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Geospace Technologies Corporation TEST REPORT

SCOPE OF WORK

EMC TESTING – AQUALINK

REPORT NUMBER

106145616LEX-001

ISSUE DATE

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EMC TEST REPORT (FULL COMPLIANCE)

Report Number: 106145616LEX-001

Project Number: G106145616

Report Issue Date: 7/16/2025

Model(s) Tested: Aqualink

Standards: FCC Title 47 CFR Part 15.247
RSS-247 Issue 3
RSS-GEN Issue 5

Tested by:
Intertek Testing Services NA, Inc.
731 Enterprise Dr.
Lexington, KY 40510
USA

Client:
Geospace Technologies Corporation
7007 Pinemont Dr
Houston, TX 77040-6601
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Report prepared by



David Perry,
EMC Engineer

Report reviewed by



Michael Carlson,
EMC Team Lead

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1 Introduction and Conclusion

The tests indicated in section 2.0 were performed on the product constructed as described in section 4.0. The remaining test sections are the verbatim text from the actual data sheets used during the investigation. These test sections include the test name, the specified test Method, a list of the actual Test Equipment Used, documentation Photos, Results and raw Data. No additions, deviations, or exclusions have been made from the standard(s) unless specifically noted.

Based on the results of our investigation, we have concluded the product tested **complies** with the requirements of the standard(s) indicated. The results obtained in this test report pertain only to the item(s) tested. Intertek does not make any claims of compliance for samples or variants which were not tested.

2 Test Summary

Section	Test full name	Result
6	Occupied/DTS Bandwidth (ANSI C63.10 (2013) §6.9.3 and §11.8)	Pass
7	Fundamental Emission Output Power (ANSI C63.10 (2013) §11.9)	Pass
8	Maximum Power Spectral Density (ANSI C63.10 (2013) §11.10)	Pass
9	Conducted Spurious Emissions (ANSI C63.10 (2013) §11.11)	Pass
10	Radiated Spurious Emissions ANSI C63.10 (2013) §6.3 §6.5 and §6.6	Pass
11	Antenna Requirement (FCC Part 15.203, RSS-Gen Issue 5 § 6.8)	Pass



3 Client Information

This product was tested at the request of the following:

Client Information	
Client Name:	Geospace Technologies Corporation
Address:	7007 Pinemont Dr Houston, TX 77040-6601 USA
Contact:	Mark McAllister
Telephone:	2816301341
Email:	mmcallister@geospace.com
Manufacturer Information	
Manufacturer Name:	Geospace Technologies Corporation
Manufacturer Address:	7007 Pinemont Dr Houston, TX 77040-6601 USA



4 Description of Equipment under Test and Variant Models

Equipment Under Test	
Product Name	Aqualink
Model Number	Aqualink
Serial Number	D0000077
Receive Date	6/20/2025
Test Start Date	6/26/2025
Test End Date	7/9/2025
Device Received Condition	Good
Test Sample Type	Production
Transmit Band	2402MHz – 2480MHz BLE
Nominal DTS Bandwidth	752.2kHz
Antenna Type	Integral Antenna
Antenna Gain ¹	-0.48 dBi
Rated Voltage	3.6VDC
Description of Equipment Under Test (provided by client)	
The Geospace Technologies Corporation Aqualink is a LoRa endpoint	

4.1 Variant Models:

There were no variant models covered under this evaluation.

¹ This information was provided by the client and may affect compliance. Intertek does not make any claim of compliance for values other than those shown.



5 System Setup and Method

5.1 Method:

Configuration as required by ANSI C63.10 (2013).

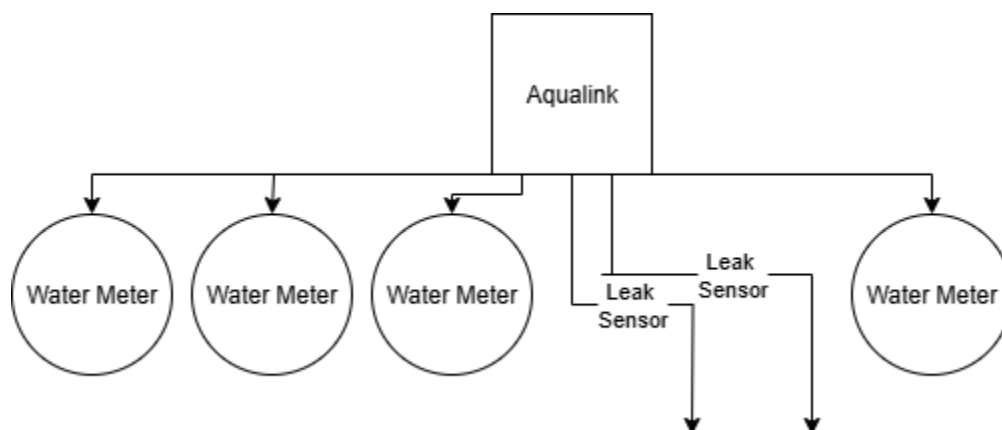
No.	Descriptions of EUT Exercising
1	Device was on and transmitting on low, mid, and high channels while in an orientation that maximized emissions.

Cables					
QTY	Description	Length (m)	Shielding	Ferrites	Termination
1	Kamstrup Cable	1	No	No	flowIQ 2100
1	Kamstrup Cable	2	No	No	flowIQ 2100
1	NMT Cable	1	No	No	VersaMag
1	NMT Cable	.3	No	No	VersaMag
2	Rope Leak Sensor	1.5	No	No	N/A

Support Equipment (Accessories)		
Description	Manufacturer	Model Number
Water Meter	Kamstrup	flowIQ 2100
Water Meter	Kamstrup	flowIQ 2100
Water Meter	NMT	VersaMag
Water Meter	NMT	VersaMag
Rope Leak Sensor	Shenzhen AnYing Technology Co., Ltd	A-LC1B-5CH1
Rope Leak Sensor	Shenzhen AnYing Technology Co., Ltd	A-LC1B-5CH1



5.2 EUT Block Diagram:





6 Occupied/DTS Bandwidth

6.1 Test Method:

Tests are performed in accordance with ANSI C63.10 §6.9.3 and §11.8.

6.2 Test Limits:

Title 47 CFR 15.247(a)

- (1) Systems using digital modulation techniques may operate in the 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz bands. The minimum 6 dB bandwidth shall be at least 500 kHz.

RSS-247 §5.2

- a. The minimum 6 dB bandwidth shall be 500 kHz.

RSS-GEN §6.7

The occupied bandwidth or the “99% emission bandwidth” is defined as the frequency range between two points, one above and the other below the carrier frequency, within which 99% of the total transmitted power of the fundamental transmitted emission is contained. The occupied bandwidth shall be reported for all equipment in addition to the specified bandwidth required in the applicable RSSs.



6.3 Test Equipment Used:

Description	Asset	Manufacturer	Model	Cal Date	Cal Due
Spectrum Analyzer	8305	Rohde & Schwarz	FSW26	9/20/2024	9/20/2025

6.4 Measurement Uncertainty

Description	Expanded Uncertainty (k=2)
Signal Chain Calibration	1.2

No measurement correction based on measurement uncertainty is performed.

6.5 Test Conditions

Test Personnel	Supervising Engineer	Test Date	Ambient Temperature	Relative Humidity	Pressure
David Perry	N/A	7/8/2025	23.6°C	51.4%	986.1mbar

6.6 Test Results:

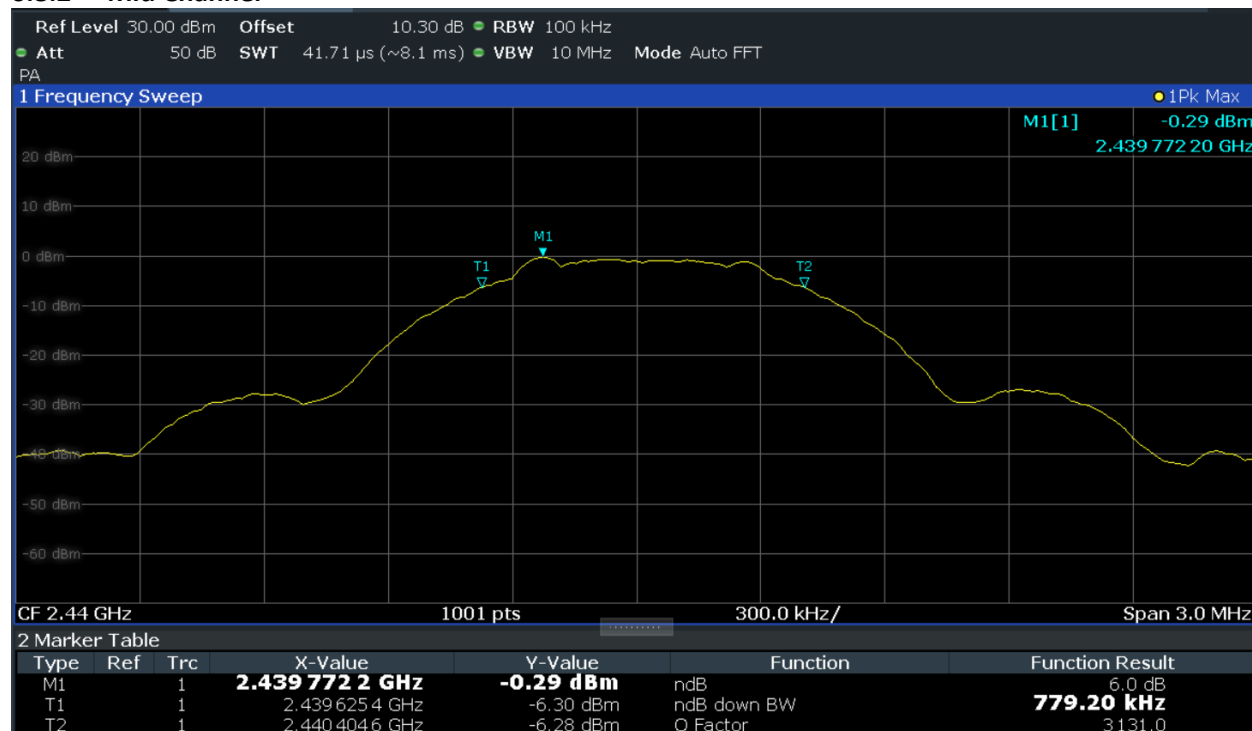
The sample tested was found to Comply. The 6dB bandwidth was at least 500 kHz.

6.7 Test Data:

Frequency (MHz)	6dB Bandwidth (kHz)	20dB Bandwidth (MHz)	99% Bandwidth (kHz)	Limit (kHz)
2402	809.2	1.25	1087.94	500
2440	779.2	1.26	1097.37	500
2480	752.2	1.21	108296	500

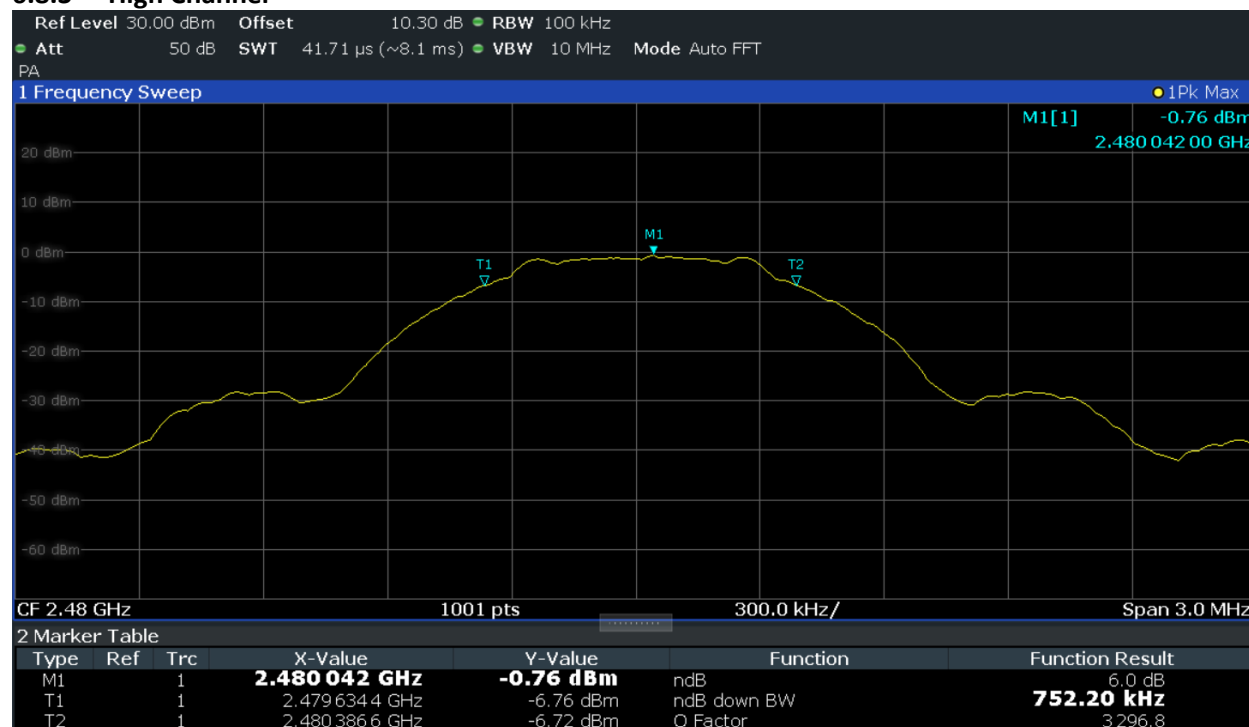


6.8.2 Mid Channel





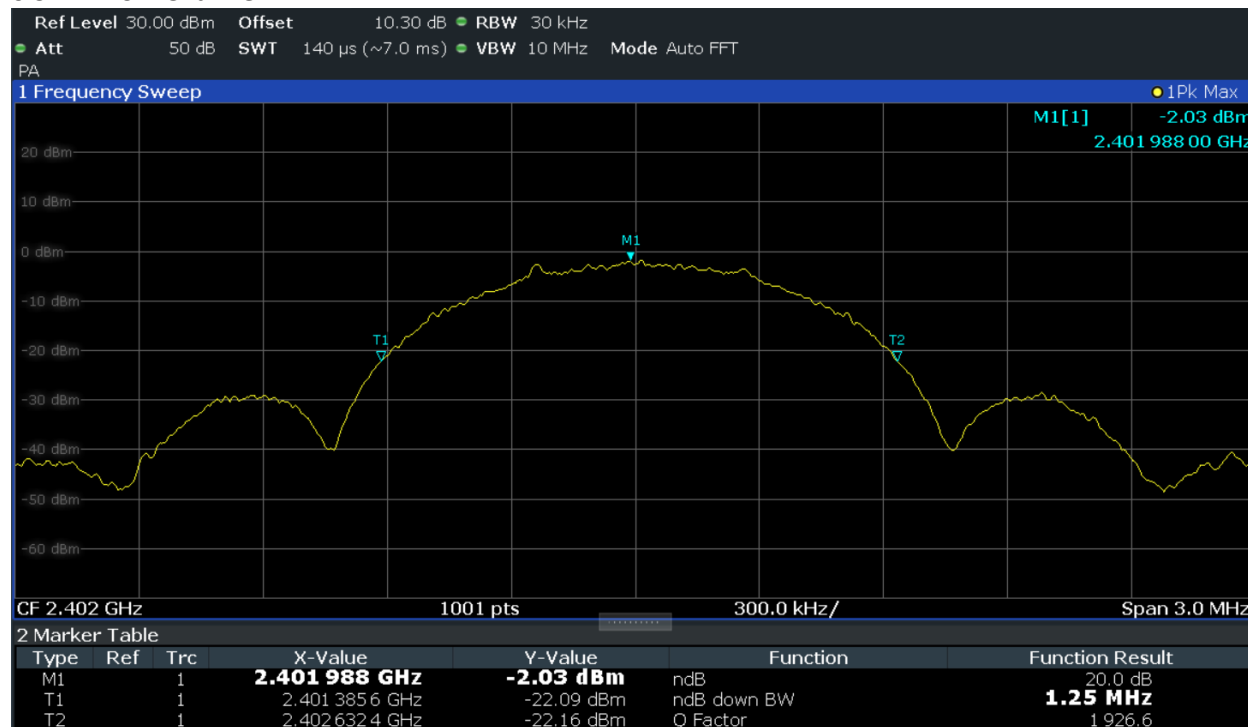
6.8.3 High Channel





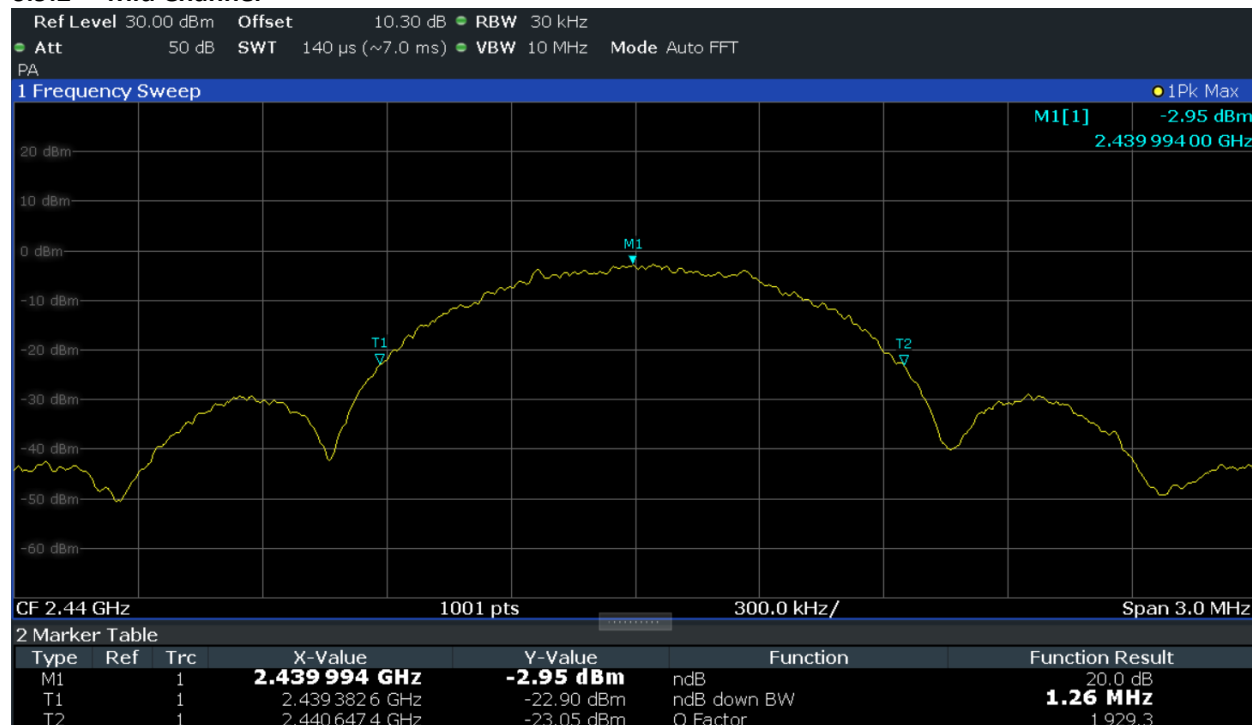
6.9 Test Plots: Occupied Channel Bandwidth (20dB Bandwidth)

6.9.1 Low Channel



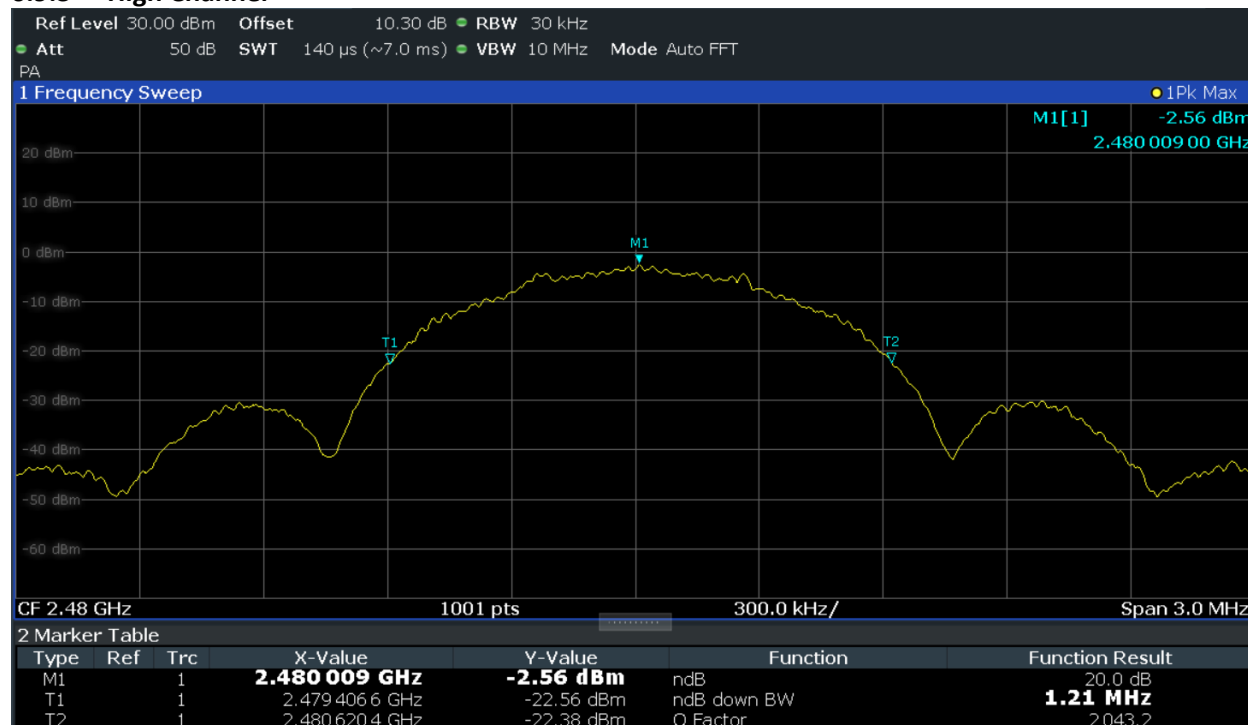


6.9.2 Mid Channel





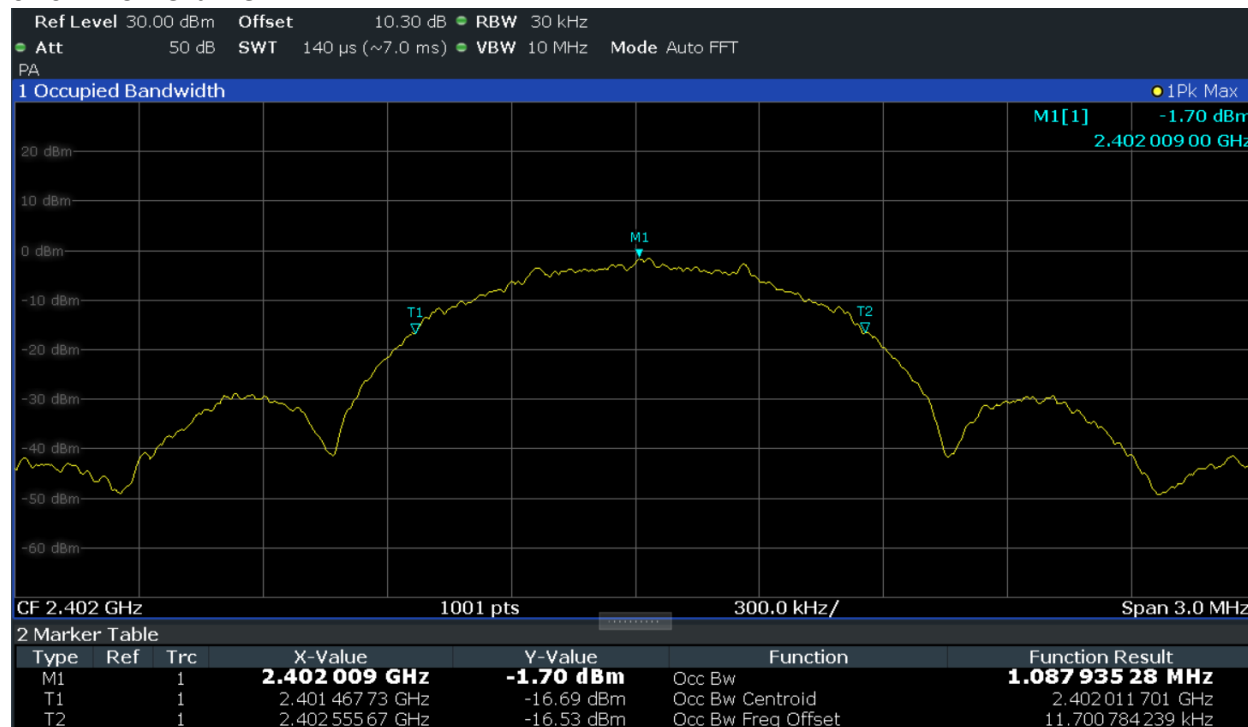
6.9.3 High Channel





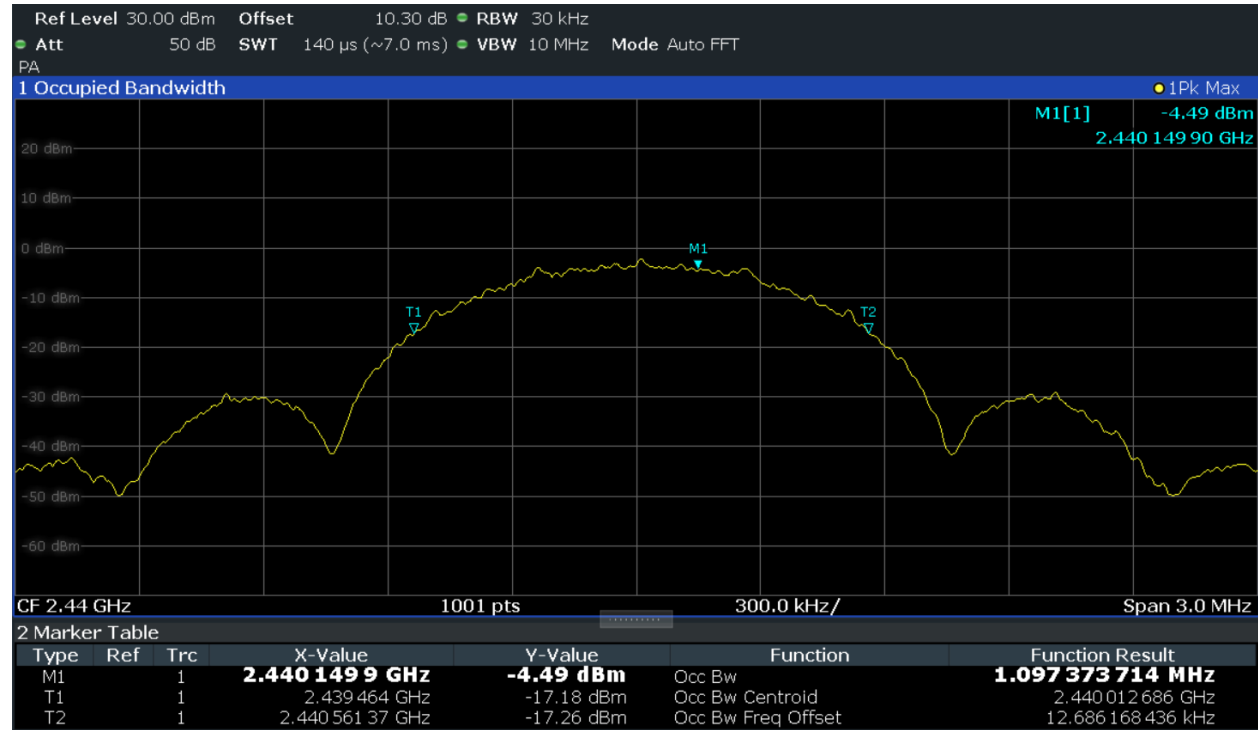
6.10 Test Plots: Occupied Channel Bandwidth (99% Bandwidth)

6.10.1 Low Channel



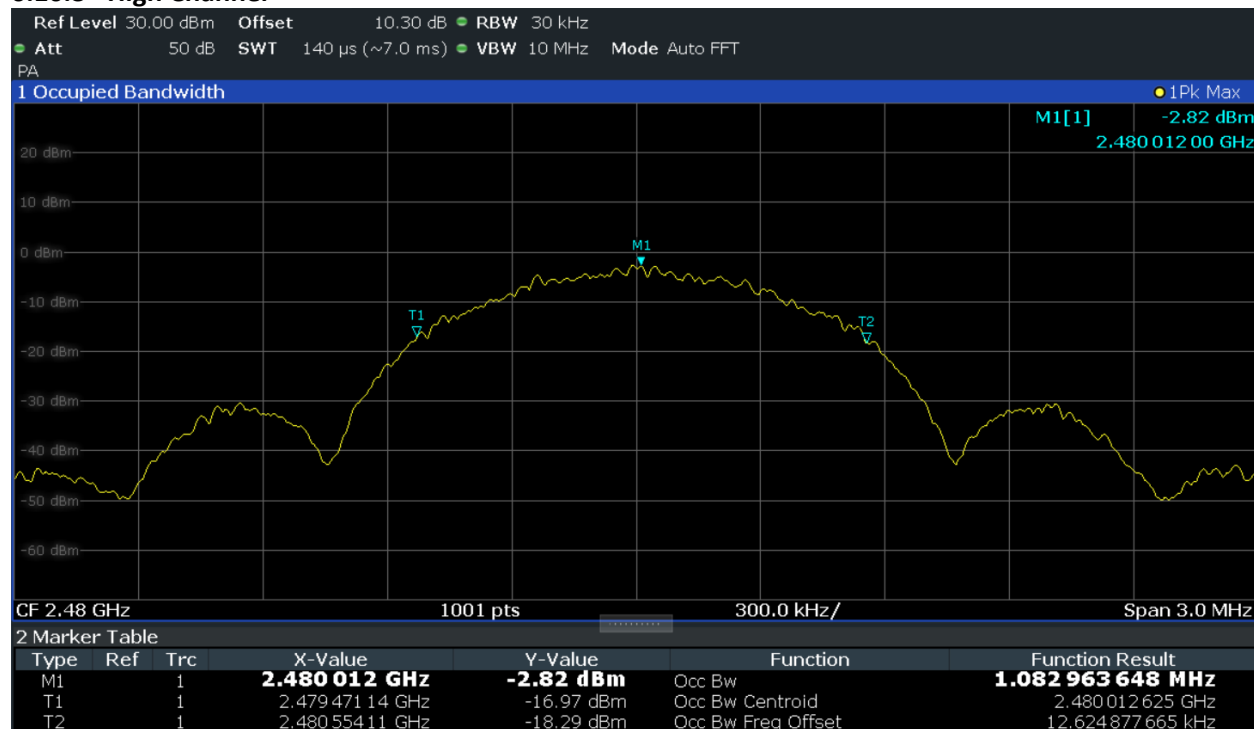


6.10.2 Mid Channel





6.10.3 High Channel





7 Fundamental Emissions Output Power

7.1 Test Method:

Tests are performed in accordance with ANSI C63.10 §11.9.

7.2 Test Limits:

47 CFR 15.247(b)

- (2) For systems using digital modulation in the 902–928 MHz, 2400–2483.5 MHz, and 5725–5850 MHz bands: 1 Watt. As an alternative to a peak power measurement, compliance with the one Watt limit can be based on a measurement of the maximum conducted output power. Maximum Conducted Output Power is defined as the total transmit power delivered to all antennas and antenna elements averaged across all symbols in the signaling alphabet when the transmitter is operating at its maximum power control level. Power must be summed across all antennas and antenna elements. The average must not include any time intervals during which the transmitter is off or is transmitting at a reduced power level. If multiple modes of operation are possible (e.g., alternative modulation methods), the *maximum conducted output power* is the highest total transmit power occurring in any mode.

RSS-247 §5.4

- d. For DTSs employing digital modulation techniques operating in the bands 902-928 MHz and 2400-2483.5 MHz, the maximum peak conducted output power shall not exceed 1 W. The e.i.r.p. shall not exceed 4 W, except as provided in section 5.4(e).



7.3 Test Equipment Used:

Description	Asset	Manufacturer	Model	Cal Date	Cal Due
Spectrum Analyzer	8305	Rohde & Schwarz	FSW26	9/20/2024	9/20/2025

7.4 Measurement Uncertainty

Description	Expanded Uncertainty (k=2)
Signal Chain Calibration	1.2

No measurement correction based on measurement uncertainty is performed.

7.5 Test Conditions

Test Personnel	Supervising Engineer	Test Date	Ambient Temperature	Relative Humidity	Pressure
David Perry	N/A	7/9/2025	24.0°C	49.2%	985.0mbar

7.6 Test Results:

The sample tested was found to Comply. The conducted output power was less than 1 W. The EIRP was less than 4 W.

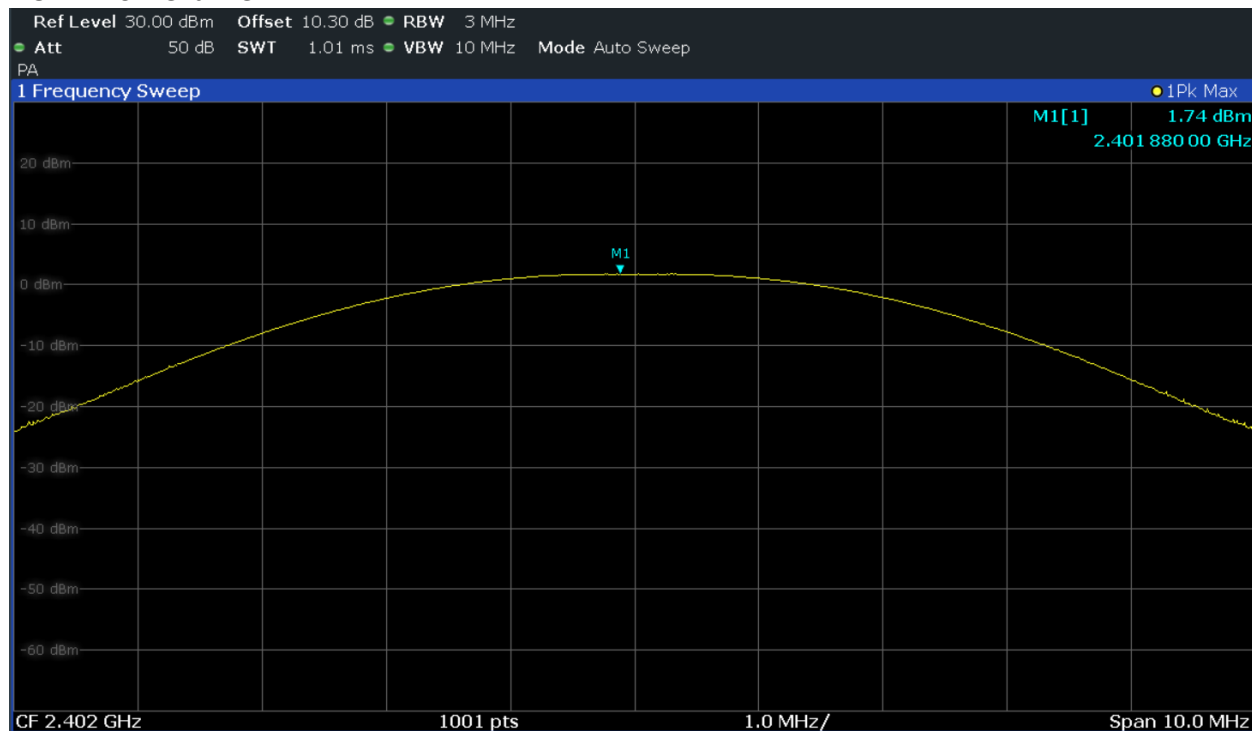
7.7 Test Data:

Frequency (MHz)	Output Power (dBm)	Output Power (W)	Antenna Gain (dBi)	EIRP (dBm)	EIRP (W)	Output Power Limit (W)	EIRP Limit (W)
2402	1.74	0.001	-0.48	1.26	0.001	1	4
2440	1.27	0.001	-0.48	0.79	0.001	1	4
2480	0.87	0.001	-0.48	0.39	0.001	1	4



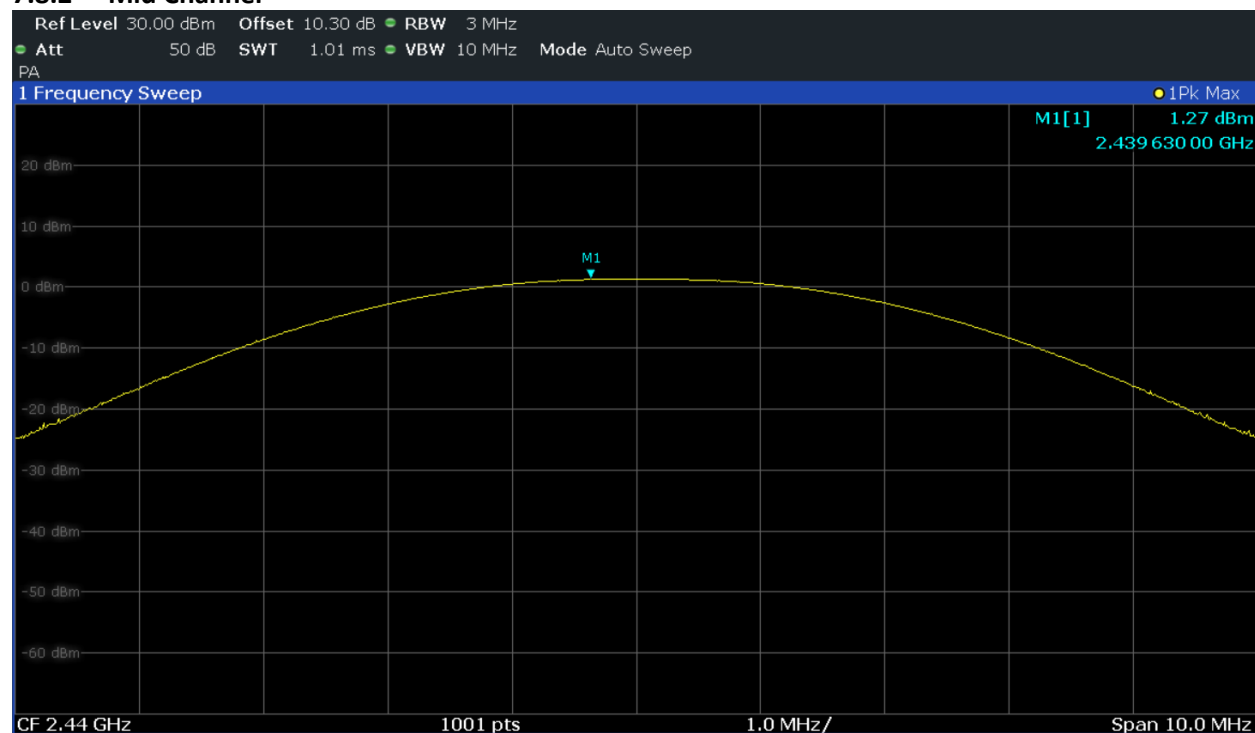
7.8 Test Plots: Output Power

7.8.1 Low Channel



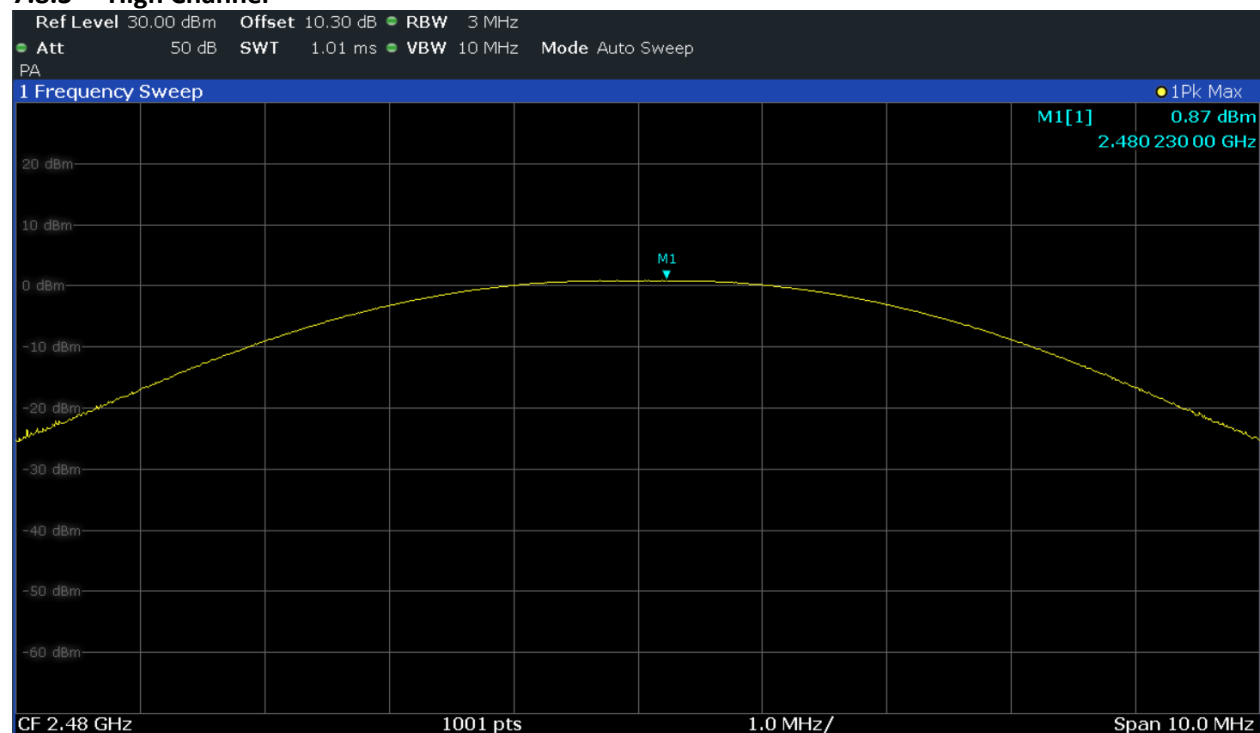


7.8.2 Mid Channel





7.8.3 High Channel





8 Maximum Power Spectral Density (PSD)

8.1 Test Method:

Tests are performed in accordance with ANSI C63.10 §11.10.

8.2 Test Limits:

47 CFR 15.247(e)

For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission. This power spectral density shall be determined in accordance with the provisions of paragraph (b) of this section. The same method of determining the conducted output power shall be used to determine the power spectral density.

RSS-247 §5.2

- b. The transmitter power spectral density conducted from the transmitter to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission. This power spectral density shall be determined in accordance with the provisions of section 5.4(d), (i.e. the power spectral density shall be determined using the same method as is used to determine the conducted output power).



8.3 Test Equipment Used:

Description	Asset	Manufacturer	Model	Cal Date	Cal Due
Spectrum Analyzer	8305	Rohde & Schwarz	FSW26	9/20/2024	9/20/2025

8.4 Test Software Used:

Description	Manufacturer	Version
RSCCommander	Rohde & Schwarz	2.4.2 64 bit (2023)

8.5 Measurement Uncertainty

Description	Expanded Uncertainty (k=2)
Signal Chain Calibration	1.2

No measurement correction based on measurement uncertainty is performed.

8.6 Test Conditions

Test Personnel	Supervising Engineer	Test Date	Ambient Temperature	Relative Humidity	Pressure
David Perry	N/A	7/9/2025	24.0°C	49.2%	985.0mbar

8.7 Test Results:

The sample tested was found to Comply. The power spectral density was less than 8 dBm/3kHz.

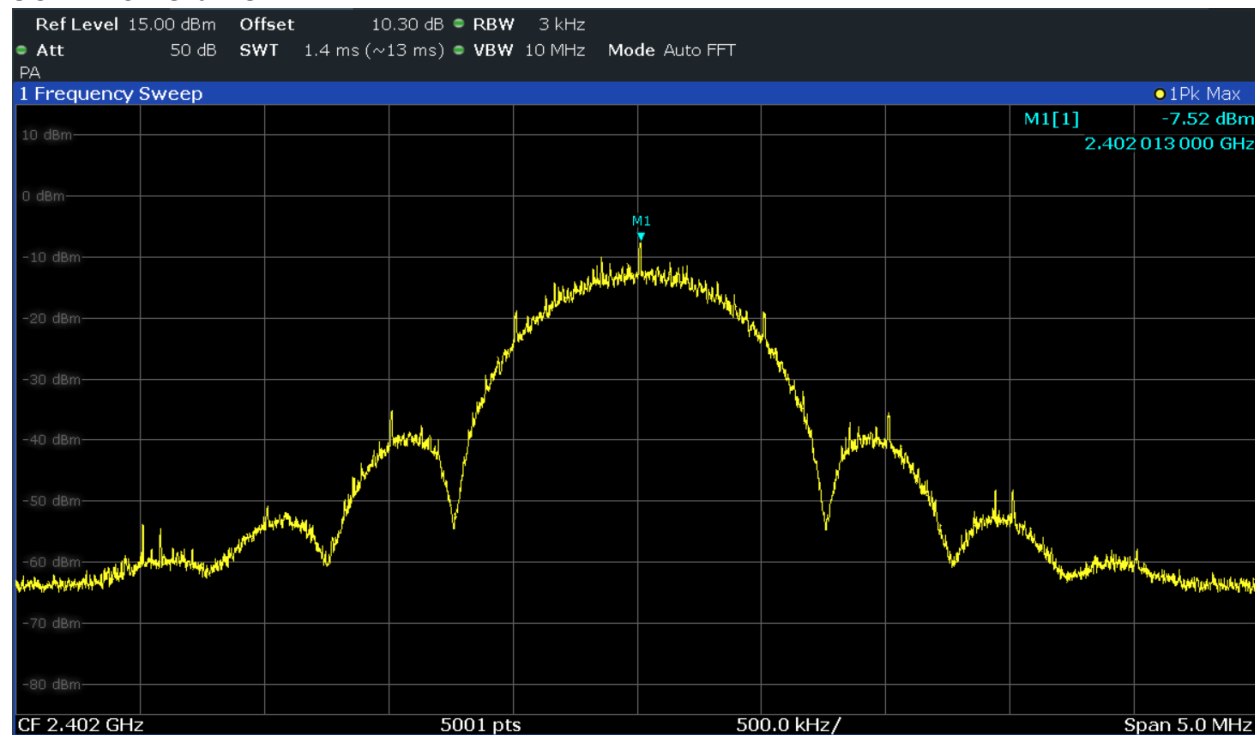
8.8 Test Data:

Frequency (MHz)	Conducted PSD (MHz)	Antenna Gain (dBi)	PSD EIRP (dBm/3kHz)	Limit (dBm/3kHz)
2402	-7.52	-0.48	-8.00	8
2440	-10.42	-0.48	-10.90	8
2480	-8.70	-0.48	-9.18	8



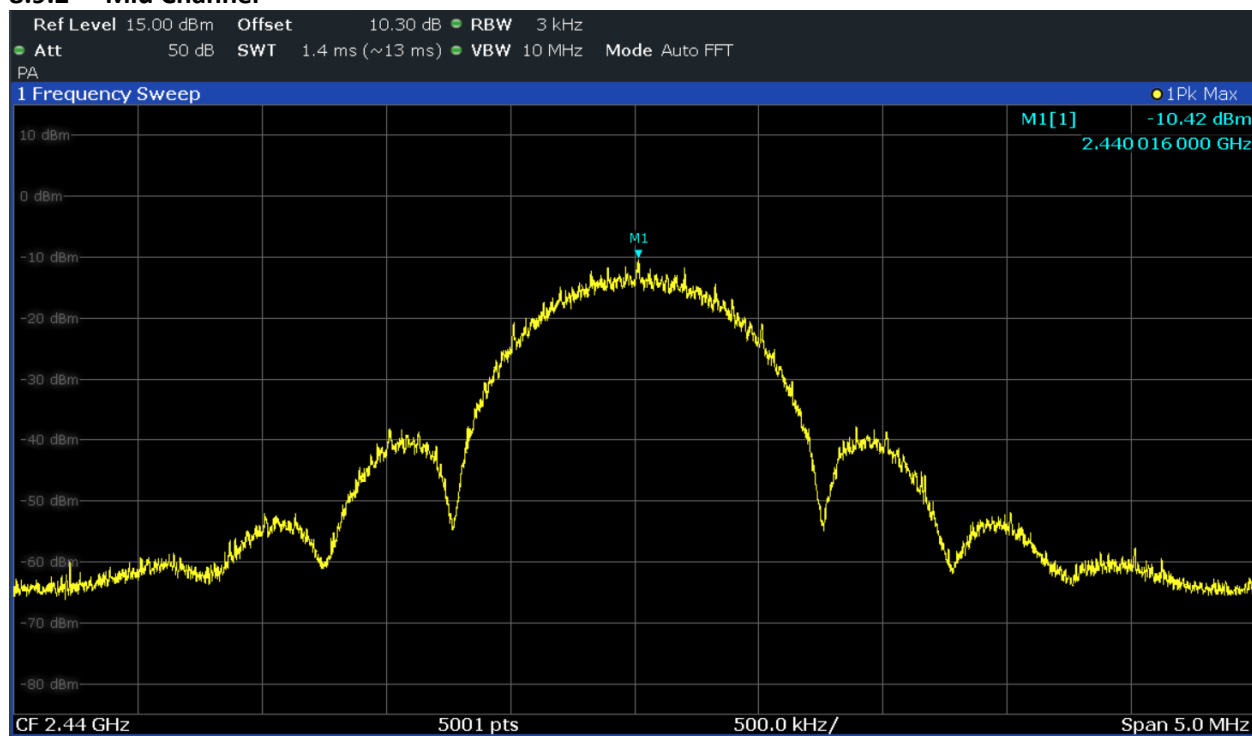
8.9 Test Plots: Power Spectral Density

8.9.1 Low Channel



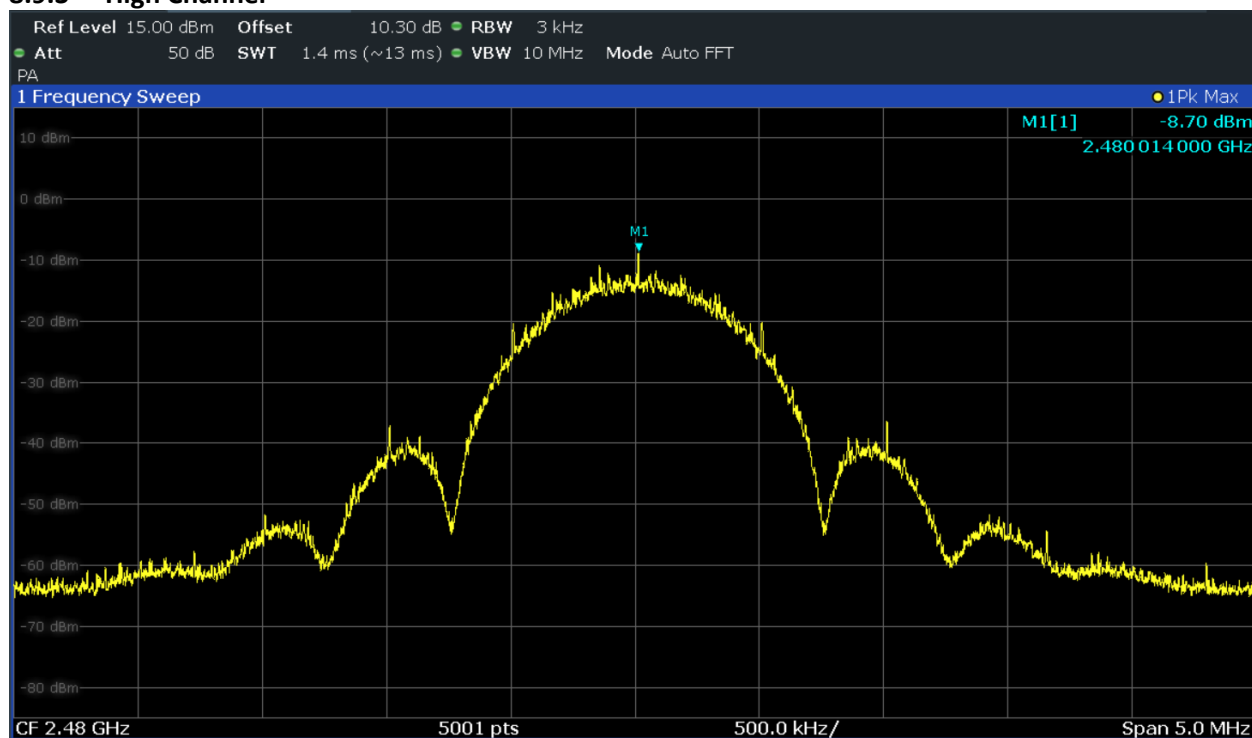


8.9.2 Mid Channel





8.9.3 High Channel





9 Conducted Spurious Emissions

9.1 Test Method:

Tests are performed in accordance with ANSI C63.10 §11.11.

9.2 Test Limits:

47 CFR 15.247(d)

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in § 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in § 15.205(a), must also comply with the radiated emission limits specified in § 15.209(a) (see § 15.205(c)).

RSS-247 §5.5

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated device is operating, the RF power that is produced shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided that the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of root-mean-square averaging over a time interval, as permitted under section 5.4(d), the attenuation required shall be 30 dB instead of 20 dB. Attenuation below the general field strength limits specified in RSS-Gen is not required.



9.3 Test Equipment Used:

Description	Asset	Manufacturer	Model	Cal Date	Cal Due
Spectrum Analyzer	8305	Rohde & Schwarz	FSW26	9/20/2024	9/20/2025

9.4 Test Software Used:

Description	Manufacturer	Version
RSCCommander	Rohde & Schwarz	2.4.2 64 bit (2023)

9.5 Measurement Uncertainty

Description	Expanded Uncertainty (k=2)
Signal Chain Calibration	1.2

No measurement correction based on measurement uncertainty is performed.

9.6 Test Conditions

Test Personnel	Supervising Engineer	Test Date	Ambient Temperature	Relative Humidity	Pressure
David Perry	N/A	7/9/2025	24.0°C	49.2%	985.0mbar

9.7 Test Results:

The sample tested was found to Comply.

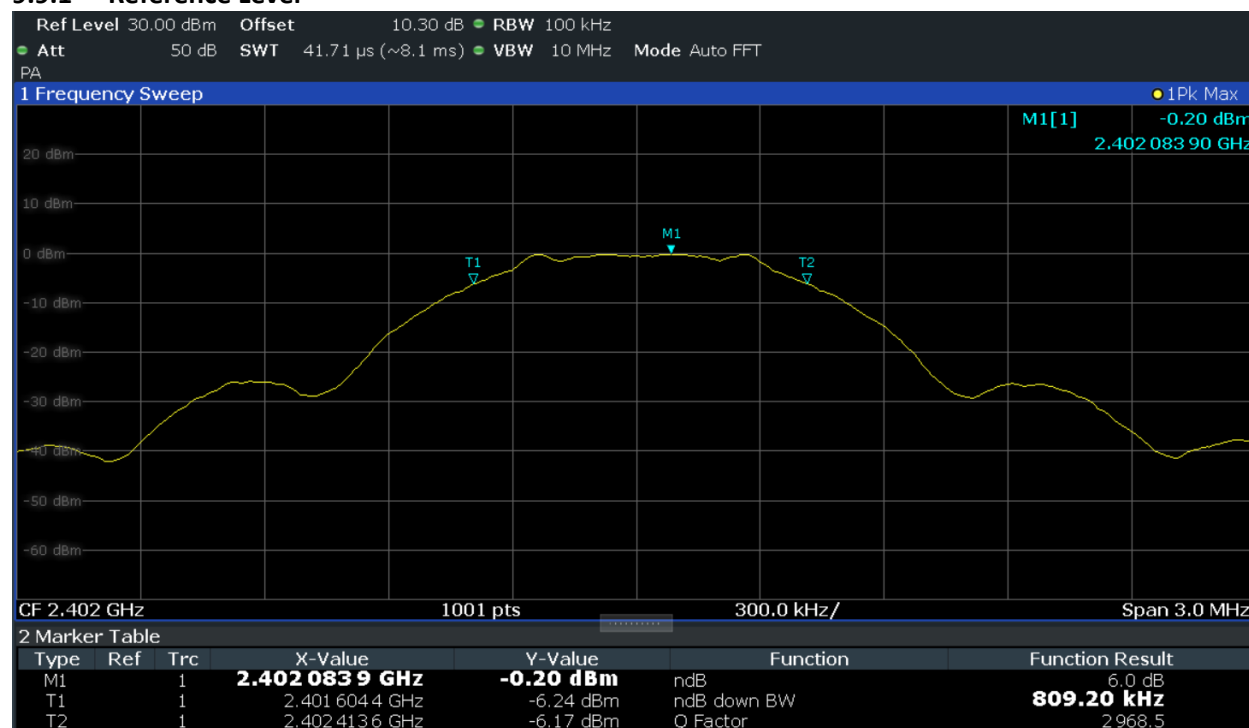
9.8 Test Data:

Frequency (MHz)	Reference Level Max PSD (dBm)	Highest 3 Unwanted Emissions Level (dBm)		Margin (dB)	Limit (dB)	Margin (dB)
2402	-0.2	1	-46.004	25.804	-20.2	25.804
		2	-54.895	34.695		34.695
		3	-55.507	35.307		35.307
2440	-0.2	1	-49.481	29.281	-20.2	29.281
		2	-55.527	35.327		35.327
		3	-55.71	35.51		35.51
2480	-0.2	1	-54.713	34.513	-20.2	34.513
		2	-55.676	35.476		35.476
		3	-56.336	36.136		36.136



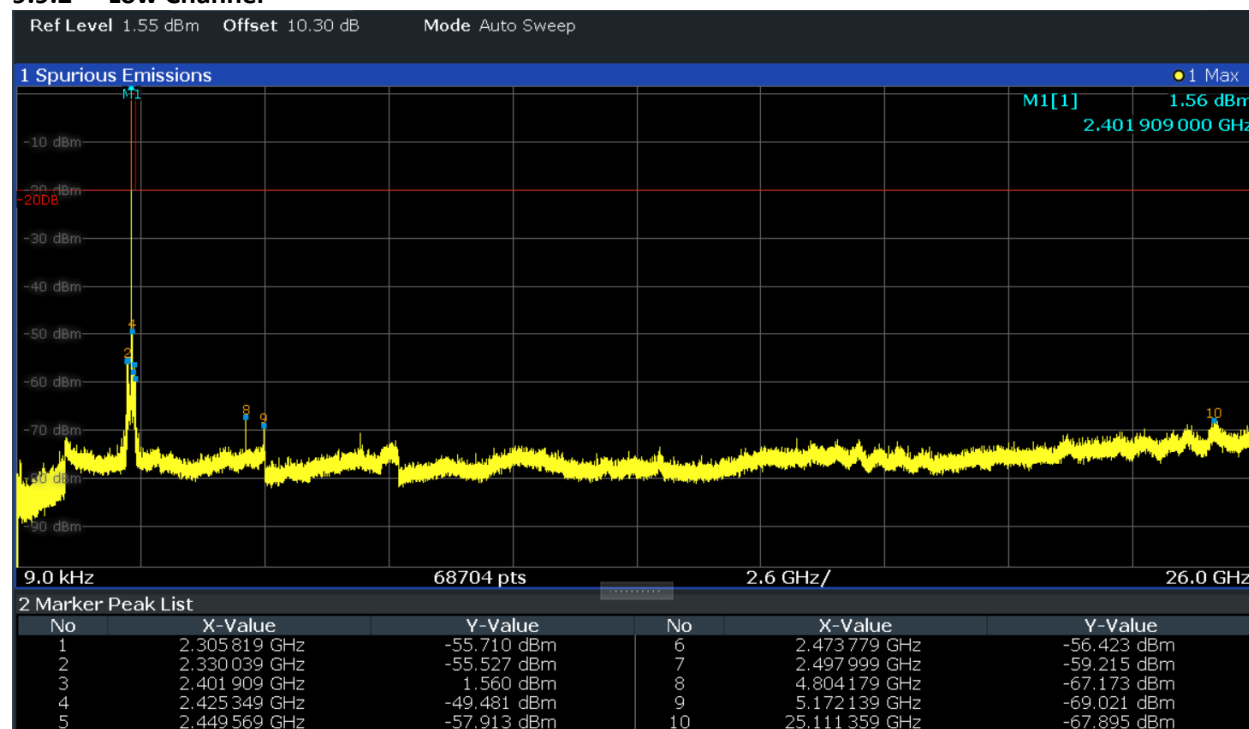
9.9 Test Plots: Emissions in Non-Restrictive Bands

9.9.1 Reference Level



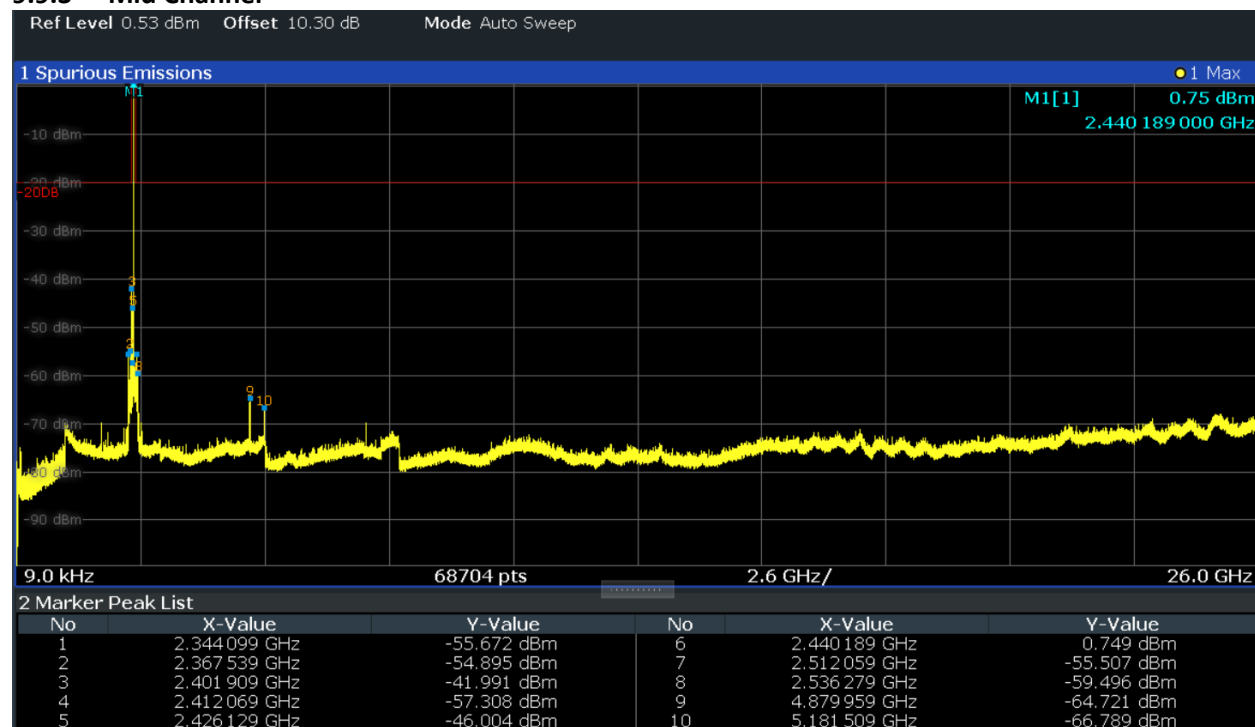


9.9.2 Low Channel



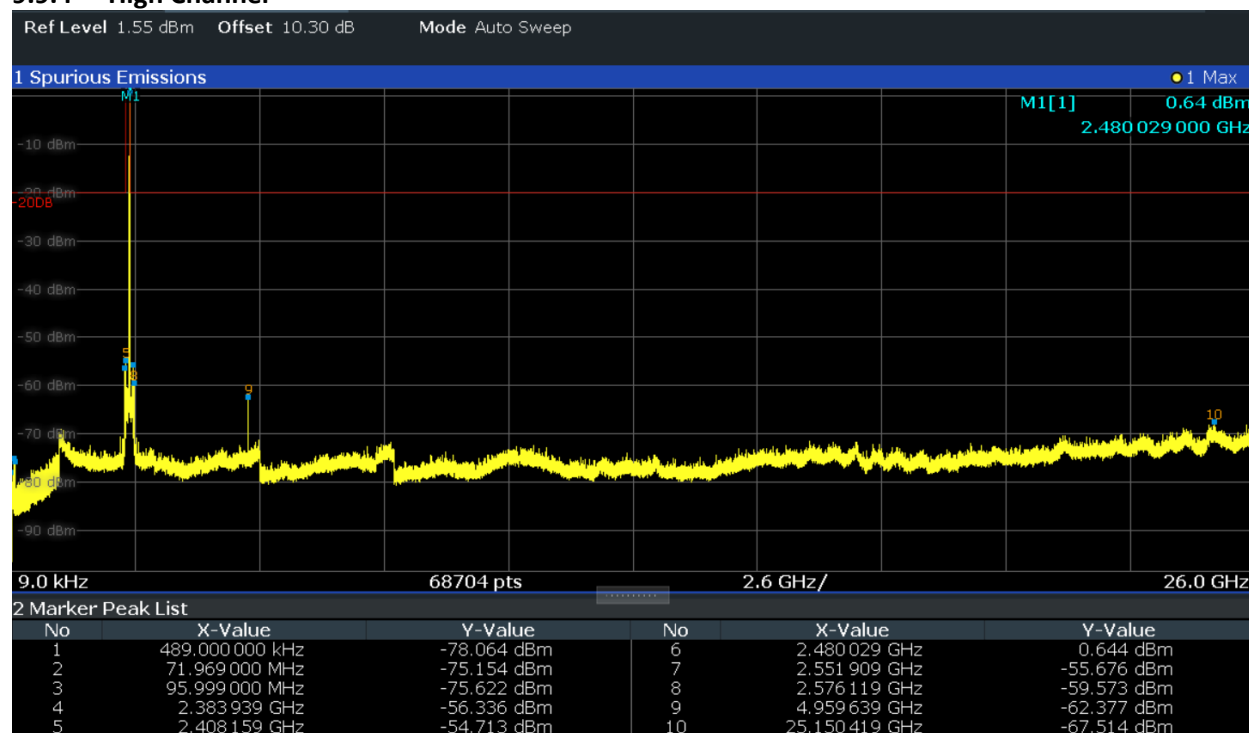


9.9.3 Mid Channel





9.9.4 High Channel





10 Radiated Spurious Emissions

10.1 Test Method:

Tests are performed in accordance with ANSI C63.10 §6.3 §6.5 and §6.6.

10.2 Test Limits:

47 CFR 15.247(d)

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in § 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in § 15.205(a), must also comply with the radiated emission limits specified in § 15.209(a) (see § 15.205(c)).

RSS-247 §5.5

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated device is operating, the RF power that is produced shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided that the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of root-mean-square averaging over a time interval, as permitted under section 5.4(d), the attenuation required shall be 30 dB instead of 20 dB. Attenuation below the general field strength limits specified in RSS-Gen is not required.



10.3 Test Equipment Used:

Description	Asset	Manufacturer	Model	Cal Date	Cal Due
EMI Test Receiver	8258	Rohde & Schwarz	ESW44	5/5/2025	5/5/2025
Magnetic Loop Antenna	2366	ETS	6502	9/16/2024	9/16/2025
Bilog Antenna (30MHz-1GHz)	7085	SunAR	JB6	3/14/2025	3/14/2026
Horn Antenna (1-18GHz)	3780	ETS	3117	7/18/2024	7/18/2025
Horn Antenna (18-40GHz)	3779	ETS	3116c	8/28/2024	8/28/2025
System Controller	4096	ETS Lindgren	2090	Verify at Time of Use	Verify at Time of Use
System Controller	3957	Sunol Sciences	SC99V	Verify at Time of Use	Verify at Time of Use
30M-1G 3m Signal Path without Preamplifier	8311 2593 8188 8185	-	-	11/26/2024	11/26/2025
Preamplifier	3918	Rohde & Schwarz	TS-PR18	11/26/2024	11/26/2025
1-18GHz Signal Path with Preamplifier	3074 3918 8310 2593 8188 8185	-	-	11/26/2024	11/26/2025
Preamplifier (18-40GHz)	3921	Rohde & Schwarz	TS-PR40	11/26/2024	11/26/2025
18-40GHz Signal Path with Preamplifier	7020 3921 7021	-	-	11/26/2024	11/26/2025

10.4 Measurement Uncertainty

Measurement	Frequency Range	Expanded Uncertainty (k=2)	U _{CISPR}
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

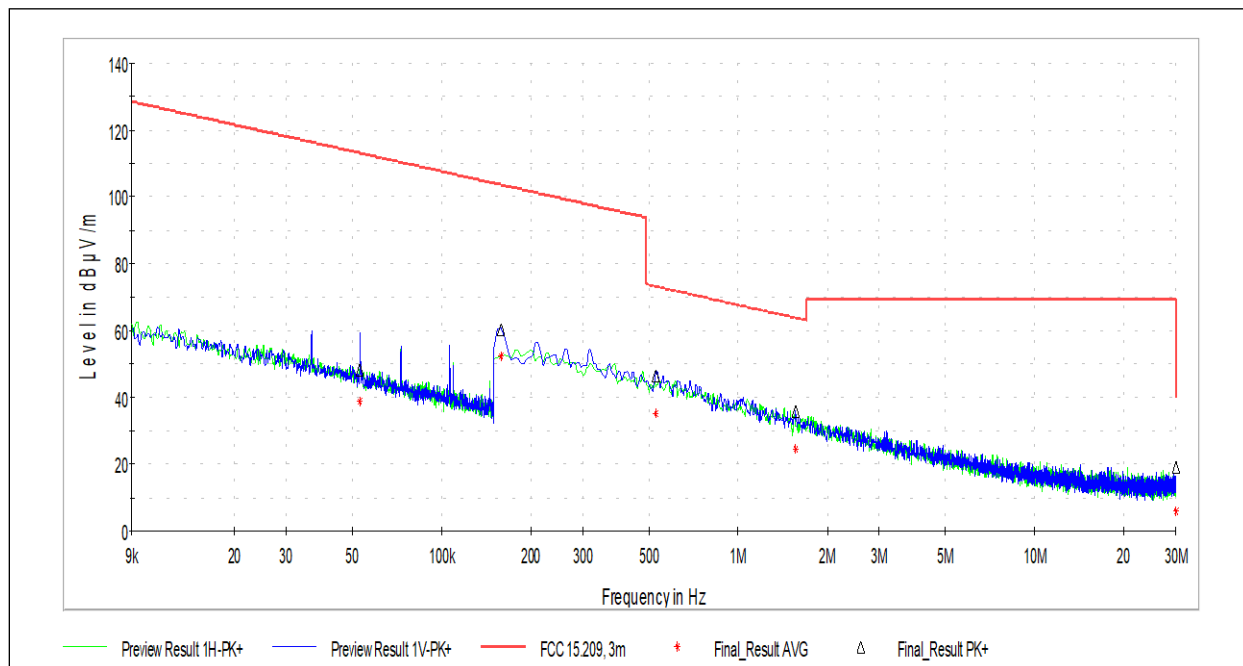
As shown in the table above our radiated emissions U_{Lab} is less than the corresponding U_{CISPR} reference value in CISPR 16-4-2 Table 1, hence the compliance of the product is only based on the measured value, and no measurement uncertainty correction is required.

10.5 Test Software Used:

Description	Manufacturer	Version
EMC32	Rohde & Schwarz	10.60.20

10.6 Test Results:

The sample tested was found to Comply. The device was investigated in three orthogonal axes.

**10.7 Test Data: Radiated Spurious Emissions, General****10.7.1 Frequency Range 9kHz – 30MHz****10.7.1.1 Low Channel¹**

Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
0.053012	48.36	113.11	64.75	100.0	V	139.0	12.7
0.158780	60.18	103.58	43.4	100.0	V	220.0	12.1
0.527515	46.48	73.16	26.68	100.0	V	34.0	11.9
1.559096	35.93	63.78	27.85	100.0	V	224.0	11.9
30.000000	19.04	40.00	20.96	100.0	V	54.0	8.8

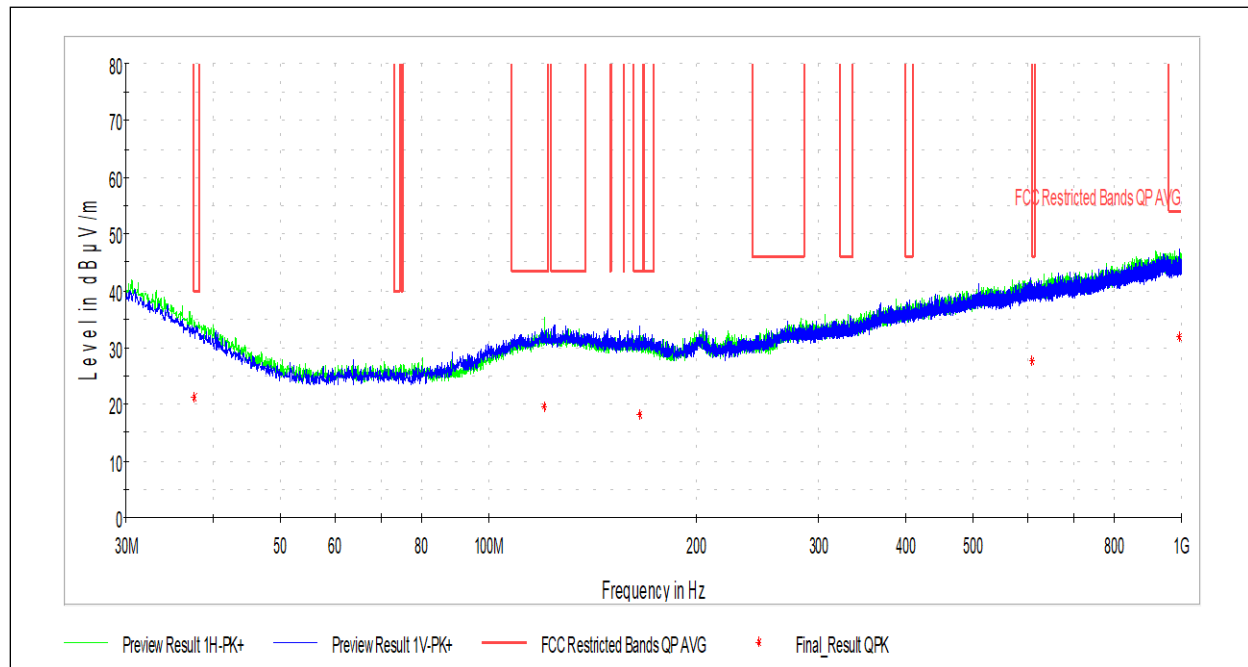
Frequency (MHz)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
0.053012	38.63	113.11	74.47	100.0	V	139.0	12.7
0.158780	52.36	103.58	51.22	100.0	V	220.0	12.1
0.527515	35.20	73.16	37.96	100.0	V	34.0	11.9
1.559096	24.46	63.78	39.31	100.0	V	224.0	11.9
30.000000	5.77	40.00	34.23	100.0	V	54.0	8.8

Test Personnel: David Perry
Supervising/Reviewing Engineer: NA
(Where Applicable) FCC 15.247
Product Standard: RSS-247
Input Voltage: 3.6VDC

Test Date: 6/27/2025
Limit Applied: See Section 10.2
Ambient Temperature: 26.3°C
Relative Humidity: 55.6%
Atmospheric Pressure: 982.0mbar

Deviations, Additions, or Exclusions: None

¹ Testing represents the worst case of low, middle, and high channels.

**10.7.2 Frequency Range 30MHz – 1GHz****10.7.2.1 Low Channel¹**

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
37.652222	21.21	40.00	18.79	373.0	H	58.0	22.8
120.479444	19.57	43.52	23.96	274.0	H	0.0	20.7
165.153333	18.29	43.52	25.24	191.0	V	308.0	20.2
608.066111	27.65	46.02	18.37	233.0	H	269.0	28.7
992.240000	31.95	53.98	22.03	330.0	V	38.0	32.6

Test Personnel: David Perry
Supervising/Reviewing Engineer: NA
(Where Applicable) FCC 15.247
Product Standard: RSS-247
Input Voltage: 3.6VDC

Test Date: 6/27/2025
Limit Applied: See Section 10.2
Ambient Temperature: 26.3°C
Relative Humidity: 55.6%
Atmospheric Pressure: 982.0mbar

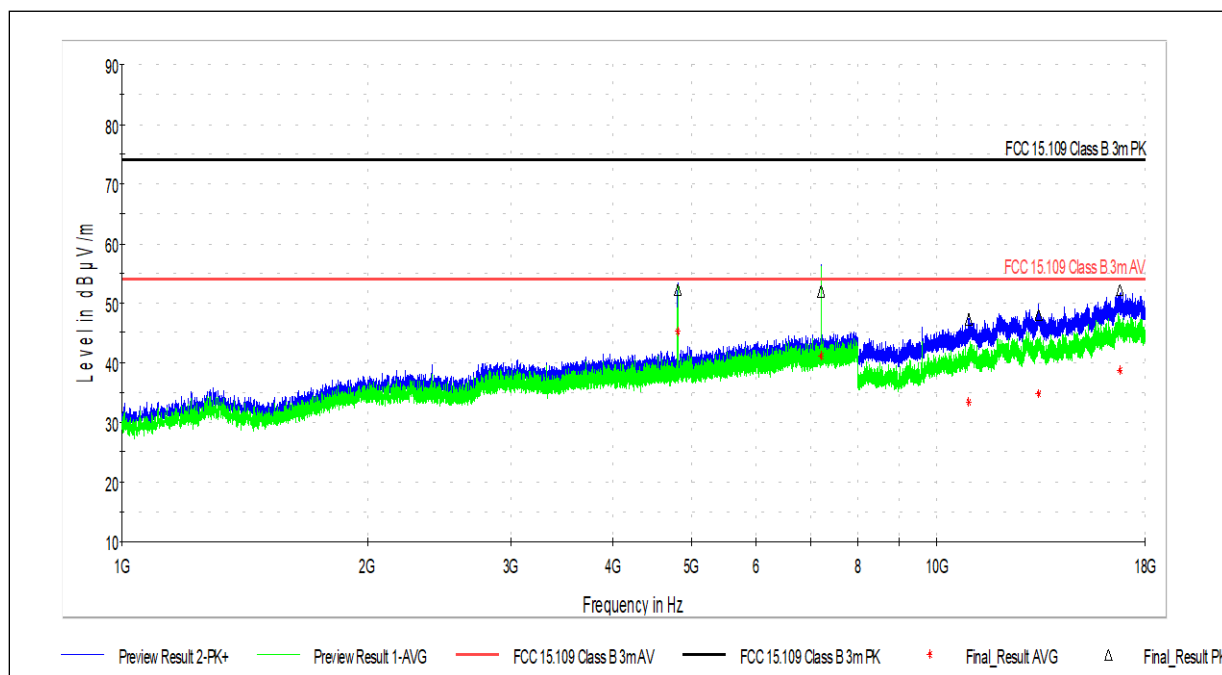
Deviations, Additions, or Exclusions: None

¹ Testing represents the worst case of low, middle, and high channels.



10.7.3 Frequency Range 1GHz – 18GHz

10.7.3.1 Low Channel



Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
4803.722222	52.12	73.98	21.86	349.0	V	335.0	9.7
7207.055556	51.91	73.98	22.07	100.0	V	322.0	13.2
10944.375000	47.15	73.98	26.83	116.0	H	0.0	19.3
13313.750000	48.08	73.98	25.90	410.0	H	0.0	21.5
16770.625000	52.24	73.98	21.74	410.0	H	102.0	26.4

Frequency (MHz)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
4803.722222	45.19	53.98	8.79	349.0	V	335.0	9.7
7207.055556	41.15	53.98	12.83	100.0	V	322.0	13.2
10944.375000	33.30	53.98	20.68	116.0	H	0.0	19.3
13313.750000	34.83	53.98	19.15	410.0	H	0.0	21.5
16770.625000	38.76	53.98	15.22	410.0	H	102.0	26.4

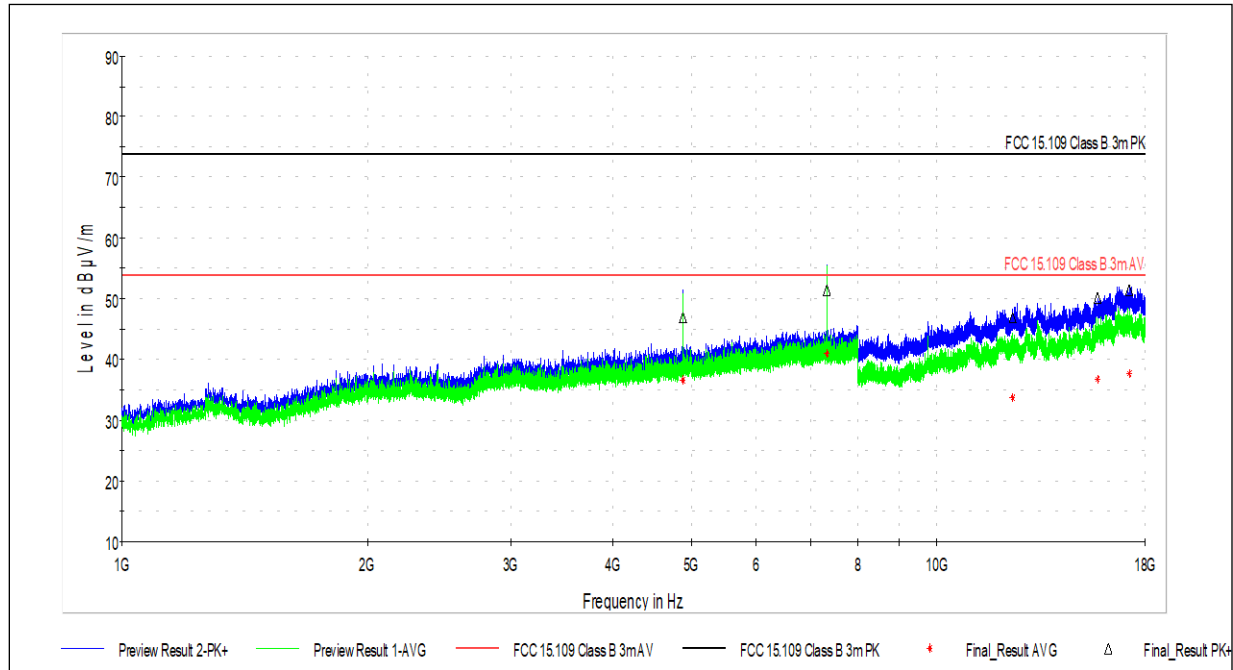
Test Personnel: David Perry
Supervising/Reviewing Engineer: N/A
(Where Applicable) FCC 15.247
Product Standard: RSS-247
Input Voltage: 3.6VDC

Test Date: 6/26/2025
Limit Applied: See Section 10.2
Ambient Temperature: 25.8°C
Relative Humidity: 55.8%
Atmospheric Pressure: 985.4mbar

Deviations, Additions, or Exclusions: None



10.7.3.2 Middle Channel



Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
4880.333333	46.93	73.98	27.05	171.0	V	324.0	9.8
7321.000000	51.44	73.98	22.54	100.0	V	123.0	13.4
12368.750000	46.87	73.98	27.11	376.0	V	0.0	20.6
15740.000000	50.20	73.98	23.78	100.0	H	152.0	23.6
17216.250000	51.52	73.98	22.46	110.0	H	300.0	26.3

Frequency (MHz)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
4880.333333	36.68	53.98	17.30	171.0	V	324.0	9.8
7321.000000	40.89	53.98	13.09	100.0	V	123.0	13.4
12368.750000	33.67	53.98	20.31	376.0	V	0.0	20.6
15740.000000	36.85	53.98	17.13	100.0	H	152.0	23.6
17216.250000	37.74	53.98	16.24	110.0	H	300.0	26.3

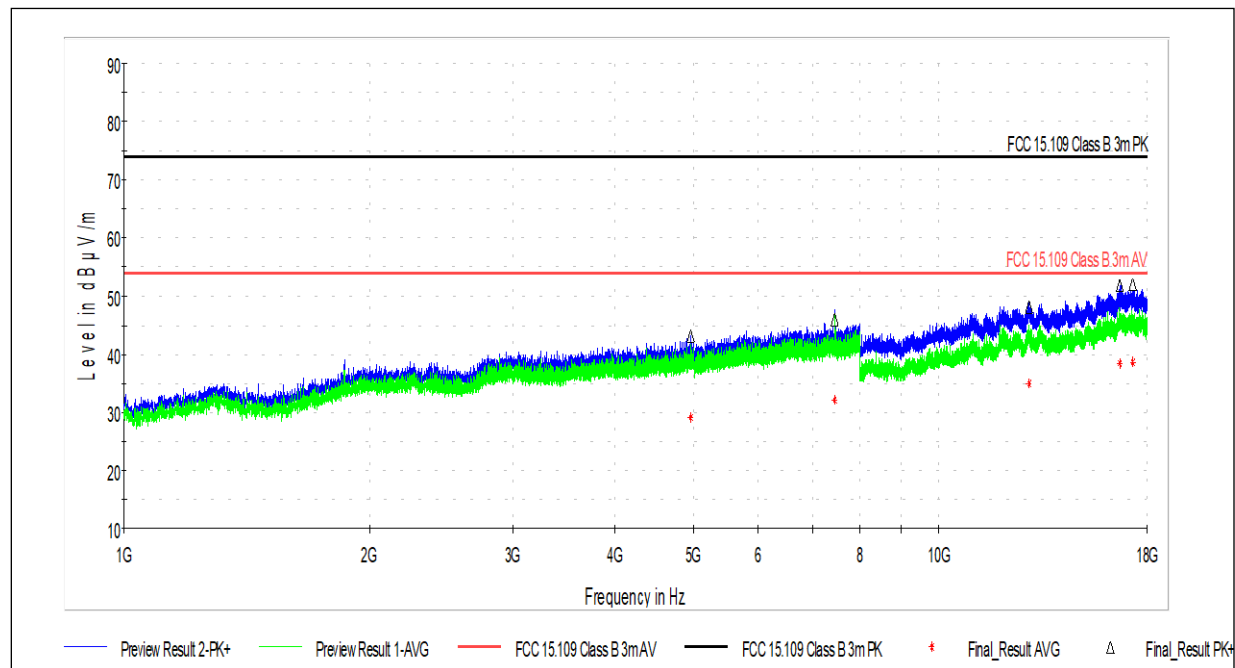
Test Personnel: David Perry
Supervising/Reviewing Engineer: N/A
(Where Applicable) FCC 15.247
Product Standard: RSS-247
Input Voltage: 3.6VDC

Test Date: 6/26/2025
Limit Applied: See Section 10.2
Ambient Temperature: 25.8°C
Relative Humidity: 55.8%
Atmospheric Pressure: 985.4mbar

Deviations, Additions, or Exclusions: None



10.7.3.3 High Channel



Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
4960.833333	43.27	73.98	30.71	110.0	H	279.0	9.7
7441.166667	46.03	73.98	27.95	410.0	H	261.0	13.5
12905.625000	48.18	73.98	25.80	110.0	H	0.0	21.5
16668.750000	51.77	73.98	22.21	110.0	H	34.0	26.2
17286.875000	51.99	73.98	21.99	410.0	V	68.0	26.4

Frequency (MHz)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
4960.833333	29.13	53.98	24.85	110.0	H	279.0	9.7
7441.166667	32.15	53.98	21.83	410.0	H	261.0	13.5
12905.625000	34.99	53.98	18.99	110.0	H	0.0	21.5
16668.750000	38.38	53.98	15.60	110.0	H	34.0	26.2
17286.875000	38.57	53.98	15.41	410.0	V	68.0	26.4

Test Personnel: David Perry
Supervising/Reviewing Engineer: _____
(Where Applicable) N/A
FCC 15.247
Product Standard: RSS-247
Input Voltage: 3.6VDC

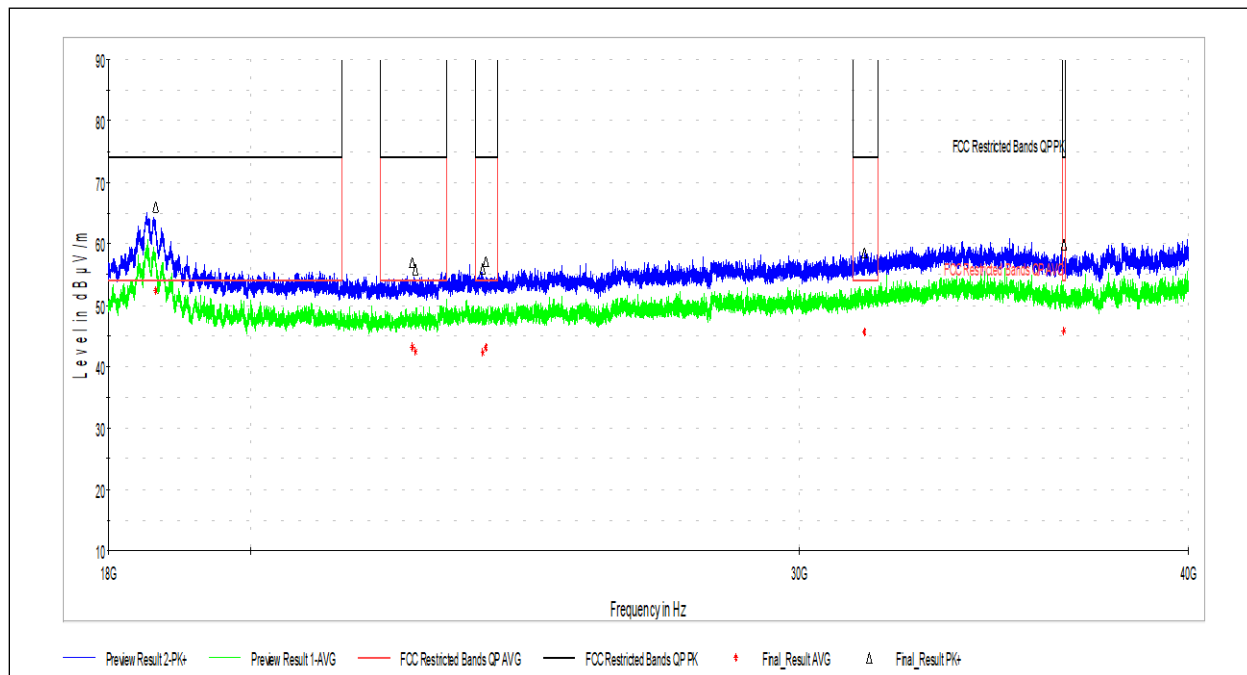
Test Date: 6/26/2025
Limit Applied: See Section 10.2
Ambient Temperature: 25.8°C
Relative Humidity: 55.8%
Atmospheric Pressure: 985.4mbar

Deviations, Additions, or Exclusions: None



10.7.4 Frequency Range 18GHz – 40GHz

10.7.4.1 Low Channel¹



Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
18640.000000	66.00	73.98	7.98	410.0	V	0.0	37.5
22536.000000	57.02	73.98	16.96	410.0	V	0.0	17.7
22584.000000	55.70	73.98	18.28	100.0	V	0.0	17.3
23733.000000	55.86	73.98	18.12	100.0	V	0.0	16.8
23795.000000	57.17	73.98	16.81	410.0	H	0.0	16.8
31478.000000	58.54	73.98	15.44	410.0	V	0.0	24.1
36477.000000	59.86	73.98	14.12	410.0	V	336.0	25.5

Frequency (MHz)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
18640.000000	52.41	53.98	1.57	410.0	V	0.0	37.5
22536.000000	43.10	53.98	10.88	410.0	V	0.0	17.7
22584.000000	42.39	53.98	11.59	100.0	V	0.0	17.3
23733.000000	42.25	53.98	11.73	100.0	V	0.0	16.8
23795.000000	43.23	53.98	10.75	410.0	H	0.0	16.8
31478.000000	45.73	53.98	8.25	410.0	V	0.0	24.1
36477.000000	45.91	53.98	8.07	410.0	V	336.0	25.5

Test Personnel: David Perry
Supervising/Reviewing Engineer: _____
(Where Applicable) NA
FCC 15.247
Product Standard: RSS-247
Input Voltage: 3.6VDC

Test Date: 6/30/2025
Limit Applied: See Section 10.2
Ambient Temperature: 25.4°C
Relative Humidity: 56.0%
Atmospheric Pressure: 982.0mbar

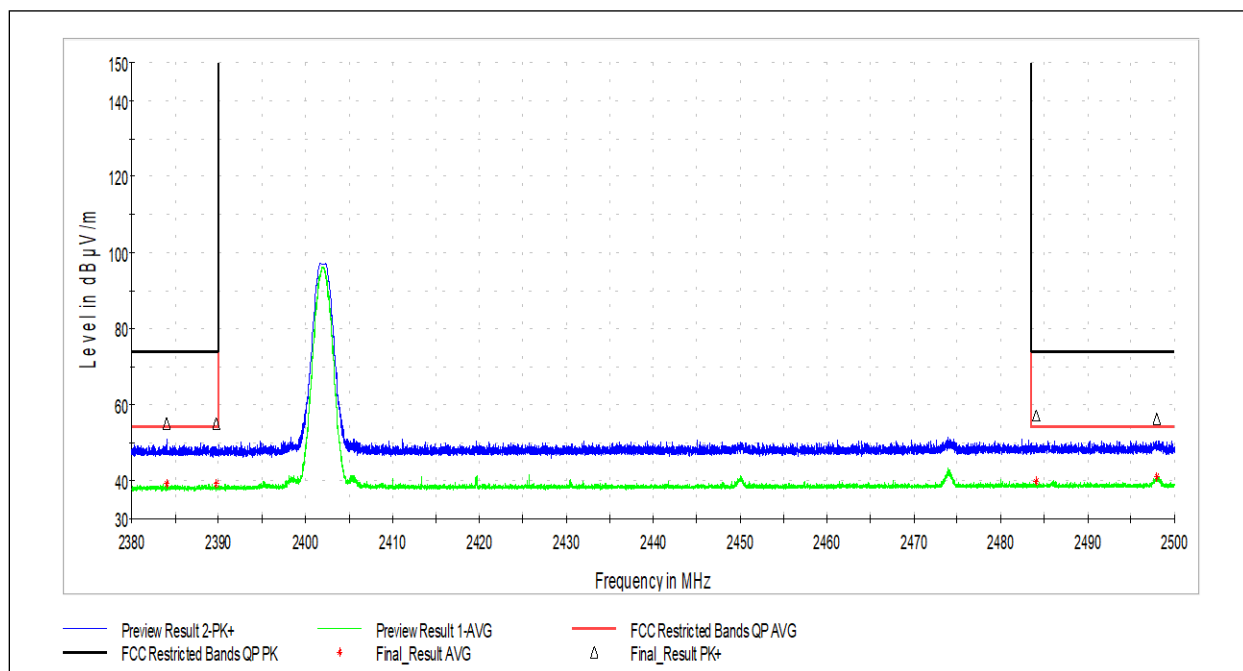
Deviations, Additions, or Exclusions: None

1 The “worst-case” scenario between the low, middle, and high channels



10.8 Test Data: Radiated Emissions, Band Edge

10.8.1 Low Channel Band Edge



Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
2384.006667	54.99	73.98	18.99	410.0	V	261.0	39.0
2389.693333	54.96	73.98	19.02	260.0	H	222.0	38.9
2484.106667	57.25	73.98	16.73	236.0	H	108.0	39.3
2497.920000	56.36	73.98	17.62	100.0	V	184.0	39.3

Frequency (MHz)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
2384.006667	39.17	53.98	14.81	410.0	V	261.0	39.0
2389.693333	39.22	53.98	14.76	260.0	H	222.0	38.9
2484.106667	39.84	53.98	14.14	236.0	H	108.0	39.3
2497.920000	41.09	53.98	12.89	100.0	V	184.0	39.3

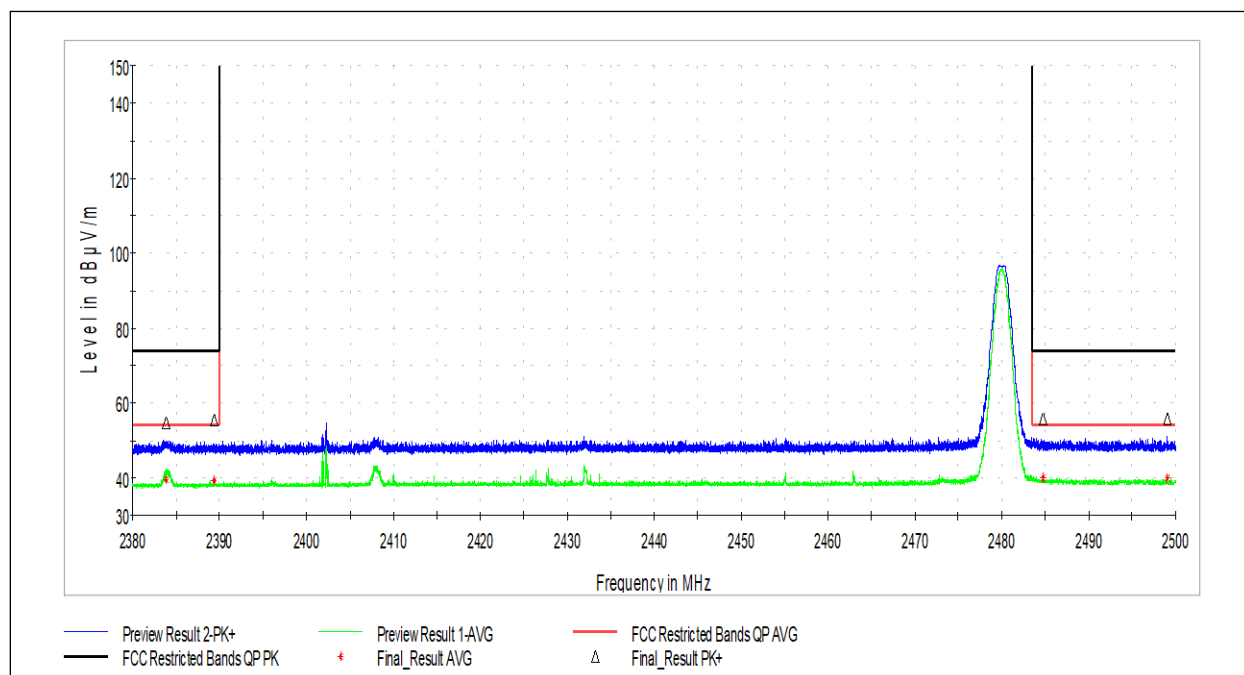
Test Personnel: David Perry
Supervising/Reviewing Engineer: NA
(Where Applicable) FCC 15.247
Product Standard: RSS-247
Input Voltage: 3.6VDC

Test Date: 7/7/2025
Limit Applied: See Section 10.2
Ambient Temperature: 22.8°C
Relative Humidity: 65.4%
Atmospheric Pressure: 985.4mbar

Deviations, Additions, or Exclusions: None



10.8.2 High Channel Band Edge



Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
2383.853333	54.88	73.98	19.10	212.0	H	88.0	38.9
2389.366667	55.33	73.98	18.65	212.0	H	88.0	38.9
2484.713333	55.81	73.98	18.17	352.0	V	254.0	39.4
2499.073333	55.70	73.98	18.28	234.0	V	86.0	39.3

Frequency (MHz)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
2383.853333	39.62	53.98	14.36	212.0	H	88.0	38.9
2389.366667	39.13	53.98	14.85	212.0	H	88.0	38.9
2484.713333	40.03	53.98	13.95	352.0	V	254.0	39.4
2499.073333	39.84	53.98	14.14	234.0	V	86.0	39.3

Test Personnel: David Perry
Supervising/Reviewing Engineer: NA
(Where Applicable) FCC 15.247
Product Standard: RSS-247
Input Voltage: 3.6VDC

Test Date: 7/7/2025
Limit Applied: See Section 10.2
Ambient Temperature: 22.8°C
Relative Humidity: 65.4%
Atmospheric Pressure: 985.4mbar

Deviations, Additions, or Exclusions: None



11 Antenna Requirement

11.1 Test Limits

FCC Part 15.203:

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited. This requirement does not apply to carrier current devices or to devices operated under the provisions of §§15.211, 15.213, 15.217, 15.219, 15.221, or §15.236. Further, this requirement does not apply to intentional radiators that must be professionally installed, such as perimeter protection systems and some field disturbance sensors, or to other intentional radiators which, in accordance with §15.31(d), must be measured at the installation site. However, the installer shall be responsible for ensuring that the proper antenna is employed so that the limits in this part are not exceeded.

RSS-Gen Issue 5 § 6.8:

The applicant for equipment certification, as per RSP-100, must provide a list of all antenna types that may be used with the license-exempt transmitter, indicating the maximum permissible antenna gain (in dBi) and the required impedance for each antenna.

License-exempt transmitters that have received equipment certification may operate with different types of antennas. However, it is not permissible to exceed the maximum equivalent isotropically radiated power (e.i.r.p.) limits specified in the applicable standard (RSS) for the license-exempt apparatus.

Testing shall be performed using the highest gain antenna of each combination of license-exempt transmitter and antenna type, with the transmitter output power set at the maximum level. When a measurement at the antenna connector is used to determine RF output power, the effective gain of the device's antenna shall be stated, based on a measurement or on data from the antenna manufacturer.

User manuals for transmitters equipped with detachable antennas shall also contain the following notice in a conspicuous location:

This radio transmitter (identify the device by certification number) has been approved by Industry Canada to operate with the antenna types listed below with the maximum permissible gain indicated. Antenna types not included in this list, having a gain greater than the maximum gain indicated for that type, are strictly prohibited for use with this device.

Immediately following the above notice, the manufacturer shall provide a list of all antenna types approved for use with the transmitter, indicating the maximum permissible antenna gain (in dBi).

11.2 Test Results

The device was found to be **compliant**. The device has an internal, permanently affixed antenna.



12 Revision History

Revision Level	Date	Report Number	Prepared By	Reviewed By	Notes
0	7/16/2025	106145616LEX-001	JP	MC	Original Issue