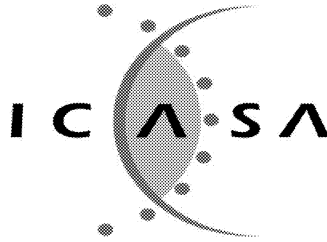


INDEPENDENT COMMUNICATIONS AUTHORITY OF SOUTH AFRICA  
NOTICE 148 OF 2018

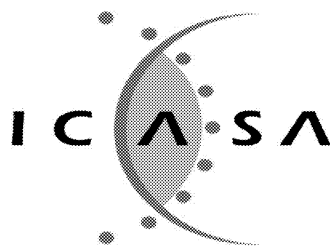


PURSUANT TO SECTION 4 (1) OF THE ELECTRONIC COMMUNICATIONS ACT  
2005, (ACT NO. 36 OF 2005)

**HEREBY ISSUES A NOTICE REGARDING THE FINAL RADIO FREQUENCY  
SPECTRUM ASSIGNMENT PLAN FOR THE FREQUENCY BAND 380 MHz TO 400  
MHz.**

1. The Independent Communications Authority of South Africa ("the Authority"), hereby publishes Final **Radio Frequency Spectrum Assignment Plan for the frequency band 380 MHz to 400 MHz.**
2. This Radio Frequency Spectrum Assignment Plan supersedes any previous spectrum assignment arrangements for the same spectrum location.

**RUBBEN MOHLALOGA  
COUNCILLOR**



# Radio Frequency Spectrum Assignment Plan

Rules for Services operating in the  
Frequency Band  
380 MHz to 400 MHz

## Table of Contents

|  |    |
|--|----|
| 1. Glossary.....   | 4  |
| 2. Purpose.....  | 4  |
| 3. General.....  | 5  |
| 4. Channelling Plan .....                                  | 6  |
| 5. Requirements for usage of radio frequency spectrum..... | 6  |
| 6. Implementation .....                                    | 7  |
| 7. Co-ordination Requirements .....                        | 7  |
| 8. Assignment.....   | 8  |
| 9. Revocation .....  | 8  |
| 10. Frequency Migration.....                               | 8  |
| Appendix A - National Radio Frequency Plan .....           | 9  |
| Appendix B Interference Resolution Process.....            | 11 |

## 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>“DF”</b>     | means Dual Frequency   |
| <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>“PMR”</b>    | Means Public Mobile Radio  |
| <b>“RFSAP”</b>  | means Radio Frequency Spectrum Assignment Plan                                 |
| <b>“SF”</b>     | means Single Frequency   |
| <b>“TETRA”</b>  | means Terrestrial Trunked Radio  |
| <b>“WRC-12”</b> | means World Radio Conference 2012 held in Geneva                               |
| <b>“WRC-15”</b> | means the World Radio Conference planned to be held in 2015                    |

## 2. Purpose

A 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 Radio Frequency Spectrum Assignment Plan states the requirements for the utilization of the frequency band 380 MHz to 400 MHz for Public protection and disaster relief (PPDR) and public mobile radio (PMR).

Public Protection and Disaster Relief as defined in ITU-R Report M.2033 takes into account the individual definitions of public protection and disaster relief as stated below:

**Public protection (PP)** radiocommunication: Radiocommunications used by responsible agencies and organizations dealing with maintenance of law and order, protection of life and property, and emergency situations.

**Disaster relief (DR)** radiocommunication: Radiocommunications used by agencies and organizations dealing with a serious disruption of the functioning of society, posing a significant, widespread threat to human life, health, property or the environment, whether caused by accident, nature or human activity, and whether developing suddenly or as a result of complex, long-term processes.

**Private mobile radio (PMR)** Public Mobile Radio is radio apparatus used for short-range two-way voice communications.

The intention of this RFSAP is to:

- Assign the 380 – 387 MHz band paired with 390 – 397 MHz for digital systems to be used for PPDR.
- Assign the 380 – 390 MHz band paired with 397 – 399.9 MHz for digital systems to be used for PMR.
- Reserve the overall band for public safety and all relevant users may be migrated into this band as required.

### 3. General

Technical characteristics of equipment used in PPDR and PMR 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 PPDR include bands 380.0-387.0 MHz paired with 390.0 - 397.0 MHz. Frequency bands to be used for PMR are 387.0-390.0 MHz paired with 397.0 - 399.9MHz.

Likely use of this band will be for public safety by the Police, Department of Defence and the Army.

The typical technical and operational characteristics are identified as appropriate by the ITU in the following documents

- Report ITU-R M.2033 Radiocommunication objectives and requirements for public protection and disaster relief.
- Report ITU-R M.2017 Spectrum efficient digital land mobile systems for dispatch traffic

## 4. Channelling Plan

The frequency band 380-400 MHz provides a total bandwidth of  $2 \times 7$  MHz or 14 MHz for the TETRA service.

Channel arrangements: 380-400MHz are shown below. 6.25 kHz channels are used for Tetra.

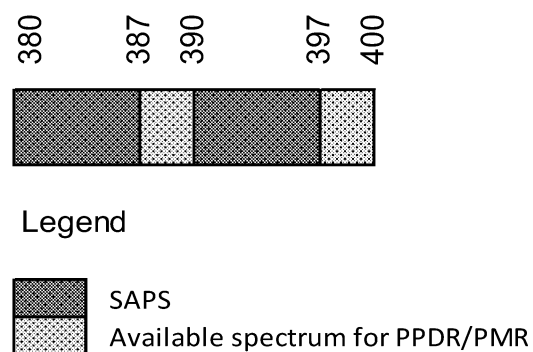


Figure 1: Channel arrangements for 380-400 MHz

## 5. 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 for PPDR and PMR services.

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:

- Base Station transmissions should not exceed 46dBm per channel and maximum 55dBm total ERP per BS.
- Mobile Station transmissions should not exceed 33dBm EIRP.

On a case-to-case basis, higher EIRP may be permitted if acceptable technical justification is provided. Where appropriate subscriber terminal station should comply with the technical specification outlined under "EN 300 394-1 and TS 100 392-2"

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.

## 6. Implementation

This RFSAP shall be effective on the date of issue.

No new assignment for PPDR or PMR in the band 380 MHz to 400MHz shall be approved unless they comply with this RFSAP.

## 7. Co-ordination Requirements

Use of these frequency bands shall require coordination with the neighbouring countries within the coordination zones of 50 kilometres from the neighbouring country. The coordination distance is continuously being reviewed and may be updated from time to time.

The following field strength thresholds have to be assured. Based on studies (ECC-Rep 97), the results and observation from these a single level of -114.7dBm (=14.3dB $\mu$ V/m/25kHz) is proposed as the threshold above which co-ordination is required. The value is measured in a 25 kHz bandwidth and referring to a measuring height of 3 metre for duplex bands.

Operator-to-operator coordination may be necessary to avoid interference

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.

## **8. Assignment**

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

## **9. Revocation**

Existing licences for the use of the band will be revoked if they are not for PPDR/PMR usage by 31 March 2019.

## **10. Frequency Migration**

This band will be allocated as a contiguous block for public protection and disaster relief (PPDR) as well as public safety with users including SAPS, SANDF, the ambulance service, metro police and Fire-fighting services. All other users will migrate out of this band.

The band is exclusively reserved for public safety and all relevant users (e.g. SAPS etc.) may migrate into this band.



## Appendix A - National Radio Frequency Plan

| ITU allocations and footnotes  | Region 1 and | South African allocation and footnotes  | Typical Application  | Comments   |
|--|--------------|---|--|--|
| <b>335.4 – 387 MHz</b><br><br>FIXED<br><br><br><br><br><br><br><br><br><br>MOBILE<br><br><br><br><br><br><br><br><br><br>5.254   |              | <b>335.4 – 387 MHz</b><br><br>FIXED NF6<br><br><br><br><br><br><br><br><br><br>MOBILE NF7<br><br><br><br><br><br><br><br><br><br>5.254                                    | FWA (336-346 MHz)<br><br><br><br><br><br>FWA (356-366 MHz)<br><br><br>366-380 MHz (Govt.)<br><br><br>Digital Trunking (Emergency) (380-387 MHz) (PPDR) | Paired with 356-366 MHz<br><br><br>Paired with 336-346 MHz<br><br><br>Paired with 390 -397 MHz |
| <b>387 – 390 MHz</b><br><br>FIXED<br><br><br><br><br><br><br><br><br><br>MOBILE<br><br><br><br><br><br><br><br><br><br>Mobile-satellite (space-to-Earth) 5.208A 5.208B 5.254 5.255 |              | <b>387 – 390 MHz</b><br><br><br><br><br><br><br><br><br><br>MOBILE NF7<br><br><br><br><br><br><br><br><br><br>Mobile-satellite (space-to-Earth) 5.208A 5.208B 5.254 5.255 | Digital Trunking (387-390 MHz) (Govt)  | Paired with 397-399.9 MHz  |
| <b>390 – 399.9 MHz</b><br><br>FIXED<br><br><br><br><br><br><br><br><br><br>MOBILE  |              | <b>390 – 399.9 MHz</b><br><br><br><br><br><br><br><br><br><br>MOBILE NF7  |  | Paired with (380-387 MHz)  |

|   |   |   |                              |
|---|---|---|------------------------------|
| 5.254   | 5.254   | Digital Trunking<br>(Emergency) (390-<br>397 MHz) (PPDR)<br><br>Digital Trunking (397-<br>399.9 MHz) (Govt) | Paired with (387-390<br>MHz) |
| <b>399.9 – 400.05 MHz</b><br><br>MOBILE SATELLITE<br>(Earth-to-space) 5.209<br>5.224A<br><br>RADIONAVIGATION-<br>SATELLITE 5.222<br>5.242B 5.260<br><br>5.220 | <b>399.9 – 400.05 MHz</b><br><br>MOBILE SATELLITE<br>(Earth-to-space) 5.209<br>5.224A<br><br>RADIONAVIGATION-<br>SATELLITE 5.222<br>5.224B 5.260<br><br>5.220 |   |                              |

## Appendix B 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.