



RF TEST REPORT

Report No.: SHATBL2505015W01

Applicant : Quanzhou Xindalong Electronics Co., LTD

Product Name : Walkie Talkies

Brand Name : N/A

Model Name : XDL-U8

Series Model : N/A

FCC ID : 2BFF2XDLU8

Test Standard : FCC Part 95 Rules

Date of Sample Arrival : 2025.07.05

Date of Test : 2025.07.05~2025.08.13

Issue Date : 2025.08.13

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(Terry Yang)



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REVISION HISTORY

Rev.	Issue Date	Revisions	Revised by
00	2025.08.13	Initial Release	Guozheng Li

DECLARATION OF REPORT

1. The device has been tested by ATBL, and the test results show that the equipment under test (EUT) is in compliance with the requirements of 47 CFR Part 2, FCC Part 95 Rules. And it is applicable only to the tested sample identified in the report.

2. This report shall not be reproduced except in full, without the written approval of ATBL, this document only be altered or revised by ATBL, personal only, and shall be noted in the revision of the document.

3. The general information of EUT in this report is provided by the customer or manufacture, ATBL is only responsible for the test data but not for the information provided by the customer or manufacture.

4. The results in this report is only apply to the sample as tested under conditions. The customer or manufacturer is responsible for ensuring that the additional production units of this model have the same electrical and mechanical components.

1. GENERAL DESCRIPTION

1.1. Applicant

Name : Quanzhou Xindalong Electronics Co., LTD
Address : 6F, Building 3, No. 23, Jinhe Avenue, Xiamei Town, Nanan City, Quanzhou City,
Fujian Province, China

1.2. Manufacturer

Name : Quanzhou Xindalong Electronics Co., LTD
Address : 6F, Building 3, No. 23, Jinhe Avenue, Xiamei Town, Nanan City, Quanzhou City,
Fujian Province, China

1.3. Factory

Name : Quanzhou Xindalong Electronics Co., LTD
Address : 6F, Building 3, No. 23, Jinhe Avenue, Xiamei Town, Nanan City, Quanzhou City,
Fujian Province, China

1.4. General Information of EUT

Sample No:	202506280022001
Product Name:	Walkie Talkies
Model Name:	XDL-U8
Series Model:	N/A
Frequency Range:	462.5625MHz-462.7125MHz; 462.6250MHz-462.7000MHz; 467.5500MHz-467.6500MHz; 467.5625MHz-467.6375MHz
Type of Modulation:	FM
Rated Output Power:	High Power Level: 462.5625MHz-462.7125MHz(1.905W); 462.6250MHz-462.7000MHz(1.905W); 467.5500MHz-467.6500MHz(0.5W); 467.5625MHz-467.6375MHz(0.5W) Low Power Level: 462.5625MHz-462.7125MHz(1W); 462.6250MHz-462.7000MHz(1W); 467.5500MHz-467.6500MHz(0.3W); 467.5625MHz-467.6375MHz(0.3W)
Channel Spacing:	12.5KHz
Emission Type:	F3E
Emission Bandwidth:	6.012KHz
Antenna Type:	Rod Antenna
Antenna gain:	2.15dBi
Power Supply:	DC 7.4V by Built-in Li-ion Battery
Adapter:	Input:100-240V~50/60Hz 0.45A Output:5.0V= 2.0A 10W
Battery parameter:	Rated Voltage:7.4V DC Charge Limit Voltage:8.4V DC Capacity:16000mAh
Hardware Version:	ZYT-Q1(5W)LEDDENPCB1G2
Software Version:	V1.0.1

Remark:

The above information of EUT was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.

1.5. Environmental conditions

Temperature	Normal Temperature(NT):	20°C
	High Temperature(HT):	50°C
	Low Temperature(LT):	-30°C
Voltage	Normal Voltage(NV):	7.4V
	High Voltage(HV):	8.51V
	Low Voltage(LV):	6.29V
Other	Relative Humidity	55 %
	Air Pressure	101 kPa

1.6. Modification of EUT

No modifications are made to the EUT during all test items.

1.7. Laboratory Information

Company Name	:	Shanghai ATBL Technology Co., Ltd.
Address	:	Building 8, No.160 Basheng Road, Waigaoqiao Free Trade Zone, Pudong New Area, Shanghai
Telephone	:	+86(0)21-51298625
FCC Test Firm registration Number	:	485917
A2LA Number	:	6184.01
CNAS Number	:	CNAS L14531
CAB Identifier	:	CN0116

1.8. Applicable Standards

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

- 47 CFR Part 2, 95
- ANSI C63.26-2015
- ANSI/TIA -603-E-2016

Remark:

All test items were verified and recorded according to the standards and without any deviation during the test.

2. TEST CONFIGURATION OF EQUIPMENT UNDER TEST

2.1. Test Mode

Per C63.26-2015, section 5.1, the lowest frequency, middle frequency, and highest frequency was performed the test as below:

Modulation/ Channel Bandwidth	Test Channel	TX Frequency (MHz)	Description
12.5KHz	CH1	462.6375	5W
	CH6	462.6500	5W
	CH12	467.6500	0.5W
	CH16	467.6375	0.5W

2.2. Summary of Test Results

Item	Test Description	FCC Rules	Result
1	Transmitter Output Power	FCC CFR Part 95.1767 ; FCC 47 CFR Part 2.1046(a)	Compliant
2	Frequency Stability	FCC CFR Part 95.1765 ; FCC 47 CFR Part 2.1055(a) (1)	Compliant
3	Occupied Bandwidth	FCC CFR Part 95.1773	Compliant
4	Emission Mask	FCC CFR Part 95.1779	Compliant
5	Transmitter Radiated Spurious Emission	FCC CFR Part 95.1779	Compliant
6	Modulation Requirements	FCC CFR Part 95.1775; FCC 47 CFR Part 2.1047(a) (b)	Compliant
7	Audio Frequency Response	FCC CFR Part 95.1775; FCC 47 CFR Part 2.1047(a)	Compliant
8	Audio Low Pass Filter Response	FCC CFR Part 95.1775(e);	Compliant

2.3. Support Unit used in test configuration and system

NO.	Unit	Brand	Model	Description
1	Computers	Lenovo	N7766	/
2	Table C Line	GreenLink	HH8T	1.5M
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2.4. Channel List

CH. NO	CH. Freq (MHz)	Power	CH. NO	CH. Freq (MHz)	Power
1	462.6375	5W	9	467.5500	0.5W
2	462.6625		10	467.5750	
3	462.6875		11	467.6000	
4	462.7125		12	467.6500	
5	462.6250	5W	13	467.5625	0.5W
6	462.6500		14	467.5875	
7	462.6750		15	467.6125	
8	462.7000		16	467.6375	

2.5. Equipment List

2.5.1. For RF Conducted Test

Item	Test Equipment	Manufacturer	Model No.	Serial No.	Calibration Date	Calibration Due Date
1	Spectrum Analyzer	R&S	FSV40-N	102126	2025.05.07	2026.05.06
2	Signal Generator	KEYSIGHT	N5173B	MY62220592	2025.05.07	2026.05.06
3	Vector Signal Generator	KEYSIGHT	N5182B	MY57301571	2025.05.07	2026.05.06
4	Spectrum Analyzer	Keysight	N9020A	MY53420874	2025.05.07	2026.05.06
5	Radio Communication Tester	HP	8921A	3725A09645	2025.05.07	2026.05.06
6	Attenuator	JK	SMA-JK6G-20dB	/	/	/
7	RF Cable	PE	RG393(1.5 CM)	1013809	2025.05.07	2026.05.06
8	Multimeter	FLUKE	15B+	44211266WS	2025.05.07	2026.05.06
9	DC regulated constant current switching power supply	DS1030	GTHLEY	EMC0068	2025.05.07	2026.05.06
10	Power meter	Rediteq	RPR6W	2201002	2025.05.07	2026.05.06

2.5.2. For Radiated Spurious Emission

Kind of Equipment	Manufacturer	Type No.	Serial No.	Cal. Date	Cal. Due Date
Test Receiver	R&S	ESCI	100469	2025.05.07	2026.05.06
Spectrum Analyzer	Agilent	N9020A	MY50200811	2025.05.07	2026.05.06
Loop Antenna	Daze	ZN30900C	20077	2025.05.07	2026.05.06
Bilog Antenna	SCHWARZBECK	VLUB 9168	01174	2025.05.07	2026.05.06
Horn Antenna	SCHWARZBECK	BBHA 9120D	02014	2025.05.07	2026.05.06
Substitution Antenna	SCHWARZBECK	VLUB 9168	07896	2025.05.07	2026.05.06
Pre-Amplifier (0.1M-3GHz)	JPT	JPA-10M1G35	21010100035001	2025.05.07	2026.05.06
Pre-Amplifier (1G-18GHz)	JPT	JPA0118-55-303A	1910001800055000	2025.05.07	2026.05.06
Temperature & Humidity	DeLi	DeLi	N/A	2025.05.07	2026.05.06
RF Cable	Harbour	SHWCB-3000-N	N/A	2025.05.07	2026.05.06
Antenna/Turntable Controller	Brilliant	N/A	N/A	N/A	N/A

Test SW	FALA	EMC-RI(Ver.4A2)	N/A	N/A
Filter	XH microwave	RSE03	SHATBL-W09	N/A

2.6. Measurement Uncertainty

The reported uncertainty of measurement $y \pm U$, where expanded 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	Occupied Channel Bandwidth	$\pm 4\%$
2	Transmitter power conducted	$\pm 0.56 \text{ dB}$
3	Transmitter power Radiated	$\pm 2.20 \text{ dB}$
4	Conducted spurious emission	$\pm 1.60 \text{ dB}$
5	Radiated spurious emission	$\pm 2.20 \text{ dB}$
6	Temperature	$\pm 0.6^\circ\text{C}$
7	Humidity	$\pm 2\%$
8	DC and low frequency voltages	$\pm 0.05\%$
9	Radio frequency error	$\pm 3 \times 10^{-8}$

3. TEST RESULT

3.1. Transmitter Frequency Stability

3.1.1. Test Setup

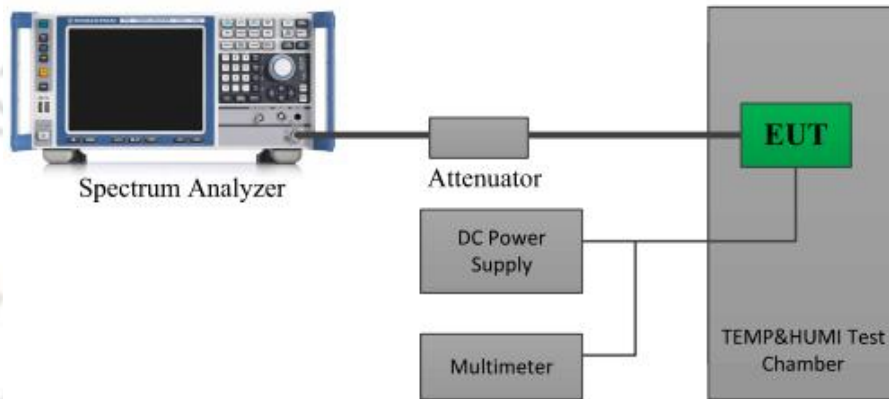


Figure 1

3.1.2. Applicable Standard

Standard Applicable [Part 95.1765] The carrier frequency stability is the ability of the transmitter to maintain an assigned carrier frequency.

FCC Part 95.1765:

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.

FCC Part 95.1775:

Each GMRS transmitter type must be designed to satisfy the modulation requirements in this section. Operation of GMRS stations must also be in compliance with these requirements.

(a) Main channels. The peak frequency deviation for emissions to be transmitted on the main channels must not exceed ± 5 kHz.

(b) 462 MHz interstitial channels. The peak frequency deviation for emissions to be transmitted on the 462 MHz interstitial channels must not exceed ± 5 kHz.

(c) 467 MHz interstitial channels. The peak frequency deviation for emissions to be transmitted on the 467 MHz interstitial channels must not exceed ± 2.5 kHz, and the highest audio frequency contributing substantially to modulation must not exceed 3.125 kHz.

3.1.3. Test Procedures**Frequency stability versus environmental temperature:**

- a) Setup the configuration per figure 1 for frequencies measurement inside an environment chamber, Install new battery in the EUT.
- b) 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.
- c) Set the temperature of chamber to 50°C. 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.
- d) Repeat step 2 with a 10°C decreased per stage until the lowest temperature -30°C is measured, record all measured frequencies on each temperature step.

Frequency stability versus input voltage:

- e) Setup the configuration per figure 1 for frequencies measured at temperature if it is within 15°C to 25°C. Otherwise, an environment chamber set for a temperature of 20°C shall be used. The EUT shall be powered by nominal voltage.
- f) Set SA center frequency to the EUT radiated frequency. Set SA Resolution Bandwidth to 1KHz and Video Resolution Bandwidth to 1KHz. Record this frequency as reference frequency.
- g) Supply the EUT primary voltage at the operating end point which is specified by manufacturer and record the frequency.

3.1.4. Test Result

Note:All modes have been tested, only worst case High Power Level Mode test data was recorded in the test report.

Frequency accuracy:

Un-modulation, $f_c=462.6375\text{MHz}$					
Temp (°C)	Voltage (V)	Measured (MHz)	Frequency error (ppm)	Limit (ppm)	Result
-30	DC 7.4V	462.6375	0.000	± 5	Pass
-20		462.6376	0.216		Pass
-10		462.6373	-0.432		Pass
0		462.6373	-0.432		Pass
10		462.6374	-0.216		Pass
20		462.6376	0.216		Pass
30		462.6372	-0.648		Pass
40		462.6374	-0.216		Pass
50		462.6373	-0.432		Pass
20	DC 6.29V	462.6376	0.216		Pass
20	DC 8.51V	462.6375	0.000		Pass

Un-modulation, $f_c=462.6500\text{MHz}$					
Temp (°C)	Voltage (V)	Measured (MHz)	Frequency error (ppm)	Limit (ppm)	Result
-30	DC 7.4V	462.6491	-1.945	± 5	Pass
-20		462.6492	-1.729		Pass
-10		462.6493	-1.513		Pass
0		462.6492	-1.729		Pass
10		462.6491	-1.945		Pass
20		462.6493	-1.513		Pass
30		462.6493	-1.513		Pass
40		462.6495	-1.081		Pass
50		462.6493	-1.513		Pass
20	DC 6.29V	462.6493	-1.513		Pass
20	DC 8.51V	462.6492	-1.729		Pass

Note: the Operation Voltage range was provided by manufacturer.

Un-modulation, fc=467.6500MHz					
Temp (°C)	Voltage (V)	Measured (MHz)	Frequency error (ppm)	Limit (ppm)	Result
-30	DC 7.4V	467.6496	-0.855	± 2.5	Pass
-20		467.6495	-1.069		Pass
-10		467.6500	0.000		Pass
0		467.6493	-1.497		Pass
10		467.6493	-1.497		Pass
20		467.6491	-1.925		Pass
30		467.6494	-1.283		Pass
40		467.6495	-1.069		Pass
50		467.6492	-1.711		Pass
20	DC 6.29V	467.6494	-1.283		Pass
20	DC 8.51V	467.6493	-1.497		Pass

Un-modulation, fc=467.6375MHz					
Temp (°C)	Voltage (V)	Measured (MHz)	Frequency error (ppm)	Limit (ppm)	Result
-30	DC 7.4V	467.6381	1.283	± 2.5	Pass
-20		467.6382	1.497		Pass
-10		467.6383	1.711		Pass
0		467.6381	1.283		Pass
10		467.6379	0.855		Pass
20		467.6380	1.069		Pass
30		467.6378	0.642		Pass
40		467.6380	1.069		Pass
50		467.6379	0.855		Pass
20	DC 6.29V	467.6381	1.283		Pass
20	DC 8.51V	467.6380	1.069		Pass

Note: the Operation Voltage range was provided by manufacturer.

Frequency deviation:

Un-modulation, fc=462.6375MHz					
Temp (°C)	Voltage (V)	Measured (MHz)	Frequency deviation (KHz)	Limit (KHz)	Result
-30	DC 7.4V	462.6375	0.00000	±5	Pass
-20		462.6376	-0.00010		Pass
-10		462.6373	0.00020		Pass
0		462.6373	0.00020		Pass
10		462.6374	0.00010		Pass
20		462.6376	-0.00010		Pass
30		462.6372	0.00030		Pass
40		462.6374	0.00010		Pass
50		462.6373	0.00020		Pass
20	DC 6.29V	462.6376	-0.00010	±5	Pass
20	DC 8.51V	462.6375	0.00000		Pass

Un-modulation, fc=462.6500MHz					
Temp (°C)	Voltage (V)	Measured (MHz)	Frequency deviation (KHz)	Limit (KHz)	Result
-30	DC 7.4V	462.6491	0.00090	±5	Pass
-20		462.6492	0.00080		Pass
-10		462.6493	0.00070		Pass
0		462.6492	0.00080		Pass
10		462.6491	0.00090		Pass
20		462.6493	0.00070		Pass
30		462.6493	0.00070		Pass
40		462.6495	0.00050		Pass
50		462.6493	0.00070		Pass
20	DC 6.29V	462.6493	0.00070	±5	Pass
20	DC 8.51V	462.6492	0.00080		Pass

Note: the Operation Voltage range was provided by manufacturer.

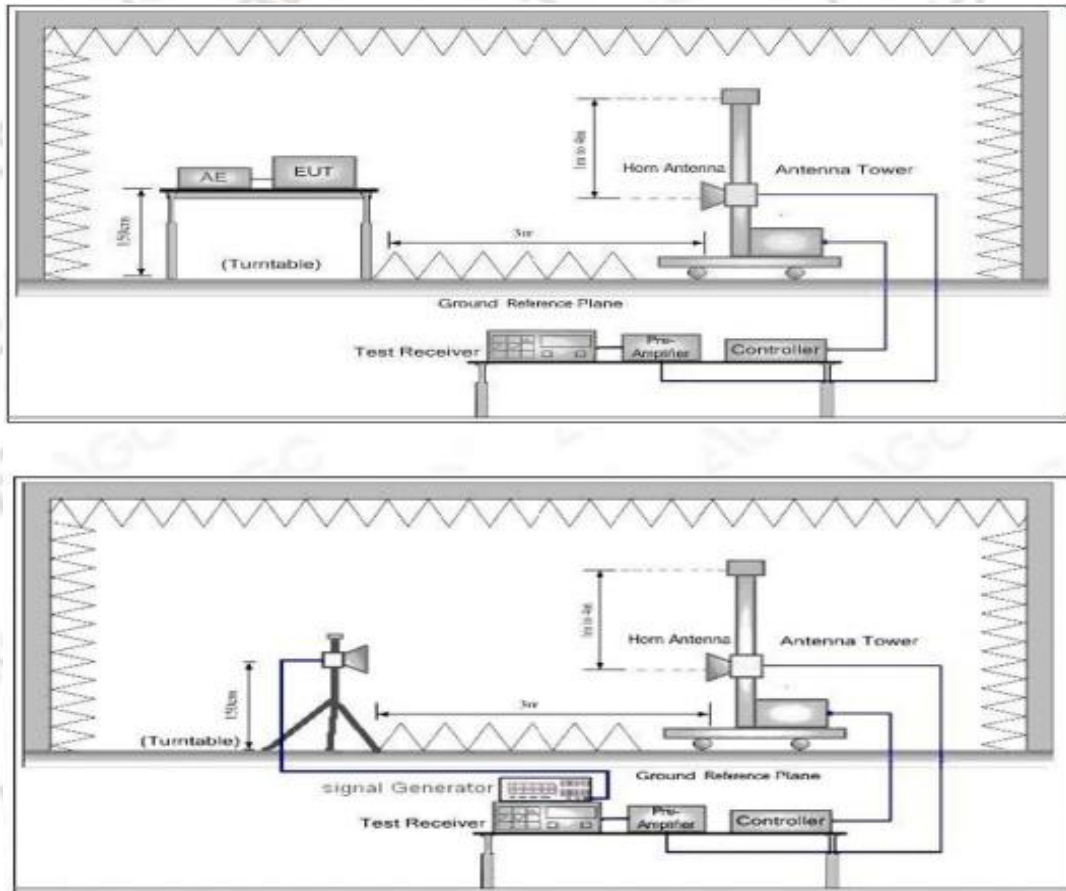
Un-modulation, fc=467.6500MHz					
Temp (°C)	Voltage (V)	Measured (MHz)	Frequency deviation (KHz)	Limit (KHz)	Result
-30	DC 7.4V	467.6496	0.00040	± 5	Pass
-20		467.6495	0.00050		Pass
-10		467.6500	0.00000		Pass
0		467.6493	0.00070		Pass
10		467.6493	0.00070		Pass
20		467.6491	0.00090		Pass
30		467.6494	0.00060		Pass
40		467.6495	0.00050		Pass
50		467.6492	0.00080		Pass
20	DC 6.29V	467.6494	0.00060		Pass
20	DC 8.51V	467.6493	0.00070		Pass

Un-modulation, fc=467.6375MHz					
Temp (°C)	Voltage (V)	Measured (MHz)	Frequency deviation (KHz)	Limit (KHz)	Result
-30	DC 7.4V	467.6381	-0.00060	± 2.5	Pass
-20		467.6382	-0.00070		Pass
-10		467.6383	-0.00080		Pass
0		467.6381	-0.00060		Pass
10		467.6379	-0.00040		Pass
20		467.6380	-0.00050		Pass
30		467.6378	-0.00030		Pass
40		467.6380	-0.00050		Pass
50		467.6379	-0.00040		Pass
20	DC 6.29V	467.6381	-0.00060		Pass
20	DC 8.51V	467.6380	-0.00050		Pass

Note: the Operation Voltage range was provided by manufacturer.

3.2. Transmitter Output Power

3.2.1. Test Setup



3.2.2. Applicable Standard

FCC Part 95.1767 For GMRS, the maximum permissible transmitter output power effective radiated power (e.r.p.) as follows. This section contains transmitting power limits for GMRS stations. The maximum transmitting power depends on which channels are being used and the type of station.

(a) 462/467 MHz main channels. The limits in this paragraph apply to stations transmitting on any of the 462 MHz main channels or any of the 467 MHz main channels. Each GMRS transmitter type must be capable of operating within the allowable power range. GMRS licensees are responsible for ensuring that their GMRS stations operate in compliance with these limits.

(1) The transmitter output power of mobile, repeater and base stations must not exceed 50 Watts.

(2) The transmitter output power of fixed stations must not exceed 15 Watts.

(b) 462 MHz interstitial channels. The effective radiated power (ERP) of mobile, hand-held portable and base stations transmitting on the 462 MHz interstitial channels must not exceed 5 Watts.

(c) 467 MHz interstitial channels. The effective radiated power (ERP) of hand-held portable units transmitting on the 467 MHz interstitial channels must not exceed 0.5 Watt.

Each GMRS transmitter type capable of transmitting on these channels must be designed such that the ERP does not exceed 0.5 Watt.

3.2.3. Test Procedures

The transmitter was placed on a wooden turntable, and it was transmitting into a non-radiating load, which was also placed on the turntable.

The measurement antenna was placed at a distance of 3 meters from the EUT.

During the tests, the antenna height and polarization as well as EUT azimuth were varied in order to identify the maximum level of emissions from the EUT .

The test was performed by placing the EUT on 3-orthogonal axis.

Remove the EUT and replace it with substitution antenna. A signal generator was connected to the substitution antenna by a non-radiating cable. The absolute levels of the emissions were measured by the substitution.

3.2.4. Test Result

ERP:

High Power Level Mode:

Frequency (MHz)	Polar (H/V)	Reading (dBuV/m)	S.G (dBm)	Cable Loss (dB)	Antenna Gain (dBi)	Emission Level (dBm)	Emission Level (W)	Rated Power Limit (W)	Margin
Channel Separation:12.5KHz									
462.6375	H	107.89	24.78	0.31	6.9	31.37	1.37	1.905	-3.63
462.6375	V	109.30	26.19	0.31	6.9	32.78	1.90	1.905	-3.1
462.6500	H	108.53	25.42	0.31	6.9	32.01	1.59	1.905	-3.41
462.6500	V	109.25	26.14	0.31	6.9	32.73	1.87	1.905	-3.13
467.6500	H	102.50	19.39	0.31	6.9	25.98	0.40	0.5	-0.1
467.6500	V	103.31	20.2	0.31	6.9	26.79	0.48	0.5	-0.02
467.6375	H	103.03	19.92	0.31	6.9	26.51	0.45	0.5	-0.05
467.6375	V	103.08	19.97	0.31	6.9	26.56	0.45	0.5	-0.05

Note:

Calculation Formula: Emission Level(dBm) = S.G.(dBm)- Cable Loss(dB)+ Ant.Gain(dBi)

The Ant. Gain including the correct factor 2.15.

Margin(dB) = Limit(W)- Emission Level(W)

Low Power Level Mode:

Frequency (MHz)	Polar (H/V)	Reading (dBuV/m)	S.G (dBm)	Cable Loss (dB)	Antenna Gain (dBi)	Emission Level (dBm)	Emission Level (W)	Rated Power Limit (W)	Margin
Channel Separation:12.5KHz									
462.6375	H	103.54	20.43	0.31	6.9	27.02	0.50	1	-0.5
462.6375	V	115.5	22.39	0.31	6.9	28.98	0.79	1	-0.21
462.6500	H	103.67	20.56	0.31	6.9	27.15	0.52	1	-0.48
462.6500	V	105.51	22.4	0.31	6.9	28.99	0.79	1	-0.21
467.6500	H	100.37	17.26	0.31	6.9	23.85	0.24	0.3	-0.06
467.6500	V	100.9	17.79	0.31	6.9	24.38	0.27	0.3	-0.03
467.6375	H	99.64	16.53	0.31	6.9	23.12	0.21	0.3	-0.09
467.6375	V	100.92	17.81	0.31	6.9	24.40	0.28	0.3	-0.02

Note:

Calculation Formula: Emission Level(dBm) = S.G.(dBm)- Cable Loss(dB)+ Ant.Gain(dBi)

The Ant. Gain including the correct factor 2.15.

Margin(dB) = Limit(W)- Emission Level(W)

3.3. Occupied Bandwidth

3.3.1. Applicable Standard

FCC Part 95.1773: GMRS:

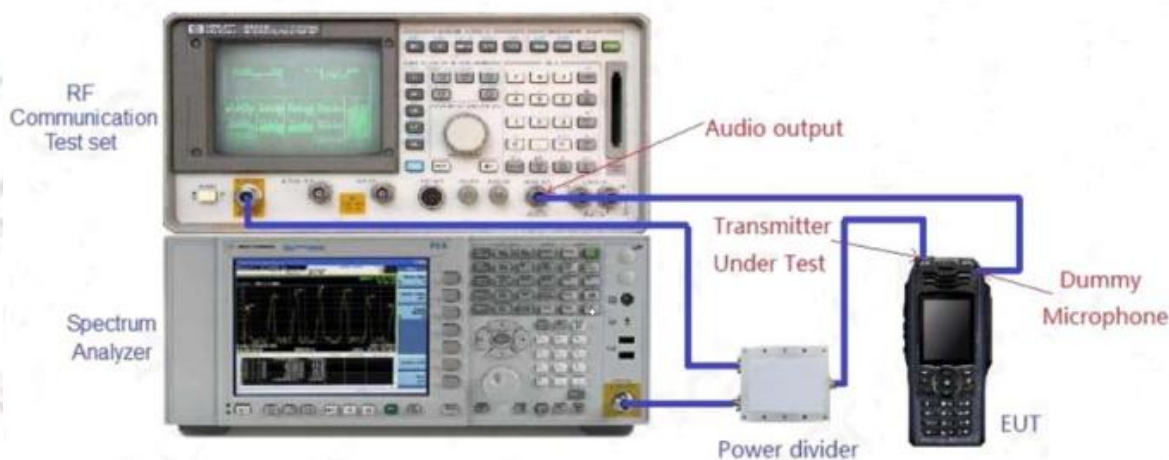
(a) Main channels. The authorized bandwidth is 20 kHz for GMRS transmitters operating on any of the 462 MHz main channels, or any of the 467 MHz main channels.

(b) 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.

3.3.2. Test Setup



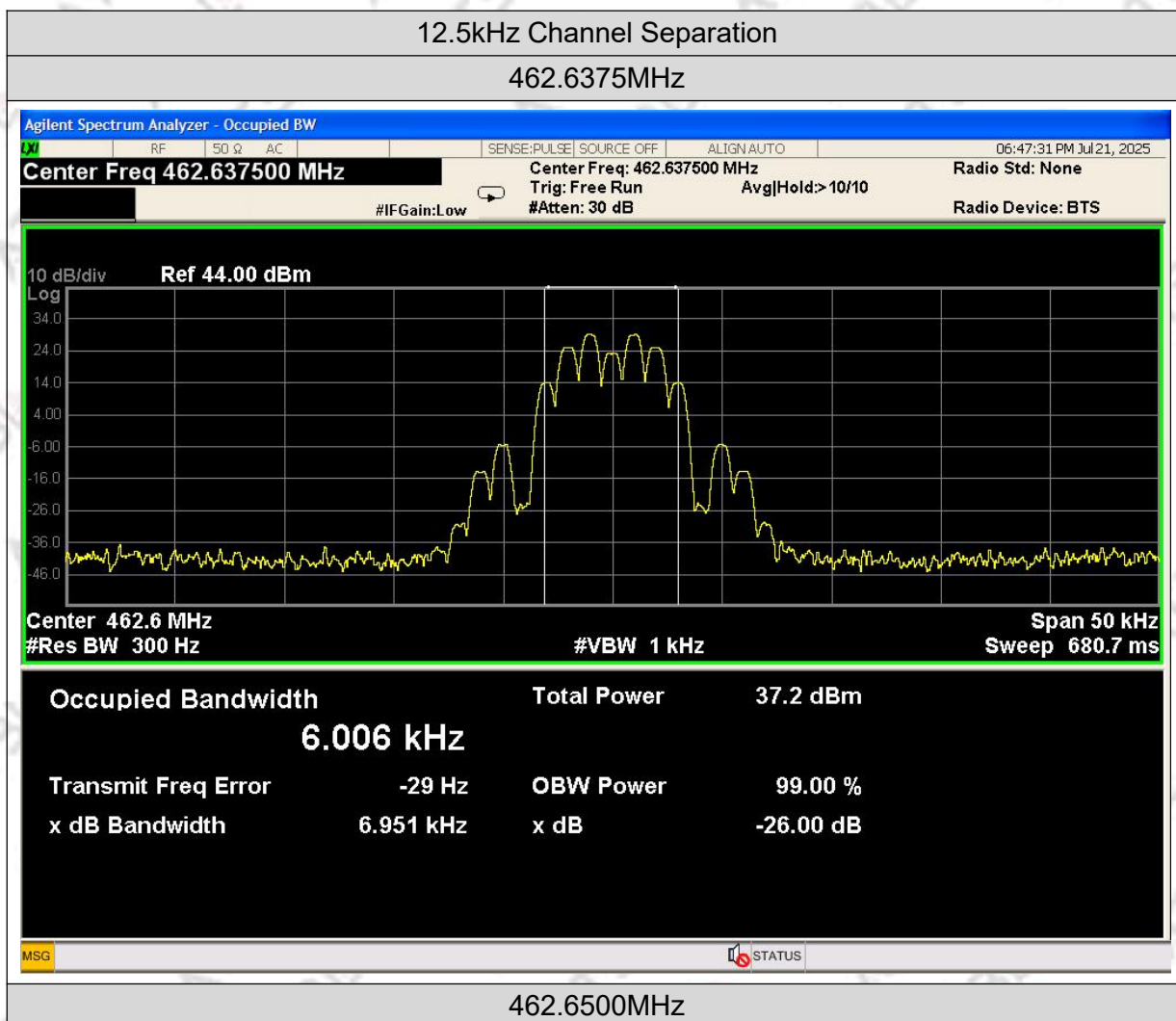
3.3.3. Test Procedures

- 1.The EUT was modulated by 2.5KHz Sine wave audio signal, The level of the audio signal employed is 16 dB greater than that necessary to produce 50% of rated system deviation. Rated system deviation is 2.5 kHz (12.5 kHz channel spacing).
2. Set SPA Center Frequency = fundamental frequency, RBW=300Hz.VBW= 1KHz, Span =150 KHz.
- 3.Set SPA Max hold. Mark peak, -26 dB Bandwidth .

3.3.4. Test Result

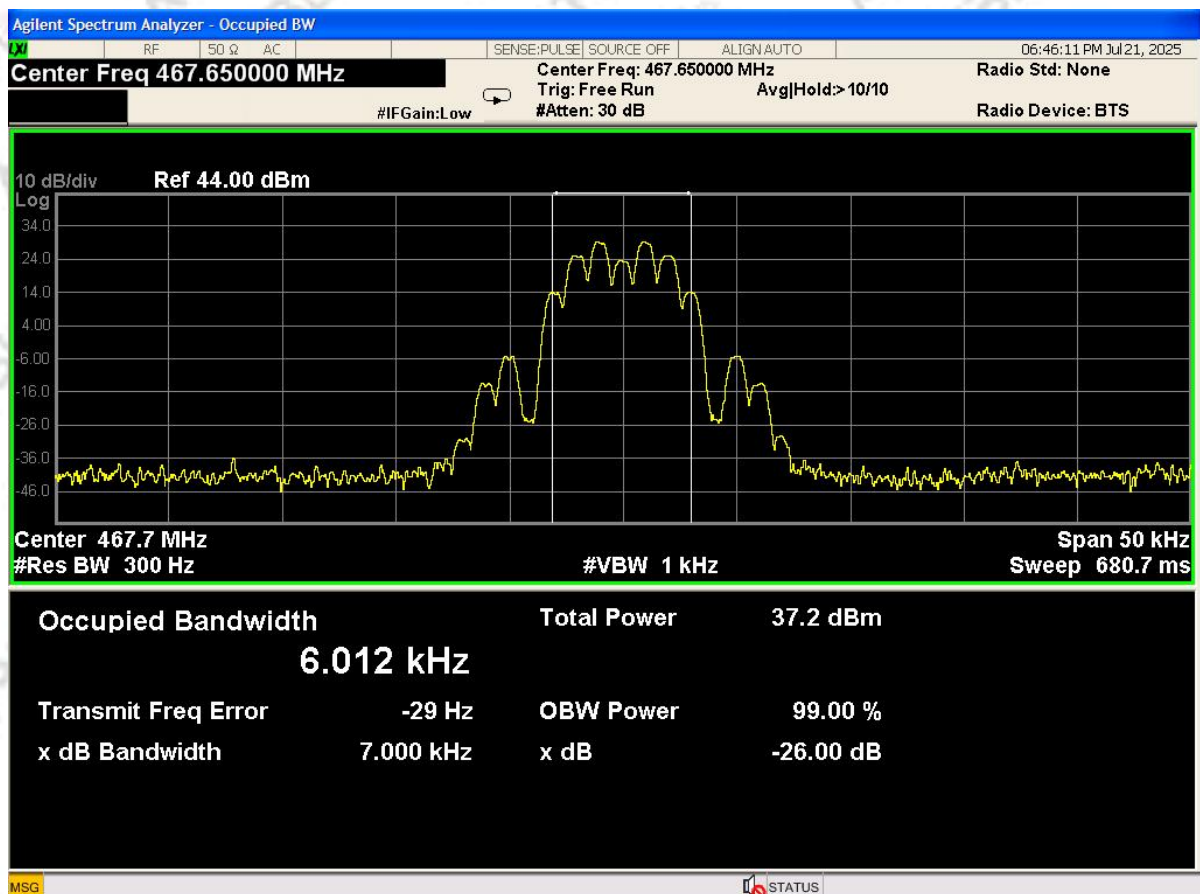
Emission Bandwidth Measurement Result -High Power Level				
Operating Frequency (MHz)	12.5kHz Channel Separation			
	99% Occupied Bandwidth (KHz)	26dB Emission Bandwidth (KHz)	Limits (KHz)	Result
462.6375	6.006	6.951	12.5	Pass
462.6500	5.907	6.855	12.5	Pass
467.6500	6.012	7.0	12.5	Pass
467.6375	5.736	6.755	12.5	Pass

The test plots as follows:

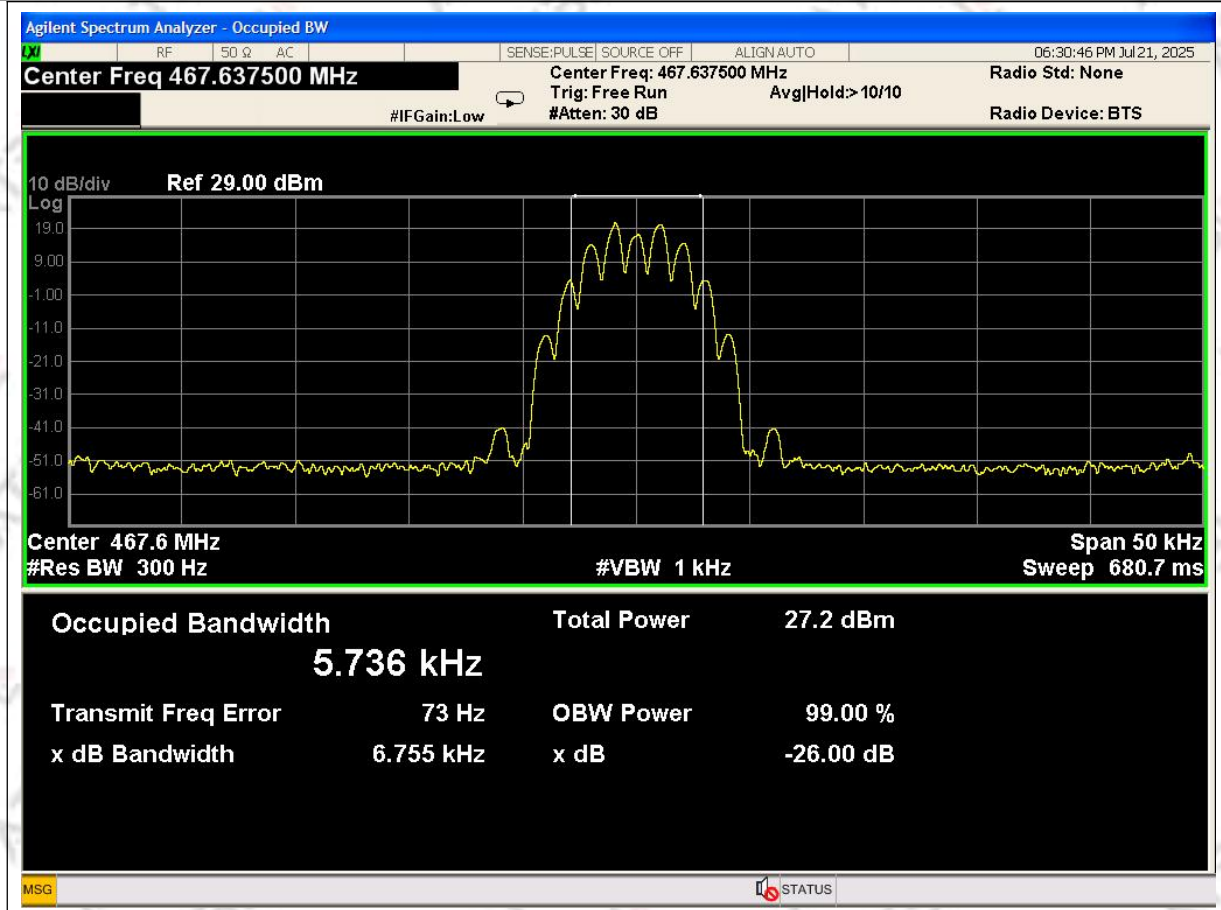




467.6500MHz

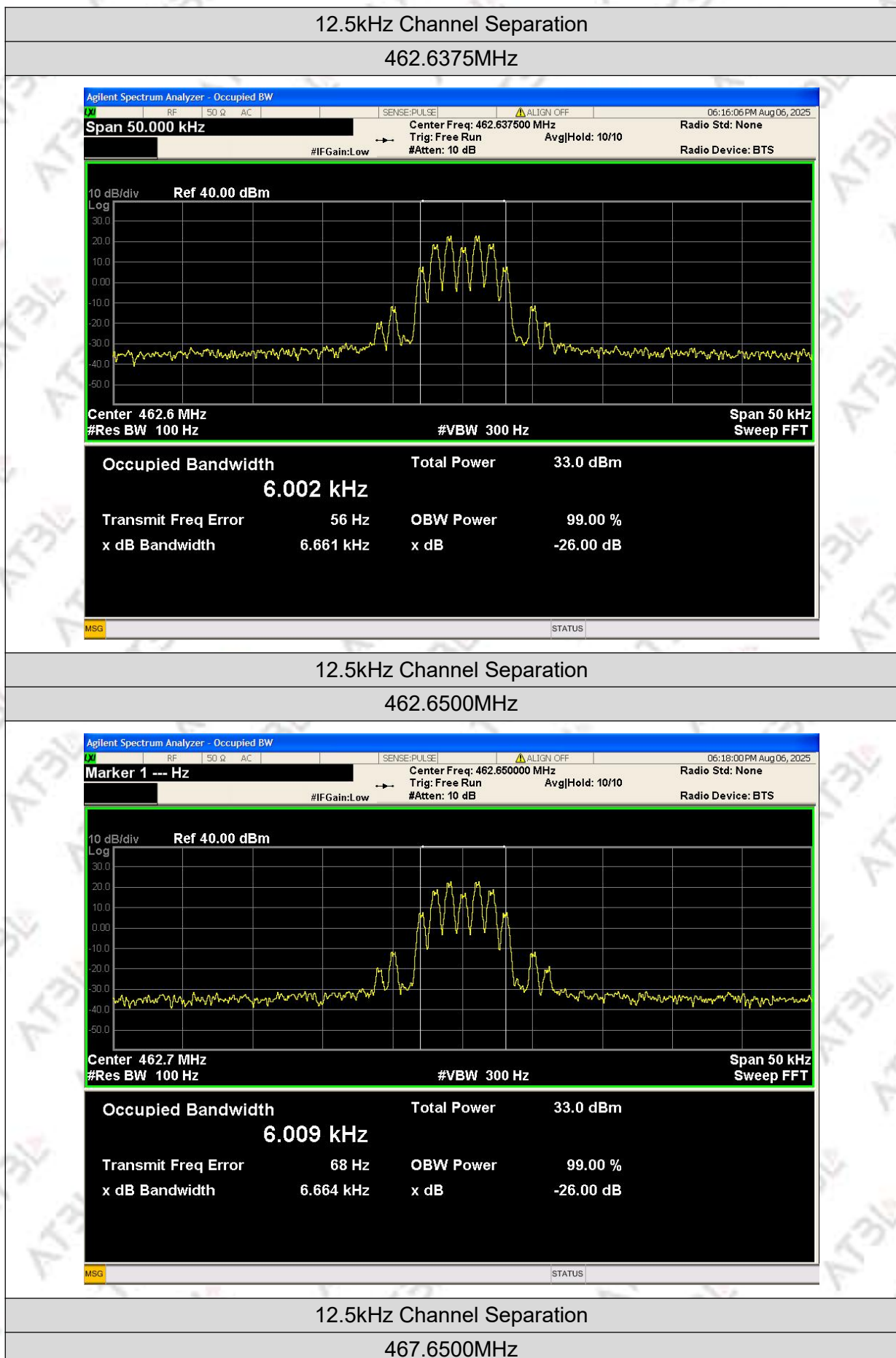


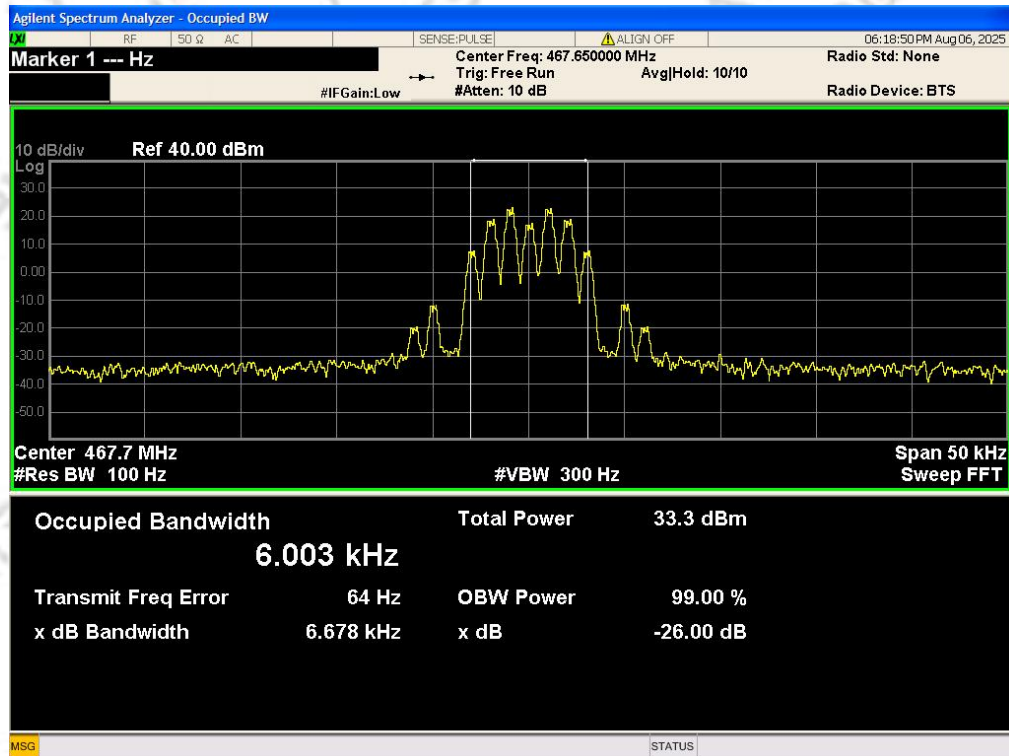
467.6375MHz



Emission Bandwidth Measurement Result -Low Power Level				
Operating Frequency (MHz)	12.5kHz Channel Separation			
	99% Occupied Bandwidth (KHz)	26dB Emission Bandwidth (KHz)	Limits (KHz)	Result
462.6375	6.002	6.661	12.5	Pass
462.6500	6.009	6.664	12.5	Pass
467.6500	6.003	6.678	12.5	Pass
467.6375	6.012	6.636	12.5	Pass

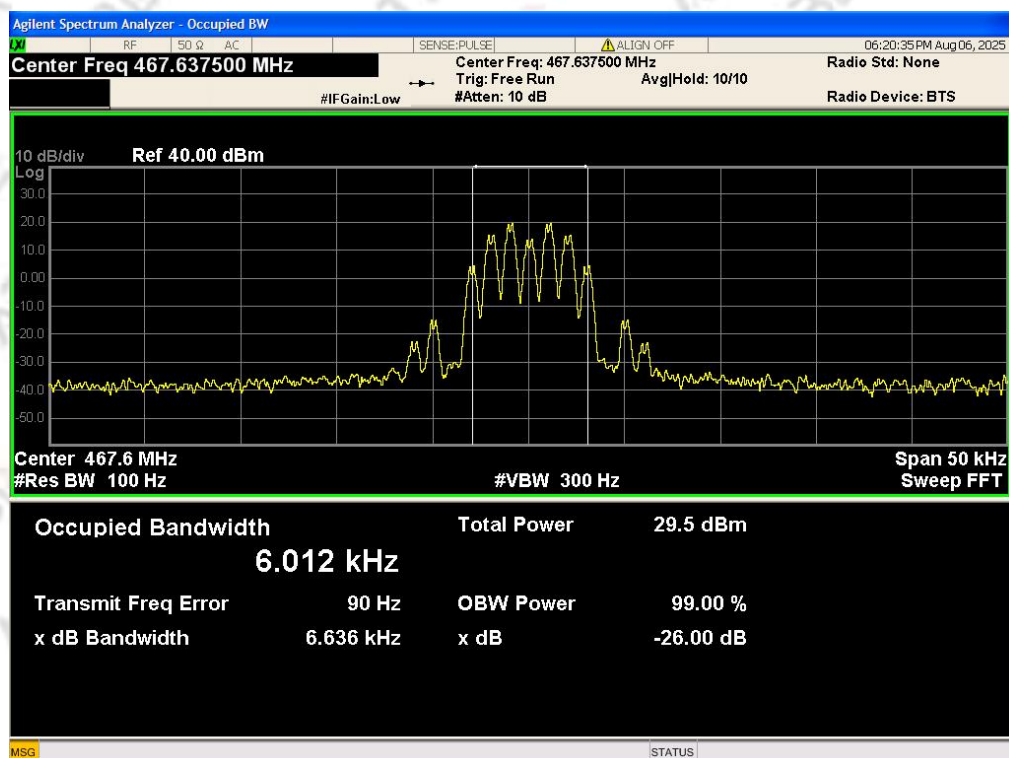
The test plots as follows:


12.5kHz Channel Separation
462.6500MHz
MSG
STATUS
12.5kHz Channel Separation
467.6500MHz



12.5kHz Channel Separation

467.6375MHz



3.4. Emission Mask

3.4.1. Applicable Standard

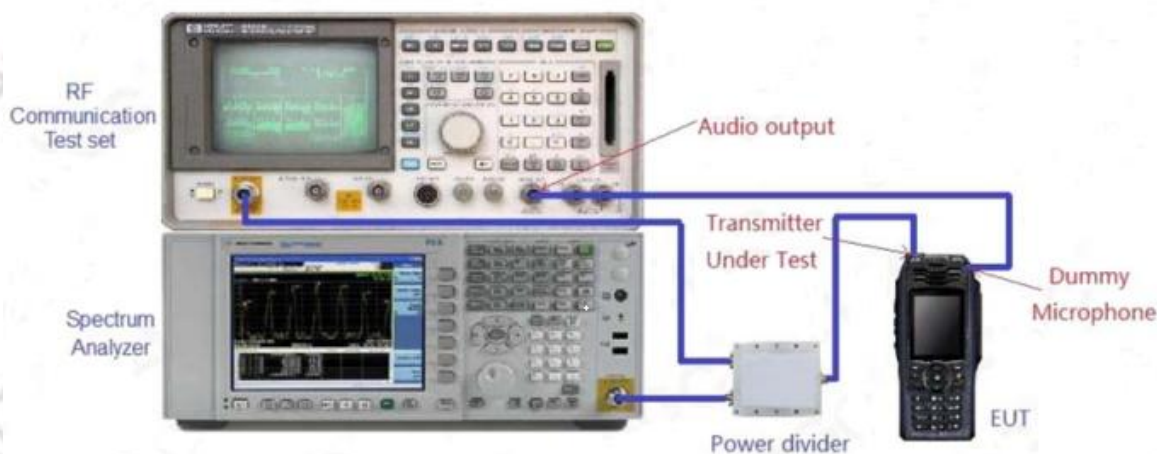
Standard Applicable [FCC Part 95.1779] GMRS: Unwanted emissions shall be attenuated below the unmodulated carrier power in accordance with the following:

- (1) At least 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) At least 35 dB on any frequency removed from the center of the authorized bandwidth by more than 100 % up to and including 250 % of the authorized bandwidth.
- (3) At least $43 + 10 \log_{10}(P)$ dB on any frequency removed from the center of the authorized bandwidth by more than 250 %.

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

- The transmitter shall be modulated by a 2.5 kHz audio signal,
- The level of the audio signal employed is 16 dB greater than that necessary to produce 50% of rated system deviation. Rated system deviation is 2.5 kHz.

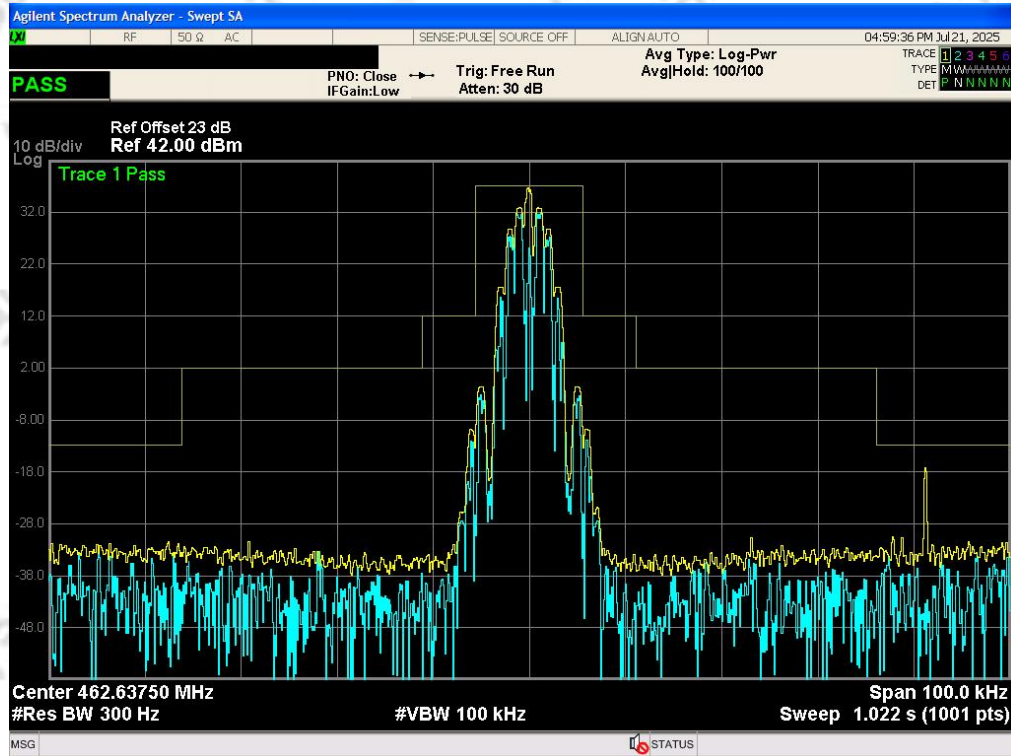
3.4.2. Test Setup



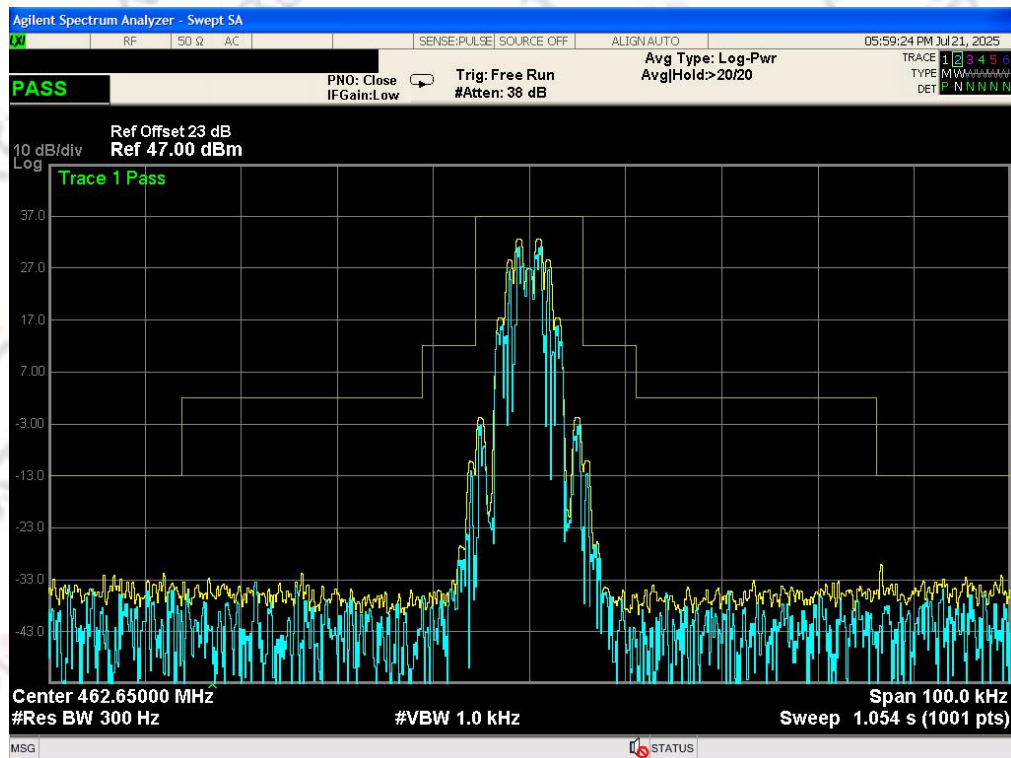
3.4.3. Test Result

FM,12.5kHz, High Power Level:

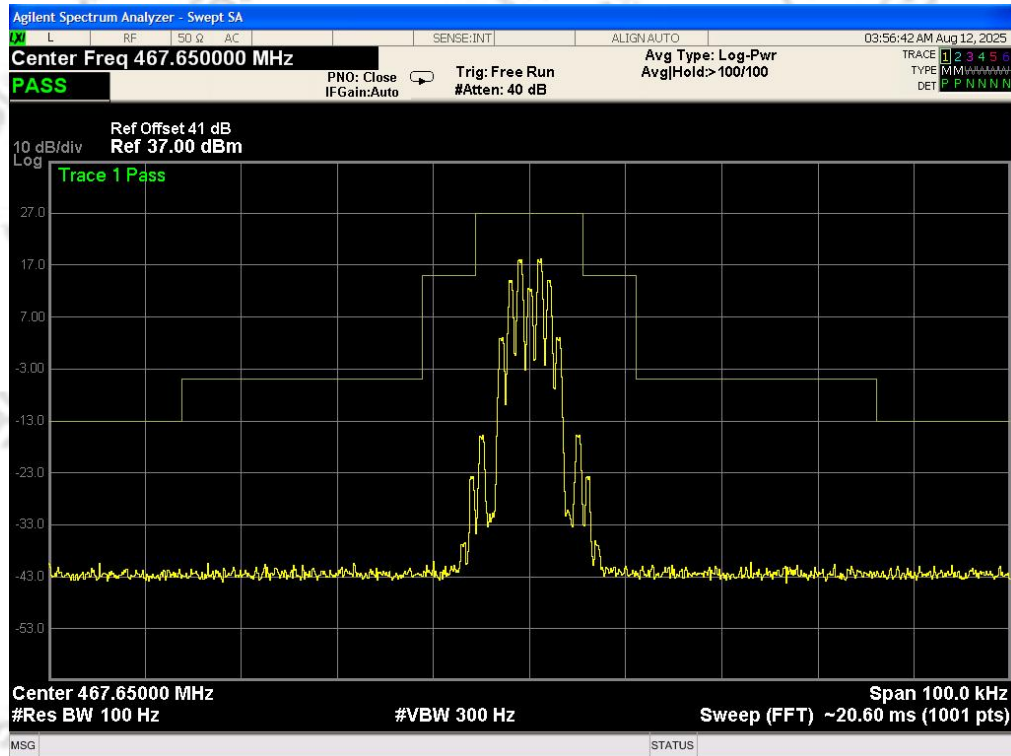
The Worst Emission Mask for (462.6375MHz) of 12.5KHz channel Separation-5W



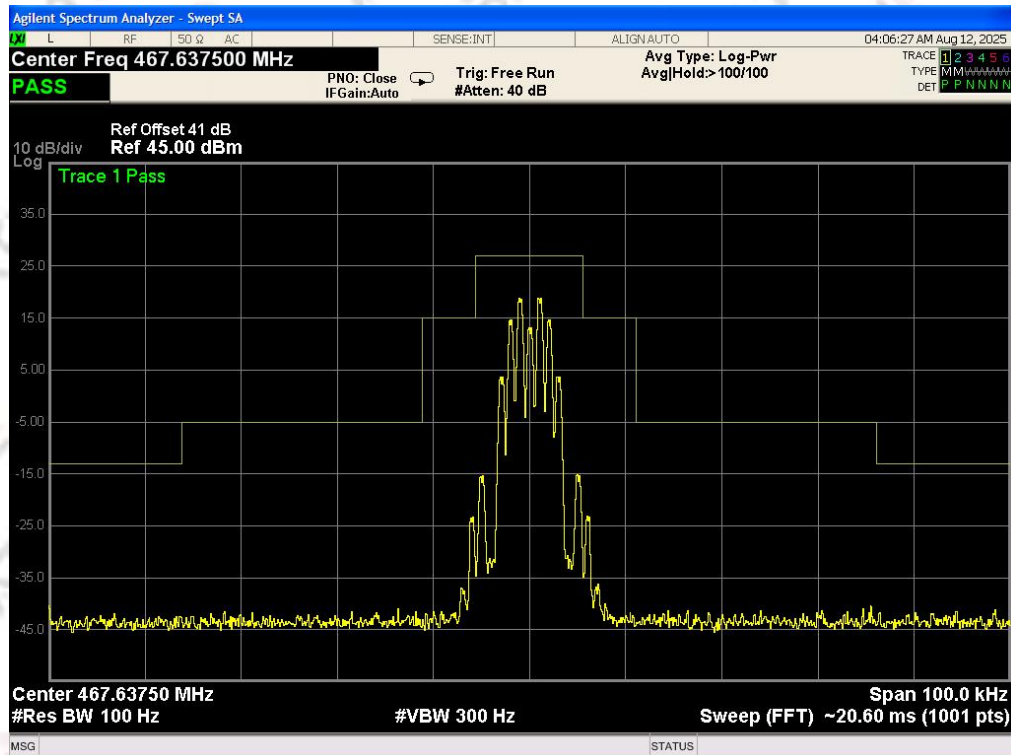
The Worst Emission Mask for (462.6500MHz) of 12.5 KHz channel Separation-5W



The Worst Emission Mask for (467.6500MHz) of 12.5KHz channel Separation-0.5W

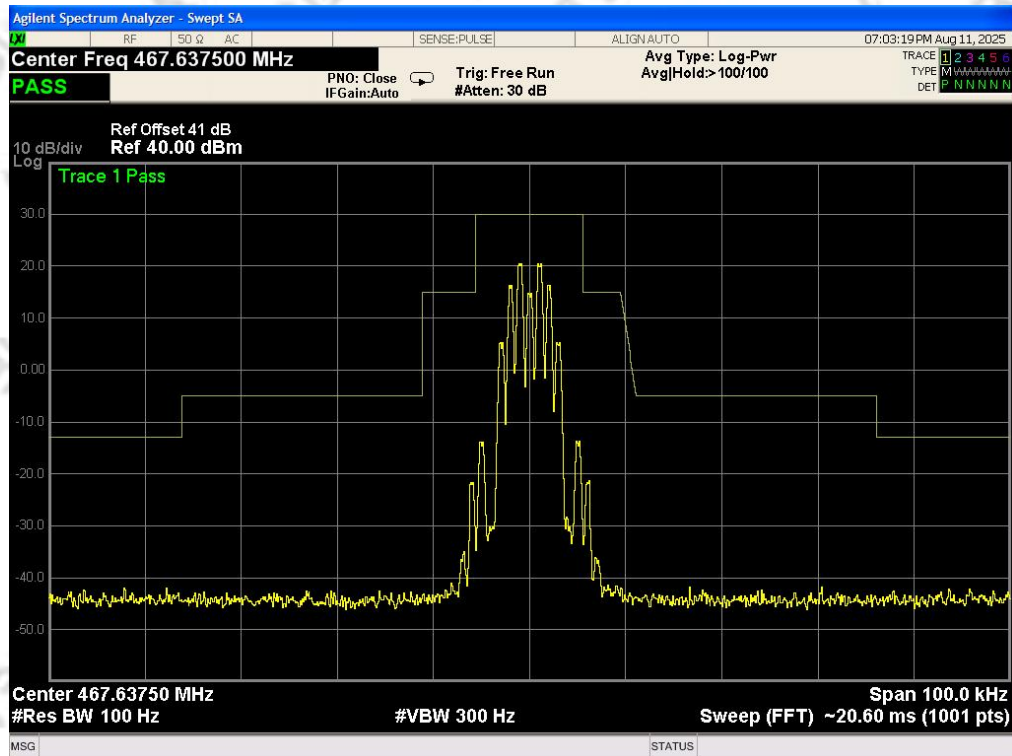


The Worst Emission Mask for (467.637500MHz) of 12.5KHz channel Separation-0.5W

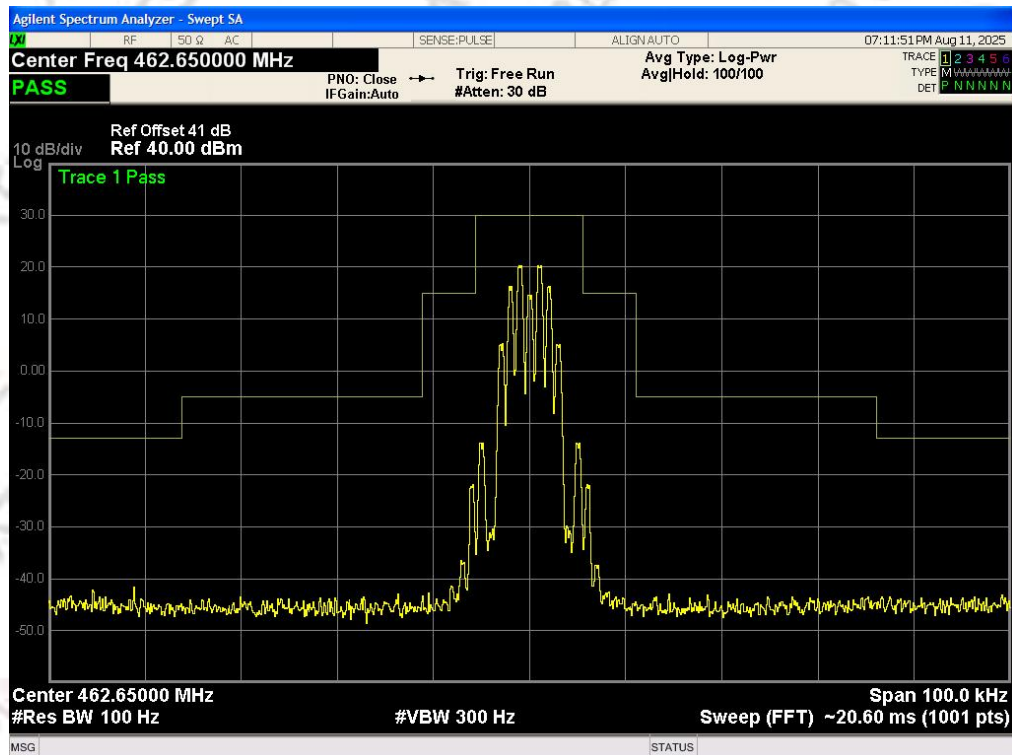


FM,12.5kHz, Low Power Level:

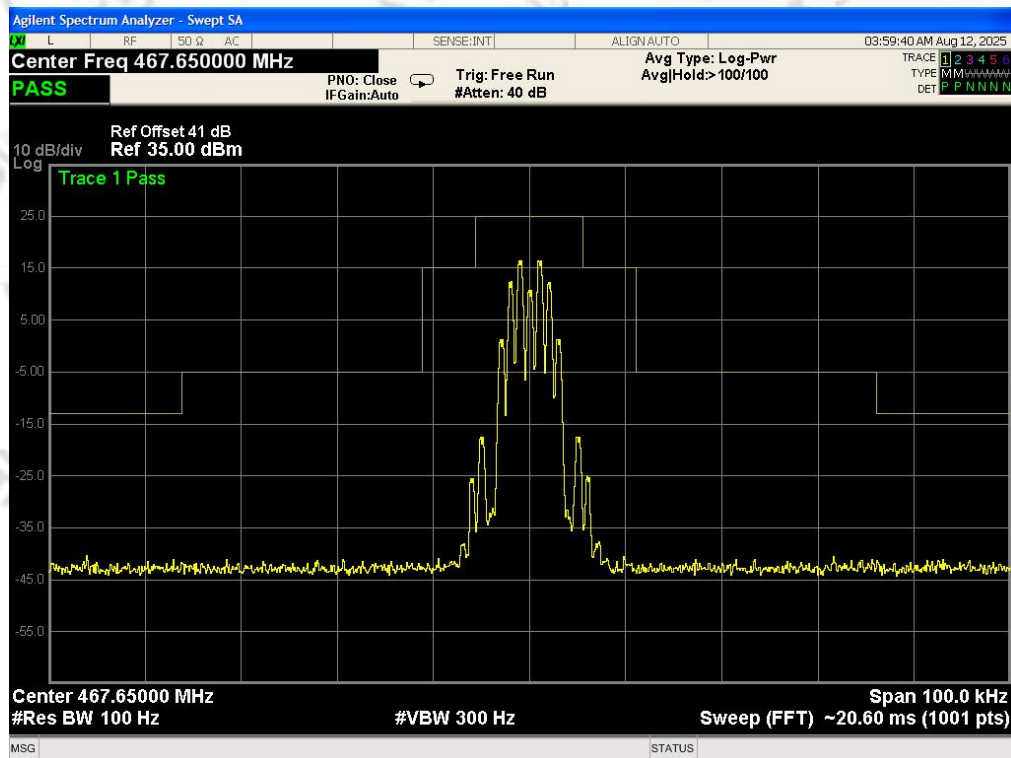
The Worst Emission Mask for (462.6375MHz) of 12.5KHz channel Separation-1W



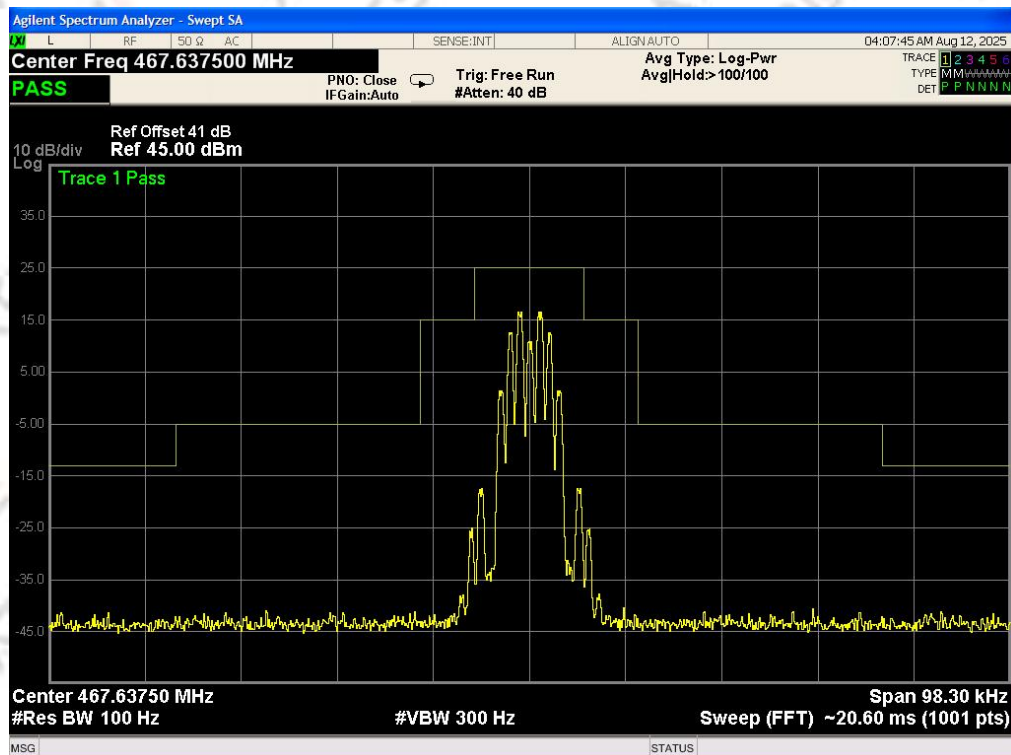
The Worst Emission Mask for (462.6500MHz) of 12.5KHz channel Separation-1W



The Worst Emission Mask for (467.6500MHz) of 12.5KHz channel Separation-0.3W



The Worst Emission Mask for (467.6375MHz) of 12.5KHz channel Separation-0.3W



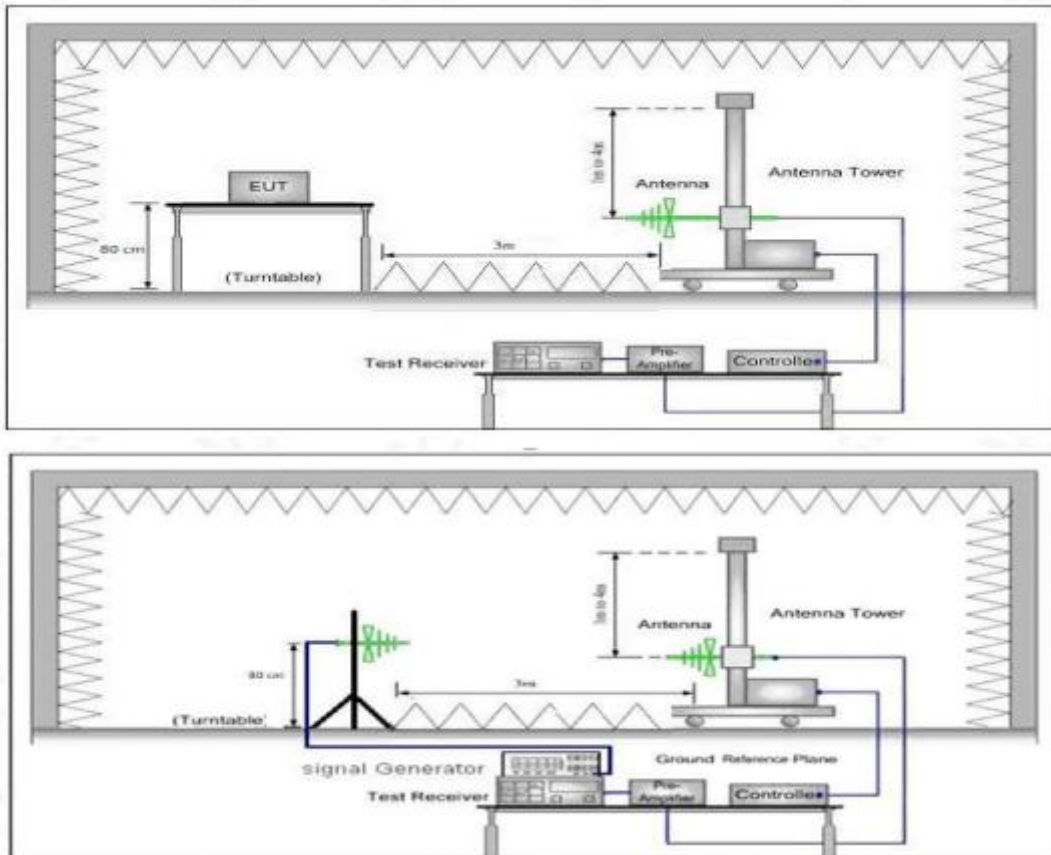
3.5. Transmitter Unwanted Emissions at Radiated Spurious Emission

3.5.1. Applicable Standard

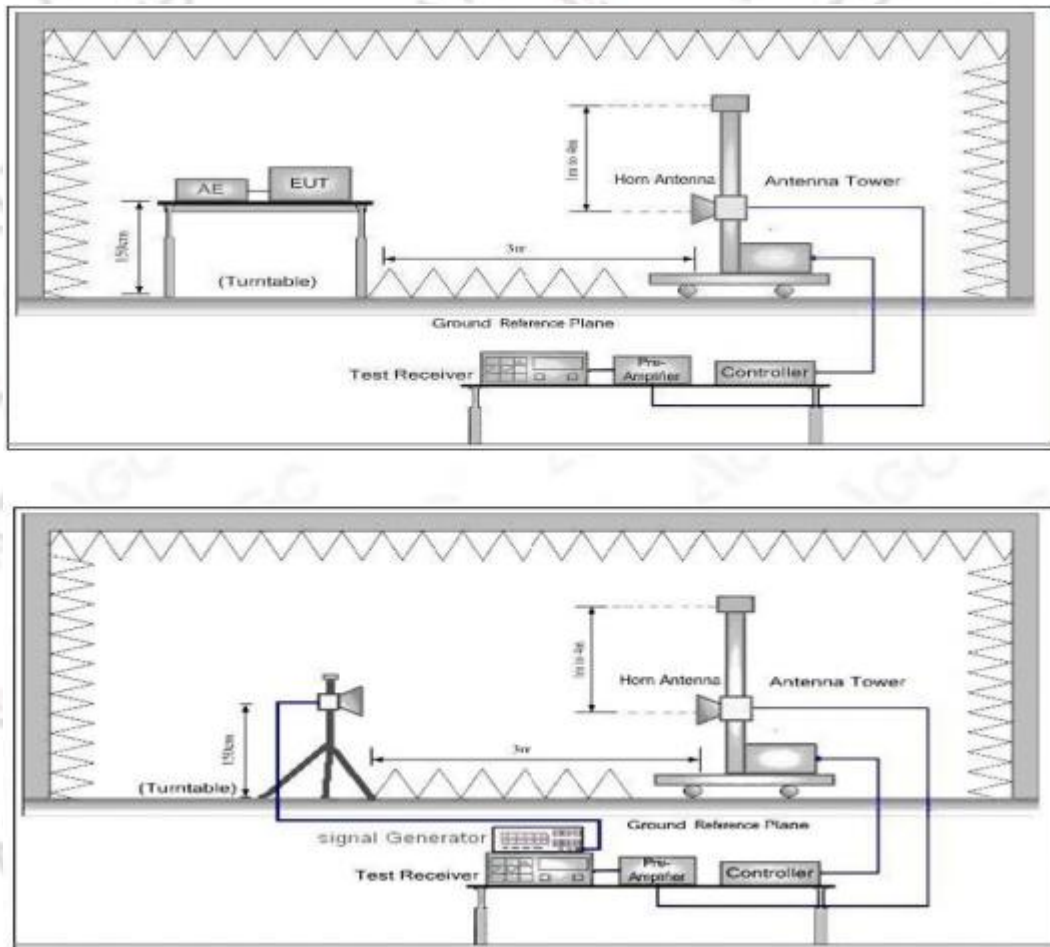
Standard Applicable [FCC Part 95.1779] According to FCC section §95.1779, the unwanted emission should be attenuated below TP by at least $43 + 10 \log(\text{Power out in Watts})$ dB.

3.5.2. Test Setup

Radiated 1GHz Below



Radiated 1GHz Above



3.5.3. Test Procedures

The transmitter was placed on a wooden turntable, and it was transmitting into a non-radiating load, which was also placed on the turntable.

The measurement antenna was placed at a distance of 3 meters from the EUT. During the tests, the antenna height and polarization as well as EUT azimuth were varied in order to identify the maximum level of emissions from the EUT. The test was performed by placing the EUT on 3-orthogonal axis.

The frequency range up to tenth harmonic of the fundamental frequency was investigated.

Remove the EUT and replace it with substitution antenna. A signal generator was connected to the substitution antenna by a non-radiating cable. The absolute levels of the spurious emissions were measured by the substitution. Spurious emissions in dB-10 lg (TX power in Watts/0.001)-the absolute level Spurious attenuation limit in dB-43+10 Log10 (power out in Watts)

3.5.4. Test Result

Note:

1.the unwanted emission should be attenuated below TP by at least $43+10 \log(\text{Power out in Watts})$ dB

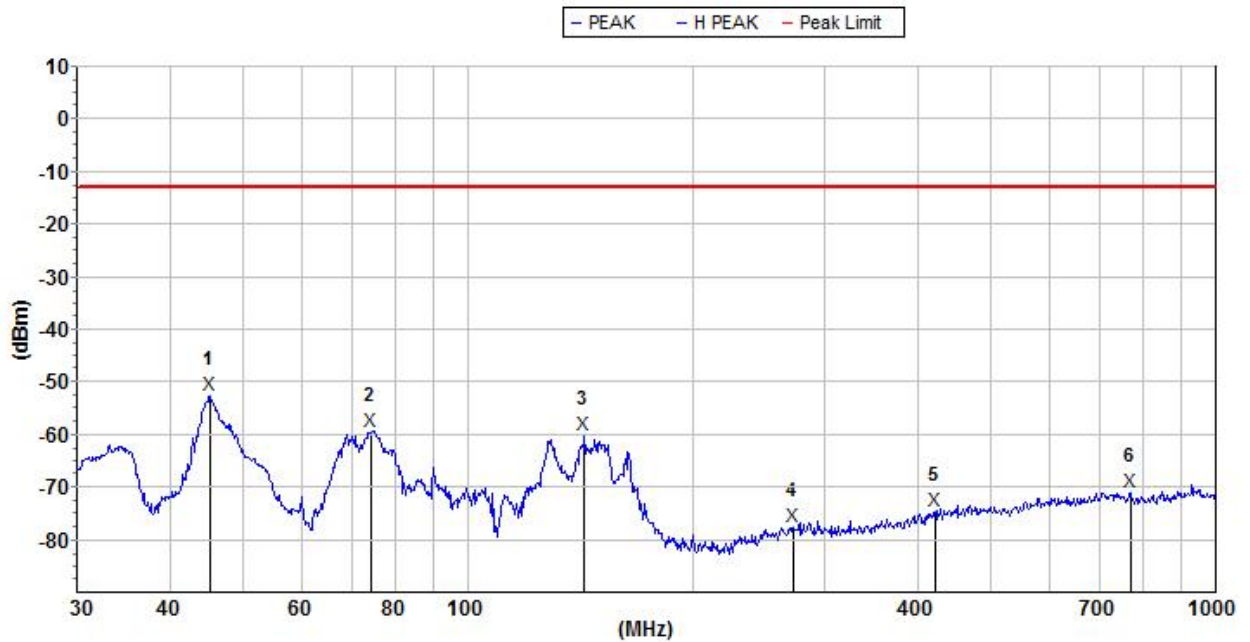
Limit: At least $43+10 \log(P)=43+10 \log(5)=49.99$ (dBc) $36.99-49.99=-13\text{dBm}$

At least $43+10 \log(P)=43+10 \log(0.5)=39.99$ (dBc) $26.99-39.99=-13\text{dBm}$

2.All modes have been tested, only worst case High Power Level Mode test data was recorded in the test report.

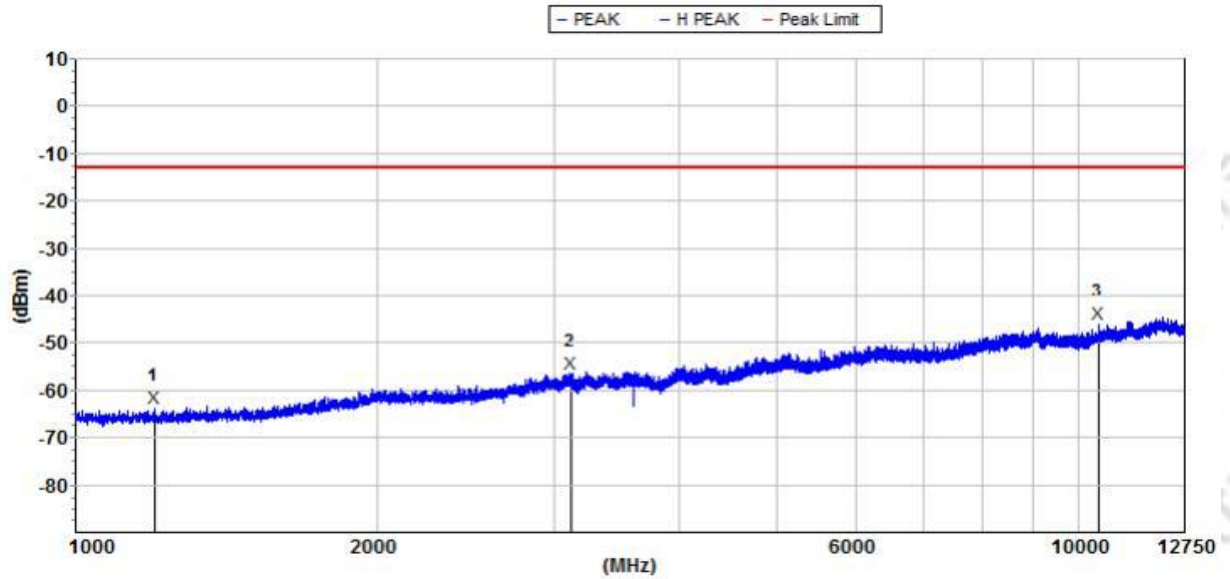
Measurement Result for 12.5KHz Channel Separation @462.6375MHz-5W-Horizontal

1GHz Below:



Mk.	Freq.(MHz)	Level(dBm)	Limit(dBm)	Margin(dB)	Deg.(deg.)	Hi.(cm)	Aux.F.(dB)	Pol.
Peak:								
1	45.217	-52.4	-13.0	39.4	253.5	150	-34.6	H
2	74.396	-59.4	-13.0	46.4	291	150	-28.4	H
3	143.326	-60.1	-13.0	47.1	111.2	150	-22.8	H
4	272.278	-77.4	-13.0	64.4	223.5	150	-20.1	H
5	422.058	-74.7	-13.0	61.7	360	150	-17.5	H
6	768.748	-70.8	-13.0	57.8	360	150	-14.3	H

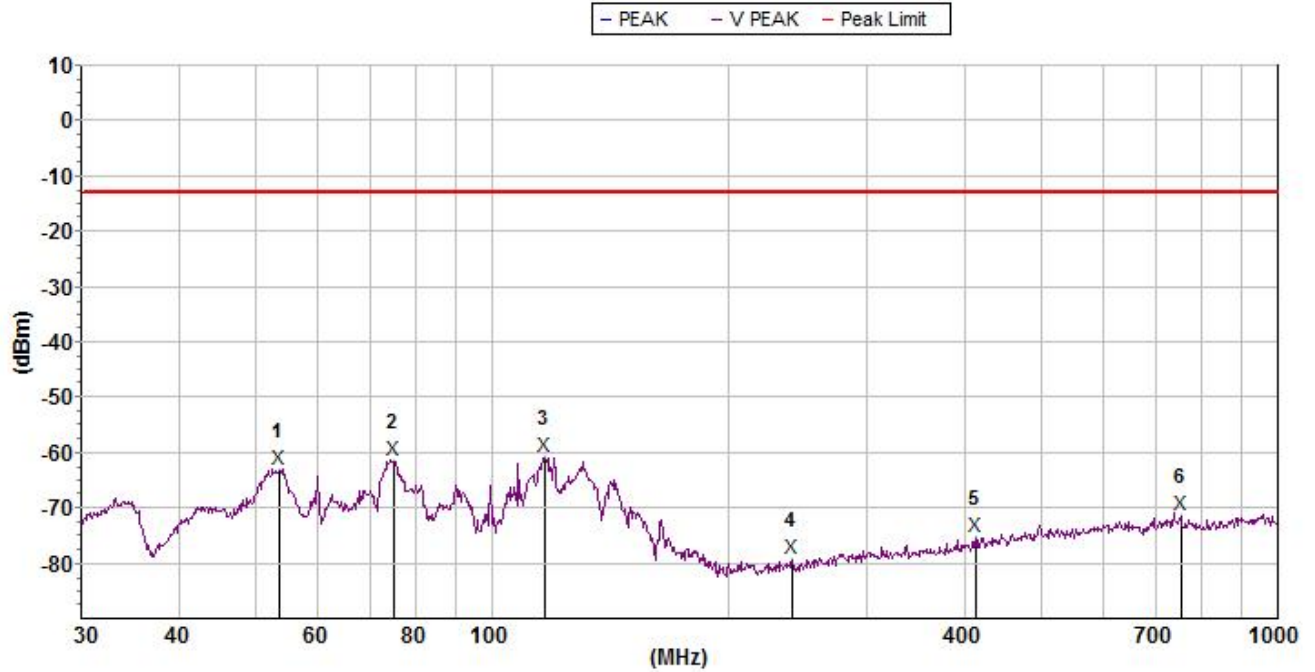
1GHz Above:



Mk.	Freq. (MHz)	Level (dB m)	Limit (dB m)	Margin (dB)	Deg. (deg.)	Hi.(cm)	Aux.F. (dB)	Pol.
Peak:								
1	1197.333	-63.6	-13.0	50.6	214.32	150	-18.0	H
2	3116.092	-56.4	-13.0	43.4	18.47	150	-11.0	H
3	10460.604	-45.8	-13.0	32.8	180.97	150	1.0	H

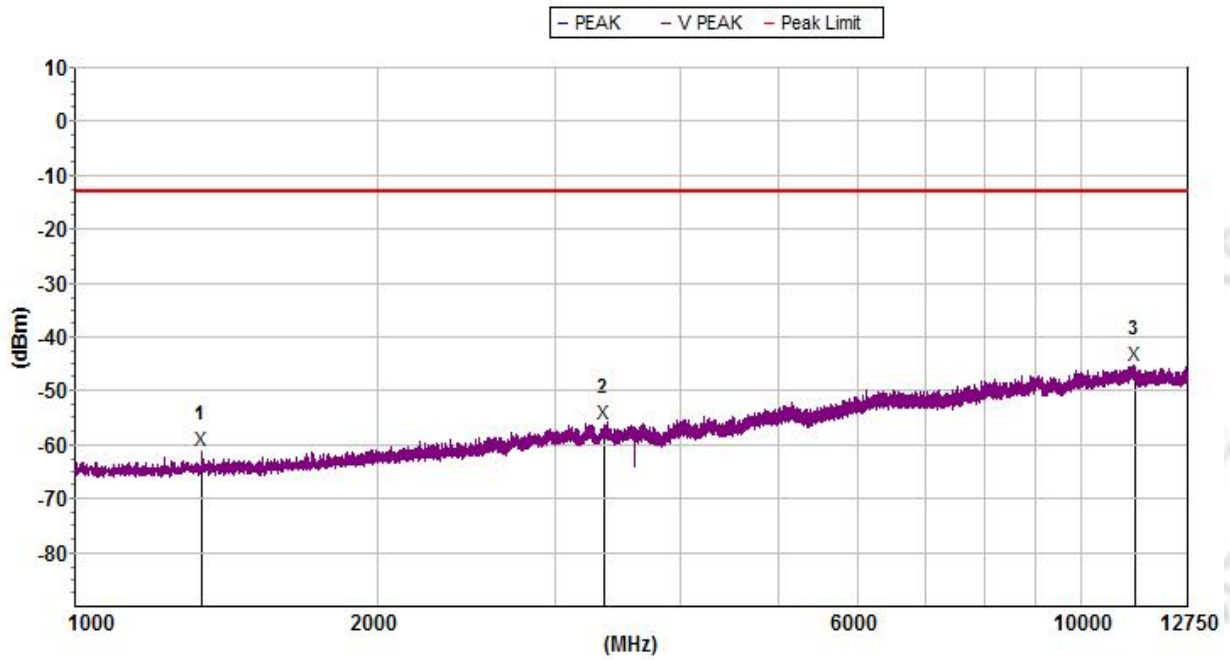
Measurement Result for 12.5KHz Channel Separation @462.6375MHz-5W-Vertical

1GHz Below:



Mk.	Freq.(MHz)	Level(dBm)	Limit(dBm)	Margin(dB)	Deg.(deg.)	Hi.(cm)	Aux.F.(dB)	Pol.
Peak:								
1	53.693	-62.9	-13.0	49.9	84.27	150	-35.0	V
2	74.919	-61.3	-13.0	48.3	84.27	150	-28.0	V
3	116.949	-60.8	-13.0	47.8	0	150	-20.4	V
4	240.830	-79.0	-13.0	66.0	39.27	150	-22.7	V
5	411.824	-75.1	-13.0	62.1	0	150	-18.6	V
6	752.743	-71.2	-13.0	58.2	91.77	150	-14.9	V

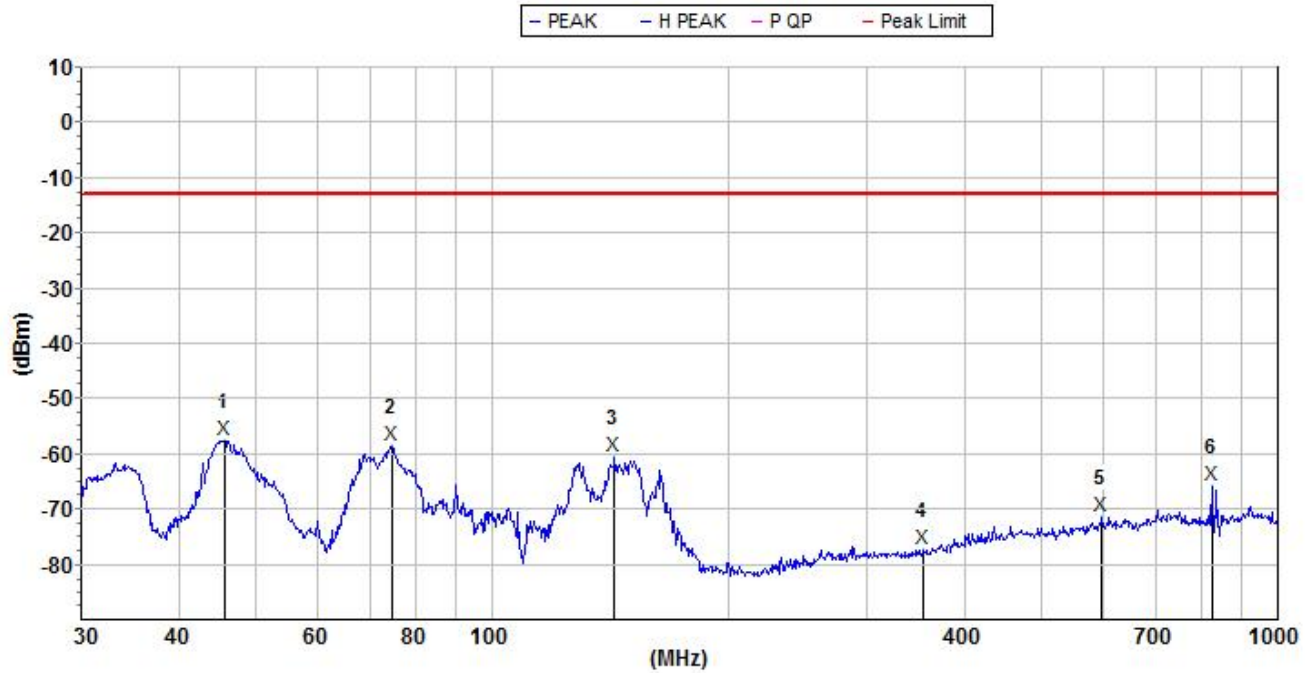
1GHz Above:



Mk.	Freq. (MHz)	Level (dB m)	Limit (dB m)	Margin (dB)	Deg. (deg.)	Hi.(cm)	Aux.F. (dB)	Pol.
Peak:								
1	1338.896	-61.2	-13.0	48.2	68.47	150	-16.8	V
2	3353.119	-56.0	-13.0	43.0	36.22	150	-11.0	V
3	11309.428	-45.1	-13.0	32.1	0	150	2.6	V

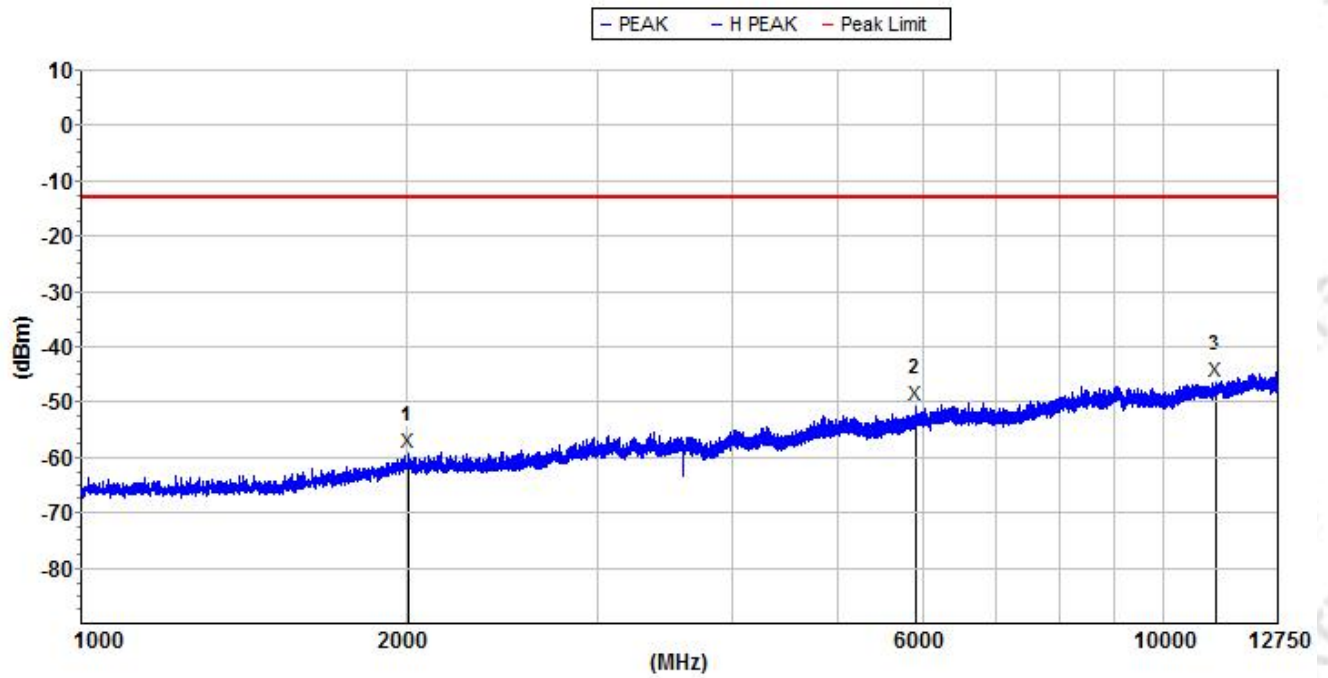
Measurement Result for 12.5KHz Channel Separation @462.6500MHz-5W-Horizontal

1GHz Below:



Mk.	Freq.(MHz)	Level(dBm)	Limit(dBm)	Margin(dB)	Deg.(deg.)	Hi.(cm)	Aux.F.(dB)	Pol.
Peak:								
1	45.695	-57.3	-13.0	44.3	279.12	150	-34.5	H
2	74.657	-58.5	-13.0	45.5	359.96	150	-28.3	H
3	143.326	-60.5	-13.0	47.5	196.72	150	-22.8	H
4	354.183	-77.2	-13.0	64.2	136.77	150	-19.6	H
5	597.223	-71.1	-13.0	58.1	359.96	150	-15.1	H
6	824.597	-65.7	-13.0	52.7	211.67	150	-14.6	H

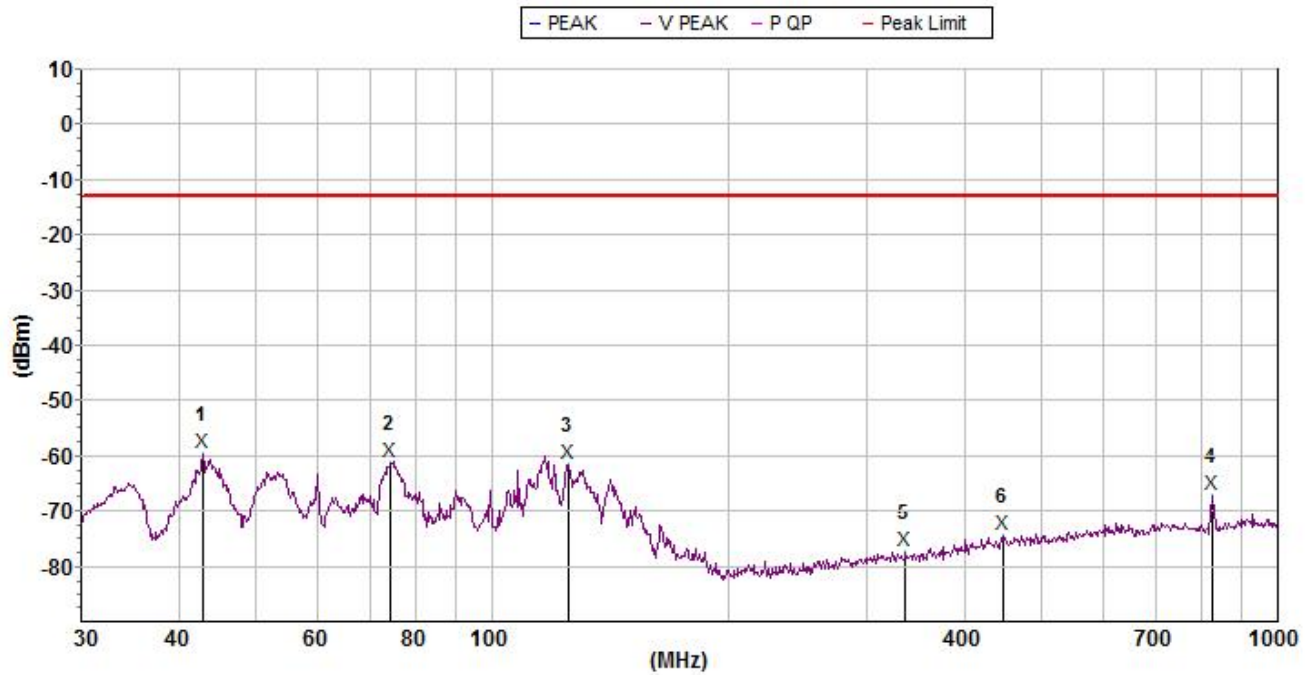
1GHz Above:



Mk.	Freq.(MHz)	Level(dBm)	Limit(dBm)	Margin(dB)	Deg.(deg.)	Hi.(cm)	Aux.F.(dB)	Pol.
Peak:								
1	2006.887	-59.0	-13.0	46.0	39.87	150	-14.0	H
2	5901.777	-50.6	-13.0	37.6	360	150	-3.5	H
3	11199.134	-46.1	-13.0	33.1	310.57	150	2.0	H

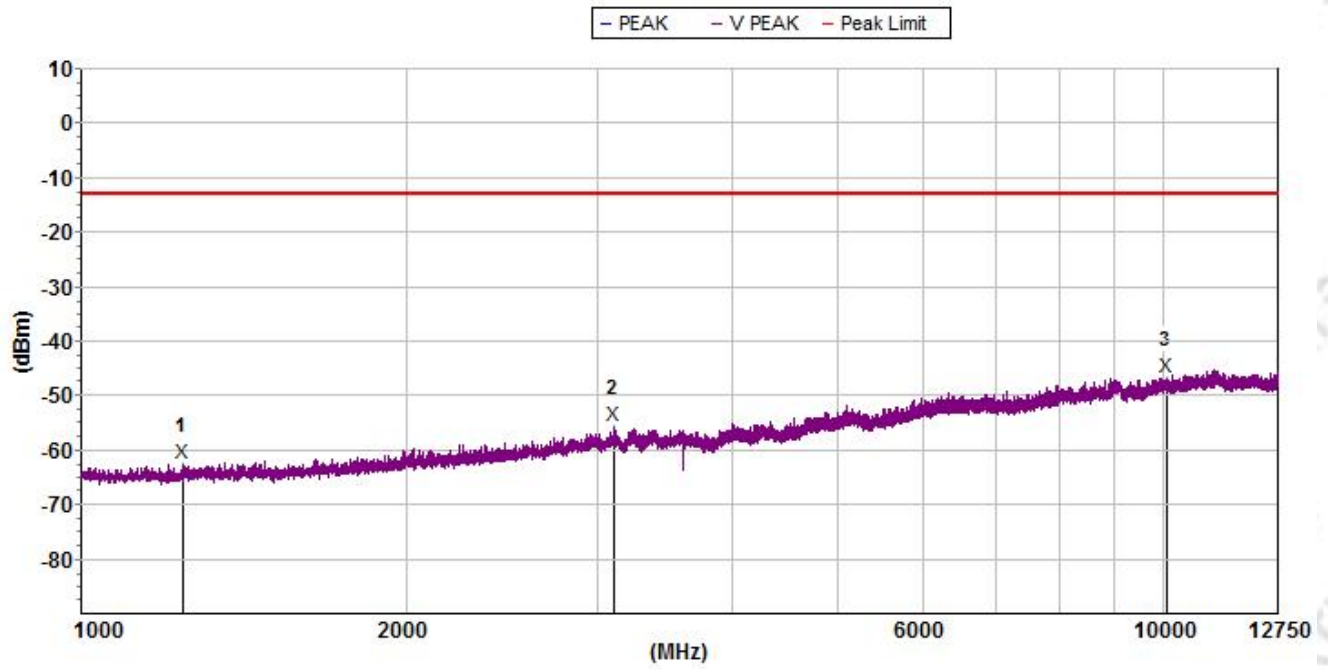
Measurement Result for 12.5KHz Channel Separation @462.6500MHz-5W-Vertical

1GHz Below:



Mk.	Freq.(MHz)	Level(dBm)	Limit(dBm)	Margin(dB)	Deg.(deg.)	Hi.(cm)	Aux.F.(dB)	Pol.
Peak:								
1	42.900	-59.4	-13.0	46.4	88.47	150	-39.0	V
2	74.396	-60.9	-13.0	47.9	343.52	150	-28.1	V
3	125.446	-61.4	-13.0	48.4	208.47	150	-20.1	V
4	827.493	-66.9	-13.0	53.9	260.92	150	-15.6	V
5	336.035	-77.3	-13.0	64.3	298.42	150	-20.1	V
6	446.414	-74.1	-13.0	61.1	350.97	150	-17.8	V

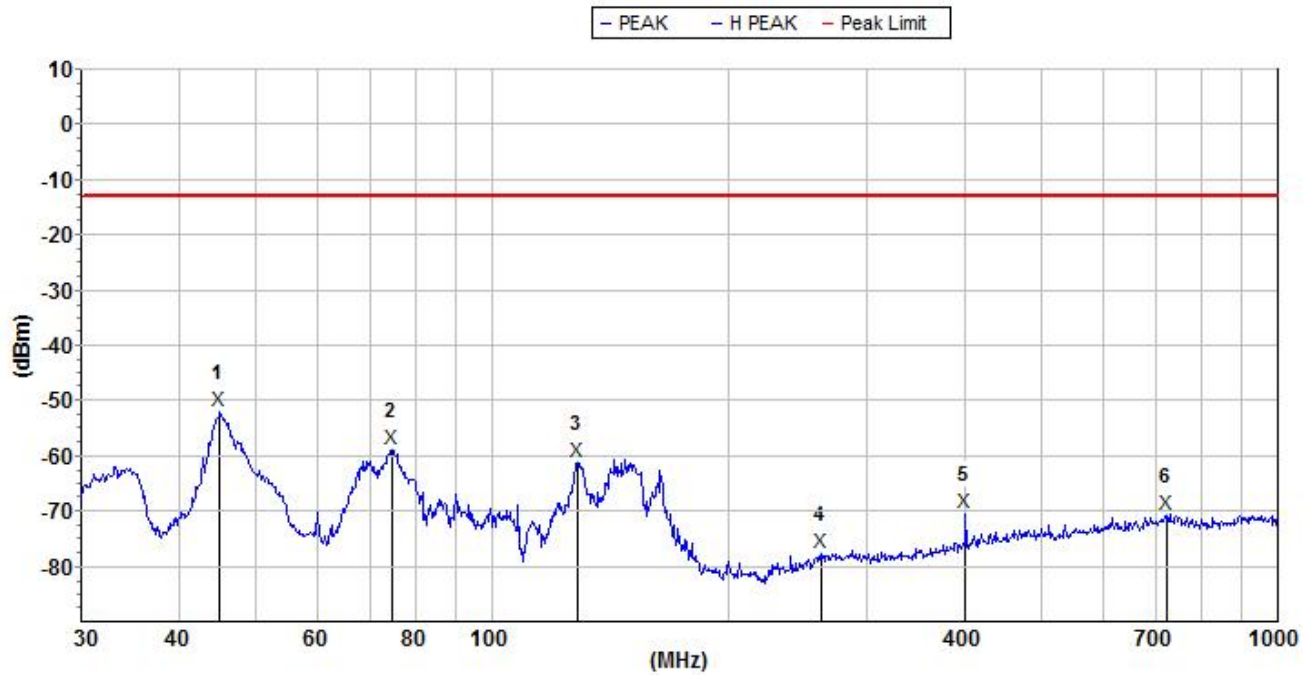
1GHz Above:



Mk.	Freq.(MHz)	Level(dBm)	Limit(dBm)	Margin(dB)	Deg.(deg.)	Hi.(cm)	Aux.F.(dB)	Pol.
Peak:								
1	1244.251	-62.5	-13.0	49.5	55.07	150	-16.9	V
2	3104.217	-55.4	-13.0	42.4	55.07	150	-11.0	V
3	10068.717	-46.6	-13.0	33.6	91.67	150	2.0	V

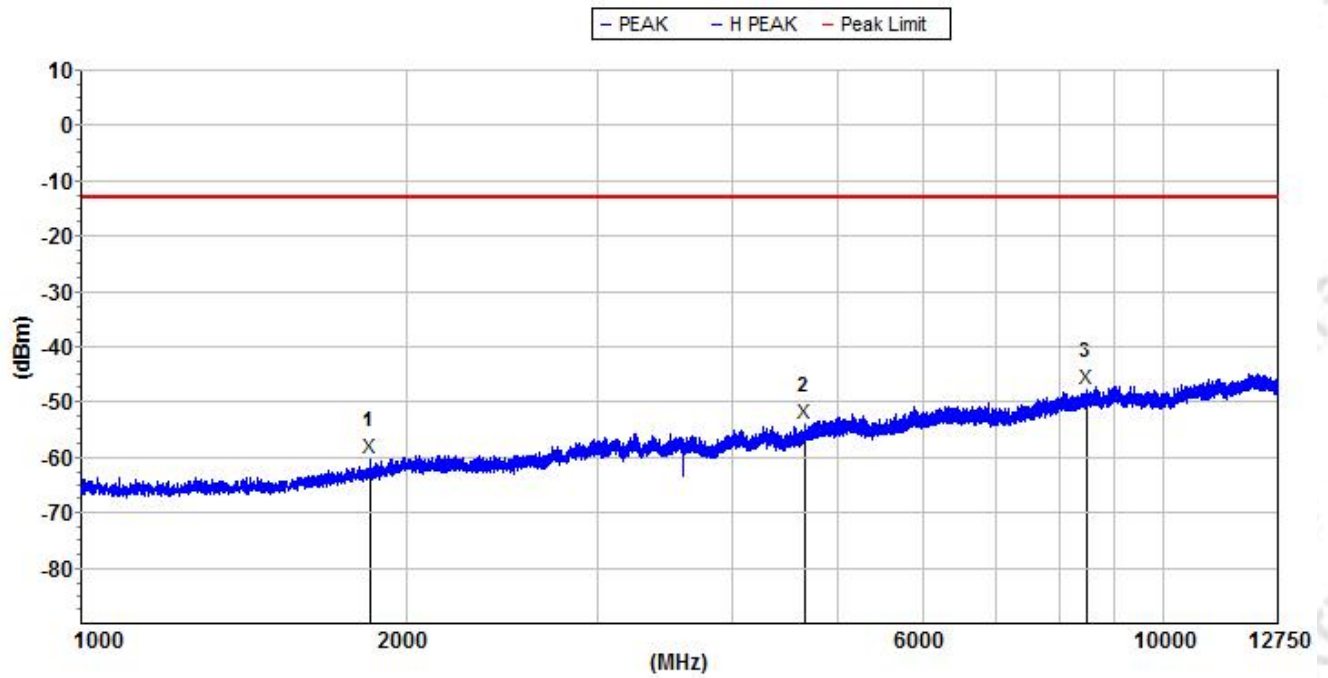
Measurement Result for 12.5KHz Channel Separation @467.6500MHz-0.5W-Horizontal

1GHz Below:



Mk.	Freq.(MHz)	Level(dBm)	Limit(dBm)	Margin(dB)	Deg.(deg.)	Hi.(cm)	Aux.F.(dB)	Pol.
Peak:								
1	45.058	-51.9	-13.0	38.9	13.67	150	-34.7	H
2	74.657	-58.8	-13.0	45.8	298.17	150	-28.3	H
3	128.563	-61.0	-13.0	48.0	118.52	150	-23.1	H
4	261.975	-77.4	-13.0	64.4	328.17	150	-20.8	H
5	400.432	-70.1	-13.0	57.1	260.82	150	-18.2	H
6	721.726	-70.5	-13.0	57.5	36.17	150	-13.6	H

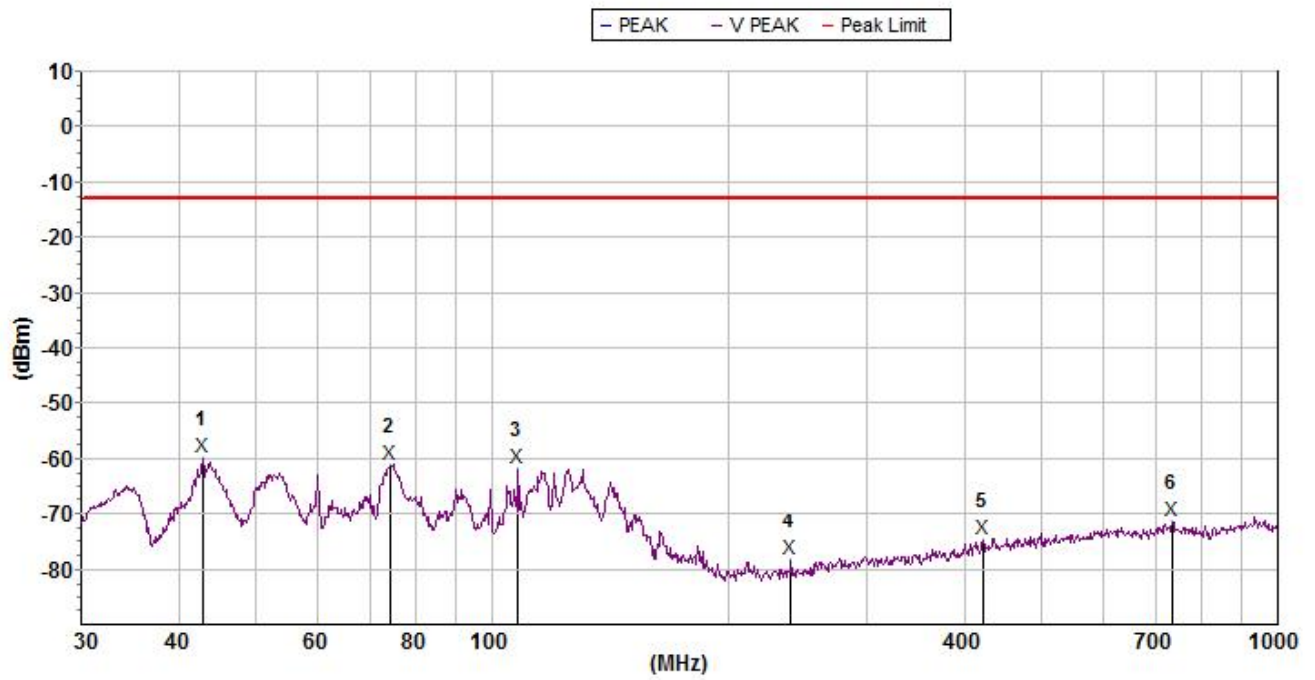
1GHz Above:



Mk.	Freq.(MHz)	Level(dBm)	Limit(dBm)	Margin(dB)	Deg.(deg.)	Hi.(cm)	Aux.F.(dB)	Pol.
Peak:								
1	1852.249	-60.2	-13.0	47.2	360	150	-15.1	H
2	4664.807	-53.8	-13.0	40.8	85.57	150	-6.8	H
3	8506.170	-47.6	-13.0	34.6	0	150	-0.5	H

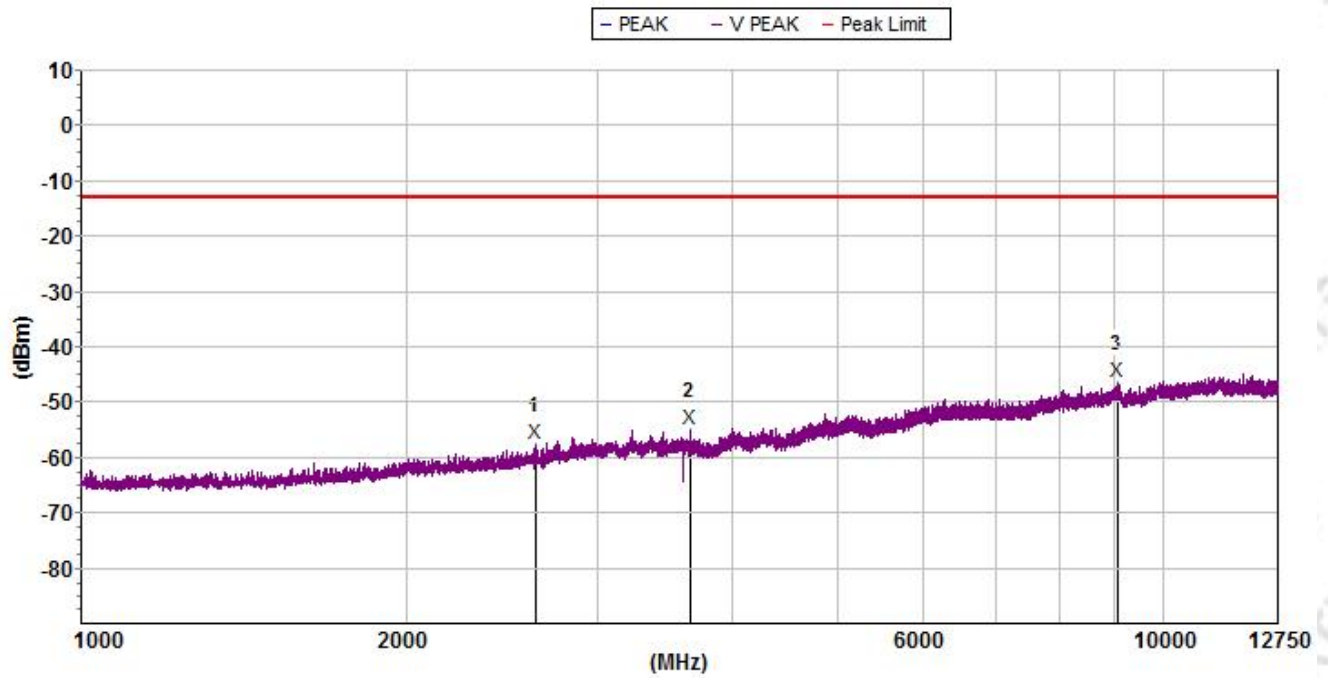
Measurement Result for 12.5KHz Channel Separation @467.6500MHz-0.5W-Vertical

1GHz Below:



Mk.	Freq.(MHz)	Level(dBm)	Limit(dBm)	Margin(dB)	Deg.(deg.)	Ht.(cm)	Aux.F.(dB)	Pol.
Peak:								
1	42.900	-59.7	-13.0	46.7	76.67	150	-39.0	V
2	74.396	-61.0	-13.0	48.0	173.92	150	-28.1	V
3	107.888	-61.6	-13.0	48.6	9.11	150	-22.0	V
4	239.987	-78.2	-13.0	65.2	248.72	150	-22.7	V
5	422.058	-74.6	-13.0	61.6	143.92	150	-18.3	V
6	734.491	-71.4	-13.0	58.4	211.22	150	-14.8	V

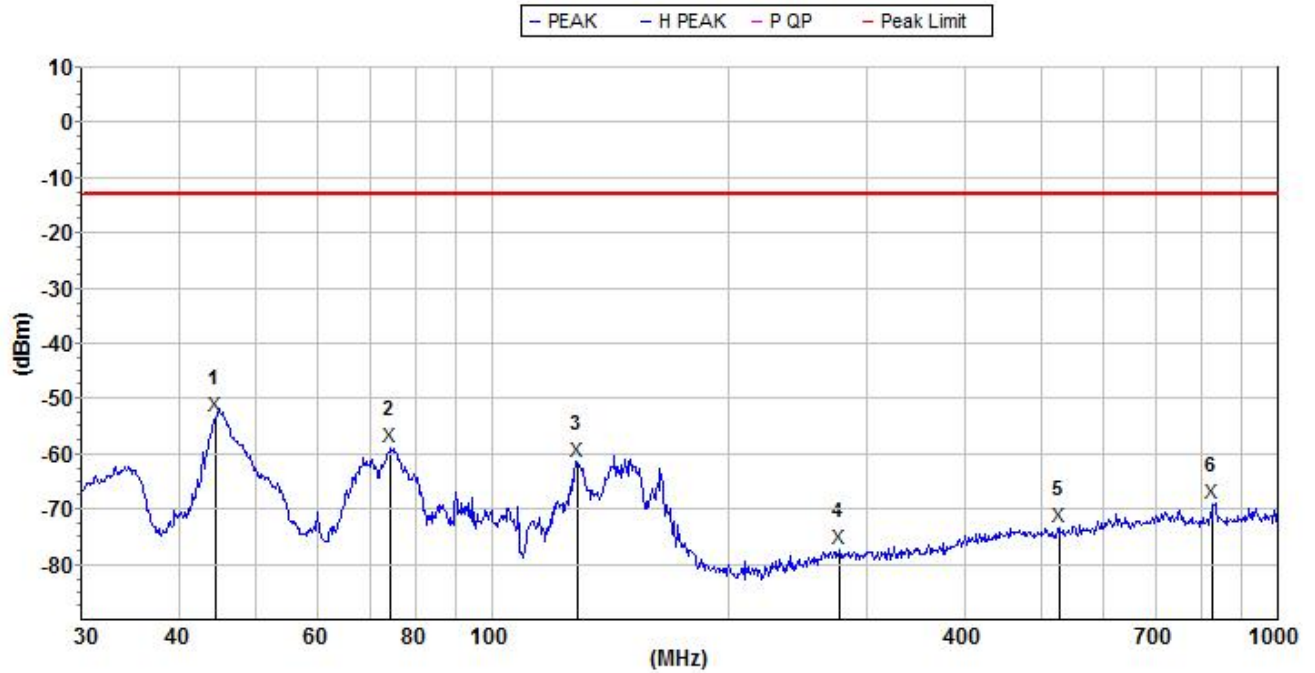
1GHz Above:



Mk.	Freq.(MHz)	Level(dBm)	Limit(dBm)	Margin(dB)	Deg.(deg.)	Hi.(cm)	Aux.F.(dB)	Pol.
Peak:								
1	2627.825	-57.4	-13.0	44.4	360	150	-13.1	V
2	3653.928	-54.7	-13.0	41.7	1.69	150	-10.2	V
3	9058.164	-46.4	-13.0	33.4	32.27	150	0.2	V

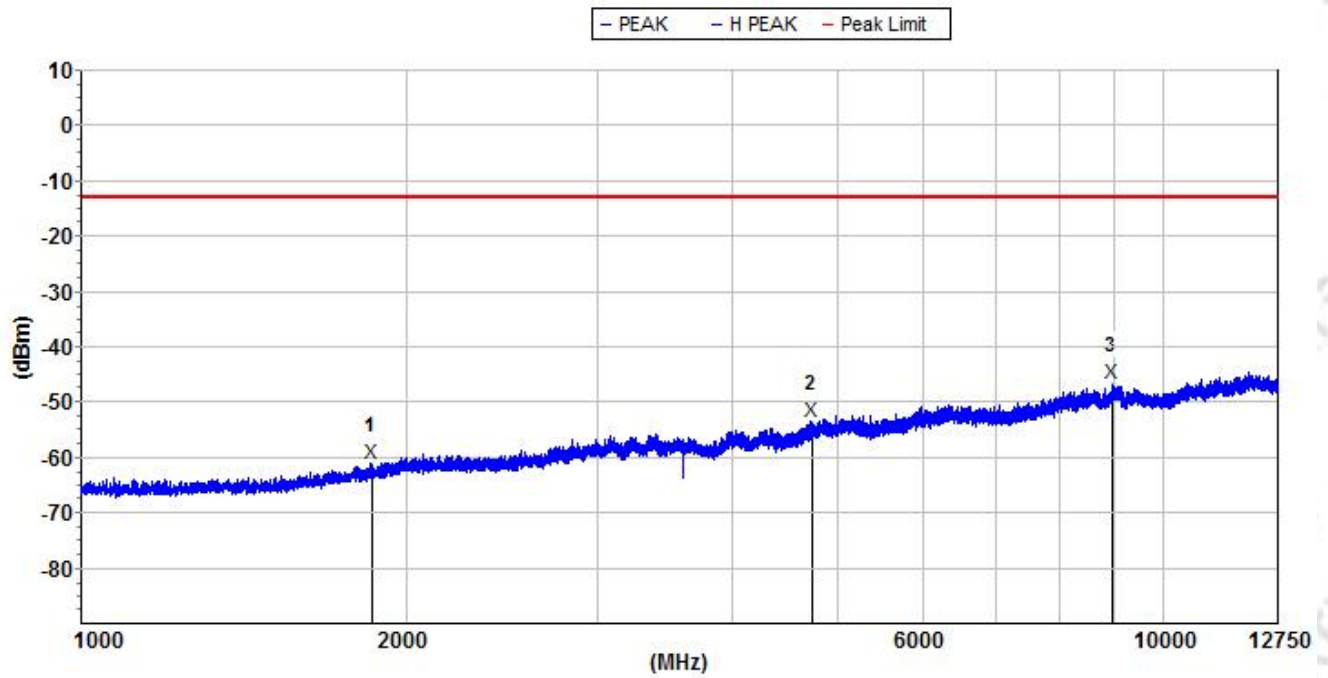
Measurement Result for 12.5KHz Channel Separation @467.6375MHz-0.5W-Horizontal

1GHz Below:



Mk.	Freq.(MHz)	Level(dBm)	Limit(dBm)	Margin(dB)	Deg.(deg.)	Hi.(cm)	Aux.F.(dB)	Pol.
Peak:								
1	44.587	-53.0	-13.0	40.0	129.57	150	-34.8	H
2	74.396	-58.9	-13.0	45.9	76.62	150	-28.4	H
3	128.563	-61.3	-13.0	48.3	159.67	150	-23.1	H
4	277.094	-77.3	-13.0	64.3	323.57	150	-20.2	H
5	526.397	-73.1	-13.0	60.1	293.67	150	-16.5	H
6	827.493	-69.1	-13.0	56.1	76.62	150	-14.6	H

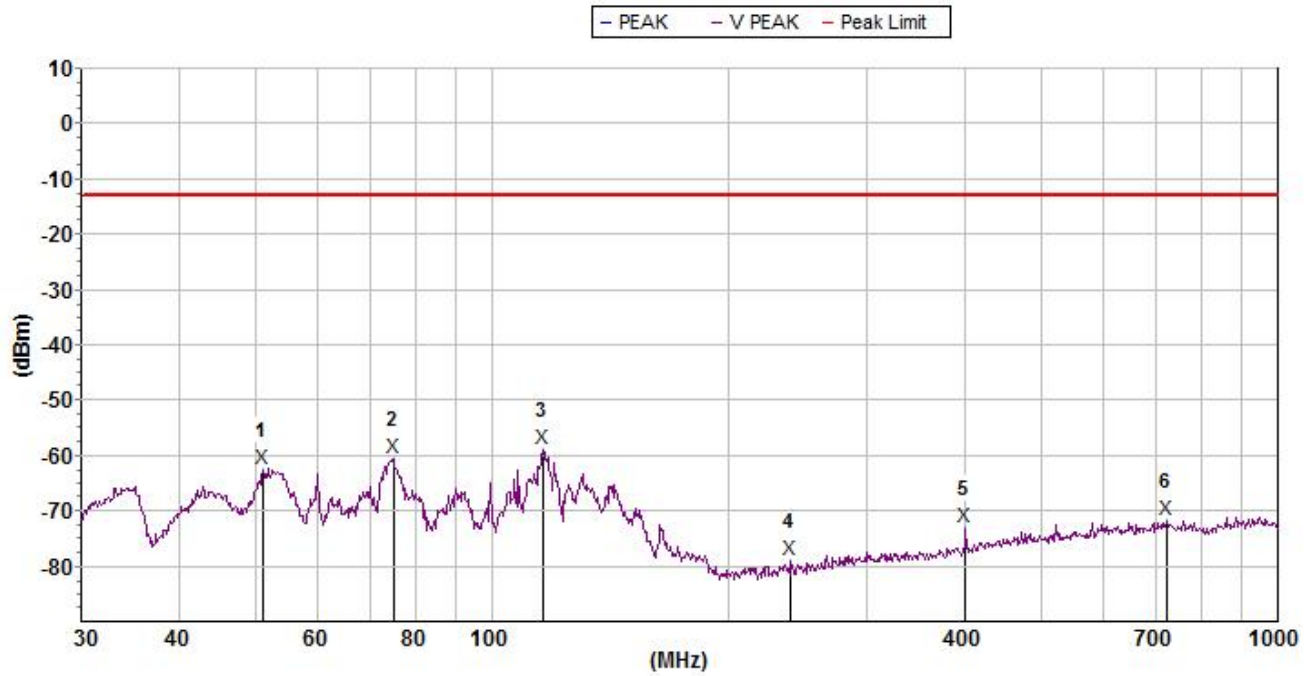
1GHz Above:



Mk.	Freq.(MHz)	Level(dBm)	Limit(dBm)	Margin(dB)	Deg.(deg.)	Hi.(cm)	Aux.F.(dB)	Pol.
Peak:								
1	1854.608	-60.9	-13.0	47.9	360	150	-15.1	H
2	4739.615	-53.4	-13.0	40.4	6.93	150	-6.5	H
3	8969.825	-46.7	-13.0	33.7	175.37	150	-0.2	H

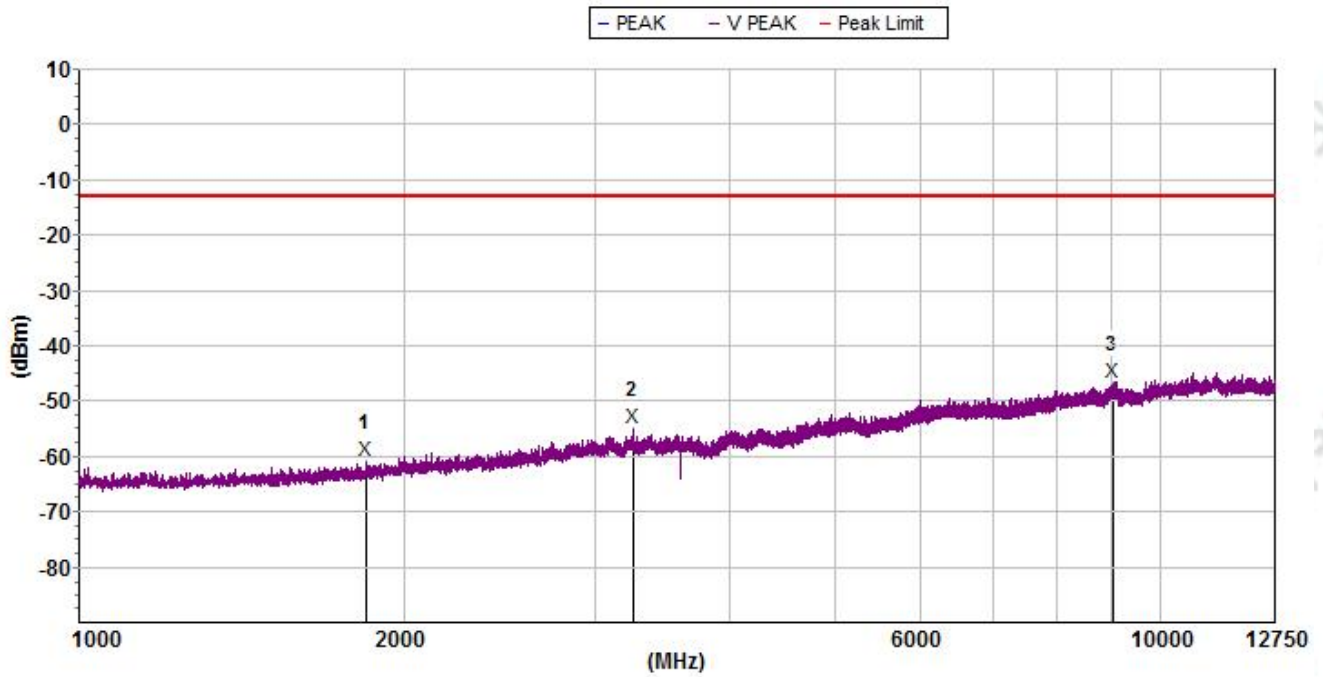
Measurement Result for 12.5KHz Channel Separation @467.6375MHz-0.5W-Vertical

1GHz Below:



Mk.	Freq.(MHz)	Level(dBm)	Limit(dBm)	Margin(dB)	Deg.(deg.)	Hi.(cm)	Aux.F.(dB)	Pol.
Peak:								
1	51.121	-62.3	-13.0	49.3	345.7	150	-35.9	V
2	74.919	-60.4	-13.0	47.4	0	150	-28.0	V
3	116.132	-58.7	-13.0	45.7	241.1	150	-20.6	V
4	239.987	-78.9	-13.0	65.9	359.9	150	-22.7	V
5	400.432	-72.9	-13.0	59.9	203.6	150	-18.8	V
6	724.261	-71.6	-13.0	58.6	359.9	150	-14.6	V

1GHz Above:



Mk.	Freq.(MHz)	Level(dBm)	Limit(dBm)	Margin(dB)	Deg.(deg.)	Hi.(cm)	Aux.F.(dB)	Pol.
Peak:								
1	1844.016	-60.6	-13.0	47.6	16.37	150	-15.3	V
2	3249.346	-54.7	-13.0	41.7	287.97	150	-11.0	V
3	9021.346	-46.5	-13.0	33.5	0	150	0.2	V

Note:

Calculation Formula: Emission Level(dBm) = S.G.(dBm)- Cable Loss(dB)+ Ant.Gain(dBi)

Margin(dB) = Limit(dBm)- Emission Level(dBm)

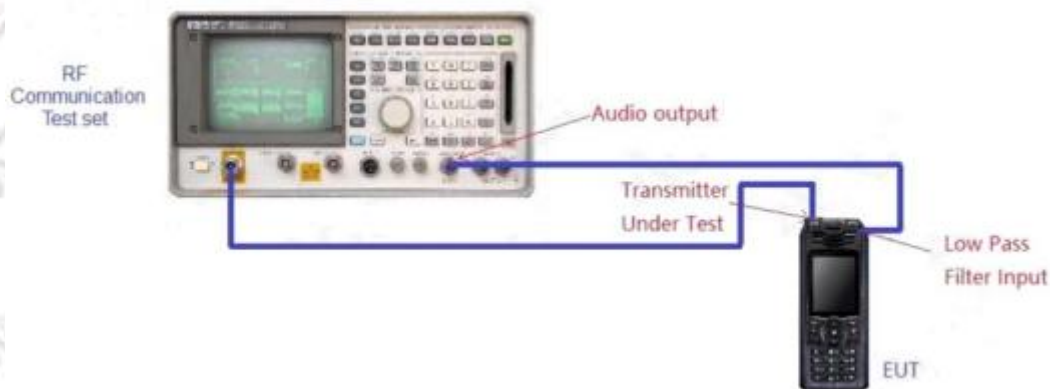
3.6. Audio Low Pass Filter Response

3.6.1. Applicable Standard

§95.1775 GMRS modulation requirements Audio filter. Each GMRS transmitter type must include audio frequency low pass filtering, unless it complies with the applicable paragraphs of §95.1779 (without filtering).

The filter must be between the modulation limiter and the modulated stage of the transmitter. At any frequency (f in kHz) between 3 and 20 kHz, the filter must have an attenuation of at least $60 \log(f/3)$ dB more than the attenuation at 1 kHz. Above 20 kHz, it must have an attenuation of at least 50 dB more than the attenuation at 1 kHz.

3.6.2. Test Setup



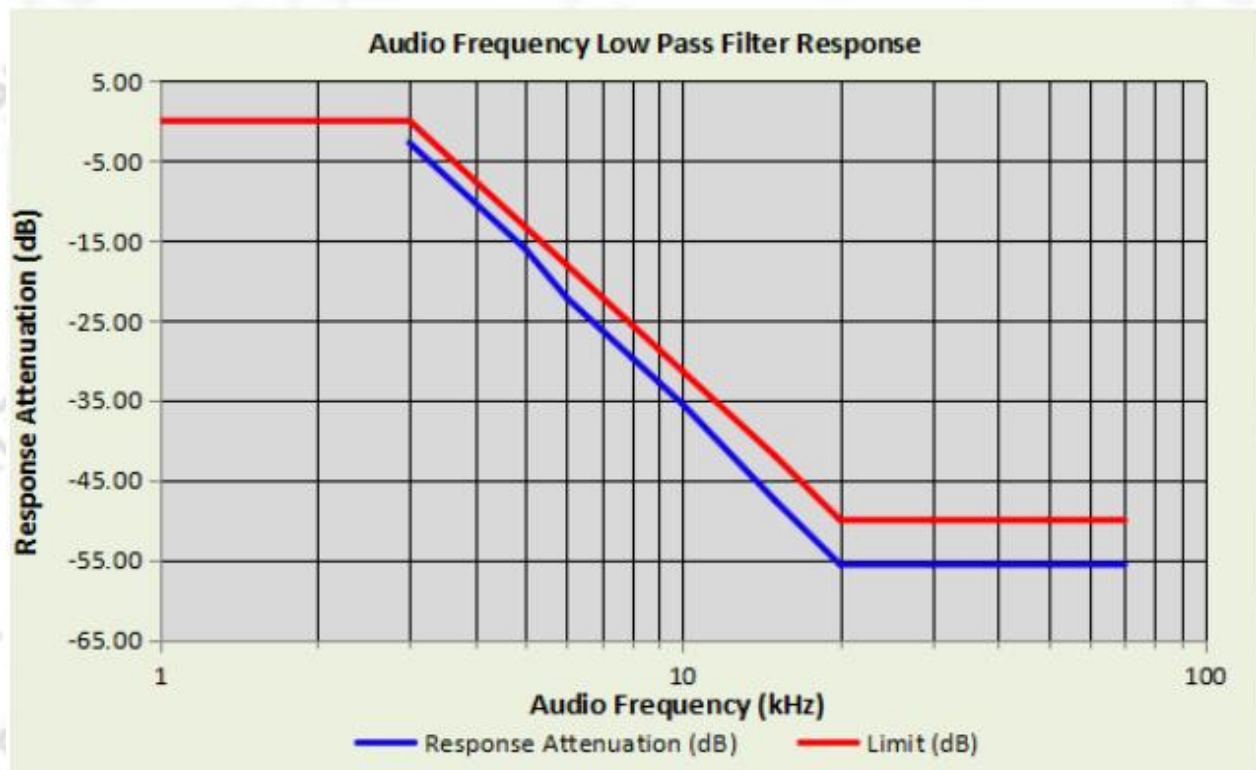
3.6.3. Test Procedures

- (1) The DUT transmitter output port was connected to Modulation Analyzer.
- (2) Path loss for the measurement included.
- (3) Press 23.1SPCL on modulation analyzer to enable the external LO from Slgen.
- (4) Set the Slgen frequency to $F_c + 1.5\text{MHz}$, RF output level to 0dBm without modulation.
- (5) Transmit the radio and set the audio analyzer to 1 kHz audio frequency and 60% of the maximum deviation.
- (6) Up the amplitude by 20dB.
- (7) On DSA, get the reference point to 0dB.
- (8) Vary the frequency on audio analyzer from 3 kHz to 30 kHz, record the audio tone from DSA.

3.6.4. Test Result

Worst Teat Data:

12.5kHz, FM modulation, Frequency:462.6375MHz _High Power Level				
Audio Frequency (KHz)	Response Attenuation (dB)	Limit (dB)	--	--
1	0	/	--	--
3	-2.75	0	--	--
4	-10.25	-7.5	--	--
5	-16.05	-13.31	--	--
6	-22.17	-18.06	--	--
7	-26.20	-22.08	--	--
8	-29.68	-25.56	--	--
9	-32.75	-28.63	--	--
10	-35.49	-31.37	--	--
15	-47.51	-41.94	--	--
20	-55.57	-50	--	--
30	-55.57	-50	--	--
50	-55.57	-50	--	--
70	-55.57	-50	--	--



Note:

All modes have been tested, only worst case 462.6375MHz_High Power Level test data was recorded in the test report.

3.7. Modulation Characteristic

3.7.1. Applicable Standard

According to FCC Part 95.1775, Part 2.1047(a), for Voice Modulation Communication Equipment, the frequency response of the audio modulation circuit over a range of 100 to 5000Hz shall be measured.

Part 95.1775(a) A GMRS unit that transmits emission type F3E must not exceed a peak frequency deviation of plus or minus 2.5 kHz, and the audio frequency response must not exceed 3.125 kHz.

Part 2.1047(a) A curve or equivalent data showing the frequency response of the audio modulating circuit over a range of 100 to 5000Hz shall be submitted. For equipment required to have an audio Low-pass filter, a curve showing the frequency response of the filter, or of all circuitry installed between the modulation limiter and the modulated stage shall be submitted.

3.7.2. Test Setup

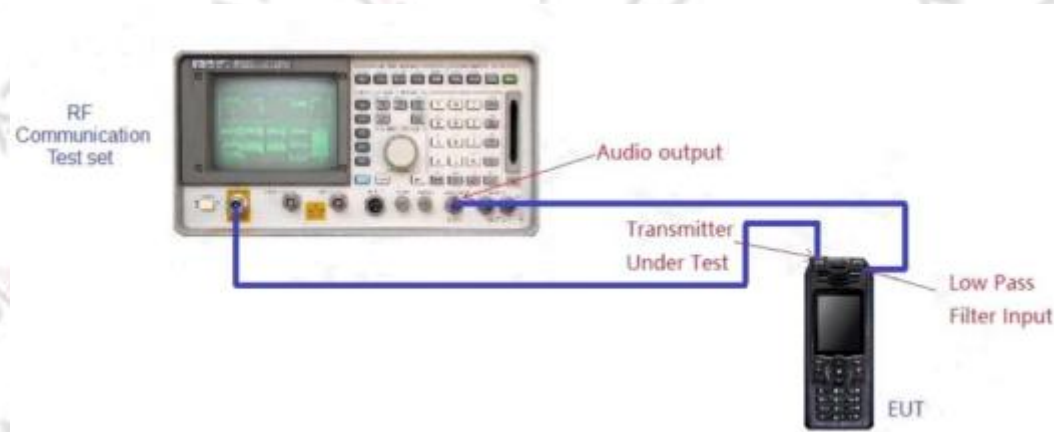


Figure 1

3.7.3. Test Procedures

Modulation Limit:

- (1). Configure the EUT as shown in figure 1, adjust the audio input for 60% of rated system deviation at 1KHz using this level as a reference (0dB) and vary the input level from -20 to +20dB. Record the frequency deviation obtained as a function of the input level.
- (2). Repeat step 1 with input frequency changing to 300, 1000, 1500 and 3000Hz in sequence.

Audio Frequency Response:

Personal Radio Service stations that transmit voice emissions may also transmit audible or sub audible tones or other signals for the purpose of selective calling and/or receiver squelch activation. These tones and signals are ancillary to voice communications and are considered to be included within the voice emission types, e.g., A3E, F3E, and G3E.

- (a) Tones that are audible (having a frequency higher than 300 Hertz), must last no longer than 15 seconds at one time.

(b) Tones that are sub audible (having a frequency of 300 Hertz or less), may be transmitted continuously during a communication session.

(1).Configure the EUT as shown in figure 1.

(2). Adjust the audio input for 20% of rated system deviation at 1KHz using this level as a reference (0 dB).

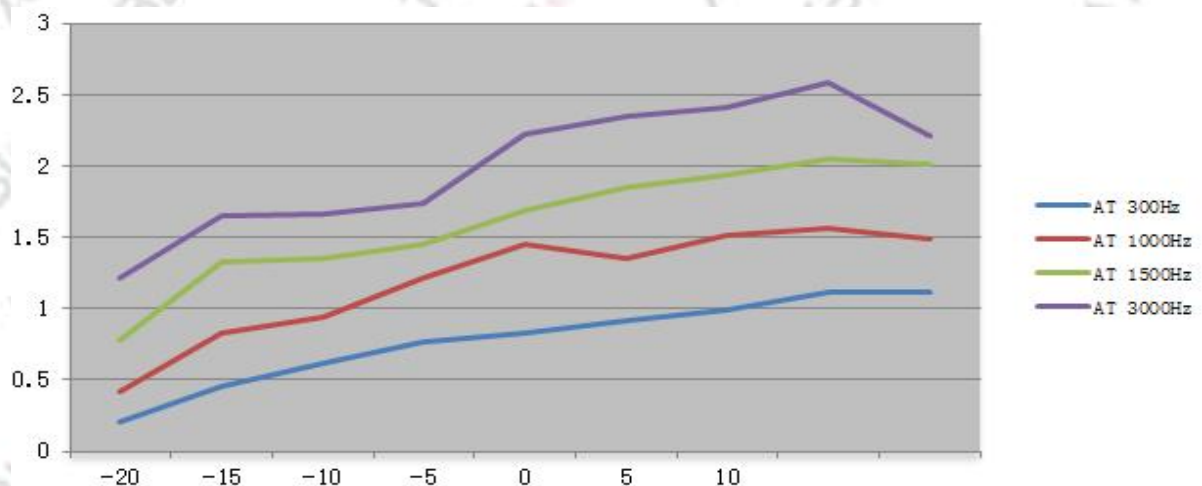
(3). Vary the Audio frequency from 100Hz to 10KHz and record the frequency deviation.

(4). Audio Frequency Response = $20\log_{10} (\text{Deviation of test frequency}/\text{Deviation of 1KHz reference})$.

3.7.4. Test Result

Worst Teat Data:

12.5kHz, FM modulation, Frequency:462.6375MHz _High Power Level				
Modulation Level (dB)	Peak Freq. Deviation At 300 Hz (kHz)	Peak Freq. Deviation At 1000 Hz (kHz)	Peak Freq. Deviation At 1500 Hz (kHz)	Peak Freq. Deviation At 3000 Hz (kHz)
-20	0.21	0.42	0.78	1.21
-15	0.45	0.83	1.32	1.65
-10	0.62	0.94	1.35	1.66
-5	0.77	1.21	1.45	1.74
0	0.83	1.45	1.69	2.22
+5	0.92	1.35	1.85	2.35
+10	0.99	1.51	1.94	2.41
+15	1.12	1.56	2.05	2.58
+20	1.11	1.49	2.01	2.21



Note: All modes have been tested, only worst case 462.6375MHz _High Power Level test data was recorded in the test report.

4. TEST SETUP PHOTOGRAPHS

Please refer to the Appendix C.

5. EXTERNAL AND INTERNAL PHOTOS OF THE EUT

External Photos Please refer to the Appendix D.

Internal Photos Please refer to the Appendix E.

*****END OF THE REPORT*****