



| Test Configuration       |                                  |                 |                              |
|--------------------------|----------------------------------|-----------------|------------------------------|
| Frequency Range:         | 2400-2483.5 MHz                  | Band:           | 2.4 GHz                      |
| Limit Clause(s):         | 15.247 (a)(2)<br>RSS-247 5.2 (a) | Test Method(s): | C63.10 6.9.3<br>C63.10 6.9.2 |
| Additional Reference(s): | -                                |                 |                              |

| DUT Configuration      |            |                          |   |
|------------------------|------------|--------------------------|---|
| Mode:                  | Thread ePA | Duty Cycle (%):          | - |
| Antenna Configuration: | SISO       | Peak Antenna Gain (dBi): | - |
| Active Port(s):        | B (Core 1) | Active Chain(s):         | 1 |

| Test Frequency (MHz) | 6 dB Bandwidth (MHz) |       |   |   | Limit (kHz) |
|----------------------|----------------------|-------|---|---|-------------|
|                      | A                    | B     | C | D |             |
| 2405                 | -                    | 1.616 | - | - | ≥500.0      |
| 2440                 | -                    | 1.616 | - | - | ≥500.0      |
| 2475                 | -                    | 1.616 | - | - | ≥500.0      |

Table 55 - 6 dB Bandwidth Results

| Test Frequency (MHz) | 99% Bandwidth (MHz) |       |   |   | Limit (kHz) |
|----------------------|---------------------|-------|---|---|-------------|
|                      | A                   | B     | C | D |             |
| 2405                 | -                   | 2.192 | - | - | -           |
| 2440                 | -                   | 2.192 | - | - | -           |
| 2475                 | -                   | 2.192 | - | - | -           |

Table 56 - 99% Bandwidth Results

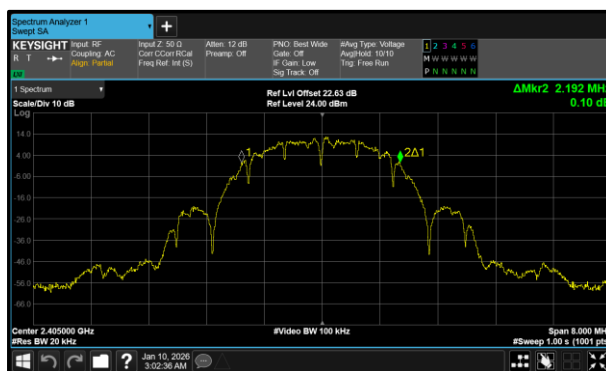


Figure 69 - Core 1 (B) 2405 MHz (CH11) 99% Bandwidth

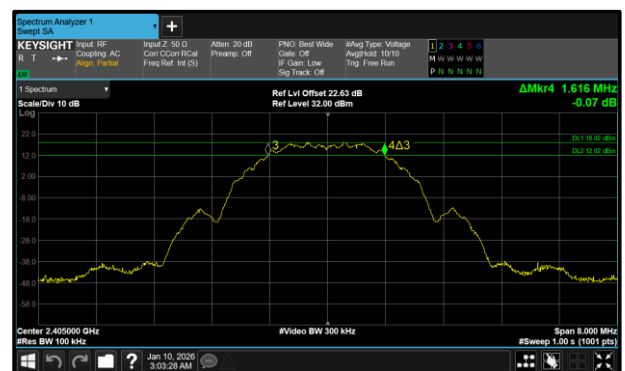


Figure 70 - Core 1 (B) 2405 MHz (CH11) 6 dB Bandwidth

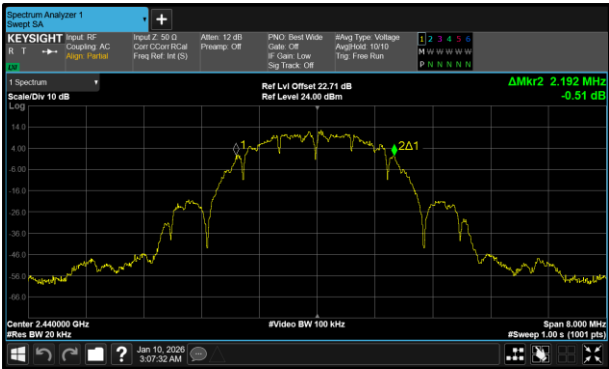


Figure 71 - Core 1 (B) 2440 MHz (CH18) 99% Bandwidth

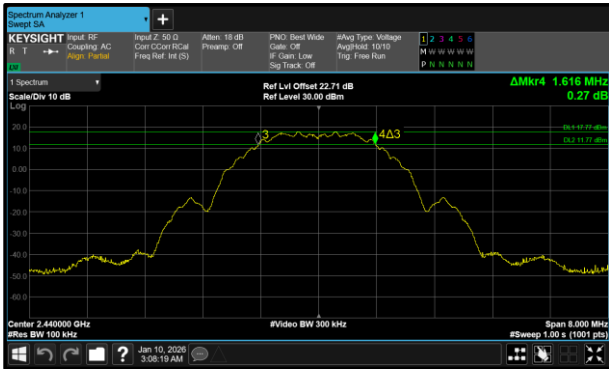


Figure 72 - Core 1 (B) 2440 MHz (CH18) 6 dB Bandwidth

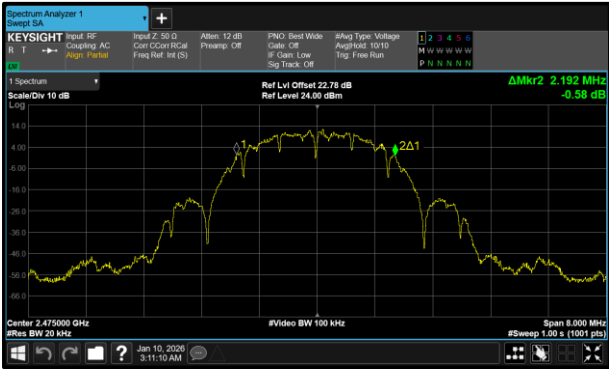


Figure 73 - Core 1 (B) 2475 MHz (CH25) 99% Bandwidth

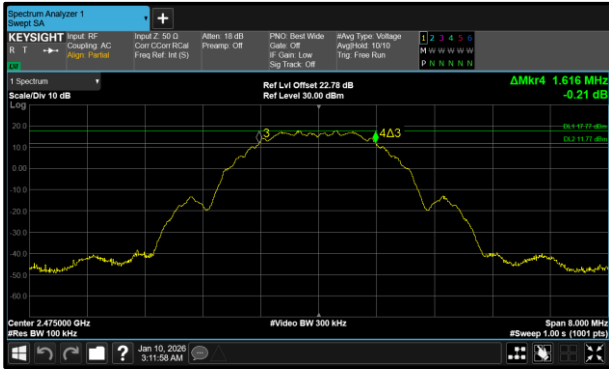


Figure 74 - Core 1 (B) 2475 MHz (CH25) 6 dB Bandwidth



FCC 47 CFR Part 15, Limit Clause 15.247(a)(2) and ISSED RSS-247 6.3.1

The minimum 6 dB Bandwidth shall be at least 500 kHz.

## 2.5.7 Test Location and Test Equipment Used

This test was carried out in RF Laboratory 14.

| Instrument                       | Manufacturer          | Type No.        | TE No. | Calibration Period (months) | Calibration Expiry Date                          |
|----------------------------------|-----------------------|-----------------|--------|-----------------------------|--------------------------------------------------|
| Hygrometer                       | Rotronic              | I-1000          | 3068   | 12                          | 19-Nov-2025<br>Classed as expired at time of use |
| Climatic Chamber                 | Aralab                | FitoTerm 300E45 | 4823   | -                           | O/P Mon                                          |
| USB Power Sensors, 50MHz to 8GHz | Boonton               | RTP5008         | 5924   | 12                          | 27-Feb-2026                                      |
| Digital Multimeter               | Fluke                 | 115             | 6145   | 12                          | 06-Jun-2026                                      |
| MXA Signal Analyser              | Keysight Technologies | N9020B          | 6417   | 24                          | 14-Oct-2027                                      |
| Signal Conditioning Unit         | TUV SUD               | SPECTRUM_SCU001 | 6517   | 12                          | 27-Feb-2026                                      |
| Signal Conditioning Unit         | TUV SUD               | SPECTRUM_SCU001 | 6518   | 12                          | 23-Feb-2026                                      |
| SCU Cable Assembly               | TUV SUD               | SPECTRUM_SCU_CA | 6526   | 12                          | 27-Feb-2026                                      |
| SCU Cable Assembly               | TUV SUD               | SPECTRUM_SCU_CA | 6527   | 12                          | 27-Feb-2026                                      |
| SCU Cable Assembly               | TUV SUD               | SPECTRUM_SCU_CA | 6528   | 12                          | 27-Feb-2026                                      |
| SCU Cable Assembly               | TUV SUD               | SPECTRUM_SCU_CA | 6529   | 12                          | 13-Mar-2026                                      |
| SCU Cable Assembly               | TUV SUD               | SPECTRUM_SCU_CA | 6530   | 12                          | 23-Feb-2026                                      |
| SCU Cable Assembly               | TUV SUD               | SPECTRUM_SCU_CA | 6531   | 12                          | 23-Feb-2026                                      |
| USB Wideband Power Sensor        | Boonton               | RTP5008         | 6585   | 12                          | 27-Feb-2026                                      |
| USB Wideband Power Sensor        | Boonton               | RTP5008         | 6586   | 12                          | 27-Feb-2026                                      |
| USB Wideband Power Sensor        | Boonton               | RTP5008         | 6587   | 12                          | 23-Feb-2026                                      |
| USB Wideband Power Sensor        | Boonton               | RTP5008         | 6588   | 12                          | 23-Feb-2026                                      |
| USB Wideband Power Sensor        | Boonton               | RTP5008         | 6589   | 12                          | 23-Feb-2026                                      |
| AC Programmable Power Supply     | iTech                 | IT7324          | 6662   | -                           | O/P Mon                                          |
| AC Programmable Power Supply     | iTech                 | IT7324          | 6665   | -                           | O/P Mon                                          |
| Digital Thermometer              | R.S Components        | RS 5511         | 6739   | 12                          | 07-Feb-2026                                      |

**Table 57**

O/P Mon - Output Monitored using calibrated equipment



## **2.6 Restricted Band Edges**

### **2.6.1 Specification Reference**

FCC 47 CFR Part 15C, Clause 15.205  
ISED RSS-247, Clause 2.4  
ISED RSS-GEN, Clause 8.10

### **2.6.2 Equipment Under Test and Modification State**

A3428, S/N: FF9MP4FP2G - Modification State 0

### **2.6.3 Date of Test**

27-October-2025

### **2.6.4 Test Method**

This test was performed in accordance with ANSI C63.10, clause 6.10.5 and 11.12.1.

Plots for average measurements were taken in accordance with ANSI C63.10, clause 11.12.2.5.2.

The following conversion can be applied to convert from dBμV/m to μV/m:

$10^{(\text{Field Strength in dB}\mu\text{V/m}/20)}$ .

### **2.6.5 Environmental Conditions**

|                     |         |
|---------------------|---------|
| Ambient Temperature | 22.3 °C |
| Relative Humidity   | 44.4 %  |



2.6.6 Test Results

Thread

iPA - Core 0 (SISO)

| Mode   | TX Frequency (MHz) | Band Edge Frequency (MHz) | Peak Level (dBμV/m) | Average Level (dBμV/m) |
|--------|--------------------|---------------------------|---------------------|------------------------|
| Thread | 2405               | 2390                      | 55.31               | 43.09                  |
| Thread | 2475               | 2483.5                    | 54.32               | 42.75                  |

Table 58 - iPA, Core 0, SISO Restricted Band Edge Results

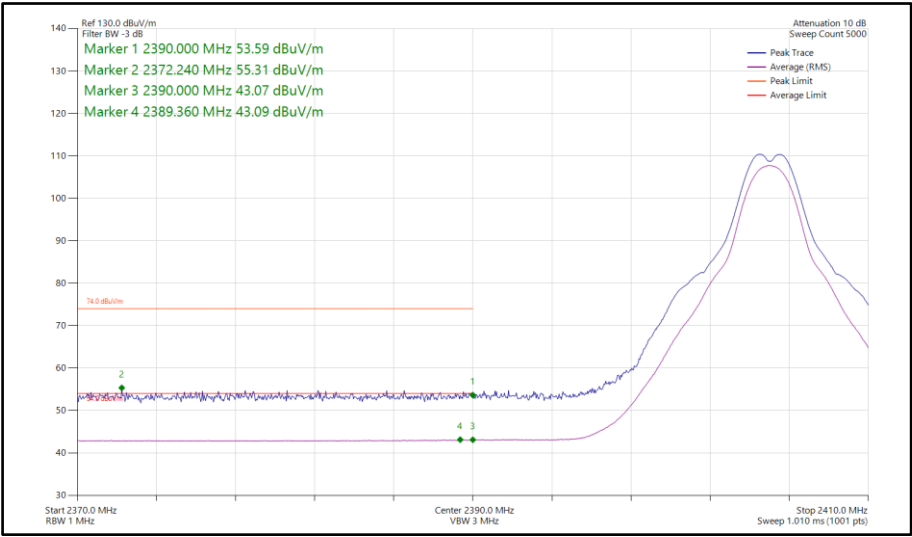


Figure 75 - Thread, iPA, SISO, Core 0 - 2405 MHz Band Edge Frequency 2390 MHz

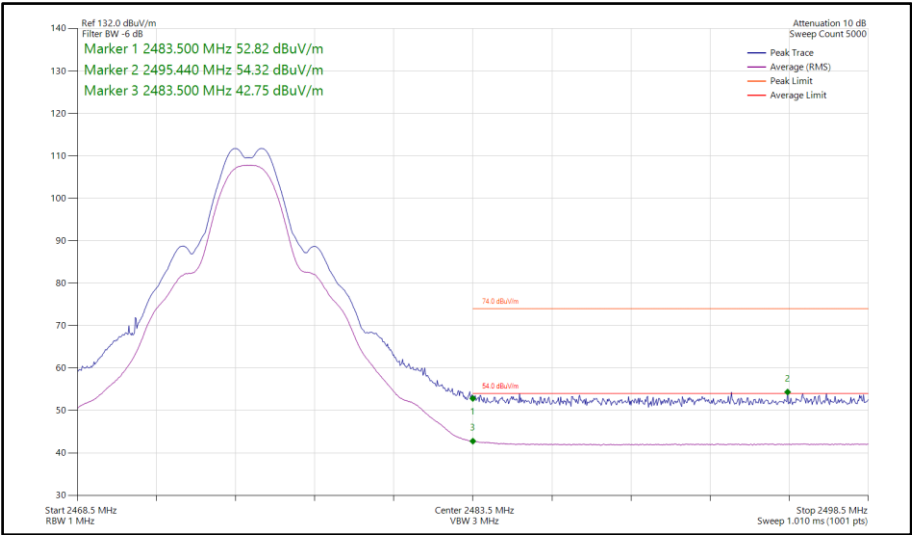


Figure 76 - Thread, iPA, SISO, Core 0 - 2475 MHz Band Edge Frequency 2483.5 MHz



iPA - Core 1 (SISO)

| Mode   | TX Frequency (MHz) | Band Edge Frequency (MHz) | Peak Level (dBµV/m) | Average Level (dBµV/m) |
|--------|--------------------|---------------------------|---------------------|------------------------|
| Thread | 2405               | 2390                      | 55.15               | 43.05                  |
| Thread | 2475               | 2483.5                    | 58.21               | 46.33                  |

Table 59 - iPA, Core 1, SISO Restricted Band Edge Results

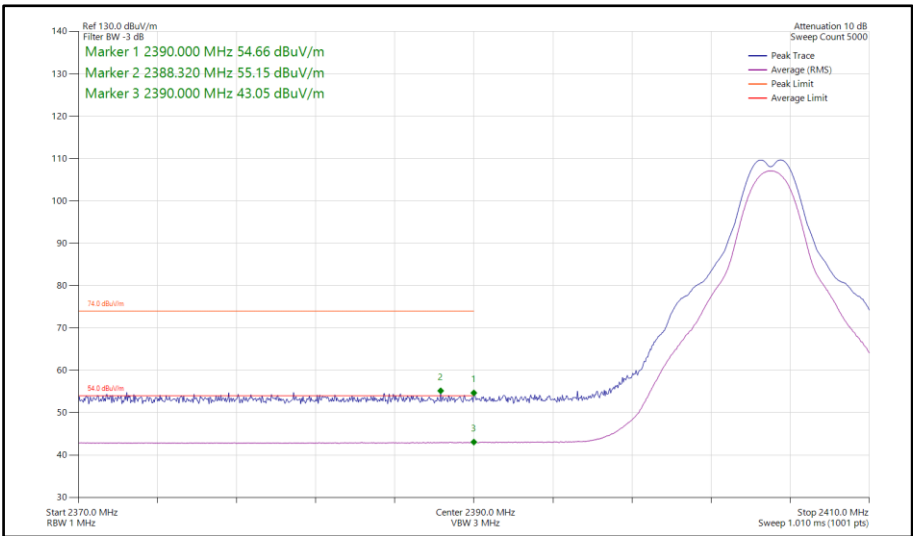


Figure 77 - Thread, iPA, SISO, Core 1 - 2405 MHz Band Edge Frequency 2390 MHz

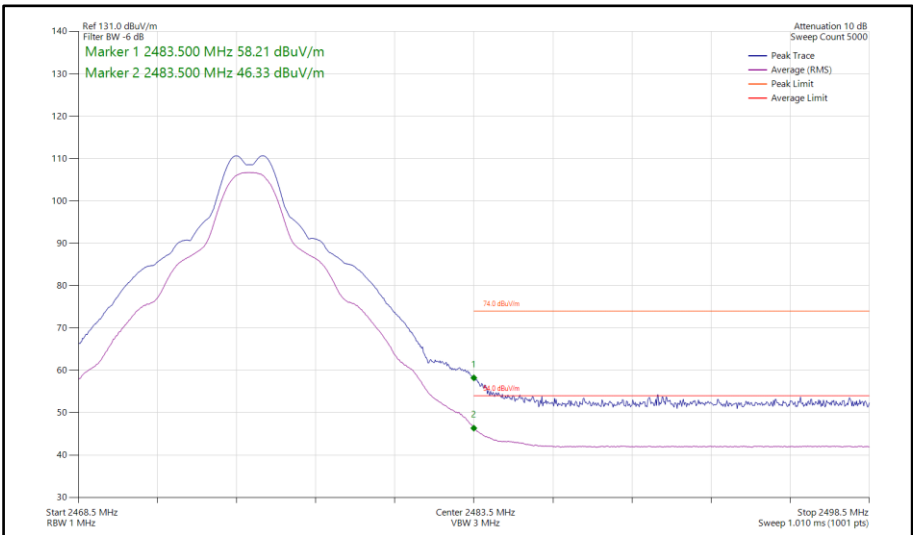


Figure 78 - Thread, iPA, SISO, Core 1 - 2475 MHz Band Edge Frequency 2483.5 MHz



iPA - Core 2 (SISO)

| Mode   | TX Frequency (MHz) | Band Edge Frequency (MHz) | Peak Level (dBμV/m) | Average Level (dBμV/m) |
|--------|--------------------|---------------------------|---------------------|------------------------|
| Thread | 2405               | 2390                      | 55.47               | 43.05                  |
| Thread | 2475               | 2483.5                    | 61.13               | 42.24                  |

Table 60 - iPA, Core 2, SISO Restricted Band Edge Results

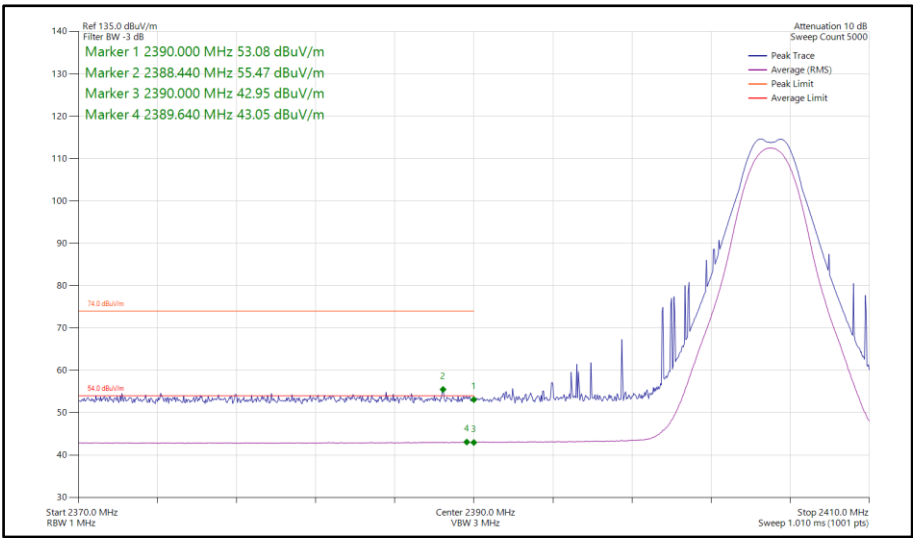


Figure 79 - Thread, iPA, SISO, Core 2 - 2405 MHz Band Edge Frequency 2390 MHz

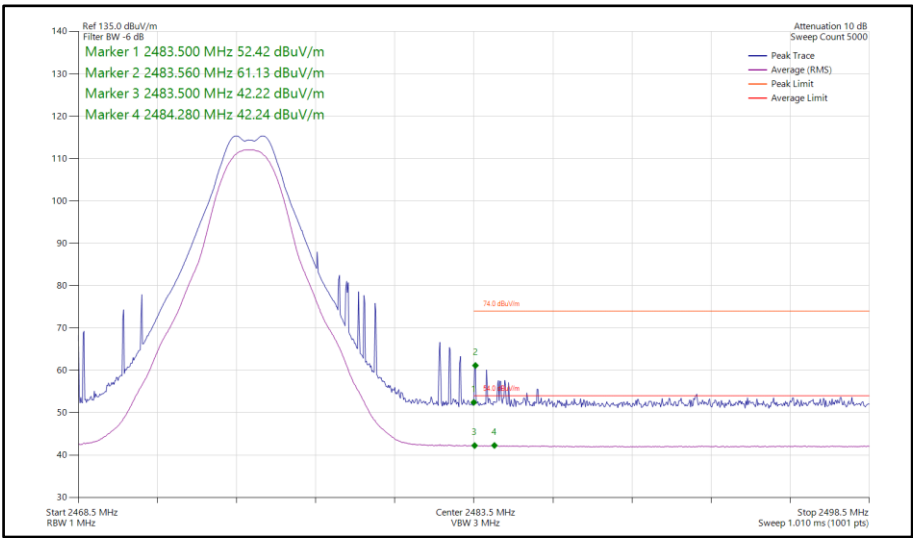


Figure 80 - Thread, iPA, SISO, Core 2 - 2475 MHz Band Edge Frequency 2483.5 MHz



ePA - Core 0 (SISO)

| Mode   | TX Frequency (MHz) | Band Edge Frequency (MHz) | Peak Level (dBμV/m) | Average Level (dBμV/m) |
|--------|--------------------|---------------------------|---------------------|------------------------|
| Thread | 2405               | 2390                      | 56.02               | 44.52                  |
| Thread | 2475               | 2483.5                    | 56.35               | 45.08                  |

Table 61 - ePA, Core 0, SISO Restricted Band Edge Results

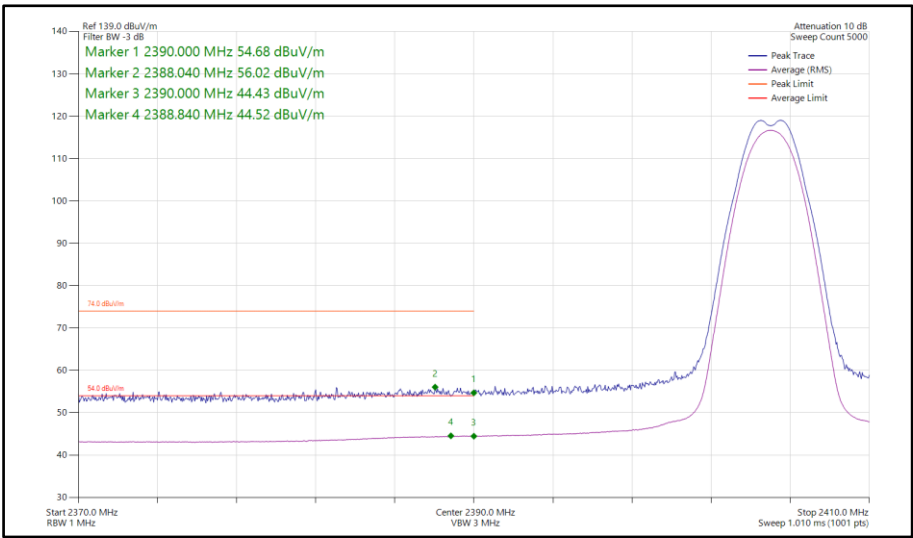


Figure 81 - Thread, ePA, SISO, Core 0 - 2405 MHz Band Edge Frequency 2390 MHz

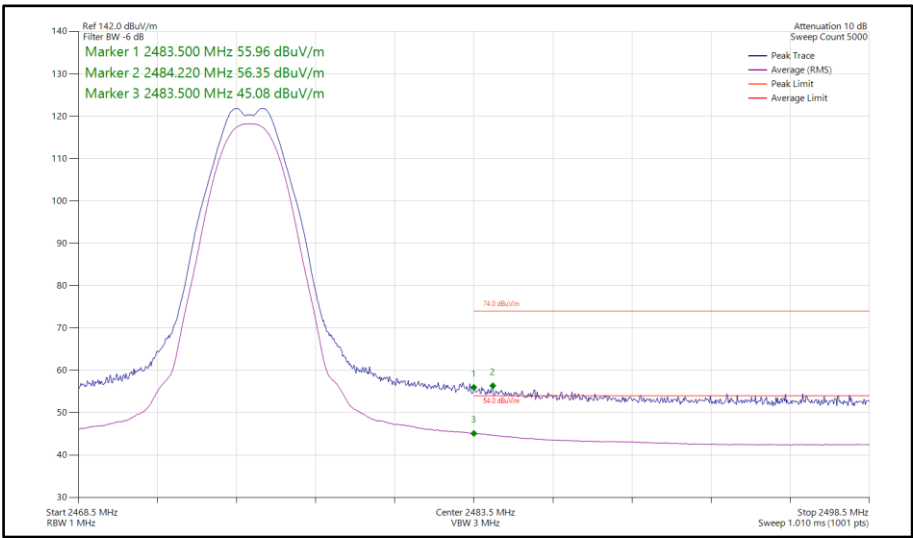


Figure 82 - Thread, ePA, SISO, Core 0 - 2475 MHz Band Edge Frequency 2483.5 MHz



ePA - Core 1 (SISO)

| Mode   | TX Frequency (MHz) | Band Edge Frequency (MHz) | Peak Level (dBµV/m) | Average Level (dBµV/m) |
|--------|--------------------|---------------------------|---------------------|------------------------|
| Thread | 2405               | 2390                      | 57.06               | 44.57                  |
| Thread | 2475               | 2483.5                    | 56.25               | 45.09                  |

Table 62 - ePA, Core 1, SISO Restricted Band Edge Results

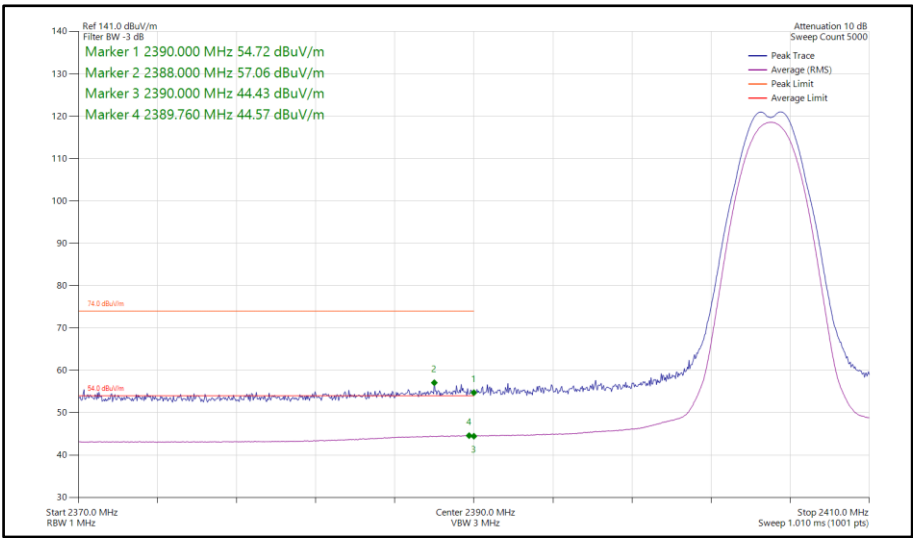


Figure 83 - Thread, ePA, SISO, Core 1 - 2405 MHz Band Edge Frequency 2390 MHz

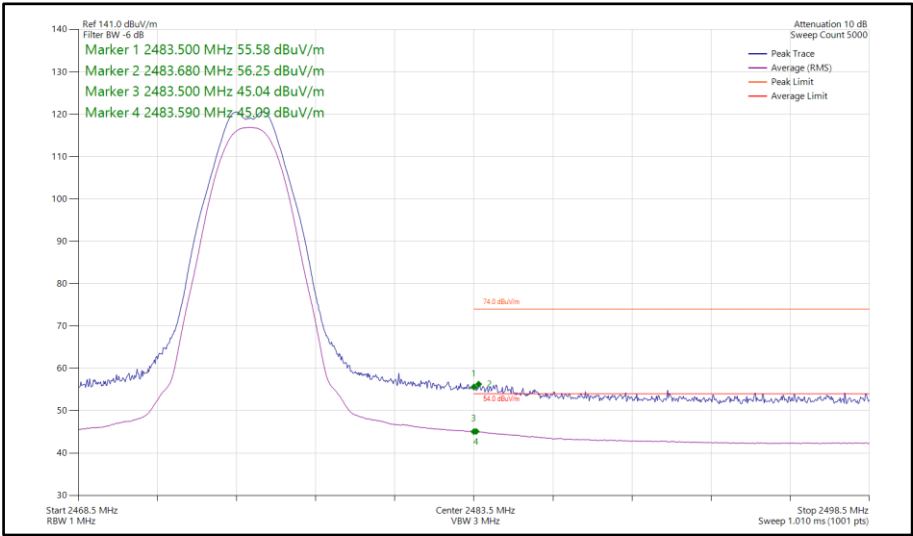


Figure 84 - Thread, ePA, SISO, Core 1 - 2475 MHz Band Edge Frequency 2483.5 MHz



FCC 47 CFR Part 15, Limit Clause 15.209

| Frequency (MHz) | Field Strength ( $\mu\text{V/m}$ at 3 m) |
|-----------------|------------------------------------------|
| 30 to 88        | 100                                      |
| 88 to 216       | 150                                      |
| 216 to 960      | 200                                      |
| Above 960       | 500                                      |

**Table 63**

ISED RSS-GEN, Limit Clause 8.9

| Frequency (MHz) | Field Strength ( $\mu\text{V/m}$ at 3 m) |
|-----------------|------------------------------------------|
| 30 to 88        | 100                                      |
| 88 to 216       | 150                                      |
| 216 to 960      | 200                                      |
| Above 960*      | 500                                      |

**Table 64**

\*Unless otherwise specified, for all frequencies greater than 1 GHz, the radiated emission limits for licence-exempt radio apparatus stated in applicable RSSs (including RSS-Gen) are based on measurements using a linear average detector function having a minimum resolution bandwidth of 1 MHz. If an average limit is specified for the EUT, then the peak emission shall also be measured with instrumentation properly adjusted for such factors as pulse desensitization to ensure the peak emission is less than 20 dB above the average limit.



## 2.6.7 Test Location and Test Equipment Used

This test was carried out in RF Chamber 15.

| Instrument                                       | Manufacturer       | Type No.             | TE No. | Calibration Period (months) | Calibration Expiry Date |
|--------------------------------------------------|--------------------|----------------------|--------|-----------------------------|-------------------------|
| Emissions Software                               | TUV SUD            | EmX V3.6.1 V.        | 5125   | -                           | O/P Mon                 |
| Test Receiver                                    | Rohde & Schwarz    | ESW44                | 5914   | 12                          | 17-Jun-2026             |
| 1500W (300V 12A) AC Power Supply                 | iTech              | IT7324               | 5956   | -                           | O/P Mon                 |
| 5m Semi-Anechoic Chamber (Dual-Axis), Chamber 15 | Albatross Projects | RF Chamber 15        | 5963   | 36                          | 23-Apr-2028             |
| Compact Antenna Mast                             | Maturo Gmbh        | CAM4.0-P             | 5964   | -                           | TU                      |
| Mast & Turntable Controller                      | Maturo Gmbh        | FCU3.0               | 5966   | -                           | TU                      |
| Tilt Antenna Mast                                | Maturo Gmbh        | BAM4.5-P             | 5967   | -                           | TU                      |
| Turntable                                        | Maturo Gmbh        | TT1.5SI              | 5968   | -                           | TU                      |
| Cable (SMA to SMA 1m)                            | Junkosha           | MWX221-01000AMSAMS/A | 5996   | 12                          | 23-May-2026             |
| Cable (SMA to SMA 1m)                            | Junkosha           | MWX221-01000AMSAMS/A | 6018   | 12                          | 12-Jun-2026             |
| Horn Antenna (1-10 GHz)                          | Schwarzbeck        | BBHA9120B            | 6141   | 12                          | 14-Sep-2026             |
| SAC Switch Unit                                  | TUV SUD            | TUV_SSU_001          | 6144   | 12                          | 05-Dec-2026             |
| Digital Multimeter                               | Fluke              | 115                  | 6146   | 12                          | 05-Jun-2026             |
| EMI Test Receiver                                | Rohde & Schwarz    | ESW44                | 6294   | 12                          | 24-Feb-2026             |
| USB Spectrum Analyser                            | Signal Hound       | SA124B               | 6297   | -                           | TU                      |
| USB Spectrum Analyser                            | Signal Hound       | SA124B               | 6298   | -                           | TU                      |
| Digital Multimeter                               | Fluke              | 115                  | 6345   | 12                          | 24-Jul-2026             |
| Humidity and Temperature Meter                   | R.S Components     | 1364                 | 6346   | 12                          | 13-Mar-2026             |
| SAC Switch Unit                                  | TUV SUD            | TUV_SSU_004 PLC      | 6349   | 12                          | 16-May-2026             |
| Horn Antenna (1–10.5 GHz)                        | Schwarzbeck        | BBHA 9120 B          | 6457   | 12                          | 14-Sep-2026             |
| Humidity and Temperature Meter                   | R.S Components     | 1364                 | 6486   | 12                          | 01-Jul-2026             |
| AC Power Supply                                  | iTech              | IT7324               | 6657   | -                           | O/P Mon                 |
| 3m Semi-Anechoic Chamber                         | Albatross Projects | RF Chamber 17        | 6658   | 36                          | 07-May-2028             |
| Mast and Turntable Controller                    | Maturo Gmbh        | FCU3.0               | 6659   | -                           | TU                      |
| Tilt Antenna Mast                                | Maturo Gmbh        | BAM4.5-P             | 6660   | -                           | TU                      |
| Turntable                                        | Maturo Gmbh        | TT1.5SI              | 6661   | -                           | TU                      |
| 1m Cable                                         | Junkosha           | MWX241-01000AMSAMS/B | 6740   | 12                          | 27-Apr-2026             |
| 8M SMA Cable                                     | Junkosha           | MWX221-08000AMSAMS/B | 6833   | 12                          | 18-Aug-2026             |



| Instrument                           | Manufacturer  | Type No.             | TE No. | Calibration Period (months) | Calibration Expiry Date |
|--------------------------------------|---------------|----------------------|--------|-----------------------------|-------------------------|
| 8m SMA-Type Cable                    | Junkosha      | MWX221-08000AMSAMS/B | 6846   | 12                          | 23-Oct-2026             |
| Cable Assembly                       | Pasternack    | PE300-60             | 6856   | -                           | TU                      |
| Cable Assembly                       | Pasternack    | PE300-60             | 6859   | -                           | TU                      |
| Cable Assembly                       | Pasternack    | PE300-60             | 6860   | -                           | TU                      |
| Cable Assembly                       | Pasternack    | PE300-60             | 6862   | -                           | TU                      |
| Cable Assembly                       | Pasternack    | PE300-60             | 6868   | -                           | TU                      |
| RF Amplifier BROADBAND AMPL/SMA/RoHS | Mini-Circuits | ZX60-83LN12+         | 6976   | 12                          | 05-Apr-2026             |
| RF Amplifier BROADBAND AMPL/SMA/RoHS | Mini-Circuits | ZX60-83LN12+         | 6979   | 12                          | 05-Apr-2026             |

**Table 65**

TU - Traceability Unscheduled  
O/P Mon - Output Monitored using calibrated equipment



### 3 Measurement Uncertainty

For a 95% confidence level, the measurement uncertainties for defined systems are:

| Test Name                      | Measurement Uncertainty                                        |
|--------------------------------|----------------------------------------------------------------|
| Power Spectral Density         | $\pm 1.00$ dB                                                  |
| Spurious Radiated Emissions    | 30 MHz to 1 GHz: $\pm 5.2$ dB<br>1 GHz to 40 GHz: $\pm 6.3$ dB |
| Authorised Band Edges          | 30 MHz to 1 GHz: $\pm 5.2$ dB<br>1 GHz to 40 GHz: $\pm 6.3$ dB |
| Maximum Conducted Output Power | Method PM: $\pm 0.65$ dB<br>Method SA: $\pm 1.05$ dB           |
| Emission Bandwidth             | $\pm 72.08$ kHz                                                |
| Restricted Band Edges          | 30 MHz to 1 GHz: $\pm 5.2$ dB<br>1 GHz to 40 GHz: $\pm 6.3$ dB |

**Table 66**

#### Measurement Uncertainty Decision Rule – Accuracy Method

Determination of conformity with the specification limits is based on the decision rule according to IEC Guide 115:2021, Clause 4.4.3 (Procedure 2). The measurement results are directly compared with the test limit to determine conformance with the requirements of the standard.

Risk: The uncertainty of measurement about the measured result is negligible with regard to the final pass/fail decision. The measurement result can be directly compared with the test limit to determine conformance with the requirement (compare IEC Guide 115). The level of risk to falsely accept and falsely reject items is further described in ILAC-G8.