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## GOVERNMENT NOTICE

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### DEPARTMENT OF COMMUNICATIONS

No. 306

16 April 2010

**POLICIES AND POLICY DIRECTIONS DRAFTED IN TERMS OF SECTION  
3(1) OF THE ELECTRONIC COMMUNICATIONS ACT, 2005  
(ACT NO. 36 OF 2005)**

I, Gen (Ret) Sphiwe Nyanda Minister of Communications, hereby publish the National Radio Frequency Policy in the schedule, in terms of section 3(1) of the Electronic Communications Act, 2005 (Act No. 36 of 2005).

  
**Gen (RET) Sphiwe Nyanda**  
**Minister of Communications**



the **doc**  
Department  
Communications  
**REPUBLIC OF SOUTH AFRICA**

# **RADIO FREQUENCY SPECTRUM POLICY FOR SOUTH AFRICA**

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## 1. DEFINITIONS

*allocation* (of a frequency band): Entry in the Table of Frequency Allocations of a given frequency band for the purpose of its use by one or more terrestrial or space radiocommunication services or the radio astronomy service under specified conditions. This term shall also be applied to the frequency band concerned.

*allotment* (of a radio frequency or radio frequency channel): Entry of a designated frequency channel in an agreed plan, adopted by a competent ITU conference, for use by one or more administrations for a terrestrial or space radiocommunication service in one or more identified countries or geographical areas and under specified conditions.

*assignment* (of a radio frequency or radio frequency channel): Authorization given by an administration for a radio station to use a radio frequency or radio frequency channel under specified conditions.

*government services*: services provided in the national interest by entities established in terms of Chapter 11 of the Constitution

*public protection and disaster relief*: refers to radiocommunications used by responsible agencies and organizations dealing with maintenance of law and order, protection of life and property and emergency situations; 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, natural phenomena or human activity, and whether developing suddenly or as a result of complex, long-term processes;

*safety service*: any radiocommunication service used permanently or temporarily for the safeguarding of human life and property.

*radiocommunication:* any transmission, emission or reception of signs, signals, writings, images and sounds or intelligence of any nature by means of radio waves

*radiodetermination:* the determination of the position, velocity and/or other characteristics of an object, or the obtaining of information relating to these parameters, by means of the propagation properties of radio waves.

*radionavigation:* radiodetermination used for the purposes of navigation, including obstruction warning.

*radiolocation:* radiodetermination used for purposes other than those of radionavigation.

*radio astronomy:* astronomy based on the reception of radio waves of cosmic origin.

*radio frequency spectrum:* portion of the electromagnetic spectrum used as a transmission medium for electronic communications.

*interference:* the effect of unwanted energy due to one or a combination of emissions, radiations, or inductions upon reception in a radiocommunication system, manifested by any performance degradation, misinterpretation, or loss of information which could be extracted in the absence of such unwanted energy.

*permissible interference:* observed or predicted interference which complies with quantitative interference and sharing criteria contained in the ITU Radio Regulations or in ITU-R Recommendations or in special agreements as provided for in the ITU Radio Regulations.

*accepted interference:* interference at a higher level than that defined as permissible interference and which has been agreed upon between two or more administrations without prejudice to other administrations.

*harmful interference:* interference which endangers the functioning of a radionavigation service or of other safety services or seriously degrades, obstructs, or repeatedly interrupts a radiocommunication service operating in accordance with Radio Regulations.

*Department:* Department of Communications

*Minister:* Minister of Communications

*SATFA:* South African Table of Frequency Allocations

## **2. INTRODUCTION**

### **2.1 Context**

- 2.1.1 The Radio Frequency Spectrum is a limited natural virtual resource where, in certain frequency bands, the demand for spectrum far exceeds the amount of spectrum that is available. The radio spectrum is available equally in every country, and is a resource limited by technology and management capability. It is not a consumable resource.
- 2.1.2 Management of the radio-frequency spectrum is subject to Government authority and spectrum must be managed efficiently so as to be of greatest benefit to the entire population.
- 2.1.3 The Minister of Communications ("The Minister") acts as the custodian of the spectrum on behalf of the people of South Africa.
- 2.1.4 To date there has not been a national policy on spectrum usage. This has resulted in piecemeal decisions being taken on spectrum usage in South Africa that have often been driven by commercial considerations only. To ensure efficient use of the radio frequency spectrum in South Africa, it is



necessary for Government to issue policies and policy directions in order to ensure that this resource is used in the best interest of the Republic of South Africa. This national radio frequency spectrum policy has been developed to ensure efficient spectrum usage and to provide over-arching guidance for the utilisation of radio frequency spectrum in the broad national interest.

- 2.1.5 In allocating the Radio Frequency Spectrum, the Republic of South Africa must take into account the outcomes of the International Telecommunication Union ("ITU") World Radiocommunication Conferences ("WRC").
- 2.1.6 Government regards the radio frequency spectrum as a natural international resource in the public domain; consequently Government will issue policies and policy directions to ensure that this resource is used in the best interest of the Republic of South Africa, but with due regard to the needs and rights of other countries.
- 2.1.7 Spectrum management takes place within a regulatory framework comprised of policies, legislation, regulations and procedures.
- 2.1.8 The radio frequency spectrum is a key resource for many essential communication services in society such as, mobile, fixed wireless and satellite communications, television and sound broadcasting, transport, radiolocation, (Global Positioning Systems) radio navigation, safety of life and many other applications. Radio technology supports public services such as defence, safety and security as well as scientific activities (e.g. meteorology, earth observation, radio astronomy, space research, etc).
- 2.1.9 Radiocommunication, which is reliant on the electromagnetic spectrum, is one of South Africa's most dynamic technology sectors. South African society and the entire industry rely on radio frequency spectrum, a resource where the demand far exceeds the supply.

2.1.10 The Radio Frequency Spectrum Policy ("the Policy") aims to provide directives to the Independent Communication Authority of South Africa ("ICASA") to promote the rational, economical, efficient and effective usage of the radio frequency spectrum; keeping pace with the rapid evolution of wireless technologies and services within the framework of the Government strategic objectives.

2.1.11 This Policy, in addressing the radio frequency spectrum; a scarce national resource, further intends to provide guidance on the allocation of frequencies to the different radiocommunication services in the country.

2.1.12 In addition, the Policy aims to contribute to the promotion of national interests, development and diversity, including increasing the amount of spectrum available for assignment, improving sharing conditions among different radio communication services and increasing the number of licences dedicated to community radio and television broadcasting services.

2.1.13 The Policy, moreover, aims to ensure a co-ordinated and harmonised national approach to spectrum usage, set conditions for the availability and efficient use of radio spectrum by various services to support specific national objectives, and to provide a greater degree of predictability and certainty to current and future stakeholders in the use of the spectrum.

2.1.14 The Policy:

- provides guidance on issues related to the radio frequency spectrum and the establishment and review of the national frequency plan;
- establishes principles for spectrum management;
- contributes to the promotion of national interests within the framework of Government strategic objectives;
- provides for the allocation of spectrum for safety of life services;
- provides for the allocation of spectrum for government services; and

- provides for the allocation of spectrum for scientific research.

## **2.2 Legal Framework**

- 2.2.1 In South Africa radio frequency spectrum usage is governed by the ECA, Act No 36 of 2005, as amended, which has, as one of the main objects, to ensure efficient usage of the radio frequency spectrum.

## **2.3 International Perspective**

- 2.3.1 South Africa is a signatory to the Constitution and Convention of the ITU. This is an international treaty binding on all member states.
- 2.3.2 The provisions of the ITU Constitution and the Convention are further complemented by Administrative Regulations such as the Radio Regulations, which also have international treaty status.
- 2.3.3 In accordance with the ITU Constitution, South Africa shall endeavour to limit the number of frequencies and the spectrum used to the minimum essential to provide in a satisfactory manner the necessary services. To that end, South Africa shall endeavour to apply the latest technical advances as soon as possible (No.195 of the ITU Constitution).
- 2.3.4 In South Africa all stations, whatever their purpose, must be established and operated in such a manner as not to cause harmful interference to the radio services or communications of other Member States.
- 2.3.5 The ITU table of frequency allocations will form the basis of the South African Table of Frequency Allocations.

## **2.4 Benefits of the Radio Frequency Spectrum Policy**

- 2.4.1 Spectrum management must serve the national interest, promote the country's economic and social development and ensure safety of life.
- 2.4.2 The Policy will, for the first time, provide directives to ICASA in the development of the national table of frequency allocations, particularly where there are competing services in a particular frequency band.
- 2.4.3 The Policy will also ensure that government objectives are catered for in the table of frequency allocations.
- 2.4.4 The Policy will further ensure the rational and effective utilization of the spectrum in South Africa.

## **2.5 Roles and Responsibilities**

### **2.5.1 The Minister**

The Minister represents South Africa in the ITU. This includes, *inter alia* the allocation of the radio frequency spectrum to various radiocommunication services.

The Minister is responsible for all international spectrum matters pertaining to South Africa, including Regional and sub-Regional spectrum planning, all cases concerning international harmful interference and international frequency co-ordination. The Department will liaise with ICASA in such matters.

- 2.5.1.1 The Minister is responsible for issuing policies and policy directions in relation to the radio frequency spectrum.

2.5.1.2 The Minister is responsible for the development of the South African national allocation plan, and for the allocation of spectrum to the different radiocommunication services.

2.5.1.3 The Minister is required to allocate spectrum for the exclusive use of the security services, and that such spectrum be included in the national frequency plan.

2.5.1.4 The Minister is responsible for the co-ordination and approval of any Regional radio frequency spectrum plans applicable to South Africa.

## **2.5.2 ICASA**

2.5.2.1 ICASA is responsible for, administering and managing the usage of the radio frequency spectrum, and for the licensing thereof.

2.5.2.2 In order to fulfil its functions ICASA issues National Radio Regulations that must be adhered to by all the users of national spectrum.

2.5.2.3 ICASA is responsible for the implementation of this Policy.

2.5.2.4 ICASA is responsible for the assignment of radio frequency spectrum to licensees and for the development of national assignment plans.

### **3. OBJECTIVES OF THE RADIO FREQUENCY SPECTRUM POLICY**

The objectives of this Policy are to:

- 3.1 establish the environment within which a national spectrum policy objectives are implemented;
- 3.2 establish principles for spectrum management;
- 3.3 promote transparency and openness in spectrum management;
- 3.4 establish the framework for radio frequency spectrum planning so as to ensure the efficient and effective usage of the radio frequency spectrum;
- 3.5 set guidelines for spectrum usage;
- 3.6 establish principles for spectrum fees;
- 3.7 contribute to the promotion of national interests, development and diversity within the framework of Government strategic objectives;
- 3.8 provide for the allocation of spectrum for safety of life services;
- 3.9 provide for the allocation of spectrum for government services;
- 3.10 promote universal service and access; and
- 3.11 provide for the allocation of spectrum for scientific research.

#### **4. RADIO FREQUENCY SPECTRUM MANAGEMENT**

- 4.1 National spectrum management must ensure that adequate spectrum is provided over both the short and long term in order that all potential spectrum users, both public and private, are able to achieve their objectives.
- 4.2 Spectrum management shall make use of state of the art practices, recognised latest technical standards/advances, and continuously trying to use computer aided tools and techniques.
- 4.3 Spectrum management shall encourage sharing radio frequency spectrum among different radio users and services, where appropriate, making use of proper sharing criteria and suitable mitigation techniques.
- 4.4 Spectrum pricing is a fundamental component of spectrum management. Spectrum pricing can be used as a tool to ensure that operators pay a fair value for spectrum usage through an appropriate fee system, and also to either encourage or discourage spectrum users to apply for and/or operate in particular frequency bands. Spectrum pricing should be such that radio-based technologies can be used as a business aid by all companies irrespective of size. Care must be taken to ensure that the pricing system does not act as a barrier to entry for users of the spectrum. It must also be borne in mind that there is a risk that service providers will pass on the cost of spectrum fees to their customers thus making services unaffordable.
- 4.5 Spectrum pricing policy aims to ensure that:
  - 4.5.1 Number and type of applications for spectrum usage reflect the value users put on their spectrum use;
  - 4.5.2 Existing users examine their spectrum needs and give up surplus spectrum; and

- 4.5.3 New users and new technologies have an opportunity of gaining access to the spectrum.

## **5. NATIONAL RADIO FREQUENCY SPECTRUM PLANNING**

- 5.1 One of the primary objectives of radio frequency spectrum planning is to allocate frequency bands to the various radio services in accordance with national needs, but at the same time taking into account the ITU Table of Frequency Allocations as contained in Article 5 of the ITU Radio Regulations. The Minister is responsible for ensuring that long-term spectrum planning is carried out in accordance with Government policies.
- 5.2 In order to promote as much as possible sharing spectrum among services the national table of frequency allocations should follow as closely as possible the ITU frequency allocations for ITU Radio Region 1 (Africa, Europe).
- 5.3 When there are competing interests for the use of spectrum, ICASA must make a determination as to the assignment that will best serve the national and public interest. The decision of ICASA must be based on principles established by this Policy.
- 5.4 The designation of frequency bands for specific uses represents the first step in efficient and effective spectrum usage. To ensure benefits to the users, economy and society, the assessment of spectral use or efficiency of a radio system will be done within the ITU framework taking account of the following principal dimensions of spectrum efficiency, namely technical, economic and functional efficiencies.
- 5.5 In order for the spectrum to be used efficiently and effectively, the sharing of the available spectrum between different radiocommunication services must be co-ordinated within national boundaries in accordance with national



regulations, and in accordance with the ITU Radio Regulations. Therefore, every available means to improve national spectrum management and international co-ordination needs to be implemented.

- 5.6 Effective management of the radio frequency spectrum is essential to the future growth of electronic communications services in South Africa.
- 5.7 In cases where there are competing services in a particular frequency band and where the decisions of an ITU WRC could create divergent interests nationally, the Minister will issue appropriate policy directions to ICASA regarding the service allocation to be made in the national table of frequency allocations.
- 5.8 In the interests of openness and transparency, the national register of frequency assignments held by ICASA shall be a matter of public record. Assignments to security services shall, however, be excluded.

## **6. USAGE OF THE RADIO FREQUENCY SPECTRUM**

- 6.1 Government supports the establishment of infrastructure for radiocommunication applications based on, technology neutrality. Technology neutrality, as a principle when applied to spectrum management, seeks to minimise the constraints on spectrum usage, while ensuring that interference is appropriately dealt with. Similar services can be supplied on different technology platforms, and regulations should seek to promote competition between different technology solutions instead of favouring one technology over another. This means that different technologies offering essentially similar services should be regulated in a similar manner.
- 6.2 Government considers the radio frequency spectrum to be a vital national resource. The rights to spectrum vest in the State. ICASA shall assign

appropriate spectrum in accordance with the relevant licence issued to the licensee.

- 6.3 The use of the radio frequency spectrum must promote the proper use of the digital dividend, regarding access to services using the radio frequency spectrum, by encouraging the use of wireless broadband technologies particularly in under serviced areas.
- 6.4 The usage of frequency-efficient equipment as well as the usage of frequencies above 30 GHz shall be promoted.
- 6.5 The Republic of South Africa will promote harmonised usage of the spectrum at international and regional level in order to improve the economy of scales of equipment and promoting a unified regional band plan.
- 6.6 The hoarding of spectrum by users is not conducive to efficient spectrum usage and this practise will be discouraged at all costs. ICASA shall strictly apply the principle of "use it or lose it" to all spectrum licensees. Passive science services, due to the nature of their operation, will be exempt from this provision.
- 6.7 Spectrum users must endeavour to make the most efficient usage of the spectrum licensed to them.

## **7. RADIO FREQUENCY SPECTRUM FEES**

- 7.1 The radio frequency spectrum is a limited natural resource. Spectrum users are therefore required to pay for the privilege of using this resource through spectrum fees.
- 7.2 The fees to be paid for the usage of the radio frequency spectrum should be based on factors that take into account the inherent properties of the radio frequency spectrum, such as the frequency band, congestion in the particular band, and other factors such as bandwidth, coverage, degree of loading, spectrum efficiency of the equipment used, economic factors and geographical area of operation.
- 7.3 In the determination of spectrum fees, the method and/or factors used to determine the fees shall be clearly enunciated.
- 7.4 The fees payable for the usage of the spectrum should also incentivise the efficient and effective usage of the radio frequency spectrum, as well as promote spectrum reuse.
- 7.5 The methodology and/or the factors used for determining spectrum fees shall be reviewed every 5 years.
- 7.6 When there are competing applications or the demand for radio frequency spectrum exceeds the amount of spectrum available, various approaches including market approaches for the assignment of frequencies may be applied.
- 7.7 All spectrum users should be liable for the payment of spectrum fees unless the spectrum user is exempted from payment through appropriate policy directions issued by the Minister.

- 7.8 The level of spectrum fees shall be such that the fees do not place an undue burden on either licensees or prejudice end users, nor should spectrum fees be a barrier to entry for prospective licensees.
- 7.9 Deviations from prescribed spectrum fees and exemptions from the payment of spectrum fees will be addressed through appropriate regulatory instruments in the implementation of this Policy.
- 7.10 Spectrum fees shall be adjusted annually in accordance with the Consumer Price Index (CPI) unless there is a compelling reason not to do so.

## **8. PROMOTION OF NATIONAL INTERESTS**

- 8.1 More radio frequency spectrum must be made available for a range of services that are in the public interest.
- 8.2 At present it is not in the public interest for South Africa to adopt the international trend towards economic based spectrum management in all cases as this will adversely affect Small, Medium and Micro-sized Enterprises (SMME's) and prospective new entrants to the ICT sector.
- 8.3 The implementation of digital technologies, which are more spectrum efficient than analogue, is encouraged. The implementation of digital technologies will facilitate the introduction of new electronic communication services, such as e-government, broadband access, etc, which will in turn act as a catalyst for socio-economic development.
- 8.4 The digital dividend that will be created by the transition from analogue to digital broadcasting will increase the amount of spectrum available to all tiers of broadcasting services, particularly community television, as well as

facilitating the introduction of new electronic communications services in spectrum previously exclusively allocated to broadcasting.

- 8.5 Special measures must be put in place to promote shorter time periods for the implementation of new wireless technologies, which are more spectrum efficient, and spectrum that is no longer required shall be released.
- 8.6 Wireless technologies are more appropriate for the provision of electronic communication services in rural areas due to the population distribution, lack of infrastructure, terrain etc. Spectrum usage shall therefore, wherever possible, be used to promote universal access and service.

## **9. AVAILABILITY OF SPECTRUM FOR SAFETY OF LIFE SERVICES**

- 9.1 The international spectrum regulatory framework has, as one of its founding principles, the availability and protection from harmful interference of frequencies provided for distress and safety purposes. A safety service is any radiocommunication service used permanently or temporarily for the safeguarding of human life and property.
- 9.2 It is recognised that safety services require special measures to ensure their freedom from harmful interference; it is necessary therefore to take this factor into account in the assignment and use of frequencies.
- 9.3 Priority of access to spectrum must be given to safety of life services including public safety and security communications.
- 9.4 In addition, such safety of life services must, at all time be free from harmful-interference.

## **10. SPECTRUM FOR GOVERNMENT SERVICES**

- 10.1 The allocation of radio frequency spectrum for the exclusive use of security services to be included in SATFA will be determined by the Minister in consultation with the security services.
- 10.2 In preparing the SATFA Government Departments current and planned uses of radio frequency spectrum shall be taken into account.
- 10.3 In view of the limitations of the usable radio frequency spectrum, and to ensure the best possible return from the usage thereof, the Minister is responsible for:
  - 10.3.1 Spectrum allocations for national security and defence purposes;
  - 10.3.2 Spectrum allocations used for Public Protection and Disaster Relief ("PPDR");
  - 10.3.3 Allocation of spectrum used for scientific research; and
  - 10.3.4 Additional spectrum shared with non-government users may also be allocated for Government services.

## **11. SCIENTIFIC RESEARCH**

- 11.1 The radio spectrum facilitates a range of scientific applications used for research purposes.
- 11.2 Often such scientific applications must compete for spectrum with commercial applications. It is in the national interest the need for active and passive scientific research to be taken into account when allocating spectrum.
- 11.3 Government is conscious of the role that radio frequency spectrum plays in environmental and climate change monitoring, including weather forecasting,

natural disaster predictions, detection and mitigation. Consequently, spectrum should be made available, as far as possible, to support and promote scientific research that among other things assist in the process of understanding climate change and the implementation of measures to mitigate its impact.

- 11.4 Government supports radio astronomers having continued access to their radio frequency bands necessary for their research, and that their sensitive observations must be free from harmful interference.
- 11.5 There is a need for a long-term availability of frequency bands essential to achieve the goals of Earth Exploration Satellite Services, Space Research Services, Space Operation Services, Radio Astronomy Services, Meteorological Satellite Service, Meteorological Aids Services and Radiolocation Services and it is therefore crucial that the specificity of these bands used for scientific purposes and their need for protection is recognized.

## **12. IMPLEMENTATION**

- 12.1 The Policy will be implemented through the development of a radio frequency spectrum strategy.
- 12.2 The principles in this policy will be supplemented by policy directions issued by the Minister on specific issues from time to time.
- 12.3 As an aid to efficient and optimal use of spectrum there shall be periodic audits in order to provide a spectrum utilization report and ensure transparency as governing principle of administration and management of spectrum.

### **13. REVIEW**

The Department of Communications will put in place mechanisms to monitor and evaluate the implementation of this Policy. The Department of Communications shall review this Policy after every ITU World Radiocommunication Conference or at any time as determined by the Minister

### **14. CONCLUSION**

This Policy is guided by the unique challenges that the country faces, and how to efficiently allocate the radio frequency spectrum to address the challenges. The policy seeks to make South Africa a global leader in harnessing ICT's for socio-economic development. This policy will assist government to meet its commitment to the people of South Africa as well as to the global community, especially the developing world.