

Radio Test Report

Report No.:STS2402309W01

Issued for

Guangdong Samzuk Technology Development Co,Ltd

High-Tech Zone Xingong Avenue East Heyuan, China

Product Name: Walkie talkie

Brand Name: **SAMCOM**

Model Name: FPCN30AA

Series Model(s) FPCN30AB,FPCN30AC,FPCN30AD,
FPCN30AE,FPCN30AF,FPCN30AG,
FPCN30AH,FPCN30AI.

FCC ID: 2AIOQ-FPCN30AA

Test Standards: FCC Part 90

The test results presented in this report relate only to the object tested. This report shall not be reproduced, except in full, without the written approval of the ShenZhen STS Test Services Co., Ltd.

**TEST REPORT**

Applicant's Name.....: Guangdong Samzuk Technology Development Co,Ltd
Address: High-Tech Zone Xinggong Avenue East Heyuan, China
Manufacture's Name.....: Guangdong Samzuk Technology Development Co,Ltd
Address: High-Tech Zone Xinggong Avenue East Heyuan, China

Product Description

Product Name: Walkie talkie

Brand Name: **SAMCOM**

Model Name.....: FPCN30AA

Series Model(s): FPCN30AB,FPCN30AC,FPCN30AD,FPCN30AE,FPCN30AF,
FPCN30AG,FPCN30AH,FPCN30AI.

Test Standards.....: FCC Part 90

Test Procedure: C63.26-2015

This device described above has been tested by STS, the test results show that the equipment under test (EUT) is in compliance with the FCC requirements. And it is applicable only to the tested sample identified in the report.

The test results presented in this report relate only to the object tested. This report shall not be reproduced, except in full, without the written approval of the ShenZhen STS Test Services Co., Ltd.

Date of Test.....:

Date of receipt of test item: 01 Mar. 2024

Date of performance of tests..: 01 Mar. 2024 ~ 10 May 2024

Date of Issue.....: 10 May 2024

Test Result.....: Pass

Testing Engineer :

Chris Chen

(Chris Chen)

Technical Manager :

Chris Chen

(Chris Chen)

Authorized Signatory :

Bovey Yang

(Bovey Yang)



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Revision History

Rev.	Issue Date	Report No.	Effect Page	Contents
00	10 May 2024	STS2402309W01	ALL	Initial Issue

1. SUMMARY OF TEST RESULTS

Test procedures according to the technical standards:

Emission			
Standard	Item	Result	Remarks
FCC Part 90.205	Maximum Transmitter Power	PASS	
FCC Part 90.209	Occupied Bandwidth	PASS	
FCC Part 90.210	Emission Mask	PASS	
FCC Part 90.210	Transmitter Radiated Spurious Emssion	PASS	
FCC Part 90.210	Spurious Emssion on Antenna Port	PASS	
FCC Part 90.213	Frequency Stability Test	PASS	
FCC Part 90.214	Transient Frequency Behavior	PASS	
FCC Part 2.1047	Modulation Characteristic	PASS	

NOTE:

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



1.1 TEST FACILITY

SHENZHEN STS TEST SERVICES CO., LTD

Add. : 101, Building B, Zhuoke Science Park, No.190 Chongqing Road, ZhanChengShequ, Fuhai Sub-District, Bao'an District, Shenzhen, Guang Dong, China

FCC test Firm Registration Number: 625569

IC test Firm Registration Number: 12108A

A2LA Certificate No.: 4338.01

1.2 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	RF output power, conducted	$\pm 0.755\text{dB}$
2	Unwanted Emissions, conducted	$\pm 2.874\text{dB}$
3	All emissions, radiated 30M-1GHz	$\pm 4.18\text{dB}$
4	All emissions, radiated 1G-6GHz	$\pm 4.90\text{dB}$
5	All emissions, radiated >6G	$\pm 5.24\text{dB}$
6	Conducted Emission (9KHz-150KHz)	$\pm 2.19\text{dB}$
7	Conducted Emission (150KHz-30MHz)	$\pm 2.53\text{dB}$

2. GENERAL INFORMATION

2.1 GENERAL DESCRIPTION OF EUT

Product Name:	Walkie talkie
Brand Name:	SAMCOM
Model Name:	FPCN30AA
Series Model(s):	FPCN30AB,FPCN30AC,FPCN30AD,FPCN30AE, FPCN30AF,FPCN30AG,FPCN30AH,FPCN30AI.
Model Difference description:	Only different model names, colors and appearance
Operation Frequency Range:	406.1MHz - 470 MHz
Maximum Transmitter Power:	36.795dBm
Channel Separation:	6.25 KHz,12.5KHz,25KHz
Modulation type:	FM
Adapter:	Input: AC 100V-240V, 50~60Hz, 200mA Output: DC 12.00V, 500mA
Battery:	Rated Voltage: 7.4V Charge Limit: 8.4V Capacity :1500mAh
Temperature Range:	-30°C-50°C
Test frequency list:	See Note 4
Software version number:	V 1.4
Hardware version number:	Ver A3

Note:

1. For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual.
2. The product has the same digital working characters when operating in both two digitized voice/data mode. So only one set of test results for digital modulation modes are provided in this test report.
3. Table for Filed Antenna

Ant	Brand	Model Name	Antenna Type	Connector	Gain (dBi)	NOTE
1	SAMCOM	FPCN30AA	Whip	N/A	1dBi	Antenna

The EUT antenna is External Antenna. No antenna other than that furnished by the responsible party shall be used with the device.

4. Test frequency list

6.25KHz:

406.1MHz - 470 MHz

Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
No.	(MHz)	No.	(MHz)	No.	(MHz)	No.	(MHz)
1	406.10625	2	406.1125	3	406.11875	4	406.125
.....	.....	5112	438.05	.....	.....	.....	.....
10220	469.975	10221	469.98125	10222	469.9875	10223	469.99375

12.5KHz:

406.1MHz - 470 MHz

Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
No.	(MHz)	No.	(MHz)	No.	(MHz)	No.	(MHz)
1	406.1125	2	406.1	3	406.0875	4	406.075
.....	.....	2556	438.05	.....	.....	.....	.....
5108	470	5109	469.9875	5110	469.975	5111	469.9875

25KHz:

406.1MHz - 470 MHz

Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
No.	(MHz)	No.	(MHz)	No.	(MHz)	No.	(MHz)
1	406.125	2	406.15	3	406.175	4	406.2
.....	.....	1278	438.05	.....	.....	.....	.....
2552	469.9	2553	469.925	2554	469.95	2555	469.975

Note:

In section 15.31(m), regards to the operating frequency range over 10 MHz, the Lowest frequency, the middle frequency, and the highest frequency of channel were selected to perform the test, please see the above listed frequency for testing.

2.2 EUT OPERATION MODE

The EUT has been tested under typical operating condition and The Transmitter was operated in the normal operating mode. The TX frequency was fixed which was for the purpose of the measurements.

2.3 DESCRIPTION OF TEST MODES

To investigate the maximum EMI emission characteristics generates from EUT, the test system was pre-scanning tested base on the consideration of following EUT operation mode or test configuration mode which possible have effect on EMI emission level. Each of these EUT operation mode(s) or test configuration mode(s) mentioned above was evaluated respectively.

Final Test Mode	Power level	Modulation Type	Channel Separation	Frenquency (MHz)
Model 1	Low power	FM	6.25kHz	Low channel(406.10625 MHz)
				Mid channel(438.05000 MHz)
				High channel(469.99375 MHz)
Model 2	High power			Low channel(406.10625 MHz)
				Mid channel(438.050000 MHz)
				High channel(469.993750 MHz)
Model 3	Low power		12.5kHz	Low channel(406.11250 MHz)
				Mid channel(438.05000 MHz)
				High channel(469.98750 MHz)
Model 4	High power			Low channel(406.11250 MHz)
				Mid channel(438.05000 MHz)
				High channel(469.98750 MHz)
Model 5	Low power		25kHz	Low channel(406.12500 MHz)
				Mid channel(438.05000 MHz)
				High channel(469.97500 MHz)
Model 6	High power			Low channel(406.12500 MHz)
				Mid channel(438.05000 MHz)
				High channel(469.97500 MHz)

2.4 BLOCK DIGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED

Radiated Spurious Emission Test



2.5 DESCRIPTION OF NECESSARY ACCESSORIES AND SUPPORT UNITS

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

Necessary accessories

Item	Equipment	Mfr/Brand	Model/Type No.	Serial No.	Note
N/A	N/A	N/A	N/A	N/A	N/A

Support units

Item	Equipment	Mfr/Brand	Model/Type No.	Serial No.	Note
N/A	N/A	N/A	N/A	N/A	N/A

Note:

- (1) The support equipment was authorized by Declaration of Confirmation.
- (2) For detachable type I/O cable should be specified the length in cm in 『Length』 column.

2.6 TEST EQUIPMENT

RF Radiation Test Equipment					
Kind of Equipment	Manufacturer	Type No.	Serial No.	Last Calibration	Calibrated Until
Temperature & Humidity	SW-108	SuWei	N/A	2024.03.15	2025.03.14
Wireless Communications Test Set	R&S	CMW 500	117239	2023.09.26	2024.09.25
Pre-Amplifier(0.1M-3GHz)	EM	EM330	060665	2024.02.23	2025.02.22
Pre-Amplifier (1G-18GHz)	SKET	LNPA-01018G-45	SK2018080901	2023.09.28	2024.09.27
Positioning Controller	MF	MF-7802	MF-780208587	N/A	N/A
Signal Analyzer	R&S	FSV 40-N	101823	2023.09.26	2024.09.25
Switch Control Box	N/A	N/A	N/A	N/A	N/A
Filter Box	BALUN Technology	SU319E	BL-SZ1530051	N/A	N/A
Video Controller	SKET	FCS C-3	N/A	N/A	N/A
Bilog Antenna	TESEQ	CBL6111D	34678	2022.09.30	2024.09.29
Horn Antenna	SCHWARZBECK	BBHA 9120D	02014	2023.09.24	2025.09.23
Antenna Mast	MF	MFA-440H	N/A	N/A	N/A
Turn Table	MF	N/A	N/A	N/A	N/A
AC Power Source	APC	KDF-11010G	F214050035	N/A	N/A
DC Power Supply	Zhaoxin	RXN 605D	20R605D11010081	N/A	N/A
Test SW	EMC Test Software	15.2.0.339			
RF Connected Test Equipment					
Kind of Equipment	Manufacturer	Type No.	Serial No.	Last Calibration	Calibrated Until
Temperature & Humidity	SW-108	SuWei	N/A	2024.03.15	2025.03.14
Universal Radio communication tester	R&S	CMU200	116337	2023.09.26	2024.09.25
Signal Generator	Agilent	N5182A	MY46240556	2023.09.26	2024.09.25
Signal Analyzer	Agilent	N9020A	MY52440124	2024.02.23	2025.02.22
Intercom comprehensive tester	HP	8920A	348A05658	2024.02.23	2025.02.22
Temperature & Humidity Test Chamber	Safety test	AG80L	171200018	2024.02.23	2025.02.22
Programmable Power Supply	Agilent	E3642A	MY40002025	2023.09.26	2024.09.25
Attenuator	HP	8494B	DC-18G	2024.02.29	2025.02.28
AC Power Source	APC	KDF-11010G	F214050035	N/A	N/A



3. MAXIMUM TRANSMITTER POWER

3.1 LIMITS

Per FCC Part 2.1046 and Part 90.205: Maximum ERP is dependent upon the station's antenna HAAT and required service area.

The output power shall not exceed by more than 20 percent either the output power shown in the Radio Equipment List [available in accordance with §90.203(a)(1)] for transmitters included in this list or when not so listed, the manufacturer's rated output power for the particular transmitter specifically listed on the authorization.

3.2 TEST PROCEDURE

Measurements shall be made to establish the radio frequency power delivered by the transmitter the standard output termination. The power output shall be monitored and recorded and no adjustment shall be made to the transmitter after the test has begun, except as noted bellow:

If the power output is adjustable, measurements shall be made for the highest and lowest power levels. The EUT connect to the Spectrum Analyzer through 30 dB attenuator.

3.3 DEVIATION FROM TEST STANDARD

No deviation

3.4 TEST SETUP BLOCK DIAGRAM



3.5 TEST RESULT

Modulation Type	Channel Sparation	Operation Mode	Test Channel	Test Frequency (MHz)	Test Results (dBm)	Test Results (W)	Rated Output Power(W)	Limit (W)
FM	6.25KHz	Low Power	Lowest	406.10625	27.250	0.531	0.5	0.4-0.6
			Middle	438.05000	26.920	0.492		
			Highest	469.99375	26.880	0.488		
		High Power	Lowest	406.10625	36.430	4.395	5.0	4-6
			Middle	438.05000	36.390	4.355		
			Highest	469.99375	36.410	4.375		

Modulation Type	Channel Sparation	Operation Mode	Test Channel	Test Frequency (MHz)	Test Results (dBm)	Test Results (W)	Rated Output Power(W)	Limit (W)
FM	12.5KHz	Low Power	Lowest	406.11250	26.337	0.430	0.5	0.4-0.6
			Middle	453.01250	26.591	0.456		
			Highest	469.98750	27.305	0.538		
		High Power	Lowest	406.11250	36.795	4.781	5.0	4-6
			Middle	453.01250	36.514	4.481		
			Highest	469.98750	36.656	4.630		

Modulation Type	Channel Sparation	Operation Mode	Test Channel	Test Frequency (MHz)	Test Results (dBm)	Test Results (W)	Rated Output Power(W)	Limit (W)
FM	25KHz	Low Power	Lowest	406.12500	26.159	0.413	0.5	0.4-0.6
			Middle	453.02500	26.229	0.420		
			Highest	469.97500	25.963	0.395		
		High Power	Lowest	406.12500	36.269	4.235	5.0	4-6
			Middle	453.02500	36.424	4.389		
			Highest	469.97500	36.526	4.494		

Note: The rated low power is 0.5W, the power limits is 0.4 W-0.6W.
The rated high power is 5W, the power limits is 4.0 W-6.0W.

4. OCCUPIED BANDWIDTH

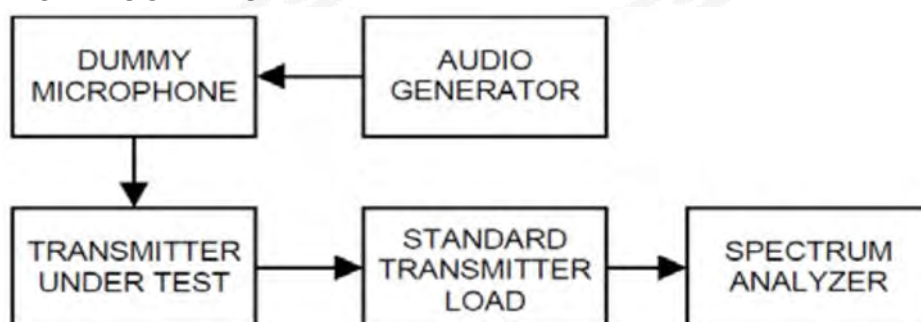
4.1 LIMIT

Occupied Bandwidth: The EUT was connected to 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. The maximum authorized bandwidth shall not be more than that normally authorized for digital data mode.

4.2 MEASUREMENT PROCEDURE

- The EUT was connected to the spectrum analyzer through sufficient attenuation.
- Set EUT as digital data mode.
- Set SPA Center Frequency=fundamental frequency, RBW=300Hz, VBW=3KHz, span =15KHz or 30KHz.
- Set SPA Max hold. Mark peak, Set 99% Occupied Bandwidth.

4.3 TEST SETUP BLOCK DIAGRAM

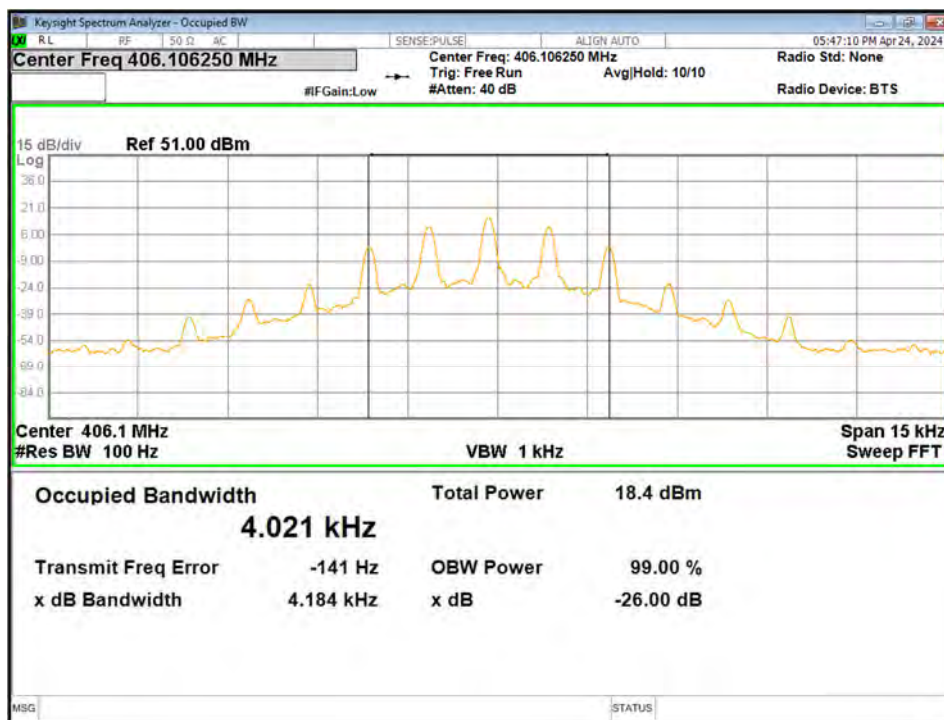


4.4 TEST RESULT

Modulation Type	Channel Bandwidth	Operation Mode	Test Channel	Test Frequency (MHz)	Occupied Bandwidth (KHz)		Limits (KHz)
					99%	26dB	
FM	6.25KHz	Low Power	Lowest	406.10625	4.021	4.184	6
			Middle	438.05000	4.022	4.186	
			Highest	469.99375	4.024	4.185	
		High Power	Lowest	406.10625	4.024	4.187	
			Middle	438.05000	4.024	4.186	
			Highest	469.99375	4.024	4.186	

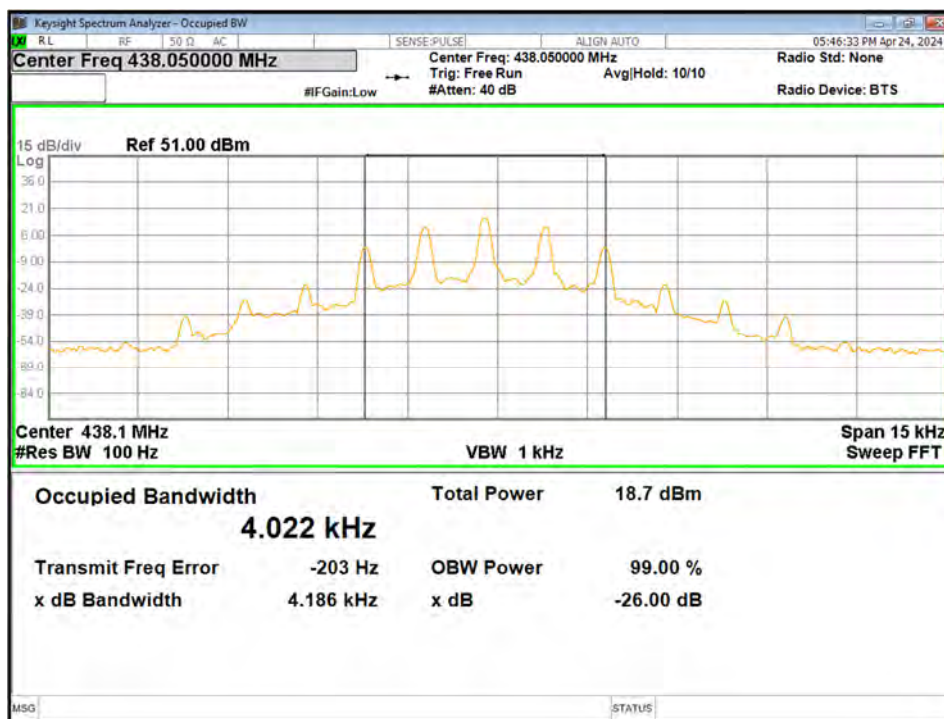
Lowest

Model 1



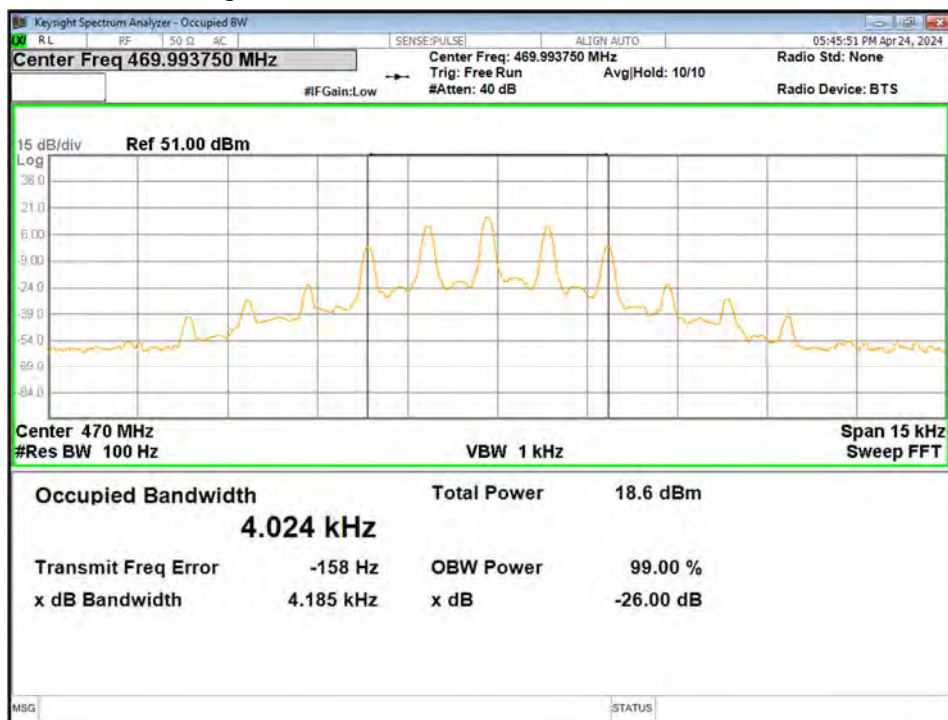
Middle

Model 1



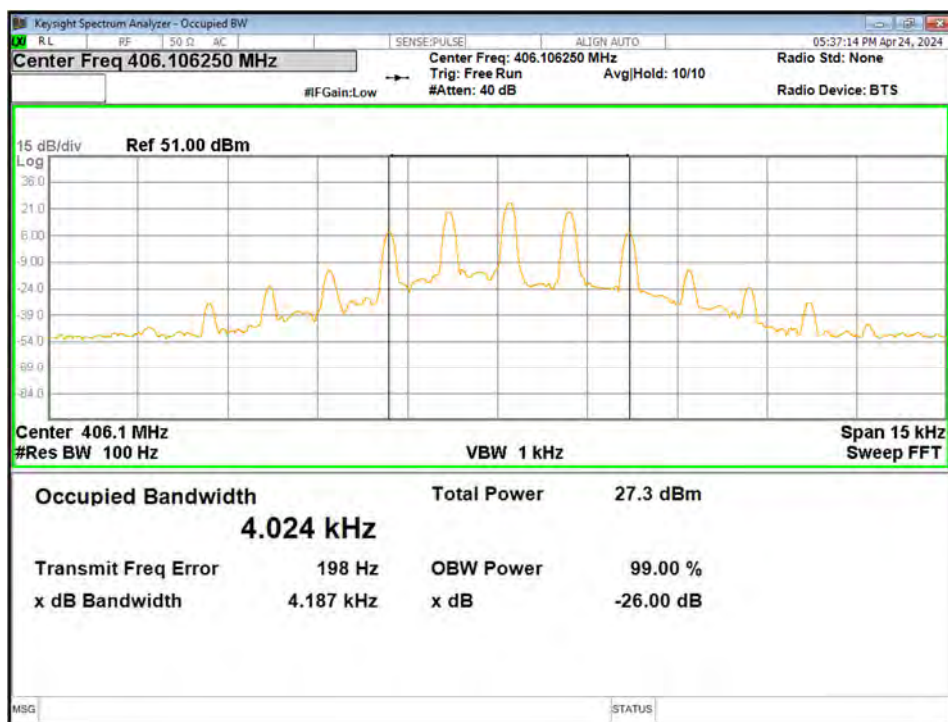
Highest

Model 1



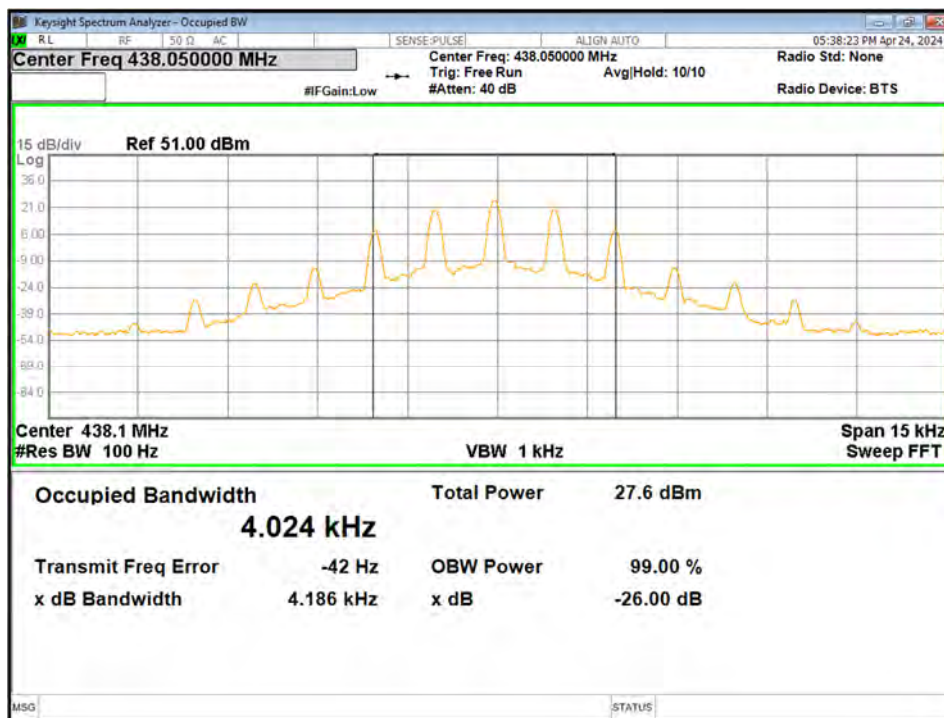
Lowest

Model 2



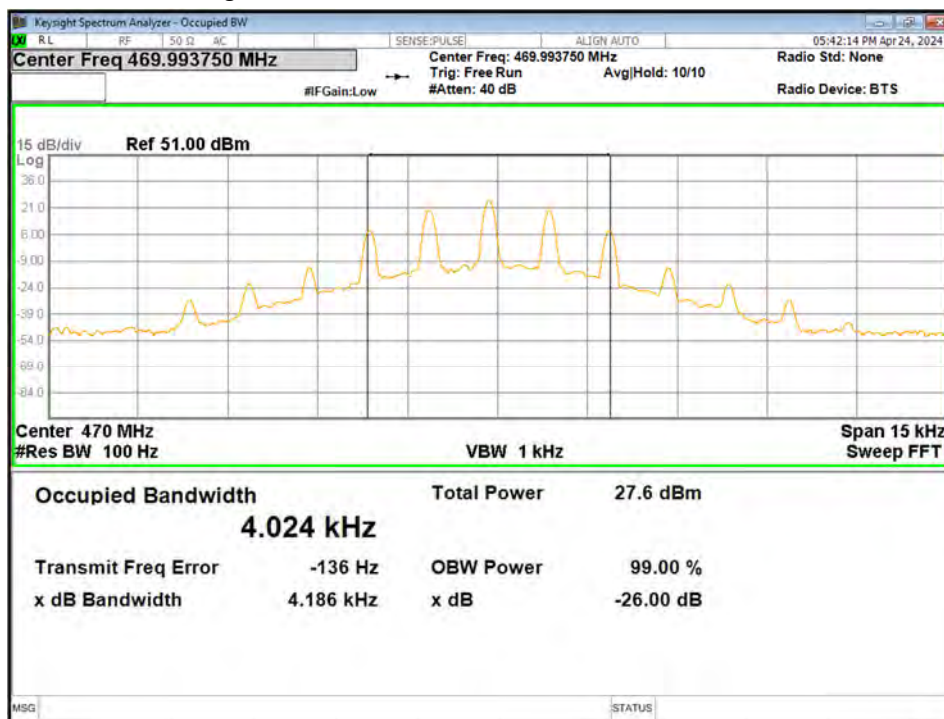
Middle

Model 2



Highest

Model 2



Modulation Type	Channel Bandwidth	Operation Mode	Test Channel	Test Frequency (MHz)	Occupied Bandwidth (KHz)		Limits (KHz)
					99%	26dB	
FM	12.5KHz	Low Power	Lowest	406.11250	6.021	6.193	11.25
			Middle	453.01250	6.021	6.194	
			Highest	469.98750	6.021	6.194	
		High Power	Lowest	406.11250	6.021	6.198	
			Middle	453.01250	6.021	6.197	
			Highest	469.98750	6.020	6.200	

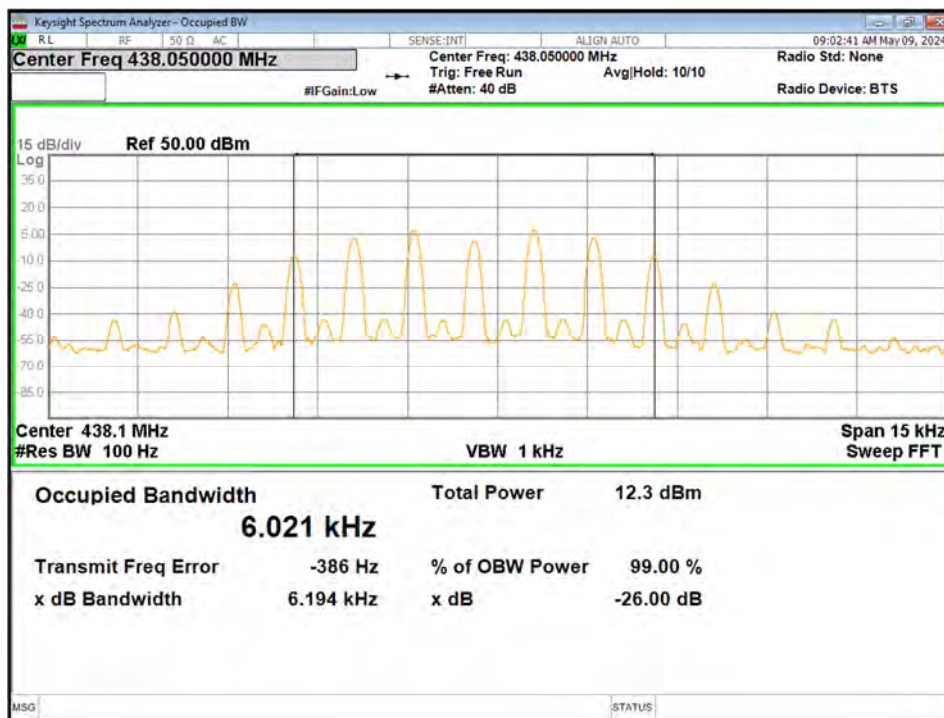
Lowest

Model 3



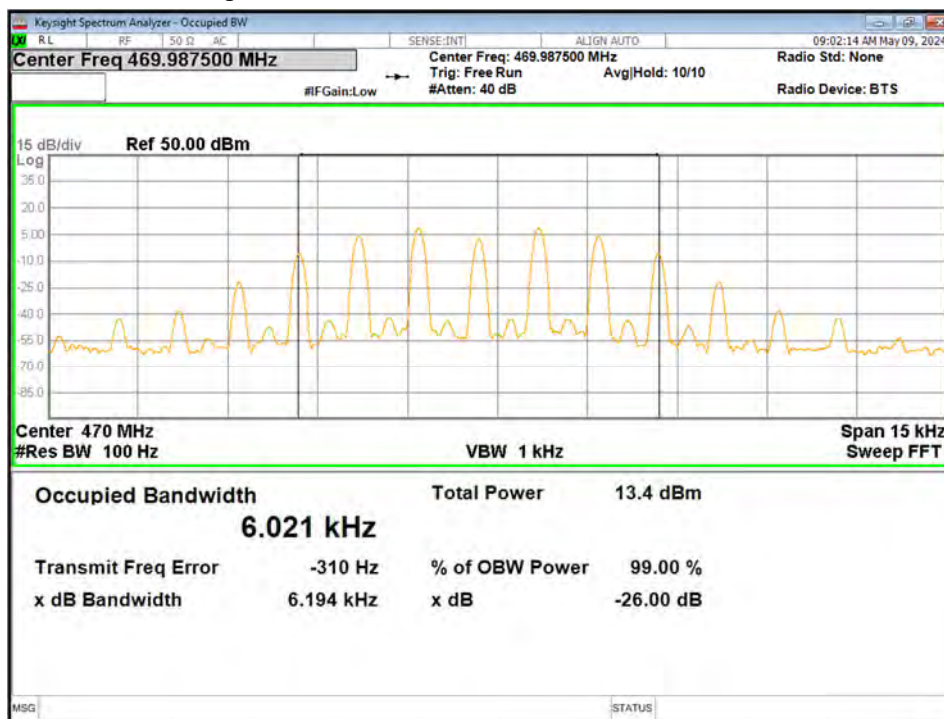
Middle

Model 3



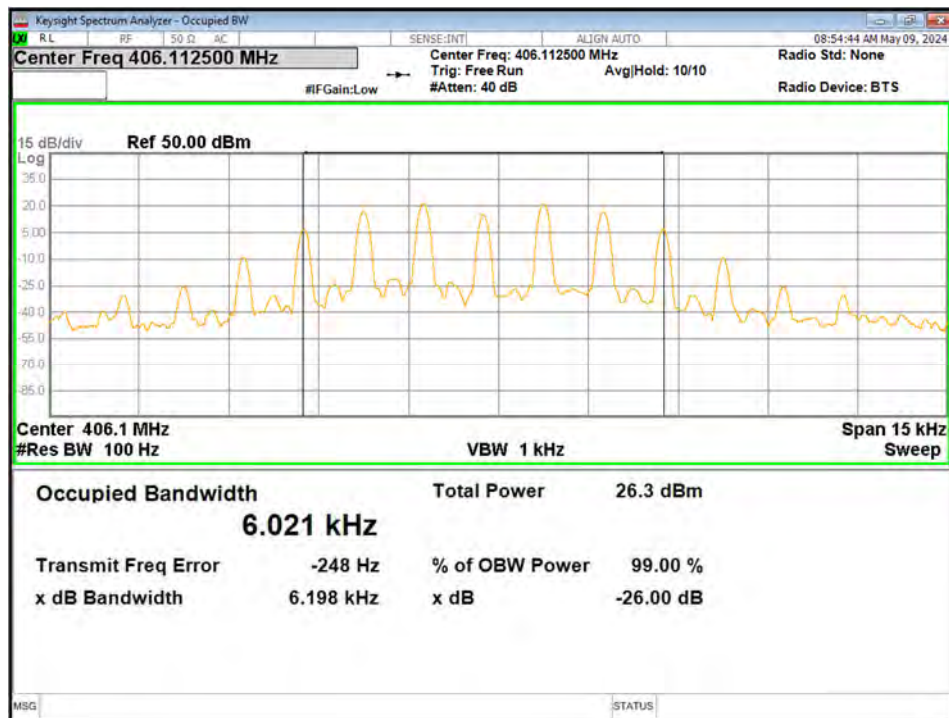
Highest

Model 3



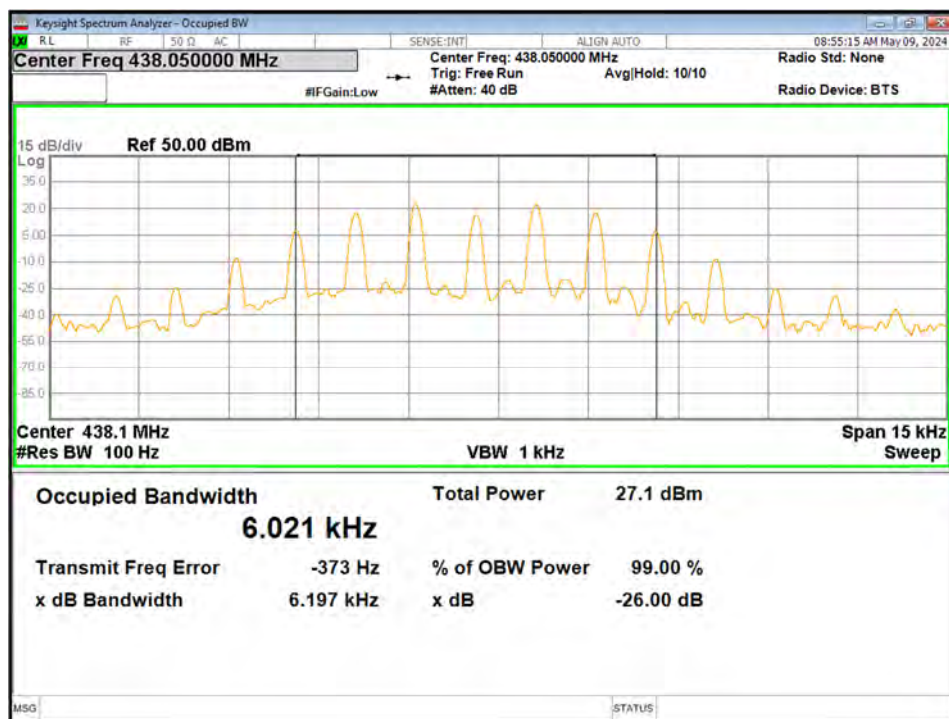
Lowest

Model 4



Middle

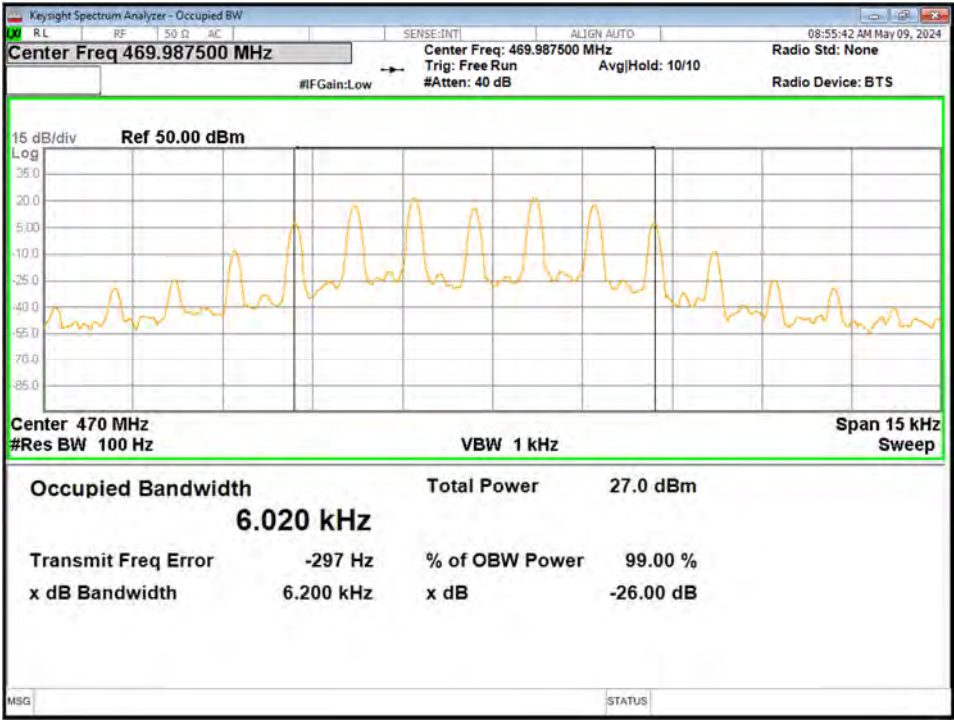
Model 4





Highest

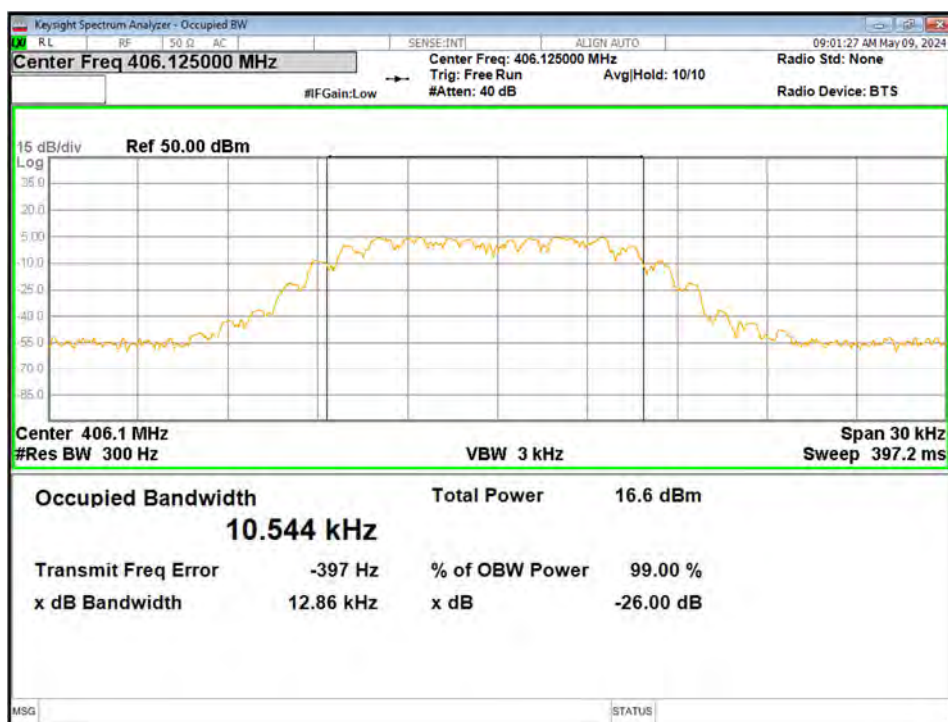
Model 4



Modulation Type	Channel Bandwidth	Operation Mode	Test Channel	Test Frequency (MHz)	Occupied Bandwidth (KHz)		Limits (KHz)
					99%	26dB	
FM	25KHz	Low Power	Lowest	406.12500	10.544	12.860	20
			Middle	453.02500	10.526	12.900	
			Highest	469.97500	10.498	13.570	
		High Power	Lowest	406.12500	10.516	13.490	
			Middle	453.02500	10.615	13.580	
			Highest	469.97500	10.536	13.580	

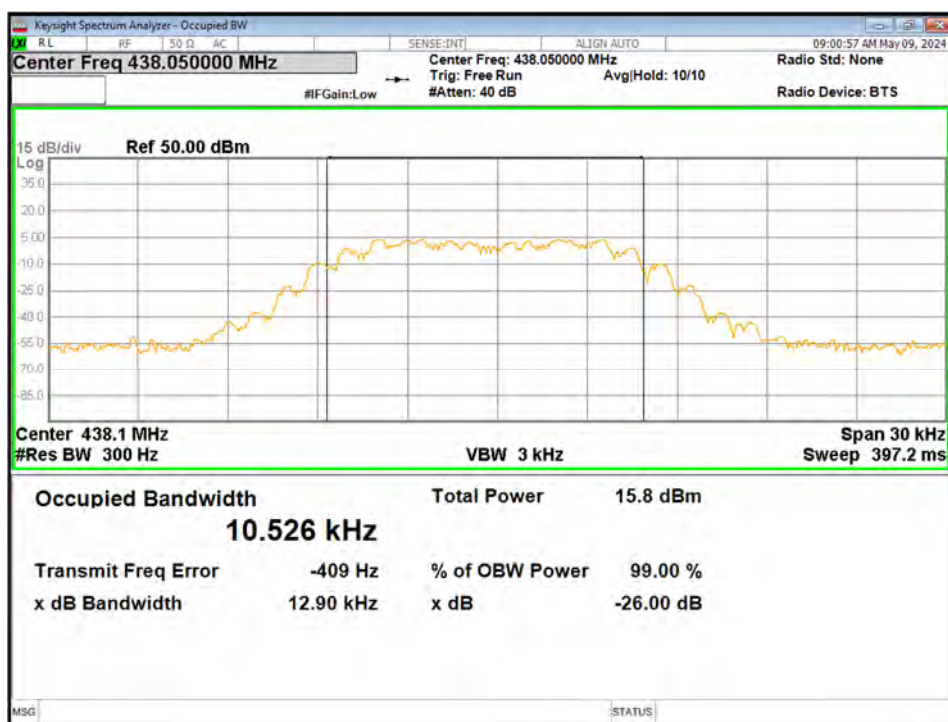
Lowest

Model 5



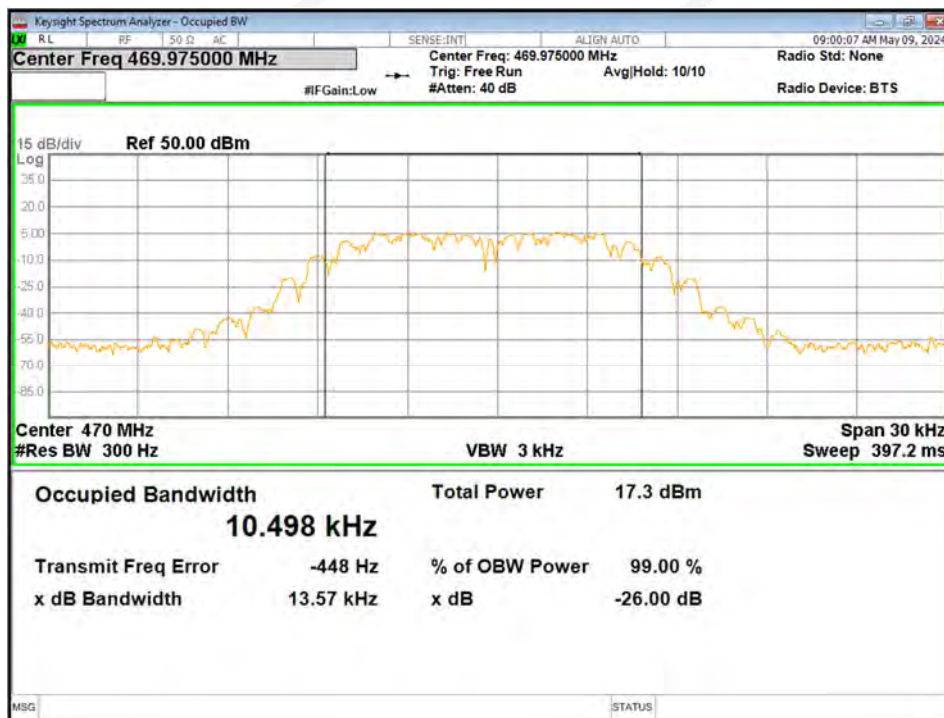
Middle

Model 5



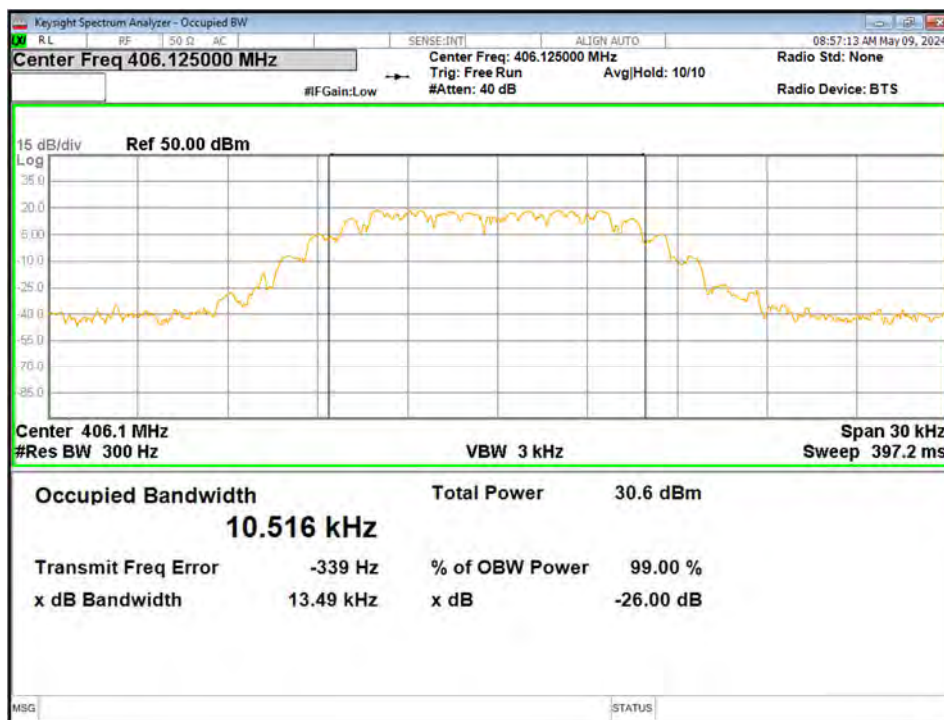
Highest

Model 5



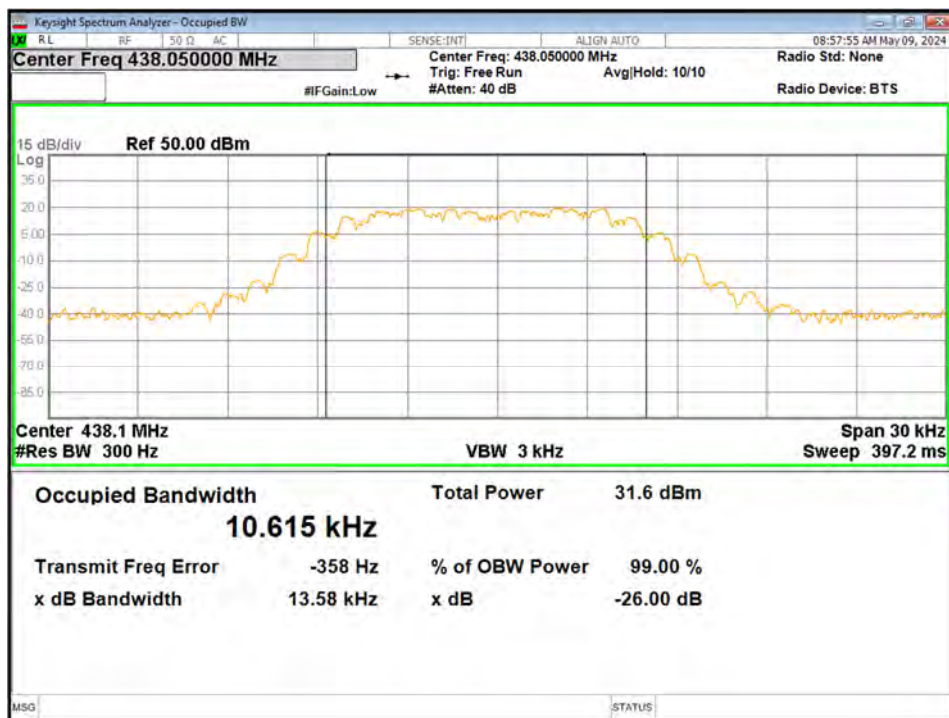
Lowest

Model 6



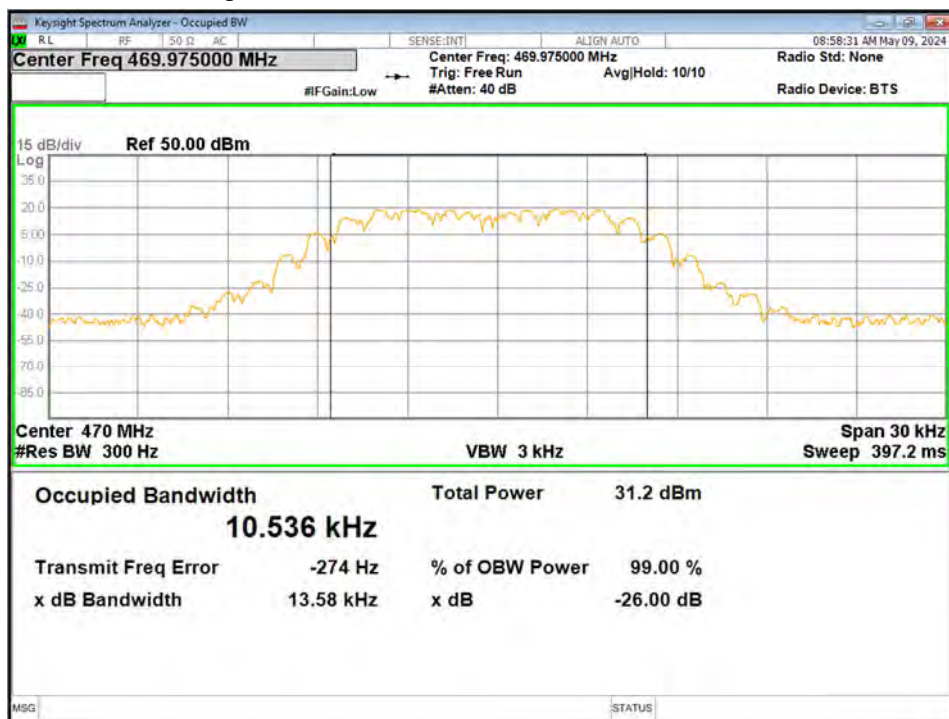
Middle

Model 6



Highest

Model 6



5. EMISSION MASK

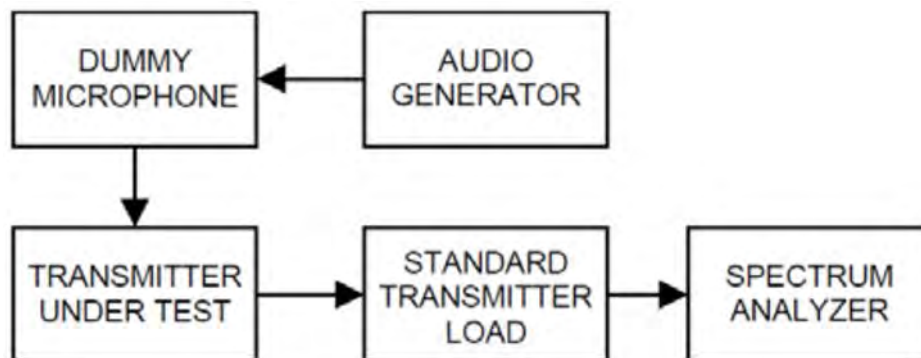
5.1 PROVISIONS APPLICABLE

- (h) Emission Mask H. For transmitters that are not equipped with an audio low-pass filter, the power of any emission must be attenuated below the unmodulated carrier power (P) as follows:
- (1) On any frequency removed from the center of the authorized bandwidth by a displacement frequency (f_d in kHz) of 4 kHz or less: Zero dB.
 - (2) On any frequency removed from the center of the authorized bandwidth by a displacement frequency (f_d in kHz) of more than 4 kHz, but no more than 8.5 kHz: At least $107 \log (f_d/4)$ dB;
 - (3) On any frequency removed from the center of the authorized bandwidth by a displacement frequency (f_d in kHz) of more than 8.5 kHz, but no more than 15 kHz: At least $40.5 \log (f_d/1.16)$ dB;
 - (4) On any frequency removed from the center of the authorized bandwidth by a displacement frequency (f_d in kHz) of more than 15 kHz, but no more than 25 kHz: At least $116 \log (f_d/6.1)$ dB;
 - (5) On any frequency removed from the center of the authorized bandwidth by more than 25 kHz: At least $43 + 10 \log (P)$ dB.

5.2 MEASUREMENT PROCEDURE

- a. The EUT was connected to the spectrum analyzer through sufficient attenuation.
- b. Set EUT as digital data mode.
- c. Set SPA Center Frequency=fundamental frequency, RBW=1kHz, VBW=3KHz, span =100KHz.

5.3 TEST SETUP BLOCK DIAGRAM

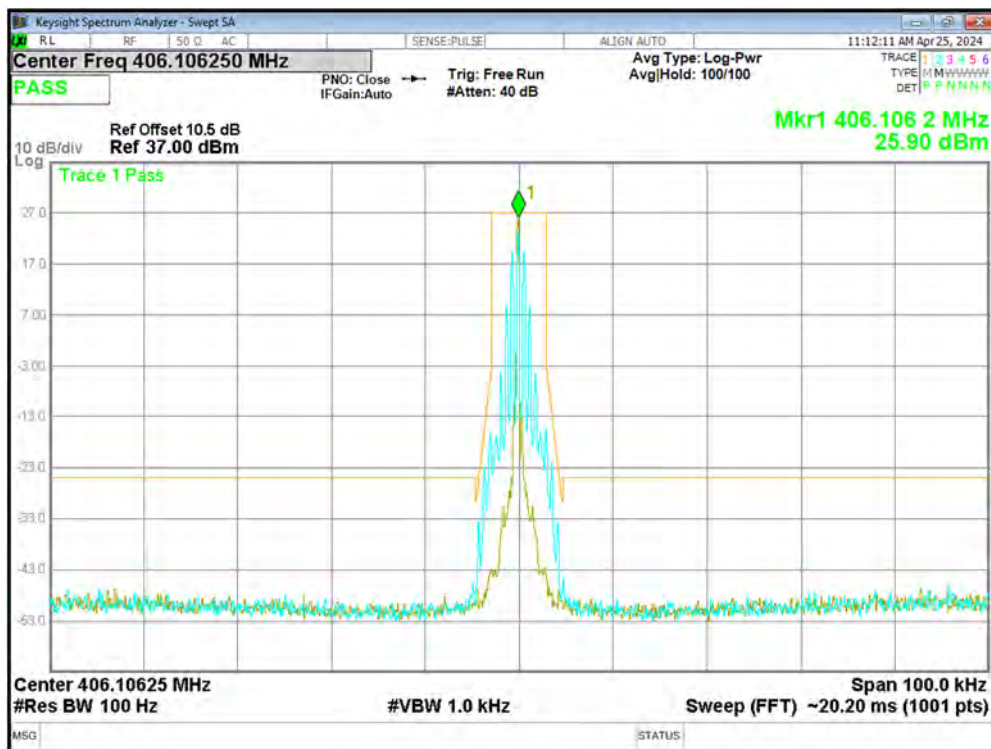


5.4 MEASUREMENT RESULT

Modulation Type	Channel Bandwidth	Operation Mode	Test Channel	Test Frequency (MHz)	Applicable Mask	Result
FM	6.25KHz	Low Power	Lowest	406.10625	E	PASS
			Middle	438.05000	E	PASS
			Highest	469.99375	E	PASS
		High Power	Lowest	406.10625	E	PASS
			Middle	438.05000	E	PASS
			Highest	469.99375	E	PASS

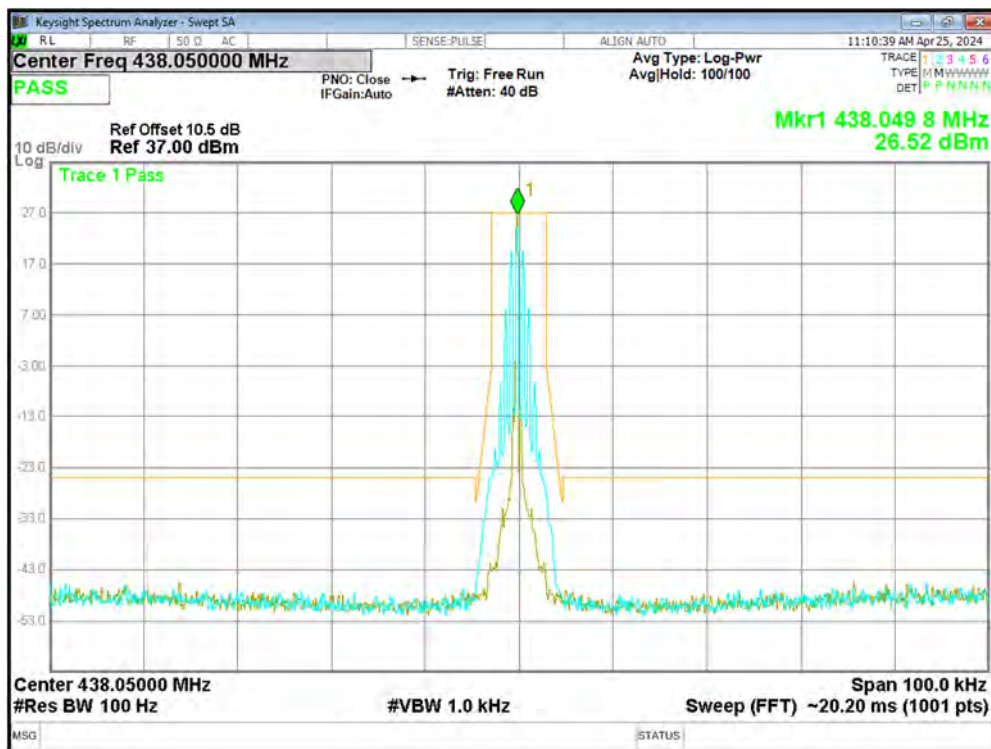
Lowest

Model 1



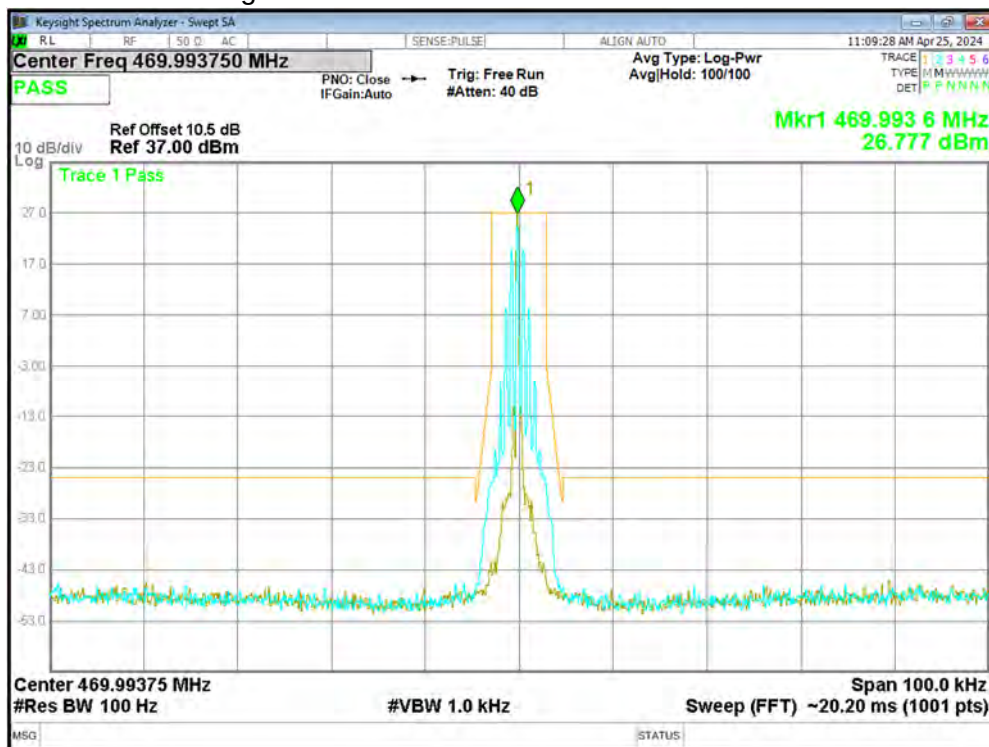
Middle

Model 1



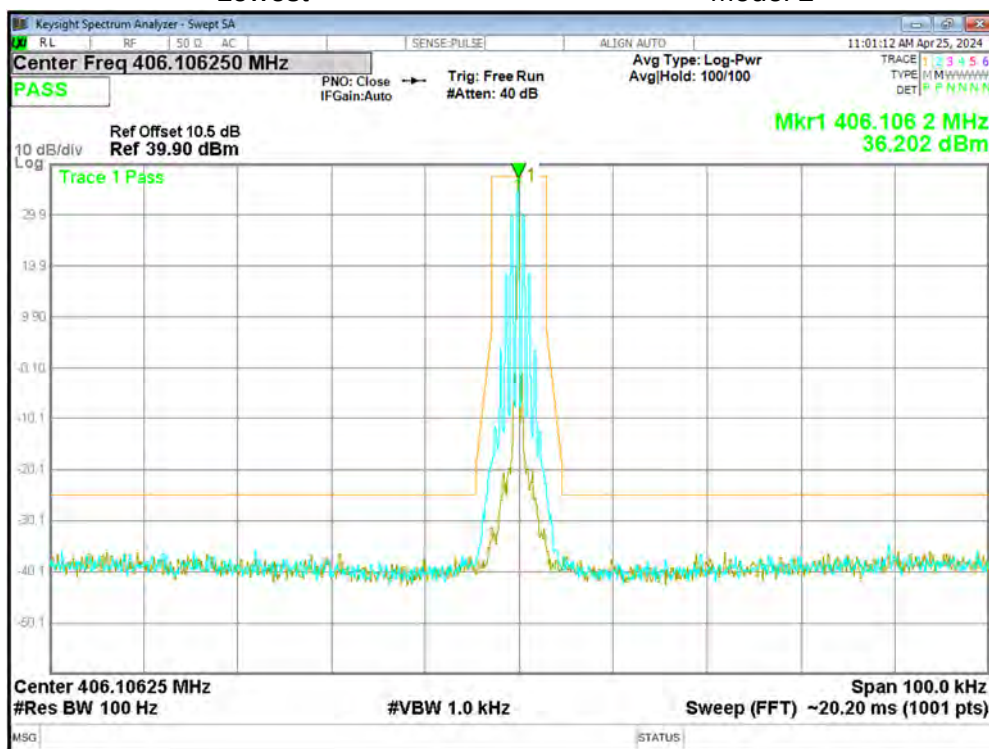
Highest

Model 1



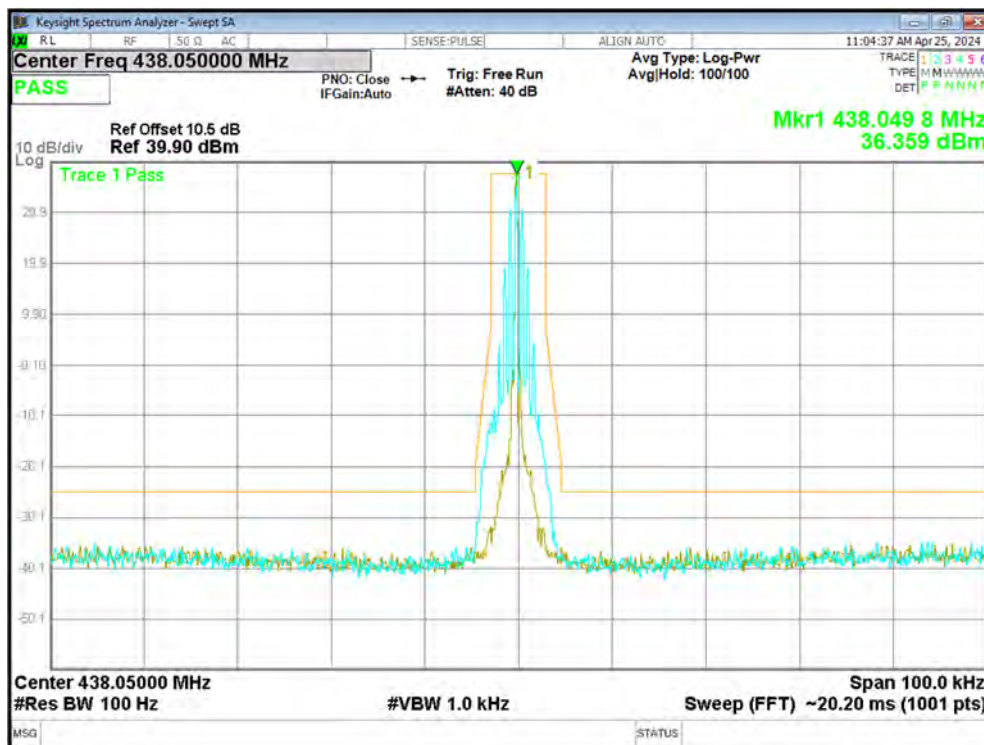
Lowest

Model 2



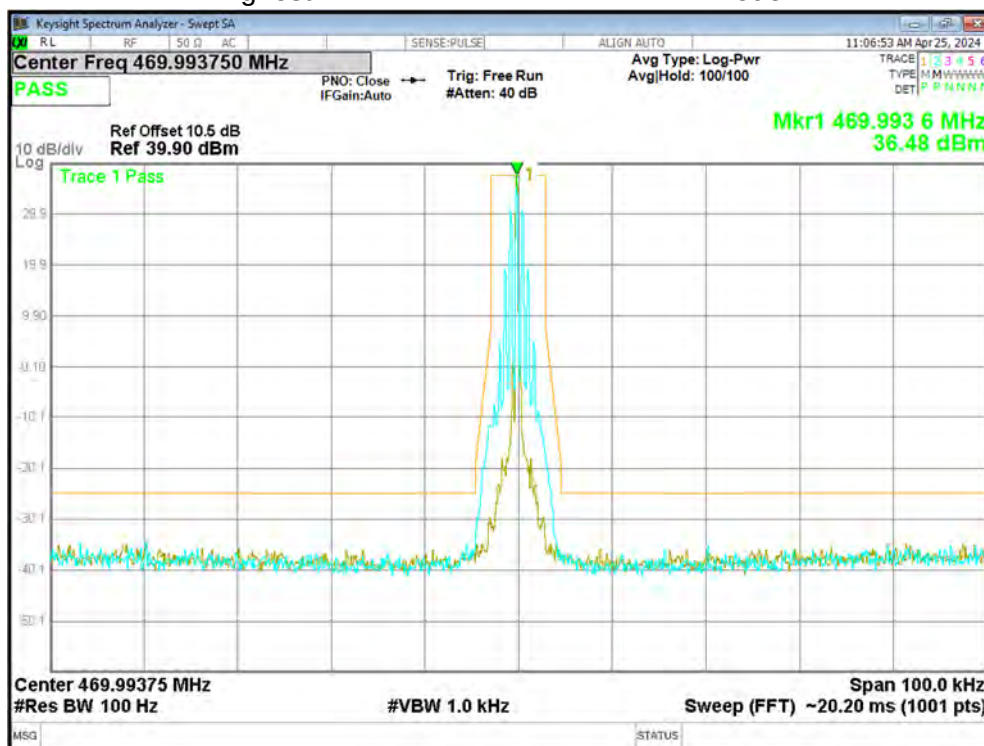
Middle

Model 2



Highest

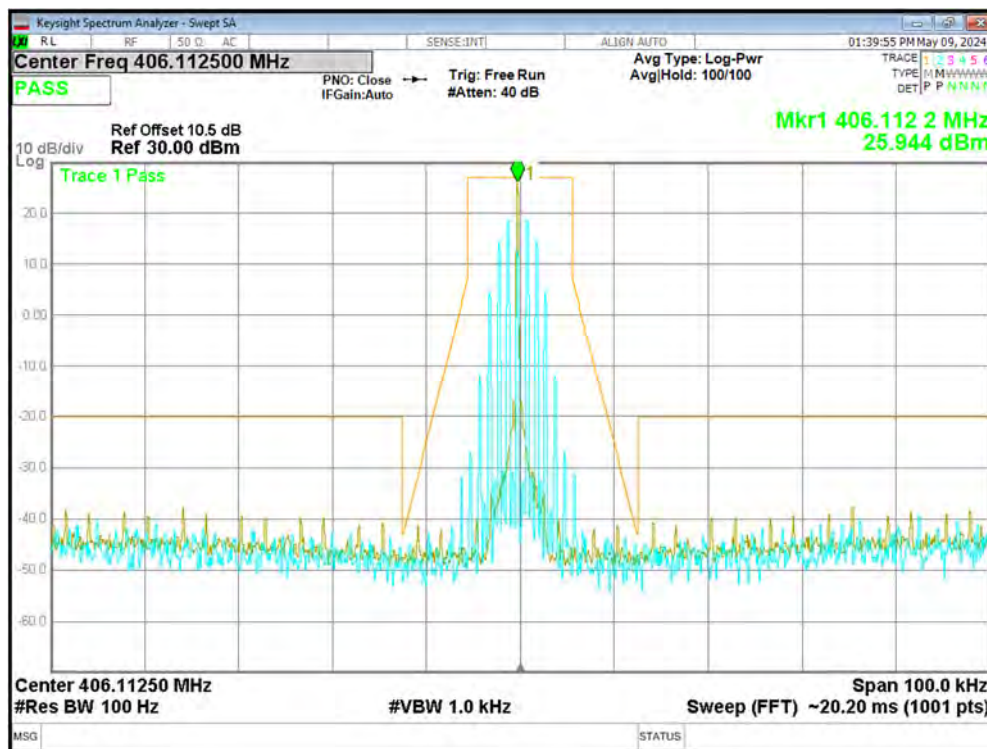
Model 2



Modulation Type	Channel Bandwidth	Operation Mode	Test Channel	Test Frequency (MHz)	Applicable Mask	Result
FM	12.5KHz	Low Power	Lowest	406.11250	D	PASS
			Middle	438.05000	D	PASS
			Highest	469.98750	D	PASS
		High Power	Lowest	406.11250	D	PASS
			Middle	438.05000	D	PASS
			Highest	469.98750	D	PASS

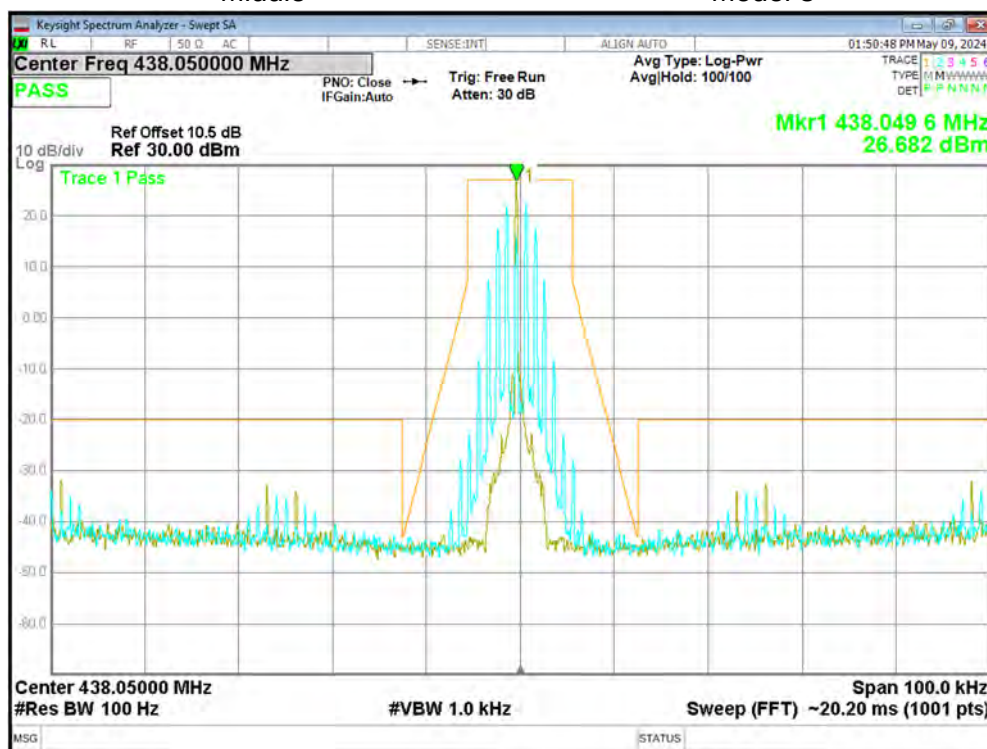
Lowest

Model 3



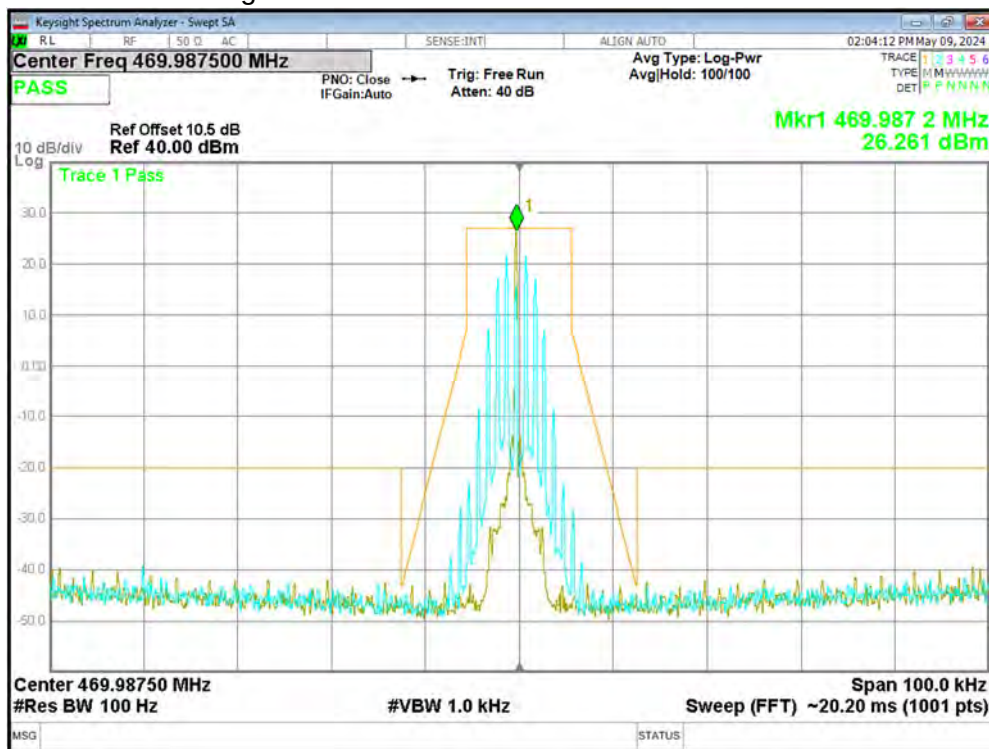
Middle

Model 3



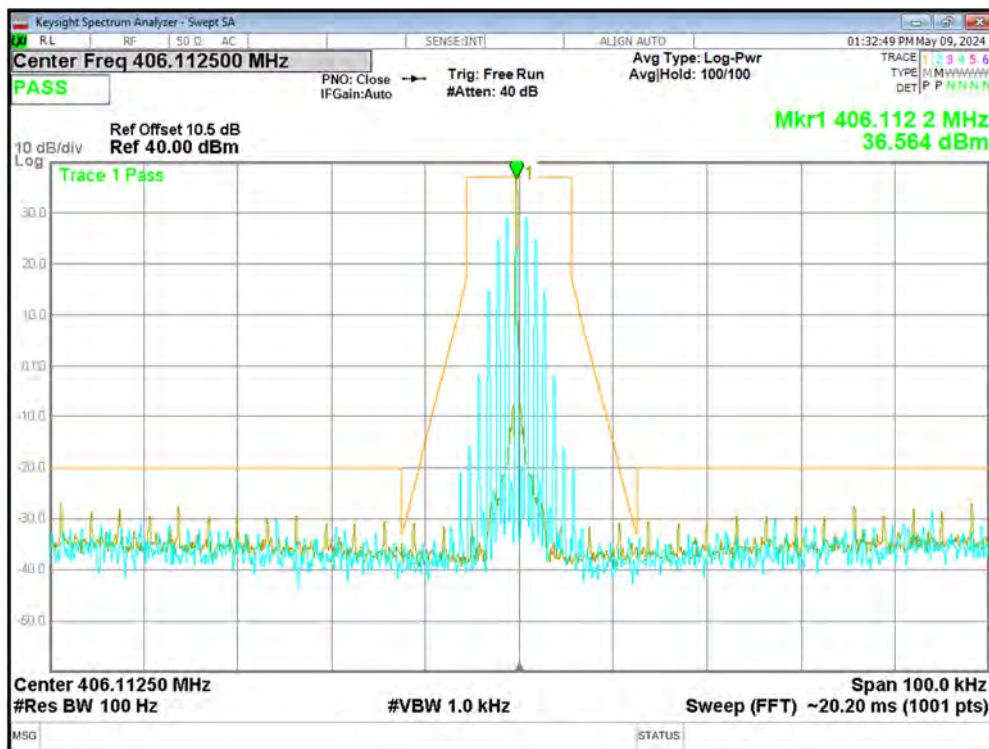
Highest

Model 3



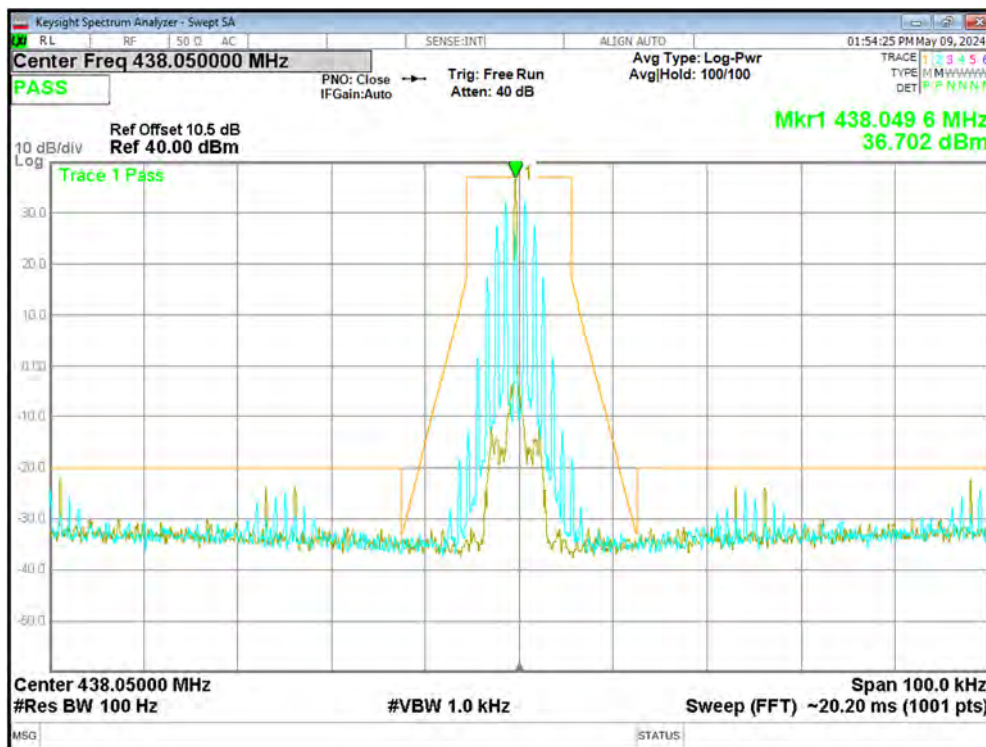
Lowest

Model 4



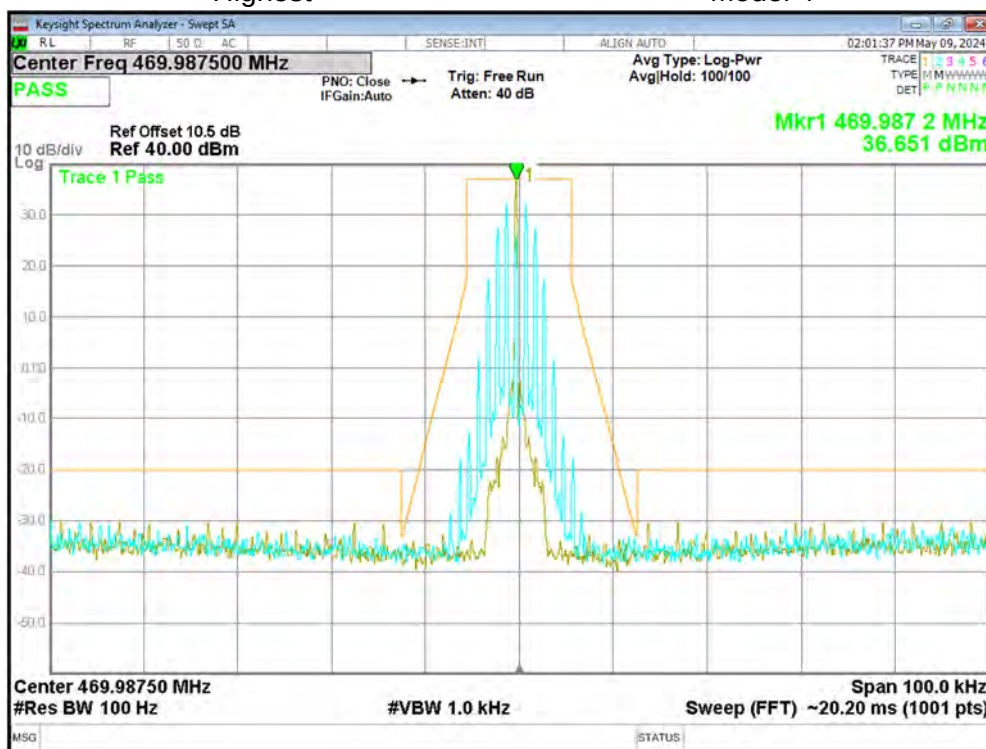
Middle

Model 4



Highest

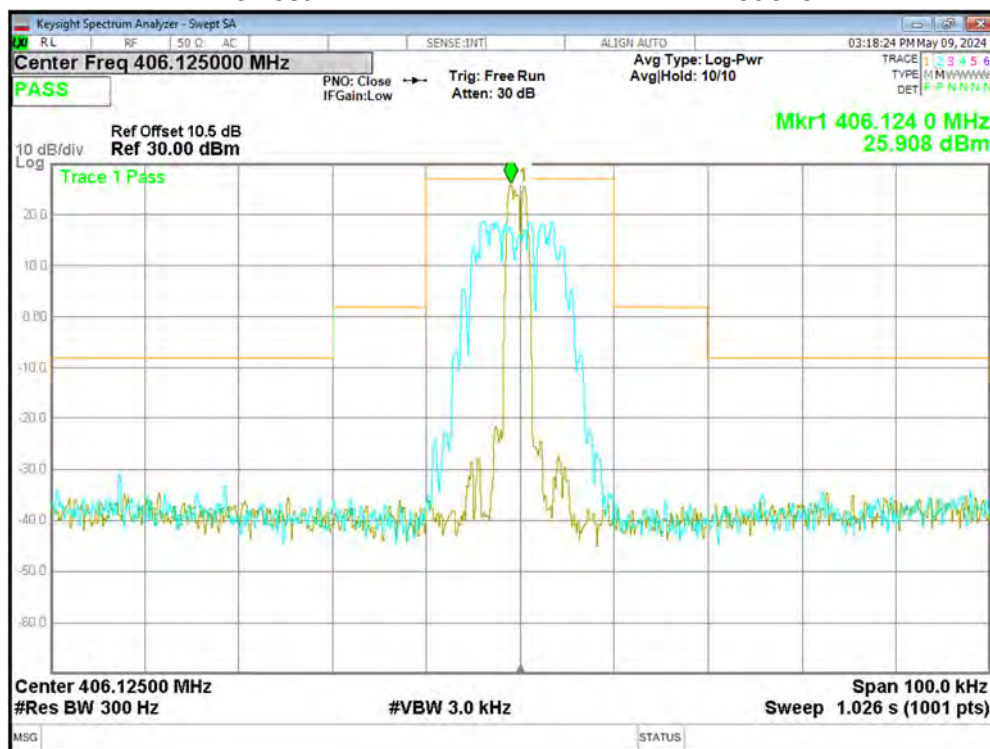
Model 4



Modulation Type	Channel Bandwidth	Operation Mode	Test Channel	Test Frequency (MHz)	Applicable Mask	Result
FM	25KHz	Low Power	Lowest	406.12500	B	PASS
			Middle	438.05000	B	PASS
			Highest	469.97500	B	PASS
		High Power	Lowest	406.12500	B	PASS
			Middle	438.05000	B	PASS
			Highest	469.97500	B	PASS

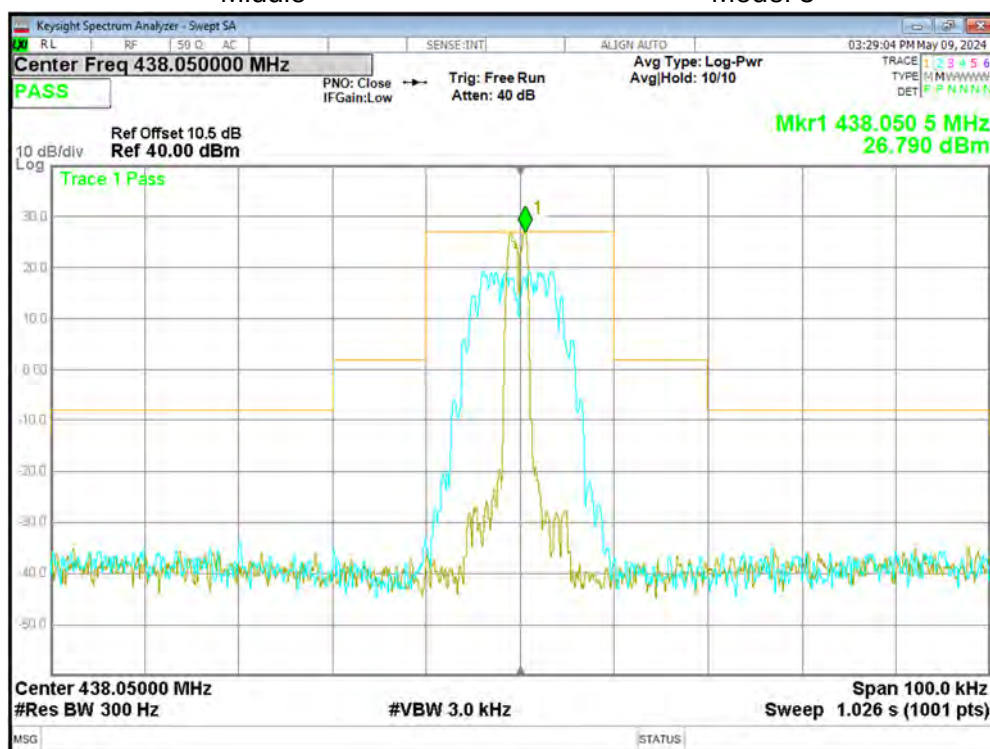
Lowest

Model 5



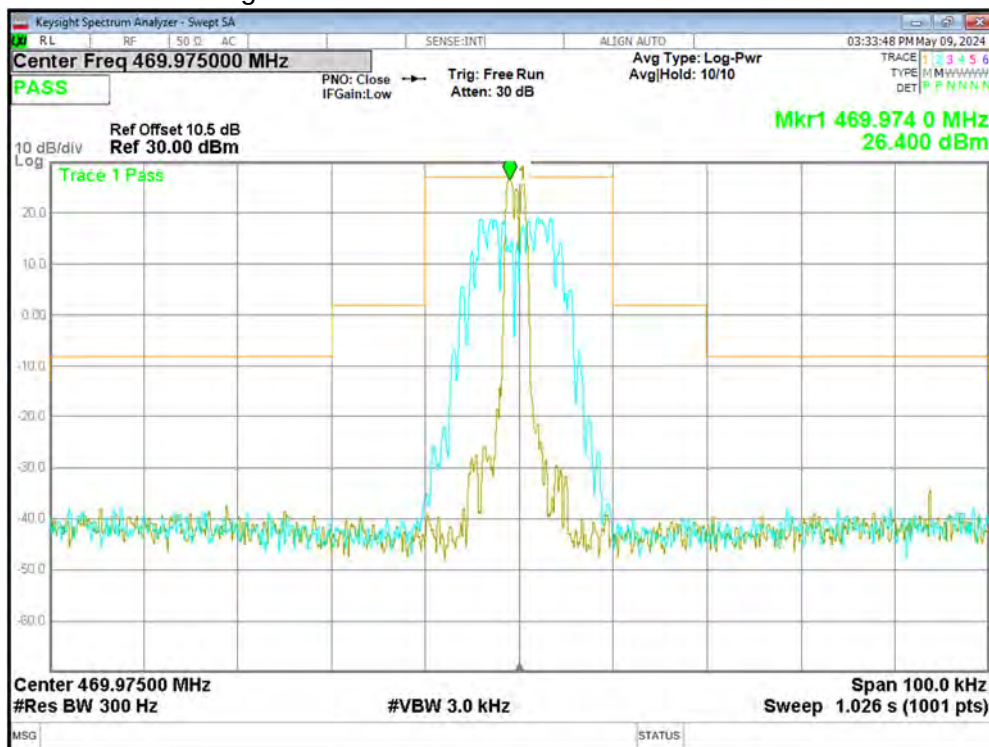
Middle

Model 5



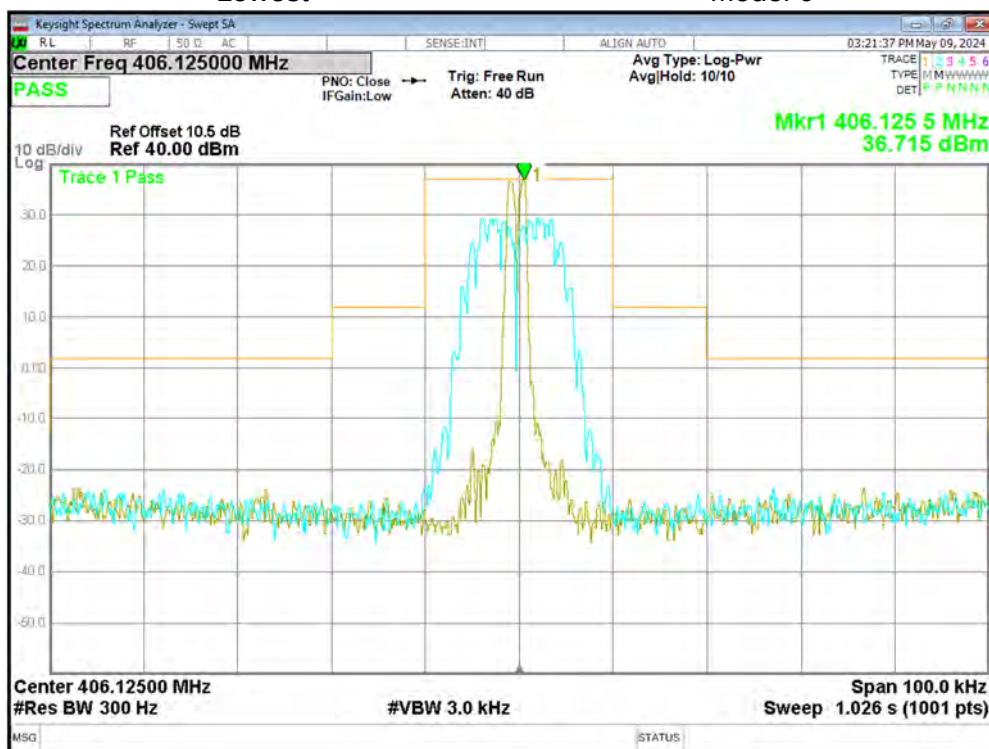
Highest

Model 5



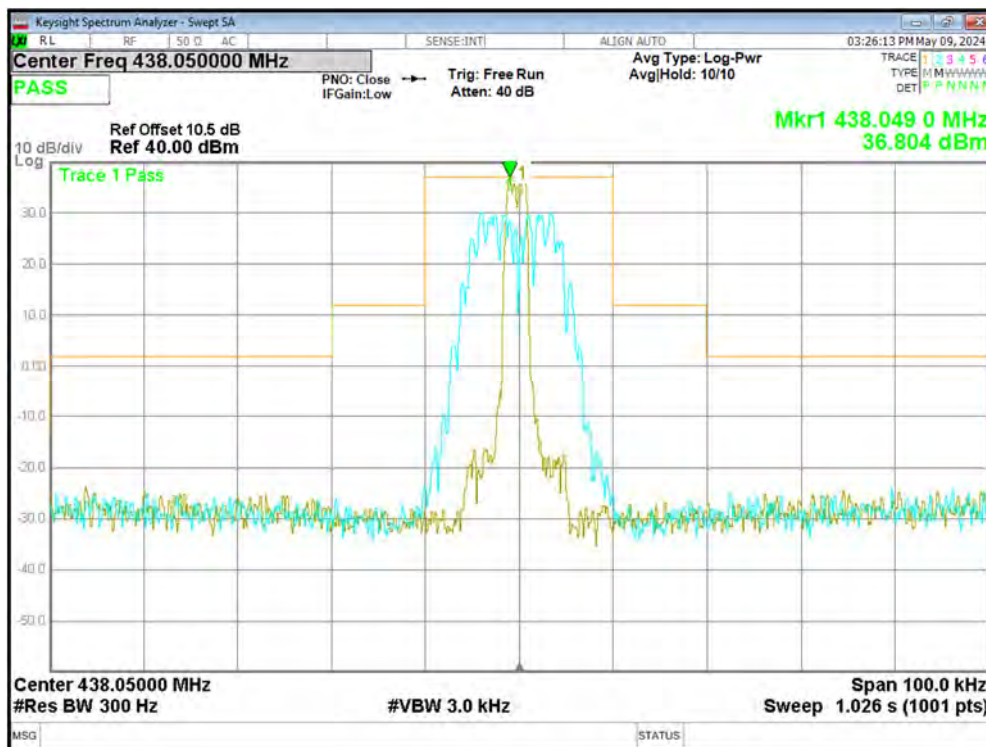
Lowest

Model 6



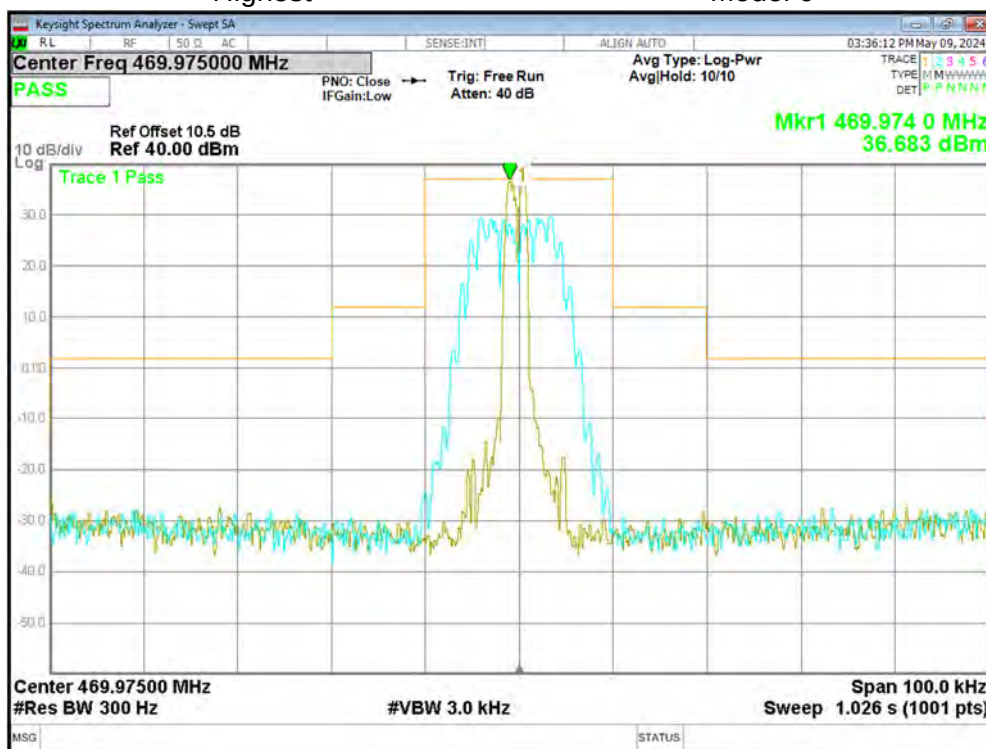
Middle

Model 6



Highest

Model 6



6. TRANSMITTER RADIATED SPURIOUS EMISSION

6.1 PROVISIONS APPLICABLE

According to the TIA/EIA 603 test method, and according to Section 90.210, the power of each unwanted emission shall be less than Transmitted Power as specified below for transmitters designed to operate with 12.5 KHz channel bandwidth:

- (1) On any frequency removed from the center of the authorized bandwidth by a displacement frequency (f_d in kHz) of 4 kHz or less: Zero dB.
- (2) On any frequency removed from the center of the authorized bandwidth by a displacement frequency (f_d in kHz) of more than 4 kHz, but no more than 8.5 kHz: At least $107 \log (f_d/4)$ dB;
- (3) On any frequency removed from the center of the authorized bandwidth by a displacement frequency (f_d in kHz) of more than 8.5 kHz, but no more than 15 kHz: At least $40.5 \log (f_d/1.16)$ dB;
- (4) On any frequency removed from the center of the authorized bandwidth by a displacement frequency (f_d in kHz) of more than 15 kHz, but no more than 25 kHz: At least $116 \log (f_d/6.1)$ dB;
- (5) On any frequency removed from the center of the authorized bandwidth by more than 25 kHz: At least $43 + 10 \log (P)$ dB.

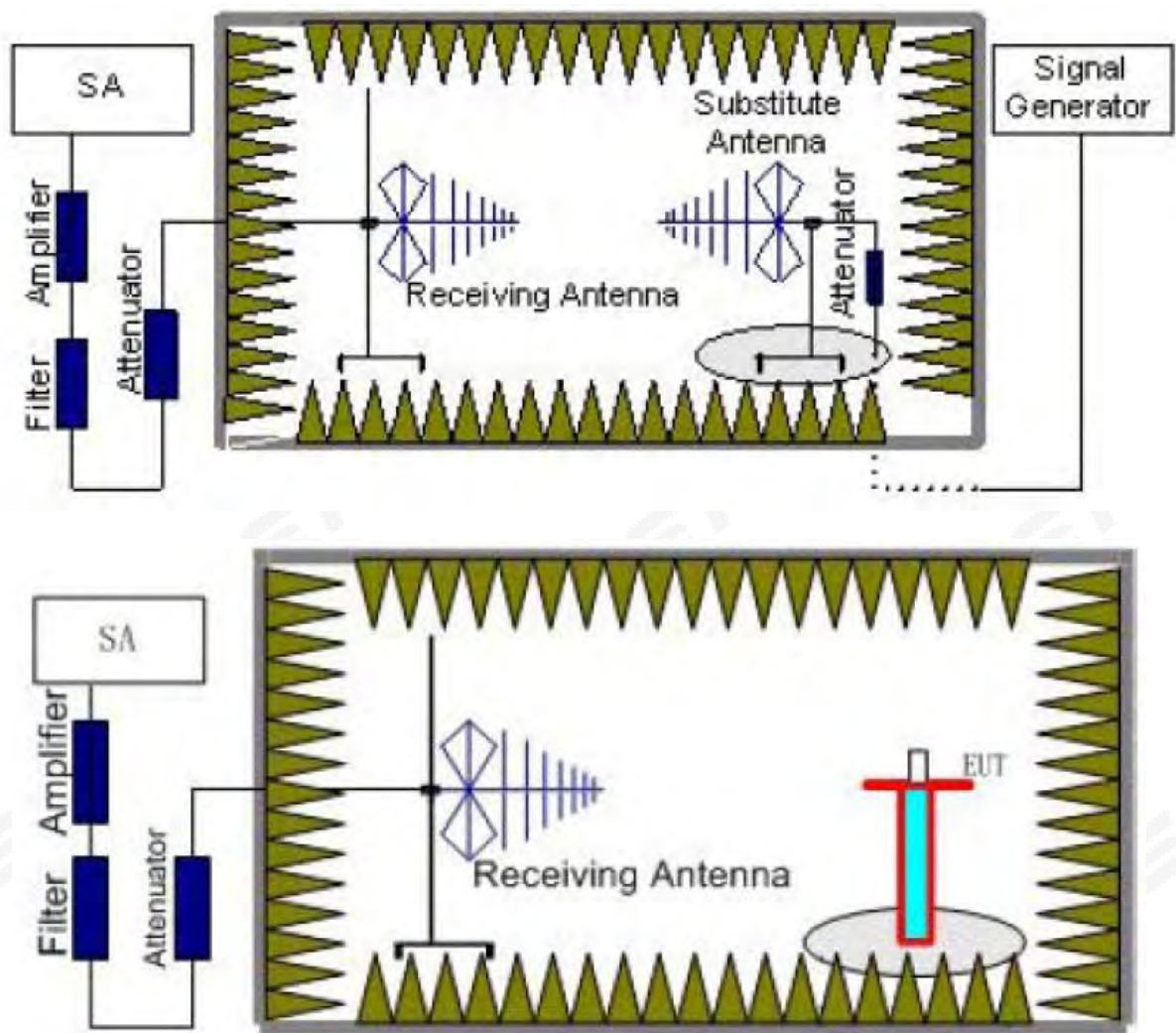
For transmitters designed to transmit with 25 KHz channel separation and equipped with an audio low-pass filter, the power of any emission must be attenuated below the unmodulated carrier power (P) as following:

- (1) On any frequency removed from the assigned frequency by more than 75 kHz, the attenuation of any emission must be at least $43 + 10 \log (P_{\text{watts}})$ dB.

6.2 TEST PROCEDURE

- a. EUT was placed on a 1.50 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 1.50 m. Detected emissions were maximized at each frequency by rotating the EUT through 360° and adjusting the receiving antenna polarization. The radiated emission measurements of all transmit frequencies in six channels 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 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 (P_r).
- d. The EUT shall be replaced by a substitution antenna. In the chamber, an substitution antenna for the frequency band of interest is placed at the reference point of the chamber. An RF Signal source for the frequency band of interest is connected to the substitution antenna with a cable that has been constructed to not interfere with the radiation pattern of the antenna. A power (P_{Mea}) is applied to the input of 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.
- e. 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 (P_{cl}), the Substitution Antenna Gain (G_a) and the Amplifier Gain (P_{Ag}) should be recorded after test. The measurement results are obtained as described below:
Amplifier for substitution test; The measurement results are amend as described below:
 $\text{Power(EIRP)} = P_{\text{Mea}} - P_{\text{cl}} + G_a$

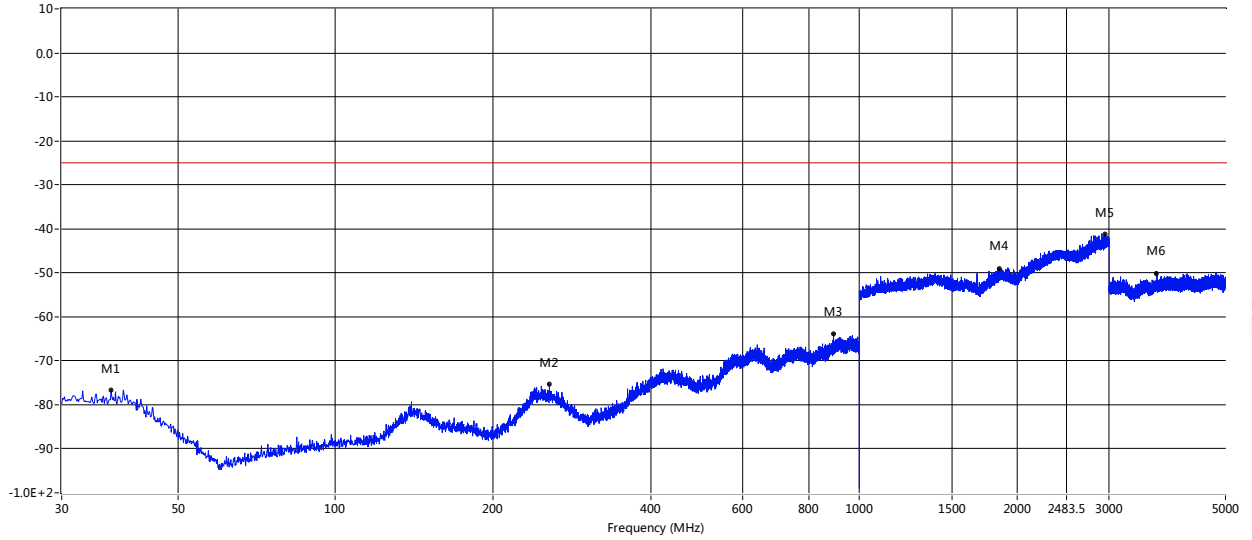
6.3 TEST CONFIGURATION



6.4 TEST RESULT

Mode 2 Lowest Horizontal

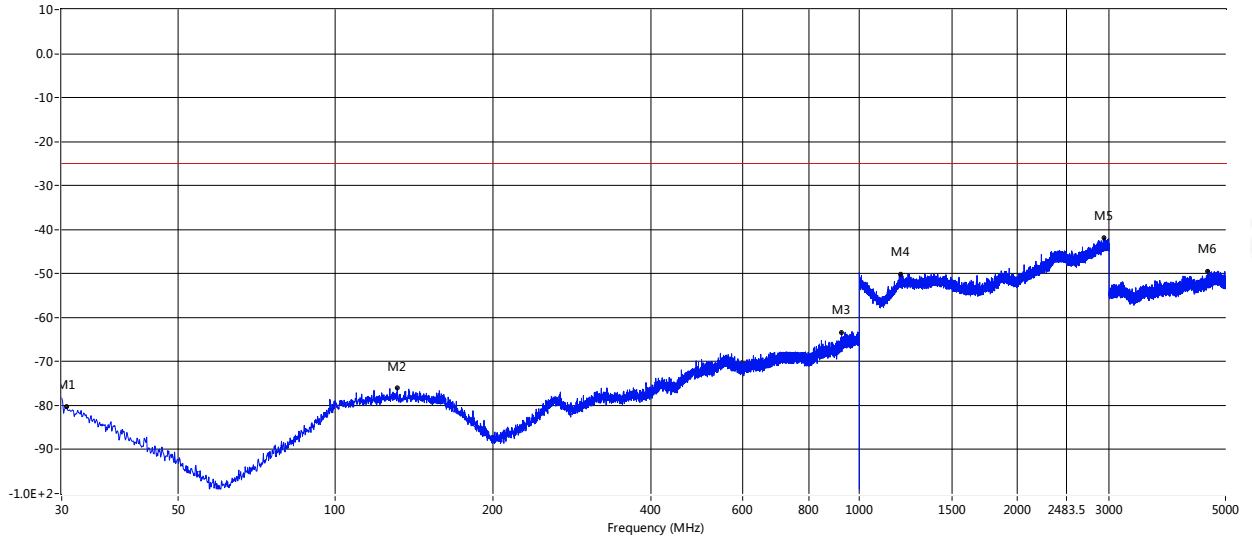
RSE_FCC Test Case_RSE_PART90 H 30M-5G-窄带 25



Frequency (MHz)	Result (dBm)	Factor (dB)	PK Limit (dBm)	Over Limit (dB)	Table (o)	ANT	EUT	Verdict
37.275	-76.71	-1.86	-25.0	-51.71	205.10	Horizontal	Vertical	Pass
256.131	-75.34	-1.38	-25.0	-50.34	17.30	Horizontal	Vertical	Pass
893.300	-63.81	8.58	-25.0	-38.81	208.20	Horizontal	Vertical	Pass
1847.500	-48.95	14.41	-25.0	-23.95	123.90	Horizontal	Vertical	Pass
2941.500	-41.23	20.93	-25.0	-16.23	36.50	Horizontal	Vertical	Pass
3692.250	-50.08	3.61	-25.0	-25.08	290.40	Horizontal	Vertical	Pass

Vertical

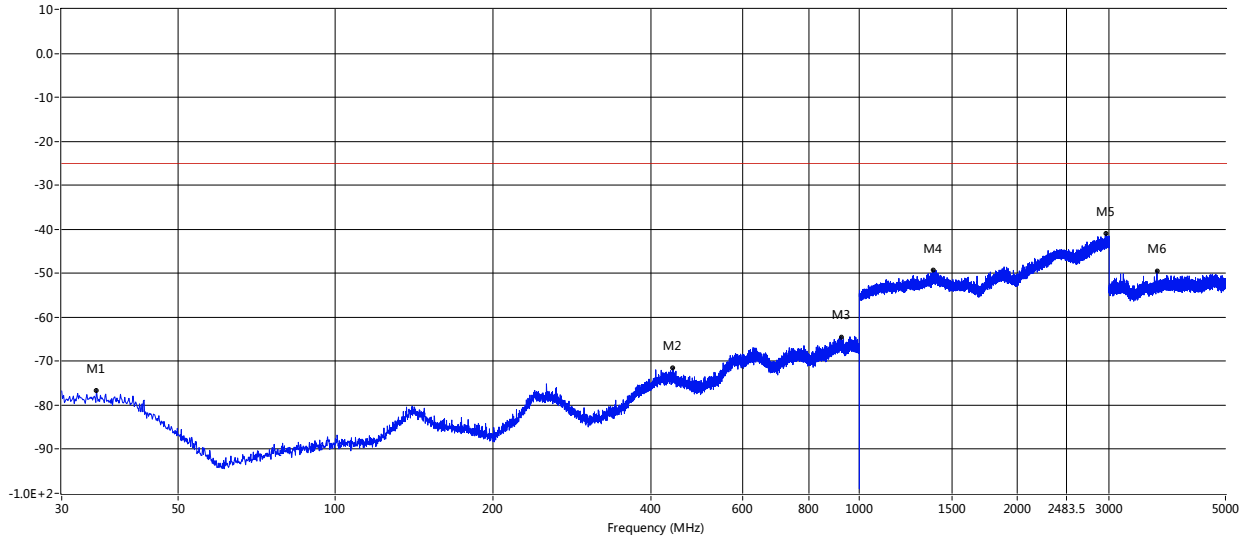
RSE_FCC Test Case_RSE_PART90 V 30M-5G-窄带 25



Frequency (MHz)	Result (dBm)	Factor (dB)	PK Limit (dBm)	Over Limit (dB)	Table (o)	ANT	EUT	Verdict
30.606	-80.27	-4.06	-25.0	-55.27	134.10	Vertical	Vertical	Pass
131.122	-75.95	-1.48	-25.0	-50.95	181.40	Vertical	Vertical	Pass
924.946	-63.30	9.25	-25.0	-38.30	214.40	Vertical	Vertical	Pass
1201.500	-50.09	13.63	-25.0	-25.09	166.50	Vertical	Vertical	Pass
2933.000	-41.93	20.31	-25.0	-16.93	253.90	Vertical	Vertical	Pass
4625.000	-49.42	4.86	-25.0	-24.42	192.20	Vertical	Vertical	Pass

Middle Horizontal

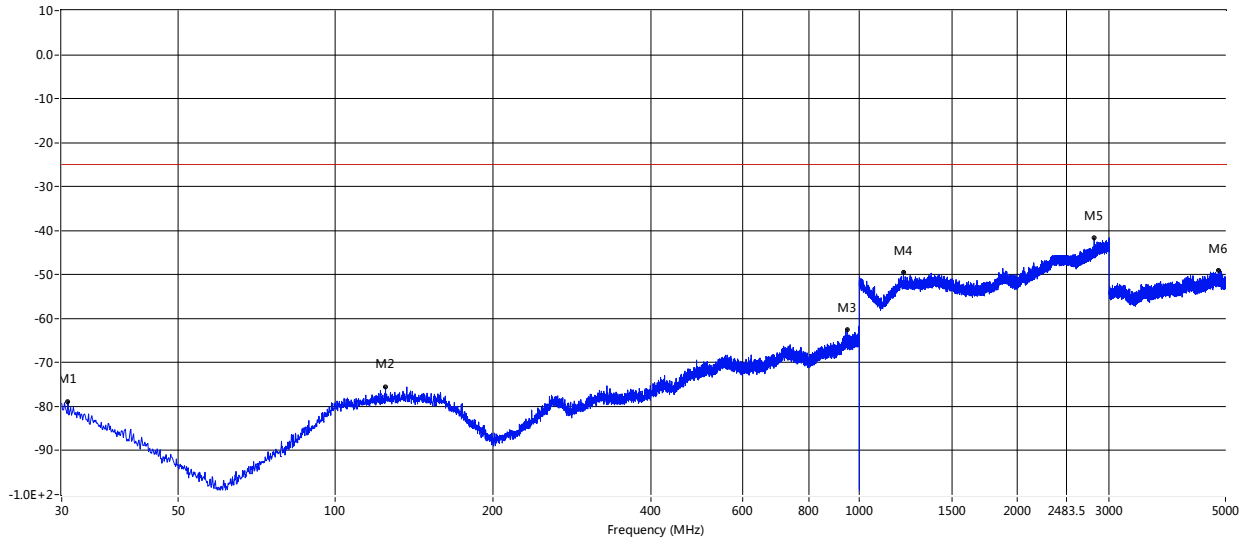
RSE_FCC Test Case_RSE_PART90 H 30M-5G-窄带 25



Frequency (MHz)	Result (dBm)	Factor (dB)	PK Limit (dBm)	Over Limit (dB)	Table (o)	ANT	EUT	Verdict
34.971	-76.59	-1.88	-25.0	-51.59	158.40	Horizontal	Vertical	Pass
439.704	-71.58	3.86	-25.0	-46.58	253.80	Horizontal	Vertical	Pass
922.885	-64.48	9.40	-25.0	-39.48	188.30	Horizontal	Vertical	Pass
1382.500	-49.38	13.93	-25.0	-24.38	355.30	Horizontal	Vertical	Pass
2962.000	-40.87	21.05	-25.0	-15.87	335.80	Horizontal	Vertical	Pass
3700.750	-49.48	3.66	-25.0	-24.48	290.50	Horizontal	Vertical	Pass

Vertical

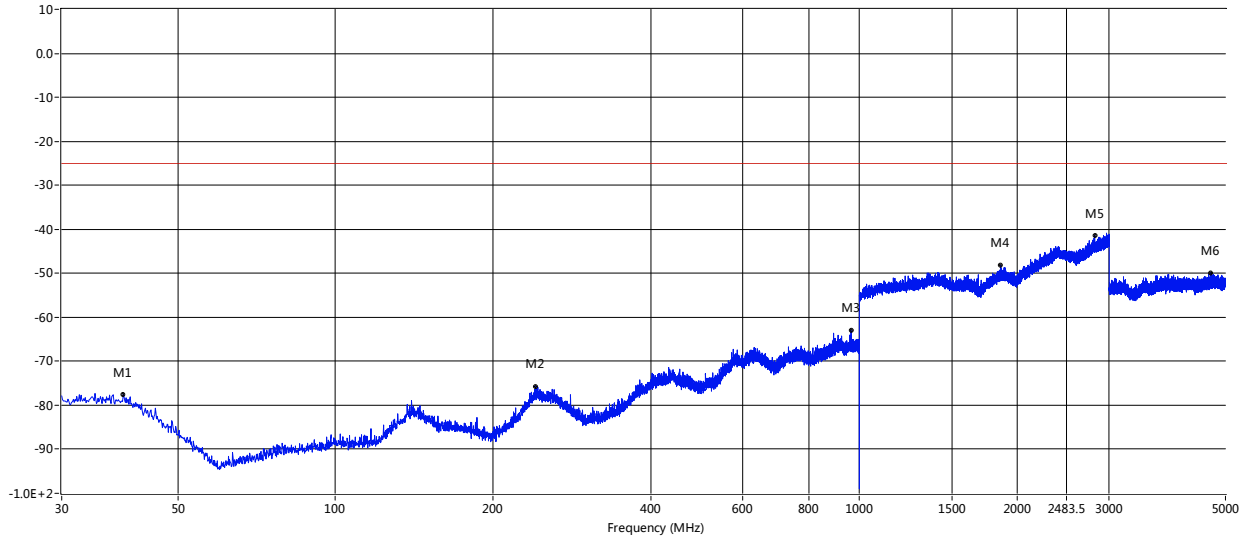
RSE_FCC Test Case_RSE_PART90 V 30M-5G-窄带 25



Frequency (MHz)	Result (dBm)	Factor (dB)	PK Limit (dBm)	Over Limit (dB)	Table (o)	ANT	EUT	Verdict
30.849	-78.80	-4.22	-25.0	-53.80	325.00	Vertical	Vertical	Pass
124.575	-75.63	-1.73	-25.0	-50.63	259.90	Vertical	Vertical	Pass
949.560	-62.48	10.10	-25.0	-37.48	313.30	Vertical	Vertical	Pass
1213.750	-49.44	13.59	-25.0	-24.44	296.60	Vertical	Vertical	Pass
2808.250	-41.67	19.57	-25.0	-16.67	299.30	Vertical	Vertical	Pass
4855.750	-49.15	5.60	-25.0	-24.15	12.40	Vertical	Vertical	Pass

Highest Horizontal

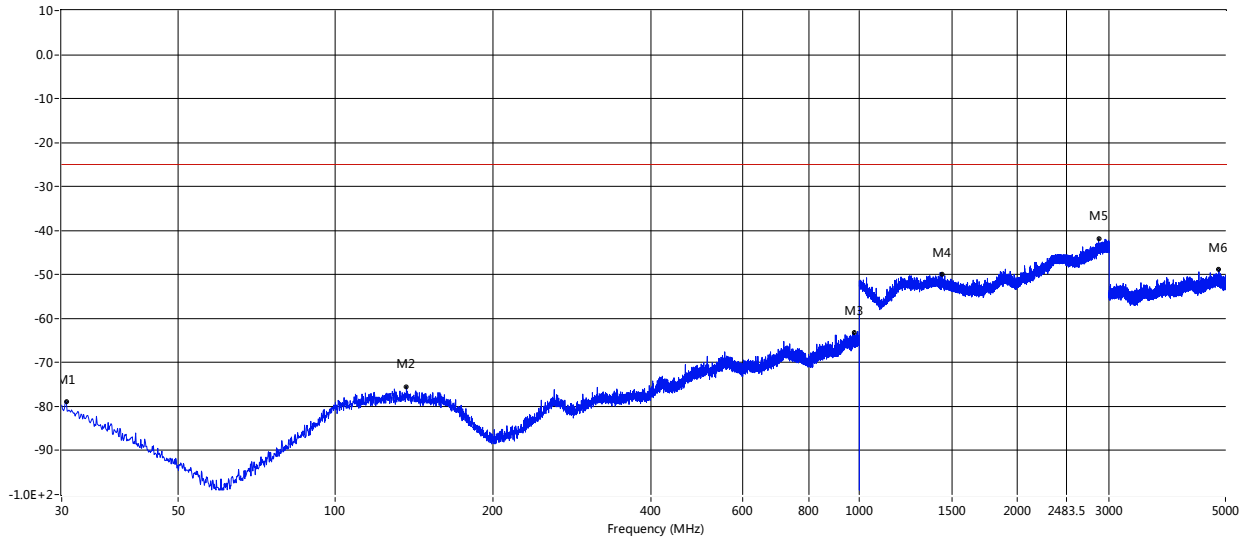
RSE_FCC Test Case_RSE_PART90 H 30M-5G-窄带 25



Frequency (MHz)	Result (dBm)	Factor (dB)	PK Limit (dBm)	Over Limit (dB)	Table (o)	ANT	EUT	Verdict
39.336	-77.51	-1.84	-25.0	-52.51	95.00	Horizontal	Vertical	Pass
240.975	-75.68	-0.81	-25.0	-50.68	6.10	Horizontal	Vertical	Pass
964.595	-63.03	9.50	-25.0	-38.03	137.00	Horizontal	Vertical	Pass
1862.000	-48.18	14.48	-25.0	-23.18	326.50	Horizontal	Vertical	Pass
2813.750	-41.38	20.48	-25.0	-16.38	196.50	Horizontal	Vertical	Pass
4685.250	-50.04	4.63	-25.0	-25.04	137.20	Horizontal	Vertical	Pass

Vertical

RSE_FCC Test Case_RSE_PART90 V 30M-5G-窄带 25



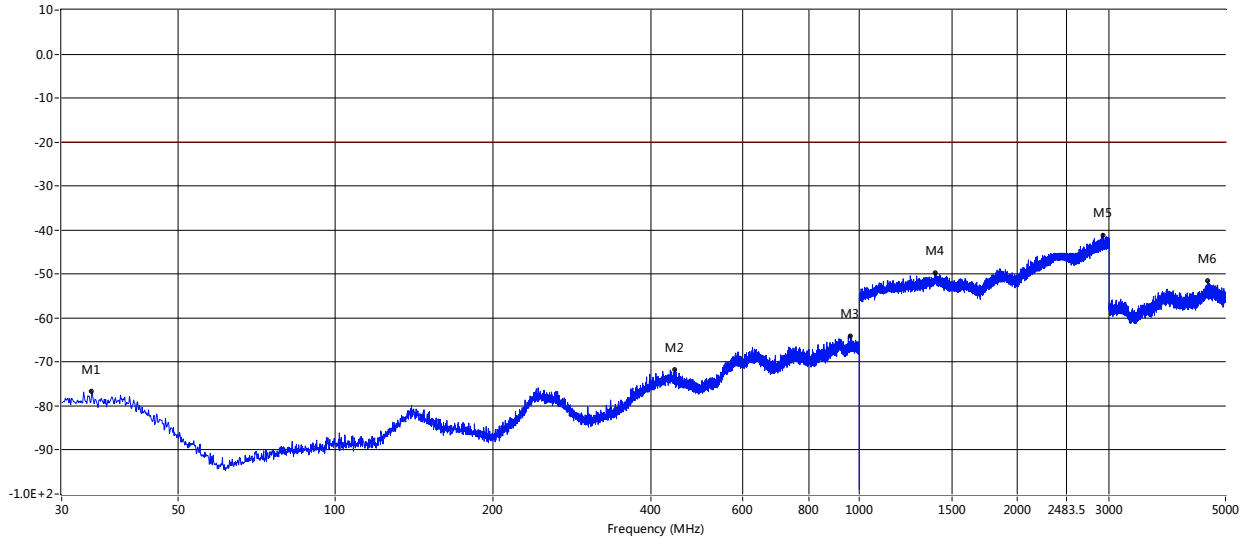
Frequency (MHz)	Result (dBm)	Factor (dB)	PK Limit (dBm)	Over Limit (dB)	Table (o)	ANT	EUT	Verdict
30.606	-78.82	-4.06	-25.0	-53.82	219.70	Vertical	Vertical	Pass
136.579	-75.47	-1.27	-25.0	-50.47	97.70	Vertical	Vertical	Pass
976.114	-63.21	10.33	-25.0	-38.21	288.50	Vertical	Vertical	Pass
1438.000	-49.99	13.52	-25.0	-24.99	199.50	Vertical	Vertical	Pass
2863.500	-41.76	20.09	-25.0	-16.76	111.80	Vertical	Vertical	Pass
4859.750	-48.92	5.61	-25.0	-23.92	355.70	Vertical	Vertical	Pass

Mode 4

Lowest

Horizontal

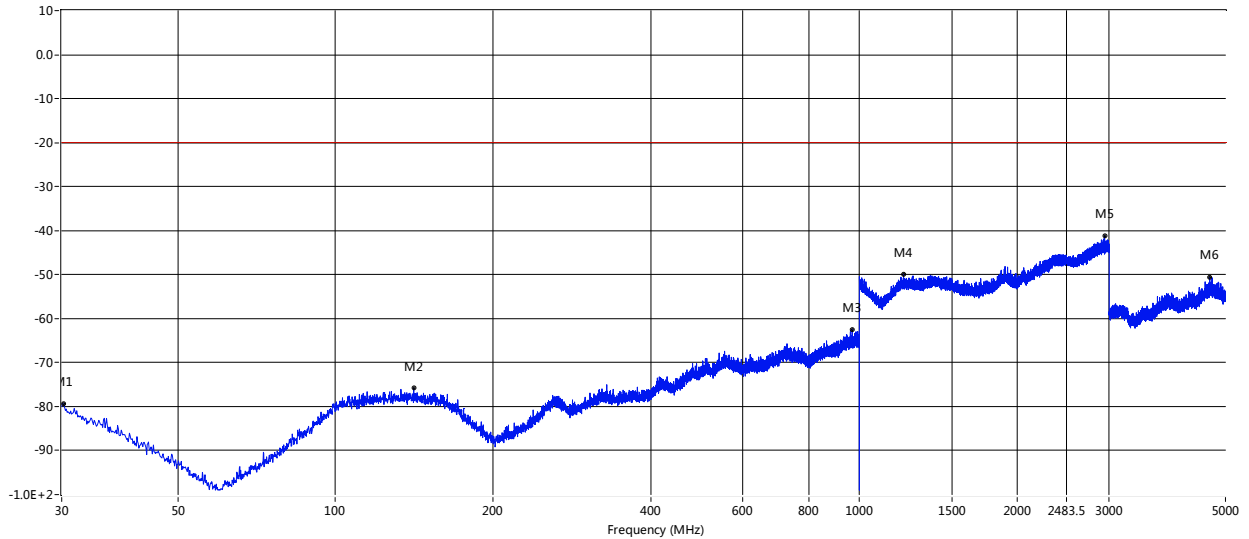
RSE_FCC Test Case_RSE_PART90 H 30M-5G-窄带



Frequency (MHz)	Result (dBm)	Factor (dB)	PK Limit (dBm)	Over Limit (dB)	Table (o)	ANT	EUT	Verdict
34.244	-76.76	-1.88	-20.0	-56.76	349.70	Horizontal	Vertical	Pass
444.190	-71.77	3.50	-20.0	-51.77	110.30	Horizontal	Vertical	Pass
961.806	-63.99	9.58	-20.0	-43.99	98.90	Horizontal	Vertical	Pass
1399.000	-49.71	14.15	-20.0	-29.71	131.40	Horizontal	Vertical	Pass
2922.000	-41.20	20.80	-20.0	-21.20	150.90	Horizontal	Vertical	Pass
4624.250	-51.62	4.66	-20.0	-31.62	175.50	Horizontal	Vertical	Pass

Vertical

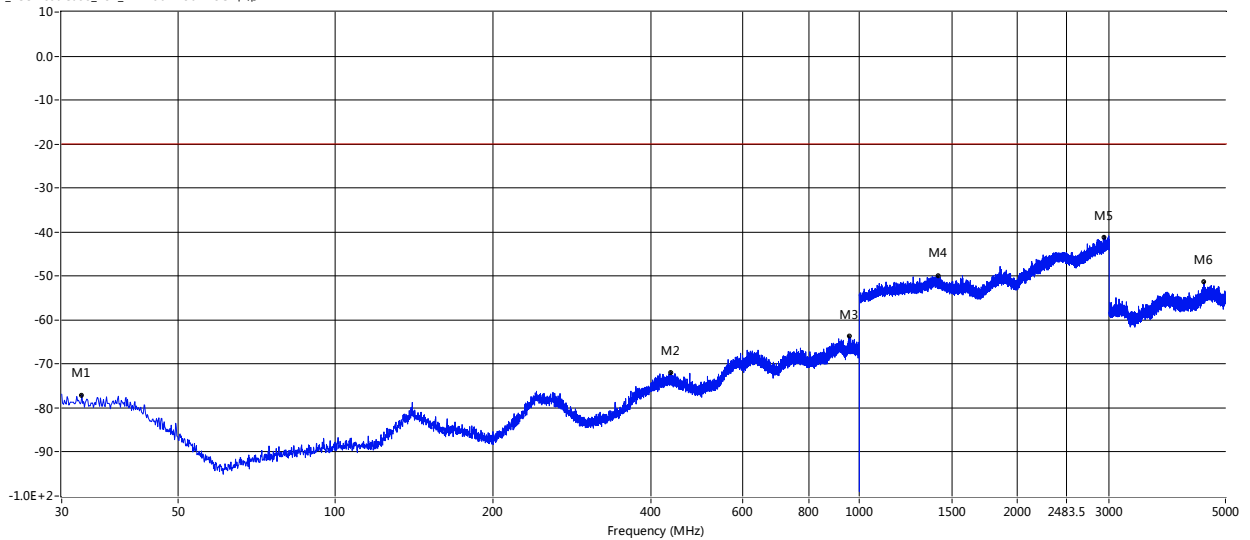
RSE_FCC Test Case_RSE_PART90 V 30M-5G-窄带



Frequency (MHz)	Result (dBm)	Factor (dB)	PK Limit (dBm)	Over Limit (dB)	Table (o)	ANT	EUT	Verdict
30.242	-79.34	-3.83	-20.0	-59.34	302.60	Vertical	Vertical	Pass
141.065	-75.76	-1.19	-20.0	-55.76	65.20	Vertical	Vertical	Pass
968.718	-62.46	10.19	-20.0	-42.46	138.40	Vertical	Vertical	Pass
1214.500	-49.97	13.59	-20.0	-29.97	338.90	Vertical	Vertical	Pass
2939.750	-41.20	20.32	-20.0	-21.20	32.20	Vertical	Vertical	Pass
4666.750	-50.65	5.00	-20.0	-30.65	159.70	Vertical	Vertical	Pass

Middle Horizontal

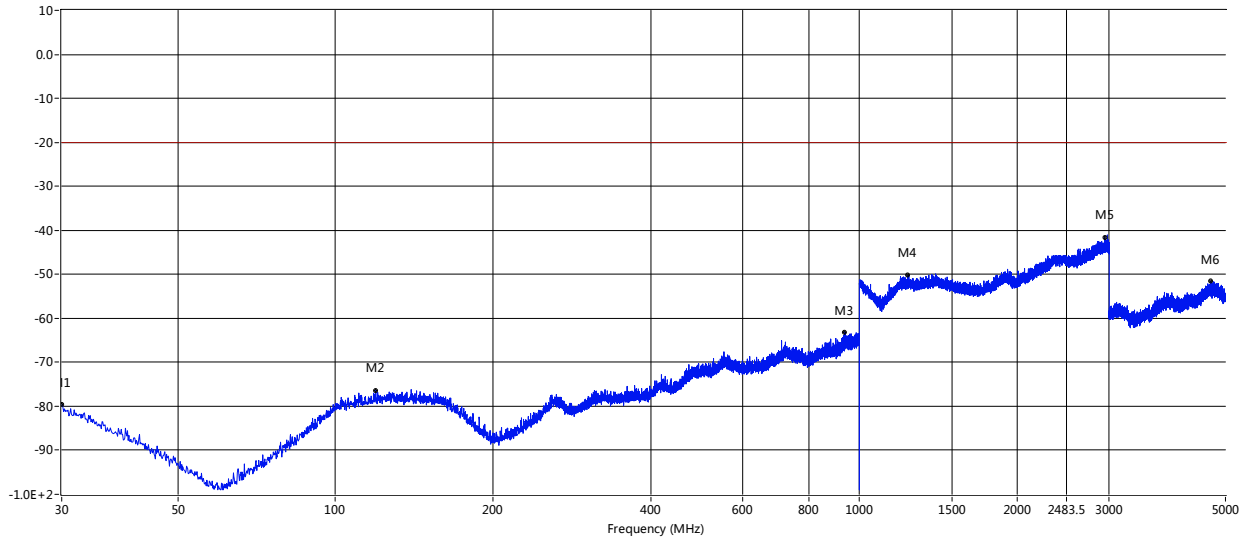
RSE_FCC Test Case_RSE_PART90 H 30M-SG-窄带



Frequency (MHz)	Result (dBm)	Factor (dB)	PK Limit (dBm)	Over Limit (dB)	Table (o)	ANT	EUT	Verdict
32.789	-77.00	-1.89	-20.0	-57.00	224.60	Horizontal	Vertical	Pass
435.945	-71.90	3.65	-20.0	-51.90	66.70	Horizontal	Vertical	Pass
955.259	-63.73	9.30	-20.0	-43.73	264.50	Horizontal	Vertical	Pass
1413.750	-49.86	13.96	-20.0	-29.86	184.20	Horizontal	Vertical	Pass
2936.500	-41.25	20.89	-20.0	-21.25	54.70	Horizontal	Vertical	Pass
4551.500	-51.40	4.40	-20.0	-31.40	355.60	Horizontal	Vertical	Pass

Vertical

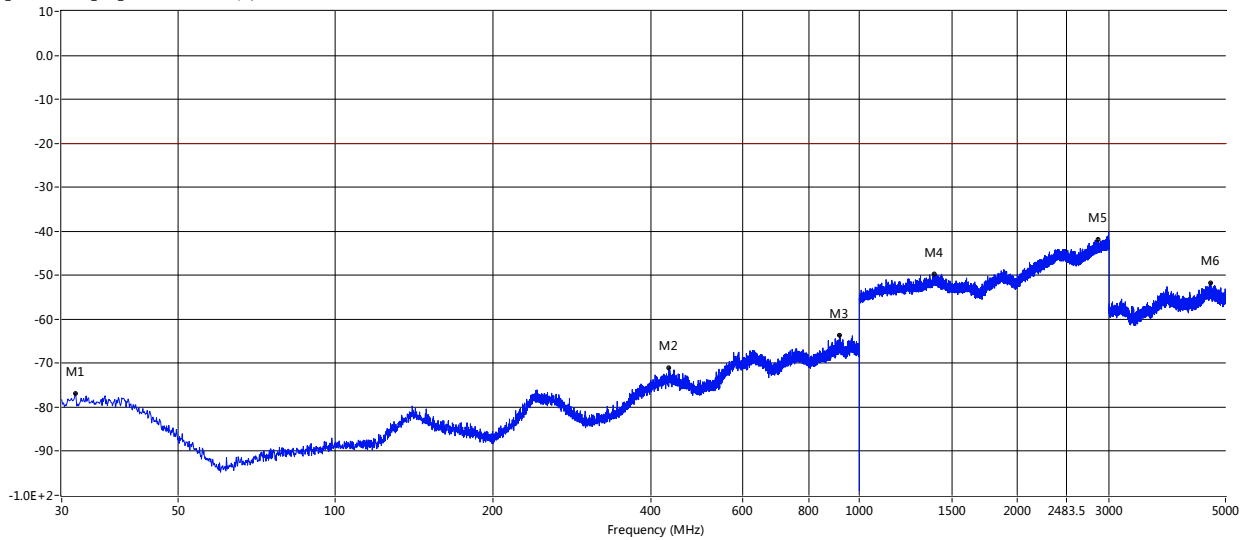
RSE_FCC Test Case_RSE_PART90 V 30M-SG-窄带



Frequency (MHz)	Result (dBm)	Factor (dB)	PK Limit (dBm)	Over Limit (dB)	Table (o)	ANT	EUT	Verdict
30.000	-79.64	-3.68	-20.0	-59.64	341.40	Vertical	Vertical	Pass
119.361	-76.35	-1.93	-20.0	-56.35	9.40	Vertical	Vertical	Pass
938.526	-63.10	10.08	-20.0	-43.10	172.80	Vertical	Vertical	Pass
1237.500	-50.24	13.51	-20.0	-30.24	139.80	Vertical	Vertical	Pass
2941.250	-41.52	20.33	-20.0	-21.52	21.90	Vertical	Vertical	Pass
4684.000	-51.58	5.06	-20.0	-31.58	0.10	Vertical	Vertical	Pass

Highest Horizontal

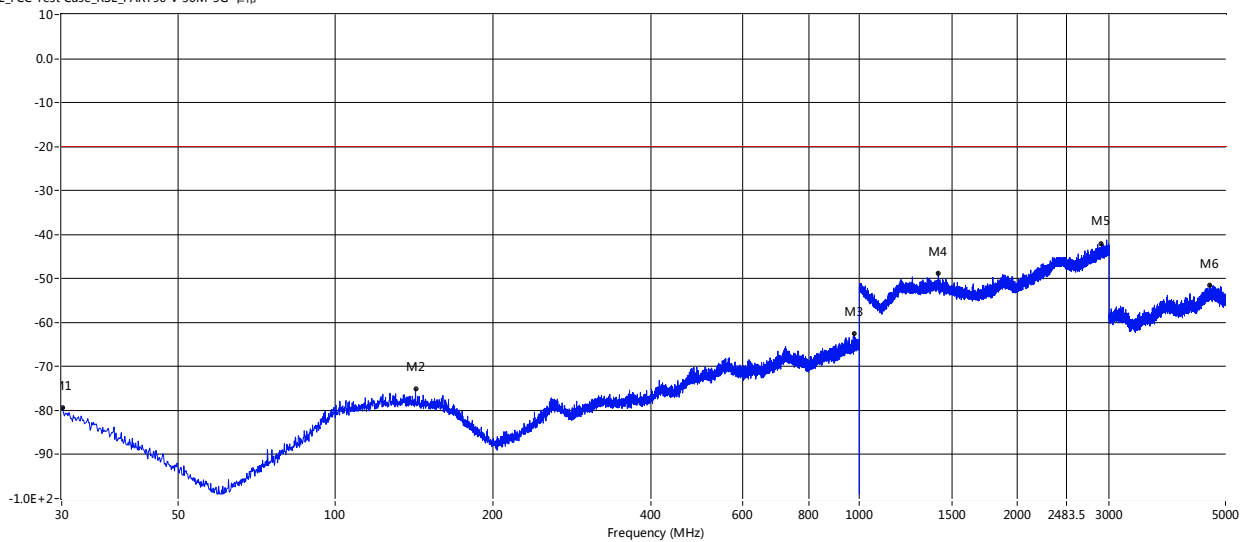
RSE_FCC Test Case_RSE_PART90 H 30M-5G-窄带



Frequency (MHz)	Result (dBm)	Factor (dB)	PK Limit (dBm)	Over Limit (dB)	Table (o)	ANT	EUT	Verdict
31.819	-76.87	-1.90	-20.0	-56.87	69.60	Horizontal	Vertical	Pass
432.429	-71.06	3.44	-20.0	-51.06	358.50	Horizontal	Vertical	Pass
918.278	-63.64	9.53	-20.0	-43.64	354.60	Horizontal	Vertical	Pass
1388.000	-49.81	14.00	-20.0	-29.81	6.20	Horizontal	Vertical	Pass
2851.000	-41.96	20.69	-20.0	-21.96	148.80	Horizontal	Vertical	Pass
4676.500	-51.66	4.64	-20.0	-31.66	192.80	Horizontal	Vertical	Pass

Vertical

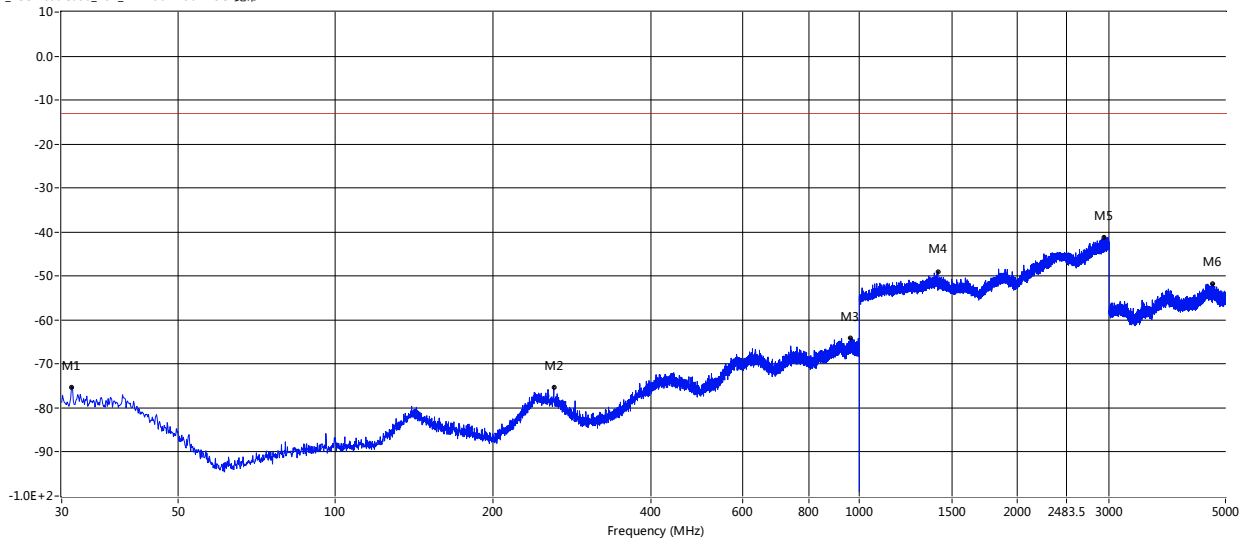
RSE_FCC Test Case_RSE_PART90 V 30M-5G-窄带



Frequency (MHz)	Result (dBm)	Factor (dB)	PK Limit (dBm)	Over Limit (dB)	Table (o)	ANT	EUT	Verdict
30.121	-79.37	-3.75	-20.0	-59.37	0.70	Vertical	Vertical	Pass
142.156	-75.09	-1.24	-20.0	-55.09	0.30	Vertical	Vertical	Pass
978.417	-62.59	10.38	-20.0	-42.59	217.50	Vertical	Vertical	Pass
1415.250	-48.88	13.70	-20.0	-28.88	29.80	Vertical	Vertical	Pass
2899.500	-42.01	20.24	-20.0	-22.01	212.30	Vertical	Vertical	Pass
4666.250	-51.59	5.00	-20.0	-31.59	234.50	Vertical	Vertical	Pass

**Mode 6**
Lowest
Horizontal

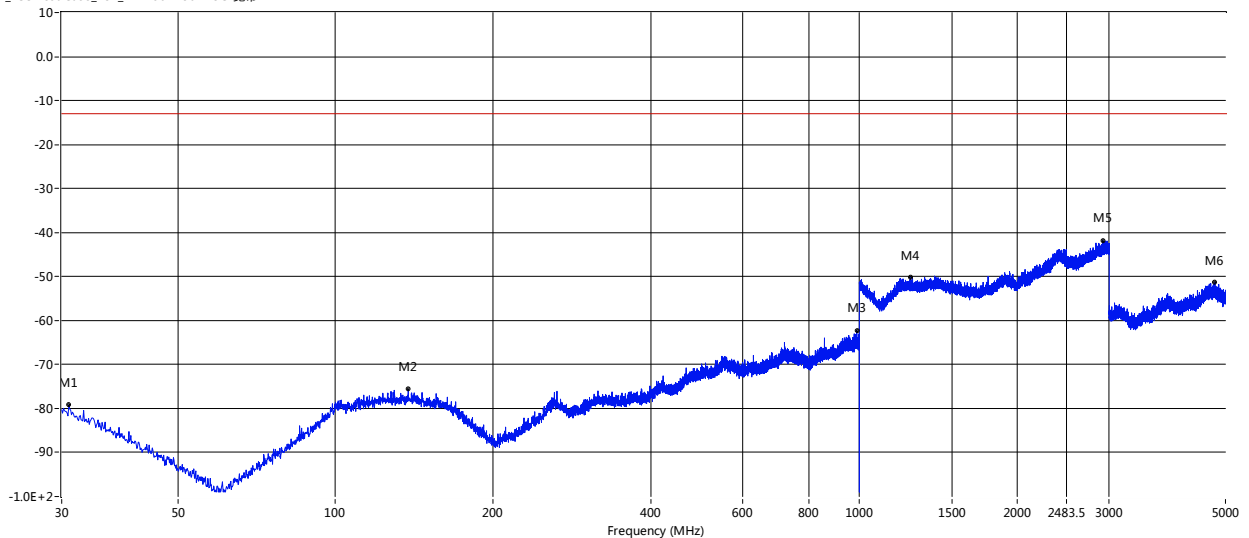
RSE_FCC Test Case_RSE_PART90 H 30M-5G-宽带



Frequency (MHz)	Result (dBm)	Factor (dB)	PK Limit (dBm)	Over Limit (dB)	Table (o)	ANT	EUT	Verdict
31.334	-75.32	-1.90	-13.0	-62.32	135.30	Horizontal	Vertical	Pass
260.981	-75.39	-1.67	-13.0	-62.39	78.80	Horizontal	Vertical	Pass
961.079	-64.14	9.61	-13.0	-51.14	93.00	Horizontal	Vertical	Pass
1412.750	-48.98	13.98	-13.0	-35.98	32.50	Horizontal	Vertical	Pass
2935.000	-41.11	20.88	-13.0	-28.11	195.60	Horizontal	Vertical	Pass
4734.250	-51.75	4.67	-13.0	-38.75	179.30	Horizontal	Vertical	Pass

Vertical

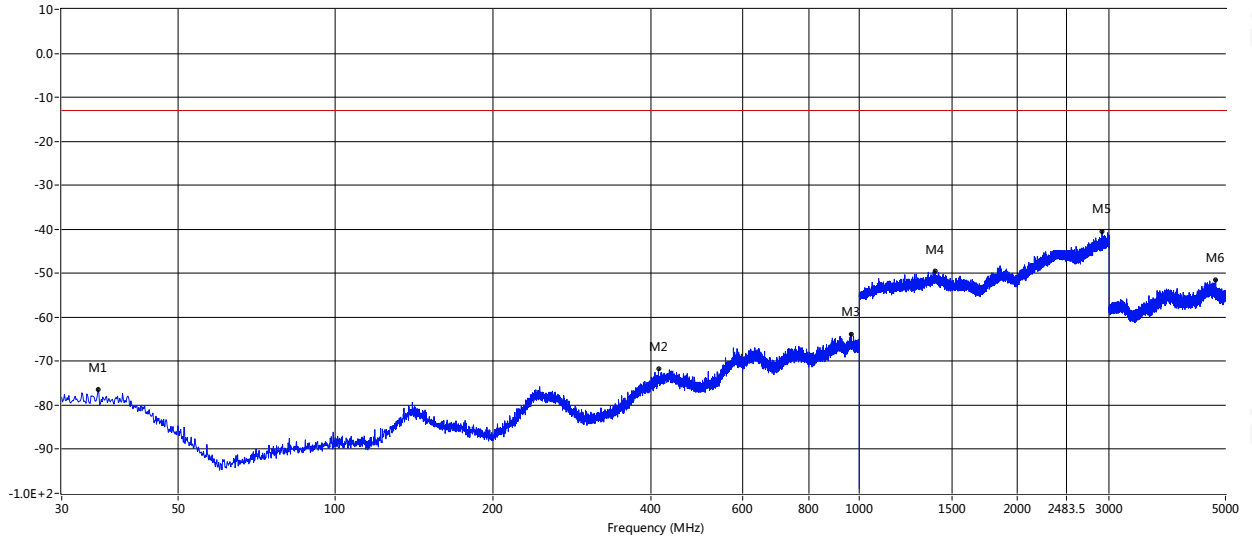
RSE_FCC Test Case_RSE_PART90 V 30M-5G-宽带



Frequency (MHz)	Result (dBm)	Factor (dB)	PK Limit (dBm)	Over Limit (dB)	Table (o)	ANT	EUT	Verdict
30.970	-79.13	-4.30	-13.0	-66.13	285.80	Horizontal	Vertical	Pass
137.670	-75.64	-1.23	-13.0	-62.64	319.50	Horizontal	Vertical	Pass
989.209	-62.26	10.52	-13.0	-49.26	277.10	Horizontal	Vertical	Pass
1253.000	-50.21	13.44	-13.0	-37.21	0.00	Horizontal	Vertical	Pass
2915.750	-41.85	20.27	-13.0	-28.85	230.10	Horizontal	Vertical	Pass
4774.500	-51.38	5.38	-13.0	-38.38	285.10	Horizontal	Vertical	Pass

Middle Horizontal

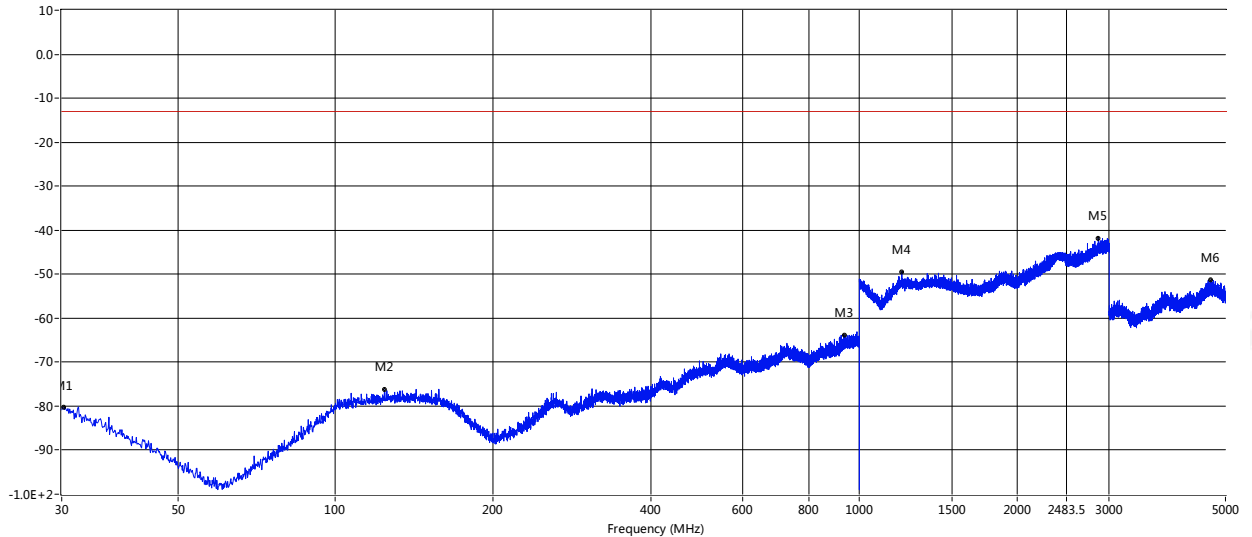
RSE_FCC Test Case_RSE_PART90 H 30M-5G-宽带



Frequency (MHz)	Result (dBm)	Factor (dB)	PK Limit (dBm)	Over Limit (dB)	Table (o)	ANT	EUT	Verdict
35.214	-76.44	-1.88	-13.0	-63.44	240.40	Horizontal	Vertical	Pass
413.514	-71.80	2.44	-13.0	-58.80	91.50	Horizontal	Vertical	Pass
963.989	-63.79	9.52	-13.0	-50.79	32.20	Horizontal	Vertical	Pass
1395.000	-49.56	14.09	-13.0	-36.56	61.40	Horizontal	Vertical	Pass
2907.750	-40.44	20.70	-13.0	-27.44	100.90	Horizontal	Vertical	Pass
4792.000	-51.46	4.74	-13.0	-38.46	302.10	Horizontal	Vertical	Pass

Vertical

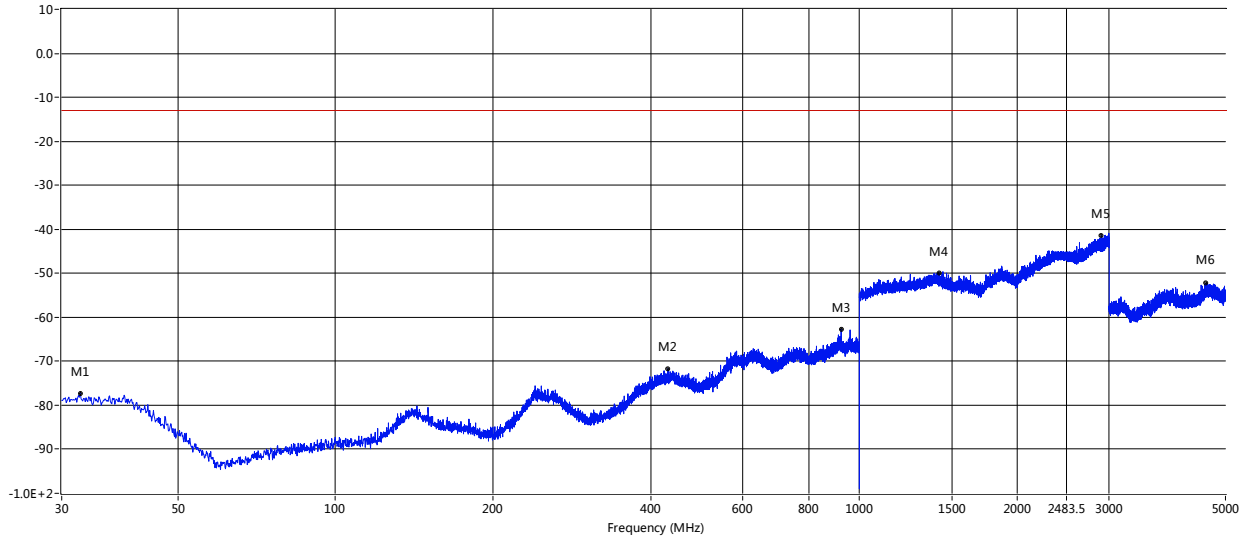
RSE_FCC Test Case_RSE_PART90 V 30M-5G-宽带



Frequency (MHz)	Result (dBm)	Factor (dB)	PK Limit (dBm)	Over Limit (dB)	Table (o)	ANT	EUT	Verdict
30.242	-80.36	-3.83	-13.0	-67.36	0.60	Vertical	Vertical	Pass
124.090	-76.30	-1.74	-13.0	-63.30	172.20	Vertical	Vertical	Pass
934.767	-63.79	9.85	-13.0	-50.79	208.60	Vertical	Vertical	Pass
1205.750	-49.41	13.62	-13.0	-36.41	274.30	Vertical	Vertical	Pass
2860.000	-41.78	20.07	-13.0	-28.78	310.80	Vertical	Vertical	Pass
4680.750	-51.39	5.05	-13.0	-38.39	329.00	Vertical	Vertical	Pass

Highest Horizontal

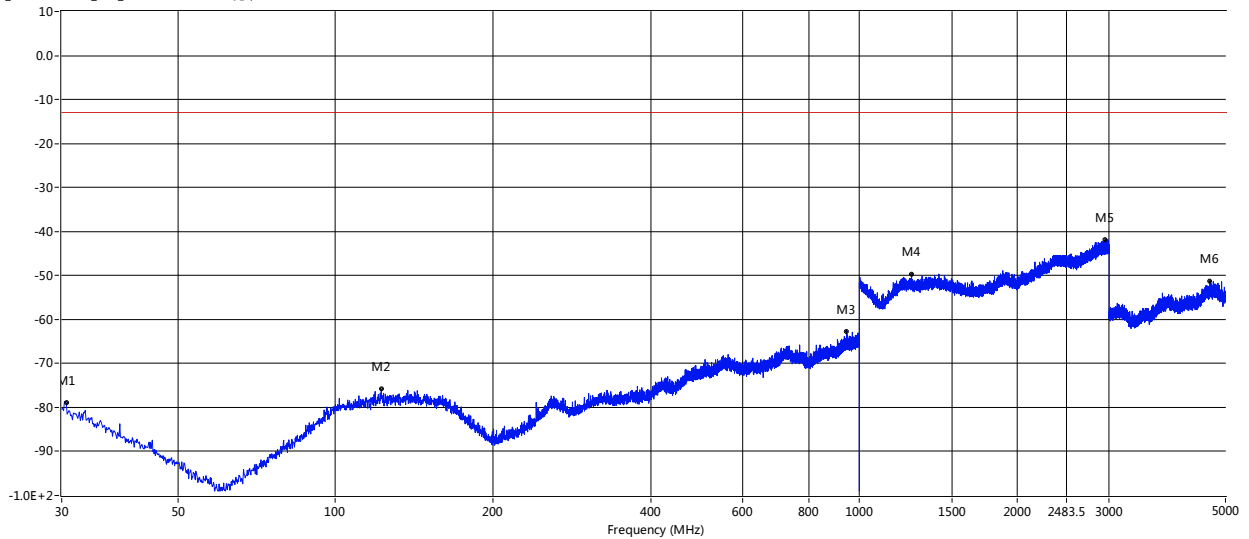
RSE_FCC Test Case_RSE_PART90 H 30M-5G-宽带



Frequency (MHz)	Result (dBm)	Factor (dB)	PK Limit (dBm)	Over Limit (dB)	Table (o)	ANT	EUT	Verdict
32.546	-77.27	-1.90	-13.0	-64.27	41.90	Horizontal	Vertical	Pass
430.367	-71.72	3.33	-13.0	-58.72	61.40	Horizontal	Vertical	Pass
923.249	-62.78	9.37	-13.0	-49.78	227.80	Horizontal	Vertical	Pass
1420.000	-49.94	13.87	-13.0	-36.94	217.80	Horizontal	Vertical	Pass
2900.250	-41.38	20.65	-13.0	-28.38	184.20	Horizontal	Vertical	Pass
4592.500	-52.29	4.62	-13.0	-39.29	90.70	Horizontal	Vertical	Pass

Vertical

RSE_FCC Test Case_RSE_PART90 V 30M-5G-宽带



Frequency (MHz)	Result (dBm)	Factor (dB)	PK Limit (dBm)	Over Limit (dB)	Table (o)	ANT	EUT	Verdict
30.606	-78.89	-4.06	-13.0	-65.89	304.90	Vertical	Vertical	Pass
122.271	-75.85	-1.81	-13.0	-62.85	133.50	Vertical	Vertical	Pass
945.559	-62.76	10.13	-13.0	-49.76	313.60	Vertical	Vertical	Pass
1258.750	-49.65	13.38	-13.0	-36.65	0.30	Vertical	Vertical	Pass
2950.250	-41.84	20.35	-13.0	-28.84	8.40	Vertical	Vertical	Pass
4669.250	-51.38	5.01	-13.0	-38.38	359.20	Vertical	Vertical	Pass

7. SPURIOUS EMSSION ON ANTENNA PORT

7.1 PROVISIONS APPLICABLE

According to the TIA/EIA 603 test method, and according to Section 90.210, the power of each unwanted emission shall be less than Transmitted Power as specified below for transmitters designed to operate with 12.5 KHz channel bandwidth:

- (1) On any frequency removed from the center of the authorized bandwidth by a displacement frequency (f_d in kHz) of 4 kHz or less: Zero dB.
- (2) On any frequency removed from the center of the authorized bandwidth by a displacement frequency (f_d in kHz) of more than 4 kHz, but no more than 8.5 kHz: At least $107 \log (f_d/4)$ dB;
- (3) On any frequency removed from the center of the authorized bandwidth by a displacement frequency (f_d in kHz) of more than 8.5 kHz, but no more than 15 kHz: At least $40.5 \log (f_d/1.16)$ dB;
- (4) On any frequency removed from the center of the authorized bandwidth by a displacement frequency (f_d in kHz) of more than 15 kHz, but no more than 25 kHz: At least $116 \log (f_d/6.1)$ dB;
- (5) On any frequency removed from the center of the authorized bandwidth by more than 25 kHz: At least $43 + 10 \log (P)$ dB.

For transmitters designed to transmit with 25 KHz channel separation and equipped with an audio low-pass filter, the power of any emission must be attenuated below the unmodulated carrier power (P) as following:

- (1) On any frequency removed from the assigned frequency by more than 75 kHz, the attenuation of any emission must be at least $43 + 10 \log (P_{\text{watts}})$ dB.

7.2 MEASUREMENT PROCEDURE

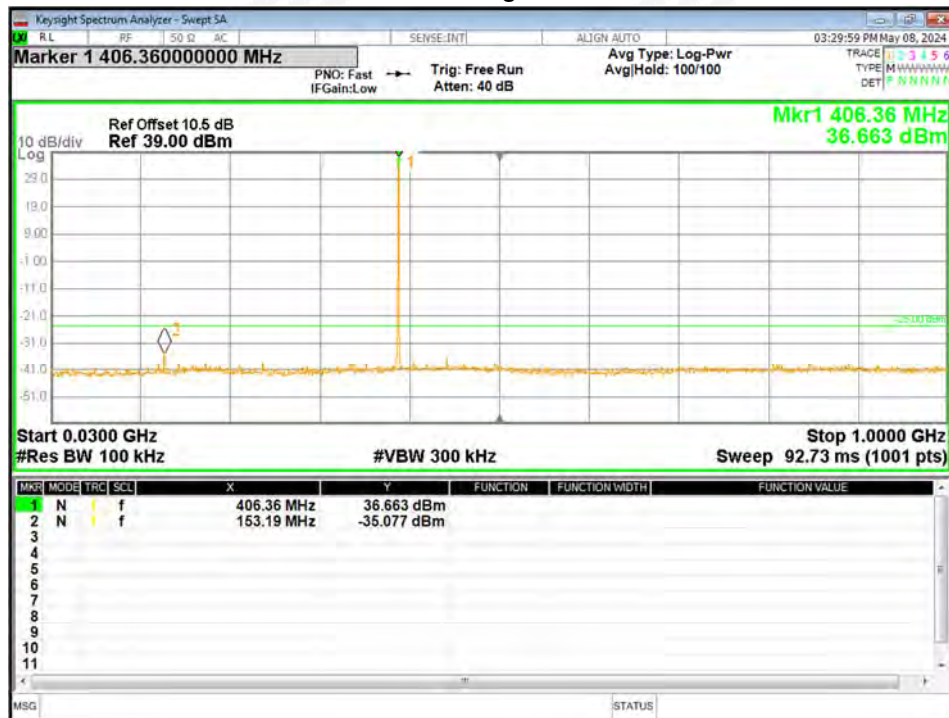
- a. The EUT was connected to the spectrum analyzer through sufficient attenuation.
- b. Sufficient scans were taken to show any out of band emission up to 10th. Harmonic for the lower and the highest frequency range.
- c. Set EUT as digital data mode.
- d. Set RBW 100kHz, VBW 300 kHz in the frequency band 30MHz to 1GHz,while set RBW=1MHz. VBW=3MHz from the 1GHz to 10th Harmonic.

7.3 TEST SETUP BLOCK DIAGRAM



7.4 TEST RESULT

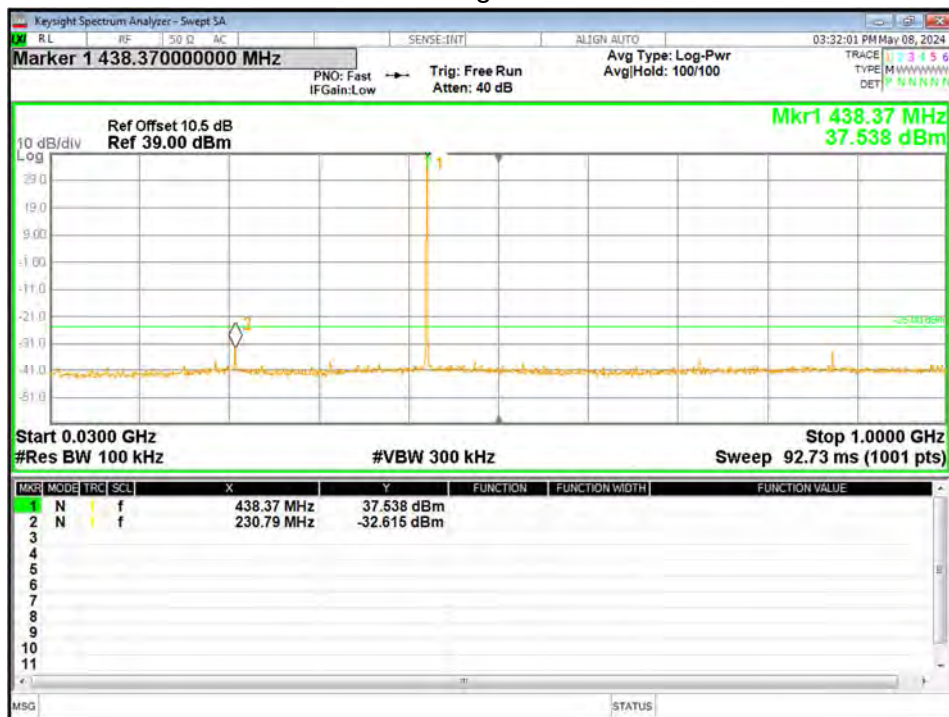
Model2-406.10625MHz-High Power 30MHz-1GHz



Model2-406.10625MHz-High Power 1GHz-5GHz



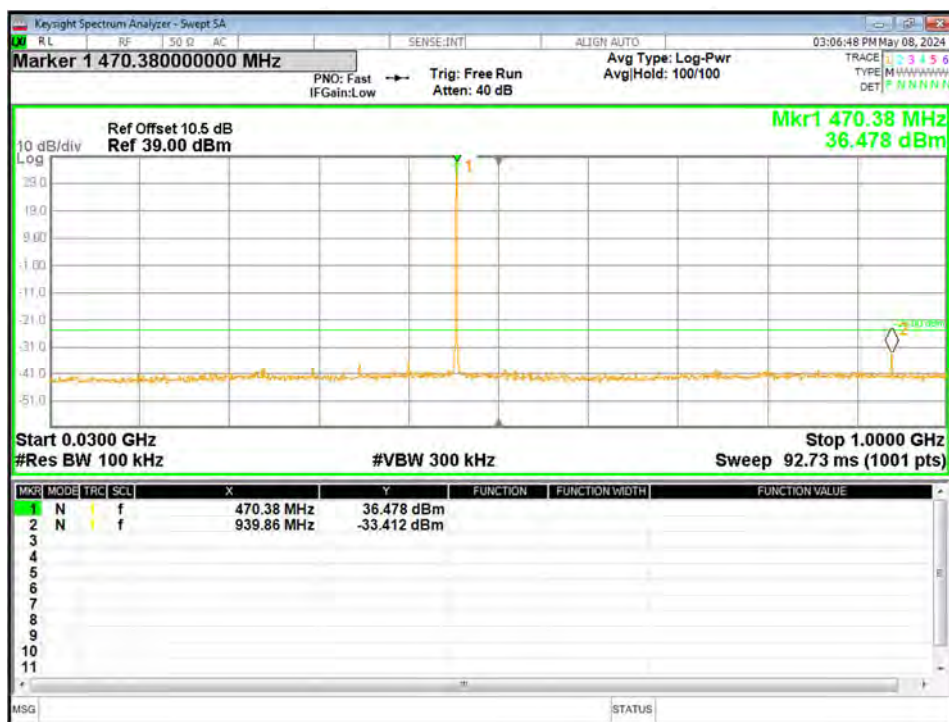
Model2-438.05MHz-High Power 30MHz-1GHz



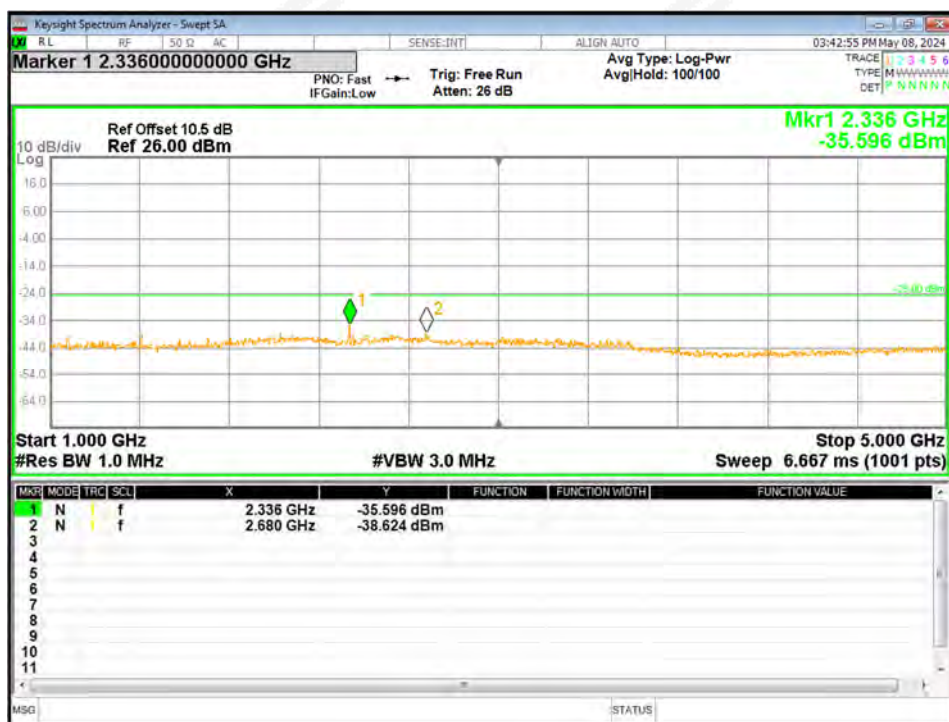
Model2-438.05MHz-High Power 1GHz-5GHz



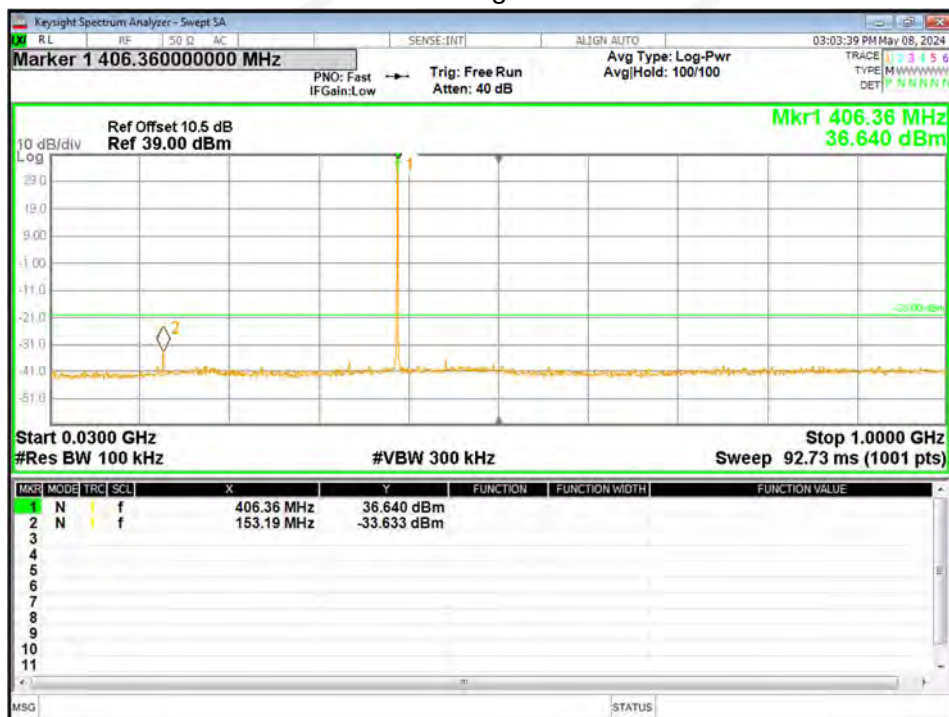
Model2-469.99375MHz-High Power 30MHz-1GHz



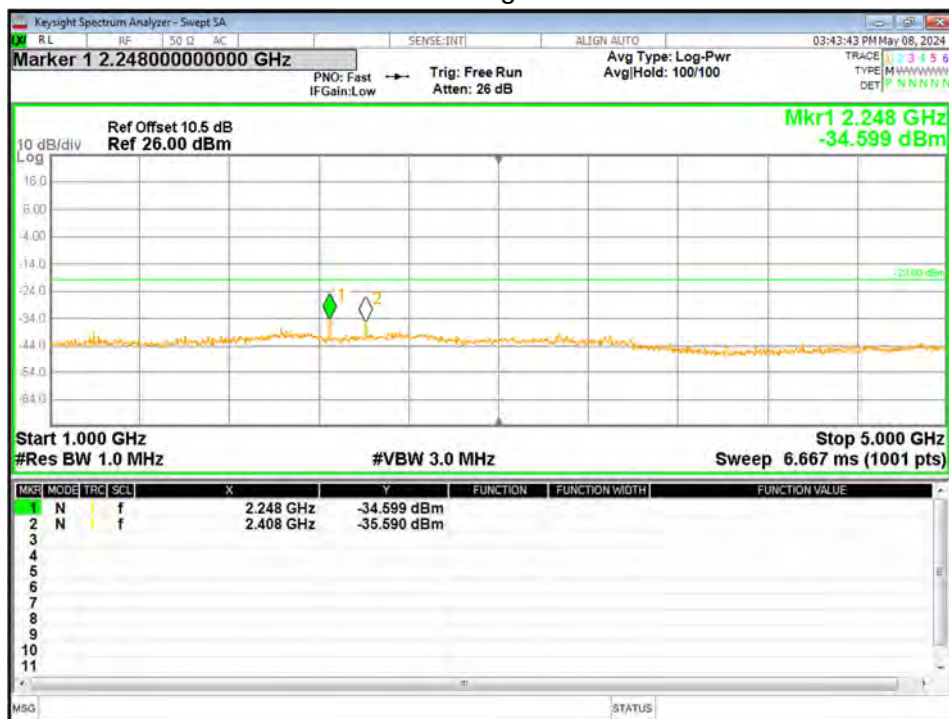
Model2-469.99375MHz-High Power 1GHz-5GHz



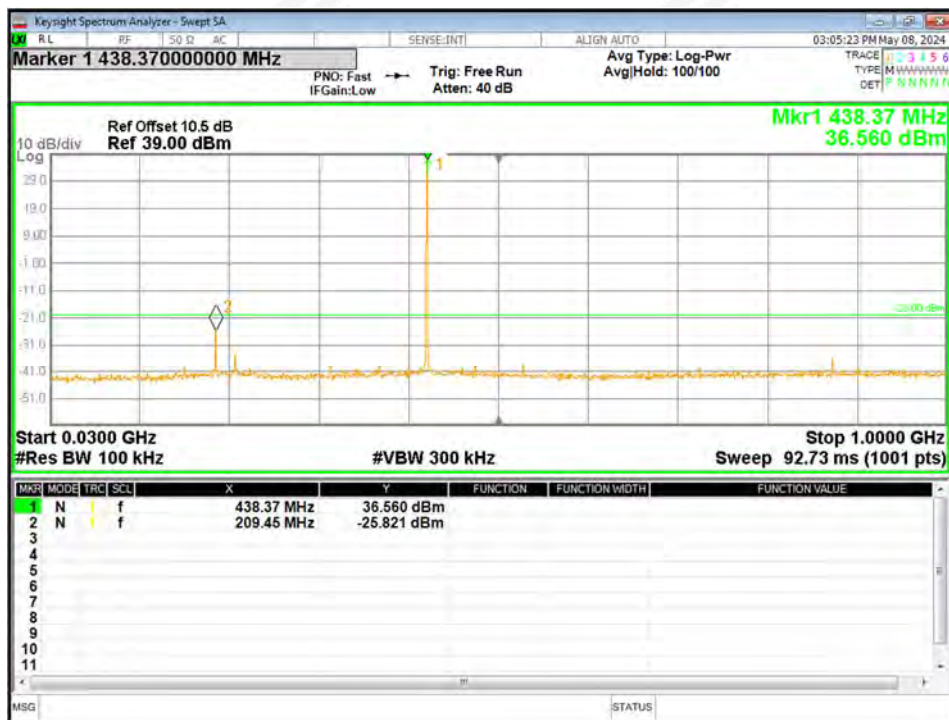
Model4-406.1125MHz-High Power 30MHz-1GHz



Model4-406.1125MHz-High Power 1GHz-5GHz



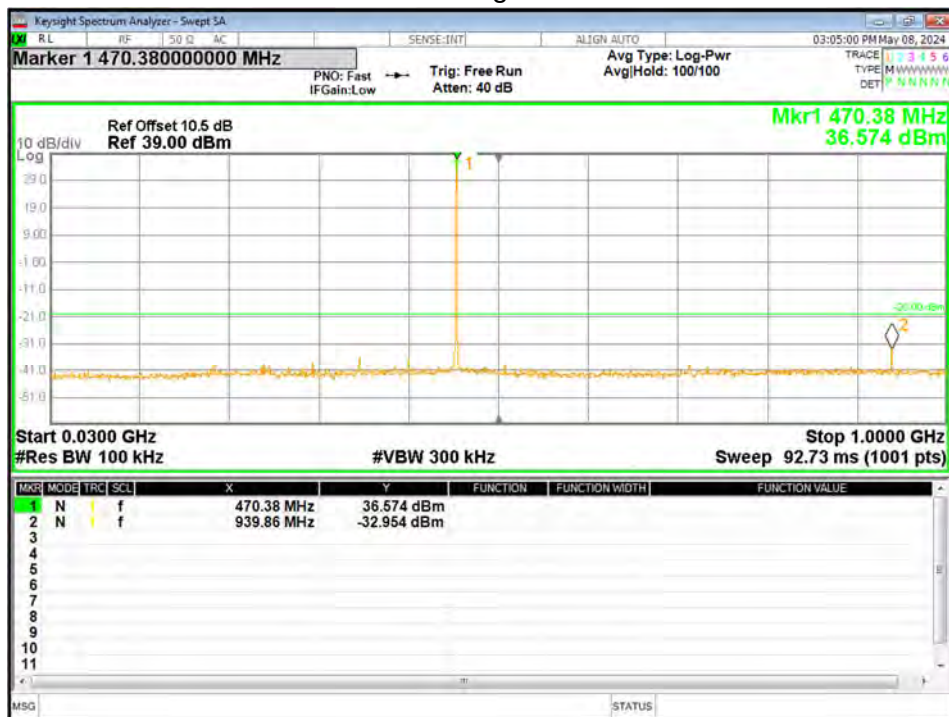
Model4-438.05MHz-High Power 30MHz-1GHz



Model4-438.05MHz-High Power 1GHz-5GHz



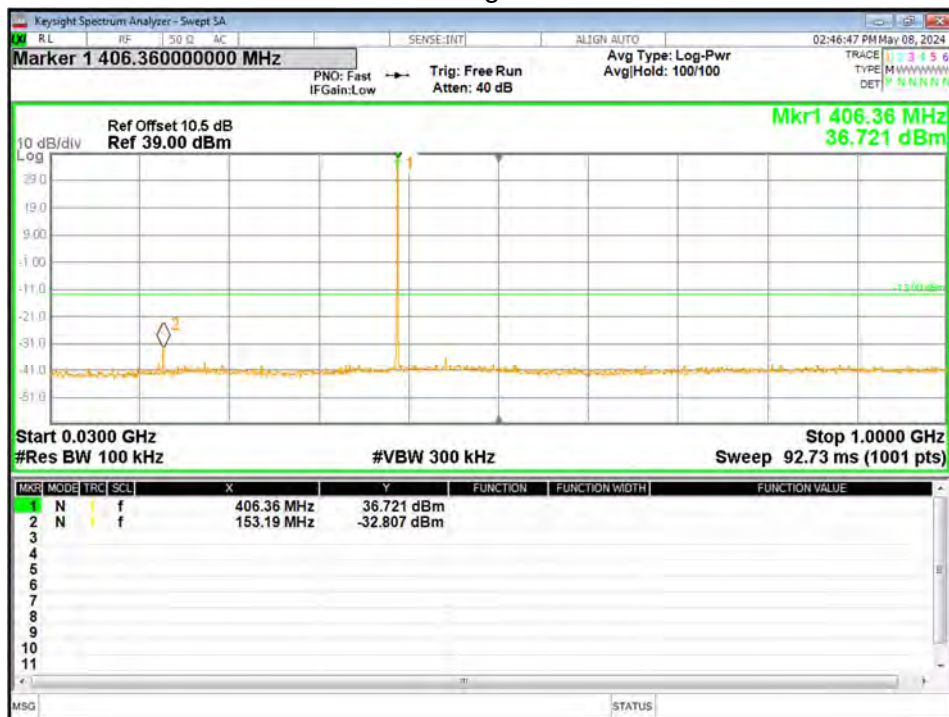
Model4-469.9875MHz-High Power 30MHz-1GHz



Model4-469.9875MHz-High Power 1GHz-5GHz



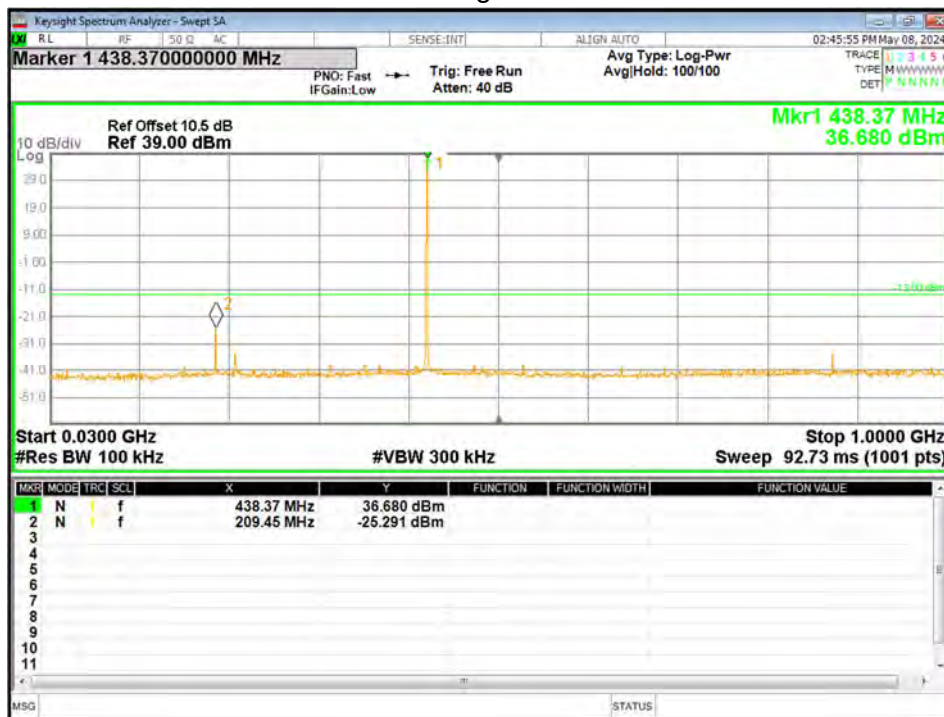
Model6-406.125MHz-High Power 30MHz-1GHz



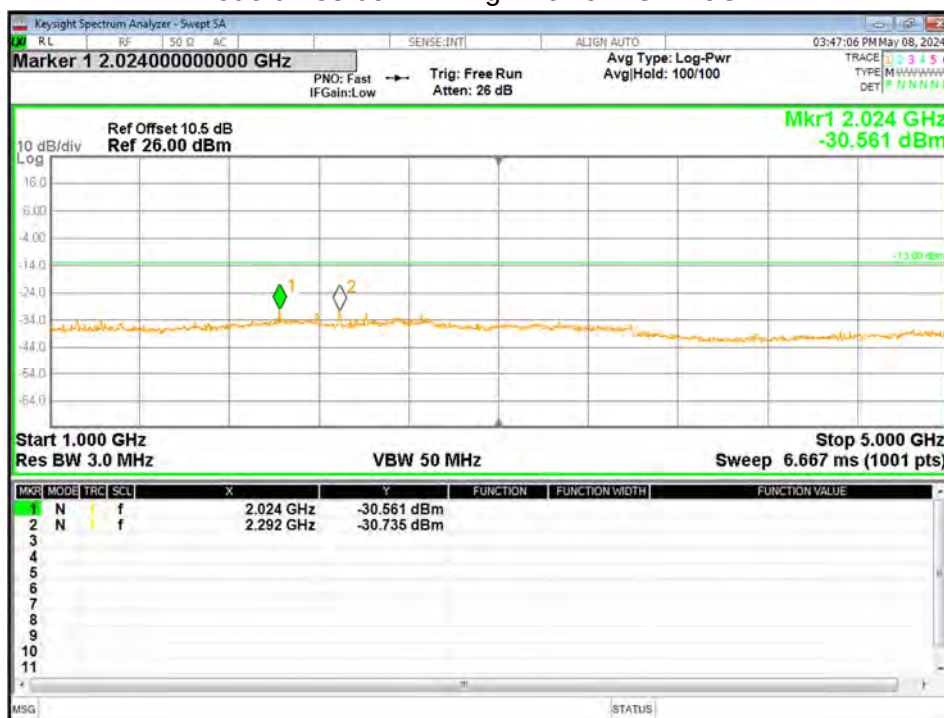
Model6-406.125MHz-High Power 1GHz-5GHz



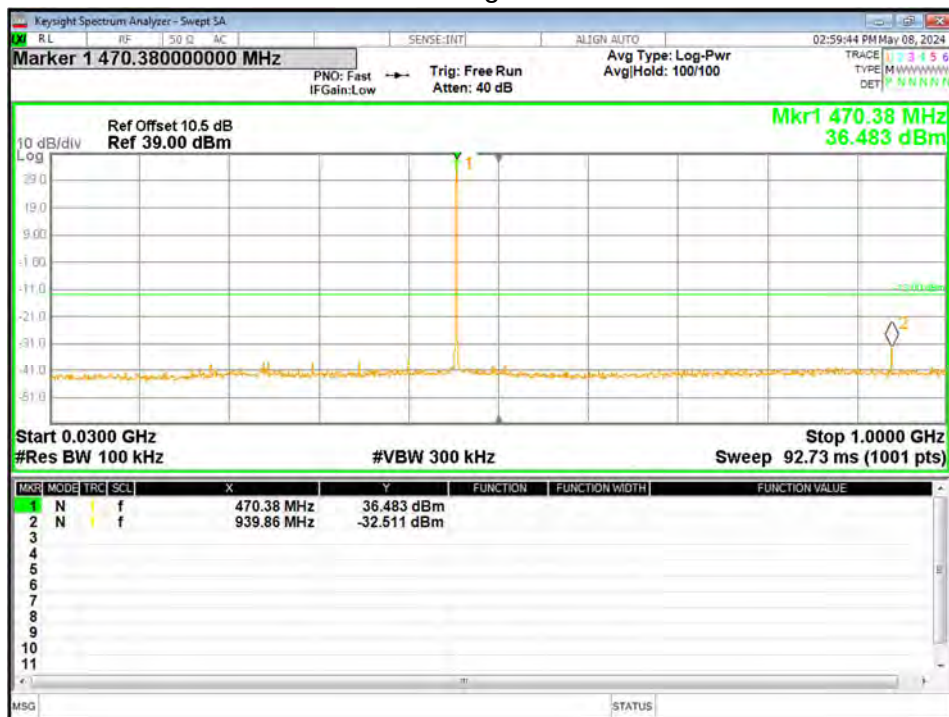
Model6-438.05MHz-High Power 30MHz-1GHz



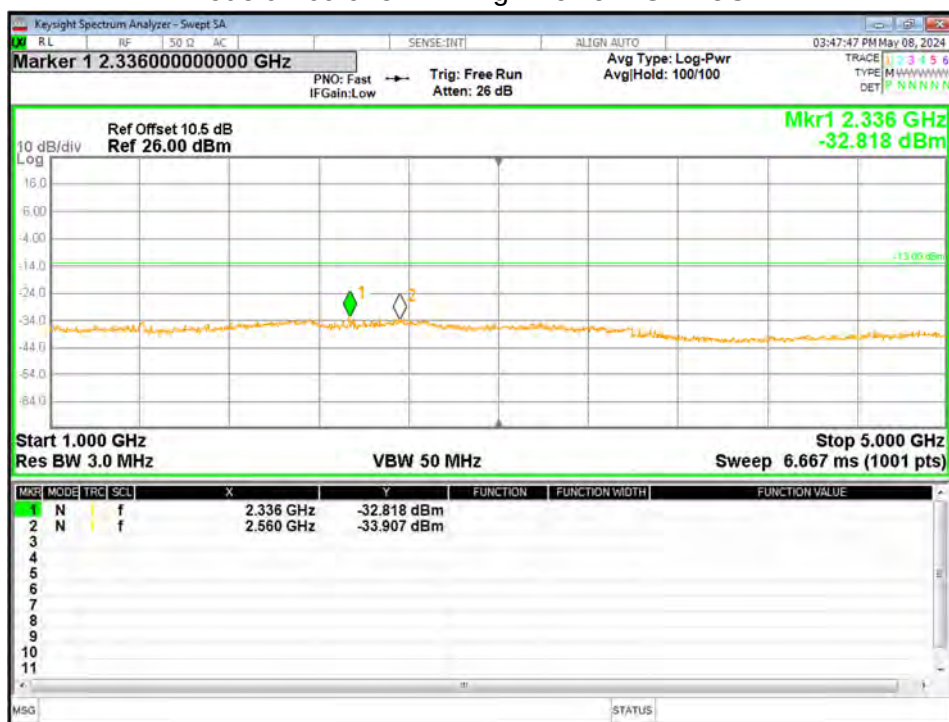
Model6-438.05MHz-High Power 1GHz-5GHz



Model6-469.975MHz-High Power 30MHz-1GHz



Model6-469.975MHz-High Power 1GHz-5GHz



8. FREQUENCY STABILITY

8.1 PROVISIONS APPLICABLE

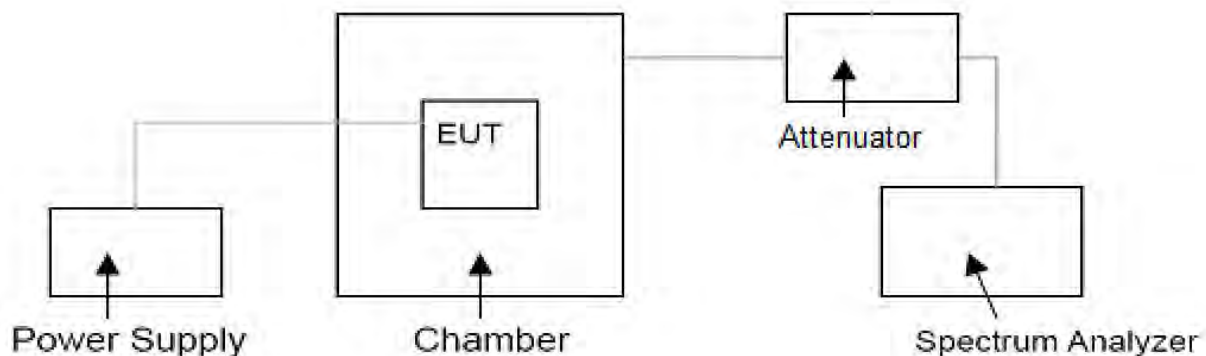
- 1) According to FCC Part 2 Section 2.1055 (a)(1), the frequency stability shall be measured with variation of ambient temperature from -30°C to +50°C centigrade.
- 2) According to FCC Part 2 Section 2.1055 (a) (2), for battery powered equipment, the frequency stability shall be measured with reducing primary supply voltage to the battery operating end point, which is specified by the manufacture.
- 3) Vary primary supply voltage from 85 to 115 percent of the nominal value.
- 4)

Frequency range (MHz)	Fixed and base stations	Mobile stations	
		Over 2 watts output power	2 watts or less output power
Below 25	^{1 2 3} 100	100	200
25-50	20	20	50
72-76	5		50
150-174	^{5 11} 5	⁶ 5	^{4 6} 50
216-220	1.0		1.0
220-222 ¹²	0.1	1.5	1.5
421-512	^{7 11 14} 2.5	⁸ 5	⁸ 5
806-809	¹⁴ 1.0	1.5	1.5
809-824	¹⁴ 1.5	2.5	2.5
851-854	1.0	1.5	1.5
854-869	1.5	2.5	2.5
896-901	¹⁴ 0.1	1.5	1.5
902-928	2.5	2.5	2.5
902-928 ¹³	2.5	2.5	2.5
929-930	1.5		
935-940	0.1	1.5	1.5
1427-1435	⁹ 300	300	300
Above 2450 ¹⁰			

8.2 MEASUREMENT PROCEDURE

- a. The EUT was connected to the spectrum analyzer through sufficient attenuation.
- b. The EUT was set in the climate chamber and connected to an external DC power supply
- c. After temperature stabilization (approx. 20 min for each stage), the frequency for the lower, the middle and the highest frequency range was recorded.
- d. For Frequency stability Vs. Voltage the EUT was connected to a DC power supply and the voltage was adjusted in the required ranges. The result was recorded.

8.3 TEST SETUP BLOCK DIAGRAM



8.4 TEST RESULT

Low Channel							
Operation Mode	Temperature (°C)	Voltage (V)	Nominal Frequency (MHz)	Measured Frequency (MHz)	Frequency Deviation (ppm)	Limits	Result
Mode 1	-30	Normal Voltage	406.10625	406.10620	-0.123	1ppm	PASS
	-20		406.10625	406.10651	0.640		
	-10		406.10625	406.10597	-0.689		
	0		406.10625	406.10616	-0.222		
	10		406.10625	406.10614	-0.271		
	20		406.10625	406.10627	0.049		
	30		406.10625	406.10649	0.591		
	40		406.10625	406.10625	0.000		
	50		406.10625	406.10591	-0.837		
	20	Maximum Voltage	406.10625	406.10615	-0.246		
	20	BEP	406.10625	406.10634	0.222		

Middle Channel							
Operation Mode	Temperature (°C)	Voltage (V)	Nominal Frequency (MHz)	Measured Frequency (MHz)	Frequency Deviation (ppm)	Limits	Result
Mode 1	-30	Normal Voltage	438.05000	438.04990	-0.228	1ppm	PASS
	-20		438.05000	438.05009	0.205		
	-10		438.05000	438.05005	0.114		
	0		438.05000	438.04972	-0.639		
	10		438.05000	438.04968	-0.731		
	20		438.05000	438.04994	-0.137		
	30		438.05000	438.05034	0.776		
	40		438.05000	438.05011	0.251		
	50		438.05000	438.04979	-0.479		
	20	Maximum Voltage	438.05000	438.05010	0.228		
	20	BEP	438.05000	438.05005	0.114		

High Channel							
Operation Mode	Temperature (°C)	Voltage (V)	Nominal Frequency (MHz)	Measured Frequency (MHz)	Frequency Deviation (ppm)	Limits	Result
Mode 1	-30	Normal Voltage	469.99375	469.99385	0.213	1ppm	PASS
	-20		469.99375	469.99405	0.638		
	-10		469.99375	469.99374	-0.021		
	0		469.99375	469.99378	0.064		
	10		469.99375	469.99370	-0.106		
	20		469.99375	469.99400	0.532		
	30		469.99375	469.99366	-0.191		
	40		469.99375	469.99355	-0.426		
	50		469.99375	469.99358	-0.362		
	20	Maximum Voltage	469.99375	469.99363	-0.255		
	20	BEP	469.99375	469.99372	-0.064		

Low Channel							
Operation Mode	Temperature (°C)	Voltage (V)	Nominal Frequency (MHz)	Measured Frequency (MHz)	Frequency Deviation (ppm)	Limits	Result
Mode 2	-30	Normal Voltage	406.10625	406.10629	0.098	1ppm	PASS
	-20		406.10625	406.10636	0.271		
	-10		406.10625	406.10614	-0.271		
	0		406.10625	406.10616	-0.222		
	10		406.10625	406.10606	-0.468		
	20		406.10625	406.10626	0.025		
	30		406.10625	406.10632	0.172		
	40		406.10625	406.10598	-0.665		
	50		406.10625	406.10629	0.098		
	20	Maximum Voltage	406.10625	406.10631	0.148		
	20	BEP	406.10625	406.10624	-0.025		

Middle Channel							
Operation Mode	Temperature (°C)	Voltage (V)	Nominal Frequency (MHz)	Measured Frequency (MHz)	Frequency Deviation (ppm)	Limits	Result
Mode 2	-30	Normal Voltage	438.05000	438.05009	0.205	1ppm	PASS
	-20		438.05000	438.04986	-0.320		
	-10		438.05000	438.04980	-0.457		
	0		438.05000	438.05001	0.023		
	10		438.05000	438.05011	0.251		
	20		438.05000	438.05010	0.228		
	30		438.05000	438.05007	0.160		
	40		438.05000	438.04995	-0.114		
	50		438.05000	438.04993	-0.160		
	20	Maximum Voltage	438.05000	438.05016	0.365		
	20	BEP	438.05000	438.04999	-0.023		

High Channel							
Operation Mode	Temperature (°C)	Voltage (V)	Nominal Frequency (MHz)	Measured Frequency (MHz)	Frequency Deviation (ppm)	Limits	Result
Mode 2	-30	Normal Voltage	469.99375	469.99397	0.468	1ppm	PASS
	-20		469.99375	469.99355	-0.426		
	-10		469.99375	469.99387	0.255		
	0		469.99375	469.99345	-0.638		
	10		469.99375	469.99387	0.255		
	20		469.99375	469.99376	0.021		
	30		469.99375	469.99386	0.234		
	40		469.99375	469.99382	0.149		
	50		469.99375	469.99384	0.191		
	20	Maximum Voltage	469.99375	469.99350	-0.532		
	20	BEP	469.99375	469.99367	-0.170		

Low Channel							
Operation Mode	Temperature (°C)	Voltage (V)	Nominal Frequency (MHz)	Measured Frequency (MHz)	Frequency Deviation (ppm)	Limits	Result
Mode 3	-30	Normal Voltage	406.11250	406.11245	-0.123	2.5ppm	PASS
	-20		406.11250	406.11245	-0.123		
	-10		406.11250	406.11246	-0.098		
	0		406.11250	406.11249	-0.025		
	10		406.11250	406.11250	0.000		
	20		406.11250	406.11226	-0.591		
	30		406.11250	406.11245	-0.123		
	40		406.11250	406.11247	-0.074		
	50		406.11250	406.11250	0.000		
	20	Maximum Voltage	406.11250	406.11252	0.049		
	20	BEP	406.11250	406.11248	-0.049		

Middle Channel							
Operation Mode	Temperature (°C)	Voltage (V)	Nominal Frequency (MHz)	Measured Frequency (MHz)	Frequency Deviation (ppm)	Limits	Result
Mode 3	-30	Normal Voltage	438.05000	438.04971	-0.662	2.5ppm	PASS
	-20		438.05000	438.04977	-0.525		
	-10		438.05000	438.05029	0.662		
	0		438.05000	438.05017	0.388		
	10		438.05000	438.04961	-0.890		
	20		438.05000	438.04995	-0.114		
	30		438.05000	438.05006	0.137		
	40		438.05000	438.04994	-0.137		
	50		438.05000	438.04958	-0.959		
	20	Maximum Voltage	438.05000	438.05056	1.278		
	20	BEP	438.05000	438.05055	1.256		

High Channel							
Operation Mode	Temperature (°C)	Voltage (V)	Nominal Frequency (MHz)	Measured Frequency (MHz)	Frequency Deviation (ppm)	Limits	Result
Mode 3	-30	Normal Voltage	469.98750	469.98711	-0.830	2.5ppm	PASS
	-20		469.98750	469.98747	-0.064		
	-10		469.98750	469.98783	0.702		
	0		469.98750	469.98741	-0.191		
	10		469.98750	469.98713	-0.787		
	20		469.98750	469.98793	0.915		
	30		469.98750	469.98738	-0.255		
	40		469.98750	469.98768	0.383		
	50		469.98750	469.98729	-0.447		
	20	Maximum Voltage	469.98750	469.98783	0.702		
	20	BEP	469.98750	469.98717	-0.702		

Low Channel							
Operation Mode	Temperature (°C)	Voltage (V)	Nominal Frequency (MHz)	Measured Frequency (MHz)	Frequency Deviation (ppm)	Limits	Result
Mode 4	-30	Normal Voltage	406.11250	406.11254	0.098	2.5ppm	PASS
	-20		406.11250	406.11251	0.025		
	-10		406.11250	406.11247	-0.074		
	0		406.11250	406.11251	0.025		
	10		406.11250	406.11251	0.025		
	20		406.11250	406.11247	-0.074		
	30		406.11250	406.11246	-0.098		
	40		406.11250	406.11248	-0.049		
	50		406.11250	406.11249	-0.025		
	20	Maximum Voltage	406.11250	406.11249	-0.025		
	20	BEP	406.11250	406.11250	0.000		

Middle Channel							
Operation Mode	Temperature (°C)	Voltage (V)	Nominal Frequency (MHz)	Measured Frequency (MHz)	Frequency Deviation (ppm)	Limits	Result
Mode 4	-30	Normal Voltage	438.05000	438.05012	0.274	2.5ppm	PASS
	-20		438.05000	438.04992	-0.183		
	-10		438.05000	438.05053	1.210		
	0		438.05000	438.04966	-0.776		
	10		438.05000	438.05015	0.342		
	20		438.05000	438.04993	-0.160		
	30		438.05000	438.05018	0.411		
	40		438.05000	438.05005	0.114		
	50		438.05000	438.05000	0.000		
	20	Maximum Voltage	438.05000	438.05063	1.438		
	20	BEP	438.05000	438.05020	0.457		

High Channel							
Operation Mode	Temperature (°C)	Voltage (V)	Nominal Frequency (MHz)	Measured Frequency (MHz)	Frequency Deviation (ppm)	Limits	Result
Mode 4	-30	Normal Voltage	469.98750	469.98703	-1.000	2.5ppm	PASS
	-20		469.98750	469.98704	-0.979		
	-10		469.98750	469.98705	-0.957		
	0		469.98750	469.98780	0.638		
	10		469.98750	469.98761	0.234		
	20		469.98750	469.98743	-0.149		
	30		469.98750	469.98728	-0.468		
	40		469.98750	469.98781	0.660		
	50		469.98750	469.98741	-0.191		
	20	Maximum Voltage	469.98750	469.98734	-0.340		
	20	BEP	469.98750	469.98754	0.085		

Low Channel							
Operation Mode	Temperature (°C)	Voltage (V)	Nominal Frequency (MHz)	Measured Frequency (MHz)	Frequency Deviation (ppm)	Limits	Result
Mode 5	-30	Normal Voltage	406.12500	406.12508	0.197	5ppm	PASS
	-20		406.12500	406.12476	-0.591		
	-10		406.12500	406.12488	-0.295		
	0		406.12500	406.12504	0.098		
	10		406.12500	406.12494	-0.148		
	20		406.12500	406.12479	-0.517		
	30		406.12500	406.12504	0.098		
	40		406.12500	406.12495	-0.123		
	50		406.12500	406.12520	0.492		
	20	Maximum Voltage	406.12500	406.12497	-0.074		
	20	BEP	406.12500	406.12496	-0.098		

Middle Channel							
Operation Mode	Temperature (°C)	Voltage (V)	Nominal Frequency (MHz)	Measured Frequency (MHz)	Frequency Deviation (ppm)	Limits	Result
Mode 5	-30	Normal Voltage	438.05000	438.05005	0.114	5ppm	PASS
	-20		438.05000	438.04991	-0.205		
	-10		438.05000	438.05010	0.228		
	0		438.05000	438.05011	0.251		
	10		438.05000	438.04991	-0.205		
	20		438.05000	438.04999	-0.023		
	30		438.05000	438.05006	0.137		
	40		438.05000	438.05015	0.342		
	50		438.05000	438.05019	0.434		
	20	Maximum Voltage	438.05000	438.04994	-0.137		
	20	BEP	438.05000	438.05009	0.205		

High Channel							
Operation Mode	Temperature (°C)	Voltage (V)	Nominal Frequency (MHz)	Measured Frequency (MHz)	Frequency Deviation (ppm)	Limits	Result
Mode 5	-30	Normal Voltage	469.97500	469.97505	0.106	5ppm	PASS
	-20		469.97500	469.97489	-0.234		
	-10		469.97500	469.97500	0.000		
	0		469.97500	469.97499	-0.021		
	10		469.97500	469.97497	-0.064		
	20		469.97500	469.97513	0.277		
	30		469.97500	469.97496	-0.085		
	40		469.97500	469.97486	-0.298		
	50		469.97500	469.97505	0.106		
	20	Maximum Voltage	469.97500	469.97480	-0.426		
	20	BEP	469.97500	469.97509	0.191		

Low Channel							
Operation Mode	Temperature (°C)	Voltage (V)	Nominal Frequency (MHz)	Measured Frequency (MHz)	Frequency Deviation (ppm)	Limits	Result
Mode 6	-30	Normal Voltage	406.12500	406.12494	-0.148	5ppm	PASS
	-20		406.12500	406.12516	0.394		
	-10		406.12500	406.12512	0.295		
	0		406.12500	406.12519	0.468		
	10		406.12500	406.12502	0.049		
	20		406.12500	406.12487	-0.320		
	30		406.12500	406.12480	-0.492		
	40		406.12500	406.12504	0.098		
	50		406.12500	406.12495	-0.123		
	20	Maximum Voltage	406.12500	406.12507	0.172		
	20	BEP	406.12500	406.12512	0.295		

Middle Channel							
Operation Mode	Temperature (°C)	Voltage (V)	Nominal Frequency (MHz)	Measured Frequency (MHz)	Frequency Deviation (ppm)	Limits	Result
Mode 6	-30	Normal Voltage	438.05000	438.05017	0.388	5ppm	PASS
	-20		438.05000	438.04987	-0.297		
	-10		438.05000	438.04997	-0.068		
	0		438.05000	438.04989	-0.251		
	10		438.05000	438.04994	-0.137		
	20		438.05000	438.05016	0.365		
	30		438.05000	438.04995	-0.114		
	40		438.05000	438.05006	0.137		
	50		438.05000	438.04981	-0.434		
	20	Maximum Voltage	438.05000	438.05000	0.000		
	20	BEP	438.05000	438.04986	-0.320		

High Channel							
Operation Mode	Temperature (°C)	Voltage (V)	Nominal Frequency (MHz)	Measured Frequency (MHz)	Frequency Deviation (ppm)	Limits	Result
Mode 6	-30	Normal Voltage	469.97500	469.97474	-0.553	5ppm	PASS
	-20		469.97500	469.97501	0.021		
	-10		469.97500	469.97501	0.021		
	0		469.97500	469.97513	0.277		
	10		469.97500	469.97498	-0.043		
	20		469.97500	469.97527	0.574		
	30		469.97500	469.97496	-0.085		
	40		469.97500	469.97506	0.128		
	50		469.97500	469.97523	0.489		
	20	Maximum Voltage	469.97500	469.97497	-0.064		
	20	BEP	469.97500	469.97486	-0.298		

9. TRANSIENT FREQUENCY BEHAVIOR

9.1 PROVISIONS APPLICABLE

Section 90.214

Transient frequencies must be within the maximum frequency difference limits during the time intervals indicated:

Time intervals ^{1, 2}	Maximum frequency difference ³	All equipment	
		150 to 174 MHz	421 to 512MHz
Transient Frequency Behavior for Equipment Designed to Operate on 25 KHz Channels			
t ₁ ⁴	± 25.0 KHz	5.0 ms	10.0 ms
t ₂	± 12.5 KHz	20.0 ms	25.0 ms
t ₃ ⁴	± 25.0 KHz	5.0 ms	10.0 ms
Transient Frequency Behavior for Equipment Designed to Operate on 12.5 KHz Channels			
t ₁ ⁴	± 12.5 KHz	5.0 ms	10.0 ms
t ₂	± 6.25 KHz	20.0 ms	25.0 ms
t ₃ ⁴	± 12.5 KHz	5.0 ms	10.0 ms
Transient Frequency Behavior for Equipment Designed to Operate on 6.25 KHz Channels			
t ₁ ⁴	±6.25 KHz	5.0 ms	10.0 ms
t ₂	±3.125 KHz	20.0 ms	25.0 ms
t ₃ ⁴	±6.25 KHz	5.0 ms	10.0 ms

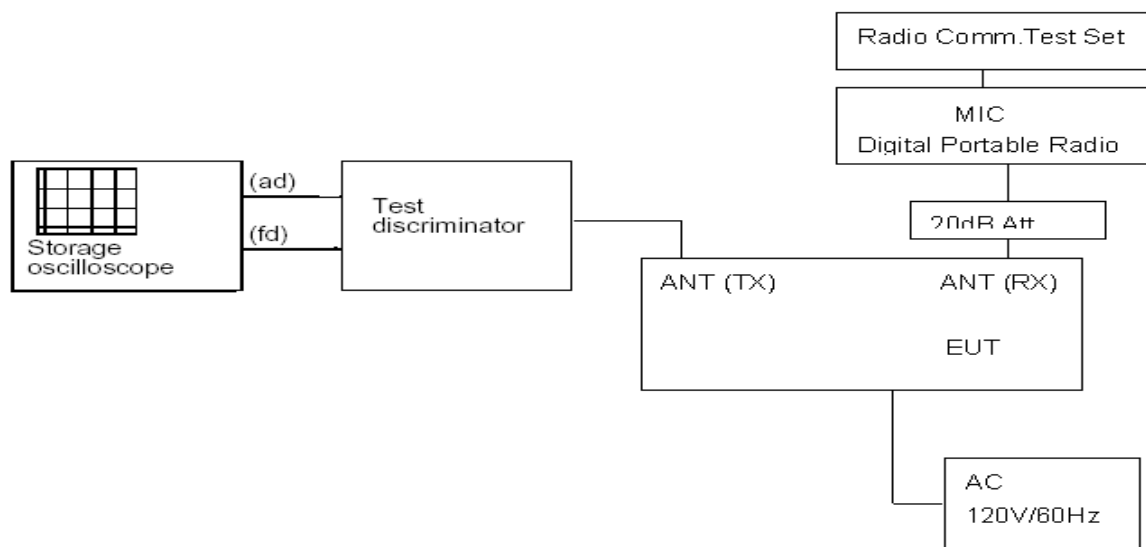
- t_{on} is the instant when a 1 KHz test signal is completely suppressed, including any capture time due to phasing.
 t_1 is the time period immediately following t_{on} .
 t_2 is the time period immediately following t_1 .
 t_3 is the time period from the instant when the transmitter is turned off until t_{off} .
 t_{off} is the instant when the 1 KHz test signal starts to rise.
- During the time from the end of t_2 to the beginning of t_3 , the frequency difference must not exceed the limits specified in § 90.213.
- Difference between the actual transmitter frequency and the assigned transmitter frequency.
- If the transmitter carrier output power rating is 6 watts or less, the frequency difference during this time period may exceed the maximum frequency difference for this time period.

9.2 MEASUREMENT PROCEDURE

Use Digital portable radio which manufactured by VictelGlobal Communications Corporation

- Limited which uses same protocol as the DUT connect to RX antenna by 20Att in order to avoid damaging DUT;
- Connect DUT into Test discriminator and Storage Oscilloscope and keep DUT stats ON;
- Inut 1KHz signal into digital portable radio;
- Set the modulation domain analyzer to trigger on the rising edge of the waveform in order to capture a single-shot turn-on of the transmitter signals;
- Keep the digital protable radio in OFF state and Key the PTT of digital portable radio;
Observe the stored oscilloscope of modulation domain analyzer.The signal trace shall be
- maintained within the allowable limits during the periods t_1 and t_2 ,and shall also remain within limits following t_2 ;
- Adjust the modulation domain anzlyzer to trigger on the falling edge of the transmitter waveform in order to capture a single-shot turn-off transmitter of the transmitter signal.
- Keep the digital portable radio in ON state and Unkey the PTT of digital portable radio;
- Observe the stored oscilloscope of modulation domain analyzer.The signal trace shall be maintained within the allowable limits during the period t_3

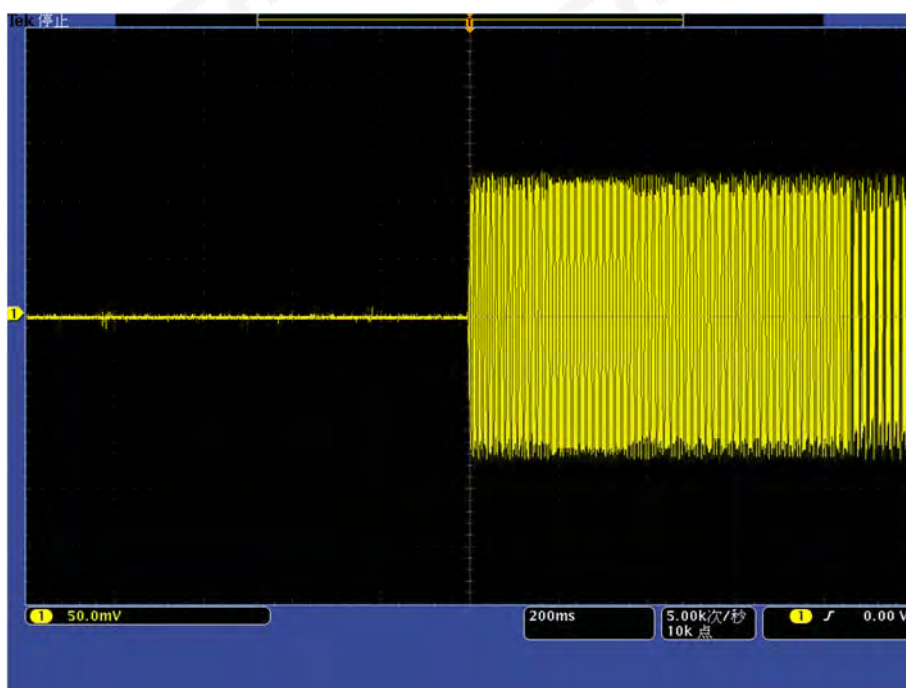
9.3 TEST SETUP BLOCK DIAGRAM



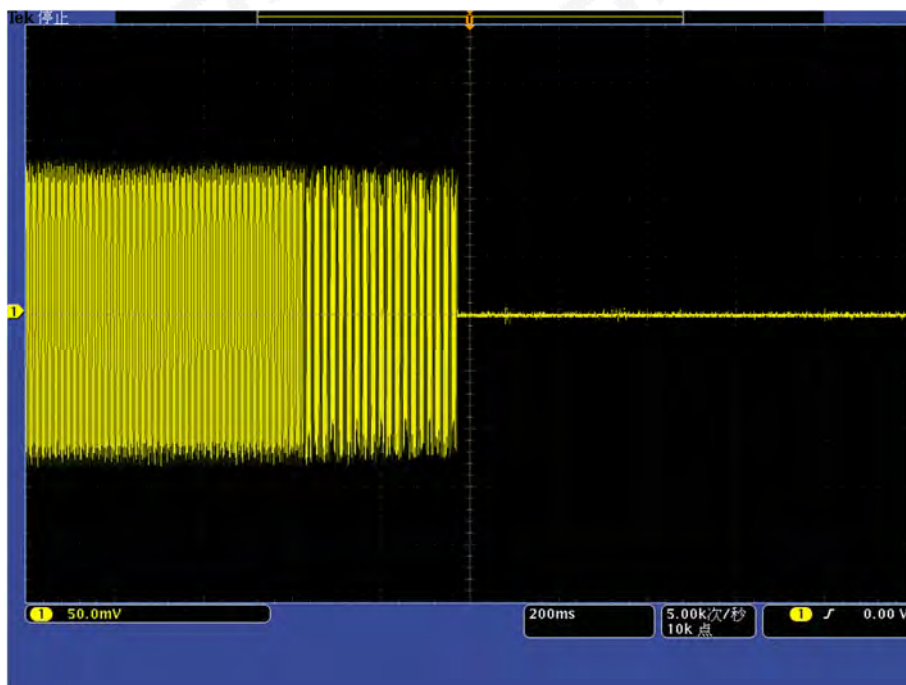
9.4 TEST RESULT

Mode 2

Transmitter Frequency Behaviour @ 6.125 KHz Channel Separation-----Off – On

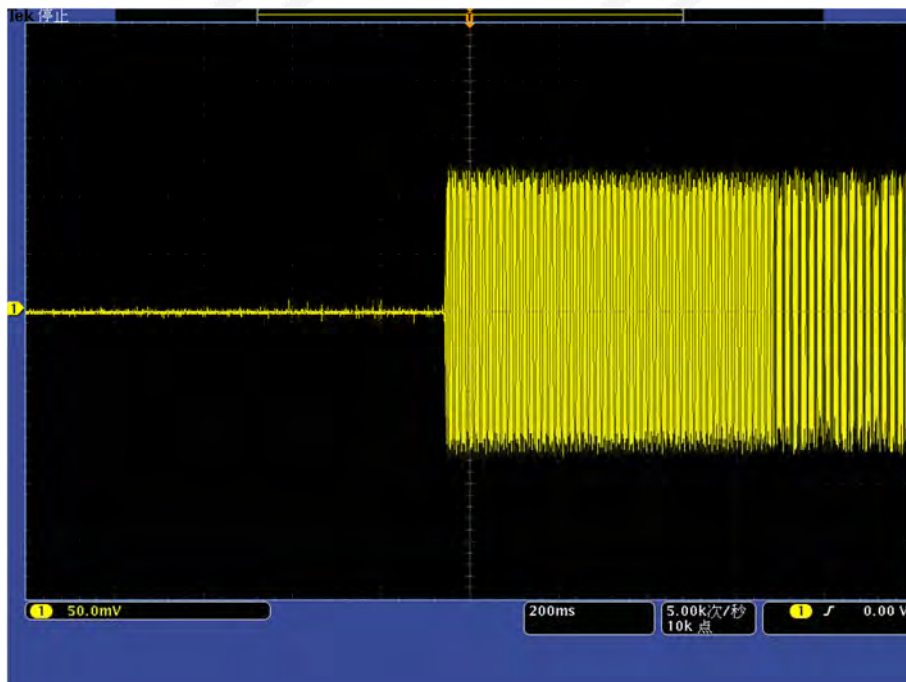


Transmitter Frequency Behaviour @ 6.25 KHz Channel Separation-----On – Off

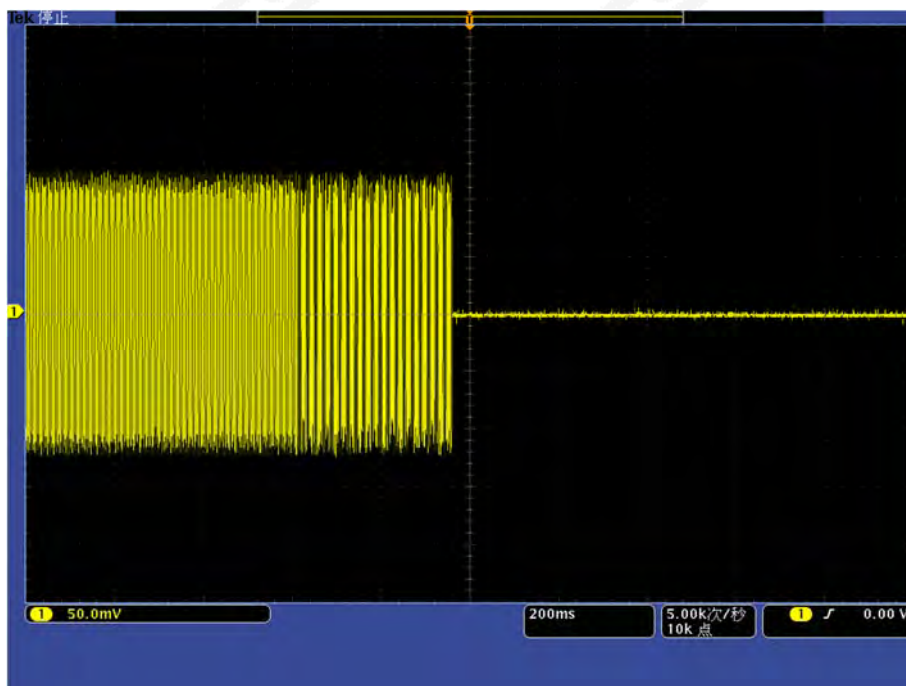


Mode 4

Transmitter Frequency Behaviour @ 12.5 KHz Channel Separation-----Off – On

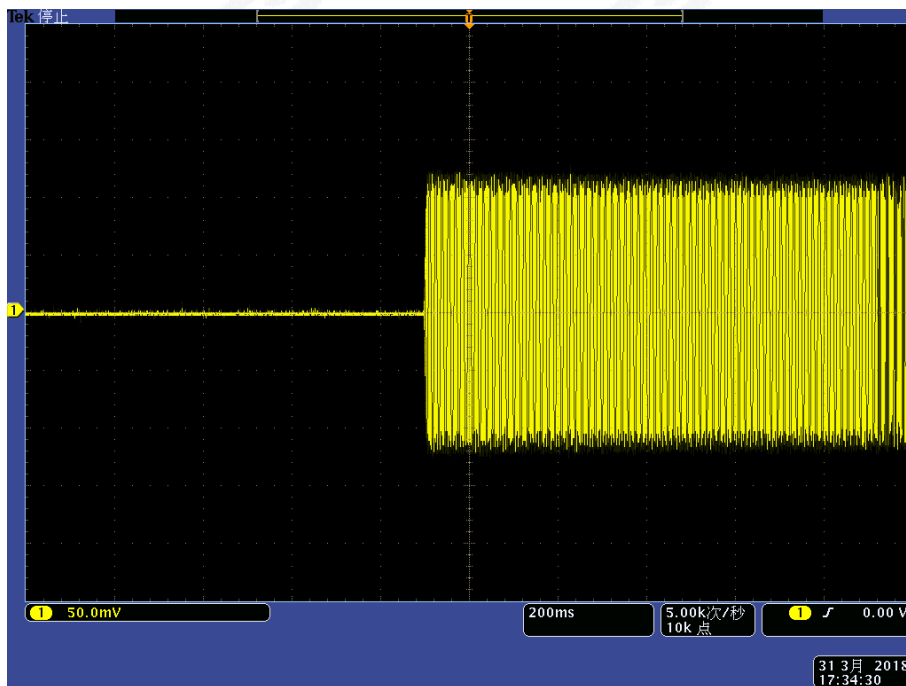


Transmitter Frequency Behaviour @ 12.5 KHz Channel Separation-----On – Off

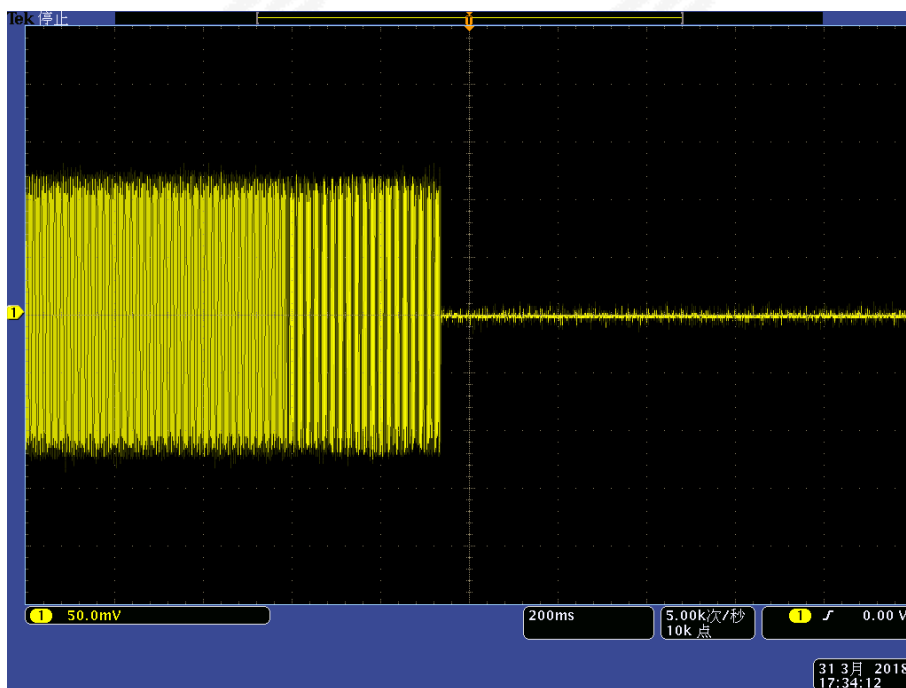


Mode 6

Transmitter Frequency Behaviour @ 25 KHz Channel Separation-----Off – On



Transmitter Frequency Behaviour @ 25 KHz Channel Separation-----On – Off



10. MODULATION CHARACTERISTIC

10.1 LIMIT

FCC Part 2.1047

- (a) Equipment which utilizes voice modulated communication show the frequency response of the audio modulating circuit over a range of 100 to 5000 Hz 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.
- (b) Equipment which employs modulation limiting, a curve showing the percentage of modulation versus the modulation input voltage shall be supplied.

10.2 TEST PROCEDURE

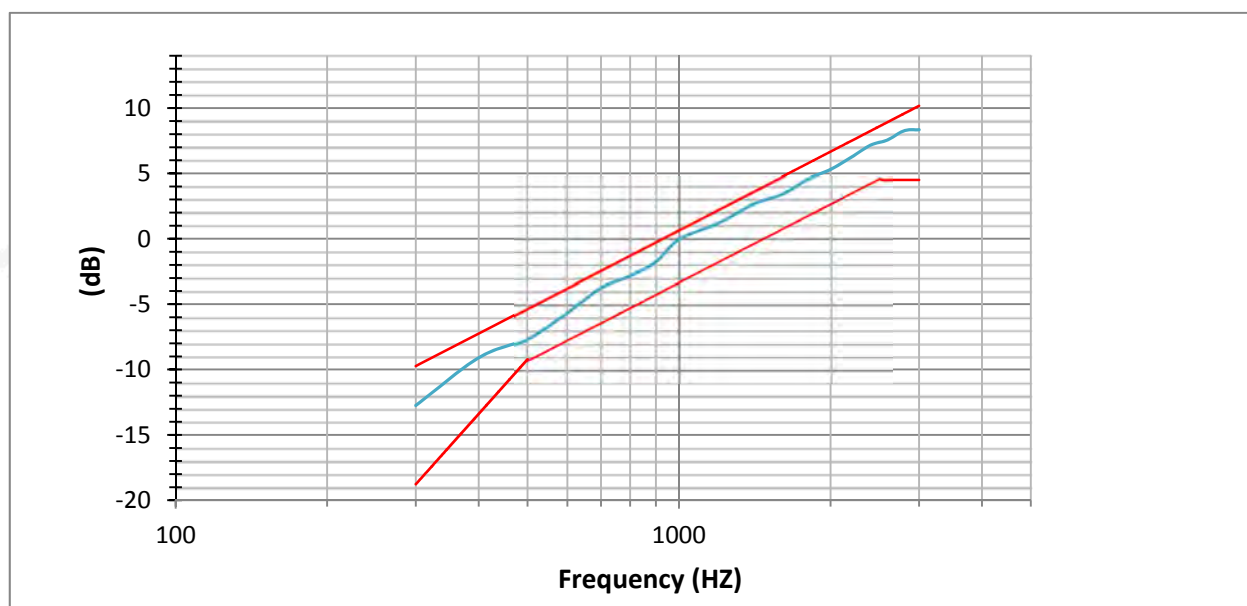
The test procedure please reference ANSI C63.26-2015.

10.3 TEST RESULT

10.3.1 Audio Frequency Response

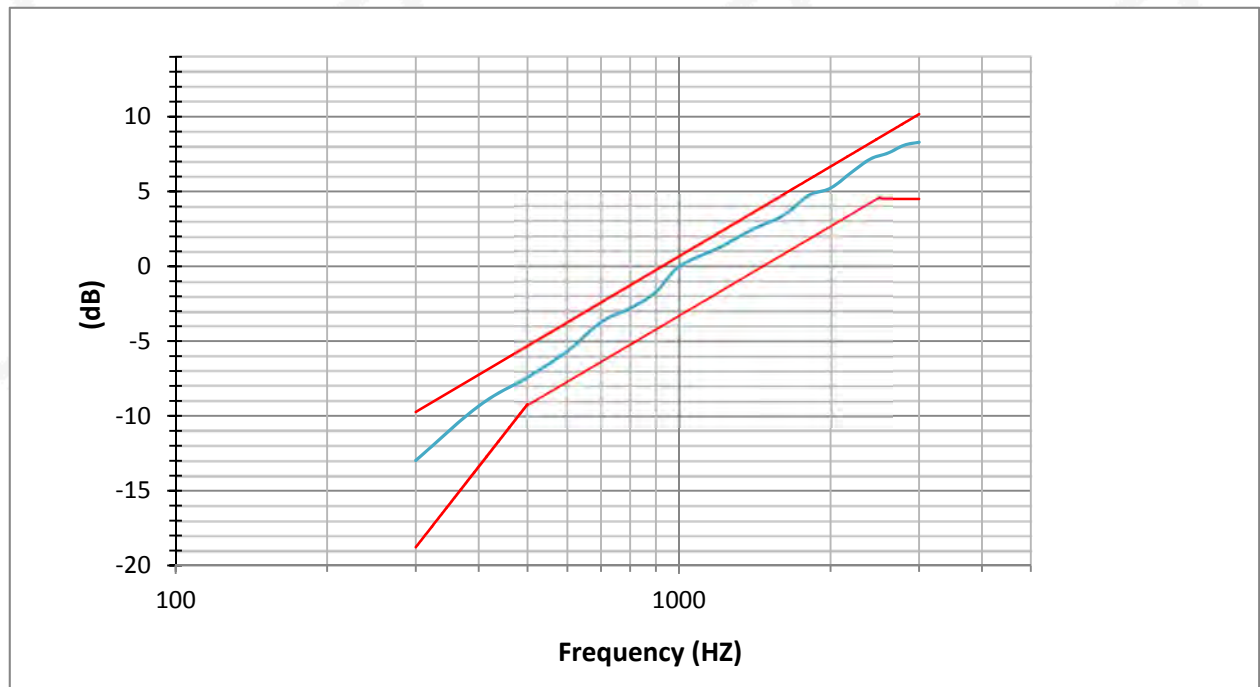
(Carrier Frequency:438.05,Channel Separation:6.25kHz, Low Power)

Audio Frequency(Hz)	Audio Frequency(Hz)	Audio Frequency Response(dB)	Result
300	300	-12.75	PASS
400	400	-9.10	
500	500	-7.62	
600	600	-5.59	
700	700	-3.69	
800	800	-2.79	
900	900	-1.71	
1000	1000	0.00	
1200	1200	1.25	
1400	1400	2.66	
1600	1600	3.44	
1800	1800	4.58	
2000	2000	5.30	
2200	2200	6.24	
2400	2400	7.15	
2600	2600	7.57	
2800	2800	8.26	
3000	3000	8.34	



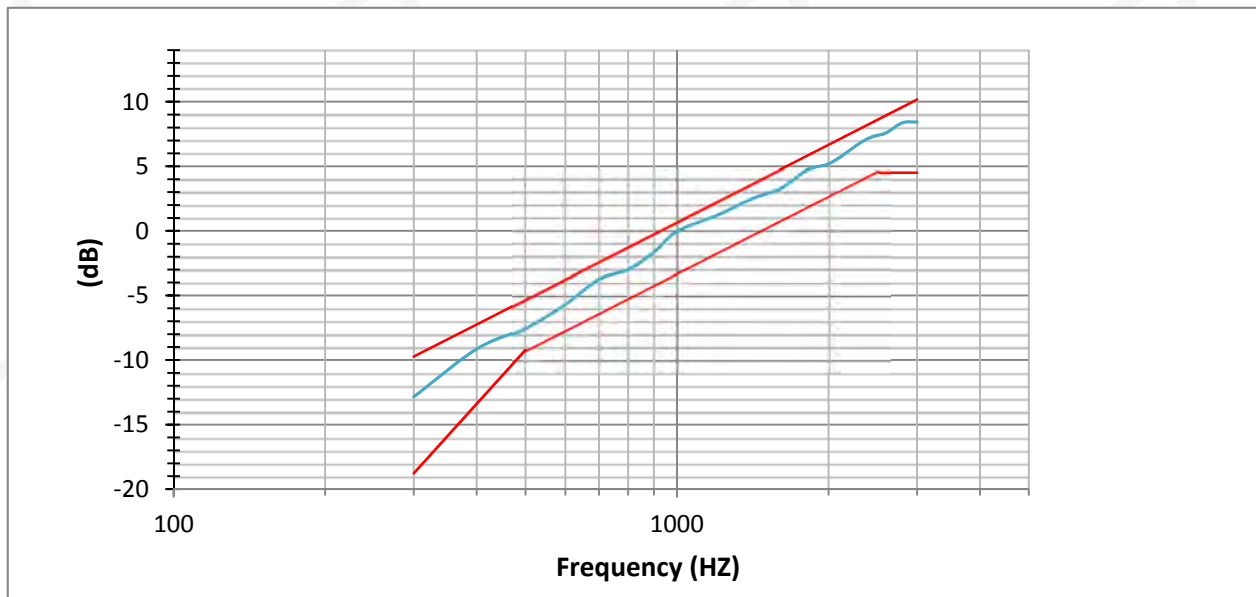
(Carrier Frequency: 438.05,Channel Separation:6.25kHz, High Power)

Audio Frequency(Hz)	Audio Frequency Response(dB)	Result
300	-12.98	PASS
400	-9.34	
500	-7.41	
600	-5.66	
700	-3.72	
800	-2.79	
900	-1.70	
1000	0.00	
1200	1.25	
1400	2.48	
1600	3.36	
1800	4.70	
2000	5.22	
2200	6.27	
2400	7.17	
2600	7.56	
2800	8.09	
3000	8.29	



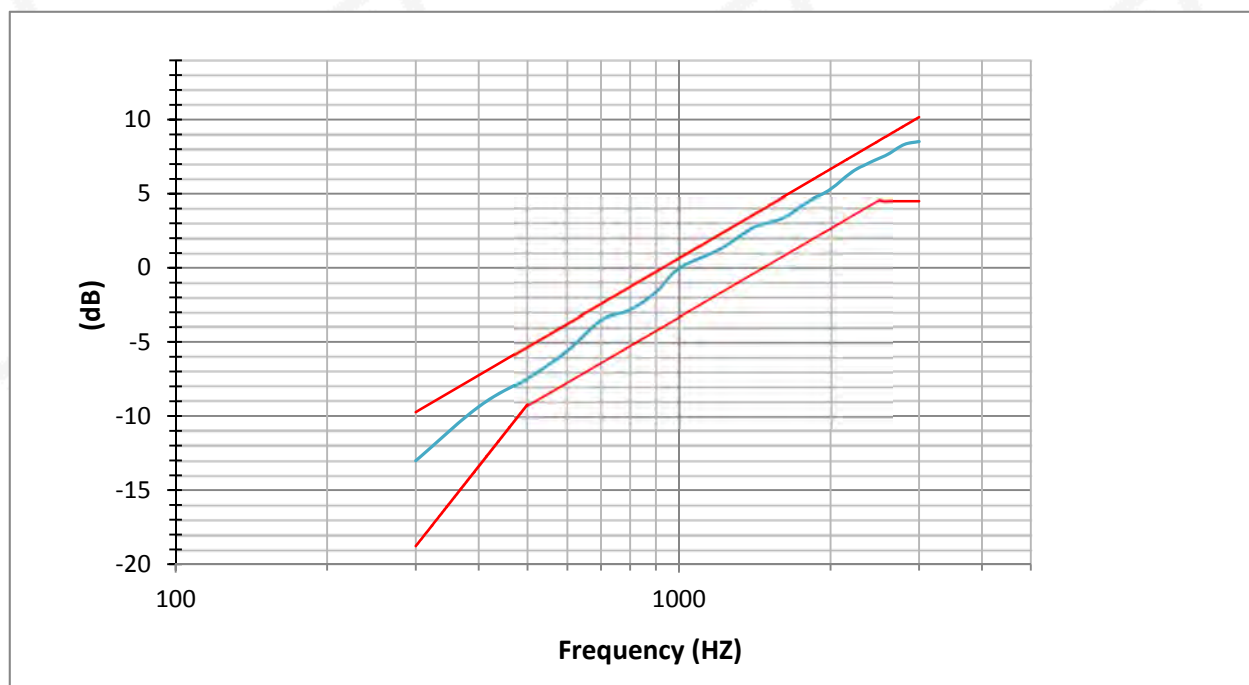
(Carrier Frequency:438.05,Channel Separation:12.5kHz, Low Power)

Audio Frequency(Hz)	Audio Frequency(Hz)	Audio Frequency Response(dB)	Result
300	300	-12.85	PASS
400	400	-9.15	
500	500	-7.51	
600	600	-5.63	
700	700	-3.68	
800	800	-2.96	
900	900	-1.60	
1000	1000	0.00	
1200	1200	1.24	
1400	1400	2.49	
1600	1600	3.30	
1800	1800	4.69	
2000	2000	5.19	
2200	2200	6.22	
2400	2400	7.18	
2600	2600	7.58	
2800	2800	8.36	
3000	3000	8.43	



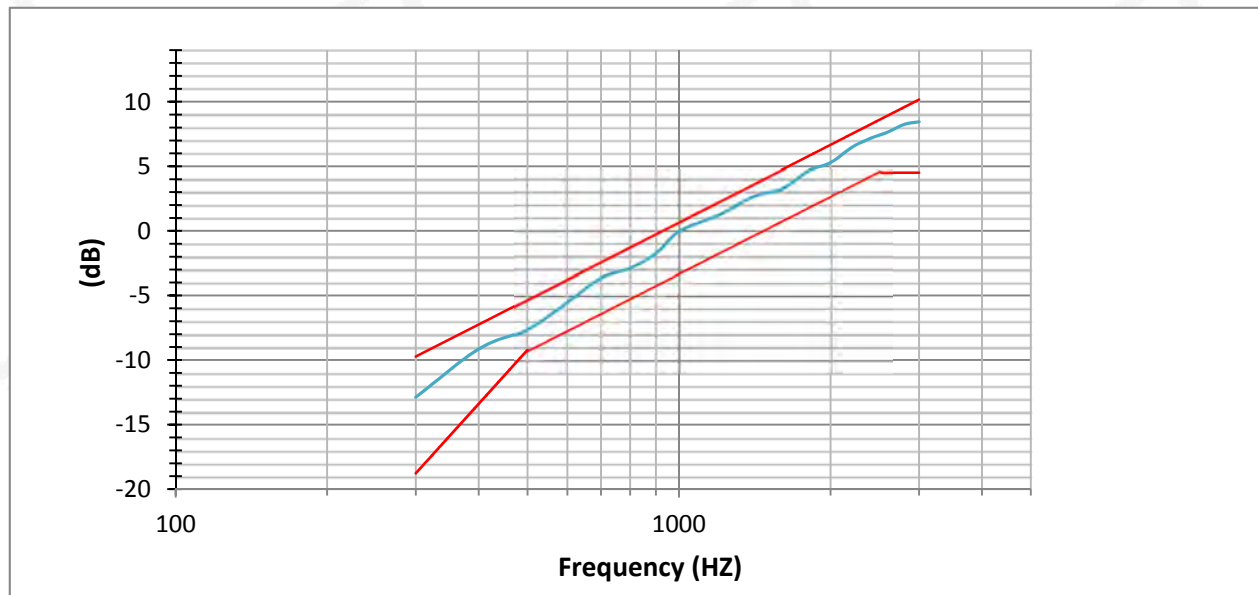
(Carrier Frequency: 438.05,Channel Separation:12.5kHz, High Power)

Audio Frequency(Hz)	Audio Frequency Response(dB)	Result
300	-13.02	PASS
400	-9.37	
500	-7.43	
600	-5.56	
700	-3.49	
800	-2.81	
900	-1.60	
1000	0.00	
1200	1.25	
1400	2.72	
1600	3.35	
1800	4.48	
2000	5.30	
2200	6.44	
2400	7.12	
2600	7.66	
2800	8.32	
3000	8.52	



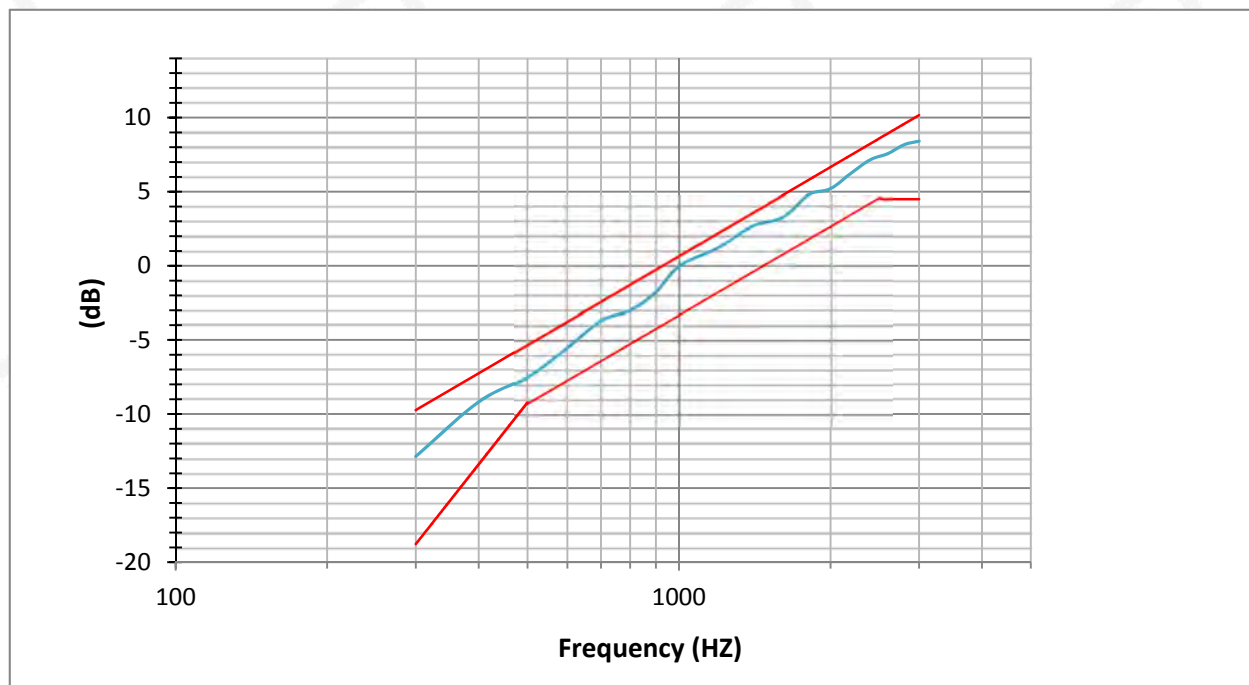
(Carrier Frequency:438.05,Channel Separation:25kHz, Low Power)

Audio Frequency(Hz)	Audio Frequency(Hz)	Audio Frequency Response(dB)	Result
300	300	-12.88	PASS
400	400	-9.15	
500	500	-7.60	
600	600	-5.48	
700	700	-3.59	
800	800	-2.85	
900	900	-1.70	
1000	1000	0.00	
1200	1200	1.27	
1400	1400	2.67	
1600	1600	3.29	
1800	1800	4.65	
2000	2000	5.28	
2200	2200	6.44	
2400	2400	7.16	
2600	2600	7.65	
2800	2800	8.24	
3000	3000	8.45	



(Carrier Frequency: 438.05,Channel Separation:25kHz, High Power)

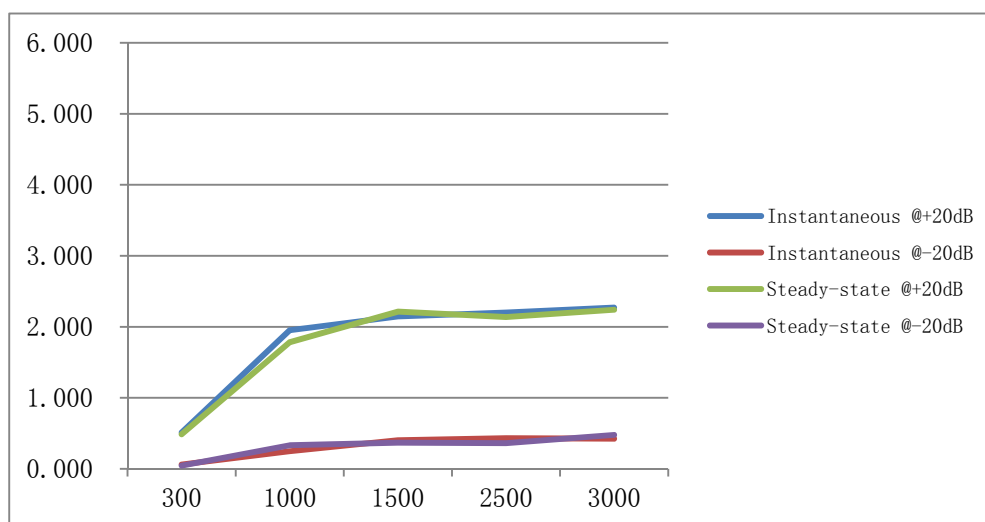
Audio Frequency(Hz)	Audio Frequency Response(dB)	Result
300	-12.86	PASS
400	-9.18	
500	-7.49	
600	-5.49	
700	-3.66	
800	-2.97	
900	-1.74	
1000	0.00	
1200	1.28	
1400	2.71	
1600	3.27	
1800	4.78	
2000	5.21	
2200	6.27	
2400	7.16	
2600	7.57	
2800	8.17	
3000	8.41	



10.3.2 Modulation Limiting

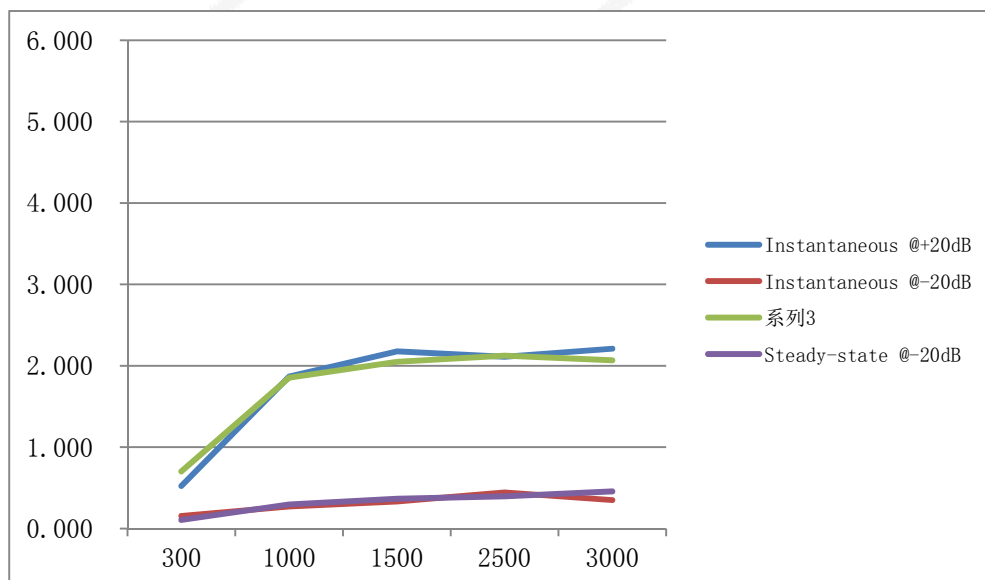
(Carrier Frequency:438.05,Channel Separation:6.25kHz, Low Power)

Audio Frequency	Instantaneous		Steady-state		Limit (kHz)	Result
(Hz)	Deviation (@+20dB) (kHz)	Deviation (@-20dB) (kHz)	Deviation (@+20dB) (kHz)	Deviation (@-20dB) (kHz)		
300	0.511	0.060	0.487	0.046	±2.5	Pass
1000	1.953	0.247	1.782	0.331		
1500	2.147	0.403	2.214	0.368		
2500	2.199	0.430	2.137	0.360		
3000	2.271	0.423	2.241	0.477		



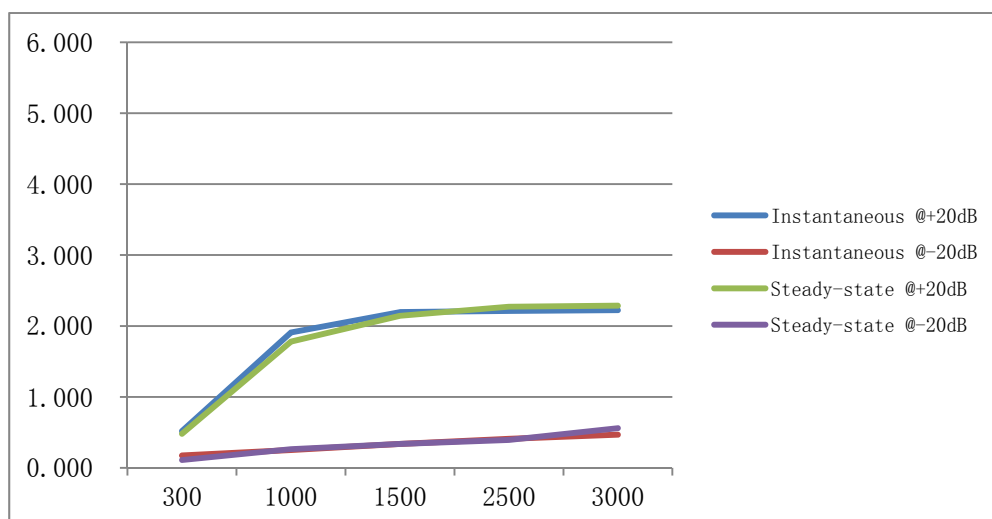
(Carrier Frequency:438.05,Channel Separation:6.25kHz,High Power)

Audio Frequency	Instantaneous		Steady-state		Limit (kHz)	Result
(Hz)	Deviation (@+20dB) (kHz)	Deviation (@-20dB) (kHz)	Deviation (@+20dB) (kHz)	Deviation (@-20dB) (kHz)		
300	0.522	0.156	0.702	0.107	±2.5	Pass
1000	1.867	0.272	1.854	0.296		
1500	2.177	0.333	2.049	0.366		
2500	2.109	0.445	2.124	0.395		
3000	2.211	0.350	2.066	0.457		



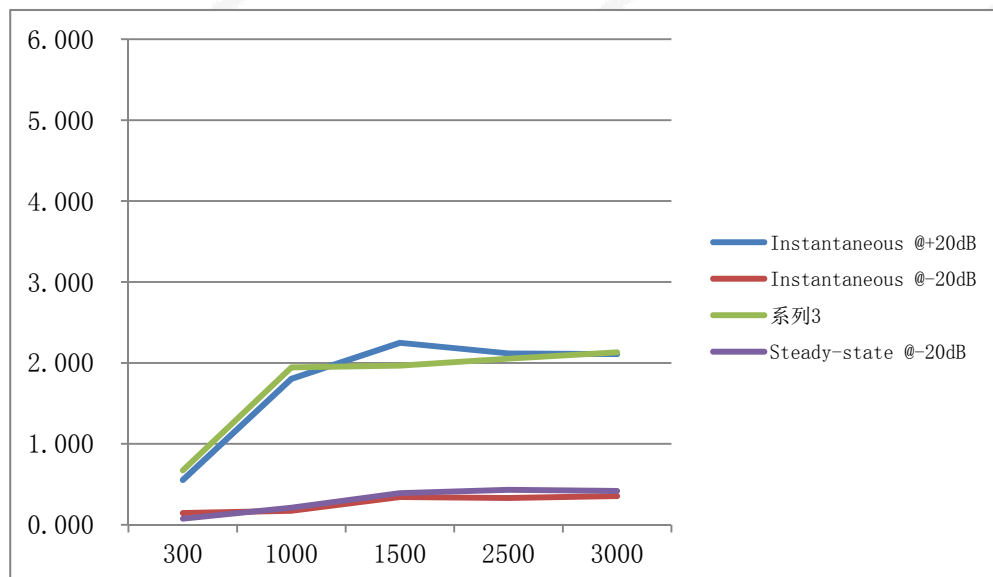
(Carrier Frequency:438.05,Channel Separation:12.5kHz, Low Power)

Audio Frequency	Instantaneous		Steady-state		Limit (kHz)	Result
(Hz)	Deviation (@+20dB) (kHz)	Deviation (@-20dB) (kHz)	Deviation (@+20dB) (kHz)	Deviation (@-20dB) (kHz)		
300	0.519	0.175	0.481	0.112	±2.5	Pass
1000	1.909	0.252	1.780	0.265		
1500	2.196	0.336	2.143	0.336		
2500	2.212	0.410	2.272	0.392		
3000	2.223	0.467	2.285	0.560		



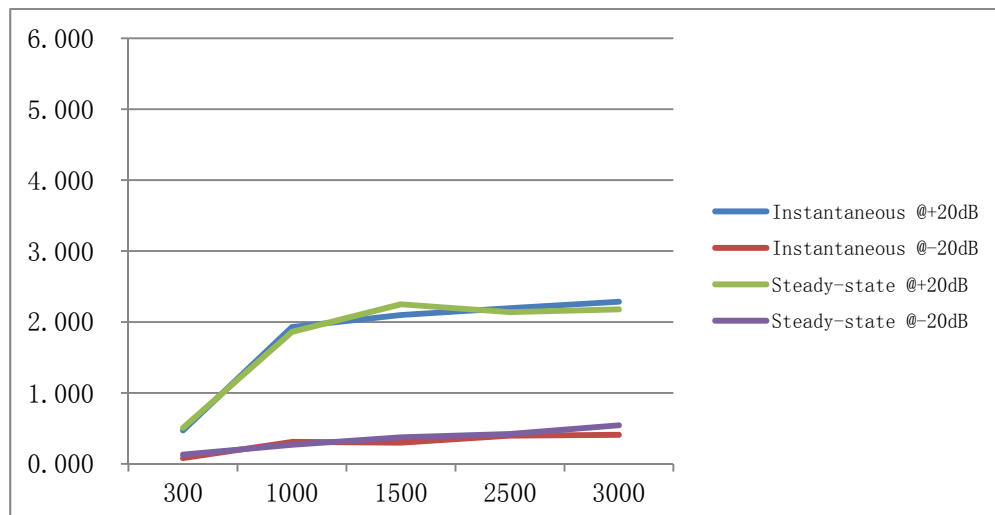
(Carrier Frequency:438.05,Channel Separation:12.5kHz,High Power)

Audio Frequency	Instantaneous		Steady-state		Limit (kHz)	Result
(Hz)	Deviation (@+20dB) (kHz)	Deviation (@-20dB) (kHz)	Deviation (@+20dB) (kHz)	Deviation (@-20dB) (kHz)		
300	0.553	0.145	0.673	0.074	±2.5	Pass
1000	1.803	0.171	1.944	0.211		
1500	2.248	0.342	1.965	0.391		
2500	2.118	0.331	2.052	0.431		
3000	2.108	0.354	2.130	0.418		



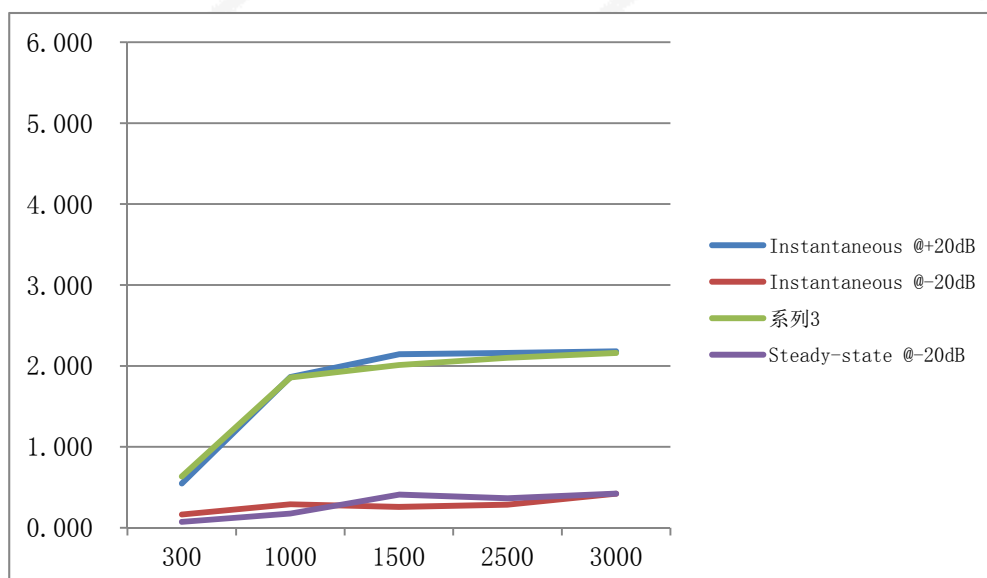
(Carrier Frequency:438.05,Channel Separation:25kHz, Low Power)

Audio Frequency	Instantaneous		Steady-state		Limit (kHz)	Result
(Hz)	Deviation (@+20dB) (kHz)	Deviation (@-20dB) (kHz)	Deviation (@+20dB) (kHz)	Deviation (@-20dB) (kHz)		
300	0.471	0.082	0.508	0.132	±2.5	Pass
1000	1.930	0.310	1.861	0.269		
1500	2.098	0.298	2.250	0.376		
2500	2.196	0.397	2.139	0.420		
3000	2.286	0.408	2.178	0.545		



(Carrier Frequency:438.05,Channel Separation:25kHz,High Power)

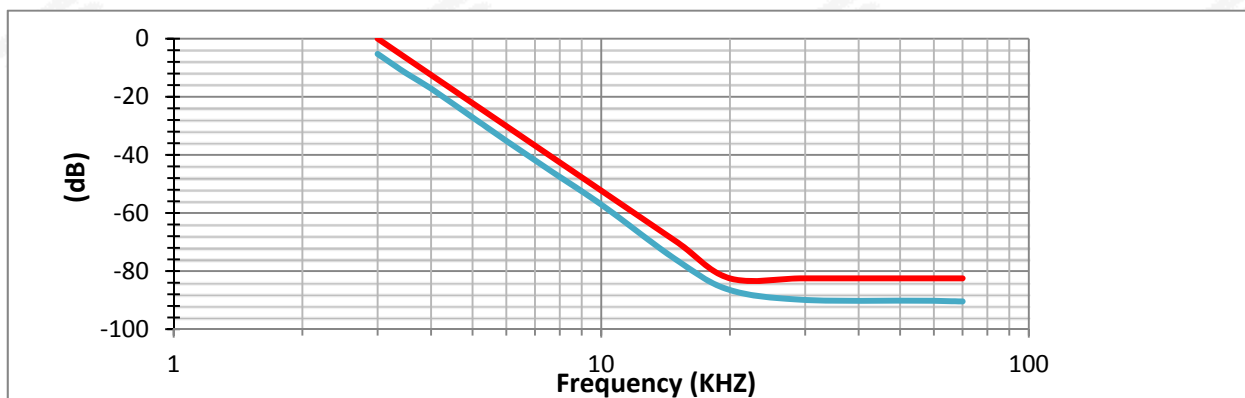
Audio Frequency	Instantaneous		Steady-state		Limit (kHz)	Result
(Hz)	Deviation (@+20dB) (kHz)	Deviation (@-20dB) (kHz)	Deviation (@+20dB) (kHz)	Deviation (@-20dB) (kHz)		
300	0.547	0.164	0.634	0.073	±2.5	Pass
1000	1.863	0.290	1.857	0.175		
1500	2.143	0.256	2.012	0.410		
2500	2.160	0.284	2.101	0.363		
3000	2.180	0.421	2.160	0.421		



10.3.3 Audio Low Pass Filter Response

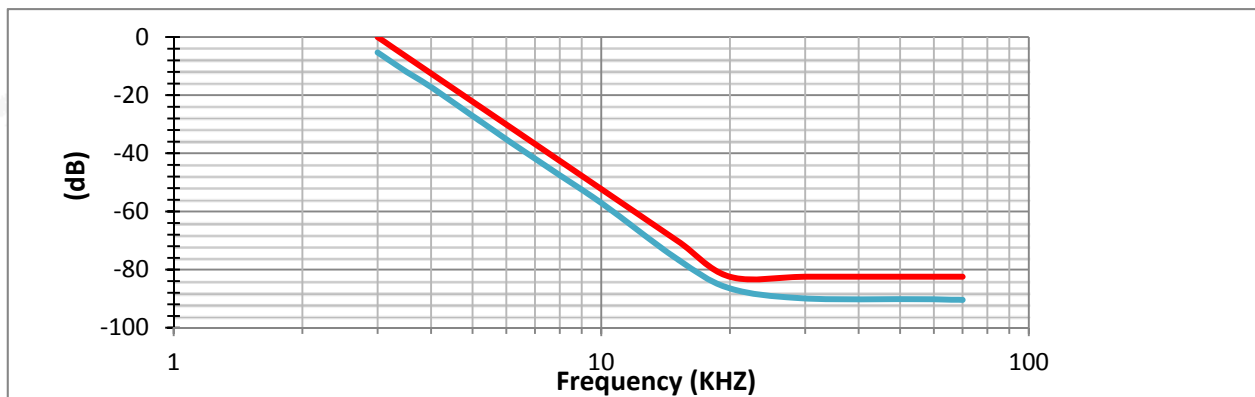
(Carrier Frequency:438.05,Channel Separation:6.25kHz,Low Power)

Audio Frequency(KHz)	Limit	Response Attenuation(dB)	Result
3	0	-5.26	PASS
3.5	-6.7	-11.93	
4	-12.5	-17.20	
5	-22.2	-27.09	
7	-36.8	-41.92	
10	-52.3	-57.11	
15	-69.9	-76.19	
20	-82.5	-86.54	
30	-82.5	-89.96	
50	-82.5	-90.16	
70	-82.5	-90.45	



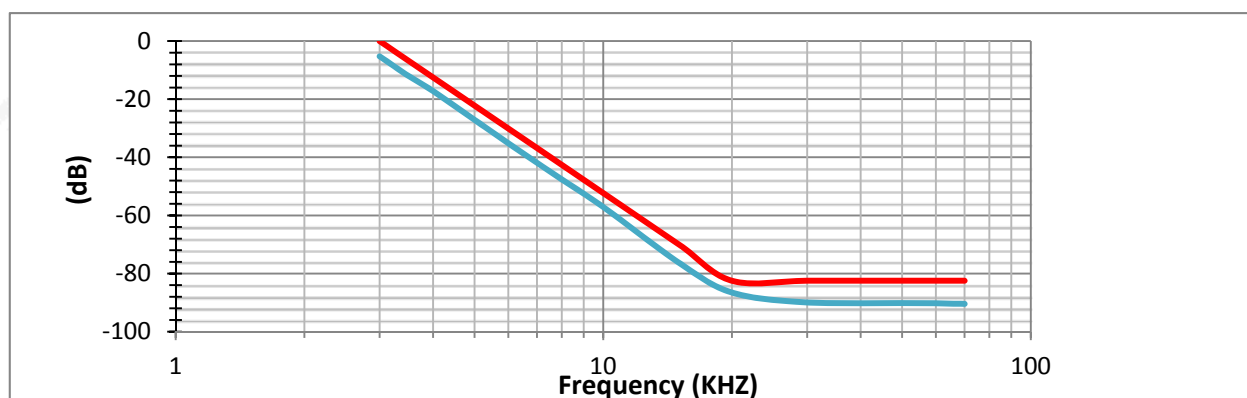
(Carrier Frequency:438.05,Channel Separation:6.25kHz,High Power)

Audio Frequency(KHz)	Limit	Response Attenuation(dB)	Result
3	0	-5.30	PASS
3.5	-6.7	-11.89	
4	-12.5	-17.20	
5	-22.2	-27.10	
7	-36.8	-41.91	
10	-52.3	-57.08	
15	-69.9	-76.22	
20	-82.5	-86.51	
30	-82.5	-89.98	
50	-82.5	-90.17	
70	-82.5	-90.45	



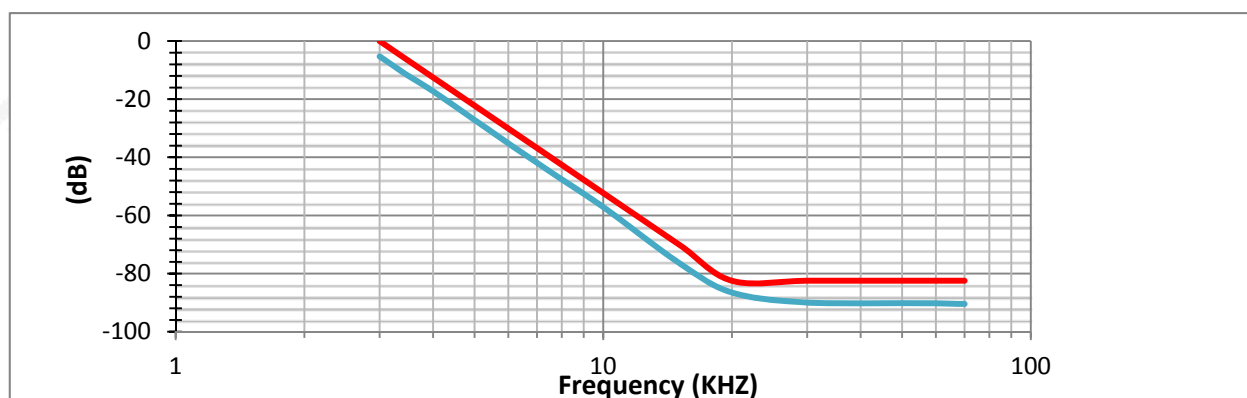
(Carrier Frequency:438.05,Channel Separation:12.5kHz,Low Power)

Audio Frequency(KHz)	Limit	Response Attenuation(dB)	Result
3	0	-5.26	PASS
3.5	-6.7	-11.93	
4	-12.5	-17.20	
5	-22.2	-27.09	
7	-36.8	-41.92	
10	-52.3	-57.11	
15	-69.9	-76.19	
20	-82.5	-86.54	
30	-82.5	-89.96	
50	-82.5	-90.16	
70	-82.5	-90.45	



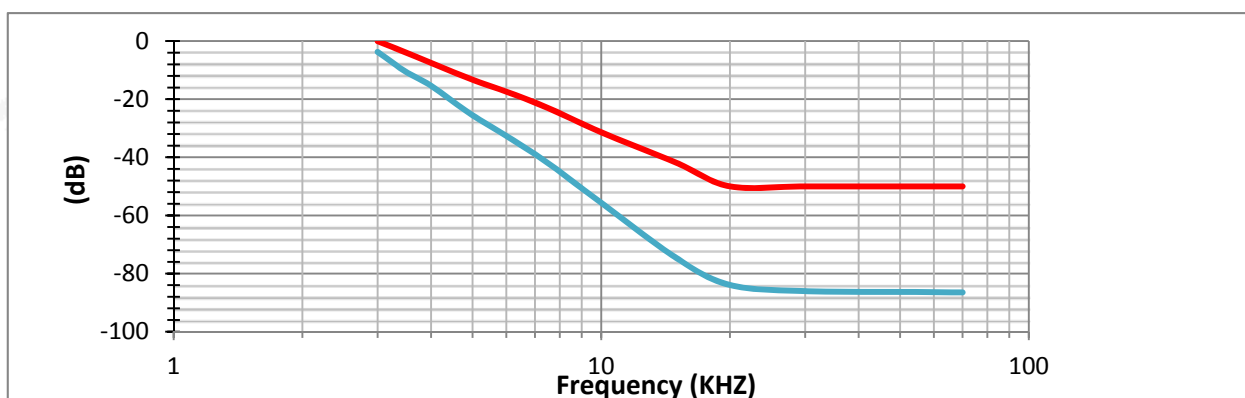
(Carrier Frequency:438.05,Channel Separation:12.5kHz,High Power)

Audio Frequency(KHz)	Limit	Response Attenuation(dB)	Result
3	0	-5.28	PASS
3.5	-6.7	-11.94	
4	-12.5	-17.24	
5	-22.2	-27.13	
7	-36.8	-41.95	
10	-52.3	-57.13	
15	-69.9	-76.22	
20	-82.5	-86.55	
30	-82.5	-90.00	
50	-82.5	-90.18	
70	-82.5	-90.49	



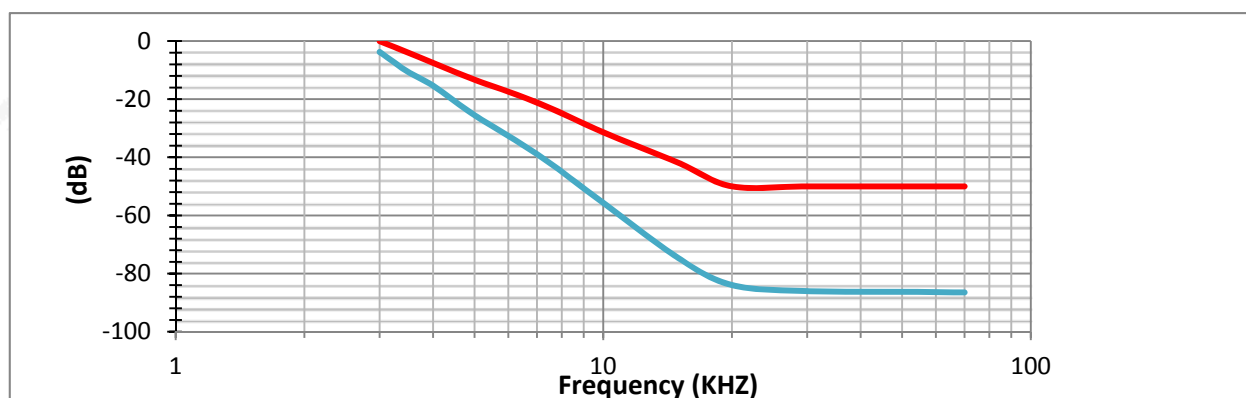
(Carrier Frequency:438.05,Channel Separation:25kHz,Low Power)

Audio Frequency(KHz)	Limit	Response Attenuation(dB)	Result
3	0	-3.72	PASS
3.5	-4	-10.64	
4	-7.5	-15.37	
5	-13.3	-25.51	
7	-21.1	-38.88	
10	-31.4	-55.68	
15	-41.9	-74.68	
20	-50	-83.96	
30	-50	-86.06	
50	-50	-86.33	
70	-50	-86.52	



(Carrier Frequency:438.05,Channel Separation:25kHz,High Power)

Audio Frequency(KHz)	Limit	Response Attenuation(dB)	Result
3	0	-3.75	PASS
3.5	-4	-10.64	
4	-7.5	-15.35	
5	-13.3	-25.49	
7	-21.1	-38.88	
10	-31.4	-55.69	
15	-41.9	-74.69	
20	-50	-83.97	
30	-50	-86.06	
50	-50	-86.31	
70	-50	-86.51	





11. PHOTOS OF TEST SETUP

Note: See test photos in setup photo document for the actual connections between Product and support equipment.

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