FCC Test Report

Report Reference No.....:	**HK26101201200-1E**
Compiled by (position+printed name+signature)..:	Testing Engineer Len Liao
Supervised by (position+printed name+signature)..:	Technical Manager Sliver Wan
Approved by (position+printed name+signature)..:	Authorized Signatory Jason Zhou
Date of issue.....:	October 28, 2026
Testing Laboratory Name.....:	**Shenzhen HUAK Testing Technology Co., Ltd.**
Address.....:	1-2/F., Building B2, Junfeng Zhongcheng Zhizao Innovation Park, Heping, Fuhai Street, Bao'an District, Shenzhen, Guangdong, China
Applicant's Name.....:	**NiceRF Wireless Technology LTD.**
Address.....:	309-314, Bldg A,Hongdu business building, Xin'an street, Zone 43, Baoan Dist, Shenzhen 518101, China
Test Specification	
Standard.....:	FCC Part 90/ FCC Part 2
TRF Originator.....:	Shenzhen HUAK Testing Technology Co., Ltd.

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Product Name.....:	**Wireless walkie-talkie module**
Trade Mark.....:	G-NiceRF
Model Name.....:	DMR818S-U
Series Model(s).....:	N/A
Modulation Type.....:	Analog: FM Digital: 4FSK
Hardware Version.....:	V1.0
Firmware Version.....:	V1.7
Operation Frequency.....:	406.1-430MHz, 450-470MHz
Ratings.....:	DC4.2V
Result.....:	**Pass**

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Test Report

Test Report No.:	HK26101201200-1E	October 28, 2026 Date of issue

Product Name	:	Wireless walkie-talkie module
Model Name	:	DMR818S-U
Series Model(s)	:	N/A
Applicant	:	**NiceRF Wireless Technology LTD.**
Address	:	309-314, Bldg A,Hongdu business building, Xin'an street, Zone 43, Baoan Dist, Shenzhen 518101, China
Manufacturer	:	**NiceRF Wireless Technology LTD.**
Address	:	309-314, Bldg A,Hongdu business building, Xin'an street, Zone 43, Baoan Dist, Shenzhen 518101, China

Test Result	PASS

The test report merely corresponds to the test sample.
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Contents

1 Summary 5
1.1 Test Standards 5
1.2 Test Procedures and Results 5
1.3 Information of the Test Laboratory 6
1.4 Statement of the measurement uncertainty 6
2 General Information 7
2.1 Environmental Conditions 7
2.2 General Description of EUT 7
2.3 Description of Test Modes and Test Frequency 8
2.4 Related Submittal(s) / Grant(s) 9
2.5 Modifications 9
2.6 Description of Test Setup 9
2.7 Description of Support Units 10
3 Measurement Instruments List 11
4 Test Conditions And Results 12
4.1 Transmitter Radiated Spurious Emission 12
4.2 Maximum Transmitter Power 14
4.3 Occupied Bandwidth and Emission Mask 15
4.4 Modulation Characteristic 16
4.5 Frequency Stability 17
4.6 Transmitter Frequency Behavior 18
4.7 Transmitter Spurious Emissions (Conducted) 20
5 Test Setup Photos of The EUT 21
6 Photos of the EUT 23
7 Appendix Test Data 24
7.1 Transmitter Radiated Spurious Emission 24
7.2 RF Test Data 36

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** Issued History **

Revision	Description	Issued Date	Remark
Revision 1.0	Initial Test Report Release	October 28, 2026	Jason Zhou

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1 Summary

1.1 Test Standards

The tests were performed according to following standards:

FCC Rules Part 90: Private Land Mobile Radio Services.

ANSI/TIA-603-E-2016: Land Mobile FM or PM Communications Equipment Measurement and Performance Standards.

FCC Part 2: Frequency Alloca-Tions and Radio Treaty Mat-Ters; General Rules and Reg-Ulations

1.2 Test Procedures and Results

Test specification clause	Test case	Verdict
FCC Part 90.205	Maximum Transmitter Power	PASS
FCC Part2.1047	Modulation Characteristic	PASS
FCC Part 90.209	Occupied Bandwidth	PASS
FCC Part 90.210	Emission Mask	PASS
FCC Part 90.213	Frequency Stability	PASS
FCC Part 90.214	Transmitter Frequency Behavior	PASS
FCC Part 90.210	Transmitter Radiated Spurious Emssion	PASS
FCC Part 90.210	Spurious Emssion On Antenna Port	PASS

Note:

1. PASS: Test item meets the requirement.

2. Fail: Test item does not meet the requirement.

3. N/A: Test case does not apply to the test object.

4. The test result judgment is decided by the limit of test standard.

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1.3 Information of the Test Laboratory

Shenzhen HUAK Testing Technology Co., Ltd.
Add.: 1-2/F., Building B2, Junfeng Zhongcheng Zhizao Innovation Park, Heping, Fuhai Street, Bao'an District, Shenzhen, Guangdong, China

1.4 Statement of the measurement uncertainty

The reported uncertainty of measurement y ± U, where expended uncertainty U is based on a standard uncertainty multiplied by a coverage factor of k=2, providing a level of confidence of approximately 95%.

No.	Item	MU
1	All Emissions, Radiated(<1G)	±3.60dB
2	All Emissions, Radiated(1-18G)	±3.86dB
3	All Emissions, Radiated(18-40G)	±4.76dB
4	Transmitter Power Conducted	±0.37dB
5	Conducted Spurious Emission	±2.20dB
6	Occupied Bandwidth	±3.68%
7	Temperature	±0.1°C
8	Humidity	±1.0%

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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

Name of EUT	Wireless walkie-talkie module
Model No:	DMR818S-U
Series Model(s):	N/A
Model Difference	N/A
Power Supply	DC4.2V
Frequency Range	406.1-430MHz, 450-470MHz
Rate Power	≤1W
Modulation Type	Analog: FM Digital: 4FSK
Channel Separation	Analog: 6.25KHz/ 12.5KHz Digital: 12.5KHz
Rated Power Class	High Power: 1W Low Power: 0.5W
Antenna Type	External Antenna
Antenna Gain	1dBi

Note:
1. For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual.
2. Antenna gain Refer to the antenna specifications.
3. The cable loss data is obtained from the supplier.
4. The test results in the report only apply to the tested sample.

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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
Analog	FM	6.25KHz/ 12.5KHz
Digital	4FSK	12.5KHz

Test Frequency List:

406.1-430MHz:

Modulation Type	Test Channel	Channel Separation	Test Frequency (MHz)
FM	CH1	6.25KHz/ 12.5KHz	406.1125
	CH2		418.0625
	CH3		429.9875
4FSK	CH7	12.5KHz	406.10625
	CH8		418.05625
	CH9		429.99375

450-470MHz:

Modulation Type	Test Channel	Channel Separation	Test Frequency (MHz)
FM	CH4	6.25KHz/ 12.5KHz	450.0125
	CH5		460.0000
	CH6		469.9875
4FSK	CH10	12.5KHz	450.00625
	CH11		460.00000
	CH12		469.99375

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2.4 Related Submittal(s) / Grant(s)

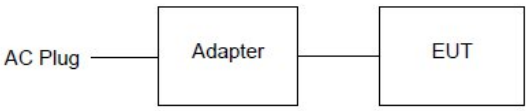
This submittal(s) (test report) is intended to comply with FCC Part 90 Rules.

2.5 Modifications

No modifications were implemented to meet testing criteria.

2.6 Description of Test Setup

Operation of EUT during Radiation testing:



Operation of EUT during RF Conducted testing:



The sample was placed (0.8m below 1GHz, 1.5m above 1GHz) above the ground plane of 3m chamber. Measurements in both horizontal and vertical polarities were performed. During the test, each emission was maximized by: having the EUT continuously working, investigated all operating modes, rotated about all 3 axis (X, Y & Z) and considered typical configuration to obtain worst position, manipulating interconnecting cables, rotating the turntable, varying antenna height from 1m to 4m in both horizontal and vertical polarizations. The report only reflects the worst emission test results. The worst case is X position.

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2.7 Description of 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.

Item	Equipment	Trade Mark	Model Name	Specification	Remark
1	Wireless walkie-talkie module	G-NiceRF	DMR818S-U	N/A	EUT
2	Adapter	N/A	MDY-10-EH	Input: AC100-240V, 50/60Hz, 0.7A Output: DC5V/3A, 9V/3A, 12V/2.25A, 20V/1.35A	

Note:

1. All the equipment/cables were placed in the worst-case configuration to maximize the emission during the test.
2. Grounding was established in accordance with the manufacturer's requirements and conditions for the intended use.
3. For conducted measurements (Output Power, 6dB Emission Bandwidth, Power Spectral Density, Spurious Emissions), the antenna of EUT is connected to the test equipment via temporary antenna connector, the antenna connector is soldered on the antenna port of EUT, and the temporary antenna connector is listed in the Test Instruments.

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3 Measurement Instruments List

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	L.I.S.N.	R&S	ENV216	HKE-002	2026/02/11	1 Year
2	L.I.S.N.	R&S	ENV216	HKE-059	2026/02/04	1 Year
3	EMI Test Receiver	R&S	ESR-7	HKE-005	2026/02/06	1 Year
4	Spectrum analyzer	Agilent	N9020A	HKE-025	2026/02/06	1 Year
5	Spectrum analyzer	KEYSIGHT	N9020A	HKE-117	2026/02/06	1 Year
6	Spectrum analyzer	R&S	FSV3044	HKE-126	2026/02/06	1 Year
7	Preamplifier	Schwarzbeck	EMC051845SE	HKE-006	2026/02/04	1 Year
8	Preamplifier	Agilent	83051A	HKE-016	2026/02/04	1 Year
9	Preamplifier	QJD	QJD18-40-50	HKE-030	2026/02/05	1 Year
10	6dB Attenuator	Pasternack	6dB	HKE-152	2026/02/06	1 Year
11	EMI Test Receiver	R&S	ESR-7	HKE-010	2026/02/06	1 Year
12	Broadband Antenna	Schwarzbeck	VULB9168	HKE-167	2026/02/06	2 Year
13	Loop Antenna	COM-POWER	AL-130R	HKE-014	2026/02/06	2 Year
14	Horn Antenna	Schwarzbeck	9120D	HKE-013	2026/02/06	2 Year
15	Broadband Horn Antenna	A-INFO	LB-180400-KF	HKE-031	2026/02/06	2 Year
16	EMI Test Software	Tonscend	JS32-CE 2.5.0.6	HKE-081	/	/
17	EMI Test Software	Tonscend	JS32-RE 5.0.0	HKE-082	/	/
18	RF Automatic control unit	Tonscend	JS0806-2	HKE-060	2026/02/06	1 Year
19	High pass filter unit	Tonscend	JS0806-F	HKE-055	2026/02/06	1 Year
20	Wireless Communication Test Set	R&S	CMW500	HKE-027	2026/02/06	1 Year
21	High-low temperature chamber	Guangke	HT-80L	HKE-118	2026/02/06	1 Year
22	Temperature and humidity meter	Boyang	HTC-1	HKE-075	2026/03/06	1 Year
23	RF Test Software	Tonscend	JS1120-3 Version 3.6.21	HKE-083	/	/
24	10dB Attenuator	Schwarzbeck	VTSD9561F	HKE-153	2026/02/04	1 Year
25	RSE Test Software	Tonscend	JS36-RSE 5.0.0	HKE-184	/	/
26	Audio signal generator	HEWLETT PACKARD	8921A	HKE-108	2026/02/06	1 Year

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4 Test Conditions And Results

4.1 Transmitter Radiated Spurious Emission

Limit

According to the ANSI/TIA-603 test method, and according to Section 90.210, the power of each unwanted emission shall be less than Transmitted Power as specified below:

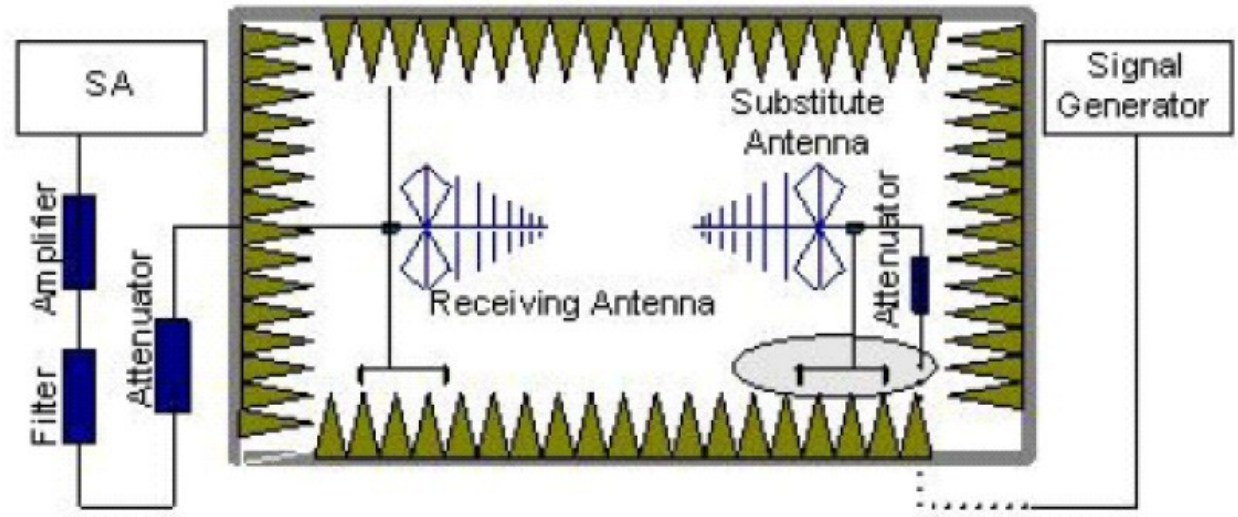
For transmitters designed to operate with a 6.25 kHz or less bandwidth, any emission must be attenuated below the power (P) of the highest emission contained within the authorized bandwidth as follows:

1 On any frequency from the center of the authorized bandwidth f0 to 3.0 kHz removed from f0: Zero dB.
2 On any frequency removed from the center of the authorized bandwidth by a displacement frequency (fd in kHz) of more than 3.0 kHz but no more than 4.6 kHz: At least 30 + 16.67(fd−3 kHz) or 55 + 10 log (P) or 65 dB, whichever is the lesser attenuation.
3 On any frequency removed from the center of the authorized bandwidth by more than 4.6 kHz: At least 55 + 10 log (P) or 65 dB, whichever is the lesser attenuation.

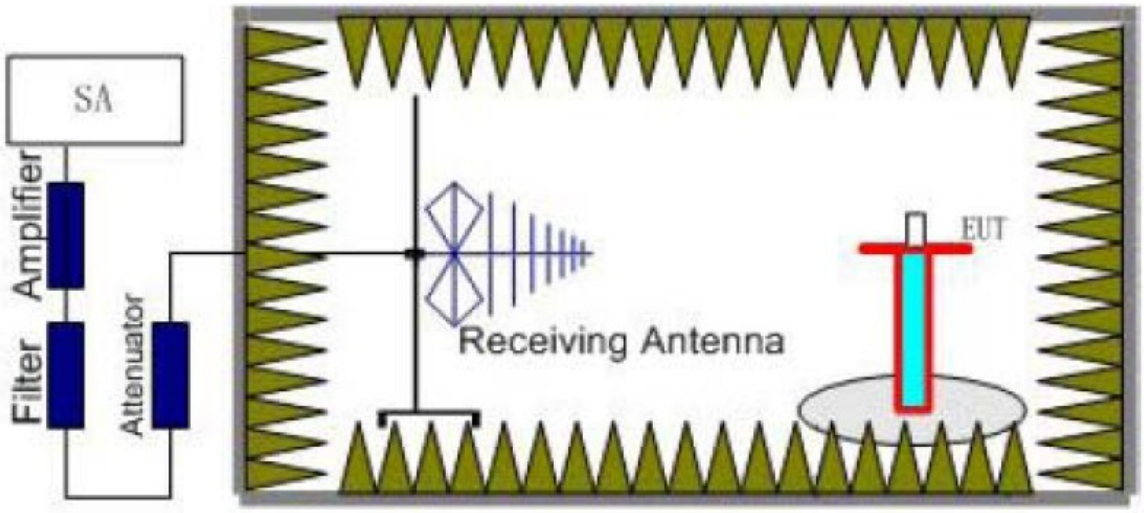
For transmitters designed to operate with 12.5 KHz channel bandwidth:

1 On any frequency removed from the center of the authorized bandwidth f_0 to 5.625 KHz removed from f_0: Zero dB
2 On any frequency removed from the center of the authorized bandwidth by a displacement frequency (f_d in KHz) f_0 of more than 5.625 KHz but no more than 12.5 KHz: At least 7.27dB
3 On any frequency removed from the center of the authorized bandwidth by a displacement frequency (f_d in KHz) f_0 of more than 12.5 KHz: At least 50+10 log (P) dB or 70 dB, whichever is lesser attenuation.

Test Configuration



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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:

$$Power_{(EIRP)} = P_{Mea} - G_a + P_{cl}$$

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 C63.4

Test Results

☒ PASS ☐Fail ☐ Not Applicable
Data Reference Appendix Test Data

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4.2 Maximum Transmitter Power

Test Applicable

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

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 RF automatic control unit.

Test Configuration



Test Results

☒ PASS ☐Fail ☐ Not Applicable
Data Reference Appendix Test Data

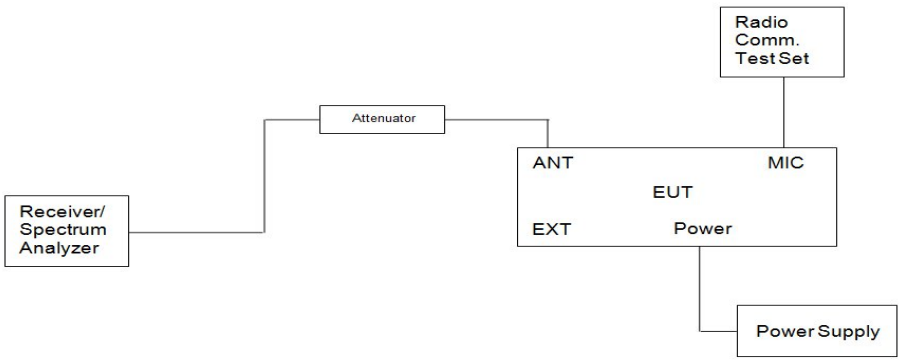
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4.3 Occupied Bandwidth and Emission Mask

Test Applicable

(a) Occupied Bandwidth: The EUT was connected to the audio signal generator and the spectrum analyzer via the main RF connector, and through an appropriate attenuator. The EUT was controlled to transmit its maximum power. Then the bandwidth of 99% power can be measured by the spectrum analyzer.
(b) Emission Mask D: 12.5 kHz channel bandwidth equipment. For transmitters designed to operate with a 12.5 kHz channel bandwidth, any emission must be attenuated below the power (P) of the highest emission contained within the authorized bandwidth as follows:
(1) On any frequency from the center of the authorized bandwidth f_0 to 5.625 kHz removed from f_0: 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 5.625 kHz but no more than 12.5 kHz: At least 7.27(f_d−2.88 kHz) dB.
(3) On any frequency removed from the center of the authorized bandwidth by a displacement frequency (f_d in kHz) of more than 12.5 kHz: At least 50 + 10 log (P) dB or 70 dB, whichever is the lesser attenuation.
(c) Emission Mask E: 6.25 kHz or less channel bandwidth equipment. For transmitters designed to operate with a 6.25 kHz or less bandwidth, any emission must be attenuated below the power (P) of the highest emission contained within the authorized bandwidth as follows:
(1) On any frequency from the center of the authorized bandwidth f_0 to 3.0 kHz removed from f_0: 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 3.0 kHz but no more than 4.6 kHz: At least 30 + 16.67(f_d−3 kHz) or 55 + 10 log (P) or 65 dB, whichever is the lesser attenuation.
(3) On any frequency removed from the center of the authorized bandwidth by more than 4.6 kHz: At least 55 + 10 log (P) or 65 dB, whichever is the lesser attenuation.

Test Configuration



Test Procedure

1 The EUT was modulated by 2.5kHz sine wave audio signal; the level of the audio signal employed is 16dB greater than that necessary to produce 50% of rated system deviation. Rated system deviation is 2.5 kHz for 12.5kHz channel spacing.
2 Set SPA Center Frequency = fundamental frequency, RBW=100Hz, VBW= 300 KHz, span =30 KHz.
3 Set SPA Max hold. Mark peak, Set 99% Occupied Bandwidth and 26dB Occupied Bandwidth.

Test Results

☒ PASS ☐Fail ☐ Not Applicable
Data Reference Appendix Test Data

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4.4 Modulation Characteristic

Test Applicable

According to CFR47 section 2.1047(a), for Voice Modulation Communication Equipment, the frequency response of the audio modulation circuit over a range of 100 to 5000Hz shall be measured.

Test Procedure

Modulation Limit

1 Configure the EUT as shown in figure 1, 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 3000Hz in sequence.

Audio Frequency Response

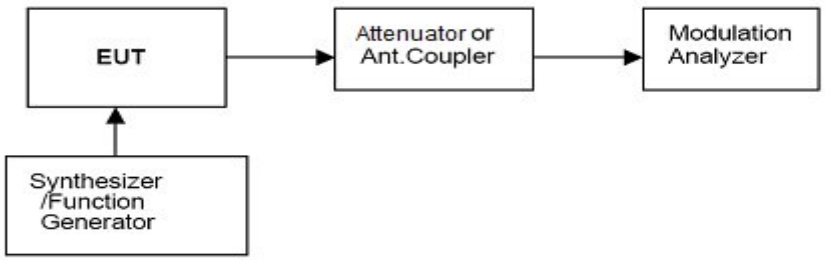
1 Configure the EUT as shown in figure 1.
2 Adjust the audio input for 20% of rated system deviation at 1 KHz using this level as a reference (0dB).
3 Vary the Audio frequency from 100 Hz to 3 KHz and record the frequency deviation.
4 Audio Frequency Response =20log10 (Deviation of test frequency/Deviation of 1 KHz reference).

Audio Frequency Low Pass Filter Response

The rated audio input signal was applied to the input of the audio low-pass filter (or of all modulation stages) using an audio oscillator, this input signal level and its corresponding output signal were then measured and recorded using the FFT Digital Spectrum Analyzer. Tests were repeated at different audio signal frequencies from 0 to 50 kHz.

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

Test Configuration



Test Results

☒ PASS ☐Fail ☐ Not Applicable
Data Reference Appendix Test Data

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4.5 Frequency Stability

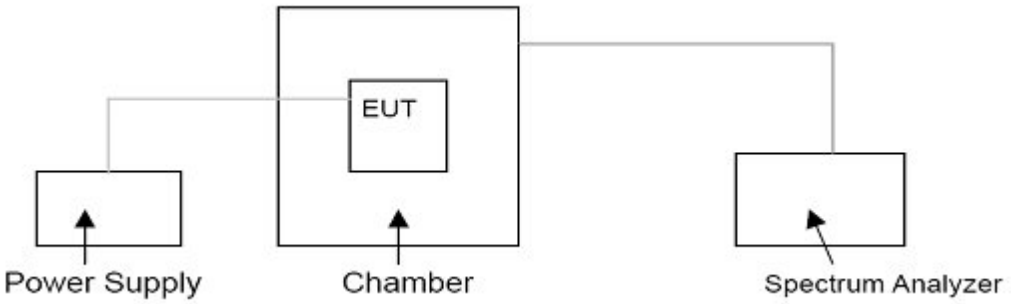
Limits

According to 90.213, Transmitters used must have minimum frequency stability as specified in the following table.

Frequency Range (MHz)	Channel Bandwidth (KHz)	Frequency Tolerance (ppm)		
		Fixed and Base Stations	Mobile Stations	
			> 2 W	≤ 2 W
150-174 MHz	6.25 12.5 25	1.0 2.5 5.0	2.0 5.0 5.0	2.0 5.0 50.0*
421-512 MHz	6.25 12.5 25	0.5 1.5 2.5	1.0 2.5 5.0	1.0 2.5 5.0

- Stations operating in the 154.45 to 154.49 MHz or the 173.2 to 173.4 MHz bands must have a frequency stability of 5 ppm.
- Paging transmitters operating on paging-only frequencies must operate with frequency stability of 5 ppm in the 150-174 MHz band and 2.5 ppm in the 421-512 MHz band.

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

☒ PASS ☐Fail ☐ Not Applicable
Data Reference Appendix Test Data

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4.6 Transmitter Frequency Behavior

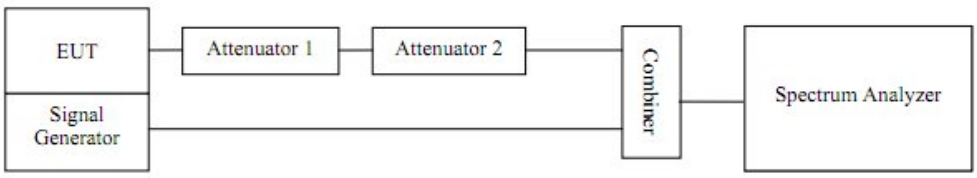
Test Applicable

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

1. 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.
2. 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.
3. Difference between the actual transmitter frequency and the assigned transmitter frequency.
4. 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.

Test Configuration



Test Procedure

1. Connect the EUT and test equipment as shown in the test configuration.
2. Set Spectrum Analyzer to measure FM deviation, and tune the RF frequency to transmitter assigned frequency.
3. Set the signal generator to the assigned transmitter frequency and modulate it with a 1KHz tone at ±12.5Khz deviation and set its output level to -100dBm.
4. Turn on the transmitter.
5. Supply sufficient attenuation via RF attenuator to provide an input level to the Spectrum Analyzer that is 40dB below the maximum allowed input power when the transmitter is operating at its rated power level. Note this power level on Spectrum Analyzer as P_0.
6. Turn off the transmitter.

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7. Adjust the RF level of the signal generator to provide RF power equal to P_0. This signal generator RF level shall be maintained throughout the rest of the measurement.
8. Remove the attenuation 1, so the input power to the Spectrum Analyzer is increased by 30dB when the transmitter is turned on.
9. Adjust the vertical amplitude control of the spectrum analyzer to display the 1000Hz at ±4 divisions vertically centered on display. Set trigger mode of the Spectrum Analyzer to “Video”, and tune the “trigger level” on suitable level. Then set the “trigger offset” to -10ms for turn on and -15ms for turn off.
10. Turn on the transmitter and the transient wave will be captured on the screen of Spectrum Analyzer. Observe the stored display. The instant when the 1 KHz test signal is completely suppressed is considered to be t_{on}. The trace should be maintained within the allowed divisions during the period t_1 and t_2.
11. Then turn off the transmitter, and another transient wave will be captured on the screen of Spectrum Analyzer. The trace should be maintained within the allowed divisions during the period t_3.

Test Results

☒ PASS ☐Fail ☐ Not Applicable
Data Reference Appendix Test Data

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4.7 Transmitter Spurious Emissions (Conducted)

Limit

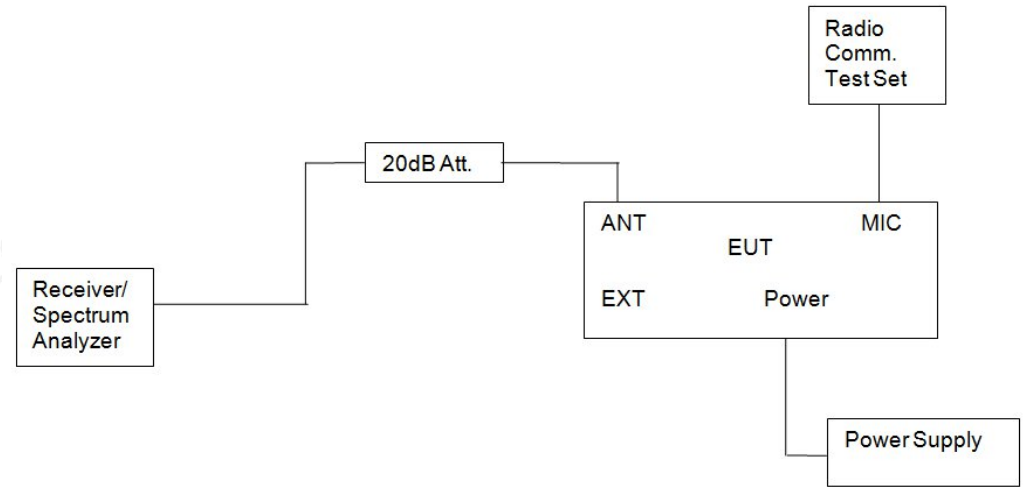
12.5K: Per Part 90.210, For transmitters designed to operate with a 12.5 kHz channel bandwidth, any emission must be attenuated below the power (P) of the highest emission contained within the authorized bandwidth: at least 50 + 10 log (P) dB or 70 dB, whichever is the lesser attenuation.

When P = 1W, Limit = -20 dBm

6.25K: Per Part 90.210, For transmitters designed to operate with a 6.25 kHz or less bandwidth, any emission must be attenuated below the power (P) of the highest emission contained within the authorized bandwidth: on any frequency removed from the center of the authorized bandwidth by more than 4.6 kHz: At least 55 + 10 log (P) or 65 dB, whichever is the lesser attenuation.

When P = 1W, Limit = -25 dBm

Test Configuration



Test Procedure

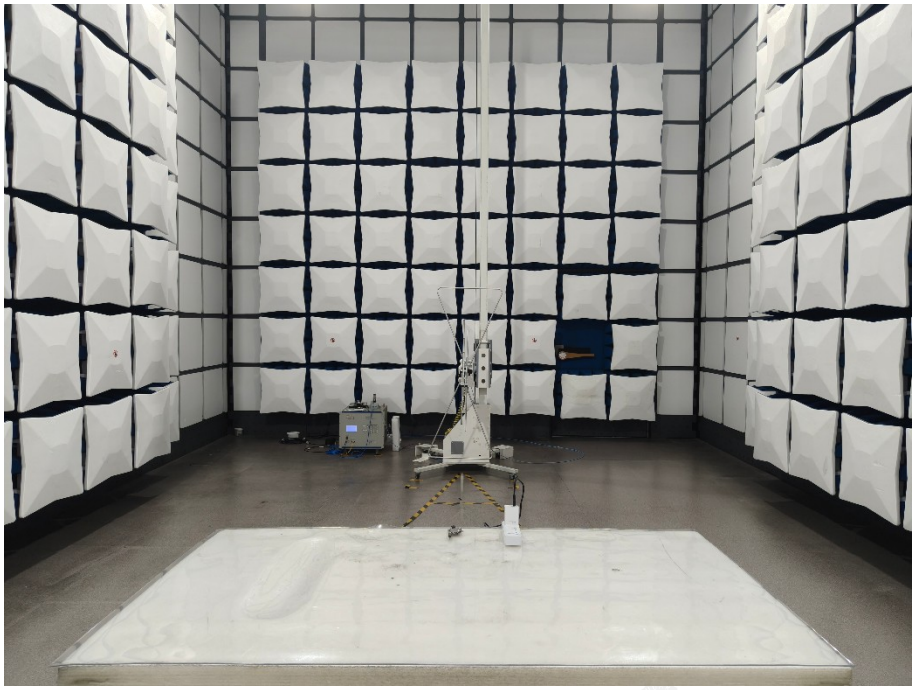
The RF output of the EUT was connected to a spectrum analyzer through appropriate attenuation. The resolution bandwidth of the spectrum analyzer was set to 10 kHz/1MHz. Sufficient scans were taken to show any out of band emission up to 10th. Harmonic for the lower and the highest frequency range. Set 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

☒ PASS ☐Fail ☐ Not Applicable
Data Reference Appendix Test Data

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5 Test Setup Photos of The EUT

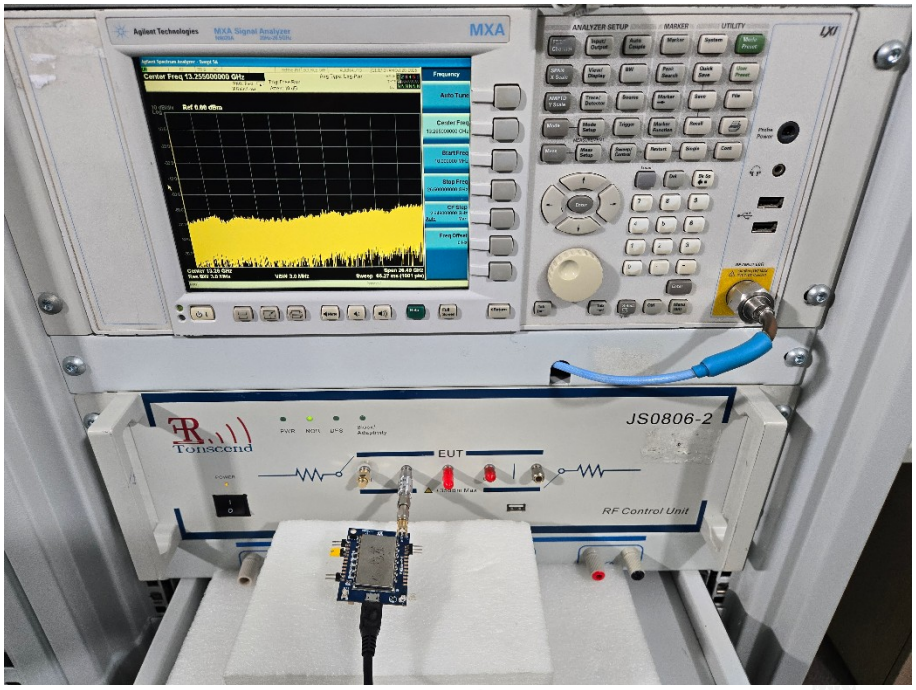


Radiated Emission



Above 1GHz RSE

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RF Conducted Emission

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6 Photos of the EUT

Reference to the report: ANNEX A of external photos and ANNEX B of internal photos

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7 Appendix Test Data

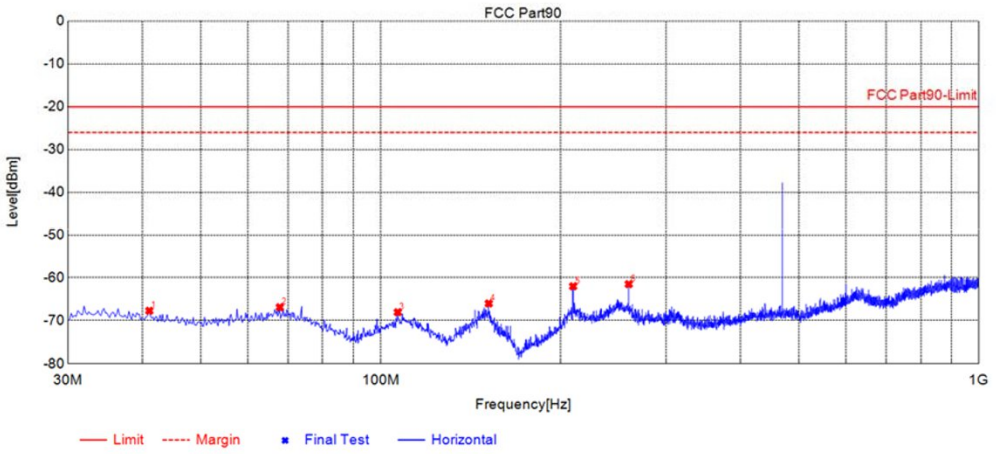
7.1 Transmitter Radiated Spurious Emission

All the test modes completed for test. Only the worst result was reported as below:
Worst mode: 450-470MHz High Channel

Frequency Range (30MHz-1GHz)

Digital (12.5KHz):

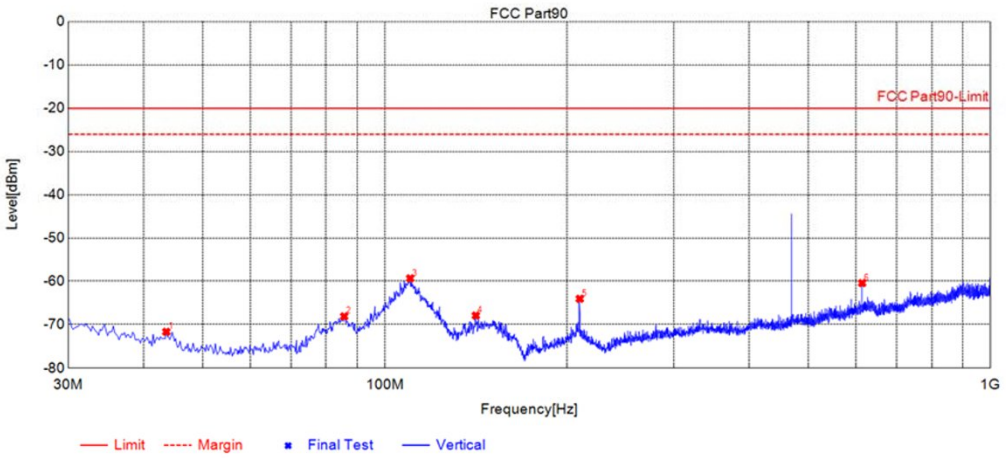
Test Graph



Suspected List							
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Polarity
1	41.0602	-71.67	-67.73	-20.00	47.73	3.94	Horizontal
2	67.8376	-71.36	-66.91	-20.00	46.91	4.45	Horizontal
3	106.839	-70.67	-68.08	-20.00	48.08	2.59	Horizontal
4	151.662	-67.89	-66.03	-20.00	46.03	1.86	Horizontal
5	209.874	-65.43	-62.01	-20.00	42.01	3.42	Horizontal
6	259.936	-65.95	-61.51	-20.00	41.51	4.44	Horizontal

Remark: Factor = Cable loss + Antenna factor + Attenuator – Preamplifier; Level = Reading + Factor; Margin = Limit – Level

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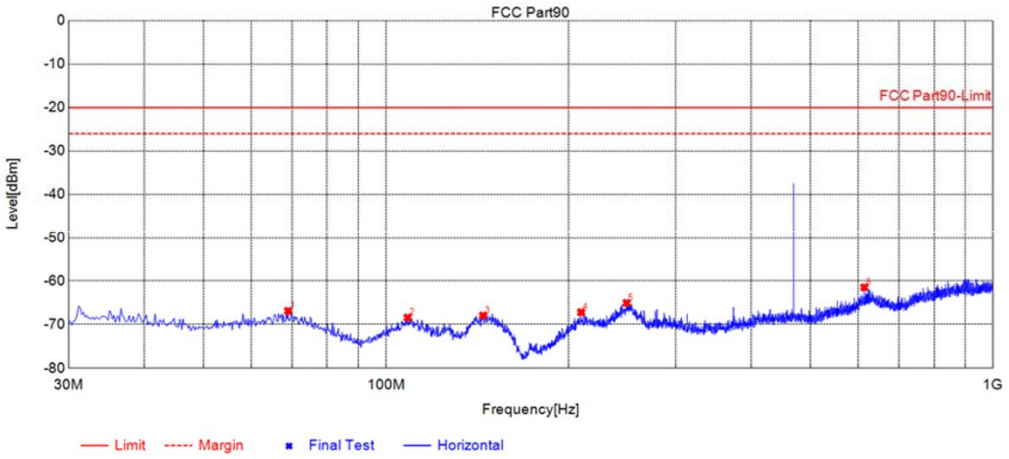
Suspected List							
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Polarity
1	43.5827	-69.74	-71.72	-20.00	51.72	-1.98	Vertical
2	85.6891	-67.63	-68.15	-20.00	48.15	-0.52	Vertical
3	110.138	-71.87	-59.36	-20.00	39.36	12.51	Vertical
4	141.378	-67.26	-67.96	-20.00	47.96	-0.70	Vertical
5	209.874	-63.93	-64.09	-20.00	44.09	-0.16	Vertical
6	614.056	-66.31	-60.45	-20.00	40.45	5.86	Vertical

Remark: Factor = Cable loss + Antenna factor + Attenuator – Preamplifier; Level = Reading + Factor; Margin = Limit – Level

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Analog (12.5KHz):

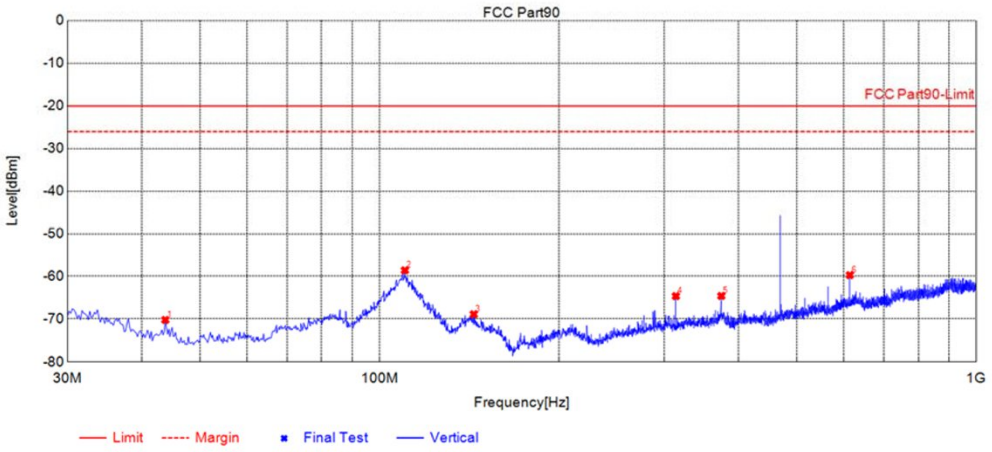
Test Graph



Suspected List							
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Polarity
1	69.0018	-71.49	-66.92	-20.00	46.92	4.57	Horizontal
2	108.585	-71.46	-68.47	-20.00	48.47	2.99	Horizontal
3	144.482	-69.17	-67.99	-20.00	47.99	1.18	Horizontal
4	209.679	-70.59	-67.21	-20.00	47.21	3.38	Horizontal
5	249.263	-71.14	-65.06	-20.00	45.06	6.08	Horizontal
6	614.056	-68.98	-61.47	-20.00	41.47	7.51	Horizontal

Remark: Factor = Cable loss + Antenna factor + Attenuator – Preamplifier; Level = Reading + Factor; Margin = Limit – Level

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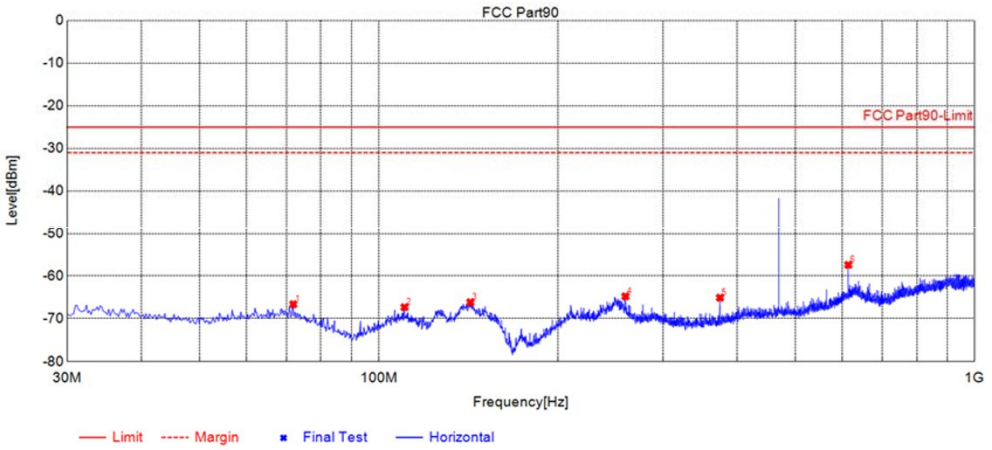
Suspected List							
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Polarity
1	43.7768	-68.20	-70.25	-20.00	50.25	-2.05	Vertical
2	110.332	-71.00	-58.61	-20.00	38.61	12.39	Vertical
3	143.900	-68.11	-68.92	-20.00	48.92	-0.81	Vertical
4	313.878	-65.25	-64.66	-20.00	44.66	0.59	Vertical
5	374.030	-65.86	-64.62	-20.00	44.62	1.24	Vertical
6	614.056	-65.59	-59.73	-20.00	39.73	5.86	Vertical

Remark: Factor = Cable loss + Antenna factor + Attenuator – Preamplifier; Level = Reading + Factor; Margin = Limit – Level

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Analog (6.25KHz):

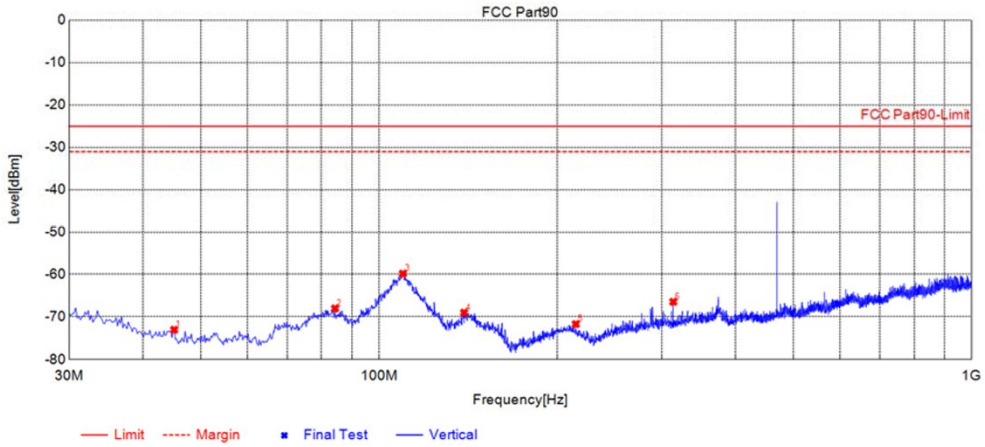
Test Graph



Suspected List							
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Polarity
1	71.9124	-70.76	-66.65	-25.00	41.65	4.11	Horizontal
2	110.526	-70.51	-67.35	-25.00	42.35	3.16	Horizontal
3	142.542	-66.90	-66.18	-25.00	41.18	0.72	Horizontal
4	259.547	-69.31	-64.80	-25.00	39.80	4.51	Horizontal
5	374.030	-66.72	-65.11	-25.00	40.11	1.61	Horizontal
6	614.056	-64.90	-57.39	-25.00	32.39	7.51	Horizontal

Remark: Factor = Cable loss + Antenna factor + Attenuator – Preamplifier; Level = Reading + Factor; Margin = Limit – Level

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Suspected List

Suspected List							
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Polarity
1	45.135	-70.52	-73.09	-25.00	48.09	-2.57	Vertical
2	84.3309	-67.10	-68.06	-25.00	43.06	-0.96	Vertical
3	109.75	-72.31	-59.85	-25.00	34.85	12.46	Vertical
4	139.243	-68.45	-69.05	-25.00	44.05	-0.60	Vertical
5	214.919	-70.96	-71.76	-25.00	46.76	-0.80	Vertical
6	313.878	-67.08	-66.49	-25.00	41.49	0.59	Vertical

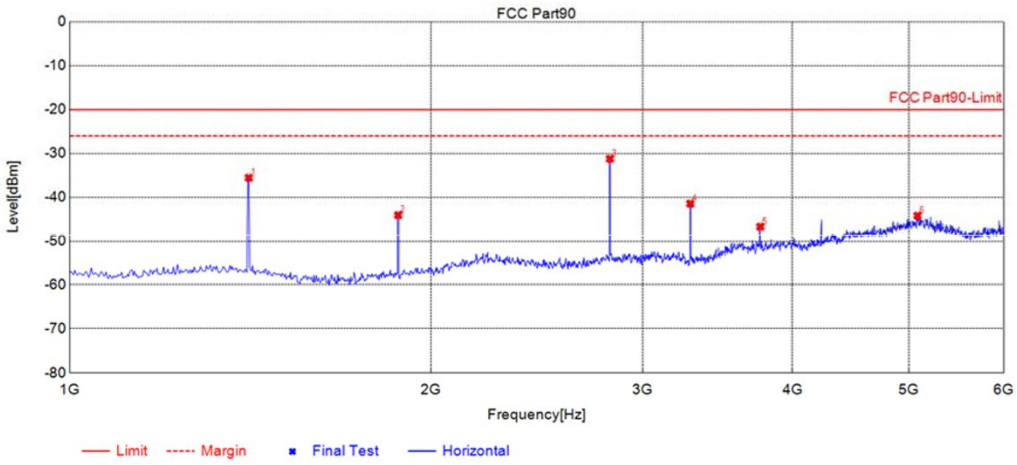
Remark: Factor = Cable loss + Antenna factor + Attenuator – Preamplifier; Level = Reading + Factor; Margin = Limit – Level

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For 1G-6GHz

Analog (12.5KHz):

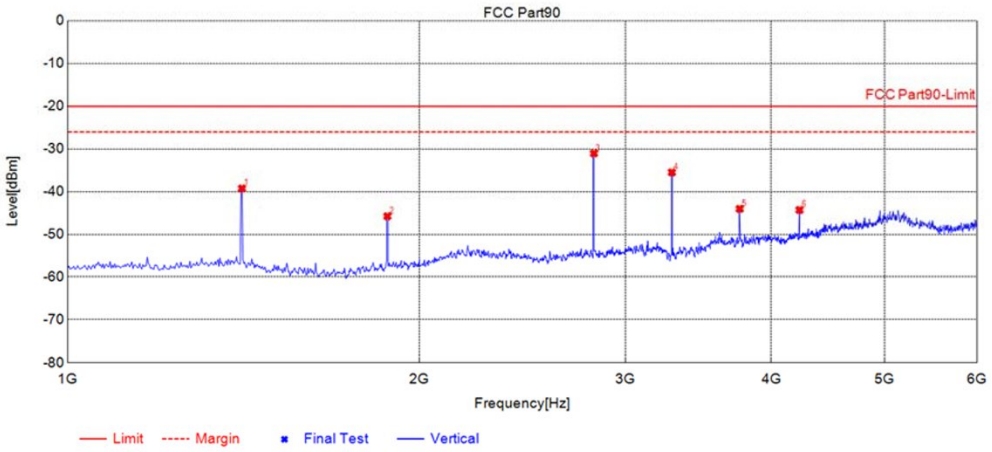
Test Graph



Suspected List							
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Polarity
1	1410.20	-32.27	-35.57	-20.00	15.57	-3.30	Horizontal
2	1877.93	-40.42	-44.09	-20.00	24.09	-3.67	Horizontal
3	2818.40	-31.56	-31.21	-20.00	11.21	0.35	Horizontal
4	3288.64	-42.05	-41.47	-20.00	21.47	0.58	Horizontal
5	3761.38	-50.14	-46.74	-20.00	26.74	3.40	Horizontal
6	5084.54	-54.07	-44.23	-20.00	24.23	9.84	Horizontal

Remark: Factor = Cable loss + Antenna factor + Attenuator – Preamplifier; Level = Reading + Factor; Margin = Limit – Level

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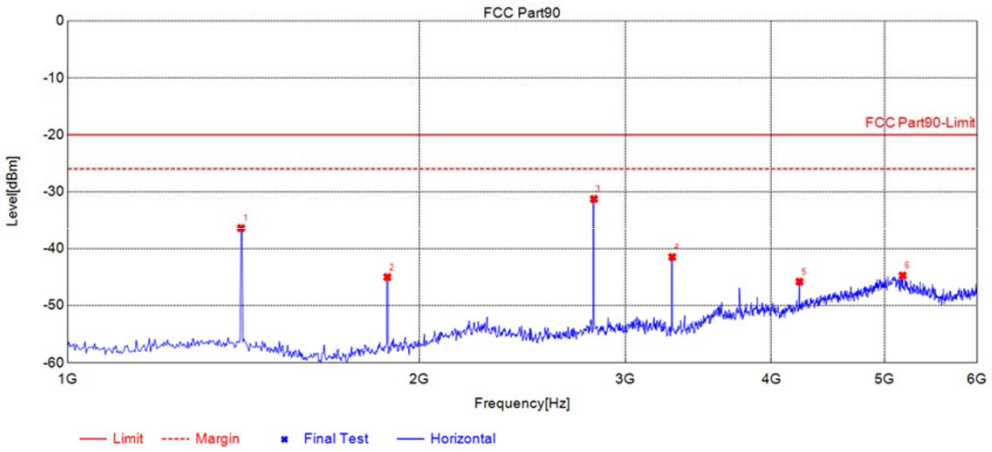
Suspected List							
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Polarity
1	1410.20	-35.92	-39.25	-20.00	19.25	-3.33	Vertical
2	1877.93	-42.04	-45.77	-20.00	25.77	-3.73	Vertical
3	2820.91	-30.67	-31.03	-20.00	11.03	-0.36	Vertical
4	3288.64	-35.89	-35.49	-20.00	15.49	0.40	Vertical
5	3758.87	-47.22	-44.05	-20.00	24.05	3.17	Vertical
6	4229.11	-48.84	-44.32	-20.00	24.32	4.52	Vertical

Remark: Factor = Cable loss + Antenna factor + Attenuator – Preamplifier; Level = Reading + Factor; Margin = Limit – Level

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Analog (6.25KHz):

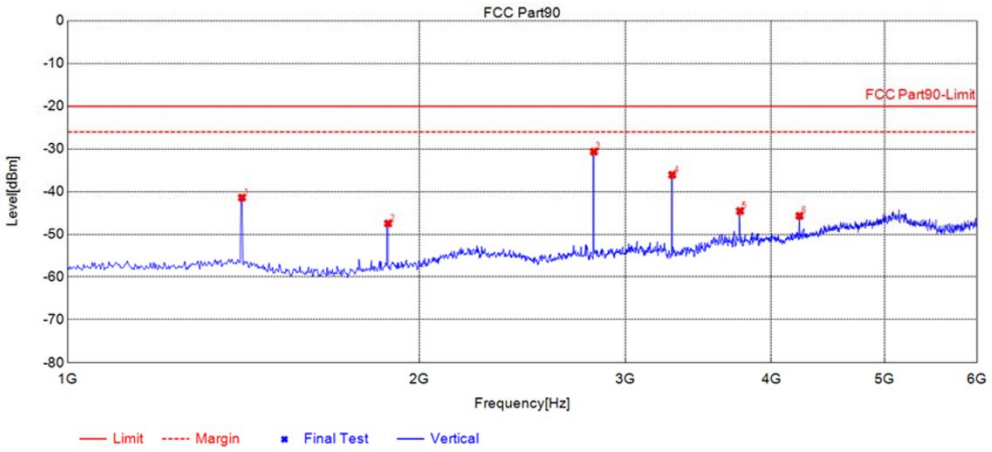
Test Graph



Suspected List							
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Polarity
1	1407.70	-33.14	-36.40	-20.00	16.40	-3.26	Horizontal
2	1877.93	-41.34	-45.01	-20.00	25.01	-3.67	Horizontal
3	2820.91	-31.65	-31.29	-20.00	11.29	0.36	Horizontal
4	3291.14	-42.05	-41.48	-20.00	21.48	0.57	Horizontal
5	4229.11	-50.56	-45.82	-20.00	25.82	4.74	Horizontal
6	5182.09	-54.03	-44.74	-20.00	24.74	9.29	Horizontal

Remark: Factor = Cable loss + Antenna factor + Attenuator – Preamplifier; Level = Reading + Factor; Margin = Limit – Level

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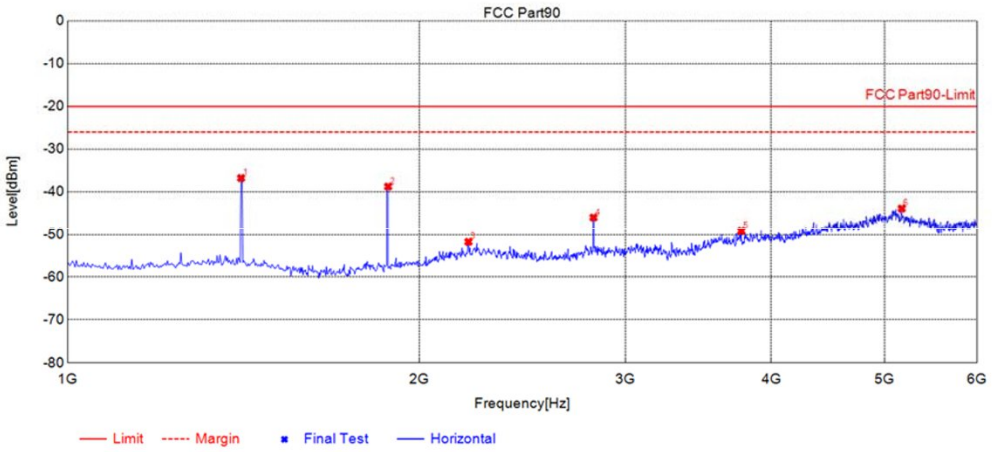
Suspected List							
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Polarity
1	1410.20	-38.07	-41.40	-20.00	21.40	-3.33	Vertical
2	1880.44	-43.77	-47.47	-20.00	27.47	-3.70	Vertical
3	2820.91	-30.28	-30.64	-20.00	10.64	-0.36	Vertical
4	3291.14	-36.45	-36.07	-20.00	16.07	0.38	Vertical
5	3761.38	-47.75	-44.57	-20.00	24.57	3.18	Vertical
6	4229.11	-50.22	-45.70	-20.00	25.70	4.52	Vertical

Remark: Factor = Cable loss + Antenna factor + Attenuator – Preamplifier; Level = Reading + Factor; Margin = Limit – Level

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Digital (12.5KHz):

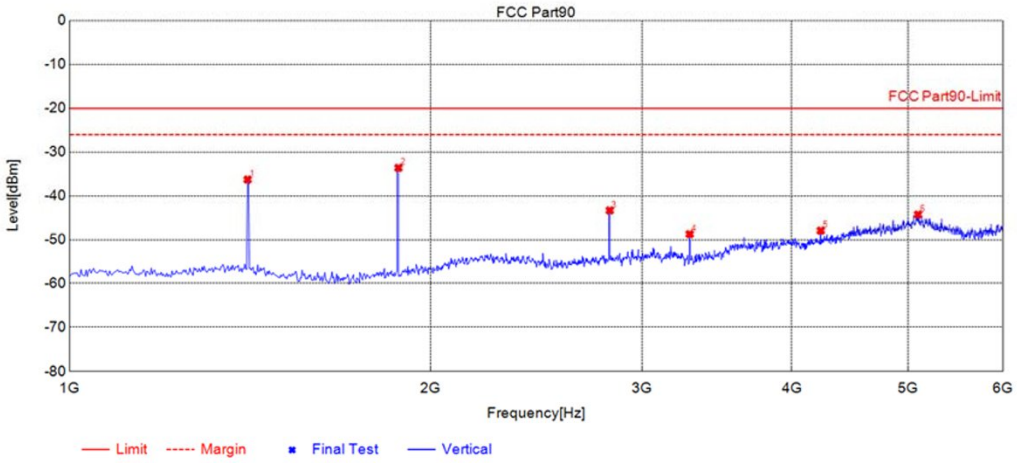
Test Graph



Suspected List							
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Polarity
1	1407.70	-33.54	-36.80	-20.00	16.80	-3.26	Horizontal
2	1880.44	-35.15	-38.80	-20.00	18.80	-3.65	Horizontal
3	2203.10	-51.74	-51.74	-20.00	31.74	0.00	Horizontal
4	2818.40	-46.41	-46.06	-20.00	26.06	0.35	Horizontal
5	3771.38	-52.66	-49.17	-20.00	29.17	3.49	Horizontal
6	5172.08	-53.33	-43.95	-20.00	23.95	9.38	Horizontal

Remark: Factor = Cable loss + Antenna factor + Attenuator – Preamplifier; Level = Reading + Factor; Margin = Limit – Level

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Suspected List							
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Polarity
1	1407.70	-33.00	-36.28	-20.00	16.28	-3.28	Vertical
2	1880.44	-29.91	-33.61	-20.00	13.61	-3.70	Vertical
3	2820.91	-42.97	-43.33	-20.00	23.33	-0.36	Vertical
4	3288.64	-49.15	-48.75	-20.00	28.75	0.40	Vertical
5	4229.11	-52.46	-47.94	-20.00	27.94	4.52	Vertical
6	5097.04	-54.08	-44.28	-20.00	24.28	9.80	Vertical

Remark: Factor = Cable loss + Antenna factor + Attenuator – Preamplifier; Level = Reading + Factor; Margin = Limit – Level

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7.2 RF Test Data

Maximum Transmitter Power

406.1-430MHz:

Mode	Channel Bandwidth (KHz)	Test Channel	Test Frequency (MHz)	Power Level	Test Results (dBm)	Test Results (W)	Test Result
Analog	6.25	CH1	406.1125	L	27.015	0.503	Pass
				H	29.838	0.963	
		CH2	418.0625	L	27.645	0.581	
				H	29.900	0.977	
		CH3	429.9875	L	27.894	0.616	
				H	30.590	1.146	
	12.5	CH1	406.1125	L	27.195	0.524	
				H	30.141	1.033	
		CH2	418.0625	L	27.609	0.577	
				H	30.020	1.005	
		CH3	429.9875	L	27.883	0.614	
				H	30.444	1.108	
Digital	12.5	CH7	406.10625	L	27.315	0.539	
				H	29.944	0.987	
		CH8	418.05625	L	27.724	0.592	
				H	30.620	1.153	
		CH9	429.99375	L	27.876	0.613	
				H	30.108	1.025	

450-470MHz

Mode	Channel Bandwidth (KHz)	Test Channel	Test Frequency (MHz)	Power Level	Test Results (dBm)	Test Results (W)	Test Result
Analog	6.25	CH4	450.0125	L	26.945	0.495	Pass
				H	30.240	1.057	
		CH5	460.0000	L	27.075	0.510	
				H	30.208	1.049	
		CH6	469.9875	L	27.075	0.510	
				H	29.638	0.920	
	12.5	CH4	450.0125	L	26.947	0.495	
				H	30.492	1.120	
		CH5	460.0000	L	27.059	0.508	
				H	30.039	1.009	
		CH6	469.9875	L	27.040	0.506	
				H	29.665	0.926	
Digital	12.5	CH10	450.00625	L	27.076	0.510	
				H	29.956	0.990	
		CH11	460.00000	L	27.148	0.519	
				H	29.745	0.943	
		CH12	469.99375	L	27.699	0.589	
				H	29.445	0.880	

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Occupied Bandwidth and Emission Mask

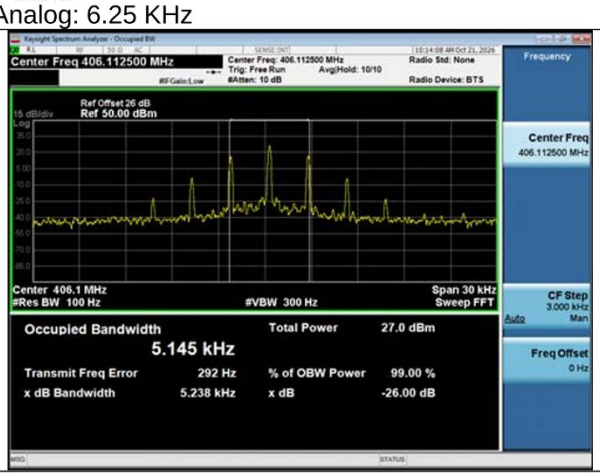
Occupied Bandwidth:

406.1-430MHz:

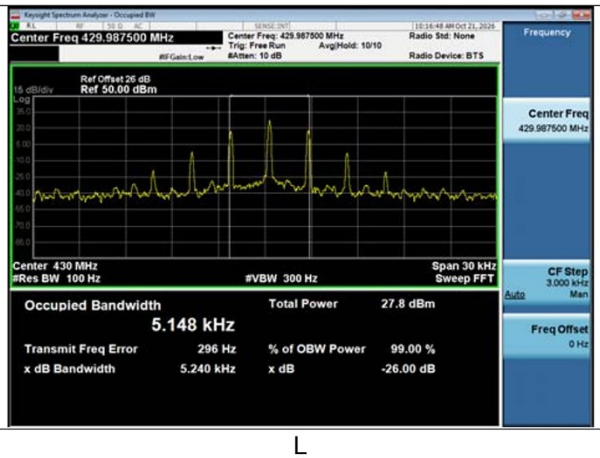
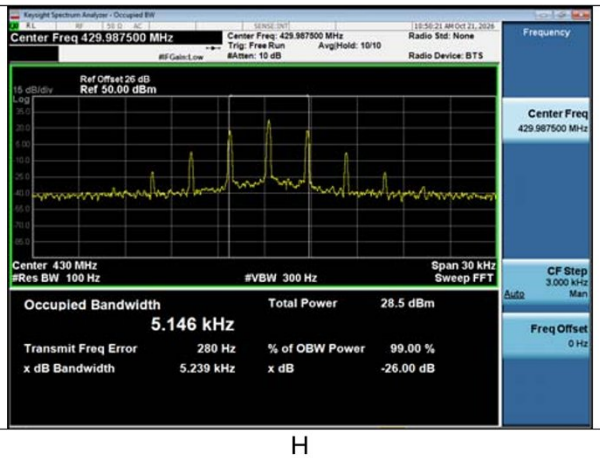
Mode	Channel Bandwidth (KHz)	Channel	Frequency (MHz)	Power Level	99% OBW (kHz)	26dB bandwidth (kHz)	99% OBW Limit (KHz)	Result
Analog	6.25	CH1	406.1125	L	5.145	5.238	6	Pass
				H	5.140	5.234		
		CH2	418.0625	L	5.149	5.241		
				H	5.160	5.244		
		CH3	429.9875	L	5.148	5.240		
				H	5.146	5.239		
	12.5	CH1	406.1125	L	10.022	10.19	11.25	
				H	10.008	10.17		
		CH2	418.0625	L	10.021	10.20		
				H	10.014	10.18		
		CH3	429.9875	L	10.017	10.19		
				H	10.008	10.18		
Digital	12.5	CH7	406.10625	L	7.264	9.178	11.25	Pass
				H	7.686	9.234		
		CH8	418.05625	L	7.393	9.175		
				H	7.459	9.424		
		CH9	429.99375	L	7.167	9.332		
				H	7.403	9.242		

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Analog: 6.25 KHz

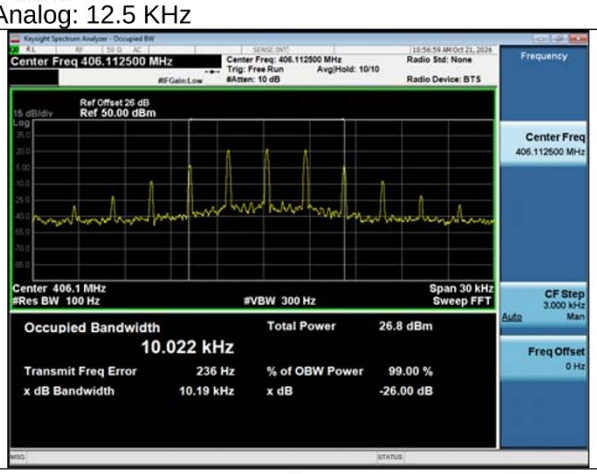
	
L	H
406.1125MHz	

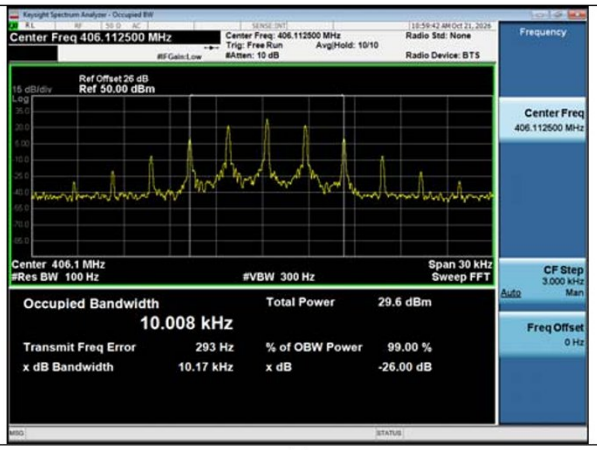
	
L	H
418.0625MHz	

	
L	H
429.9875MHz	

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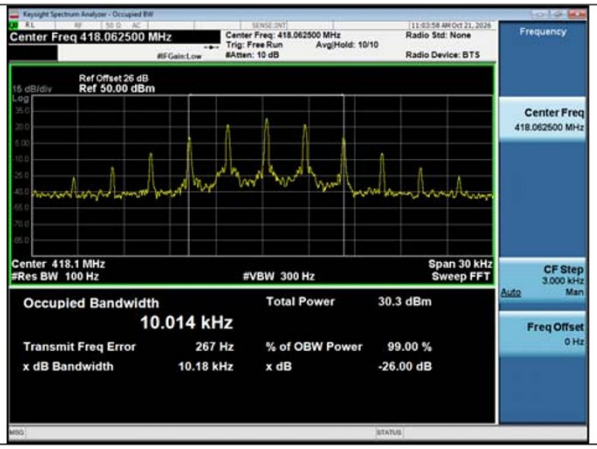
Analog: 12.5 KHz



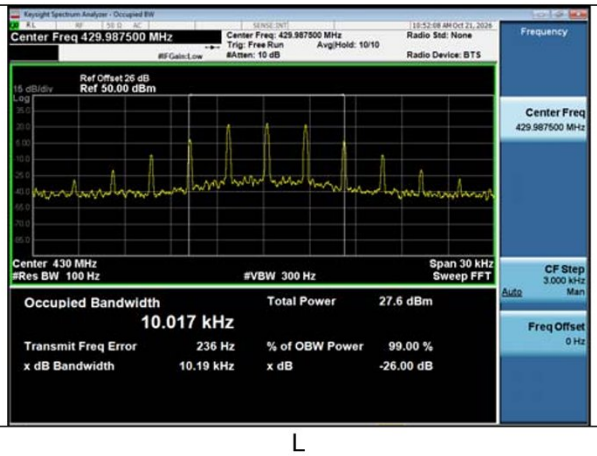


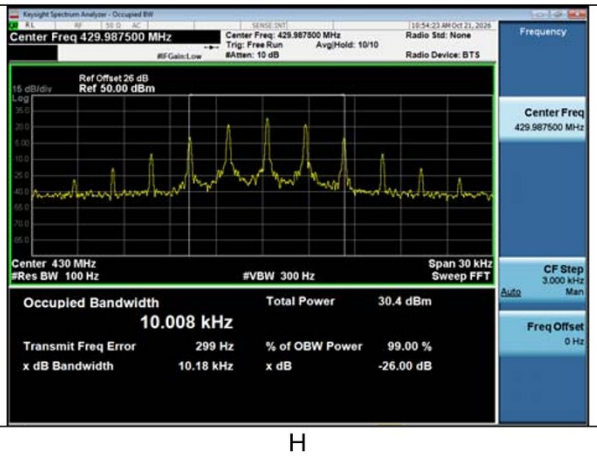
L	H
406.1125MHz	





L	H
418.0625MHz	





L	H
429.9875MHz	

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Digital: 12.5 KHz



L



H

406.10625MHz



L



H

418.05625MHz



L



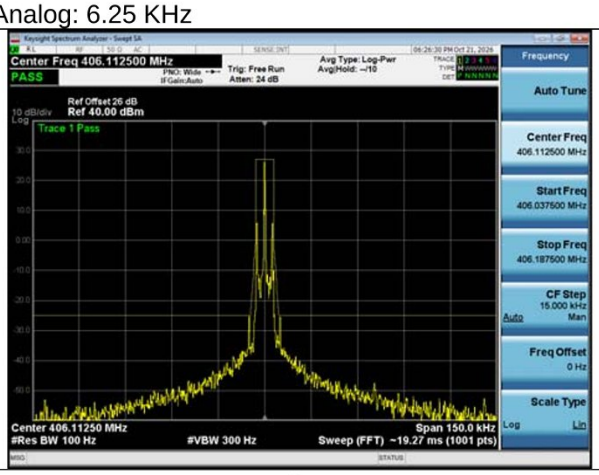
H

429.99375MHz

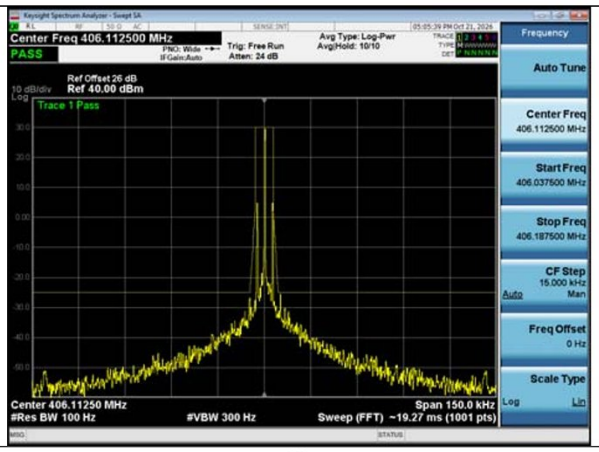
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Emission Mask:

Analog: 6.25 KHz

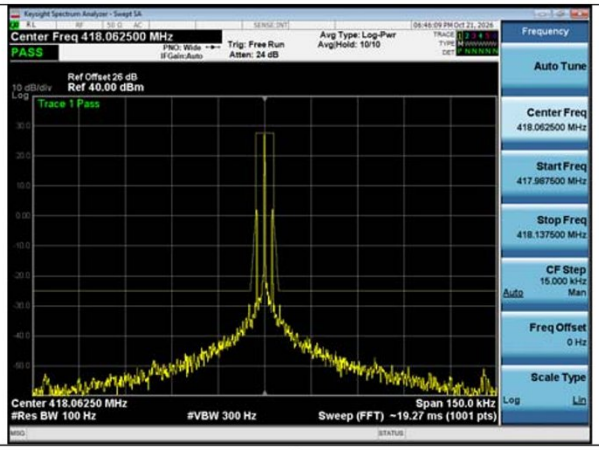


L

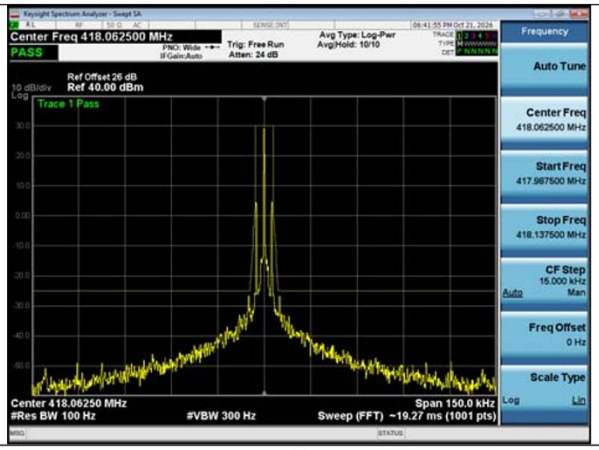


H

406.1125MHz

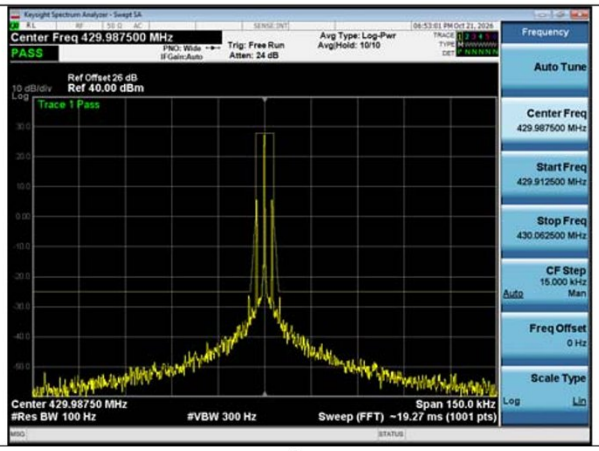


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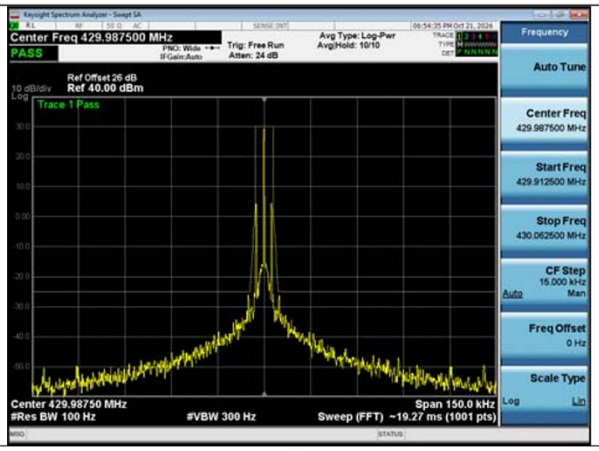


H

418.0625MHz



L

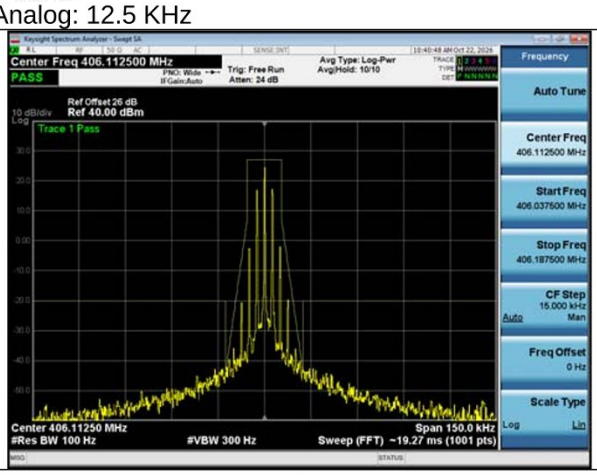
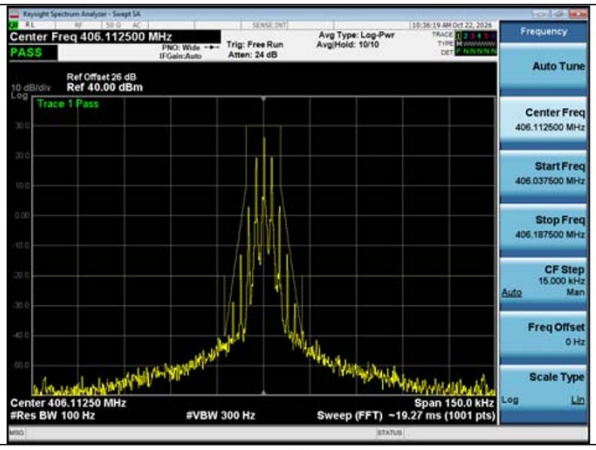
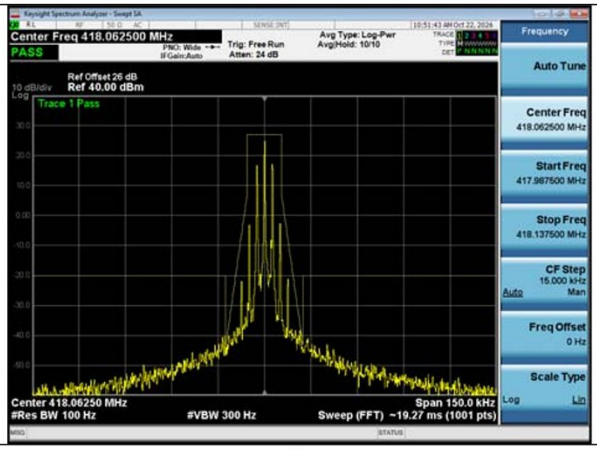
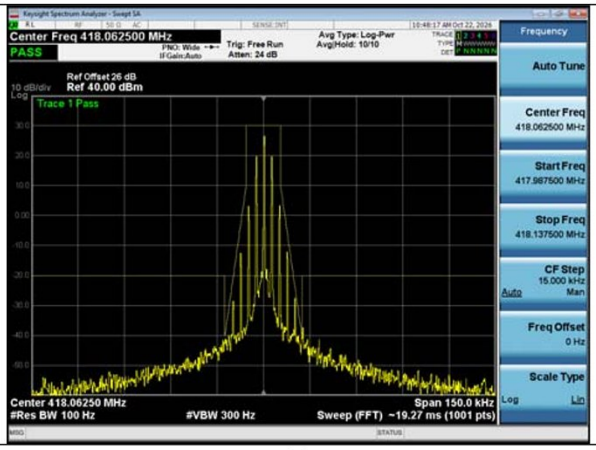
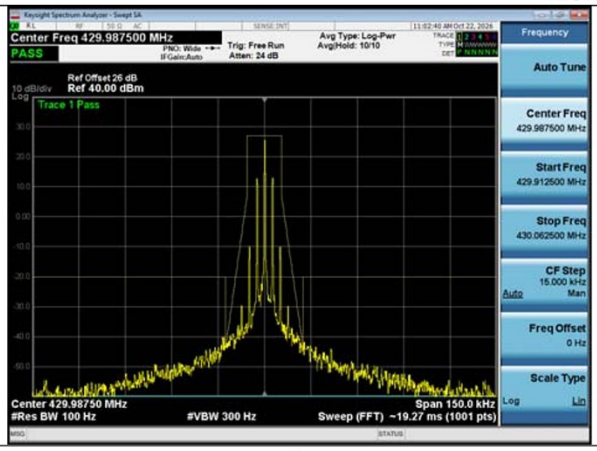
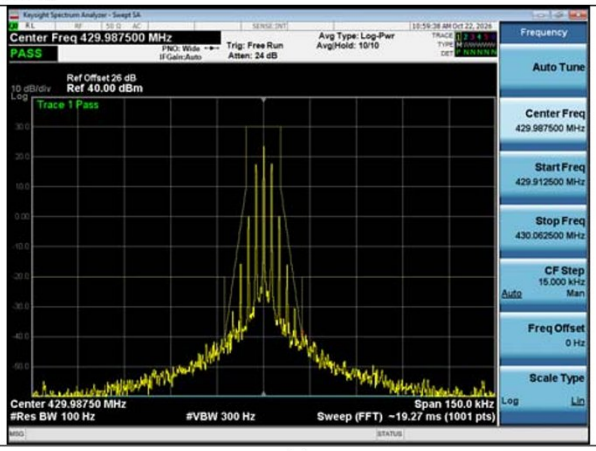


H

429.9875MHz

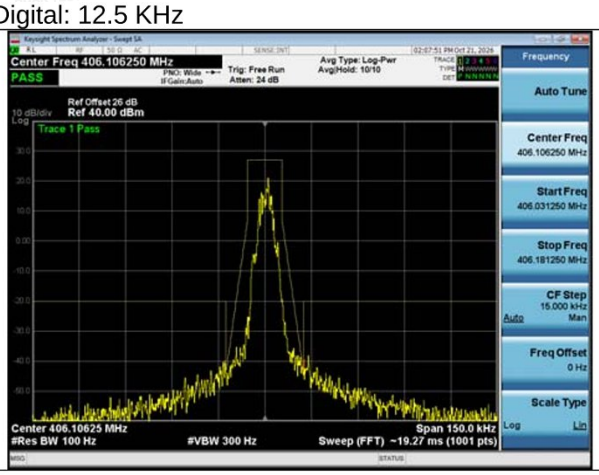
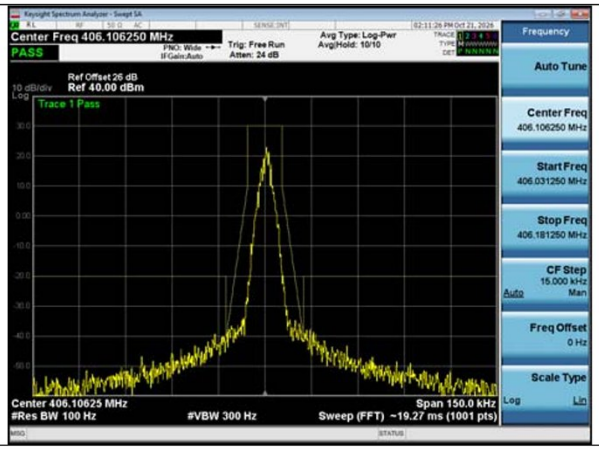
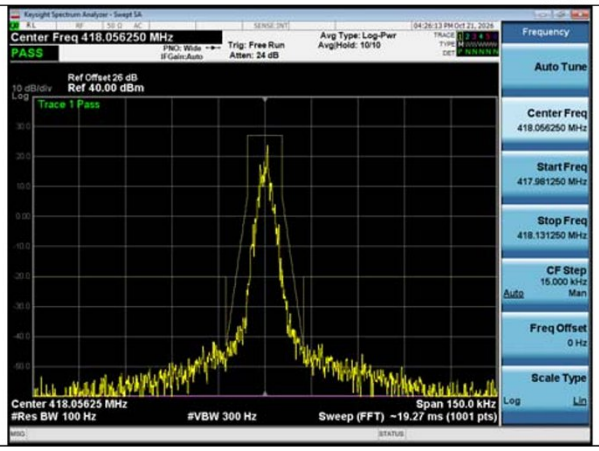
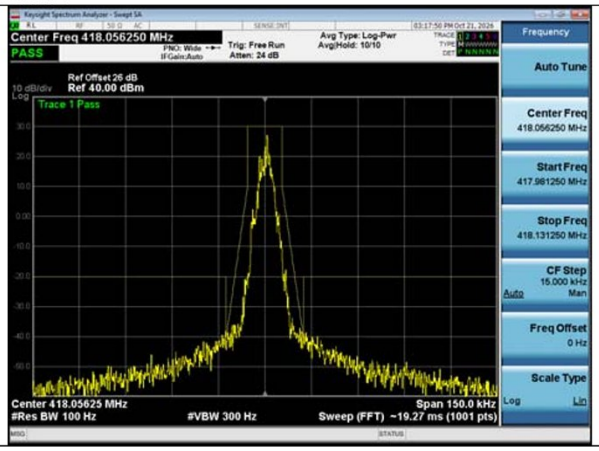
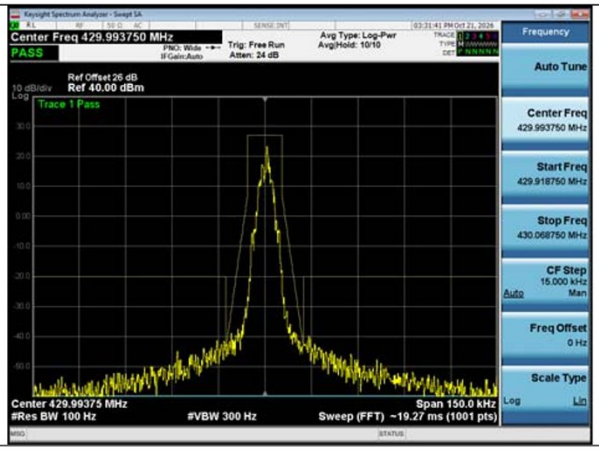
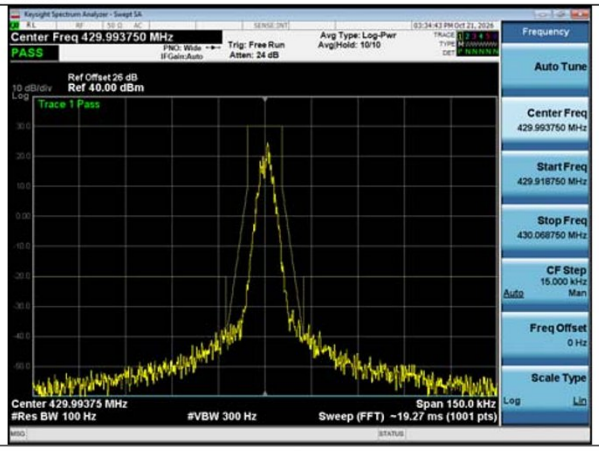
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Analog: 12.5 KHz

	
L	H
406.1125MHz	
	
L	H
418.0625MHz	
	
L	H
429.9875MHz	

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Digital: 12.5 KHz

	
L	H
406.10625MHz	
	
L	H
418.05625MHz	
	
L	H
429.99375MHz	

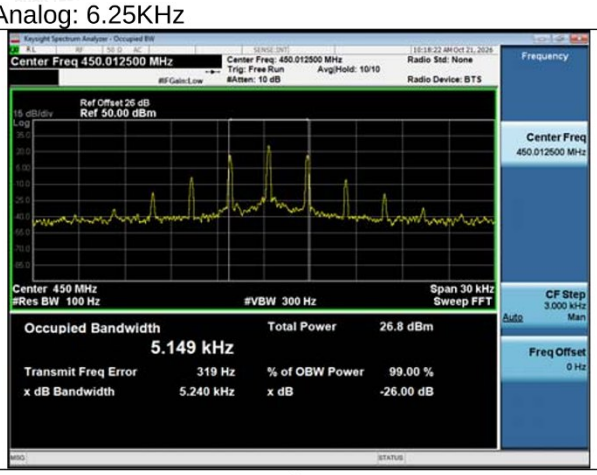
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450-470MHz:

Mode	Channel Bandwidth (KHz)	Channel	Frequency (MHz)	Power Level	99% OBW (kHz)	26dB bandwidth (kHz)	99% OBW Limit (KHz)	Result
Analog	6.25	CH4	450.0125	L	5.149	5.240	6	Pass
				H	5.150	5.239		
		CH5	460.0000	L	5.149	5.241		
				H	5.153	5.240		
		CH6	469.9875	L	5.158	5.240		
				H	5.150	5.241		
	12.5	CH4	450.0125	L	10.000	10.18	11.25	
				H	9.920	10.14		
		CH5	460.0000	L	9.995	10.19		
				H	10.012	10.16		
		CH6	469.9875	L	10.051	10.21		
				H	10.034	10.18		
Digital	12.5	CH10	450.00625	L	7.102	8.987	11.25	Pass
				H	7.584	9.217		
		CH11	460.00000	L	7.351	9.086		
				H	7.067	9.302		
		CH12	469.99375	L	7.159	9.035		
				H	7.288	9.338		

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Analog: 6.25KHz



L



H

450.0125MHz



L



H

460.0000MHz



L

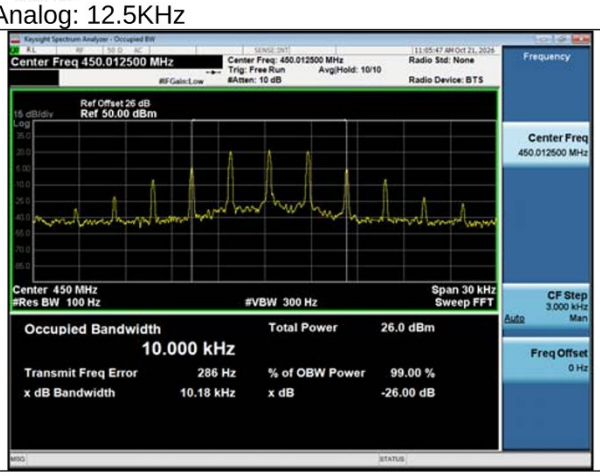


H

469.9875MHz

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Analog: 12.5KHz



L

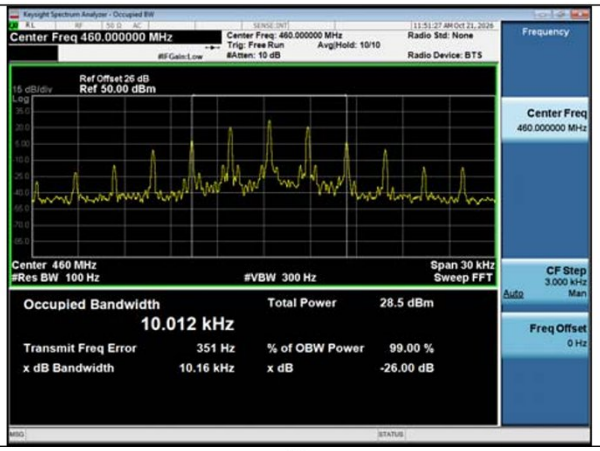


H

450.0125MHz



L

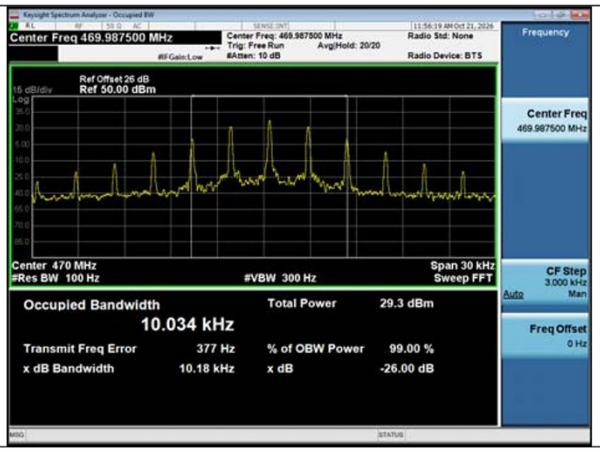


H

460.0000MHz



L



H

469.9875MHz

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Digital: 12.5 KHz

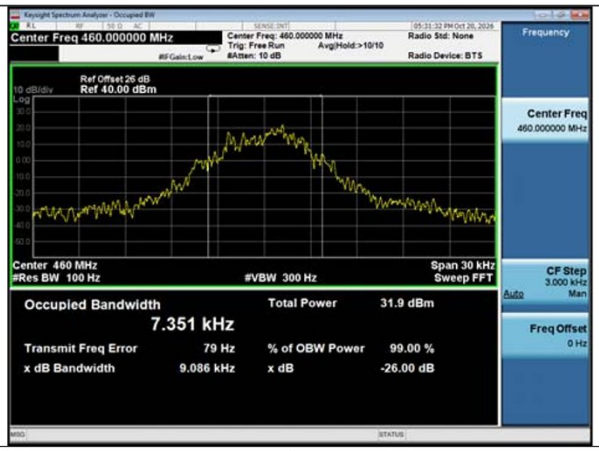


L



H

450.00625MHz



L



H

460.00000MHz



L



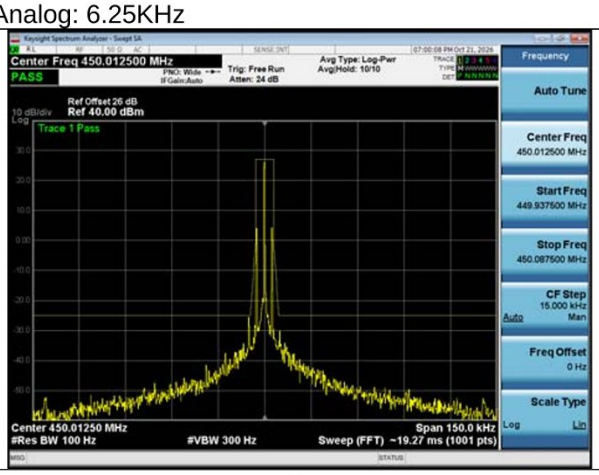
H

469.99375MHz

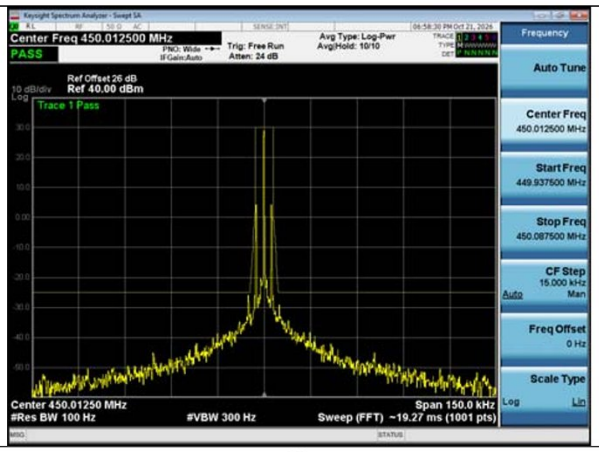
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Emission Mask:

Analog: 6.25KHz

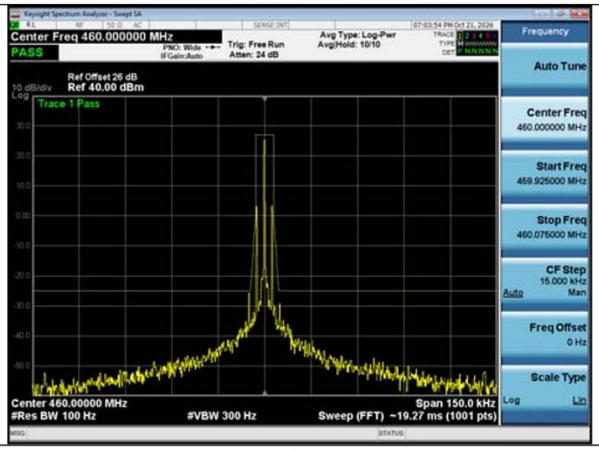


L

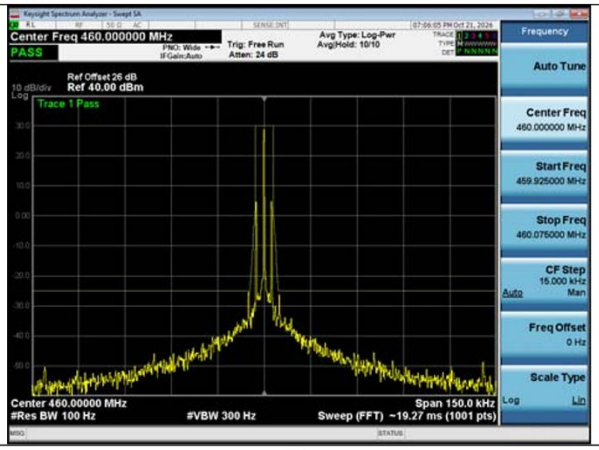


H

450.0125MHz

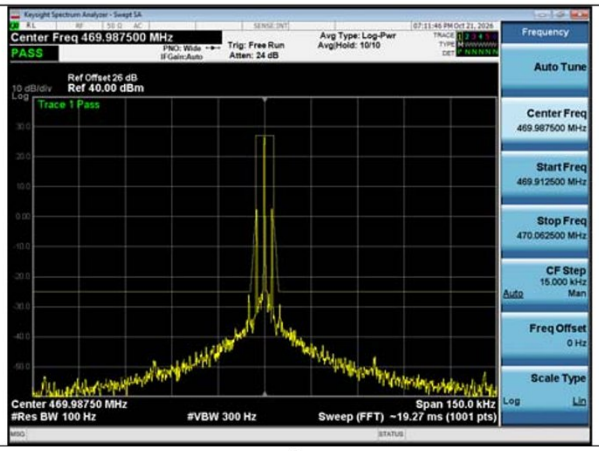


L

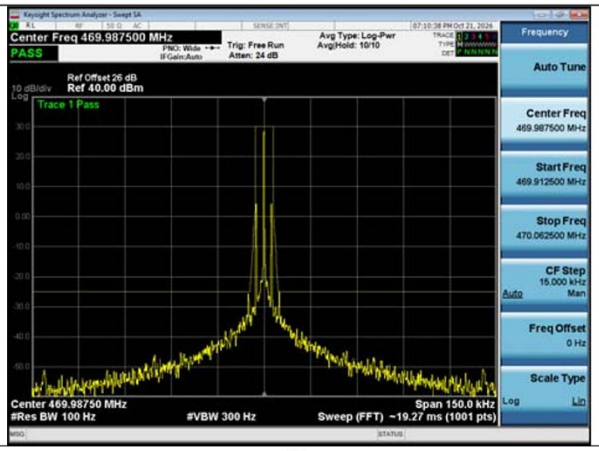


H

460.0000MHz



L

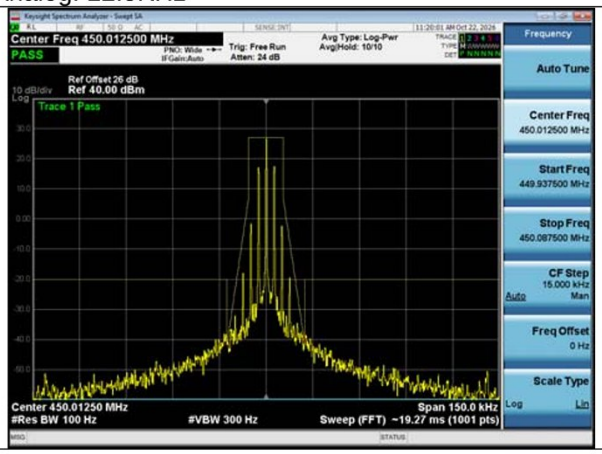


H

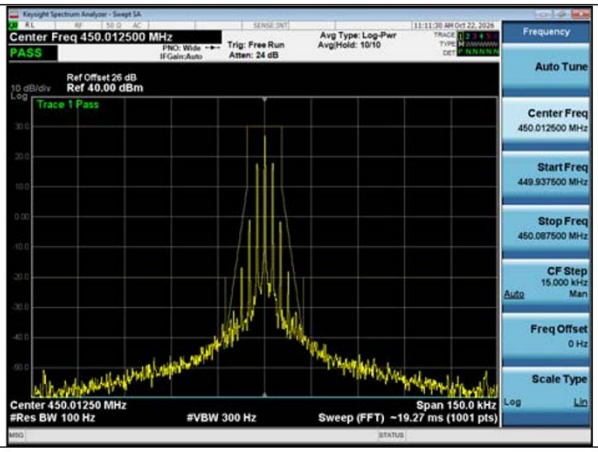
469.9875MHz

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Analog: 12.5KHz

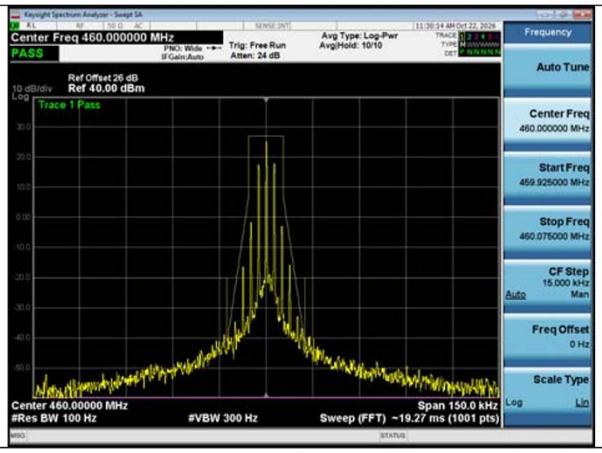


L

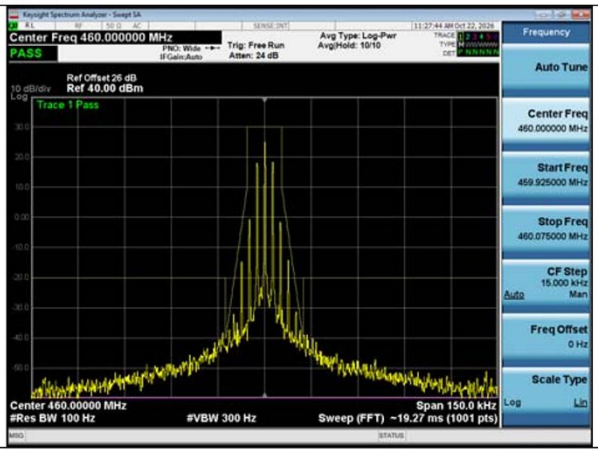


H

450.0125MHz

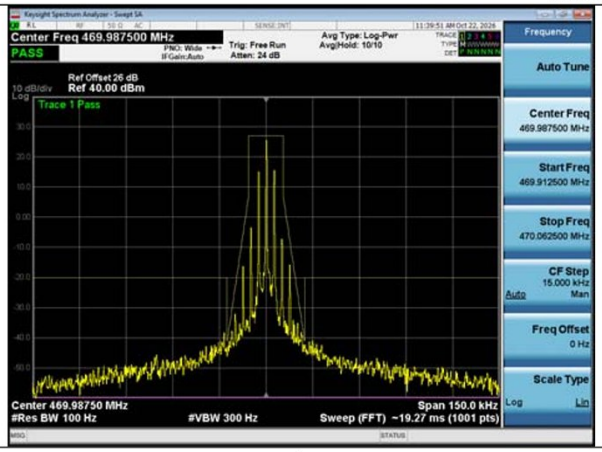


L

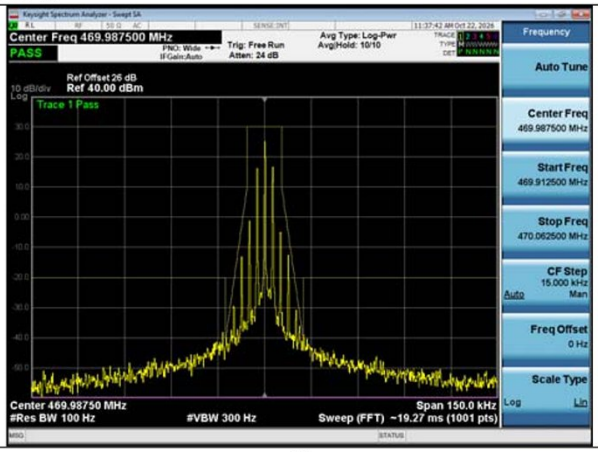


H

460.0000MHz



L

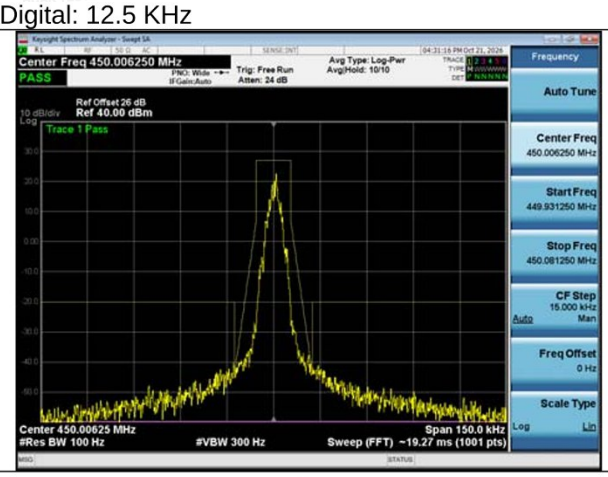
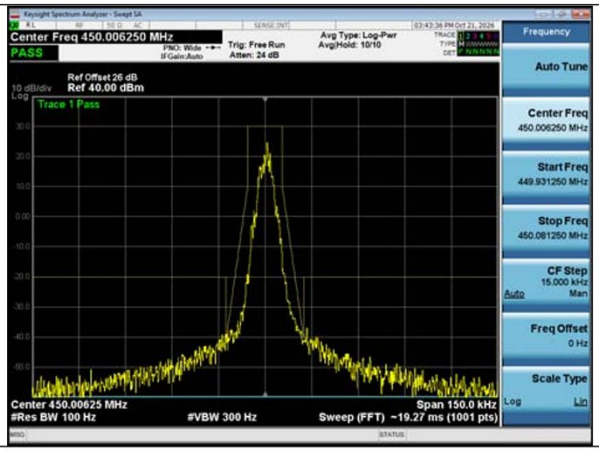
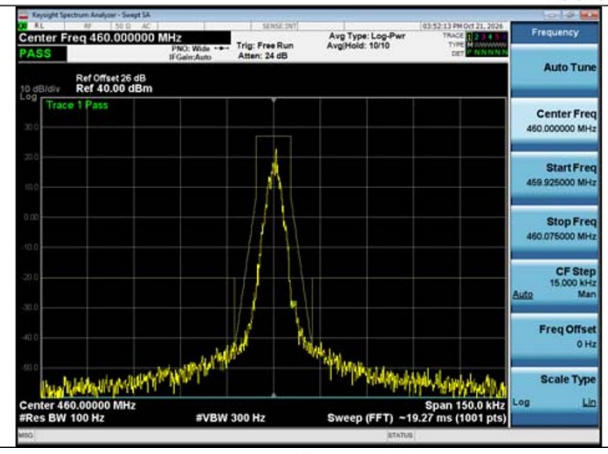
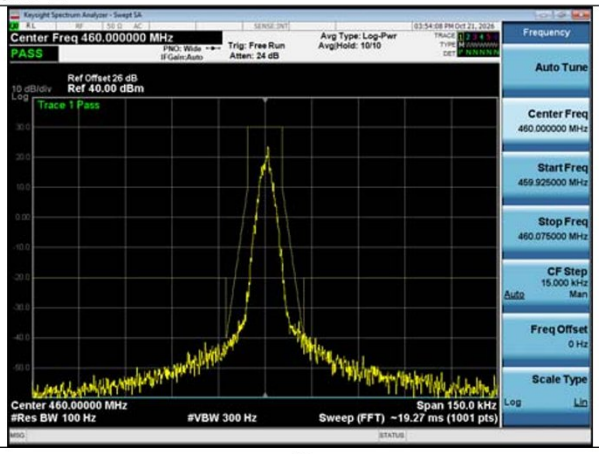
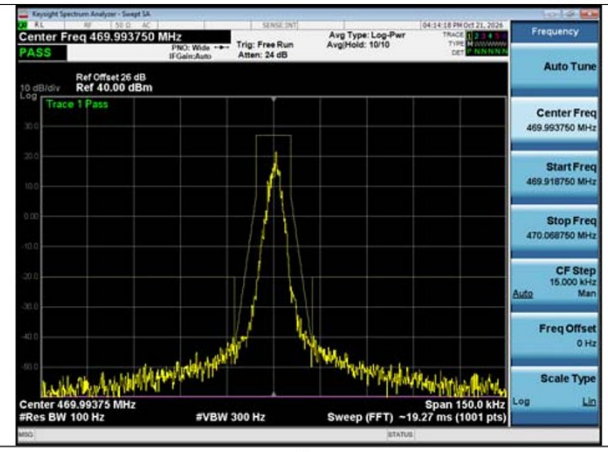
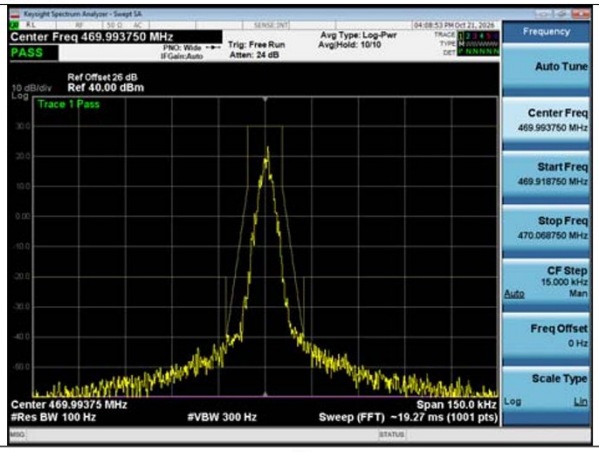


H

469.9875MHz

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Digital: 12.5 KHz

	
L	H
450.00625MHz	
	
L	H
460.00000MHz	
	
L	H
469.99375MHz	

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Modulation Characteristic

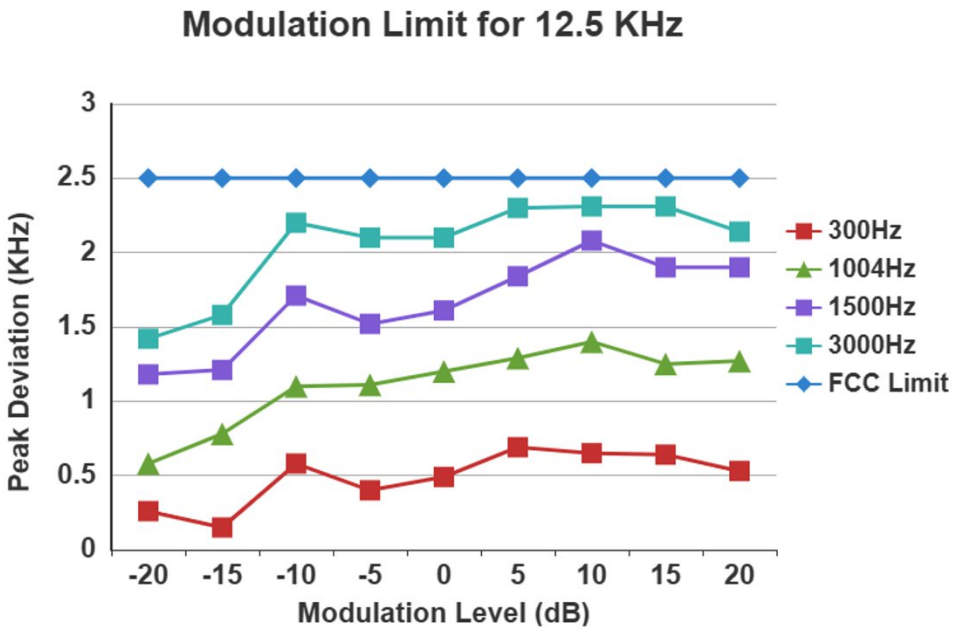
All the test modes completed for test. Only the worst result was reported as below:

Modulation Limit

Analog:

12.5 KHz Channel Separations

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)
-20	0.26	0.58	1.18	1.42
-15	0.15	0.78	1.21	1.58
-10	0.58	1.1	1.71	2.2
-5	0.4	1.11	1.52	2.1
0	0.49	1.2	1.61	2.1
5	0.69	1.29	1.84	2.3
10	0.65	1.4	2.08	2.31
15	0.64	1.25	1.9	2.31
20	0.53	1.27	1.9	2.14



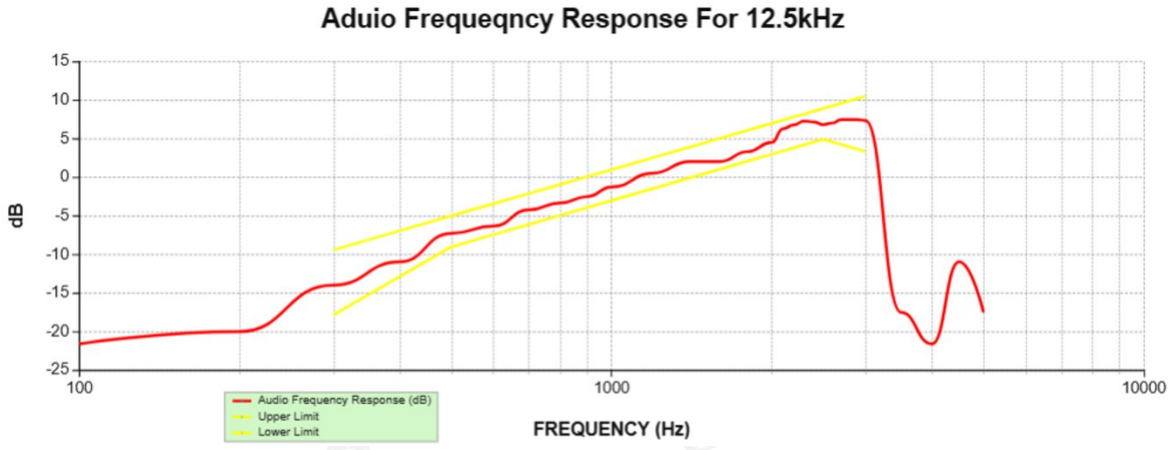
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Audio Frequency Response

All the test modes completed for test. Only the worst result was reported as below:

12.5 KHz Channel Separation

Frequency (KHz)	Frequency Deviation (KHz)	1KHz Reference Deviation (KHz)	Audio Frequency Response (dB)
0.1	0.05	0.6	-21.58
0.2	0.06	0.6	-20
0.3	0.12	0.6	-13.98
0.4	0.17	0.6	-10.95
0.5	0.24	0.6	-7.96
0.6	0.33	0.6	-5.19
0.7	0.38	0.6	-3.97
0.8	0.42	0.6	-3.1
0.9	0.47	0.6	-2.12
1	0.55	0.6	-0.76
1.2	0.67	0.6	0.96
1.4	0.76	0.6	2.05
1.6	0.79	0.6	2.39
1.8	0.96	0.6	4.08
2	1.11	0.6	5.34
2.1	1.26	0.6	6.44
2.2	1.32	0.6	6.85
2.3	1.37	0.6	7.17
2.4	1.37	0.6	7.17
2.5	1.32	0.6	6.85
2.6	1.35	0.6	7.04
2.7	1.41	0.6	7.42
2.8	1.43	0.6	7.54
2.9	1.45	0.6	7.66
3	1.42	0.6	7.48
3.5	0.07	0.6	-18.66
4	0.06	0.6	-20
4.5	0.14	0.6	-12.64
5	0.05	0.6	-21.58

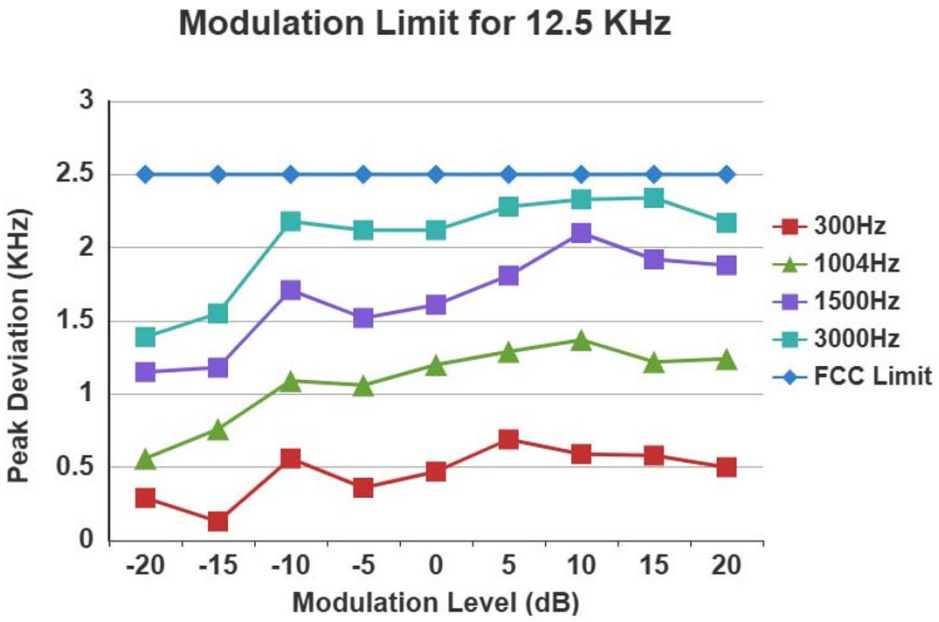


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Digital:

12.5 KHz Channel Separations

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)
-20	0.29	0.56	1.15	1.39
-15	0.13	0.76	1.18	1.55
-10	0.56	1.09	1.71	2.18
-5	0.36	1.06	1.52	2.12
0	0.47	1.2	1.61	2.12
5	0.69	1.29	1.81	2.28
10	0.59	1.37	2.1	2.33
15	0.58	1.22	1.92	2.34
20	0.5	1.24	1.88	2.17



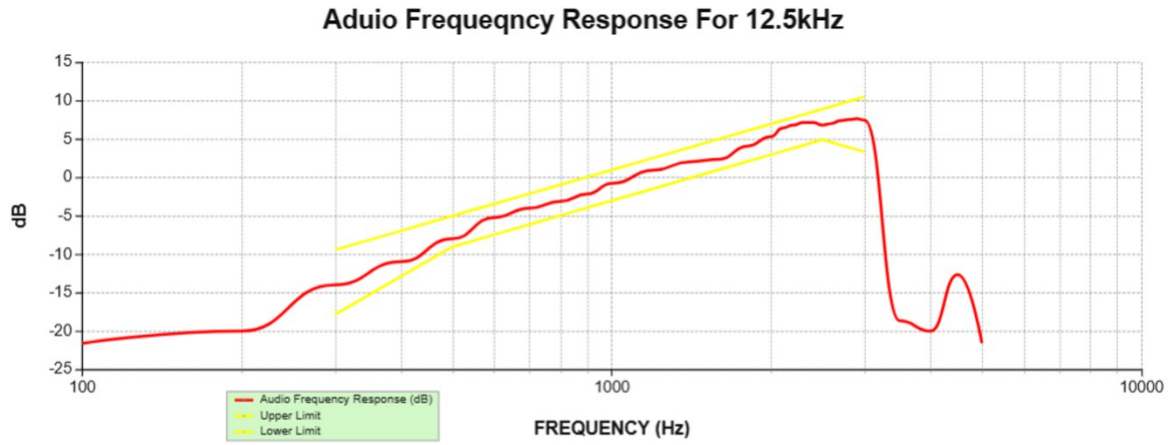
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Audio Frequency Response

All the test modes completed for test. Only the worst result was reported as below:

12.5 KHz Channel Separation

Frequency (KHz)	Frequency Deviation (KHz)	1KHz Reference Deviation (KHz)	Audio Frequency Response (dB)
0.1	0.05	0.6	-21.58
0.2	0.06	0.6	-20
0.3	0.12	0.6	-13.98
0.4	0.17	0.6	-10.95
0.5	0.26	0.6	-7.26
0.6	0.29	0.6	-6.32
0.7	0.37	0.6	-4.2
0.8	0.41	0.6	-3.31
0.9	0.45	0.6	-2.5
1	0.52	0.6	-1.24
1.2	0.64	0.6	0.56
1.4	0.76	0.6	2.05
1.6	0.76	0.6	2.05
1.8	0.88	0.6	3.33
2	1.01	0.6	4.52
2.1	1.24	0.6	6.31
2.2	1.31	0.6	6.78
2.3	1.39	0.6	7.3
2.4	1.37	0.6	7.17
2.5	1.32	0.6	6.85
2.6	1.35	0.6	7.04
2.7	1.42	0.6	7.48
2.8	1.42	0.6	7.48
2.9	1.42	0.6	7.48
3	1.4	0.6	7.36
3.5	0.08	0.6	-17.5
4	0.05	0.6	-21.58
4.5	0.17	0.6	-10.95
5	0.08	0.6	-17.5

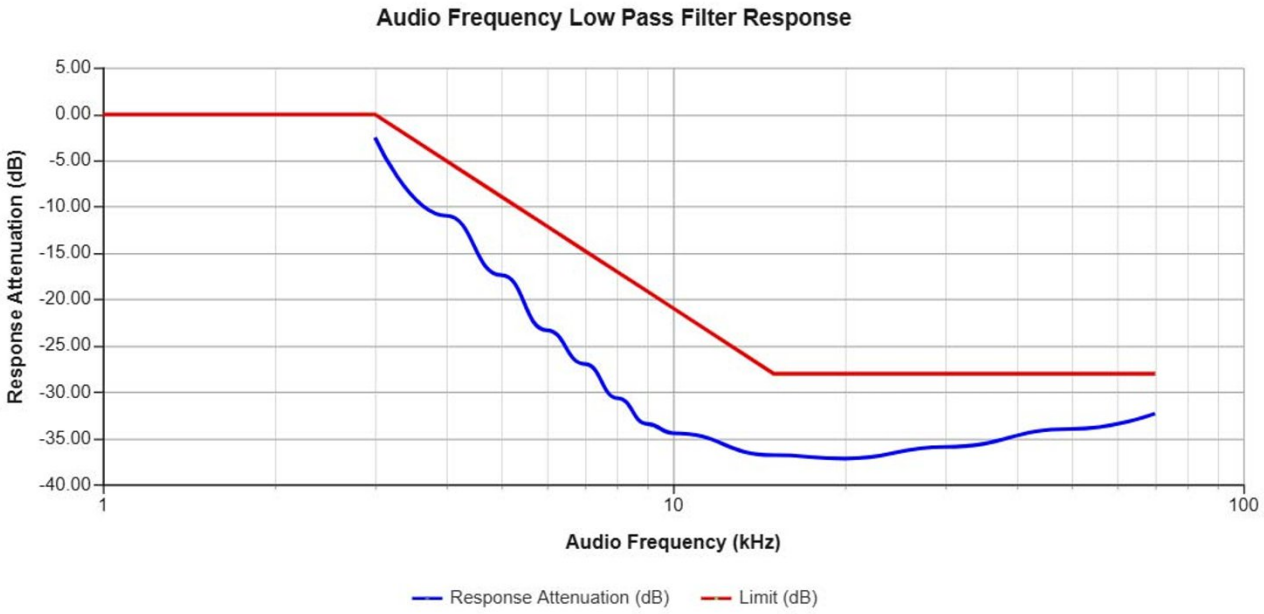


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Audio Frequency Low Pass Filter Response

All the test modes completed for test. Only the worst result was reported as below:

Audio Frequency (KHz)	Response attenuation (dB)	Limit (dB)
1	0	/
3	-2.49	0
4	-10.93	-5
5	-17.35	-8.87
6	-23.29	-12.04
7	-26.94	-14.72
8	-30.64	-17.04
9	-33.41	-19.08
10	-34.41	-20.92
15	-36.78	-28
20	-37.16	-28
30	-35.89	-28
50	-33.95	-28
70	-32.3	-28



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Frequency Stability

Analog: 6.25KHz

Test conditions		Frequency error (ppm)			Limit (ppm)	Result
Voltage(V)	Temp(℃)	406.10625MHz	418.05625MHz	429.99375MHz		
4.2	-30	0.51	0.48	0.50	1	Pass
	-20	0.61	0.62	0.67		
	-10	0.70	0.76	0.68		
	0	0.79	0.88	0.78		
	10	0.83	0.87	0.84		
	20	0.72	0.69	0.73		
	30	0.68	0.62	0.64		
	40	0.67	0.64	0.61		
	50	0.67	0.63	0.66		
3.57 (85% Rated)	20	0.82	0.78	0.82		
4.83 (115% Rated)	20	0.72	0.66	0.74		

Test conditions		Frequency error (ppm)			Limit (ppm)	Result
Voltage(V)	Temp(℃)	450.00625MHz	460.00000MHz	469.99375MHz		
4.2	-30	0.48	0.52	0.48	1	Pass
	-20	0.64	0.59	0.59		
	-10	0.69	0.72	0.71		
	0	0.80	0.81	0.87		
	10	0.86	0.86	0.84		
	20	0.66	0.65	0.70		
	30	0.66	0.65	0.65		
	40	0.64	0.63	0.66		
	50	0.58	0.58	0.64		
3.57 (85% Rated)	20	0.82	0.80	0.79		
4.83 (115% Rated)	20	0.67	0.67	0.68		

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Analog: 12.5KHz

Test conditions		Frequency error (ppm)			Limit (ppm)	Result
Voltage(V)	Temp(℃)	406.10625MHz	418.05625MHz	429.99375MHz		
4.2	-30	1.27	1.33	1.29	2.5	Pass
	-20	1.38	1.37	1.38		
	-10	1.12	1.14	1.14		
	0	1.35	1.33	1.41		
	10	1.30	1.26	1.25		
	20	1.28	1.23	1.27		
	30	1.37	1.33	1.06		
	40	1.29	1.28	1.25		
	50	1.11	1.08	1.10		
3.57 (85% Rated)	20	1.02	0.98	1.02		
4.83 (115% Rated)	20	1.24	1.28	1.23		

Test conditions		Frequency error (ppm)			Limit (ppm)	Result
Voltage(V)	Temp(℃)	450.00625MHz	460.00000MHz	469.99375MHz		
4.2	-30	1.28	1.24	1.28	2.5	Pass
	-20	1.31	1.29	1.38		
	-10	1.09	1.18	1.10		
	0	1.33	1.35	1.41		
	10	1.28	1.25	1.27		
	20	1.27	1.23	1.23		
	30	1.03	1.04	1.07		
	40	1.33	1.32	1.29		
	50	1.11	1.11	1.17		
3.57 (85% Rated)	20	1.07	1.01	1.06		
4.83 (115% Rated)	20	1.30	1.27	1.30		

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Digital: 12.5KHz

Test conditions		Frequency error (ppm)			Limit (ppm)	Result
Voltage(V)	Temp(℃)	406.1125MHz	418.0625MHz	429.9875MHz		
4.2	-30	1.23	1.25	1.09	2.5	Pass
	-20	1.23	1.22	1.31		
	-10	1.14	1.19	1.13		
	0	1.12	1.15	1.06		
	10	1.21	1.20	1.26		
	20	1.21	1.27	1.20		
	30	1.07	1.02	1.01		
	40	1.26	1.26	1.27		
	50	1.10	1.17	1.10		
3.57 (85% Rated)	20	0.99	1.06	1.04		
4.83 (115% Rated)	20	1.26	1.26	1.23		

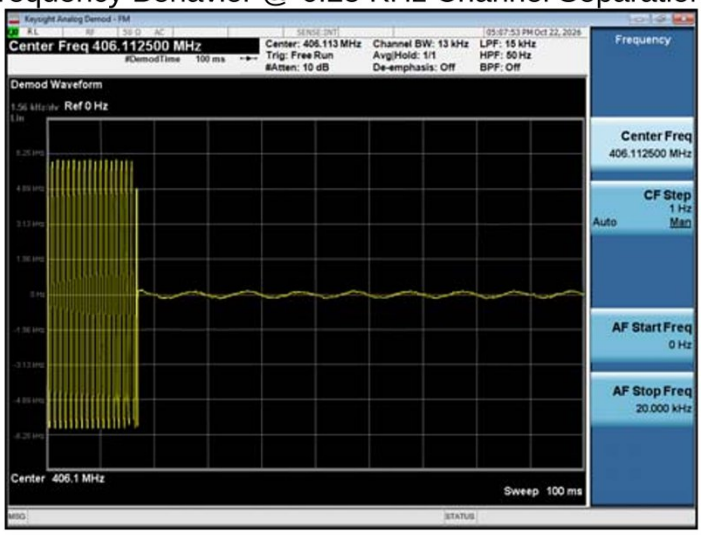
Test conditions		Frequency error (ppm)			Limit (ppm)	Result
Voltage(V)	Temp(℃)	450.0125MHz	460.0000MHz	469.9875MHz		
4.2	-30	1.14	1.17	1.13	2.5	Pass
	-20	1.17	1.13	1.15		
	-10	1.16	1.16	1.13		
	0	1.10	1.12	1.10		
	10	1.29	1.28	1.27		
	20	1.21	1.24	1.27		
	30	1.00	1.02	1.00		
	40	1.26	1.29	1.25		
	50	1.10	1.10	1.10		
3.57 (85% Rated)	20	1.06	1.03	1.01		
4.83 (115% Rated)	20	1.25	1.24	1.22		

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Transmitter Frequency Behavior

Modulation Type: FM

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



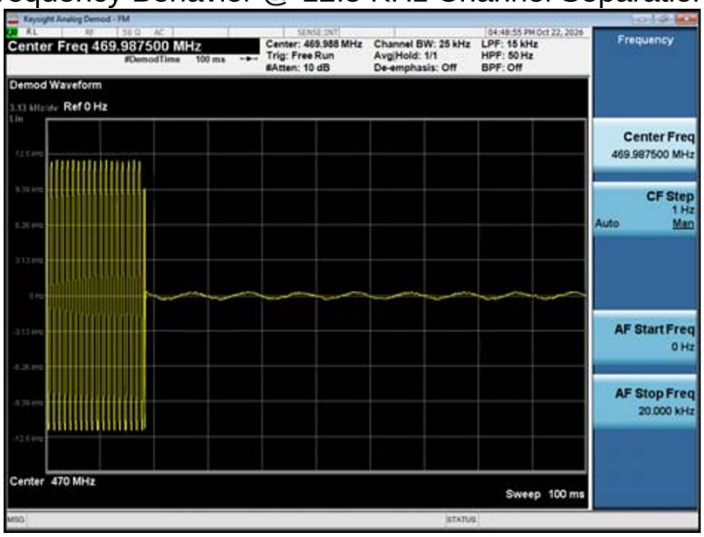
Transmitter Frequency Behavior @ 6.25 KHz Channel Separation------On – Off



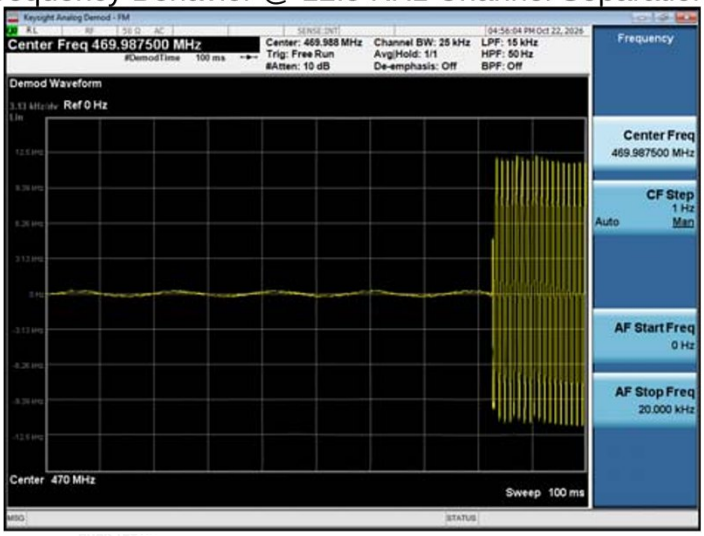
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Modulation Type: FM

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



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



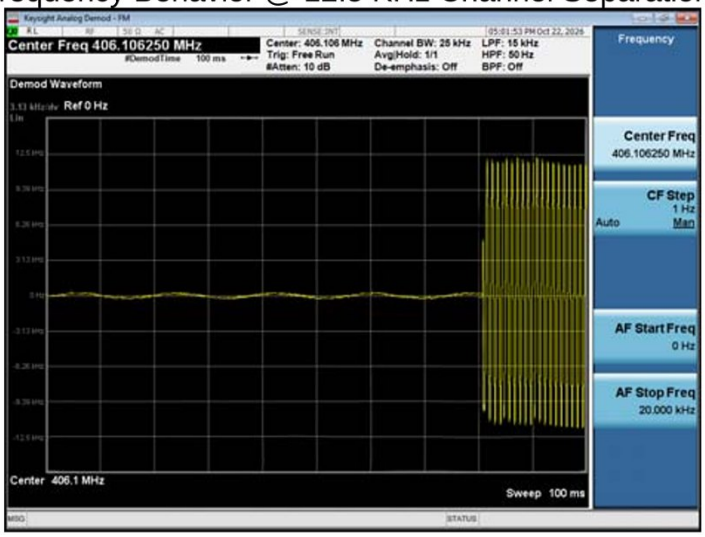
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Modulation Type: 4FSK

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



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

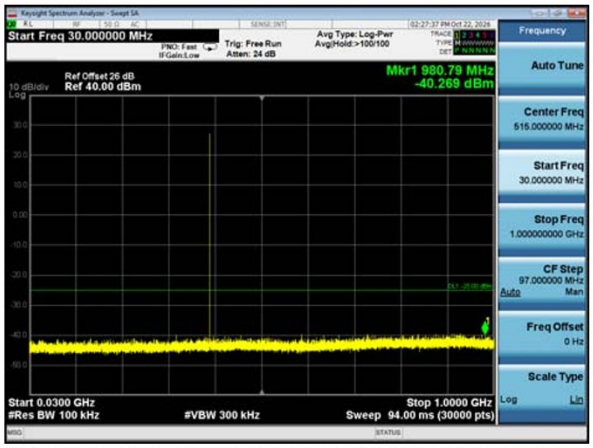


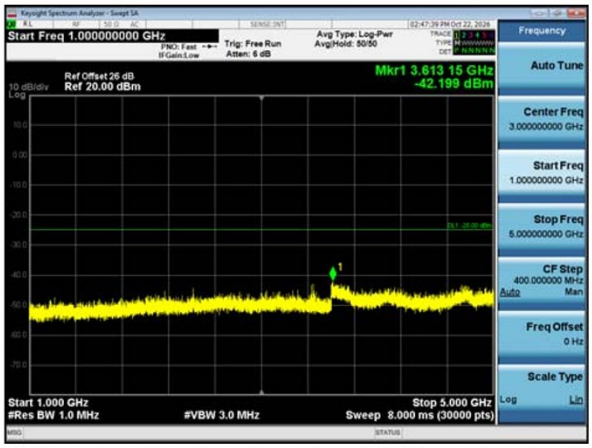
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Transmitter Spurious Emissions (Conducted)

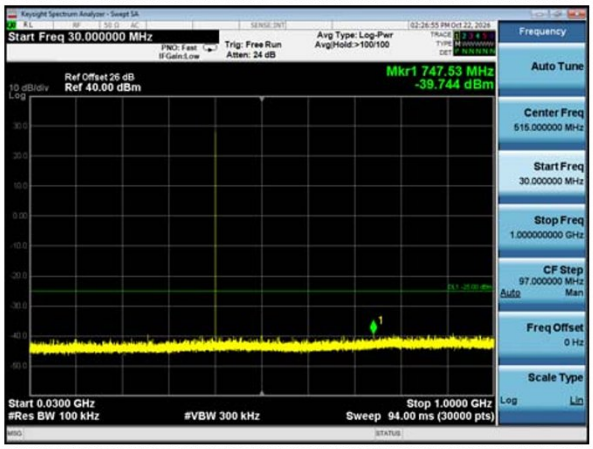
Analog: 6.25K
406.1-430MHz: LOW

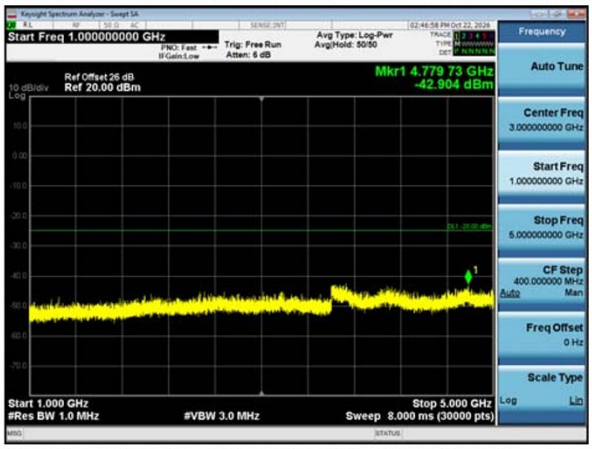
FM





CH1





CH2





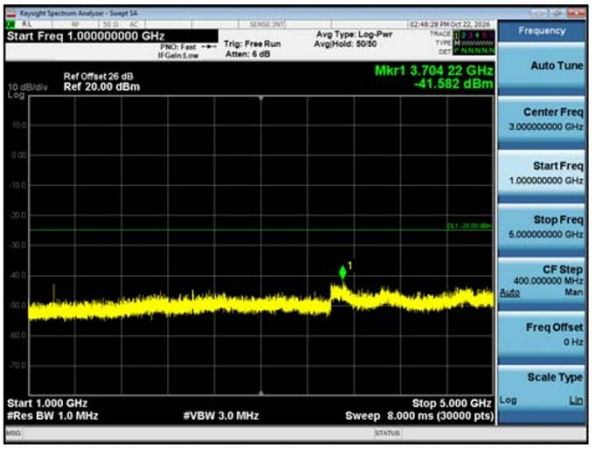
CH3

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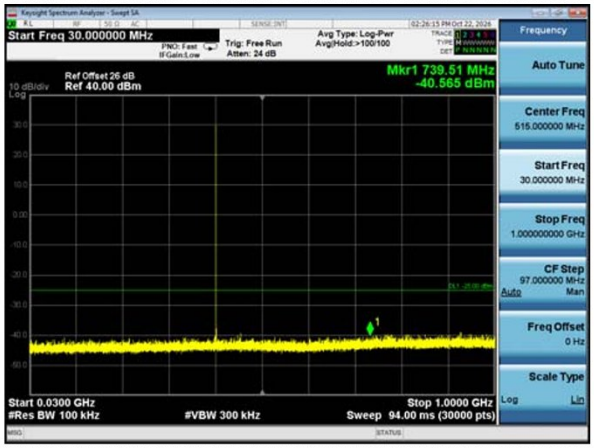
406.1-430MHz: HIGH

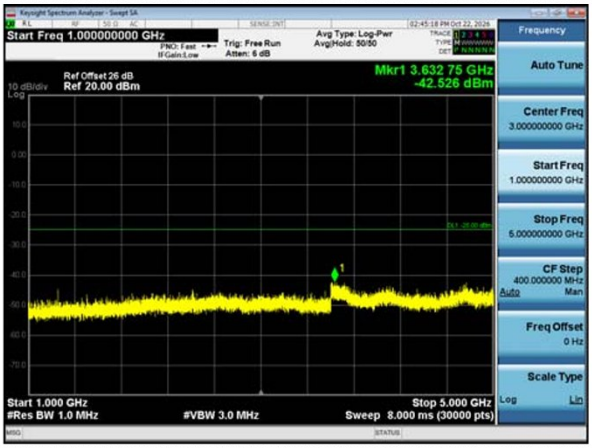
FM





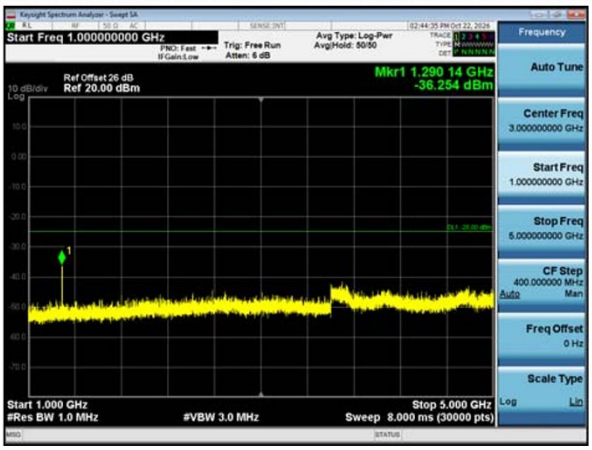
CH1





CH2



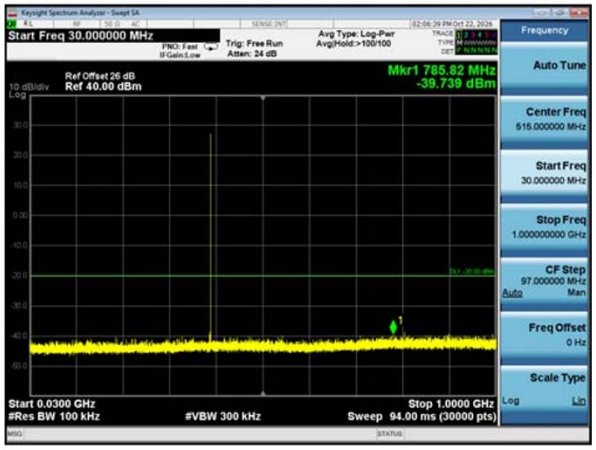


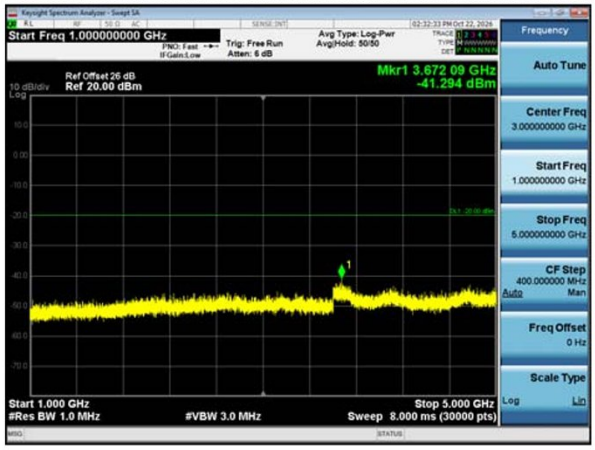
CH3

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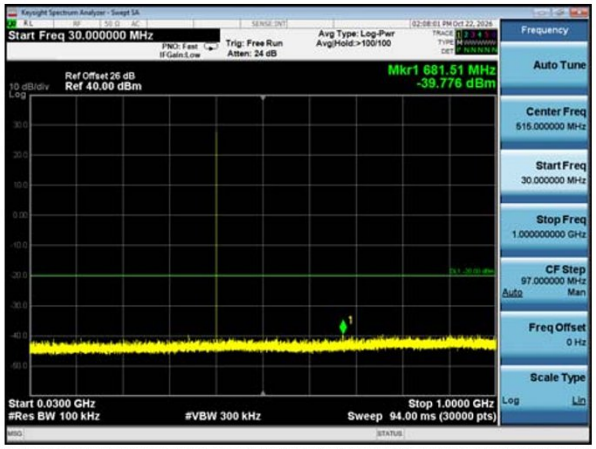
Analog: 12.5K
406.1-430MHz: LOW

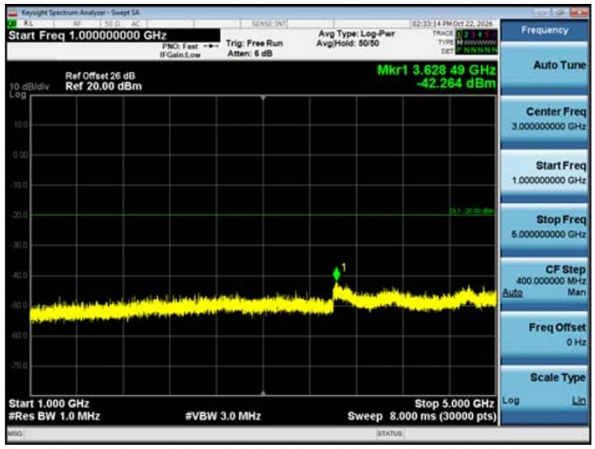
FM



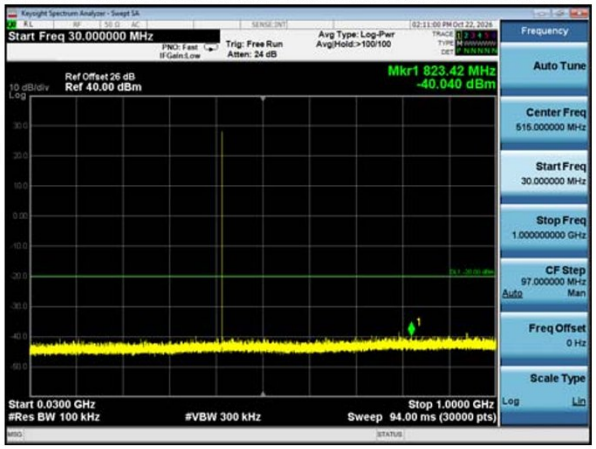


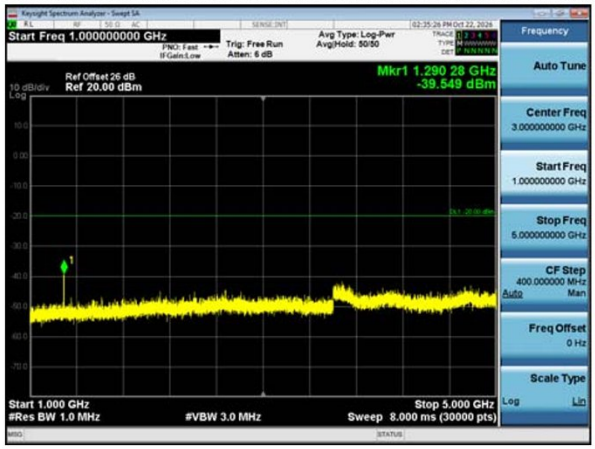
CH7





CH8



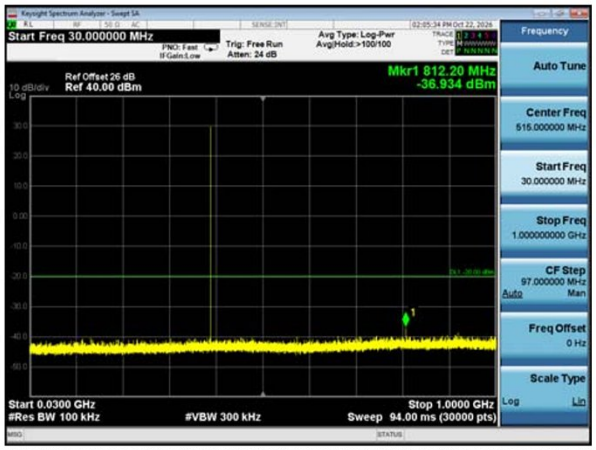


CH9

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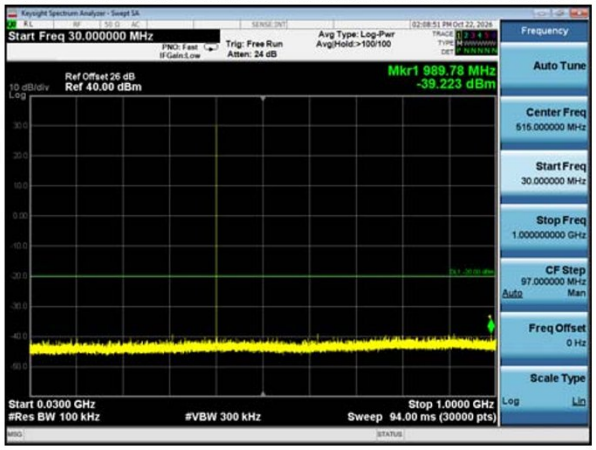
406.1-430MHz: HIGH

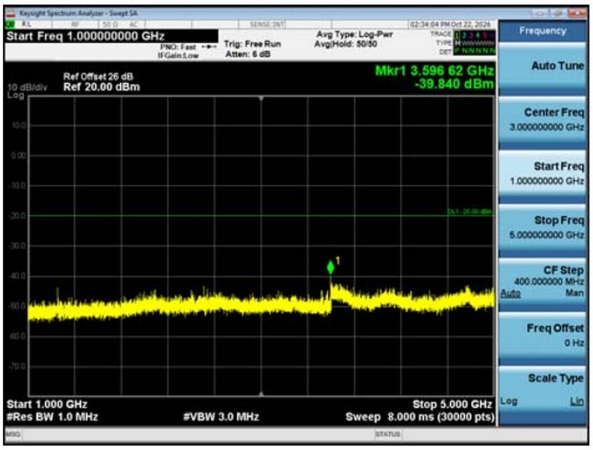
FM



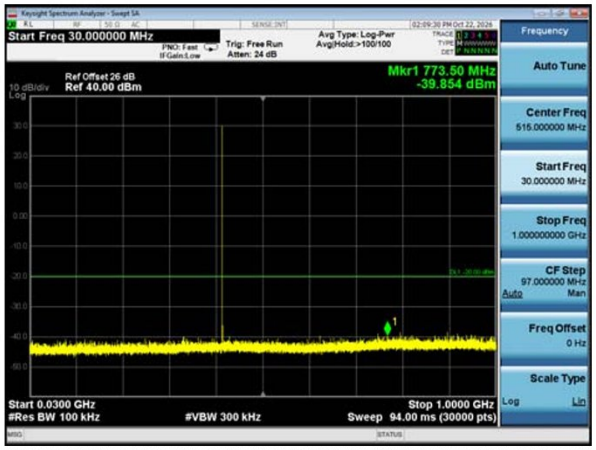


CH1





CH2

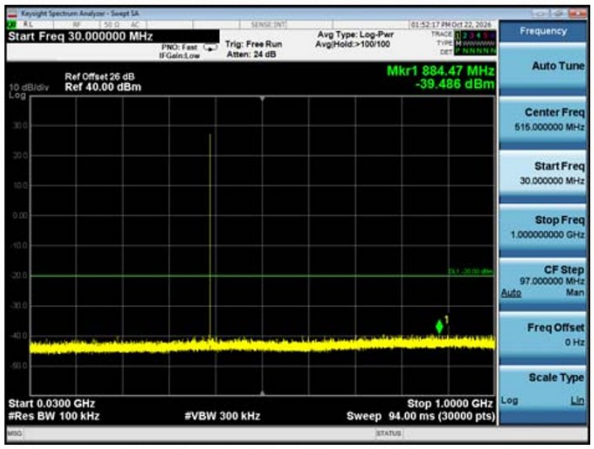
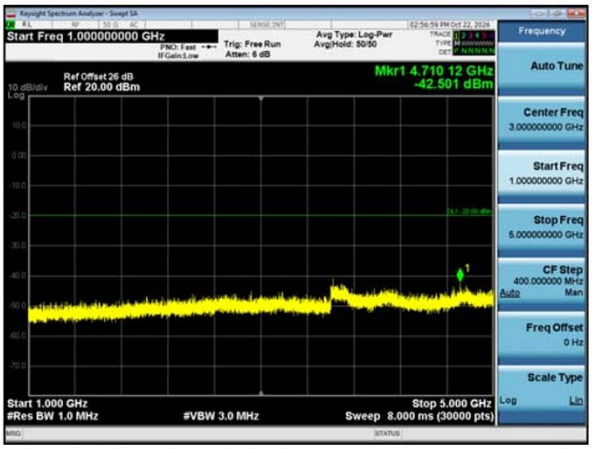
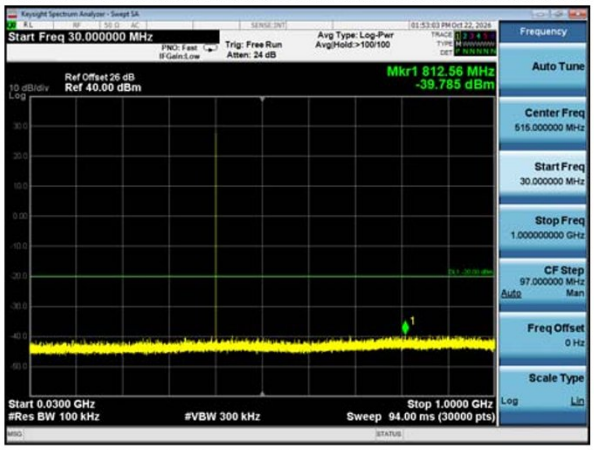
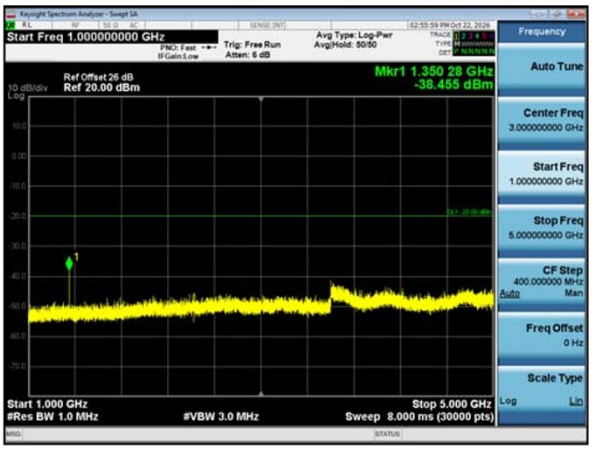
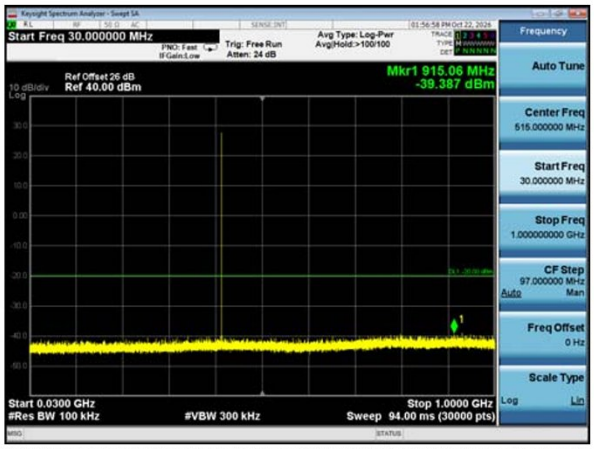




CH3

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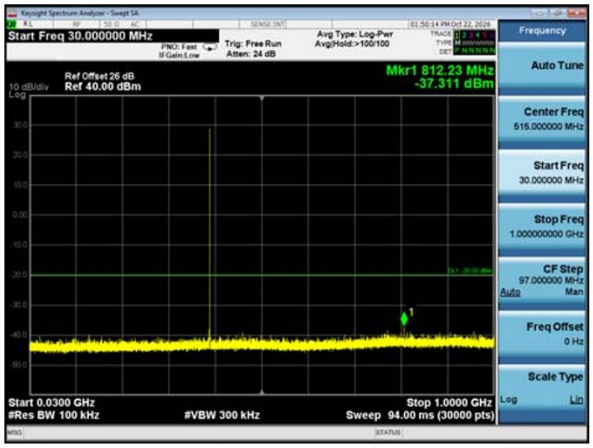
Digital: 12.5K
406.1-430MHz: LOW

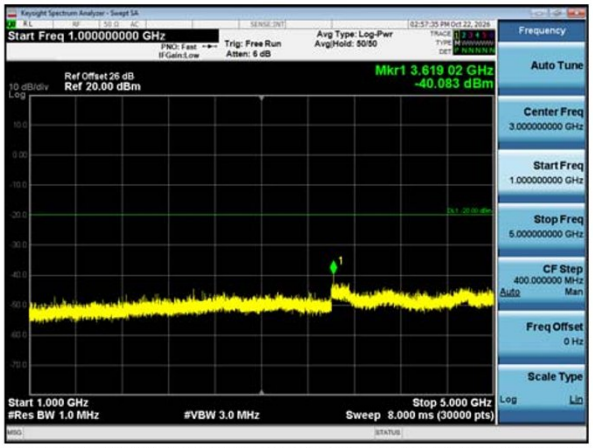
4FSK	
	
CH7	
	
CH8	
	
CH9	

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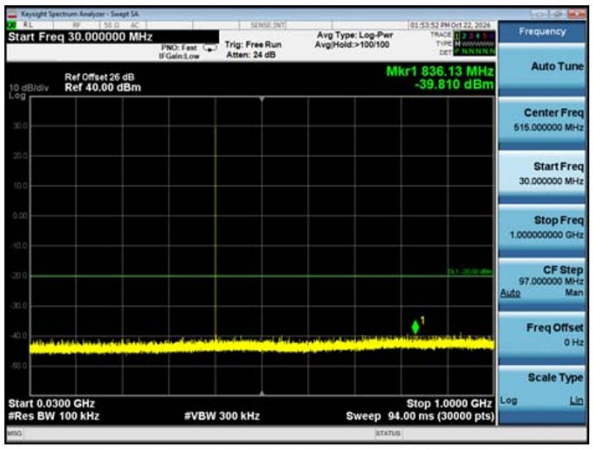
406.1-430MHz: HIGH

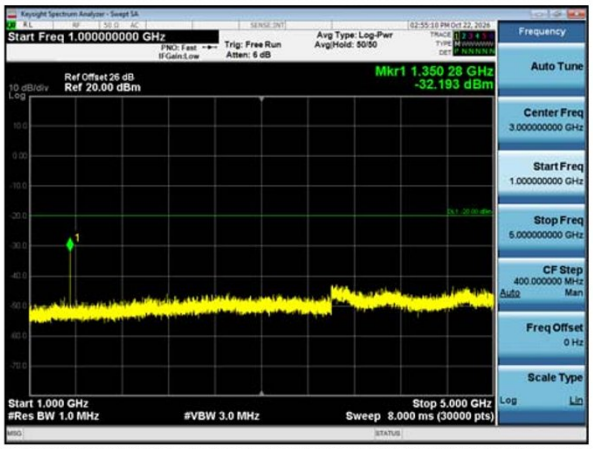
4FSK



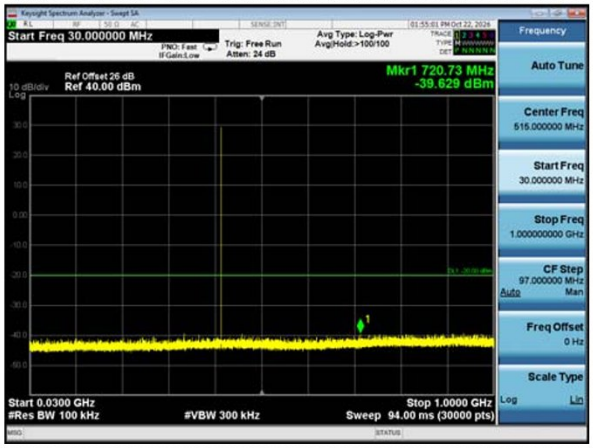


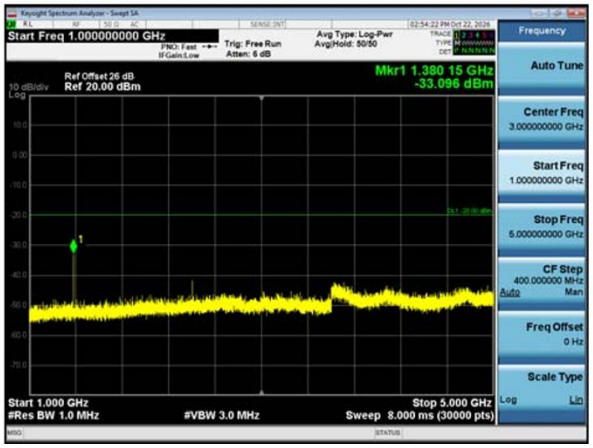
CH1





CH2



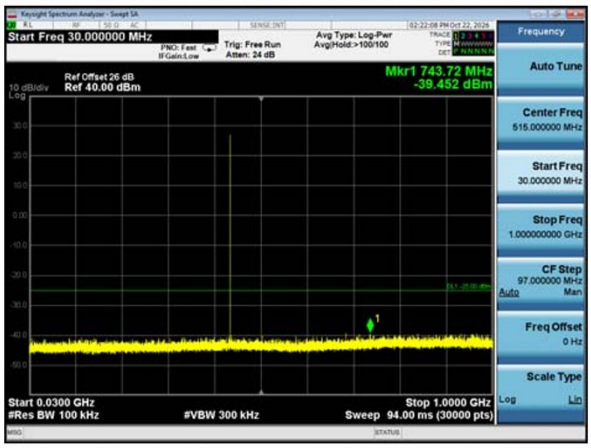


CH3

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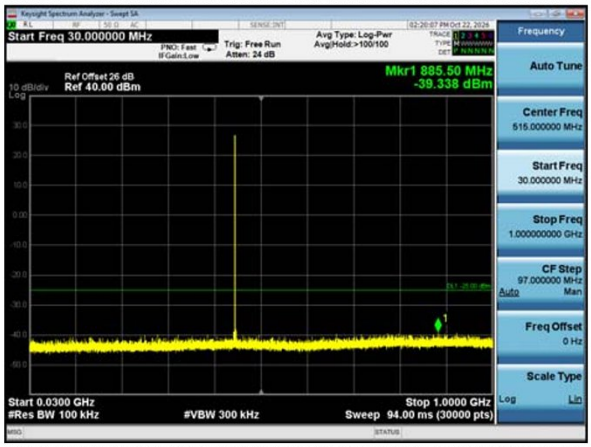
Analog: 6.25K
450-470MHz: LOW

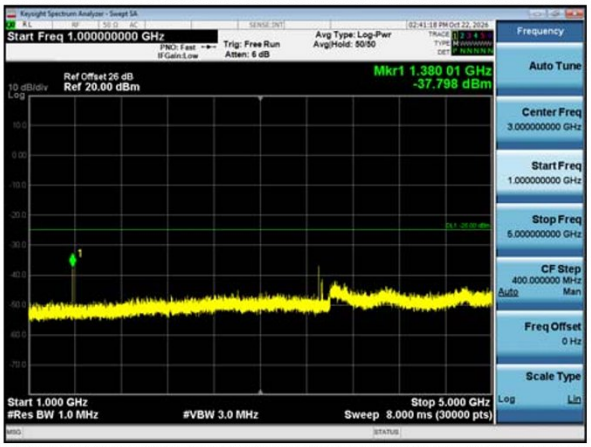
FM



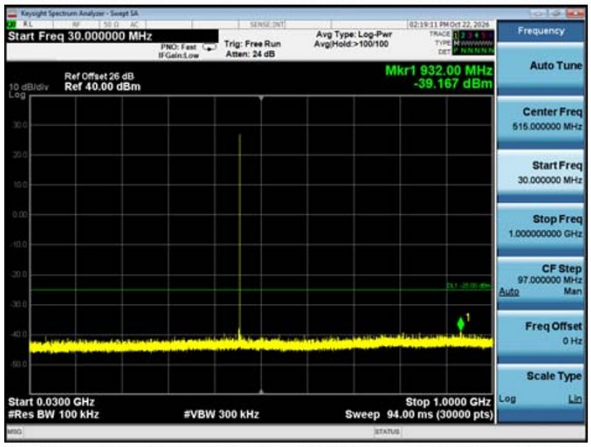


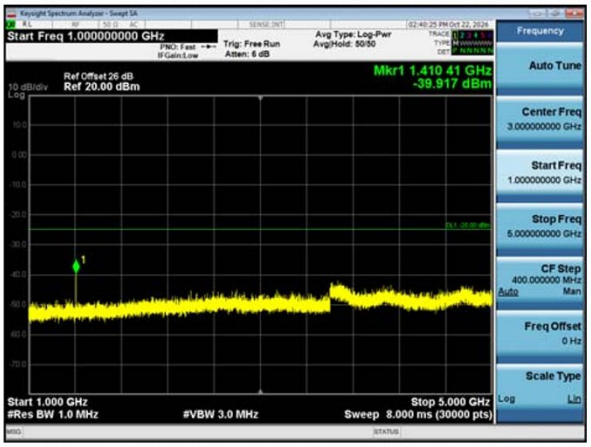
CH4





CH5



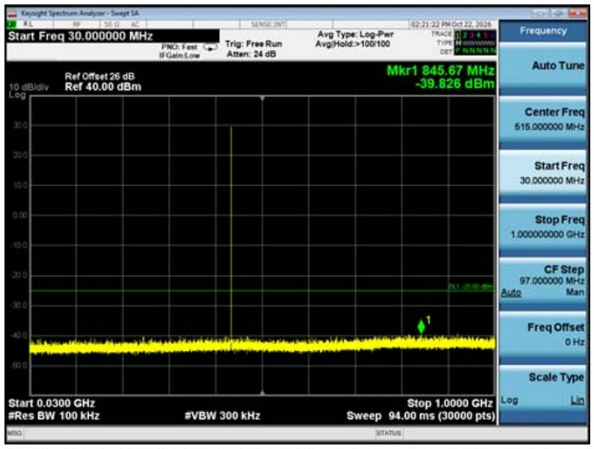


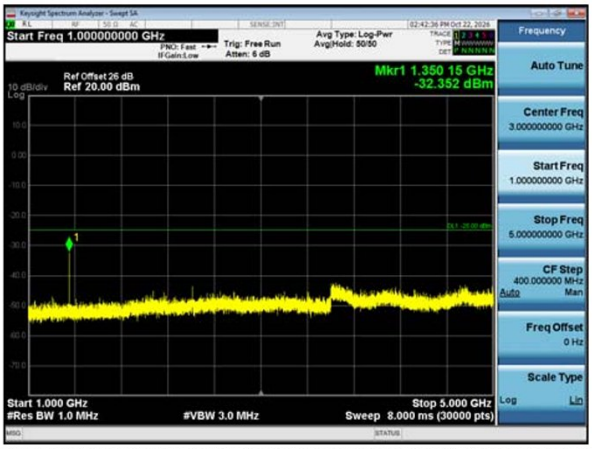
CH6

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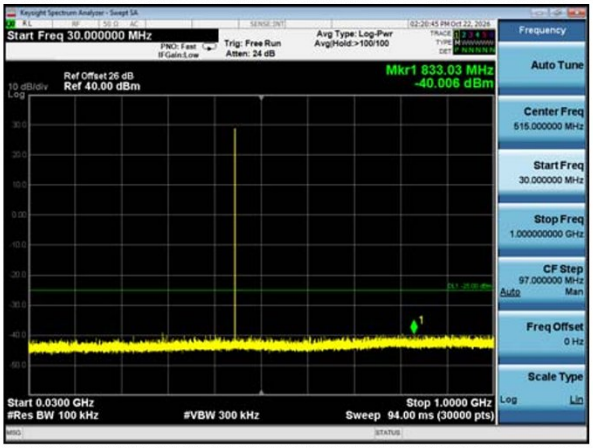
450-470MHz: HIGH

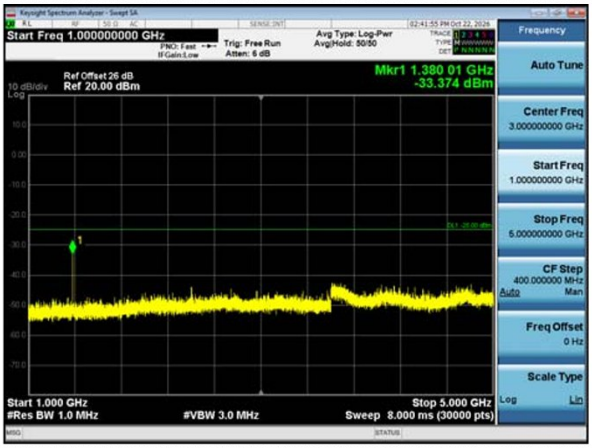
FM



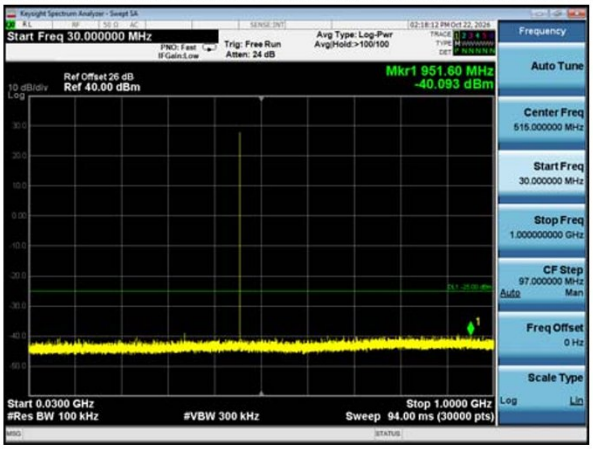


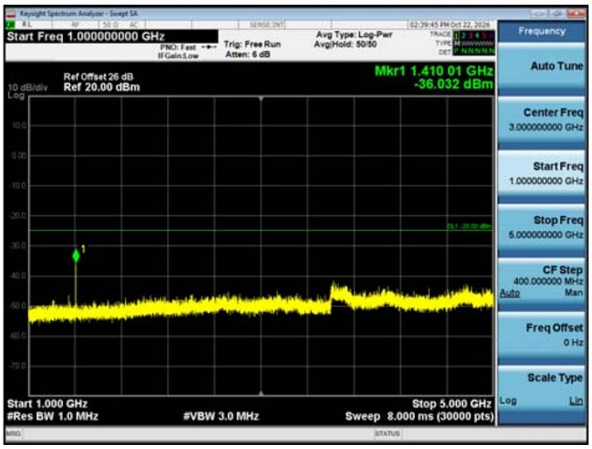
CH4





CH5



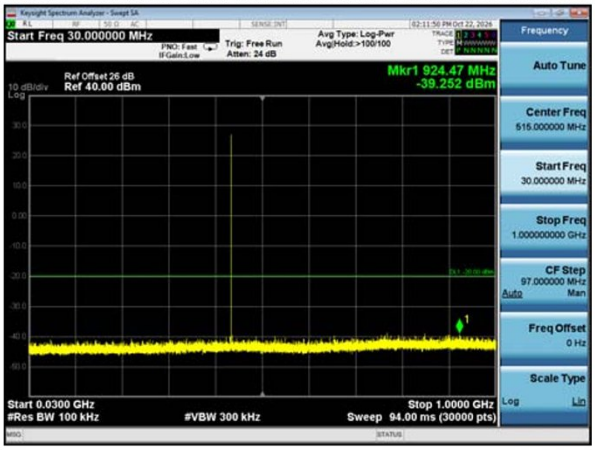


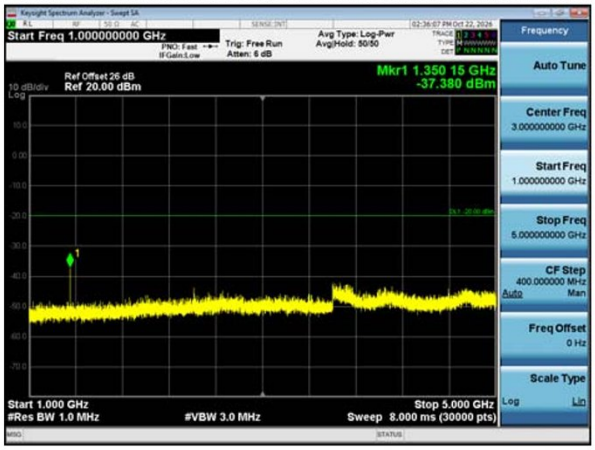
CH6

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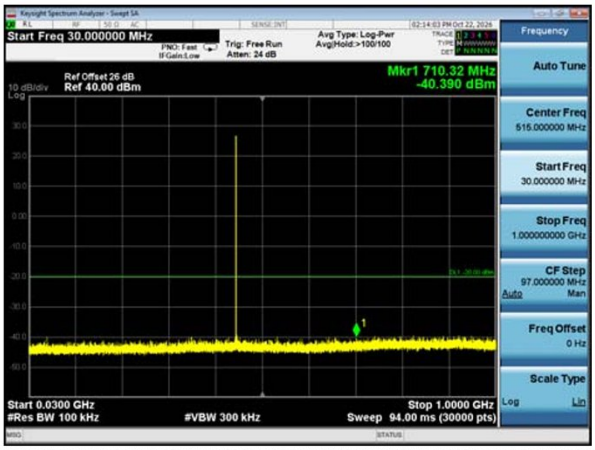
Analog: 12.5K
450-470MHz: LOW

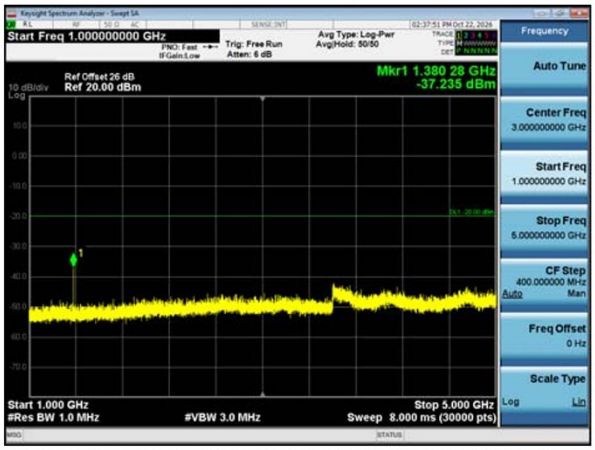
FM



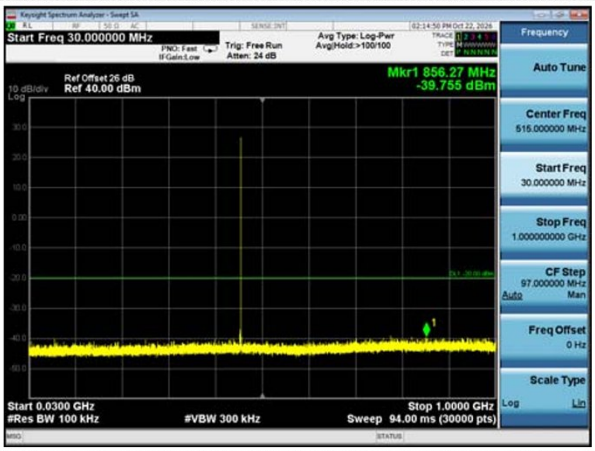


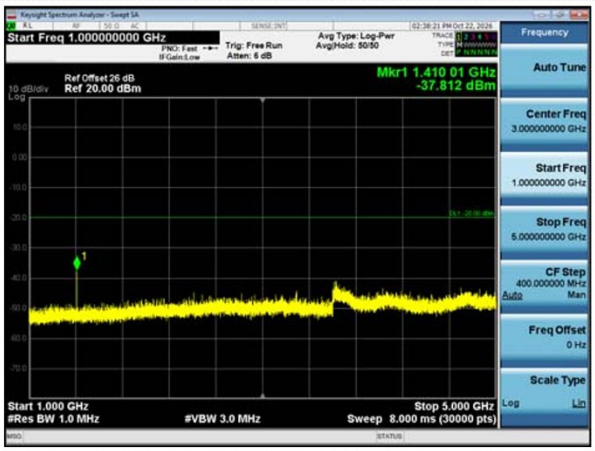
CH10





CH11



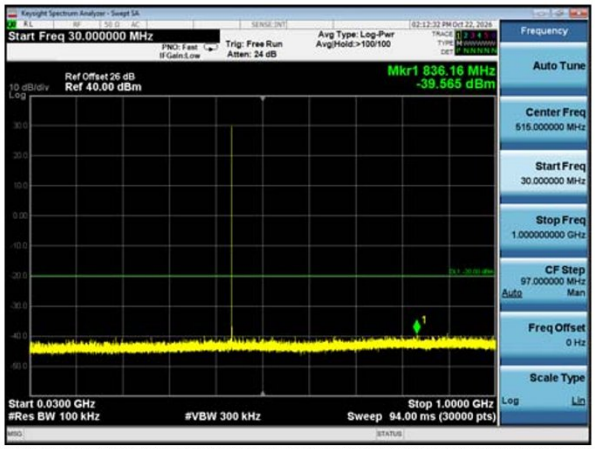


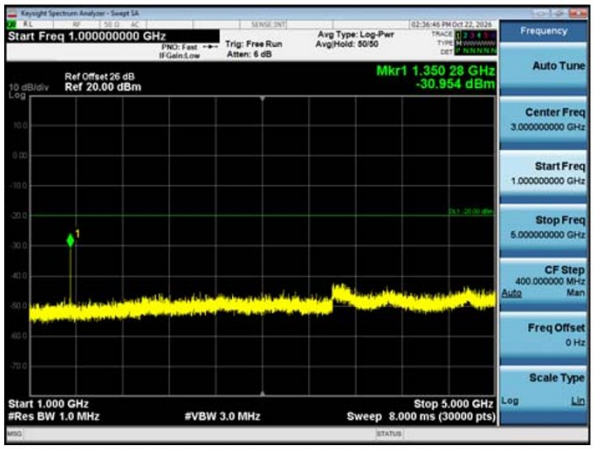
CH12

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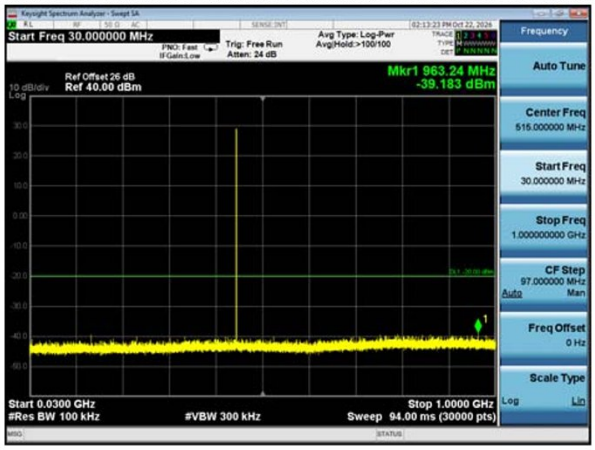
450-470MHz: HIGH

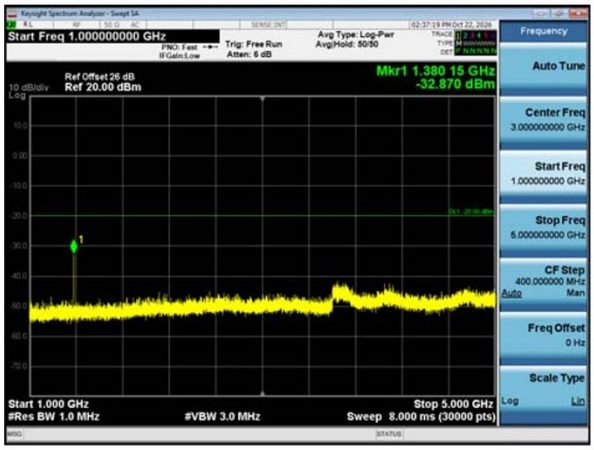
FM



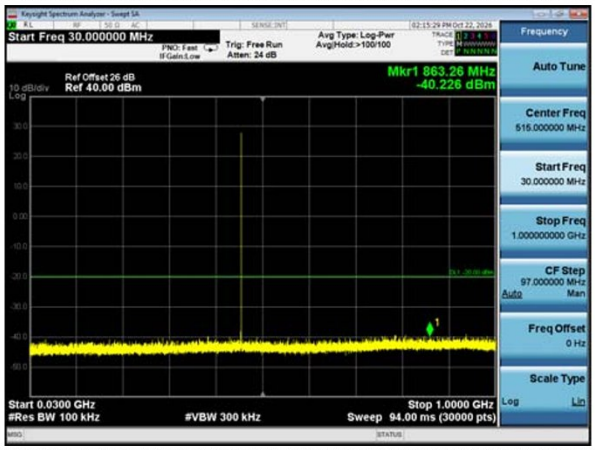


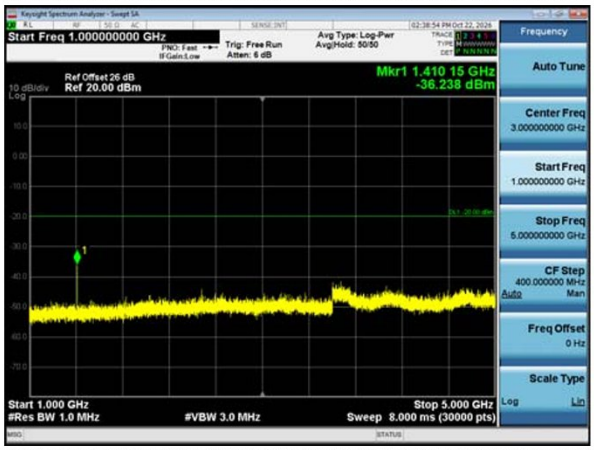
CH10





CH11



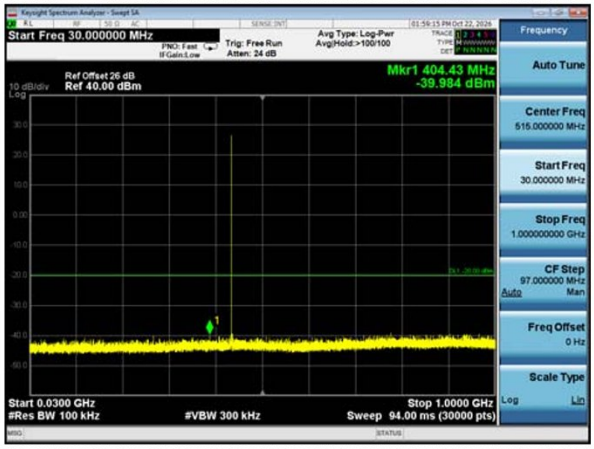


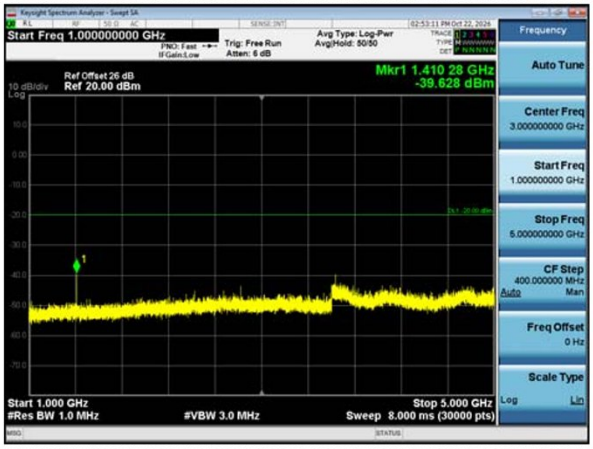
CH12

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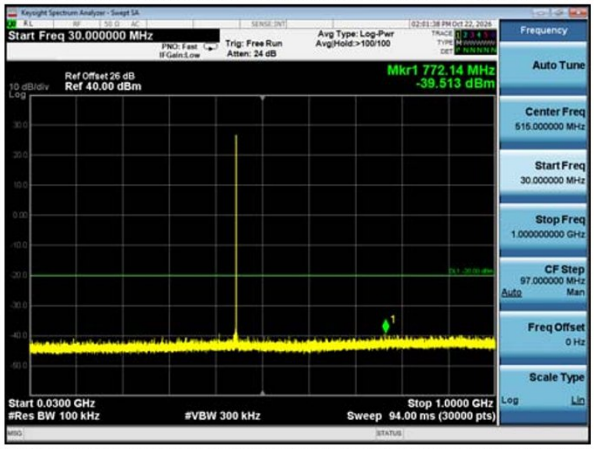
Digital: 12.5K
450-470MHz: LOW

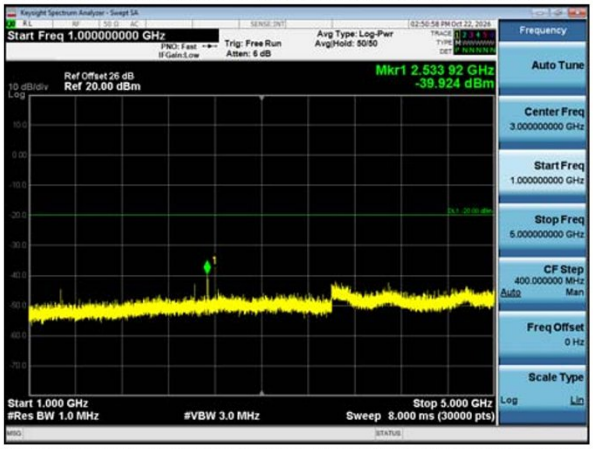
4FSK



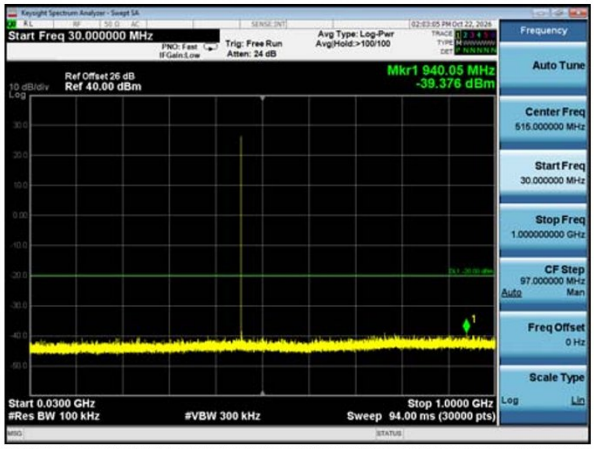


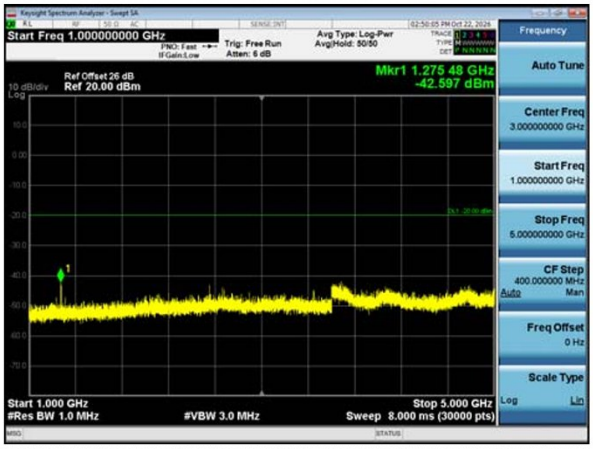
CH10





CH11



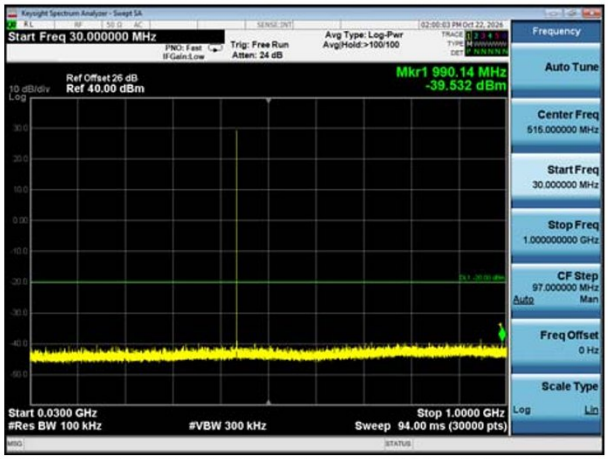


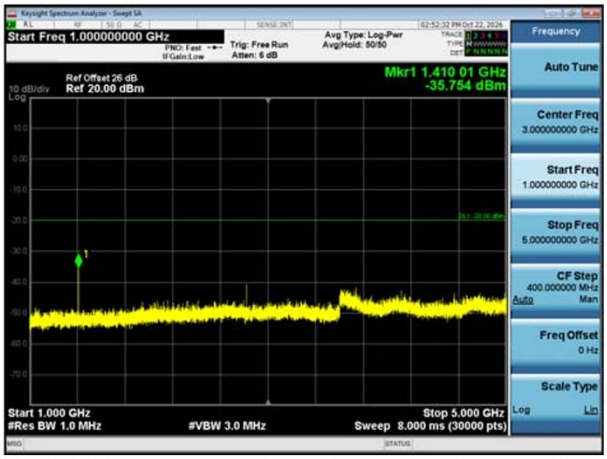
CH12

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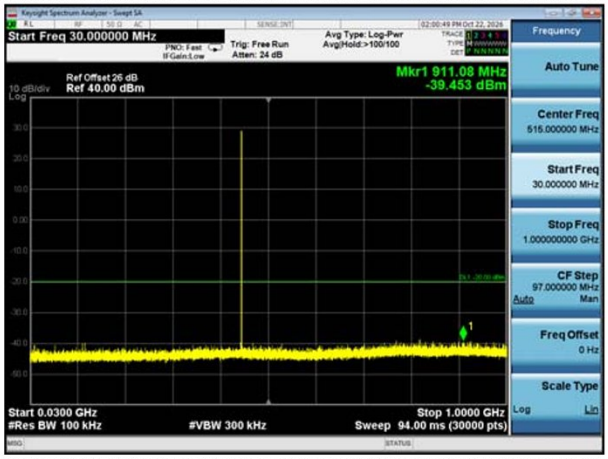
450-470MHz: HIGH

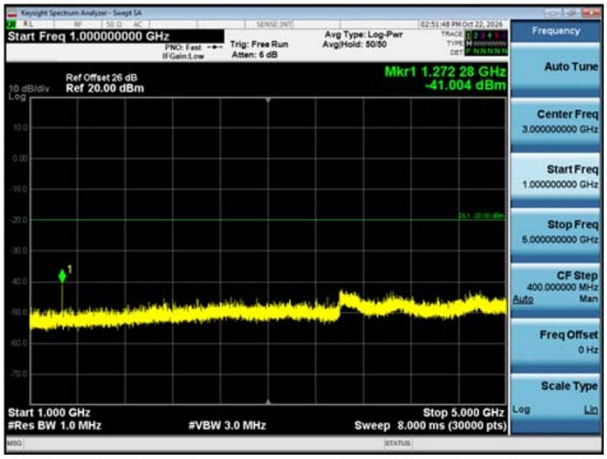
4FSK



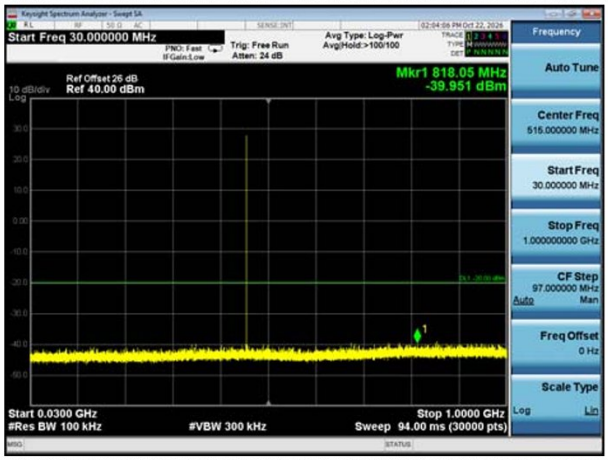


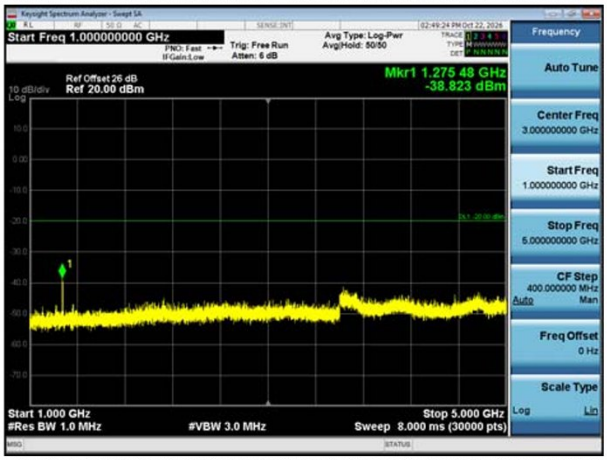
CH10





CH11





CH12

---------End of test report---------

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