# MEASUREMENT REPORT

## FCC PART 15.247 / Bluetooth

| | |
|---|---|
| **FCC ID:** | Z9G-EDF161 |
| **Applicant:** | Edifier International Limited |
| **Application Type:** | Certification |
| **Product:** | Active Speaker |
| **Model No.:** | EDF100040, EDF100041 |
| **Brand Name:** | EDIFIER |
| **FCC Classification:** | FCC Part 15 Spread Spectrum Transmitter (DSS) |
| **FCC Rule Part(s):** | Part 15 Subpart C (Section 15.247) |
| **Test Procedure(s):** | ANSI C63.10-2013 |
| **Test Date:** | December 10 ~ 23, 2021 |

**Reviewed By:** Sunny Sun

**Approved By:** Robin Wu

TESTING LABORATORY CERTIFICATE #3628.02

The test results relate only to the samples tested.

This equipment has been shown to be capable of compliance with the applicable technical standards as indicated in the measurement report and was tested in accordance with the measurement procedures specified in ANSI C63.10-2013. Test results reported herein relate only to the item(s) tested.

# Revision History

| Report No. | Version | Description | Issue Date | Note |
|---|---|---|---|---|
| 2111RSU101-U2 | Rev. 01 | Initial Report | 01-16-2022 | Valid |
| | | | | |

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Description Page

# 1. GENERAL INFORMATION

## 1.1. Applicant

Edifier International Limited

P.O. Box 6264 General Post Office Hong Kong

## 1.2. Manufacturer

Beijing Edifier Technology Co., Ltd.

8th floor,ZuoAn Building,NO.68 BeiSiHuanXiLu, Haidian District, Beijing 100080,CHINA

## 1.3. Test Facility

<table>
<tr><td>☐</td><td colspan="5">Test Site – MRT Suzhou Laboratory</td></tr>
<tr><td rowspan="5"></td><td colspan="5">Laboratory Location (Suzhou - Wuzhong)<br>D8 Building, No.2 Tian’edang Rd., Wuzhong Economic Development Zone, Suzhou, China<br>Laboratory Location (Suzhou - SIP)<br>4b Building, Liando U Valley, No.200 Xingpu Rd., Shengpu Town, Suzhou Industrial Park, China</td></tr>
<tr><td colspan="5">Laboratory Accreditations</td></tr>
<tr><td colspan="2">A2LA: 3628.01</td><td colspan="3">CNAS: L10551</td></tr>
<tr><td colspan="2">FCC: CN1166</td><td colspan="3">ISED: CN0001</td></tr>
<tr><td rowspan="2">VCCI:</td><td>☐R-20025</td><td>☐G-20034</td><td>☐C-20020</td><td>☐T-20020</td></tr>
<tr><td>☐R-20141</td><td>☐G-20134</td><td>☐C-20103</td><td>☐T-20104</td></tr>
<tr><td>☒</td><td colspan="5">Test Site – MRT Shenzhen Laboratory</td></tr>
<tr><td rowspan="4"></td><td colspan="5">Laboratory Location (Shenzhen)<br>1G, Building A, Junxiangda Building, Zhongshanyuan Road West, Nanshan District, Shenzhen, China</td></tr>
<tr><td colspan="5">Laboratory Accreditations</td></tr>
<tr><td colspan="2">A2LA: 3628.02</td><td colspan="3">CNAS: L10551</td></tr>
<tr><td colspan="2">FCC: CN1284</td><td colspan="3">ISED: CN0105</td></tr>
<tr><td>☐</td><td colspan="5">Test Site – MRT Taiwan Laboratory</td></tr>
<tr><td rowspan="4"></td><td colspan="5">Laboratory Location (Taiwan)<br>No. 38, Fuxing 2nd Rd., Guishan Dist., Taoyuan City 333, Taiwan (R.O.C.)</td></tr>
<tr><td colspan="5">Laboratory Accreditations</td></tr>
<tr><td colspan="5">TAF: L3261-190725</td></tr>
<tr><td colspan="2">FCC: 291082, TW3261</td><td colspan="3">ISED: TW3261</td></tr>
</table>

### 1.4. Product Information

| | |
|---|---|
| Product Name | Active Speaker |
| Model No. | EDF100040, EDF100041 |
| Test Device Label No. | 20211127Sample#02 (for Conducted)<br>20211127Sample#03 (for Radiated) |
| Operating Temp. | 0 ~ 45°C |
| Rated Input | 100-240Vac, 50/60Hz, 500mA |
| Bluetooth Specification | V5.1 Single mode, BR/EDR only |
| Accessory | |
| Remote Controller | Power Type: Button Battery for EDF100040; AAA Battery for EDF100041<br>Infrared Radiation |

Remarks:

1. The information of EUT was provided by the manufacturer, and the accuracy of the information shall be the responsibility of the manufacturer.
2. The test model is EDF100040, and the only difference between EDF100040 and EDF100041 is different color.
3. The two models are shipped with infrared different remote controller.

### 1.5. Product Specification

| | |
|---|---|
| Operating Frequency | 2402 ~ 2480MHz |
| Channel Number | 79 |
| Type of modulation | GFSK, π/4 DQPSK, 8DPSK |
| Data Rate | 1Mbps (GFSK), 2Mbps (π/4 DQPSK), 3Mbps (8DPSK) |
| Antenna Type | Multilayer Chip Antenna |
| Antenna Gain | 2.50dBi |

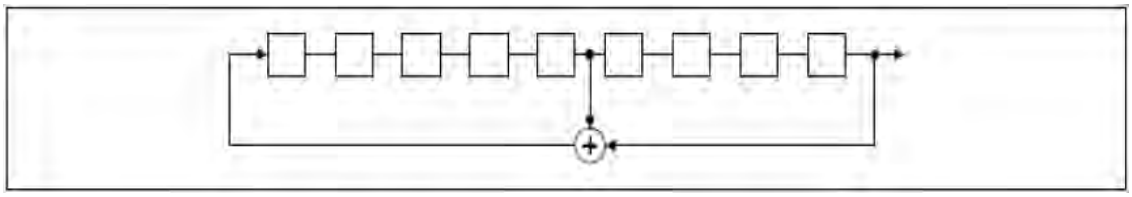
### 1.6. Working Frequencies

| Channel | Frequency | Channel | Frequency | Channel | Frequency |
|---|---|---|---|---|---|
| 00 | 2402 MHz | 01 | 2403 MHz | 02 | 2404 MHz |
| 03 | 2405 MHz | 04 | 2406 MHz | 05 | 2407 MHz |
| 06 | 2408 MHz | 07 | 2409 MHz | 08 | 2410 MHz |
| 09 | 2411 MHz | 10 | 2412 MHz | 11 | 2413 MHz |
| 12 | 2414 MHz | 13 | 2415 MHz | 14 | 2416 MHz |
| 15 | 2417 MHz | 16 | 2418 MHz | 17 | 2419 MHz |
| 18 | 2420 MHz | 19 | 2421 MHz | 20 | 2422 MHz |
| 21 | 2423 MHz | 22 | 2424 MHz | 23 | 2425 MHz |
| 24 | 2426 MHz | 25 | 2427 MHz | 26 | 2428 MHz |
| 27 | 2429 MHz | 28 | 2430 MHz | 29 | 2431 MHz |
| 30 | 2432 MHz | 31 | 2433 MHz | 32 | 2434 MHz |
| 33 | 2435 MHz | 34 | 2436 MHz | 35 | 2437 MHz |
| 36 | 2438 MHz | 37 | 2439 MHz | 38 | 2440 MHz |
| 39 | 2441 MHz | 40 | 2442 MHz | 41 | 2443 MHz |
| 42 | 2444 MHz | 43 | 2445 MHz | 44 | 2446 MHz |
| 45 | 2447 MHz | 46 | 2448 MHz | 47 | 2449 MHz |
| 48 | 2450 MHz | 49 | 2451 MHz | 50 | 2452 MHz |
| 51 | 2453 MHz | 52 | 2454 MHz | 53 | 2455 MHz |
| 54 | 2456 MHz | 55 | 2457 MHz | 56 | 2458 MHz |
| 57 | 2459 MHz | 58 | 2460 MHz | 59 | 2461 MHz |
| 60 | 2462 MHz | 61 | 2463 MHz | 62 | 2464 MHz |
| 63 | 2465 MHz | 64 | 2466 MHz | 65 | 2467 MHz |
| 66 | 2468 MHz | 67 | 2469 MHz | 68 | 2470 MHz |
| 69 | 2471 MHz | 70 | 2472 MHz | 71 | 2473 MHz |
| 72 | 2474 MHz | 73 | 2475 MHz | 74 | 2476 MHz |
| 75 | 2477 MHz | 76 | 2478 MHz | 77 | 2479 MHz |
| 78 | 2480 MHz | -- | -- | -- | -- |

### 1.7. Pseudorandom Frequency Hopping Sequence

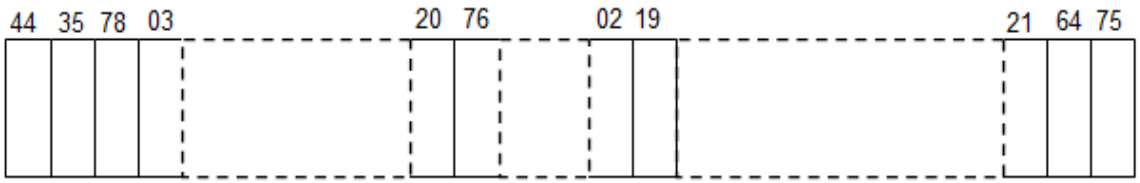
The pseudorandom sequence may be generated in a nine-stage shift register whose 5th and 9th stage outputs are added in a modulo-two addition stage. And the result is fed back to the input of the first stage. The sequence begins with the first ONE of 9 consecutive ONES, i.e. the shift register is initialized with nine ones.

- Number of shift register stages: 9
- Length of pseudo-random sequence: $2^9$ - 1 = 511 bits
- Longest sequence of zeros: 8 (non-inverted signal)



Linear Feedback Shift Register for Generation of the PRBS sequence

An example of Pseudorandom Frequency Hopping Sequence as follow:



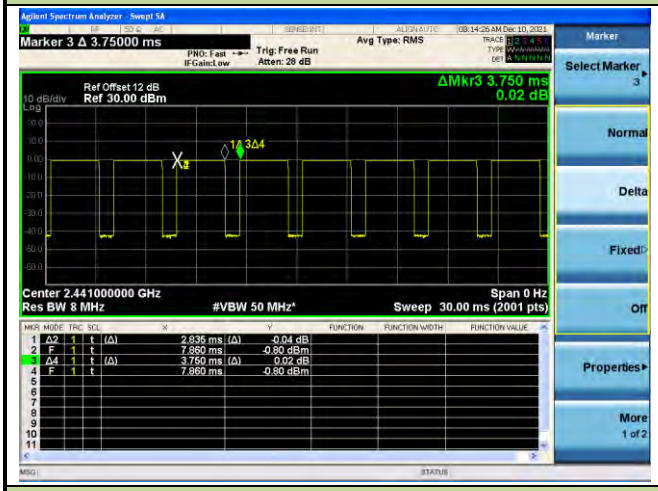
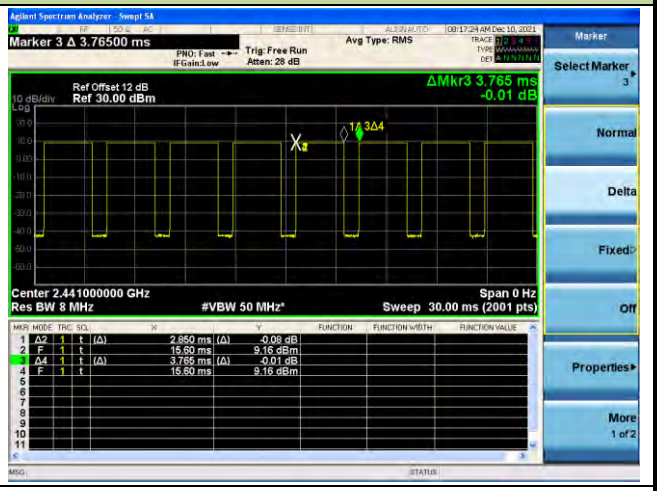
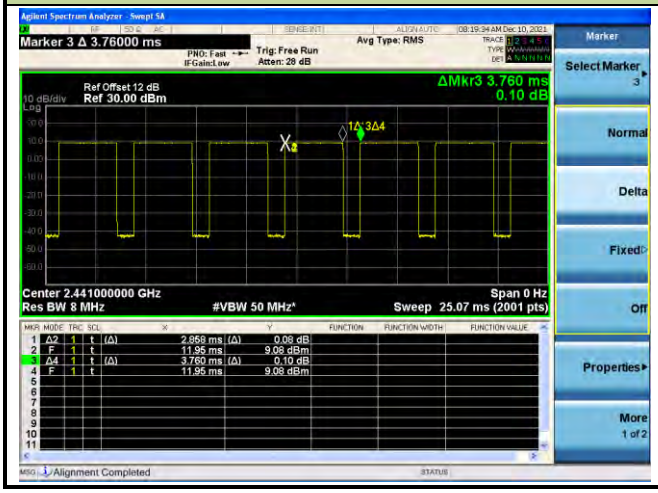

Each frequency used equally on the average by each transmitter.

The system receivers have input bandwidths that match the hopping channel bandwidths of their Corresponding transmitters and shift frequencies in synchronization with the transmitted signals.

### 1.8. Duty Cycle

The maximum achievable duty cycle was determined based on measurements performed on a spectrum analyzer in zero-span mode with RBW = 8MHz, VBW = 50MHz. The RBW and VBW were both greater than 50/T, where T is the minimum transmission duration, and the number of sweep points across T was greater than 100. The duty cycles are as follows:

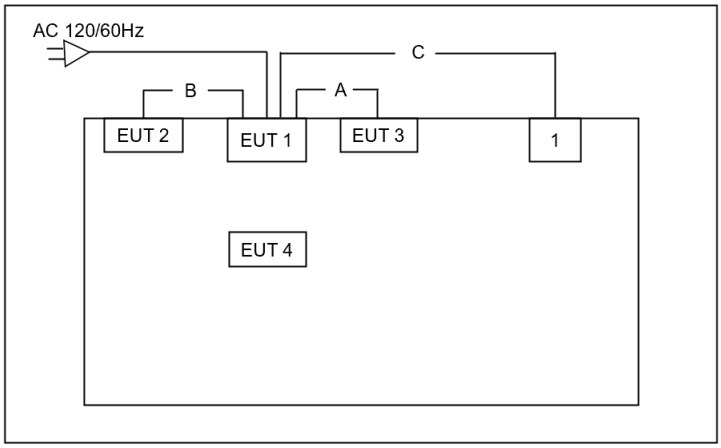
| Test Mode | Duty Cycle |
|---|---|
| DH5 | 75.60% |
| 2DH5 | 75.70% |
| 3DH5 | 76.01% |

| Duty Cycle (T = Transmission Duration) | |
|---|---|
| DH5 (T = 2.835ms) | 2DH5 (T = 2.850ms) |
|  |  |
| 3DH5 (T = 2.858ms) | |
|  | |

### 1.9. Configuration of Test System

The device was tested per the guidance ANSI C63.10: 2013 that was used to reference the appropriate EUT setup for radiated emissions and AC line conducted emission testing.

Setup for Radiated spurious emissions and AC conducted emissions




| Cable Type | | Cable Description |
|---|---|---|
| A | VGA Cable | Shielded, 1.50m |
| B | Speaker Connecting Cable | Non-Shielded, 3.0m |
| C | Audio Cable | Non-Shielded, 0.9m |
| D | Coaxial Cable | Non-Shielded, 1.0m |
| E | Optical Cable | Non-Shielded, 1.8m |
| Product | | Manufacturer |
| EUT 1 | Active Speaker | EDIFIER |
| EUT 2 | Left Satellite Speaker | EDIFIER |
| EUT 3 | Right Satellite Speaker | EDIFIER |
| EUT 4 | Infrared Remote Controller | EDIFIER |
| 1 | Phone | Redmi |

Note: The test utility software used during testing was “BlueTest3”, and the version was 3.3.4.685.

### 1.10. EMI Suppression Device(s) / Modifications

No EMI suppression device(s) were added and/or no modifications were made during testing.

### 1.11. Test Environment Condition

| | |
|---|---|
| Ambient Temperature | 15 ~ 35 ℃ |
| Relative Humidity | 20 ~ 75 %RH |

## 2. ANTENNA REQUIREMENTS

**Excerpt from §15.203 of the FCC Rules/Regulations:**

"An intentional radiator antenna shall be designed to ensure that no antenna other than that furnished by the responsible party can be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section."

- The antenna of the device is **permanently attached.**
- There are no provisions for connection to an external antenna.

**Conclusion:**

The unit complies with the requirement of §15.203.

## 3. TEST EQUIPMENT CALIBRATION DATE

| Instrument | Manufacturer | Type No. | Asset No. | Cali. Interval | Cali. Due Date | Test Site |
|---|---|---|---|---|---|---|
| EMI Test Receiver | R&S | ESL3 | MRTSUE06576 | 1 year | 2022/06/27 | NS-SR2 |
| ENV216-LV-NETZNACHB | R&S | ENV216 | MRTSUE06577 | 1 year | 2022/07/04 | NS-SR2 |
| ENV216-LV-NETZNACHB | R&S | ENV216 | MRTSUE06578 | 1 year | 2022/07/04 | NS-SR2 |
| Temperature/Humidity Meter | deli | NO.8813 | MRTSUE06587 | 1 year | 2022/06/30 | NS-SR2 |
| Shielding Anechoic Chamber | BOOMWAVE | SR2 | MRTSUE06551 | 5 years | 2024/06/04 | NS-SR2 |
| EMI Test Receiver | R&S | ESR3 | MRTSUE06575 | 1 year | 2022/06/27 | NS-AC1 |
| EXA Signal Analyzer | Keysight | N9010A | MRTSUE06195 | 1 year | 2022/03/17 | NS-AC1 |
| Horn Antenna | Schwarzbeck | BBHA 9170 | MRTSUE06292 | 1 year | 2022/10/20 | NS-AC1 |
| Broad-Band Horn Antenna | Schwarzbeck | 9120D | MRTSUE06572 | 1 year | 2022/03/14 | NS-AC1 |
| Bilog Period Antenna | Schwarzbeck | VULB 9162 | MRTSUE06573 | 1 year | 2022/06/28 | NS-AC1 |
| Broadband Coaxial Preamplifier | Schwarzbeck | BBV 9718 | MRTSUE06574 | 1 year | 2022/07/12 | NS-AC1 |
| Anechoic Chamber | BOOMWAVE | AC1 | MRTSUE06496 | 1 year | 2022/07/24 | NS-AC1 |
| Temperature/Humidity Meter | deli | NO.8813 | MRTSUE06588 | 1 year | 2022/06/30 | NS-AC1 |
| Electronic hygrothermograph | DELI | No.8813 | MRTSUE06783 | 1 year | 2022/05/09 | NS-TR2 |
| USB wideband power sensor | Keysight | U2021XA | MRTSUE06581 | 1 year | 2022/08/15 | NS-TR2 |
| EXA Signal Analyzer | Keysight | N9010A | MRTSUE06195 | 1 year | 2022/08/19 | NS-TR2 |

| Software | Version | Function |
|---|---|---|
| EMI Software | V3 | EMI Test Software |

# 4. MEASUREMENT UNCERTAINTY

Where relevant, the following test uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2. This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k = 2.

| |
|---|
| AC Conducted Emission Measurement |
| Measurement Uncertainty for a Level of Confidence of 95% (U=2Uc(y)):<br>9kHz~150kHz: 3.74dB<br>150kHz~30MHz: 3.44dB |
| Radiated Disturbance |
| Measurement Uncertainty for a Level of Confidence of 95% (U=2Uc(y)):<br>Horizontal:<br>30MHz~300MHz: 5.04dB<br>300MHz~1GHz: 4.95dB<br>1GHz~40GHz: 6.40dB<br>Vertical:<br>30MHz~300MHz: 5.24dB<br>300MHz~1GHz: 6.03dB<br>1GHz~40GHz: 6.40dB |
| Spurious Emissions, Conducted |
| Measuring Uncertainty for a Level of Confidence of 95% (U=2Uc(y)):<br>0.78dB |
| Output Power |
| Measuring Uncertainty for a Level of Confidence of 95% (U=2Uc(y)):<br>1.13dB |
| Occupied Bandwidth |
| Measuring Uncertainty for a Level of Confidence of 95% (U=2Uc(y)):<br>0.28% |

# 5. TEST RESULT

## 5.1. Summary

| FCC Part Section(s) | Test Description | Test Limit | Test Condition | Test Result |
|---|---|---|---|---|
| 15.247(a)(1) | 20dB Bandwidth | No Limit | Conducted | Pass |
| 15.247(b)(1) | Peak Transmitter Output Power | <1 Watt if > 75 non-overlapping channels used | | Pass |
| 15.24207(a)(1) | Channel Separation | > 2/3 of 20 dB BW for systems with Output Power < 125mW | | Pass |
| 15.247(a)(1)(iii) | Number of Channels | > 15 Channels | | Pass |
| 15.247(a)(1)(iii) | Time of Occupancy | < 0.4 sec in 31.6 sec period | | Pass |
| 15.247(d) | Band Edge / Out-of-Band Emissions | Conducted ≥ 20dBc | | Pass |
| 15.205, 15.209 | General Field Strength (Restricted Bands and Radiated Emission) | Emissions in restricted bands must meet the radiated limits detailed in 15.209 | Radiated | Pass |
| 15.207 | AC Conducted Emissions 150kHz - 30MHz | < FCC 15.207 limits > | Line Conducted | Pass |

**Notes:**

1) The analyzer plots shown in this section were all taken with a correction table loaded into the analyzer. The correction table was used to account for the losses of the cables and attenuators used as part of the system to connect the EUT to the analyzer at all frequencies of interest.

## 5.2. 20dB Bandwidth Measurement

### 5.2.1.Test Limit

N/A

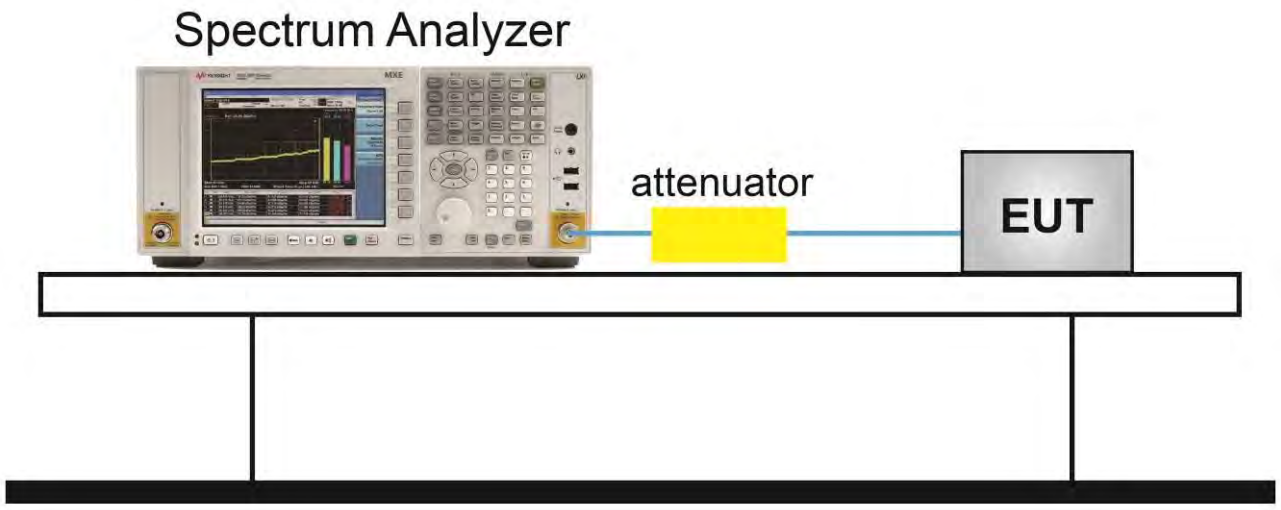
### 5.2.2.Test Procedure Used

ANSI C63.10-2013 - Section 6.9.2

### 5.2.3.Test Setting

1. Set RBW ≥ 1% to 5% of the OBW
2. VBW = Approximately three times RBW
3. Span = Approximately 2 to 5 times the OBW, centered on a hopping channel
4. Detector = Peak
5. Trace mode = Max hold
6. Sweep = Auto couple
7. Allow the trace to stabilize
8. Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 20 dB relative to the maximum level measured in the fundamental emission.

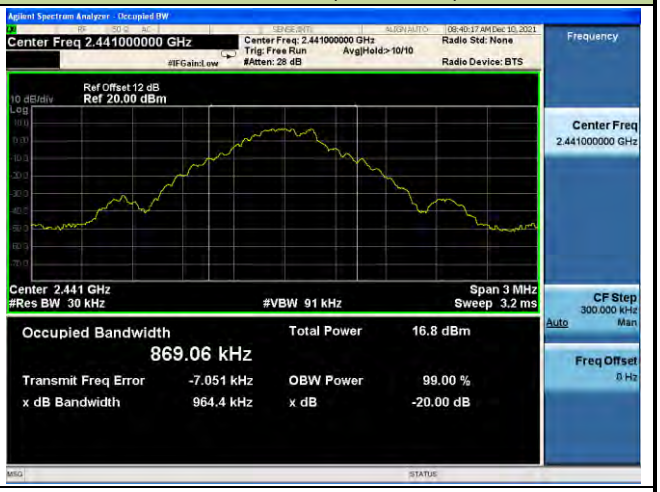
### 5.2.4.Test Setup

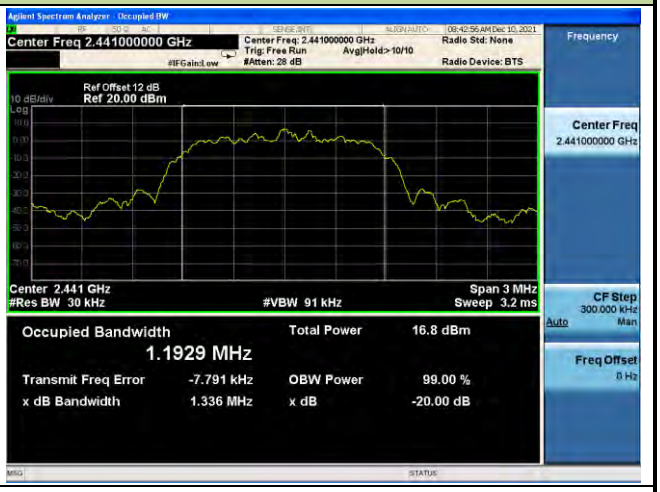


**5.2.5.Test Result**

| Test Site | NS-TR2 | Test Engineer | Summer Tang |
|---|---|---|---|
| Test Date | 2021/12/10 | | |

| Test Mode | Channel No. | Frequency (MHz) | 20dB Bandwidth (kHz) | Result |
|---|---|---|---|---|
| DH5 | 00 | 2402 | 963.1 | Pass |
| | 39 | 2441 | 964.4 | Pass |
| | 78 | 2480 | 957.7 | Pass |
| 2DH5 | 00 | 2402 | 1334.0 | Pass |
| | 39 | 2441 | 1336.0 | Pass |
| | 78 | 2480 | 1336.0 | Pass |
| 3DH5 | 00 | 2402 | 1311.0 | Pass |
| | 39 | 2441 | 1304.0 | Pass |
| | 78 | 2480 | 1311.0 | Pass |

| DH5 20dB Bandwidth | |
|---|---|
| Channel 00 (2402MHz) | Channel 39 (2441MHz) |
|  |  |
| Channel 78 (2480MHz) | |
|  | |

| 2DH5 20dB Bandwidth | |
|---|---|
| Channel 00 (2402MHz) | Channel 39 (2441MHz) |
|  |  |
| Channel 78 (2480MHz) | |
|  | |

| 3DH5 20dB Bandwidth | |
|---|---|
| Channel 00 (2402MHz) | Channel 39 (2441MHz) |
|  |  |
| Channel 78 (2480MHz) | |
|  | |

## 5.3. Output Power Measurement

### 5.3.1.Test Limit

The maximum out power permissible output power is 1 Watt for all frequency hopping systems operating in the 2400-2483.5 MHz band employing at least 75 non-overlapping hopping channels.

For all other frequency hopping systems in the 2400-2483.5 MHz band: 0.125 watts.

### 5.3.2.Test Procedure Used

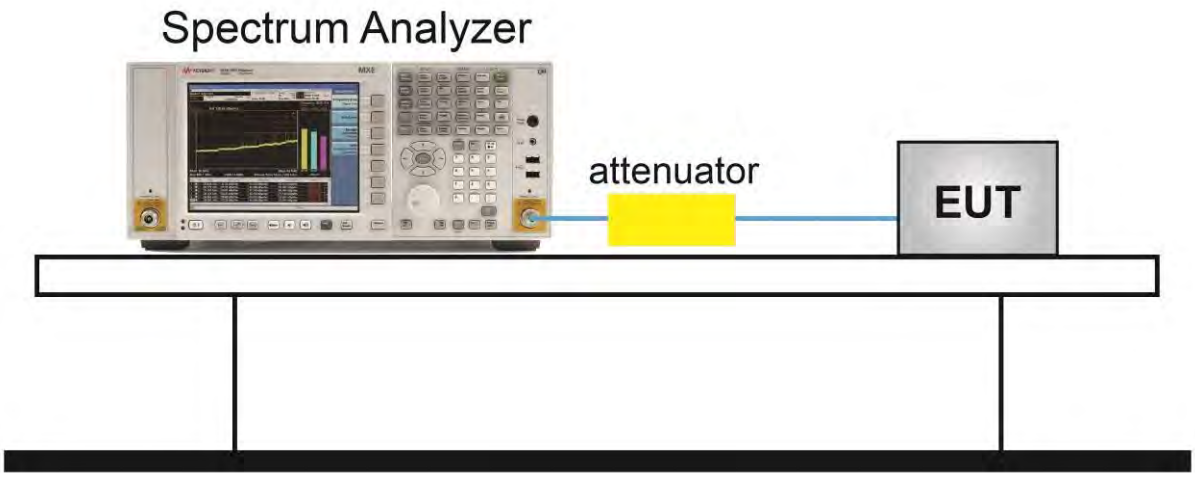
ANSI C63.10-2013 - Section 7.8.5

### 5.3.3.Test Setting

1. Set RBW ≥ the 20 dB bandwidth of the emission being measured.
2. VBW ≥ RBW
3. Span = approximately five times the 20dB bandwidth, centered on a hopping channel
4. Detector = Peak
5. Trace mode = Max hold
6. Sweep = Auto couple
7. Allow the trace to stabilize. Use the marker-to-peak function to set the marker to the peak of the emission.

   The indicated level is the peak output power (don't forget added the external attenuation and cable loss)

### 5.3.4.Test Setup



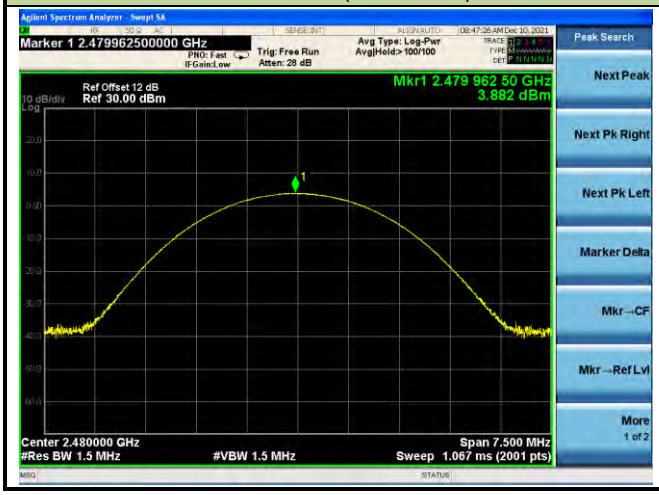
### 5.3.5.Test Result

| Test Site | NS-TR2 | Test Engineer | Summer Tang |
|---|---|---|---|
| Test Date | 2021/12/10 | | |

| Test Mode | Channel No. | Frequency (MHz) | Peak Power (dBm) | Power Limit (dBm) |
|---|---|---|---|---|
| DH5 | 00 | 2402 | 1.13 | ≤ 30.00 |
| | 39 | 2441 | 1.19 | ≤ 30.00 |
| | 78 | 2480 | 1.38 | ≤ 30.00 |
| 2DH5 | 00 | 2402 | 3.18 | ≤ 30.00 |
| | 39 | 2441 | 3.24 | ≤ 30.00 |
| | 78 | 2480 | 3.40 | ≤ 30.00 |
| 3DH5 | 00 | 2402 | 3.70 | ≤ 30.00 |
| | 39 | 2441 | 3.76 | ≤ 30.00 |
| | 78 | 2480 | 3.88 | ≤ 30.00 |

| DH5 Output Power | |
|---|---|
| Channel 00 (2402MHz) | Channel 39 (2441MHz) |
|  |  |
| Channel 78 (2480MHz) | |
|  | |

| 2DH5 Output Power | |
|---|---|
| Channel 00 (2402MHz) | Channel 39 (2441MHz) |
|  |  |
| Channel 78 (2480MHz) | |
|  | |

| 3DH5 Output Power | |
|---|---|
| Channel 00 (2402MHz) | Channel 39 (2441MHz) |
|  |  |
| Channel 78 (2480MHz) | |
|  | |

## 5.4. Carrier Frequency Separation Measurement

### 5.4.1.Test Limit

The minimum permissible channel separation for this system is 25kHz or 2/3 the value of the 20dB BW, whichever is greater.

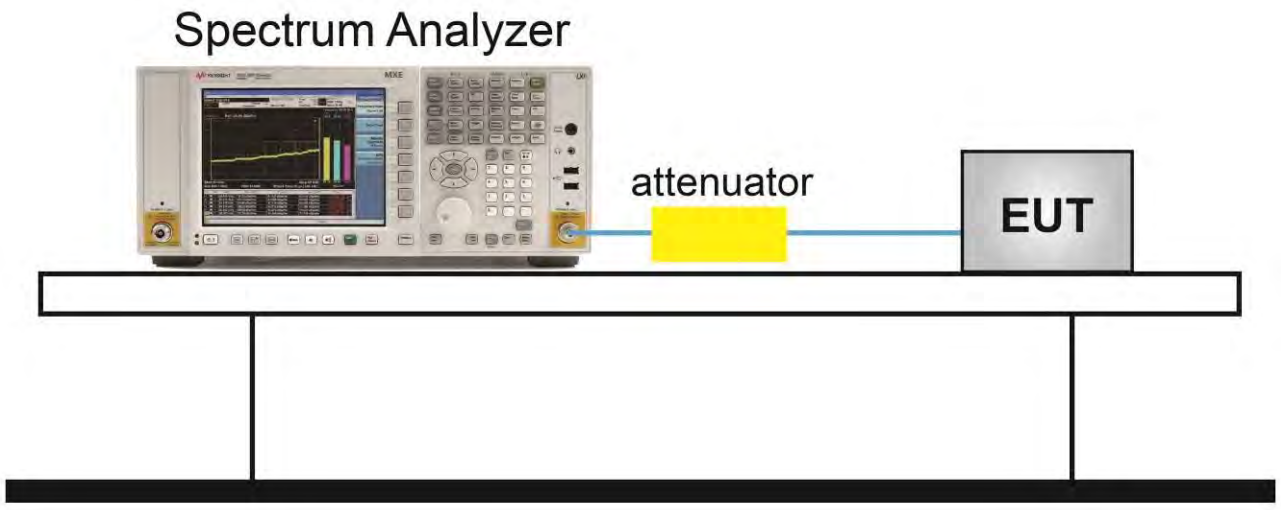
### 5.4.2.Test Procedure Used

ANSI C63.10-2013 - Section 7.8.2

### 5.4.3.Test Setting

1. Span = Wide enough to capture the peaks of two adjacent channels.
2. Start with the RBW set to approximately 30% of the channel spacing; adjust as necessary to best identify the center of each individual channel.
3. VBW ≥ RBW
4. Sweep time = Auto couple
5. Detector = Peak
6. Trace mode = Max hold
7. Allowed the trace to stabilize
8. Use the marker-delta function to determine the separation between the peaks of the adjacent channels.

### 5.4.4.Test Setup

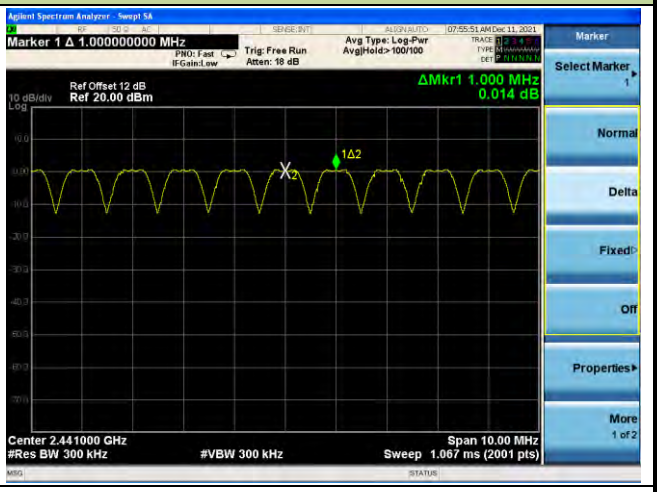


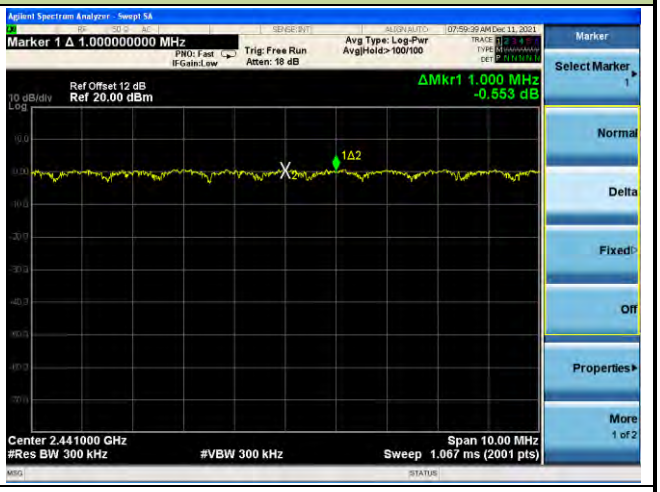
### 5.4.5.Test Result

| Test Site | NS-TR2 | Test Engineer | Summer Tang |
|---|---|---|---|
| Test Date | 2021/12/11 | | |

| Test Mode | Channel No. | Frequency (MHz) | Carrier Frequency Separation (kHz) | Limit (kHz) | Result |
|---|---|---|---|---|---|
| DH5 | 00 | 2402 | 1000 | ≥ 642.1 | Pass |
| | 39 | 2441 | 1000 | ≥ 642.9 | Pass |
| | 78 | 2480 | 1000 | ≥ 638.5 | Pass |
| 2DH5 | 00 | 2402 | 1000 | ≥ 889.3 | Pass |
| | 39 | 2441 | 1000 | ≥ 890.7 | Pass |
| | 78 | 2480 | 1000 | ≥ 890.7 | Pass |
| 3DH5 | 00 | 2402 | 1000 | ≥ 874.0 | Pass |
| | 39 | 2441 | 1000 | ≥ 869.3 | Pass |
| | 78 | 2480 | 1000 | ≥ 874.0 | Pass |

Note: The Limit is 2/3 the value of the 20dB BW.

| DH5 Carrier Frequency Separation | |
|---|---|
| Channel 00 (2402MHz) | Channel 39 (2441MHz) |
|  |  |
| Channel 78 (2480MHz) | |
|  | |

| 2DH5 Carrier Frequency Separation | |
|---|---|
| Channel 00 (2402MHz) | Channel 39 (2441MHz) |
|  |  |
| Channel 78 (2480MHz) | |
|  | |

| 3DH5 Carrier Frequency Separation | |
|---|---|
| Channel 00 (2402MHz) | Channel 39 (2441MHz) |
|  |  |
| Channel 78 (2480MHz) | |
|  | |

## 5.5. Number of Hopping Channels Measurement

### 5.5.1.Test Limit

This frequency hopping system must employ a minimum of 15 hopping channels.

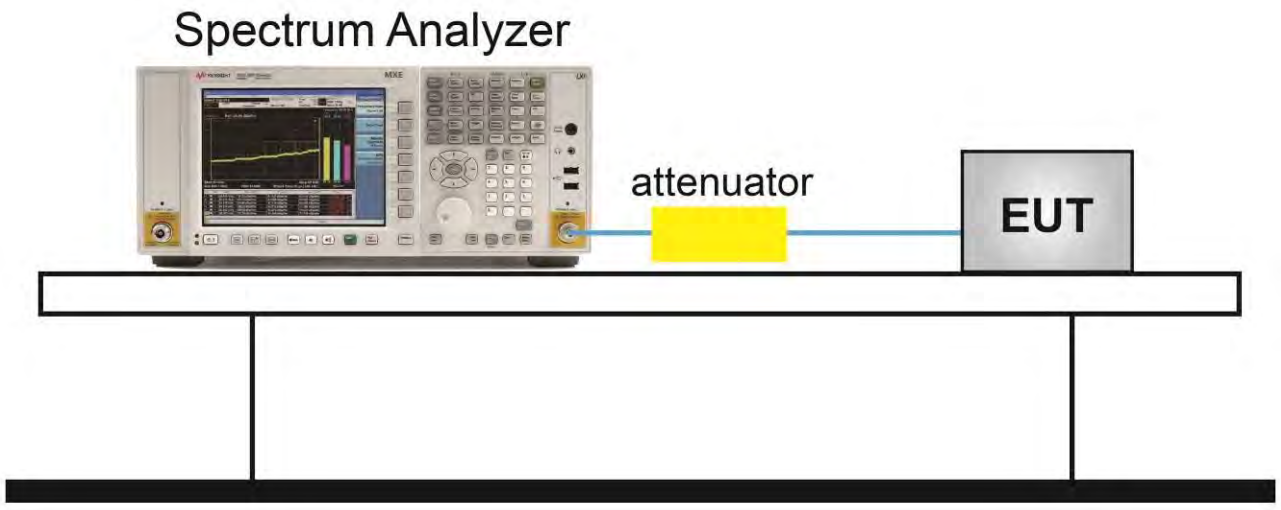
### 5.5.2.Test Procedure Used

ANSI C63.10-2013 - Section 7.8.3

### 5.5.3.Test Setting

1. Span = The frequency band of operation. Depending on the number of channels the device supports, it may be necessary to divide the frequency range of operation across multiple spans, to allow the individual channels to be clearly seen.
2. RBW: To identify clearly the individual channels, set the RBW to less than 30% of the channel spacing or the 20 dB bandwidth, whichever is smaller.
3. VBW ≥ RBW
4. Sweep time = Auto couple
5. Detector = Peak
6. Trace mode = Max hold
7. Allow the trace to stabilize

### 5.5.4.Test Setup



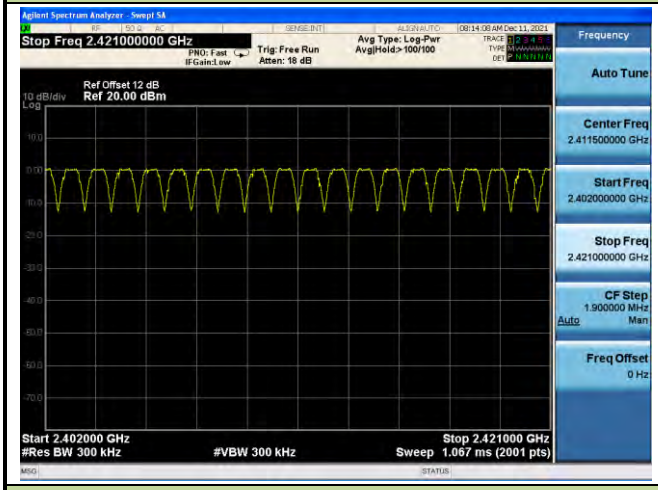
### 5.5.5.Test Result

| Test Site | NS-TR2 | Test Engineer | Summer Tang |
|---|---|---|---|
| Test Date | 2021/12/11 | | |

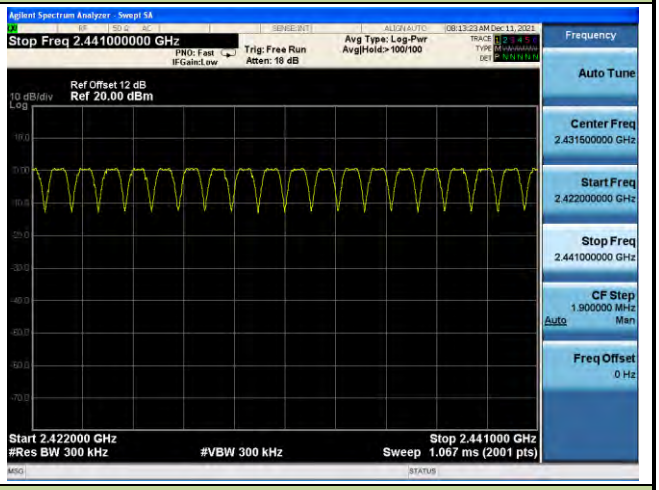
| Test Mode (Hopping) | Channel Numbers | Frequency (MHz) | Limit (Hopping Channels) | Result |
|---|---|---|---|---|
| DH5 | 79 | 2402 ~ 2480 | ≥ 15 | Pass |
| 2DH5 | 79 | 2402 ~ 2480 | ≥ 15 | Pass |
| 3DH5 | 79 | 2402 ~ 2480 | ≥ 15 | Pass |

DH5 Number of Hopping Channels

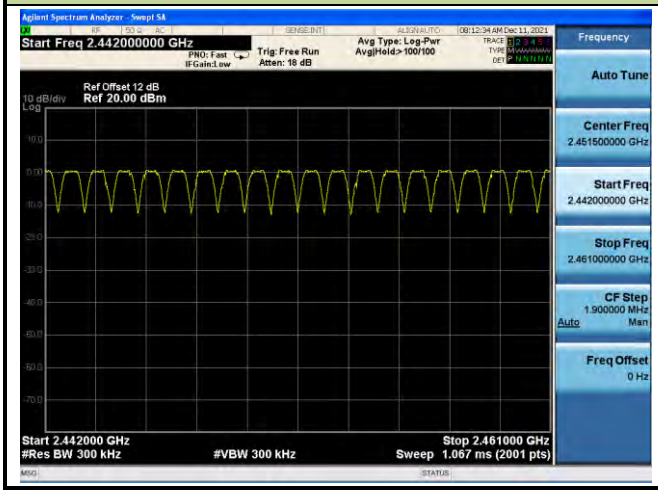
2402 ~ 2421MHz



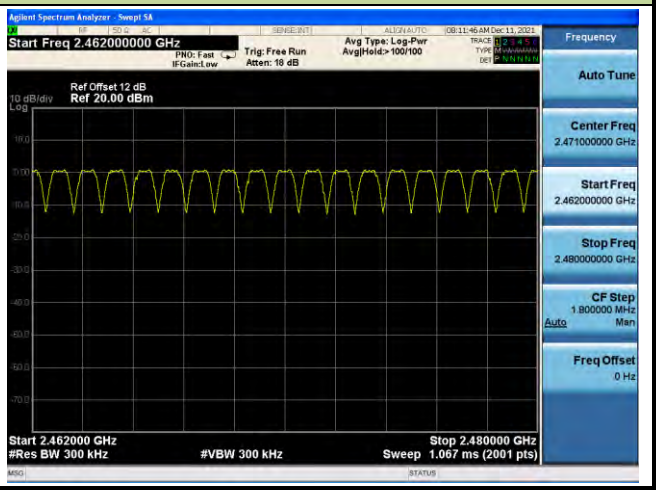

2422 ~ 2441MHz

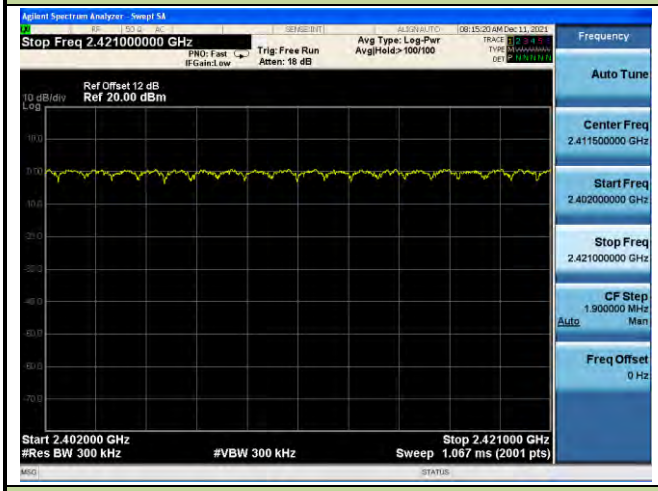
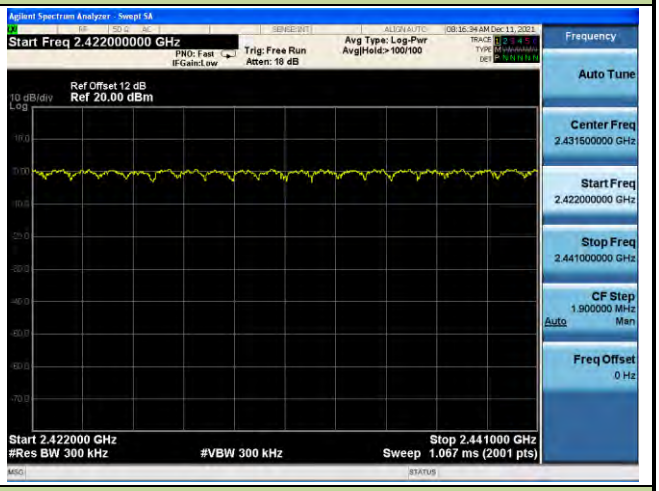
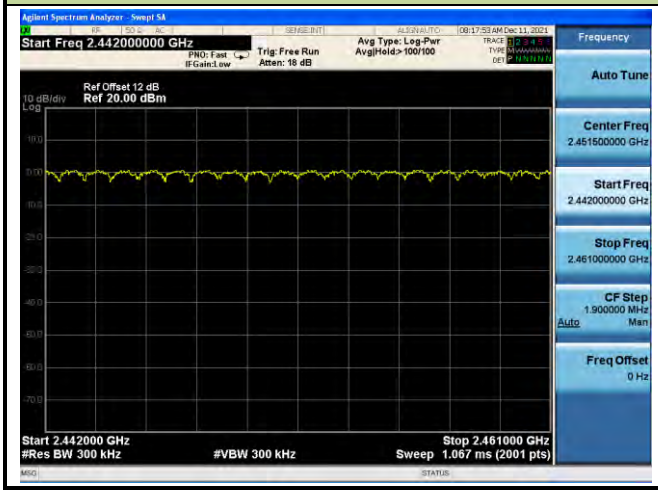
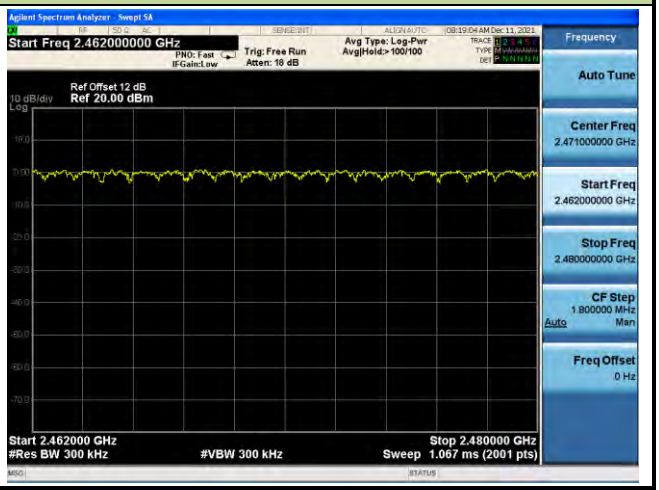


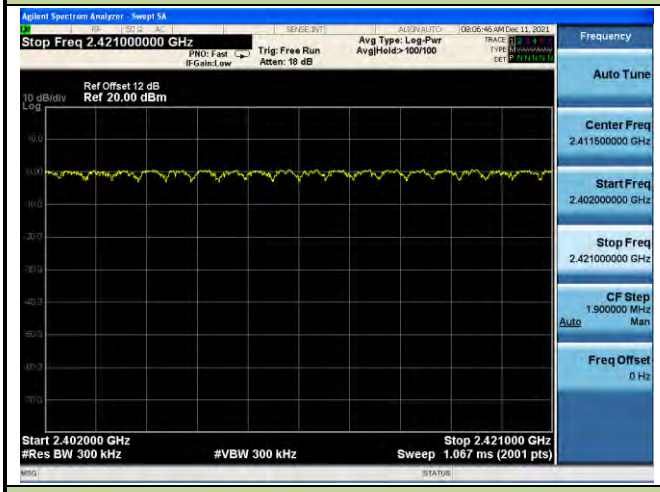
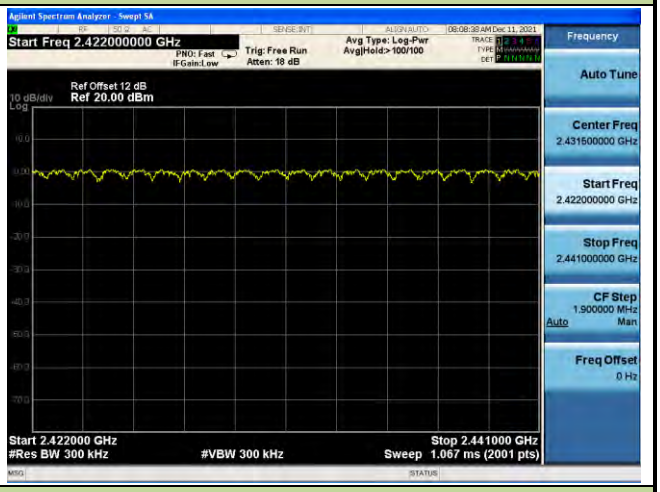
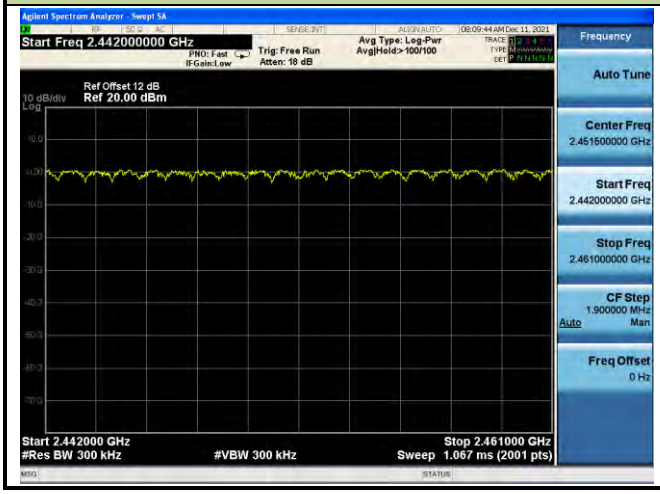
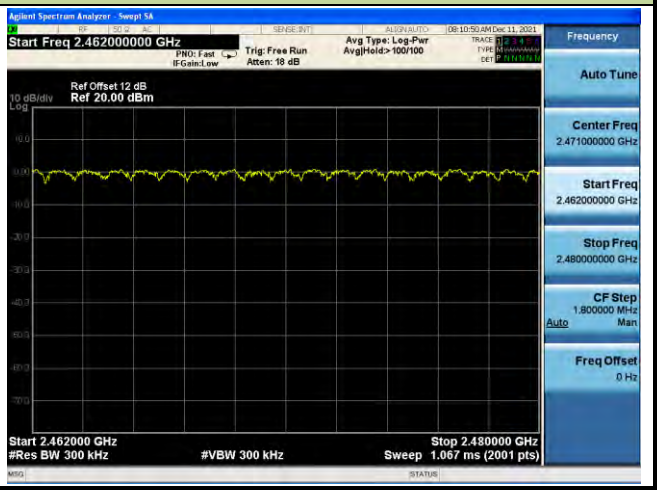

2442 ~ 2461MHz




2462 ~ 2480MHz



| 2DH5 Number of Hopping Channels | |
|---|---|
| 2402 ~ 2421MHz | 2422 ~ 2441MHz |
|  |  |
| 2442 ~ 2461MHz | 2462 ~ 2480MHz |
|  |  |

| 3DH5 Number of Hopping Channels | |
|---|---|
| 2402 ~ 2421MHz | 2422 ~ 2441MHz |
|  |  |
| 2442 ~ 2461MHz | 2462 ~ 2480MHz |
|  |  |

## 5.6. Time of Occupancy Measurement

### 5.6.1.Test Limit

The maximum permissible time of occupancy is 400ms within a period of 400ms multiplied by the number of hopping channels employed.

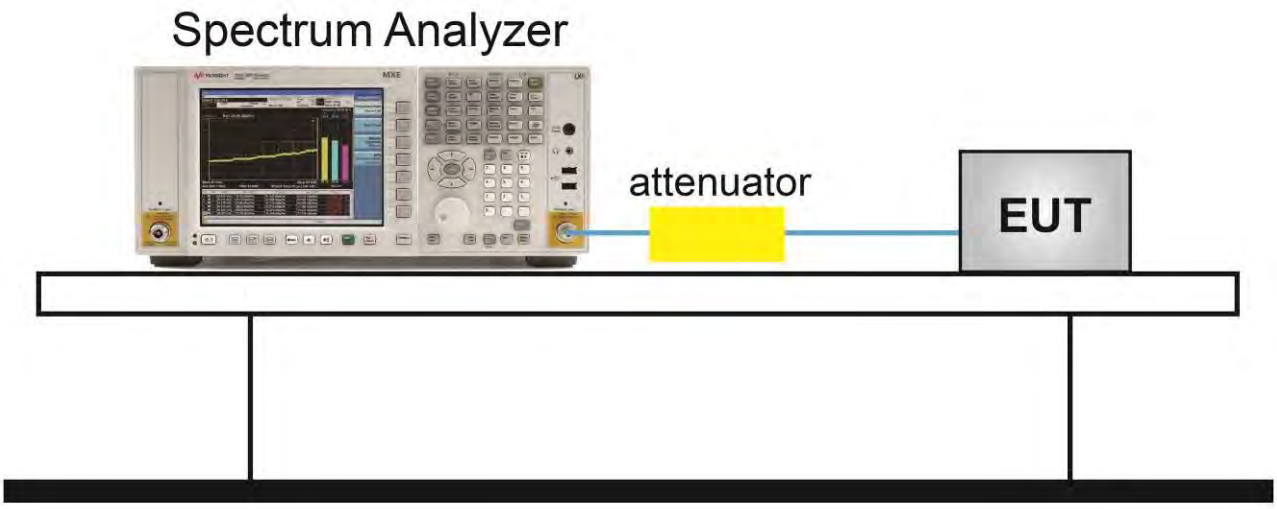
### 5.6.2.Test Procedure Used

ANSI C63.10-2013 - Section 7.8.4

### 5.6.3.Test Setting

1. Span = Zero span, centered on a hopping channel.
2. RBW shall be ≤ channel spacing and where possible RBW should be set >> 1 / T, where T is the expected dwell time per channel.
3. VBW ≥ RBW
4. Sweep time = As necessary to capture the entire dwell time per hopping channel
5. Detector = Peak
6. Trace mode = Free run
7. Use the marker-delta function to determine the transmit time per hop. If this value varies with different modes of operation (data rate, modulation format, number of hopping channels, etc.), then repeat this test for each variation in transmit time. An oscilloscope may be used instead of a spectrum analyzer. The EUT shall show compliance with the appropriate regulatory limit for the number of hopping channels. A plot of the data shall be included in the test report.

**5.6.4.Test Setup**



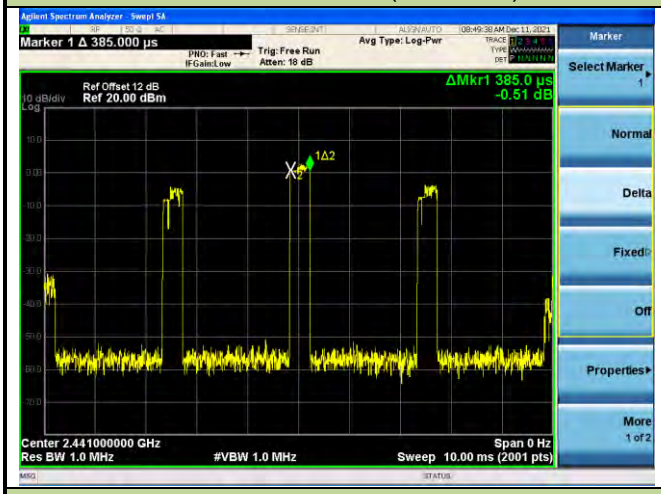
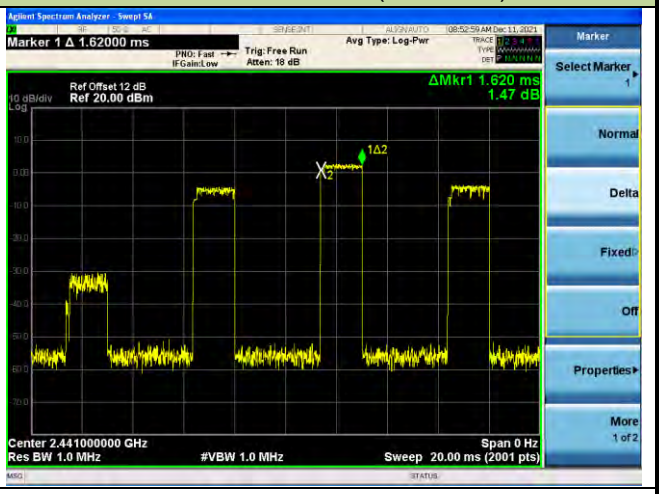
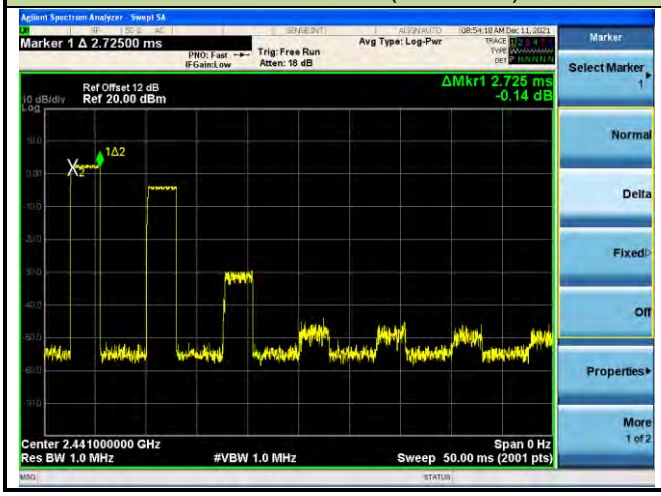
### 5.6.5.Test Result

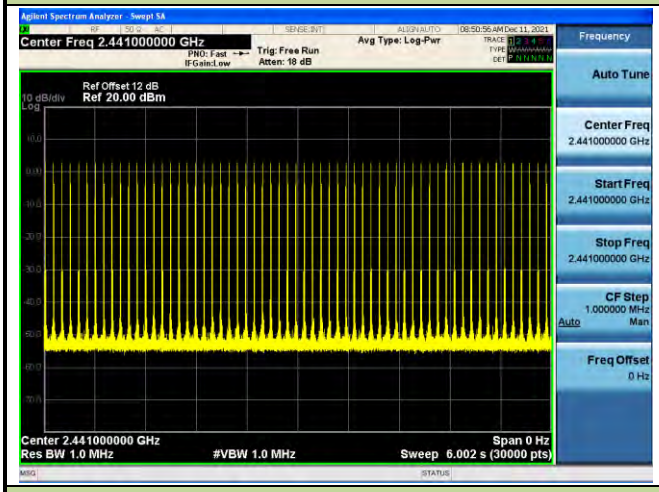
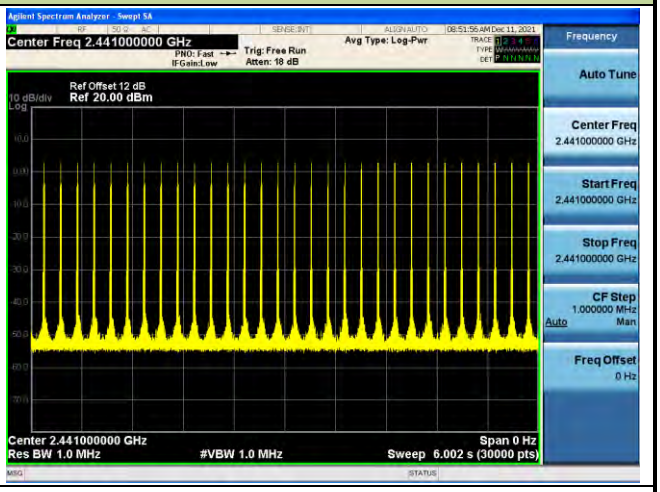
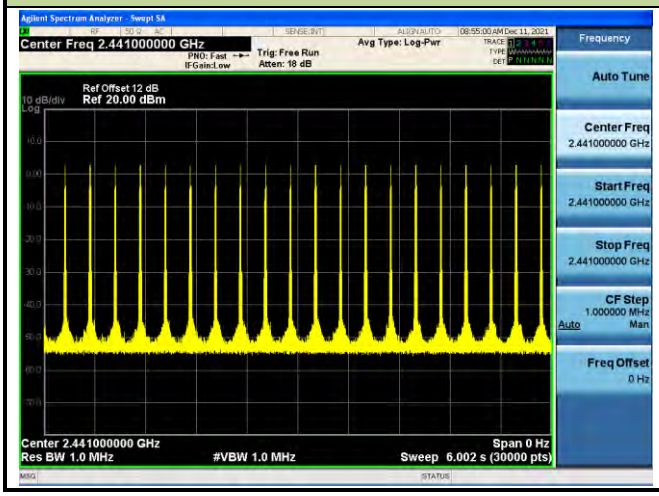
| Test Site | NS-TR2 | Test Engineer | Summer Tang |
|---|---|---|---|
| Test Date | 2021/12/11 | | |

| Test Mode | Channel No. | Frequency (MHz) | Transmit Time Per Hop (ms) | Observation Period (s) | Number of Hops in Sweep Time | Time of Occupancy (ms) | Limit (ms) | Result |
|---|---|---|---|---|---|---|---|---|
| 3DH1 | 00~78 | 2402~2480 | 0.385 | 31.6 | 61 | 123.688 | ≤ 400 | Pass |
| 3DH3 | 00~78 | 2402~2480 | 1.620 | 31.6 | 30 | 255.960 | ≤ 400 | Pass |
| 3DH5 | 00~78 | 2402~2480 | 2.725 | 31.6 | 20 | 287.033 | ≤ 400 | Pass |

Note 1: Number of Hops in Observation Period = Number of Hops in Sweep Time * (Observation Period / Sweep Time), Sweep Time = 6s.

Note 2: Time of Occupancy (ms) = Transmit Time Per Hop (ms) * Number of Hops in Observation Period.

| Transmit Time Per Hop | |
|---|---|
| 3DH1 - Channel 39 (2441MHz) | 3DH3 - Channel 39 (2441MHz) |
|  |  |
| 3DH5 - Channel 39 (2441MHz) | |
|  | |

| Number of Hops in Sweep Time | |
|---|---|
| 3DH1 | 3DH3 |
|  |  |
| 3DH5 | |
|  | |

## 5.7. Band-edge Compliance Measurement

### 5.7.1.Test Limit

The maximum permissible emission level is 20dBc. Any emissions were lying outside of the emission bandwidth and in authorized band edges to a field strength limit specified in Section 15.209 of the Title 47 CFR.

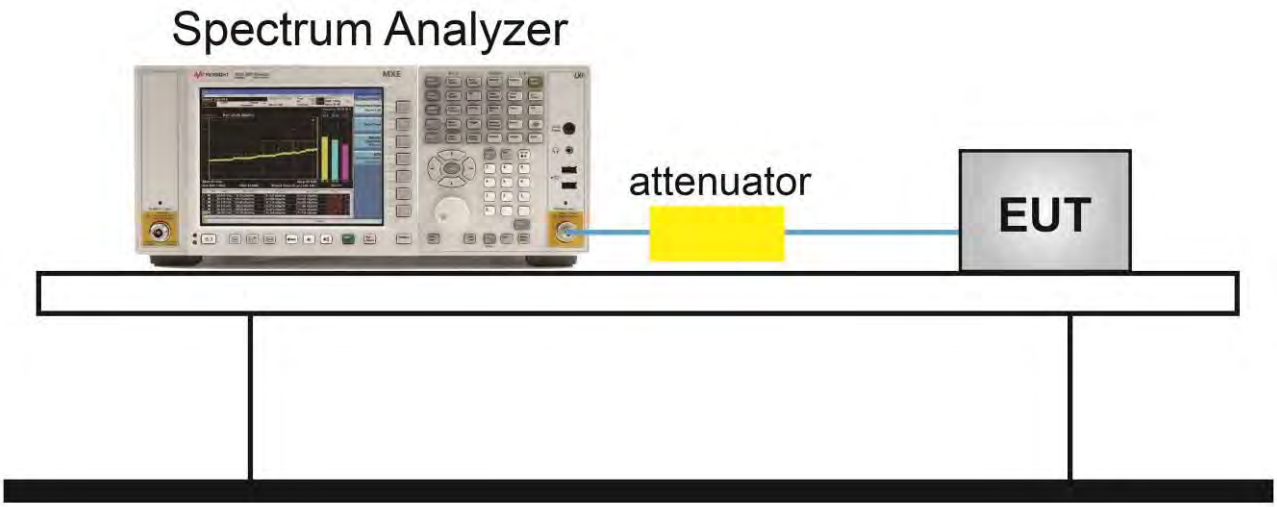
### 5.7.2.Test Procedure Used

ANSI C63.10-2013 - Section 6.10.4

### 5.7.3.Test Setting

1. Span = Wide enough to capture the peak level of the emission operating on the channel closest to the band edge, as well as any modulation products which fall outside of the authorized band of operation.
2. RBW = 100kHz
3. VBW = 300kHz
4. Detector = Peak
5. Sweep time = Auto couple
6. Trace mode = Max hold
7. Allow the trace to stabilize. Set the marker on the emission at the band edge, or on the highest modulation product outside of the band, if this level is greater than that at the band edge. Enable the marker-delta function, than use the marker-to-peak function to move the marker to the peak of the in-band emission.

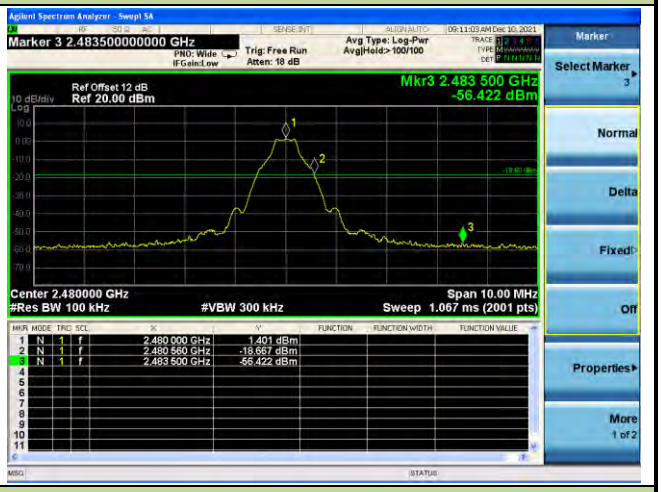
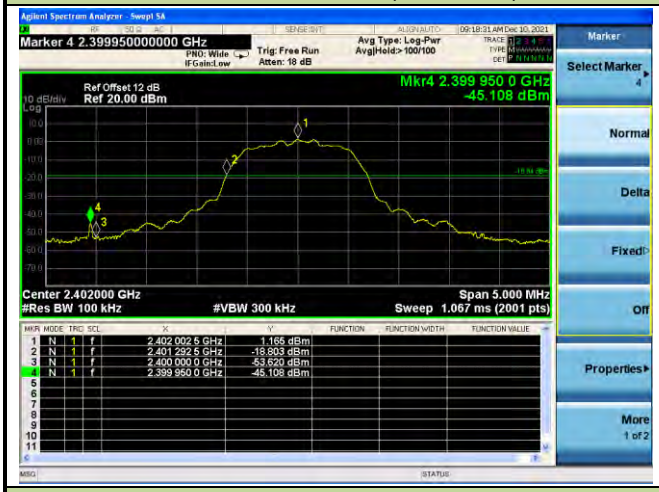
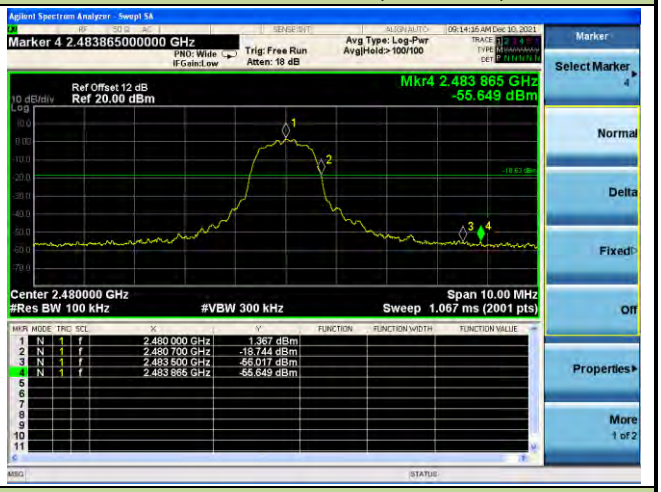
### 5.7.4.Test Setup

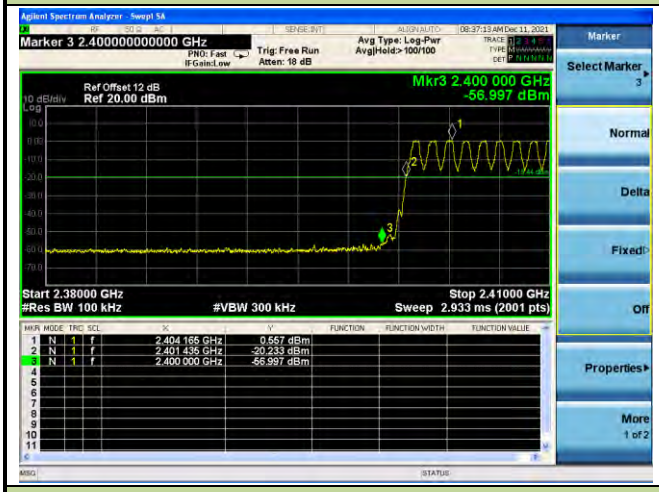
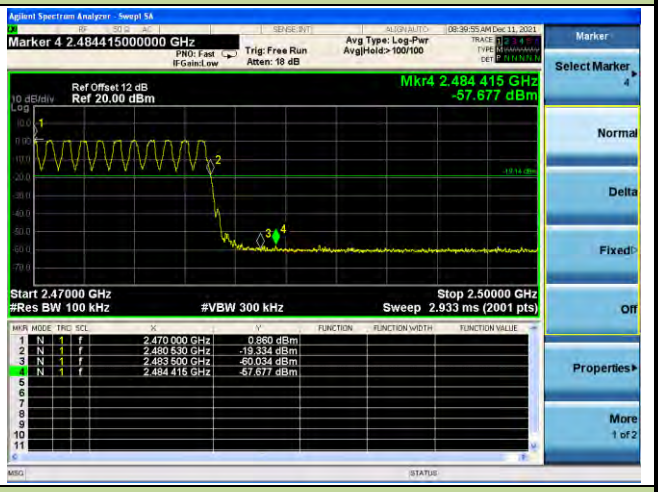
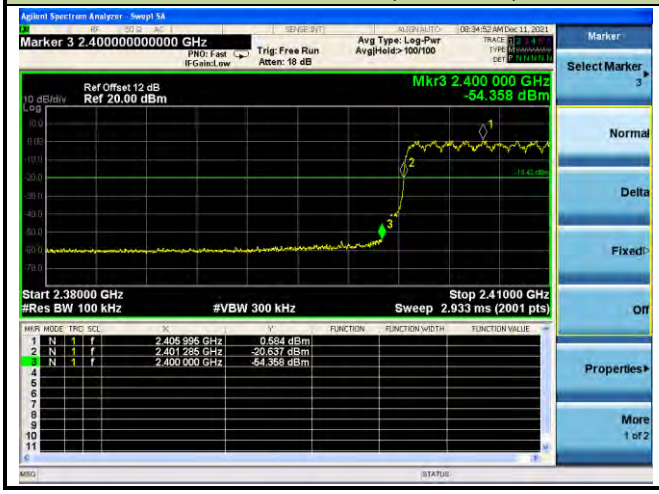
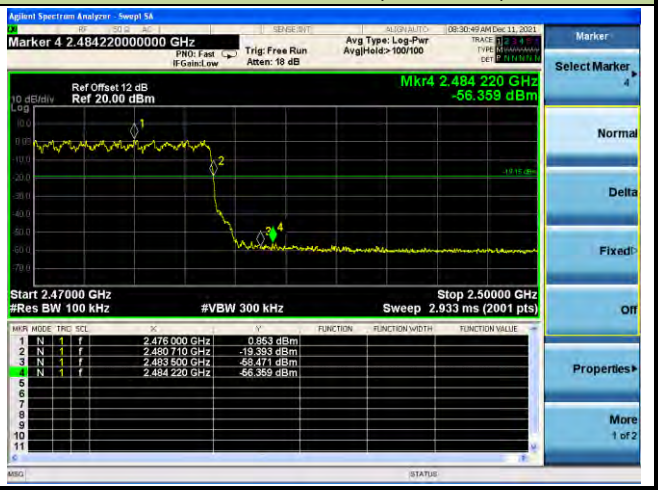


### 5.7.5.Test Result

| Test Site | NS-TR2 | Test Engineer | Summer Tang |
|---|---|---|---|
| Test Date | 2021/12/10 & 2021/12/11 | | |

| Test Mode | Channel No. | Frequency (MHz) | Limit | Result |
|---|---|---|---|---|
| DH5 | 00 | 2402 | 20dBc | Pass |
| | 78 | 2480 | 20dBc | Pass |
| 2DH5 | 00 | 2402 | 20dBc | Pass |
| | 78 | 2480 | 20dBc | Pass |
| 3DH5 | 00 | 2402 | 20dBc | Pass |
| | 78 | 2480 | 20dBc | Pass |

| Band-edge Compliance | |
|---|---|
| DH5 - Channel 00 (2402MHz) | DH5 - Channel 78 (2480MHz) |
|  |  |
| 2DH5 - Channel 00 (2402MHz) | 2DH5 - Channel 78 (2480MHz) |
|  |  |
| 3DH5 - Channel 00 (2402MHz) | 3DH5 - Channel 78 (2480MHz) |
|  |  |

| Operation Frequency Range of 20dB Bandwidth with Hopping Mode | |
|---|---|
| DH5 - Channel 00 (2402MHz) | DH5 - Channel 78 (2480MHz) |
|  |  |
| 2DH5 - Channel 00 (2402MHz) | 2DH5 - Channel 78 (2480MHz) |
|  |  |
| 3DH5 - Channel 00 (2402MHz) | 3DH5 - Channel 78 (2480MHz) |
|  |  |

## 5.8. Conducted Spurious Emissions Measurement

### 5.8.1.Test Limit

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, the attenuation required under this paragraph shall be 30 dB instead of 20 dB.

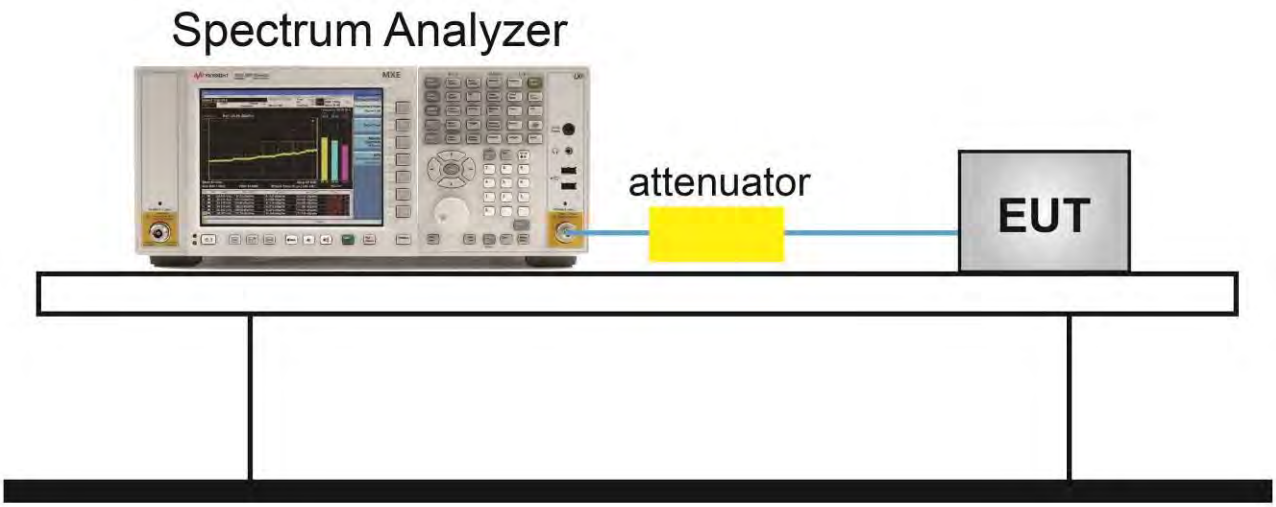
### 5.8.2.Test Procedure Used

ANSI C63.10-2013 - Section 7.8.8

### 5.8.3.Test Setting

1. Span = Wide enough to capture the peak level of the in-band emission and all spurious emissions (e.g., harmonics) from the lowest frequency generated in the EUT up through the 10th harmonic. Typically, several plots are required to cover this entire span.
2. RBW = 100kHz
3. VBW = 300kHz
4. Detector = Peak
5. Sweep time = Auto couple
6. Trace mode = Max hold
7. Trace was allowed to stabilize
8. Set the marker on the peak of any spurious emission recorded. The level displayed must comply with the limit specified in this section.

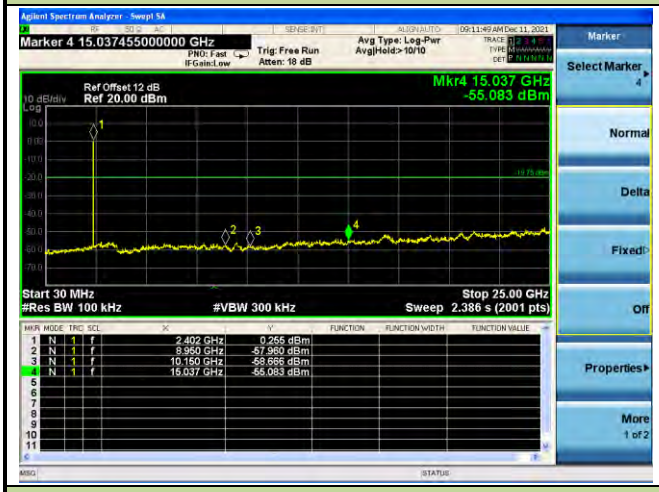
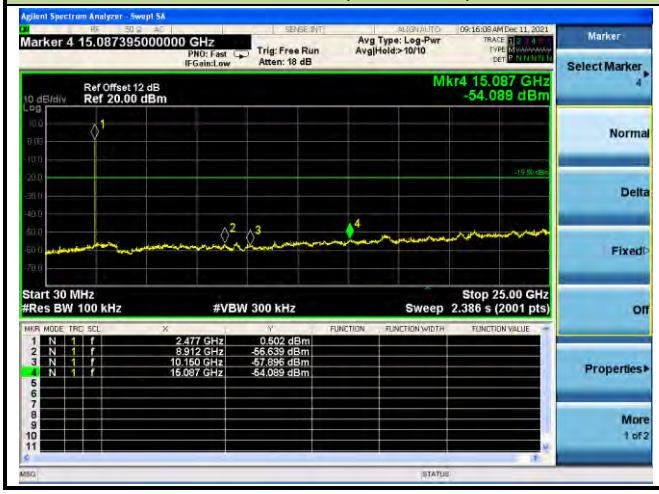
**5.8.4.Test Setup**

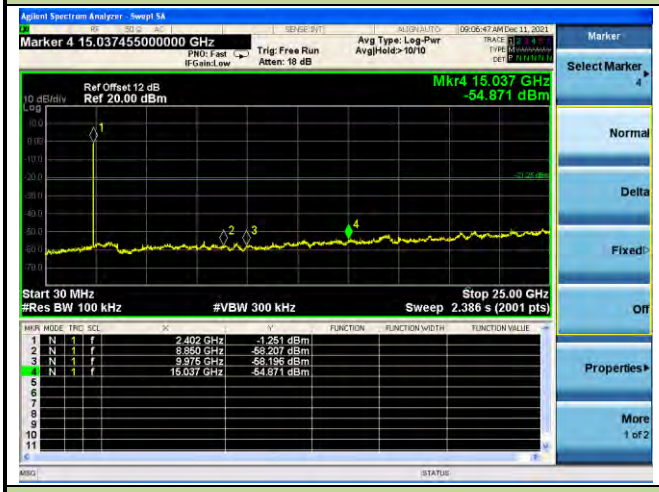
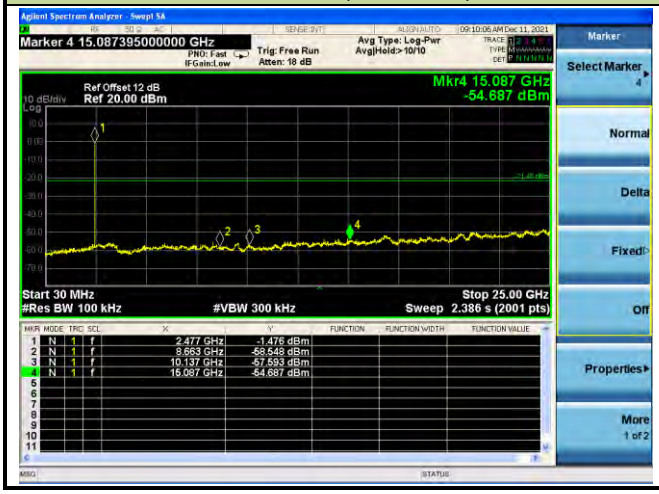


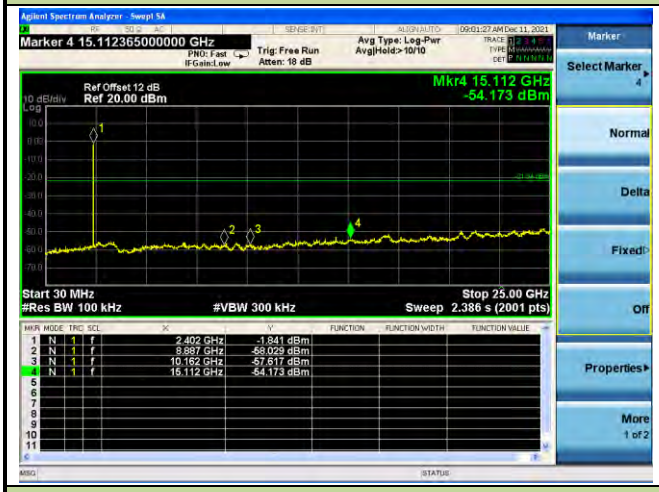
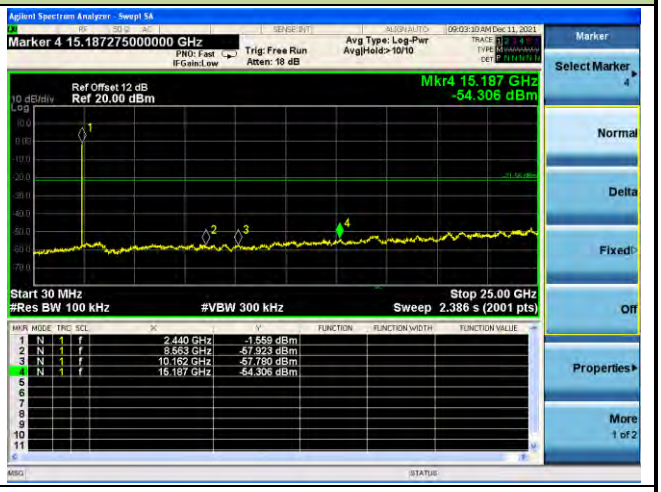
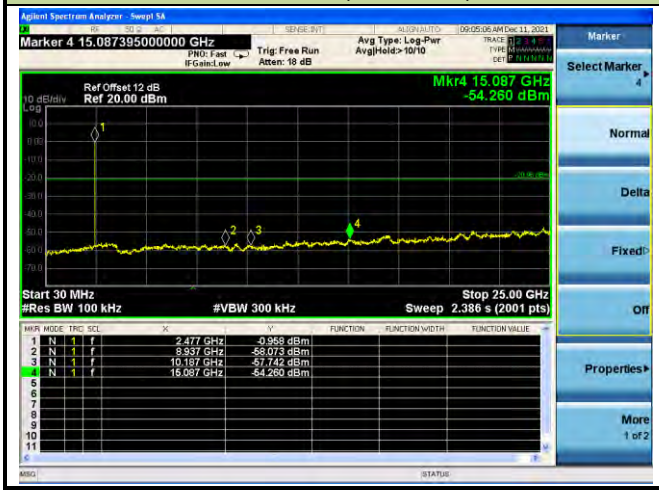
### 5.8.5.Test Result

| Test Site | NS-TR2 | Test Engineer | Summer Tang |
|---|---|---|---|
| Test Date | 2021/12/11 | | |

| Test Mode | Channel No. | Frequency (MHz) | Limit | Result |
|---|---|---|---|---|
| DH5 | 00 | 2402 | 20dBc | Pass |
| | 39 | 2441 | 20dBc | Pass |
| | 78 | 2480 | 20dBc | Pass |
| 2DH5 | 00 | 2402 | 20dBc | Pass |
| | 39 | 2441 | 20dBc | Pass |
| | 78 | 2480 | 20dBc | Pass |
| 3DH5 | 00 | 2402 | 20dBc | Pass |
| | 39 | 2441 | 20dBc | Pass |
| | 78 | 2480 | 20dBc | Pass |

| DH5 Conducted Spurious Emissions | |
|---|---|
| Channel 00 (2402MHz) | Channel 39 (2441MHz) |
|  |  |
| Channel 78 (2480MHz) | |
|  | |

| 2DH5 Conducted Spurious Emissions | |
|---|---|
| Channel 00 (2402MHz) | Channel 39 (2441MHz) |
|  |  |
| Channel 78 (2480MHz) | |
|  | |

| 3DH5 Conducted Spurious Emissions | |
|---|---|
| Channel 00 (2402MHz) | Channel 39 (2441MHz) |
|  |  |
| Channel 78 (2480MHz) | |
|  | |

## 5.9. Radiated Spurious Emission Measurement

### 5.9.1.Test Limit

All out of band emissions appearing in a restricted band as specified in Section 15.205 of the Title 47 CFR must not exceed the limits shown in Table per Section 15.209.

| FCC Part 15 Subpart C Paragraph 15.209 | | |
|---|---|---|
| Frequency (MHz) | Field Strength (μV/m) | Measured Distance (m) |
| 0.009 - 0.490 | 2400/F (kHz) | 300 |
| 0.490 - 1.705 | 24000/F (kHz) | 30 |
| 1.705 - 30 | 30 | 30 |
| 30 - 88 | 100 | 3 |
| 88 - 216 | 150 | 3 |
| 216 - 960 | 200 | 3 |
| Above 960 | 500 | 3 |

### 5.9.2.Test Procedure Used

ANSI C63.10-2013 - Section 6.3 & 6.4 & 6.5 & 6.6

### 5.9.3.Test Setting

**Table 1 - RBW as a function of frequency**

| Frequency | RBW |
|---|---|
| 9 ~ 150 kHz | 200 ~ 300 Hz |
| 0.15 ~ 30 MHz | 9 ~ 10 kHz |
| 30 ~ 1000 MHz | 100 ~ 120 kHz |
| > 1000 MHz | 1 MHz |

**Quasi-Peak Measurements below 1GHz**

1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. Span was set greater than 1MHz
3. RBW = As specified in Table 1
4. Detector = CISPR quasi-peak
5. Sweep time = Auto couple
6. Trace was allowed to stabilize

**Peak Measurements above 1GHz**

1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. RBW = 1MHz
3. VBW = 3MHz
4. Detector = Peak
5. Sweep time = Auto couple
6. Trace mode = Max hold
7. Trace was allowed to stabilize

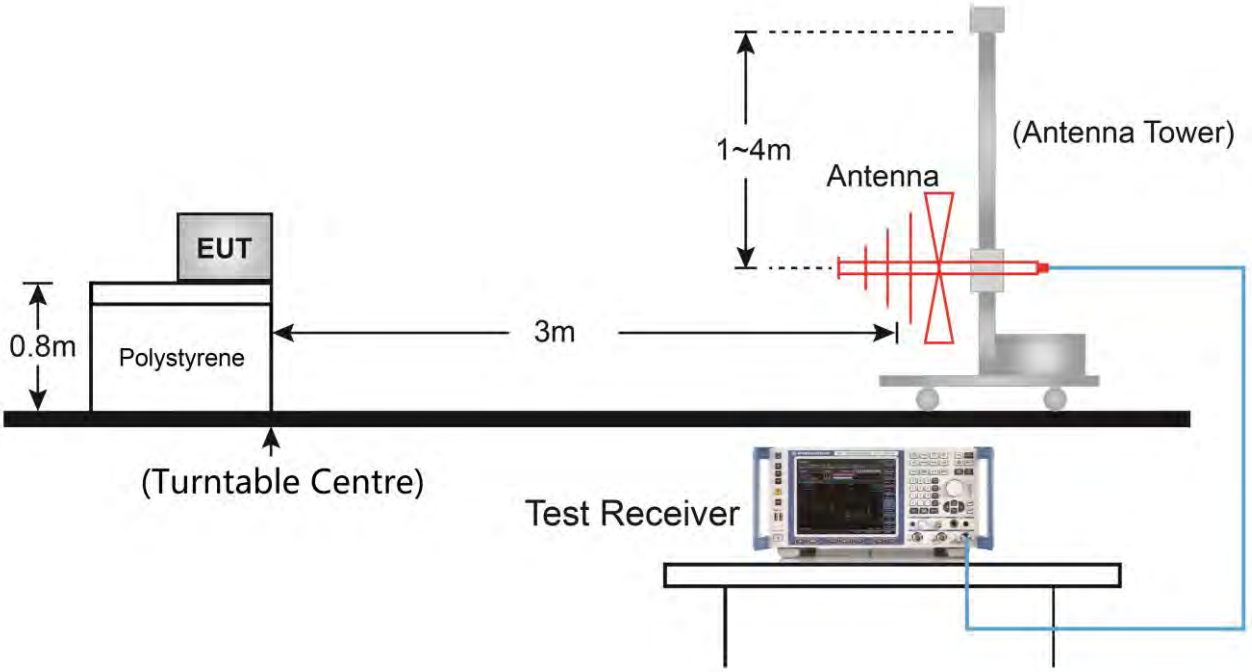
**Average Measurements above 1GHz (Method VB)**

1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. RBW = 1MHz
3. VBW; If the EUT is configured to transmit with duty cycle ≥ 98%, set VBW = 10Hz

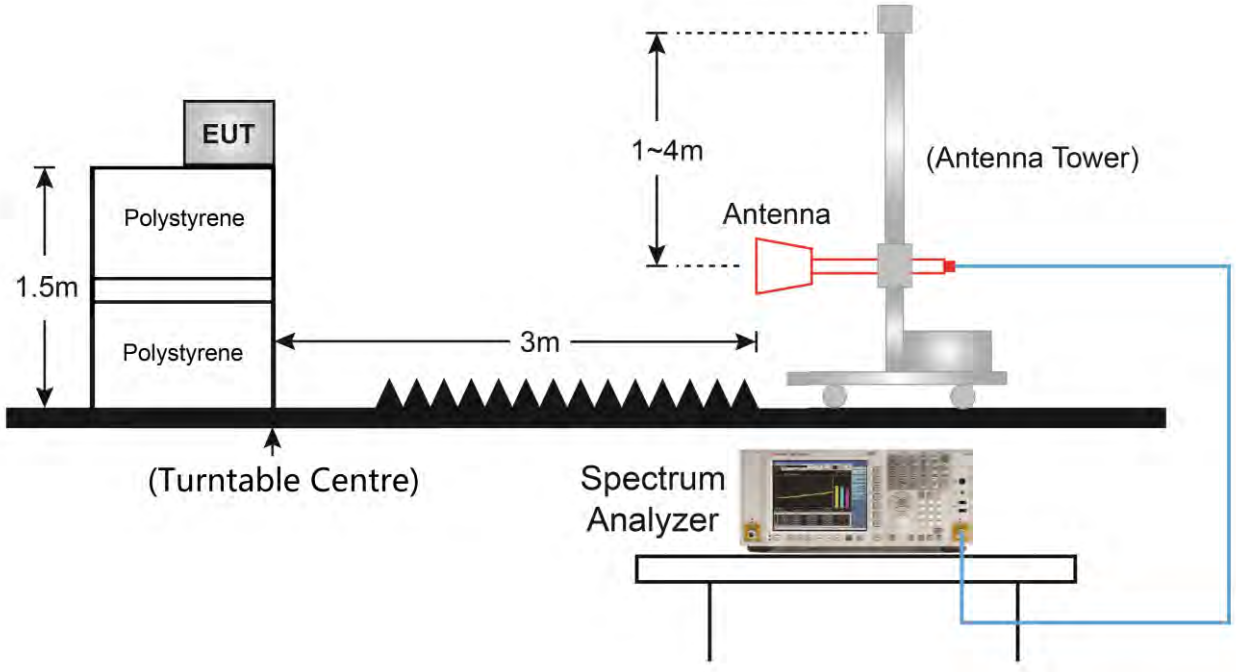
   If the EUT duty cycle is < 98%, set VBW ≥ 1/T. T is the minimum transmission duration
4. Detector = Peak
5. Sweep time = Auto
6. Trace mode = Max hold
7. Trace was allowed to stabilize

### 5.9.4.Test Setup

Below 1GHz Test Setup:




Above 1GHz Test Setup:



### 5.9.5.Test Result

| Test Site | NS-AC1 | Test Engineer | Dillon Diao |
|---|---|---|---|
| Test Mode | DH5 | Test Date | 2021/12/16 |
| Remark | 1. Average measurement was not performed if peak level lower than average limit.<br>2. Other frequency was 20dB below limit line within 1-18GHz, there is not shown in the report. | | |

| Frequency (MHz) | Reading Level (dBμV) | Factor (dB/m) | Measure Level (dBμV/m) | Limit (dBμV/m) | Margin (dB) | Detector | Polarization |
|---|---|---|---|---|---|---|---|
| Channel 00 | | | | | | | |
| 4808.0 | 40.9 | 1.4 | 42.3 | 74.0 | -31.7 | Peak | Horizontal |
| 7332.5 | 33.5 | 9.1 | 42.6 | 74.0 | -31.4 | Peak | Horizontal |
| 11497.5 | 33.4 | 15.4 | 48.8 | 74.0 | -25.2 | Peak | Horizontal |
| 4978.0 | 40.0 | 1.5 | 41.5 | 74.0 | -32.5 | Peak | Vertical |
| 7681.0 | 34.2 | 8.8 | 43.0 | 74.0 | -31.0 | Peak | Vertical |
| 8310.0 | 33.4 | 9.9 | 43.3 | 74.0 | -30.7 | Peak | Vertical |
| Channel 39 | | | | | | | |
| 4978.0 | 38.0 | 1.5 | 39.5 | 74.0 | -34.5 | Peak | Horizontal |
| 7468.5 | 34.5 | 9.1 | 43.6 | 74.0 | -30.4 | Peak | Horizontal |
| 8242.0 | 33.7 | 9.5 | 43.2 | 74.0 | -30.8 | Peak | Horizontal |
| 4986.5 | 40.1 | 1.5 | 41.6 | 74.0 | -32.4 | Peak | Vertical |
| 7485.5 | 34.2 | 9.0 | 43.2 | 74.0 | -30.8 | Peak | Vertical |
| 10919.5 | 34.0 | 14.6 | 48.6 | 74.0 | -25.4 | Peak | Vertical |
| Channel 79 | | | | | | | |
| 4986.5 | 39.3 | 1.5 | 40.8 | 74.0 | -33.2 | Peak | Horizontal |
| 8080.5 | 35.0 | 9.4 | 44.4 | 74.0 | -29.6 | Peak | Horizontal |
| 10588.0 | 34.1 | 13.7 | 47.8 | 74.0 | -26.2 | Peak | Horizontal |
| 4986.5 | 40.1 | 1.5 | 41.6 | 74.0 | -32.4 | Peak | Vertical |
| 7443.0 | 34.6 | 9.4 | 44.0 | 74.0 | -30.0 | Peak | Vertical |
| 11735.5 | 32.8 | 15.1 | 47.9 | 74.0 | -26.1 | Peak | Vertical |
| Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB/m)<br>Factor (dB/m) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB) | | | | | | | |

| Test Site | NS-AC1 | Test Engineer | Dillon Diao |
|---|---|---|---|
| Test Mode | 2DH5 | Test Date | 2021/12/16 |
| Remark | 1. Average measurement was not performed if peak level lower than average limit.<br>2. Other frequency was 20dB below limit line within 1-18GHz, there is not shown in the report. | | |

| Frequency (MHz) | Reading Level (dBμV) | Factor (dB/m) | Measure Level (dBμV/m) | Limit (dBμV/m) | Margin (dB) | Detector | Polarization |
|---|---|---|---|---|---|---|---|
| Channel 00 | | | | | | | |
| 4808.0 | 40.3 | 1.4 | 41.7 | 74.0 | -32.3 | Peak | Horizontal |
| 7400.5 | 32.4 | 9.3 | 41.7 | 74.0 | -32.3 | Peak | Horizontal |
| 8352.5 | 32.1 | 10.0 | 42.1 | 74.0 | -31.9 | Peak | Horizontal |
| 4986.5 | 42.1 | 1.5 | 43.6 | 74.0 | -30.4 | Peak | Vertical |
| 7681.0 | 33.8 | 8.8 | 42.6 | 74.0 | -31.4 | Peak | Vertical |
| 8395.0 | 34.6 | 10.1 | 44.7 | 74.0 | -29.3 | Peak | Vertical |
| Channel 39 | | | | | | | |
| 4986.5 | 39.7 | 1.5 | 41.2 | 74.0 | -32.8 | Peak | Horizontal |
| 7324.0 | 34.5 | 9.1 | 43.6 | 74.0 | -30.4 | Peak | Horizontal |
| 8089.0 | 34.8 | 9.4 | 44.2 | 74.0 | -29.8 | Peak | Horizontal |
| 4978.0 | 44.2 | 1.5 | 45.7 | 74.0 | -28.3 | Peak | Vertical |
| 7324.0 | 34.9 | 9.1 | 44.0 | 74.0 | -30.0 | Peak | Vertical |
| 11625.0 | 32.0 | 16.3 | 48.3 | 74.0 | -25.7 | Peak | Vertical |
| Channel 78 | | | | | | | |
| 4995.0 | 39.6 | 1.6 | 41.2 | 74.0 | -32.8 | Peak | Horizontal |
| 7443.0 | 34.1 | 9.4 | 43.5 | 74.0 | -30.5 | Peak | Horizontal |
| 10783.5 | 31.1 | 14.4 | 45.5 | 74.0 | -28.5 | Peak | Horizontal |
| 5003.5 | 41.8 | 1.9 | 43.7 | 74.0 | -30.3 | Peak | Vertical |
| 7443.0 | 36.2 | 9.4 | 45.6 | 74.0 | -28.4 | Peak | Vertical |
| 11625.0 | 31.3 | 16.3 | 47.6 | 74.0 | -26.4 | Peak | Vertical |
| Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB/m)<br>Factor (dB/m) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB) | | | | | | | |

| Test Site | NS-AC1 | Test Engineer | Dillon Diao |
|---|---|---|---|
| Test Mode | 3DH5 | Test Date | 2021/12/16 |
| Remark | 1. Average measurement was not performed if peak level lower than average limit.<br>2. Other frequency was 20dB below limit line within 1-18GHz, there is not shown in the report. | | |

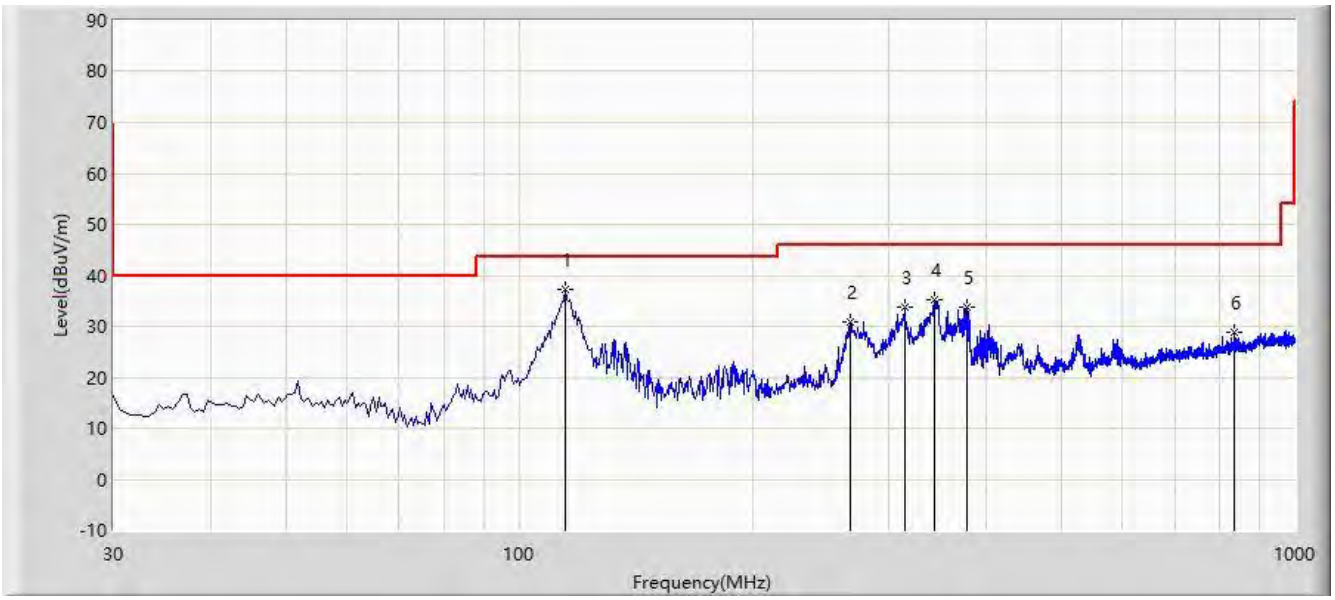
| Frequency (MHz) | Reading Level (dBμV) | Factor (dB/m) | Measure Level (dBμV/m) | Limit (dBμV/m) | Margin (dB) | Detector | Polarization |
|---|---|---|---|---|---|---|---|
| Channel 00 | | | | | | | |
| 5003.5 | 40.0 | 1.9 | 41.9 | 74.0 | -32.1 | Peak | Horizontal |
| 7536.5 | 32.2 | 9.0 | 41.2 | 74.0 | -32.8 | Peak | Horizontal |
| 11973.5 | 33.3 | 14.7 | 48.0 | 74.0 | -26.0 | Peak | Horizontal |
| 4995.0 | 42.2 | 1.6 | 43.8 | 74.0 | -30.2 | Peak | Vertical |
| 7451.5 | 33.7 | 9.3 | 43.0 | 74.0 | -31.0 | Peak | Vertical |
| 11055.5 | 32.8 | 15.0 | 47.8 | 74.0 | -26.2 | Peak | Vertical |
| Channel 39 | | | | | | | |
| 4884.5 | 39.8 | 1.4 | 41.2 | 74.0 | -32.8 | Peak | Horizontal |
| 7392.0 | 34.4 | 9.2 | 43.6 | 74.0 | -30.4 | Peak | Horizontal |
| 11463.5 | 32.9 | 15.4 | 48.3 | 74.0 | -25.7 | Peak | Horizontal |
| 4995.0 | 41.3 | 1.6 | 42.9 | 74.0 | -31.1 | Peak | Vertical |
| 7324.0 | 35.8 | 9.1 | 44.9 | 74.0 | -29.1 | Peak | Vertical |
| 11064.0 | 32.7 | 15.1 | 47.8 | 74.0 | -26.2 | Peak | Vertical |
| Channel 78 | | | | | | | |
| 4961.0 | 39.7 | 1.7 | 41.4 | 74.0 | -32.6 | Peak | Horizontal |
| 7443.0 | 35.7 | 9.4 | 45.1 | 74.0 | -28.9 | Peak | Horizontal |
| 10826.0 | 32.9 | 15.2 | 48.1 | 74.0 | -25.9 | Peak | Horizontal |
| 4986.5 | 42.0 | 1.5 | 43.5 | 74.0 | -30.5 | Peak | Vertical |
| 7443.0 | 35.0 | 9.4 | 44.4 | 74.0 | -29.6 | Peak | Vertical |
| 11123.5 | 32.0 | 15.5 | 47.5 | 74.0 | -26.5 | Peak | Vertical |

Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB/m)

Factor (dB/m) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

**The Result of Radiated Emission below 1GHz:**

| | |
|---|---|
| Site: NS-AC1 | Test date: 2021/12/09 |
| Temperature: 24.5°C | Humidity: 69% |
| Limit: FCC_Part 15.209_RE(3m) | Engineer: Dillon Diao |
| Probe: NS-AC1_VULB9162 | Polarity: Horizontal |
| EUT: Active Speaker | Power: AC 120V/60Hz |
| Test Mode: Transmit by 3DH5 at channel 2480MHz | |




| No | Flag | Mark | Frequency (MHz) | Measure Level (dBμV/m) | Reading Level (dBμV) | Margin (dB) | Limit (dBμV/m) | Factor (dB/m) | Type |
|---|---|---|---|---|---|---|---|---|---|
| 1 | | * | 114.875 | 37.130 | 23.083 | -6.370 | 43.500 | 14.047 | PK |
| 2 | | | 267.650 | 30.867 | 14.384 | -15.133 | 46.000 | 16.483 | PK |
| 3 | | | 313.725 | 33.685 | 16.550 | -12.315 | 46.000 | 17.134 | PK |
| 4 | | | 343.310 | 35.083 | 16.806 | -10.917 | 46.000 | 18.277 | PK |
| 5 | | | 378.715 | 33.882 | 15.104 | -12.118 | 46.000 | 18.778 | PK |
| 6 | | | 834.615 | 28.771 | 2.110 | -17.229 | 46.000 | 26.661 | PK |

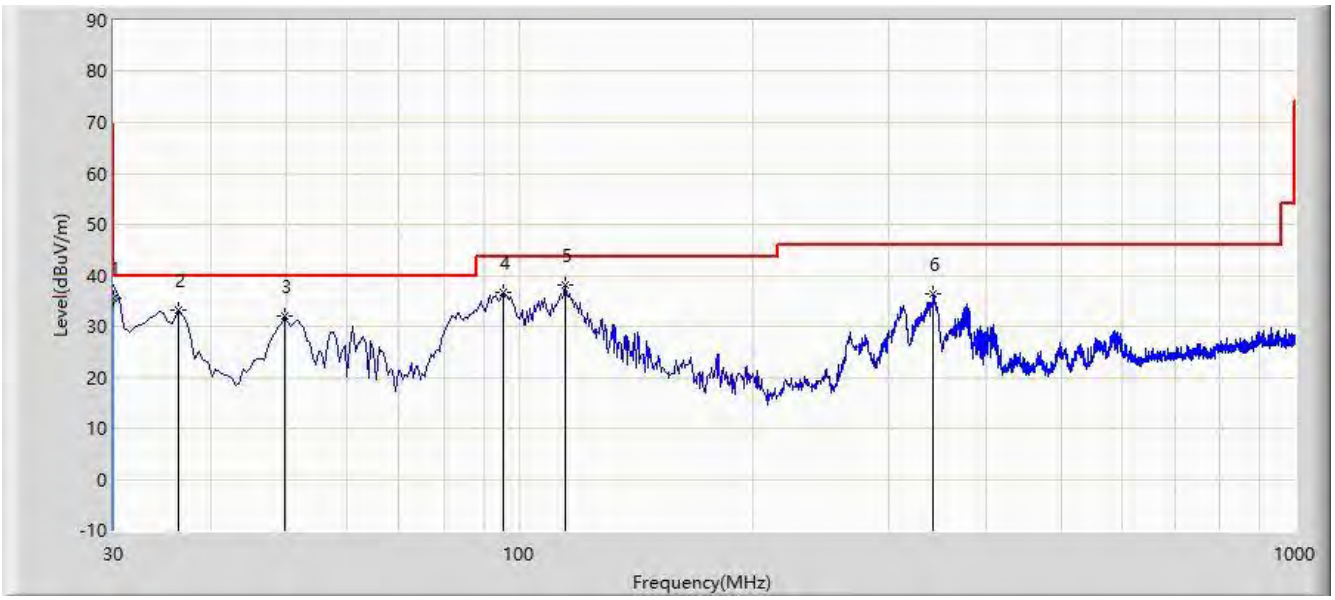
Note 1: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB/m)

Factor (dB/m) = Cable Loss (dB) + Antenna Factor (dB/m)

Note 2: The amplitude of radiated emissions (frequency range from 9kHz to 30MHz and 18GHz to 25GHz) is that proximity to ambient noise, which also are attenuated more than 20 dB below the permissible value. Therefore, the data is not presented in the report.

Note 3: QP measurement was not performed when peak measure level was lower than the QP limit.

| | |
|---|---|
| Site: NS-AC1 | Test date: 2021/12/09 |
| Temperature: 24.5°C | Humidity: 69% |
| Limit: FCC_Part 15.209_RE(3m) | Engineer: Dillon Diao |
| Probe: NS-AC1_VULB9162 | Polarity: Vertical |
| EUT: Active Speaker | Power: AC 120V/60Hz |
| Test Mode: Transmit by 3DH5 at channel 2480MHz | |




| No | Flag | Mark | Frequency (MHz) | Measure Level (dBμV/m) | Reading Level (dBμV) | Margin (dB) | Limit (dBμV/m) | Factor (dB/m) | Type |
|---|---|---|---|---|---|---|---|---|---|
| 1 | | * | 30.000 | 35.506 | 21.100 | -4.494 | 40.000 | 14.405 | QP |
| 2 | | | 36.305 | 33.188 | 18.087 | -6.812 | 40.000 | 15.101 | PK |
| 3 | | | 49.885 | 31.910 | 14.340 | -8.090 | 40.000 | 17.570 | PK |
| 4 | | | 95.475 | 36.591 | 21.990 | -6.909 | 43.500 | 14.601 | PK |
| 5 | | | 114.875 | 38.164 | 24.117 | -5.336 | 43.500 | 14.047 | PK |
| 6 | | | 342.340 | 36.521 | 18.300 | -9.479 | 46.000 | 18.220 | PK |

Note 1: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB/m)

Factor (dB/m) = Cable Loss (dB) + Antenna Factor (dB/m)

Note 2: The amplitude of radiated emissions (frequency range from 9kHz to 30MHz and 18GHz to 25GHz) is that proximity to ambient noise, which also are attenuated more than 20 dB below the permissible value. Therefore, the data is not presented in the report.

Note 3: QP measurement was not performed when peak measure level was lower than the QP limit.

## 5.10. Radiated Restricted Band Edge Measurement

### 5.10.1.Test Limit

**For 15.205 requirement:**

Radiated emissions which fall in the restricted bands, as defined in Section 15.205(a) of FCC part 15, must also comply with the radiated emission limits specified in Section 15.209(a).

| Frequency (MHz) | Frequency (MHz) | Frequency (MHz) | Frequency (GHz) |
|---|---|---|---|
| 0.090 - 0.110 | 16.42 - 16.423 | 399.9 - 410 | 4.5 - 5.15 |
| [1] 0.495 - 0.505 | 16.69475 - 16.69525 | 608 - 614 | 5.35 - 5.46 |
| 2.1735 - 2.1905 | 16.80425 - 16.80475 | 960 - 1240 | 7.25 - 7.75 |
| 4.125 - 4.128 | 25.5 - 25.67 | 1300 - 1427 | 8.025 - 8.5 |
| 4.17725 - 4.17775 | 37.5 - 38.25 | 1435 - 1626.5 | 9.0 - 9.2 |
| 4.20725 - 4.20775 | 73 - 74.6 | 1645.5 - 1646.5 | 9.3 - 9.5 |
| 6.215 - 6.218 | 74.8 - 75.2 | 1660 - 1710 | 10.6 - 12.7 |
| 6.26775 - 6.26825 | 108 - 121.94 | 1718.8 - 1722.2 | 13.25 - 13.4 |
| 6.31175 - 6.31225 | 123 - 138 | 2200 - 2300 | 14.47 - 14.5 |
| 8.291 - 8.294 | 149.9 - 150.05 | 2310 – 2390 | 15.35 - 16.2 |
| 8.362 - 8.366 | 156.52475 - 156.52525 | 2483.5 - 2500 | 17.7 - 21.4 |
| 8.37625 - 8.38675 | 156.7 - 156.9 | 2690 - 2900 | 22.01 - 23.12 |
| 8.41425 - 8.41475 | 162.0125 - 167.17 | 3260 - 3267 | 23.6 - 24.0 |
| 12.29 - 12.293 | 167.72 - 173.2 | 3332 - 3339 | 31.2 - 31.8 |
| 12.51975 - 12.52025 | 240 - 285 | 3345.8 - 3358 | 36.43 - 36.5 |
| 12.57675 - 12.57725 | 322 - 335.4 | 3600 - 4400 | ([2]) |
| 13.36 - 13.41 | -- | -- | -- |

All out of band emissions appearing in a restricted band as specified in Section 15.205 of the Title 47 CFR must not exceed the limits shown in Table per Section 15.209.

| FCC Part 15 Subpart C Paragraph 15.209 | | |
|---|---|---|
| Frequency (MHz) | Field Strength (μV/m) | Measured Distance (m) |
| 0.009 - 0.490 | 2400/F (kHz) | 300 |
| 0.490 - 1.705 | 24000/F (kHz) | 30 |
| 1.705 - 30 | 30 | 30 |
| 30 - 88 | 100 | 3 |
| 88 - 216 | 150 | 3 |
| 216 - 960 | 200 | 3 |
| Above 960 | 500 | 3 |

### 5.10.2.Test Procedure Used

ANSI C63.10-2013 - Section 6.3 & 6.6 & 6.10

### 5.10.3.Test Setting

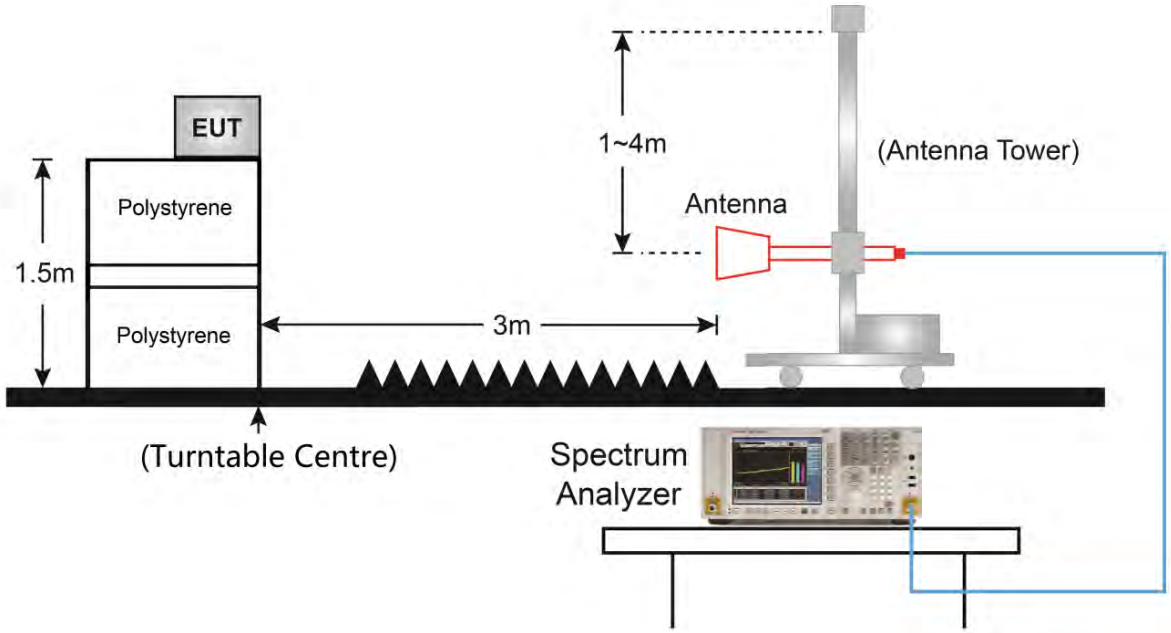
**Peak Field Strength Measurements**

1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. RBW = 1MHz
3. VBW = 3MHz
4. Detector = Peak
5. Sweep time = Auto couple
6. Trace mode = Max hold
7. Trace was allowed to stabilize

**Average Measurements above 1GHz (Method VB)**

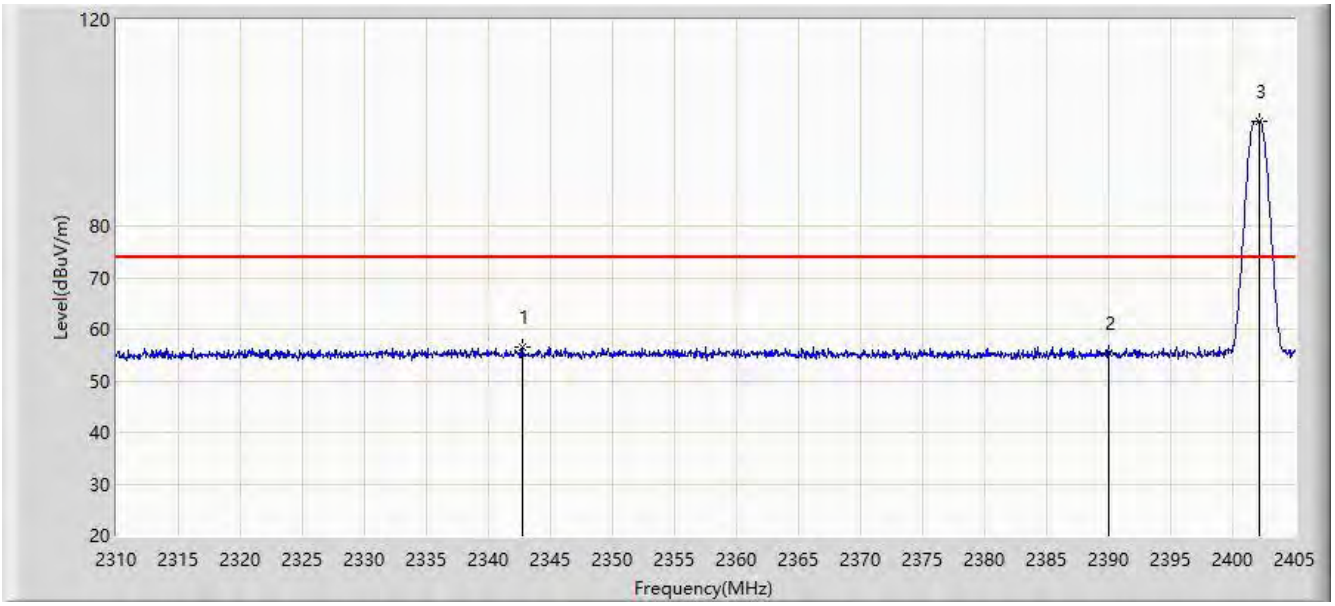
1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. RBW = 1MHz
3. VBW; If the EUT is configured to transmit with duty cycle ≥ 98%, set VBW = 10Hz
4. If the EUT duty cycle is < 98%, set VBW ≥ 1/T. T is the minimum transmission duration
5. Detector = Peak
6. Sweep time = Auto
7. Trace mode = Max hold
8. Trace was allowed to stabilize

### 5.10.4.Test Setup



### 5.10.5.Test Result

| | |
|---|---|
| Site: NS-AC1 | Test date: 2021/12/15 |
| Limit: FCC_Part 15.209_RE(3m) | Engineer: Dillon Diao |
| Probe: NS-AC1_BBHA9120D | Polarity: Horizontal |
| EUT: Active Speaker | Power: AC 120V/60Hz |
| Note: Transmit by DH5 at channel 2402MHz | |

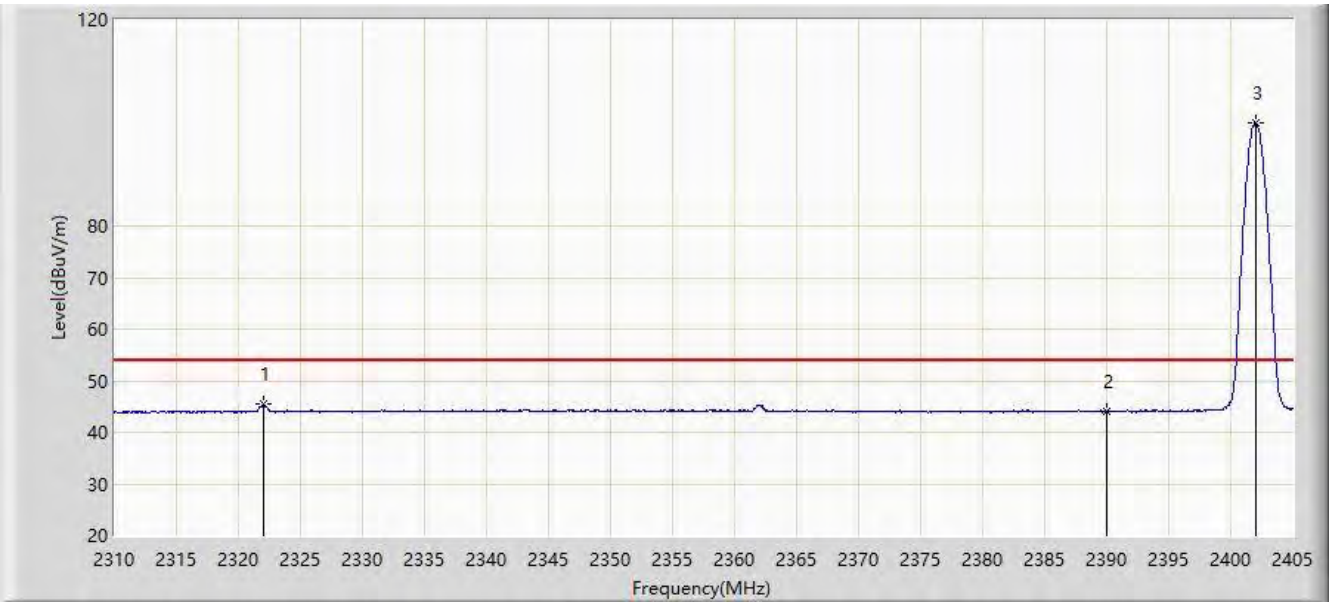



| No | Flag | Mark | Frequency (MHz) | Measure Level (dBμV/m) | Reading Level (dBμV) | Margin (dB) | Limit (dBμV/m) | Factor (dB/m) | Type |
|---|---|---|---|---|---|---|---|---|---|
| 1 | | | 2342.680 | 56.548 | 25.361 | -17.452 | 74.000 | 31.187 | PK |
| 2 | | | 2390.000 | 55.388 | 24.485 | -18.612 | 74.000 | 30.903 | PK |
| 3 | | * | 2402.150 | 100.395 | 69.459 | N/A | N/A | 30.936 | PK |

Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB/m)

Factor (dB/m) = Cable Loss (dB) + Antenna Factor (dB/m).

| Site: NS-AC1 | Test date: 2021/12/15 |
|---|---|
| Limit: FCC_Part 15.209_RE(3m) | Engineer: Dillon Diao |
| Probe: NS-AC1_BBHA9120D | Polarity: Horizontal |
| EUT: Active Speaker | Power: AC 120V/60Hz |
| Note: Transmit by DH5 at channel 2402MHz | |

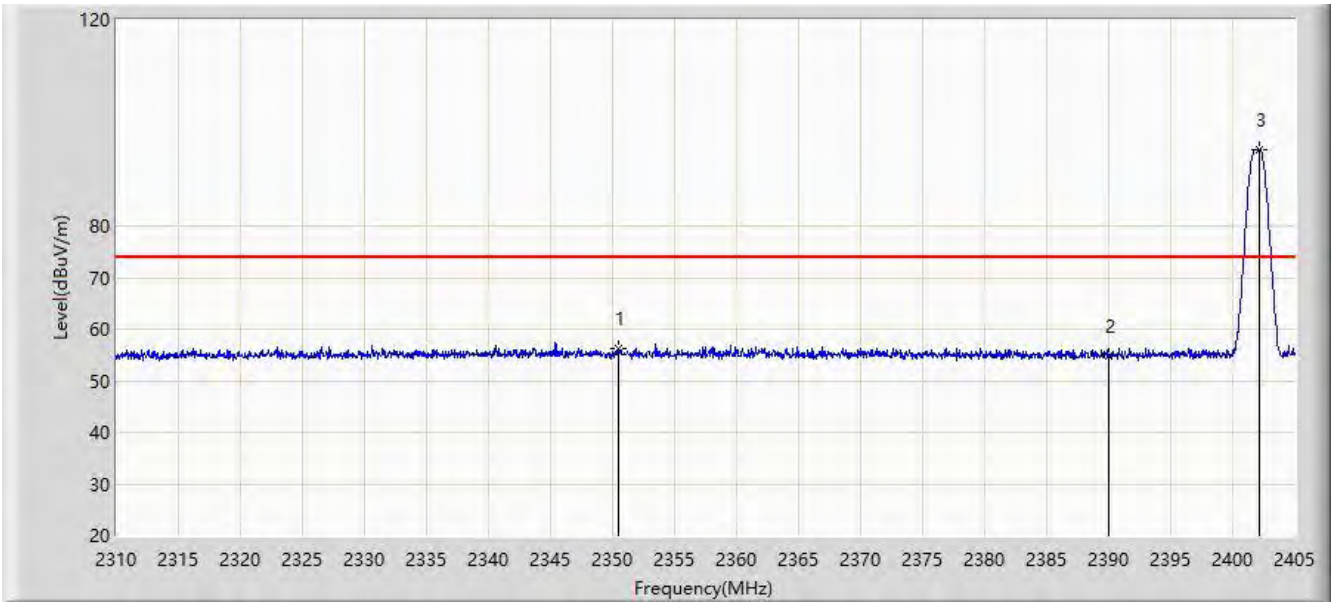



| No | Flag | Mark | Frequency (MHz) | Measure Level (dBµV/m) | Reading Level (dBµV) | Margin (dB) | Limit (dBµV/m) | Factor (dB/m) | Type |
|---|---|---|---|---|---|---|---|---|---|
| 1 | | | 2322.018 | 45.368 | 14.235 | -8.632 | 54.000 | 31.133 | AV |
| 2 | | | 2390.000 | 44.082 | 13.179 | -9.918 | 54.000 | 30.903 | AV |
| 3 | | * | 2402.008 | 99.981 | 69.046 | N/A | N/A | 30.935 | AV |

Note: Measure Level (dBµV/m) = Reading Level (dBµV) + Factor (dB/m)

Factor (dB/m) = Cable Loss (dB) + Antenna Factor (dB/m).

| | |
|---|---|
| Site: NS-AC1 | Test date: 2021/12/15 |
| Limit: FCC_Part 15.209_RE(3m) | Engineer: Dillon Diao |
| Probe: NS-AC1_BBHA9120D | Polarity: Vertical |
| EUT: Active Speaker | Power: AC 120V/60Hz |
| Note: Transmit by DH5 at channel 2402MHz | |

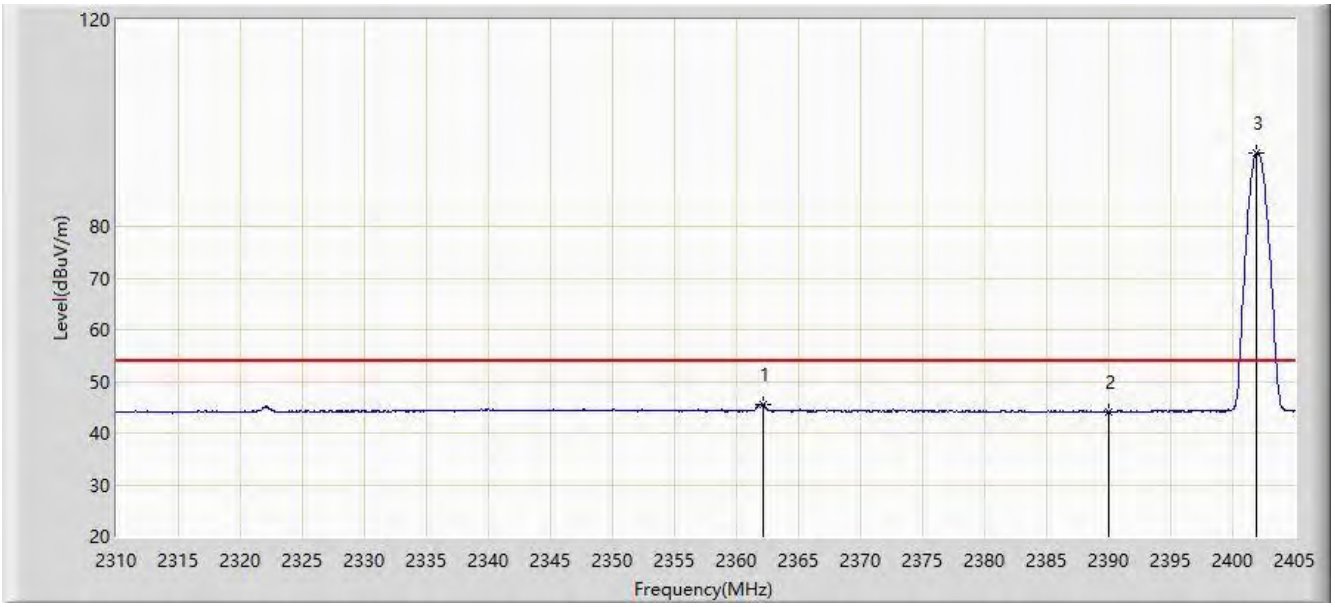



| No | Flag | Mark | Frequency (MHz) | Measure Level (dBµV/m) | Reading Level (dBµV) | Margin (dB) | Limit (dBµV/m) | Factor (dB/m) | Type |
|---|---|---|---|---|---|---|---|---|---|
| 1 | | | 2350.518 | 56.359 | 25.259 | -17.641 | 74.000 | 31.099 | PK |
| 2 | | | 2390.000 | 54.865 | 23.962 | -19.135 | 74.000 | 30.903 | PK |
| 3 | | * | 2402.150 | 94.844 | 63.908 | N/A | N/A | 30.936 | PK |

Note: Measure Level (dBµV/m) = Reading Level (dBµV) + Factor (dB/m)

Factor (dB/m) = Cable Loss (dB) + Antenna Factor (dB/m).

| | |
|---|---|
| Site: NS-AC1 | Test date: 2021/12/15 |
| Limit: FCC_Part 15.209_RE(3m) | Engineer: Dillon Diao |
| Probe: NS-AC1_BBHA9120D | Polarity: Vertical |
| EUT: Active Speaker | Power: AC 120V/60Hz |
| Note: Transmit by DH5 at channel 2402MHz | |

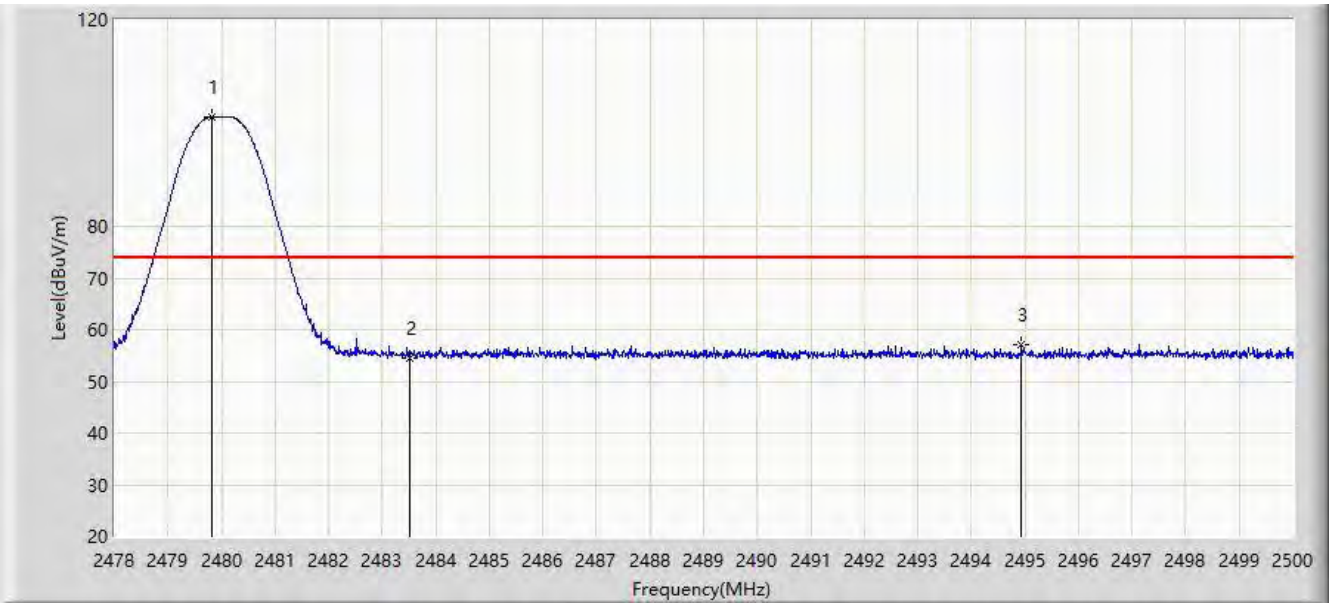



| No | Flag | Mark | Frequency (MHz) | Measure Level (dBµV/m) | Reading Level (dBµV) | Margin (dB) | Limit (dBµV/m) | Factor (dB/m) | Type |
|---|---|---|---|---|---|---|---|---|---|
| 1 | | | 2362.107 | 45.465 | 14.486 | -8.535 | 54.000 | 30.979 | AV |
| 2 | | | 2390.000 | 44.111 | 13.208 | -9.889 | 54.000 | 30.903 | AV |
| 3 | | * | 2401.865 | 94.088 | 63.153 | N/A | N/A | 30.935 | AV |

Note: Measure Level (dBµV/m) = Reading Level (dBµV) + Factor (dB/m)

Factor (dB/m) = Cable Loss (dB) + Antenna Factor (dB/m).

| | |
|---|---|
| Site: NS-AC1 | Test date: 2021/12/15 |
| Limit: FCC_Part 15.209_RE(3m) | Engineer: Dillon Diao |
| Probe: NS-AC1_BBHA9120D | Polarity: Horizontal |
| EUT: Active Speaker | Power: AC 120V/60Hz |
| Note: Transmit by DH5 at channel 2480MHz | |

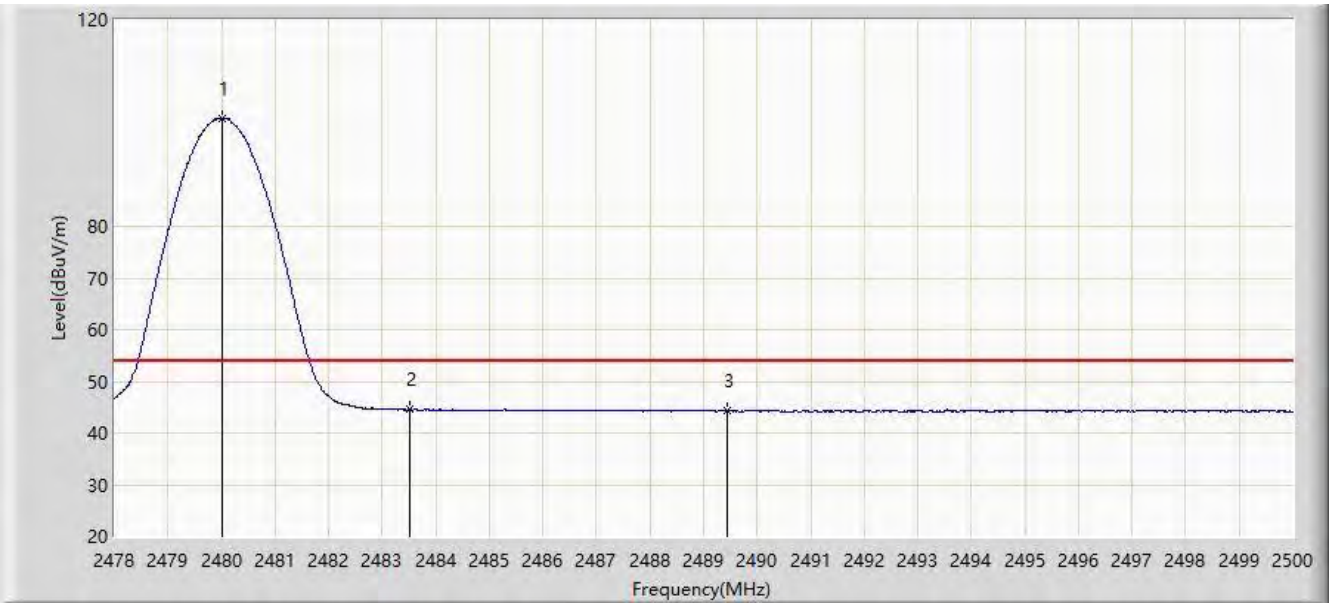



| No | Flag | Mark | Frequency (MHz) | Measure Level (dBμV/m) | Reading Level (dBμV) | Margin (dB) | Limit (dBμV/m) | Factor (dB/m) | Type |
|---|---|---|---|---|---|---|---|---|---|
| 1 | | * | 2479.826 | 101.212 | 70.342 | N/A | N/A | 30.870 | PK |
| 2 | | | 2483.500 | 54.619 | 23.730 | -19.381 | 74.000 | 30.889 | PK |
| 3 | | | 2494.940 | 57.160 | 26.214 | -16.840 | 74.000 | 30.946 | PK |

Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB/m)

Factor (dB/m) = Cable Loss (dB) + Antenna Factor (dB/m).

| | |
|---|---|
| Site: NS-AC1 | Test date: 2021/12/15 |
| Limit: FCC_Part 15.209_RE(3m) | Engineer: Dillon Diao |
| Probe: NS-AC1_BBHA9120D | Polarity: Horizontal |
| EUT: Active Speaker | Power: AC 120V/60Hz |
| Note: Transmit by DH5 at channel 2480MHz | |

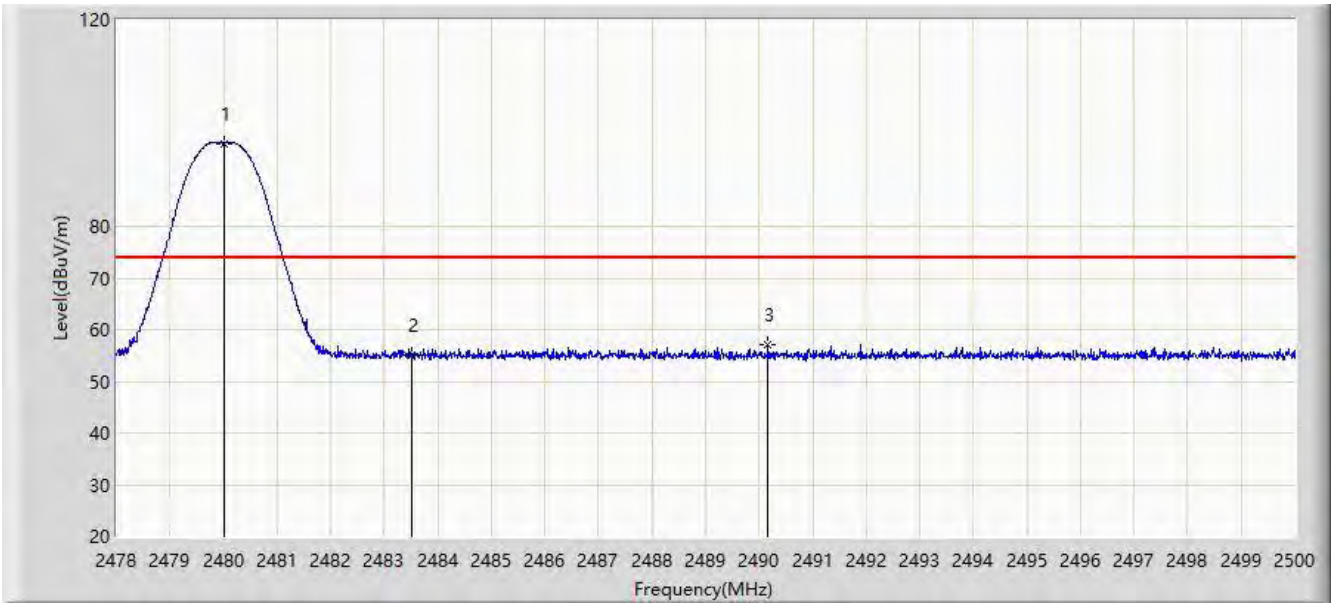



| No | Flag | Mark | Frequency (MHz) | Measure Level (dBµV/m) | Reading Level (dBµV) | Margin (dB) | Limit (dBµV/m) | Factor (dB/m) | Type |
|---|---|---|---|---|---|---|---|---|---|
| 1 | | * | 2480.002 | 100.939 | 70.068 | N/A | N/A | 30.871 | AV |
| 2 | | | 2483.500 | 44.531 | 13.642 | -9.469 | 54.000 | 30.889 | AV |
| 3 | | | 2489.451 | 44.388 | 13.469 | -9.612 | 54.000 | 30.919 | AV |

Note: Measure Level (dBµV/m) = Reading Level (dBµV) + Factor (dB/m)

Factor (dB/m) = Cable Loss (dB) + Antenna Factor (dB/m).

| | |
|---|---|
| Site: NS-AC1 | Test date: 2021/12/15 |
| Limit: FCC_Part 15.209_RE(3m) | Engineer: Dillon Diao |
| Probe: NS-AC1_BBHA9120D | Polarity: Vertical |
| EUT: Active Speaker | Power: AC 120V/60Hz |
| Note: Transmit by DH5 at channel 2480MHz | |

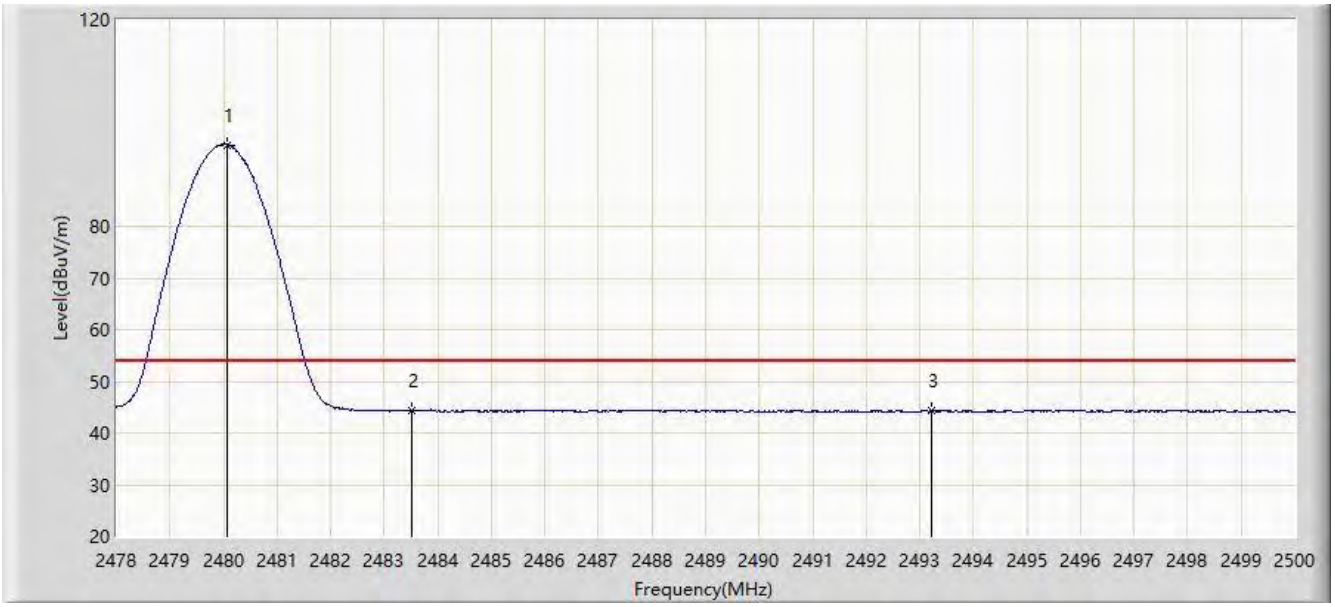



| No | Flag | Mark | Frequency (MHz) | Measure Level (dBμV/m) | Reading Level (dBμV) | Margin (dB) | Limit (dBμV/m) | Factor (dB/m) | Type |
|---|---|---|---|---|---|---|---|---|---|
| 1 | | * | 2480.002 | 96.085 | 65.214 | N/A | N/A | 30.871 | PK |
| 2 | | | 2483.500 | 55.164 | 24.275 | -18.836 | 74.000 | 30.889 | PK |
| 3 | | | 2490.166 | 56.959 | 26.037 | -17.041 | 74.000 | 30.922 | PK |

Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB/m)

Factor (dB/m) = Cable Loss (dB) + Antenna Factor (dB/m).

| | |
|---|---|
| Site: NS-AC1 | Test date: 2021/12/15 |
| Limit: FCC_Part 15.209_RE(3m) | Engineer: Dillon Diao |
| Probe: NS-AC1_BBHA9120D | Polarity: Vertical |
| EUT: Active Speaker | Power: AC 120V/60Hz |
| Note: Transmit by DH5 at channel 2480MHz | |

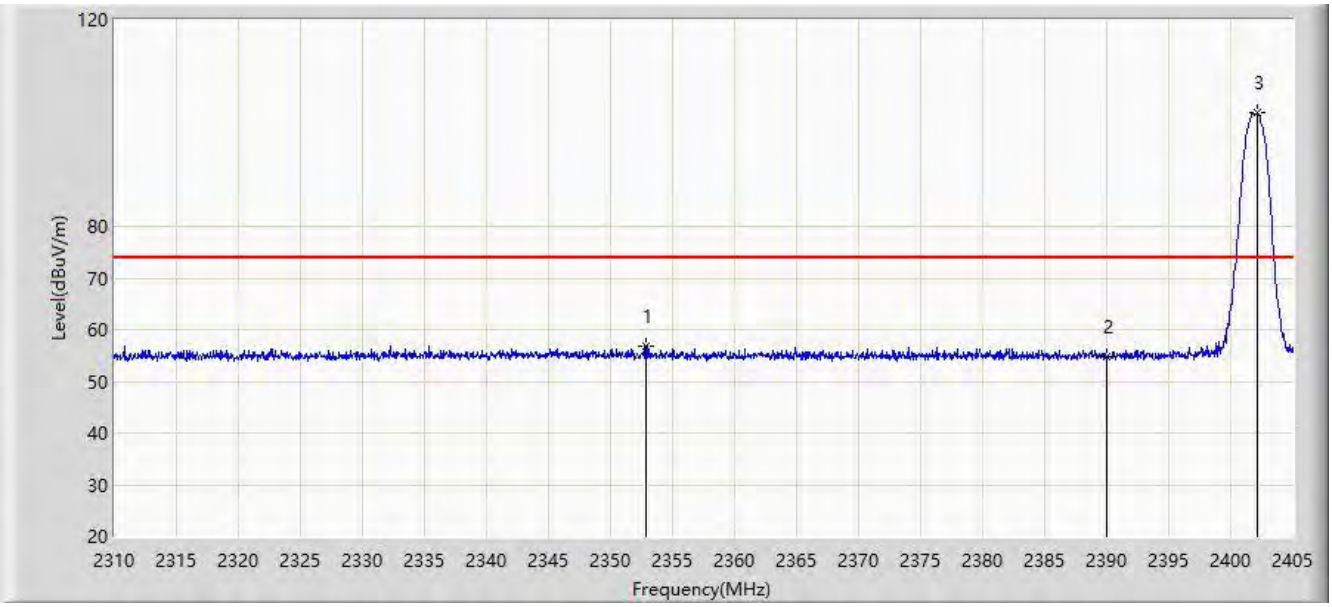



| No | Flag | Mark | Frequency (MHz) | Measure Level (dBµV/m) | Reading Level (dBµV) | Margin (dB) | Limit (dBµV/m) | Factor (dB/m) | Type |
|---|---|---|---|---|---|---|---|---|---|
| 1 | | * | 2480.079 | 95.752 | 64.880 | N/A | N/A | 30.872 | AV |
| 2 | | | 2483.500 | 44.259 | 13.370 | -9.741 | 54.000 | 30.889 | AV |
| 3 | | | 2493.213 | 44.270 | 13.333 | -9.730 | 54.000 | 30.937 | AV |

Note: Measure Level (dBµV/m) = Reading Level (dBµV) + Factor (dB/m)

Factor (dB/m) = Cable Loss (dB) + Antenna Factor (dB/m).

| | |
|---|---|
| Site: NS-AC1 | Test date: 2021/12/15 |
| Limit: FCC_Part 15.209_RE(3m) | Engineer: Dillon Diao |
| Probe: NS-AC1_BBHA9120D | Polarity: Horizontal |
| EUT: Active Speaker | Power: AC 120V/60Hz |
| Note: Transmit by 2DH5 at channel 2402MHz | |

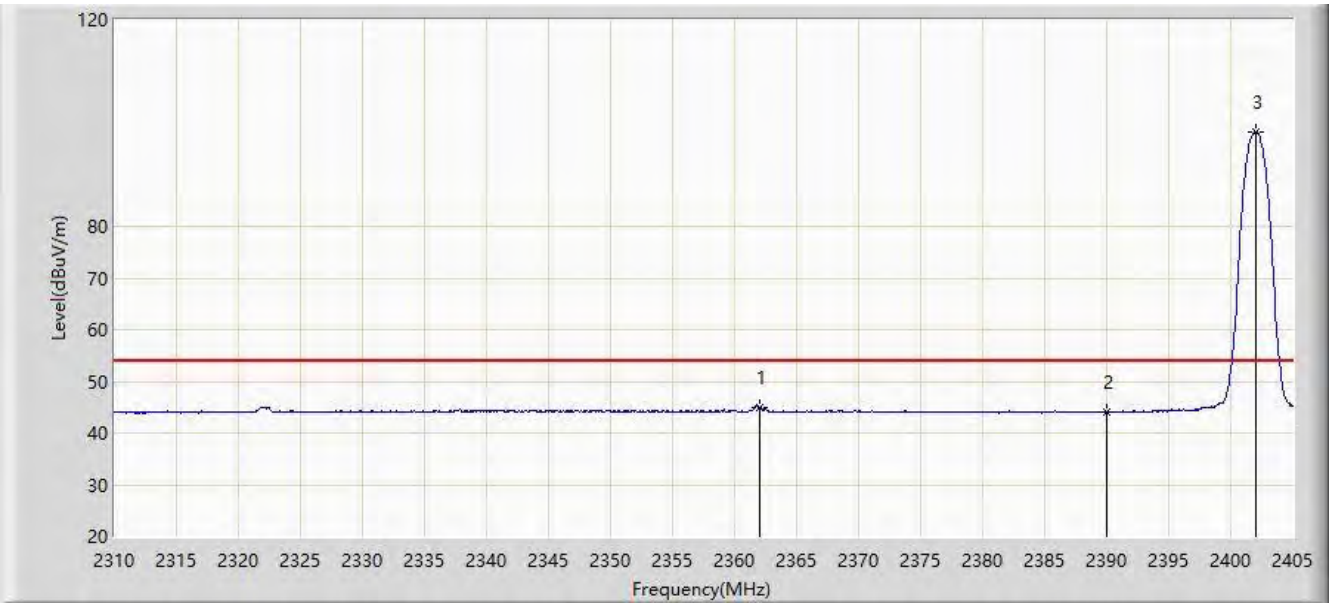



| No | Flag | Mark | Frequency (MHz) | Measure Level (dBµV/m) | Reading Level (dBµV) | Margin (dB) | Limit (dBµV/m) | Factor (dB/m) | Type |
|---|---|---|---|---|---|---|---|---|---|
| 1 | | | 2352.798 | 56.805 | 25.732 | -17.195 | 74.000 | 31.073 | PK |
| 2 | | | 2390.000 | 54.684 | 23.781 | -19.316 | 74.000 | 30.903 | PK |
| 3 | | * | 2402.150 | 101.887 | 70.951 | N/A | N/A | 30.936 | PK |

Note: Measure Level (dBµV/m) = Reading Level (dBµV) + Factor (dB/m)

Factor (dB/m) = Cable Loss (dB) + Antenna Factor (dB/m).

| | |
|---|---|
| Site: NS-AC1 | Test date: 2021/12/15 |
| Limit: FCC_Part 15.209_RE(3m) | Engineer: Dillon Diao |
| Probe: NS-AC1_BBHA9120D | Polarity: Horizontal |
| EUT: Active Speaker | Power: AC 120V/60Hz |
| Note: Transmit by 2DH5 at channel 2402MHz | |

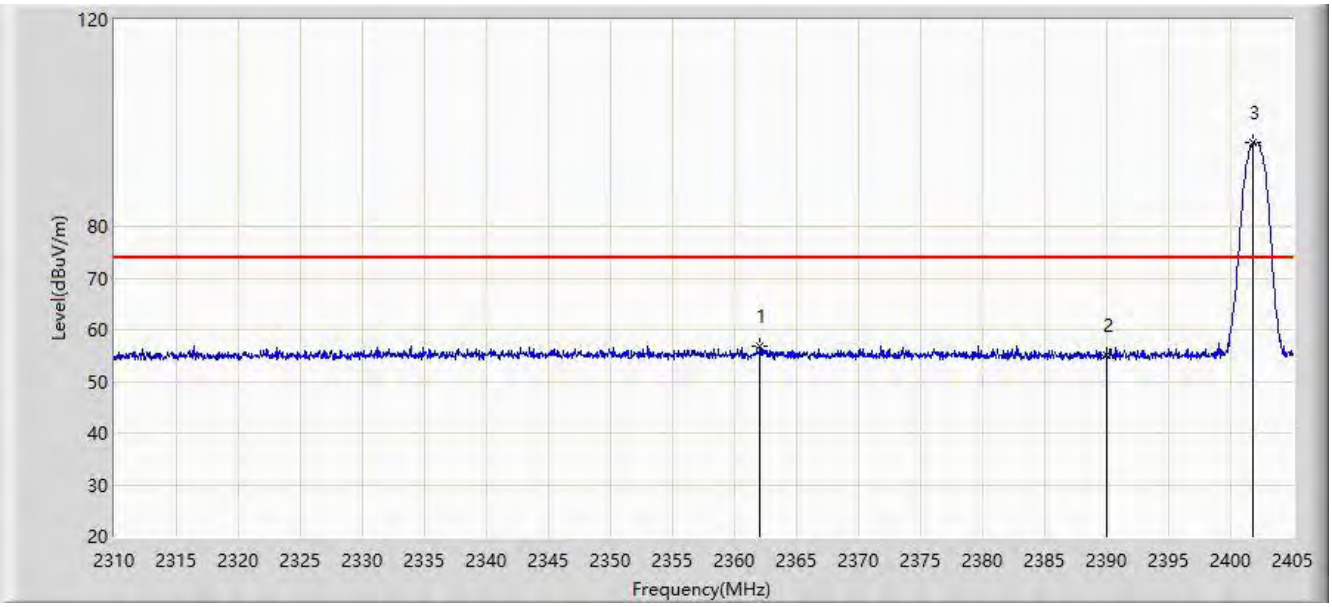



| No | Flag | Mark | Frequency (MHz) | Measure Level (dBµV/m) | Reading Level (dBµV) | Margin (dB) | Limit (dBµV/m) | Factor (dB/m) | Type |
|---|---|---|---|---|---|---|---|---|---|
| 1 | | | 2361.965 | 45.030 | 14.050 | -8.970 | 54.000 | 30.979 | AV |
| 2 | | | 2390.000 | 44.112 | 13.209 | -9.888 | 54.000 | 30.903 | AV |
| 3 | | * | 2402.008 | 98.341 | 67.406 | N/A | N/A | 30.935 | AV |

Note: Measure Level (dBµV/m) = Reading Level (dBµV) + Factor (dB/m)

Factor (dB/m) = Cable Loss (dB) + Antenna Factor (dB/m).

| | |
|---|---|
| Site: NS-AC1 | Test date: 2021/12/15 |
| Limit: FCC_Part 15.209_RE(3m) | Engineer: Dillon Diao |
| Probe: NS-AC1_BBHA9120D | Polarity: Vertical |
| EUT: Active Speaker | Power: AC 120V/60Hz |
| Note: Transmit by 2DH5 at channel 2402MHz | |

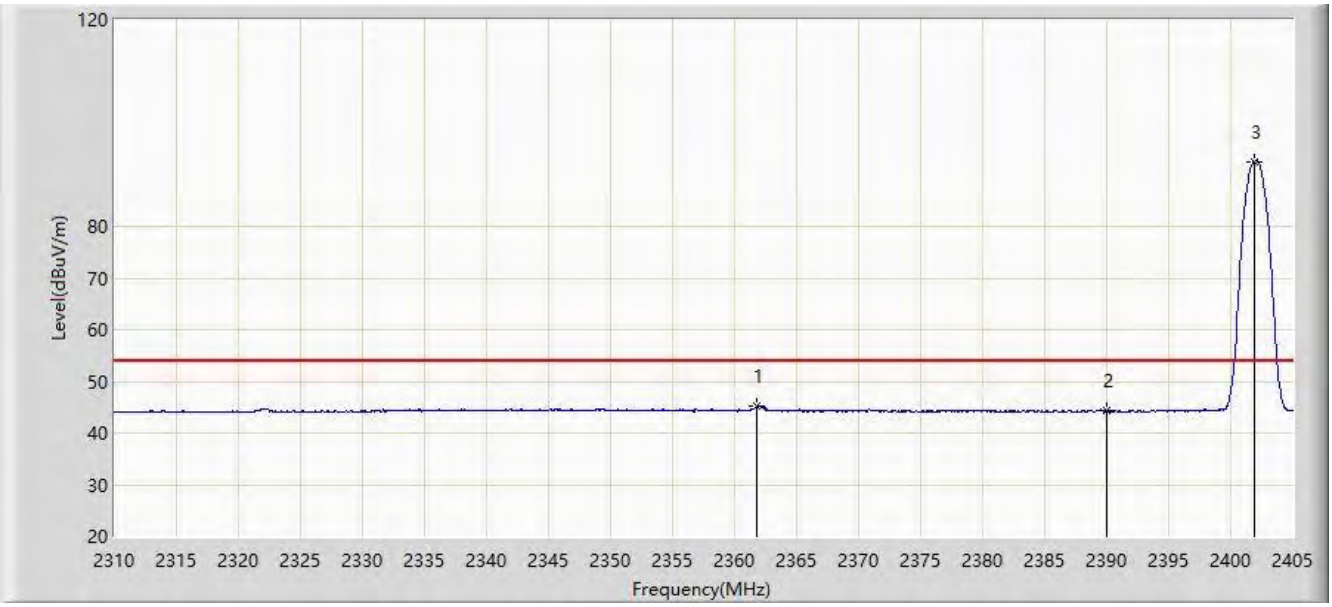



| No | Flag | Mark | Frequency (MHz) | Measure Level (dBµV/m) | Reading Level (dBµV) | Margin (dB) | Limit (dBµV/m) | Factor (dB/m) | Type |
|---|---|---|---|---|---|---|---|---|---|
| 1 | | | 2362.060 | 56.930 | 25.951 | -17.070 | 74.000 | 30.979 | PK |
| 2 | | | 2390.000 | 55.023 | 24.120 | -18.977 | 74.000 | 30.903 | PK |
| 3 | | * | 2401.817 | 96.316 | 65.381 | N/A | N/A | 30.934 | PK |

Note: Measure Level (dBµV/m) = Reading Level (dBµV) + Factor (dB/m)

Factor (dB/m) = Cable Loss (dB) + Antenna Factor (dB/m).

| | |
|---|---|
| Site: NS-AC1 | Test date: 2021/12/15 |
| Limit: FCC_Part 15.209_RE(3m) | Engineer: Dillon Diao |
| Probe: NS-AC1_BBHA9120D | Polarity: Vertical |
| EUT: Active Speaker | Power: AC 120V/60Hz |
| Note: Transmit by 2DH5 at channel 2402MHz | |

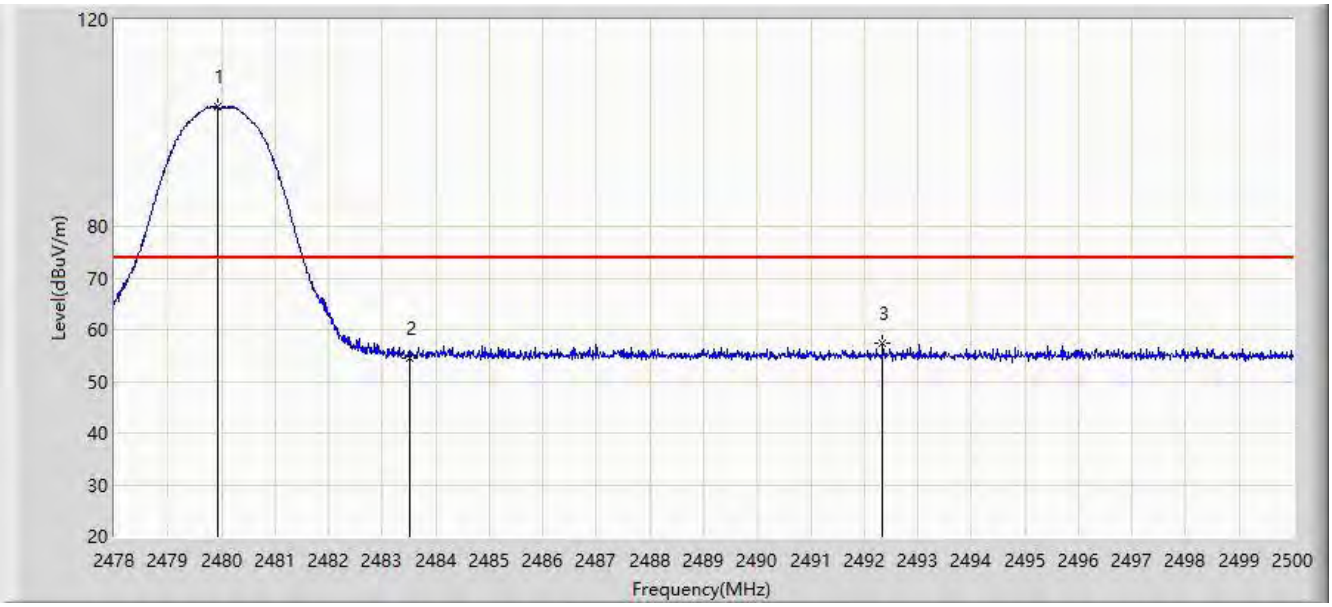



| No | Flag | Mark | Frequency (MHz) | Measure Level (dBµV/m) | Reading Level (dBµV) | Margin (dB) | Limit (dBµV/m) | Factor (dB/m) | Type |
|---|---|---|---|---|---|---|---|---|---|
| 1 | | | 2361.823 | 45.235 | 14.255 | -8.765 | 54.000 | 30.981 | AV |
| 2 | | | 2390.000 | 44.241 | 13.338 | -9.759 | 54.000 | 30.903 | AV |
| 3 | | * | 2401.865 | 92.558 | 61.623 | N/A | N/A | 30.935 | AV |

Note: Measure Level (dBµV/m) = Reading Level (dBµV) + Factor (dB/m)

Factor (dB/m) = Cable Loss (dB) + Antenna Factor (dB/m).

| Site: NS-AC1 | Test date: 2021/12/15 |
|---|---|
| Limit: FCC_Part 15.209_RE(3m) | Engineer: Dillon Diao |
| Probe: NS-AC1_BBHA9120D | Polarity: Horizontal |
| EUT: Active Speaker | Power: AC 120V/60Hz |
| Note: Transmit by 2DH5 at channel 2480MHz | |

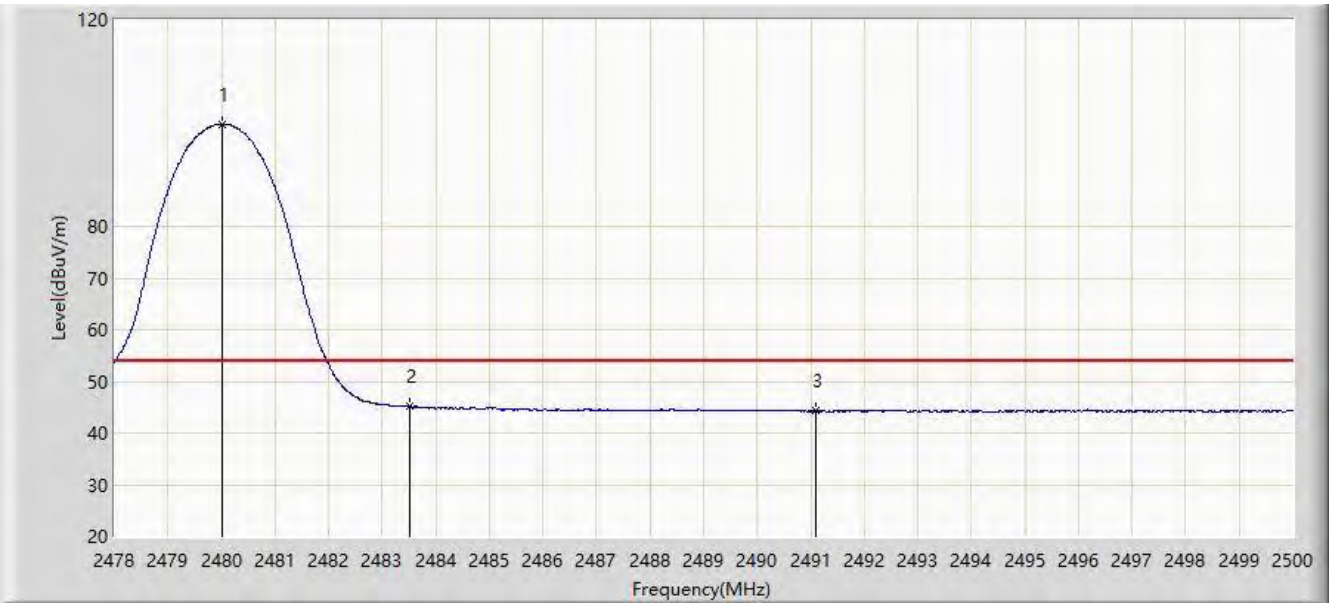



| No | Flag | Mark | Frequency (MHz) | Measure Level (dBμV/m) | Reading Level (dBμV) | Margin (dB) | Limit (dBμV/m) | Factor (dB/m) | Type |
|---|---|---|---|---|---|---|---|---|---|
| 1 | | * | 2479.936 | 103.116 | 72.245 | N/A | N/A | 30.871 | PK |
| 2 | | | 2483.500 | 54.429 | 23.540 | -19.571 | 74.000 | 30.889 | PK |
| 3 | | | 2492.344 | 57.285 | 26.352 | -16.715 | 74.000 | 30.933 | PK |

Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB/m)

Factor (dB/m) = Cable Loss (dB) + Antenna Factor (dB/m).

| | |
|---|---|
| Site: NS-AC1 | Test date: 2021/12/15 |
| Limit: FCC_Part 15.209_RE(3m) | Engineer: Dillon Diao |
| Probe: NS-AC1_BBHA9120D | Polarity: Horizontal |
| EUT: Active Speaker | Power: AC 120V/60Hz |
| Note: Transmit by 2DH5 at channel 2480MHz | |

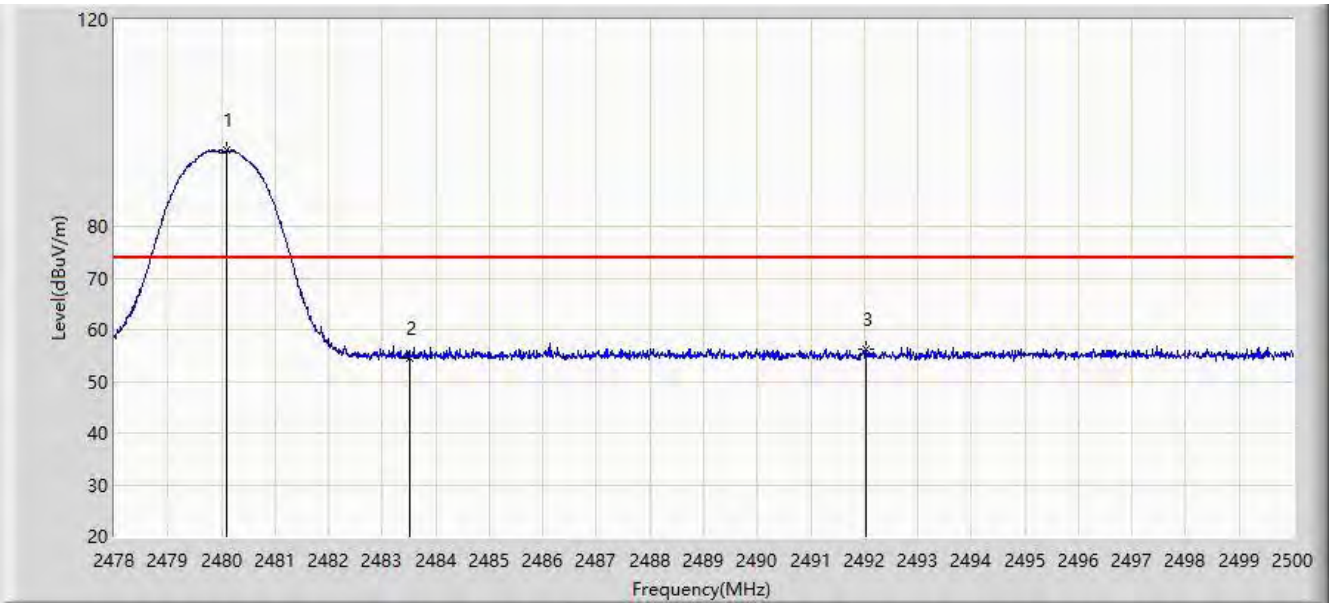



| No | Flag | Mark | Frequency (MHz) | Measure Level (dBμV/m) | Reading Level (dBμV) | Margin (dB) | Limit (dBμV/m) | Factor (dB/m) | Type |
|---|---|---|---|---|---|---|---|---|---|
| 1 | | * | 2480.002 | 99.815 | 68.944 | N/A | N/A | 30.871 | AV |
| 2 | | | 2483.500 | 45.123 | 14.234 | -8.877 | 54.000 | 30.889 | AV |
| 3 | | | 2491.101 | 44.389 | 13.462 | -9.611 | 54.000 | 30.927 | AV |

Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB/m)

Factor (dB/m) = Cable Loss (dB) + Antenna Factor (dB/m).

| | |
|---|---|
| Site: NS-AC1 | Test date: 2021/12/15 |
| Limit: FCC_Part 15.209_RE(3m) | Engineer: Dillon Diao |
| Probe: NS-AC1_BBHA9120D | Polarity: Vertical |
| EUT: Active Speaker | Power: AC 120V/60Hz |
| Note: Transmit by 2DH5 at channel 2480MHz | |

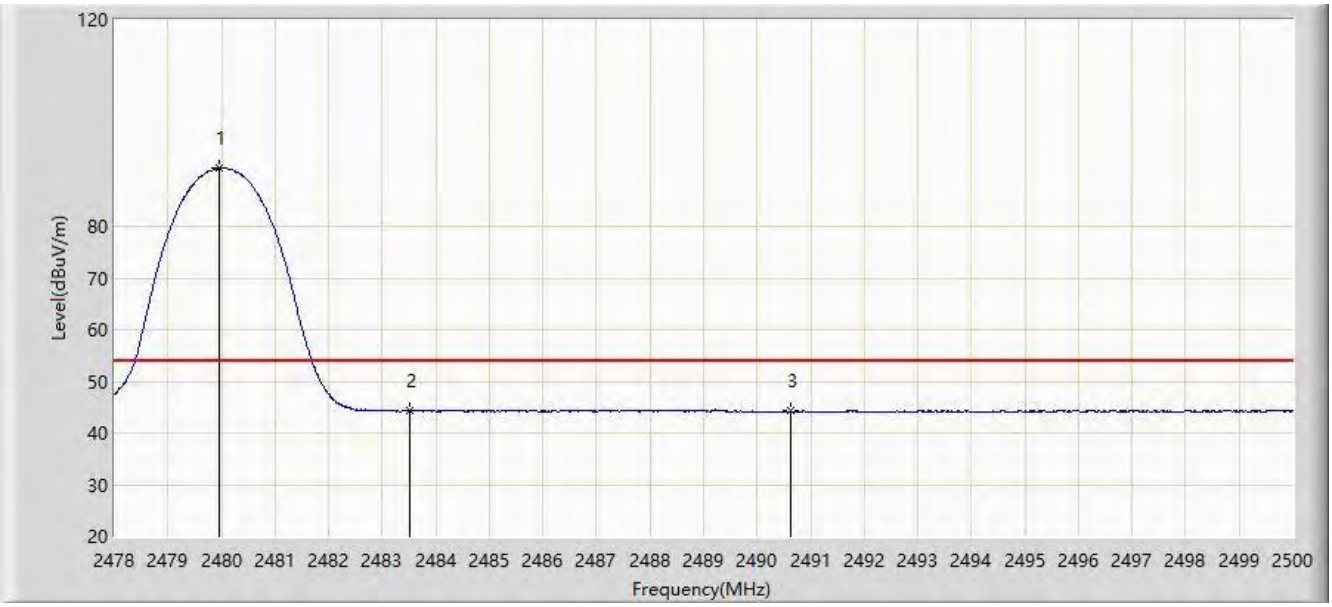



| No | Flag | Mark | Frequency (MHz) | Measure Level (dBμV/m) | Reading Level (dBμV) | Margin (dB) | Limit (dBμV/m) | Factor (dB/m) | Type |
|---|---|---|---|---|---|---|---|---|---|
| 1 | | * | 2480.101 | 94.724 | 63.852 | N/A | N/A | 30.872 | PK |
| 2 | | | 2483.500 | 54.567 | 23.678 | -19.433 | 74.000 | 30.889 | PK |
| 3 | | | 2492.025 | 56.294 | 25.363 | -17.706 | 74.000 | 30.931 | PK |

Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB/m)

Factor (dB/m) = Cable Loss (dB) + Antenna Factor (dB/m).

| Site: NS-AC1 | Test date: 2021/12/15 |
|---|---|
| Limit: FCC_Part 15.209_RE(3m) | Engineer: Dillon Diao |
| Probe: NS-AC1_BBHA9120D | Polarity: Vertical |
| EUT: Active Speaker | Power: AC 120V/60Hz |
| Note: Transmit by 2DH5 at channel 2480MHz | |

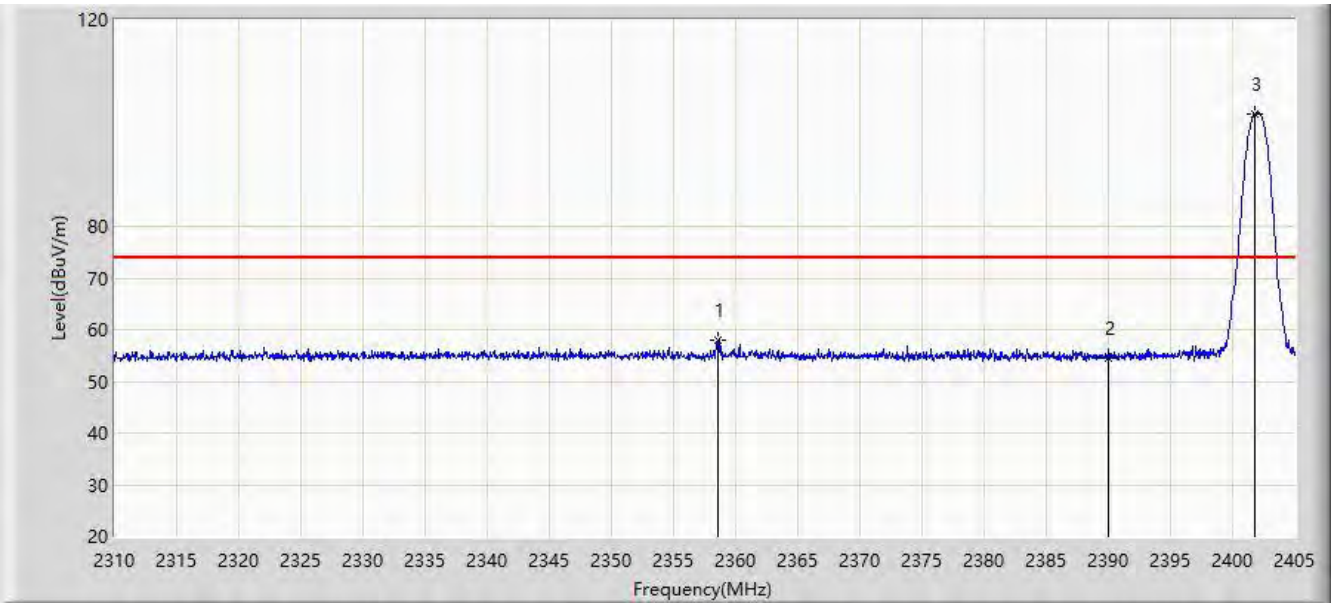



| No | Flag | Mark | Frequency (MHz) | Measure Level (dBµV/m) | Reading Level (dBµV) | Margin (dB) | Limit (dBµV/m) | Factor (dB/m) | Type |
|---|---|---|---|---|---|---|---|---|---|
| 1 | | * | 2479.969 | 91.294 | 60.423 | N/A | N/A | 30.871 | AV |
| 2 | | | 2483.500 | 44.263 | 13.374 | -9.737 | 54.000 | 30.889 | AV |
| 3 | | | 2490.617 | 44.239 | 13.315 | -9.761 | 54.000 | 30.924 | AV |

Note: Measure Level (dBµV/m) = Reading Level (dBµV) + Factor (dB/m)

Factor (dB/m) = Cable Loss (dB) + Antenna Factor (dB/m).

| | |
|---|---|
| Site: NS-AC1 | Test date: 2021/12/15 |
| Limit: FCC_Part 15.209_RE(3m) | Engineer: Dillon Diao |
| Probe: NS-AC1_BBHA9120D | Polarity: Horizontal |
| EUT: Active Speaker | Power: AC 120V/60Hz |
| Note: Transmit by 3DH5 at channel 2402MHz | |

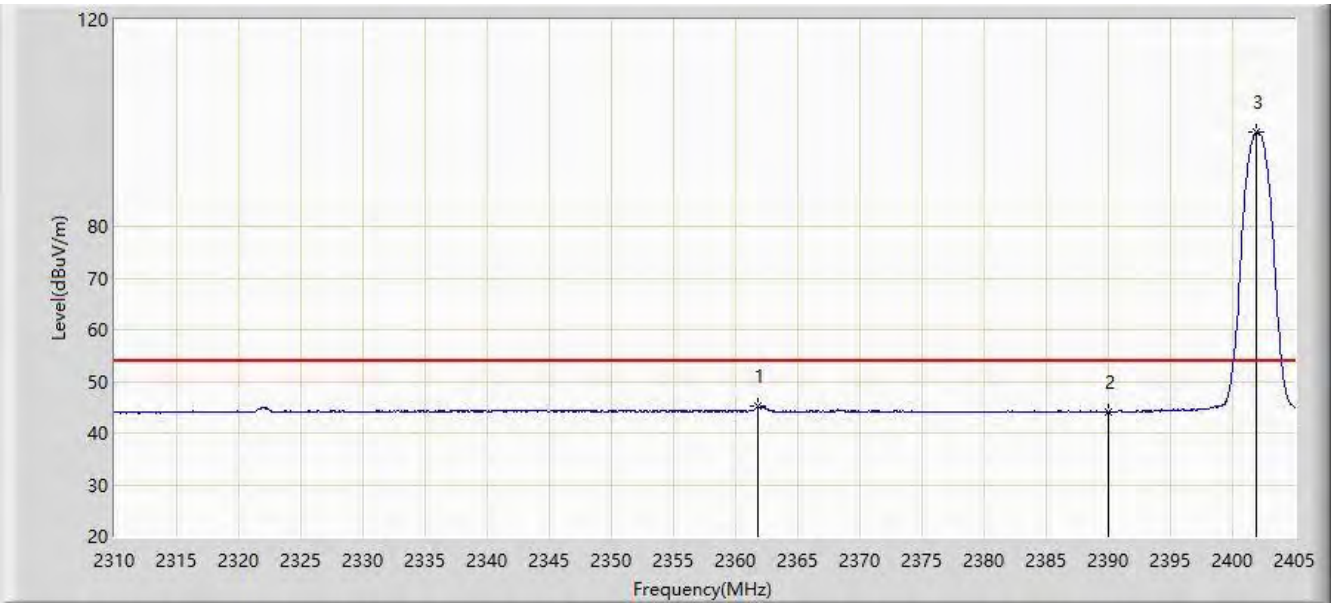



| No | Flag | Mark | Frequency (MHz) | Measure Level (dBµV/m) | Reading Level (dBµV) | Margin (dB) | Limit (dBµV/m) | Factor (dB/m) | Type |
|---|---|---|---|---|---|---|---|---|---|
| 1 | | | 2358.593 | 57.854 | 26.849 | -16.146 | 74.000 | 31.005 | PK |
| 2 | | | 2390.000 | 54.484 | 23.581 | -19.516 | 74.000 | 30.903 | PK |
| 3 | | * | 2401.817 | 101.836 | 70.901 | N/A | N/A | 30.934 | PK |

Note: Measure Level (dBµV/m) = Reading Level (dBµV) + Factor (dB/m)

Factor (dB/m) = Cable Loss (dB) + Antenna Factor (dB/m).

| Site: NS-AC1 | Test date: 2021/12/15 |
|---|---|
| Limit: FCC_Part 15.209_RE(3m) | Engineer: Dillon Diao |
| Probe: NS-AC1_BBHA9120D | Polarity: Horizontal |
| EUT: Active Speaker | Power: AC 120V/60Hz |
| Note: Transmit by 3DH5 at channel 2402MHz | |

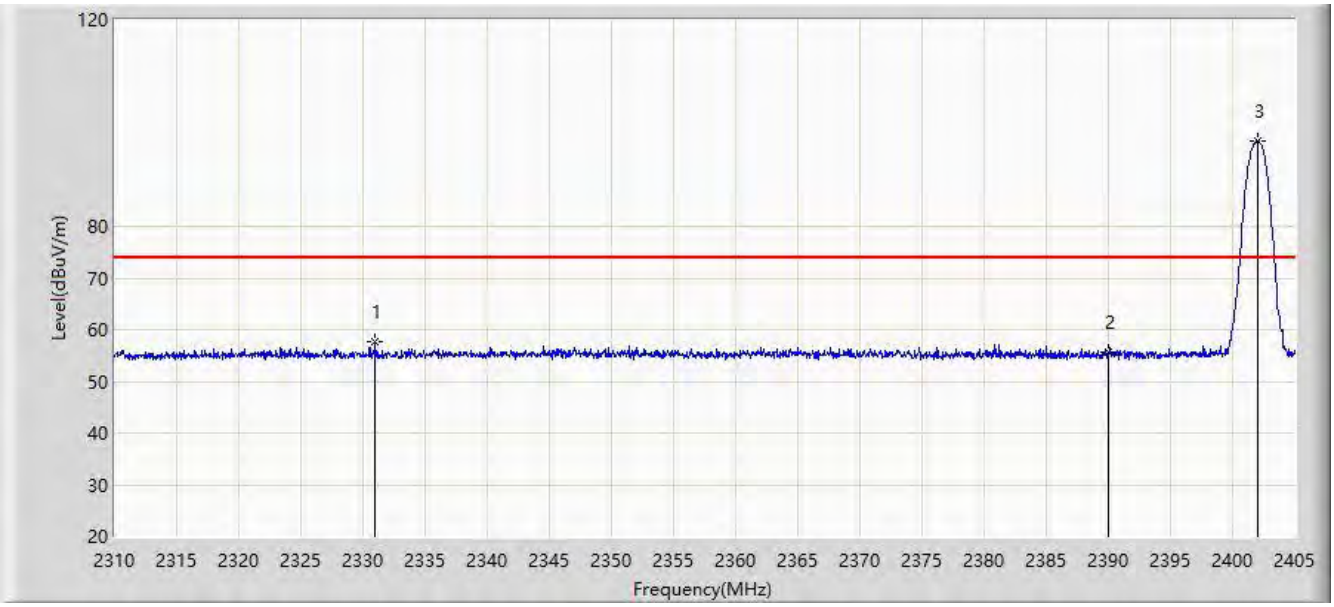



| No | Flag | Mark | Frequency (MHz) | Measure Level (dBµV/m) | Reading Level (dBµV) | Margin (dB) | Limit (dBµV/m) | Factor (dB/m) | Type |
|---|---|---|---|---|---|---|---|---|---|
| 1 | | | 2361.775 | 45.126 | 14.145 | -8.874 | 54.000 | 30.981 | AV |
| 2 | | | 2390.000 | 44.046 | 13.143 | -9.954 | 54.000 | 30.903 | AV |
| 3 | | * | 2401.865 | 98.159 | 67.224 | N/A | N/A | 30.935 | AV |

Note: Measure Level (dBµV/m) = Reading Level (dBµV) + Factor (dB/m)

Factor (dB/m) = Cable Loss (dB) + Antenna Factor (dB/m).

| | |
|---|---|
| Site: NS-AC1 | Test date: 2021/12/15 |
| Limit: FCC_Part 15.209_RE(3m) | Engineer: Dillon Diao |
| Probe: NS-AC1_BBHA9120D | Polarity: Vertical |
| EUT: Active Speaker | Power: AC 120V/60Hz |
| Note: Transmit by 3DH5 at channel 2402MHz | |

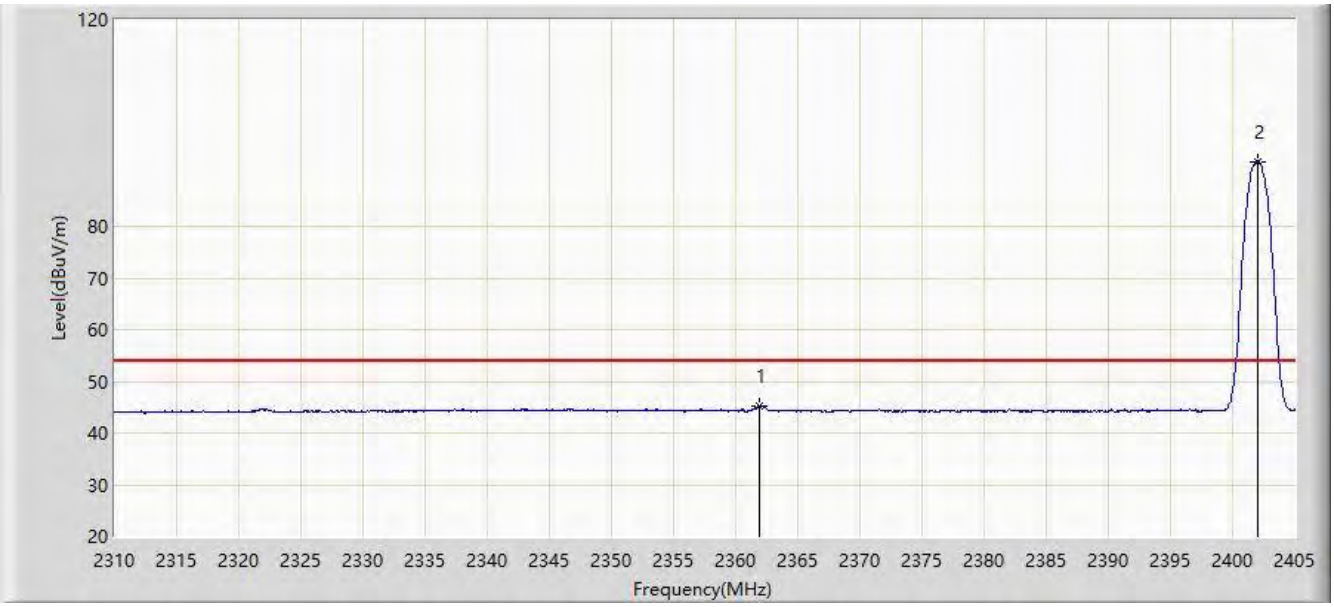



| No | Flag | Mark | Frequency (MHz) | Measure Level (dBµV/m) | Reading Level (dBµV) | Margin (dB) | Limit (dBµV/m) | Factor (dB/m) | Type |
|---|---|---|---|---|---|---|---|---|---|
| 1 | | | 2330.995 | 57.596 | 26.448 | -16.404 | 74.000 | 31.148 | PK |
| 2 | | | 2390.000 | 55.530 | 24.627 | -18.470 | 74.000 | 30.903 | PK |
| 3 | | * | 2402.008 | 96.619 | 65.684 | N/A | N/A | 30.935 | PK |

Note: Measure Level (dBµV/m) = Reading Level (dBµV) + Factor (dB/m)

Factor (dB/m) = Cable Loss (dB) + Antenna Factor (dB/m).

| | |
|---|---|
| Site: NS-AC1 | Test date: 2021/12/15 |
| Limit: FCC_Part 15.209_RE(3m) | Engineer: Dillon Diao |
| Probe: NS-AC1_BBHA9120D | Polarity: Vertical |
| EUT: Active Speaker | Power: AC 120V/60Hz |
| Note: Transmit by 3DH5 at channel 2402MHz | |

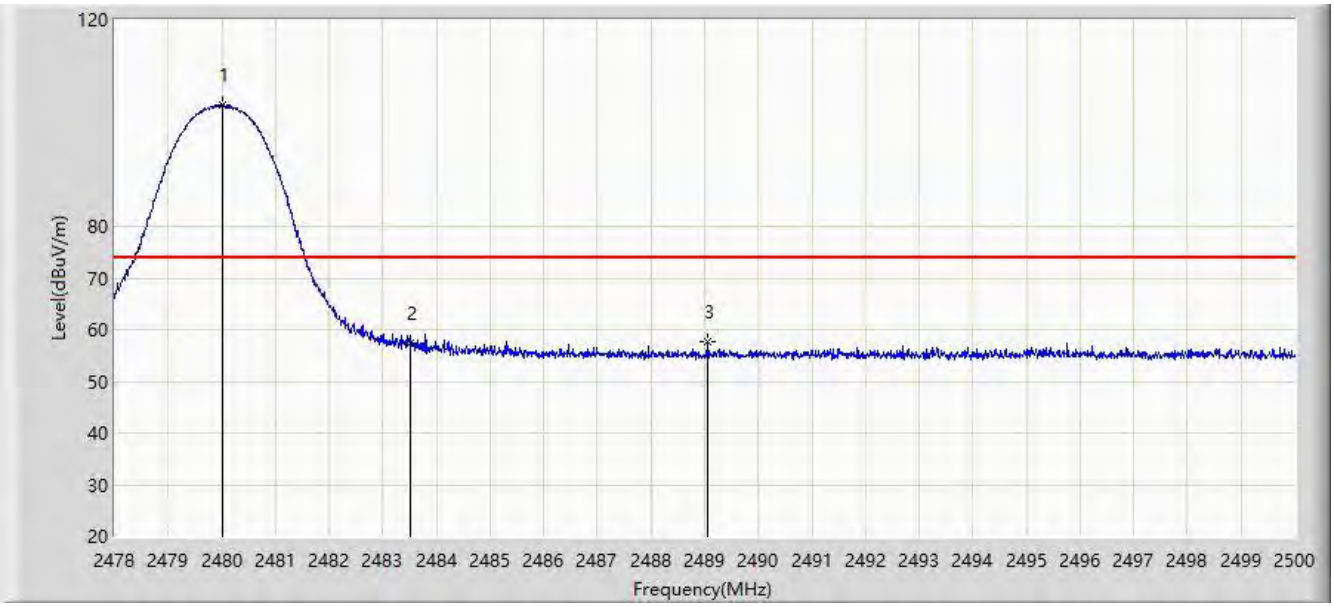



| No | Flag | Mark | Frequency (MHz) | Measure Level (dBµV/m) | Reading Level (dBµV) | Margin (dB) | Limit (dBµV/m) | Factor (dB/m) | Type |
|---|---|---|---|---|---|---|---|---|---|
| 1 | | | 2361.917 | 45.319 | 14.339 | -8.681 | 54.000 | 30.979 | AV |
| 2 | | * | 2402.008 | 92.580 | 61.645 | N/A | N/A | 30.935 | AV |

Note: Measure Level (dBµV/m) = Reading Level (dBµV) + Factor (dB/m)

Factor (dB/m) = Cable Loss (dB) + Antenna Factor (dB/m).

| | |
|---|---|
| Site: NS-AC1 | Test date: 2021/12/15 |
| Limit: FCC_Part 15.209_RE(3m) | Engineer: Dillon Diao |
| Probe: NS-AC1_BBHA9120D | Polarity: Horizontal |
| EUT: Active Speaker | Power: AC 120V/60Hz |
| Note: Transmit by 3DH5 at channel 2480MHz | |

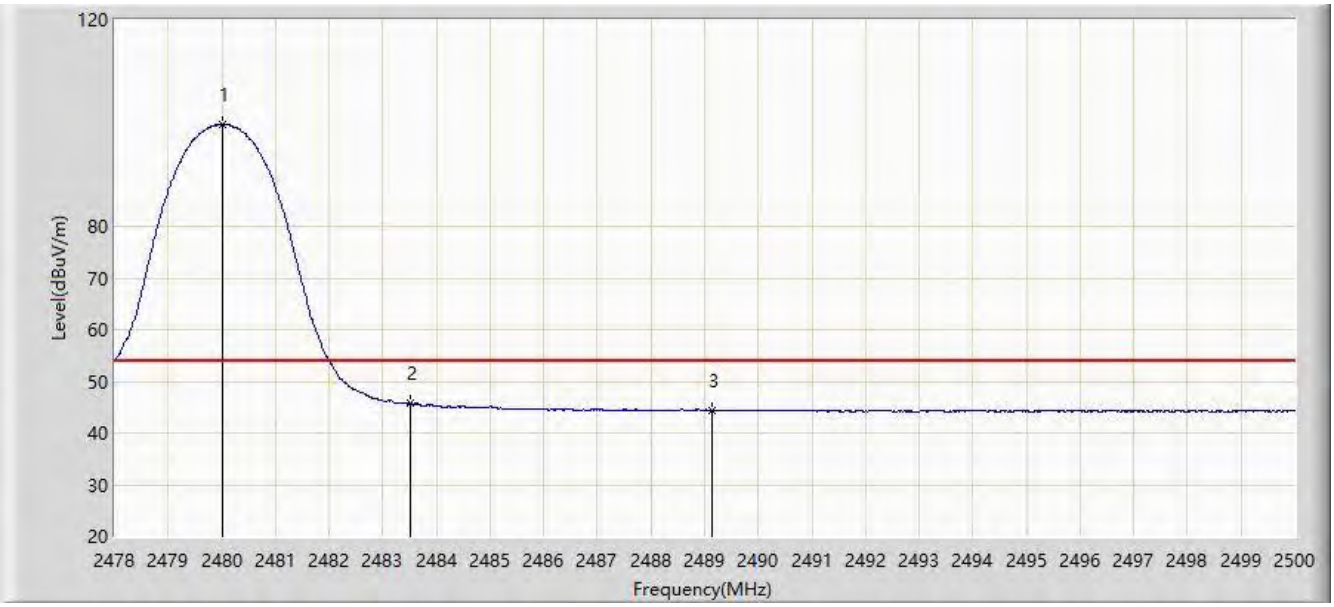



| No | Flag | Mark | Frequency (MHz) | Measure Level (dBµV/m) | Reading Level (dBµV) | Margin (dB) | Limit (dBµV/m) | Factor (dB/m) | Type |
|---|---|---|---|---|---|---|---|---|---|
| 1 | | * | 2480.024 | 103.439 | 72.568 | N/A | N/A | 30.871 | PK |
| 2 | | | 2483.500 | 57.342 | 26.453 | -16.658 | 74.000 | 30.889 | PK |
| 3 | | | 2489.055 | 57.685 | 26.768 | -16.315 | 74.000 | 30.917 | PK |

Note: Measure Level (dBµV/m) = Reading Level (dBµV) + Factor (dB/m)

Factor (dB/m) = Cable Loss (dB) + Antenna Factor (dB/m).

| | |
|---|---|
| Site: NS-AC1 | Test date: 2021/12/15 |
| Limit: FCC_Part 15.209_RE(3m) | Engineer: Dillon Diao |
| Probe: NS-AC1_BBHA9120D | Polarity: Horizontal |
| EUT: Active Speaker | Power: AC 120V/60Hz |
| Note: Transmit by 3DH5 at channel 2480MHz | |

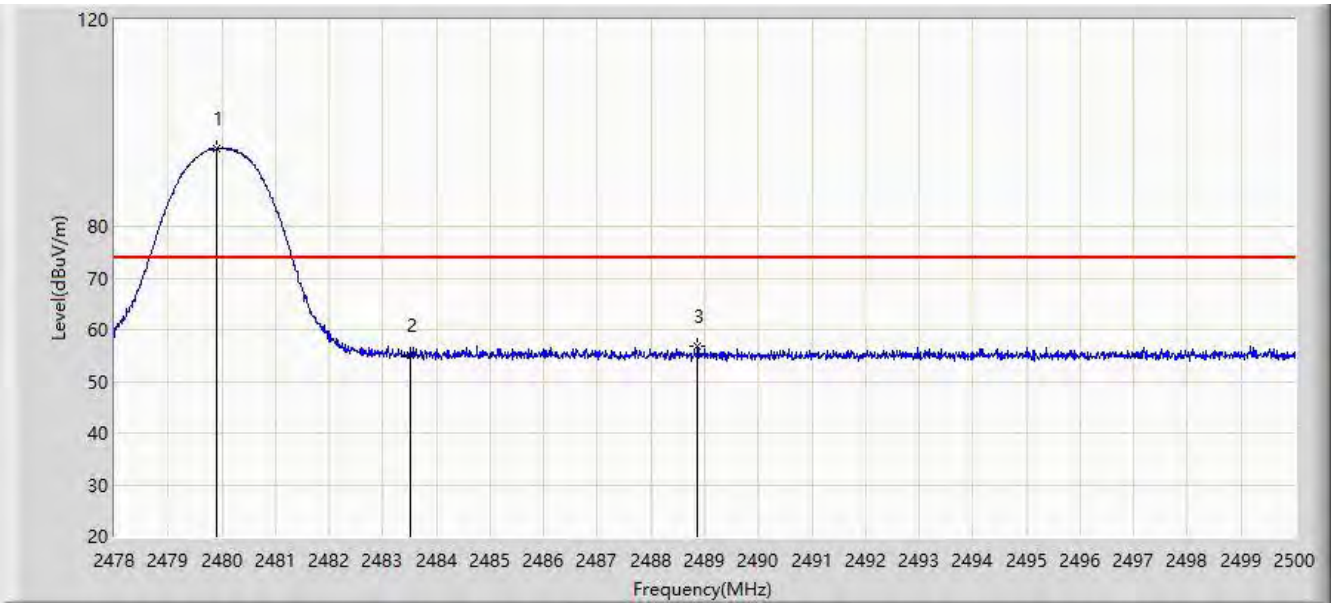



| No | Flag | Mark | Frequency (MHz) | Measure Level (dBµV/m) | Reading Level (dBµV) | Margin (dB) | Limit (dBµV/m) | Factor (dB/m) | Type |
|---|---|---|---|---|---|---|---|---|---|
| 1 | | * | 2480.002 | 99.683 | 68.812 | N/A | N/A | 30.871 | AV |
| 2 | | | 2483.500 | 45.800 | 14.911 | -8.200 | 54.000 | 30.889 | AV |
| 3 | | | 2489.143 | 44.394 | 13.477 | -9.606 | 54.000 | 30.917 | AV |

Note: Measure Level (dBµV/m) = Reading Level (dBµV) + Factor (dB/m)

Factor (dB/m) = Cable Loss (dB) + Antenna Factor (dB/m).

| | |
|---|---|
| Site: NS-AC1 | Test date: 2021/12/15 |
| Limit: FCC_Part 15.209_RE(3m) | Engineer: Dillon Diao |
| Probe: NS-AC1_BBHA9120D | Polarity: Vertical |
| EUT: Active Speaker | Power: AC 120V/60Hz |
| Note: Transmit by 3DH5 at channel 2480MHz | |

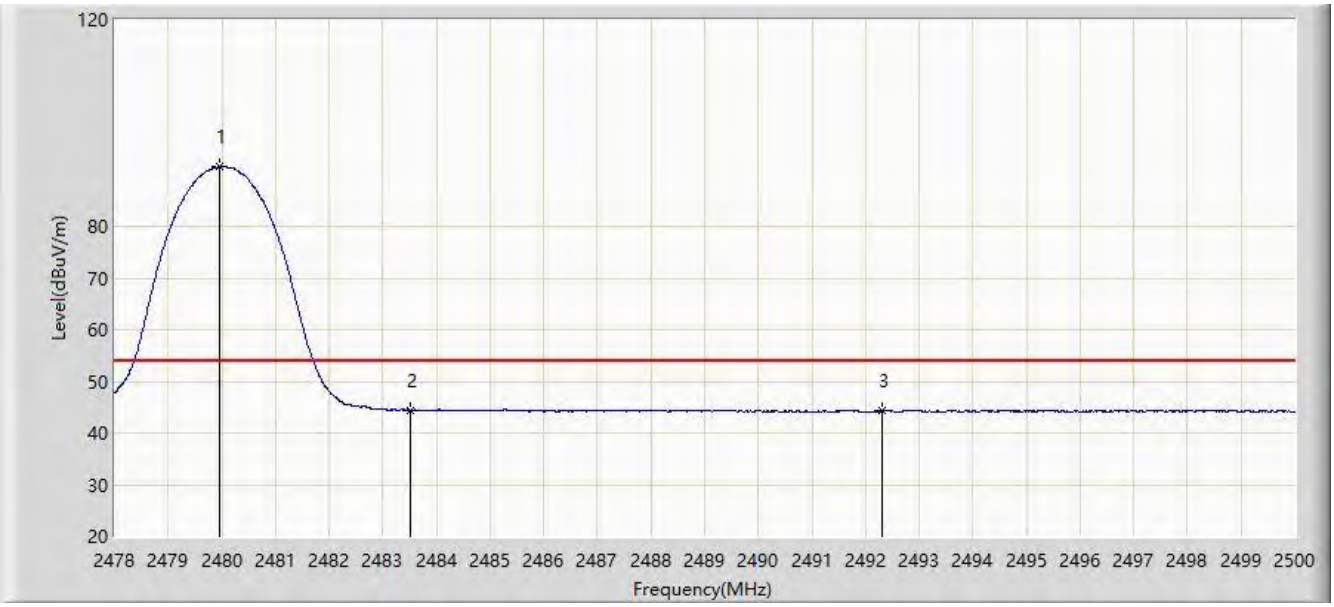



| No | Flag | Mark | Frequency (MHz) | Measure Level (dBµV/m) | Reading Level (dBµV) | Margin (dB) | Limit (dBµV/m) | Factor (dB/m) | Type |
|---|---|---|---|---|---|---|---|---|---|
| 1 | | * | 2479.914 | 95.158 | 64.287 | N/A | N/A | 30.871 | PK |
| 2 | | | 2483.500 | 54.934 | 24.045 | -19.066 | 74.000 | 30.889 | PK |
| 3 | | | 2488.868 | 56.699 | 25.783 | -17.301 | 74.000 | 30.916 | PK |

Note: Measure Level (dBµV/m) = Reading Level (dBµV) + Factor (dB/m)

Factor (dB/m) = Cable Loss (dB) + Antenna Factor (dB/m).

| | |
|---|---|
| Site: NS-AC1 | Test date: 2021/12/15 |
| Limit: FCC_Part 15.209_RE(3m) | Engineer: Dillon Diao |
| Probe: NS-AC1_BBHA9120D | Polarity: Vertical |
| EUT: Active Speaker | Power: AC 120V/60Hz |
| Note: Transmit by 3DH5 at channel 2480MHz | |




| No | Flag | Mark | Frequency (MHz) | Measure Level (dBμV/m) | Reading Level (dBμV) | Margin (dB) | Limit (dBμV/m) | Factor (dB/m) | Type |
|---|---|---|---|---|---|---|---|---|---|
| 1 | | * | 2479.969 | 91.522 | 60.651 | N/A | N/A | 30.871 | AV |
| 2 | | | 2483.500 | 44.428 | 13.539 | -9.572 | 54.000 | 30.889 | AV |
| 3 | | | 2492.300 | 44.380 | 13.447 | -9.620 | 54.000 | 30.933 | AV |

Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB/m)

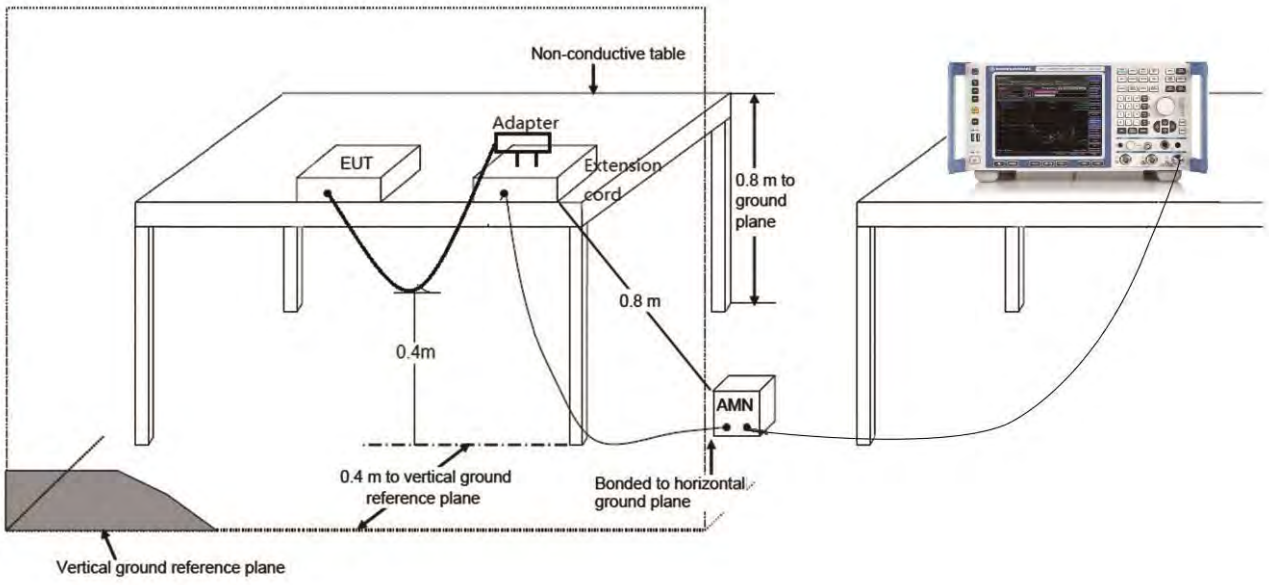
Factor (dB/m) = Cable Loss (dB) + Antenna Factor (dB/m).

## 5.11. AC Conducted Emissions Measurement

### 5.11.1.Test Limit

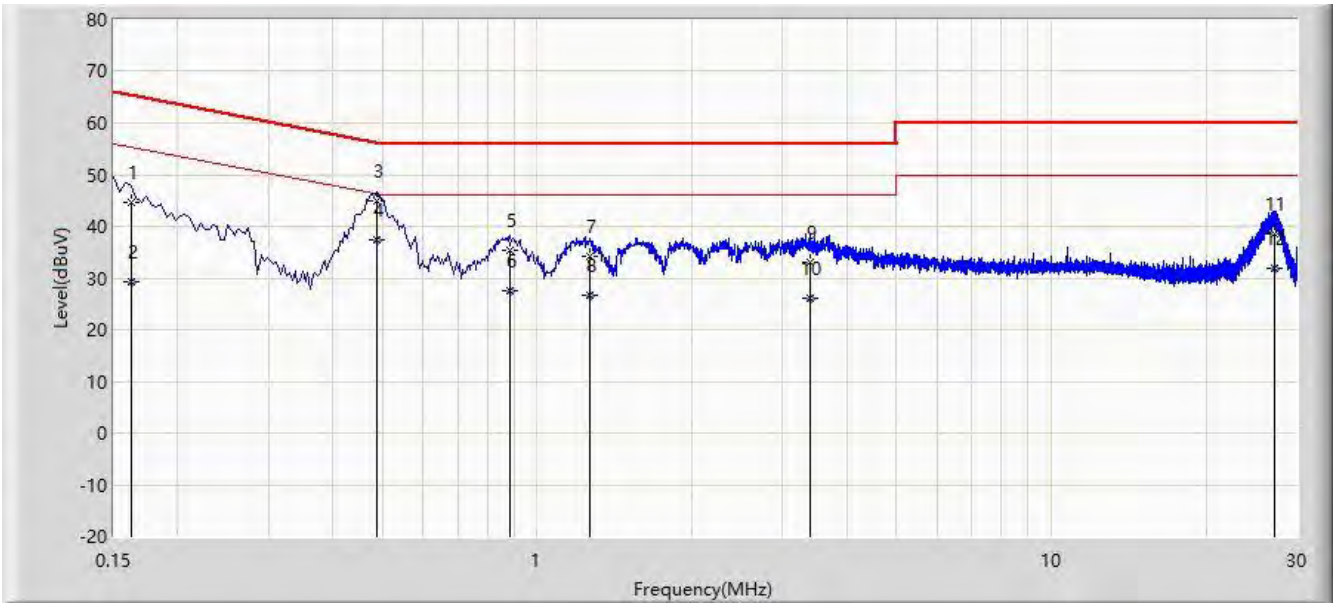
| FCC Part 15 Subpart C Paragraph 15.207 Limits | | |
|---|---|---|
| Frequency (MHz) | QP (dBμV) | Average (dBμV) |
| 0.15 - 0.50 | 66 - 56 | 56 - 46 |
| 0.50 - 5.0 | 56 | 46 |
| 5.0 - 30 | 60 | 50 |
| Note 1: The lower limit shall apply at the transition frequencies.<br>Note 2: The limit decreases linearly with the logarithm of the frequency in the range 0.15MHz to 0.5MHz. | | |

### 5.11.2.Test Setup



### 5.11.3.Test Result

| | |
|---|---|
| Site: NS-SR2 | Test date:2021/12/23 |
| Temperature:22.8°C | Humidity:61% |
| Limit: FCC_Part15.207_CE_AC Power | Engineer: Flag Yang |
| Probe: ENV216_102493_9KHz~150KHz-C | Polarity: Line |
| EUT: Active Speaker | Power: AC 120V/60Hz |
| Test Mode: Transmit by 3DH5 at channel 2480MHz | |

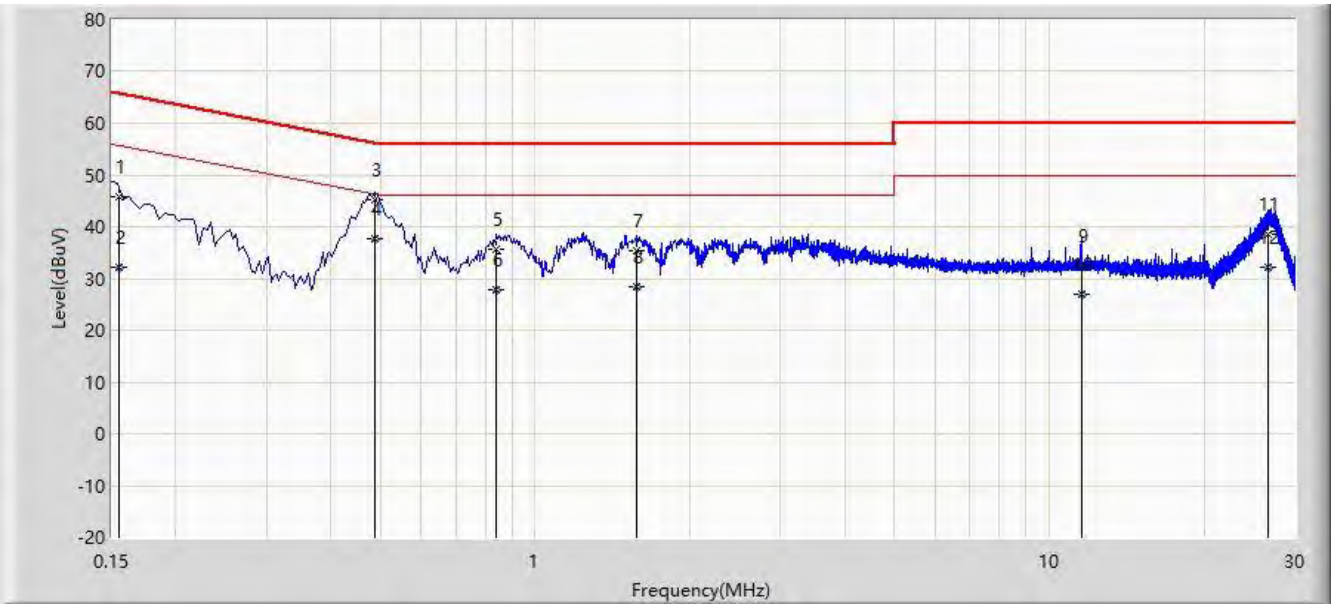



| No | Flag | Mark | Frequency (MHz) | Measure Level (dBµV) | Reading Level (dBµV) | Margin (dB) | Limit (dBµV) | Factor (dB) | Type |
|---|---|---|---|---|---|---|---|---|---|
| 1 | | | 0.162 | 44.625 | 34.818 | -20.736 | 65.361 | 9.807 | QP |
| 2 | | | 0.162 | 29.412 | 19.605 | -25.948 | 55.361 | 9.807 | AV |
| 3 | | | 0.486 | 44.803 | 35.090 | -11.433 | 56.236 | 9.713 | QP |
| 4 | | * | 0.486 | 37.409 | 27.696 | -8.827 | 46.236 | 9.713 | AV |
| 5 | | | 0.886 | 35.354 | 25.609 | -20.646 | 56.000 | 9.745 | QP |
| 6 | | | 0.886 | 27.550 | 17.804 | -18.450 | 46.000 | 9.745 | AV |
| 7 | | | 1.266 | 34.121 | 24.365 | -21.879 | 56.000 | 9.756 | QP |
| 8 | | | 1.266 | 26.594 | 16.838 | -19.406 | 46.000 | 9.756 | AV |
| 9 | | | 3.394 | 32.984 | 23.177 | -23.016 | 56.000 | 9.806 | QP |
| 10 | | | 3.394 | 25.944 | 16.138 | -20.056 | 46.000 | 9.806 | AV |
| 11 | | | 27.154 | 38.433 | 28.399 | -21.567 | 60.000 | 10.034 | QP |
| 12 | | | 27.154 | 32.019 | 21.985 | -17.981 | 50.000 | 10.034 | AV |

Note: Measure Level (dBµV) = Reading Level (dBµV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + LISN Factor (dB)

| | |
|---|---|
| Site: NS-SR2 | Test date:2021/12/23 |
| Temperature:22.8℃ | Humidity:61% |
| Limit: FCC_Part15.207_CE_AC Power | Engineer: Flag Yang |
| Probe: ENV216_102493_9KHz~150KHz-C | Polarity: Neutral |
| EUT: Active Speaker | Power: AC 120V/60Hz |
| Test Mode: Transmit by 3DH5 at channel 2480MHz | |




| No | Flag | Mark | Frequency (MHz) | Measure Level (dBμV) | Reading Level (dBμV) | Margin (dB) | Limit (dBμV) | Factor (dB) | Type |
|---|---|---|---|---|---|---|---|---|---|
| 1 | | | 0.155 | 45.866 | 36.095 | -19.861 | 65.727 | 9.770 | QP |
| 2 | | | 0.155 | 32.194 | 22.424 | -23.533 | 55.727 | 9.770 | AV |
| 3 | | | 0.486 | 45.114 | 35.441 | -11.122 | 56.236 | 9.673 | QP |
| 4 | | * | 0.486 | 37.599 | 27.926 | -8.636 | 46.236 | 9.673 | AV |
| 5 | | | 0.842 | 35.643 | 25.945 | -20.357 | 56.000 | 9.698 | QP |
| 6 | | | 0.842 | 27.845 | 18.147 | -18.155 | 46.000 | 9.698 | AV |
| 7 | | | 1.570 | 35.227 | 25.502 | -20.773 | 56.000 | 9.725 | QP |
| 8 | | | 1.570 | 28.341 | 18.617 | -17.659 | 46.000 | 9.725 | AV |
| 9 | | | 11.522 | 32.451 | 22.582 | -27.549 | 60.000 | 9.869 | QP |
| 10 | | | 11.522 | 26.991 | 17.122 | -23.009 | 50.000 | 9.869 | AV |
| 11 | | | 26.670 | 38.623 | 28.633 | -21.377 | 60.000 | 9.990 | QP |
| 12 | | | 26.670 | 32.269 | 22.279 | -17.731 | 50.000 | 9.990 | AV |

Note: Measure Level (dBμV) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + LISN Factor (dB)

## Appendix A - Test Setup Photograph

Refer to “2111RSU101-UT” file.

## Appendix B - EUT Photograph

Refer to “2111RSU101-UE” file.

The End