



ITL Co., Ltd.

No.8, JinQianLing street 5, Huangjiang Town, Dongguan, Guangdong, China.

Telephone: +86-769-39001678  
Fax: +86-20-62824387  
Email: itl@i-testlab.com

Report Template Version: V02  
Report Template Revision Date: 2021-06-01

## FCC Test Report

**Applicant:** JiangXi MeiDong Technology Co., Ltd

**Address of Applicant:** No.1, Food Avenue, Jingshan Comprehensive District, Shanggao Prefecture Industrial Park, Yichun City, Jiangxi Province

**Equipment Under Test (EUT):**

**Product:** 2.0 Channel Bluetooth Sound bar

**Model No.:** KY-8000

**Brand Name:**



MEKOKA/ Assist trust/ Assistrust

**FCC ID:** 2A4ND-KY-8000

**Standards:** 47 CFR Part 15, Subpart C

**Date of Test:** 2022-04-09 to 2022-04-25

**Date of Issue:** 2022-04-25

**Report No. :** 220304014-2

**Test Result :** PASS\*

**Tested By:**

*Damon*

(Damon Deng)

**Reviewed By:**

*Chivas*

( Chivas Zeng)

**Approved By:**

*Victor*

(Victor Meng)

This report is for the exclusive use of ITL's client and is provided pursuant to the agreement between ITL assumes no liability to any party, other than to the Client in accordance with the agreement, for any loss, expense or damage occasioned by the use of this report. Only the Client is authorized to permit copying or distribution of this report and then only in its entirety. Any use of the ITL name or one of its marks for the sale or advertisement of the tested material, product or service must first be approved in writing by ITL. The observations and test results in this report are relevant only to the sample tested. This report by itself does not imply that the material, product, or service is or has ever been under an ITL certification program. The test report only allows to be revised within the retention period unless further standard or the requirement was noticed.

## 1 Version

### Revision History Of Report

| Report No.  | Version | Description    | Issue Date |
|-------------|---------|----------------|------------|
| 220304014-2 | Rev.01  | Initial report | 2022-04-25 |

## 2 Test Summary

| Test Item                                                         | Test Requirement                                    | Test method      | Result |
|-------------------------------------------------------------------|-----------------------------------------------------|------------------|--------|
| Antenna Requirement                                               | 47 CFR Part 15, Subpart C Section 15.203/15.247 (c) | ANSI C63.10 2013 | PASS   |
| AC Power Line Conducted Emission                                  | 47 CFR Part 15, Subpart C Section 15.207            | ANSI C63.10 2013 | PASS   |
| Conducted Peak Output Power                                       | 47 CFR Part 15, Subpart C Section 15.247 (b)(3)     | ANSI C63.10 2013 | PASS   |
| 6dB Occupied Bandwidth                                            | 47 CFR Part 15, Subpart C Section 15.247 (a)(2)     | ANSI C63.10 2013 | PASS   |
| Power Spectral Density                                            | 47 CFR Part 15, Subpart C Section 15.247 (e)        | ANSI C63.10 2013 | PASS   |
| Band-edge for RF Conducted Emissions                              | 47 CFR Part 15, Subpart C Section 15.247(d)         | ANSI C63.10 2013 | PASS   |
| RF Conducted Spurious Emissions                                   | 47 CFR Part 15, Subpart C Section 15.247(d)         | ANSI C63.10 2013 | PASS   |
| Radiated Spurious Emissions                                       | 47 CFR Part 15, Subpart C Section 15.205/15.209     | ANSI C63.10 2013 | PASS   |
| Restricted bands around fundamental frequency (Radiated Emission) | 47 CFR Part 15, Subpart C Section 15.205/15.209     | ANSI C63.10 2013 | PASS   |

### 3 Contents

|                                                         | Page      |
|---------------------------------------------------------|-----------|
| <b>1 VERSION .....</b>                                  | <b>2</b>  |
| <b>2 TEST SUMMARY .....</b>                             | <b>3</b>  |
| <b>3 CONTENTS .....</b>                                 | <b>4</b>  |
| <b>4 GENERAL INFORMATION .....</b>                      | <b>5</b>  |
| 4.1 CLIENT INFORMATION .....                            | 5         |
| 4.2 GENERAL DESCRIPTION OF EUT .....                    | 5         |
| 4.3 TEST ENVIRONMENT .....                              | 7         |
| 4.4 DESCRIPTION OF SUPPORT UNITS .....                  | 7         |
| 4.5 STATEMENT OF THE MEASUREMENT UNCERTAINTY .....      | 7         |
| 4.6 TEST LOCATION .....                                 | 7         |
| 4.7 TEST FACILITY .....                                 | 8         |
| 4.8 DEVIATION FROM STANDARDS .....                      | 8         |
| 4.9 ABNORMALITIES FROM STANDARD CONDITIONS .....        | 8         |
| 4.10 OTHER INFORMATION REQUESTED BY THE CUSTOMER .....  | 8         |
| 4.11 ENVIRONMENTAL CONDITIONS .....                     | 8         |
| 4.12 EQUIPMENT LIST .....                               | 9         |
| <b>5 TEST RESULTS AND MEASUREMENT DATA .....</b>        | <b>10</b> |
| 5.1 ANTENNA REQUIREMENT .....                           | 10        |
| 5.2 CONDUCTED EMISSIONS .....                           | 11        |
| 5.3 CONDUCTED PEAK OUTPUT POWER .....                   | 14        |
| 5.4 6dB OCCUPY BANDWIDTH .....                          | 17        |
| 5.5 POWER SPECTRAL DENSITY .....                        | 20        |
| 5.6 BAND-EDGE FOR RF CONDUCTED EMISSIONS .....          | 23        |
| 5.7 SPURIOUS RF CONDUCTED EMISSIONS .....               | 26        |
| 5.8 RADIATED SPURIOUS EMISSION .....                    | 29        |
| 5.8.1 <i>Spurious Emissions</i> .....                   | 29        |
| <i>Radiated Emission below 1GHz</i> .....               | 32        |
| 5.9 RESTRICTED BANDS AROUND FUNDAMENTAL FREQUENCY ..... | 37        |
| <b>6 PHOTOGRAPHS - EUT TEST SETUP .....</b>             | <b>40</b> |
| 6.1 CONDUCTED EMISSION .....                            | 40        |
| 6.2 RADIATED SPURIOUS EMISSION .....                    | 40        |
| <b>7 PHOTOGRAPHS - EUT CONSTRUCTIONAL DETAILS .....</b> | <b>42</b> |

## 4 General Information

### 4.1 Client Information

|                          |                                                                                                                        |
|--------------------------|------------------------------------------------------------------------------------------------------------------------|
| Applicant:               | JiangXi MeiDong Technology Co., Ltd                                                                                    |
| Address of Applicant:    | No.1, Food Avenue, Jingshan Comprehensive District, Shanggao Prefecture Industrial Park, Yichun City, Jiangxi Province |
| Manufacturer:            | JiangXi MeiDong Technology Co., Ltd                                                                                    |
| Address of Manufacturer: | No.1, Food Avenue, Jingshan Comprehensive District, Shanggao Prefecture Industrial Park, Yichun City, Jiangxi Province |
| Factory:                 | JiangXi MeiDong Technology Co., Ltd                                                                                    |
| Address of Factory:      | No.1, Food Avenue, Jingshan Comprehensive District, Shanggao Prefecture Industrial Park, Yichun City, Jiangxi Province |

### 4.2 General Description of EUT

|                       |                                                                                                                                                                                                            |
|-----------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Product Name:         | 2.0 Channel Bluetooth Sound bar                                                                                                                                                                            |
| Model No.:            | KY-8000                                                                                                                                                                                                    |
| Trade Mark:           | MEKOKA/ Assist trust/ Assistrust   |
| Hardware Version:     | V1.1                                                                                                                                                                                                       |
| Software Version:     | V16                                                                                                                                                                                                        |
| Operation Frequency:  | 2402MHz~2480MHz                                                                                                                                                                                            |
| Bluetooth Version:    | V5.0                                                                                                                                                                                                       |
| Modulation Type:      | GFSK                                                                                                                                                                                                       |
| Number of Channel:    | 40                                                                                                                                                                                                         |
| Sample Type:          | portable production                                                                                                                                                                                        |
| Sample number:        | 20211109001                                                                                                                                                                                                |
| Test Software of EUT: | BT Tool _V1.1.0 (manufacturer declare )                                                                                                                                                                    |
| Antenna Type:         | PCB antenna                                                                                                                                                                                                |
| Antenna Gain:         | 0dBi                                                                                                                                                                                                       |
| Power Supply:         | Adapter Model :NT-150200AU<br>Input:100-240V-50/60Hz 1.0A Max<br>Output:15V/2A                                                                                                                             |
| Test Power            | 120V/60Hz                                                                                                                                                                                                  |

| 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   |
| 2                                   | 2406MHz   | 12      | 2426MHz   | 22      | 2446MHz   | 32      | 2466MHz   |
| 3                                   | 2408MHz   | 13      | 2428MHz   | 23      | 2448MHz   | 33      | 2468MHz   |
| 4                                   | 2410MHz   | 14      | 2430MHz   | 24      | 2450MHz   | 34      | 2470MHz   |
| 5                                   | 2412MHz   | 15      | 2432MHz   | 25      | 2452MHz   | 35      | 2472MHz   |
| 6                                   | 2414MHz   | 16      | 2434MHz   | 26      | 2454MHz   | 36      | 2474MHz   |
| 7                                   | 2416MHz   | 17      | 2436MHz   | 27      | 2456MHz   | 37      | 2476MHz   |
| 8                                   | 2418MHz   | 18      | 2438MHz   | 28      | 2458MHz   | 38      | 2478MHz   |
| 9                                   | 2420MHz   | 19      | 2440MHz   | 29      | 2460MHz   | 39      | 2480MHz   |

Note:

In section 15.31(m), regards to the operating frequency range over 10 MHz, the lowest frequency, the middle frequency, and the highest frequency of channel were selected to perform the test, and the selected channel see below:

| Channel                    | Frequency |
|----------------------------|-----------|
| The lowest channel (CH0)   | 2402MHz   |
| The middle channel (CH19)  | 2440MHz   |
| The highest channel (CH39) | 2480MHz   |

### 4.3 Test Environment

| Operating Environment: |                                                                                                                                                                                                            |
|------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Temperature:           | 25.0 °C                                                                                                                                                                                                    |
| Humidity:              | 53 % RH                                                                                                                                                                                                    |
| Atmospheric Pressure:  | 1010mbar                                                                                                                                                                                                   |
| Test Mode:             | Use test software (RF test) to set the lowest frequency, the middle frequency and the highest frequency keep transmitting of the EUT.<br>Note: In the process of transmitting of EUT, the duty cycle >98%. |

### 4.4 Description of Support Units

The EUT has been tested with associated equipment below.

| Description | Manufacturer | Model No. | Remark | FCC certification |
|-------------|--------------|-----------|--------|-------------------|
| /           | /            | /         | /      | /                 |

### 4.5 Statement of the measurement uncertainty

The data and results referenced in this document are true and accurate.

The reader is cautioned that there may be errors within the calibration limits of the equipment and facilities.

The measurement uncertainty was calculated for all measurements listed in this test report acc. to CISPR 16 - 4 „Specification for radio disturbance and immunity measuring apparatus and methods – Part 4: Uncertainty in EMC Measurements“ and is documented in the **ITL Co., LTD.** quality system acc. to DIN EN ISO/IEC 17025.

Furthermore, component and process variability of devices similar to that tested may result in additional deviation. The manufacturer has the sole responsibility of continued compliance of the device.

Hereafter the best measurement capability for **ITL** laboratory is reported:

| Test                  | Range      | Uncertainty | Notes |
|-----------------------|------------|-------------|-------|
| Radiated Emission     | Below 1GHz | ±4.54dB     | (1)   |
| Radiated Emission     | Above 1GHz | ±4.10dB     | (1)   |
| Conducted Disturbance | 0.15~30MHz | ±3.58dB     | (1)   |

(1) This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

### 4.6 Test Location

ITL Co., Ltd  
No.8, JinQianLing street 5, Huangjiang Town, Dongguan,  
Guangdong, 523757 P.R.C

#### 4.7 Test Facility

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

- CNAS( Lab code: L9342)
- NVLAP LAB CODE 600199-0
- FCC Designation Number: CN5035
- FCC Test Firm Registration Number: 239076

#### 4.8 Deviation from Standards

None.

#### 4.9 Abnormalities from Standard Conditions

None.

#### 4.10 Other Information Requested by the Customer

None.

#### 4.11 Environmental conditions

During the measurement the environmental conditions were within the listed ranges:

Radiated Emission:

|                       |              |
|-----------------------|--------------|
| Temperature:          | 25 ° C       |
|                       |              |
| Humidity:             | 48%          |
|                       |              |
| Atmospheric pressure: | 950-1050mbar |

AC Main Conducted testing:

|                       |              |
|-----------------------|--------------|
| Temperature:          | 25 ° C       |
|                       |              |
| Humidity:             | 44 %         |
|                       |              |
| Atmospheric pressure: | 950-1050mbar |

Conducted testing:

|                       |              |
|-----------------------|--------------|
| Temperature:          | 25° C        |
|                       |              |
| Humidity:             | 42 %         |
|                       |              |
| Atmospheric pressure: | 950-1050mbar |

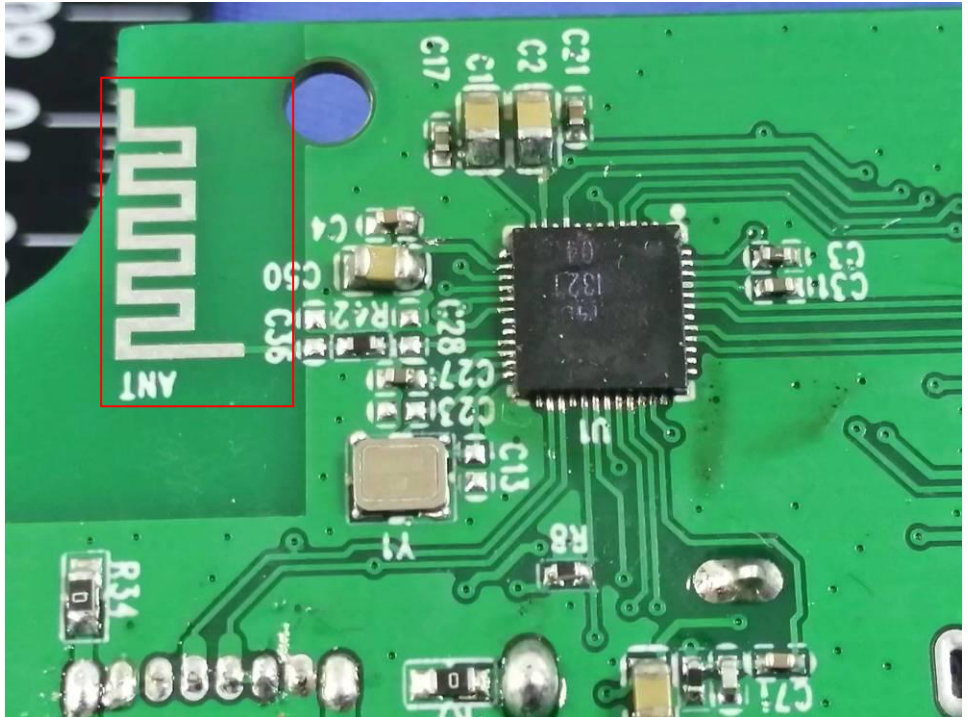
## 4.12 Equipment List

| No.       | Test Equipment                      | Manufacturer         | Model        | Serial No.       | Cal Data   | Due Date   |
|-----------|-------------------------------------|----------------------|--------------|------------------|------------|------------|
| DGITL-301 | Semi-Anechoic chamber               | ETS•Lindgren         | 9*6*6        | CT000874-1181    | 2021.08.02 | 2022.08.01 |
| DGITL-307 | EMI test receiver                   | SCHWARZBECK          | ESVS10       | 833616 /003      | 2021.05.11 | 2022.05.10 |
| DGITL-376 | Wideband Radio Communication Tester | SCHWARZBECK          | CMW500       | LR114195         | 2021.05.11 | 2022.05.10 |
| DGITL-349 | MXG Vector Signal Generator         | Agilent Technologies | N5182A       | MY47071034       | 2021.05.11 | 2022.05.10 |
| DGITL-306 | Spectrum Analyzer                   | Agilent Technologies | N9010A       | MY54200334       | 2021.05.11 | 2022.05.10 |
| DGITL-352 | Pre Amplifier                       | MInI-CIrcuits        | ZFC-1000HX   | SN292801110      | 2021.05.11 | 2022.05.10 |
| DGITL-375 | Spectrum Analyzer                   | SCHWARZBECK          | FSV40-N      | 6625-01-588-5515 | 2021.05.11 | 2022.05.10 |
| DGITL-309 | Horn Antenna                        | ETS Lindgren         | 3117         | SN00152265       | 2021.05.11 | 2024.05.10 |
| DGITL-308 | Bilog Antenna                       | ETS• Lindgren        | 3142E        | 156975           | 2020.06.20 | 2023.06.19 |
| DGITL-350 | Wideband Amplifier Super Ultra      | MInI-CIrcuits        | ZVA-183X-S+  | SN986401426      | 2021.05.11 | 2022.05.10 |
| DGITL-365 | Broad-band Horn Antenna             | SCHWARZBECK          | 9170         | 795              | 2020.07.04 | 2022.07.04 |
| DGITL-371 | Pre Amplifier                       | teramicrowave        | TALA-0040G35 | 18081001         | 2021.05.11 | 2022.05.10 |
| DGITL-363 | Active Loop Antenna                 | SCHWARZBECK          | FMZB 1519B   | 062              | 2020.07.04 | 2022.07.03 |

| Software list    |              |          |                           |
|------------------|--------------|----------|---------------------------|
| Testing software | Manufacturer | Model    | Version number            |
| e3               | AUDIX        | e3.Ink   | Version:6.2009-11-3c(itl) |
| MTS              | MWRFTTEST    | MTS 8310 | Version:2.0               |

## 5 Test results and Measurement Data

### 5.1 Antenna Requirement

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                     |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| <b>Standard requirement:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 47 CFR Part 15C Section 15.203 /247(c)                                              |
| <p>15.203 requirement:<br/>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, 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.</p> <p>15.247(b) (4) requirement:<br/>The conducted output power limit specified in paragraph (b) of this section is based on the use of antennas with directional gains that do not exceed 6 dBi. Except as shown in paragraph (c) of this section, if transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values in paragraphs (b)(1), (b)(2), and (b)(3) of this section, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.</p> |                                                                                     |
| <b>EUT Antenna:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |
| The antenna is PCB antenna, The best case gain of the antenna is 0dBi.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                     |

## 5.2 Conducted Emissions

|                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |              |           |
|-----------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|-----------|
| Test Requirement:     | 47 CFR Part 15C Section 15.207                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |              |           |
| Test Method:          | ANSI C63.10: 2013                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |              |           |
| Test Frequency Range: | 150kHz to 30MHz                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |              |           |
| Limit:                | Frequency range (MHz)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Limit (dBuV) |           |
|                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 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.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |              |           |
| Test Procedure:       | <div>1) The mains terminal disturbance voltage test was conducted in a shielded room.</div> <div>2) The EUT was connected to AC power source through a LISN 1 (Line Impedance Stabilization Network) which provides a 50Ω/50μH + 5Ω 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.</div> <div>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.</div> <div>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.</div> <div>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: 2013 on conducted measurement.</div> |              |           |
| Test Setup:           | <div><div>Shielding Room</div><div><div><div>AC Mains</div><div>LISN1</div><div>EUT</div><div>AE</div><div>LISN2</div><div>AC Mains</div><div>Test Receiver</div></div><div>80cm</div><div>80cm</div><div>Ground Reference Plane</div></div></div>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |              |           |
| Test Mode:            | Transmitting with GFSK modulation.<br>Charge +Transmitting mode.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |              |           |
| Final Test Mode:      | Found the Charge + Transmitting mode (The highest channel:2480MHz) which it is worse case.<br>Only the worst case is recorded in the report.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |              |           |

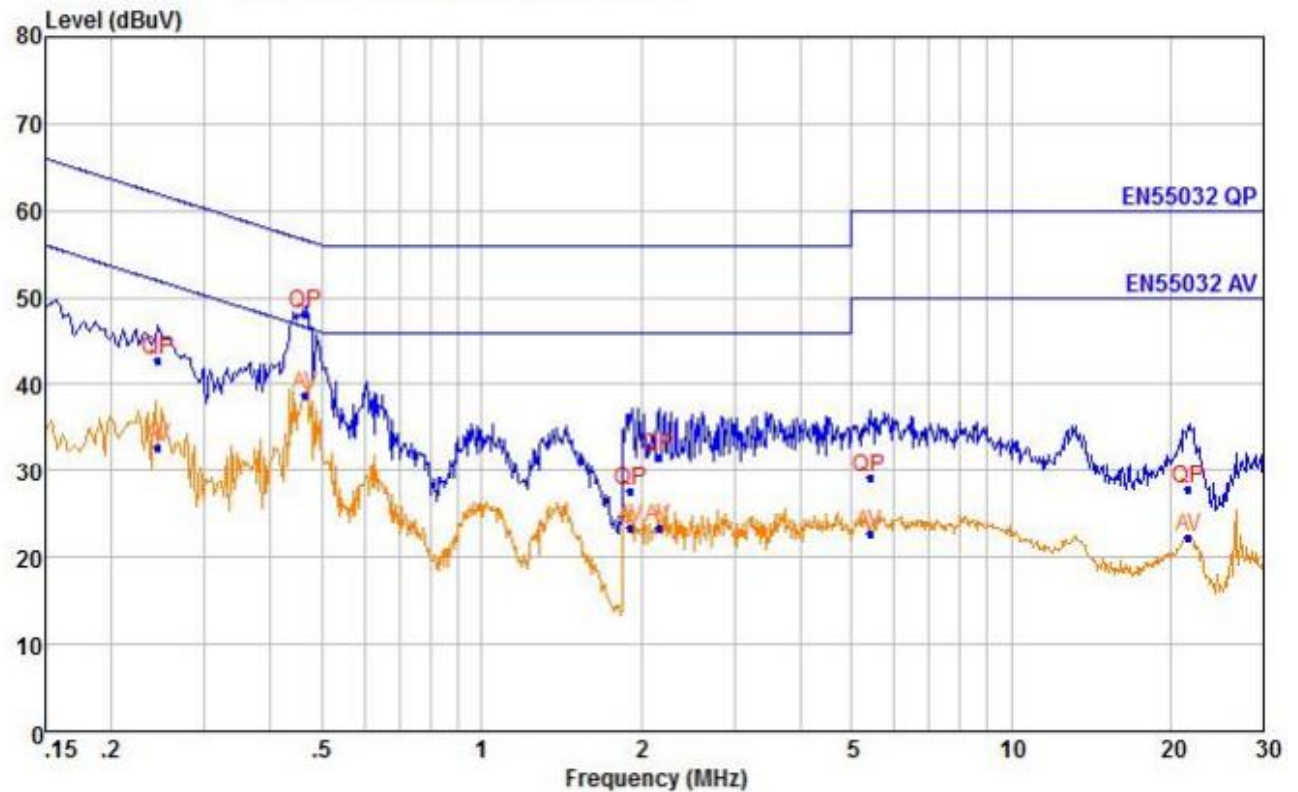
|                   |                                    |
|-------------------|------------------------------------|
| Instruments Used: | Refer to section 5.10 for details. |
| Test Voltage:     | AC 120V/60Hz                       |
| Test Results:     | Pass                               |

### Measurement Data

An initial pre-scan was performed on the live and neutral lines with peak detector.

Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission were detected.

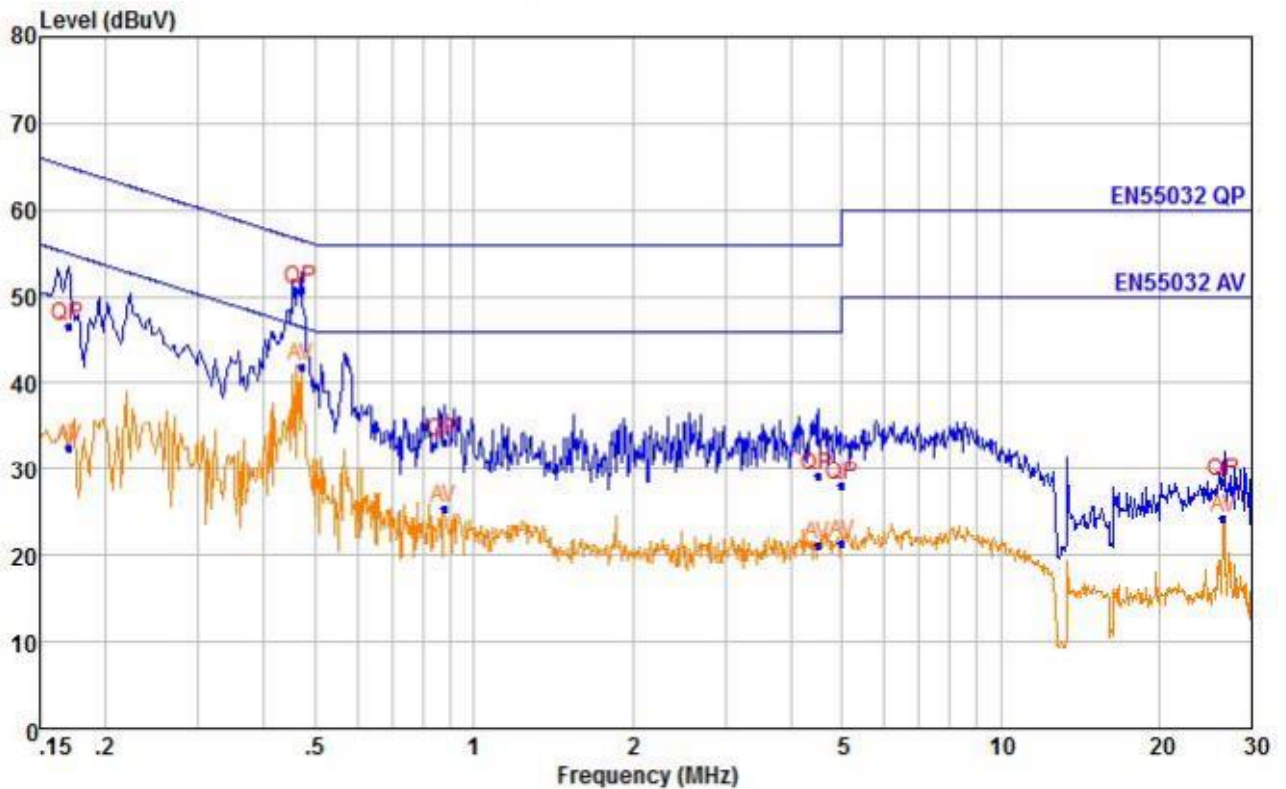
Live line:



| NO. | Freq<br>MHz | Reading<br>dBuV | LISN Factor<br>dB | Cable Loss<br>dB | Measured<br>dBuV | Limit Line<br>dBuV | Over Limit<br>dB | Remark  |
|-----|-------------|-----------------|-------------------|------------------|------------------|--------------------|------------------|---------|
| 1   | 0.245       | 32.52           | 10.32             | 0.02             | 42.86            | 61.92              | -19.06           | QP      |
| 2   | 0.246       | 22.35           | 10.32             | 0.02             | 32.69            | 51.91              | -19.22           | Average |
| 3   | 0.465       | 28.45           | 10.36             | 0.03             | 38.84            | 46.60              | -7.76            | Average |
| 4   | 0.465       | 37.80           | 10.36             | 0.03             | 48.19            | 56.60              | -8.41            | QP      |
| 5   | 1.914       | 12.93           | 10.42             | 0.07             | 23.42            | 46.00              | -22.58           | Average |
| 6   | 1.914       | 17.09           | 10.42             | 0.07             | 27.58            | 56.00              | -28.42           | QP      |
| 7   | 2.162       | 12.87           | 10.43             | 0.07             | 23.37            | 46.00              | -22.63           | Average |
| 8   | 2.162       | 21.14           | 10.43             | 0.07             | 31.64            | 56.00              | -24.36           | QP      |
| 9   | 5.406       | 12.10           | 10.42             | 0.10             | 22.62            | 50.00              | -27.38           | Average |
| 10  | 5.406       | 18.56           | 10.42             | 0.10             | 29.08            | 60.00              | -30.92           | QP      |
| 11  | 21.659      | 11.26           | 10.87             | 0.20             | 22.33            | 50.00              | -27.67           | Average |
| 12  | 21.659      | 16.79           | 10.87             | 0.20             | 27.86            | 60.00              | -32.14           | QP      |

1: Measured = Reading + LISN Factor + Cable Loss

Neutral line:



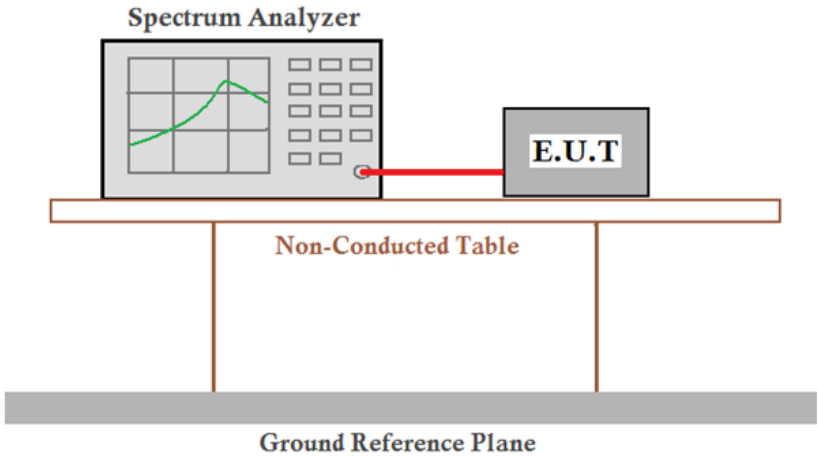
| NO. | Freq<br>MHz | Reading<br>dBuV | LISN Factor<br>dB | Cable Loss<br>dB | Measured<br>dBuV | Limit Line<br>dBuV | Over Limit<br>dB | Remark  |
|-----|-------------|-----------------|-------------------|------------------|------------------|--------------------|------------------|---------|
| 1   | 0.170       | 35.98           | 10.48             | 0.02             | 46.48            | 64.96              | -18.48           | QP      |
| 2   | 0.170       | 22.12           | 10.48             | 0.02             | 32.62            | 54.94              | -22.32           | Average |
| 3   | 0.470       | 31.38           | 10.52             | 0.03             | 41.93            | 46.51              | -4.58            | Average |
| 4   | 0.470       | 40.21           | 10.52             | 0.03             | 50.76            | 56.51              | -5.75            | QP      |
| 5   | 0.878       | 14.70           | 10.64             | 0.05             | 25.39            | 46.00              | -20.61           | Average |
| 6   | 0.878       | 22.59           | 10.64             | 0.05             | 33.28            | 56.00              | -22.72           | QP      |
| 7   | 4.492       | 10.59           | 10.58             | 0.10             | 21.27            | 46.00              | -24.73           | Average |
| 8   | 4.492       | 18.46           | 10.58             | 0.10             | 29.14            | 56.00              | -26.86           | QP      |
| 9   | 5.000       | 10.80           | 10.58             | 0.10             | 21.48            | 46.00              | -24.52           | Average |
| 10  | 5.000       | 17.39           | 10.58             | 0.10             | 28.07            | 56.00              | -27.93           | QP      |
| 11  | 26.499      | 13.19           | 10.97             | 0.22             | 24.38            | 50.00              | -25.62           | Average |
| 12  | 26.499      | 17.25           | 10.97             | 0.22             | 28.44            | 60.00              | -31.56           | QP      |

1: Measured=Reading + LISN Factor + Cable Loss

Notes:

1. The following Quasi-Peak and Average measurements were performed on the EUT:

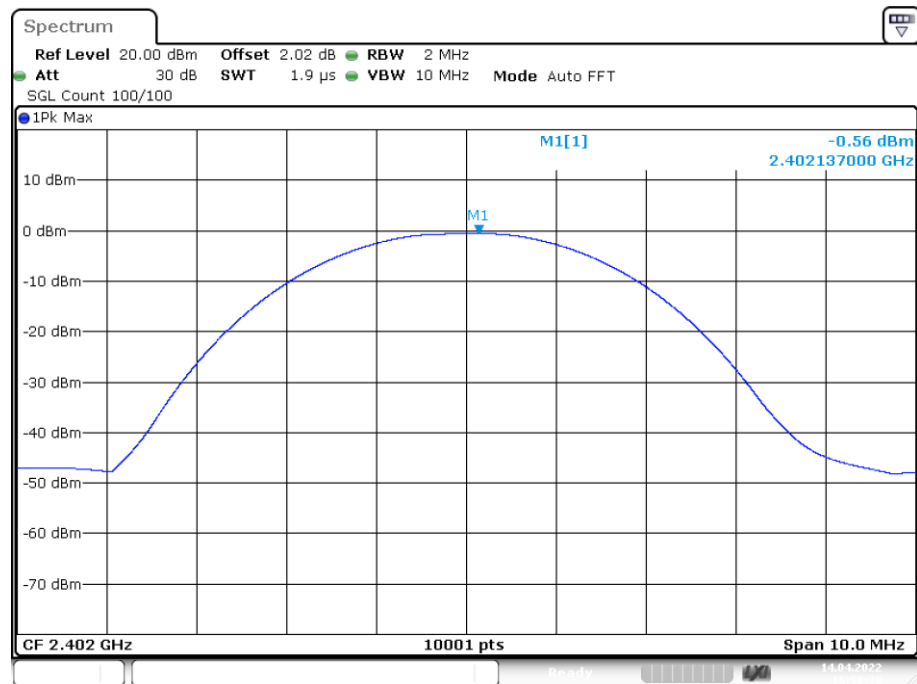
### 5.3 Conducted Peak Output Power

|                   |                                                                                                                                                                                   |
|-------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Test Requirement: | 47 CFR Part 15C Section 15.247 (b)(1)                                                                                                                                             |
| Test Method:      | ANSI C63.10 2013                                                                                                                                                                  |
| Test Setup:       |  <p><i>Remark:</i><br/>Offset the High-Frequency cable loss 1.5dB in the spectrum analyzer.</p> |
| Limit:            | 30dBm                                                                                                                                                                             |
| Test Mode:        | Transmitting with GFSK modulation.                                                                                                                                                |
| Instruments Used: | Refer to section 5.10 for details.                                                                                                                                                |
| Test Results:     | Pass                                                                                                                                                                              |

#### Measurement Data

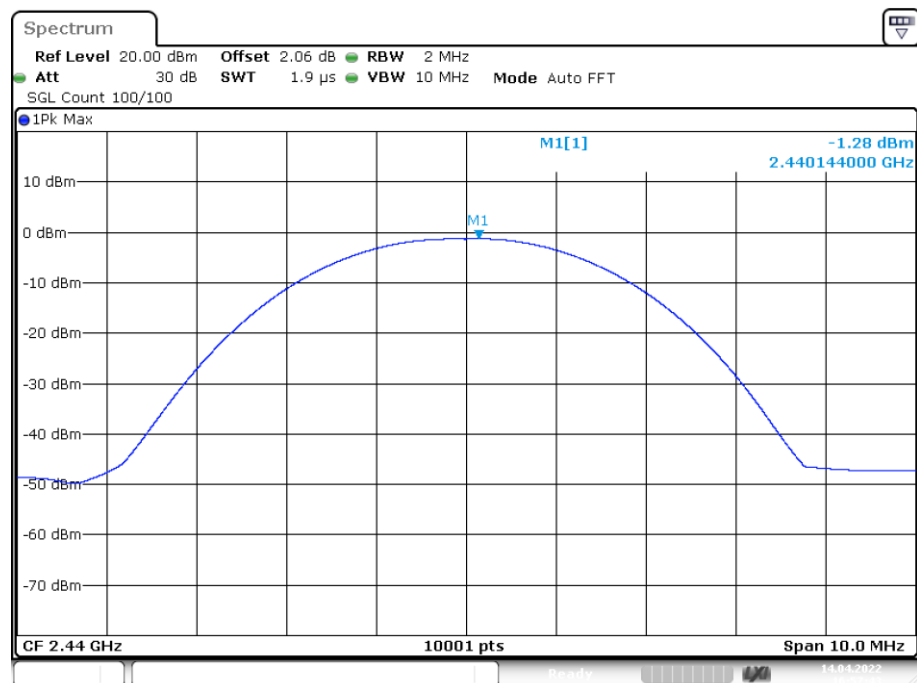
| 1M           |                         |             |        |
|--------------|-------------------------|-------------|--------|
| Test channel | Peak Output Power (dBm) | Limit (dBm) | Result |
| Lowest       | -0.56                   | 30.00       | Pass   |
| Middle       | -1.28                   | 30.00       | Pass   |
| Highest      | -1.44                   | 30.00       | Pass   |

Test plot as follows:



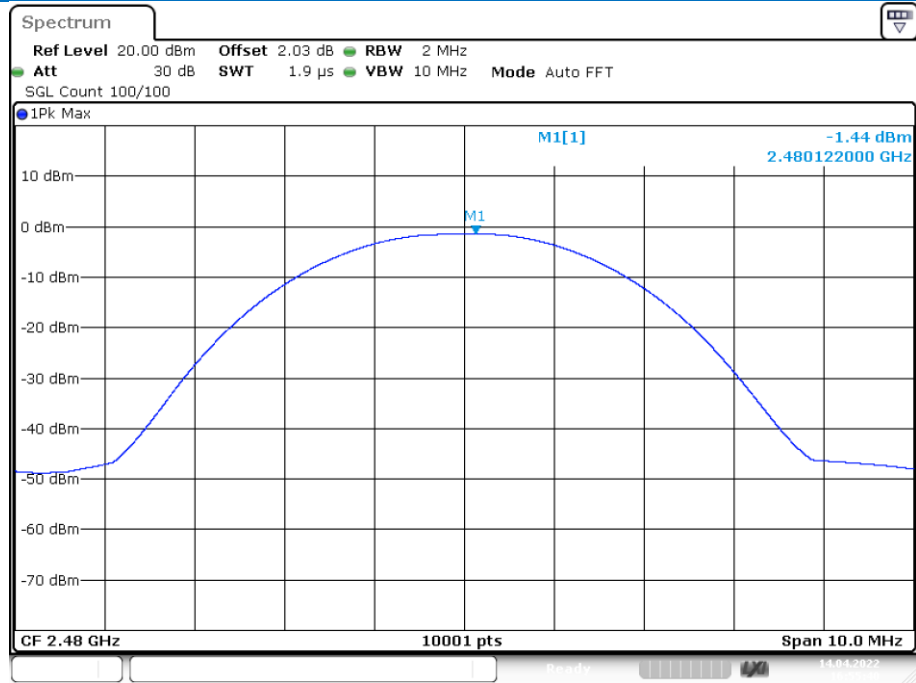
Date: 14.APR.2022 16:58:30

Power NVNT BLE 1M 2402MHz Ant1



Date: 14.APR.2022 16:57:43

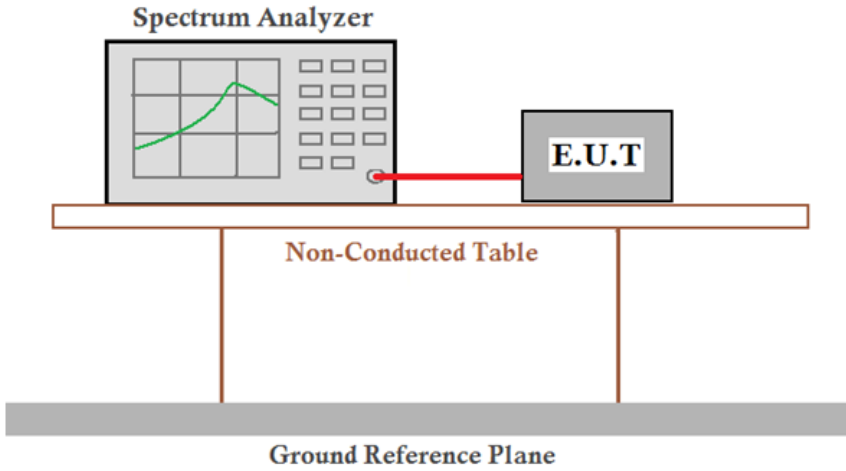
Power NVNT BLE 1M 2440MHz Ant1



Date: 14.APR.2022 16:55:40

Power NVNT BLE 1M 2480MHz Ant1

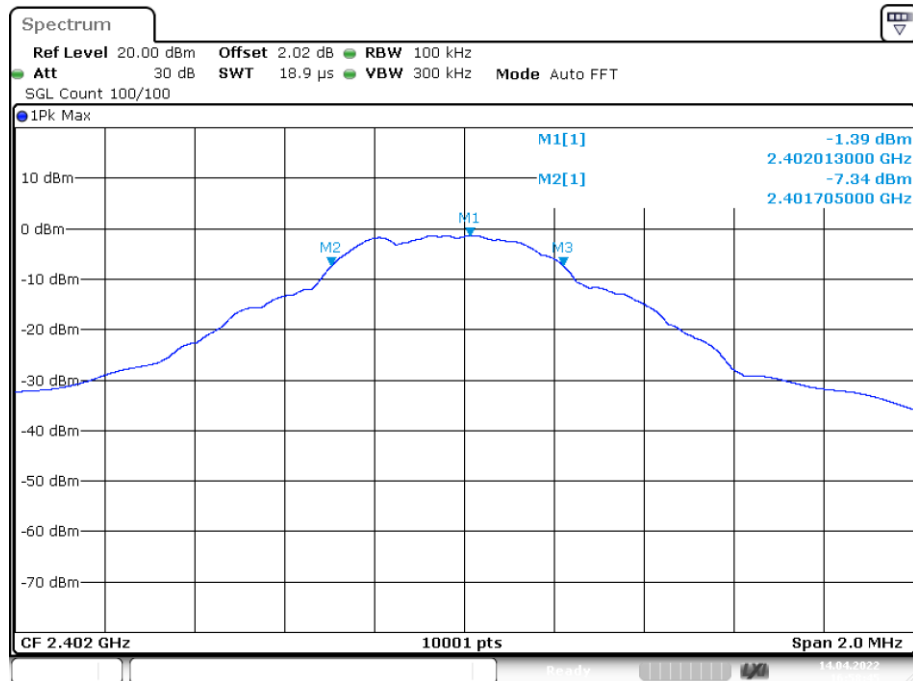
## 5.4 6dB Occupy Bandwidth

|                   |                                                                                    |
|-------------------|------------------------------------------------------------------------------------|
| Test Requirement: | 47 CFR Part 15C Section 15.247 (a)(2)                                              |
| Test Method:      | ANSI C63.10 2013                                                                   |
| Test Setup:       |  |
| Limit:            | $\geq 500$ kHz                                                                     |
| Test Mode:        | Transmitting with GFSK modulation.                                                 |
| Instruments Used: | Refer to section 5.10 for details.                                                 |
| Test Results:     | Pass                                                                               |

### Measurement Data

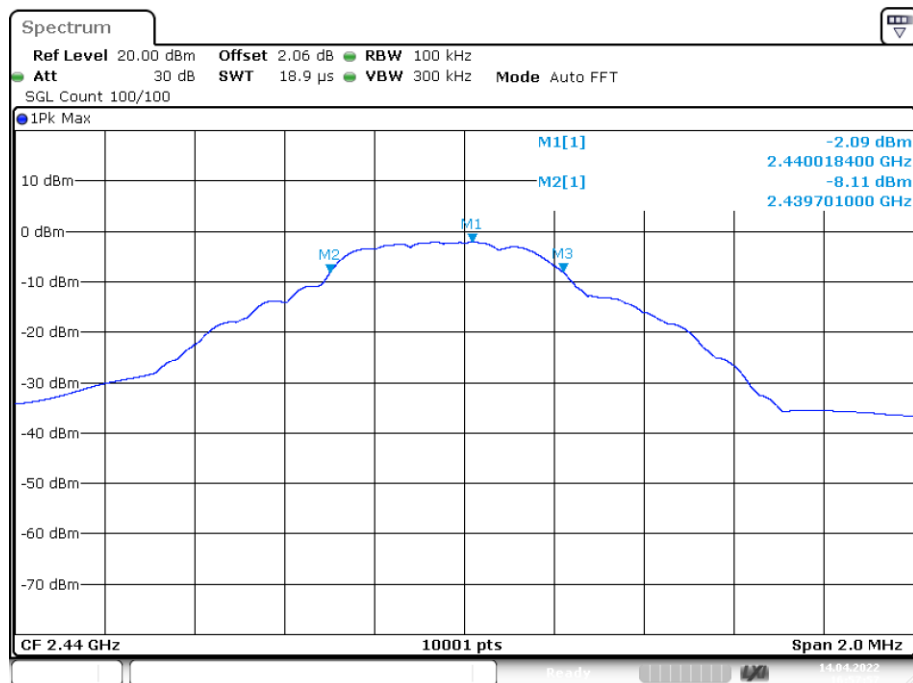
| 1M mode      |                            |             |        |
|--------------|----------------------------|-------------|--------|
| Test channel | 6dB Occupy Bandwidth (MHz) | Limit (kHz) | Result |
| Lowest       | 0.516                      | $\geq 500$  | Pass   |
| Middle       | 0.518                      | $\geq 500$  | Pass   |
| Highest      | 0.513                      | $\geq 500$  | Pass   |

Test plot as follows:



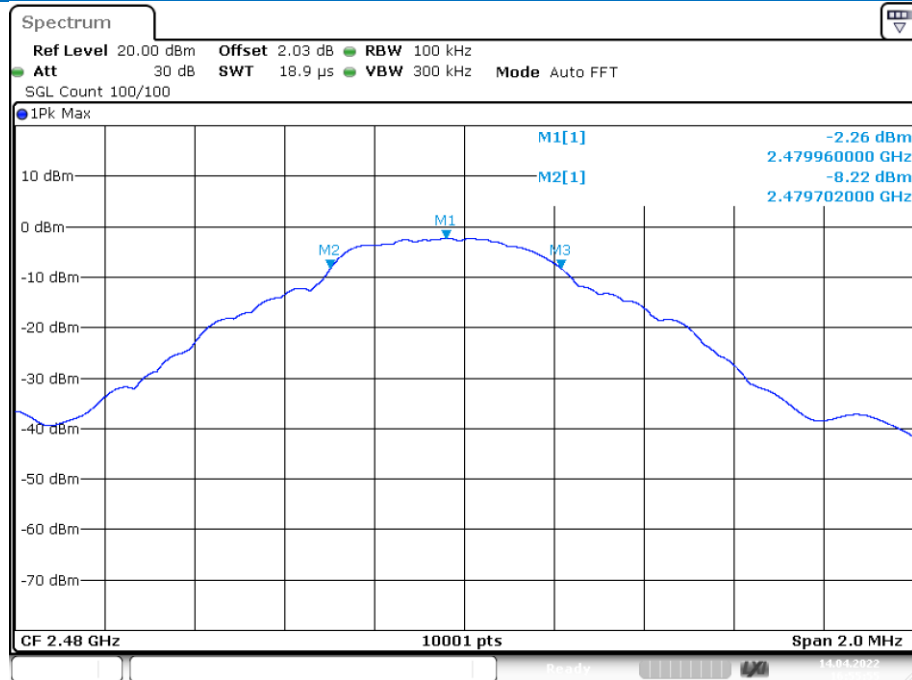
Date: 14.APR.2022 16:58:45

-6dB Bandwidth NVNT BLE 1M 2402MHz Ant1



Date: 14.APR.2022 16:57:58

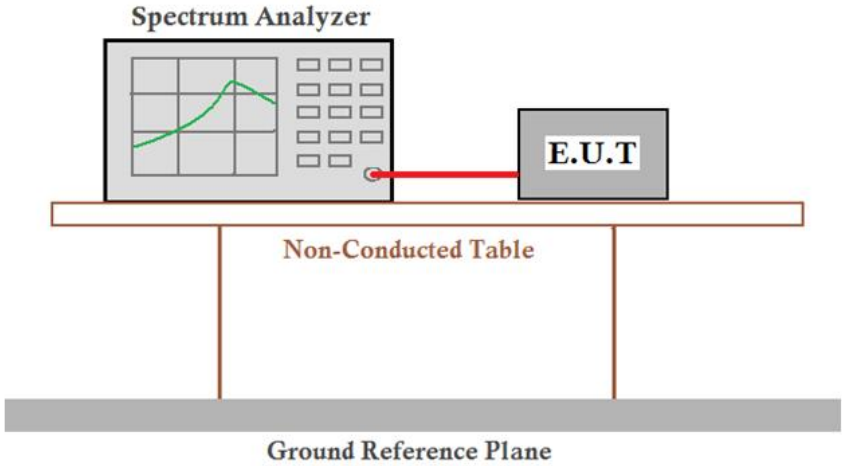
-6dB Bandwidth NVNT BLE 1M 2440MHz Ant1



Date: 14.APR.2022 16:55:55

-6dB Bandwidth NVNT BLE 1M 2480MHz Ant1

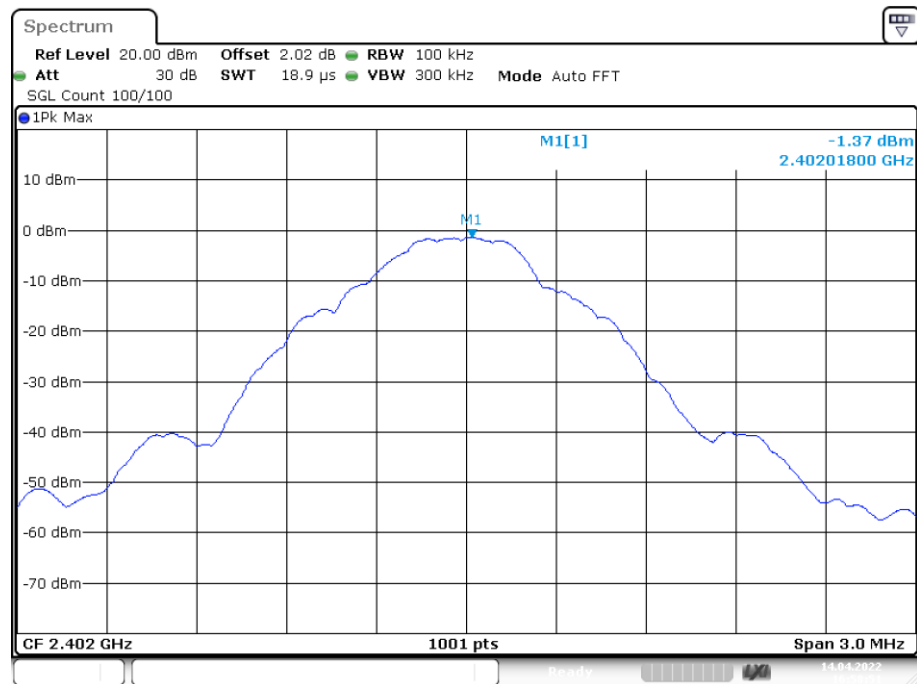
## 5.5 Power Spectral Density

|                   |                                                                                    |
|-------------------|------------------------------------------------------------------------------------|
| Test Requirement: | 47 CFR Part 15C Section 15.247 (e)                                                 |
| Test Method:      | ANSI C63.10 2013                                                                   |
| Test Setup:       |  |
| Limit:            | $\leq 8.00 \text{ dBm/3kHz}$                                                       |
| Test Mode:        | Transmitting with GFSK modulation.                                                 |
| Instruments Used: | Refer to section 5.10 for details.                                                 |
| Test Results:     | Pass                                                                               |

### Measurement Data

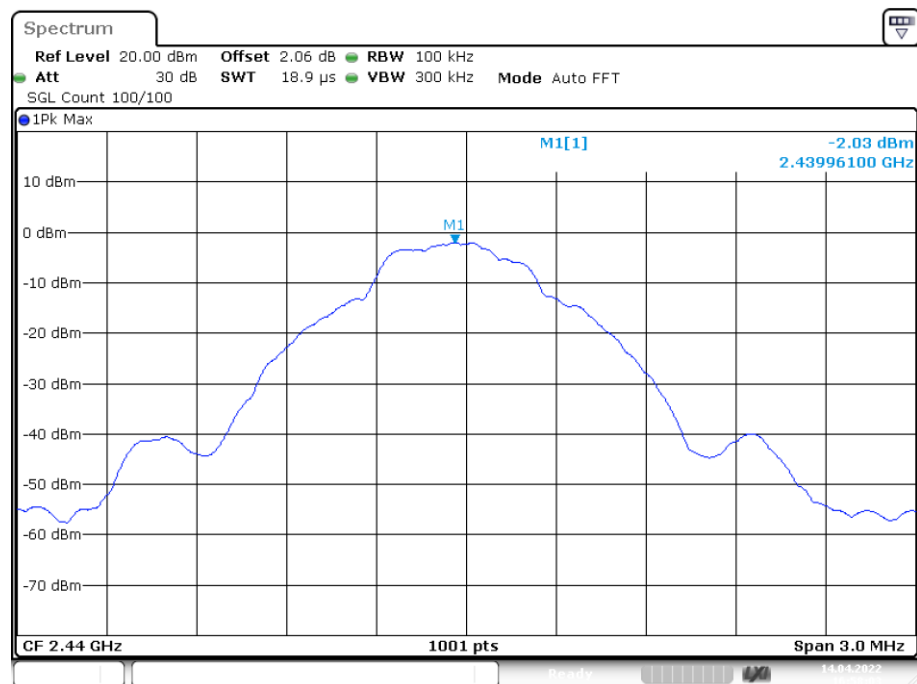
| 1M mode      |                                     |                  |        |
|--------------|-------------------------------------|------------------|--------|
| Test channel | Power Spectral Density (dBm/100kHz) | Limit (dBm/3kHz) | Result |
| Lowest       | -1.373                              | $\leq 8.00$      | Pass   |
| Middle       | -2.027                              | $\leq 8.00$      | Pass   |
| Highest      | -2.251                              | $\leq 8.00$      | Pass   |

Test plot as follows:



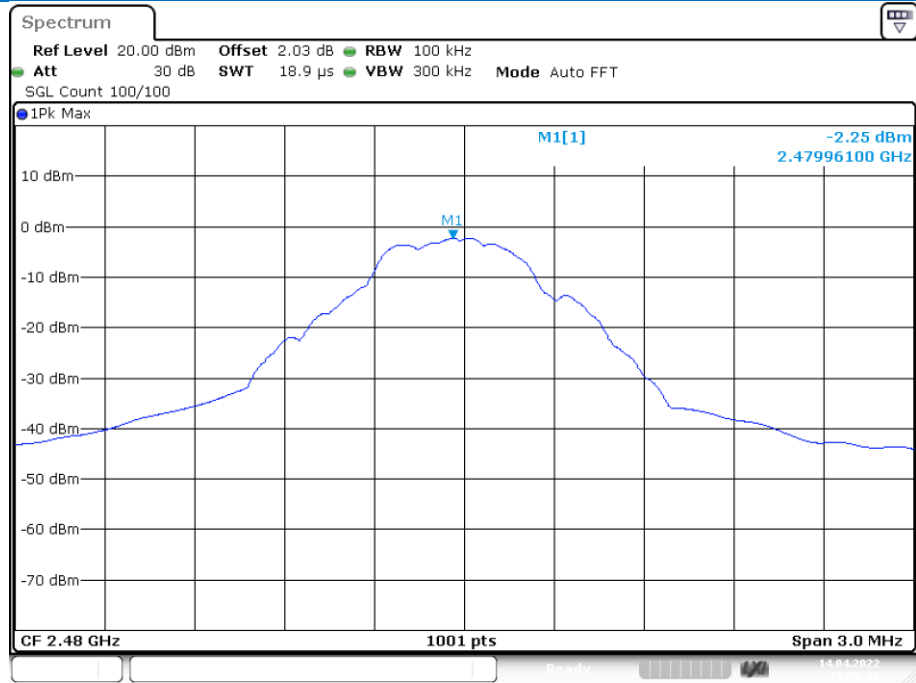
Date: 14.APR.2022 16:58:50

PSD NVNT BLE 1M 2402MHz Ant1



Date: 14.APR.2022 16:58:03

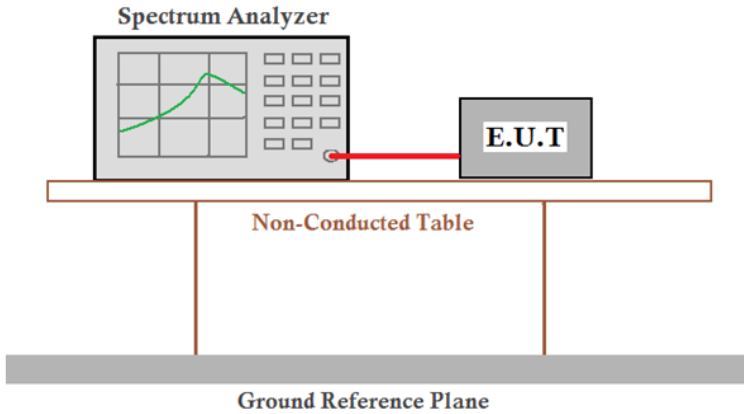
PSD NVNT BLE 1M 2440MHz Ant1



Date: 14.APR.2022 16:56:01

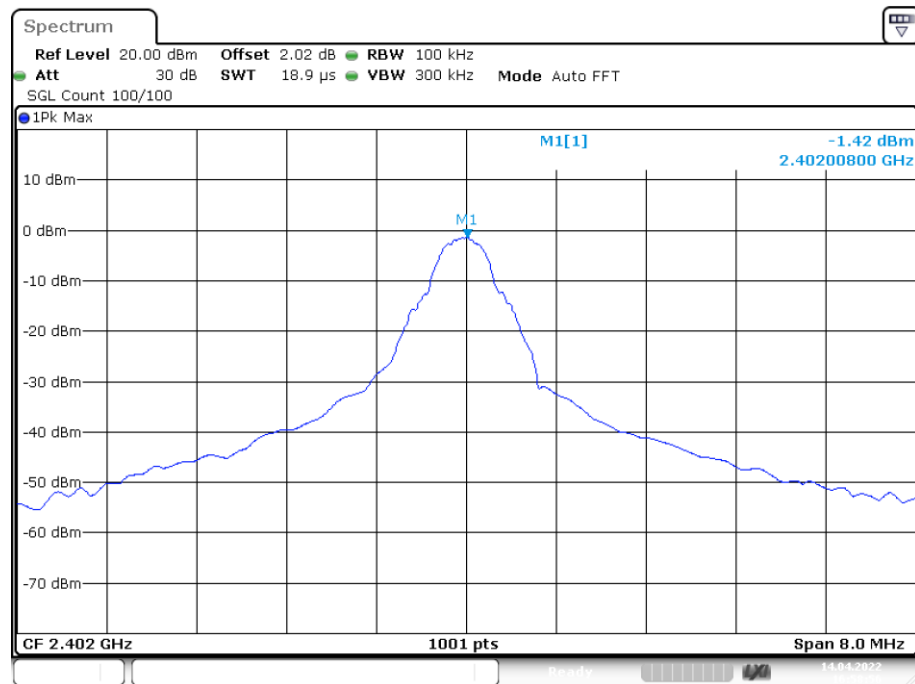
PSD NVNT BLE 1M 2480MHz Ant1

## 5.6 Band-edge for RF Conducted Emissions

|                   |                                                                                                                                                                                                                                                                                                                                                                                         |
|-------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Test Requirement: | 47 CFR Part 15C Section 15.247 (d)                                                                                                                                                                                                                                                                                                                                                      |
| Test Method:      | ANSI C63.10 2013                                                                                                                                                                                                                                                                                                                                                                        |
| Test Setup:       |  <p>Remark:<br/>Offset the High-Frequency cable loss 1.5dB in the spectrum analyzer.</p>                                                                                                                                                                                                              |
| Limit:            | In any 100 kHz bandwidth outside the frequency band in which the spread spectrum 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. |
| Test Mode:        | Transmitting with GFSK modulation.                                                                                                                                                                                                                                                                                                                                                      |
| Instruments Used: | Refer to section 5.10 for details.                                                                                                                                                                                                                                                                                                                                                      |
| Test Results:     | Pass                                                                                                                                                                                                                                                                                                                                                                                    |

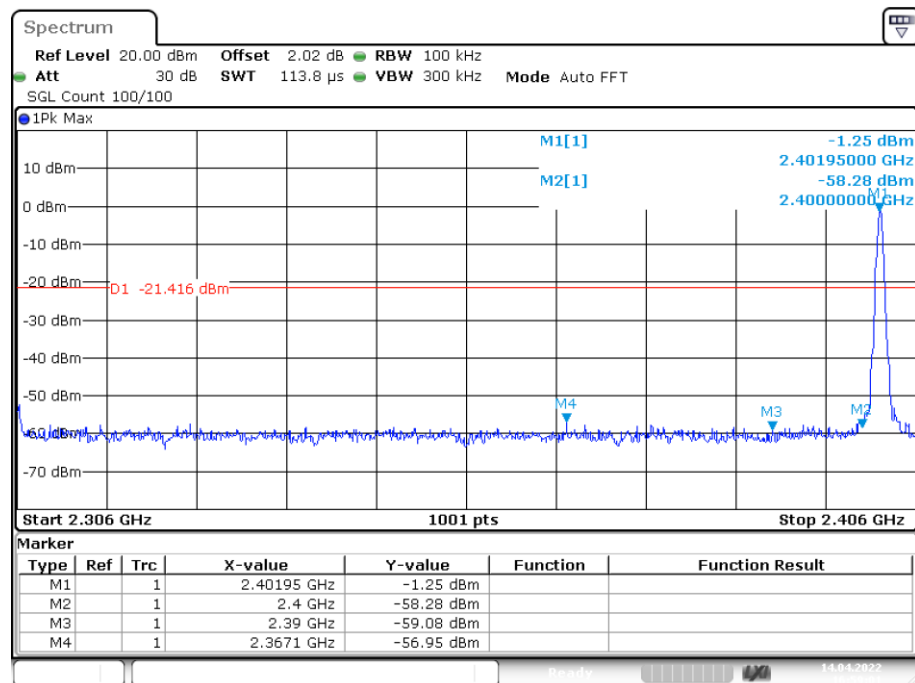
| 1M mode      |                |                     |            |        |
|--------------|----------------|---------------------|------------|--------|
| Test channel | Frequency(MHz) | Emission Level(dBc) | Limit(dBc) | Result |
| Lowest       | 2400           | <-20                | -20        | Pass   |
| Highest      | 2483.5         | <-20                | -20        | Pass   |

Test plot as follows:



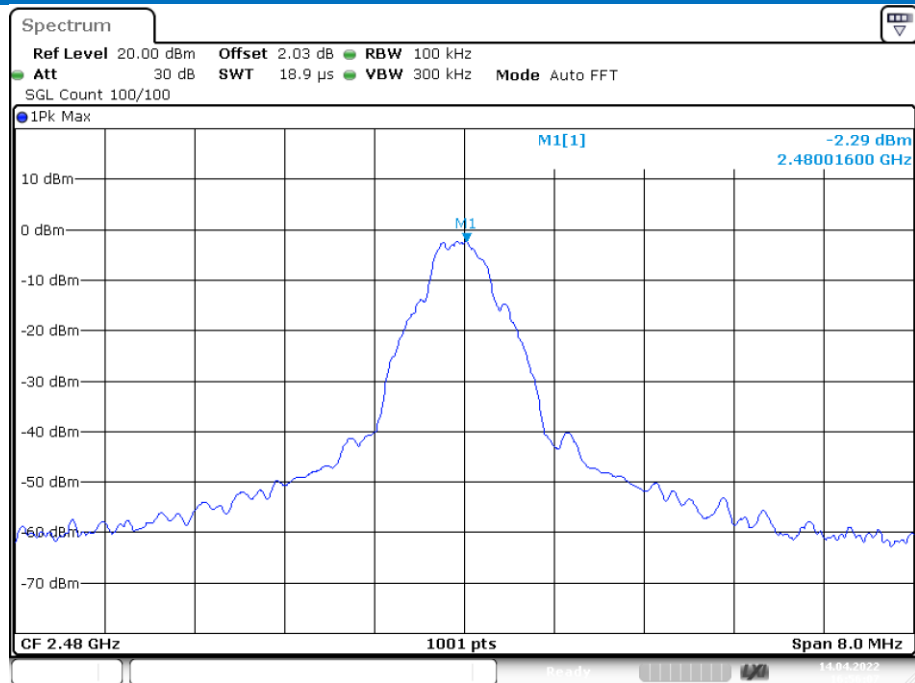
Date: 14.APR.2022 16:58:56

Band Edge NVNT BLE 1M 2402MHz Ant1 Ref



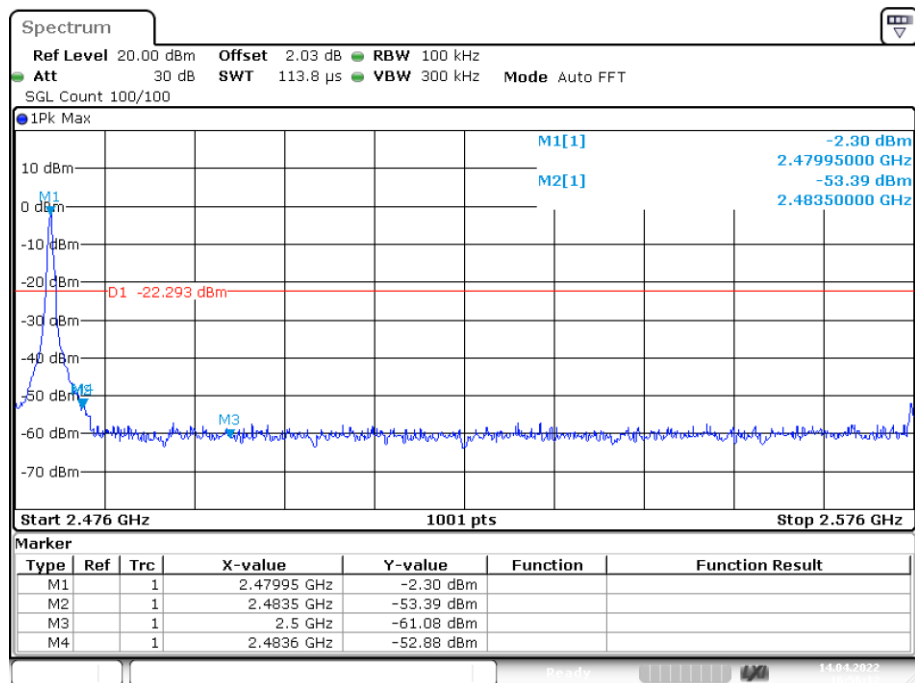
Date: 14.APR.2022 16:59:01

Band Edge NVNT BLE 1M 2402MHz Ant1 Emission



Date: 14.APR.2022 16:56:06

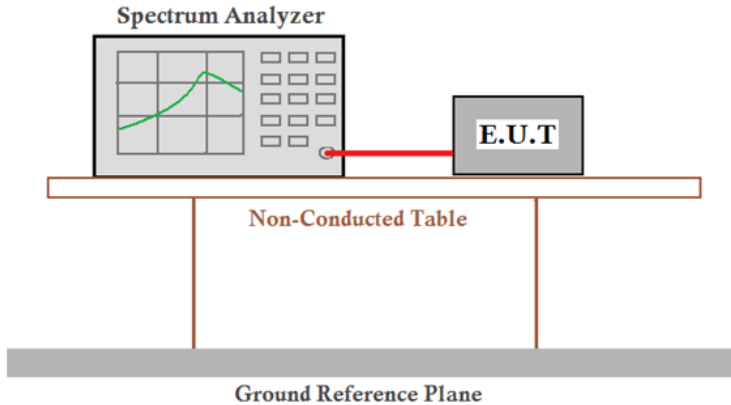
### Band Edge NVNT BLE 1M 2480MHz Ant1 Ref



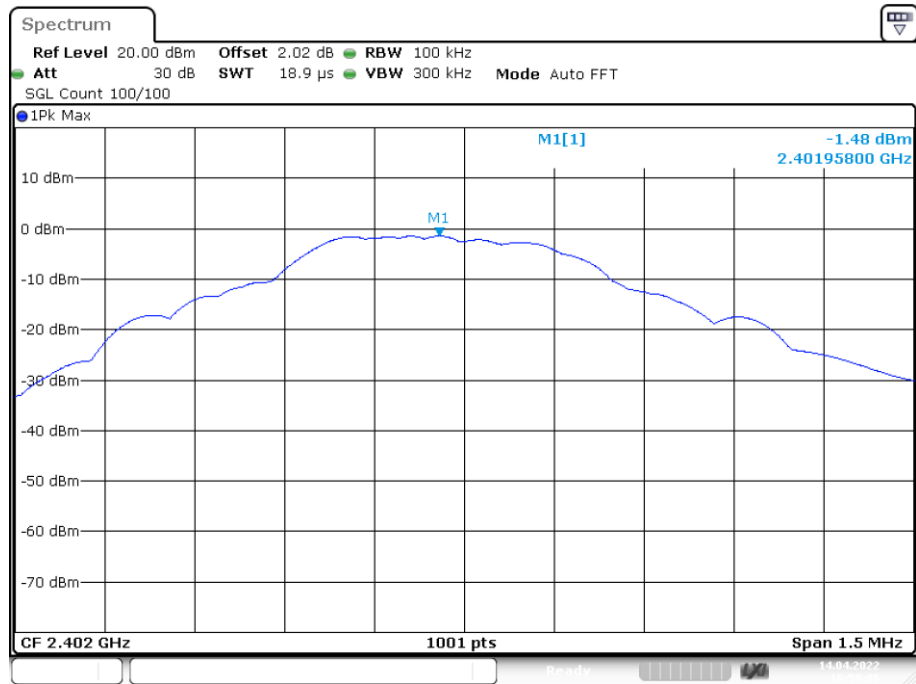
Date: 14.APR.2022 16:56:11

### Band Edge NVNT BLE 1M 2480MHz Ant1 Emission

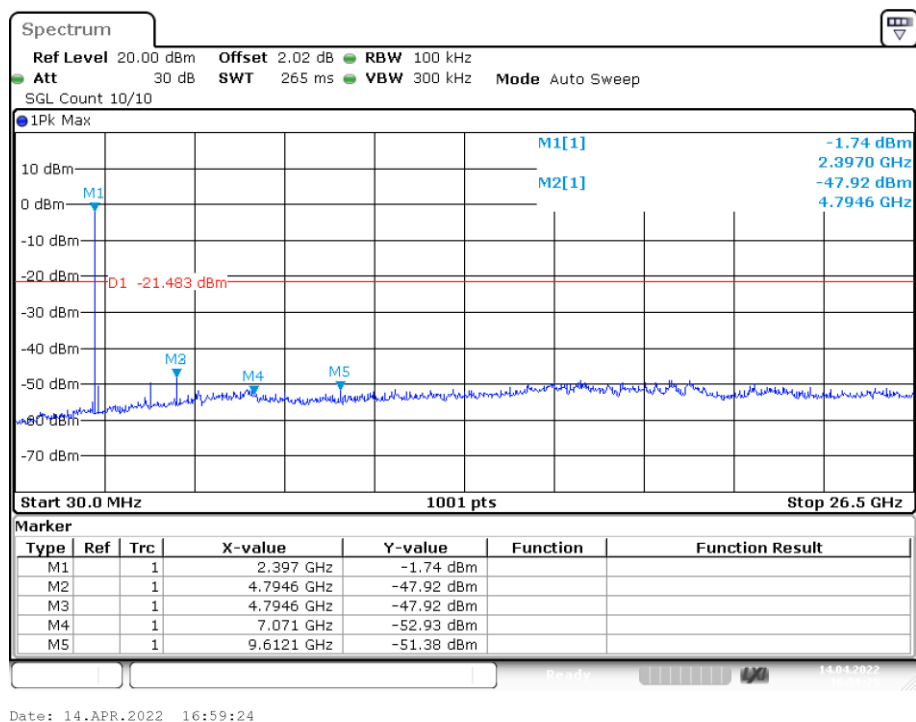
## 5.7 Spurious RF Conducted Emissions

|                   |                                                                                                                                                                                                                                                                                                                                                                                         |
|-------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Test Requirement: | 47 CFR Part 15C Section 15.247 (d)                                                                                                                                                                                                                                                                                                                                                      |
| Test Method:      | ANSI C63.10 2013                                                                                                                                                                                                                                                                                                                                                                        |
| Test Setup:       |  <p>Remark:<br/>Offset the High-Frequency cable loss 1.5dB in the spectrum analyzer.</p>                                                                                                                                                                                                              |
| Limit:            | In any 100 kHz bandwidth outside the frequency band in which the spread spectrum 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. |
| Test Mode:        | Transmitting with GFSK modulation.                                                                                                                                                                                                                                                                                                                                                      |
| Instruments Used: | Refer to section 5.10 for details.                                                                                                                                                                                                                                                                                                                                                      |
| Test Results:     | Pass                                                                                                                                                                                                                                                                                                                                                                                    |

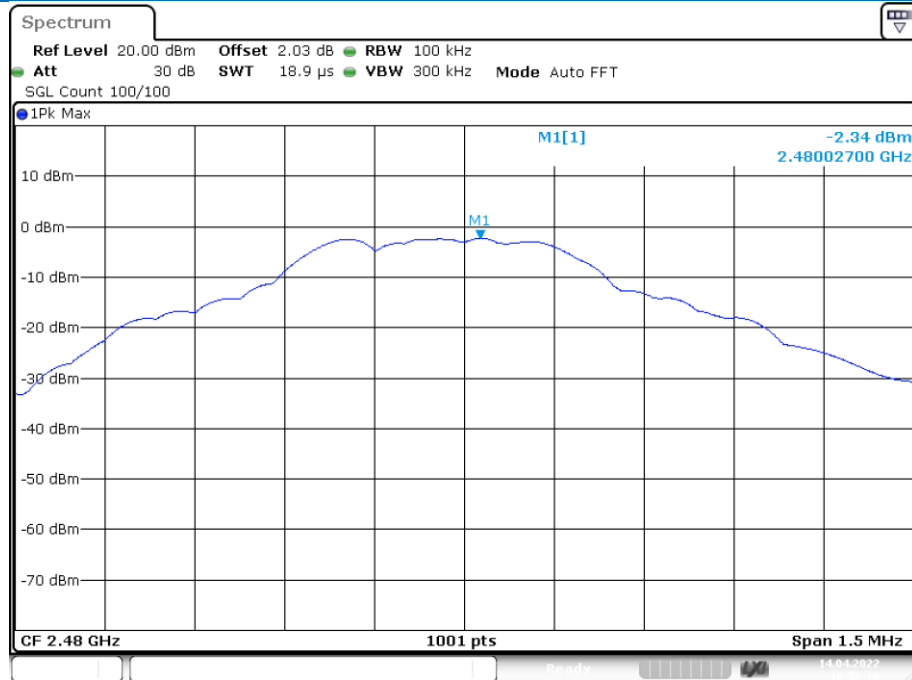
Test plot as follows:



Tx. Spurious NVNT BLE 1M 2402MHz Ant1 Ref

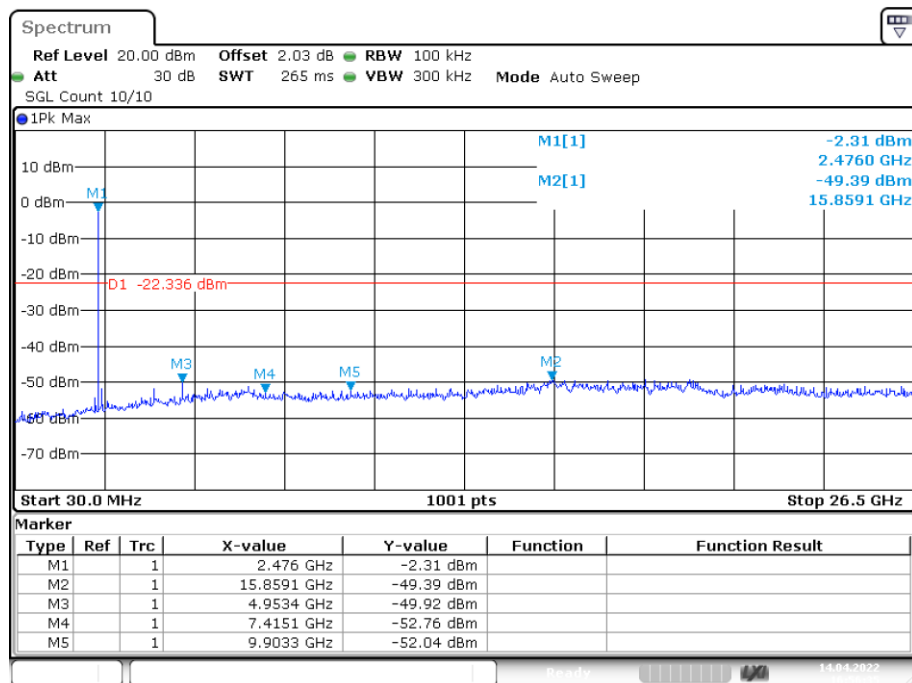


Tx. Spurious NVNT BLE 1M 2402MHz Ant1 Emission



Date: 14.APR.2022 16:56:17

### Tx. Spurious NVNT BLE 1M 2480MHz Ant1 Ref



Date: 14.APR.2022 16:56:35

### Tx. Spurious NVNT BLE 1M 2480MHz Ant1 Emission

#### Remark:

Pretest 9kHz to 25GHz, find the highest point when testing, so only the worst data were shown in the test report. Per FCC Part 15.33 (a) and 15.31 (o) ,The amplitude of spurious emissions from intentional radiators which are attenuated more than 20 dB below the permissible value need not be reported unless specifically required elsewhere in this part.

## 5.8 Radiated Spurious Emission

### 5.8.1 Spurious Emissions

|                                                                                                                                                                                                                                                                             |                                                  |                                  |                |            |                          |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------|----------------------------------|----------------|------------|--------------------------|
| Test Requirement:                                                                                                                                                                                                                                                           | 47 CFR Part 15C Section 15.209 and 15.205        |                                  |                |            |                          |
| Test Method:                                                                                                                                                                                                                                                                | ANSI C63.10 2013                                 |                                  |                |            |                          |
| Test Site:                                                                                                                                                                                                                                                                  | Measurement Distance: 3m (Semi-Anechoic Chamber) |                                  |                |            |                          |
| Receiver Setup:                                                                                                                                                                                                                                                             | Frequency                                        | Detector                         | RBW            | VBW        | Remark                   |
|                                                                                                                                                                                                                                                                             | 0.009MHz-0.090MHz                                | Peak                             | 10kHz          | 30kHz      | Peak                     |
|                                                                                                                                                                                                                                                                             | 0.009MHz-0.090MHz                                | Average                          | 10kHz          | 30kHz      | Average                  |
|                                                                                                                                                                                                                                                                             | 0.090MHz-0.110MHz                                | Quasi-peak                       | 10kHz          | 30kHz      | Quasi-peak               |
|                                                                                                                                                                                                                                                                             | 0.110MHz-0.490MHz                                | Peak                             | 10kHz          | 30kHz      | Peak                     |
|                                                                                                                                                                                                                                                                             | 0.110MHz-0.490MHz                                | Average                          | 10kHz          | 30kHz      | Average                  |
|                                                                                                                                                                                                                                                                             | 0.490MHz -30MHz                                  | Quasi-peak                       | 10kHz          | 30kHz      | Quasi-peak               |
|                                                                                                                                                                                                                                                                             | 30MHz-1GHz                                       | Quasi-peak                       | 100 kHz        | 300kHz     | Quasi-peak               |
|                                                                                                                                                                                                                                                                             | Above 1GHz                                       | Peak                             | 1MHz           | 3MHz       | Peak                     |
|                                                                                                                                                                                                                                                                             |                                                  | Peak                             | 1MHz           | 10Hz       | Average                  |
| Limit:                                                                                                                                                                                                                                                                      | Frequency                                        | Field strength (microvolt/meter) | Limit (dBuV/m) | Remark     | Measurement distance (m) |
|                                                                                                                                                                                                                                                                             | 0.009MHz-0.490MHz                                | 2400/F(kHz)                      | -              | -          | 300                      |
|                                                                                                                                                                                                                                                                             | 0.490MHz-1.705MHz                                | 24000/F(kHz)                     | -              | -          | 30                       |
|                                                                                                                                                                                                                                                                             | 1.705MHz-30MHz                                   | 30                               | -              | -          | 30                       |
|                                                                                                                                                                                                                                                                             | 30MHz-88MHz                                      | 100                              | 40.0           | Quasi-peak | 3                        |
|                                                                                                                                                                                                                                                                             | 88MHz-216MHz                                     | 150                              | 43.5           | Quasi-peak | 3                        |
|                                                                                                                                                                                                                                                                             | 216MHz-960MHz                                    | 200                              | 46.0           | Quasi-peak | 3                        |
|                                                                                                                                                                                                                                                                             | 960MHz-1GHz                                      | 500                              | 54.0           | Quasi-peak | 3                        |
|                                                                                                                                                                                                                                                                             | Above 1GHz                                       | 500                              | 54.0           | Average    | 3                        |
| Note: 15.35(b), Unless otherwise specified, the limit on peak radio frequency emissions is 20dB above the maximum permitted average emission limit applicable to the equipment under test. This peak limit applies to the total peak emission level radiated by the device. |                                                  |                                  |                |            |                          |

Test Setup:

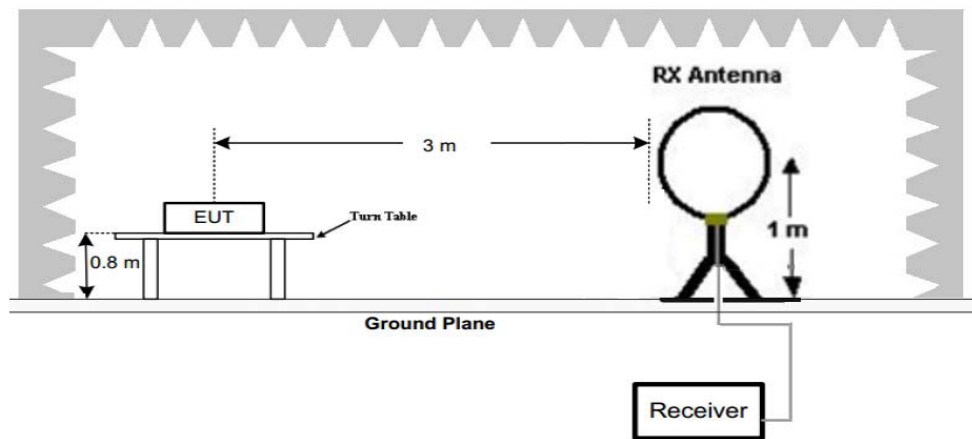


Figure 1. Below 30MHz

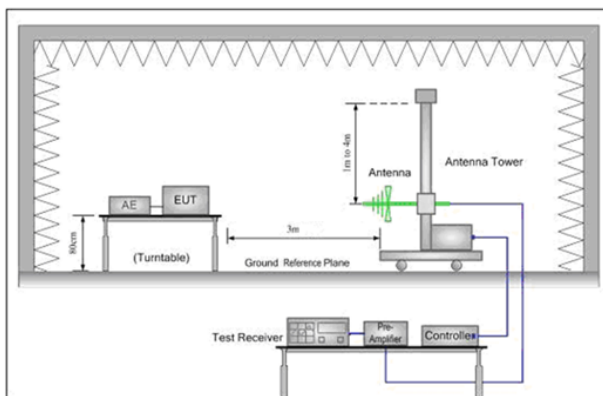


Figure 2. 30MHz to 1GHz

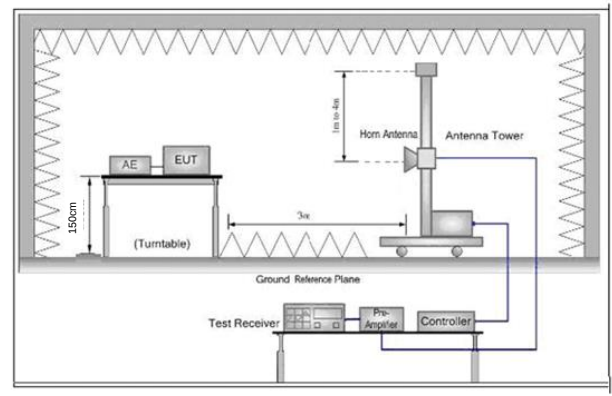


Figure 3. Above 1 GHz

Test Procedure:

- a. 1) Below 1G: The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.  
2) Above 1G: The EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.  
Note: For the radiated emission test above 1GHz:  
Place the measurement antenna away from each area of the EUT determined to be a source of emissions at the specified measurement distance, while keeping the measurement antenna aimed at the source of emissions at each frequency of significant emissions, with polarization oriented for maximum response. The measurement antenna may have to be higher or lower than the EUT, depending on the radiation pattern of the emission and staying aimed at the emission source for receiving the maximum signal. The final measurement antenna elevation shall be that which maximizes the emissions. The measurement antenna elevation for maximum emissions shall be restricted to a range of heights of from 1 m to 4 m above the ground or reference ground plane.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. 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.
- d. For each suspected emission, the EUT was arranged to its worst case

|                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                        | <p>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.</p> <p>e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.</p> <p>f. 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.</p> <p>g. Test the EUT in the lowest channel (2402MHz), the middle channel (2440MHz), the highest channel (2480MHz)</p> <p>h. 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.</p> <p>i. Repeat above procedures until all frequencies measured was complete.</p> |
| Exploratory Test Mode: | <p>Transmitting with GFSK modulation.</p> <p>Transmitting mode, Charge + Transmitting mode.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Final Test Mode:       | <p>Transmitting with GFSK modulation.</p> <p>Pretest the EUT at Transmitting mode and Charge + Transmitting mode, found the Charge + Transmitting mode which it is worse case.</p> <p>For below 1GHz part, through pre-scan, the worst case is the lowest channel.</p> <p>Only the worst case is recorded in the report.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Instruments Used:      | Refer to section 5.10 for details.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Test Results:          | Pass                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |

**Radiated Emission below 1GHz**

|                   |              |          |
|-------------------|--------------|----------|
| 9KHz~30MHz (PEAK) |              |          |
| Test mode:        | Transmitting | Vertical |

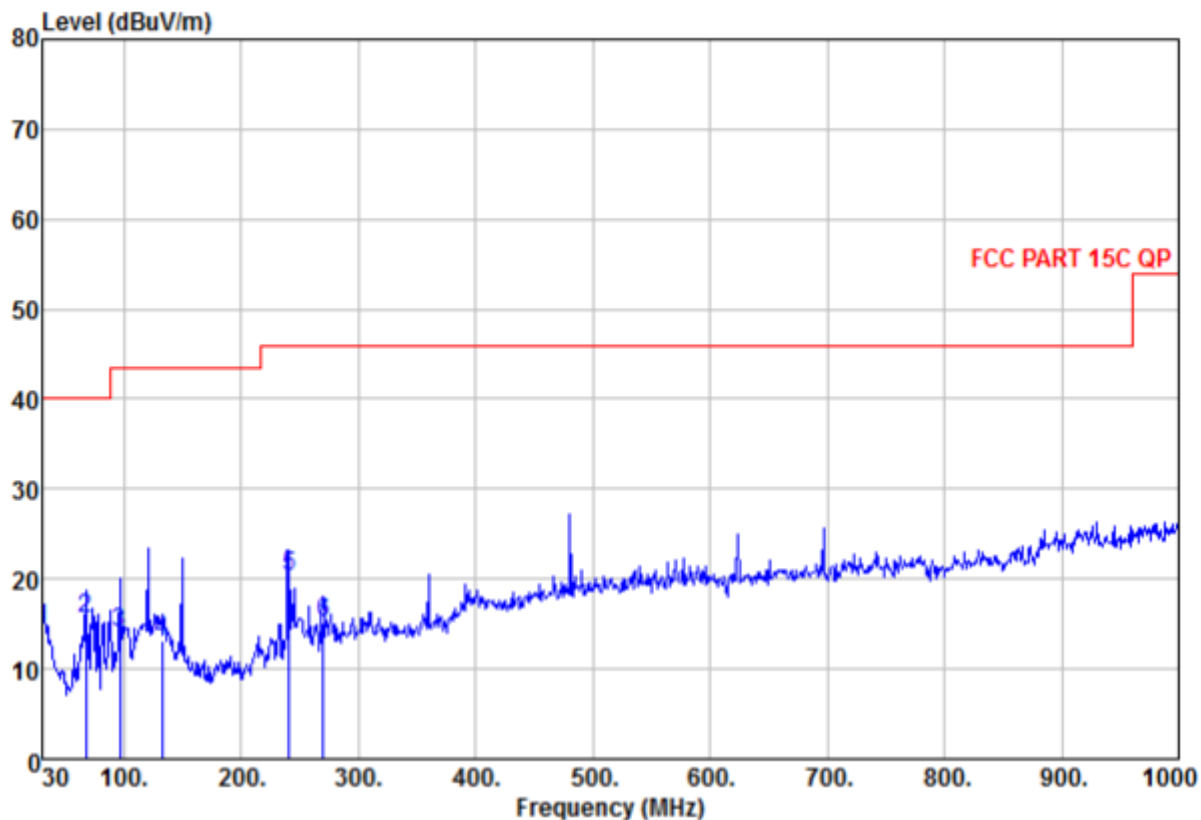
9kHz~30MHz Test result

**The Low frequency, which started from 9kHz to 30MHz, was pre-scanned and the result which was 20dB lower than the limit line per 15.31(o) was not report**

## Radiated Emission below 1GHz

30MHz~1GHz (QP)

Test mode: Charge + Transmitting mode Vertical

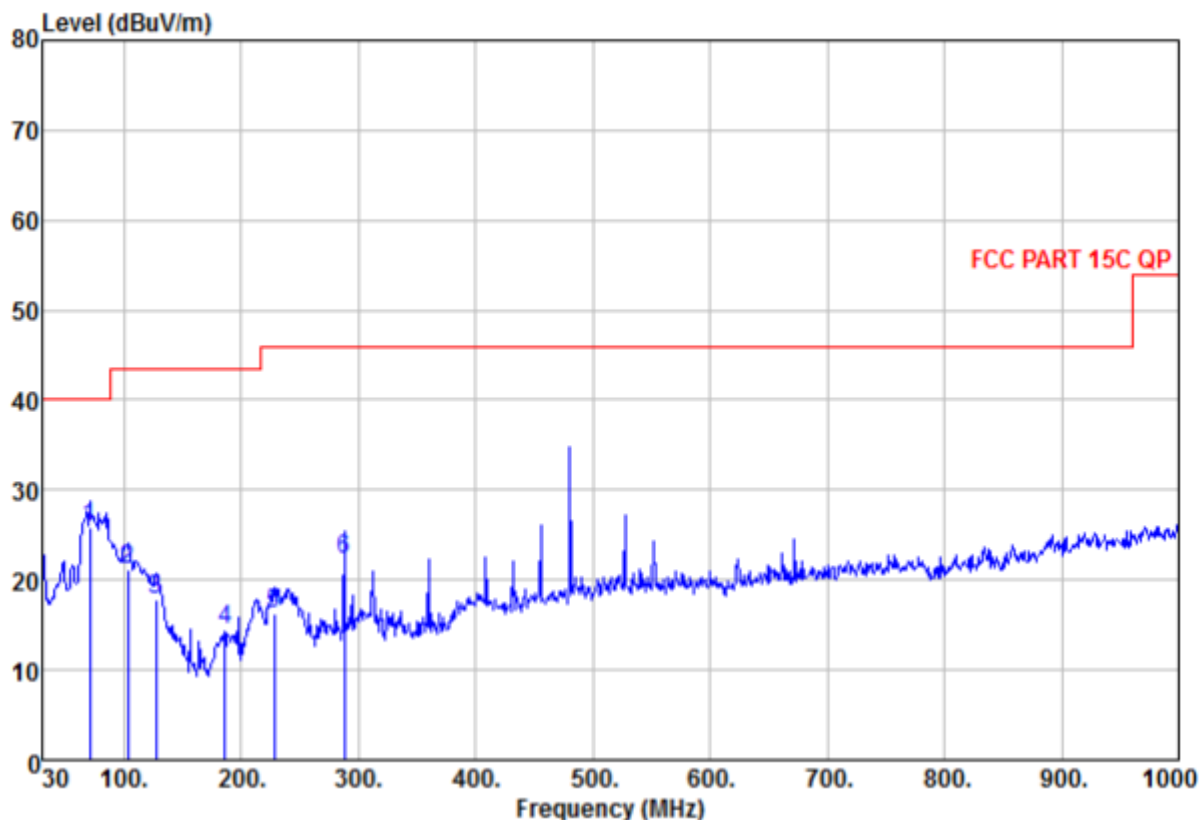


| No. | Freq<br>MHz | Reading<br>dBuV | Antenna<br>Factor<br>dB/m | Cable<br>Loss<br>dB | Measured<br>dBuV/m | Limit<br>Line<br>dBuV/m | Preamp<br>Factor<br>dB | Over<br>limit<br>dB | Remark |
|-----|-------------|-----------------|---------------------------|---------------------|--------------------|-------------------------|------------------------|---------------------|--------|
| 1   | 30.00       | 29.67           | 17.20                     | 0.12                | 14.59              | 40.00                   | 32.40                  | -25.41              | QP     |
| 2   | 66.86       | 39.74           | 8.24                      | 0.16                | 15.61              | 40.00                   | 32.53                  | -24.39              | QP     |
| 3   | 95.96       | 37.47           | 8.54                      | 0.19                | 13.96              | 43.50                   | 32.24                  | -29.54              | QP     |
| 4   | 131.85      | 35.70           | 9.36                      | 0.23                | 13.15              | 43.50                   | 32.14                  | -30.35              | QP     |
| 5   | 240.49      | 39.37           | 12.16                     | 0.35                | 20.28              | 46.00                   | 31.60                  | -25.72              | QP     |
| 6   | 269.59      | 32.78           | 13.21                     | 0.37                | 15.06              | 46.00                   | 31.30                  | -30.94              | QP     |

Note: 1. Standards need to read Quasi-peak values.

2. Measured= Antenna Factor + Cable Loss + Reading - Preamp Factor

|            |              |            |
|------------|--------------|------------|
| Test mode: | Transmitting | Horizontal |
|------------|--------------|------------|



| No. | Freq<br>MHz | Reading<br>dBuV | Antenna<br>Factor<br>dB/m | Cable<br>Loss<br>dB | Measured<br>dBuV/m | Limit<br>Line<br>dBuV/m | Preamp<br>Factor<br>dB | Over<br>limit<br>dB | Remark |
|-----|-------------|-----------------|---------------------------|---------------------|--------------------|-------------------------|------------------------|---------------------|--------|
| 1   | 70.74       | 49.81           | 8.36                      | 0.16                | 25.84              | 40.00                   | 32.49                  | -14.16              | QP     |
| 2   | 102.75      | 44.37           | 8.73                      | 0.20                | 21.11              | 43.50                   | 32.19                  | -22.39              | QP     |
| 3   | 127.00      | 40.62           | 9.03                      | 0.23                | 17.73              | 43.50                   | 32.15                  | -25.77              | QP     |
| 4   | 186.17      | 35.92           | 10.38                     | 0.30                | 14.57              | 43.50                   | 32.03                  | -28.93              | QP     |
| 5   | 227.88      | 35.88           | 11.70                     | 0.34                | 16.20              | 46.00                   | 31.72                  | -29.80              | QP     |
| 6   | 288.02      | 39.42           | 13.61                     | 0.38                | 22.29              | 46.00                   | 31.12                  | -23.71              | QP     |

Note: 1. Standards need to read Quasi-peak values.  
2. Measured= Antenna Factor + Cable Loss + Reading - Preamp Factor

# Transmitter Emission above 1-26.5GHz

|                  |      |               |        |
|------------------|------|---------------|--------|
| Worse case mode: | GFSK | Test channel: | Lowest |
|------------------|------|---------------|--------|

| Frequency<br>(MHz) | Meter<br>Reading<br>(dBμV) | Factor<br>(dB) | Emission<br>Level<br>(dBμV/m) | Limits<br>(dBμV/m) | Over<br>(dB) | Detector<br>Type | Ant. Pol.<br>H/V |
|--------------------|----------------------------|----------------|-------------------------------|--------------------|--------------|------------------|------------------|
| 4804               | 55.59                      | -5.18          | 50.41                         | 74                 | -23.61       | peak             | H                |
| 4804               | 44.52                      | -5.18          | 39.34                         | 54                 | -14.66       | AVG              | H                |
| 7206               | 59.37                      | -6.45          | 52.92                         | 74                 | -21.08       | peak             | H                |
| 7206               | 47.08                      | -6.45          | 40.63                         | 54                 | -13.37       | AVG              | H                |
| 4804               | 62.29                      | -5.18          | 57.11                         | 74                 | -16.89       | peak             | V                |
| 4804               | 43.84                      | -5.18          | 38.66                         | 54                 | -15.34       | AVG              | V                |
| 7206               | 54.91                      | -6.45          | 48.46                         | 74                 | -25.54       | peak             | V                |
| 7206               | 43.97                      | -6.45          | 37.52                         | 54                 | -16.48       | AVG              | V                |

|                  |      |               |        |
|------------------|------|---------------|--------|
| Worse case mode: | GFSK | Test channel: | Middle |
|------------------|------|---------------|--------|

| Frequency<br>(MHz) | Meter<br>Reading<br>(dBμV) | Factor<br>(dB) | Emission<br>Level<br>(dBμV/m) | Limits<br>(dBμV/m) | Over<br>(dB) | Detector<br>Type | Ant. Pol.<br>H/V |
|--------------------|----------------------------|----------------|-------------------------------|--------------------|--------------|------------------|------------------|
| 4880               | 55.61                      | -5.19          | 50.42                         | 74                 | -23.58       | peak             | H                |
| 4880               | 45.53                      | -5.19          | 40.34                         | 54                 | -13.66       | AVG              | H                |
| 7320               | 59.87                      | -6.47          | 53.4                          | 74                 | -20.6        | peak             | H                |
| 7320               | 48                         | -6.47          | 41.53                         | 54                 | -12.47       | AVG              | H                |
| 4880               | 62.7                       | -5.19          | 57.51                         | 74                 | -16.49       | peak             | V                |
| 4880               | 43.03                      | -5.19          | 37.84                         | 54                 | -16.16       | AVG              | V                |
| 7320               | 58.41                      | -6.47          | 51.94                         | 74                 | -22.06       | peak             | V                |
| 7320               | 50.59                      | -6.47          | 44.12                         | 54                 | -9.88        | AVG              | V                |

|                  |      |               |         |
|------------------|------|---------------|---------|
| Worse case mode: | GFSK | Test channel: | Highest |
|------------------|------|---------------|---------|

| Frequency<br>(MHz) | Meter<br>Reading<br>(dBμV) | Factor<br>(dB) | Emission<br>Level<br>(dBμV/m) | Limits<br>(dBμV/m) | Over<br>(dB) | Detector<br>Type | Ant. Pol.<br>H/V |
|--------------------|----------------------------|----------------|-------------------------------|--------------------|--------------|------------------|------------------|
| 4960               | 52.66                      | -5.2           | 47.46                         | 74                 | -26.54       | peak             | H                |
| 4960               | 38.9                       | -5.2           | 33.7                          | 54                 | -20.3        | AVG              | H                |
| 7440               | 50.19                      | -6.47          | 43.72                         | 74                 | -30.28       | peak             | H                |
| 7440               | 35.36                      | -6.47          | 28.89                         | 54                 | -25.11       | AVG              | H                |
| 4960               | 48.34                      | -5.2           | 43.14                         | 74                 | -30.86       | peak             | V                |
| 4960               | 36.37                      | -5.2           | 31.17                         | 54                 | -22.83       | AVG              | V                |
| 7440               | 48.72                      | -6.47          | 42.25                         | 74                 | -31.75       | peak             | V                |
| 7440               | 35.49                      | -6.47          | 29.02                         | 54                 | -24.98       | AVG              | V                |

Remark:

- 1) The field strength is calculated by adding the Antenna Factor, Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows:  
Final Test Level = Receiver Reading + Antenna Factor + Cable Factor – Preamplifier Factor
- 2) Scan from 9kHz to 25GHz, the disturbance above 13GHz and below 30MHz was very low, and the above harmonics were the highest point could be found when testing, so only the above harmonics had been displayed. The amplitude of spurious emissions from the radiator which are attenuated more than 20dB below the limit need not be reported.

## 5.9 Restricted bands around fundamental frequency

| Test Requirement: | 47 CFR Part 15C Section 15.209 and 15.205                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                  |           |                    |        |             |      |                  |              |      |                  |               |      |                  |             |      |                  |            |      |               |      |            |
|-------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|-----------|--------------------|--------|-------------|------|------------------|--------------|------|------------------|---------------|------|------------------|-------------|------|------------------|------------|------|---------------|------|------------|
| Test Method:      | ANSI C63.10 2013                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                  |           |                    |        |             |      |                  |              |      |                  |               |      |                  |             |      |                  |            |      |               |      |            |
| Test Site:        | Measurement Distance: 3m (Semi-Anechoic Chamber)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                  |           |                    |        |             |      |                  |              |      |                  |               |      |                  |             |      |                  |            |      |               |      |            |
| Limit:            | <table border="1"> <thead> <tr> <th>Frequency</th><th>Limit (dBuV/m @3m)</th><th>Remark</th></tr> </thead> <tbody> <tr> <td>30MHz-88MHz</td><td>40.0</td><td>Quasi-peak Value</td></tr> <tr> <td>88MHz-216MHz</td><td>43.5</td><td>Quasi-peak Value</td></tr> <tr> <td>216MHz-960MHz</td><td>46.0</td><td>Quasi-peak Value</td></tr> <tr> <td>960MHz-1GHz</td><td>54.0</td><td>Quasi-peak Value</td></tr> <tr> <td rowspan="2">Above 1GHz</td><td>54.0</td><td>Average Value</td></tr> <tr> <td>74.0</td><td>Peak Value</td></tr> </tbody> </table> |                  | Frequency | Limit (dBuV/m @3m) | Remark | 30MHz-88MHz | 40.0 | Quasi-peak Value | 88MHz-216MHz | 43.5 | Quasi-peak Value | 216MHz-960MHz | 46.0 | Quasi-peak Value | 960MHz-1GHz | 54.0 | Quasi-peak Value | Above 1GHz | 54.0 | Average Value | 74.0 | Peak Value |
| Frequency         | Limit (dBuV/m @3m)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Remark           |           |                    |        |             |      |                  |              |      |                  |               |      |                  |             |      |                  |            |      |               |      |            |
| 30MHz-88MHz       | 40.0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Quasi-peak Value |           |                    |        |             |      |                  |              |      |                  |               |      |                  |             |      |                  |            |      |               |      |            |
| 88MHz-216MHz      | 43.5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Quasi-peak Value |           |                    |        |             |      |                  |              |      |                  |               |      |                  |             |      |                  |            |      |               |      |            |
| 216MHz-960MHz     | 46.0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Quasi-peak Value |           |                    |        |             |      |                  |              |      |                  |               |      |                  |             |      |                  |            |      |               |      |            |
| 960MHz-1GHz       | 54.0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Quasi-peak Value |           |                    |        |             |      |                  |              |      |                  |               |      |                  |             |      |                  |            |      |               |      |            |
| Above 1GHz        | 54.0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Average Value    |           |                    |        |             |      |                  |              |      |                  |               |      |                  |             |      |                  |            |      |               |      |            |
|                   | 74.0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Peak Value       |           |                    |        |             |      |                  |              |      |                  |               |      |                  |             |      |                  |            |      |               |      |            |
| Test Setup:       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                  |           |                    |        |             |      |                  |              |      |                  |               |      |                  |             |      |                  |            |      |               |      |            |

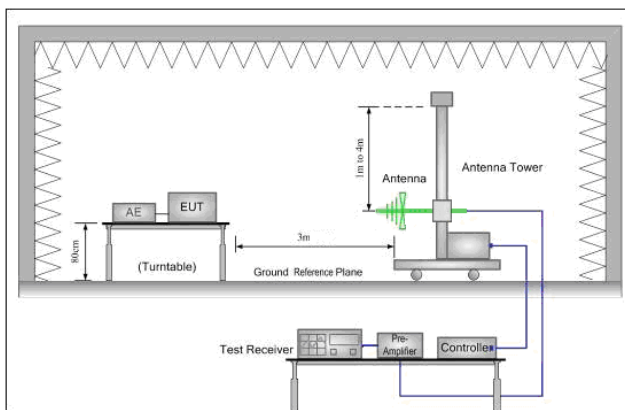


Figure 1. 30MHz to 1GHz

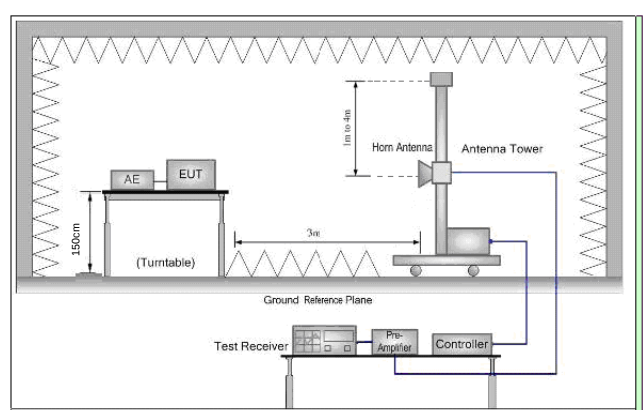


Figure 2. Above 1 GHz

### Test Procedure:

- 1) Below 1G: The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
  - 2) Above 1G: The EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- Note: For the radiated emission test above 1GHz:  
Place the measurement antenna away from each area of the EUT determined to be a source of emissions at the specified measurement distance, while keeping the measurement antenna aimed at the source of emissions at each frequency of significant emissions, with polarization oriented for maximum response. The measurement antenna may have to be higher or lower than the EUT, depending on the radiation pattern of the emission and staying aimed at the emission source for receiving the maximum signal. The final measurement antenna elevation shall be that which maximizes the emissions. The measurement antenna elevation for maximum emissions shall be restricted to a range of heights of from 1 m to 4 m above the ground or reference ground plane. The EUT was set 3 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.

|                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                        | <ul style="list-style-type: none"> <li>c. 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 and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.</li> <li>d. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.</li> <li>e. Place a marker at the end of the restricted band closest to the transmit frequency to show compliance. Also measure any emissions in the restricted bands. Save the spectrum analyzer plot. Repeat for each power and modulation for lowest and highest channel</li> <li>f. Test the EUT in the lowest channel , the Highest channel</li> <li>g. 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.</li> <li>h. Repeat above procedures until all frequencies measured was complete.</li> </ul> |
| Exploratory Test Mode: | Transmitting with GFSK modulation.<br>Transmitting mode, Charge + Transmitting mode.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Final Test Mode:       | Transmitting with GFSK modulation.<br>Pretest the EUT at Transmitting mode and Charge + Transmitting mode, found the Charge + Transmitting mode which it is worse case.<br>Only the worst case is recorded in the report.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Instruments Used:      | Refer to section 5.10 for details.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Test Results:          | Pass                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |

|                  |       |               |        |
|------------------|-------|---------------|--------|
| Worse case mode: | GFSK( | Test channel: | Lowest |
|------------------|-------|---------------|--------|

| Frequency<br>(MHz) | Meter<br>Reading<br>(dBμV) | Factor<br>(dB) | Emission<br>Level<br>(dBμV/m) | Limits<br>(dBμV/m) | Over<br>(dB) | Detector<br>Type | Ant. Pol.<br>H/V |
|--------------------|----------------------------|----------------|-------------------------------|--------------------|--------------|------------------|------------------|
| 2390               | 57.07                      | -4.36          | 52.71                         | 74                 | -21.29       | peak             | H                |
| 2390               | 33.9                       | -4.36          | 29.54                         | 54                 | -24.46       | AVG              | H                |
| 2400               | 52.95                      | -4.36          | 48.59                         | 74                 | -25.41       | peak             | H                |
| 2400               | 40.61                      | -4.36          | 36.25                         | 54                 | -17.75       | AVG              | H                |
| 2390               | 55.05                      | -4.36          | 50.69                         | 74                 | -23.31       | peak             | V                |
| 2390               | 42.16                      | -4.36          | 37.8                          | 54                 | -16.2        | AVG              | V                |
| 2400               | 60.58                      | -4.36          | 56.22                         | 74                 | -17.78       | peak             | V                |
| 2400               | 35.04                      | -4.36          | 30.68                         | 54                 | -23.32       | AVG              | V                |

|                  |      |               |         |
|------------------|------|---------------|---------|
| Worse case mode: | GFSK | Test channel: | Highest |
|------------------|------|---------------|---------|

| Frequency<br>(MHz) | Meter<br>Reading<br>(dBμV) | Factor<br>(dB) | Emission<br>Level<br>(dBμV/m) | Limits<br>(dBμV/m) | Over<br>(dB) | Detector<br>Type | Ant. Pol.<br>H/V |
|--------------------|----------------------------|----------------|-------------------------------|--------------------|--------------|------------------|------------------|
| 2483.5             | 63.46                      | -4.22          | 59.24                         | 74                 | -14.76       | peak             | H                |
| 2483.5             | 49.32                      | -4.22          | 45.1                          | 54                 | -8.9         | AVG              | H                |
| 2483.5             | 62.18                      | -4.22          | 57.96                         | 74                 | -16.04       | peak             | V                |
| 2483.5             | 48.16                      | -4.22          | 43.94                         | 54                 | -10.06       | AVG              | V                |

Note:

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

Final Test Level = Receiver Reading + Antenna Factor + Cable Factor – Preamplifier Factor

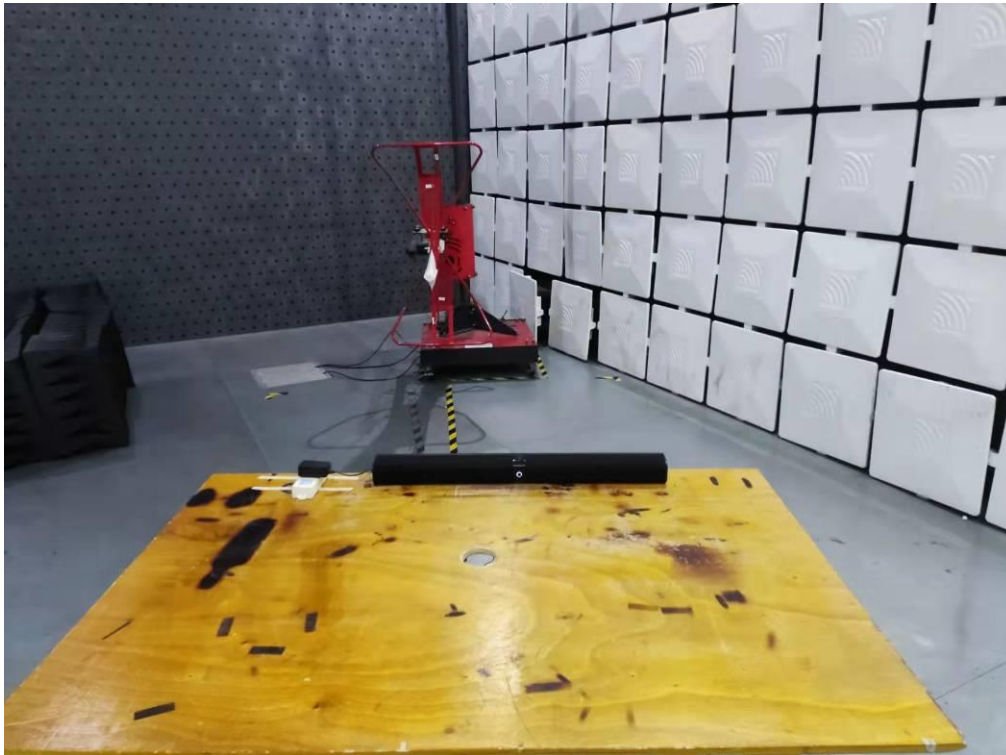
## 6 Photographs - EUT Test Setup

Test model No.:

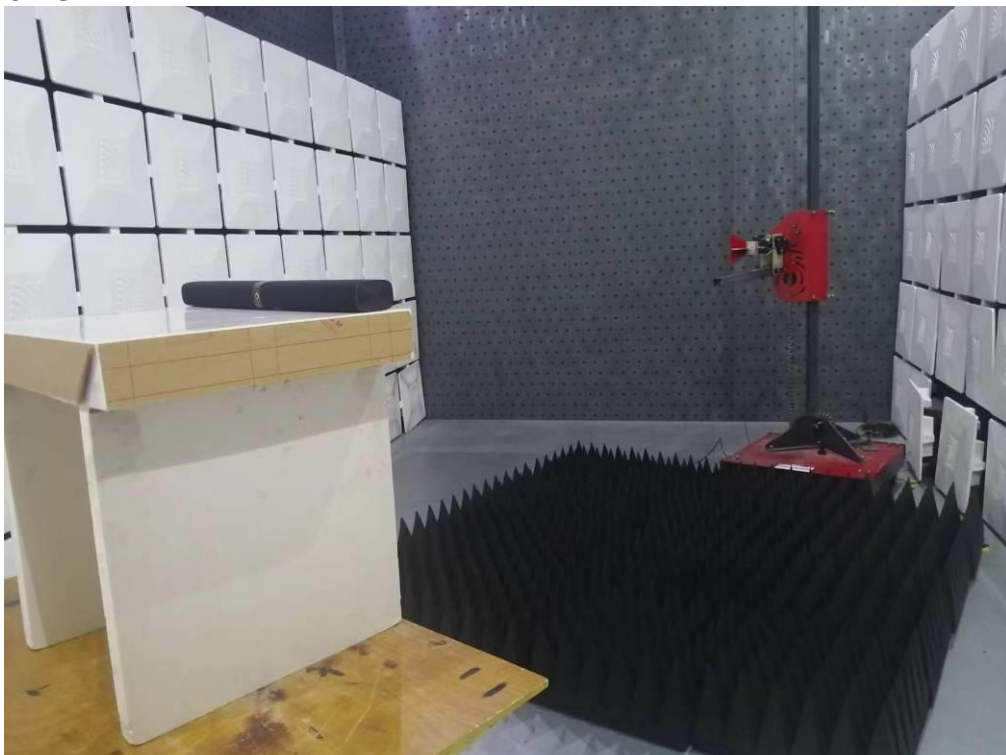
### 6.1 Conducted Emission

### 6.2 Radiated Spurious Emission

Below 1GHz:



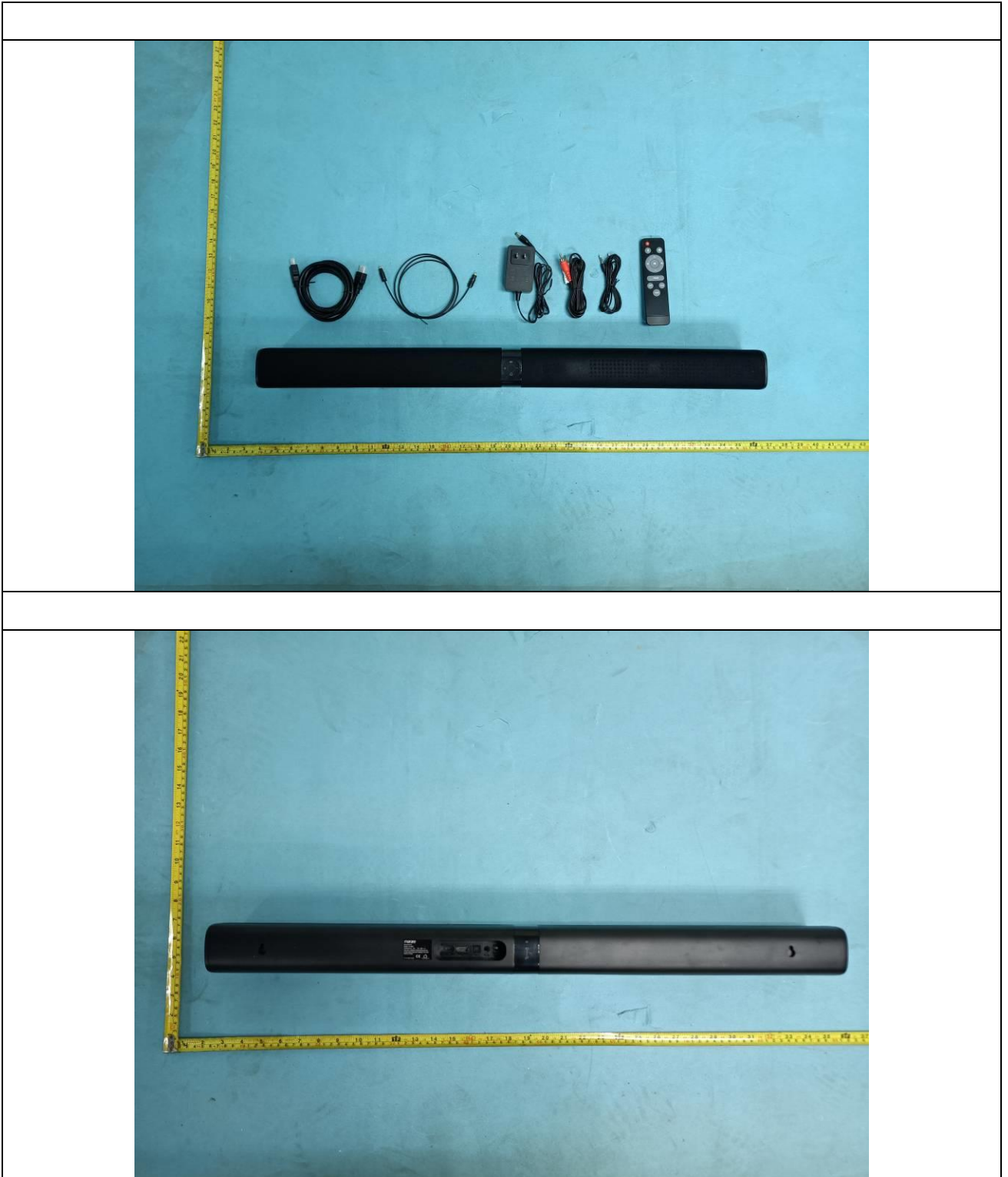
Above 1GHz:



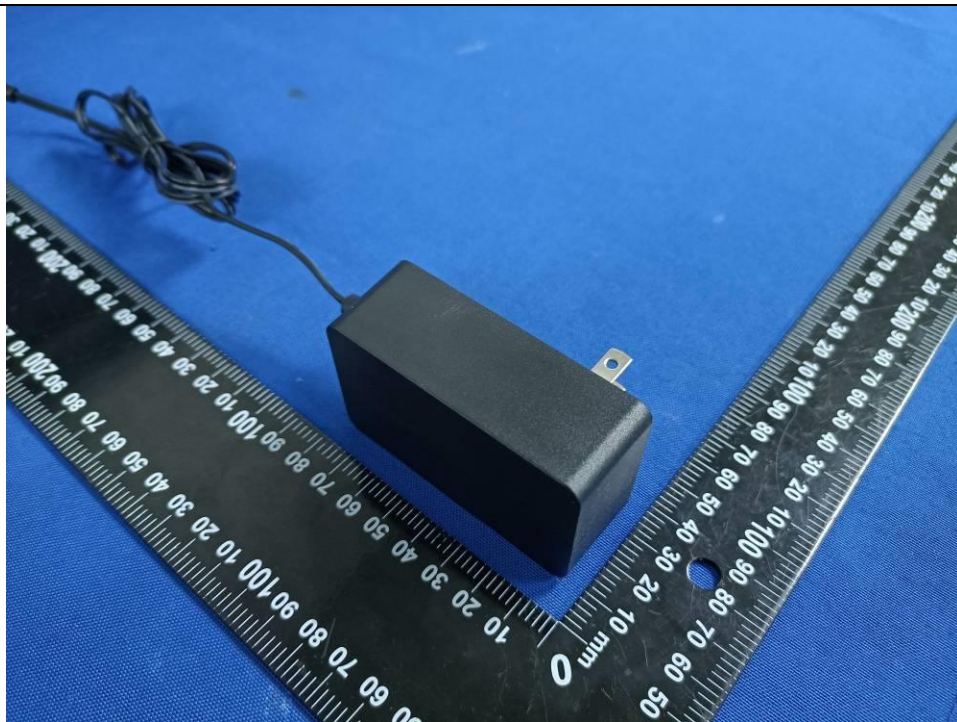
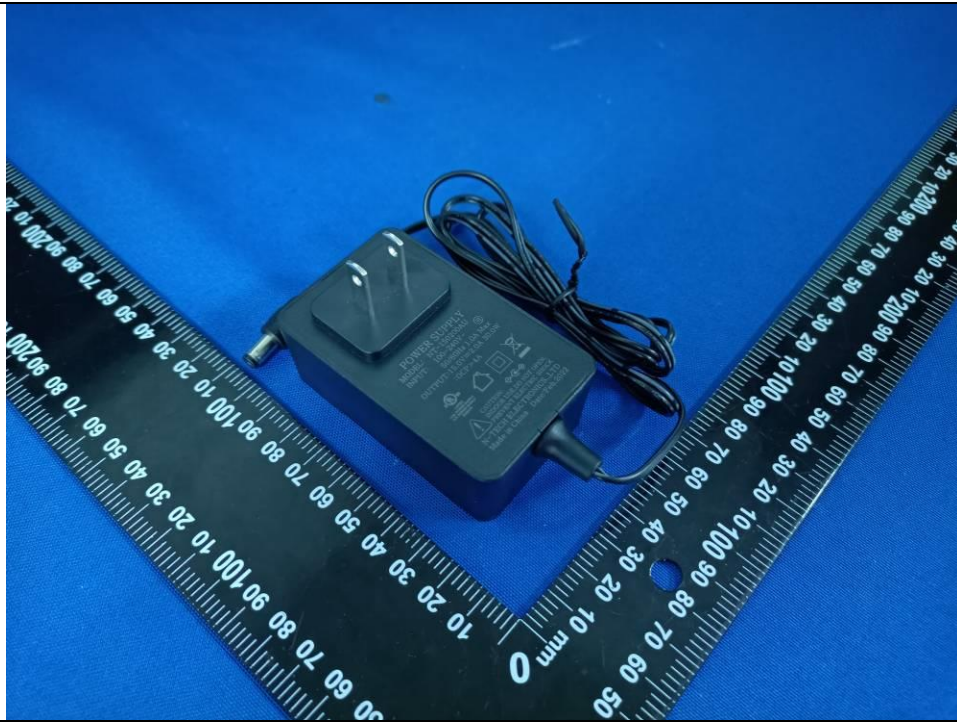
## Conducted Emissions



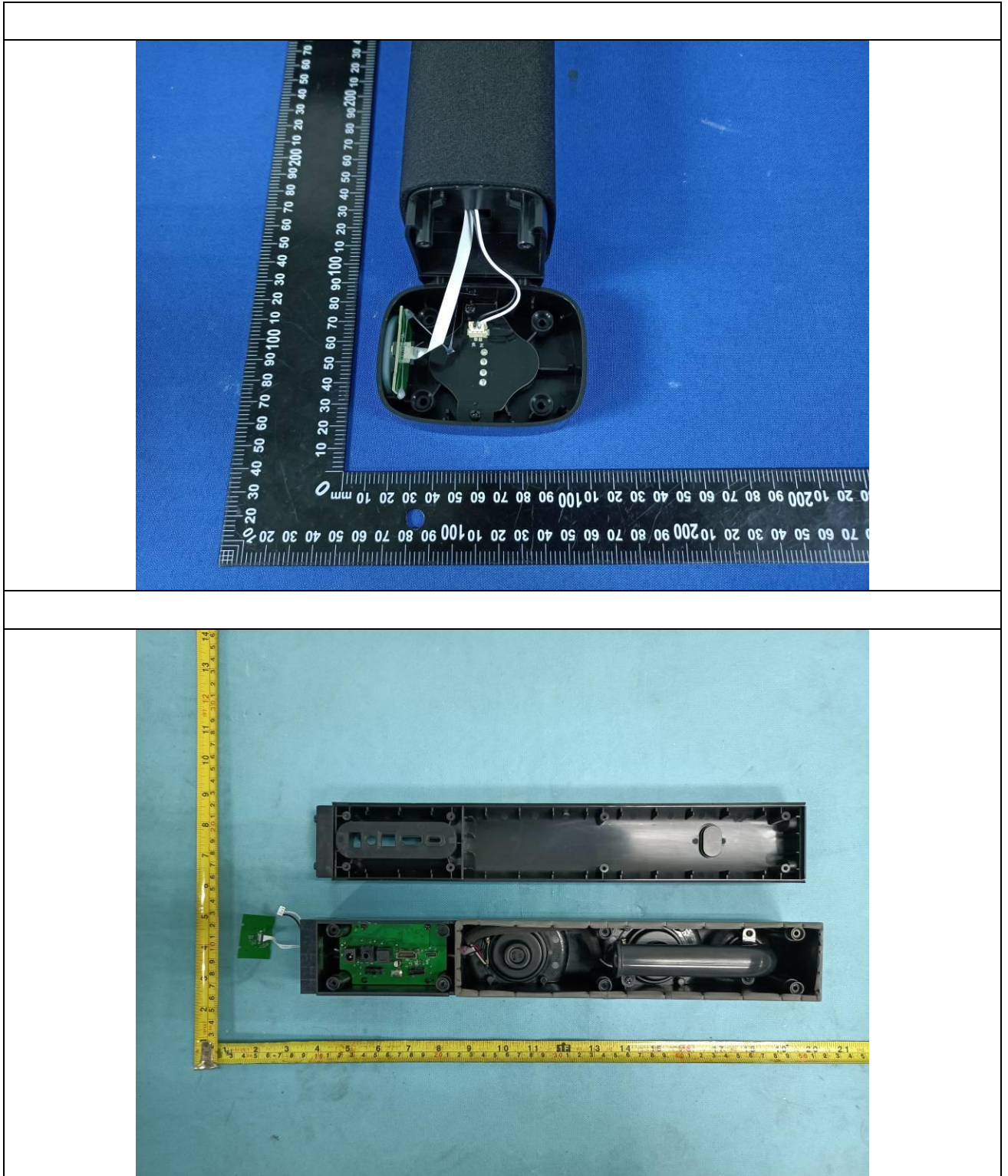
## 7 Photographs - EUT Constructional Details

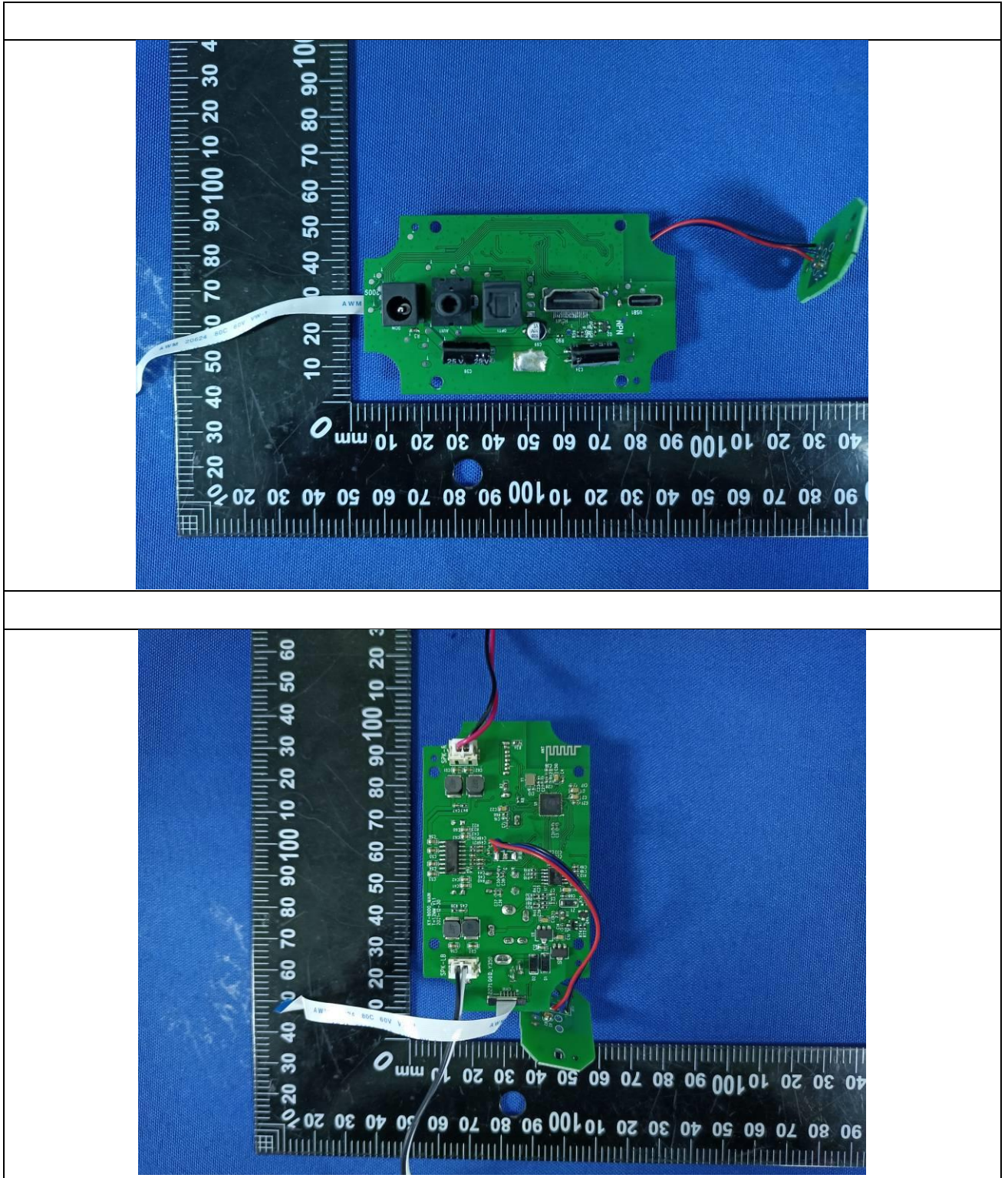


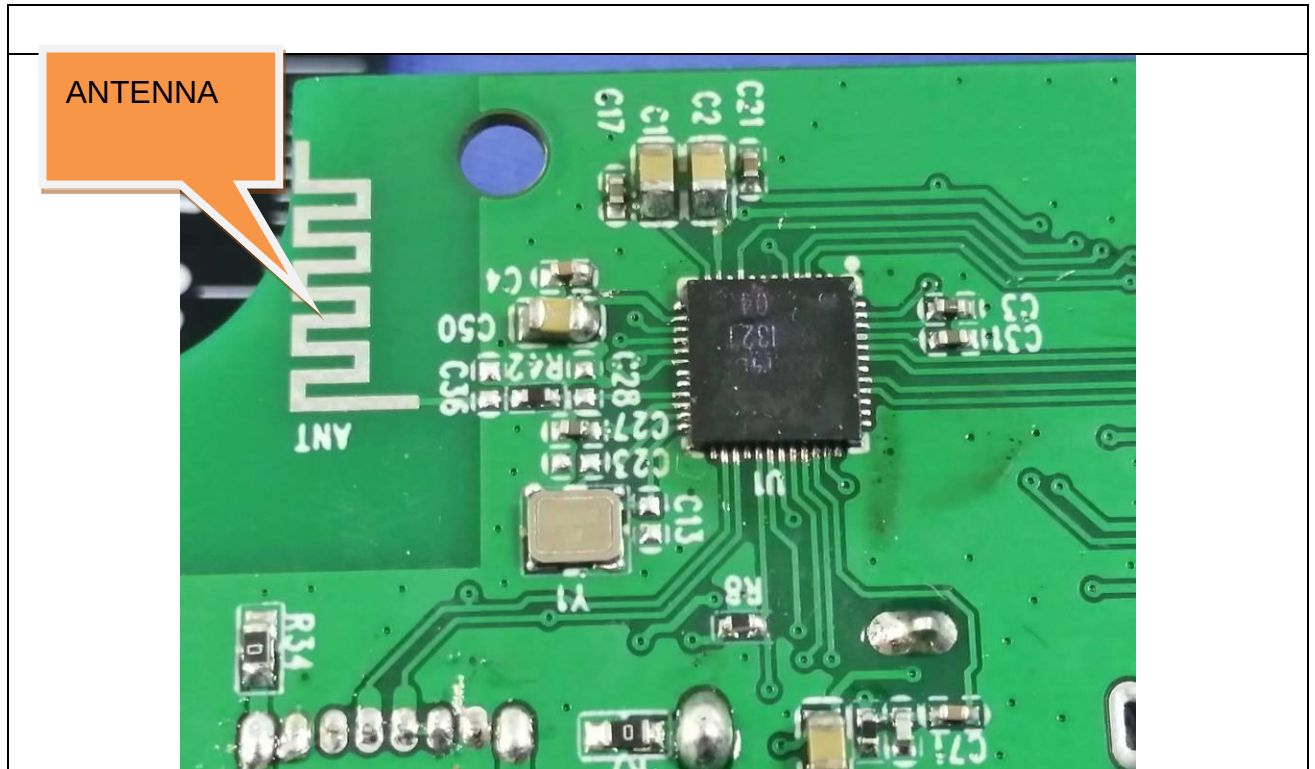












END OF THE REPORT