



UGANDA
COMMUNICATIONS
COMMISSION

**CONSULTATION DOCUMENT
ON**

**UGANDA COMMUNICATIONS COMMISSION
STANDARD FOR PROGRAMME MAKING AND
SPECIAL EVENTS (PMSE) EQUIPMENT**

Communication for All



UGANDA
COMMUNICATIONS
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1. INTRODUCTION

A vast number of applications today depend on spectrum. This includes Programme Making and Special Events (PMSE). PMSE covers radio applications used in Services Ancillary to Programme making (SAP), Services Ancillary to Broadcasting (SAB), Electronic News Gathering (ENG), Outside Broadcasting (OB) and applications used in meetings, conferences, and other public or private events/gatherings. There are three main groups of PMSE equipment:

- audio PMSE - wireless microphones (handheld and body worn) and in-ear monitors;
- video PMSE;
- PMSE service links (used for transmission for production such as remote control and team connection).

PMSE stations typically use spectrum on secondary basis, that is, they must not interfere with other services or applications that use the spectrum on a priority or primary basis.

Uganda Communications Commission wishes to prescribe the terms and conditions for use of PMSE equipment in Uganda.

2. AMENDMENT OF THE TERMS AND CONDITIONS

These terms and conditions shall be subjected to periodic reviews to enable inclusion of any new developments resulting from the evolution within the sector, changes in policies and regulations as well as established good practice.

3. OBJECTIVE

The objective of this document is to define the operational requirements and conditions for operation of PMSE systems in Uganda.

Question 1:

Do you have any concerns about the proposed objectives of the standard as highlighted in section 3? If yes, please explain.

4. INTERPRETATION

In this document, unless the context otherwise requires –

“Act” the Uganda Communications Act 2013 as amended from time to time

“Telemetry” is an automated communications process by which measurements and other data are collected at remote or inaccessible points and transmitted to receiving equipment for monitoring.

“Communication services” means services performed consisting of the dissemination or interchange of audio, visual or data content using postal,

radio or telecommunications media, data communication, and includes broadcasting.

“Equipment” means any apparatus that is used in communication or used to setup a communication link.

“UCC” means Uganda Communications Commission.

“Ancillary” is communication systems and equipment that provide support to primary PMSE systems.

Question 2:

Do you have concerns about any of the interpretations provided in section 4? If yes, please explain

5. APPLICABLE LEGISLATIONS AND REGULATIONS

Section 5 (C) of the Communications Act 2013 requires the Commission to;
“to allocate, license, standardize and manage the use of the radio frequency spectrum resources in a manner that ensures widest variety of programming and optimal”

Section 25 (b) of the Communications Act 2013, exclusively mandates the Commission to;

“establishing technical requirements and standards in respect of—

- (i) Radio communications apparatus;
- (ii) interference-causing apparatus or any class of that apparatus”;

Section 3 (1) (a) of the Communication (Radio) regulations, 2005 states as one of the measures to achieve efficient use and management of radio spectrum resources is;

“Providing the widest possible range of wireless services to those who desire them, while maximizing the spectrum available to those who depend upon wireless technology in order to obtain maximum spectral efficiency”.

6. SCOPE

These terms and conditions provide technical parameters and procedures to guide the operation of PMSE systems in the designated frequency bands in Uganda.

7. APPLICABILITY AND EXCEPTIONS

These terms and conditions are only applicable to PMSE and ancillary system operations in the designated spectrum and frequency bands.

Question 3:

Do you have concerns about the applicability and/or exemptions spelt out in section 7? If yes, please explain.

8. PMSE OPERATIONAL REQUIREMENTS

8.1 Authorisation

Prior to operation of any PMSE system and ancillary equipment within Uganda, the intending operator shall seek authorisation from the Uganda Communications Commission (UCC) by;

- a) Submitting an application seeking permission to use radio frequency spectrum to operate such systems, clearly highlighting the system type and the frequency bands of operation.
- b) submitting all technical data sheets/information pertaining to the equipment.

The Application should clearly highlight the area of operation and duration for which the permission is required.

All PMSE systems and ancillary equipment shall be subjected to type approval prior to operation in accordance with UCC's type approval requirements.

The applicant shall be required to pay the associated fees as shall be specified in UCC fees structure.

Question 4:

Do you have concerns about the authorisation requirements spelt out in sub section 8.1? If yes, please explain.

8.2 Equipment associated technical requirements

All PMSE and ancillary equipment shall conform to the technical specifications included in Annex 1, to ensure co-existence with other services in the designated frequency bands.

Question 5:

Do you have concerns about the technical requirements set in sub-section 8.1 as included in annex 1? If yes, please explain.

9. STAKEHOLDERS RESPONSIBILITY

9.1 The regulator

UCC shall be responsible for;

- i. Reviewing and updating these terms and conditions.
- ii. Enforcing adherence to the terms and conditions by PMSE operators.

9.2 Industry players (Importers, vendors and operators)

- i. Seeking authorisation prior to usage of any PMSE systems within Uganda.
- ii. Ensuring that their operations conform to the terms and conditions.

Question 6:

Do you have any concerns with any of the roles and responsibilities assigned to the any of the stakeholders under section 9? If yes, please explain.

10. ENFORCEMENT

In accordance with the Uganda Communications Act 2013, the Communication (Radio) regulations, 2005 and the UCC Spectrum management terms and conditions of 2017, the Commission shall impose a fine on a person who unlawfully possesses, installs, connects or operates any PMSE and ancillary communications equipment. The Commission may in accordance with the Act confiscate such equipment, which is possessed, installed, connected or operated unlawfully.

Question 7:

Do you have any concerns with the enforcement provisions that are to be implemented upon violation of any provisions of this standard? If yes, please explain.

ANNEX 1: UCC PMSE AND ANCILLARY EQUIPMENT OPERATIONAL REQUIREMENTS.

I. Wireless Audio Equipment

Wireless equipment/apparatus applicable specifications for telephony, for the purpose of aiding projection of personal voice or music.

Minimum Requirements					
Frequencies	or	Maximum Radiated Level¹	Typical Channel Bandwidth	Notes	Reference Standard²
Frequency Band Edges (MHz)					
175.150 to 175.350 175.425 to 175.625 176.300 to 177.100 184.500 to 185.100 191.600 to 193.100 199.600 to 201.100 207.600 to 210.100		10 mW ERP	200 kHz		EN 300 422
470.000 to 703.000		10 mW ERP	200 kHz		
703.000 to 790.000		10 mW ERP	200 kHz	700 MHz band subject to clearance	
823.000 to 832.000		In accordance with highlighted Block edge mask range	In accordance with highlighted Block edge mask range		
961.000 to 1015.000		10 mW ERP	200 kHz	Maximum channel bandwidth is 200	

¹ Radiated level may be increased to 50 mW ERP for transmitting equipment designed to be worn in close contact with the body.

² Assumed to be fulfilled in frequency planning and definition of the equipment type

			kHz
1045.000 to 1075.000	10 mW ERP	200 kHz	Maximum channel bandwidth is 200 kHz
1105.000 to 1154.000	10 mW ERP	200 kHz	Maximum channel bandwidth is 200 kHz
1785.000 to 1805.000	In accordance with highlighted Block edge mask range (tables, 1,2 &3)	In accordance with highlighted Block edge mask range	

II. Requirements for Talkback

These Wireless equipment/apparatus applicable specifications for telephony, for the purpose of communicating instructions instantly to all those concerned with a particular programme, particular in videography; these include presenters, interviewers, cameramen, sound operators, lighting operators and engineers.

Requirements				
Frequencies or Frequency Band Edges (MHz)	Maximum Radiated Level	Typical Channel Bandwidth	Notes	Reference Standard ³
47.550 to 48.800 52.000 to 52.950	25 W ERP	12.5 kHz	For on-site use at temporary locations. Duplex Base Tx – 52 MHz band. Duplex Portable Tx – 48 MHz band.	EN 300 086
67.7500 to 67.8375	25 W ERP	12.5 kHz	For on-site use at temporary locations. Base Tx. Duplex with 75 MHz band.	

³ Assumed to be fulfilled in frequency planning and definition of the equipment type.

69.15625 to 69.18125	25 W ERP	12.5 kHz	For on-site use at temporary locations. Base Tx. Duplex with 82 MHz band.
74.68125 to 74.71875	25 W ERP	12.5 kHz	Simplex.
75.26250 to 75.30000	5 W ERP	12.5 kHz	For on-site use at temporary locations. Portable Tx. Duplex with 67 MHz band.
76.80625 to 76.84375	25 W ERP	12.5 kHz	For wide-area use. Mobile Tx. Duplex with 86 MHz band.
78.18375 to 78.25875	25 W ERP	12.5 kHz	For wide-area or on-site use at temporary locations. Simplex.
82.65625 to 86.68125	25 W ERP	12.5 kHz	For on-site use at temporary locations. Portable Tx. Duplex with 69 MHz band.
86.6750	25 W ERP	12.5 kHz	
86.80625 to 86.84375	25 W ERP	12.5 kHz	For wide-area use. Base Tx. Duplex with 76 MHz band.
139.550, 139.575	10 W ERP	12.5 kHz	

Requirements for Talkback (continued)

Frequencies or Frequency Band Edges (MHz)	Maximum Radiated Level	Typical Channel Bandwidth	Notes	Reference Standard ⁴
139.64375 to 139.66875	10 W ERP	12.5 kHz		EN 300 086
140.98750 to 141.48750	25 W ERP	12.5 kHz	For wide-area use. Simplex and Duplex Base Tx. Duplex with 212 MHz band.	
148.575, 148.725	10 W ERP	25.0 kHz		
181.69375 to 181.80625	25 W ERP	12.5 kHz		
189.69375 to 189.80625	25 W ERP	12.5 kHz		
425.3125 to 425.5625	25 W ERP	50.0 kHz		

⁴ Assumed to be fulfilled in frequency planning and definition of the equipment type.

427.7625 428.0125 442.2625 442.5125	to	25 W ERP	12.5 kHz	For wide-area or on-site use at temporary locations. Simplex and Duplex.
446.42500 447.51250	to	5 W ERP	12.5 kHz	For on-site use at temporary locations. Base Tx. Duplex with 467 MHz band.
454.98750 455.47500	to	5 W ERP	12.5 kHz	For on-site use at temporary locations. Base Tx. Duplex with 468 MHz band.
457.25000 457.47500	to	5 W ERP	12.5 kHz	For on-site use at temporary locations. Base Tx. Duplex with 467 MHz band.
461.23125 461.25625	to	5 W ERP	12.5 kHz	For on-site use at temporary locations. Base Tx. Duplex with 468 MHz band.
462.75000 463.0000	to	1 W ERP	12.5 kHz	For indoor use at permanent locations. Base Tx. Duplex with 469 MHz band.
467.2625 469.8750	to	1 W ERP	12.5 kHz	For on-site use at temporary locations. Portable Tx. Duplex with 455, 457 and 462 MHz bands. For indoor use at permanent locations. Portable Tx. Duplex with 462 MHz band.
470.000 to 606.000 614.000 to 694.000		1 W ERP	25 kHz	For indoor use at permanent locations.
694.000 to 790.000		1 W ERP	25 kHz	For indoor use at permanent locations.

III. Requirements for Audio Links and Audio Distribution Systems (ADS).

Wireless telegraphy apparatus applicable specifications for telephony, for the purpose of carrying broadcast-quality monophonic or stereophonic music and speech signals or for carrying multiple communications-quality talkback signals.

Requirements					
Frequencies or Frequency Edges (MHz)	Band	Maximum Radiated Level	Typical Channel Bandwidth	Notes	Reference Standard ⁵
48.425, 48.475, 48.525, 52.875, 52.925		10 W ERP	50 kHz	For temporary and permanent point to- point links.	EN 300 454
48.300, 52.750		10 W ERP	200 kHz	For temporary and permanent point to- point links.	
53.750 to 55.750 60.750 to 62.750		5 W ERP	75 kHz	For portable links at temporary locations.	
60.750 to 62.750		1 W ERP	200 kHz	For Audio Distribution Systems.	
191.700, 199.700, 199.900, 200.100		1 W ERP	200 kHz	For portable links at temporary locations. Vertical polarisation only.	
425.3375, 425.3875, 425.4375, 425.4875, 425.5375		25 W ERP	50 kHz	For temporary point- to-point links.	
446.5125 to 447.5125 454.9875 to 455.4750		25 W ERP	50 kHz	For temporary point- to-point links.	
467.2625 to 469.875		25 W ERP	50 kHz	For portable and temporary point-to- point links.	
470.000 to 606.000		5 W ERP	200 kHz	For temporary point- to-point links.	
606.700, 607.000		10 W ERP	200 kHz	For temporary point- to-point links.	
614.000 to 694.000		5 W ERP	200 kHz	For temporary point- to-point links.	
694.000 to 790.000		5 W ERP	200 kHz	For temporary point- to-point links.	

⁵ Assumed to be fulfilled in frequency planning and definition of the equipment type.

1517.000 to 1525.000	20 dBW ERP	500 kHz	For temporary and permanent point-to-point links.	EN 300 454 EN 300 630 EN 300 631
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IV. Requirements for Wireless Cameras and Video Links

Wireless equipment/apparatus applicable specifications for carrying broadcast-quality video together with music and/or speech signals.

Requirements				
Frequencies or Frequency Band Edges (GHz)	Maximum Radiated Level	Typical Channel Bandwidth	Notes	Reference Standard ⁶
2.010 to 2.110	20 dBW ERP	10 MHz		EN 302 064
2.200 to 2.290	20 dBW ERP	10 MHz	Typically for low-power wireless cameras.	
2.290 to 2.300	0 dBW ERP	10 MHz	For low-power wireless cameras only.	
2.390 to 2.500	20 dBW ERP	20 MHz		
3.400 to 3.410	13 dBW ERP	10 MHz		
5.472 to 5.588 5.6825 to 5.7025 5.7050 to 5.7250 5.7325 to 5.7525 5.770 to 5.790 5.795 to 5.815 5.850 to 5.925	40 dBW ERP	20 MHz		
7.110 to 7.250	40 dBW ERP	10 MHz		
7.300 to 7.410	40 dBW ERP	10 MHz		
7.410 to 7.425	40 dBW ERP	10 MHz		

⁶ Assumed to be fulfilled in frequency planning and definition of the equipment type – compliance with which is not mandatory.

8.460 to 8.500	40 dBW ERP	20 MHz	
10.300 to 10.360	40 dBW ERP	20 MHz	
12.200 to 12.475 24.250 to 24.500	40 dBW ERP	25 MHz	
48.000 to 48.400	30 dBW ERP	100 MHz	

V. Requirements for Telemetry and Telecommand Links

This Data Application covers the wireless equipment used in PMSE for data purposes e.g. Radio links for the remote control of cameras, Telemetry, and telecommand and other program making equipment for signalling etc.

Requirements				
Frequency Band (MHz)	Maximum Radiated level	Typical Channel Bandwidth	Notes	Reference Standards
181.74375, 181.76875, 181.79375, 189.70625, 189.78125, 189.79375	10 W ERP	12.5 kHz		EN 300 113
462.76875, 462.85625, 462.93125, 462.98125	1 W ERP	12.5 kHz		
470.000 to 478.000	1 W ERP	25 kHz		

Table 1: Block edge mask range conditions applicable to wireless audio PMSE equipment in the frequency-division duplexing (FDD) duplex gap of the 800 MHz band (821-832 MHz)

Frequencies below 821 MHz	821-823 MHz	823-826 MHz	826-832 MHz	Frequencies above 832 MHz
Out-of-block baseline limits	Guard band (for protection against	In-block limits		Out-of-block baseline limits

Out-of-block equivalent isotropically radiated power (e.i.r.p.) is – 43 dBm/(5 MHz)	interference from PMSE into terrestrial systems capable of providing electronic communications services (downlink))	<ul style="list-style-type: none"> — in-block e.i.r.p. of 13 dBm for hand- held audio PMSE equipment — in-block e.i.r.p. of 20 dBm for body- worn audio PMSE equipment. 	in-block e.i.r.p. of 20 dBm	Out-of-block e.i.r.p. is – 25 dBm/(5 MHz).
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Table 2: Block edge mask range conditions applicable to wireless audio PMSE equipment in the FDD duplex gap of the 1 800 MHz band (1 785-1 805 MHz) for handheld equipment (e.i.r.p.)

	Frequency Range	Handheld equipment (e.i.r.p.)
Out-of-block	< 1 785 MHz	– 17 dBm/200 kHz
Restricted frequency range	1 785-1 785,2 MHz	4 dBm/200 kHz
	1 785,2-1 803,6 MHz	13 dBm/channel
Restricted frequency range	1 803,6-1 804,8 MHz	10 dBm/200 kHz, with a limit of 13 dBm/channel.
	1 804,8-1 805 MHz	– 14 dBm/200 kHz
Out-of-block	> 1 805 MHz	– 37 dBm/200 kHz

Table 3: Block edge mask range conditions applicable to wireless audio PMSE equipment in the FDD duplex gap of the 1 800 MHz band (1 785-1 805 MHz) for body-worn equipment (e.i.r.p.)

	Frequency Range	Body worn equipment (e.i.r.p.)
Out-of-block	< 1 785 MHz	– 17 dBm/200 kHz
Restricted frequency range	1 785-1 804,8 MHz	17 dBm/channel
	1 804,8-1 805 MHz	0 dBm/200 kHz

Out-of-block	> 1 805 MHz	- 23 dBm/200 kHz
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