# FCC Test Report

| | |
|---|---|
| **Report No.:** | RWAZ202300073A |
| **Applicant:** | Kiddesigns Inc |
| **Address:** | 1299 Main Street, Rahway New Jersey,United States,07065-0901 |
| **Product Name:** | XX-207, XX-212 Walkie talkies |
| **Product Model:** | SW-207DS.EXv23 |
| **Multiple Models:** | TM-212.EXv23MTG |
| **Trade Mark:** | N/A |
| **FCC ID:** | IAJ202C10A |
| **Standards:** | FCC PART 95 |
| **Test Date:** | 2024-01-04 to 2024-02-01 |
| **Test Result:** | Complied |
| **Report Date:** | 2024/02/05 |

**Reviewed by:** Frank Yin — Project Engineer

**Approved by:** Jacob Kong — Manager

**Prepared by:**

World Alliance Testing and Certification (Shenzhen) Co., Ltd

No. 1002, East Block, Laobing Building, Xingye Road 3012, Xixiang street, Bao'an District, Shenzhen, Guangdong, People's Republic of China

NVLAP TESTING NVLAP LAB CODE 600335-0

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# Announcement

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3. This sample tested is in compliance with the limits of the above regulation.

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5. 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.

# Revision History

| Version No. | Issued Date | Description |
|---|---|---|
| *00* | *2024-02-05* | *Original* |

# Contents

# 1 General Information

## 1.1 Client Information

| | |
|---|---|
| Applicant: | Kiddesigns Inc |
| Address: | 1299 Main Street, Rahway New Jersey,United States,07065-0901 |
| Manufacturer: | Kiddesigns Inc |
| Address: | 1299 Main Street, Rahway New Jersey,United States,07065-0901 |

## 1.2 Product Description of EUT

| | |
|---|---|
| Sample Serial Number | Model SW-207DS.EXv23: 3D-2 for RE test, 3D-1 for RF test conducted test;<br>Model TM-212.EXv23MTG: 3D-3 for RE test (assigned by WATC) |
| Sample Received Date | 2023/12/23 |
| Sample Status | Good Condition |
| Frequency Range | 467.6125MHz |
| ERP Power | 9.52dBm |
| Modulation Technology | FM |
| Spatial Streams | SISO (1TX, 1RX) |
| Antenna Gain# | -4dBi |
| Power Supply | Model SW-207DS.EXv23: DC 3V from battery<br>Model TM-212.EXv23MTG: DC 4.5V from battery |
| Voltage Range: | Model SW-207DS.EXv23: 2.5-3$V_{DC}$<br>Model TM-212.EXv23MTG: 2.5-4.5$V_{DC}$ |
| Operating temperature# | -20 deg.C to +50 deg.C |
| Adapter Information | N/A |
| Modification | Sample No Modification by the test lab |

## 1.3 Antenna information

**95.587 (b) requirement:**

(1)Click to open paragraph tools 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.

| **Device Antenna information:** | |
|---|---|

EUT has a non-removable integral vertically ploarized antenna arrangement and the antenna gain is -4dBi (-6.15dBd), please see product EUT photos for details.

## 1.4 Measurement Uncertainty

| Parameter | | Expanded Uncertainty (Confidence of 95%(U = 2Uc(y))) |
|---|---|---|
| Emissions, Radiated | Below 1GHz | ±4.84dB |
| | Above 1GHz | ±5.44dB |
| Conducted Power | | 0.74dB |
| Frequency Error | | 150 Hz |
| Bandwidth | | 0.34% |
| Audio Frequency Response/Low Pass Filter Response | | 4.04% |

***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.*

## 1.5 Laboratory Location

World Alliance Testing and Certification (Shenzhen) Co., Ltd

No. 1002, East Block, Laobing Building, Xingye Road 3012, Xixiang street, Bao'an District, Shenzhen, Guangdong, People's Republic of China

Tel: +86-755-29691511, Email: qa@watc.com.cn

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. : 463912, the FCC Designation No. : CN5040.

The lab has been recognized by Innovation, Science and Economic Development Canada to test to Canadian radio equipment requirements, the CAB identifier: CN0160.

## 1.6 Test Methodology

FCC CFR 47 Part 2, General rules and regulations

FCC CFR 47 Part 95, Personal Radio Services

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

ANSI/TIA 603-E-2016, Land Mobile FM or PM Communications Equipment Measurement and Performance Standards

KDB 888861 D01, Part 95 GMRS FRS v01

# 2 Description of Measurement

## 2.1 Test Configuration

| Operating channels: | | | | | |
|---|---|---|---|---|---|
| Channel No. | Frequency (MHz) | Channel No. | Frequency (MHz) | Channel No. | Frequency (MHz) |
| 10 | 467.6125 | / | / | / | / |
| According to Per C63.26-2015, section 5.1, Channel 10 was selected to test | | | | | |

| Test Mode: | |
|---|---|
| Transmitting mode: | Keep the EUT in continuous transmitting |

| Worst-Case Configuration: |
|---|
| For radiated emissions, EUT was investigated in three orthogonal orientation, the worst-case orientation was recorded in report |

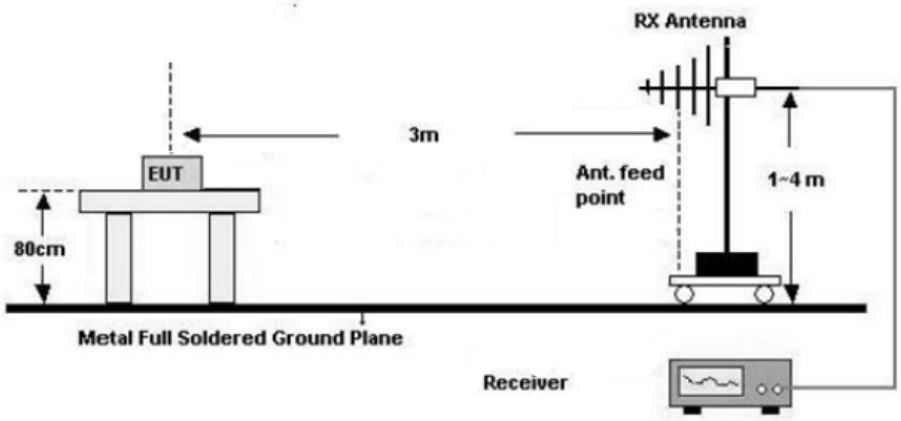
## 2.2 Test Auxiliary Equipment

| Manufacturer | Description | Model | Serial Number |
|---|---|---|---|
| UNI-T | DC power supply | UTP1310S | Unknown |

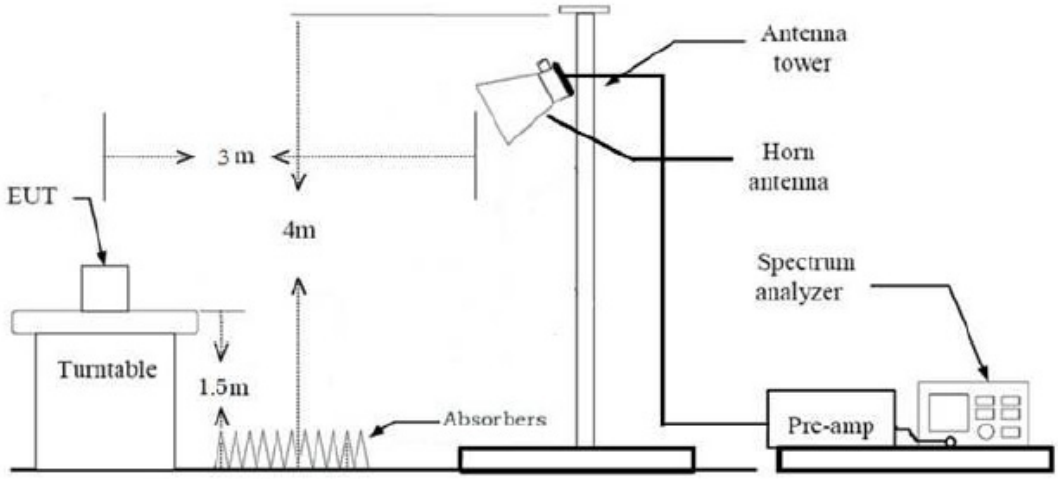
## 2.3 Test Setup

**1) Radiated emission measurement:**

0MHz-1GHz (3m SAC)

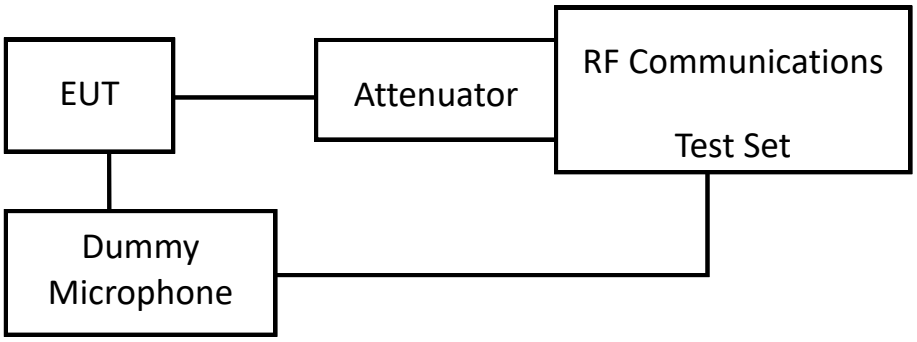



1GHz-5GHz(3m FAC)

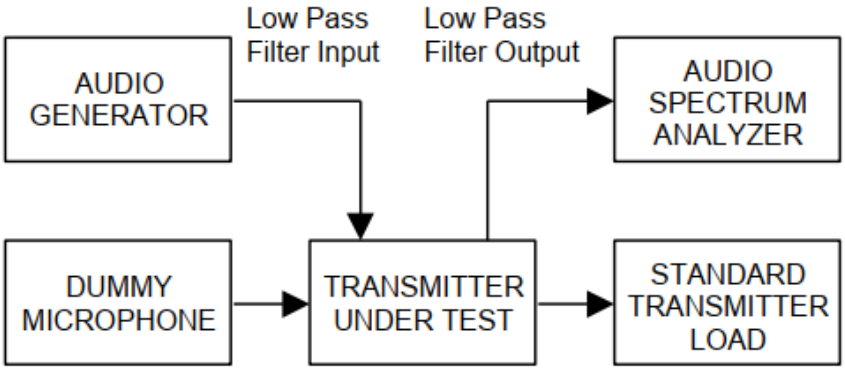


**2) RF Conducted Test**

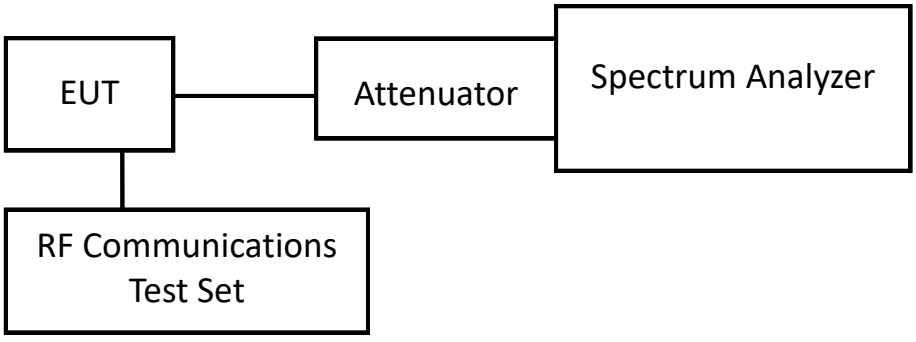
For Modulation Limiting/Audio Frequency Response test



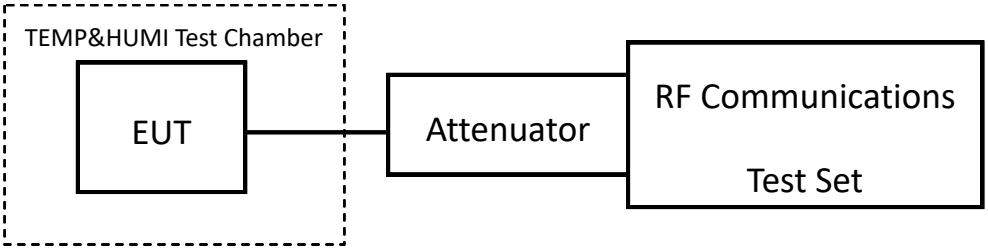

For Audio frequency filter test




For Authorized Bandwidth and Emission Mask test




For Frequency Stability test



## 2.4 Test Procedure

**Radiated Emission Procedure:**

**a) For 30MHz-1GHz:**

1. The EUT was placed on the tabletop of a rotating table 0.8 m the ground at a 3 m semi anechoic chamber. The measurement distance from the EUT to the receiving antenna is 3 m.
2. EUT works in each mode of operation that needs to be tested. The highest signal levels relative to the limit shall be determined by rotating the EUT from 0° to 360° and with varying the measurement antenna height between 1 m and 4 m in vertical and horizontal polarizations.

**b) For above 1GHz:**

1. The EUT was placed on the tabletop of a rotating table 1.5 m the ground at a 3 m fully anechoic room. The measurement distance from the EUT to the receiving antenna is 3 m (1-5GHz).
2. EUT works in each mode of operation that needs to be tested，and having the EUT continuously working. The highest signal levels relative to the limit shall be determined by rotating the EUT from 0° to 360° and with varying the measurement antenna height between 1 m and 4 m in vertical and horizontal polarizations.
3. Open the test software to control the test antenna and test turntable. Perform the test, save the test results, and export the test data.

**RF Conducted Test:**

1. The antenna port of EUT was connected to the RF port of the test equipment through Attenuator and RF cable.
2. The cable assembly insertion loss of 10.5dB (including 10dB Attenuator and 0.5dB cable) was entered as an offset in the power meter. Note: Actual cable loss was unavailable at the time of testing, therefore a loss of 0.5dB was assumed as worst case. This was later verified to be true by laboratory. ( if the RF cable provided by client, the cable loss declared by client)
3. The EUT is keeping in continuous transmission mode.

## 2.5 Measurement Method

| Description of Test | Measurement Method |
|---|---|
| RF Output Power | Per FCC §2.1046 and ANSI C63.26-2015 §5.2.7 |
| Modulation Limit | Per FCC §2.1047 and ANSI/TIA-603-E-2016 §2.2.3, 2.2.6, 2.2.15 |
| Audio Frequency Response | ANSI/TIA-603-E-2016 §2.2.6 |
| Authorized Bandwidth & Emission Mask | Per FCC §2.1049 and ANSI C63.26-2015 §5.4 |
| Radiated Spurious Emission | Per FCC §2.1053 and ANSI C63.26-2015 §5.5 |
| Frequency Stability | Per FCC §2.1055(d) and ANSI C63.26-2015 §5.6 |

## 2.6 Measurement Equipment

| Manufacturer | Description | Model | Management No. | Calibration Date | Calibration Due Date |
|---|---|---|---|---|---|
| Radiated Emission Test | | | | | |
| R&S | EMI test receiver | ESR3 | 102758 | 2023/7/3 | 2024/7/2 |
| ROHDE& SCHWARZ | SPECTRUM ANALYZER | FSV40-N | 101608 | 2023/7/3 | 2024/7/2 |
| SONOMA INSTRUMENT | Low frequency amplifier | 310 | 186014 | 2023/7/12 | 2024/7/11 |
| COM-POWER | preamplifier | PAM-118A | 18040152 | 2023/8/21 | 2024/8/20 |
| SCHWARZBECK | Log - periodic wideband antenna | VULB 9163 | 9163-872 | 2023/7/7 | 2024/7/6 |
| Astro Antenna Ltd | Horn antenna | AHA-118S | 3015 | 2023/7/6 | 2024/7/5 |
| N/A | Coaxial Cable | N/A | NO.9 | 2023/8/8 | 2024/8/7 |
| N/A | Coaxial Cable | N/A | NO.10 | 2023/8/8 | 2024/8/7 |
| N/A | Coaxial Cable | N/A | NO.11 | 2023/8/8 | 2024/8/7 |
| RF Conducted Test | | | | | |
| ROHDE& SCHWARZ | SPECTRUM ANALYZER | FSU-26 | 200680/026 | 2023/7/12 | 2024/7/11 |
| MARCONI | 10dB Attenuator | 1692595 | 2942 | 2023/10/25 | 2024/10/24 |
| BACL | TEMP&HUMI Test Chamber | BTH-150 | 30022 | 2023/7/12 | 2024/7/11 |
| FLUKE | Digital Multimeter | 15B+ | N/A | 2023/7/12 | 2024/7/11 |
| HP | RF comminication test set | HP8920A | T-01-EM046 | 2023/7/12 | 2024/7/11 |

Note: All equipment is calibrated with valid calibrations. Each measurement data is traceable to the national or International standards.

# 3 Test Results

## 3.1 Test Summary

| FCC Rules | Description of Test | Result |
|---|---|---|
| §2.1046, §95.567 | RF Output Power | Compliance |
| §2.1047, §95.575 | Modulation Limit | Compliance |
| §2.1047, §95.575 | Audio Frequency Response | Compliance |
| §2.1049, §95.573, §95.579 | Authorized Bandwidth & Emission Mask | Compliance |
| §2.1053, §95.579 | Radiated Spurious Emission | Compliance |
| §2.1055(d), §95.565 | Frequency Stability | Compliance |
| §95.587 | FRS additional requirements | Compliance |

## 3.2 Limit Required

| Test items | Limit |
|---|---|
| RF output power | See details §95.567<br>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. |
| Modulation Limit<br>Audio Frequency Response | See details §95.575<br>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. |
| Authorized bandwidth and emission mask | See details §95.573<br>Each FRS transmitter type must be designed such that the occupied bandwidth does not exceed 12.5 kHz.<br>See details§95.579<br>(a)Click to open paragraph tools Attenuation requirements. The power of unwanted emissions must be attenuated below the carrier power output in Watts (P) by at least:<br>(1) 25 dB (decibels) in the frequency band 6.25 kHz to 12.5 kHz removed from the channel center frequency.<br>(2) 35 dB in the frequency band 12.5 kHz to 31.25 kHz removed from the channel center frequency.<br>(3) 43 + 10 log (P) dB in any frequency band removed from the channel center frequency by more than 31.25 kHz. |
| Radiated Spurious Emission | See details§95.579<br>(a)Click to open paragraph tools Attenuation requirements. The power of unwanted emissions must be attenuated below the carrier power output in Watts (P) by at least:<br>(1) 25 dB (decibels) in the frequency band 6.25 kHz to 12.5 kHz removed from the channel center frequency.<br>(2) 35 dB in the frequency band 12.5 kHz to 31.25 kHz removed from the channel center frequency.<br>(3) 43 + 10 log (P) dB in any frequency band removed from the channel center frequency by more than 31.25 kHz. |
| Frequency stability | See details §95.565<br>Each FRS transmitter type must be designed such that the carrier frequencies remain within ±2.5 parts-per-million of the channel center frequencies specified in § 95.563 during normal operating conditions. |

# 3.3 RF OUTPUT POWER

| Test Date: | 2024-1-4 | Test By: | Bard Huang |
|---|---|---|---|
| Environment condition: | Temperature: 24.7°C; Relative Humidity:54%; ATM Pressure: 101.0kPa | | |

| Frequency (MHz) | Reading level (dBμV) | Polar (H/V) | Corrected Factor (dB/m) | Corrected Amplitude (dBμV/m) | EIRP CF | EIRP (dBm) | ERP (dBm) | Limit (dBm) | Margin (dB) | Remark |
|---|---|---|---|---|---|---|---|---|---|---|
| 467.6125MHz | | | | | | | | | | |
| Model SW-207DS.EXv23 | | | | | | | | | | |
| 467.6125 | 96.56 | Horizontal | -8.09 | 88.47 | -95.2 | -6.73 | -8.88 | 27 | -35.88 | Peak |
| 467.6125 | 114.96 | Vertical | -8.09 | 106.87 | -95.2 | 11.67 | 9.52 | 27 | -17.48 | Peak |
| Model TM-212.EXv23MTG | | | | | | | | | | |
| 467.6125 | 94.76 | Horizontal | -8.09 | 86.67 | -95.2 | -8.53 | -10.68 | 27 | -37.68 | Peak |
| 467.6125 | 112.16 | Vertical | -8.09 | 104.07 | -95.2 | 8.87 | 6.72 | 27 | -20.28 | Peak |

Remark:

Corrected Amplitude= Reading level + corrected Factor

Corrected Factor = Antenna factor + Cable loss – Amplifier gain

Margin = ERP – Limit

ERP=EIRP-2.15

According to ANSI C63.26-2.15 section 5.2.7:

EIRP (dBm) = E (dBμV/m) + 20log(D) − 104.8; where D is the measurement distance (in the far field region) in m.

Test was performed on 3meters distance, so

Result = Corrected Amplitude + 20log(3) – 104.8

= Corrected Amplitude - 95.2

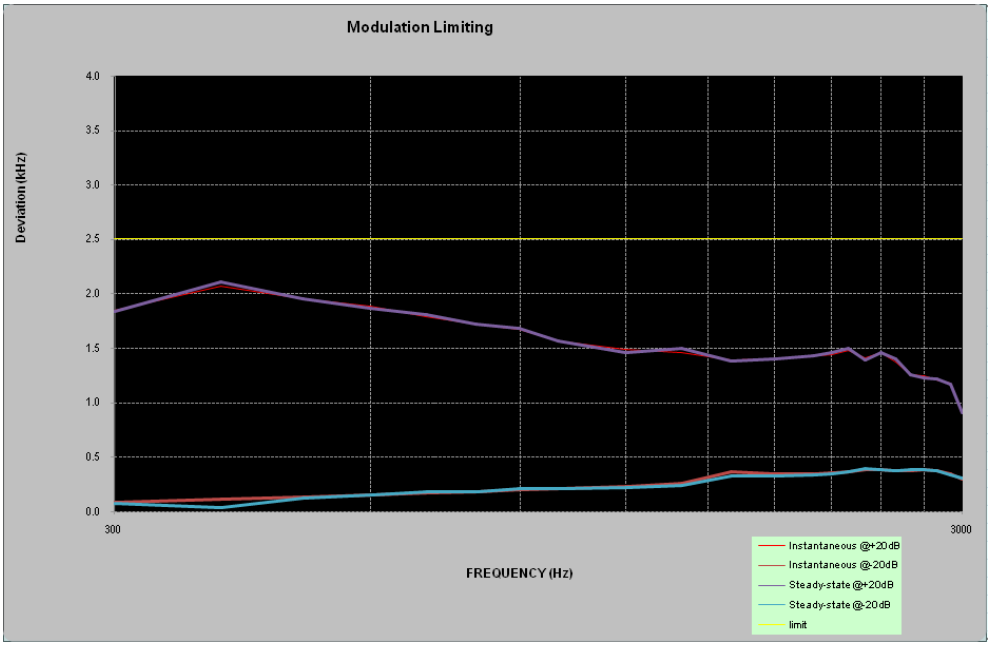
# 3.4 Modulation Limit

| Test Date: | 2024-02-01 | Test By: | Baylor Li |
|---|---|---|---|
| Environment condition: | Temperature: 25.5°C; Relative Humidity:49%; ATM Pressure: 101.0kPa | | |

**MODULATION LIMITING**

Carrier Frequency: 467.6125MHz

| Audio Frequency (Hz) | Instantaneous | | Steady-state | | Limit [kHz] |
|---|---|---|---|---|---|
| | DEVIATION (@+20dB) [kHz] | DEVIATION (@-20dB) [kHz] | DEVIATION (@+20dB) [kHz] | DEVIATION (@-20dB) [kHz] | |
| 300 | 1.849 | 0.082 | 1.833 | 0.077 | 2.500 |
| 400 | 2.072 | 0.110 | 2.106 | 0.030 | 2.500 |
| 500 | 1.952 | 0.134 | 1.948 | 0.124 | 2.500 |
| 600 | 1.882 | 0.149 | 1.863 | 0.153 | 2.500 |
| 700 | 1.785 | 0.173 | 1.804 | 0.177 | 2.500 |
| 800 | 1.721 | 0.175 | 1.716 | 0.179 | 2.500 |
| 900 | 1.668 | 0.198 | 1.679 | 0.205 | 2.500 |
| 1000 | 1.563 | 0.210 | 1.566 | 0.211 | 2.500 |
| 1200 | 1.484 | 0.225 | 1.459 | 0.219 | 2.500 |
| 1400 | 1.461 | 0.254 | 1.497 | 0.233 | 2.500 |
| 1600 | 1.385 | 0.360 | 1.384 | 0.326 | 2.500 |
| 1800 | 1.399 | 0.342 | 1.400 | 0.327 | 2.500 |
| 2000 | 1.426 | 0.341 | 1.432 | 0.333 | 2.500 |
| 2100 | 1.435 | 0.351 | 1.455 | 0.345 | 2.500 |
| 2200 | 1.475 | 0.364 | 1.501 | 0.368 | 2.500 |
| 2300 | 1.412 | 0.384 | 1.394 | 0.389 | 2.500 |
| 2400 | 1.459 | 0.382 | 1.458 | 0.383 | 2.500 |
| 2500 | 1.370 | 0.375 | 1.399 | 0.369 | 2.500 |
| 2600 | 1.255 | 0.373 | 1.256 | 0.380 | 2.500 |
| 2700 | 1.242 | 0.378 | 1.226 | 0.384 | 2.500 |
| 2800 | 1.205 | 0.372 | 1.215 | 0.375 | 2.500 |
| 2900 | 1.181 | 0.340 | 1.163 | 0.330 | 2.500 |
| 3000 | 0.897 | 0.298 | 0.904 | 0.301 | 2.500 |

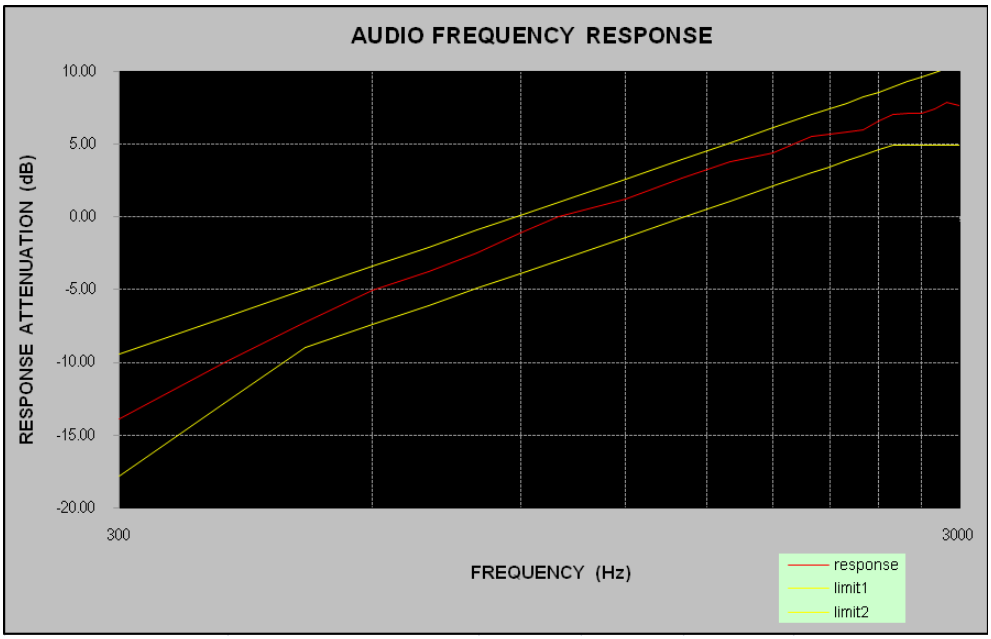

Modulation Limiting
Deviation (kHz)
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
300
3000
FREQUENCY (Hz)
Instantaneous @+20dB
Instantaneous @-20dB
Steady-state @+20dB
Steady-state @-20dB
limit

## 3.5 Audio Frequency Response

| Test Date: | 2024-02-01 | Test By: | Baylor Li |
|---|---|---|---|
| Environment condition: | Temperature: 25.5°C; Relative Humidity:49%; ATM Pressure: 101.0kPa | | |

Carrier Frequency: 467.6125MHz

| Audio Frequency (Hz) | Response Attenuation (dB) |
|---|---|
| 300 | -13.89 |
| 400 | -10.06 |
| 500 | -7.25 |
| 600 | -5.07 |
| 700 | -3.77 |
| 800 | -2.52 |
| 900 | -1.13 |
| 1000 | 0.00 |
| 1200 | 1.18 |
| 1400 | 2.65 |
| 1600 | 3.78 |
| 1800 | 4.37 |
| 2000 | 5.51 |
| 2100 | 5.69 |
| 2200 | 5.79 |
| 2300 | 6.01 |
| 2400 | 6.59 |
| 2500 | 7.00 |
| 2600 | 7.12 |
| 2700 | 7.12 |
| 2800 | 7.44 |
| 2900 | 7.89 |
| 3000 | 7.65 |

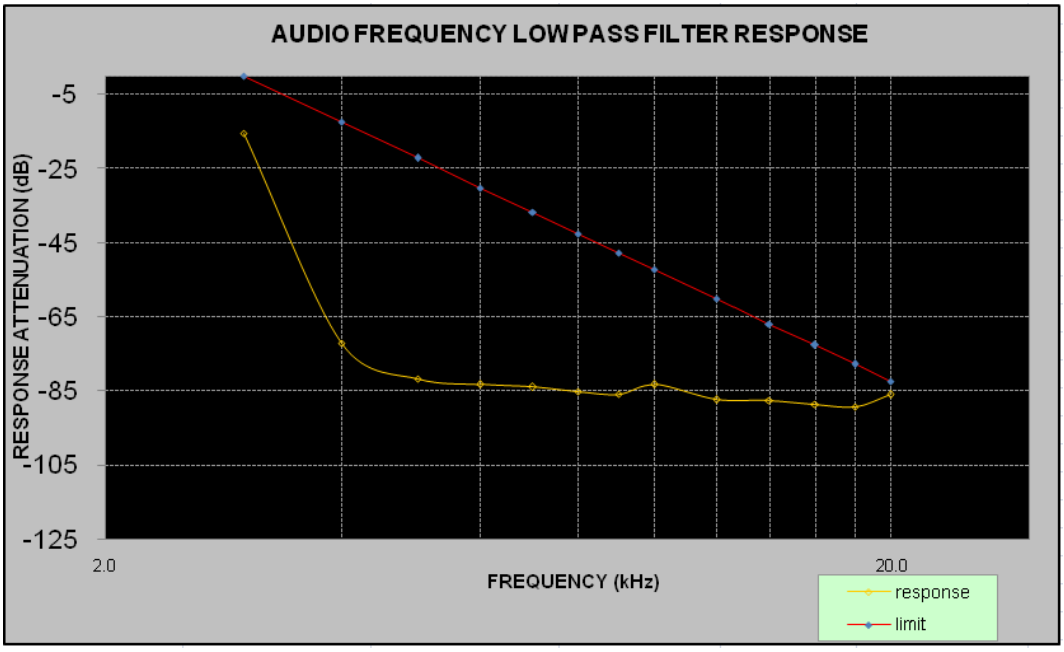

AUDIO FREQUENCY RESPONSE
RESPONSE ATTENUATION (dB)
10.00
5.00
0.00
-5.00
-10.00
-15.00
-20.00
300
3000
FREQUENCY (Hz)
response
limit1
limit2

# 3.6 Audio Frequency Low Pass Filter Response

| Test Date: | 2024-02-01 | Test By: | Baylor Li |
|---|---|---|---|
| Environment condition: | Temperature: 25.5°C; Relative Humidity:49%; ATM Pressure: 101.0kPa | | |

Carrier Frequency: 467.6125MHz

| Audio Frequency (kHz) | Response Attenuation (dB) | Limit (dB) |
|---|---|---|
| 1.0 | 0.0 | / |
| 3.0 | -15.45 | 0.0 |
| 4.0 | -72.25 | -12.5 |
| 5.0 | -81.74 | -22.2 |
| 6.0 | -83.35 | -30.1 |
| 7.0 | -84.03 | -36.8 |
| 8.0 | -85.17 | -42.6 |
| 9.0 | -86.02 | -47.7 |
| 10.0 | -83.33 | -52.3 |
| 12.0 | -87.46 | -60.2 |
| 14.0 | -87.58 | -66.9 |
| 16.0 | -88.7 | -72.7 |
| 18.0 | -89.4 | -77.8 |
| 20.0 | -86.1 | -82.4 |



# 3.7 Authorized bandwidth and emission mask

| Test Date: | 2024-02-01 | Test By: | Baylor Li |
|---|---|---|---|
| Environment condition: | Temperature: 25.5°C; Relative Humidity:49%; ATM Pressure: 101.0kPa | | |

| Test Frequency (MHz) | 99% Occupied Bandwidth (kHz) | 20 dB Bandwidth (kHz) | Limit (kHz) |
|---|---|---|---|
| 467.6125 | 9.936 | 10.337 | ≤12.5 |

**Note:**

Emission bandwidth was based on calculation method instead of measurement.

Emission Designator

BW = 2M + 2D

For FM Mode (Channel Spacing: 12.5 kHz)

Emission Designator 11K0F3E

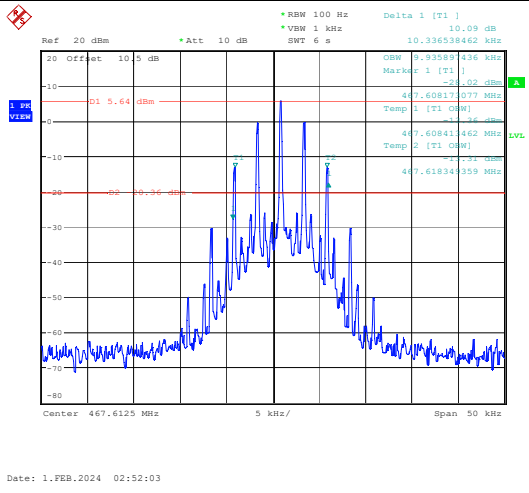
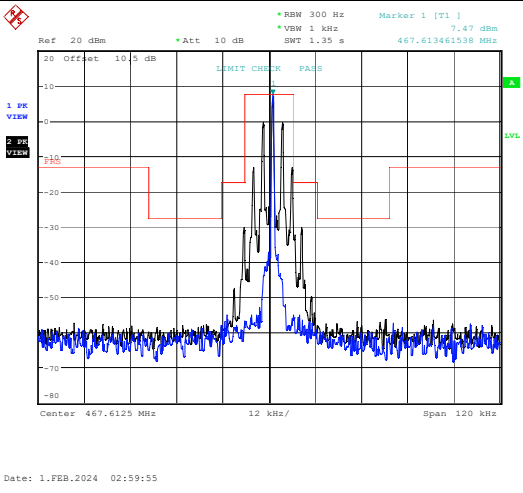
In this case, the maximum modulating frequency is 3.0 kHz with a 2.5 kHz deviation.

BW = 2(M+D) = 2*(3.0 kHz + 2.5 kHz) = 11 kHz =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.

## Test Plots

| OBW | Emission Mask |
|---|---|
| 467.6125MHz | 467.6125MHz |
|  |  |

# 3.8 Radiated spurious emission

| Test Date: | 2024-01-04~2024-01-05 | Test By: | Bard Huang |
|---|---|---|---|
| Environment condition: | Temperature: 24.7°C; Relative Humidity:54%; ATM Pressure: 101.0kPa | | |

**30MHz-5 GHz:**

| Frequency (MHz) | Reading level (dBμV) | Polar (H/V) | Corrected Factor (dB/m) | Corrected Amplitude (dBμV/m) | EIRP CF | Result (dBm) | Limit (dBm) | Margin (dB) | Remark |
|---|---|---|---|---|---|---|---|---|---|
| Emission(467.6125MHz) | | | | | | | | | |
| Model SW-207DS.EXv23 | | | | | | | | | |
| 935.125 | 52.90 | Horizontal | -0.23 | 52.67 | -95.2 | -42.53 | -13 | -29.53 | Peak |
| 935.125 | 53.70 | Vertical | -0.23 | 53.47 | -95.2 | -41.73 | -13 | -28.73 | Peak |
| 1403.01 | 63.01 | Horizontal | -4.01 | 59.00 | -95.20 | -36.20 | -13 | -23.20 | Peak |
| 1403.01 | 65.71 | Vertical | -4.01 | 61.70 | -95.20 | -33.50 | -13 | -20.50 | Peak |
| 1870.68 | 47.45 | Horizontal | -2.25 | 45.20 | -95.20 | -50.00 | -13 | -37.00 | Peak |
| 1870.68 | 50.75 | Vertical | -2.25 | 48.50 | -95.20 | -46.70 | -13 | -33.70 | Peak |
| 2338.35 | 58.30 | Horizontal | -1.80 | 56.50 | -95.20 | -38.70 | -13 | -25.70 | Peak |
| 2338.35 | 60.40 | Vertical | -1.80 | 58.60 | -95.20 | -36.60 | -13 | -23.60 | Peak |
| 2806.02 | 45.97 | Horizontal | -1.37 | 44.60 | -95.20 | -50.60 | -13 | -37.60 | Peak |
| 2806.02 | 48.37 | Vertical | -1.37 | 47.00 | -95.20 | -48.20 | -13 | -35.20 | Peak |
| 3273.69 | 61.21 | Horizontal | -1.81 | 59.40 | -95.20 | -35.80 | -13 | -22.80 | Peak |
| 3273.69 | 63.31 | Vertical | -1.81 | 61.50 | -95.20 | -33.70 | -13 | -20.70 | Peak |
| 3741.36 | 46.69 | Horizontal | -1.59 | 45.10 | -95.20 | -50.10 | -13 | -37.10 | Peak |
| 3741.36 | 46.89 | Vertical | -1.59 | 45.30 | -95.20 | -49.90 | -13 | -36.90 | Peak |
| 4209.03 | 57.36 | Horizontal | -1.86 | 55.50 | -95.20 | -39.70 | -13 | -26.70 | Peak |
| 4209.03 | 62.56 | Vertical | -1.86 | 60.70 | -95.20 | -34.50 | -13 | -21.50 | Peak |
| Model TM-212.EXv23MTG | | | | | | | | | |
| 935.125 | 52.50 | Horizontal | -0.23 | 52.27 | -95.2 | -42.93 | -13 | -29.93 | Peak |
| 935.125 | 53.40 | Vertical | -0.23 | 53.17 | -95.2 | -42.03 | -13 | -29.03 | Peak |

Remark:

Corrected Amplitude= Reading level + corrected Factor

Corrected Factor = Antenna factor + Cable loss – Amplifier gain

Margin = Result – Limit

According to ANSI C63.26-2.15 section 5.2.7:

EIRP (dBm) = E (dBμV/m) + 20log(D) − 104.8; where D is the measurement distance (in the far field region) in m.

Test was performed on 3meters distance, so

Result = Corrected Amplitude + 20log(3) – 104.8

= Corrected Amplitude - 95.2

The emission levels of other frequencies that were lower than the limit 20dB, not show in test report.

## 3.9 Frequency stability

| Test Date: | 2024-02-01 | Test By: | Baylor Li |
|---|---|---|---|
| Environment condition: | Temperature: 25.5°C; Relative Humidity:49%; ATM Pressure: 101.0kPa | | |

Model SW-207DS.EXv23

| Test Frequency (MHz) | Temperature (℃) | Voltage ($V_{DC}$) | Measured Frequency (MHz) | Frequency Error (ppm) | Limit (ppm) |
|---|---|---|---|---|---|
| 467.6125 | -20 | 3.0 | 467.612465 | -0.0748 | ±2.5 |
| | -10 | 3.0 | 467.612447 | -0.1133 | ±2.5 |
| | 0 | 3.0 | 467.612473 | -0.0577 | ±2.5 |
| | 10 | 3.0 | 467.612474 | -0.0556 | ±2.5 |
| | 20 | 3.0 | 467.612466 | -0.0727 | ±2.5 |
| | 30 | 3.0 | 467.612492 | -0.0171 | ±2.5 |
| | 40 | 3.0 | 467.612486 | -0.0299 | ±2.5 |
| | 50 | 3.0 | 467.612487 | -0.0278 | ±2.5 |
| | 20 | 2.5 | 467.612495 | -0.0107 | ±2.5 |
| | 20 | 3.0 | 467.612489 | -0.0235 | ±2.5 |

Model TM-212.EXv23MTG

| Test Frequency (MHz) | Temperature (℃) | Voltage ($V_{DC}$) | Measured Frequency (MHz) | Frequency Error (ppm) | Limit (ppm) |
|---|---|---|---|---|---|
| 467.6125 | -20 | 4.5 | 467.612476 | -0.0513 | ±2.5 |
| | -10 | 4.5 | 467.612454 | -0.0984 | ±2.5 |
| | 0 | 4.5 | 467.612462 | -0.0813 | ±2.5 |
| | 10 | 4.5 | 467.612456 | -0.0941 | ±2.5 |
| | 20 | 4.5 | 467.612472 | -0.0599 | ±2.5 |
| | 30 | 4.5 | 467.612446 | -0.1155 | ±2.5 |
| | 40 | 4.5 | 467.612482 | -0.0385 | ±2.5 |
| | 50 | 4.5 | 467.612467 | -0.0706 | ±2.5 |
| | 20 | 2.5 | 467.612477 | -0.0492 | ±2.5 |
| | 20 | 4.5 | 467.612495 | -0.0107 | ±2.5 |

# 4 FCC §95.587 FRS Additional Requirements

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.

**Judgment:** Compliance, please refer user manual

(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.

**Judgment:** Compliance, please refer section 1.2 of report and EUT photo

(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.

**Judgment:** Not Applicable, no digital modulation function.

(d) Packet mode. FRS transmitter types must not be capable of transmitting data in the store-and-forward packet operation mode.

**Judgment:** Not Applicable, no digital modulation function.

(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).

**Judgment:** Compliance, the devices are not include transmitter(s) (or transmitting modes) operating in other licence and licence-exempt services.

# 5 Test Setup Photo

Please refer to the attachment RWAZ202300073 Test Setup photo.

# 6 E.U.T Photo

Please refer to the attachment RWAZ202300073 External Photo and RWAZ202300073 Internal Photo.

**---End of Report---**