RF TEST REPORT

Product Name: Holding a walkie-talkie

Model Name: G1PRO, G2PRO

FCC ID: 2BAS7-G1PRO

Issued For : Xiaowei Communication Technology (Shenzhen) Co., Ltd.

Room 1312, Building 1, Wanjunhui Business Apartment, Xixiang, Baoan, Shenzhen

Issued By : Shenzhen LGT Test Service Co., Ltd.

Room 205, Building 13, Zone B, Chen Hsong Industrial Park, No.177 Renmin West Road, Jinsha Community, Kengzi Street, Pingshan New District, Shenzhen, China

Report Number:	LGT23I048RF01
Sample Received Date:	Sept. 21, 2023
Date of Test:	Sept. 21, 2023 ~ Oct. 27, 2023
Date of Issue:	Oct. 27, 2023

TEST REPORT CERTIFICATION

Applicant:	Xiaowei Communication Technology (Shenzhen) Co., Ltd.
Address:	Room 1312, Building 1, Wanjunhui Business Apartment, Xixiang, Baoan, Shenzhen
Manufacturer:	Xiaowei Communication Technology (Shenzhen) Co., Ltd.
Address:	Room 1312, Building 1, Wanjunhui Business Apartment, Xixiang, Baoan, Shenzhen
Product Name:	Holding a walkie-talkie
Trademark:	GOWEI
Model Name:	G1PRO, G2PRO
Sample Status:	Normal

APPLICABLE STANDARDS	
STANDARD	TEST RESULTS
FCC Part 95 TIA 603-E-2016	PASS

Prepared by:

Zane Shan

Zane Shan
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Approved by:

Vita Li
Technical Director

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Revision History

Rev.	Issue Date	Contents
00	Oct. 27, 2023	Initial Issue

1. SUMMARY OF TEST RESULTS

Test procedures according to the technical standards:

FCC Part 95			
Standard Section	Test Item	Judgment	Remark
FCC Part 95.567	Effective Radiated Power (e.r.p)	PASS	--
FCC Part 95.573	Authorized Bandwidth	PASS	--
FCC Part 95.579	Emission Mask	PASS	--
FCC Part 95.579	Transmitter Radiated Spurious Emission	PASS	--
FCC Part 95.579	Spurious Emission On Antenna Port	PASS	--
FCC Part 95.565 FCC Part 2.1055	Frequency Stability	PASS	--
FCC Part 95.575 FCC Part 2.1047	Modulation Limit	PASS	--
FCC Part 95.575 FCC Part 2.1047	Audio Frequency Response	PASS	--

NOTE:

(1) 'N/A' denotes test is not applicable in this Test Report.

1.1 TEST FACTORY

Company Name:	Shenzhen LGT Test Service Co., Ltd.
Address:	Room 205, Building 13, Zone B, Chen Hsong Industrial Park, No.177 Renmin West Road, Jinsha Community, Kengzi Street, Pingshan New District, Shenzhen, China
Accreditation Certificate	A2LA Certificate No.: 6727.01
	FCC Registration No.: 746540
	CAB ID: CN0136

1.2 MEASUREMENT UNCERTAINTY

The reported uncertainty of measurement **y** ± **U**, where expended uncertainty **U** is based on a standard uncertainty multiplied by a coverage factor of **k=2**, providing a level of confidence of approximately **95** %.

No.	Item	Uncertainty
1	RF output power, conducted	±0.68dB
2	Unwanted Emissions, conducted	±2.988dB
3	All emissions, radiated 9K-30MHz	±2.84dB
4	All emissions, radiated 30M-1GHz	±4.39dB
5	All emissions, radiated 1G-6GHz	±5.10dB
6	All emissions, radiated>6G	±5.48dB
7	Conducted Emission (9KHz-150KHz)	±2.79dB
8	Conducted Emission (150KHz-30MHz)	±2.80dB

2. GENERAL INFORMATION

2.1 GENERAL DESCRIPTION OF THE EUT

Product Name:	Holding a walkie-talkie
Trademark:	GOWEI
Model Name:	G1PRO
Series Model:	G2PRO
Model Difference:	Only the shell different
Operation Frequency:	462.5625-462.7125MHz 467.5625-467.7125MHz 462.5500-462.7250MHz
Modulation Type:	FM
Emission Type:	9K96F3E
Antenna Type:	Spring Antenna
Antenna Gain (dBi):	1
Channel List:	Please refer to the Note 3.
Rating:	Input: DC 5V/1A Output: 600mA
Battery:	DC 3.7V
Hardware Version:	01V03
Software Version:	01V02
Connecting I/O Port(s):	Please refer to the Note 1.

Note:

1. For a more detailed features description, please refer to the manufacturer's specifications or the User Manual.
2. The antenna information refers to the manufacturer provide report, applicable only to the tested sample identified in the report. Due to the incorrect antenna information, a series of problems such as the accuracy of the test results will be borne by the customer.

3.

Channel List					
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
1	462.5625	8	467.5625	15	462.5500
2	462.5875	9	467.5875	16	462.5750
3	462.6125	10	467.6125	17	462.6000
4	462.6375	11	467.6375	18	462.6250
5	462.6625	12	467.6625	19	462.6500
6	462.6875	13	467.6875	20	462.6750
7	462.7125	14	467.7125	21	462.7000
				22	462.7250

Test channel:

Channel	Frequency (MHz)	Low Power(0.5W)	High Power(2W)
4	462.6375	Support	Support
11	467.6375	Support	Not Support
19	462.6500	Support	Support

2.2 DESCRIPTION OF THE TEST MODES

For conducted test items and radiated spurious emissions
Each of these EUT operation mode(s) or test configuration mode(s) mentioned below was evaluated respectively.

Pretest Mode	Description
Mode 1	CH4 Low Power TX Mode
Mode 2	CH4 High Power TX Mode
Mode 3	CH11 Low Power TX Mode
Mode 4	CH19 Low Power TX Mode
Mode 5	CH19 High Power TX Mode

For Radiated Emission	
Final Test Mode	Description
Mode 2	CH4 High Power TX Mode
Mode 3	CH11 Low Power TX Mode
Mode 5	CH19 High Power TX Mode

Note:
(1) All above mode has been measurement, only worst data was reported.
(2) The battery is fully-charged during the radited and RF conducted test.

2.3 DESCRIPTION OF NECESSARY ACCESSORIES AND SUPPORT UNITS

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

Accessories Equipment

Description	Manufacturer	Model	S/N	Rating
Adapter	SHENZHEN KEYU POWER SUPPLY TECHNOLOGY CO., Ltd	BS05A-0501000US	N/A	Input: 100-240V, 50/60Hz 0.2A Output: DC 5V, 1000mA
Charger	Gowei	G1PRO	N/A	Output: DC 5V, 1000mA

Auxiliary Equipment

Description	Manufacturer	Model	S/N	Rating

Note:

(1) For detachable type I/O cable should be specified the length in cm in『Length』column.
(2) “YES” is means “with core”; “NO” is means “without core”.

2.4 EQUIPMENTS LIST

Radiated Test equipment

Equipment	Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Until
EMI Test Receiver	R&S	ESU8	100372	2023.04.13	2024.04.12
Active loop Antenna	ETS	6502	00049544	2022.06.02	2025.06.01
Spectrum Analyzer	Keysight	N9010B	MY60242508	2023.04.10	2024.04.09
Audio Analyzer	R&S	UPL	N/A	2023.04.27	2024.04.26
Bilog Antenna(30M-1G)	SCHWARZBECK	VULB 9168	01447	2022.06.05	2025.06.04
Horn Antenna(1-18G)	SCHWARZBECK	3115	10SL0060	2022.06.02	2025.06.01
Horn Antenna(18-40G)	A-INFO	LB-180400-KF	J211060273	2022.06.08	2025.06.07
Pre-amplifier(30M-1G)	EMtrace	RP01A	02019	2023.04.07	2024.04.06
Pre-amplifier(1-26.5G)	Agilent	8449B	3008A4722	2023.04.07	2024.04.06
Pre-amplifier(18-40G)	com-mw	LNPA_18-40-01	18050003	2023.04.07	2024.04.06
Wireless Communications Test Set	R&S	CMW 500	137737	2023.04.13	2024.04.12
Temperature & Humidity	KTJ	TA218B	N.A	2023.04.24	2024.04.23
Testing Software	EMC-I_V1.4.0.3_SKET				

Conducted Test equipment

Equipment	Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Until
Signal Analyzer	Keysight	N9010B	MY60242508	2023.04.10	2024.04.09
MXG Vector Signal Generator	Keysight	N5182B	MY59100717	2023.04.07	2024.04.06
Intercom comprehensive tester	HP	8920A	348A05658	2023.04.27	2024.04.26
Audio Analyzer	R&S	UPL	N/A	2023.04.27	2024.04.26
Power Senor	MW	MW100-RFCB	MW220324LG-33	2023.04.13	2024.04.12
Temperature & Humidity	KTJ	TA218B	N.A	2023.04.24	2024.04.23
Temperature& Humidity test chamber	AISRY	LX-1000L	171200018	2023.05.10	2024.05.09
Attenuator	eastsheep	90db	N.A	2023.04.10	2024.04.09
Testing Software	MTS8200_ V2.0.0.0_MW				

3. FIELD STRENGTHS AND RADIATED SPURIOUS EMISSION

3.1 RADIATED EMISSION LIMITS

According to FCC section 95.579, the unwanted emission should be attenuated below TP by at least 43+10 log(Transmit Power) dB.
43 + 10 log (Pwatts)
Calculation: Limit (dBm) =EL-43-10log10 (TP)
Notes: EL is the emission level of the Output Power expressed in dBm,
In this application, the EL is P(dBm).
Limit (dBm) = P(dBm)-43-10 log (Pwatts) = -13 dBm

Frequencies (MHz)	Field Strength (micorvolts/meter)	Measurement Distance (meters)
0.009~0.490	2400/F(KHz)	300
0.490~1.705	24000/F(KHz)	30
1.705~30.0	30	30
30~88	100	3
88~216	150	3
216~960	200	3
Above 960	500	3

Spectrum Parameter	Setting
Detector	Peak
Attenuation	Auto
Start Frequency	30 MHz
Stop Frequency	10th carrier harmonic

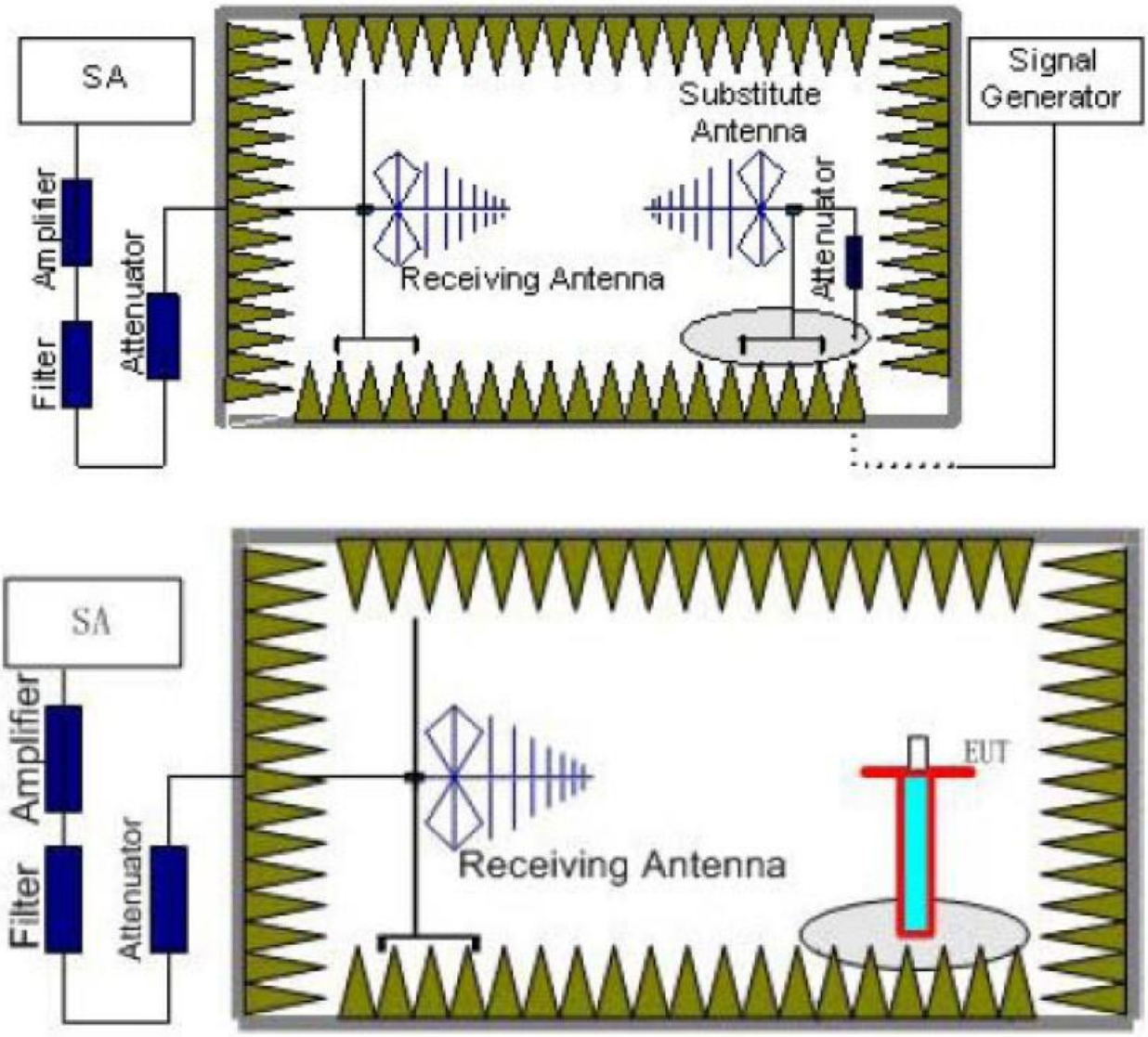
3.2 TEST PROCEDURE

1. EUT was placed on a 1.5 meter high non-conductive stand at a 3 meter test distance from the receive antenna. A receiving antenna was placed on the antenna mast 3 meters from the EUT for emission measurements. The height of receiving antenna is 1. 0 m. Detected emissions were maximized at each frequency by rotating the EUT through 360° and adjusting the receiving antenna polarization. The radiated emission measurements of all transmit frequencies in three channels were measured with peak detector.
2. A log-periodic antenna or double-ridged waveguide horn antenna shall be substituted in place of the EUT. The log-periodic antenna will be driven by a signal generator and the level will be adjusted till the same power value on the spectrum analyzer or receiver. The level of the spurious emissions can be calculated through the level of the signal generator, cable loss, the gain of the substitution antenna and the reading of the spectrum analyzer or receiver.
3. The EUT is then put into continuously transmitting mode at its maximum power level during the test. Set Test Receiver or Spectrum RBW=1MHz,VBW=3MHz for above 1GHz and BW=100kHz,VBW=300kHz for 30MHz to 1GHz, And the maximum value of the receiver should be recorded as (Pr).
4. The EUT shall be replaced by a substitution antenna. In the chamber, an substitution antenna for the frequency band of interest is placed at the reference point of the chamber. An RF Signal source for the frequency band of interest is connected to the substitution antenna with a cable that has been constructed to not interfere with the radiation pattern of the antenna. A power (P_{Mea}) is applied to the input of thesubstitution antenna, and adjust the level of the signal

generator output until the value of the receiver reach the previously recorded (Pr). The power of signal source (P_{Mea}) is recorded. The test should be performed by rotating the test item and adjusting the receiving antenna polarization.

5. A amplifier should be connected to the Signal Source output port. And the cable should be connect between the Amplifier and the Substitution Antenna. The cable loss (Pcl) ,the Substitution Antenna Gain (Ga) and the Amplifier Gain (PAg) should be recorded after test. The measurement results are obtained as described below:
   Power(EIRP)=P_{Mea}- P_{Ag} - P_{cl} + G_a
   We used signal generator which signal level can up to 33dBm,so we not used power Amplifier for substituation test; The measurement results are amend as described below:
   Power(EIRP)=P_{Mea}- P_{cl} +G_a
6. This value is EIRP since the measurement is calibrated using an antenna of known gain (2.15 dBi) and known input power
7. ERP can be calculated from EIRP by subtracting the gain of the dipole, ERP = EIRP-2.15dBi

3.3 TEST SETUP



3.4 EUT OPERATING CONDITIONS

The EUT was configured for testing in a typical fashion (as a customer would normally use it). The EUT has been programmed to continuously transmit during test. This operating condition was tested and used to collect the included data.

3.5 TEST RESULT

Note: All mode has been tested, only shown the worst case in this report.

Mode 2-Channl 4(462.6375MHz)								
Frequency	Measured Amplitude	Cable Loss	Antenna gain	Corrected Factor	Corrected Amplitude	Limit	Margin	RX Antenna Polar
(MHz)	(dBm)	(dB)	(dB)	(dB)	(dBm)	(dBm)	(dB)	(H/V)
48.6141	-69.85	1.71	16.61	14.90	-54.95	-13	-41.95	H
48.6141	-69.21	1.71	16.61	14.90	-54.31	-13	-41.31	V
316.1821	-65.95	2.89	18.23	15.34	-50.61	-13	-37.61	H
316.1821	-65.63	2.89	18.23	15.34	-50.29	-13	-37.29	V
924.8527	-65.51	4.12	19.56	15.44	-50.07	-13	-37.07	H
924.8527	-63.04	4.12	19.56	15.44	-47.60	-13	-34.60	V
1387.4374	-68.08	6.83	21.26	14.43	-53.65	-13	-40.65	H
1387.4374	-69.04	6.83	21.26	14.43	-54.61	-13	-41.61	V
2312.8325	-68.98	7.95	28.35	20.40	-48.58	-13	-35.58	H
2312.8325	-69.85	7.95	28.35	20.40	-49.45	-13	-36.45	V
4626.1101	-68.5	8.12	30.29	22.17	-46.33	-13	-33.33	H
4626.1101	-68.17	8.12	30.29	22.17	-46.00	-13	-33.00	V

Mode 3-Channl 11(467.6375MHz)								
Frequency	Measured Amplitude	Cable Loss	Antenna gain	Corrected Factor	Corrected Amplitude	Limit	Margin	RX Antenna Polar
(MHz)	(dBm)	(dB)	(dB)	(dB)	(dBm)	(dBm)	(dB)	(H/V)
48.7045	-70.97	1.71	16.61	14.90	-56.07	-13	-43.07	H
48.7045	-71.24	1.71	16.61	14.90	-56.34	-13	-43.34	V
316.2066	-66.71	2.89	18.23	15.34	-51.37	-13	-38.37	H
316.2066	-65.87	2.89	18.23	15.34	-50.53	-13	-37.53	V
934.9089	-64.22	4.12	19.56	15.44	-48.78	-13	-35.78	H
934.9089	-64.52	4.12	19.56	15.44	-49.08	-13	-36.08	V
1402.6897	-70.26	6.83	21.26	14.43	-55.83	-13	-42.83	H
1402.6897	-70.19	6.83	21.26	14.43	-55.76	-13	-42.76	V
2337.9254	-68.75	7.95	28.35	20.40	-48.35	-13	-35.35	H
2337.9254	-68.95	7.95	28.35	20.40	-48.55	-13	-35.55	V
4675.9109	-70.58	8.12	30.29	22.17	-48.41	-13	-35.41	H
4675.9109	-70.02	8.12	30.29	22.17	-47.85	-13	-34.85	V

Mode 5-Channl 19(462.6500MHz)								
Frequency	Measured Amplitude	Cable Loss	Antenna gain	Corrected Factor	Corrected Amplitude	Limit	Margin	RX Antenna Polar
(MHz)	(dBm)	(dB)	(dB)	(dB)	(dBm)	(dBm)	(dB)	(H/V)
48.7734	-69.89	1.71	16.61	14.90	-54.99	-13	-41.99	H
48.7734	-68.94	1.71	16.61	14.90	-54.04	-13	-41.04	V
316.3834	-66.12	2.89	18.23	15.34	-50.78	-13	-37.78	H
316.3834	-66.59	2.89	18.23	15.34	-51.25	-13	-38.25	V
925.0364	-64.4	4.12	19.56	15.44	-48.96	-13	-35.96	H
925.0364	-63.55	4.12	19.56	15.44	-48.11	-13	-35.11	V
1387.5517	-69.88	6.83	21.26	14.43	-55.45	-13	-42.45	H
1387.5517	-69.67	6.83	21.26	14.43	-55.24	-13	-42.24	V
2313.0082	-70.39	7.95	28.35	20.40	-49.99	-13	-36.99	H
2313.0082	-69.62	7.95	28.35	20.40	-49.22	-13	-36.22	V
4626.0873	-68.78	8.12	30.29	22.17	-46.61	-13	-33.61	H
4626.0873	-68.64	8.12	30.29	22.17	-46.47	-13	-33.47	V

4. SPURIOUS EMISSION ON ANTENNA PORT

4.1 LIMIT

43 + 10 log (Pwatts)
Calculation: Limit (dBm) =EL-43-10log10 (TP)
Notes: EL is the emission level of the Output Power expressed in dBm,
In this application, the EL is P(dBm).
Limit (dBm) = P(dBm)-43-10 log (Pwatts) = -13 dBm

4.2 TEST PROCEDURE

1. The EUT was connected to the spectrum analyzer through sufficent attenuation.
2. Sufficient scans were taken to show any out of band emission up to 10th. Harmonic for the lower and the highest frequency range.
3. Set EUT as digital data mode.
4. Set RBW 30kHz, VBW 100 kHz in the frequency band 30MHz to 1GHz,while set RBW=1MHz. VBW=3MHz from the 1GHz to 10th Harmonic.

4.3 TEST SETUP

4.4 EUT OPERATION CONDITIONS

TX mode.

4.5 TEST RESULT

Note: Not application, the EUT is integral antenna.

5. BANDWIDTH TEST

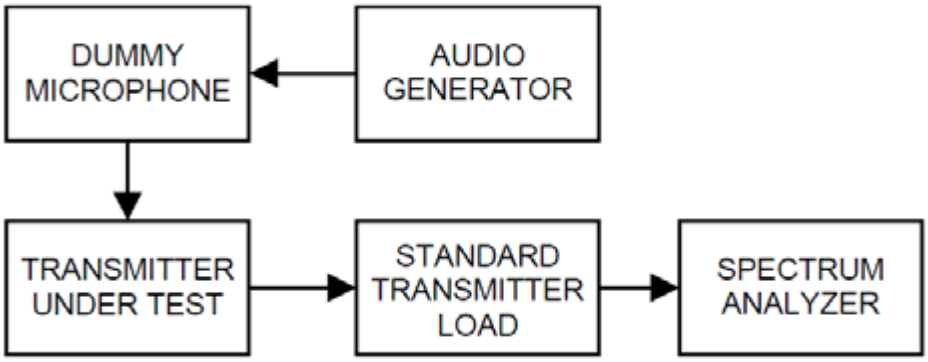
5.1 LIMIT

FRS:
The authorized bandwidth for an FRS unit is 12.5 kHz.

5.2 TEST PROCEDURE

1. The EUT was connected to the spectrum analyzer through sufficent attenuation.
2. Set EUT as digital data mode.
3. Set SPA Center Frequency=fundamental frequency, RBW=100Hz, VBW=1KHz, span =50KHz.
4. Set SPA Max hold. Mark peak, Set 99% Occupied Bandwidth.

5.3 TEST SETUP



5.4 EUT OPERATION CONDITIONS

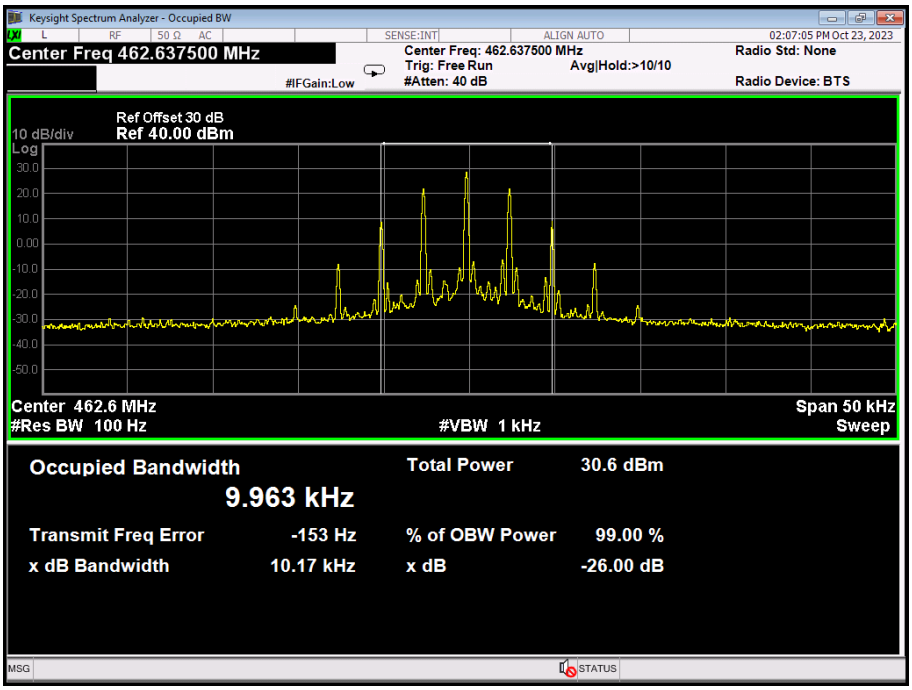
TX mode.

5.5 TEST RESULTS

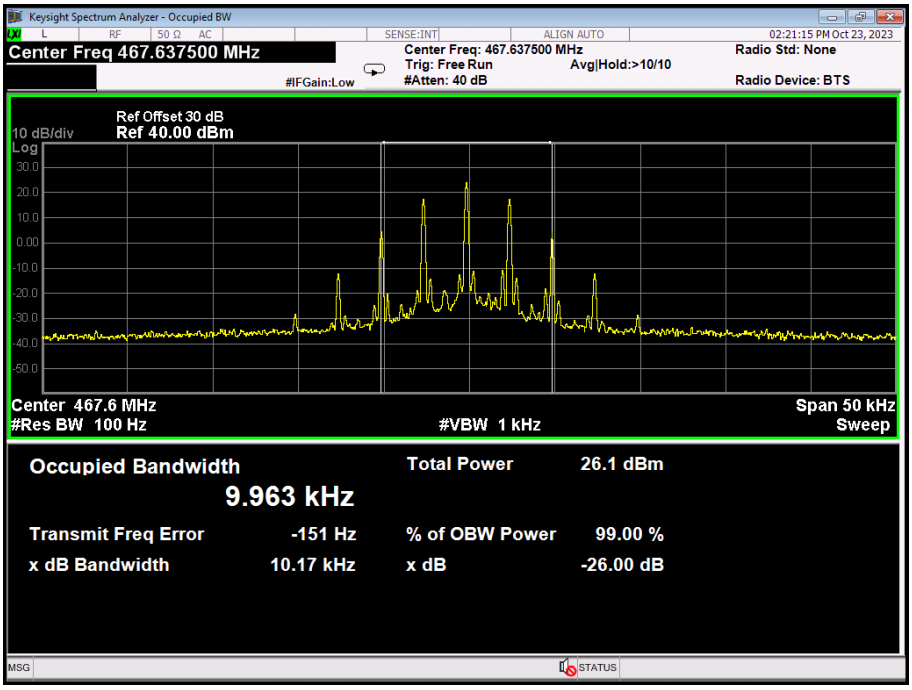
Note: All mode has been tested, only shown the worst case in this report.

Test Channel	Test Frequency (MHz)	99% Occupied Bandwidth (KHz)	26dB Bandwidth (KHz)	Limits （KHz）	Result
4	462.6375(2W)	9.963	10.17	12.5	Pass
11	467.6375(0.5W)	9.963	10.17	12.5	Pass
19	462.65(2W)	9.963	10.17	12.5	Pass

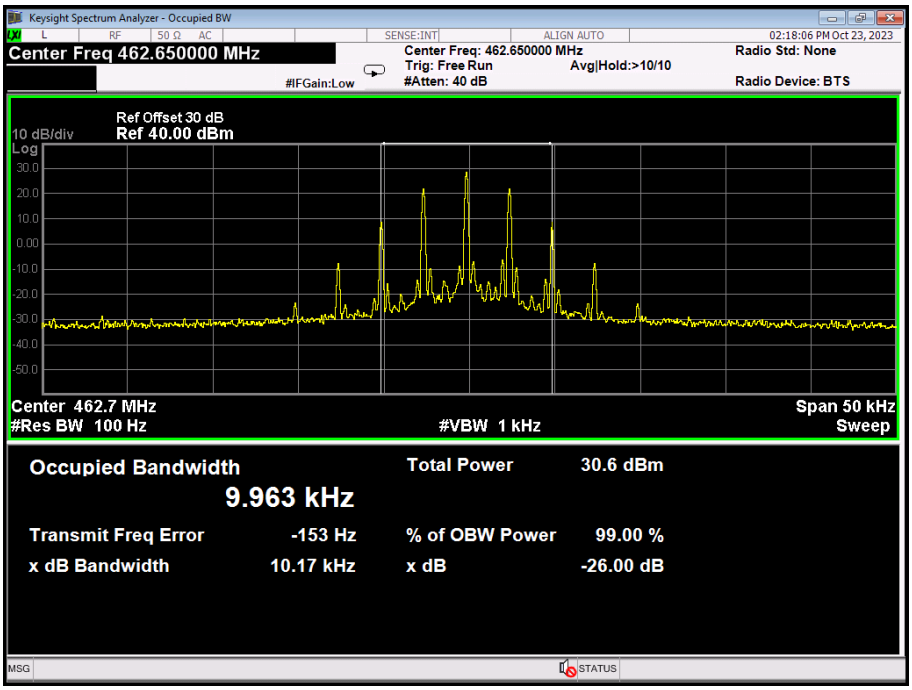
CH4(2W)



CH11(0.5W)



CH19(2W)



6. EFFECTIVE RADIATED POWER (E.R.P)

6.1 LIMIT

FRS:

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.

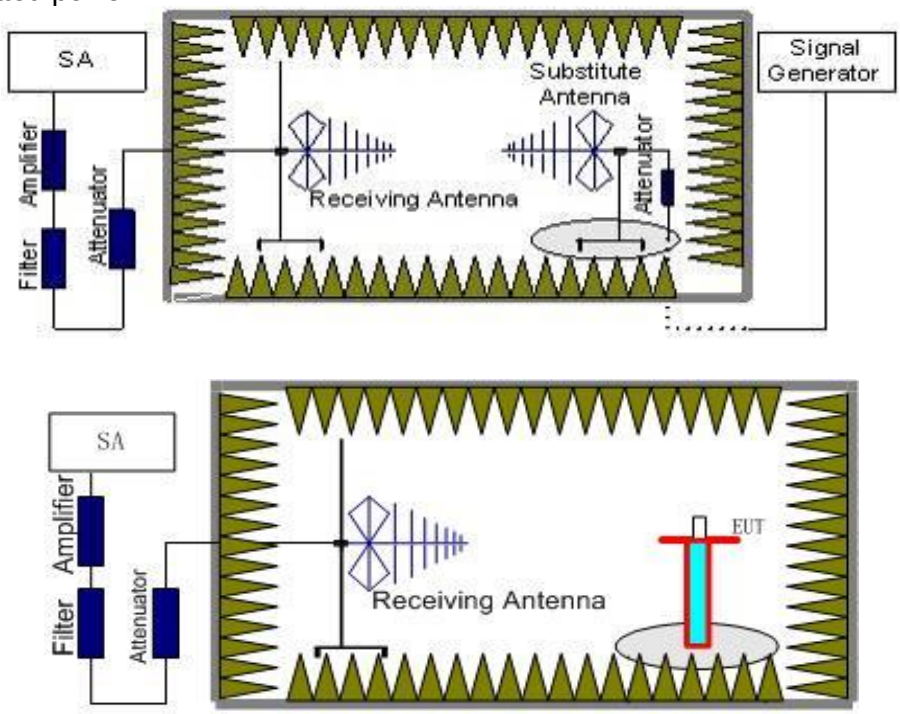
6.2 TEST PROCEDURE

The procedure of effective radiated power is as follows:

1. EUT was placed on a 1.5 meter high non-conductive stand at a 3 meter test distance from the receive antenna. A receiving antenna was placed on the antenna mast 3 meters from the EUT for emission measurements. The height of receiving antenna is 1. 0 m. Detected emissions were maximized at each frequency by rotating the EUT through 360° and adjusting the receiving antenna polarization. The radiated emission measurements of all transmit frequencies in three channels were measured with peak detector. The “Read Value” is the spectrum reading of maximum power value.
2. 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 rotated vertical and horizontal polarization and moved height from 1m to 4m to find the maximum radiation power. Record the power level of maximum radiation power from spectrum. So, the Measured substitution value = Ref level of S.G – Reading
3. ERP=Reading + Loss
   Loss=Generator Output Power-Reading

6.3 TEST SETUP

Effective radiated power:



6.4 TEST RESULTS

High Power (2W):

Operation Band	Test Channel	Test Frequency (MHz)	Reading (dBm)	Loss(dB)	ERP (dBm)	ERP (W)	Limit (W)	Polarization	Result
462.5625-462.7125 MHz	1	462.5625	1.92	30.29	32.21	1.66	2	V	Pass
			1.57	30.29	31.86	1.53	2	H	Pass
	4	462.6375	2.16	30.29	32.45	1.76	2	V	Pass
			1.69	30.29	31.98	1.58	2	H	Pass
	7	462.7125	1.98	30.29	32.27	1.69	2	V	Pass
			1.68	30.29	31.97	1.57	2	H	Pass
462.5500-462.7250 MHz	15	462.5500	1.97	30.29	32.26	1.68	2	V	Pass
			1.69	30.29	31.98	1.58	2	H	Pass
	19	462.6500	2.06	30.29	32.35	1.72	2	V	Pass
			1.87	30.29	32.16	1.64	2	H	Pass
	22	462.7250	1.93	30.29	32.22	1.67	2	V	Pass
			1.65	30.29	31.94	1.56	2	H	Pass
Note: ERP=Reading + Loss Loss=Generator Output Power-Reading									

Low Power (0.5W):

Operation Band	Test Channel	Test Frequency (MHz)	Reading (dBm)	Loss(dB)	ERP (dBm)	ERP (W)	Limit (W)	Polarization	Result
462.5625-462.7125 MHz	1	462.5625	-3.89	30.29	26.40	0.44	2	V	Pass
			-4.57	30.29	25.72	0.37	2	H	Pass
	4	462.6375	-3.58	30.29	26.71	0.47	2	V	Pass
			-4.15	30.29	26.14	0.41	2	H	Pass
	7	462.7125	-4.09	30.29	26.20	0.42	2	V	Pass
			-5.89	30.29	24.40	0.28	2	H	Pass
467.5625-467.7125 MHz	8	467.5625	-4.16	30.29	26.13	0.41	0.5	V	Pass
			-6.89	30.29	23.40	0.22	0.5	H	Pass
	11	467.6375	-3.89	30.29	26.40	0.44	0.5	V	Pass
			-5.88	30.29	24.41	0.28	0.5	H	Pass
	14	467.7125	-4.29	30.29	26.00	0.40	0.5	V	Pass
			-6.86	30.29	23.43	0.22	0.5	H	Pass
462.5500-462.7250 MHz	15	462.5500	-4.26	30.29	26.03	0.40	2	V	Pass
			-5.19	30.29	25.10	0.32	2	H	Pass
	19	462.6500	-4.02	30.29	26.27	0.42	2	V	Pass
			-5.98	30.29	24.31	0.27	2	H	Pass
	22	462.7250	-4.62	30.29	25.67	0.37	2	V	Pass
			-6.27	30.29	24.02	0.25	2	H	Pass
Note: ERP=Reading + Loss Loss=Generator Output Power-Reading									

7. EMISSION MASK

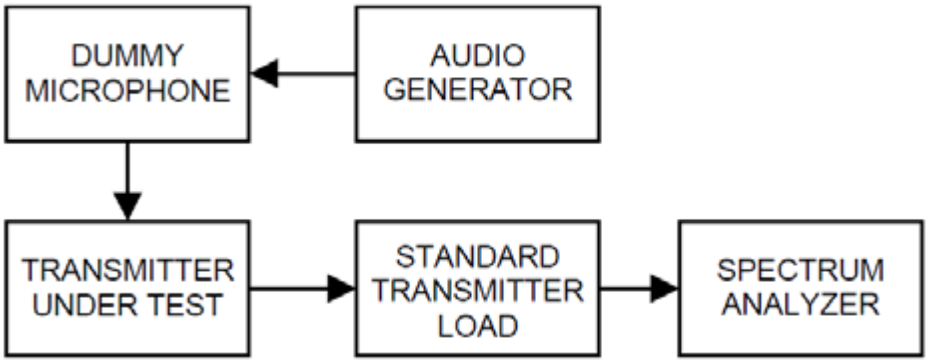
7.1 LIMIT

FRS:
a. 25 dB, measured with a bandwidth of 300 Hz, in the band 6.25 kHz to 12.5 kHz removed from the channel centre frequency;
b. 35 dB, measured with a bandwidth of 300 Hz, in the band 12.5 kHz to 31.25 kHz removed from the channel centre frequency; and
c. 43 dB + 10 $\log_{10}$ (transmitter power in watts) dB, measured with a bandwidth of 30 kHz for frequencies beyond 31.25 kHz removed from the channel centre frequency.

7.2 TEST PROCEDURE

1. The EUT was connected to the spectrum analyzer through sufficent attenuation.
2. Set EUT as digital data mode.
3. Set SPA Center Frequency=fundamental frequency, RBW=300Hz, VBW=3KHz, span that will allow proper viewing of the test bandwidth.

7.3 TEST SETUP



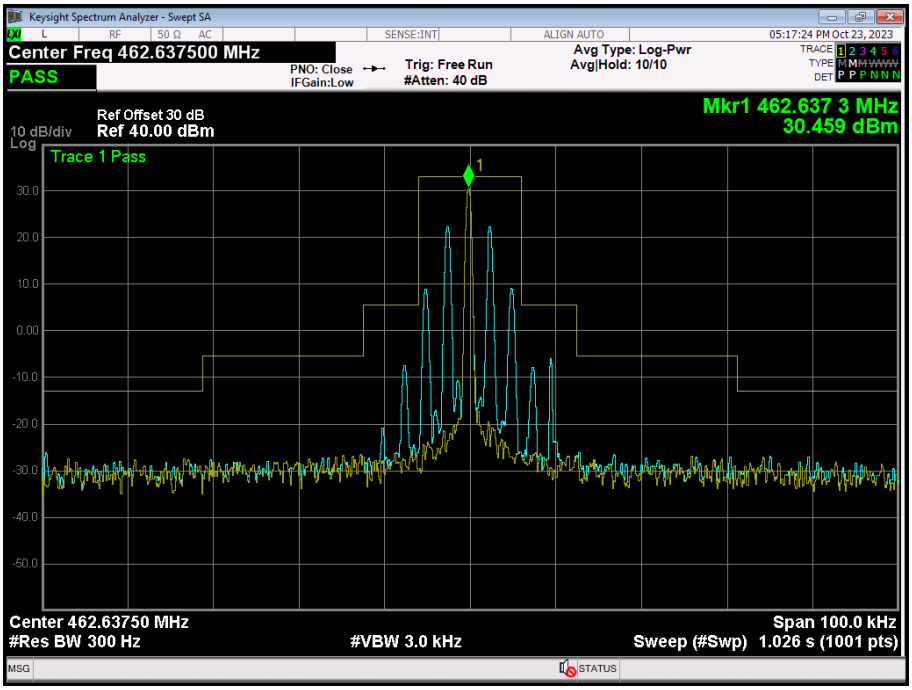
7.4 EUT OPERATION CONDITIONS

TX mode.

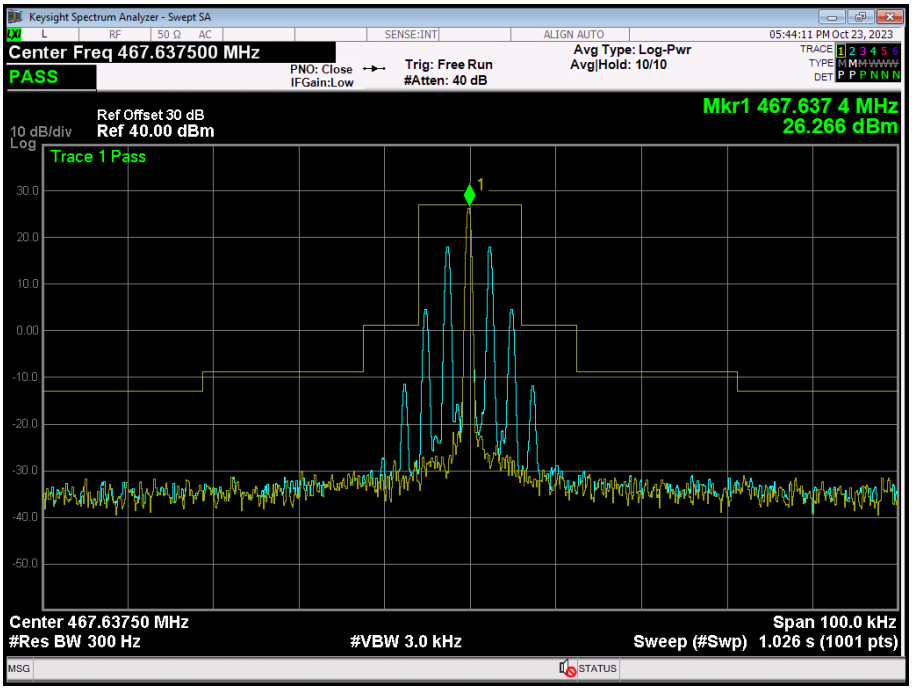
7.5 TEST RESULT

Note: All mode has been tested, only shown the worst case in this report.

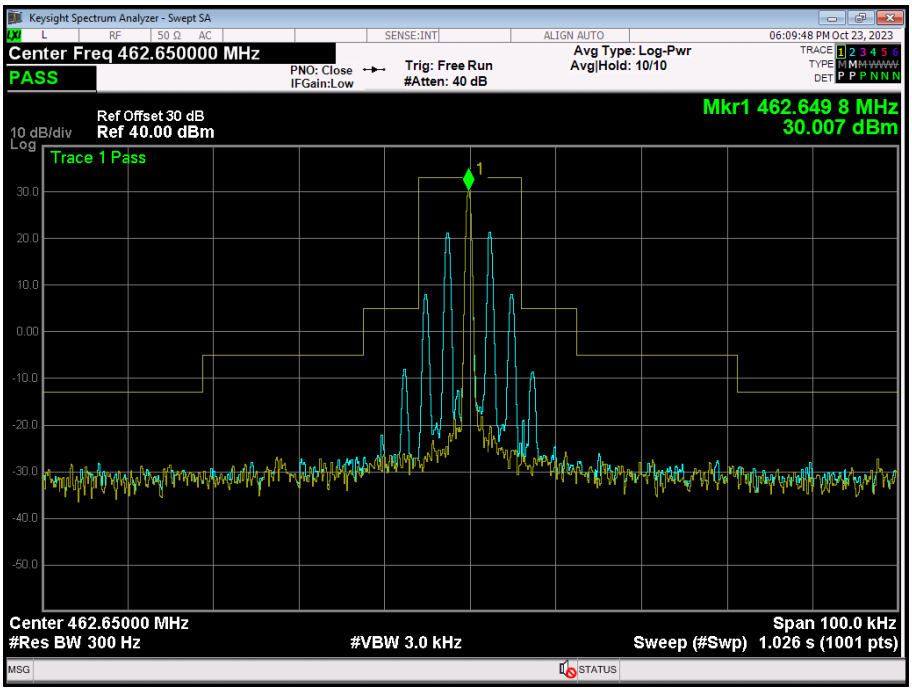
CH4(2W)



CH11(0.5W)



CH19(2W)


Keysight Spectrum Analyzer - Swept SA
RF
50 Ω AC
SENSE:INT
ALIGN AUTO
06:09:48 PM Oct 23, 2023
Center Freq 462.650000 MHz
PASS
PNO: Close
IFGain:Low
Trig: Free Run
#Atten: 40 dB
Avg Type: Log-Pwr
Avg|Hold: 10/10
TRACE 1 2 3 4 5 6
TYPE M M W W W
DET P P P N N N
Ref Offset 30 dB
10 dB/div
Log
Ref 40.00 dBm
Mkr1 462.649 8 MHz
30.007 dBm
Trace 1 Pass
30.0
20.0
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
Center 462.65000 MHz
#Res BW 300 Hz
#VBW 3.0 kHz
Span 100.0 kHz
Sweep (#Swp) 1.026 s (1001 pts)
MSG
STATUS

8. FREQUENCY STABILITY

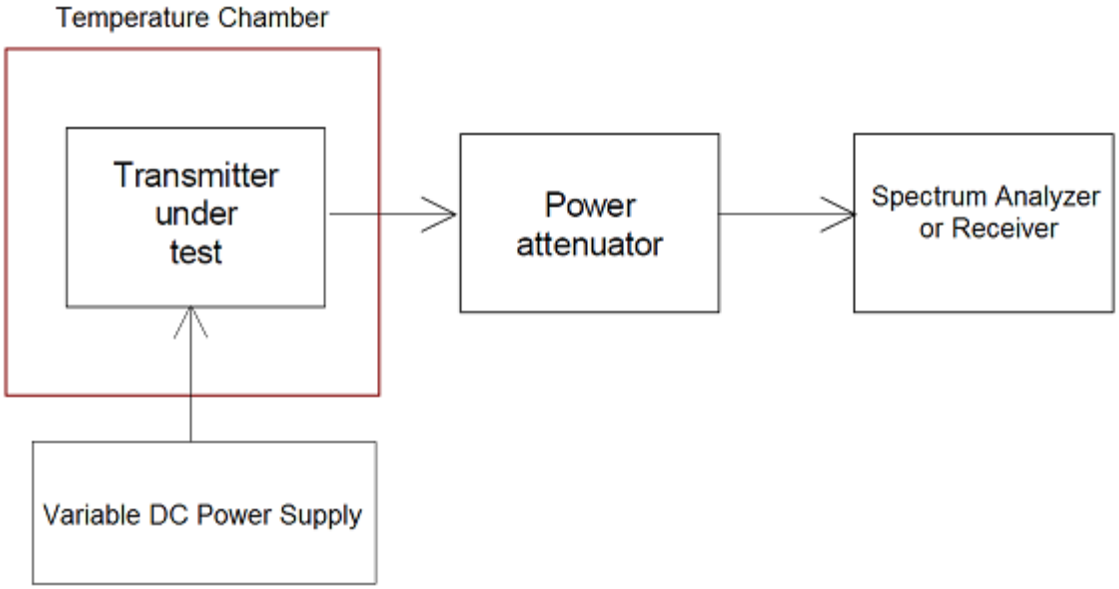
8.1 LIMIT

The carrier frequency stability shall not exceed ±2.5 ppm.

8.2 TEST PROCEDURE

1. The frequency stability shall be measured with variation of ambient temperature from -30℃ to +50℃
2. For battery powered equipment, the frequency stability shall be measured with reducing primary supply voltage to the battery operating end point, which is specified by the manufacture.
3. Vary primary supply voltage from 3.15V to 4.26V.
4. The EUT was set in the climate chamber and connected to an external DC power supply. The RF output was directly connected to Spectrum Analyzer The coupling loss of the additional cables was recorded and taken in account for all the measurements. After temperature stabilization (approx. 20 min for each stage), the frequency for the lower, the middle and the highest frequency range was recorded. For Frequency stability Vs. Voltage the EUT was connected to a DC power supply and the voltage was adjusted in the required ranges. The result was recorded

8.3 TEST SETUP



8.4 EUT OPERATION CONDITIONS

TX mode.

8.5 TEST RESULT

Note: All mode has been tested, only shown the worst case in this report.

FRS_Channl 4(462.6375MHz)_(2W)						
Voltage	Temperature (°C)	Nominal Frequency (MHz)	Measured Frequency (MHz)	Frequency error (ppm)	Limit	Result
Normal Voltage	-30	462.6375	462.6377	0.3537	±2.5ppm	Pass
	-20	462.6375	462.6378	0.5969		
	-10	462.6375	462.6378	0.6553		
	0	462.6375	462.6378	0.6617		
	10	462.6375	462.6376	0.1930		
	20	462.6375	462.6380	1.0169		
	30	462.6375	462.6375	0.0876		
	40	462.6375	462.6377	0.3750		
	50	462.6375	462.6379	0.7916		
Maximum Voltage	20	462.6375	462.6377	0.4164		
BEP	20	462.6375	462.6376	0.1535		

FRS_Channl 11(467.6375MHz)_(0.5W)						
Voltage	Temperature (°C)	Nominal Frequency (MHz)	Measured Frequency (MHz)	Frequency error (ppm)	Limit	Result
Normal Voltage	-30	467.6375	467.6379	0.9256	±2.5ppm	Pass
	-20	467.6375	467.6380	1.1271		
	-10	467.6375	467.6378	0.6689		
	0	467.6375	467.6376	0.2876		
	10	467.6375	467.6379	0.8944		
	20	467.6375	467.6381	1.2511		
	30	467.6375	467.6380	1.1443		
	40	467.6375	467.6379	0.8701		
	50	467.6375	467.6379	0.9591		
Maximum Voltage	20	467.6375	467.6377	0.4790		
BEP	20	467.6375	467.6381	1.2740		

FRS_Channl 19(462.6500MHz)_(2W)						
Voltage	Temperature (°C)	Nominal Frequency (MHz)	Measured Frequency (MHz)	Frequency error (ppm)	Limit	Result
Normal Voltage	-30	462.6500	462.6501	0.1221	±2.5ppm	Pass
	-20	462.6500	462.6500	0.0768		
	-10	462.6500	462.6501	0.1536		
	0	462.6500	462.6501	0.3195		
	10	462.6500	462.6505	1.1173		
	20	462.6500	462.6501	0.2518		
	30	462.6500	462.6500	0.1004		
	40	462.6500	462.6506	1.2245		
	50	462.6500	462.6502	0.3945		
Maximum Voltage	20	462.6500	462.6503	0.6160		
BEP	20	462.6500	462.6501	0.1359		

9. MODULATION LIMIT

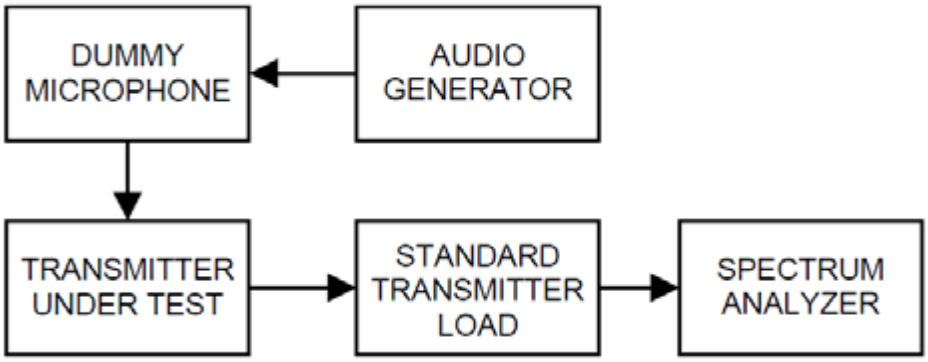
9.1 LIMIT

FRS:
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.

9.2 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, this level is as a reference (0dB) and vary the input lev el from –20 to +20dB.
5. Measure both the instantaneous and steady-state deviation at and after the time of increasing the audio input level
6. Repeat step 4-5 with input frequency changing to 300Hz, 1004Hz, 1500Hz and 2500Hz in sequence.

9.3 TEST SETUP

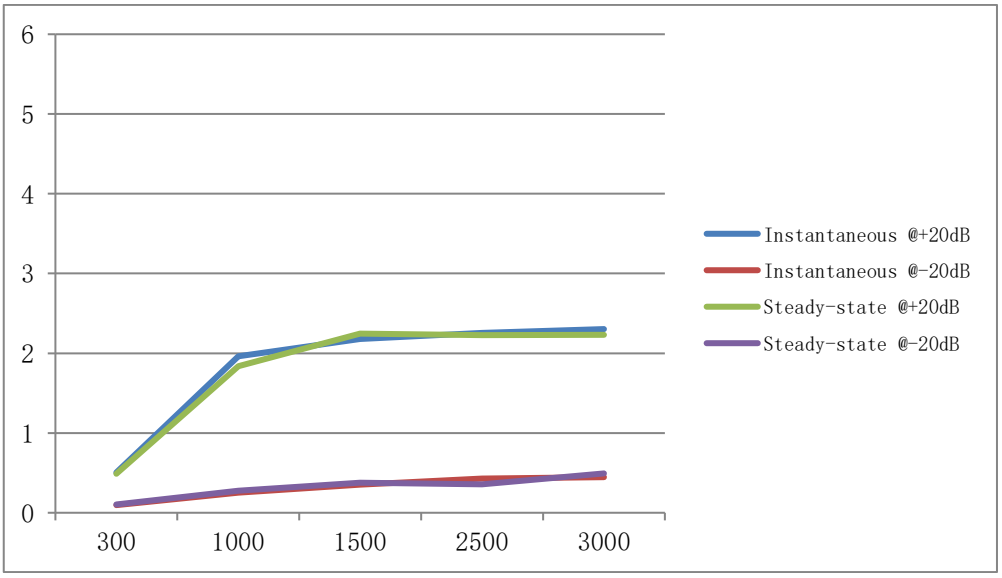


9.4 TEST RESULT

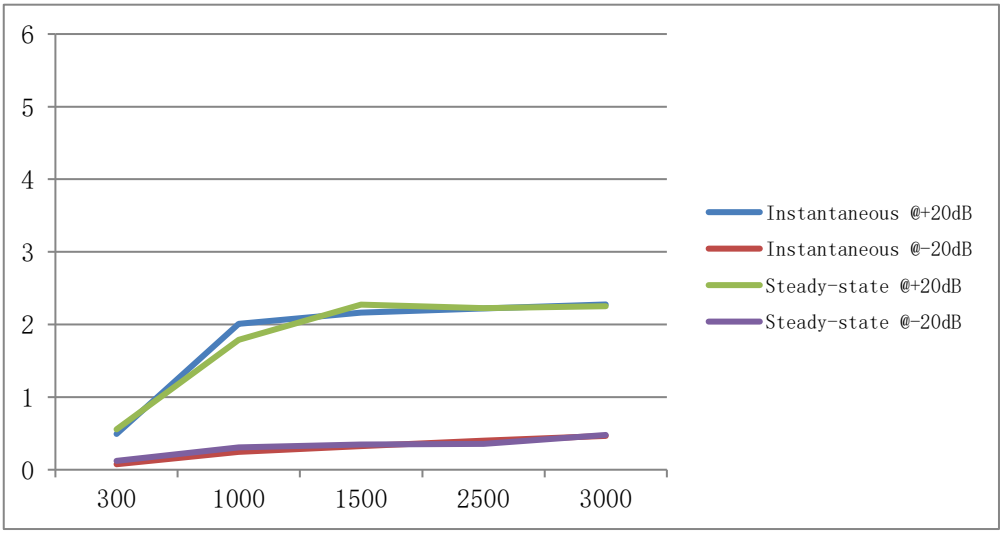
Note: All mode has been tested, only shown the worst case in this report.

MODULATION LIMIT:

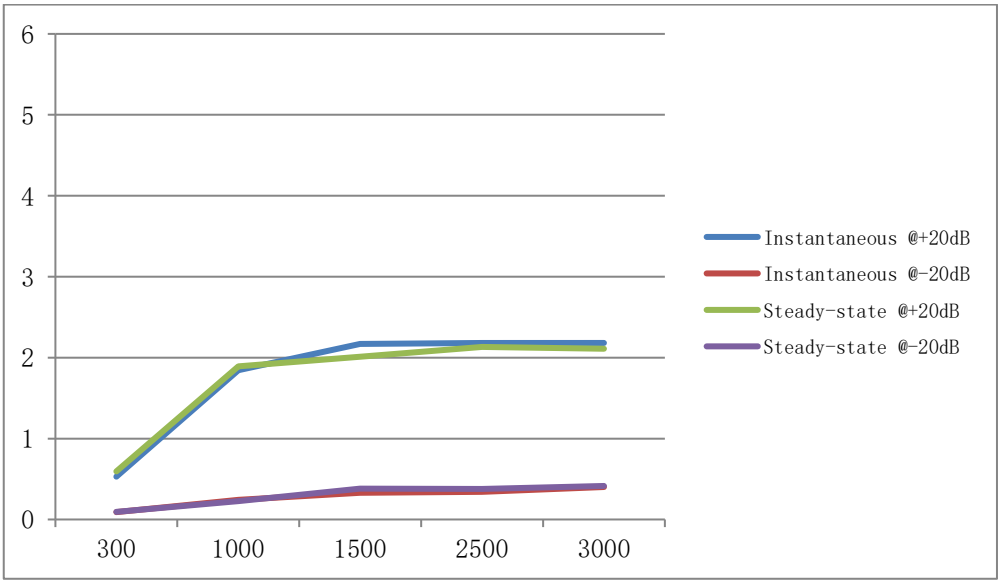
FRS_Channl 4(462.6375MHz)_(2W)						
Audio Frequency (Hz)	Instantaneous		Steady-state		Limit (kHz)	Result
	Deviation (@+20dB) (kHz)	Deviation (@-20dB) (kHz)	Deviation (@+20dB) (kHz)	Deviation (@-20dB) (kHz)		
300	0.505	0.096	0.489	0.104	±2.5	Pass
1000	1.964	0.254	1.838	0.276		
1500	2.179	0.354	2.246	0.378		
2500	2.256	0.427	2.228	0.358		
3000	2.303	0.446	2.231	0.493		



FRS_Channl 11(467.6375MHz)_(0.5W)						
Audio Frequency (Hz)	Instantaneous		Steady-state		Limit (kHz)	Result
	Deviation (@+20dB) (kHz)	Deviation (@-20dB) (kHz)	Deviation (@+20dB) (kHz)	Deviation (@-20dB) (kHz)		
300	0.493	0.076	0.556	0.122	±2.5	Pass
1000	2.01	0.244	1.788	0.308		
1500	2.162	0.327	2.274	0.349		
2500	2.223	0.4	2.224	0.356		
3000	2.276	0.466	2.25	0.479		

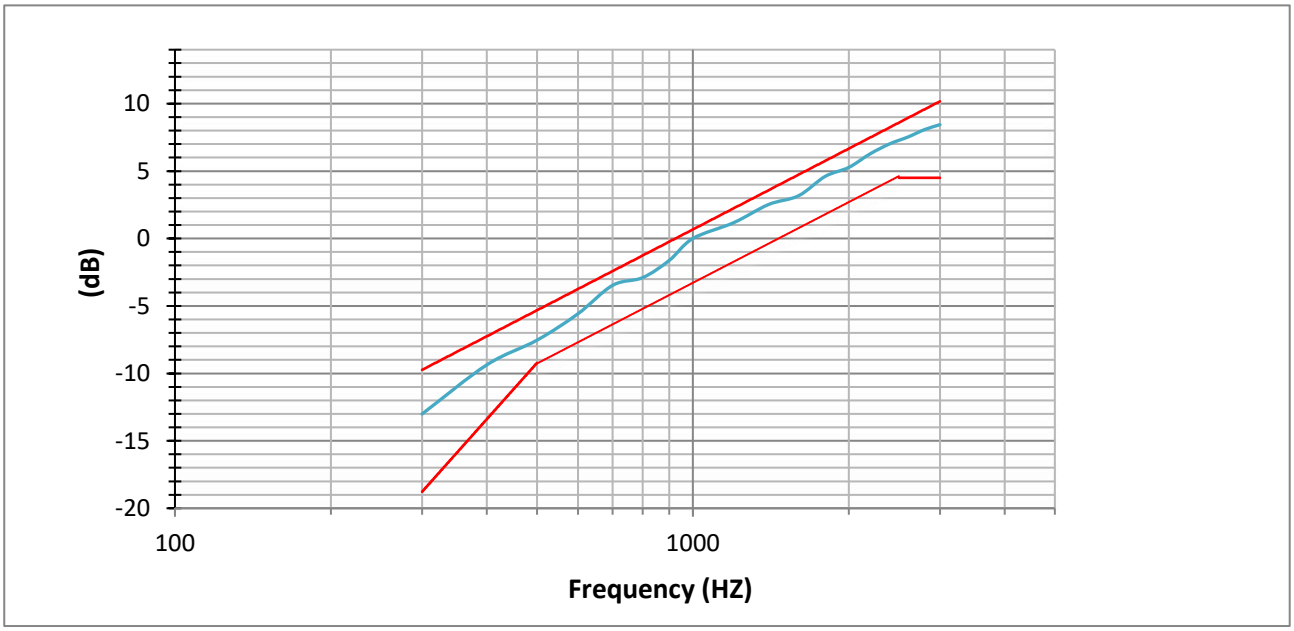


FRS_Channl 19(462.6500MHz)_(2W)						
Audio Frequency (Hz)	Instantaneous		Steady-state		Limit (kHz)	Result
	Deviation (@+20dB) (kHz)	Deviation (@-20dB) (kHz)	Deviation (@+20dB) (kHz)	Deviation (@-20dB) (kHz)		
300	0.529	0.091	0.594	0.094	±2.5	Pass
1000	1.845	0.241	1.893	0.225		
1500	2.169	0.329	2.009	0.38		
2500	2.179	0.34	2.132	0.376		
3000	2.181	0.401	2.109	0.414		

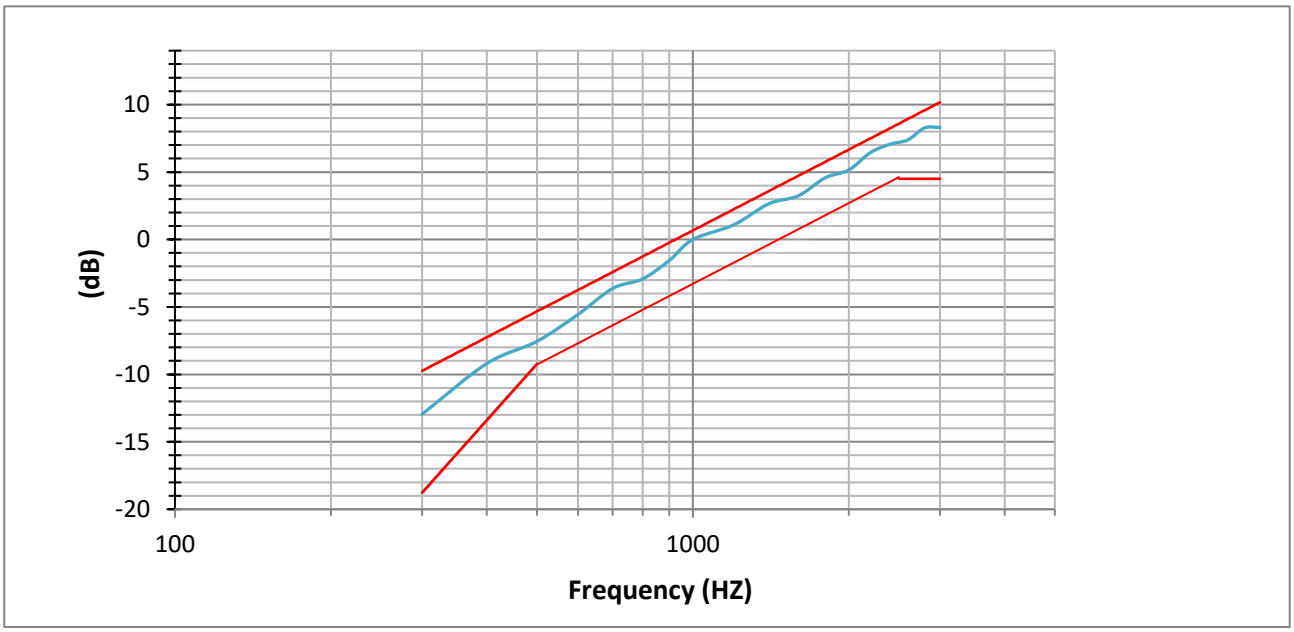


AUDIO FREQUENCY RESPONSE:

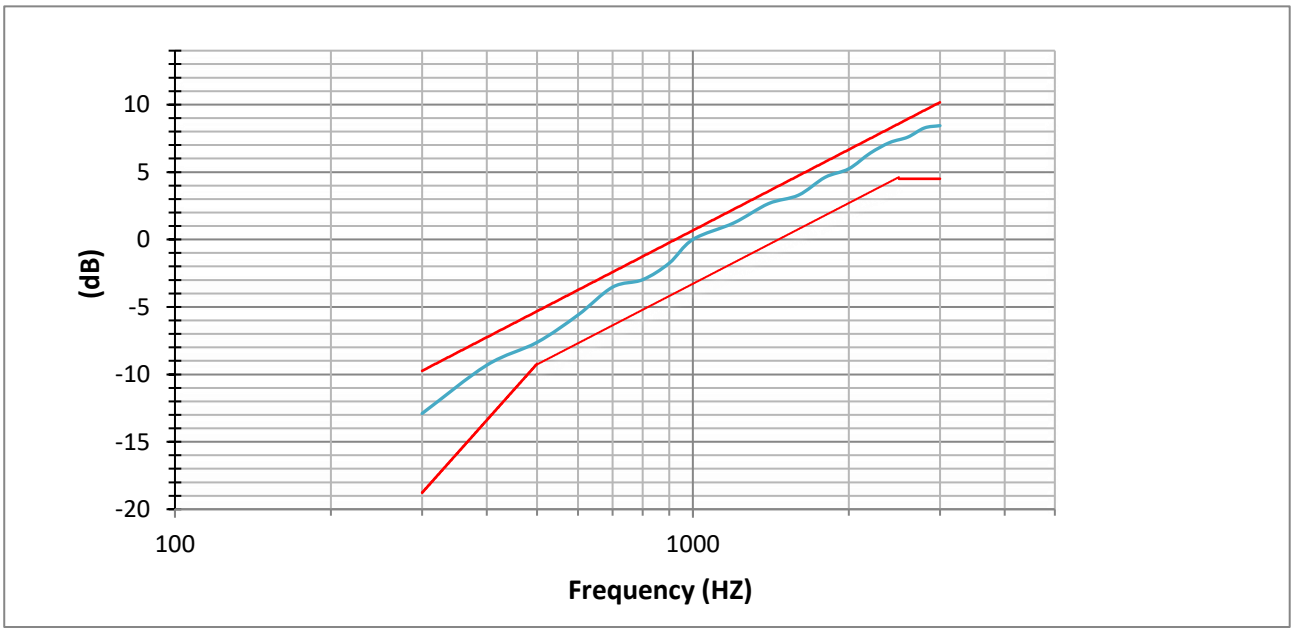
FRS_Channl 4(462.6375MHz)_(2W)		
Audio Frequency(Hz)	Audio Frequency Response(dB)	Result
300	-13.01	PASS
400	-9.37	
500	-7.54	
600	-5.58	
700	-3.47	
800	-2.90	
900	-1.63	
1000	0.00	
1200	1.18	
1400	2.52	
1600	3.17	
1800	4.60	
2000	5.27	
2200	6.28	
2400	7.02	
2600	7.52	
2800	8.07	
3000	8.44	



FRS_Channl 11(467.6375MHz)_(0.5W)		
Audio Frequency(Hz)	Audio Frequency Response(dB)	Result
300	-12.95	PASS
400	-9.20	
500	-7.55	
600	-5.56	
700	-3.63	
800	-2.92	
900	-1.56	
1000	0.00	
1200	1.09	
1400	2.64	
1600	3.25	
1800	4.57	
2000	5.15	
2200	6.43	
2400	7.06	
2600	7.38	
2800	8.27	
3000	8.31	



FRS_Channl 19(462.6500MHz)_(2W)		
Audio Frequency(Hz)	Audio Frequency Response(dB)	Result
300	-12.90	PASS
400	-9.32	
500	-7.63	
600	-5.60	
700	-3.53	
800	-2.98	
900	-1.76	
1000	0.00	
1200	1.23	
1400	2.66	
1600	3.29	
1800	4.61	
2000	5.24	
2200	6.4	
2400	7.19	
2600	7.59	
2800	8.27	
3000	8.44	



※※※※※END OF THE REPORT※※※※※