FCC Test Report

Report No.: AGC02931221106FE10

FCC ID	:	2AWYH-GMR2P
APPLICATION PURPOSE	:	Original Equipment
PRODUCT DESIGNATION	:	GMRS TRANSCEIVER
BRAND NAME	:	Rugged Radios
MODEL NAME	:	GMR2-PLUS
APPLICANT	:	Rugged Radios
DATE OF ISSUE	:	Jan. 17, 2023
STANDARD(S)	:	FCC Part 95 Rules
REPORT VERSION	:	V 1.0

Attestation of Global Compliance (Shenzhen) Co., Ltd

REPORT REVISE RECORD

Report Version	Revise Time	Issued Date	Valid Version	Notes
V1.0	/	Jan. 17, 2023	Valid	Initial Release

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1. GENERAL INFORMATION

Applicant	Rugged Radios
Address	509 Traffic Way, Arroyo Grande, California 93420, United States
Manufacturer	Rugged Radios
Address	509 Traffic Way, Arroyo Grande, California 93420, United States
Factory	Rugged Radios
Address	509 Traffic Way, Arroyo Grande, California 93420, United States
Product Designation	GMRS TRANSCEIVER
Brand Name	Rugged Radios
Test Model	GMR2-PLUS
Deviation from Standard	No any deviation from the test method.
Date of receipt of test item	Nov. 30, 2022
Date of Test	Nov. 30, 2022~Jan. 17, 2023
Test Result	Pass

WE HEREBY CERTIFY THAT:
The above equipment was tested by Attestation of Global Compliance (Shenzhen) Co., Ltd. The data evaluation, test procedures, and equipment configurations shown in this report were made in accordance with the procedures given in ANSI/TIA-603-E-2016. The sample tested as described in this report is in compliance with the FCC Rules Part 95. The test results of this report relate only to the tested sample identified in this report.

Prepared By	Bibo Zhang (Project Engineer)	Jan. 17, 2023
Reviewed By	Calvin Liu (Reviewer)	Jan. 17, 2023
Approved By	Max Zhang Authorized Officer	Jan. 17, 2023

2. PRODUCT INFORMATION

2.1 PRODUCT TECHNICAL DESCRIPTION

Hardware Version	V1.3
Software Version	V1.18
Power Supply	DC 7.4V 1400mAh by battery DC 7.4V 2000mAh by Type-C battery
Adapter Information	Input: AC 100-240V 50/60Hz, 0.2A DC 12V 0.5A by adapter Input: AC 100-240V 50/60Hz, 0.6A DC 5V 2A by Type-C adapter
Communication Type	Voice / Tone only
Operation Frequency Range	462.5500MHz-462.7250MHz (GMRS 462 MHz main channels) 462.5625MHz-462.7125MHz (GMRS 462 MHz interstitial channels) 467.5500MHz-467.7250MHz (GMRS 467 MHz main channels) 467.5625MHz-467.7125MHz (GMRS 467 MHz interstitial channels)
Modulation Type	FM
Channel Separation	12.5 KHz/25 KHz
Emission Bandwidth The battery of BAT-GMR2	10.53 KHz(2W-12.5KHz), 10.52 KHz(0.5W-12.5KHz) 15.63 KHz(2W-25KHz)
Emission Bandwidth The battery of USB-BAT-C	10.53 KHz(2W-12.5KHz), 10.52 KHz(0.5W-12.5KHz) 15.62 KHz(2W-25KHz)
Emission Designator	11K0F3E/16K0F3E.
Number of Channels:	30 Channels
Rated Output Power	2W/0.5W (It was fixed by the manufacturer, any individual can't arbitrarily change it.)
Maximum Transmitter Power The battery of BAT-GMR2	GMRS: 32.42dBm (2W-12.5KHz) GMRS: 26.33dBm (0.5W-12.5KHz)
	GMRS: 32.56dBm (2W-25KHz)
Maximum Transmitter Power The battery of USB-BAT-C	GMRS: 32.44dBm (2W-12.5KHz) GMRS: 26.38dBm (0.5W-12.5KHz)
	GMRS: 32.50dBm (2W-25KHz)
Antenna Designation	Detachable Antenna
Antenna Gain	1.2dBi
Frequency Tolerance	1.099ppm

2.2 TEST FREQUENCY LIST

According to ANSI C63.26 section 5.1.2.1:
Measurements of transmitters shall be performed and, if required, reported for each frequency band in which the EUT can be operated with the device transmitting at the number of frequencies in each band specified in Table 2.

Frequency range Over which EUT operates	Number of Frequencies	Location in frequency range of operation
1 MHz or less	1	Middle
1 MHz to 10 MHz	2	1 near top and 1 near bottom
More than 10 MHz	3	1 near top, 1 near middle, and 1 near bottom

Channel. No	CH. Freq	Rated Power	CH. No	CH. Freq	Rated Power
1	462.5625	2W	15	462.5500	2W
2	462.5875		16	462.5750	
3	462.6125		17	462.6000	
4	**462.6375**		18	462.6250	
5	462.6625		19	**462.6500**	
6	462.6875		20	462.6750	
7	462.7125		21	462.7000	
8	467.5625	0.5W	22	462.7250	
9	467.5875		23	467.5500	2W
10	467.6125		24	467.5750	
11	**467.6375**		25	467.6000	
12	467.6625		26	467.6250	
13	467.6875		27	**467.6500**	
14	467.7125		28	467.6750	
--			29	467.7000	
			30	467.7250	

2.3 RELATED SUBMITTAL(S) / GRANT (S)

This submittal(s) (test report) is intended for FCC ID: **2AWYH-GMR2P,** filing to comply with Part 2, Part 95 of the Federal Communication Commission rules.

2.4 TEST METHODOLOGY

The tests were performed according to following standards:

No.	Identity	Document Title
1	FCC 47 CFR Part 95	Personal Radio Services
2	FCC 47 CFR Part 2	Frequency allocations and radio treaty matters; general rules and regulations
3	ANSI C63.26-2015	American National Standard for Compliance Testing of Transmitters Used in Licensed Radio Services
4	ANSI/TIA-603-E-2016	Land Mobile FM or PM Communications Equipment Measurement and Performance Standards
5	KDB 888861 D01	888861 D01 Part 95 GMRS FRS v01

2.5 CALCULATION OF EMISSION INDICATORS

FCC Rules and Regulations Part 2.202: Necessary Bandwidth and Emission Bandwidth

For FM Mode (ChannelSpacing: 12.5kHz)
Emission Designator 11K0F3E
In this case, the maximum modulating frequency is 3.0 kHz with a 2.5 kHz deviation.
BW = 2(M+D) = 2*(3.0 kHz + 2.5 kHz) = 11 kHz = 11K0
F3E portion of the designator represents an FM voice transmission.
Therefore, the entire designator for 12.5 kHz channel spacing FM mode is 11K0F3E.

For FM Mode (Channel Spacing: 25kHz)
Emission Designator 16K0F3E
In this case, the maximum modulating frequency is 3.0 kHz with a 5.0 kHz deviation.
BW = 2(M+D) = 2*(3.0 kHz + 5.0 kHz) = 16 kHz = 16K0
F3E portion of the designator represents an FM voice transmission.
Therefore, the entire designator for 25 kHz channel spacing FM mode is 16K0F3E.

2.6 SPECIAL ACCESSORIES

Not available for this EUT intended for grant.

2.7 EQUIPMENT MODIFICATIONS

Not available for this EUT intended for grant.

2.8 ANTENNA REQUIREMENT

Excerpt from §95.1787 of the FCC Rules/Regulations:

The antenna of each GMRS transmitter type must meet the following requirements.
(1) The antenna must be a non-removable integral part of the GMRS transmitter type.

- This GMRS device has a fixed antenna port
- This GMRS equipment is a mobile station or a fixed station, which can be connected to an external antenna

Conclusion: The unit complies with the requirement of §95.1787.

3. TEST ENVIRONMENT

3.1 ADDRESS OF THE TEST LABORATORY

Laboratory: Attestation of Global Compliance (Shenzhen) Co., Ltd.

Address: 1-2/F, Building 19, Junfeng Industrial Park, Chongqing Road, Heping Community, Fuhai Street, Bao'an District, Shenzhen, Guangdong, China

3.2 TEST FACILITY

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

CNAS-Lab Code: L5488

Attestation of Global Compliance (Shenzhen) Co., Ltd. has been assessed and proved to be in compliance with CNAS-CL01 Accreditation Criteria for Testing and Calibration Laboratories (identical to ISO/IEC17025: 2017 General Requirements) for the Competence of Testing and Calibration Laboratories.

A2LA-Lab Cert. No.: 5054.02

Attestation of Global Compliance (Shenzhen) Co., Ltd. EMC Laboratory has been accredited by A2LA for technical competence in the field of electrical testing, and proved to be in compliance with ISO/IEC 17025: 2017 General Requirements for the Competence of Testing and Calibration Laboratories and any additional program requirements in the identified field of testing.

FCC-Registration No.: 975832

Attestation of Global Compliance (Shenzhen) Co., Ltd. EMC Laboratory has been registered and fully described in a report filed with the FCC (Federal Communications Commission). The acceptance letter from the FCC is maintained in our files with Registration 975832.

IC-Registration No.: 24842

Attestation of Global Compliance (Shenzhen) Co., Ltd. EMC Laboratory has been registered and fully described in a report filed with the Certification and Engineering Bureau of Industry Canada. The acceptance letter from the IC is maintained in our files with Registration 24842.

3.3 ENVIRONMENTAL CONDITIONS

	NORMAL CONDITIONS	EXTREME CONDITIONS
Temperature range (℃)	15 - 35	-30 - 50
Relative humidty range	20 % - 75 %	20 % - 75 %
Pressure range (kPa)	86 - 106	86 - 106
Power supply	DC 7.4V	LV 6.29V /HV 8.51V
Note: The Extreme Temperature and Extreme Voltages declared by the manufacturer.		

3.4 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%.

Test Items	Measurement Uncertainty
Frequency stability	±0.5%
Transmitter power conducted	±0.8dB
Transmitter power Radiated	±1.3dB
Conducted spurious emission 9kHz-40 GHz	±2.7dB
Conducted Emission	±3.2 dB
Radiated Emission below 1GHz	±3.9 dB
Radiated Emission above 1GHz	±4.8 dB
Occupied Channel Bandwidth	±2 %
FM deviation	±2 %
Audio level	±0.98dB
Low Pass Filter Response	±0.65dB
Modulation Limiting	0.42 %
Transient Frequency Behavior	6.8 %

3.5 LIST OF EQUIPMENTS USED

Equipment	Manufacturer	Model	S/N	Cal. Date	Cal. Due
TEST RECEIVER	R&S	ESCI	10096	Mar. 28, 2022	Mar. 27, 2023
EXA Signal Analyzer	Aglient	N9020A	MY53300860	Jun. 08, 2022	Jun. 07, 2023
EXA Signal Analyzer	Aglient	N9020A	MY52090123	Aug. 04, 2022	Aug. 03, 2023
Horn antenna	SCHWARZBECK	BBHA 9170	768	Oct. 31, 2021	Oct. 30, 2023
preamplifier	ChengYi	EMC184045SE	980508	Oct. 29, 2021	Oct. 28, 2023
Double-Ridged Waveguide Horn	ETS LINDGREN	3117	00034609	Apr. 23, 2021	Apr. 22, 2023
Broadband Preamplifier	SCHWARZBECK	BBV 9718	9718-205	Jun. 05, 2022	Jun. 04, 2023
HORN ANTENNA	EM	EM-AH-10180	/	Feb.24, 2022	Feb.23, 2023
SIGNAL GENERATOR	AGILENT	E4421B	MY43351603	Mar. 04, 2022	Mar. 03, 2023
SIGNAL GENERATOR	R&S	SMT03	A0304261	Jun. 05, 2022	Jun. 04, 2023
ANTENNA	SCHWARZBECK	VULB9168	VULB9168-494	Jan. 07, 2021	Jan. 06, 2023
ANTENNA	SCHWARZBECK	VULB9168	VULB9168-494	Jan. 05, 2023	Jan. 04, 2025
ANTENNA	SCHWARZBECK	VULB9168	D69250	Apr. 28, 2021	Apr. 27, 2023
Active loop antenna (9K-30MHz)	ZHINAN	ZN30900C	18051	Mar. 12, 2022	Mar. 11, 2024
Modulation Domain Analyzer	HP	53310A	3121A02467	Jun. 08, 2022	Jun. 07, 2023
Small environmental tester	ESPEC	SH-242	--	Aug. 03, 2022	Aug. 02, 2024
RF Communication Test Set	HP	8920B	US35010161	Aug. 03, 2022	Aug. 02, 2023
Attenuator	Weinachel Corp	58-30-33	ML030	Oct. 22, 2022	Oct. 21, 2023
RF Cable	R&S	1#	--	Each time	N/A
RF Cable	R&S	2#	--	Each time	N/A
Fliter-UHF	Microwave	N25155M2	498705	May 07, 2022	May 06, 2023

4. SYSTEM TEST CONFIGURATION

4.1 EUT CONFIGURATION

The EUT configuration for testing is installed on RF field strength measurement to meet the Commission's requirement and operating in a manner which intends to maximize its emission characteristics in a continuous normal application.

4.2 EUT EXERCISE

The Transmitter was operated in the normal operating mode. The TX frequency was fixed which was for the purpose of the measurements.

4.3 CONFIGURATION OF TESTED SYSTEM

Fig. 2-1 Configuration of Tested System

Table 2-1 Equipment Used in Tested System

4.4 EQUIPMENT USED IN TESTED SYSTEM

The Following Peripheral Devices And Interface Cables Were Connected During The Measurement:

☒ Test Accessories Come From The Laboratory

Item	Equipment	Model No.	Identifier	Note
1	Load Antenna	HG-E10	Terminator DC -3G 50W	Accessories

☒ Test Accessories Come From The Manufacturer

Item	Equipment	Model No.	Identifier	Note
1	GMRS TRANSCEIVER	GMR2-PLUS	2AWYH-GMR2P	EUT
2	Battery	BAT-GMR2	DC 7.4V 1400mAh	Accessories
3	Battery	USB-BAT-C	DC 7.4V 2000mAh	Accessories
4	Adapter	110V-GMR2	Input: 100-240V, 50/60Hz, 0.2A Output: DC 12V 0.5A	Accessories
5	Adapter	CHA-AC-USB	Input: 100-240V, 50/60Hz, 0.6A Output: DC 5V 2A	Accessories
6	Charger	CHA-BASE-GMR2	Input: DC 12V 0.5A Output: DC 8.4V 0.5A	Accessories
7	USB Cable	N/A	N/A	Accessories
8	Back clip	N/A	N/A	Accessories
9	Antenna	N/A	N/A	Accessories

4.5 SUMMARY OF TEST RESULTS

Item	FCC Rules	Description Of Test	Result
1	FCC 47 CFR PART 95	Antenna Equipment	Pass
2	§ 95.1767& 2.1046(a)	Maximum Transmitter Power	Pass
3	§95.1755& 2.1047(a) (b)	Modulation Limit	Pass
4	§95.1755& 2.1047(a)	Audio Frequency Response	Pass
4	§95.1755(e)	Audio Low Pass Filter Response	Pass
5	§95.1779& 2.1049	Emission Bandwidth	Pass
6	§95.1779& 2.1049	Emission Mask	Pass
7	§95.1765& 2.1055(a) (1)	Frequency Stability	Pass
9	§95.1779& 2.1051	Spurious Emission on Antenna Port	Pass
10	§95.1779& 2.1053	Spurious Ratiated Emission	Pass

Note:

1) The antenna of the EUT is detachable.

5. DESCRIPTION OF TEST MODES

The EUT (**GMRS TRANSCEIVER**) has been tested under normal operating condition. (GMRS TX) are chosen for testing at each channel separation.

NO.	TEST MODE DESCRIPTION	CHANNEL SEPARATION
1	GMRS TX CHANNEL 4	12.5 kHz/25 kHz
2	GMRS TX CHANNEL 11	12.5 kHz
3	GMRS TX CHANNEL 19	12.5 kHz/25 kHz
4	GMRS TX CHANNEL 27	12.5 kHz/25 kHz

Note:

1. Only the result of the worst case was recorded in the report, if no other cases.
2. The battery is full-charged during the test.
3. For Radiated Emission, 3axis were chosen for testing for each applicable mode.
4. Manufacturers use computer PC programming software to switch and operate frequency points, refer to the instructions for details

6. FREQUENCY STABILITY

6.1 PROVISIONS APPLICABLE

Standard Applicable [Part 95.1765] The carrier frequency stability is the ability of the transmitter to maintain an assigned carrier frequency.
GMRS: The carrier frequency of each GMRS transmitter transmitting an emission with an occupied bandwidth of 12.5 kHz or less must remain within 2.5 ppm
The carrier frequency of each GMRS transmitter transmitting an emission with an occupied bandwidth greater than 12.5 kHz must remain within 5 ppm

6.2 MEASUREMENT PROCEDURE

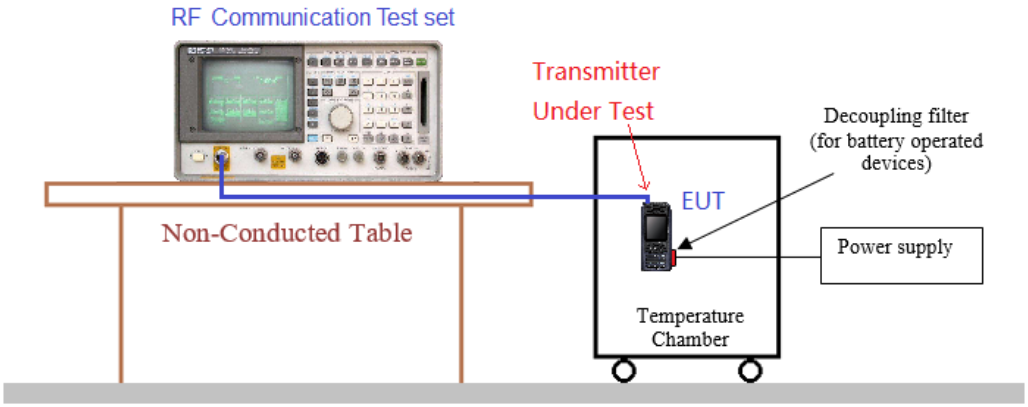
6.2.1 Frequency stability versus environmental temperature

1. Setup the configuration per figure 1 for frequencies measurement inside an environment chamber, Install new battery in the EUT.
2. Turn on EUT and set SA center frequency to the EUT radiated frequency. Set SA Resolution Bandwidth to 1kHz and Video Resolution Bandwidth to 1kHz and Frequency Span to 50kHz.Record this frequency as reference frequency.
3. Set the temperature of chamber to 50℃. Allow sufficient time (approximately 30 min) for the temperature of the chamber to stabilize. While maintaining a constant temperature inside the chamber, turn the EUT on and measure the EUT operating frequency.
4. Repeat step 2 with a 10℃ decreased per stage until the lowest temperature -30℃ is measured, record all measured frequencies on each temperature step.

6.2.2 Frequency stability versus input voltage

1. Setup the configuration per figure 1 for frequencies measured at temperature if it is within 15℃ to 25℃. Otherwise, an environment chamber set for a temperature of 20℃ shall be used. The EUT shall be powered by DC 7.4V.
2. Set SA center frequency to the EUT radiated frequency. Set SA Resolution Bandwidth to 1 kHz and Video Resolution Bandwidth to 1kHz. Record this frequency as reference frequency.
3. Supply the EUT primary voltage at the operating end point which is specified by manufacturer and record the frequency.

6.3 MEASUREMENT SETUP



6.4 MEASUREMENT RESULTS

The battery of BAT-GMR2

12.5 kHz Channel Separation, FM modulation, Assigned Frequency For GMRS							
Test conditions		Frequency error (ppm)				Limit (ppm)	Result
Voltage (V)	Temp (℃)	Test Frequency (MHz)					
		462.6375	462.6500	467.6500	467.6375		
7.40	-30	0.308	0.653	0.886	0.653	2.5	Pass
	-20	0.692	0.921	0.527	0.349		
	-10	0.778	0.871	0.950	0.588		
	0	0.583	0.520	0.873	0.955		
	10	0.724	0.518	0.527	0.495		
	20	0.776	0.998	0.520	0.618		
	30	0.776	0.589	0.736	0.311		
	40	0.964	0.836	0.683	0.870		
	50	0.891	0.520	0.525	0.472		
8.51	20	0.935	0.908	0.998	0.730		
6.29	20	0.694	0.921	0.629	0.887		

25 kHz Channel Separation, FM modulation, Assigned Frequency For GMRS						
Test conditions		Frequency error (ppm)			Limit (ppm)	Result
Voltage (V)	Temp (℃)	Test Frequency (MHz)				
		462.6375	462.6500	467.6500		
7.40	-30	0.656	0.653	0.933	5	Pass
	-20	1.004	0.685	0.787		
	-10	0.579	0.513	0.784		
	0	0.556	0.743	0.838		
	10	1.014	0.822	0.536		
	20	0.869	0.989	1.073		
	30	0.503	0.910	0.583		
	40	0.567	0.627	0.730		
	50	0.788	0.519	0.851		
8.51	20	0.992	0.844	0.726		
6.29	20	0.780	**1.076**	0.797		

The battery of USB-BAT-C

12.5 kHz Channel Separation, FM modulation, Assigned Frequency For GMRS							
Test conditions		Frequency error (ppm)				Limit (ppm)	Result
Voltage (V)	Temp (℃)	Test Frequency (MHz)					
		462.6375	462.6500	467.6500	467.6375		
7.40	-30	0.953	0.653	0.634	0.568	2.5	Pass
	-20	0.833	0.536	0.718	0.981		
	-10	0.927	0.932	1.054	0.909		
	0	0.754	0.918	0.690	0.409		
	10	0.897	1.089	0.767	0.721		
	20	1.040	0.797	0.665	0.540		
	30	1.071	1.099	1.043	0.557		
	40	0.743	0.703	0.891	0.939		
	50	0.762	1.018	0.612	0.653		
8.51	20	0.745	0.831	0.606	0.660		
6.29	20	1.016	0.758	0.772	0.576		

25 kHz Channel Separation, FM modulation, Assigned Frequency For GMRS						
Test conditions		Frequency error (ppm)			Limit (ppm)	Result
Voltage (V)	Temp (℃)	Test Frequency (MHz)				
		462.6375	462.6500	467.6500		
7.40	-30	0.384	0.653	**1.099**	5	Pass
	-20	0.982	0.861	0.985		
	-10	1.047	1.074	1.084		
	0	0.802	0.519	0.949		
	10	0.868	0.880	0.515		
	20	0.518	0.569	0.881		
	30	0.728	0.716	0.938		
	40	0.505	0.744	0.646		
	50	1.048	0.762	0.978		
8.51	20	0.936	0.897	0.772		
6.29	20	0.862	0.545	1.002		

7. EMISSION BANDWIDTH

7.1 PROVISIONS APPLICABLE

FCC Part 95.1773: GMRS: Main channels. The authorized bandwidth is 20 kHz for GMRS transmitters operating on any of the 462 MHz main channels, or any of the 467 MHz main channels.

Interstitial channels. The authorized bandwidth is 20 kHz for GMRS transmitters operating on any of the 462 MHz interstitial channels, and is 12.5 kHz for GMRS transmitters operating on any of the 467 MHz interstitial channels.
Occupied Bandwidth: The EUT was connected to the audio signal generator and the spectrum analyzer via the main RF connector, and through an appropriate attenuator. The EUT was controlled to transmit its maximum power. Then the bandwidth of 99% power can be measured by the spectrum analyzer.

7.2 MEASUREMENT PROCEDURE

1.The EUT was modulated by 2.5kHz sine wave audio signal; the level of the audio signal employed is 16dB greater than that necessary to produce 50% of rated system deviation.

Rated system deviation is 2.5 kHz for 12.5kHz channel spacing).

2.Spectrum set as follow:

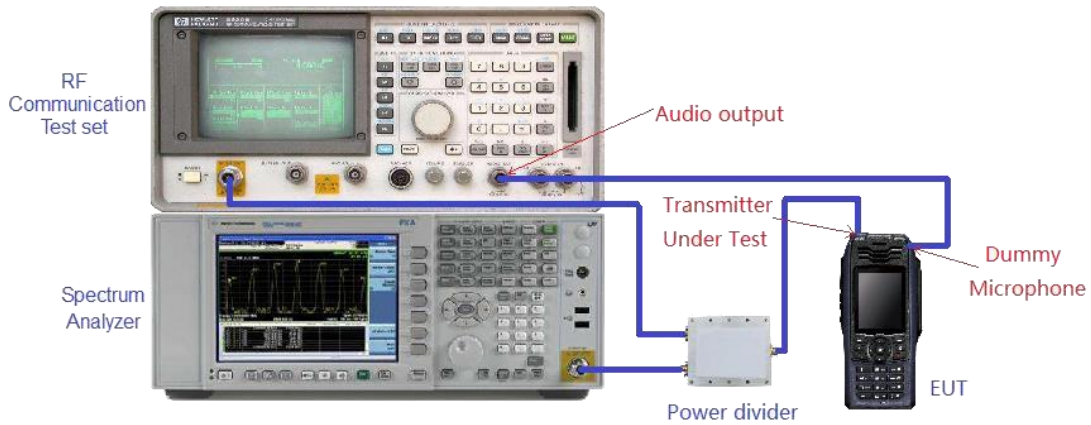
Centre frequency = fundamental frequency, span=50kHz for 12.5kHz channel spacing, RBW=300Hz, VBW=1KHz, Sweep = auto,

Detector function = peak, Trace = max hold

3.Set 99% Occupied Bandwidth and 26dB Occupied Bandwidth.

4.Measure and record the results in the test report.

7.3 MEASUREMENT SETUP



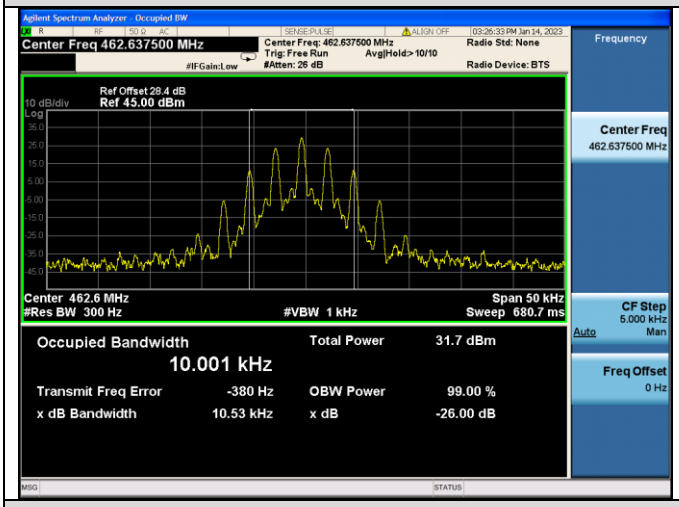
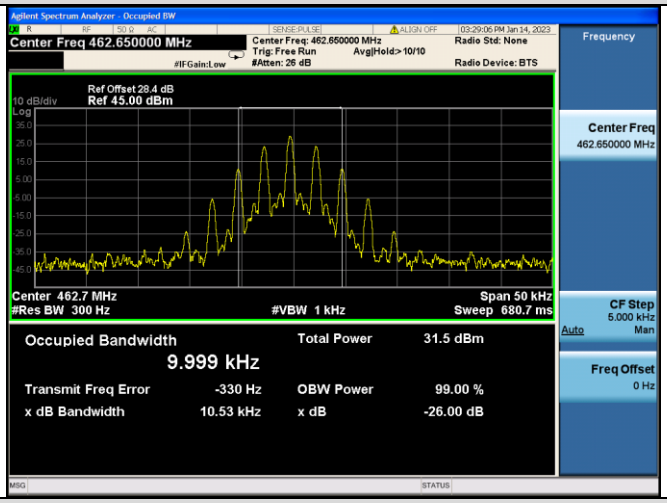
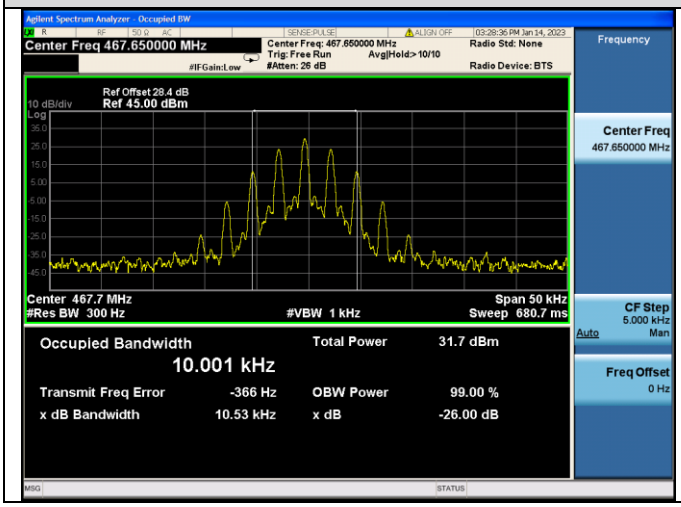
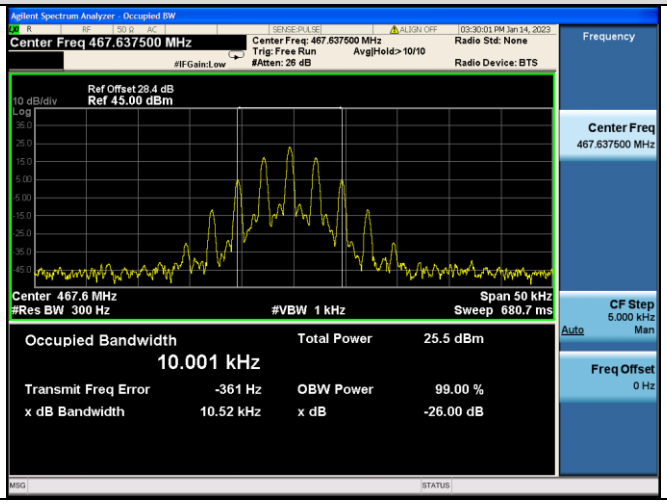
7.4 MEASUREMENT RESULTS

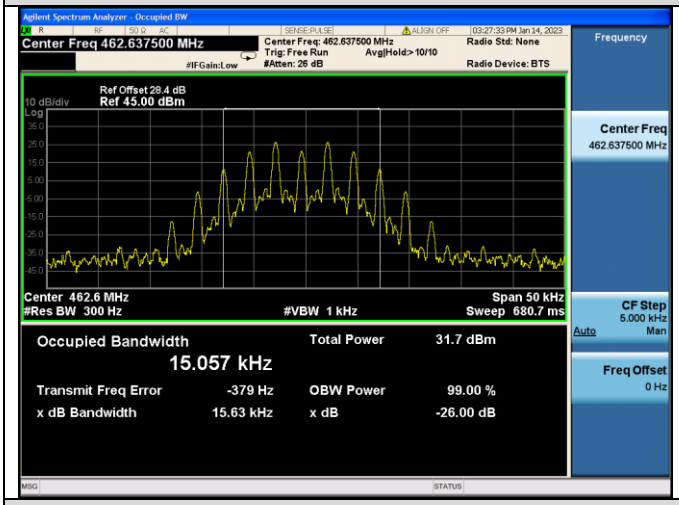
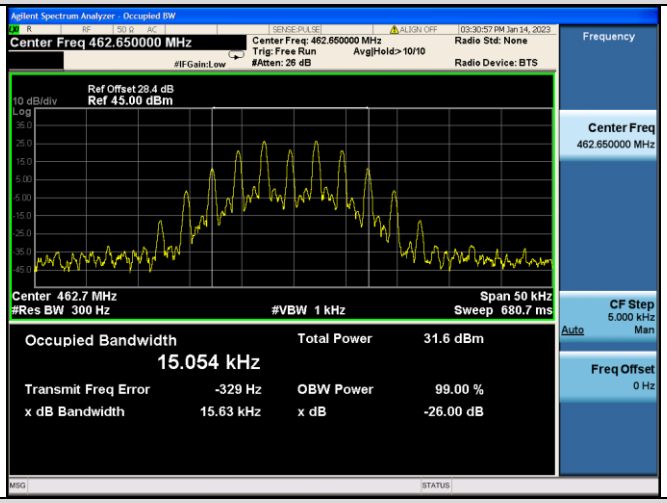
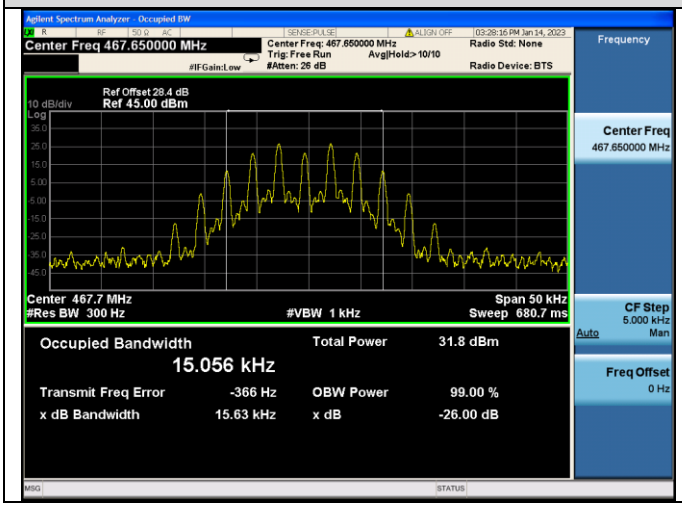
The battery of BAT-GMR2

Emission Bandwidth Measurement Result-GMRS				
Operating Frequency	12.5 kHz Channel Separation			
	Occupied Bandwidth	Emission Bandwidth	Limits	Result
462.6375 MHz	10.001 kHz	10.53 kHz	20.0 kHz	Pass
462.6500 MHz	9.999 kHz	10.53 kHz	20.0 kHz	Pass
467.6500 MHz	10.001 kHz	10.53 kHz	20.0 kHz	Pass
467.6375 MHz	10.001 kHz	10.52 kHz	12.5 kHz	Pass

Emission Bandwidth Measurement Result-GMRS				
Operating Frequency	25 kHz Channel Separation			
	Occupied Bandwidth	Emission Bandwidth	Limits	Result
462.6375 MHz	15.057 kHz	15.63 kHz	20.0 kHz	Pass
462.6500 MHz	15.054 kHz	15.63 kHz	20.0 kHz	Pass
467.6500 MHz	15.056 kHz	15.63 kHz	20.0 kHz	Pass

Test plot as follows:

12.5kHz, FM Modulation:462.6375MHz-2W	12.5kHz, FM Modulation:462.6500MHz-2W
	
12.5kHz, FM Modulation:467.6500MHz-2W	**12.5kHz, FM Modulation:467.6375MHz-0.5W**
	

25kHz, FM Modulation:462.6375MHz-2W	25kHz, FM Modulation:462.6500MHz-2W
	
25kHz, FM Modulation:467.6500MHz-2W	
	

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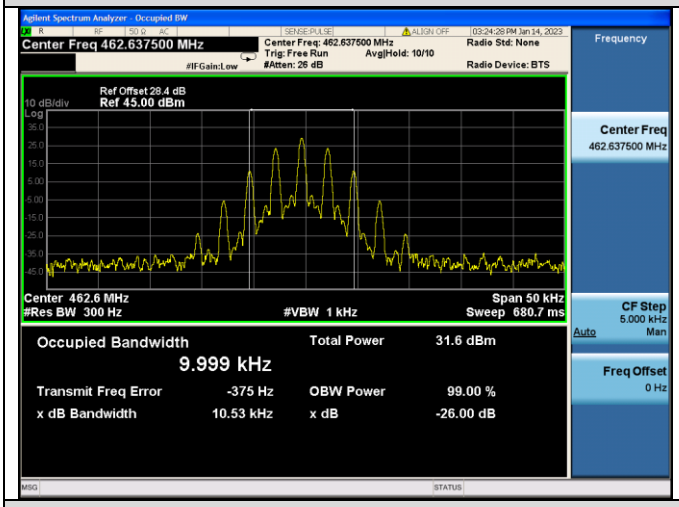
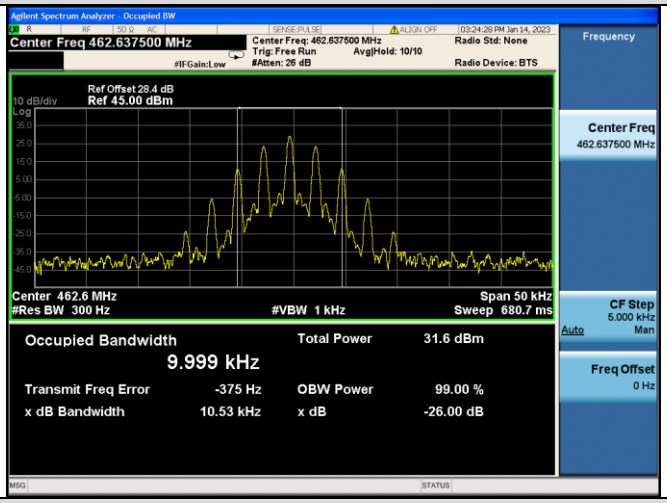
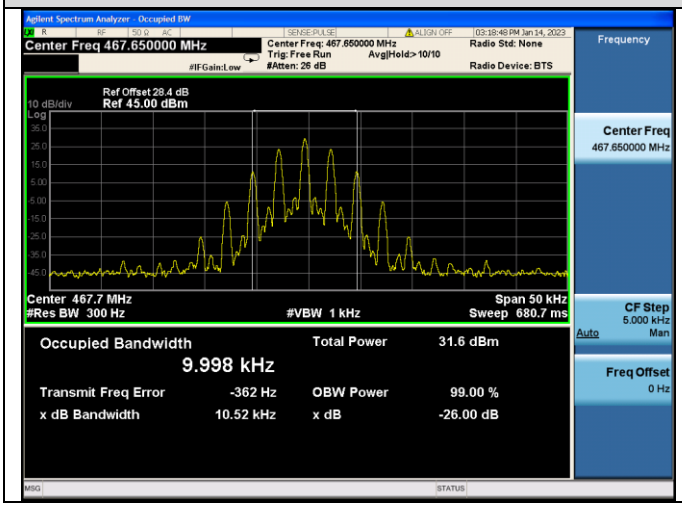
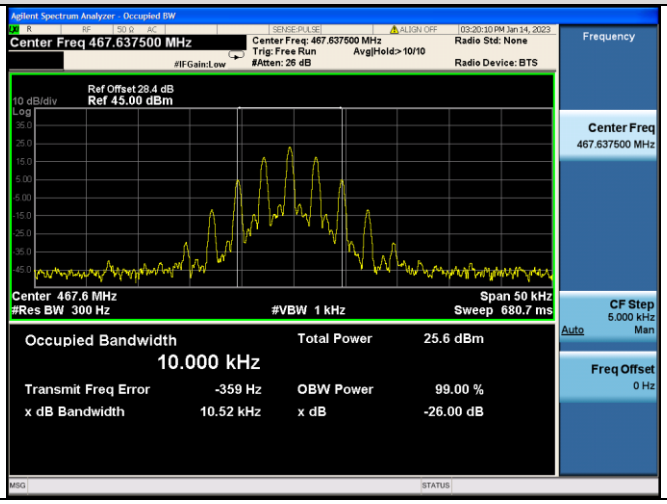
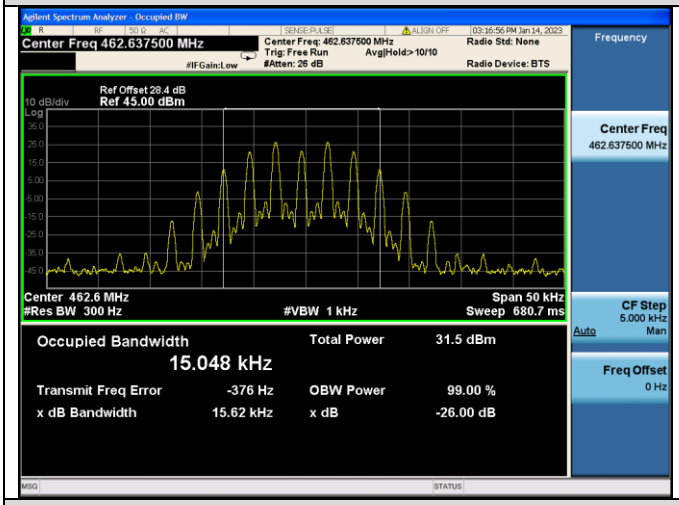
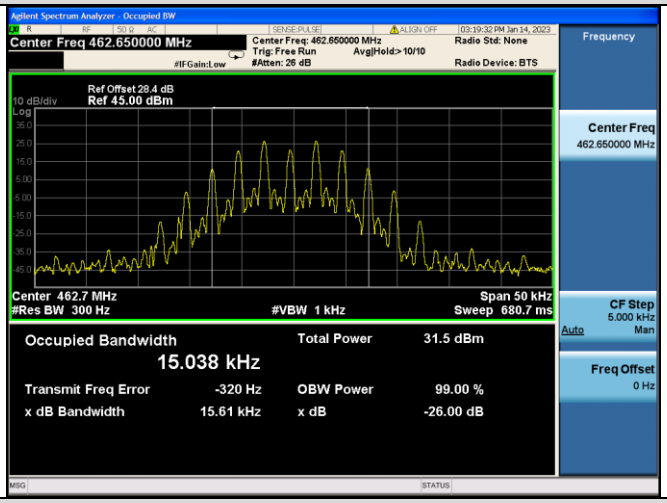
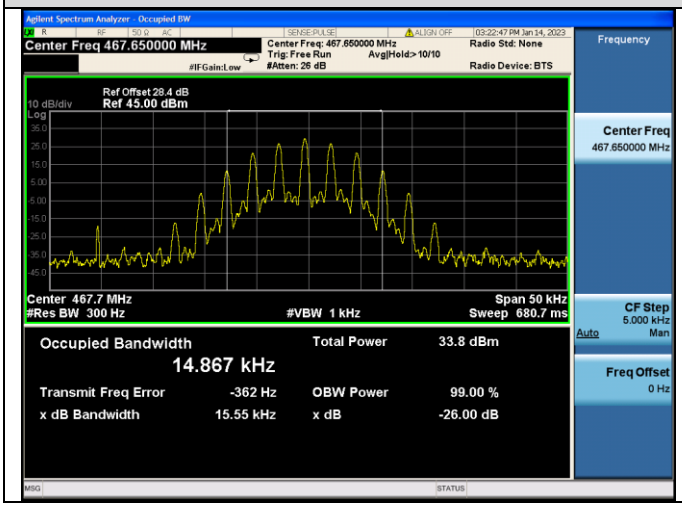
Emission Bandwidth Measurement Result-GMRS				
Operating Frequency	12.5 kHz Channel Separation			
	Occupied Bandwidth	Emission Bandwidth	Limits	Result
462.6375 MHz	9.999 kHz	10.53 kHz	20.0 kHz	Pass
462.6500 MHz	10.001 kHz	10.53 kHz	20.0 kHz	Pass
467.6500 MHz	9.998 kHz	10.52 kHz	20.0 kHz	Pass
467.6375 MHz	10.000 kHz	10.52 kHz	12.5 kHz	Pass

Emission Bandwidth Measurement Result-GMRS				
Operating Frequency	25 kHz Channel Separation			
	Occupied Bandwidth	Emission Bandwidth	Limits	Result
462.6375 MHz	15.048 kHz	15.62 kHz	20.0 kHz	Pass
462.6500 MHz	15.038 kHz	15.61 kHz	20.0 kHz	Pass
467.6500 MHz	14.867 kHz	15.55 kHz	20.0 kHz	Pass

Test plot as follows:

12.5kHz, FM Modulation:462.6375MHz-2W	12.5kHz, FM Modulation:462.6500MHz-2W
	
12.5kHz, FM Modulation:467.6500MHz-2W	**12.5kHz, FM Modulation:467.6375MHz-0.5W**
	

25kHz, FM Modulation:462.6375MHz-2W	25kHz, FM Modulation:462.6500MHz-2W
	
25kHz, FM Modulation:467.6500MHz-2W	
	

8. SPURIOUS RATIATED EMISSION

8.1 PROVISIONS APPLICABLE

Standard Applicable [FCC Part 95.1779] According to FCC section 95.1779, the unwanted emission should be attenuated below TP by at least 43+10 log (Transmit Power) dB

8.2 MEASUREMENT PROCEDURE

Each GMRS transmitter type must be designed to comply with the applicable unwanted emissions limits in this section.

a) Emission masks. Emission masks applicable to transmitting equipment in the GMRS are defined by the requirements in the following table. The numbers in the attenuation requirements column refer to rule paragraph numbers under paragraph (b) of this section.

Emission types filter	Attenuation requirements
A1D, A3E, F1D, G1D, F2D, F3E, G3E with audio filter	(1), (2), (7)
A1D, A3E, F1D, G1D, F3E, G3E without audio filter	(3), (4), (7)
H1D, J1D, R1D, H3E, J3E, R2E	(5), (6), (7)

1) Filtering noted for GMRS transmitters refers to the requirement in §95.1775(e).

2) Unwanted emission power may be measured as either mean power or peak envelope power,provided that the transmitter output power is measured the same way.

b) Attenuation requirements. The power of unwanted emissions must be attenuated below the transmitter output power in Watts (P) by at least:

1) 25 dB (decibels) on any frequency removed from the center of the authorized bandwidth by more than 50% up to and including 100% of the authorized bandwidth.

2) 35 dB on any frequency removed from the center of the authorized bandwidth by more than100% up to and including 250% of the authorized bandwidth.

3) 83 log (fd ÷ 5) dB on any frequency removed from the center of the authorized bandwidth by a displacement frequency (fd in kHz) of more than 5 kHz up to and including 10 kHz.

4) 116 log (fd ÷ 6.1) dB or 50 + 10 log (P) dB, whichever is the lesser attenuation, on any frequency removed from the center of the authorized bandwidth by a displacement frequency (fd in kHz), of more than 10 kHz up to and including 250% of the authorized bandwidth.

5) 25 dB on any frequency removed from the center of the authorized bandwidth by more than 50% up to and including 150% of the authorized bandwidth.

6) 35 dB on any frequency removed from the center of the authorized bandwidth by more than 150% up to and including 250% of the authorized bandwidth.

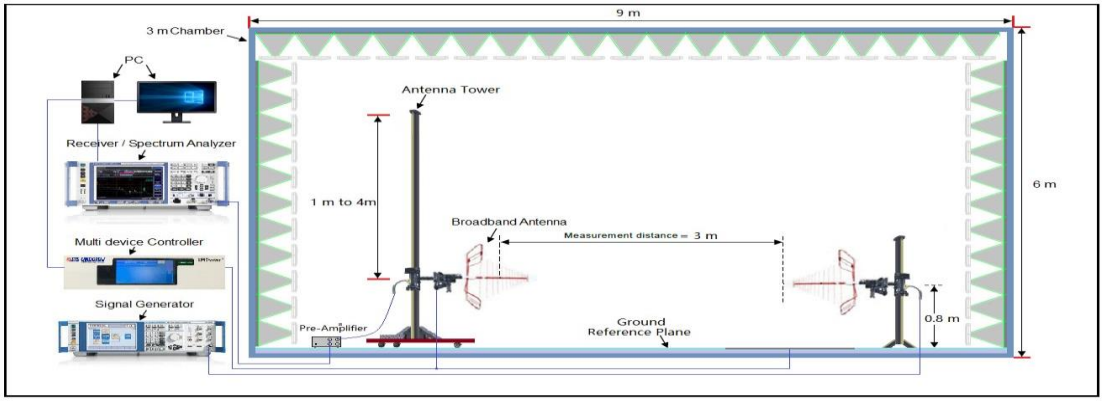
7) 43 + 10 log (P) dB on any frequency removed from the center of the authorized bandwidth by more than 250%.

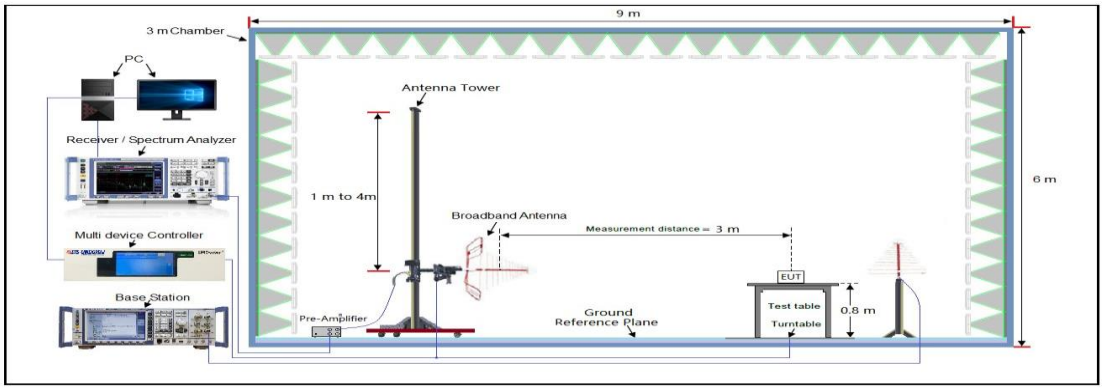
DETAILED OVERVIEW OF THE TEST METHOD IS AS FOLLOWS:

1) EUT was placed on a 0.8 or 1.5meter 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 disturbance of the transmitter was maximized on the test receiver display by raising and lowering from 1m to 4m the receive antenna and by rotating through 360° the turntable. After the fundamental emission was maximized, a field strength measurement was made. The radiated emission measurements of all transmit frequencies in all 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 RBW=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 (PMea) is applied to the input of the substitution 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 (PMea) 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
6) The measurement results are obtained as described below: Power(EIRP)=PMea- PAg - Pcl - Ga The measurement results are amend as described below:Power(EIRP)=PMea- Pcl - Ga
7) This value is EIRP since the measurement is calibrated using an antenna of known gain (2.15 dBi) and known input power.
8) ERP can be calculated from EIRP by subtracting the gain of the dipole, ERP = EIRP-2.15dBi.
9) Test the EUT in the lowest channel, the middle channel the Highest channel

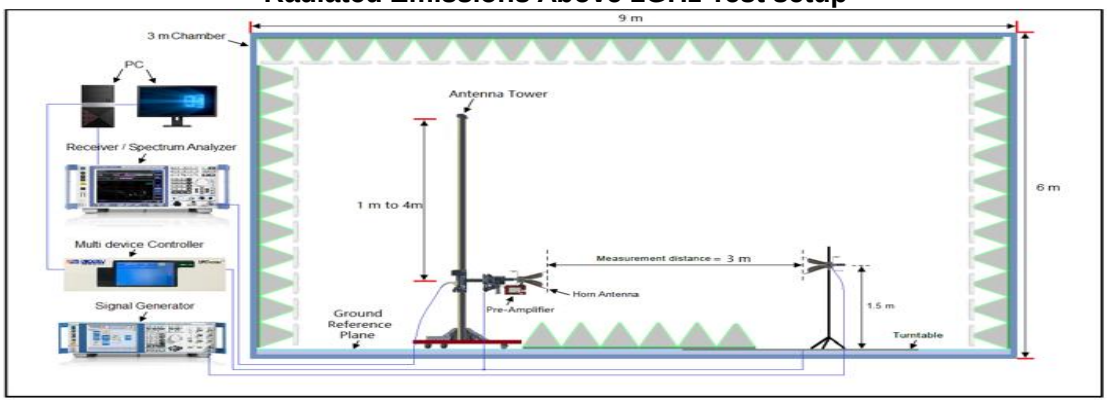
8.3 MEASUREMENT SETUP

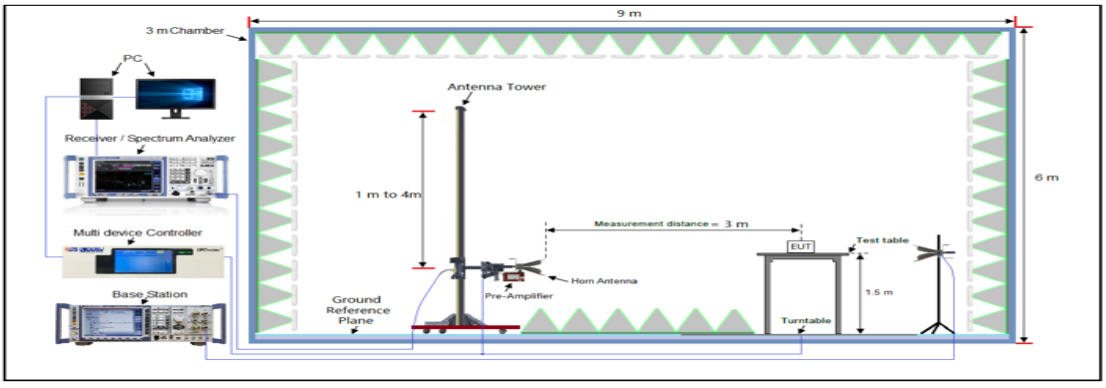
Radiated Emissions 30MHz to 1GHz Test setup





Radiated Emissions Above 1GHz Test setup





8.4 MEASUREMENT RESULTS

Preliminary calculation	Final Result
At least 43+10 log (P) =43+10log (2) =46.01(dB)	Limit=P- Preliminary calculation=33.01-46.01=-13 dBm
At least 43+10 log (P) =43+10log (0.5) =39.99 (dB)	Limit=P- Preliminary calculation=26.99-39.99=-13 dBm

1. Factor=Antenna Factor + Cable loss. (Below 1GHz)
2. Factor=Antenna Factor+ Cable loss -Pre-amplifier. (Above 1 GHz)
3. Margin=Limit- Level

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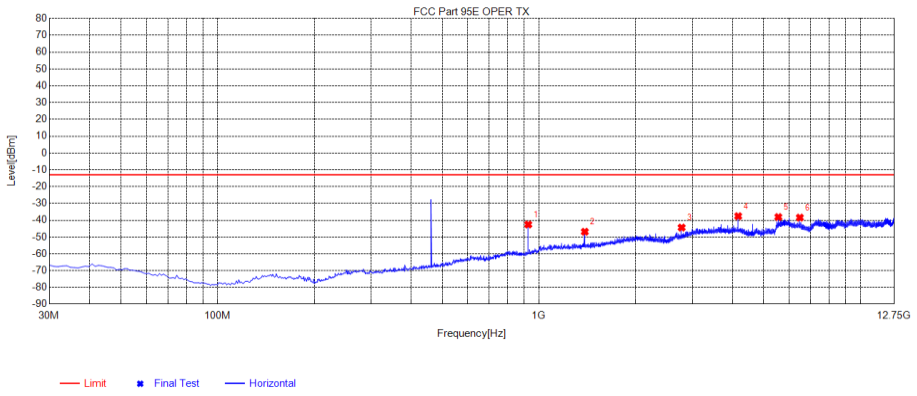
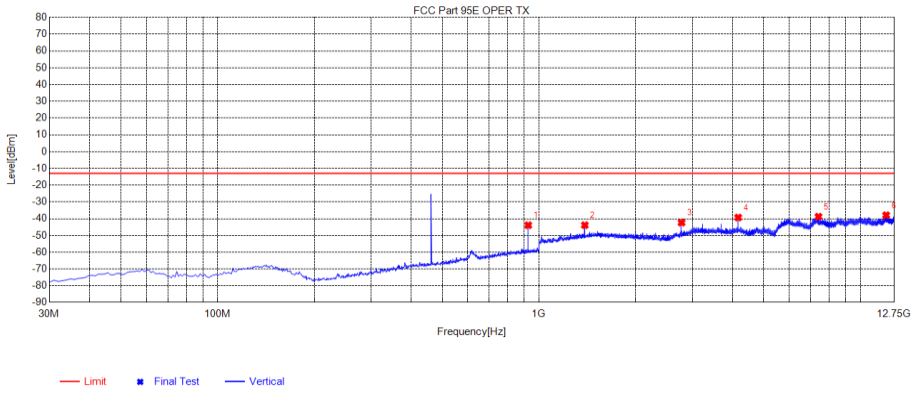
Test Mode:	TX-CH4-12.5KHz	Polarity:	Horizontal



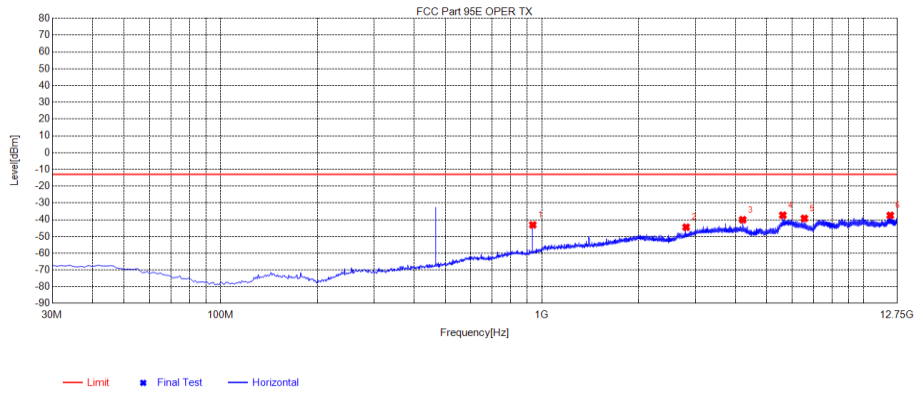
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Angle [°]	Polarity
1	925.31	-86.08	-42.59	-13.00	29.59	43.49	269	Horizontal
2	1387.7888	-43.42	-46.87	-13.00	33.87	-3.45	269	Horizontal
3	2776.7777	-45.57	-44.39	-13.00	31.39	1.18	39	Horizontal
4	4163.4163	-41.93	-37.60	-13.00	24.60	4.33	259	Horizontal
5	5551.2301	-47.25	-38.14	-13.00	25.14	9.11	269	Horizontal
6	6477.2227	-50.00	-38.47	-13.00	25.47	11.53	269	Horizontal

Test Mode:	TX-CH4-12.5KHz	Polarity:	Vertical



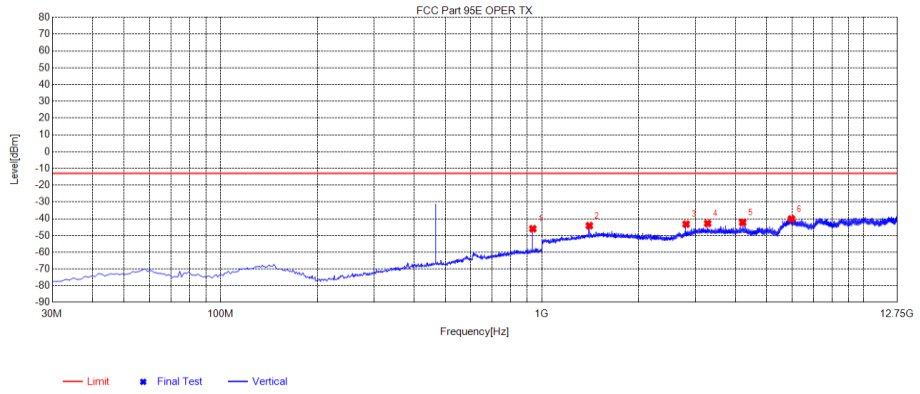
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Angle [°]	Polarity
1	925.31	-87.47	-43.90	-13.00	30.90	43.57	351	Vertical
2	1387.7888	-45.28	-43.87	-13.00	30.87	1.41	237	Vertical
3	2775.6026	-43.64	-42.36	-13.00	29.36	1.28	125	Vertical
4	4163.4163	-42.53	-39.32	-13.00	26.32	3.21	105	Vertical
5	7402.0402	-52.33	-38.80	-13.00	25.80	13.53	217	Vertical
6	12019.0769	-55.69	-37.93	-13.00	24.93	17.76	0	Vertical

Test Mode:	TX-CH11-12.5KHz	Polarity:	Horizontal



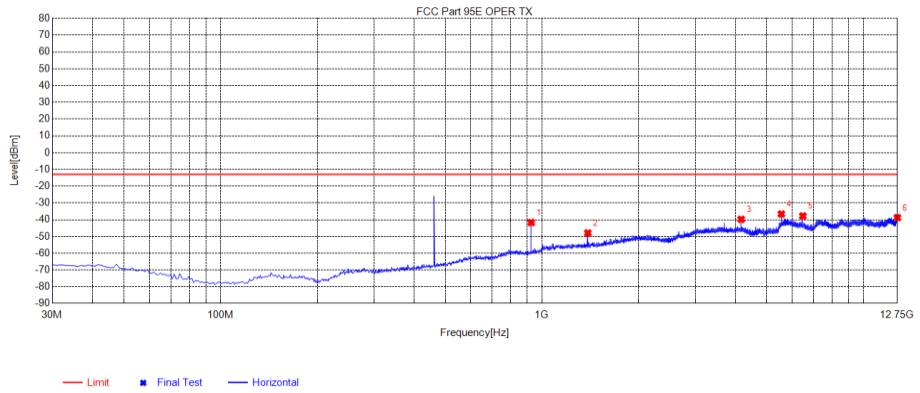
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Angle [°]	Polarity
1	935.98	-86.83	-43.11	-13.00	30.11	43.72	262	Horizontal
2	2806.1556	-45.96	-44.50	-13.00	31.50	1.46	54	Horizontal
3	4209.2459	-44.27	-40.05	-13.00	27.05	4.22	324	Horizontal
4	5611.1611	-46.68	-37.34	-13.00	24.34	9.34	186	Horizontal
5	6546.5547	-50.82	-39.25	-13.00	26.25	11.57	262	Horizontal
6	12114.2614	-54.90	-37.43	-13.00	24.43	17.47	204	Horizontal

Test Mode:	TX-CH11-12.5KHz	Polarity:	Vertical



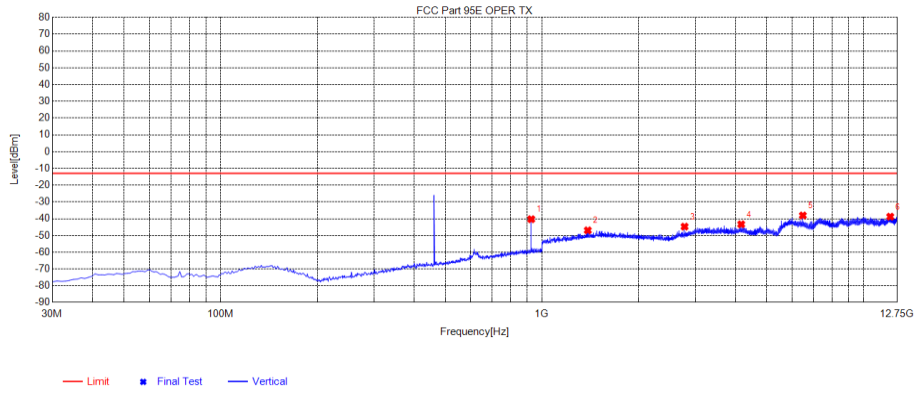
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Angle [°]	Polarity
1	935.98	-89.68	-46.00	-13.00	33.00	43.68	8	Vertical
2	1403.0653	-45.69	-44.17	-13.00	31.17	1.52	247	Vertical
3	2806.1556	-44.80	-43.26	-13.00	30.26	1.54	143	Vertical
4	3273.8524	-45.93	-42.80	-13.00	29.80	3.13	351	Vertical
5	4208.0708	-45.44	-42.25	-13.00	29.25	3.19	87	Vertical
6	5970.7471	-50.83	-40.18	-13.00	27.18	10.65	341	Vertical

Test Mode:	TX-CH19-12.5KHz	Polarity:	Horizontal



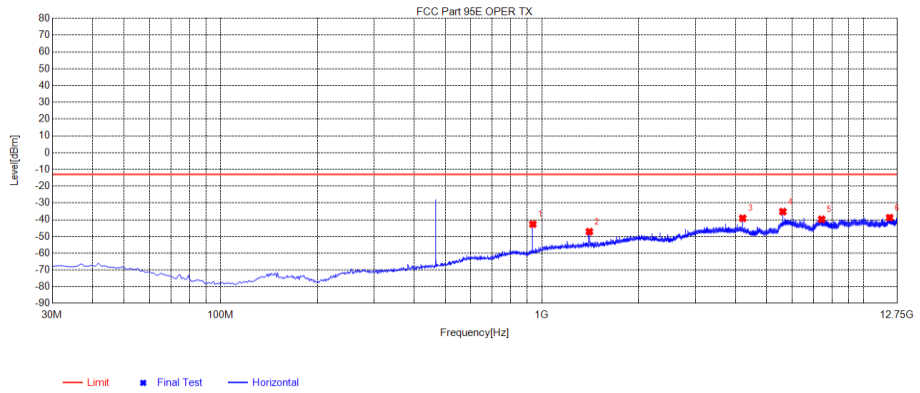
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Angle [°]	Polarity
1	925.31	-85.19	-41.70	-13.00	28.70	43.49	253	Horizontal
2	1387.7888	-44.47	-47.92	-13.00	34.92	-3.45	263	Horizontal
3	4163.4163	-44.12	-39.79	-13.00	26.79	4.33	159	Horizontal
4	5552.4052	-45.72	-36.60	-13.00	23.60	9.12	151	Horizontal
5	6477.2227	-49.32	-37.79	-13.00	24.79	11.53	159	Horizontal
6	12746.4746	-56.27	-38.79	-13.00	25.79	17.48	329	Horizontal

Test Mode:	TX-CH19-12.5KHz	Polarity:	Vertical



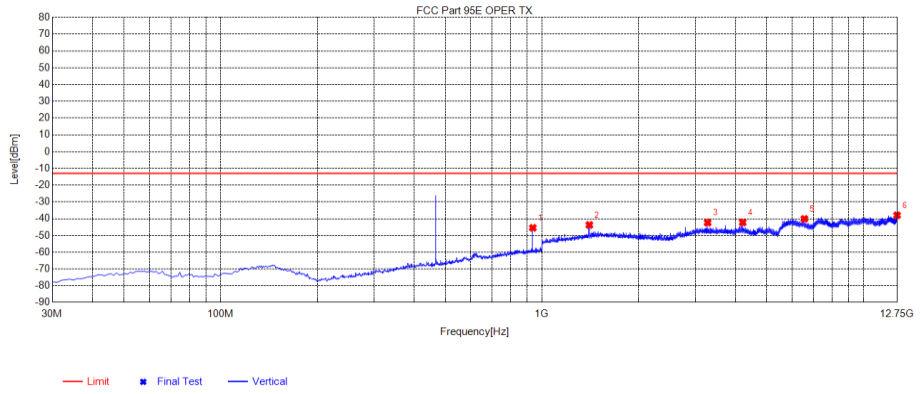
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Angle [°]	Polarity
1	925.31	-83.88	-40.31	-13.00	27.31	43.57	37	Vertical
2	1387.7888	-48.37	-46.96	-13.00	33.96	1.41	359	Vertical
3	2775.6026	-46.02	-44.74	-13.00	31.74	1.28	149	Vertical
4	4164.5915	-46.56	-43.35	-13.00	30.35	3.21	73	Vertical
5	6477.2227	-49.69	-38.07	-13.00	25.07	11.62	210	Vertical
6	12111.9112	-56.61	-38.80	-13.00	25.80	17.81	351	Vertical

Test Mode:	TX-CH27-12.5KHz	Polarity:	Horizontal



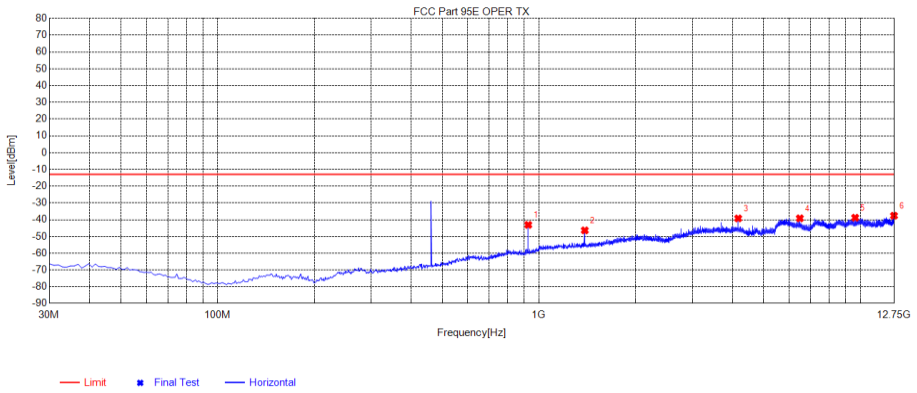
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Angle [°]	Polarity
1	935.98	-86.41	-42.69	-13.00	29.69	43.72	244	Horizontal
2	1403.0653	-43.74	-47.15	-13.00	34.15	-3.41	254	Horizontal
3	4209.2459	-43.35	-39.13	-13.00	26.13	4.22	226	Horizontal
4	5612.3362	-44.56	-35.22	-13.00	22.22	9.34	244	Horizontal
5	7410.266	-53.07	-39.76	-13.00	26.76	13.31	82	Horizontal
6	12057.8558	-56.23	-38.80	-13.00	25.80	17.43	54	Horizontal

Test Mode:	TX-CH27-12.5KHz	Polarity:	Vertical



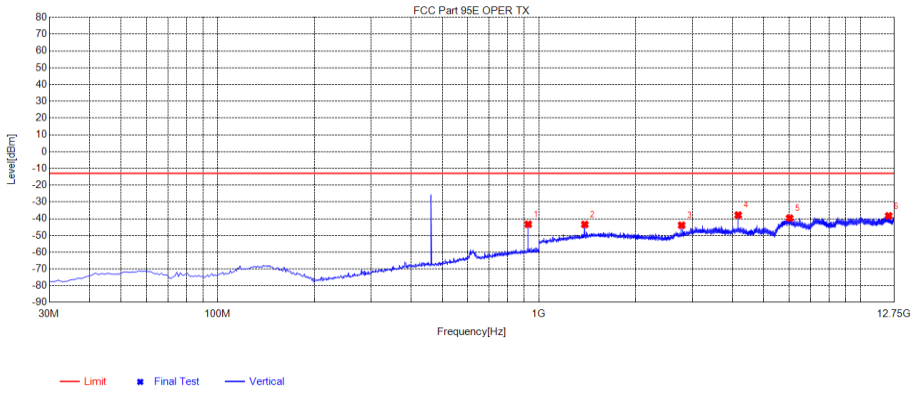
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Angle [°]	Polarity
1	935.98	-89.13	-45.45	-13.00	32.45	43.68	359	Vertical
2	1403.0653	-45.26	-43.74	-13.00	30.74	1.52	115	Vertical
3	3273.8524	-45.52	-42.39	-13.00	29.39	3.13	0	Vertical
4	4209.2459	-45.45	-42.26	-13.00	29.26	3.19	0	Vertical
5	6547.7298	-51.79	-40.09	-13.00	27.09	11.70	0	Vertical
6	12718.2718	-55.60	-37.98	-13.00	24.98	17.62	143	Vertical

Test Mode:	TX-CH4-25KHz	Polarity:	Horizontal



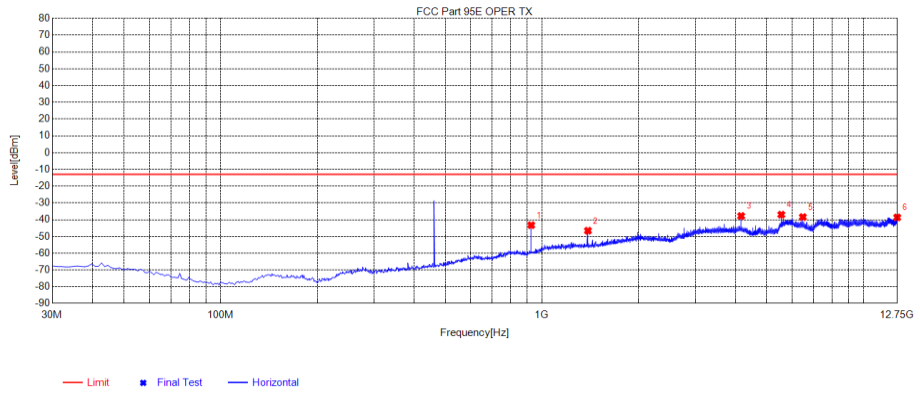
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Angle [°]	Polarity
1	925.31	-86.59	-43.10	-13.00	30.10	43.49	261	Horizontal
2	1387.7888	-42.94	-46.39	-13.00	33.39	-3.45	1	Horizontal
3	4163.4163	-43.57	-39.24	-13.00	26.24	4.33	177	Horizontal
4	6477.2227	-50.73	-39.20	-13.00	26.20	11.53	251	Horizontal
5	9627.7128	-53.98	-38.82	-13.00	25.82	15.16	221	Horizontal
6	12711.2211	-55.14	-37.63	-13.00	24.63	17.51	353	Horizontal

Test Mode:	TX-CH4-25KHz	Polarity:	Vertical



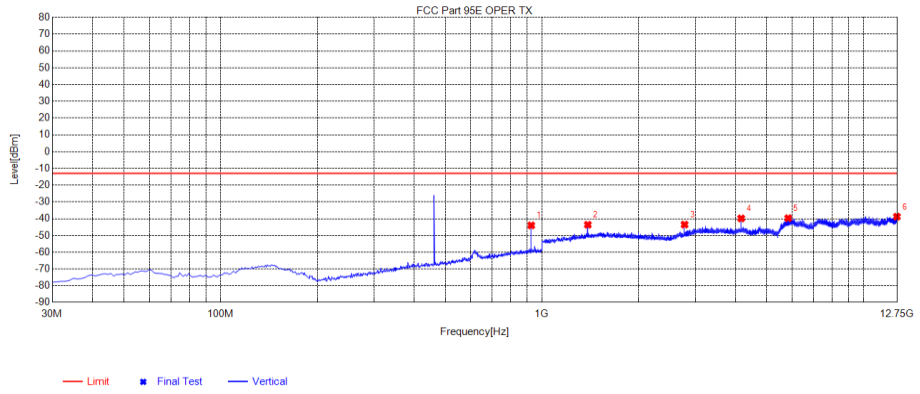
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Angle [°]	Polarity
1	925.31	-86.92	-43.35	-13.00	30.35	43.57	0	Vertical
2	1387.7888	-44.87	-43.46	-13.00	30.46	1.41	245	Vertical
3	2776.7777	-45.21	-43.92	-13.00	30.92	1.29	138	Vertical
4	4163.4163	-41.06	-37.85	-13.00	24.85	3.21	102	Vertical
5	6020.102	-50.64	-39.68	-13.00	26.68	10.96	359	Vertical
6	12238.8239	-56.19	-38.32	-13.00	25.32	17.87	270	Vertical

Test Mode:	TX-CH19-25KHz	Polarity:	Horizontal



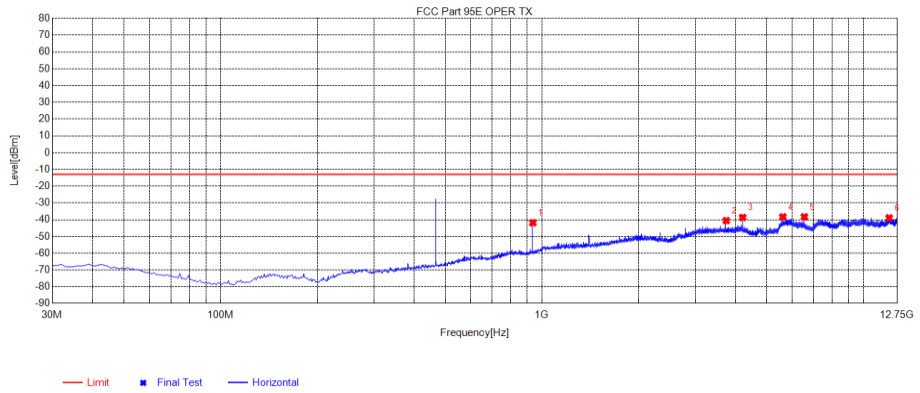
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Angle [°]	Polarity
1	925.31	-86.76	-43.27	-13.00	30.27	43.49	245	Horizontal
2	1388.9639	-43.14	-46.58	-13.00	33.58	-3.44	347	Horizontal
3	4163.4163	-42.13	-37.80	-13.00	24.80	4.33	245	Horizontal
4	5551.2301	-46.11	-37.00	-13.00	24.00	9.11	245	Horizontal
5	6477.2227	-49.96	-38.43	-13.00	25.43	11.53	271	Horizontal
6	12733.5484	-56.16	-38.67	-13.00	25.67	17.49	19	Horizontal

Test Mode:	TX-CH19-25KHz	Polarity:	Vertical



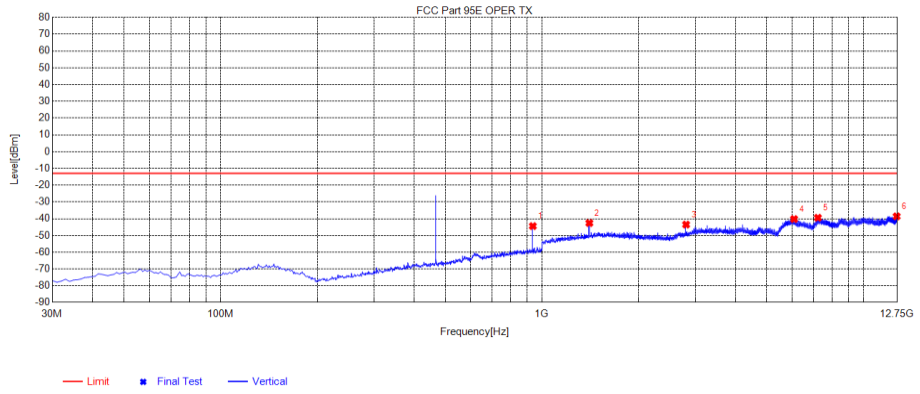
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Angle [°]	Polarity
1	925.31	-87.57	-44.00	-13.00	31.00	43.57	351	Vertical
2	1387.7888	-45.03	-43.62	-13.00	30.62	1.41	242	Vertical
3	2775.6026	-44.81	-43.53	-13.00	30.53	1.28	120	Vertical
4	4163.4163	-43.05	-39.84	-13.00	26.84	3.21	110	Vertical
5	5830.9081	-48.98	-39.69	-13.00	26.69	9.29	130	Vertical
6	12706.5207	-56.44	-38.80	-13.00	25.80	17.64	351	Vertical

Test Mode:	TX-CH27-25KHz	Polarity:	Horizontal



NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Angle [°]	Polarity
1	935.98	-85.55	-41.83	-13.00	28.83	43.72	247	Horizontal
2	3741.5492	-45.02	-40.56	-13.00	27.56	4.46	176	Horizontal
3	4209.2459	-42.90	-38.68	-13.00	25.68	4.22	47	Horizontal
4	5612.3362	-47.65	-38.31	-13.00	25.31	9.34	47	Horizontal
5	6547.7298	-49.88	-38.31	-13.00	25.31	11.57	29	Horizontal
6	12017.9018	-56.34	-38.93	-13.00	25.93	17.41	115	Horizontal

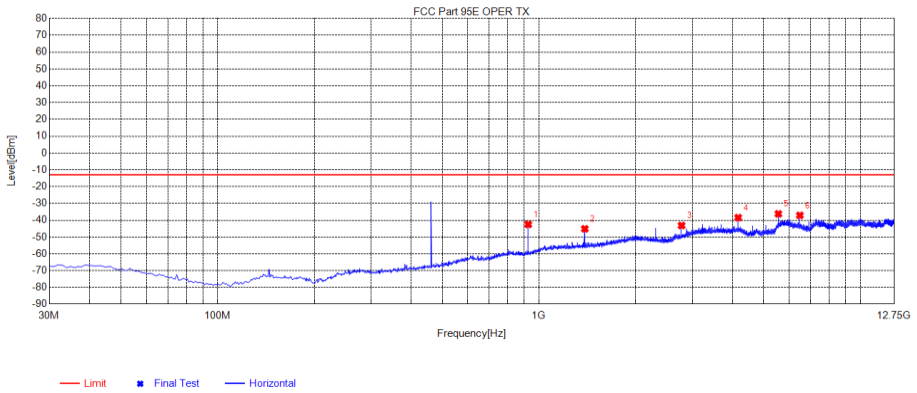
Test Mode:	TX-CH27-25KHz	Polarity:	Vertical



NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Angle [°]	Polarity
1	935.98	-88.10	-44.42	-13.00	31.42	43.68	342	Vertical
2	1403.0653	-44.13	-42.61	-13.00	29.61	1.52	234	Vertical
3	2806.1556	-45.08	-43.54	-13.00	30.54	1.54	140	Vertical
4	6080.033	-51.29	-40.24	-13.00	27.24	11.05	186	Vertical
5	7212.8463	-52.32	-39.44	-13.00	26.44	12.88	224	Vertical
6	12683.0183	-56.30	-38.62	-13.00	25.62	17.68	250	Vertical

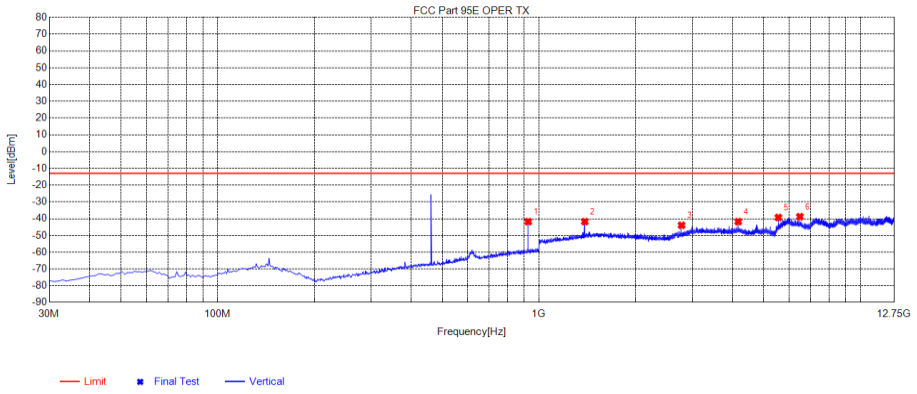
The battery of USB-BAT-C

Test Mode:	TX-CH4-12.5KHz	Polarity:	Horizontal



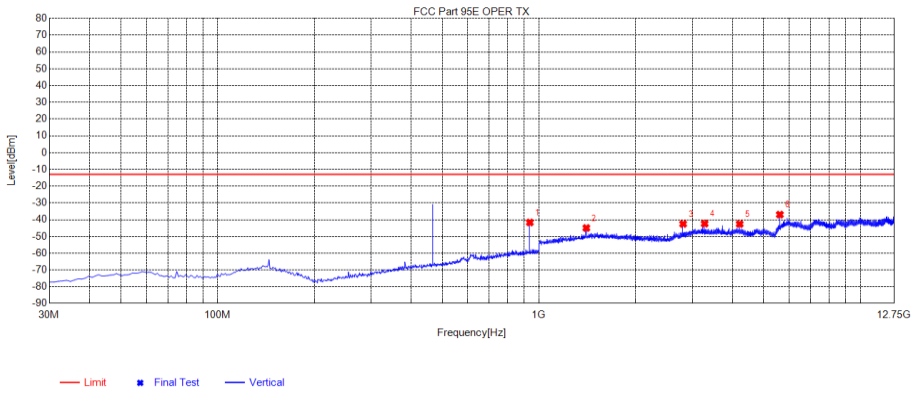
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Angle [°]	Polarity
1	925.31	-85.99	-42.50	-13.00	29.50	43.49	257	Horizontal
2	1387.7888	-41.69	-45.14	-13.00	32.14	-3.45	360	Horizontal
3	2775.6026	-44.35	-43.18	-13.00	30.18	1.17	257	Horizontal
4	4163.4163	-42.81	-38.48	-13.00	25.48	4.33	158	Horizontal
5	5552.4052	-45.35	-36.23	-13.00	23.23	9.12	237	Horizontal
6	6477.2227	-48.66	-37.13	-13.00	24.13	11.53	227	Horizontal

Test Mode:	TX-CH4-12.5KHz	Polarity:	Vertical



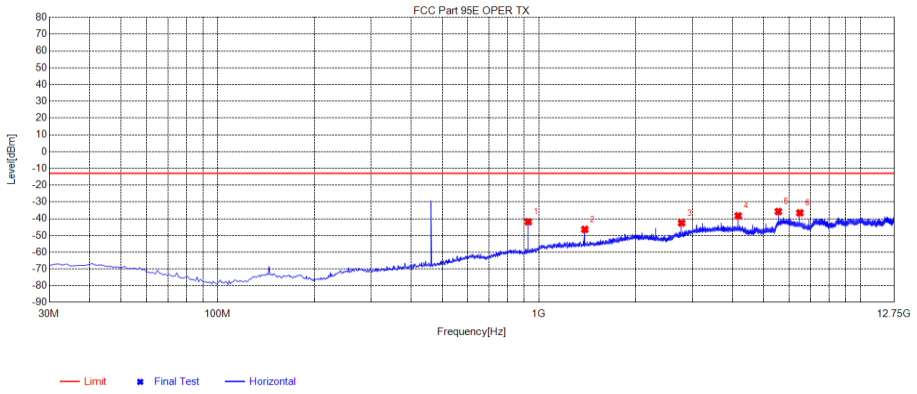
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Angle [°]	Polarity
1	925.31	-85.32	-41.75	-13.00	28.75	43.57	10	Vertical
2	1387.7888	-43.17	-41.76	-13.00	28.76	1.41	72	Vertical
3	2775.6026	-45.23	-43.95	-13.00	30.95	1.28	0	Vertical
4	4164.5915	-44.96	-41.75	-13.00	28.75	3.21	219	Vertical
5	5552.4052	-45.88	-39.29	-13.00	26.29	6.59	192	Vertical
6	6477.2227	-50.44	-38.82	-13.00	25.82	11.62	275	Vertical

Test Mode:	TX-CH11-12.5KHz	Polarity:	Horizontal



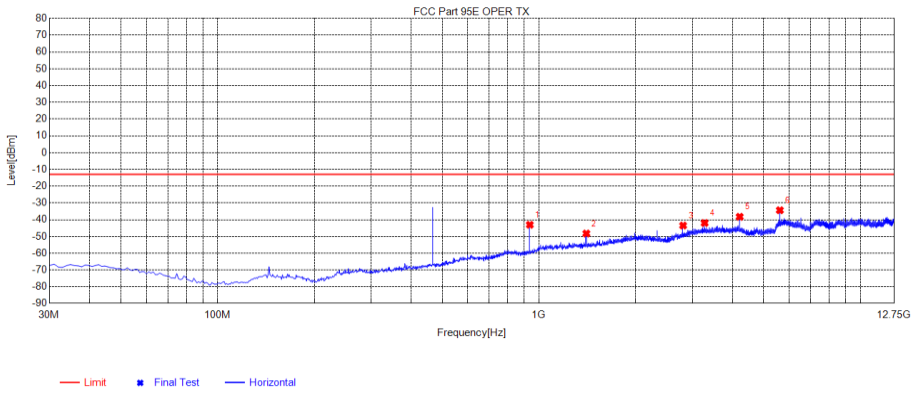
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Angle [°]	Polarity
1	935.98	-85.33	-41.65	-13.00	28.65	43.68	3	Horizontal
2	1403.0653	-46.47	-44.95	-13.00	31.95	1.52	250	Horizontal
3	2806.1556	-44.09	-42.55	-13.00	29.55	1.54	351	Horizontal
4	3273.8524	-45.52	-42.39	-13.00	29.39	3.13	176	Horizontal
5	4209.2459	-45.79	-42.60	-13.00	29.60	3.19	11	Horizontal
6	5612.3362	-44.14	-36.97	-13.00	23.97	7.17	204	Horizontal

Test Mode:	TX-CH11-12.5KHz	Polarity:	Vertical



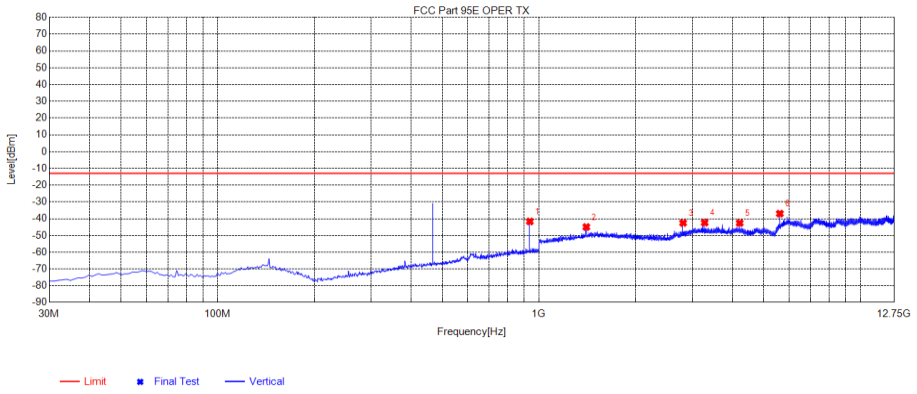
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Angle [°]	Polarity
1	925.31	-85.33	-41.84	-13.00	28.84	43.49	222	Vertical
2	1387.7888	-42.95	-46.40	-13.00	33.40	-3.45	360	Vertical
3	2775.6026	-43.76	-42.59	-13.00	29.59	1.17	184	Vertical
4	4163.4163	-42.63	-38.30	-13.00	25.30	4.33	324	Vertical
5	5551.2301	-44.86	-35.75	-13.00	22.75	9.11	250	Vertical
6	6477.2227	-48.06	-36.53	-13.00	23.53	11.53	304	Vertical

Test Mode:	TX-CH19-12.5KHz	Polarity:	Horizontal



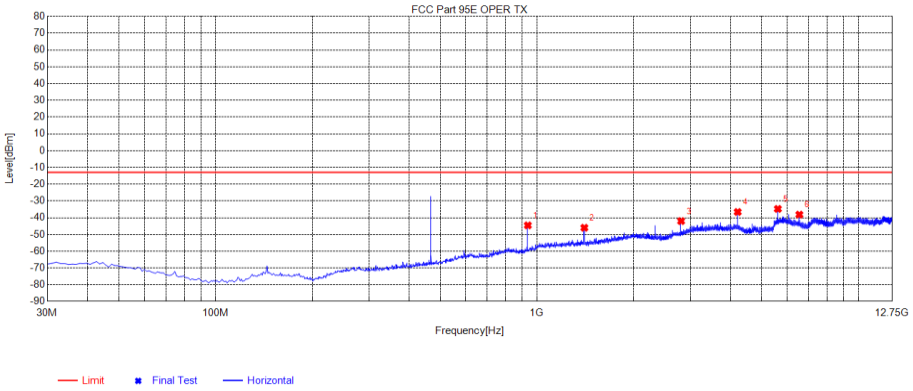
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Angle [°]	Polarity
1	935.98	-86.77	-43.05	-13.00	30.05	43.72	219	Horizontal
2	1403.0653	-44.85	-48.26	-13.00	35.26	-3.41	265	Horizontal
3	2806.1556	-44.95	-43.49	-13.00	30.49	1.46	191	Horizontal
4	3273.8524	-45.76	-41.98	-13.00	28.98	3.78	265	Horizontal
5	4209.2459	-42.49	-38.27	-13.00	25.27	4.22	331	Horizontal
6	5612.3362	-43.71	-34.37	-13.00	21.37	9.34	255	Horizontal

Test Mode:	TX-CH19-12.5KHz	Polarity:	Vertical



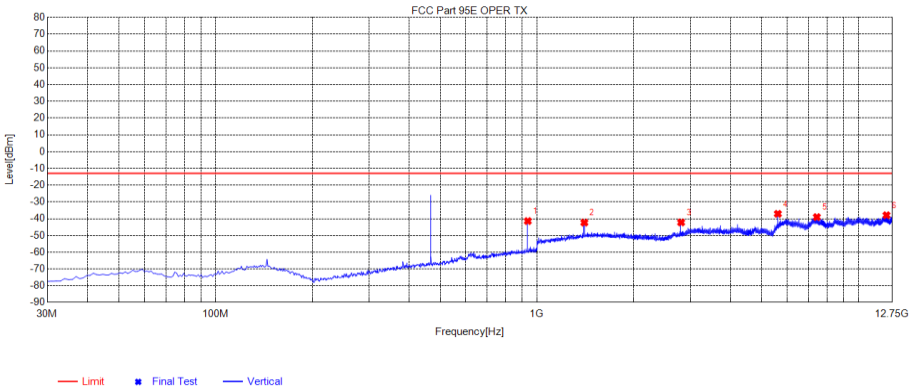
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Angle [°]	Polarity
1	935.98	-85.33	-41.65	-13.00	28.65	43.68	3	Vertical
2	1403.0653	-46.47	-44.95	-13.00	31.95	1.52	250	Vertical
3	2806.1556	-44.09	-42.55	-13.00	29.55	1.54	351	Vertical
4	3273.8524	-45.52	-42.39	-13.00	29.39	3.13	176	Vertical
5	4209.2459	-45.79	-42.60	-13.00	29.60	3.19	11	Vertical
6	5612.3362	-44.14	-36.97	-13.00	23.97	7.17	204	Vertical

Test Mode:	TX-CH27-12.5KHz	Polarity:	Horizontal



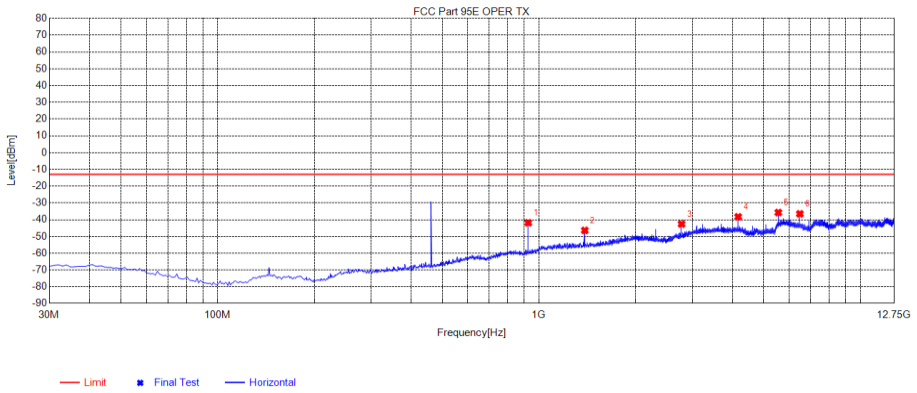
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Angle [°]	Polarity
1	935.98	-88.31	-44.59	-13.00	31.59	43.72	220	Horizontal
2	1403.0653	-42.60	-46.01	-13.00	33.01	-3.41	9	Horizontal
3	2806.1556	-43.49	-42.03	-13.00	29.03	1.46	9	Horizontal
4	4209.2459	-40.82	-36.60	-13.00	23.60	4.22	323	Horizontal
5	5612.3362	-44.12	-34.78	-13.00	21.78	9.34	255	Horizontal
6	6547.7298	-49.74	-38.17	-13.00	25.17	11.57	212	Horizontal

Test Mode:	TX-CH27-12.5KHz	Polarity:	Vertical



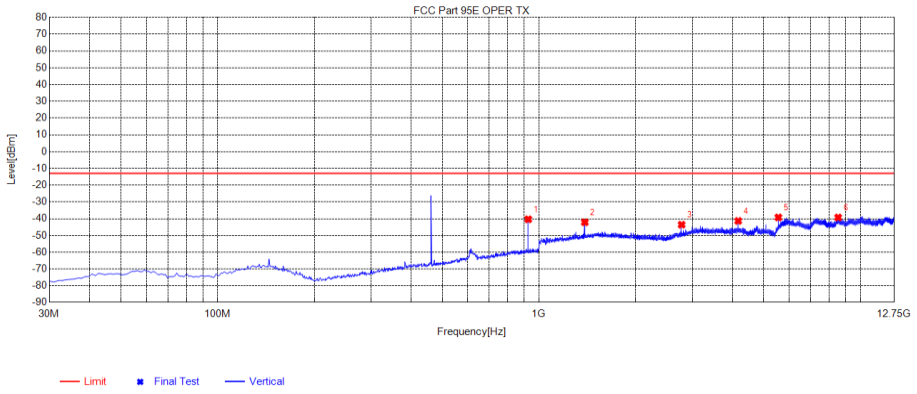
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Angle [°]	Polarity
1	935.98	-85.09	-41.41	-13.00	28.41	43.68	16	Vertical
2	1403.0653	-43.85	-42.33	-13.00	29.33	1.52	108	Vertical
3	2806.1556	-43.78	-42.24	-13.00	29.24	1.54	0	Vertical
4	5612.3362	-44.27	-37.10	-13.00	24.10	7.17	202	Vertical
5	7420.8421	-52.65	-39.06	-13.00	26.06	13.59	314	Vertical
6	12220.022	-55.81	-37.95	-13.00	24.95	17.86	182	Vertical

Test Mode:	TX-CH4-25KHz	Polarity:	Horizontal



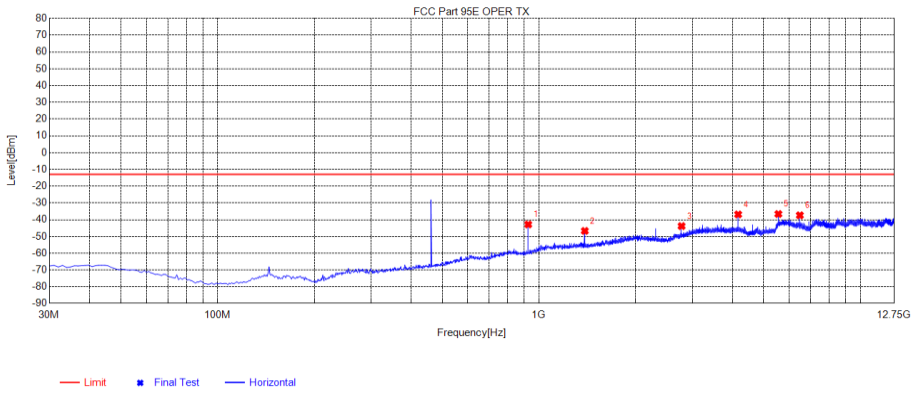
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Angle [°]	Polarity
1	925.31	-85.33	-41.84	-13.00	28.84	43.49	222	Horizontal
2	1387.7888	-42.95	-46.40	-13.00	33.40	-3.45	360	Horizontal
3	2775.6026	-43.76	-42.59	-13.00	29.59	1.17	184	Horizontal
4	4163.4163	-42.63	-38.30	-13.00	25.30	4.33	324	Horizontal
5	5551.2301	-44.86	-35.75	-13.00	22.75	9.11	250	Horizontal
6	6477.2227	-48.06	-36.53	-13.00	23.53	11.53	304	Horizontal

Test Mode:	TX-CH4-25KHz	Polarity:	Vertical



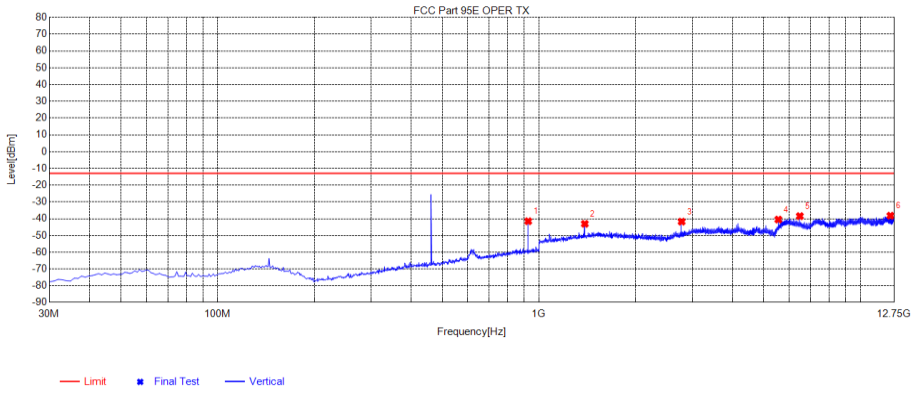
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Angle [°]	Polarity
1	925.31	-83.95	-40.38	-13.00	27.38	43.57	351	Vertical
2	1387.7888	-43.58	-42.17	-13.00	29.17	1.41	78	Vertical
3	2776.7777	-44.89	-43.60	-13.00	30.60	1.29	0	Vertical
4	4164.5915	-44.54	-41.33	-13.00	28.33	3.21	6	Vertical
5	5552.4052	-45.84	-39.25	-13.00	26.25	6.59	220	Vertical
6	8520.7521	-52.34	-39.30	-13.00	26.30	13.04	60	Vertical

Test Mode:	TX-CH19-25KHz	Polarity:	Horizontal



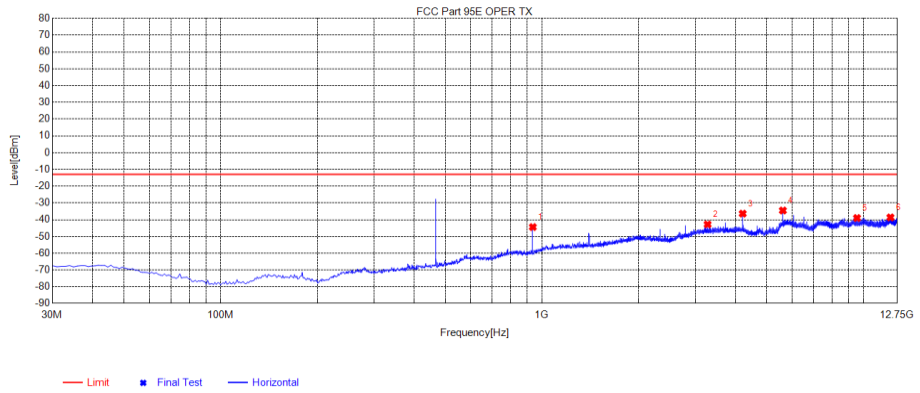
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Angle [°]	Polarity
1	925.31	-86.34	-42.85	-13.00	29.85	43.49	212	Horizontal
2	1387.7888	-43.27	-46.72	-13.00	33.72	-3.45	9	Horizontal
3	2775.6026	-44.99	-43.82	-13.00	30.82	1.17	273	Horizontal
4	4163.4163	-41.19	-36.86	-13.00	23.86	4.33	321	Horizontal
5	5552.4052	-45.74	-36.62	-13.00	23.62	9.12	247	Horizontal
6	6477.2227	-48.92	-37.39	-13.00	24.39	11.53	273	Horizontal

Test Mode:	TX-CH19-25KHz	Polarity:	Vertical



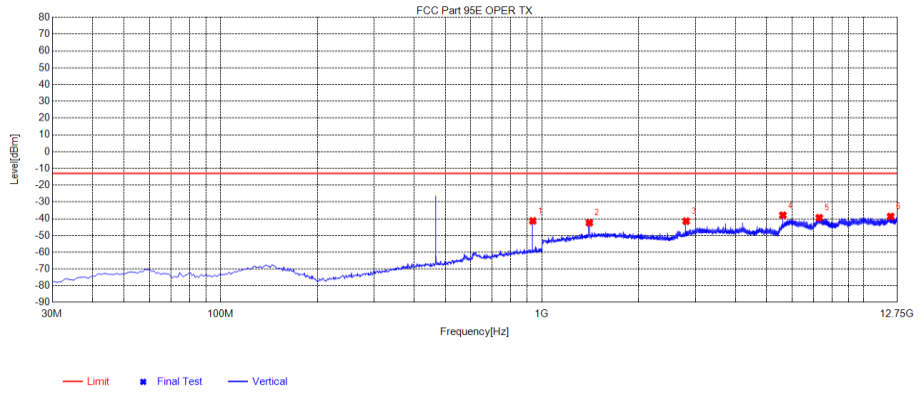
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Angle [°]	Polarity
1	925.31	-85.08	-41.51	-13.00	28.51	43.57	0	Vertical
2	1387.7888	-44.49	-43.08	-13.00	30.08	1.41	69	Vertical
3	2776.7777	-43.05	-41.76	-13.00	28.76	1.29	0	Vertical
4	5551.2301	-47.11	-40.53	-13.00	27.53	6.58	178	Vertical
5	6477.2227	-50.09	-38.47	-13.00	25.47	11.62	125	Vertical
6	12391.5892	-56.17	-38.22	-13.00	25.22	17.95	216	Vertical

Test Mode:	TX-CH27-25KHz	Polarity:	Horizontal



NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Angle [°]	Polarity
1	935.98	-88.13	-44.41	-13.00	31.41	43.72	211	Horizontal
2	3273.8524	-46.60	-42.82	-13.00	29.82	3.78	145	Horizontal
3	4209.2459	-40.61	-36.39	-13.00	23.39	4.22	321	Horizontal
4	5612.3362	-43.88	-34.54	-13.00	21.54	9.34	237	Horizontal
5	9547.8048	-54.00	-39.01	-13.00	26.01	14.99	145	Horizontal
6	12128.3628	-56.11	-38.64	-13.00	25.64	17.47	163	Horizontal

Test Mode:	TX-CH27-25KHz	Polarity:	Vertical



NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Angle [°]	Polarity
1	935.98	-84.99	-41.31	-13.00	28.31	43.68	351	Vertical
2	1403.0653	-43.95	-42.43	-13.00	29.43	1.52	121	Vertical
3	2806.1556	-43.01	-41.47	-13.00	28.47	1.54	351	Vertical
4	5612.3362	-45.09	-37.92	-13.00	24.92	7.17	195	Vertical
5	7284.5285	-52.56	-39.43	-13.00	26.43	13.13	286	Vertical
6	12154.2154	-56.49	-38.66	-13.00	25.66	17.83	58	Vertical

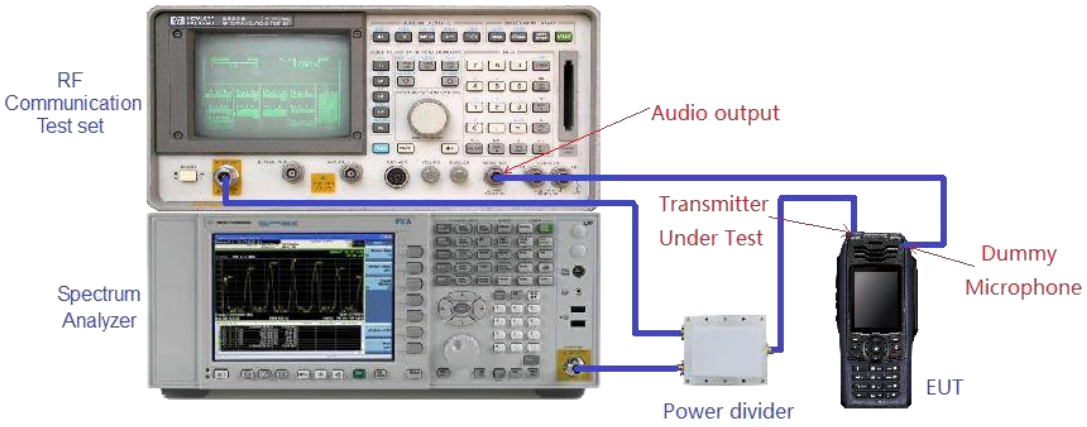
8.5 EMISSION MASK PLOT

The detailed procedure employed for Emission Mask measurements are specified as following:

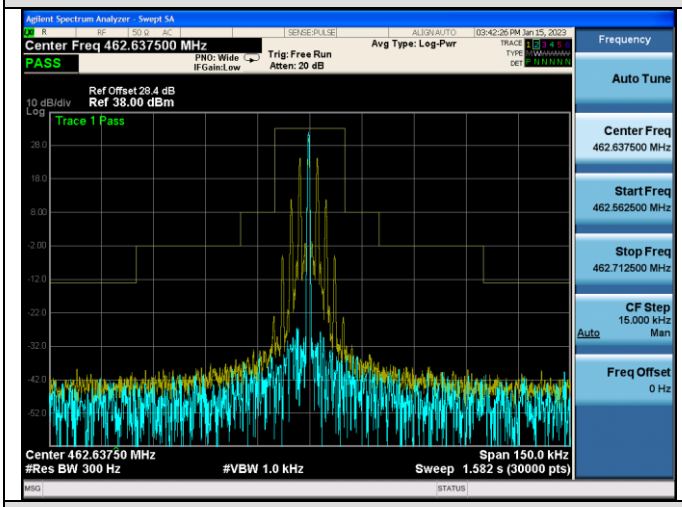
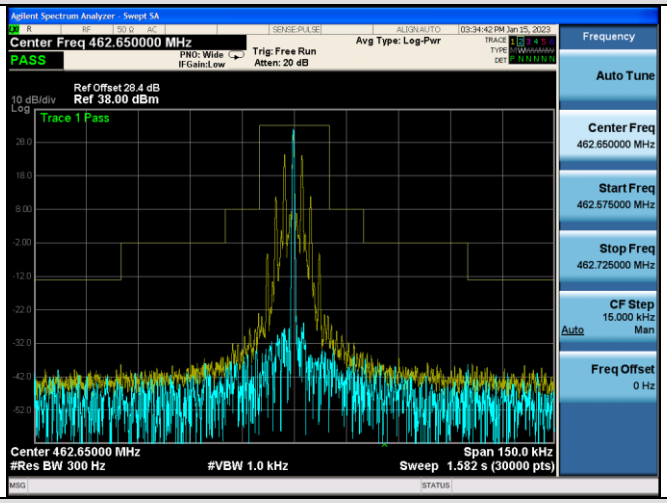
-Connect the equipment as illustrated.

-Spectrum set as follow:

1. Centre frequency = fundamental frequency, Span=150kHz for 12.5kHz and 25kHz channel spacing, RBW=300Hz, VBW=1000Hz for 12.5kHz, RBW=300Hz, VBW=1000Hz for 25kHz, Sweep = auto, Detector function = peak, Trace = max hold
2. 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.
3. 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 (Rated system deviation is 2.5 kHz for 12.5kHz channel spacing). The input level shall be established at the frequency of maximum response of the audio modulating circuit.
4. Transmitters employing digital modulation techniques that bypass the limiter and the audio low-pass filter shall be modulated as specified by the manufacturer.
5. Measure and record the results in the test report.



Test plot as follows: The battery of BAT-GMR2

Emission Mask @ 462.6375MHz-2W -12.5KHz	Emission Mask @ 462.6500MHz-2W -12.5KHz
	
Emission Mask @ 467.6500MHz-2W -12.5KHz	**Emission Mask @ 467.6375MHz-0.5W -12.5KHz**