



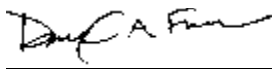
Engineering Solutions & Electromagnetic Compatibility Services

**FCC Part 15.247 & ISED Canada RSS-247
Certification Application Report**

Test Lab: Rhein Tech Laboratories, Inc. Tel: 703-689-0368 360 Herndon Parkway www.rheintech.com Suite 1400 Herndon, VA 20170		Applicant: Farpointe Data, Inc. 2195 Zanker Rd, San Jose, CA 95131	
FCC ID IC	T8I-CONEKT6 6504A-CONEKT6	Test Report Date	March 20, 2026
Platform	N/A	RTL Work Order Number	2025060
Model	CSM-200	RTL Quote Number	QRTL25-060D
American National Standards Institute	ANSI C63.10-2020: American National Standard for Testing Unlicensed Wireless Devices		
FCC	DTS – Part 15 Digital Transmission System		
FCC Rule Part(s)	FCC Rules Part 15.247: Operation within the bands 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz (10-01-21)		
ISED Canada Standard	RSS-247 Issue 4: Digital Transmission Systems (DTSs), Frequency Hopping Systems (FHSs) and Licence-Exempt Local Area Network (LE-LAN) Devices RSS-Gen Issue 5: General Requirements for Compliance of Radio Apparatus		
Frequency Range (MHz)	Output Power (W)*	Frequency Tolerance	Emission Designator
2402-2480	0.002	N/A	1M09F1D

*Power is conducted peak

I, the undersigned, hereby declare that the equipment tested and referenced in this report conforms to the identified standard(s) as described in this test report. No modifications were made to the equipment during testing in order to achieve compliance with these standards. Furthermore, there was no deviation from, additions to, or exclusions from the applicable parts of FCC Part 2, FCC Part 15, ISED RSS-247, RSS-Gen, and ANSI C63.10.

Signature: 

Date: March 20, 2026

Typed/Printed Name: Desmond A. Fraser

Position: President

*These tests are accredited and meet the requirements of ISO/IEC 17025 as verified by ANAB.
Refer to the certificate and the scope of accreditation AT-1445.*

*This report may not be reproduced, except in full, without the written approval of Rhein Tech Laboratories, Inc. and Farpointe Data, Inc. The test results relate only to the item(s) tested.
Replaces R1.5.*

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1 General Information

1.1 Scope

This is an original Limited Modular Approval (LMA) certification application request for Farpointe Data, Inc. CSM-200, FCC ID: T8I-CONEKT6, IC: 6504A-CONEKT6, in accordance with the applicable FCC and ISED Canada rules and regulations.

The CSM-200 is an Access Control Module that achieves its access control functions through two interfaces: 1) HF (NFC) interface at 13.56 MHz, and 2) Bluetooth LE interface (BLE) at 2.4 GHz. The NFC and BLE interfaces were not tested simultaneously; each was tested separately.

The dormakaba E7900 Electronic Door Lock was the host for the CSM-200 BLE testing. The host contained a Zigbee transmitter, FCC ID: Q8S515123, IC: 4652A-515123. The Zigbee transmitter was not active during the BLE testing.

At times, the host's Zigbee TX and the module's BLE do transmit simultaneously. The Zigbee TX and the module's NFC also transmit simultaneously at times. The three transmitters do not transmit simultaneously.

Separate collocation testing was conducted accordingly; compliance was demonstrated and recorded.

In addition to this BLE report, a separate NFC report supports the CSM-200 LMA certification application.

Applicable Standards:

- FCC Part 15.247: Frequency Hopping, Direct Spread Spectrum and Hybrid Systems that are in operation within the bands of 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz
- ISED RSS-247 Issue 4: Digital Transmission Systems (DTSs), Frequency Hopping Systems (FHSs) and Licence-Exempt Local Area Network (LE-LAN) Devices
- ISED RSS-Gen Issue 5: General Requirements for Compliance of Radio Apparatus

1.2 Description of EUT

Equipment Under Test	Access Control Module
Model	CSM-200
Power Supply	Four AAA batteries
Modulation Type	GFSK
Frequency Range	2402 - 2480 MHz
Antenna Type	Mini chip, -1 dBi peak gain

1.3 Test Facility

The open-area test site (OATS) and the emissions measurement facility used to collect the radiated data are located at 360 Herndon Parkway, Suite 1400, Herndon, Virginia 20170 (USA).

ISED CAB ID: US0079; Company Number: 2956A

1.4 Measurement Uncertainty

The measurement uncertainty complies with CISPR 16-4-2 limits and is not used to adjust measurements for compliance determination. Expanded uncertainty (U) for each scope, calculated per ANSI/NCSL Z540-2-1997 (R2002) with a type B evaluation is provided in this RTL report. While this demonstrates RTL's commitment to transparency, compliance decisions are based solely on comparing measured values directly to the relevant standards' limits.

1.5 Modifications

No modifications were made to the equipment during testing to ensure compliance with these standards.

2 Test Information

2.1 Description of Test Modes

In accordance with FCC 15.31(m), and because the EUT utilizes an operating band greater than 10 MHz, the following frequencies were tested:

Table 2-1: Frequencies Tested

Channel	Frequency
Low	2402
Mid	2442
High	2480

2.2 Exercising the EUT

The EUT was tested in all three orthogonal planes to determine worst-case emissions. The EUT was provided with Farpointe Data CSM-200 ULP Test Firmware V1.1 programmed with the modulation type and rate. The EUT was provided with test firmware to continuously transmit during testing. The carrier was also checked to verify that information was being transmitted, and all modes were investigated, with the worst-case mode used for final testing.

Testing was performed after the EUT was fully configured, powered, and allowed to stabilize in accordance with ANSI C63.10-2020, Corrigendum 1-2023, and Amendment C63.10a-2024.

Measurement instrumentation was verified and validated prior to testing, and final measurements were taken only after confirmation of proper system operation in accordance with ANSI C63.2-2023.

Exploratory measurements were performed to evaluate operating modes, antenna orientation, and configuration sensitivity. Final compliance measurements were recorded only after the worst-case configuration was identified, in accordance with ANSI C63.10-2020, Corrigendum 1-2023, and C63.10a-2024.

There were no deviations from the test standard(s) and/or methods. The reported test results relate only to the item tested.

There were no deviations from the test standard(s) and/or methods. The reported test results apply only to the item tested.

2.3 Modifications

No modifications were required for compliance.

2.4 Test Result Summary

Table 2-2: Test Result Summary – FCC Part 15, Subpart C (Section 15.247); ISED Canada (RSS-247)

Test	FCC Reference	ISED Reference	Pass/Fail or N/A
Radiated Emissions	FCC 15.209	RSS-247 6.6, 6.2.3.2 RSS-Gen 6.13/7.3	Pass
Maximum Conducted Output Power	FCC 15.247(b)(3)	RSS-247 6.2.2.2 RSS-Gen 6.12	Pass
Antenna Conducted Spurious Emissions	FCC 15.247(d)	RSS-247 6.6 RSS-Gen 6.13	Pass
Band Edge	FCC 15.247(d)	RSS-247 6.6	Pass
6 dB Bandwidth	FCC 15.247(a)(2)	RSS-247 6.3.1(a) RSS-Gen 6.7	Pass
Power Spectral Density	FCC 15.247(e)	RSS-247 6.3.1(b)	Pass

2.5 Test System Details

The test samples were received on March 15, 2025. Below are the identifiers and descriptions of all equipment, cables and internal devices used with the EUT for this test, as applicable.

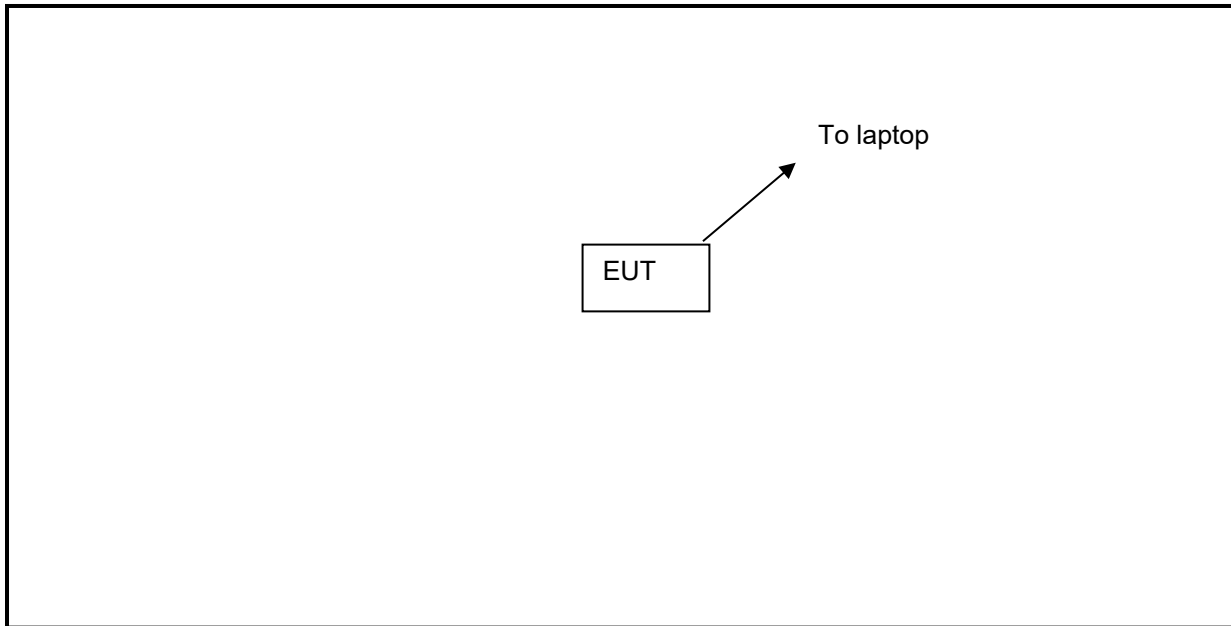
Table 2-3: Equipment Under Test

Part	Manufacturer	Model	Serial Number	FCC ID IC ID	RTL Bar Code
Access Control Module	Farpointe Data, Inc.	CSM-200	N/A	T8I-CONEKT6 / 6504A-CONEKT6	24473
Electronic Door Lock (Host for CSM-200)	dormakaba	E7900	N/A	N/A	24473
Zigbee Module in Electronic Door Lock Host	dormakaba Canada Inc.	515123	N/A	Q8S515123 / 4652A-515123	N/A

Table 2-4: Auxiliary Support Equipment

Part	Manufacturer	Model	Serial Number	Cable Description	RTL Bar Code
Laptop	Hewlett Packard	Elite Book 850	5CG4514X29	Shielded Power	24496
Laptop Power Supply	Hewlett Packard	4Y24314404	WCNXA0D3 U7R42F	Shielded Power	24495
Test Software, Version	Farpointe Data	CSM-200 ULP Test Firmware V1.1	N/A	FTDI USB Serial Converter	N/A

2.6 Test System Configuration



3 Maximum Conducted Output Power – FCC 15.247(b)(3); RSS-247 6.2.2.2; RSS-Gen 6.12

3.1 Power Output Test Procedure

An RF conducted power measurement of the EUT was taken with an analyzer.

Procedure: C63.10-2020 11

Table 3-1: Power Output Environmental Conditions

Date	Temperature (°C)	Humidity (%)	Pressure (kPa)
March 21, 2025	24.3	32	101.6

Table 3-2: Power Output Test Equipment

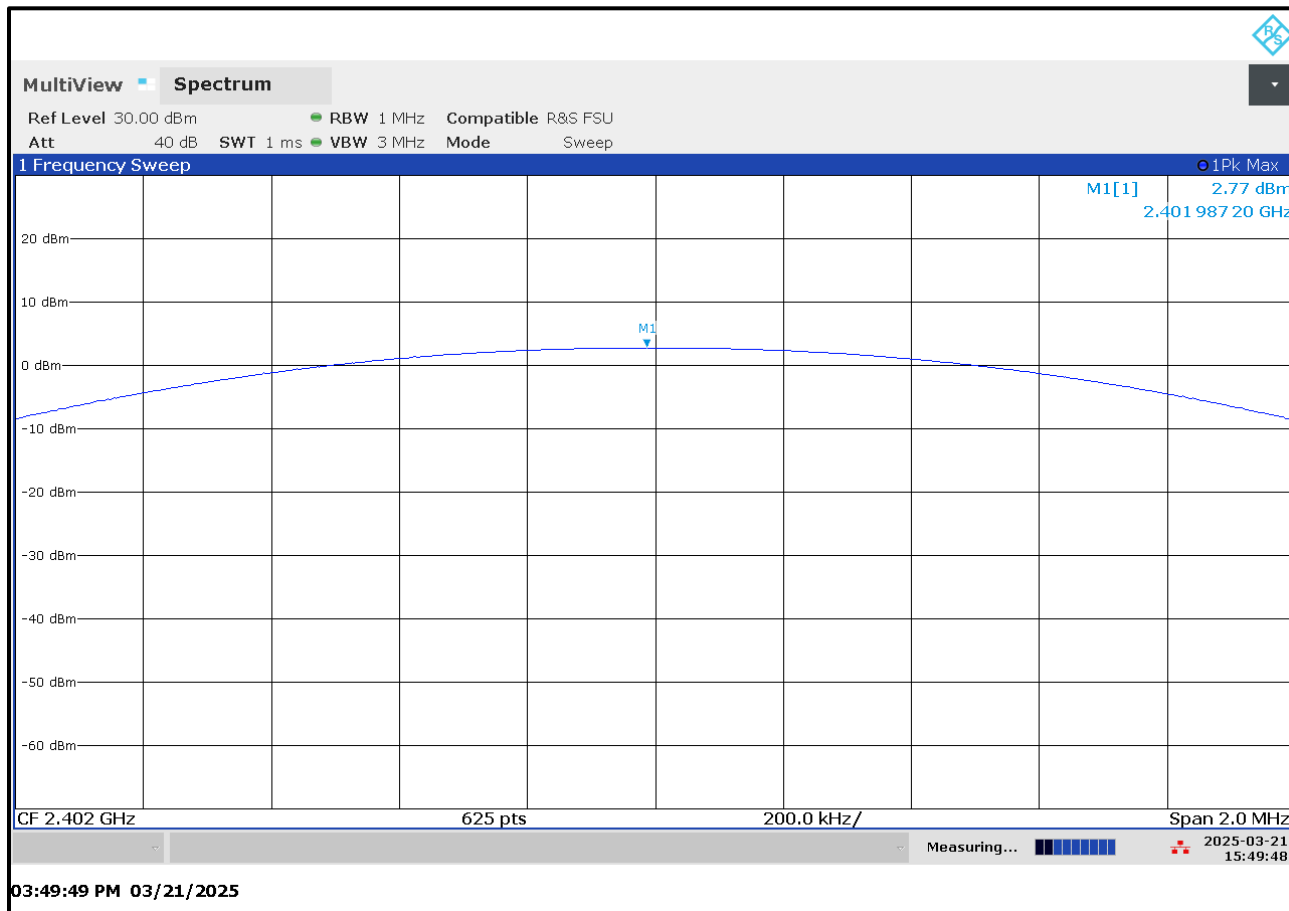
RTL Asset #	Manufacturer	Model	Part Type	Serial Number	Calibration Due Date
901773	Rohde & Schwarz	FSW50	Analyzer	101021	05/30/2027

3.2 Power Output Test Data

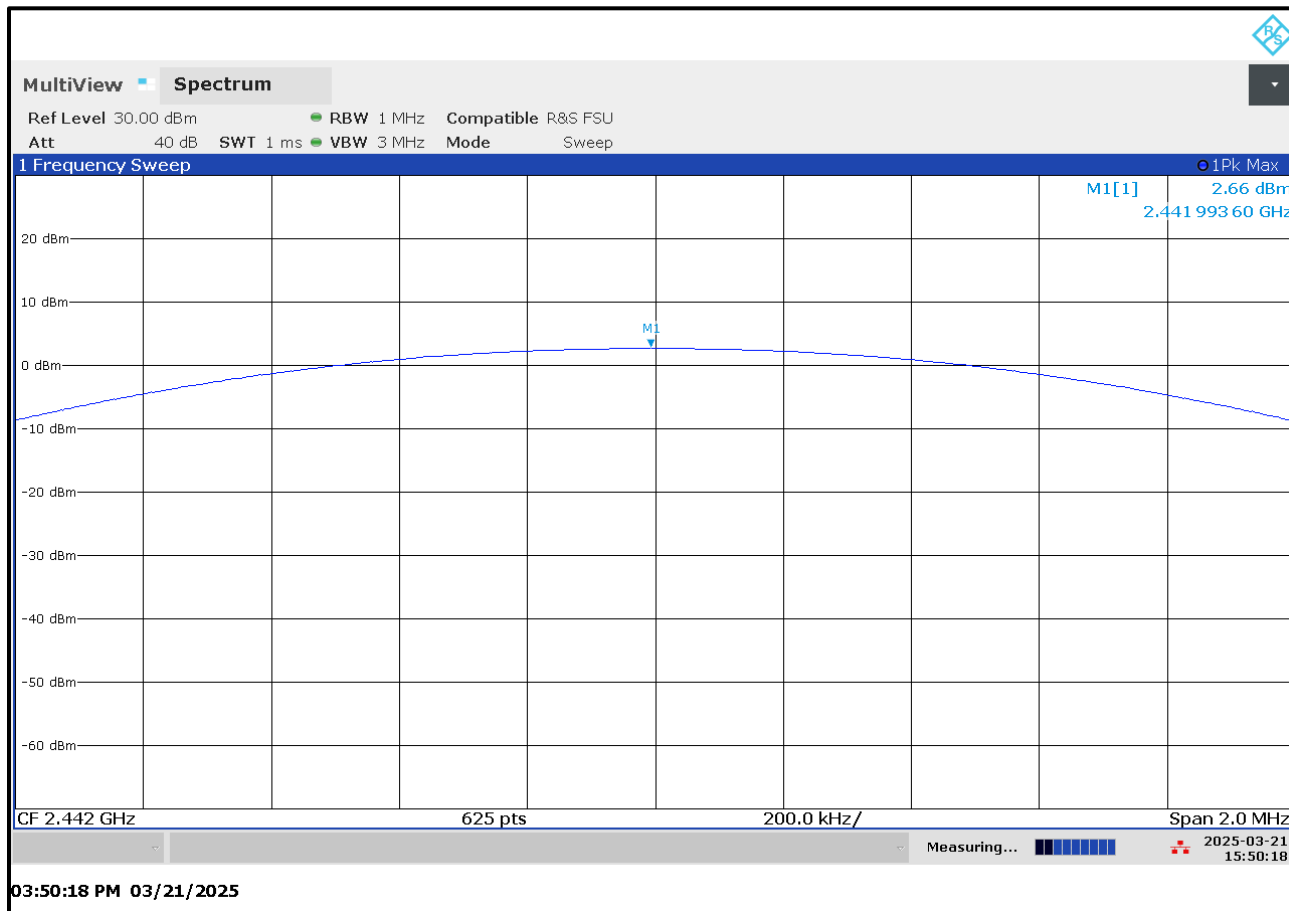
Table 3-3: Power Output Test Data

Frequency (MHz)	Conducted Power (dBm)
2402	2.8
2442	2.7
2480	2.6

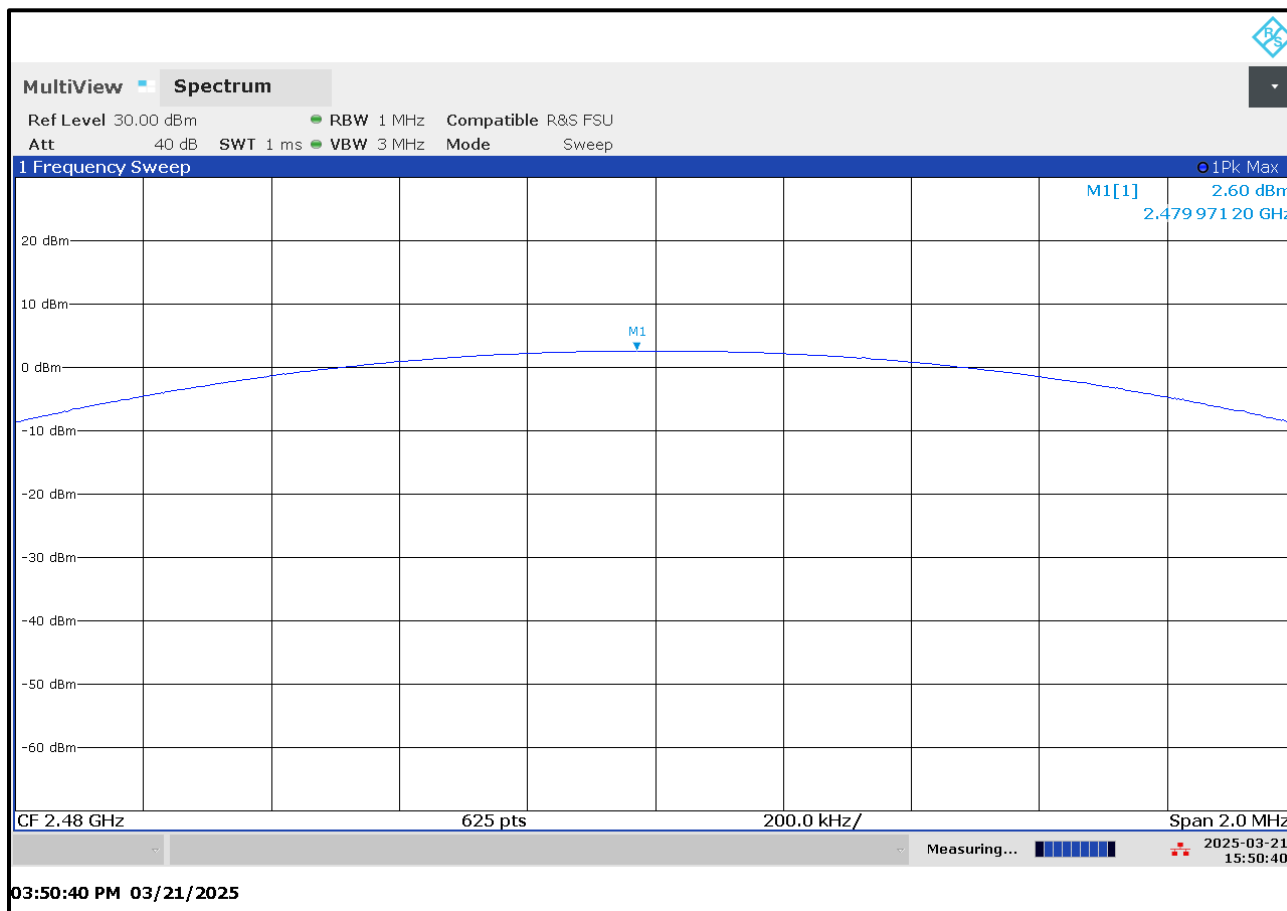
Plot 3-1: Maximum Conducted Output Power (2402 MHz)



Plot 3-2: Maximum Conducted Output Power (2442 MHz)



Plot 3-3: Maximum Conducted Output Power (2480 MHz)



Measurement uncertainties shown for these tests are expanded uncertainties expressed at the 95% confidence level using a coverage factor K=2. Measurement uncertainty: ± 0.5 dB

Results: Pass

Test Personnel:

Daniel W. Baltzell
Test Engineer

Signature

March 21, 2025
Date of Test

4 Band Edge Compliance of RF Conducted Emissions – FCC 15.247(d); ISED RSS-247 6.6

4.1 Band Edge Test Procedure

Procedure: C63.10-2020 11.12.3

The EUT was connected to the spectrum analyzer through suitable attenuation. The spectrum analyzer was set to the following:

Center Frequency: Frequency of the emissions to be measured
Span: Display fundamental
RBW: 100 kHz
VBW: 3 x RBW
Detector: Peak/rms
Sweep: Auto
Trace: Max Hold

The trace was allowed to stabilize. The marker was set on the emission.

Table 4-1: Band Edge Test Environmental Conditions

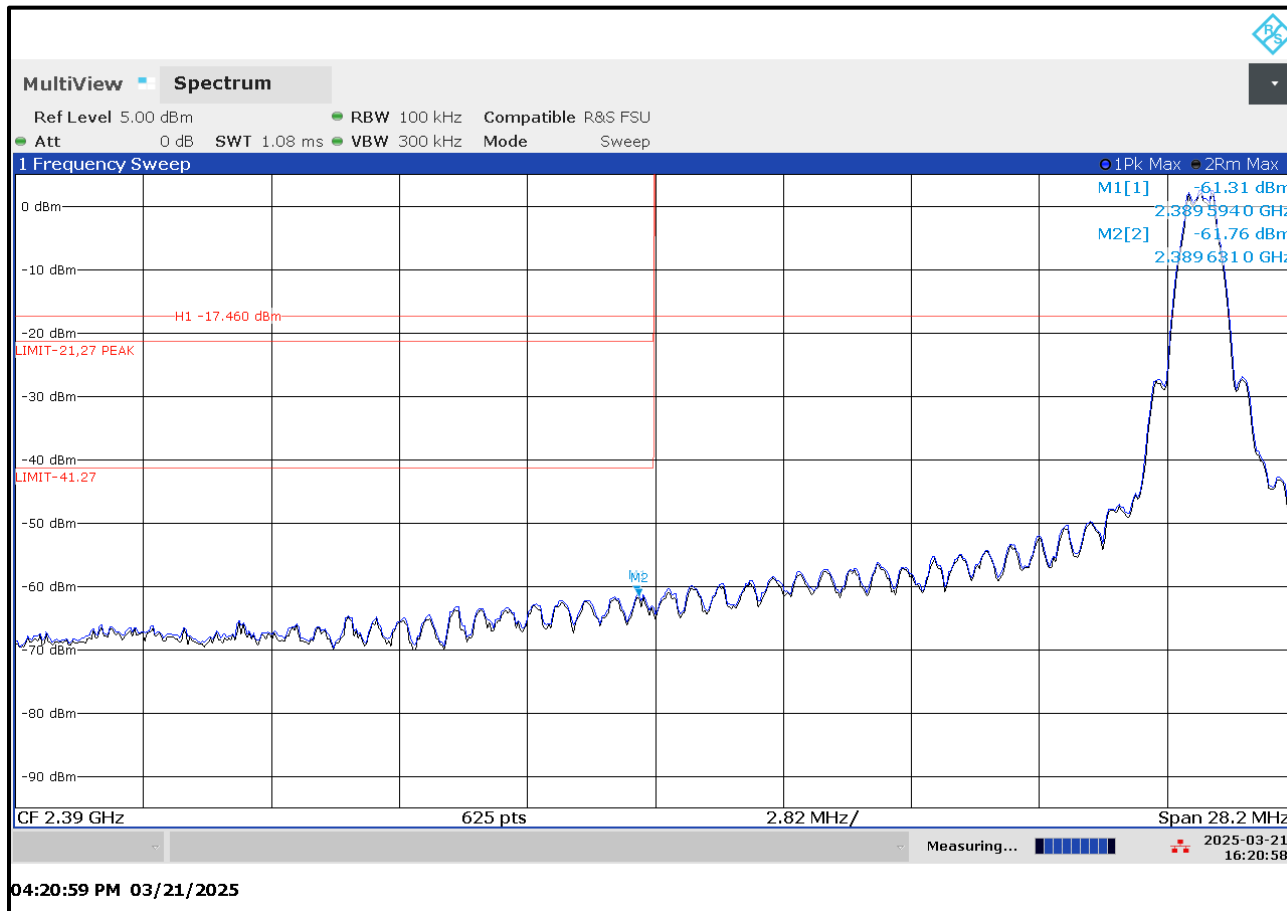
Date	Temperature (°C)	Humidity (%)	Pressure (kPa)
March 21, 2025	24.3	32	101.6

Table 4-2: Band Edge Test Equipment

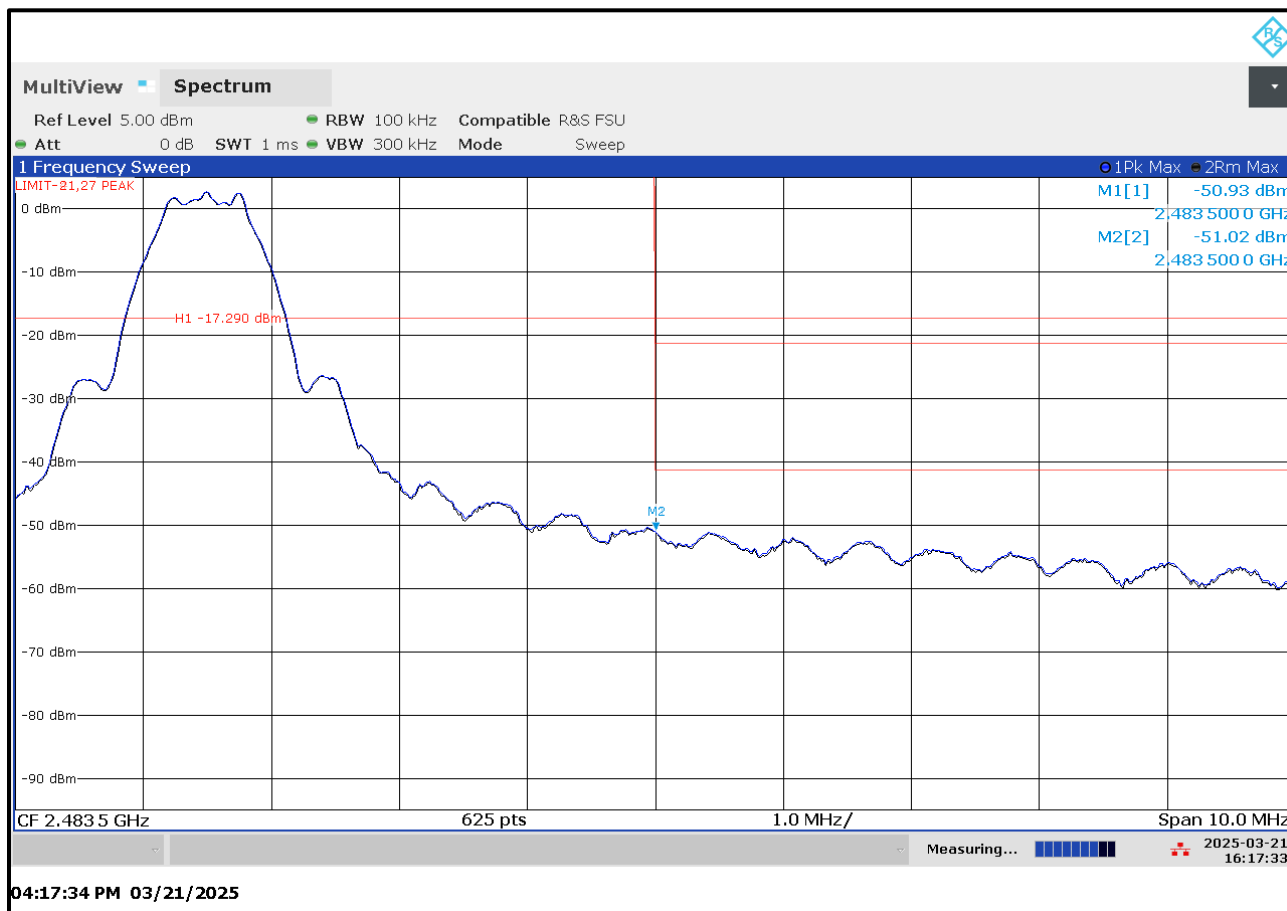
RTL Asset #	Manufacturer	Model	Part Type	Serial Number	Calibration Due Date
901773	Rohde & Schwarz	FSW50	Analyzer	101021	05/30/2027

4.2 Test Results

Plot 4-1: Lower Band Edge (Peak/Average, 2402 MHz Carrier)



Plot 4-2: Upper Band Edge (Peak/Average, 2480 MHz Carrier)



Measurement uncertainties shown for these tests are expanded uncertainties expressed at the 95% confidence level using a coverage factor K=2. Measurement uncertainty: ± 0.5 dB

Results: Pass

Test Personnel:

Daniel W. Baltzell
Test Engineer

Signature

March 21, 2025
Date of Test

5 Antenna Conducted Spurious Emissions – FCC 15.247(d); RSS-247 6.6; RSS-Gen 6.13

5.1 Antenna Conducted Spurious Emissions Test Procedures

Procedure: C63.10-2020 11.12.3

Antenna spurious emissions per FCC 15.247(d) were measured at the EUT antenna port using a 50-ohm spectrum analyzer. The fundamental carrier reference level was measured at the carrier frequency using a 100 kHz resolution bandwidth (RBW), consistent with the power density comparison required by FCC §15.247(d). Broadband spurious emission levels were captured across the spectrum from 9 kHz to 25 GHz. The modulated carrier was identified at 2402 MHz, 2442 MHz, and 2480 MHz. The carrier-to-10th-harmonic ratio of the carrier frequency was investigated.

Table 5-1: Antenna Conducted Spurious Emissions Environmental Conditions

Date	Temperature (°C)	Humidity (%)	Pressure (kPa)
March 21, 2025	24.3	32	101.6

Table 5-2: Antenna Conducted Spurious Emissions Test Equipment

RTL Asset #	Manufacturer	Model	Part Type	Serial Number	Calibration Due Date
901773	Rohde & Schwarz	FSW50	Analyzer	101021	05/30/2027

5.2 Antenna Conducted Spurious Emissions Test Results

All conducted spurious emissions were at least 20 dB below the fundamental carrier, as required by FCC §15.247(d).

The antenna conducted spurious emission measurements shown in Plot 5-1, Plot 5-2, and Plot 5-3 are absolute measurements from 9 kHz to 25 GHz, compared to the configured absolute antenna conducted power limit line (SPURIOUS_LINE_ABS_002), as listed in Table 3-3, Power Output Test Data. The fundamental carrier emissions are not displayed in these broadband antenna conducted spurious emission plots in order to preserve dynamic range for low-level spurious evaluation across the full spectrum.

The broadband absolute spurious scan used variable RBW settings by frequency segment: narrower bandwidths were applied below 30 MHz, 100 kHz RBW was used from 30 MHz to 1 GHz, and 1 MHz RBW was used above 1 GHz. The fundamental reference level used in the delta calculations was derived from the Section 3 power output measurement, which was conducted at 1 MHz RBW. To account for the difference between the 1 MHz RBW fundamental reference and the 100 kHz RBW power density basis required by FCC §15.247(d), a bandwidth normalization correction of -10 dB ($10 \log[100 \text{ kHz} / 1 \text{ MHz}]$) has been applied to the fundamental reference level for each channel.

This correction conservatively reduces the fundamental reference by 10 dB, reflecting the lower spectral power captured within a 100 kHz window relative to the approximately 1 MHz occupied bandwidth of the BLE GFSK signal. The spurious products above 1 GHz, which are narrowband harmonic and intermodulation products occupying bandwidths well below 100 kHz, are RBW-independent and are treated as unchanged. The resulting bandwidth-normalized delta values are presented below and confirm that compliance is maintained after correction.

For the 2402 MHz channel, the corrected fundamental reference is -7.2 dBm (2.8 dBm - 10 dB), yielding a corrected worst-case delta of 40.50 dB against the worst-case spurious product at 2.52959 GHz (-48.70 dBm).

For the 2442 MHz channel, the corrected fundamental reference is -7.3 dBm (2.7 dBm - 10 dB), yielding a corrected worst-case delta of 40.18 dB against the worst-case spurious product at 2.56969 GHz (-48.48 dBm).

For the 2480 MHz channel, the corrected fundamental reference is -7.4 dBm (2.6 dBm - 10 dB), yielding a corrected worst-case delta of 41.07 dB against the worst-case spurious product at 2.50004 GHz (-49.47 dBm).

All three channels exceed the 20 dB requirement after normalization, with the minimum corrected worst-case delta of 40.18 dB observed on the 2442 MHz channel. Compliance with the FCC §15.247(d) requirement that conducted spurious emissions outside the authorized band be at least 20 dB below the fundamental is demonstrated by comparison of the highest conducted spurious emission level observed in each measurement to the bandwidth-normalized fundamental conducted output power reference for that channel, as described above.

Measurement uncertainty is ± 0.5 dB (expanded uncertainty, 95% confidence level, $k = 2$).

Worst-case delta values conservatively apply -0.5 dB to the fundamental and +0.5 dB to the spurious emission.

Table 5-3: Antenna Conducted Spurious Emissions Test Data (2402 MHz)

Antenna Conducted Power: Carrier Frequency = 2402 MHz; Conducted Power (P_{Fund}) = 2.8 dBm; BW-Corrected $P_{\text{Fund(corr)}}$ = -7.2 dBm (2.8 - 10 dB, 100 kHz RBW normalization)			
Frequency	Conducted Spurious Emission Level (P_{spur}) (dBm)	Nominal Delta (dB) (P_{fund}) - (P_{spur})	Worst-Case Delta (dB) ($P_{\text{fund}} - 0.5$) - ($P_{\text{spur}} + 0.5$)
19.76106 kHz	-96.90	89.70	88.70
787.88428 kHz	-86.65	79.45	78.45
558.86082 MHz	-79.42	72.22	71.22
2.27359 GHz	-49.32	42.12	41.12
2.52959 GHz	-48.70	41.50	40.50
7.206749 GHz (M1)	-48.81	41.61	40.61

Table 5-4: Antenna Conducted Spurious Emissions Test Data (2442 MHz)

Antenna Conducted Power: Carrier Frequency = 2442 MHz; Conducted Power = 2.7 dBm; BW-Corrected $P_{\text{Fund(corr)}}$ = -7.3 dBm (2.7 - 10 dB, 100 kHz RBW normalization)			
Frequency	Conducted Spurious Emission Level (P_{spur}) (dBm)	Nominal Delta (dB) (P_{fund}) - (P_{spur})	Worst-Case Delta (dB) ($P_{\text{fund}} - 0.5$) - ($P_{\text{spur}} + 0.5$)
25.39301 kHz	-96.95	89.65	88.65
787.88428 kHz	-88.56	81.26	80.26
557.46649 MHz	-78.89	71.59	70.59
2.31390 GHz	-49.38	42.08	41.08
2.56969 GHz	-48.48	41.18	40.18
7.327199 GHz (M1)	-50.81	43.51	42.51

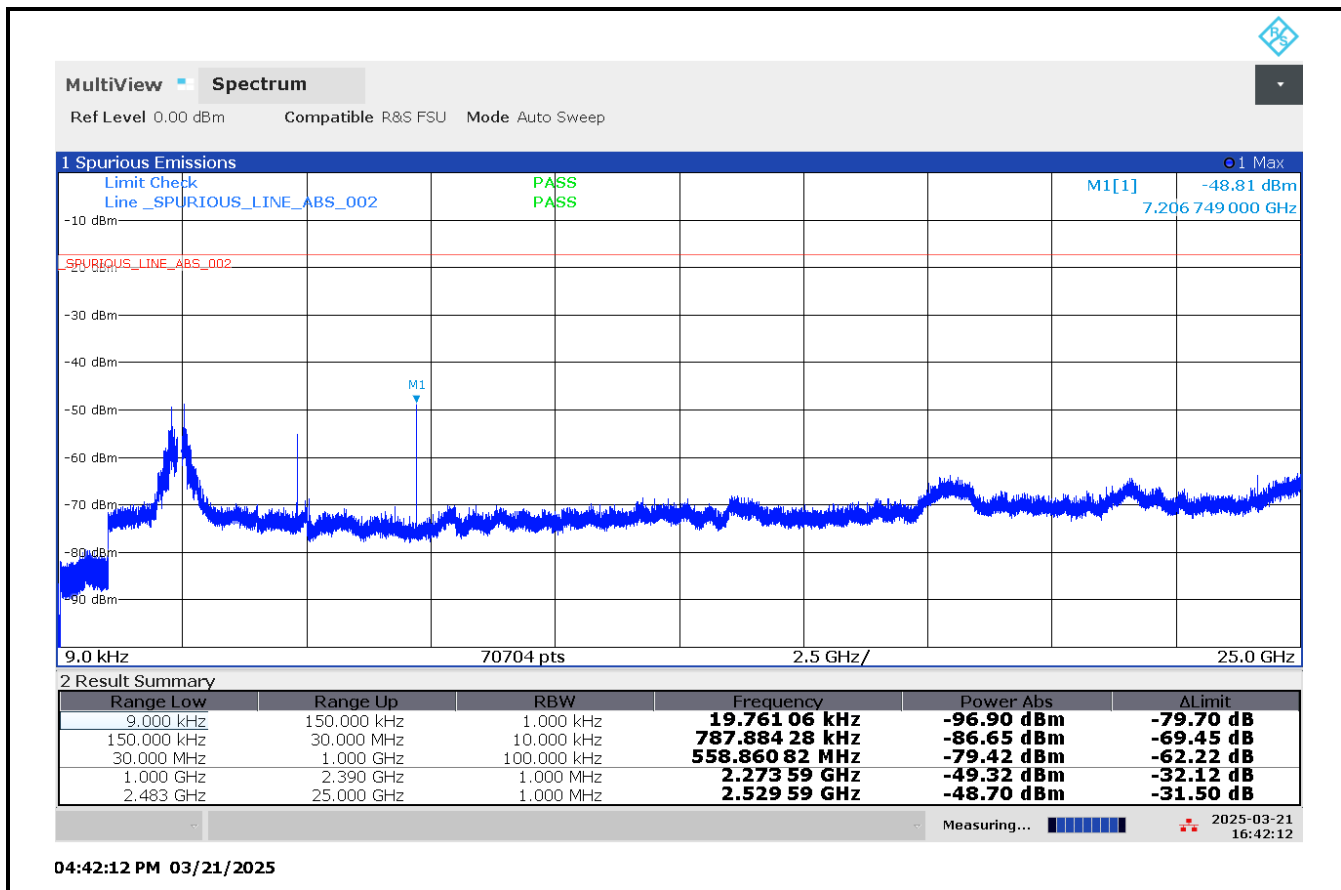
Table 5-5: Antenna Conducted Spurious Emissions Test Data (2480 MHz)

Antenna Conducted Power: Carrier Frequency = 2480 MHz; Conducted Power = 2.6 dBm; BW-Corrected $P_{Fund(corr)} = -7.4$ dBm (2.6 – 10 dB, 100 kHz RBW normalization)			
Frequency	Conducted Spurious Emission Level (P_{spur}) (dBm)	Nominal Delta (dB) (P_{fund}) – (P_{spur})	Worst-Case Delta (dB) ($P_{fund} - 0.5$) – ($P_{spur} + 0.5$)
21.77247 kHz	-100.29	92.89	91.89
325.32492 kHz	-93.16	85.76	84.76
549.76735 MHz	-78.04	70.64	69.64
2.35212 GHz	-50.00	42.60	41.60
2.50004 GHz	-49.47	42.07	41.07
7.438739 GHz (M1)	-52.94	45.54	44.54

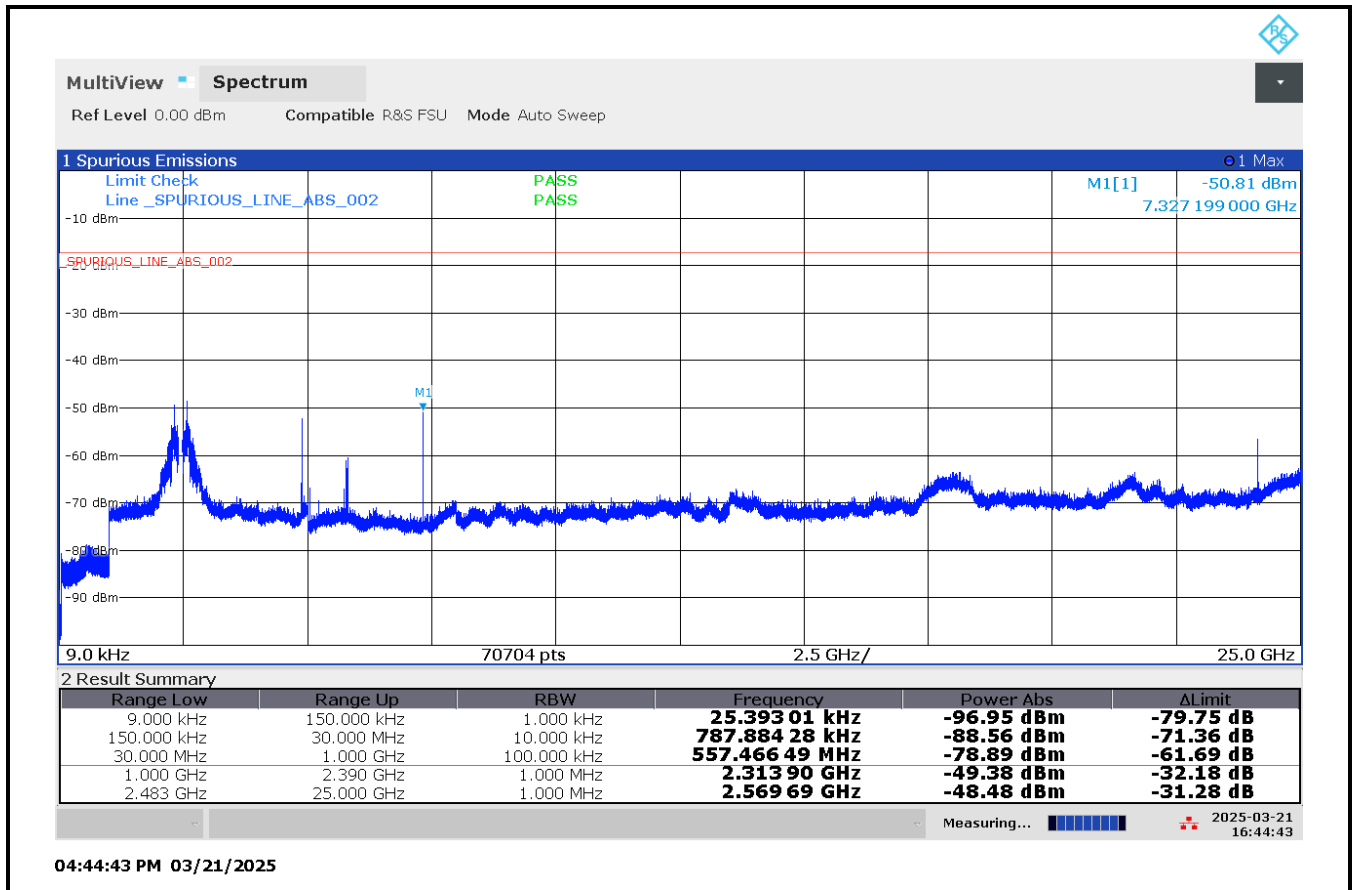
Applying the bandwidth normalization correction described above, the worst-case conducted spurious emission identified in the measurements is more than 20 dB below the fundamental for all channels.

The minimum corrected worst-case attenuation observed is 40.18 dB (2442 MHz channel), which exceeds the 20 dB requirement of FCC §15.247(d) by more than 20 dB. The measurements also meet the applicable absolute conducted spurious emission limits shown in Plot 5-1, Plot 5-2, and Plot 5-3, thereby supporting compliance with FCC §15.247(d), RSS-247 6.6, and RSS-Gen 6.13.

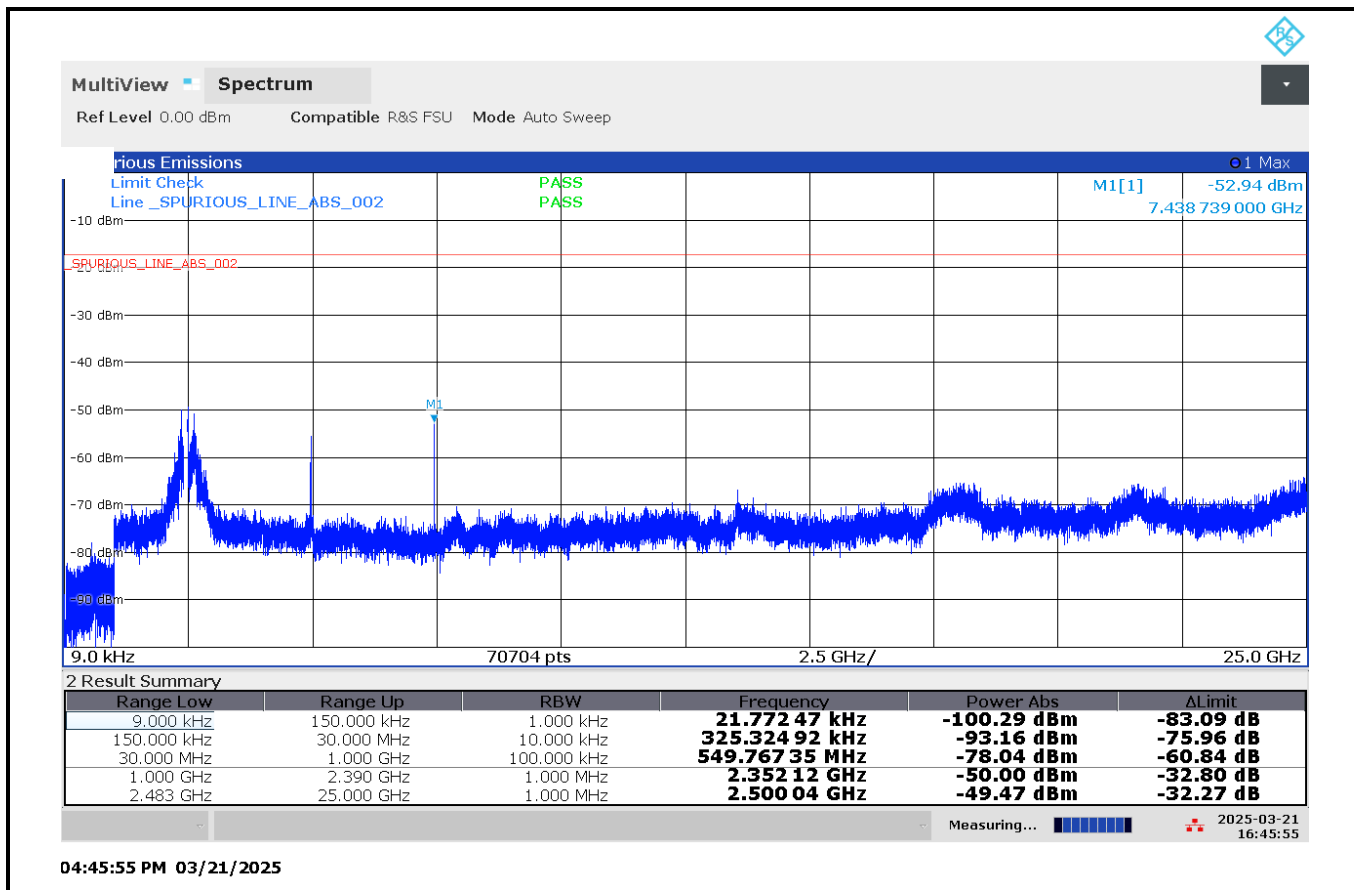
Plot 5-1: Antenna Conducted Spurious Emissions (2402 MHz)



Plot 5-2: Antenna Conducted Spurious Emissions (2442 MHz)



Plot 5-3: Antenna Conducted Spurious Emissions (2480 MHz)



Measurement uncertainties shown for these tests are expanded uncertainties expressed at the 95% confidence level using a coverage factor K=2. Measurement uncertainty: ± 0.5 dB

Results: Pass

Test Personnel:

Daniel W. Baltzell
Test Engineer

Signature

March 21, 2025
Date of Test

6 Bandwidth – FCC 15.247(a)(2); ISED RSS-247 6.3.1(a)(a); RSS-Gen 6.7

6.1 Bandwidth Test Procedure

Procedure: C63.10-2020 11.8

The minimum 6dB and 99% bandwidths per FCC 15.247(a)(2) and RSS-247 were measured using a 50-ohm spectrum analyzer. The carrier was adjusted on the analyzer so that it was displayed entirely on the spectrum analyzer. The sweep time was set to auto and allowed through several sweeps with the max hold function used in peak detector mode. The resolution bandwidth was set to 100 kHz, and the video bandwidth set at 300 kHz.

Table 6-1: Bandwidth Test Environmental Conditions

Date	Temperature (°C)	Humidity (%)	Pressure (kPa)
March 21, 2025	24.3	32	101.6

Table 6-2: 6 dB and 99% Bandwidth Test Equipment

RTL Asset #	Manufacturer	Model	Part Type	Serial Number	Calibration Due Date
901773	Rohde & Schwarz	FSW50	Analyzer	101021	05/30/2027

6.2 Bandwidth Test Results

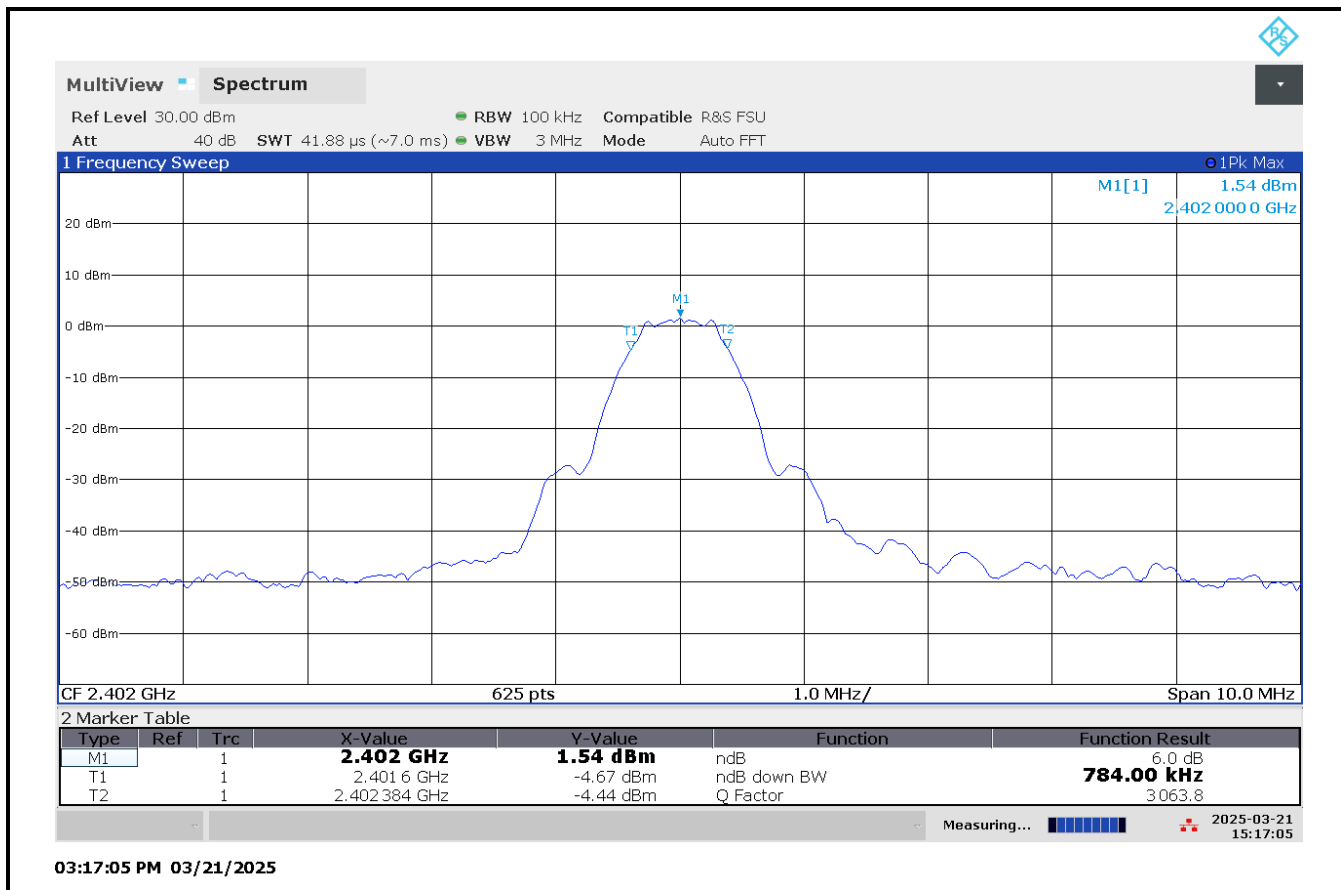
Table 6-3: 6 dB Bandwidth Test Data

Frequency (MHz)	Bandwidth (kHz)	Minimum Limit (kHz)	Pass/Fail
2402	784	500	Pass
2442	736	500	Pass
2480	736	500	Pass

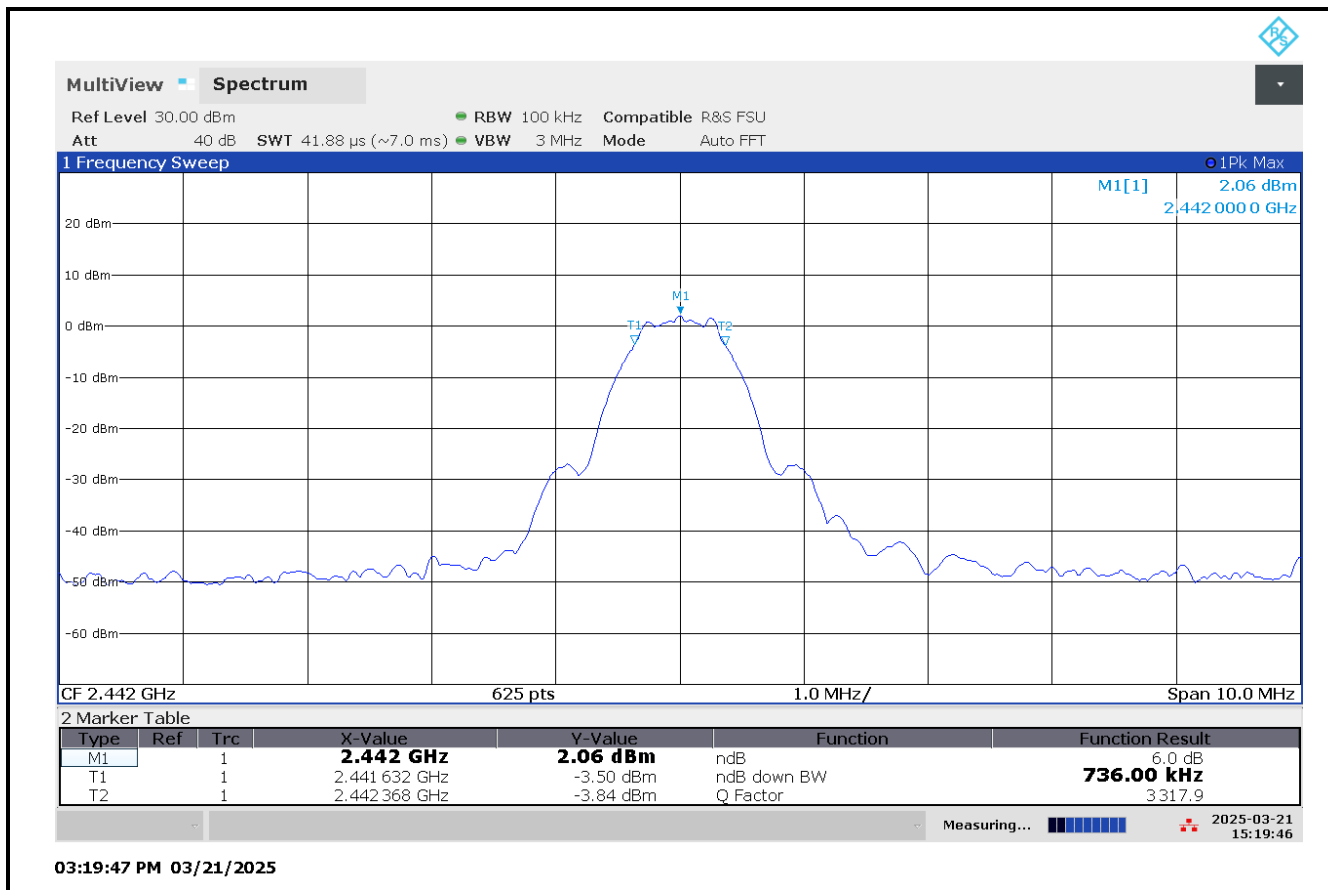
Table 6-4: 99% Bandwidth Test Data

Frequency (MHz)	Bandwidth (MHz)	Minimum Limit (kHz)	Pass/Fail
2402	1.08	500	Pass
2442	1.07	500	Pass
2480	1.09	500	Pass

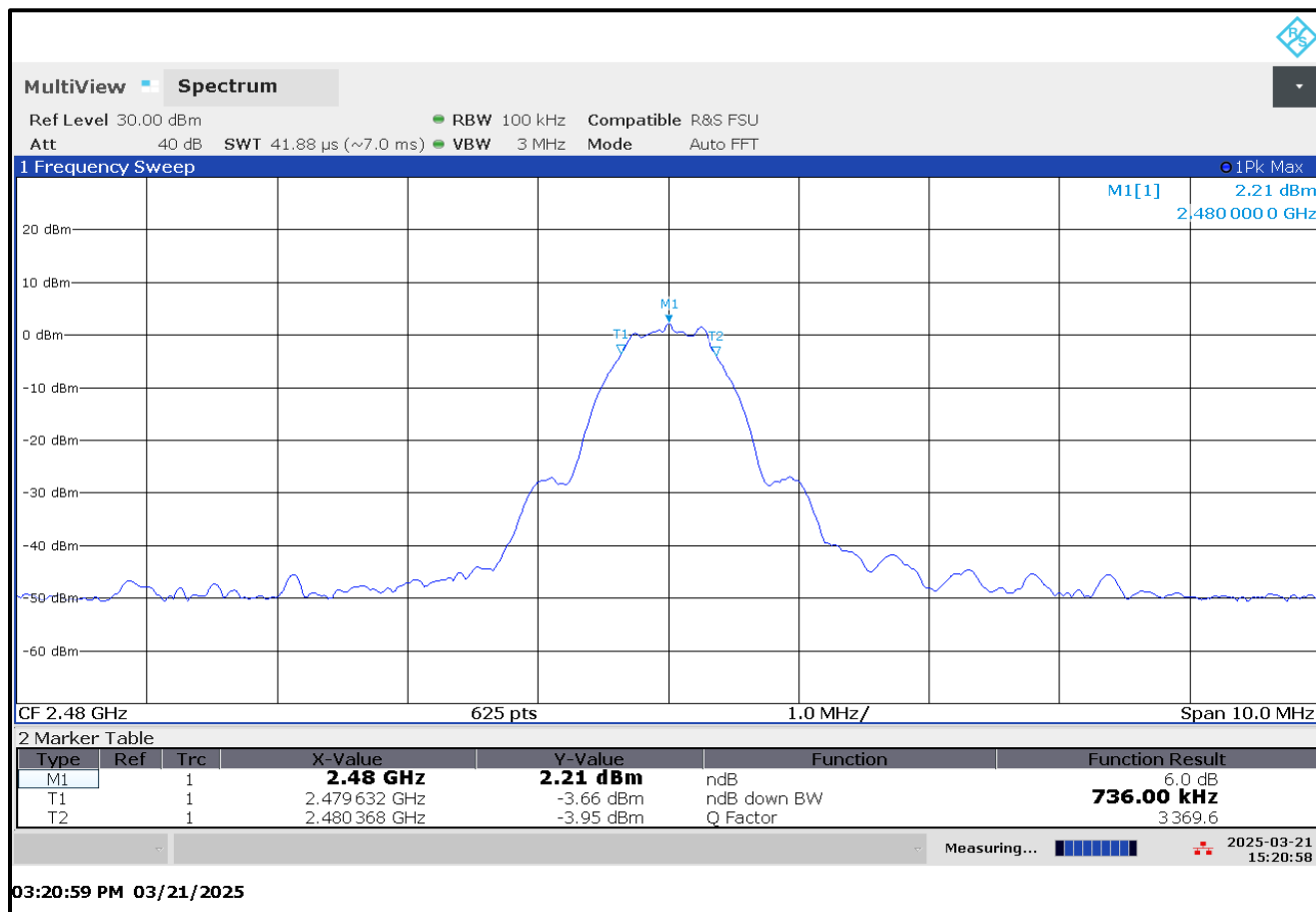
Plot 6-1: 6 dB Bandwidth – 2402 MHz



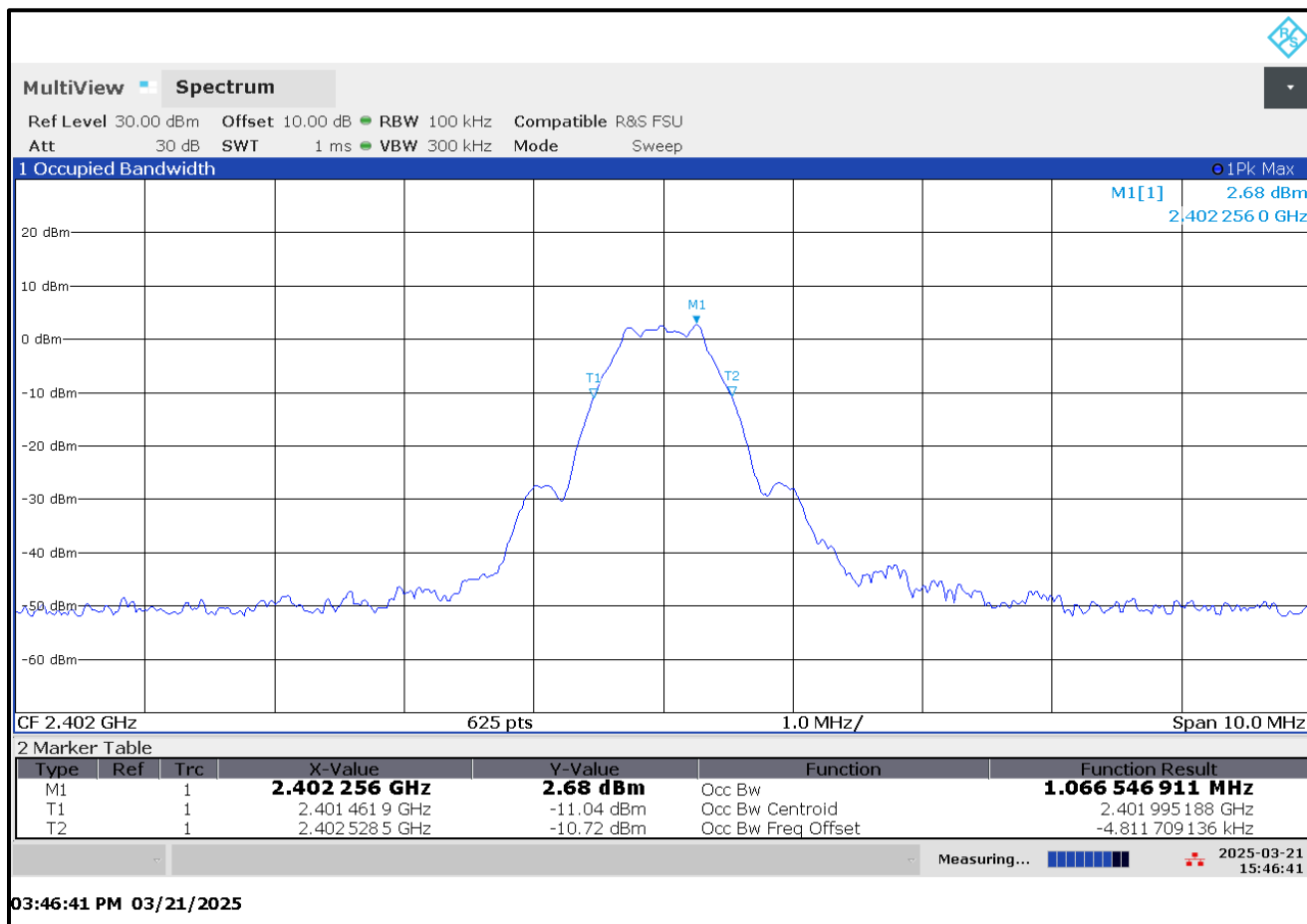
Plot 6-2: 6 dB Bandwidth – 2442 MHz



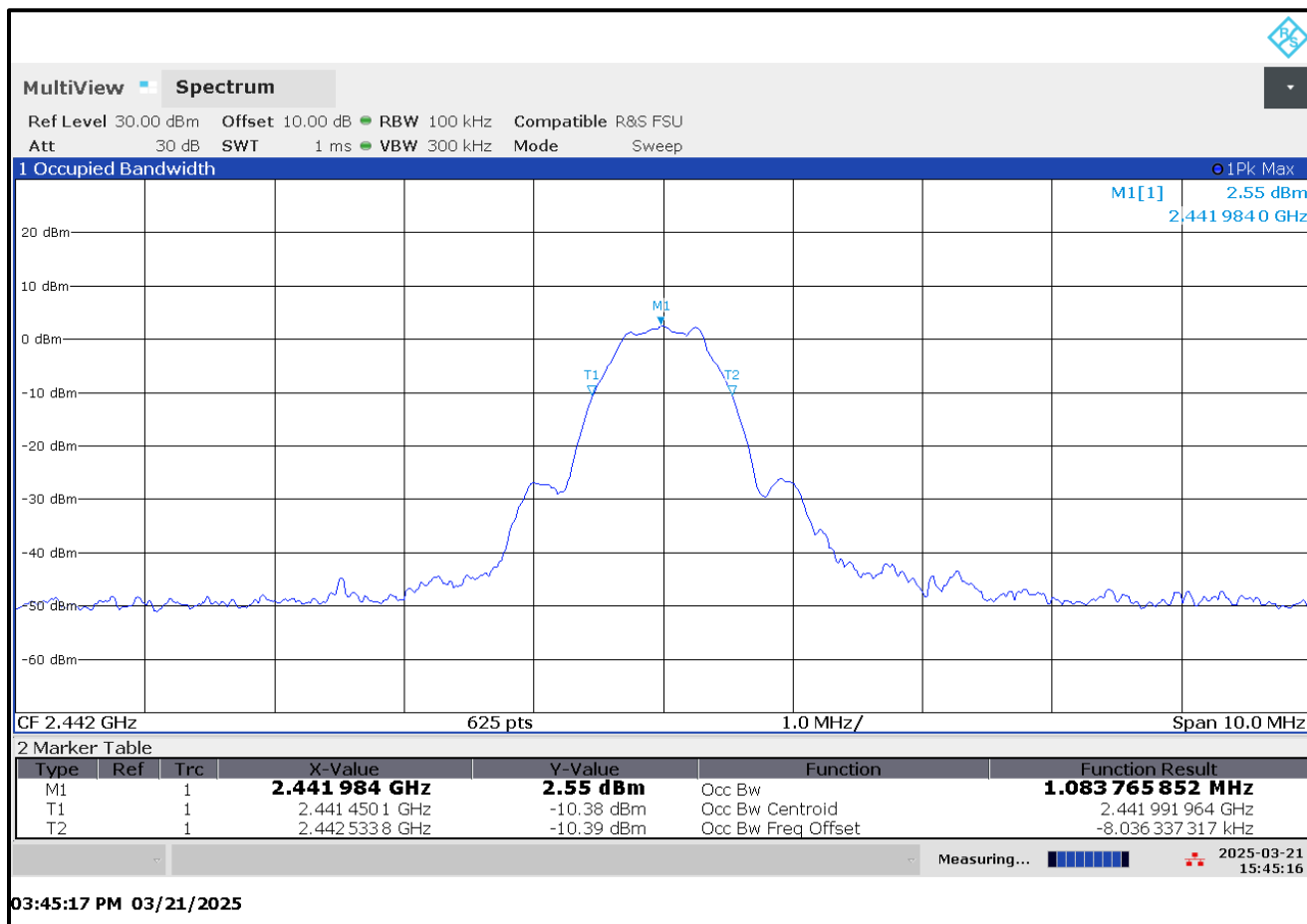
Plot 6-3: 6 dB Bandwidth – 2480 MHz



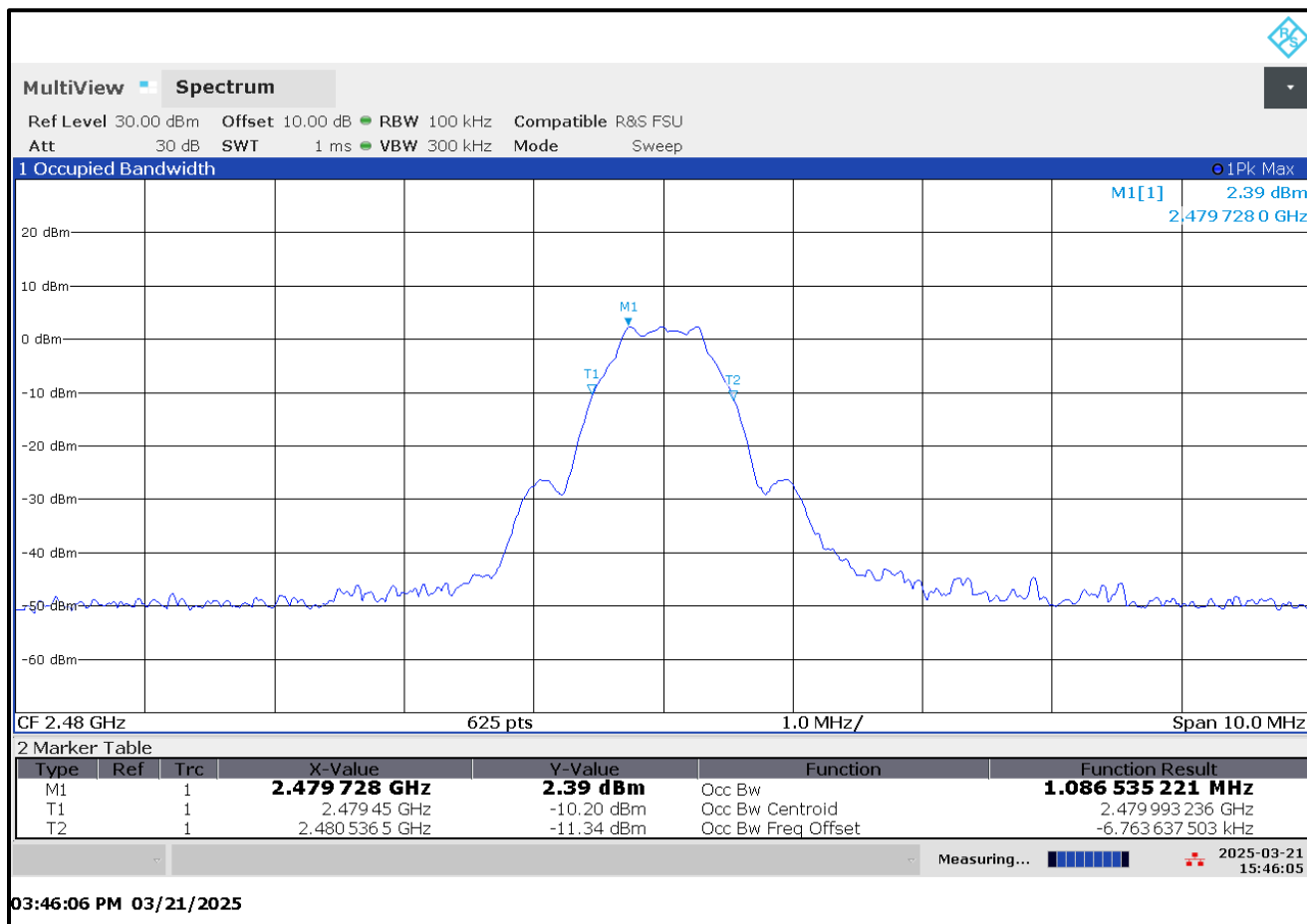
Plot 6-4: 99% Bandwidth – 2402 MHz



Plot 6-5: 99% Bandwidth – 2442 MHz



Plot 6-6: 99% Bandwidth – 2480 MHz



Measurement uncertainties shown for these tests are expanded uncertainty expressed at 95% confidence level using a coverage factor k=2. Measurement uncertainty $\pm 1.0 \times 10^{-6}$ Hz

Results: Pass

Test Personnel:

Daniel W. Baltzell
Test Engineer

Signature

March 21, 2025
Date of Test

7 Power Spectral Density – FCC 15.247(e); RSS-247 6.3.1(b)

7.1 Power Spectral Density Test Procedure

Procedure: C63.10-2020 11.10.2

The power spectral density per FCC 15.247(e) was measured using a 50-ohm spectrum analyzer with the resolution bandwidth set at 3 kHz and the video bandwidth set at 10 kHz. Peak and max hold was used to resolve the spectral density for the modulated carriers at 2402, 2442 and 2480 MHz. These levels are below the +8 dBm limit. See the power spectral density table and plots that follow.

Table 7-1: Power Spectral Density Environmental Conditions

Date	Temperature (°C)	Humidity (%)	Pressure (kPa)
March 21, 2025	24.3	32	101.6

Table 7-2: Power Spectral Density Test Equipment

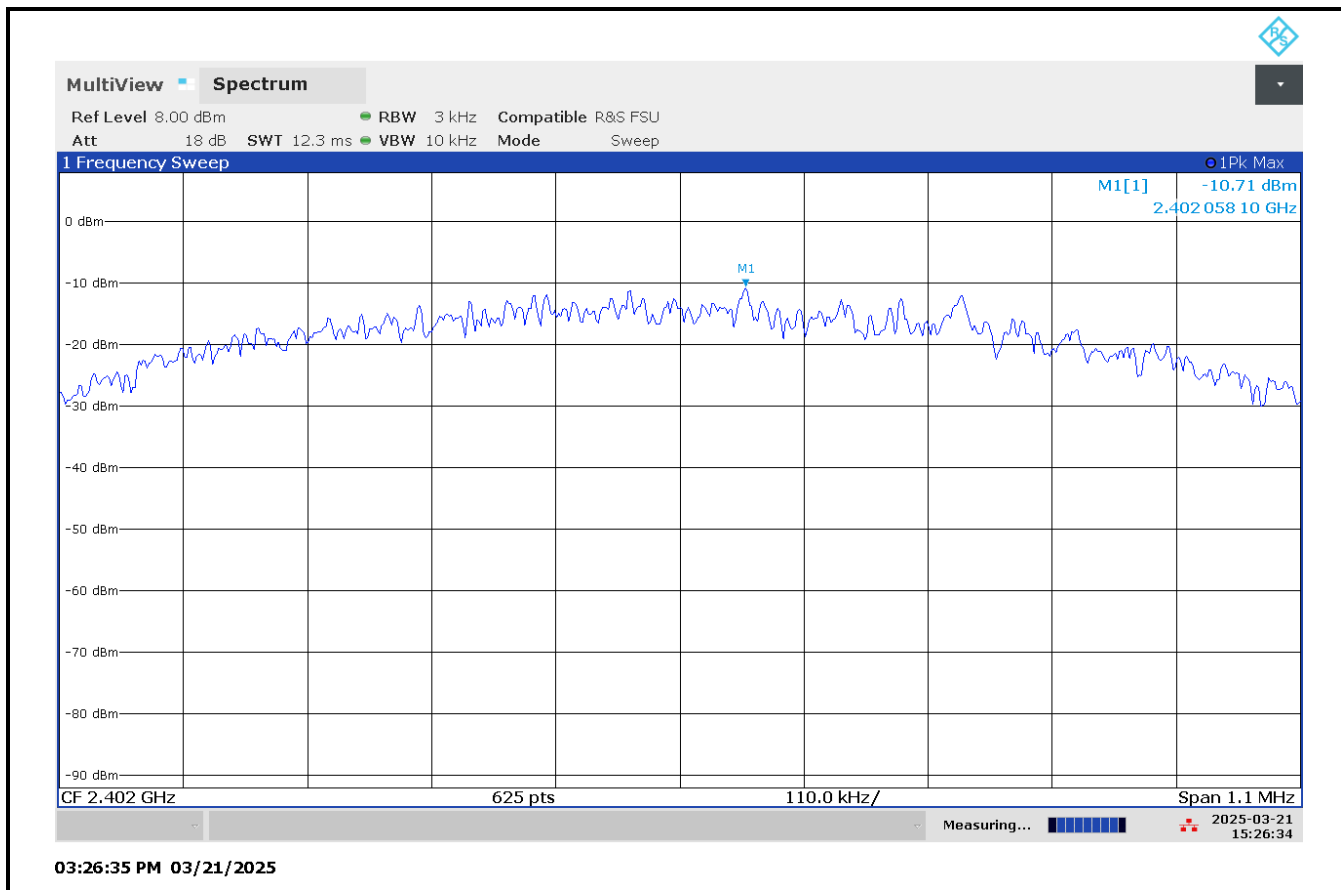
RTL Asset #	Manufacturer	Model	Part Type	Serial Number	Calibration Due Date
901773	Rohde & Schwarz	FSW50	Analyzer	101021	05/30/2027

7.2 Power Spectral Density Test Data

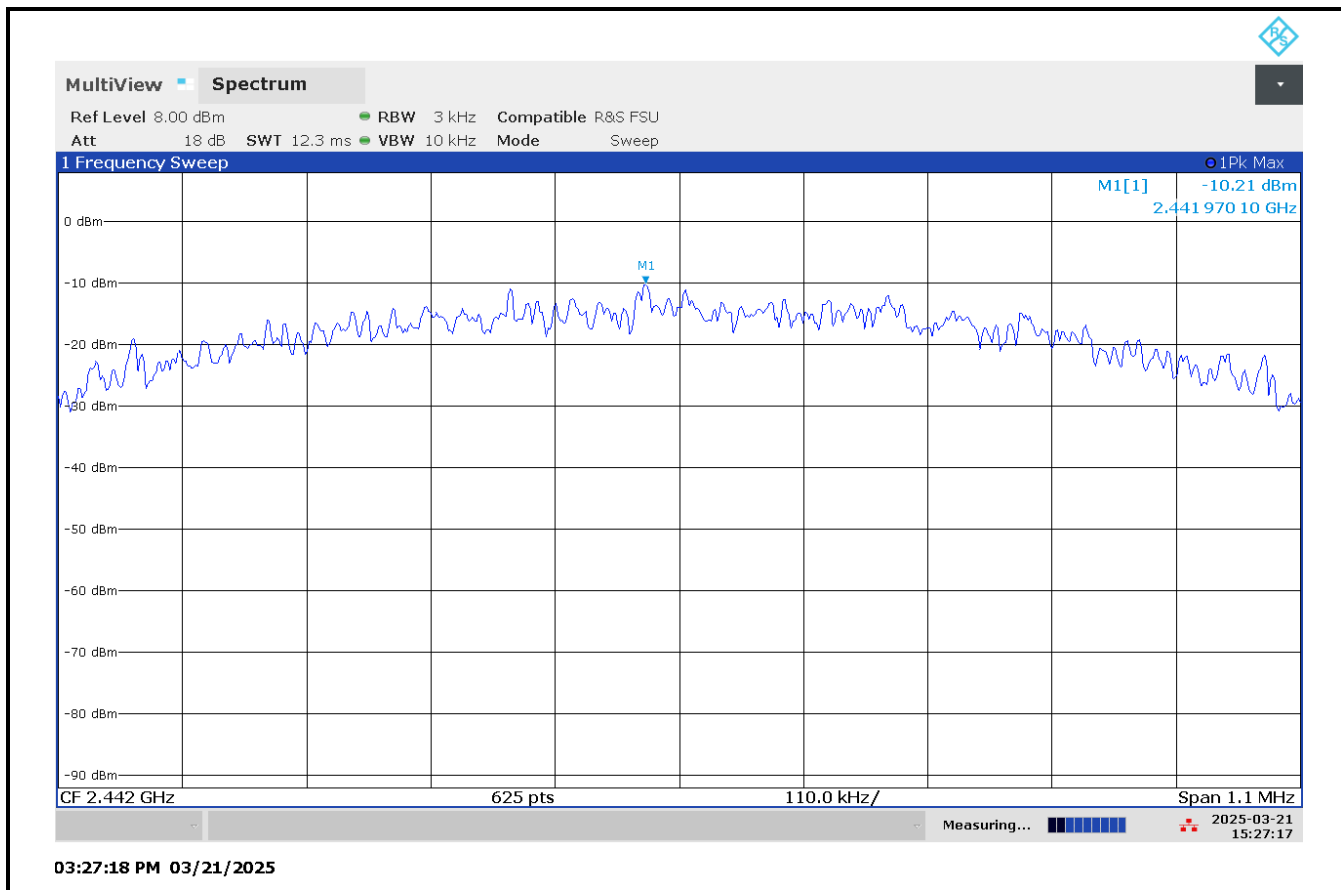
Table 7-3: Power Spectral Density Test Data

Frequency (MHz)	RF Power Level (dBm)	Maximum Limit +8 dBm	Pass/Fail
2402	-10.7	8	Pass
2442	-10.2	8	Pass
2480	-11.5	8	Pass

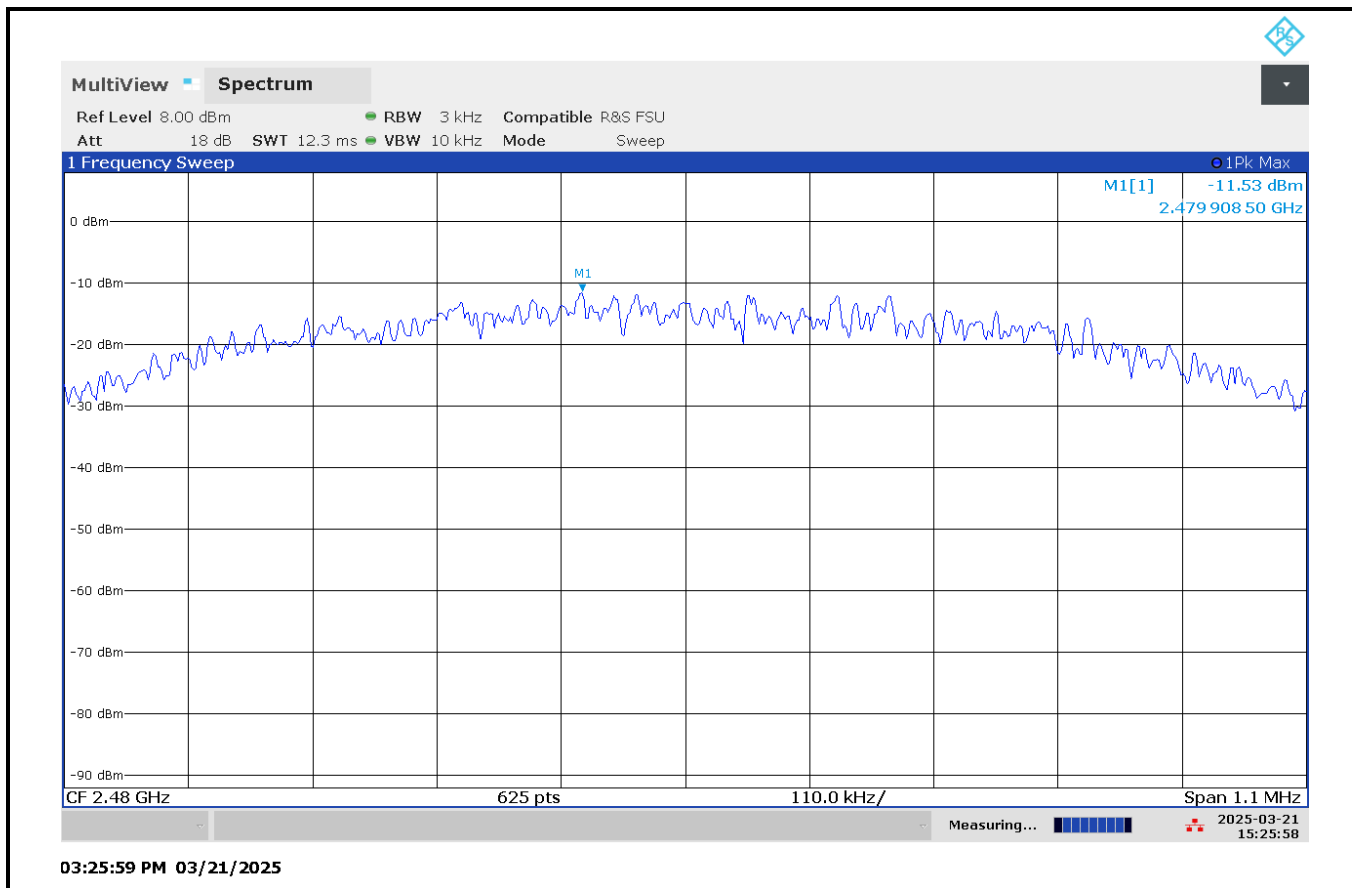
Plot 7-1: Power Spectral Density – 2402 MHz



Plot 7-2: Power Spectral Density – 2442 MHz



Plot 7-3: Power Spectral Density – 2480 MHz



Measurement uncertainties shown for these tests are expanded uncertainties expressed at the 95% confidence level using a coverage factor K=2. Measurement uncertainty: ± 0.5 dB

Results: Pass

Test Personnel:

Daniel W. Baltzell Test Engineer	 Signature	March 21, 2025 Date of Test
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8 Conducted Emissions Measurement Limits – FCC 15.207; RSS-Gen 8.8

The unit is battery-operated; conducted AC emissions are not required.

9 Radiated Emissions – FCC 15.209; RSS-247 6.6, RSS-GEN 6.13/7.3

9.1 Limits of Radiated Emissions Measurement

Frequency (MHz)	Field Strength (uV/m)	Measurement Distance (m)
0.009-0.490	2400/f (kHz)	300
0.490-1.705	24000/f (kHz)	30
1.705-30.0	30	30
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

As shown in 15.35(b), for frequencies above 1000 MHz, the field strength limits are based on the average detector. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any circumstances of modulation.

9.2 Radiated Emissions Measurement Test Procedure

Procedure: C63.10-2020 6.3

Before final radiated emissions measurements were made on the open-field three/ten meter range, the EUT was scanned indoors at one- and three-meter distances. This was done to determine its emissions spectrum signature. The test system's physical arrangement and associated cabling was varied to determine the effect on the EUT's emissions in amplitude, direction, and frequency. This process was repeated during final radiated emissions measurements on the open-field range, at each frequency, to ensure that maximum emission amplitudes were attained.

Final radiated emissions measurements were made on the three/ten-meter open-field test site. The EUT was placed on a nonconductive turntable 0.8 meters above the ground plane. The spectrum was examined from 9 kHz to the 10th harmonic of the highest fundamental transmitter frequency (9 GHz).

At each frequency, the EUT was rotated 360°, and the antenna was raised and lowered from 1 to 4 meters in order to determine the emission's maximum level. Measurements were taken using both horizontal and vertical antenna polarizations. For frequencies between 30 and 1000 MHz, the spectrum analyzer's 6 dB bandwidth was set to 120 kHz, and the analyzer was operated in the CISPR quasi-peak detection mode.

For emissions above 1,000 MHz, emissions are measured using the average detector function with a minimum resolution bandwidth of 1 MHz. No video filter, less than 10 times the resolution bandwidth was used. The highest emission amplitudes relative to the appropriate limit were measured and recorded in this report.

Table 9-1: Radiated Emissions Environmental Conditions

Date	Temperature (°C)	Humidity (%)	Pressure (kPa)
March 26, 2025	11	32	101.6
March 27, 2025	14	33	101.8

Table 9-2: Radiated Emissions Test Equipment

RTL Asset #	Manufacturer	Model	Part Type	Serial Number	Calibration Due Date
900878	Rhein Tech Laboratories, Inc.	AM3-1197-0005	3-meter antenna mast, polarizing	Outdoor Range 1	N/A
901729	Insulated Wire Inc.	KPS-1503-3150-KPR	SMK RF Cables 20'	NA	10/29/2027
901242	Rhein Tech Laboratories, Inc.	WRT-000-0003	Wood rotating table	N/A	N/A
900772	EMCO	3161-02	Horn Antenna (2 - 4 GHz)	9804-1044	05/17/2027
900321	EMCO	3161-03	Horn Antennas (4 – 8.2 GHz)	9508-1020	05/17/2027
900323	EMCO	3160-7	Horn Antennas (8.2 – 12.4 GHz)	9605-1054	05/17/2027
900356	EMCO	3160-08	Horn Antenna (12.4–18.0 GHz)	9607-1044	05/17/2027
901218	EMCO	3160-09	Horn Antenna (18.0–26.5 GHz)	960281-003	05/17/2027
901773	Rohde & Schwarz	FSW50	Analyzer	101021	05/30/2027
901669	ETS-Lindgren	3142E	Biconilog Antenna (30 MHz – 6000 MHz)	00166065	04/24/2027

9.3 Radiated Emissions Test Results

9.3.1 Radiated Emissions Unintentional

Table 9-3: Radiated Emissions Unintentional

Emission Frequency (MHz)	Detector Level (dBuV)	Site Correction Factor (dB/m)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)
227.601	51.3	-13.9	37.4	46.0	-8.6
275.504	48.6	-12.4	36.2	46.0	-9.8
323.425	46.7	-11.6	35.1	46.0	-10.9
335.417	4.9	-11.1	-6.2	46.0	-52.2
371.333	45.5	-9.7	35.8	46.0	-10.2
383.290	46.8	-9.6	37.2	46.0	-8.8
395.287	47.8	-8.6	39.2	46.0	-6.8
419.246	44.5	-7.3	37.2	46.0	-8.8

NOTE: 120 kHz RBW/500 kHz VBW Quasi-Peak below 1 GHz; 1 MHz RBW/3 MHz VBW RMS detector above 1 GHz

9.3.2 Radiated Emissions Harmonics/Spurious Test Data

Table 9-4: Peak Radiated Emissions Harmonics/Spurious TX Frequency; 2402 MHz

Emission Frequency (MHz)	Peak Detector Level (dBuV) (1 MHz RBW/ 3 MHz VBW)	Site Correction Factor (dB/m)	Peak Emission Level (dBuV/m)	Peak Limit (dBuV/m)	Peak Margin (dB)
4804.0	16.1	37.3	53.4	74.0	-20.6
12010.0**	6.0	48.1	54.1	74.0	-19.9
19216.0*	-4.7	59.1	54.4	74.0	-19.6

Table 9-5: Average Radiated Emissions Harmonics/Spurious TX Frequency; 2402 MHz

Emission Frequency (MHz)	Average Detector Level (dBuV) (1 MHz RBW/ 3 MHz VBW)	Site Correction Factor (dB/m)	Average Emission Level (dBuV/m)	Average Limit (dBuV/m)	Average Margin (dB)
4804.0	3.7	37.3	41.0	54.0	-13.0
12010.0**	-5.7	48.1	42.4	54.0	-11.6
19216.0*	-17.8	59.1	41.3	54.0	-12.7

Table 9-6: Peak Radiated Emissions Harmonics/Spurious TX Frequency; 2442 MHz

Emission Frequency (MHz)	Peak Detector Level (dBuV) (1 MHz RBW/ 3 MHz VBW)	Site Correction Factor (dB/m)	Peak Emission Level (dBuV/m)	Peak Limit (dBuV/m)	Peak Margin (dB)
4884.0	16.2	37.4	53.6	74.0	-20.4
7326.0	16.5	39.6	56.1	74.0	-17.9
12210.0**	6.7	48.3	55.0	74.0	-19.0
19536.0*	-5.8	59.5	53.7	74.0	-20.3

Table 9-7: Average Radiated Emissions Harmonics/Spurious TX Frequency; 2442 MHz

Emission Frequency (MHz)	Average Detector Level (dBuV) (1 MHz RBW/ 3 MHz VBW)	Site Correction Factor (dB/m)	Average Emission Level (dBuV/m)	Average Limit (dBuV/m)	Average Margin (dB)
4884.0	4.1	37.4	41.5	54.0	-20.4
7326.0	4.2	39.6	43.8	54.0	-10.2
12210.0**	-5.3	48.3	43.0	54.0	-11.0
19536.0*	-17.9	59.5	41.6	54.0	-12.4

*Measurements interpolated from 2d2/λ distance.

**Measurements interpolated from 1m distance.

Table 9-8: Peak Radiated Emissions Harmonics/Spurious TX Frequency; 2480 MHz

Emission Frequency (MHz)	Peak Detector Level (dBuV) (1 MHz RBW/ 3 MHz VBW)	Site Correction Factor (dB/m)	Peak Emission Level (dBuV/m)	Peak Limit (dBuV/m)	Peak Margin (dB)
4960.0	15.6	37.5	53.1	74.0	-20.9
7440.0	16.6	39.6	56.2	74.0	-17.8
12400.0**	5.6	52.1	57.7	74.0	-16.3
19840.0*	-5.7	59.9	54.3	74.0	-19.7
22320.0*	-4.7	61.4	56.7	74.0	-17.3

Table 9-9: Average Radiated Emissions Harmonics/Spurious TX Frequency; 2480 MHz

Emission Frequency (MHz)	Average Detector Level (dBuV) (1 MHz RBW/ 3 MHz VBW)	Site Correction Factor (dB/m)	Average Emission Level (dBuV/m)	Average Limit (dBuV/m)	Average Margin (dB)
4960.0	3.5	37.5	41.0	54.0	-13.0
7440.0	3.4	39.6	43.0	54.0	-11.0
12400.0**	-6.4	52.1	45.7	54.0	-8.3
19840.0**	-17.4	59.9	42.6	54.0	-11.4
22320.0*	-16.5	61.4	44.9	54.0	-9.1

*Measurements interpolated from 2d2/λ distance.

**Measurements interpolated from 1m distance.

Measurement uncertainty: ±4.6 dB. This measurement uncertainty is an expanded uncertainty at the 95% confidence level, with a coverage factor k=2.

Results: Pass

Test Personnel:

Daniel W. Baltzell
EMC Test Engineer



Signature

March 26-27, 2025
Dates of Test

10 Conclusion

The data in this measurement report shows that the Bluetooth LE IC in the Farpointe Data, Inc. CSM-200 module, FCC ID: T8I-CONEKT6; IC: 6504A-CONEKT6, complies with the applicable requirements of Parts 2 and 15 of the FCC rules and regulations, and RSS-247 and RSS-Gen ISSED Canada rules and regulations.