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TEST REPORT

Report No. ..... :	**CHTW24060001**
Project No.....:	**SHT2404077202W**
FCC ID ..... :	**2BGJ3-Q368**
Applicant's name ..... :	**Shenzhen Kuli Innovation Technology Co., LTD**
Address.....:	2201 Huichao Technology Building,jinhai Road,Yantian Community, Xixiang Street
Product name ..... :	**walkie talkies**
Trade Mark .....:	QUOLIX
Model No. .....:	Q368
Listed Model(s) .....:	Q368Plus
Standard ..... :	**FCC CFR Title 47 Part 95 Subpart B**
Date of receipt of test sample.....:	May.06, 2024
Date of testing.....:	May.08, 2024- May.27, 2024
Date of issue.....:	Jun.03, 2024
Result..... .....:	**PASS**

Report Verification:

Compiled by (Position+Printed name+Signature):	File administrators Caspar Chen	Caspar Chen
Supervised by (Position+Printed name+Signature):	Project Engineer Caspar Chen	Caspar Chen
Approved by (Position+Printed name+Signature):	RF Manager Xu Yang	Xu. Yang

Testing Laboratory Name ..... :	**Shenzhen Huatongwei International Inspection Co., Ltd.**
Address.....:	Building 7, Baiwang Idea Factory, No.1051, Songbai Road, Yangguang Community, Xili Subdistrict, Nanshan District, Shenzhen, Guangdong, China

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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 (FRS)

FCC Rules Part 2: Frequency allocations and radio treaty matters; General rules and regulations

ANSI C63.26-2013: 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	2024-06-03	Original

2. TEST DESCRIPTION

Section	Test Items	Standard Requirement	Result	Test Engineer
5.1	Carrier Output Power (ERP)	Part 95.567 Part 2.1046(a)	PASS	Xiangyu Wei
5.2	99% Occupied Bandwidth & 26dB bandwidth	Part 95.573 Part 2.1049	PASS	Xiangyu Wei
5.3	Emission Mask	Part 95.579(a)(1)(2)(3) Part 2.1049	PASS	Xiangyu Wei
5.4	Modulation Limit	Part 95.575 Part 2.1047(b)	PASS	Xiangyu Wei
5.5	Audio Frequency Response	Part 95.575 Part 2.1047(a)	PASS	Xiangyu Wei
5.6	Audio Low Pass Filter Response	Part 95.575 Part 2.1047(a)	PASS	Xiangyu Wei
5.7	Frequency Stability V.S. Temperature	Part 95.565 Part 2.1055	PASS	Xiangyu Wei
5.8	Frequency Stability V.S. Voltage	Part 95.565 Part 2.1055	PASS	Xiangyu Wei
5.9	Transmit Radiated Spurious Emission	Part 95.579(a)(3) Part 2.1053	PASS	Xiangyu Wei

Note:

The measurement uncertainty is not included in the test result.

3. SUMMARY

3.1. Client Information

Applicant:	Shenzhen Kuli Innovation Technology Co., LTD
Address:	2201 Huichao Technology Building,jinhai Road,Yantian Community, Xixiang Street
Manufacturer:	Shenzhen Kuli Innovation Technology Co., LTD
Address:	2201 Huichao Technology Building,jinhai Road,Yantian Community, Xixiang Street

3.2. Product Description

Main unit information:	
Product Name:	walkie talkies
Trade Mark:	QUOLIX
Model No.:	Q368
Listed Model(s):	Q368Plus
Power supply:	DC 3.7V from battery
Hardware version:	PCB_TD-368-01V02
Software version:	1.1
Accessory unit information:	
Battery information:	Model: Q368 Rated capacity: 1020mAh(3.774Wh) Standard Voltage: 3.7V Charge limit Voltage: 4.2V Suitable model: Q368

3.3. Radio Specification Description

Support Frequency Range:	CH01~CH07: 462.5625MHz~ 462.7125MHz CH08~CH14: 467.5625MHz~ 467.7125MHz CH15~CH22: 462.5500MHz~ 462.7250MHz
Modulation Type:	FM
Emission Designator: *[1]	11K0F3E
Antenna Type:	Integral
Antenna Gain:	1dBi

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.

3.4. Testing Laboratory Information

Laboratory Name	Shenzhen Huatongwei International Inspection Co., Ltd.	
Laboratory Location	Building 7, Baiwang Idea Factory, No.1051, Songbai Road, Yangguang Community, Xili Subdistrict, Nanshan District, Shenzhen, Guangdong, China	
Connect information:	Tel: 86-755-26715499 E-mail: cs@szhtw.com.cn http://www.szhtw.com.cn	
Qualifications	Type	Accreditation Number
	FCC Registration Number	762235
	FCC Designation Number	CN1181

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

Test Channel	Channel No.	Frequency (MHz)	Frequency band (MHz)
CH_{M1}	CH04	462.6375	462.5625~462.7125
CH_{M2}	CH11	467.6375	467.5625~467.7125

The Product channel frequency table:

Channel No.	Frequency (MHz)	Channel No.	Frequency (MHz)
01	462.5625	12	467.6625
02	462.5875	13	467.6875
03	462.6125	14	467.7125
04	462.6375	15	462.5500
05	462.6625	16	462.5750
06	462.6875	17	462.6000
07	462.7125	18	462.6250
08	467.5625	19	462.6500
09	467.5875	20	462.6750
10	467.6125	21	462.7000
11	467.6375	22	462.7250

4.2. Test mode

Test mode	Description
TX mode	Keep the EUT in transmitting continuously

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
Output Power (ERP)	UM
99% Occupied Bandwidth & 26dB bandwidth	AM6
Emission Mask	AM5
Modulation Limit	AM6
Audio Frequency Response	AM2
Frequency Stability VS Temperature	UM
Frequency Stability VS Voltage	UM
Transmit Radiated Spurious Emission	AM5

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?					
✓ 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 3.7V
	Extreme lower voltage:	DC 3.2V
	Extreme upper voltage:	DC 3.7V

4.5. Measurement uncertainty

Test Item	Measurement Uncertainty
Frequency stability	25 Hz
Carrier output 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

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

● RF Conducted test item							
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	2023/08/22	2024/08/21
●	Signal & Spectrum Analyzer	R&S	HTWE0262	FSW26	103440	2023/08/22	2024/08/21
●	RF Communication Test Set	HP	HTWE0038	8920A	3813A10206	2023/08/22	2024/08/21
●	Digital intercom communication tester	Aeroflex	HTWE0255	3920B	1001682041	2023/08/22	2024/08/21
●	RF Control Unit	Tonscend	HTWE0294	JS0806-2	N/A	2023/08/22	2024/08/21
●	Filter-VHF	Microwave	HTWE0309	N26460M1	498702	2023/08/22	2024/08/21
●	Filter-UHF	Microwave	HTWE0311	N25155M2	498704	2023/08/22	2024/08/21
●	Attenuator	JFW	HTWE0292	50FH-030-100	N/A	2024/03/26	2025/03/25
●	Attenuator	Eastsheep	HTWE0387	NCP-20-3-100W	/	2024/03/26	2025/03/25
●	Attenuator	Eastsheep	HTWE0388	NCP-10-3-100W	/	2024/03/26	2025/03/25
●	High Pass Filter	RFSYS	HTWE0390-05	RFSYS-GTA10	200615-1-04	2024/03/26	2025/03/25
●	Filter-UHF	Microwave	HTWE0310	N26460M1	498703 DC1808	2024/01/23	2025/01/22
●	Filter-VHF	Microwave	HTWE0312	N25155M2	498704 DC1808	2024/01/23	2025/01/22
●	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	HTWS0715	GPL-2	N/A	2023/08/21	2024/08/20
●	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	C11121	2023/04/17	2026/04/16
●	Spectrum Analyzer	R&S	HTWE0098	FSP40	100597	2023/08/22	2024/08/21
●	Spectrum Analyzer	R&S	HTWE0385	N9020A	MY54486658	2023/08/22	2024/08/21
●	Ultra-Broadband Antenna	SCHWARZBECK	HTWE0123	VULB9163	538	2024/04/08	2027/04/07
●	Horn Antenna	SCHWARZBECK	HTWE0126	BBHA 9120D	1011	2023/02/14	2026/02/13
●	Pre-Amplifer	CD	HTWE0071	PAP-0102	12004	2023/06/15	2024/06/14
●	Broadband Pre-amplifier	SCHWARZBECK	HTWE0201	BBV 9718	9718-248	2023/06/15	2024/06/14
●	Test Software	Audix	N/A	E3	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)
●	High pass filter	Wainwright	HTWE0297	WHKX3.0/18G-10SS	38	2024/03/26	2025/03/25
○	Band Stop filter	-	HTWE0039	N/A	N/A	2024/01/23	2025/01/22

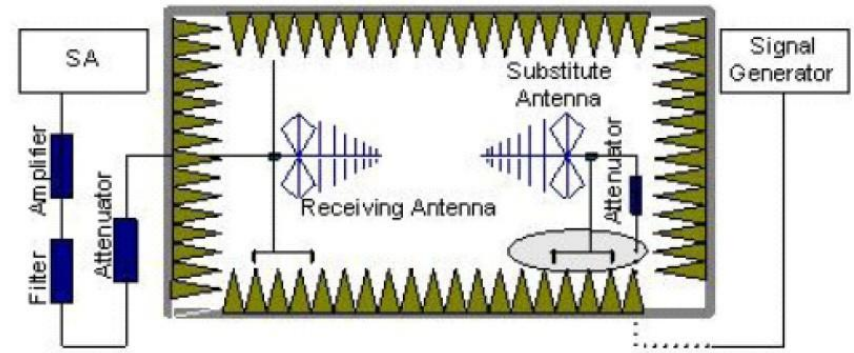
5. TEST CONDITIONS AND RESULTS

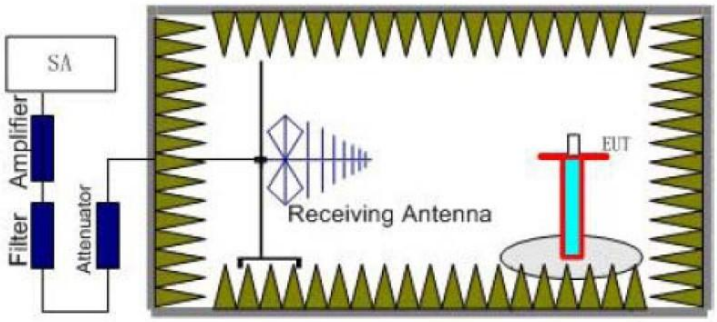
5.1. Carrier Output Power (ERP)

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**.

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 Isotropically Radiated Power (EIRP) is RBW = 100kHz, VBW = 300kHz. 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

Refer to the section 4.2

TEST RESULT

☒ **Passed** ☐ **Not Applicable**

TEST DATA

Refer to the appendix report on section 8

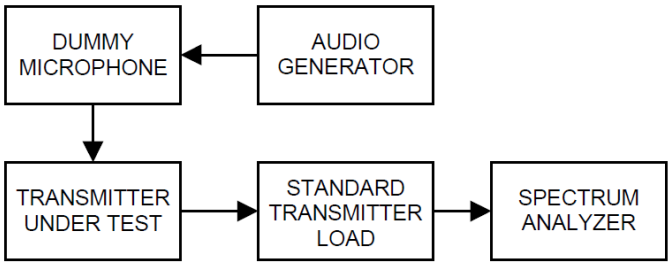
5.2. 99% Occupied Bandwidth & 26dB Bandwidth

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 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

Refer to the section 4.2

TEST RESULT

☒ **Passed** ☐ **Not Applicable**

TEST DATA

Refer to the appendix report on section 8

5.3. Emission Mask

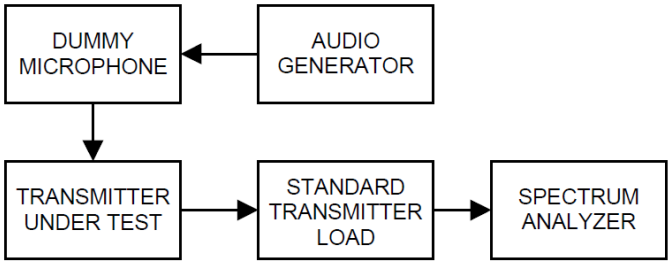
LIMIT

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

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

Refer to the section 4.2

TEST RESULT

☒ **Passed** ☐ **Not Applicable**

TEST DATA

Refer to the appendix report on section 8

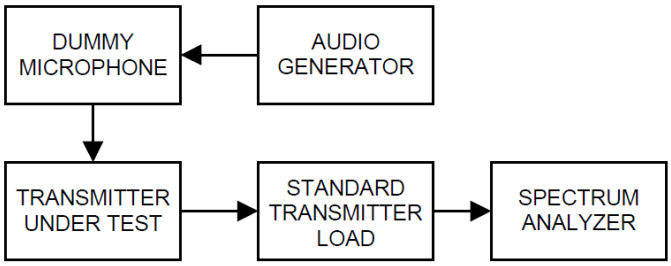
5.4. Modulation Limit

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 2.5kHz**, 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 ≤0.25 Hz to ≥15,000 Hz. Turn the de-emphasis function off.
4) 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.
5) Increase the level from the audio frequency generator by 20 dB in one step (rise time between the 10% and 90% points shall be 0.1 second maximum).
6) Measure both the instantaneous and steady-state deviation at and after the time of increasing the audio input level
7) With the level from the audio frequency generator held constant at the level obtained in step 4), slowly vary the audio frequency from 300 Hz to 3000 Hz and observe the steady-state deviation. Record the maximum deviation.

TEST MODE

Refer to the section 4.2

TEST RESULT

☒ **Passed** ☐ **Not Applicable**

TEST DATA

Refer to the appendix report on section 8

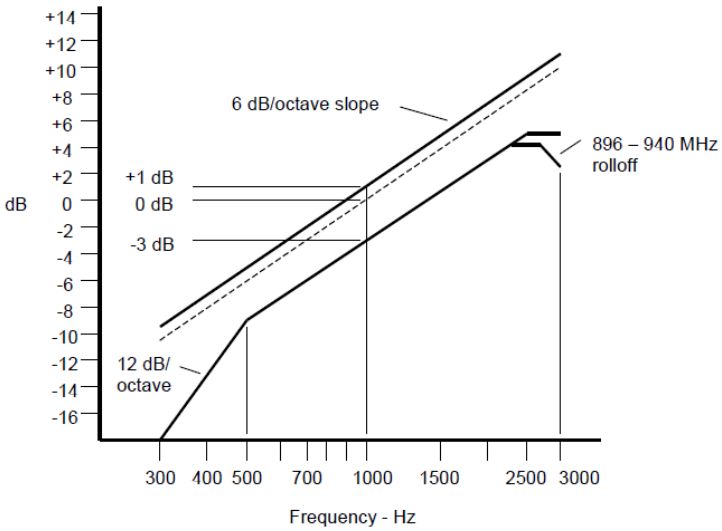
5.5. Audio Frequency Response

LIMIT

FCC Part 95.575, FCC Part 2.1047(a):

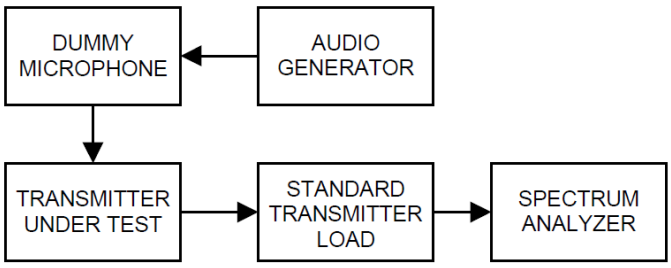
Each FRS transmitter type must be designed such that the peak frequency deviation does **not exceed 2.5kHz**, and the highest audio frequency contributing substantially to modulation must **not exceed 3.125kHz**.

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 a 1000 Hz tone and adjust the audio frequency generator to produce 20% of the rated system deviation.
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

Refer to the section 4.2

TEST RESULT

☒ **Passed** ☐ **Not Applicable**

TEST DATA

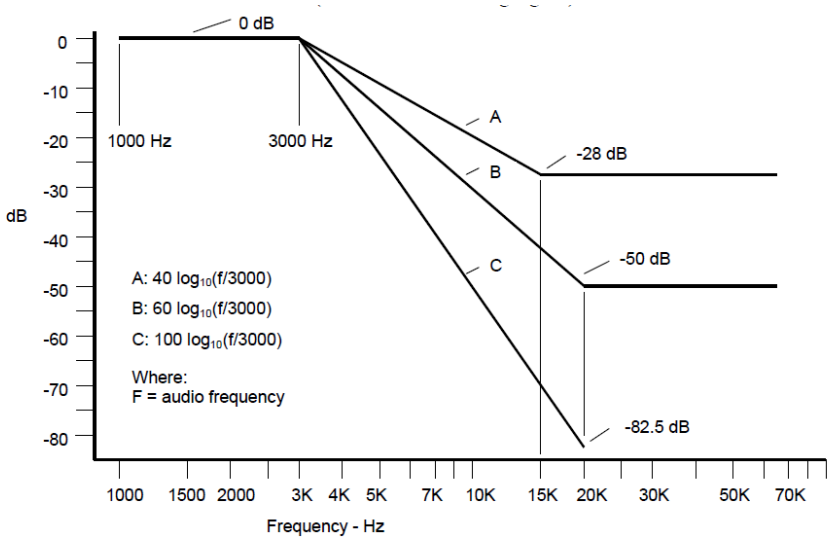
Refer to the appendix report on section 8

5.6. Audio Low Pass Filter Response

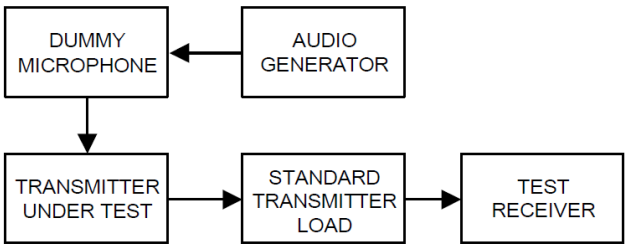
LIMIT

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

Refer to the section 4.2

TEST RESULT

☒ **Passed** ☐ **Not Applicable**

TEST DATA

Refer to the appendix report on section 8

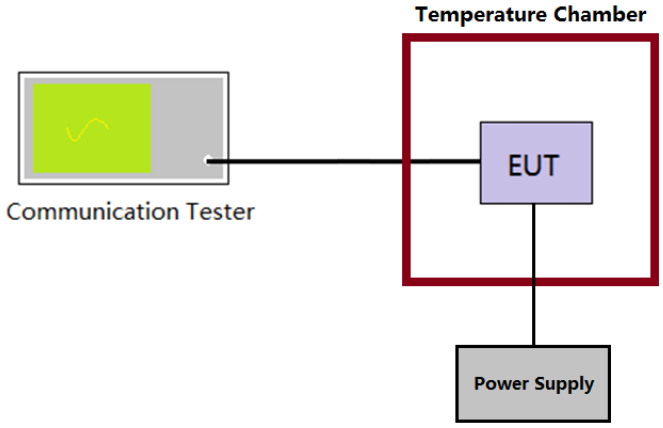
5.7. Frequency stability VS Temperature

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

Refer to the section 4.2

TEST RESULT

☒ **Passed** ☐ **Not Applicable**

TEST DATA

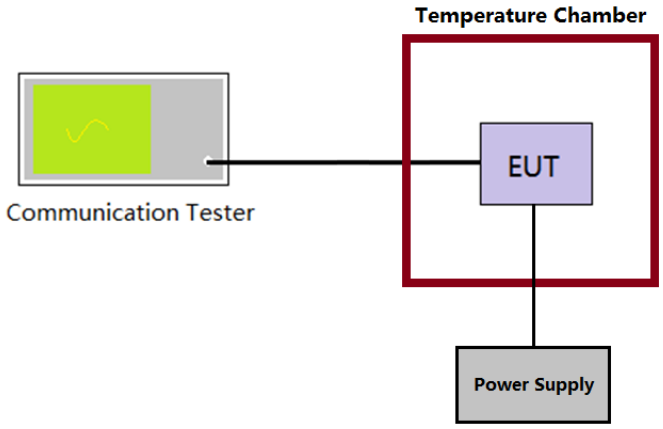
Refer to the appendix report on section 8

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

Refer to the section 4.2

TEST RESULT

☒ **Passed** ☐ **Not Applicable**

TEST DATA

Refer to the appendix report on section 8

5.9. Transmit Radiated Spurious Emission

LIMIT

FCC Part 95.579(a)(3):

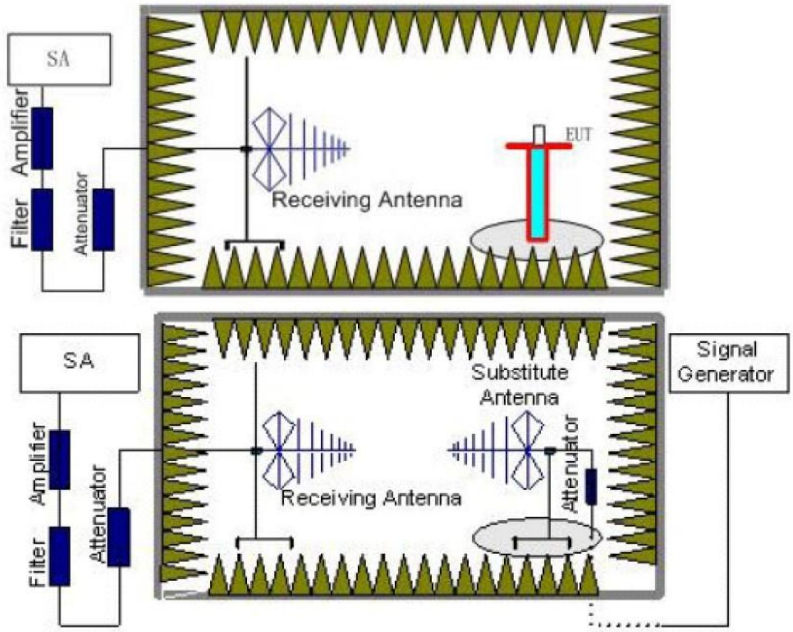
Each FRS transmitter type must be designed to satisfy the applicable unwanted emissions limits

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.

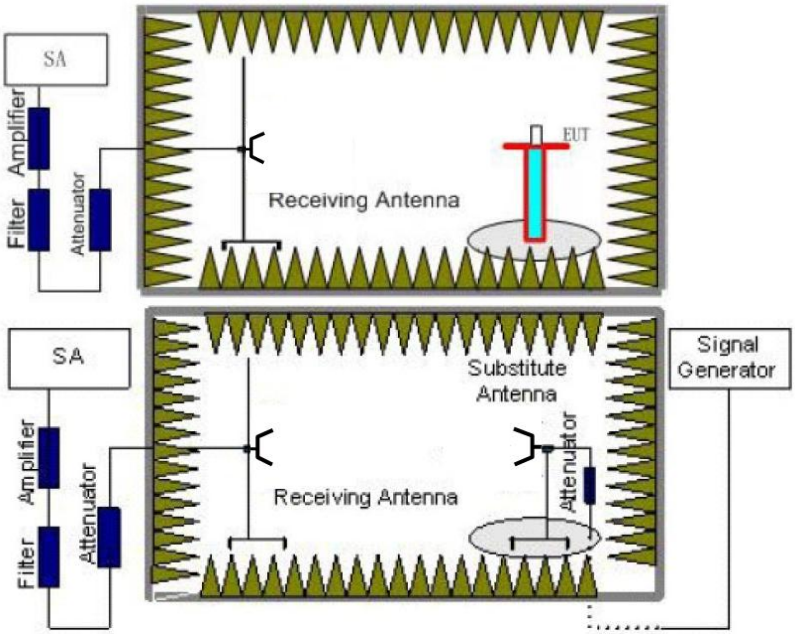
Note:
Limit (dBm)=EL-[43+10log(P)] =10log(P*1000)-[43+10log(P)] = 10log(P)+30-43-10log(P)**=-13dBm**
EL is the emission level of the Output Power expressed in dBm,

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

Refer to the section 4.2

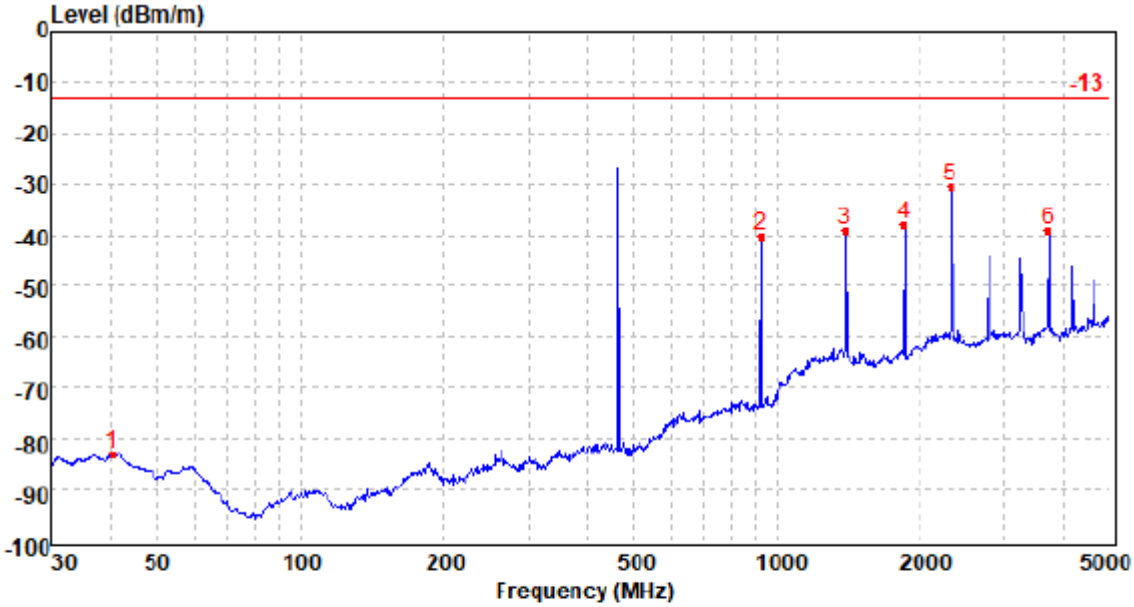
TEST RESULT

☒ **Passed** ☐ **Not Applicable**

TEST DATA

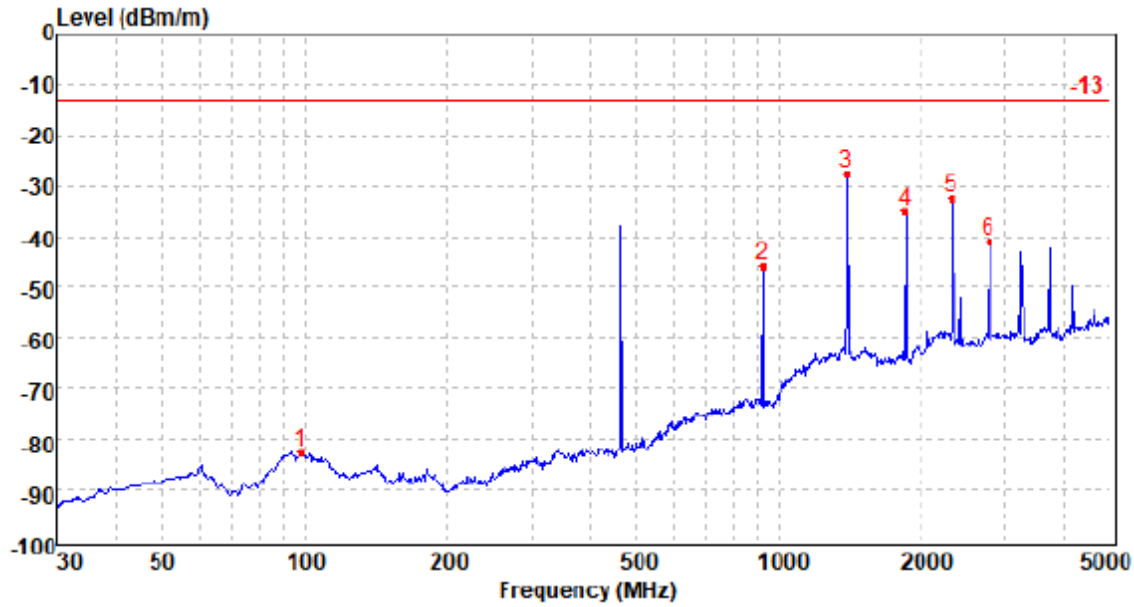
Refer to the below test data

Test Channel:	CH_{M1}	Polarity:	Horizontal



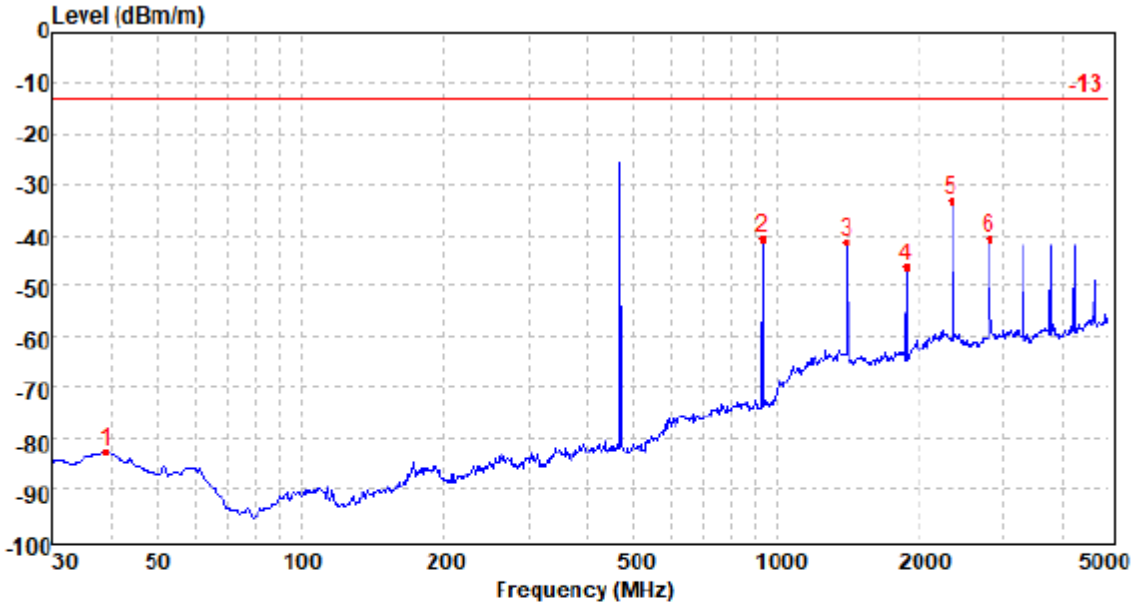
Mark	Frequency MHz	Reading dBm	Antenna dB	Cable dB	Preamp dB	Level dBm	Limit dBm	Over limit	Remark
1	40.03	-81.31	27.77	1.15	30.60	-82.99	-13.00	-69.99	Peak
2	925.00	-46.43	29.14	6.25	29.25	-40.29	-13.00	-27.29	Peak
3	1386.41	-37.37	37.13	3.07	42.00	-39.17	-13.00	-26.17	Peak
4	1849.30	-36.74	37.33	3.59	42.04	-37.86	-13.00	-24.86	Peak
5	2312.94	-32.93	40.31	4.01	41.80	-30.41	-13.00	-17.41	Peak
6	3700.52	-44.96	42.29	5.19	41.60	-39.08	-13.00	-26.08	Peak

Test Channel:	CH_{M1}	Polarity:	Vertical



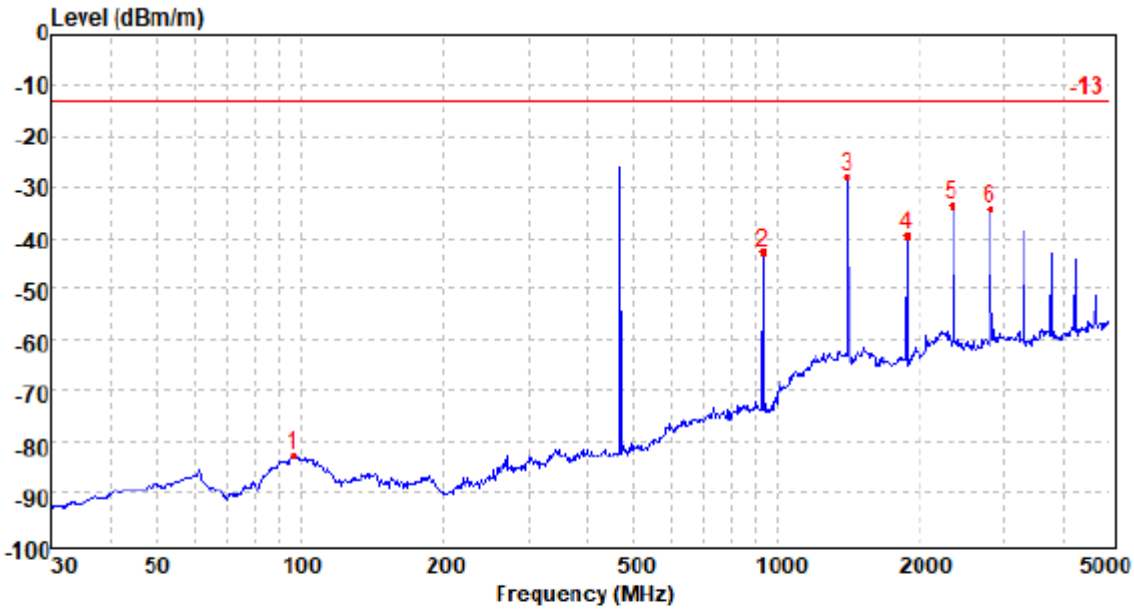
Mark	Frequency MHz	Reading dBm	Antenna dB	Cable dB	Preamp dB	Level dBm	Limit dBm	Over limit	Remark
1	98.47	-79.42	25.77	1.85	30.65	-82.45	-13.00	-69.45	Peak
2	925.00	-52.27	29.42	6.25	29.25	-45.85	-13.00	-32.85	Peak
3	1386.41	-26.35	37.70	3.07	42.00	-27.58	-13.00	-14.58	Peak
4	1849.30	-33.52	36.94	3.59	42.04	-35.03	-13.00	-22.03	Peak
5	2312.94	-34.03	40.34	4.01	41.80	-32.28	-13.00	-19.28	Peak
6	2774.26	-43.84	40.49	4.40	41.80	-40.75	-13.00	-27.75	Peak

Test Channel:	CH_{M2}	Polarity:	Horizontal



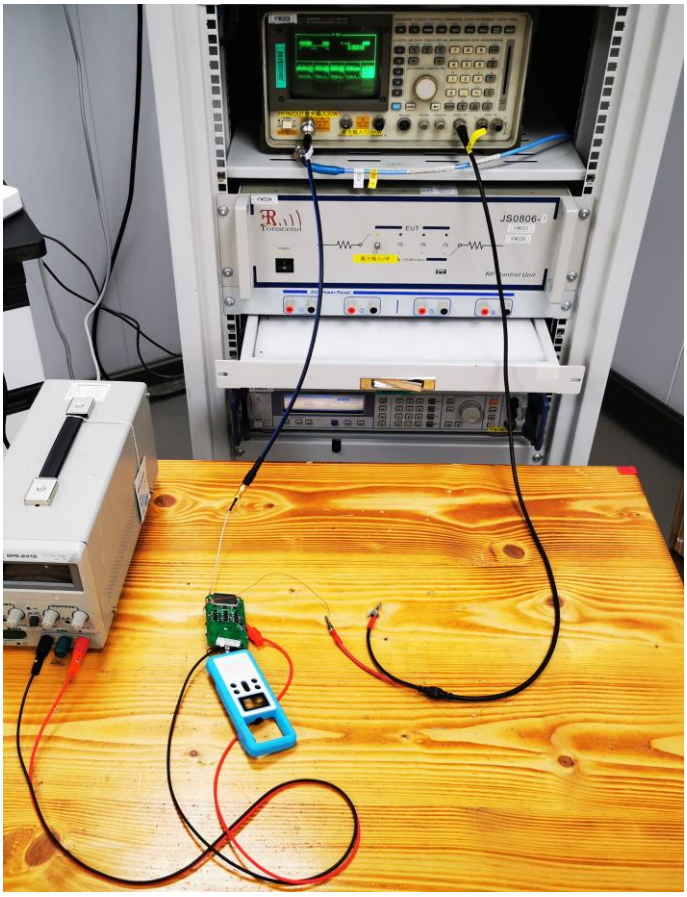
Mark	Frequency MHz	Reading dBm	Antenna dB	Cable dB	Preamp dB	Level dBm	Limit dBm	Over limit	Remark
1	38.78	-80.64	27.60	1.13	30.62	-82.53	-13.00	-69.53	Peak
2	934.81	-46.88	29.20	6.29	29.23	-40.62	-13.00	-27.62	Peak
3	1402.12	-39.41	37.15	3.08	42.00	-41.18	-13.00	-28.18	Peak
4	1870.25	-45.32	37.59	3.59	42.02	-46.16	-13.00	-33.16	Peak
5	2339.14	-35.42	40.16	4.08	41.80	-32.98	-13.00	-19.98	Peak
6	2805.69	-43.93	40.74	4.45	41.79	-40.53	-13.00	-27.53	Peak

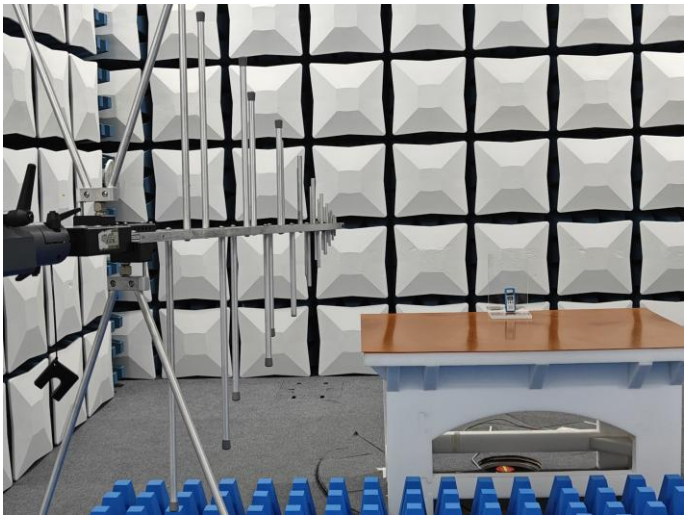
Test Channel:	CH_{M2}	Polarity:	Vertical



Mark	Frequency MHz	Reading dBm	Antenna dB	Cable dB	Preamp dB	Level dBm	Limit dBm	Over limit	Remark
1	96.75	-79.40	25.79	1.84	30.66	-82.43	-13.00	-69.43	Peak
2	934.81	-48.80	29.10	6.29	29.23	-42.64	-13.00	-29.64	Peak
3	1402.12	-26.58	37.76	3.08	42.00	-27.74	-13.00	-14.74	Peak
4	1870.25	-38.23	37.14	3.59	42.02	-39.52	-13.00	-26.52	Peak
5	2339.14	-35.65	40.03	4.08	41.80	-33.34	-13.00	-20.34	Peak
6	2805.69	-37.65	40.69	4.45	41.79	-34.30	-13.00	-21.30	Peak

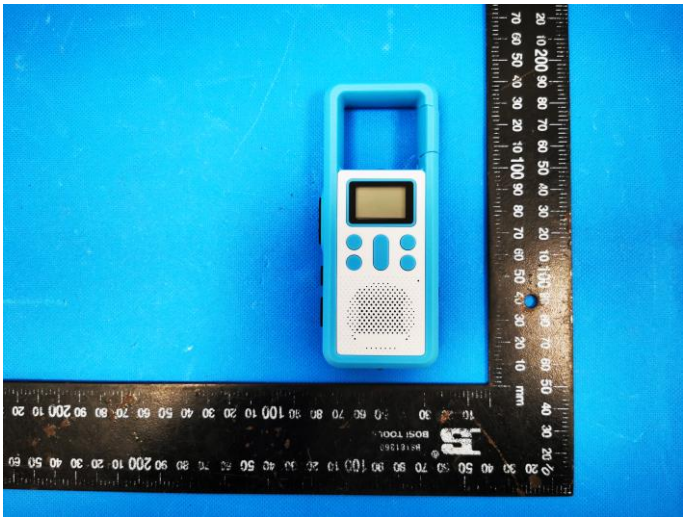
6. TEST SETUP PHOTOS

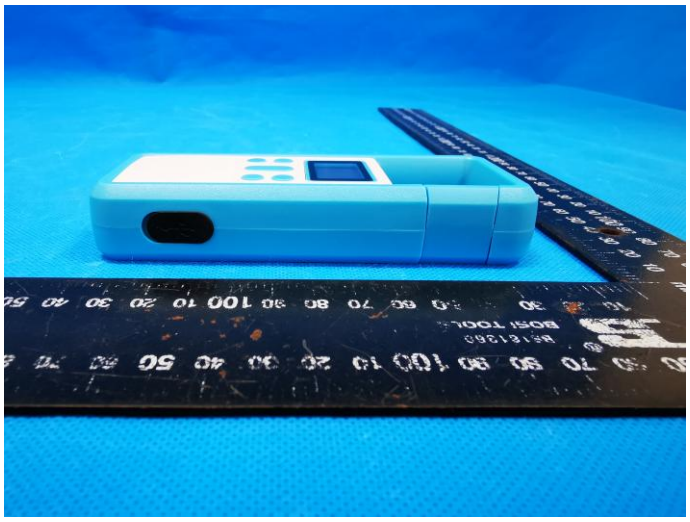


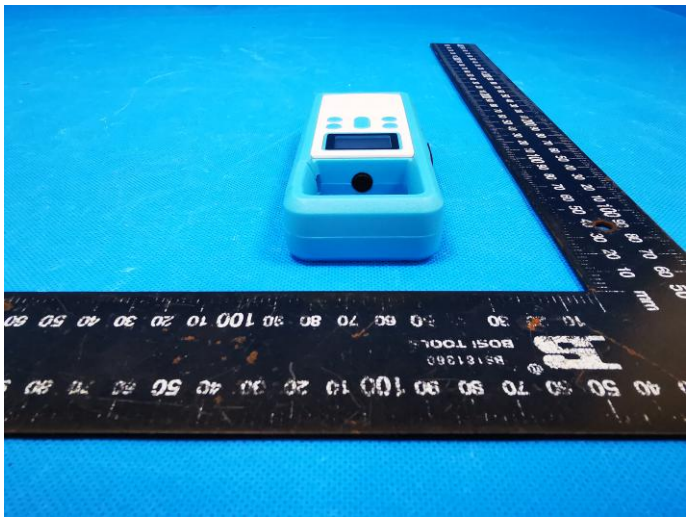


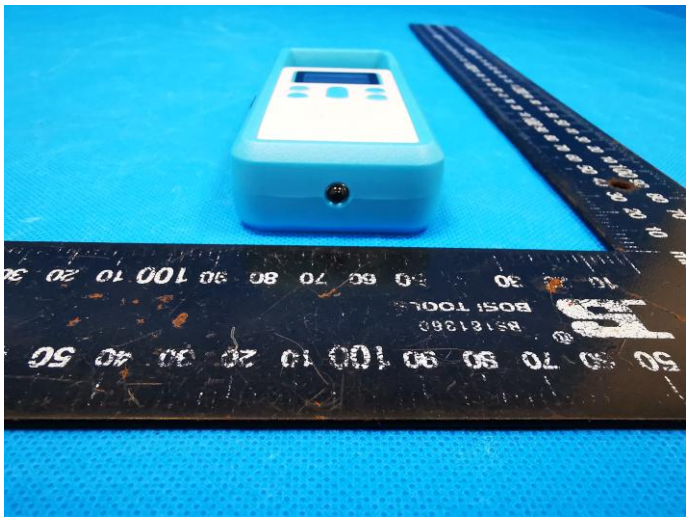
7. EXTERANAL AND INTERNAL PHOTOS

7.1. External Photos

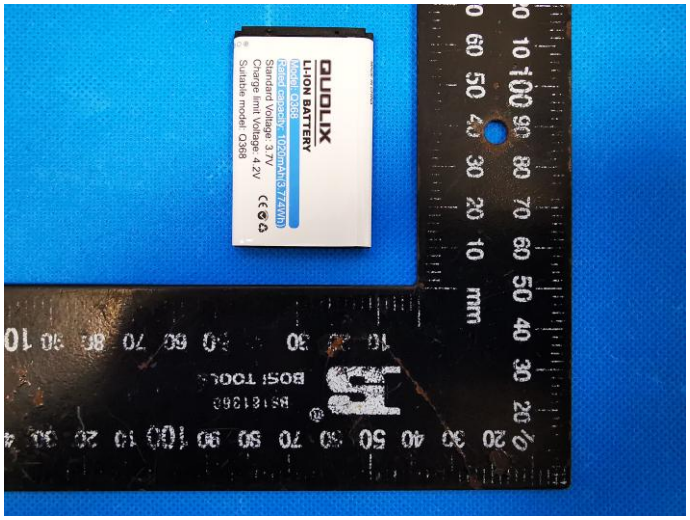


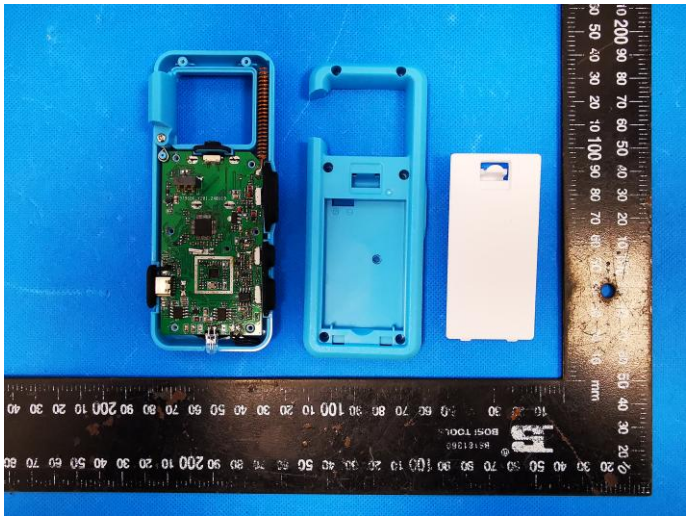


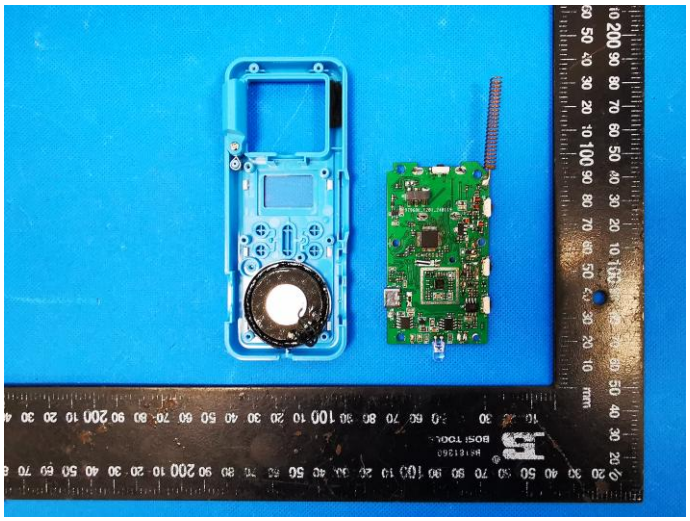


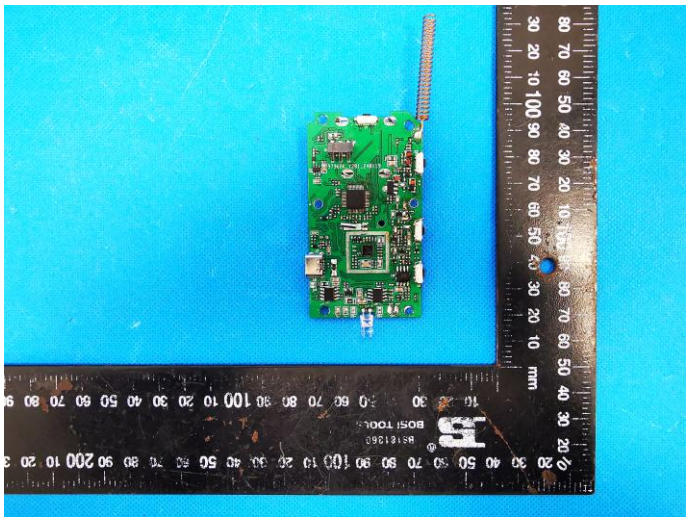


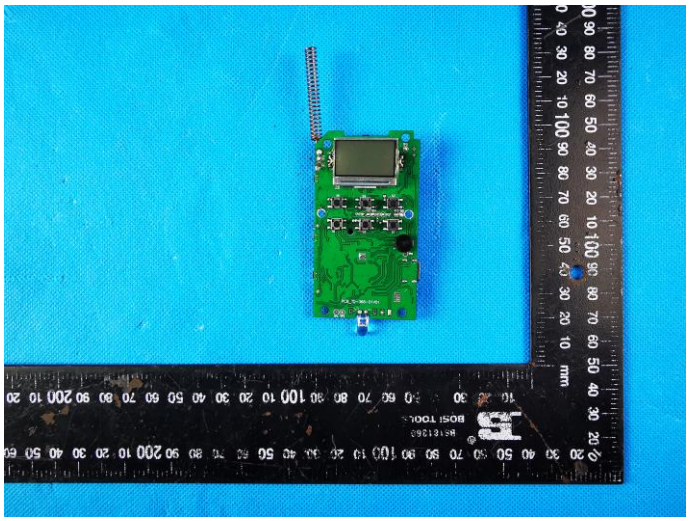
7.2. Internal Photos

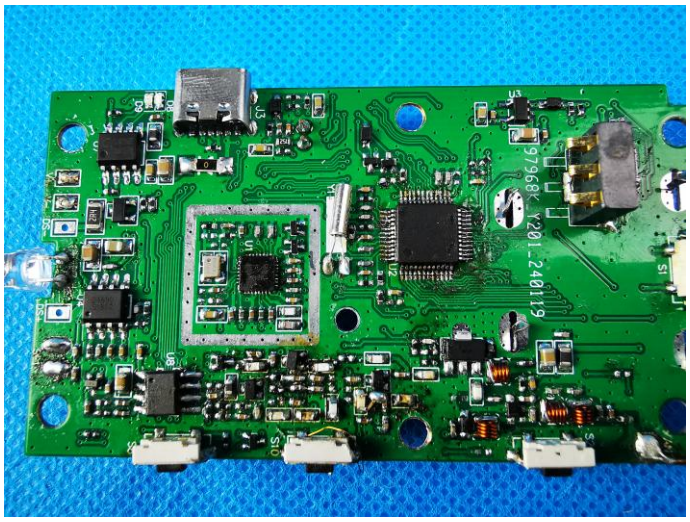












8. APPENDIX REPORT

Project No.	SHT2404077202W		
Test sample No.	YPHT24040772001	Model No.	Q368
Start test date	2024/5/13	Finish date	2024/5/27
Temperature	24.5℃	Humidity	52%
Test Engineer	Xiangyu Wei	Auditor	Xiaodong Zhao

Appendix clause	Test Item	Test date (M/D)	Test Result (PASS/FAIL)
A	Transmit Power (ERP)	2024/5/13	PASS
B	Occupied Bandwidth	2024/5/13	PASS
C	Emission Mask	2024/5/27	PASS
D	Modulation Limit	2024/5/13	PASS
E	Audio Frequency Response	2024/5/13	PASS
F	Audio Low Pass Filter Response	2024/5/15	PASS
G	Frequency Stability Test & Temperature	2024/5/15	PASS
H	Frequency Stability Test & Voltage	2024/5/15	PASS

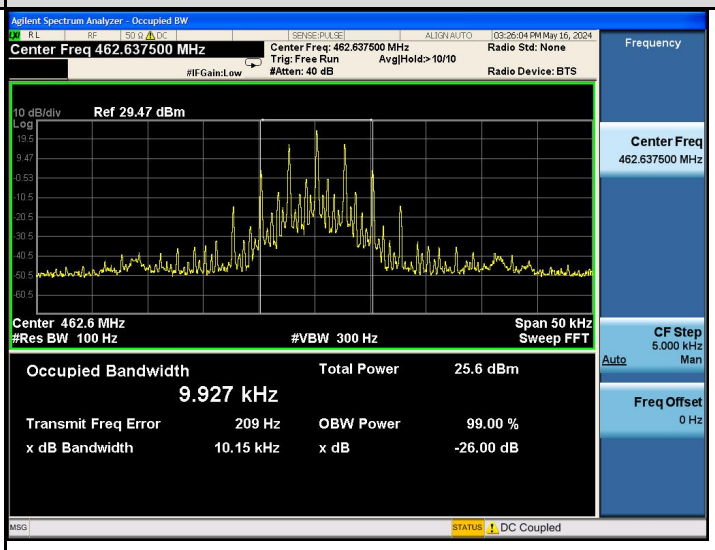
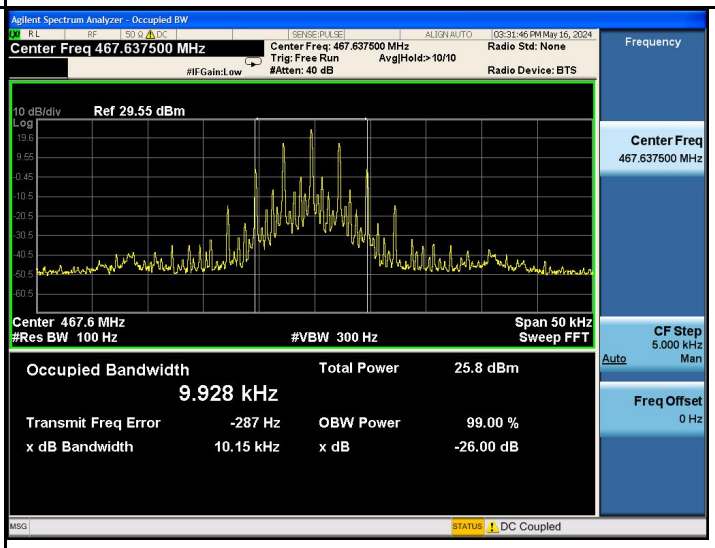
Appendix A: Transmit Power (ERP)

Test Mode	Modulation Type	Test Channel	Measured power (dBm)	Measured power (W)	Limit(W)	Result
TX-FRS	FM	CH_{M1}	25.99	0.40	⩽2	PASS
TX-FRS	FM	CH_{M2}	25.87	0.39	⩽0.5	PASS

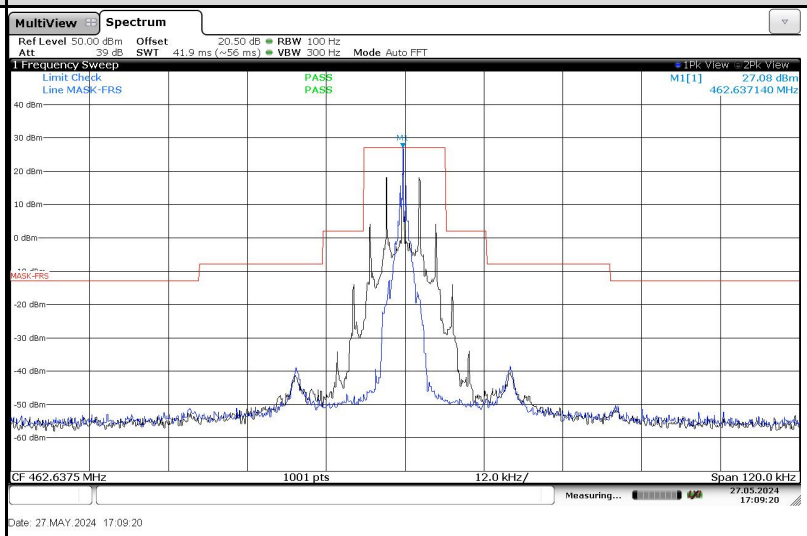
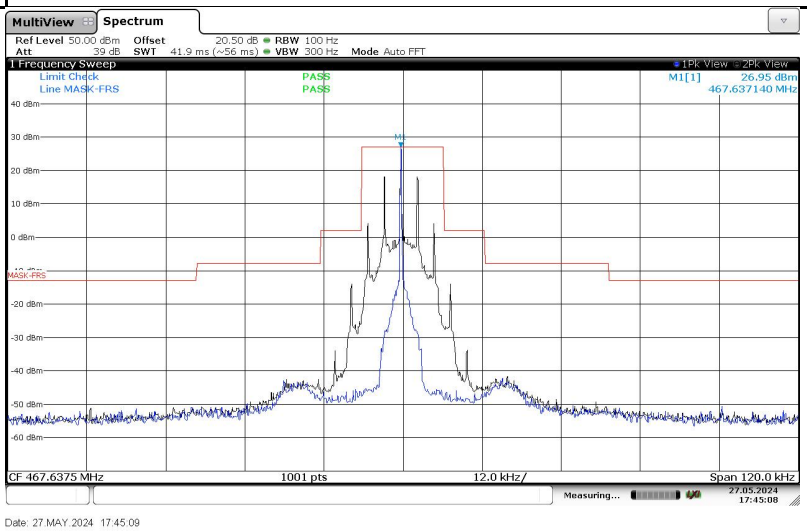
Appendix B: 99% Occupied Bandwidth & 26dB Bandwidth

Test Mode	Modulation Type	Test Channel	Occupied Bandwidth		99% Limit(kHz)	Result
			99%(kHz)	26dB(kHz)		
TX-FRS	FM	CH_{M1}	9.927	10.15	≤12.5	PASS
TX-FRS	FM	CH_{M2}	9.928	10.15	≤12.5	PASS

Appendix B: 99% Occupied Bandwidth & 26dB Bandwidth

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

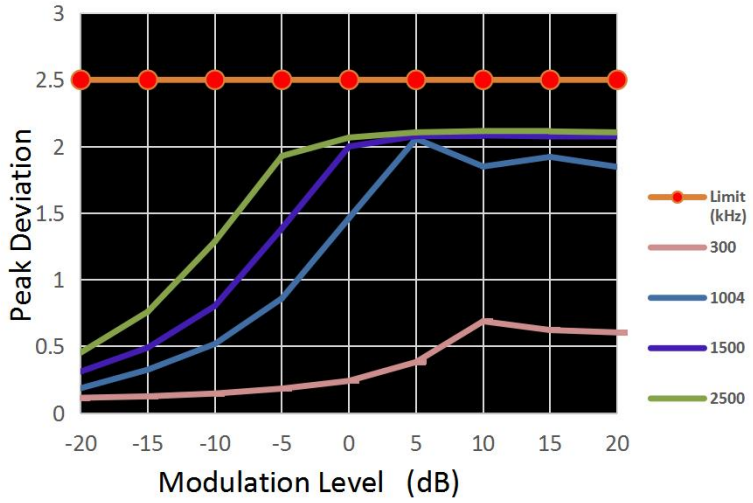
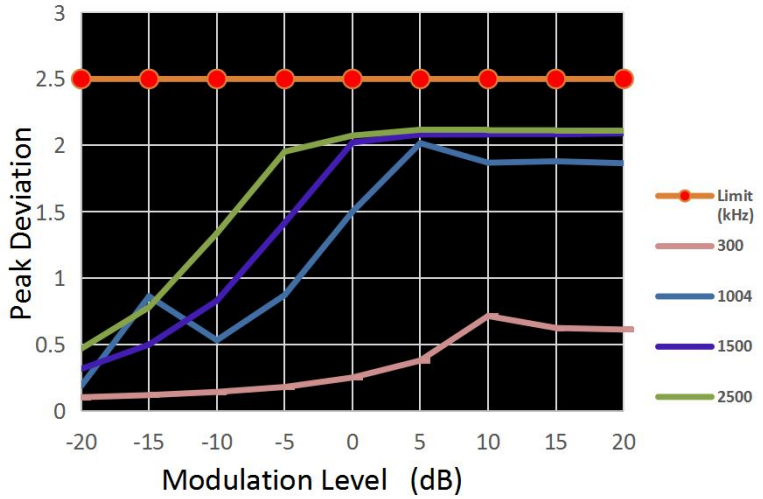
Appendix C:Emission Mask

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

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	0.115	0.187	0.312	0.454	2.5	PASS
TX-FRS	FM	CH_{M1}	-15	0.126	0.326	0.491	0.761	2.5	PASS
TX-FRS	FM	CH_{M1}	-10	0.147	0.519	0.804	1.287	2.5	PASS
TX-FRS	FM	CH_{M1}	-5	0.184	0.861	1.386	1.929	2.5	PASS
TX-FRS	FM	CH_{M1}	0	0.242	1.463	2.000	2.067	2.5	PASS
TX-FRS	FM	CH_{M1}	5	0.383	2.058	2.078	2.106	2.5	PASS
TX-FRS	FM	CH_{M1}	10	0.689	1.850	2.083	2.116	2.5	PASS
TX-FRS	FM	CH_{M1}	15	0.623	1.922	2.075	2.113	2.5	PASS
TX-FRS	FM	CH_{M1}	20	0.605	1.847	2.078	2.106	2.5	PASS
TX-FRS	FM	CH_{M2}	-20	0.106	0.191	0.319	0.471	2.5	PASS
TX-FRS	FM	CH_{M2}	-15	0.122	0.865	0.502	0.783	2.5	PASS
TX-FRS	FM	CH_{M2}	-10	0.146	0.535	0.832	1.339	2.5	PASS
TX-FRS	FM	CH_{M2}	-5	0.183	0.874	1.417	1.953	2.5	PASS
TX-FRS	FM	CH_{M2}	0	0.254	1.502	2.022	2.074	2.5	PASS
TX-FRS	FM	CH_{M2}	5	0.382	2.017	2.082	2.118	2.5	PASS
TX-FRS	FM	CH_{M2}	10	0.717	1.870	2.086	2.114	2.5	PASS
TX-FRS	FM	CH_{M2}	15	0.627	1.881	2.083	2.111	2.5	PASS
TX-FRS	FM	CH_{M2}	20	0.615	1.866	2.091	2.115	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}	

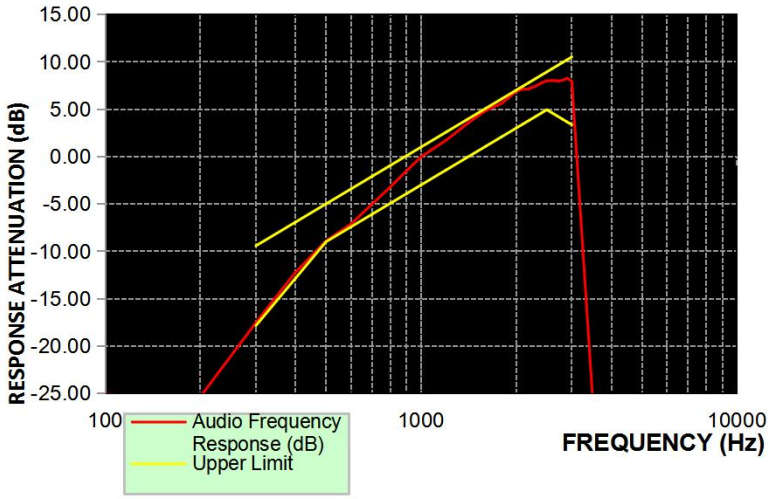
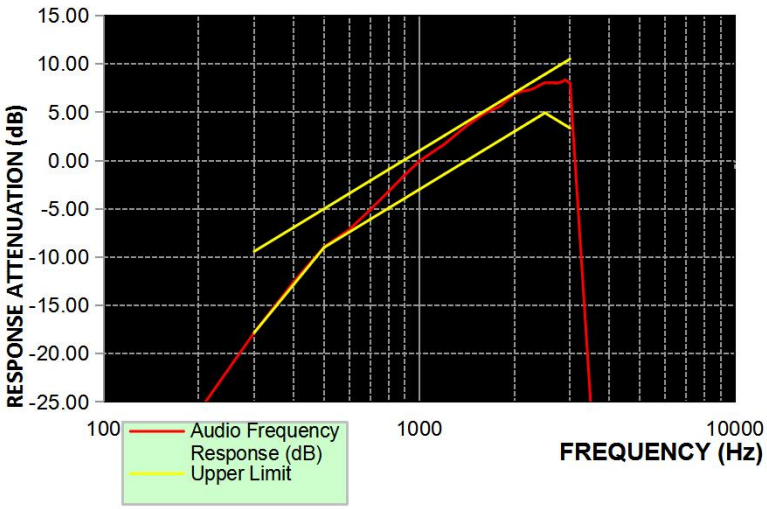
Appendix E:Audio Frequency Response

Test Mode	Modulation Type	Test Channel	Frequency (Hz)	Audio Frequency Response (dB)	Lower Limit	Upper Limit	Result
TX-FRS	FM	CH_{M1}	100	-25.09			PASS
TX-FRS	FM	CH_{M1}	200	-25.37			PASS
TX-FRS	FM	CH_{M1}	300	-17.53	-17.84	-9.42	PASS
TX-FRS	FM	CH_{M1}	400	-12.24	-12.86	-6.93	PASS
TX-FRS	FM	CH_{M1}	500	-8.91	-9.00	-5.00	PASS
TX-FRS	FM	CH_{M1}	600	-7.12	-7.42	-3.42	PASS
TX-FRS	FM	CH_{M1}	700	-5.02	-6.09	-2.09	PASS
TX-FRS	FM	CH_{M1}	800	-3.19	-4.93	-0.93	PASS
TX-FRS	FM	CH_{M1}	900	-1.50	-3.91	0.09	PASS
TX-FRS	FM	CH_{M1}	1000	-0.03	-3.00	1.00	PASS
TX-FRS	FM	CH_{M1}	1200	1.72	-1.42	2.58	PASS
TX-FRS	FM	CH_{M1}	1400	3.47	-0.09	3.91	PASS
TX-FRS	FM	CH_{M1}	1600	4.84	1.07	5.07	PASS
TX-FRS	FM	CH_{M1}	1800	5.62	2.09	6.09	PASS
TX-FRS	FM	CH_{M1}	2000	6.87	3.00	7.00	PASS
TX-FRS	FM	CH_{M1}	2100	7.11	3.42	7.42	PASS
TX-FRS	FM	CH_{M1}	2200	7.20	3.83	7.83	PASS
TX-FRS	FM	CH_{M1}	2300	7.41	4.21	8.21	PASS
TX-FRS	FM	CH_{M1}	2400	7.75	4.58	8.58	PASS
TX-FRS	FM	CH_{M1}	2500	8.00	4.93	8.93	PASS
TX-FRS	FM	CH_{M1}	2600	8.01	4.59	9.27	PASS
TX-FRS	FM	CH_{M1}	2700	7.93	4.27	9.60	PASS
TX-FRS	FM	CH_{M1}	2800	8.04	3.95	9.91	PASS
TX-FRS	FM	CH_{M1}	2900	8.26	3.65	10.22	PASS
TX-FRS	FM	CH_{M1}	3000	7.94	3.35	10.51	PASS
TX-FRS	FM	CH_{M1}	3500	-26.12			PASS
TX-FRS	FM	CH_{M1}	4000	-26.25			PASS
TX-FRS	FM	CH_{M1}	4500	-26.12			PASS
TX-FRS	FM	CH_{M1}	5000	-26.16			PASS
TX-FRS	FM	CH_{M2}	100	-25.55			PASS
TX-FRS	FM	CH_{M2}	200	-26.03			PASS
TX-FRS	FM	CH_{M2}	300	-17.84	-17.84	-9.42	PASS
TX-FRS	FM	CH_{M2}	400	-12.58	-12.86	-6.93	PASS
TX-FRS	FM	CH_{M2}	500	-8.95	-9.00	-5.00	PASS
TX-FRS	FM	CH_{M2}	600	-7.17	-7.42	-3.42	PASS
TX-FRS	FM	CH_{M2}	700	-5.08	-6.09	-2.09	PASS
TX-FRS	FM	CH_{M2}	800	-3.19	-4.93	-0.93	PASS
TX-FRS	FM	CH_{M2}	900	-1.50	-3.91	0.09	PASS
TX-FRS	FM	CH_{M2}	1000	-0.07	-3.00	1.00	PASS

Appendix E:Audio Frequency Response

Test Mode	Modulation Type	Test Channel	Frequency (Hz)	Audio Frequency Response (dB)	Lower Limit	Upper Limit	Result
TX-FRS	FM	CH_{M2}	1200	1.69	-1.42	2.58	PASS
TX-FRS	FM	CH_{M2}	1400	3.50	-0.09	3.91	PASS
TX-FRS	FM	CH_{M2}	1600	4.85	1.07	5.07	PASS
TX-FRS	FM	CH_{M2}	1800	5.62	2.09	6.09	PASS
TX-FRS	FM	CH_{M2}	2000	6.89	3.00	7.00	PASS
TX-FRS	FM	CH_{M2}	2100	7.15	3.42	7.42	PASS
TX-FRS	FM	CH_{M2}	2200	7.25	3.83	7.83	PASS
TX-FRS	FM	CH_{M2}	2300	7.45	4.21	8.21	PASS
TX-FRS	FM	CH_{M2}	2400	7.79	4.58	8.58	PASS
TX-FRS	FM	CH_{M2}	2500	8.05	4.93	8.93	PASS
TX-FRS	FM	CH_{M2}	2600	8.06	4.59	9.27	PASS
TX-FRS	FM	CH_{M2}	2700	7.99	4.27	9.60	PASS
TX-FRS	FM	CH_{M2}	2800	8.10	3.95	9.91	PASS
TX-FRS	FM	CH_{M2}	2900	8.34	3.65	10.22	PASS
TX-FRS	FM	CH_{M2}	3000	8.02	3.35	10.51	PASS
TX-FRS	FM	CH_{M2}	3500	-25.94			PASS
TX-FRS	FM	CH_{M2}	4000	-26.21			PASS
TX-FRS	FM	CH_{M2}	4500	-26.23			PASS
TX-FRS	FM	CH_{M2}	5000	-26.17			PASS

Appendix E:Audio Frequency Response

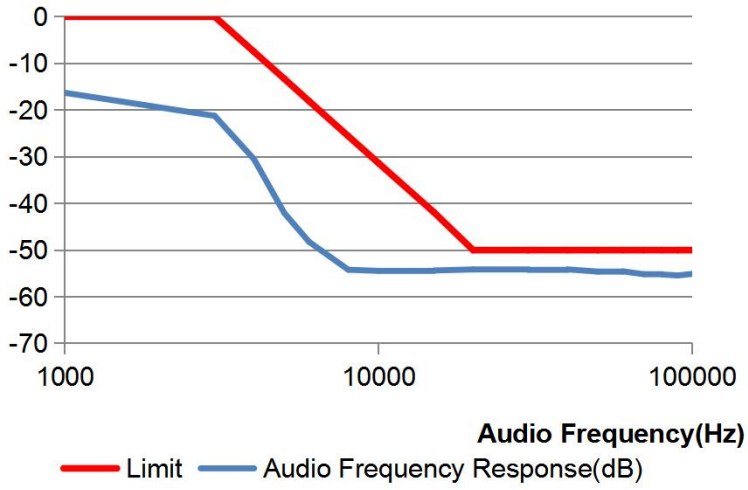
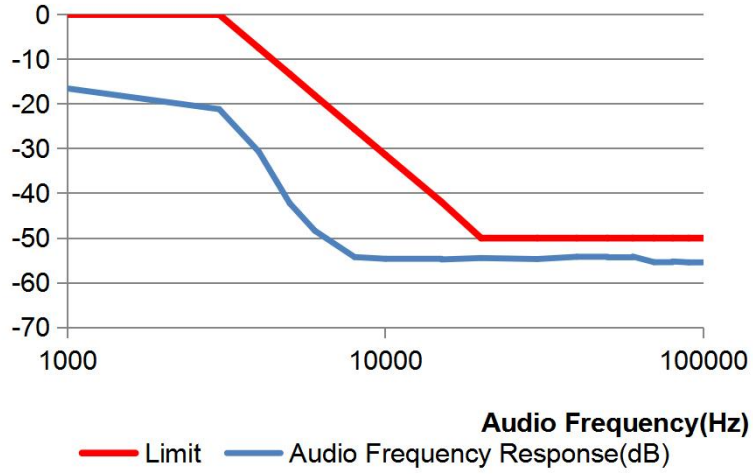
Test Mode	Modulation Type	Test Channel	TEST PLOT RESULT
TX-FRS	FM	CH_{M1}	
TX-FRS	FM	CH_{M2}	

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

Appendix F:Audio Low Pass Filter Response

Test Mode	Modulation Type	Test Channel	Audio Frequency(Hz)	Audio Frequency Response(dB)	Limit	Result
TX-FRS	FM	CH_{M1}	1000	-16.31	0	PASS
TX-FRS	FM	CH_{M1}	3000	-21.25	0	PASS
TX-FRS	FM	CH_{M1}	4000	-30.48	-7.5	PASS
TX-FRS	FM	CH_{M1}	5000	-42.06	-13.3	PASS
TX-FRS	FM	CH_{M1}	6000	-48.24	-18.1	PASS
TX-FRS	FM	CH_{M1}	8000	-54.21	-25.6	PASS
TX-FRS	FM	CH_{M1}	10000	-54.45	-31.4	PASS
TX-FRS	FM	CH_{M1}	15000	-54.36	-41.9	PASS
TX-FRS	FM	CH_{M1}	20000	-54.14	-50	PASS
TX-FRS	FM	CH_{M1}	30000	-54.23	-50	PASS
TX-FRS	FM	CH_{M1}	40000	-54.13	-50	PASS
TX-FRS	FM	CH_{M1}	50000	-54.60	-50	PASS
TX-FRS	FM	CH_{M1}	60000	-54.54	-50	PASS
TX-FRS	FM	CH_{M1}	70000	-55.16	-50	PASS
TX-FRS	FM	CH_{M1}	80000	-55.21	-50	PASS
TX-FRS	FM	CH_{M1}	90000	-55.43	-50	PASS
TX-FRS	FM	CH_{M1}	100000	-55.08	-50	PASS
TX-FRS	FM	CH_{M2}	1000	-16.53	0	PASS
TX-FRS	FM	CH_{M2}	3000	-21.16	0	PASS
TX-FRS	FM	CH_{M2}	4000	-30.70	-7.5	PASS
TX-FRS	FM	CH_{M2}	5000	-42.21	-13.3	PASS
TX-FRS	FM	CH_{M2}	6000	-48.36	-18.1	PASS
TX-FRS	FM	CH_{M2}	8000	-54.25	-25.6	PASS
TX-FRS	FM	CH_{M2}	10000	-54.63	-31.4	PASS
TX-FRS	FM	CH_{M2}	15000	-54.78	-41.9	PASS
TX-FRS	FM	CH_{M2}	20000	-54.46	-50	PASS
TX-FRS	FM	CH_{M2}	30000	-54.69	-50	PASS
TX-FRS	FM	CH_{M2}	40000	-54.18	-50	PASS
TX-FRS	FM	CH_{M2}	50000	-54.30	-50	PASS
TX-FRS	FM	CH_{M2}	60000	-54.13	-50	PASS
TX-FRS	FM	CH_{M2}	70000	-55.39	-50	PASS
TX-FRS	FM	CH_{M2}	80000	-55.23	-50	PASS
TX-FRS	FM	CH_{M2}	90000	-55.43	-50	PASS
TX-FRS	FM	CH_{M2}	100000	-55.40	-50	PASS

Appendix F:Audio Low Pass Filter Response

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

Appendix G:Frequency Stability Test & Temperature

Test Mode	Modulation Type	Test Conditions		Frequency error (ppm)		Limit (ppm)	Result
		Voltage	Temperature	CH_{M1}	CH_{M2}		
TX-FRS	FM	V_N	-30	-0.237	-0.528	±2.5	PASS
TX-FRS	FM	V_N	-20	-0.246	-0.525	±2.5	PASS
TX-FRS	FM	V_N	-10	-0.271	-0.524	±2.5	PASS
TX-FRS	FM	V_N	0	-0.232	-0.523	±2.5	PASS
TX-FRS	FM	V_N	10	-0.262	-0.522	±2.5	PASS
TX-FRS	FM	V_N	20	-0.253	-0.531	±2.5	PASS
TX-FRS	FM	V_N	30	-0.234	-0.546	±2.5	PASS
TX-FRS	FM	V_N	40	-0.223	-0.559	±2.5	PASS
TX-FRS	FM	V_N	50	-0.246	-0.566	±2.5	PASS

Appendix H:Frequency Stability Test & Voltage

Test Mode	Modulation Type	Test Conditions		Frequency error (ppm)		Limit (ppm)	Result
		Voltage	Temperature	CH_{M1}	CH_{M2}		
TX-FRS	FM	V_N	T_N	0.253	0.523	±2.5	PASS
TX-FRS	FM	V_L	T_N	0.256	0.521	±2.5	PASS
TX-FRS	FM	V_H	T_N	0.247	0.531	±2.5	PASS

----End of Report----