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FCC RF Test Report

Test Report Number	COS-23071762-LC-FCC-RF
FCC ID	2BEZA-DWR4
Applicant	CoastalObsTechServices LLC
Applicant Address	3801 Shadow Lane, Virginia Beach, VA 23452
Product Name	Datawell Waverider
Model Number	DWR4
Date of Receipt	02/02/2024
Date of Test	02/05/2024- 02/12/2024
Report Issue Date	04/12/2024
Test Standards	47 CFR Part 90 subpart J ANSI C63.26: 2015
Test Result	**PASS**

Issued by:

Vista Compliance Laboratories
1261 Puerta Del Sol, San Clemente, CA 92673 USA
www.vista-compliance.com

Minoush Niknam (Test Engineer)

David Zhang (Technical Manager)

REVISION HISTORY

Report Number	Version	Description	Issued Date
COS-23071762-LC-FCC-RF	01	Initial report	04/12/2024

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1 Test Summary

Test Item	Test Requirement	Test Method	Result
Occupied bandwidth	47 CFR Part 90.248	ANSI C63.26 (2015)	Pass
Peak Output Power	47 CFR Part 90.248	ANSI C63.26 (2015)	Pass
Frequency Stability	47 CFR Part 90.213 47 CFR Part 90.248	ANSI C63.26 (2015)	Pass
Out of Band Emissions and Emission Mask	47 CFR Part 90.210 47 CFR Part 90.248	ANSI C63.26 (2015)	Pass
Spurious emission at antenna terminals	47 CFR Part 90.210 47 CFR Part 90.248	ANSI C63.26 (2015)	Pass

2 General Information

2.1 Applicant

Applicant	Coastalobstechservices, LLC
Applicant Address	3801 Shadow Lane, Virginia Beach, VA 23452
Manufacturer	Coastalobstechservices, LLC
Manufacturer Address	3801 Shadow Lane, Virginia Beach, VA 23452

2.2 Product information

Product Name	Datawell Waverider
Model Number	DWR4
Family Models	N/A
Serial Number	N/A
Frequency Band	5 Operating frequencies: 29.71MHz, 29.73MHz, 29.75MHz, 29.77MHz, 29.79MHz,
Type of modulation	4FSK
Equipment Class	TNB
Antenna Information	¼ λ vertical monopole
Height of Antenna	Sea level
Antenna Gain	0 dBi (Dipole)
Clock Frequencies	N/A
Input Power	12V~30Vdc battery power (12Vdc used during the test)
Power Adapter Manufacturer/Model	N/A
Power Adapter SN	N/A
Hardware version	N/A
Software version	N/A
Additional Info	1. The EUT has N Type connector for direct RF conducted measurement. 2. Datawell has received FCC waiver of section 90.248 to operate radio buoys on these 29 MHz frequencies . Refer to FCC publication DA 16-219A1.

2.3 Test standard and method

Test standard	47 CFR Part 90.210 47 CFR Part 90.213 47 CFR Part 90.248
Test method	ANSI C63.26-2015

3 Test Site Information

Lab performing tests	Vista Laboratories, Inc.
Lab Address	1261 Puerta Del Sol, San Clemente, CA 92673 USA
Phone Number	+1 (949) 393-1123
Website	www.vista-compliance.com

Test Condition	Temperature	Humidity	Atmospheric Pressure
RF Testing	23.2°C	57.5%	996 mbar
Radiated Emission Testing	23.2°C	57.5%	996 mbar

4 Modification of EUT / Deviations from Standards

The EUT is an engineering test sample which is loaded with five relevant HF radio transmission frequency boards. The boards are specifically designed to support the RF TX measurement in different aspects.

The test sample has an N type connector for direct RF conducted measurement.

5 Test Configuration and Operation

5.1 EUT Test Configuration

EUT is set to different transmission modes through integrating different HF radio transmission frequency boards.

The following software was used for testing and to monitor EUT performance.

Software	Description
EMISoft Vasona	EMC/RF Spurious emission test software used during testing

5.2 EUT Operating frequency

Channel	Frequency (MHz)	Channel	Frequency (MHz)
1	29.71	4	29.77
2	29.73	5	29.79
3	29.75	-	-

5.3 Supporting Equipment

Description	Manufacturer	Model #	Serial #	Remark
DC power supply	RIGOL	DP712	DP7B194900487	-

6 Uncertainty of Measurement

Test item	Measurement Uncertainty (dB)
RF Output Power (Conducted)	±1.2 dB
Unwanted Emission (conducted)	±2.6 dB
Occupied Channel Bandwidth	±5 %
Radiated Emission (9KHz-30MHz)	±3.5 dB
Radiated Emission (30MHz-1GHz)	±4.6 dB
Radiated Emission (1-18GHz)	±4.9 dB
Radiated Emission (18-40GHz)	±3.5 dB

7 Test Results

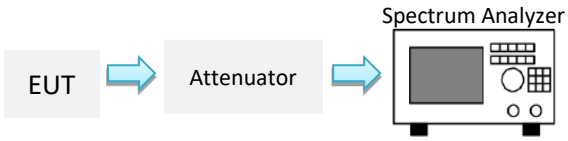
7.1 Occupied Bandwidth

7.1.1 Requirement

§ 90.248 (d)

The authorized bandwidth shall not exceed 1 kHz.

7.1.2 Test Setup



7.1.3 Test Procedure

According to section 5.4.4 of ANSI C63.26-2015:

The OBW is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers are each equal to 0.5% of the total mean power of the given emission.

The following procedure shall be used for measuring (99%) power bandwidth:

1. The spectrum analyzer center frequency is set to the nominal EUT channel center frequency.

2. RBW hall be in the range of 1% to 5% of the anticipated OBW, and the VBW shall be set ≥ 3 × RBW.

3. Set the reference level of the instrument as required to prevent the signal amplitude from exceeding the maximum spectrum analyzer input mixer level for linear operation.

4. Set the detection mode to peak, and the trace mode to max hold.

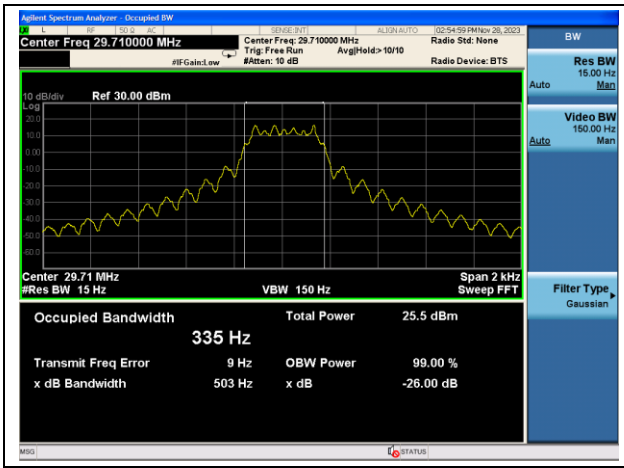
5. If the instrument does not have a 99% OBW function, recover the trace data points and sum directly in linear power terms. Place the recovered amplitude data points, beginning at the lowest frequency, in a running sum until 0.5% of the total is reached. Record that frequency as the lower OBW frequency. Repeat the process until 99.5% of the total is reached and record that frequency as the upper OBW frequency. The 99% power OBW can be determined by computing the difference these two frequencies.

6. The OBW shall be reported, and plot(s) of the measuring instrument display shall be provided with the test report.

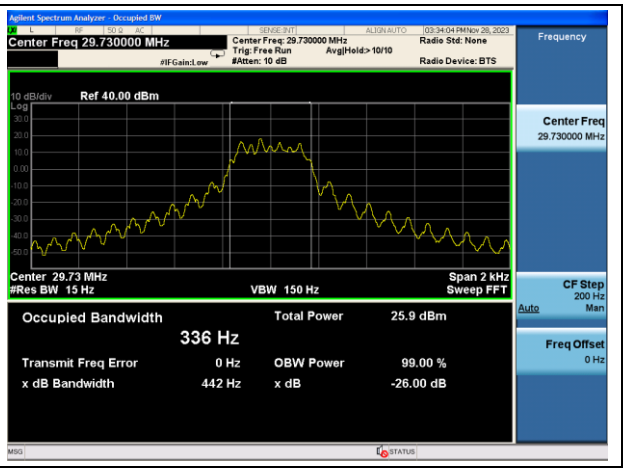
7.1.4 Test Result

Channel	Frequency (MHz)	Measured Bandwidth (kHz)	Maximum Bandwidth (kHz)	Result
1	29.71	0.335	1	Pass
2	29.73	0.336	1	Pass
3	29.75	0.337	1	Pass
4	29.77	0.334	1	Pass
5	29.79	0.332	1	Pass

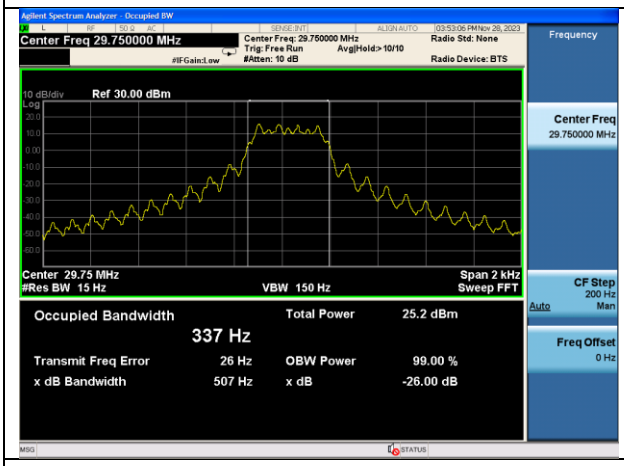
7.1.5 Test Plots



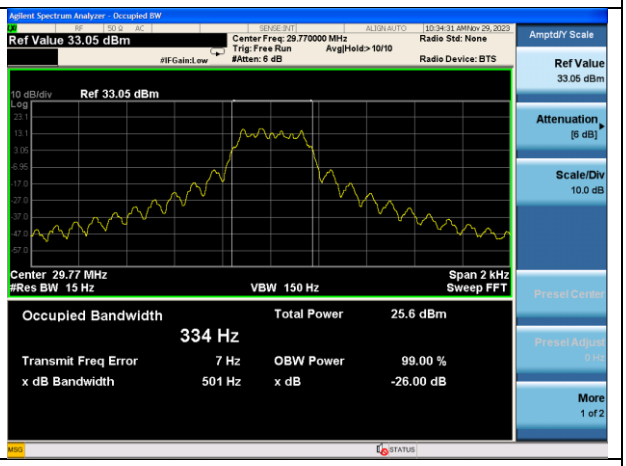
OBW_CH 1



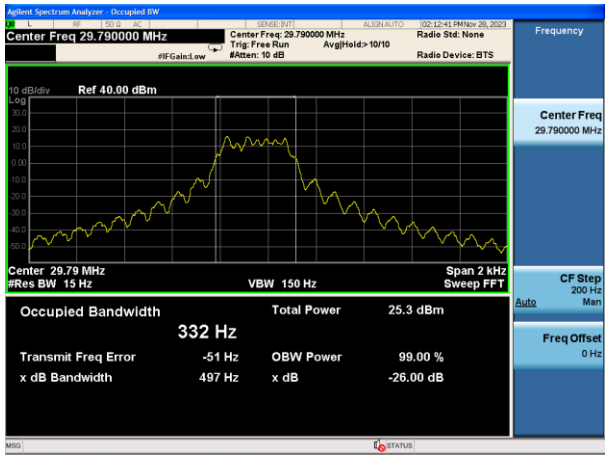
OBW_CH 2



OBW_CH 3



OBW_CH 4



OBW_CH 5

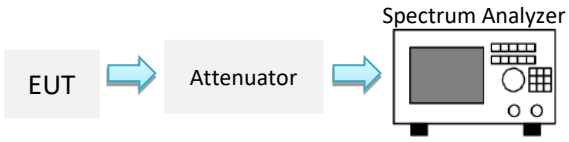
7.2 Peak Output Power

7.2.1 Requirement

§ 90.248 (f)

The maximum peak transmitter output (carrier) power shall not exceed 100 milliwatts (20dBm) for ocean buoys.

7.2.2 Test Setup



7.2.3 Test Procedure

According to section 5.2.2.3 of ANSI C63.26-2015:

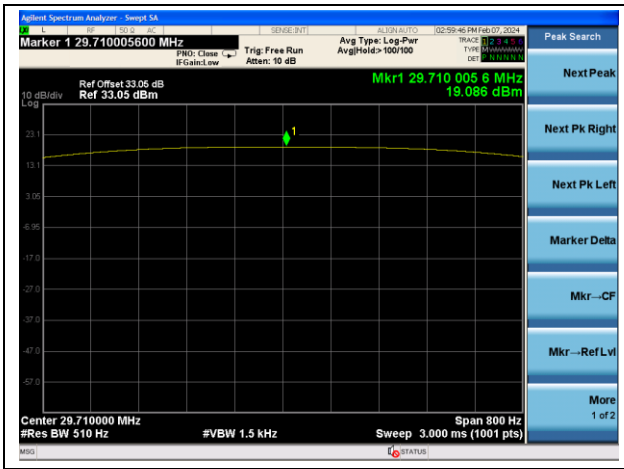
This procedure can be used to measure the peak power in either a CW-like or noise-like narrowband RF signal. The measurement instrument must have a RBW that is greater than or equal to the OBW of the signal to be measured and a VBW ≥ RBW.

1. Set the RBW ≥ OBW.
2. Set the VBW ≥ 3 x RBW.
3. Set span ≥ 2 x OBW.
4. Sweep time ≥ 10 x (number of points in sweep) x (transmission symbol period).
5. Detector = Peak.
6. Trace mode = Max hold.
7. Allow trace to fully stabilize.
8. Use the peak marker function to determine the peak amplitude level.

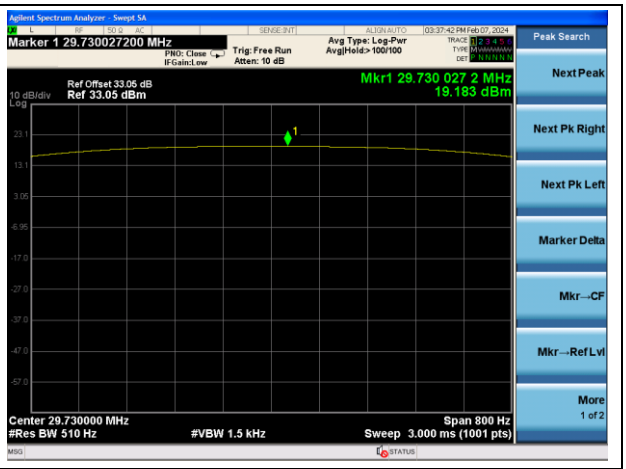
7.2.4 Test Result

Channel	Frequency (MHz)	Measured Output Power (dBm)	Maximum Output Power (dBm)	Result
1	29.71	19.086	20	Pass
2	29.73	19.183	20	Pass
3	29.75	18.430	20	Pass
4	29.77	18.870	20	Pass
5	29.79	18.953	20	Pass

7.2.5 Test Plots

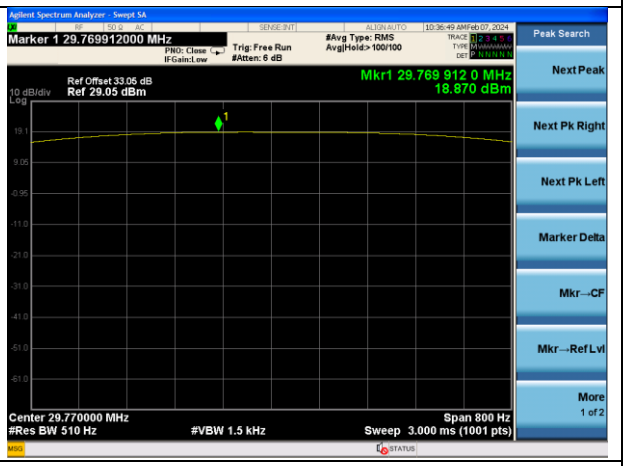


OP_CH 1



OP_CH 2

OP_CH 3



OP_CH 4

OP_CH 5

7.3 Frequency Stability

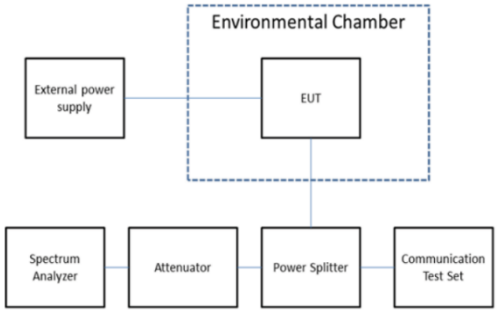
7.3.1 Requirement

§ 90.213 (a), § 90.248 (e) (3)

Unless noted elsewhere, transmitters used in frequency range 25~50MHz with output power 2Watts or less, the minimum frequency stability should be less than ± 50ppm.

The frequency stability standards shall be met over a temperature range of −30° to + 50° centigrade at normal supply voltage and for a variation in the primary supply voltage from 85% to 115% of the rated supply voltage at a temperature of + 20 °C. For battery operated equipment, the equipment tests shall be performed using a new battery.

7.3.2 Test Setup



7.3.3 Test Procedure

According to section 5.6.5 of ANSI C63.26-2015:

Frequency stability over variations in temperature:

1. Place the EUT inside the temperature/humidity chamber.
2. Set the spectrum analyer center frequency to EUT operating frequency, the RBW ≥ OBW, VBW ≥ 3 x RBW and span to 50kHz.
3. Set the chamber temperature to +20℃, allow sufficient time (approximately 10 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 and 3 with adjust the chamber temperature from -30℃ to +50℃, test and record all frequencies on each temperature step.

Frequency stability varying supply voltage:

1. Place the EUT inside the temperature/humidity chamber, set the chamber temperature to +20℃.
2. Set the spectrum analyer center frequency to EUT operating frequency, the RBW ≥ OBW, VBW ≥ 3 x RBW and span to 50kHz.
3. Set the primary supply voltage to 85% and 115% of the normal voltage.
4. Repeat test and record all frequencies on each voltage step.

7.3.4 Test Result

Channel 1: 29.71 MHz					
Voltage (Vdc)	**Temperature (℃)**	**Measured Frequency (MHz)**	**Frequency drift (ppm)**	**Limit (ppm)**	**Result**
12.0	50	29.70985	-5.048805116	± 50	PASS
	40	29.71	0		
	30	29.71	0		
	20	29.7101	3.365870077		
	10	29.71005	1.682935039		
	0	29.7099	-3.365870077		
	-10	29.71005	1.682935039		
	-20	29.7099	-3.365870077		
	-30	29.70985	-5.048805116		
10.2	20	29.7099	-3.365870077		
13.8	20	29.7099	-3.365870077		

Channel 2: 29.73 MHz					
Voltage (Vdc)	**Temperature (℃)**	**Measured Frequency (MHz)**	**Frequency drift (ppm)**	**Limit (ppm)**	**Result**
12.0	50	29.72985	-5.045408678	± 50	PASS
	40	29.7298	-6.727211571		
	30	29.73005	1.681802893		
	20	29.73005	1.681802893		
	10	29.7301	3.363605785		
	0	29.72995	-1.681802893		
	-10	29.73	0		
	-20	29.72995	-1.681802893		
	-30	29.7299	-3.363605785		
10.2	20	29.72985	-5.045408678		
13.8	20	29.73	0		

Channel 3: 29.75 MHz					
Voltage (Vdc)	**Temperature (℃)**	**Measured Frequency (MHz)**	**Frequency drift (ppm)**	**Limit (ppm)**	**Result**
12.0	50	29.7497	-10.08403361	± 50	PASS
	40	29.74985	-5.042016807		
	30	29.7499	-3.361344538		
	20	29.75	0		
	10	29.7502	6.722689076		
	0	29.75025	8.403361345		
	-10	29.75	0		
	-20	29.75015	5.042016807		
	-30	29.7502	6.722689076		
10.2	20	29.75005	1.680672269		
13.8	20	29.75005	1.680672269		

Channel 4: 29.77 MHz					
Voltage (Vdc)	**Temperature (℃)**	**Measured Frequency (MHz)**	**Frequency drift (ppm)**	**Limit (ppm)**	**Result**
12.0	50	29.76985	-5.038629493	± 50	PASS
	40	29.77005	1.679543164		
	30	29.76995	-1.679543164		
	20	29.76995	-1.679543164		
	10	29.76995	-1.679543164		
	0	29.77	0		
	-10	29.77015	5.038629493		
	-20	29.76995	-1.679543164		
	-30	29.76995	-1.679543164		
10.2	20	29.7699	-3.359086329		
13.8	20	29.77	0		

Channel 5: 29.79 MHz					
Voltage (Vdc)	**Temperature (℃)**	**Measured Frequency (MHz)**	**Frequency drift (ppm)**	**Limit (ppm)**	**Result**
12.0	50	29.78995	-1.678415576	± 50	PASS
	40	29.7898	-6.713662303		
	30	29.7898	-6.713662303		
	20	29.78996	-1.342732461		
	10	29.78995	-1.678415576		
	0	29.79	0		
	-10	29.78995	-1.678415576		
	-20	29.78995	-1.678415576		
	-30	29.78985	-5.035246727		
10.2	20	29.78994	-2.014098691		
13.8	20	29.78994	-2.014098691		

7.4 Out band of Emissions and Emission Mask

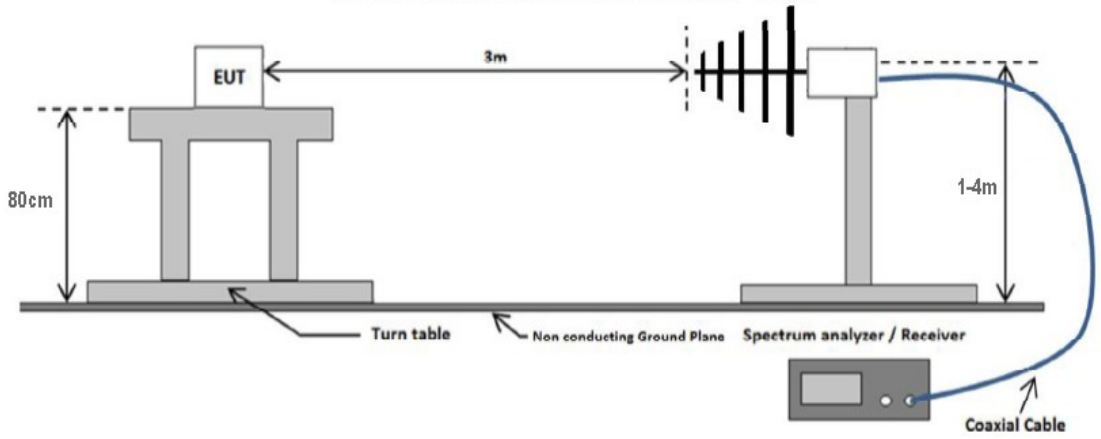
7.4.1 Requirement

§ 90.210, § 90.248 (g)

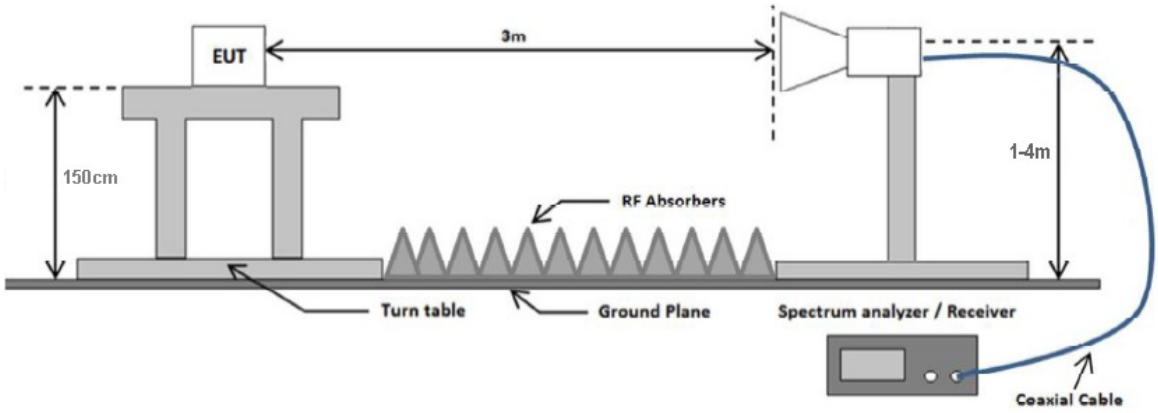
The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power(P)by a factor of at least 43+10 log(P)dB. The emission limit is equal to-13dBm. Emissions appearing outside of the authorized bandwidth shall be attenuated below the carrier power by at least 26 dB.

7.4.2 Test Setup

Radiated emissions test setup 30 MHz - 1 GHz



Radiated emissions test setup above 1 GHz



7.4.3 Test Procedure

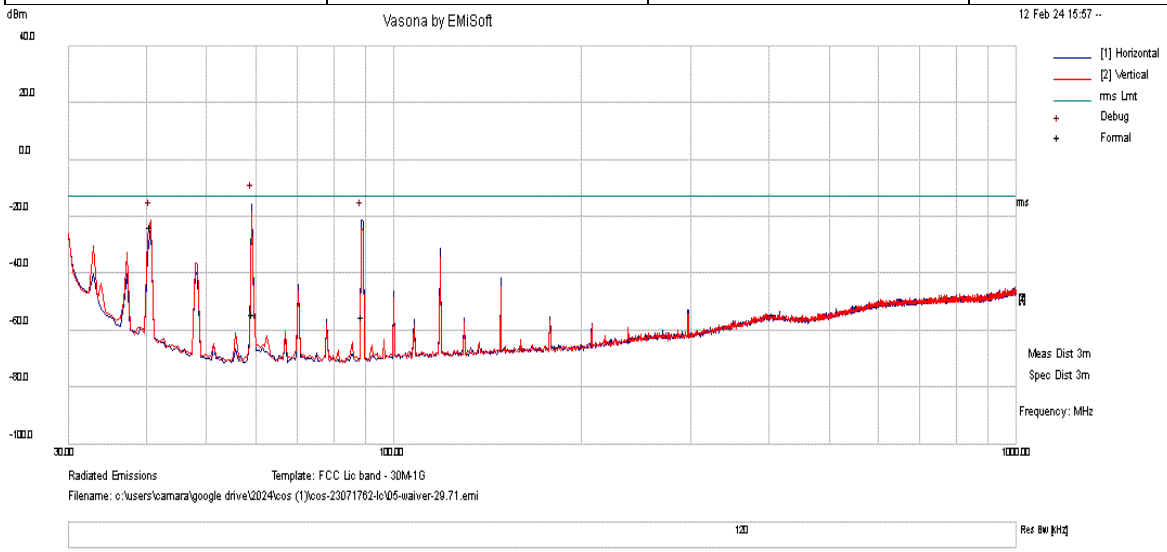
According to section 5.5 of ANSI C63.26-2015:

1. The EUT was switched on and allowed to warm up to its normal operating condition.
2. The test was carried out at the selected frequency points obtained from the EUT characterization. Maximization of the emissions, was carried out by rotating the EUT, changing the antenna polarization, and adjusting the antenna height in the following manner:
   a. Vertical or horizontal polarization (whichever gave the higher emission level over a full rotation of the EUT) was chosen.
   b. The EUT was then rotated to the direction that gave the maximum emission.
   c. Finally, the antenna height was adjusted to the height that gave the maximum emission.
3. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 300 Hz for frequency below 150KHz.
4. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 10 kHz for frequency between 150KHz – 30MHz.
5. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120 kHz for Quasi-Peak detection at frequency between 30MHz - 1GHz.
6. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz with Peak detection for Peak and average measurement at frequency above 1GHz.
7. Steps 2 and 3 were repeated for the next frequency point, until all selected frequency points were measured.

7.4.4 Test Result

RADIATED EMISSIONS BELOW 1 GHZ

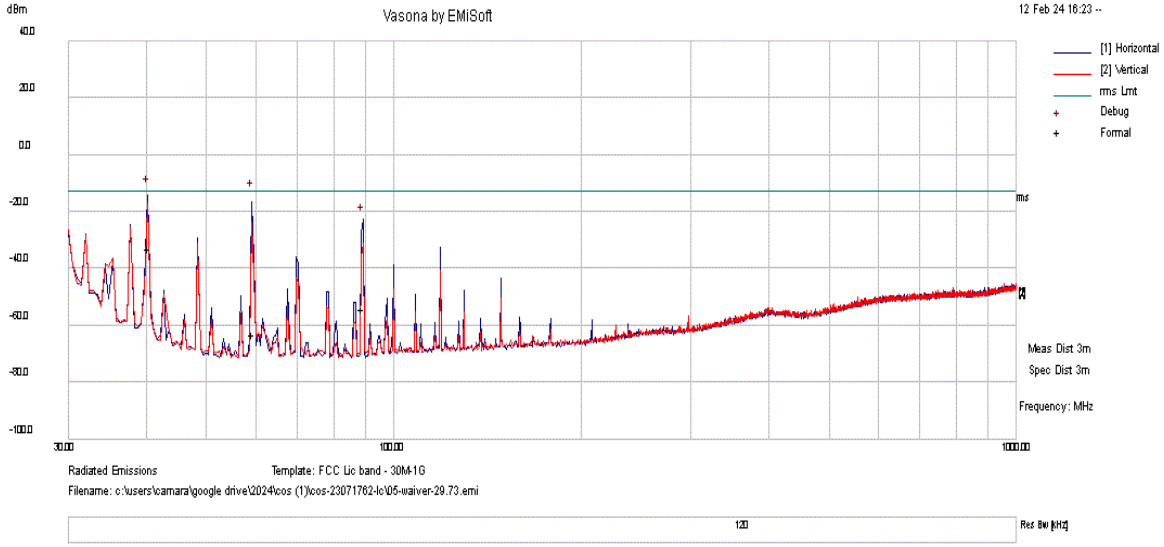
Test Standard:	FCC 90.210 and 90.248	Mode:	Transmit mode
Frequency Range:	30 MHz - 1 GHz	Test Date:	02/12/2024
Antenna Type/Polarity:	Bi-Log/Hor & Ver	Test Personnel:	Minoush Niknam
Remark:	CH1: 29.71MHz	Test Result:	Pass



No.	Frequency MHz	Level dBm	Method	Measurement Type	Pol	Limit dBm	Margin dB	Pass/Fail
1	59.35	-53.93	Substitution	RMS Max	H	-13.00	-40.93	Pass
2	89.1	-55.16	Substitution	RMS Max	H	-13.00	-42.16	Pass
3	40.74	-23.47	Substitution	RMS Max	V	-13.00	-10.47	Pass

RADIATED EMISSIONS BELOW 1 GHZ

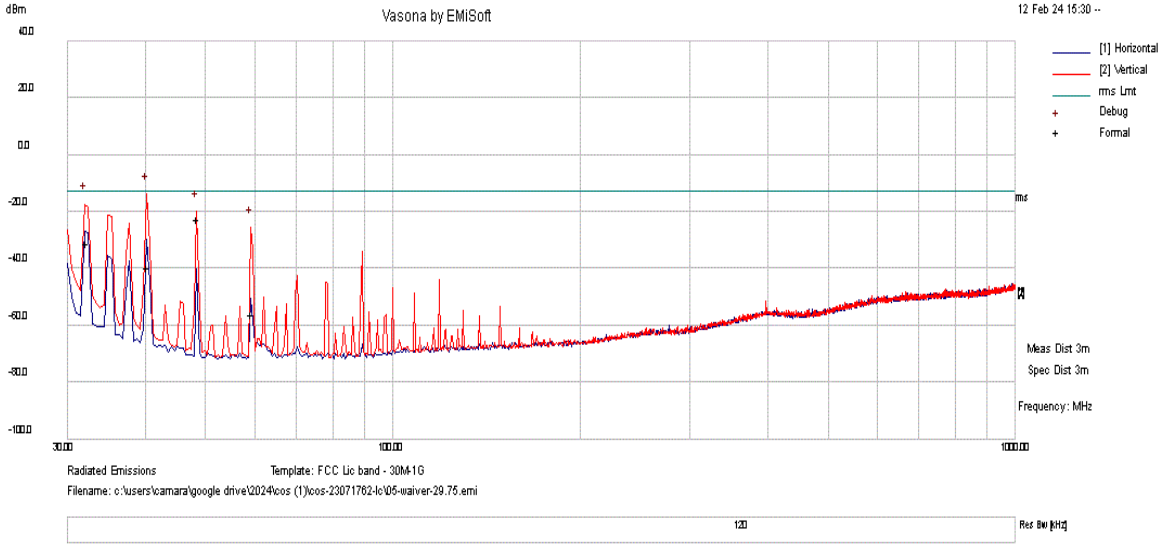
Test Standard:	FCC 90.210 and 90.248	Mode:	Transmit mode
Frequency Range:	30 MHz - 1 GHz	Test Date:	02/12/2024
Antenna Type/Polarity:	Bi-Log/Hor & Ver	Test Personnel:	Minoush Niknam
Remark:	CH2: 29.73MHz	Test Result:	Pass



No.	Frequency MHz	Level dBm	Method	Measurement Type	Pol	Limit dBm	Margin dB	Pass/Fail
1	40.45	-32.86	Substitution	RMS Max	H	-13.00	-19.86	Pass
2	59.35	-62.99	Substitution	RMS Max	H	-13.00	-49.99	Pass
3	89.17	-54.10	Substitution	RMS Max	H	-13.00	-41.10	Pass

RADIATED EMISSIONS BELOW 1 GHZ

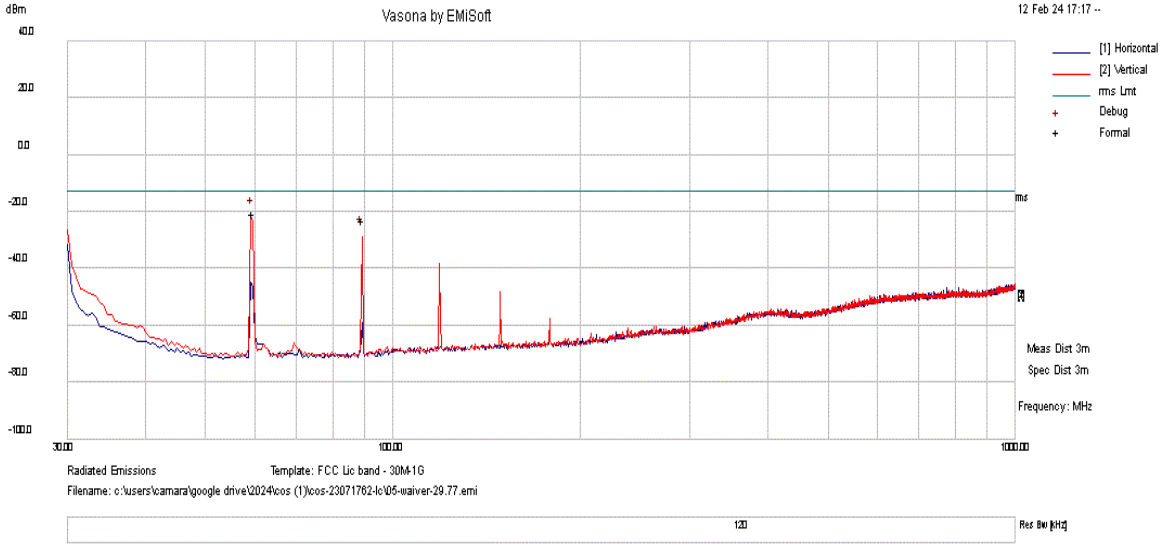
Test Standard:	FCC 90.210 and 90.248	Mode:	Transmit mode
Frequency Range:	30 MHz - 1 GHz	Test Date:	02/12/2024
Antenna Type/Polarity:	Bi-Log/Hor & Ver	Test Personnel:	Minoush Niknam
Remark:	CH3: 29.75MHz	Test Result:	Pass



No.	Frequency MHz	Level dBm	Method	Measurement Type	Pol	Limit dBm	Margin dB	Pass/Fail
1	40.43	-39.35	Substitution	RMS Max	V	-13.00	-26.35	Pass
2	32.3	-31.16	Substitution	RMS Max	V	-13.00	-18.16	Pass
3	48.68	-22.73	Substitution	RMS Max	V	-13.00	-9.73	Pass
4	59.36	-56.04	Substitution	RMS Max	V	-13.00	-43.04	Pass

RADIATED EMISSIONS BELOW 1 GHZ

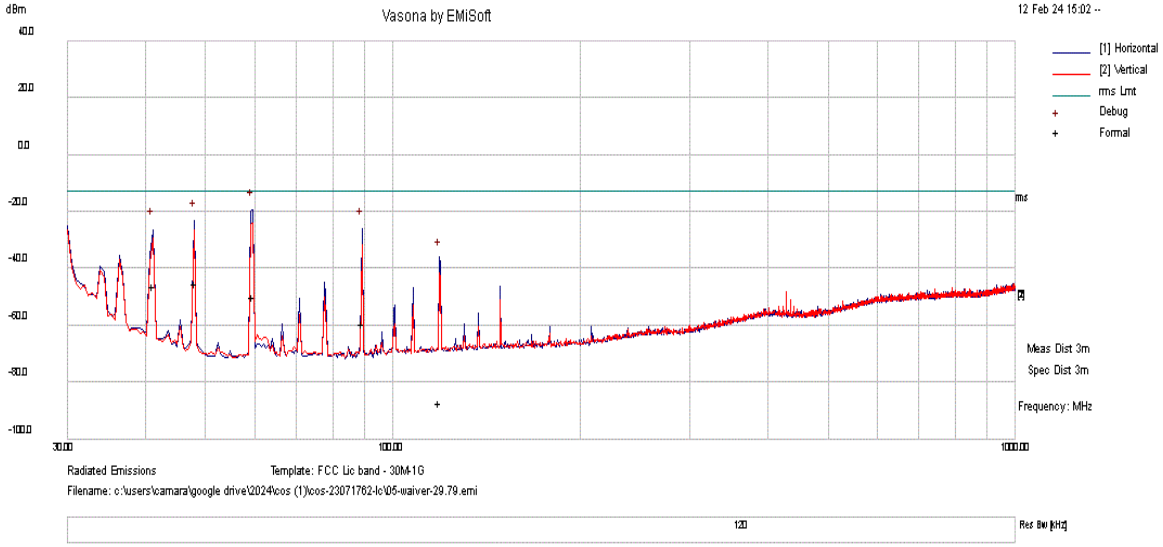
Test Standard:	FCC 90.210 and 90.248	Mode:	Transmit mode
Frequency Range:	30 MHz - 1 GHz	Test Date:	02/12/2024
Antenna Type/Polarity:	Bi-Log/Hor & Ver	Test Personnel:	Minoush Niknam
Remark:	CH4: 29.77MHz	Test Result:	Pass



No.	Frequency MHz	Level dBm	Method	Measurement Type	Pol	Limit dBm	Margin dB	Pass/Fail
1	59.53	-20.77	Substitution	RMS Max	V	-13.00	-7.77	Pass
2	89.31	-23.07	Substitution	RMS Max	V	-13.00	-10.07	Pass

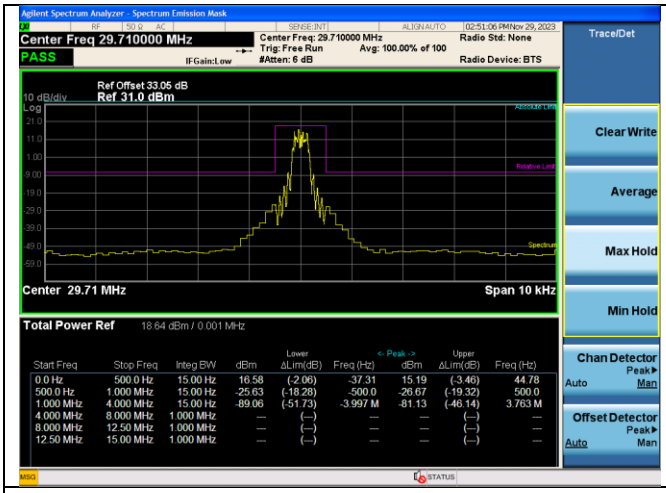
RADIATED EMISSIONS BELOW 1 GHZ

Test Standard:	FCC 90.210 and 90.248	Mode:	Transmit mode
Frequency Range:	30 MHz - 1 GHz	Test Date:	02/12/2024
Antenna Type/Polarity:	Bi-Log/Hor & Ver	Test Personnel:	Minoush Niknam
Remark:	CH5: 29.79MHz	Test Result:	Pass

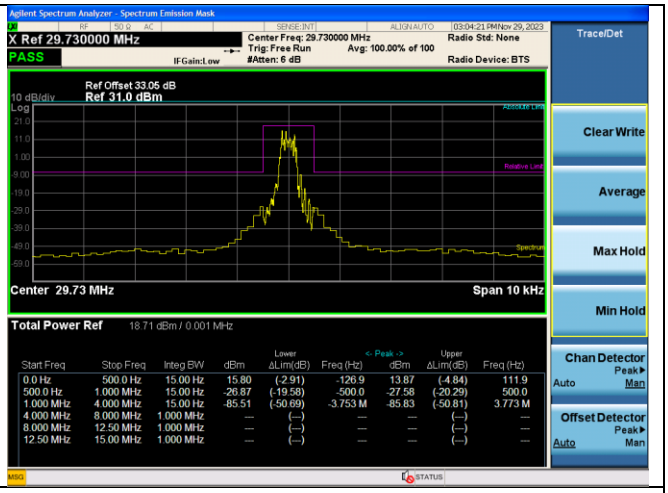


No.	Frequency MHz	Level dBm	Method	Measurement Type	Pol	Limit dBm	Margin dB	Pass/Fail
1	59.54	-49.80	Substitution	RMS Max	H	-13.00	-36.80	Pass
2	48.14	-45.37	Substitution	RMS Max	H	-13.00	-32.37	Pass
3	89.39	-59.29	Substitution	RMS Max	H	-13.00	-46.29	Pass
4	41.22	-45.97	Substitution	RMS Max	H	-13.00	-32.97	Pass
5	119.06	-86.88	Substitution	RMS Max	H	-13.00	-73.88	Pass

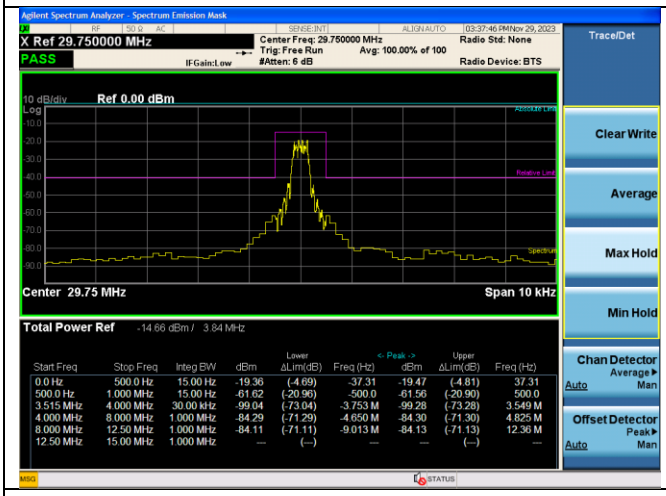
Emission Mask Test Plots:



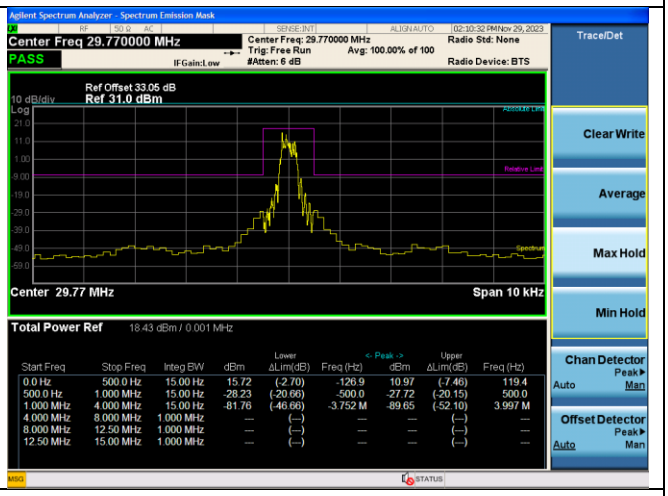
Emission Mask – CH1



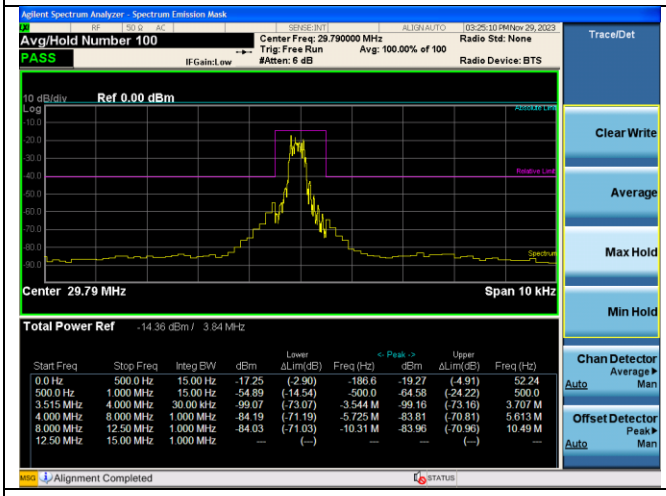
Emission Mask – CH2



Emission Mask – CH3



Emission Mask – CH4



Emission Mask – CH5

7.5 Conducted spurious Emissions at antenna terminals.

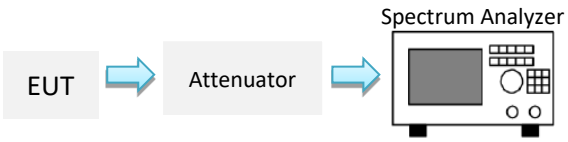
7.5.1 Requirement

§ 90.210, § 90.248 (g)

The power of any emission outside of the authorized operating frequency ranges must be lower than the transmitter power(P)by a factor of at least 43+10 log(P)dB.

It is measured by means of a calibrated spectrum analyzer and scanned from 9kHz up to a frequency including its 10 harmonics.

7.5.2 Test setup.



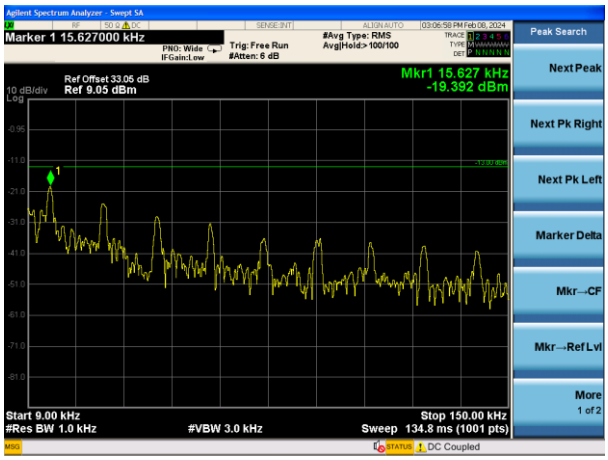
7.5.3 Test Procedure

According to section 5.7 of ANSI C63.26-2015:

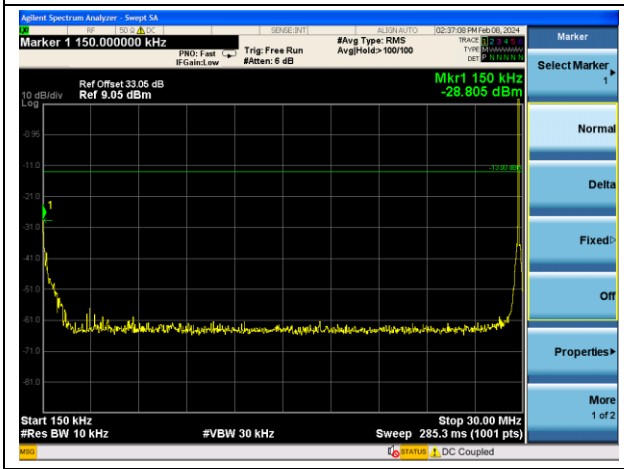
1. Set the EUT to nominal operating frequency and connected to Spectrum Analyzer.
2. Set RBW = 1KHz and VBW=3KHz for below 150kHz; set RBW=10kHz and VBW=30kHz for below 30MHz, set RBW=100kHz and VBW=300kHz for below 1GHz.
3. Detector = Peak.
4. Trace mode = max hold.
5. Sweep = auto couple.
6. Allow the trace to stabilize.
7. Use marker peak function to search for spurious emission.

7.5.4 Test Result

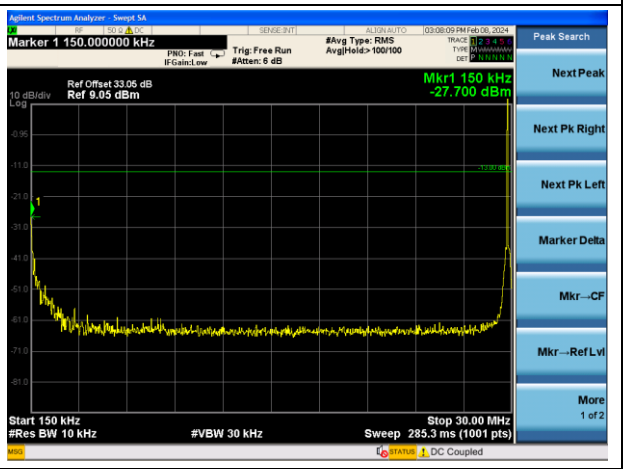
CSE-9kHz~150kHz-CH 1



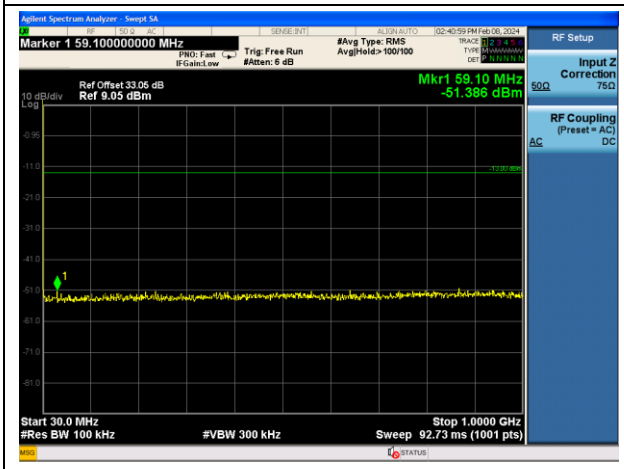
CSE-9kHz~150kHz-CH 2



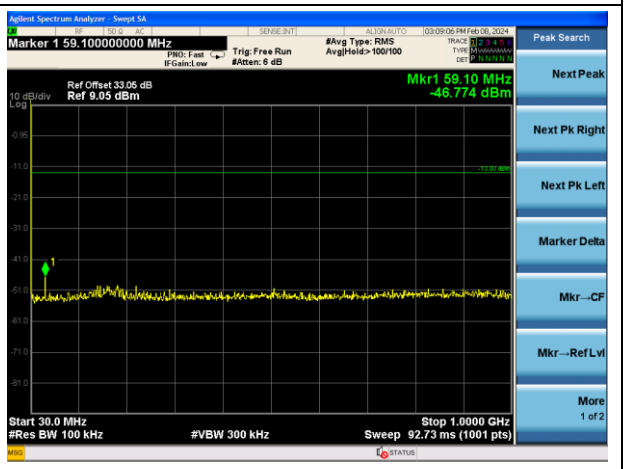
CSE-150kHz~30Hz-CH 1*



CSE-150kHz~30Hz-CH 2*

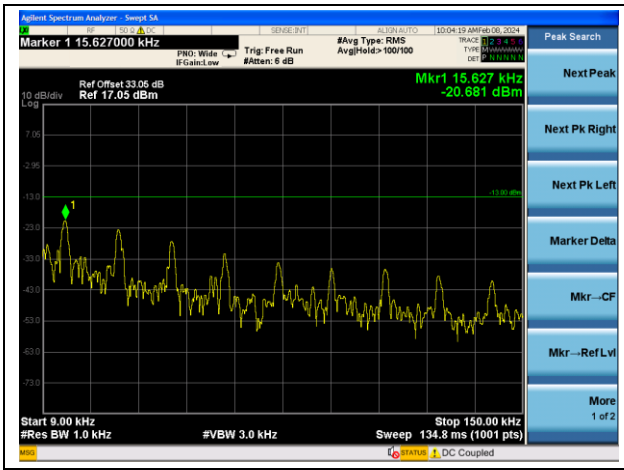


CSE-30MHz~1GHz-CH 1*

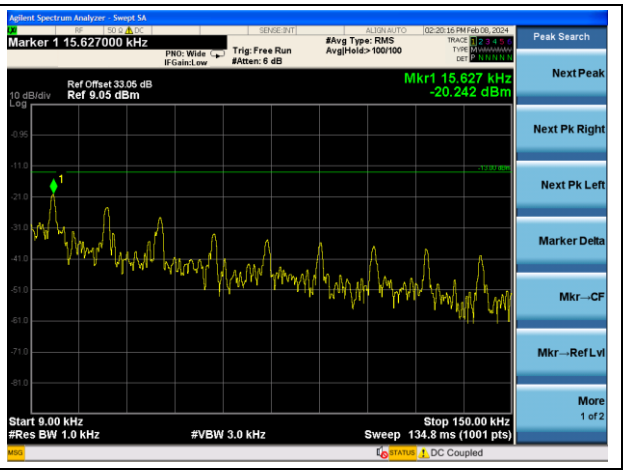


CSE-30MHz~1GHz-CH 2*

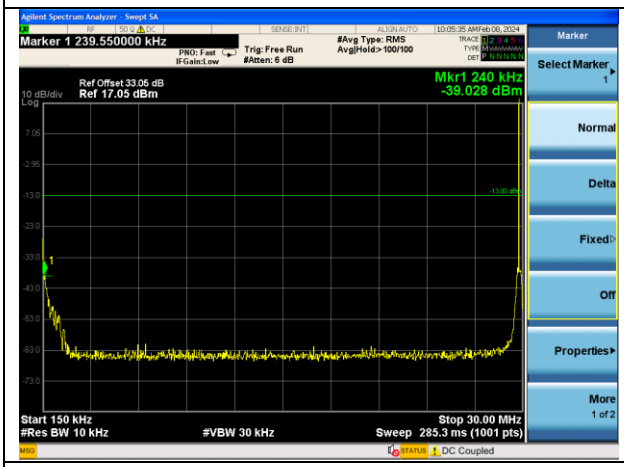
Note: * the frequency close to 30MHz is fundamental frequency.



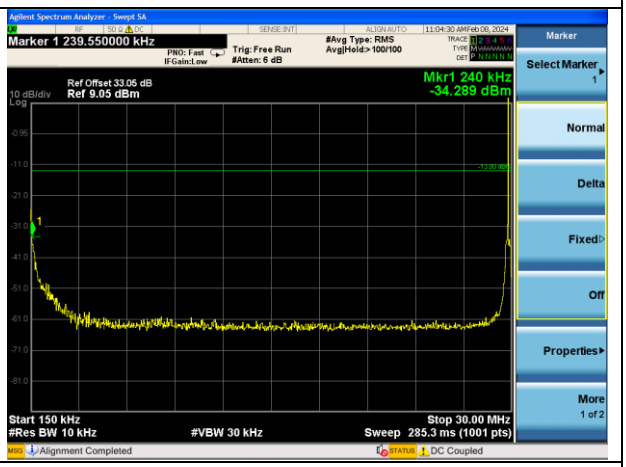
CSE-9kHz~150kHz-CH 3



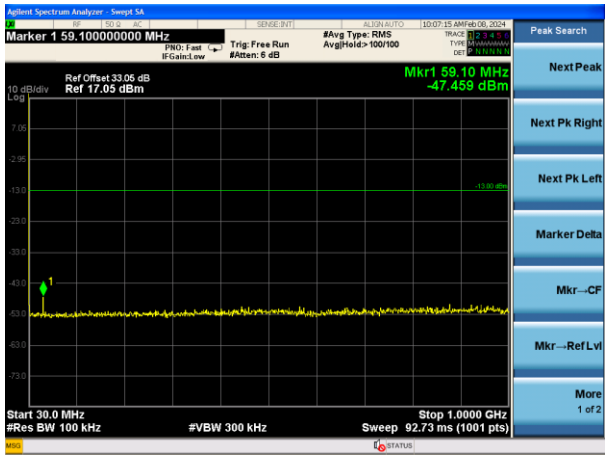
CSE-9kHz~150kHz-CH 4



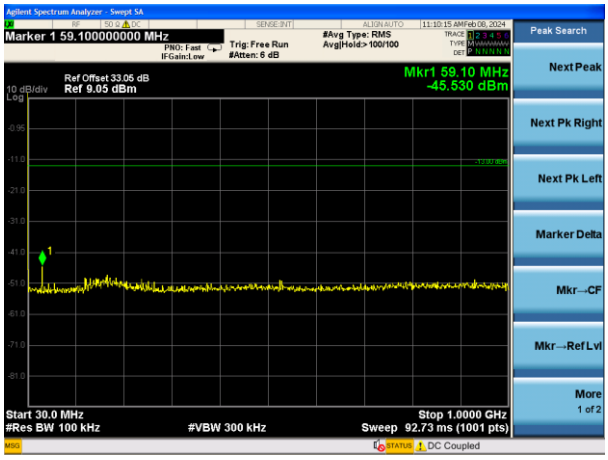
CSE-150kHz~30Hz-CH 3*



CSE-150kHz~30Hz-CH 4*



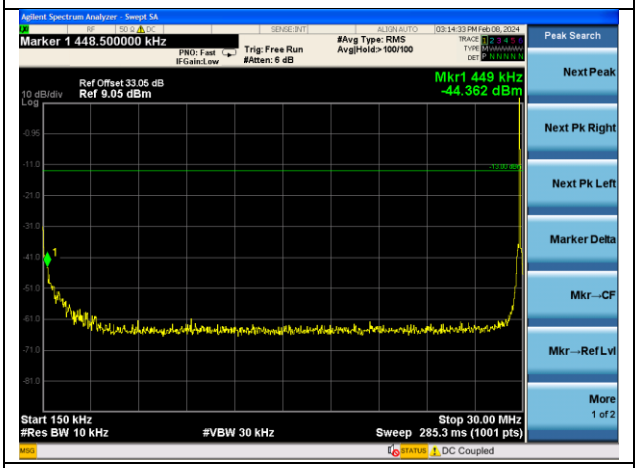
CSE-30MHz~1GHz-CH 3*



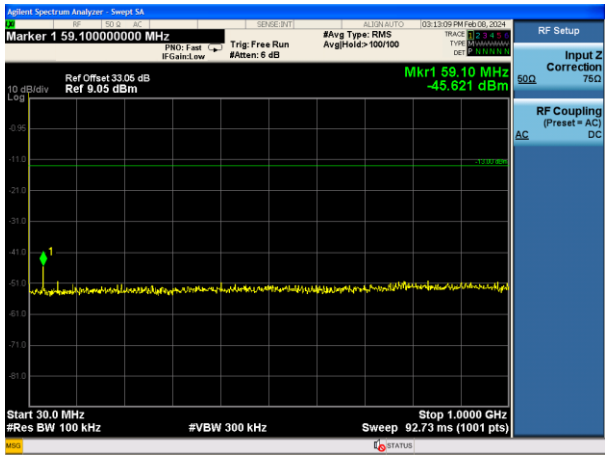
CSE-30MHz~1GHz-CH 4*

Note: * the frequency close to 30MHz is fundamental frequency.

CSE-9kHz~150kHz-CH 5



CSE-150kHz~30Hz-CH 5*



CSE-30MHz~1GHz-CH 5*

Note: * the frequency close to 30MHz is fundamental frequency.

8 EUT and Test Setup Photos

Refer to FCC exhibits

9 Test Instrument List

Equipment	Manufacturer	Model	Instrument Number	Cal. Date	Cal. Due
Semi-Anechoic Chamber	ETS-Lindgren	10M	VL001	10/18/2022	10/18/2024
Shielding Control Room	ETS-Lindgren	Series 81	VL006	N/A1)	N/A1)
Spectrum Analyzer	Keysight	N9020A	MY50110074	06/09/2023	06/09/2024
EMC Test Receiver	R&S	ESL6	100230	06/07/2023	06/07/2024
LISN (9KHz – 30MHz)	EMCO	3816/2	9705-1066	07/12/2023	07/12/2024
Bi-Log Antenna	ETS-Lindgren	3142E	217921	07/19/2023	07/19/2024
Horn Antenna (1-18GHz)	Electro-Metrics	EM-6961	6292	07/21/2023	07/21/2024
Horn Antenna (18-40GHz)	Com-Power	AH-840	101109	07/21/2023	07/21/2024
Preamplifier	RF Bay, Inc.	LPA-10-20	11180621	07/16/2023	07/16/2024
Temp / Humidity / Pressure Meter	PCE Instruments	PCE-THB 40	R062028	06/07/2023	06/07/2024
RF Attenuator	Pasternack	PE7005-3	VL061	07/16/2023	07/16/2024
Preamplifier 100KHz - 40GHz	Aeroflex	33711-392-77150-11	064	07/16/2023	07/16/2024
EM Center Control	ETS-Lindgren	7006-001	160136	N/A1)	N/A1)
Turn Table	ETS-Lindgren	2181-3.03	VL002	N/A1)	N/A1)
Boresight Antenna Tower	ETS-Lindgren	2171B	VL003	N/A1)	N/A1)
Loop Antenna (9k-30MHz)	Com-Power	AL-130	121012	06/09/2023	06/09/2024
RE test cable (below 6GHz)	Vista	RE-6GHz-01	RE-6GHz-01	07/16/2023	07/16/2024
RE test cable (1-18GHz)	PhaseTrack	II-240	RE-18GHz-01	07/16/2023	07/16/2024
RE test cable (>18GHz)	Sucoflex	104	344903/4	07/16/2023	07/16/2024
Pulse limiter	Com-Power	LIT-930A	531727	07/16/2023	07/16/2024
CE test cable #1	FIRST RF	FRF-C-1002-001	CE-6GHz-01	07/16/2023	07/16/2024
CE test cable#2	FIRST RF	FRF-C-1002-001	CE-6GHz-02	07/16/2023	07/16/2024
USB RF Power Sensor	ETS-Lindgren	7002-006	SN 00151268	06/07/2023	06/07/2024
Agilent Signal Generator	MXG N5182A	N5182A	US47080548	06/07/2023	06/07/2024
Power Splitter/Combiner	Mini-Circuits	ZFSC-2-9G+	VL052	N/A1)	N/A1)
Power Splitter/Combiner	Mini-Circuits	ZFSC-2-9G+	VL053	N/A1)	N/A1)
Power Splitter/Combiner	Mini-Circuits	ZFSC-2-9G+	VL054	N/A1)	N/A1)
Power Splitter/Combiner	Mini-Circuits	ZFSC-2-9G+	VL055	N/A1)	N/A1)

Note:

1) This equipment is not for measurement purpose and only require functional verification. Calibration is not required.

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