

RSE Test Report

1A Smart Start Inc.

FINAL SUMMARY REPORT

Report Type: 15B + KDB RSE

Model: Orbis Gen 2 FCC Certification

Software Version: 1.1

Hardware Version: B00

SCOPE OF WORK

Title 47 CFR Part 15 Subpart B

Title 47 CFR Parts 24, 27

Limited to Verification of Radiated Spurious Emissions in Accordance
with FCC KDB 996369 D04 Module Integration Guide v02

REPORT NUMBER

105392576LEX-001.1

ISSUE DATE:
19-May-2023

REVISED DATE:
5-Jan-2024





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RSE Test Report

1 INTRODUCTION

The purpose of this document is to record the test results for the 1A Smart Start Inc. Orbis Gen 2 FCC Certification. This test report shall not be reproduced except in full, without written approval of the test lab. The terminal device was tested to the following specifications:

IEEE/ANSI C63.4-2014
IEEE/ANSI C63.26-2015

The measurement methods and inherent results detailed in this evaluation are within the normative limits defined within the specific standard of each section, where applicable. Furthermore, detailed uncertainty budgets are maintained on file and are available upon request.



1.1 REPORT VERSIONS

REPORT NUMBER	DESCRIPTION	VERSION
105392576LEX-001.1	Initial Release of Report	1.0



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1.2 STATEMENT OF COMPLIANCE AND LABORATORY CONFORMANCE DECLARATION

In this document you will find a description of the terminal device, a description of the test equipment and test execution software used to complete the testing, and an executive summary of the test results. Intertek is accredited as an ISO 17025-2017 laboratory for all scopes tested in this report. Intertek's accreditation certificate number is 1926.01.



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1.3 STATEMENT OF LIABILITY

This report is for the exclusive use of Intertek's Client and is provided pursuant to the agreement between Intertek and its Client. Intertek's responsibility and liability are limited to the terms and conditions of the agreement. Intertek assumes no liability to any party, other than to the Client in accordance with the agreement, for any loss, expense or damage occasioned by the use of this report. Only the Client is authorized to copy or distribute this report and then only in its entirety. Any use of the Intertek name or one of its marks for the sale or advertisement of the tested material, product or service must first be approved in writing by Intertek. The observations and test results in this report are relevant only to the sample tested. This report by itself does not imply that the material, product, or service is or has ever been under an Intertek certification program.



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2 GENERAL INFORMATION

GENERAL INFORMATION - PROJECT ID 6206					
Test Start date:	04/10/2023	Test End Date:	04/11/2023	RTO Test Report #:	105392576LEX-001.1

3 NAME AND ADDRESS OF THE RECOGNIZED TEST ORGANIZATION (RTO)

GCF RTO FACILITY INFORMATION			
RTO Name:	Intertek		
RTO Contact Phone #:	859-226-1000		
RTO Authorization #:	20		
RTO Address:	731 Enterprise Dr. Lexington, KY 40510 Kentucky, 40510, USA		
Evaluation by:	Jordan Coughenour, EMC Technician	Signature:	
Evaluation by:	David Perry, EMC Engineer	Signature:	
Evaluation by:	Jeremiah Andrade, EMC Technician	Signature:	
Prepared by:	Miranda Steele, Project Coordinator	Signature:	
Reviewed by:	Brian Lackey, EMC Team Leader	Signature:	



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4 DESCRIPTION OF TEST SAMPLES

4.1 USER EQUIPMENT (UE)/PROJECT INFORMATION

PROJECT INFORMATION / User Equipment (UE)	
UE Manufacturer:	1A Smart Start Inc.
UE Model #:	Orbis Gen 2 FCC Certification
Software Version:	1.1
Hardware Version:	B00
Embedded Module:	Nordic nRF9160-SICA-B1A-R
Embedded Module Hardware Version:	B1A
Embedded Module Software Version:	1.3.1
Sample Identifier: (IMEI or product's unique identifier)	351358811132312
Sample Condition/Description:	Samples arrived in working condition as first run production samples.
VENDOR INFORMATION	
Address:	500 E Dallas Rd Grapevine, TX 76051-7659 USA
Email:	gordon.harrison@smartstartinc.com
REGULATORY APPROVALS	
FCC ID:	2BA9A11679
These test results relate only to the specific items (UEs) tested (listed above).	
Engineering Final Summary:	This device is a Wearable alcohol detection system.



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Photo of UE (front):



Photo of UE (back):





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5 TEST RESULTS SUMMARY

TEST RESULTS SUMMARY	
Total Tests Required (A, B, or E):	10
Tests Not Applicable:	0
Tests Passed:	10
Tests Failed:	0

6 REFERENCES

The following references are applicable to this document:

SPECIFICATION NUMBER	DESCRIPTION
IEEE/ANSI C63.4-2014	American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz
IEEE/ANSI C63.26-2015	IEEE/ANSI Standard for Compliance Testing of Transmitters Used in Licensed Radio Services

7 ENVIRONMENT

7.1 OPERATIONAL TEMPERATURE AND POWER RANGE OF THE DEVICE

The Operational Voltage is charged on 5VDC from any standard USB source. The Operational Temperature is from -20C to +45C.



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8 MEASUREMENT SYSTEMS

8.1 METHOD

Tests are performed in accordance with ANSI C63.4:2014 and ANSI C63.26:2015.

TEST SITE: 10m ALSE
Site Designation: 10m Chamber



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8.2 SAMPLE CALCULATION

The field strength is calculated by adding the Antenna Factor and Cable Factor, and subtracting the Amplifier Gain (if any) from the measured reading. The basic equation with a sample calculation is as follows:

$$FS = RA + AF + CF - AG$$

Where

- FS = Field Strength in dB μ V/m
- RA = Receiver Amplitude (including preamplifier) in dB μ V
- CF = Cable Attenuation Factor in dB
- AF = Antenna Factor in dB
- AG = Amplifier Gain in dB

In the following table(s), the reading shown on the data table reflects the preamplifier gain. An example for the calculations in the following table is as follows.

Assume a receiver reading of 52.0 dB μ V is obtained. The antenna factor of 7.4 dB and cable factor of 1.6 dB is added. The amplifier gain of 29 dB is subtracted, giving a field strength of 32 dB μ V/m. This value in dB μ V/m was converted to its corresponding level in μ V/m.

RA = 52.0 dB μ V
AF = 7.4 dB/m
CF = 1.6 dB
AG = 29.0 dB
FS = 32 dB μ V/m

To convert from dB μ V to μ V or mV the following was used:

$UF = 10^{(NF / 20)}$ where UF = Net Reading in μ V
NF = Net Reading in dB μ V

Example:

$FS = RA + AF + CF - AG = 52.0 + 7.4 + 1.6 - 29.0 = 32.0$
 $UF = 10^{(32 \text{ dB}\mu\text{V} / 20)} = 39.8 \mu\text{V/m}$



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8.3 FIELD STRENGTH TO POWER CALCULATION

As allowable by ANSI C63.26: 2015 section 5.2.7, the output power of unwanted emissions can be calculated from a field strength measurement. The transmitter measurements that follow in this report have applied the following calculation to the -13dBm limit to arrive an equivalent field strength limit at 3 meters as follows:

$E \text{ (dB}\mu\text{V/m)} = \text{EIRP (dBm)} - 20\log(D) + 104.8$; where D is the measurement distance (in the far field region) in m.

Example:

Limit (dBuV/m) = $-13 - 20\log(3) + 104.8 = 82.25\text{dBuV/m}$



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8.4 PLATFORMS

8.4.1 EMC - RADIATED EMISSIONS (10M) (VER. 1)

Description	Asset	Manufacturer	Model	Calibration Date	Calibration Due
Multi-Device Controller #6029	6029	EMCO	2090	Calibrate at time of use	
Horn Antenna (1 GHz to 18 GHz) #3780	3780	ETS	3117	8/19/2022	8/19/2023
EMI Test Receiver	8285	Rohde & Schwarz	ESW44	12/23/2022	12/23/2023
Bilog Antenna #7085	7085	Sunar	JB6	3/7/2023	3/7/2024
1-18GHz Signal Path with Preamplifier	3074, 3918, 2588, 2593, 8188, 8185	N/A	N/A	01/12/2023	01/12/2024
30M-1G 3m Signal Path without Preamplifier	3339, 2592, 8188, 8185	N/A	N/A	01/12/2023	01/12/2024
System Controller #3957	3957	Sunol Sciences	SC110V	Calibrate at time of use	



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8.5 SOFTWARE UTILIZED

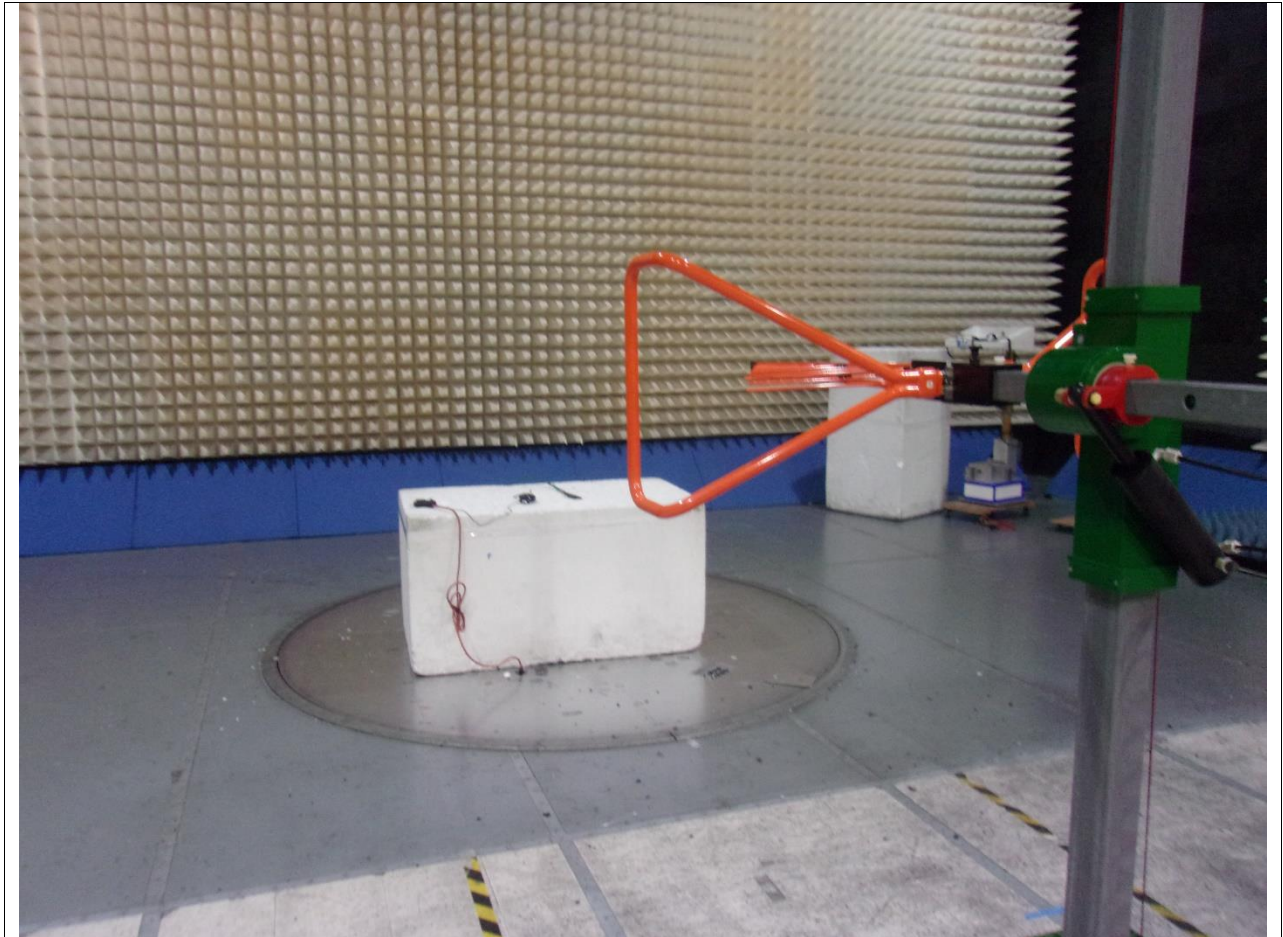
Name	Manufacturer	Version
EMC32	Rohde & Schwarz	Version 10.60.20



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8.6 SETUP PHOTOGRAPHS

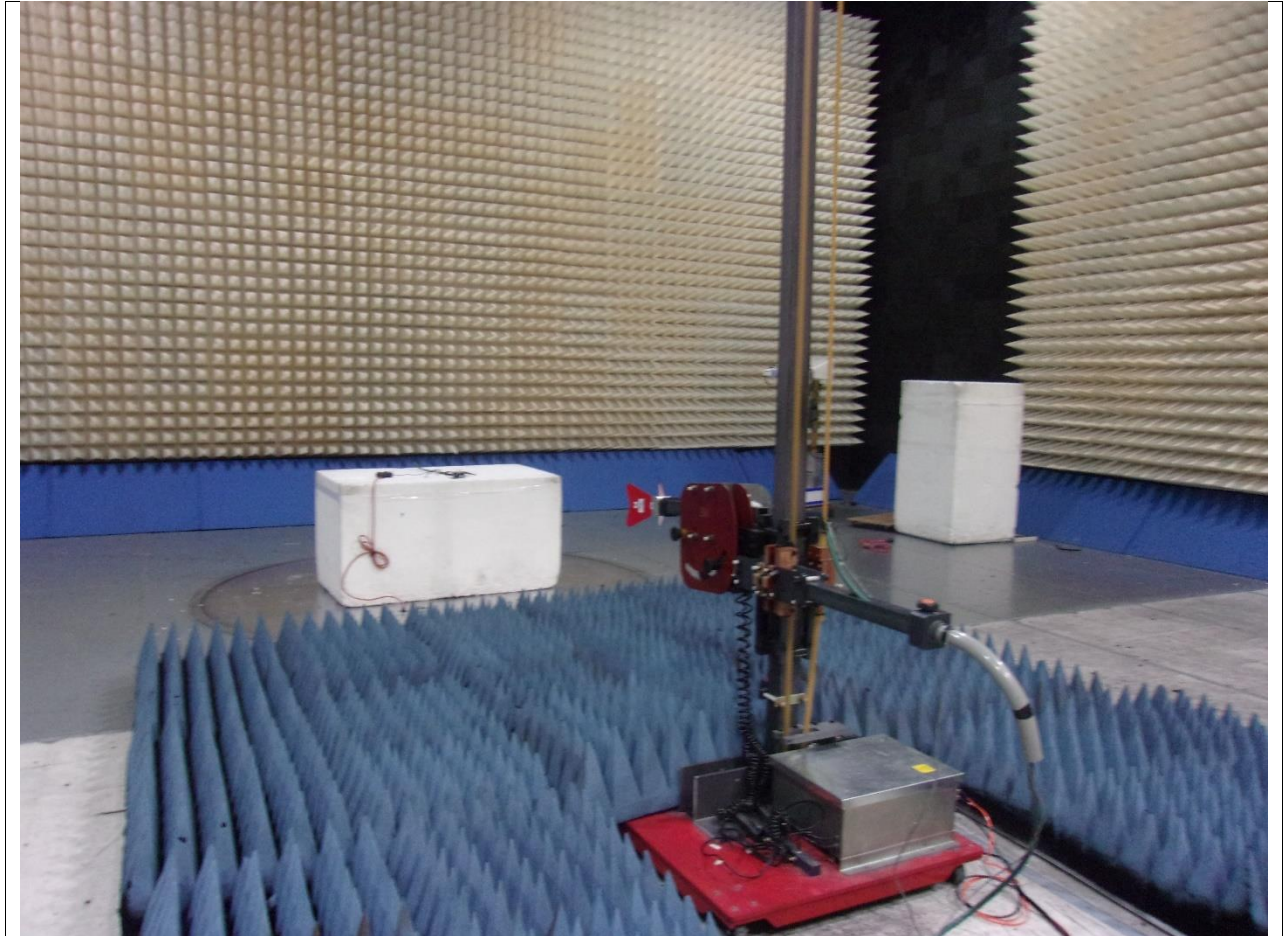
8.6.1 UNINTENTIONAL RADIATED EMISSIONS, 30MHZ – 1GHZ (IEEE/ANSI C63.4)





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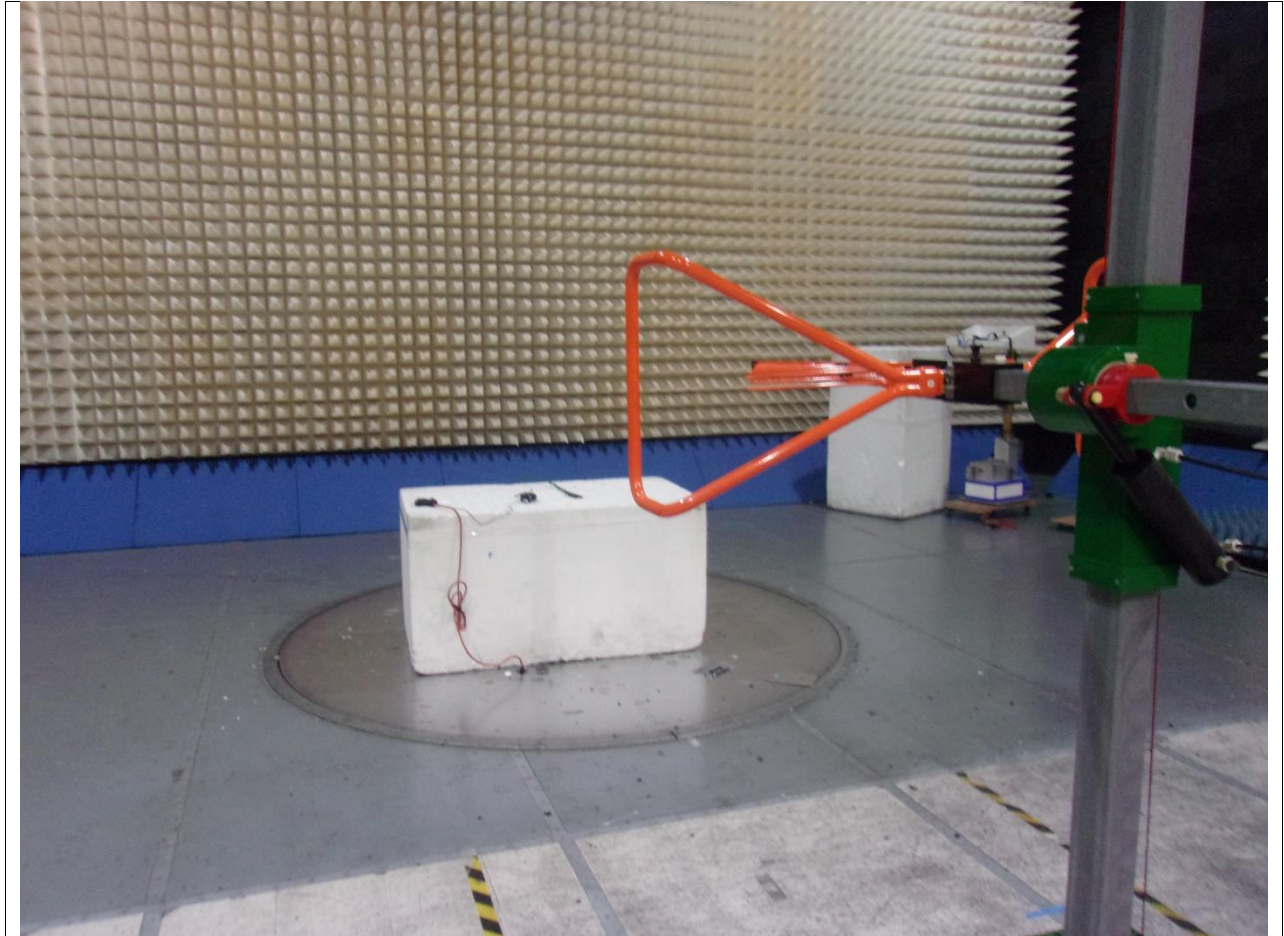
8.6.2 UNINTENTIONAL RADIATED EMISSIONS, 1GHZ – 18GHZ (IEEE/ANSI C63.4)





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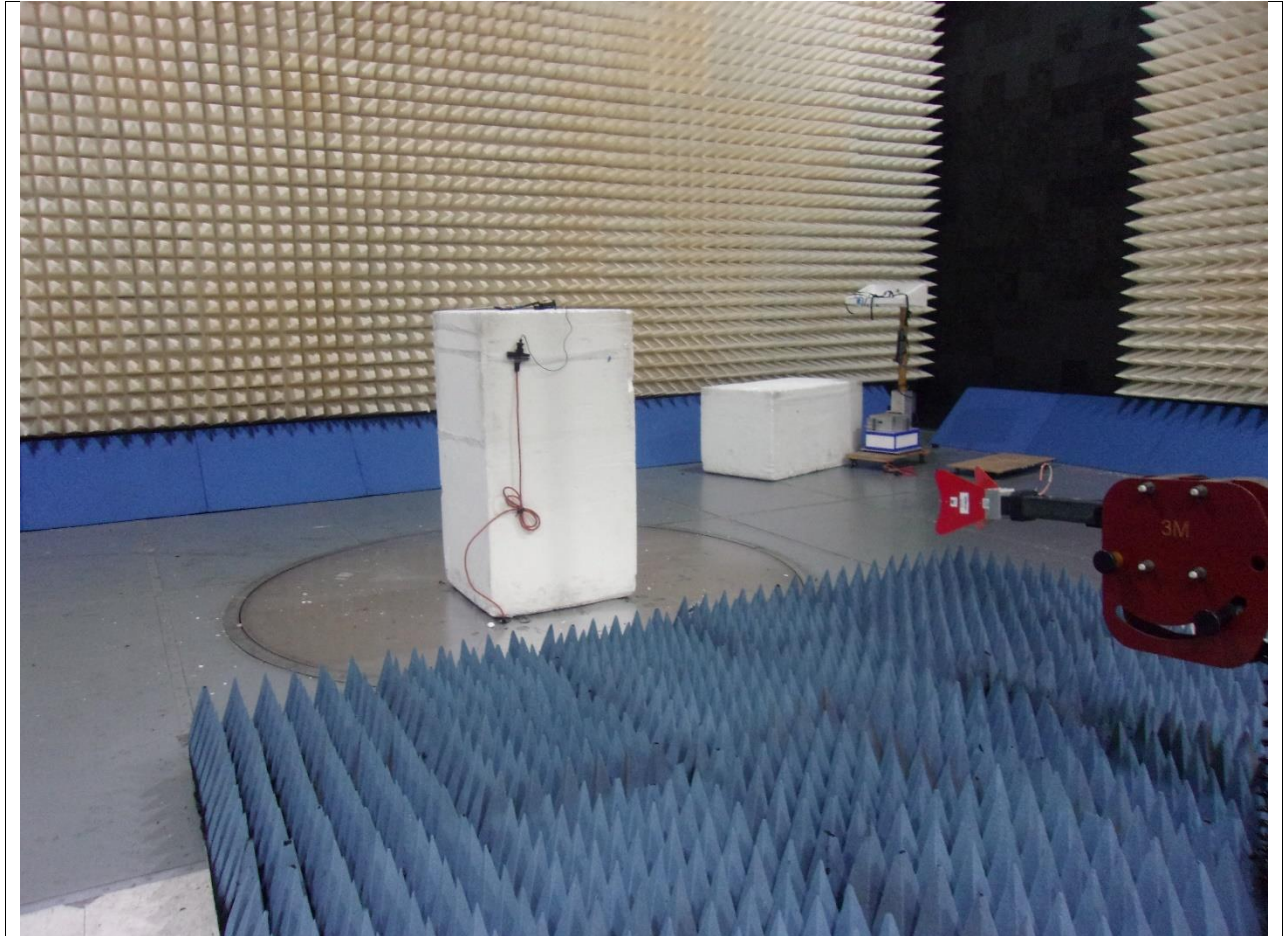
8.6.3 RADIATED SPURIOUS EMISSIONS, 30MHZ – 1GHZ (IEEE/ANSI C63.26)





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8.6.4 RADIATED SPURIOUS EMISSIONS, 1GHZ – 18GHZ (IEEE/ANSI C63.26)





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9 TEST RESULTS EXECUTIVE SUMMARY

9.1 EXECUTIVE SUMMARY

TEST PLAN	TOTAL TEST CASES	PASSED	FAILED	N/A	FINISHED RATE	COMPLIANT RATE
FCC Title 47 CFR Part 15 Subpart B	2	2	0	0	100.00%	100.00%
FCC Title 47 CFR Part 24 (RSE)	2	2	0	0	100.00%	100.00%
FCC Title 47 CFR Part 27 (RSE)	6	6	0	0	100.00%	100.00%



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9.2 TEST RESULTS

9.2.1 FCC TITLE 47 CFR PART 15 SUBPART B

TEST NAME	TEST DESCRIPTION	DEVICE	RESULT	TEST SYSTEM	COMMENTS
FCC Title 47 CFR Part 15 Subpart B	Test				
Radiated Emissions (15.109)	Radiated emissions, 30 MHz - 1 GHz	Orbis Gen 2 FCC Certification, DHW: na, DSW: na	Passed	EMC – Radiated Emissions (10m) (Ver. 35)	
Radiated Emissions (15.109)	Radiated emissions, 1 GHz - 18 GHz	Orbis Gen 2 FCC Certification, DHW: na, DSW: na	Passed	EMC – Radiated Emissions (10m) (Ver. 35)	



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9.2.2 FCC TITLE 47 CFR PART 24 (RSE)

TEST NAME	TEST DESCRIPTION	DEVICE	RESULT	TEST SYSTEM	COMMENTS
E-UTRA (LTE) Radiated Spurious Emissions	Test				
LTE Band 2 RSE, 30MHz - 1GHz	LTE Band 2 RSE, 30MHz - 1GHz	Orbis Gen 2 FCC Certification, DHW: na, DSW: na	Passed	EMC – Radiated Emissions (10m) (Ver. 35)	
LTE Band 2 RSE, 1GHz - 18GHz	LTE Band 2 RSE, 1GHz - 18GHz	Orbis Gen 2 FCC Certification, DHW: na, DSW: na	Passed	EMC – Radiated Emissions (10m) (Ver. 35)	



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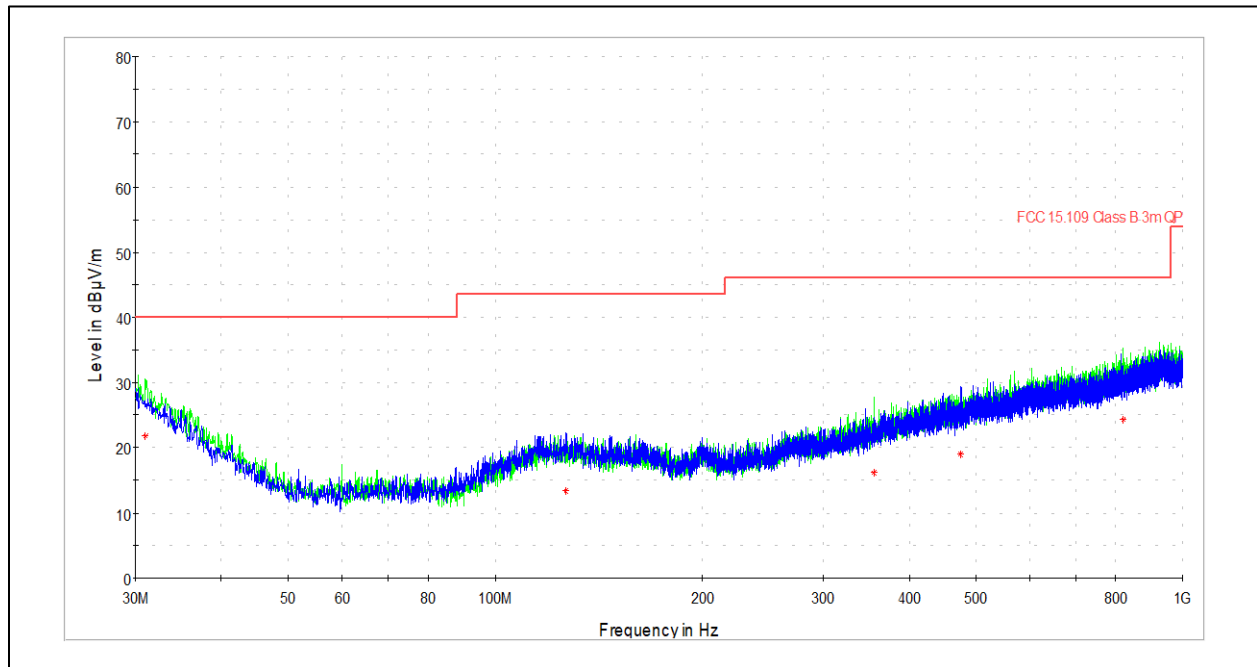
9.2.3 FCC TITLE 47 CFR PART 27 (RSE)

TEST NAME	TEST DESCRIPTION	DEVICE	RESULT	TEST SYSTEM	COMMENTS
E-UTRA (LTE) Radiated Spurious Emissions	Test				
LTE Band 4 RSE, 30MHz - 1GHz	LTE Band 4 RSE, 30MHz - 1GHz	Orbis Gen 2 FCC Certification, DHW: na, DSW: na	Passed	EMC - Radiated Emissions (10m) (Ver. 1)	
LTE Band 4 RSE, 1GHz - 18GHz	LTE Band 4 RSE, 1GHz - 18GHz	Orbis Gen 2 FCC Certification, DHW: na, DSW: na	Passed	EMC - Radiated Emissions (10m) (Ver. 1)	
LTE Band 12 RSE, 30MHz - 1GHz	LTE Band 12 RSE, 30MHz - 1GHz	Orbis Gen 2 FCC Certification, DHW: na, DSW: na	Passed	EMC - Radiated Emissions (10m) (Ver. 1)	
LTE Band 12 RSE, 1GHz - 18GHz	LTE Band 12 RSE, 1GHz - 18GHz	Orbis Gen 2 FCC Certification, DHW: na, DSW: na	Passed	EMC - Radiated Emissions (10m) (Ver. 1)	
LTE Band 13 RSE, 30MHz - 1GHz	LTE Band 13 RSE, 30MHz - 1GHz	Orbis Gen 2 FCC Certification, DHW: na, DSW: na	Passed	EMC - Radiated Emissions (10m) (Ver. 1)	
LTE Band 13 RSE, 1GHz - 18GHz	LTE Band 13 RSE, 1GHz - 18GHz	Orbis Gen 2 FCC Certification, DHW: na, DSW: na	Passed	EMC - Radiated Emissions (10m) (Ver. 1)	



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9.3 UNINTENTIONAL RADIATED EMISSIONS, 30MHZ – 1GHZ (IEEE/ANSI C63.4)



Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
31.023889	21.75	40.00	18.25	120.000	95.0	H	82.0	27.7
126.838333	13.34	43.52	30.18	120.000	161.0	V	46.0	21.0
355.381111	16.11	46.02	29.91	120.000	355.0	H	204.0	23.4
475.607222	18.94	46.02	27.08	120.000	247.0	V	252.0	26.0
818.825556	24.23	46.02	21.79	120.000	186.0	H	119.0	31.5

Test Personnel: David Perry
Supervising/Reviewing Engineer: Brian Lackey
(Where Applicable)
Product Standard: FCC Part 15B
Input Voltage: 5VDC
Pretest Verification w / Ambient Signals or BB Source: Yes

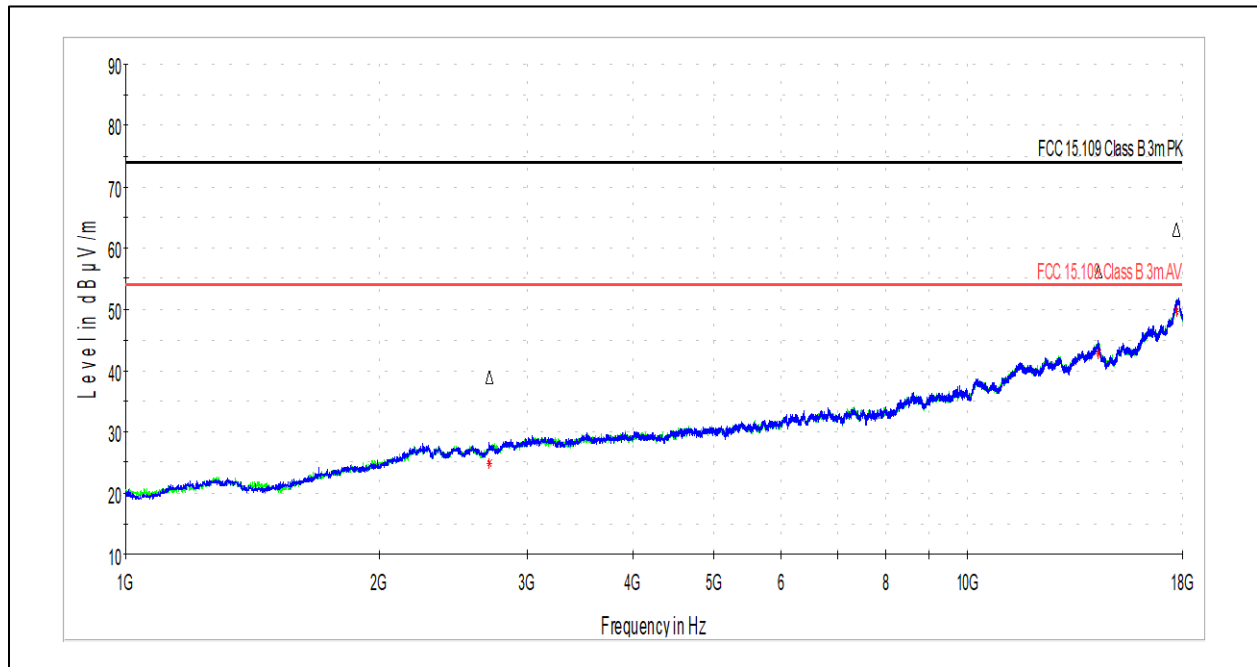
Test Date: 04/11/2023
Limit Applied: Class B
Ambient Temperature: 21.9C
Relative Humidity: 29.5%
Atmospheric Pressure: 995.3mbar

Deviations, Additions, or Exclusions: None



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9.4 UNINTENTIONAL RADIATED EMISSIONS, 1GHZ – 18GHZ (IEEE/ANSI C63.4)



Frequency (MHz)	MaxPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
2704.500000	38.98	73.98	35.00	1000.000	100.0	V	96.0	5.9
14313.500000	56.11	73.98	17.87	1000.000	100.0	H	312.0	24.1
17716.000000	62.97	73.98	11.01	1000.000	356.0	H	126.0	34.4

Frequency (MHz)	Average (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
2704.500000	24.87	53.98	29.11	1000.000	100.0	V	96.0	5.9
14313.500000	42.68	53.98	11.30	1000.000	100.0	H	312.0	24.1
17716.000000	49.65	53.98	4.33	1000.000	356.0	H	126.0	34.4

Test Personnel: Jordan Coughenour
Supervising/Reviewing Engineer: Brian Lackey
(Where Applicable)
Product Standard: FCC Part 15B
Input Voltage: 5VDC
Pretest Verification w / Ambient Signals or BB Source: Yes

Test Date: 04/10/2023
Limit Applied: Class B
Ambient Temperature: 21.6C
Relative Humidity: 26.2%
Atmospheric Pressure: 996.9mbar

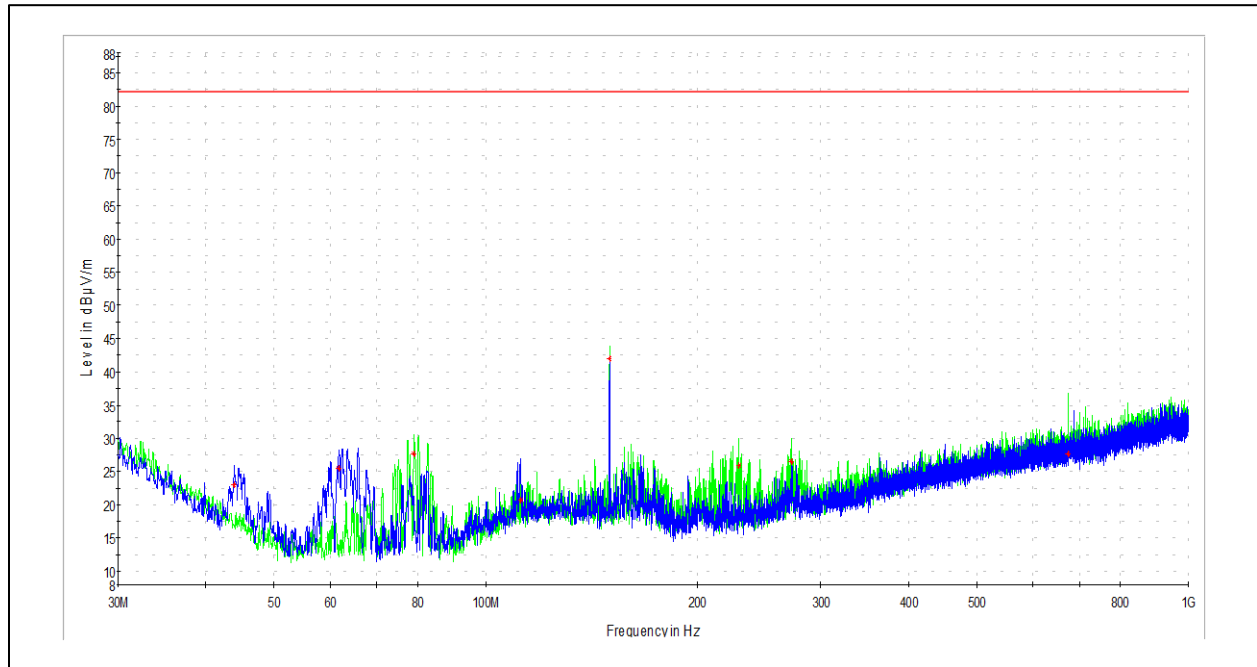
Deviations, Additions, or Exclusions: None



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9.5 RADIATED SPURIOUS EMISSIONS, 30MHZ – 1GHZ (IEEE/ANSI C63.26)

9.5.1 BAND 2



Frequency (MHz)	QuasiPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
43.849444	22.93	82.25	59.32	120.000	100.0	V	255.0	17.4
61.794444	25.53	82.25	56.72	120.000	100.0	V	7.0	14.3
79.038889	27.65	82.25	54.60	120.000	229.0	H	346.0	14.8
112.072778	20.66	82.25	61.59	120.000	100.0	V	14.0	20.1
150.010556	42.00	82.25	40.25	120.000	273.0	H	108.0	20.1
229.496667	25.85	82.25	56.40	120.000	105.0	H	291.0	19.4
271.853333	26.53	82.25	55.72	120.000	100.0	H	306.0	21.5
673.864444	27.72	82.25	54.53	120.000	143.0	H	276.0	29.6

Test Personnel: Jeremiah Andrade
Supervising/Reviewing Engineer: Brian Lackey
(Where Applicable) FCC Part 24
Input Voltage: 5VDC
Pretest Verification w / Ambient Signals or BB Source: Yes

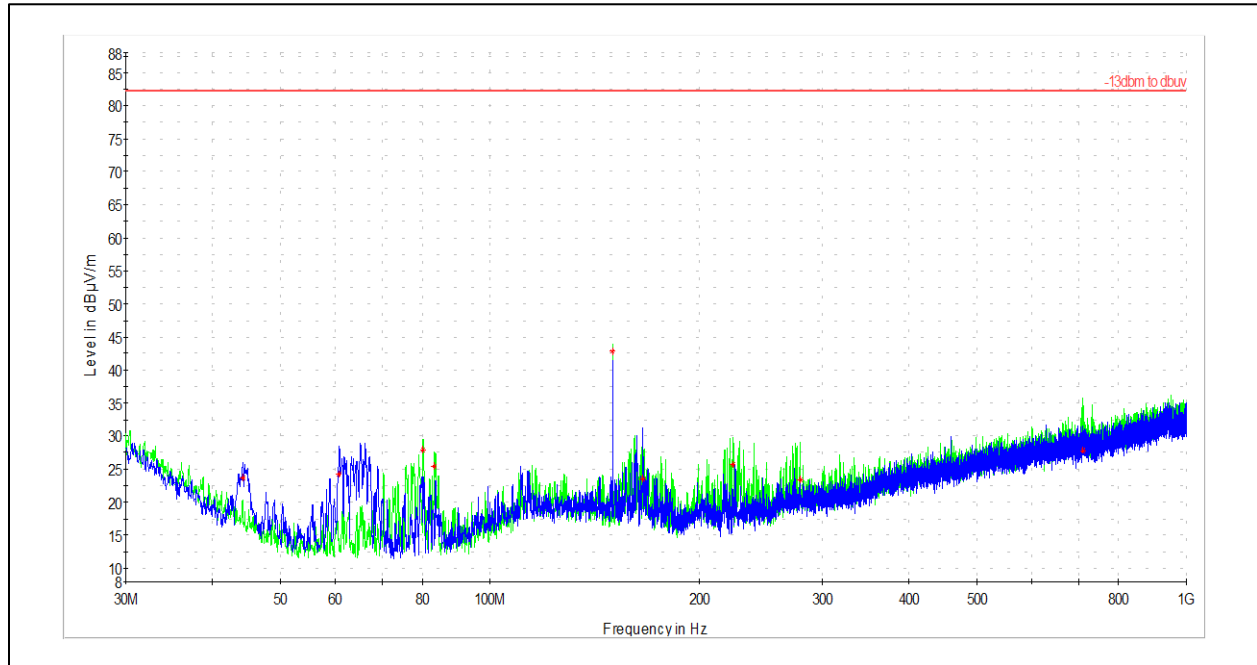
Test Date: 04/11/2023
Limit Applied: -13dBm to dBuV/m
Ambient Temperature: 21.6C
Relative Humidity: 26.2%
Atmospheric Pressure: 996.9mbar

Deviations, Additions, or Exclusions: None



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9.5.2 BAND 4



Frequency (MHz)	QuasiPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
44.226667	23.62	82.25	58.63	120.000	100.0	V	273.0	17.2
60.770556	24.24	82.25	58.01	120.000	100.0	V	6.0	14.1
80.224444	27.90	82.25	54.35	120.000	227.0	H	0.0	14.7
83.242222	25.39	82.25	56.86	120.000	216.0	H	0.0	14.6
150.010556	42.88	82.25	39.37	120.000	286.0	H	108.0	20.1
165.907778	23.57	82.25	58.68	120.000	100.0	V	314.0	20.1
223.568889	25.64	82.25	56.61	120.000	104.0	H	290.0	19.1
279.074444	23.43	82.25	58.82	120.000	96.0	H	284.0	21.7
711.047778	27.83	82.25	54.42	120.000	96.0	H	273.0	29.9

Test Personnel: Jeremiah Andrade
Supervising/Reviewing Engineer: Brian Lackey
(Where Applicable)
Product Standard: FCC Part 27
Input Voltage: 5VDC
Pretest Verification w / Ambient Signals or BB Source: Yes

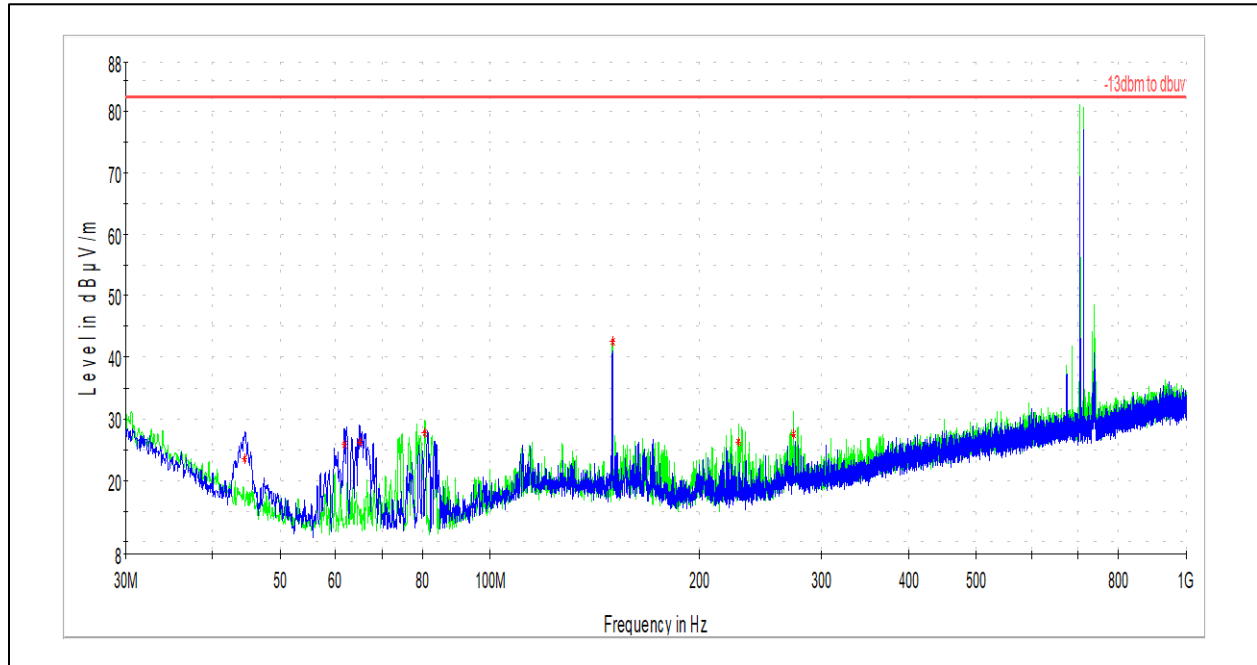
Test Date: 04/11/2023
Limit Applied: -13dBm to dBuV/m
Ambient Temperature: 21.6C
Relative Humidity: 26.2%
Atmospheric Pressure: 996.9mbar

Deviations, Additions, or Exclusions: None



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9.5.3 BAND 12



Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
44.496111	23.43	82.25	58.82	120.000	100.0	V	276.0	17.1
61.794444	25.78	82.25	56.47	120.000	100.0	V	18.0	14.3
65.081667	26.12	82.25	56.13	120.000	100.0	V	0.0	14.4
80.709444	27.67	82.25	54.58	120.000	214.0	H	0.0	14.7
150.010556	42.62	82.25	39.63	120.000	273.0	H	110.0	20.1
227.610556	26.32	82.25	55.93	120.000	100.0	H	293.0	19.3
273.092778	27.55	82.25	54.70	120.000	100.0	H	310.0	21.6

Test Personnel: Jeremiah Andrade
Supervising/Reviewing Engineer: Brian Lackey
(Where Applicable)
Product Standard: FCC Part 27
Input Voltage: 5VDC
Pretest Verification w / Ambient Signals or BB Source: Yes

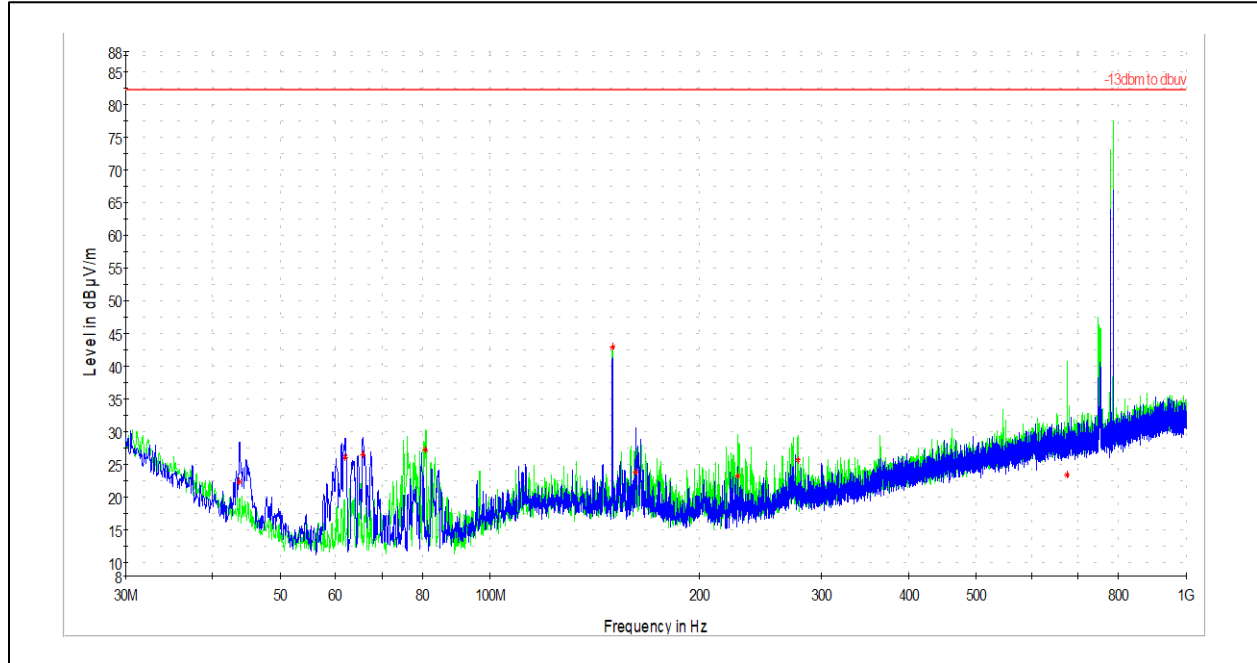
Test Date: 04/10/2023
Limit Applied: -13dBm to dBuV/m
Ambient Temperature: 21.6C
Relative Humidity: 26.2%
Atmospheric Pressure: 996.9mbar

Deviations, Additions, or Exclusions: None



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9.5.4 BAND 13



Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
43.741667	22.45	82.25	59.80	120.000	100.0	V	257.0	17.5
62.010000	26.07	82.25	56.18	120.000	100.0	V	6.0	14.4
65.674444	26.48	82.25	55.77	120.000	100.0	V	18.0	14.5
80.871111	27.27	82.25	54.98	120.000	215.0	H	350.0	14.7
150.010556	42.89	82.25	39.36	120.000	276.0	H	110.0	20.1
162.135556	23.85	82.25	58.40	120.000	100.0	V	324.0	20.4
226.910000	23.25	82.25	59.00	120.000	142.0	H	100.0	19.3
276.703333	25.63	82.25	56.62	120.000	100.0	H	304.0	21.6
674.780556	23.41	82.25	58.84	120.000	245.0	H	46.0	29.6

Test Personnel: Jeremiah Andrade
Supervising/Reviewing Engineer: Brian Lackey
(Where Applicable)
Product Standard: FCC Part 27
Input Voltage: 5VDC
Pretest Verification w / Ambient Signals or BB Source: Yes

Test Date: 04/11/2023
Limit Applied: -13dBm to dBuV/m
Ambient Temperature: 21.6C
Relative Humidity: 26.2%
Atmospheric Pressure: 996.9mbar

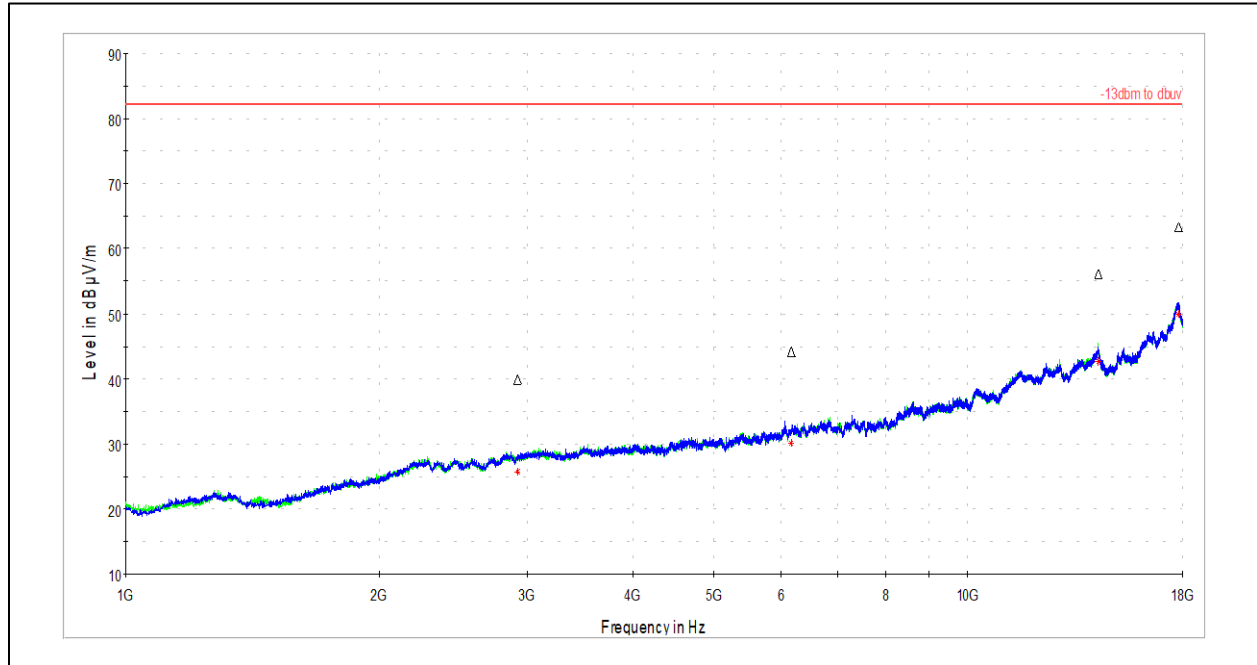
Deviations, Additions, or Exclusions: None



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9.6 RADIATED SPURIOUS EMISSIONS, 1GHZ – 18GHZ (IEEE/ANSI C63.26)

9.6.1 BAND 2



Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
2922.000000	39.98	82.25	42.27	1000.000	329.0	V	294.0	6.7
6178.500000	44.22	82.25	38.03	1000.000	100.0	H	195.0	12.9
14295.500000	56.07	82.25	26.18	1000.000	100.0	H	283.0	24.1
17812.000000	63.43	82.25	18.82	1000.000	126.0	H	34.0	34.3

Frequency (MHz)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
2922.000000	25.75	82.25	56.50	1000.000	329.0	V	294.0	6.7
6178.500000	30.13	82.25	52.12	1000.000	100.0	H	195.0	12.9
14295.500000	42.73	82.25	39.52	1000.000	100.0	H	283.0	24.1
17812.000000	49.91	82.25	32.34	1000.000	126.0	H	34.0	34.3

Test Personnel: Jordan Coughenour
Supervising/Reviewing Engineer: Brian Lackey
(Where Applicable)
Product Standard: FCC Part 24
Input Voltage: 5VDC
Pretest Verification w / Ambient Signals or BB Source: Yes

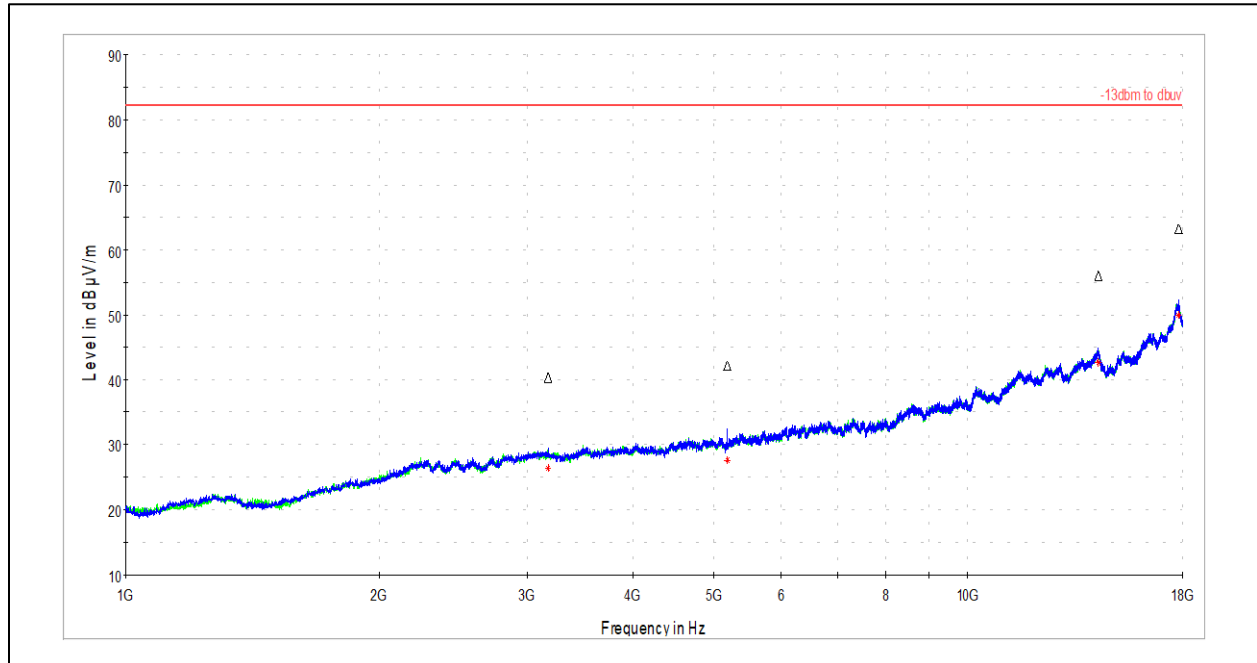
Test Date: 04/10/2023
Limit Applied: -13dBm to dBµV/m
Ambient Temperature: 21.6C
Relative Humidity: 26.2%
Atmospheric Pressure: 996.9mbar

Deviations, Additions, or Exclusions: None



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9.6.2 BAND 4



Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
3177.000000	40.43	82.25	41.82	1000.000	410.0	V	0.0	7.3
5186.500000	42.23	82.25	40.02	1000.000	393.0	V	113.0	10.4
14298.000000	56.05	82.25	26.20	1000.000	333.0	V	46.0	24.1
17818.500000	63.28	82.25	18.97	1000.000	333.0	V	350.0	34.2

Frequency (MHz)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
3177.000000	26.33	82.25	55.92	1000.000	410.0	V	0.0	7.3
5186.500000	27.59	82.25	54.66	1000.000	393.0	V	113.0	10.4
14298.000000	42.68	82.25	39.57	1000.000	333.0	V	46.0	24.1
17818.500000	49.91	82.25	32.34	1000.000	333.0	V	350.0	34.2

Test Personnel: Jordan Coughenour
Supervising/Reviewing Engineer: Brian Lackey
(Where Applicable)
Product Standard: FCC Part 27
Input Voltage: 5VDC
Pretest Verification w / Ambient Signals or BB Source: Yes

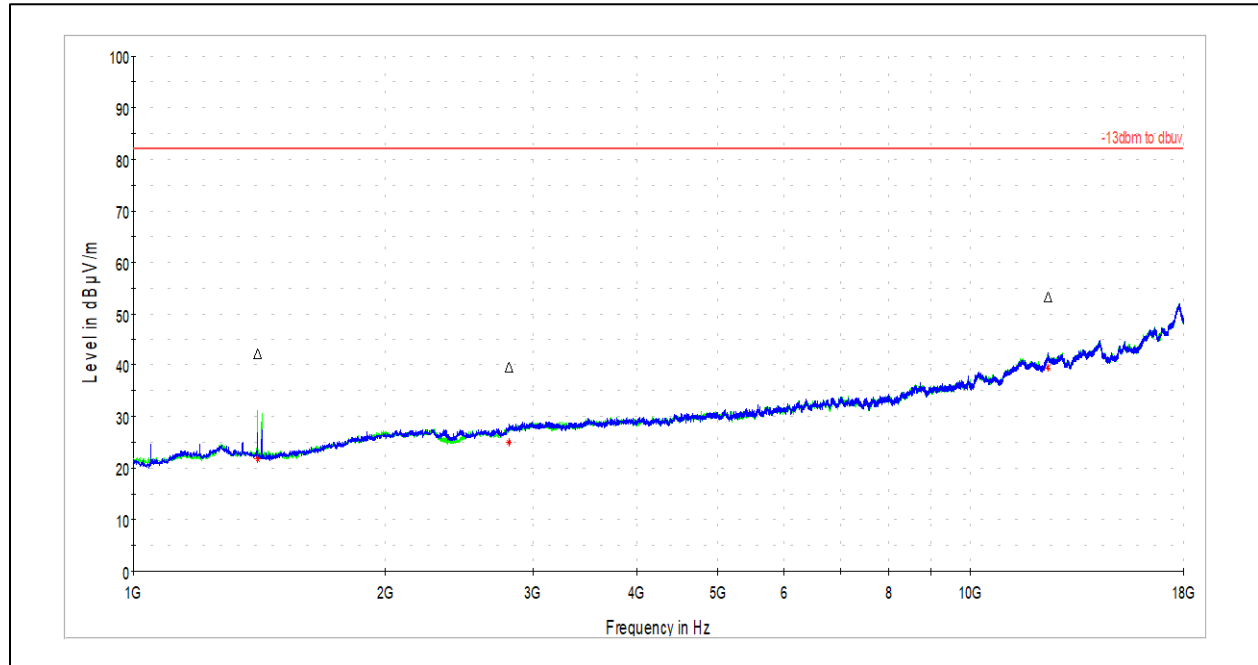
Test Date: 04/10/2023
Limit Applied: -13dBm to dBuV/m
Ambient Temperature: 21.6C
Relative Humidity: 26.2%
Atmospheric Pressure: 996.9mbar

Deviations, Additions, or Exclusions: None



RSE Test Report

9.6.3 BAND 12



Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
1407.500000	42.20	82.25	40.05	1000.000	291.0	H	344.0	-0.1
2809.000000	39.68	82.25	42.57	1000.000	410.0	V	314.0	6.2
12399.500000	53.29	82.25	28.96	1000.000	249.0	V	305.0	22.5

Frequency (MHz)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
1407.500000	21.92	82.25	60.33	1000.000	291.0	H	344.0	-0.1
2809.000000	25.15	82.25	57.10	1000.000	410.0	V	314.0	6.2
12399.500000	39.51	82.25	42.74	1000.000	249.0	V	305.0	22.5

Test Personnel: Jordan Coughenour
Supervising/Reviewing Engineer: Brian Lackey
(Where Applicable)
Product Standard: FCC Part 27
Input Voltage: 5VDC
Pretest Verification w / Ambient Signals or BB Source: Yes

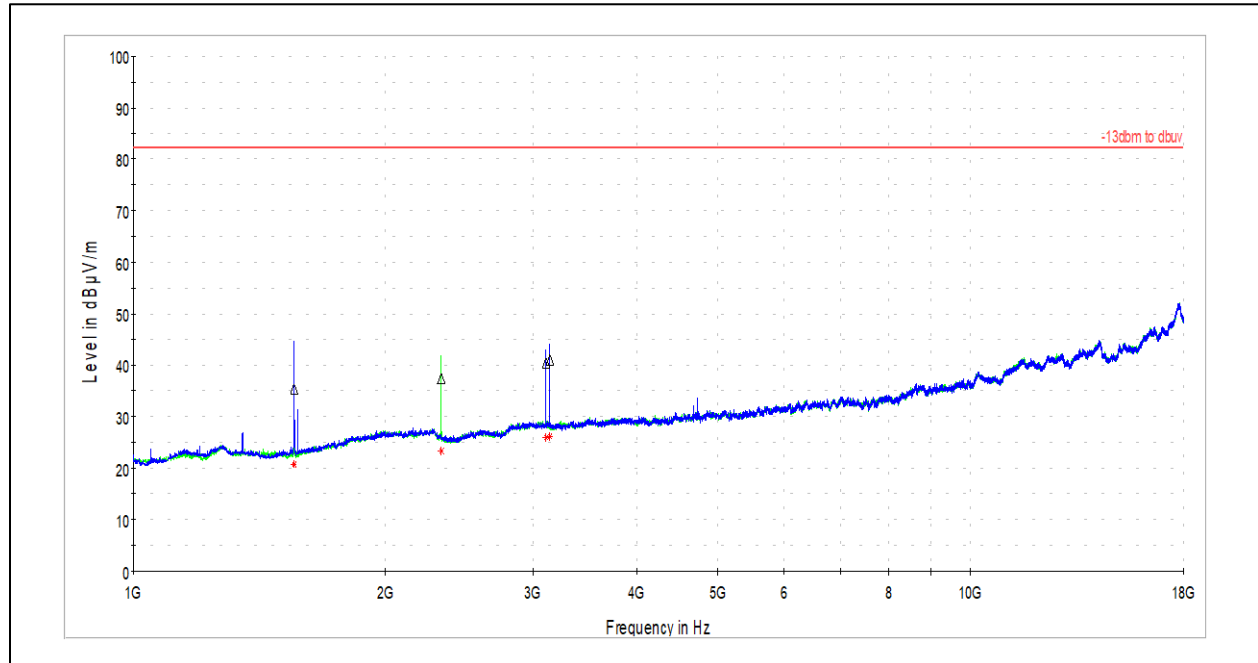
Test Date: 04/10/2023
Limit Applied: -13dBm to dBuV/m
Ambient Temperature: 21.6C
Relative Humidity: 26.2%
Atmospheric Pressure: 996.9mbar

Deviations, Additions, or Exclusions: None



RSE Test Report

9.6.4 BAND 13



Frequency (MHz)	MaxPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
1556.500000	35.34	82.25	46.91	1000.000	330.0	V	176.0	0.0
2334.500000	37.50	82.25	44.75	1000.000	100.0	H	261.0	5.2
3112.000000	40.44	82.25	41.81	1000.000	342.0	V	249.0	7.1
3145.500000	41.04	82.25	41.21	1000.000	410.0	V	0.0	7.5

Frequency (MHz)	Average (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
1556.500000	20.80	82.25	61.45	1000.000	330.0	V	176.0	0.0
2334.500000	23.25	82.25	59.00	1000.000	100.0	H	261.0	5.2
3112.000000	25.95	82.25	56.30	1000.000	342.0	V	249.0	7.1
3145.500000	26.10	82.25	56.15	1000.000	410.0	V	0.0	7.5

Test Personnel: Jordan Coughenour
Supervising/Reviewing Engineer: Brian Lackey
(Where Applicable)
Product Standard: FCC Part 27
Input Voltage: 5VDC
Pretest Verification w / Ambient Signals or BB Source: Yes

Test Date: 04/10/2023
Limit Applied: -13dBm to dBμV/m
Ambient Temperature: 21.6C
Relative Humidity: 26.2%
Atmospheric Pressure: 996.9mbar

Deviations, Additions, or Exclusions: None



RSE Test Report

10 MEASUREMENT UNCERTAINTY

The measured value related to the corresponding limit will be used to decide whether the equipment meets the requirements.

The measurement uncertainty figures were calculated and correspond to a coverage factor of $k = 2$, providing a confidence level of respectively 95.45% in the case where the distributions characterizing the actual measurement uncertainties are normal (Gaussian).

Measurement Uncertainty Table

Measurement	Frequency Range	Expanded Uncertainty (k=2)	Ucisprr
Power Line Conducted Emissions	150 kHz - 30 MHz	3.1dB	3.4dB
Radiated Emissions, 10m	30-1000 MHz	3.9dB	6.3 dB
Radiated Emissions, 3m	30-1000 MHz	4.0dB	6.3 dB
Radiated Emissions, 3m	1-6 GHz	4.7dB	5.2 dB
Radiated Emissions, 3m	6-15 GHz	4.7dB	5.5 dB
Radiated Emissions, 3m	15-18 GHz	4.7dB	5.5 dB
Radiated Emissions, 3m	18-40 GHz	4.7dB	5.5 dB



RSE Test Report

11 REVISION HISTORY

Revision Level	Date	Report Number	Evaluated By	Reviewed By	Notes
0	05/16/2023	105392576LEX-001	Jordan Coughenour, EMC Technician	Brian Lackey, EMC Team Lead	Initial Release of Report
1	1/5/2024	105392576LEX-001.1	Jordan Coughenour, EMC Technician	Michael Carlson, EMC Engineer	Updated FCC ID

RSE Test Report

End of Test Report