

# TEST REPORT

Applicant Name: Shine Flex US LLC  
Address: 1259 Knollwood Raod Deerfield Illinois United States 60015  
Report Number: 2501W74078E-RF-00M1  
FCC ID: 2A4DDDXFBDIJJ

## Test Standard (s)

FCC PART 95 Subpart B

## Sample Description

Product Type: Walkie Talkie Two-way Radio  
Model No.: DXFRSBD900  
Multiple Model(s) No.: N/A  
Trade Mark: Dewalt  
Date Received: 2025/08/13  
Issue Date: 2025/12/01

Test Result:

Pass<sup>▲</sup>

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

## Prepared and Checked By:

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Simon Zhong  
RF Engineer

## Approved By:

*Nancy Wang*

Nancy Wang  
RF Supervisor

Note: The information marked # is provided by the applicant, the laboratory is not responsible for its authenticity and this information can affect the validity of the result in the test report. Customer model name, addresses, names, trademarks etc. are included.

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## **TABLE OF CONTENTS**

|                                                                                               |           |
|-----------------------------------------------------------------------------------------------|-----------|
| <b>DOCUMENT REVISION HISTORY .....</b>                                                        | <b>4</b>  |
| <b>GENERAL INFORMATION.....</b>                                                               | <b>5</b>  |
| PRODUCT DESCRIPTION FOR EQUIPMENT UNDER TEST (EUT) .....                                      | 5         |
| OBJECTIVE .....                                                                               | 5         |
| TEST METHODOLOGY .....                                                                        | 5         |
| MEASUREMENT UNCERTAINTY .....                                                                 | 6         |
| TEST FACILITY .....                                                                           | 6         |
| <b>SYSTEM TEST CONFIGURATION .....</b>                                                        | <b>7</b>  |
| DESCRIPTION OF TEST CONFIGURATION .....                                                       | 7         |
| EQUIPMENT MODIFICATIONS .....                                                                 | 7         |
| SUPPORT EQUIPMENT LIST AND DETAILS .....                                                      | 7         |
| EXTERNAL I/O CABLE.....                                                                       | 7         |
| BLOCK DIAGRAM OF TEST SETUP .....                                                             | 8         |
| <b>SUMMARY OF TEST RESULTS .....</b>                                                          | <b>9</b>  |
| <b>TEST EQUIPMENT LIST .....</b>                                                              | <b>10</b> |
| <b>§2.1093 - RF EXPOSURE INFORMATION .....</b>                                                | <b>11</b> |
| APPLICABLE STANDARD .....                                                                     | 11        |
| TEST RESULT .....                                                                             | 11        |
| <b>FCC §2.1046 &amp; §95.567 - RF OUTPUT POWER.....</b>                                       | <b>12</b> |
| APPLICABLE STANDARD .....                                                                     | 12        |
| TEST PROCEDURE .....                                                                          | 12        |
| TEST DATA .....                                                                               | 12        |
| <b>FCC §2.1047 &amp; §95.575 - MODULATION CHARACTERISTIC .....</b>                            | <b>13</b> |
| APPLICABLE STANDARD .....                                                                     | 13        |
| TEST BLOCK DIAGRAM.....                                                                       | 13        |
| TEST PROCEDURE .....                                                                          | 13        |
| TEST DATA .....                                                                               | 14        |
| <b>FCC §2.1049 &amp; §95.573 &amp; §95.579 - AUTHOURIZED BANDWIDTH AND EMISSION MASK.....</b> | <b>21</b> |
| APPLICABLE STANDARD .....                                                                     | 21        |
| TEST BLOCK DIAGRAM.....                                                                       | 21        |
| TEST PROCEDURE .....                                                                          | 21        |
| TEST DATA .....                                                                               | 22        |
| <b>FCC §2.1053 &amp; §95.579 - RADIATED SPURIOUS EMISSION .....</b>                           | <b>25</b> |
| APPLICABLE STANDARD .....                                                                     | 25        |
| TEST PROCEDURE .....                                                                          | 25        |
| TEST DATA .....                                                                               | 26        |
| <b>FCC§2.1055 (D) &amp; §95.565 - FREQUENCY STABILITY .....</b>                               | <b>28</b> |
| APPLICABLE STANDARD .....                                                                     | 28        |
| TEST PROCEDURE .....                                                                          | 28        |
| TEST DATA .....                                                                               | 29        |

Version 3.0

**DOCUMENT REVISION HISTORY**

| Revision Number | Report Number       | Description of Revision | Date of Revision |
|-----------------|---------------------|-------------------------|------------------|
| 0               | 2501W74078E-RF-00   | Original Report         | 2025/10/24       |
| 1               | 2501W74078E-RF-00M1 | Updated Report          | 2025/12/01       |

Note: This is an updated report based on the report 2501W74078E-RF-00, the details as following:

(1) update FCC part 2.1091 to FCC part 2.1093.

The previous report 2501W74078E-RF-00 issued on 2025/10/24, is replaced by this report 2501W74078E-RF-00M1 issued on 2025/12/01.

## GENERAL INFORMATION

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

|                                    |                                                                                                |
|------------------------------------|------------------------------------------------------------------------------------------------|
| Product                            | Walkie Talkie Two-way Radio                                                                    |
| Tested Model                       | DXFRSBD900                                                                                     |
| Multiple Model(s)                  | N/A                                                                                            |
| Frequency Range                    | 462.5500-462.7250MHz<br>467.5625-467.7125MHz                                                   |
| Transmit Power (ERP)               | 462.5500-462.7250MHz: 28.02dBm<br>467.5625-467.7125MHz: 22.42dBm                               |
| Channel Spacing                    | 12.5kHz                                                                                        |
| Modulation Technique               | FM                                                                                             |
| Antenna Specification <sup>#</sup> | 0dBi (It is provided by the applicant)                                                         |
| Voltage Range                      | DC 5V from adapter or DC 3.7V from battery                                                     |
| Sample serial number               | 38HA-1 for Radiation Emission<br>38HA-2 for Conducted Emission<br>(Assigned by BACL, Shenzhen) |
| Sample/EUT Status                  | Good condition                                                                                 |
| Adapter Information                | Model:GF-A0502000SUS<br>Input:100-240V~50/60Hz, 0.4A, Max<br>Output:5V,2000mA                  |
|                                    |                                                                                                |

### Objective

This test report is in accordance with Part 2 and Part 95, Subpart A & Subpart B of the Federal Communication Commissions rules.

### Test Methodology

All tests and measurements indicated in this document were performed in accordance with the Code of Federal Regulations Title 47 Part 2-Subpart J as well as the following parts:

Part 95 Subpart B - Family Radio Service (FRS)

ANSI C63.26-2015: American National Standard for Compliance Testing of Transmitters Used in Licensed Radio Services

TIA-603-E: Land Mobile FM or PM-Communications Equipment-Measurement and Performance Standards

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

Each test item follows test standards and with no deviation.

## Measurement Uncertainty

| Parameter                  |                             | Uncertainty                            |
|----------------------------|-----------------------------|----------------------------------------|
| Occupied Channel Bandwidth |                             | 109.2kHz(k=2, 95% level of confidence) |
| RF Frequency               |                             | 56.6Hz(k=2, 95% level of confidence)   |
| Audio Frequency Response   |                             | 0.1dB(k=2, 95% level of confidence)    |
| Low Pass Filter Response   |                             | 1.2dB(k=2, 95% level of confidence)    |
| Modulation Limiting        |                             | 1%(k=2, 95% level of confidence)       |
| Radiated Emissions         | 30MHz~200MHz (Horizontal)   | 5.32dB(k=2, 95% level of confidence)   |
|                            | 30MHz~200MHz (Vertical)     | 5.43dB(k=2, 95% level of confidence)   |
|                            | 200MHz~1000MHz (Horizontal) | 5.77dB(k=2, 95% level of confidence)   |
|                            | 200MHz~1000MHz (Vertical)   | 5.73dB(k=2, 95% level of confidence)   |
|                            | 1GHz - 6GHz                 | 5.34dB(k=2, 95% level of confidence)   |
|                            | 6GHz - 18GHz                | 5.40dB(k=2, 95% level of confidence)   |
| Temperature                |                             | ±1°C                                   |
| Humidity                   |                             | ±1%                                    |
| Supply voltages            |                             | ±0.4%                                  |

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

## Test Facility

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

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

## SYSTEM TEST CONFIGURATION

### Description of Test Configuration

The system was configured for testing in a typical fashion (as normally used by a typical user).

Channel List

| Channel No. | Channel Frequency (MHz) | Channel No. | Channel Frequency (MHz) |
|-------------|-------------------------|-------------|-------------------------|
| 1           | 462.5625                | 12          | 467.6625                |
| 2           | 462.5875                | 13          | 467.6875                |
| 3           | 462.6125                | 14          | 467.7125                |
| 4           | <b>462.6375</b>         | 15          | 462.5500                |
| 5           | 462.6625                | 16          | 462.5750                |
| 6           | 462.6875                | 17          | 462.6000                |
| 7           | 462.7125                | 18          | 462.6250                |
| 8           | 467.5625                | 19          | 462.6500                |
| 9           | 467.5875                | 20          | 462.6750                |
| 10          | 467.6125                | 21          | 462.7000                |
| 11          | <b>467.6375</b>         | 22          | 462.7250                |

Note: the channel 4 and 11 were chosen for the full test.

### Equipment Modifications

No modification was made to the EUT tested.

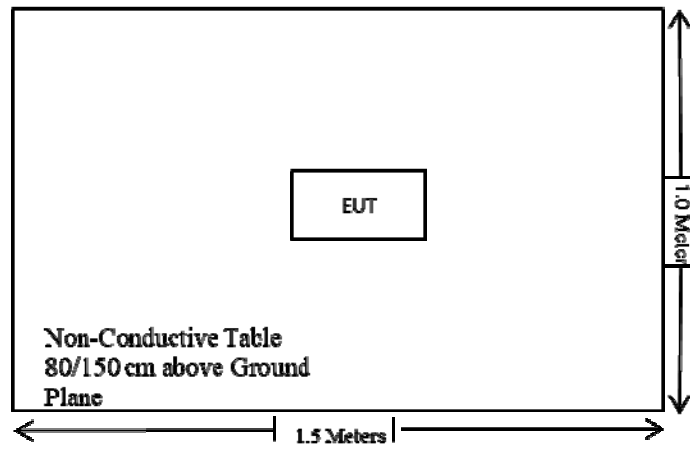
### Support Equipment List and Details

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

### External I/O Cable

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

## Block Diagram of Test Setup



**SUMMARY OF TEST RESULTS**

| FCC Rules                 | Description of Test                  | Results   |
|---------------------------|--------------------------------------|-----------|
| §2.1093                   | RF Exposure                          | Compliant |
| §2.1046, §95.567          | RF Output Power                      | Compliant |
| §2.1047, §95.575          | Modulation Characteristic            | Compliant |
| §2.1049, §95.573, §95.579 | Authorized Bandwidth & Emission Mask | Compliant |
| §2.1053, §95.579          | Radiated Spurious Emission           | Compliant |
| §2.1055(d), §95.565       | Frequency Stability                  | Compliant |
| §95.587                   | FRS additional requirements          | Compliant |

**TEST EQUIPMENT LIST**

| Manufacturer                  | Description                       | Model             | Serial Number | Calibration Date | Calibration Due Date |
|-------------------------------|-----------------------------------|-------------------|---------------|------------------|----------------------|
| <b>Radiated Emission Test</b> |                                   |                   |               |                  |                      |
| Rohde & Schwarz               | EMI Test Receiver                 | ESR3              | 102455        | 2024/12/04       | 2025/12/03           |
| Sonoma instrument             | Pre-amplifier                     | 310 N             | 186238        | 2025/04/29       | 2026/04/28           |
| Sunol Sciences                | Broadband Antenna                 | JB1               | A040904-1     | 2023/07/20       | 2026/07/19           |
| Unknown                       | Cable                             | Chamber A Cable 1 | N/A           | 2025/04/29       | 2026/04/28           |
| Unknown                       | Cable                             | XH500C            | J-10M-A       | 2025/04/29       | 2026/04/28           |
| COM-POWER                     | Dipole Antenna                    | 3121C             | 9209-860      | NCR              | NCR                  |
| Rohde & Schwarz               | Spectrum Analyzer                 | FSV40             | 101605        | 2025/03/26       | 2026/03/25           |
| A.H.System                    | Preamplifier                      | PAM-0118P         | 489           | 2024/11/15       | 2025/11/14           |
| Schwarzbeck                   | Horn Antenna                      | BBHA9120D (1201)  | 1143          | 2023/07/26       | 2026/07/25           |
| The Electro-Mechanics Co.     | Horn Antenna                      | 3115              | 9107-3694     | 2024/06/06       | 2027/06/05           |
| Unknown                       | RF Cable                          | KMSE              | 735           | 2024/12/06       | 2025/12/05           |
| Unknown                       | RF Cable                          | UFA147            | 219661        | 2024/12/06       | 2025/12/05           |
| Unknown                       | RF Cable                          | XH750A-N          | J-10M         | 2024/12/06       | 2025/12/05           |
| Agilent                       | Signal Generator                  | N5183A            | MY50140588    | 2025/08/12       | 2026/08/11           |
| JD                            | Filter Switch Unit                | DT7220FSU         | DS79906       | 2025/08/12       | 2026/08/11           |
| JD                            | Multiplex Switch Test Control Set | DT7220SCU         | DS79903       | 2025/08/12       | 2026/08/11           |
| <b>RF Conducted Test</b>      |                                   |                   |               |                  |                      |
| Rohde & Schwarz               | Spectrum Analyzer                 | FSV40             | 101605        | 2025/03/26       | 2026/03/25           |
| BACL                          | Temperature & Humidity Chamber    | BTH-150-40        | 30145         | 2024/12/06       | 2025/12/05           |
| HP                            | RF Communication test set         | 8920B             | US36141849    | 2024/12/04       | 2025/12/03           |
| instek                        | DC Power Supply                   | GPS-3030DD        | EM832096      | NCR              | NCR                  |
| Fluke                         | Digital Multimeter                | 287               | 19000011      | 2025/04/29       | 2026/04/28           |
| JFW                           | 30dB Attenuator                   | 50FH-030-100 RF   | F-03-EM032    | 2025/06/26       | 2026/06/25           |

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

## **§2.1093 - RF EXPOSURE INFORMATION**

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Applicable Standard

§2.1093

Test Result

Compliant, please refer to the SAR report: 2501Y20493E-SA.

## FCC §2.1046 & §95.567 - RF OUTPUT POWER

### Applicable Standard

Per FCC §2.1046, and §95.567, Each FRS transmitter type must be designed such that the effective radiated power (ERP) on channels 8 through 14 does not exceed 0.5 Watts and the ERP on channels 1 through 7 and 15 through 22 does not exceed 2.0 Watts.

### Test Procedure

The transmitter was placed on a wooden turntable, and it was transmitting into a non-radiating load, which was also placed on the turntable.

The measurement antenna was placed at a distance of 3 meters from the EUT. During the tests, the antenna height and polarization as well as EUT azimuth were varied in order to identify the maximum level of emissions from the EUT. The test was performed by placing the EUT on 3-orthogonal axis.

Remove the EUT and replace it with substitution antenna. A signal generator was connected to the substitution antenna by a non-radiating cable. The absolute levels of the emissions were measured by the substitution.

### Test Data

#### Environmental Conditions

|                    |           |
|--------------------|-----------|
| Temperature:       | 26.9°C    |
| Relative Humidity: | 52%       |
| ATM Pressure:      | 100.8 kPa |

The testing was performed by Cheeb Huang on 2025-09-12.

Test Mode: Transmitting

#### Test Result: Compliant.

| Frequency<br>(MHz) | Receiver<br>Reading<br>(dBuV) | Polar<br>(H/V) | Substituted Factor         |                       |                          | Absolute Level<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) |
|--------------------|-------------------------------|----------------|----------------------------|-----------------------|--------------------------|-------------------------|----------------|----------------|
|                    |                               |                | Substituted Level<br>(dBm) | Cable<br>Loss<br>(dB) | Antenna<br>Gain<br>(dBd) |                         |                |                |
| 462.6375 MHz       |                               |                |                            |                       |                          |                         |                |                |
| 462.6375           | 103.26                        | H              | 29.1                       | 1.08                  | 0                        | 28.02                   | 33             | 4.98           |
| 462.6375           | 89.68                         | V              | 19.9                       | 1.08                  | 0                        | 18.82                   | 33             | 14.18          |
| 467.6375 MHz       |                               |                |                            |                       |                          |                         |                |                |
| 467.6375           | 97.28                         | H              | 23.5                       | 1.08                  | 0                        | 22.42                   | 27             | 4.58           |
| 467.6375           | 85.42                         | V              | 16.4                       | 1.08                  | 0                        | 15.32                   | 27             | 11.68          |

Note:

Absolute Level = Reading Level + Substituted Factor

Substituted Factor contains: Substituted Level - Cable loss+ Antenna Gain

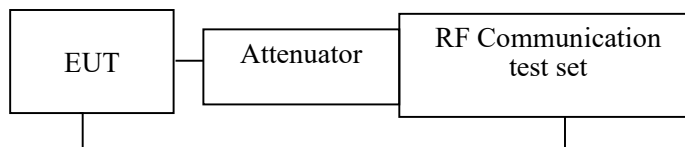
Margin = Limit -Absolute Level

## **FCC §2.1047 & §95.575 - MODULATION CHARACTERISTIC**

### **Applicable Standard**

Per FCC §2.1047 and §95.575: Each FRS transmitter type must be designed such that the peak frequency deviation does not exceed 2.5 kHz, and the highest audio frequency contributing substantially to modulation must not exceed 3.125 kHz.

### **Test Block Diagram**



### **Test Procedure**

ANSI C63.26-2015

#### **5.3.2 Modulation limiting test methodology**

Modulation limiting is the ability of a transmitter circuit to limit the transmitter from producing deviations in excess of a rated system deviation.

- Connect the equipment as illustrated in Figure 1.
- Adjust the transmitter per the manufacturer's procedure for full rated system deviation.
- Set the test receiver to measure peak positive deviation. Set the audio bandwidth for  $\leq 0.25$  Hz to  $\geq 15\,000$  Hz. Turn the de-emphasis function off.
- 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.
- 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.
- Repeat for step e) at 300 Hz, 2500 Hz and 3000 Hz at a minimum using the 0 dB reference level obtained in step d).
- Set the test receiver to measure peak negative deviation and repeat step d) through step f).
- The values recorded in step f) and step g) are the modulation limiting.
- Plot the data set as a percentage of deviation relative to the 0 dB reference point versus input voltage.

##### **5.3.3.2 Audio frequency response test methodology—Constant Input**

- Connect the equipment as illustrated in Figure 3.
- Set the test receiver to measure peak positive deviation. Set the audio bandwidth for  $\leq 50$  Hz to  $\geq 15\,000$  Hz. Turn the de-emphasis function off.
- Adjust the transmitter per the manufacturer's procedure for full rated system deviation.
- Apply a 1000 Hz tone and adjust the audio frequency generator to produce 20% of the rated system deviation.

- e) Set the test receiver to measure rms deviation and record the deviation reading as DEVREF.  
f) Set the audio frequency generator to the desired test frequency between 300 Hz and 3000 Hz.  
g) Record the test receiver deviation reading as DEVFREQ.  
h) Calculate the audio frequency response at the present frequency as follows in Equation (4):

$$\text{audio frequency response} = 20 \log_{10} \left( \frac{\text{DEV}_{\text{FREQ}}}{\text{DEV}_{\text{REF}}} \right) \quad (4)$$

- i) Repeat step f) through step h) for all the desired test frequencies.

## Test Data

### Environmental Conditions

|                    |           |
|--------------------|-----------|
| Temperature:       | 26.9°C    |
| Relative Humidity: | 52 %      |
| ATM Pressure:      | 100.8 kPa |

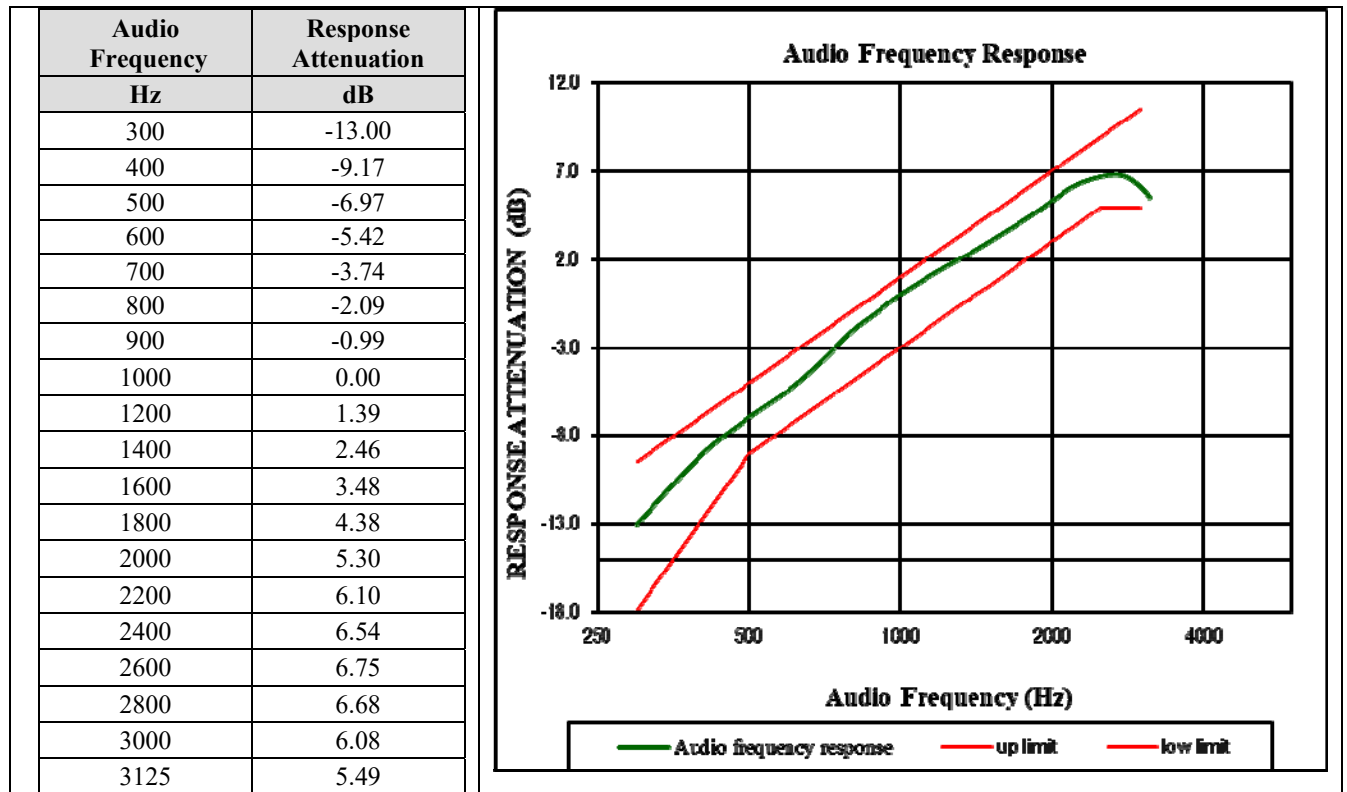
*The testing was performed by Cheeb Huang on 2025-09-12.*

*Test Mode: Transmitting*

*Please refer to the following tables and plots.*

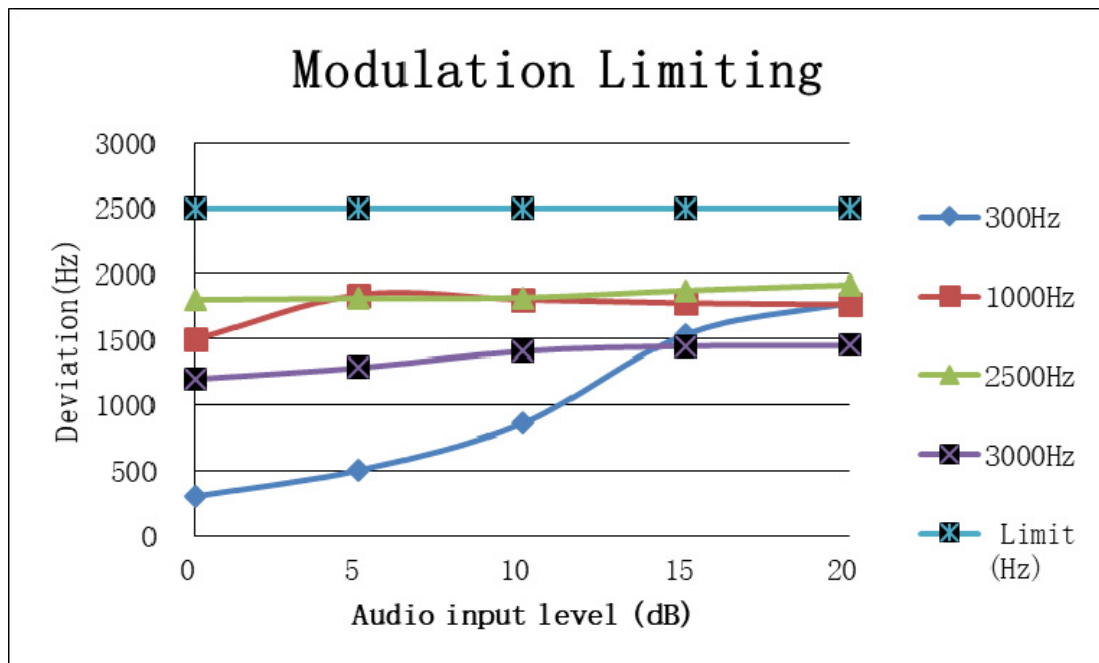
**Audio Frequency Response**

Carrier Frequency: 462.6375MHz



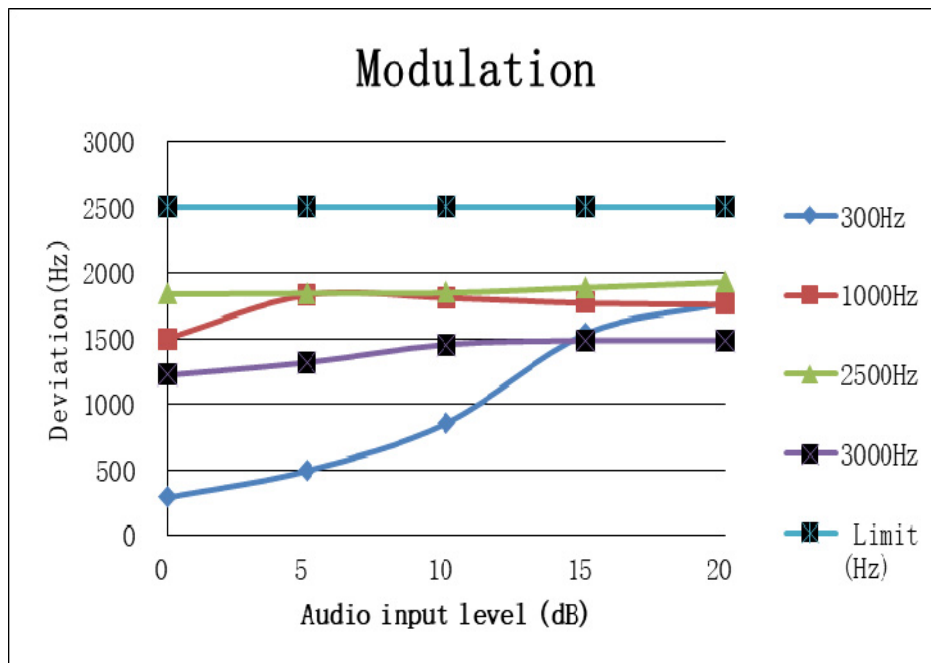
## Peak+ deviation

| Audio input level (dB) | Deviation (Hz) |        |        |        | Limit (Hz) |
|------------------------|----------------|--------|--------|--------|------------|
|                        | 300Hz          | 1000Hz | 2500Hz | 3000Hz |            |
| 20                     | 1779           | 1765   | 1912   | 1449   | 2500       |
| 15                     | 1537           | 1776   | 1872   | 1445   | 2500       |
| 10                     | 856            | 1802   | 1818   | 1406   | 2500       |
| 5                      | 500            | 1840   | 1812   | 1281   | 2500       |
| 0                      | 298            | 1500   | 1802   | 1195   | 2500       |



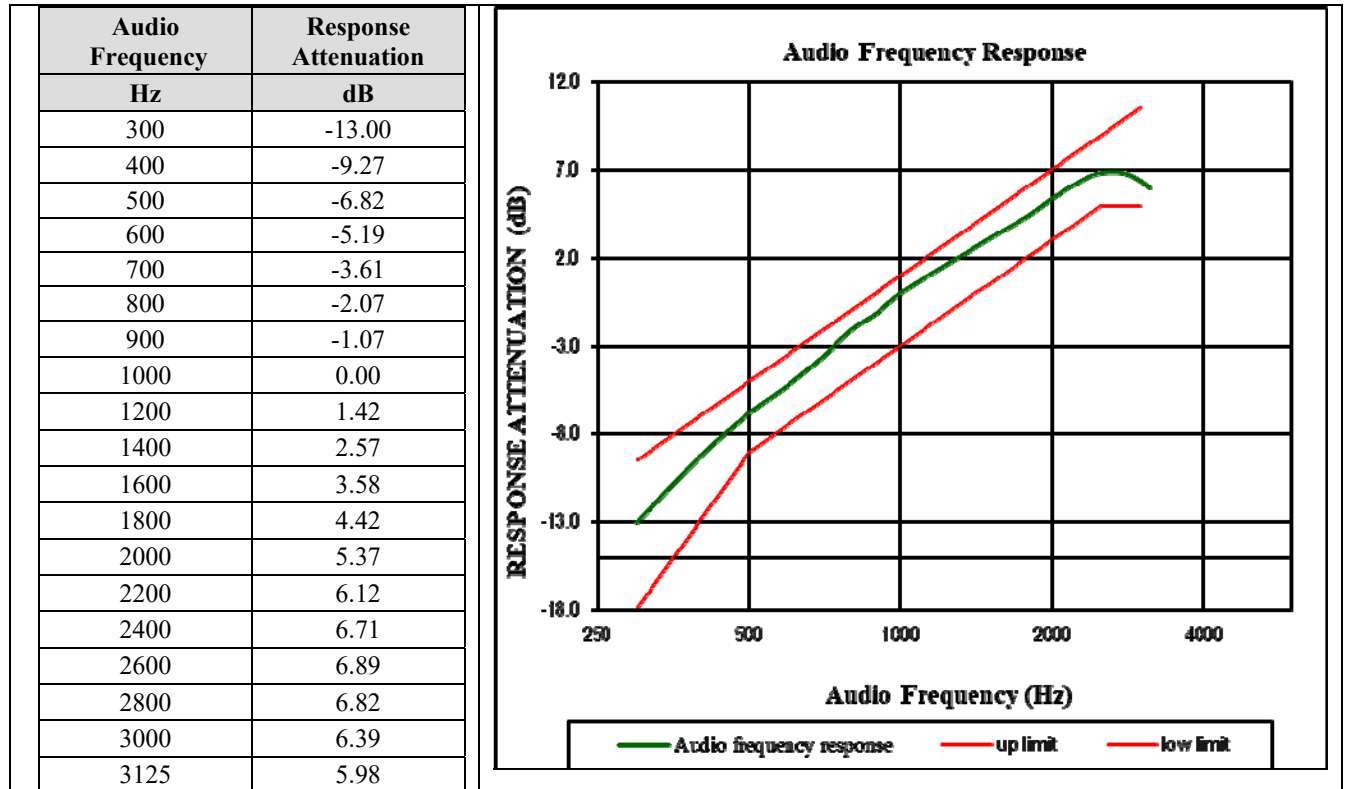
## Peak-deviation

| Audio input level (dB) | Deviation (Hz) |        |        |        | Limit (Hz) |
|------------------------|----------------|--------|--------|--------|------------|
|                        | 300Hz          | 1000Hz | 2500Hz | 3000Hz |            |
| 20                     | 1779           | 1765   | 1912   | 1449   | 2500       |
| 15                     | 1537           | 1776   | 1872   | 1445   | 2500       |
| 10                     | 856            | 1802   | 1818   | 1406   | 2500       |
| 5                      | 500            | 1840   | 1812   | 1281   | 2500       |
| 0                      | 298            | 1500   | 1802   | 1195   | 2500       |



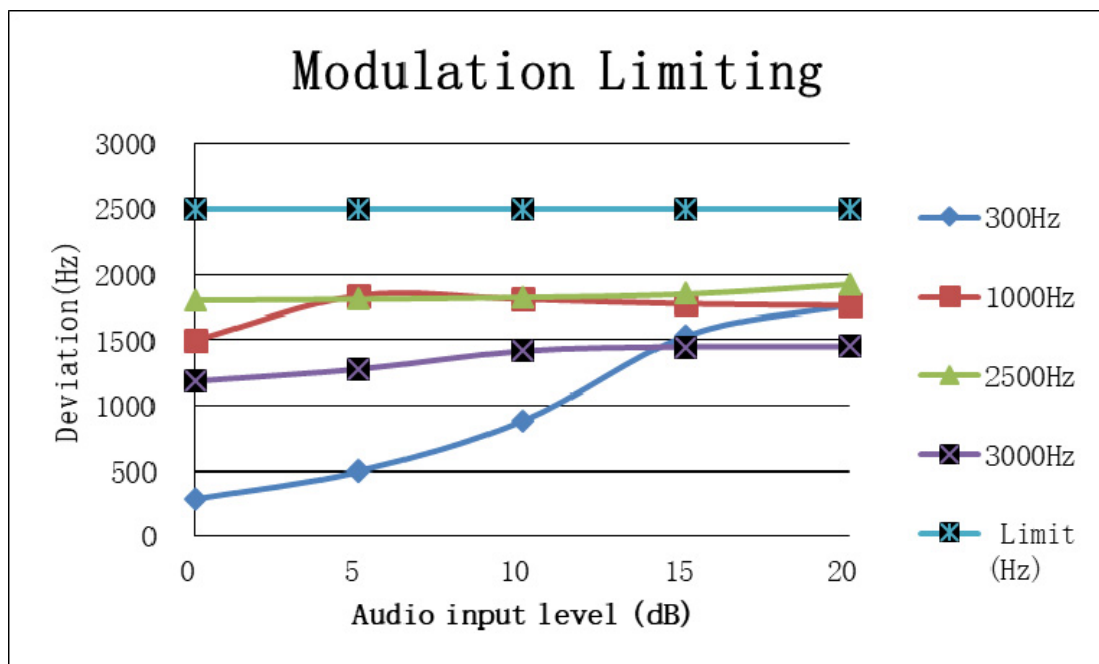
**Audio Frequency Response**

Carrier Frequency: 467.6375MHz



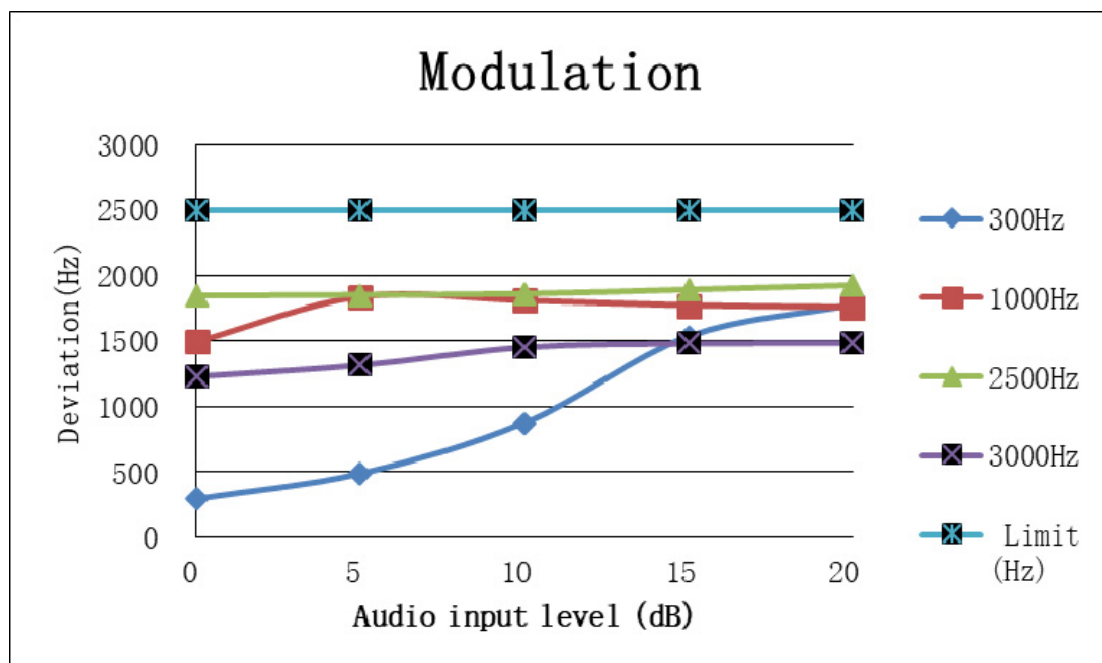
## Peak+ deviation

| Audio input level (dB) | Deviation (Hz) |        |        |        | Limit (Hz) |
|------------------------|----------------|--------|--------|--------|------------|
|                        | 300Hz          | 1000Hz | 2500Hz | 3000Hz |            |
| 20                     | 1772           | 1764   | 1926   | 1449   | 2500       |
| 15                     | 1535           | 1775   | 1854   | 1448   | 2500       |
| 10                     | 884            | 1810   | 1828   | 1416   | 2500       |
| 5                      | 500            | 1839   | 1815   | 1279   | 2500       |
| 0                      | 290            | 1500   | 1807   | 1188   | 2500       |



## Peak-deviation

| Audio input level (dB) | Deviation (Hz) |        |        |        | Limit (Hz) |
|------------------------|----------------|--------|--------|--------|------------|
|                        | 300Hz          | 1000Hz | 2500Hz | 3000Hz |            |
| 20                     | 1773           | 1758   | 1929   | 1485   | 2500       |
| 15                     | 1531           | 1772   | 1893   | 1482   | 2500       |
| 10                     | 872            | 1807   | 1859   | 1453   | 2500       |
| 5                      | 488            | 1836   | 1850   | 1313   | 2500       |
| 0                      | 295            | 1500   | 1843   | 1225   | 2500       |



## FCC §2.1049 & §95.573 & §95.579 - AUTHORIZED BANDWIDTH AND EMISSION MASK

### Applicable Standard

According to §95.573. Each FRS transmitter type must be designed such that the occupied bandwidth does not exceed 12.5 kHz.

Each FRS transmitter type must be designed to satisfy the applicable unwanted emissions limits in this paragraph.

(a) Attenuation requirements. The power of unwanted emissions must be attenuated below the carrier power output in Watts (P) by at least:

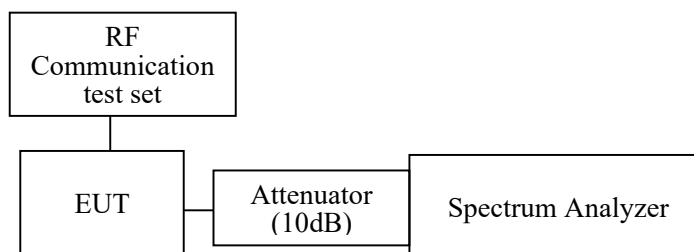
(1) 25 dB (decibels) in the frequency band 6.25 kHz to 12.5 kHz removed from the channel center frequency.

(2) 35 dB in the frequency band 12.5 kHz to 31.25 kHz removed from the channel center frequency.

(3)  $43 + 10 \log (P)$  dB in any frequency band removed from the channel center frequency by more than 31.25 kHz.

(b) Measurement bandwidths. The power of unwanted emissions in the frequency bands specified in paragraphs (a)(1) and (2) of this section is measured with a reference bandwidth of 300 Hz. The power of unwanted emissions in the frequency range specified in paragraph (a)(3) is measured with a reference bandwidth of at least 30 kHz.

### Test Block Diagram



### Test Procedure

ANSI C63.26-2015

#### 5.4.4 Occupied bandwidth—Power bandwidth (99%) measurement procedure

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

The following procedure shall be used for measuring (99%) power bandwidth:

- a) The spectrum analyzer center frequency is set to the nominal EUT channel center frequency. The frequency span for the spectrum analyzer shall be set wide enough to capture all modulation products including the emission skirts (typically a span of  $1.5 \times \text{OBW}$  is sufficient).
- b) The nominal IF filter 3 dB bandwidth (RBW) shall be in the range of 1% to 5% of the anticipated OBW, and the VBW shall be set  $\geq 3 \times \text{RBW}$ .
- c) Set the reference level of the instrument as required to prevent the signal amplitude from exceeding the maximum spectrum analyzer input mixer level for linear operation. See guidance provided in 4.2.3.

NOTE—Step a), step b), and step c) may require iteration to adjust within the specified tolerances.

- d) Set the detection mode to peak, and the trace mode to max-hold.
- e) If the instrument does not have a 99% OBW function, recover the trace data points and sum directly in linear power terms. Place the recovered amplitude data points, beginning at the lowest frequency, in a running sum until 0.5% of the total is reached. Record that frequency as the lower OBW frequency. Repeat the process until 99.5% of the total is reached and record that frequency as the upper OBW frequency. The 99% power OBW can be determined by computing the difference these two frequencies.
- f) The OBW shall be reported and plot(s) of the measuring instrument display shall be provided with the test report. The frequency and amplitude axis and scale shall be clearly labeled. Tabular data can be reported in addition to the plot(s).

## Test Data

### Environmental Conditions

|                           |           |
|---------------------------|-----------|
| <b>Temperature:</b>       | 26.9°C    |
| <b>Relative Humidity:</b> | 52 %      |
| <b>ATM Pressure:</b>      | 100.8 kPa |

*The testing was performed by Cheeb Huang on 2025-10-17.*

*Test Mode: Transmitting*

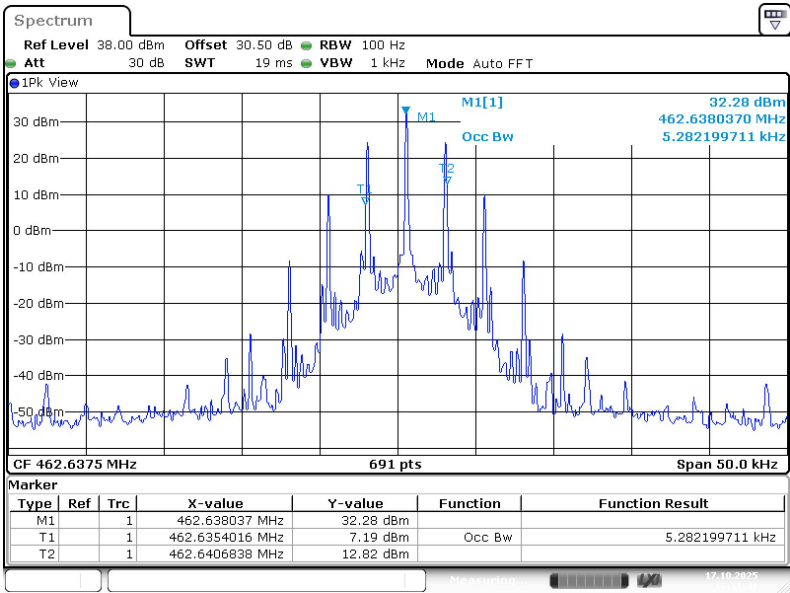
| Frequency | Channel Separation (kHz) | Frequency (MHz) | 99% Occupied Bandwidth (kHz) | Limit (kHz) |
|-----------|--------------------------|-----------------|------------------------------|-------------|
| Analog    | 12.5                     | 462.6375        | 5.282                        | 12.5        |
|           |                          | 467.6375        | 5.210                        | 12.5        |

Emission Designator Per CFR 47 §2.201& §2.202&,  $B_n = 2M + 2D$ :

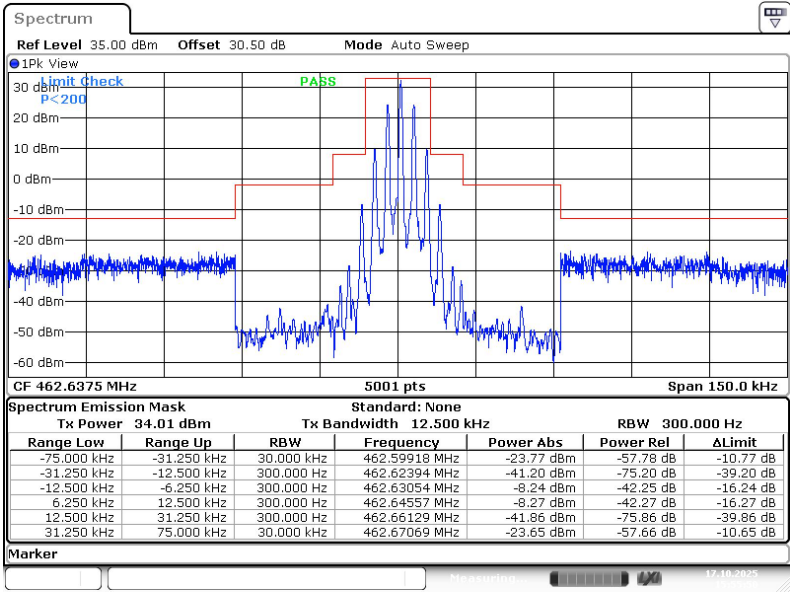
Emission Designator 11K0F3E In this case, the maximum modulating frequency is 3.0 kHz with a 2.5 kHz deviation.  $BW = 2(M+D) = 2*(3.0 \text{ kHz} + 2.5 \text{ kHz}) = 11 \text{ kHz} \rightarrow 11K0$

F3E portion of the designator represents an FM voice transmission Therefore, the entire designator for 12.5 kHz channel spacing FM mode is 11K0F3E.

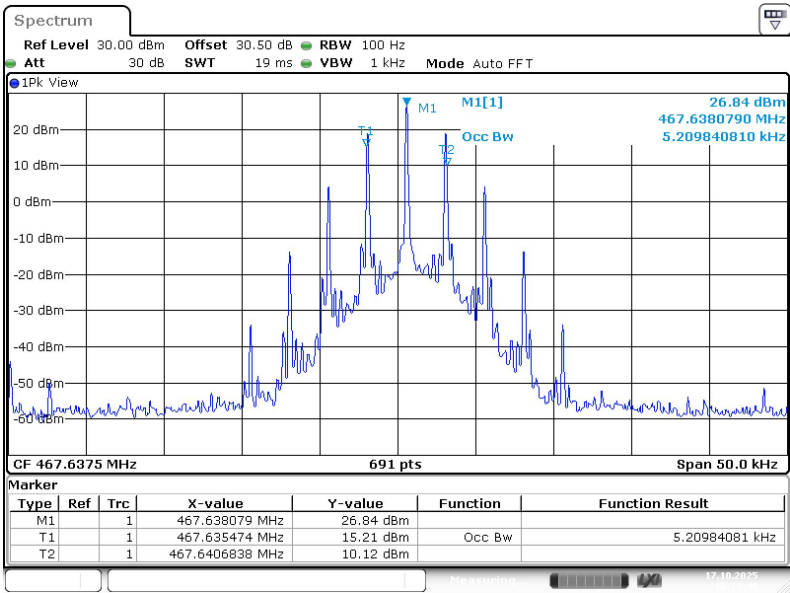
OBW, 462.6375 MHz



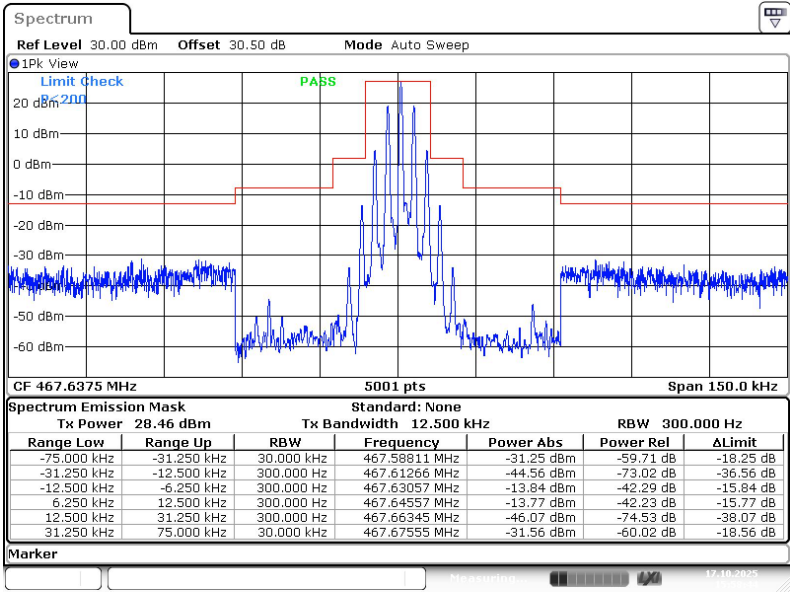
Emission Mask, 462.6375 MHz



OBW, 467.6375 MHz



Emission Mask, 467.6375 MHz



## **FCC §2.1053 & §95.579 - RADIATED SPURIOUS EMISSION**

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### **Applicable Standard**

FCC §2.1053 and §95.579. Each FRS transmitter type must be designed to satisfy the applicable unwanted emissions limits in this paragraph.

(a) *Attenuation requirements.* The power of unwanted emissions must be attenuated below the carrier power output in Watts (P) by at least:

- (1) 25 dB (decibels) in the frequency band 6.25 kHz to 12.5 kHz removed from the channel center frequency.
- (2) 35 dB in the frequency band 12.5 kHz to 31.25 kHz removed from the channel center frequency.
- (3)  $43 + 10 \log (P)$  dB in any frequency band removed from the channel center frequency by more than 31.25 kHz.

(b) *Measurement bandwidths.* The power of unwanted emissions in the frequency bands specified in paragraphs (a)(1) and (2) of this section is measured with a reference bandwidth of 300 Hz. The power of unwanted emissions in the frequency range specified in paragraph (a)(3) is measured with a reference bandwidth of at least 30 kHz.

(c) *Measurement conditions.* The requirements in this section apply to each FRS transmitter type both with and without the connection of permitted attachments, such as an external speaker, microphone and/or power cord.

### **Test Procedure**

The transmitter was placed on a wooden turntable.

The measurement antenna was placed at a distance of 3 meters from the EUT. During the tests, the antenna height and polarization as well as EUT azimuth were varied in order to identify the maximum level of emissions from the EUT. The test was performed by placing the EUT on 3-orthogonal axis.

The frequency range up to tenth harmonic of the fundamental frequency was investigated.

Remove the EUT and replace it with substitution antenna. A signal generator was connected to the substitution antenna by a non-radiating cable. The absolute levels of the spurious emissions were measured by the substitution.

Spurious emissions in dB =  $10 \lg (\text{TXpwr in Watts}/0.001)$  - the absolute level

Spurious attenuation limit in dB =  $43 + 10 \log_{10} (\text{power out in Watts})$

**Test Data****Environmental Conditions**

|                           |                 |
|---------------------------|-----------------|
| <b>Temperature:</b>       | 22.1~25.2°C     |
| <b>Relative Humidity:</b> | 51~54 %         |
| <b>ATM Pressure:</b>      | 100.4~101.5 kPa |

The testing was performed by Anson Su on 2025-09-08 for below 1GHz and Leon Guo on 2025-09-18.

Test Mode: Transmitting

| Frequency<br>(MHz) | Receiver<br>Reading<br>(dBuV) | Polar<br>(H/V) | Substituted Factor         |                       |                              | Absolute Level<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) |
|--------------------|-------------------------------|----------------|----------------------------|-----------------------|------------------------------|-------------------------|----------------|----------------|
|                    |                               |                | Substituted Level<br>(dBm) | Cable<br>Loss<br>(dB) | Antenna<br>Gain<br>(dBi/dBd) |                         |                |                |
| 462.6375 MHz       |                               |                |                            |                       |                              |                         |                |                |
| 925.275            | 42.02                         | H              | -23.3                      | 1.33                  | 0.0                          | -24.63                  | -13            | 11.63          |
| 925.275            | 37.35                         | V              | -27.7                      | 1.33                  | 0.0                          | -29.03                  | -13            | 16.03          |
| 1387.9125          | 69.11                         | H              | -45.2                      | 0.90                  | 7.80                         | -38.30                  | -13            | 25.30          |
| 1387.9125          | 69.46                         | V              | -45.6                      | 0.90                  | 7.80                         | -38.70                  | -13            | 25.70          |
| 1850.5500          | 79.27                         | H              | -35.1                      | 1.20                  | 9.40                         | -26.90                  | -13            | 13.90          |
| 1850.5500          | 75.02                         | V              | -40.0                      | 1.20                  | 9.40                         | -31.80                  | -13            | 18.80          |
| 2313.1875          | 70.53                         | H              | -43.8                      | 1.50                  | 9.60                         | -35.70                  | -13            | 22.70          |
| 2313.1875          | 68.07                         | V              | -46.4                      | 1.50                  | 9.60                         | -38.30                  | -13            | 25.30          |
| 2775.8250          | 72.17                         | H              | -41.8                      | 1.70                  | 9.30                         | -34.20                  | -13            | 21.20          |
| 2775.8250          | 68.14                         | V              | -45.5                      | 1.70                  | 9.30                         | -37.90                  | -13            | 24.90          |
| 3238.4625          | 79.06                         | H              | -34.2                      | 2.00                  | 9.50                         | -26.70                  | -13            | 13.70          |
| 3238.4625          | 76.72                         | V              | -36.2                      | 2.00                  | 9.50                         | -28.70                  | -13            | 15.70          |
| 3701.1000          | 61.66                         | H              | -51.1                      | 2.10                  | 9.70                         | -43.50                  | -13            | 30.50          |
| 3701.1000          | 59.86                         | V              | -52.8                      | 2.10                  | 9.70                         | -45.20                  | -13            | 32.20          |
| 4163.7375          | 56.03                         | H              | -56.4                      | 1.80                  | 9.60                         | -48.60                  | -13            | 35.60          |
| 4163.7375          | 52.74                         | V              | -59.6                      | 1.80                  | 9.60                         | -51.80                  | -13            | 38.80          |
| 4626.3750          | 52.34                         | H              | -60.1                      | 1.80                  | 10.20                        | -51.70                  | -13            | 38.70          |
| 4626.3750          | 50.96                         | V              | -61.5                      | 1.80                  | 10.20                        | -53.10                  | -13            | 40.10          |

| Frequency<br>(MHz) | Receiver<br>Reading<br>(dBuV) | Polar<br>(H/V) | Substituted Factor         |                       |                              | Absolute Level<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) |
|--------------------|-------------------------------|----------------|----------------------------|-----------------------|------------------------------|-------------------------|----------------|----------------|
|                    |                               |                | Substituted Level<br>(dBm) | Cable<br>Loss<br>(dB) | Antenna<br>Gain<br>(dBi/dBd) |                         |                |                |
| 467.6375 MHz       |                               |                |                            |                       |                              |                         |                |                |
| 935.275            | 37.34                         | H              | -28.2                      | 1.36                  | 0                            | -29.56                  | -13            | 16.56          |
| 935.275            | 31.56                         | V              | -31.5                      | 1.36                  | 0                            | -32.86                  | -13            | 19.86          |
| 1402.9125          | 76.19                         | H              | -38.1                      | 0.90                  | 7.80                         | -31.20                  | -13            | 18.20          |
| 1402.9125          | 74.18                         | V              | -40.8                      | 0.90                  | 7.80                         | -33.90                  | -13            | 20.90          |
| 1870.5500          | 63.53                         | H              | -50.8                      | 1.20                  | 9.40                         | -42.60                  | -13            | 29.60          |
| 1870.5500          | 64.75                         | V              | -50.3                      | 1.20                  | 9.40                         | -42.10                  | -13            | 29.10          |
| 2338.1875          | 60.63                         | H              | -53.7                      | 1.50                  | 9.60                         | -45.60                  | -13            | 32.60          |
| 2338.1875          | 58.78                         | V              | -55.6                      | 1.50                  | 9.60                         | -47.50                  | -13            | 34.50          |
| 2805.8250          | 55.08                         | H              | -58.8                      | 1.70                  | 9.30                         | -51.20                  | -13            | 38.20          |
| 2805.8250          | 56.63                         | V              | -57.0                      | 1.70                  | 9.30                         | -49.40                  | -13            | 36.40          |
| 3273.4625          | 63.95                         | H              | -49.5                      | 1.70                  | 9.60                         | -41.60                  | -13            | 28.60          |
| 3273.4625          | 61.30                         | V              | -51.9                      | 1.70                  | 9.60                         | -44.00                  | -13            | 31.00          |
| 3741.1000          | 56.60                         | H              | -56.2                      | 2.10                  | 9.70                         | -48.60                  | -13            | 35.60          |
| 3741.1000          | 54.84                         | V              | -57.8                      | 2.10                  | 9.70                         | -50.20                  | -13            | 37.20          |
| 4208.7375          | 50.92                         | H              | -61.5                      | 1.80                  | 9.60                         | -53.70                  | -13            | 40.70          |
| 4208.7375          | 51.48                         | V              | -60.9                      | 1.80                  | 9.60                         | -53.10                  | -13            | 40.10          |
| 4676.3750          | 51.41                         | H              | -61.2                      | 2.10                  | 10.40                        | -52.90                  | -13            | 39.90          |
| 4676.3750          | 51.58                         | V              | -61.0                      | 2.10                  | 10.40                        | -52.70                  | -13            | 39.70          |

Note:

Absolute Level = Reading Level + Substituted Factor

Substituted Factor contains: Substituted Level - Cable loss+ Antenna Gain

Margin = Limit -Absolute Level

## **FCC§2.1055 (d) & §95.565 - FREQUENCY STABILITY**

### **Applicable Standard**

According to FCC §2.1055(a) (2), the frequency stability shall be measured with variation of ambient temperature from  $-20^{\circ}\text{C}$  to  $+50^{\circ}\text{C}$ , and according to FCC 2.1055(d) (2), the frequency stability shall be measured with reducing primary supply voltage to the battery operating end point which is specified by the manufacturer.

According to FCC §95.565, Each FRS transmitter type must be designed such that the carrier frequencies remain within  $\pm 2.5$  parts-per-million of the channel center frequencies specified in §95.563 during normal operating conditions.

### **Test Procedure**

Frequency Stability vs. Temperature: The equipment under test was connected to an external DC power supply and the RF output was connected to a Frequency Counter via feed-through attenuators. The EUT was placed inside the temperature chamber. The DC leads and RF output cable exited the chamber through an opening made for the purpose.

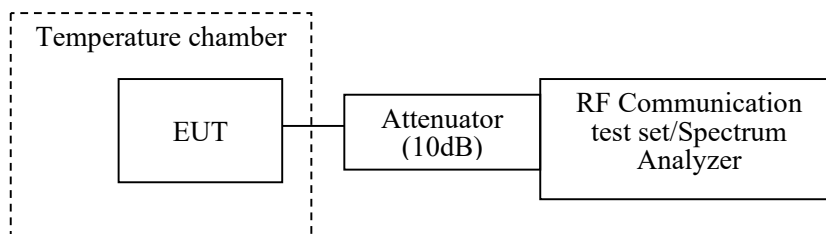
After the temperature stabilized for approximately 20 minutes, the frequency output was recorded from the Frequency Counter.

Frequency Stability vs. Voltage (item 1 or item 2 will be chosen according to different condition):

☒1) Vary primary supply voltage from 85 to 115 percent of the nominal value for other than hand carried battery equipment.

☐2) For hand carried, battery powered equipment, reduce primary supply voltage to the battery operating end point which shall be specified by the manufacturer.

The output frequency was recorded for each voltage.



**Test Data****Environmental Conditions**

|                           |           |
|---------------------------|-----------|
| <b>Temperature:</b>       | 26.9°C    |
| <b>Relative Humidity:</b> | 52 %      |
| <b>ATM Pressure:</b>      | 100.8 kPa |

*The testing was performed by Cheeb Huang on 2025-09-12.*

*Test Mode: Transmitting*

| Test Frequency (MHz) | Temperature (°C) | Voltage (V <sub>DC</sub> ) | Measured Frequency (MHz) | Frequency Error (ppm) | limit (ppm) |
|----------------------|------------------|----------------------------|--------------------------|-----------------------|-------------|
| 462.6375             | -20              | 3.7                        | 462.638258               | 1.64                  | ≤2.5        |
|                      | -10              | 3.7                        | 462.638290               | 1.71                  | ≤2.5        |
|                      | 0                | 3.7                        | 462.638136               | 1.37                  | ≤2.5        |
|                      | 10               | 3.7                        | 462.638131               | 1.36                  | ≤2.5        |
|                      | 20               | 3.7                        | 462.638148               | 1.40                  | ≤2.5        |
|                      | 30               | 3.7                        | 462.638219               | 1.55                  | ≤2.5        |
|                      | 40               | 3.7                        | 462.638200               | 1.51                  | ≤2.5        |
|                      | 50               | 3.7                        | 462.638022               | 1.13                  | ≤2.5        |
|                      | 20               | 3.3                        | 462.638300               | 1.73                  | ≤2.5        |
|                      | 20               | 4.2                        | 462.638078               | 1.25                  | ≤2.5        |

| Test Frequency (MHz) | Temperature (°C) | Voltage (V <sub>DC</sub> ) | Measured Frequency (MHz) | Frequency Error (ppm) | limit (ppm) |
|----------------------|------------------|----------------------------|--------------------------|-----------------------|-------------|
| 467.6375             | -20              | 3.7                        | 467.638095               | 1.27                  | ≤2.5        |
|                      | -10              | 3.7                        | 467.638004               | 1.08                  | ≤2.5        |
|                      | 0                | 3.7                        | 467.638300               | 1.71                  | ≤2.5        |
|                      | 10               | 3.7                        | 467.638068               | 1.21                  | ≤2.5        |
|                      | 20               | 3.7                        | 467.638210               | 1.52                  | ≤2.5        |
|                      | 30               | 3.7                        | 467.638049               | 1.17                  | ≤2.5        |
|                      | 40               | 3.7                        | 467.638111               | 1.31                  | ≤2.5        |
|                      | 50               | 3.7                        | 467.638164               | 1.42                  | ≤2.5        |
|                      | 20               | 3.3                        | 467.638228               | 1.56                  | ≤2.5        |
|                      | 20               | 4.2                        | 467.638185               | 1.46                  | ≤2.5        |

Note: the extreme voltage was declared by the applicant.

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## **§95.587 - FRS ADDITIONAL REQUIREMENTS**

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### **Applicable Standard**

According to FCC §95.587

Each FRS transmitter type must be designed to meet the following additional requirements.

- (a) Transmit frequency capability. FRS transmitter types must not be capable of transmitting on any frequency or channel other than those listed in § 95.563.
- (b) Antenna. The antenna of each FRS transmitter type must meet the following requirements.
  - (1) The antenna must be a non-removable integral part of the FRS transmitter type.
  - (2) The gain of the antenna must not exceed that of a half-wave dipole antenna.
  - (3) The antenna must be designed such that the electric field of the emitted waves is vertically polarized when the unit is operated in the normal orientation.
- (c) Digital data transmissions. FRS transmitter types having the capability to transmit digital data must be designed to meet the following requirements.
  - (1) FRS units may transmit digital data containing location information, or requesting location information from one or more other FRS or GMRS units, or containing a brief text message to another specific FRS or GMRS unit or units.
  - (2) Digital data transmissions may be initiated by a manual action or command of the operator or on an automatic or periodic basis, and FRS units may be designed to automatically respond with location data upon receiving an interrogation request from another
  - (3) Digital data transmissions must not exceed one second in duration.
  - (4) Digital data transmissions must not be sent more frequently than one digital data transmission within a thirty-second period, except that an FRS unit may automatically respond to more than one interrogation request received within a thirty-second period.
- (d) Packet mode. FRS transmitter types must not be capable of transmitting data in the store-and-forward packet operation mode.
- (e) Effective September 30, 2019, no person shall manufacture or import hand-held portable radio equipment capable of operating under this subpart (FRS) and other licensed or licensed-by-rule services in this chapter (part 15 unlicensed equipment authorizations are permitted if consistent with part 15 rules).

### **Result**

- (a) Compliant, please refer to the channel list.
- (b) Compliant, EUT has an non-removable integral vertically polarized antenna arrangement and the antenna gain is 0dBi (-2.15dBd), fulfill the requirement of this section. Please refer to the EUT photos.
- (c) Not Applicable, EUT not support this function, please refer to user manual.
- (d) Not Applicable, EUT not support this function, please refer to user manual.
- (e) Compliant, EUT only with FRS function operating under FCC part 95B, not support other function, please refer to user manual.

## **EUT PHOTOGRAPHS**

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Please refer to the attachment 2501W74078E-RF-EXP External photo and 2501W74078E-RF-INP Internal photo.

## **TEST SETUP PHOTOGRAPHS**

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Please refer to the attachment 2501W74078E-RF-TSP Test Setup photo.

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