TEST REPORT

Product Name	:	PoC Radio
Brand Name	:	LINTON, Chatmax
Model/HVIN	:	AT-658
Series Model	:	AT-638, AT-668
FCC ID	:	2AN96PO26601
Applicant	:	**Quanzhou Feijie Electron Co., Ltd**
Address	:	No.6, Zi Hua Road, Jiangnan High-tech Park, Quanzhou, Fujian, China
Manufacturer	:	**Quanzhou Feijie Electron Co., Ltd**
Address	:	No.6, Zi Hua Road, Jiangnan High-tech Park, Quanzhou, Fujian, China
Standard(s)	:	FCC CFR Title 47 Part 95
Date of Receipt	:	Aug. 31, 2026
Date of Test	:	Aug. 31, 2026 ~ Sep. 08, 2026
Issued Date	:	Sep. 08, 2026

Issued By: **Dongguan Yaxu (AiT) Technology Limited**
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Reviewed by: Emiya Lin
Emiya Lin

Approved by: Simba Huang
Simba Huang

Note: This device has been tested and found to comply with the standard(s) listed, this test report merely corresponds to the test sample. It is not permitted to copy extracts of these test result without the written permission of the test laboratory. This report shall not be reproduced except in full, without the written approval of Dongguan Yaxu (AiT) Technology Limited. If there is a need to alter or revise this document, the right belongs to Dongguan Yaxu (AiT) Technology Limited, and it should give a prior written notice of the revision document. This test report must not be used by the client to claim product endorsement.

Report Revise Record

Report Version	Issued Date	Notes
M0	Sep. 08, 2026	Initial Release

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1 TEST SUMMARY

1.1 Test Standards

The tests were performed according to following standards:

FCC Part 2: FREQUENCY ALLOCA-TIONS AND RADIO TREATY MAT-TERS; GENERAL RULES AND REG-ULATIONS

FCC Rules Part 95: PERSONAL RADIO SERVICES.

ANSI C63.10: 2020: American National Standard for Testing Unlicensed Wireless Devices

ANSI C63.26:2015: American National Standard of procedures for compliance testing of transmitters used in licensed radio services.

1.2 Test Summary

Description of Test Item	Standard clause	Verdict
Maximum Transmitter Power	FCC Part 95.1767	PASS
Modulation Characteristic	FCC Part 2.1047 FCC Part 95.1775	PASS
Occupied Bandwidth	FCC Part 2.1049 FCC Part 95.1773	PASS
Emission Mask	FCC Part 95.1779	PASS
Transmitter unwanted emission	FCC Part 95.1779	PASS
Frequency Stability	FCC Part 2.1055 FCC Part 95.1765	PASS

1.3 Test Facility

Test Laboratory: Dongguan Yaxu (AiT) Technology Limited
No.22, Jinqianling 3rd Street, Jitigang, Huangjiang, Dongguan, Guangdong, China

The test facility is recognized, certified or accredited by the following organizations:
CNAS-Registration No: L6177
Dongguan Yaxu (AiT) technology Limited is accredited to ISO/IEC 17025:2017 general Requirements for the competence of testing and calibration laboratories (CNAS-CL01 Accreditation Criteria for the competence of testing and calibration laboratories) on April 18, 2022

FCC-Registration No.: 362653 Designation Number: CN1457
Dongguan Yaxu (AiT) Technology Limited 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.

IC-Registration No.: 6819A CAB identifier: CN0122
The 3m Semi-anechoic chamber of Dongguan Yaxu (AiT) Technology Limited has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 6819A

A2LA-Lab Cert. No.: 6317.01
Dongguan Yaxu (AiT) Technology Limited 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.

1.4 Measurement uncertainty

The data and results referenced in this document are true and accurate. The reader is cautioned that there may be errors within the calibration limits of the equipment and facilities. The measurement uncertainty was calculated for all measurements listed in this test report according to CISPR 16 - 4“Specification for radio disturbance and immunity measuring apparatus and methods – Part 4: Uncertainty in EMC Measurements” and is documented in the Dongguan Yaxu (AiT) Technology Limited’s quality system according to DIN EN ISO/IEC 17025. Furthermore, component and process variability of devices similar to that tested may result in additional deviation. The manufacturer has the sole responsibility of continued compliance of the device.
Hereafter the best measurement capability for Yaxu (AiT) laboratory is reported:

Test	Measurement Uncertainty	Notes
Power Line Conducted Emission	9KHz~30MHz ±1.20 dB	(1)
Radiated Emission	9KHz~30MHz ±3.10dB	(1)
Radiated Emission	30MHz~1GHz ±3.75dB	(1)
Radiated Emission	1GHz~18GHz ±3.88 dB	(1)
Radiated Emission	18GHz-40GHz ±3.88 dB	(1)
RF power, conducted	30MHz~6GHz ±0.16dB	(1)
RF power density, conducted	±0.24dB	(1)
Spurious emissions, conducted	±0.21dB	(1)
Temperature	±1℃	(1)
Humidity	±3%	(1)
DC and low frequency voltages	±1.5%	(1)
Time	±2%	(1)
Duty cycle	±2%	(1)
Bandwidth	±1.5 x10^{-6}	(1)

The report 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%.

2 GENERAL INFORMATION

2.1 Environmental conditions

During the measurement the environmental conditions were within the listed ranges:

Normal Temperature:	25°C
Relative Humidity:	55 %
Air Pressure:	101 kPa

2.2 General Description of EUT

Product Name:	PoC Radio
Model/Type reference:	AT-658
Serial Model:	AT-638, AT-668
Model Difference	All the models are electrically identical with the same mechanical structure and design except the model names and exterior appearance.
Power Supply:	DC 3.7V from battery or DC 5V from adapter
Hardware Version:	V1.0
Software Version:	V1.0
Sample(s) Status:	AiTDG-260831004-1(Normal sample) AiTDG-260831004-2(Engineer sample)
Frequency Range	462.5500MHz~462.7250MHz (462 MHz main channels) 462.5625MHz~462.7125MHz (462 MHz interstitial channels) 467.5500MHz~467.7250 MHz (467 MHz Main Channels) 467.5625MHz~467.7125MHz (467 MHz interstitial channels)
Rate Power	462.5500MHz~462.7250MHz: 2W 462.5625MHz~462.7125MHz: 2W 467.5500MHz~467.7250 MHz:2W 467.5625MHz~467.7125MHz: 0.5W
Modulation Type	FM
Channel Separation	462 MHz main channels: 25KHz/12.5KHz 462 MHz interstitial channels: 25KHz/12.5KHz 467 MHz Main Channels: 25KHz/12.5KHz 467 MHz interstitial channels: 12.5KHz
Antenna Type	External antenna
Antennal Gain	2.15dBi

2.3 Description of Test Modes and Test Frequency

The EUT has been tested under typical operating condition. As, test modes selected as below by the technical parameters of the EUT:

Operation Mode No.	Modulation	Channel Separation	Condition	
	FM	12.5/25KHz	TX	RX
1	☒	☒	☒	
2	☒	☒		☒

Frequency list

Channel Type	Channel	Frequency(MHz)	Channel Type	Channel	Frequency(MHz)
462 MHz interstitial channels	1	462.5625	467 MHz interstitial channels	1	467.5625
	2	462.5875		2	467.5875
	3	462.6125		3	467.6125
	4	**462.6375**		**4**	**467.6375**
	5	462.6625		5	467.6625
	6	462.6875		6	467.6875
	7	462.7125		7	467.7125
462 MHz Main Channels	1	462.5500	467 MHz Main Channels	1	467.5500
	2	462.5750		2	467.5750
	3	462.6000		3	467.6000
	4	462.6250		4	467.6250
	5	**462.6500**		**5**	**467.6500**
	6	462.6750		6	467.6750
	7	462.7000		7	467.7000
	8	462.7250		8	467.7250

Per C63.26-2015, section 5.1, the above frequencies in bold were performed the test.

2.4 Special Accessories

Follow auxiliary equipment(s) test with EUT that provided by the manufacturer or laboratory is listed as follow:

Description	Manufacturer	Model	Serial No.	Provided by	Other
/	/	/	/	/	/
/	/	/	/	/	/

2.5 Equipment List for the Test

RF Conducted measurement						
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal.Due
☒1	Spectrum Analyzer	Agilent	N9020A	MY53421570	2025.09.23	2026.09.22
☐2	Power Sensor	Agilent	U2021XA	MY54110007	2025.09.23	2026.09.22
☐3	Signal Generator	Agilent	N5182A	MY50143009	2025.09.26	2026.09.25
☐4	Analog signal generator	Agilent	E8257	MY51554256	2025.09.23	2026.09.22
☒5	Pro.Temp&Humi.chamber	MENTEK	MHP-150-1C	MAA08112501	2025.09.25	2026.09.24
☒6	RF Communications test set	HP	8920A	US35010135	2025.09.23	2026.09.22
☒7	10dB Attenuator	eastsheep	20W-SMA-JK-6G	21060301	2025.09.23	2026.09.22
☐8	DC power supply	ZHAOXIN	RXN-305D-2	28070002559	N/A	N/A
☐9	RF Test box	TST	TSTPASS	21033016	2025.09.23	2026.09.22

☐10	RF Software	TST	TSTPASS	Version 2.0	N/A	N/A

Radiation Emission measurement						
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal.Due
☒1	Spectrum Analyzer	R&S	FSV40	101470	2025.09.26	2026.09.25
☒2	EMI Measuring Receiver	R&S	ESPI	100773	2025.09.25	2026.09.24
☒3	Low Noise Pre Amplifier	HP	HP8447E	1937A01855	2025.09.25	2026.09.24
☒4	Low Noise Pre Amplifier	Tsj	MLA-0120-A02-34	2648A04738	2025.09.25	2026.09.24
☒5	TRILOG Super Broadband test Antenna	SCHWARZBECK	VULB-9160	9160-3206	2024.08.29	2026.08.28
☒6	TRILOG Super Broadband test Antenna	SCHWARZBECK	VULB-9160	9160-3207	2024.08.29	2026.08.28
☒7	Broadband Horn Antenna	SCHWARZBECK	BBHA 9120D	452	2024.08.29	2026.08.28
☒8	Broadband Horn Antenna	SCHWARZBECK	BBHA 9120D	453	2024.08.29	2026.08.28
☐9	SHF-EHF Horn Antenna 15-40GHz	SCHWARZBECK	BBHA9170	BBHA9170367	2023.09.12	2026.09.11
☐10	SHF-EHF Horn Antenna 15-40GHz	SCHWARZBECK	BBHA9170	BBHA9170368	2023.09.12	2026.09.11
☒11	6dB Attenuator	JFW	50FPE-006	4360846-949-1	2025.09.23	2026.09.22
☒12	RF Communications test set	HP	8920A	US35010135	2025.09.23	2026.09.22
☒13	RE Software	EZ	EZ-EMC_RE	Ver.AIT-03A	N/A	N/A

Note: ☐ is not applicable in this Test Report. ☒ is applicable in this Test Report.

3 TEST CONDITIONS AND RESULTS

3.1 Maximum Transmitter Power

LIMITS

According to FCC Part 95.1767:
(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.

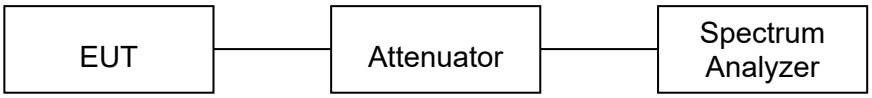
(b) 462 MHz interstitial channels. The effective radiated power (ERP) of mobile, hand-held portable and base stations transmitting on the 462 MHz interstitial channels must not exceed 5 Watts.

(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.

TEST PROCEDURE

The transmitter output was connected to the spectrum analyzer through an 10dB attenuator. The out put was measured by spectrum analyzer with 100 KHz RBW and 300 KHz VBW.

TEST CONFIGURATION

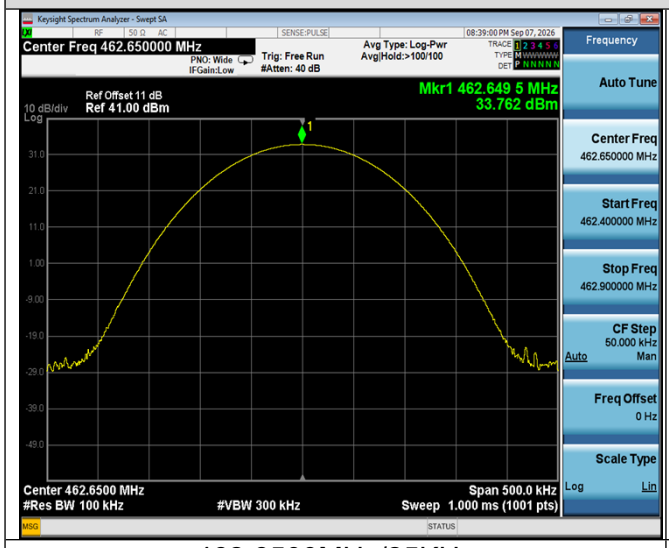


TEST RESULTS

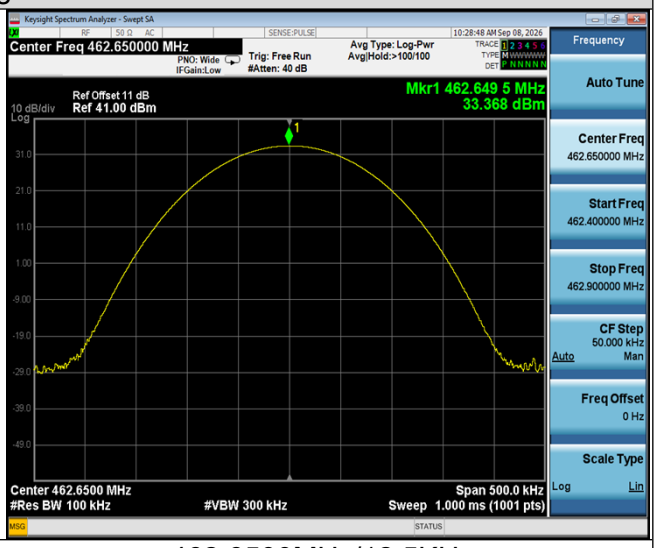
Modulation Type	Frequency (MHz)	Channel Separation (kHz)	Conducted Output Power (dBm)	Antenna Gain (dBi)	Output Power ERP(W)	LImit	Test result
Analog/FM	462.6500	25 KHz	33.762	2.15	2.38	50	Pass
		12.5 KHz	33.368	2.15	2.17	50	Pass
	462.6375	25 KHz	33.731	2.15	2.36	5	Pass
		12.5 KHz	33.342	2.15	2.16	5	Pass
	467.6500	25 KHz	33.882	2.15	2.44	50	Pass
		12.5 KHz	33.445	2.15	2.21	50	Pass
	467.6375	12.5KHz	26.972	2.15	0.50	0.5	Pass

Note: ERP: Conducted Output Power (dBm)+ Antenna Gain (dBi) -2.15.

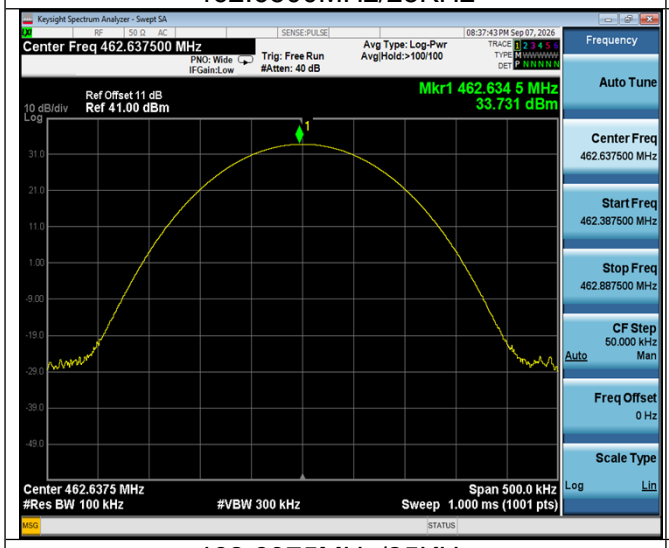
Analog/FM



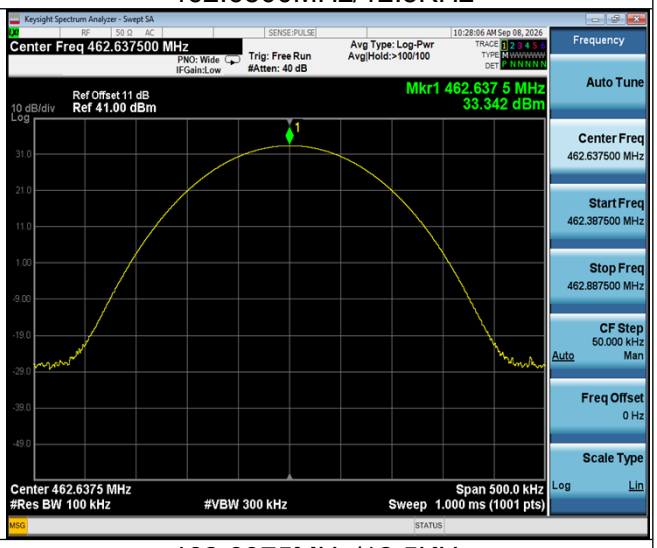
462.6500MHz/25KHz



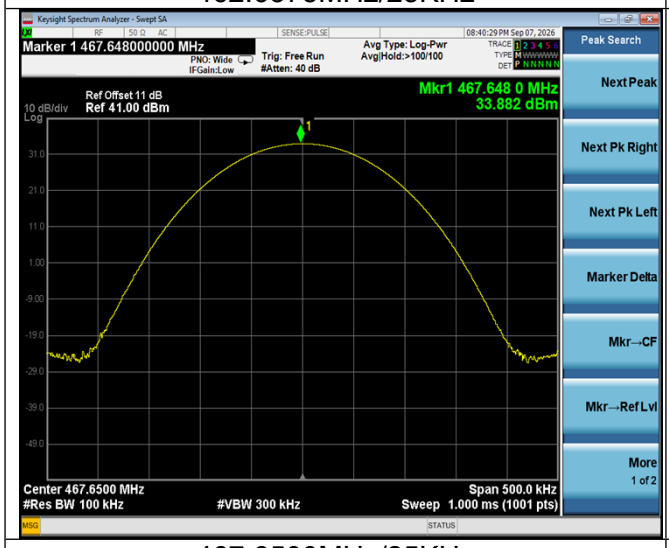
462.6500MHz/12.5KHz



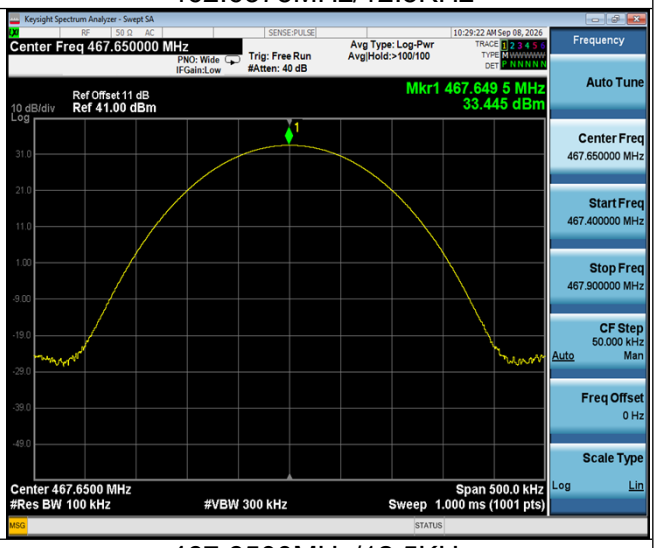
462.6375MHz/25KHz



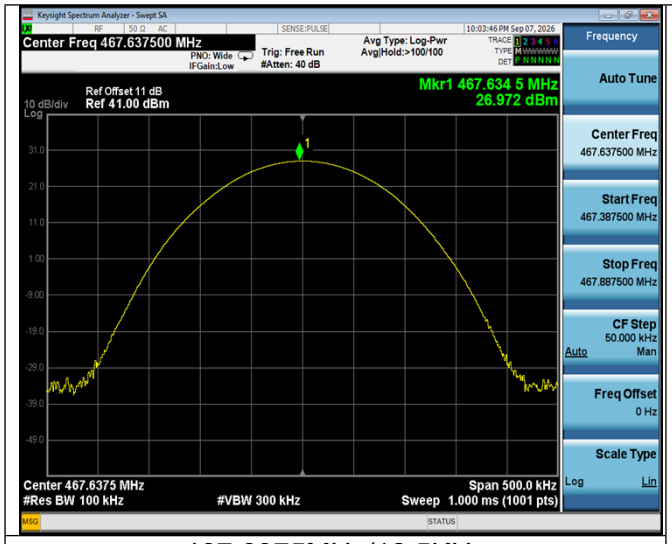
462.6375MHz/12.5KHz



467.6500MHz/25KHz



467.6500MHz/12.5KHz



467.6375MHz/12.5KHz

3.2 Occupied Bandwidth and Emission Mask

LIMITS

According to FCC 95.1773:
Each GMRS transmitter type must be designed such that the occupied bandwidth does not exceed the authorized bandwidth for the channels used. Operation of GMRS stations must also be in compliance with these requirements.

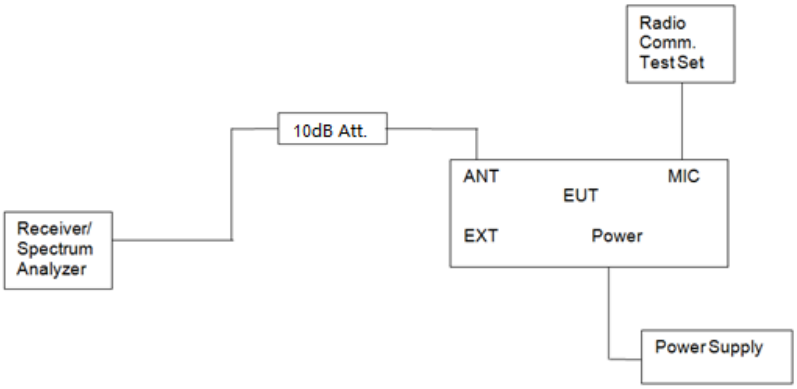
(a) Main channels. The authorized bandwidth is 20 kHz for GMRS transmitters operating on any of the 462 MHz main channels (see §95.1763(a)) or any of the 467 MHz main channels (see §95.1763(c)).

(b) Interstitial channels. The authorized bandwidth is 20 kHz for GMRS transmitters operating on any of the 462 MHz interstitial channels (see §95.1763(b)) and is 12.5 kHz for GMRS transmitters operating on any of the 467 MHz interstitial channels (see §95.1763(d)).

(c) Digital data transmissions. Digital data transmissions are limited to the 462 MHz main channels and interstitial channels in the 462 MHz and 467 MHz bands.

According to FCC 1779:
At least 25dB (decibels) on any frequency removed from the centre of the authorized bandwidth by more than 50 % up to and including 100 % of the authorized bandwidth.
At least 35 dB on any frequency removed from the centre of the authorized bandwidth by more than 100 % up to and including 250 % of the authorized bandwidth.
At least 43 + 10 log10 (T) dB on any frequency removed from the centre of the authorized bandwidth by more than 250 %.

TEST CONFIGURATION



TEST PROCEDURE

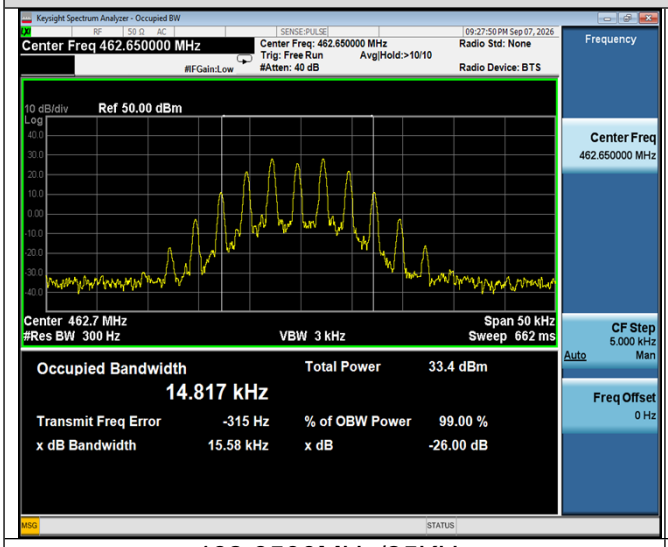
1 The EUT was modulated by 2.5 KHz Sine wave audio signal; the level of the audio signal employed is 16 dB greater than that necessary to produce 50% of rated system deviation. Rated system deviation is 2.5 kHz (12.5 kHz channel spacing) and 5 kHz (25 kHz channel spacing).
2 Set SPA Center Frequency = fundamental frequency, RBW=300Hz, VBW= 3 KHz, span =50 KHz.
3 Set SPA Max hold. Mark peak, Set 99% Occupied Bandwidth and 26dB Occupied Bandwidth.

TEST RESULTS

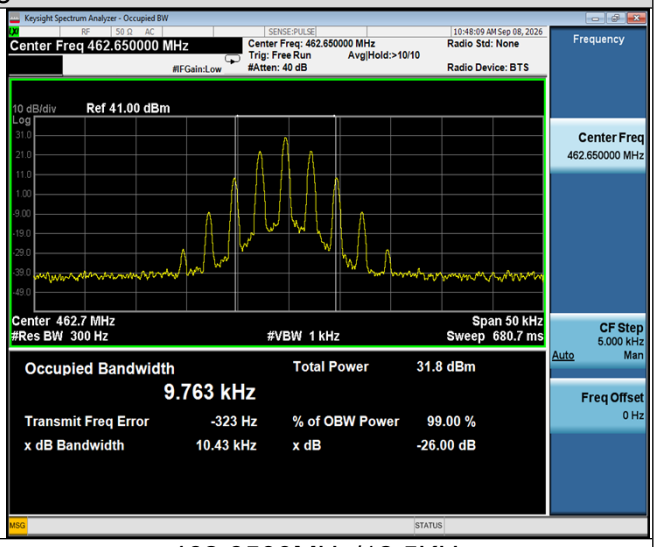
Occupied Bandwidth:

Modulation Type	Frequency (MHz)	Channel Separation (kHz)	99% OBW (kHz)	26dB bandwidth (kHz)	Limit (KHz)	Test result
Analog/FM	462.6500	25 KHz	14.817	15.58	20	Pass
		12.5KHz	9.763	10.43	20	Pass
	462.6375	25 KHz	14.809	15.57	20	Pass
		12.5KHz	9.758	10.43	20	Pass
	467.6500	25 KHz	14.802	15.56	20	Pass
		12.5KHz	9.764	10.43	20	Pass
	467.6375	12.5KHz	9.749	10.43	12.5	Pass

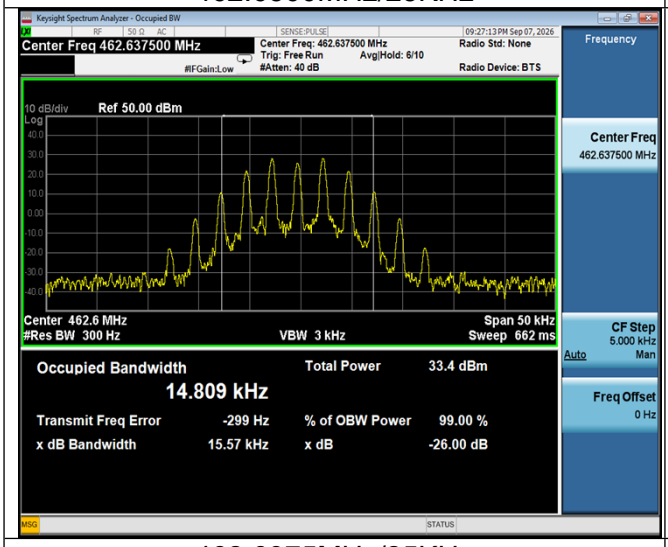
Analog/FM



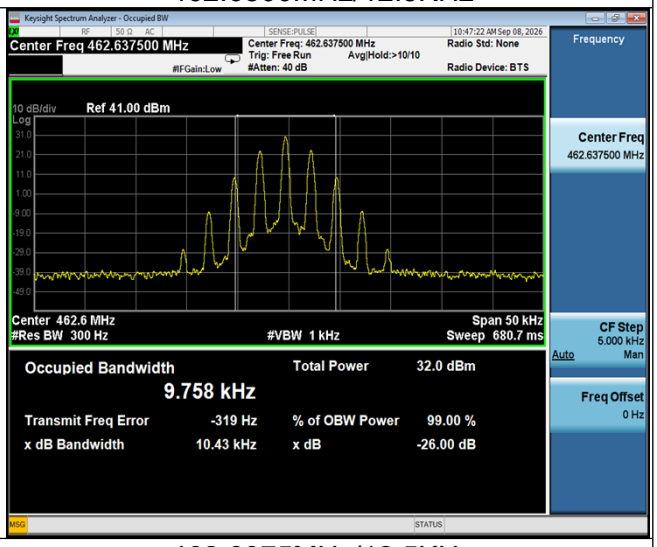
462.6500MHz/25KHz



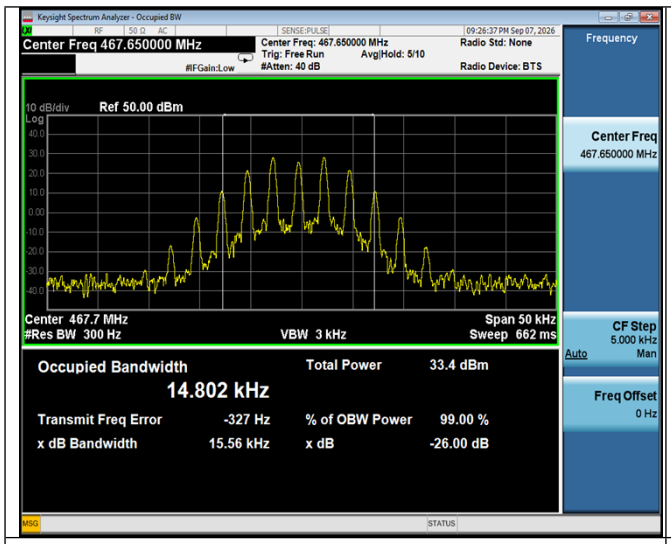
462.6500MHz/12.5KHz



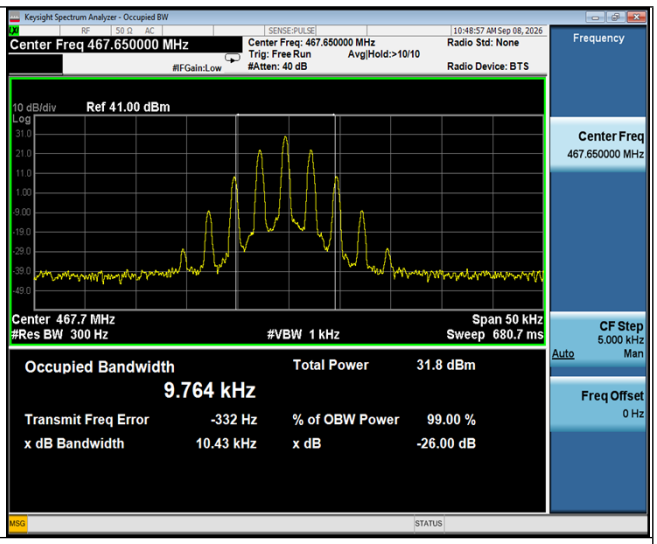
462.6375MHz/25KHz



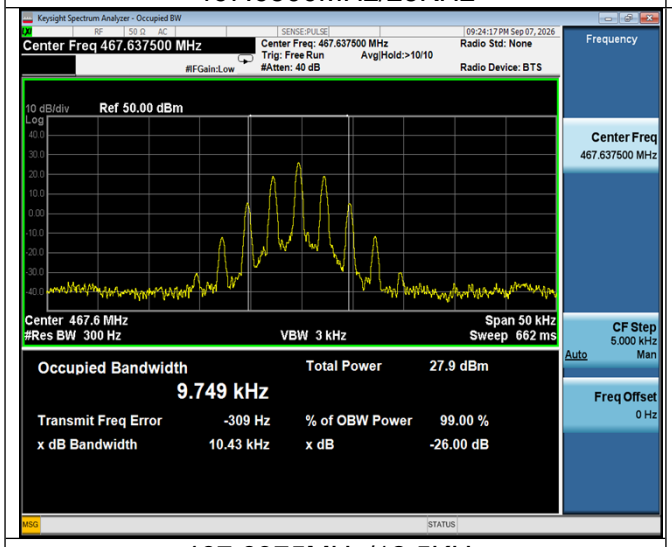
462.6375MHz/12.5KHz



467.6500MHz/25KHz



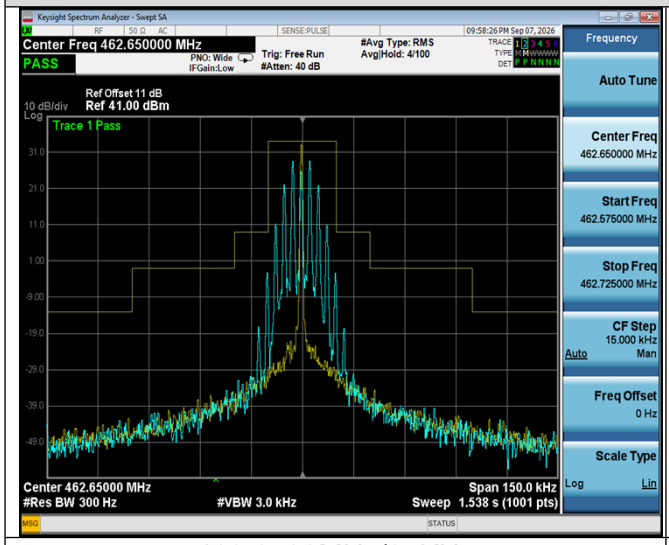
467.6500MHz/12.5KHz



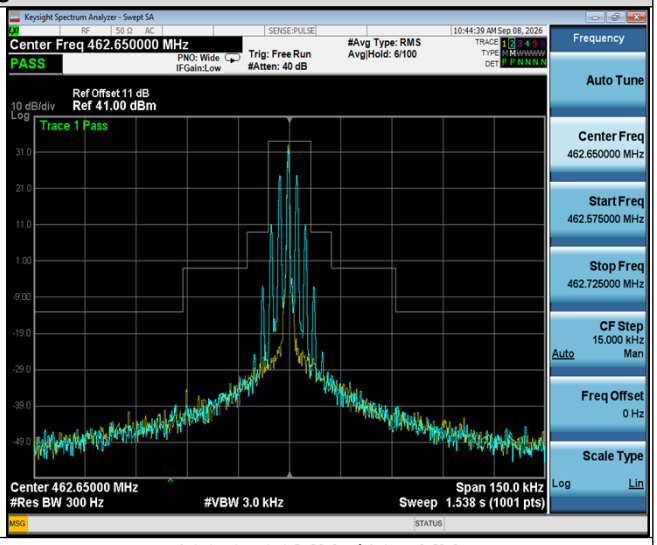
467.6375MHz/12.5KHz

Emission Mask:

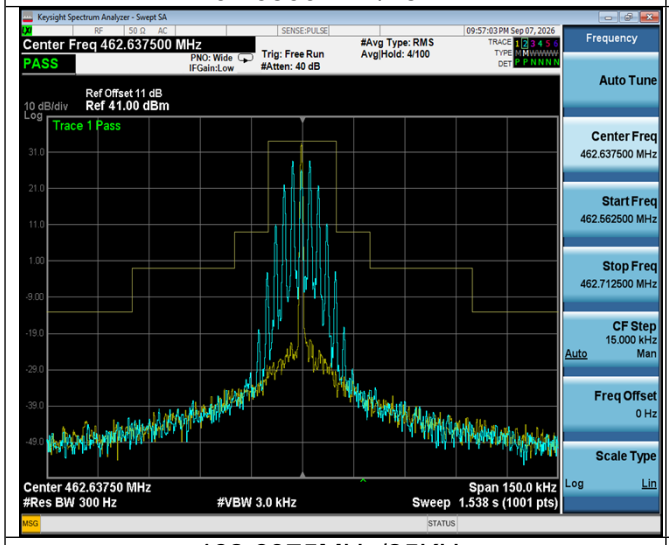
Analog/FM



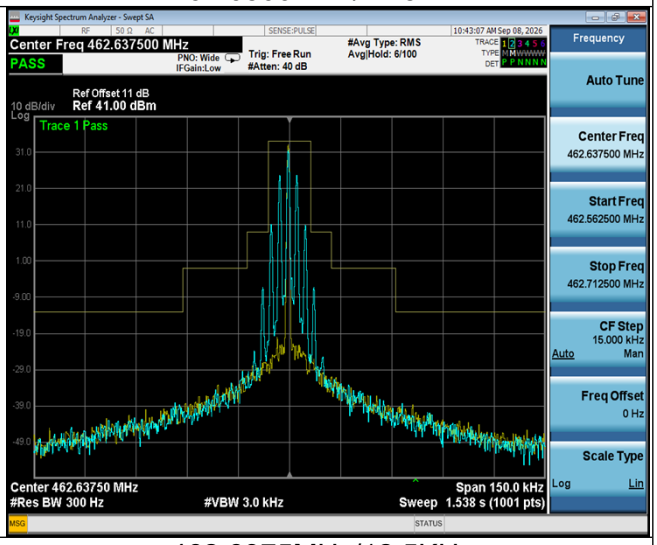
462.6500MHz/25KHz



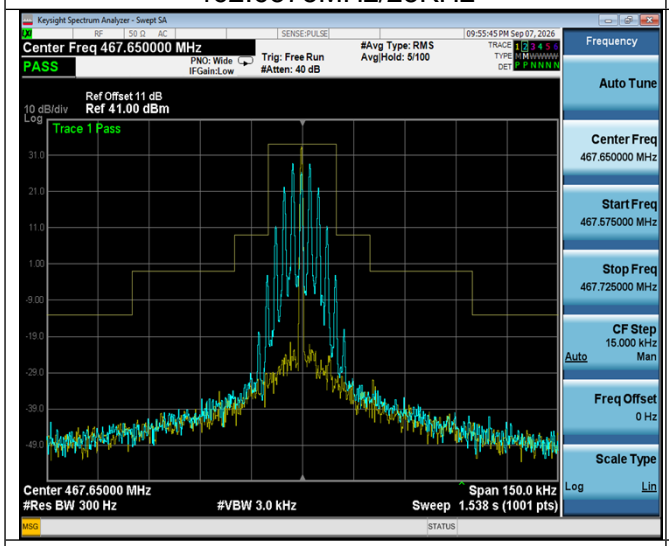
462.6500MHz/12.5KHz



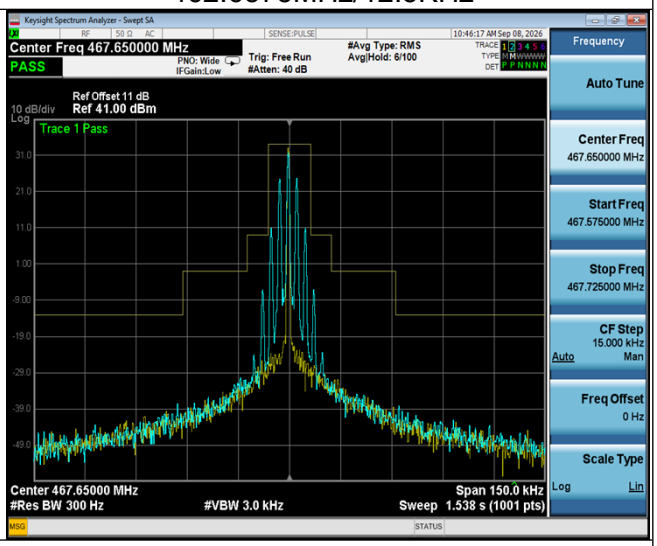
462.6375MHz/25KHz



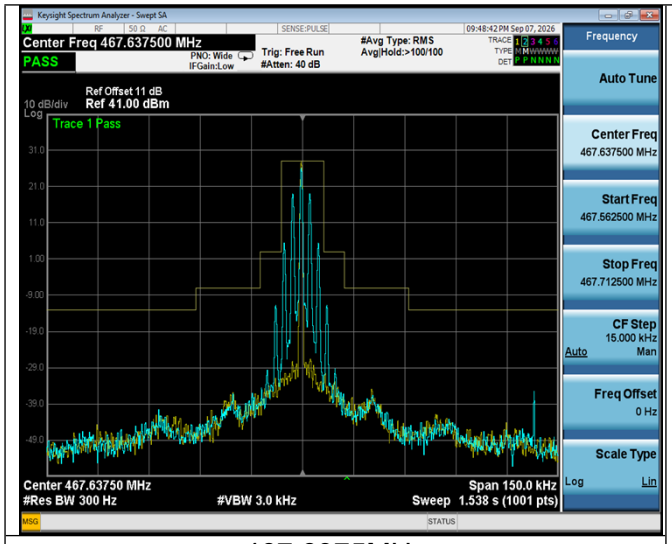
462.6375MHz/12.5KHz



467.6500MHz/25KHz



467.6500MHz/12.5KHz


Keysight Spectrum Analyzer - Swept SA
Center Freq 467.637500 MHz
PASS
PNO: Wide
IFGain:Low
Trig: Free Run
#Atten: 40 dB
#Avg Type: RMS
Avg|Hold:>100/100
09:48:42 PM Sep 07, 2026
Ref Offset 11 dB
10 dB/div
Ref 41.00 dBm
Log
Trace 1 Pass
Center 467.63750 MHz
#Res BW 300 Hz
#VBW 3.0 kHz
Span 150.0 kHz
Sweep 1.538 s (1001 pts)
Frequency
Auto Tune
Center Freq
467.637500 MHz
Start Freq
467.562500 MHz
Stop Freq
467.712500 MHz
CF Step
15.000 kHz
Auto
Man
Freq Offset
0 Hz
Scale Type
Log
Lin

467.6375MHz

3.3 Modulation Characteristic

LIMITS

According to FCC 95.1775:

(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.

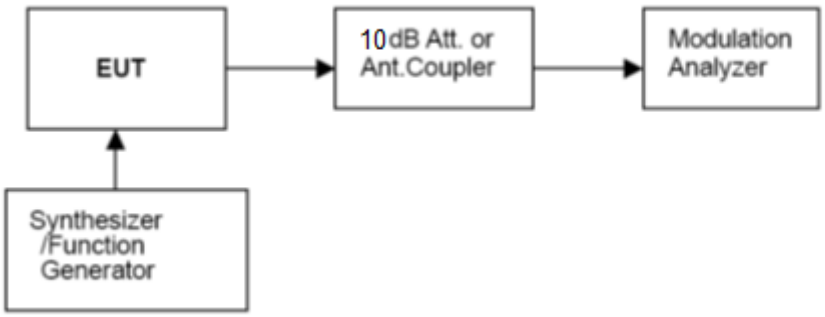
(d) Over modulation. Each GMRS transmitter type, except for a mobile station transmitter type with a transmitter power output of 2.5 W or less, must automatically prevent a higher than normal audio level from causing over modulation.

(e) 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).

(1) The filter must be between the modulation limiter and the modulated stage of the transmitter.

(2) 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.

TEST CONFIGURATION



TEST PROCEDURE

Modulation Limit

1 Configure the EUT as shown in test configuration, adjust the audio input for 60% of rated system deviation at 1 KHz 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, 1004, 1500 and 2500Hz in sequence.

Audio Frequency Response

1 Configure the EUT as shown in test configuration.

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

3 Vary the Audio frequency from 100 Hz to 3125KHz and record the frequency deviation.

4 Audio Frequency Response =20log10 (Deviation of test frequency/Deviation of 1 KHz reference).

Audio Low Pass Filter Response

1 Connect the equipment as illustrated.

2 Connect the Audio Generator as close as possible the input of the post limiter low pass filter

3 within the transmitter under test.

4 Connect the RF Communications Test Set to the output of the post limiter low pass filter within

5 the transmitter under test.

6 Apply a 1000 Hz tone from the audio frequency generator and adjust the level permanufacturer's specifications.

7 Record the dB level of the 1000 Hz spectral line on the RF Communications Test Set as LEV_{REF}.

8 Set the audio frequency generator to the desired test frequency between 3000 Hz and the upper low pass filter limit.

9 Record RF Communications Test Set levels, at the test frequency in step 8)

10 Record the dB level on the RF Communications Test Set as LEV_{FREQ}.

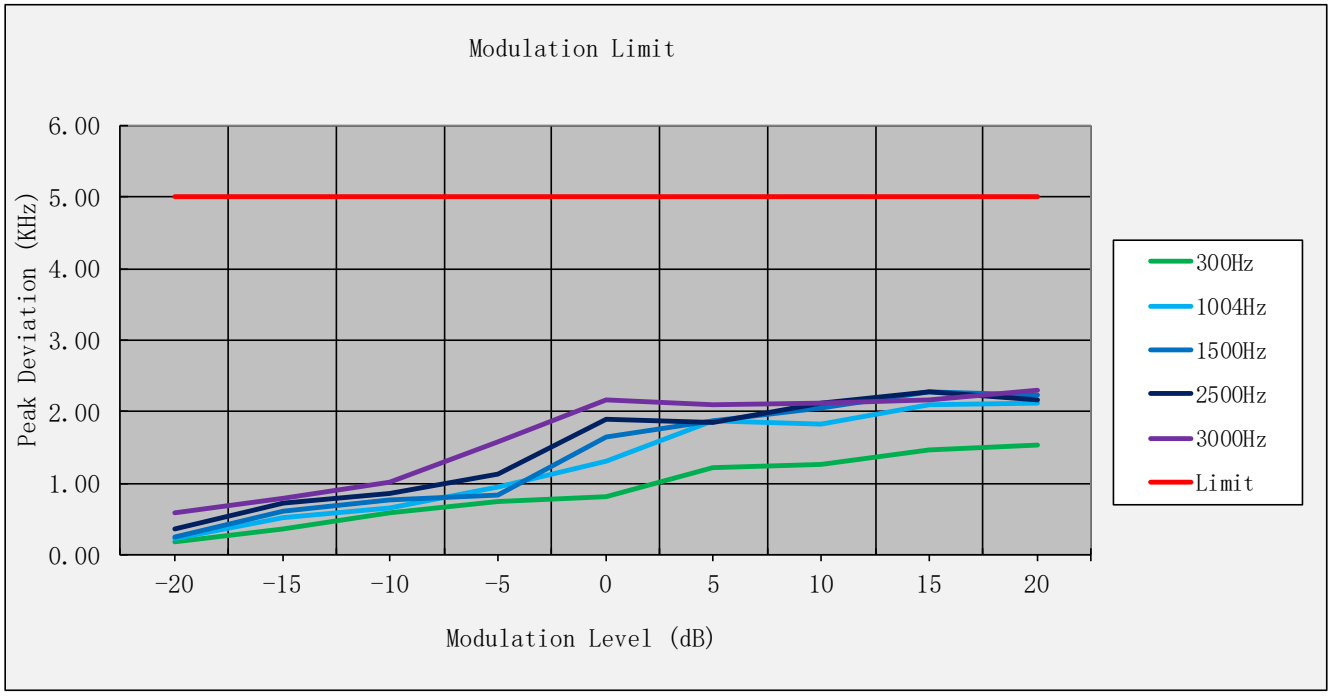
TEST RESULTS

Remark: Pre_scan all operation mode, and worst case recorded as below:

a) **Modulation Limit:**

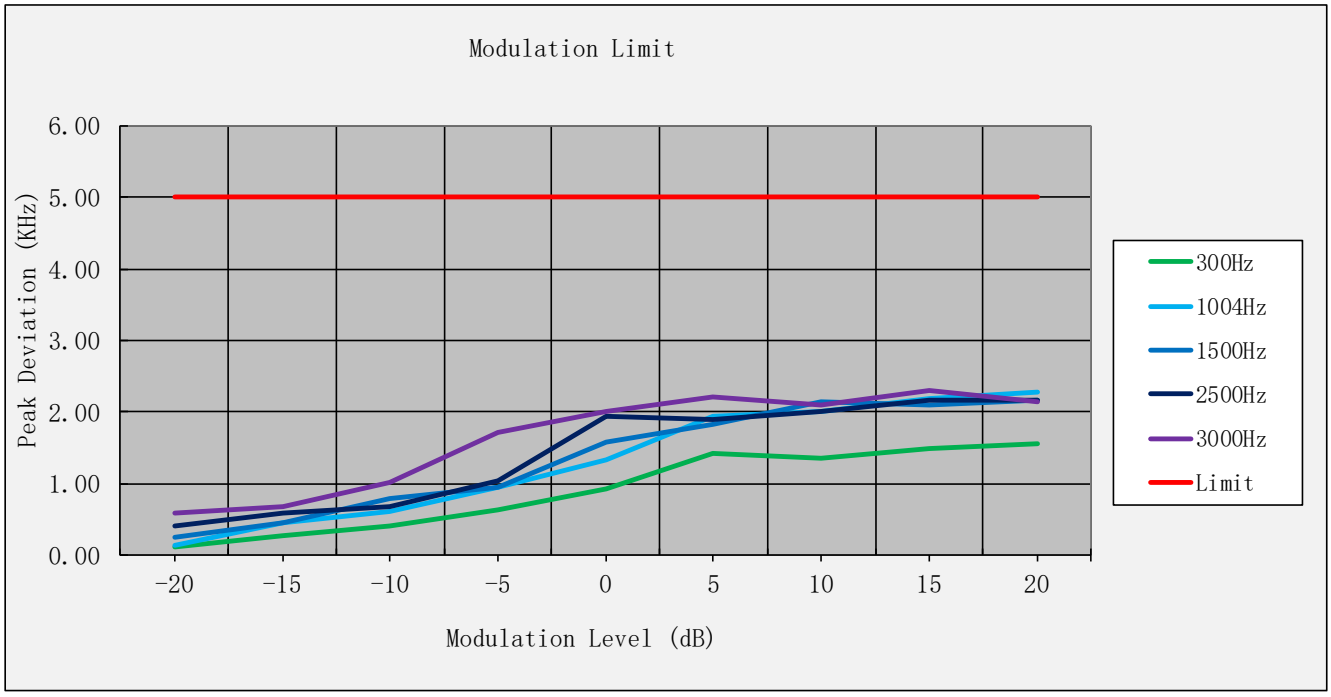
Test frequency: 462.6500MHz/25KHz

Modulation Level(dB)	Peak Freq. Deviation At 300 Hz(KHz)	Peak Freq. Deviation At 1004 Hz(KHz)	Peak Freq. Deviation At 1500 Hz(KHz)	Peak Freq. Deviation At 2500 Hz(KHz)	Peak Freq. Deviation At 3000 Hz(KHz)
-20	0.19	0.22	0.26	0.36	0.59
-15	0.36	0.53	0.62	0.72	0.80
-10	0.60	0.65	0.76	0.87	1.01
-5	0.75	0.96	0.83	1.13	1.58
0	0.82	1.31	1.66	1.89	2.16
+5	1.23	1.87	1.87	1.86	2.10
+10	1.26	1.83	2.06	2.12	2.12
+15	1.48	2.09	2.29	2.27	2.16
+20	1.54	2.13	2.23	2.16	2.31



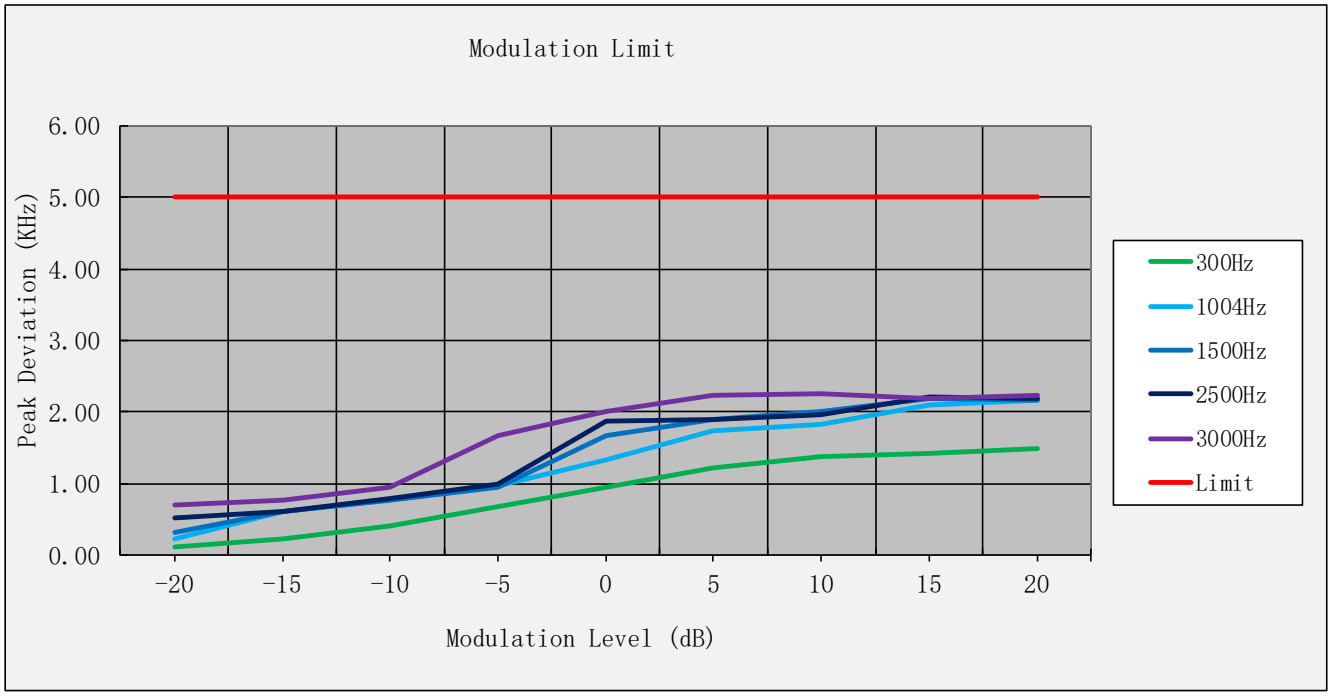
Test frequency: 462.6375MHz/25KHz

Modulation Level(dB)	Peak Freq. Deviation At 300 Hz(KHz)	Peak Freq. Deviation At 1004 Hz(KHz)	Peak Freq. Deviation At 1500 Hz(KHz)	Peak Freq. Deviation At 2500 Hz(KHz)	Peak Freq. Deviation At 3000 Hz(KHz)
-20	0.11	0.13	0.25	0.41	0.59
-15	0.27	0.46	0.46	0.58	0.68
-10	0.42	0.61	0.79	0.69	1.01
-5	0.64	0.94	0.96	1.04	1.71
0	0.93	1.33	1.59	1.95	2.02
+5	1.42	1.94	1.84	1.90	2.22
+10	1.35	2.00	2.14	2.01	2.11
+15	1.50	2.19	2.11	2.16	2.30
+20	1.57	2.27	2.17	2.17	2.15



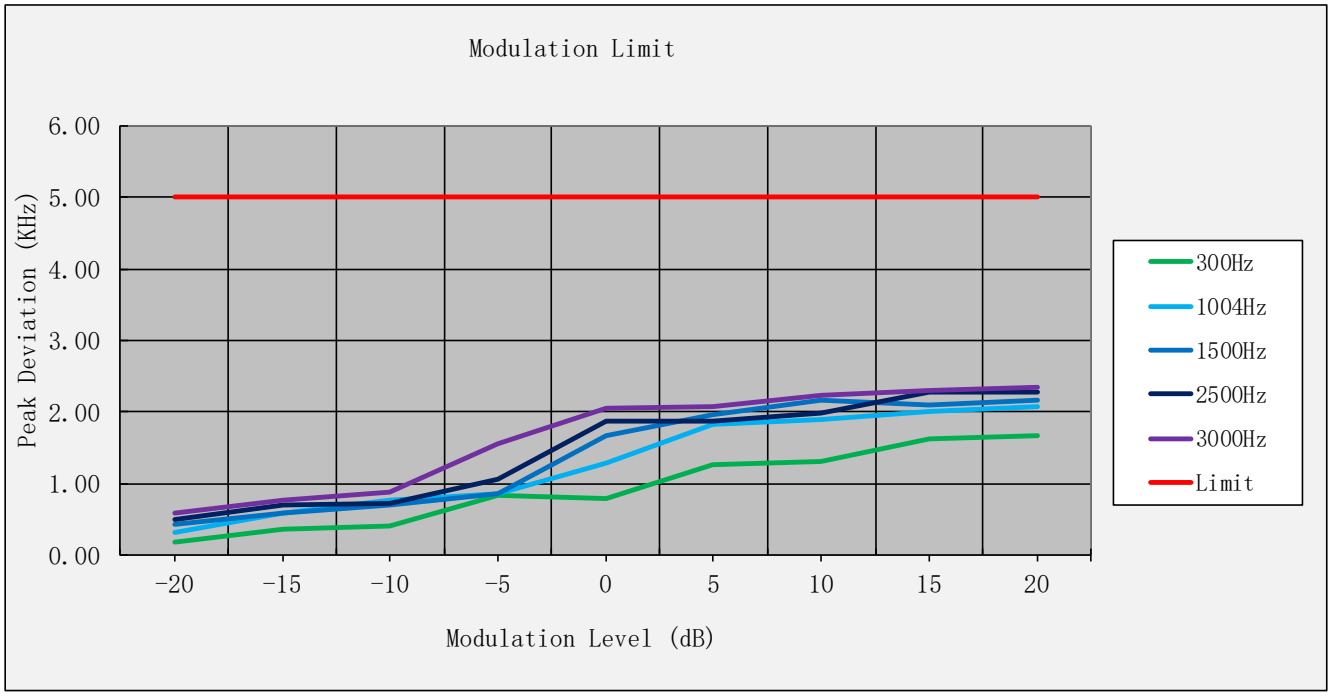
Test frequency: 467.6500MHz/25KHz

Modulation Level(dB)	Peak Freq. Deviation At 300 Hz(KHz)	Peak Freq. Deviation At 1004 Hz(KHz)	Peak Freq. Deviation At 1500 Hz(KHz)	Peak Freq. Deviation At 2500 Hz(KHz)	Peak Freq. Deviation At 3000 Hz(KHz)
-20	0.11	0.22	0.32	0.53	0.71
-15	0.23	0.62	0.61	0.61	0.77
-10	0.42	0.78	0.77	0.80	0.94
-5	0.67	0.98	0.94	1.00	1.67
0	0.94	1.34	1.68	1.88	2.01
+5	1.23	1.75	1.90	1.89	2.24
+10	1.39	1.83	2.00	1.96	2.26
+15	1.42	2.10	2.20	2.21	2.20
+20	1.50	2.16	2.17	2.19	2.23



Test Frequency: 467.6375MHz/12.5KHz

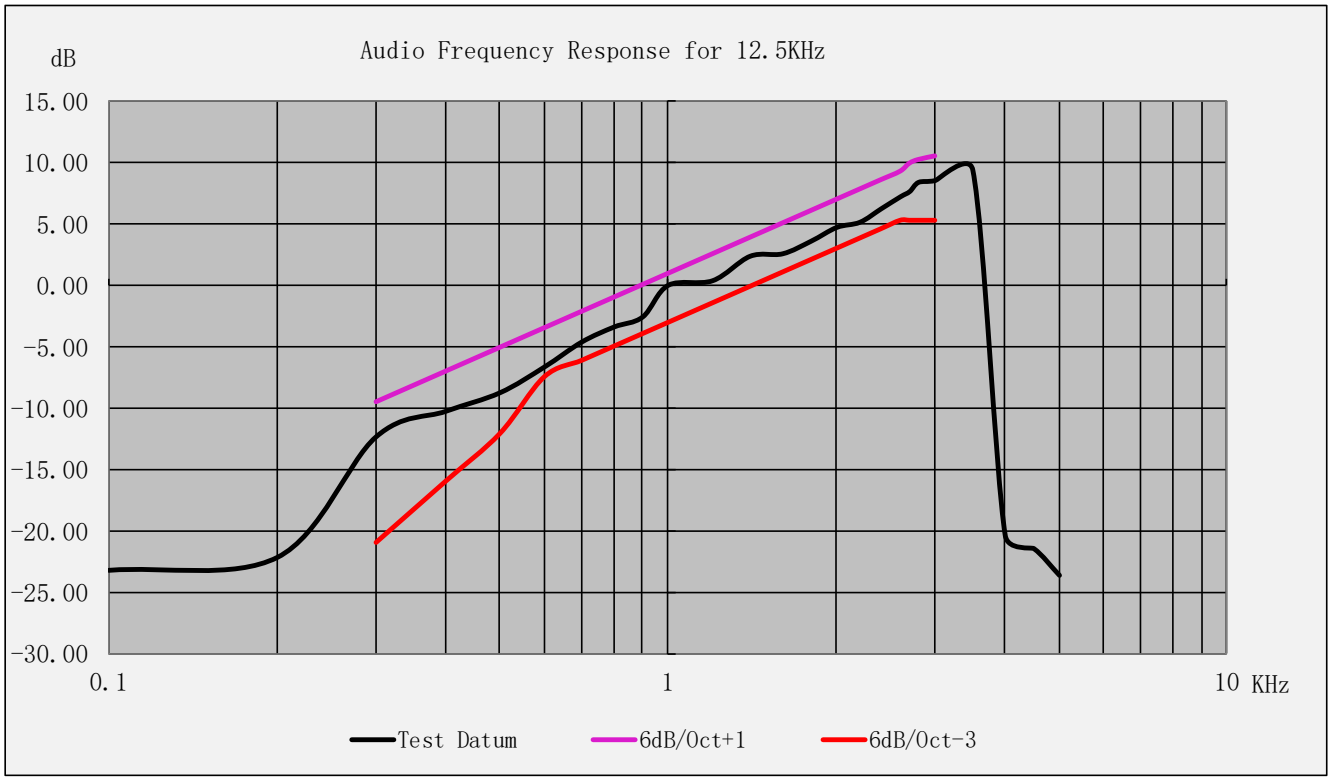
Modulation Level(dB)	Peak Freq. Deviation At 300 Hz(KHz)	Peak Freq. Deviation At 1004 Hz(KHz)	Peak Freq. Deviation At 1500 Hz(KHz)	Peak Freq. Deviation At 2500 Hz(KHz)	Peak Freq. Deviation At 3000 Hz(KHz)
-20	0.18	0.32	0.43	0.51	0.58
-15	0.36	0.59	0.58	0.71	0.78
-10	0.42	0.76	0.71	0.72	0.89
-5	0.83	0.85	0.86	1.06	1.55
0	0.79	1.28	1.67	1.87	2.06
+5	1.26	1.84	1.96	1.88	2.08
+10	1.31	1.90	2.16	1.98	2.24
+15	1.62	2.02	2.11	2.28	2.30
+20	1.68	2.08	2.16	2.27	2.34



b) Audio Frequency Response:

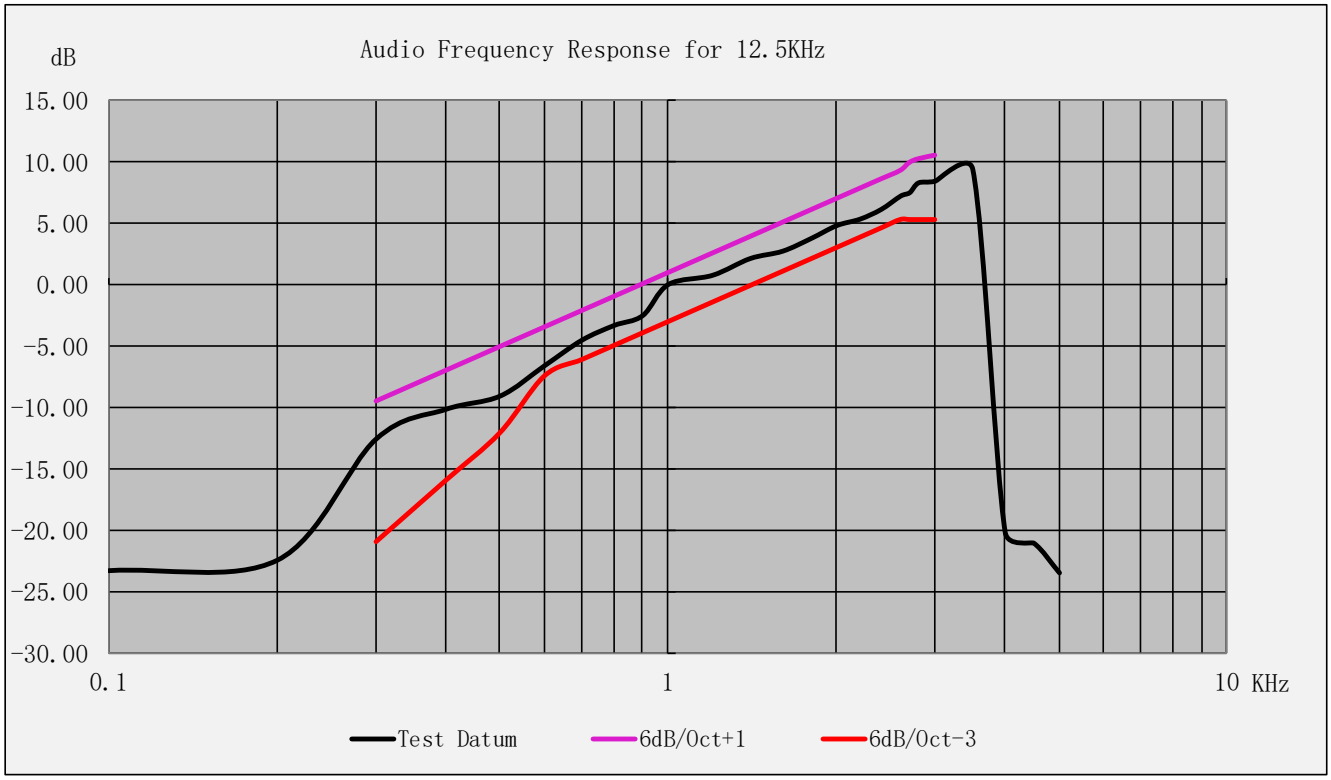
Test Frequency: 462.6500MHz/25KHz

Frequency (KHz)	Frequency Deviation (KHz)	1KHz Reference Deviation (KHz)	Audio Frequency Response (dB)
0.1	0.05	0.76	-23.22
0.2	0.06	0.76	-22.17
0.3	0.18	0.76	-12.37
0.4	0.23	0.76	-10.27
0.5	0.28	0.76	-8.76
0.6	0.35	0.76	-6.67
0.7	0.45	0.76	-4.63
0.8	0.51	0.76	-3.40
0.9	0.56	0.76	-2.58
1.0	0.76	0.76	0.00
1.2	0.79	0.76	0.37
1.4	1.00	0.76	2.36
1.6	1.02	0.76	2.56
1.8	1.15	0.76	3.59
2.0	1.31	0.76	4.71
2.2	1.37	0.76	5.13
2.4	1.56	0.76	6.22
2.6	1.74	0.76	7.21
2.7	1.83	0.76	7.63
2.8	1.99	0.76	8.38
3.0	2.03	0.76	8.53
3.5	2.24	0.76	9.38
4.0	0.07	0.76	-20.39
4.5	0.06	0.76	-21.45
5.0	0.05	0.76	-23.63



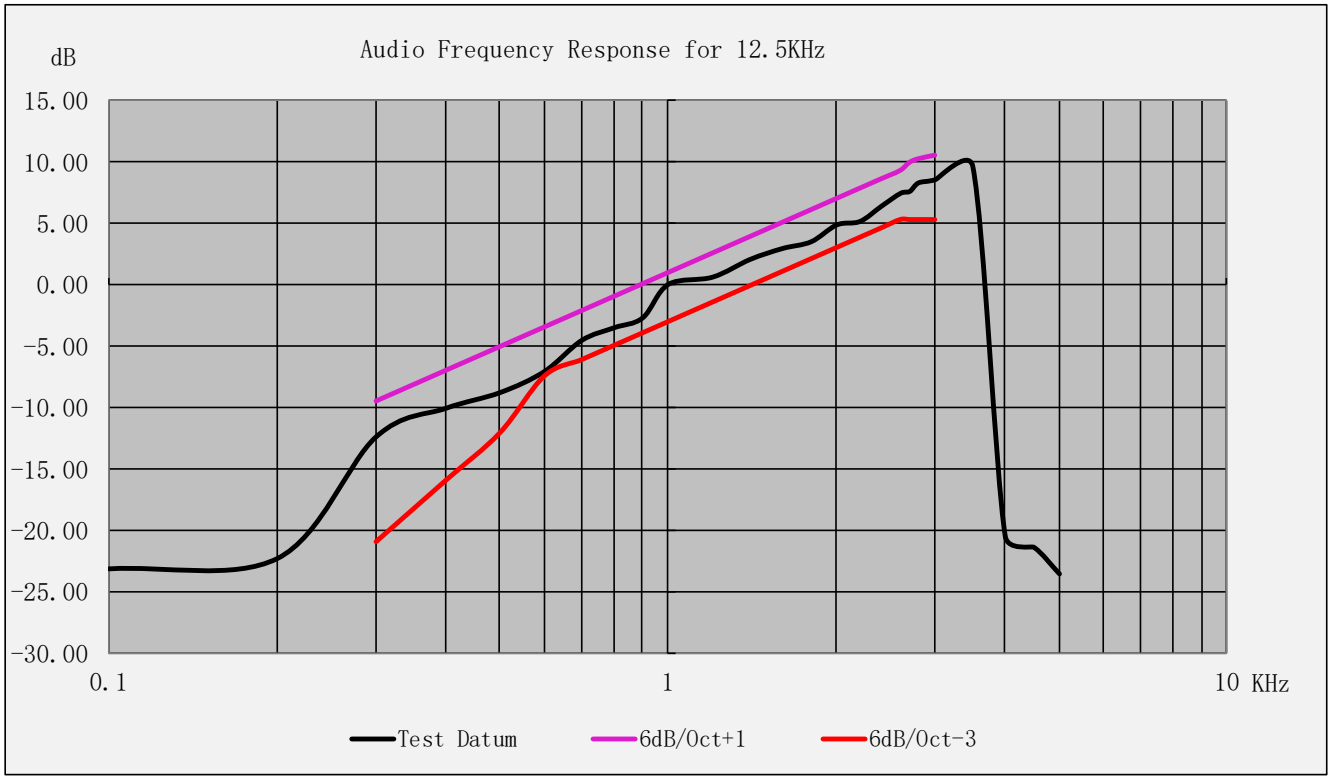
Test Frequency: 462.6375MHz/25KHz

Frequency (KHz)	Frequency Deviation (KHz)	1KHz Reference Deviation (KHz)	Audio Frequency Response (dB)
0.1	0.06	0.95	-23.32
0.2	0.07	0.95	-22.47
0.3	0.22	0.95	-12.62
0.4	0.29	0.95	-10.18
0.5	0.33	0.95	-9.10
0.6	0.44	0.95	-6.64
0.7	0.56	0.95	-4.55
0.8	0.65	0.95	-3.34
0.9	0.71	0.95	-2.53
1.0	0.95	0.95	0.00
1.2	1.04	0.95	0.75
1.4	1.21	0.95	2.11
1.6	1.30	0.95	2.71
1.8	1.46	0.95	3.75
2.0	1.65	0.95	4.80
2.2	1.75	0.95	5.32
2.4	1.92	0.95	6.11
2.6	2.18	0.95	7.20
2.7	2.25	0.95	7.48
2.8	2.46	0.95	8.28
3.0	2.50	0.95	8.42
3.5	2.79	0.95	9.37
4.0	0.09	0.95	-20.22
4.5	0.08	0.95	-21.08
5.0	0.06	0.95	-23.50



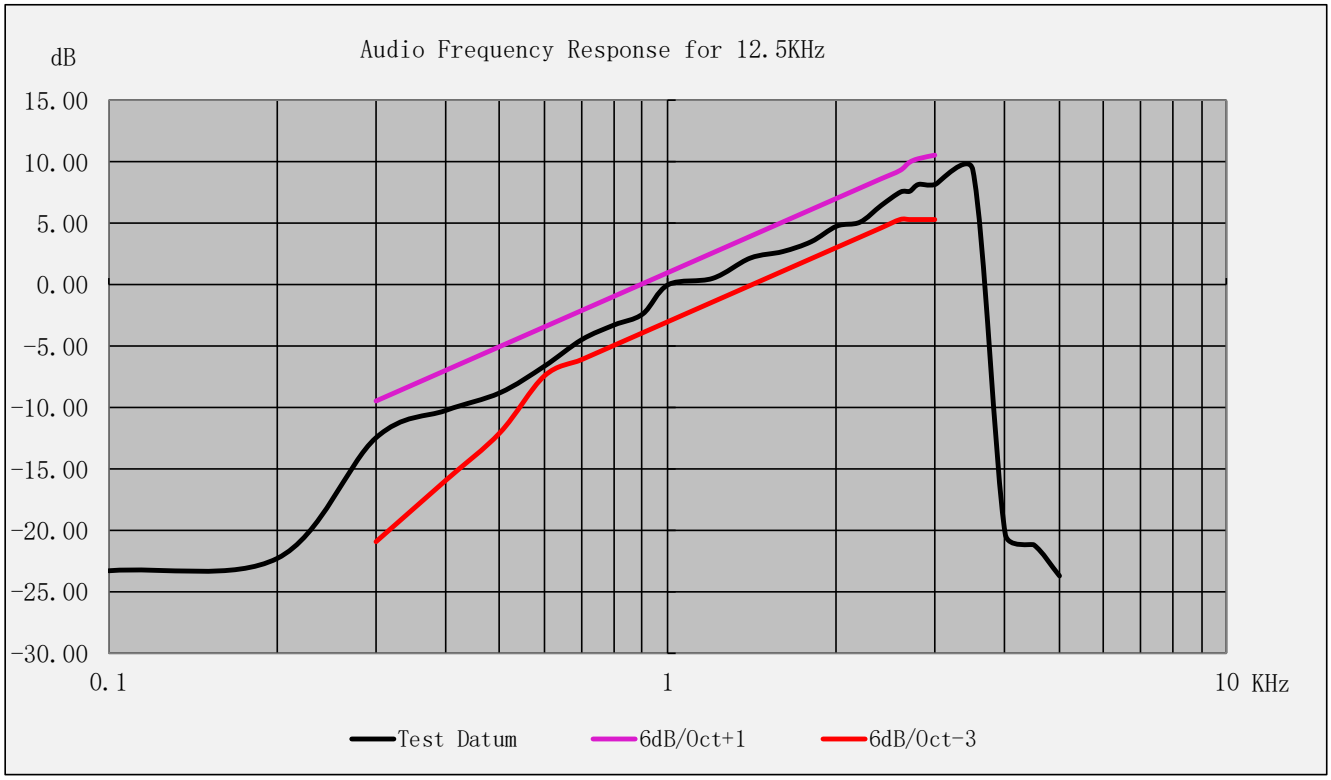
Test Frequency: 467.6500MHz/25KHz

Frequency (KHz)	Frequency Deviation (KHz)	1KHz Reference Deviation (KHz)	Audio Frequency Response (dB)
0.1	0.05	0.76	-23.15
0.2	0.06	0.76	-22.31
0.3	0.18	0.76	-12.43
0.4	0.24	0.76	-10.09
0.5	0.28	0.76	-8.81
0.6	0.34	0.76	-7.10
0.7	0.45	0.76	-4.56
0.8	0.51	0.76	-3.53
0.9	0.56	0.76	-2.72
1.0	0.76	0.76	0.00
1.2	0.81	0.76	0.59
1.4	0.96	0.76	2.03
1.6	1.06	0.76	2.92
1.8	1.13	0.76	3.47
2.0	1.33	0.76	4.84
2.2	1.37	0.76	5.12
2.4	1.58	0.76	6.34
2.6	1.78	0.76	7.41
2.7	1.81	0.76	7.56
2.8	1.97	0.76	8.26
3.0	2.03	0.76	8.52
3.5	2.29	0.76	9.59
4.0	0.07	0.76	-20.50
4.5	0.06	0.76	-21.39
5.0	0.05	0.76	-23.56



Test Frequency: 467.6375MHz/12.5KHz

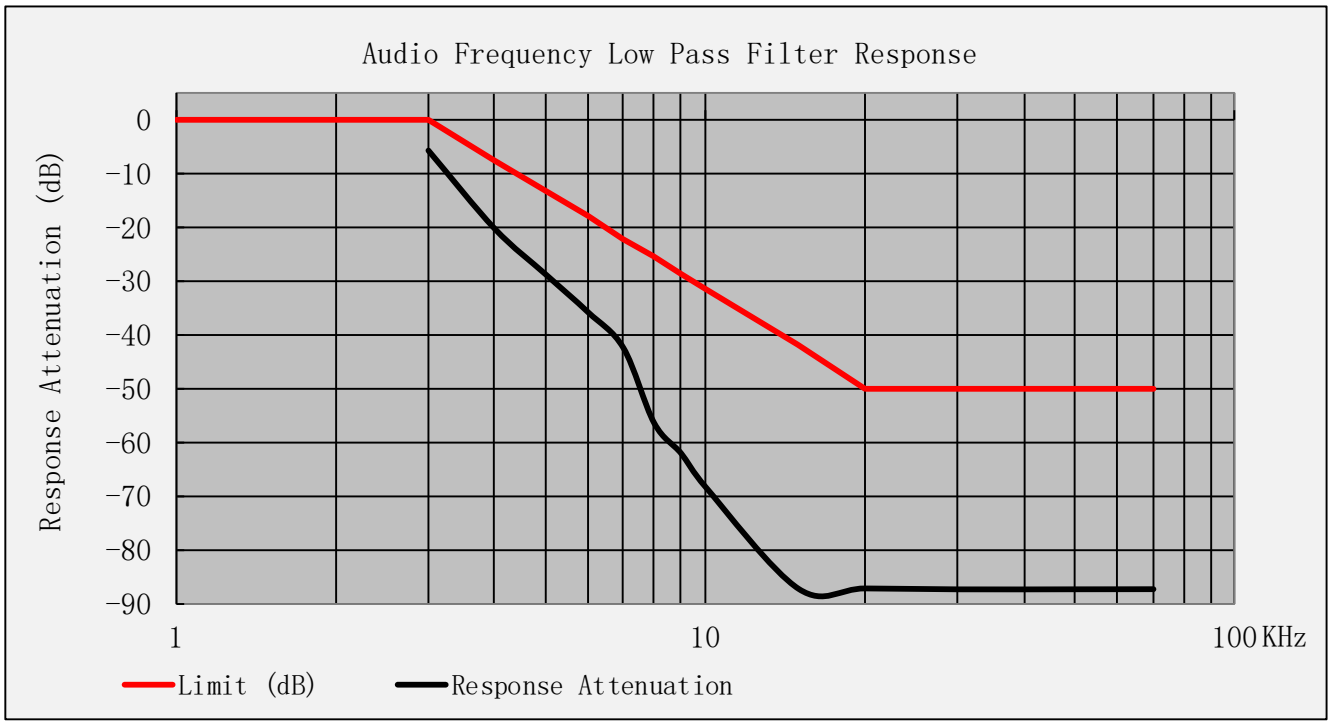
Frequency (KHz)	Frequency Deviation (KHz)	1KHz Reference Deviation (KHz)	Audio Frequency Response (dB)
0.1	0.06	0.94	-23.33
0.2	0.07	0.94	-22.32
0.3	0.22	0.94	-12.50
0.4	0.29	0.94	-10.26
0.5	0.34	0.94	-8.82
0.6	0.44	0.94	-6.66
0.7	0.56	0.94	-4.49
0.8	0.64	0.94	-3.29
0.9	0.71	0.94	-2.39
1.0	0.94	0.94	0.00
1.2	1.00	0.94	0.51
1.4	1.21	0.94	2.16
1.6	1.28	0.94	2.69
1.8	1.41	0.94	3.50
2.0	1.63	0.94	4.77
2.2	1.69	0.94	5.09
2.4	1.98	0.94	6.45
2.6	2.24	0.94	7.55
2.7	2.26	0.94	7.61
2.8	2.41	0.94	8.17
3.0	2.41	0.94	8.17
3.5	2.76	0.94	9.35
4.0	0.09	0.94	-20.34
4.5	0.08	0.94	-21.22
5.0	0.06	0.94	-23.75



Audio Low Pass Filter Response

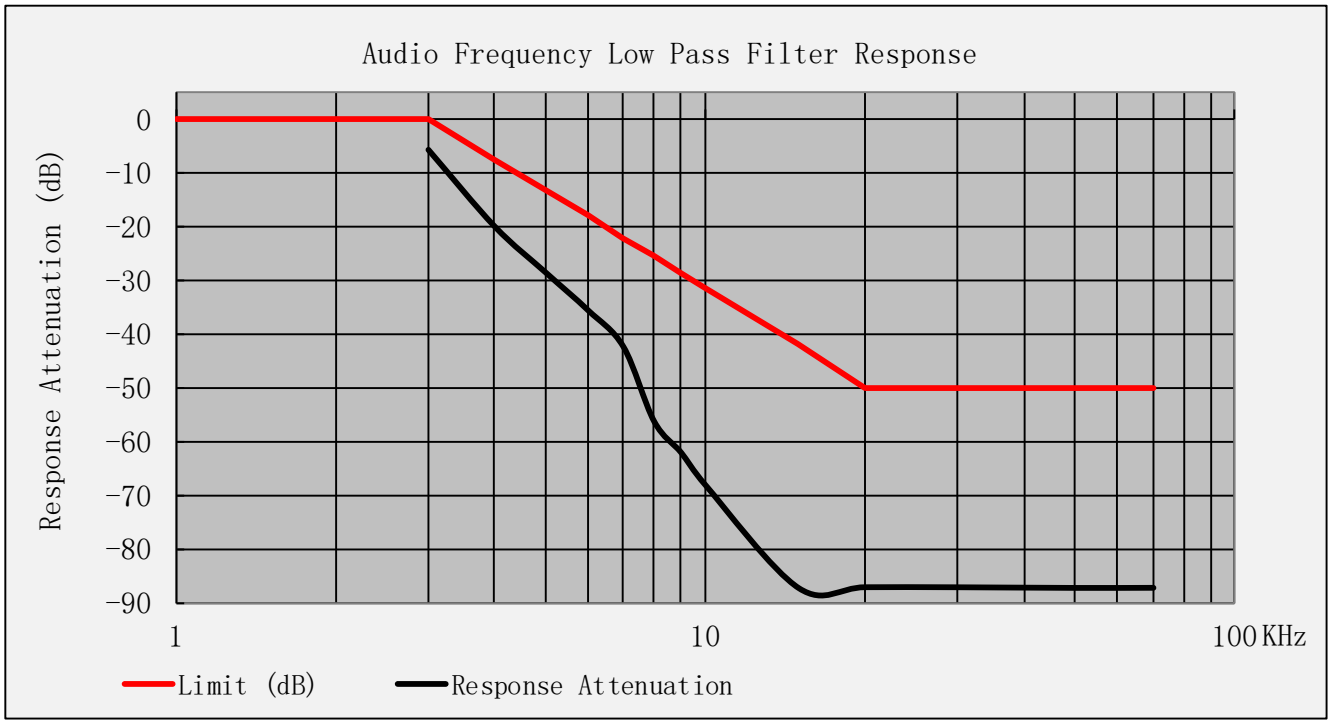
Test Frequency:462.6500MHz/25KHz

Audio Frequency (KHz)	Response Attenuation (dB)	Limit (dB)
3	-5.57	0
4	-20.14	-7.5
5	-28.72	-13.31
6	-35.71	-18.06
7	-42.4	-22.08
8	-56.41	-25.56
9	-62.1	-28.63
10	-68.32	-31.37
15	-87.36	-41.94
20	-87.25	-50
30	-87.42	-50
50	-87.41	-50
70	-87.39	-50



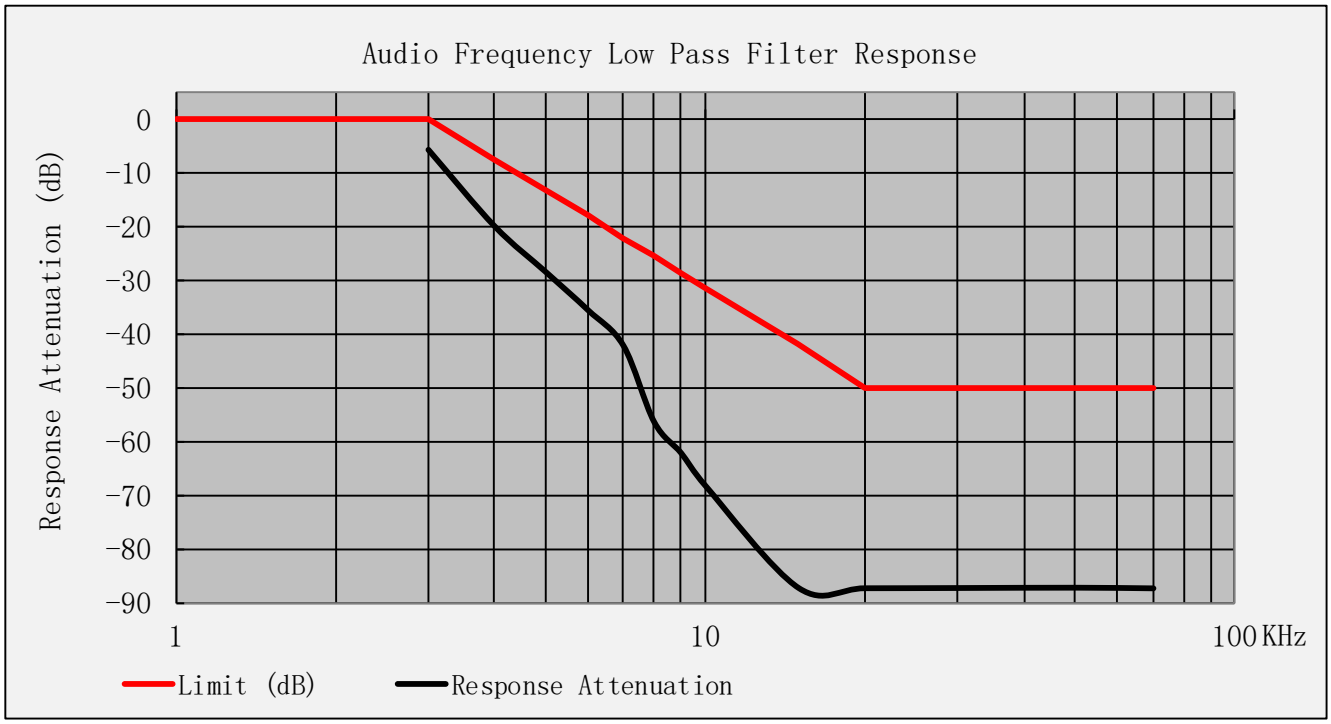
Test Frequency:462.6375MHz/25KHz

Audio Frequency (KHz)	Response Attenuation (dB)	Limit (dB)
3	-5.68	0
4	-19.97	-7.5
5	-28.61	-13.31
6	-35.59	-18.06
7	-42.42	-22.08
8	-56.34	-25.56
9	-62.18	-28.63
10	-68.22	-31.37
15	-87.43	-41.94
20	-87.25	-50
30	-87.26	-50
50	-87.38	-50
70	-87.36	-50



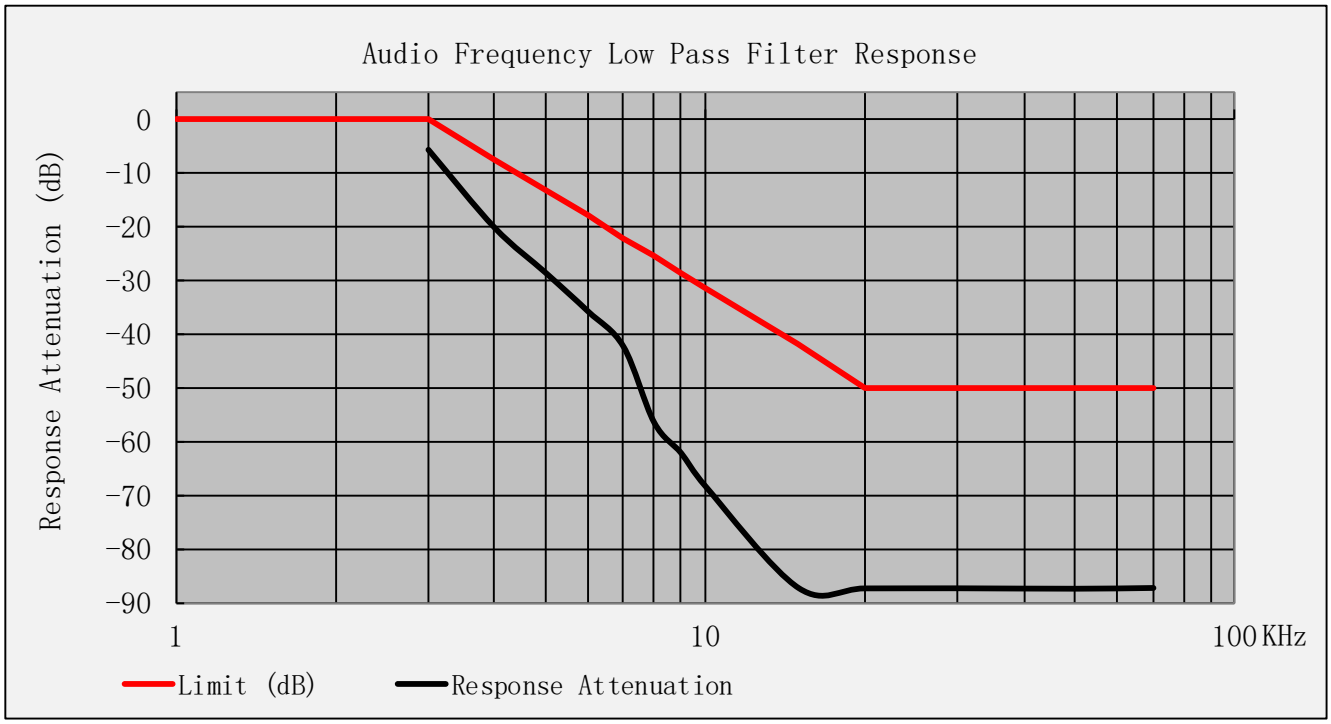
Test Frequency:467.6500MHz/25KHz

Audio Frequency (KHz)	Response Attenuation (dB)	Limit (dB)
3	-5.72	0
4	-19.97	-7.5
5	-28.52	-13.31
6	-35.59	-18.06
7	-42.23	-22.08
8	-56.45	-25.56
9	-62.27	-28.63
10	-68.35	-31.37
15	-87.41	-41.94
20	-87.43	-50
30	-87.39	-50
50	-87.33	-50
70	-87.45	-50



Test Frequency:467.6375MHz/12.5KHz

Audio Frequency (KHz)	Response Attenuation (dB)	Limit (dB)
3	-5.61	0
4	-20.13	-7.5
5	-28.58	-13.31
6	-35.71	-18.06
7	-42.28	-22.08
8	-56.43	-25.56
9	-62.16	-28.63
10	-68.32	-31.37
15	-87.3	-41.94
20	-87.34	-50
30	-87.32	-50
50	-87.4	-50
70	-87.26	-50



3.4 Frequency Stability

LIMITS

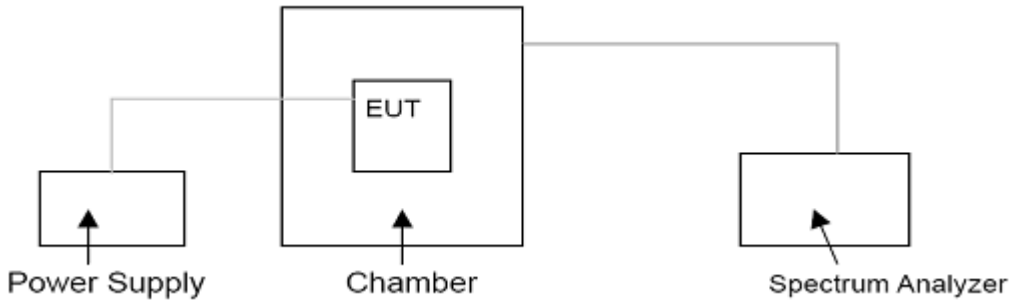
According to FCC 95.1765

Each GMRS transmitter type must be designed to comply with the frequency accuracy requirements in this section under normal operating conditions. Operators of GMRS stations must also ensure compliance with these requirements.

(a) The carrier frequency of each GMRS transmitter transmitting an emission with an occupied bandwidth greater than 12.5 kHz must remain within 5 parts-per-million (ppm) of the channel center frequencies listed in §95.1763 under normal operating conditions.

(b) 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 of the channel center frequencies listed in §95.1763 under normal operating conditions.

TEST CONFIGURATION



TEST PROCEDURE

The EUT was set in the climate chamber and connected to an external DC power supply. The RF output was directly connected to Spectrum Analyzer. The coupling loss of the additional cables was recorded and taken in account for all the measurements. After temperature stabilization (approx. 20 min for each stage), the frequency for the lower, the middle and the highest frequency range was recorded. For Frequency stability Vs. Voltage the EUT was connected to a DC power supply and the voltage was adjusted in the required ranges. The result was recorded.

TEST RESULTS

Reference Frequency: 462.6500MHz					
Voltage (V)	Temperature (℃)	Frequency error (Hz)	Frequency Tolerance (ppm)	Limit (ppm)	Result
3.70	-30	164	0.35	±5	Pass
	-20	42	0.09		
	-10	323	0.70		
	0	749	1.62		
	10	637	1.38		
	20	-91	-0.20		
	30	-171	-0.37		
	40	-239	-0.52		
	50	-576	-1.25		
4.26	25	-186	-0.40		
3.15	25	164	0.35		

Reference Frequency: 462.6375MHz					
Voltage (V)	Temperature (℃)	Frequency error (Hz)	Frequency Tolerance (ppm)	Limit (ppm)	Result
3.70	-30	739	1.60	±5	Pass
	-20	552	1.19		
	-10	-77	-0.17		
	0	-468	-1.01		
	10	71	0.15		
	20	-650	-1.40		
	30	-570	-1.23		
	40	49	0.11		
	50	-551	-1.19		
4.26	25	-782	-1.69		
3.15	25	739	1.60		

Reference Frequency: 467.6500MHz					
Voltage (V)	Temperature (℃)	Frequency error (Hz)	Frequency Tolerance (ppm)	Limit (ppm)	Result
3.70	-30	-103	-0.22	±5	Pass
	-20	-141	-0.30		
	-10	722	1.54		
	0	-39	-0.08		
	10	165	0.35		
	20	-774	-1.66		
	30	-101	-0.22		
	40	-280	-0.60		
	50	584	1.25		
4.26	25	-363	-0.78		
3.15	25	-103	-0.22		

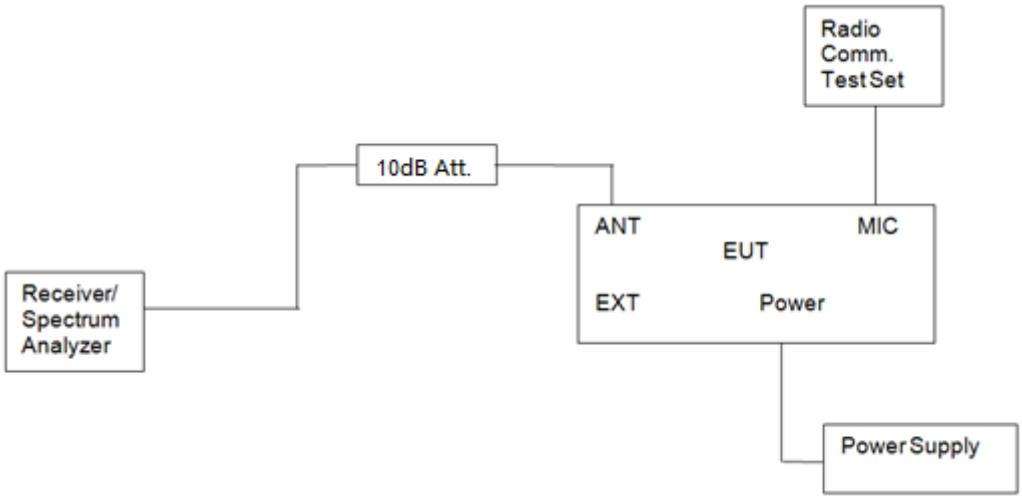
Reference Frequency: 467.6375MHz					
Voltage (V)	Temperature (℃)	Frequency error (Hz)	Frequency Tolerance (ppm)	Limit (ppm)	Result
3.70	-30	525	1.12	±2.5	Pass
	-20	-394	-0.84		
	-10	-186	-0.40		
	0	-654	-1.40		
	10	426	0.91		
	20	799	1.71		
	30	38	0.08		
	40	110	0.24		
	50	18	0.04		
4.26	25	-694	-1.48		
3.15	25	525	1.12		

3.5 Spurious Emission on Antenna Port

Limit

The unwanted emission should be attenuated below TP by at least 43+10log(Transmit Power) dB.

TEST CONFIGURATION



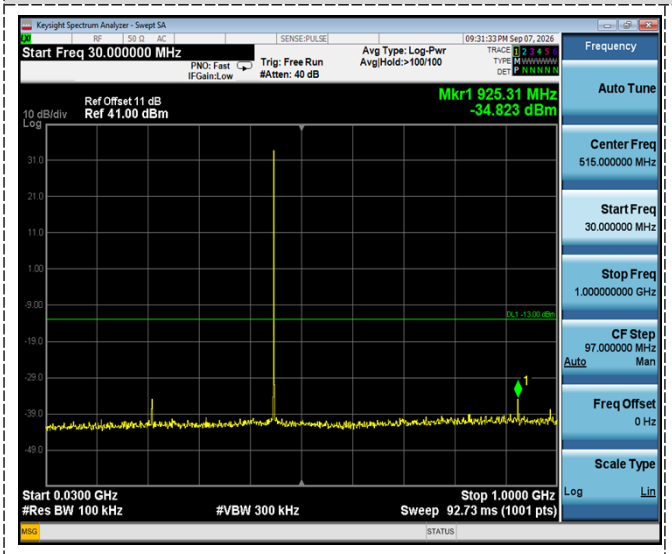
TEST PROCEDURE

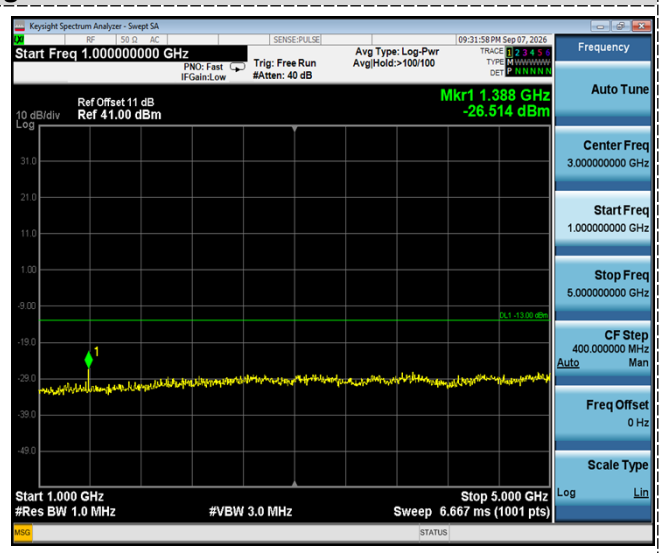
The RF output of the EUT was connected to a spectrum analyzer through appropriate attenuation. The resolution bandwidth of the spectrum analyzer was set to 100 kHz. Sufficient scans were taken to show any out of band emission up to 10th. Harmonic for the lower and the highest frequency range. Set RBW 100 kHz, VBW 300 kHz in the frequency band 30MHz to 1GHz, while set RBW=1MHz.VBW=3MHz from the 1GHz to 10th Harmonic.

TEST RESULTS

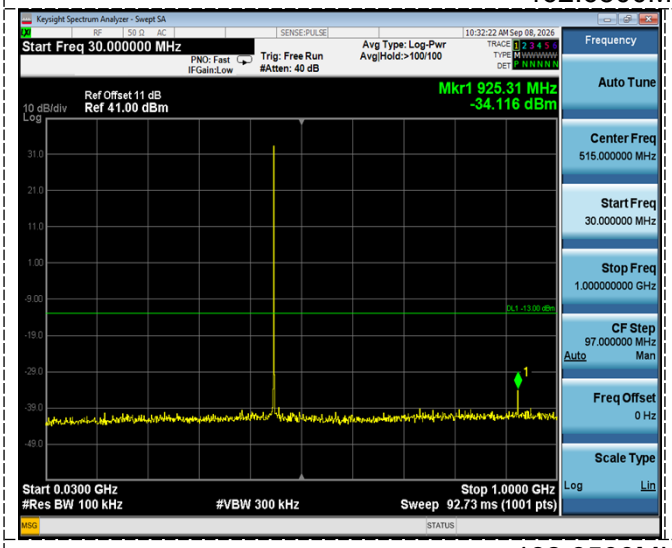
Remark: The measurement frequency range is from 30MHz to the 10th harmonic of the fundamental frequency; and worst spurious emissions recorded as below:

Analog/FM

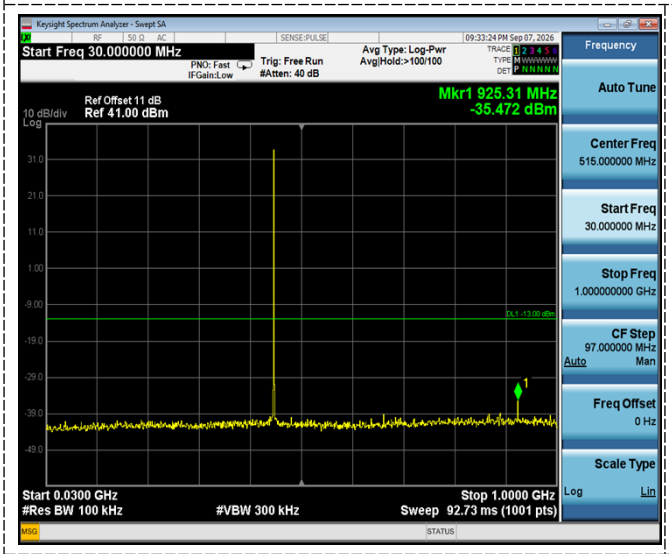


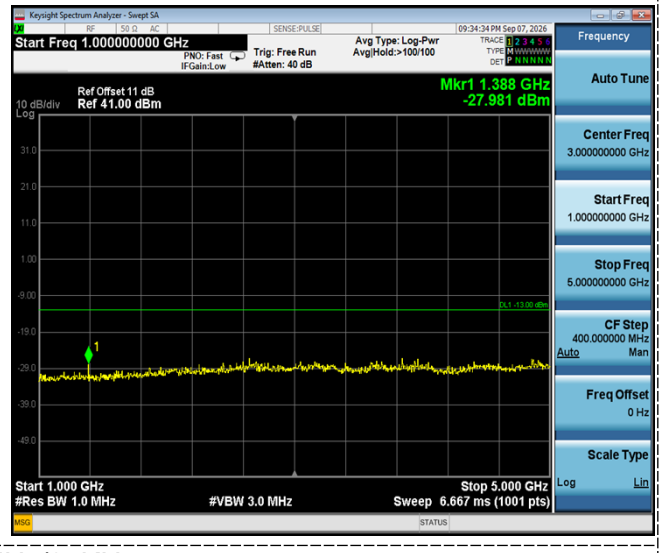


462.6500MHz/25KHz

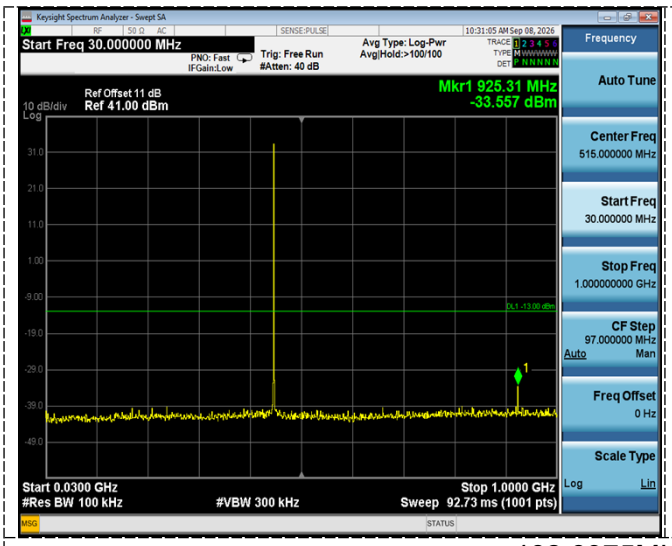


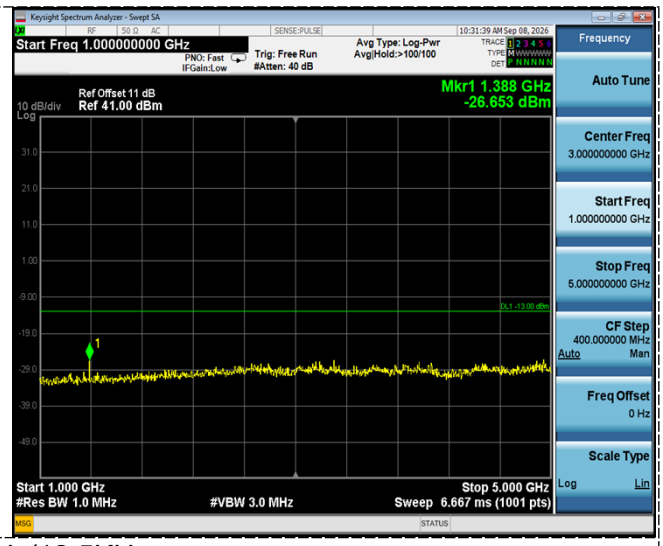
462.6500MHz/12.5KHz



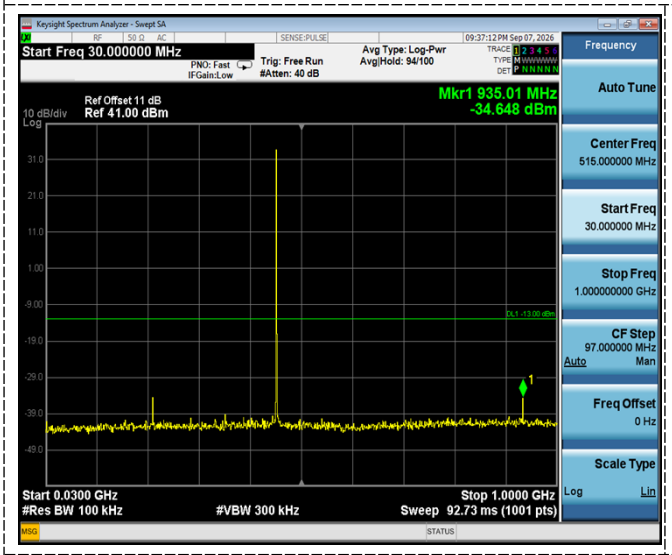


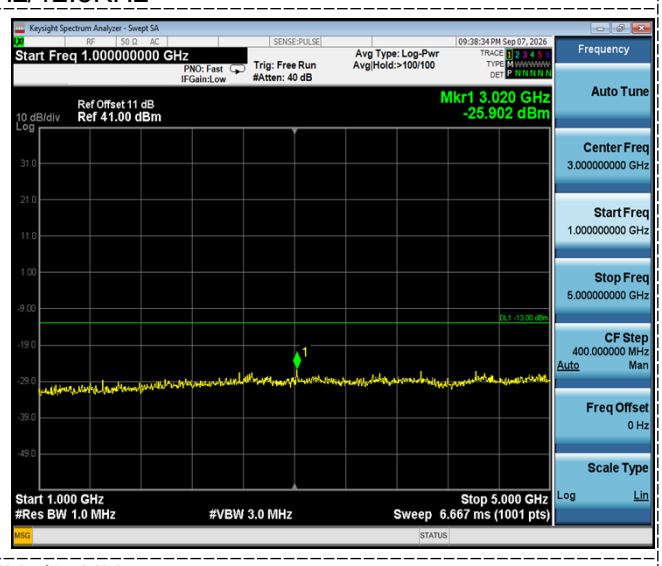
462.6375MHz/25KHz



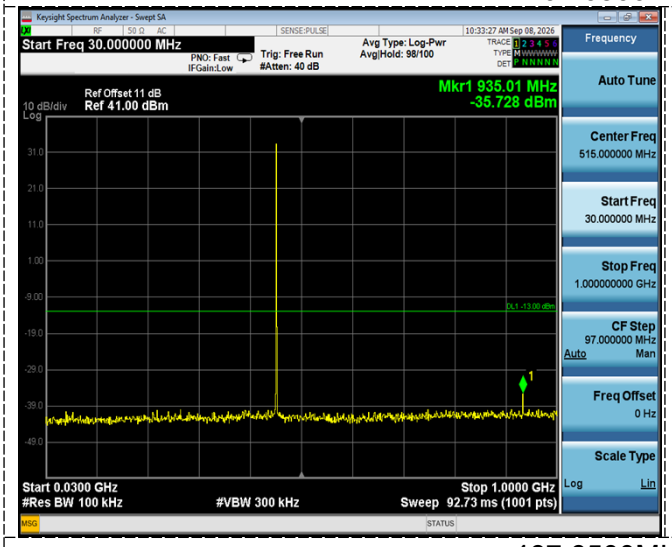


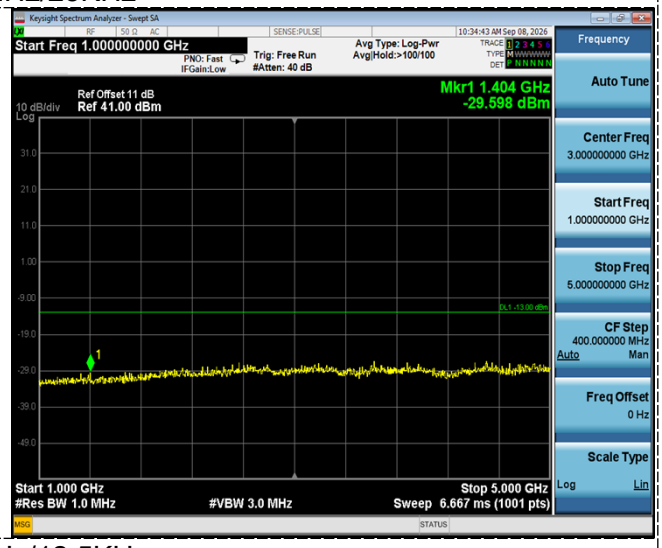
462.6375MHz/12.5KHz



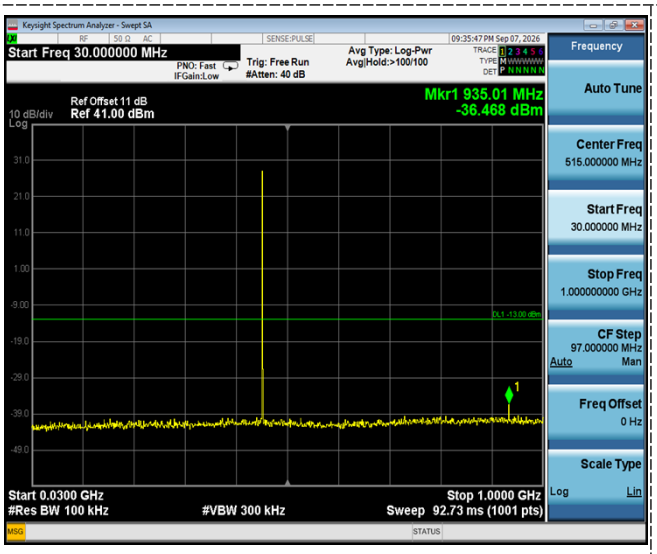


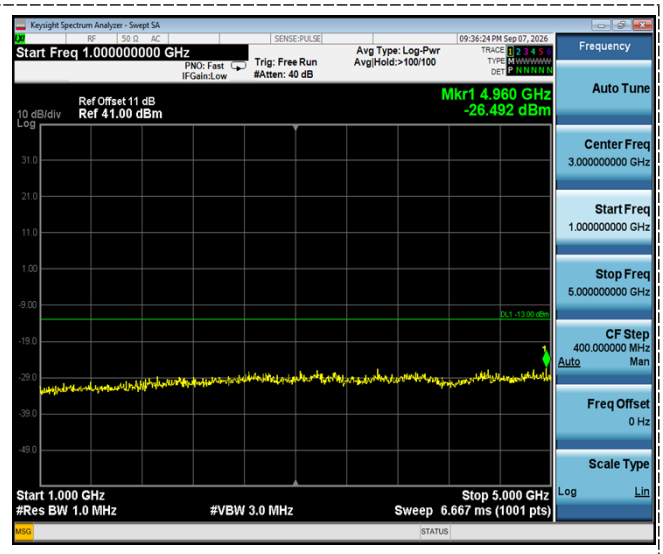
467.6500MHz/25KHz





467.6500MHz/12.5KHz





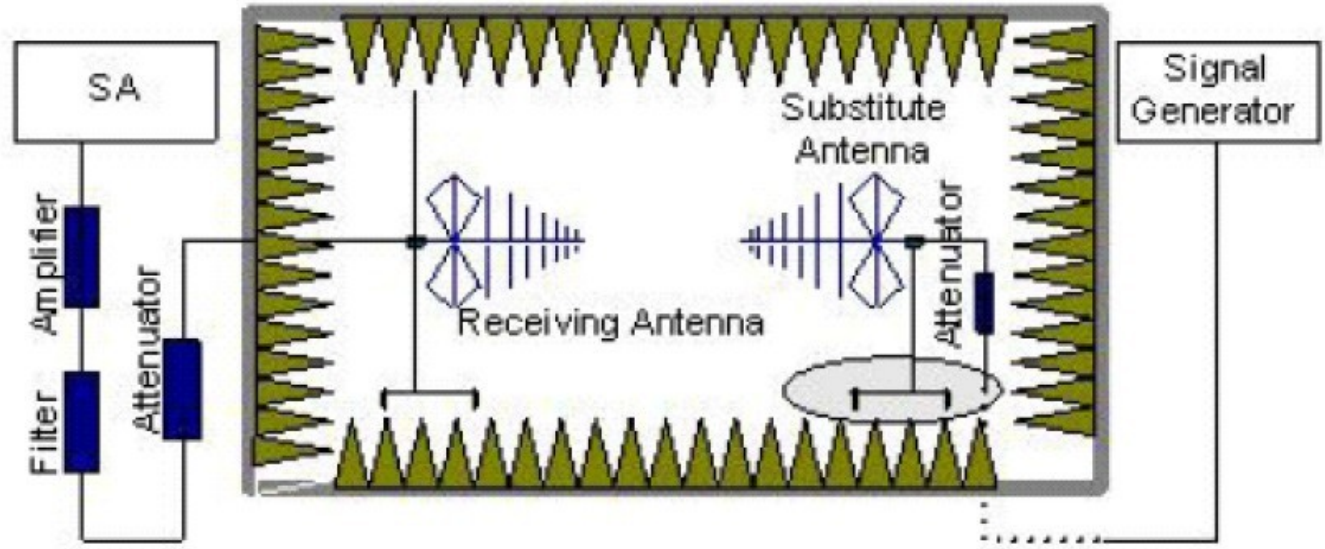
467.6375MHz/12.5KHz

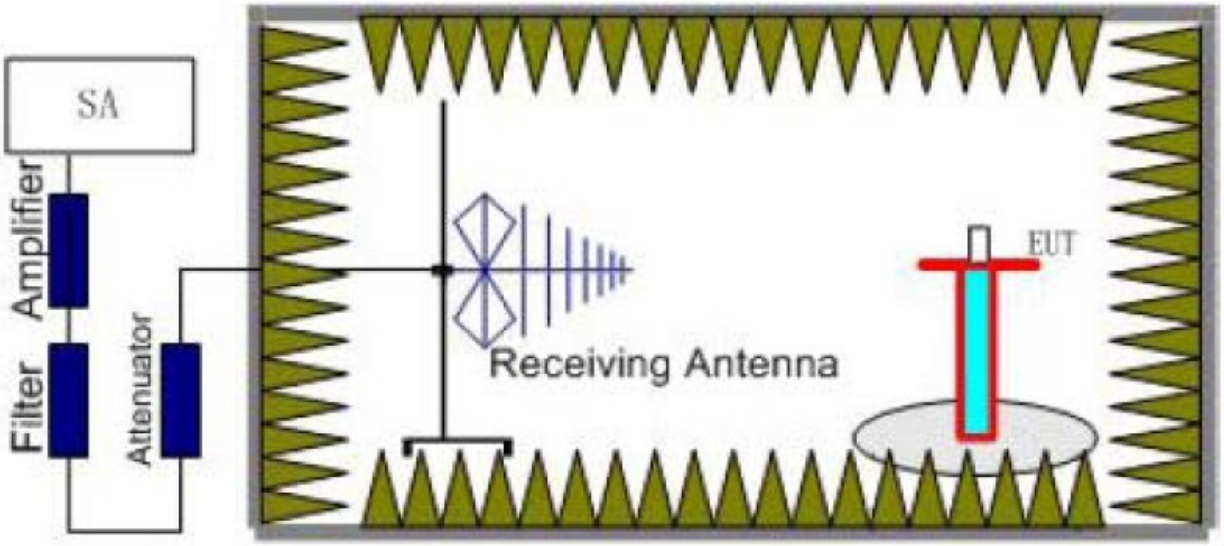
3.6 Transmitter Radiated Spurious Emission

Limit

The unwanted emission should be attenuated below TP by at least 43+10log(Transmit Power) dB.

TEST CONFIGURATION





TEST PROCEDURE

a. EUT was placed on a 0.8 meter high non-conductive stand at a 3 meter test distance from the receive antenna. A receiving antenna was placed on the antenna mast 3 meters from the EUT for emission measurements. The height of receiving antenna is 1.0m. Detected emissions were maximized at each frequency by rotating the EUT through 360° and adjusting the receiving antenna polarization. The radiated emission measurements of all test transmit frequencies were measured with peak detector.

b. 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.

c. The EUT is then put into continuously transmitting mode at its maximum power level during the test. Set Test Receiver or Spectrum 100 kHz below 1GHz and 1MHz above 1GHz, Sweep from 30MHz to the 10th harmonic of the fundamental frequency; and recorded the level of the concerned spurious emission point as (P_r).

d. The EUT then replaced by a substitution antenna. In the chamber, an substitution antenna for the frequency band of interest is placed at the reference point of the chamber. An RF Signal source for the frequency band of interest is connected to the substitution antenna with a cable that has been constructed to not interfere with the radiation pattern of the antenna. A power (P_{Mea}) is applied to the input of the substitution antenna, and adjust the level of the signal generator output until the value of the receiver reach the previously recorded (P_r). The power of signal source (P_{Mea}) is recorded. The test should be performed by rotating the test item and adjusting the receiving antenna polarization.
The measurement results are obtained as described below:

$$\text{Power}_{(EIRP)} = P_{Mea} - P_{cl} + G_a$$

Where;
P_{Mea} is the recorded signal generator level
P_{cl} is the cable loss connect between instruments
G_a Substitution Antenna Gain

e. This value is EIRP since the measurement is calibrated using an antenna of known gain (2.15 dBi) and known input power.

f. ERP can be calculated from EIRP by subtracting the gain of the dipole, ERP = EIRP -2.15dBi.

g. Test site anechoic chamber refer to ANSI C63.

TEST RESULTS

Remark: The measurement frequency range is from 30MHz to the 10th harmonic of the fundamental frequency; and worst spurious emissions recorded as below:

Test Frequency: 462.6500 MHz/25KHz							
Frequency(MHz)	P_{Mea} (dBm)	G_a Antenna Gain(dBi)	P_{cl} (dB)	Peak EIRP (dBm)	Limit（dBm）	Margin (dBm)	Polarity
926.15	-31.47	5.91	2.82	-28.38	-13.00	-15.38	H
1388.15	-31.79	7.45	2.69	-27.03	-13.00	-14.03	H
1851.70	-39.44	9.94	3.22	-32.72	-13.00	-19.72	H
2314.65	-46.06	10.19	3.82	-39.69	-13.00	-26.69	H
--	--	--	--	--	--	--	H
926.15	-30.91	5.91	2.82	-27.82	-13.00	-14.82	V
1388.15	-31.03	7.45	2.69	**-26.27**	-13.00	-13.27	V
1851.70	-38.98	9.94	3.22	-32.26	-13.00	-19.26	V
2314.65	-45.07	10.19	3.82	-38.70	-13.00	-25.70	V
--	--	--	--	--	--	--	V

Test Frequency: 462.6500 MHz/12.5KHz							
Frequency(MHz)	P_{Mea} (dBm)	G_a Antenna Gain(dBi)	P_{cl} (dB)	Peak EIRP (dBm)	Limit（dBm）	Margin (dBm)	Polarity
926.35	-32.39	5.91	2.82	-29.30	-13.00	-16.30	H
1388.25	-32.35	7.45	2.69	-27.59	-13.00	-14.59	H
1851.30	-42.33	9.94	3.22	-35.61	-13.00	-22.61	H
2314.65	-43.37	10.19	3.82	-37.00	-13.00	-24.00	H
--	--	--	--	--	--	--	H
926.35	-31.34	5.91	2.82	-28.25	-13.00	-15.25	V
1388.25	-31.44	7.45	2.69	**-26.68**	-13.00	-13.68	V
1851.30	-42.01	9.94	3.22	-35.29	-13.00	-22.29	V
2314.65	-42.87	10.19	3.82	-36.50	-13.00	-23.50	V
--	--	--	--	--	--	--	V

Test Frequency: 462.6375 MHz/25KHz							
Frequency(MHz)	P_{Mea} (dBm)	G_a Antenna Gain(dBi)	P_{cl} (dB)	Peak EIRP (dBm)	Limit（dBm）	Margin (dBm)	Polarity
926.65	-31.58	5.91	2.82	-28.49	-13.00	-15.49	H
1388.05	-32.81	7.45	2.69	-28.05	-13.00	-15.05	H
1851.70	-40.85	9.94	3.22	-34.13	-13.00	-21.13	H
2314.05	-42.73	10.19	3.81	-36.35	-13.00	-23.35	H
--	--	--	--	--	--	--	H
926.65	-31.57	5.91	2.82	-28.48	-13.00	-15.48	V
1388.05	-32.16	7.45	2.69	**-27.40**	-13.00	-14.40	V
1851.70	-40.16	9.94	3.22	-33.44	-13.00	-20.44	V
2314.05	-41.62	10.19	3.81	-35.24	-13.00	-22.24	V
--	--	--	--	--	--	--	V

Test Frequency: 462.6375 MHz/12.5KHz							
Frequency(MHz)	P_{Mea} (dBm)	G_a Antenna Gain(dBi)	P_{cl} (dB)	Peak EIRP (dBm)	Limit（dBm）	Margin (dBm)	Polarity
926.60	-33.98	5.91	2.82	-30.89	-13.00	-17.89	H
1388.10	-32.01	7.45	2.69	-27.25	-13.00	-14.25	H
1851.60	-41.07	9.94	3.22	-34.35	-13.00	-21.35	H
2314.20	-44.95	10.19	3.81	-38.57	-13.00	-25.57	H
--	--	--	--	--	--	--	H
926.60	-32.90	5.91	2.82	-29.81	-13.00	-16.81	V
1388.10	-31.64	7.45	2.69	**-26.88**	-13.00	-13.88	V
1851.60	-40.62	9.94	3.22	-33.90	-13.00	-20.90	V
2314.20	-44.42	10.19	3.81	-38.04	-13.00	-25.04	V
--	--	--	--	--	--	--	V

Test Frequency: 467.6500 MHz/25KHz							
Frequency(MHz)	P_{Mea} (dBm)	G_a Antenna Gain(dBi)	P_{cl} (dB)	Peak EIRP (dBm)	Limit（dBm）	Margin (dBm)	Polarity
936.50	-33.31	5.95	2.85	-30.21	-13.00	-17.21	H
1403.30	-30.40	7.55	2.69	-25.54	-13.00	-12.54	H
1871.55	-38.77	9.95	3.17	-31.99	-13.00	-18.99	H
2339.85	-45.69	10.25	3.83	-39.27	-13.00	-26.27	H
--	--	--	--	--	--	--	H
936.50	-32.13	5.95	2.85	-29.03	-13.00	-16.03	V
1403.30	-30.13	7.55	2.69	**-25.27**	-13.00	-12.27	V
1871.55	-38.57	9.95	3.17	-31.79	-13.00	-18.79	V
2339.85	-45.15	10.25	3.83	-38.73	-13.00	-25.73	V
--	--	--	--	--	--	--	V

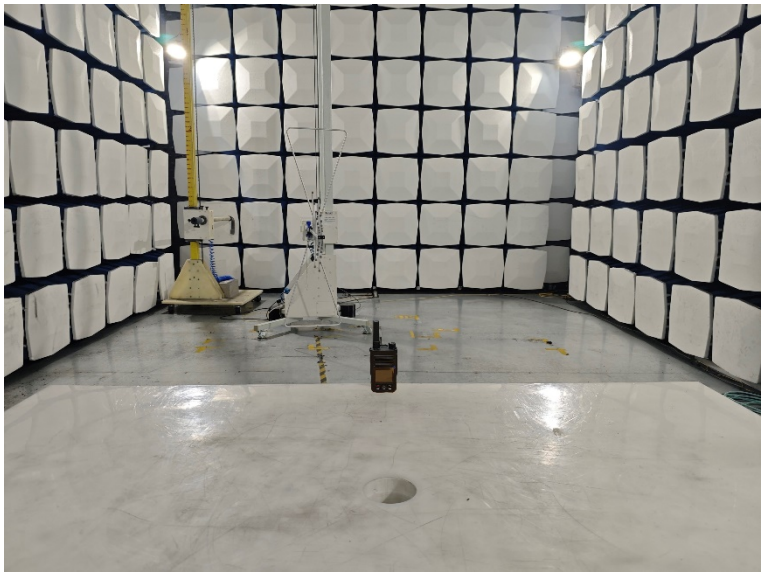
Test Frequency: 467.6500 MHz/12.5KHz							
Frequency(MHz)	P_{Mea} (dBm)	G_a Antenna Gain(dBi)	P_{cl} (dB)	Peak EIRP (dBm)	Limit（dBm）	Margin (dBm)	Polarity
936.85	-33.85	5.95	2.85	-30.75	-13.00	-17.75	H
1403.10	-32.74	7.55	2.69	-27.88	-13.00	-14.88	H
1871.75	-39.69	9.95	3.17	-32.91	-13.00	-19.91	H
2339.15	-44.43	10.25	3.83	-38.01	-13.00	-25.01	H
--	--	--	--	--	--	--	H
936.85	-32.89	5.95	2.85	-29.79	-13.00	-16.79	V
1403.10	-31.63	7.55	2.69	**-26.77**	-13.00	-13.77	V
1871.75	-38.91	9.95	3.17	-32.13	-13.00	-19.13	V
2339.15	-43.52	10.25	3.83	-37.10	-13.00	-24.10	V
--	--	--	--	--	--	--	V

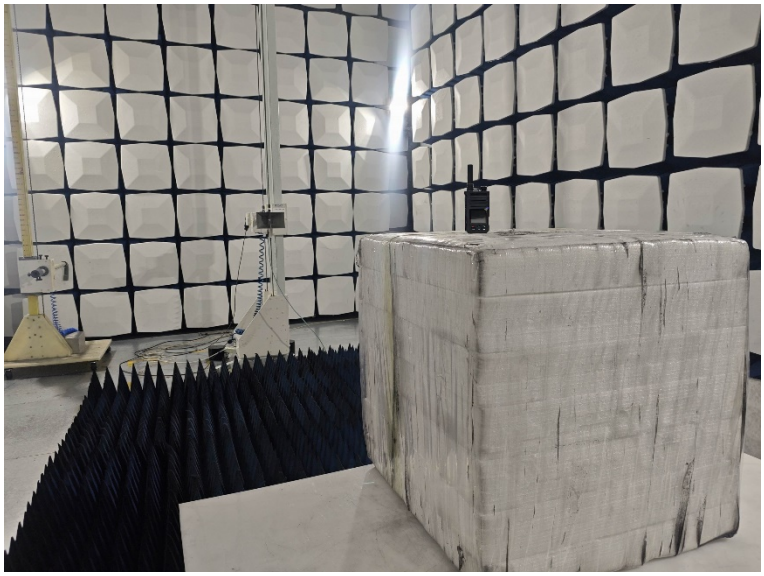
Test Frequency: 467.6375 MHz							
Frequency(MHz)	P_{Mea} (dBm)	G_a Antenna Gain(dBi)	P_{cl} (dB)	Peak EIRP (dBm)	Limit（dBm）	Margin (dBm)	Polarity
936.90	-34.09	5.95	2.85	-30.99	-13.00	-17.99	H
1403.35	-34.78	7.55	2.69	-29.92	-13.00	-16.92	H
1871.20	-38.40	9.95	3.17	-31.62	-13.00	-18.62	H
2339.30	-41.68	10.25	3.83	-35.26	-13.00	-22.26	H
--	--	--	--	--	--	--	H
936.90	-33.83	5.95	2.85	-30.73	-13.00	-17.73	V
1403.35	-34.17	7.55	2.69	**-29.31**	-13.00	-16.31	V
1871.20	-38.29	9.95	3.17	-31.51	-13.00	-18.51	V
2339.30	-41.46	10.25	3.83	-35.04	-13.00	-22.04	V
--	--	--	--	--	--	--	V

Remark:

1. *EIRP=P_{Mea}(dBm)-P_{cl}(dB) +G_a(dBi)*
2. *-- Means other points for values lower than limits and not recorded.*
3. *Margin = Limit – EIRP*

4 Test Setup Photos of the EUT





5 Photos of the EUT

Please refer to test Report No.: AiTDG-260831004FW1.

********** **End of Report** **********