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GUIDELINES 008/G/ R/SM-ICT/RURA/2019 OF 15/11/2019 ON THE USE OF SHORT RANGE DEVICES (SRDs)

CONTENTS

PREAMBLE

The Regulatory Board;

Pursuant to Law n° 09/2013 of 01/03/2013 establishing the Rwanda Utilities Regulatory Authority, especially in Articles 2 and 20;

Pursuant to the ICT Law n°24/2016 of 18/06/2016 governing information and communication technologies, especially in its articles 62, 63 and 73.

Pursuant to the Ministerial Order n° /DC/04 of 07/06/2004 on Telecommunications Networks and services not requiring a telecommunications licenses

And after considerations and deliberations in its meeting of __ / __ / 2019;

Hereby issues the following guidelines;

CHAPTER 1: GENERAL PROVISIONS

Article one: Purpose of these guidelines

These guidelines outline the operational requirements, define the technical parameters and regulatory considerations that govern the use of SRDs in the allocated frequency bands in the country according to the (NTFA) National Table of Frequency allocation.

Article 2: Definitions and Acronyms

a) **SRD: Short Range device**s they are intended to cover radio transmitters which provide either unidirectional or bidirectional communication and which have low capability of causing interference to other radio equipment.
b) **RFID:** Radio Frequency Identification systems, they are typically used to track, identify and collect/carry data relating to animate or inanimate objects to which tags are attached
c) **ITU: International Telecommunication Union** is an agency of the United Nations (UN) whose purpose is to coordinate telecommunication operations and services throughout the world.
d) **ULPA-MI:** Ultra low power active medical implant
e) **MICS:** Medical implant communication systems
f) **EIRP:** Effective Isotropic Radiated Power is the product of the power Supplied to the antenna and the antenna gain in a given direction relative to an isotropic antenna
g) **AC:** Alternating Current, an electric current that repeatedly changes its direction or strength, usually at a certain frequency or range of frequencies,
h) **EMC: Electromagnetic compatibility,** is the ability of electrical equipment and systems to function acceptably in their electromagnetic environment

i) **RR: Radio Regulation** and it contains the complete texts as adopted by the World Radiocommunication Conference (Geneva, 1995) (WRC-95) and subsequently revised and adopted by World Radiocommunication Conferences, including all Appendices, Resolutions, Recommendations and ITU-R Recommendations incorporated by reference.

j) **NFAT:** National Frequency Allocation Table; it contains the Rwandan National Frequency Allocation derived from the international frequency allocations of Article 5 of the International Telecommunication Union(ITU) Radio Regulation.

Article 3: Scope of application

These guidelines shall apply to the use of SRDs in Rwanda.

Article 4: Objectives

These guidelines were developed with the following objectives:

a) To promote efficient use of the spectrum as a key enabler for the economic growth and social development of the country
b) To ensure fair competition, innovation and efficient use of the frequency bands
c) To avoid illegal use of spectrum resources
d) To provide guidance to operators about the authorisation procedure for the use of SRDs.
e) To avoid interference of SRDs with services operating in the same and/or adjacent frequency bands.

Article 5: SRDs applications

SRDs are used in various applications depending on the spectrum band, power, distance, and transmission data rates required. The transmission data rates may vary from as low as 100 bps to as high as 1 Gobs or more.

Below are the most common areas of SRDs applications:

a) Telemetry
b) Telecommand
c) Broadband Radio Local Area Network
d) Voice and video.
e) Broadband radio local area networks
f) Road transport and traffic telematics
g) Equipment for detecting movement and equipment for alert
h) Alarms
i) Inductive applications
j) Radio microphones
k) RFID
l) Ultra low power active medical implant
m) Wireless audio applications.

CHAPTER 2: REQUIREMENTS FOR USE OF SRDs

Article 6: Authorization requirements for use of SRDs

The approval and use of the relevant SRDs in Rwanda is subject to the following terms and conditions:

The use of SRDs shall be license exempted unless specified otherwise. However, all SRDs like any other radio apparatus must be type-approved by the regulatory authority.

The frequencies, transmitting power and external high-gain antenna of these radio apparatus must not be altered without a prior approval by the regulatory authority

SRD importers are required to be licensed as importers of electronic communication equipment in accordance with the type approval regulation.

Article 7: Conditions of operation of SRDs

a) The SRDs shall only operate in the frequency bands and with technical specifications defined in the appendix to these guidelines

b) The SRDs shall operate on a shared frequency bands subject to not causing interference to other authorized radio communication services.

c) SRDs shall not claim protection from interference from other radio communication services.

d) SRDs shall not be constructed with any external or readily accessible control which permits the adjustments of its operation parameters in a manner that is inconsistent with these guidelines.

e) The radio apparatus and antennas shall be operated within the technical parameters set out in each of the applicable columns of the table in the Annex.

Article 8: Marking Requirements

An SRD equipment shall be marked with the following information;

a) Supplier/manufacturer's name or identification mark;
b) The equipment's trade name, model name and serial number;
c) Other markings such as type approval and compliance label for equipment as required by the relevant standards.

The markings shall be legible, indelible and readily visible. All information on the marking shall be in at least one official language (English, French or Kinyarwanda).

Article 9: Technical Requirements

In order to ensure co-existence with other services in the authorized bands, SRDs shall comply with the followings:

a) Maximum Effective Isotropic Radiated Power (EIRP) and Transmitter & Receiver Spurious Emissions given in the Annex.
b) For AC powered SRDs operating Voltage should be 220+/-10% and frequency 50Hz+/-2%. The SRD operating with mains power supply shall comply with internationally accepted electrical safety standards (Ref: EN60950).
c) The SRD shall comply with internationally accepted Electromagnetic Compatibility Requirements EMC standards such as but not limited to EN 301 489-1 and EN 301 489-

Article 10: Spectrum Allocations

SRDs shall operate in the frequency bands as indicated in the Annex of these guidelines and national table of frequency allocation (NTFA).
However, it should be noted that short-range radio-communication devices may generally not be permitted to use bands allocated to the following services:

a) Radio astronomy;
b) Aeronautical mobile;
c) Safety of life services including radio navigation.

Article 11: Emission masks for the Short-Range Devices

Short-range devices shall conform to the spurious domain emission limits given in ITU Radio Regulations (RR) Appendix 3. Specifically, Table II of RR Appendix 3 lists the attenuation values used to calculate maximum permitted spurious domain emission power levels for use with radio equipment.

Article 12: Interference Mitigation

a) The SRDs shall not cause interferences to or claim protection from other radio communications services. Upon notification by the regulatory authority, the SRDs shall cease all transmissions until the interference is eliminated.
b) SRD users shall be required to comply with these guidelines and shall take reasonable measures to ensure that no interference is caused to other users within or outside the designated band for use by SRDs.

Article 14: Type approval requirements

The SRDs shall be type approved in accordance with Type approval regulation and in conformity with these guidelines.

Article 15: Breach of the guidelines

In order to maintain standards, users and vendors shall be required to ensure that SRD equipment used in Rwanda comply with these guidelines especially with regard to minimum technical characteristics including but not limited to:

a) operating frequency;
b) frequency range;
c) type of modulation; and

d) Radio Frequency power.

SRD users and vendors are strictly required to comply with these guidelines. Any violation of these guidelines shall result in regulatory measures including seizing of non-compliant equipment.

CHAPTER 3: TRANSITIONAL AND FINAL PROVISIONS

Article 16: Transitional period

Any existing user of SRDs not complying with these guidelines should be compliant within three (3) months of the effective date of these guidelines. Any other person who commences the use of SRDs after the effective date of these guidelines, shall comply with these guidelines prior to commencing operations.

Article 17: Interpretations of these guidelines

Upon request, the Authority shall provide an interpretation of these guidelines to assist users of SRDs.

Article 18: Amendment of the guidelines

These guidelines, especially the applications and technical requirements of SRDs contained in the ANNEX, can be amended from time to time as deemed necessary by the Regulatory Authority.

Article 19: Repealing provision

All prior provisions contrary to these guidelines are hereby repealed.

Article 20: Commencement

These guidelines shall come into force on the date of their signature.

Kigali on: 15th/11/ **2019**

Dr. Ignace GATARE
Chairperson of the Regulatory Board

ANNEX: SRD APPLICATIONS AND TECHNICAL REQUIREMENTS OF SRDs

1. SRD applications

a) **Telemetry:** The use of telecommunication for automatically indicating or recording measurements at distance from measuring instruments.

b) **Telecommand:** The use of telecommunication for the transmission of signals to initiate, modify or terminate functions of equipment at a distance

c) **Broadband Radio Local Area Network:** These are a replacement of physical cables for the connection of data networks within a building, thus providing a more flexible and, possibly, a more economic approach to the installation, reconfiguration and use of such networks within the business and industrial environments

d) **Voice and video**: These are voice applications like walkie-talkie, baby monitoring and similar use. Citizen band (CB) and private mobile radio (PMR 446) equipment is excluded. With video applications, non-professional cordless cameras are meant mainly to be used for controlling or monitoring purposes.

e) **Broadband radio local area networks**: Broadband radio local area networks (RLANs) are replacement of physical cables for the connection of data networks within a building, thus providing networks within the business and industrial environments.

f) These systems use spread spectrum modulation or other redundant (i.e. error correction) transmission techniques. To ensure compatibility with other radio applications in the 2.4 GHz and 5 GHz bands, a number of restrictions and mandatory features are required. In these bands, simple licensing requirements are applied or licence exemption similar to SRDs.

g) **Railway applications**: These are applications specifically intended for use on railways and comprise mainly automatic vehicle identification (AVI) system, Balise system and Loop system used to provide automatic and unambiguous identification of a passing vehicle and transmission of data between train and track.

h) **Road transport and traffic telematics**: Road transport and traffic telematics (RTTT) systems are systems providing data communication between two or more road vehicles and between road vehicles and the road infrastructure for various information-based travel and transport applications, including automatic toll-collection, route and parking guidance, collision avoidance and similar applications.

i) **Equipment for detecting movement and equipment for alert**: Equipment for detecting movement and equipment for alert are low power radar systems for radio determination purposes. Radio determination means 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.

j) **Alarms**: The use of radiocommunication for indicating an alarm condition at a distant location.

k) **Inductive applications:** Inductive loop systems are communication systems based on magnetic fields generally at low radio frequencies. Inductive applications include for example car immobilizers, car access systems or car detectors, animal identification, alarm

systems, item management and logistic systems, cable detection, waste management, personal identification, wireless voice links, access control, proximity sensors, anti-theft systems including RF anti-theft induction systems, data transfer to handheld devices, automatic article identification, wireless control systems and automatic road tolling.

l) **Radio microphones**: Radio microphones (also referred to as wireless microphones or cordless microphones) are small, low power (50 mW or less) unidirectional transmitters for the transmission of sound over short distances for personal use.

m) **RFID**: The object of any RF identification (RFID) system is to carry data in suitable transponders, generally known as tags, and to retrieve data, by hand- or machine-readable means, at a suitable time and place to satisfy particular application needs.

n) **Ultra low power active medical implant**: The ultra-low power active medical implant (ULP-AMIs) are part of a medical implant communication systems (MICS) for use with implanted medical devices, like pacemakers, implantable defibrillators, nerve stimulators, and other types of implanted devices.

o) **Wireless audio applications**: Applications for wireless audio systems include the following: cordless loudspeakers, cordless headphones, cordless headphones for portable use, i.e. portable compact disc players, cassette decks or radio receivers carried on a person, cordless headphones for use in a vehicle, for example for use with a radio or mobile telephone, etc., in-ear monitoring, for use in concerts or other stage productions.

2. Technical requirements of SRDs

Column A	Column B	Column C	Column D	Column E
Frequency Bands	**Type of Device***	**Maximum Radiated Power or Field Strength Limits & Channel Spacing**	**Relevant Standard**	**Additional Requirements**
9 – 59.75 kHz	Inductive Loop System	72 dBµA/m @ 10m No duty cycle restriction; No channel spacing	EN 300 330 EN 301 489-1, 3 EN 60950	CEPT/ERC/REC 70-03
59.75 - 60.25 kHz 70 - 119 kHz	Inductive Loop System	42 dBµA/m @ 10m No duty cycle restriction; No channel spacing	EN 300 330 EN 301 489-1, 3 EN 60950 ISO 18000-2	CEPT/ERC/REC 70-03
60.25 - 70 kHz 119 - 135 kHz	Inductive Loop System	72 dBµA/m @ 10m No restriction on duty cycle; No channel spacing	EN 300 330 EN 301 489-1, 3 EN 60950 ISO/IEC 18047-2	CEPT/ERC/REC 70-03
7.4 – 8.8 MHz	Inductive Loop System	9 dBµA/m @ 10m No restriction on duty cycle; No channel spacing	EN 300 330 EN 301 489-1, 3 EN 60950	CEPT/ERC/REC 70-03
6.765 - 6.795 MHz	Inductive Loop System	42 dBµA/m @ 10m No restriction on duty cycle; No channel spacing	EN 300 330 EN 301 489-1, 3 EN 60950	CEPT/ERC/REC 70-03

13.553 - 13.567 MHz	Inductive Loop System	42 dBμA/m @ 10m No restriction on duty cycle; No channel spacing	EN 300 330 EN 301 489-1, 3 EN 60950	CEPT/ERC/REC 70-03
26.957 - 27.283 MHz	Inductive Loop System	42 dBμA/m @ 10m No restriction on duty cycle; No channel spacing	EN 300 330 EN 301 489-1, 3 EN 60950	CEPT/ERC/REC 70-03
26.995; 27.045; 27.095; 27.145; 27.195 MHz	Surface Model Control	100 mW eirp. No restriction on duty cycle; 10kHz channel spacing	EN 300 220 EN 301 489-1, 3 EN 60950	CEPT/ERC/REC 70-03
36.65 - 36.75 MHz	Wireless Microphones	100mW eirp. 100% duty cycle No channel spacing	EN 300 422 EN 301 489-9 EN 60950	CEPT/ERC/REC 70-03
40.65-40.7 MHz	Wireless Microphones	100mW eirp. 100% duty cycle No channel spacing	EN 300 422 EN 301 489-9 EN 60950	CEPT/ERC/REC 70-03
40.66-40.7 MHz	Non Specific SRDs	10mW eirp No restriction on duty cycle; No channel spacing	EN 300 220-1 EN 301 489-1, 3 EN 60950	CEPT/ERC/REC 70-03
53-54 MHz	Wireless Microphone	50 mW eirp for class 1 equipment 100mW e.i.r.p. 100% duty cycle No channel spacing	EN 300 422 EN 301 489-1, 9 EN 60950	CEPT/ERC/REC 70-03
402-405 MHz	Medical Implants	25 μW eirp No duty cycle restriction for devices with LBT.	EN 301 839 EN 301 489-1,3 EN 60950 EN 300 220-1	ITU-R RS. 1346 CEPT/ERC/REC 70-03

		Otherwise ≤ 1%. 25 KHz Channel spacing.		
402-406	Doppler shift movement detectors, wireless microphones, garage door openers, Vehicle alarm systems	10 mW eirp. No channel spacing 100% duty cycle	EN 300 422 EN 300 220-1 EN 301 489-1, 3 EN 60950	
433.05-434.79 MHz	Non-specific SRD	1 mW eirp No channel spacing. 100% duty cycle. 10 mW eirp 100% duty cycle Up to 25 KHz Channel spacing.	EN 300 220-1 EN 301 489-1, 3 EN 60950 ISO/IEC – 18047-7	CEPT/ERC/REC 70-03
446-446.2MHz includes the following 16 channels. 446.00625; 446.01875; 446.03125; 446.04375; 446.05625; 446.08125; 446.09125; 446.09375; 446.10625; 446.11875;	Public Mobile Radio (PMR)	500mW eirp 12.5 kHz channel spacing	EN 300 296-2 EN 301 489-5 EN 60950	

446.13125; 446.14375; 446.15625; 446.18125; 446.19125 and 446.19375				
863-865 MHz	Wireless Audio Systems	10 mW eirp 100% duty cycle No channel spacing	EN 301 357 EN 301 489-9 EN 60950	CEPT/ERC/REC 70-03
863-865 MHz	Wireless Microphone	10 mW eirp 100% duty cycle No channel spacing	EN 300 422 EN 301 489-9 EN 60950	CEPT/ERC/REC 70-03
865.0-865.6 MHz ,865.6-867.6 MHz & 867.6-868.0 MHz	Radio frequency identification (RFID)	100 mW eirp. 200 kHz channel spacing No restriction on duty cycle.	EN 300 320 EN 301 489-1,3 EN 60950	
868 - 868.6 MHz	Non-specific SRD	25mW eirp ≤1% duty cycle or LBT+AFA	EN 300 220-2 EN 301 489-1, 3 EN 60950	CEPT/ERC/REC 70-03 (01) O4
868.6-868.7 MHz	Alarms	10mW eirp ≤1% duty cycle 25kHz channel spacing	EN 300 220-2 EN 301 489-1,3 EN 60950	CEPT/ERC/REC 70-03
868.7-869.2 MHz	Non-specific SRD	25mW eirp ≤1% duty cycle or LBT+AFA	EN 300 220-2 EN 301 489-1,3 EN 60950	CEPT/ERC/REC 70-03
869.25-869.3 MHz	Alarms	10mW eirp ≤0.1% duty cycle 25kHz channel spacing	EN 300 220-2 EN 301 489-1,3 EN 60950	CEPT/ERC/REC 70-03

869.4-869.65 MHz	Non-specific SRD	500mW eirp ≤10% duty cycle or LBT+AFA	EN 300 220-2 EN 301 489-1,3 EN 60950	
869.65-869.7 MHz	Alarms	25mW eirp ≤10% duty cycle 25kHz channel spacing	EN 300 220-2 EN 301 489-1,3 EN 60950	CEPT/ERC/REC 70-03
869.7- 870 MHz	Non-specific SRD	5mW eirp No Requirement 25mW eirp ≤10% duty cycle or LBT+AFA	EN 300 220-2 EN 301 489-1,3 EN 60950	
2400 - 2483.5 MHz	Non-specific SRD	100mW eirp No duty cycle restriction No channel spacing	EN300 328-2 EN 300 440 EN 301 489-1,3 EN 60950	CEPT/ERC/REC 70-03
2400-2483.5 MHz	Wideband Wireless Systems. WAS/RLANs	100mW eirp No duty cycle No channel spacing	EN 300 328 EN 301 489-1,17 EN 60950	CEPT/ERC/REC 70-03
5150-5350 MHz	Wireless Access Systems/Radio Local Access Network (WAS & RLAN) indoor use only.	200mW eirp Dynamic Frequency Selection (DFS) & Transmitter Power control(TPC) Modulation schemes obligatory	EN 300 836-1 EN 301 893 EN 301 489-1,17 EN 60950	ITU-R M.1625 Rec. ITU-R M.1450-4, Resolution 229 (Rev.WRC-12)
5470-5725 MHz	Wireless Access Systems/Radio Local Access Network(WAS/RLAN) indoor and outdoor use	1000mW eirp Dynamic Frequency Selection(DFS) & Transmitter Power	EN 300 836-1 EN 301 489-1,17 EN 301 893 EN 301 489-1,17 EN 60950	ITU-R M.1625 Rec. ITU-R M.1450-4, Resolution 229 (Rev.WRC-12)

		control(TPC) Modulation schemes obligatory		
5725-5875 MHz	Fixed Wireless systems	1000 mW eirp, psd 100mW/MHz,	EN 302 502	ISM band footnote 5.150 of the ITU Radio Regulations
5725-5875 MHz	Non-specific SRD	1000mW eirp No duty cycle restriction No channel spacing	EN 300 400 EN 301 489-1, 3 EN 60950	CEPT/ERC/REC 70-03
24.00-24.25 GHz	Non-specific SRD	100mW eirp No duty cycle restriction No channel spacing	EN 300 440 EN 301 489-1,3 EN 60950	CEPT/ERC/REC 70-03
76-77 GHz	RTTT short range radar	55dBm peak No duty cycle restriction No channel spacing	EN 301 091 EN 301 489-1,3 EN 60950	CEPT/ERC/REC 70-03

Seen to be attached to the Guidelines Nº 008/G/ R/SM-ICT/RURA/2019 of 15/11/2019 on the use of Short Range Devices (SRDs)

Kigali on: ..15th../..11.../ 2019

Dr. Ignace GATARE
Chairperson of the Regulatory Board