



UGANDA  
COMMUNICATIONS  
COMMISSION

**GUIDELINES FOR THE ACCESS  
AND USE OF THE  
LOWER PART OF THE 6GHz  
(5925- 6425 MHz) BAND IN  
UGANDA**

***April 2023***

# **Guidelines for the access and use of the lower part of the 6GHz (5925-6425 MHz) Band in Uganda**

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## **1. BACKGROUND**

- 1.1. There is a growing demand for spectrum resources to support high bandwidth, high-speed data, and low latency applications. This demand has therefore necessitated the review of the current usage of the 6GHz band, particularly the range 5925 – 6425 MHz band, commonly referred to as the low 6GHz band, to facilitate the deployment of fixed Wireless Access Systems (FWAS) together with other existing services in the band.
- 1.2. The lower part of the 6GHz band (5925 – 6425MHz) comprises approximately 500 MHz of contiguous spectrum with ideal propagation characteristics for FWAS which include Radio Local Area Networks (RLAN) or Wireless Local Area Networks (WLAN), and fixed broadband wireless access (BBFWA). The capacity of FWAS depends on the channel size used and the band 5925 - 6425 MHz provides the flexibility to use low and high bandwidth channels;
- 1.3. The authority to develop this guide is derived from among others, Sections 5(1)(c) and 25 of the Uganda Communications Act, 2013 (the “Act 2013”), and the Uganda Communications (Licensing) Regulations 2019.
- 1.4. The Commission is thus desirous to establish a guide for the use of low power and very low-power fixed wireless systems in the 5925 – 6425 MHz band in Uganda.

## **2. OBJECTIVE**

This guide highlights key technical and regulatory requirements for the access and use of the lower 6GHz band by wireless access systems and other systems that shall meet the requirement.

## **3. AMENDMENT**

This guide shall be reviewed periodically for alignment with changes in the industry, national ICT policy shifts, or regulatory direction emerging regional and international best practices.

## **4. INTERPRETATION**

The terms in this guide shall carry the interpretation used in the Uganda Communications Act 2013 and respective regulations, unless the otherwise defined below;

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- 4.1. **“Broadband Fixed Wireless Access Systems”** refers to the point-to-point (P2P) and/or point-to-multipoint(P2MP) radio communication systems capable of high-capacity transmissions over a wide range of frequencies.
- 4.2. **“Fixed Wireless Access (FWA)”** shall refer to a wireless access application where a radio interface/link is used to establish a connection between a network point-of-presence and customer premise equipment. The locations of both the network point-of-presence and the customer premises are fixed.
- 4.3. **“Point to Point System” Radio Communication** refers to a communication system that establishes a connection only between two endpoints.
- 4.4. **Point to multipoint:** refers to a communication system that establishes connections between a single specified point and more than one other specified point.
- 4.5. **“Radio local area network” (RLAN):** refers to a Local Area Network utilizing radio frequency (wireless) for the connection of its network terminals
- 4.6. **“Short Range Devices”** refers to radio devices that operate at low transmit power and hence range, thus offering a low risk of interference with other radio services

## **5. APPLICABLE LEGISLATION AND REGULATIONS**

The legal and regulatory provisions taken into consideration, and which shall govern the implementation of these guidelines are;

- 5.1. The Uganda Communications Act 2013.
- 5.2. The Uganda Communications (Licensing) Regulations, 2019.
- 5.3. The Uganda Communications (Equipment Type Approval) Regulations 2019.
- 5.4. The Uganda Communications Commission Spectrum Assignment Framework 2019.
- 5.5. Any decisions or directives issued by the Commission however so described.

## **6. SCOPE**

This guide outlines the regulatory and technical requirements to support the operation of wireless radio access systems in the lower 6GHz frequency band.

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## **7. APPLICABILITY**

The technical and regulatory provisions herein shall apply to operations of WAS/RLAN in the lower 6GHz band (5925 - 6425 MHz).

## **8. AUTHORISATION AND TECHNICAL REQUIREMENTS**

### **8.1. Regulatory Requirement**

**Table 1. Regulatory Requirement**

<b>Applicable Requirement</b>	<b>Requirement Description</b>
<u>Terms and Conditions</u>	The terms and conditions of operation specified herein, relevant spectrum management frameworks/guidelines, and any directives as may be issued.
<u>Technology and Services</u>	The band shall be accessed and used on technology-neutral basis, subject to conformance with the technical and regulatory provisions herein and the National Table of Frequency Allocation.
<u>Geographical area/ scope</u>	National Geographical Territory of the Republic of Uganda as defined in the 1995 Constitution.
<u>Licensing</u>	The access and usage of frequencies in this band/range are on a license-exempted basis.
<u>Spectrum Fees</u>	In light of the above license exemption, there shall be no spectrum fees for use of these frequencies.
<u>Spectrum Sharing</u>	The access and use of this band shall be on a shared, self-coordination basis.
<u>Type approval</u>	All equipment shall be type-approved as required under the Framework on Type-approval of Communications Equipment in Uganda available on the Commission's website. <a href="https://www.ucc.co.ug/type-approval/">https://www.ucc.co.ug/type-approval/</a>
<u>Emission exposure and safety.</u>	i) Emission limits shall comply with ICNIRP <sup>1</sup> EMF <sup>2</sup> exposure limits and/or

<sup>1</sup> ICNIRP: International Commission on Non-Ionizing Radiation Protection (ICNIRP) is an international commission specialized in non-ionizing radiation protection

<sup>2</sup> EMF: Electro Magnetic Field

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	<p>any other limits as shall be guided by law from time to time;</p> <p><i>ii)</i> Spectrum users may be required to demonstrate compliance with EMF exposure limits.</p>
<u>Interference mitigation</u>	<p>All operations in this band ;</p> <p><i>i)</i> shall not cause interference to or claim protection from licensed services in the adjacent bands ;</p> <p><i>ii)</i> be required to coordinate amongst themselves any deployments;</p> <p><i>iii)</i> shall implement measures to mitigate interference to other radio communications systems and/or the duly licensed operations in this and adjacent bands.</p> <p><i>iv)</i> The Commission shall not be held liable or under obligation to protect any license-exempt operations in this band.</p>

### **8.2. Technical Requirement**

The channel arrangements and applicable emission limits are highlighted in Annexure 1 attached herewith.

## **9. STAKEHOLDER RESPONSIBILITY**

### **9.1 The regulator (the Commission)**

9.1.1. regularly review and update the provisions of this guide to ensure its continued relevance and effectiveness.

9.1.2. respond to inquiries related to the provisions herein and the implementation of these guidelines.

### **9.2 Stakeholders (Importers, Vendors, and Operators)**

9.2.1 Comply with the operational requirement herein;

9.2.2 Acquaint themselves with the laws, Regulations, and Framework's referenced herein.

## **Annexure-1**

### **Technical specifications for the operation of WAS in the lower 6GHz band**

#### **A. Channel Arrangement**

The following channel arrangements are based on Recommendation ITU-R F.746-10. shall apply to the operation of the band;  
For lower bandwidth requirements:

- i)* 24 non-overlapping 20MHz channels, and
- ii)* 12 non-overlapping 40MHz channels, for higher bandwidth requirements:
- iii)* 6 non-overlapping 80MHz channels, and
- iv)* 3 non-overlapping 160MHz channels

5925 MHz																									6425 MHz
24x20 MHz	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	
12x40 MHz	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	
6x80 MHz	80		80		80		80		80		80		80		80		80		80		80		80		
3x160 MHz	160				160				160				160				160								
	5935 MHz												6415 MHz												

*Figure 1. Channel Plan for the 6GHz band*

#### **B. Power/ Emission limits**

**Table 2 Power emission limits**

<b>Use Case</b>	<b>Parameter</b>	<b>Technical Condition</b>
Low Power Indoor (LPI): LPI	In-band power emissions	Maximum mean e.i.r.p. <sup>3</sup>
		Maximum mean e.i.r.p. density
		23 dBm (200mW)
		10 dBm/MHz

<sup>3</sup> The "mean e.i.r.p." refers to the e.i.r.p. during the transmission burst, which corresponds to the highest power, if power control is implemented

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use is meant for permanent use in buildings, aircraft, or trains	Out-of-band power emissions (below 5935 MHz)	Maximum mean e.i.r.p. density	-22 dBm/MHz
Very Low Power (VLP): Outdoor use is restricted to VLP	In-band power emissions	Maximum mean e.i.r.p for in-band emissions	14 dBm (25mW)
		Maximum mean e.i.r.p. density	1 dBm/MHz
	Out-of-band power emissions (below 5935 MHz)	Maximum mean e.i.r.p. density	-45 dBm/MHz