

RSE Test Report

Aquana

FINAL SUMMARY REPORT

Report Type: 15B + KDB RSE

Model: SV-2-LORA

Software Version: 3.0.6

Hardware Version: Rev E

SCOPE OF WORK

Title 47 CFR Part 15 Subpart B

Title 47 CFR Part 15 Subpart C

ICES-003 Issue 7

REPORT NUMBER

105250409LEX-001.1

ISSUE DATE

20-March-2023

REVISED DATE

10-April-2023





RSE Test Report

TABLE OF CONTENTS

Table of Contents	2
1 Introduction	3
1.1 Report Versions.....	3
1.2 Statement of Compliance and Laboratory Conformance Declaration	4
1.3 Statement of Liability.....	5
2 General Information	6
3 Name and address of the Recognized Test Organization (RTO).....	6
4 Description of Test Samples.....	7
4.1 User Equipment (UE)/Project Information	7
5 Test Results Summary.....	9
6 References	9
7 Environment.....	9
7.1 Operational Temperature and Power Range of the device	9
8 Measurement Systems	10
8.1 Method.....	10
8.2 Sample Calculation.....	11
8.3 Platforms.....	12
8.4 Software Utilized.....	13
8.5 Setup Photographs.....	14
9 Test Results Executive Summary	17
9.1 Executive Summary.....	17
9.2 Test Results	18
9.3 Unintentional Radiated Emissions, 30MHz – 1GHz (IEEE/ANSI C63.4).....	19
9.4 Unintentional Radiated Emissions, 1GHz – 18GHz (IEEE/ANSI C63.4).....	20
9.5 Radiated Spurious Emissions, 30MHz – 1GHz (IEEE/ANSI C63.10)	21
9.6 Radiated Spurious Emissions, 1GHz – 18GHz (IEEE/ANSI C63.10)	24
10 Measurement Uncertainty.....	27
11 Revision History	28



RSE Test Report

1 INTRODUCTION

The purpose of this document is to record the test results for the Connected Development FCC update for Aquana AO3 (SV2 Outdoor external antenna). 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 C63.10-2020

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
105250409LEX-001	Initial Release of Report	1.0
105250409LEX-001.1	Fixed typo on cover page	1.1



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.



RSE Test Report

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.


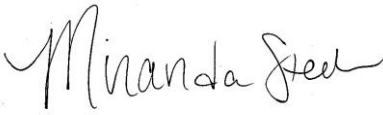



RSE Test Report

2 GENERAL INFORMATION

GENERAL INFORMATION - PROJECT ID 6016					
Test Start date:	12/20/2022	Test End Date:	12/21/2022	RTO Test Report #:	105250409LEX-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 Test Engineer	Signature:	
Prepared by:	Miranda Steele, Project Coordinator	Signature:	
Reviewed by:	Brian Lackey, EMC Team Lead	Signature:	



RSE Test Report

4 DESCRIPTION OF TEST SAMPLES

4.1 USER EQUIPMENT (UE)/PROJECT INFORMATION

PROJECT INFORMATION / User Equipment (UE)	
UE Manufacturer:	Aquana
UE Model #:	FCC update for Aquana AO3 (SV2 Outdoor external antenna)
Software Version:	3.0.6
Hardware Version:	Rev E
Embedded Module:	Aquana (Nordic SoC) BLE, FCCID 2AQSE-AQSV1, ICID 24363-AQSV1 2.402 GHz – 2.480 GHz
Embedded Module:	MultiTech Xdot (MTCDOT-NA1-A01-1) LoRa, FCCID AU792U13A16858, ICID 125A-0055 902-928MHz
Sample Identifier: (IMEI or product's unique identifier)	Unit 1
Sample Condition/Description:	Samples arrived in working condition as first run production samples.
VENDOR INFORMATION	
Address:	7007 Pinemont Drive Houston, TX 77040 USA
Email:	info@aquana.com
REGULATORY APPROVALS	
FCC ID:	2AQSE-AQSV1
These test results relate only to the specific items (UEs) tested (listed above).	
Comments:	The Aquana Smart Valve is a remotely controllable water valve that works over RF networks to provide monitoring and control via cloud-based software applications.



RSE Test Report

Photo of UE (front):



Photo of UE (back):





RSE Test Report

5 TEST RESULTS SUMMARY

TEST RESULTS SUMMARY	
Total Tests Required (A, B, or E):	8
Tests Not Applicable:	0
Tests Passed:	8
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 C63.10-2020	American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices

7 ENVIRONMENT

7.1 OPERATIONAL TEMPERATURE AND POWER RANGE OF THE DEVICE

The operating voltage range for the device is low 3.1 VDC to high 3.7 VDC. The nominal operating voltage is 3.5 VDC. The operating temperature range for the device is low -20 °F to high 140 °F. The nominal operating temperature is 70 °F.



8 MEASUREMENT SYSTEMS

8.1 METHOD

Tests are performed in accordance with ANSI C63.4:2014 and ANSI C63.10:2013

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



RSE Test Report

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:

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



RSE Test Report

8.3 PLATFORMS

8.3.1 EMC - RADIATED EMISSIONS (10M) (VER. 35)

Description	Asset	Manufacturer	Model	Calibration Date	Calibration Due
System Controller #4096	4096	ETS-Lindgren	2090	Calibrate at time of use	
Horn Antenna #4001	4001	ETS	3117	02/23/2022	02/23/2023
Bilog Antenna #3133	3133	ETS	3142C	08/10/2022	08/10/2023
EMI Test Receiver	3900	Rohde & Schwarz	ESU40	10/05/2022	10/05/2023
30M-1G 3m Signal Path without Preamplifier	3339, 2592, 8188, 8185	-	-	01/13/2022	01/13/2023
1-18GHz Signal Path with Preamplifier	3074, 3918, 2588, 2593, 8188, 8185	-	-	01/13/2022	01/13/2023



RSE Test Report

8.4 SOFTWARE UTILIZED

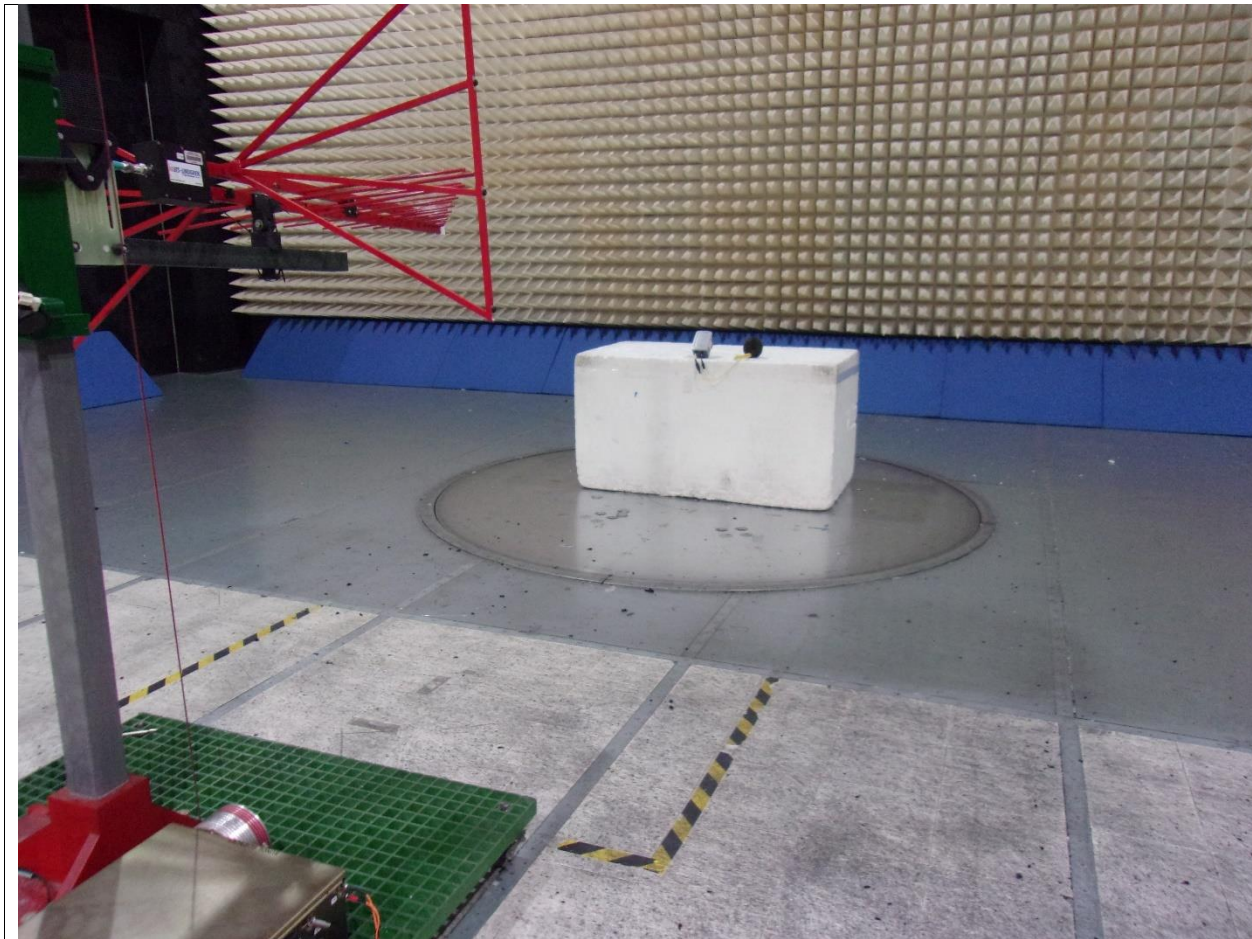
Name	Manufacturer	Version
EMC32	Rohde & Schwarz	Version 10.60.20



RSE Test Report

8.5 SETUP PHOTOGRAPHS

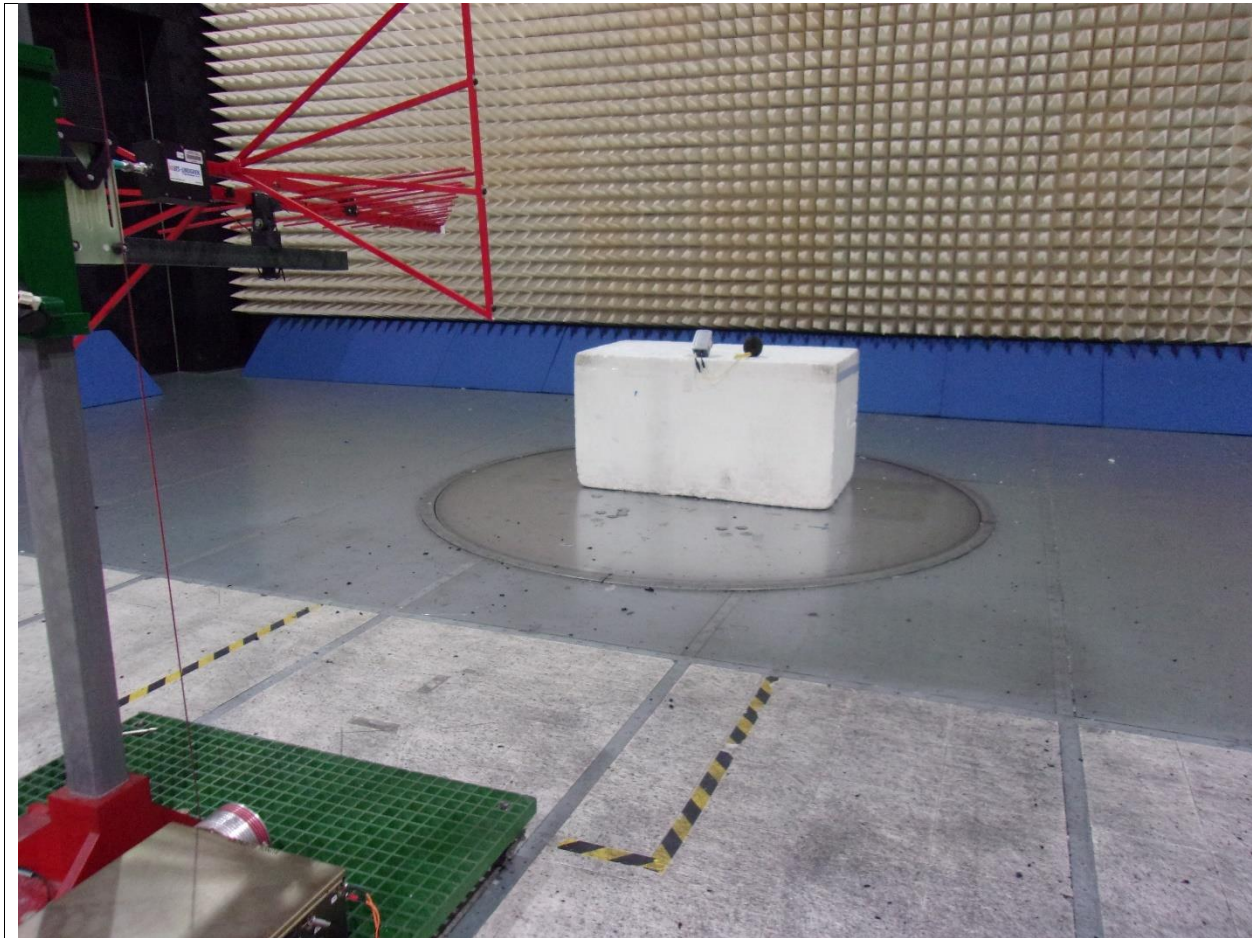
8.5.1 UNINTENTIONAL RADIATED EMISSIONS, 30MHZ – 1GHZ (IEEE/ANSI C63.4)





RSE Test Report

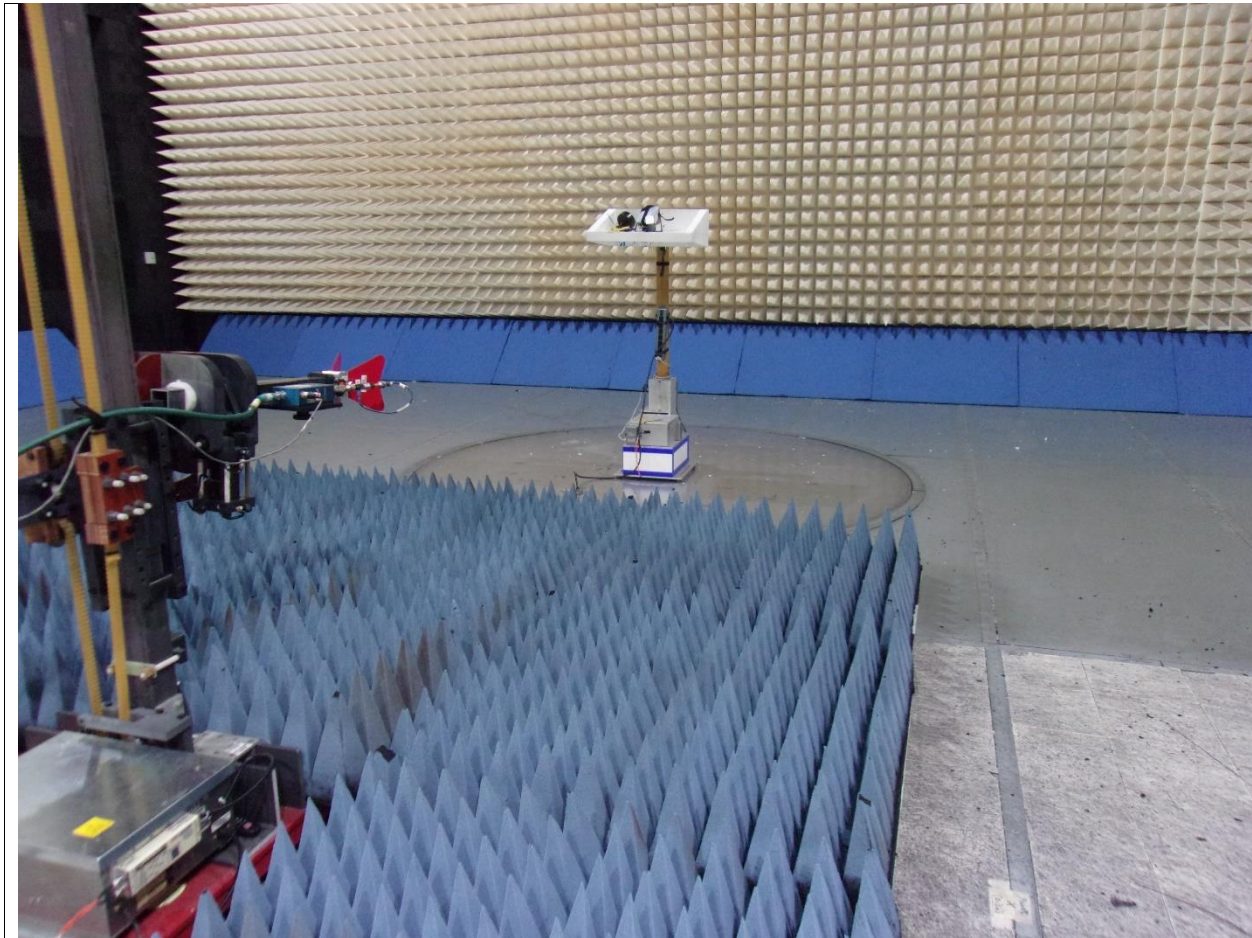
8.5.2 RADIATED SPURIOUS EMISSIONS, 30MHZ – 1GHZ (IEEE/ANSI C63.10)





RSE Test Report

8.5.3 RADIATED SPURIOUS EMISSIONS, 1GHZ – 18GHZ (IEEE/ANSI C63.10)





RSE Test Report

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 15.247 Generic RSE	6	6	0	0	100.00%	100.00%



RSE Test Report

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	Aquana AO3	Passed	EMC – Radiated Emissions, 30MHz – 1GHz (Ver. 35)	
Radiated Emissions (15.109)	Radiated emissions, 1 GHz - 18 GHz	Aquana AO3	Passed	EMC – Radiated Emissions, 30MHz – 1GHz (Ver. 35)	

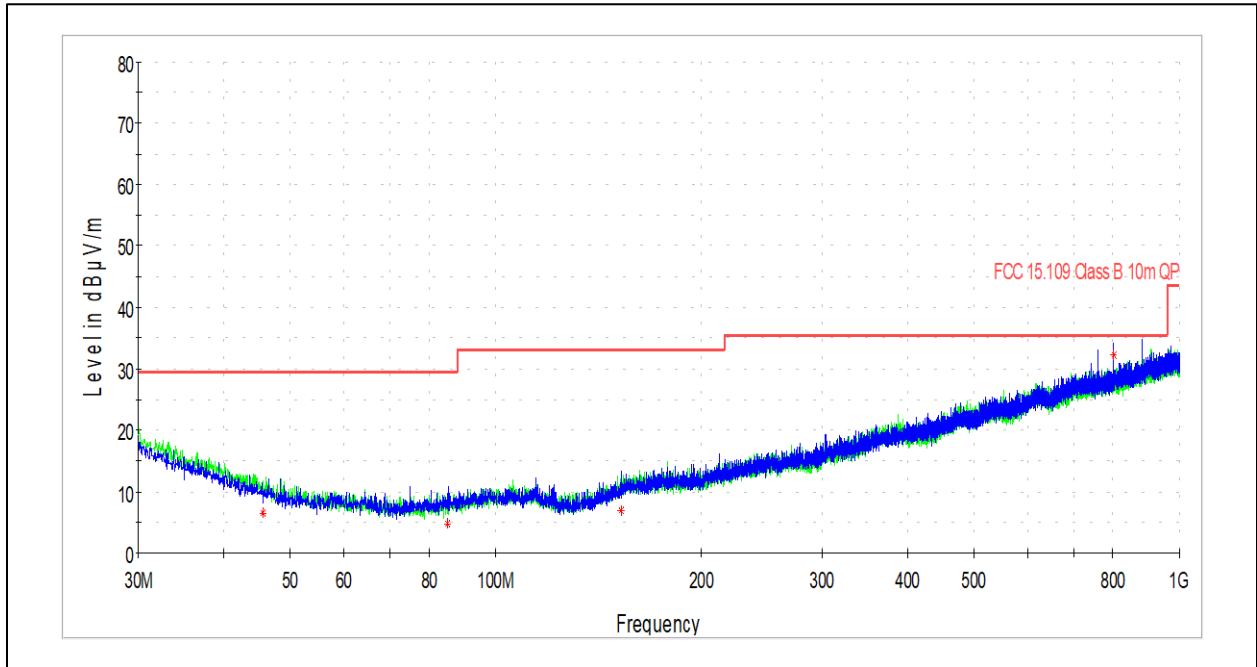
9.2.2 FCC TITLE 47 CFR PART 15.247 GENERIC RSE

TEST NAME	TEST DESCRIPTION	DEVICE	RESULT	TEST SYSTEM	COMMENTS
FCC Title 47 CFR Part 15.247 Generic RSE	Test				
Radiated Spurious Emissions	Low Channel, 30 MHz - 1 GHz	Aquana AO3	Passed	EMC - Radiated Emissions (10m) (Ver. 35)	
Radiated Spurious Emissions	Mid Channel, 30 MHz - 1 GHz	Aquana AO3	Passed	EMC - Radiated Emissions (10m) (Ver. 35)	
Radiated Spurious Emissions	High Channel, 30 MHz - 1 GHz	Aquana AO3	Passed	EMC - Radiated Emissions (10m) (Ver. 35)	
Radiated Spurious Emissions	Low Channel, 1 GHz - 18 GHz	Aquana AO3	Passed	EMC - Radiated Emissions (10m) (Ver. 35)	
Radiated Spurious Emissions	Mid Channel, 1 GHz - 18 GHz	Aquana AO3	Passed	EMC - Radiated Emissions (10m) (Ver. 35)	
Radiated Spurious Emissions	High Channel, 1 GHz - 18 GHz	Aquana AO3	Passed	EMC - Radiated Emissions (10m) (Ver. 35)	



RSE Test Report

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)
45.617778	6.49	29.09	22.60	120.000	266.0	V	338.0	-13.2
84.938333	4.79	29.09	24.29	120.000	295.0	V	270.0	-14.7
152.705000	6.82	33.52	26.70	120.000	164.0	V	154.0	-12.1
801.820556	32.23	36.44	4.21	120.000	100.0	V	227.0	6.4

Test Personnel: Jordan Coughenour
 Supervising/Reviewing Engineer: Brian Lackey
 (Where Applicable) FCC Part 15B
 Product Standard: ICES-003 Issue 7
 Input Voltage: Battery
 Pretest Verification w / Ambient Signals or BB Source: Yes

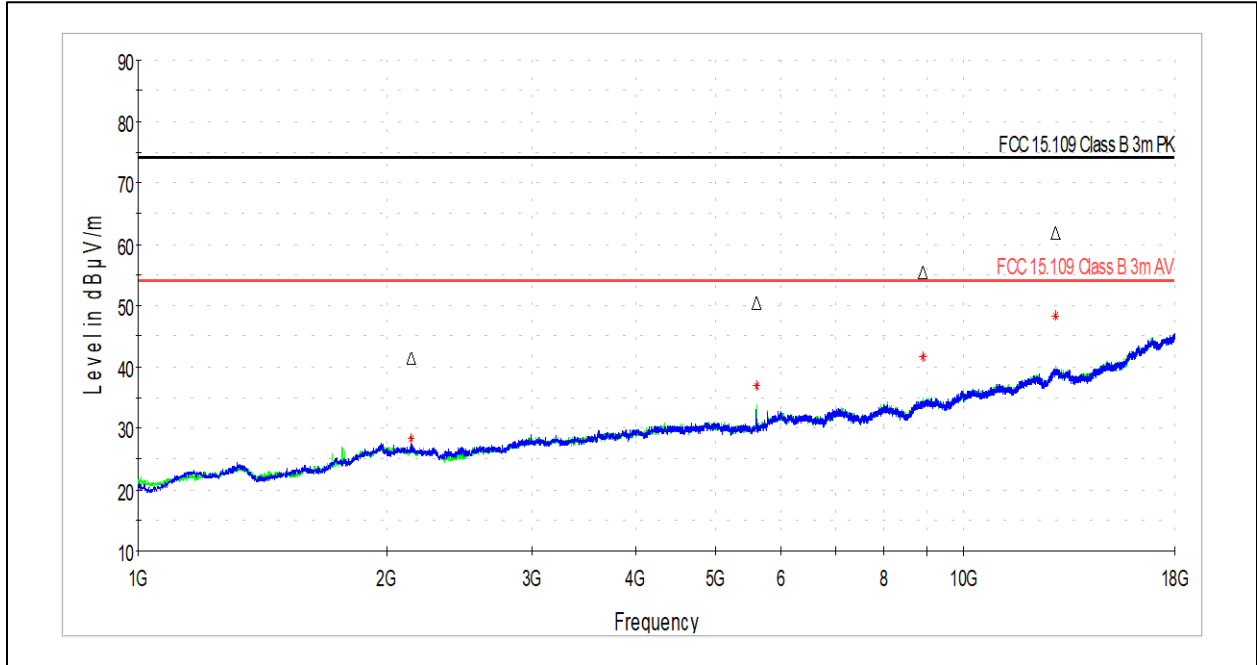
Test Date: 12/20/2022
 Limit Applied: Class B
 Ambient Temperature: 21.5C
 Relative Humidity: 21.0%
 Atmospheric Pressure: 995.7mbar

Deviations, additions, or exclusions: None



RSE Test Report

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)
2139.500000	41.50	74.00	32.50	1000.000	320.0	V	56.0	3.3
5601.000000	50.39	74.00	23.61	1000.000	131.0	H	300.0	10.0
8909.500000	55.38	74.00	18.62	1000.000	331.0	H	154.0	15.2
12921.000000	61.92	74.00	12.08	1000.000	242.0	H	0.0	21.1

Frequency (MHz)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
2139.500000	28.29	54.00	25.71	1000.000	320.0	V	56.0	3.3
5601.000000	36.85	54.00	17.15	1000.000	131.0	H	300.0	10.0
8909.500000	41.69	54.00	12.31	1000.000	331.0	H	154.0	15.2
12921.000000	48.18	54.00	5.82	1000.000	242.0	H	0.0	21.1

Test Personnel:	<u>Jordan Coughenour</u>	Test Date:	<u>12/20/2022</u>
Supervising/Reviewing Engineer:	<u>Brian Lackey</u>	Limit Applied:	<u>Class B</u>
(Where Applicable)	<u>FCC Part 15B</u>	Ambient Temperature:	<u>21.5C</u>
Product Standard:	<u>ICES-003 Issue 7</u>	Relative Humidity:	<u>21.0%</u>
Input Voltage:	<u>Battery</u>	Atmospheric Pressure:	<u>995.7mbar</u>
Pretest Verification w / Ambient Signals or BB Source:	<u>Yes</u>		

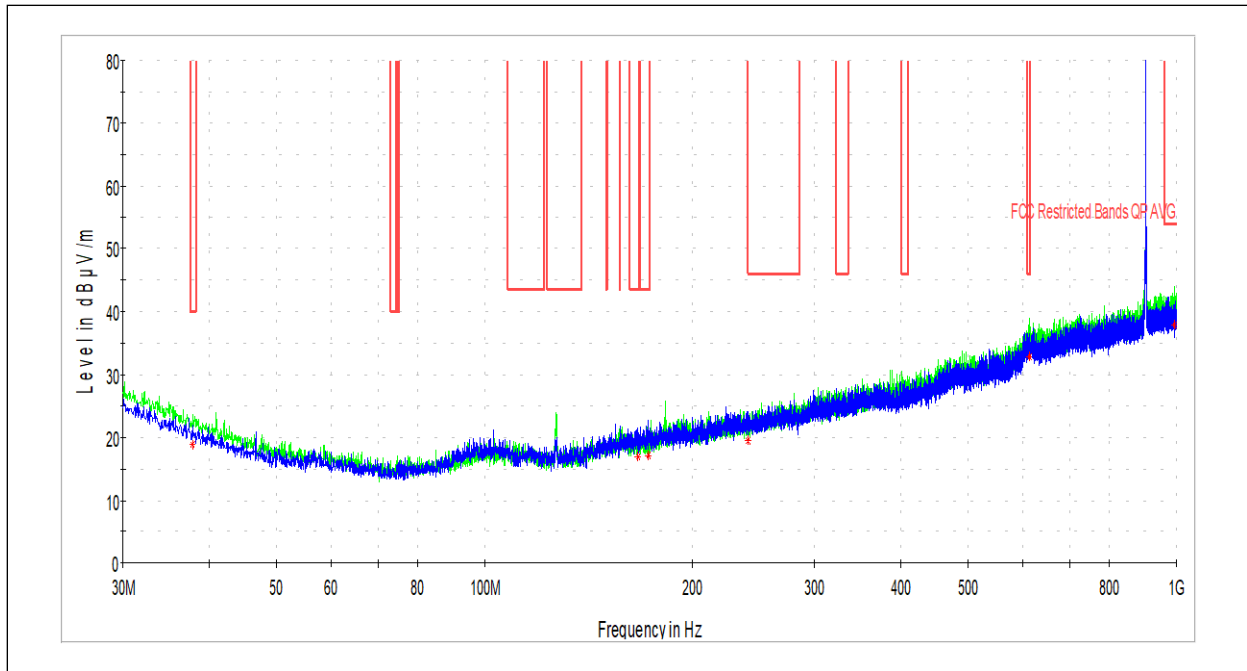
Deviations, additions, or exclusions: None



RSE Test Report

9.5 RADIATED SPURIOUS EMISSIONS, 30MHZ – 1GHZ (IEEE/ANSI C63.10)

9.5.1 LOW CHANNEL



Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
37.813889	18.85	40.00	21.15	120.000	290.0	H	-1.0	21.2
166.500556	16.86	43.52	26.66	120.000	188.0	V	88.0	18.7
172.266667	17.04	43.52	26.48	120.000	400.0	V	137.0	19.0
240.220556	19.49	46.02	26.53	120.000	400.0	V	320.0	21.7
613.347222	32.91	46.02	13.11	120.000	379.0	H	97.0	32.8
992.725000	37.89	53.98	16.09	120.000	202.0	H	0.0	37.5

Test Personnel: David Perry
 Supervising/Reviewing Engineer: Brian Lackey
 (Where Applicable) FCC Part 15.247
 Product Standard: RSS-247 Issue 2
 Input Voltage: 5VDC
 Pretest Verification w / Ambient Signals or BB Source: Yes

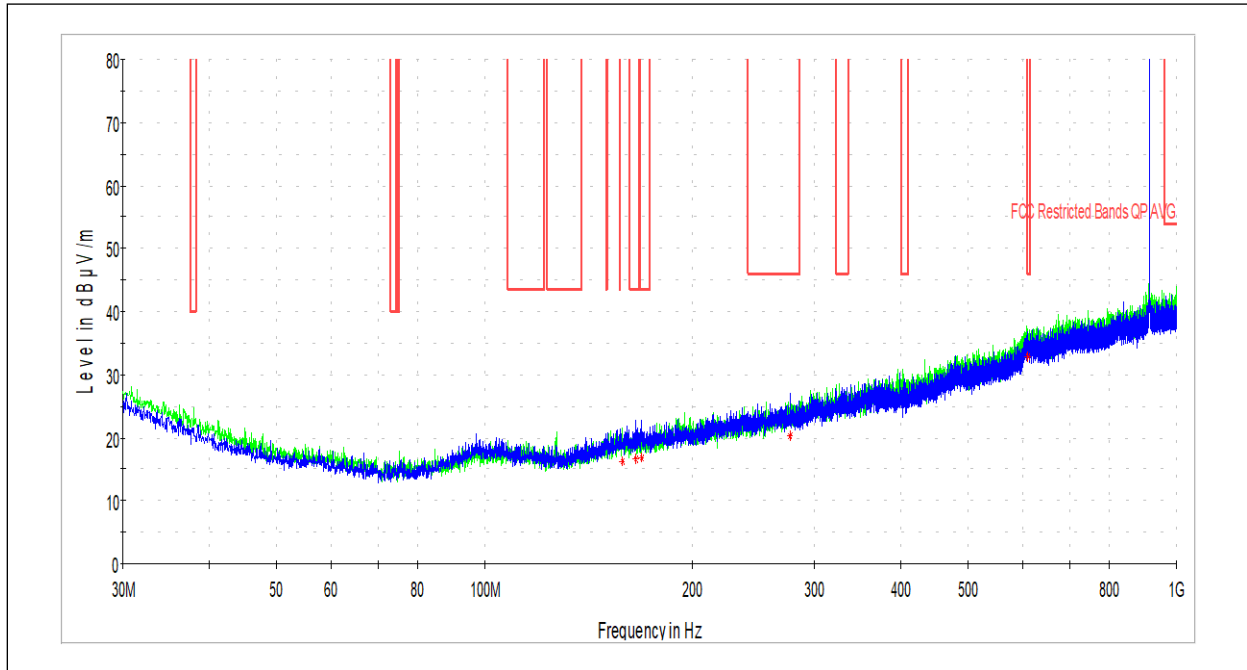
Test Date: 12/21/2022
 Limit Applied: FCC Part 15.209 in restricted bands from FCC Part 15.205
 Ambient Temperature: 21.5C
 Relative Humidity: 21.0%
 Atmospheric Pressure: 995.7mbar

Deviations, Additions, or Exclusions: None.



RSE Test Report

9.5.2 MID CHANNEL



Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
158.147778	16.28	1000.00	983.72	120.000	139.0	H	9.0	18.0
165.261111	16.69	43.52	26.83	120.000	118.0	V	254.0	18.6
168.440556	16.90	43.52	26.63	120.000	203.0	V	320.0	18.9
276.541667	20.29	46.02	25.73	120.000	286.0	V	170.0	22.6
610.060000	32.78	46.02	13.24	120.000	143.0	H	263.0	32.6

Test Personnel: David Perry
 Supervising/Reviewing Engineer: Brian Lackey
 (Where Applicable) FCC Part 15.247
 Product Standard: RSS-247 Issue 2
 Input Voltage: 5VDC
 Pretest Verification w / Ambient Signals or BB Source: Yes

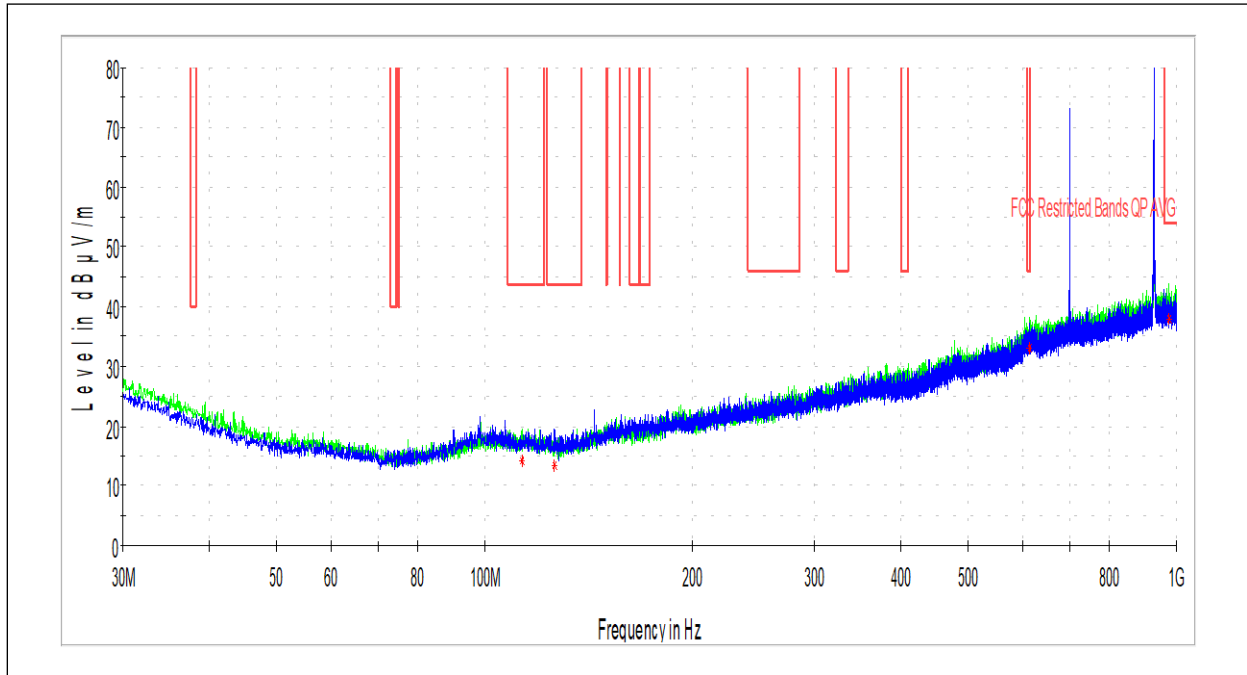
Test Date: 12/21/2022
 Limit Applied: FCC Part 15.209 in restricted bands from FCC Part 15.205
 Ambient Temperature: 21.5C
 Relative Humidity: 21.0%
 Atmospheric Pressure: 995.7mbar

Deviations, Additions, or Exclusions: None.



RSE Test Report

9.5.3 HIGH CHANNEL



Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
113.096667	14.11	43.52	29.41	120.000	267.0	H	0.0	16.8
126.245556	13.32	43.52	30.20	120.000	381.0	V	0.0	16.0
612.970000	32.96	46.02	13.06	120.000	100.0	H	89.0	32.7
976.288889	37.95	53.98	16.03	120.000	114.0	H	126.0	37.3

Test Personnel: David Perry
 Supervising/Reviewing Engineer: Brian Lackey
 (Where Applicable)
 Product Standard: FCC Part 15.247
 Input Voltage: 5VDC
 Pretest Verification w / Ambient Signals or BB Source: Yes

Test Date: 12/21/2022
 Limit Applied: FCC Part 15.209 in restricted bands from FCC Part 15.205
 Ambient Temperature: 21.5C
 Relative Humidity: 21.0%
 Atmospheric Pressure: 995.7mbar

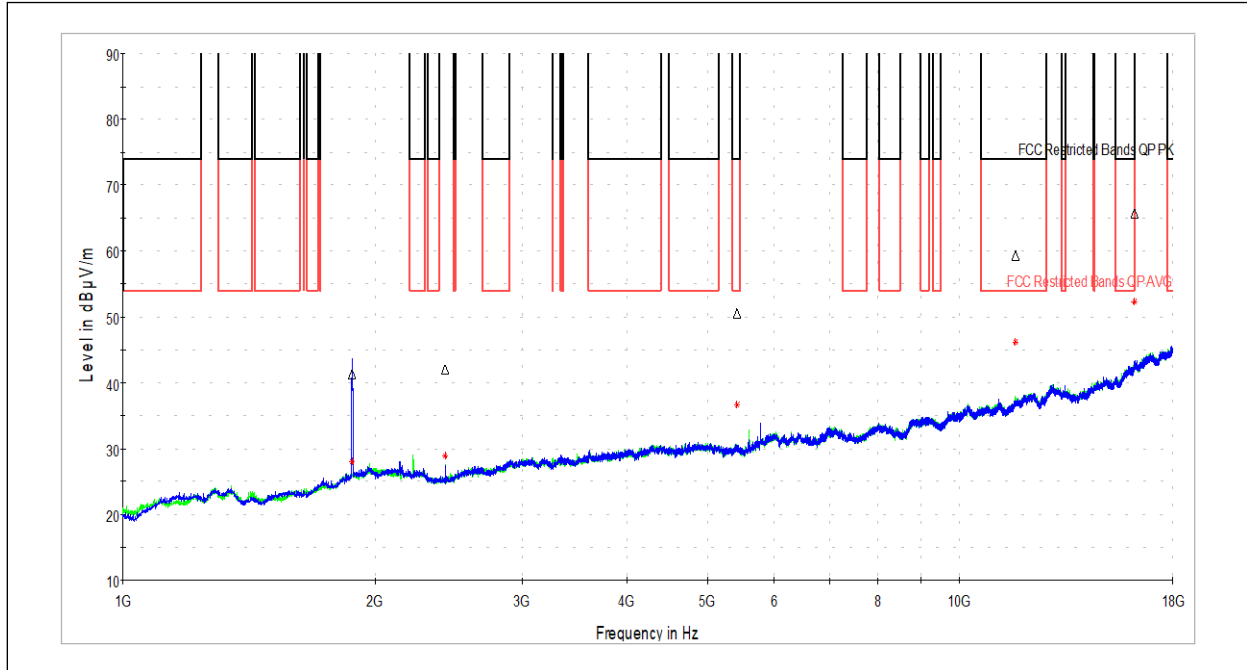
Deviations, Additions, or Exclusions: None.



RSE Test Report

9.6 RADIATED SPURIOUS EMISSIONS, 1GHZ – 18GHZ (IEEE/ANSI C63.10)

9.6.1 LOW CHANNEL



Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
1880.000000	41.30	1000.00	958.70	1000.000	350.0	V	128.0	2.6
2426.000000	42.03	1000.00	957.97	1000.000	354.0	H	76.0	4.1
5419.500000	50.55	73.98	23.43	1000.000	374.0	H	238.0	9.8
11681.500000	59.32	73.98	14.66	1000.000	100.0	H	-1.0	19.3
16207.000000	65.65	1000.00	934.35	1000.000	133.0	V	182.0	25.2
Frequency (MHz)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
1880.000000	27.97	1000.00	972.03	1000.000	350.0	V	128.0	2.6
2426.000000	28.92	1000.00	971.08	1000.000	354.0	H	76.0	4.1
5419.500000	36.70	53.98	17.28	1000.000	374.0	H	238.0	9.8
11681.500000	46.23	53.98	7.75	1000.000	100.0	H	-1.0	19.3
16207.000000	52.25	1000.00	947.75	1000.000	133.0	V	182.0	25.2

Test Personnel: David Perry
 Supervising/Reviewing Engineer: Brian Lackey
 (Where Applicable) FCC Part 15.247
 Product Standard: RSS-247 Issue 2
 Input Voltage: 5VDC
 Pretest Verification w / Ambient Signals or BB Source: Yes

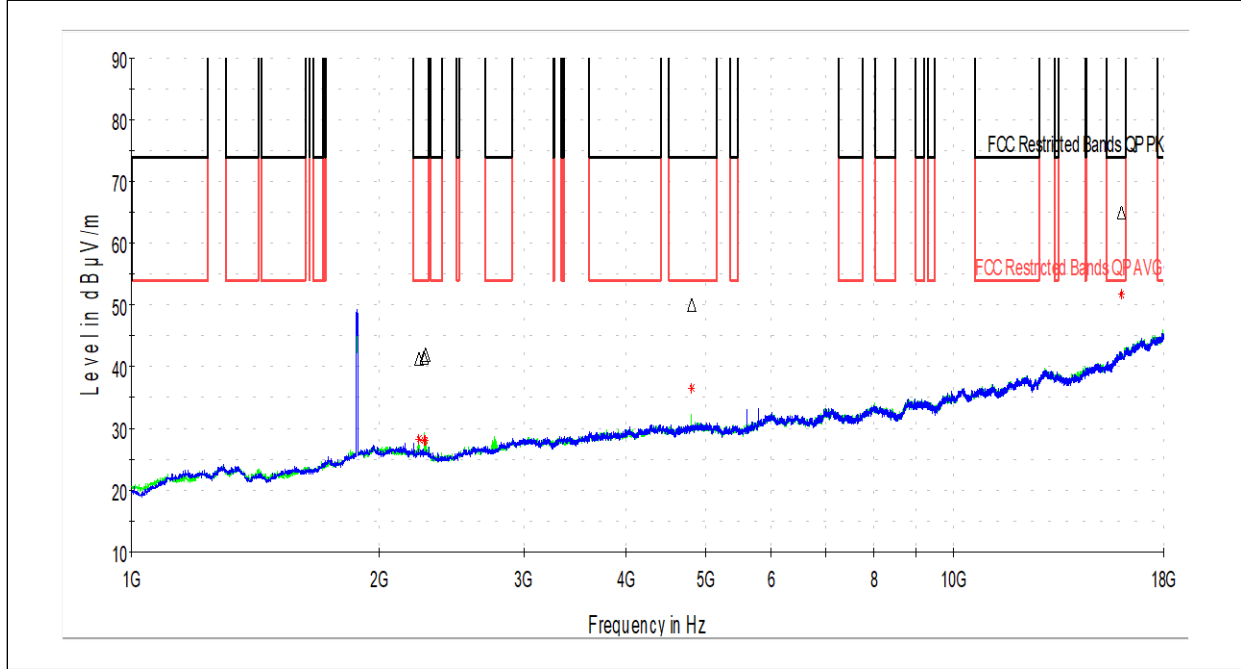
Test Date: 12/21/2022
 Limit Applied: FCC Part 15.209 in restricted bands from FCC Part 15.205
 Ambient Temperature: 21.5C
 Relative Humidity: 21.0%
 Atmospheric Pressure: 995.7mbar

Deviations, Additions, or Exclusions: None.



RSE Test Report

9.6.2 MID CHANNEL



Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
2233.500000	41.34	73.98	32.64	1000.000	410.0	H	340.0	3.2
2267.000000	41.52	73.98	32.46	1000.000	393.0	H	77.0	3.1
2280.000000	42.06	73.98	31.92	1000.000	346.0	H	318.0	3.2
4803.500000	49.97	73.98	24.01	1000.000	324.0	H	241.0	9.4
16006.000000	65.06	73.98	8.92	1000.000	100.0	H	148.0	24.9
Frequency (MHz)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
2233.500000	28.17	53.98	25.81	1000.000	410.0	H	340.0	3.2
2267.000000	28.03	53.98	25.95	1000.000	393.0	H	77.0	3.1
2280.000000	28.15	53.98	25.83	1000.000	346.0	H	318.0	3.2
4803.500000	36.49	53.98	17.49	1000.000	324.0	H	241.0	9.4
16006.000000	51.71	53.98	2.27	1000.000	100.0	H	148.0	24.9

Test Personnel: David Perry
 Supervising/Reviewing Engineer: Brian Lackey
 (Where Applicable) FCC Part 15.247
 Product Standard: RSS-247 Issue 2
 Input Voltage: 5VDC
 Pretest Verification w / Ambient Signals or BB Source: Yes

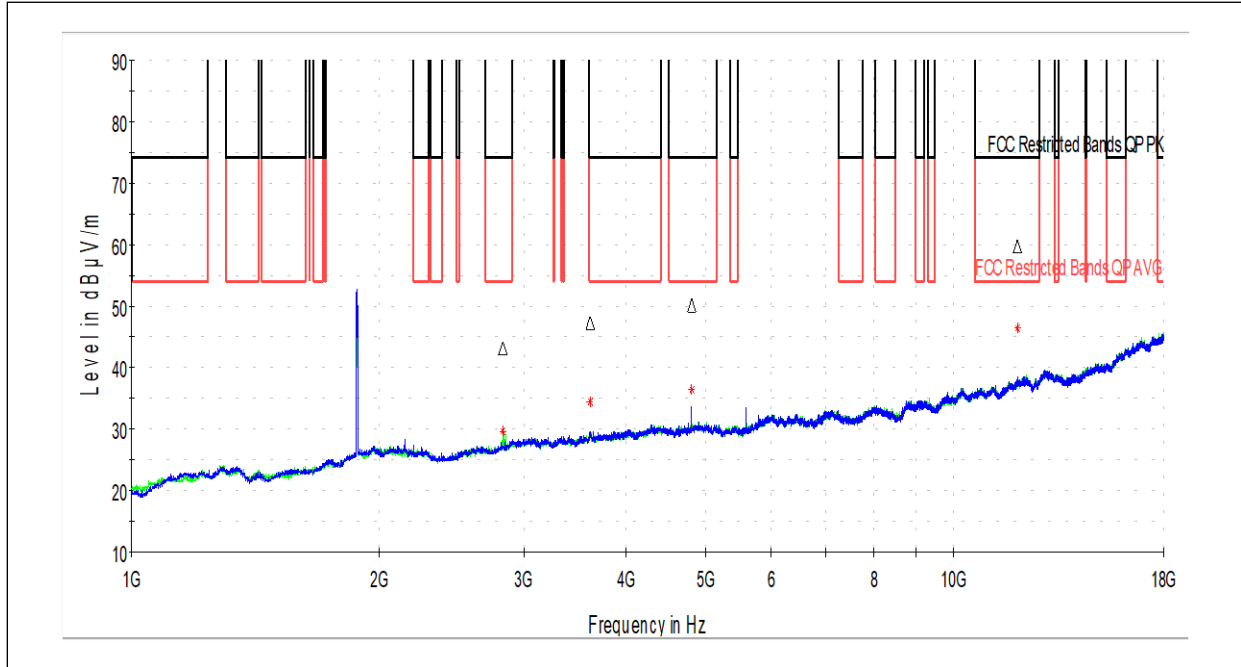
Test Date: 12/21/2022
 Limit Applied: FCC Part 15.209 in restricted bands from FCC Part 15.205
 Ambient Temperature: 21.5C
 Relative Humidity: 21.0%
 Atmospheric Pressure: 995.7mbar

Deviations, Additions, or Exclusions: None.



RSE Test Report

9.6.3 HIGH CHANNEL



Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
2825.500000	43.03	73.98	30.95	1000.000	390.0	H	163.0	4.8
3613.000000	47.33	73.98	26.65	1000.000	314.0	V	295.0	6.5
4804.000000	50.19	73.98	23.79	1000.000	319.0	V	100.0	9.3
11951.500000	59.65	73.98	14.33	1000.000	117.0	V	102.0	19.7
Frequency (MHz)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
2825.500000	29.56	53.98	24.42	1000.000	390.0	H	163.0	4.8
3613.000000	34.49	53.98	19.49	1000.000	314.0	V	295.0	6.5
4804.000000	36.44	53.98	17.54	1000.000	319.0	V	100.0	9.3
11951.500000	46.42	53.98	7.56	1000.000	117.0	V	102.0	19.7

Test Personnel: David Perry
 Supervising/Reviewing Engineer: Brian Lackey
 (Where Applicable) FCC Part 15.247
 Product Standard: RSS-247 Issue 2
 Input Voltage: 5VDC
 Pretest Verification w / Ambient Signals or BB Source: Yes

Test Date: 12/21/2022
 Limit Applied: FCC Part 15.209 in restricted bands from FCC Part 15.205
 Ambient Temperature: 21.5C
 Relative Humidity: 21.0%
 Atmospheric Pressure: 995.7mbar

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)	Ucispr
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	03/20/2023	105250409LEX-001	Jordan Coughenour, EMC Test Engineer	Brian Lackey, EMC Team Lead	Initial Release of Report
1	04/10/2023	105250409LEX-001.1	Jordan Coughenour, EMC Test Engineer	Brian Lackey, EMC Team Lead	Fixed typo on cover page

RSE Test Report

End of Test Report