

# TEST REPORT

Applicant Name: Imaginastix Pty Ltd  
Address: 57 Crawshaw Cr, Manning, Australia  
Report Number: 2501S11939E-RF-00  
FCC ID: 2AOJ3-BLE-TAG

## Test Standard (s)

FCC PART 15.247

## Sample Description

Product Type: Imaginastix Tag  
Model No.: BLE-TAG  
Multiple Model(s) No.: N/A  
Trade Mark: N/A  
Date Received: 2025-04-22  
Issue Date: 2025-06-27

Test Result:

Pass▲

▲ In the configuration tested, the EUT complied with the standards above.

## Prepared and Checked By:

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Wills Yu  
RF Engineer

## Approved By:

*Michelle Zeng*

Michelle Zeng  
RF Supervisor

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DOCUMENT REVISION HISTORY

| Revision Number | Report Number     | Description of Revision | Date of Revision |
|-----------------|-------------------|-------------------------|------------------|
| 0               | 2501S11939E-RF-00 | Original Report         | 2025-06-27       |

## GENERAL INFORMATION

### Product Description for Equipment under Test (EUT)

|                                            |                                                                                                 |
|--------------------------------------------|-------------------------------------------------------------------------------------------------|
| <b>Frequency Range</b>                     | 2402~2480MHz                                                                                    |
| <b>Maximum Conducted Output Peak Power</b> | 1.15 dBm                                                                                        |
| <b>Modulation Technique</b>                | GFSK                                                                                            |
| <b>Antenna Specification<sup>#</sup></b>   | Antenna 1: 3.96dBi Antenna 2: -3.10dBi(provided by the applicant)                               |
| <b>Voltage Range</b>                       | DC 3V form battery                                                                              |
| <b>Sample serial number</b>                | 31RC-3 for Radiated Emissions Test<br>31RC-4 for RF Conducted Test (Assigned by BACL, Shenzhen) |
| <b>Sample/EUT Status</b>                   | Good condition                                                                                  |
| <b>Adapter Information</b>                 | N/A                                                                                             |

### Objective

This report is in accordance with FCC Part 15, Subpart C, and section 15.203, 15.205, 15.209, 15.247 rules.

### Test Methodology

All measurements contained in this report were conducted with ANSI C63.10-2013, American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices.

And KDB 558074 D01 15.247 Meas Guidance v05r02.

All emissions measurement was performed at Bay Area Compliance Laboratories Corp. (Shenzhen). The radiated testing was performed at an antenna-to-EUT distance of 3 meters.

Each test item follows test standards and with no deviation.

## Measurement Uncertainty

| Parameter                          |                             | Uncertainty                            |
|------------------------------------|-----------------------------|----------------------------------------|
| Occupied Channel Bandwidth         |                             | 109.2kHz(k=2, 95% level of confidence) |
| RF output power, conducted         |                             | 0.86dB(k=2, 95% level of confidence)   |
| Power Spectral Density             |                             | 0.90dB(k=2, 95% level of confidence)   |
| AC Power Lines Conducted Emissions | 9kHz~150 kHz                | 3.63dB(k=2, 95% level of confidence)   |
|                                    | 150 kHz ~30MHz              | 3.66dB(k=2, 95% level of confidence)   |
| Radiated Emissions                 | 0.009MHz~30MHz              | 3.60dB(k=2, 95% level of confidence)   |
|                                    | 30MHz~200MHz (Horizontal)   | 5.32dB(k=2, 95% level of confidence)   |
|                                    | 30MHz~200MHz (Vertical)     | 5.43dB(k=2, 95% level of confidence)   |
|                                    | 200MHz~1000MHz (Horizontal) | 5.77dB(k=2, 95% level of confidence)   |
|                                    | 200MHz~1000MHz (Vertical)   | 5.73dB(k=2, 95% level of confidence)   |
|                                    | 1GHz - 6GHz                 | 5.34dB(k=2, 95% level of confidence)   |
|                                    | 6GHz - 18GHz                | 5.40dB(k=2, 95% level of confidence)   |
|                                    | 18GHz - 40GHz               | 5.64dB(k=2, 95% level of confidence)   |
| Temperature                        |                             | ±1°C                                   |
| Humidity                           |                             | ±1%                                    |
| Supply voltages                    |                             | ±0.4%                                  |

*Note: The extended uncertainty given in this report is obtained by combining the standard uncertainty times the coverage factor K with the 95% confidence interval. Otherwise required by the applicant or Product Regulations, Decision Rule in this report did not consider the uncertainty.*

## Test Facility

The Test site used by Bay Area Compliance Laboratories Corp. (Shenzhen) to collect test data is located on the 5F(B-West) , 6F, 7F, the 3rd Phase of Wan Li Industrial Building D, Shihua Rd, FuTian Free Trade Zone, Shenzhen, China.

The lab has been recognized as the FCC accredited lab under the KDB 974614 D01 and is listed in the FCC Public Access Link (PAL) database, FCC Registration No. : 715558, the FCC Designation No. : CN5045.

## SYSTEM TEST CONFIGURATION

### Description of Test Configuration

For BLE mode, 40 channels are provided to testing:

| Channel | Frequency (MHz) | Channel | Frequency (MHz) |
|---------|-----------------|---------|-----------------|
| 0       | 2402            | 20      | 2442            |
| 1       | 2404            | 21      | 2444            |
| 2       | 2406            | 22      | 2446            |
| 3       | 2408            | 23      | 2448            |
| 4       | 2410            | 24      | 2450            |
| 5       | 2412            | 25      | 2452            |
| 6       | 2414            | 26      | 2454            |
| 7       | 2416            | 27      | 2456            |
| 8       | 2418            | 28      | 2458            |
| 9       | 2420            | 29      | 2460            |
| 10      | 2422            | 30      | 2462            |
| 11      | 2424            | 31      | 2464            |
| 12      | 2426            | 32      | 2466            |
| 13      | 2428            | 33      | 2468            |
| 14      | 2430            | 34      | 2470            |
| 15      | 2432            | 35      | 2472            |
| 16      | 2434            | 36      | 2474            |
| 17      | 2436            | 37      | 2476            |
| 18      | 2438            | 38      | 2478            |
| 19      | 2440            | 39      | 2480            |

EUT was tested with Channel 0, 19 and 39.

### EUT Exercise Software

| Exercise Software <sup>#</sup> | NanoBeaconConfigToolMpTool_V3.2.29 |           |                |           |              |           |
|--------------------------------|------------------------------------|-----------|----------------|-----------|--------------|-----------|
| Power Level <sup>#</sup>       |                                    |           |                |           |              |           |
| Mode                           | Low Channel                        |           | Middle Channel |           | High Channel |           |
| BLE 1M                         | Antenna 1                          | Antenna 2 | Antenna 1      | Antenna 2 | Antenna 1    | Antenna 2 |
|                                | -16                                | 4         | -16            | 4         | -16          | 4         |

### Special Accessories

No special accessory.

### Equipment Modifications

No modification was made to the EUT tested.

**Support Equipment List and Details**

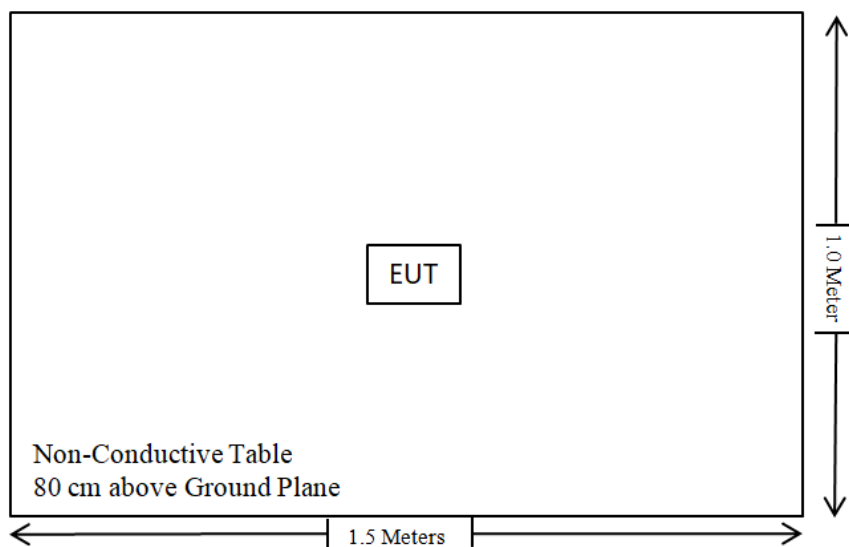
| Manufacturer | Description | Model | Serial Number |
|--------------|-------------|-------|---------------|
| /            | /           | /     | /             |

**External I/O Cable**

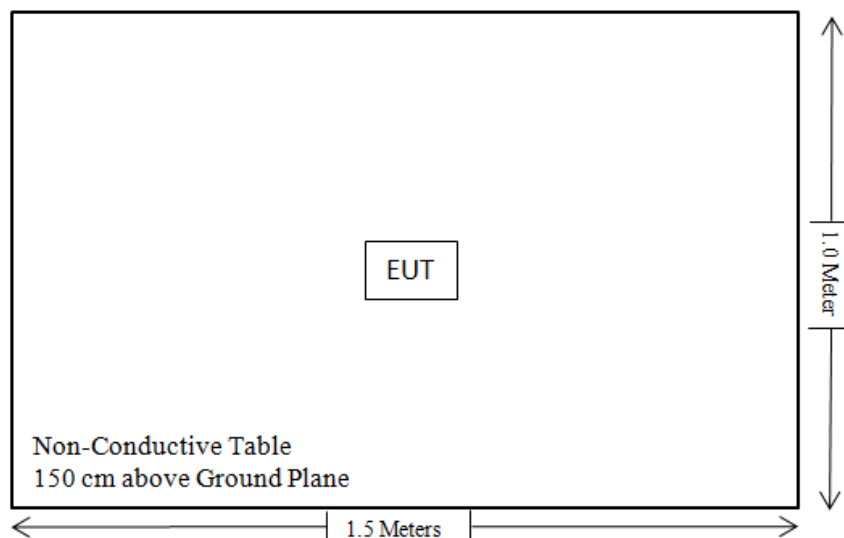
| Cable Description | Length (m) | From Port | To |
|-------------------|------------|-----------|----|
| /                 | /          | /         | /  |

**Block Diagram of Test Setup**

For Radiated Emissions below 1GHz:



For Radiated Emissions above 1GHz:



**SUMMARY OF TEST RESULTS**

| <b>FCC Rules</b>                | <b>Description of Test</b>               | <b>Result</b>  |
|---------------------------------|------------------------------------------|----------------|
| §15.203                         | Antenna Requirement                      | Compliant      |
| §15.207 (a)                     | AC Line Conducted Emissions              | Not Applicable |
| §15.205, §15.209,<br>§15.247(d) | Spurious Emissions                       | Compliant      |
| §15.247 (a)(2)                  | 6 dB Emission Bandwidth                  | Compliant      |
| §15.247(b)(3)                   | Maximum Conducted Output Power           | Compliant      |
| §15.247(e)                      | Power Spectral Density                   | Compliant      |
| §15.247(d)                      | 100 kHz Bandwidth of Frequency Band Edge | Compliant      |
| C63.10 §11.6                    | Duty Cycle                               | /              |
| §2.1091                         | MPE-Based Exemption                      | Compliant      |

Not Applicable: The EUT is powered by battery only.

**TEST EQUIPMENT LIST**

| Manufacturer                  | Description                       | Model           | Serial Number | Calibration Date | Calibration Due Date |
|-------------------------------|-----------------------------------|-----------------|---------------|------------------|----------------------|
| <b>Radiated Emission Test</b> |                                   |                 |               |                  |                      |
| Rohde & Schwarz               | EMI Test Receiver                 | ESR3            | 102455        | 2024/12/04       | 2025/12/03           |
| Sonoma instrument             | Pre-amplifier                     | 310N            | 186238        | 2025/04/29       | 2026/04/28           |
| Sunol Sciences                | Broadband Antenna                 | JB1             | A040904-1     | 2023/07/20       | 2026/07/19           |
| Unknown                       | Cable                             | XH500C          | J-10M-A       | 2025/04/29       | 2026/04/28           |
| Unknown                       | Cable                             | Chamber Cable 1 | F-03-EM236    | 2025/04/29       | 2026/04/28           |
| BACL                          | Active Loop Antenna               | 1313-1A         | 4031911       | 2024/05/14       | 2027/05/13           |
| Unknown                       | Cable                             | PNG214          | 1354          | 2024/12/04       | 2025/12/03           |
| Unknown                       | Cable                             | 2Y194           | 0735          | 2024/12/04       | 2025/12/03           |
| Audix                         | EMI Test software                 | E3              | 19821b(V9)    | NCR              | NCR                  |
| Rohde&Schwarz                 | Spectrum Analyzer                 | FSV40           | 101605        | 2025/03/26       | 2026/03/25           |
| A.H.System                    | Preamplifier                      | PAM-0118P       | 489           | 2024/11/15       | 2025/11/14           |
| Schwarzbeck                   | Horn Antenna                      | BBHA9120D(1201) | 1143          | 2023/07/26       | 2026/07/25           |
| Unknown                       | RF Cable                          | KMSE            | 0735          | 2024/12/06       | 2025/12/05           |
| Unknown                       | RF Cable                          | UFA147          | 219661        | 2024/12/06       | 2025/12/05           |
| JD                            | Filter Switch Unit                | DT7220FSU       | DS79906       | 2024/09/09       | 2025/09/08           |
| JD                            | Multiplex Switch Test Control Set | DT7220SCU       | DS79903       | 2024/09/09       | 2025/09/08           |
| A.H.System                    | Pre-amplifier                     | PAM-1840VH      | 190           | 2025/04/29       | 2026/04/28           |
| Electro-Mechanics Co          | Horn Antenna                      | 3116            | 9510-2270     | 2023/09/18       | 2026/09/17           |
| UTIFLEX                       | RF Cable                          | NO. 13          | 232308-001    | 2024/12/18       | 2025/12/17           |
| <b>RF Conducted Test</b>      |                                   |                 |               |                  |                      |
| Tonscend                      | RF control Unit                   | JS0806-2        | 19D8060154    | 2024/08/06       | 2025/08/05           |
| Rohde & Schwarz               | Spectrum Analyzer                 | FSV40           | 101473        | 2024/12/04       | 2025/12/03           |
| Narda                         | 20dB Attenuator                   | 99899           | 0107          | 2024/06/27       | 2025/06/26           |

**\* Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Shenzhen) attests that all calibrations have been performed in accordance to requirements that traceable to National Primary Standards and International System of Units (SI).

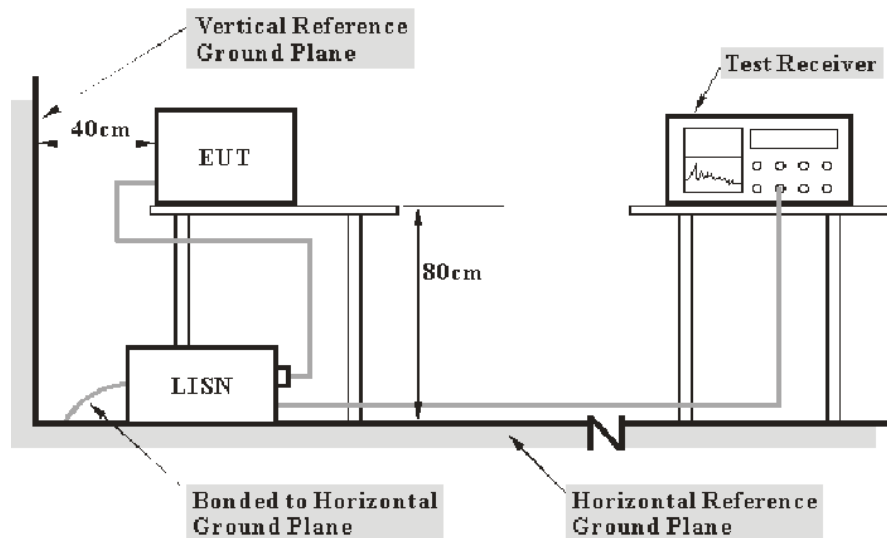
## REQUIREMENTS AND TEST PROCEDURES

### AC Line Conducted Emissions

#### Applicable Standard

FCC§15.207

#### EUT Setup



Note: 1. Support units were connected to second LISN.  
2. Both of LISNs (AMN) 80 cm from EUT and at the least 80 cm from other units and other metal planes support units.

The setup of EUT is according with per ANSI C63.10-2013 measurement procedure. The specification used was with the FCC Part 15.207 limits.

The spacing between the peripherals was 10 cm.

#### EMI Test Receiver Setup

The EMI test receiver was set to investigate the spectrum from 150 kHz to 30 MHz.

During the conducted emission test, the EMI test receiver was set with the following configurations:

| Frequency Range  | RBW   |
|------------------|-------|
| 150 kHz – 30 MHz | 9 kHz |

**Test Procedure**

Maximizing procedure was performed on the six (6) highest emissions of the EUT.

All final data was recorded in the Quasi-peak and average detection mode.

**Factor & Over Limit Calculation**

The factor is calculated by adding LISN VDF (Voltage Division Factor) and Cable Loss. The basic equation is as follows:

$$\text{Factor} = \text{LISN VDF} + \text{Cable Loss}$$

The “**Over limit**” column of the following data tables indicates the degree of compliance with the applicable limit. For example, an Over limit of -7 dB means the emission is 7 dB below the limit. The equation for calculation is as follows:

$$\begin{aligned}\text{Over Limit} &= \text{Level} - \text{Limit} \\ \text{Level} &= \text{Read Level} + \text{Factor}\end{aligned}$$

Note: The term "cable loss" refers to the combination of a cable and a 10dB transient limiter (attenuator).

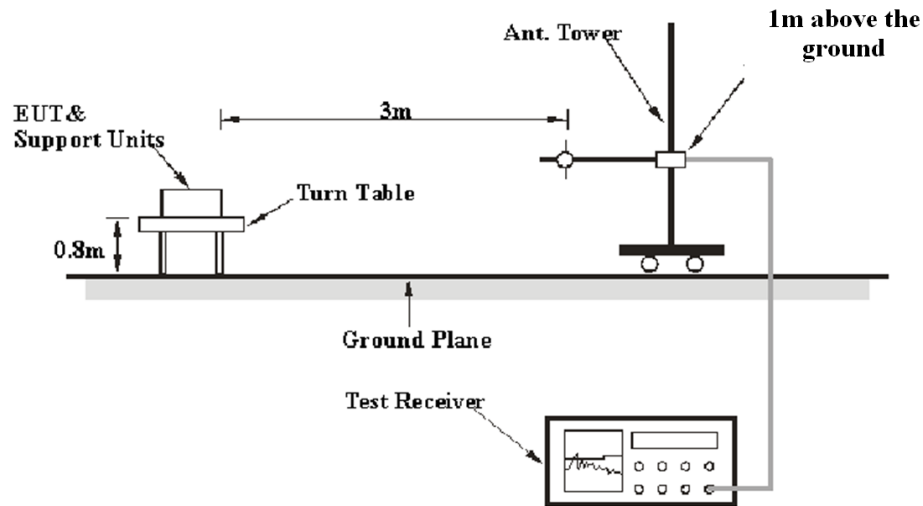
## Unwanted Emission Frequencies and Restricted Bands

### Applicable Standard

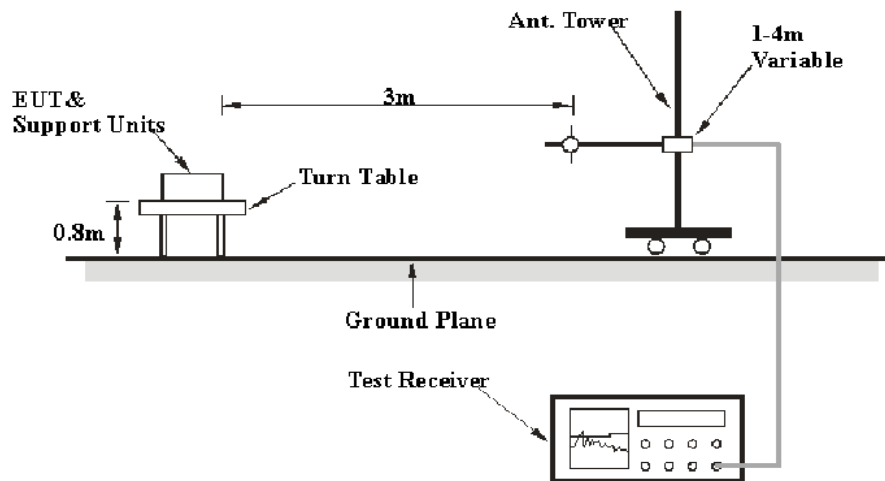
FCC §15.247 (d); §15.209; §15.205;

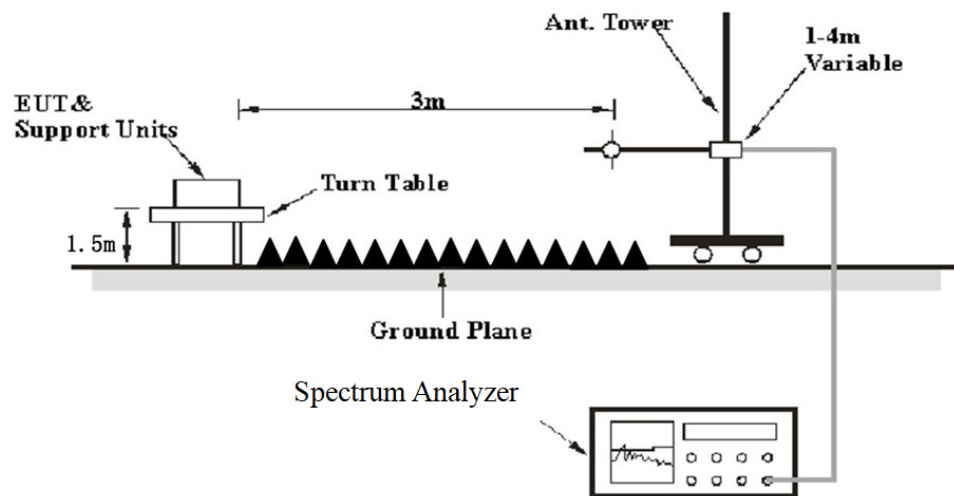
### EUT Setup

9 kHz-30MHz:



30MHz-1GHz:



**Above 1GHz:**

The radiated emission tests were performed in the 3meters test site, using the setup accordance with the ANSI C63.10-2013. The specification used was the FCC 15.205, FCC 15.209, FCC 15.247 limits.

The external I/O cables were draped along the test table and formed a bundle 30 to 40 cm long in the middle.

**EMI Test Receiver & Spectrum Analyzer Setup**

The system was investigated from 9 kHz to 25 GHz.

During the radiated emission test, the EMI test receiver & Spectrum Analyzer Setup were set with the following configurations:

**9 kHz-1GHz:**

| Frequency Range   | RBW     | Video B/W | IF B/W  | Measurement | Detector |
|-------------------|---------|-----------|---------|-------------|----------|
| 9 kHz – 150 kHz   | /       | /         | 200 Hz  | QP          | QP       |
|                   | 300 Hz  | 1 kHz     | /       | PK          | Peak     |
| 150 kHz – 30 MHz  | /       | /         | 9 kHz   | QP          | QP       |
|                   | 10 kHz  | 30 kHz    | /       | PK          | Peak     |
| 30 MHz – 1000 MHz | /       | /         | 120 kHz | QP          | QP       |
|                   | 100 kHz | 300 kHz   | /       | PK          | Peak     |

**1-25GHz:****Pre-scan**

| Measurement | Duty cycle | RBW  | Video B/W           | Detector |
|-------------|------------|------|---------------------|----------|
| PK          | Any        | 1MHz | 3 MHz               | Peak     |
| AV          | >98%       | 1MHz | 1 kHz               | Peak     |
|             | <98%       | 1MHz | $\geq 1/\text{Ton}$ | Peak     |

Final measurement for emission identified during pre-scan

| Measurement | Duty cycle | RBW  | Video B/W | Detector |
|-------------|------------|------|-----------|----------|
| PK          | Any        | 1MHz | 3 MHz     | Peak     |
| AV          | >98%       | 1MHz | 10 Hz     | Peak     |
|             | <98%       | 1MHz | ≥1/Ton    | Peak     |

Note: Ton is minimum transmission duration

If the maximized peak measured value complies with under the QP/Average limit more than 6dB, then it is unnecessary to perform an QP/Average measurement.

### Test Procedure

Maximizing procedure was performed on the highest emissions to ensure that the EUT complied with all installation combinations.

All final data was recorded in Quasi-peak detection mode except for the frequency bands 9–90 kHz, 110–490 kHz and above 1000 MHz, average detection modes for frequency bands 9–90 kHz and 110–490 kHz, peak and average detection modes for frequencies above 1 GHz.

For 9 kHz-30MHz, the report shall list the six emissions with the smallest margin relative to the limit, for each of the three antenna orientations (parallel, perpendicular, and ground-parallel) unless the margin is greater than 20 dB.

All emissions under the average limit and under the noise floor have not recorded in the report.

### Factor & Over Limit/Margin Calculation

The Factor is calculated by adding the Antenna Factor and Cable Loss, and subtracting the Amplifier Gain. The basic equation is as follows:

$$\text{Factor} = \text{Antenna Factor} + \text{Cable Loss} - \text{Amplifier Gain}$$

The “**Over Limit/Margin**” column of the following data tables indicates the degree of compliance with the applicable limit. For example, an Over Limit/margin of -7dB means the emission is 7dB below the limit. The equation for calculation is as follows:

$$\begin{aligned} \text{Over Limit/Margin} &= \text{Level} / \text{Corrected Amplitude} - \text{Limit} \\ \text{Level} / \text{Corrected Amplitude} &= \text{Read Level} + \text{Factor} \end{aligned}$$

## 6 dB Emission Bandwidth

### Standard Applicable

According to FCC §15.247(a) (2)

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

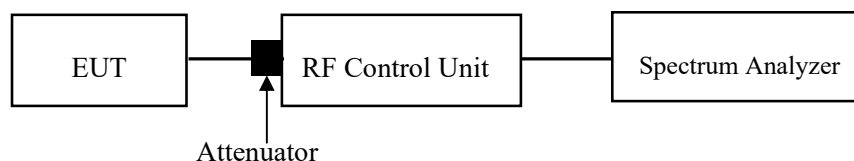
### Test Procedure

Test Method: ANSI C63.10-2013 Clause 11.8.1 & Clause 6.9.3

- a. Set RBW = 100 kHz.
- b. Set the VBW  $\geq [3 \times \text{RBW}]$ .
- c. Detector = peak.
- d. Trace mode = max hold.
- e. Sweep = auto couple.
- f. Allow the trace to stabilize.
- g. Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

The occupied bandwidth is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers are each equal to 0.5% of the total mean power of the given emission. Procedure as below

- a. The instrument center frequency is set to the nominal EUT channel center frequency. The frequency span for the spectrum analyzer shall be between 1.5 times and 5.0 times the OBW.
- b. The nominal IF filter bandwidth (3 dB RBW) shall be in the range of 1% to 5% of the OBW, and VBW shall be approximately three times the RBW, unless otherwise specified by the applicable requirement.
- c. Set the reference level of the instrument as required, keeping the signal from exceeding the maximum input mixer level for linear operation. In general, the peak of the spectral envelope shall be more than  $[10 \log (\text{OBW}/\text{RBW})]$  below the reference level.
- d. Step a) through step c) might require iteration to adjust within the specified range.
- e. Video averaging is not permitted. Where practical, a sample detection and single sweep mode shall be used. Otherwise, peak detection and max hold mode (until the trace stabilizes) shall be used.
- f. Use the 99% power bandwidth function of the instrument (if available) and report the measured bandwidth.
- g. If the instrument does not have a 99% power bandwidth function, then the trace data points are recovered and directly summed in linear power terms. The recovered amplitude data points, beginning at the lowest frequency, are placed in a running sum until 0.5% of the total is reached; that frequency is recorded as the lower frequency. The process is repeated until 99.5% of the total is reached; that frequency is recorded as the upper frequency. The 99% power bandwidth is the difference between these two frequencies.
- h. The occupied bandwidth shall be reported by providing plot(s) of the measuring instrument display; the plot axes and the scale units per division shall be clearly labeled. Tabular data may be reported in addition to the plot(s).



## Peak Output Power Measurement

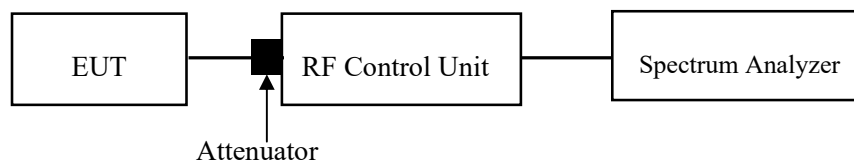
### Applicable Standard

According to FCC §15.247(b) (3), for systems using digital modulation in the 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz bands: 1 Watt. As an alternative to a peak power measurement, compliance with the one Watt limit can be based on a measurement of the maximum conducted output power. Maximum Conducted Output Power is defined as the total transmit power delivered to all antennas and antenna elements averaged across all symbols in the signaling alphabet when the transmitter is operating at its maximum power control level. Power must be summed across all antennas and antenna elements. The average must not include any time intervals during which the transmitter is off or is transmitting at a reduced power level. If multiple modes of operation are possible (e.g., alternative modulation methods), the maximum conducted output power is the highest total transmit power occurring in any mode.

### Test Procedure

Test Method: ANSI C63.10-2013 Clause 11.9.1.1

1. Place the EUT on a bench and set it in transmitting mode.
2. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to one test equipment.
3. Add a correction factor to the display.
4. Set the  $RBW \geq DTS$  bandwidth.
5. Set the  $VBW \geq [3 \times RBW]$ .
6. Set  $span \geq [3 \times RBW]$ .
7. Sweep time = auto couple.
8. Detector = peak.
9. Trace mode = max hold.
10. Allow the trace to stabilize.
11. Use peak marker function to determine the peak amplitude level.



Note: A short RF cable with low cable loss connected to the EUT antenna port, which was provided by client or lab, the cable loss was add with offset into test equipment, the total offset consists of attenuator and/or RF cable loss

## 100 kHz Bandwidth of Frequency Band Edge

### Applicable Standard

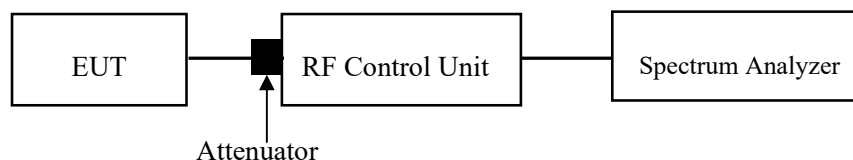
In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the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

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

### Test Procedure

Test Method: ANSI C63.10-2013 Clause 11.11

1. Set the RBW =100 kHz.
  2. Set the VBW  $\geq 3 \times$  RBW.
  3. Detector = peak
  4. Sweep time = auto couple.
  5. Trace mode=max hold
  6. All trace to fully stabilize
  7. Use the peak marker function to determine the maximum amplitude level.
- Ensure that amplitude of all unwanted emissions outside of the authorized frequency band(excluding restricted frequency bands) is attenuated by at least the minimum requirement specified in 11.11.  
Report the three highest emissions relative to the limit.



## Power Spectral Density

### Applicable Standard

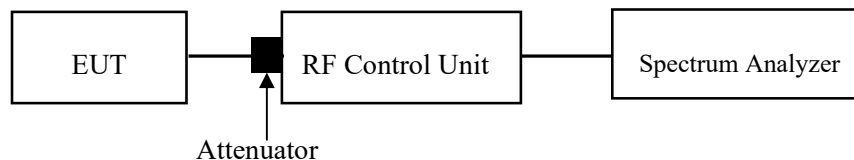
According to FCC §15.247(e):

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

### Test Procedure

Test Method: ANSI C63.10-2013 Clause 11.10.2

1. Use this procedure when the maximum peak conducted output power in the fundamental emission is used to demonstrate compliance.
2. Set analyzer center frequency to DTS channel center frequency
3. Set the span to 1.5 times the DTS bandwidth.
4. Set the RBW to:  $3\text{kHz} \leq \text{RBW} \leq 100\text{ kHz}$ .
5. Set the VBW  $\geq 3 \times \text{RBW}$ .
6. Detector = peak.
7. Sweep time = auto couple.
8. Trace mode = max hold.
9. Allow trace to fully stabilize.
10. Use the peak marker function to determine the maximum amplitude level within the RBW.
11. If measured value exceeds limit, reduce RBW (no less than 3 kHz) and repeat.



Note: A short RF cable with low cable loss connected to the EUT antenna port, which was provided by client or lab, the cable loss was add with offset into test equipment, the total offset consists of attenuator and/or RF cable loss

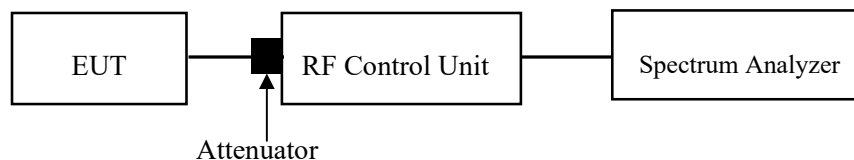
## Duty Cycle

### Test Procedure

According to ANSI C63.10-2013 Section 11.6

The zero-span mode on a spectrum analyzer or EMI receiver if the response time and spacing between bins on the sweep are sufficient to permit accurate measurements of the ON and OFF times of the transmitted signal:

- 1) Set the center frequency of the instrument to the center frequency of the transmission.
- 2) Set  $RBW \geq OBW$  if possible; otherwise, set RBW to the largest available value.
- 3) Set  $VBW \geq RBW$ . Set detector = peak or average.
- 4) The zero-span measurement method shall not be used unless both RBW and VBW are  $> 50/T$  and the number of sweep points across duration T exceeds 100. (For example, if VBW and/or RBW are limited to 3 MHz, then the zero-span method of measuring the duty cycle shall not be used if  $T \leq 16.7 \mu s$ .)



## ANTENNA REQUIREMENT

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### Applicable Standard

According to FCC § 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this Section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

Further, this requirement does not apply to intentional radiators that must be professionally installed, such as perimeter protection systems and some field disturbance sensors, or to other intentional radiators which, in accordance with § 15.31(d), must be measured at the installation site. However, the installer shall be responsible for ensuring that the proper antenna is employed so that the limits in this part are not exceeded.

### Antenna Connector Construction

The EUT has two internal antennas arrangement, which were permanently attached, the antenna gain<sup>#</sup> is Antenna 1: 3.96dBi Antenna 2: -3.10dBi, fulfill the requirement of this section. Please refer to the EUT photos.

**Result: Compliant**

## TEST DATA AND RESULTS

### Unwanted Emission Frequencies and Restricted Bands

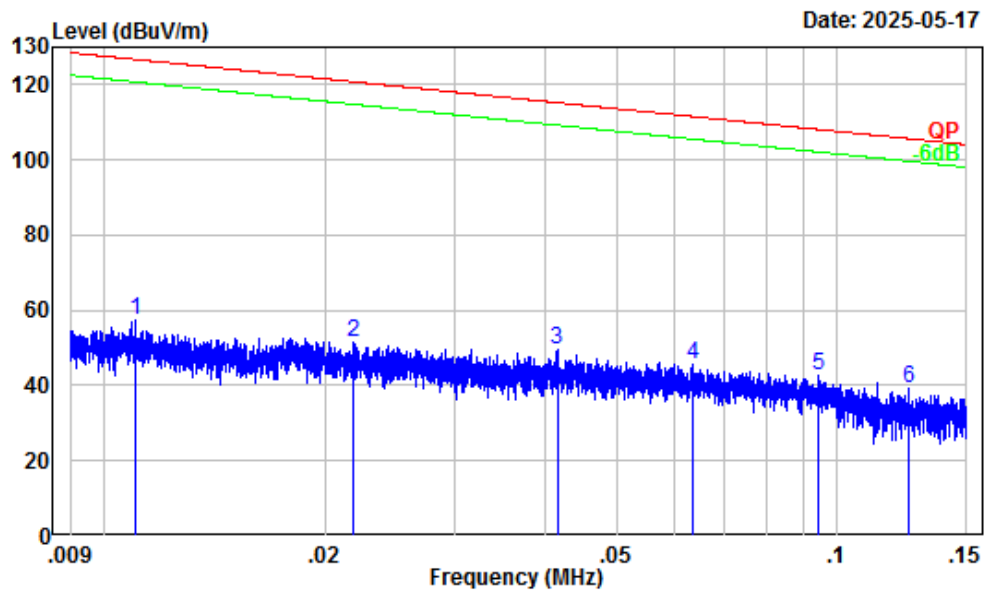
#### Environmental Conditions

|                            |                                                                                                                                                                                                                                                                                                                                        |                              |                     |
|----------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|---------------------|
| <b>Temperature (°C)</b>    | 22.6&21.1                                                                                                                                                                                                                                                                                                                              | <b>Relative Humidity (%)</b> | 55&51               |
| <b>ATM Pressure (kPa):</b> | 101.3&101.4                                                                                                                                                                                                                                                                                                                            | <b>Test engineer:</b>        | Anson Su & Visen Wu |
| <b>Test date:</b>          | 2025.05.12~2025.05.17                                                                                                                                                                                                                                                                                                                  |                              |                     |
| <b>EUT operation mode:</b> | Below 1GHz:Transmitting (Maximum output mode BLE 1M, low channel for antenna 1 , BLE 1M, middle channel for antenna 2)<br>Above 1GHz: Transmitting                                                                                                                                                                                     |                              |                     |
| <b>Note:</b>               | 1. For the radiated spurious emission below 30MHz, only the worst case (parallel) was recorded.<br>2. When the test result of peak was less than the limit of QP/Average more than 6dB, just peak value were recorded.<br>3. After pre-scan in the X, Y and Z axes of orientation, the worst case z-axis of orientation were recorded. |                              |                     |

Below 1GHz:

Antenna 1

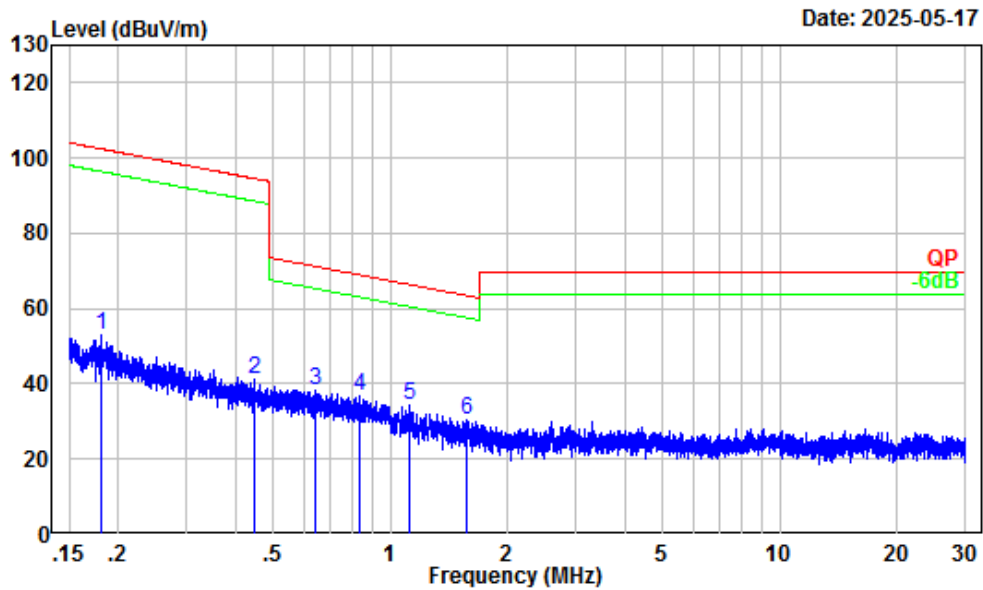
9kHz-150kHz



Site : Chamber A  
Condition : 3m  
Project Number : 2501S11939E-RF-ant1  
Test Mode : Transmitting  
Detector: Peak RBW/VBW: 0.3/1kHz  
Tester : Anson Su

|   | Freq  | Factor | Read Level | Level  | Limit  | Over Limit | Remark |
|---|-------|--------|------------|--------|--------|------------|--------|
|   | MHz   | dB/m   | dBuV       | dBuV/m | dBuV/m | dB         |        |
| 1 | 0.011 | 32.10  | 25.34      | 57.44  | 126.73 | -69.29     | Peak   |
| 2 | 0.022 | 30.04  | 21.68      | 51.72  | 120.79 | -69.07     | Peak   |
| 3 | 0.041 | 27.29  | 22.01      | 49.30  | 115.24 | -65.94     | Peak   |
| 4 | 0.063 | 25.05  | 20.35      | 45.40  | 111.55 | -66.15     | Peak   |
| 5 | 0.094 | 22.39  | 20.42      | 42.81  | 108.10 | -65.29     | Peak   |
| 6 | 0.125 | 20.51  | 18.70      | 39.21  | 105.64 | -66.43     | Peak   |

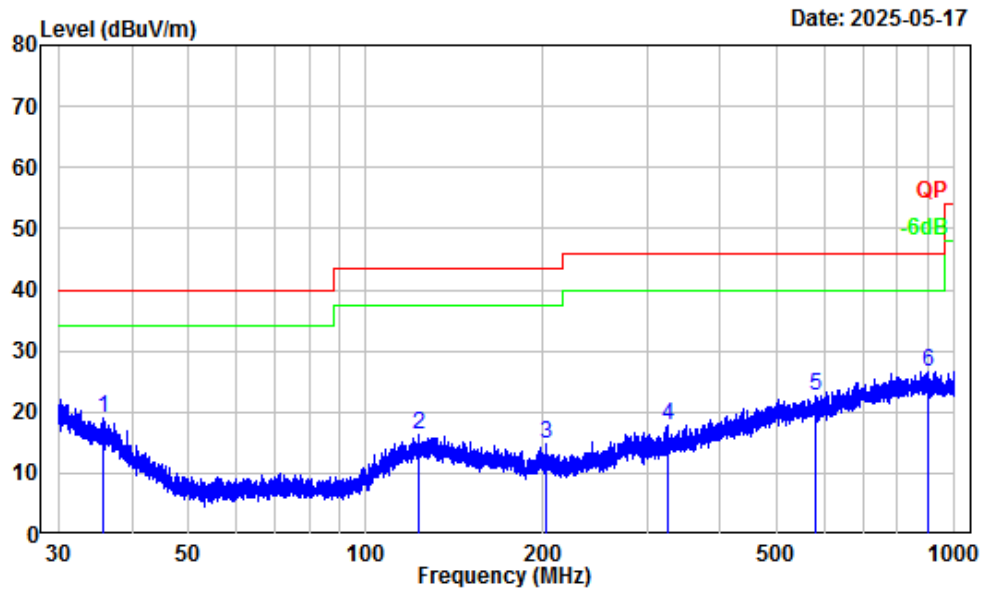
## 150kHz-30MHz



Site : Chamber A  
Condition : 3m  
Project Number : 2501S11939E-RF-ant1  
Test Mode : Transmitting  
Detector: Peak RBW/VBW: 10/30kHz  
Tester : Anson Su

|   | Freq  | Factor | Read<br>Level | Level  | Limit<br>Line | Over<br>Limit | Remark |
|---|-------|--------|---------------|--------|---------------|---------------|--------|
|   | MHz   | dB/m   | dBuV          | dBuV/m | dBuV/m        | dB            |        |
| 1 | 0.181 | 17.24  | 35.79         | 53.03  | 102.47        | -49.44        | Peak   |
| 2 | 0.449 | 7.37   | 33.61         | 40.98  | 94.56         | -53.58        | Peak   |
| 3 | 0.646 | 4.60   | 33.89         | 38.49  | 71.35         | -32.86        | Peak   |
| 4 | 0.834 | 2.45   | 34.52         | 36.97  | 69.09         | -32.12        | Peak   |
| 5 | 1.124 | 0.85   | 33.47         | 34.32  | 66.44         | -32.12        | Peak   |
| 6 | 1.574 | -0.41  | 30.68         | 30.27  | 63.45         | -33.18        | Peak   |

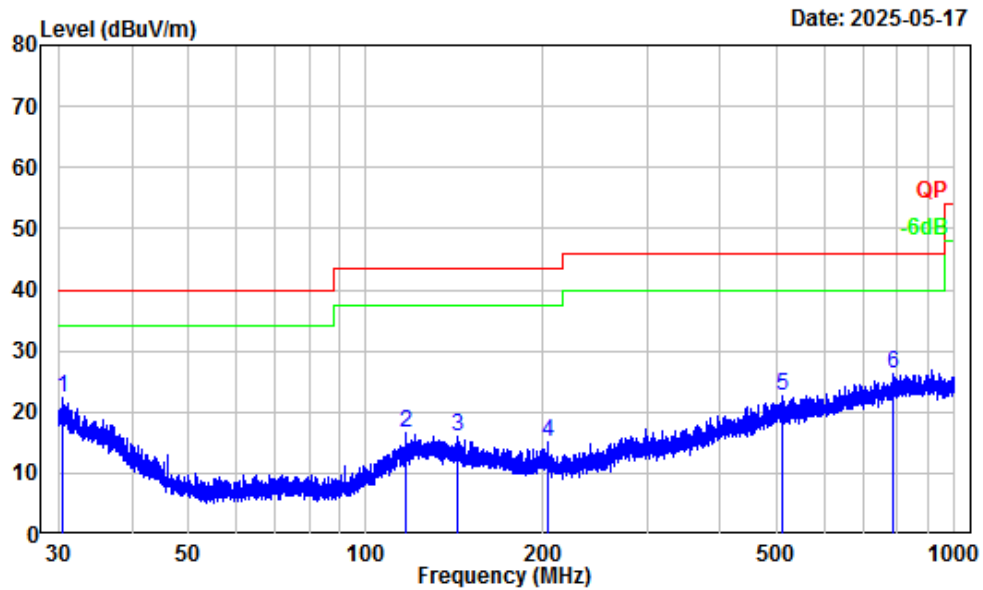
## 30MHz-1GHz\_Horizontal



Site : Chamber A  
Condition : 3m Horizontal  
Project Number : 2501S11939E-RF-ant1  
Test Mode : Transmitting  
Detector: Peak RBW/VBW: 100/300kHz  
Tester : Anson Su

|   | Freq   | Factor | Read<br>Level | Level  | Limit<br>Line | Over<br>Limit | Remark |
|---|--------|--------|---------------|--------|---------------|---------------|--------|
|   | MHz    | dB/m   | dBuV          | dBuV/m | dBuV/m        | dB            |        |
| 1 | 35.67  | -9.28  | 28.20         | 18.92  | 40.00         | -21.08        | Peak   |
| 2 | 122.62 | -11.18 | 27.43         | 16.25  | 43.50         | -27.25        | Peak   |
| 3 | 202.28 | -13.23 | 28.02         | 14.79  | 43.50         | -28.71        | Peak   |
| 4 | 325.17 | -10.68 | 28.40         | 17.72  | 46.00         | -28.28        | Peak   |
| 5 | 580.19 | -5.26  | 27.84         | 22.58  | 46.00         | -23.42        | Peak   |
| 6 | 901.73 | -1.29  | 27.84         | 26.55  | 46.00         | -19.45        | Peak   |

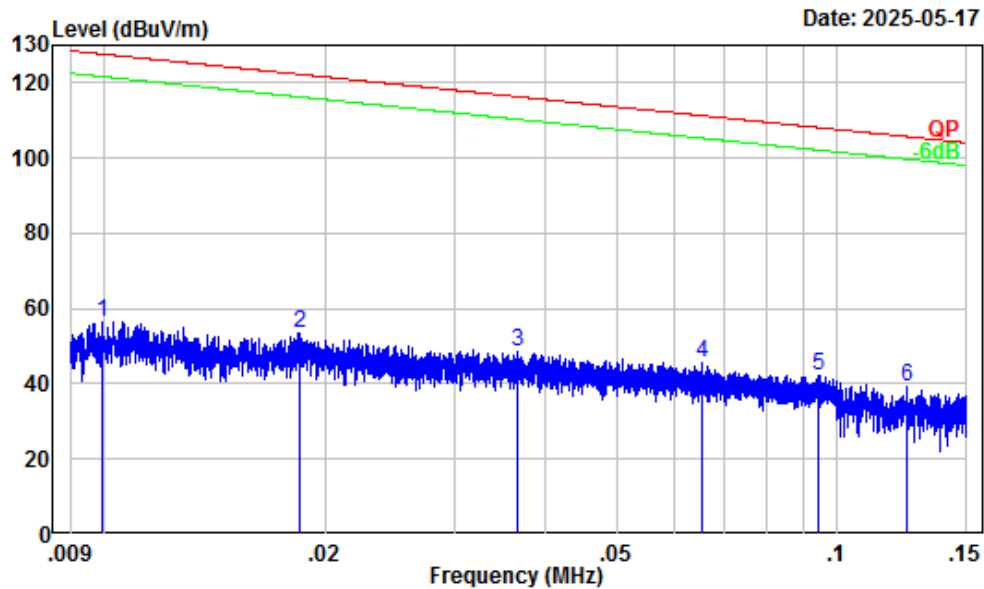
## 30MHz-1GHz\_Vertical



Site : Chamber A  
Condition : 3m Vertical  
Project Number : 2501S11939E-RF-ant1  
Test Mode : Transmitting  
Detector: Peak RBW/VBW: 100/300kHz  
Tester : Anson Su

|   | Freq   | Factor | Read<br>Level | Limit<br>Level | Limit<br>Line | Over<br>Limit | Remark |
|---|--------|--------|---------------|----------------|---------------|---------------|--------|
|   | MHz    | dB/m   | dBuV          | dBuV/m         | dBuV/m        | dB            |        |
| 1 | 30.45  | -6.19  | 28.66         | 22.47          | 40.00         | -17.53        | Peak   |
| 2 | 116.85 | -11.82 | 28.41         | 16.59          | 43.50         | -26.91        | Peak   |
| 3 | 142.70 | -12.05 | 28.00         | 15.95          | 43.50         | -27.55        | Peak   |
| 4 | 203.70 | -13.34 | 28.34         | 15.00          | 43.50         | -28.50        | Peak   |
| 5 | 508.70 | -5.77  | 28.39         | 22.62          | 46.00         | -23.38        | Peak   |
| 6 | 785.78 | -2.33  | 28.46         | 26.13          | 46.00         | -19.87        | Peak   |

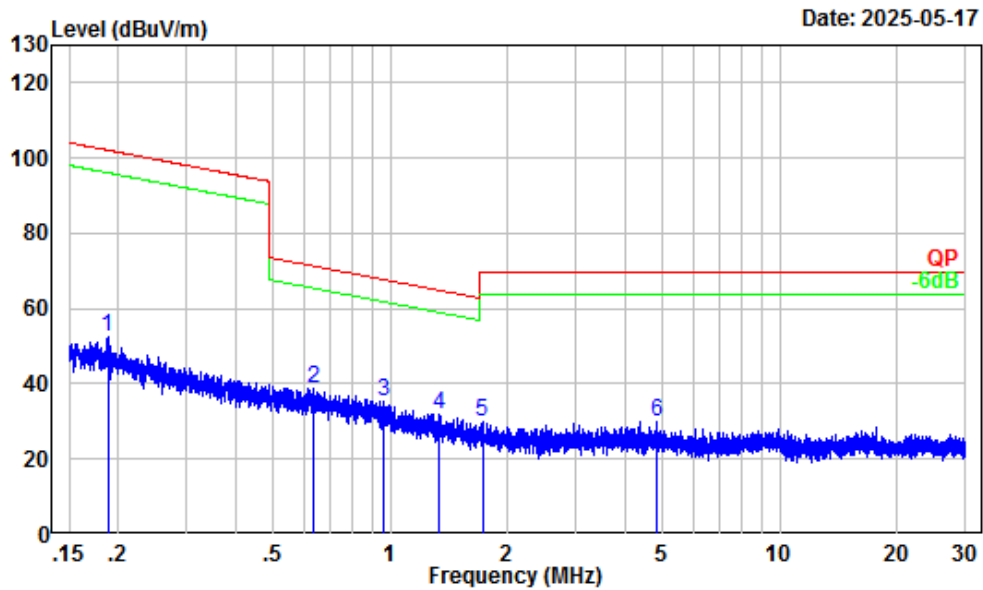
**Antenna 2**  
9kHz-150kHz



Site : Chamber A  
Condition : 3m  
Project Number : 2501S11939E-RF-ant2  
Test Mode : Transmitting  
Detector: Peak RBW/VBW: 0.3/1kHz  
Tester : Anson Su

|   | Freq  | Factor | Read<br>Level | Level  | Limit<br>Line | Over<br>Limit | Remark |
|---|-------|--------|---------------|--------|---------------|---------------|--------|
|   | MHz   | dB/m   | dBuV          | dBuV/m | dBuV/m        | dB            |        |
| 1 | 0.010 | 32.31  | 24.31         | 56.62  | 127.63        | -71.01        | Peak   |
| 2 | 0.019 | 30.68  | 22.88         | 53.56  | 122.24        | -68.68        | Peak   |
| 3 | 0.037 | 27.80  | 20.70         | 48.50  | 116.32        | -67.82        | Peak   |
| 4 | 0.065 | 24.85  | 20.72         | 45.57  | 111.29        | -65.72        | Peak   |
| 5 | 0.094 | 22.39  | 19.98         | 42.37  | 108.10        | -65.73        | Peak   |
| 6 | 0.125 | 20.55  | 18.78         | 39.33  | 105.70        | -66.37        | Peak   |

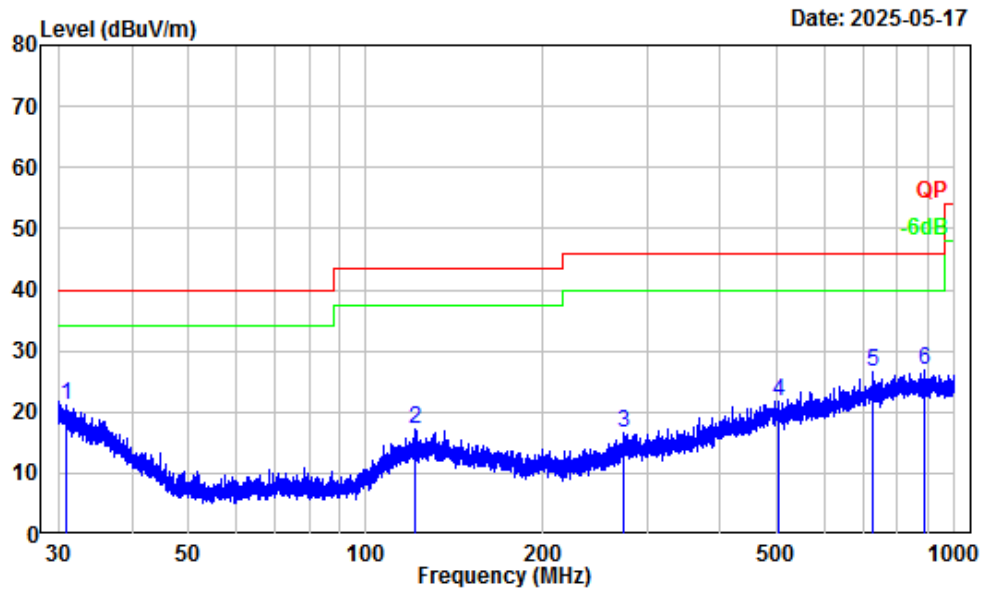
## 150kHz-30MHz



Site : Chamber A  
Condition : 3m  
Project Number : 2501S11939E-RF-ant2  
Test Mode : Transmitting  
Detector: Peak RBW/VBW: 10/30kHz  
Tester : Anson Su

|   | Freq  | Factor | Read<br>Level | Level  | Limit<br>Line | Over<br>Limit | Remark |
|---|-------|--------|---------------|--------|---------------|---------------|--------|
|   | MHz   | dB/m   | dBuV          | dBuV/m | dBuV/m        | dB            |        |
| 1 | 0.188 | 16.79  | 35.63         | 52.42  | 102.11        | -49.69        | Peak   |
| 2 | 0.635 | 4.73   | 33.87         | 38.60  | 71.50         | -32.90        | Peak   |
| 3 | 0.958 | 1.52   | 33.96         | 35.48  | 67.86         | -32.38        | Peak   |
| 4 | 1.328 | 0.28   | 31.77         | 32.05  | 64.96         | -32.91        | Peak   |
| 5 | 1.724 | -0.83  | 30.53         | 29.70  | 69.54         | -39.84        | Peak   |
| 6 | 4.813 | -2.78  | 32.66         | 29.88  | 69.54         | -39.66        | Peak   |

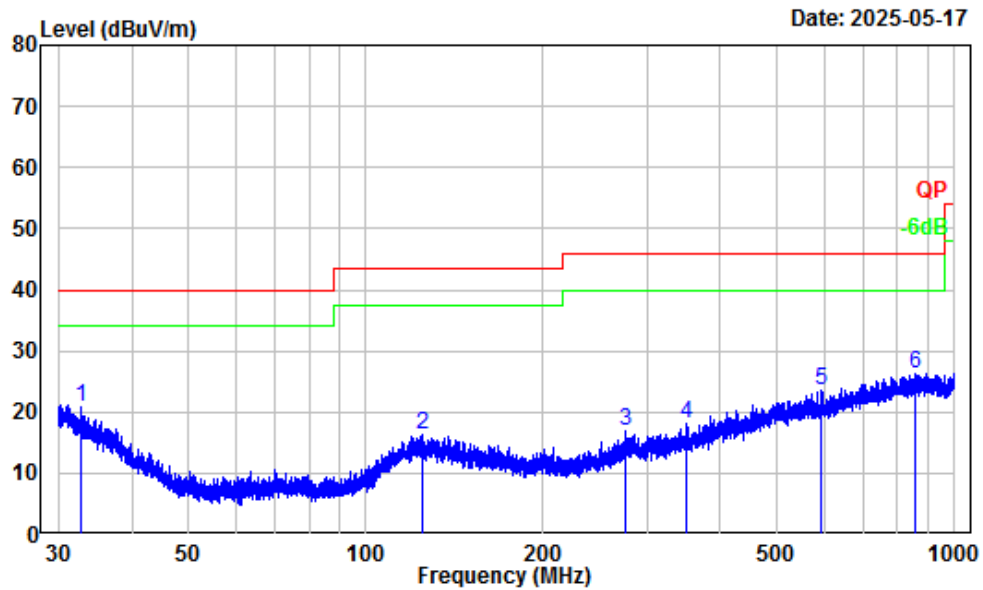
## 30MHz-1GHz\_Horizontal



Site : Chamber A  
Condition : 3m Horizontal  
Project Number : 2501S11939E-RF-ant2  
Test Mode : Transmitting  
Detector: Peak RBW/VBW: 100/300kHz  
Tester : Anson Su

|   | Freq   | Factor | Read<br>Level | Limit<br>Level | Limit<br>Line | Over<br>Limit | Remark |
|---|--------|--------|---------------|----------------|---------------|---------------|--------|
|   | MHz    | dB/m   | dBuV          | dBuV/m         | dBuV/m        | dB            |        |
| 1 | 30.89  | -6.42  | 27.52         | 21.10          | 40.00         | -18.90        | Peak   |
| 2 | 121.44 | -11.31 | 28.65         | 17.34          | 43.50         | -26.16        | Peak   |
| 3 | 273.35 | -11.51 | 28.26         | 16.75          | 46.00         | -29.25        | Peak   |
| 4 | 501.40 | -5.77  | 27.56         | 21.79          | 46.00         | -24.21        | Peak   |
| 5 | 728.08 | -3.14  | 29.69         | 26.55          | 46.00         | -19.45        | Peak   |
| 6 | 888.00 | -1.41  | 28.41         | 27.00          | 46.00         | -19.00        | Peak   |

## 30MHz-1GHz\_Vertical



Site : Chamber A  
Condition : 3m Vertical  
Project Number : 2501S11939E-RF-ant2  
Test Mode : Transmitting  
Detector: Peak RBW/VBW: 100/300kHz  
Tester : Anson Su

|   | Freq   | Factor | Read<br>Level | Level  | Limit<br>Line | Over<br>Limit | Remark |
|---|--------|--------|---------------|--------|---------------|---------------|--------|
|   | MHz    | dB/m   | dBuV          | dBuV/m | dBuV/m        | dB            |        |
| 1 | 32.71  | -7.43  | 28.32         | 20.89  | 40.00         | -19.11        | Peak   |
| 2 | 125.12 | -11.12 | 27.33         | 16.21  | 43.50         | -27.29        | Peak   |
| 3 | 276.85 | -11.30 | 28.22         | 16.92  | 46.00         | -29.08        | Peak   |
| 4 | 350.94 | -10.14 | 28.30         | 18.16  | 46.00         | -27.84        | Peak   |
| 5 | 592.79 | -5.27  | 28.81         | 23.54  | 46.00         | -22.46        | Peak   |
| 6 | 856.27 | -1.69  | 28.00         | 26.31  | 46.00         | -19.69        | Peak   |

**Above 1GHz:**

| Frequency (MHz)         | Reading (dBμV) | PK/Ave | Polar (H/V) | Factor (dB/m) | Corrected Amplitude (dBμV/m) | Limit (dBμV/m) | Margin (dB) |
|-------------------------|----------------|--------|-------------|---------------|------------------------------|----------------|-------------|
| <b>Antenna 1 BLE 1M</b> |                |        |             |               |                              |                |             |
| Low Channel             |                |        |             |               |                              |                |             |
| 4804                    | 51.07          | PK     | H           | -7.79         | 43.28                        | 74             | -30.72      |
| 4804                    | 51.02          | PK     | V           | -7.79         | 43.23                        | 74             | -30.77      |
| Middle Channel          |                |        |             |               |                              |                |             |
| 4880                    | 51.5           | PK     | H           | -7.59         | 43.91                        | 74             | -30.09      |
| 4880                    | 52.45          | PK     | V           | -7.59         | 44.86                        | 74             | -29.14      |
| High Channel            |                |        |             |               |                              |                |             |
| 4960                    | 50.9           | PK     | H           | -7.56         | 43.34                        | 74             | -30.66      |
| 4960                    | 50.81          | PK     | V           | -7.56         | 43.25                        | 74             | -30.75      |
| <b>Antenna 2 BLE 1M</b> |                |        |             |               |                              |                |             |
| Low Channel             |                |        |             |               |                              |                |             |
| 4804                    | 53.81          | PK     | H           | -7.79         | 46.02                        | 74             | -27.98      |
| 4804                    | 56.75          | PK     | V           | -7.79         | 48.96                        | 74             | -25.04      |
| Middle Channel          |                |        |             |               |                              |                |             |
| 4880                    | 53.16          | PK     | H           | -7.59         | 45.57                        | 74             | -28.43      |
| 4880                    | 55.99          | PK     | V           | -7.59         | 48.4                         | 74             | -25.6       |
| High Channel            |                |        |             |               |                              |                |             |
| 4960                    | 52.06          | PK     | H           | -7.56         | 44.5                         | 74             | -29.5       |
| 4960                    | 54.09          | PK     | V           | -7.56         | 46.53                        | 74             | -27.47      |

Note:

Corrected Factor = Antenna factor (RX) + Cable Loss – Amplifier Factor

Corrected Amplitude/Level = Corrected Factor + Reading

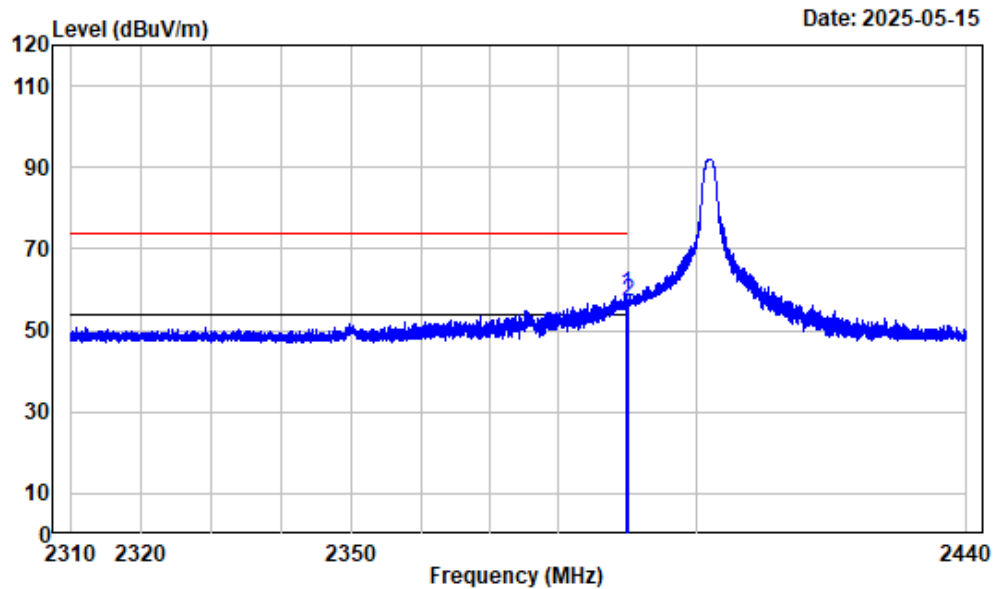
Margin = Corrected Amplitude/Level - Limit

The other spurious emission which is in the noise floor level was not recorded.

The peak value is less than the limit of average, so just peak value was recorded

**Test plots****Band Edge**

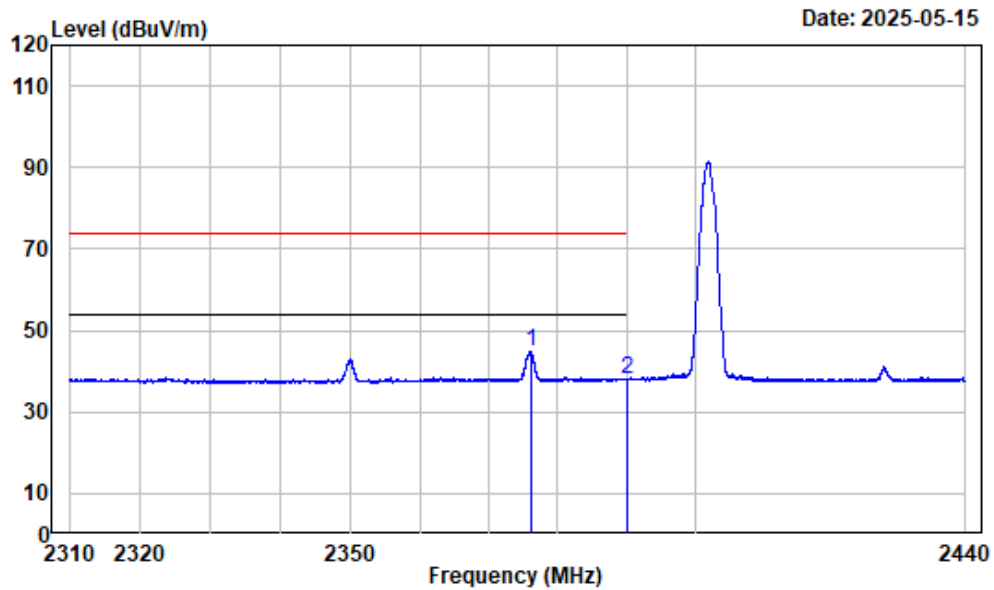
Left Bandedge\_Horizontal\_Peak\_BLE\_1M\_Antenna 1\_2402



Condition : Horizontal  
Project No. : 2501S11939E-RF  
Tester : Visen Wu  
Spectrum setting: Peak reading: RBW:1MHz VBW:3MHz Detector:Peak  
Note : BLE\_1M\_ANT1\_2402

| Freq |          | Factor | Read Level | Level  | Limit Line | Over Limit | Remark |
|------|----------|--------|------------|--------|------------|------------|--------|
| MHz  |          | dB/m   | dBuV       | dBuV/m | dBuV/m     | dB         |        |
| 1    | 2389.716 | -10.98 | 69.82      | 58.84  | 74.00      | -15.16     | Peak   |
| 2    | 2390.000 | -10.98 | 68.03      | 57.05  | 74.00      | -16.95     | Peak   |

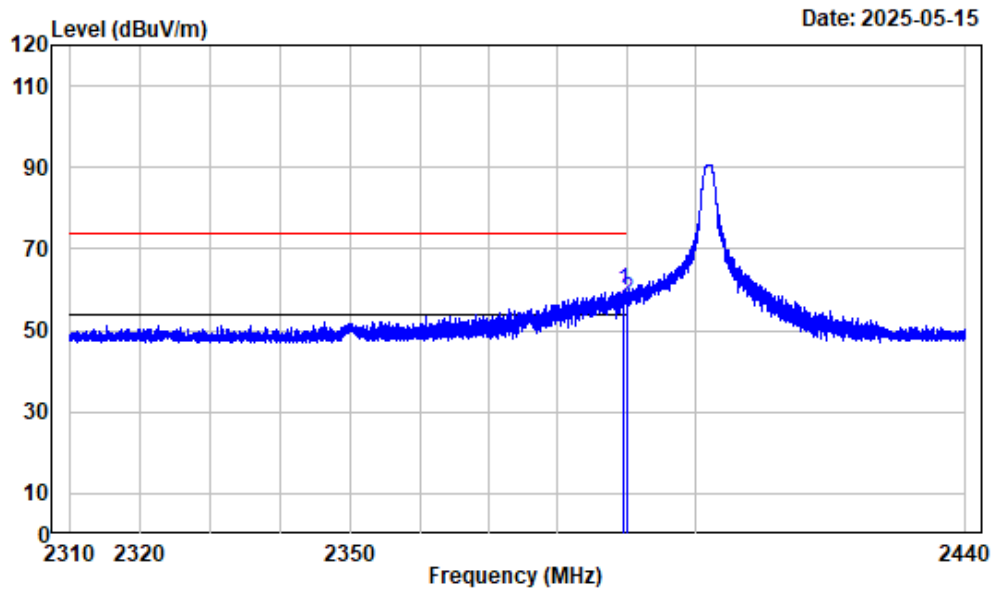
Left Bandedge\_Horizontal\_Average BLE\_1M\_Antenna 1\_2402



Condition : Horizontal  
 Project No. : 2501S11939E-RF  
 Tester : Visen Wu  
 Spectrum setting: Average reading: RBW:1MHz VBW:3kHz Detector:Peak  
 Note : BLE\_1M\_ANT1\_2402

|   | Freq     | Factor | Read<br>Level | Level  | Limit<br>Line | Over<br>Limit | Remark  |
|---|----------|--------|---------------|--------|---------------|---------------|---------|
|   | MHz      | dB/m   | dBuV          | dBuV/m | dBuV/m        | dB            |         |
| 1 | 2376.000 | -10.95 | 55.70         | 44.75  | 54.00         | -9.25         | Average |
| 2 | 2390.000 | -10.98 | 49.02         | 38.04  | 54.00         | -15.96        | Average |

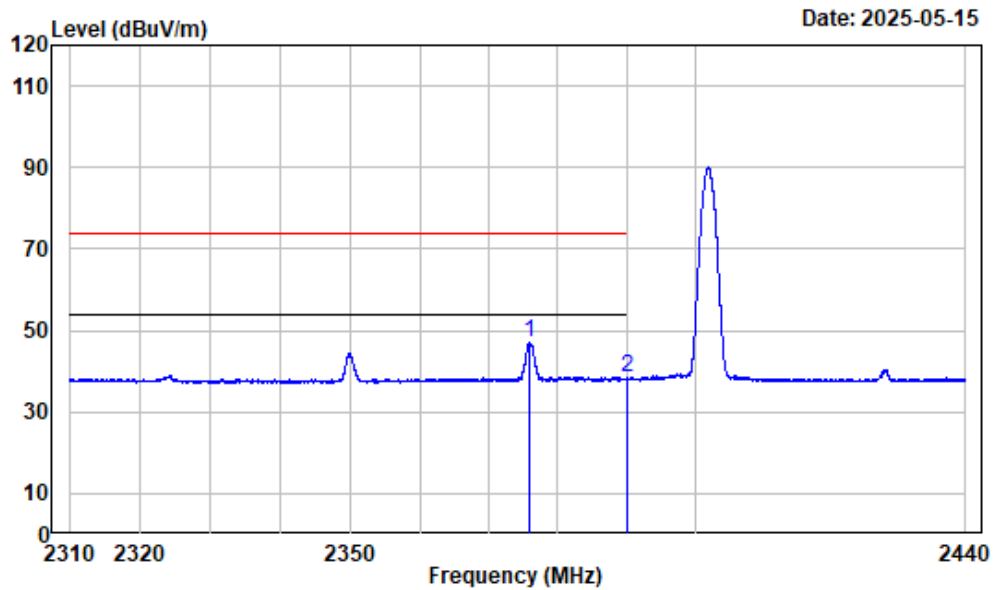
## Left Bandedge\_Vertical\_Peak\_BLE\_1M\_Antenna 1\_2402



Condition : Vertical  
Project No. : 2501S11939E-RF  
Tester : Visen Wu  
Spectrum setting: Peak reading: RBW:1MHz VBW:3MHz Detector:Peak  
Note : BLE\_1M\_ANT1\_2402

|      |          | Read   |        | Limit  | Over  | Remark      |
|------|----------|--------|--------|--------|-------|-------------|
| Freq |          | Level  | Level  | Line   | Limit |             |
| MHz  | dB/m     | dBuV   | dBuV/m | dBuV/m | dB    |             |
| 1    | 2389.635 | -10.98 | 70.93  | 59.95  | 74.00 | -14.05 Peak |
| 2    | 2390.000 | -10.98 | 68.57  | 57.59  | 74.00 | -16.41 Peak |

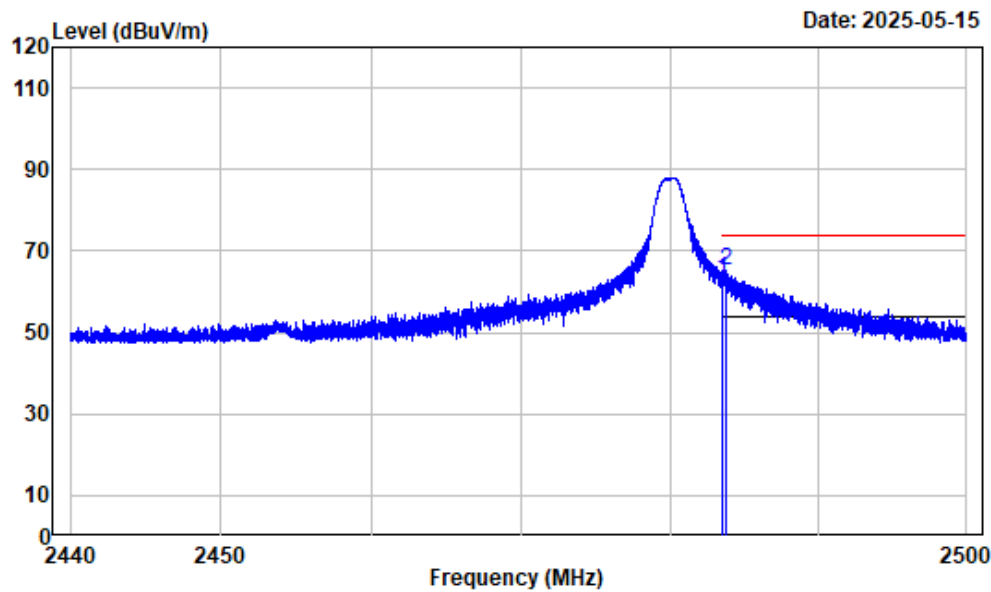
## Left Bandedge\_Vertical\_Average\_BLE\_1M\_Antenna 1\_2402



Condition : Vertical  
Project No. : 2501S11939E-RF  
Tester : Visen Wu  
Spectrum setting: Average reading: RBW:1MHz VBW:3kHz Detector:Peak  
Note : BLE\_1M\_ANT1\_2402

| Freq |          | Factor | Read<br>Level | Level  | Limit<br>Line | Over<br>Limit | Remark  |
|------|----------|--------|---------------|--------|---------------|---------------|---------|
| MHz  |          | dB/m   | dBuV          | dBuV/m | dBuV/m        | dB            |         |
| 1    | 2375.869 | -10.95 | 57.91         | 46.96  | 54.00         | -7.04         | Average |
| 2    | 2390.000 | -10.98 | 49.44         | 38.46  | 54.00         | -15.54        | Average |

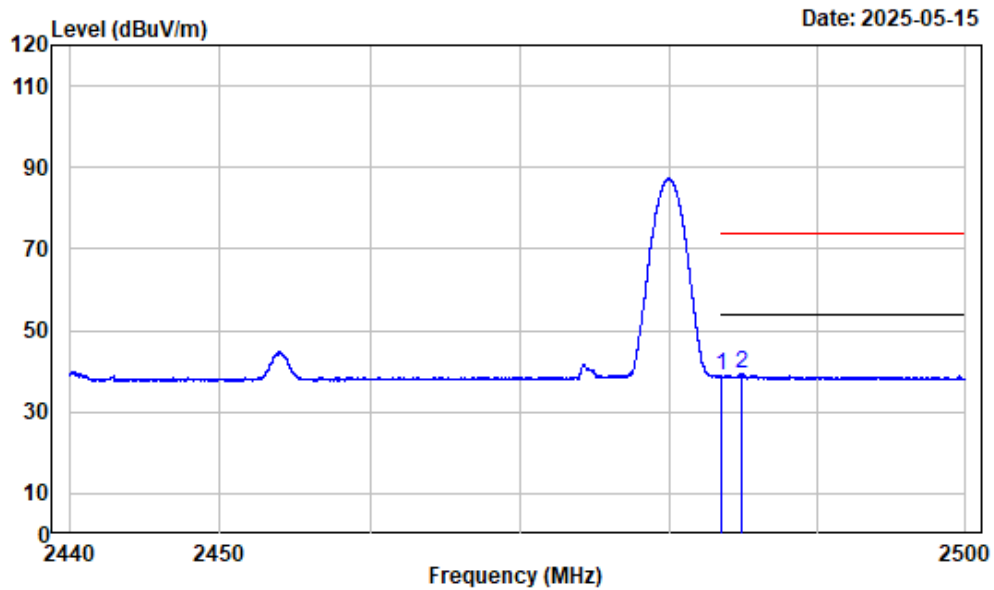
Right Bandedge\_Horizontal\_Peak\_BLE\_1M\_Antenna 1\_2480



Condition : Horizontal  
Project No. : 2501S11939E-RF  
Tester : Visen Wu  
Spectrum setting: Peak reading: RBW:1MHz VBW:3MHz Detector:Peak  
Note : BLE\_1M\_ANT1\_2480

| Freq |          | Factor | Read Level | Level  | Limit  | Over   | Remark |
|------|----------|--------|------------|--------|--------|--------|--------|
| MHz  |          | dB/m   | dBuV       | dBuV/m | dBuV/m | dB     |        |
| 1    | 2483.500 | -10.97 | 73.69      | 62.72  | 74.00  | -11.28 | Peak   |
| 2    | 2483.723 | -10.97 | 76.01      | 65.04  | 74.00  | -8.96  | Peak   |

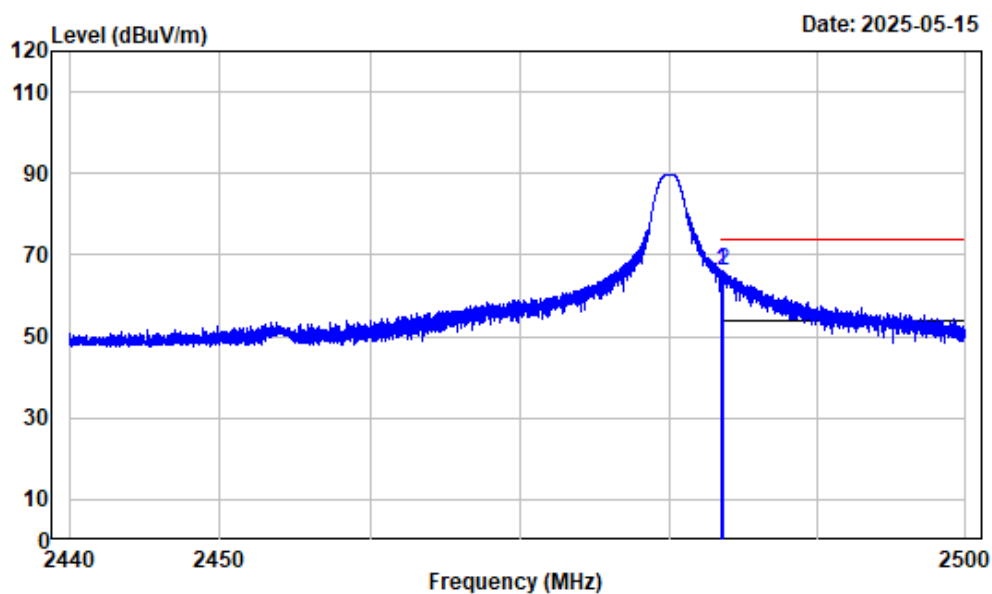
Right Bandedge\_Horizontal\_Average\_BLE\_1M\_Antenna 1\_2480



Condition : Horizontal  
 Project No. : 2501S11939E-RF  
 Tester : Visen Wu  
 Spectrum setting: Average reading: RBW:1MHz VBW:3kHz Detector:Peak  
 Note : BLE\_1M\_ANT1\_2480

|             |        | Read  |        | Limit  | Over   | Remark  |
|-------------|--------|-------|--------|--------|--------|---------|
| Freq Factor |        | Level | Level  | Line   | Limit  |         |
| MHz         | dB/m   | dBuV  | dBuV/m | dBuV/m | dB     |         |
| 1 2483.500  | -10.97 | 49.74 | 38.77  | 54.00  | -15.23 | Average |
| 2 2484.908  | -10.97 | 50.45 | 39.48  | 54.00  | -14.52 | Average |

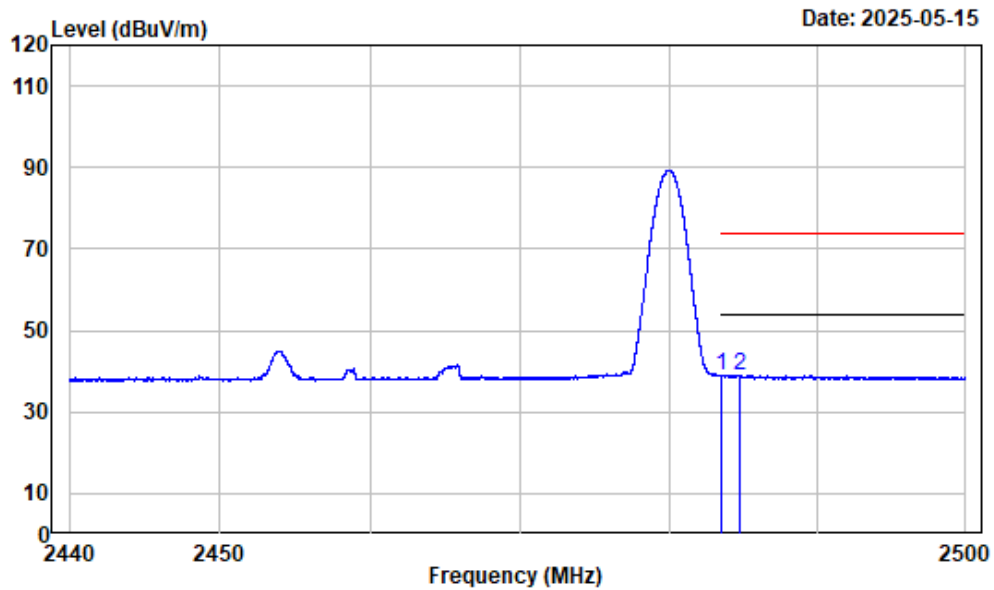
## Right Bandedge\_Vertical\_Peak\_BLE\_1M\_Antenna 1\_2480



Condition : Vertical  
Project No. : 2501S11939E-RF  
Tester : Visen Wu  
Spectrum setting: Peak reading: RBW:1MHz VBW:3MHz Detector:Peak  
Note : BLE\_1M\_ANT1\_2480

|             |          | Read   |        | Limit  | Over  | Remark     |
|-------------|----------|--------|--------|--------|-------|------------|
| Freq Factor |          | Level  | Level  | Line   | Limit |            |
| MHz         | dB/m     | dBuV   | dBuV/m | dBuV/m | dB    |            |
| 1           | 2483.500 | -10.97 | 77.00  | 66.03  | 74.00 | -7.97 Peak |
| 2           | 2483.581 | -10.97 | 77.12  | 66.15  | 74.00 | -7.85 Peak |

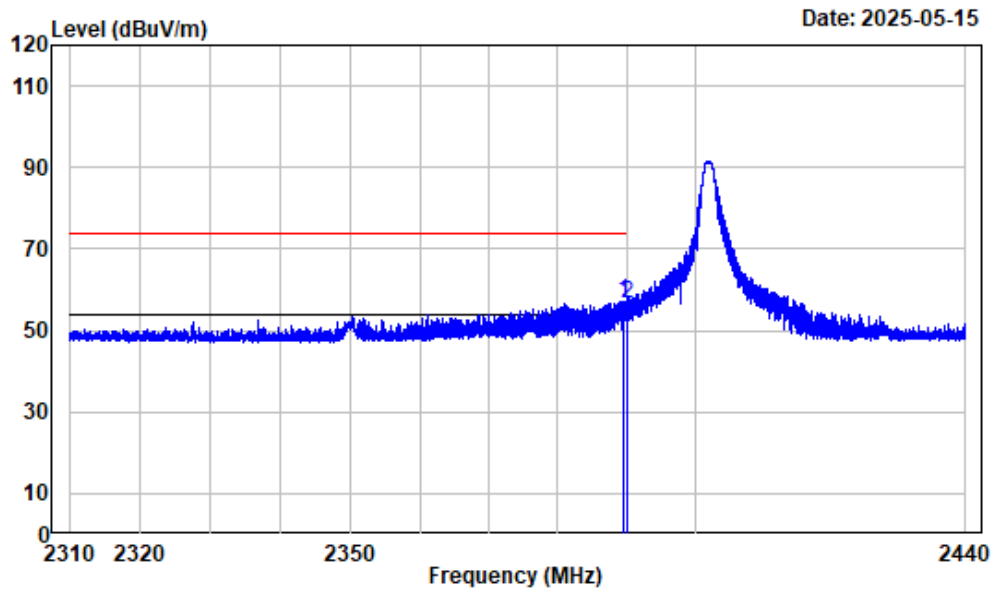
Right Bandedge\_Vertical\_Average\_BLE\_1M\_Antenna 1\_2480



Condition : Vertical  
 Project No. : 2501S11939E-RF  
 Tester : Visen Wu  
 Spectrum setting: Average reading: RBW:1MHz VBW:3kHz Detector:Peak  
 Note : BLE\_1M\_ANT1\_2480

|            |        | Read  |        | Limit  | Over   | Remark  |
|------------|--------|-------|--------|--------|--------|---------|
| Freq       | Factor | Level | Level  | Line   | Limit  |         |
| MHz        | dB/m   | dBuV  | dBuV/m | dBuV/m | dB     |         |
| 1 2483.500 | -10.97 | 49.71 | 38.74  | 54.00  | -15.26 | Average |
| 2 2484.796 | -10.97 | 50.08 | 39.11  | 54.00  | -14.89 | Average |

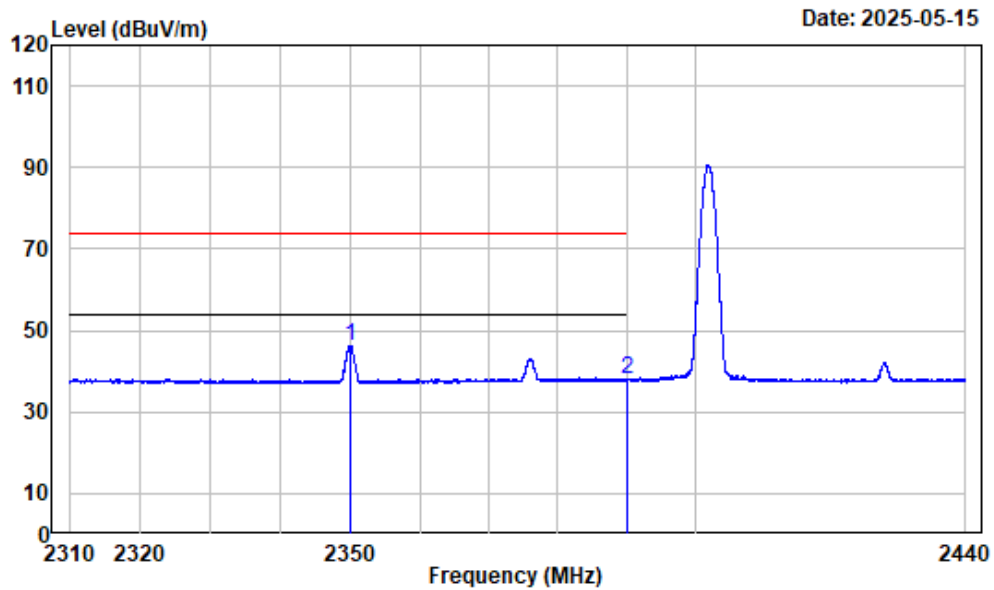
Left Bandedge\_Horizontal\_Peak\_BLE\_1M\_Antenna 2\_2402



Condition : Horizontal  
 Project No. : 2501S11939E-RF  
 Tester : Visen Wu  
 Spectrum setting: Peak reading: RBW:1MHz VBW:3MHz Detector:Peak  
 Note : BLE\_1M\_ANT2\_2402

|   | Freq     | Factor | Read<br>Level | Level  | Limit<br>Line | Over<br>Limit | Remark |
|---|----------|--------|---------------|--------|---------------|---------------|--------|
|   | MHz      | dB/m   | dBuV          | dBuV/m | dBuV/m        | dB            |        |
| 1 | 2389.651 | -10.98 | 68.14         | 57.16  | 74.00         | -16.84        | Peak   |
| 2 | 2390.000 | -10.98 | 67.47         | 56.49  | 74.00         | -17.51        | Peak   |

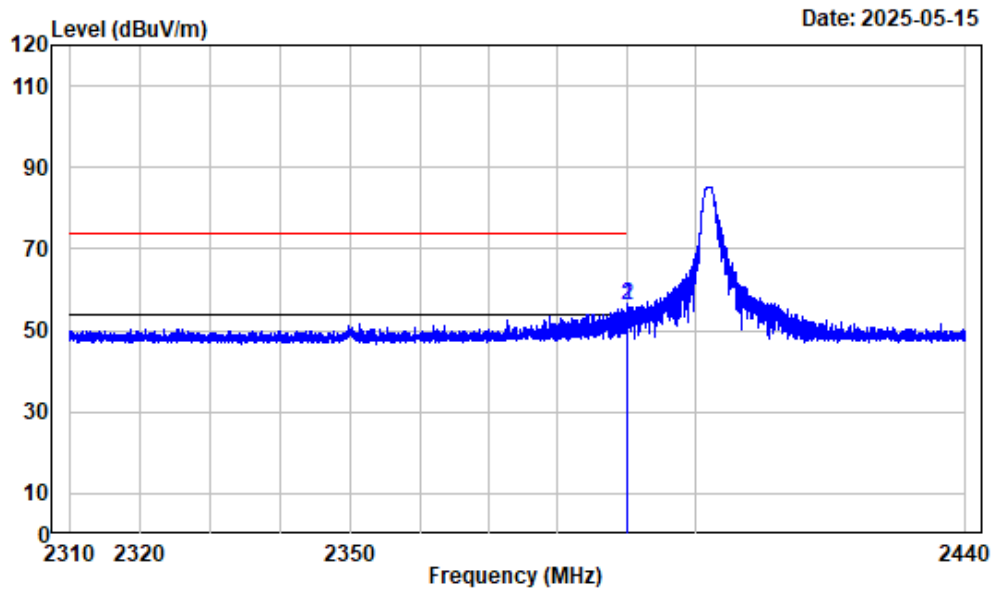
Left Bandedge\_Horizontal\_Average\_BLE\_1M\_Antenna 2\_2402



Condition : Horizontal  
 Project No. : 2501S11939E-RF  
 Tester : Visen Wu  
 Spectrum setting: Average reading: RBW:1MHz VBW:3kHz Detector:Peak  
 Note : BLE\_1M\_ANT2\_2402

|   | Freq     | Factor | Read<br>Level | Level  | Limit<br>Line | Over<br>Limit | Remark  |
|---|----------|--------|---------------|--------|---------------|---------------|---------|
|   | MHz      | dB/m   | dBuV          | dBuV/m | dBuV/m        | dB            |         |
| 1 | 2349.899 | -10.89 | 57.22         | 46.33  | 54.00         | -7.67         | Average |
| 2 | 2390.000 | -10.98 | 48.81         | 37.83  | 54.00         | -16.17        | Average |

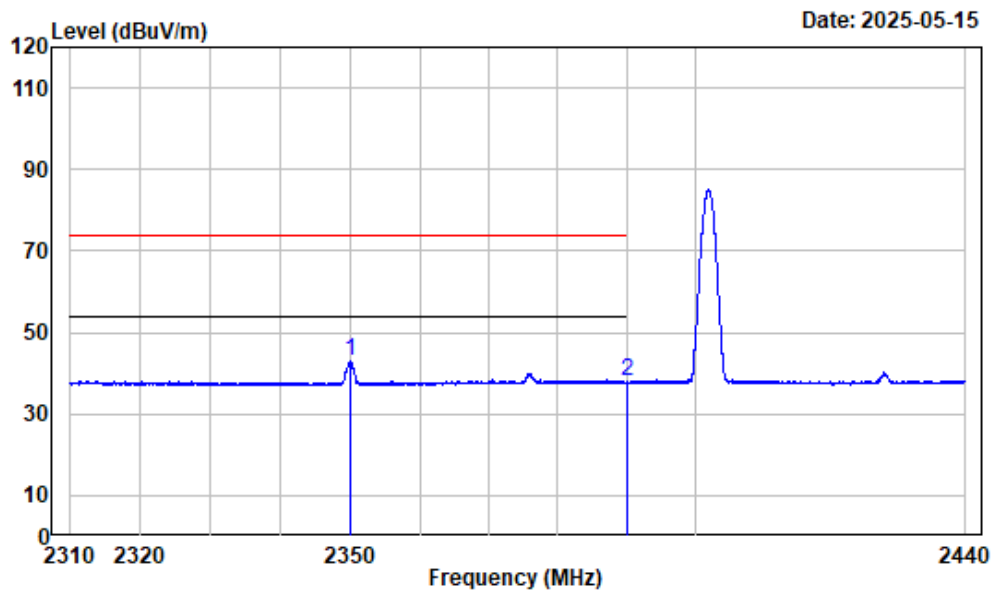
Left Bandedge\_Vertical\_Peak\_BLE\_1M\_Antenna 2\_2402



Condition : Vertical  
 Project No. : 2501S11939E-RF  
 Tester : Visen Wu  
 Spectrum setting: Peak reading: RBW:1MHz VBW:3MHz Detector:Peak  
 Note : BLE\_1M\_ANT2\_2402

|             |        | Read  |        | Limit  | Over   | Remark |
|-------------|--------|-------|--------|--------|--------|--------|
| Freq Factor |        | Level | Level  | Line   | Limit  |        |
| MHz         | dB/m   | dBuV  | dBuV/m | dBuV/m | dB     |        |
| 1 2389.992  | -10.98 | 66.92 | 55.94  | 74.00  | -18.06 | Peak   |
| 2 2390.000  | -10.98 | 66.92 | 55.94  | 74.00  | -18.06 | Peak   |

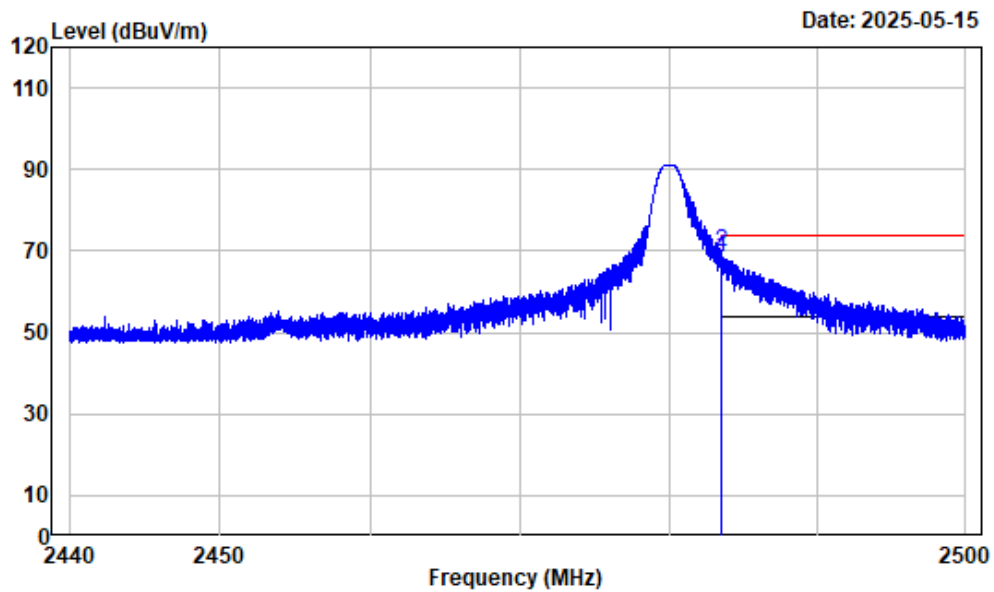
Left Bandedge\_Vertical\_Average\_BLE\_1M\_Antenna 2\_2402



Condition : Vertical  
 Project No. : 2501S11939E-RF  
 Tester : Visen Wu  
 Spectrum setting: Average reading: RBW:1MHz VBW:3kHz Detector:Peak  
 Note : BLE\_1M\_ANT2\_2402

|   |          |        | Read  |        | Limit  | Over   |         |
|---|----------|--------|-------|--------|--------|--------|---------|
|   | Freq     | Factor | Level | Level  | Line   | Limit  | Remark  |
|   | MHz      | dB/m   | dBuV  | dBuV/m | dBuV/m | dB     |         |
| 1 | 2349.996 | -10.89 | 53.85 | 42.96  | 54.00  | -11.04 | Average |
| 2 | 2390.000 | -10.98 | 48.80 | 37.82  | 54.00  | -16.18 | Average |

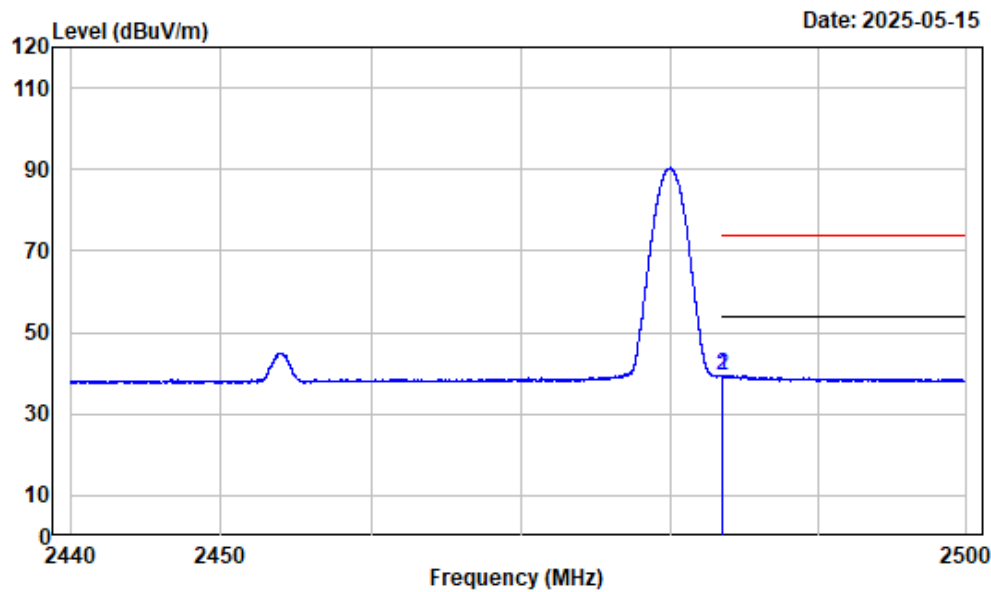
Right Bandedge\_Horizontal\_BLE\_1M\_Antenna 2\_2480



Condition : Horizontal  
 Project No. : 2501S11939E-RF  
 Tester : Visen Wu  
 Spectrum setting: Peak reading: RBW:1MHz VBW:3MHz Detector:Peak  
 Note : BLE\_1M\_ANT2\_2480

|            |        | Read  |        | Limit  | Over  | Remark |
|------------|--------|-------|--------|--------|-------|--------|
| Freq       | Factor | Level | Level  | Line   | Limit |        |
| MHz        | dB/m   | dBuV  | dBuV/m | dBuV/m | dB    |        |
| 1 2483.500 | -10.97 | 79.18 | 68.21  | 74.00  | -5.79 | Peak   |
| 2 2483.543 | -10.97 | 80.77 | 69.80  | 74.00  | -4.20 | Peak   |

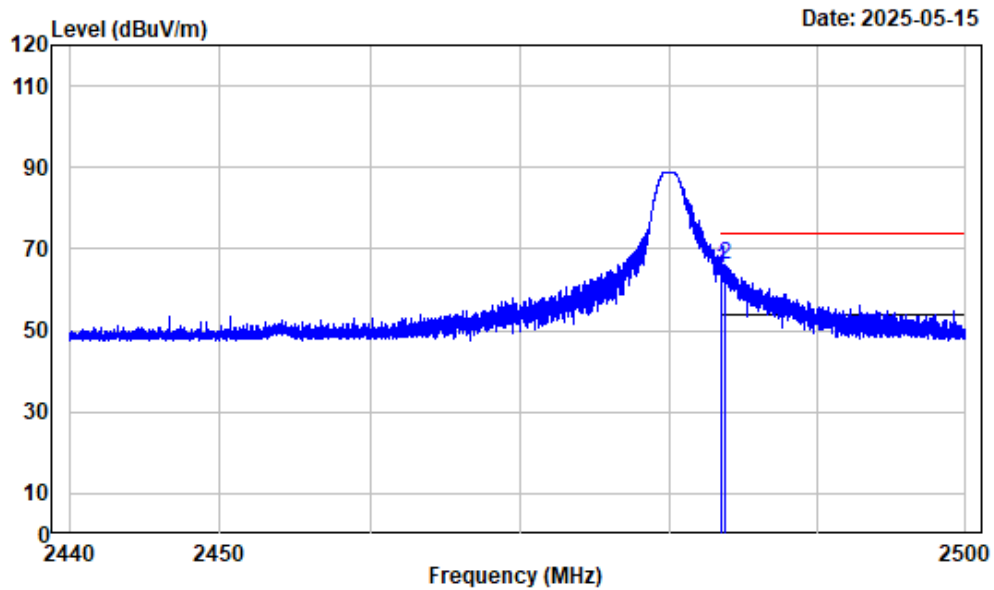
Right Bandedge\_Horizontal\_Average BLE\_1M\_Antenna 2\_2480



Condition : Horizontal  
Project No. : 2501S11939E-RF  
Tester : Visen Wu  
Spectrum setting: Average reading: RBW:1MHz VBW:3kHz Detector:Peak  
Note : BLE\_1M\_ANT2\_2480

|      |          | Read   |        | Limit  | Over  | Remark         |
|------|----------|--------|--------|--------|-------|----------------|
| Freq | Factor   | Level  | Level  | Line   | Limit |                |
| MHz  | dB/m     | dBuV   | dBuV/m | dBuV/m | dB    |                |
| 1    | 2483.500 | -10.97 | 50.43  | 39.46  | 54.00 | -14.54 Average |
| 2    | 2483.513 | -10.97 | 50.54  | 39.57  | 54.00 | -14.43 Average |

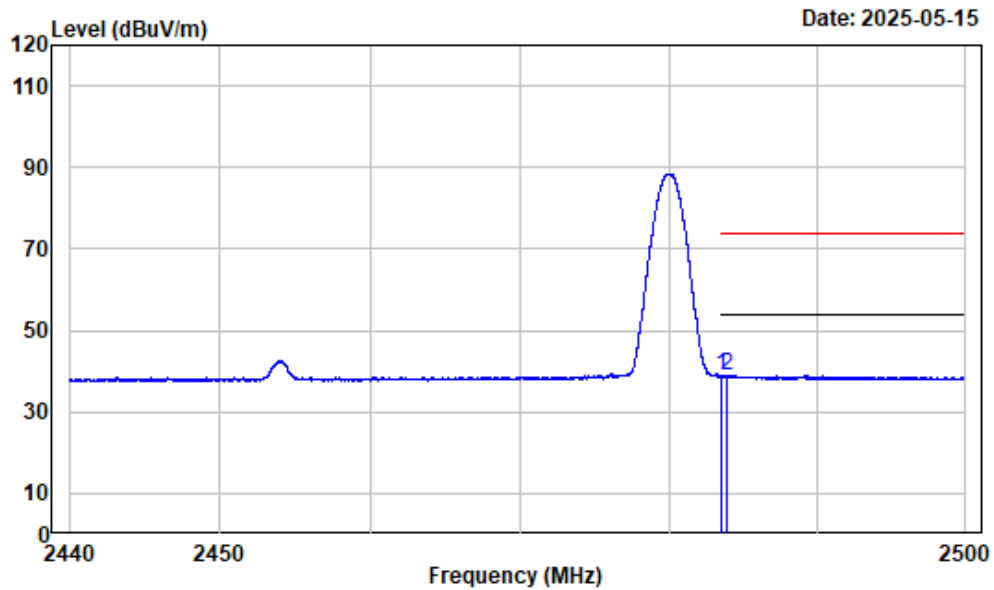
## Right Bandedge\_Vertical\_BLE\_1M\_Antenna 2\_2480



Condition : Vertical  
Project No. : 2501S11939E-RF  
Tester : Visen Wu  
Spectrum setting: Peak reading: RBW:1MHz VBW:3MHz Detector:Peak  
Note : BLE\_1M\_ANT2\_2480

| Freq |          | Factor | Read Level | Level  | Limit  | Over  | Remark |
|------|----------|--------|------------|--------|--------|-------|--------|
| MHz  |          | dB/m   | dBuV       | dBuV/m | dBuV/m | dB    |        |
| 1    | 2483.500 | -10.97 | 76.10      | 65.13  | 74.00  | -8.87 | Peak   |
| 2    | 2483.760 | -10.97 | 77.13      | 66.16  | 74.00  | -7.84 | Peak   |

## Right Bandedge\_Vertical\_Average\_BLE\_1M\_Antenna 2\_2480

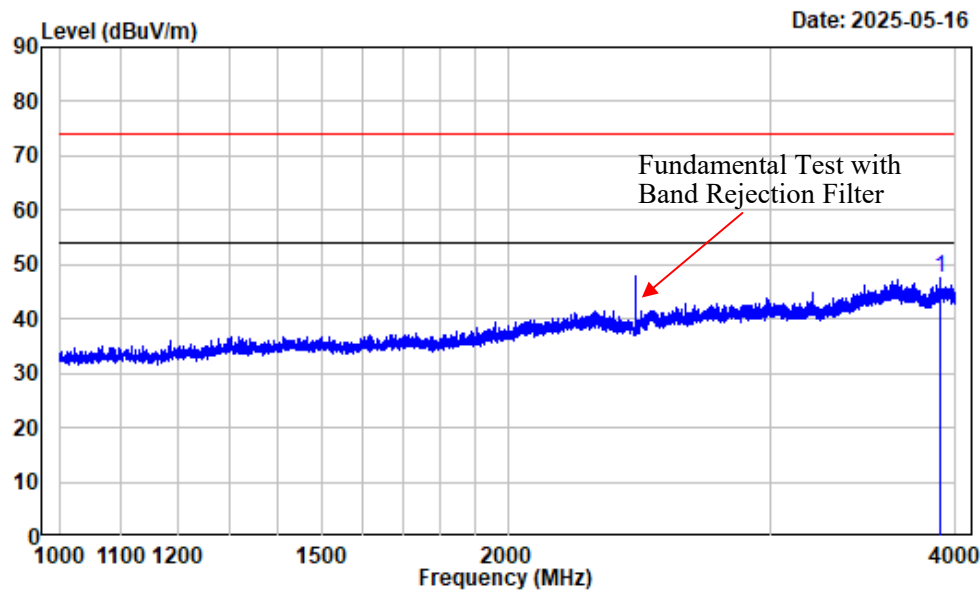


Condition : Vertical  
Project No. : 2501S11939E-RF  
Tester : Visen Wu  
Spectrum setting: Average reading: RBW:1MHz VBW:3kHz Detector:Peak  
Note : BLE\_1M\_ANT2\_2480

|            |        | Read  |        | Limit  | Over   | Remark  |
|------------|--------|-------|--------|--------|--------|---------|
| Freq       | Factor | Level | Level  | Line   | Limit  |         |
| MHz        | dB/m   | dBuV  | dBuV/m | dBuV/m | dB     |         |
| 1 2483.500 | -10.97 | 49.71 | 38.74  | 54.00  | -15.26 | Average |
| 2 2483.865 | -10.97 | 50.13 | 39.16  | 54.00  | -14.84 | Average |

Listed with the worst harmonic margin test plot

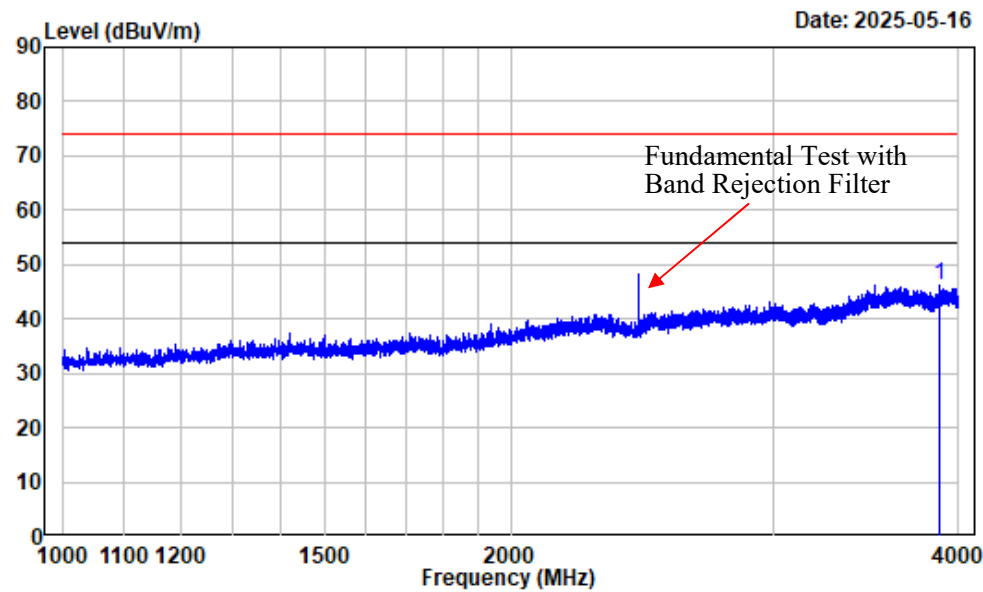
1-4GHz\_Horizontal\_BLE\_1M\_Antenna 1\_2440



Condition : Horizontal  
Project No. : 2501S11939E-RF  
Tester : Visen Wu  
Spectrum setting: Peak reading: RBW:1MHz VBW:3MHz Detector:Peak  
Note : BLE\_1M\_ANT1\_2440

|            |        | Read  |        | Limit  | Over   | Remark |
|------------|--------|-------|--------|--------|--------|--------|
| Freq       | Factor | Level | Level  | Line   | Limit  |        |
| MHz        | dB/m   | dBuV  | dBuV/m | dBuV/m | dB     |        |
| 1 3908.864 | -9.74  | 57.14 | 47.40  | 74.00  | -26.60 | Peak   |

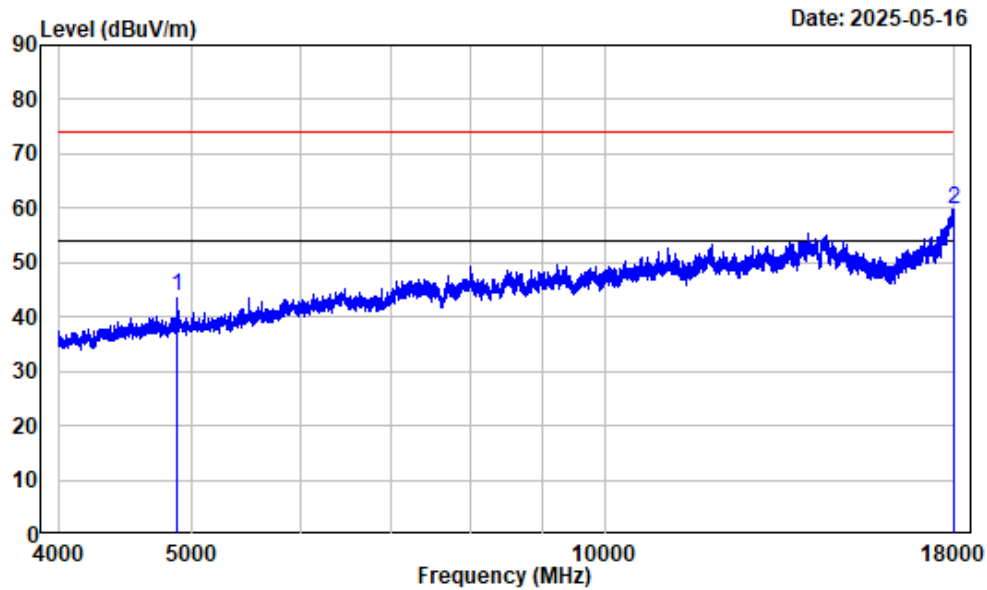
1-4GHz\_Vertical\_BLE\_1M\_Antenna 1\_2440



Condition : Vertical  
Project No. : 2501S11939E-RF  
Tester : Visen Wu  
Spectrum setting: Peak reading: RBW:1MHz VBW:3MHz Detector:Peak  
Note : BLE\_1M\_ANT1\_2440

| Freq |          | Factor | Read Level | Level  | Limit  | Over Limit | Remark |
|------|----------|--------|------------|--------|--------|------------|--------|
| MHz  |          | dB/m   | dBuV       | dBuV/m | dBuV/m | dB         |        |
| 1    | 3883.360 | -9.88  | 56.18      | 46.30  | 74.00  | -27.70     | Peak   |

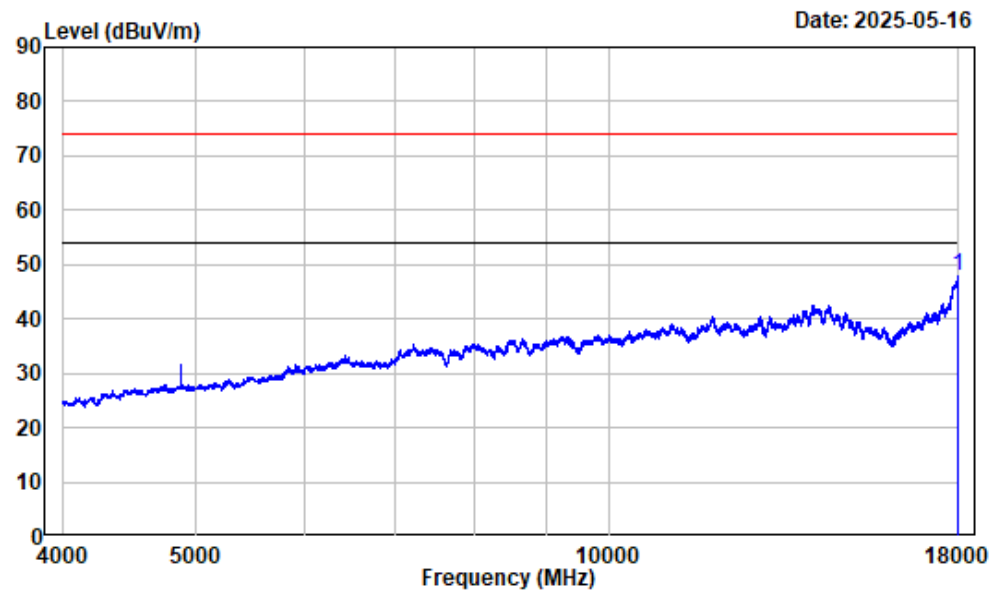
4-18GHz\_Horizontal\_BLE\_1M\_Antenna 1\_2440



Condition : Horizontal  
 Project No. : 2501S11939E-RF  
 Tester : Visen Wu  
 Spectrum setting: Peak reading: RBW:1MHz VBW:3MHz Detector:Peak  
 Note : BLE\_1M\_ANT1\_2440

|             |       | Read  |        | Limit  | Over   | Remark |
|-------------|-------|-------|--------|--------|--------|--------|
| Freq Factor |       | Level | Level  | Line   | Limit  |        |
| MHz         | dB/m  | dBuV  | dBuV/m | dBuV/m | dB     |        |
| 1 4880.000  | -7.59 | 51.50 | 43.91  | 74.00  | -30.09 | Peak   |
| 2 17975.500 | 13.08 | 46.82 | 59.90  | 74.00  | -14.10 | Peak   |

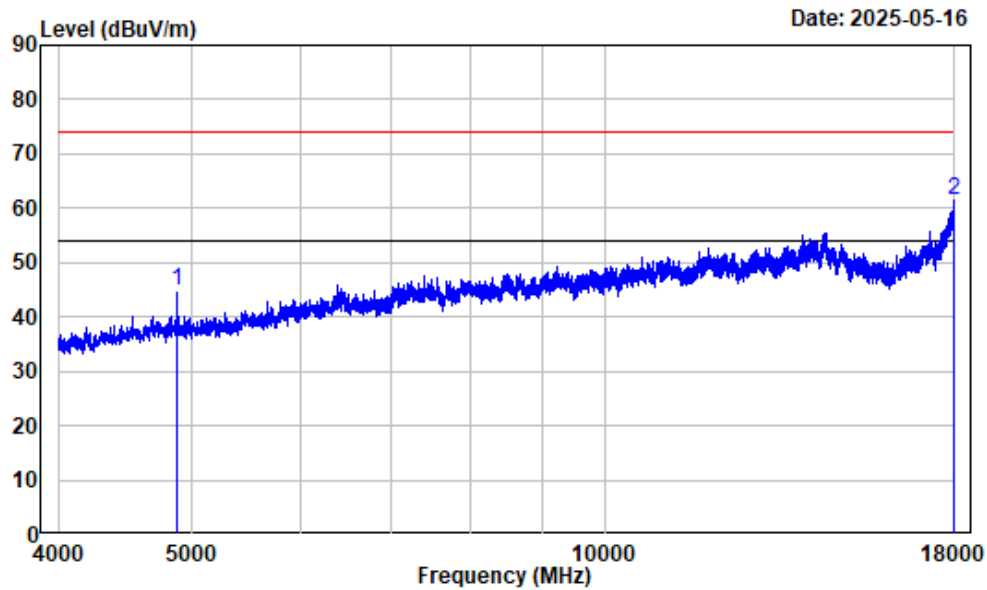
4-18GHz\_Horizontal\_Average BLE\_1M\_Antenna 1\_2440



Condition : Horizontal  
Project No. : 2501S11939E-RF  
Tester : Visen Wu  
Spectrum setting: Average reading: RBW:1MHz VBW:3kHz Detector:Peak  
Note : BLE\_1M\_ANT1\_2440

| Freq Factor |       | Read Level |        | Limit  | Over  | Remark  |
|-------------|-------|------------|--------|--------|-------|---------|
| MHz         | dB/m  | dBuV       | dBuV/m | dBuV/m | dB    |         |
| 1 17998.250 | 13.19 | 34.77      | 47.96  | 54.00  | -6.04 | Average |

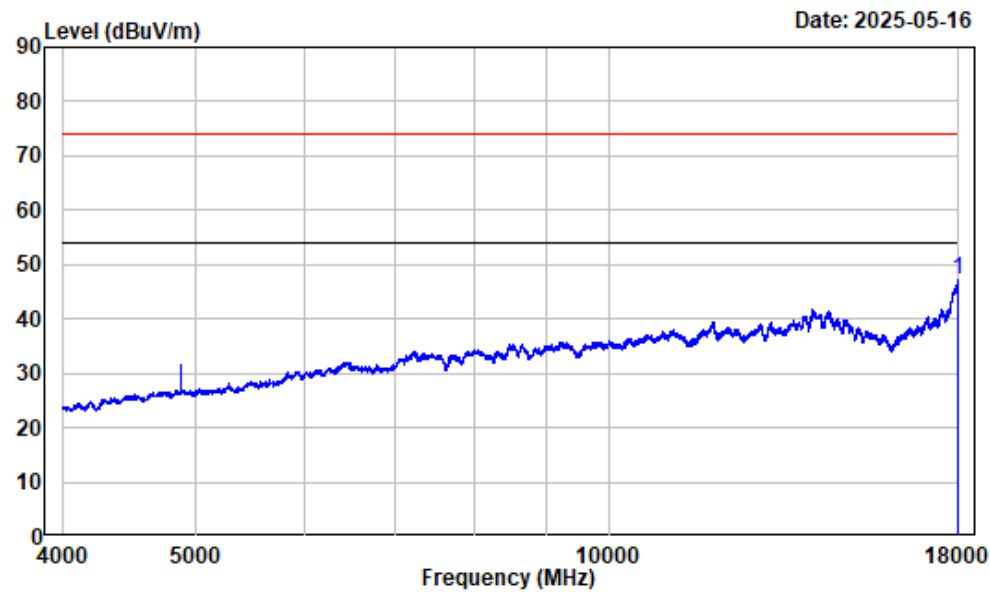
## 4-18GHz\_Vertical\_BLE\_1M\_Antenna 1\_2440



Condition : Vertical  
Project No. : 2501S11939E-RF  
Tester : Visen Wu  
Spectrum setting: Peak reading: RBW:1MHz VBW:3MHz Detector:Peak  
Note : BLE\_1M\_ANT1\_2440

| Freq |           | Factor | Read Level | Level  | Limit Line | Over Limit | Remark |
|------|-----------|--------|------------|--------|------------|------------|--------|
| MHz  |           | dB/m   | dBuV       | dBuV/m | dBuV/m     | dB         |        |
| 1    | 4880.000  | -7.59  | 52.45      | 44.86  | 74.00      | -29.14     | Peak   |
| 2    | 17980.750 | 13.11  | 48.33      | 61.44  | 74.00      | -12.56     | Peak   |

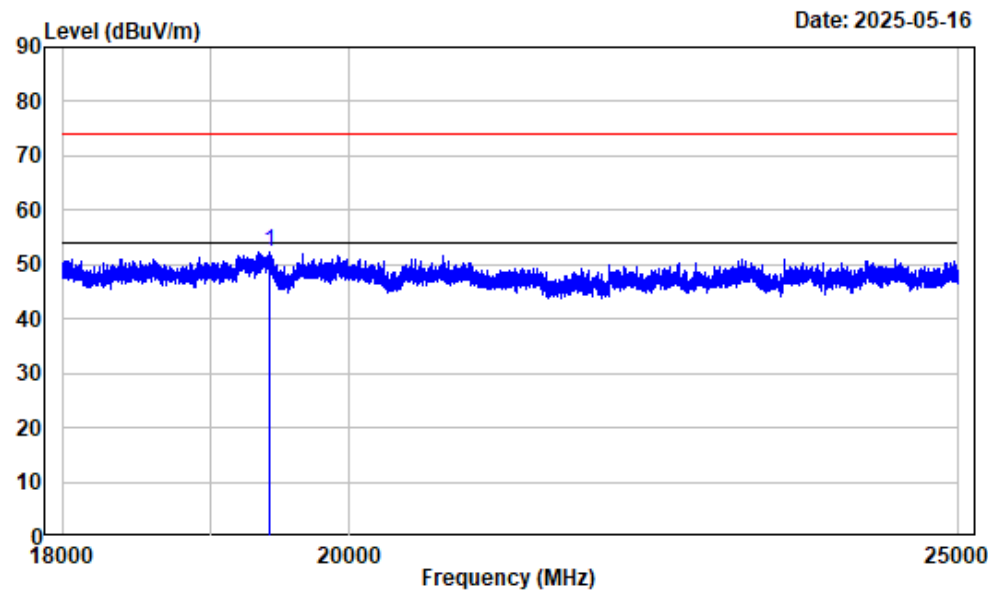
4-18GHz\_Vetical\_Average BLE\_1M\_Antenna 1\_2440



Condition : Vertical  
Project No. : 2501S11939E-RF  
Tester : Visen Wu  
Spectrum setting: Average reading: RBW:1MHz VBW:3kHz Detector:Peak  
Note : BLE\_1M\_ANT1\_2440

| Freq |           | Factor | Read Level | Level  | Limit Line | Over Limit | Remark  |
|------|-----------|--------|------------|--------|------------|------------|---------|
| MHz  |           | dB/m   | dBuV       | dBuV/m | dBuV/m     | dB         |         |
| 1    | 17994.750 | 13.17  | 33.99      | 47.16  | 54.00      | -6.84      | Average |

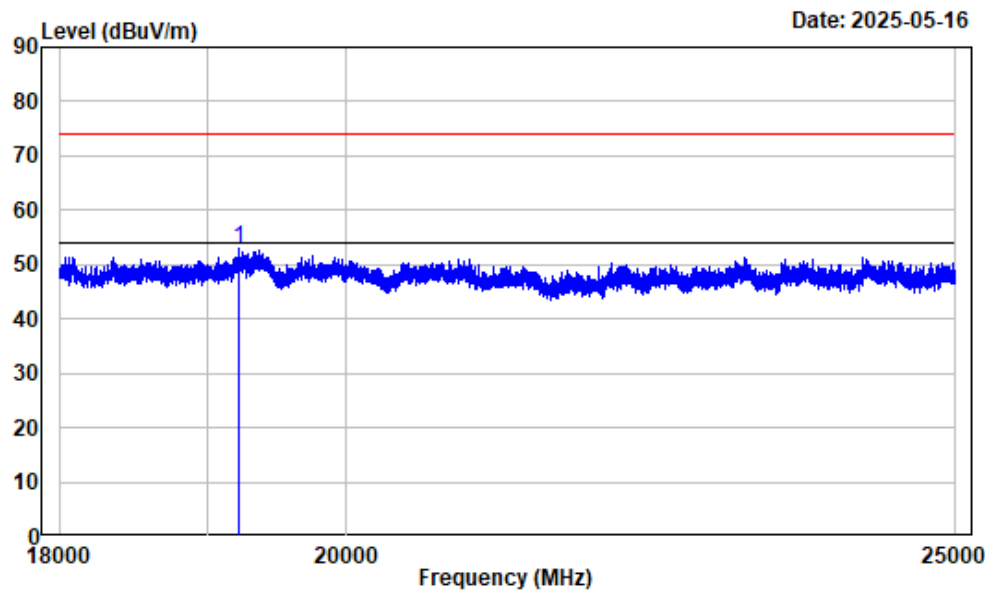
18-25GHz\_Horizontal\_BLE\_1M\_Antenna 1\_2440



Condition : Horizontal  
Project No. : 2501S11939E-RF  
Tester : Visen Wu  
Spectrum setting: Peak reading: RBW:1MHz VBW:3MHz Detector:Peak  
Note : BLE\_1M\_ANT1\_2440

| Freq |           | Factor | Read Level | Level  | Limit  | Over   | Remark |
|------|-----------|--------|------------|--------|--------|--------|--------|
| MHz  |           | dB/m   | dBuV       | dBuV/m | dBuV/m | dB     |        |
| 1    | 19417.680 | 15.45  | 36.93      | 52.38  | 74.00  | -21.62 | peak   |

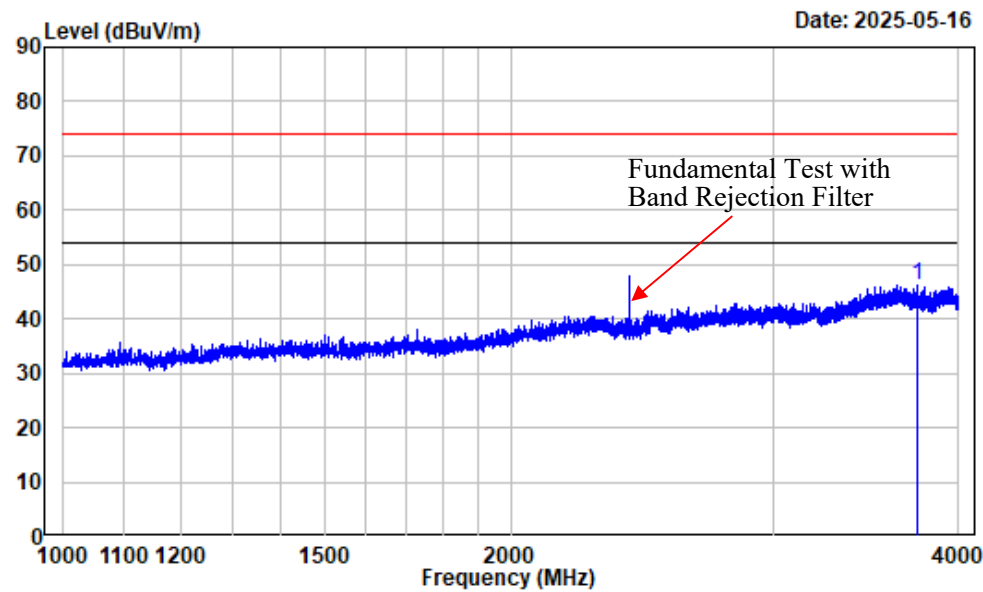
18-25GHz\_Vertical\_BLE\_1M\_Antenna 1\_2440



Condition : Vertical  
Project No. : 2501S11939E-RF  
Tester : Visen Wu  
Spectrum setting: Peak reading: RBW:1MHz VBW:3MHz Detector:Peak  
Note : BLE\_1M\_ANT1\_2440

| Freq        |  | Factor | Read Level | Level  | Limit Line | Over Limit | Remark |
|-------------|--|--------|------------|--------|------------|------------|--------|
| MHz         |  | dB/m   | dBuV       | dBuV/m | dBuV/m     | dB         |        |
| 1 19225.150 |  | 15.42  | 37.52      | 52.94  | 74.00      | -21.06     | peak   |

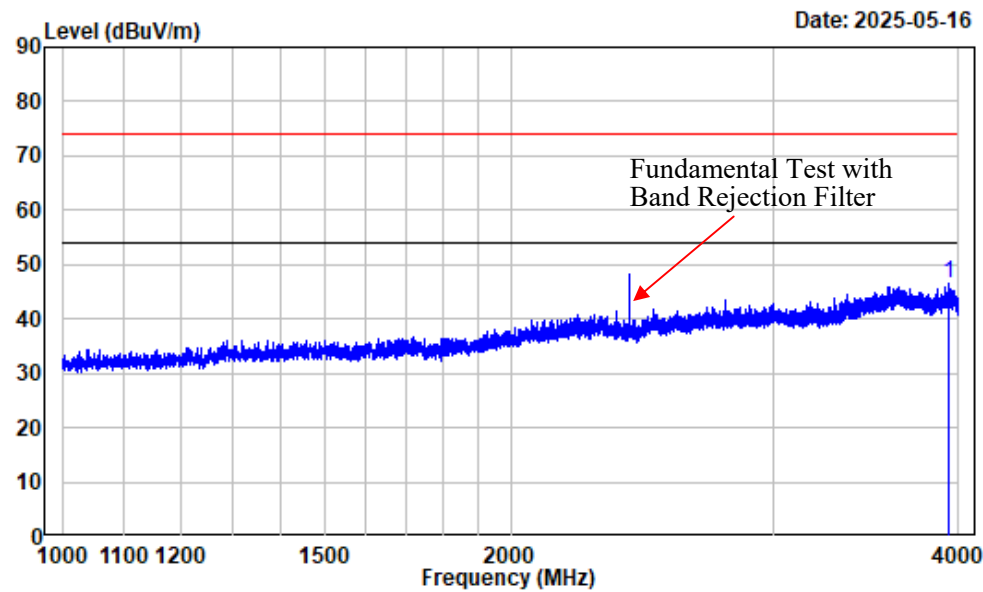
1-4GHz\_Horizontal\_BLE\_1M\_Antenna 2\_2402



Condition : Horizontal  
Project No. : 2501S11939E-RF  
Tester : Visen Wu  
Spectrum setting: Peak reading: RBW:1MHz VBW:3MHz Detector:Peak  
Note : BLE\_1M\_ANT2\_2402

|             |          | Read  |        | Limit  | Over  | Remark      |
|-------------|----------|-------|--------|--------|-------|-------------|
| Freq Factor |          | Level | Level  | Line   | Limit |             |
| MHz         | dB/m     | dBuV  | dBuV/m | dBuV/m | dB    |             |
| 1           | 3757.720 | -9.62 | 55.82  | 46.20  | 74.00 | -27.80 Peak |

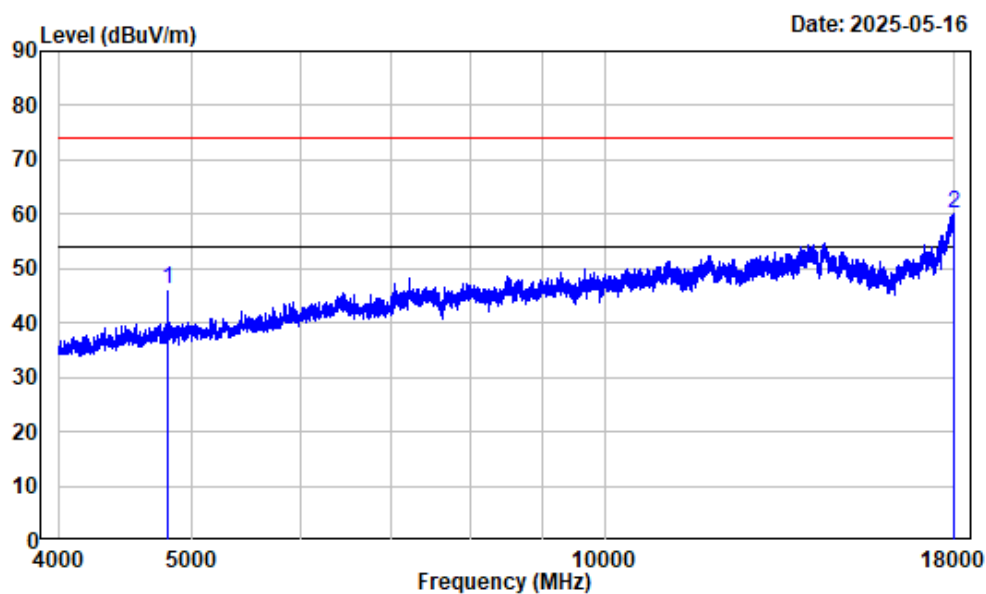
1-4GHz\_Vertical\_BLE\_1M\_Antenna 2\_2402



Condition : Vertical  
Project No. : 2501S11939E-RF  
Tester : Visen Wu  
Spectrum setting: Peak reading: RBW:1MHz VBW:3MHz Detector:Peak  
Note : BLE\_1M\_ANT2\_2402

|             |          | Read  |        | Limit  | Over  | Remark      |
|-------------|----------|-------|--------|--------|-------|-------------|
| Freq Factor |          | Level | Level  | Line   | Limit |             |
| MHz         | dB/m     | dBuV  | dBuV/m | dBuV/m | dB    |             |
| 1           | 3936.992 | -9.47 | 55.84  | 46.37  | 74.00 | -27.63 Peak |

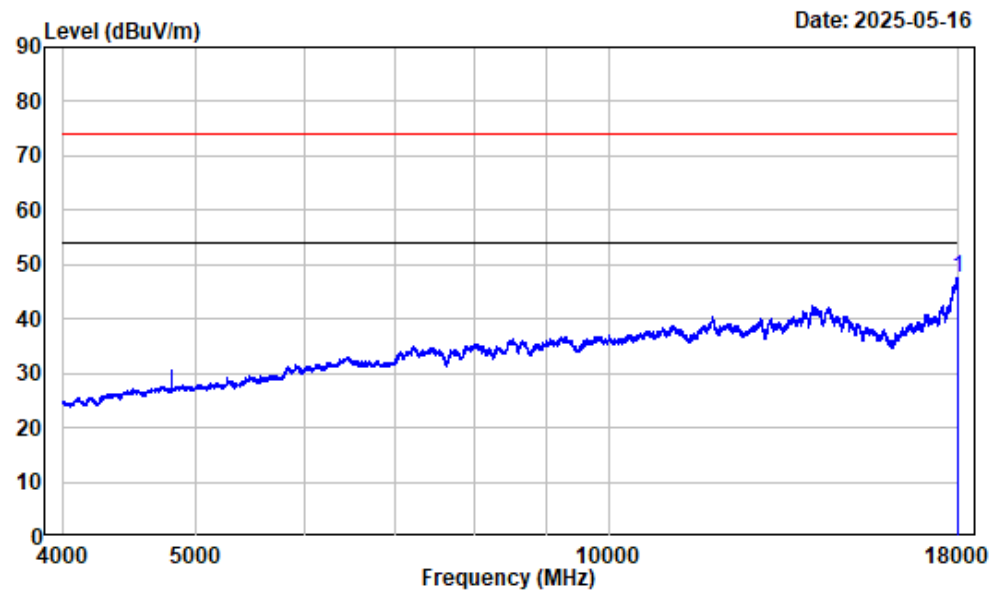
4-18GHz\_Horizontal\_Peak\_BLE\_1M\_Antenna 2\_2402



Condition : Horizontal  
 Project No. : 2501S11939E-RF  
 Tester : Visen Wu  
 Spectrum setting: Peak reading: RBW:1MHz VBW:3MHz Detector:Peak  
 Note : BLE\_1M\_ANT2\_2402

|             |       | Read  |        | Limit  | Over   | Remark |
|-------------|-------|-------|--------|--------|--------|--------|
| Freq Factor |       | Level | Level  | Line   | Limit  |        |
| MHz         | dB/m  | dBuV  | dBuV/m | dBuV/m | dB     |        |
| 1 4804.000  | -7.79 | 53.81 | 46.02  | 74.00  | -27.98 | Peak   |
| 2 17986.000 | 13.13 | 47.10 | 60.23  | 74.00  | -13.77 | Peak   |

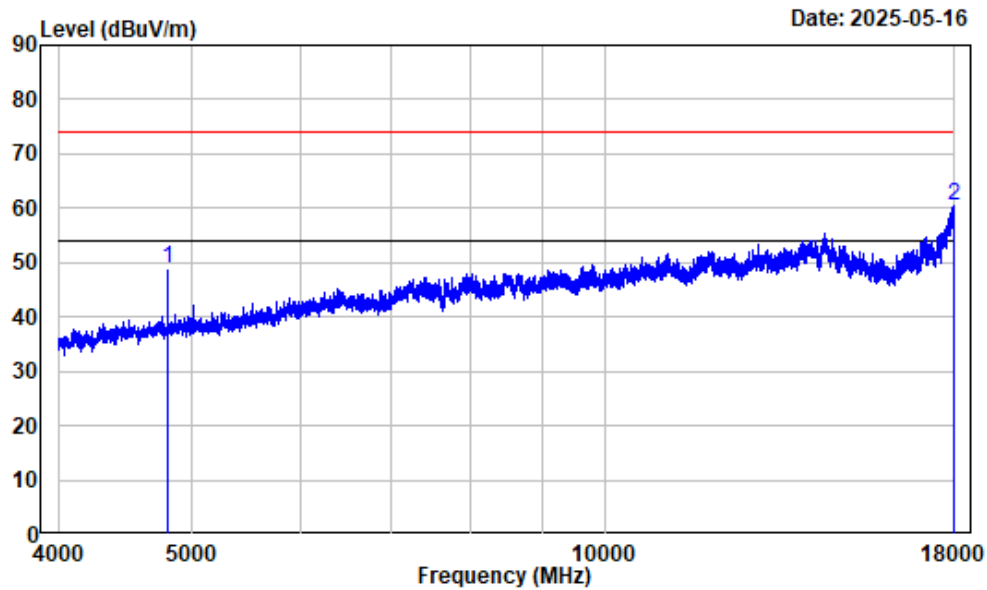
4-18GHz\_Horizontal\_Average\_BLE\_1M\_Antenna 2\_2402



Condition : Horizontal  
Project No. : 2501S11939E-RF  
Tester : Visen Wu  
Spectrum setting: Average reading: RBW:1MHz VBW:3kHz Detector:Peak  
Note : BLE\_1M\_ANT2\_2402

| Freq Factor |       | Read Level | Level  | Limit Line | Over Limit | Remark  |
|-------------|-------|------------|--------|------------|------------|---------|
| MHz         | dB/m  | dBuV       | dBuV/m | dBuV/m     | dB         |         |
| 1 17980.750 | 13.11 | 34.55      | 47.66  | 54.00      | -6.34      | Average |

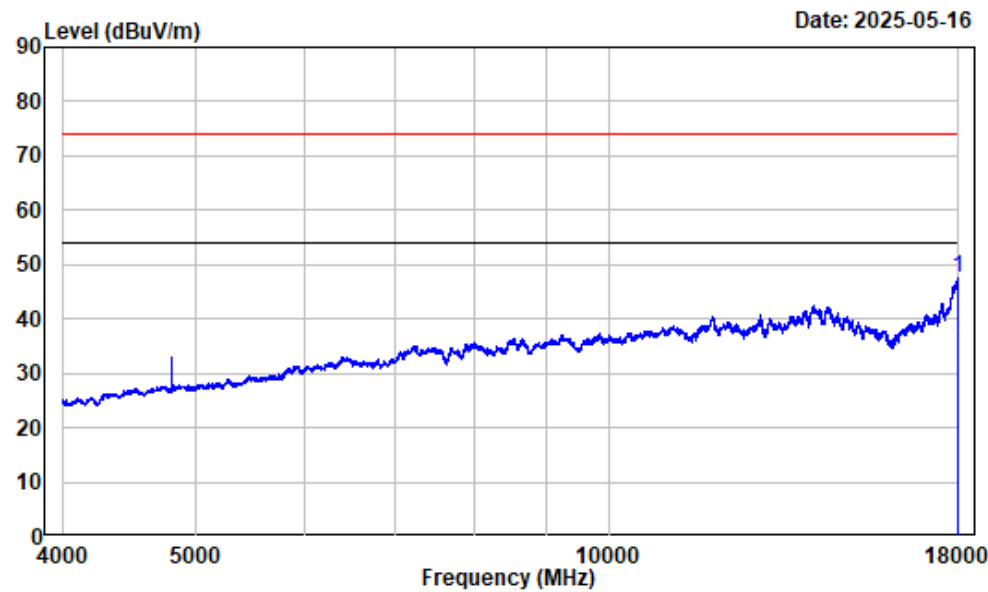
## 4-18GHz\_Vertical\_Peak\_BLE\_1M\_Antenna 2\_2402



Condition : Vertical  
Project No. : 2501S11939E-RF  
Tester : Visen Wu  
Spectrum setting: Peak reading: RBW:1MHz VBW:3MHz Detector:Peak  
Note : BLE\_1M\_ANT2\_2402

|   | Freq      | Factor | Read  |        | Limit  | Over   | Remark |
|---|-----------|--------|-------|--------|--------|--------|--------|
|   |           |        | Level | Level  | Line   | Limit  |        |
|   | MHz       | dB/m   | dBuV  | dBuV/m | dBuV/m | dB     |        |
| 1 | 4804.000  | -7.79  | 56.75 | 48.96  | 74.00  | -25.04 | Peak   |
| 2 | 17986.000 | 13.13  | 47.39 | 60.52  | 74.00  | -13.48 | Peak   |

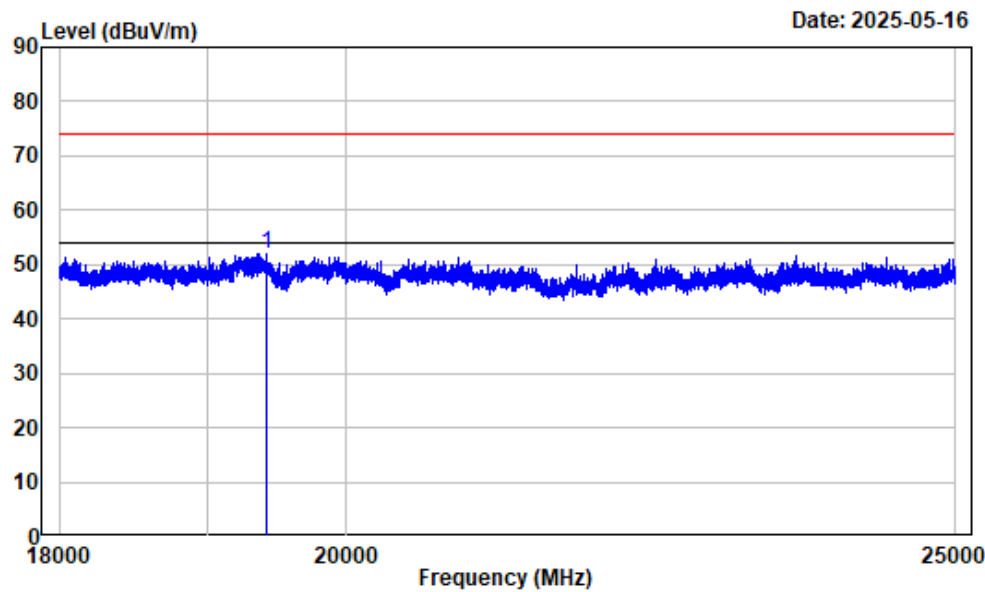
4-18GHz\_Vertical\_Average\_BLE\_1M\_Antenna 2\_2402



Condition : Vertical  
Project No. : 2501S11939E-RF  
Tester : Visen Wu  
Spectrum setting: Average reading: RBW:1MHz VBW:3kHz Detector:Peak  
Note : BLE\_1M\_ANT2\_2402

| Freq Factor |       | Read Level |        | Limit  | Over  | Remark  |
|-------------|-------|------------|--------|--------|-------|---------|
| MHz         | dB/m  | dBuV       | dBuV/m | dBuV/m | dB    |         |
| 1 18000.000 | 13.20 | 34.42      | 47.62  | 54.00  | -6.38 | Average |

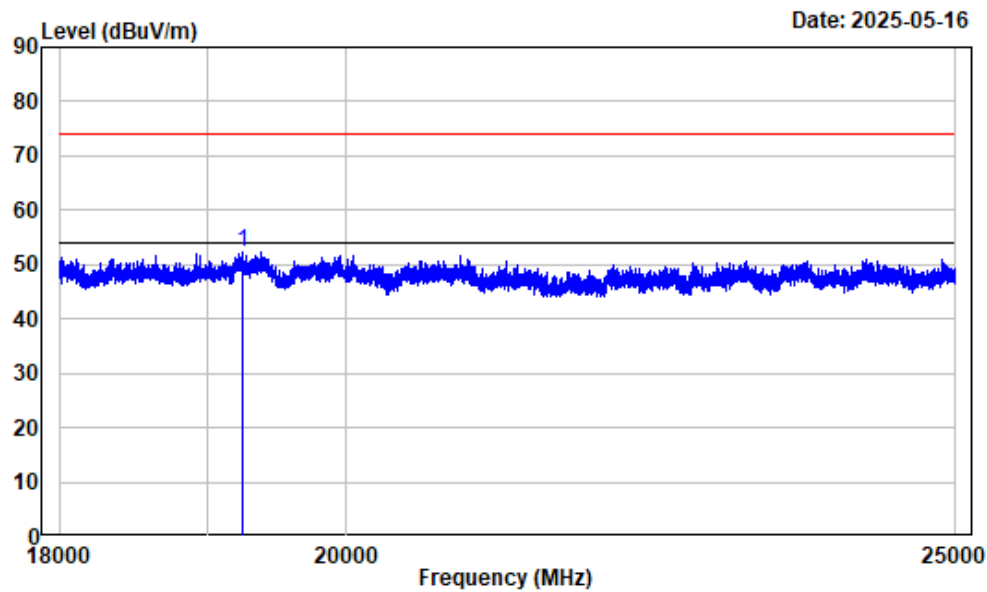
18-25GHz\_Horizontal\_BLE\_1M\_Antenna 2\_2402



Condition : Horizontal  
Project No. : 2501S11939E-RF  
Tester : Visen Wu  
Spectrum setting: Peak reading: RBW:1MHz VBW:3MHz Detector:Peak  
Note : BLE\_1M\_ANT2\_2402

| Freq        |  | Factor | Read Level | Level  | Limit Line | Over Limit | Remark |
|-------------|--|--------|------------|--------|------------|------------|--------|
| MHz         |  | dB/m   | dBuV       | dBuV/m | dBuV/m     | dB         |        |
| 1 19416.800 |  | 15.45  | 36.58      | 52.03  | 74.00      | -21.97     | peak   |

18-25GHz\_Vertical\_BLE\_1M\_Antenna 2\_2402



Condition : Vertical  
Project No. : 2501S11939E-RF  
Tester : Visen Wu  
Spectrum setting: Peak reading: RBW:1MHz VBW:3MHz Detector:Peak  
Note : BLE\_1M\_ANT2\_2402

| Freq |           | Factor | Read Level | Level  | Limit  | Over   | Remark |
|------|-----------|--------|------------|--------|--------|--------|--------|
| MHz  |           | dB/m   | dBuV       | dBuV/m | dBuV/m | dB     |        |
| 1    | 19247.030 | 15.42  | 37.01      | 52.43  | 74.00  | -21.57 | peak   |

**RF Conducted data****Test Information:**

|                    |              |                     |              |
|--------------------|--------------|---------------------|--------------|
| <b>Sample No.:</b> | 31RC-4       | <b>Test Date:</b>   | 2025/04/30   |
| <b>Test Site:</b>  | RF           | <b>Test Mode:</b>   | Transmitting |
| <b>Tester:</b>     | Navilite Cai | <b>Test Result:</b> | Pass         |

**Environmental Conditions:**

|                             |      |                                  |    |                               |     |
|-----------------------------|------|----------------------------------|----|-------------------------------|-----|
| <b>Temperature:</b><br>(°C) | 25.6 | <b>Relative Humidity:</b><br>(%) | 45 | <b>ATM Pressure:</b><br>(kPa) | 101 |
|-----------------------------|------|----------------------------------|----|-------------------------------|-----|

The test data please refer to the Appendix.

## RF EXPOSURE EVALUATION

### MPE-Based Exemption

#### Applicable Standard

According to subpart 15.247 (i) and subpart 2.1091 systems operating under the provisions of this section shall be operated in a manner that ensures the public is not exposed to RF energy level in excess of the communication guidelines.

According to KDB 447498 D04 v01 Interim General RF Exposure Guidance

MPE-Based Exemption:

General frequency and separation-distance dependent MPE-based effective radiated power(ERP) thresholds are in Table B.1 [Table 1 of § 1.1307(b)(3)(i)(C)] to support an exemption from further evaluation from 300 kHz through 100 GHz.

Table 1 to § 1.1307(b)(3)(i)(C) - Single RF Sources Subject to Routine Environmental Evaluation

| RF Source frequency (MHz) | Threshold ERP (watts) |
|---------------------------|-----------------------|
| 0.3-1.34                  | $1,920 R^2$ .         |
| 1.34-30                   | $3,450 R^2/f^2$ .     |
| 30-300                    | $3.83 R^2$ .          |
| 300-1,500                 | $0.0128 R^2 f$ .      |
| 1,500-100,000             | $19.2 R^2$ .          |

R is the minimum separation distance in meters

f = frequency in MHz

### Result

| Mode | Frequency (MHz) | Tune up conducted power <sup>#</sup> (dBm) | Antenna Gain <sup>#</sup> |       | ERP   |      | Evaluation Distance (m) | ERP Limit (mW) |
|------|-----------------|--------------------------------------------|---------------------------|-------|-------|------|-------------------------|----------------|
|      |                 |                                            | (dBi)                     | (dBd) | (dBm) | (mW) |                         |                |
| BLE  | 2402-2480       | 1.50                                       | 3.96                      | 1.81  | 3.31  | 2.14 | 0.2                     | 768            |

Note 1: The tune up conducted power<sup>#</sup> and antenna gain<sup>#</sup> was declared by the applicant.

Note 2: The antenna 1 and antenna 2 can't transmit simultaneously

To maintain compliance with the FCC's RF exposure guidelines, place the equipment at least 20cm from nearby persons.

**Result: Compliant**

## **EUT PHOTOGRAPHS**

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Please refer to the attachment 2501S11939E-RF External photo and 2501S11939E-RF Internal photo.

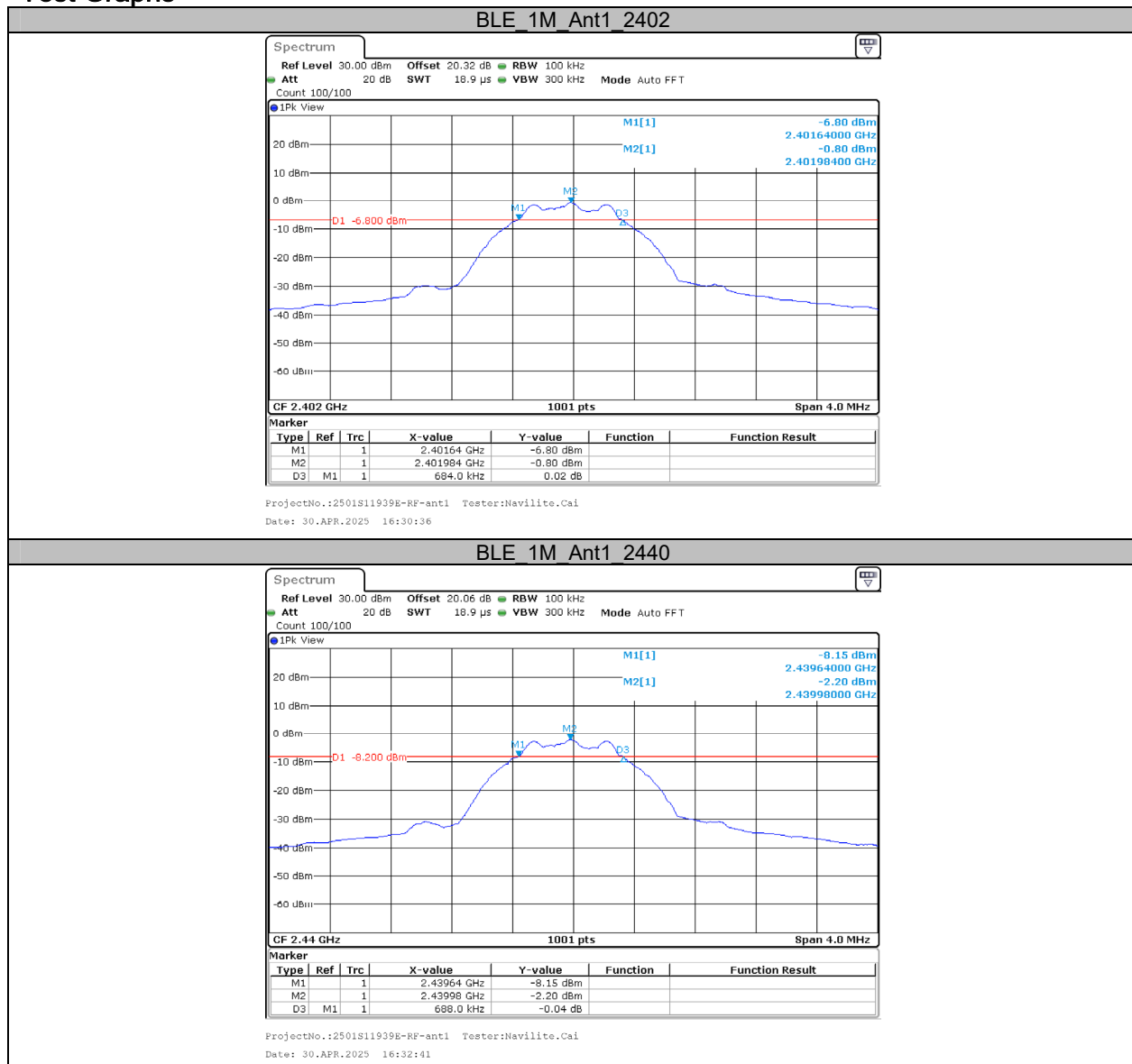
## **TEST SETUP PHOTOGRAPHS**

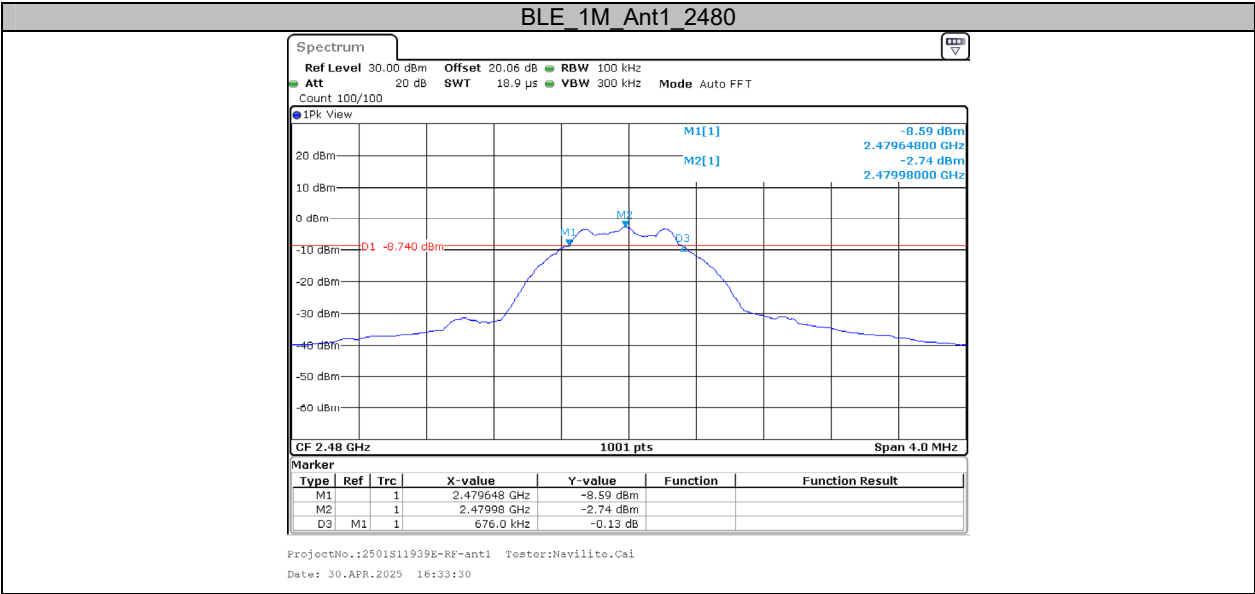
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Please refer to the attachment 2501S11939E-RF Test Setup photo.

**APPENDIX(Antenna 1)****Appendix A1: DTS Bandwidth****Test Result**

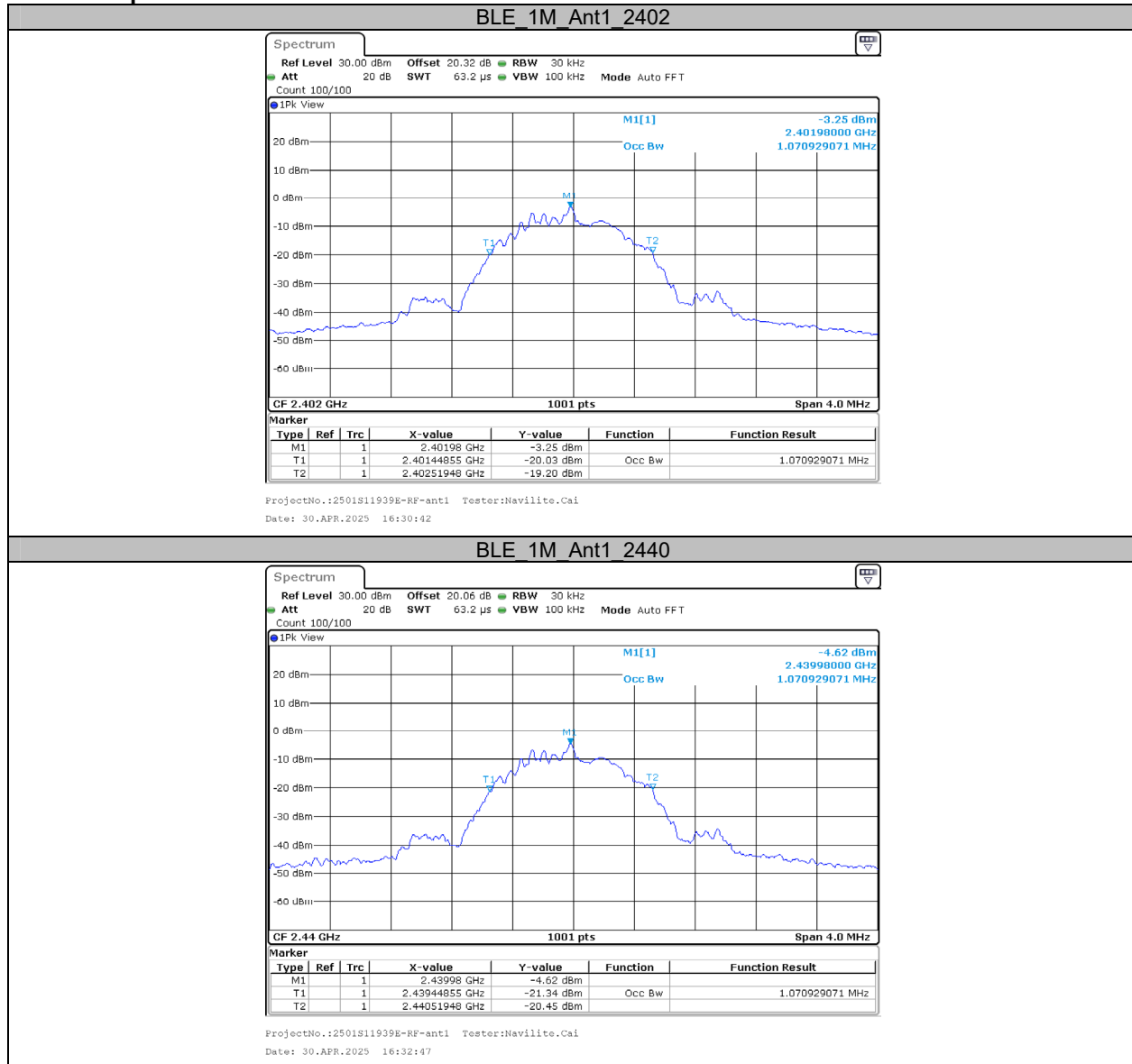
| Test Mode | Antenna | Frequency[MHz] | DTS BW [MHz] | FL[MHz] | FH[MHz] | Limit[MHz] | Verdict |
|-----------|---------|----------------|--------------|---------|---------|------------|---------|
| BLE_1M    | Ant1    | 2402           | 0.684        | 2401.64 | 2402.32 | 0.5        | PASS    |
|           |         | 2440           | 0.688        | 2439.64 | 2440.33 | 0.5        | PASS    |
|           |         | 2480           | 0.676        | 2479.65 | 2480.32 | 0.5        | PASS    |

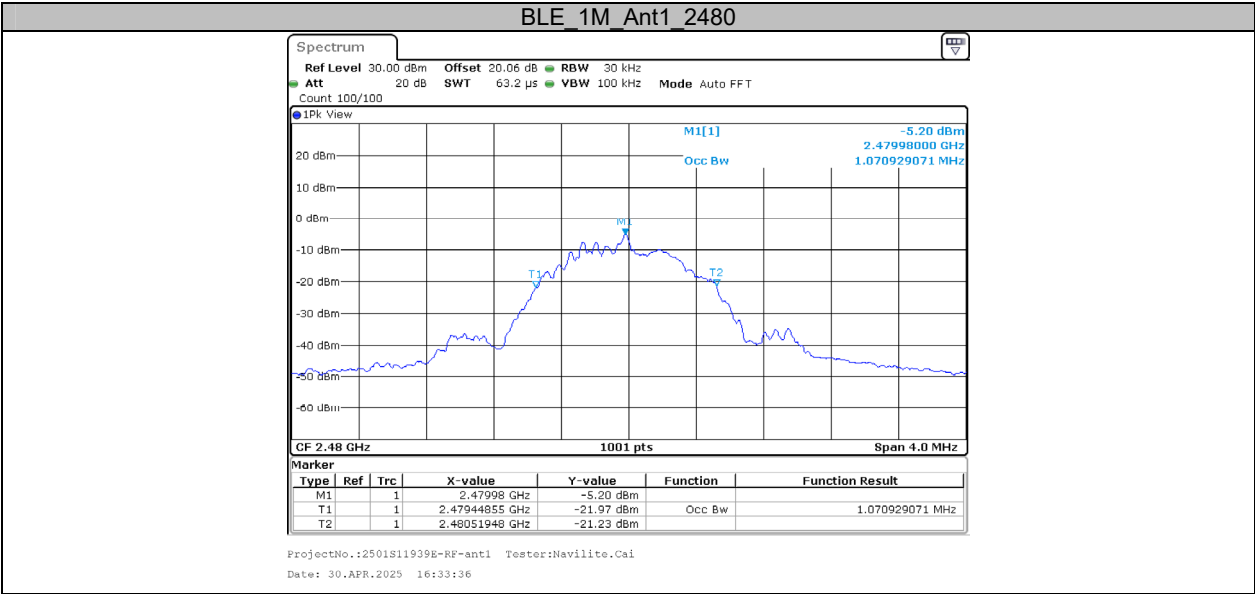
**Test Graphs**



**Appendix B1: Occupied Channel Bandwidth****Test Result**

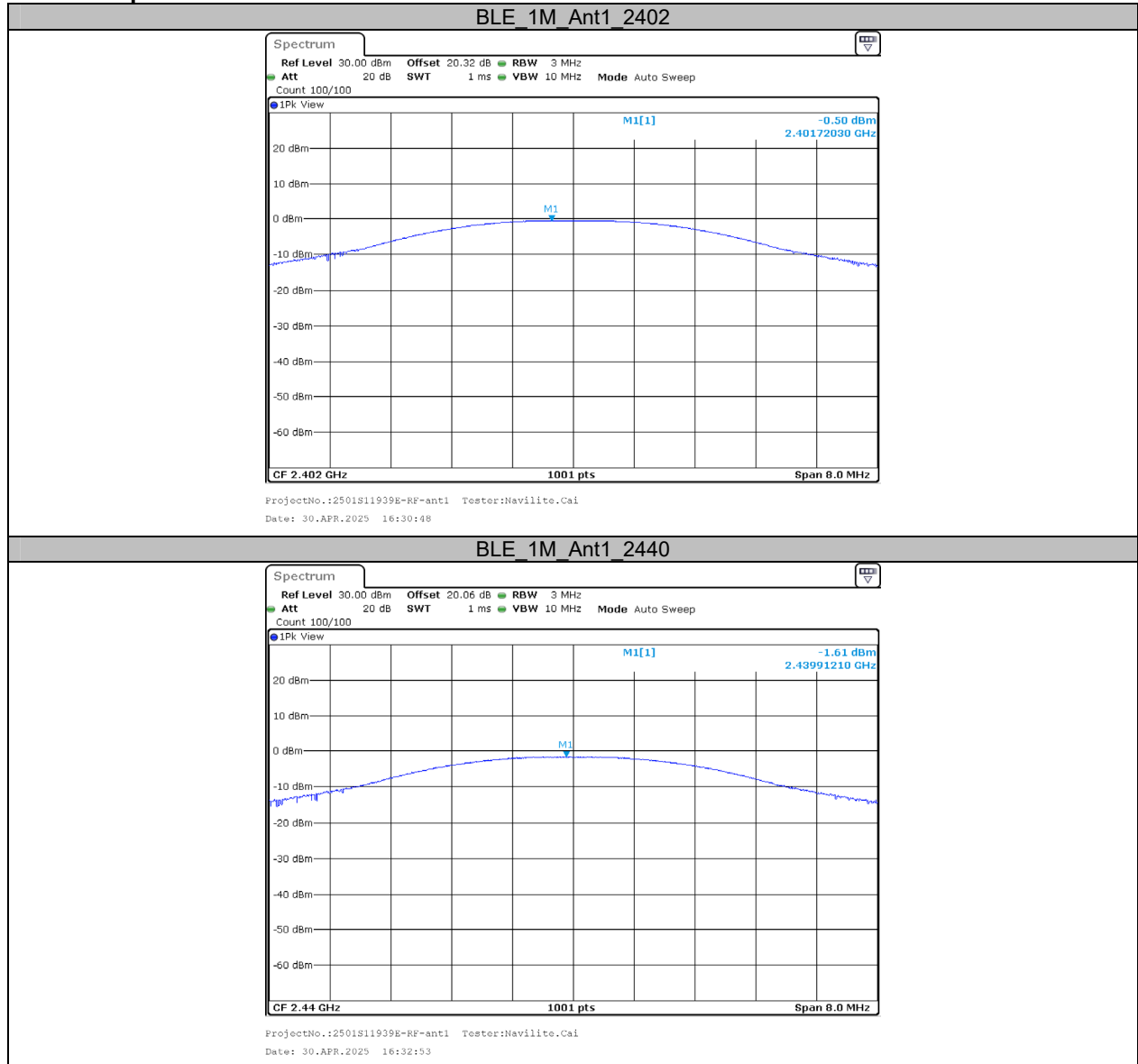
| Test Mode | Antenna | Frequency[MHz] | OCB [MHz] | FL[MHz]   | FH[MHz]   | Limit[MHz] | Verdict |
|-----------|---------|----------------|-----------|-----------|-----------|------------|---------|
| BLE_1M    | Ant1    | 2402           | 1.071     | 2401.4486 | 2402.5195 | ---        | ---     |
|           |         | 2440           | 1.071     | 2439.4486 | 2440.5195 | ---        | ---     |
|           |         | 2480           | 1.071     | 2479.4486 | 2480.5195 | ---        | ---     |

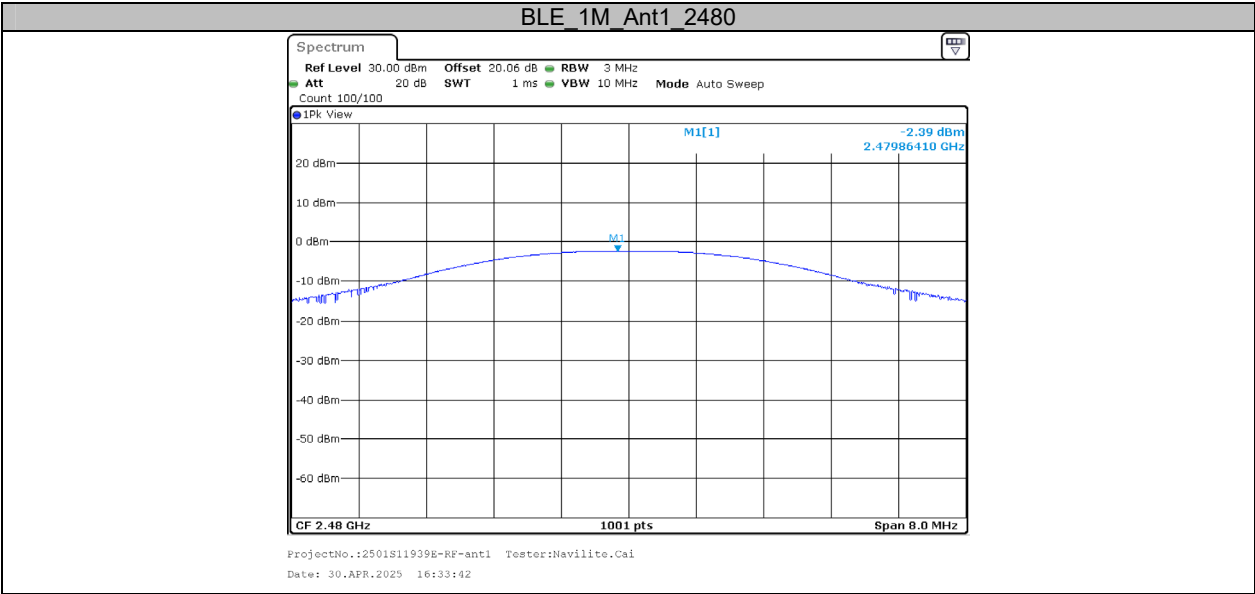
**Test Graphs**



**Appendix C1: Maximum conducted output power****Test Result Peak**

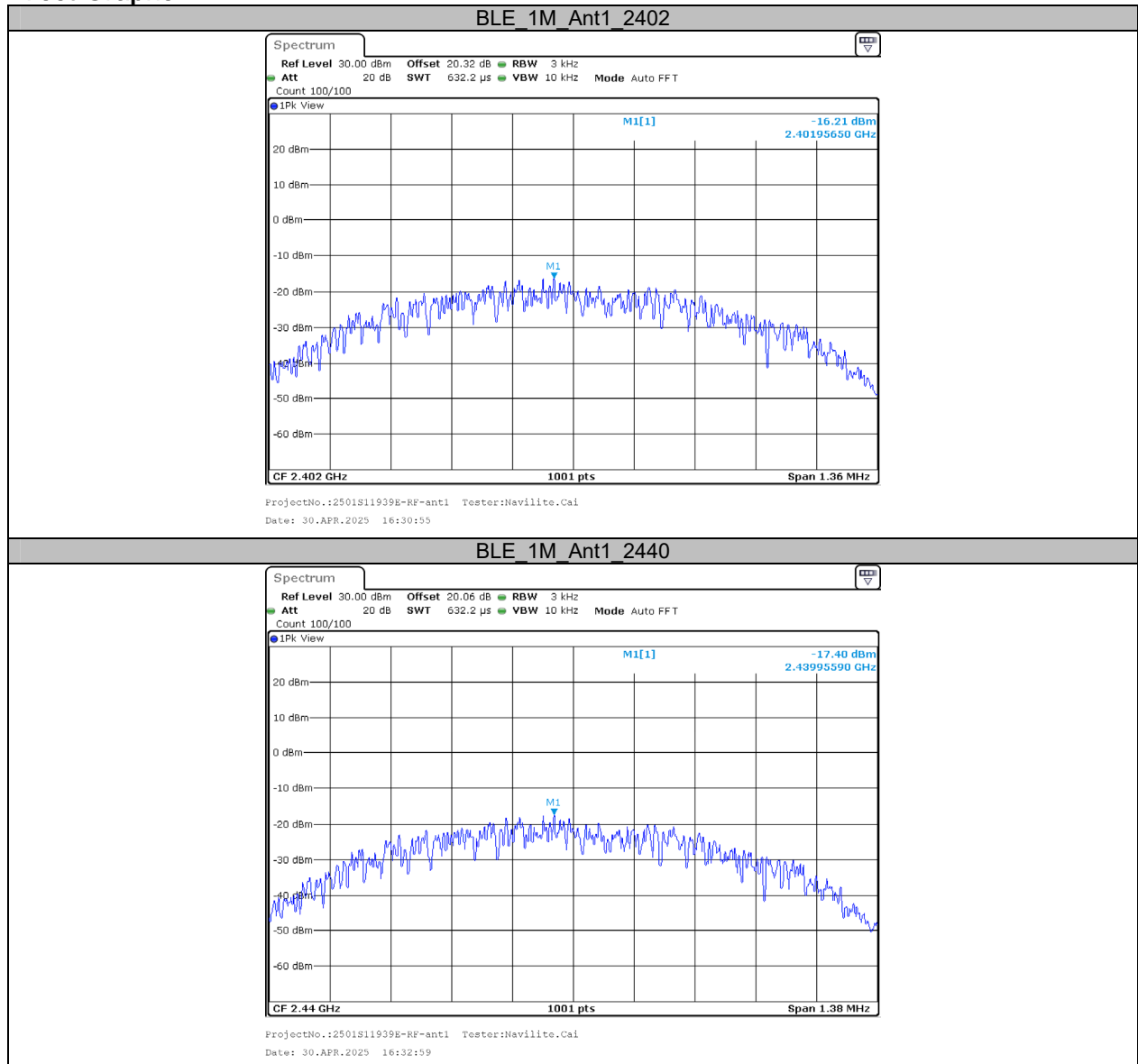
| Test Mode | Antenna | Frequency[MHz] | Conducted Peak Power[dBm] | Conducted Limit[dBm] | Verdict |
|-----------|---------|----------------|---------------------------|----------------------|---------|
| BLE_1M    | Ant1    | 2402           | -0.50                     | ≤30                  | PASS    |
|           |         | 2440           | -1.61                     | ≤30                  | PASS    |
|           |         | 2480           | -2.39                     | ≤30                  | PASS    |

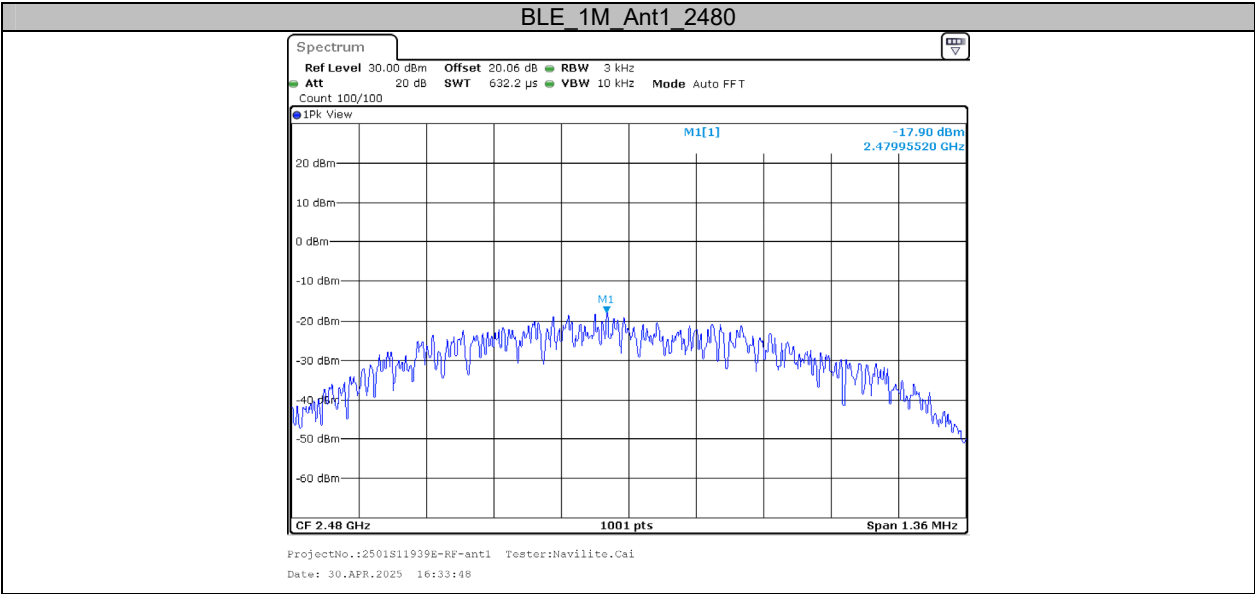
**Test Graphs Peak**



**Appendix D1: Maximum power spectral density****Test Result**

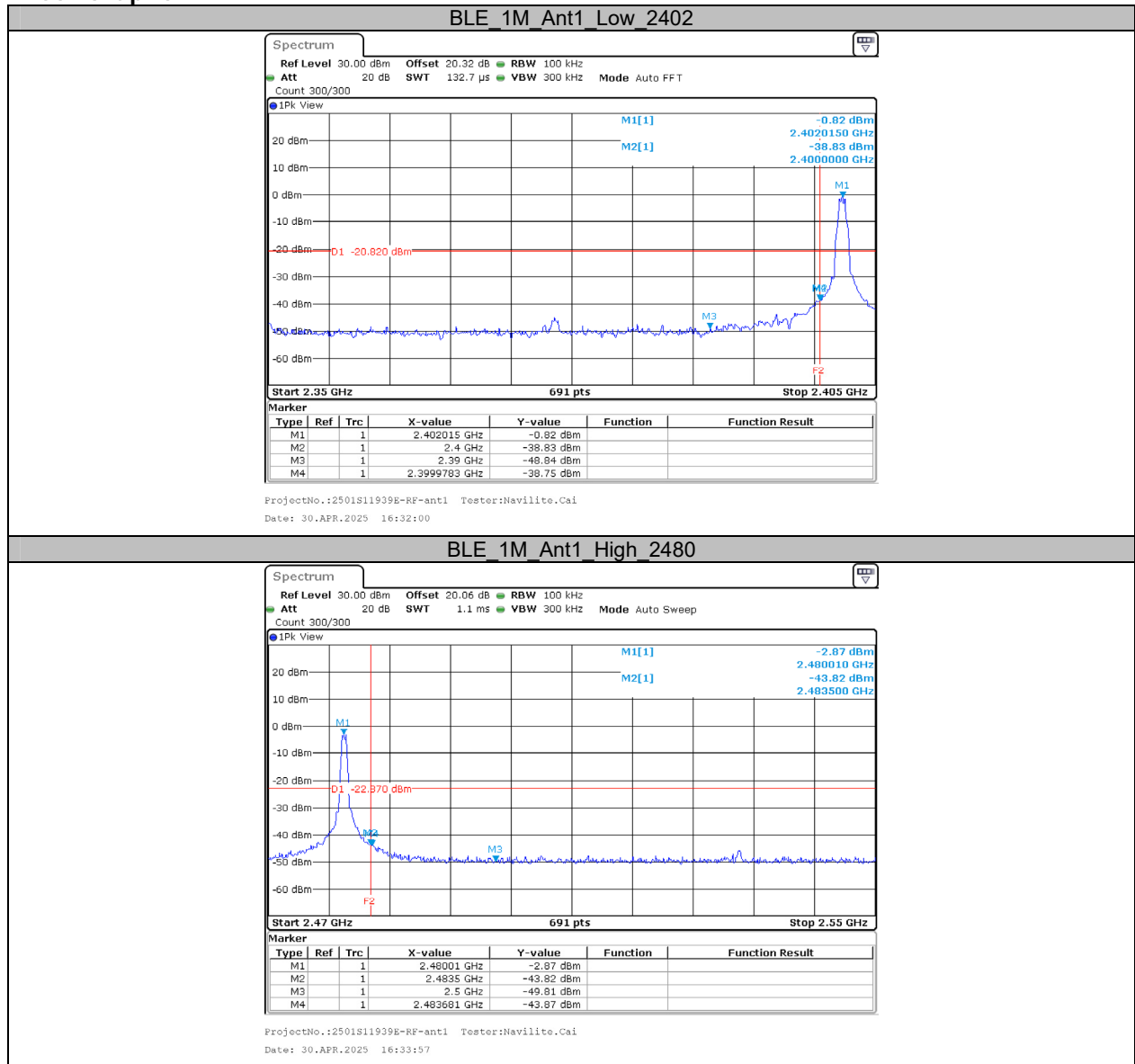
| Test Mode | Antenna | Frequency[MHz] | Result[dBm/3kHz] | Limit[dBm/3kHz] | Verdict |
|-----------|---------|----------------|------------------|-----------------|---------|
| BLE_1M    | Ant1    | 2402           | -16.21           | ≤8.00           | PASS    |
|           |         | 2440           | -17.40           | ≤8.00           | PASS    |
|           |         | 2480           | -17.90           | ≤8.00           | PASS    |

**Test Graphs**



## Appendix E1: Band edge measurements

## Test Graphs

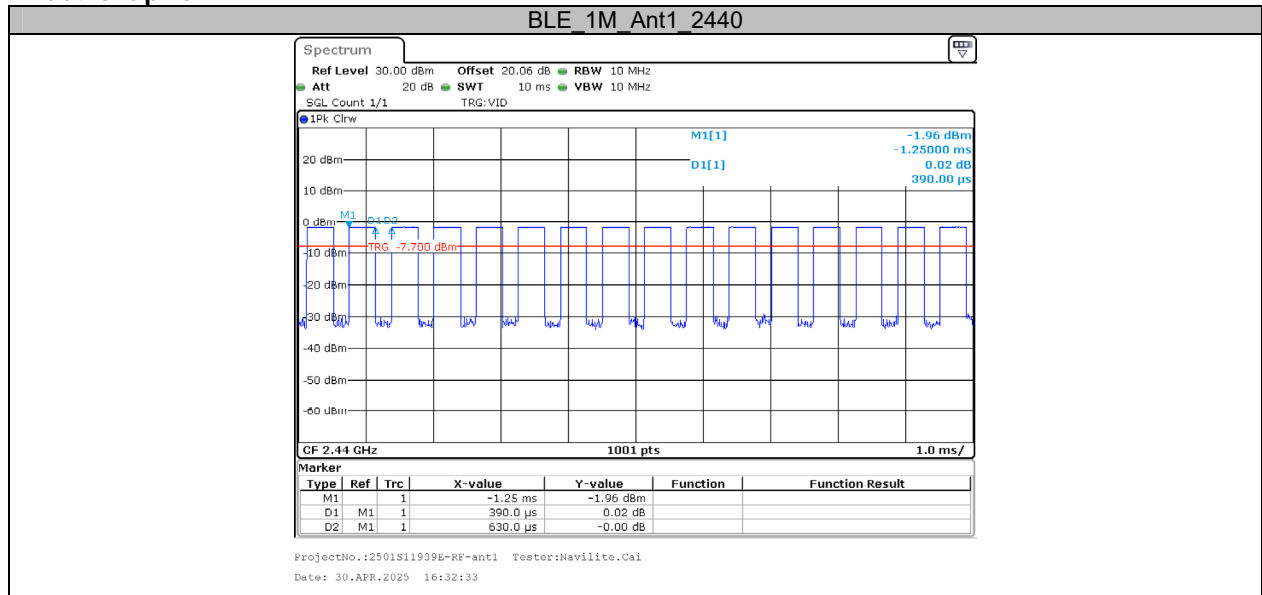


# Appendix F1: Duty Cycle

## Test Result

| Test Mode | Antenna | Frequency[MHz] | ON Time [ms] | Period [ms] | Duty Cycle [%] | Duty Cycle Factor[dB] | 1/Ton (Hz) | VBW (kHz) |
|-----------|---------|----------------|--------------|-------------|----------------|-----------------------|------------|-----------|
| BLE_1M    | Ant1    | 2440           | 0.39         | 0.63        | 61.90          | 2.08                  | 2564       | 3         |

## Test Graphs



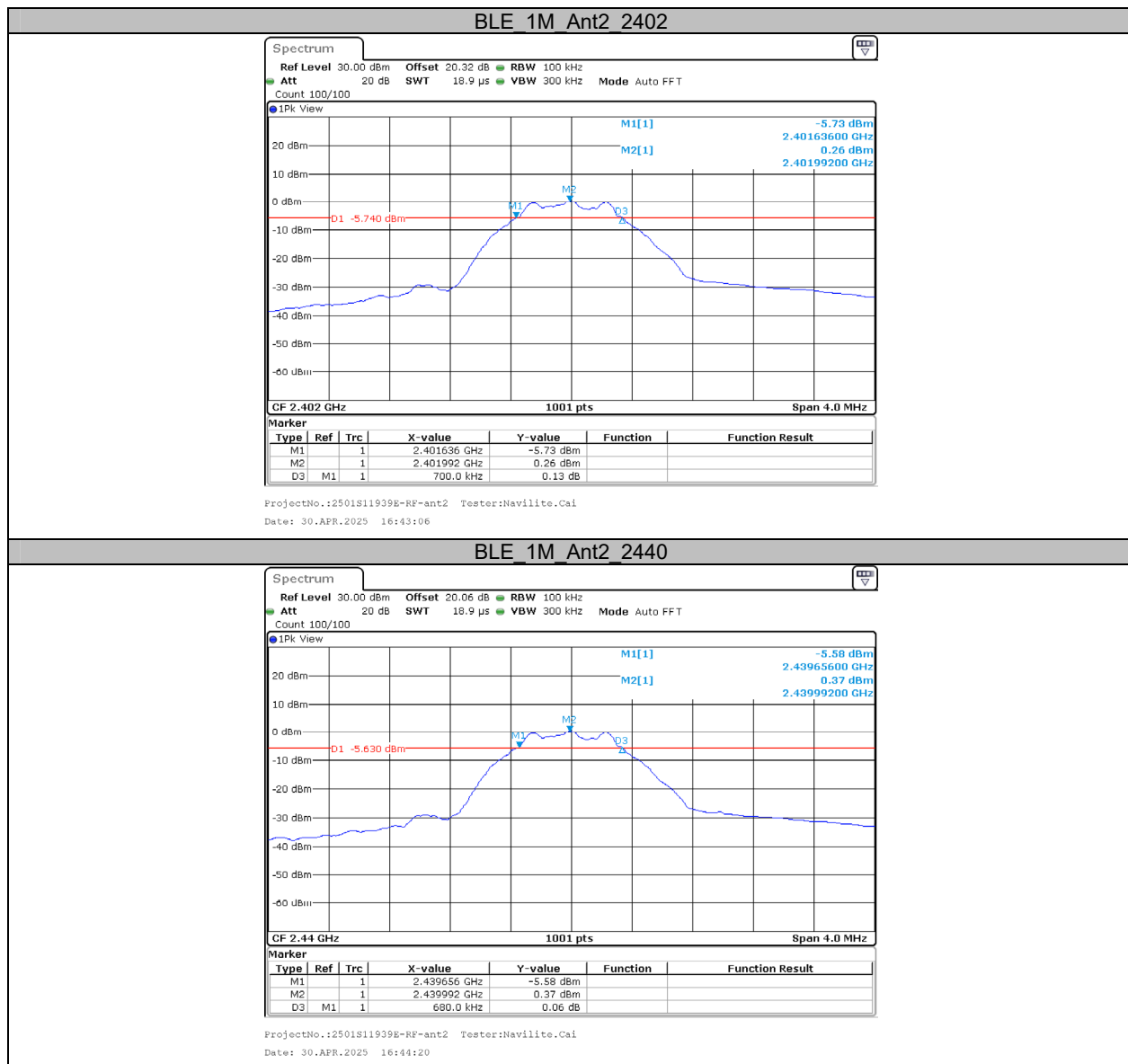
## APPENDIX(Antenna 2)

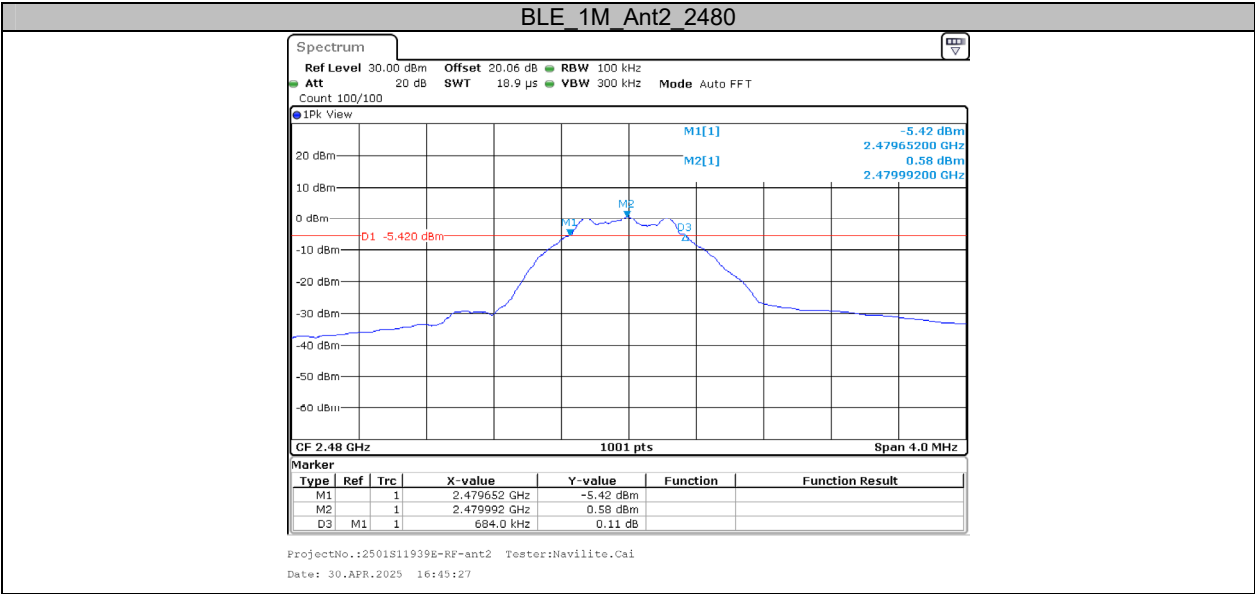
### Appendix A2: DTS Bandwidth

#### Test Result

| Test Mode | Antenna | Frequency[MHz] | DTS BW [MHz] | FL[MHz] | FH[MHz] | Limit[MHz] | Verdict |
|-----------|---------|----------------|--------------|---------|---------|------------|---------|
| BLE_1M    | Ant2    | 2402           | 0.700        | 2401.64 | 2402.34 | 0.5        | PASS    |
|           |         | 2440           | 0.680        | 2439.66 | 2440.34 | 0.5        | PASS    |
|           |         | 2480           | 0.684        | 2479.65 | 2480.34 | 0.5        | PASS    |

#### Test Graphs



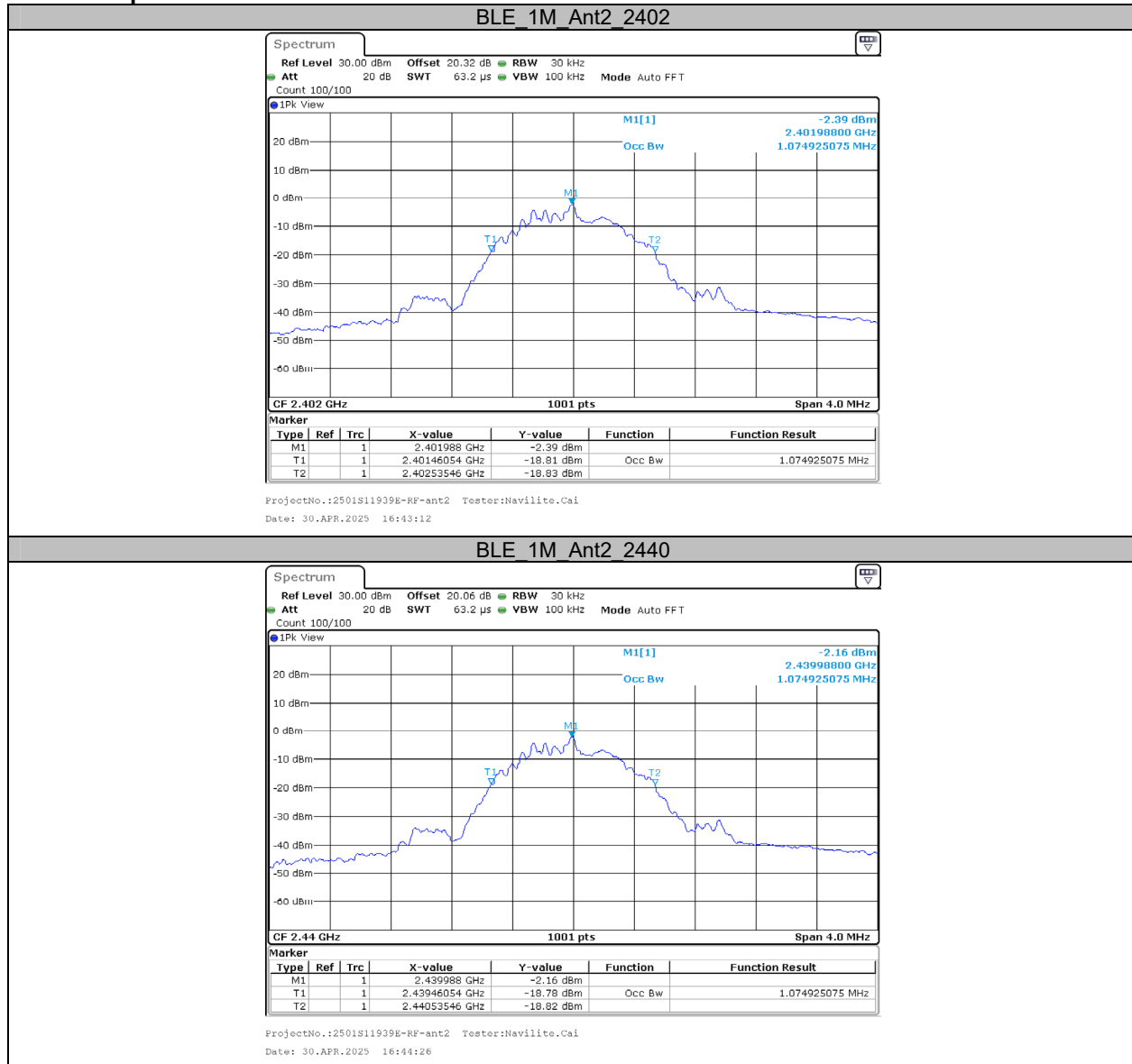


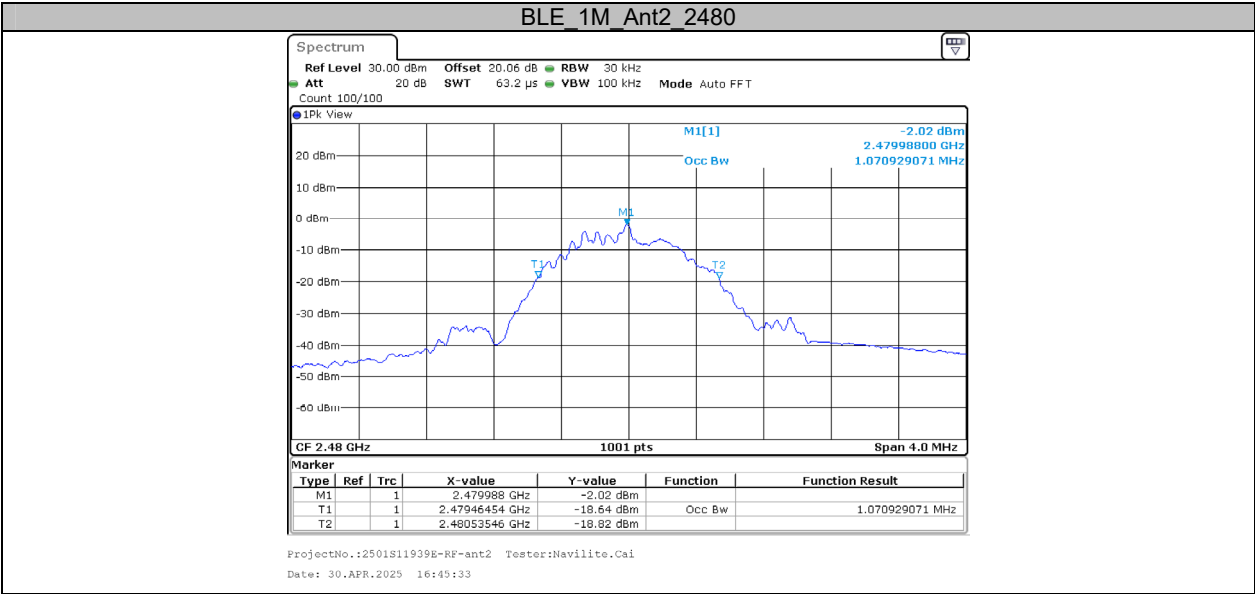
## Appendix B2: Occupied Channel Bandwidth

### Test Result

| Test Mode | Antenna | Frequency[MHz] | OCB [MHz] | FL[MHz]   | FH[MHz]   | Limit[MHz] | Verdict |
|-----------|---------|----------------|-----------|-----------|-----------|------------|---------|
| BLE_1M    | Ant2    | 2402           | 1.075     | 2401.4605 | 2402.5355 | ---        | ---     |
|           |         | 2440           | 1.075     | 2439.4605 | 2440.5355 | ---        | ---     |
|           |         | 2480           | 1.071     | 2479.4645 | 2480.5355 | ---        | ---     |

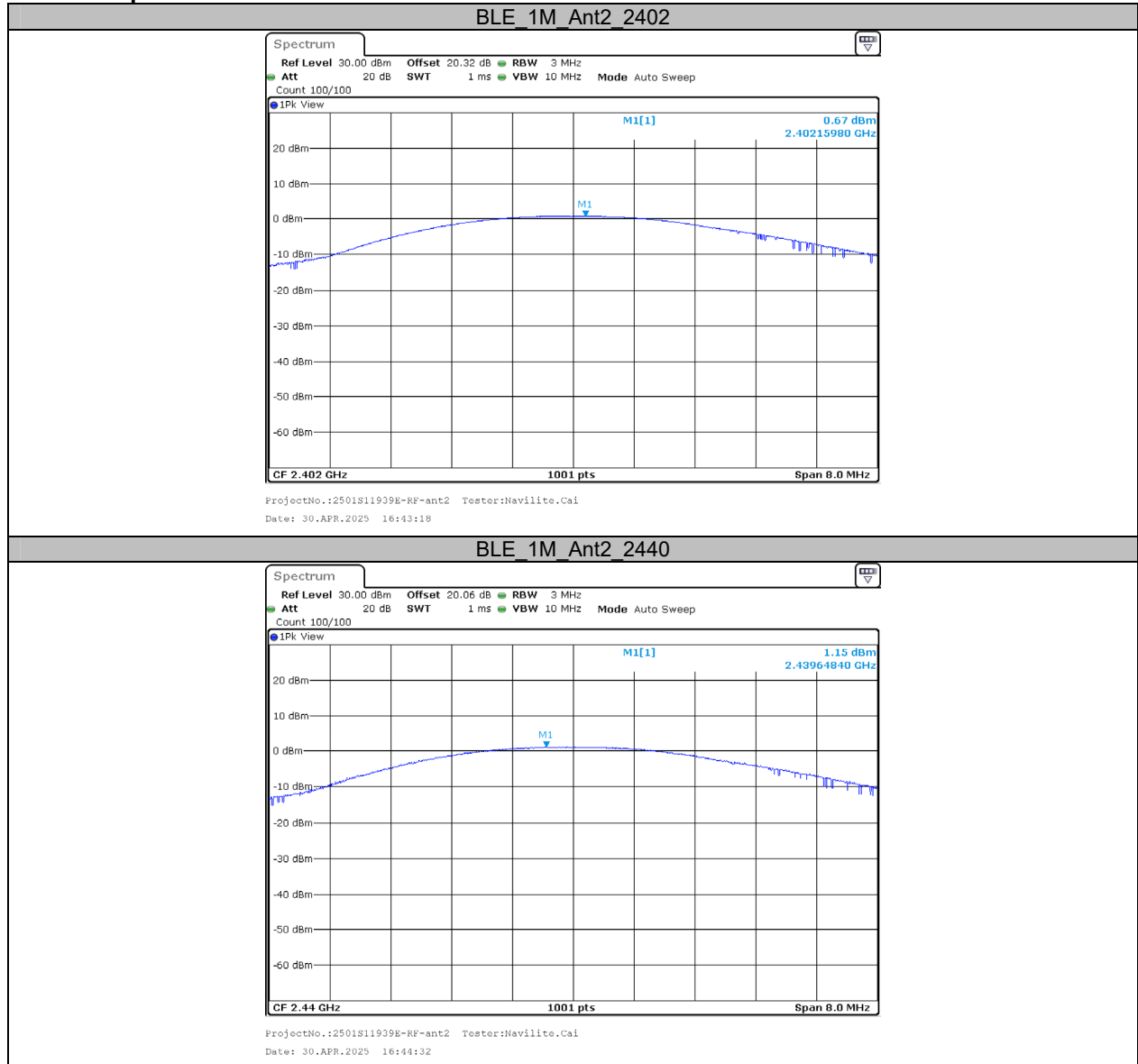
### Test Graphs

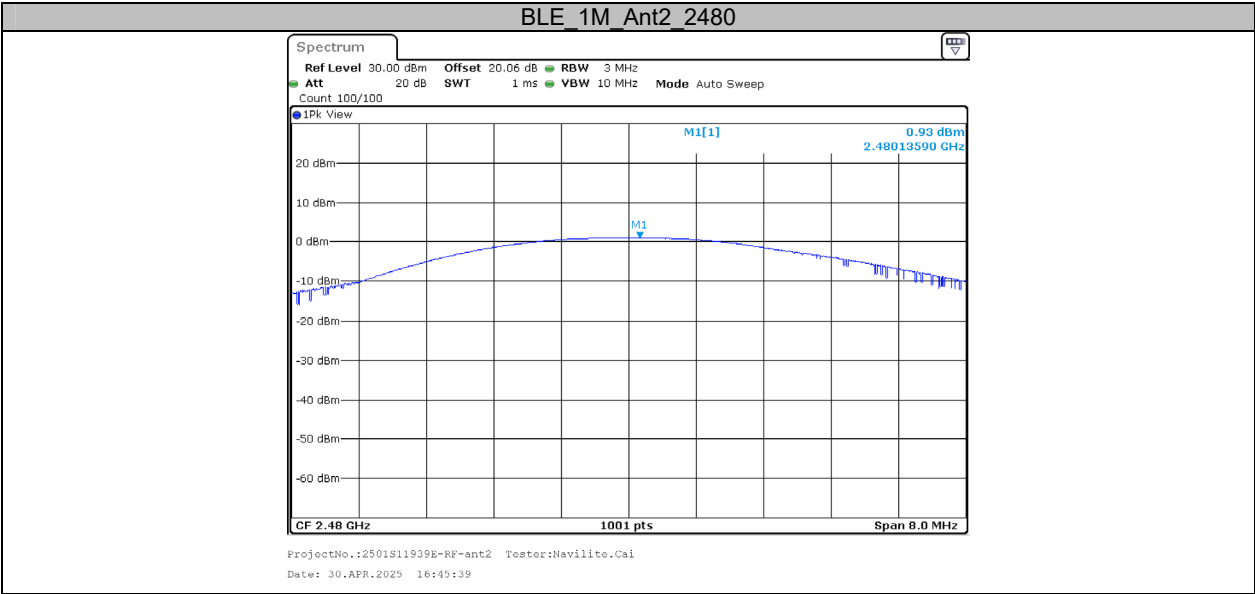




**Appendix C2: Maximum conducted output power****Test Result Peak**

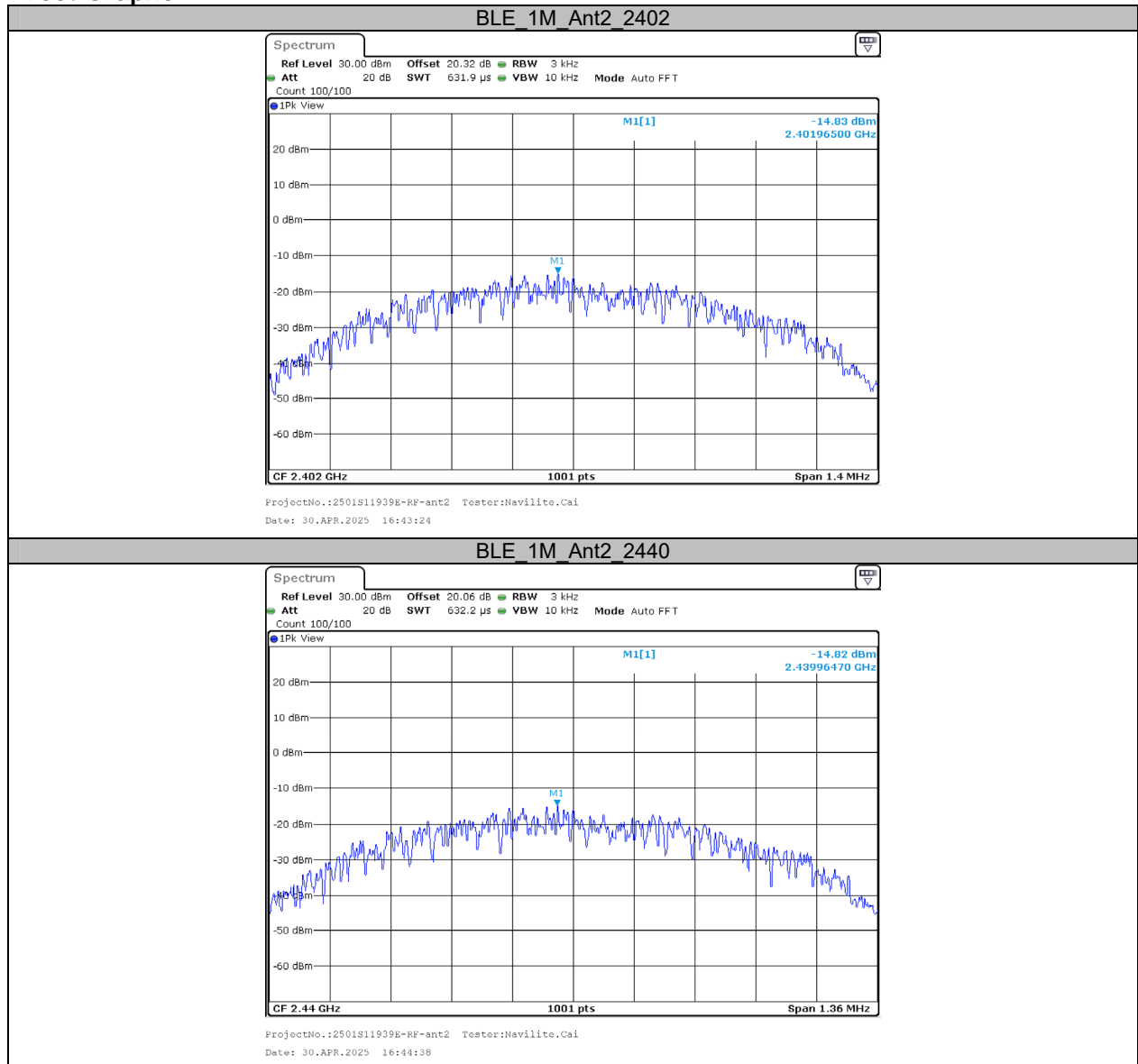
| Test Mode | Antenna | Frequency[MHz] | Conducted Peak Power [dBm] | Conducted Limit [dBm] | Verdict |
|-----------|---------|----------------|----------------------------|-----------------------|---------|
| BLE_1M    | Ant2    | 2402           | 0.67                       | ≤30                   | PASS    |
|           |         | 2440           | 1.15                       | ≤30                   | PASS    |
|           |         | 2480           | 0.93                       | ≤30                   | PASS    |

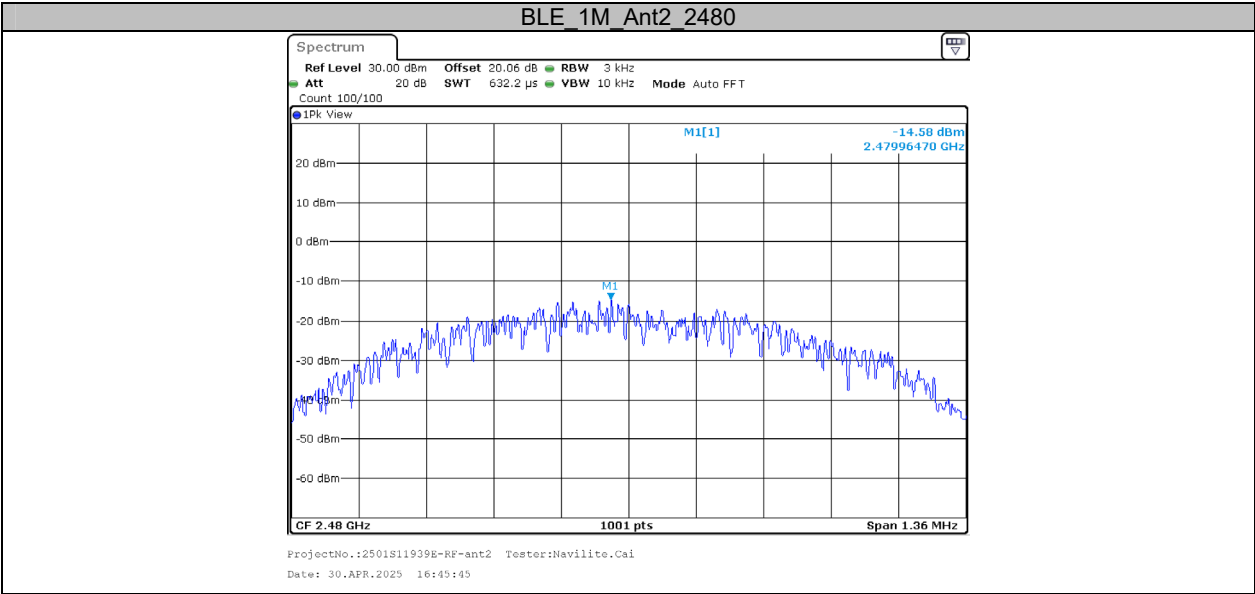
**Test Graphs Peak**



**Appendix D2: Maximum power spectral density****Test Result**

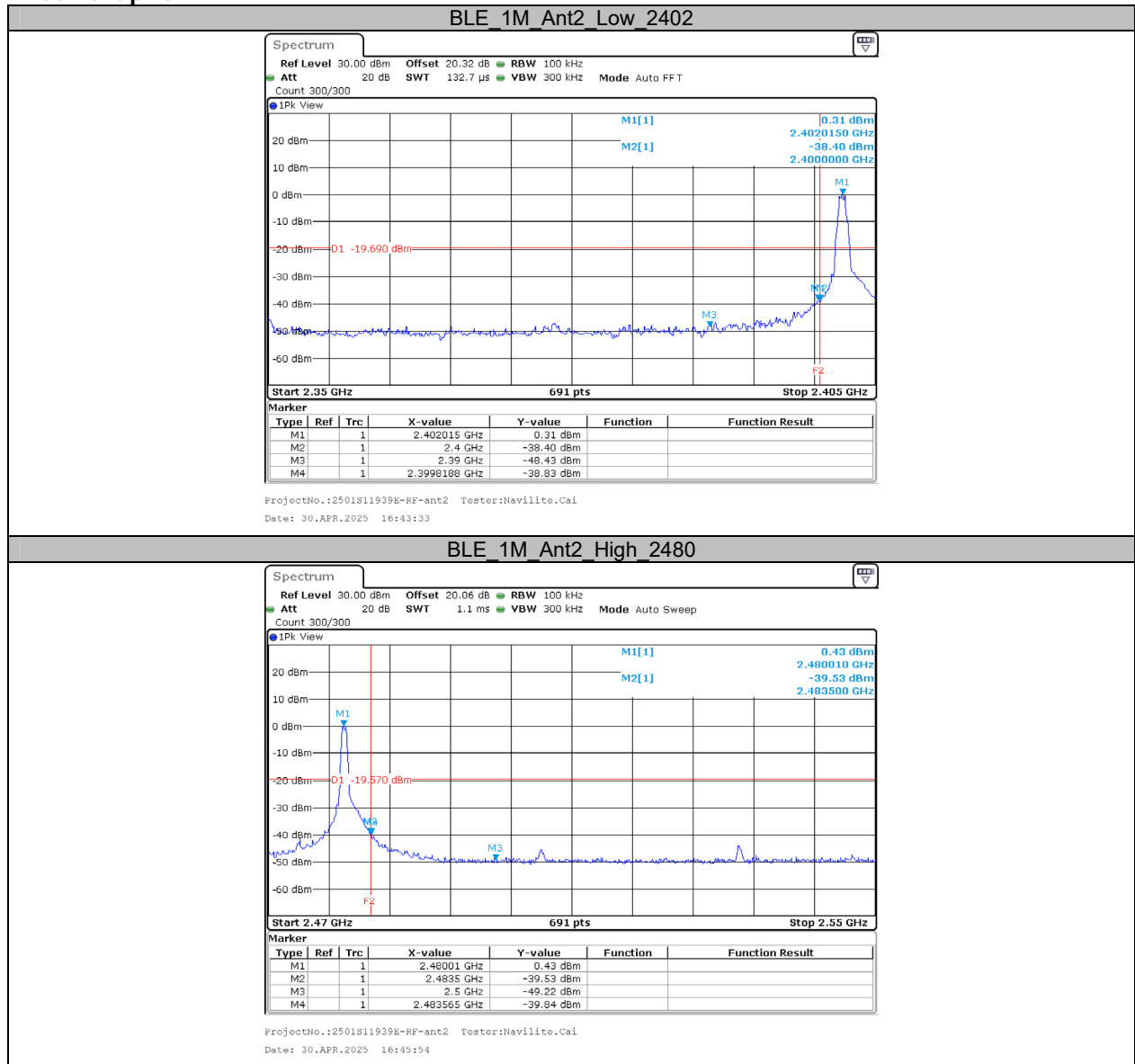
| Test Mode | Antenna | Frequency[MHz] | Result[dBm/3kHz] | Limit[dBm/3kHz] | Verdict |
|-----------|---------|----------------|------------------|-----------------|---------|
| BLE_1M    | Ant2    | 2402           | -14.83           | ≤8.00           | PASS    |
|           |         | 2440           | -14.82           | ≤8.00           | PASS    |
|           |         | 2480           | -14.58           | ≤8.00           | PASS    |

**Test Graphs**



## Appendix E2: Band edge measurements

## Test Graphs

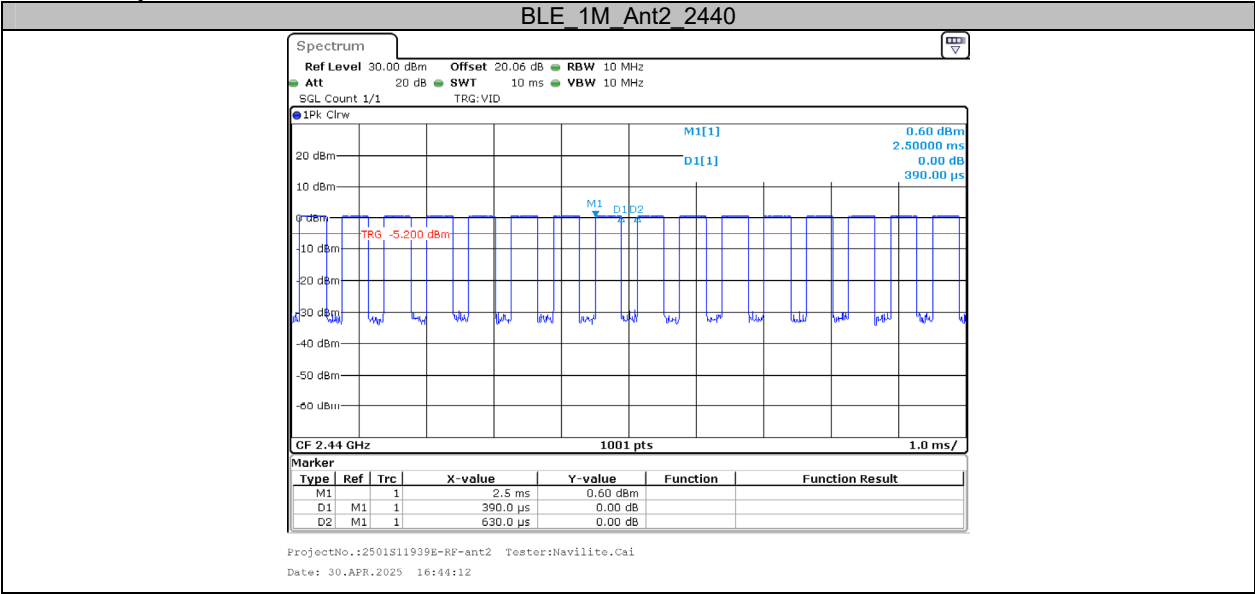


Appendix F2: Duty Cycle

Test Result

| Test Mode | Antenna | Frequency[MHz] | ON Time [ms] | Period [ms] | Duty Cycle [%] | Duty Cycle Factor[dB] | 1/Ton (Hz) | VBW (kHz) |
|-----------|---------|----------------|--------------|-------------|----------------|-----------------------|------------|-----------|
| BLE_1M    | Ant2    | 2440           | 0.39         | 0.63        | 61.90          | 2.08                  | 2564       | 3         |

Test Graphs



\*\*\*\*\* END OF REPORT \*\*\*\*\*