FCC Test Report

Report No.: AGC13372231101FR01

FCC ID	:	2A3OOMB1
APPLICATION PURPOSE	:	Original Equipment
PRODUCT DESIGNATION	:	CB Radio
BRAND NAME	:	RETEVIS
MODEL NAME	:	MB1
APPLICANT	:	Shenzhen Ysair Technology Co., LTD
DATE OF ISSUE	:	Nov. 27, 2023
STANDARD(S)	:	FCC Part 95 Rules
REPORT VERSION	:	V 1.0

***A**ttestation of **G**lobal **C**ompliance (Shenzhen) Co., Ltd*

Report Revise Record

Report Version	Revise Time	Issued Date	Valid Version	Notes
V1.0	/	Nov. 27, 2023	Valid	Initial Release

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1. General Information

Applicant	Shenzhen Ysair Technology Co., LTD
Address	Room 403, 4th Floor, Building 4, Yunli intelligent Park, No. 3 Changfa Middle Road, Yangmei Community, Bantian Street, Longgang District, Shenzhen,China
Manufacturer	Shenzhen Ysair Technology Co., LTD
Address	Room 403, 4th Floor, Building 4, Yunli intelligent Park, No. 3 Changfa Middle Road, Yangmei Community, Bantian Street, Longgang District, Shenzhen,China
Factory	N/A
Address	N/A
Product Designation	CB Radio
Brand Name	RETEVIS
Test Model	MB1
Deviation from Standard	No any deviation from the test method
Date of receipt of test item	Nov. 13, 2023
Date of Test	Nov. 13, 2023~Nov. 27, 2023
Test Result	Pass

Note: The test results of this report relate only to the tested sample identified in this report.

Prepared By	Bibo Zhang (Project Engineer)	Nov. 27, 2023
Reviewed By	Calvin Liu (Reviewer)	Nov. 27, 2023
Approved By	Max Zhang Authorized Officer	Nov. 27, 2023

2. Product Information

2.1 Product Technical Description

Hardware Version	V6
Software Version	V1
Power Supply	DC 12V/DC 24V
Communication Type	Voice / Tone only
Operation Frequency Range	26.965MHz-27.405MHz
Modulation Type	AM/FM
Channel Separation	10 kHz
Emission Designator	AM:8K00A3E, FM: 8K00F3E
Number of Channels:	40 Channels
Rated Output Power	4W (It was fixed by the manufacturer, any individual can't arbitrarily change it.)
Maximum Transmitter Power	AM: 35.454dBm FM: 35.260dBm
Antenna Designation	Detachable
Antenna Type	External antenna
Antenna Gain	0dBi (Typical), 5dBi (Max)
Frequency Tolerance	AM: 1.099ppm, FM:1.098ppm

2.2 Test Frequency List

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

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

Operation Frequency Each of Channel			
CBRS		CBRS	
Channel	Frequency	Channel	Frequency
1	**26.965 MHz**	21	27.215 MHz
2	26.975 MHz	22	27.225 MHz
3	26.985 MHz	23	27.255 MHz
4	27.005 MHz	24	27.235 MHz
5	27.015 MHz	25	27.245 MHz
6	27.025 MHz	26	27.265 MHz
7	27.035 MHz	27	27.275 MHz
8	27.055 MHz	28	27.285 MHz
9	27.065 MHz	29	27.295 MHz
10	27.075 MHz	30	27.305 MHz
11	27.085 MHz	31	27.315 MHz
12	27.105 MHz	32	27.325 MHz
13	27.115 MHz	33	27.335 MHz
14	27.125 MHz	34	27.345 MHz
15	27.135 MHz	35	27.355 MHz
16	27.155 MHz	36	27.365 MHz
17	27.165 MHz	37	27.375 MHz
18	27.175 MHz	38	27.385 MHz
19	27.185 MHz	39	27.395 MHz
20	**27.205 MHz**	40	**27.405 MHz**

2.3 Related Submittal(S) / Grant (S)

This submittal(s) (test report) is intended for FCC ID: **2A3OOMB1,** filing to comply with Part 2, Part 95 of the Federal Communication Commission rules.

2.4 Test Methodology

The tests were performed according to following standards:

No.	Identity	Document Title
1	FCC 47 CFR Part 95	Personal Radio Services
2	FCC 47 CFR Part 2	Frequency allocations and radio treaty matters; general rules and regulations
3	ANSI C63.26-2015	American National Standard for Compliance Testing of Transmitters Used in Licensed Radio Services
4	ANSI EIA/TIA 382-A-1989	Minimum standards – Citizens band radio service amplitude modulated (AM) transceivers operating in the 27MHz band.

2.5 Calculation of Emission Indicators

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

For AM Mode (ChannelSpacing: 10kHz)
Emission Designator 8K00A3E
Bn = 2M, M may vary between 4000 and 10000 depending on the quality desired.
Speech and music, M = 4000, Bandwidth: 8000 Hz= 8 kHz
A3E portion of the designator represents an AM voice transmission.
Therefore, the entire designator for 10 kHz channel spacing AM mode is 8K00A3E.

For FM Mode (ChannelSpacing: 10kHz)
Emission Designator 8K00F3E
Bn = 2M, M may vary between 4000 and 10000 depending on the quality desired.
Speech and music, M = 4000, Bandwidth: 8000 Hz= 8 kHz
F3E portion of the designator represents an FM voice transmission.
Therefore, the entire designator for 10 kHz channel spacing FM mode is 8K00F3E.

2.6 Statement - Compliance To §95.977

§95.977 CBRS tone transmissions.
In addition to the tones permitted under §95.377, CBRS transmitter types may be designed to transmit brief tones to indicate the beginning or end of a transmission.

This device is capable of transmitting a brief (less than one second) audio tone, “Roger Beep”, when the PTT button is released on the microphone indicating end of transmission. This function is user selectable and complies with the requirements of §95.377. See User’s Manual.
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2.7 Special Accessories

Not available for this EUT intended for grant.

2.8 Equipment Modifications

Not available for this EUT intended for grant.

3. Test Environment

3.1 Address of The Test Laboratory

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

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

3.2 Test Facility

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

CNAS-Lab Code: L5488

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

A2LA-Lab Cert. No.: 5054.02

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

FCC-Registration No.: 975832

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

IC-Registration No.: 24842

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

3.3 Environmental Conditions

	Normal Conditions	Extreme Conditions
Temperature range (℃)	15 - 35	-20 - 50
Relative humidty range	20 % - 75 %	20 % - 75 %
Pressure range (kPa)	86 - 106	86 - 106
Power supply	DC12V	LV: DC 10.2V/HV:DC 13.8V
Power supply	DC24V	LV: DC 20.4V/HV:DC 27.6V
Note: The Extreme Temperature and Extreme Voltages declared by the manufacturer.		

3.4 Measurement Uncertainty

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

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

3.5 List of Equipments Used

● RF Conducted Test System							
Used	Equipment No.	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal. Date (YY-MM-DD)	Next Cal. Date (YY-MM-DD)
☒	AGC-ER-E086	Spectrum Analyzer	KEYSIGHT	N9020A	MY53300860	2023-06-01	2024-05-31
☒	AGC-EM-E002	Wireless Connectivity Tester	HP	8920B	US35010161	2023-06-02	2024-06-01
☐	AGC-ER-E059	Signal Generator	Agilent	N5182B	MY53050647	2023-03-03	2024-03-02
☐	AGC-ER-E037	Signal Generator	Agilent	N5182A	MY50140530	2023-06-01	2024-05-31
☒	AGC-ER-E075	Small Environmental Tester	SH-242	ESPEC	93008290	2022-08-03	2024-08-02
☒	AGC-EM-A007	30dB Attenuator	Weinachel	58-30-33	ML030	2023-06-01	2024-05-31
☐	AGC-EM-E040	Directional coupler	Werlatone	C5571-10	99463	2022-03-10	2024-03-09
☒	--	RF Connection Cable	N/A	1#	N/A	Each time	N/A
☒	--	RF Connection Cable	N/A	2#	N/A	Each time	N/A

● Radiated Spurious Emission							
Used	Equipment No.	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal. Date (YY-MM-DD)	Next Cal. Date (YY-MM-DD)
☒	AGC-EM-E046	EMI Test Receiver	R&S	ESCI	10096	2023-02-18	2024-02-17
☒	AGC-EM-E061	Spectrum Analyzer	Agilent	N9010A	MY53470504	2023-06-01	2024-05-31
☒	AGC-EM-E086	Loop Antenna	ZHINAN	ZN30900C	18051	2022-03-12	2024-03-11
☒	AGC-EM-E001	Wideband Antenna	SCHWARZBECK	VULB9168	D69250	2023-05-11	2025-05-10
☒	AGC-EM-E005	Wideband Antenna	SCHWARZBECK	VULB9168	VULB9168-494	2023-01-05	2024-01-04
☒	AGC-EM-E110	Low Pass Filter	N/A	N/A	N/A	2023-06-01	2024-05-31

● Test Software					
Used	Equipment No.	Test Equipment	Manufacturer	Model No.	Version Information
☒	AGC-EM-S011	RSE Test System	Tonscend	TS^{+} Ver2.1(JS36-RSE)	4.0.0.0

4. System Test Configuration

4.1 EUT Configuration

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

4.2 EUT Exercise

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

4.3 Configuration of Tested System

Fig. 2-1 Configuration of Tested System

Table 2-1 Equipment Used in Tested System

4.4 Equipment Used in Tested System

The following peripheral devices and interface cables were connected during the measurement:

☒ Test Accessories Come From The Laboratory

No.	Equipment	Model No.	Manufacturer	Specification Information	Cable
1	Load Antenna	DC-3G	N/A	50W	--

☒ Test Accessories Come From The Manufacturer

No.	Equipment	Model No.	Manufacturer	Specification Information	Cable
1	Hand Microphone	N/A	N/A	N/A	0.8m unshielded

4.5 Summary of Test Results

Item	FCC Rules	Description of Test	Result
1	§ 95.967& 2.1046(a)	Maximum Transmitter Power	Pass
2	§95.975& 2.1047(a) (b)	Modulation Limit	Pass
3	§95.975& 2.1047(a)	Audio Frequency Response	Pass
4	§95.973& 2.1049	Emission Bandwidth	Pass
5	§95.979& 2.1049	Emission Mask	Pass
6	§95.965& 2.1055(a) (1)	Frequency Stability	Pass
7	§95.979& 2.1051	Spurious Emission on Antenna Port	Pass
8	§95.979& 2.1053	Ratiated Spurious Emission	Pass

5. Description of Test Modes

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

NO.	TEST MODE DESCRIPTION	CHANNEL SEPARATION
1	CBRS TX CHANNEL 1	10.0 kHz
2	CBRS TX CHANNEL 20	10.0 kHz
3	CBRS TX CHANNEL 40	10.0 kHz

Note:

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

6. Frequency Stability

6.1 Provisions Applicable

FCC Part 95.965
Each CBRS transmitter type must be designed such that the transmit carrier frequency (or in the case of SSB transmissions, the reference frequency) remains within 50 parts-per- million of the channel center frequencies specified in §95.963 under all normal operating conditions.

6.2 Measurement Procedure

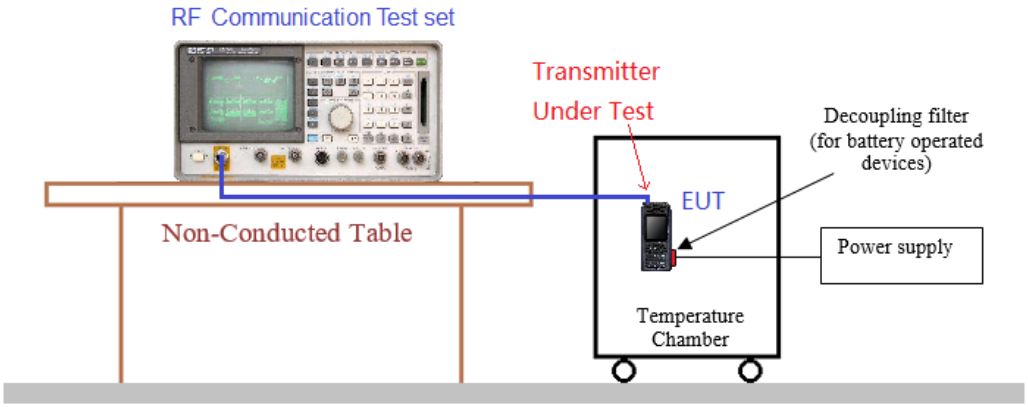
6.2.1 Frequency stability versus environmental temperature

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

6.2.2 Frequency stability versus input voltage

1. Setup the configuration per figure 1 for frequencies measured at temperature if it is within 15℃ to 25℃. Otherwise, an environment chamber set for a temperature of 20℃ shall be used. The EUT shall be powered by DC 12V&24V.
2. Set SA center frequency to the EUT radiated frequency. Set SA Resolution Bandwidth to 1 kHz and Video Resolution Bandwidth to 1kHz. Record this frequency as reference frequency.
3. Supply the EUT primary voltage at the operating end point which is specified by manufacturer and record the frequency.

6.3 Measurement Setup



6.4 Measurement Result

10 kHz Channel Separation, AM modulation, Assigned Frequency For CBRS						
Test conditions		Frequency error (ppm)			Limit (ppm)	Result
Voltage (V)	Temp (℃)	Test Frequency (MHz)				
		26.965MHz	27.205MHz	27.405MHz		
12.0	-30	0.337	0.653	0.651	50	Pass
	-20	1.021	0.841	0.999		
	-10	0.972	0.745	0.944		
	0	0.824	0.868	0.508		
	10	0.905	0.740	0.641		
	20	1.003	0.740	0.743		
	30	0.942	0.838	0.566		
	40	0.566	1.030	0.690		
	50	0.811	0.998	0.974		
13.8	20	0.572	0.764	0.913		
10.2	20	1.027	0.644	0.858		

10 kHz Channel Separation, FM modulation, Assigned Frequency For CBRS						
Test conditions		Frequency error (ppm)			Limit (ppm)	Result
Voltage (V)	Temp (℃)	Test Frequency (MHz)				
		26.965MHz	27.205MHz	27.405MHz		
12.0	-30	0.687	0.621	0.590	50	Pass
	-20	0.843	0.866	0.880		
	-10	0.957	0.796	0.597		
	0	0.601	0.628	0.623		
	10	0.833	0.905	0.645		
	20	0.842	0.734	0.637		
	30	0.815	0.531	0.545		
	40	1.065	1.098	0.928		
	50	0.855	1.015	0.738		
13.8	20	0.596	0.650	1.097		
10.2	20	0.679	0.861	0.511		

10 kHz Channel Separation, AM modulation, Assigned Frequency For CBRS						
Test conditions		Frequency error (ppm)			Limit (ppm)	Result
Voltage (V)	Temp (℃)	Test Frequency (MHz)				
		26.965MHz	27.205MHz	27.405MHz		
24.0	-30	1.061	0.542	0.873	50	Pass
	-20	0.851	1.079	0.525		
	-10	0.777	0.791	0.666		
	0	0.930	0.628	0.615		
	10	0.658	0.982	0.553		
	20	1.021	0.686	1.094		
	30	0.965	0.841	0.623		
	40	0.531	0.511	1.069		
	50	0.950	1.036	0.520		
27.6	20	1.056	0.758	0.797		
20.4	20	1.053	0.597	1.099		

10 kHz Channel Separation, FM modulation, Assigned Frequency For CBRS						
Test conditions		Frequency error (ppm)			Limit (ppm)	Result
Voltage (V)	Temp (℃)	Test Frequency (MHz)				
		26.965MHz	27.205MHz	27.405MHz		
24.0	-30	0.792	0.501	0.555	50	Pass
	-20	0.888	0.625	0.802		
	-10	1.096	1.090	0.671		
	0	0.778	0.603	0.728		
	10	0.973	0.694	0.906		
	20	0.829	0.660	0.965		
	30	0.525	0.852	0.656		
	40	0.726	0.602	0.667		
	50	0.860	0.711	0.847		
27.6	20	0.793	0.661	0.857		
20.4	20	0.855	0.684	0.920		

7. Emission Bandwidth

7.1 Provisions Applicable

FCC Part 95.973, FCC Part 2.1049

Each CBRS transmitter type must be designed such that the occupied bandwidth does not exceed the authorized bandwidth for the emission type under test.

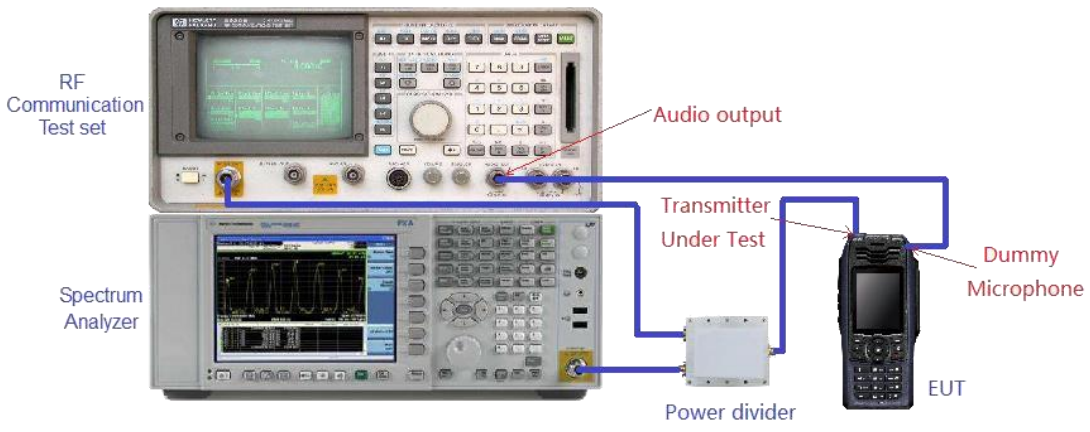
(a) AM and FM. The authorized bandwidth for emission type A3E and F3E is 8 kHz.

(b)SSB.The authorized bandwidth for emission types J3E, R3E, and H3E is 4 kHz.

7.2 Measurement Procedure

1. Connect the equipment as illustrated
2. 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).
3. Spectrum set as follow:
   Centre frequency = the nominal EUT channel center frequency,
   The frequency span for the spectrum analyzer shall be set wide enough to capture all modulation products including the emission skirts (typically a span of 1.5 × OBW is sufficient)
   RBW = 1% to 5% of the anticipated OBW, VBW ≥ 3 × RBW, Sweep = auto, Detector function = peak, Trace = max hold
4. Set 99% Occupied Bandwidth and 26dB Bandwidth
5. Measure and record the results in the test report.

7.3 Measurement Setup

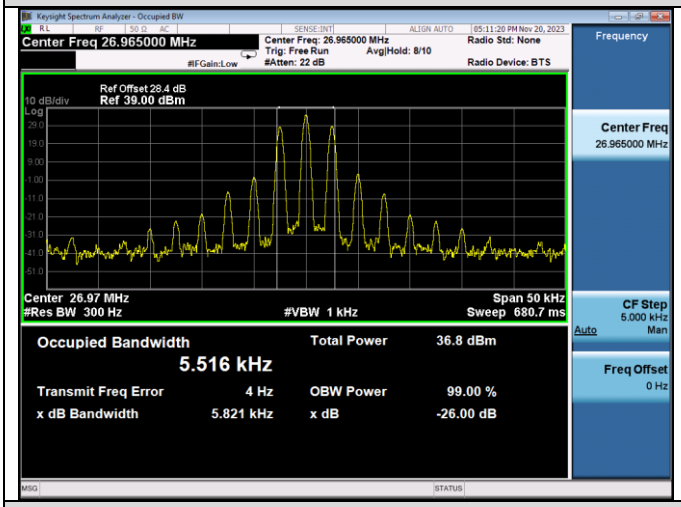


7.4 Measurement Results

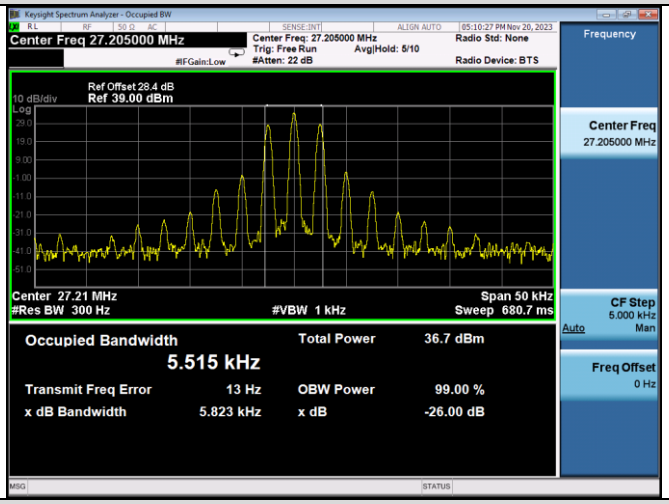
Emission Bandwidth Measurement Result-CBRS- DC 12V				
Operating Frequency	10 kHz Channel Separation			
	Occupied Bandwidth	Emission Bandwidth	Limits	Result
26.965 MHz	5.516 kHz	5.821 kHz	8.0 kHz	Pass
27.205 MHz	5.515 kHz	5.823 kHz	8.0 kHz	Pass
27.405 MHz	5.514 kHz	5.823 kHz	8.0 kHz	Pass

Test plot as follows:

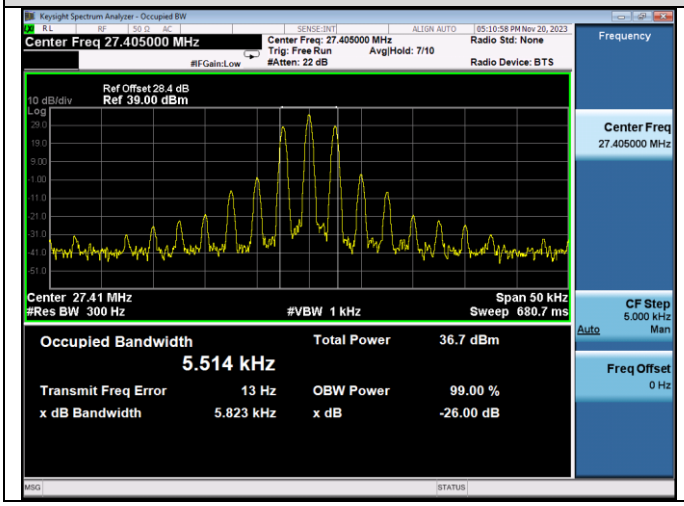
10kHz, AM Modulation:26.965MHz-4W



10kHz, AM Modulation:27.205MHz-4W



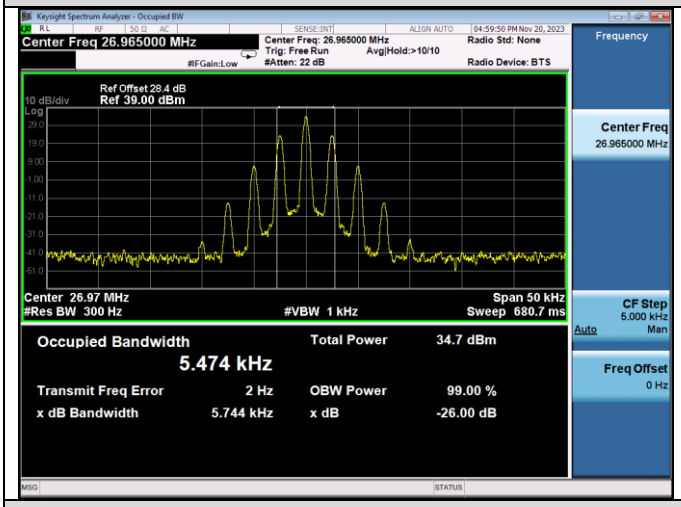
10kHz, AM Modulation:27.405MHz-4W



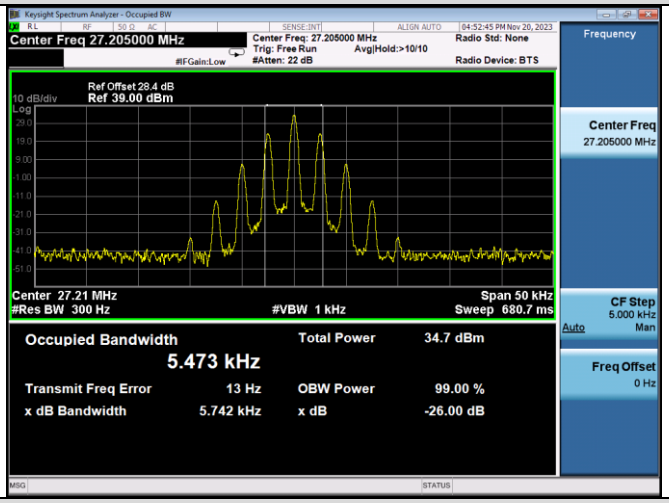
Emission Bandwidth Measurement Result-CBRS- DC 12V				
Operating Frequency	10 kHz Channel Separation			
	Occupied Bandwidth	Emission Bandwidth	Limits	Result
26.965 MHz	5.474 kHz	5.744 kHz	8.0 kHz	Pass
27.205 MHz	5.473 kHz	5.742 kHz	8.0 kHz	Pass
27.405 MHz	5.473 kHz	5.745 kHz	8.0 kHz	Pass

Test plot as follows:

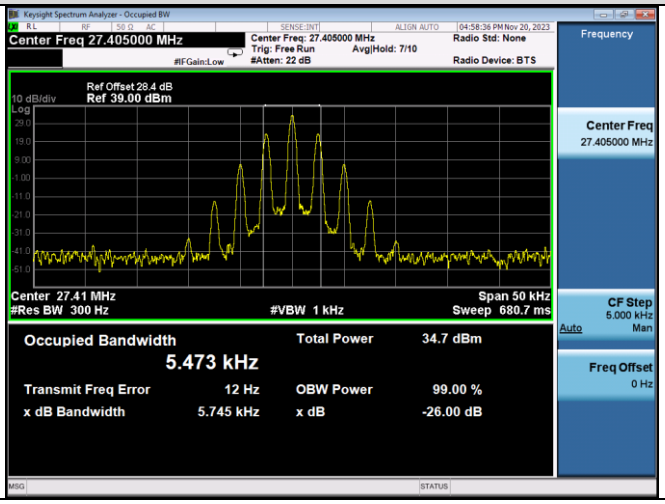
10kHz, FM Modulation:26.965MHz-4W



10kHz, FM Modulation:27.205MHz-4W



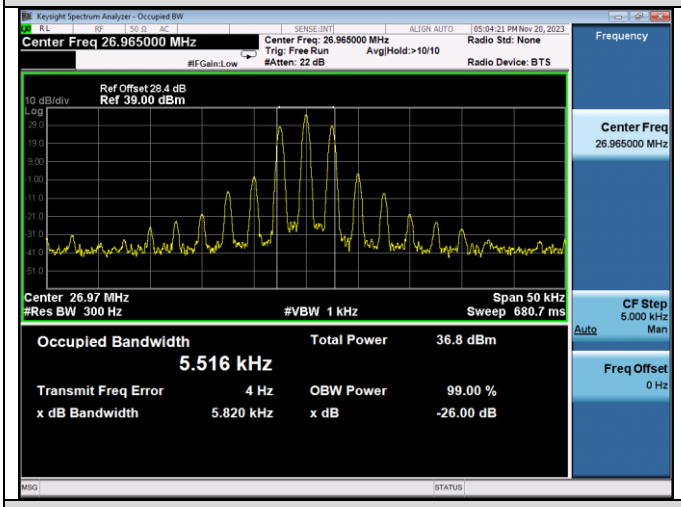
10kHz, FM Modulation:27.405MHz-4W



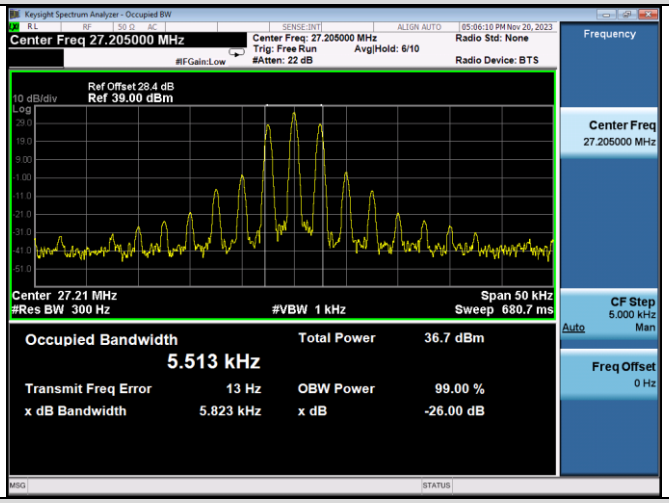
Emission Bandwidth Measurement Result-CBRS- DC 24V				
Operating Frequency	10 kHz Channel Separation			
	Occupied Bandwidth	Emission Bandwidth	Limits	Result
26.965 MHz	5.516 kHz	5.820 kHz	8.0 kHz	Pass
27.205 MHz	5.513 kHz	5.823 kHz	8.0 kHz	Pass
27.405 MHz	5.514 kHz	5.823 kHz	8.0 kHz	Pass

Test plot as follows:

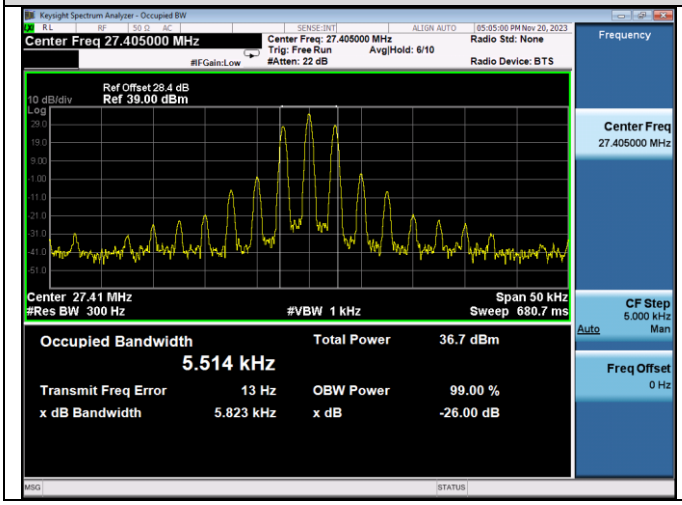
10kHz, AM Modulation:26.965MHz-4W



10kHz, AM Modulation:27.205MHz-4W



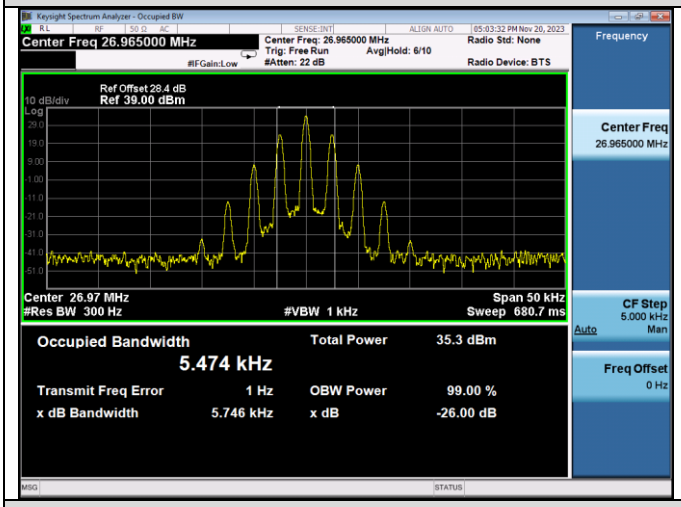
10kHz, AM Modulation:27.405MHz-4W



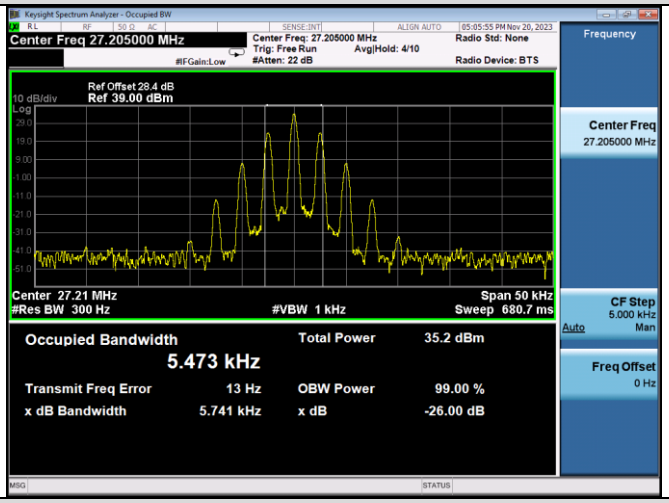
Emission Bandwidth Measurement Result-CBRS- DC 24V				
Operating Frequency	10 kHz Channel Separation			
	Occupied Bandwidth	Emission Bandwidth	Limits	Result
26.965 MHz	5.474 kHz	5.746 kHz	8.0 kHz	Pass
27.205 MHz	5.473 kHz	5.741 kHz	8.0 kHz	Pass
27.405 MHz	5.473 kHz	5.742 kHz	8.0 kHz	Pass

Test plot as follows:

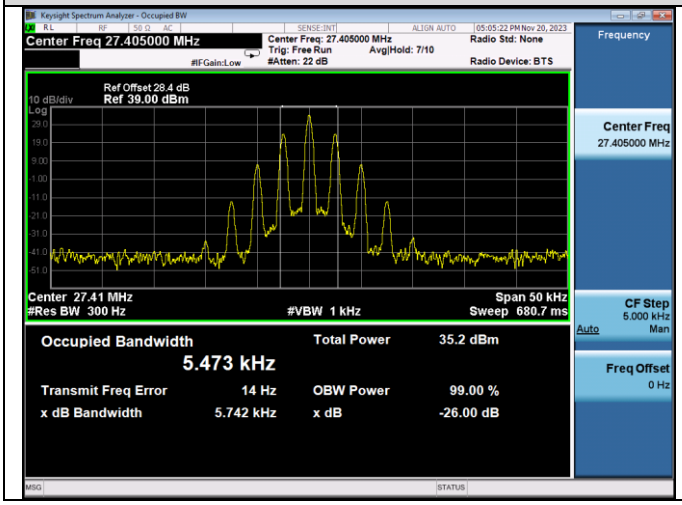
10kHz, FM Modulation:26.965MHz-4W



10kHz, FM Modulation:27.205MHz-4W



10kHz, FM Modulation:27.405MHz-4W



8. Ratiated Spurious Emission

8.1 Provisions Applicable

FCC Part 95.979(a), FCC Part 2.1049

Each CBRS transmitter type must be designed to comply with the applicable unwanted emissions limits in this section. The power of unwanted emissions must be attenuated below the transmitter output power in Watts (P) as specified in the applicable paragraphs listed in the following table:

Emission type	Paragraph
A3E,F3E	(1), (3), (5), (6)
H3E, J3E, R3E	(2), (4), (5), (6)

(1) 25 dB (decibels) in the frequency band 4 kHz to 8 kHz removed from the channel center frequency;

(2) 25 dB in the frequency band 2 kHz to 6 kHz removed from the channel center frequency;

(3) 35 dB in the frequency band 8 kHz to 20 kHz removed from the channel center frequency;

(4) 35 dB in the frequency band 6 kHz to 10 kHz removed from the channel center frequency;

(5) 53 + 10 log (P) dB in any frequency band removed from the channel center frequency by more than 250% of the authorized bandwidth.

(6) 60 dB in any frequency band centered on a harmonic (i.e., an integer multiple of two or more times) of the carrier frequency.

8.2 Measurement Procedure

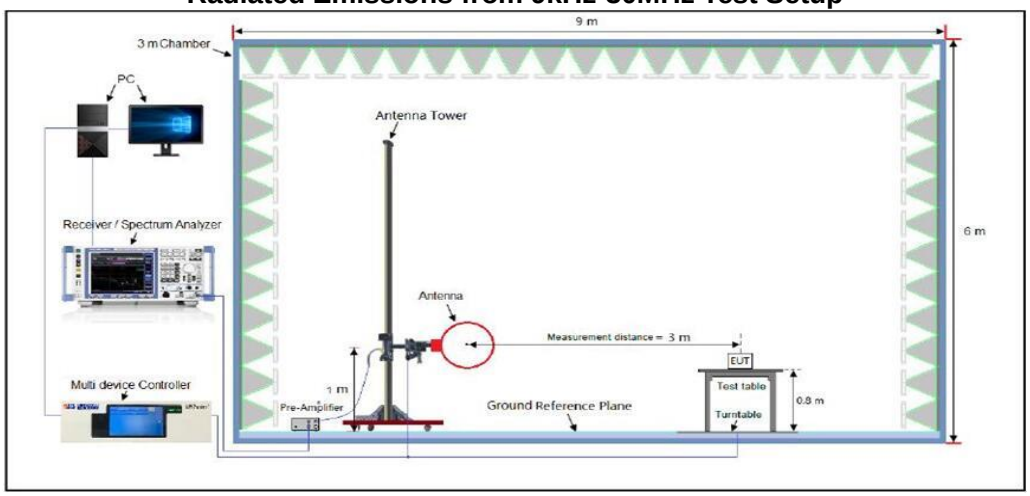
1. EUT was placed on a 0.8 or 1.5meter high non-conductive stand at a 3 meter test distance from the receive antenna. A receiving antenna was placed on the antenna mast 3 meters from the EUT for emission measurements. The disturbance of the transmitter was maximized on the test receiver display by raising and lowering from 1m to 4m the receive antenna and by rotating through 360° the turntable. After the fundamental emission was maximized, a field strength measurement was made. The radiated emission measurements of all transmit frequencies in all channels were measured with peak detector.
2. A log-periodic antenna or double-ridged waveguide horn antenna shall be substituted in place of the EUT. The log-periodic antenna will be driven by a signal generator and the level will be adjusted till the same power value on the spectrum analyzer or receiver. The level of the spurious emissions can be calculated through the level of the signal generator, cable loss, the gain of the substitution antenna and the reading of the spectrum analyzer or receiver.
3. The EUT is then put into continuously transmitting mode at its maximum power level during the test. Set Test Receiver or Spectrum RBW=1MHz, VBW=3MHz for above 1GHz and RBW=100kHz, VBW=300kHz for 30MHz to 1GHz, And the maximum value of the receiver should be recorded as (Pr).
4. The EUT shall be replaced by a substitution antenna. In the chamber, an substitution antenna for the frequency band of interest is placed at the reference point of the chamber. An RF Signal source for the frequency band of interest is connected to the substitution antenna with a cable that has been constructed

to not interfere with the radiation pattern of the antenna. A power (PMea) is applied to the input of the substitution antenna, and adjust the level of the signal generator output until the value of the receiver reach the previously recorded (Pr). The power of signal source (PMea) is recorded. The test should be performed by rotating the test item and adjusting the receiving antenna polarization.

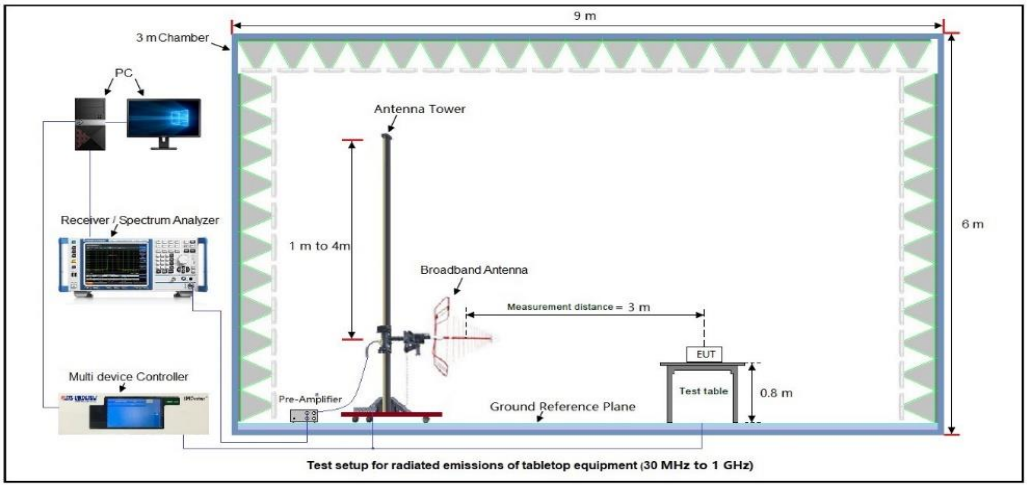
5. A amplifier should be connected to the Signal Source output port. And the cable should be connect between the Amplifier and the Substitution Antenna. The cable loss (Pcl) ,the Substitution Antenna Gain (Ga) and the Amplifier Gain (PAg) should be recorded after test
6. The measurement results are obtained as described below: Power(EIRP)=PMea- PAg - Pcl - Ga The measurement results are amend as described below:Power(EIRP)=PMea- Pcl - Ga
7. This value is EIRP since the measurement is calibrated using an antenna of known gain (2.15 dBi) and known input power.
8. ERP can be calculated from EIRP by subtracting the gain of the dipole, ERP = EIRP-2.15dBi.
9. Test the EUT in the lowest channel, the middle channel the Highest channel

8.3 Measurement Setup

Radiated Emissions from 9kHz-30MHz Test Setup



Radiated Emissions from 30MHz-1GHz Test Setup



Test setup for radiated emissions of tabletop equipment (30 MHz to 1 GHz)

8.4 Measurement Results

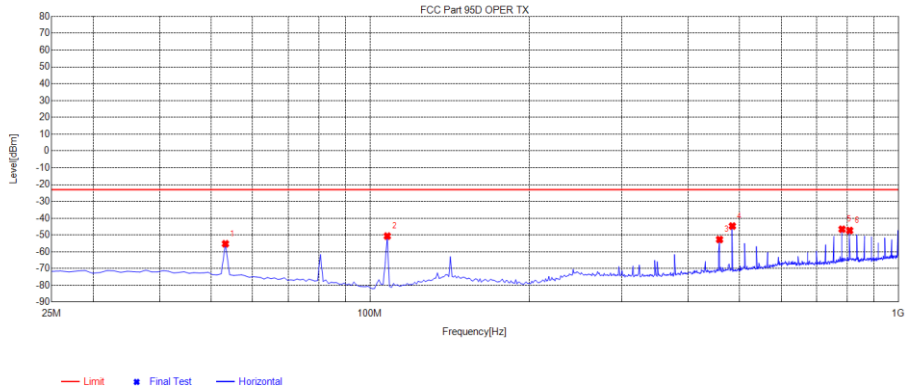
UNWANTED Emission LIMIT =P(dBm)-53-10 log (Pwatts) = -23 dBm

HARMONIC Emission LIMIT = MEASURED POWER (dBm) -60

1. Factor=Antenna Factor + Cable loss. (Below 1GHz)
2. Factor=Antenna Factor+ Cable loss -Pre-amplifier. (Above 1 GHz)
3. Margin=Limit- Level
4. the unwanted emission should be attenuated below TP by at least 60 dB.
5. In the frequency range of 9KHz-30MHz, in addition to displaying the Fundamental level, the radiated spurious emission level is much less than 60dB of the carrier power, so it is ignored.

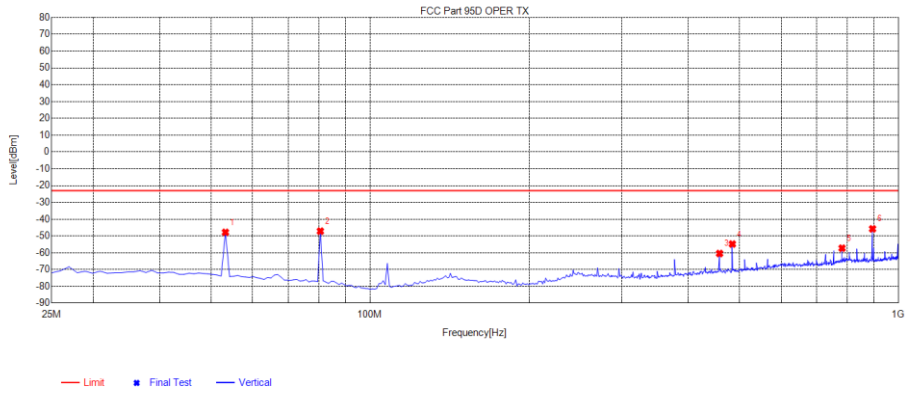
UNWANTED Emission

Test Mode:	TX-CH1-AM-DC 12V	Polarity:	Horizontal



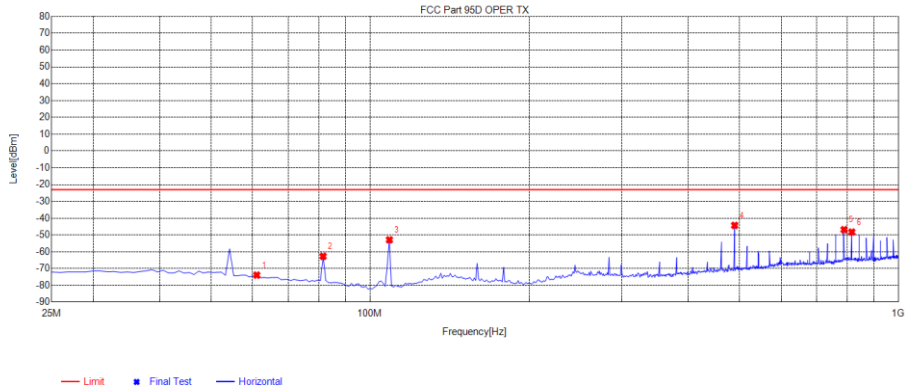
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Angle [°]	Polarity
1	53.275	-83.16	-55.23	-23.00	32.23	27.93	351	Horizontal
2	107.875	-71.22	-50.65	-23.00	27.65	20.57	163	Horizontal
3	458.875	-83.83	-52.68	-23.00	29.68	31.15	171	Horizontal
4	485.2	-76.29	-44.69	-23.00	21.69	31.60	179	Horizontal
5	782.575	-83.55	-46.56	-23.00	23.56	36.99	334	Horizontal
6	808.9	-84.92	-47.31	-23.00	24.31	37.61	334	Horizontal

Test Mode:	TX-CH1-AM-DC 12V	Polarity:	Vertical



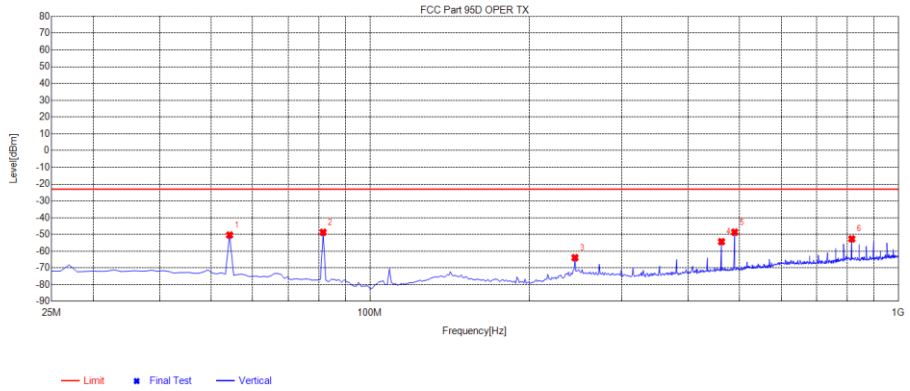
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Angle [°]	Polarity
1	53.275	-75.74	-47.81	-23.00	24.81	27.93	359	Vertical
2	80.575	-71.30	-47.11	-23.00	24.11	24.19	350	Vertical
3	458.875	-91.56	-60.41	-23.00	37.41	31.15	333	Vertical
4	485.2	-86.39	-54.79	-23.00	31.79	31.60	333	Vertical
5	782.575	-94.24	-57.25	-23.00	34.25	36.99	350	Vertical
6	893.725	-83.23	-45.75	-23.00	22.75	37.48	359	Vertical

Test Mode:	TX-CH20-AM-DC 12V	Polarity:	Horizontal



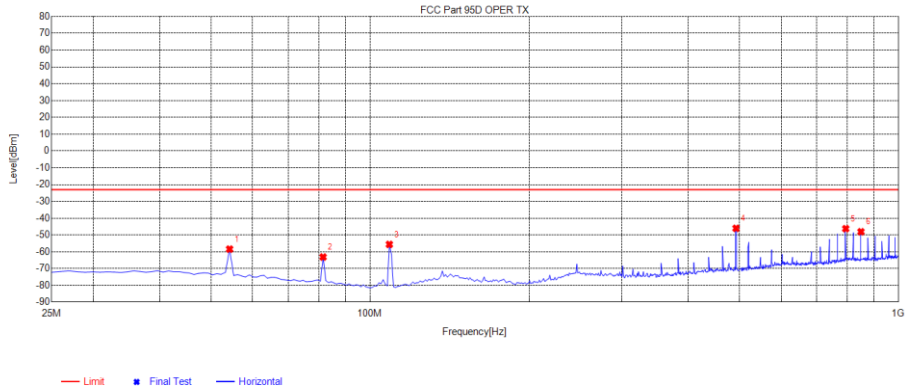
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Angle [°]	Polarity
1	61.075	-100.05	-73.87	-23.00	50.87	26.18	290	Horizontal
2	81.55	-86.66	-62.67	-23.00	39.67	23.99	345	Horizontal
3	108.85	-73.48	-52.88	-23.00	29.88	20.60	171	Horizontal
4	490.075	-75.96	-44.28	-23.00	21.28	31.68	190	Horizontal
5	789.4	-84.11	-46.83	-23.00	23.83	37.28	335	Horizontal
6	816.7	-85.76	-48.24	-23.00	25.24	37.52	335	Horizontal

Test Mode:	TX-CH20-AM-DC 12V	Polarity:	Vertical



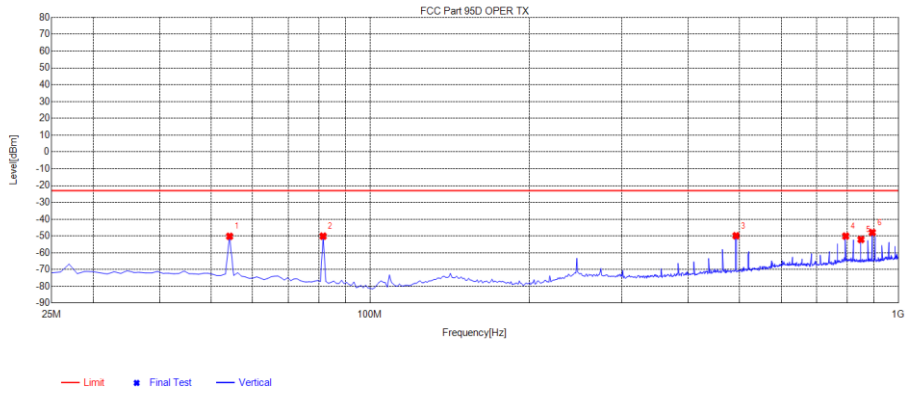
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Angle [°]	Polarity
1	54.25	-78.06	-50.36	-23.00	27.36	27.70	297	Vertical
2	81.55	-72.71	-48.72	-23.00	25.72	23.99	350	Vertical
3	244.375	-91.94	-63.86	-23.00	40.86	28.08	297	Vertical
4	462.775	-85.52	-54.30	-23.00	31.30	31.22	306	Vertical
5	490.075	-80.32	-48.64	-23.00	25.64	31.68	297	Vertical
6	816.7	-90.18	-52.66	-23.00	29.66	37.52	306	Vertical

Test Mode:	TX-CH40-AM-DC 12V	Polarity:	Horizontal



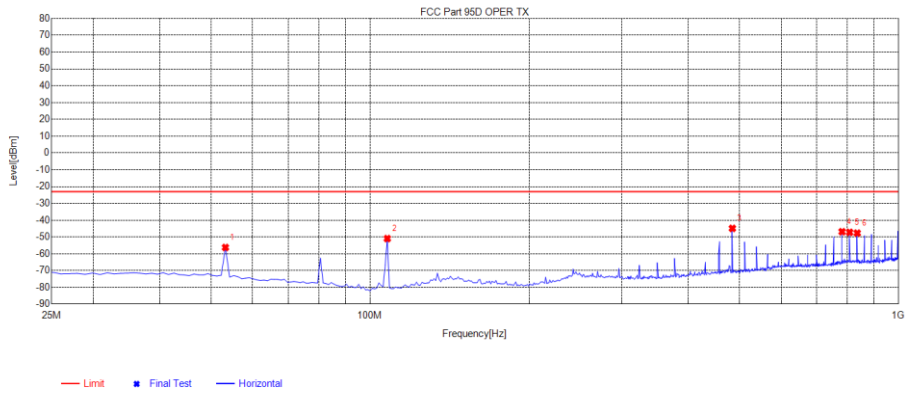
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Angle [°]	Polarity
1	54.25	-86.11	-58.41	-23.00	35.41	27.70	10	Horizontal
2	81.55	-87.10	-63.11	-23.00	40.11	23.99	10	Horizontal
3	108.85	-76.20	-55.60	-23.00	32.60	20.60	156	Horizontal
4	493	-77.76	-46.03	-23.00	23.03	31.73	190	Horizontal
5	795.25	-83.76	-46.24	-23.00	23.24	37.52	336	Horizontal
6	849.85	-85.17	-48.06	-23.00	25.06	37.11	27	Horizontal

Test Mode:	TX-CH40-AM-DC 12V	Polarity:	Vertical



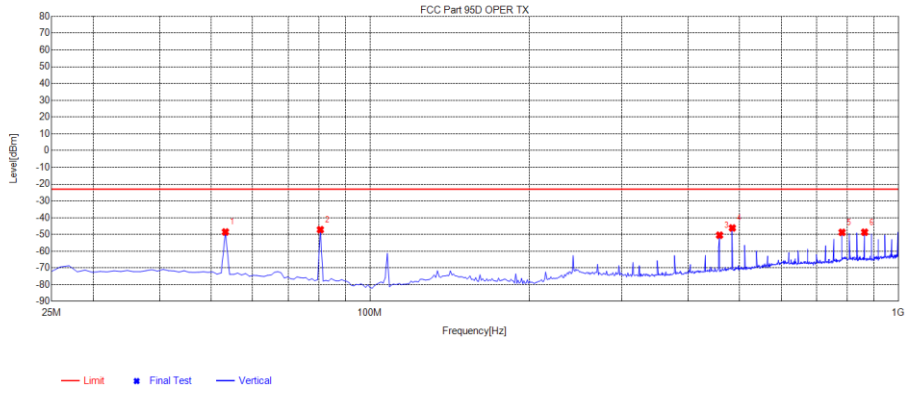
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Angle [°]	Polarity
1	54.25	-77.88	-50.18	-23.00	27.18	27.70	259	Vertical
2	81.55	-74.08	-50.09	-23.00	27.09	23.99	350	Vertical
3	493	-81.57	-49.84	-23.00	26.84	31.73	268	Vertical
4	795.25	-87.57	-50.05	-23.00	27.05	37.52	259	Vertical
5	849.85	-89.19	-52.08	-23.00	29.08	37.11	259	Vertical
6	892.75	-85.37	-47.90	-23.00	24.90	37.47	268	Vertical

Test Mode:	TX-CH1-FM-DC 12V	Polarity:	Horizontal



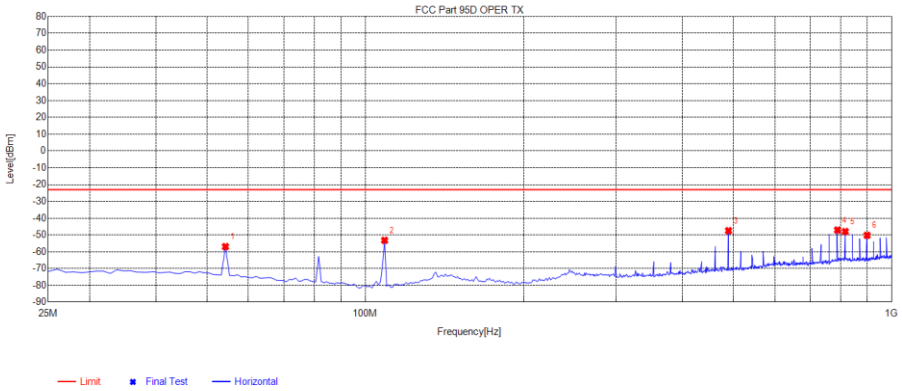
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Angle [°]	Polarity
1	53.275	-84.16	-56.23	-23.00	33.23	27.93	350	Horizontal
2	107.875	-71.50	-50.93	-23.00	27.93	20.57	151	Horizontal
3	485.2	-76.47	-44.87	-23.00	21.87	31.60	178	Horizontal
4	782.575	-83.84	-46.85	-23.00	23.85	36.99	333	Horizontal
5	808.9	-84.82	-47.21	-23.00	24.21	37.61	333	Horizontal
6	836.2	-84.96	-47.68	-23.00	24.68	37.28	15	Horizontal

Test Mode:	TX-CH1-FM-DC 12V	Polarity:	Vertical



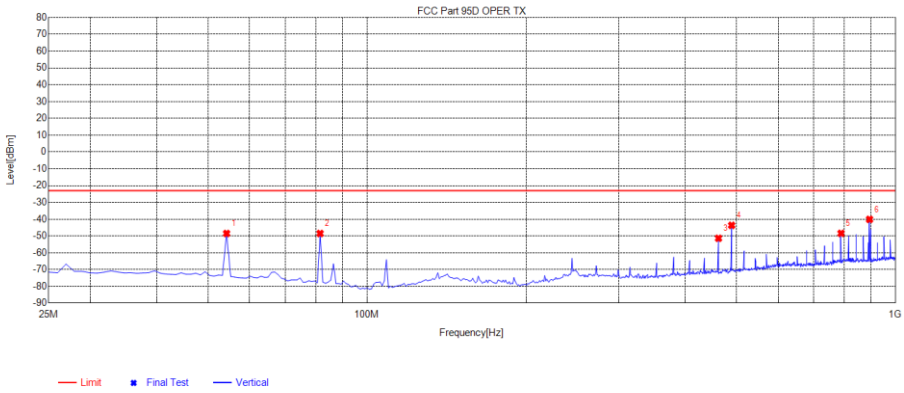
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Angle [°]	Polarity
1	53.275	-76.47	-48.54	-23.00	25.54	27.93	85	Vertical
2	80.575	-71.34	-47.15	-23.00	24.15	24.19	24	Vertical
3	458.875	-81.62	-50.47	-23.00	27.47	31.15	231	Vertical
4	485.2	-77.76	-46.16	-23.00	23.16	31.60	60	Vertical
5	782.575	-85.76	-48.77	-23.00	25.77	36.99	114	Vertical
6	863.5	-85.90	-48.68	-23.00	25.68	37.22	114	Vertical

Test Mode:	TX-CH20-FM-DC 12V	Polarity:	Horizontal



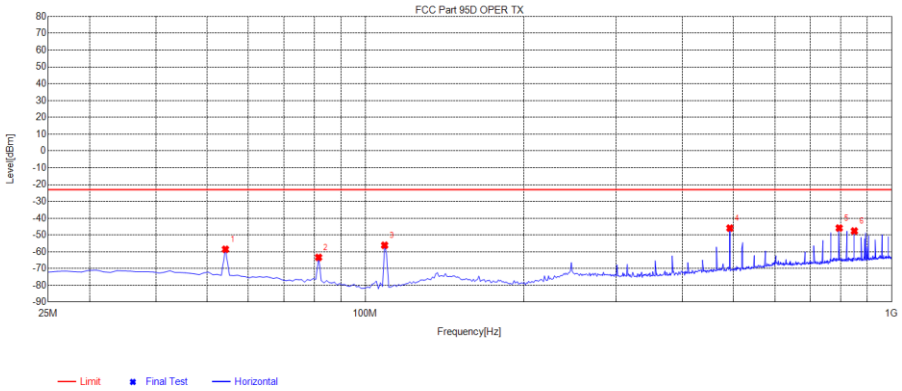
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Angle [°]	Polarity
1	54.25	-84.63	-56.93	-23.00	33.93	27.70	350	Horizontal
2	108.85	-73.77	-53.17	-23.00	30.17	20.60	333	Horizontal
3	490.075	-79.11	-47.43	-23.00	24.43	31.68	342	Horizontal
4	789.4	-84.33	-47.05	-23.00	24.05	37.28	333	Horizontal
5	816.7	-85.48	-47.96	-23.00	24.96	37.52	333	Horizontal
6	898.6	-87.72	-50.20	-23.00	27.20	37.52	314	Horizontal

Test Mode:	TX-CH20-FM-DC 12V	Polarity:	Vertical



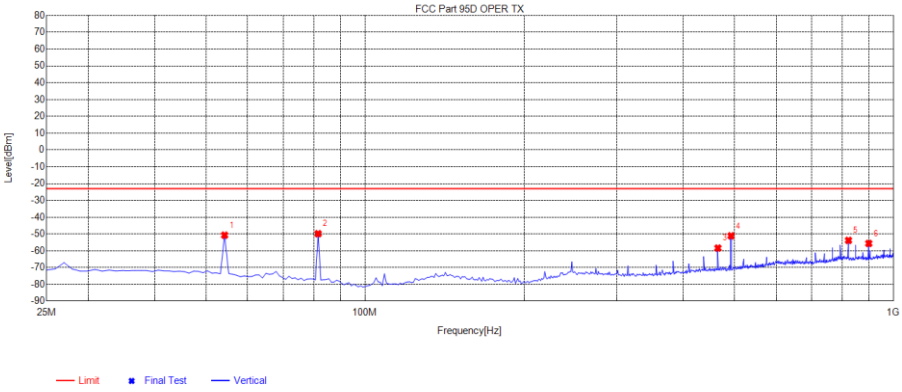
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Angle [°]	Polarity
1	54.25	-76.20	-48.50	-23.00	25.50	27.70	104	Vertical
2	81.55	-72.49	-48.50	-23.00	25.50	23.99	37	Vertical
3	462.775	-82.57	-51.35	-23.00	28.35	31.22	233	Vertical
4	490.075	-75.33	-43.65	-23.00	20.65	31.68	75	Vertical
5	789.4	-85.71	-48.43	-23.00	25.43	37.28	121	Vertical
6	893.725	-77.58	-40.10	-23.00	17.10	37.48	225	Vertical

Test Mode:	TX-CH40-FM-DC 12V	Polarity:	Horizontal



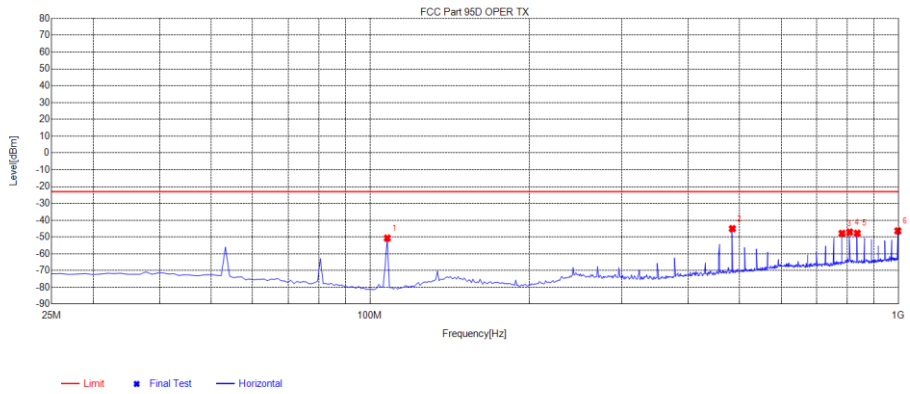
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Angle [°]	Polarity
1	54.25	-86.22	-58.52	-23.00	35.52	27.70	360	Horizontal
2	81.55	-87.32	-63.33	-23.00	40.33	23.99	355	Horizontal
3	108.85	-76.72	-56.12	-23.00	33.12	20.60	173	Horizontal
4	493	-77.64	-45.91	-23.00	22.91	31.73	192	Horizontal
5	795.25	-83.39	-45.87	-23.00	22.87	37.52	338	Horizontal
6	849.85	-84.74	-47.63	-23.00	24.63	37.11	27	Horizontal

Test Mode:	TX-CH40-FM-DC 12V	Polarity:	Vertical



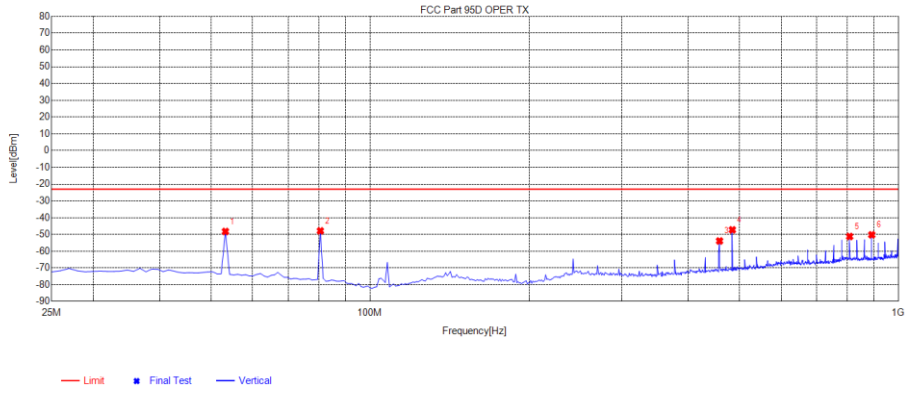
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Angle [°]	Polarity
1	54.25	-78.43	-50.73	-23.00	27.73	27.70	304	Vertical
2	81.55	-73.81	-49.82	-23.00	26.82	23.99	351	Vertical
3	465.7	-89.65	-58.38	-23.00	35.38	31.27	314	Vertical
4	493	-82.81	-51.08	-23.00	28.08	31.73	314	Vertical
5	822.55	-91.23	-53.79	-23.00	30.79	37.44	304	Vertical
6	898.6	-93.14	-55.62	-23.00	32.62	37.52	223	Vertical

Test Mode:	TX-CH1-AM-DC 24V	Polarity:	Horizontal



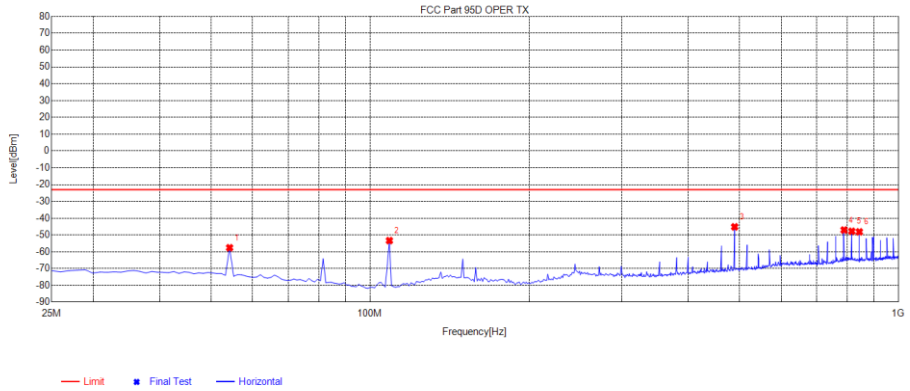
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Angle [°]	Polarity
1	107.875	-71.26	-50.69	-23.00	27.69	20.57	175	Horizontal
2	485.2	-76.64	-45.04	-23.00	22.04	31.60	193	Horizontal
3	782.575	-84.85	-47.86	-23.00	24.86	36.99	331	Horizontal
4	808.9	-84.67	-47.06	-23.00	24.06	37.61	331	Horizontal
5	836.2	-85.08	-47.80	-23.00	24.80	37.28	44	Horizontal
6	998.05	-85.22	-46.39	-23.00	23.39	38.83	9	Horizontal

Test Mode:	TX-CH1-AM-DC 24V	Polarity:	Vertical



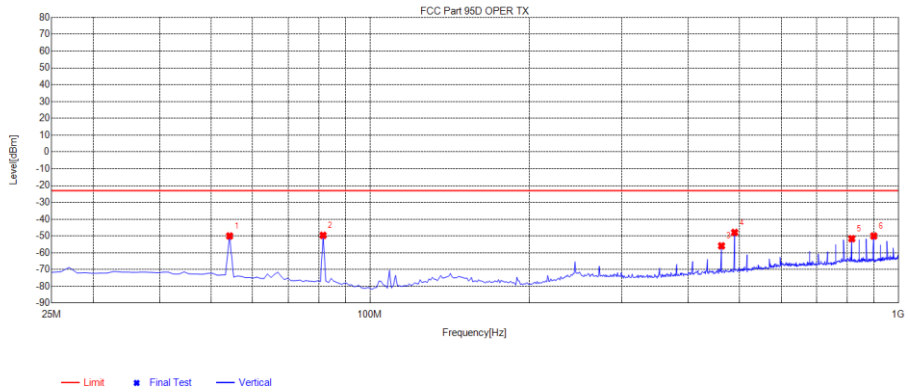
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Angle [°]	Polarity
1	53.275	-76.16	-48.23	-23.00	25.23	27.93	260	Vertical
2	80.575	-72.05	-47.86	-23.00	24.86	24.19	350	Vertical
3	458.875	-85.03	-53.88	-23.00	30.88	31.15	270	Vertical
4	485.2	-78.85	-47.25	-23.00	24.25	31.60	260	Vertical
5	808.9	-88.82	-51.21	-23.00	28.21	37.61	260	Vertical
6	890.8	-87.67	-50.22	-23.00	27.22	37.45	260	Vertical

Test Mode:	TX-CH20-AM-DC 24V	Polarity:	Horizontal



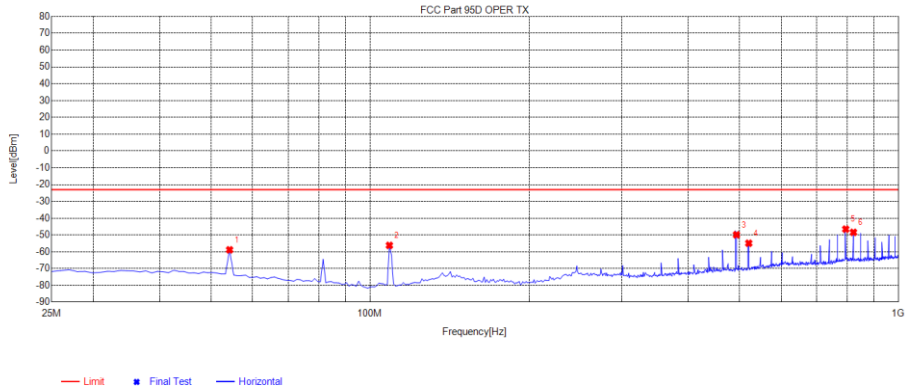
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Angle [°]	Polarity
1	54.25	-85.28	-57.58	-23.00	34.58	27.70	354	Horizontal
2	108.85	-73.93	-53.33	-23.00	30.33	20.60	175	Horizontal
3	490.075	-76.83	-45.15	-23.00	22.15	31.68	185	Horizontal
4	789.4	-84.32	-47.04	-23.00	24.04	37.28	329	Horizontal
5	816.7	-85.30	-47.78	-23.00	24.78	37.52	46	Horizontal
6	844	-85.30	-48.12	-23.00	25.12	37.18	38	Horizontal

Test Mode:	TX-CH20-AM-DC 24V	Polarity:	Vertical



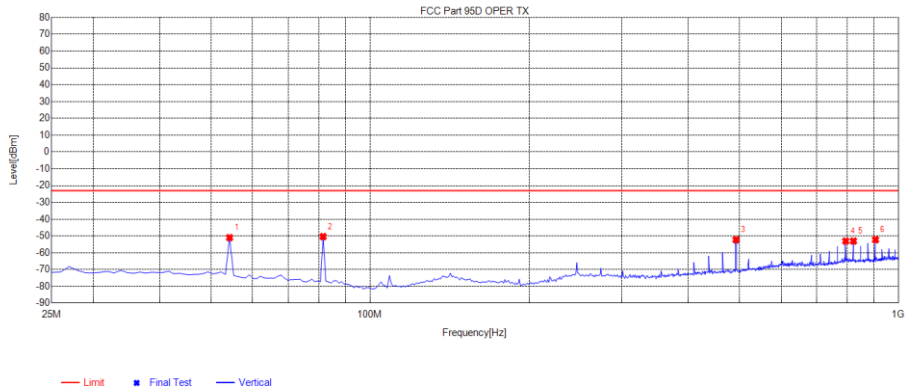
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Angle [°]	Polarity
1	54.25	-77.68	-49.98	-23.00	26.98	27.70	285	Vertical
2	81.55	-73.60	-49.61	-23.00	26.61	23.99	359	Vertical
3	462.775	-87.10	-55.88	-23.00	32.88	31.22	266	Vertical
4	490.075	-79.58	-47.90	-23.00	24.90	31.68	258	Vertical
5	816.7	-89.13	-51.61	-23.00	28.61	37.52	258	Vertical
6	898.6	-87.49	-49.97	-23.00	26.97	37.52	258	Vertical

Test Mode:	TX-CH40-AM-DC 24V	Polarity:	Horizontal



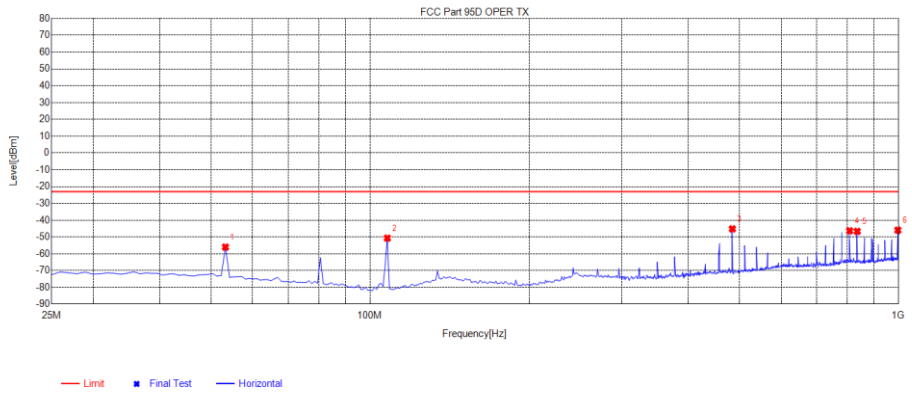
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Angle [°]	Polarity
1	54.25	-86.53	-58.83	-23.00	35.83	27.70	358	Horizontal
2	108.85	-76.78	-56.18	-23.00	33.18	20.60	163	Horizontal
3	493.975	-81.62	-49.87	-23.00	26.87	31.75	180	Horizontal
4	521.275	-87.17	-54.91	-23.00	31.91	32.26	189	Horizontal
5	795.25	-84.04	-46.52	-23.00	23.52	37.52	333	Horizontal
6	822.55	-85.86	-48.42	-23.00	25.42	37.44	36	Horizontal

Test Mode:	TX-CH40-AM-DC 24V	Polarity:	Vertical



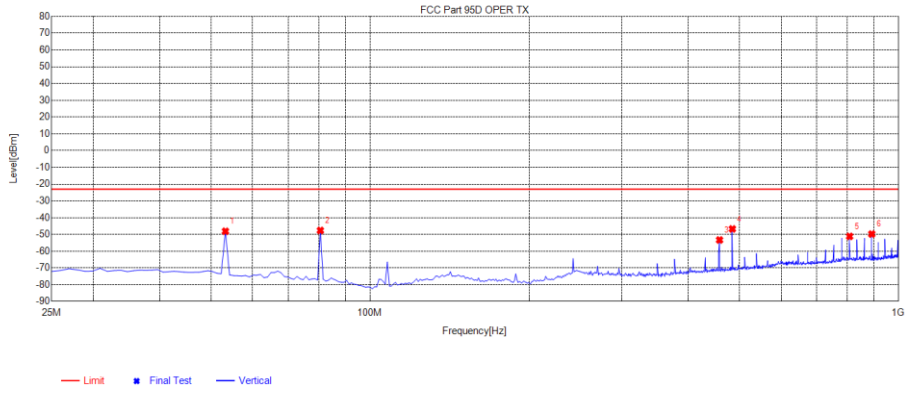
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Angle [°]	Polarity
1	54.25	-78.67	-50.97	-23.00	27.97	27.70	279	Vertical
2	81.55	-74.35	-50.36	-23.00	27.36	23.99	359	Vertical
3	493	-84.00	-52.27	-23.00	29.27	31.73	307	Vertical
4	795.25	-90.56	-53.04	-23.00	30.04	37.52	289	Vertical
5	822.55	-90.44	-53.00	-23.00	30.00	37.44	299	Vertical
6	905.425	-89.86	-52.22	-23.00	29.22	37.64	270	Vertical

Test Mode:	TX-CH1-FM-DC 24V	Polarity:	Horizontal



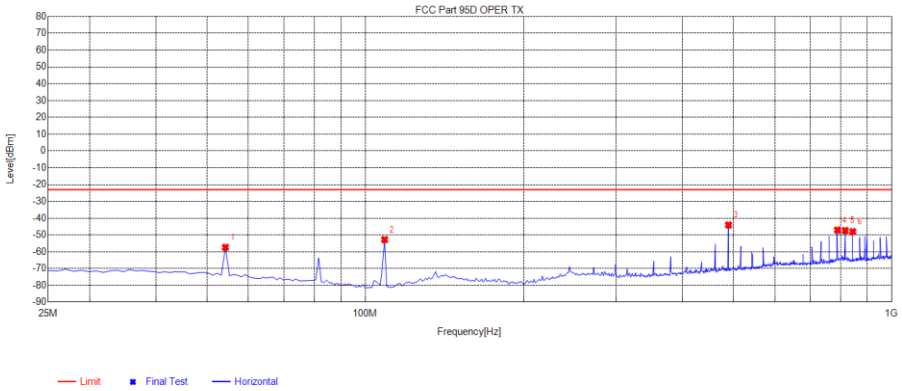
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Angle [°]	Polarity
1	53.275	-83.94	-56.01	-23.00	33.01	27.93	360	Horizontal
2	107.875	-71.25	-50.68	-23.00	27.68	20.57	170	Horizontal
3	485.2	-76.78	-45.18	-23.00	22.18	31.60	190	Horizontal
4	808.9	-83.94	-46.33	-23.00	23.33	37.61	334	Horizontal
5	836.2	-83.94	-46.66	-23.00	23.66	37.28	28	Horizontal
6	998.05	-84.77	-45.94	-23.00	22.94	38.83	10	Horizontal

Test Mode:	TX-CH1-FM-DC 24V	Polarity:	Vertical



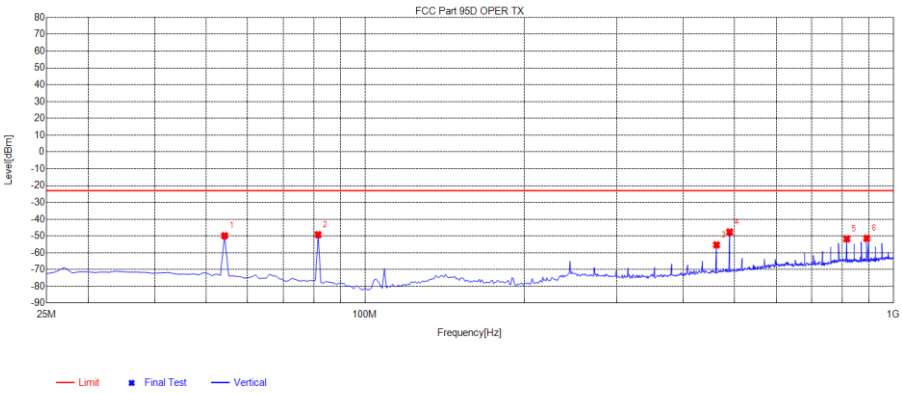
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Angle [°]	Polarity
1	53.275	-76.04	-48.11	-23.00	25.11	27.93	270	Vertical
2	80.575	-71.81	-47.62	-23.00	24.62	24.19	350	Vertical
3	458.875	-84.45	-53.30	-23.00	30.30	31.15	260	Vertical
4	485.2	-78.31	-46.71	-23.00	23.71	31.60	260	Vertical
5	808.9	-88.74	-51.13	-23.00	28.13	37.61	288	Vertical
6	890.8	-87.21	-49.76	-23.00	26.76	37.45	260	Vertical

Test Mode:	TX-CH20-FM-DC 24V	Polarity:	Horizontal



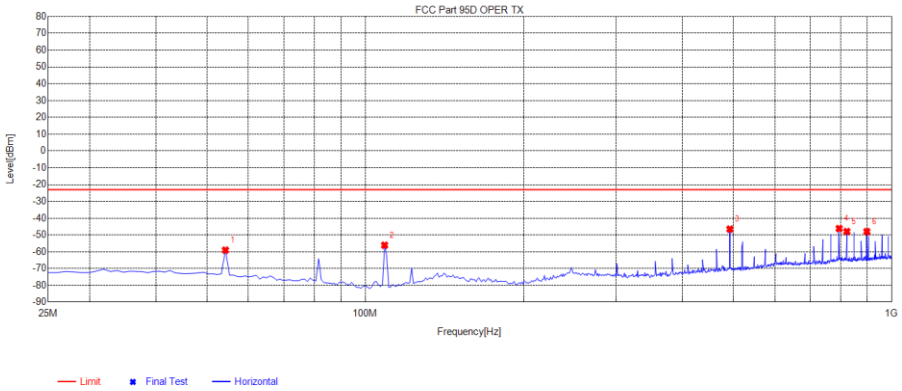
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Angle [°]	Polarity
1	54.25	-85.06	-57.36	-23.00	34.36	27.70	360	Horizontal
2	108.85	-73.33	-52.73	-23.00	29.73	20.60	159	Horizontal
3	490.075	-75.73	-44.05	-23.00	21.05	31.68	186	Horizontal
4	789.4	-84.35	-47.07	-23.00	24.07	37.28	338	Horizontal
5	816.7	-84.85	-47.33	-23.00	24.33	37.52	36	Horizontal
6	844	-85.20	-48.02	-23.00	25.02	37.18	28	Horizontal

Test Mode:	TX-CH20-FM-DC 24V	Polarity:	Vertical



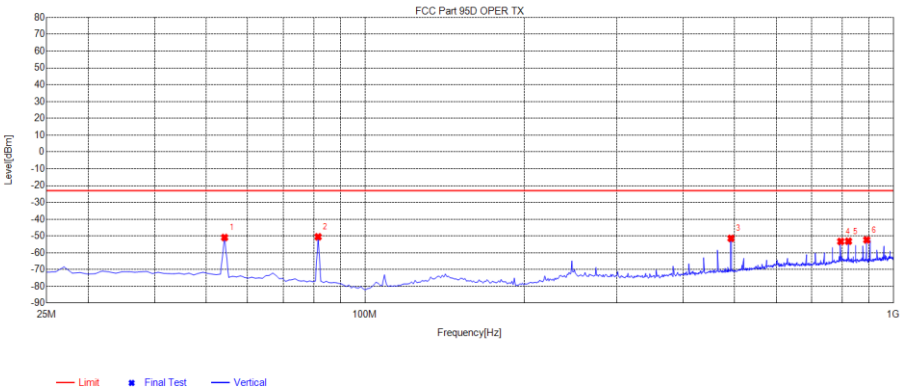
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Angle [°]	Polarity
1	54.25	-77.53	-49.83	-23.00	26.83	27.70	274	Vertical
2	81.55	-73.18	-49.19	-23.00	26.19	23.99	359	Vertical
3	462.775	-86.49	-55.27	-23.00	32.27	31.22	274	Vertical
4	490.075	-79.33	-47.65	-23.00	24.65	31.68	264	Vertical
5	816.7	-89.22	-51.70	-23.00	28.70	37.52	284	Vertical
6	890.8	-88.85	-51.40	-23.00	28.40	37.45	326	Vertical

Test Mode:	TX-CH40-FM-DC 24V	Polarity:	Horizontal



NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Angle [°]	Polarity
1	54.25	-86.72	-59.02	-23.00	36.02	27.70	360	Horizontal
2	108.85	-76.69	-56.09	-23.00	33.09	20.60	178	Horizontal
3	493	-78.23	-46.50	-23.00	23.50	31.73	195	Horizontal
4	795.25	-83.67	-46.15	-23.00	23.15	37.52	329	Horizontal
5	822.55	-85.37	-47.93	-23.00	24.93	37.44	45	Horizontal
6	897.625	-85.50	-47.99	-23.00	24.99	37.51	360	Horizontal

Test Mode:	TX-CH40-FM-DC 24V	Polarity:	Vertical



NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Angle [°]	Polarity
1	54.25	-78.60	-50.90	-23.00	27.90	27.70	278	Vertical
2	81.55	-74.48	-50.49	-23.00	27.49	23.99	350	Vertical
3	493	-83.13	-51.40	-23.00	28.40	31.73	278	Vertical
4	795.25	-90.78	-53.26	-23.00	30.26	37.52	287	Vertical
5	822.55	-90.55	-53.11	-23.00	30.11	37.44	295	Vertical
6	890.8	-89.78	-52.33	-23.00	29.33	37.45	123	Vertical

HARMONIC Emission

Test Mode:	TX-CH1-AM-DC 12V	Polarity:	Horizontal

NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Angle [°]	Polarity
1	53.275	-83.16	-55.23	-25.10	30.13	27.93	351	Horizontal
2	107.875	-71.22	-50.65	-25.10	25.55	20.57	163	Horizontal
3	458.875	-83.83	-52.68	-25.10	27.58	31.15	171	Horizontal
4	485.2	-76.29	-44.69	-25.10	19.59	31.6	179	Horizontal
5	782.575	-83.55	-46.56	-25.10	21.46	36.99	334	Horizontal
6	808.9	-84.92	-47.31	-25.10	22.21	37.61	334	Horizontal

Test Mode:	TX-CH1-AM-DC 12V	Polarity:	Vertical

NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Angle [°]	Polarity
1	53.275	-75.74	-47.81	-25.10	22.71	27.93	359	Vertical
2	80.575	-71.3	-47.11	-25.10	22.01	24.19	350	Vertical
3	458.875	-91.56	-60.41	-25.10	35.31	31.15	333	Vertical
4	485.2	-86.39	-54.79	-25.10	29.69	31.6	333	Vertical
5	782.575	-94.24	-57.25	-25.10	32.15	36.99	350	Vertical
6	893.725	-83.23	-45.75	-25.10	20.65	37.48	359	Vertical

Test Mode:	TX-CH20-AM-DC 12V	Polarity:	Horizontal

NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Angle [°]	Polarity
1	61.075	-100.05	-73.87	-25.12	48.75	26.18	290	Horizontal
2	81.55	-86.66	-62.67	-25.12	37.55	23.99	345	Horizontal
3	108.85	-73.48	-52.88	-25.12	27.76	20.6	171	Horizontal
4	490.075	-75.96	-44.28	-25.12	19.16	31.68	190	Horizontal
5	789.4	-84.11	-46.83	-25.12	21.71	37.28	335	Horizontal
6	816.7	-85.76	-48.24	-25.12	23.12	37.52	335	Horizontal

Test Mode:	TX-CH20-AM-DC 12V	Polarity:	Vertical

NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Angle [°]	Polarity
1	54.25	-78.06	-50.36	-25.12	25.24	27.7	297	Vertical
2	81.55	-72.71	-48.72	-25.12	23.60	23.99	350	Vertical
3	244.375	-91.94	-63.86	-25.12	38.74	28.08	297	Vertical
4	462.775	-85.52	-54.3	-25.12	29.18	31.22	306	Vertical
5	490.075	-80.32	-48.64	-25.12	23.52	31.68	297	Vertical
6	816.7	-90.18	-52.66	-25.12	27.54	37.52	306	Vertical

Test Mode:	TX-CH40-AM-DC 12V	Polarity:	Horizontal

NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Angle [°]	Polarity
1	54.25	-86.11	-58.41	-25.10	33.31	27.7	10	Horizontal
2	81.55	-87.1	-63.11	-25.10	38.01	23.99	10	Horizontal
3	108.85	-76.2	-55.6	-25.10	30.50	20.6	156	Horizontal
4	493	-77.76	-46.03	-25.10	20.93	31.73	190	Horizontal
5	795.25	-83.76	-46.24	-25.10	21.14	37.52	336	Horizontal
6	849.85	-85.17	-48.06	-25.10	22.96	37.11	27	Horizontal

Test Mode:	TX-CH40-AM-DC 12V	Polarity:	Vertical

NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Angle [°]	Polarity
1	54.25	-77.88	-50.18	-25.10	25.08	27.7	259	Vertical
2	81.55	-74.08	-50.09	-25.10	24.99	23.99	350	Vertical
3	493	-81.57	-49.84	-25.10	24.74	31.73	268	Vertical
4	795.25	-87.57	-50.05	-25.10	24.95	37.52	259	Vertical
5	849.85	-89.19	-52.08	-25.10	26.98	37.11	259	Vertical
6	892.75	-85.37	-47.9	-25.10	22.80	37.47	268	Vertical

Test Mode:	TX-CH1-FM-DC 12V	Polarity:	Horizontal

NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Angle [°]	Polarity
1	53.275	-84.16	-56.23	-25.29	30.94	27.93	350	Horizontal
2	107.875	-71.5	-50.93	-25.29	25.64	20.57	151	Horizontal
3	485.2	-76.47	-44.87	-25.29	19.58	31.6	178	Horizontal
4	782.575	-83.84	-46.85	-25.29	21.56	36.99	333	Horizontal
5	808.9	-84.82	-47.21	-25.29	21.92	37.61	333	Horizontal
6	836.2	-84.96	-47.68	-25.29	22.39	37.28	15	Horizontal

Test Mode:	TX-CH1-FM-DC 12V	Polarity:	Vertical

NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Angle [°]	Polarity
1	53.275	-76.47	-48.54	-25.29	23.25	27.93	85	Vertical
2	80.575	-71.34	-47.15	-25.29	21.86	24.19	24	Vertical
3	458.875	-81.62	-50.47	-25.29	25.18	31.15	231	Vertical
4	485.2	-77.76	-46.16	-25.29	20.87	31.6	60	Vertical
5	782.575	-85.76	-48.77	-25.29	23.48	36.99	114	Vertical
6	863.5	-85.9	-48.68	-25.29	23.39	37.22	114	Vertical

Test Mode:	TX-CH20-FM-DC 12V	Polarity:	Horizontal

NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Angle [°]	Polarity
1	54.25	-84.63	-56.93	-25.35	31.58	27.7	350	Horizontal
2	108.85	-73.77	-53.17	-25.35	27.82	20.6	333	Horizontal
3	490.075	-79.11	-47.43	-25.35	22.08	31.68	342	Horizontal
4	789.4	-84.33	-47.05	-25.35	21.70	37.28	333	Horizontal
5	816.7	-85.48	-47.96	-25.35	22.61	37.52	333	Horizontal
6	898.6	-87.72	-50.2	-25.35	24.85	37.52	314	Horizontal

Test Mode:	TX-CH20-FM-DC 12V	Polarity:	Vertical

NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Angle [°]	Polarity
1	54.25	-76.2	-48.5	-25.35	23.15	27.7	104	Vertical
2	81.55	-72.49	-48.5	-25.35	23.15	23.99	37	Vertical
3	462.775	-82.57	-51.35	-25.35	26.00	31.22	233	Vertical
4	490.075	-75.33	-43.65	-25.35	18.30	31.68	75	Vertical
5	789.4	-85.71	-48.43	-25.35	23.08	37.28	121	Vertical
6	893.725	-77.58	-40.1	-25.35	14.75	37.48	225	Vertical

Test Mode:	TX-CH40-FM-DC 12V	Polarity:	Horizontal

NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Angle [°]	Polarity
1	54.25	-86.22	-58.52	-25.38	33.14	27.7	360	Horizontal
2	81.55	-87.32	-63.33	-25.38	37.95	23.99	355	Horizontal
3	108.85	-76.72	-56.12	-25.38	30.74	20.6	173	Horizontal
4	493	-77.64	-45.91	-25.38	20.53	31.73	192	Horizontal
5	795.25	-83.39	-45.87	-25.38	20.49	37.52	338	Horizontal
6	849.85	-84.74	-47.63	-25.38	22.25	37.11	27	Horizontal

Test Mode:	TX-CH40-FM-DC 12V	Polarity:	Vertical

NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Angle [°]	Polarity
1	54.25	-78.43	-50.73	-25.38	25.35	27.7	304	Vertical
2	81.55	-73.81	-49.82	-25.38	24.44	23.99	351	Vertical
3	465.7	-89.65	-58.38	-25.38	33.00	31.27	314	Vertical
4	493	-82.81	-51.08	-25.38	25.70	31.73	314	Vertical
5	822.55	-91.23	-53.79	-25.38	28.41	37.44	304	Vertical
6	898.6	-93.14	-55.62	-25.38	30.24	37.52	223	Vertical

Test Mode:	TX-CH1-AM-DC 24V	Polarity:	Horizontal

NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Angle [°]	Polarity
1	107.875	-71.26	-50.69	-24.55	26.14	20.57	175	Horizontal
2	485.2	-76.64	-45.04	-24.55	20.49	31.6	193	Horizontal
3	782.575	-84.85	-47.86	-24.55	23.31	36.99	331	Horizontal
4	808.9	-84.67	-47.06	-24.55	22.51	37.61	331	Horizontal
5	836.2	-85.08	-47.8	-24.55	23.25	37.28	44	Horizontal
6	998.05	-85.22	-46.39	-24.55	21.84	38.83	9	Horizontal

Test Mode:	TX-CH1-AM-DC 24V	Polarity:	Vertical

NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Angle [°]	Polarity
1	53.275	-76.16	-48.23	-24.55	23.68	27.93	260	Vertical
2	80.575	-72.05	-47.86	-24.55	23.31	24.19	350	Vertical
3	458.875	-85.03	-53.88	-24.55	29.33	31.15	270	Vertical
4	485.2	-78.85	-47.25	-24.55	22.70	31.6	260	Vertical
5	808.9	-88.82	-51.21	-24.55	26.66	37.61	260	Vertical
6	890.8	-87.67	-50.22	-24.55	25.67	37.45	260	Vertical

Test Mode:	TX-CH20-AM-DC 24V	Polarity:	Horizontal

NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Angle [°]	Polarity
1	54.25	-85.28	-57.58	-24.62	32.96	27.7	354	Horizontal
2	108.85	-73.93	-53.33	-24.62	28.71	20.6	175	Horizontal
3	490.075	-76.83	-45.15	-24.62	20.53	31.68	185	Horizontal
4	789.4	-84.32	-47.04	-24.62	22.42	37.28	329	Horizontal
5	816.7	-85.3	-47.78	-24.62	23.16	37.52	46	Horizontal
6	844	-85.3	-48.12	-24.62	23.50	37.18	38	Horizontal

Test Mode:	TX-CH20-AM-DC 24V	Polarity:	Vertical

NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Angle [°]	Polarity
1	54.25	-77.68	-49.98	-24.62	25.36	27.7	285	Vertical
2	81.55	-73.6	-49.61	-24.62	24.99	23.99	359	Vertical
3	462.775	-87.1	-55.88	-24.62	31.26	31.22	266	Vertical
4	490.075	-79.58	-47.9	-24.62	23.28	31.68	258	Vertical
5	816.7	-89.13	-51.61	-24.62	26.99	37.52	258	Vertical
6	898.6	-87.49	-49.97	-24.62	25.35	37.52	258	Vertical

Test Mode:	TX-CH40-AM-DC 24V	Polarity:	Horizontal

NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Angle [°]	Polarity
1	54.25	-86.53	-58.83	-24.67	34.16	27.7	358	Horizontal
2	108.85	-76.78	-56.18	-24.67	31.51	20.6	163	Horizontal
3	493.975	-81.62	-49.87	-24.67	25.20	31.75	180	Horizontal
4	521.275	-87.17	-54.91	-24.67	30.24	32.26	189	Horizontal
5	795.25	-84.04	-46.52	-24.67	21.85	37.52	333	Horizontal
6	822.55	-85.86	-48.42	-24.67	23.75	37.44	36	Horizontal

Test Mode:	TX-CH40-AM-DC 24V	Polarity:	Vertical

NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Angle [°]	Polarity
1	54.25	-78.67	-50.97	-24.67	26.30	27.7	279	Vertical
2	81.55	-74.35	-50.36	-24.67	25.69	23.99	359	Vertical
3	493	-84.00	-52.27	-24.67	27.60	31.73	307	Vertical
4	795.25	-90.56	-53.04	-24.67	28.37	37.52	289	Vertical
5	822.55	-90.44	-53.00	-24.67	28.33	37.44	299	Vertical
6	905.425	-89.86	-52.22	-24.67	27.55	37.64	270	Vertical

Test Mode:	TX-CH1-FM-DC 24V	Polarity:	Horizontal

NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Angle [°]	Polarity
1	53.275	-83.94	-56.01	-24.74	31.27	27.93	360	Horizontal
2	107.875	-71.25	-50.68	-24.74	25.94	20.57	170	Horizontal
3	485.2	-76.78	-45.18	-24.74	20.44	31.6	190	Horizontal
4	808.9	-83.94	-46.33	-24.74	21.59	37.61	334	Horizontal
5	836.2	-83.94	-46.66	-24.74	21.92	37.28	28	Horizontal
6	998.05	-84.77	-45.94	-24.74	21.20	38.83	10	Horizontal

Test Mode:	TX-CH1-FM-DC 24V	Polarity:	Vertical

NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Angle [°]	Polarity
1	53.275	-76.04	-48.11	-24.74	23.37	27.93	270	Vertical
2	80.575	-71.81	-47.62	-24.74	22.88	24.19	350	Vertical
3	458.875	-84.45	-53.30	-24.74	28.56	31.15	260	Vertical
4	485.2	-78.31	-46.71	-24.74	21.97	31.6	260	Vertical
5	808.9	-88.74	-51.13	-24.74	26.39	37.61	288	Vertical
6	890.8	-87.21	-49.76	-24.74	25.02	37.45	260	Vertical

Test Mode:	TX-CH20-FM-DC 24V	Polarity:	Horizontal

NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Angle [°]	Polarity
1	54.25	-85.06	-57.36	-24.85	32.51	27.7	360	Horizontal
2	108.85	-73.33	-52.73	-24.85	27.88	20.6	159	Horizontal
3	490.075	-75.73	-44.05	-24.85	19.20	31.68	186	Horizontal
4	789.4	-84.35	-47.07	-24.85	22.22	37.28	338	Horizontal
5	816.7	-84.85	-47.33	-24.85	22.48	37.52	36	Horizontal
6	844	-85.20	-48.02	-24.85	23.17	37.18	28	Horizontal

Test Mode:	TX-CH20-FM-DC 24V	Polarity:	Vertical

NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Angle [°]	Polarity
1	54.25	-77.53	-49.83	-24.85	24.98	27.7	274	Vertical
2	81.55	-73.18	-49.19	-24.85	24.34	23.99	359	Vertical
3	462.775	-86.49	-55.27	-24.85	30.42	31.22	274	Vertical
4	490.075	-79.33	-47.65	-24.85	22.80	31.68	264	Vertical
5	816.7	-89.22	-51.70	-24.85	26.85	37.52	284	Vertical
6	890.8	-88.85	-51.40	-24.85	26.55	37.45	326	Vertical

Test Mode:	TX-CH40-FM-DC 24V	Polarity:	Horizontal

NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Angle [°]	Polarity
1	54.25	-86.72	-59.02	-24.88	34.15	27.7	360	Horizontal
2	108.85	-76.69	-56.09	-24.88	31.22	20.6	178	Horizontal
3	493	-78.23	-46.50	-24.88	21.63	31.73	195	Horizontal
4	795.25	-83.67	-46.15	-24.88	21.28	37.52	329	Horizontal
5	822.55	-85.37	-47.93	-24.88	23.06	37.44	45	Horizontal
6	897.625	-85.50	-47.99	-24.88	23.12	37.51	360	Horizontal

Test Mode:	TX-CH40-FM-DC 24V	Polarity:	Vertical

NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Angle [°]	Polarity
1	54.25	-78.60	-50.90	-24.88	26.03	27.7	278	Vertical
2	81.55	-74.48	-50.49	-24.88	25.62	23.99	350	Vertical
3	493	-83.13	-51.40	-24.88	26.53	31.73	278	Vertical
4	795.25	-90.78	-53.26	-24.88	28.39	37.52	287	Vertical
5	822.55	-90.55	-53.11	-24.88	28.24	37.44	295	Vertical
6	890.8	-89.78	-52.33	-24.88	27.46	37.45	123	Vertical

8.5 Emission Mask Plot

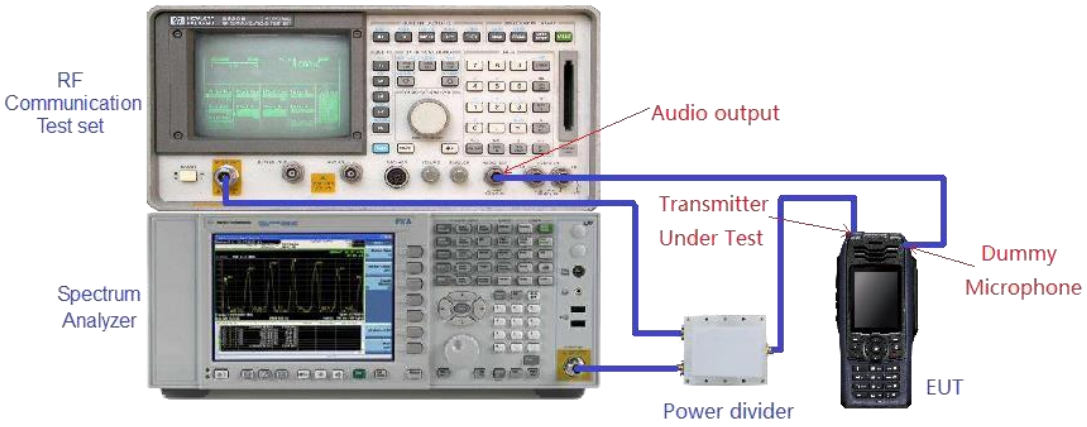
The detailed procedure employed for Emission Mask measurements are specified as following:

-Connect the equipment as illustrated.

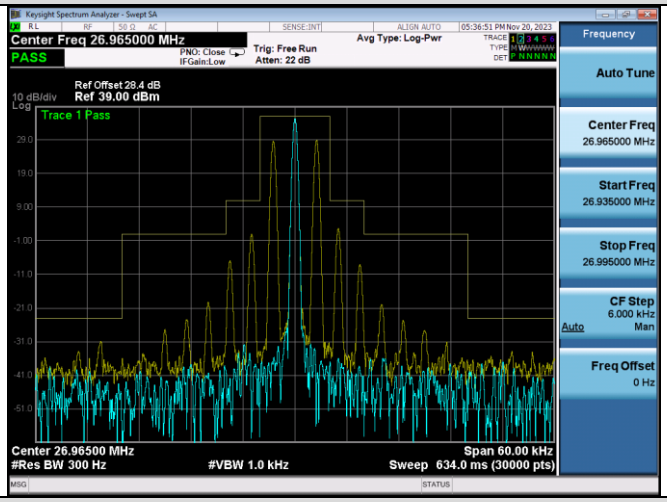
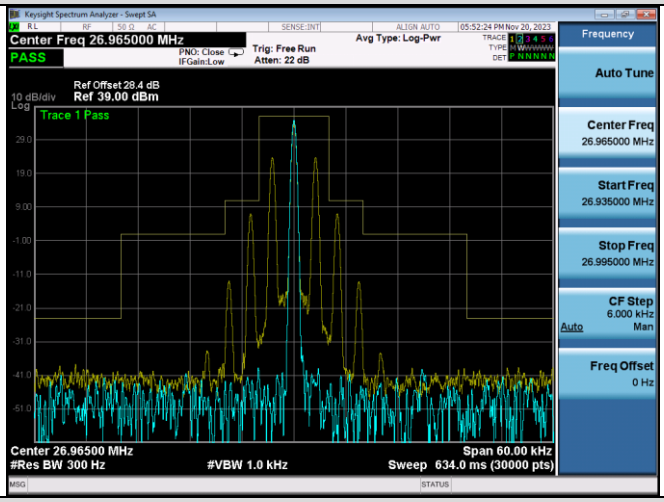
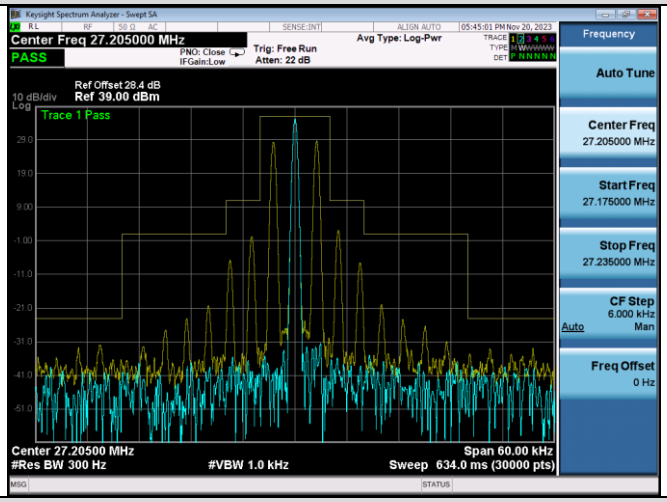
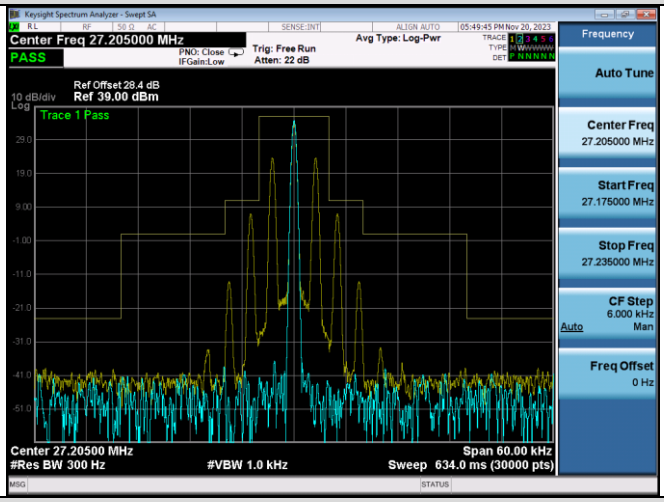
-Spectrum set as follow:

1. Centre frequency = fundamental frequency, Span=60kHz for 10kHz , RBW=300Hz, VBW=1000Hz ;
2. Sweep = auto, Detector function = peak, Trace = max hold
3. Key the transmitter, and set the level of the unmodulated carrier to a full scale reference line. This is the 0dB reference for the measurement.
4. Modulate the transmitter with a 2500 Hz sine wave at an input level 16 dB greater than that necessary to produce 50% of rated system deviation

   The input level shall be established at the frequency of maximum response of the audio modulating circuit.
5. Transmitters employing digital modulation techniques that bypass the limiter and the audio low-pass filter shall be modulated as specified by the manufacturer.
6. Measure and record the results in the test report.



Test plot as follows: DC 12V

Emission Mask- AM Modulation @ 26.965MHz	Emission Mask- FM Modulation @ 26.965MHz
	
Emission Mask- AM Modulation @ 27.205MHz	**Emission Mask- FM Modulation @ 27.205MHz**
	
Emission Mask- AM Modulation @ 27.405MHz	**Emission Mask- FM Modulation @ 27.405MHz**