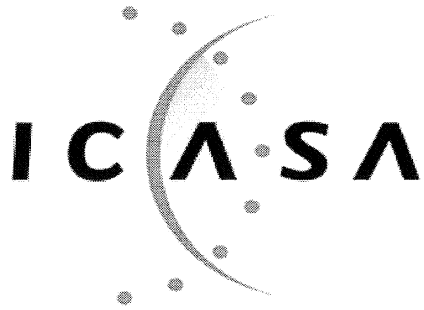
Appendix A Model Radio Frequency Spectrum Assignment Plan

Note that the Radio Frequency Spectrum Assignment Plan is also deployed for the planning of radio frequency bands where no migration is contemplated.

The template attached here is to inform stakeholders of the probable process that will be deployed.



Model
Radio Frequency Spectrum Assignment Plan

Rules for XXXXXXXXXXXXXXXXXXXX operating in the Frequency Band XXXXz to XXXXz

Table of Contents

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;

"ITU" means the International Telecommunication Union;

Other abbreviations as required

2 Purpose

This purpose chapter explains what the FAP is for, details of the frequency band (or bands) involved, explains the type of system / service that is meant to be deployed.

2.1. A Radio Frequency Spectrum Assignment Plan (FAP) provides information regarding the requirements in the use of a frequency band in line with the allocation and other information in the National Radio Frequency Plan. This information includes the 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 Frequency Assignment Plan states the requirements for the utilization of the frequency band between XXXXX XXz to XXX XXz for XXXXXXXXXXXXX in South Africa.

2.3. Explain the system here.

(e.g. 2.2 BWA systems are two way point-to-point, point-to-multipoint or mesh digital radio systems consisting of BWA distribution base stations and their associated subscriber stations (or BWA access devices).

2.4. Explain the service here.

(e.g. BWA services are intended for providing wireless broadband connectivity to subscribers and can include applications such as voice, video, images, interactive multimedia, high-speed data and mobile TV).

3 General

This general chapter gives general information of technical requirements.

3.1. Technical characteristics of equipment used in XXXXXX 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

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 Frequency Assignment Plan (FAP) are subject to review.

3.5. Frequency bands assigned for XXXXXXXXXX include bands XXXXXXXX

3.6. Likely use of this band will be for XXXXXXXXX.

3.7. Here may be placed a list of the technologies that which are applicable for the provision of the system and service as and the typical technical and operational characteristics identified as appropriate by the ITU. The relevant ITU-R report may be specified.

4 Channelling Plan

This channelling chapter will vary according to the technology deployed, the example given here is appropriate for Fixed Wireless access.

4.1. The frequency band XXXXX XXz to XXXX XXz provides a total bandwidth of XXX XXz for the XXXXXX service.

4.2. The channel arrangements may be placed here in the text or in the Appendix – depending on the amount of information.

4.3. Here may be placed further information

5 Requirements for usage of radio frequency spectrum

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

5.2. Here may be stated that the use of the band is not limited

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 FAP 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 it is shown in in Appendix A

5.6. Maximum radiated power:

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

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

5.6.3. Where appropriate the following may be added. Subscriber terminal station should comply with the technical specification set under XXXXXXX.

5.7. In some cases, a radio system conforming to the requirements of this FAP may require modifications if major interference is caused to other radio stations or systems

5.8. Here may be placed criteria for interference mitigation including guidelines.

6 Implementation

6.1. This FAP shall be effective on the date of issuance of this document

6.2. No new assignment for XXXXXXX in the band XXXXXXXXX shall be approved unless they comply with this FAP.

7 Co-ordination Requirements

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

7.2. Technical analysis is carried out by ICASA before an assignment is issued. Operator-to-operator coordination may be required to avoid interference.

7.3. Specific information regarding coordination may be inserted here.

7.4. In the event of any interference, ICASA 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 ICASA for a resolution. ICASA will decide the necessary modifications and schedule of modifications to resolve the dispute. ICASA will be guided by the interference resolution process as shown in Appendix C.

7.5. 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

This chapter will make appropriate comments concerning the assignment and issuance of \a licence. In most cases this will refer to the Radio Frequency Spectrum Regulations

Standard Approach

The assignment of frequency will take place according to the Standard Application Procedures in the Radio Frequency Spectrum Regulations 2011.

Extended Approach

The assignment of frequency will take place according to the Extended Application Procedures in the Radio Frequency Spectrum Regulations 2011.

Procedure in an invitation to Apply

The assignment of frequency will take place according to the Procedures in respect of an Invitation to Apply in the Radio Frequency Spectrum Regulations 2011.

In the case of a major strategic spectrum award, i.e. for the 700MHz / 800 MHz / 2.6 GHz etc. – then the ITA may go into some detail regarding the assignment procedure, including the following Table of Contents.

8.1 Assignment Method, Procedures and Timetable
8.1.1 Method
8.1.2 Procedures
- *Eligible Person*
- *Invitation*

8.1.3 Timetable
8.2 Pre-Conditions
8.3 Evaluation Criteria
8.3.1 Service rollout and coverage
8.3.2 Infrastructure Sharing
8.3.3 Financial
8.3.5 Management
8.6 Details and how spectrum is assigned
8.4 Auction (if Applicable)
Explaining how the Auction is intended to be carried out
8.7 Conditions of Assignment
- *Penalties etc.*

8.8 Instructions on Business Plan
8.9 Instructions on Application
8.9.1 Application / Auction Fees
8.9.2 Submission
8.9.3 Date and Time of submission

It is important to note that the definitive document for assignment will be an ITA in this case.

9 Revocation

This chapter will state whether existing licences will be revoked or not extended.

10 Frequency Migration

This chapter will make appropriate comments concerning Frequency Migration. There are two approaches here, either a simple statement that existing users need to move to a different frequency location or a more detailed approach specifying in-band migration and destination bands for affected services.

Standard

Particularly applies to Point to Point links

Current users of this radio frequency spectrum band will be required to cease transmitting in this frequency and, if applicable, obtain a new assignment in an alternative frequency location according to the procedures laid down in the Radio Frequency Spectrum Regulations.

Specific Procedure

This where the FAP specifies in more detail where the existing users of a radio frequency spectrum are likely to migrate to, especially where there is no obvious provision in the National Radio Frequency Plan. In some cases the FAP could also cover the destination frequency bands for users being migrated out; however it is recommended to develop a separate FAP for such destination bands.

11 Other

Appendices to RFSAP

Appendix A - National Radio Frequency Plan

Here shall be placed a copy of the relevant section of the National Radio Frequency Plan.

Appendix B - Band Plan for current frequency bands

Appendix C - Interference Resolution Process

Appendix B Glossary

Act	means the Electronic Communications Act, 2005 (Act No. 36 of 2005);
Authority	means ICASA is the Independent Communications Authority of South Africa;
3G	means 3G or 3rd generation mobile telecommunications is a generation of standards for mobile phones and mobile telecommunication services fulfilling the International Mobile Telecommunications-2000 (IMT-2000) specifications by the ITU
Amateur	means a person who is interested in the radio technique solely for a private reason and not for financial gain and to whom the Authority has granted an amateur radio station licence and shall mean a natural person and shall not include a juristic person or an association: provided that an amateur radio station licence may be issued to a licensed radio amateur acting on behalf of a duly founded amateur radio association;
Assignment	means the authorization given by the authority to use a radio frequency or radio frequency channel under specified conditions;
Base station	means a land radio station in the land mobile service for a service with land mobile stations;
BS	means Broadcast Service
BTX	means Base Transceiver;
Burglar alarm service	means a land mobile service installed, maintained and operated to monitor burglar alarm signals of clients by means of a signal forwarded from a radio transmitter to a central position;
Burglar alarm transmitter	means a transmission radio station in the land mobile service that is intended to transmit automatic alarm signals to a central position;
CDMA	means Code Division Multiplex Access
CEPT	means Conference of European Posts and Telecommunications Authorities;
Citizen-band radio service	means a private, two-way, limited coverage speech communication service in the land mobile service to personal and business operations, which may also be used as a paging system;
Communal radio repeater station service	means a land mobile service installed, maintained and operated via repeater stations that are available for communal use;
Cordless Phone	means a portable telephone with a wireless handset that communicates via radio waves with a base station connected to a fixed telephone line, within a limited range of its base station;
DAB	means Digital Audio Broadcasting is a digital radio technology for broadcasting radio stations
DECT	means Digital Enhanced Cordless Telecommunications 1880 - 1900MHz which is a digital communication standard, which is primarily used for creating cordless phone systems
DF	means Dual Frequency
DTT	means Digital Terrestrial Television
DTT Mobile	means Digital Terrestrial Television for Mobile services
e.i.r.p	means effective isotropically radiated power;
e.r.p	means effective radiated power, is the product of the power supplied to an antenna and its gain relative to a half wave dipole in a given direction;

EBU	means European Broadcasting Union
ECA	means Electronic Communications ACT of South Africa
ECNS	means Electronic Communications Network Services;
ECS	means Electronic Communications Services;
EDGE	means Enhanced Data rates for GSM Evolution is a digital mobile phone technology that allows improved data transmission rates as a backward-compatible extension of GSM
EMC	means Electromagnetic Compatibility;
ETSI	means European Telecommunications Standards Institute
FDMA	means Frequency Division Multiplex Access
FLEX	means paging software originally developed for Motorola;
FMP	means Frequency Migration Plan
FPLMTS	means Future Public Land Mobile Telecommunications System also called IMT-2000
FTBFP 2008	means Final Terrestrial Broadcast Frequency Plan of 2008
FWBA	Fixed Wireless Broadband Access
GHz	means Gigahertz of Radio Frequency Spectrum;
GE06	means Digital Broadcast Conference held in Geneva, Switzerland in 2006.
GMDSS	means the Global Maritime Distress and Safety System is an internationally agreed-upon set of safety procedures, types of equipment, and communication protocols used to increase safety and make it easier to rescue distressed ships, boats and aircraft.
GSM	means Global System for Mobile Communications,(originally Groupe Spécial Mobile), is a standard set developed by the European Telecommunications Standards Institute (ETSI) to describe technologies for second generation (2G) digital cellular networks
GSM-R	means GSM for Railways
HF	means High Frequency;
IMT	means International Mobile Telecommunications
Inductive Loop Systems	means radio apparatus which operates by producing a controlled magnetic field within which a predetermined recognisable signal is formed;
INMARSAT	means International Maritime Satellite
ISM	means Industrial, Scientific and Medical;
ITU	means International Telecommunication Union
ITU RR	means International Telecommunication Union Radio Regulations
KHz	means Kilohertz of Radio Frequency Spectrum;
Land mobile service	means a mobile radio-communication service between fixed stations and mobile land stations, or between land mobile stations;
LEO	means Low Earth Orbit satellites
LMR	means Land Mobile Radio
Low Power Radio	means radio apparatus, normally hand-held radios used for short range two-way voice communications;
LTE	means 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 UMTS/HSPA network technologies
M2M	means Machine to Machine
MFN	means Multiple Frequency Networks
MHz	means Megahertz of Radio Frequency Spectrum;
MIMO	means Multiple-Input and Multiple-Output is the use of multiple antennas at both the transmitter and receiver to improve

	communication performance
Mobile station	means a radio station that is intended to be operated while it is in motion or while it is stationary at an unspecified place;
Model Control apparatus	means radio apparatus used to control the movement of the model in the air, on land or over or under the water surface;
MTX	means Mobile Transceiver;
Non-specific Short Range Devices	means radio apparatus used for general telemetry, telecommand, alarms and data applications with a pre-set duty cycle (0.1%: S duty cycle< 100%);
NRFP	means the National Radio Frequency Plan 2010 for South Africa
PAMR	means Public Access Mobile Radio
PMR	means Public Mobile Radio is radio apparatus used for short range two-way voice communications;
PPDR	means Public Protection and Disaster Relief as defined in ITU-R Report M.2033.
PTM	means Point to Multipoint
PTP	means Point to Point
Radio trunking	means a technique by means of which free channels out of a group of radio frequency channels allocated to a base station are automatically made available for the establishment of a connection between the stations of a user;
Radio-beacon station	means a radio station whose radiation is intended to enable a mobile station to fix its position or obtain its bearing with regard to the radio beacon;
Radio-communication	means all electronic communication by means of radio waves;
Relay or repeater station	means a land station in the land mobile service;
RFID	means Radio Frequency identification is a wireless system that uses radio frequency communication to automatically identify, track and manage objects, people or animals. It consist of two main components viz, tag and a reader which are tuned to the same frequency;
RLAN	means Radio Local Access Network is the high data rate two way (duplex) wireless data communications network;
SABRE	means South African Band Re-planning Exercise
SADC	means Southern African Development Community
SADC FAP	means Southern African Development Community Frequency Allocation Plan 2010
SAPS	means South African Police Service
SATFA	means South African Table of Frequency Allocations 2004
Self Helps	means repeater stations rebroadcasting television channels to limited areas on a low power basis
Service licence	means a BS, ECS or ECNS licence;
SF	means Single Frequency
SFN	means Single Frequency Network
Ship station	means a mobile station in the maritime mobile service that has been erected
SNG	means Satellite News Gathering
Spread spectrum	means a form of wireless communications in which the frequency of the transmitted signal is deliberately varied, resulting in a much greater bandwidth than the signal would have if its frequency were not

	varied;
SRD	means Short Range Device is a piece of apparatus which includes a transmitter, and/or a receiver and or parts thereof, used in alarm, telecommand telemetry applications, etc., operating with analogue speech/music or data (analogue and/or digital) or with combined analogue speech/music and data, using any modulation type intended to operate over short distances;
Studio Links	means point to point links in the broadcasting frequency bands used to connect studios to transmitters
STB	means Set Top Box for DVB-T2 reception
T-DAB	means Terrestrial Digital Audio Broadcasting
TDMA	means Time Division Multiplex Access
Telemetry	means the transmission of remotely measured data;
TETRA	means Terrestrial Trunked Radio is a professional mobile radio [2] and two-way transceiver specification. TETRA was specifically designed for use by government agencies, emergency services, (police forces, fire departments, ambulance) for public safety networks, rail transportation staff for train radios, transport services and the military. TETRA is an ETSI standard.
TPC	means Transmitter Power Control is a technical mechanism used within some networking devices in order to prevent unwanted interference between wireless networks;
UHF	means Ultra High Frequency;
UMTS	means Universal Mobile Telecommunications System is a third generation mobile cellular technology for networks based on the GSM standard
VHF	means Very High Frequency;
Video Surveillance Equipment	means radio apparatus used for security camera purposes to replace the cable between a camera and a monitor;
VSAT	means Very Small Aperture Terminal is a two-way satellite ground station that is smaller than 3 meters diameter
WAS	means Wireless Access Systems is end-user radio connections to public or private core networks;
Wideband Wireless Systems	means radio apparatus that uses spread spectrum techniques and has high bit rate;
WRC 2007	means World Radio Conference 2007 held in Geneva
WRC 2012	means World Radio Conference 2012 held in Geneva