FCC Test Report

Report No.:	2405Z53730EC
Applicant:	Kiddesigns Inc
Address:	1299 Main Street, Rahway New Jersey 07065-0901, United States
Product Name:	XX-207 Walkie Talkies
Product Model:	SH-207.EXv25
Multiple Models:	N/A
Trade Mark:	eKids
FCC ID:	IAJ202C12B
Standards:	FCC CFR Title 47 Part 95B
Test Date:	2024-11-26 to 2024-11-28
Test Result:	Complied
Issue Date:	2024-11-28

Reviewed by: Frank Yin — Project Engineer

Approved by: Jacob Kong — Manager

Prepared by:

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

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NVLAP TESTING NVLAP LAB CODE 600335-0

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Revision History

Version No.	Issued Date	Description
00	*2024-11-28*	*Original*

Contents

1 General Information

1.1 Client Information

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

1.2 Product Description of EUT

The EUT is XX-207 Walkie Talkies that contains FRS radio, this report covers the full testing of the FRS radio.

Sample Serial number	2UGW-1 for RE and RF test(assigned by WATC)
Sample Received Date	2024-11-20
Sample Status	Good Condition
Frequency Range	467.6625MHz
Maximum ERP	1.68dBm
Modulation Technology	FM
Emission Type	F3E
Spatial Streams	SISO (1TX, 1RX)
Antenna Type	Integral
Antenna Gain#	2 dBi
Power Supply	DC 3V from battery
Adapter Information	N/A
Modification	Sample No Modification by the test lab

1.3 Measurement Uncertainty

Parameter		Expanded Uncertainty (Confidence of 95%(U = 2Uc(y)))
AC Power Lines Conducted Emissions		±3.14dB
Emissions, Radiated	Below 30MHz	±2.78dB
	Below 1GHz	±4.84dB
	Above 1GHz	±5.44dB
Emissions, Conducted		1.75dB
Conducted Power		0.74dB
Frequency Error		150Hz
Bandwidth		0.34%
Modulation Limiting		1.32%

Note 1: The extended uncertainty given in this report is obtained by combining the standard uncertainty times the coverage factor K with the 95% confidence interval. Otherwise required by the applicant or Product Regulations, Decision Rule in this report did not consider the uncertainty.

Note 2: The Decision Rule is based on simple acceptance with ISO Guide 98-4:2012 Clause 8.2 (Measurement uncertainty is not taken into account when stating conformity with a specified requirement.)

1.4 Laboratory Location

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

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

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

The lab has been recognized as the FCC accredited lab under the KDB 974614 D01 and is listed in the FCC Public Access Link (PAL) database, FCC Registration No. : 463912, the FCC Designation No. : CN5040.

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

1.5 Test Methodology

FCC CFR Title 47 Part 2, 95B

ANSI C63.26-2015

2 Description of Measurement

2.1 Test Configuration

Operating channels:					
Channel No.	Frequency (MHz)	Channel No.	Frequency (MHz)	Channel No.	Frequency (MHz)
1	467.6625	/	/	/	/
According to Per C63.26-2015, section 5.1, Channel 1 was selected to test					

Test Mode:	
Transmitting mode:	Keep the EUT in continuous transmitting with modulation

Worst-Case Configuration:
For radiated emissions, EUT was investigated in three orthogonal orientation, the worst-case orientation was recorded in report For radiated emission was investigated from 30MHz to 10 times of fundamental with the EUT transmits at the highest output power as worst-case scenario.

2.2 Test Auxiliary Equipment

Manufacturer	Description	Model	Serial Number
/	/	/	/

2.3 Interconnecting Cables

Manufacturer	Description	Length(m)	From	To
/	/	/	/	/

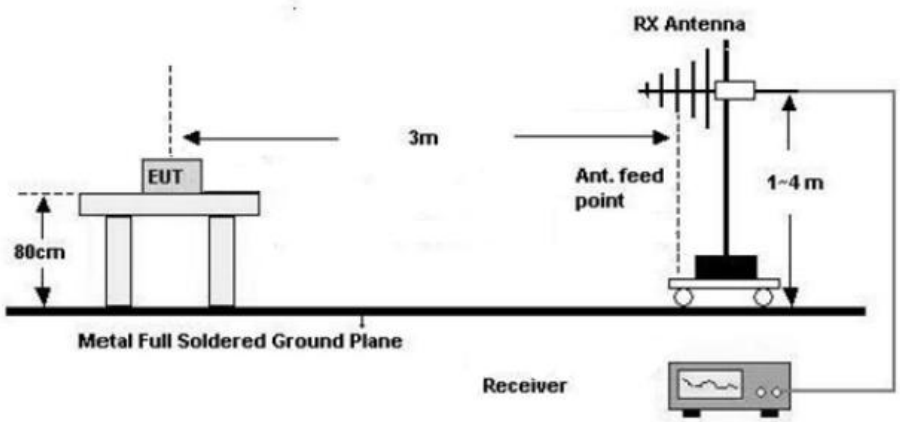
2.4 Block Diagram of Connection between EUT and AE

Note: for reference only, the actual connection setup used for testing please refer to the test photos.

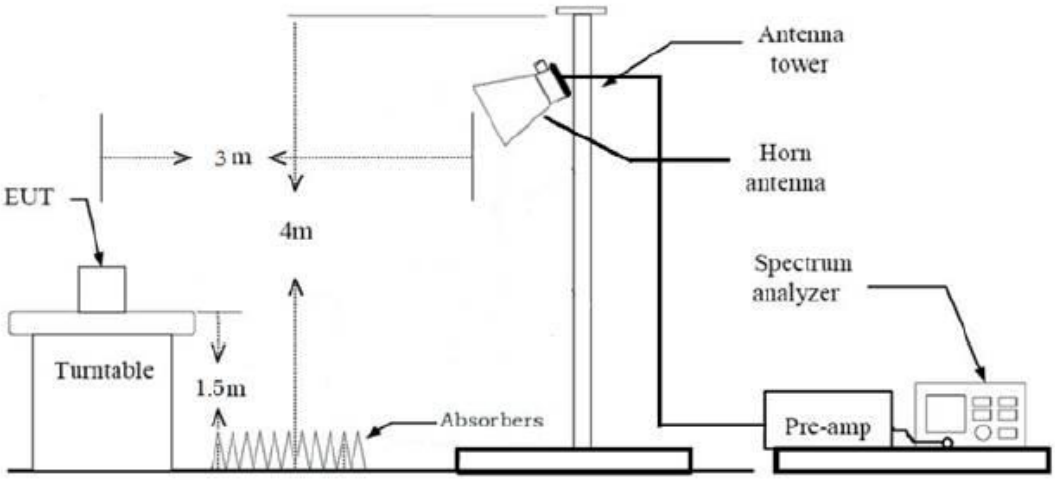
2.5 Test Setup

1) Radiated emission measurement:

30MHz-1GHz (3m SAC)

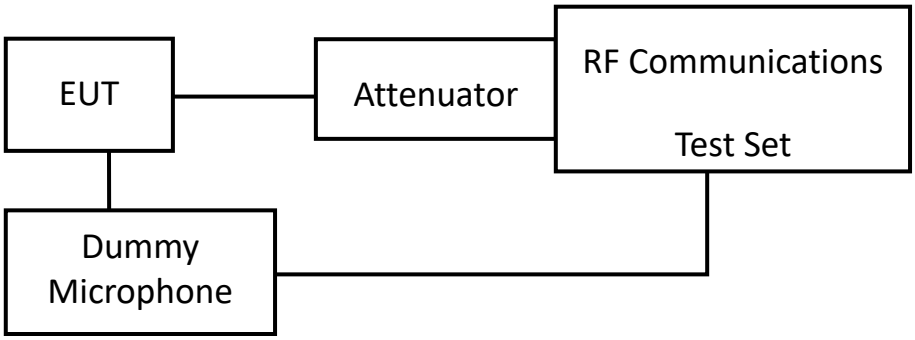


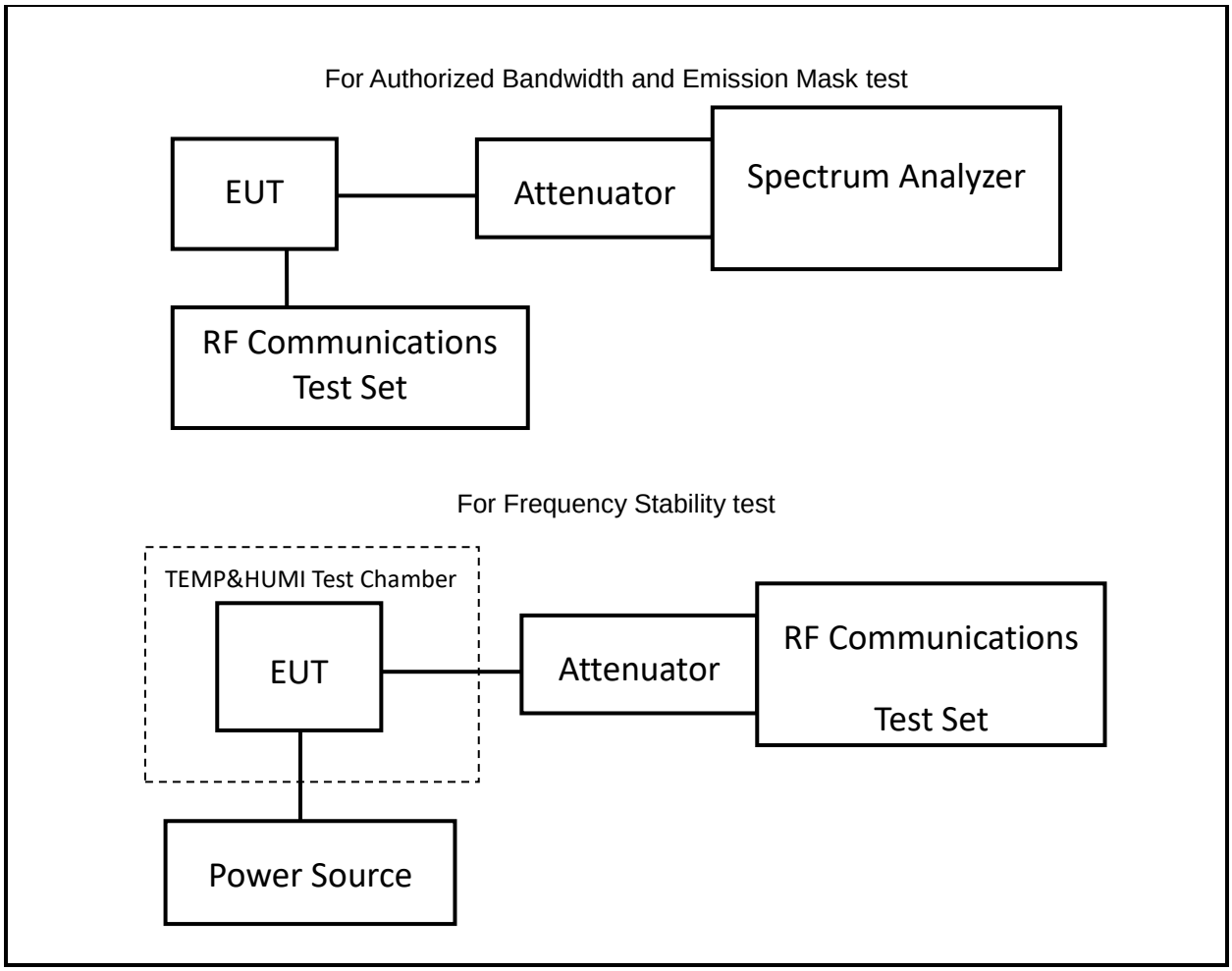
1GHz-5GHz(3m FAC)



2) RF Conducted Test

For Modulation Limiting/Audio Frequency Response test





2.6 Test Procedure

Radiated Emission Procedure:

a) For 30MHz-1GHz:

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

b) For above 1GHz:

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

RF Conducted Test:

1. The antenna port of EUT was connected to the RF port of the test equipment (RF Communications Test Set or Spectrum analyzer) through Attenuator and RF cable.
2. The cable assembly insertion loss of 6.5dB (including 6.0 dB Attenuator and 0.5dB cable) was entered as an offset in the spectrum analyzer. Note: Actual cable loss was unavailable at the time of testing, therefore a loss of 0.5dB was assumed as worst case. This was later verified to be true by laboratory. (if the RF cable provided by client, the cable loss declared by client)
3. The EUT is keeping in continuous transmission mode with modulation signals required.

2.7 Measurement Method

Description of Test	Measurement Method
Modulation Limiting	ANSI C63.26-2015 section 5.3.2
Audio Frequency Response	ANSI C63.26-2015 section 5.3.3.2
Authorized Bandwidth	ANSI C63.26-2015 section 5.4.4
Transmitter output power and effective radiated power (e.r.p.)	ANSI C63.26-2015 section 5.2.3.3&5.2.5.5 or ANSI C63.26-2015 section 5.5.4
Emission Mask	ANSI C63.26-2015 section 5.7.3
Frequency Stability	ANSI C63.26-2015 section 5.6
Radiated Unwanted Emissions	ANSI C63.26-2015 section 5.5.4

2.8 Measurement Equipment

Manufacturer	Description	Model	Management No.	Calibration Date	Calibration Due Date
Radiated Emission Test					
R&S	EMI test receiver	ESR3	102758	2024/6/4	2025/6/3
ROHDE& SCHWARZ	SPECTRUM ANALYZER	FSV40-N	101608	2024/6/4	2025/6/3
SONOMA INSTRUMENT	Low frequency amplifier	310	186014	2024/6/4	2025/6/3
A.H. Systems	PREAMPLIFIER	PAM-0118P	531	2024/6/4	2025/6/3
SCHWARZBECK	Log - periodic wideband antenna	VULB 9163	9163-872	2023/7/7	2026/7/6
Astro Antenna Ltd	Horn antenna	AHA-118S	3015	2023/7/6	2026/7/5
N/A	Coaxial Cable	NO.9	N/A	2024/6/4	2025/6/3
N/A	Coaxial Cable	NO.15	N/A	2024/6/4	2025/6/3
N/A	Coaxial Cable	NO.16	N/A	2024/6/4	2025/6/3
N/A	Coaxial Cable	NO.17	N/A	2024/6/4	2025/6/3
Audix	Test Software	E3	191218 V9	/	/
RF Conducted Test					
ROHDE& SCHWARZ	SPECTRUM ANALYZER	FSV40	101419	2024/6/4	2025/6/3
MEEA	6dB attenuator	603-06-1	N/A	2024/6/4	2025/6/3
HP	RF comminication test set	HP8920A	T-01-EM046	2024/1/16	2025/1/15
BACL	TEMP&HUMI Test Chamber	BTH-150	30022	2024/7/11	2025/7/10
FLUKE	Digital Multimeter	15B+	N/A	2024/6/6	2025/6/5
UNI-T	DC Power Supply	UTP1310S	C221286498	NCR	NCR

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

3 Test Results

3.1 Test Summary

FCC Rules	Description of Test	Result
§2.1055(d), §95.565	FRS Frequency Accuracy	Compliance
FCC§2.1046, FCC§95.567	FRS transmit Power	Compliance
§95.571	FRS Emission Types	Compliance
§2.1049, §95.573	FRS Authorized Bandwidth	Compliance
§95.579	Emission Mask	Compliance
§2.1047, §95.575	FRS Modulation Limits	Compliance
§2.1053, §95.579	FRS Unwanted Emissions Limits	Compliance
§95.587	FRS Additional Requirements	Compliance

3.2 Limit

Test items	Limit
FRS Frequency Accuracy	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.
FRS transmit Power	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.
FRS Emission Types	Each FRS transmitter type must be designed such that it can transmit only the following emission types: F3E, G3E, F2D, and G2D.
FRS Authorized Bandwidth	Each FRS transmitter type must be designed such that the occupied bandwidth does not exceed 12.5 kHz.
FRS Modulation Limits	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.
FRS Unwanted Emissions Limits	Each FRS transmitter type must be designed to satisfy the applicable unwanted emissions limits in this paragraph. (a) Attenuation requirements. The power of unwanted emissions must be attenuated below the carrier power output in Watts (P) by at least: (1) 25 dB (decibels) in the frequency band 6.25 kHz to 12.5 kHz removed from the channel center frequency. (2) 35 dB in the frequency band 12.5 kHz to 31.25 kHz removed from the channel center frequency. (3) 43 + 10 log (P) dB in any frequency band removed from the channel center frequency by more than 31.25 kHz. (b) Measurement bandwidths. The power of unwanted emissions in the frequency bands specified in paragraphs (a)(1) and (2) of this section is measured with a reference bandwidth of 300 Hz. The power of unwanted emissions in the frequency range specified in paragraph (a)(3) is measured with a reference bandwidth of at least 30 kHz. (c) Measurement conditions. The requirements in this section apply to each FRS transmitter type both with and without the connection of permitted attachments, such as an external speaker, microphone and/or power cord.

3.3 Radiated emission Test Data

3.3.1 Effective Radiated Power (e.r.p.)

Test Date:	2024-11-28	Test By:	Luke Li
Environment condition:	Temperature:24.2°C; Relative Humidity:41%; ATM Pressure: 101.7kPa		

Frequency (MHz)	Reading level (dBμV)	Polar (H/V)	Corrected Factor (dB/m)	Corrected Amplitude (dBμV/m)	EIRP CF	ERP (dBm)	Limit (dBm)	Margin (dB)	Remark
467.6625MHz									
467.6625	69.79	horizontal	23.55	93.34	95.20	-4.01	27.00	-31.01	Peak
467.6625	75.48	vertical	23.55	99.03	95.20	1.68	27.00	-25.32	Peak

Remark:

Corrected Amplitude= Reading level + corrected Factor

Corrected Factor = Antenna factor + Cable loss – Amplifier gain

Margin = Result – Limit

According to ANSI C63.26-2015 section 5.2.7:

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

Test was performed on 3meters distance, so

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

= Corrected Amplitude - 95.2

According to ANSI C63.26-2015 Annex C, C.4 :

$$ERP = EIRP - 2.15\ dB$$

So ERP = Corrected Amplitude - 95.2 – 2.15

3.3.2 Radiated Unwanted Emissions

Test Date:	2024-11-28	Test By:	Luke Li
Environment condition:	Temperature:24.2°C; Relative Humidity:41%; ATM Pressure: 101.7kPa		

Frequency (MHz)	Reading level (dBμV)	Polar (H/V)	Corrected Factor (dB/m)	Corrected Amplitude (dBμV/m)	EIRP CF	Result (dBm)	Limit (dBm)	Margin (dB)	Remark
467.6625MHz									
935.325	24.54	horizontal	29.97	54.51	95.20	-40.69	-13.00	-27.69	Peak
1402.988	72.71	horizontal	-3.46	69.25	95.20	-25.95	-13.00	-12.95	Peak
1870.650	56.98	horizontal	-3.03	53.95	95.20	-41.25	-13.00	-28.25	Peak
2338.313	58.62	horizontal	-2.17	56.45	95.20	-38.75	-13.00	-25.75	Peak
2805.975	49.93	horizontal	-1.88	48.05	95.20	-47.15	-13.00	-34.15	Peak
935.325	23.75	vertical	29.97	53.72	95.20	-41.48	-13.00	-28.48	Peak
1402.988	73.26	vertical	-3.46	69.8	95.20	-25.40	-13.00	-12.40	Peak
1870.650	54.46	vertical	-3.03	51.43	95.20	-43.77	-13.00	-30.77	Peak
2338.313	54.84	vertical	-2.17	52.67	95.20	-42.53	-13.00	-29.53	Peak
2805.975	51.44	vertical	-1.88	49.56	95.20	-45.64	-13.00	-32.64	Peak

Remark:

Corrected Amplitude= Reading level + corrected Factor

Corrected Factor = Antenna factor + Cable loss – Amplifier gain

Margin = Result – Limit

According to ANSI C63.26-2.15 section 5.2.7:

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

Test was performed on 3meters distance, so

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

= Corrected Amplitude - 95.2

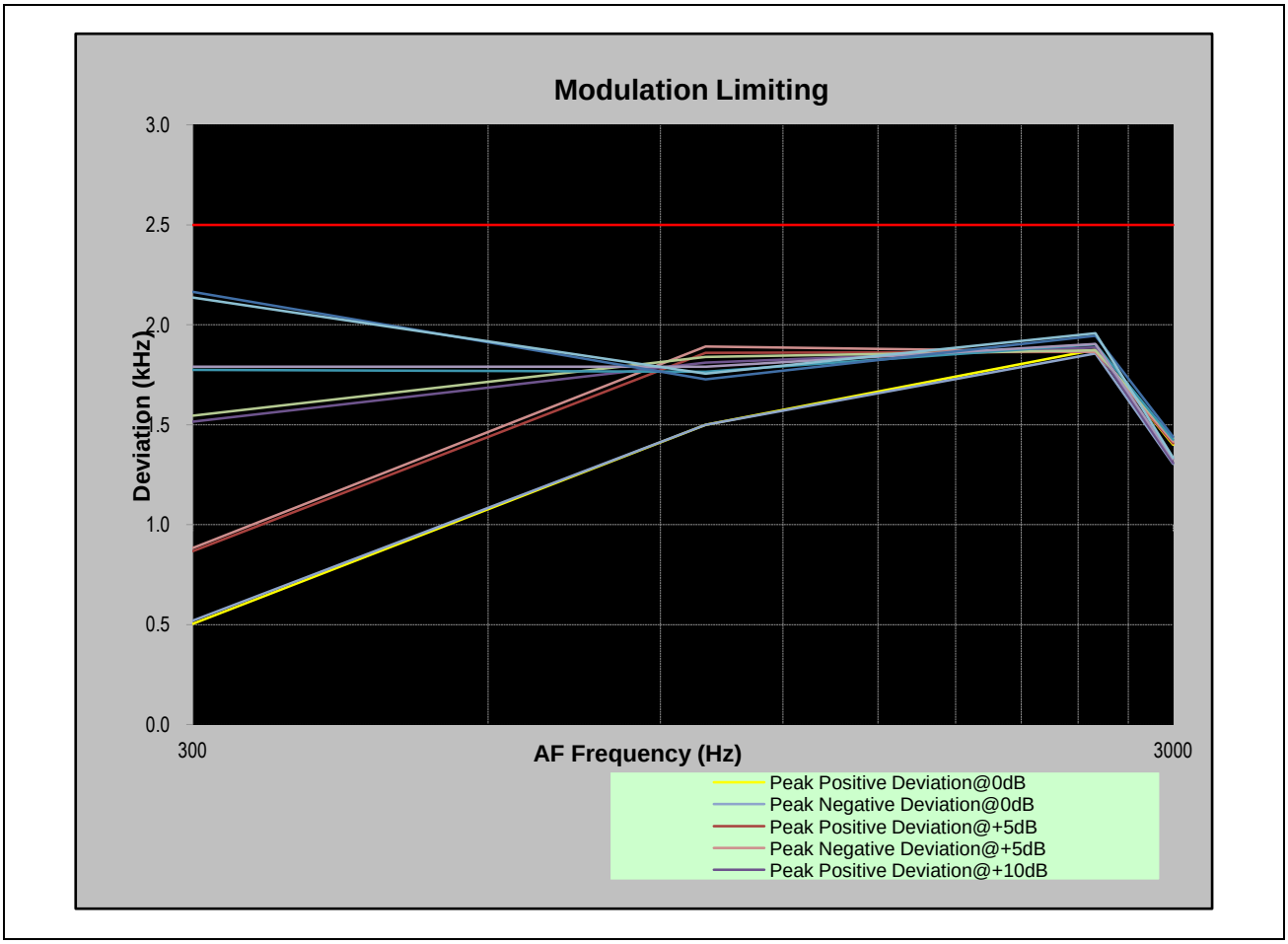
The emission levels of other frequencies that were lower than the limit 20dB, not show in test report.

3.4 RF Conducted Test Data

Test Date:	2024-11-26	Test By:	Ryan Zhang
Environment condition:	Temperature: 25.6 ℃; Relative Humidity:49%; ATM Pressure: 101.2kPa		

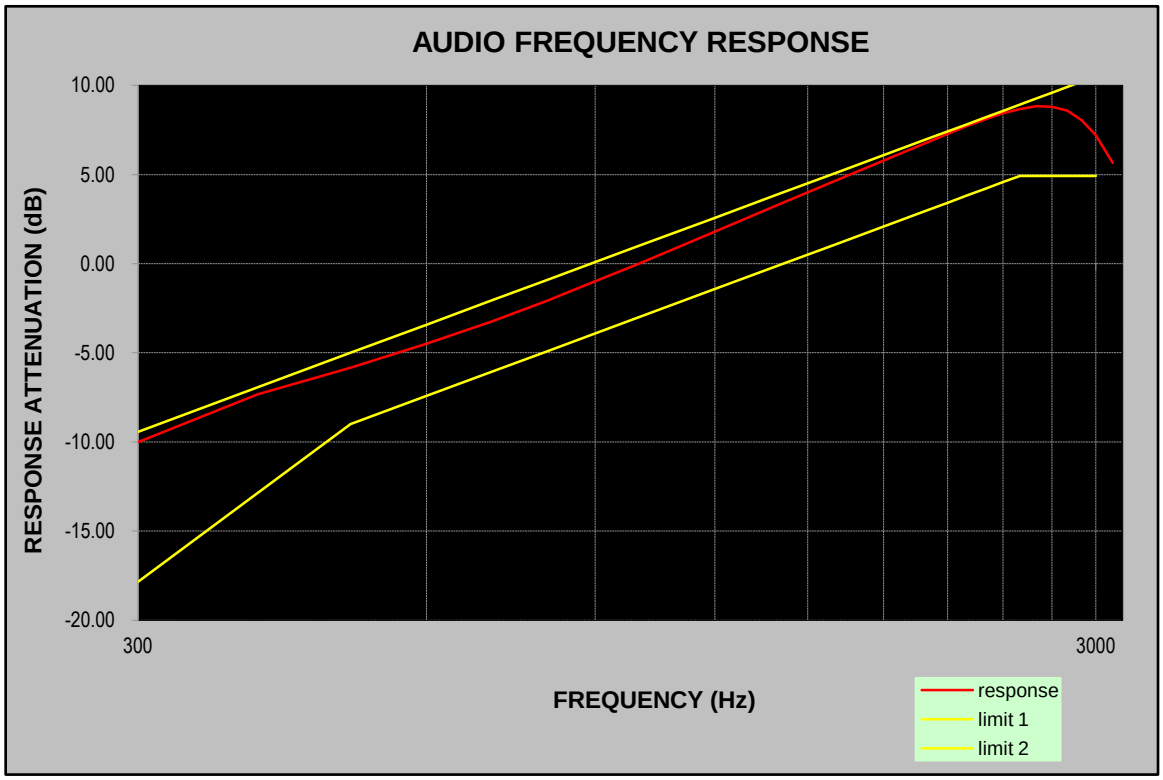
3.4.1 MODULATION LIMITING

Carrier Frequency: 467.6625MHz											
Audio Frequency (Hz)	Deviation (@+0dB) [kHz]		Deviation (@+5dB) [kHz]		Deviation (@+10dB) [kHz]		Deviation (@+15dB) [kHz]		Deviation (@+20dB) [kHz]		Limit [kHz]
	Peak+	Peak-	Peak+	Peak-	Peak+	Peak-	Peak+	Peak-	Peak+	Peak-	
300	0.505	0.520	0.868	0.883	1.515	1.546	1.775	1.790	2.165	2.136	2.500
1000	1.500	1.500	1.860	1.892	1.810	1.839	1.765	1.790	1.727	1.756	2.500
2500	1.875	1.856	1.865	1.864	1.886	1.873	1.903	1.904	1.945	1.958	2.500
3000	1.400	1.303	1.407	1.416	1.309	1.428	1.425	1.328	1.440	1.336	2.500



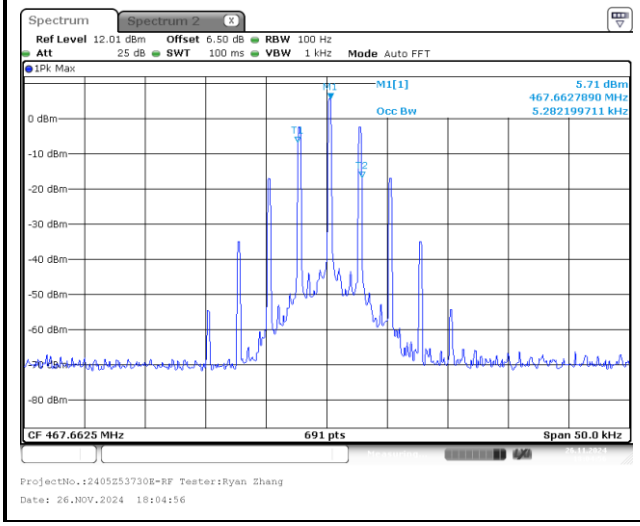
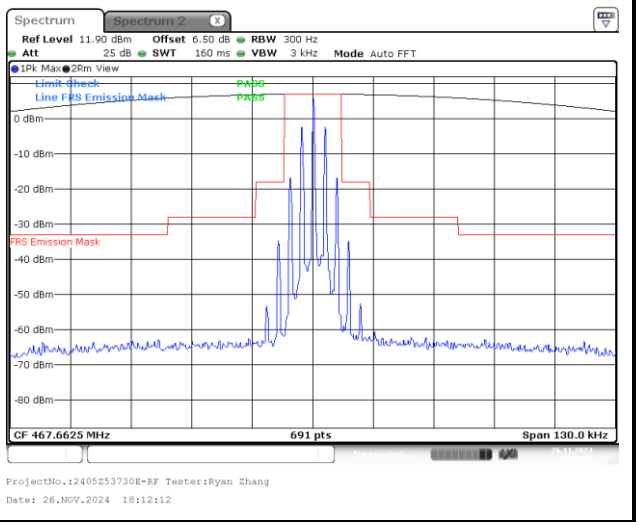
3.4.2 Audio Frequency Response

Test Frequency: 467.6625MHz			
Audio Frequency (Hz)	**Response Attenuation (dB)**	**High Limit (dB)**	**Low Limit (dB)**
300	-9.99	-9.4	-17.8
400	-7.33	-6.9	-12.9
500	-5.84	-5.0	-9.0
600	-4.48	-3.4	-7.4
700	-3.27	-2.1	-6.1
800	-2.10	-0.9	-4.9
900	-0.99	0.1	-3.9
1000	0.00	1.0	-3.0
1200	1.80	2.6	-1.4
1400	3.32	3.9	-0.1
1600	4.63	5.1	1.1
1800	5.78	6.1	2.1
2000	6.81	7.0	3.0
2200	7.29	7.4	3.4
2400	7.72	7.8	3.8
2600	8.11	8.2	4.2
2800	8.44	8.6	4.6
3000	8.68	8.9	4.9
3125	5.66	--	--


AUDIO FREQUENCY RESPONSE
RESPONSE ATTENUATION (dB)
10.00
5.00
0.00
-5.00
-10.00
-15.00
-20.00
300
3000
FREQUENCY (Hz)
response
limit 1
limit 2

3.4.3 Authorized Bandwidth and Emission Mask

Test Frequency (MHz)	99% Occupied Bandwidth (kHz)	Limit (kHz)	Emission Mask	Limit	Verdict
467.6625	5.28	⩽12.5	Refer test plot	Refer test plot	Pass

BW	Emission Mask
	

Note: unwanted emission for removed from the channel center frequency by more than 31.25kHz range, was required to measured with a reference bandwidth of at least 30 kHz, the factor for convert to 300Hz RBW is 10*log(30kHz/300Hz)= 20dB, the plot was measured using a 300Hz RBW and the result of this range was below the limit more than 20dB, so it would compliance the limit.

3.4.4 Frequency stability

Un-modulation, Reference Frequency: 467.6625MHz						
Test Item	**Temperature (℃)**	**Voltage (Vdc)**	**Measured Frequency (MHz)**	**Frequency Error (ppm)**	**limit (ppm)**	**Verdict**
Frequency Stability vs. Temperature& Voltage	50	3.0	467.662626	0.27	≤2.5	Pass
	40		467.662709	0.45	≤2.5	Pass
	30		467.662712	0.45	≤2.5	Pass
	20		467.662688	0.40	≤2.5	Pass
	10		467.662609	0.23	≤2.5	Pass
	0		467.662708	0.44	≤2.5	Pass
	-10		467.662700	0.43	≤2.5	Pass
	-20		467.662726	0.48	≤2.5	Pass
	-30		467.662693	0.41	≤2.5	Pass
	20	3.45	467.662802	0.65	≤2.5	Pass
	20	2.55	467.662814	0.67	≤2.5	Pass

4 FCC §95.587 FRS Additional Requirements

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

(a) Transmit frequency capability. FRS transmitter types must not be capable of transmitting on any frequency or channel other than those listed in §95.563.

Judgment: Compliance, please refer the operating channels list which provide by applicant record in section 2.1 of report

(b) Antenna. The antenna of each FRS transmitter type must meet the following requirements.

(1) The antenna must be a non-removable integral part of the FRS transmitter type.

(2) The gain of the antenna must not exceed that of a half-wave dipole antenna.

(3) The antenna must be designed such that the electric field of the emitted waves is vertically polarized when the unit is operated in the normal orientation.

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

(c) Digital data transmissions. FRS transmitter types having the capability to transmit digital data must be designed to meet the following requirements.

(1) FRS units may transmit digital data containing location information, or requesting location information from one or more other FRS or GMRS units, or containing a brief text message to another specific FRS or GMRS unit or units.

(2) Digital data transmissions may be initiated by a manual action or command of the operator or on an automatic or periodic basis, and FRS units may be designed to automatically respond with location data upon receiving an interrogation request from another

(3) Digital data transmissions must not exceed one second in duration.

(4) Digital data transmissions must not be sent more frequently than one digital data transmission within a thirty-second period, except that an FRS unit may automatically respond to more than one interrogation request received within a thirty-second period.

Judgment: Not Applicable, no digital modulation function.

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

Judgment: Not Applicable, no digital modulation function.

(e) Effective September 30, 2019, no person shall manufacture or import hand-held portable radio equipment capable of operating under this subpart (FRS) and other licensed or licensed-by-rule services in this chapter (part 15 unlicensed equipment authorizations are permitted if consistent with part 15 rules).

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

5 Test Setup Photo

Please refer to the attachment 2405Z53730E Test Setup photo.

6 E.U.T Photo

Please refer to the attachment 2405Z53730E External photo and 2405Z53730E Internal photo.

---End of Report---