



L E S O T H O
C O M M U N I C A T I O N S
A U T H O R I T Y

RADIO FREQUENCY SPECTRUM MANAGEMENT GUIDELINES AND PROCEDURES

1. Preamble

These Radio Spectrum Management guidelines are intended to form a foundation for spectrum management by the Lesotho Communications Authority (LCA), hereafter referred to as the Authority. These guidelines form a basis for radio frequency licensing policies, requirements and procedures in the management of the national radio spectrum resource. This among others includes radio spectrum frequency monitoring, allocation and planning.

2. Background

Radio frequency spectrum influences the development of services and therefore the daily lives of the Lesotho citizens. The radio spectrum can be used to conduct national and international business, maintain and enhance prosperity, sovereignty and security. The radio spectrum supports a wide range of services such as telecommunications, broadcasting, scientific, research and medical in both private and public interests.

The Communications Act, 2012, gives Lesotho Communications Authority the mandate to manage and authorise the use of radio frequency spectrum in the best interest of the country and its citizens. Therefore, the Authority is tasked with developing guidelines and procedures for radio frequency spectrum management noting that radio spectrum is a scarce resource. The aim is to ensure management of the radio frequency spectrum in the national interest, in order to encourage development and operation of communication services taking into account international best practices and implications.

The use and demand for radio frequency spectrum is inevitably and perpetually increasing as new technologies are developed. However, generally speaking, radio frequency spectrum is a scarce and finite limited resource and this challenge can be adequately managed if there are comprehensive radio frequency spectrum guidelines and procedures for spectrum management.

3. Spectrum Guidelines Objectives

The objectives of these radio spectrum management guidelines and procedures are to:

- i. Form the basis for planning and management of the radio frequency spectrum in accordance with the national, regional and international agreements;
- ii. Promote and support the introduction of new radio applications and technologies to meet Lesotho's requirements in order to achieve economic, cultural and social benefits of its citizens;
- iii. Ensure that Lesotho's interests are protected when harmonising and coordinating the use of the radio spectrum within its territory with other countries in the region and in the international spheres;
- iv. Support and promote innovation, research and development of new radiocommunications technologies and encourage competition;
- v. Promote and support efficient usage of the radio frequency spectrum for orderly development and efficient operation of radiocommunications systems and services;
- vi. Ensure appropriate balancing of commercial and public interests; and
- vii. Set standards which are necessary for harmonious radio communication system operation and effective spectrum management utilization as well as for compatibility.

4. Spectrum Management Principles

In order to achieve spectrum management objectives, the Authority will benchmark and adopt international best practices in the execution of its mandate. The Authority will therefore abide by the following principles that will form a key basis for radio frequency spectrum management in Lesotho:

- a) Conformity to Standards and National Frequency Plans in line with the ITU Radio Regulations;
- b) Technology Neutrality;
- c) Transparency; and
- d) Timely release of Spectrum.

5. Policy Guidelines and Procedures

These radio spectrum management guidelines and procedures are based on the LCA Radio Spectrum Policy.

5.1. Protection of Special Radio Services

Frequency bands shall be allocated in the NFAP for special radio services such as national security, distress and emergency services.

The Authority shall endeavour to allocate distress and emergency services necessary frequencies in the time of emergencies as declared by the government. It may also find it necessary to move allocated frequency occupation for allocation to such services at these times.

5.2. Frequency Sharing

The Authority encourages spectrum sharing among services and users in order to satisfy the growing demand for radio frequency spectrum resource.

The Authority will promote radio frequency spectrum sharing either on a primary or secondary basis while taking into account spectrum efficiency and operational requirements of services.

5.3. Spectrum Re-farming/Harvesting

A frequency spectrum licence does not confer ownership or permanent assignment rights to the user; therefore in the event of no viable option, the Authority shall facilitate frequency re-farming or displacement of services to

other frequency bands for the purpose of accommodating new services or technologies or additional licences.

The affected parties shall be given adequate notice to allow for relocation or surrendering of the spectrum. Fair treatment and adequate notice shall be considered in all cases. However, financial compensation, if any, arising from this shall be at the discretion of the Authority.

5.4. Physical relocation of a radio transmit station

In the case where the Authority has been satisfied that a physical relocation of a radio transmit station is absolutely necessary, the Authority shall request physical displacement and relocation of the radio transmit station.

The affected parties shall be given adequate notice to allow for such physical relocation of the transmit station. The licensee in question shall be required to pay for the cost of displacement; and the Authority shall not be liable for any compensation of the affected party.

5.5. Frequency Authorisation

The Authority shall assign radio frequency spectrum to all parties eligible in accordance with the relevant provisions of the Communications Act, 2012 and the LCA Spectrum Policy.

The assignment of radio frequencies shall be conducted on a first-come-first-served basis in accordance with established application processing procedures for frequency spectrum. In a case where the demand for spectrum in a specific band exceeds the available spectrum, the Authority may limit the amount of such spectrum allocation accordingly. The guiding principle shall be to ensure optimal deployment/use of such spectrum.

5.6. License Exempt Frequency Bands

The Authority shall designate some radio frequency bands and frequencies as license-exempt. The use and application shall be as defined in the following subsections: -

5.6.1. Short Range Devices

Short Range Devices (SRDs) which are permitted for use in Lesotho are those designated to operate over short ranges and at low power levels in accordance with ITU-R Radio Recommendations and as well as other internationally recognised and industry-based standards e.g. CRASA guidelines.

SRDs generally operate on a radio frequency spectrum licence exempted basis unless otherwise specified. The devices shall operate on a non-protection and non-interference basis.

5.6.2. Emergency services, ISM, WiFi and WiFi Mesh networks

The Authority shall designate some radio frequency bands and frequencies as license-exempt for use in distress, emergency services, public protection and disaster relief (PPDR); and as Industrial, Scientific and Medical (ISM) bands. However, usage of these bands shall be subject to the rules and regulations that govern the use of Radio Frequency spectrum in Lesotho.

Deployment of Wi-Fi for wireless mesh broadband networks in the ISM bands shall require general authorisation from the Authority before such deployment and also during their network expansion. A complete network topology including detailed technical specifications of the equipment, power levels and frequencies of each node shall be provided to the Authority for authorisation.

Wi-Fi deployment in the ISM bands shall be required to conform to the ITU-R Radio regulations or other international standards where they do not exceed the set transmit power limits and use type approved equipment in the bands. The bands and the power limits that are allowed for Wi-Fi mesh networks shall be as stipulated in the CRASA framework for SRDs¹ as follows: -

- a) 2 400 – 2 500 MHz centred at 2 450 MHz for with a maximum power limit is 100 mW e.i.r.p. (ITU-R Rec. 70 – 03 note 1 (p.9));
- b) 5 470 – 5 725 MHz centred at 5 597.5 MHz for WAS/RLANs for maximum

¹ “CRASA and SADC Framework For the Harmonisation of Frequencies For Short-Range Devices (SRDs) – 29 March, 2011”.

power limit of 1 W e.i.r.p.

- c) 5 725 – 5 875 MHz centred at 5 800 MHz and with maximum power limits as follows: -
 - i. 4 W e.i.r.p. for Point-to-point/point-to-multipoint (PTP/PTMP); and
 - ii. 2 W e.i.r.p. for Mesh/Access Point – Multi-Point (AP-MP) (ITU-R RR No. 5.150);

The users in these unlicensed bands shall not claim protection from external interference and shall not cause interference to other licensed users in other bands. The Authority may intervene in cases of interference within the unlicensed bands on a case-by-case basis.

5.7. Trials/Temporary/Research & Development Frequency Assignments

As a means to promote innovation, the Authority may authorise frequency assignments for radiocommunications systems on a trial basis and for new technology experimentation.

The Authority shall require the applicant to justify and demonstrate the viability of such trials and experiments before permission is given for trials and experiments in accordance with Lesotho Telecommunications Authority Rules 2000 as amended or any such Rules. The period of trial shall not exceed a period of six months and the results of the trial shall be availed to the Authority.

The Authority may also authorise frequency assignments for temporary use in accordance with Lesotho Telecommunications Authority Rules 2000 as amended or any such Rules.

5.8. Enforcement Measures after Frequency Assignment

The Authority shall put in place measures to ensure compliance to the conditions and requirements stipulated in the frequency licences.

To ensure that there is no spectrum hoarding, so that the assigned frequencies are valued, used appropriately and brought into use in a timely manner, the Authority shall, to the extent possible, use appropriate Spectrum Management

and Monitoring systems. In case of violation, the Authority shall implement relevant sanctions.

5.9. Radio Frequency Spectrum Monitoring

The Authority shall carryout regular frequency monitoring to ensure efficient, economic and safe usage of the radio frequency spectrum. To achieve this goal, the following activities shall be performed.

- a. Measurement of radio emission parameters and technical characteristics of licensed transmitting stations;
- b. Identifying unauthorised spectrum usage and undertakes appropriate measures for the prevention thereof;
- c. Verification and determination of coverage areas;
- d. Measurement of Quality of service parameters of the communication services; and
- e. Measurement of the electromagnetic field (non-ionizing radiation) levels for public safety and the environment.

5.10. Frequency Licence/Usage Fees

All users of spectrum shall pay appropriate fees according to the Lesotho Communications Authority (Licensing Classification and Fees) Rules, 2013 or any such Rules, except where a waiver or discount is granted. The spectrum fees for the radiocommunications services may vary according to particular factors such as, but not limited to, cost recovery, category of licence issued, bandwidth, nature of service, levels of demand, commercial value, social benefits, power levels and taking into account international best practices.

The Authority may review its fee structure from time to time. However, for this to occur, the Authority may as far as practicable, present justification for the review.

5.11. Frequency Planning/Allocations

Frequency Planning is a continuous process whose input is primarily based on

the decisions of the World Radio Conferences (WRCs), regional harmonisation agreements and forecast by the regulator based on research, benchmarking and user demands.

The following principles will apply: -

- a) The Authority shall open up any band within which interest has been indicated depending on:
 - Whether the band can be available for that particular service in conformity with the operational national frequency band plan,
 - Whether the utilization of the service in such a band would not cause harmful interference to other services in the same or adjacent bands.
- b) The Authority shall apply all relevant spectrum management principles in carrying out frequency allocations/assignments.
- c) Notwithstanding the first-come-first-serve principle in frequency licensing, in certain situations where demand is more than supply, the Authority may use any market-based approach.
- d) Efforts shall be made to accommodate as many users as possible in a particular band provided there is no degradation of services or harmful interference.
- e) In the circumstances that an applicant requires additional frequencies in the same band where they already have assignments, such request shall only be considered and authorised after such applicant has demonstrated and justified full utilisation of the existing frequencies.
- f) In the circumstance that a licensee is hoarding radio spectrum or not using the spectrum in accordance with the stipulated frequency conditions, the Authority shall withdraw some or all of the assigned spectrum or the frequencies in question.

5.12. Radiocommunications Standards

All radiocommunications equipment used/deployed shall conform to set

standards as approved by the Authority.

The Authority may adopt and develop own standards for radiocommunications equipment. In this respect, the Authority shall use ITU as well as other internationally recognised and industry-based standards with the aim of allowing wide open markets for the products and reciprocity in type approval of radio equipment. The Authority shall ensure that licensed stations are operated in conformity with the national and international regulations by: -

- a) Conducting inspections to ensure that licensed stations comply with the licensing provisions;
- b) Randomly carrying out pirate raids in order to bring to book the entities who pirate spectrum; and
- c) Conducting routine monitoring functions in bands that so require.

5.13. Liaison

The Authority shall maintain close co-operation with all stakeholders in the industry in its spectrum management endeavours.

In the execution of its spectrum management mandate, the Authority shall establish cooperation with stakeholders such as network operators, broadcasters, manufacturers, ITU, AU, SADC, professional groups, governmental departments, national security agencies, security companies and the general public. This shall be executed through liaison groupings formed by the Authority at its own discretion as guided by the particular spectrum uses of the groupings.

5.14. Unforeseen Policy Issues in the use of Radio Spectrum

The Authority may add, vary or amend these regulations in order to widen the scope of these guidelines or where, in the public interest, it is deemed necessary to do so.