



## RF MEASUREMENT REPORT

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**FCC ID:** DD4ADTDG57  
**Applicant:** Shure Incorporated  
**Product:** Wireless Dual Transmitter  
**Model No.:** ADTD G57, ADTD DC G57  
**Brand Name:** , **SHURE**<sup>®</sup>  
**FCC Classification:** Licensed LPAS Device (TLD)  
**FCC Rule Part(s):** Part 74 Subpart H (Section 74.861)  
**Result:** Complies  
**Received Date:** 2024-06-13  
**Test Date:** 2024-08-21 ~ 2024-12-04

**Reviewed By:**

\_\_\_\_\_  
Jame Yuan

**Approved By:**

\_\_\_\_\_  
Robin Wu



The test results relate only to the samples tested.

The test results shown in the test report are traceable to the national/international standards through the calibration of the equipment and evaluated measurement uncertainty herein.

The test report shall not be reproduced except in full without the written approval of MRT Technology (Suzhou) Co., Ltd.

### Revision History

| Report No.     | Version | Description               | Issue Date | Note    |
|----------------|---------|---------------------------|------------|---------|
| 2406RSU021-U13 | V01     | Initial Report            | 2024-12-05 | Invalid |
| 2406RSU021-U13 | V02     | Update KDB 206256 Version | 2024-12-10 | Valid   |
|                |         |                           |            |         |

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## 1. General Information

### 1.1. Applicant

Shure Incorporated

5800 West Touhy Avenue, Niles, IL 60714-4608, USA

### 1.2. Manufacturer

Shure Incorporated

5800 West Touhy Avenue, Niles, IL 60714-4608, USA

### 1.3. Testing Facility

|                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|-------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <input checked="" type="checkbox"/> | <b>Test Site – MRT Suzhou Laboratory</b><br><b>Laboratory Location (Suzhou - Wuzhong)</b><br>D8 Building, No.2 Tian'edang Rd., Wuzhong Economic Development Zone, Suzhou, China<br><b>Laboratory Location (Suzhou - SIP)</b><br>4b Building, Liando U Valley, No.200 Xingpu Rd., Shengpu Town, Suzhou Industrial Park, China<br><b>Laboratory Location (Suzhou - Wujiang)</b><br>Building 1, No.1 Xingdong Road, Wujiang, Suzhou, Jiangsu, People's Republic of China<br><b>Laboratory Accreditations</b><br>A2LA: 3628.01 CNAS: L10551<br>FCC: CN1166 ISED: CN0001<br>VCCI: <input type="checkbox"/> R-20025 <input type="checkbox"/> G-20034 <input type="checkbox"/> C-20020 <input type="checkbox"/> T-20020<br><input type="checkbox"/> R-20141 <input type="checkbox"/> G-20134 <input type="checkbox"/> C-20103 <input type="checkbox"/> T-20104 |
| <input type="checkbox"/>            | <b>Test Site – MRT Shenzhen Laboratory</b><br><b>Laboratory Location (Shenzhen)</b><br>1G, Building A, Junxiangda Building, Zhongshanyuan Road West, Nanshan District, Shenzhen, China<br><b>Laboratory Accreditations</b><br>A2LA: 3628.02 CNAS: L10551<br>FCC: CN1284 ISED: CN0105                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| <input type="checkbox"/>            | <b>Test Site – MRT Taiwan Laboratory</b><br><b>Laboratory Location (Taiwan)</b><br>No. 38, Fuxing 2nd Rd., Guishan Dist., Taoyuan City 333, Taiwan (R.O.C.)<br><b>Laboratory Accreditations</b><br>TAF: 3261<br>FCC: 291082, TW3261 ISED: TW3261                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |

#### 1.4. Product Information

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                         |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------|
| Product Name                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Wireless Dual Transmitter                                                                                               |
| Model No.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | ADTD G57, ADTD DC G57                                                                                                   |
| Serial No.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 2DA31999902                                                                                                             |
| Radio Specification                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | UHF Microphone Transmitter                                                                                              |
| Antenna Information                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Refer to section 1.7                                                                                                    |
| Operating Temperature                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | -18 ~ 50°C                                                                                                              |
| Network Interface                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 10/100/1000 Mbps, Dante Digital Audio                                                                                   |
| Power Type                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | AC Power Input (100~240V AC) & DC Power Input (12~48V)<br>AC Power Output (100~240V AC)                                 |
| Accessory                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                         |
| 8 Port Antenna Combiner                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Model: AD8C, AD8C DC<br>AC Ver.: 100-240V~, 50/60Hz, 0.76A max (5.76A max outlet loaded),<br>DC Ver.: 12-48V DC, 4A max |
| <p>Note 1: The information of EUT was provided by the manufacturer, and the accuracy of the information shall be the responsibility of the manufacturer.</p> <p>Note 2: ADTD G57 and ADTD DC G57 are completely same except power supply difference, ADTD G57 supports AC power supply, while ADTD DC G57 supports both AC and DC power supply.</p> <p>Note 3: AD8C and AD8C DC are completely same except power supply difference, AD8C supports AC power supply, while AD8C DC supports both AC and DC power supply.</p> |                                                                                                                         |

#### 1.5. Radio Specification under Test

|                             |                                                          |
|-----------------------------|----------------------------------------------------------|
| Transmission Mode           | Analog FM & Narrowband & 4-channel Wideband (WMAS) & PTP |
| Frequency Range             | 470 ~ 608 MHz                                            |
| Declared Power Level        | Low & Mid & High                                         |
| Type of Modulation          | Analog FM: FM                                            |
|                             | Narrowband: OFDM                                         |
|                             | 4-channel Wideband: OFDM                                 |
|                             | PTP: 16QAM                                               |
| Declared Occupied Bandwidth | Analog FM: 200kHz                                        |
|                             | Narrowband: 200kHz                                       |
|                             | 4-channel Wideband (WMAS): 440kHz                        |
|                             | 4-channel Wideband (WMAS): 850kHz                        |
|                             | PTP: 200kHz                                              |
| Channel Spacing             | 25kHz                                                    |
| RF Connector Type           | BNC                                                      |

**1.6. Working Frequencies**

| Bottom Channel (MHz)         | Middle Channel (MHz) | Top Channel (MHz) |
|------------------------------|----------------------|-------------------|
| Analog FM & Narrowband & PTP |                      |                   |
| 470.125                      | 539.000              | 607.875           |
| 4-channel wideband           |                      |                   |
| 470.400                      | 539.000              | 607.600           |

**1.7. Antenna Details**

| Antenna Type | Frequency Band (MHz) | Manufacturer | Peak Gain (dBi) |
|--------------|----------------------|--------------|-----------------|
| Dipole       | 470 ~ 608            | Shure        | 1.10            |

## 2. Test Configuration

### 2.1. Test Mode

|                                                                                              |
|----------------------------------------------------------------------------------------------|
| Mode 1: Transmit at G57 Band by Analog FM (Power Level = 250mW)                              |
| Mode 2: Transmit at G57 Band by Analog FM combined (Power Level = 20mW)                      |
| Mode 3: Transmit at G57 Band by Narrowband (Power Level = 250mW)                             |
| Mode 4: Transmit at G57 Band by Narrowband combined (Power Level = 20mW)                     |
| Mode 5: Transmit at G57 Band by Narrowband spatial diversity (Power Level = 100mW)           |
| Mode 6: Transmit at G57 Band by 4-channel wideband (Power Level = 126mW)                     |
| Mode 7: Transmit at G57 Band by 4-channel wideband 8 audio mixes (Power Level = 250mW)       |
| Mode 8: Transmit at G57 Band by 4-channel wideband spatial diversity (Power Level = 100mW)   |
| Mode 9: Transmit at G57 Band by Axient Digital Standard (PTP) (Power Level = 250mW)          |
| Mode 10: Transmit at G57 Band by Axient Digital Standard combined (PTP) (Power Level = 20mW) |
| Mode 11: Transmit at G57 Band by Narrowband, frequency diversity combined                    |
| Mode 12: Transmit at G57 Band by 4-channel wideband frequency diversity (Power Level = 20mW) |

### 2.2. Test Software

Power level and transmit frequency can be selected using the front panel controls.

### 2.3. Applied Standards

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

- FCC Part 74.861
- KDB 206256 D01v03
- ANSI C63.26-2015
- ETSI EN 300 422 - 1 V 2.2.1

### 2.4. Test Environment Condition

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



### 3. Measuring Instrument

| Instrument                | Manufacturer | Model No.  | Asset No.   | Cali. Interval | Cali. Due Date | Test Site |
|---------------------------|--------------|------------|-------------|----------------|----------------|-----------|
| Temperature Chamber       | BAOYT        | BYH-150CL  | MRTSUE06051 | 1 year         | 2025-09-02     | WZ-TR3    |
| Signal Analyzer           | Keysight     | N9010B     | MRTSUE06457 | 1 year         | 2025-05-08     | WZ-TR3    |
| Thermohygrometer          | testo        | 608-H1     | MRTSUE11268 | 1 year         | 2024-12-14     | WZ-TR3    |
| Signal Analyzer           | Agilent      | N9020A     | MRTSUE06106 | 1 year         | 2025-02-03     | WZ-SR5    |
| Thermohygrometer          | testo        | 608-H1     | MRTSUE06402 | 1 year         | 2025-05-12     | WZ-SR5    |
| Shielding Room            | HUAMING      | WZ-SR5     | MRTSUE06442 | N/A            | N/A            | WZ-SR5    |
| Signal Analyzer           | Keysight     | N9010B     | MRTSUE06558 | 1 year         | 2025-05-20     | WZ-SR5    |
| Audio Analyzer            | R&S          | UPV        | MRTSUE06357 | 1 year         | 2025-04-11     | WZ-SR5    |
| Multifunction Synthesizer | HP           | HP8904A    | MRTSUE06097 | 1 year         | 2025-07-18     | WZ-SR5    |
| Modulation Analyzer       | HP           | HP8901A    | MRTSUE06098 | 1 year         | 2025-07-18     | WZ-SR5    |
| USB Power Sensor          | Keysight     | U2021XA    | MRTSUE06446 | 1 year         | 2025-05-08     | WZ-SR5    |
| Attenuator                | MVE          | MVE2213    | MRTSUE11077 | 1 year         | 2025-06-05     | WZ-SR5    |
| Attenuator                | MVE          | MVE2213    | MRTSUE11078 | 1 year         | 2025-06-05     | WZ-SR5    |
| Attenuator                | MVE          | MVE2213    | MRTSUE11079 | 1 year         | 2025-06-05     | WZ-SR5    |
| Attenuator                | MVE          | MVE2213    | MRTSUE11080 | 1 year         | 2025-06-05     | WZ-SR5    |
| TRILOG Antenna            | Schwarzbeck  | VULB 9162  | MRTSUE06022 | 1 year         | 2025-04-17     | WZ-AC2    |
| EMI Test Receiver         | Agilent      | N9038A     | MRTSUE06125 | 1 year         | 2025-05-08     | WZ-AC2    |
| Horn Antenna              | Schwarzbeck  | BBHA 9120D | MRTSUE06171 | 1 year         | 2025-09-23     | WZ-AC2    |
| Horn Antenna              | Schwarzbeck  | BBHA 9120D | MRTSUE06171 | 1 year         | 2024-10-11     | WZ-AC2    |
| Preamplifier              | Schwarzbeck  | BBV 9718   | MRTSUE06176 | 1 year         | 2025-05-06     | WZ-AC2    |
| Anechoic Chamber          | RIKEN        | WZ-AC2     | MRTSUE06213 | 1 year         | 2025-04-18     | WZ-AC2    |
| Thermohygrometer          | testo        | 608-H1     | MRTSUE11263 | 1 year         | 2025-10-16     | WZ-AC2    |
| Thermohygrometer          | testo        | 608-H1     | MRTSUE11263 | 1 year         | 2024-11-07     | WZ-AC2    |

| Software             | Version | Function               |
|----------------------|---------|------------------------|
| e3                   | 230711  | RE & CE                |
| Controller_MF 7802   | 1.02    | RE Antenna & Turntable |
| BenchVue Power Meter | 2018.1  | Power                  |

## 4. Decision Rules and Measurement Uncertainty

### 4.1. Decision Rules

The Decision Rule is based on Simple Acceptance in accordance with ISO Guide 98-4: 2012 Clause 8.2.

(Measurement uncertainty is not taken into account when stating conformity with a specified requirement.)

### 4.2. 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  $k = 2$ .

|                                                                         |                      |
|-------------------------------------------------------------------------|----------------------|
| <b>AC Conducted Emission Measurement</b>                                |                      |
| The maximum measurement uncertainty is evaluated as:                    |                      |
| 9kHz~150kHz: 3.02dB                                                     |                      |
| 150kHz~30MHz: 2.56dB                                                    |                      |
| <b>Radiated Emission Measurement</b>                                    |                      |
| The maximum measurement uncertainty is evaluated as:                    |                      |
| Coaxial:                                                                | 9kHz~30MHz: 2.35dB   |
| Coplanar:                                                               | 9kHz~30MHz: 2.37dB   |
| Horizontal:                                                             | 30MHz~200MHz: 3.46dB |
|                                                                         | 200MHz~1GHz: 3.78dB  |
|                                                                         | 1GHz~40GHz: 4.97dB   |
| Vertical:                                                               | 30MHz~200MHz: 4.07dB |
|                                                                         | 200MHz~1GHz: 5.28dB  |
|                                                                         | 1GHz~40GHz: 4.78dB   |
| <b>Spurious Emissions, Conducted</b>                                    |                      |
| Measuring Uncertainty for a Level of Confidence of 95% ( $U=2U_c(y)$ ): |                      |
| 2.5dB                                                                   |                      |
| <b>Output Power</b>                                                     |                      |
| Measuring Uncertainty for a Level of Confidence of 95% ( $U=2U_c(y)$ ): |                      |
| 1.3dB                                                                   |                      |
| <b>Power Spectrum Density</b>                                           |                      |
| Measuring Uncertainty for a Level of Confidence of 95% ( $U=2U_c(y)$ ): |                      |
| 2.5dB                                                                   |                      |
| <b>Occupied Bandwidth</b>                                               |                      |
| Measuring Uncertainty for a Level of Confidence of 95% ( $U=2U_c(y)$ ): |                      |
| 2.6%                                                                    |                      |

## 5. Test Result

### 5.1. Summary

| FCC Part Section(s)     | Test Description           | Test Condition | Test Result |
|-------------------------|----------------------------|----------------|-------------|
| 74.861(e)(1)(ii)        | RF Output Power            | Conducted      | Pass        |
| 74.861(e)(3)            | Modulation                 |                | Pass        |
| 74.861(e)(4)            | Frequency Stability        |                | Pass        |
| 74.861(e)(5)            | 99% Occupied Bandwidth     |                | Pass        |
| 74.861(e)(6)            | Out of Band Emission       |                | Pass        |
| 74.861(e)(7) (i&ii&iii) | Emission Mask              |                | Pass        |
| 74.861(e)(7) (iv)       | Radiated Spurious Emission | Radiated       | Pass        |

Note: 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. RF Output Power Measurement

### 5.2.1. Test Limit

470-608 MHz band: 250 mW conducted power

### 5.2.2. Test Procedure

ANSI C63.26-2015 - Section 5.2.4.2

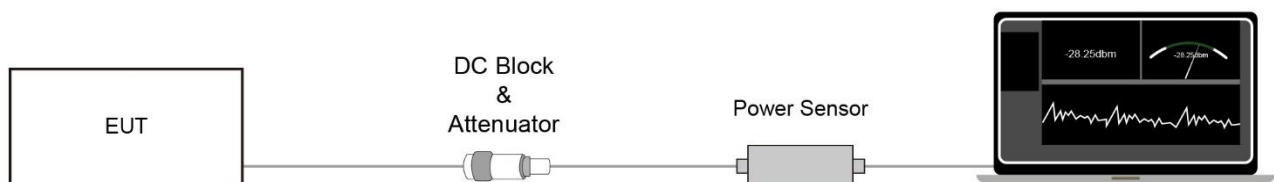
### 5.2.3. Test Setting

The output of the EUT was connected to an RF average power meter through fixed attenuation.

The EUT was set to transmit on the low, middle, and high frequencies in each power level.

Measure the average power of the transmitter.

### 5.2.4. Test Setup



### 5.2.5. Test Result

Refer to Appendix A.1.

### **5.3. Frequency Stability Measurement**

#### **5.3.1. Test Limit**

The frequency tolerance of the transmitter shall be 0.005 percent.

#### **5.3.2. Test Procedure**

ANSI C63.26 - Section 5.6.3

#### **5.3.3. Test Setting**

##### **Frequency Stability Under Temperature Variations:**

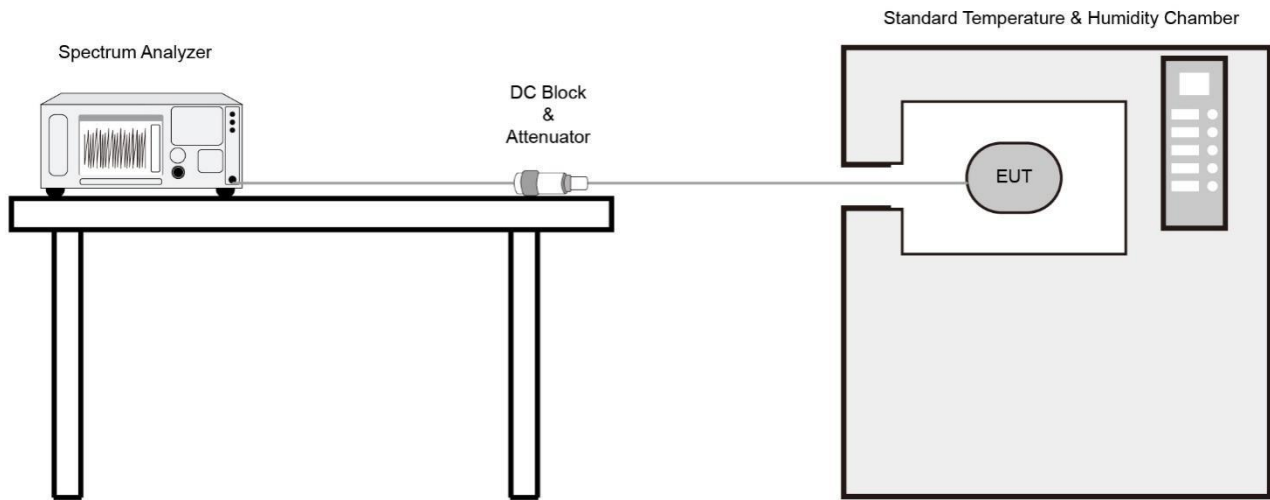
The equipment under test was connected to an external AC or DC power supply and input rated voltage. RF output was connected to a frequency counter or spectrum analyzer via feed through attenuators. The EUT was placed inside the temperature chamber. Set the spectrum analyzer RBW low enough to obtain the desired frequency resolution and measure EUT 20°C operating frequency as reference frequency. Turn EUT off and set the chamber temperature to highest. After the temperature stabilized for approximately 30 minutes recorded the frequency. Repeat step measure with 10°C decreased per stage until the lowest temperature reached.

##### **Frequency Stability Under Voltage Variations:**

Set chamber temperature to 20°C. Use a variable AC power supply / DC power source to power the EUT and set the voltage to rated voltage. Set the spectrum analyzer RBW low enough to obtain the desired frequency resolution and recorded the frequency.

Reduce the input voltage to specify extreme voltage variation ( $\pm 15\%$ ) and endpoint (If a product is specified to operate over a range of input voltage then the  $-15\%$  variation is applied to the lowermost voltage and the  $+15\%$  is applied to the uppermost voltage), record the maximum frequency change.

#### 5.3.4. Test Setup



#### 5.3.5. Test Result

Refer to Appendix A.2.

## 5.4. 99% Occupied Bandwidth Measurement

### 5.4.1. Test Limit

The operating bandwidth shall not exceed 200 kilohertz, except that a wireless multichannel audio system must have an operating bandwidth not exceeding 6 megahertz in the TV bands or 4 megahertz in the 653–657 MHz band.

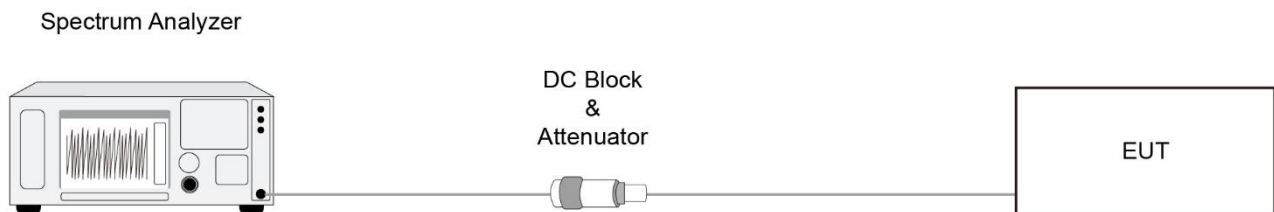
### 5.4.2. Test Procedure

ANSI C63.26-2015 - Section 5.4.4

### 5.4.3. Test Setting

1. The signal analyzer's automatic bandwidth measurement capability was used to perform the 99% occupied bandwidth. The bandwidth measurement was not influenced by any intermediate power nulls in the fundamental emission.
2. RBW = 1 - 5% of the expected OBW
3. VBW  $\geq 3 \times$  RBW
4. Detector = Peak
5. Trace mode = max hold
6. Sweep = auto couple
7. The trace was allowed to stabilize
8. Reported the measured 99% occupied bandwidth

### 5.4.4. Test Setup



### 5.4.5. Test Result

Refer to Appendix A.3.

## 5.5. Modulation Measurement

### 5.5.1. Test Limit

A maximum deviation of  $\pm 75$  kHz is permitted when frequency modulation is employed.

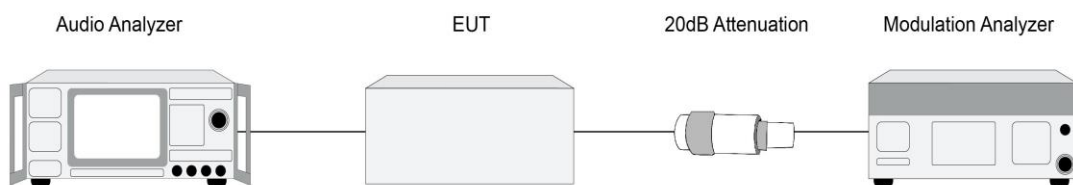
### 5.5.2. Test Procedure

ANSI C63.26-2013 - Section 5.3.2

### 5.5.3. Test Setting

1. Connect the equipment following the below figure
2. Apply a 1000 Hz modulating signal to the transmitter from the audio frequency generator, and adjust the level to obtain 60% of full rated system deviation. This is the 0 dB reference level.
3. Increase the level from the audio generator by 20 dB in 5 dB increments recording the deviation as measured from the test receiver in each step. Verify that the audio level used to make the OBW measurement is included in the sweep.
4. Repeat for step 3) at 300 Hz, 2500 Hz and 3000 Hz at a minimum using the 0 dB reference level obtained in step 2).
5. Set the test receiver to measure peak negative deviation and repeat step 2) through step 4).
6. The values recorded in step 4) and step 5) are the modulation limiting

### 5.5.4. Test Setup



### 5.5.5. Test Result

Refer to Appendix A.4.



## **5.6. Out of Band Emission Measurement**

### **5.6.1. Test Limit**

The mean power of emissions shall be attenuated below the mean output power of the transmitter in accordance with the following schedule:

- (i) On any frequency removed from the operating frequency by more than 50 percent up to and including 100 percent of the authorized bandwidth: at least 25 dB;
- (ii) On any frequency removed from the operating frequency by more than 100 percent up to and including 250 percent of the authorized bandwidth: at least 35 dB;
- (iii) On any frequency removed from the operating frequency by more than 250 percent of the authorized bandwidth: at least  $43 + 10 \log_{10}$  (mean output power in watts) dB.

### **5.6.2. Test Procedure**

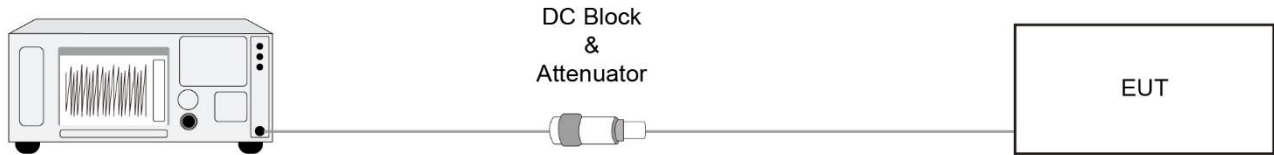
ANSI C63.26 - Section 5.7

### **5.6.3. Test Setting**

- a) The EUT was connected to a spectrum analyzer.
  - b) The EUT was modulated with typical digital modulation.
  - c) Set span to  $2 \times$  to  $3 \times$  the OBW
    - Set  $RBW \geq OBW$ ;
    - Set  $VBW \geq 3 \times RBW$ ;
    - sweep time set to Auto,
    - Detector = power averaging (rms)
    - Use the peak marker function to determine the maximum amplitude level
  - d) The RMS output power was recorded and used to set the reference level on the spectrum analyzer.
  - e) The spectrum analyzer span was then set to  $5 \times$  the OBW;
- RBW set to 1% of the OBW, VBW set to  $3 \times RBW$ , sweep time to Auto.

#### 5.6.4. Test Setup

Spectrum Analyzer



#### 5.6.5. Test Result

Refer to Appendix A.5.

## 5.7. Emission Mask Measurement

### 5.7.1. Test Limit

(i) Analog systems. Emissions within the band from  $2.5 \times B$  below to  $2.5 \times B$  above the carrier frequency, where  $B$  is the channel bandwidth, shall comply with the Out of Band Emission in Figure 1 of section 4.2.4.2.2 of ETSI EN 300 422-1 V2.2.1 (2021-11) (incorporated by reference, see § 74.35).

(ii) Digital systems. Emissions within the band from  $2.5 \times B$  below to  $2.5 \times B$  above the carrier frequency, where  $B$  is the channel bandwidth, shall comply with the Out of Band Emission in Figure 2 of section 4.2.4.2.2 of ETSI EN 300 422-1 V2.2.1 (2021-11) (incorporated by reference, see § 74.35).

(iii) Wireless Multichannel Audio Systems. Emissions within the band from  $2.5 \times B$  below to  $2.5 \times B$  above the carrier frequency, where  $B$  is the channel bandwidth, shall comply with the Out of Band Emission in Figure 3 of section 4.2.4.2.2 of ETSI EN 300 422-1 V2.2.1 (2021-11), (incorporated by reference, see § 74.35).

The mean Power Density, measured with 1 kHz measurement bandwidth and RMS detector, of the transmitter unwanted emissions shall not exceed the limits of the masks provided in figure 1 for equipment employing analogue modulation and figure 2 for equipment employing digital modulation, but excluding WMAS.  $B$  is the Declared Channel Bandwidth



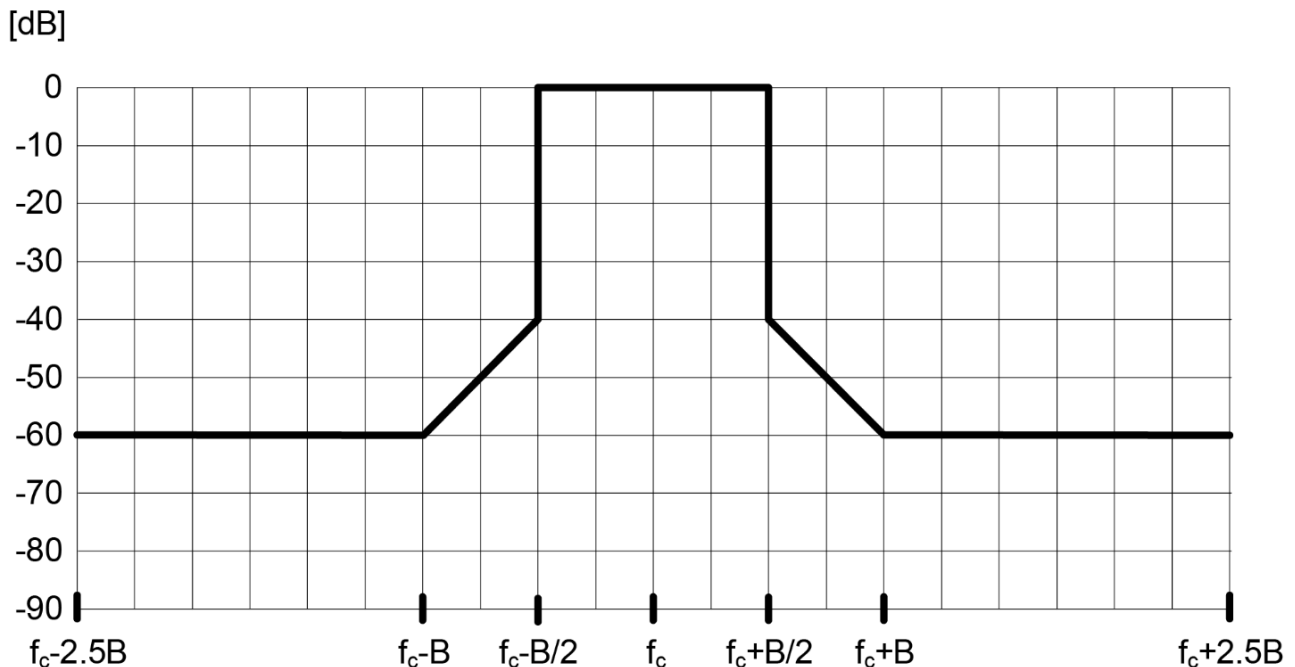
**Figure 1: Transmit spectral power mask for equipment employing analogue modulation, RBW = 1 kHz**



**Figure 2: Transmit spectral power mask for equipment employing digital modulation, except WMAS, RBW = 1 kHz**

The limits in figure 3 are applicable for WMAS, where B is the Declared Channel Bandwidth.

The mean Power Density, measured with 100 kHz measurement bandwidth and PEAK detector, of the transmitter unwanted emissions shall not exceed the limits of the mask provided in figure 3.



**Figure 3: Transmit spectral power mask for WMAS, RBW = 100 kHz**

The limits in figure 3 are provided with RBW = 100 kHz. The relevant measurements can also be performed with other RBW for certain ranges of B, accounting that the relevant limit given under RBW = 100 kHz needs to be converted appropriately by adding  $c = 10 \times \log_{10} (\text{RBW}/100 \text{ kHz})$  for correction.

### Correction Factor for different B and applicable RBW

| B                                         | RBW, VBW | c = correction factor |
|-------------------------------------------|----------|-----------------------|
| $B < 2 \text{ MHz}$                       | 10 kHz   | -10dB                 |
| $2 \text{ MHz} \leq B < 5 \text{ MHz}$    | 25 kHz   | -7dB                  |
| $5 \text{ Hz} \leq B \leq 20 \text{ MHz}$ | 100 kHz  | 0dB                   |

#### 5.7.2. Test Procedure

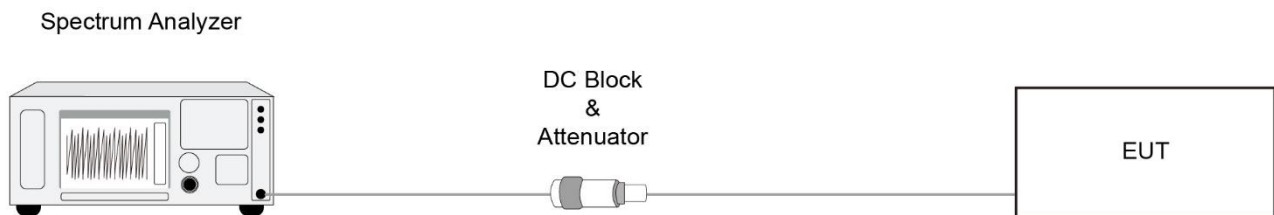
EN 300 422-1 V2.2.1 clause 5.4.3.2.

#### 5.7.3. Test Setting

The EUT was powered up and the transmit frequency & power output of the EUT were selected.

The spectrum analyzer center frequency is set to the nominal EUT channel frequency.

#### 5.7.4. Test Setup



#### 5.7.5. Test Result

Refer to Appendix A.6.

## 5.8. Radiated Spurious Emissions Measurement

### 5.8.1. Test Limit

Spurious emission limits. Emissions outside of the Out of Band Emissions listed in paragraphs (e)(7)(i) through (e)(7)(iii) shall comply with the limits specified in section 4.2.4.1.2 of ETSI EN 300 422-1 V2.2.1 (2021-11) (incorporated by reference, see § 74.35).

The level of transmitter unwanted emissions in the spurious domain shall not exceed the limits given in table Transmitter unwanted emission limits

| Frequency Range                                                                           | Maximum power | RBW                                                                                                                                                                                                                                |
|-------------------------------------------------------------------------------------------|---------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 9kHz – 150kHz                                                                             | -36dBm        | 1kHz                                                                                                                                                                                                                               |
| 150kHz – 30MHz                                                                            | -36dBm        | 10kHz                                                                                                                                                                                                                              |
| 30MHz – 1GHz                                                                              | -36dBm        | $F_c + 2.5B \leq f \leq F_c + 4B$ : 1kHz<br>$F_c + 4B < f \leq F_c + 10B$ : 10kHz<br>$f > F_c + 10B$ : 100kHz<br>$f < F_c - 10B$ : 100kHz<br>$F_c - 10B \leq f < F_c - 4B$ : 10kHz<br>$F_c - 4B \leq f \leq F_c - 2.5B$ : 1kHz     |
| Except:                                                                                   |               |                                                                                                                                                                                                                                    |
| 47MHz to 74MHz<br>87.5MHz to 118MHz                                                       | -54dBm        | 100kHz                                                                                                                                                                                                                             |
| 174MHz to 230MHz<br>470MHz to 862MHz                                                      | -36dBm        | $F_c + 2.5B \leq f \leq F_c + 4B$ : 1kHz<br>$F_c + 4B < f \leq F_c + 10B$ : 10kHz<br>$f > F_c + 10B$ : 100kHz<br>$f < F_c - 10B$ : 100kHz<br>$F_c - 10B \leq f < F_c - 4B$ : 10kHz<br>$F_c - 4B \leq f \leq F_c - 2.5B$ : 1kHz     |
| $1\text{GHz} < f \leq F_{\text{upper}}$                                                   | -30dBm        | $F_c + 2.5B \leq f \leq F_c + 10B$ : 30kHz<br>$F_c + 10B < f \leq F_c + 12B$ : 300kHz<br>$f > F_c + 12B$ : 1MHz<br>$f < F_c - 12B$ : 1MHz<br>$F_c - 12B \leq f < F_c - 10B$ : 300kHz<br>$F_c - 10B \leq f \leq F_c - 2.5B$ : 30kHz |
| With B being the Declared Channel Bandwidth.<br>$F_{\text{upper}}$ is defined in table 5. |               |                                                                                                                                                                                                                                    |

Table 5: Frequency range for measurement of unwanted emissions

| Applicable fundamental frequency range | Frequency range for measurements |                                          |
|----------------------------------------|----------------------------------|------------------------------------------|
|                                        | Lower frequency                  | Upper frequency                          |
| 9 kHz - 100 MHz                        | 9 kHz                            | 1GHz                                     |
| 100 MHz - 300 MHz                      | 9 kHz                            | 10th harmonic of the operating frequency |
| 300 MHz - 600 MHz                      | 30MHz                            | 3GHz                                     |
| 600 MHz - 3 GHz                        | 30MHz                            | 5th harmonic of the operating frequency  |

### 5.8.2. Test Procedure

ETSI EN 300 422-1 V2.2.1 clause 5.4.4

### 5.8.3. Test Setting

Table 1 - RBW as a function of frequency

| Frequency       | RBW     |
|-----------------|---------|
| 30 ~ 1000 MHz   | 100 kHz |
| 1000 ~ 7000 MHz | 1 MHz   |

Emissions shall be investigated up to the 10<sup>th</sup> harmonic of the fundamental.

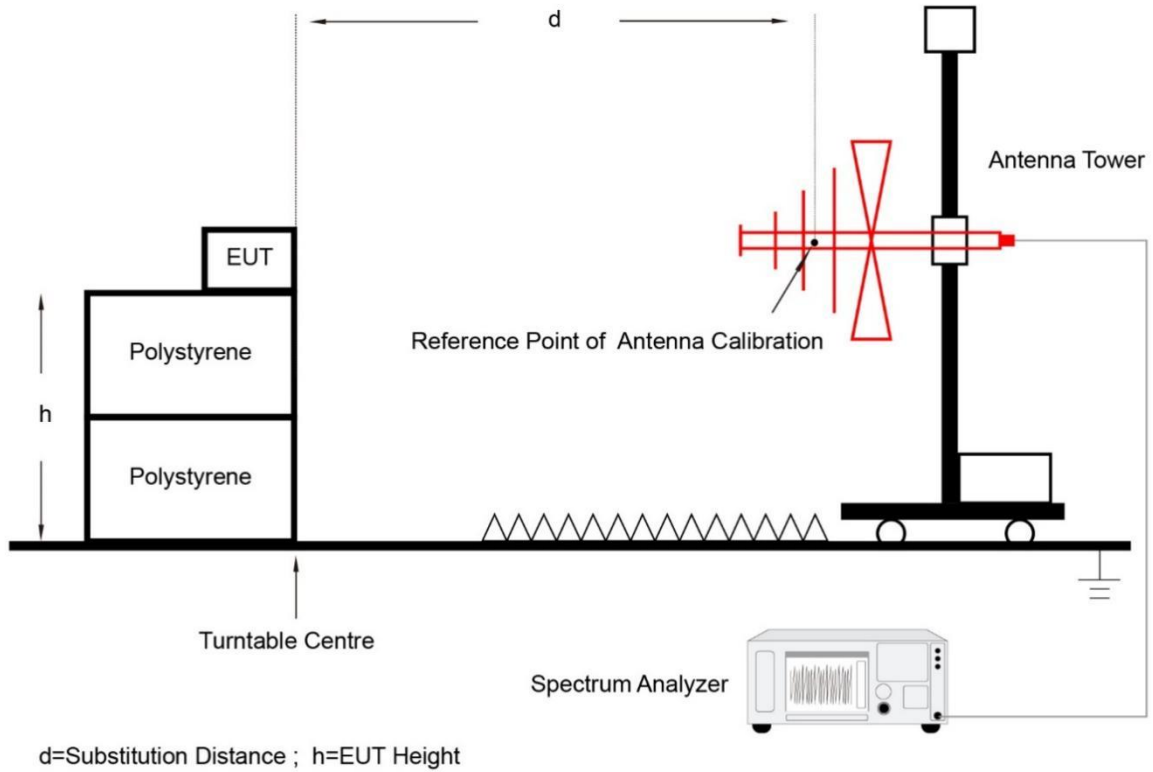
Compliance with the emission limits shall be demonstrated using an RMS Average detector.

All significant broadband and narrowband signals found in the preliminary sweeps were measured using a peak detector at a test distance of 3 meters.

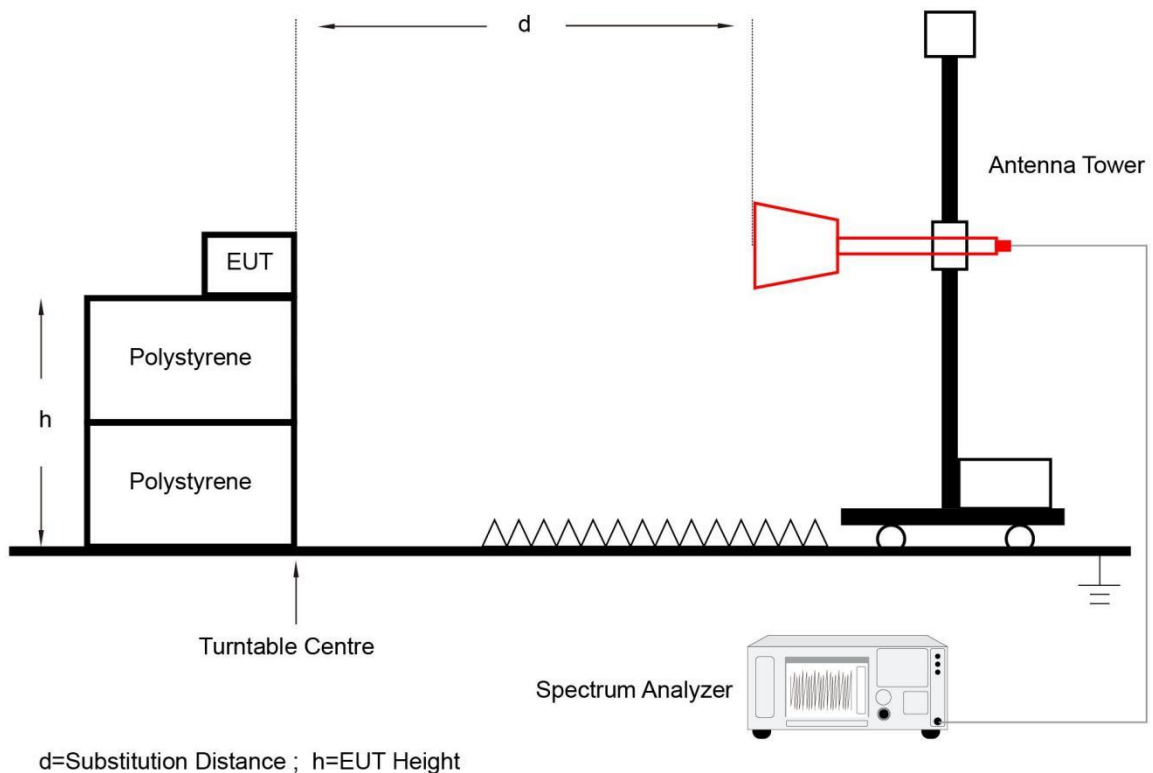
At each frequency at which a component is detected, the sample shall be rotated to obtain maximum response and the effective radiated power of that component determined by a substitution measurement.

#### 5.8.4. Test Setup

##### Below 1GHz Test Setup:



##### Above 1GHz Test Setup:





#### **5.8.5. Test Result**

Refer to Appendix A.7.

## Appendix A – Test Result

### A.1 RF Output Power Test Result

|           |                         |               |                    |
|-----------|-------------------------|---------------|--------------------|
| Test Site | WZ-SR5                  | Test Engineer | Lynn Yang          |
| Test Date | 2024-11-24 ~ 2024-11-28 | Test Mode     | Mode 1 Single Port |

| Frequency<br>(MHz) | Conducted Output Power<br>(dBm) |        | Limit<br>(dBm) | Test Result |
|--------------------|---------------------------------|--------|----------------|-------------|
|                    | Port A                          | Port B |                |             |
| 250mW Power Level  |                                 |        |                |             |
| 470.125            | 21.87                           | 21.69  | ≤ 23.98        | Pass        |
| 539.000            | 21.57                           | 21.34  | ≤ 23.98        | Pass        |
| 607.875            | 21.28                           | 21.07  | ≤ 23.98        | Pass        |

Note: Limit =  $10 \cdot \log(250\text{mW}) = 23.98 \text{ dBm}$ .

|           |                         |               |                    |
|-----------|-------------------------|---------------|--------------------|
| Test Site | WZ-SR5                  | Test Engineer | Lynn Yang          |
| Test Date | 2024-11-24 ~ 2024-11-28 | Test Mode     | Mode 1 Multi Ports |

| Frequency<br>(MHz) | Conducted Output Power<br>(dBm) |        | Total Conducted<br>Output Power<br>(dBm) | Limit<br>(dBm) | Test Result |
|--------------------|---------------------------------|--------|------------------------------------------|----------------|-------------|
|                    | Port A                          | Port B |                                          |                |             |
| 100mW Power Level  |                                 |        |                                          |                |             |
| 470.125            | 20.96                           | 20.33  | 23.67                                    | ≤ 23.98        | Pass        |
| 539.000            | 19.72                           | 20.08  | 22.91                                    | ≤ 23.98        | Pass        |
| 607.875            | 19.18                           | 19.68  | 22.45                                    | ≤ 23.98        | Pass        |

Note 1: Limit =  $10 \cdot \log(250\text{mW}) = 23.98 \text{ dBm}$ .

Note 2: Total Conducted Output Power (dBm) =  $10 \cdot \log(10^{(\text{Port A}/10)} + 10^{(\text{Port B}/10)}) \text{ (dBm)}$ .

|           |                         |               |           |
|-----------|-------------------------|---------------|-----------|
| Test Site | WZ-SR5                  | Test Engineer | Lynn Yang |
| Test Date | 2024-11-24 ~ 2024-11-28 | Test Mode     | Mode 2    |

| Frequency<br>(MHz) |         | Conducted Output Power<br>(dBm) | Limit<br>(dBm) | Test Result |
|--------------------|---------|---------------------------------|----------------|-------------|
| F1                 | F2      |                                 |                |             |
| 20mW Power Level   |         |                                 |                |             |
| 470.125            | 470.475 | 13.35                           | ≤ 23.98        | Pass        |
| 539.000            | 539.350 | 12.67                           | ≤ 23.98        | Pass        |
| 607.875            | 607.525 | 12.65                           | ≤ 23.98        | Pass        |

Note: Limit =  $10 \cdot \log(250\text{mW}) = 23.98$  dBm.

|           |                         |               |                    |
|-----------|-------------------------|---------------|--------------------|
| Test Site | WZ-SR5                  | Test Engineer | Lynn Yang          |
| Test Date | 2024-11-24 ~ 2024-11-28 | Test Mode     | Mode 3 Single Port |

| Frequency<br>(MHz) | Conducted Output Power<br>(dBm) |        | Limit<br>(dBm) | Test Result |
|--------------------|---------------------------------|--------|----------------|-------------|
|                    | Port A                          | Port B |                |             |
| 250mW Power Level  |                                 |        |                |             |
| 470.125            | 21.23                           | 20.56  | ≤ 23.98        | Pass        |
| 539.000            | 21.47                           | 20.54  | ≤ 23.98        | Pass        |
| 607.875            | 21.27                           | 20.33  | ≤ 23.98        | Pass        |

Note: Limit =  $10 \cdot \log(250\text{mW}) = 23.98$  dBm.

|           |                         |               |                    |
|-----------|-------------------------|---------------|--------------------|
| Test Site | WZ-SR5                  | Test Engineer | Lynn Yang          |
| Test Date | 2024-11-24 ~ 2024-11-28 | Test Mode     | Mode 3 Multi Ports |

| Frequency<br>(MHz) | Conducted Output Power<br>(dBm) |        | Total Conducted<br>Output Power<br>(dBm) | Limit<br>(dBm) | Test Result |
|--------------------|---------------------------------|--------|------------------------------------------|----------------|-------------|
|                    | Port A                          | Port B |                                          |                |             |
| 250mW Power Level  |                                 |        |                                          |                |             |
| 470.125            | 21.25                           | 20.54  | 23.92                                    | ≤ 23.98        | Pass        |
| 539.000            | 20.07                           | 21.13  | 23.64                                    | ≤ 23.98        | Pass        |
| 607.875            | 20.17                           | 20.15  | 23.17                                    | ≤ 23.98        | Pass        |

Note 1: Limit =  $10 \cdot \log(250\text{mW}) = 23.98$  dBm.

Note 2: Total Conducted Output Power (dBm) =  $10 \cdot \log(10^{(\text{Port A}/10)} + 10^{(\text{Port B}/10)})$  (dBm).

|           |                         |               |           |
|-----------|-------------------------|---------------|-----------|
| Test Site | WZ-SR5                  | Test Engineer | Lynn Yang |
| Test Date | 2024-11-24 ~ 2024-11-28 | Test Mode     | Mode 4    |

| Frequency<br>(MHz) |         | Conducted Output Power<br>(dBm) | Limit<br>(dBm) | Test Result |
|--------------------|---------|---------------------------------|----------------|-------------|
| F1                 | F2      |                                 |                |             |
| 20mW Power Level   |         |                                 |                |             |
| 470.125            | 470.475 | 14.21                           | ≤ 23.98        | Pass        |
| 539.000            | 539.350 | 13.85                           | ≤ 23.98        | Pass        |
| 607.875            | 607.525 | 13.73                           | ≤ 23.98        | Pass        |

Note: Limit =  $10 \cdot \log(250\text{mW}) = 23.98 \text{ dBm}$ .

|           |                         |               |           |
|-----------|-------------------------|---------------|-----------|
| Test Site | WZ-SR5                  | Test Engineer | Lynn Yang |
| Test Date | 2024-11-24 ~ 2024-11-28 | Test Mode     | Mode 5    |

| Frequency<br>(MHz) | Conducted Output Power<br>(dBm) |        | Total Conducted<br>Output Power<br>(dBm) | Limit<br>(dBm) | Test Result |
|--------------------|---------------------------------|--------|------------------------------------------|----------------|-------------|
|                    | Port A                          | Port B |                                          |                |             |
| 100mW Power Level  |                                 |        |                                          |                |             |
| 470.125            | 19.47                           | 19.62  | 22.56                                    | ≤ 23.98        | Pass        |
| 539.000            | 19.72                           | 20.08  | 22.91                                    | ≤ 23.98        | Pass        |
| 607.875            | 19.84                           | 19.57  | 22.72                                    | ≤ 23.98        | Pass        |

Note 1: Limit =  $10 \cdot \log(250\text{mW}) = 23.98$  dBm.

Note 2: Total Conducted Output Power (dBm) =  $10 \cdot \log(10^{(\text{Port A}/10)} + 10^{(\text{Port B}/10)})$  (dBm).

|           |                         |               |           |
|-----------|-------------------------|---------------|-----------|
| Test Site | WZ-SR5                  | Test Engineer | Lynn Yang |
| Test Date | 2024-11-24 ~ 2024-11-28 | Test Mode     | Mode 6    |

| Frequency<br>(MHz) | Conducted Output Power<br>(dBm) | Limit<br>(dBm) | Test Result |
|--------------------|---------------------------------|----------------|-------------|
| 126mW Power Level  |                                 |                |             |
| 470.400            | 20.80                           | $\leq 23.98$   | Pass        |
| 539.000            | 17.40                           | $\leq 23.98$   | Pass        |
| 607.600            | 18.54                           | $\leq 23.98$   | Pass        |

Note: Limit =  $10 \cdot \log(250\text{mW}) = 23.98$  dBm.

|           |                         |               |                    |
|-----------|-------------------------|---------------|--------------------|
| Test Site | WZ-SR5                  | Test Engineer | Lynn Yang          |
| Test Date | 2024-11-24 ~ 2024-11-28 | Test Mode     | Mode 7 Single Port |

| Frequency<br>(MHz) | Conducted Output Power<br>(dBm) |        | Limit<br>(dBm) | Test Result |
|--------------------|---------------------------------|--------|----------------|-------------|
|                    | Port A                          | Port B |                |             |
| 50mW Power Level   |                                 |        |                |             |
| 470.400            | 14.43                           | 13.62  | ≤ 23.98        | Pass        |
| 539.000            | 14.26                           | 13.78  | ≤ 23.98        | Pass        |
| 607.600            | 14.02                           | 13.39  | ≤ 23.98        | Pass        |

Note: Limit =  $10 \cdot \log(250\text{mW}) = 23.98$  dBm.

|           |                         |               |                    |
|-----------|-------------------------|---------------|--------------------|
| Test Site | WZ-SR5                  | Test Engineer | Lynn Yang          |
| Test Date | 2024-11-24 ~ 2024-11-28 | Test Mode     | Mode 7 Multi Ports |

| Frequency<br>(MHz) | Conducted Output Power<br>(dBm) |        | Total Conducted<br>Output Power<br>(dBm) | Limit<br>(dBm) | Test Result |
|--------------------|---------------------------------|--------|------------------------------------------|----------------|-------------|
|                    | Port A                          | Port B |                                          |                |             |
| 50mW Power Level   |                                 |        |                                          |                |             |
| 470.400            | 14.43                           | 13.62  | 17.05                                    | ≤ 23.98        | Pass        |
| 539.000            | 14.26                           | 13.78  | 17.04                                    | ≤ 23.98        | Pass        |
| 607.600            | 14.02                           | 13.39  | 16.73                                    | ≤ 23.98        | Pass        |

Note 1: Limit =  $10 \cdot \log(250\text{mW}) = 23.98$  dBm.

Note 2: Total Conducted Output Power (dBm) =  $10 \cdot \log(10^{(\text{Port A}/10)} + 10^{(\text{Port B}/10)})$  (dBm).

|           |                         |               |           |
|-----------|-------------------------|---------------|-----------|
| Test Site | WZ-SR5                  | Test Engineer | Lynn Yang |
| Test Date | 2024-11-24 ~ 2024-11-28 | Test Mode     | Mode 8    |

| Frequency<br>(MHz) | Conducted Output Power<br>(dBm) |        | Total Conducted Output<br>Power<br>(dBm) | Limit<br>(dBm) | Test Result |
|--------------------|---------------------------------|--------|------------------------------------------|----------------|-------------|
|                    | Port A                          | Port B |                                          |                |             |
| 100mW Power Level  |                                 |        |                                          |                |             |
| 470.400            | 19.53                           | 19.76  | 22.66                                    | ≤ 23.98        | Pass        |
| 539.000            | 19.31                           | 19.36  | 22.35                                    | ≤ 23.98        | Pass        |
| 607.600            | 18.97                           | 18.99  | 21.99                                    | ≤ 23.98        | Pass        |

Note 1: Limit =  $10 \cdot \log(250\text{mW}) = 23.98$  dBm.

Note 2: Total Conducted Output Power (dBm) =  $10 \cdot \log(10^{(\text{Port A}/10)} + 10^{(\text{Port B}/10)})$  (dBm).

|           |                         |               |                    |
|-----------|-------------------------|---------------|--------------------|
| Test Site | WZ-SR5                  | Test Engineer | Lynn Yang          |
| Test Date | 2024-11-24 ~ 2024-11-28 | Test Mode     | Mode 9 Single Port |

| Frequency<br>(MHz) | Conducted Output Power<br>(dBm) |        | Limit<br>(dBm) | Test Result |
|--------------------|---------------------------------|--------|----------------|-------------|
|                    | Port A                          | Port B |                |             |
| 250mW Power Level  |                                 |        |                |             |
| 470.125            | 22.05                           | 21.24  | ≤ 23.98        | Pass        |
| 539.000            | 21.91                           | 21.32  | ≤ 23.98        | Pass        |
| 607.875            | 21.72                           | 21.07  | ≤ 23.98        | Pass        |

Note: Limit =  $10 \cdot \log(250\text{mW}) = 23.98$  dBm.

|           |                         |               |                    |
|-----------|-------------------------|---------------|--------------------|
| Test Site | WZ-SR5                  | Test Engineer | Lynn Yang          |
| Test Date | 2024-11-24 ~ 2024-11-28 | Test Mode     | Mode 9 Multi Ports |

| Frequency<br>(MHz) | Conducted Output Power<br>(dBm) |        | Total Conducted<br>Output Power<br>(dBm) | Limit<br>(dBm) | Test Result |
|--------------------|---------------------------------|--------|------------------------------------------|----------------|-------------|
|                    | Port A                          | Port B |                                          |                |             |
| 100mW Power Level  |                                 |        |                                          |                |             |
| 470.125            | 18.95                           | 18.64  | 21.81                                    | ≤ 23.98        | Pass        |
| 539.000            | 18.36                           | 18.54  | 21.46                                    | ≤ 23.98        | Pass        |
| 607.875            | 18.58                           | 18.39  | 21.50                                    | ≤ 23.98        | Pass        |

Note 1: Limit =  $10 \cdot \log(250\text{mW}) = 23.98 \text{ dBm}$ .

Note 2: Total Conducted Output Power (dBm) =  $10 \cdot \log(10^{(\text{Port A}/10)} + 10^{(\text{Port B}/10)}) \text{ (dBm)}$ .

|           |                         |               |           |
|-----------|-------------------------|---------------|-----------|
| Test Site | WZ-SR5                  | Test Engineer | Lynn Yang |
| Test Date | 2024-11-24 ~ 2024-11-28 | Test Mode     | Mode 10   |

| Frequency<br>(MHz) |         | Conducted Output Power<br>(dBm) | Limit<br>(dBm) | Test Result |
|--------------------|---------|---------------------------------|----------------|-------------|
| F1                 | F2      |                                 |                |             |
| 20mW Power Level   |         |                                 |                |             |
| 470.125            | 470.475 | 14.68                           | ≤ 23.98        | Pass        |
| 539.000            | 539.350 | 13.47                           | ≤ 23.98        | Pass        |
| 607.875            | 607.525 | 13.29                           | ≤ 23.98        | Pass        |

Note: Limit =  $10 \cdot \log(250\text{mW}) = 23.98 \text{ dBm}$ .

## A.2 Frequency Stability Test Result

|           |                         |                |            |
|-----------|-------------------------|----------------|------------|
| Test Site | WZ-TR3                  | Test Engineer  | Lynn Yang  |
| Test Date | 2024-10-10 ~ 2024-10-11 | Test Frequency | 470.125MHz |

| Voltage (%) | Power (AC) | Temp (°C) | Frequency Tolerance (%) |             |             |             |
|-------------|------------|-----------|-------------------------|-------------|-------------|-------------|
|             |            |           | 0 minutes               | 2 minutes   | 5 minutes   | 10 minutes  |
| 100         | 120        | - 20      | -0.00002850             | -0.00002850 | -0.00002808 | -0.00002446 |
|             |            | -10       | -0.00002850             | -0.00002872 | -0.00002872 | -0.00002829 |
|             |            | 0         | -0.00002616             | -0.00002765 | -0.00002808 | -0.00002850 |
|             |            | + 10      | -0.00002850             | -0.00002829 | -0.00002808 | -0.00002744 |
|             |            | + 20      | -0.00002467             | -0.00002574 | -0.00002574 | -0.00002425 |
|             |            | + 30      | -0.00002595             | -0.00002531 | -0.00002467 | -0.00002489 |
|             |            | + 40      | -0.00002531             | -0.00002553 | -0.00002553 | -0.00002553 |
|             |            | + 50      | -0.00002872             | -0.00002935 | -0.00002893 | -0.00002872 |
| 115         | 138        | + 20      | -0.00002489             | -0.00002553 | -0.00002595 | -0.00002467 |
| 85          | 102        | + 20      | -0.00002510             | -0.00002595 | -0.00002553 | -0.00002489 |
| Limit       | 0.005%     |           |                         |             |             |             |
| Result      | Pass       |           |                         |             |             |             |

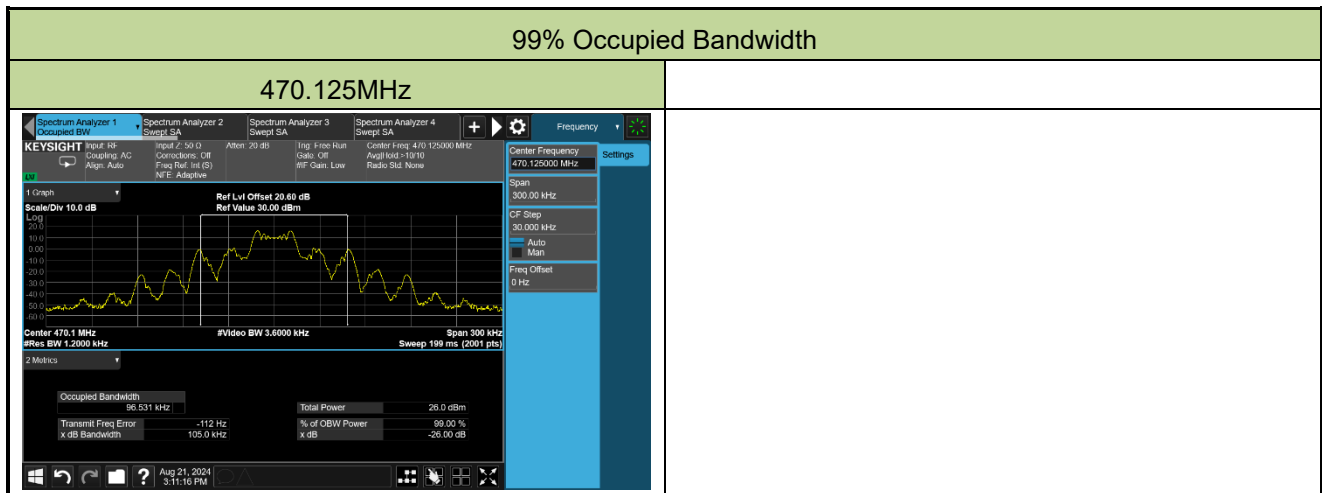
Note: Frequency Tolerance (ppm) = {[Measured Frequency (Hz) - Declared Frequency (Hz)] / Declared Frequency (Hz)} \*10<sup>2</sup>.



### A.3 99% Occupied Bandwidth Test Result

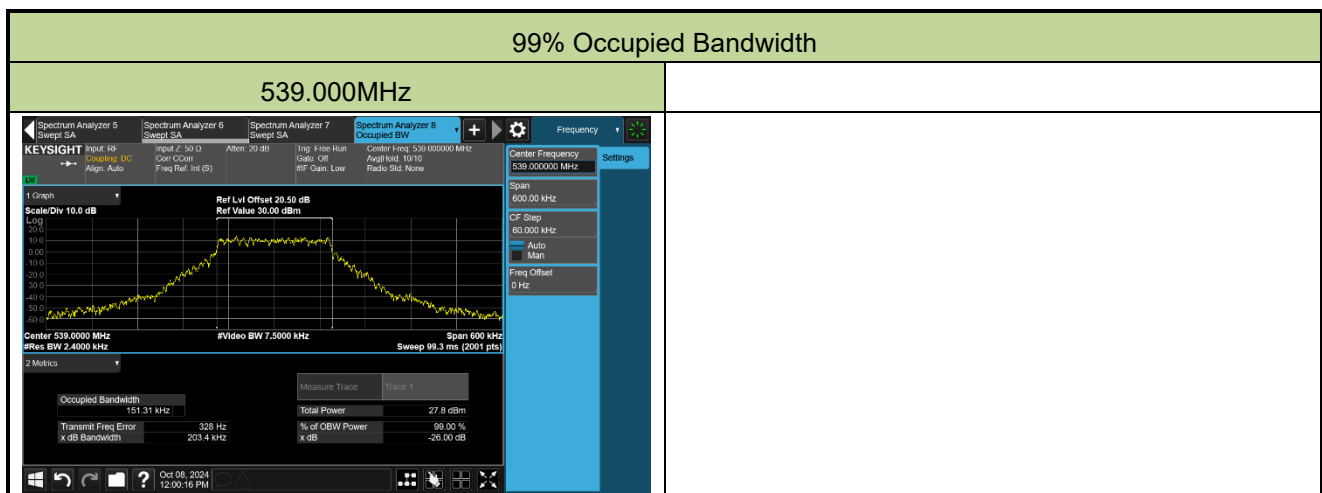
|           |            |               |           |
|-----------|------------|---------------|-----------|
| Test Site | WZ-SR5     | Test Engineer | Lynn Yang |
| Test Date | 2024-08-21 | Test Mode     | Mode 1    |

| Frequency<br>(MHz) | 99% Occupied Bandwidth<br>(kHz) | Limit<br>(kHz) | Result |
|--------------------|---------------------------------|----------------|--------|
| 470.125            | 96.531                          | < 200          | Pass   |



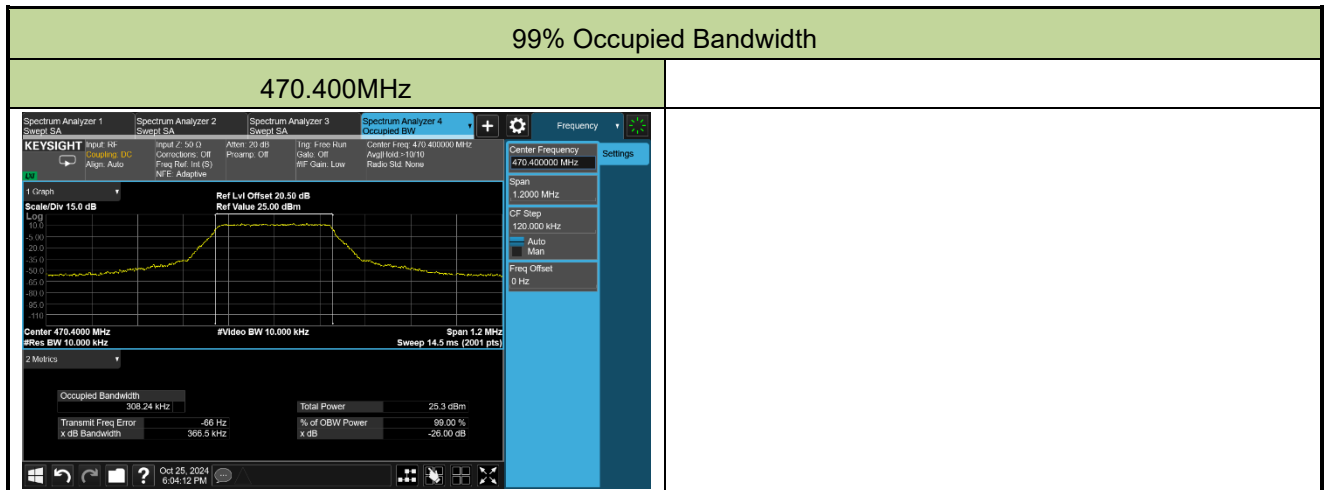
|           |            |               |           |
|-----------|------------|---------------|-----------|
| Test Site | WZ-SR5     | Test Engineer | Lynn Yang |
| Test Date | 2024-10-08 | Test Mode     | Mode 3    |

| Frequency<br>(MHz) | 99% Occupied Bandwidth<br>(kHz) | Limit<br>(kHz) | Result |
|--------------------|---------------------------------|----------------|--------|
| 539.000            | 151.310                         | < 200          | Pass   |



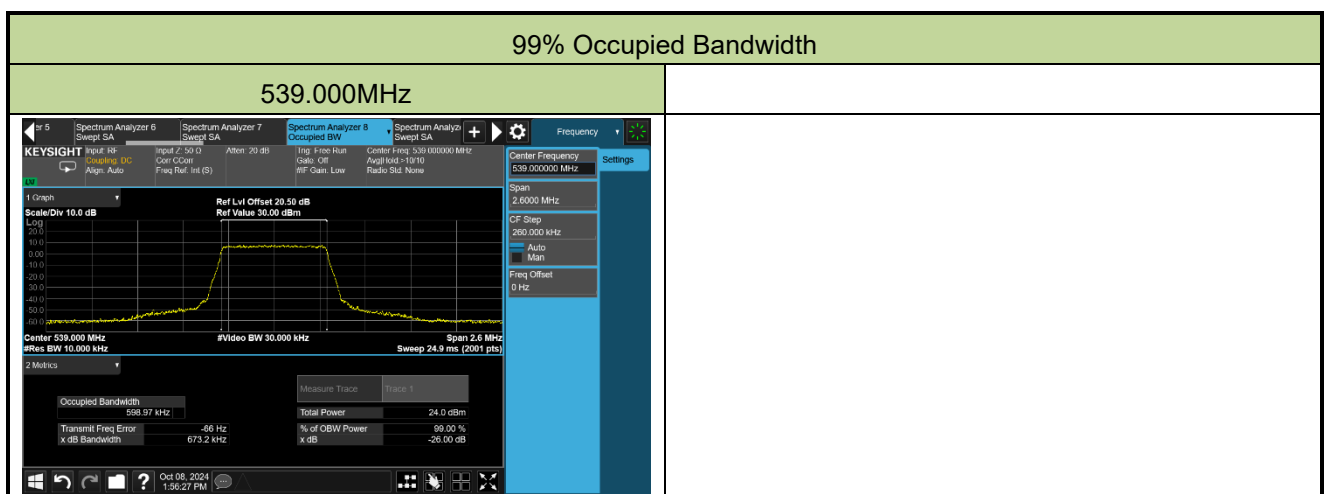
|           |            |               |           |
|-----------|------------|---------------|-----------|
| Test Site | WZ-SR5     | Test Engineer | Lynn Yang |
| Test Date | 2024-10-25 | Test Mode     | Mode 6    |

| Frequency<br>(MHz) | 99% Occupied Bandwidth<br>(kHz) | Limit<br>(kHz) | Result |
|--------------------|---------------------------------|----------------|--------|
| 470.400            | 308.240                         | < 6000         | Pass   |



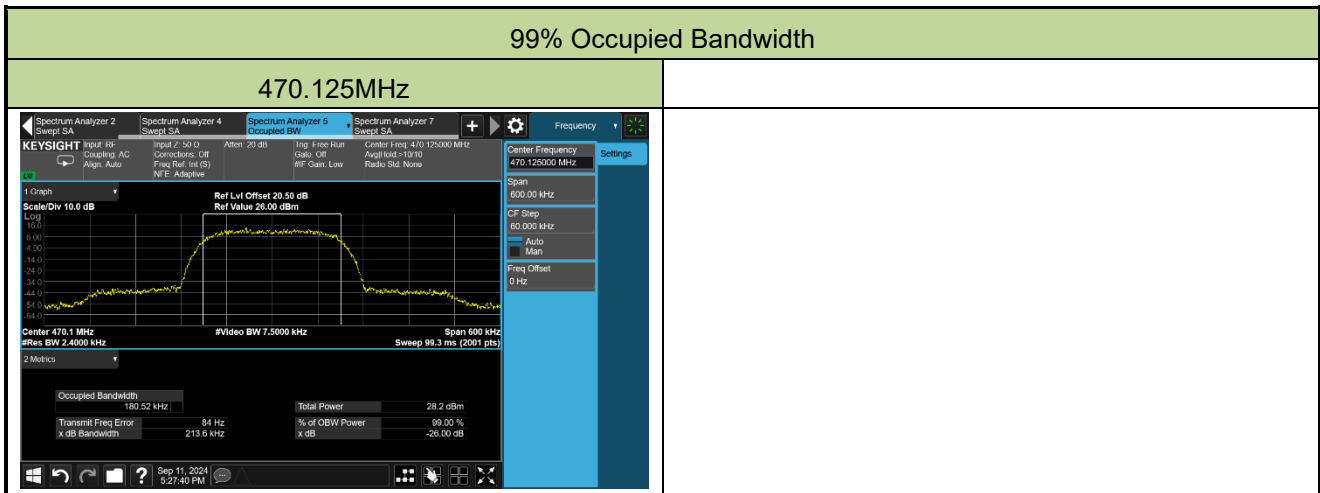
|           |            |               |           |
|-----------|------------|---------------|-----------|
| Test Site | WZ-SR5     | Test Engineer | Lynn Yang |
| Test Date | 2024-10-08 | Test Mode     | Mode 7    |

| Frequency<br>(MHz) | 99% Occupied Bandwidth<br>(kHz) | Limit<br>(kHz) | Result |
|--------------------|---------------------------------|----------------|--------|
| 539.000            | 598.970                         | < 6000         | Pass   |



|           |            |               |           |
|-----------|------------|---------------|-----------|
| Test Site | WZ-SR5     | Test Engineer | Lynn Yang |
| Test Date | 2024-09-11 | Test Mode     | Mode 9    |

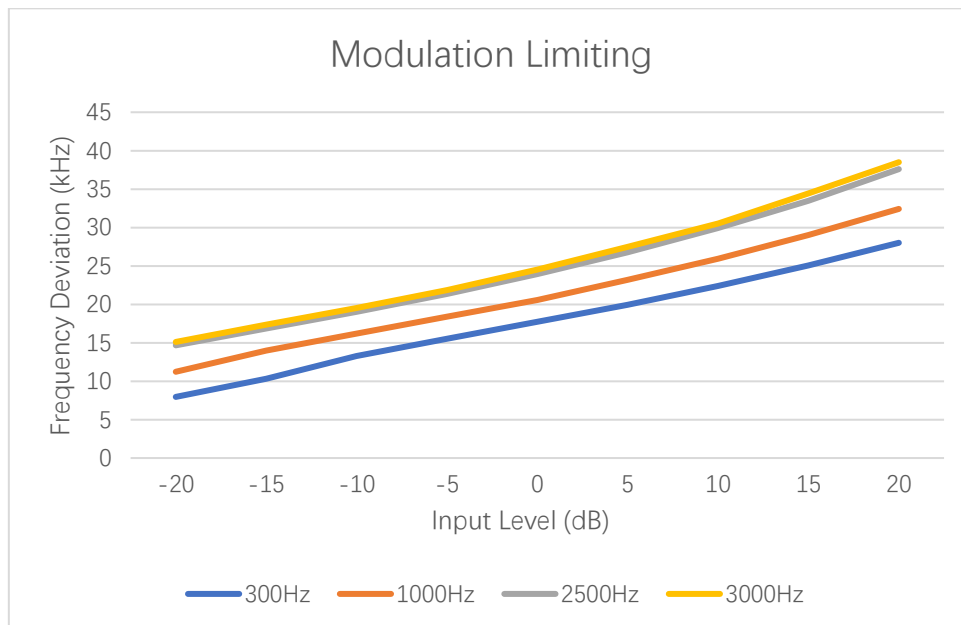
| Frequency<br>(MHz) | 99% Occupied Bandwidth<br>(kHz) | Limit<br>(kHz) | Result |
|--------------------|---------------------------------|----------------|--------|
| 470.125            | 180.520                         | < 200          | Pass   |



#### A.4 Modulation Test Result

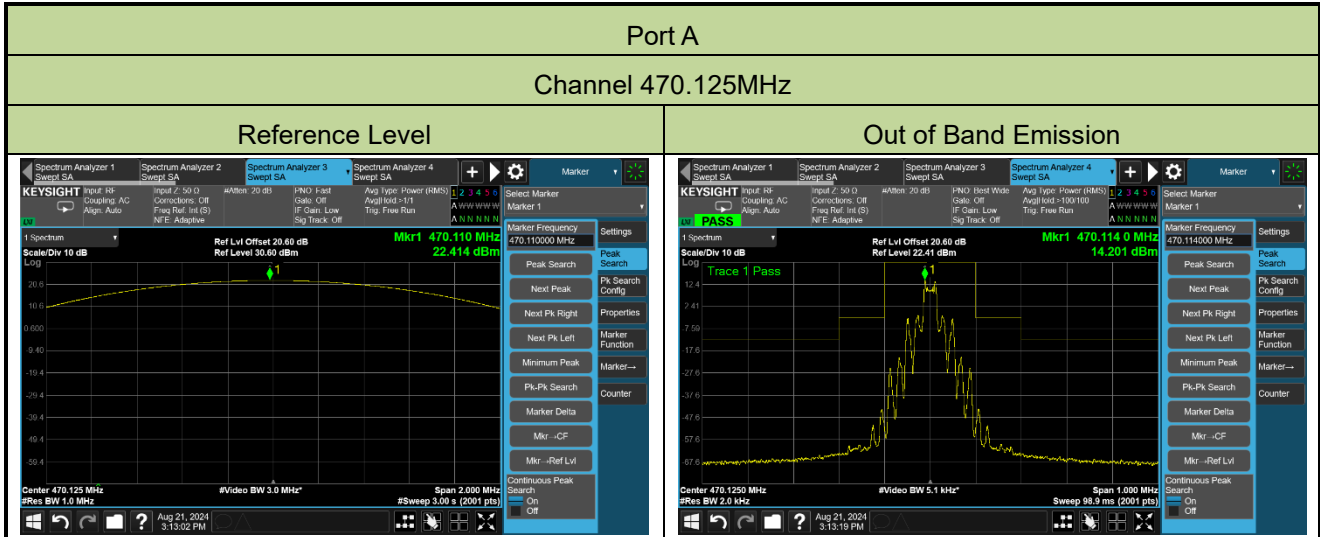
|           |            |               |           |
|-----------|------------|---------------|-----------|
| Test Site | WZ-SR5     | Test Engineer | Lynn Yang |
| Test Date | 2024-12-04 | Test Mode     | Mode 1    |

| Input Level | Audio Frequency           |        |        |        |
|-------------|---------------------------|--------|--------|--------|
|             | 300Hz                     | 1000Hz | 2500Hz | 3000Hz |
| (dB)        | Frequency Deviation (kHz) |        |        |        |
| -20         | 7.96                      | 11.23  | 14.67  | 15.11  |
| -15         | 10.33                     | 13.98  | 16.86  | 17.36  |
| -10         | 13.28                     | 16.2   | 19.04  | 19.54  |
| -5          | 15.53                     | 18.39  | 21.36  | 21.86  |
| 0           | 17.73                     | 20.55  | 23.93  | 24.54  |
| 5           | 19.95                     | 23.20  | 26.77  | 27.49  |
| 10          | 22.39                     | 25.95  | 29.95  | 30.52  |
| 15          | 25.05                     | 29.03  | 33.49  | 34.42  |
| 20          | 28.01                     | 32.42  | 37.60  | 38.50  |
| Limit       | $\leq \pm 75\text{kHz}$   |        |        |        |
| Test Result | Pass                      |        |        |        |

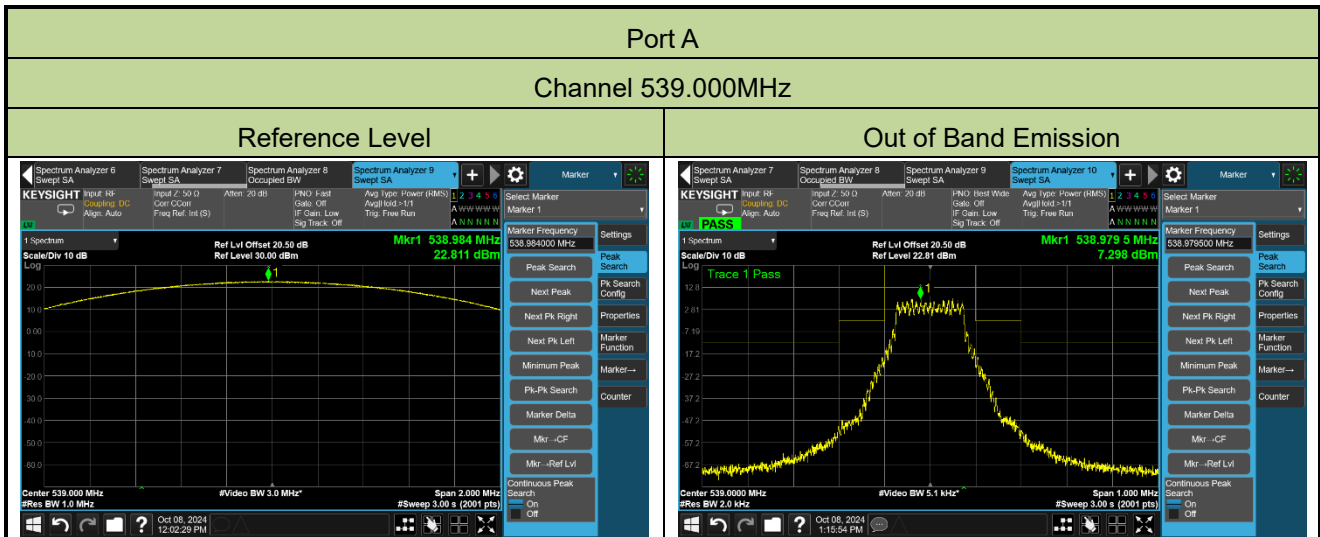


### A.5 Out of Band Emission Test Result

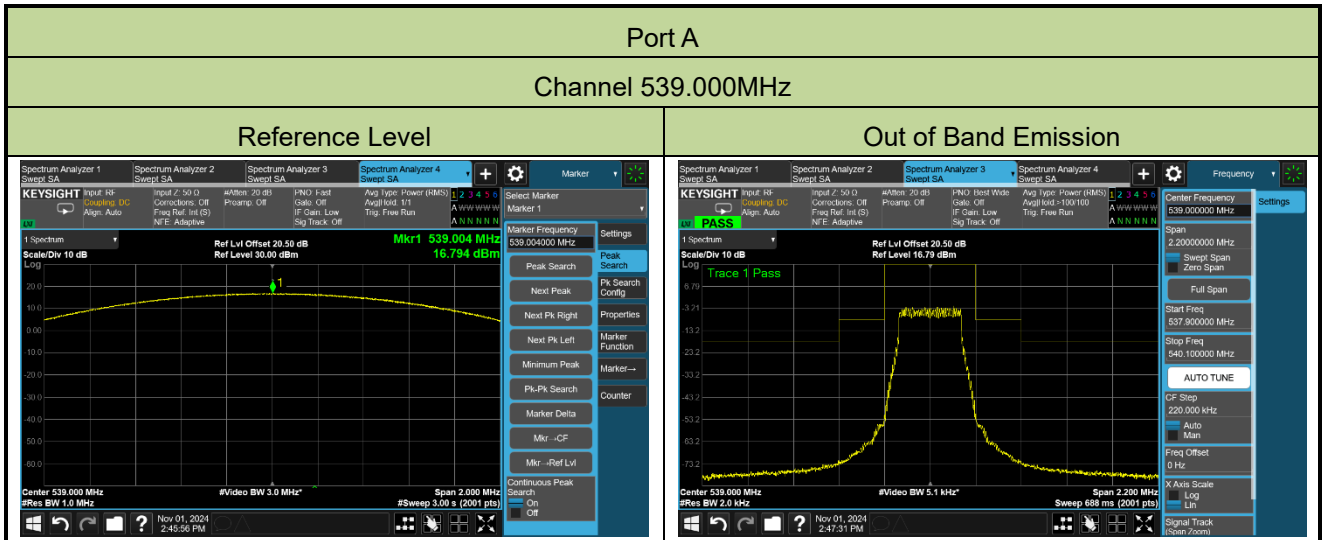
|           |            |               |           |
|-----------|------------|---------------|-----------|
| Test Site | WZ-SR5     | Test Engineer | Lynn Yang |
| Test Date | 2024-08-21 | Test Mode     | Mode 1    |



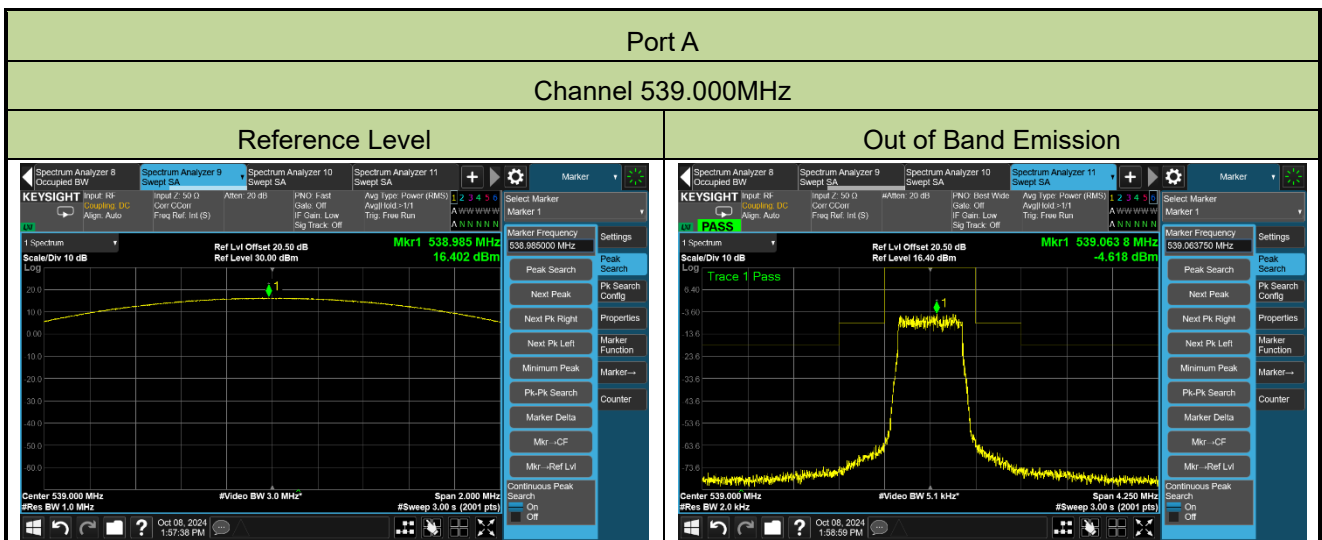
|           |            |               |           |
|-----------|------------|---------------|-----------|
| Test Site | WZ-SR5     | Test Engineer | Lynn Yang |
| Test Date | 2024-10-08 | Test Mode     | Mode 3    |



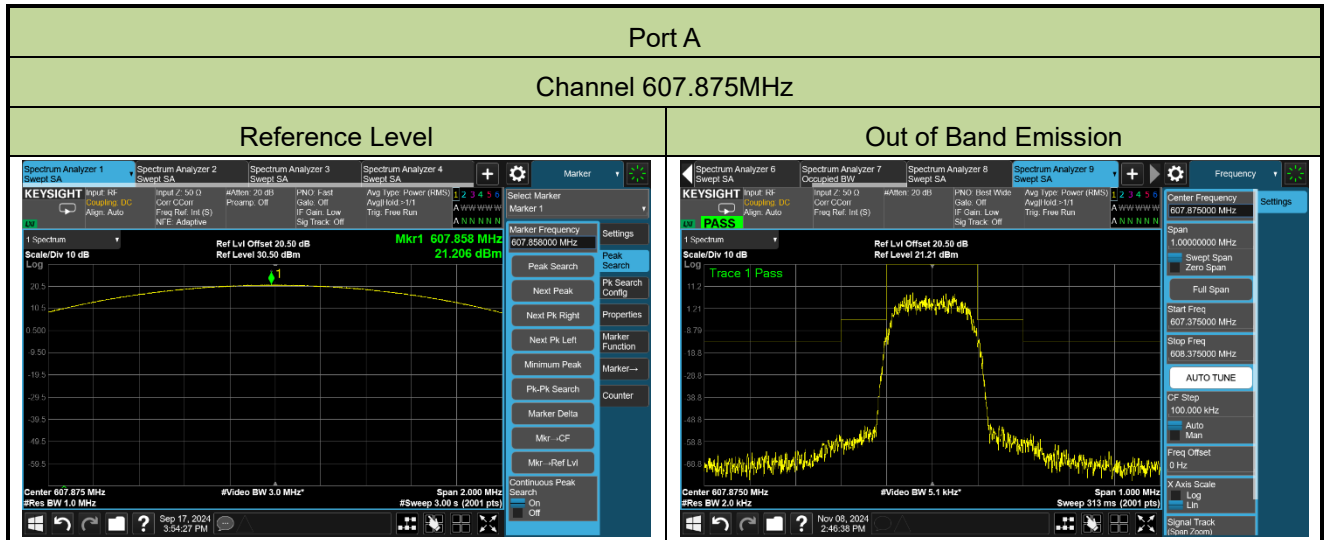
|           |            |               |           |
|-----------|------------|---------------|-----------|
| Test Site | WZ-SR5     | Test Engineer | Lynn Yang |
| Test Date | 2024-11-01 | Test Mode     | Mode 6    |



|           |            |               |           |
|-----------|------------|---------------|-----------|
| Test Site | WZ-SR5     | Test Engineer | Lynn Yang |
| Test Date | 2024-10-08 | Test Mode     | Mode 7    |



|           |                         |               |           |
|-----------|-------------------------|---------------|-----------|
| Test Site | WZ-SR5                  | Test Engineer | Lynn Yang |
| Test Date | 2024-09-17 ~ 2024-11-08 | Test Mode     | Mode 9    |

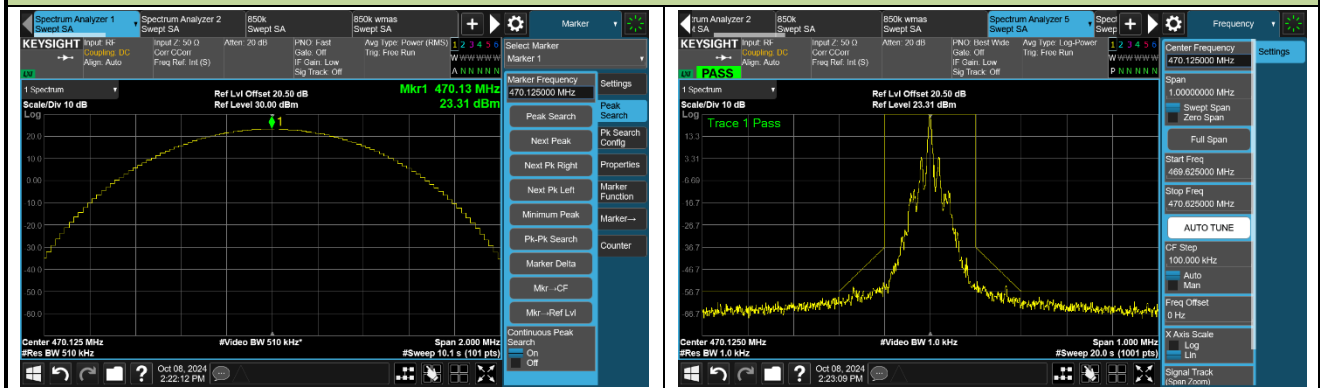


## A.6 Emission Mask Test Result

|           |            |               |           |
|-----------|------------|---------------|-----------|
| Test Site | WZ-SR5     | Test Engineer | Lynn Yang |
| Test Date | 2024-10-08 | Test Mode     | Mode 1    |

### Port A

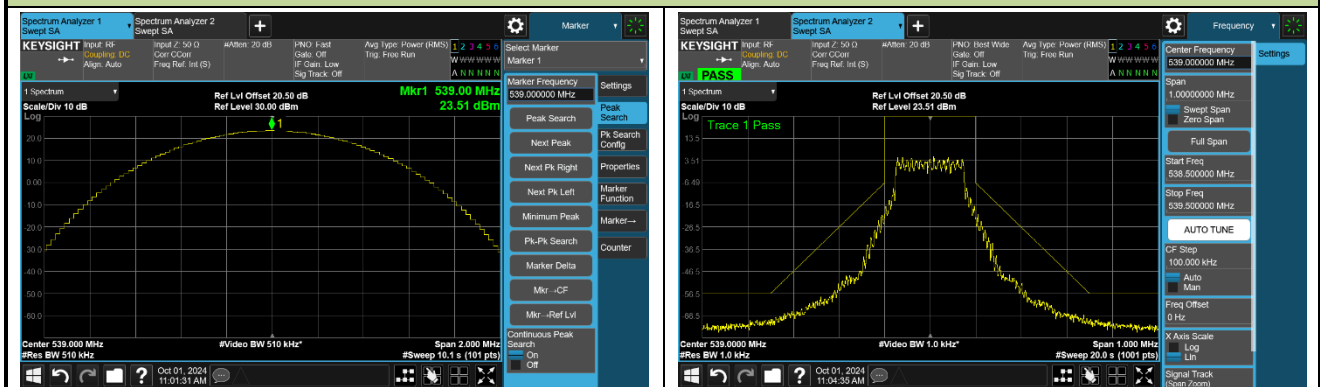
#### Channel 470.125MHz



|           |            |               |           |
|-----------|------------|---------------|-----------|
| Test Site | WZ-SR5     | Test Engineer | Lynn Yang |
| Test Date | 2024-10-01 | Test Mode     | Mode 3    |

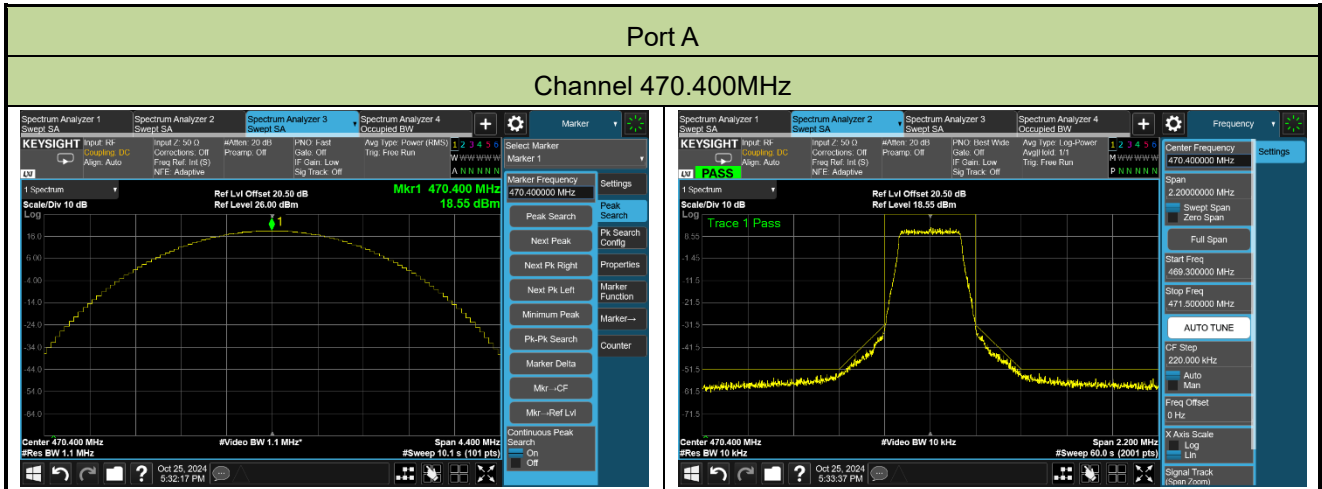
### Port A

#### Channel 539.000MHz

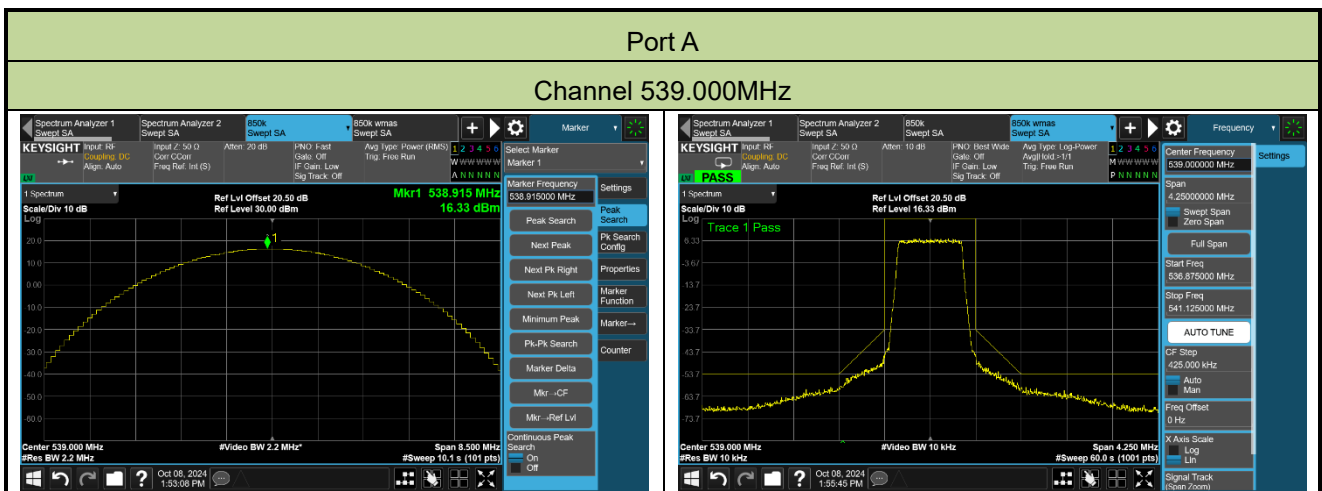




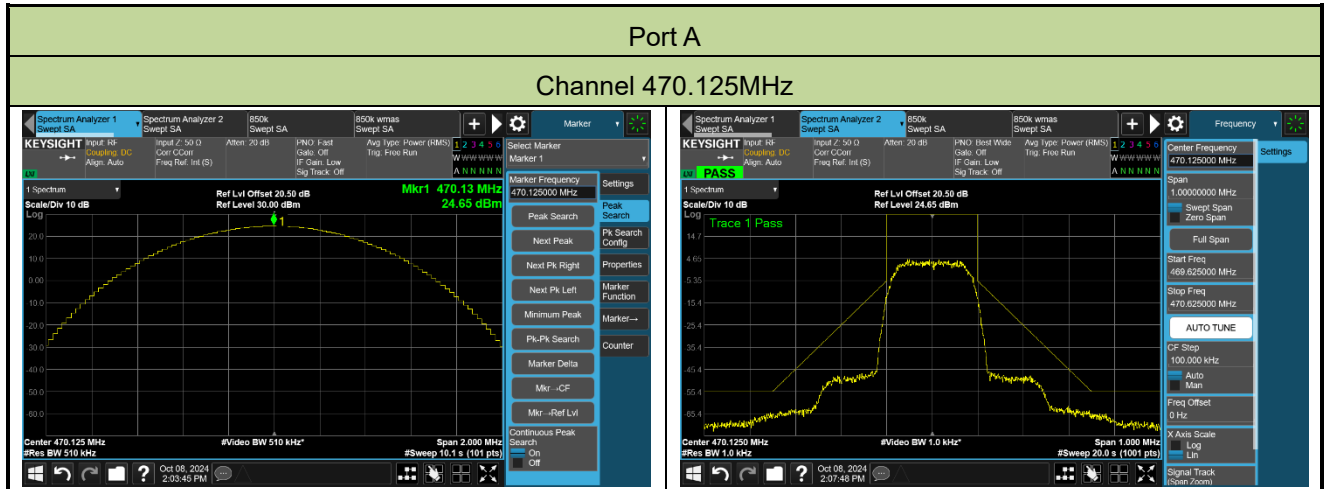
|           |            |               |           |
|-----------|------------|---------------|-----------|
| Test Site | WZ-SR5     | Test Engineer | Lynn Yang |
| Test Date | 2024-10-25 | Test Mode     | Mode 6    |



|           |            |               |           |
|-----------|------------|---------------|-----------|
| Test Site | WZ-SR5     | Test Engineer | Lynn Yang |
| Test Date | 2024-10-08 | Test Mode     | Mode 7    |



|           |            |               |           |
|-----------|------------|---------------|-----------|
| Test Site | WZ-SR5     | Test Engineer | Lynn Yang |
| Test Date | 2024-10-08 | Test Mode     | Mode 9    |



### A.7 Radiated Spurious Emissions Test Result

|           |                         |               |           |
|-----------|-------------------------|---------------|-----------|
| Test Site | WZ-AC2                  | Test Engineer | Bob Zhang |
| Test Date | 2024-09-13 ~ 2024-09-14 | Test Mode     | Mode 2    |

| Test Channel<br>(MHz)   | Frequency<br>(MHz) | Reading<br>Level<br>(dBm) | Substitution<br>Factor<br>(dB) | Measure<br>Level<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Detector | Polarization |
|-------------------------|--------------------|---------------------------|--------------------------------|---------------------------|----------------|----------------|----------|--------------|
| 470.125<br>+<br>470.475 | 58.615             | -104.7                    | 27.8                           | -76.9                     | -54.0          | -22.9          | Peak     | Horizontal   |
|                         | 692.413            | -103.3                    | 37.2                           | -66.1                     | -54.0          | -12.1          | Peak     | Horizontal   |
|                         | 96.154             | -103.3                    | 39.4                           | -63.9                     | -54.0          | -9.9           | Peak     | Vertical     |
|                         | 585.519            | -101.6                    | 35.6                           | -66.0                     | -54.0          | -12.0          | Peak     | Vertical     |
|                         | 2215.200           | -70.2                     | 10.6                           | -59.6                     | -30.0          | -29.6          | Peak     | Horizontal   |
|                         | 3846.400           | -71.1                     | 12.5                           | -58.6                     | -30.0          | -28.6          | Peak     | Horizontal   |
|                         | 1665.200           | -69.3                     | 9.0                            | -60.3                     | -30.0          | -30.3          | Peak     | Vertical     |
|                         | 3080.400           | -69.1                     | 9.9                            | -59.2                     | -30.0          | -29.2          | Peak     | Vertical     |
| 539.000<br>+<br>539.350 | 51.437             | -105.4                    | 30.7                           | -74.7                     | -54.0          | -20.7          | Peak     | Horizontal   |
|                         | 709.000            | -103.0                    | 37.0                           | -66.0                     | -54.0          | -12.0          | Peak     | Horizontal   |
|                         | 98.676             | -105.4                    | 39.0                           | -66.4                     | -54.0          | -12.4          | Peak     | Vertical     |
|                         | 606.665            | -101.5                    | 35.3                           | -66.2                     | -54.0          | -12.2          | Peak     | Vertical     |
|                         | 2253.000           | -71.4                     | 11.2                           | -60.2                     | -30.0          | -30.2          | Peak     | Horizontal   |
|                         | 4646.000           | -72.6                     | 15.0                           | -57.6                     | -30.0          | -27.6          | Peak     | Horizontal   |
|                         | 2167.500           | -70.1                     | 10.0                           | -60.1                     | -30.0          | -30.1          | Peak     | Vertical     |
|                         | 4206.000           | -71.4                     | 13.0                           | -58.4                     | -30.0          | -28.4          | Peak     | Vertical     |
| 607.875<br>+<br>607.525 | 48.236             | -103.2                    | 31.4                           | -71.8                     | -54.0          | -17.8          | Peak     | Horizontal   |
|                         | 730.534            | -103.3                    | 37.9                           | -65.4                     | -54.0          | -11.4          | Peak     | Horizontal   |
|                         | 101.877            | -103.9                    | 38.4                           | -65.5                     | -54.0          | -11.5          | Peak     | Vertical     |
|                         | 813.663            | -103.5                    | 38.1                           | -65.4                     | -54.0          | -11.4          | Peak     | Vertical     |
|                         | 2251.600           | -71.0                     | 11.1                           | -59.9                     | -30.0          | -29.9          | Peak     | Horizontal   |
|                         | 5093.800           | -72.7                     | 15.8                           | -56.9                     | -30.0          | -26.9          | Peak     | Horizontal   |
|                         | 2162.800           | -69.1                     | 9.9                            | -59.2                     | -30.0          | -29.2          | Peak     | Vertical     |
|                         | 5445.400           | -72.1                     | 14.9                           | -57.2                     | -30.0          | -27.2          | Peak     | Vertical     |

Note 1: Measure Level (dBm) = Reading Level (dBm) + Substitution Factor (dB)

Note 2: Substitution Factor (dB) = Cable Loss (dB) + Space Attenuation (dB) - Antenna Gain (dBi) - 2.15 (dB)

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

|           |                         |               |           |
|-----------|-------------------------|---------------|-----------|
| Test Site | WZ-AC2                  | Test Engineer | Bob Zhang |
| Test Date | 2024-09-13 ~ 2024-09-14 | Test Mode     | Mode 4    |

| Test Channel<br>(MHz)   | Frequency<br>(MHz) | Reading<br>Level<br>(dBm) | Substitution<br>Factor<br>(dB) | Measure<br>Level<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Detector | Polarization |
|-------------------------|--------------------|---------------------------|--------------------------------|---------------------------|----------------|----------------|----------|--------------|
| 470.125<br>+<br>470.475 | 51.146             | -105.5                    | 30.7                           | -74.8                     | -54.0          | -20.8          | Peak     | Horizontal   |
|                         | 715.208            | -103.7                    | 37.4                           | -66.3                     | -54.0          | -12.3          | Peak     | Horizontal   |
|                         | 98.094             | -104.6                    | 39.3                           | -65.3                     | -54.0          | -11.3          | Peak     | Vertical     |
|                         | 578.244            | -100.7                    | 35.1                           | -65.6                     | -54.0          | -11.6          | Peak     | Vertical     |
|                         | 1527.600           | -69.4                     | 8.9                            | -60.5                     | -30.0          | -30.5          | Peak     | Horizontal   |
|                         | 3701.200           | -69.5                     | 12.2                           | -57.3                     | -30.0          | -27.3          | Peak     | Horizontal   |
|                         | 1411.200           | -66.3                     | 8.2                            | -58.1                     | -30.0          | -28.1          | Peak     | Vertical     |
|                         | 2402.400           | -67.4                     | 10.0                           | -57.4                     | -30.0          | -27.4          | Peak     | Vertical     |
| 539.000<br>+<br>539.350 | 53.668             | -104.8                    | 30.0                           | -74.8                     | -54.0          | -20.8          | Peak     | Horizontal   |
|                         | 720.058            | -103.0                    | 37.7                           | -65.3                     | -54.0          | -11.3          | Peak     | Horizontal   |
|                         | 102.750            | -104.7                    | 38.3                           | -66.4                     | -54.0          | -12.4          | Peak     | Vertical     |
|                         | 480.080            | -93.7                     | 33.4                           | -60.3                     | -54.0          | -6.3           | Peak     | Vertical     |
|                         | 2234.500           | -69.8                     | 10.7                           | -59.1                     | -30.0          | -29.1          | Peak     | Horizontal   |
|                         | 5039.500           | -72.5                     | 15.8                           | -56.7                     | -30.0          | -26.7          | Peak     | Horizontal   |
|                         | 2432.500           | -61.1                     | 9.6                            | -51.5                     | -30.0          | -21.5          | Peak     | Vertical     |
|                         | 4295.500           | -71.6                     | 13.7                           | -57.9                     | -30.0          | -27.9          | Peak     | Vertical     |
| 607.875<br>+<br>607.525 | 54.056             | -106.1                    | 29.7                           | -76.4                     | -54.0          | -22.4          | Peak     | Horizontal   |
|                         | 714.044            | -100.7                    | 37.5                           | -63.2                     | -54.0          | -9.2           | Peak     | Horizontal   |
|                         | 93.147             | -105.0                    | 38.6                           | -66.4                     | -54.0          | -12.4          | Peak     | Vertical     |
|                         | 479.983            | -93.7                     | 33.3                           | -60.4                     | -54.0          | -6.4           | Peak     | Vertical     |
|                         | 2251.000           | -70.3                     | 11.1                           | -59.2                     | -30.0          | -29.2          | Peak     | Horizontal   |
|                         | 6615.400           | -74.3                     | 20.0                           | -54.3                     | -30.0          | -24.3          | Peak     | Horizontal   |
|                         | 2089.000           | -68.8                     | 8.9                            | -59.9                     | -30.0          | -29.9          | Peak     | Vertical     |
|                         | 5371.600           | -71.7                     | 15.1                           | -56.6                     | -30.0          | -26.6          | Peak     | Vertical     |

Note 1: Measure Level (dBm) = Reading Level (dBm) + Substitution Factor (dB)

Note 2: Substitution Factor (dB) = Cable Loss (dB) + Space Attenuation (dB) - Antenna Gain (dBi) - 2.15 (dB)

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

|           |                         |               |           |
|-----------|-------------------------|---------------|-----------|
| Test Site | WZ-AC2                  | Test Engineer | Bob Zhang |
| Test Date | 2024-09-13 ~ 2024-09-14 | Test Mode     | Mode 10   |

| Test Channel<br>(MHz)   | Frequency<br>(MHz) | Reading<br>Level<br>(dBm) | Substitution<br>Factor<br>(dB) | Measure<br>Level<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Detector | Polarization |
|-------------------------|--------------------|---------------------------|--------------------------------|---------------------------|----------------|----------------|----------|--------------|
| 470.125<br>+<br>470.475 | 214.882            | -102.0                    | 31.4                           | -70.6                     | -54.0          | -16.6          | Peak     | Horizontal   |
|                         | 725.199            | -103.2                    | 37.3                           | -65.9                     | -54.0          | -11.9          | Peak     | Horizontal   |
|                         | 100.810            | -102.4                    | 37.7                           | -64.7                     | -54.0          | -10.7          | Peak     | Vertical     |
|                         | 479.983            | -95.3                     | 33.0                           | -62.3                     | -54.0          | -8.3           | RMS      | Vertical     |
|                         | 1411.600           | -64.7                     | 8.3                            | -56.4                     | -30.0          | -26.4          | Peak     | Horizontal   |
|                         | 2183.200           | -66.7                     | 10.5                           | -56.2                     | -30.0          | -26.2          | Peak     | Horizontal   |
|                         | 1411.600           | -57.2                     | 6.4                            | -50.8                     | -30.0          | -20.8          | Peak     | Vertical     |
|                         | 3218.800           | -65.6                     | 8.3                            | -57.3                     | -30.0          | -27.3          | Peak     | Vertical     |
| 539.000<br>+<br>539.350 | 221.575            | -102.5                    | 31.2                           | -71.3                     | -54.0          | -17.3          | Peak     | Horizontal   |
|                         | 479.983            | -97.0                     | 33.3                           | -63.7                     | -54.0          | -9.7           | Peak     | Horizontal   |
|                         | 97.415             | -102.8                    | 39.0                           | -63.8                     | -54.0          | -9.8           | Peak     | Vertical     |
|                         | 479.983            | -92.6                     | 33                             | -59.6                     | -54.0          | -5.6           | Peak     | Vertical     |
|                         | 1415.800           | -66.2                     | 7.0                            | -59.2                     | -30.0          | -29.2          | Peak     | Horizontal   |
|                         | 2800.000           | -64.8                     | 8.3                            | -56.5                     | -30.0          | -26.5          | Peak     | Horizontal   |
|                         | 1118.800           | -65.0                     | 6.4                            | -58.6                     | -30.0          | -28.6          | Peak     | Vertical     |
|                         | 3007.000           | -65.4                     | 7.9                            | -57.5                     | -30.0          | -27.5          | Peak     | Vertical     |
| 607.875<br>+<br>607.525 | 227.007            | -102.2                    | 30.6                           | -71.6                     | -54.0          | -17.6          | Peak     | Horizontal   |
|                         | 512.284            | -100.4                    | 34.4                           | -66.0                     | -54.0          | -12.0          | Peak     | Horizontal   |
|                         | 103.138            | -103.3                    | 38.1                           | -65.2                     | -54.0          | -11.2          | Peak     | Vertical     |
|                         | 479.983            | -91                       | 33                             | -58.0                     | -54.0          | -4.0           | Peak     | Vertical     |
|                         | 1416.400           | -66.6                     | 7.0                            | -59.6                     | -30.0          | -29.6          | Peak     | Horizontal   |
|                         | 3299.200           | -66.2                     | 9.9                            | -56.4                     | -30.0          | -26.4          | Peak     | Horizontal   |
|                         | 1110.400           | -64.1                     | 6.3                            | -57.8                     | -30.0          | -27.8          | Peak     | Vertical     |
|                         | 3161.800           | -66.0                     | 8.7                            | -57.3                     | -30.0          | -27.3          | Peak     | Vertical     |

Note 1: Measure Level (dBm) = Reading Level (dBm) + Substitution Factor (dB)

Note 2: Substitution Factor (dB) = Cable Loss (dB) + Space Attenuation (dB) - Antenna Gain (dBi) - 2.15 (dB)

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

## **Appendix B – Test Setup Photograph**

Refer to “2406RSU021-UT” file.

## **Appendix C – EUT Photograph**

Refer to “2406RSU021-UE” file.