 at the ICASA Library or website and copies of such representations and documents will be obtainable on payment of a fee.

Where persons making representations require that their representation, or part thereof, be treated confidentially, then an applications 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 on the draft regulations and plan. Respondents are requested to separate any confidential material into a clearly marked confidential annexure. If, however, the request for confidentiality is refused, the person making the request will be allowed to withdraw the representation or document in question.



**BOTLENYANA MOKHELE**  
**COUNCILLOR**



# Radio Frequency Spectrum Assignment Plan

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

## Table of Contents

<u><a href="#">1</a></u>	<u><a href="#">Glossary</a></u> .....	5
<u><a href="#">2</a></u>	<u><a href="#">Purpose</a></u> .....	5
<u><a href="#">3</a></u>	<u><a href="#">General</a></u> .....	6
<u><a href="#">4</a></u>	<u><a href="#">Channelling Plan</a></u> .....	7
<u><a href="#">5</a></u>	<u><a href="#">Requirements for usage of radio frequency spectrum</a></u> .....	7
<u><a href="#">6</a></u>	<u><a href="#">Implementation</a></u> .....	9
<u><a href="#">7</a></u>	<u><a href="#">Co-ordination Requirements</a></u> .....	9
<u><a href="#">8</a></u>	<u><a href="#">Assignment</a></u> .....	10
<u><a href="#">9</a></u>	<u><a href="#">Revocation</a></u> .....	10
<u><a href="#">10</a></u>	<u><a href="#">Frequency Migration</a></u> .....	10
<u><a href="#">Appendix A</a></u>	<u><a href="#">National Radio Frequency Plan</a></u> .....	11
<u><a href="#">Appendix B</a></u>	<u><a href="#">Interference Resolution Process</a></u> .....	13

The Frequency Migration Plan 2013 considers the possibility of making further assignments for broadband fixed wireless where this does not cause harmful interference to fixed links (point to point). Stakeholders are invited to comment on this.

# 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>“BTX”</b>	means Base Transceiver
<b>“CEPT”</b>	means European Conference of Postal and Telecommunications Administrations
<b>“DF”</b>	means Dual Frequency
<b>“DM RS”</b>	means Demodulation Reference Signal
<b>“IMT”</b>	means International Mobile Telecommunications
<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 2013 for South Africa
<b>“PPDR”</b>	means Public Protection and Disaster Relief as defined in ITU-R Report M.2033.
<b>“RFSAP”</b>	means Radio Frequency Spectrum Assignment Plan
<b>“SF”</b>	means Single Frequency
<b>“STL”</b>	means Studio Transmitter Link

## 1. Purpose

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.

This Frequency Assignment Plan states the requirements for the utilization of the frequency band between 2025-2110 MHz paired with 2200-2285MHz.

The intention of this RFSAP is to:

Retain the existing assignments for fixed links and migrate in fixed links from other bands where appropriate.

Allocate for Broadband Fixed Wireless Access (BFWA) if the band continues to be under-utilized and subject to conditions in place to allow co-existence between broadband fixed wireless access and point-to-point (PtP) links; i.e. the implementation of BFWA where PtP links are absent.

## 2. General

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

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

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

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

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

Use of this band will be for fixed links.

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.

### 3. Channelling Plan

The frequency band 2025-2110 MHz paired with 2200-2285MHz provides a total bandwidth of 2×85 MHz.

List of the channel arrangements

The proposed RF channel centre frequencies for the 2 GHz band (using 14 MHz channels) are:

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

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

### 4. Requirements for usage of radio frequency spectrum

This chapter covers the minimum key characteristics considered necessary in order to make the best use of the available frequencies.

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).

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.

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.

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 Appendix A

Maximum radiated power is determined in the type approval process for equipment in this band.

Maximum radiated power:

Base Station transmissions should not exceed dBm/5MHz EIRP.

On a case to case basis, higher EIRP may be permitted if acceptable technical justification is provided.

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.

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:

- automatic transmit-power control (ATPC).
- lowest practical transmitted power spectral density.
- transmitting antenna mounting location.
- transmitting antennas with good radiation patterns.

Techniques applicable to the upper band (i.e. 2200-2285MHz) are:

- limit the E.I.R.P. spectral density radiated towards the orbital locations of DRS satellites.
- assign high power fixed service stations channels towards the lower part of the band 2200 2285MHz.



## **5. Implementation**

This RFSAP shall be effective on the date of issue.

No new assignment for fixed links in the band 2025-2110MHz paired with 2200-2285MHz shall be approved unless they comply with this RFSAP.

## **6. Co-ordination Requirements**

Co-ordination is performed by the Authority during the process of assignment.

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.

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.

## **7. Assignment**

Standard Approach

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

## **8. Revocation**

Not applicable.

## **9. Frequency Migration**

Specific Procedure

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

# National Radio Frequency Plan

ITU allocations and footnotes	Region 1 and	South African allocations and footnotes	Typical Applications	Comments
<b>2025 – 2110 MHz</b> SPACE OPERATION (Earth-to-space)(space-to-space) EARTH EXPLORATION-SATELLITE(Earth-to-space)(space-to-space) FIXED MOBILE SPACE RESEARCH (Earth-to-space)(space-to-space) 5.392		<b>2025 – 2110 MHz</b>    FIXED NF14  5.392	    Fixed Links (2025-2110 MHz)	    Paired with 2200-2285MHz. ITU-R Rec. F.1098 refers.
<b>2200 – 2290 MHz</b> SPACE OPERATION (space-to-Earth)(space-to-space) EARTH EXPLORATION-SATELLITE(space-to-Earth)(space-to-space) FIXED		<b>2200 – 2290 MHz</b> SPACE OPERATION (space-to-Earth)(space-to-space)    FIXED NF14	TT&C received from space    Fixed Links (2200-2285MHz)	    Paired with 2025-2110 MHz ITU-R Rec. F.1098 refers.

MOBILE 5.391	MOBILE 5.391		
SPACE RESEARCH (space-to- Earth)(space-to- space)			
5.392	5.392		

## Interference Resolution Process

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 [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 in the course of 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 co-ordination may be put into use with the characteristics given in the request for coordination.

The periods mentioned above may be extended by common consent.