

# Test Report

**Applicant** : Huizhou TWOLF Intelligent Technology CO.,LTD  
**Address** : 7F, Building 13, No.1 Yong Guang East Road,  
Zhong Kai High-tech Zone, Huizhou  
**Product Name** : Wireless keyboard  
**Brand Mark** : T-WOLF  
**Model** : T12  
**Series model** : T126, T127, T128, TF300, TF710, TF720, TF730  
**Report Number** : BLA-EMC-202606-A55-02  
**FCC ID** : 2BXEZ-TF300  
**Date of Receipt** : Jun. 26,2026  
**Date of Test** : Jun. 26,2026 to Jul. 16, 2026  
**Test Standard** : 47 CFR Part 15, Subpart C 15.247  
**Test Result** : Pass

Compiled by:



Review by:



Approved by:



Issued Date: Aug. 18,2026



## BlueAsia Technical Services (Shenzhen) Co., Ltd

Address: No.41, South of Beihuan Road, Shangwu Community, Shiyuan  
Subdistrict, Bao'an District, Shenzhen, Guangdong, China



*The test report is effective only with both signature and specialized stamp and The result(s) shown in this report refer only to the sample(s) tested. Without written approval of BlueAsia, this report can't be reproduced except in full. The results described in this report do not represent the quality or characteristics of the sampled batch, nor do they represent any similar or identical products that are not explicitly stated.*

## Table of Contents

|          |                                                             |           |
|----------|-------------------------------------------------------------|-----------|
| <b>1</b> | <b>General information .....</b>                            | <b>5</b>  |
| 1.1      | General information .....                                   | 5         |
| 1.2      | General description of EUT .....                            | 5         |
| <b>2</b> | <b>Test Configuration .....</b>                             | <b>7</b>  |
| 2.1      | Test mode .....                                             | 7         |
| 2.2      | Operation Frequency each of channel .....                   | 7         |
| 2.3      | Test channel .....                                          | 7         |
| 2.4      | Auxiliary equipment .....                                   | 8         |
| 2.5      | Test environment .....                                      | 8         |
| <b>3</b> | <b>Laboratory information .....</b>                         | <b>8</b>  |
| 3.1      | Laboratory and accreditations .....                         | 8         |
| 3.2      | Measurement uncertainty .....                               | 9         |
| <b>4</b> | <b>Test equipment .....</b>                                 | <b>9</b>  |
| <b>5</b> | <b>Test result .....</b>                                    | <b>12</b> |
| 5.1      | Antenna requirement .....                                   | 12        |
| 5.2      | Conducted emissions at AC power line (150 kHz-30 MHz) ..... | 13        |
| 5.3      | Conducted peak output Power .....                           | 17        |
| 5.4      | Minimum 6dB bandwidth .....                                 | 19        |
| 5.5      | Power spectrum density .....                                | 21        |
| 5.6      | Conducted Band Edges Measurement .....                      | 23        |
| 5.7      | Conducted spurious emissions .....                          | 25        |
| 5.8      | Radiated spurious emissions .....                           | 27        |
| 5.9      | Radiated emissions which fall in the restricted bands ..... | 38        |
| <b>6</b> | <b>Appendix A .....</b>                                     | <b>45</b> |
| 6.1      | <b>Duty Cycle .....</b>                                     | <b>45</b> |
| 6.2      | Maximum PK Conducted Output Power .....                     | 47        |
| 6.3      | -6dB Bandwidth .....                                        | 49        |
| 6.4      | Occupied Channel Bandwidth .....                            | 51        |
| 6.5      | Maximum Power Spectral Density Level .....                  | 53        |
| 6.6      | Band Edge .....                                             | 55        |

|                                                    |                                      |           |
|----------------------------------------------------|--------------------------------------|-----------|
| 6.7                                                | Conducted RF Spurious Emission ..... | 58        |
| <b>Appendix B: photographs of test setup .....</b> |                                      | <b>62</b> |
| <b>Appendix C: photographs of EUT .....</b>        |                                      | <b>64</b> |

BlueAsia

## Revise Record

| Version No. | Date          | Description |
|-------------|---------------|-------------|
| 01          | Aug. 18, 2026 | Original    |
|             |               |             |
|             |               |             |
|             |               |             |

BlueAsia

## 1 General information

### 1.1 General information

|              |                                                                               |
|--------------|-------------------------------------------------------------------------------|
| Applicant    | Huizhou TWOLF Intelligent Technology CO.,LTD                                  |
| Address      | 7F, Building 13, No.1 Yong Guang East Road, Zhong Kai High-tech Zone, Huizhou |
| Manufacturer | Huizhou TWOLF Intelligent Technology CO.,LTD                                  |
| Address      | 7F, Building 13, No.1 Yong Guang East Road, Zhong Kai High-tech Zone, Huizhou |
| Factory      | Huizhou TWOLF Intelligent Technology CO.,LTD                                  |
| Address      | 7F, Building 13, No.1 Yong Guang East Road, Zhong Kai High-tech Zone, Huizhou |

### 1.2 General description of EUT

|                                     |                                                                                                                                                                                                           |
|-------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Product name                        | Wireless keyboard                                                                                                                                                                                         |
| Model no.                           | T12                                                                                                                                                                                                       |
| Series model                        | T126, T127, T128, TF300, TF710, TF720, TF730                                                                                                                                                              |
| Differences of Series model         | Above model T12 and T126,T127,T128,TF300,TF710, TF720, and TF730. Their electrical circuit design layout, components used and internal wiring are identical, Only the model name and color are different. |
| Operation Frequency                 | 2402MHz-2480MHz                                                                                                                                                                                           |
| Modulation Type                     | GFSK                                                                                                                                                                                                      |
| Rate data                           | 1Mbps                                                                                                                                                                                                     |
| Channel Spacing                     | 2MHz                                                                                                                                                                                                      |
| Number of Channels                  | 40                                                                                                                                                                                                        |
| Antenna Type                        | PCB antenna                                                                                                                                                                                               |
| Antenna Gain                        | 2.58dBi(Provided by customer)                                                                                                                                                                             |
| Power supply or adapter information | DC3.7V                                                                                                                                                                                                    |
| Hardware version                    | V2                                                                                                                                                                                                        |
| Software version                    | V2                                                                                                                                                                                                        |
| Engineer sample no.                 | BLA-EMC-202606-A55                                                                                                                                                                                        |

*Note: For a more detailed description, please refer to Specification or User's Manual supplied by the applicant and/or manufacturer.*

## Test summary

| No. | Test item                                             | FCC Part Section(s)   | Test Method(Clause)                                                                      | Result |
|-----|-------------------------------------------------------|-----------------------|------------------------------------------------------------------------------------------|--------|
| 1   | Antenna Requirement                                   | §15.203               | N/A                                                                                      | Pass   |
| 2   | Conducted Emissions at AC Power Line (150kHz-30MHz)   | §15.207               | ANSI C63.10-2020+Cor.<br>1-2023+C63.10a-2024 + Errata to C63.10a-2024 Clause 6.2         | Pass   |
| 3   | Conducted Peak Output Power                           | §15.247(b)(3)         | ANSI C63.10-2020+Cor.<br>1-2023+C63.10a-2024 + Errata to C63.10a-2024 Clause 7.8.5       | Pass   |
| 4   | Minimum 6dB Bandwidth                                 | §15.247a(2)           | ANSI C63.10-2020+Cor.<br>1-2023+C63.10a-2024 + Errata to C63.10a-2024 Clause 11.8.1      | Pass   |
| 5   | Power Spectrum Density                                | §15.247(d)            | ANSI C63.10-2020+Cor.<br>1-2023+C63.10a-2024 + Errata to C63.10a-2024 Clause 11.10.2     | Pass   |
| 6   | Conducted Band Edges Measurement                      | §15.247(d)            | ANSI C63.10-2020+Cor.<br>1-2023+C63.10a-2024 + Errata to C63.10a-2024 Clause 11.13       | Pass   |
| 7   | Conducted Spurious Emissions                          | §15.247(d)            | ANSI C63.10-2020+Cor.<br>1-2023+C63.10a-2024 + Errata to C63.10a-2024 Clause 11.11       | Pass   |
| 8   | Radiated Spurious Emissions                           | §15.209<br>§15.247(d) | ANSI C63.10-2020+Cor.<br>1-2023+C63.10a-2024 + Errata to C63.10a-2024 Clause 6.4,6.5,6.6 | Pass   |
| 9   | Radiated Emissions which fall in the restricted bands | §15.209<br>§15.247(d) | ANSI C63.10-2020+Cor.<br>1-2023+C63.10a-2024 + Errata to C63.10a-2024 Clause 11.12       | Pass   |

N/A: Not Applicable

## 2 Test Configuration

### 2.1 Test mode

| Test Mode <sup>Note 1</sup> | Description                                                      |
|-----------------------------|------------------------------------------------------------------|
| TX                          | Keep the EUT in continuously transmitting with modulation mode.  |
| RX                          | Keep the EUT in receiving mode                                   |
| TX Low channel              | Keep the EUT in continuously transmitting mode in low channel    |
| TX middle channel           | Keep the EUT in continuously transmitting mode in middle channel |
| TX high channel             | Keep the EUT in continuously transmitting mode in high channel   |

Note 1: The EUT was configured to measure its highest possible emission and/or immunity level. The test modes were adapted according to the operation manual for use

### 2.2 Operation Frequency each of channel

| Channel | Frequency | Channel | Frequency | Channel | Frequency | Channel | Frequency |
|---------|-----------|---------|-----------|---------|-----------|---------|-----------|
| 0       | 2402MHz   | 10      | 2422MHz   | 20      | 2442MHz   | 30      | 2462MHz   |
| 1       | 2404MHz   | 11      | 2424MHz   | 21      | 2444MHz   | 31      | 2464MHz   |
| ...     | ...       | ...     | ...       | ...     | ...       | ...     | ...       |
| 8       | 2418MHz   | 18      | 2438MHz   | 28      | 2458MHz   | 38      | 2478MHz   |
| 9       | 2420MHz   | 19      | 2440MHz   | 29      | 2460MHz   | 39      | 2480MHz   |

### 2.3 Test channel

| Channel             | Frequency |
|---------------------|-----------|
| The lowest channel  | 2402MHz   |
| The middle channel  | 2442MHz   |
| The Highest channel | 2480MHz   |

## 2.4 Auxiliary equipment

| Device Type                                                    | Manufacturer | Model Name   | Serial No. | Remark                          |
|----------------------------------------------------------------|--------------|--------------|------------|---------------------------------|
| PC                                                             | lenovo       | E46OC        | N/A        | From lab (No.BLA-ZC-BS-2022005) |
| AC adapter                                                     | PISEN        | ZY2207-A521H | N/A        | From lab                        |
| <b>Note:</b> “--” mean no any auxiliary device during testing. |              |              |            |                                 |

## 2.5 Test environment

| Environment | Temperature | Voltage |
|-------------|-------------|---------|
| Normal      | 25℃         | DC 3.7V |

# 3 Laboratory information

## 3.1 Laboratory and accreditations

The test facility is recognized, certified, or accredited by the following organizations:

|                                |                                                                                                                  |
|--------------------------------|------------------------------------------------------------------------------------------------------------------|
| Company name:                  | BlueAsia Technical Services (Shenzhen) Co.,Ltd.                                                                  |
| Address:                       | No.41, South of Beihuan Road, Shangwu Community, Shiyan Subdistrict, Bao'an District, Shenzhen, Guangdong, China |
| CNAS accredited No.:           | L9788                                                                                                            |
| A2LA Cert. No.:                | 5071.01                                                                                                          |
| FCC Designation No.:           | CN1252                                                                                                           |
| Test Firm Registration Number: | 923526                                                                                                           |
| ISED CAB identifier No.:       | CN0028                                                                                                           |
| Company Number:                | 24243                                                                                                            |
| Telephone:                     | +86-755-28682673                                                                                                 |
| FAX:                           | +86-755-28682673                                                                                                 |

### 3.2 Measurement uncertainty

This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of  $k=1.96$ .

| Parameter                                      | Expanded Uncertainty            |
|------------------------------------------------|---------------------------------|
| Radiated Emission(9kHz-30MHz)                  | $\pm 4.34\text{dB}$             |
| Radiated Emission(30Mz-1000MHz)                | $\pm 4.24\text{dB}$             |
| Radiated Emission(1GHz-18GHz)                  | $\pm 4.68\text{dB}$             |
| Radiated Emission(18GHz-40GHz)                 | $\pm 4.78\text{dB}$             |
| AC Power Line Conducted Emission(150kHz-30MHz) | $\pm 3.45\text{dB}$             |
| Duty cycle                                     | $\pm 1.5\text{ dB}$             |
| Occupied Channel Bandwidth                     | $\pm 5\%$                       |
| RF output power, conducted                     | $\pm 1.5\text{ dB}$             |
| Power Spectral Density, conducted              | $\pm 3.0\text{ dB}$             |
| Unwanted Emissions, conducted                  | $\pm 3.0\text{ dB}$             |
| Temperature                                    | $\pm 3\text{ }^{\circ}\text{C}$ |
| Supply voltages                                | $\pm 3\%$                       |
| Time                                           | $\pm 5\%$                       |

## 4 Test equipment

### Radiated Emissions (Below 1GHz)

| Equipment      | Name              | Model            | Manufacture | S/N    | Cal. Date  | Due. Date  |
|----------------|-------------------|------------------|-------------|--------|------------|------------|
| BLA-EMC-002-01 | Anechoic chamber  | 9*6*6 chamber    | SKET        | N/A    | 2024/3/27  | 2027/3/26  |
| BLA-EMC-002-02 | Control room      | 966 control room | SKET        | N/A    | 2024/3/27  | 2027/3/26  |
| BLA-EMC-009    | EMI receiver      | ESR7             | R&S         | 101199 | 2025/08/05 | 2026/08/04 |
| BLA-EMC-043    | Loop antenna      | FMZB1519B        | Schwarzbeck | 00102  | 2024/06/29 | 2027/06/28 |
| BLA-EMC-065    | Broadband antenna | VULB9168         | Schwarzbeck | 01065P | 2024/06/29 | 2027/06/27 |
| BLA-XC-01      | Coaxial Cable     | N/A              | BlueAsia    | V01    | N/A        | N/A        |
| BLA-XC-02      | Coaxial Cable     | N/A              | BlueAsia    | V02    | N/A        | N/A        |

### Radiated Emissions (Above 1GHz)

| Equipment      | Name             | Model            | Manufacture | S/N    | Cal. Date  | Due. Date  |
|----------------|------------------|------------------|-------------|--------|------------|------------|
| BLA-EMC-001-01 | Anechoic chamber | 9*6*6 chamber    | SKET        | N/A    | 2023/11/16 | 2026/11/15 |
| BLA-EMC-001-02 | Control Room     | 966 control room | SKET        | N/A    | 2023/11/16 | 2027/11/15 |
| BLA-EMC-008    | Spectrum         | FSP40            | R&S         | 100817 | 2025/08/05 | 2026/08/04 |
| BLA-EMC-013    | Horn Antenna     | BBHA9120D        | Schwarzbeck | 01892  | 2024/06/29 | 2027/06/28 |

|             |               |                     |             |              |            |            |
|-------------|---------------|---------------------|-------------|--------------|------------|------------|
| BLA-EMC-014 | Amplifier     | PA_000318G-45       | SKET        | PA2018043003 | 2025/08/05 | 2026/08/04 |
| BLA-EMC-046 | Filter bank   | 2.4G/5G Filter bank | SKET        | N/A          | 2025/06/09 | 2027/06/08 |
| BLA-EMC-061 | Receiver      | ESPI7               | R&S         | 101477       | 2025/06/09 | 2027/06/08 |
| BLA-EMC-066 | Amplifier     | LNPA_30M01G-30      | SKET        | SK2021060801 | 2025/06/09 | 2027/06/08 |
| BLA-EMC-086 | Amplifier     | LNPA_18G40G-50dB    | SKET        | SK2022071301 | 2025/06/09 | 2027/06/08 |
| BLA-EMC-087 | Horn Antenna  | BBHA 9170           | Schwarzbeck | 1106         | 2024/06/29 | 2027/06/28 |
| BLA-XC-03   | Coaxial Cable | N/A                 | BlueAsia    | V03          | N/A        | N/A        |
| BLA-XC-04   | Coaxial Cable | N/A                 | BlueAsia    | V04          | N/A        | N/A        |

#### Conducted Emissions at Mains Terminals (150 kHz-30MHz)

| Equipment       | Name                                            | Model       | Manufacture | S/N           | Cal. Date  | Due. Date  |
|-----------------|-------------------------------------------------|-------------|-------------|---------------|------------|------------|
| BLA-EMC-003-001 | Shield room                                     | 8*3*3       | SKET        | N/A           | 2023/11/16 | 2027/11/15 |
| BLA-EMC-009     | EMI receiver                                    | ESR7        | R&S         | 101199        | 2025/08/05 | 2026/08/04 |
| BLA-EMC-011     | LISN                                            | ENV216      | R&S         | 101372        | 2025/08/05 | 2026/08/04 |
| BLA-EMC-033     | Impedance transformer                           | DC-2GHz     | DFXP        | N/A           | 2025/06/09 | 2027/06/08 |
| BLA-EMC-041     | LISN                                            | AT166-2     | ATTEN       | AKK1806000003 | 2025/08/05 | 2026/08/04 |
| BLA-EMC-045     | Impedance stable network                        | ISNT8-cat 6 | TESEQ       | 53580         | 2025/08/05 | 2026/08/04 |
| BLA-EMC-095     | Single-channel vehicle artificial power network | NNBM 8124   | Schwarzbeck | 01045         | 2025/06/09 | 2027/06/08 |
| BLA-EMC-096     | Single-channel vehicle artificial power network | NNBM 8124   | Schwarzbeck | 01075         | 2025/06/09 | 2027/06/08 |
| BLA-XC-05       | Coaxial Cable                                   | N/A         | BlueAsia    | V05           | N/A        | N/A        |

#### Test Software Record

| Software No. | Software Name | Manufacture | Software version | Test site |
|--------------|---------------|-------------|------------------|-----------|
| BLA-EMC-S001 | EZ-EMC        | EZ          | EEMC-3A1+        | RE        |
| BLA-EMC-S002 | EZ-EMC        | EZ          | EEMC-3A1+        | RE        |
| BLA-EMC-S003 | EZ-EMC        | EZ          | EEMC-3A1+        | CE        |

#### RF conducted

| Equipment       | Name                       | Model    | Manufacture | S/N           | Cal. Date  | Due. Date  |
|-----------------|----------------------------|----------|-------------|---------------|------------|------------|
| BLA-EMC-003-003 | Shield room                | 5*3*3    | SKET        | N/A           | 2023/11/16 | 2027/11/15 |
| BLA-EMC-016     | Signal Generator           | N5182A   | Agilent     | MY52420567    | 2025/06/09 | 2027/06/08 |
| BLA-EMC-038     | Spectrum                   | N9020A   | Agilent     | MY49100060    | 2025/08/05 | 2026/08/04 |
| BLA-EMC-042     | Power sensor               | RPR3006W | DARE        | 14I00889SN042 | 2025/08/05 | 2026/08/04 |
| BLA-EMC-044     | Radio communication tester | CMW500   | R&S         | 132429        | 2025/08/05 | 2026/08/04 |
| BLA-EMC-064     | Signal Generator           | N5182B   | KEYSIGHT    | MY58108892    | 2025/06/09 | 2027/06/08 |

|             |                      |         |                 |                    |            |            |
|-------------|----------------------|---------|-----------------|--------------------|------------|------------|
| BLA-EMC-079 | Spectrum             | N9020A  | Agilent         | MY54420161         | 2025/08/05 | 2026/08/04 |
| BLA-EMC-088 | Audio Analyzer       | ATS-1   | Audio Precision | ATS141094          | 2025/06/09 | 2027/06/08 |
| BLA-EMC-100 | Digital Radio Tester | RWC2010 | Redwoodcom<br>m | RWC201024903<br>04 | 2025/06/09 | 2027/06/08 |

**Test Software Record**

| Software No. | Software Name | Manufacture | Software version | Test site |
|--------------|---------------|-------------|------------------|-----------|
| BLA-EMC-S001 | EZ-EMC        | EZ          | EEMC-3A1+        | RE        |
| BLA-EMC-S002 | EZ-EMC        | EZ          | EEMC-3A1+        | RE        |
| BLA-EMC-S003 | EZ-EMC        | EZ          | EEMC-3A1+        | CE        |
| BLA-EMC-S010 | MTS 8310      | MW          | 2.0.0.0          | RF        |

## 5 Test result

### 5.1 Antenna requirement

|               |                                  |
|---------------|----------------------------------|
| Test Standard | 47 CFR Part 15, Subpart C 15.203 |
| Test Method   | N/A                              |

#### 5.1.1 Requirement

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 an antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit permanently attached antenna or of a so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

EUT antenna:

The antenna is PCB Antenna The best case gain of the antenna is 2.58dBi

## 5.2 Conducted emissions at AC power line (150 kHz-30 MHz)

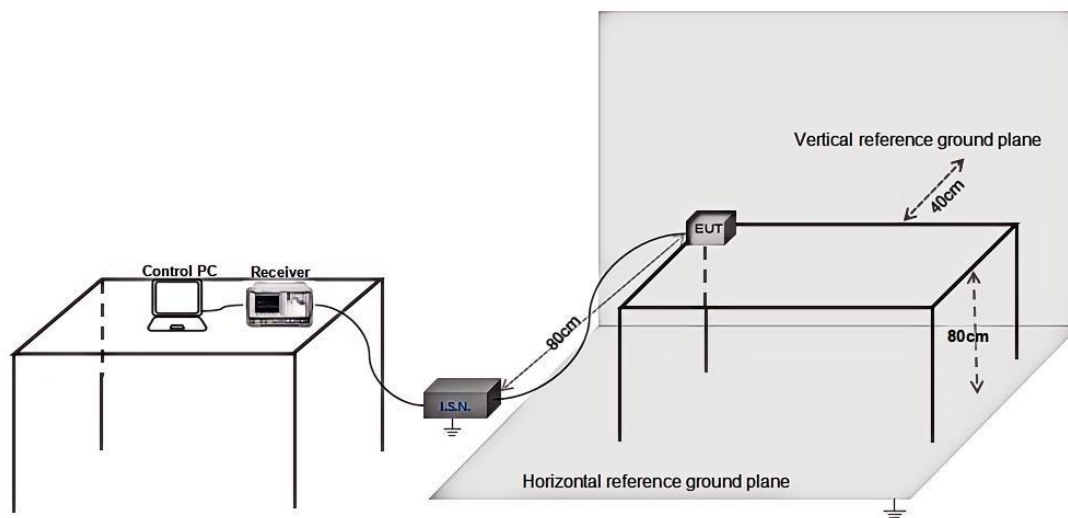
|                               |                                                                               |
|-------------------------------|-------------------------------------------------------------------------------|
| <b>Test Standard</b>          | 47 CFR Part 15, Subpart C 15.207                                              |
| <b>Test Method</b>            | ANSI C63.10-2020+Cor. 1-2023+C63.10a-2024 + Errata to C63.10a-2024 Clause 6.2 |
| <b>Test Mode (Pre-Scan)</b>   | TX                                                                            |
| <b>Test Mode (Final Test)</b> | TX                                                                            |

### 5.2.1 Limit

| Frequency of emission(MHz) | Conducted limit(dB $\mu$ V) |           |
|----------------------------|-----------------------------|-----------|
|                            | Quasi-peak                  | Average   |
| 0.15-0.5                   | 66 to 56*                   | 56 to 46* |
| 0.5-5                      | 56                          | 46        |
| 5-30                       | 60                          | 50        |

\*Decreases with the logarithm of the frequency.

### 5.2.2 Test setup



Description of test setup connection:

- Connect the control PC to the receiver through a USB to GPIB cable;
- The receiver is connected to the LISN through a coaxial line;
- Connect the power port of LISN to the EUT.

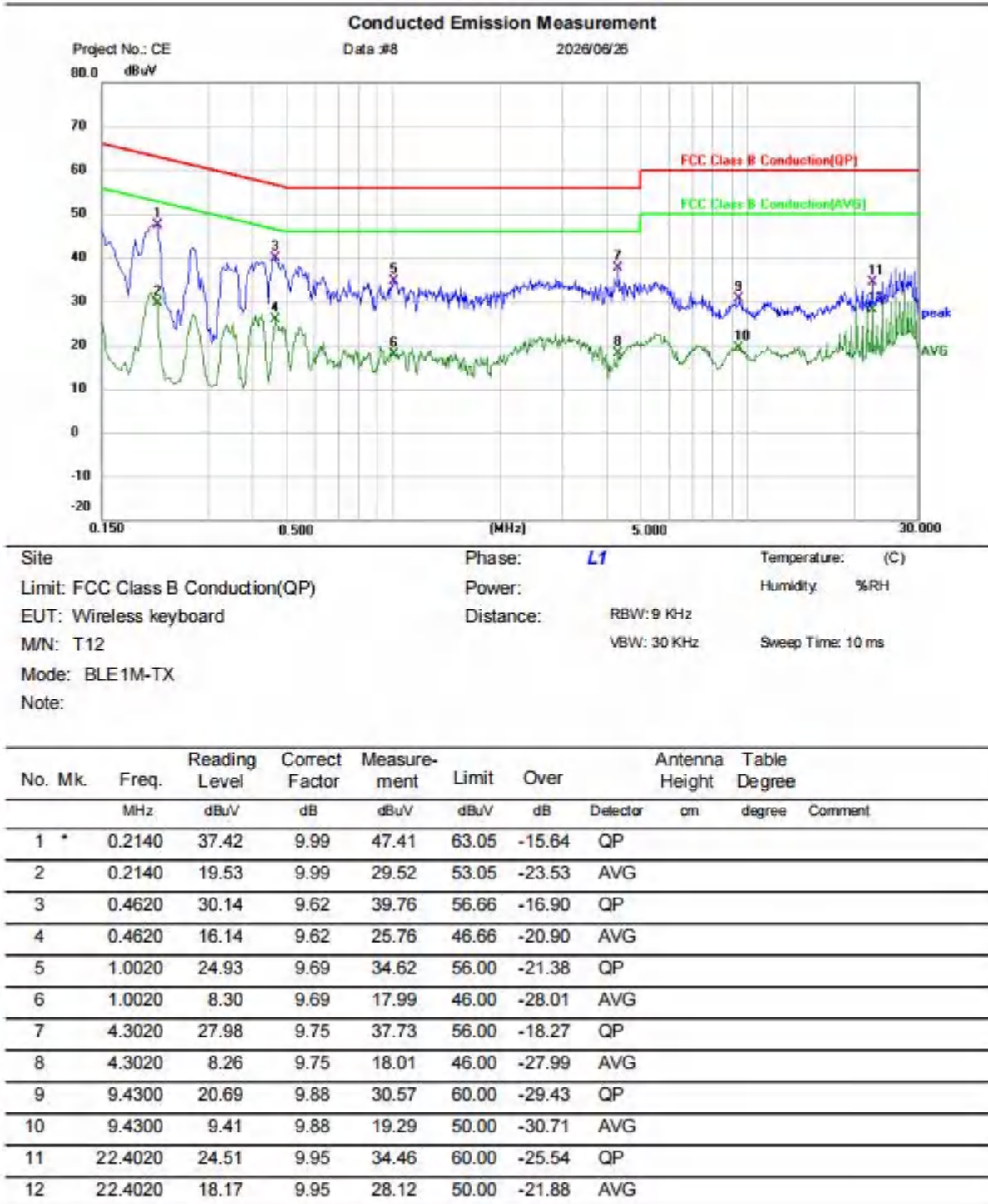
### 5.2.3 Procedure

- 1) The mains terminal disturbance voltage test was conducted in a shielded room.
- 2) The EUT was connected to AC power source through a LISN 1 (Line Impedance Stabilization Network) which provides a 50ohm/50H + 5ohm linear impedance. The power cables of all other units of the EUT were connected to a second LISN 2, which was bonded to the ground reference plane in the same way as the LISN 1 for the unit being measured. A multiple socket outlet strip was used to connect multiple power cables to a single LISN provided the rating of the LISN was not exceeded.
- 3) The tabletop EUT was placed upon a non-metallic table 0.8m above the ground reference plane. And for floor-standing arrangement, the EUT was placed on the horizontal ground reference plane,
- 4) The test was performed with a vertical ground reference plane. The rear of the EUT shall be 0.4 m from the vertical ground reference plane. The vertical ground reference plane was bonded to the horizontal ground reference plane. The LISN 1 was placed 0.8 m from the boundary of the unit under test and bonded to a ground reference plane for LISNs mounted on top of the ground reference plane. This distance was between the closest points of the LISN 1 and the EUT. All other units of the EUT and associated equipment was at least 0.8 m from the LISN 2.
- 5) In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.10 on conducted measurement.

LISN=Read Level+ Cable Loss+ LISN Factor

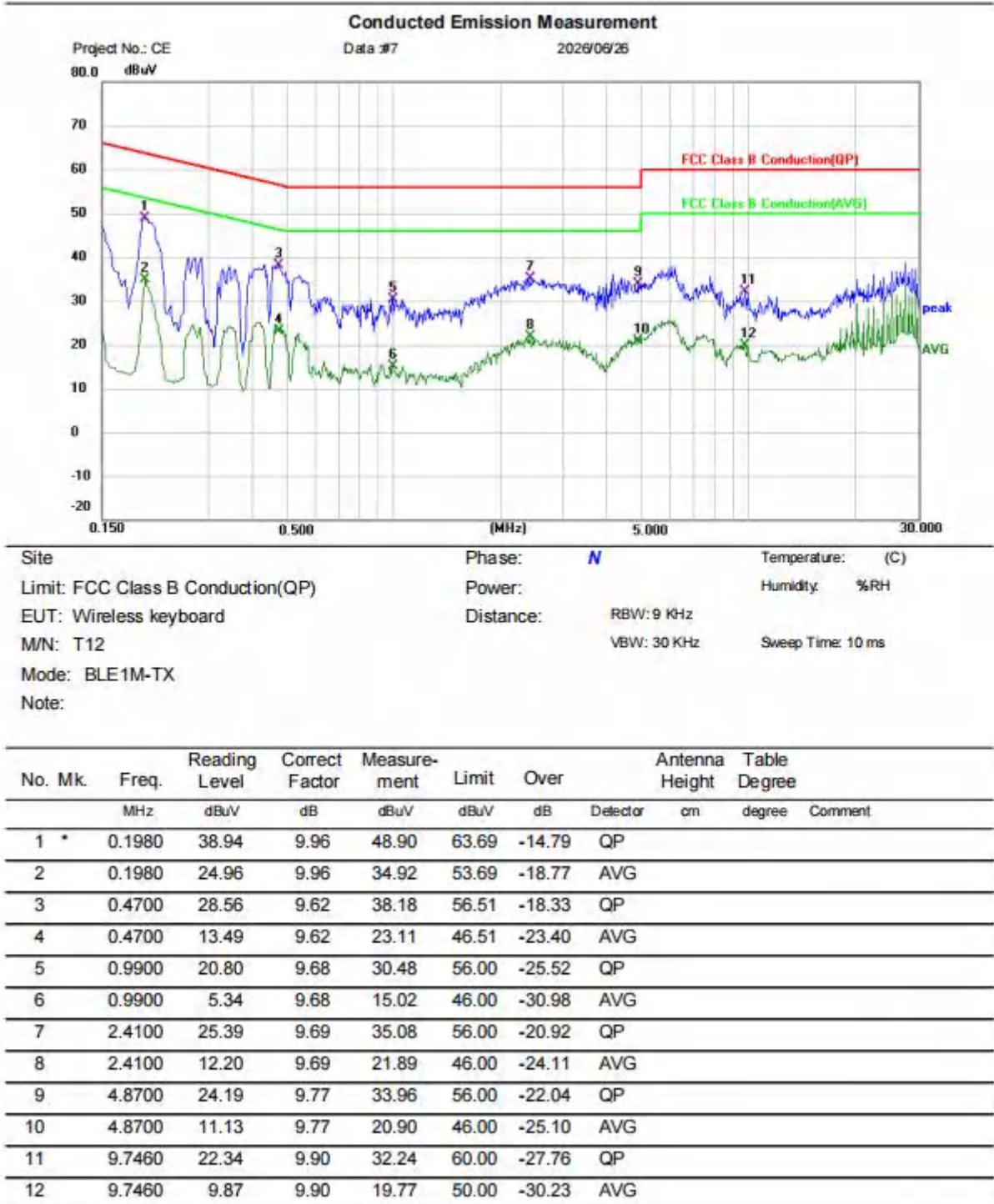
## 5.2.4 Test data

[Test mode: TX]; [Line: Line];[Power:AC120V/60Hz]



**Test Result: Pass**

[Test mode: TX]; [Line: Neutral];[Power:AC120V/60Hz]



### Test Result: Pass

tests have been conducted on BLE 1Mbps modes, covering low, medium and high channels. Only the worst 1Mbps/low channels mode was reported.

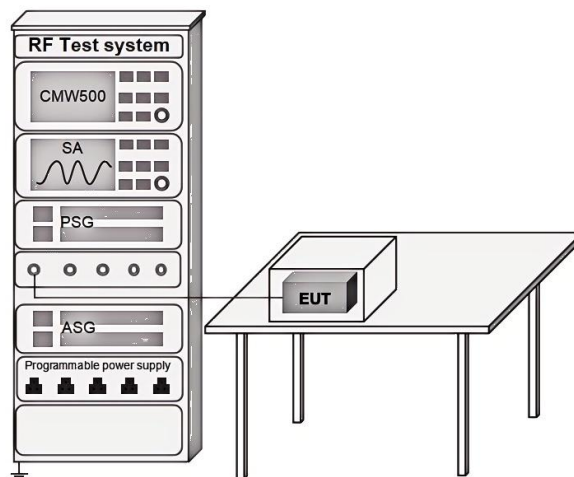
### 5.3 Conducted peak output Power

|                        |                                                                                 |
|------------------------|---------------------------------------------------------------------------------|
| Test Standard          | 47 CFR Part 15, Subpart C 15.247(b)(3)                                          |
| Test Method            | ANSI C63.10-2020+Cor. 1-2023+C63.10a-2024 + Errata to C63.10a-2024 Clause 7.8.5 |
| Test Mode (Pre-Scan)   | TX                                                                              |
| Test Mode (Final Test) | TX                                                                              |

#### 5.3.1 Limit

| Frequency range(MHz) | Output power of the intentional radiator(watt)         |
|----------------------|--------------------------------------------------------|
| 902-928              | 1 for $\geq 50$ hopping channels                       |
|                      | 0.25 for $25 \leq$ hopping channels $< 50$             |
|                      | 1 for digital modulation                               |
| 2400-2483.5          | 1 for $\geq 75$ non-overlapping hopping channels       |
|                      | 0.125 for all other frequency hopping systems          |
|                      | 1 for digital modulation                               |
| 5725-5850            | 1 for frequency hopping systems and digital modulation |

#### 5.3.2 Test setup



#### 5.3.3 Test Procedure

This procedure shall be used when the measurement instrument has available a resolution bandwidth that is

greater than the DTS bandwidth.

- 1) Set the RBW  $\geq$  DTS bandwidth.
- 2) Set VBW  $\geq$  3 RBW.
- 3) Set span  $\geq$  3 x RBW.
- 4) Sweep time = auto couple.
- 5) Detector = peak.
- 6) Trace mode = max hold.
- 7) Allow trace to fully stabilize.
- 8) Use peak marker function to determine the peak amplitude level.

#### 5.3.4 Test data

Note: PK power sensor is used to read PK Conducted power power directly

Pass: Please refer to appendix A for details

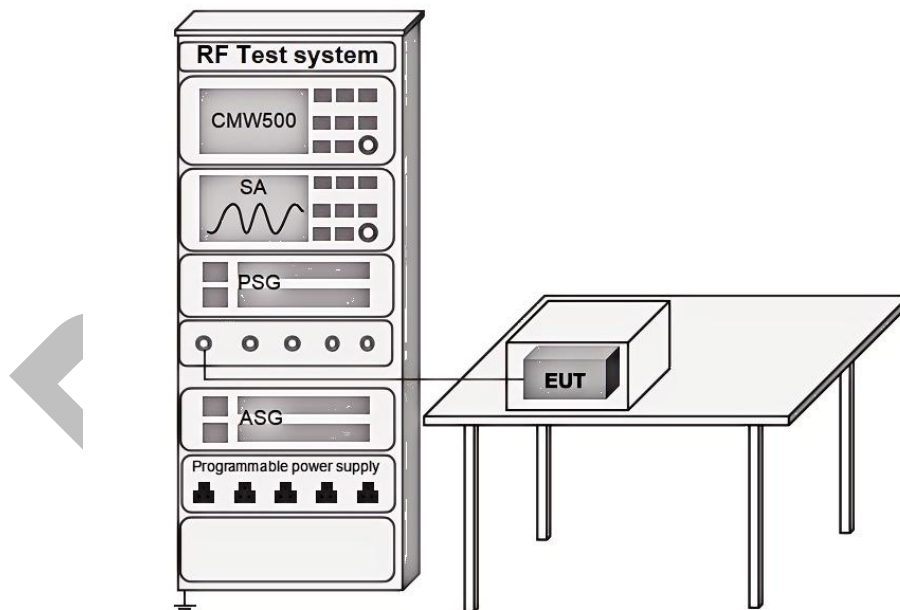
## 5.4 Minimum 6dB bandwidth

|                        |                                                                                  |
|------------------------|----------------------------------------------------------------------------------|
| Test Standard          | 47 CFR Part 15, Subpart C 15.247a(2)                                             |
| Test Method            | ANSI C63.10-2020+Cor. 1-2023+C63.10a-2024 + Errata to C63.10a-2024 Clause 11.8.1 |
| Test Mode (Pre-Scan)   | TX                                                                               |
| Test Mode (Final Test) | TX                                                                               |

### 5.4.1 Limit

≥500 kHz

### 5.4.2 Test setup



#### 5.4.3 Test Procedure

- 1). Remove the antenna from the EUT and then connect a low RF cable from the antenna port to the spectrum;
- 2). Set the spectrum analyzer: RBW = 100kHz, VBW = 300kHz

#### 5.4.4 Test data

Pass: Please refer to appendix A for details

BlueAsia

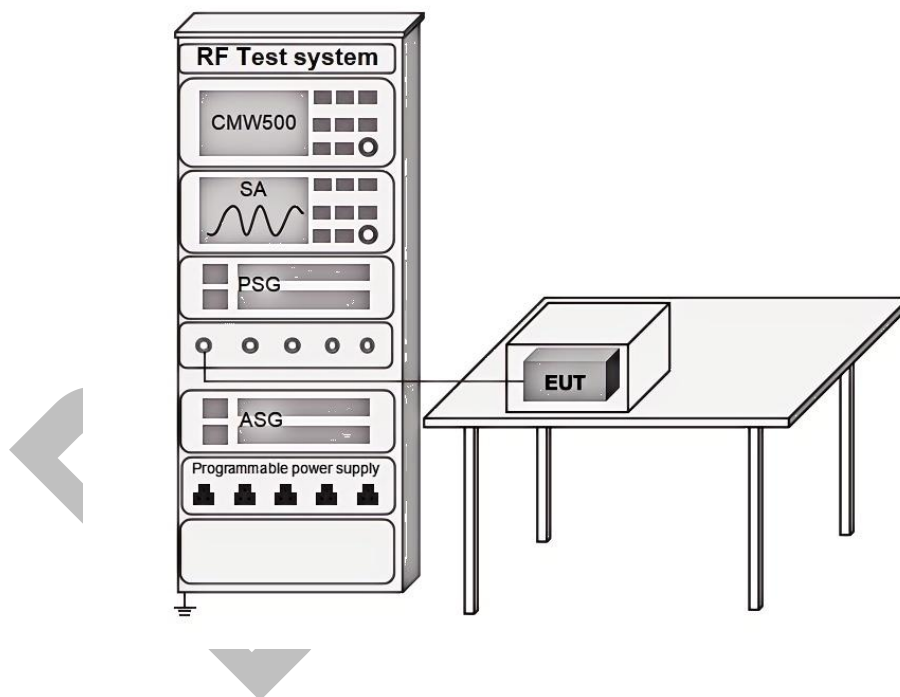
## 5.5 Power spectrum density

|                        |                                                                                   |
|------------------------|-----------------------------------------------------------------------------------|
| Test Standard          | 47 CFR Part 15, Subpart C 15.247(d)                                               |
| Test Method            | ANSI C63.10-2020+Cor. 1-2023+C63.10a-2024 + Errata to C63.10a-2024 Clause 11.10.2 |
| Test Mode (Pre-Scan)   | TX                                                                                |
| Test Mode (Final Test) | TX                                                                                |

### 5.5.1 Limit

≤8dBm in any 3 kHz band during any time interval of continuous transmission

### 5.5.2 Test setup



### 5.5.3 Test Procedure

- 1). Remove the antenna from the EUT and then connect a low RF cable from the antenna port to the spectrum.
- 2). Set the spectrum analyzer: RBW = 3kHz. VBW = 10kHz , Span = 1.5 times the DTS channel bandwidth(6 dB bandwidth). Sweep = auto; Detector Function = Peak. Trace = Max hold.
- 3). Allow the trace to stabilize. Use the marker-delta function to determine the separation between

the peaks of the adjacent channels. The limit is specified in one of the subparagraphs of this Section Submit this plot.

#### 5.5.4 Test data

Pass: Please refer to appendix A for details

BlueAsia

## 5.6 Conducted Band Edges Measurement

|                               |                                                                                 |
|-------------------------------|---------------------------------------------------------------------------------|
| <b>Test Standard</b>          | 47 CFR Part 15, Subpart C 15.247(d)                                             |
| <b>Test Method</b>            | ANSI C63.10-2020+Cor. 1-2023+C63.10a-2024 + Errata to C63.10a-2024 Clause 11.13 |
| <b>Test Mode (Pre-Scan)</b>   | TX                                                                              |
| <b>Test Mode (Final Test)</b> | TX                                                                              |

### 5.6.1 Limit

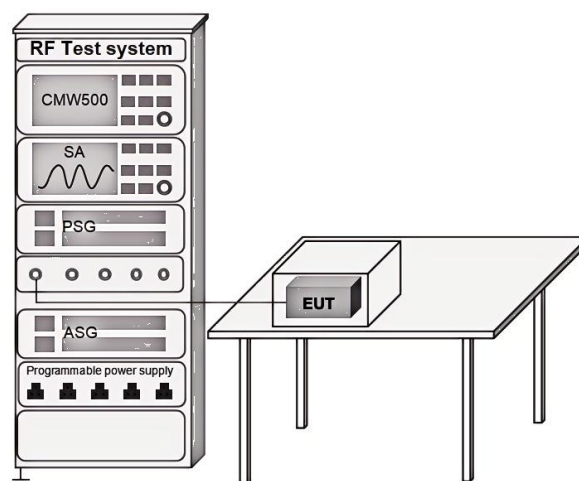
In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the 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 20dB.

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)).

### 5.6.2 Test setup



### 5.6.3 Test Procedure

- 1). Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
- 2). Position the EUT without connection to measurement instrument. Turn on the EUT and connect its antenna terminal to measurement instrument via a low loss cable. Then set it to any one measured frequency within its operating range, and make sure the instrument is operated in its linear range.
- 3). Set RBW to 100 kHz and VBW of spectrum analyzer to 300 kHz with a convenient frequency span including 100 kHz bandwidth from band edge.
- 4). Measure the highest amplitude appearing on spectral display and set it as a reference level. Plot the graph with marking the highest point and edge frequency.
- 5). Repeat above procedures until all measured frequencies were complete

### 5.6.4 Test data

Pass: Please refer to appendix A for details

## 5.7 Conducted spurious emissions

|                               |                                                                                 |
|-------------------------------|---------------------------------------------------------------------------------|
| <b>Test Standard</b>          | 47 CFR Part 15, Subpart C 15.247(d)                                             |
| <b>Test Method</b>            | ANSI C63.10-2020+Cor. 1-2023+C63.10a-2024 + Errata to C63.10a-2024 Clause 11.11 |
| <b>Test Mode (Pre-Scan)</b>   | TX                                                                              |
| <b>Test Mode (Final Test)</b> | TX                                                                              |

### 5.7.1 Limit

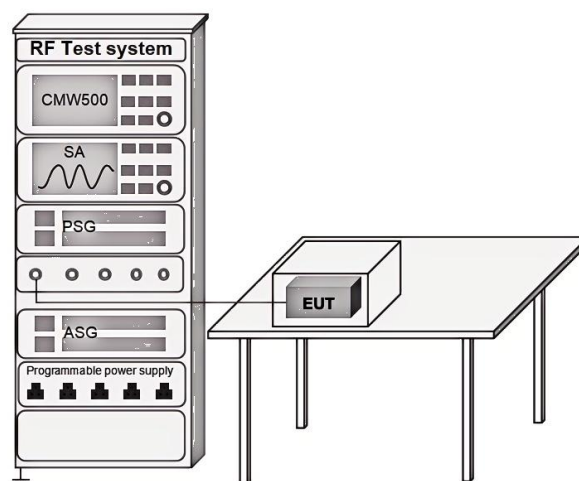
In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the 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 20dB.

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)).

### 5.7.2 Test setup



### 5.7.3 Test Procedure

1. Remove the antenna from the EUT and then connect a low RF cable from the antenna port to the spectrum;
  2. Set the spectrum analyzer:
    - a) Set instrument center frequency to DTS channel center frequency.
    - b) Set the span to \_ 1.5 times the DTS bandwidth.
    - c) Set the RBW = 100 kHz.
    - d) Set the VBW = [3×RBW].
    - e) Detector = peak.
    - f) Sweep time = auto couple.
    - g) Trace mode = max hold.
    - h) Allow trace to fully stabilize.
    - i) Use the peak marker function to determine the maximum PSD level.
- Note that the channel found to contain the maximum PSD level can be used to establish the reference level.

### 5.7.4 Test data

Pass: Please refer to appendix A for details

## 5.8 Radiated spurious emissions

|                        |                                                                                          |
|------------------------|------------------------------------------------------------------------------------------|
| Test Standard          | 47 CFR Part 15, Subpart C 15.247(d)                                                      |
| Test Method            | ANSI C63.10-2020+Cor. 1-2023+C63.10a-2024 + Errata to C63.10a-2024<br>Clause 6.4,6.5,6.6 |
| Test Mode (Pre-Scan)   | TX                                                                                       |
| Test Mode (Final Test) | TX                                                                                       |

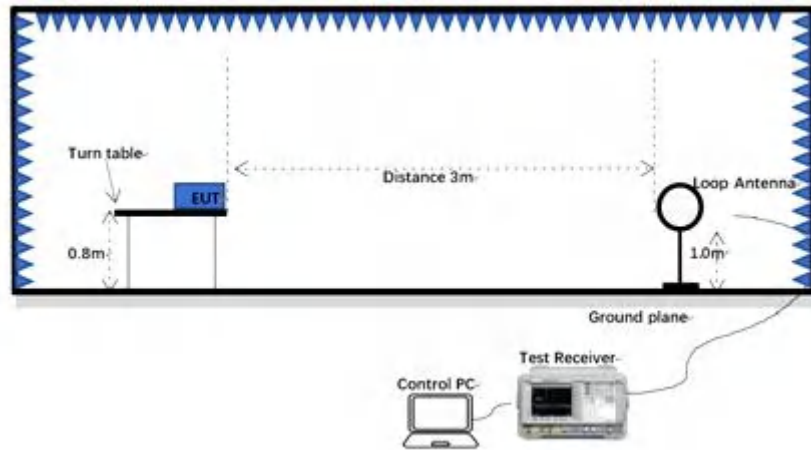
### 5.8.1 Limit

| Frequency(MHz) | Field strength(microvolts/meter) | Measurement distance(meters) |
|----------------|----------------------------------|------------------------------|
| 0.009-0.490    | 2400/F(kHz)                      | 300                          |
| 0.490-1.705    | 24000/F(kHz)                     | 30                           |
| 1.705-30.0     | 30                               | 30                           |
| 30-88          | 100                              | 3                            |
| 88-216         | 150                              | 3                            |
| 216-960        | 200                              | 3                            |
| Above 960      | 500                              | 3                            |

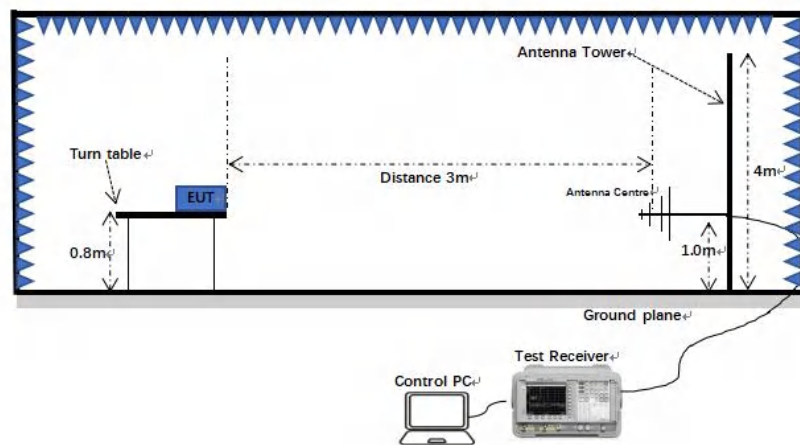
Remark: The emission limits shown in the above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9-90kHz, 110-490kHz and above 1000MHz. Radiated emission limits in these three bands are based on measurements employing an average detector, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation.

## 5.8.2 Test setup

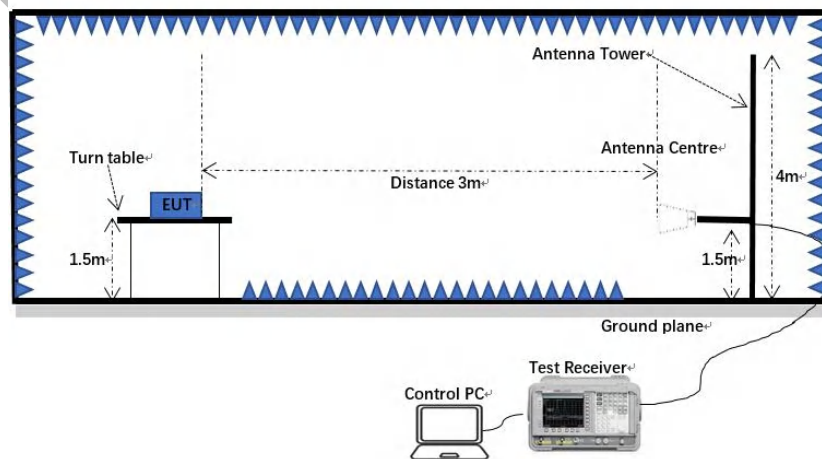
Below 1GHz:



30MHz-1GHz:



Above 1GHz:



### 5.8.3 Procedure

- a) For below 1GHz, the EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 or 10 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- b) For above 1GHz, the EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter fully-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- c) The EUT was set 3 or 10 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- d) The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- e) For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- f) The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- g) If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.
- h) Test the EUT in the lowest channel, the middle channel, the highest channel.
- i) The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, and found the X axis positioning which it is the worst case.
- j) Repeat above procedures until all frequencies measured was complete.

*Note 1: Scan from 9 kHz to 25GHz, the disturbance above 12.75GHz and below 30MHz was very low. The points marked on above plots are the highest emissions could be found when testing, so only above points had been displayed. The amplitude of spurious emissions from the radiator which are attenuated more than 20dB below the limit need not be reported. Fundamental frequency is blocked by filter, and only spurious emission is shown.*

*Note 2: For frequencies above 1GHz, the field strength limits are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation. For the emissions whose peak level is lower than the average limit, only the peak measurement is shown in the report.*

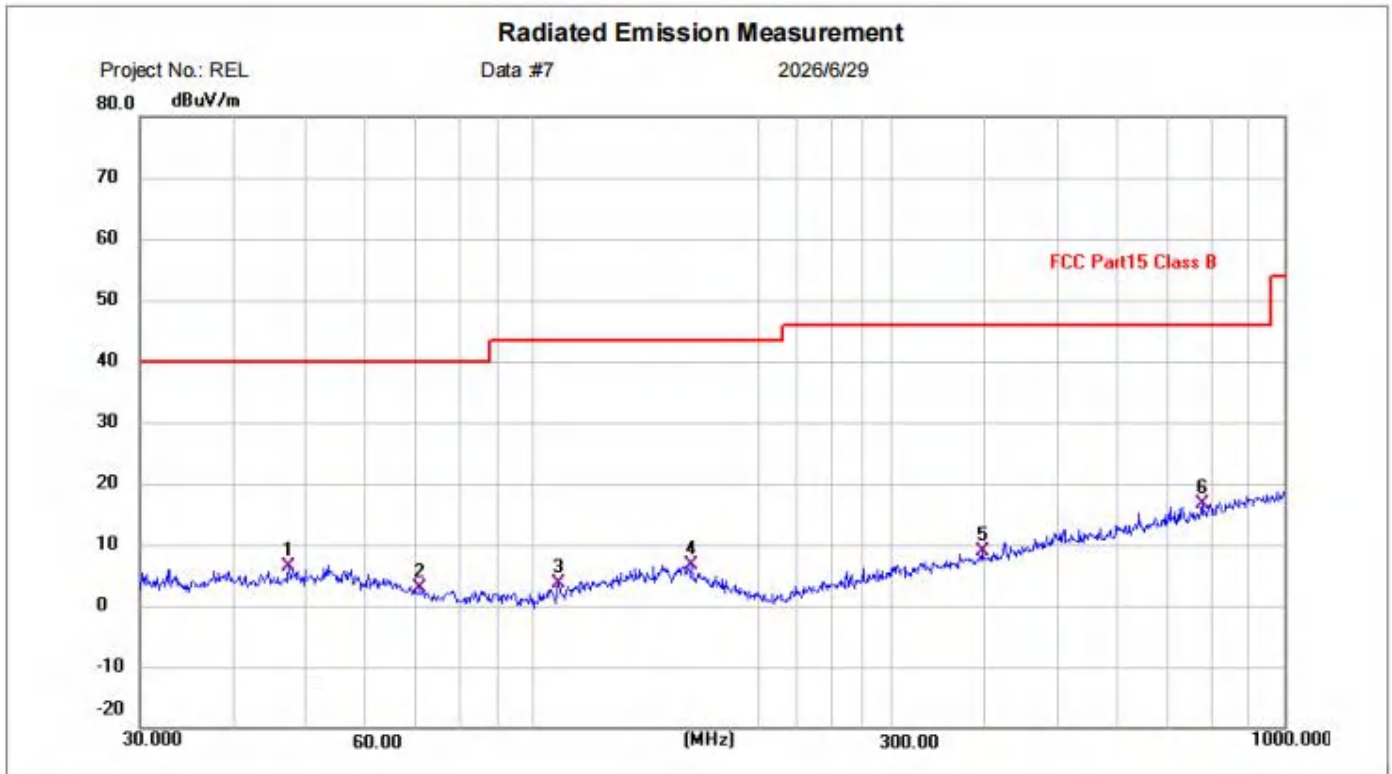
*Note 3: The field strength is calculated by adding the Antenna Factor, Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows:*

$$\text{Level (dBuV)} = \text{Reading (dBuV)} + \text{Factor (dB/m)}$$

#### 5.8.4 Test data

Below 1GHz

[Test mode: TX low channel]; [Polarity: Horizontal] ;[Power: DC3.7V]



Site      Polarization: **Horizontal**      Temperature: (C)

Limit: FCC Part15 Class B      Power:      Humidity: %RH

EUT: Wireless keyboard

M/N: T12

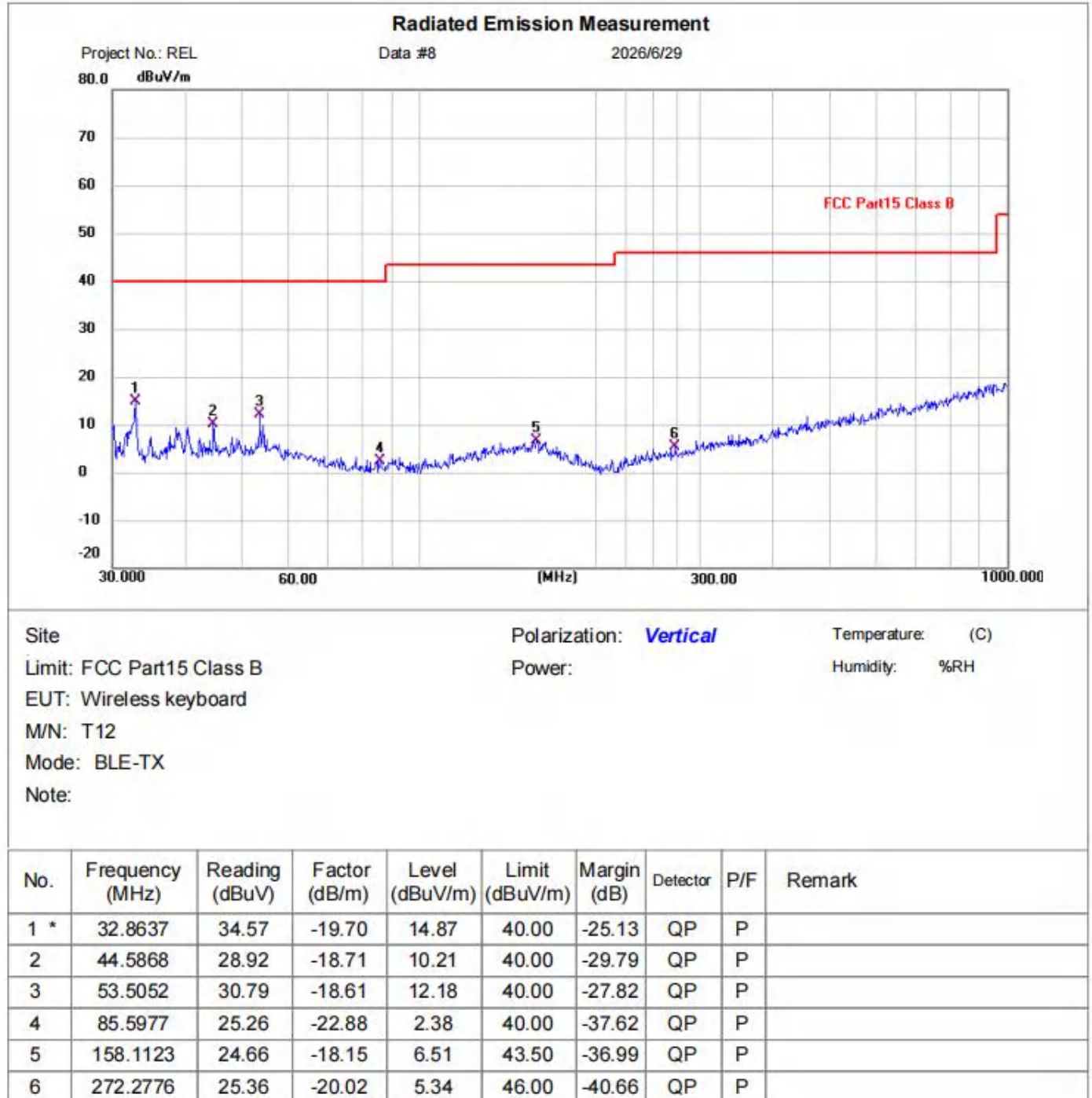
Mode: BLE-TX

Note:

| No. | Frequency (MHz) | Reading (dBuV) | Factor (dB/m) | Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector | P/F | Remark |
|-----|-----------------|----------------|---------------|----------------|----------------|-------------|----------|-----|--------|
| 1   | 47.3255         | 25.30          | -18.96        | 6.34           | 40.00          | -33.66      | QP       | P   |        |
| 2   | 70.8315         | 24.59          | -21.64        | 2.95           | 40.00          | -37.05      | QP       | P   |        |
| 3   | 108.2667        | 25.48          | -21.91        | 3.57           | 43.50          | -39.93      | QP       | P   |        |
| 4   | 162.6106        | 25.25          | -18.52        | 6.73           | 43.50          | -36.77      | QP       | P   |        |
| 5   | 396.2415        | 25.27          | -16.31        | 8.96           | 46.00          | -37.04      | QP       | P   |        |
| 6 * | 776.8778        | 25.53          | -8.98         | 16.55          | 46.00          | -29.45      | QP       | P   |        |

**Test Result: Pass**

[Test mode: TX low channel]; [Polarity: Vertical] ;[Power: DC3.7V]

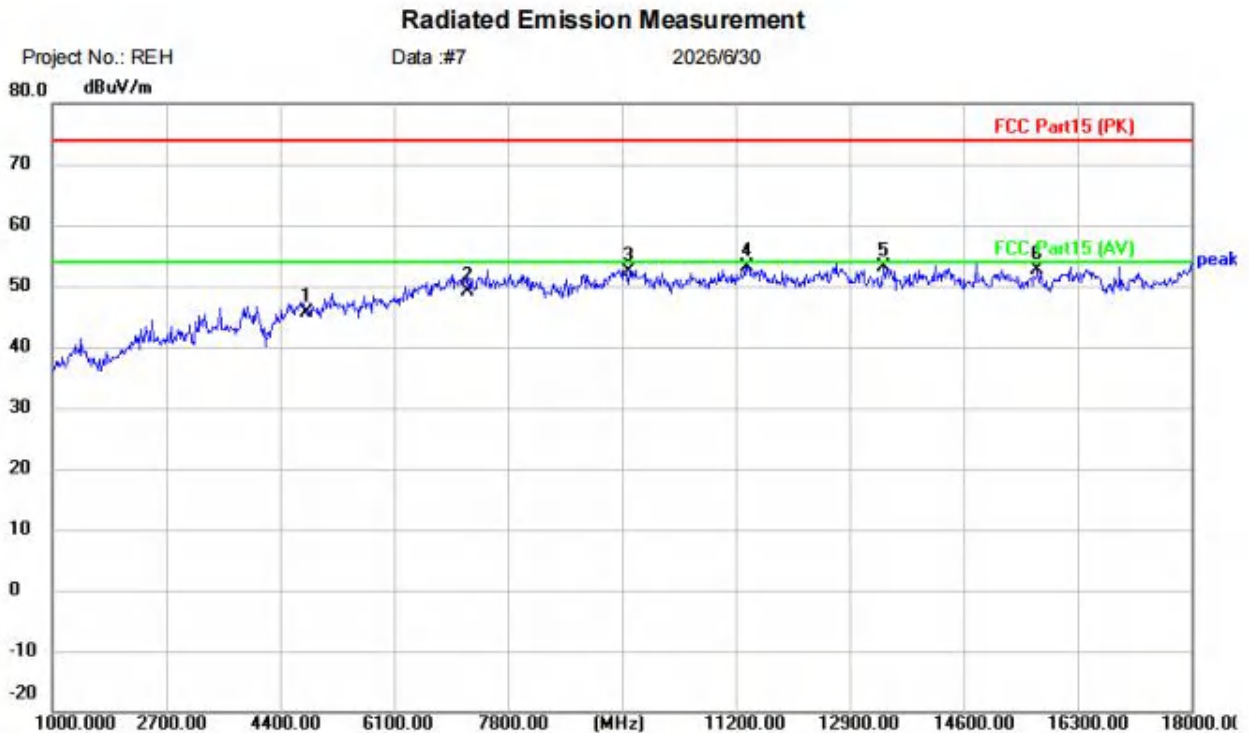


### Test Result: Pass

For radiation transmission, tests have been conducted on BLE 1Mbps modes, covering low, medium and high channels. Only the worst 1Mbps/low channels mode was reported.

Above 1GHz:

[Test mode: TX low channel]; [Polarity: Horizontal] ;[Power: DC3.7V]

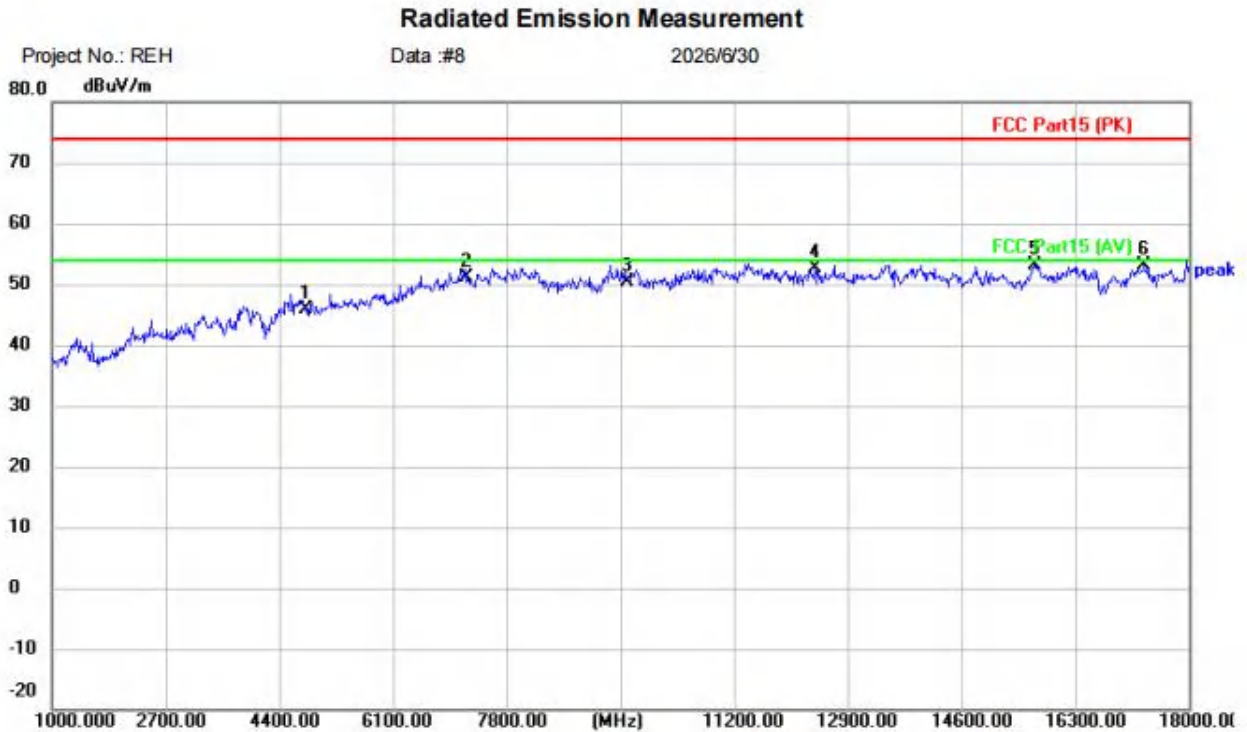


Site:      Polarization: **Horizontal**      Temperature: (C)  
 Limit: FCC Part15 (PK)      Power:      Humidity: %RH  
 EUT: Wireless keyboard  
 M/N: T12  
 Mode: BLE-2402  
 Note:

| No. | Mk. | Freq.<br>MHz | Reading<br>Level<br>dBuV | Correct<br>Factor<br>dB | Measure-<br>ment<br>dBuV/m | Limit<br>dBuV/m | Over<br>dB | Detector | Comment |
|-----|-----|--------------|--------------------------|-------------------------|----------------------------|-----------------|------------|----------|---------|
| 1   |     | 4804.000     | 46.48                    | -0.74                   | 45.74                      | 74.00           | -28.26     | peak     |         |
| 2   |     | 7206.000     | 42.29                    | 6.81                    | 49.10                      | 74.00           | -24.90     | peak     |         |
| 3   |     | 9608.000     | 44.88                    | 7.48                    | 52.36                      | 74.00           | -21.64     | peak     |         |
| 4   |     | 11370.00     | 43.82                    | 9.28                    | 53.10                      | 74.00           | -20.90     | peak     |         |
| 5   | *   | 13410.00     | 39.92                    | 13.27                   | 53.19                      | 74.00           | -20.81     | peak     |         |
| 6   |     | 15705.00     | 44.21                    | 8.37                    | 52.58                      | 74.00           | -21.42     | peak     |         |

**Test Result: Pass**

[Test mode: TX low channel]; [Polarity: Vertical] ;[Power: DC3.7V]



Site      Polarization: **Vertical**      Temperature: (C)

Limit: FCC Part15 (PK)      Power:      Humidity: %RH

EUT: Wireless keyboard

M/N: T12

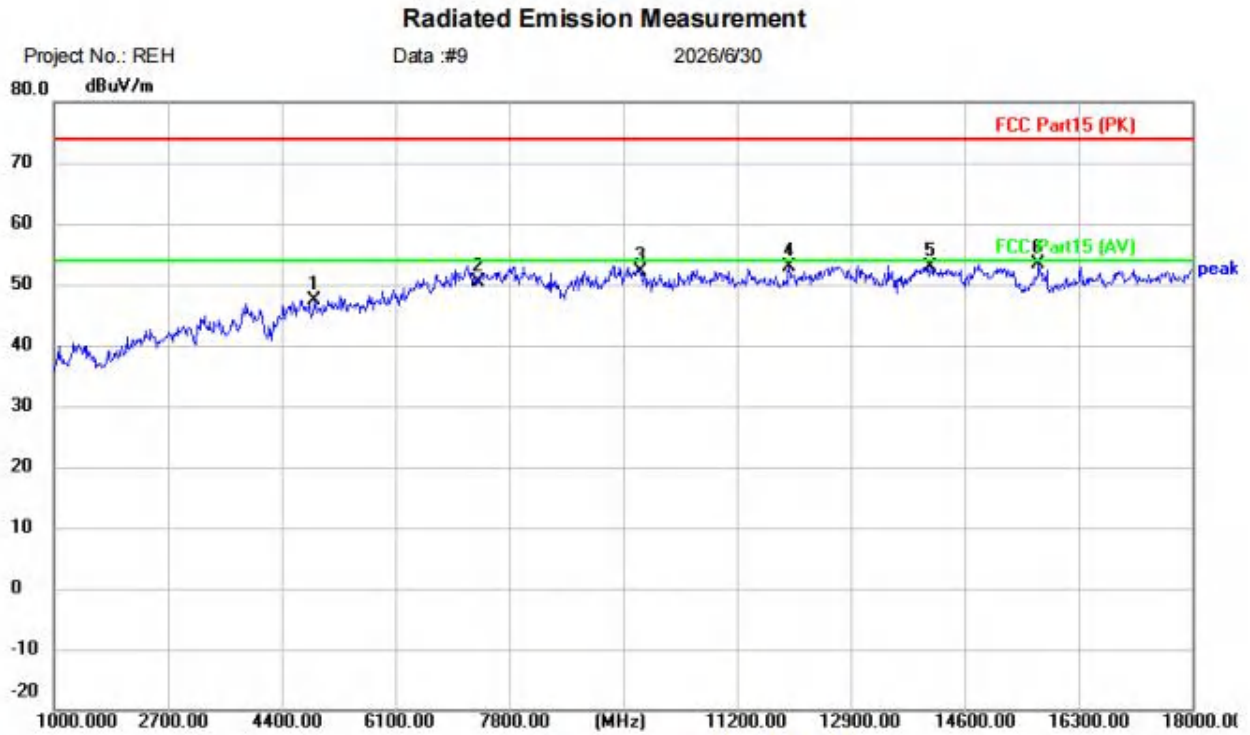
Mode: BLE-2402

Note:

| No. | Mk. | Freq.    | Reading Level | Correct Factor | Measure-ment | Limit  | Over   |          |         |
|-----|-----|----------|---------------|----------------|--------------|--------|--------|----------|---------|
|     |     | MHz      | dBuV          | dB             | dBuV/m       | dBuV/m | dB     | Detector | Comment |
| 1   |     | 4804.000 | 46.56         | -0.74          | 45.82        | 74.00  | -28.18 | peak     |         |
| 2   |     | 7206.000 | 44.40         | 6.81           | 51.21        | 74.00  | -22.79 | peak     |         |
| 3   |     | 9608.000 | 42.95         | 7.48           | 50.43        | 74.00  | -23.57 | peak     |         |
| 4   |     | 12407.00 | 44.51         | 8.20           | 52.71        | 74.00  | -21.29 | peak     |         |
| 5   |     | 15688.00 | 44.71         | 8.35           | 53.06        | 74.00  | -20.94 | peak     |         |
| 6   | *   | 17337.00 | 43.86         | 9.26           | 53.12        | 74.00  | -20.88 | peak     |         |

**Test Result: Pass**

[Test mode: TX middle channel]; [Polarity: Horizontal] ;[Power: DC3.7V]



Site      Polarization: **Horizontal**      Temperature: (C)

Limit: FCC Part15 (PK)      Power:      Humidity: %RH

EUT: Wireless keyboard

M/N: T12

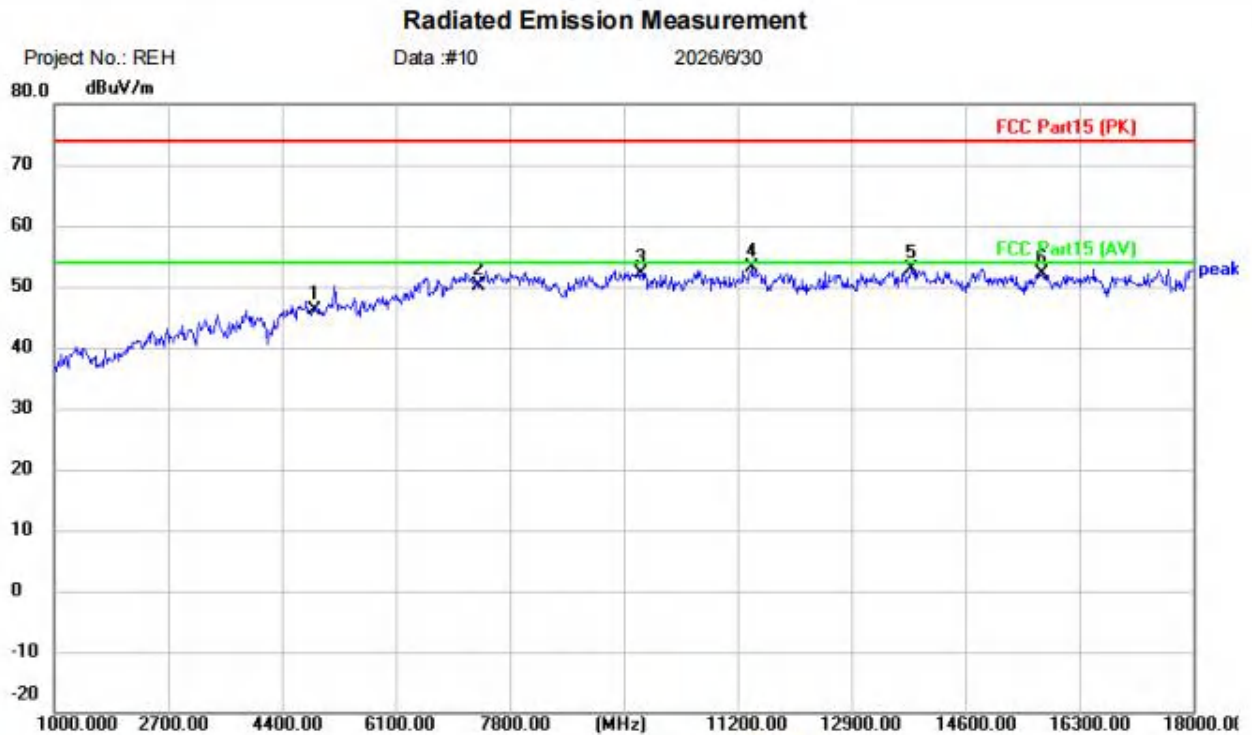
Mode: BLE-2442

Note:

| No. Mk. | Freq.    | Reading Level | Correct Factor | Measure-ment | Limit  | Over   | Detector | Comment |
|---------|----------|---------------|----------------|--------------|--------|--------|----------|---------|
|         | MHz      | dBuV          | dB             | dBuV/m       | dBuV/m | dB     |          |         |
| 1       | 4884.000 | 47.97         | -0.59          | 47.38        | 74.00  | -26.62 | peak     |         |
| 2       | 7326.000 | 44.01         | 6.44           | 50.45        | 74.00  | -23.55 | peak     |         |
| 3       | 9768.000 | 43.77         | 8.29           | 52.06        | 74.00  | -21.94 | peak     |         |
| 4       | 11982.00 | 43.74         | 9.11           | 52.85        | 74.00  | -21.15 | peak     |         |
| 5       | 14090.00 | 43.17         | 9.72           | 52.89        | 74.00  | -21.11 | peak     |         |
| 6 *     | 15705.00 | 44.91         | 8.37           | 53.28        | 74.00  | -20.72 | peak     |         |

**Test Result: Pass**

[Test mode: TX middle channel]; [Polarity: Vertical] ;[Power: DC3.7V]



Site:      Polarization: **Vertical**      Temperature: (C)

Limit: FCC Part15 (PK)      Power:      Humidity: %RH

EUT: Wireless keyboard

M/N: T12

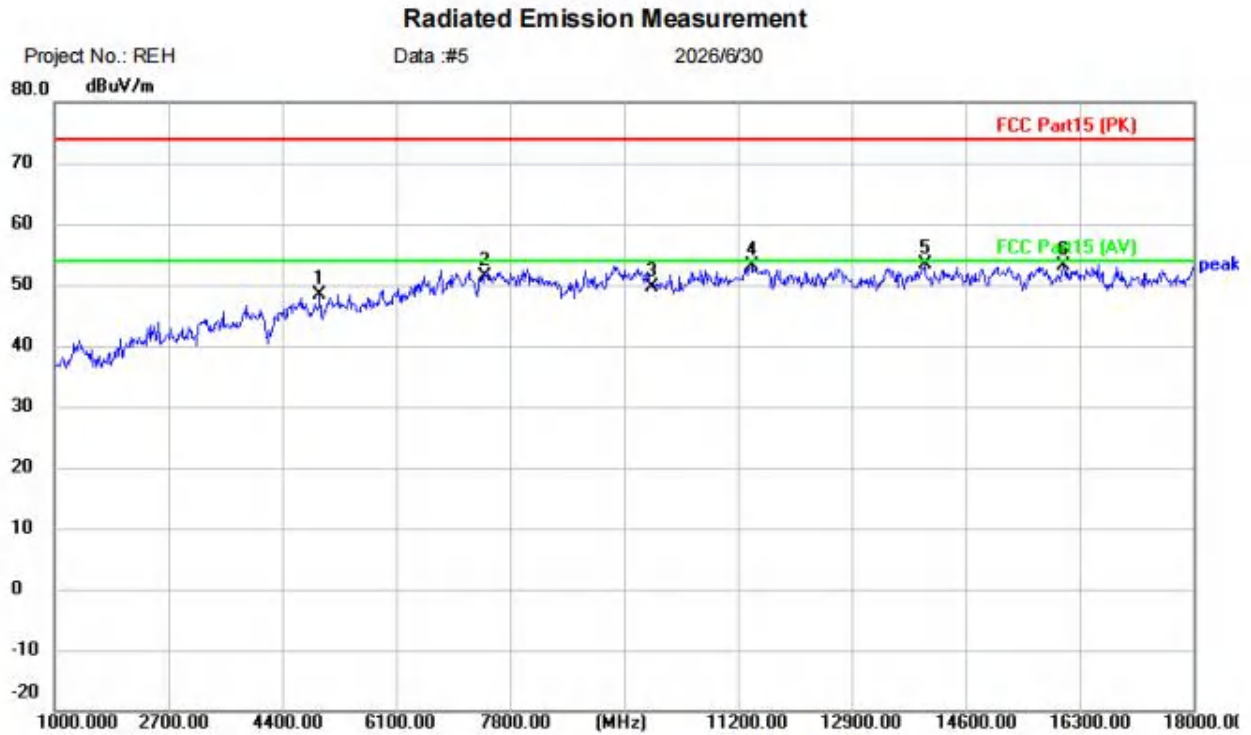
Mode: BLE-2442

Note:

| No. | Mk. | Freq.<br>MHz | Reading<br>Level<br>dBuV | Correct<br>Factor<br>dB | Measure-<br>ment<br>dBuV/m | Limit<br>dBuV/m | Over<br>dB | Detector | Comment |
|-----|-----|--------------|--------------------------|-------------------------|----------------------------|-----------------|------------|----------|---------|
| 1   |     | 4884.000     | 46.79                    | -0.59                   | 46.20                      | 74.00           | -27.80     | peak     |         |
| 2   |     | 7326.000     | 43.78                    | 6.44                    | 50.22                      | 74.00           | -23.78     | peak     |         |
| 3   |     | 9768.000     | 43.75                    | 8.29                    | 52.04                      | 74.00           | -21.96     | peak     |         |
| 4   | *   | 11404.00     | 43.44                    | 9.62                    | 53.06                      | 74.00           | -20.94     | peak     |         |
| 5   |     | 13801.00     | 43.57                    | 9.24                    | 52.81                      | 74.00           | -21.19     | peak     |         |
| 6   |     | 15739.00     | 43.90                    | 8.12                    | 52.02                      | 74.00           | -21.98     | peak     |         |

**Test Result: Pass**

[Test mode: TX High channel]; [Polarity: Horizontal] ;[Power: DC3.7V]



Site      Polarization: **Horizontal**      Temperature: (C)

Limit: FCC Part15 (PK)      Power:      Humidity: %RH

EUT: Wireless keyboard

M/N: T12

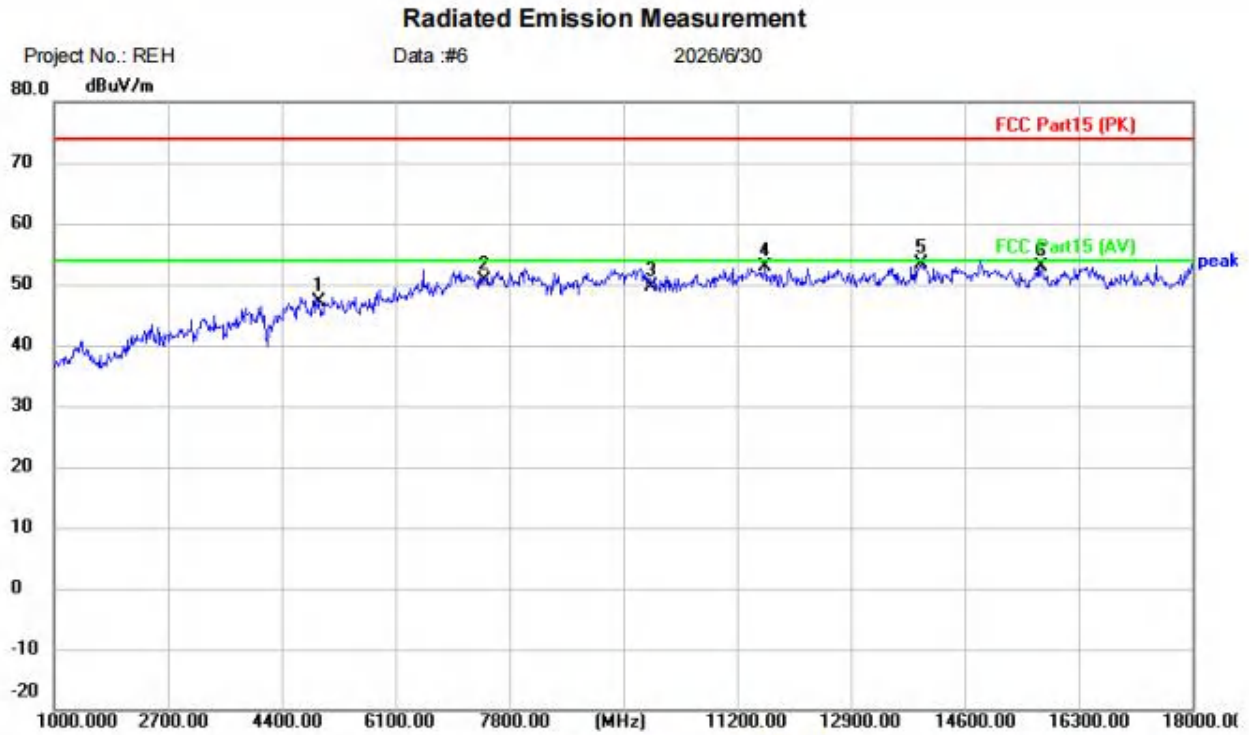
Mode: BLE-2480

Note:

| No. | Mk. | Freq.    | Reading Level | Correct Factor | Measure-ment | Limit  | Over   |          |         |
|-----|-----|----------|---------------|----------------|--------------|--------|--------|----------|---------|
|     |     | MHz      | dBuV          | dB             | dBuV/m       | dBuV/m | dB     | Detector | Comment |
| 1   |     | 4960.000 | 48.83         | -0.37          | 48.46        | 74.00  | -25.54 | peak     |         |
| 2   |     | 7440.000 | 44.37         | 7.06           | 51.43        | 74.00  | -22.57 | peak     |         |
| 3   |     | 9920.000 | 41.83         | 7.76           | 49.59        | 74.00  | -24.41 | peak     |         |
| 4   |     | 11404.00 | 43.53         | 9.62           | 53.15        | 74.00  | -20.85 | peak     |         |
| 5   | *   | 13988.00 | 43.20         | 10.15          | 53.35        | 74.00  | -20.65 | peak     |         |
| 6   |     | 16062.00 | 44.20         | 8.83           | 53.03        | 74.00  | -20.97 | peak     |         |

**Test Result: Pass**

[Test mode: TX High channel]; [Polarity: Vertical] ;[Power: DC3.7V]



Site      Polarization: **Vertical**      Temperature: (C)

Limit: FCC Part15 (PK)      Power:      Humidity: %RH

EUT: Wireless keyboard

M/N: T12

Mode: BLE-2480

Note:

| No. | Mk. | Freq.    | Reading Level | Correct Factor | Measurement | Limit  | Over   | Detector | Comment |
|-----|-----|----------|---------------|----------------|-------------|--------|--------|----------|---------|
|     |     | MHz      | dBuV          | dB             | dBuV/m      | dBuV/m | dB     |          |         |
| 1   |     | 4960.000 | 47.40         | -0.37          | 47.03       | 74.00  | -26.97 | peak     |         |
| 2   |     | 7440.000 | 43.45         | 7.06           | 50.51       | 74.00  | -23.49 | peak     |         |
| 3   |     | 9920.000 | 41.97         | 7.76           | 49.73       | 74.00  | -24.27 | peak     |         |
| 4   |     | 11625.00 | 43.14         | 9.63           | 52.77       | 74.00  | -21.23 | peak     |         |
| 5   | *   | 13954.00 | 43.30         | 9.98           | 53.28       | 74.00  | -20.72 | peak     |         |
| 6   |     | 15739.00 | 44.86         | 8.12           | 52.98       | 74.00  | -21.02 | peak     |         |

### Test Result: Pass

Note:When scanning in the range of 1GHz~ 25GHz and the interference above 18GHz is very small, it is a low noise signal. The point shown in the figure above is the highest emission that can be found during the test, so only the above point is shown. The fundamental frequency is blocked by the filter. Only stray emission.

## 5.9 Radiated emissions which fall in the restricted bands

|                               |                                                                                 |
|-------------------------------|---------------------------------------------------------------------------------|
| <b>Test Standard</b>          | 47 CFR Part 15, Subpart C 15.247(d)                                             |
| <b>Test Method</b>            | ANSI C63.10-2020+Cor. 1-2023+C63.10a-2024 + Errata to C63.10a-2024 Clause 11.12 |
| <b>Test Mode (Pre-Scan)</b>   | TX                                                                              |
| <b>Test Mode (Final Test)</b> | TX                                                                              |

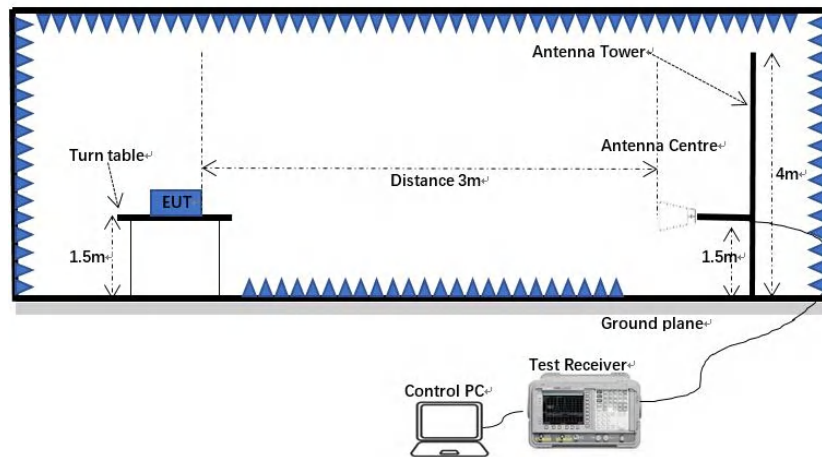
### 5.9.1 Limit

| <b>Frequency(MHz)</b> | <b>Field strength(microvolts/meter)</b> | <b>Measurement distance(meters)</b> |
|-----------------------|-----------------------------------------|-------------------------------------|
| 0.009-0.490           | 2400/F(kHz)                             | 300                                 |
| 0.490-1.705           | 24000/F(kHz)                            | 30                                  |
| 1.705-30.0            | 30                                      | 30                                  |
| 30-88                 | 100                                     | 3                                   |
| 88-216                | 150                                     | 3                                   |
| 216-960               | 200                                     | 3                                   |
| Above 960             | 500                                     | 3                                   |

*Remark: The emission limits shown in the above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9-90kHz, 110-490kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation.*

### 5.9.2 Test setup

Above 1GHz:



### 5.9.3 Procedure

- For below 1GHz, the EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 or 10 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- For above 1GHz, the EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter fully-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- The EUT was set 3 or 10 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.
- Test the EUT in the lowest channel, the middle channel, the highest channel.

- i) The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, and found the X axis positioning which it is the worst case.
- j) Repeat above procedures until all frequencies measured was complete.

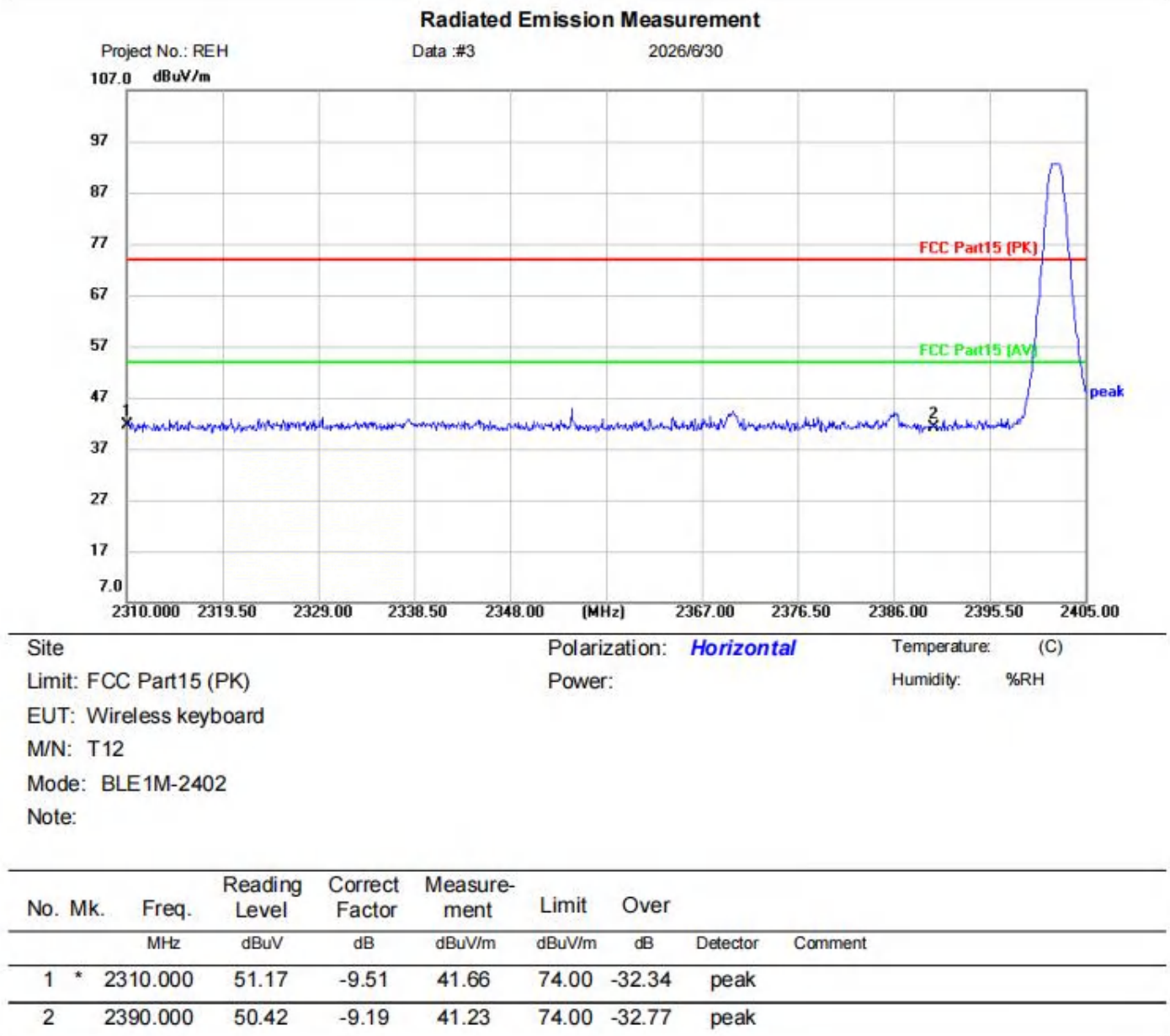
*Note 1: Level (dBuV) = Reading (dBuV) + Factor (dB/m)*

*Note 2: For frequencies above 1GHz, the field strength limits are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation. For the emissions whose peak level is lower than the average limit, only the peak measurement is shown in the report.*

BlueAsia

#### 5.9.4 Test data

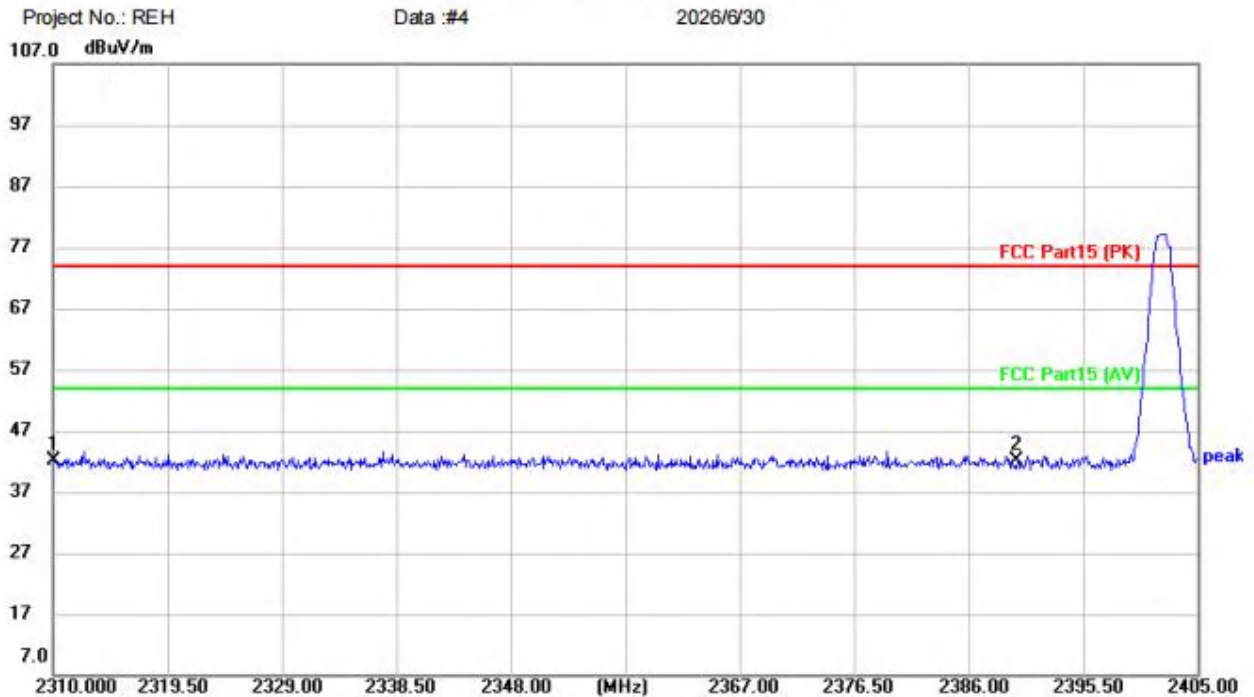
[Test mode: TX low channel]; [Polarity: Horizontal] ;[Power: DC3.7V]



**Test Result: Pass**

[Test mode:TX low channel]; [Polarity: Vertical] ;[Power: DC3.7V]

### Radiated Emission Measurement



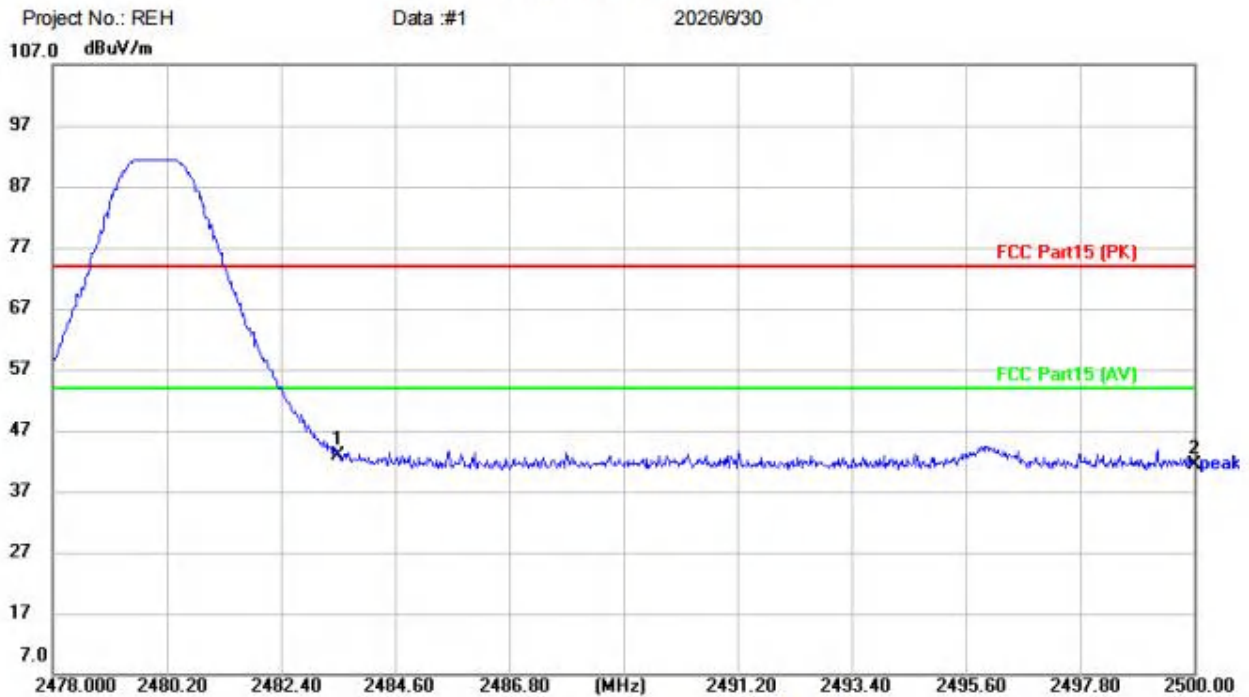
Site Polarization: **Vertical** Temperature: (C)  
 Limit: FCC Part15 (PK) Power: Humidity: %RH  
 EUT: Wireless keyboard  
 M/N: T12  
 Mode: BLE 1M-2402  
 Note:

| No. | Mk. | Freq.<br>MHz | Reading<br>Level<br>dBuV | Correct<br>Factor<br>dB | Measure-<br>ment<br>dBuV/m | Limit<br>dBuV/m | Over<br>dB | Detector | Comment |
|-----|-----|--------------|--------------------------|-------------------------|----------------------------|-----------------|------------|----------|---------|
| 1   | *   | 2310.000     | 51.69                    | -9.51                   | 42.18                      | 74.00           | -31.82     | peak     |         |
| 2   |     | 2390.000     | 51.21                    | -9.19                   | 42.02                      | 74.00           | -31.98     | peak     |         |

**Test Result: Pass**

[Test mode: TX High channel]; [Polarity: Horizontal] ;[Power: DC3.7V]

### Radiated Emission Measurement



Site Polarization: **Horizontal** Temperature: (C)

Limit: FCC Part15 (PK) Power: Humidity: %RH

EUT: Wireless keyboard

M/N: T12

Mode: BLE 1M-2480

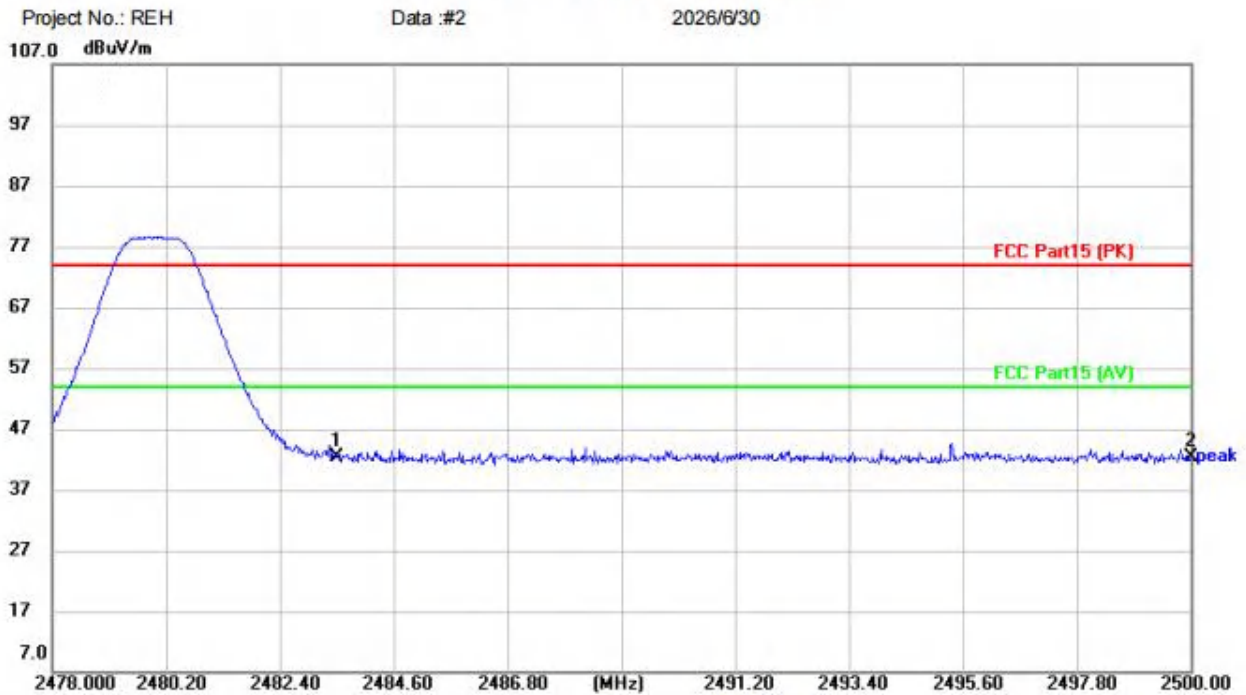
Note:

| No. | Mk. | Freq.    | Reading Level | Correct Factor | Measurement | Limit  | Over   |          |         |
|-----|-----|----------|---------------|----------------|-------------|--------|--------|----------|---------|
|     |     | MHz      | dBuV          | dB             | dBuV/m      | dBuV/m | dB     | Detector | Comment |
| 1   | *   | 2483.500 | 52.02         | -9.14          | 42.88       | 74.00  | -31.12 | peak     |         |
| 2   |     | 2500.000 | 50.49         | -9.11          | 41.38       | 74.00  | -32.62 | peak     |         |

Test Result: Pass

[Test mode:TX High channel]; [Polarity: Vertical] ;[Power: DC3.7V]

### Radiated Emission Measurement



Site Polarization: **Vertical** Temperature: (C)

Limit: FCC Part15 (PK) Power: Humidity: %RH

EUT: Wireless keyboard

M/N: T12

Mode: BLE 1M-2480

Note:

| No. | Mk. | Freq.    | Reading Level | Correct Factor | Measurement | Limit  | Over   |          |         |
|-----|-----|----------|---------------|----------------|-------------|--------|--------|----------|---------|
|     |     | MHz      | dBuV          | dB             | dBuV/m      | dBuV/m | dB     | Detector | Comment |
| 1   |     | 2483.500 | 51.56         | -9.14          | 42.42       | 74.00  | -31.58 | peak     |         |
| 2   | *   | 2500.000 | 51.55         | -9.11          | 42.44       | 74.00  | -31.56 | peak     |         |

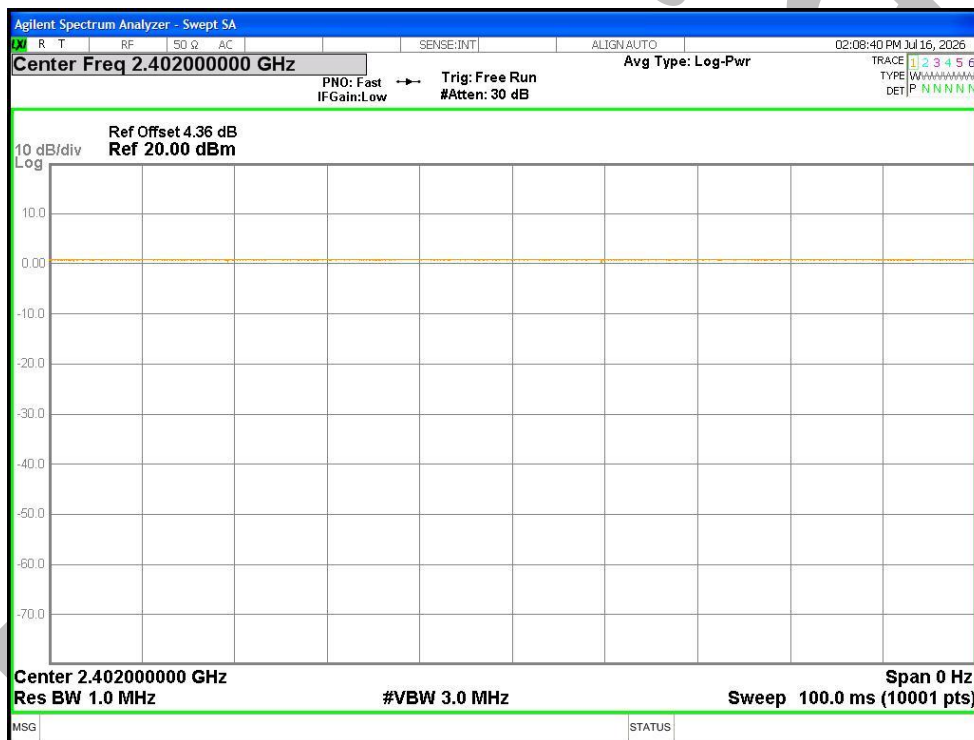
**Test Result: Pass**

## 6 Appendix A

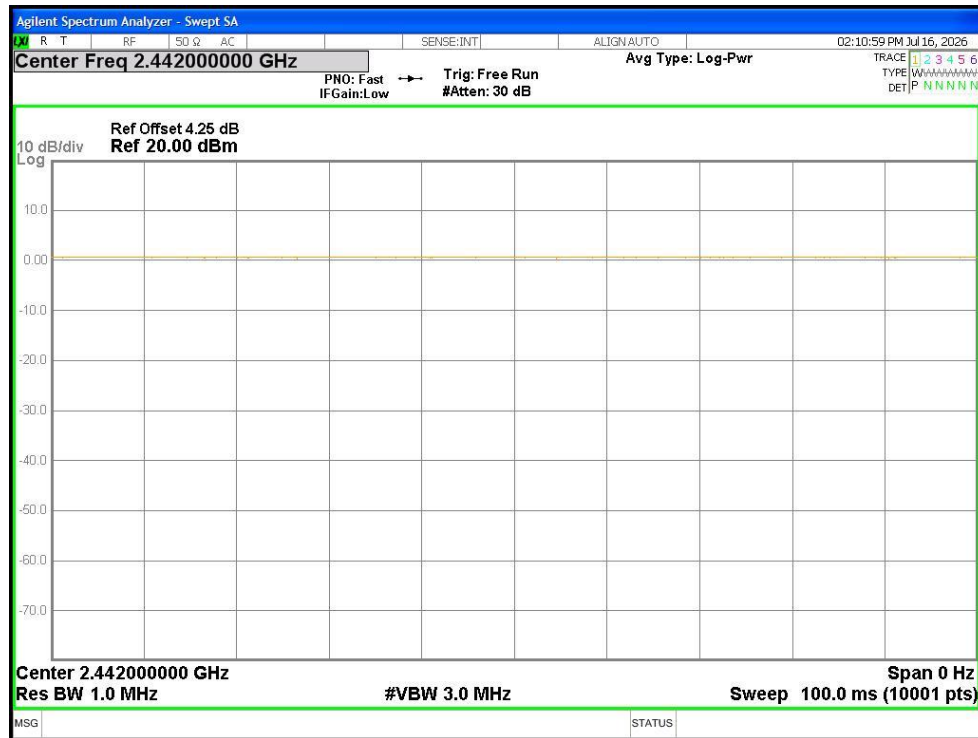
### 6.1 Duty Cycle

| Condition | Mode   | Frequency (MHz) | Antenna | Duty Cycle (%) | Correction Factor (dB) |
|-----------|--------|-----------------|---------|----------------|------------------------|
| NVNT      | BLE 1M | 2402            | Ant1    | 100            | 0                      |
| NVNT      | BLE 1M | 2442            | Ant1    | 100            | 0                      |
| NVNT      | BLE 1M | 2480            | Ant1    | 100            | 0                      |

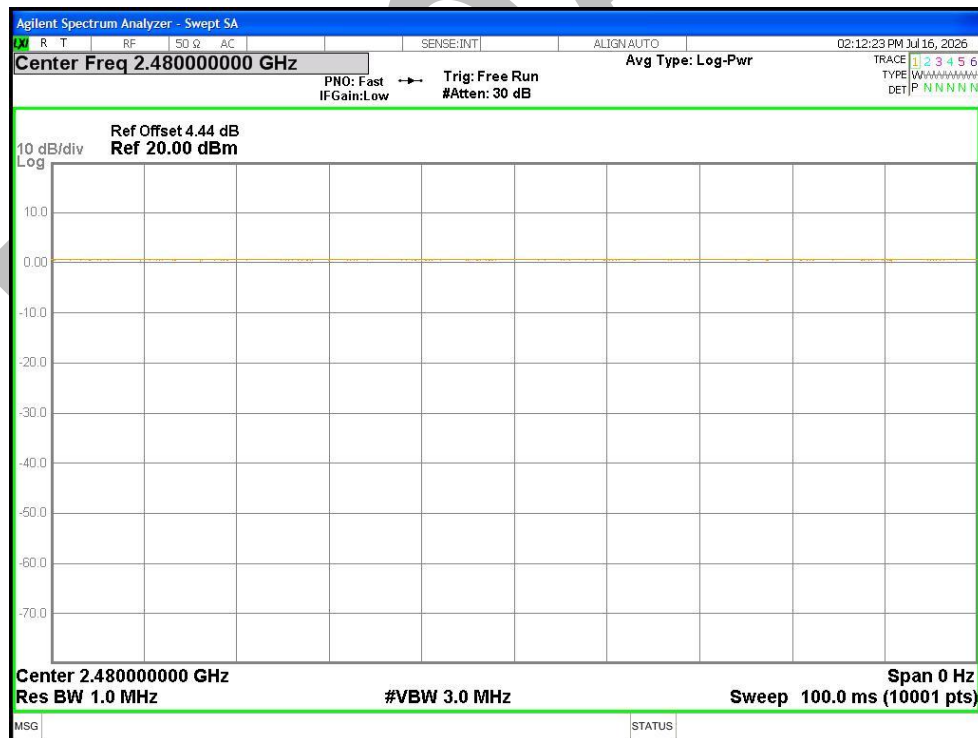
Duty Cycle NVNT BLE 1M 2402MHz Ant1



Duty Cycle NVNT BLE 1M 2442MHz Ant1



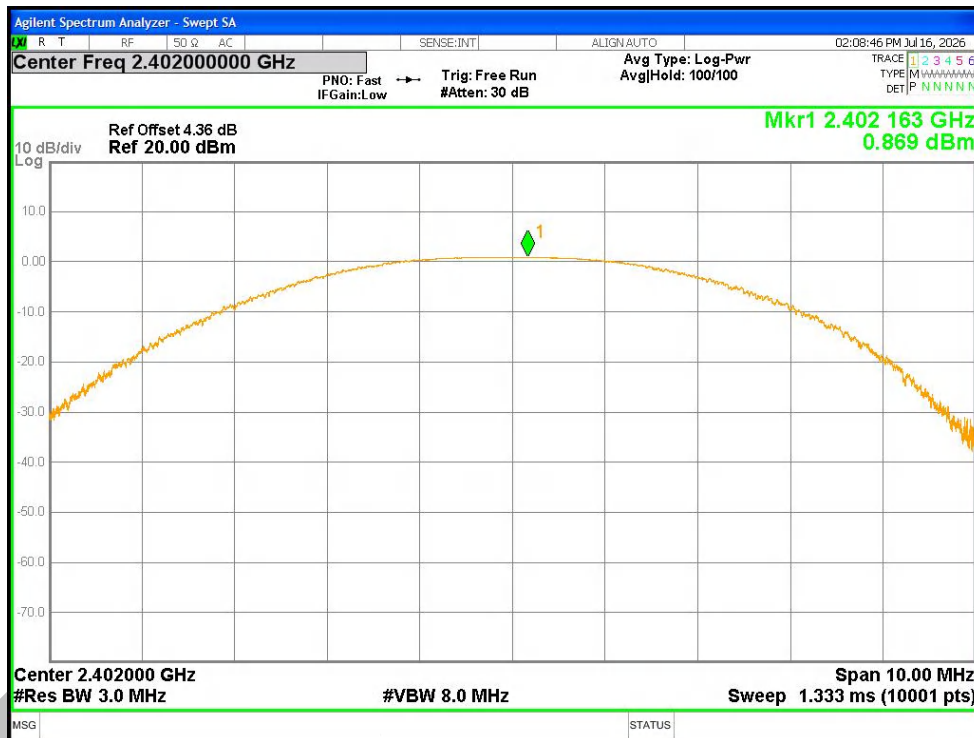
Duty Cycle NVNT BLE 1M 2480MHz Ant1



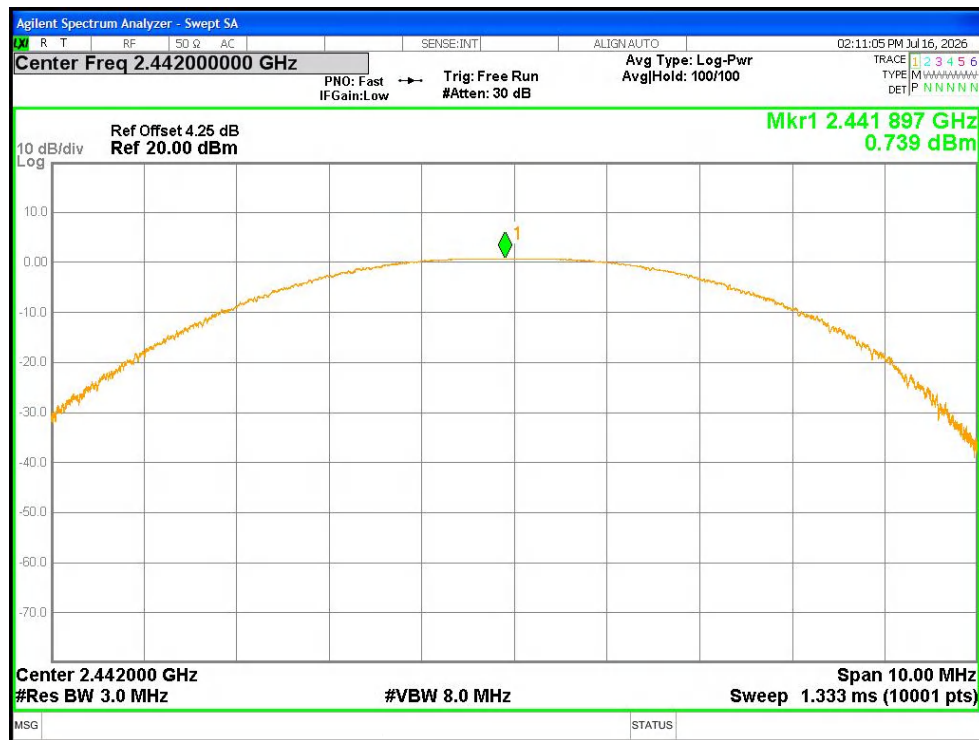
## 6.2 Maximum PK Conducted Output Power

| Condition | Mode   | Frequency (MHz) | Antenna | Conducted Power (dBm) | Limit (dBm) | Verdict |
|-----------|--------|-----------------|---------|-----------------------|-------------|---------|
| NVNT      | BLE 1M | 2402            | Ant1    | 0.869                 | 30          | Pass    |
| NVNT      | BLE 1M | 2442            | Ant1    | 0.739                 | 30          | Pass    |
| NVNT      | BLE 1M | 2480            | Ant1    | 0.695                 | 30          | Pass    |

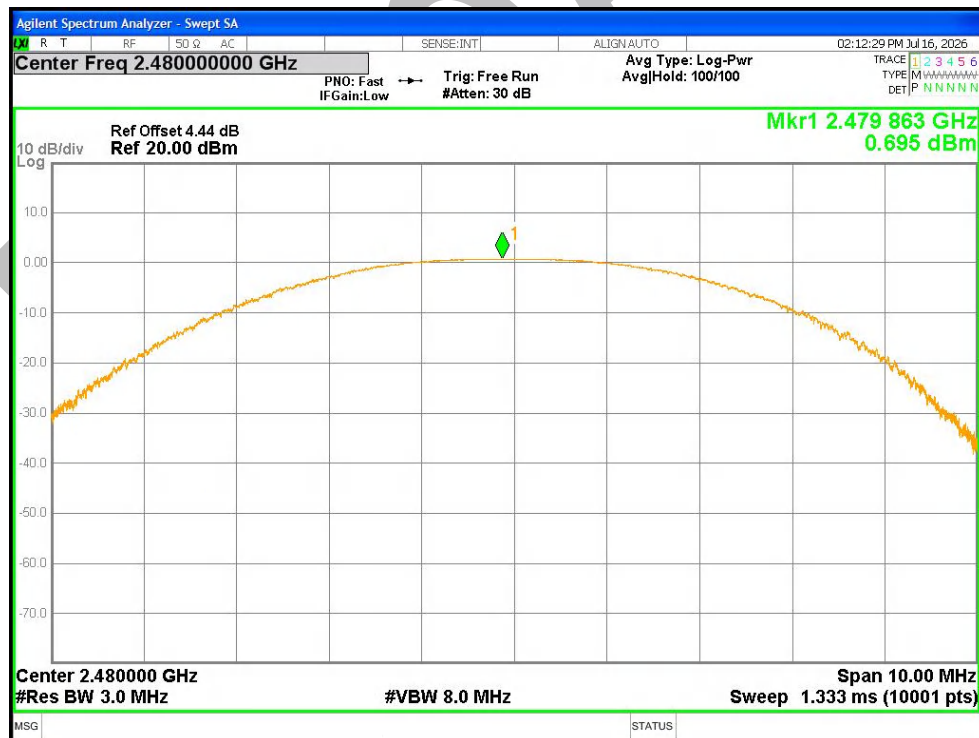
Power NVNT BLE 1M 2402MHz Ant1



Power NVNT BLE 1M 2442MHz Ant1



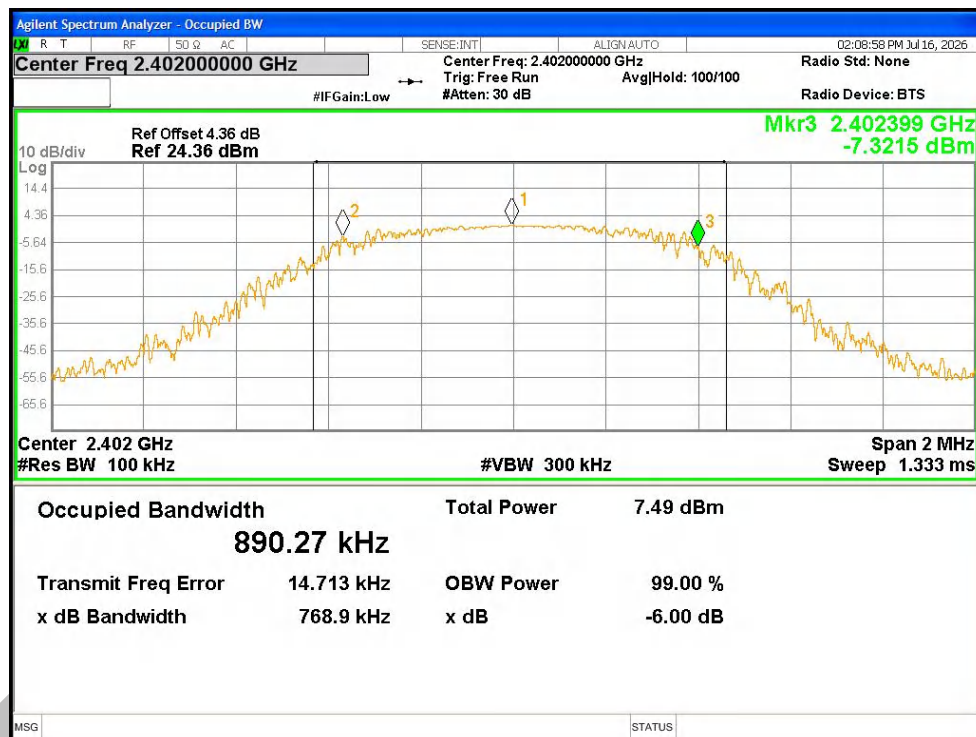
Power NVNT BLE 1M 2480MHz Ant1



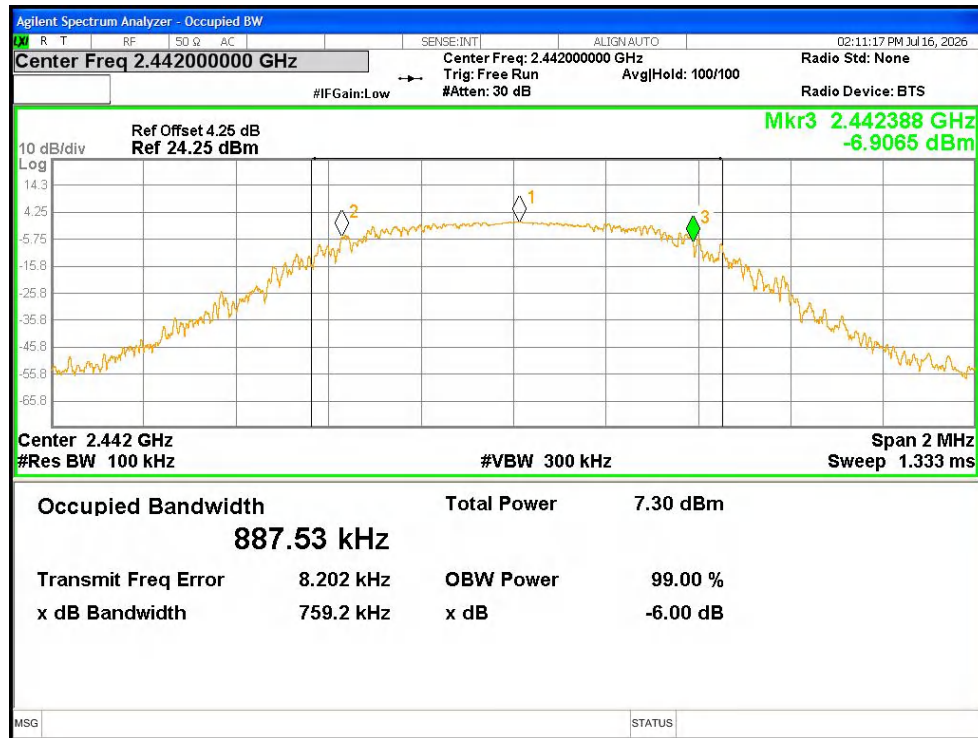
### 6.3 -6dB Bandwidth

| Condition | Mode   | Frequency (MHz) | Antenna | -6 dB Bandwidth (MHz) | Limit -6 dB Bandwidth (MHz) | Verdict |
|-----------|--------|-----------------|---------|-----------------------|-----------------------------|---------|
| NVNT      | BLE 1M | 2402            | Ant1    | 0.769                 | 0.5                         | Pass    |
| NVNT      | BLE 1M | 2442            | Ant1    | 0.759                 | 0.5                         | Pass    |
| NVNT      | BLE 1M | 2480            | Ant1    | 0.765                 | 0.5                         | Pass    |

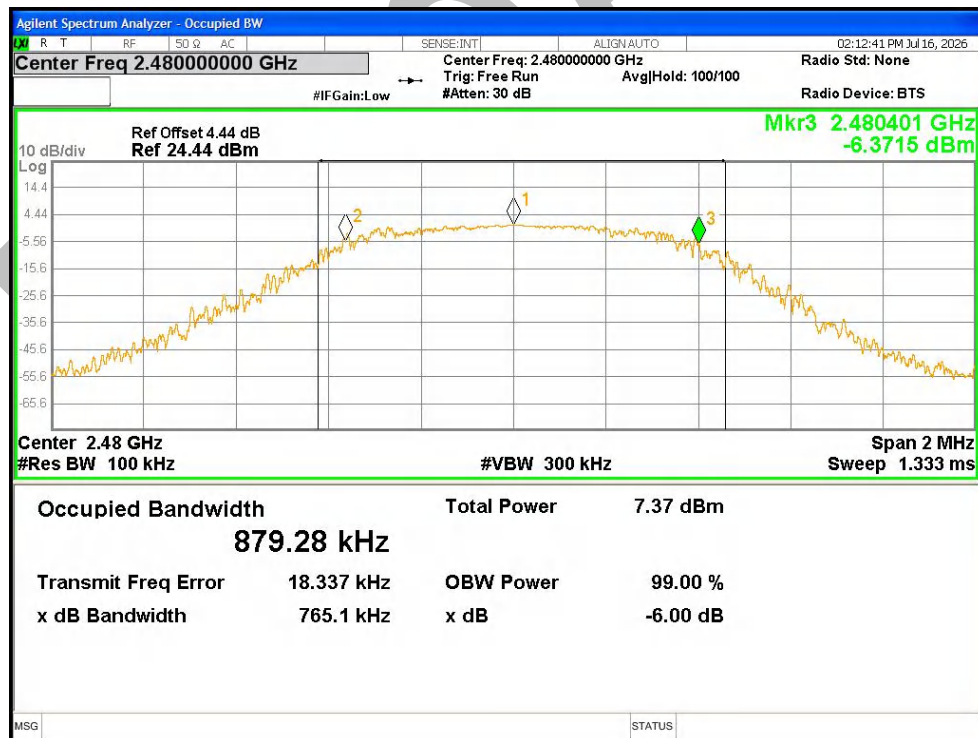
-6dB Bandwidth NVNT BLE 1M 2402MHz Ant1



-6dB Bandwidth NVNT BLE 1M 2442MHz Ant1



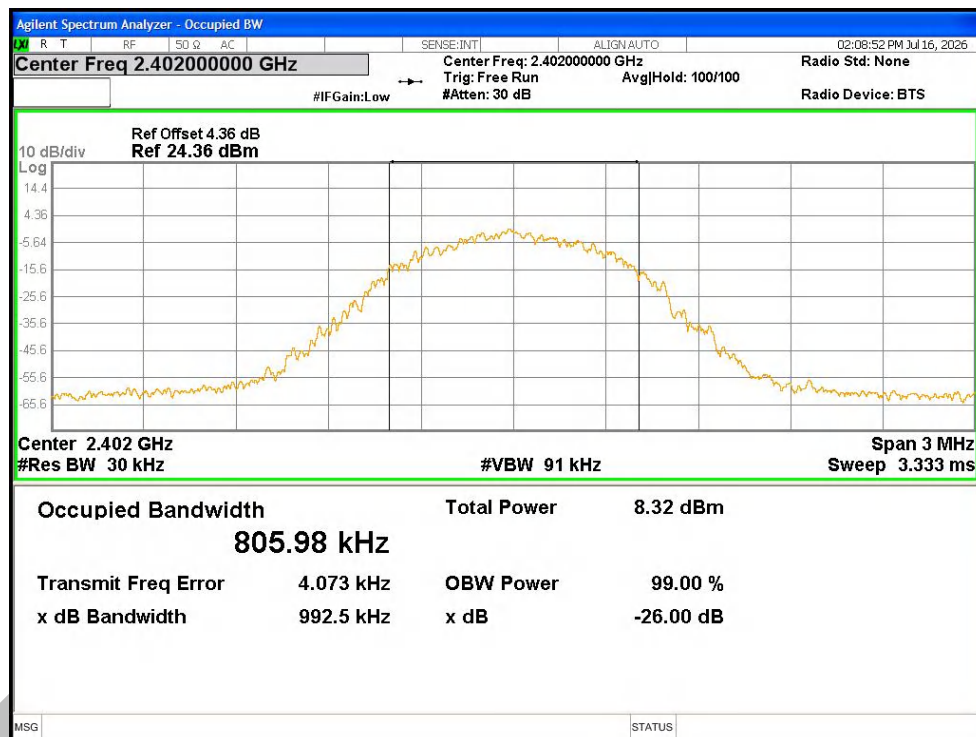
-6dB Bandwidth NVNT BLE 1M 2480MHz Ant1



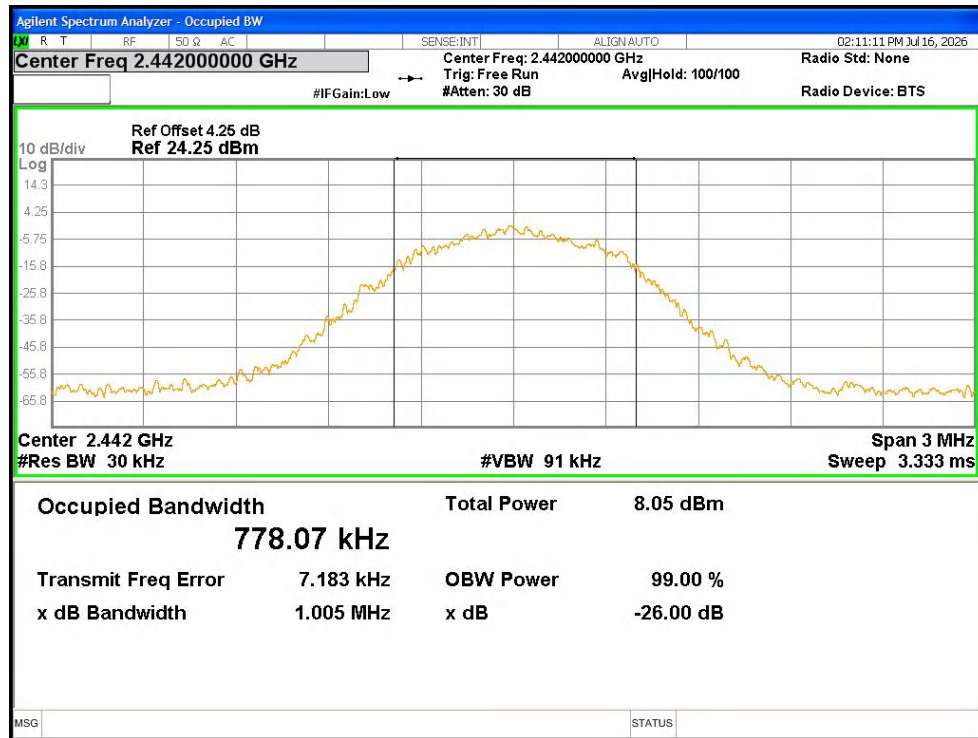
## 6.4 Occupied Channel Bandwidth

| Condition | Mode   | Frequency (MHz) | Antenna | 99% OBW (MHz) |
|-----------|--------|-----------------|---------|---------------|
| NVNT      | BLE 1M | 2402            | Ant1    | 0.80598       |
| NVNT      | BLE 1M | 2442            | Ant1    | 0.77807       |
| NVNT      | BLE 1M | 2480            | Ant1    | 0.82217       |

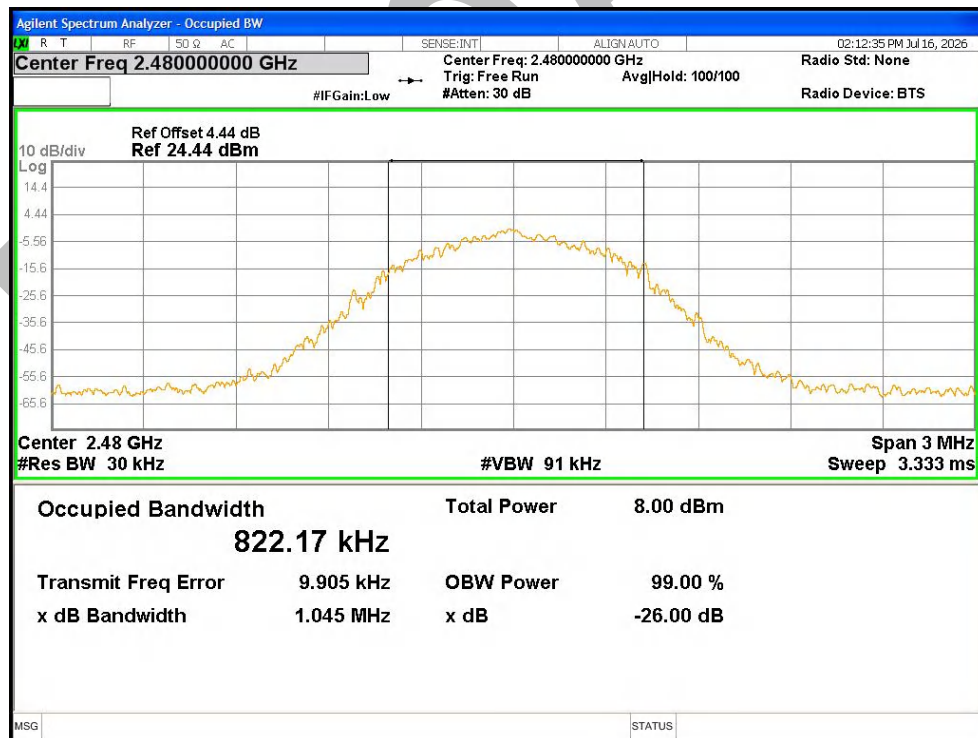
OBW NVNT BLE 1M 2402MHz Ant1



OBW NVNT BLE 1M 2442MHz Ant1



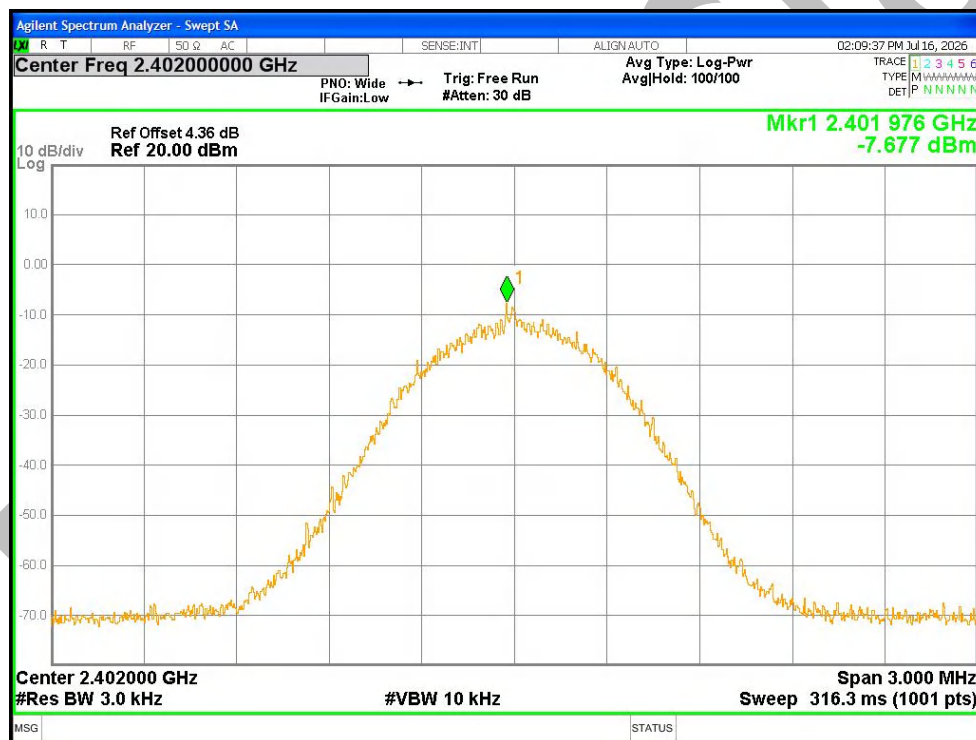
OBW NVNT BLE 1M 2480MHz Ant1



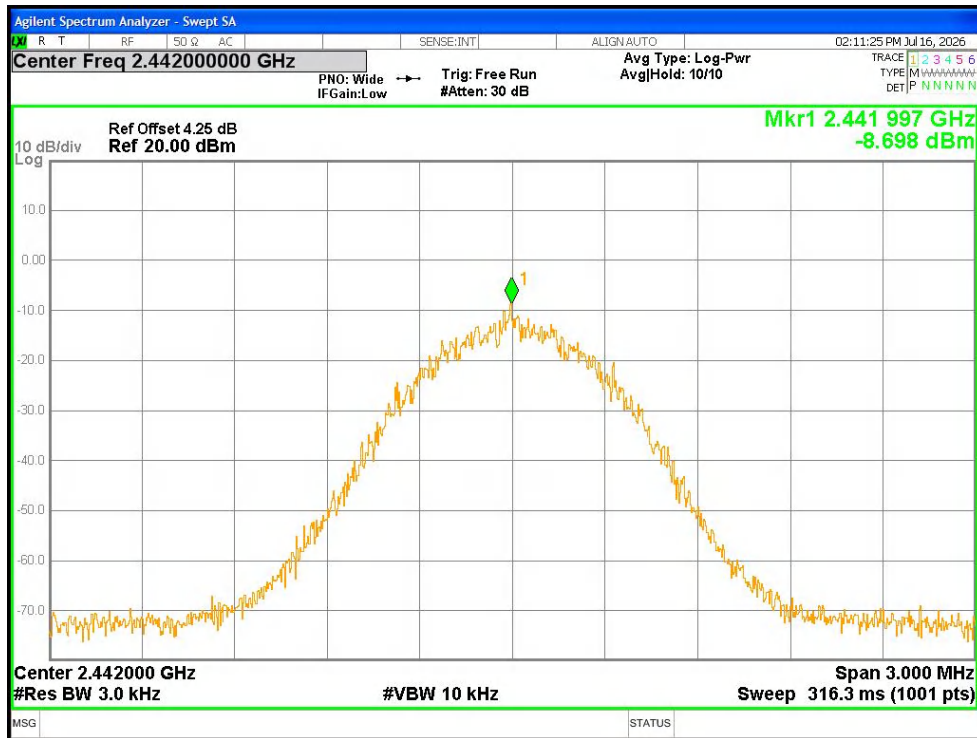
## 6.5 Maximum Power Spectral Density Level

| Condition | Mode      | Frequency<br>(MHz) | Antenna | Max PSD<br>(dBm/3kHz) | Limit (dBm/3 kHz) | Verdict |
|-----------|-----------|--------------------|---------|-----------------------|-------------------|---------|
| NVNT      | BLE<br>1M | 2402               | Ant1    | -7.677                | 8                 | Pass    |
| NVNT      | BLE<br>1M | 2442               | Ant1    | -8.698                | 8                 | Pass    |
| NVNT      | BLE<br>1M | 2480               | Ant1    | -9.38                 | 8                 | Pass    |

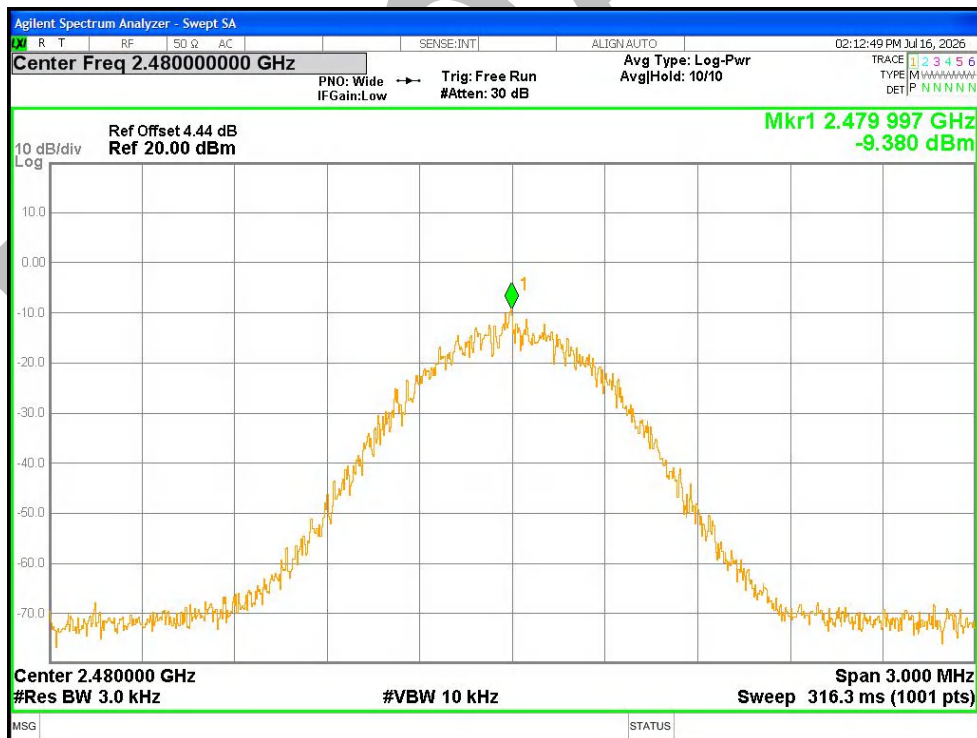
PSD NVNT BLE 1M 2402MHz Ant1



PSD NVNT BLE 1M 2442MHz Ant1



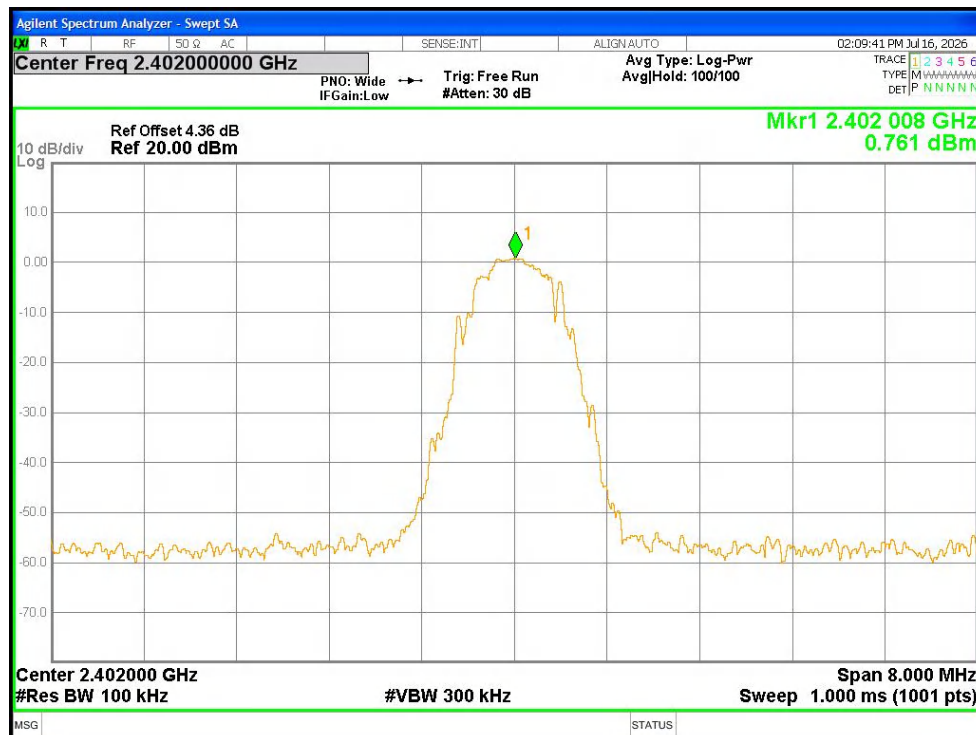
PSD NVNT BLE 1M 2480MHz Ant1



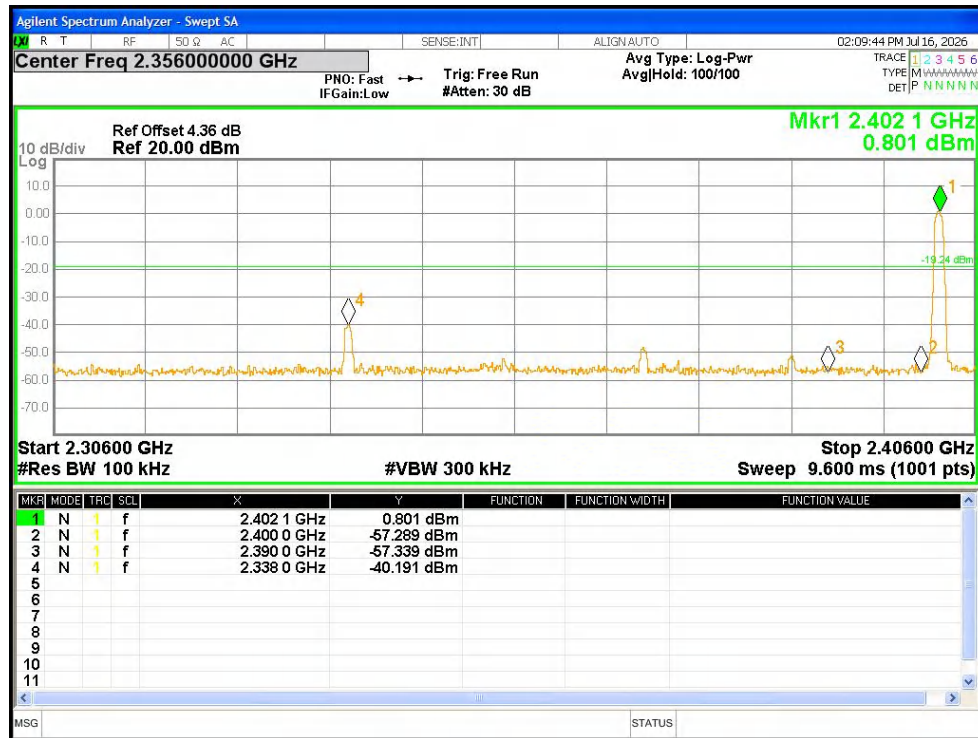
## 6.6 Band Edge

| Condition | Mode   | Frequency (MHz) | Antenna | Max Value (dBc) | Limit (dBc) | Verdict |
|-----------|--------|-----------------|---------|-----------------|-------------|---------|
| NVNT      | BLE 1M | 2402            | Ant1    | -40.95          | -20         | Pass    |
| NVNT      | BLE 1M | 2480            | Ant1    | -50.41          | -20         | Pass    |

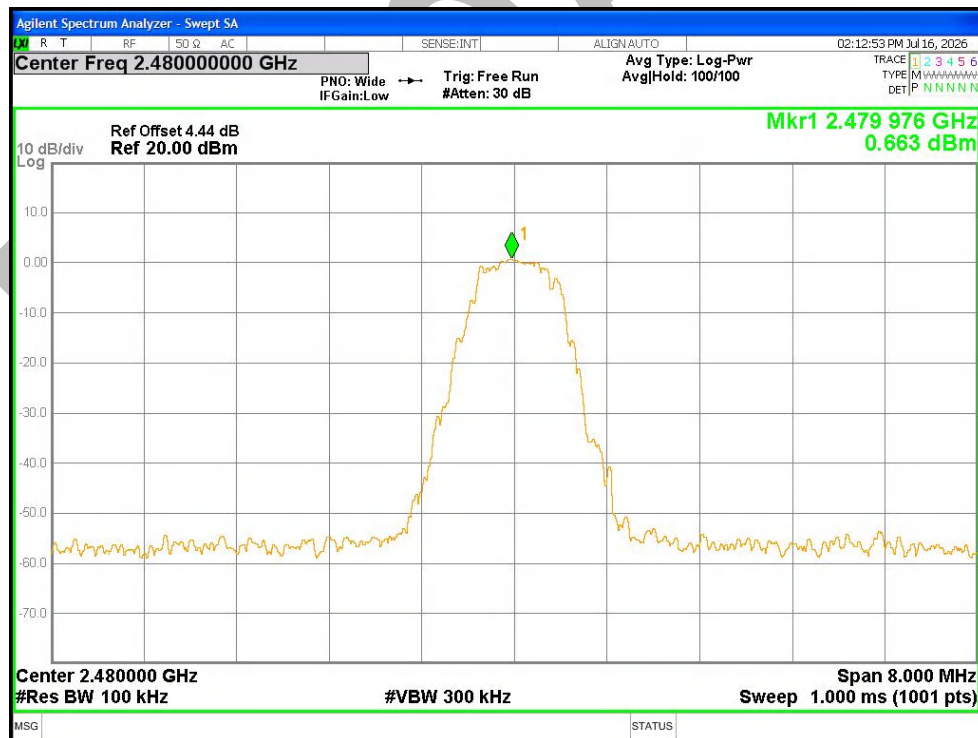
Band Edge NVNT BLE 1M 2402MHz Ant1 Ref



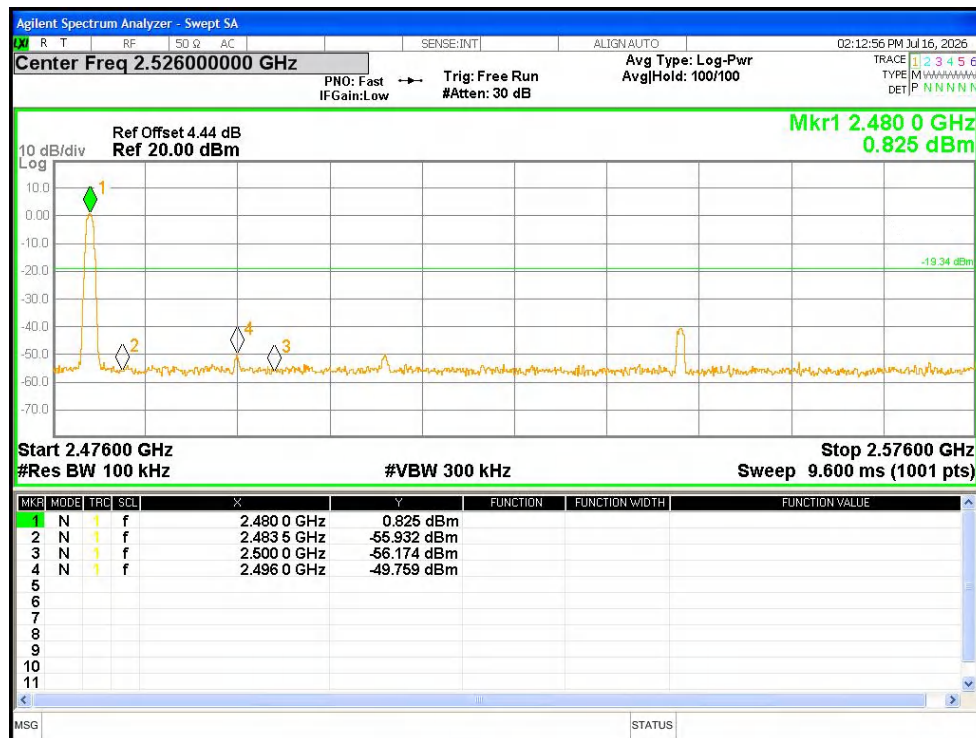
Band Edge NVNT BLE 1M 2402MHz Ant1 Emission



Band Edge NVNT BLE 1M 2480MHz Ant1 Ref



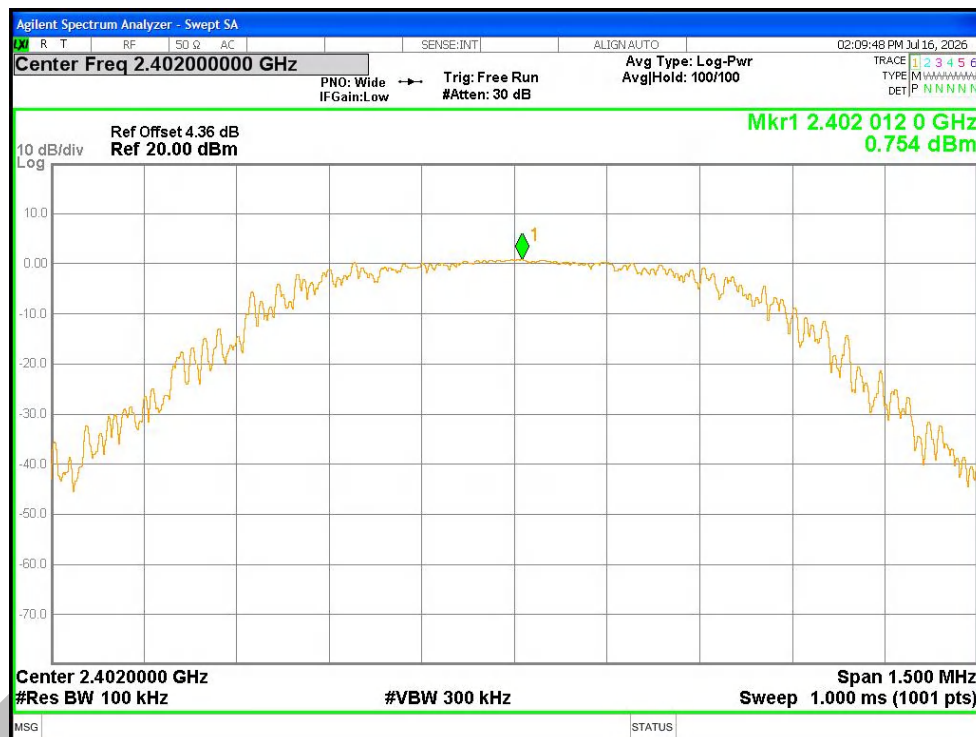
Band Edge NVNT BLE 1M 2480MHz Ant1 Emission



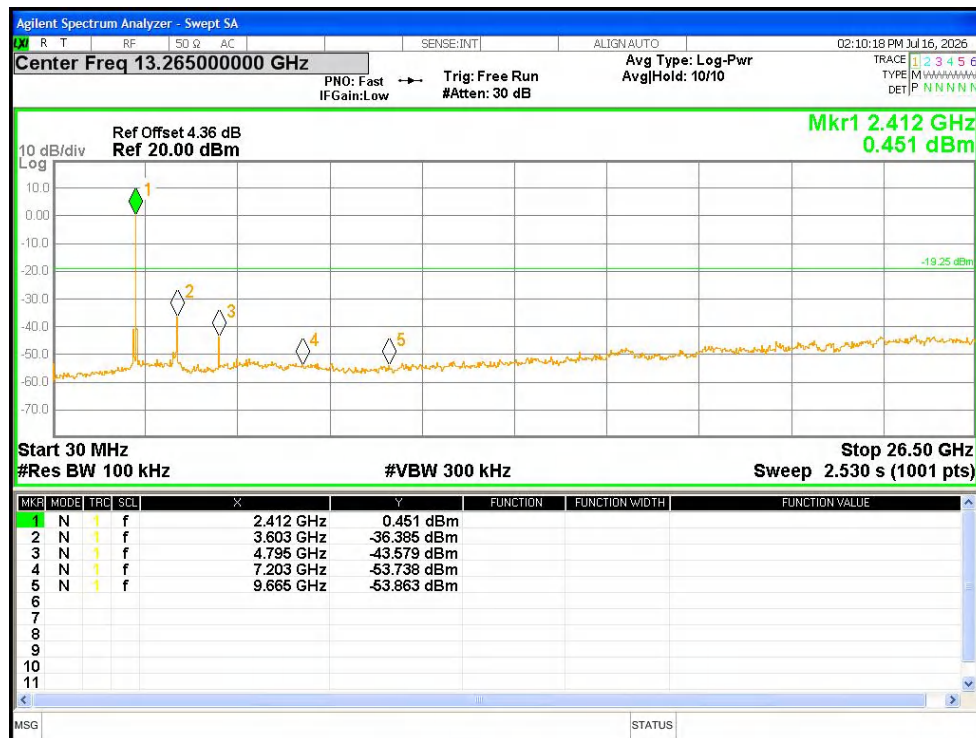
## 6.7 Conducted RF Spurious Emission

| Condition | Mode   | Frequency (MHz) | Antenna | Max Value (dBc) | Limit (dBc) | Verdict |
|-----------|--------|-----------------|---------|-----------------|-------------|---------|
| NVNT      | BLE 1M | 2402            | Ant1    | -37.13          | -20         | Pass    |
| NVNT      | BLE 1M | 2442            | Ant1    | -42.37          | -20         | Pass    |
| NVNT      | BLE 1M | 2480            | Ant1    | -39.35          | -20         | Pass    |

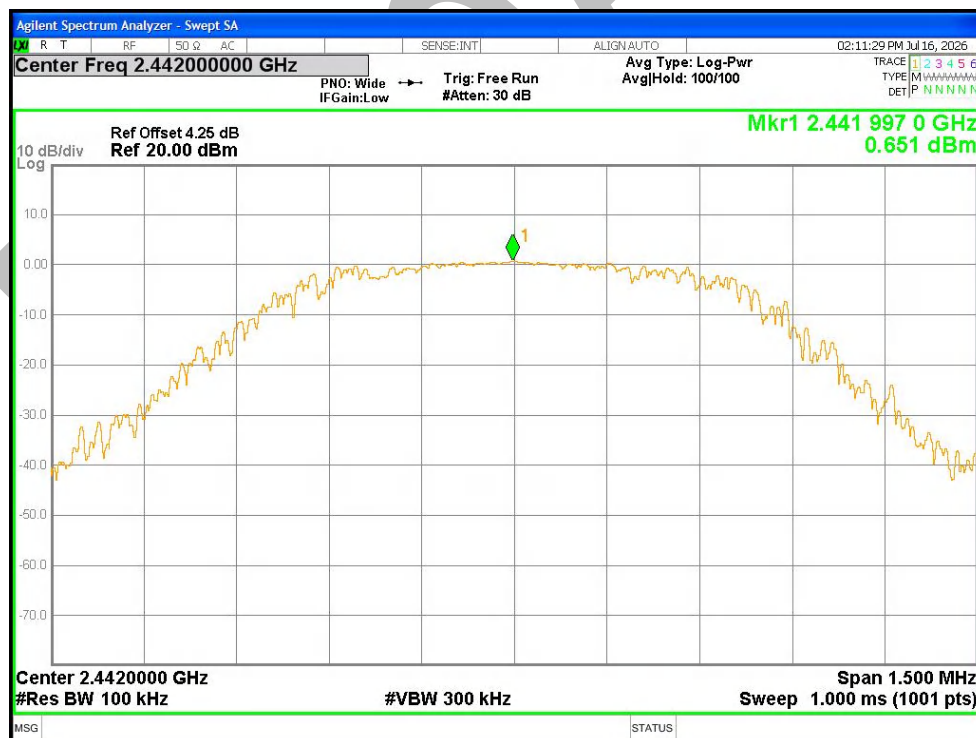
Tx. Spurious NVNT BLE 1M 2402MHz Ant1 Ref



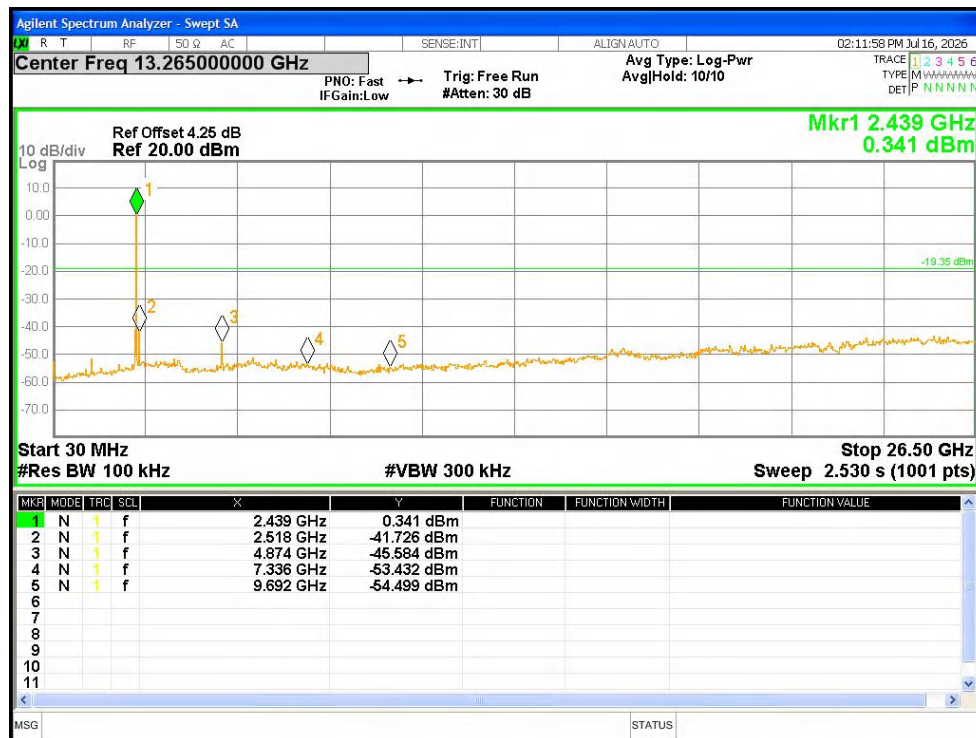
Tx. Spurious NVNT BLE 1M 2402MHz Ant1 Emission



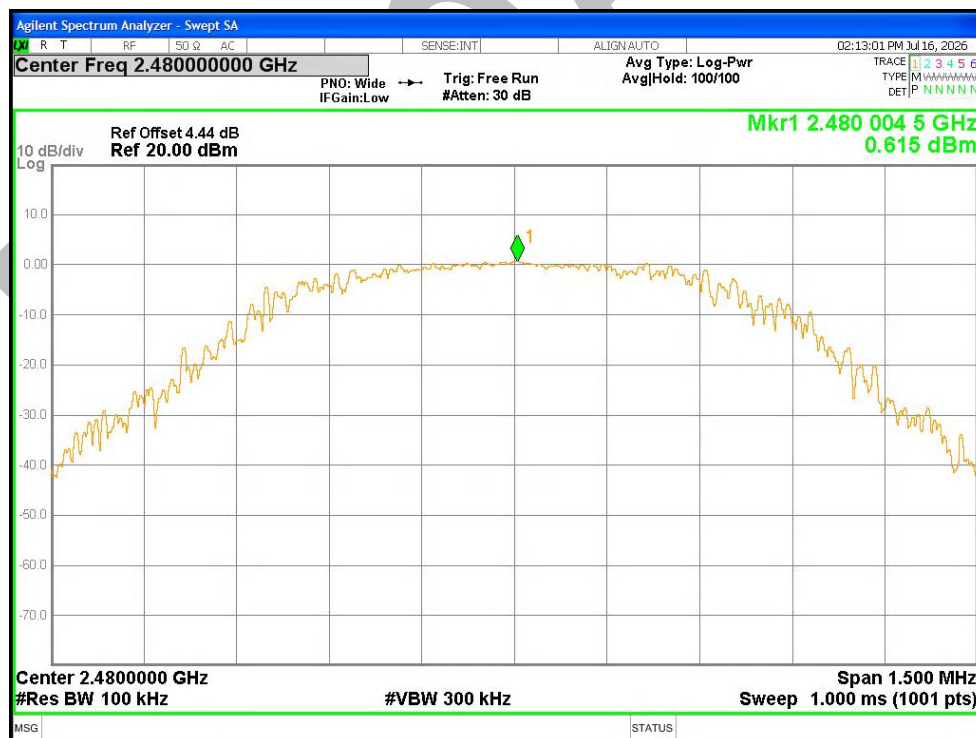
Tx. Spurious NVNT BLE 1M 2442MHz Ant1 Ref



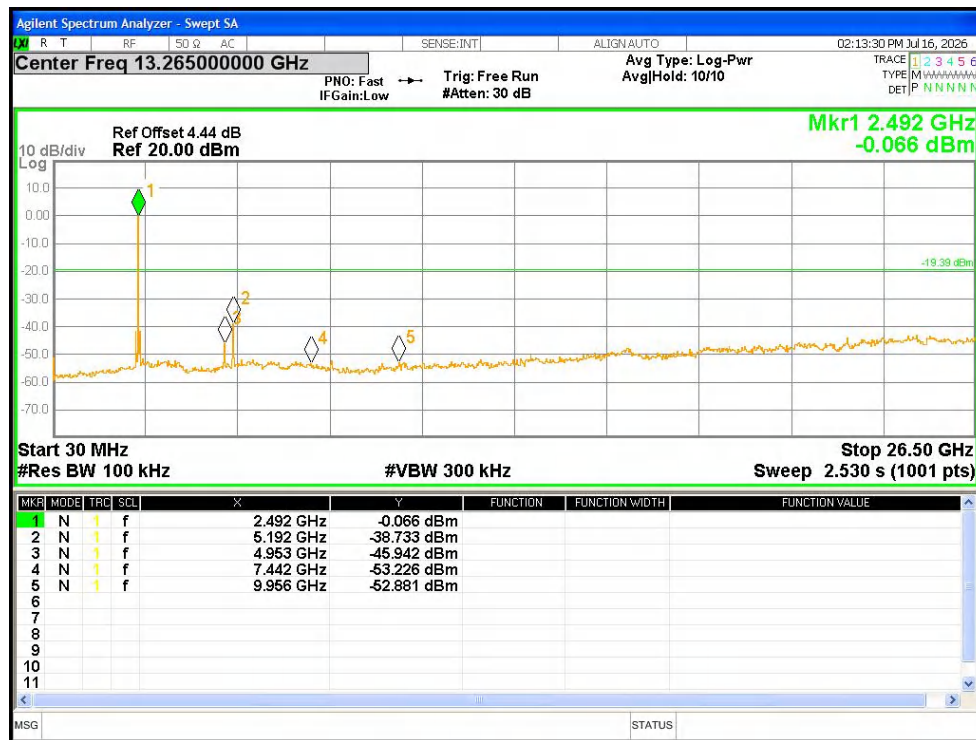
Tx. Spurious NVNT BLE 1M 2442MHz Ant1 Emission



Tx. Spurious NVNT BLE 1M 2480MHz Ant1 Ref



Tx. Spurious NVNT BLE 1M 2480MHz Ant1 Emission

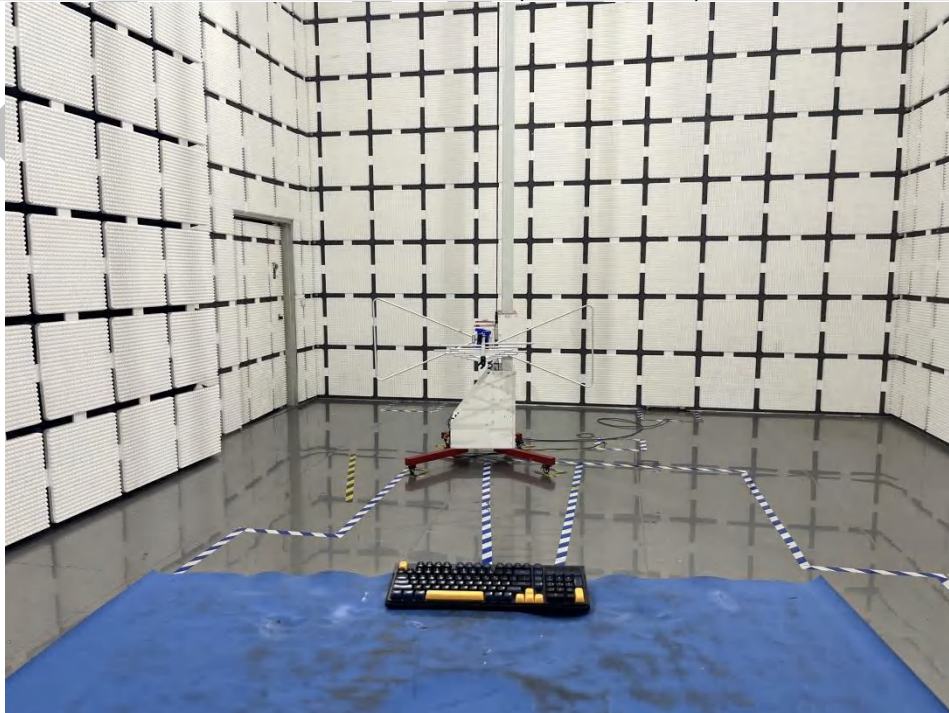


## Appendix B: photographs of test setup

Conducted emissions at AC power line (150kHz-30MHz)



Radiated Emissions (30MHz-1GHz)



Radiated Emissions (above 1GHz)



RF TEST



## Appendix C: photographs of EUT

Reference to the test report no. BLA-EMC-202606-A55-01

### ----END OF REPORT----

The test report is effective only with both signature and specialized stamp, the result(s) shown in this report refer only to the sample(s) tested. Without written approval of BlueAsia, this report can't be reproduced except in full.

BlueAsia