




TEST REPORT

Report No. : CHTEW20080084 Report Verification: 

Project No..... : SHT2007107701EW

FCC ID..... : II622288

Applicant's name..... : Supersonics Electronics Company

Address..... : Phase II, Block C 4th Floor Gee Chang Industrial Bldg., 108 Lok Shan Road, Tokwawan, Kowloon, Hong Kong

Test item description : Walkie Talkies

Trade Mark : SS

Model/Type reference..... : #22288

Listed Model(s) : -

Standard : FCC CFR Title 47 Part 95 Subpart B

Date of receipt of test sample..... : Jul.28, 2020

Date of testing..... : Jul.28, 2020- Aug.10, 2020

Date of issue..... : Aug.11, 2020

Result..... : PASS

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Hans Hu

Testing Laboratory Name : Shenzhen Huatongwei International Inspection Co., Ltd.

Address..... : 1/F, Bldg 3, Hongfa Hi-tech Industrial Park, Genyu Road,
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The test report merely correspond to the test sample.

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1. TEST STANDARDS AND REPORT VERSION

1.1. Test Standards

The tests were performed according to following standards:

- [FCC CFR Title 47 Part 95 Subpart B](#): Family Radio Service
- [FCC CFR Title 47 Part 2](#): Frequency allocations and radio treaty matters; General rules and regulations
- [ANSI C63.26-2015](#): American National Standard for Compliance Testing of Transmitters Used in Licensed Radio Services
- [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 version

| Revision No. | Date of issue | Description |
|--------------|---------------|-------------|
| N/A | 2020-08-11 | Original |
| | | |
| | | |
| | | |
| | | |

2. TEST DESCRIPTION

| Report clause | Test Items | Standard Requirement | Result |
|---------------|---|----------------------------|--------|
| 5.1 | Transmit Power (ERP) | Part 95.567 Part 2.1046 | PASS |
| 5.2 | 99% Occupied Bandwidth & 26dB Bandwidth | Part 95.573 Part 2.1049 | PASS |
| 5.3 | Emission Mask | Part 95.579 Part 2.1049 | PASS |
| 5.4 | Modulation Limit | Part 95.575 Part 2.1047 | PASS |
| 5.5 | Audio Frequency Response | Part 95.575 Part 2.1047 | PASS |
| 5.6 | Audio Low Pass Filter Response | Part 95.575 Part 2.1047 | PASS |
| 5.7 | Frequency Stability V.S. Temperature | Part 95.565 Part 2.1055 | PASS |
| 5.8 | Frequency Stability V.S. Voltage | Part 95.565 Part 2.1055 | PASS |
| 5.9 | Transmit Radiated Spurious Emission | Part 95.579 Part 2.1053 | PASS |

Note:

- The measurement uncertainty is not included in the test result.

3. SUMMARY

3.1. Client Information

| | |
|---------------|---|
| Applicant: | Supersonics Electronics Company |
| Address: | Phase II, Block C 4th Floor Gee Chang Industrial Bldg., 108 Lok Shan Road, Tokwawan, Kowloon, Hong Kong |
| Manufacturer: | Supersonics Electronics Toys (Shenzhen) Co., Ltd., |
| Address: | No. 101, Xinfeng Industrial Zone, Xintian Community, Guanhu Street, Longhua District, Shenzhen , Guangdong , China. |

3.2. Product Description

| Main unit | |
|-----------------------|----------------------------|
| Name of EUT: | Walkie Talkies |
| Trade mark: | SS |
| Model/Type reference: | #22288 |
| Listed mode(s): | - |
| Power supply: | DC 3.0V 2*AAA Size Battery |
| Hardware version: | A |
| Software version: | A |

3.3. Radio Specification Description

| | |
|-------------------------------------|-------------|
| Support Frequency Range: | 462.5625MHz |
| Modulation Type: | FM |
| Emission Designator: * ¹ | 11K0F3E |
| Antenna Type: | Integral |
| Antenna Gain: | 3 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

$B_n = 2M + 2DK = 2*3 + 2*2.5*1 = 11 \text{ KHz}$

Emission designation: 11K0F3E

(2) The device only supports voice communication.

3.4. Testing Laboratory Information

| | | |
|---------------------|--|----------------------|
| Laboratory Name | Shenzhen Huatongwei International Inspection Co., Ltd. | |
| Laboratory Location | 1/F, Bldg 3, Hongfa Hi-tech Industrial Park, Genyu Road, Tianliao, Gongming, Shenzhen, China | |
| Qualifications | Type | Accreditation Number |
| | CNAS | L1225 |
| | A2LA | 3902.01 |
| | FCC | 762235 |
| | Canada | 5377A |

4. TEST CONFIGURATION

4.1. 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 |

| Channel number | Test channel | Test Frequency (MHz) |
|----------------|------------------|----------------------|
| CH1 | CH _{M1} | 462.5625 |

4.2. Test mode

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

4.3. Support unit used in test configuration and system

The EUT has been associated with peripherals and configuration operated in a manner tended to maximize its emission characteristics in a typical application.

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

| Whether support unit is used? | | | | | |
|--|-----------|------------|-----------|--------|------------|
| <input checked="" type="checkbox"/> No | | | | | |
| Item | Equipment | Trade Name | Model No. | FCC ID | Power cord |
| 1 | | | | | |
| 2 | | | | | |

4.4. Testing environmental condition

| Type | Requirement | Actual |
|--------------------|------------------------|----------|
| Temperature: | 15~35°C | 25°C |
| Relative Humidity: | 25~75% | 50% |
| Air Pressure: | 860~1060mbar | 1000mbar |
| Test voltage: | Normal voltage: | DC 3.0V |
| | Extreme lower voltage: | DC 2.55V |
| | Extreme upper voltage: | DC 3.45V |

4.5. Measurement uncertainty

| Test Item | Measurement Uncertainty |
|---|-------------------------|
| Frequency stability | 25 Hz |
| Transmit Power (ERP) | 2.20 dB |
| Occupied Bandwidth | 35 Hz |
| Modulation Limiting | 0.42 % |
| FM deviation | 25 Hz |
| Audio level | 0.62 dB |
| Radiated Spurious Emission 30~1000MHz | 4.65 dB |
| Radiated Spurious Emission 1~18GHz | 5.16 dB |
| AC power line Conducted Emission 9KHz-30MHz | 3.39 dB |

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

4.6. Equipment Used during the Test

| ● TS8613 Test system | | | | | | | |
|----------------------|---------------------------------------|--------------|---------------|--------------|------------|---------------------------|---------------------------|
| Used | Test Equipment | Manufacturer | Equipment No. | Model No. | Serial No. | Last Cal. Date (YY-MM-DD) | Next Cal. Date (YY-MM-DD) |
| ● | Spectrum Analyzer | Agilent | HTWE0286 | N9020A | MY50510187 | 2019/10/26 | 2020/10/25 |
| ● | Signal & Spectrum Analyzer | R&S | HTWE0262 | FSW26 | 103440 | 2019/10/26 | 2020/10/25 |
| ● | RF Communication Test Set | HP | HTWE0038 | 8920A | 3813A10206 | 2019/10/26 | 2020/10/25 |
| ● | Digital intercom communication tester | Aeroflex | HTWE0255 | 3920B | 1001682041 | 2019/10/26 | 2020/10/25 |
| ● | Signal Generator | R&S | HTWE0191 | SML02 | 100507 | 2019/10/26 | 2020/10/25 |
| ● | RF Control Unit | Tonscend | HTWE0294 | JS0806-2 | N/A | N/A | N/A |
| ○ | Filter-VHF | Microwave | HTWE0309 | N26460M1 | 498702 | N/A | N/A |
| ● | Filter-UHF | Microwave | HTWE0311 | N25155M2 | 498704 | N/A | N/A |
| ○ | Power Divider | Microwave | HTWE0043 | OPD1040-N-4 | N/A | 2020/05/24 | 2021/05/23 |
| ○ | Attenuator | JFW | HTWE0292 | 50FH-030-100 | N/A | 2020/05/18 | 2021/05/17 |
| ○ | Attenuator | JFW | HTWE0293 | 50-A-MFN-20 | 0322 | 2020/05/18 | 2021/05/17 |
| ● | Test software | HTW | N/A | Radio ATE | N/A | N/A | N/A |

| ● Auxiliary Equipment | | | | | | | |
|-----------------------|-----------------|--------------|---------------|-----------|------------|---------------------------|---------------------------|
| Used | Test Equipment | Manufacturer | Equipment No. | Model No. | Serial No. | Last Cal. Date (YY-MM-DD) | Next Cal. Date (YY-MM-DD) |
| ● | Climate chamber | ESPEC | HTWE0254 | GPL-2 | N/A | 2019/10/23 | 2020/10/22 |
| ● | DC Power Supply | Gwinstek | HTWE0274 | SPS-2415 | GER835793 | N/A | N/A |

| ● Radiated Spurious Emission | | | | | | | |
|------------------------------|-------------------------|--------------------|---------------|-------------------|-------------|---------------------------|---------------------------|
| Used | Test Equipment | Manufacturer | Equipment No. | Model No. | Serial No. | Last Cal. Date (YY-MM-DD) | Next Cal. Date (YY-MM-DD) |
| ● | Semi-Anechoic Chamber | Albatross projects | HTWE0122 | SAC-3m-01 | N/A | 2018/09/27 | 2021/09/26 |
| ● | Spectrum Analyzer | R&S | HTWE0098 | FSP40 | 100597 | 2019/10/26 | 2020/10/25 |
| ● | Loop Antenna | R&S | HTWE0170 | HFH2-Z2 | 100020 | 2018/04/02 | 2021/04/01 |
| ● | Broadband Horn Antenna | SCHWARZBECK | HTWE0103 | BBHA9170 | BBHA9170472 | 2018/10/11 | 2021/10/10 |
| ● | Ultra-Broadband Antenna | SCHWARZBECK | HTWE0123 | VULB9163 | 538 | 2018/04/04 | 2021/04/03 |
| ● | Horn Antenna | SCHWARZBECK | HTWE0126 | 9120D | 1011 | 2020/04/01 | 2023/03/31 |
| ● | Pre-amplifier | CD | HTWE0071 | PAP-0102 | 12004 | 2019/11/14 | 2020/11/13 |
| ● | Broadband Preamplifier | SCHWARZBECK | HTWE0201 | BBV 9718 | 9718-248 | 2020/05/23 | 2021/05/22 |
| ● | RF Connection Cable | HUBER+SUHNER | HTWE0120-01 | 6m 18GHz S Serisa | N/A | 2020/05/10 | 2021/05/09 |
| ● | RF Connection Cable | HUBER+SUHNER | HTWE0120-02 | 6m 3GHz RG Serisa | N/A | 2020/05/10 | 2021/05/09 |
| ● | RF Connection Cable | HUBER+SUHNER | HTWE0120-03 | 6m 3GHz RG Serisa | N/A | 2020/05/10 | 2021/05/09 |
| ● | RF Connection Cable | HUBER+SUHNER | HTWE0120-04 | 6m 3GHz RG Serisa | N/A | 2020/05/10 | 2021/05/09 |
| ● | RF Connection Cable | HUBER+SUHNER | HTWE0121-01 | 6m 18GHz S Serisa | N/A | 2020/05/10 | 2021/05/09 |
| ● | EMI Test Software | Audix | N/A | E3 | N/A | N/A | N/A |

5. TEST CONDITIONS AND RESULTS

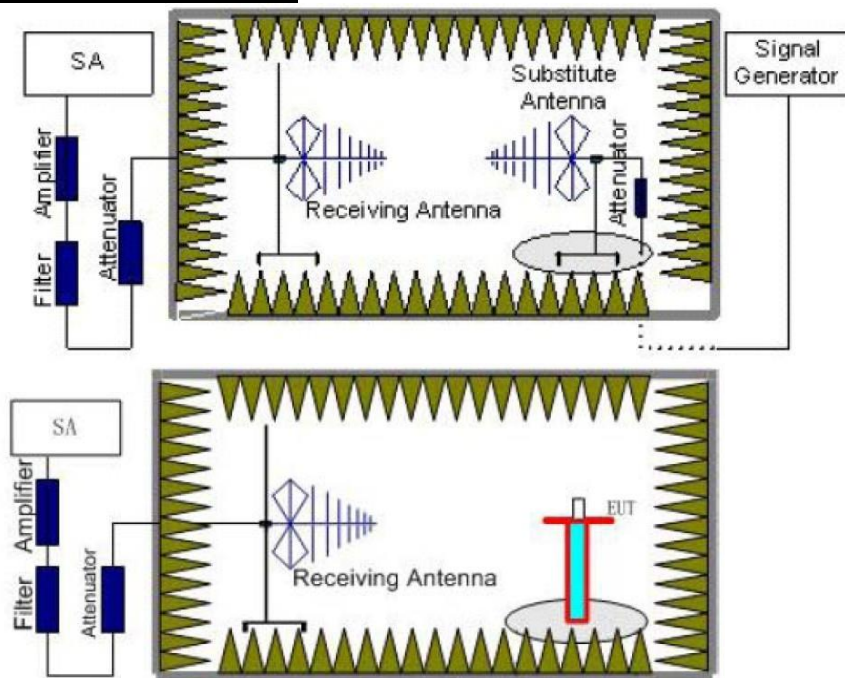
5.1. Transmit Power (ERP)

LIMIT

FCC Part 95.567

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

TEST CONFIGURATION



TEST PROCEDURE

- 1) The measuring distance of at 3m shall be used for measurements
- 2) The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation
- 3) The height of the equipment or of the substitution antenna shall be 0.8 m; the height of the test antenna shall vary between 1 m to 4 m. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- 4) The spectrum setting for Equivalent Isotropic Radiated Power (EIRP) is RBW = 100 kHz, VBW = 300 kHz. Detector Mode is Positive Peak
- 5) Record the field strength level of the EUT from the spectrum
- 6) The substitution antenna is substituted for EUT at the same position and signals generator (S.G) export the CW signal to the substitution antenna via a TX cable. The receiver antenna shall be moved height from 1m to 4m to find the highest radiation. Adjust the S.G. output level and repeat this step to get the same field strength level as the EUT
- 7) The EIRP level = S.G. output level(dBm) - TX cable(dB) + Substituted Antenna Gain(dBi)
- 8) The ERP level = EIRP - 2.15

TEST MODE

Please reference to the section 4.2

TEST RESULTS

☒ Passed ☐ Not Applicable

TEST Data

Please refer to appendix A on the appendix report

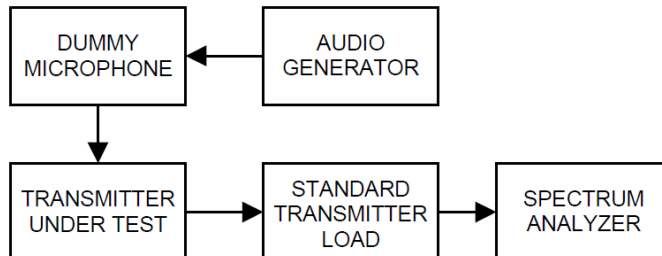
5.2. 99% Occupied Bandwidth & 26dB Bandwidth

LIMIT

FCC Part 95.573

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

TEST CONFIGURATION



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 $1.5 \times \text{OBW}$ is sufficient)
RBW = 1% to 5% of the anticipated OBW, VBW $\geq 3 \times \text{RBW}$, 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 4.2

TEST RESULTS

☒ Passed ☐ Not Applicable

TEST Data

Please refer to appendix B on the appendix report

5.3. Emission Mask

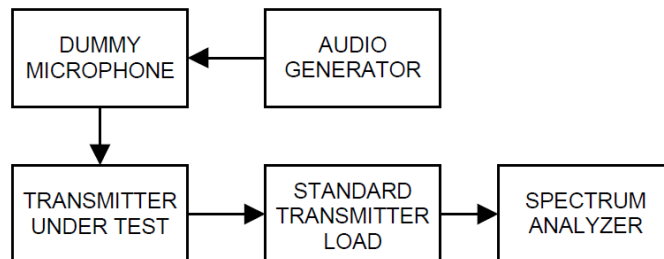
LIMIT

FCC Part 95.579

Each FRS transmitter type must be designed to satisfy the applicable unwanted emissions limits

- a) Attenuation requirements. The power of unwanted emissions must be attenuated below the carrier power output in Watts (P) by at least:
- (1) 25dB 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 PROCEDURE

- 1) Connect the equipment as illustrated.
- 2) Spectrum set as follow:
Centre frequency = fundamental frequency, RBW=300Hz, 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 4.2
- 5) Measure and record the results in the test report.

TEST MODE

Please reference to the section 4.2

TEST RESULTS

☒ Passed ☐ Not Applicable

TEST Data

Please refer to appendix C on the appendix report

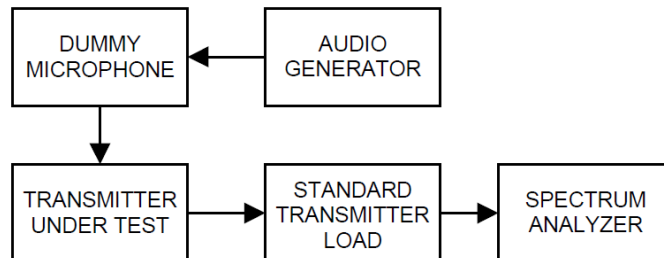
5.4. Modulation Limit

LIMIT

FCC Part 95.575

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

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 $\leq 0.25\text{Hz}$ to $\geq 15,000\text{Hz}$. Turn the de-emphasis function off.
- 4) Apply Input Modulation Signal to EUT according to Section 4.2 and vary the input level from -20 to $+20\text{dB}$.
- 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 4.2

TEST RESULTS

☒ Passed ☐ Not Applicable

TEST Data

Please refer to appendix D on the appendix report

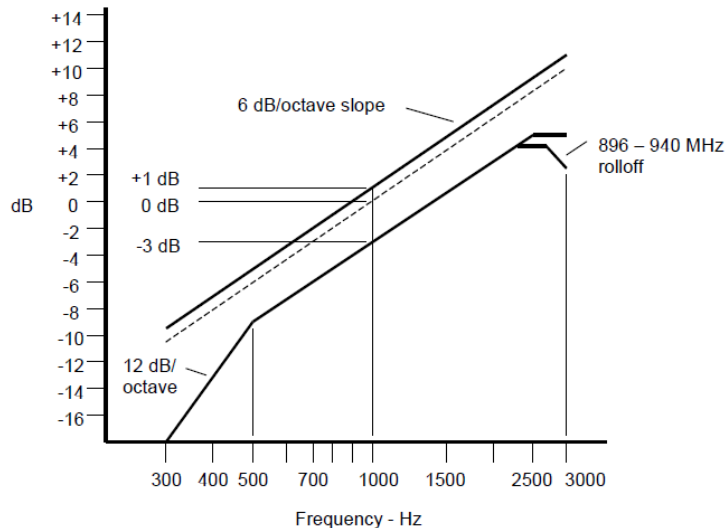
5.5. Audio Frequency Response

LIMIT

FCC Part 95.575:

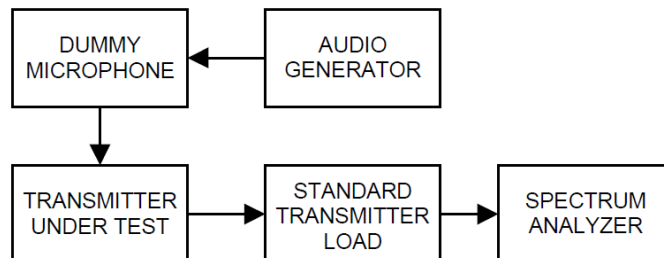
Each FRS transmitter type must be designed such that the peak frequency deviation does **not exceed 2.5kHz**, and the highest audio frequency contributing substantially to modulation must **not exceed 3.125kHz**.

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 4.2
- 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:

$$\text{audio frequency response} = 20 \log_{10} (V_{FREQ}/V_{REF})$$
- 12) Repeat steps 8) through 11) for all the desired test frequencies

TEST MODE

Please reference to the section 4.2

TEST RESULTS

☒ **Passed** ☐ **Not Applicable**

TEST Data

Please refer to appendix E on the appendix report

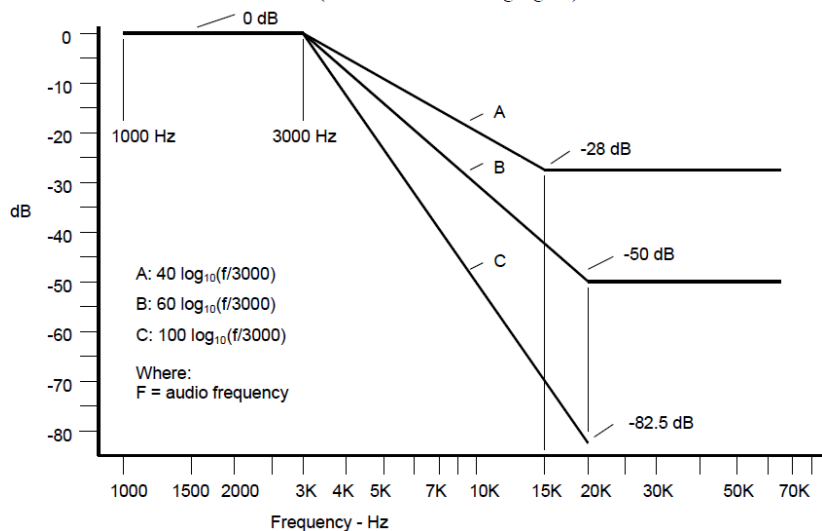
5.6. Audio Low Pass Filter Response

LIMIT

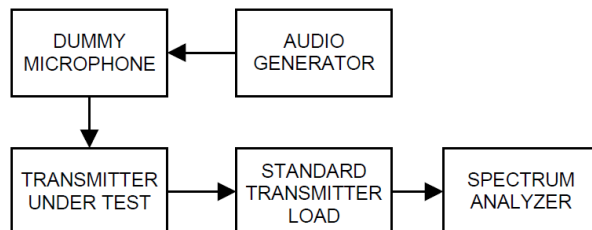
FCC Part 95.575(e)(1)(2), Part 2.1047(a):

(e) Audio filter. Each GMRS transmitter type must include audio frequency low pass filtering, unless it complies with the applicable paragraphs of §95.1779 (without filtering).

- (1) The filter must be between the modulation limiter and the modulated stage of the transmitter.
- (2) At any frequency (f in kHz) between 3 and 20 kHz, the filter must have an attenuation of at least $60 \log(f/3)$ dB more than the attenuation at 1 kHz. Above 20 kHz, it must have an attenuation of at least 50 dB more 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 4.2

TEST RESULTS

☒ Passed ☐ Not Applicable

TEST Data

Please refer to appendix E-1 on the appendix report

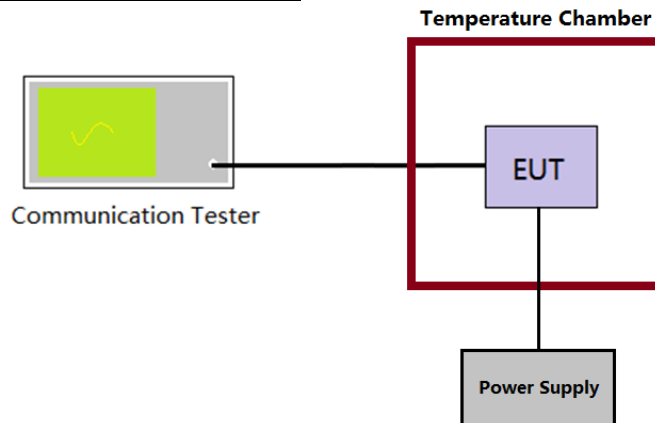
5.7. Frequency stability VS Temperature

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:
$$\text{ppm error} = (MCF_{\text{MHz}} / ACF_{\text{MHz}} - 1) * 10^6$$

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 $+50^{\circ}\text{C}$ reached.

TEST MODE

Please reference to the section 4.2

TEST RESULTS

☒ Passed ☐ Not Applicable

TEST Data

Please refer to appendix F on the appendix report

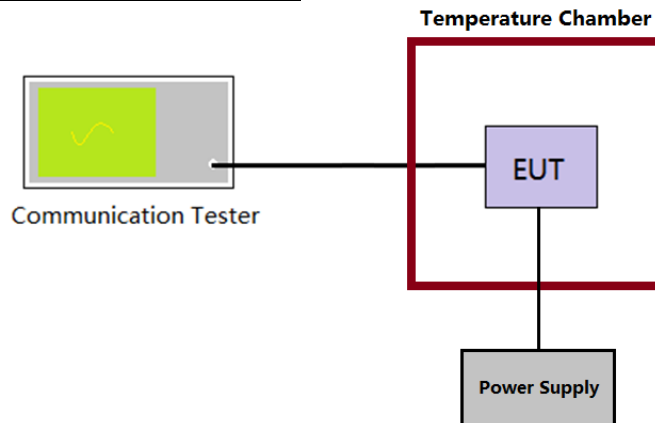
5.8. Frequency stability VS Voltage

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 $\pm 15\%$ of the nominal value measured at the input to the EUT

TEST MODE

Please reference to the section 4.2

TEST RESULTS

☒ Passed ☐ Not Applicable

TEST Data

Please refer to appendix G on the appendix report

5.9. Transmit Radiated Spurious Emission

LIMIT

FCC Part 95.579:

Each FRS transmitter type must be designed to satisfy the applicable unwanted emissions limits

- a) Attenuation requirements. The power of unwanted emissions must be attenuated below the carrier power output in Watts (P) by at least:
 - 1) 25dB 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.

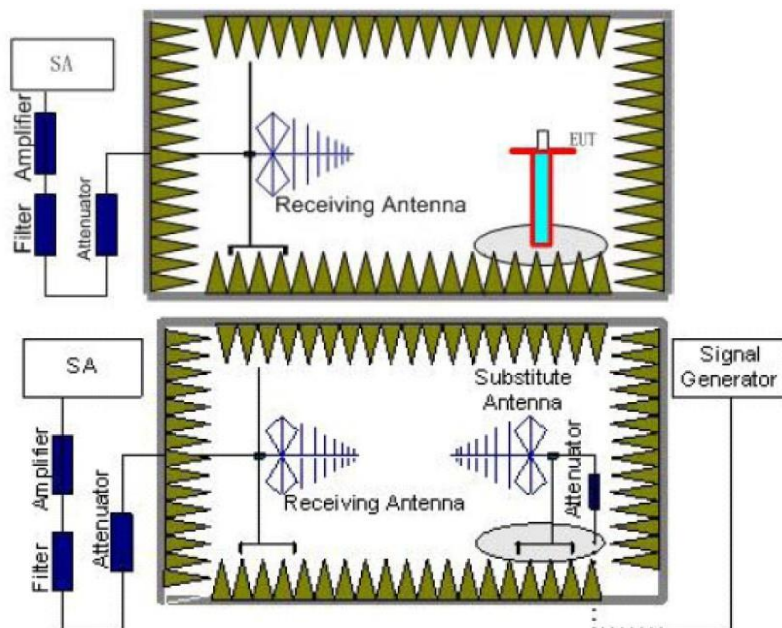
Note:

$$\text{Limit (dBm)} = \text{EL} - [43 + 10 \log(P)] = 10 \log(P \times 1000) - [43 + 10 \log(P)] = 10 \log(P) + 30 - 43 - 10 \log(P) = -13 \text{ dBm}$$

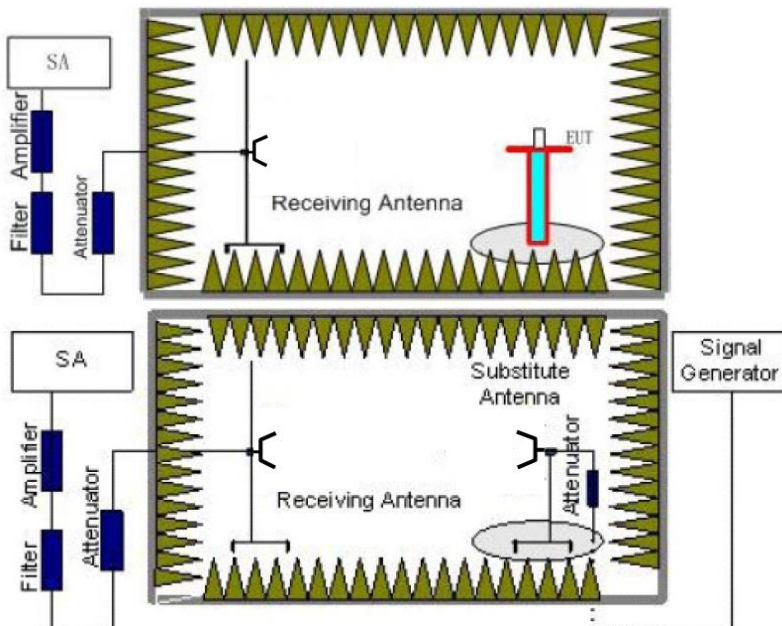
EL is the emission level of the Output Power expressed in dBm,

TEST CONFIGURATION

Below 1GHz:



Above 1GHz:



TEST PROCEDURE

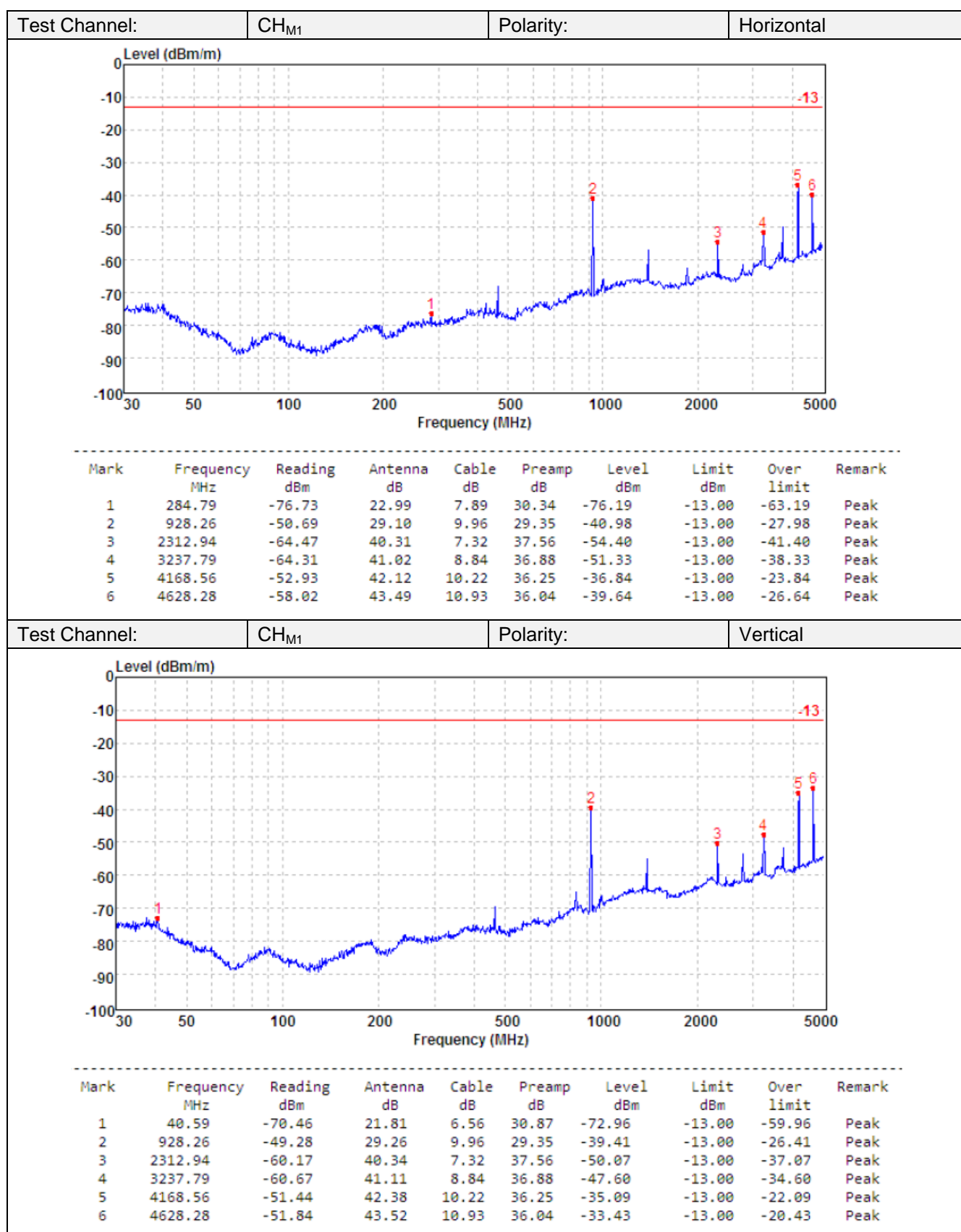
- 1) The measuring distance of at 3m shall be used for measurements
- 2) The EUT is placed on a turn table which is 0.8 meter above ground for below 1 GHz, and 1.5 m for above 1 GHz. The table was rotated 360 degrees to determine the position of the highest radiation
- 3) The height of the equipment or of the substitution antenna shall be 0.8 m; the height of the test antenna shall vary between 1 m to 4 m. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- 4) The spectrum setting as follow
Below 1 GHz: RBW=120kHz, VBW=300kHz, Sweep time=auto, Detector =peak, Trace=max hold;
Above 1GHz: RBW=1MHz, VBW=3MHz Sweep time=auto, Detector=peak, Trace=max hold
- 5) Record the field strength level of the EUT from the spectrum
- 6) The substitution antenna is substituted for EUT at the same position and signals generator (S.G) export the CW signal to the substitution antenna via a TX cable. The receiver antenna shall be moved height from 1m to 4m to find the highest radiation. Adjust the S.G. output level and repeat this step to get the same field strength level as the EUT
- 7) The EIRP level = S.G. output level(dBm)- TX cable(dB) + Substituted Antenna Gain(dBi)
- 8) Record the ERP value for below 1GHz, ERP value = EIRP-2.15; Record the EIRP for above 1GHz.

TEST MODE

Please reference to the section 4.2

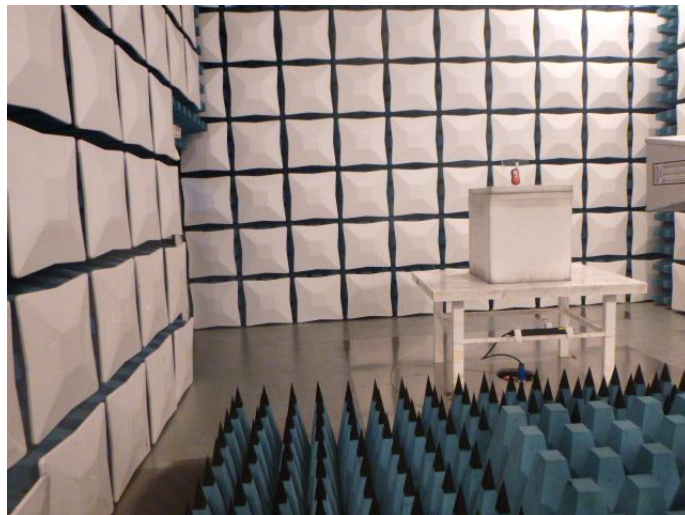
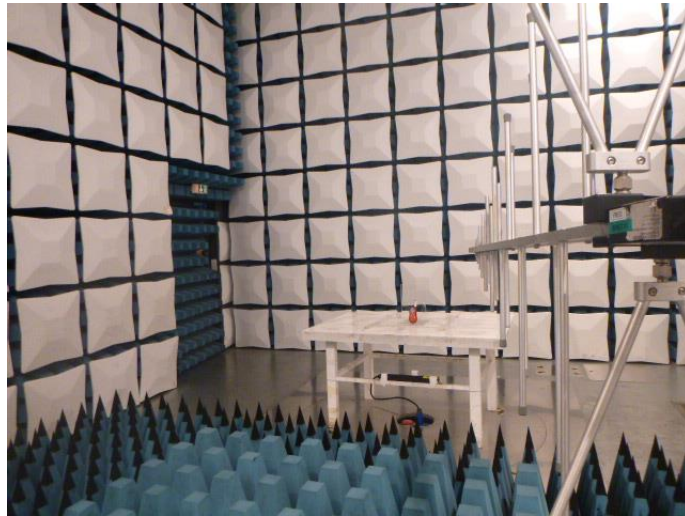
TEST RESULTS

☒ **Passed** ☐ **Not Applicable**



6. TEST SETUP PHOTOS

Transmit radiated spurious emission



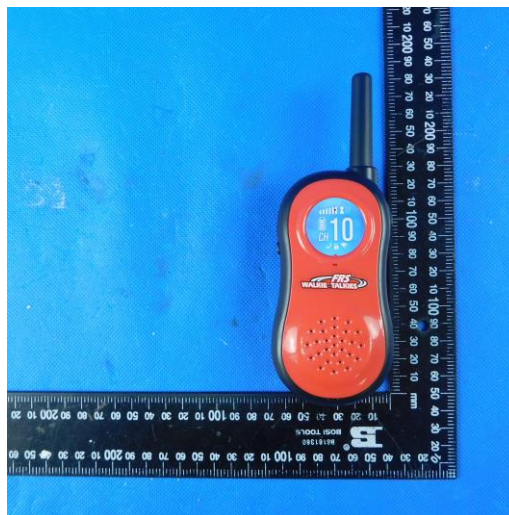
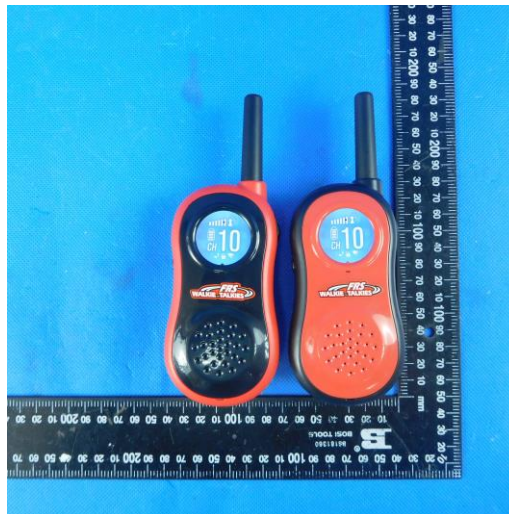
Frequency stability

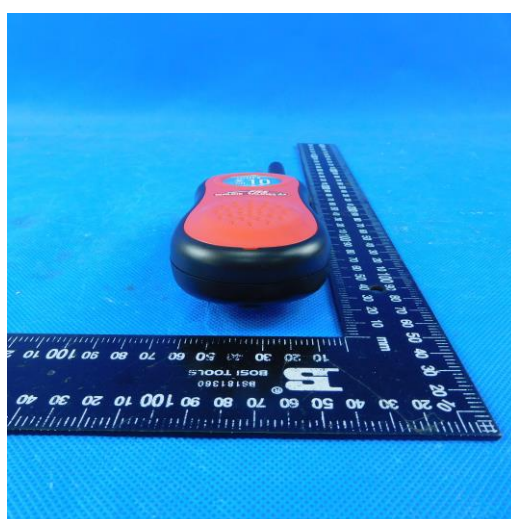
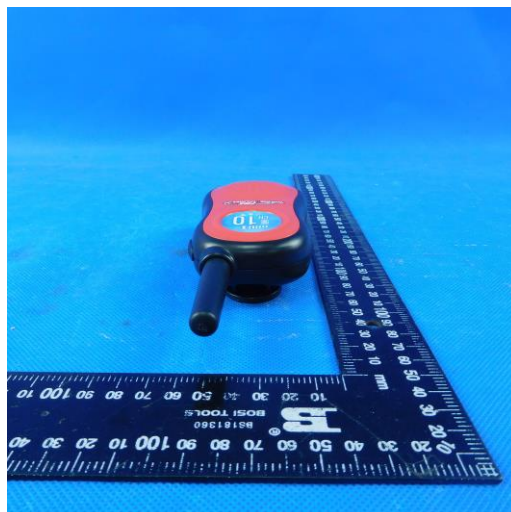




7. EXTERNAL AND INTERNAL PHOTOS

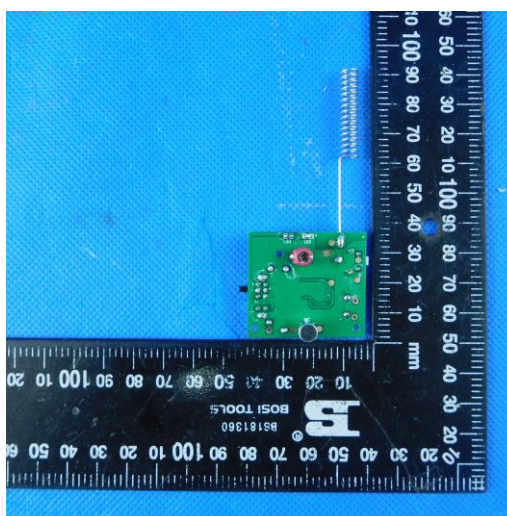
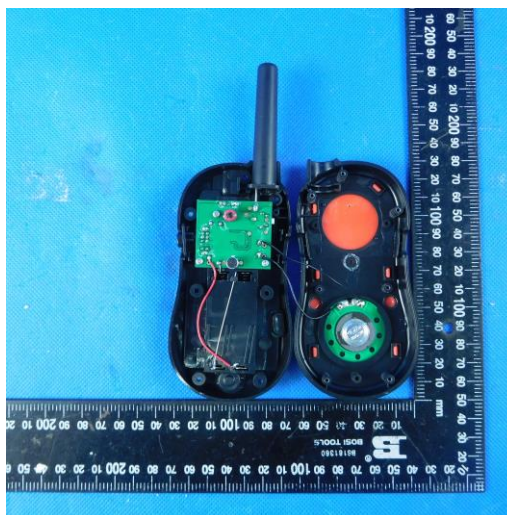
7.1. External Photos of the EUT

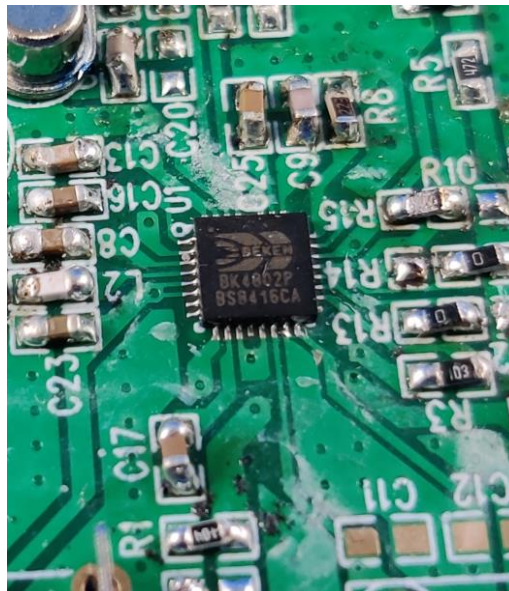
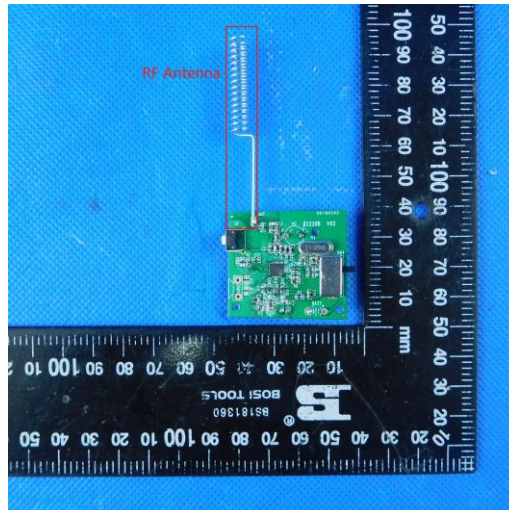






7.2. Internal Photos of the EUT





8. APPENDIX REPORT