Shenzhen Huatongwei International Inspection Co., Ltd.
1/F,Bldg 3,Hongfa Hi-tech Industrial Park,Genyu Road,Tianliao,Gongming,Shenzhen,China
Phone:86-755-26748019 Fax:86-755-26748089 http://www.szhtw.com.cn

# TEST REPORT

| | | |
|---|---|---|
| **Report No. ..... :** | **CHTEW19100089** | Report verification **:** |
| **Project No. ..... :** | **SHT1909060006EW** | |
| **FCC ID .....:** | **2AUPG-Q-136** | |
| **Applicant's name .....:** | **Shenzhen Crony Electronic Technology Co., Ltd.** | |
| Address .....: | 2003, Huichao Technology BLDG Jinhai Rd Yantian Community,huichao keji dasha 2003, Shenzhen, Guangdong，China | |
| Manufacturer.....: | Shenzhen Crony Electronic Technology Co., Ltd. | |
| Address.....: | 2003, Huichao Technology BLDG Jinhai Rd Yantian Community,huichao keji dasha 2003, Shenzhen, Guangdong，China | |
| **Test item description .....:** | **Walkie Talkie** | |
| Trade Mark.....: | QNIGLO | |
| Model/Type reference .....: | Q-136 | |
| Listed Model(s).....: | Q-136 Plus | |
| **Standard.....:** | **FCC CFR Title 47 Part 2**<br>**FCC CFR Title 47 Part 95B** | |
| Date of receipt of test sample……...: | Sept.24, 2019 | |
| Date of testing……..……: | Sept.24, 2019- Oct.15, 2019 | |
| Date of issue……...: | Oct.16, 2019 | |
| **Result ..... ……...:** | **PASS** | |

| | | |
|---|---|---|
| Compiled by<br>( position+printed name+signature) . : | File administrators Echo Wei | Echo Wei |
| Supervised by<br>( position+printed name+signature) . : | Project Engineer Gaosheng Pan | Gaosheng. Pan |
| Approved by<br>( position+printed name+signature) . : | RF Manager Hans Hu | Hans Hu |
| **Testing Laboratory Name.....:** | **Shenzhen Huatongwei International Inspection Co., Ltd.** | |
| Address .....: | 1/F, Bldg 3, Hongfa Hi-tech Industrial Park, Genyu Road, Tianliao, Gongming, Shenzhen, China | |

# Contents

# 1 TEST STANDARDS AND REPORT VERSION

## 1.1. Test Standards

The tests were performed according to following standards:
FCC Rules Part 2: Frequency allocations and radio treaty matters; General rules and regulations
FCC Rules Part 95B:PERSONAL RADIO SERVICES-Family Radio Service (FRS)
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 and Performance Standards
FCC Part 15 Subpart B: Unintentional Radiators.
ANSI C63.4-2014: American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz

## 1.2. Report revised information

| Revised No. | Date of issued | Description |
|---|---|---|
| N/A | 2019-10-16 | Original |
| | | |
| | | |
| | | |
| | | |

# 2 TEST DESCRIPTION

| Test Item | Section in CFR 47 | Result | Test Engineer |
|---|---|---|---|
| Carrier Output Power(ERP) | Part 95.567<br>Part 2.1046(a) | Pass | Bruce Li |
| 99% Occupied Bandwidth & 26dB bandwidth | Part 95.573<br>Part 2.1049 | Pass | Bruce Li |
| Emission Mask | Part 95.579(a)(1)(2)(3)<br>Part 2.1049 | Pass | Bruce Li |
| Modulation Limit | Part 95.575<br>Part 2.1047(b) | Pass | Bruce Li |
| Audio Frequency Response | Part 95.575<br>Part 2.1047(a) | Pass | Bruce Li |
| Audio Low Pass Filter Response | Part 95.575<br>Part 2.1047(a) | Pass | Bruce Li |
| Frequency Stability V.S. Temperature | Part 95.565<br>Part 2.1055 | Pass | Bruce Li |
| Frequency Stability V.S. Voltage | Part 95.565<br>Part 2.1055 | Pass | Bruce Li |
| Transmit Radiated Spurious Emission | Part 95.579(a)(3)<br>Part 2.1053 | Pass | Bruce Li |
| AC Power Line Conducted Emission | Part 15.107 | Pass | Zhiwei Liu |
| Radiated Emission | Part 15.109 | Pass | Tony Duan |

# 3 SUMMARY

## 3.1 Client Information

| | |
|---|---|
| Applicant: | Shenzhen Crony Electronic Technology Co., Ltd. |
| Address: | 2003, Huichao Technology BLDG Jinhai Rd Yantian Community,huichao keji dasha 2003, Shenzhen, Guangdong，China |
| Manufacturer: | Shenzhen Crony Electronic Technology Co., Ltd. |
| Address: | 2003, Huichao Technology BLDG Jinhai Rd Yantian Community,huichao keji dasha 2003, Shenzhen, Guangdong，China |

## 3.2 Product Description

| | |
|---|---|
| Name of EUT: | Walkie Talkie |
| Trade mark: | QNIGLO |
| Model/Type reference: | Q-136 |
| Listed model(s): | Q-136 Plus |
| Power supply: | DC 3.7V |
| Adapter information: | - |
| Hardware version: | PCB-92-V1 |
| Software version: | V01 |
| **RF Specification** | |
| Support Frequency Range: | 462.5625MHz~ 462.7125MHz |
| | 467.5625MHz~ 467.7125MHz |
| | 462.5500MHz~ 462.7250MHz |
| Rated Output Power: | 0.5W |
| Modulation Type: | FM(Analog) |
| Emission Designator: *[1] | 11K0F3E |
| Antenna Type: | Integral |
| Antenna Gain: | 1 dBi |

Note:

(1) *1 According to FCC Part 2.202 requirements, the Necessary Bandwidth is calculated as follows:

- For FM Voice Modulation

  Channel Spacing = 12.5 KHz, D = 2.5 KHz max, K = 1, M = 3 KHz

  Bn = 2M + 2DK = 2*3 + 2*2.5*1 = **11 KHz**

  Emission designation: 11K0F3E

(2) The device only supports voice communication.

(3) The device has no gain and vertically polarized antenna.

## 3.3 Test frequency list

According to ANSI C63.26 section 5.1.2.1:
Measurements of transmitters shall be performed and, if required, reported for each frequency band in which the EUT can be operated with the device transmitting at the number of frequencies in each band specified in Table 2.

| Frequency range over which EUT operates | Number of frequencies | Location in frequency range of operation |
|---|---|---|
| 1 MHz or less | 1 | Middle |
| 1 MHz to 10 MHz | 2 | 1 near top and 1 near bottom |
| More than 10 MHz | 3 | 1 near top, 1 near middle, and 1 near bottom |

| Frequency Bands (MHz) | Test Channel | Test Frequency (MHz) |
|---|---|---|
| 462.5625~462.7125 | $CH_{M1}$ | 462.6375(CH4) |
| 467.5625~467.7125 | $CH_{M2}$ | 467.6375(CH11) |
| 462.5500~467.7250 | $CH_{M3}$ | 462.6500(CH19) |

Operational channel frequency table:

| Channel No. | Center frequency (MHz) | Channel No. | Center frequency (MHz) |
|---|---|---|---|
| 1 | 462.5625 | 12 | 467.6625 |
| 2 | 462.5875 | 13 | 467.6875 |
| 3 | 462.6125 | 14 | 467.7125 |
| 4 | 462.6375 | 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 | 467.6375 | 22 | 462.7250 |

## 3.4 Operation mode

| Test mode | Transmitting | Receiving | FRS |
|---|---|---|---|
| TX-FRS | ■ | | ■ |
| RX-FRS | | ■ | ■ |

Note: ■ is operation mode.

| Modulation Type | Description |
|---|---|
| UM | Un-modulation |
| AM2 | Apply a 1000 Hz tone and adjust the audio frequency generator to produce 20% of the rated system deviation. |
| AM6 | 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, then increase the level from the audio generator by 20 dB |
| AM5 | Modulate the transmitter with a 2500 Hz sine wave at an input level 16 dB greater than that necessary to produce 50% of rated system deviation. |

| Test item | Modulation Type | Test mode |
|---|---|---|
| Output Power(ERP) | UM | TX-FRS |
| 99% Occupied Bandwidth & 26dB bandwidth | AM6 | TX-FRS |
| Emission Mask | AM5 | TX-FRS |
| Modulation Limit | AM6 | TX-FRS |
| Audio Frequency Response | AM2 | TX-FRS |
| Audio Low Pass Filter Response | AM2 | TX-FRS |
| Frequency Stability VS Temperature | UM | TX-FRS |
| Frequency Stability VS Voltage | UM | TX-FRS |
| Transmit Radiated Spurious Emission | AM5 | TX-FRS |
| AC Power Line Conducted Emission | - | RX-FRS |
| Radiated Emission | - | RX-FRS |

## 3.5 EUT configuration

The following peripheral devices and interface cables were connected during the measurement:

● - supplied by the manufacturer

○ - supplied by the lab

| | | | |
|---|---|---|---|
| ● | Power Cable | Length (m) : | / |
| | | Shield : | Unshielded |
| | | Detachable : | Undetachable |
| ○ | Multimeter | Manufacturer : | / |
| | | Model No. : | / |

# 4 TEST ENVIRONMENT

## 4.1 Address of the test laboratory

Laboratory: Shenzhen Huatongwei International Inspection Co., Ltd.
Address: 1/F, Bldg 3, Hongfa Hi-tech Industrial Park, Genyu Road, Tianliao, Gongming, Shenzhen, China

## 4.2 Test Facility

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

**CNAS-Lab Code: L1225**

Shenzhen Huatongwei International Inspection Co., Ltd. has been assessed and proved to be in compliance with CNAS-CL01 Accreditation Criteria for Testing and Calibration Laboratories (identical to ISO/IEC17025: 2005 General Requirements) for the Competence of Testing and Calibration Laboratories.

**A2LA-Lab Cert. No. 3902.01**

Shenzhen Huatongwei International Inspection Co., Ltd. EMC Laboratory has been accredited by A2LA for technical competence in the field of electrical testing, and proved to be in compliance with ISO/IEC 17025: 2005 General Requirements for the Competence of Testing and Calibration Laboratories and any additional program requirements in the identified field of testing.

**FCC-Registration No.: 762235**

Shenzhen Huatongwei International Inspection Co., Ltd. EMC Laboratory has been registered and fully described in a report filed with the FCC (Federal Communications Commission). The acceptance letter from the FCC is maintained in our files. Registration 762235.

**IC-Registration No.: 5377A**

Two 3m Alternate Test Site of Shenzhen Huatongwei International Inspection Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for the performance of radiated measurements with Registration No. 5377A.

**ACA**

Shenzhen Huatongwei International Inspection Co., Ltd. EMC Laboratory can also perform testing for the Australian C-Tick mark as a result of our A2LA accreditation.

## 4.3 Environmental conditions

| Atmospheric Contions | |
|---|---|
| Temperature: | 21℃ to 25℃ |
| Relative Humidity: | 20 % to 75 %. |
| Atmospheric Pressure: | 860 mbar to 1060 mbar |
| Norminal Test Voltage: | $V_N$ = DC 3.70V |
| Extrem Test Voltage @115%$V_N$: | $V_H$ = DC 4.26V |
| Extrem Test Voltage @85%$V_N$: | $V_L$ = DC 3.15V |

## 4.4 Statement of the measurement uncertainty

The data and results referenced in this document are true and accurate. The reader is cautioned that there may be errors within the calibration limits of the equipment and facilities. The measurement uncertainty was calculated for all measurements listed in this test report acc. to CISPR 16 - 4 „Specification for radio disturbance and immunity measuring apparatus and methods – Part 4: Uncertainty in EMC Measurements“ and is documented in the Shenzhen Huatongwei International Inspection Co., Ltd quality system acc. to DIN EN ISO/IEC 17025. Furthermore, component and process variability of devices similar to that tested may result in additional deviation. The manufacturer has the sole responsibility of continued compliance of the device.

Hereafter the best measurement capability for Shenzhen Huatongwei laboratory is reported:

| Test Items | Measurement Uncertainty | Notes |
|---|---|---|
| Frequency stability & Occupied Bandwidth | 15Hz for <1GHz<br>70Hz for >1GHz | (1) |
| Conducted Output Power | 0.51dB | (1) |
| ERP / EIRP / RSE | 2.66dB for <1GHz<br>3.44dB for >1GHz | (1) |
| Conducted Emission 9KHz-30MHz | 3.02dB | (1) |
| Radiated Emission 30~1000MHz | 4.90dB | (1) |
| Radiated Emission 1~18GHz | 4.96dB | (1) |
| FM deviation | 25 Hz | (1) |
| Audio level | 0.62 dB | (1) |
| Low Pass Filter Response | 0.76 dB | (1) |
| Modulation Limiting | 0.42 % | (1) |

(1) This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=1.96.

## 4.5 Equipments Used during the Test

| ● | TS8613 Test system | | | | | |
|---|---|---|---|---|---|---|
| Used | Test Equipment | Manufacturer | Model No. | Serial No. | Last Cal. Date (YY-MM-DD) | Next Cal. Date (YY-MM-DD) |
| ● | Spectrum Analyzer | Agilent | N9020A | MY50510187 | 2018/10/08 | 2020/10/08 |
| ● | Signal & Spectrum Analyzer | R&S | FSW26 | 103440 | 2018/10/28 | 2019/10/27 |
| ● | RF Communication Test Set | HP | 8920A | 3813A10206 | 2018/10/28 | 2019/10/27 |
| ● | Digital intercom communication tester | Aeroflex | 3920B | 1001682041 | 2018/10/28 | 2019/10/27 |
| ● | Signal Generator | R&S | SML02 | 100507 | 2018/10/27 | 2019/10/26 |
| ● | Signal Generator | IFR | 2032 | 203002\100 | 2018/11/11 | 2019/11/10 |
| ● | RF Control Unit | Tonscend | JS0806-2 | N/A | N/A | N/A |
| ○ | Fliter-VHF | Microwave | N26460M1 | 498702 | 2019/03/19 | 2020/03/18 |
| ● | Fliter-UHF | Microwave | N25155M2 | 498704 | 2019/03/19 | 2020/03/18 |
| ○ | Power Divider | Microwave | OPD1040-N-4 | N/A | 2018/11/15 | 2019/11/14 |
| ○ | Attenuator | JFW | 50FH-030-100 | N/A | 2018/11/15 | 2019/11/14 |
| ○ | Attenuator | JFW | 50-A-MFN-20 | 0322 | 2018/11/15 | 2019/11/14 |
| ● | Test software | HTW | Radio ATE | N/A | N/A | N/A |

| ● | Auxiliary Equipment | | | | | |
|---|---|---|---|---|---|---|
| Used | Test Equipment | Manufacturer | Model No. | Serial No. | Last Cal. Date (YY-MM-DD) | Next Cal. Date (YY-MM-DD) |
| ● | Climate chamber | ESPEC | GPL-2 | N/A | 2018/11/08 | 2019/11/07 |
| ● | DC Power Supply | Gwinstek | SPS-2415 | GER835793 | 2018/10/28 | 2019/10/27 |

| ● | Radiated Spurious Emission | | | | | |
|---|---|---|---|---|---|---|
| Used | Test Equipment | Manufacturer | Model No. | Serial No. | Last Cal. Date (YY-MM-DD) | Next Cal. Date (YY-MM-DD) |
| ● | Semi-Anechoic Chamber | Albatross projects | SAC-3m-01 | N/A | 2018/09/30 | 2021/09/29 |
| ● | Spectrum Analyzer | R&S | FSP40 | 100597 | 2018/10/27 | 2019/10/26 |
| ● | Loop Antenna | R&S | HFH2-Z2 | 100020 | 2017/11/20 | 2020/11/19 |
| ● | Ultra-Broadband Antenna | SCHWARZBECK | VULB9163 | 538 | 2017/04/05 | 2020/04/04 |
| ● | Horn Antenna | SCHWARZBECK | 9120D | 1011 | 2017/04/01 | 2020/03/31 |
| ○ | Horn Antenna | SCHWARZBECK | BBHA9170 | 25841 | 2017/03/27 | 2020/03/26 |
| ○ | Pre-amplifier | BONN | BLWA0160-2M | 1811887 | 2018/11/14 | 2019/11/13 |
| ● | Pre-amplifier | CD | PAP-0102 | 12004 | 2018/11/14 | 2019/11/13 |
| ● | Broadband Preamplifier | SCHWARZBECK | BBV 9718 | 9718-248 | 2019/05/23 | 2020/05/22 |
| ● | RF Connection Cable | HUBER+SUHNER | RE-7-FH | N/A | 2018/11/15 | 2019/11/14 |
| ● | RF Connection Cable | HUBER+SUHNER | RE-7-FL | N/A | 2018/11/15 | 2019/11/14 |
| ● | EMI Test Software | Audix | E3 | N/A | N/A | N/A |
| ● | Turntable | MATURO | TT2.0 | N/A | N/A | N/A |
| ● | Antenna Mast | MATURO | TAM-4.0-P | N/A | N/A | N/A |

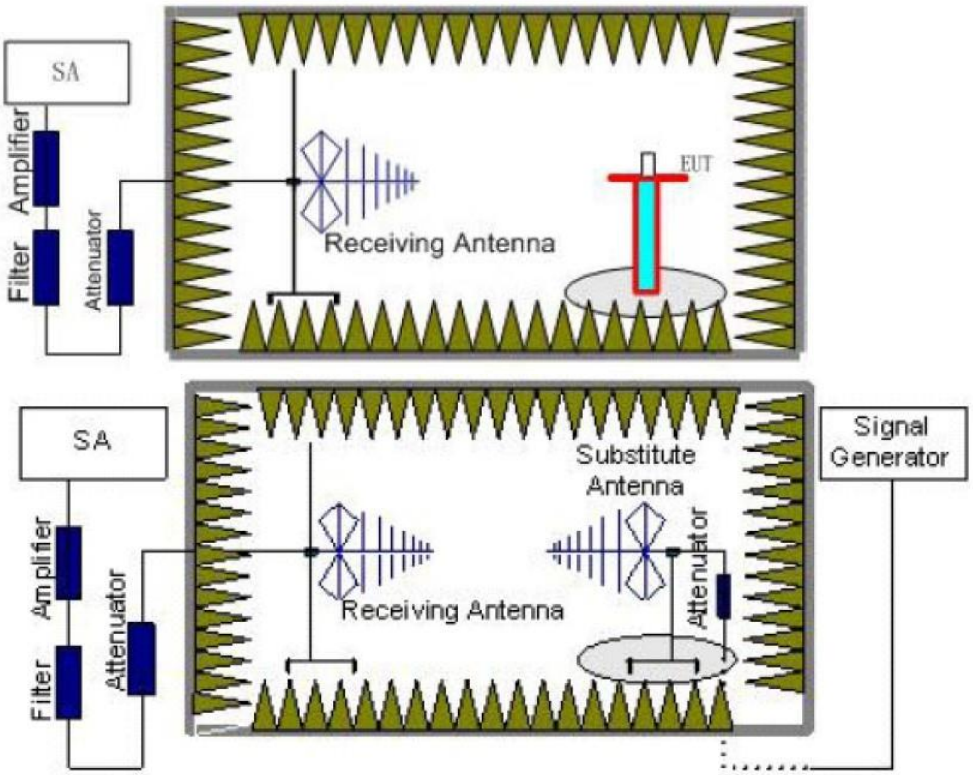
# 5 TEST CONDITIONS AND RESULTS

## 5.1 Effective Radiated Power(ERP)

**LIMIT**

FCC Part FCC Part 95.567, FCC Part 2.1046
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. The radio shall be equipped with an integral antenna.

**TEST CONFIGURATION**




**TEST PROCEDURE**

1. Place the EUT in the center of the turntable.
   a) For radiated emissions measurements performed at frequencies less than or equal to 1 GHz, the EUT shall be placed on a RF-transparent table at a nominal height of 80 cm above the reference ground plane
   b) For radiated measurements performed at frequencies above 1 GHz, the EUT shall be placed on an RF transparent table at a nominal height of 1.5 m above the ground plane.
2. Unless the EUT uses an integral antenna, the EUT shall be terminated with a non-radiating transmitter load. In cases where the EUT uses an adjustable antenna, the antenna shall be adjusted through typical positions and lengths to maximize emissions levels.
3. The EUT shall be tested while operating on the frequency per manufacturer specification. Set the transmitter to operate in continuous transmit mode.
4. Receiver or Spectrum set as follow:
   Below 1GHz, RBW=100kHz, VBW=300kHz, Detector=Peak, Sweep time=Auto
   Above 1GHz, RBW=1MHz, VBW=3MHz, Detector=Peck, Sweep time=Auto
5. Each emission under consideration shall be evaluated:
   a) Raise and lower the measurement antenna from 1 m to 4 m, as necessary to enable detection of the maximum emission amplitude relative to measurement antenna height.
   b) Rotate the EUT through 360° to determine the maximum emission level relative to the axial position.
   c) Return the turntable to the azimuth where the highest emission amplitude level was observed.
   d) Vary the measurement antenna height again through 1 m to 4 m again to find the height associated with the maximum emission amplitude.
   e) Record the measured emission amplitude level and frequency

6. Repeat step 5 for each emission frequency with the measurement antenna oriented in both the horizontal and vertical polarizations to determine the orientation that gives the maximum emissions amplitude.
7. Set-up the substitution measurement with the reference point of the substitution antenna located as near as possible to where the center of the EUT radiating element was located during the initial EUT measurement.
8. Maintain the previous measurement instrument settings and test set-up, with the exception that the EUT is removed and replaced by the substitution antenna.
9. Connect a signal generator to the substitution antenna; locate the signal generator so as to minimize any potential influences on the measurement results. Set the signal generator to the frequency where emissions are detected, and set an output power level such that the radiated signal can be detected by the measurement instrument, with sufficient dynamic range relative to the noise floor.
10. For each emission that was detected and measured in the initial test
    a) Vary the measurement antenna height between 1 m to 4 m to maximize the received (measured) signal amplitude.
    b) Adjust the signal generator output power level until the amplitude detected by the measurement instrument equals the amplitude level of the emission previously measured directly in step 5 and step 6.
    c) Record the output power level of the signal generator when equivalence is achieved in step b).
11. Repeat step 8 through step 10 with the measurement antenna oriented in the opposite polarization.
12. Calculate the emission power in dBm referenced to a half-wave dipole using the following equation:
    Pe = Ps(dBm) − cable loss (dB) + antenna gain (dBd)
    where
    Pe = equivalent emission power in dBm
    Ps = source (signal generator) power in dBm
    *NOTE—dBd refers to the measured antenna gain in decibels relative to a half-wave dipole.*
13. Correct the antenna gain of the substitution antenna if necessary to reference the emission power to a half-wave dipole. When using measurement antennas with the gain specified in dBi, the equivalent dipole-referenced gain can be determined from:
    gain (dBd) = gain (dBi) − 2.15 dB.
    If necessary, the antenna gain can be calculated from calibrated antenna factor information
14. Provide the complete measurement results as a part of the test report.

**TEST MODE**

Please reference to the section 3.4

**TEST RESULTS**

☒ **Passed** ☐ **Not Applicable**

Please refer to appendix A on the section 8 appendix report

## 5.2 99% Occupied Bandwidth & 26dB Bandwidth

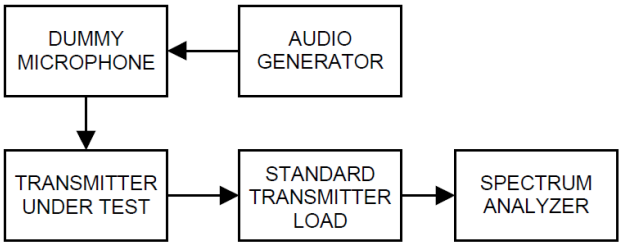
**LIMIT**

FCC Part 95.573, FCC Part 2.1049

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

**TEST CONFIGURATION**

Test setup for Analog:




**TEST PROCEDURE**

(1) Connect the equipment as illustrated

(2) Spectrum set as follow:

Centre frequency = 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 × OBW is sufficient)

RBW = 1% to 5% of the anticipated OBW, VBW ≥ 3 × RBW, Sweep = auto,

Detector function = peak, Trace = max hold

(3) Set 99% Occupied Bandwidth and 26dB Bandwidth

(4) Measure and record the results in the test report.

**TEST MODE**

Please reference to the section 3.4

**TEST RESULTS**

☒ **Passed** ☐ **Not Applicable**

Please refer to appendix B on the section 8 appendix report

## 5.3 Emission Mask

**LIMIT**

FCC Part 95.579(a)(1)(2)(3),FCC Part 2.1049

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:

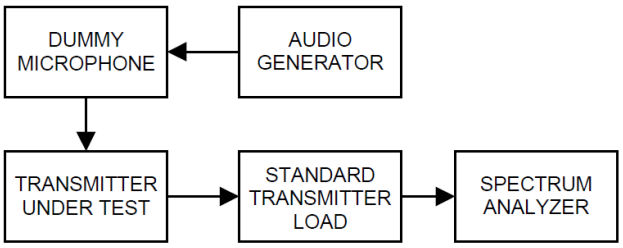
(1) 25 dB (decibels) in the frequency band 6.25 kHz to 12.5 kHz removed from the channel center frequency.

(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.

**TEST CONFIGURATION**

Test setup for Analog:




**TEST PROCEDURE**

1) Connect the equipment as illustrated.
2) Spectrum set as follow:
   Centre frequency = fundamental frequency, span=120kHz for 12.5kHz channel spacing,
   RBW=100Hz, VBW=1000Hz, Sweep = auto,
   Detector function = peak, Trace = max hold
3) Key the transmitter, and set the level of the unmodulated carrier to a full scale reference line. This is the 0dB reference for the measurement.
4) Apply Input Modulation Signal to EUT according to Section 3.4
5) Measure and record the results in the test report.

**TEST MODE**

Please reference to the section 3.4

**TEST RESULTS**

☒ **Passed** ☐ **Not Applicable**

Please refer to appendix C on the section 8 appendix report

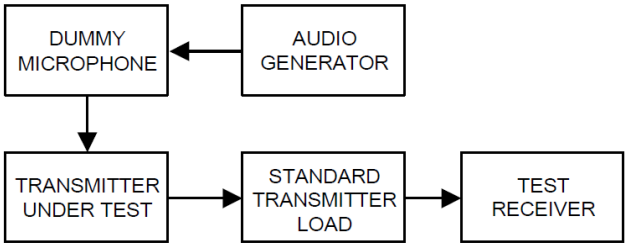
## 5.4 Modulation Limit

**LIMIT**

FCC Part 95.575, FCC Part 2.1047(b)

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 CONFIGURATION**




**TEST PROCEDURE**

1) Connect the equipment as illustrated.
2) Adjust the transmitter per the manufacturer's procedure for full rated system deviation.
3) Set the test receiver to measure peak positive deviation. Set the audio bandwidth for ≤0.25 Hz to ≥15,000 Hz. Turn the de-emphasis function off.
4) Apply Input Modulation Signal to EUT according to Section 3.4 and vary the input level from –20 to +20dB.
5) Measure both the instantaneous and steady-state deviation at and after the time of increasing the audio input level
6) Repeat step 4-5 with input frequency changing to 300Hz, 1004Hz, 1500Hz and 2500Hz in sequence.

**TEST MODE**

Please reference to the section 3.4

**TEST RESULTS**

☒ **Passed** ☐ **Not Applicable**

Please refer to appendix D on the section 8 appendix report

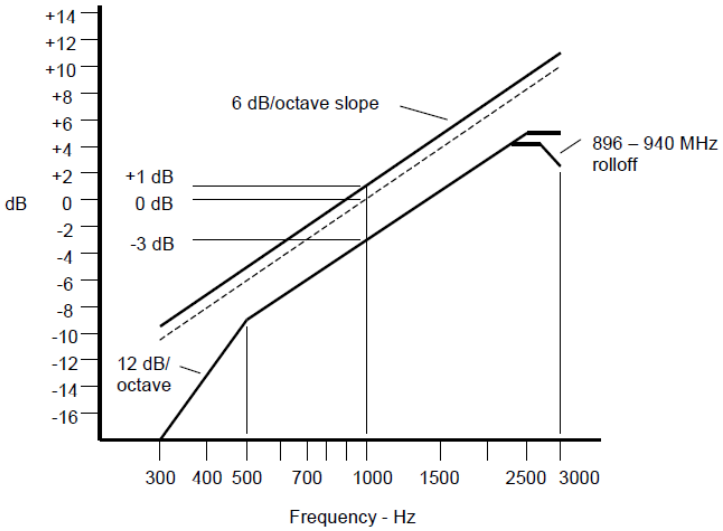
## 5.5 Audio Frequency Response

**LIMIT**

FCC Part 95.575),FCC Part 2.1047(a):

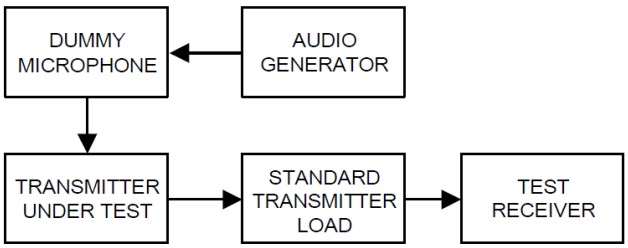
Each FRS transmitter type must be designed such that the peak frequency deviation does not exceed 2.5 kHz, and the highest audio frequency contributing substantially to modulation must not exceed 3.125 kHz.

Voice modulated communication equipment. A curve or equivalent data showing the frequency response of the audio modulating circuit over a range of 100 to 5000 Hz shall be submitted.




An additional 6 dB per octave attenuation is allowed from 2500 Hz to 3000 Hz in equipment operating in the 25 MHz to 869 MHz range.

**TEST CONFIGURATION**




**TEST PROCEDURE**

1) Connect the equipment as illustrated.
2) Set the test receiver to measure peak positive deviation. Set the audio bandwidth for 50 Hz to 15,000 Hz. Turn the de-emphasis function off.
3) Set the DMM to measure rms voltage.
4) Adjust the transmitter per the manufacturer's procedure for full rated system deviation.
5) Apply Input Modulation Signal to EUT according to Section 3.4
6) Set the test receiver to measure rms deviation and record the deviation reading.
7) Record the DMM reading as $V_{REF}$ .
8) Set the audio frequency generator to the desired test frequency between 300 Hz and 3000 Hz.
9) Vary the audio frequency generator output level until the deviation reading that was recorded in step 6) is obtained.
10) Record the DMM reading as $V_{FREQ}$
11) Calculate the audio frequency response at the present frequency as: audio frequency response=$20\log_{10}$ ($V_{FREQ}/V_{REF}$).
12) Repeat steps 8) through 11) for all the desired test frequencies

**TEST MODE**

Please reference to the section 3.4

**TEST RESULTS**

☒ **Passed** ☐ **Not Applicable**

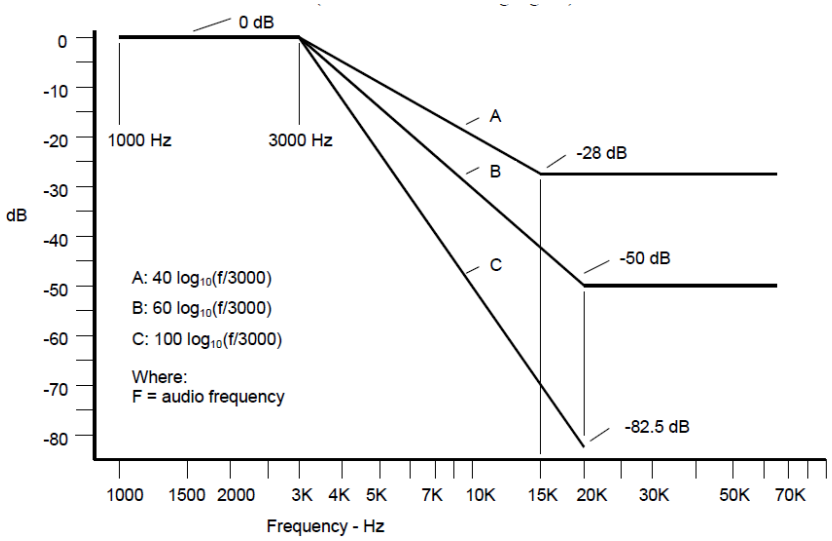
Please refer to appendix E on the section 8 appendix report

## 5.6 Audio Low Pass Filter Response

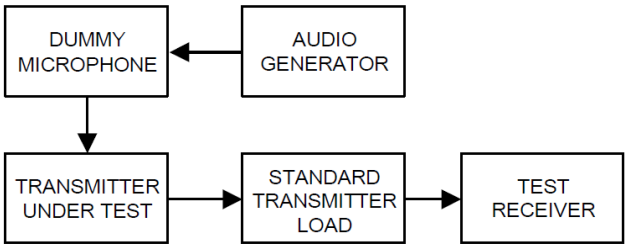
**LIMIT**

FCC Part 95.575),FCC Part 2.1047(a):

The filter must be between the modulation limiter and the modulated stage of the transmitter. At any frequency (f in kHz) between 3 and 20 kHz, the filter must have an attenuation of at least 60 log10 (f/3) dB greater than the attenuation at 1 kHz. Above 20 kHz, it must have an attenuation of at least 50 dB greater than the attenuation at 1 kHz.




**TEST CONFIGURATION**




**TEST PROCEDURE**

1) Configure the EUT as shown in figure .
2) Apply a 1000 Hz tone from the audio signal generator and adjust the level per manufacturer's specifications. Record the dB level of the 1000 Hz tone as $LEV_{REF}$.
3) Set the audio signal generator to the desired test frequency between 3000 Hz and the upper low pass filter limit. Record the dB level at the test frequency as $LEV_{FREQ.}$
4) Calculate the audio frequency response at the test frequency as:
   low pass filter response = $LEV_{FREQ}$ - $LEV_{REF}$

**TEST MODE**

Please reference to the section 3.4

**TEST RESULTS**

☒ **Passed** ☐ **Not Applicable**

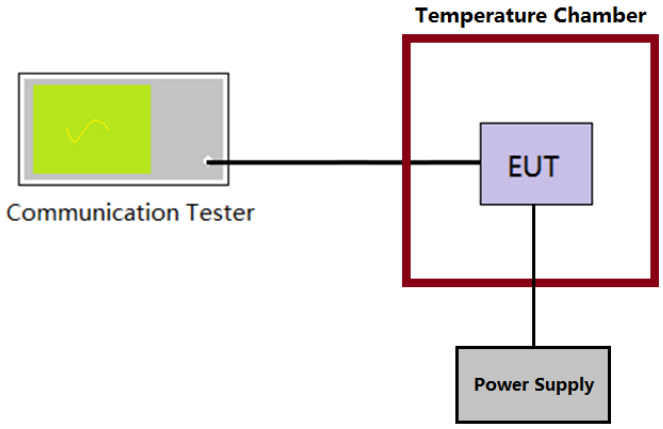
Please refer to appendix F on the section 8 appendix report

## 5.7 Frequency stability VS Temperature

**LIMIT**

FCC Part 95.565:
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.

**TEST CONFIGURATION**




**TEST PROCEDURE**

1) The EUT output port was connected to communication tester.
2) The EUT was placed inside the temperature chamber.
3) Turn EUT off and set the chamber temperature to –30°C. After the temperature stabilized for approximately 30 minutes recorded the frequency as $MCF_{MHz}$.
4) Calculate the ppm frequency error by the following:
   *ppm error=*$(MCF_{MHz}/ACF_{MHz}-1)*10^6$
   *where*
   $MCF_{MHz}$ *is the Measured Carrier Frequency in MHz*
   $ACF_{MHz}$ *is the Assigned Carrier Frequency in MHz*
5) Repeat step 3 measure with 10°C increased per stage until the highest temperature of +50°C reached.

**TEST MODE**

Please reference to the section 3.4

**TEST RESULTS**

☒ **Passed** ☐ **Not Applicable**

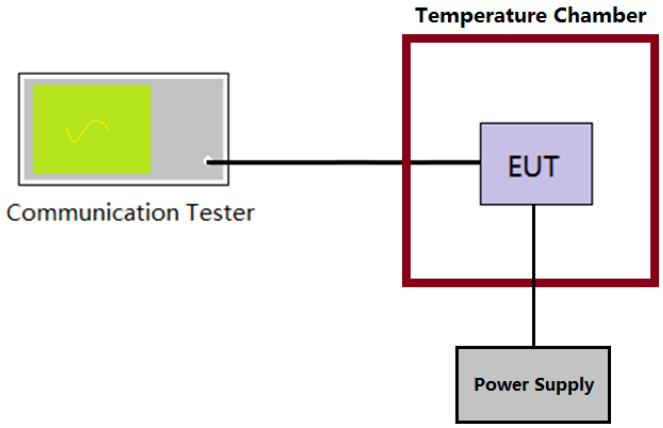
Please refer to appendix G on the section 8 appendix report

## 5.8 Frequency stability VS Voltage

**LIMIT**

FCC Part 95.565:
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.

**TEST CONFIGURATION**




**TEST PROCEDURE**

1) The EUT output port was connected to communication tester.
2) The EUT was placed inside the temperature chamber at 25°C
3) Record the carrier frequency of the transmitter as $MCF_{MHZ}$
4) Calculate the ppm frequency error by the following:
   $ppm\ error=(MCF_{MHZ}/ACF_{MHZ}-1)*10^6$
   *where*
   $MCF_{MHz}$ *is the Measured Carrier Frequency in MHz*
   $ACF_{MHz}$ *is the Assigned Carrier Frequency in MHz*
5) Repeat step 3 measure with varied ±15% of the nominal value measured at the input to the EUT

**TEST MODE**

Please reference to the section 3.4

**TEST RESULTS**

☒ **Passed** ☐ **Not Applicable**

Please refer to appendix H on the section 8 appendix report

## 5.9 Transmitter Radiated Spurious Emission

**LIMIT**

FCC Part 95.579(a)(3):

43 + 10 log (Pwatts)

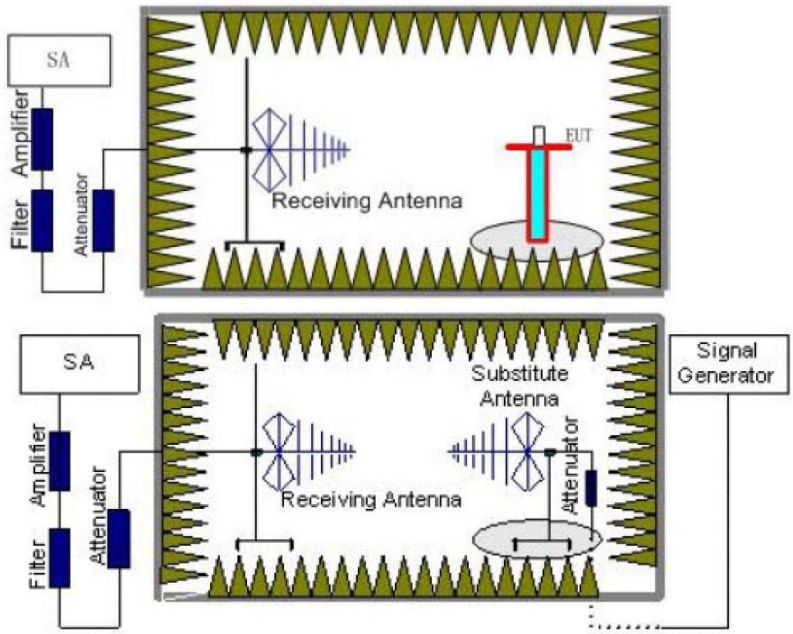
Calculation: Limit (dBm) =EL-43-10log10 (TP)

Notes: EL is the emission level of the Output Power expressed in dBm,
In this application, the EL is P( dBm).

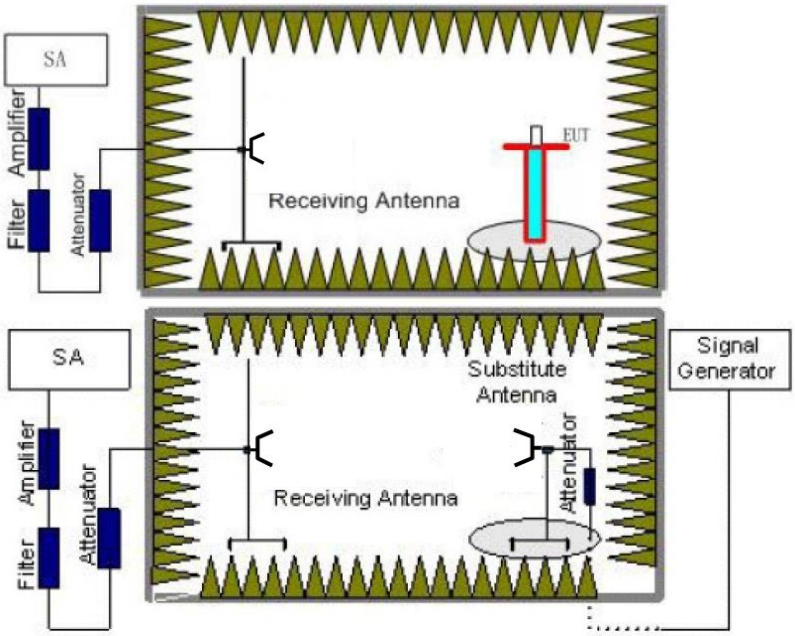
Limit (dBm) = P( dBm)-43-10 log (Pwatts) = -13 dBm

**TEST CONFIGURATION**

**Below 1GHz:**




**Above 1GHz:**



**TEST PROCEDURE**

1. Place the EUT in the center of the turntable.
   a) For radiated emissions measurements performed at frequencies less than or equal to 1 GHz, the EUT shall be placed on a RF-transparent table at a nominal height of 80 cm above the reference ground plane
   b) For radiated measurements performed at frequencies above 1 GHz, the EUT shall be placed on an RF transparent table at a nominal height of 1.5 m above the ground plane.
2. Unless the EUT uses an integral antenna, the EUT shall be terminated with a non-radiating transmitter load. In cases where the EUT uses an adjustable antenna, the antenna shall be adjusted through typical positions and lengths to maximize emissions levels.
3. The EUT shall be tested while operating on the frequency per manufacturer specification. Set the transmitter to operate in continuous transmit mode.
4. Receiver or Spectrum set as follow:
   Below 1GHz, RBW=100kHz, VBW=300kHz, Detector=Peak, Sweep time=Auto
   Above 1GHz, RBW=1MHz, VBW=3MHz, Detector=Peck, Sweep time=Auto
5. Each emission under consideration shall be evaluated:
   a) Raise and lower the measurement antenna from 1 m to 4 m, as necessary to enable detection of the maximum emission amplitude relative to measurement antenna height.
   b) Rotate the EUT through 360° to determine the maximum emission level relative to the axial position.
   c) Return the turntable to the azimuth where the highest emission amplitude level was observed.
   d) Vary the measurement antenna height again through 1 m to 4 m again to find the height associated with the maximum emission amplitude.
   e) Record the measured emission amplitude level and frequency
6. Repeat step 5 for each emission frequency with the measurement antenna oriented in both the horizontal and vertical polarizations to determine the orientation that gives the maximum emissions amplitude.
7. Set-up the substitution measurement with the reference point of the substitution antenna located as near as possible to where the center of the EUT radiating element was located during the initial EUT measurement.
8. Maintain the previous measurement instrument settings and test set-up, with the exception that the EUT is removed and replaced by the substitution antenna.
9. Connect a signal generator to the substitution antenna; locate the signal generator so as to minimize any potential influences on the measurement results. Set the signal generator to the frequency where emissions are detected, and set an output power level such that the radiated signal can be detected by the measurement instrument, with sufficient dynamic range relative to the noise floor.
10. For each emission that was detected and measured in the initial test
    a) Vary the measurement antenna height between 1 m to 4 m to maximize the received (measured) signal amplitude.
    b) Adjust the signal generator output power level until the amplitude detected by the measurement instrument equals the amplitude level of the emission previously measured directly in step 5 and step 6.
    c) Record the output power level of the signal generator when equivalence is achieved in step b).
11. Repeat step 8 through step 10 with the measurement antenna oriented in the opposite polarization.
12. Calculate the emission power in dBm referenced to a half-wave dipole using the following equation:
    Pe = Ps(dBm) − cable loss (dB) + antenna gain (dBd)
    where
    Pe = equivalent emission power in dBm
    Ps = source (signal generator) power in dBm
    *NOTE—dBd refers to the measured antenna gain in decibels relative to a half-wave dipole.*
13. Correct the antenna gain of the substitution antenna if necessary to reference the emission power to a half-wave dipole. When using measurement antennas with the gain specified in dBi, the equivalent dipole-referenced gain can be determined from:
    gain (dBd) = gain (dBi) − 2.15 dB.
    If necessary, the antenna gain can be calculated from calibrated antenna factor information
14. Provide the complete measurement results as a part of the test report.

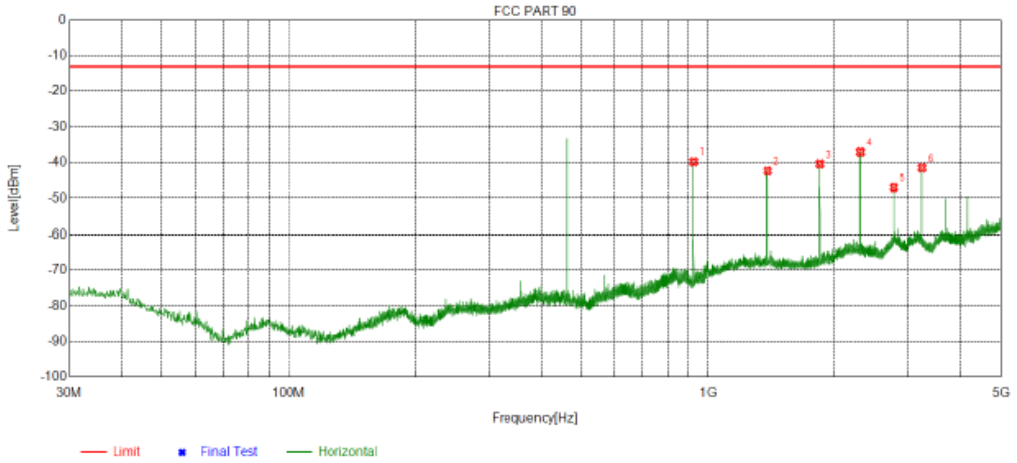
**TEST MODE**

Please reference to the section 3.4

**TEST RESULTS**

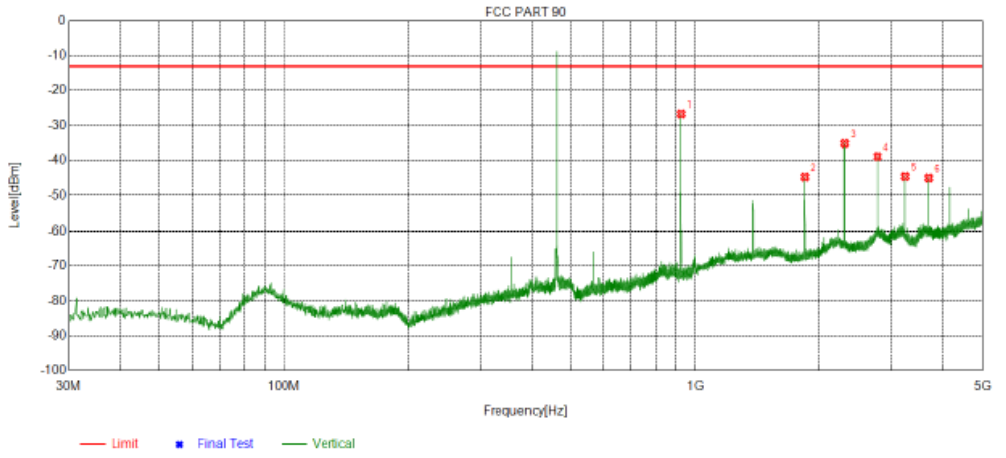
☒ **Passed** ☐ **Not Applicable**

| TEST MODE | TX-FRS | Test Channel: | $CH_{M1}$ | Polarity: | Horizontal |
|---|---|---|---|---|---|



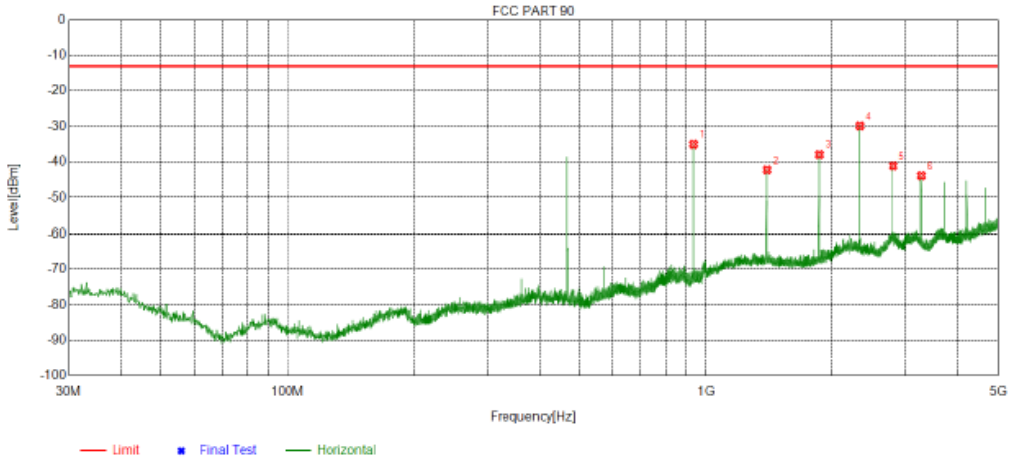

| NO. | Freq. [MHz] | Reading [dBm] | Factor [dB] | Level [dBm] | Limit [dBm] | Margin [dB] | Polarity | Detector |
|---|---|---|---|---|---|---|---|---|
| 1 | 925.3100 | -49.18 | 9.38 | -39.80 | -13.00 | 26.80 | Horizontal | PK |
| 2 | 1388.000 | -48.00 | 5.62 | -42.38 | -13.00 | 29.38 | Horizontal | PK |
| 3 | 1850.500 | -46.58 | 6.18 | -40.40 | -13.00 | 27.40 | Horizontal | PK |
| 4 | 2313.000 | -47.00 | 9.93 | -37.07 | -13.00 | 24.07 | Horizontal | PK |
| 5 | 2775.500 | -61.20 | 14.11 | -47.09 | -13.00 | 34.09 | Horizontal | PK |
| 6 | 3238.500 | -54.33 | 12.83 | -41.50 | -13.00 | 28.50 | Horizontal | PK |

| TEST MODE | TX-FRS | Test Channel: | $CH_{M1}$ | Polarity: | Vertical |
|---|---|---|---|---|---|



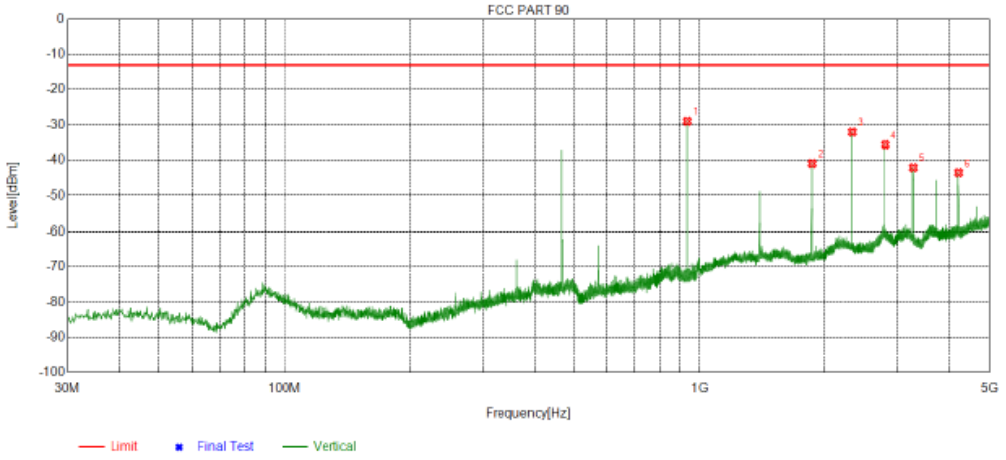

| NO. | Freq. [MHz] | Reading [dBm] | Factor [dB] | Level [dBm] | Limit [dBm] | Margin [dB] | Polarity | Detector |
|---|---|---|---|---|---|---|---|---|
| 1 | 925.3100 | -36.28 | 9.65 | -26.63 | -13.00 | 13.63 | Vertical | PK |
| 2 | 1850.500 | -50.65 | 5.78 | -44.87 | -13.00 | 31.87 | Vertical | PK |
| 3 | 2313.000 | -45.17 | 9.97 | -35.20 | -13.00 | 22.20 | Vertical | PK |
| 4 | 2776.000 | -53.03 | 14.13 | -38.90 | -13.00 | 25.90 | Vertical | PK |
| 5 | 3238.500 | -57.64 | 12.92 | -44.72 | -13.00 | 31.72 | Vertical | PK |
| 6 | 3701.500 | -59.76 | 14.61 | -45.15 | -13.00 | 32.15 | Vertical | PK |

| TEST MODE | TX-FRS | Test Channel: | $CH_{M2}$ | Polarity: | Horizontal |
|---|---|---|---|---|---|



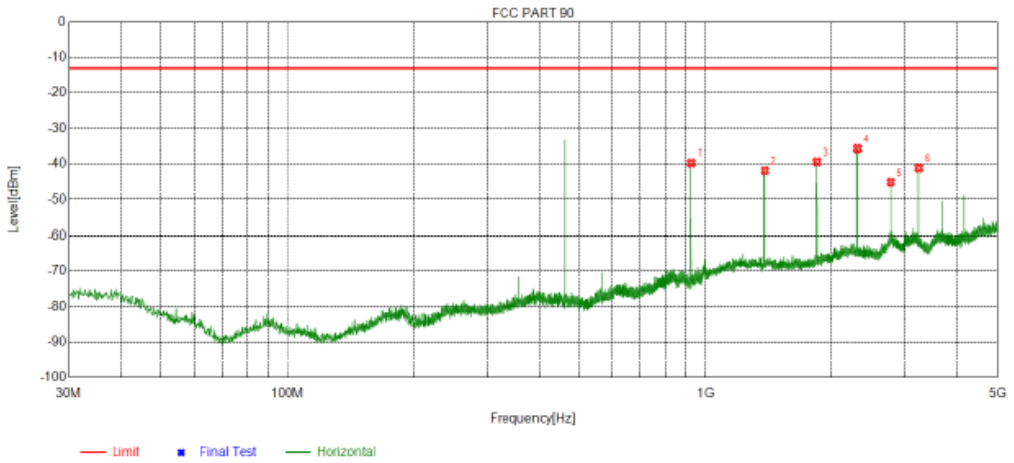

| NO. | Freq. [MHz] | Reading [dBm] | Factor [dB] | Level [dBm] | Limit [dBm] | Margin [dB] | Polarity | Detector |
|---|---|---|---|---|---|---|---|---|
| 1 | 935.3738 | -44.67 | 9.55 | -35.12 | -13.00 | 22.12 | Horizontal | PK |
| 2 | 1403.000 | -47.94 | 5.66 | -42.28 | -13.00 | 29.28 | Horizontal | PK |
| 3 | 1870.500 | -44.33 | 6.44 | -37.89 | -13.00 | 24.89 | Horizontal | PK |
| 4 | 2338.500 | -39.74 | 9.89 | -29.85 | -13.00 | 16.85 | Horizontal | PK |
| 5 | 2805.500 | -55.77 | 14.62 | -41.15 | -13.00 | 28.15 | Horizontal | PK |
| 6 | 3273.500 | -56.27 | 12.31 | -43.96 | -13.00 | 30.96 | Horizontal | PK |

| TEST MODE | TX-FRS | Test Channel: | $CH_{M2}$ | Polarity: | Vertical |
|---|---|---|---|---|---|



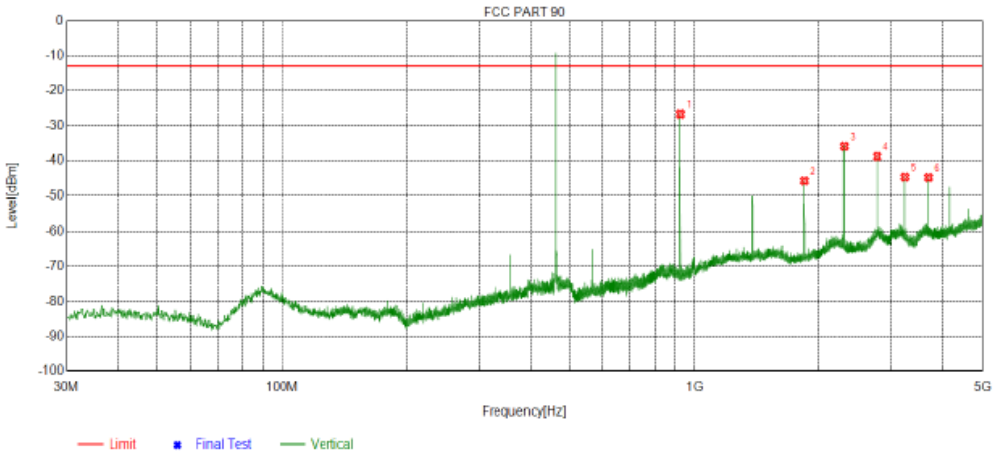

| NO. | Freq. [MHz] | Reading [dBm] | Factor [dB] | Level [dBm] | Limit [dBm] | Margin [dB] | Polarity | Detector |
|---|---|---|---|---|---|---|---|---|
| 1 | 935.3738 | -38.39 | 9.43 | -28.96 | -13.00 | 15.96 | Vertical | PK |
| 2 | 1870.500 | -46.98 | 5.98 | -41.00 | -13.00 | 28.00 | Vertical | PK |
| 3 | 2338.500 | -41.82 | 9.77 | -32.05 | -13.00 | 19.05 | Vertical | PK |
| 4 | 2806.000 | -50.20 | 14.56 | -35.64 | -13.00 | 22.64 | Vertical | PK |
| 5 | 3273.500 | -54.56 | 12.37 | -42.19 | -13.00 | 29.19 | Vertical | PK |
| 6 | 4208.500 | -59.98 | 16.35 | -43.63 | -13.00 | 30.63 | Vertical | PK |

| TEST MODE | TX-FRS | Test Channel: | $CH_{M3}$ | Polarity: | Horizontal |
|---|---|---|---|---|---|




| NO. | Freq. [MHz] | Reading [dBm] | Factor [dB] | Level [dBm] | Limit [dBm] | Margin [dB] | Polarity | Detector |
|---|---|---|---|---|---|---|---|---|
| 1 | 925.4313 | -49.15 | 9.38 | -39.77 | -13.00 | 26.77 | Horizontal | PK |
| 2 | 1388.000 | -47.56 | 5.62 | -41.94 | -13.00 | 28.94 | Horizontal | PK |
| 3 | 1850.500 | -45.61 | 6.18 | -39.43 | -13.00 | 26.43 | Horizontal | PK |
| 4 | 2313.000 | -45.64 | 9.93 | -35.71 | -13.00 | 22.71 | Horizontal | PK |
| 5 | 2776.000 | -59.41 | 14.13 | -45.28 | -13.00 | 32.28 | Horizontal | PK |
| 6 | 3238.500 | -54.03 | 12.83 | -41.20 | -13.00 | 28.20 | Horizontal | PK |

| TEST MODE | TX-FRS | Test Channel: | $CH_{M3}$ | Polarity: | Vertical |
|---|---|---|---|---|---|




| NO. | Freq. [MHz] | Reading [dBm] | Factor [dB] | Level [dBm] | Limit [dBm] | Margin [dB] | Polarity | Detector |
|---|---|---|---|---|---|---|---|---|
| 1 | 925.4313 | -36.35 | 9.65 | -26.70 | -13.00 | 13.70 | Vertical | PK |
| 2 | 1850.500 | -51.65 | 5.78 | -45.87 | -13.00 | 32.87 | Vertical | PK |
| 3 | 2313.500 | -45.97 | 9.97 | -36.00 | -13.00 | 23.00 | Vertical | PK |
| 4 | 2776.000 | -52.98 | 14.13 | -38.85 | -13.00 | 25.85 | Vertical | PK |
| 5 | 3238.500 | -57.69 | 12.92 | -44.77 | -13.00 | 31.77 | Vertical | PK |
| 6 | 3701.500 | -59.51 | 14.61 | -44.90 | -13.00 | 31.90 | Vertical | PK |

## 5.10 AC Power Line Conducted Emission

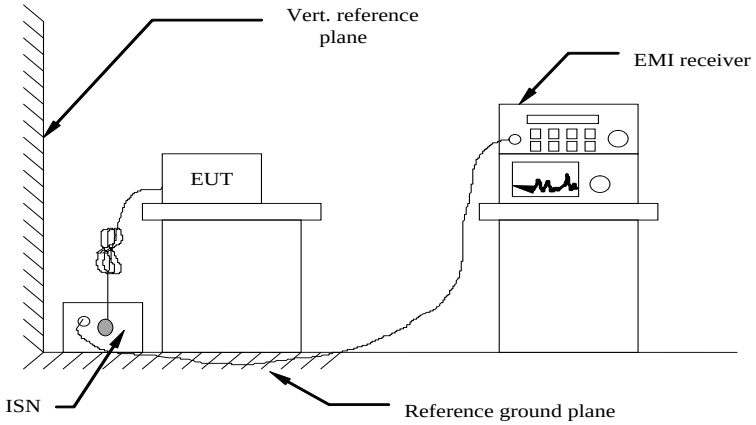
The frequency spectrum from 0.15 MHz to 30 MHz was investigated. The LISN used was 50 ohm / 50 u Henry as specified by section 5.1 of ANSI C63.4. Cables and peripherals were moved to find the maximum emission levels for each frequency.

**Limit**

**FCC part 15.107(a)**

| Frequency of emission (MHz) | Conducted limit (dBμV) | |
|---|---|---|
| | Quasi-peak | Average |
| 0.15-0.5 | 66 to 56* | 56 to 46* |
| 0.5-5 | 56 | 46 |
| 5-30 | 60 | 50 |

**TEST CONFIGURATION**




**TEST PROCEDURE**

1 The equipment was set up as per the test configuration to simulate typical actual usage per the user's manual. The EUT is a tabletop system; a wooden table with a height of 0.8 meters is used and is placed on the ground plane as per ANSI C63.4
2 Support equipment, if needed, was placed as per ANSI C63.4
3 All I/O cables were positioned to simulate typical actual usage as per ANSI C63.4.
4 If a EUT received AC120V/60Hz power through a Line Impedance Stabilization Network (LISN) which supplied power source and was grounded to the ground plane.
5 All support equipments received AC power from a second LISN, if any
6 The EUT test program was started. Emissions were measured on each current carrying line of the EUT using a spectrum Analyzer / Receiver connected to the LISN powering the EUT. The LISN has two monitoring points: Line 1 (Hot Side) and Line 2 (Neutral Side). Two scans were taken: one with Line 1 connected to Analyzer / Receiver and Line 2 connected to a 50 ohm load; the second scan had Line 1 connected to a 50 ohm load and Line 2 connected to the Analyzer / Receiver.
7 Analyzer / Receiver scanned from 150 kHz to 30MHz for emissions in each of the test modes.
8 During the above scans, the emissions were maximized by cable manipulation.

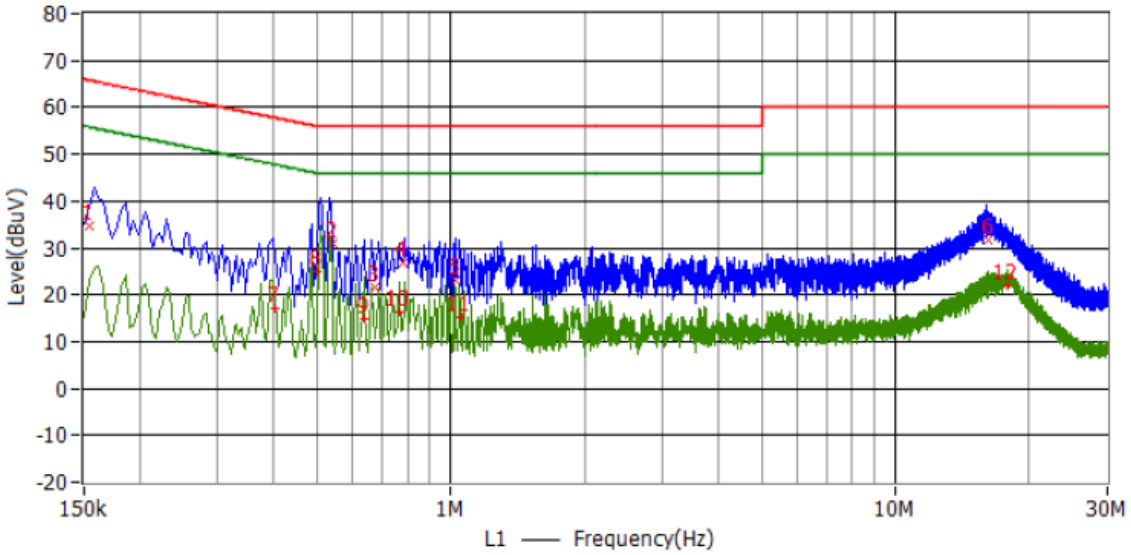
**TEST MODE**

Please reference to the section 3.4

**TEST RESULTS**

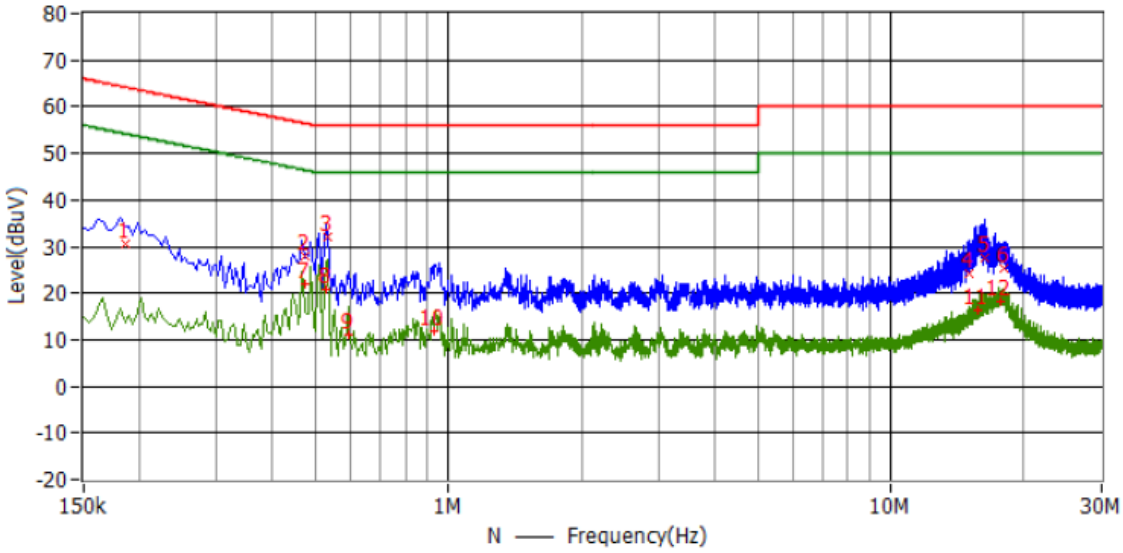
☒ **Passed** ☐ **Not Applicable**

| Polarity: | L |
|---|---|




| No. | Frequency | Limit dBuV | Level dBuV | Delta dB | Factor dB | Detector | Phase |
|---|---|---|---|---|---|---|---|
| 1 | 154.000 kHz | 65.8 | 34.5 | -31.3 | 10.1 | QP | L1 |
| 2 | 542.000 kHz | 56.0 | 31.1 | -24.9 | 10.1 | QP | L1 |
| 3 | 674.000 kHz | 56.0 | 21.4 | -34.6 | 10.1 | QP | L1 |
| 4 | 782.000 kHz | 56.0 | 26.7 | -29.3 | 10.1 | QP | L1 |
| 5 | 1.022 MHz | 56.0 | 23.0 | -33.0 | 10.1 | QP | L1 |
| 6 | 16.134 MHz | 60.0 | 31.8 | -28.2 | 10.2 | QP | L1 |
| 7 | 402.000 kHz | 47.8 | 16.9 | -31.0 | 10.1 | AV | L1 |
| 8 | 502.000 kHz | 46.0 | 25.0 | -21.0 | 10.1 | AV | L1 |
| 9 | 638.000 kHz | 46.0 | 15.0 | -31.0 | 10.1 | AV | L1 |
| 10 | 766.000 kHz | 46.0 | 16.5 | -29.5 | 10.1 | AV | L1 |
| 11 | 1.054 MHz | 46.0 | 15.2 | -30.8 | 10.1 | AV | L1 |
| 12 | 17.826 MHz | 50.0 | 21.9 | -28.1 | 10.2 | AV | L1 |

| Polarity: | N |
|---|---|




| No. | Frequency | Limit dBuV | Level dBuV | Delta dB | Factor dB | Detector | Phase |
|---|---|---|---|---|---|---|---|
| 1 | 186.000 kHz | 64.2 | 30.5 | -33.7 | 9.9 | QP | N |
| 2 | 474.000 kHz | 56.4 | 27.9 | -28.5 | 9.9 | QP | N |
| 3 | 534.000 kHz | 56.0 | 31.9 | -24.1 | 9.9 | QP | N |
| 4 | 15.058 MHz | 60.0 | 24.1 | -35.9 | 10.2 | QP | N |
| 5 | 16.346 MHz | 60.0 | 27.4 | -32.6 | 10.2 | QP | N |
| 6 | 18.042 MHz | 60.0 | 25.5 | -34.5 | 10.2 | QP | N |
| 7 | 474.000 kHz | 46.4 | 21.9 | -24.5 | 9.9 | AV | N |
| 8 | 530.000 kHz | 46.0 | 20.8 | -25.2 | 9.9 | AV | N |
| 9 | 594.000 kHz | 46.0 | 11.1 | -34.9 | 9.9 | AV | N |
| 10 | 926.000 kHz | 46.0 | 11.9 | -34.1 | 9.9 | AV | N |
| 11 | 15.718 MHz | 50.0 | 16.5 | -33.5 | 10.2 | AV | N |
| 12 | 17.766 MHz | 50.0 | 18.2 | -31.8 | 10.2 | AV | N |

## 5.11 Radiated Emission

**LIMIT**

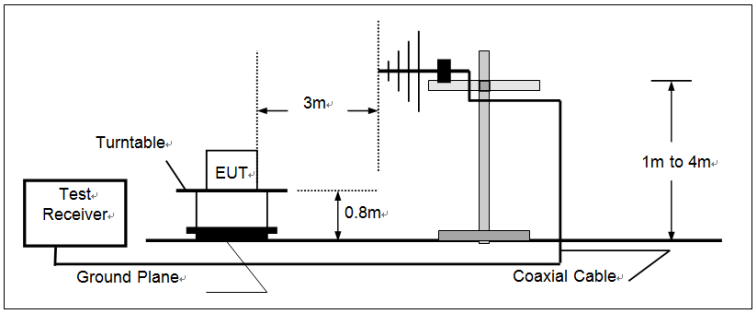
For unintentional device, according to § 15.109(a) except for Class A digital devices, the field strength of radiated emissions from unintentional radiators at a distance of 3 meters shall not exceed the following values：

| Frequency of emission (MHz) | Field strength (microvolts/meter) |
|---|---|
| 30-88 | 100 |
| 88-216 | 150 |
| 216-960 | 200 |
| Above 960 | 500 |

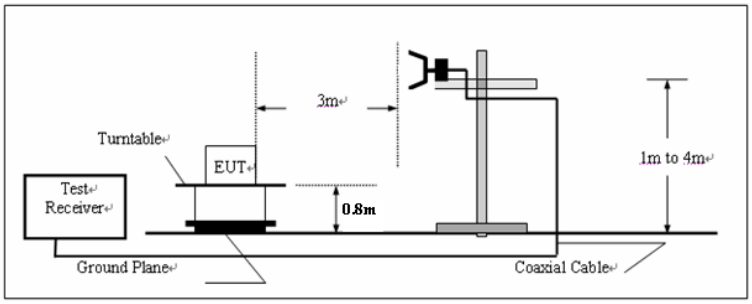
For intentional device, according to § 15.209(a), the general requirement of field strength of radiated emissions from intentional radiators at a distance of 3 meters shall not exceed the above table.

**TEST CONFIGURATION**

(A) Radiated Emission Test Set-Up, Frequency below 1000MHz




(B) Radiated Emission Test Set-Up, Frequency above 1000MHz




**TEST PROCEDURE**

1 The EUT was placed on a turn table which is 0.8m above ground plane.
2 Maximum procedure was performed by raising the receiving antenna from 1m to 4m and rotating the turn table from 0℃ to 360℃ to acquire the highest emissions from EUT
3 And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
4 Repeat above procedures until all frequency measurements have been completed.

**TEST MODE**

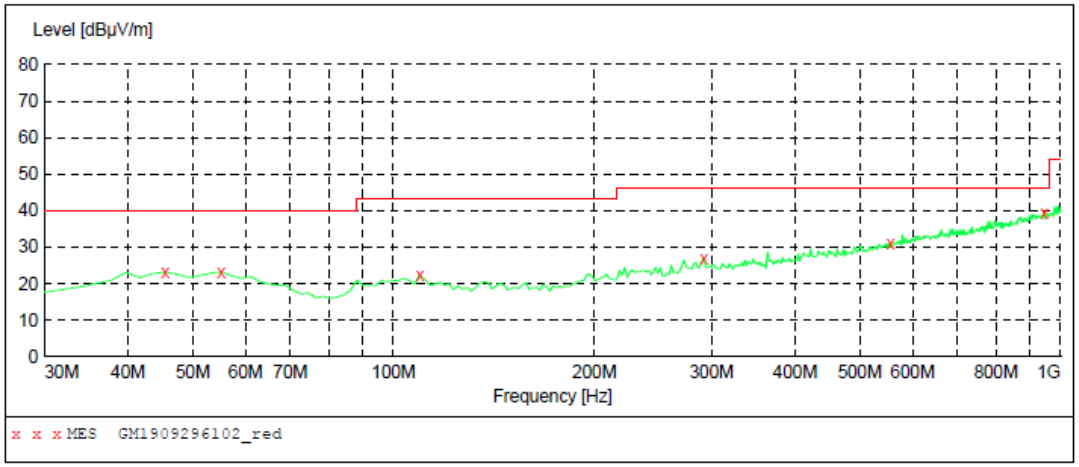
Please reference to the section 3.4

**TEST RESULTS**

☒ **Passed** ☐ **Not Applicable**

Note:
The EUT shall be scanned from 30 MHz to the 5th harmonic of the highest oscillator frequency in the digital devices or 1 GHz whichever is higher.

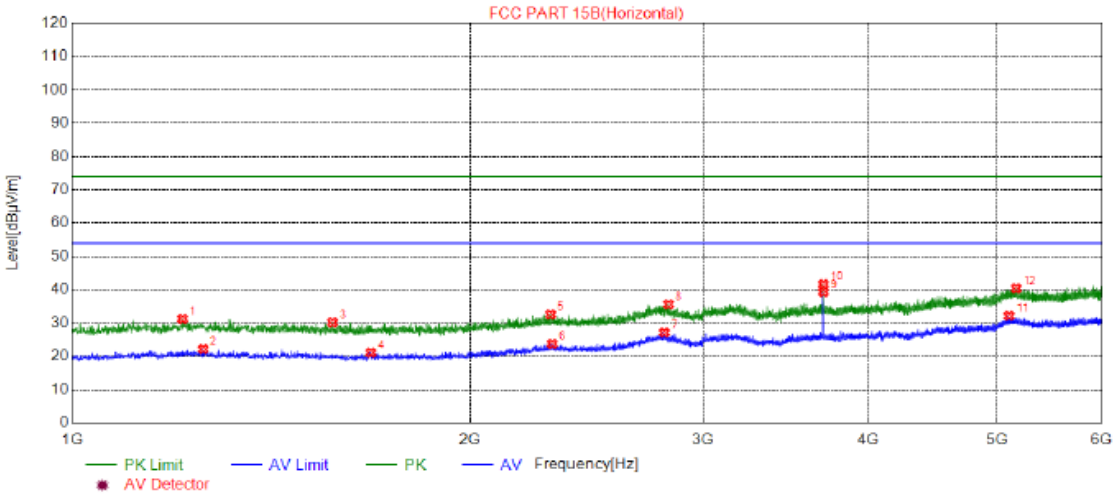
| Polarity: | Horizontal |
|---|---|




***MEASUREMENT RESULT: "GM1909296102_red"***

9/29/2019 8:47PM

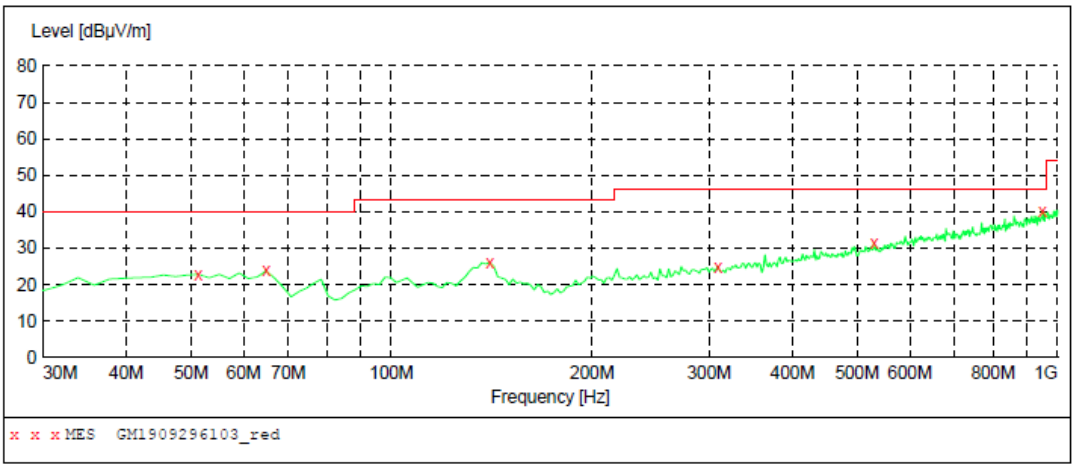
| Frequency MHz | Level dBµV/m | Transd dB | Limit dBµV/m | Margin dB | Det. | Height cm | Azimuth deg | Polarization |
|---|---|---|---|---|---|---|---|---|
| 45.520000 | 23.20 | -4.4 | 40.0 | 16.8 | QP | 300.0 | 0.00 | HORIZONTAL |
| 55.220000 | 23.30 | -4.4 | 40.0 | 16.7 | QP | 100.0 | 151.00 | HORIZONTAL |
| 109.540000 | 22.50 | -6.6 | 43.5 | 21.0 | QP | 100.0 | 302.00 | HORIZONTAL |
| 291.900000 | 27.00 | -2.6 | 46.0 | 19.0 | QP | 100.0 | 255.00 | HORIZONTAL |
| 555.740000 | 31.20 | 4.3 | 46.0 | 14.8 | QP | 300.0 | 297.00 | HORIZONTAL |
| 945.680000 | 39.40 | 12.1 | 46.0 | 6.6 | QP | 100.0 | 0.00 | HORIZONTAL |




**Suspected Data List**

| NO. | Freq. [MHz] | Reading [dBµV/m] | Factor [dB] | Level [dBµV/m] | Limit [dBµV/m] | Margin [dB] | Polarity | Detector |
|---|---|---|---|---|---|---|---|---|
| 1 | 1211.875 | 37.08 | -5.80 | 31.28 | 74.00 | 42.72 | Horizontal | PK |
| 2 | 1256.250 | 27.85 | -5.68 | 22.17 | 54.00 | 31.83 | Horizontal | AV |
| 3 | 1573.750 | 36.28 | -6.11 | 30.17 | 74.00 | 43.83 | Horizontal | PK |
| 4 | 1681.875 | 27.27 | -6.13 | 21.14 | 54.00 | 32.86 | Horizontal | AV |
| 5 | 2299.375 | 34.88 | -2.33 | 32.55 | 74.00 | 41.45 | Horizontal | PK |
| 6 | 2306.250 | 26.12 | -2.34 | 23.78 | 54.00 | 30.22 | Horizontal | AV |
| 7 | 2802.500 | 25.08 | 2.05 | 27.13 | 54.00 | 26.87 | Horizontal | AV |
| 8 | 2823.750 | 33.91 | 1.70 | 35.61 | 74.00 | 38.39 | Horizontal | PK |
| 9 | 3699.375 | 37.72 | 1.59 | 39.31 | 54.00 | 14.69 | Horizontal | AV |
| 10 | 3699.375 | 40.03 | 1.59 | 41.62 | 74.00 | 32.38 | Horizontal | PK |
| 11 | 5108.125 | 23.36 | 8.81 | 32.17 | 54.00 | 21.83 | Horizontal | AV |
| 12 | 5171.250 | 31.49 | 8.93 | 40.42 | 74.00 | 33.58 | Horizontal | PK |

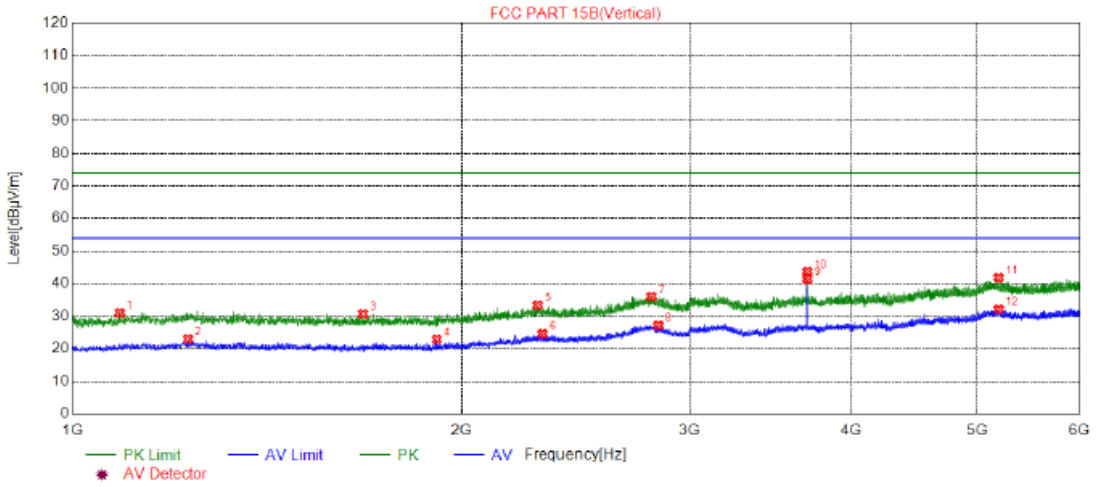
| Polarity: | Vertical |
|---|---|




***MEASUREMENT RESULT: "GM1909296103_red"***

9/29/2019 8:50PM

| Frequency MHz | Level dBµV/m | Transd dB | Limit dBµV/m | Margin dB | Det. | Height cm | Azimuth deg | Polarization |
|---|---|---|---|---|---|---|---|---|
| 51.340000 | 22.90 | -4.8 | 40.0 | 17.1 | QP | 100.0 | 167.00 | VERTICAL |
| 64.920000 | 23.80 | -7.0 | 40.0 | 16.2 | QP | 100.0 | 73.00 | VERTICAL |
| 140.580000 | 26.10 | -9.6 | 43.5 | 17.4 | QP | 100.0 | 227.00 | VERTICAL |
| 309.360000 | 25.00 | -2.3 | 46.0 | 21.0 | QP | 100.0 | 282.00 | VERTICAL |
| 530.520000 | 31.40 | 3.5 | 46.0 | 14.6 | QP | 100.0 | 11.00 | VERTICAL |
| 947.620000 | 40.00 | 12.1 | 46.0 | 6.0 | QP | 100.0 | 329.00 | VERTICAL |

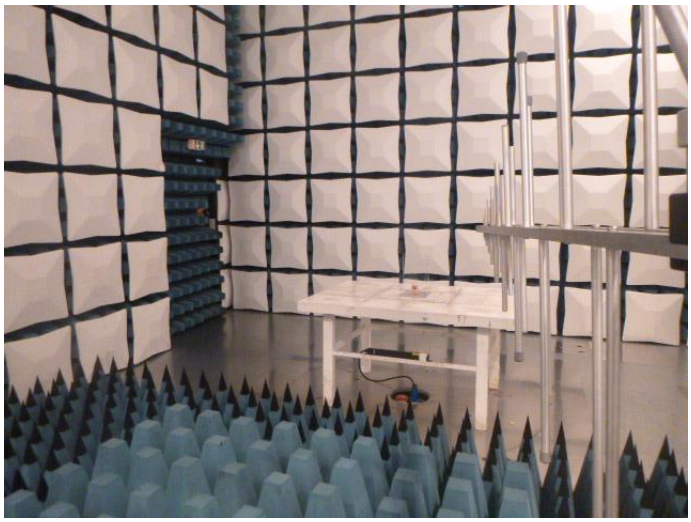


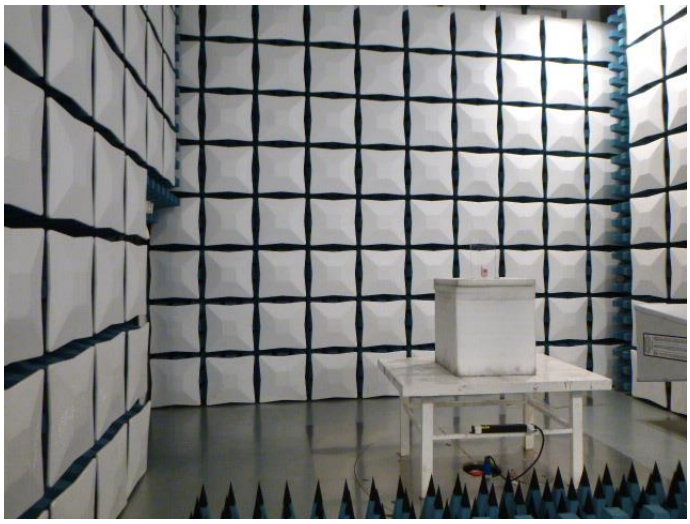

**Suspected Data List**

| NO. | Freq. [MHz] | Reading [dBµV/m] | Factor [dB] | Level [dBµV/m] | Limit [dBµV/m] | Margin [dB] | Polarity | Detector |
|---|---|---|---|---|---|---|---|---|
| 1 | 1088.125 | 38.05 | -6.98 | 31.07 | 74.00 | 42.93 | Vertical | PK |
| 2 | 1228.125 | 28.74 | -5.76 | 22.98 | 54.00 | 31.02 | Vertical | AV |
| 3 | 1677.500 | 36.88 | -6.14 | 30.74 | 74.00 | 43.26 | Vertical | PK |
| 4 | 1912.500 | 28.57 | -5.69 | 22.88 | 54.00 | 31.12 | Vertical | AV |
| 5 | 2288.750 | 35.82 | -2.40 | 33.42 | 74.00 | 40.58 | Vertical | PK |
| 6 | 2308.125 | 26.93 | -2.34 | 24.59 | 54.00 | 29.41 | Vertical | AV |
| 7 | 2801.250 | 34.01 | 2.07 | 36.08 | 74.00 | 37.92 | Vertical | PK |
| 8 | 2835.625 | 25.63 | 1.51 | 27.14 | 54.00 | 26.86 | Vertical | AV |
| 9 | 3699.375 | 39.84 | 1.59 | 41.43 | 54.00 | 12.57 | Vertical | AV |
| 10 | 3699.375 | 42.17 | 1.59 | 43.76 | 74.00 | 30.24 | Vertical | PK |
| 11 | 5196.875 | 32.84 | 8.97 | 41.81 | 74.00 | 32.19 | Vertical | PK |
| 12 | 5197.500 | 23.13 | 8.98 | 32.11 | 54.00 | 21.89 | Vertical | AV |

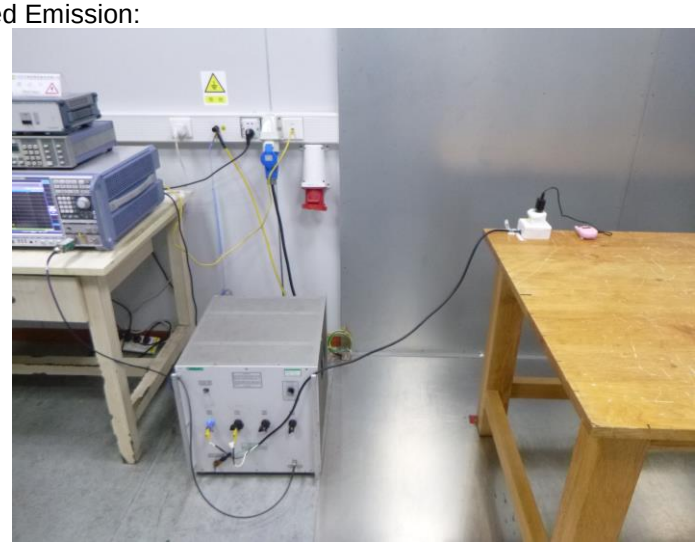
# 6 TEST SETUP PHOTOS OF THE EUT

Transmitter Radiated Spurious Emission:

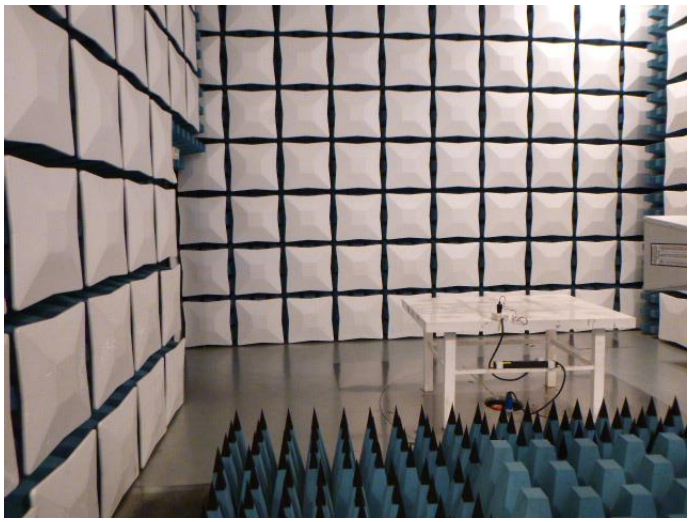




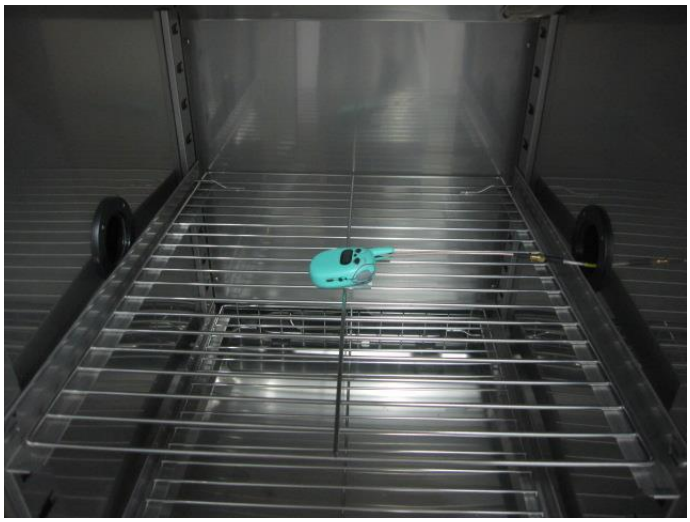
AC Power Line Conducted Emission:



Radiated Emission:



Frequency Stability:

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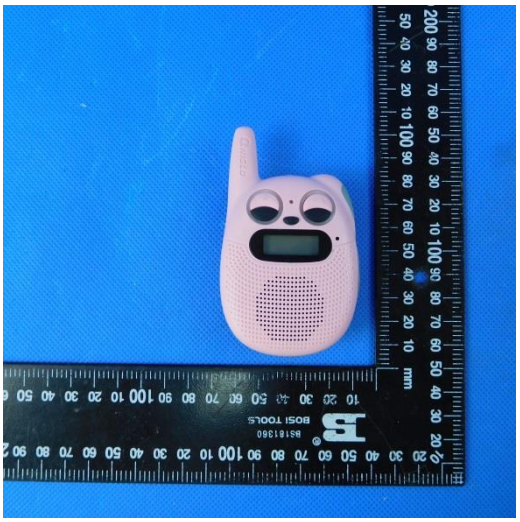
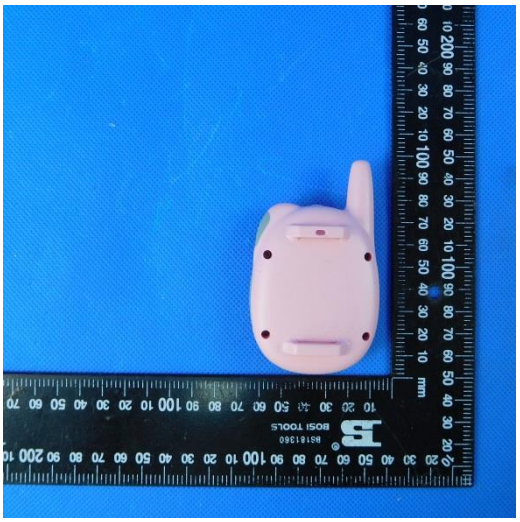
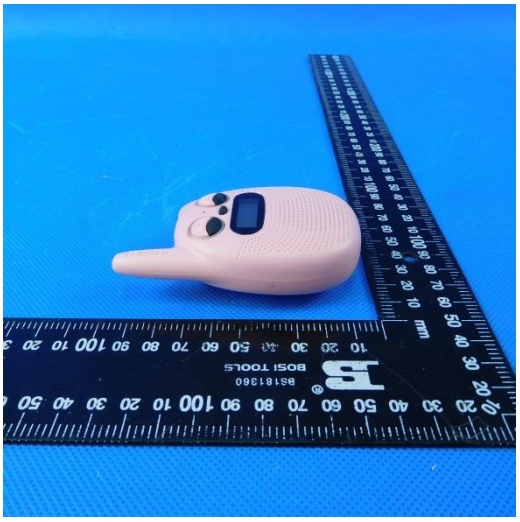
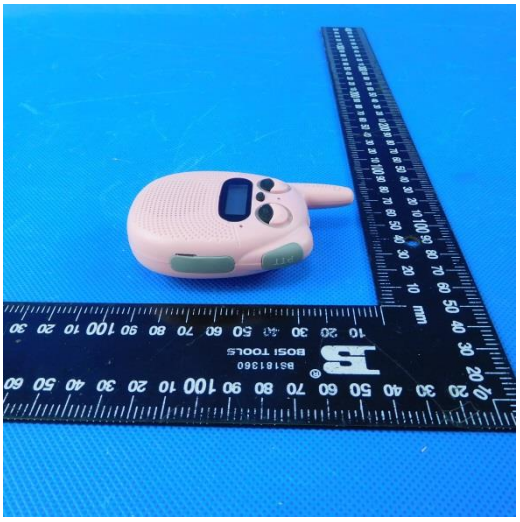
# 7 EXTERNAL AND INTERNAL PHOTOS OF THE EUT

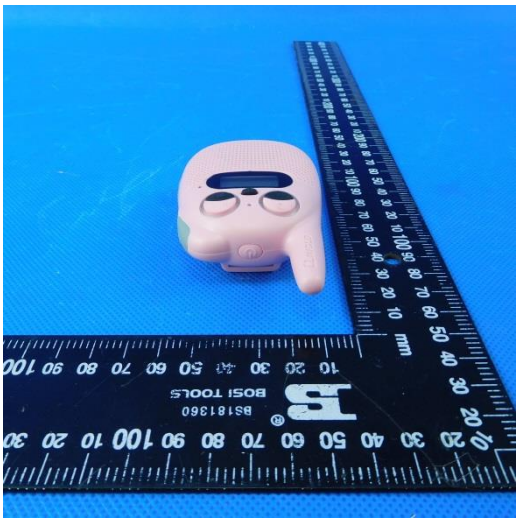
## External Photos of the EUT

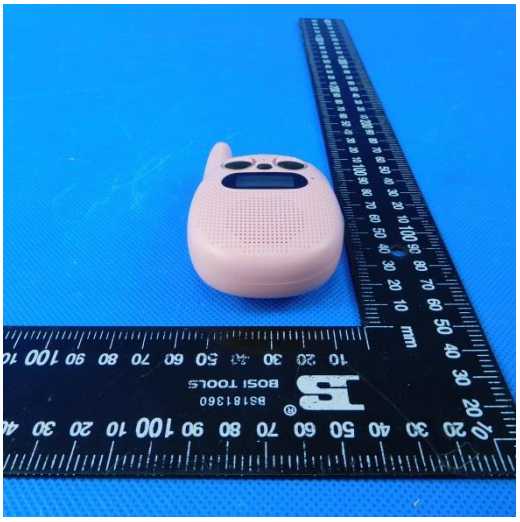




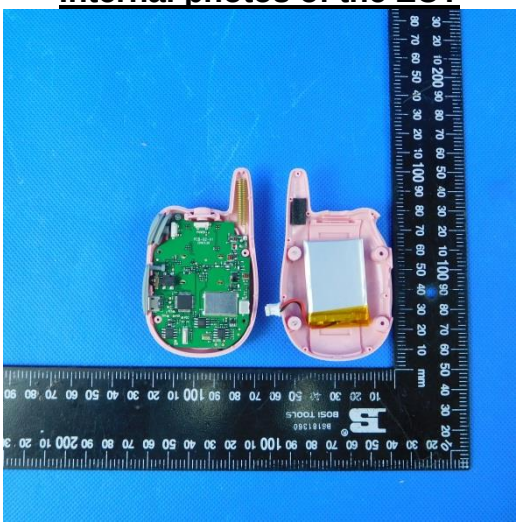


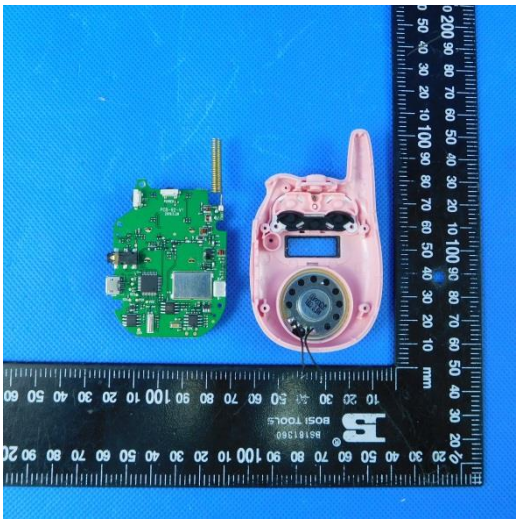


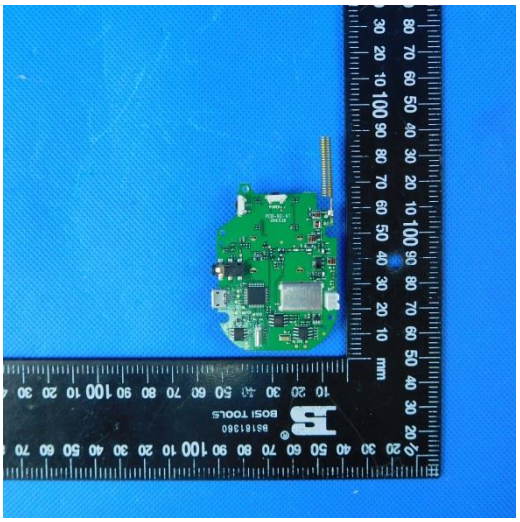


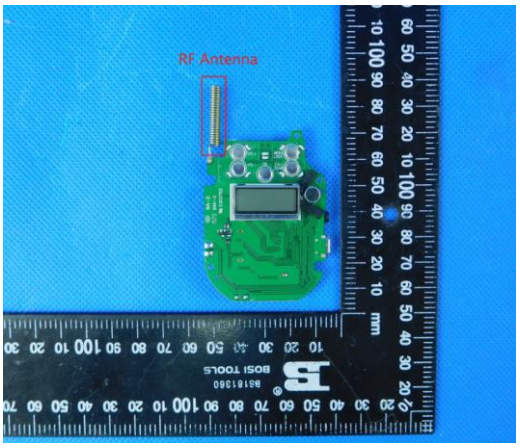

BS1813B0
BOSI TOOLS
mm

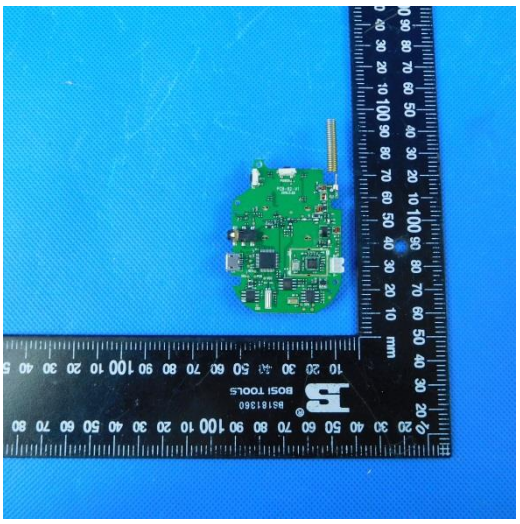
## Internal photos of the EUT

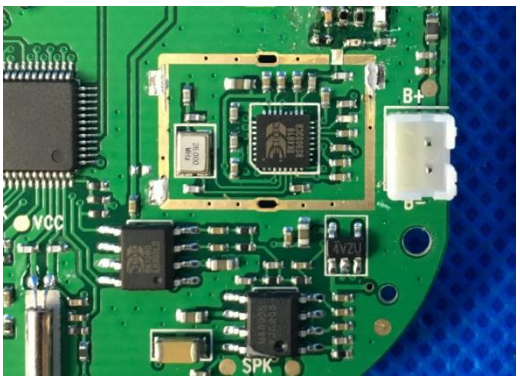











# 8 APPENDIX REPORT

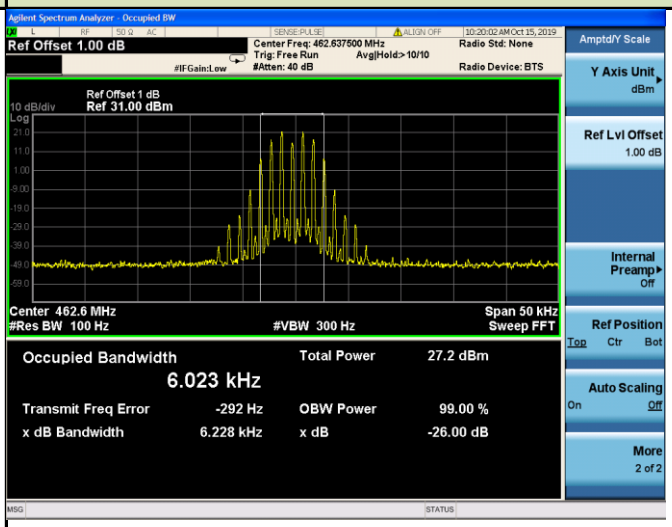
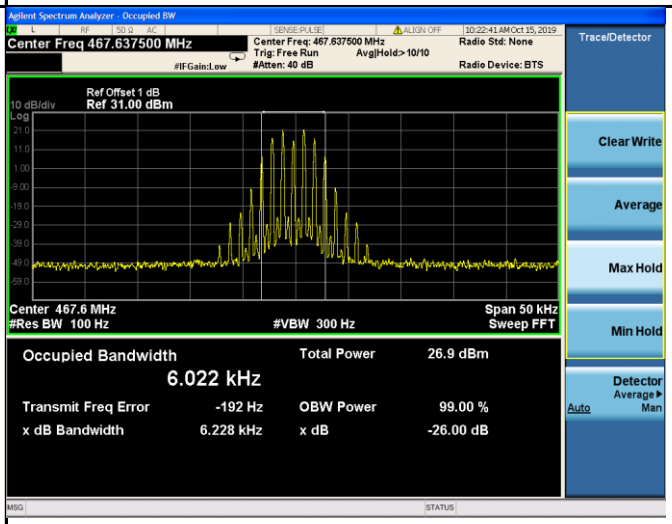
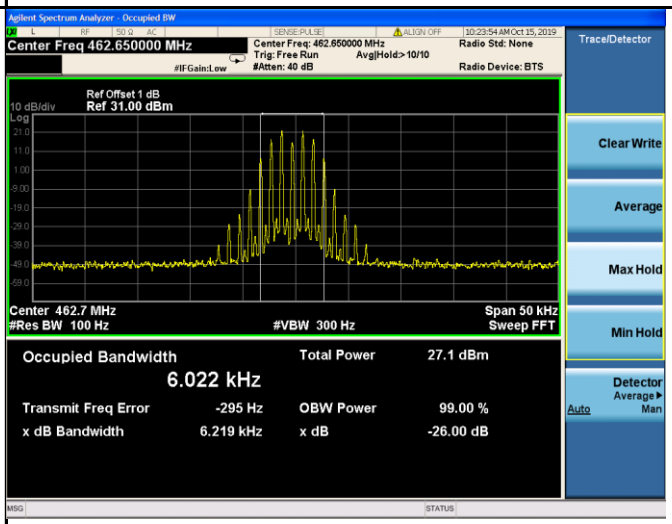
**Appendix A: Carrier Output Power(ERP)**

| Test Mode | Modulation Type | Test Channel | Measured power (dBm) | Measured power (W) | Limit(W) | Result |
|---|---|---|---|---|---|---|
| TX-FRS | FM | $CH_{M1}$ | 26.44 | 0.44 | ≤2 | PASS |
| TX-FRS | FM | $CH_{M2}$ | 25.76 | 0.38 | ≤0.5 | PASS |
| TX-FRS | FM | $CH_{M3}$ | 26.13 | 0.41 | ≤2 | PASS |

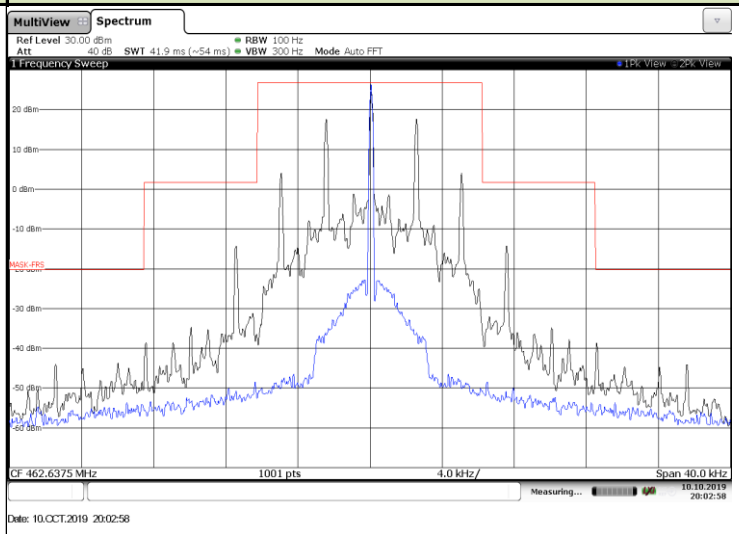
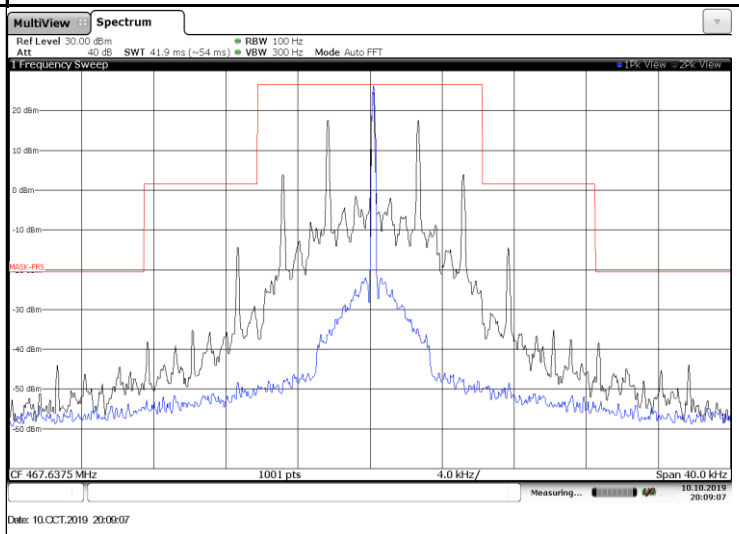
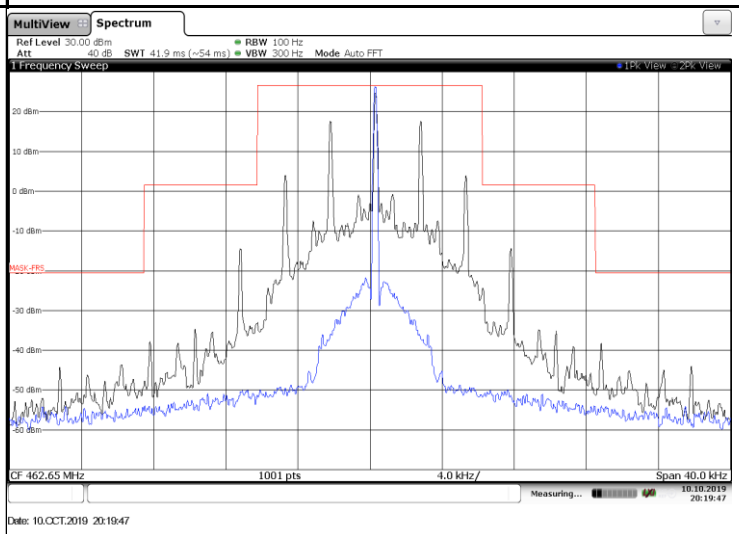
**Appendix B: 99% Occupied Bandwidth & 26dB Bandwidth**

| Test Mode | Modulation Type | Test Channel | Occupied Bandwidth | | 99% Limit(kHz) | Result |
|---|---|---|---|---|---|---|
| | | | 99%(kHz) | 26dB(kHz) | | |
| TX-FRS | FM | $CH_{M1}$ | **6.023** | 6.228 | ≤12.5 | PASS |
| TX-FRS | FM | $CH_{M2}$ | 6.022 | 6.228 | ≤12.5 | PASS |
| TX-FRS | FM | $CH_{M3}$ | 6.022 | 6.219 | ≤12.5 | PASS |

## Appendix B: 99% Occupied Bandwidth & 26dB Bandwidth

| Test Mode | Modulation Type | Test Channel | TEST PLOT RESULT |
|---|---|---|---|
| TX-FRS | FM | $CH_{M1}$ |  |
| TX-FRS | FM | $CH_{M2}$ |  |
| TX-FRS | FM | $CH_{M3}$ |  |

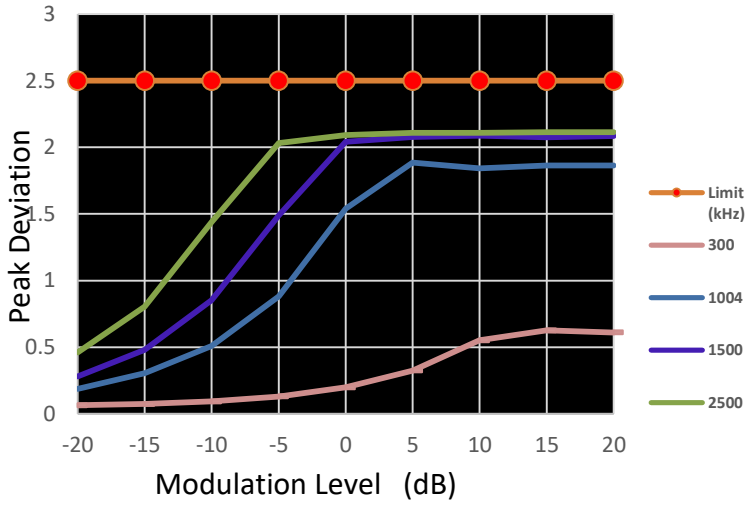
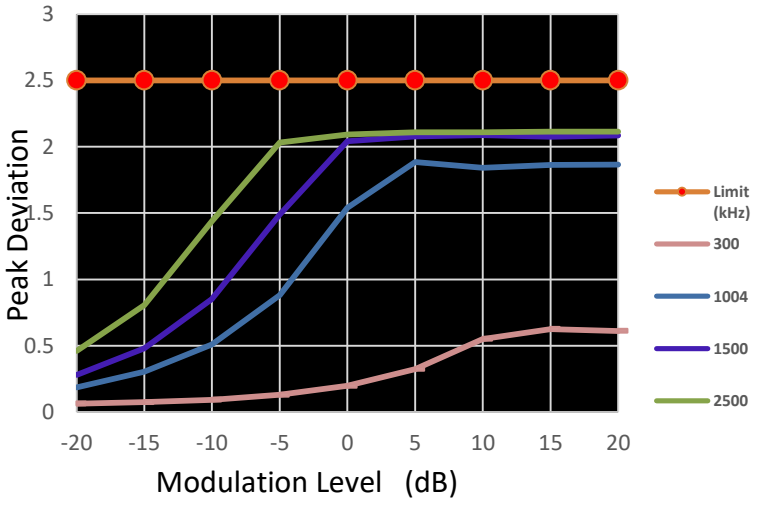
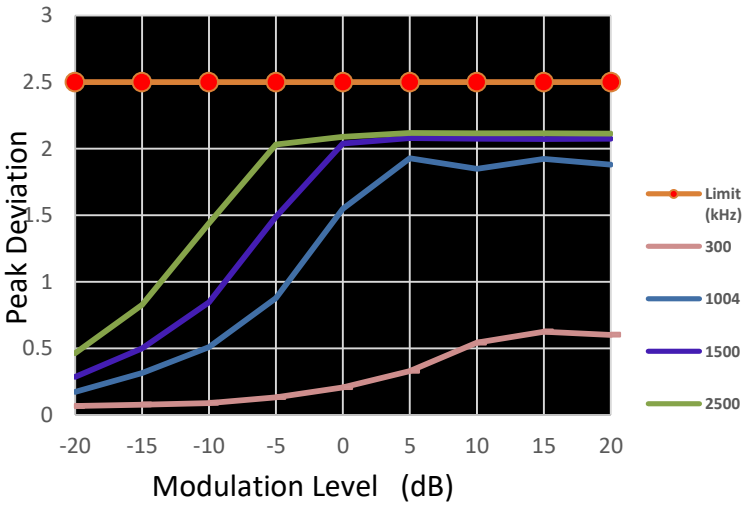
## Appendix C:Emission Mask

| Test Mode | Modulation Type | Test Channel | TEST PLOT RESULT |
|---|---|---|---|
| TX-FRS | FM | $CH_{M1}$ |  |
| TX-FRS | FM | $CH_{M2}$ |  |
| TX-FRS | FM | $CH_{M3}$ |  |

**Appendix D:Modulation Limit**

| Test Mode | Modulation Type | Test Channel | Modulation Level (dB) | Peak Frequency Deviation (Hz) | | | | Limit (kHz) | Result |
|---|---|---|---|---|---|---|---|---|---|
| | | | | 300 | 1004 | 1500 | 2500 | | |
| TX-FRS | FM | $CH_{M1}$ | -20 | 0.064 | 0.186 | 0.28 | 0.46 | 2.5 | PASS |
| TX-FRS | FM | $CH_{M1}$ | -15 | 0.074 | 0.305 | 0.481 | 0.805 | 2.5 | PASS |
| TX-FRS | FM | $CH_{M1}$ | -10 | 0.093 | 0.509 | 0.853 | 1.439 | 2.5 | PASS |
| TX-FRS | FM | $CH_{M1}$ | -5 | 0.13 | 0.881 | 1.489 | 2.032 | 2.5 | PASS |
| TX-FRS | FM | $CH_{M1}$ | 0 | 0.198 | 1.54 | 2.042 | 2.091 | 2.5 | PASS |
| TX-FRS | FM | $CH_{M1}$ | 5 | 0.324 | 1.885 | 2.077 | 2.109 | 2.5 | PASS |
| TX-FRS | FM | $CH_{M1}$ | 10 | 0.551 | 1.842 | 2.088 | 2.11 | 2.5 | PASS |
| TX-FRS | FM | $CH_{M1}$ | 15 | 0.626 | 1.863 | 2.075 | 2.113 | 2.5 | PASS |
| TX-FRS | FM | $CH_{M1}$ | 20 | 0.611 | 1.865 | 2.084 | 2.114 | 2.5 | PASS |
| TX-FRS | FM | $CH_{M2}$ | -20 | 0.064 | 0.186 | 0.28 | 0.46 | 2.5 | PASS |
| TX-FRS | FM | $CH_{M2}$ | -15 | 0.074 | 0.305 | 0.481 | 0.805 | 2.5 | PASS |
| TX-FRS | FM | $CH_{M2}$ | -10 | 0.093 | 0.509 | 0.853 | 1.439 | 2.5 | PASS |
| TX-FRS | FM | $CH_{M2}$ | -5 | 0.13 | 0.881 | 1.489 | 2.032 | 2.5 | PASS |
| TX-FRS | FM | $CH_{M2}$ | 0 | 0.198 | 1.54 | 2.042 | 2.091 | 2.5 | PASS |
| TX-FRS | FM | $CH_{M2}$ | 5 | 0.324 | 1.885 | 2.077 | 2.109 | 2.5 | PASS |
| TX-FRS | FM | $CH_{M2}$ | 10 | 0.551 | 1.842 | 2.088 | 2.11 | 2.5 | PASS |
| TX-FRS | FM | $CH_{M2}$ | 15 | 0.626 | 1.863 | 2.075 | 2.113 | 2.5 | PASS |
| TX-FRS | FM | $CH_{M2}$ | 20 | 0.611 | 1.865 | 2.084 | 2.114 | 2.5 | PASS |
| TX-FRS | FM | $CH_{M3}$ | -20 | 0.067 | 0.174 | 0.286 | 0.464 | 2.5 | PASS |
| TX-FRS | FM | $CH_{M3}$ | -15 | 0.077 | 0.314 | 0.499 | 0.828 | 2.5 | PASS |
| TX-FRS | FM | $CH_{M3}$ | -10 | 0.089 | 0.509 | 0.846 | 1.439 | 2.5 | PASS |
| TX-FRS | FM | $CH_{M3}$ | -5 | 0.133 | 0.877 | 1.487 | 2.031 | 2.5 | PASS |
| TX-FRS | FM | $CH_{M3}$ | 0 | 0.207 | 1.549 | 2.039 | 2.089 | 2.5 | PASS |
| TX-FRS | FM | $CH_{M3}$ | 5 | 0.33 | 1.929 | 2.079 | 2.117 | 2.5 | PASS |
| TX-FRS | FM | $CH_{M3}$ | 10 | 0.543 | 1.849 | 2.075 | 2.115 | 2.5 | PASS |
| TX-FRS | FM | $CH_{M3}$ | 15 | 0.626 | 1.922 | 2.073 | 2.115 | 2.5 | PASS |
| TX-FRS | FM | $CH_{M3}$ | 20 | 0.602 | 1.879 | 2.074 | 2.113 | 2.5 | PASS |

**Appendix D:Modulation Limit**

| Test Mode | Modulation Type | Test Channel | TEST PLOT RESULT |
|---|---|---|---|
| TX-FRS | FM | $CH_{M1}$ |  |
| TX-FRS | FM | $CH_{M2}$ |  |
| TX-FRS | FM | $CH_{M3}$ |  |

**Appendix E:Aduio Frequency Response**

| Test Mode | Modulation Type | Test Channel | Frequency (Hz) | Audio Frequency Response (dB) | Lower Limit | Upper Limit | Result |
|---|---|---|---|---|---|---|---|
| TX-FRS | FM | $CH_{M1}$ | 100 | -32.44 | | | PASS |
| TX-FRS | FM | $CH_{M1}$ | 200 | -32.57 | | | PASS |
| TX-FRS | FM | $CH_{M1}$ | 300 | -17.65 | -17.84 | -9.42 | PASS |
| TX-FRS | FM | $CH_{M1}$ | 400 | -12.62 | -12.86 | -6.93 | PASS |
| TX-FRS | FM | $CH_{M1}$ | 500 | -7.52 | -9.00 | -5.00 | PASS |
| TX-FRS | FM | $CH_{M1}$ | 600 | -6.95 | -7.42 | -3.42 | PASS |
| TX-FRS | FM | $CH_{M1}$ | 700 | -5.87 | -6.09 | -2.09 | PASS |
| TX-FRS | FM | $CH_{M1}$ | 800 | -3.39 | -4.93 | -0.93 | PASS |
| TX-FRS | FM | $CH_{M1}$ | 900 | -1.61 | -3.91 | 0.09 | PASS |
| TX-FRS | FM | $CH_{M1}$ | 1000 | -0.05 | -3.00 | 1.00 | PASS |
| TX-FRS | FM | $CH_{M1}$ | 1200 | 1.72 | -1.42 | 2.58 | PASS |
| TX-FRS | FM | $CH_{M1}$ | 1400 | 3.70 | -0.09 | 3.91 | PASS |
| TX-FRS | FM | $CH_{M1}$ | 1600 | 5.01 | 1.07 | 5.07 | PASS |
| TX-FRS | FM | $CH_{M1}$ | 1800 | 5.93 | 2.09 | 6.09 | PASS |
| TX-FRS | FM | $CH_{M1}$ | 2000 | 6.86 | 3.00 | 7.00 | PASS |
| TX-FRS | FM | $CH_{M1}$ | 2100 | 7.32 | 3.42 | 7.42 | PASS |
| TX-FRS | FM | $CH_{M1}$ | 2200 | 7.56 | 3.83 | 7.83 | PASS |
| TX-FRS | FM | $CH_{M1}$ | 2300 | 7.73 | 4.21 | 8.21 | PASS |
| TX-FRS | FM | $CH_{M1}$ | 2400 | 7.98 | 4.58 | 8.58 | PASS |
| TX-FRS | FM | $CH_{M1}$ | 2500 | 8.24 | 4.93 | 8.93 | PASS |
| TX-FRS | FM | $CH_{M1}$ | 2600 | 8.25 | 4.59 | 9.27 | PASS |
| TX-FRS | FM | $CH_{M1}$ | 2700 | 8.18 | 4.27 | 9.60 | PASS |
| TX-FRS | FM | $CH_{M1}$ | 2800 | 8.25 | 3.95 | 9.91 | PASS |
| TX-FRS | FM | $CH_{M1}$ | 2900 | 8.51 | 3.65 | 10.22 | PASS |
| TX-FRS | FM | $CH_{M1}$ | 3000 | 8.17 | 3.35 | 10.51 | PASS |
| TX-FRS | FM | $CH_{M1}$ | 3500 | -32.06 | | | PASS |
| TX-FRS | FM | $CH_{M1}$ | 4000 | -32.46 | | | PASS |
| TX-FRS | FM | $CH_{M1}$ | 4500 | -32.40 | | | PASS |
| TX-FRS | FM | $CH_{M1}$ | 5000 | -32.52 | | | PASS |
| TX-FRS | FM | $CH_{M2}$ | 100 | -32.44 | - | - | PASS |
| TX-FRS | FM | $CH_{M2}$ | 200 | -32.57 | - | - | PASS |
| TX-FRS | FM | $CH_{M2}$ | 300 | -16.63 | -17.84 | -9.42 | PASS |
| TX-FRS | FM | $CH_{M2}$ | 400 | -12.14 | -12.86 | -6.93 | PASS |
| TX-FRS | FM | $CH_{M2}$ | 500 | -8.69 | -9.00 | -5.00 | PASS |
| TX-FRS | FM | $CH_{M2}$ | 600 | -7.33 | -7.42 | -3.42 | PASS |
| TX-FRS | FM | $CH_{M2}$ | 700 | -5.45 | -6.09 | -2.09 | PASS |
| TX-FRS | FM | $CH_{M2}$ | 800 | -3.39 | -4.93 | -0.93 | PASS |
| TX-FRS | FM | $CH_{M2}$ | 900 | -1.61 | -3.91 | 0.09 | PASS |
| TX-FRS | FM | $CH_{M2}$ | 1000 | -0.05 | -3.00 | 1.00 | PASS |
| TX-FRS | FM | $CH_{M2}$ | 1200 | 1.72 | -1.42 | 2.58 | PASS |
| TX-FRS | FM | $CH_{M2}$ | 1400 | 3.70 | -0.09 | 3.91 | PASS |
| TX-FRS | FM | $CH_{M2}$ | 1600 | 4.91 | 1.07 | 5.07 | PASS |

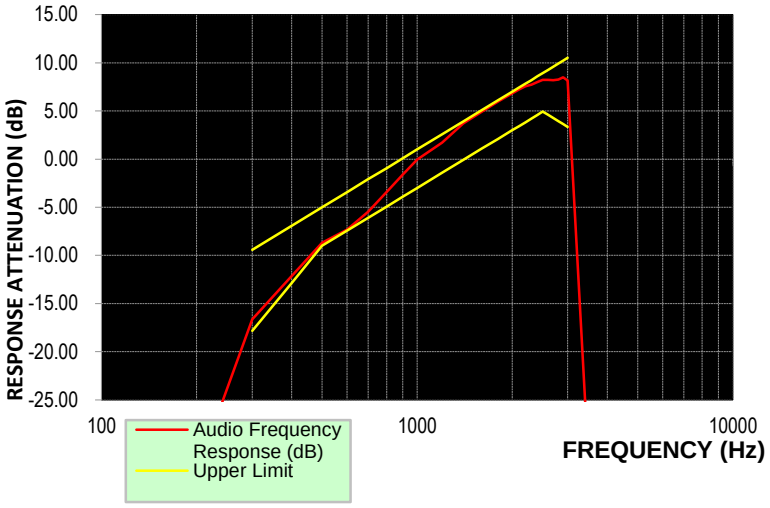
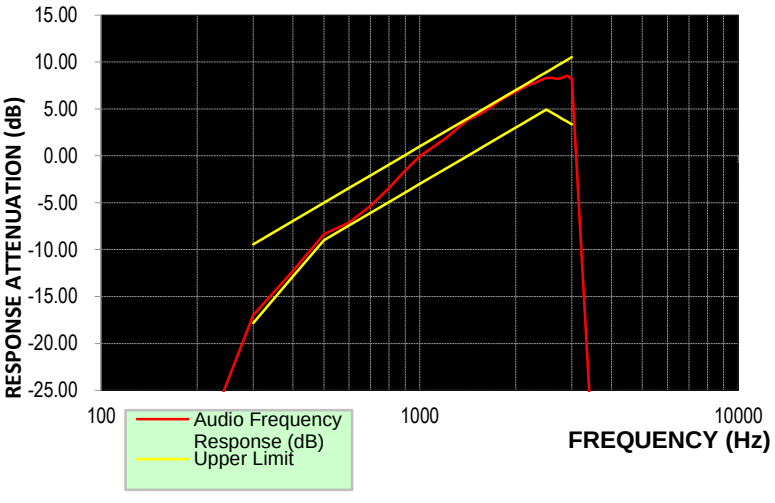
**Appendix E:Aduio Frequency Response**

| Test Mode | Modulation Type | Test Channel | Frequency (Hz) | Audio Frequency Response (dB) | Lower Limit | Upper Limit | Result |
|---|---|---|---|---|---|---|---|
| TX-FRS | FM | $CH_{M2}$ | 1800 | 5.96 | 2.09 | 6.09 | PASS |
| TX-FRS | FM | $CH_{M2}$ | 2000 | 6.84 | 3.00 | 7.00 | PASS |
| TX-FRS | FM | $CH_{M2}$ | 2100 | 7.23 | 3.42 | 7.42 | PASS |
| TX-FRS | FM | $CH_{M2}$ | 2200 | 7.56 | 3.83 | 7.83 | PASS |
| TX-FRS | FM | $CH_{M2}$ | 2300 | 7.73 | 4.21 | 8.21 | PASS |
| TX-FRS | FM | $CH_{M2}$ | 2400 | 7.98 | 4.58 | 8.58 | PASS |
| TX-FRS | FM | $CH_{M2}$ | 2500 | 8.24 | 4.93 | 8.93 | PASS |
| TX-FRS | FM | $CH_{M2}$ | 2600 | 8.25 | 4.59 | 9.27 | PASS |
| TX-FRS | FM | $CH_{M2}$ | 2700 | 8.18 | 4.27 | 9.60 | PASS |
| TX-FRS | FM | $CH_{M2}$ | 2800 | 8.25 | 3.95 | 9.91 | PASS |
| TX-FRS | FM | $CH_{M2}$ | 2900 | 8.51 | 3.65 | 10.22 | PASS |
| TX-FRS | FM | $CH_{M2}$ | 3000 | 8.17 | 3.35 | 10.51 | PASS |
| TX-FRS | FM | $CH_{M2}$ | 3500 | -32.06 | - | - | PASS |
| TX-FRS | FM | $CH_{M2}$ | 4000 | -32.46 | - | - | PASS |
| TX-FRS | FM | $CH_{M2}$ | 4500 | -32.40 | - | - | PASS |
| TX-FRS | FM | $CH_{M2}$ | 5000 | -32.52 | - | - | PASS |
| TX-FRS | FM | $CH_{M3}$ | 100 | -32.44 | | | PASS |
| TX-FRS | FM | $CH_{M3}$ | 200 | -32.38 | | | PASS |
| TX-FRS | FM | $CH_{M3}$ | 300 | -16.99 | -17.84 | -9.42 | PASS |
| TX-FRS | FM | $CH_{M3}$ | 400 | -12.28 | -12.86 | -6.93 | PASS |
| TX-FRS | FM | $CH_{M3}$ | 500 | -8.36 | -9.00 | -5.00 | PASS |
| TX-FRS | FM | $CH_{M3}$ | 600 | -7.11 | -7.42 | -3.42 | PASS |
| TX-FRS | FM | $CH_{M3}$ | 700 | -5.35 | -6.09 | -2.09 | PASS |
| TX-FRS | FM | $CH_{M3}$ | 800 | -3.42 | -4.93 | -0.93 | PASS |
| TX-FRS | FM | $CH_{M3}$ | 900 | -1.57 | -3.91 | 0.09 | PASS |
| TX-FRS | FM | $CH_{M3}$ | 1000 | -0.04 | -3.00 | 1.00 | PASS |
| TX-FRS | FM | $CH_{M3}$ | 1200 | 1.81 | -1.42 | 2.58 | PASS |
| TX-FRS | FM | $CH_{M3}$ | 1400 | 3.73 | -0.09 | 3.91 | PASS |
| TX-FRS | FM | $CH_{M3}$ | 1600 | 4.71 | 1.07 | 5.07 | PASS |
| TX-FRS | FM | $CH_{M3}$ | 1800 | 5.98 | 2.09 | 6.09 | PASS |
| TX-FRS | FM | $CH_{M3}$ | 2000 | 6.85 | 3.00 | 7.00 | PASS |
| TX-FRS | FM | $CH_{M3}$ | 2100 | 7.21 | 3.42 | 7.42 | PASS |
| TX-FRS | FM | $CH_{M3}$ | 2200 | 7.59 | 3.83 | 7.83 | PASS |
| TX-FRS | FM | $CH_{M3}$ | 2300 | 7.75 | 4.21 | 8.21 | PASS |
| TX-FRS | FM | $CH_{M3}$ | 2400 | 8.06 | 4.58 | 8.58 | PASS |
| TX-FRS | FM | $CH_{M3}$ | 2500 | 8.29 | 4.93 | 8.93 | PASS |
| TX-FRS | FM | $CH_{M3}$ | 2600 | 8.29 | 4.59 | 9.27 | PASS |
| TX-FRS | FM | $CH_{M3}$ | 2700 | 8.21 | 4.27 | 9.60 | PASS |
| TX-FRS | FM | $CH_{M3}$ | 2800 | 8.32 | 3.95 | 9.91 | PASS |
| TX-FRS | FM | $CH_{M3}$ | 2900 | 8.53 | 3.65 | 10.22 | PASS |
| TX-FRS | FM | $CH_{M3}$ | 3000 | 8.22 | 3.35 | 10.51 | PASS |
| TX-FRS | FM | $CH_{M3}$ | 3500 | -32.23 | | | PASS |

**Appendix E:Aduio Frequency Response**

| Test Mode | Modulation Type | Test Channel | Frequency (Hz) | Audio Frequency Response (dB) | Lower Limit | Upper Limit | Result |
|---|---|---|---|---|---|---|---|
| TX-FRS | FM | $CH_{M3}$ | 4000 | -32.65 | | | PASS |
| TX-FRS | FM | $CH_{M3}$ | 4500 | -32.47 | | | PASS |
| TX-FRS | FM | $CH_{M3}$ | 5000 | -32.66 | | | PASS |

**Appendix E:Aduio Frequency Response**

| Test Mode | Modulation Type | Test Channel | TEST PLOT RESULT |
|---|---|---|---|
| TX-FRS | FM | $CH_{M1}$ |  |
| TX-FRS | FM | $CH_{M2}$ |  |
| TX-FRS | FM | $CH_{M3}$ |  |



Note: The highest audio frequency response at 3kHz<3.125kHz, so meet the requirement.

**Appendix F:Frequency Stability Test & Temperature**

| Test Mode | Modulation Type | Test Conditions | | Frequency error (ppm) | | | Limit (ppm) | Result |
|---|---|---|---|---|---|---|---|---|
| | | Voltage | Temperature | $CH_{M1}$ | $CH_{M2}$ | $CH_{M3}$ | | |
| TX-FRS | FM | $V_N$ | -30 | -0.147 | -0.164 | -0.205 | ±2.5 | PASS |
| TX-FRS | FM | $V_N$ | -20 | -0.138 | -0.152 | -0.199 | ±2.5 | PASS |
| TX-FRS | FM | $V_N$ | -10 | -0.129 | -0.141 | -0.191 | ±2.5 | PASS |
| TX-FRS | FM | $V_N$ | 0 | -0.123 | -0.132 | -0.183 | ±2.5 | PASS |
| TX-FRS | FM | $V_N$ | 10 | -0.111 | -0.126 | -0.176 | ±2.5 | PASS |
| TX-FRS | FM | $V_N$ | 20 | **-0.102** | -0.117 | -0.168 | ±2.5 | PASS |
| TX-FRS | FM | $V_N$ | 30 | -0.109 | -0.125 | -0.176 | ±2.5 | PASS |
| TX-FRS | FM | $V_N$ | 40 | -0.118 | -0.134 | -0.182 | ±2.5 | PASS |
| TX-FRS | FM | $V_N$ | 55 | -0.125 | -0.148 | -0.191 | ±2.5 | PASS |

**Appendix G:Frequency Stability Test & Voltage**

| Test Mode | Modulation Type | Test Conditions | | Frequency error (ppm) | | | Limit (ppm) | Result |
|---|---|---|---|---|---|---|---|---|
| | | Voltage | Temperature | $CH_{M1}$ | $CH_{M2}$ | $CH_{M3}$ | | |
| TX-FRS | FM | $V_N$ | $T_N$ | **-0.102** | -0.117 | -0.168 | ±2.5 | PASS |
| TX-FRS | FM | $V_L$ | $T_N$ | -0.124 | -0.139 | -0.188 | ±2.5 | PASS |
| TX-FRS | FM | $V_H$ | $T_N$ | -0.111 | -0.129 | -0.172 | ±2.5 | PASS |

----End of Report----