FCC and ISED Test Report

Sepura Limited TETRA mobile radio, Model: SCG2221

In accordance with FCC 47 CFR Part 2, FCC 47 CFR Part 90, ISED RSS-119 and ISED RSS-GEN (TETRA)

Prepared for: Sepura Limited 9000 Cambridge Research Park Beach Drive Waterbeach Cambridge, CB25 9TL United Kingdom Add value. Inspire trust.

FCC ID: XX6SCG2221X IC: 8739A-SCG2221X

COMMERCIAL-IN-CONFIDENCE

Document 75957883-06 Issue 03

SIGNATURE			
5 MM			
NAME	JOB TITLE	RESPONSIBLE FOR	ISSUE DATE
Steve Marshall	Senior Engineer	Authorised Signatory	11 January 2024

Signatures in this approval box have checked this document in line with the requirements of TÜV SÜD document control rules.

ENGINEERING STATEMENT

The measurements shown in this report were made in accordance with the procedures described on test pages. All reported testing was carried out on a sample equipment to demonstrate limited compliance with FCC 47 CFR Part 2, FCC 47 CFR Part 90, ISED RSS-119 and ISED RSS-GEN. The sample tested was found to comply with the requirements defined in the applied rules.

RESPONSIBLE FOR	NAME		DATE	SIGNATURE
Testing	Pier-Angelo Lorusso		15 August 2023	formal
FCC Accreditation 492497/UK2010 Octagon	House, Fareham Test Laboratory	ISED Accredita 12669A Octag	ation on House, Fareham Tesi	t Laboratory
EVECUTIVE SUMMARY	· · ·			·

EXECUTIVE SUMMARY

A sample of this product was tested and found to be compliant with FCC 47 CFR Part 2, 2020, FCC 47 CFR Part 90, 2021, ISED RSS-119, Issue 12 (05-2015) and ISED RSS-GEN: Issue 5 (04-2018) + A2 (02-2021) for the tests detailed in section 1.3.



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ACCREDITATION

Our UKAS Accreditation does not cover opinions and interpretations and any expressed are outside the scope of our UKAS Accreditation. Results of tests not covered by our UKAS Accreditation Schedule are marked NUA (Not UKAS Accredited).

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1 Report Summary

1.1 Report Modification Record

Alterations and additions to this report will be issued to the holders of each copy in the form of a complete document.

Issue	Description of Change	Date of Issue
1	First Issue	07-July-2023
2	Retesting of Transmitter Masks and resulting in changes to sections 2.1.4: 2.2.3 ; 2.2.4 ; 2.2.5 ; 2.2.6 and 2.2.7.	15-August-2023
3	Removed the word "basic" from the PMN / Model name	11-January-2024

Table 1

1.2 Introduction

Applicant	Sepura Limited
Manufacturer	Sepura Limited
Model Number(s)	SCG2221
Serial Number(s)	1PR002250GPB2NA
Hardware Version(s)	PLX-8V015550-02 (Hardware Mod State 7)
Software Version(s)	1807 004 10138
Number of Samples Tested	1
Test Specification/Issue/Date	FCC 47 CFR Part 2, 2020 FCC 47 CFR Part 90, 2021 ISED RSS-119: Issue 12 (05-2015) ISED RSS-GEN: Issue 5 (04-2018) + A2 (02-2021)
Order Number	PLC-PO025039-1
Date	20-February-2023
Date of Receipt of EUT	24-March-2023
Start of Test	26-April-2023
Finish of Test	18-July-2023
Name of Engineer(s)	Pier-Angelo Lorusso
Related Document(s)	ANCI C63.26: 2015



1.3 Brief Summary of Results

A brief summary of the tests carried out in accordance with FCC 47 CFR Part 2, FCC 47 CFR Part 90, ISED RSS-119 and ISED RSS-GEN is shown below.

Castian	Specification C	Clause			Test Description	Result	Commonite/Decos Oton doud
Section	Part 2	Part 90	RSS-119	RSS-GEN	Test Description	Result	Comments/Base Standard
Configurat	Configuration and Mode: 136 MHz to 174 MHz (ISEDC only)						
2.1	2.1046	90.205	5.4	6.12	Maximum Conducted Output Power	Pass	
2.2	2.1051	90.210	5.8	6.13	Spurious Emissions at Antenna Terminals	Pass	
Configurat	Configuration and Mode: 150 MHz to 174 MHz (FCC and ISEDC)						
2.1	2.1046	90.205	5.4	6.12	Maximum Conducted Output Power	Pass	
2.2	2.1051	90.210	5.8	6.13	Spurious Emissions at Antenna Terminals	Pass	



A brief summary of the tests carried out in document 75956225-04 Issue 02. is shown below

Section		Specificati	cation Clause		Deput	Commente/Page Standard	
Section	Part 2	Part 90	RSS-119	RSS-GEN	- Test Description	Result	Comments/Base Standard
Configuration	on and Mode: Tet	tra - 136 MHz to	174 MHz (ISED	C only)			-
2.1			5.4	6.12	Maximum Conducted Output Power	Pass	ANSI C63.26: 2015
2.2	-	-	5.5	6.7	Bandwidth Limitations	Pass	ANSI C63.26: 2015
2.3	-	-	5.8	6.13	Spurious Emissions at Antenna Terminals	Pass	ANSI C63.26: 2015
2.4	-	-	5.8	6.13	Radiated Spurious Emissions	Pass	ANSI C63.26: 2015
2.5	-	-	5.3	6.11	Frequency Stability	Pass	ANSI C63.26: 2015
2.6	-	-	5.9	-	Transient Frequency Behaviour	Pass	
2.7	-	-	5.2	-	Types of Emissions	Pass	
Configuration	on and Mode: Tet	tra - 150 MHz to	174 MHz (FCC	and ISEDC)			
2.1	2.1046	90.205	5.4	6.12	Maximum Conducted Output Power	Pass	ANSI C63.26: 2015
2.2	2.1049	90.209	5.5	6.7	Bandwidth Limitations	Pass	ANSI C63.26: 2015
2.3	2.1051	90.210	5.8	6.13	Spurious Emissions at Antenna Terminals	Pass	ANSI C63.26: 2015
2.4	2.1053	90.210	5.8	6.13	Radiated Spurious Emissions	Pass	ANSI C63.26: 2015
2.5	2.1055	90.213	5.3	6.11	Frequency Stability	Pass	ANSI C63.26: 2015
2.6	-	90.214	5.9	-	Transient Frequency Behaviour	Pass	
2.7	2.1047	90.207	5.2	-	Types of Emissions	Pass	



1.4 Application Form

Equipment Description

Technical Description: (Please provide a brief description of the intended use of the equipment including the technologies the product supports)		operating in the The SCG2221 equipment.	The SCG2221 is a TETRA mobile radio in the SCG22 series of radios, operating in the VHF band, with TETRA operating frequencies 136-174 MHz. The SCG2221 supports GNSS and a range of accessories and ancillary equipment. The SCG2221 may be installed in a vehicle or in a desk mount unit.		
Manufacturer:		Sepura Limite	d		
Model:		SCG2221	SCG2221		
Part Number:		SCG2221			
Hardware Version:		PLX-8V015550-02 (Hardware Mod State 7)			
Software Version:		1807 004 1013	1807 004 10138		
FCC ID of the product under te	est – <u>see guidar</u>	nce here	XX6SCG2221X		
IC ID of the product under test – see guidance here		<u>e here</u>	8739A-SCG2221X		
Device Category	Mobile 🖂		Portable	Fixed	
Equipment is fitted with an Audio Low Pass Filter		Yes ⊠	No 🗆		

Table 3

Intentional Radiators

Technology	TETRA			
Frequency Range (MHz to MHz)	136-174			
Conducted Declared Output Power (dBm)	41.9			
Antenna Gain (dBi)	No antenna supplied.			
Supported Bandwidth(s) (MHz) (e.g. 1 MHz, 20 MHz, 40 MHz)	0.025			
Modulation Scheme(s) (e.g. GFSK, QPSK etc)	π/4 DQPSK			
ITU Emission Designator (see guidance here) (not mandatory for Part 15 devices)	20K0DXW			
Bottom Frequency (MHz)	136			
Middle Frequency (MHz)	155			
Top Frequency (MHz)	174			



Un-intentional Radiators

Highest frequency generated or used in the device or on which the device operates or tunes	1610 MHz		
Lowest frequency generated or used in the device or on which the device operates or tunes	32.768 kHz		
Class A Digital Device (Use in commercial, industrial or business environment)			
Class B Digital Device (Use in residential environment only)			

Table 5

AC Power Source

AC supply frequency:	Hz
Voltage	V
Max current:	A
Single Phase \Box Three Phase \boxtimes	

Table 6

DC Power Source

Nominal voltage:	13.6	V
Extreme upper voltage:	15.6	V
Extreme lower voltage:	10.8	V
Max current:	4	A

Table 7

Battery Power Source

Voltage:			V
End-point voltage:			V (Point at which the battery will terminate)
Alkaline 🗆 Leclanche 🗆 Lithium 🗆 Nicke	l Cadmium 🗆 Lead A	$did^* \square * (Vehicle reg$	gulated)
Other	Please detail:		

Table 8

Charging

Can the EUT transmit whilst being charged Unit does not charge	Yes 🗆 No 🗆
--	------------

Table 9

Temperature

Minimum temperature:	-20	٥°
Maximum temperature:	55	٥°C



Cable Loss

Adapter Cable Loss (Conducted sample)	N/A	dB
--	-----	----

Table 11

Antenna Characteristics

Antenna connector 🖂		State impedance	50	Ohm		
Temporary antenna connector		State impedance		Ohm		
Integral antenna 🗆	al antenna 🗆 Type:		Gain		dBi	
External antenna 🗆 Type:		Gain		dBi		
For external antenna only:						

Standard Antenna Jack \Box If yes, describe how user is prohibited from changing antenna (if not professional installed):

Equipment is only ever professionally installed \boxtimes

Non-standard Antenna Jack \square

All part 15 applications will need to show how the antenna gain was derived either from a manufacturer data sheet or a measurement. Where the gain of the antenna is inherently accounted for as a result of the measurement, such as field strength measurements on a part 15.249 or 15.231 device, so the gain does not necessarily need to be verified. However, enough information regarding the construction of the antenna shall be provided. Such information maybe photographs, length of wire antenna etc.

Antenna Gains are from

https://www.panorama-antennas.com/site/Mobile-Radio/PMR-Antennas/AFQNT-VAR



Ancillaries (if applicable)

Manufacturer:	Panorama Antennas	Part Number:	AFQNT-H5
Model:	TETRA antenna	Country of Origin:	UK
Manufacturer:	Sepura	Part Number:	300-00063
Model:	GNSS Antenna	Country of Origin:	UK
Manufacturer:	Sepura	Part Number:	300-02012 rev001
Model:	Extended SCG Loudspeaker / IO USB Host lead	Country of Origin:	Unknown
Manufacturer:	Sepura	Part Number:	300-02010
Model:	SCG Power/ignition Lead	Country of Origin:	Unknown
Manufacturer:	Sepura	Part Number:	300-00069
Model:	Mobile Remote Cable 5.0M	Country of Origin:	Unknown
Manufacturer:	Sepura	Part Number:	300-00670
Model:	HBC Interface and Hands- free Box	Country of Origin:	Unknown
Manufacturer:	Sepura	Part Number: 300-00079	
Model:	Remote Microphone And Switch Set	Country of Origin: Unknown	
Manufacturer:	Sepura	Part Number:	300-00292
Model:	Remote Microphone (Handsfree Kit) 3m	Country of Origin:	Unknown
Manufacturer:	Sepura	Part Number:	300-01801
Model:	Handset Based Console (HBC3)	Country of Origin:	Unknown
Manufacturer:	Sepura	Part Number:	300-00062
Model:	Fist microphone	Country of Origin:	Unknown



Manufacturer:	Sepura	Part Number:	300-01808	
Model:	SCC3 (colour console)	Country of Origin:	Unknown	
Manufacturer:	Sepura	Part Number:	300-01961	
Model:	CC VAC RSM (Long Cable)	Country of Origin:	Unknown	
Manufacturer:	Sepura	Part Number:	300-00719	
Model:	Loudspeaker	Country of Origin:	Unknown	
Manufacturer:	Sepura	Part Number:	300-02009	
Model:	USB Data/Programming Lead	Country of Origin:	UK	
Manufacturer:	Sepura	Part Number:	300-02012	
Model:	SCG Loudspeaker / IO USB Host lead	Country of Origin:	UK	
Manufacturer:	Sepura	Part Number: 300-00784		
Model:	AMPS attachments	Country of Origin: UK		
Manufacturer:	Sepura	Part Number:	300-00068	
Model:	Mobile Remote Cable 3.0M	Country of Origin: UK		

Table 13

I hereby declare that the information supplied is correct and complete.

Name: Position held: Date: Chris Beecham Conformance Engineer 21 March 2023



1.5 Product Information

1.5.1 Technical Description

The SCG2221 is a TETRA mobile radio in the SCG22 series of radios, operating in the VHF band, with TETRA operating frequencies 136-174 MHz. The SCG2221 supports GNSS and a range of accessories and ancillary equipment.

The SCG2221 may be installed in a vehicle or in a desk mount unit.

1.6 Deviations from the Standard

No deviations from the applicable test standard were made during testing.

1.7 EUT Modification Record

The table below details modifications made to the EUT during the test programme.

The modifications incorporated during each test are recorded on the appropriate test pages.

Modification State	dification State Description of Modification still fitted to EUT		Date Modification Fitted				
Model: SCG2221, S	Model: SCG2221, Serial Number: 1PR002250GPB2NA						
0	As supplied by the customer	Not Applicable	Not Applicable				

Table 14

1.8 Test Location

TÜV SÜD conducted the following tests at our Octagon House Test Laboratory.

Test Name	Name of Engineer(s)	Accreditation				
Configuration and Mode: 136 MHz to 174 MHz (ISEDC only)						
Maximum Conducted Output Power	Pier-Angelo Lorusso	UKAS				
Spurious Emissions at Antenna Terminals	Pier-Angelo Lorusso	UKAS				
Configuration and Mode: 150 MHz to 174 MHz (FCC and ISEDC)						
Maximum Conducted Output Power	Pier-Angelo Lorusso	UKAS				
Spurious Emissions at Antenna Terminals	Pier-Angelo Lorusso	UKAS				

Table 15

Office Address:

TÜV SÜD Octagon House Concorde Way Fareham Hampshire PO15 5RL United Kingdom



2 Test Details

2.1 Maximum Conducted Output Power

2.1.1 Specification Reference

FCC 47 CFR Part 2, Clause 2.1046 FCC 47 CFR Part 90, Clause 90.205 ISED RSS-119, Clause 5.4 ISED RSS-GEN, Clause 6.12

2.1.2 Equipment Under Test and Modification State

SCG2221, S/N: 1PR002250GPB2NA - Modification State 0

2.1.3 Date of Test

26-April-2023 to 02-May-2023

2.1.4 Test Method

The test was applied in accordance with the test method requirements of FCC 47 CFR Part 90, Industry Canada RSS-119, and ISED RSS-GEN with reference to ANSI C63.26, clause 5.2.4.3.3.

The EUT was powered by the customer supplied AC/DC Power supply unit. The EUT was configured to transmit on maximum power of 40dBm (Burst mode) on the bottom, middle and top channels in burst mode. The EUT was connected to a spectrum analyser via a cable and 20 dB of attenuation. The path loss between the EUT and analyser was entered into the spectrum analyser as a reference level offset including the manufacturers declared maximum antenna gain. The Antenna provided by the customer, was a standard quarter wave, and the stated peak gain would be around 2 dBi when measured on a large ground plane. The loss of the 5m of CS23 used in the M8 will be less than 0.2dB/m, so the total peak gain (of the antenna kit) is around 1 dBi.

The RBW of the spectrum analyser was set to 30 kHz and the video bandwidth to 100 kHz with the trace set to max hold using a RMS detector and the result was recorded.

It was noted by the manufacturer that the test method given in 5.2.4.3.3 of ANSI C63.26 produces an average power measurement 1.9 dB above the nominal average power measurement when using a dedicated TETRA test set. Therefore, the nominal average power declared by the manufacturer has been increased from 40 to 41.9 dBm.

2.1.5 Environmental Conditions

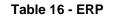
Ambient Temperature	21.0 - 22.5 °C
Relative Humidity	34.0 - 42.1 %



2.1.6 Test Results

136 MHz to 174 MHz (ISEDC only)

Parameter	136 MHz	155 MHz	174 MHz
Conducted Output Power (dBm)	41.23	41.19	41.27
Declared Output Power (dBm)	41.9	41.9	41.9
Δ Output Power (dB)	-0.67	-0.71	-0.63
Antenna Gain (dBd)	-1.15	-1.15	-1.15
ERP (dBm)	40.08	40.04	40.12



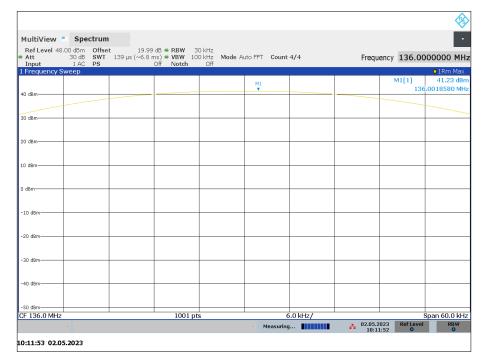


Figure 1 - 136 MHz



											<u> </u>
	Spectrum										•
Att Input	00 dBm Offset 30 dB SWT 1 AC PS	139 µs (~6.8 r	0 dB ● RBW 3 ms) ● VBW 10 Off Notch	0 kHz	Mode A	uto FFT C	Count	4/4	Frequ	ency 155.00	000000 MH
Frequency S			on Noten	- Off							•1Rm Max
40 dBm					M1					M1[1] 154	41.19 dBm 4.9977820 MH;
40 dBm											
30 dBm							_				
20 dBm											
10 dBm											
0 dBm											
-10 dBm							_				
-20 dBm											
-30 dBm											
-40 dBm											
50 dBm											
CF 155.0 MHz	~		1001 pt	s		Mea		.0 kHz/ 	02.05.2		Span 60.0 kHz
):12:24 02.05	5.2023					 Mea 	suring		** 02.05.2 10:1	2023 Ref Level 2:23 O	RBW O

Figure 2 - 155 MHz

4ultiView	Spectrum	1							
Ref Level 48. Att Input	.00 dBm Offse 30 dB SWT 1 AC PS	t 19.9	9 dB ● RBW 3 ms) ● VBW 10 Off Notch	0 kHz 0 kHz Mi Off	ode Auto FFT Co	ount 4/4	Freq	uency 174.00	00000 МН
Frequency S	weep	1						M1[1]	 1Rm Max 41.27 dBr
) dBm					M1 ¥				.0023980 MF
ubili									
dBm									
dBm									
dBm									
dBm									
0 dBm									
0 dBm									
10 dBm									
i0 dBm									
0 dBm			1001 pt			6.0 kHz/		+	Span 60.0 kH
174.0 MHZ	~		1001 pt	5	Meas	uring	02.05 10:		RBW

Figure 3 - 174 MHz



ISED RSS-119, Limit Clause 5.4

The output power shall be within $\pm 1 \text{ dB}$ of the manufacturer's rated power listed in the equipment specifications.

Frequency (MHz)	Transmitter Ou	tput Power (W)
	Base/Fixed Equipment	Mobile Equipment
27.41 to 28 and 29.7 to 50	300	30
72 to 76	No Limit	1
138 to 174	111100	60
217 to 217 and 219 to 220	See SRSP-512 for ERP limit	30*
220 to 222	110	50
406.1 to 430 and 450 to 470	See SRSP-511 for ERP limit	60
768 to 776 and 798 to 806	110	30 3 W ERP for portable equipment
806 to 821, 851 to 866, 821 to 824 and 866 to 869	110	30
896 to 901 and 935 to 940	110	60
929 to 930 and 931 to 932	110	30
928 to 929, 952 to 953, 932 to 932.5 and 941 to 941.5	110	30
932.5 to 935 ad 941.5 to 944	110	30
*Equipment is generally authorised for effective radiated po	ower (ERP) of less than 5 W.	

Table 17 - ISED Limits for Transmitter Output Power



150 MHz to 174 MHz (FCC and ISEDC)

Parameter	150 MHz	160.000 MHz	174 MHz
Conducted Output Power (dBm)	41.16	41.11	41.28
Declared Output Power (dBm)	41.9	41.9	41.9
Δ Output Power (dB)	-0.74	-0.79	-0.62
Antenna Gain (dBd)	-1.15	-1.15	-1.15
ERP (dBm)	40.01	39.96	40.13

Table 18 - ERP

Ref Level 48.00 dBm Offset	10.00 dR = DR	N 2014-			
Att 30 dB SWT Input 1 AC PS	139 µs (~6.8 ms) • VB Off Not	N 100 kHz Mode /	Auto FFT Count 4/4	Frequency 150.	000000 MH
Frequency Sweep	011 1101		1		●1Rm Ma>
			M1 V	M1[1]	41.16 dB 50.0019780 Mł
) dBm					
0 dBm					
) dBm					
) dBm					
dBm					
10 dBm					
20 dBm					
30 dBm					-
10 dBm					
50 dBm					

Figure 4 - 150 MHz



MultiView	Spectrum	1								
	.00 dBm Offse	t 19	99 dB • RBW 8 ms) • VBW Off Notch	100 kHz 🛛 1	Mode Auto FFT	Count	4/4	Frequ	iency 160.00	ооооо мн
Frequency S			On Noter	UII						●1Rm Max
					EM T				M1[1] 160	41.11 dBr 0.0022780 MH
D dBm										
0 dBm			_							
:0 dBm										
0 dBm										
dBm										
10 dBm										
20 dBm										
30 dBm										
40 dBm										
50 dBm										
F 160.0 MHz	1	1	1001	pts		6	.0 kHz/			span 60.0 kH:
					~			+ 02.05.2 10:1	2023 Ref Level 4:34 0	RBW

Figure 5 - 160.000 MHz

								<u> </u>
	Spectrun							•
Ref Level 48. Att Input	00 dBm Offse 30 dB SWT 1 AC PS	0 dB ● RBW 30 ms) ● VBW 100 Off Notch	kHz Mode A	uto FFT Count	4/4	Frequ	ency 174.00	00000 мн
Frequency Sy	weep							01Rm Max
			M1				M1[1] 173.	41.28 dBr 9973030 MH
D dBm								
0 dBm								
0 dBm								
) dBm								
dBm								
10 dBm								
20 dBm								
30 dBm								
40 dBm								
ro dou								
50 dBm F 174.0 MHz		1001 pt	s		5.0 kHz/			pan 60.0 kH:
		1001 pt	•		J	+ 02.05.2 10:1		RBW
:15:09 02.05	5.2023							

Figure 6 - 174 MHz



FCC 47 CFR Part 90, Limit Clause 90.205

Frequency (MHz)	Limit
< 25	1000 W
25 to 50	300 W
72 to 76	300 W
150 to 174	Refer to 90.205 (d) of the specification
217 to 220	Refer to 90.259 of the specification
220 to 222	Refer to 90.729 of the specification
421 to 430	Refer to 90.279 of the specification
450 to 470	Refer to 90.205 (h) of the specification
470 to 512	Refer to 90.307 and 90.309 of the specification
758 to 775 and 788 to 805	Refer to 90.541 and 90.542 of the specification
806 to 824, 851 to 869, 869 to 901 and 935 to 940	Refer to 90.635 of the specification
902 to 927.25	LMS systems operating pursuant to subpart M of the specification: 30 W
927.25 to 928	LMS equipment: 300 W
929 to 930	Refer to 90.494 of the specification
1427 to 1429.5 and 1429.5 to 1432	Refer to 90.259 of the specification
2450 to 2483.5	5 W
4940 to 4990	Refer to 90.1215 of the specification
5850 to 5925	Refer to subpart M of the specification
All other frequency bands	On a case-by-case basis

Table 19 - FCC Limits for Maximum ERP



ISED RSS-119, Limit Clause 5.4

The output power shall be within $\pm 1 \text{ dB}$ of the manufacturer's rated power listed in the equipment specifications.

Frequency (MHz)	Transmitter Out	tput Power (W)
	Base/Fixed Equipment	Mobile Equipment
27.41 to 28 and 29.7 to 50	300	30
72 to 76	No Limit	1
138 to 174	111100	60
217 to 217 and 219 to 220	See SRSP-512 for ERP limit	30*
220 to 222	110	50
406.1 to 430 and 450 to 470	See SRSP-511 for ERP limit	60
768 to 776 and 798 to 806	110	30 3 W ERP for portable equipment
806 to 821, 851 to 866, 821 to 824 and 866 to 869	110	30
896 to 901 and 935 to 940	110	60
929 to 930 and 931 to 932	110	30
928 to 929, 952 to 953, 932 to 932.5 and 941 to 941.5	110	30
932.5 to 935 ad 941.5 to 944	110	30
*Equipment is generally authorised for effective radiated po	ower (ERP) of less than 5 W.	

Table 20 - ISED Limits for Transmitter Output Power



2.1.7 Test Location and Test Equipment Used

This test was carried out in RF Chamber 11.

Instrument	Manufacturer	Type No	TE No	Calibration Period (months)	Calibration Expires
Hygrometer	Rotronic	A1	2138	12	28-Sep-2023
EMI Test Receiver	Rohde & Schwarz	ESW44	5084	12	17-May-2023
Attenuator 5W 20dB DC- 18GHz	Aaren	AT40A-4041-D18- 20	5500	12	04-May-2023
Cable (SMA to SMA 1m)	Junkosha	MWX221- 01000AMSAMS/A	5516	12	23-Oct-2023



2.2 Spurious Emissions at Antenna Terminals

2.2.1 Specification Reference

FCC 47 CFR Part 2, Clause 2.1051 FCC 47 CFR Part 90, Clause 90.210 ISED RSS-119, Clause 5.8 ISED RSS-GEN, Clause 6.13

2.2.2 Equipment Under Test and Modification State

SCG2221, S/N: 1PR002250GPB2NA - Modification State 0

2.2.3 Date of Test

26-April-2023 to 18-July-2023

2.2.4 Test Method

For emissions where the frequency is removed less than 250 % of the authorised bandwidth measurements were performed conducted as follows:

The EUT was powered by the customer supplied AC/DC Power supply unit. The EUT was connected to a spectrum analyser via a cable and attenuator. The path loss between the EUT and analyser was entered into the spectrum analyser as a reference level offset. The reference level for the mask was established with an RBW approximately 2 or 3 times the emission bandwidth. The RBW was then reduced to at least 1 % of the emission bandwidth, with a VBW of 3 times RBW. The mask as per FCC 47 CFR Part 90.210 (b) and ISED RSS-119 Section 5.8.1 was applied.

For emissions where the frequency is removed more than 250 % of the authorized bandwidth measurements were performed for conducted as follows:

Conducted: The Calibration certificates were used to measure the path loss and the worst case was entered as a reference level offset in to the spectrum analyser. The EUT was connected to a spectrum analyser via an attenuator, filter and cable. Between 300 MHz and 2 GHz a 300 MHz high pass filter was used. The spectrum analyser was configured with an RBW of 1 kHz for 9kHz to 150kHz, 10kHz for 150kHz to 30MHz, 100kHz for 30 to 1MHz and 1 MHz for frequencies greater than 1 GHz with the trace set to max hold using a peak detector.

2.2.5 Environmental Conditions

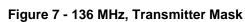
Ambient Temperature	20.8 - 23.3 °C
Relative Humidity	34.0 - 48.3 %

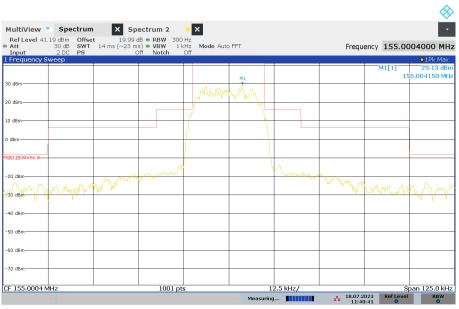


2.2.6 Test Results

136 MHz to 174 MHz (ISEDC only)







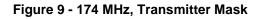
11:40:42 18.07.2023

Figure 8 - 155 MHz, Transmitter Mask



MultiView 📑 Spe	ctrum 🗙 S	pectrum 2	×					•
Ref Level 41.27 dBm Att 30 dB Input 2 DC	SWT 14 ms (~23 r	dB ● RBW 300 H ms) ● VBW 1 kH Off Notch C	iz iz Mode Auto iff) FFT		Frequ	ency 174.0	004000 MH
1 Frequency Sweep	25	on Noten c	41 		_			●1Pk Max
							M1[1]	27.48 dBn 73.996900 MH
30 dBm			MAAnt	S. As . As				
20 dBm			<u> - 14. A. A. MAM</u>	WH WE				
10 dBm			<u>n</u>					
) dBm			/					
BS119/MASK-B								
20 dBm								
-30 dBm		had			M			
-40 dBm		Mayun			mmmm			
	mmmmm				(· · · · ·	www.	M. Anna	
·SO dBm - MA Marka						Winny	an and Ma	Andream
-60 dBm								+
-70 dBm								-
CF 174.0004 MHz		1001 pts		1	2.5 kHz/			Span 125.0 kHz

11:41:48 18.07.2023



	Spectrum								•
Ref Level -: Att	13.00 dBm Offse 30 dB SWT	t 19.9 4.19 ms (~12	99 dB • RBW 1 2 ms) • VBW 3	kHz kHz Mode Au	to FFT			Frequency 7	9 5000 kH
Input	2 DC PS		Off Notch	Off				ricquency ,	01Pk Max
Frequency	Sweep				1				UIPK Max
0 dBm									
0 dBm									
) dBm									
dBm									
10 dBm									
20 dBm									
30 dBm									
40 dBm									
50 dBm									
50 dBm				~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~		mm	·····	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	him
70 dBm									
80 dBm			1001-+			4.1 6457			150.0 kH
			1001 pt	5		4.1 kHz/	+ 27.04.2 05:41	023 Ref Level	

Figure 10 - 136 MHz, 9 kHz to 150 kHz



ultiView	Spectrum								
Ref Level -1	3.00 dBm Offse 30 dB SWT	t 19.9 4.19 ms (~12	9 dB • RBW 1 (ms) • VBW 3	kHz kHz Mode Au	to FFT			Frequency 7	79 5000 k
nput	2 DC PS			Off				frequency a	
requency S	Sweep		1			1			●1Pk Ma
dBm									
dBm									
1911									
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dBm									
	13.000 dBm -								
dBm									
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~									
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			Vimm	mm	m	m	\dots	mm	mm
dBm									
dBm									
) kHz			1001 pt	S		4.1 kHz/	- 27.04.2	023 Ref Level	150.0 k
	17. 17.				Measuring		27.04.2 05:4	L:09 O	0

Figure 11 - 155 MHz, 9 kHz to 150 kHz

0 d8m Image: Section of the section										~
Att 30 dB SWT 4.19 ms (~12 ms) VBW 3 kHz Mode Auto FFT Frequency 79.5001 Input 20C PS Off Notch Off Off <th></th>										
Input 2 DC PS Off Notch Off requency Sweep Image: Constraint of the second	Att	30 dB SWT	4.19 ms (~12	ms) VBW 3	kHz Mode Au	ito FFT			Frequency 7	/9.5000 kl
dBm Image: Second Sec				Off Notch	Off				1 7	•1Pk Ma
dBm Image: state of the sta										
dām ieta	dBm									
dBm										
Bm -13.000 dBm -13.000 dBm </td <td>dBm-</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>	dBm-									
dBm -13.000 dBm -13.000 dBm -13.000 dBm -13.000 dBm	dBm									
dBm -13.000 dBm -13.000 dBm -13.000 dBm -13.000 dBm										
	JBm									
-13.000 dBm										
	J dBm									
	D dBm									
	D dBm									
	1 dBm									
	5									
D d&m	D dBm	Server Server	mm		mm	mm	m	mm	mm	him
0 d8m 1001 pts 14.1 kHz/ 150	D dBm									
0 dBm										
1001pts 17:1112/ 130				1001 pt	c	1	4.1 kHz/			150.0 kl
Measuring 11 27.04.2023 Ref Level F 05:40:15 O		2		1001 pt					023 Ref Level	

Figure 12 - 174 MHz - 9 kHz to 150 kHz



ultiView	Spectrum								
Ref Level -13 Att	30 dBm Offse 30 dB SWT	et 19 8.37 ms (~13	99 dB = RBW 2 ms) = VBW	1 kHz 3 kHz Mode	Auto FFT		Freq	uency 15.07	750000 MI
Input	2 DC PS		Off Notch	Off			1164	uene) 1010.	
Frequency S	weep								●1Pk Ma
dBm									
ubili									
dBm									
dBm									
IBm									
) dBm									
	-13.000 dBm								
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D dBm					manna	an Arra a cha	half be an and the	natura e a secondada a Anaz	moundary
	when my how have	how we want	Son along to prove the set	new marked	funning	and the second	a and - many and a low	In other states and	
D dBm									
0 dBm									
50.0 kHz			1001 pt	s		99 MHz/			30.0 M
					Measuring	g	27.04.2 05:38	2023 Ref Level	I RBW

Figure 13 - 136 MHz, 150 kHz to 30 MHz

									~
	Spectrum								
Ref Level -13 Att Input	3.00 dBm Offse 30 dB SWT 2 DC PS			3 kHz Mode A	uto FFT		Freq	uency 15.0	750000 MH
Frequency S			on Noten	011					o1Pk Ma≻
D dBm									
) dBm									
) dBm									
dBm									
.0 dBm	-13.000 dBm								
0 dBm									
0 dBm									
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0 dBm	an particular			t and an			and and and a second	cs. accessor handbelle	mourner
D dBm	an an the set of the s	nengerspectration	arcini, canada an	no monte contractor (1016)	Name and Surgery of Surgery				
0 dBm									
50.0 kHz	~		1001 pt	5		99 MHz/	27.04.2	023 Ref Leve	30.0 MH
:39:02 27.0					Measuring		• 05:39	0:01 0	0

Figure 14 - 155 MHz, 150 kHz to 30 MHz



ultiView	Spectrum								
Ref Level -13 Att	3.00 dBm Offse 30 dB SWT	et 19 8.37 ms (~13	99 dB 🖷 RBW 2 ms) 🖷 VBW	1 kHz 3 kHz Mode A	uto FET		Fred	uency 15.07	750000 MI
Input	2 DC PS		Off Notch	Off			ineq	ucitey 15.07	
Frequency S	weep								●1Pk Ma
-10									
dBm									
d8m									
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) dBm									
D dBm									
0.0 kHz			1001 pt:	6	2.	99 MHz/			30.0 M
					Measuring) 	27.04.2 05:39	023 Ref Level 9:35 O	RBW
39:36 27.0									

Figure 15 - 174 MHz - 150 kHz to 30 MHz

4ultiView •	Spectrum	1							
	.00 dBm Offs	et 19.99 dB 🖷	RBW 100 kHz VBW 300 kHz	Mada Auto Cura			F	165.00	
Input	1 AC PS	2.7 IIIS Off	Notch Off	Mode Auto Swe	sh		riequ	ency 165.00	
Frequency S	weep							MILII	 1Pk Max 41.29 dBr
								M1[1]	136.110 MF
) dBm									1001110.00
			MI						
0 dBm									
D dBm									
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dBm									
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20 dBm									
10 4011									
30 dBm									
40 dBm	white was	Whith why man	bibum him	monuteryphone	manutation	AND MARINE AL	manahah	MARIAMANANANANA	www.hurento
						1.1.1.1.1.1. A. 1.4.			
50 dBm									
30.0 MHz			1001 pt	5	27	7.0 MHz/			300.0 MH
	~				Measuring		27.04.2	023 Ref Level	RBW

Figure 16 - 136 MHz, 30 MHz to 300 MHz



									~
AultiView		I et 19.99 dB ∈ I	RBW 100 kHz						ľ
Att	30 dB SWT	2.7 ms • 1 Off 1	VBW 300 kHz	Mode Auto Swe	ep		Freque	ency 165.00	00000 MI
Frequency S			Ween on						o1Pk Ma≀
D dBm								M1[1]	40.97 dB 155.020 Mł
				M1					
D dBm									
D dBm									
D dBm									
I dBm									
dBm									
.0 dBm									
0 dBm	101000 0000								
10 dBm									
(production of the second	montangen	monum							
				Kunter (Market) - Balance	munn	Manandopatra	herewanter	enter and a state of the second and	manu
50 dBm									
0.0 MHz			1001 pt	c	27	7.0 MHz/			300.0 MF
	v		1001 pt	<u>.</u>		I	27.04.2	023 Ref Level	RBW

Figure 17 - 155 MHz, 30 MHz to 300 MHz

									8
	Spectrum								
Att	30 dB SWT	2.7 ms 🖷	RBW 100 kHz VBW 300 kHz	Mode Auto Swe	ер		Frequ	ency 165.00	00000 MH
Input Frequency S		Off	Notch Off						o1Pk Max
								M1[1]	41.42 dB 173.900 MH
i0 dBm					M1				
i0 dBm									
0 dBm									
0 dBm			_						
) dBm									
dBm									
10 dBm	-13.000 dBm								
20 dBm									
30 dBm									
10 dBm	haumunham	mm	man man	Albert Autor Autor And	A	allalate cares	a li tu - Art-un	- A - A - A - A - A - A - A - A - A - A	taka araa
50 dBm				a sa na na na alana alana	Marina Anader All	Callin March 10 Mr. Calif	a new contraction of the state	and the state of the second	Area Welfeloofeea
30.0 MHz	1		1001 pt	s		27.0 MHz/			300.0 MH
					- Measurii	ng III i i i i	27.04.2 05:05	023 Ref Level 5:59 O	RBW

Figure 18 - 174 MHz - 30 MHz to 300 MHz



	Spectrum								
Att	30 dB SWT	et 20.52 dB ● R 7 ms ● V	BW 300 kHz	Mode Auto Swe	ep		Frequ	ency 650.00	ооооо мн
Input Frequency S		Off N	otch Off						o1Pk Max
D dBm									
D dBm									
0 dBm									
D dBm									
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dBm									
10 dBm	-13.000 dBm								
20 dBm									
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40 ¹ dBm 	multimaria	and the second states of the	www.Merahanhan	hondren and for	mahamphing	Mahandelrowlook	andulutionship	manunally	the manufactor
50 dBm									
so abii									
300.0 MHz			1001 pt	5	70).0 MHz/			1.0 GH
	v.						27.04.2 05:14	023 Ref Level	
i:14:06 27.04							00.1		

Figure 19 - 136 MHz, 300 MHz to 1 GHz

									<u> </u>
	Spectrum								
Att	30 dB SWT	et 20.52 dB ● F 7 ms ● V	'BW 300 kHz	Mode Auto Swe	ep		Frequ	ency 650.00	ооооо мн
Input Frequency Sv	1 AC PS	Off N	lotch Off						●1Pk Max
i0 dBm									
0 dBm									
o ubiii									
30 dBm									
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40 dBm				,,					week-velage,
-50 dBm									
300.0 MHz			1001 pt	S		0.0 MHz/			1.0 GH
					Measuring		27.04.2 05:1	023 Ref Level 2:57 0	RBW

Figure 20 - 155 MHz, 300 MHz to 1 GHz



									
	Spectrum								
Att	3.00 dBm Offs 30 dB SWT	7 ms 🖷 V	'BW 300 kHz	Mode Auto Swe	ер		Frequ	ency 650.00	000000 MH
Input Frequency S		Off N	lotch Off				•		•1Pk Ma
) dBm									
) dBm									
J dBm									
0 dBm									-
) dBm									
) dBm									
dBm									
10 dBm									
	-13.000 dBm								
20 dBm									
30 dBm									
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ىجىللەرdBm	- and the second	and a second	and the second	and a second start where	ali an	erren and an	CARACUMIC and Induced	and a construction of the state	- Lunnary Base
50 dBm									
00.0 MHz	L		1001 pt	5	70).0 MHz/		l	1.0 GF
	~						27.04.2	023 Ref Level	RBW
:11:55 27.0									

Figure 21 - 174 MHz - 300 MHz to 1 GHz

	Spectrum								
Att	.00 dBm Offse 30 dB SWT	1.01 ms 🖷	VBW 3 MHz N	lode Auto Sweep)		Fn	equency 1.5	000000 GH
Input Frequency Sv	1 AC PS	Off	Notch Off						●1Pk Max
0 dBm									
D dBm									
D dBm									
J dBm									
0 dBm									
0 dBm									
-									
dBm									
10 dBm									
	-13.000 dBm								
20 dBm									-
30 dBm	when when have	montion	mohuman	montanana	mound	monthly	manhanna	ummunu	anummerting
40 dBm									
50 dBm									+
I.0 GHz			1001 pt	s	10	0.0 MHz/	1	1	2.0 GH
					Measuring		27.04.2 05:1	023 Ref Leve	I RBW
i:19:22 27.04									

Figure 22 - 136 MHz, 1 GHz to 2 GHz



									~
lultiView									
Att		1.01 ms 👄	VBW 3 MHz M	lode Auto Sweep)		Fn	equency 1.5	000000 GH
Input Frequency S		Off	Notch Off						o1Pk Ma>
D dBm									
0 dBm									
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o dom									
dBm									
10 dBm	-13.000 dBm								
20 dBm									
30 dBm- Multipleton	mymanham	mushburn	undramon	motormarke	montowned	mannen	mon Mahrier has	-	Andphromphism
40 dBm									
50 dBm									+
.0 GHz			1001 pt	s		0.0 MHz/			2.0 GH
	~				Measuring	III III	27.04.2 05:1	2023 Ref Leve 8:36 O	I RBW
:18:36 27.0	1 2022								

Figure 23 - 155 MHz, 1 GHz to 2 GHz

	Spectrum								-
Att	3.00 dBm Offse 30 dB SWT	1.01 ms 🖷 🔪	/BW 3 MHz M	ode Auto Sweep			Fre	equency 1.5	000000 GH
Input Frequency S		Off M	Notch Off						o1Pk Max
0 dBm									
0 dBm									-
0 dBm									
0 dBm									
0 dBm									
I dBm									
10 dBm									
10 0011	-13.000 dBm								
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40 dBm									
50 dBm									
1.0 GHz			1001 pt	<u> </u>	10	0.0 MHz/			2.0 GH
10 012	2		1001 pt	3		I	27.04.2	023 Ref Leve	RBW
	4.2023						05:2	0:01 0	0

Figure 24 - 174 MHz - 1 GHz to 2 GHz



ISED RSS-119, Limit Clause 5.8

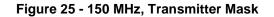
The EUT shall comply with emission mask B as per ISED RSS-119, clause 5.8.

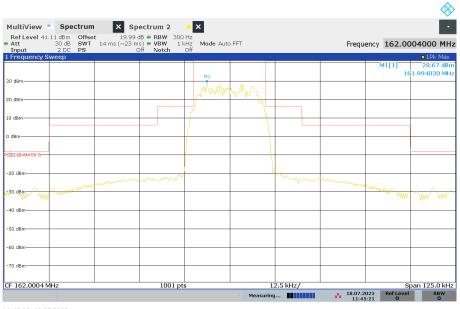


150 MHz to 174 MHz (FCC and ISEDC)

MultiView Spectru	m 🗙 Spectrum	12 <mark>*</mark> X					-
RefLevel 41.16 dBm Offs	set 19.99 dB • RB	W 300 Hz			-	1 50 0/	
Input 2 DC PS	T 14 ms (~23 ms) = VB Off No	wy ikHz Miode Aut tch Off	OFFI		Freque	ency 150.00	
Frequency Sweep							 1Pk Max 28.95 dBr
			M1			M1[1] 15	28.95 dB 50.004150 MF
30 dBm		Martin	han				
0 dBm			1 m W				
0 dBm							
l dBm							
SE119 MASK B							
20 dBm	monor	-works	v v	Amm	mann a		
30 demma My My My My	Martin			-	manna way	all when the	maria
40 dBm							
-50 dBm							
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00 000							
70 dBm							
F 150.0004 MHz		001 pts	1:	2.5 kHz/		s	pan 125.0 kH
v.			Measuring		18.07.20 11:46	23 Ref Level	RBW

11:46:39 18.07.2023





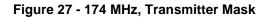
11:45:22 18.07.2023

Figure 26 - 160.000 MHz, Transmitter Mask



MultiView Spectrum		<u>★</u> ×			
Ref Level 41.28 dBm Offs Att 30 dB SWT	14 ms (~23 ms) 🖷 VBW 1	KHz Mode Auto FFT		Frequer	ncy 174.0004000 MI
Input 2 DC PS Frequency Sweep	Off Notch	Off			• 1Pk Ma
		M1			M1[1] 28.85 dE 173.994030 M
D dBm		Marma An			
) dBm					
I dBm		<u>/</u>			
JBm					
S119/MASK B					
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10 dBm	A A A A A A A A A A A A A A A A A A A		- Mart		
+0 dBm	a a transmission for the second se		~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	LANN A	MM Lingth on og
0 dBm	~/ V / · · ·			Www	mmmmmmm
0 dBm					
0 dBm					
0.00					

12:01:40 18.07.2023



									(
	Spectrum			Lu -					
tt	30 dB SWT 2 DC PS	4.19 ms (~12	9 dB	kHz Mode Au	to FFT			Frequency 7	79.5000 k
requency S			on Noten	on					●1Pk Ma
3m									
dBm	H1 -13.000 dB	m	d8m						
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dBm								<u> </u>	
dBm									
dBm									
) kHz			1001 pts	S	1.	4.1 kHz/			150.0 k
					Measuring		27.04.2	023 Ref Leve	RBW O

Figure 28 - 150 MHz, 9 kHz to 150 kHz



	Spectrum								
Att	13.00 dBm Offset 30 dB SWT	4.19 ms (~12	ms) VBW 3	kHz Mode Au	ito FFT			Frequency 7	79.5000 k
nput requency :	2 DC PS Sweep		Off Notch	Off					o1Pk Ma
dBm									
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dBm									
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dBm									
			1001						150.01
) kHz			1001 pt	s		4.1 kHz/	27.04.2 11:43	023 Ref Level	150.0 k

Figure 29 - 160.000 MHz, 9 kHz to 150 kHz

	Spectrum 3.00 dBm Offse	t 19.9	9 dB 🖷 RBW 1	kHz					
Att	30 dB SWT 2 DC PS	4.19 ms (~12	ms) • VBW 3	kHz Mode Au	ito FFT			Frequency 7	'9.5000 kl
Frequency S					1				●1Pk Ma:
dBm									
0 dBm									
	H1 -13.000 dBr	n	dBm						
D dBm									
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0 dBm									
0 dBm									
m	٨								
o dBm <u>~~~</u>	mm	mm	mm	m	mm	mm	mm	mm	mm
0 dBm									
0 dBm									
0 dBm									
.0 kHz	11		1001 pt	S	1	4.1 kHz/		1	150.0 kł

Figure 30 - 174 MHz - 9 kHz to 150 kHz



lultiView	Spectrum								
Ref Level -1 Att	3.00 dBm Offse		dB = RBW 10	kHz kHz Mode Au	to FET		Fred	uency 15.0	750000 M
Input	2 DC PS	007 p3 (211	Off Notch	Off			neq	uency 15.0	
Frequency S	Sweep				1				●1Pk Ma
dBm									
0 dBm	H1 -13.000 dB	n	d8m						
) dBm									
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dBm		,							
dBm									
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dBm									
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0.0 kHz	~		1001 pt	s		99 MHz/	27.04.2 11:54	023 Ref Leve	

Figure 31 - 150 MHz, 150 kHz to 30 MHz

									~
	Spectrum								•
Att	3.00 dBm Offse 30 dB SWT 2 DC PS	t 19.99 837 µs (∼24 n	ns) 🗢 VBW 30	kHz Mode Au	to FFT		Freq	uency 15.07	750000 MH
Frequency S			on Noten						●1Pk Max
) dBm									
ubm									
10 dBm	H1 -13.000 dB	m	lBm —						
20 dBm									
30 dBm									
40 dBm									
50 dBm									
wanter war	Montore both	monthyana	mangenalitation	mourranting	want well the wat	mohuman	-Millionan-tantoa	houmphones	and marked marked
60 dBm									
-70 dBm									
80 dBm									
00 0011									
00.10									
-90 dBm									
150.0 kHz			1001 pt	5	2.	99 MHz/	1		30.0 MH:
					Measuring		27.04.2 11:54	023 Ref Level 4:02 0	RBW
1:54:03 27.04	1 2022								

Figure 32 - 160.000 MHz, 150 kHz to 30 MHz



ulti\(iour	Spectrum								
	3.00 dBm Offse		dB = RBW 10	kHz					
Att nput	30 dB SWT	837 µs (~24 r	ns) 🗢 VBW 30	kHz Mode Au	to FFT		Freq	uency 15.0	750000 M
requency S			on Noten	OII					●1Pk Ma
IBm									
dBm									
	H1 -13.000 dB	m	d8m						
dBm									
) dBm									
) dBm									
) dBm									
manufactu	monorm	hundren	wanter and the	usternorm	or hard mension and	and more which	montheatron	anterentressam	mandowinh
) dBm									
dBm									
dBm									-
) dBm									+
0.0 kHz	1		1001 pt	S	2.	99 MHz/		1	30.0 M
					Measuring		27.04.2 11:53	023 Ref Leve	I RBW

Figure 33 - 174 MHz - 150 kHz to 30 MHz

MultiView	Spectrum									
Att	3.00 dBm Offse 30 dB SWT 1 AC PS	2.7 ms 🖷 V	BW 300 kHz	Mode /	Auto Swe	ер		Frequ	ency 165.00	ооооо мна
Input Frequency S		UTT IN	otcn Off							o1Pk Max
									M1[1	
				M	1					149.900 MHz
40 dBm										
30 dBm										
20 dBm										
10 dBm										
0 dBm										
u usm										
-10 dBm										
	H1 -13.000 dBn	n	dBm							
-20 d8m										
20 0011										
-30 dBm										
-40 dBm	vertarian	when y					1			
to dom		TVWWWW	are wanted	Appens	WIN	endbulghang	Morphille	and when have the	Molekanina	-monter provery
-50 dBm										
30.0 MHz			1001 pt	5			7.0 MHz/			300.0 MHz
						 Measuring 		27.04.2 11:50	023 Ref Level	RBW
	4 2022									
1:56:37 27.04	4.2023									

Figure 34 - 150 MHz, 30 MHz to 300 MHz



MultiView	- Spectrum	ı							
Ref Level -1	3.00 dBm Offs 30 dB SWT		RBW 100 kHz VBW 300 kHz	Mode Auto Sw	eep		Frequ	ency 165.00	00000 мн
Input	1 AC PS	Off 1					frequ	200100	•1Pk Max
Frequency S	sweep							M1[1	-
				M1					160.140 MH
10 dBm									
30 dBm									
20 dBm									
LO dBm									
0 dBm									
o ubiii									
10 dBm	H1 -13.000 dt	-13.000	dBm						
-20 dBm									
-30 dBm									
warman here.	hedrownership								
-40 dBm	an also a she was a she all	menoric happen		adving mound	warmen war whether	handrade	-	web water water water	warmow ward
-50 dBm									
30.0 MHz	1	1	1001 pt	S	2	7.0 MHz/	1	1	300.0 MH
	-				Measuring	j	+ 27.04.2 12:00	023 Ref Level	RBW
2:00:01 27.0							12.00		

Figure 35 - 160.000 MHz, 30 MHz to 300 MHz

										
MultiView	Spectrum									•
Ref Level -13.0 Att Input	30 dB SWT		BW 300 kHz	Mode Auto Swe	ер			Frequ	ency 165.00	00000 MHz
1 Frequency Sw		011 14	oren on							o1Pk Max
									M1[1] 40.32 dBm
					M					173.900 MH
40 dBm										
30 dBm										
20 dBm										
10 dBm										
0 dBm										
-10 dBm										
10 ubiii		n	JBm							
-20 dBm										
-30 dBm										
140 dem Mun Mul	northe conclusion	pathylerah	att almost	A		4	h		and a later	1 . h
		. Annara	a	a Manda Ang a	NAM .	Marrialle	allowed to be a party	and research the second	and the second	how when a second of the
-50 dBm			1007							000.01
30.0 MHz	R.		1001 pt	5			7.0 MHz/	27.04.2	023 Ref Level	300.0 MHz RBW
						Measuring		27.04.2 12:00	023 Ref Level	NBW O
2:00:36 27.04.2										
2:00:36 27.04.	2023									

Figure 36 - 174 MHz - 30 MHz to 300 MHz



AultiViou	Spectrum								
Ref Level -1	3.00 dBm Offse	et 20.52 dB 👄 I							_
Att Input	1 AC PS	7 ms 🖷 ' Off I	VBW 300 kHz Notch Off	Mode Auto Swe	ep		Frequ	ency 650.00	
Frequency S	Sweep								●1Pk Ma:
dBm									
D dBm	-13.000 dBm								
0 dBm									
0 dBm									
		daria di	1. 1. Mar. 1. A.	, nada					
odBm , to Contonto	and a state of the second s	and the second second	munun	work when the stand	an halana mahanda	ernon and the second	an the second	Mark Mildle and	and a little and grad of a
0 dBm									
U dBm									
i0 dBm									
O dBm									
30 dBm									
00.0 MHz			1001 pt	s).0 MHz/	27.04.2	023 Ref Level	1.0 GH RBW
	~				Measuring		27.04.2 12:0	3:58	O NOW

Figure 37 - 150 MHz, 300 MHz to 1 GHz

1ultiView	Spectrum								
Att	3.00 dBm Offse 30 dB SWT	7 ms 🖷 🔪	/BW 300 kHz	Mode Auto Swe	ep		Frequ	ency 650.00	00000 MH
Input Frequency S		Off M	lotch Off						●1Pk Max
dBm									
0 dBm									
0 dBm	13.000 dBm								
0 dBm									
dBmi yr dd	Jaman and and the second	well warman warden	month who had a dealer	Munney for	Mr. And	Martinetaria	everytheterment	Monocoperating	Maalaa ahadaa daga
50 dBm									
i0 dBm									
70 dBm									
10 dBm									
00.0 MHz			1001 pt	s		0.0 MHz/	27.04.2	023 Ref Level	1.0 GH RBW

Figure 38 - 160.000 MHz, 300 MHz to 1 GHz



	Spectrum								•
Ref Level -1 Att Input	3.00 dBm Offse 30 dB SWT	et 20.52 dB ● F 7 ms ● N Off M	/BW 300 kHz	Mode Auto Swe	ep		Frequ	ency 650.00	ооооо мн
Frequency S						1			●1Pk Max
dBm									-
10 dBm	-13.000 dBm								
20 dBm									
30 dBm									
40.dBm		Monday Marca Shee	unpolition and	manne	manaharranah	whether a survey of	human	Autohing M. C.	
o a consiste d'Anto-Ma	a the second								
50 dBm									
60 dBm									
-70 dBm									
80 dBm									
300.0 MHz			1001 pt	s		0.0 MHz/	27.04.2	023 Ref Level	1.0 GH RBW

Figure 39 - 174 MHz - 300 MHz to 1 GHz

	Spectrum								•
Ref Level -1 Att Input	3.00 dBm Offse 30 dB SWT 1 AC PS	1.01 ms 🖷	VBW 3 MHz	Mode Auto Swee	5		Fre	equency 1.5	000000 GH
Frequency S			Noten on		I			1	●1Pk Max
dBm									
0 dBm	-13.000 dBm								
0 dBm									
30 dBm	Charles Law on	aa bilan	e or a Nachdorn	on heroman they	a de la calca de la	anthele same	n name Haber	المراجع والمعرف والمراجع	and an an an an an
	And Rahaman and	14 v~v _{d2} 4ener(04 v	ela no la conser	e evening to select the	an an sear which was	Date is the Multiplication	endher den solet und	and the second of the second	. Lot in a const
40 dBm									
50 dBm									
50 dBm									
70. da									
70 dBm									
30 dBm									
			1001 p			0.0 MHz/			2.0 GH

Figure 40 - 150 MHz, 1 GHz to 2 GHz



									8
	Spectrum		DRW 1 MHz						
Att	30 dB SWT		VBW 3 MHz N	lode Auto Sweep			Fre	equency 1.5	000000 GI
Frequency S									●1Pk Ma
dBm									
10 dBm									
20 dBm									
30 dBm									
Alteration in the	mblerrenner	whicher	manner	moundary	Monter	or monormation of the second	h M M M M	montan	hummun
40 dBm									
50 dBm									
60 dBm									
70 dBm									
80 dBm									
1.0 GHz			1001 pt	s	10	0.0 MHz/	l	I	2.0 GH
							27.04.2 12:08	023 Ref Leve	el RBW

Figure 41 - 160.000 MHz, 1 GHz to 2 GHz

									<u> </u>
	Spectrum								•
Ref Level -13 Att Input	3.00 dBm Offse 30 dB SWT 1 AC PS	1.01 ms 🖷		Aode Auto Sweep			Fre	equency 1.5	000000 GH
Frequency S									●1Pk Max
) dBm									
10 dBm									
	13.000 dBm ·								
20 dBm									
30 dBm									
30 abm	workness	an manup ha	montomore	and the second second	orthough more property and	mandulamenta	ana ana	norman	epone where the
40 dBm									
-50 dBm									
-60 dBm									
70 dBm									
-80 dBm									
1.0 GHz			1001 p	ts	10	0.0 MHz/			2.0 GH
					Management		27.04.2 12:01	023 Ref Leve	RBW

Figure 42 - 174 MHz - 1 GHz to 2 GHz



FCC 47 CFR Part 90, Limit Clause 90.210

The EUT shall comply with emission mask B as per FCC 47 CFR Part 90, clause 90.210.

ISED RSS-119, Limit Clause 5.8

The EUT shall comply with emission mask B as per ISED RSS-119, clause 5.8.

2.2.7 Test Location and Test Equipment Used

This test was carried out in RF Chamber 11.

Instrument	Manufacturer	Туре No	TE No	Calibration Period (months)	Calibration Expires
Hygrometer	Rotronic	A1	2138	12	28-Sep-2023
Hygrometer	PCE Instruments	OCE-THB-40	5470	12	20-Apr-2024
EMI Test Receiver	Rohde & Schwarz	ESW44	5084	12	17-May-2023
EMI Test Receiver	Rohde & Schwarz	ESW44	5084	12	09-Aug-2023
Attenuator 5W 20dB DC- 18GHz	Aaren	AT40A-4041-D18- 20	5500	12	04-May-2023
Attenuator 5W 20dB DC- 18GHz	Aaren	AT40A-4041-D18- 20	5500	12	21-May-2024
Cable (SMA to SMA 1m)	Junkosha	MWX221- 01000AMSAMS/A	5516	12	23-Oct-2023
Cable (SMA to SMA 1m)	Junkosha	MWX221- 01000AMSAMS/A	5513	12	14-Apr-2024
300 MHz High Pass Filter	Mini-Circuits	NHP-300	5532	12	22-May-2023
300 MHz High Pass Filter	Mini-Circuits	NHP-300	5532	12	26-May-2024

Table 22



3 Photographs

3.1 Test Setup Photographs

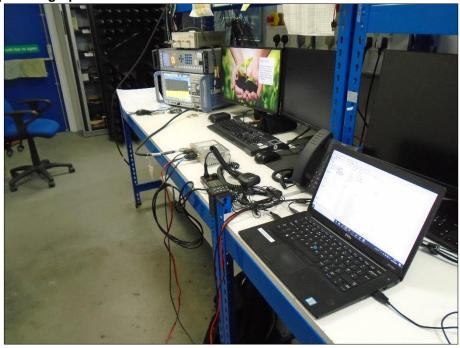


Figure 43 – Test Setup Photographs



4 Measurement Uncertainty

For a 95% confidence level, the measurement uncertainties for defined systems are:

Test Name	Measurement Uncertainty
Maximum Conducted Output Power	± 3.2 dB
Spurious Emissions at Antenna Terminals	± 3.45 dB

Table 23

Measurement Uncertainty Decision Rule - Accuracy Method

Determination of conformity with the specification limits is based on the decision rule according to IEC Guide 115:2021, Clause 4.4.3 (Procedure 2). The measurement results are directly compared with the test limit to determine conformance with the requirements of the standard.

Risk: The uncertainty of measurement about the measured result is negligible with regard to the final pass/fail decision. The measurement result can be directly compared with the test limit to determine conformance with the requirement (compare IEC Guide 115). The level of risk to falsely accept and falsely reject items is further described in ILAC-G8.