

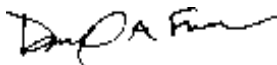


Engineering Solutions & Electromagnetic Compatibility Services

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

|                                                                                                                                                                                     |                                                                                                                                                                                                                          |                                                                                                      |                            |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------|----------------------------|
| <b>Test Lab:</b><br>Rhein Tech Laboratories, Inc. Phone: 703-689 0368<br>360 Herndon Parkway www.rheintech.com<br>Suite 1400<br>Herndon, VA 20160<br>E-Mail: atcbinfo@rheintech.com |                                                                                                                                                                                                                          | <b>Applicant:</b><br>L3Harris Technologies<br>221 Jefferson Ridge Parkway<br>Lynchburg, VA 24501 USA |                            |
| <b>FCC ID IC</b>                                                                                                                                                                    | OWDTR-0177-E<br>3636B-0177                                                                                                                                                                                               | <b>Test Report Date</b>                                                                              | April 9, 2025              |
| <b>Platform</b>                                                                                                                                                                     | N/A                                                                                                                                                                                                                      | <b>RTL Work Order #</b>                                                                              | 2024073                    |
| <b>Model HVIN</b>                                                                                                                                                                   | XL-85M UHF-L<br>XLM-85M-UHF-L                                                                                                                                                                                            | <b>RTL Quote Number</b>                                                                              | QRTL24-073B                |
|                                                                                                                                                                                     |                                                                                                                                                                                                                          |                                                                                                      |                            |
| <b>American National Standard Institute</b>                                                                                                                                         | ANSI C63.10-2020 American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices                                                                                                          |                                                                                                      |                            |
| <b>FCC Classification</b>                                                                                                                                                           | DTS – Part 15 Digital Transmission System (Wi-Fi)                                                                                                                                                                        |                                                                                                      |                            |
| <b>FCC Rule Part(s)</b>                                                                                                                                                             | FCC Rules Part 15.247: Operation within the bands 902-928 MHz, 2400-2483.5 MHz and 5725-5850 MHz (10-01-21)                                                                                                              |                                                                                                      |                            |
| <b>ISED Standards</b>                                                                                                                                                               | RSS-247 Issue 3: Digital Transmission Systems (DTSs), Frequency Hopping Systems (FHSs) and Licence-Exempt Local Area Network (LE-LAN) Devices<br>RSS-Gen Issue 5: General Requirements for Compliance of Radio Apparatus |                                                                                                      |                            |
| <b>Frequency Range (MHz)</b>                                                                                                                                                        | <b>Output Power (W) Peak Conducted</b>                                                                                                                                                                                   | <b>Frequency Tolerance</b>                                                                           | <b>Emission Designator</b> |
| 2412 – 2462                                                                                                                                                                         | 0.141                                                                                                                                                                                                                    | N/A                                                                                                  | 17M5GXD                    |
| 2422 – 2452                                                                                                                                                                         | 0.076                                                                                                                                                                                                                    | N/A                                                                                                  | 36M1FXD                    |

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, ANSI C63.10, and ISED RSS-247 and RSS-Gen.

Signature: 

Date: April 9, 2025

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 certificate and scope of accreditation AT-1445. This report replaces Report R1.0.*

*This report may not be reproduced, except in full, without the written approval of Rhein Tech Laboratories, Inc. and L3Harris Technologies. The test results relate only to the item(s) tested.*

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## 1 General Information

### 1.1 Scope

#### 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
- ISSED RSS-247: Digital Transmission Systems (DTSS), Frequency Hopping Systems (FHSs) and Licence-Exempt Local Area Network (LE-LAN) Devices
- ISSED RSS-Gen Issue 5: General Requirements for Compliance of Radio Apparatus

### 1.2 Description of EUT

|                             |                              |
|-----------------------------|------------------------------|
| <b>Equipment Under Test</b> | Mobile Radio                 |
| <b>Model / HVIN</b>         | XL-85M UHF-L / XLM-85M-UHF-L |
| <b>Power Supply</b>         | 13.8 VDC                     |
| <b>Frequency Range</b>      | 2412–2462 MHz                |

### 1.3 Test Facility

The open area test site and conducted measurement facility used to collect the radiated data is located at 360 Herndon Parkway, Suite 1400, Herndon, Virginia 20170.

CAB ID: US0079

### 1.4 Related Submittal(s)/Grant(s)

This is an original certification application for L3Harris Technologies Model XL-85M UHF-L Land Mobile Radio, FCC ID: OWDTR-0177-E, IC: 3636B-0177.

### 1.5 Modifications

No modifications were required for compliance.

## 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: Channels Tested for Wi-Fi – 802.11b (11 Mbps); 802.11g (54 Mbps); 802.11n (6.5 Mbps)**

| Channel (#) | Frequency (MHz) |
|-------------|-----------------|
| 1           | 2412            |
| 6           | 2437            |
| 11          | 2462            |

### 2.2 Exercising the EUT

The EUT was tested in all three orthogonal planes in order to determine worst-case emissions. The EUT was provided with software to continuously transmit during testing. The carrier was also checked to verify that information was being transmitted, and all modes were investigated and the worst-case mode was used for final testing. There were no deviations from the test standard(s) and/or methods. The test results reported relate only to the item tested.

### 2.3 Test Result Summary

**Table 2-2: Test Summary – FCC Part 15, Subpart C (Section 15.247); ISSED RSS-247, RSS-Gen**

| FCC              | ISSED                          | Test                                 | Result |
|------------------|--------------------------------|--------------------------------------|--------|
| FCC 15.207       | RSS-Gen 8.8                    | AC Conducted Emissions               | N/A    |
| FCC 15.209       | RSS-247 5.5; RSS-Gen 8.9, 8.10 | Radiated Emissions                   | Pass   |
| FCC 15.247(a)(2) | RSS-247 5.2(a)                 | 6 dB Bandwidth                       | Pass   |
| FCC 15.247(b)(1) | RSS-247 5.4(b); RSS-Gen 6.12   | Maximum Peak Power Output            | Pass   |
| FCC 15.247(d)    | RSS-247 5.5; RSS-Gen 6.13      | Antenna Conducted Spurious Emissions | Pass   |
| FCC 15.247(d)    | RSS-247 5.5                    | Band Edge Measurement                | Pass   |
| FCC 15.247(e)    | RSS-247 5.2(b)                 | Power Spectral Density               | Pass   |
| N/A              | RSS-Gen 6.7                    | 99% Bandwidth                        | Pass   |

### 2.4 Tested System Details

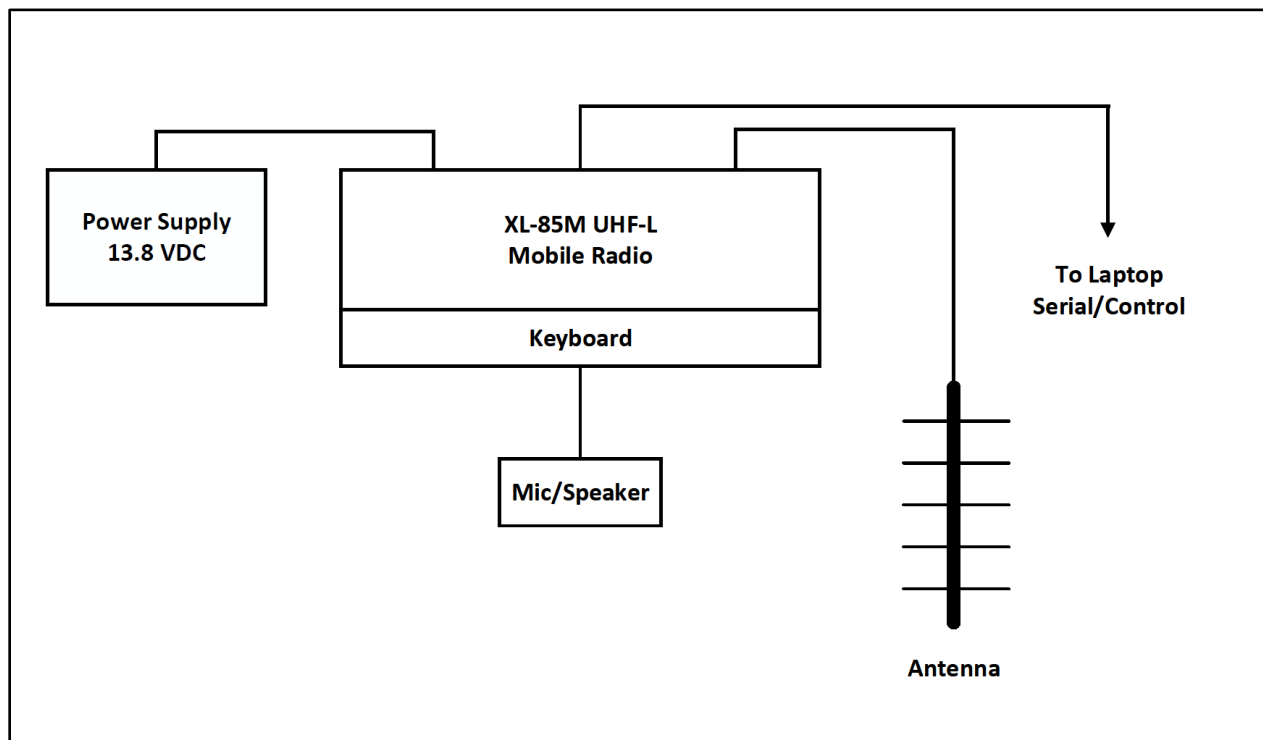
The test sample was received on December 27, 2024. Listed below are the identifiers and descriptions of all equipment, cables, and internal devices used with the EUT for this test, as applicable.

The device was programmed for multiple modes of operation and modulation types.

**Table 2-3: Equipment Under Test (EUT)**

| Part                  | Manufacturer          | Model        | PN/SN         | FCC ID       | RTL Bar Code |
|-----------------------|-----------------------|--------------|---------------|--------------|--------------|
| Mobile Radio          | L3Harris Technologies | XL-85M UHF-L | FCC UNIT 2    | OWDTR-0177-E | 24455        |
| Mobile Radio          | L3Harris Technologies | XL-85M UHF-L | N/A           | OWDTR-0177-E | 24456        |
| Control Head/Keyboard | L3Harris Technologies | XL-CH2       | A4031A000186  | OWDTR-0171-E | 24454        |
| Wi-Fi/BT Antenna      | JRC Mobility          | MTD302248    | MTD302248     | N/A          | N/A          |
| Handset/Mic/Speaker   | L3Harris Technologies | N/A          | 14050-6010-01 | N/A          | 24462        |

## 2.5 Configuration of Tested System



**Figure 2-1: Configuration of Tested System**

### 3 Peak Output Power – FCC 15.247(b)(1); RSS-247 5.4(b), RSS-Gen 6.12

#### 3.1 Power Output Test Procedure

A conducted power measurement of the EUT was taken with an analyzer. The following settings were used:

- 1) Span: Approximately five times the 20 dB bandwidth, centered on a hopping channel (5 MHz used)
- 2) RBW >20 dB bandwidth of the emission being measured (2 MHz used)
- 3) VBW ≥RBW (3 MHz used)
- 4) Sweep: Auto
- 5) Detector function: Peak
- 6) Trace: Max hold. The trace was allowed to stabilize, and the marker-to-peak function was used to set the marker to the peak of the emission.

**Table 3-1: Power Output Test Equipment**

| RTL Asset # | Manufacturer    | Model | Part Type         | Serial Number | Calibration Due Date |
|-------------|-----------------|-------|-------------------|---------------|----------------------|
| 901773      | Rohde & Schwarz | FSW   | Spectrum Analyzer | 101021        | 02/02/2027           |

#### 3.2 Power Output Test Results

**Table 3-2: Environmental Conditions**

| Date              | Temperature (°C) | Humidity (%) | Pressure (kPa) |
|-------------------|------------------|--------------|----------------|
| December 27, 2024 | 22.1             | 38           | 101.3          |

**Table 3-3: Power Output Test Data – 802.11b**

| Channel (#) | Frequency (MHz) | Conducted Peak Power (dBm) | Limit (dBm) | Margin (dB) |
|-------------|-----------------|----------------------------|-------------|-------------|
| 1           | 2412            | 21.5                       | 30.0        | -8.5        |
| 6           | 2437            | 19.3                       | 30.0        | -10.7       |
| 11          | 2462            | 18.1                       | 30.0        | -11.9       |

**Table 3-4: Power Output Test Data – 802.11g**

| Channel (#) | Frequency (MHz) | Conducted Peak Power (dBm) | Limit (dBm) | Margin (dB) |
|-------------|-----------------|----------------------------|-------------|-------------|
| 1           | 2412            | 18.8                       | 30.0        | -11.2       |
| 6           | 2437            | 18.7                       | 30.0        | -11.3       |
| 11          | 2462            | 18.0                       | 30.0        | -12.0       |

**Table 3-5: Power Output Test Data – 802.11n**

| Channel (#) | Frequency (MHz) | Conducted Peak Power (dBm) | Limit (dBm) | Margin (dB) |
|-------------|-----------------|----------------------------|-------------|-------------|
| 1           | 2422            | 16.4                       | 30.0        | -13.6       |
| 6           | 2437            | 18.8                       | 30.0        | -11.2       |
| 11          | 2452            | 16.5                       | 30.0        | -13.5       |

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Client: L3Harris Technologies  
Model: XL-85M UHF-L  
Standards: FCC 15.247 & ISSED RSS-247  
ID's: FCC ID: OWDTR-0177-E/IC: 3636B-0177  
Report #: 2024073DTS

Highest conducted peak power measured: 21.5 dBm  $\approx$  141 mW;  $P(\text{Watts}) = 10^{(\text{dBm} / 10)} / 1000$

Measurement uncertainty:  $\pm 0.5$  dB. This measurement uncertainty is an expanded uncertainty for a 95% confidence level received with a coverage factor  $k=2$ .

**Results: Pass**

**Test Personnel:**

|                    |                                                                                    |                   |
|--------------------|------------------------------------------------------------------------------------|-------------------|
| Daniel W. Baltzell |  | December 27, 2024 |
| Test Engineer      | Signature                                                                          | Date of Test      |

#### 4 Compliance with the Band Edge – FCC 15.247(d); RSS-247 5.5

##### 4.1 Band Edge Test Procedure

The transmitter output was connected to its appropriate antenna. 1 MHz integrated peak (100 kHz RBW/ 300 kHz VBW) and 1 MHz integrated average (100 MHz RBW/300 kHz VBW) corrected measurements were taken within the restricted band to show compliance.

**Table 4-1: Band Edge Test Equipment**

| RTL Asset # | Manufacturer    | Model | Part Type         | Serial Number | Calibration Due Date |
|-------------|-----------------|-------|-------------------|---------------|----------------------|
| 901773      | Rohde & Schwarz | FSW   | Spectrum Analyzer | 101021        | 02/02/2027           |

##### 4.2 Restricted Band Edge Test Results

**Table 4-2: Environmental Conditions**

| Date              | Temperature (°C) | Humidity (%) | Pressure (kPa) |
|-------------------|------------------|--------------|----------------|
| December 28, 2024 | 22.1             | 38           | 101.3          |
| December 29, 2024 | 22.7             | 26           | 100.6          |

EUT was programmed to TX with 11.0 Mbps rate, 20 MHz bandwidth, and 20 dBm power level, and 54.0 Mbps rate for 802.11g; 802.11n used 40 MHz and 20 dBm for all test frequencies.

Conversion of dBm to dBμV/m at 3 m:

$$\text{dB}\mu\text{V/m} = \text{dBm} + 104.7 - (20 * \text{LOG}(3\text{m})) = \text{dBm} + 95.2$$

### 4.3 Band Edge Plots

Plot 4-1: Lower Band Edge – Average – 802.11b

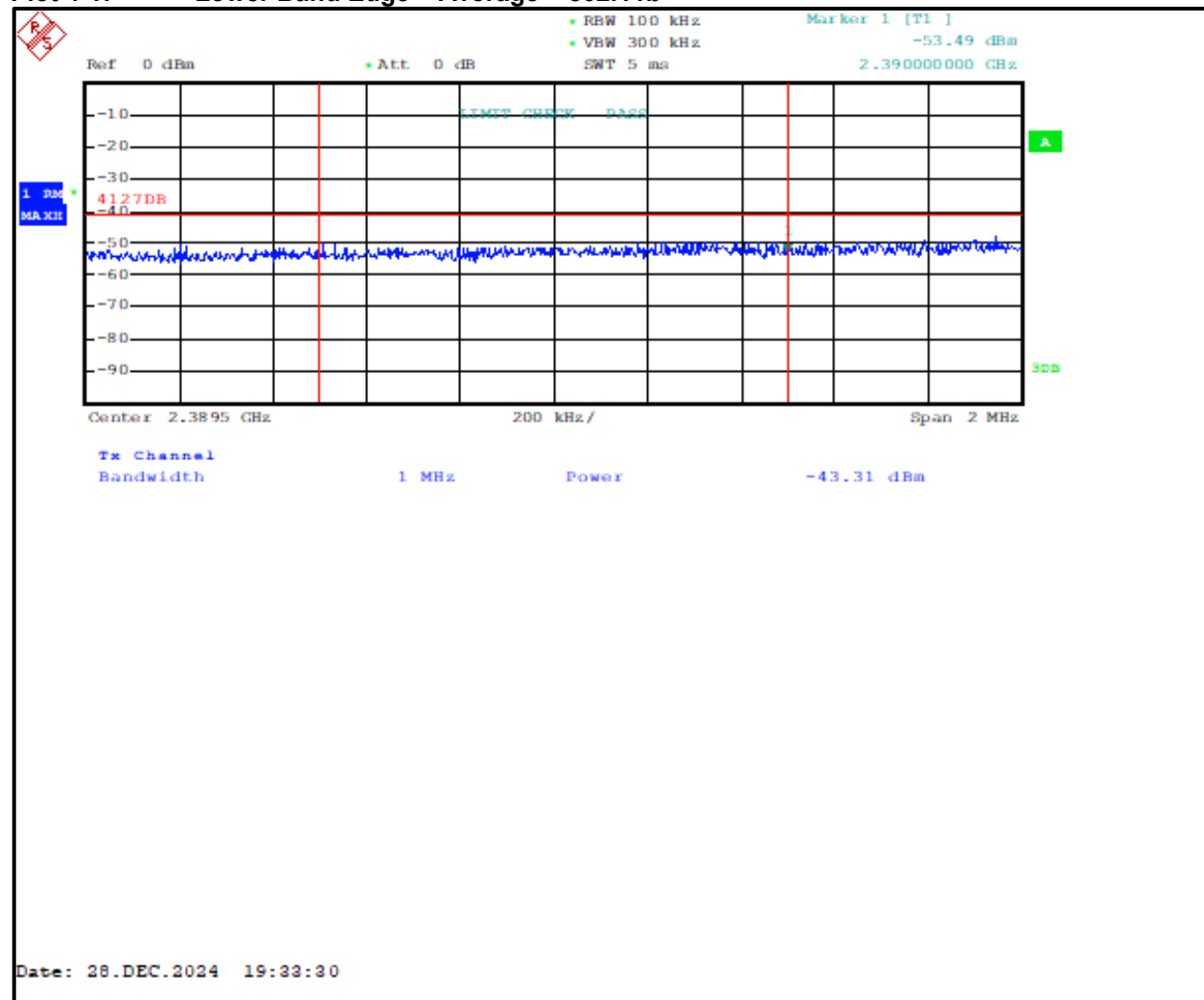
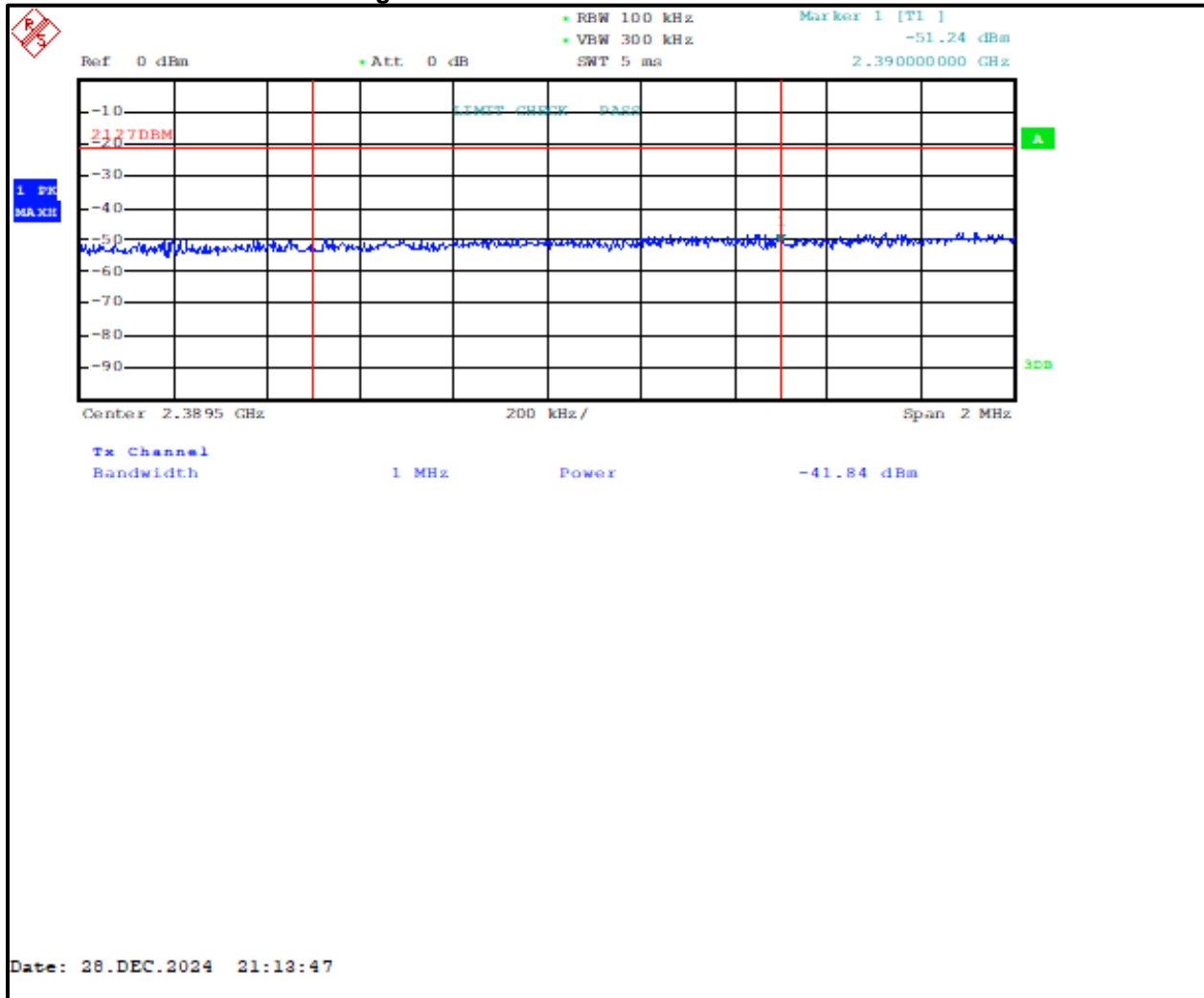


Table 4-3: Lower Band Edge - Average – 802.11b

| Frequency (MHz) | Measured Average Level (dBm) | Field Strength Conversion (dBμV/m) | Average Limit (dBμV/m) | Margin (dB) |
|-----------------|------------------------------|------------------------------------|------------------------|-------------|
| 2385.0          | -43.3                        | 51.9                               | 54.0                   | -2.1        |

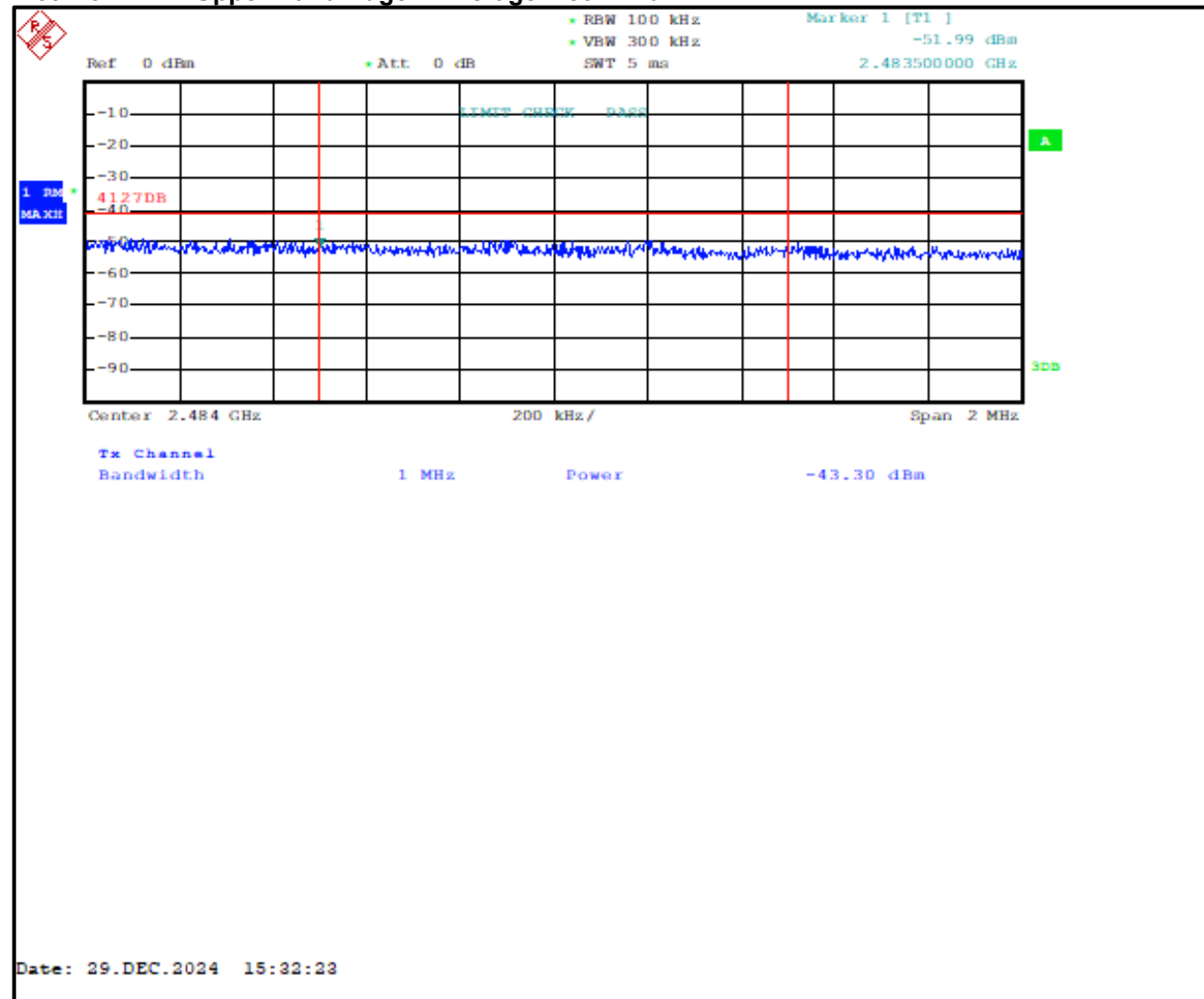
**Plot 4-2: Lower Band Edge – Peak – 802.11b**



**Table 4-4: Lower Band Edge - Peak – 802.11b**

| Frequency (MHz) | Measured Peak Level (dBm) | Field Strength Conversion (dBμV/m) | Peak Limit (dBμV/m) | Margin (dB) |
|-----------------|---------------------------|------------------------------------|---------------------|-------------|
| 2385.0          | -41.8                     | 53.4                               | 74.0                | -20.6       |

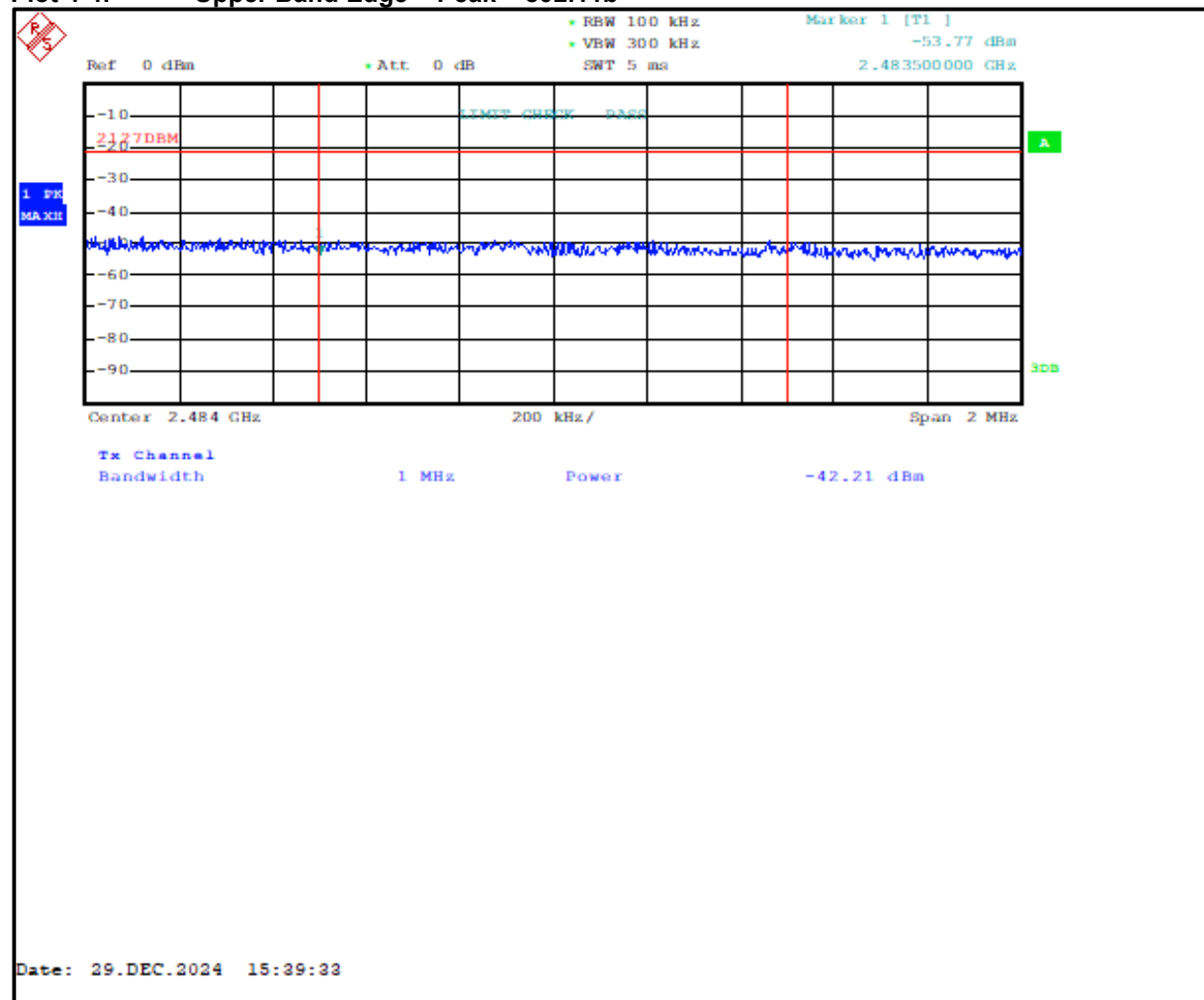
**Plot 4-3: Upper Band Edge – Average – 802.11b**



**Table 4-5: Upper Band Edge - Average – 802.11b**

| Frequency (MHz) | Measured Average Level (dBm) | Field Strength Conversion (dBμV/m) | Average Limit (dBμV/m) | Margin (dB) |
|-----------------|------------------------------|------------------------------------|------------------------|-------------|
| 2484.0          | -43.3                        | 51.9                               | 54.0                   | -2.1        |

**Plot 4-4: Upper Band Edge – Peak – 802.11b**



**Table 4-6: Upper Band Edge - Peak – 802.11b (11.0 Mbps)**

| Frequency (MHz) | Measured Peak Level (dBm) | Field Strength Conversion (dBμV/m) | Peak Limit (dBμV/m) | Margin (dB) |
|-----------------|---------------------------|------------------------------------|---------------------|-------------|
| 2484.0          | -42.2                     | 53.0                               | 74.0                | -21.0       |

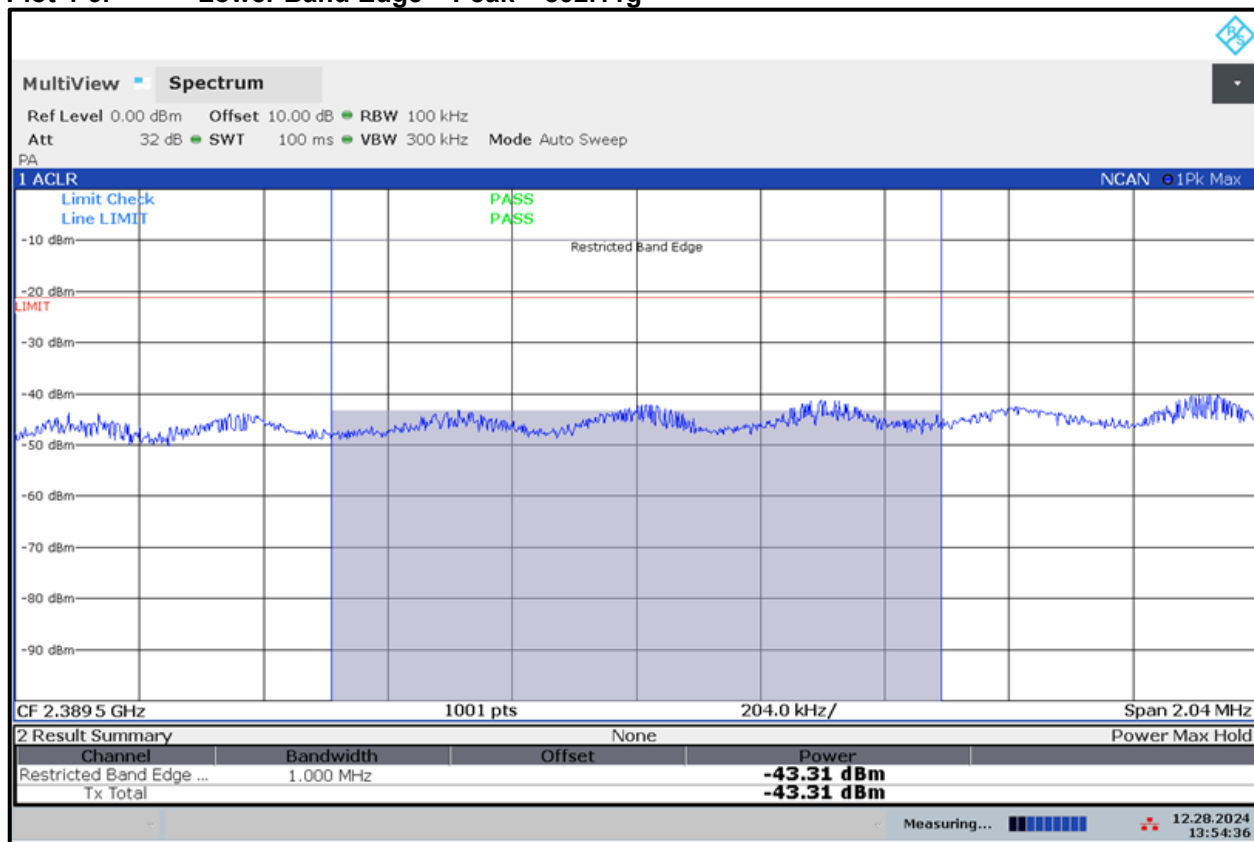
**Plot 4-5: Lower Band Edge – Average – 802.11g**



**Table 4-7: Lower Band Edge - Average – 802.11g**

| Frequency (MHz) | Measured Level (dBm) | Field Strength Conversion (dBµV/m) | Limit (dBµV/m) | Margin (dB) |
|-----------------|----------------------|------------------------------------|----------------|-------------|
| 2389.5          | -50.7                | 44.5                               | 54.0           | -9.5        |

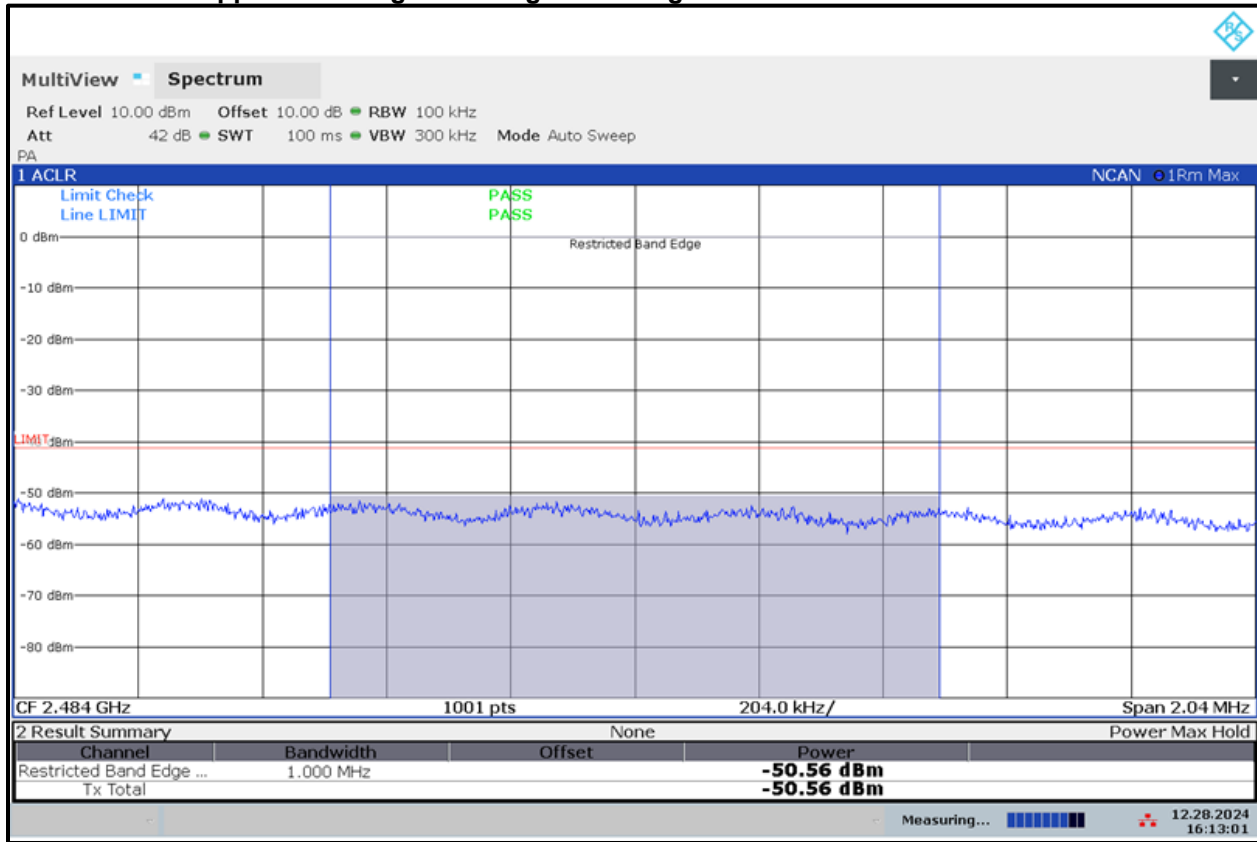
**Plot 4-6: Lower Band Edge – Peak – 802.11g**



**Table 4-8: Lower Band Edge - Peak – 802.11g**

| Frequency (MHz) | Measured Peak Level (dBm) | Field Strength Conversion (dBµV/m) | Peak Limit (dBµV/m) | Margin (dB) |
|-----------------|---------------------------|------------------------------------|---------------------|-------------|
| 2389.5          | -43.3                     | 51.9                               | 74.0                | -22.1       |

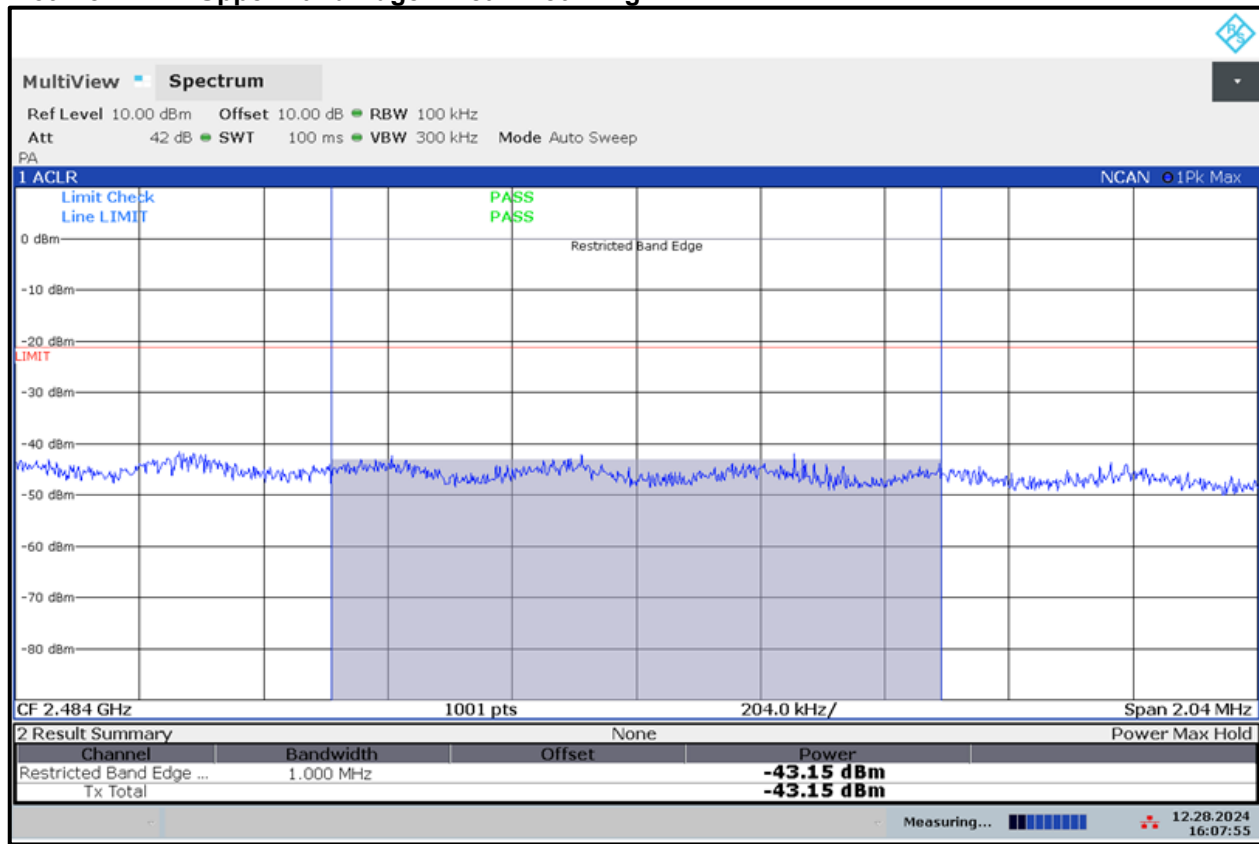
**Plot 4-7: Upper Band Edge – Average – 802.11g**



**Table 4-9: Upper Band Edge – Average – 802.11g**

| Frequency (MHz) | Measured Level (dBm) | Field Strength Conversion (dBµV/m) | Limit (dBµV/m) | Margin (dB) |
|-----------------|----------------------|------------------------------------|----------------|-------------|
| 2484.0          | -50.6                | 44.6                               | 54.0           | -9.4        |

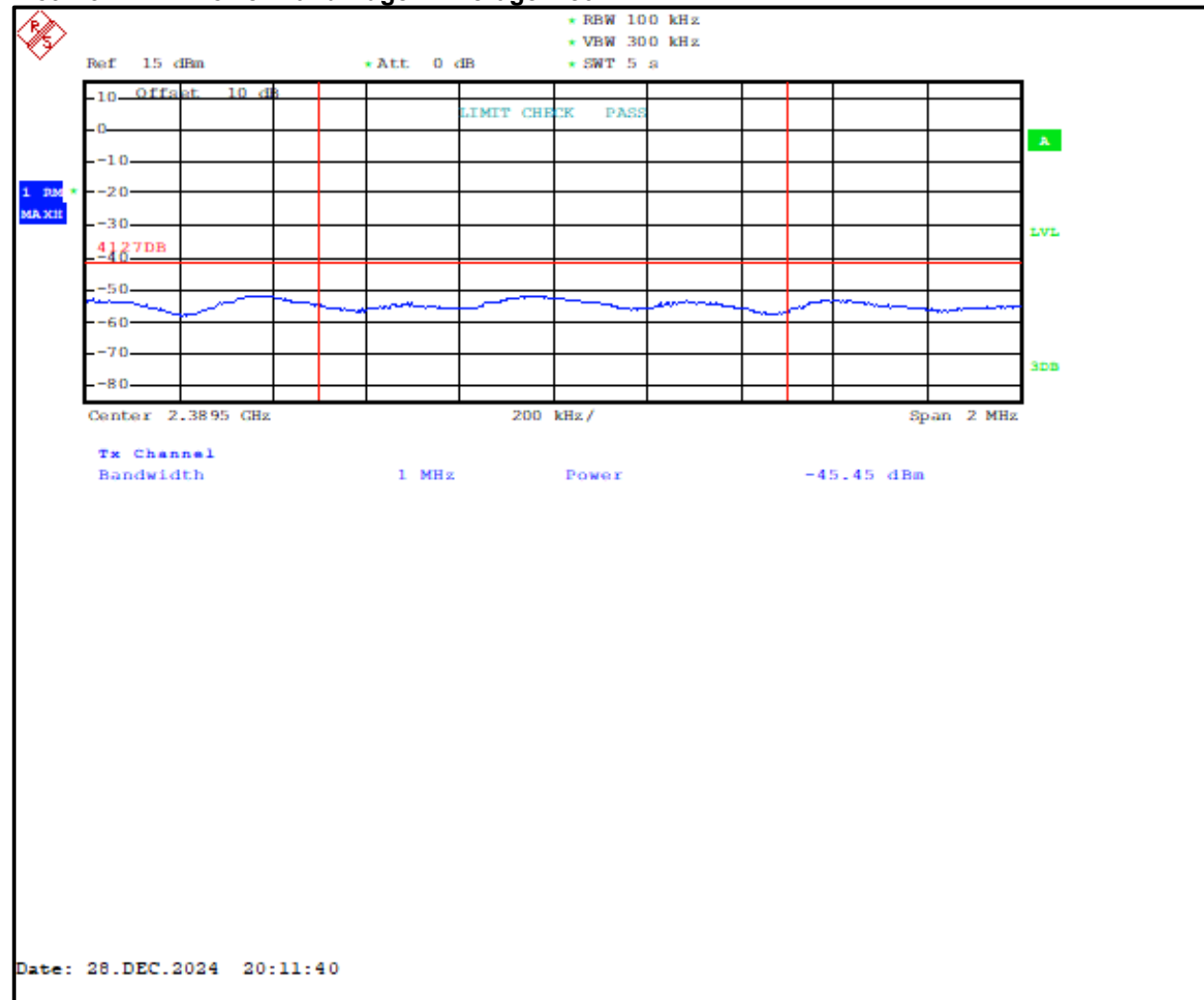
**Plot 4-8: Upper Band Edge – Peak – 802.11g**



**Table 4-10: Upper Band Edge - Peak – 802.11g**

| Frequency (MHz) | Measured Peak Level (dBm) | Field Strength Conversion (dBµV/m) | Peak Limit (dBµV/m) | Margin (dB) |
|-----------------|---------------------------|------------------------------------|---------------------|-------------|
| 2484.0          | -43.2                     | -52.0                              | 74.0                | -22.0       |

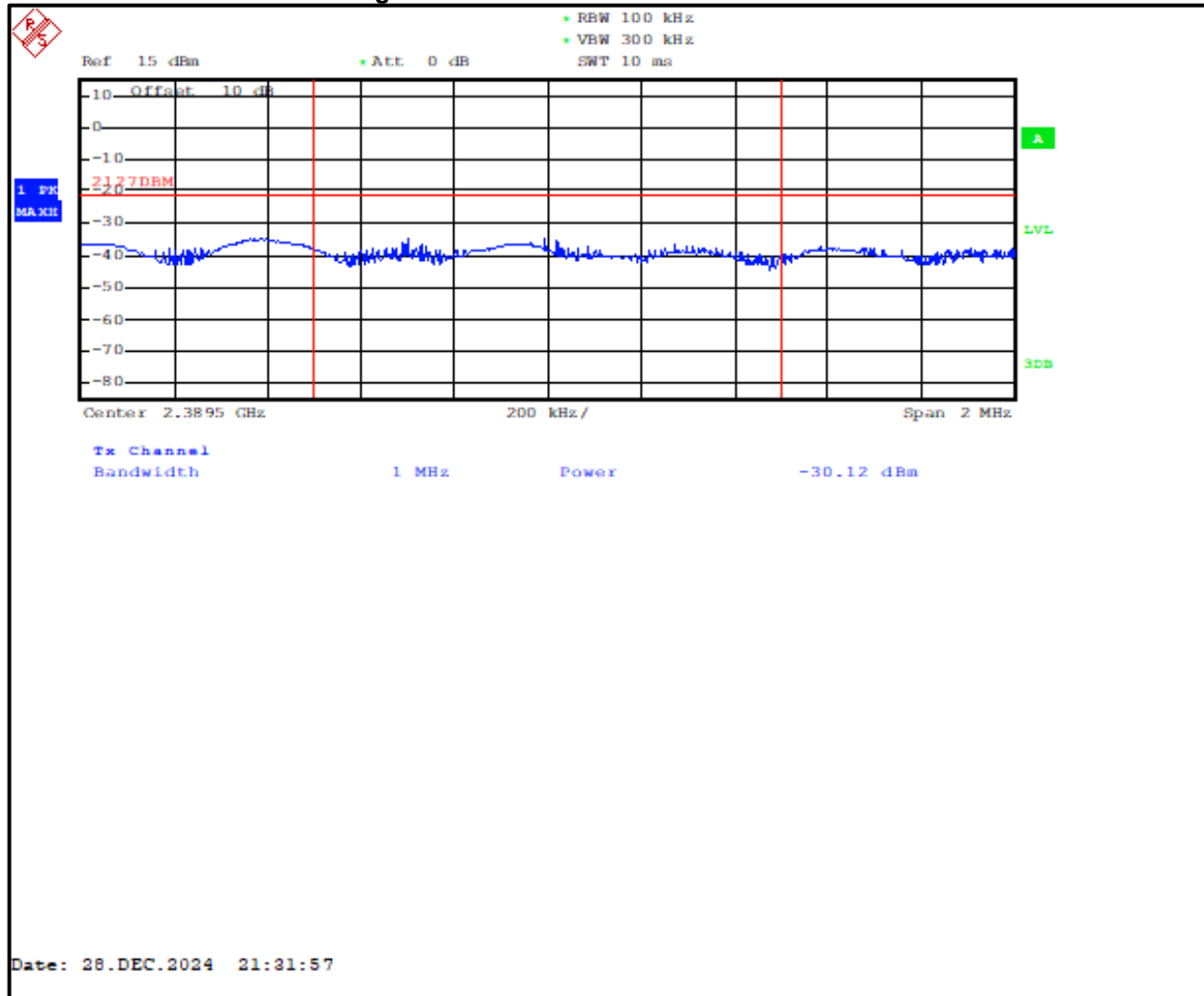
**Plot 4-9: Lower Band Edge – Average – 802.11n**



**Table 4-11: Lower Band Edge - Average – 802.11n**

| Frequency (MHz) | Measured Average Level (dBm) | Field Strength Conversion (dBμV/m) | Average Limit (dBμV/m) | Margin (dB) |
|-----------------|------------------------------|------------------------------------|------------------------|-------------|
| 2385.0          | -45.5                        | 49.7                               | 54.0                   | -4.3        |

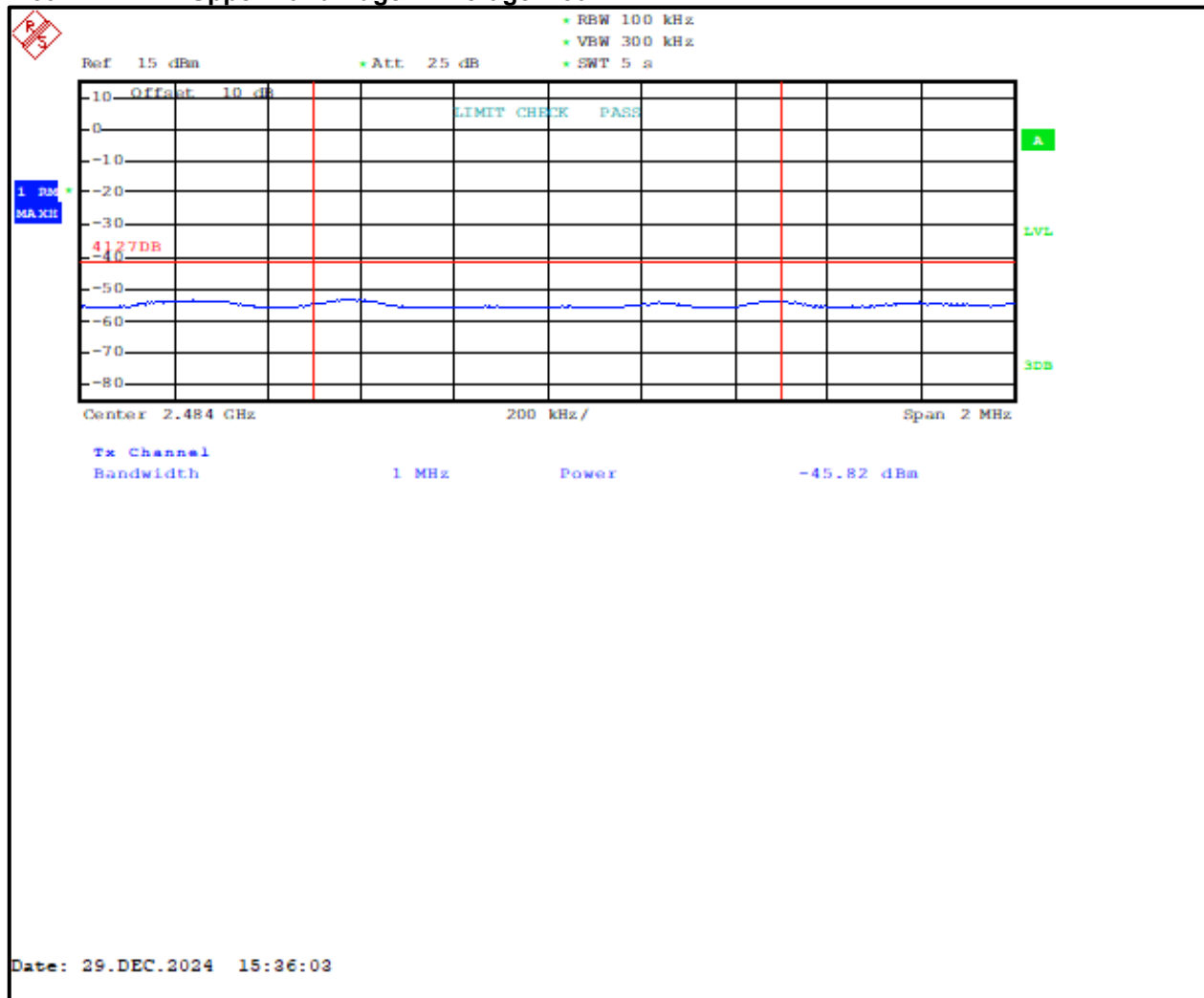
**Plot 4-10: Lower Band Edge – Peak – 802.11n**



**Table 4-12: Lower Band Edge - Peak – 802.11n**

| Frequency (MHz) | Measured Peak Level (dBm) | Field Strength Conversion (dBμV/m) | Peak Limit (dBμV/m) | Margin (dB) |
|-----------------|---------------------------|------------------------------------|---------------------|-------------|
| 2385.0          | -30.1                     | 65.1                               | 74.0                | -8.9        |

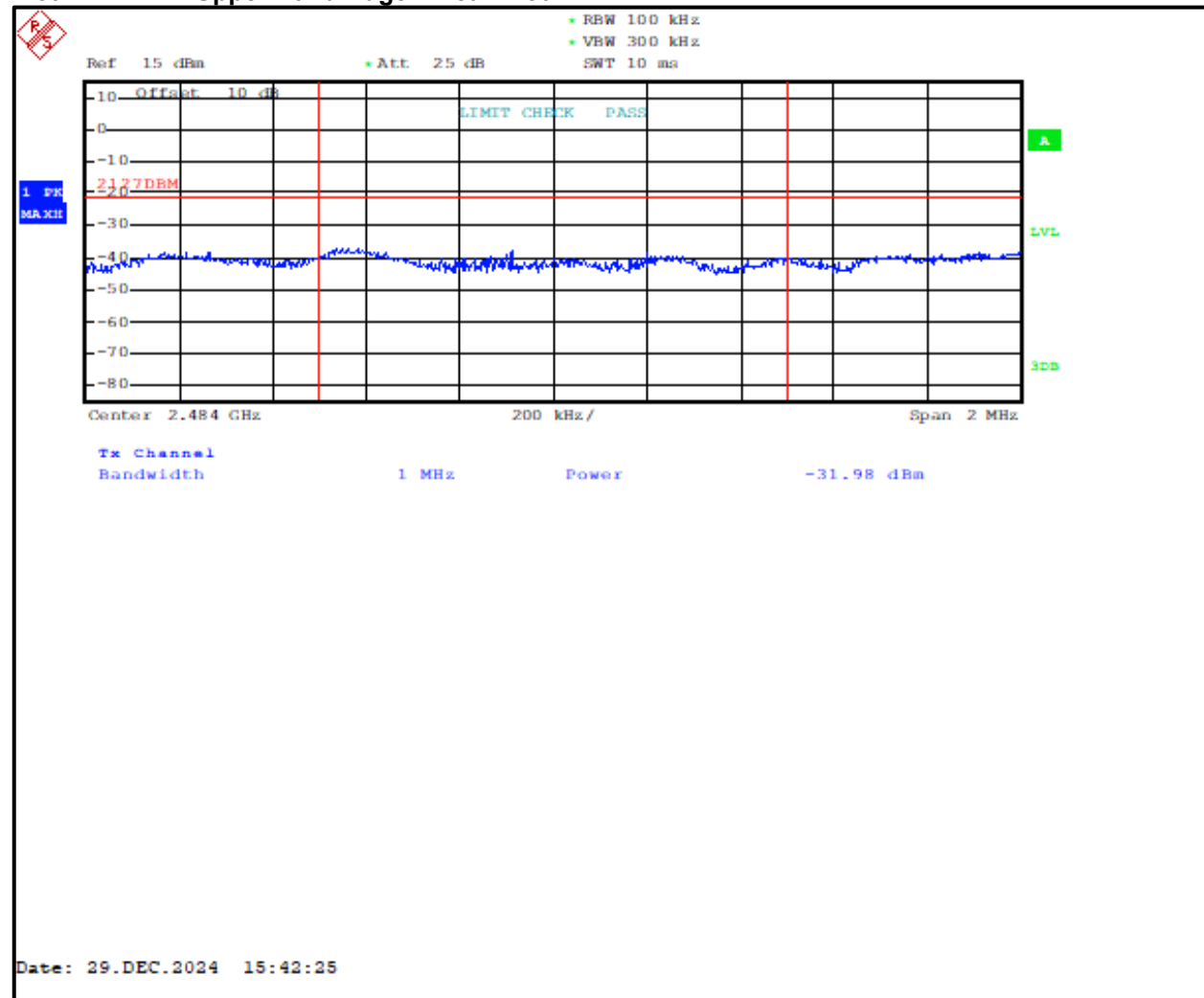
**Plot 4-11: Upper Band Edge – Average – 802.11n**



**Table 4-13: Upper Band Edge - Average – 802.11n**

| Frequency (MHz) | Measured Average Level (dBm) | Field Strength Conversion (dBμV/m) | Average Limit (dBμV/m) | Margin (dB) |
|-----------------|------------------------------|------------------------------------|------------------------|-------------|
| 2484.0          | -45.8                        | 49.4                               | 54.0                   | -4.6        |

**Plot 4-12: Upper Band Edge – Peak – 802.11n**



**Table 4-14: Upper Band Edge - Peak – 802.11n**

| Frequency (MHz) | Measured Peak Level (dBm) | Field Strength Conversion (dBμV/m) | Peak Limit (dBμV/m) | Margin (dB) |
|-----------------|---------------------------|------------------------------------|---------------------|-------------|
| 2484.0          | -32.0                     | 63.2                               | 74.0                | -10.8       |

Measurement uncertainty:  $\pm 0.5$  dB. This measurement uncertainty is an expanded uncertainty for a 95% confidence level received with a coverage factor  $k=2$ .

**Results: Pass**

**Test Personnel:**

Daniel W. Baltzell  
Test Engineer

*Daniel W. Baltzell*

Signature

December 28-29, 2024  
Dates of Test

## 5 Antenna Conducted Spurious Emissions – FCC 15.247(d); RSS-247 5.5, RSS-Gen 6.13

### 5.1 Antenna Conducted Spurious Emissions Test Procedures

Antenna spurious emissions per FCC 15.247(d) were measured from the EUT antenna port using a A 50-ohm spectrum analyzer with a resolution bandwidth of 100 kHz and a video bandwidth of 100 kHz. The modulated carrier was identified at the following frequencies: 2,412 MHz, 2,437 MHz, and 2,462 MHz.

**Table 5-1: Antenna Conducted Spurious Emissions Test Equipment**

| RTL Asset # | Manufacturer         | Model  | Part Type                            | Serial Number | Calibration Due Date |
|-------------|----------------------|--------|--------------------------------------|---------------|----------------------|
| 901583      | Agilent Technologies | N9010A | EXA Signal Analyzer (10 Hz-26.5 GHz) | MY51250846    | 12/01/27             |

### 5.2 Antenna Conducted Spurious Emissions Test Results

**Table 5-2: Environmental Conditions**

| Date              | Temperature (°C) | Humidity (%) | Pressure (kPa) |
|-------------------|------------------|--------------|----------------|
| December 30, 2024 | 22               | 41           | 101.2          |

Note: EUT was programmed to TX with 11.0 Mbps rate, 20 MHz bandwidth, and 10 dBm power level for all three test frequencies.

No harmonics or spurs were found within 20 dB (note that we are reporting power as peak) of the carrier level from the carrier to the 10<sup>th</sup> harmonic of the carrier frequency.

Measurement uncertainty:  $\pm 0.5$  dB. This measurement uncertainty represents an expanded uncertainty for a 95% confidence level, obtained with a coverage factor  $k = 2$ .

### Results: Pass

#### Test Personnel:

Daniel W. Baltzell  
Test Engineer



Signature

December 30, 2024  
Date of Test

## 6 Bandwidths – FCC 15.247(a)(1); RSS-247 5.2(a); RSS-Gen 6.7

### 6.1 Bandwidth Test Procedure

The minimum 6 dB and 99% bandwidths, as specified in FCC 15.247(a)(1), RSS-247 5.2(a), and RSS-Gen 6.7, were measured using a 50-ohm spectrum analyzer with the resolution bandwidth set at 100 kHz and the video bandwidth set at  $\geq 3$  times the resolution bandwidth (RBW). The device was modulated; the VBW shall not be smaller than three times the RBW value. Video averaging is not permitted.

The maximum bandwidth shall be 6 dB, with a value of 500 kHz.

**Table 6-1: Bandwidth Test Equipment**

| RTL Asset # | Manufacturer    | Model | Part Type         | Serial Number | Calibration Due Date |
|-------------|-----------------|-------|-------------------|---------------|----------------------|
| 901773      | Rohde & Schwarz | FSW   | Spectrum Analyzer | 101021        | 02/02/2027           |

### 6.2 Modulated Bandwidth Test Results

**Table 6-2: Environmental Conditions**

| Date              | Temperature (°C) | Humidity (%) | Pressure (kPa) |
|-------------------|------------------|--------------|----------------|
| December 29, 2024 | 22.7             | 38           | 101.3          |

**Table 6-3: Modulated Bandwidth Test Data – 802.11b**

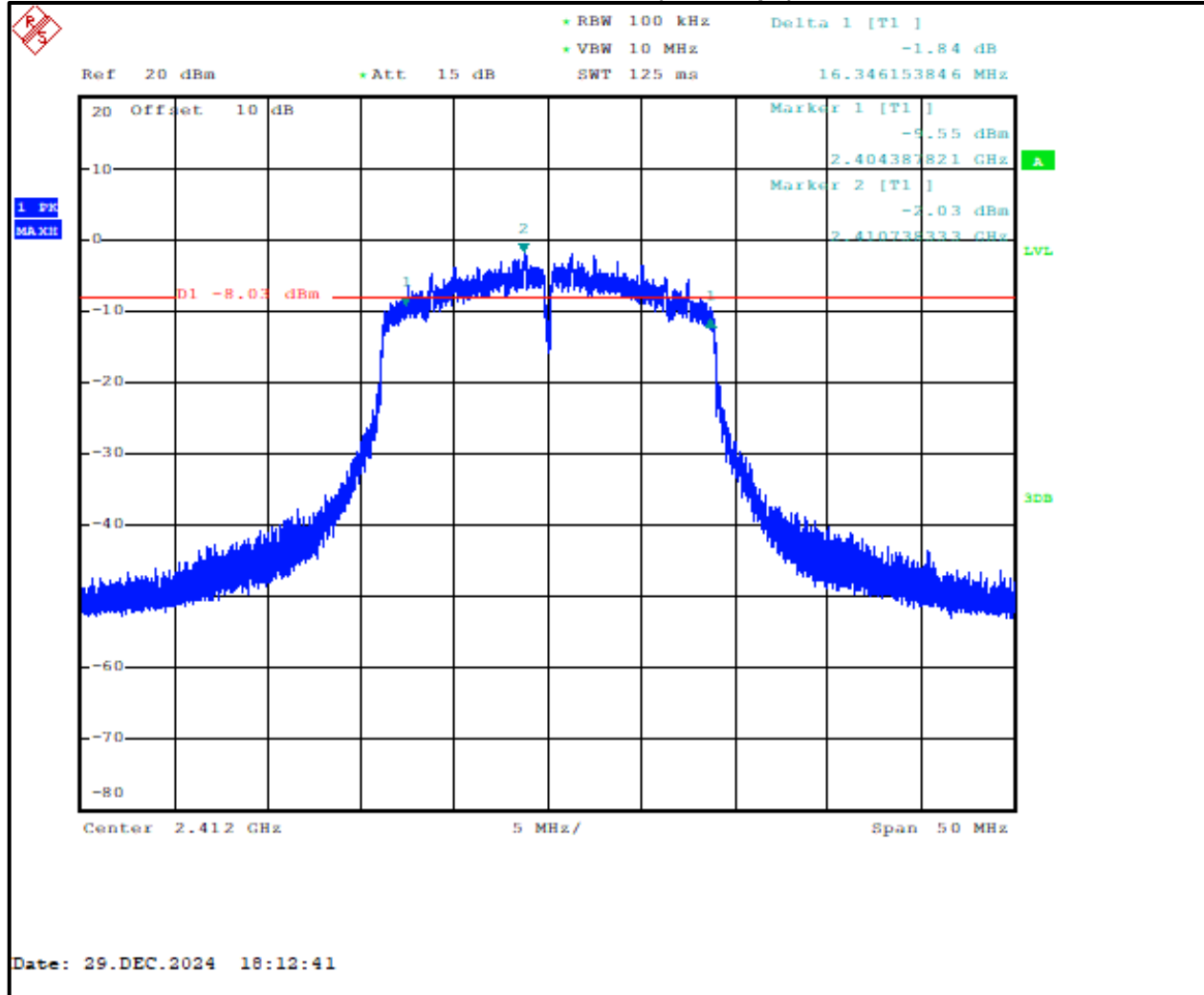
| Frequency (MHz) | 6 dB Bandwidth (MHz) | 99% Bandwidth (MHz) |
|-----------------|----------------------|---------------------|
| 2412            | 16.4                 | 17.4                |
| 2437            | 15.4                 | 17.5                |
| 2462            | 16.7                 | 17.5                |

**Table 6-4: Modulated Bandwidth Test Data – 802.11n**

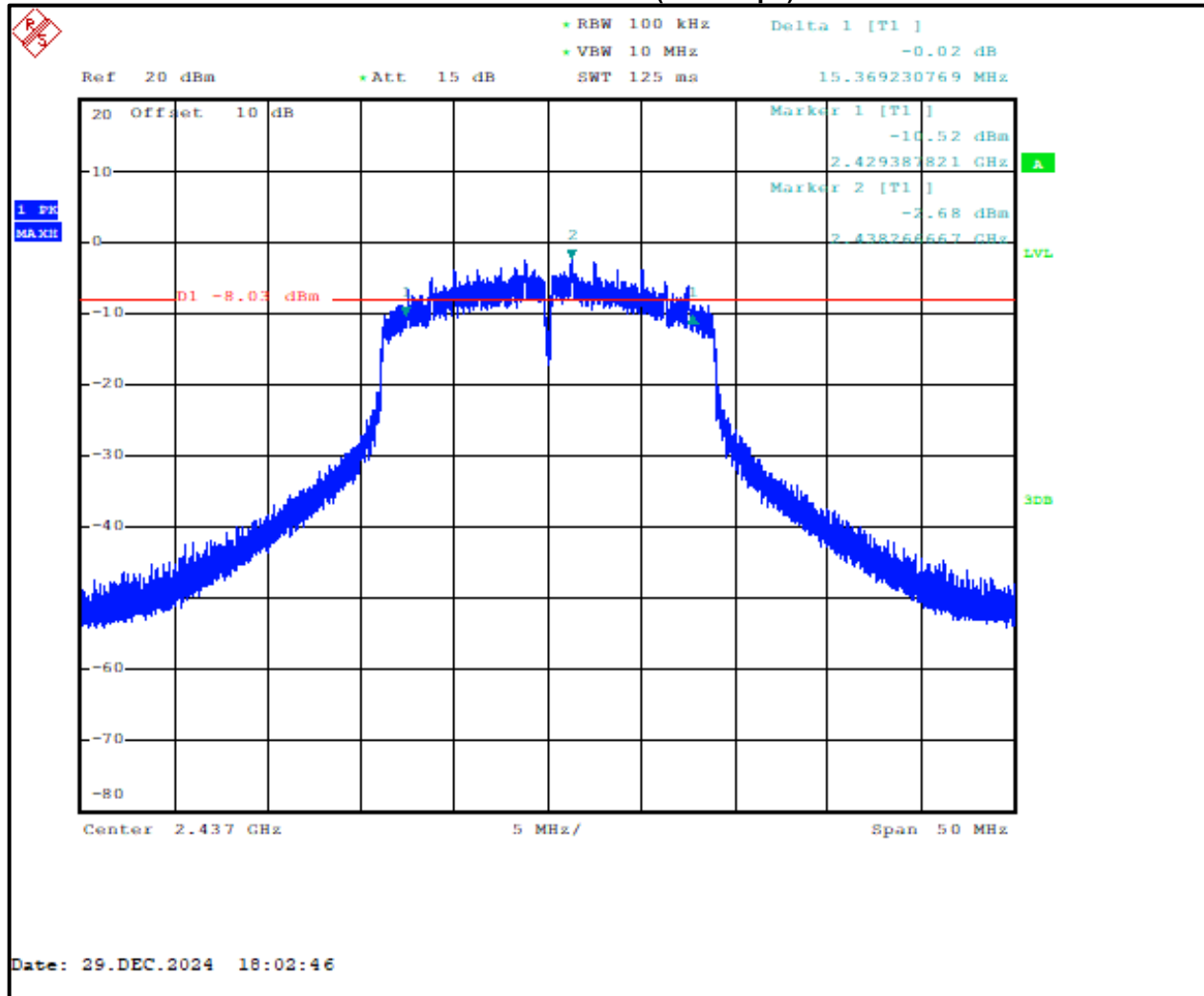
| Frequency (MHz) | 6 dB Bandwidth (MHz) | 99% Bandwidth (MHz) |
|-----------------|----------------------|---------------------|
| 2422            | 35.6                 | 35.9                |
| 2437            | 35.7                 | 36.1                |
| 2452            | 35.1                 | 35.9                |

### 6.3 Bandwidth Plots

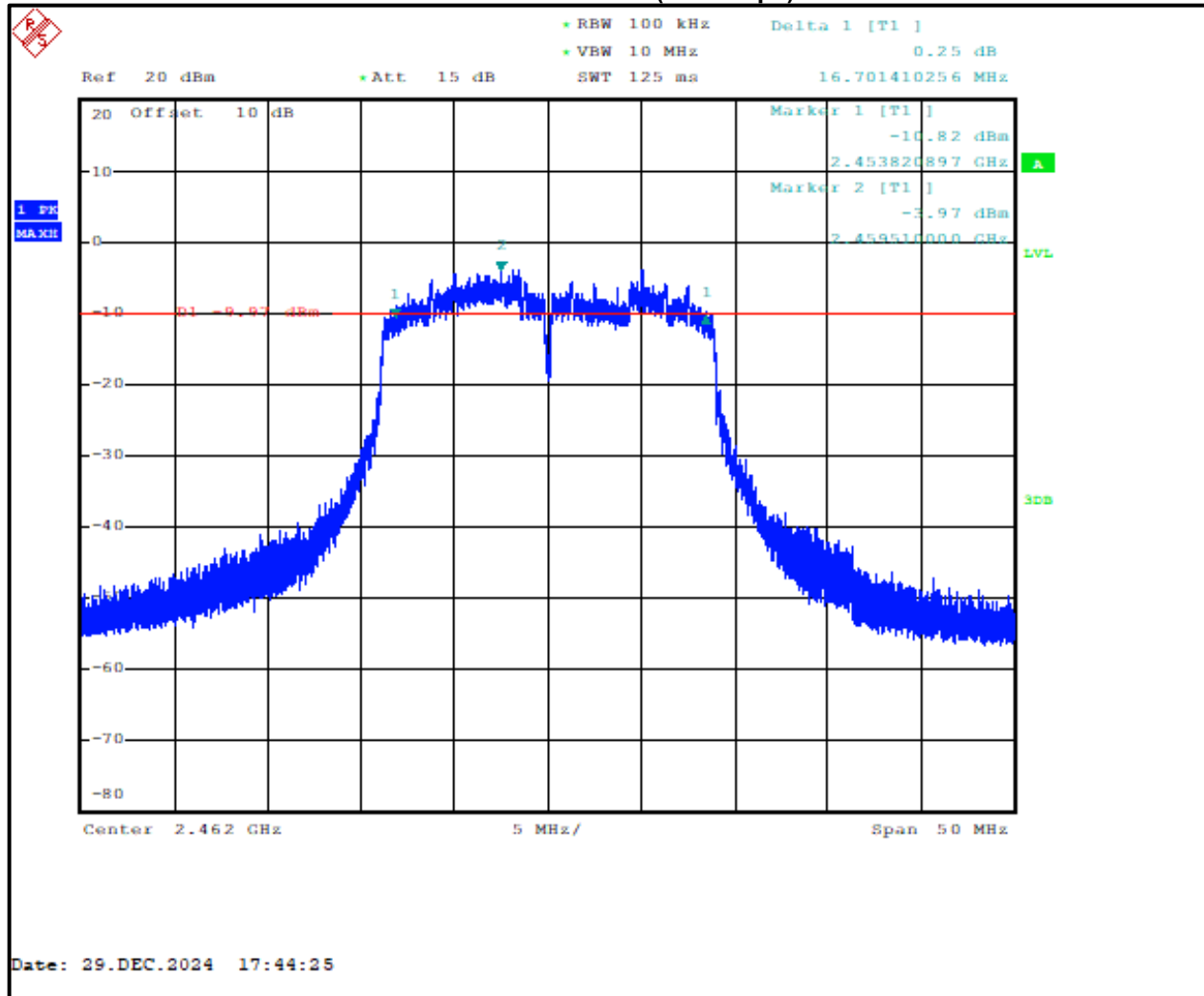
Plot 6-1: 6 dB Bandwidth – 2412 MHz – 802.11b (11.0 Mbps)



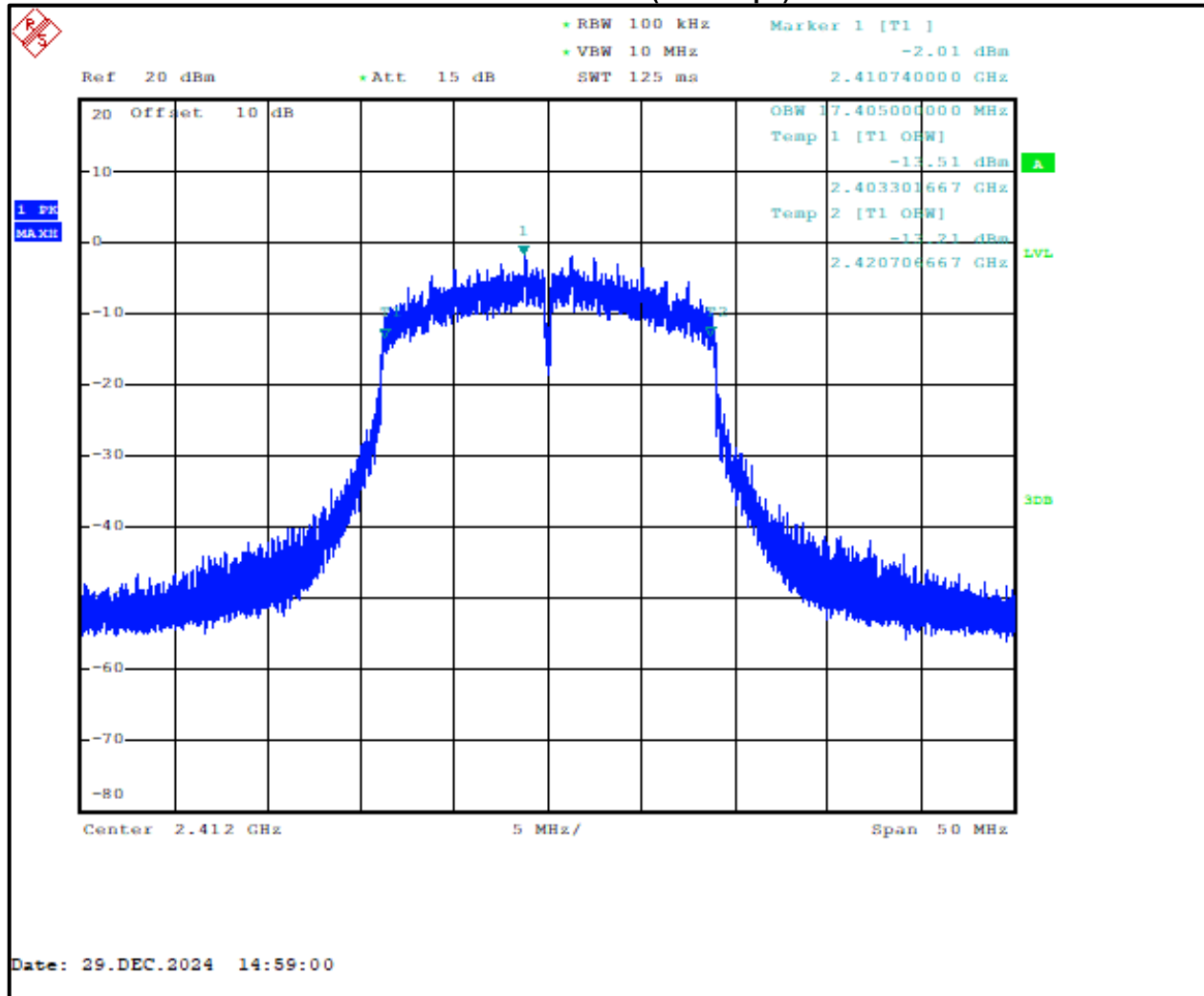
**Plot 6-2: 6 dB Bandwidth – 2437 MHz – 802.11b (11.0 Mbps)**



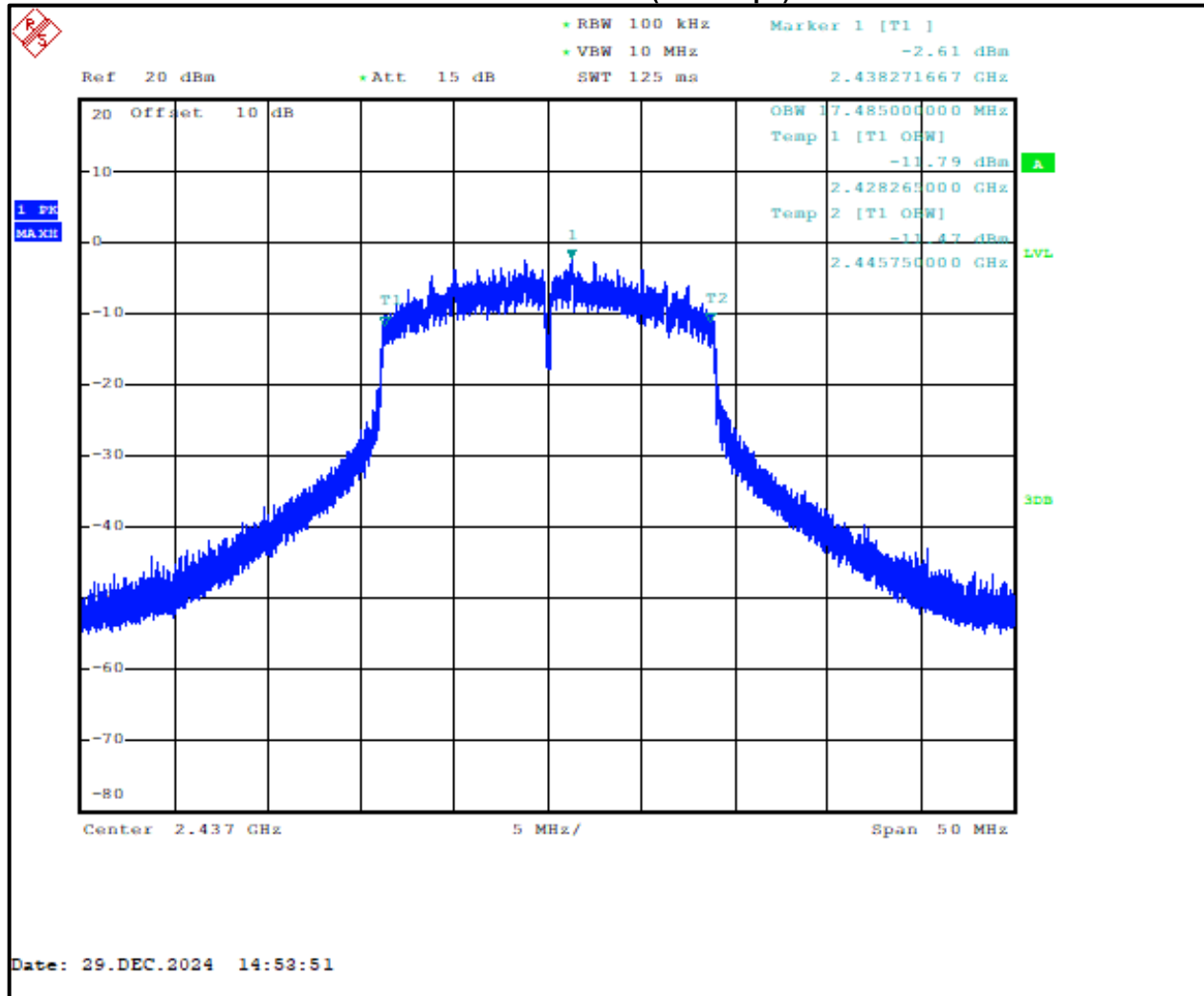
**Plot 6-3: 6 dB Bandwidth – 2462 MHz – 802.11b (11.0 Mbps)**



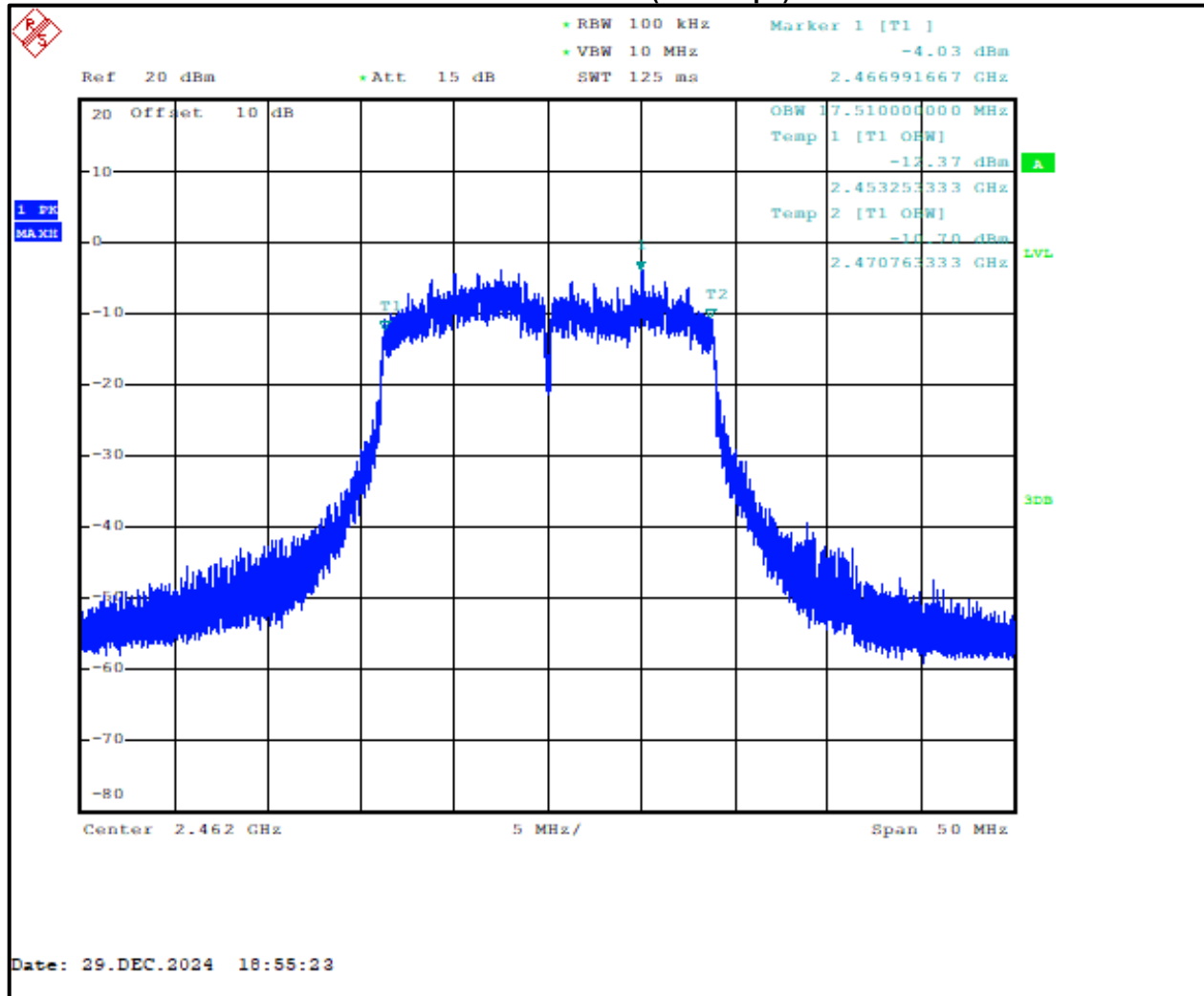
**Plot 6-4: 99% Bandwidth – 2412 MHz – 802.11b (11.0 Mbps)**



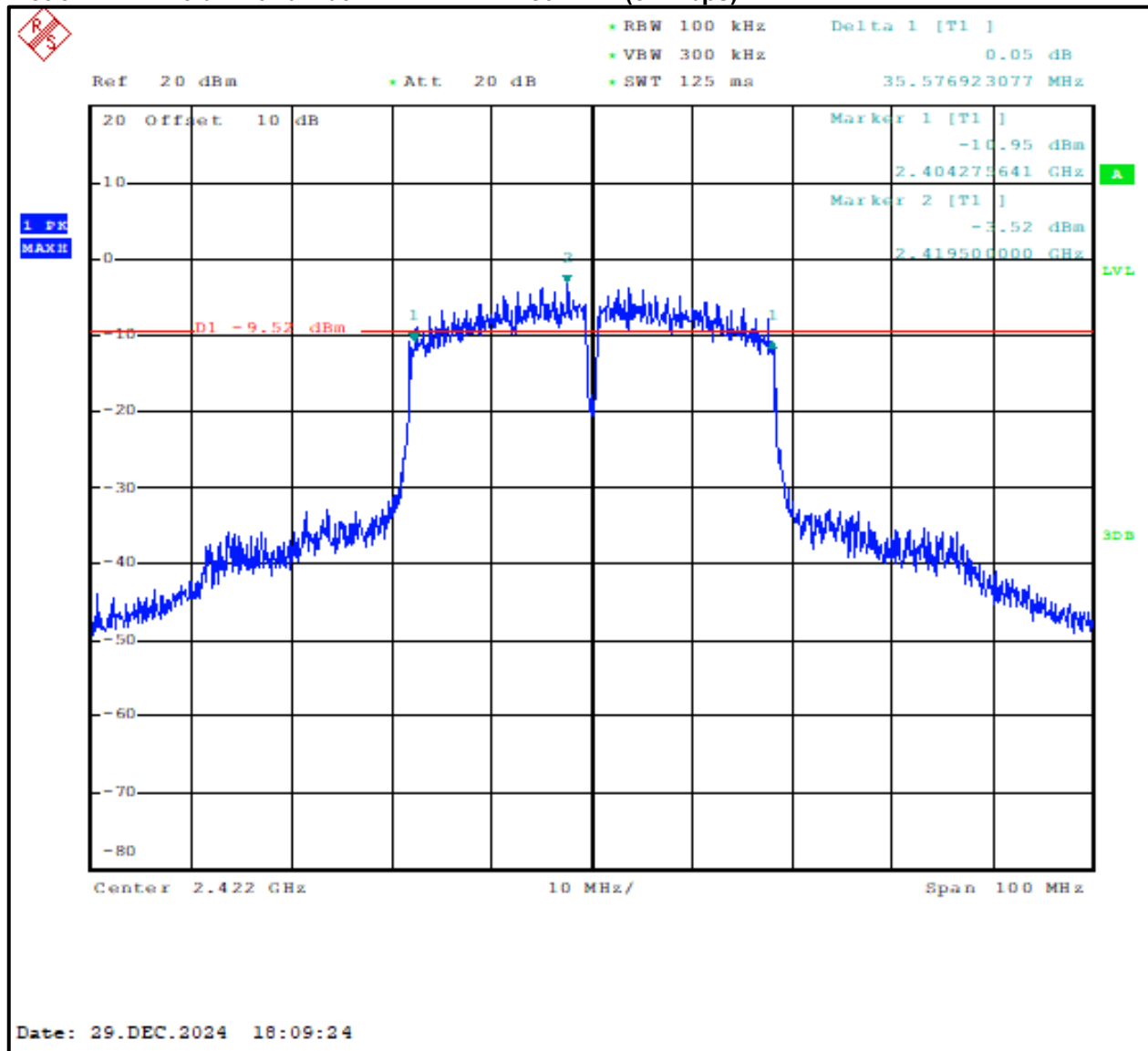
Plot 6-5: 99% Bandwidth – 2437 MHz – 802.11b (11.0 Mbps)



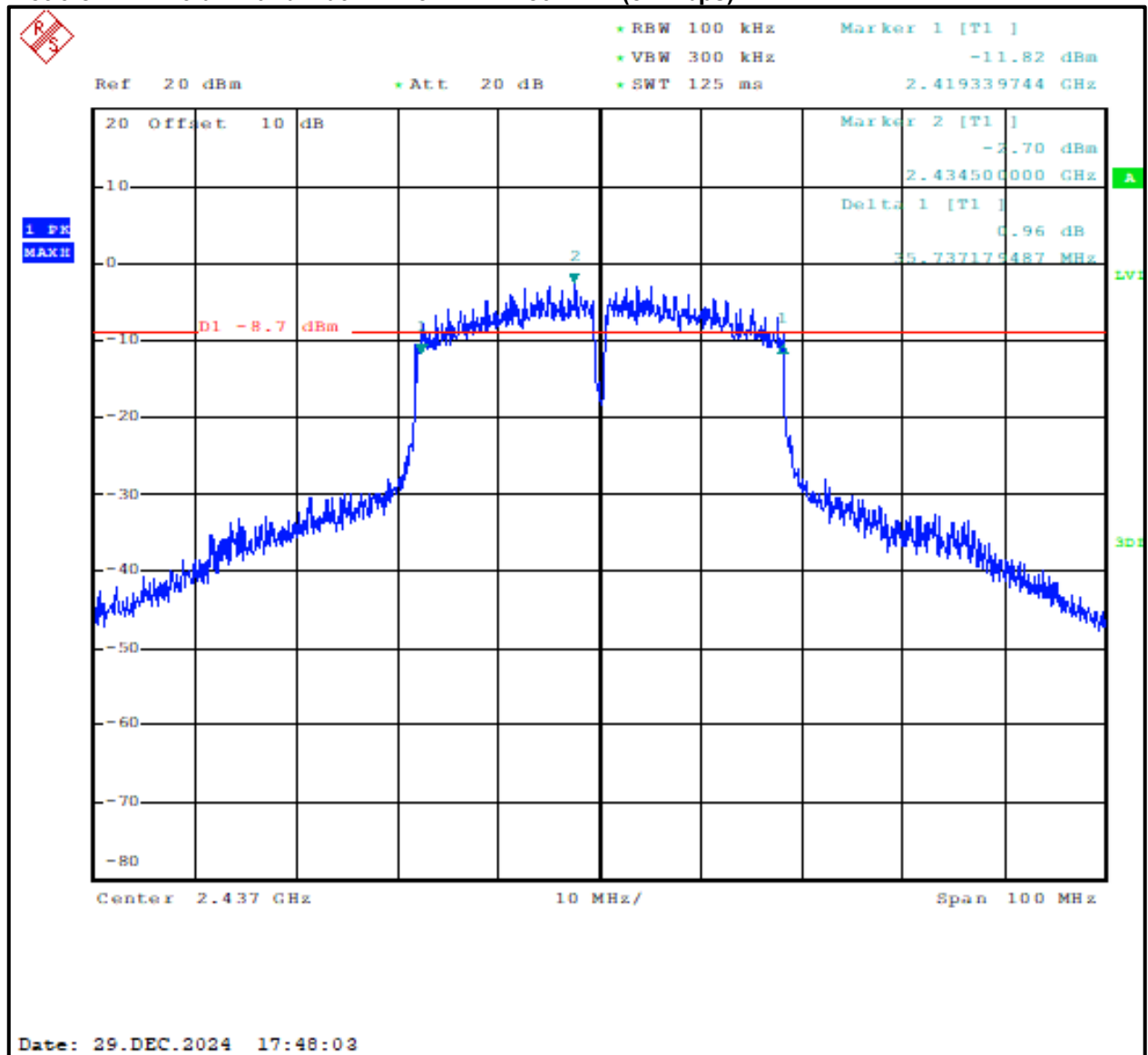
Plot 6-6: 99% Bandwidth – 2462 MHz – 802.11b (11.0 Mbps)



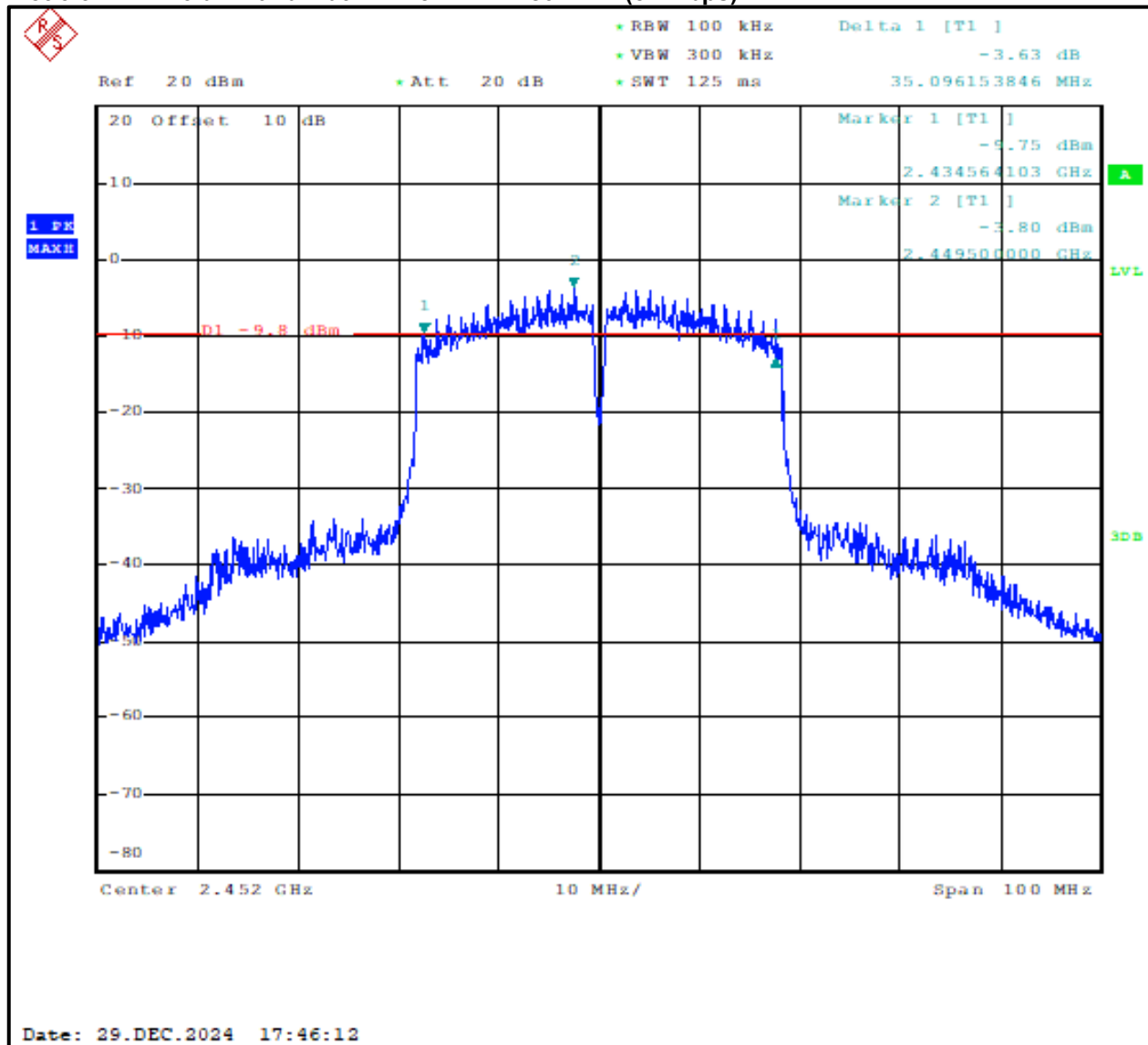
Plot 6-7: 6 dB Bandwidth – 2422 MHz – 802.11n (54 Mbps)



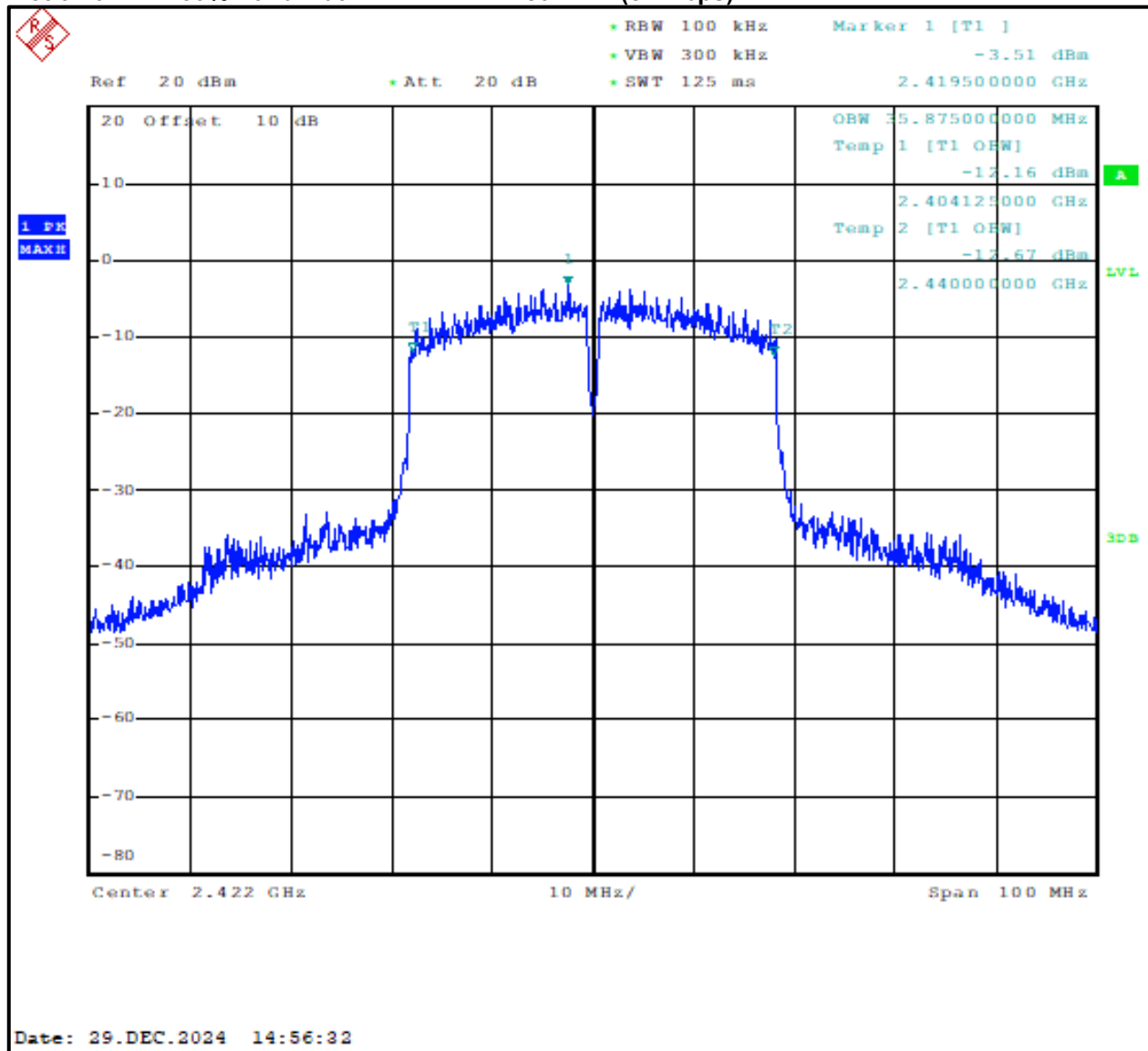
Plot 6-8: 6 dB Bandwidth – 2437 MHz – 802.11n (54 Mbps)



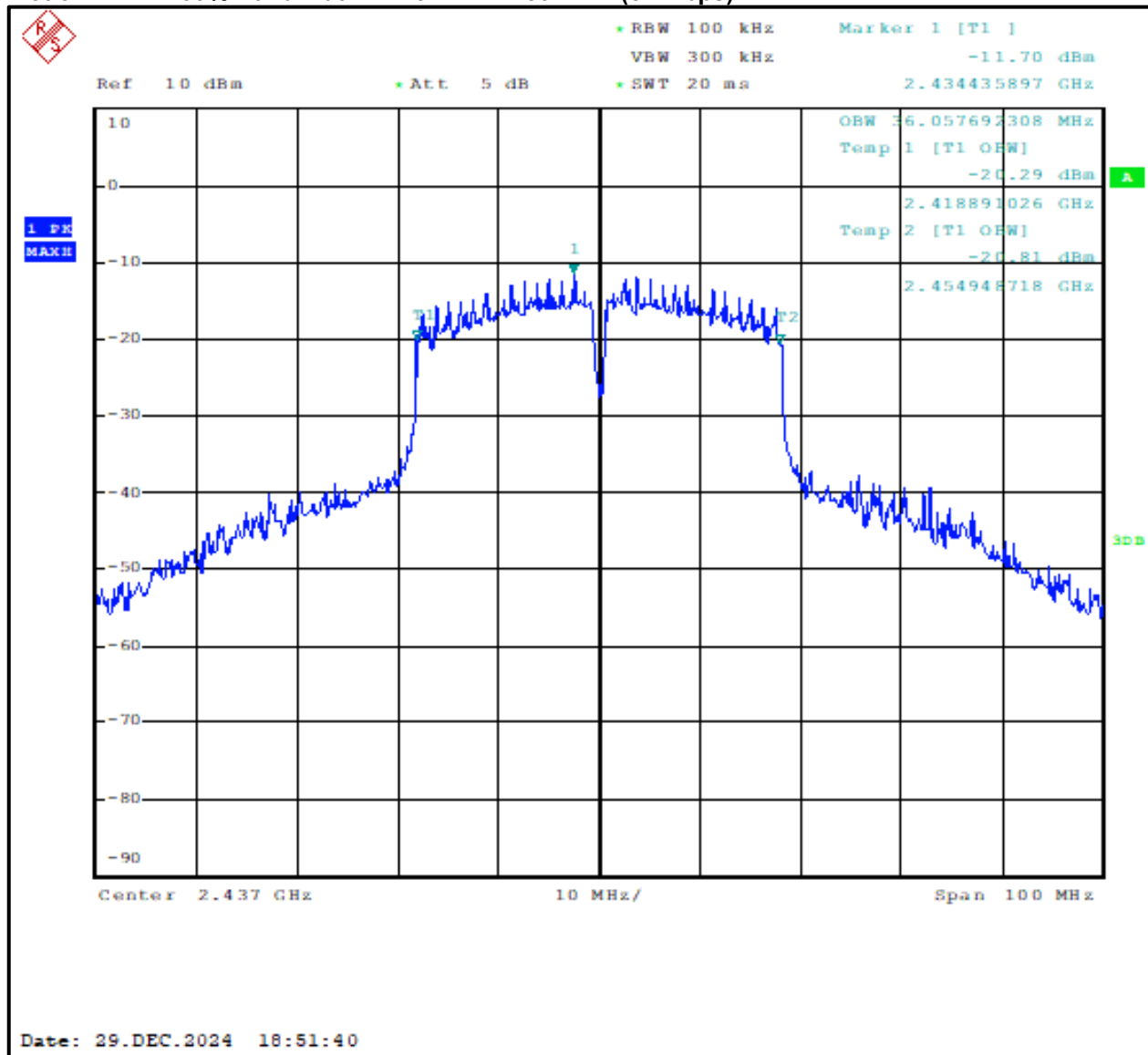
Plot 6-9: 6 dB Bandwidth – 2452 MHz – 802.11n (54 Mbps)



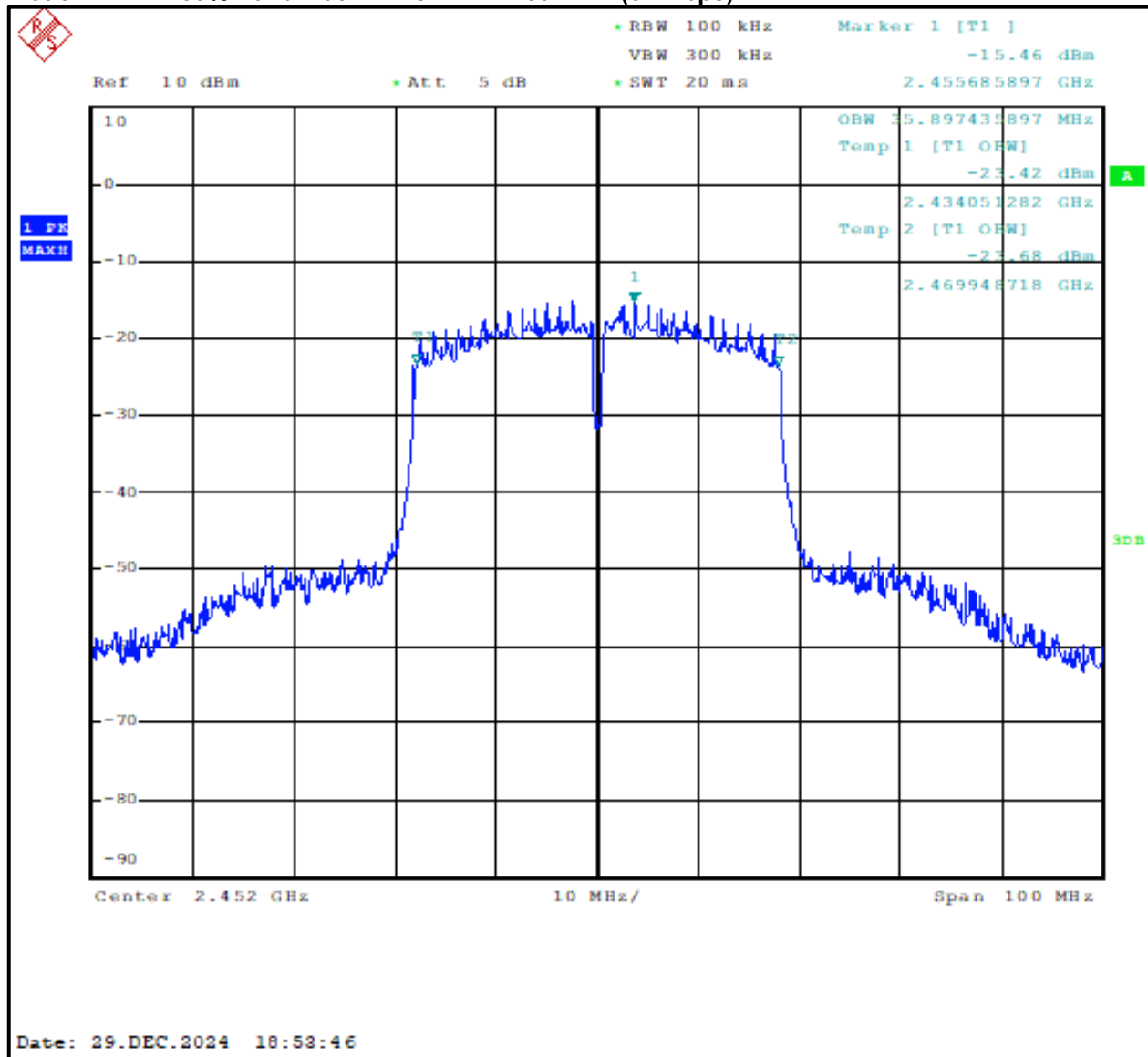
Plot 6-10: 99% Bandwidth – 2422 MHz – 802.11n (54 Mbps)



Plot 6-11: 99% Bandwidth – 2437 MHz – 802.11n (54 Mbps)



**Plot 6-12: 99% Bandwidth – 2452 MHz – 802.11n (54 Mbps)**



Measurement uncertainty:  $\pm 1 \times 10^{-6}$  Hz. This measurement uncertainty is an expanded uncertainty for 95% confidence level received with a coverage factor k=2.

**Results: Pass**

**Test Personnel:**

Daniel W. Baltzell  
 Test Engineer

*Daniel W. Baltzell*

Signature

December 29, 2024  
 Date of Test

## 7 Power Spectral Density – FCC 15.247(e); RSS-247 5.2(b)

### 7.1 Power Spectral Density Test Procedure

The power spectral density, as per FCC 15.247(e), was measured using a 50-ohm spectrum analyzer with the following settings: a resolution bandwidth of 3 kHz, a video bandwidth of 30 kHz, and an auto-sweep time. The spectral lines were resolved for the modulated carriers at 2412 MHz, 2437 MHz, and 2462 MHz for Wi-Fi. These levels are below the +8 dBm limit.

**Table 7-1: Power Spectral Density Test Equipment**

| RTL Asset # | Manufacturer    | Model | Part Type         | Serial Number | Calibration Due Date |
|-------------|-----------------|-------|-------------------|---------------|----------------------|
| 901773      | Rohde & Schwarz | FSW   | Spectrum Analyzer | 101021        | 02/02/2027           |

### 7.2 Power Spectral Density Test Results

**Table 7-2: Environmental Conditions**

| Date              | Temperature (°C) | Humidity (%) | Pressure (kPa) |
|-------------------|------------------|--------------|----------------|
| December 28, 2024 | 21.1             | 41           | 101.2          |

Note: The EUT was programmed to transmit at rates of 11.0 Mbps (802.11b), 54 Mbps (802.11g), with a 20 MHz bandwidth, and 40 MHz (802.11n), using the highest power setting.

**Table 7-3: Power Spectral Density Test Data – 802.11b**

| Frequency (MHz) | PSD (dBm) | Limit (dBm) | Margin (dB) | Result (Pass / Fail) |
|-----------------|-----------|-------------|-------------|----------------------|
| 2412            | -17.8     | 8.0         | -25.8       | Pass                 |
| 2437            | -17.7     | 8.0         | -25.7       | Pass                 |
| 2462            | -18.2     | 8.0         | -26.2       | Pass                 |

**Table 7-4: Power Spectral Density Test Data – 802.11g**

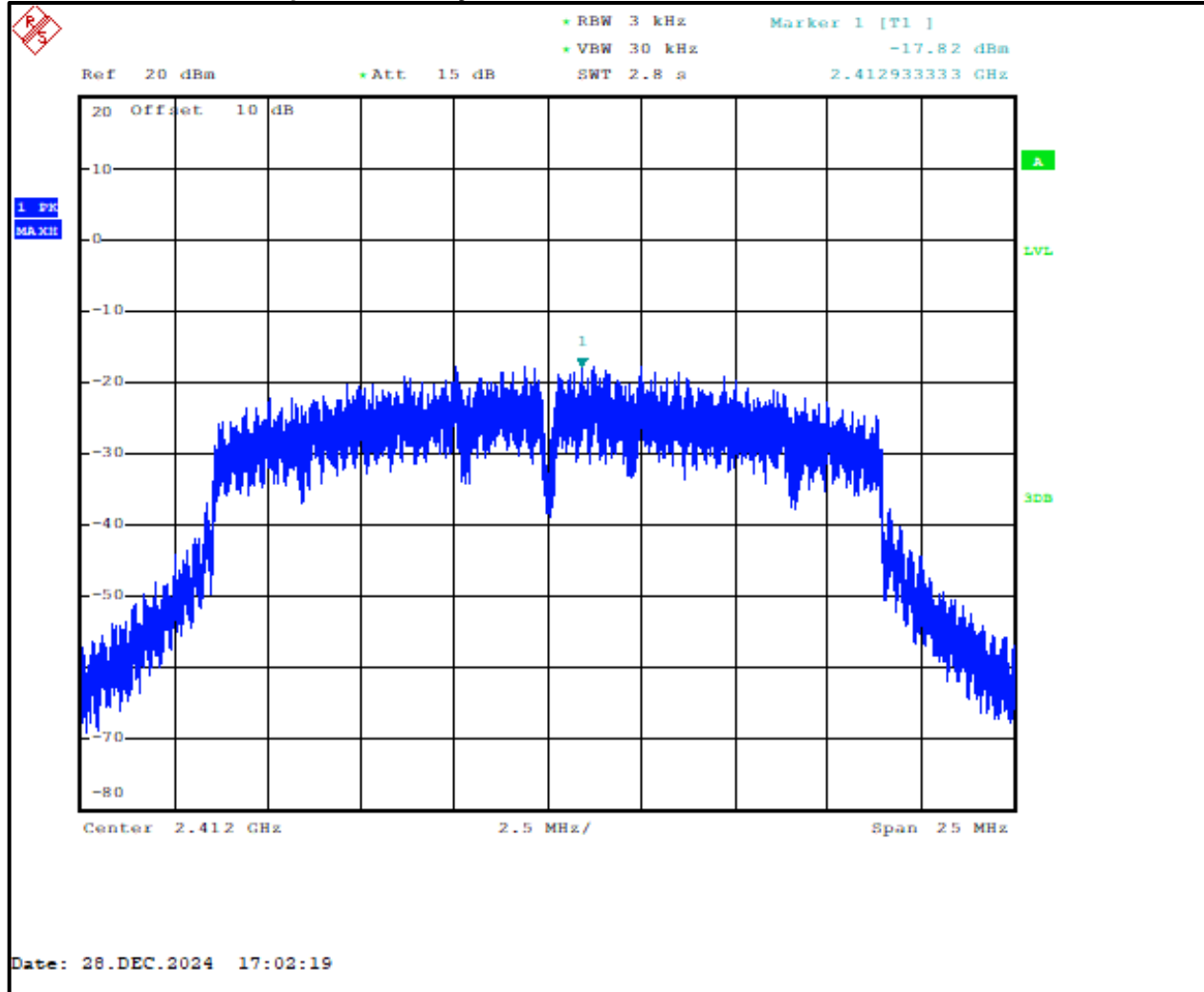
| Frequency (MHz) | PSD (dBm) | Limit (dBm) | Margin (dB) | Result (Pass / Fail) |
|-----------------|-----------|-------------|-------------|----------------------|
| 2412            | -12.7     | 8.0         | -20.7       | Pass                 |
| 2437            | -12.6     | 8.0         | -20.6       | Pass                 |
| 2462            | -12.9     | 8.0         | -20.9       | Pass                 |

**Table 7-5: Power Spectral Density Test Data – 802.11n**

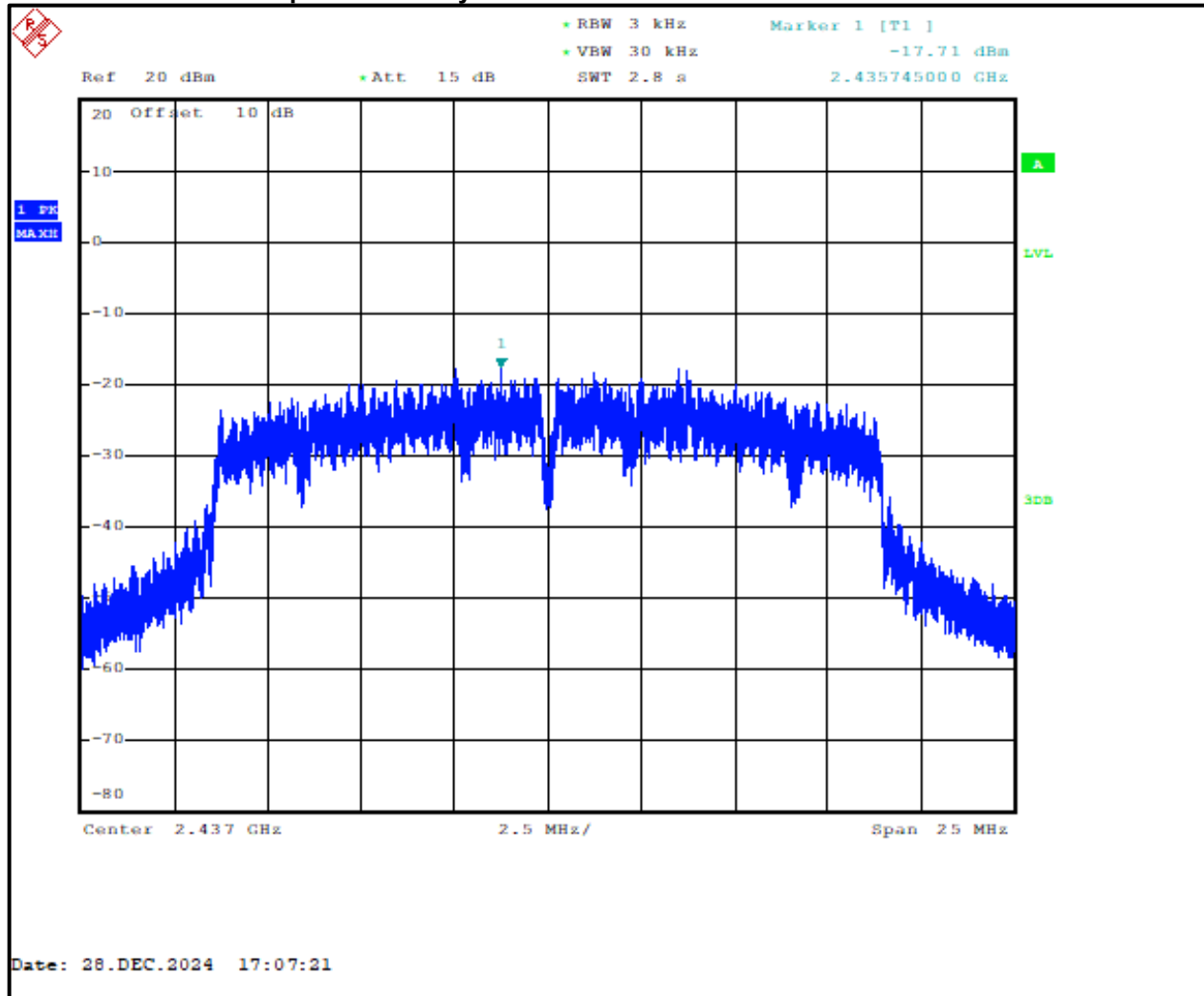
| Frequency (MHz) | PSD (dBm) | Limit (dBm) | Margin (dB) | Result (Pass / Fail) |
|-----------------|-----------|-------------|-------------|----------------------|
| 2422            | -23.3     | 8.0         | -31.3       | Pass                 |
| 2437            | -20.4     | 8.0         | -28.4       | Pass                 |
| 2452            | -23.6     | 8.0         | -31.6       | Pass                 |

### 7.3 Power Spectral Density Plots

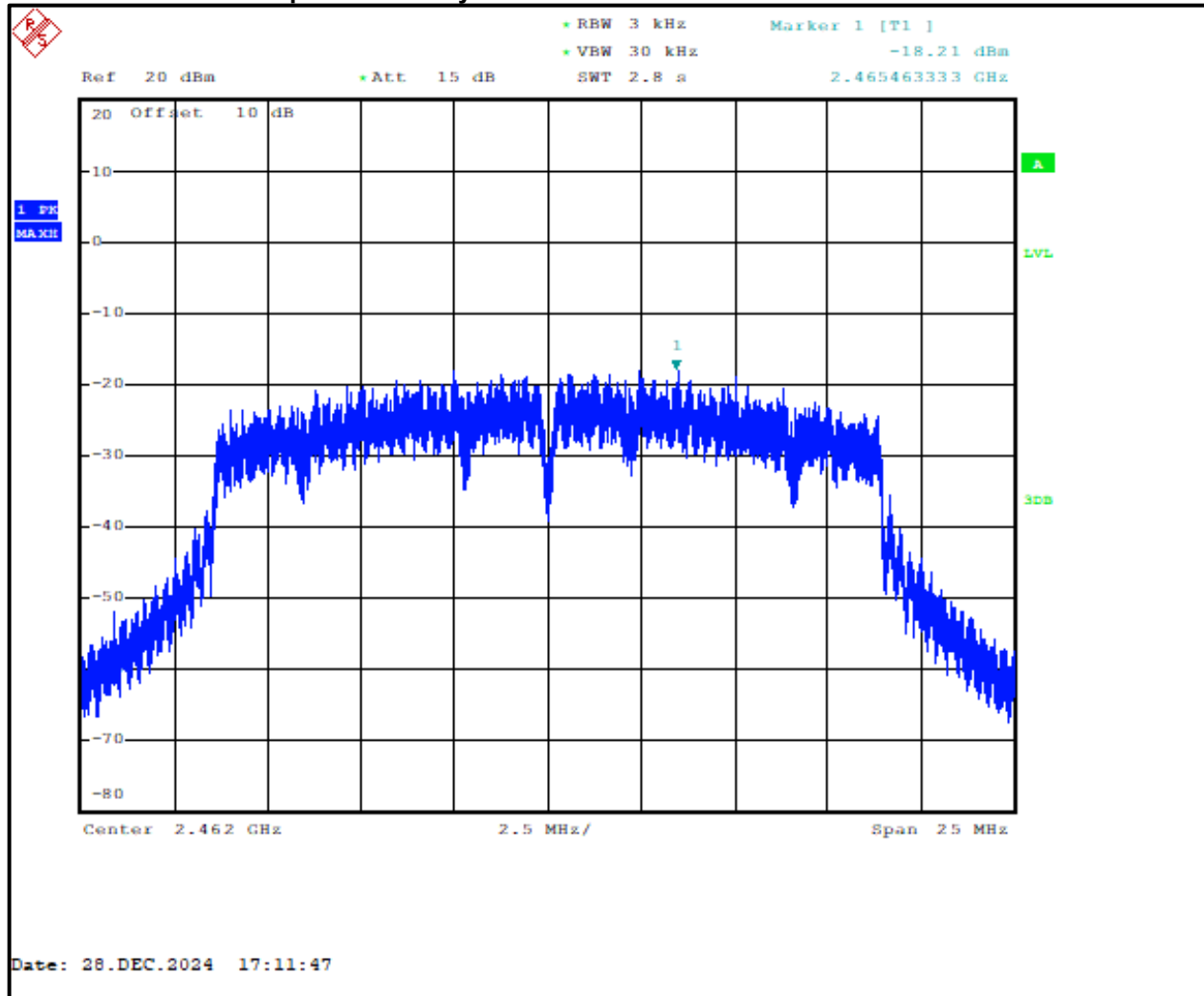
Plot 7-1: Power Spectral Density – 2412 MHz – 802.11b



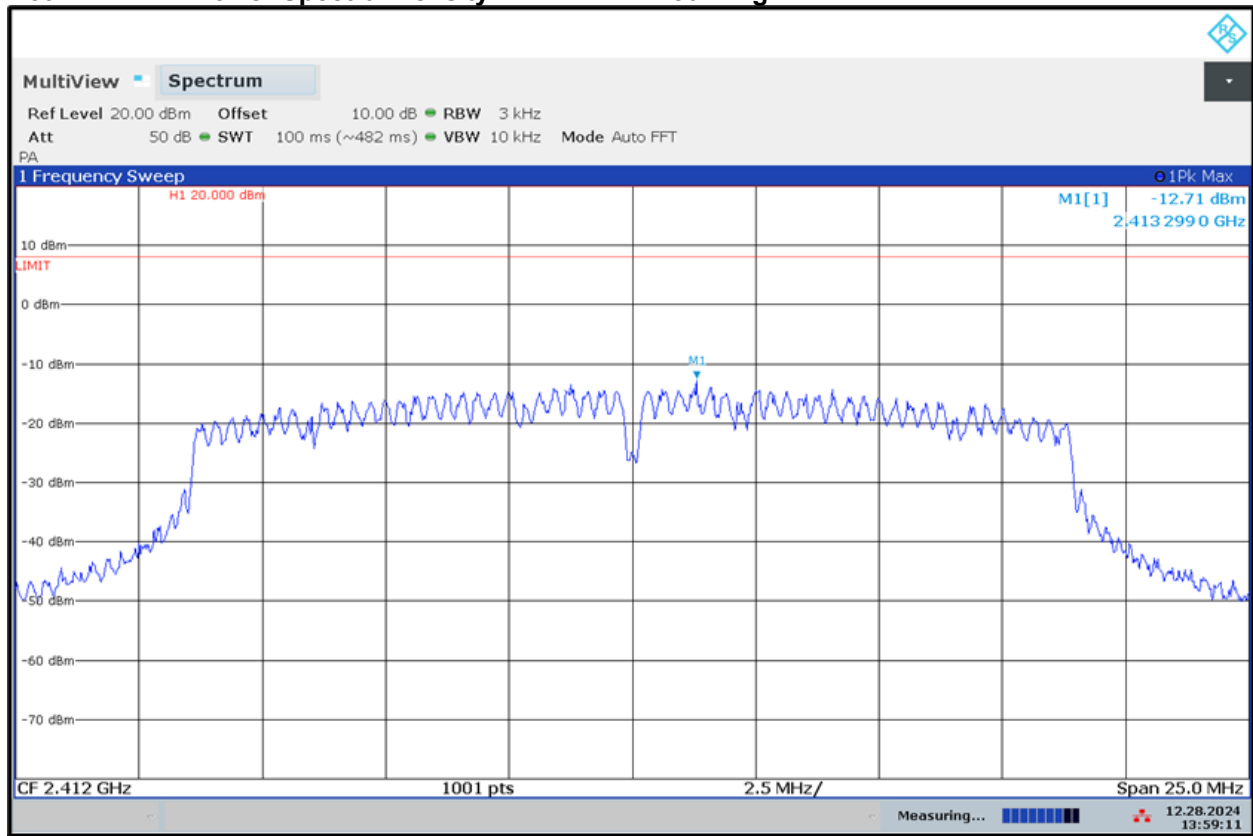
**Plot 7-2: Power Spectral Density – 2437 MHz – 802.11b**



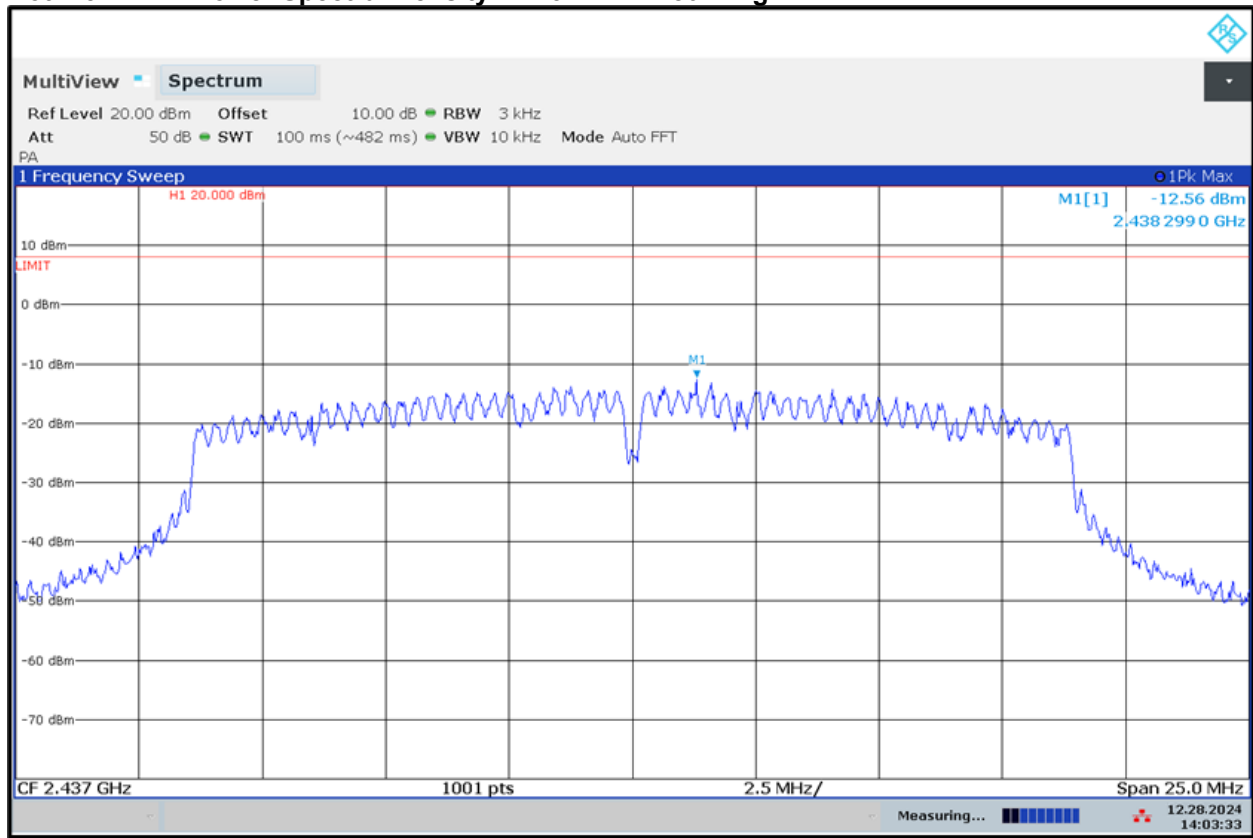
**Plot 7-3: Power Spectral Density – 2462 MHz - 802.11b**



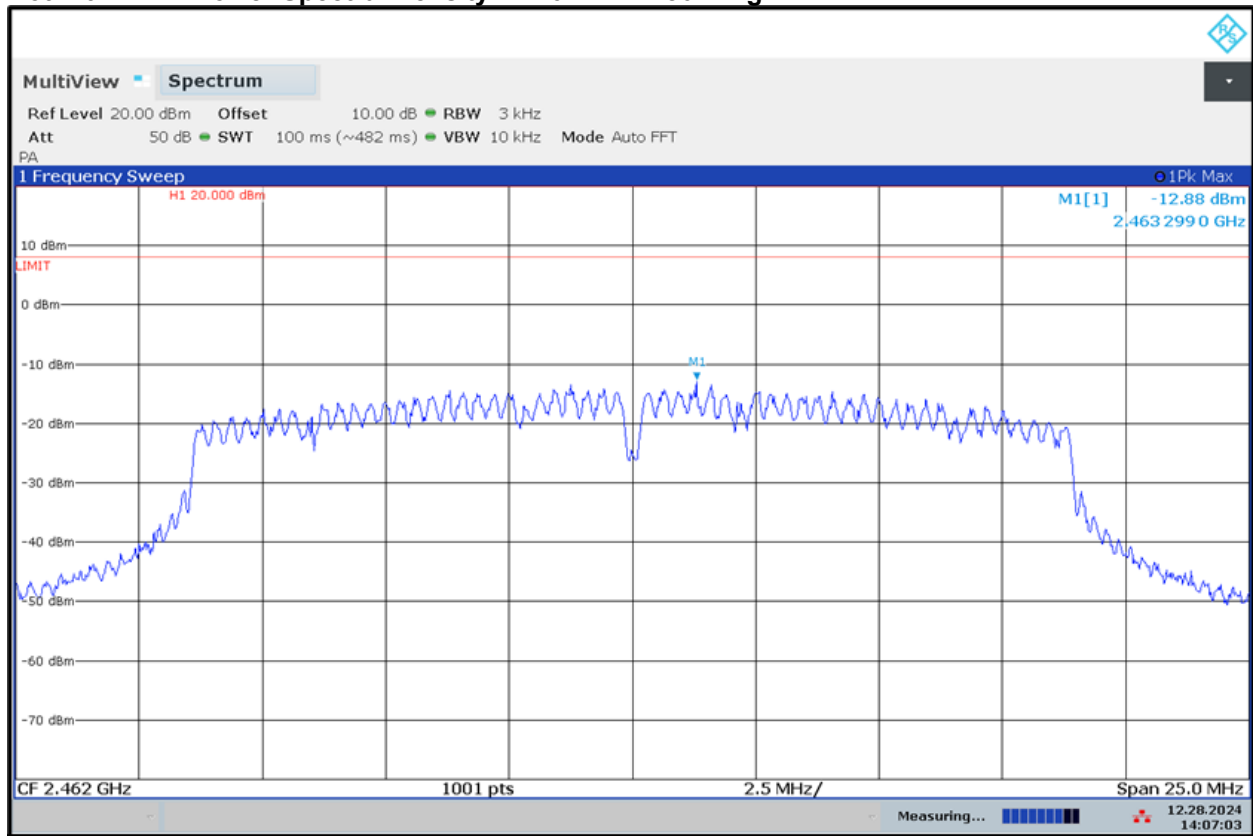
**Plot 7-4: Power Spectral Density – 2412 MHz – 802.11g**



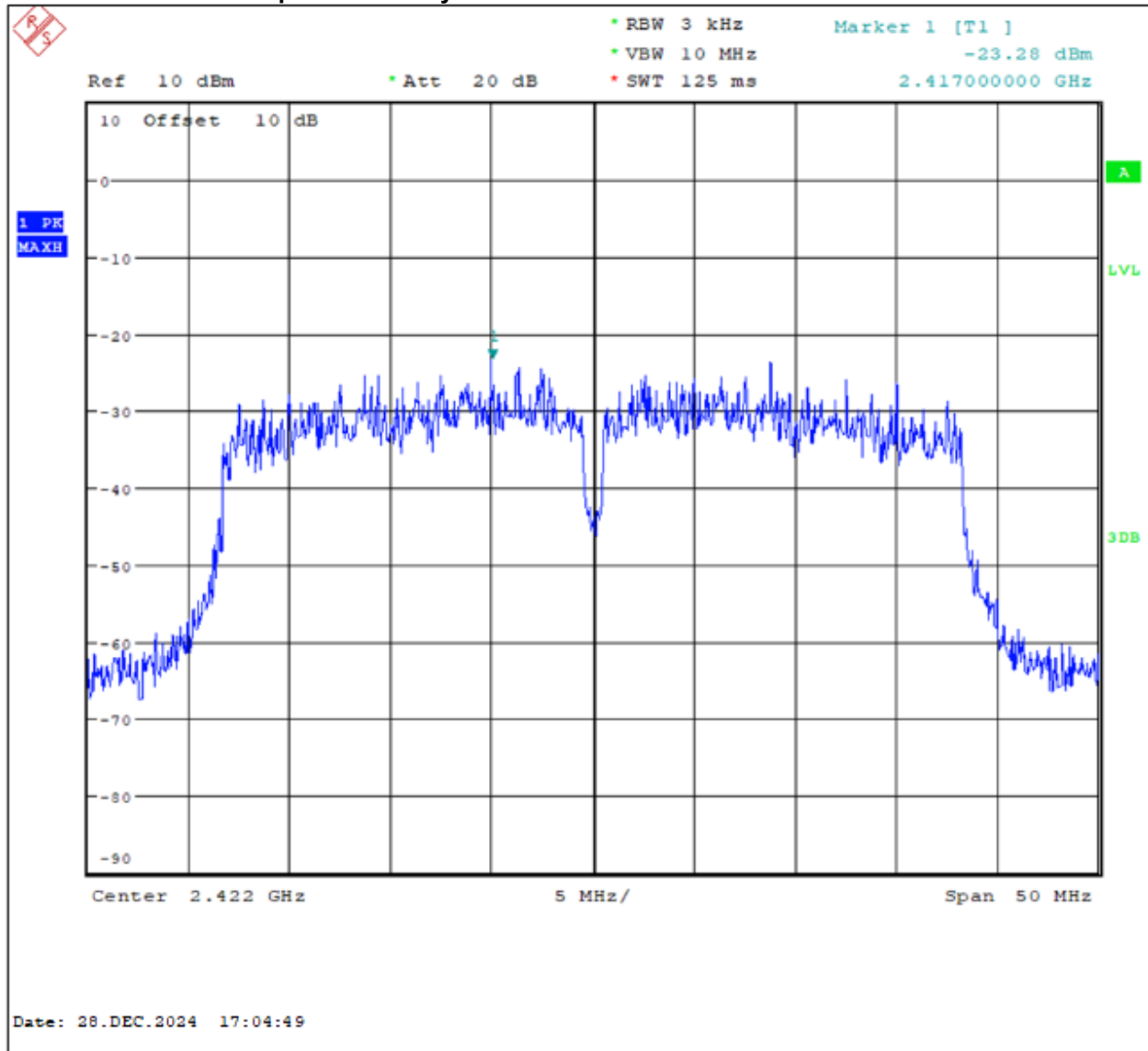
Plot 7-5: Power Spectral Density – 2437 MHz – 802.11g



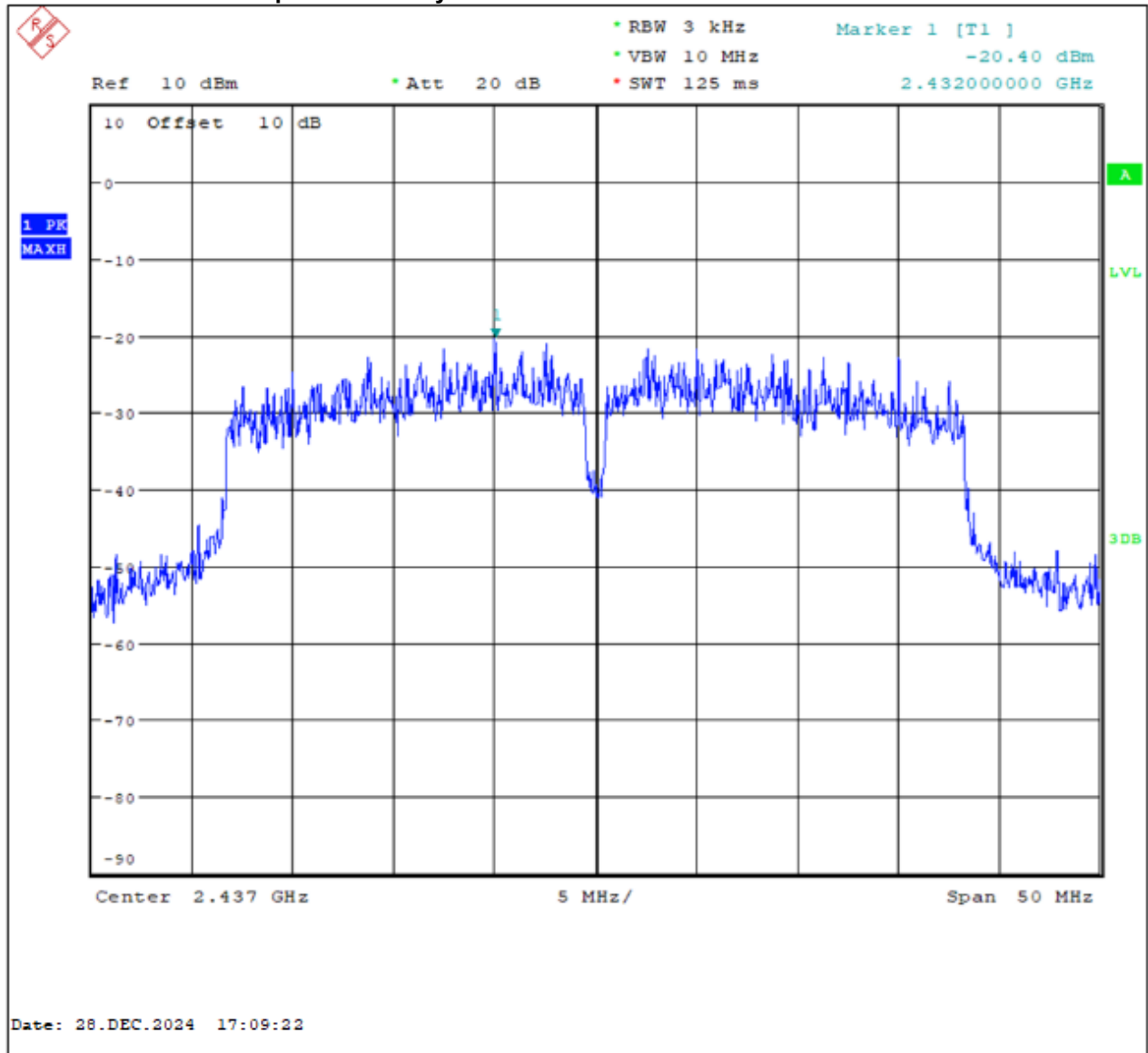
Plot 7-6: Power Spectral Density – 2462 MHz - 802.11g



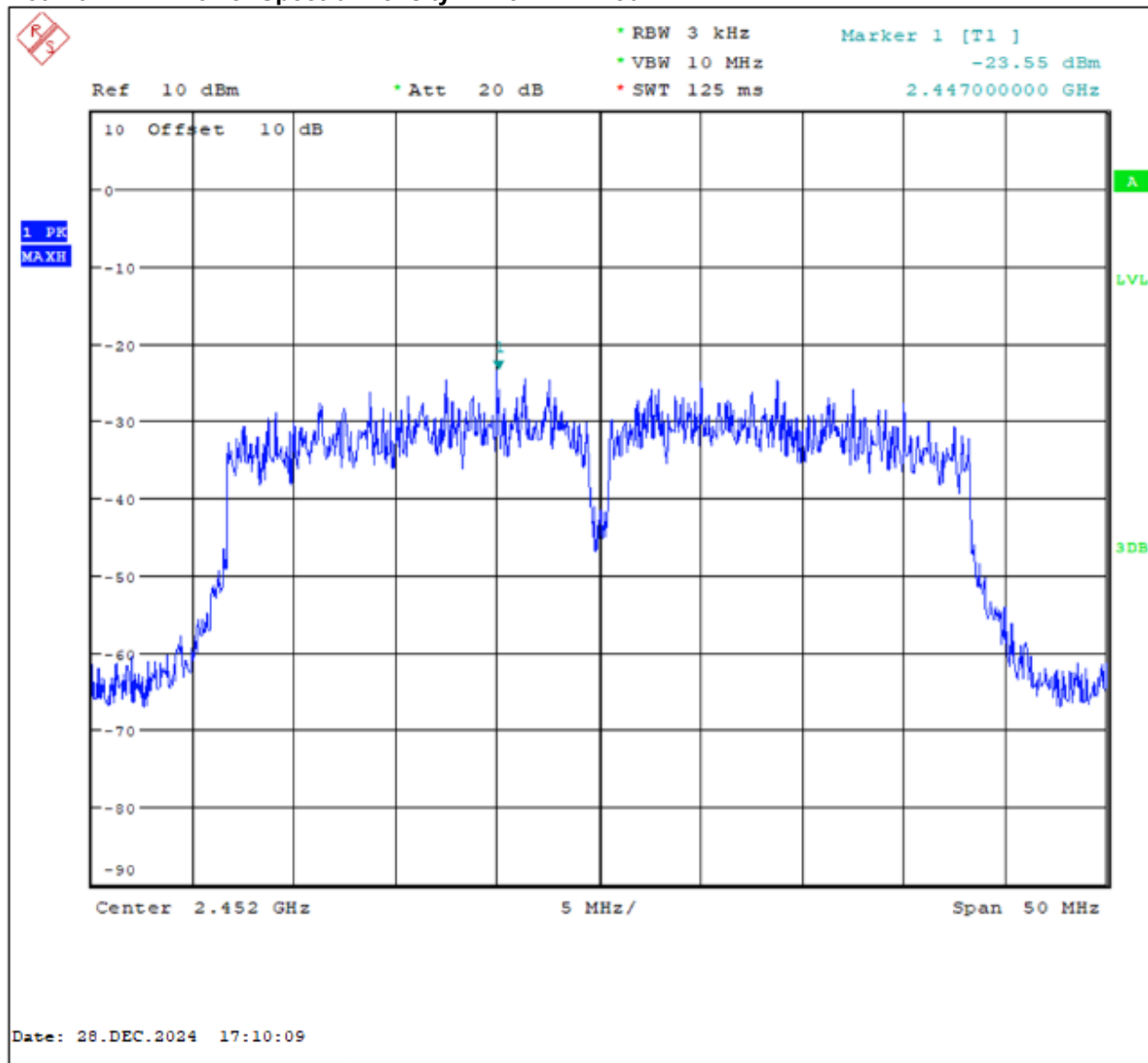
**Plot 7-7: Power Spectral Density – 2422 MHz - 802.11n**



**Plot 7-8: Power Spectral Density – 2437 MHz - 802.11n**



**Plot 7-9: Power Spectral Density – 2452 MHz - 802.11n**



Measurement uncertainty:  $\pm 0.5$  dB. This measurement uncertainty is an expanded uncertainty for 95% confidence level received with a coverage factor  $k=2$ .

**Results: Pass**

**Test Personnel:**

Daniel W. Baltzell  
 Test Engineer

*Daniel W. Baltzell*

Signature

December 28, 2024  
 Date of Test

## 8 AC Conducted Emissions – FCC 15.207; RSS-Gen 8.8

The device is a mobile 13.8 VDC equipment. AC line conducted emissions measurements are not required.

## 9 Radiated Emissions – FCC 15.209; RSS-247 5.5; RSS-Gen 8.9, 8.10

### 9.1 Limits of Radiated Emissions Measurement

| Frequency (MHz) | Field Strength (μV/m) | Measurement Distance (m) |
|-----------------|-----------------------|--------------------------|
| 0.009-0.490     | 2400/f (kHz)          | 300                      |
| 0.490-1.705     | 2400/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

Before final measurements of radiated emissions were made on the open-field three- to ten-meter range, the EUT was scanned indoors at one- and three-meter distances. This was done to determine its emissions spectrum signature. The physical arrangement of the test system and associated cabling was varied to determine the effect on the EUT's emissions in terms of 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 achieved.

Final radiated emissions measurements were taken on the three- and ten-meter open-field test sites. The EUT was placed on a nonconductive turntable 0.8 meters above the ground plane. The spectrum was examined from 9 kHz to the 10<sup>th</sup> harmonic of the highest fundamental transmitter frequency (24.8 GHz).

At each frequency, the EUT was rotated 360 degrees, and the antenna was raised and lowered from 1 to 4 meters 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 1000 MHz, emissions are measured using the average detector function with a minimum resolution bandwidth of 1 MHz. No video filter with a bandwidth less than 10 times the resolution was used. The highest emission amplitudes relative to the appropriate limit were measured and recorded in this report.

### 9.3 Field Strength Calculations

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:

$$\begin{aligned} \text{FI (dB}\mu\text{V/m)} &= \text{SAR (dB}\mu\text{V)} + \text{SCF (dB/m)} \\ \text{FI} &= \text{Field Intensity} \\ \text{SAR} &= \text{Spectrum Analyzer Reading} \\ \text{SCF} &= \text{Site Correction Factor} \end{aligned}$$

The Site Correction Factor (SCF) used in the above equation is determined empirically and is expressed in the following equation:

$$\text{SCF (dB/m)} = -\text{PG (dB)} + \text{AF (dB/m)} + \text{CL (dB)}$$

$$\begin{aligned} \text{SCF} &= \text{Site Correction Factor} \\ \text{PG} &= \text{Pre-amplifier Gain} \\ \text{AF} &= \text{Antenna Factor} \\ \text{CL} &= \text{Cable Loss} \end{aligned}$$

The field intensity in microvolts per meter can then be determined according to the following equation:

$$\text{FI (}\mu\text{V/m)} = 10^{\text{FI(dB}\mu\text{V/m)}/20}$$

For example, assume a signal at a frequency of 125 MHz has a received level measured as 49.3 dB $\mu$ V. The total Site Correction Factor (antenna factor plus cable loss minus preamplifier gain) for 125 MHz is -11.5 dB/m. The actual radiated field strength is calculated as follows:

$$\begin{aligned} 49.3 \text{ dB}\mu\text{V} - 11.5 \text{ dB} &= 37.8 \text{ dB}\mu\text{V/m} \\ 10^{37.8/20} &= 10^{1.89} = 77.6 \mu\text{V/m} \end{aligned}$$

**Table 9-1: Radiated Emissions Test Equipment**

| RTL Asset Number | Manufacturer            | Model                 | Part Type                               | Serial Number | Calibration Due Date |
|------------------|-------------------------|-----------------------|-----------------------------------------|---------------|----------------------|
| 900772           | EMCO                    | 3161-02               | Horn Antenna (2.0–4.0 GHz)              | 9804-1044     | 08/05/2027           |
| 900321           | EMCO                    | 3161-03               | Horn Antennas (4.0–8.2 GHz)             | 9508-1020     | 08/05/2027           |
| 900323           | EMCO                    | 3160-7                | Horn Antennas (8.2–12.4 GHz)            | 9605-1054     | 08/05/2027           |
| 900356           | EMCO                    | 3160-08               | Horn Antenna (12.4–18.0 GHz)            | 9607-1044     | 08/05/2027           |
| 901218           | EMCO                    | 3160-09               | Horn Antenna (18.0–26.5 GHz)            | 960281-003    | 08/05/2027           |
| 901669           | ETS-Lindgren            | 3142E                 | Biconilog Antenna (30 MHz–6000 MHz)     | 00166065      | 07/11/2027           |
| 900932           | Hewlett Packard         | 8449B OPT H02         | Preamplifier 1-26.5 GHz                 | 3008A00505    | 01/30/2027           |
| 901729           | Insulated Wire Inc.     | KPS-1503-3150-KPR     | SMK RF Cables 20'                       | NA            | 12/29/2027           |
| 901477           | Micro-Coax              | UFA210A-0-0360-300300 | RF cable 0.04-18 GHz                    | 212349-002    | 09/01/2027           |
| 900905           | Rhein Tech Laboratories | PR-1040               | OATS 1 Preamplifier 40dB (30 MHz–2 GHz) | 1006          | 09/30/2027           |
| 901672           | Rohde & Schwarz         | FSEM30                | Spectrum Analyzer                       | FSEM30        | 04/25/2027           |

#### 9.4 Radiated Emissions Test Results

**Table 9-2: Environmental Conditions**

| Date            | Temperature (°C) | Humidity (%) | Pressure (kPa) |
|-----------------|------------------|--------------|----------------|
| January 7, 2025 | 2                | 50           | 101.3          |

**Table 9-3: Radiated Emissions Harmonics/Spurious – 2412 MHz, Peak Detector; 802.11b**

| Frequency (MHz) | Peak Analyzer (dBµV/m) | Site Correction Factor (dB/m) | Peak Corrected (dBµV/m) | Peak Limit (dBµV/m) | Peak Margin (dB) |
|-----------------|------------------------|-------------------------------|-------------------------|---------------------|------------------|
| 4824.0          | 53.9                   | 0.5                           | 54.4                    | 74.0                | -19.6            |
| 12060.0         | 45.1                   | 10.0                          | 55.1                    | 74.0                | -18.9            |
| 14472.0         | 44.4                   | 14.9                          | 59.3                    | 74.0                | -14.7            |
| 19296.0         | 36.1                   | 19.9                          | 56.0                    | 74.0                | -18.0            |

**Table 9-4: Radiated Emissions Harmonics/Spurious – 2412 MHz, Average Detector; 802.11b**

| Frequency (MHz) | Average Analyzer (dBµV/m) | Site Correction Factor (dB/m) | Average Corrected (dBµV/m) | Average Limit (dBµV/m) | Average Margin (dB) |
|-----------------|---------------------------|-------------------------------|----------------------------|------------------------|---------------------|
| 4824.0          | 42.1                      | 0.5                           | 42.6                       | 54.0                   | -11.4               |
| 12060.0         | 28.2                      | 10.0                          | 38.2                       | 54.0                   | -15.8               |
| 14472.0         | 26.9                      | 14.9                          | 41.8                       | 54.0                   | -12.2               |
| 19296.0         | 28.3                      | 19.9                          | 48.2                       | 54.0                   | -5.8                |

**Table 9-5: Radiated Emissions Harmonics/Spurious – 2437 MHz, Peak Detector; 802.11b**

| Frequency (MHz) | Peak Analyzer (dBµV/m) | Site Correction Factor (dB/m) | Peak Corrected (dBµV/m) | Peak Limit (dBµV/m) | Peak Margin (dB) |
|-----------------|------------------------|-------------------------------|-------------------------|---------------------|------------------|
| 4874.0          | 39.0                   | 0.5                           | 39.5                    | 74.0                | -34.5            |
| 7311.0          | 34.9                   | 2.5                           | 37.4                    | 74.0                | -36.6            |
| 12185.0         | 36.1                   | 10.1                          | 46.2                    | 74.0                | -27.8            |
| 19496.0         | 36.6                   | 20.0                          | 56.6                    | 74.0                | -17.4            |

**Table 9-6: Radiated Emissions Harmonics/Spurious – 2437 MHz, Average Detector; 802.11b**

| Frequency (MHz) | Average Analyzer (dBµV/m) | Site Correction Factor (dB/m) | Average Corrected (dBµV/m) | Average Limit (dBµV/m) | Average Margin (dB) |
|-----------------|---------------------------|-------------------------------|----------------------------|------------------------|---------------------|
| 4874.0          | 20.8                      | 0.5                           | 21.4                       | 54.0                   | -32.6               |
| 7311.0          | 21.0                      | 2.5                           | 23.5                       | 54.0                   | -30.5               |
| 12185.0         | 21.8                      | 10.1                          | 31.9                       | 54.0                   | -22.1               |
| 19496.0         | 22.6                      | 20.0                          | 42.6                       | 54.0                   | -11.4               |

**Table 9-7: Radiated Emissions Harmonics/Spurious – 2462 MHz, Peak Detector; 802.11b**

| Frequency (MHz) | Peak Analyzer (dBµV/m) | Site Correction Factor (dB/m) | Peak Corrected (dBµV/m) | Peak Limit (dBµV/m) | Peak Margin (dB) |
|-----------------|------------------------|-------------------------------|-------------------------|---------------------|------------------|
| 4924.0          | 34.8                   | 0.5                           | 35.3                    | 74.0                | -38.7            |
| 7386.0          | 34.9                   | 2.6                           | 37.5                    | 74.0                | -36.5            |
| 12310.0         | 24.0                   | 10.1                          | 34.1                    | 74.0                | -39.9            |
| 19696.0         | 25.8                   | 20.3                          | 46.1                    | 74.0                | -27.9            |
| 22158.0         | 25.8                   | 22.1                          | 47.9                    | 74.0                | -26.1            |

**Table 9-8: Radiated Emissions Harmonics/Spurious – 2462 MHz, Average Detector; 802.11b**

| Frequency (MHz) | Average Analyzer (dBµV/m) | Site Correction Factor (dB/m) | Average Corrected (dBµV/m) | Average Limit (dBµV/m) | Average Margin (dB) |
|-----------------|---------------------------|-------------------------------|----------------------------|------------------------|---------------------|
| 4924.0          | 26.1                      | 0.5                           | 26.6                       | 54.0                   | -27.4               |
| 7386.0          | 21.0                      | 2.6                           | 23.6                       | 54.0                   | -30.4               |
| 12310.0         | 21.0                      | 10.1                          | 31.1                       | 54.0                   | -22.9               |
| 19696.0         | 23.7                      | 20.3                          | 44.0                       | 54.0                   | -10.0               |
| 22158.0         | 23.2                      | 22.1                          | 45.3                       | 54.0                   | -8.7                |

**Table 9-9: Radiated Emissions Harmonics/Spurious – 2412 MHz, Peak Detector; 802.11g**

| Frequency (MHz) | Peak Analyzer (dBµV/m) | Site Correction Factor (dB/m) | Peak Corrected (dBµV/m) | Peak Limit (dBµV/m) | Peak Margin (dB) |
|-----------------|------------------------|-------------------------------|-------------------------|---------------------|------------------|
| 4824.0          | 39.6                   | 0.5                           | 40.1                    | 74.0                | -33.9            |
| 12060.0         | 23.1                   | 10.0                          | 33.1                    | 74.0                | -40.9            |
| 14472.0         | 24.3                   | 14.9                          | 39.2                    | 74.0                | -34.8            |
| 19296.0         | 26.3                   | 19.9                          | 46.2                    | 74.0                | -27.8            |

**Table 9-10: Radiated Emissions Harmonics/Spurious – 2412 MHz, Average Detector; 802.11g**

| Frequency (MHz) | Average Analyzer (dBµV/m) | Site Correction Factor (dB/m) | Average Corrected (dBµV/m) | Average Limit (dBµV/m) | Average Margin (dB) |
|-----------------|---------------------------|-------------------------------|----------------------------|------------------------|---------------------|
| 4824.0          | 33.7                      | 0.5                           | 34.2                       | 54.0                   | -19.8               |
| 12060.0         | 22.2                      | 10.0                          | 32.2                       | 54.0                   | -21.8               |
| 14472.0         | 21.8                      | 14.9                          | 36.7                       | 54.0                   | -17.3               |
| 19296.0         | 22.7                      | 19.9                          | 42.6                       | 54.0                   | -11.4               |

**Table 9-11: Radiated Emissions Harmonics/Spurious – 2437 MHz, Peak Detector; 802.11g**

| Frequency (MHz) | Peak Analyzer (dBµV/m) | Site Correction Factor (dB/m) | Peak Corrected (dBµV/m) | Peak Limit (dBµV/m) | Peak Margin (dB) |
|-----------------|------------------------|-------------------------------|-------------------------|---------------------|------------------|
| 4874.0          | 38.1                   | 0.5                           | 38.6                    | 74.0                | -35.4            |
| 7311.0          | 23.1                   | 2.5                           | 25.6                    | 74.0                | -48.4            |
| 12185.0         | 24.1                   | 10.1                          | 34.2                    | 74.0                | -39.8            |
| 19496.0         | 22.9                   | 20.0                          | 43.0                    | 74.0                | -31.0            |

**Table 9-12: Radiated Emissions Harmonics/Spurious – 2437 MHz, Average Detector; 802.11g**

| Frequency (MHz) | Average Analyzer (dBµV/m) | Site Correction Factor (dB/m) | Average Corrected (dBµV/m) | Average Limit (dBµV/m) | Average Margin (dB) |
|-----------------|---------------------------|-------------------------------|----------------------------|------------------------|---------------------|
| 4874.0          | 32.4                      | 0.5                           | 32.9                       | 54.0                   | -21.1               |
| 7311.0          | 21.5                      | 2.5                           | 24.0                       | 54.0                   | -30.0               |
| 12185.0         | 22.9                      | 10.1                          | 33.0                       | 54.0                   | -21.0               |
| 19496.0         | 22.7                      | 20.0                          | 42.7                       | 54.0                   | -11.3               |

**Table 9-13: Radiated Emissions Harmonics/Spurious – 2462 MHz, Peak Detector; 802.11g**

| Frequency (MHz) | Peak Analyzer (dBµV/m) | Site Correction Factor (dB/m) | Peak Corrected (dBµV/m) | Peak Limit (dBµV/m) | Peak Margin (dB) |
|-----------------|------------------------|-------------------------------|-------------------------|---------------------|------------------|
| 4924.0          | 34.2                   | 0.5                           | 34.7                    | 74.0                | -39.3            |
| 7386.0          | 23.8                   | 2.6                           | 26.4                    | 74.0                | -47.6            |
| 12310.0         | 24.3                   | 10.1                          | 34.4                    | 74.0                | -39.6            |
| 19696.0         | 25.7                   | 20.3                          | 46.0                    | 74.0                | -28.0            |
| 22158.0         | 25.7                   | 22.1                          | 47.8                    | 74.0                | -26.2            |

**Table 9-14: Radiated Emissions Harmonics/Spurious – 2462 MHz, Average Detector; 802.11g**

| Frequency (MHz) | Average Analyzer (dBµV/m) | Site Correction Factor (dB/m) | Average Corrected (dBµV/m) | Average Limit (dBµV/m) | Average Margin (dB) |
|-----------------|---------------------------|-------------------------------|----------------------------|------------------------|---------------------|
| 4924.0          | 26.3                      | 0.5                           | 26.8                       | 54.0                   | -27.2               |
| 7386.0          | 22.0                      | 2.6                           | 24.6                       | 54.0                   | -29.4               |
| 12310.0         | 21.2                      | 10.1                          | 31.3                       | 54.0                   | -22.7               |
| 19696.0         | 23.0                      | 20.3                          | 43.3                       | 54.0                   | -10.7               |
| 22158.0         | 23.9                      | 22.1                          | 46.0                       | 54.0                   | -8.0                |

**Table 9-15: Radiated Emissions Harmonics/Spurious – 2412 MHz, Peak Detector; 802.11n**

| Frequency (MHz) | Peak Analyzer (dBµV/m) | Site Correction Factor (dB/m) | Peak Corrected (dBµV/m) | Peak Limit (dBµV/m) | Peak Margin (dB) |
|-----------------|------------------------|-------------------------------|-------------------------|---------------------|------------------|
| 4824.0          | 39.0                   | 0.5                           | 39.5                    | 74.0                | -34.5            |
| 12060.0         | 24.4                   | 10.0                          | 34.4                    | 74.0                | -39.6            |
| 14472.0         | 22.1                   | 14.9                          | 37.1                    | 74.0                | -36.9            |
| 19296.0         | 24.8                   | 19.9                          | 44.7                    | 74.0                | -29.3            |

**Table 9-16: Radiated Emissions Harmonics/Spurious – 2412 MHz, Average Detector; 802.11n**

| Frequency (MHz) | Average Analyzer (dBµV/m) | Site Correction Factor (dB/m) | Average Corrected (dBµV/m) | Average Limit (dBµV/m) | Average Margin (dB) |
|-----------------|---------------------------|-------------------------------|----------------------------|------------------------|---------------------|
| 4824.0          | 32.8                      | 0.5                           | 33.3                       | 54.0                   | -20.7               |
| 12060.0         | 22.2                      | 10.0                          | 32.2                       | 54.0                   | -21.8               |
| 14472.0         | 21.7                      | 14.9                          | 36.7                       | 54.0                   | -17.3               |
| 19296.0         | 22.2                      | 19.9                          | 42.1                       | 54.0                   | -11.9               |

**Table 9-17: Radiated Emissions Harmonics/Spurious – 2437 MHz, Peak Detector; 802.11n**

| Frequency (MHz) | Peak Analyzer (dBµV/m) | Site Correction Factor (dB/m) | Peak Corrected (dBµV/m) | Peak Limit (dBµV/m) | Peak Margin (dB) |
|-----------------|------------------------|-------------------------------|-------------------------|---------------------|------------------|
| 4874.0          | 37.2                   | 0.5                           | 37.7                    | 74.0                | -36.3            |
| 7311.0          | 23.1                   | 2.5                           | 25.6                    | 74.0                | -48.4            |
| 12185.0         | 23.8                   | 10.1                          | 33.9                    | 74.0                | -40.1            |
| 19496.0         | 25.8                   | 20.0                          | 45.8                    | 74.0                | -28.2            |

**Table 9-18: Radiated Emissions Harmonics/Spurious – 2437 MHz, Average Detector; 802.11n**

| Frequency (MHz) | Average Analyzer (dBµV/m) | Site Correction Factor (dB/m) | Average Corrected (dBµV/m) | Average Limit (dBµV/m) | Average Margin (dB) |
|-----------------|---------------------------|-------------------------------|----------------------------|------------------------|---------------------|
| 4874.0          | 31.1                      | 0.5                           | 31.6                       | 54.0                   | -22.4               |
| 7311.0          | 21.8                      | 2.5                           | 24.3                       | 54.0                   | -29.7               |
| 12185.0         | 21.1                      | 10.1                          | 31.1                       | 54.0                   | -22.9               |
| 19496.0         | 22.3                      | 20.0                          | 42.3                       | 54.0                   | -11.7               |

**Table 9-19: Radiated Emissions Harmonics/Spurious – 2462 MHz, Peak Detector; 802.11n**

| Frequency (MHz) | Peak Analyzer (dBµV/m) | Site Correction Factor (dB/m) | Peak Corrected (dBµV/m) | Peak Limit (dBµV/m) | Peak Margin (dB) |
|-----------------|------------------------|-------------------------------|-------------------------|---------------------|------------------|
| 4924.0          | 36.2                   | 0.5                           | 36.7                    | 74.0                | -37.3            |
| 7386.0          | 24.1                   | 2.6                           | 26.7                    | 74.0                | -47.3            |
| 12310.0         | 24.8                   | 10.1                          | 34.9                    | 74.0                | -39.1            |
| 19696.0         | 26.5                   | 20.3                          | 46.8                    | 74.0                | -27.2            |
| 22158.0         | 26.1                   | 22.1                          | 48.2                    | 74.0                | -25.8            |

**Table 9-20: Radiated Emissions Harmonics/Spurious – 2462 MHz, Average Detector; 802.11n**

| Frequency (MHz) | Average Analyzer (dBμV/m) | Site Correction Factor (dB/m) | Average Corrected (dBμV/m) | Average Limit (dBμV/m) | Average Margin (dB) |
|-----------------|---------------------------|-------------------------------|----------------------------|------------------------|---------------------|
| 4924.0          | 29.8                      | 0.5                           | 30.3                       | 54.0                   | -23.7               |
| 7386.0          | 20.7                      | 2.6                           | 23.3                       | 54.0                   | -30.7               |
| 12310.0         | 22.2                      | 10.1                          | 32.4                       | 54.0                   | -21.6               |
| 19696.0         | 23.2                      | 20.3                          | 43.5                       | 54.0                   | -10.5               |
| 22158.0         | 23.3                      | 22.1                          | 45.4                       | 54.0                   | -8.6                |

**Table 9-21: Unintentional Emissions Test Data**

| Temperature: 36°F Humidity: 50% Barometric Pressure: 30.16"Hg |               |                        |                       |                    |                         |                               |                         |                |             |           |
|---------------------------------------------------------------|---------------|------------------------|-----------------------|--------------------|-------------------------|-------------------------------|-------------------------|----------------|-------------|-----------|
| Emission Frequency (MHz)                                      | Test Detector | Antenna Polarity (H/V) | Turntable Azimuth (°) | Antenna Height (m) | Analyzer Reading (dBμV) | Site Correction Factor (dB/m) | Emission Level (dBμV/m) | Limit (dBμV/m) | Margin (dB) | Pass/Fail |
| 30.400                                                        | QP            | V                      | 260                   | 1.0                | 47.4                    | -19.4                         | 28                      | 40             | -12         | Pass      |
| 32.886                                                        | QP            | H                      | 40                    | 1.0                | 46.2                    | -15.2                         | 31                      | 40             | -9          | Pass      |
| 35.411                                                        | QP            | V                      | 220                   | 1.0                | 44.4                    | -16.6                         | 27.8                    | 40             | -12.2       | Pass      |
| 37.996                                                        | QP            | V                      | 80                    | 1.0                | 48.8                    | -18                           | 30.8                    | 40             | -9.2        | Pass      |
| 50.024                                                        | QP            | V                      | 190                   | 1.0                | 51                      | -22.8                         | 28.2                    | 40             | -11.8       | Pass      |
| 81.062                                                        | QP            | H                      | 120                   | 1.5                | 45.6                    | -28.5                         | 17.1                    | 40             | -22.9       | Pass      |
| 144.483                                                       | QP            | V                      | 230                   | 1.0                | 51.9                    | -26.3                         | 25.6                    | 43.5           | -17.9       | Pass      |
| 147.000                                                       | QP            | V                      | 140                   | 1.0                | 50                      | -26                           | 24                      | 43.5           | -19.5       | Pass      |
| 149.543                                                       | QP            | V                      | 30                    | 1.0                | 44.5                    | -25.5                         | 19                      | 43.5           | -24.5       | Pass      |
| 240.053                                                       | QP            | H                      | 70                    | 1.4                | 57.1                    | -20.1                         | 37                      | 46             | -9          | Pass      |
| 250.013                                                       | QP            | V                      | 80                    | 1.0                | 55.8                    | -19.5                         | 36.3                    | 46             | -9.7        | Pass      |
| 400.000                                                       | QP            | H                      | 125                   | 1.5                | 50.1                    | -17.4                         | 32.7                    | 46             | -13.3       | Pass      |
| 681.200                                                       | QP            | H                      | 320                   | 1.4                | 36.5                    | -11.4                         | 25.1                    | 46             | -20.9       | Pass      |
| 994.000                                                       | QP            | V                      | 325                   | 1.0                | 32.5                    | -8                            | 24.5                    | 54             | -29.5       | Pass      |
| 1042.084                                                      | AV            | H                      | 90                    | 1.5                | 42.7                    | -7.3                          | 35.4                    | 54             | -18.6       | Pass      |
| 1050.013                                                      | AV            | H                      | 330                   | 1.1                | 35.2                    | -7                            | 28.2                    | 54             | -25.8       | Pass      |
| 1114.228                                                      | AV            | H                      | 339                   | 1.0                | 34.8                    | -7.2                          | 27.6                    | 54             | -26.4       | Pass      |

Measurement uncertainty: ±4.7 dB. This measurement uncertainty represents an expanded uncertainty for a 95% confidence level, obtained with a coverage factor k = 2.

**Results: Pass**

**Test Personnel:**

Daniel W. Baltzell  
Test Engineer



Signature

January 7, 2025  
Date of Test

Rhein Tech Laboratories, Inc.  
360 Herndon Parkway  
Suite 1400  
Herndon, VA 20170  
<http://www.rheintech.com>

Client: L3Harris Technologies  
Model: XL-85M UHF-L  
Standards: FCC 15.247 & ISSED RSS-247  
ID's: FCC ID: OWDTR-0177-E/IC: 3636B-0177  
Report #: 2024073DTS

## **10 Conclusion**

The data in this DTS measurement report shows that the EUT as tested, L3Harris Technologies XL-85M UHF-L MHz Land Mobile Radio, FCC ID: OWDTR-0177-E, IC: 3636B-0177, complies with the applicable requirements of FCC Parts 2 and 15 and ISSED RSS-247 and RSS-Gen.