FCC Test Report

Airspan Communications Ltd Radio Unit, Model: Air4G 2700 A4G27-F085-DC1-EXGG

In accordance with FCC 47 CFR Part 2 and FCC 47 CFR Part 22G (eNB - OFDMA)

Prepared for: Airspan Communications Ltd Bath Road Slough, Berkshire SL1 3UF UNITED KINGDOM _____

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FCC ID: O2J-2700ATG

COMMERCIAL-IN-CONFIDENCE

Document 75959925-01 Issue 01

SIGNATURE			
Norsell	/		
NAME	JOB TITLE	RESPONSIBLE FOR	ISSUE DATE
Matthew Russell	Chief Engineer	Authorised Signatory	13 December 2023
Signatures in this approva	I box have checked this document in line w	ith 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 and FCC 47 CFR Part 22G. The sample tested was found to comply with the requirements defined in the applied rules.

RESPONSIBLE FOR	NAME	DATE	SIGNATURE
Tastian	Neil Rousell	13 December 2023	John
Testing	Pier-Angelo Lorusso	13 December 2023	formal

FCC Accreditation

492497/UK2010 Octagon House, Fareham Test Laboratory

EXECUTIVE SUMMARY

A sample of this product was tested and found to be compliant with FCC 47 CFR Part 2: 2021 and FCC 47 CFR Part 22G: 2022 for the tests detailed in section 1.3.



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ACCREDITATION

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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	13-December-2023

Table 1

1.2 Introduction

Applicant	Airspan Communications Ltd
Manufacturer	Airspan Communications Ltd
Model Number(s)	Air4G 2700 A4G27-F085-DC1-EXGG
Serial Number(s)	FD5879014AC
Hardware Version(s)	EVT2
Software Version(s)	ATGRU-94.4.3.0_GR_Dpd_AdiV5.1CFRV4.pak
Number of Samples Tested	1
Test Specification/Issue/Date	FCC 47 CFR Part 2: 2021 FCC 47 CFR Part 22G: 2022
Order Number	CG231817-00
Date	24-November-2023
Date of Receipt of EUT	27-November-2023
Start of Test	24-November-2023
Finish of Test	01-December-2023
Name of Engineer(s)	Neil Rousell and Pier-Angelo Lorusso
Related Document(s)	ANSI C63.26 (2015)
	FCC DA 22-657



1.3 Brief Summary of Results

A brief summary of the tests carried out in accordance with FCC 47 CFR Part 2 and FCC 47 CFR Part 22G is shown below.

Section	Specificati	ion Clause	Test Description	Result	Comments/Base Standard
Section	Part 2	Part 22G	Test Description	Result	Comments/Base Standard
Configuration	Configuration and Mode: Transmit				
2.1	2.1055	22.863	Frequency Stability	Pass	
2.2	2.1046 22.867 Effective Radiated Power Pass	Pass	ANSI C63.26 (2015)		
2.2	2.1040	22.007		1 435	FCC DA 22-657
2.3	2.1049	-	Occupied Bandwidth	Satisfactory	ANSI C63.26 (2015)
2.4	2.1051	22.861	Spurious Emission at Antenna Terminals	Pass	ANSI C63.26 (2015)
2.4	2.1001	22.001	Spurious Emission at Antenna Terminais		FCC DA 22-657
2.5	2.1053	22.861	Radiated Spurious Emissions	Pass	ANSI C63.26 (2015)

Table 2



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)		Dual Sector Basestation supporting Air to Ground communication to Aircraft operating in licensed spectrum with 47 CFR Subpart G rules.		
Manufacturer:		Airspan		
Model:		Air4G 2700 A4	IG27-F085-DC1-EXGG	
Part Number:		FD58790149AC		
Hardware Version:		EVT2		
Software Version:		ATGRU-94.4.3.0_GR_Dpd_AdiV5.1CFRV4.pak		
FCC ID of the product under test – see guidance he		nce here	O2J-2700ATG	
IC ID of the product under test – see guidance here		<u>e here</u>		
Device Category	Mobile 🗆		Portable	Fixed ⊠
Equipment is fitted with an Audio Low Pass Filter		ilter	Yes 🗆	No 🖂

Table 3

Intentional Radiators

			1	1	1
Technology	OFDMA				
Frequency Range (MHz to MHz)	850 MHz	850 MHz			
Conducted Declared Output Power (dBm)	47dBm				
Antenna Gain (dBi)	Max 16.5 dBi	With power backup			
Supported Bandwidth(s) (MHz) (e.g. 1 MHz, 20 MHz, 40 MHz)	1.615 MHz				
Modulation Scheme(s) (e.g. GFSK, QPSK etc)	QPSK	16 QAM	64 QAM		
ITU Emission Designator (see guidance here) (not mandatory for Part 15 devices)	1M61W7D				
Bottom Frequency (MHz)	-				
Middle Frequency (MHz)	850 MHz				
Top Frequency (MHz)	-				

Table 4



Un-intentional Radiators

Highest frequency generated or used in the device or on which the device operates or tunes	895 MHz	
Lowest frequency generated or used in the device or on which the device operates or tunes	25 MHz	
Class A Digital Device (Use in commercial, industrial or business environment)		
Class B Digital Device (Use in residential environment only) \Box		

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:	48	V
Extreme upper voltage:	56	V
Extreme lower voltage:	40	V
Max current:	24.5A	A

Table 7

Battery Power Source

Voltage:			V
End-point voltage:			V (Point at which the battery will terminate)
Alkaline Leclanche Lithium Nickel Cadmium Lead Acid* *(Vehicle regulated)			ulated)
Other 🗆	Please detail:		

Table 8

Charging

Can the EUT transmit whilst being charged	Yes 🗆 No 🗆
---	------------

Table 9

Temperature

Minimum temperature:	-5	°C
Maximum temperature:	40	٦°

Table 10



Cable Loss

Adapter Cable Loss (Conducted sample)	dB
(Conducted Sample)	

Table 11

Antenna Characteristics

Antenna connector 🛛 4.3/10		State impedance	50	Ohm	
Temporary antenna connector \Box		State impedance		Ohm	
Integral antenna 🗆	Type:		Gain		dBi
External antenna 🖂	Type:		Gain	up to 16.5	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 \Box

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.

Table 12

Ancillaries (if applicable)

Manufacturer:	Part Number:	
Model:	Country of Origin:	

Table 13

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

Name: Mike Livingstone Position held: SVP Engineering Date: 13 December 2023



1.5 Product Information

1.5.1 Technical Description

Dual Sector Basestation supporting Air to Ground communication to Aircraft operating in licensed spectrum with 47 CFR Subpart G rules.

1.5.2 System Architecture

The diagram below demonstrated the system architecture of the eNB radio interface:

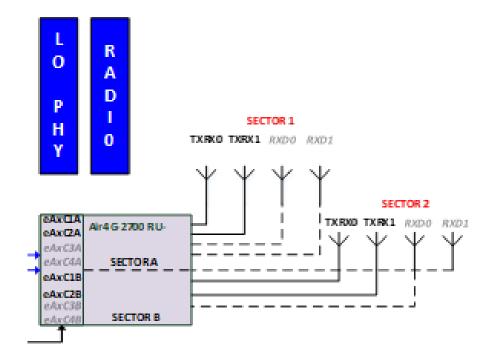


Figure 1

The applicant informed the test lab that Sectors 1 and 2 are connected to orthogonally polarised antennas, therefore a maximum of 2x2 MIMO has been considered for conducted measurements and that sectors A and B are electrically identical, therefore conducted tests were limited to Sector A only.

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	Modification Fitted By	Date Modification Fitted				
Model: Air4G 2700 A4G27-F085-DC1-EXGG, Serial Number: FD5879014AC						
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: Transmit					
Frequency Stability	Neil Rousell	UKAS			
Effective Radiated Power	Neil Rousell	UKAS			
Occupied Bandwidth	Neil Rousell	UKAS			
Spurious Emission at Antenna Terminals	Neil Rousell	UKAS			
Radiated Spurious Emissions	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 Frequency Stability

2.1.1 Specification Reference

FCC 47 CFR Part 2, Clause 2.1055 FCC 47 CFR Part 22G, Clause 22.863

2.1.2 Equipment Under Test and Modification State

Air4G 2700 A4G27-F085-DC1-EXGG, S/N: FD5879014AC - Modification State 0

2.1.3 Date of Test

27-November-2023 to 28-November-2023

2.1.4 Test Method

The equipment under test (EUT) was placed within a climatic chamber and the temperature was lowered to -30 °C and allowed to stabilise. The EUT was configured to transmit a modulated carrier and using the -26 dB bandwidth function the lower and upper points of the bandwidth were recorded to ensure the emission remained with the authorised frequency range. The temperature was then increased by 10 degrees and the measurement repeated until the upper temperature range of +50 °C.

At +20 °C, the voltage was also varied at 85 and 115% of the nominal value declared by the applicant.

2.1.5 Environmental Conditions

Ambient Temperature	18.7 - 21.1 °C
Relative Humidity	39.8 - 51.7 %



2.1.6 Test Results

<u>Transmit</u>

Temperature (°C)	Voltage	F _L (MHz)	F _c (MHz)	F _∪ (MHz)	Error (ppm)
50 °C	48.0	849.067042	850.000166	850.933289	0.19
40 °C	48.0	849.101419	850.005201	850.908983	6.12
30 °C	48.0	849.116483	850.009009	850.901534	10.60
20 °C	48.0	849.149935	850.001310	850.852684	1.54
10 °C	48.0	849.153805	850.004455	850.855104	5.24
0°C	48.0	849.155178	850.004013	850.852847	4.72
-10 °C	48.0	849.153150	850.005766	850.858381	6.78
-20 °C	48.0	849.147185	850.000967	850.854749	1.14
-30 °C	48.0	849.123384	850.006330	850.889275	7.45

Table 16 - Frequency Stability Under Temperature Variations

Temperature (°C)	Voltage	F _∟ (MHz)	F _c (MHz)	F _∪ (MHz)	Error (ppm)
50 °C	48.0	849.067042	850.000166	850.933289	0.19
40 °C	48.0	849.101419	850.005201	850.908983	6.12
30 °C	48.0	849.116483	850.009009	850.901534	10.60
20 °C	48.0	849.149935	850.001310	850.852684	1.54
10 °C	48.0	849.153805	850.004455	850.855104	5.24
0°C	48.0	849.155178	850.004013	850.852847	4.72
-10 °C	48.0	849.153150	850.005766	850.858381	6.78
-20 °C	48.0	849.147185	850.000967	850.854749	1.14
-30 °C	48.0	849.123384	850.006330	850.889275	7.45

Table 17 - Frequency Stability Under Voltage Variations

where:

 F_L = Lower point containing -26dB bandwidth. F_U = Upper point containing -26 dB bandwidth. F_C = (FU+ FL) / 2

FCC 47 CFR Part 22, Limit Clause 22.863

The frequency stability of equipment used under this subpart shall be sufficient to ensure that, after accounting for Doppler frequency shifts, the occupied bandwidth of the fundamental emissions remains within the authorized frequency bands of operation.



2.1.7 Test Location and Test Equipment Used

This test was carried out in RF Laboratory 2.

Instrument	Manufacturer	Туре No	TE No	Calibration Period (months)	Calibration Expires
Multimeter	Fluke	75 Mk3	455	12	15-Dec-2023
Network Analyser	Rohde & Schwarz	ZVA 40	3548	12	06-Mar-2024
Calibration Unit	Rohde & Schwarz	ZV-Z54	4368	12	06-Mar-2024
Frequency Standard	Spectracom	SecureSync 1200- 0408-0601	4393	6	08-Feb-2024
PXA Signal Analyser	Keysight Technologies	N9030A	4654	12	16-Jan-2024
Hygrometer	Rotronic	HP21	4989	12	21-Jul-2024
Climatic Chamber	Weiss Technik	TempEvent T/180/40/3	5894	12	07-Jul-2024

Figure 2



2.2 Effective Radiated Power

2.2.1 Specification Reference

FCC 47 CFR Part 22G, Clause 22.867 FCC 47 CFR Part 2, Clause 2.1046

2.2.2 Equipment Under Test and Modification State

Air4G 2700 A4G27-F085-DC1-EXGG, S/N: FD5879014AC - Modification State 0

2.2.3 Date of Test

24-November-2023

2.2.4 Test Method

This test was performed in accordance with ANSI C63.26, clause 5.2.4.4.1 (Average).

As per FCC Waiver document DA 22-657 power limits are permitted with the use of average measurements for OFDM modulation.

The conducted output power of the RU is configured at the installation site to maintain the emissions to the licensed limit of 500 W ERP. This is done using the network management tool provided by the applicant. A typical configuration has been tested within this report to demonstrate compliance.

The RU supports independent 60-degree non-overlapping sectors with a maximum of 2x MIMO layers on each sector.

2.2.5 Environmental Conditions

Ambient Temperature20.7 °CRelative Humidity49.2 %



2.2.6 Test Results

<u>Transmit</u>

Frequency	Sector A				
(MHz)	Conducted F	Power (dBm)	Art Coin (IDi) System Loss		ERP (dBm)
	TxRx0	TxRx1	Ant Gain (dBi)	(dB)	ERF (dBill)
850	47.1	47.1	16.5	7.5	56.9

Table 18 - ERP Results, QPSK

Frequency		Sector A								
(MHZ)	(MHz) Conducted Power (dBm)		Ant Coin (dRi)	System Loss	ERP (dBm)					
	TxRx0	TxRx1	Ant Gain (dBi)	(dB)	ERF (UBIII)					
850	47.0 47.1		16.5	7.5	56.9					

Table 19 - ERP Results, 16QAM

Frequency	Sector A									
(MHz)	Conducted Power (dBm)		Ant Gain (dBi)	System Loss	ERP (dBm)					
	TxRx0	TxRx1	Ant Gain (dbi)	(dB)	ERF (UBIII)					
850	47.2 47.0		16.5	7.5	57.0					

Table 20 - ERP Results, 64QAM

FCC 47 CFR Part 22, Limit Clause 22.867

The effective radiated power (ERP) of ground and airborne stations operating on the frequency ranges listed in 22.857 must not exceed the following limits:

- a) The peak ERP of airborne mobile station transmitters must not exceed 12 Watts.
- b) The peak ERP of ground station transmitters must not exceed 500 Watts.

Note: As per SA 22-657, the use of maximum average power measurement is permitted to demonstrate compliance with the above limit as an alternative to peak for OFDM based waveforms.



2.2.7 Test Location and Test Equipment Used

This test was carried out in RF Laboratory 2.

Instrument	Manufacturer	Туре No	TE No	Calibration Period (months)	Calibration Expires
Multimeter	Fluke	75 Mk3	455	12	15-Dec-2023
Network Analyser	Rohde & Schwarz	ZVA 40	3548	12	06-Mar-2024
Calibration Unit	Rohde & Schwarz	ZV-Z54	4368	12	06-Mar-2024
Frequency Standard	Spectracom	SecureSync 1200- 0408-0601	4393	6	08-Feb-2024
PXA Signal Analyser	Keysight Technologies	N9030A	4654	12	16-Jan-2024
Hygrometer	Rotronic	HP21	4989	12	21-Jul-2024

Figure 3



2.3 Occupied Bandwidth

2.3.1 Specification Reference

FCC 47 CFR Part 2, Clause 2.1049

2.3.2 Equipment Under Test and Modification State

Air4G 2700 A4G27-F085-DC1-EXGG, S/N: FD5879014AC - Modification State 0

2.3.3 Date of Test

24-November-2023

2.3.4 Test Method

This test was performed in accordance with ANSI C63.26, clause 5.4.

2.3.5 Environmental Conditions

Ambient Temperature20.7 °CRelative Humidity49.2 %



2.3.6 Test Results

<u>Transmit</u>

Frequency (MHz)	Modulation	99% Occupied Bandwidth (MHz)	26 dB Bandwidth (MHz)
850	QPSK	1.61	1.69
850	16QAM	1.61	1.69
850	64QAM	1.61	1.69

Table 21 - Occupied Bandwidth Results

	ectrum Analyzer - Occupied							- ¢
RL	RF 50 Ω DC		SENSE:EXT SOU	RCE OFF AL eq: 850.000000	IGN AUTO		01:51:2 Radio Std:	2 PM Nov 24, 20
		NFE #IFGain:	🖞 斗 Trig: Free	Run	Avg Hold: 3	00/300	Radio Devid	e: BTS
5 dB/div og	Ref 55.00 dE	3m						
0.0								
5.0	- A						<u> </u>	
0.0								
							h_	
0	F						\ \	
ő – – – – – – – – – – – – – – – – – – –	m							
0								
0								
-								
.0								
enter 85 es BW 3	50.000 MHz 24 kHz		VB	W 240 kHz				2.500 M 2.500 M 2 4.067 I
Occu	pied Bandwid	dth	Total F	ower	54.2 dE	m		
	1	.6086 MH	lz					
Transr	nit Freq Error	-838	Hz % of O	BW Power	99.00	%		
x dB B	andwidth	1.687 M	Hz xdB		-26.00 (B		
a					STATUS			

Figure 4 - 850 MHz, QPSK



X RL RF 50 Ω DC Center Freq 850.000000 N	IHz	Center Freq: 850.000000 M		03:21:18 PM Nov 24, 2023 Radio Std: None
NF	E ++ #IFGain:Low	→ Trig: Free Run #Atten: 10 dB	Avg Hold: 300/300	Radio Device: BTS
15 dB/div Ref 55.00 dBm				
40.0		······		man
25.0				
10.0				
-5.00				
-20.0				كى
-35.0				have
-50.0				
-65.0				
-80.0				
-00.0				
Center 850.000 MHz Res BW 24 kHz		VBW 240 kHz		Span 2.500 MHz Sweep 4.067 ms
Occupied Bandwidth	ı	Total Power	54.7 dBm	
	6080 MHz			
Transmit Freq Error	1.896 kHz	% of OBW Power	99.00 %	
x dB Bandwidth	1.687 MHz	x dB	-26.00 dB	
MSG			STATUS	

Figure 5 - 850 MHz, 16QAM

Keysight Spect	rum Analyzer - Occu RF 50 Ω			SENSE:EXT SOURCE OFF	ALIG	N AUTO			03:50:0	9 PM Nov 24, 2023
	eq 850.0000			Center Freq: 850.0	000000 M	Hz		R	adio Std: N	
		NFE	₩FGain:Low	Trig: Free Run #Atten: 10 dB		Avg Hold: 3	00/300	R	adio Devic	e: BTS
15 dB/div	Ref 55.00	dBm								
Log	Rei 33.00									
40.0		~~~~~	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~		~~~~~	~~~~~		~~~	`	
25.0									1	
10.0									1	
-5.00	- And							_	m	II
-20.0									- \ \	
-35.0										- mark
-50.0										
-65.0										
-80.0										
Center 850 Res BW 24				VBW 240) kHz					2.500 MHz 3 4.067 ms
Occup	ied Bandv	vidth		Total Power		54.8 dE	3m			
		1.610	03 MHz							
Transm	it Freq Erro	or	668 Hz	% of OBW P	ower	99.00	%			
x dB Ba	ndwidth		1.688 MHz	x dB		-26.00	dB			
MSG						STATUS				

Figure 6 - 850 MHz, 64QAM

FCC 47 CFR Part 2, Limit Clause 2.1049

None stated.



2.3.7 Test Location and Test Equipment Used

This test was carried out in RF Laboratory 2.

Instrument	Manufacturer	Туре No	TE No	Calibration Period (months)	Calibration Expires
Multimeter	Fluke	75 Mk3	455	12	15-Dec-2023
Network Analyser	Rohde & Schwarz	ZVA 40	3548	12	06-Mar-2024
Calibration Unit	Rohde & Schwarz	ZV-Z54	4368	12	06-Mar-2024
Frequency Standard	Spectracom	SecureSync 1200- 0408-0601	4393	6	08-Feb-2024
PXA Signal Analyser	Keysight Technologies	N9030A	4654	12	16-Jan-2024
Hygrometer	Rotronic	HP21	4989	12	21-Jul-2024

Figure 7



2.4 Spurious Emission at Antenna Terminals

2.4.1 Specification Reference

FCC 47 CFR Part 2, Clause 2.1051 FCC 47 CFR Part 22G, Clause 22.861

2.4.2 Equipment Under Test and Modification State

Air4G 2700 A4G27-F085-DC1-EXGG, S/N: FD5879014AC - Modification State 0

2.4.3 Date of Test

24-November-2023

2.4.4 Test Method

This test was performed in accordance with ANSI C63.26, clause 5.7.

This test was performed on a single sector for both antenna ports as the applicant declared that both sectors are electrically identical. The limit was reduced by 10*Log(N), where N = Number of antenna ports.

10*Log(2) = 3 dB.

2.4.5 Environmental Conditions

Ambient Temperature20.7 °CRelative Humidity49.2 %



2.4.6 Test Results

<u>Transmit</u>

Carrier Frequency (MHz)	Modulation	Band Edge Frequency (MHz)	Result at Band Edge (dBm)	Limit (dBm)	Margin (dB)
850	QPSK	849	-38.8	-16.0	22.8
850	QPSK	851	-39.4	-23.0	16.4
850	16QAM	849	-39.3	-16.0	23.3
850	16QAM	851	-39.4	-23.0	16.4
850	64QAM	849	-37.0	-16.0	21.0
850	64QAM	851	-36.6	-23.0	13.6

Table 22 - Band Edge Results, Sector A (TxRx0)

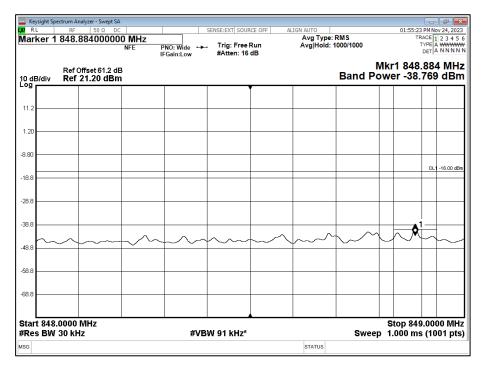


Figure 8 - 850 MHz, QPSK, Band Edge Frequency: 849 MHz. Sector A (TxRx0)



Kej		Spectrum A	Analyzer - Swept SA 50 Ω DC			SENSE:EXT SOUR		IGN AUTO		01-59-2	B PM Nov 24, 202
			.05100000	0 MHz	PNO: Wide ↔ FGain:Low	Trig: Free #Atten: 16	Run	Avg Type: Avg Hold:	RMS 1000/1000	TI	TYPE A WWWA
10 dE	3/div		Offset 61.2 dl 11.20 dBn							Mkr1 851 ower -39	
1.20											
8.80											
18.8											DL1 -23.00
28.8											
18.8 48.8	∲ ¹	~~~	m			·····		m			\sim
58.8											
58.8											
78.8											
		1.000 F V 30 ki		1	#VE	W 91 kHz*			Swee	Stop 8: p 1.533 m	54.000 Mi s (1001 p
SG								STATUS			

Figure 9 - 850 MHz, QPSK, Band Edge Frequency: 851 MHz. Sector A (TxRx0)

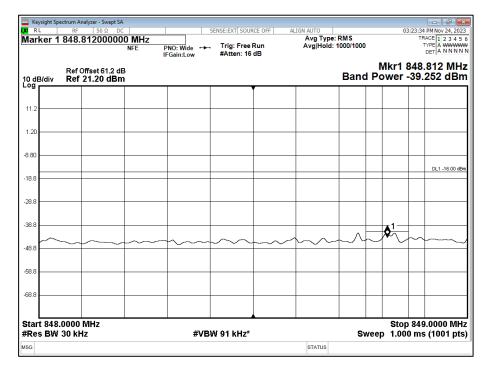


Figure 10 - 850 MHz, 16QAM, Band Edge Frequency: 849 MHz. Sector A (TxRx0)



Key		Spectrum A	nalyzer - Swept S	1 1	SENSE:EXT SOUR	CE OFF A	IGN AUTO		03:29:3	5 PM Nov 24, 202
Mar	ker	1 851.	0510000	PNO: Wide	. Trig: Free #Atten: 16	Run	Avg Type: Avg Hold:	RMS 1000/1000	TF	TYPE A WWWW DET A NNNN
10 dE	3/div		Offset 61.2 d					Band Po	/kr1 851 wer -39.	
1.20										
-8.80										
18.8										DL1 -23.00 d
-28.8										
38.8 48.8	Q 1	m		 	~~~~	~~~~	m	~~~~		~~~
58.8										
68.8										
78.8										
		1.000 F V 30 ki		#VE	3W 91 kHz*			Sweep	Stop 85 1.533 ms	54.000 MH s (1001 pt
ISG							STATUS			

Figure 11 - 850 MHz, 16QAM, Band Edge Frequency: 851 MHz. Sector A (TxRx0)

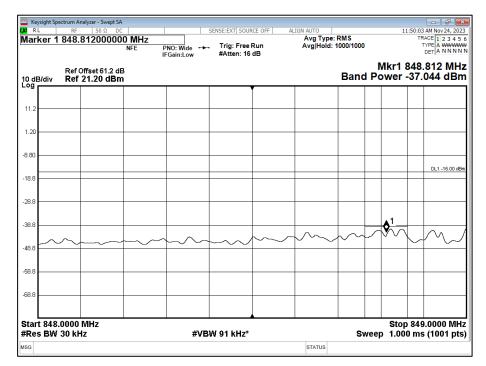


Figure 12 - 850 MHz, 64QAM, Band Edge Frequency: 849 MHz. Sector A (TxRx0)



Keysight	Spectrum A	nalyzer - Swept SA 50 Ω DC			SENSE:EXT SOUP	CE OFE A	LIGN AUTO		11:54:1	0 AM Nov 24, 202
		05100000	OMHZ	PNO: Wide ↔ FGain:Low	Trig: Free #Atten: 16	Run	Avg Type: Avg Hold:	1000/1000	т	TYPE A WWW DET A NNNN
10 dB/div		Offset 61.2 dl 11.20 dBn			,	,		Band P	Mkr1 851 ower -36	.051 MH .569 dBr
1.20										
-8.80										
-18.8										DL1 -23.00 dt
-28.8										
48.8	\sim	hm		~~~~		~~~~	m		h	hn
58.8										
68.8										
78.8										
	i1.000 F N 30 ki			 #VB	W 91 kHz*			Swee	Stop 8 p 1.533 m	54.000 MH s (1001 pt
SG							STATUS			

Figure 13 - 850 MHz, 64QAM, Band Edge Frequency: 851 MHz. Sector A (TxRx0)



Carrier Frequency (MHz)	Modulation	Band Edge Frequency (MHz)	Result at Band Edge (dBm)	Limit (dBm)	Margin (dB)
850	QPSK	849	-39.6	-16.0	23.6
850	QPSK	851	-39.7	-23.0	16.7
850	16QAM	849	-40.0	-16.0	24.0
850	16QAM	851	-39.6	-23.0	16.6
850	64QAM	849	-38.3	-16.0	22.3
850	64QAM	851	-36.1	-23.0	13.1



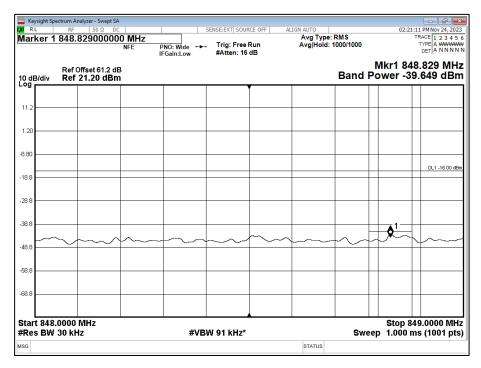


Figure 14 - 850 MHz, QPSK, Band Edge Frequency: 849 MHz. Sector A (TxRx1)



Keysie RL	ght Spec	trum Ar RF		Swept SA Ω DC		SENSE:EXT SOU		IGN AUTO		02:24:11	- 🗗 📕
	er 1 8				PNO: Wide ↔ FGain:Low	. Trig: Free #Atten: 16	Run	Avg Type: Avg Hold:	RMS 1000/1000	TF	TYPE A WWW DET A NNN
0 dB/				51.2 dB 0 dBm			-	1	Band P	Mkr1 851 ower -39.	.303 MI 739 dB
1.20											
B.80 —			-								
18.8											DL1 -23.00 (
28.8 —			+								
18.8	\sim	u d	₹	\sim	 		m				
18.8											
8.8 -			_								
8.8			+								
	851.0 BW 3				#VB	W 91 kHz*		<u> </u>	Swee	Stop 85 p 1.533 ms	54.000 M 5 (1001 p
G								STATUS			

Figure 15 - 850 MHz, QPSK, Band Edge Frequency: 851 MHz. Sector A (TxRx1)

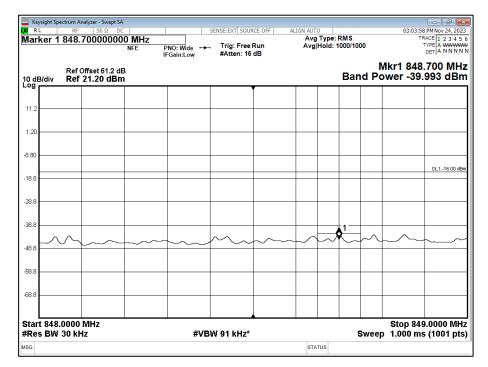


Figure 16 - 850 MHz, 16QAM, Band Edge Frequency: 849 MHz. Sector A (TxRx1)



RL RL	RF	yzer - Swept SA 50 Ω DC			SENSE:EXT SOUR	CE OFF AL	IGN AUTO		03:07:19	PM Nov 24, 202
larker 1	851.0	5100000	NFE F	PNO: Wide ↔ FGain:Low	Trig: Free #Atten: 16		Avg Type: Avg Hold: 1	RMS 000/1000		TYPE A WWW DET A NNN
0 dB/div		fset 61.2 dE 1.20 dB m						M Band Po	/lkr1 851 ower -39.	
1.20										
8.80										
18.8										DL1 -23.00 c
28.8										
38.8 48.8	s	\sim	m	~~~~	mh	~~~	~~~~	~~~~	~~~	~~~
58.8										
68.8										
78.8										
tart 851 Res BW				#VB				Sweep	Stop 85 0 1.533 ms	54.000 MH 5 (1001 pt

Figure 17 - 850 MHz, 16QAM, Band Edge Frequency: 851 MHz. Sector A (TxRx1)

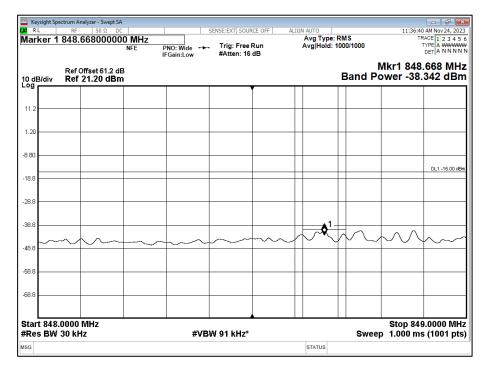


Figure 18 - 850 MHz, 64QAM, Band Edge Frequency: 849 MHz. Sector A (TxRx1)



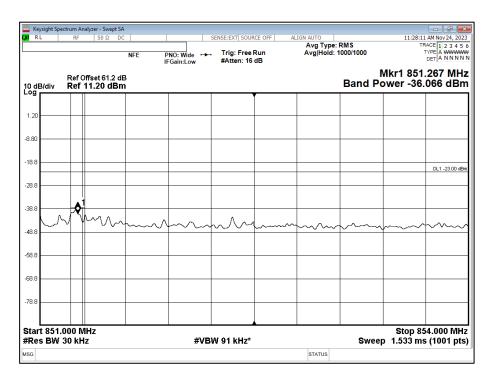


Figure 19 - 850 MHz, 64QAM, Band Edge Frequency: 851 MHz. Sector A (TxRx1)



Carrier Frequency (MHz)	Modulation	Emission Frequency (MHz)	Level (dBm)	Limit (dBm)	Margin (dB)
850	QPSK	3792	-25.4	-16.0	9.4
850	QPSK	8544	-24.7	-16.0	8.7
850	16QAM	4007	-25.9	-16.0	9.9
850	16QAM	8494	-25.0	-16.0	9.0
850	64QAM	5761	-25.6	-16.0	9.6
850	64QAM	8313	-23.9	-16.0	7.9

Table 24 - Conducted Spurious Emissions Results, Sector A (TxRx0)

No other emissions were found within 10 dB of the limit.

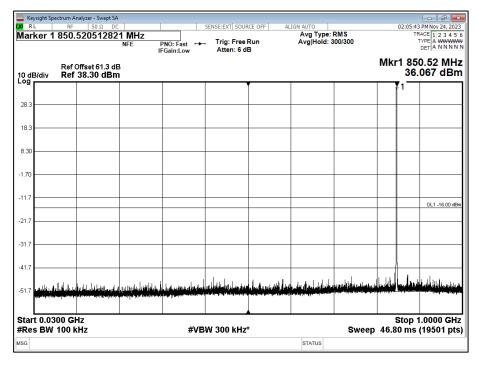


Figure 20 - 850 MHz, QPSK, 30 MHz to 1 GHz, Sector A (TxRx0)



Keysight Spe	ectrum Analyzer - Swept S RF 50 Ω D			SENSE:EXT SOUR	RCE OFF AL	IGN AUTO		02:07:06	PM Nov 24, 202
Marker 1	3.1643561638	NFE	PNO: Fast ↔ FGain:Low	Trig: Free #Atten: 6 c		Avg Type: Avg Hold: 2		1	ACE 1 2 3 4 5 TYPE A WWWW DET A NNNN
0 dB/div	Ref Offset 61.3 d Ref 21.30 dBr		1		-		N	lkr1 3.16 -39.	4 36 GH 023 dBr
11.3									
1.30									
8.70									
18.7									DL1 -16.00 d
28.7								_ 1	
18.7 11. at line	الالمالا مذواتها الاجر ملي الألس	christallan abde able i	al li, dis, si ol olu a, toda	l U dinovila l Alar	lan calific de califie de la c	willingth with the second s	Although of Annual and	المايية المراينية	
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i8.7 i8.7									
Start 1.00	0.047							Cton	2 500 CL
Res BW			#VB	W 300 kHz	*		Sweep	510p 119.0 ms	3.500 GH (51000 pt



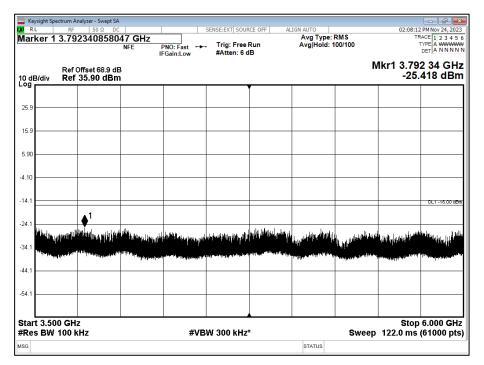


Figure 22 - 850 MHz, QPSK, 3.5 GHz to 6 GHz, Sector A (TxRx0)



Key		rm Analyzer - Swept S RF 50 Ω D			SENSE:EXT SOUP		IGN AUTO		02-00-22	PM Nov 24, 202
		544238430	138 GHz	PNO: Fast ↔ FGain:High	. Trig: Free #Atten: 0 c	Run	Avg Type: Avg Hold: 1		TF	TYPE A WWWW DET A NNNN
10 dE Log r		tef Offset 76.3 d tef 23.30 dBr					1	N	1kr1 8.54 -24.	4 24 GH 722 dBr
13.3										
3.30										
-6.70										
-16.7									♦ ¹	DL1 -16.00 dt
-26.7	^{WEE} NU, LAW	المالية بغرافه أناري	h triatal and a triat	Ald Andre Contraction			ula na statica e	and a state of the second	hinder of the second	
36.7 46.7		a i i i i i i i i i i i i i i i i i i i		and the second						
56.7										
66.7										
	t 6.000 (s BW 10			#VB	W 300 kHz			Sweep	Stop 146.4 ms	9.000 GH (61000 pt
ISG							STATUS			



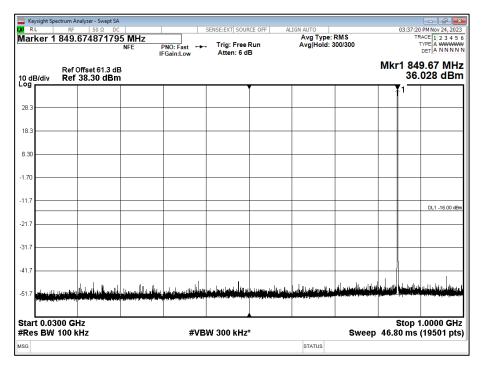


Figure 24 - 850 MHz, 16QAM, 30 MHz to 1 GHz, Sector A (TxRx0)



Key XIRL		trum Analyzer - Sw RF 50 Ω			SENSE:EXT SOUF		IGN AUTO		02-28-10	PM Nov 24, 202
			77503 GHz	PNO: Fast ↔ IFGain:Low	Trig: Free #Atten: 6 c	Run	Avg Type: Avg Hold: 2		TR	ACE 1 2 3 4 5 TYPE A WWWW DET A NNNN
10 dE		Ref Offset 61 Ref 21.30 (N	1kr1 2.68 -38.	6 55 GH 730 dBr
11.3										
1.30										
8.70										
18.7										DL1 -16.00 dE
28.7							_ 1			
38.7	الد المار		t stacolit. To believe	al al al la bar a bar a bar a b	المريف والملعاة والمراجع	المنابي أراب الارابية	United and the states	talihiyo ta talihiki ku	فتنصاب أأرفا أسافر ون	وبارز الغر بالطباري
							يعالفه فرغيا المراجع		ang tanàna amin'ny fisiana amin'ny fisiana	يتريد ويتريك والمناطق
58.7										
-68.7										
	t 1.000 s BW 1	GHz 00 kHz		#VI	BW 300 kHz	*		Sweep	Stop 119.0 ms	3.500 GH (51000 pt
ISG							STATUS			



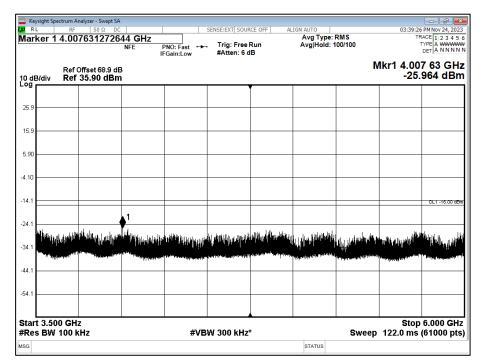


Figure 26 - 850 MHz, 16QAM, 3.5 GHz to 6 GHz, Sector A (TxRx0)



Key		n Analyzer - Swept S RF 50 Ω D		1	astron start agur				00.44.07	PM Nov 24, 202
		1942703978	NFE	PNO: Fast ++	SENSE:EXT SOUF . Trig: Free #Atten: 0 c	Run	IGN AUTO Avg Type: Avg Hold: 1		TR	ACE 1 2 3 4 5 TYPE A WWWW DET A N N N N
10 dE Log r		ef Offset 76.3 d ef 23.30 dBr	в	5				N	lkr1 8.49 -25.	4 27 GH: 031 dBn
13.3										
3.30										
6.70										
16.7									♦ ¹	DL1 -16.00 d8
26.7 36.7	^{NAM} ALINA DADA	ilitati jet operati ka je		NALL AND A DAY OF	ister and a state of the state	(dependent ^{andel} ert ph	an a	ann a' ann a' ann a'	h in the second s	
46.7	and the second secon		and the state of t	- Pillers			-100-00 -100-00			
56.7										
66.7										
	t 6.000 G s BW 100			#VE	300 kHz	*		Sweep	Stop 146.4 ms	9.000 GH (61000 pt
ISG							STATUS			



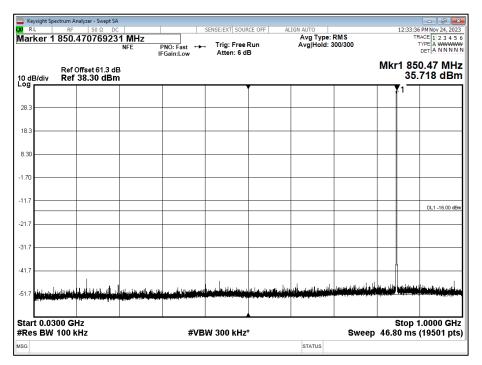
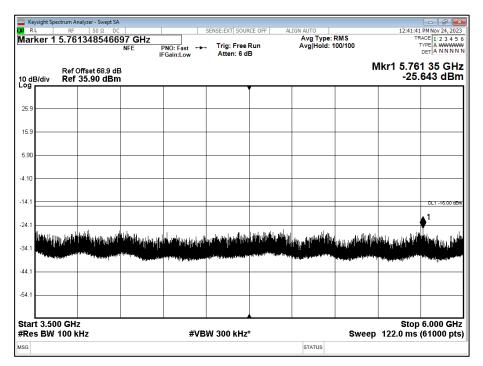


Figure 28 - 850 MHz, 64QAM, 30 MHz to 1 GHz, Sector A (TxRx0)



Keysight Sp	pectrum Analyzer - Swept S RF 50 Ω D			SENSE:EXT SOUR	CE OFF AL	IGN AUTO		12:21:35	PM Nov 24, 2023
Marker 1	2.760132551	NFE	PNO: Fast 🔶 FGain:Low	. Trig: Free #Atten: 6 c		Avg Type: Avg Hold: 2	RMS 00/200	TR	ACE 1 2 3 4 5 TYPE A WWWW DET A NNNN
10 dB/div	Ref Offset 61.3 d Ref 21.30 dBi						N	1kr1 2.76 -39.	0 13 GH 416 dBn
11.3									
1.30									
8.70									DL1 -16.00 df
18.7									221-10.00 G
28.7							1		
38.7 48.7 Iuli Iu	ng piling in a gandara balan. Ang	iller, fall and , bestelade	والمعرونا الارتان أبأمانه	أمر بانقابان الداريا القرن	a je s li dilbiti, to akt	whither that h	luhan din padi k	iliji ku ji ku ji ji ku ji	d hundhadada
58.7	یدی انجازی در ایر این ایرون (میزایر) در انجازی در ایرون ایرون (میزایر)	an a			and the second of the second				
68.7									
Start 1.00				W 200 ku-	*		Guiace		3.500 GH
FRES BW	100 kHz		#VB	W 300 kHz	•	STATUS	sweep	119.0 ms	ເວາບບບ pt









Key		nalyzer - Swept SA 50 Ω DC			SENSE:EXT SOUR	CE OFF AL	IGN AUTO		12:44:03	PM Nov 24, 2023
Marl	ker 1 8.31	33330054	NFE I	PNO: Fast ↔	Trig: Free #Atten: 0 d		Avg Type: Avg Hold: 1		1	ACE 1 2 3 4 5 TYPE A WWWW DET A NNNN
10 dE Log r		Offset 76.3 dE 23.30 dBm						N	lkr1 8.31 -23.	3 33 GH: 941 dBn
13.3										
3.30										
6.70										
-16.7								1		DL1 -16.00 dB
26.7				h Isla h _{a a} g igi si si filmi)	Y.a. applications in the second se	Ulga a print and the state			(4.4P ^{roduct})	ul ^{parala} lan (
36.7 46.7	² El Pagi de la Constanti de Const Constanti de Constanti de Constant	ىيا بەركالەرغارىيە. 14.	a farina ing bergentin ing ing ing ing ing ing ing ing ing i	and a state of the	and the second	an a	orphysics and Distances		an an tan ing pantakan dan sa panga	and a second second
-56.7										
66.7										
	t 6.000 GH s BW 100 I			#\/P	W 300 kHz			Swoon	Stop 146.4 ms	9.000 GH
#Res Isg	5 DVV 1001	102		#VD	99 JUU KHZ		STATUS	aweep	140.4 MS	(01000 pt

Figure 31 - 850 MHz, 64QAM, 6 GHz to 9 GHz, Sector A (TxRx0)



Carrier Frequency (MHz)	Modulation	Emission Frequency (MHz)	Level (dBm)	Limit (dBm)	Margin (dB)
850	QPSK	8804	-25.3	16.0	9.3
850	16QAM	4329	-25.8	16.0	9.8
850	16QAM	8821	-24.6	16.0	8.6
850	64QAM	3760	-25.6	16.0	9.6
850	64QAM	7394	-24.4	16.0	8.4

Table 25 - Conducted Spurious Emissions Results, Sector A (TxRx1)

No other emissions were found within 10 dB of the limit.

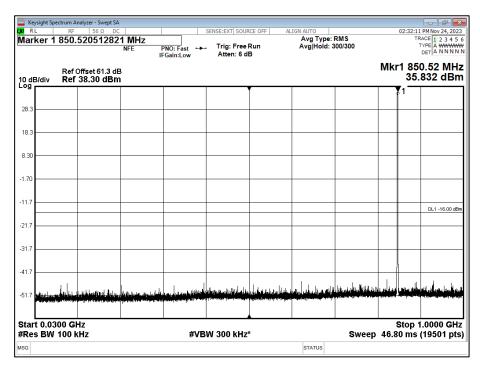
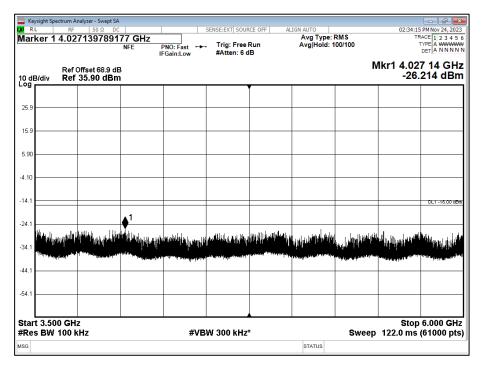


Figure 32 - 850 MHz, QPSK, 30 MHz to 1 GHz, Sector A (TxRx1)



Keysig	ght Spectrum / RF	Analyzer - Swept SA 50 Ω DC			SENSE:EXT SOUP	CE OFF AL	IGN AUTO		02:33:11	PM Nov 24, 202
Marke	er 1 3.23	312692405	NFE	PNO: Fast ↔ FGain:Low	Trig: Free #Atten: 6 c		Avg Type: Avg Hold: 2		1	ACE 1 2 3 4 5 TYPE A WWWW DET A NNNN
0 dB/c		Offset 61.3 dE f 21.30 dBm						N	lkr1 3.23 -39.	1 27 GH 640 dBr
11.3										
1.30 —										
3.70										DL1 -16.00 d
18.7										DE1-10.00 0
28.7										1
18.7 —	h litti indalaha	ն, սինի երելու հանգի	والملغان الفاطلية	المتربي والمرابعة المتلار الغال		المالية ويقالبن الانواليا	, Ale Hilder and Ale Hilder) . A hall had a h	անություն	de di bed di je
i8.7 —	مطرودة فيري مالدول	n) taiki katao na matao na mat	1979 - 1979 - 1979 - 1979 - 1979 - 1979 - 1979 - 1979 - 1979 - 1979 - 1979 - 1979 - 1979 - 1979 - 1979 - 1979 -	Dia 1.664 George Action Security Security	and a second			an a		
i8.7										
	1.000 GH BW 100			#VB	W 300 kHz	*		Sweep	Stop 119.0 ms	3.500 GH
G G							STATUS			P









Key	vsiaht Spectrum	Analyzer - Swept SA	1							
IXI RI					SENSE:EXT SOUP	RCE OFF AL	IGN AUTO			PM Nov 24, 2023
Mar	ker 1 8.8	043082673	NFE	PNO: Fast ↔ FGain:High	Trig: Free #Atten: 0 c	Run IB	Avg Type: Avg Hold: 1	RMS 100/100	1	ACE 1 2 3 4 5 TYPE A WWWW DET A NNNN
10 dE Log i		Offset 76.3 dl f 23.30 dBm						N	1kr1 8.80 -25.	4 31 GH: 328 dBn
13.3										
3.30										
-6.70										
-16.7										DL1 -16.00 dB
-26.7	มีป.เอ. ป		سأسلح انترزارا	Austinus, i hatäitäitä	a	(a duiddly.	La ministrativa da a			1 - the ball of the last set
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-46.7										
-56.7										
-66.7										
	t 6.000 GI s BW 100			#VB	W 300 kHz	*		Sweep	Stop 146.4 ms	9.000 GH (61000 pts
MSG							STATUS	-		· ·



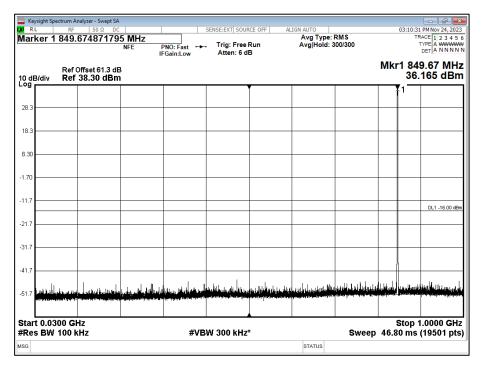


Figure 36 - 850 MHz, 16QAM, 30 MHz to 1 GHz, Sector A (TxRx1)



Keysight S	pectrum Analyzer - Swept S RF 50 Ω D			assuss mat agus	05.055	IGN AUTO			PM Nov 24, 202
	1 3.263916939	548 GHz	PNO: Fast	SENSE:EXT SOUR . Trig: Free #Atten: 6 d	Run	Avg Type: Avg Hold: 2		TR	ACE 1 2 3 4 5 TYPE A WWWW DET A N N N N
10 dB/div	Ref Offset 61.3 d Ref 21.30 dBr						N	1kr1 3.26 -37.	3 92 GH 995 dBn
11.3									
1.30									
8.70									
18.7									DL1 -16.00 dt
28.7									▲ 1
38.7	h had et al de transferation de la company	1	الد ي دال	lanamutalt i		յումիս մեկին եր	والمراجعة المراجع	. I I. i Intelhiologia I	₹
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58.7									
68.7									
L Start 1.0 #Res BW	00 GHz / 100 kHz		#VB	W 300 kHz	k		Sweep	Stop 119.0 ms	3.500 GH (51000 pt
ISG						STATUS			



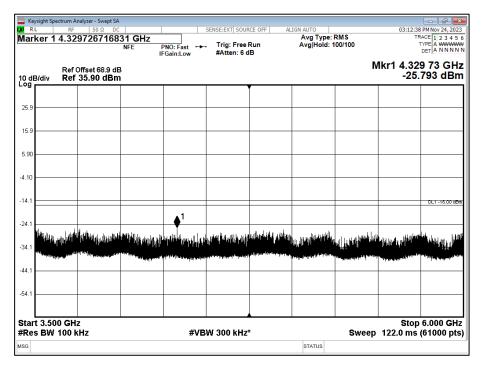


Figure 38 - 850 MHz, 16QAM, 3.5 GHz to 6 GHz, Sector A (TxRx1)



Key XIRI		Analyzer - Swept SA 50 Ω DC			SENSE:EXT SOUR	RCE OFF AL	IGN AUTO		03:13:50	PM Nov 24, 2023
	ker 1 8.82	215216642	NFE	PNO: Fast 🔸	. Trig: Free #Atten: 0 c	Run	Avg Type: Avg Hold: 1	RMS 100/100	TR 1	ACE 1 2 3 4 5 TYPE A WWWW DET A NNNN
10 dE Log I		Offset 76.3 dl f 23.30 dBn						N	lkr1 8.82 -24.	1 52 GH: 625 dBn
13.3										
3.30										
-6.70										
-16.7										DL1 -16.00 dE
-26.7	alingia ya kateka	n in the state of the	ling have the	Wiliopate and a second	alithe and the second	in the state of the second	ult, dillo ^{ndul} terist	d division in the day	يى المرا ^{را تى} المراريم.	NI ^{BERT} ANA
-36.7	a sa a s	and a second	a. manager	a di kana kana kata kata kana kata kata kata	and the second	- Angerstander anger	hanna an	an a san an a		a particular a super-
-46.7										
-56.7										
-66.7										
	t 6.000 GH s BW 100		I	⊥#VB	W 300 kHz	*	1	Sweep	Stop 146.4 ms	9.000 GH: (61000 pts
MSG							STATUS	•		· •



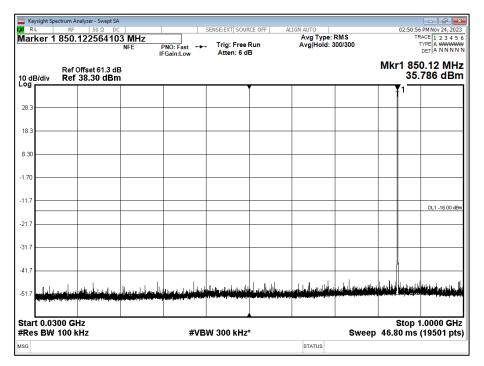


Figure 40 - 850 MHz, 64QAM, 30 MHz to 1 GHz, Sector A (TxRx1)



Keysigh	ht Spectrum A	nalyzer - Swept SA 50 Ω DC		1	asuas sust aque	an orn	IGN AUTO		00.54.54	
		56797192	10 GHz	PNO: Fast ↔ IFGain:Low	SENSE:EXT SOUR Trig: Free #Atten: 6 d	Run	Avg Type: Avg Hold: 2		TF	3 PM Nov 24, 202 RACE 1 2 3 4 5 TYPE A WWWW DET A N N N N
10 dB/di		Offset 61.3 dl 21.30 dBn						N	1kr1 3.16 -39.	5 68 GH 306 dBr
11.3										
1.30										
8.70										DL1 -16.00 df
18.7										001-10.00 d
28.7									1	
38.7 48.7 k	أليلية والمراجع	h l fahilijikaa mita		الأسالي اديراريالياء	n na shi ka	hi h	الاستقاداتك يتقادرها		ng kalalin Malalin	ull data da
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68.7										
	.000 GH 3W 100 I				3W 300 kHz	*		Sween	Stop 119.0 ms	3.500 GH
ISG		112		#VE	997 JUU KHZ		STATUS	aweeh	119.01115	(51000 pt



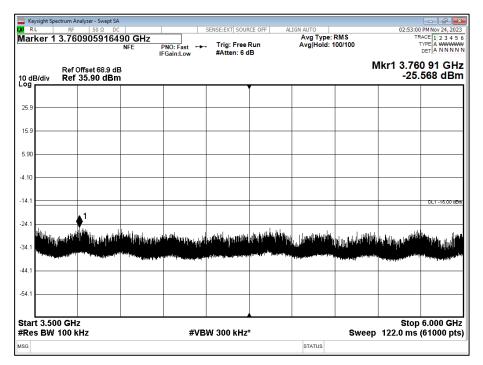


Figure 42 - 850 MHz, 64QAM, 3.5 GHz to 6 GHz, Sector A (TxRx1)



Mey XIRL		nalyzer - Swept SA 50 Ω DC			SENSE:EXT SOUR	CE OFF AL	IGN AUTO			PM Nov 24, 202
Marl	ker 1 7.39	49245069	NFE I	PNO: Fast ↔ Gain:High	. Trig: Free #Atten: 0 d	Run IB	Avg Type: Avg Hold: 1	00/100		TYPE A WWWW DET A NNNN
10 dE Log r		Offset 76.3 dE 23.30 dBm						N	1kr1 7.39 -24.	4 92 GH 351 dBr
13.3										
3.30										
6.70										
16.7					▲ 1					DL1 -16.00 dB
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66.7										
	t 6.000 GH s BW 100 I		1	#VB	W 300 kHz	*	1	Sweep	Stop 146.4 ms	9.000 GH (61000 pt
ISG							STATUS			

Figure 43 - 850 MHz, 64QAM, 6 GHz to 9 GHz, Sector A (TxRx1)

FCC 47 CFR Part 22, Limit Clause 22.861

The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log (P) dB$.

Note: As per FCC DA 22-657, emissions shall be attenuated by 50 + 10 log (P) dB in the 851-854 MHz public safety band.



2.4.7 Test Location and Test Equipment Used

This test was carried out in RF Laboratory 2.

Instrument	Manufacturer	Туре No	TE No	Calibration Period (months)	Calibration Expires
Multimeter	Fluke	75 Mk3	455	12	15-Dec-2023
Network Analyser	Rohde & Schwarz	ZVA 40	3548	12	06-Mar-2024
Calibration Unit	Rohde & Schwarz	ZV-Z54	4368	12	06-Mar-2024
Frequency Standard	Spectracom	SecureSync 1200- 0408-0601	4393	6	08-Feb-2024
PXA Signal Analyser	Keysight Technologies	N9030A	4654	12	16-Jan-2024
Hygrometer	Rotronic	HP21	4989	12	21-Jul-2024

Figure 44



2.5 Radiated Spurious Emissions

2.5.1 Specification Reference

FCC 47 CFR Part 2, Clause 2.1053 FCC 47 CFR Part 22G, Clause 22.861

2.5.2 Equipment Under Test and Modification State

Air4G 2700 A4G27-F085-DC1-EXGG, S/N: FD5879014AC - Modification State 0

2.5.3 Date of Test

29-November-2023 to 01-December-2023

2.5.4 Test Method

This test was performed in accordance with ANSI C63.26, clause 5.5.

A 50 ohm load was connected to each of the EUT's antenna ports. Each port was configured to transmit at maximum power.

2.5.5 Test Setup Diagram

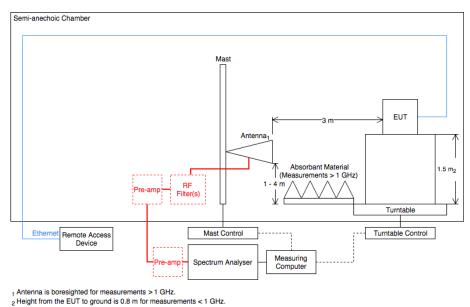


Figure 45

Note: Due to the physical dimensions of the EUT, the height of the EUT was adjusted so that the centre of the EUT was approximately 0.8m in height for measurements below 1 GHz and 1.5m for measurements above 1 GHz.

2.5.6 Environmental Conditions

Ambient Temperature	21.6 - 21.8 °C
Relative Humidity	27.1 - 31.7 %



2.5.7 Test Results

<u>Transmit</u>

Frequency (MHz)	Level (dBm)	Limit (dBm)	Margin (dB)	Detector	Angle (°)	Height (cm)	Polarisation
1699.933	-14.36	-13.00	-1.36	Peak	206	150	Vertical
1700.130	-14.42	-13.00	-1.42	Peak	181	196	Horizontal

Table 26 - QPSK, 850 MHz, 30 MHz to 9 GHz

No other emissions found within 10 dB of the limit.

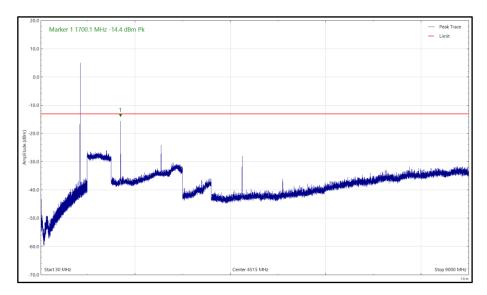


Figure 46 - QPSK, 850 MHz, 30 MHz to 9 GHz, Horizontal (Peak)

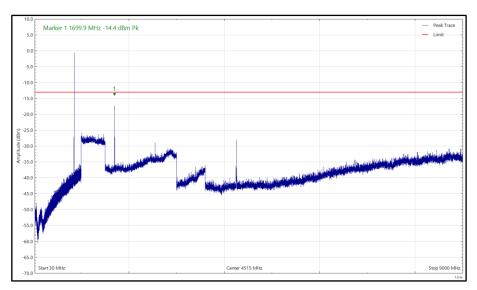


Figure 47 - QPSK, 850 MHz, 30 MHz to 9 GHz, Vertical (Peak)



Frequency (MHz)	Level (dBm)	Limit (dBm)	Margin (dB)	Detector	Angle (°)	Height (cm)	Polarisation
1699.979	-14.29	-13.00	-1.29	Peak	196	174	Vertical
1700.130	-17.85	-13.00	-4.85	Peak	155	150	Horizontal

Table 27 - 16QAM, 850 MHz, 30 MHz to 9 GHz

No other emissions found within 10 dB of the limit.

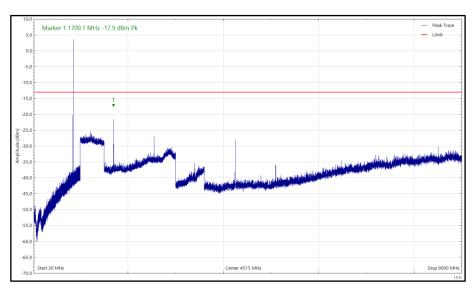


Figure 48 - 16QAM, 850 MHz, 30 MHz to 9 GHz, Horizontal (Peak)

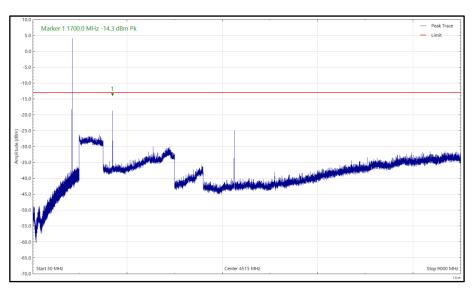


Figure 49 - 16QAM, 850 MHz, 30 MHz to 9 GHz, Vertical (Peak)



Frequency (MHz)	Level (dBm)	Limit (dBm)	Margin (dB)	Detector	Angle (°)	Height (cm)	Polarisation
1699.890	-15.22	-13.00	-2.22	Peak	188	185	Vertical
1700.085	-16.48	-13.00	-3.48	Peak	227	150	Horizontal

Table 28 - 64QAM, 850 MHz, 30 MHz to 9 GHz

No other emissions found within 10 dB of the limit.

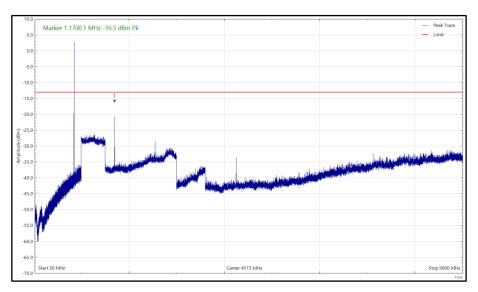


Figure 50 - 64QAM, 850 MHz, 30 MHz to 9 GHz, Horizontal (Peak)

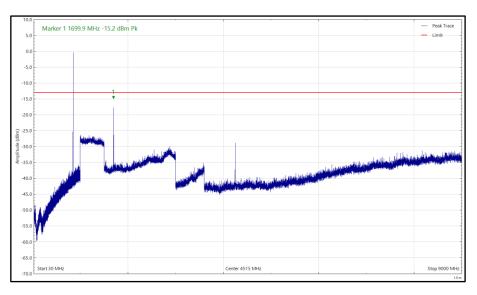


Figure 51 - 64QAM, 850 MHz, 30 MHz to 9 GHz, Vertical (Peak)

FCC 47 CFR Part 22, Limit Clause 22.861

The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log (P) dB$.



2.5.8 Test Location and Test Equipment Used

This test was carried out in EMC Chamber 12.

Instrument	Manufacturer	Туре No	TE No	Calibration Period (months)	Calibration Expires
Test Receiver	Rohde & Schwarz	ESU40	3506	12	30-Mar-2024
High Pass filter	Wainwright	WHKX12-1290- 1500-18000-80SS	4962	12	14-Jun-2024
Pre-amplifier (30 dB, 1GHz to 18GHz)	Schwarzbeck	BBV 9718 C	5261	12	14-Apr-2024
Thermo-Hygro-Barometer	PCE Instruments	PCE-THB-40	5471	12	28-Apr-2024
Antenna (DRG, 1 GHz to 10.5 GHz)	Schwarzbeck	BBHA9120B	5611	12	15-Oct-2024
Turntable & Mast Controller	Maturo Gmbh	NCD/498/2799.01	5612	-	TU
Tilt Antenna Mast	Maturo Gmbh	TAM 4.0-P	5613	-	TU
3m Semi-Anechoic Chamber	MVG	EMC Chamber 12	5621	36	07-Aug-2026
Cable (N-Type to N-Type, 2 m)	Junkosha	MWX221- 02000AMSAMS/B	5729	6	05-Dec-2023
1m K-Type Cable	Junkosha	MWX221/B	5908	12	21-May-2024
Antenna (Tri-log, 30 MHz to 1 GHz)	Schwarzbeck	VULB 9168	5942	24	03-Feb-2024
Attenuator (4 dB)	Pasternack	PE7074-4	6202	24	16-Jul-2024
Cable (N-Type to N-Type, 8 m)	Junkosha	MWX221- 08000NMSNMS/B	6320	12	04-Feb-2024

Figure 52

TU - Traceability Unscheduled



3 Photographs

3.1 Test Setup Photographs



Figure 53 - Conducted Measurements Setup



Figure 54 – 30 MHz to 1GHz Setup



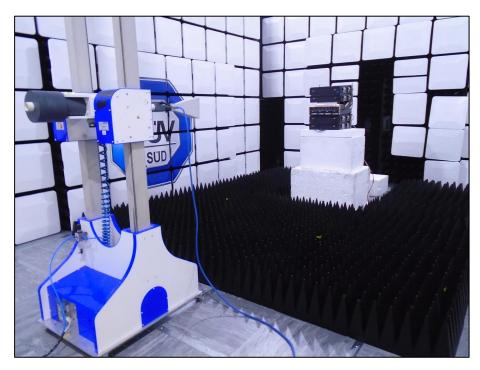


Figure 55 – 1 GHz to 9 GHz Setup



4 Test Equipment Information

4.1 Customer Support Equipment

Instrument	Manufacturer	Type No	Serial Number	Calibration Period (months)	Calibration Due
Power Suppy (DC)	aAP	SP75VDC1000W	0114017223200002	-	O/P Mon
Attenuator (20dB, 500W)	MCE/Weinschel	32-20-34	MU899	-	O/P Mon
Attenuator (30dB)	Narda	768-30	1096	-	O/P Mon
Attenuator	MCL	BW-N10W20+	-	-	O/P Mon
Power Suppy (DC)	aAP	SP75VDC1000W	0114017223200003	-	O/P Mon

Table 29

O/P Mon – Output monitored using calibrated test equipment.



5 Measurement Uncertainty

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

Test Name	Measurement Uncertainty
Frequency Stability	± 25.2 kHz
Effective Radiated Power	± 3.21 dB
Occupied Bandwidth	± 25.2 kHz
Spurious Emission at Antenna Terminals	± 0.6 dB (band edge), ±3.5 (conducted spurious emission)
Radiated Spurious Emissions	30 MHz to 1 GHz: ± 5.2 dB 1 GHz to 40 GHz: ± 6.3 dB

Table 30

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.