TEST REPORT

Application No.:	GZCR2109021056AT
Applicant:	RUNLONG TOYS&CRAFT FACTORY
Address of Applicant:	LIANHE ROAD 5TH LANE OF NO.1, WAIPU INDUSTRIAL ZONE FENGXIANG STREET, CHENGHAI DISTRICT, SHANTOU, CHINA
Manufacturer:	RUNLONG TOYS&CRAFT FACTORY
Address of Manufacturer:	LIANHE ROAD 5TH LANE OF NO.1, WAIPU INDUSTRIAL ZONE FENGXIANG STREET, CHENGHAI DISTRICT, SHANTOU, CHINA
Equipment Under Test (EUT):	
EUT Name:	WALKIE-TALKIES
Model No.:	R-850, R-851, R-852, R-853, R-854, R-855, R-856, R-857, R-858, R-859, R-860, R-861, R-862, R-863, R-864, R-865, R-866, R-867, R-868, R-869, R-870, R-871, R-872, R-873, R-874, R-875, R-876, R-877, R-878, R-879, R-880, R-881, R-882, R-883, R-884, R-885, R-886, R-887, R-888, R-889, R-850S, R-851S, R-852S, R-853S, R-854S, R-855S, R-856S, R-857S, R-858S, R-859S, R-860S, R-861S, R-862S, R-863S, R-864S, R-865S, R-866S, R-867S, R-868S, R-869S, R-870S, R-871S, R-872S, R-873S, R-874S, R-875S, R-876S, R-877S, R-878S, R-879S, R-880S, R-881S, R-882S, R-883S, R-884S, R-885S, R-886S, R-887S, R-888S, R-889S ♣
♣	Please refer to section 2 of this report which indicates which model was actually tested and which were electrically identical.
Standard(s) :	47 CFR Part 95, Subpart B
Date of Receipt:	2021-08-02
Date of Test:	2021-08-03 to 2021-09-06
Date of Issue:	2021-09-07
Test Result:	Pass*

* In the configuration tested, the EUT complied with the standards specified above.

Kobe Jian
EMC Laboratory Manager

Revision Record				
Version	**Chapter**	**Date**	**Modifier**	**Remark**
01		*2021-09-07*		*Original*

Authorized for issue by				
Tested By		 **Curry Wu/Project Engineer**		
Reviewed By		 **Ricky Liu/Reviewer**		

2 Test Summary

Radio Spectrum Technical Requirement				
Item	**Standard**	**Method**	**Requirement**	**Result**
Antenna Requirement	47 CFR Part 95, Subpart B	N/A	47 CFR Part 95, Subpart B 95.587(b)	Pass

Radio Spectrum Matter Part				
Item	**Standard**	**Method**	**Requirement**	**Result**
Frequency Stability	47 CFR Part 95, Subpart B	ANSI/TIA-603-E:2016	47 CFR FCC Part95.565 & FCC Part2.1055;	Pass
Effective Radiated Power (ERP)	47 CFR Part 95, Subpart B	ANSI/TIA-603-E:2016	47 CFR FCC Part95.567 & FCC Part2.1046;	Pass
Occupied Bandwidth	47 CFR Part 95, Subpart B	ANSI/TIA-603-E:2016	47 CFR FCC Part 95.573 & FCC Part2.1049;	Pass
Modulation characteristics	47 CFR Part 95, Subpart B	ANSI/TIA-603-E:2016	47 CFR FCC Part 95.575 & FCC Part2.1047;	Pass
Radiated Spurious Emissions	47 CFR Part 95, Subpart B	ANSI/TIA-603-E:2016	47 CFR FCC Part 95.579 & FCC Part2.1053;	Pass

Note:

E.U.T./EUT means Equipment Under Test.

Pass means the test result passed the test standard requirement, please find the detailed decision rule in the report relative section.

Declaration of EUT Family Grouping:

Model No.: R-850, R-851, R-852, R-853, R-854, R-855, R-856, R-857, R-858, R-859, R-860, R-861, R-862, R-863, R-864, R-865, R-866, R-867, R-868, R-869, R-870, R-871, R-872, R-873, R-874, R-875, R-876, R-877, R-878, R-879, R-880, R-881, R-882, R-883, R-884, R-885, R-886, R-887, R-888, R-889, R-850S, R-851S, R-852S, R-853S, R-854S, R-855S, R-856S, R-857S, R-858S, R-859S, R-860S, R-861S, R-862S, R-863S, R-864S, R-865S, R-866S, R-867S, R-868S, R-869S, R-870S, R-871S, R-872S, R-873S, R-874S, R-875S, R-876S, R-877S, R-878S, R-879S, R-880S, R-881S, R-882S, R-883S, R-884S, R-885S, R-886S, R-887S, R-888S, R-889S

Only the model R-851 was tested, since according to the declaration from the applicant, the electrical circuit design, layout, components used, internal wiring and functions were identical for all the above models, with only difference on color, appearance and packaging.

3 Contents

4 General Information

4.1 Details of E.U.T.

Power supply:	Input 4.5Vdc via 'AAA' battery*3
Frequency Range:	462.6125MHz
Modulation Type:	FM
Emission Type:	F3E
Antenna Type:	Inseparable Helical Antenna
Antenna Gain:	0dBi

4.2 Description of Support Units

Description	Manufacturer	Model No.	Serial No.
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Note: The EUT has been tested independent unit.			

4.3 Measurement Uncertainty

No.	Item	Measurement Uncertainty
1	Radio Frequency	7.25×10^{-8}
2	Duty cycle	0.37%
3	Occupied Bandwidth	3%
4	RF conducted power	0.75dB
5	RF power density	2.84dB
6	Conducted Spurious emissions	0.75dB
7	RF Radiated power	5.14dB (below 1GHz)
		5.08dB (above 1GHz)
8	Radiated Spurious emission test	5.14dB (below 1GHz)
		5.08dB (above 1GHz)
9	Temperature test	1°C
10	Humidity test	3%
11	Supply voltages	1.5%
12	Time	3%

4.4 Test Location

All tests were performed at:

SGS-CSTC Standards Technical Services Co., Ltd., Guangzhou Branch EMC Laboratory,

198 Kezhu Road, Scientech Park, Guangzhou Economic & Technology Development District, Guangzhou, China 510663

Tel: +86 20 82155555 Fax: +86 20 82075059

No tests were sub-contracted.

4.5 Test Facility

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

- **NVLAP (Lab Code: 200611-0)**

SGS-CSTC Standards Technical Services Co., Ltd., Guangzhou EMC Laboratory is accredited by the National Voluntary Laboratory Accreditation Program (NVLAP/NIST). NVLAP Code: 200611-0.

The report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the Federal Government.

- **ACMA**

SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory can also perform testing for the Australian/New Zealand Regulatory Compliance Mark (RCM).

- **SGS UK(Certificate No.: 32), SGS-TUV SAARLAND and SGS-FIMKO**

Have approved SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory as a supplier of EMC TESTING SERVICES and SAFETY TESTING SERVICES.

- **CNAS (Lab Code: L0167)**

SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory has been assessed and in compliance with CNAS-CL01:2018 accreditation criteria for testing laboratories (identical to ISO/IEC 17025:2017 General Requirements) for the Competence of Testing Laboratories.

- **FCC Recognized Accredited Test Firm(Registration No.: 486818)**

SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory has been accredited and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Designation Number: CN5016, Test Firm Registration Number: 486818.

- **ISED (Registration No.: 4620B, CAB identifier: CN0052)**

SGS-CSTC Standards Technical Services Co., Ltd., has been registered by Innovation Science and Economic Development Canada for Wireless Device Testing laboratories to test to Canadian radio equipment requirements. Registration No. 4620B, CAB identifier: CN0052.

- **VCCI (Registration No.: R-12460, C-12584, G-20107 and T-11179)**

The 10m Semi-anechoic chamber, 966 Anechoic Chamber and Shielded Room of SGS-CSTC Standards Technical Services Co., Ltd. have been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: R-12460, C-12584, G-20107 and T-11179 respectively.

- **CBTL (Lab Code: TL129)**

SGS-CSTC Standards Technical Services Co., Ltd., E&E Laboratory has been assessed and fully comply with the requirements of ISO/IEC 17025:2017, the Basic Rules, IECEE 01 and Rules of procedure IECEE 02, and the relevant IECEE CB-Scheme Operational documents.

4.6 Deviation from Standards

None

4.7 Abnormalities from Standard Conditions

None

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5 Equipment List

RF conducted test					
Test Equipment	**Manufacturer**	**Model No.**	**Inventory No.**	**Cal. Date**	**Cal. Due date**
EXA Signal Analzer(10Hz-44GHz)	Agilent Technologies	N9010A	EMC2138	2020-09-17	2021-09-16
Signal Generator (10MHz-20GHz)	Rohde & Schwarz	SMR20	EMC0516	2021-01-11	2022-01-10
Measurement Software	TST	TST PASS V1.0.5	N/A	N/A	N/A
Signal Generator(9kHz-6GHz)	Rohde & Schwarz	SMB100A	EMC2093	2021-01-09	2022-01-08
Audio Analyzer	Keysight	U8903B	EMC2180	2020-09-18	2021-09-17
MI CABLE	SGS-EMC	0.8M	EMC2136	2019-11-02	2021-11-01
6dB Attenuator	HP	8491A	EMC2062	2020-04-15	2022-04-14
Temperature Chamber	GZ GongWen Co.Ltd.	GDJW-100	EMC0039	2021-07-04	2022-07-03

Radiated Spurious Emissions					
Equipment	**Manufacturer**	**Model No**	**Inventory No**	**Cal Date**	**Cal Due Date**
Chamber cable	HangTianXing	N/A	EMC0542	2020-09-09	2022-09-08
Trilog Broadband Antenna(25MHz-1GHz)-Lab	SCHWARZBECK MESS-ELEKTRONIK	VULB 9168	SEM003-18	2019-02-22	2022-02-22
Amplifier(9kHz-1.3GHz)	HP	8447F	EMC2065	2021-05-19	2022-05-18
Active Loop Antenna-RED	ETS-Lindgren	6502	EMC2190	2019-12-27	2021-12-26
10m Semi-Anechoic Chamber	ETS	N/A	EMC0530	2019-10-20	2022-10-19
Test Software E3	Audix	Ver.6.120110a	GZE100-61	N/A	N/A
EMI Test Receiver(1Hz-8GHz)	Rohde & Schwarz	ESW8	EMC2220	2021-05-26	2022-05-25
EMI Test Receiver(20Hz-26.5GHz)	Rohde & Schwarz	ESIB26	EMC0522	2021-01-08	2022-01-07
Chamber cable(Above 1GHz)	Scoflex	KMKM-8.0m	EMC0545	2020-09-09	2022-09-08
Horn Antenna(1GHz-18GHz)	SCHWARZBECK MESS-ELEKTRONIK	BBHA 9120D	EMC2026	2019-09-25	2022-09-24
1GHz-26.5 GHz Pre-Amplifier	Agilent	8449B	EMC0521	2021-01-08	2022-01-07
2.4GHz Filter	Micro-Tronics	BRM 50702	EMC2069	2021-01-08	2022-01-07
966 Anechoic Chamber	C.R.T	9m x 6m x 6m	EMC2142	2020-12-20	2023-12-19

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MXE EMI Receiver(10Hz-8.4GHz)	Keysight	N9038A	EMC2139	2020-11-13	2021-11-12
EXA Signal Analyzer(10Hz-44GHz)	Keysight	N9010A	EMC2138	2020-09-17	2021-09-16
Test Software E3	Audix	Ver.6.120110a	GZE100-61	N/A	N/A
Notch Filter (5150-5880)	Mico-Tronics	BRM50716	EMC2168	2021-07-29	2022-07-28
Horn Antenna(14-40GHz)	SCHWARZBECK	BBHA 9170	EMC2041	2020-06-28	2023-06-27
Microwave Broadband Preamplifier (18-40GHz)	SCHWARZBECK	BBV 9721	EMC2172	2020-09-09	2021-09-08

General used equipment					
Equipment	**Manufacturer**	**Model No**	**Inventory No**	**Cal Date**	**Cal Due Date**
DMM	Fluke	73	EMC0006	2021-07-05	2022-07-05
DMM	Fluke	73	EMC0007	2021-07-05	2022-07-05

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6 Radio Spectrum Technical Requirement

6.1 Antenna Requirement

6.1.1 Test Requirement:

47 CFR Part 95, Subpart B 95.587(b)

6.1.2 Conclusion

95.587(b) Requirement:

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.

EUT Antenna:

The antenna is integrated on the main PCB and no consideration of replacement. The antenna gain is 0dBi (as compared to a half-wave dipole) and with vertically polarized.

7 Radio Spectrum Matter Test Results

7.1 Frequency Stability

Test Requirement 47 CFR FCC Part 95.565

Test Method: ANSI/TIA-603-E:2016

Limit: For 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.

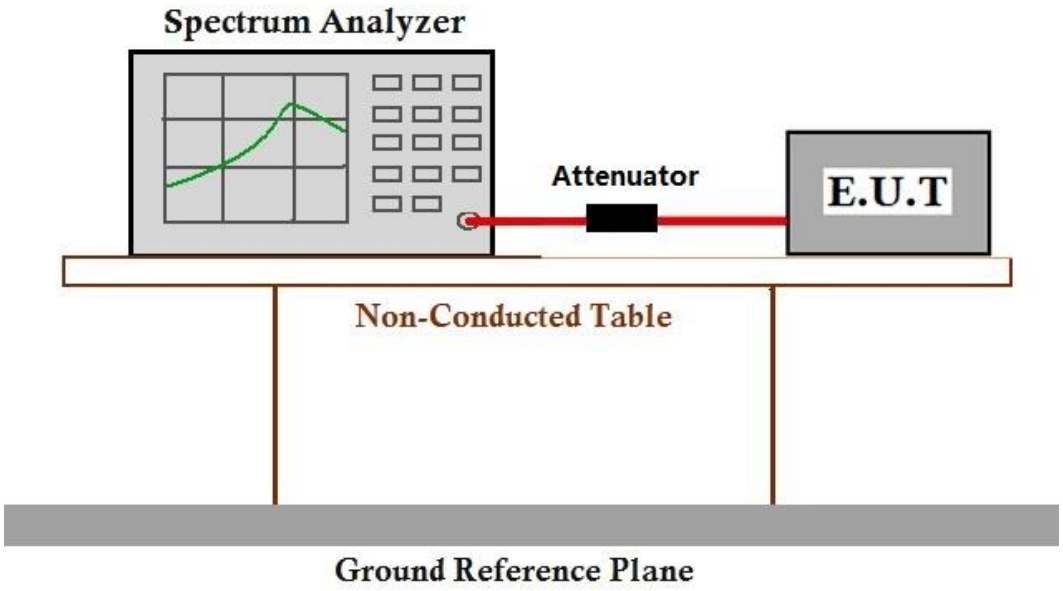
7.1.1 E.U.T. Operation

Operating Environment:

Temperature: 23.5 °C Humidity: 54.5 % RH Atmospheric Pressure: 1010 mbar

Test mode: a: Tx mode, Keep the EUT in transmitting mode.

7.1.2 Test Setup Diagram



7.1.3 Measurement Procedure and Data

Assigned Frequency:462.6125MHz					
Voltage(V)	Temperature (℃)	Measured Frequency(MHz)	Frequency Deviation(ppm)	FCC Limit (ppm)	Result
4.5	-30	462.6121	-0.86	±2.5	Pass
	-20	462.6125	0.00		
	-10	462.6126	0.22		
	0	462.6130	1.08		
	10	462.6126	0.22		
	20	462.6128	0.65		
	30	462.6127	0.43		
	40	462.6122	-0.65		
	50	462.6134	1.95		
5.175	25	462.6126	0.22		
3.825	25	462.6131	1.30		

7.2 Effective Radiated Power (ERP)

Test Requirement 47 CFR FCC Part95.567 & FCC Part2.1046;

Test Method: ANSI/TIA-603-E:2016

Measurement Distance: 3m

Test instrumentation resolution bandwidth 100 kHz (30 MHz – 1000 MHz)

Limit:

For FCC Part 95.567:

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

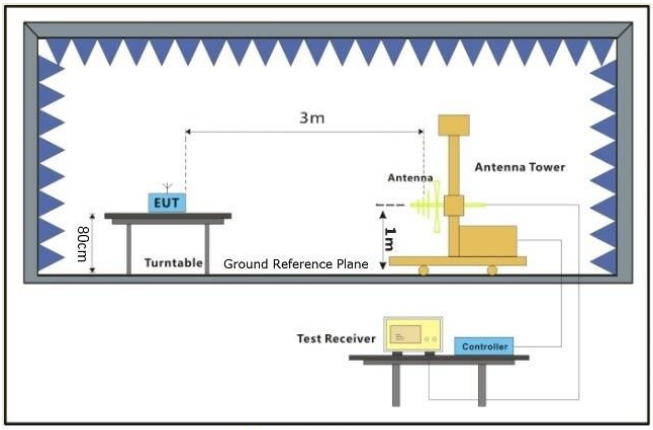
7.2.1 E.U.T. Operation

Operating Environment:

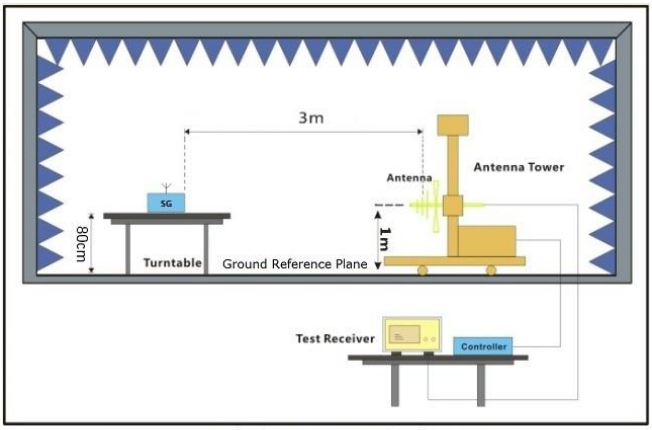
Temperature: 23.5 °C Humidity: 52.5 % RH Atmospheric Pressure: 1010 mbar

Test mode: a: Tx mode, Keep the EUT in transmitting mode.

7.2.2 Test Setup Diagram



EUT



Substiute Antenna+Signal Generator

7.2.3 Measurement Procedure and Data

The technique used to find the output power of the transmitter was the antenna substitution method. The following test procedure was followed:

1). The EUT was powered ON and placed on a 0.8m high table in the chamber. The antenna of the transmitter was extended to its maximum length.

2). The disturbance of the transmitter was maximized on the test receiver display by lowering 1m the receive antenna and by rotating through 360° the turntable. After the fundamental emission was maximized, a field strength measurement was made.

3). Steps 1) and 2) were performed with the EUT and the receive antenna in both vertical and horizontal polarization.

4). The transmitter was then removed and replaced with another antenna. The center of the antenna was approximately at the same location as the center of the transmitter.

5). A signal at the disturbance was fed to the substitution antenna by means of a non-radiating cable. With both the substitution and the receive antennas horizontally polarized, the receive antenna was raised and lowered to obtain a maximum reading at the test receiver. The level of the signal generator was adjusted until the measured field strength level in step 2) is obtained for this set of conditions.

6). The output power into the substitution antenna was then measured.

7). Steps 5) and 6) were repeated with both antennas polarized.

8). Calculate power in dBm by the following formula:

ERP [dBm] = SGP [dBm] - Cable Loss [dB] + Gain [dBd]

Where:

Pg is the generator output power into the substitution antenna.

Test result:

Effective Radiated Power of Transmitter (ERP)

Polarization	Freq. (MHz)	SGP (dBm)	Substitution Gain(dBd)	Cable Loss (dB)	Substitution Level(ERP) / dBm	Substitution Level(ERP) / W	FCC Limit (W)	Result
H	462.6125	15.6	-4.9	0.6	10.1	0.010	2.0	Pass
V		15.9	-4.9	0.6	10.4	0.011	2.0	Pass

Note:

a: For getting the ERP (Efficient Radiated Power) in substitution method, the following formula should be taken to calculate it:

ERP [dBm] = SGP [dBm] - Cable Loss [dB] + Gain [dBd]

b: SGP=Signal Generator Level

c: RBW > emission bandwidth, VBW > 3 x RBW, Detector: RMS

d: Per FCC part95.563 FRS channel 3 is 462.6125MHz.

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7.3 Occupied Bandwidth

Test Requirement 47 CFR FCC Part 95.573 & FCC Part2.1049;

Test Method: ANSI/TIA-603-E:2016

Limit: For FCC Part 95.573:

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

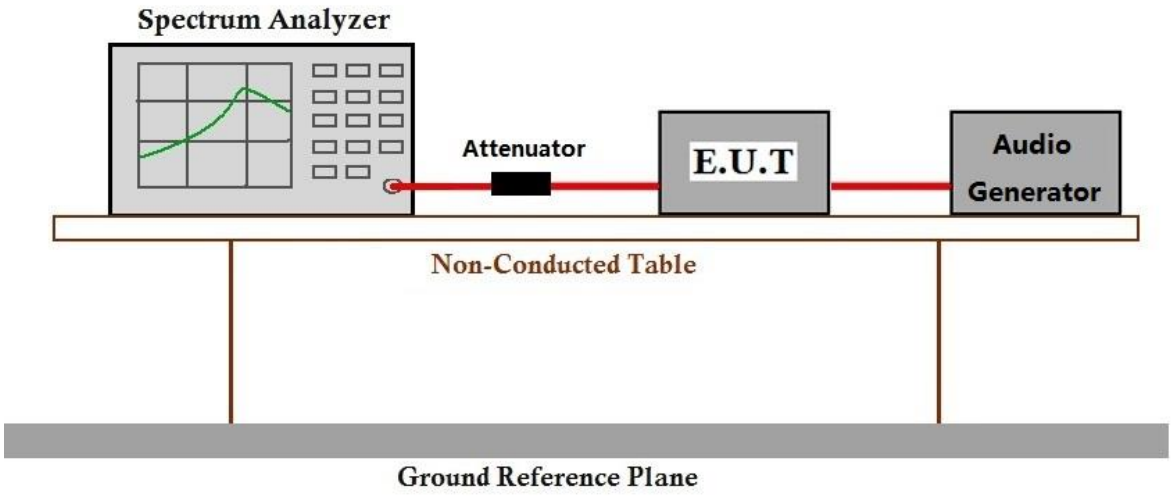
7.3.1 E.U.T. Operation

Operating Environment:

Temperature: 23.5 °C Humidity: 54.5 % RH Atmospheric Pressure: 1010 mbar

Test mode: a: Tx mode, Keep the EUT in transmitting mode.

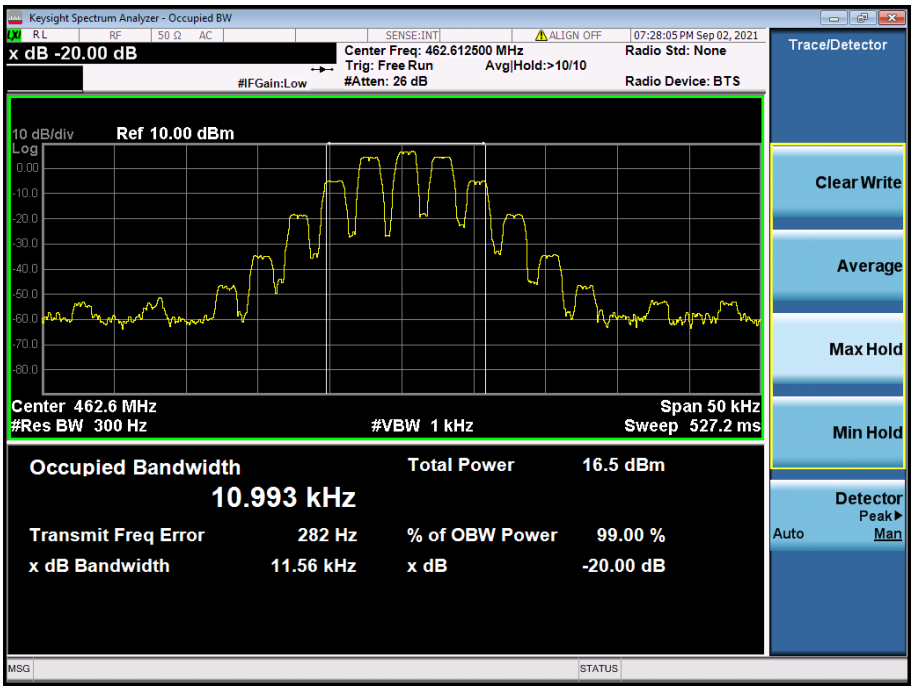
7.3.2 Test Setup Diagram



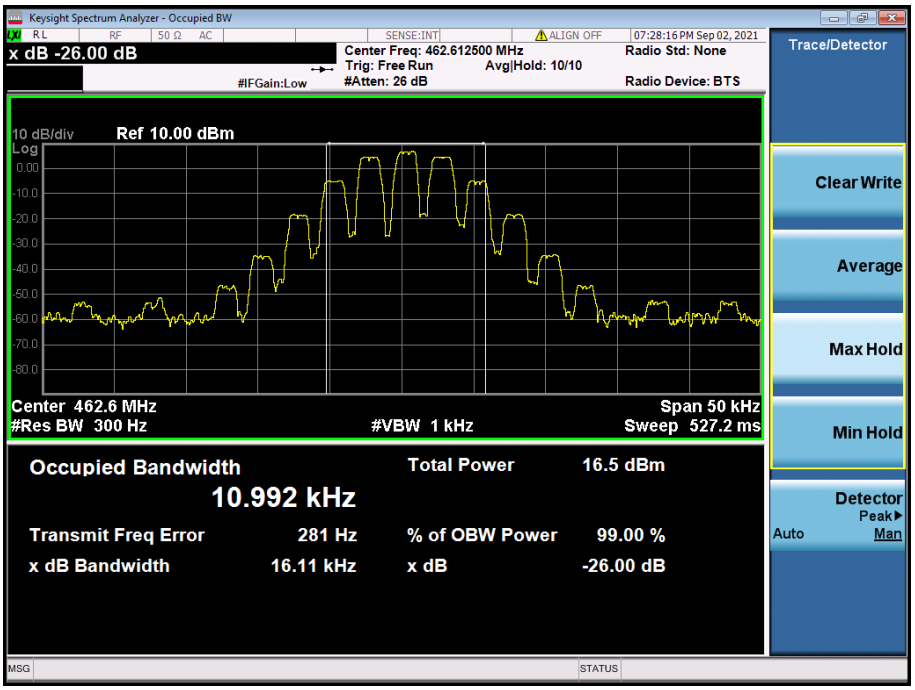
7.3.3 Measurement Procedure and Data

Test result:

The occupied Bandwidth is measured to be 10.993 kHz for channel 3.



The 26dB Bandwidth is measured to be 16.11 kHz for channel 3.



7.4 Modulation characteristics

Test Requirement 47 CFR FCC Part 95.575 & FCC Part2.1047;

Test Method: ANSI/TIA-603-E:2016

Limit: For FCC Part 95.575:

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.

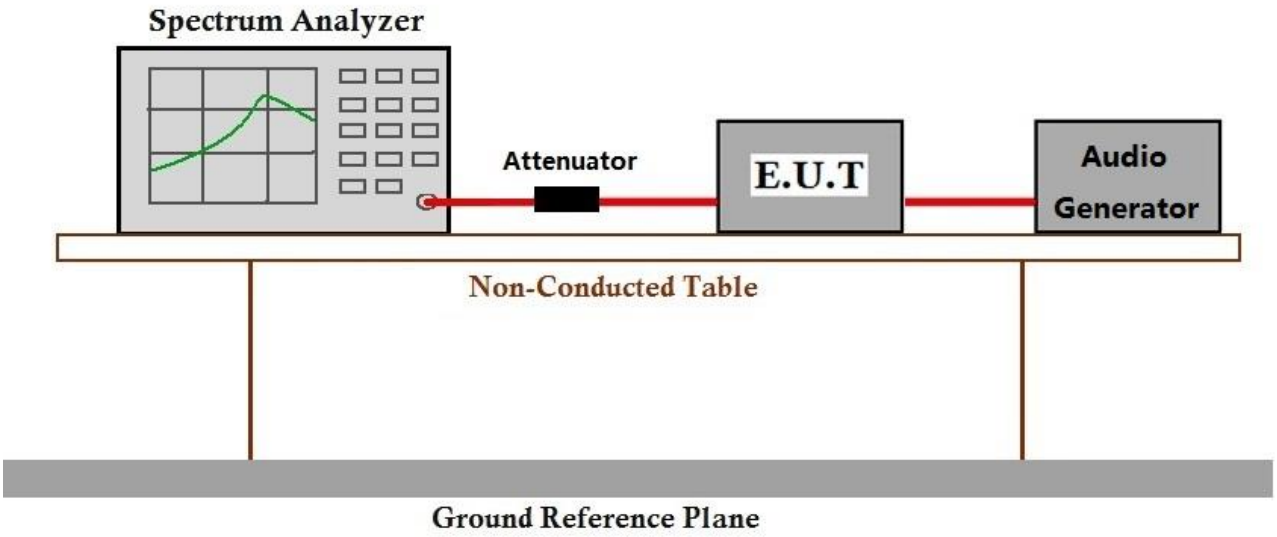
7.4.1 E.U.T. Operation

Operating Environment:

Temperature: 23.5 °C Humidity: 54.5 % RH Atmospheric Pressure: 1010 mbar

Test mode: a: Tx mode, Keep the EUT in transmitting mode.

7.4.2 Test Setup Diagram

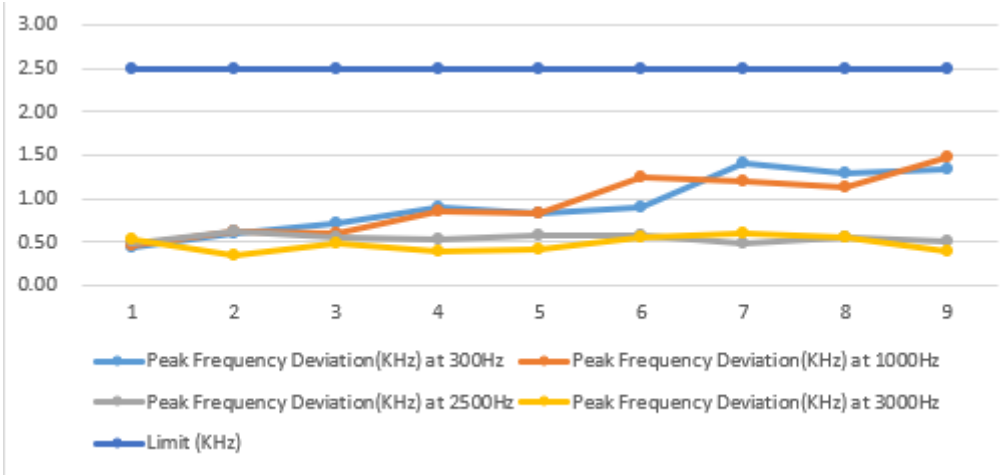


7.4.3 Measurement Procedure and Data

Test result:

a. Frequency deviation:

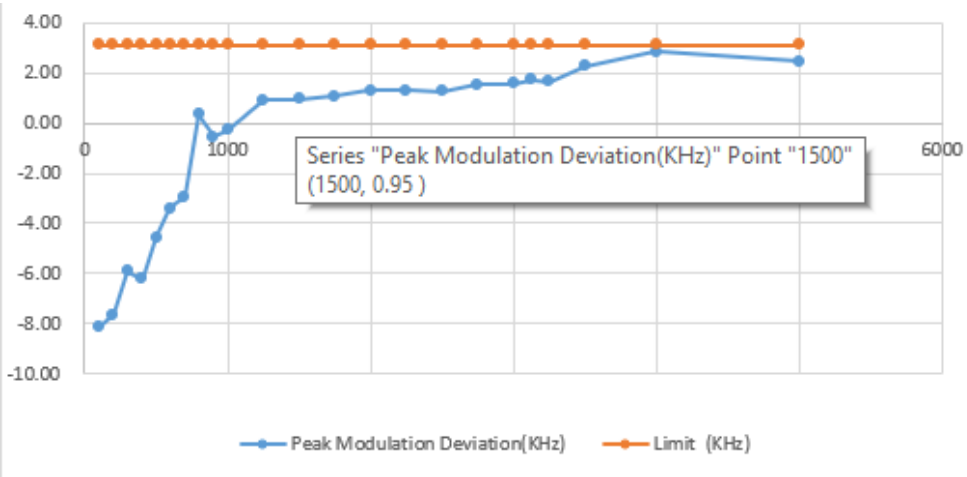
Channel 3: 462.6125MHz FRS					
Modulation Input(dB)	Peak Frequency Deviation(KHz) at 300Hz	Peak Frequency Deviation(KHz) at 1000Hz	Peak Frequency Deviation(KHz) at 2500Hz	Peak Frequency Deviation(KHz) at 3000Hz	Limit (KHz)
-20	0.45	0.46	0.50	0.54	2.50
-15	0.60	0.63	0.61	0.34	2.50
-10	0.72	0.59	0.55	0.49	2.50
-5	0.90	0.86	0.52	0.40	2.50
0	0.84	0.83	0.57	0.42	2.50
5	0.89	1.25	0.59	0.56	2.50
10	1.41	1.21	0.48	0.60	2.50
15	1.29	1.13	0.56	0.55	2.50
20	1.33	1.47	0.51	0.39	2.50



b. Audio Frequency Response

Channel 3 for FRS

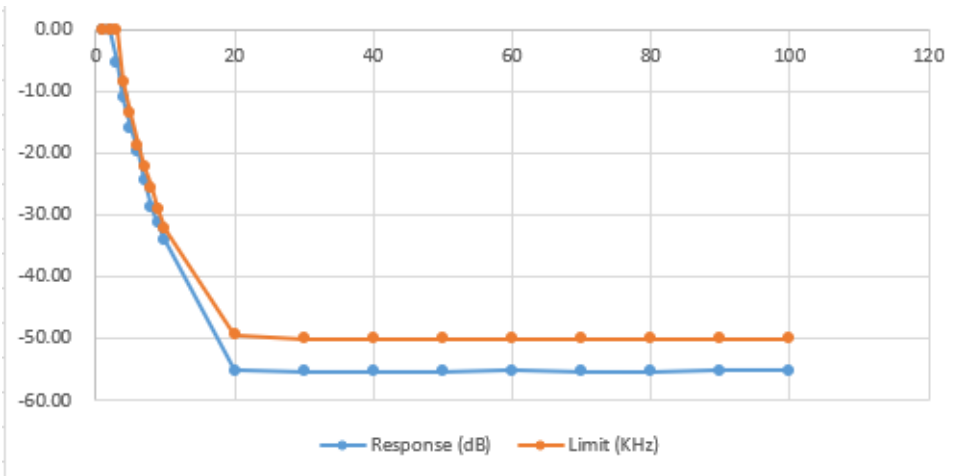
Modulation Frequency(Hz)	Peak Modulation Deviation(KHz)	Limit (KHz)
100	-8.16	3.125
200	-7.65	3.125
300	-5.90	3.125
400	-6.22	3.125
500	-4.56	3.125
600	-3.40	3.125
700	-2.93	3.125
800	0.33	3.125
900	-0.56	3.125
1000	-0.26	3.125
1250	0.93	3.125
1500	0.95	3.125
1750	1.07	3.125
2000	1.30	3.125
2250	1.29	3.125
2500	1.27	3.125
2750	1.54	3.125
3000	1.59	3.125
3125	1.71	3.125
3250	1.63	3.125
3500	2.27	3.125
4000	2.86	3.125
5000	2.47	3.125



c. Audio Low Pass Filter Frequency Response

Channel 3 for FRS

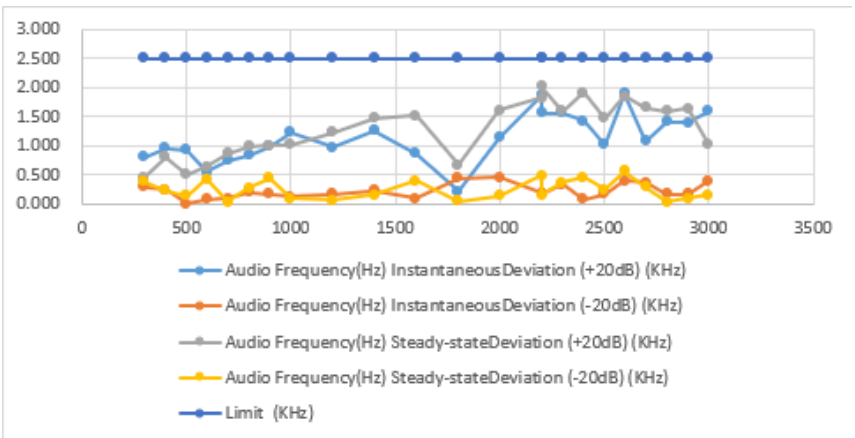
Frequency(KHz)	Response (dB)	Limit (KHz)
1	0	0
2	0	0
3	-5.33	0
4	-11.07	-8.52
5	-15.97	-13.64
6	-19.80	-18.75
7	-24.33	-22.16
8	-28.85	-25.57
9	-31.42	-28.98
10	-34.11	-32.29
20	-55.20	-49.43
30	-55.26	-50.00
40	-55.31	-50.00
50	-55.27	-50.00
60	-55.19	-50.00
70	-55.24	-50.00
80	-55.34	-50.00
90	-55.18	-50.00
100	-55.17	-50.00



d. Modulation Limiting

Channel 3 for FRS

Audio Frequency(Hz)	Instantaneous		Steady-state		Limit (KHz)
	Deviation (+20dB) (KHz)	Deviation (-20dB) (KHz)	Deviation (+20dB) (KHz)	Deviation (-20dB) (KHz)	
300	0.812	0.290	0.462	0.381	2.5
400	0.962	0.246	0.805	0.223	2.5
500	0.928	0.001	0.498	0.143	2.5
600	0.543	0.079	0.634	0.425	2.5
700	0.752	0.098	0.872	0.034	2.5
800	0.830	0.204	0.986	0.270	2.5
900	0.984	0.170	1.005	0.448	2.5
1000	1.228	0.124	1.016	0.091	2.5
1200	0.973	0.171	1.231	0.066	2.5
1400	1.263	0.221	1.478	0.159	2.5
1600	0.861	0.086	1.515	0.399	2.5
1800	0.211	0.447	0.666	0.050	2.5
2000	1.143	0.458	1.614	0.145	2.5
2200	1.863	0.181	1.827	0.482	2.5
2200	1.562	0.175	2.010	0.148	2.5
2300	1.566	0.332	1.594	0.359	2.5
2400	1.431	0.075	1.910	0.451	2.5
2500	1.013	0.175	1.476	0.244	2.5
2600	1.898	0.393	1.852	0.561	2.5
2700	1.073	0.365	1.646	0.295	2.5
2800	1.404	0.176	1.600	0.025	2.5
2900	1.393	0.161	1.642	0.096	2.5
3000	1.595	0.401	1.019	0.157	2.5



7.5 Radiated Unwanted Emissions

Test Requirement: 47 CFR FCC Part 95.579 & FCC Part2.1053;

Test Method: ANSI/TIA-603-E:2016

Measurement Distance: 3m

Resolution bandwidth =10 kHz for spurious emissions below 1 GHz, and 1 MHz for spurious emissions above 1GHz.

Video Bandwidth = 300 kHz for spurious emissions below 1 GHz, and 3 MHz for spurious emissions above 1 GHz.

Limit:

For FCC Part 95.579

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.

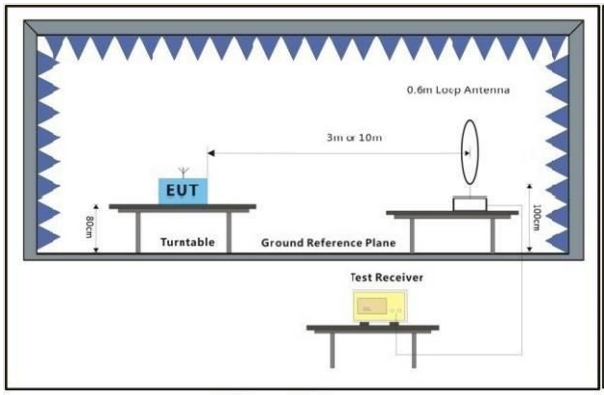
7.5.1 E.U.T. Operation

Operating Environment:

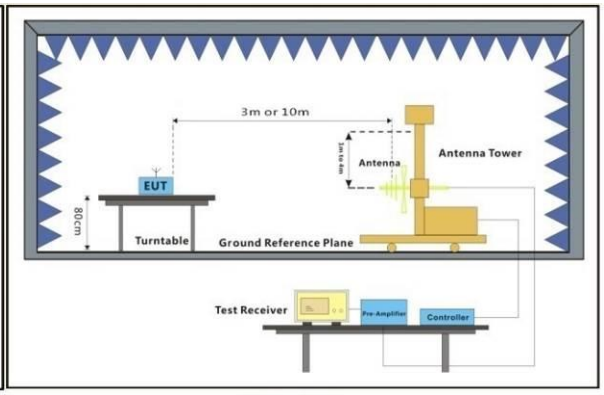
Temperature: 23.5 °C Humidity: 52.5 % RH Atmospheric Pressure: 1010 mbar

Test mode: a: Tx mode, Keep the EUT in transmitting mode.

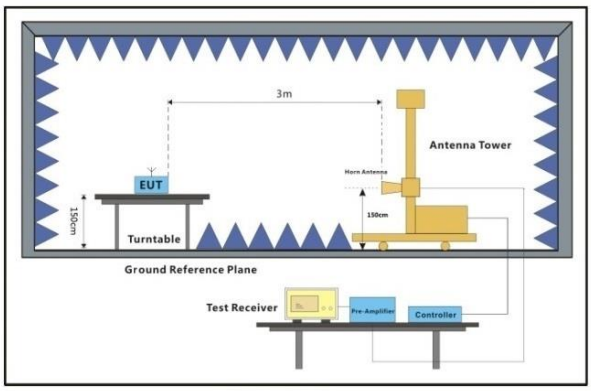
7.5.2 Test Setup Diagram



Below 30MHz



30MHz-1GHz



Above 1GHz

7.5.3 Measurement Procedure and Data

Test Procedure:

(1)On a test site, the EUT shall be placed on a turntable and in the position closest to the normal use as declared by the user.
(2)The test antenna shall be oriented initially for vertical polarization located 3m from the EUT to correspond to the transmitter.
(3)The output of the antenna shall be connected to the measuring receiver and either a peak or quasi-peak detector was used for the measurement as indicated on the report. The detector selection is based on how close the emission level was approaching the limit.
(4)The transmitter shall be switched on; if possible, without the modulation and the measurement receiver shall be tuned to the frequency of the transmitter under test.
(5)The test antenna shall be raised and lowered through the specified range of height until the measuring receiver detects a maximum signal level.
(6)The transmitter shall than be rotated through 360°in the horizontal plane, until the maximum signal level is detected by the measuring receiver.
(7)The test antenna shall be raised and lowered again through the specified range of height until the measuring receiver detects a maximum signal level.
(8)The maximum signal level detected by the measuring receiver shall be noted.
(9)The measurement shall be repeated with the test antenna set to horizontal polarization.
(10) Replace the antenna with a proper Antenna (substitution antenna).
(11)The substitution antenna shall be oriented for vertical polarization and, if necessary, the length of the substitution antenna shall be adjusted to correspond to the frequency of transmitting.
(12)The substitution antenna shall be connected to a calibrated signal generator.
(13)If necessary, the input attenuator setting of the measuring receiver shall be adjusted in order to increase the sensitivity of the measuring receiver.
(14)The test antenna shall be raised and lowered through the specified range of the height to ensure that the maximum signal is received.
(15)The input signal to substitution antenna shall be adjusted to the level that produces a level detected by the measuring receiver, that is equal to the level noted while the transmitter radiated power was measured, corrected for the change of input attenuation setting of the measuring receiver.
(16)The input level to the substitution antenna shall be recorded as power level in dBm, corrected for any change of input attenuator setting of the measuring receiver.
(17)The measurement shall be repeated with the test antenna and the substitution antenna oriented for horizontal polarization.

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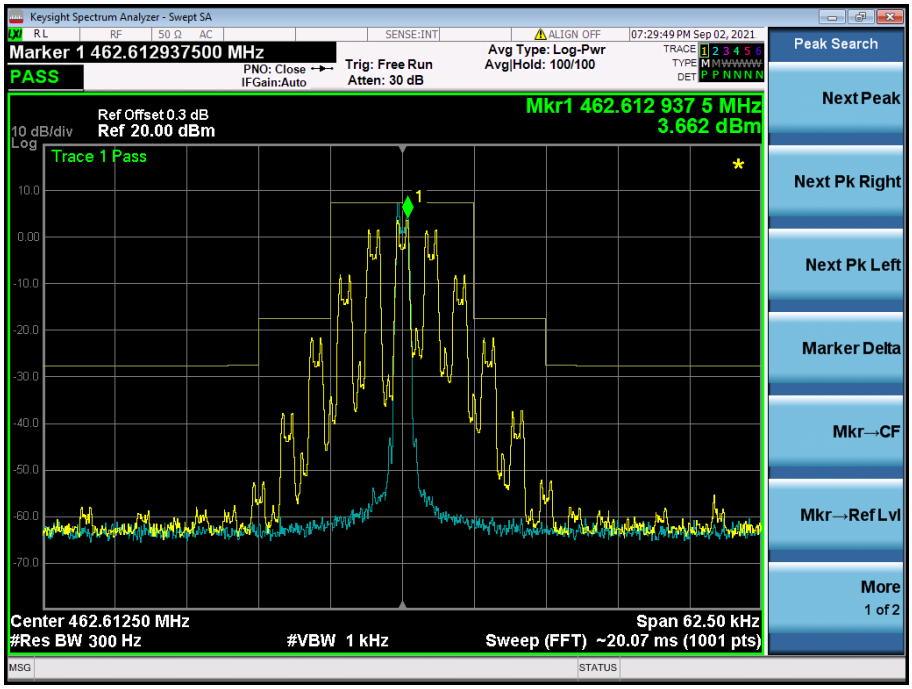
Emission Mask
Channel 3



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Frequency MHz	Polarity H/V	Emission Level dBm	Limit dBm	Margin dBm
1386.264	V	-40.53	-13.00	-27.53
1850.858	V	-41.46	-13.00	-28.46
2312.219	V	-36.53	-13.00	-23.53
2774.030	V	-41.64	-13.00	-28.64
3242.619	V	-37.51	-13.00	-24.51
3703.723	V	-40.71	-13.00	-27.71
1386.264	H	-43.18	-13.00	-30.18
1850.858	H	-45.97	-13.00	-32.97
2312.219	H	-44.14	-13.00	-31.14
3242.619	H	-43.92	-13.00	-30.92
5881.418	H	-44.52	-13.00	-31.52
17948.05	H	-31.43	-13.00	-18.43

Note: Margin = Emission level – Limit.

Remark:

1) Only record the worst case (Channel 3) in the report.
2) The disturbance above below 1GHz was very low. The points marked on above plots are the highest emissions could be found when testing, so only above points had been displayed. The amplitude of spurious emissions from the radiator which are attenuated more than 20dB below the limit need not be reported.

8 Photographs

8.1 Test Setup

Refer to Appendix - Test Setup Photo for GZCR2109021056AT

8.2 EUT Constructional Details

Refer to Appendix – External and Internal Photos for GZCR2109021056AT

- End of the Report -