



TEST REPORT

Applicant Name: Quanzhou longtuo electronic technology co., Ltd
Address : No.17-20, building 16, chenghui international zone B, xiamei, quanzhou Fujian, China
Report Number: XMTN1221014-47139E-EM-00A
FCC ID: 2AWL3-TDH8GMRS

Test Standards:
FCC PART 15B

Sample Description

Product Type: GMRS Two Way Radio
Model No.: TD-H8 GMRS
Multiple Model: TD-H9 GMRS, TD-H10 GMRS, TD-H11 GMRS, TD-UV9R GMRS, TD-UV13 GMRS, TD-UV68 GMRS, TD-UV78 GMRS, TD-UV88 GMRS, TD-V738 GMRS, TD-V730 GMRS
Trade Mark: TIDRADIO, TID
Date Received: 2022-10-14
Date of Test: 2022-10-19 to 2022-10-21
Report Date: 2022-10-24

Test Result:	Pass*
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* In the configuration tested, the EUT complied with the standards above.

Prepared and Checked By:

Sett. Zhang

Sett.Zhang
EMC Engineer

Approved By:

Candy Li

Candy Li
EMC Engineer

Note: This report may contain data that are not covered by the A2LA accreditation and are marked with an asterisk "★".

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GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

Product	GMRS Two Way Radio
Tested Model	TD-H8 GMRS
Multiple Model	TD-H9 GMRS, TD-H10 GMRS, TD-H11 GMRS, TD-UV9R GMRS, TD-UV13 GMRS, TD-UV68 GMRS, TD-UV78 GMRS, TD-UV88 GMRS, TD-V738 GMRS, TD-V730 GMRS
Model Difference	Please refer to the DOS letter
Trade Mark	TIDRADIO,TID
Frequency Range	RX: 136-174MHz, 400-520MHz(Scanning receiver)
Highest Operation Frequency	520 MHz (provided by the applicant.)
Voltage Range	DC 7.4V from battery DC 8.4V from Charger Base (Note: Only Charging Base charging mode.) DC 12Vfrom adapter for charger base
Sample number	XMTN1221014-47139E-EM-S1 (Assigned by ATC)
Sample/EUT Status	Good condition
Adapter information	Model: RSF-DY077B-1200500US Input: 100~240V-50/60Hz 0.5A Output: 12V = 0.5A (The DC line length is 1.5 meter.)
Charging Base	Model: TD- BC68 Input: DC 12V 500mA Output: DC 8.4V 400mA

Objective

This report is in accordance with Part 2-Subpart J, and Part 15-Subparts A and B of the Federal Communication Commission's rules.

The objective of the manufacturer is to determine the compliance of EUT with FCC Part 15, Class B device.

Test Methodology

All measurements contained in this report were conducted with ANSI C63.4-2014, American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the range of 9 kHz to 40 GHz.

All radiated and conducted emissions measurement was performed at Shenzhen Accurate Technology Co., Ltd. The radiated testing was performed at an antenna-to-EUT distance of 3 meters.

Measurement Uncertainty

Parameter		Uncertainty
Occupied Channel Bandwidth		5%
RF Frequency		0.082×10^{-7}
RF output power, conducted		0.73dB
Unwanted Emission, conducted		1.6dB
AC Power Lines Conducted Emissions		2.72dB
Emissions, Radiated	9kHz - 30MHz	2.66dB
	30MHz - 1GHz	4.28dB
	1GHz - 18GHz	4.98dB
	18GHz - 26.5GHz	5.06dB
	26.5GHz - 40GHz	4.72dB
Temperature		1°C
Humidity		6%
Supply voltages		0.4%

Note: The extended uncertainty given in this report is obtained by combining the standard uncertainty times the coverage factor K with the 95% confidence interval. Otherwise required by the applicant or Product Regulations, Decision Rule in this report did not consider the uncertainty.

Test Facility

The test site used by Shenzhen Accurate Technology Co., Ltd. to collect test data is located on the 1/F., Building A, Changyuan New Material Port, Science & Industry Park, Nanshan District, Shenzhen, Guangdong, P.R. China.

The test site has been approved by the FCC under the KDB 974614 D01 and is listed in the FCC Public Access Link (PAL) database, FCC Registration No.: 708358, the FCC Designation No.: CN1189. Accredited by American Association for Laboratory Accreditation (A2LA) The Certificate Number is 4297.01.

Listed by Innovation, Science and Economic Development Canada (ISED), the Registration Number is 5077A.

SYSTEM TEST CONFIGURATION

Justification

The system was configured for testing in a typical fashion (as normally used by a typical user).

Test mode 1: Scanning receiver (scanning mode)

Test mode 2: Receiver at 136MHz

Test mode 3: Receiver at 155MHz

Test mode 4: Receiver at 174MHz

Test mode 5: Receiver at 400MHz

Test mode 6: Receiver at 460MHz

Test mode 7: Receiver at 520MHz

EUT Exercise Software

No exercise software.

Special Accessories

No special accessory was used.

Equipment Modifications

No modification was made to the EUT tested.

Support Equipment List and Details

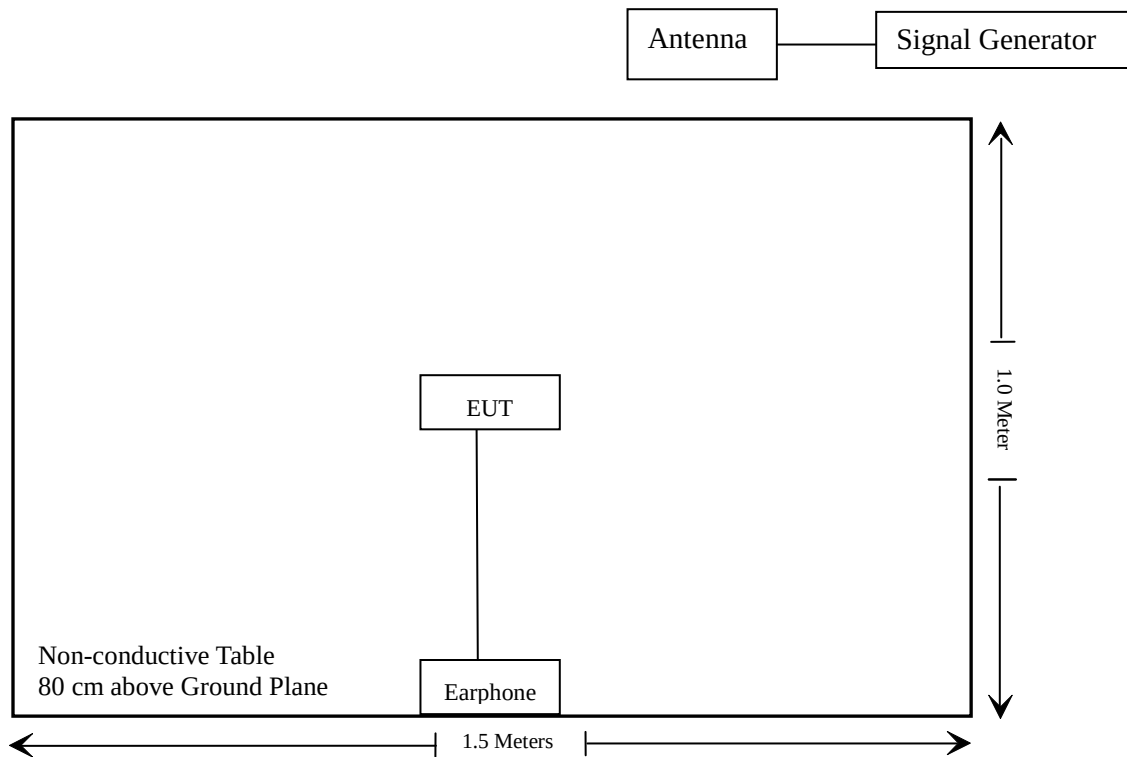
Manufacturer	Description	Model	Serial Number
Unknown	Earphone	K-MS561	Unknown
AGILENT	Vector Signal Generator	N5182A	MY50143401

External I/O Cable

Cable Description	Length (m)	From Port	To Port
Audio Cable	1.5	EUT	Earphone

Block Diagram of Radiated Test Setup

For Radiated emission:
Test mode 1-7:



SUMMARY OF TEST RESULTS

FCC Rules	Description of Test	Results
§15.107	Conducted Emissions	Not Applicable
§15.109	Radiated Emissions	Compliant
§15.111	Antenna Conducted Power for receivers	Compliant
§15.121(b)	Scanning receivers and frequency converters used with scanning receivers	Compliant

Not Applicable: the device was powered by battery when operating.

TEST EQUIPMENT LIST

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Radiated Emissions Test					
Rohde & Schwarz	Test Receiver	ESR	102725	2021/12/13	2022/12/12
Rohde & Schwarz	Spectrum Analyzer	FSV40	101949	2021/12/13	2022/12/12
A.H. Systems, inc.	Preamplifier	PAM-0118P	135	2021/11/09	2022/11/08
SONOMA INSTRUMENT	Amplifier	310 N	186131	2021/11/09	2022/11/08
Schwarzbeck	Bilog Antenna	VULB9163	9163-323	2021/07/06	2024/07/05
Schwarzbeck	Horn Antenna	BBHA9120D	9120D-1067	2020/01/05	2023/01/04
AGILENT	Vector Signal Generator	N5182A	MY50143401	2021/12/13	2022/12/12
Unknown	RF Coaxial Cable	No.10	N050	2021/12/14	2022/12/13
Unknown	RF Coaxial Cable	No.11	N1000	2021/12/14	2022/12/13
Unknown	RF Coaxial Cable	No.12	N040	2021/12/14	2022/12/13
Unknown	RF Coaxial Cable	No.13	N300	2021/12/14	2022/12/13
Unknown	RF Coaxial Cable	No.14	N800	2021/12/14	2022/12/13
Radiated Emission Test Software: e3 19821b(V9)					
RF Conducted Test					
Rohde & Schwarz	Spectrum Analyzer	FSV-40	101495	2021/12/13	2022/12/12
AGILENT	Vector Signal Generator	N5182A	MY50143401	2021/12/13	2022/12/12
HP Agilent	RF Communication test set	8920B	3325U00859	2021/12/14	2022/12/13
Unknown	RF Coaxial Cable	No.33	RF-03	Each time	

* **Statement of Traceability:** Shenzhen Accurate Technology Co., Ltd. attests that all calibrations have been performed in accordance to requirements that traceable to National Primary Standards and International System of Units (SI).

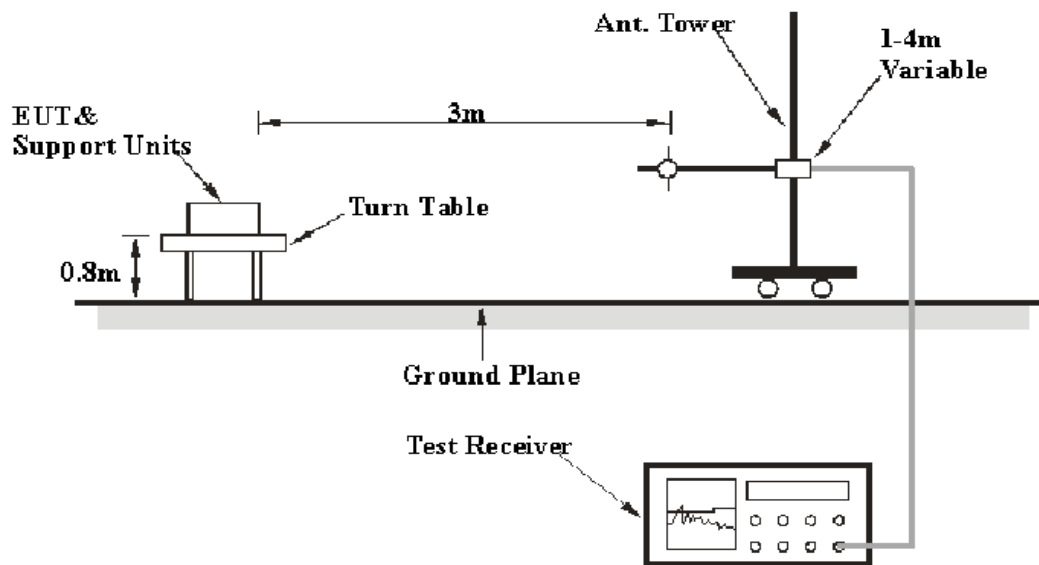
FCC §15.109 - RADIATED EMISSIONS

Applicable Standard

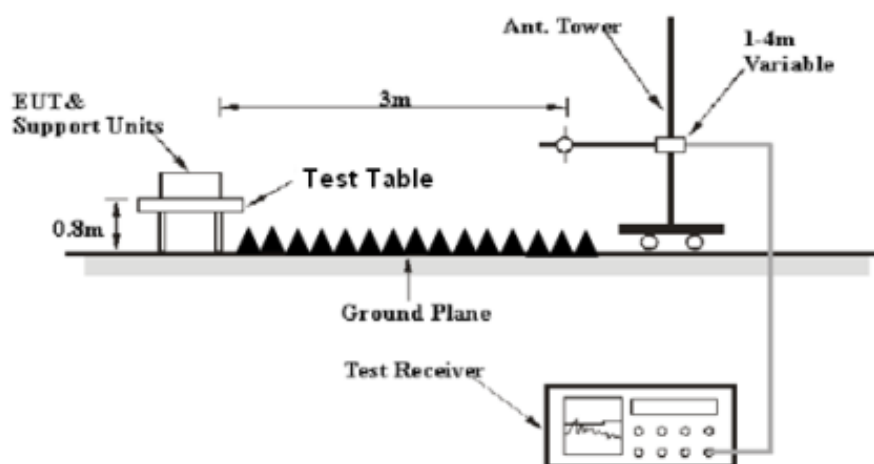
FCC §15.109

EUT Setup

Below 1GHz:



Above 1GHz:



The radiated emission tests were performed in the 3 meters chamber test site, using the setup accordance with the ANSI C63.4-2014. The specification used was the FCC Part 15.109 Class B limits.

The external I/O cables were draped along the test table and formed a bundle 30 to 40 cm long in the middle.

The spacing between the peripherals was 10 cm.

EMI Test Receiver & Spectrum Analyzer Setup

The system was investigated from 30 MHz to 13 GHz.

During the radiated emission test, the EMI test receiver & Spectrum Analyzer Setup was set with the following configurations:

Frequency Range	RBW	Video B/W	IF B/W	Detector
30MHz – 1000 MHz	120 kHz	300 kHz	120kHz	QP
Above 1 GHz	1MHz	3 MHz	/	Peak
	1MHz	10Hz	/	AV

All data was recorded in the Quasi-peak detector mode from 30 MHz to 1 GHz, Peak and average detection mode above 1 GHz.

If the maximized peak measured value complies with the limit, then it is unnecessary to perform QP/Average measurement.

Test Procedure

Maximizing procedure was performed on the highest emissions to ensure that the EUT complied with all installation combinations.

Factor & Over Limit Calculation

The Factor is calculated by adding the Antenna Factor and Cable Loss, and subtracting the Amplifier Gain. The basic equation is as follows:

$$\text{Factor} = \text{Antenna Factor} + \text{Cable Loss} - \text{Amplifier Gain}$$

The “**Over Limit**” column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of -7dB means the emission is 7dB below the limit. The equation for margin calculation is as follows:

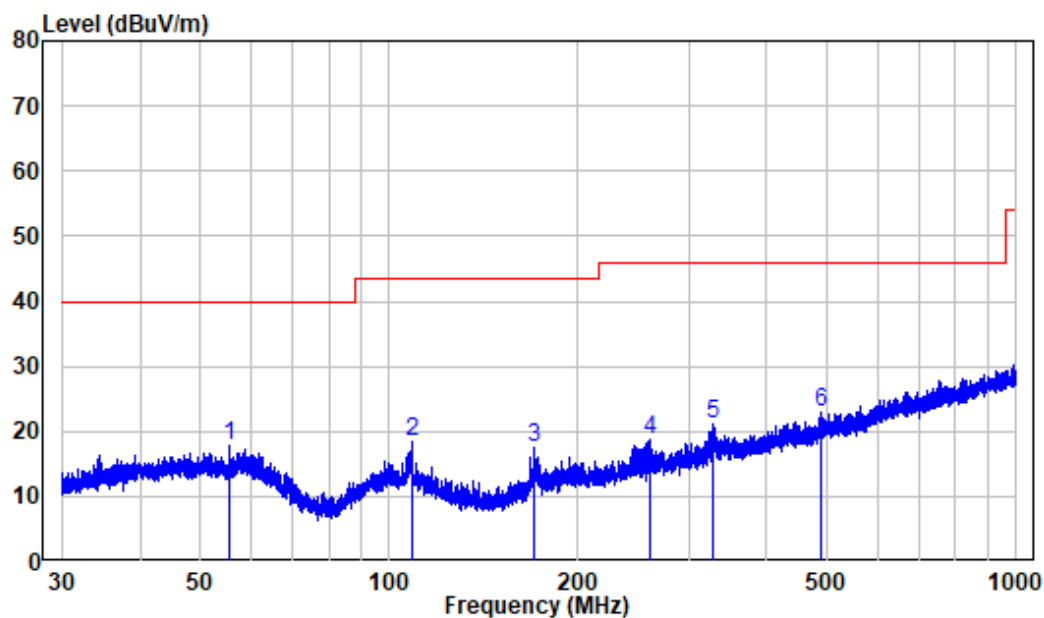
$$\begin{aligned}\text{Over Limit} &= \text{Level} - \text{Limit} \\ \text{Level} &= \text{Reading} + \text{Factor}\end{aligned}$$

Test Data**Environmental Conditions**

Temperature:	24°C
Relative Humidity:	60 %
ATM Pressure:	101.0 kPa

The testing was performed by Level Li on 2022-10-19.

Note: Pre-scan in the X, Y and Z axes of orientation, the worst case Y-axis of orientation was recorded.

30MHz-1GHz:**Test mode 1: Scanning receiver****Horizontal:**

Site : chamber

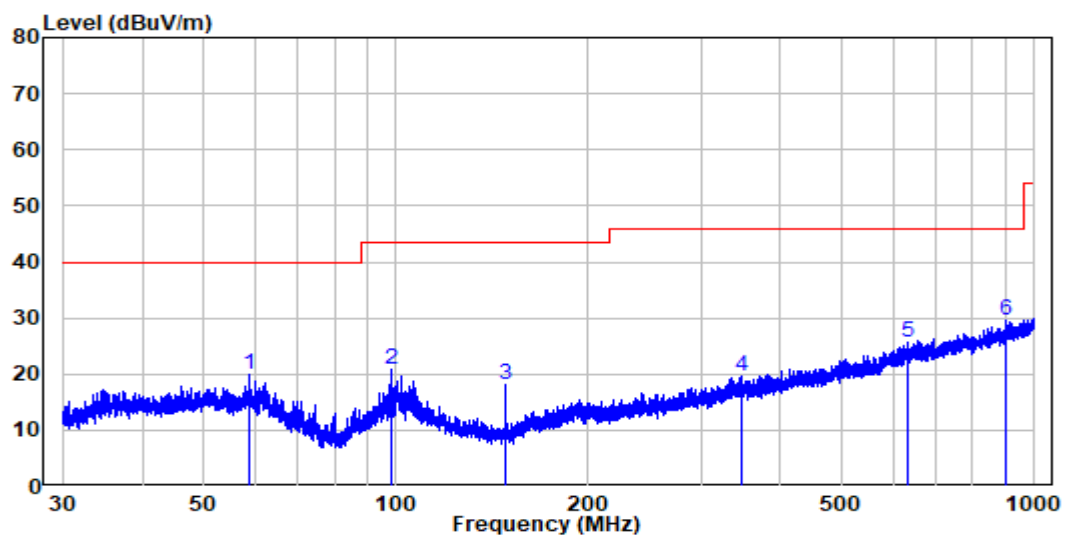
Condition: 3m HORIZONTAL

Job No. : XMTN1221014-47139E-EM

Test Mode: Scanning receiver

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	55.561	-10.23	28.16	17.93	40.00	-22.07	Peak
2	108.742	-11.98	30.39	18.41	43.50	-25.09	Peak
3	170.046	-13.58	31.00	17.42	43.50	-26.08	Peak
4	260.144	-10.58	29.21	18.63	46.00	-27.37	Peak
5	328.031	-8.10	29.10	21.00	46.00	-25.00	Peak
6	489.670	-4.69	27.75	23.06	46.00	-22.94	Peak

Vertical



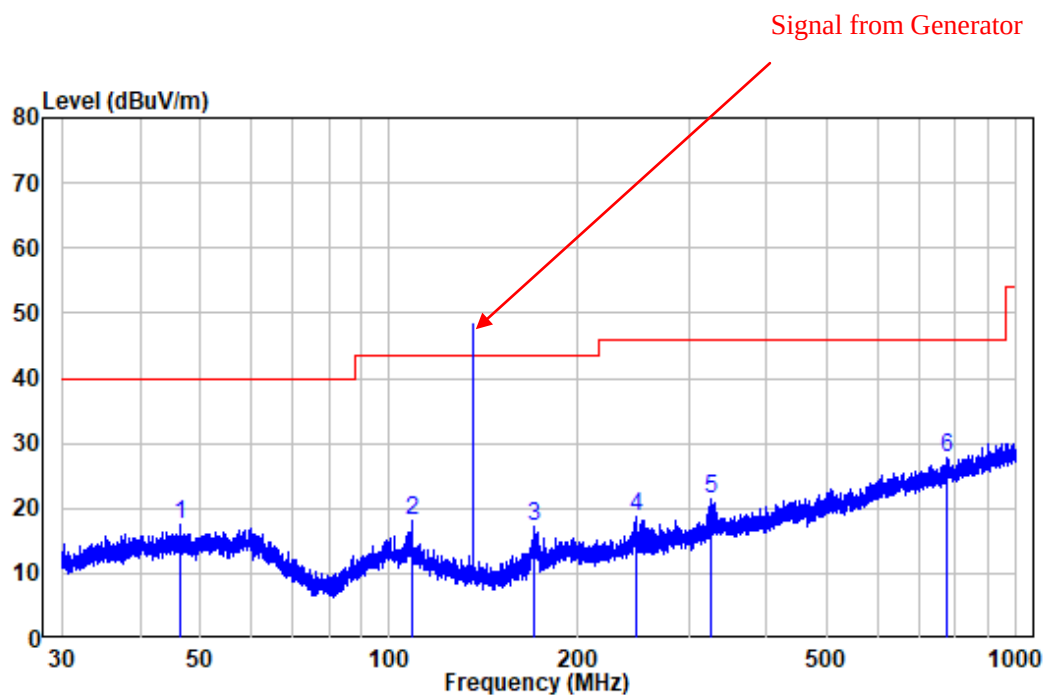
Site : chamber

Condition: 3m VERTICAL

Job No. : XMTN1221014-47139E-EM

Test Mode: Scanning receiver

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	58.715	-10.17	30.16	19.99	40.00	-20.01	Peak
2	98.443	-12.15	32.87	20.72	43.50	-22.78	Peak
3	148.311	-15.36	33.43	18.07	43.50	-25.43	Peak
4	346.657	-7.24	26.89	19.65	46.00	-26.35	Peak
5	632.797	-2.03	27.83	25.80	46.00	-20.20	Peak
6	903.309	1.58	27.95	29.53	46.00	-16.47	Peak

Test mode 2: Receiver at 136MHz**Horizontal:**

Site : chamber

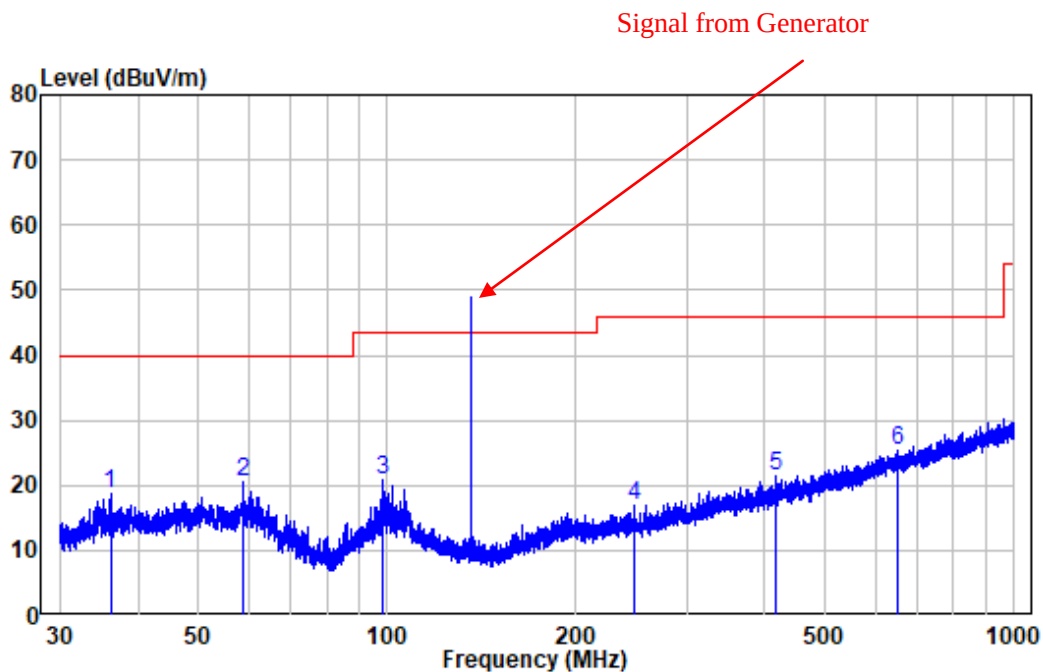
Condition: 3m HORIZONTAL

Job No. : XMTN1221014-47139E-EM

Test Mode: Receiver at 136MHz

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	46.462	-10.00	27.43	17.43	40.00	-22.57	Peak
2	108.838	-11.98	29.96	17.98	43.50	-25.52	Peak
3	170.046	-13.58	30.92	17.34	43.50	-26.16	Peak
4	248.117	-10.68	29.47	18.79	46.00	-27.21	Peak
5	326.024	-8.21	29.59	21.38	46.00	-24.62	Peak
6	774.158	0.01	27.91	27.92	46.00	-18.08	Peak

Vertical



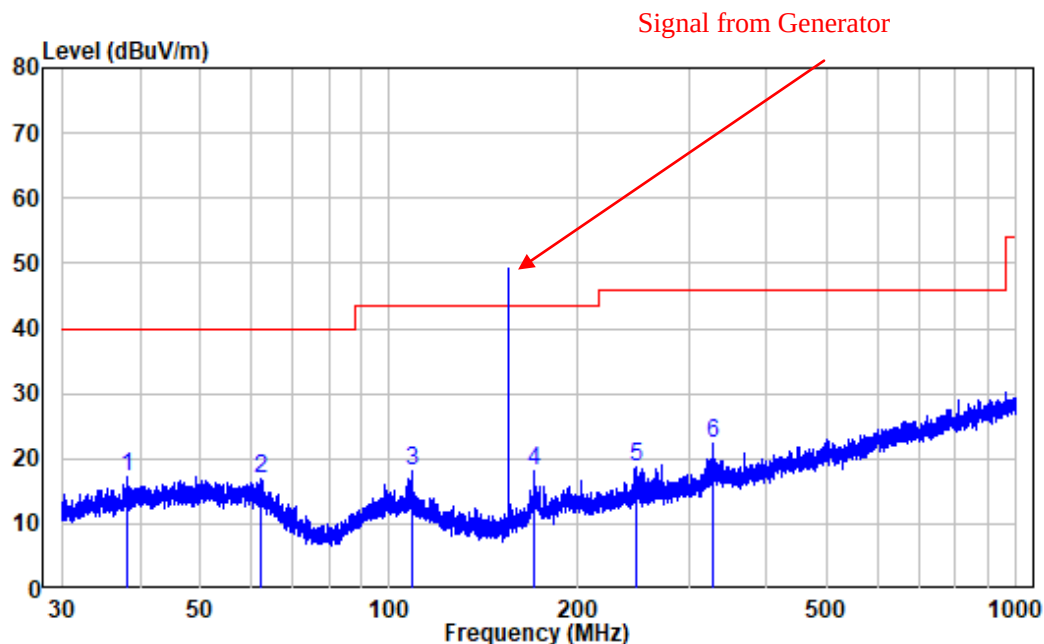
Site : chamber

Condition: 3m VERTICAL

Job No. : XMTN1221014-47139E-EM

Test Mode: Receiver at 136MHz

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	36.143	-11.17	29.82	18.65	40.00	-21.35	Peak
2	58.715	-10.17	30.83	20.66	40.00	-19.34	Peak
3	98.487	-12.14	33.03	20.89	43.50	-22.61	Peak
4	247.248	-10.65	27.52	16.87	46.00	-29.13	Peak
5	416.179	-6.21	27.63	21.42	46.00	-24.58	Peak
6	652.228	-1.67	27.17	25.50	46.00	-20.50	Peak

Test mode 3: Receiver at 155MHz**Horizontal:**

Site : chamber

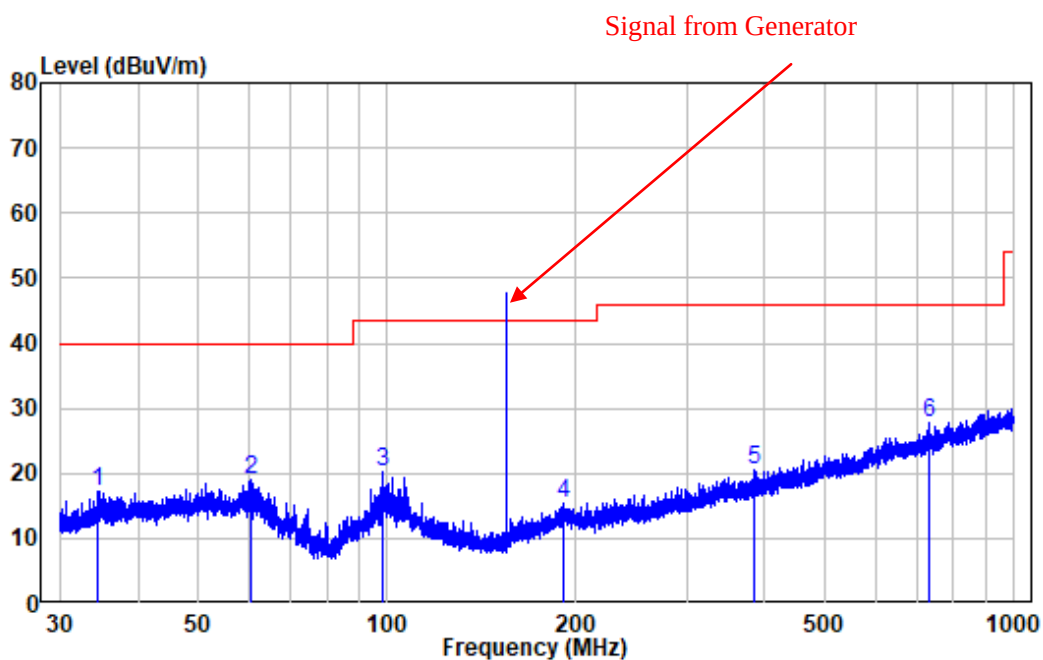
Condition: 3m HORIZONTAL

Job No. : XMTN1221014-47139E-EM

Test Mode: Receiver at 155MHz

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	38.095	-10.79	27.94	17.15	40.00	-22.85	Peak
2	62.267	-11.53	28.55	17.02	40.00	-22.98	Peak
3	108.838	-11.98	29.97	17.99	43.50	-25.51	Peak
4	169.897	-13.59	31.76	18.17	43.50	-25.33	Peak
5	247.899	-10.68	29.37	18.69	46.00	-27.31	Peak
6	328.031	-8.10	30.46	22.36	46.00	-23.64	Peak

Vertical



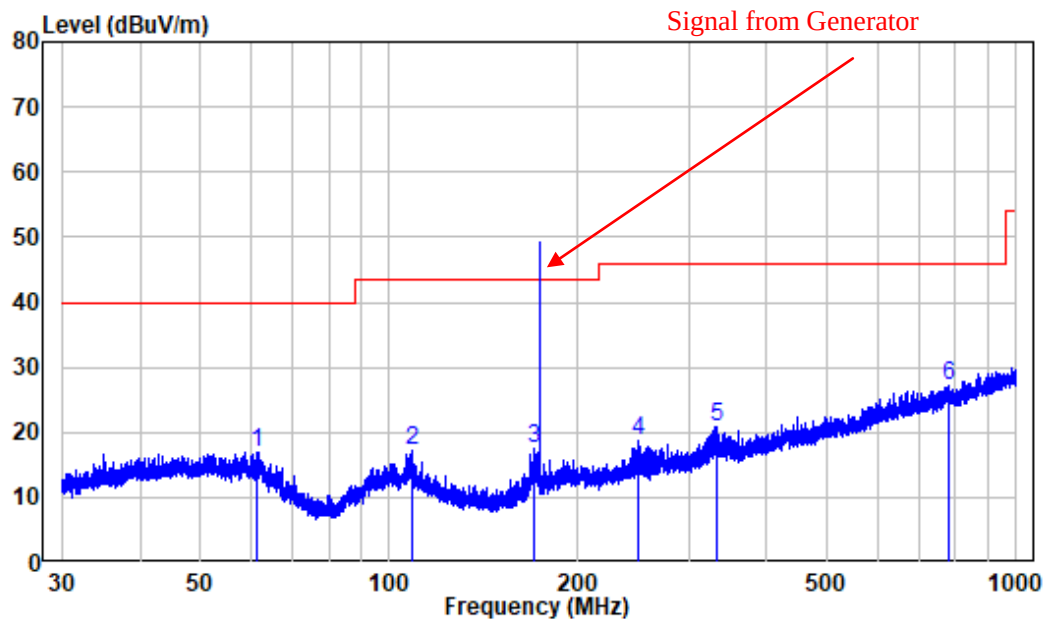
Site : chamber

Condition: 3m VERTICAL

Job No. : XMTN1221014-47139E-EM

Test Mode: Receiver at 155MHz

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	34.608	-11.67	28.74	17.07	40.00	-22.93	Peak
2	60.784	-10.94	29.93	18.99	40.00	-21.01	Peak
3	98.443	-12.15	32.36	20.21	43.50	-23.29	Peak
4	190.489	-11.50	26.85	15.35	43.50	-28.15	Peak
5	383.595	-7.09	27.52	20.43	46.00	-25.57	Peak
6	730.638	-0.89	28.72	27.83	46.00	-18.17	Peak

Test mode 4: Receiver at 174MHz**Horizontal:**

Site : chamber

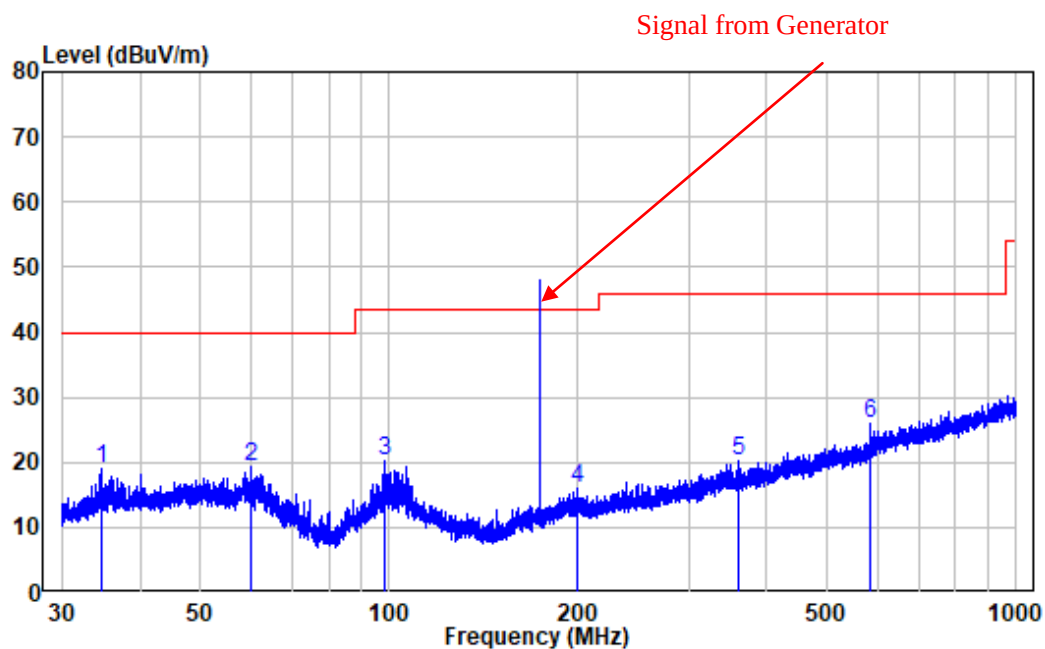
Condition: 3m HORIZONTAL

Job No. : XMTN1221014-47139E-EM

Test Mode: Receiver at 174MHz

	Freq	Factor	Read Level	Level	Limit	Over	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	61.616	-11.29	28.34	17.05	40.00	-22.95	Peak
2	108.790	-11.98	29.32	17.34	43.50	-26.16	Peak
3	169.971	-13.58	30.99	17.41	43.50	-26.09	Peak
4	249.972	-10.74	29.43	18.69	46.00	-27.31	Peak
5	331.936	-7.85	28.72	20.87	46.00	-25.13	Peak
6	781.317	0.05	27.10	27.15	46.00	-18.85	Peak

Vertical



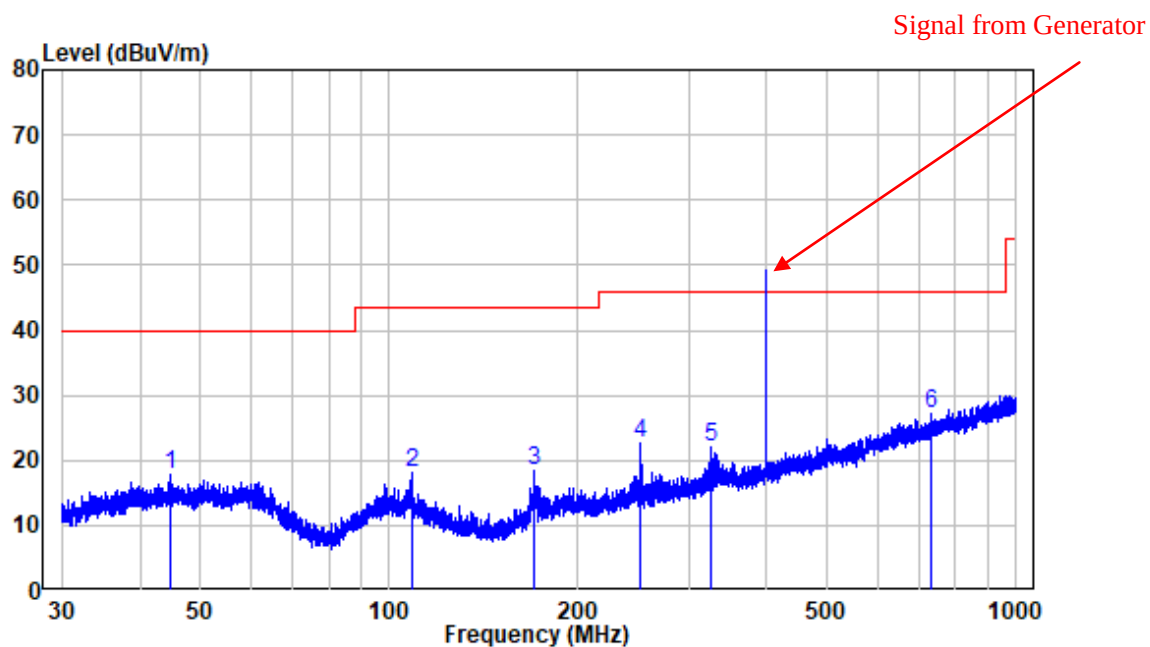
Site : chamber

Condition: 3m VERTICAL

Job No. : XMTN1221014-47139E-EM

Test Mode: Receiver at 174MHz

	Freq	Factor	Read Level	Level	Limit	Over	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	34.623	-11.66	30.53	18.87	40.00	-21.13	Peak
2	60.201	-10.70	30.13	19.43	40.00	-20.57	Peak
3	98.400	-12.16	32.53	20.37	43.50	-23.13	Peak
4	199.024	-11.47	27.59	16.12	43.50	-27.38	Peak
5	360.290	-7.67	27.77	20.10	46.00	-25.90	Peak
6	584.021	-3.08	29.12	26.04	46.00	-19.96	Peak

Test mode 5: Receiver at 400MHz**Horizontal:**

Site : chamber

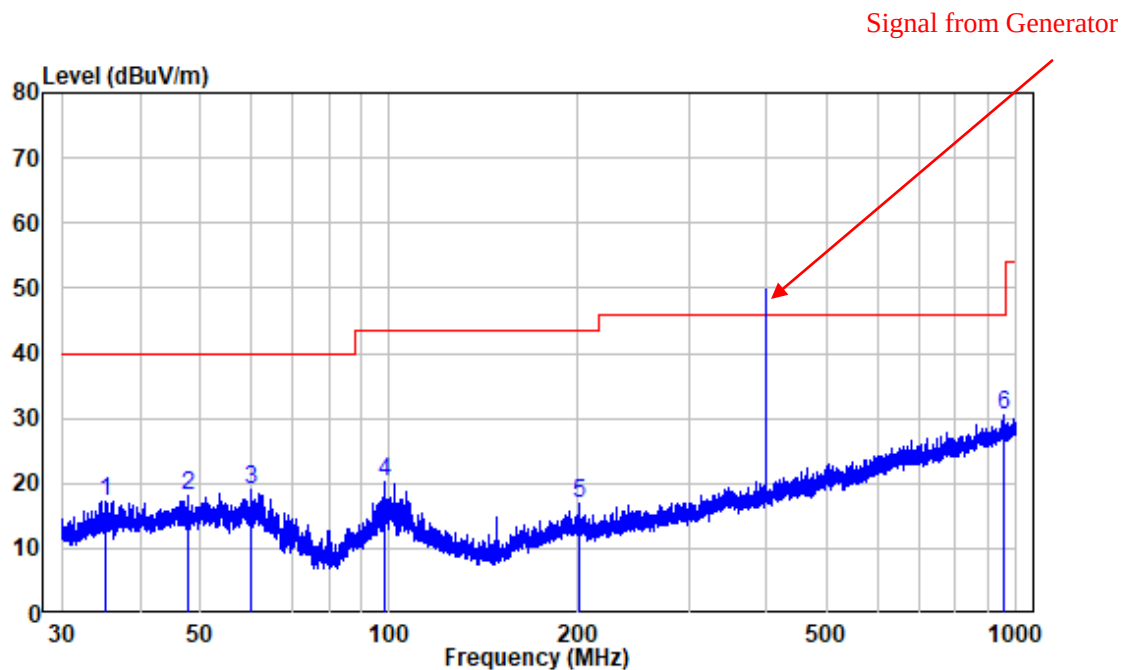
Condition: 3m HORIZONTAL

Job No. : XMTN1221014-47139E-EM

Test Mode: Receiver at 400MHz

	Freq	Factor	Read Level	Limit Level	Over Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	44.822	-9.93	27.77	17.84	40.00	-22.16	Peak
2	108.838	-11.98	30.21	18.23	43.50	-25.27	Peak
3	169.897	-13.59	31.87	18.28	43.50	-25.22	Peak
4	251.401	-10.71	33.47	22.76	46.00	-23.24	Peak
5	325.881	-8.22	30.26	22.04	46.00	-23.96	Peak
6	731.600	-0.84	28.12	27.28	46.00	-18.72	Peak

Vertical



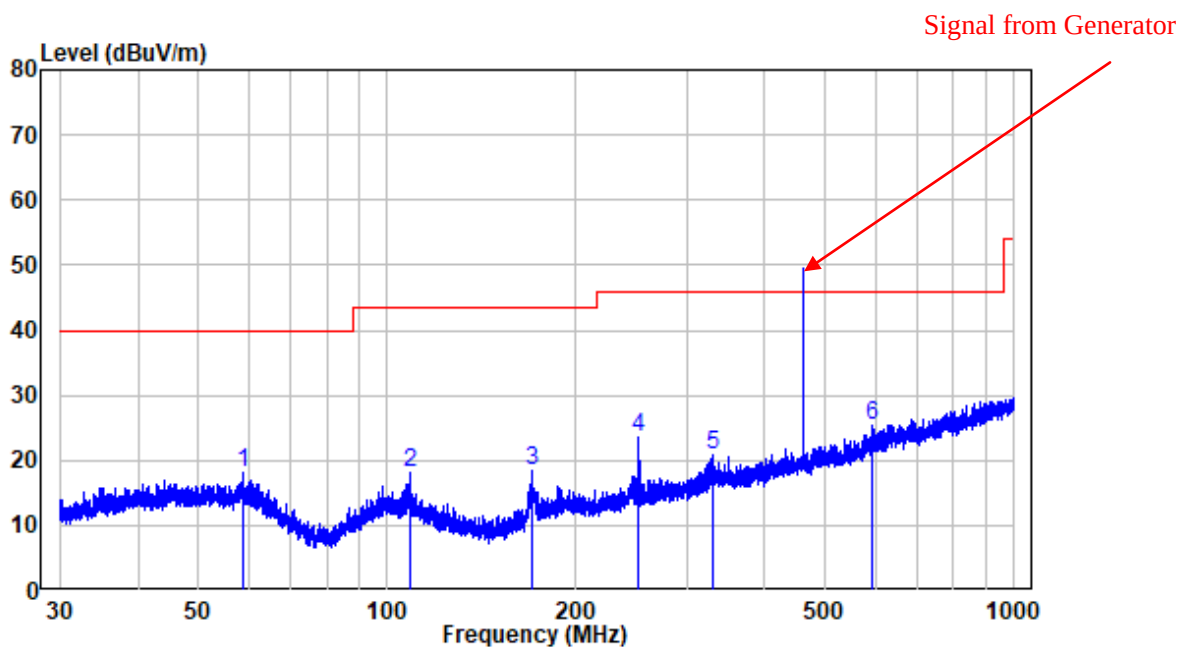
Site : chamber

Condition: 3m VERTICAL

Job No. : XMTN1221014-47139E-EM

Test Mode: Receiver at 400MHz

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	35.220	-11.46	28.78	17.32	40.00	-22.68	Peak
2	47.575	-10.00	27.96	17.96	40.00	-22.04	Peak
3	60.227	-10.71	29.82	19.11	40.00	-20.89	Peak
4	98.487	-12.14	32.48	20.34	43.50	-23.16	Peak
5	200.512	-11.44	28.44	17.00	43.50	-26.50	Peak
6	955.857	2.14	28.31	30.45	46.00	-15.55	Peak

Test mode 6: Receiver at 460MHz**Horizontal:**

Site : chamber

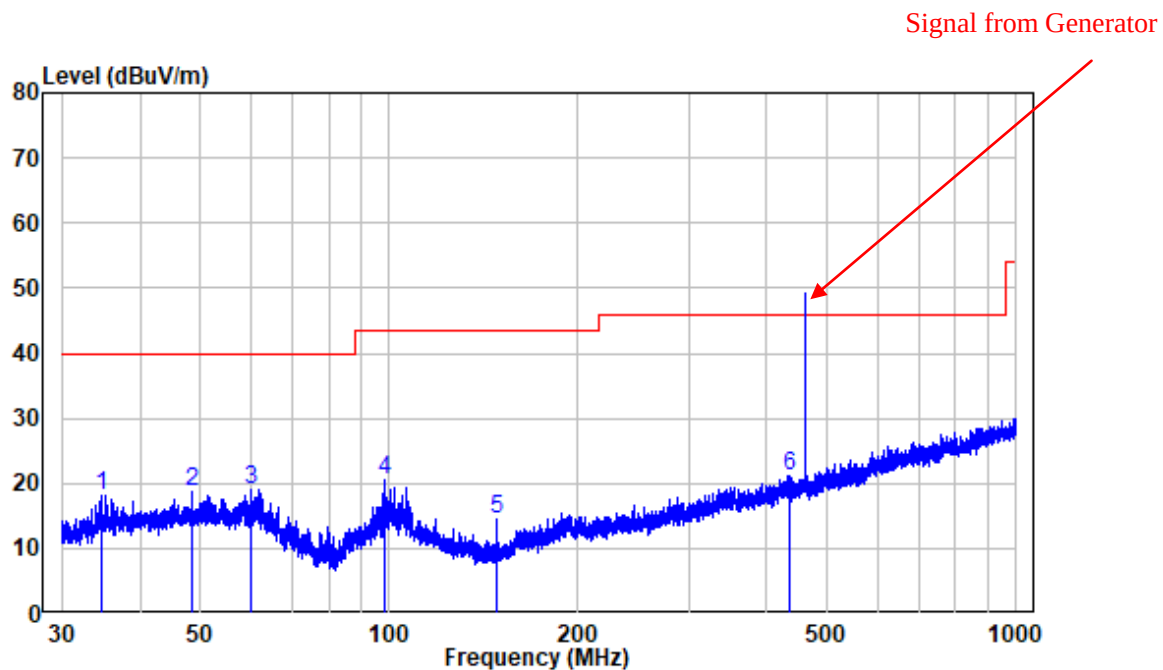
Condition: 3m HORIZONTAL

Job No. : XMTN1221014-47139E-EM

Test Mode: Receiver at 460MHz

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	58.819	-10.20	28.24	18.04	40.00	-21.96	Peak
2	108.838	-11.98	29.96	17.98	43.50	-25.52	Peak
3	169.748	-13.61	31.96	18.35	43.50	-25.15	Peak
4	251.842	-10.69	34.14	23.45	46.00	-22.55	Peak
5	329.617	-8.00	28.92	20.92	46.00	-25.08	Peak
6	592.011	-2.72	27.99	25.27	46.00	-20.73	Peak

Vertical



Site : chamber

Condition: 3m VERTICAL

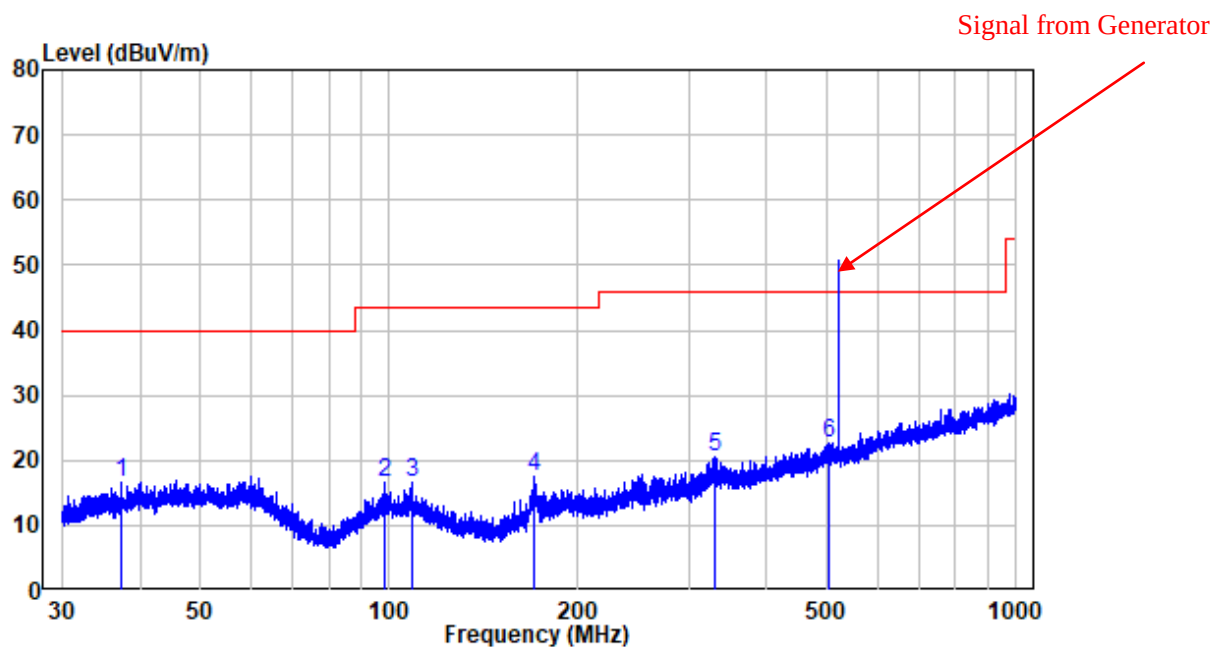
Job No. : XMTN1221014-47139E-EM

Test Mode: Receiver at 460MHz

	Freq	Factor	Read Level	Level	Limit	Over	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	34.639	-11.66	29.87	18.21	40.00	-21.79	Peak
2	48.417	-9.98	28.55	18.57	40.00	-21.43	Peak
3	60.227	-10.71	29.76	19.05	40.00	-20.95	Peak
4	98.357	-12.17	32.62	20.45	43.50	-23.05	Peak
5	148.376	-15.36	29.76	14.40	43.50	-29.10	Peak
6	435.017	-5.71	26.84	21.13	46.00	-24.87	Peak

Test mode 7: Receiver at 520MHz

Horizontal:



Site : chamber

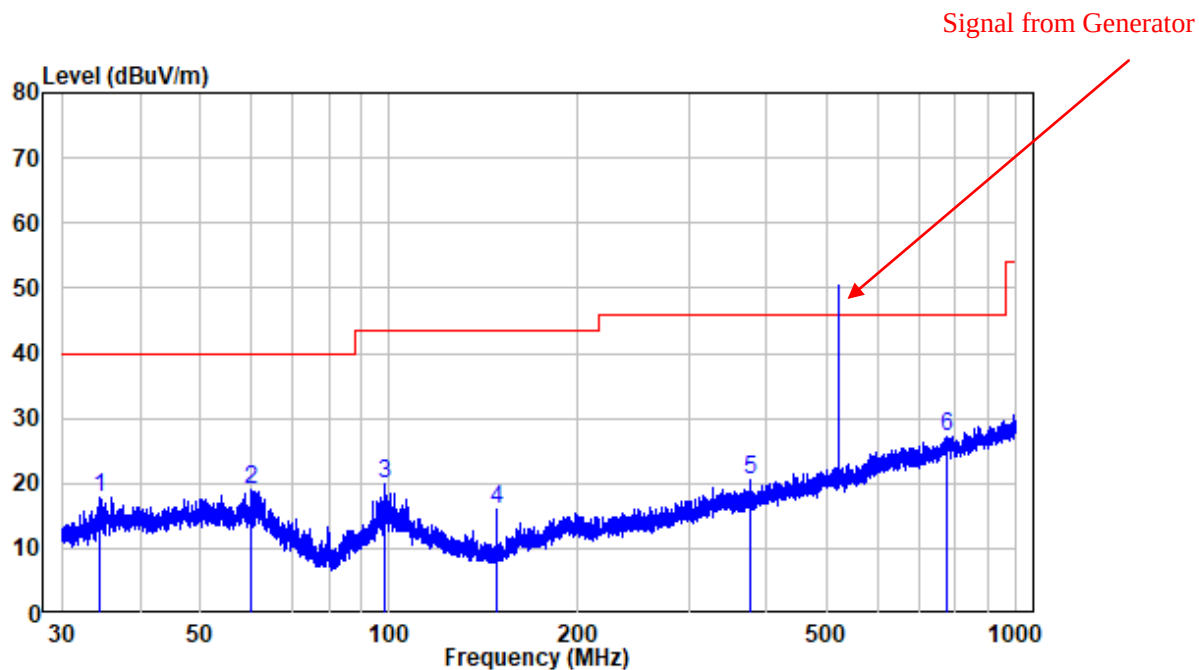
Condition: 3m HORIZONTAL

Job No. : XMTN1221014-47139E-EM

Test Mode: Receiver at 520MHz

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	37.335	-10.95	27.53	16.58	40.00	-23.42	Peak
2	98.487	-12.14	28.79	16.65	43.50	-26.85	Peak
3	108.838	-11.98	28.69	16.71	43.50	-26.79	Peak
4	169.673	-13.61	31.24	17.63	43.50	-25.87	Peak
5	329.617	-8.00	28.53	20.53	46.00	-25.47	Peak
6	502.059	-4.26	27.05	22.79	46.00	-23.21	Peak

Vertical



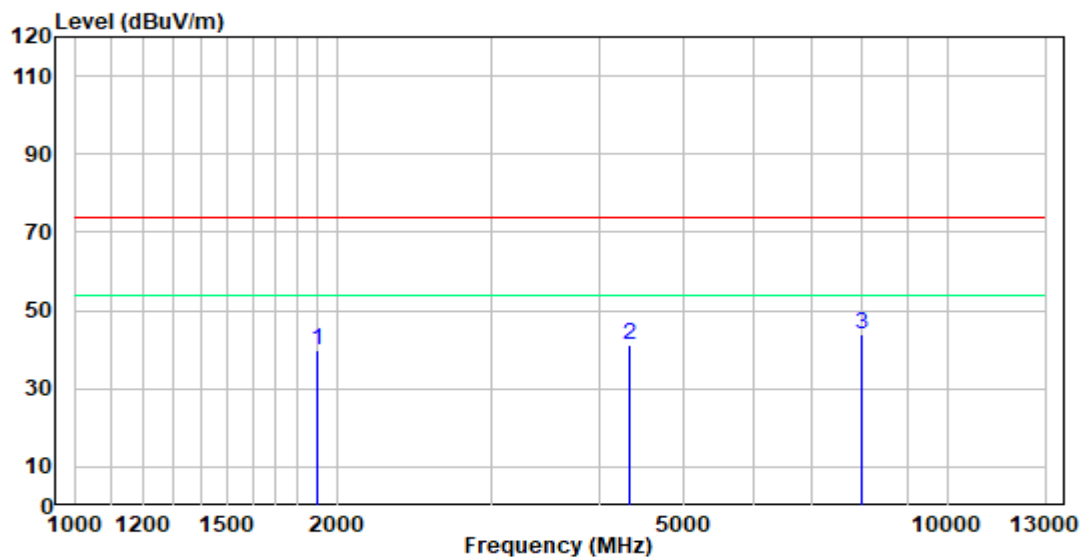
Site : chamber

Condition: 3m VERTICAL

Job No. : XMTN1221014-47139E-EM

Test Mode: Receiver at 520MHz

	Freq	Factor	Read Level	Level	Limit	Over	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	34.578	-11.68	29.64	17.96	40.00	-22.04	Peak
2	60.201	-10.70	29.60	18.90	40.00	-21.10	Peak
3	98.487	-12.14	32.16	20.02	43.50	-23.48	Peak
4	148.376	-15.36	31.42	16.06	43.50	-27.44	Peak
5	375.280	-7.27	27.75	20.48	46.00	-25.52	Peak
6	774.837	0.03	27.16	27.19	46.00	-18.81	Peak

Above 1 GHz:**Test mode 1: Scanning receiver****Horizontal:**

Site : chamber

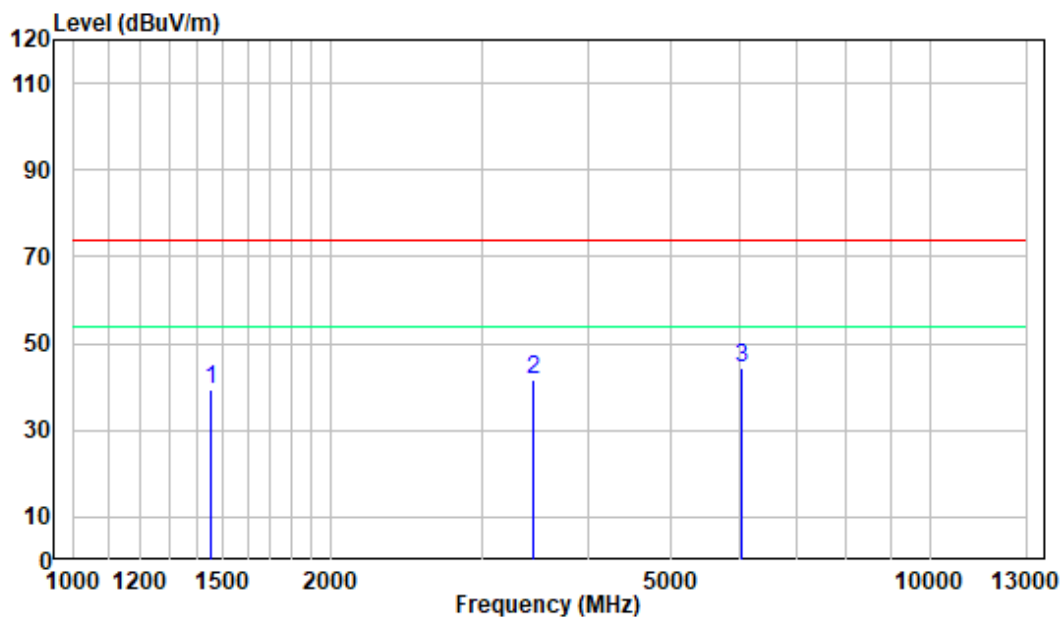
Condition: 3m HORIZONTAL

Job No. : XMTN1221014-47139E-EM

Test Mode: Scanning receiver

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	1894.000	-8.07	47.78	39.71	74.00	-34.29	Peak
2	4316.000	-4.87	46.20	41.33	74.00	-32.67	Peak
3	7986.000	4.33	39.42	43.75	74.00	-30.25	Peak

Vertical



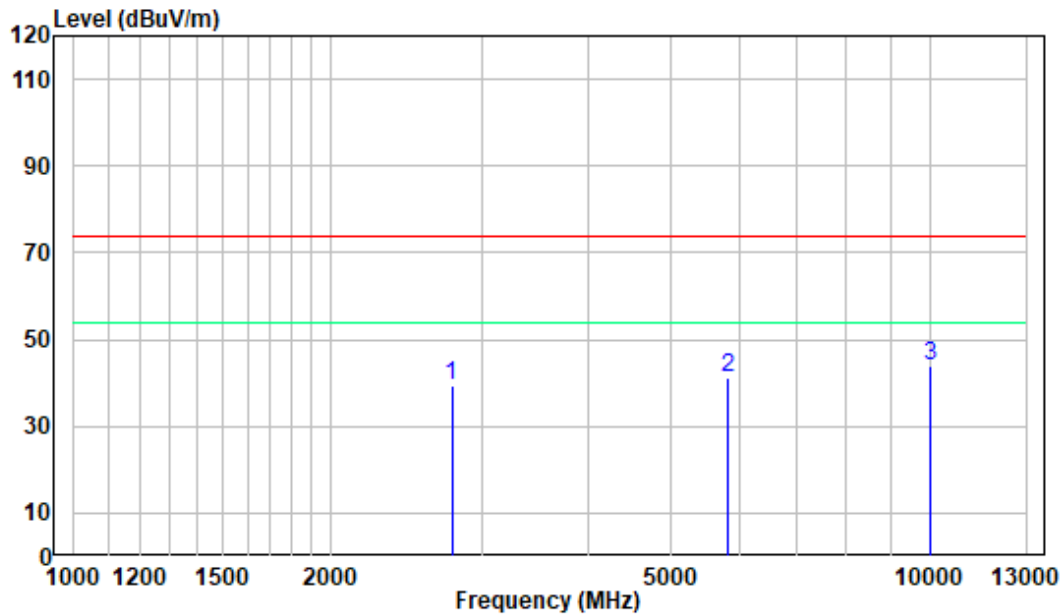
Site : chamber

Condition: 3m VERTICAL

Job No. : XMTN1221014-47139E-EM

Test Mode: Scanning receiver

	Freq	Factor	Read Level	Level	Limit	Over	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	1453.000	-9.73	49.19	39.46	74.00	-34.54	Peak
2	3449.000	-5.98	47.75	41.77	74.00	-32.23	Peak
3	6035.000	-1.56	45.82	44.26	74.00	-29.74	Peak

Test mode 2: Receiver at 136MHz**Horizontal:**

Site : chamber

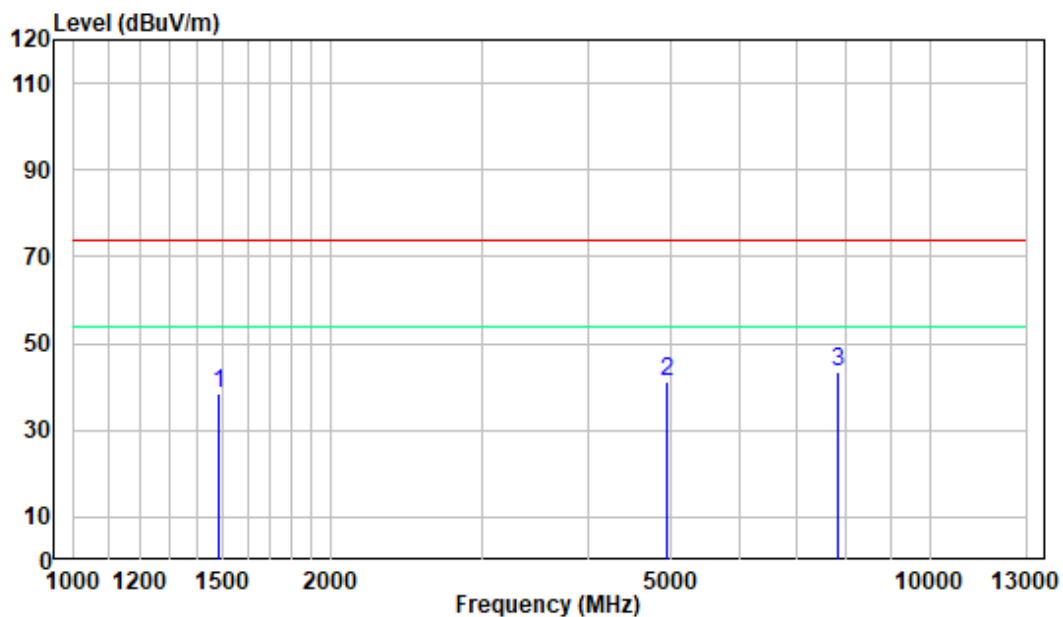
Condition: 3m HORIZONTAL

Job No. : XMTN1221014-47139E-EM

Test Mode: Receiver at 136MHz

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	2769.000	-6.47	46.03	39.56	74.00	-34.44	Peak
2	5828.000	-1.83	43.16	41.33	74.00	-32.67	Peak
3	10027.000	7.14	36.63	43.77	74.00	-30.23	Peak

Vertical



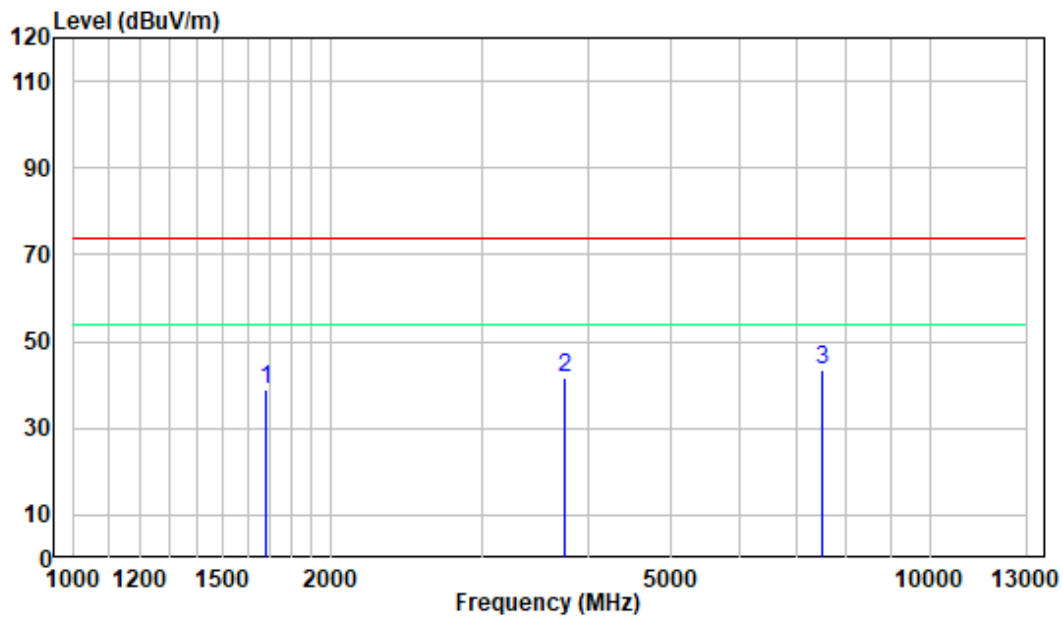
Site : chamber

Condition: 3m VERTICAL

Job No. : XMTN1221014-47139E-EM

Test Mode: Receiver at 136MHz

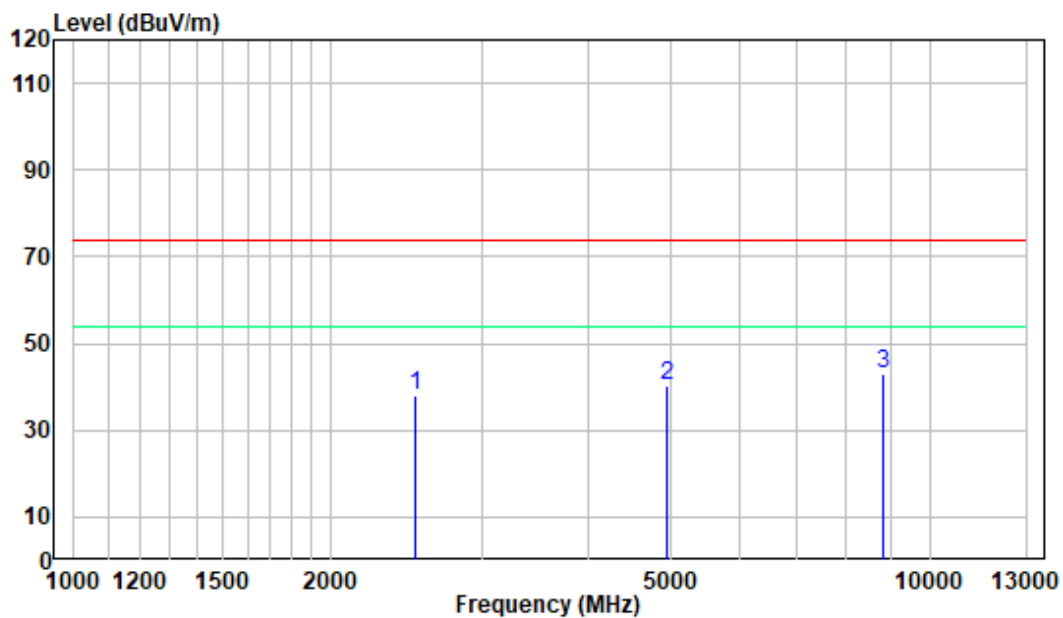
	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	1477.000	-9.64	48.23	38.59	74.00	-35.41	Peak
2	4936.000	-3.11	44.32	41.21	74.00	-32.79	Peak
3	7821.000	3.97	39.68	43.65	74.00	-30.35	Peak

Test mode 3: Receiver at 155MHz**Horizontal:**

Site : chamber
Condition: 3m HORIZONTAL
Job No. : XMTN1221014-47139E-EM
Test Mode: Receiver at 155MHz

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	1683.000	-8.99	48.10	39.11	74.00	-34.89	Peak
2	3754.000	-5.70	47.22	41.52	74.00	-32.48	Peak
3	7485.000	3.76	39.80	43.56	74.00	-30.44	Peak

Vertical



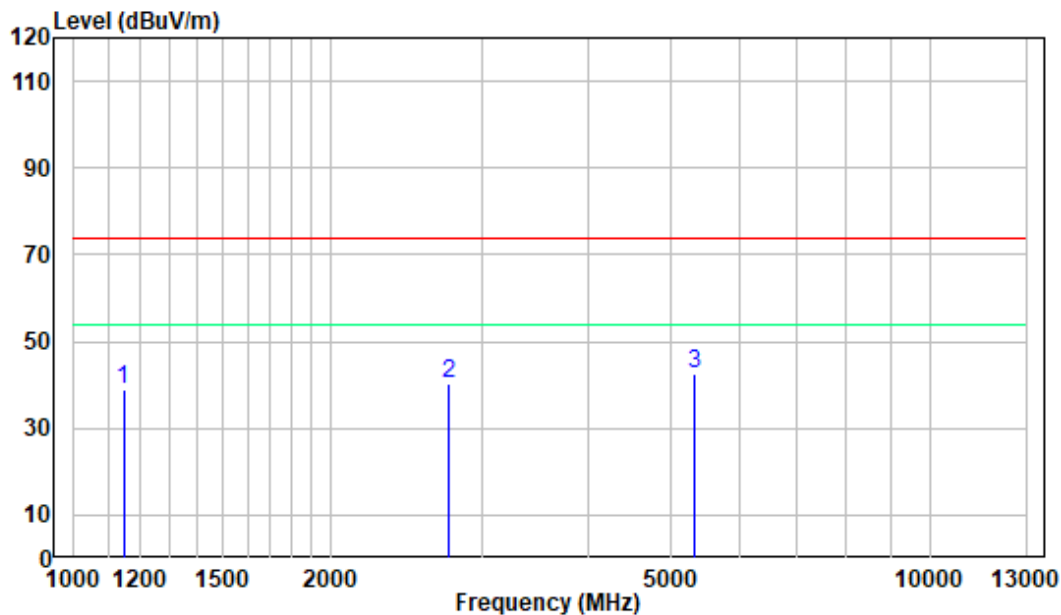
Site : chamber

Condition: 3m VERTICAL

Job No. : XMTN1221014-47139E-EM

Test Mode: Receiver at 155MHz

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	2515.000	-7.11	45.35	38.24	74.00	-35.76	Peak
2	4927.000	-3.15	43.62	40.47	74.00	-33.53	Peak
3	8841.000	4.92	38.15	43.07	74.00	-30.93	Peak

Test mode 4: Receiver at 174MHz**Horizontal:**

Site : chamber

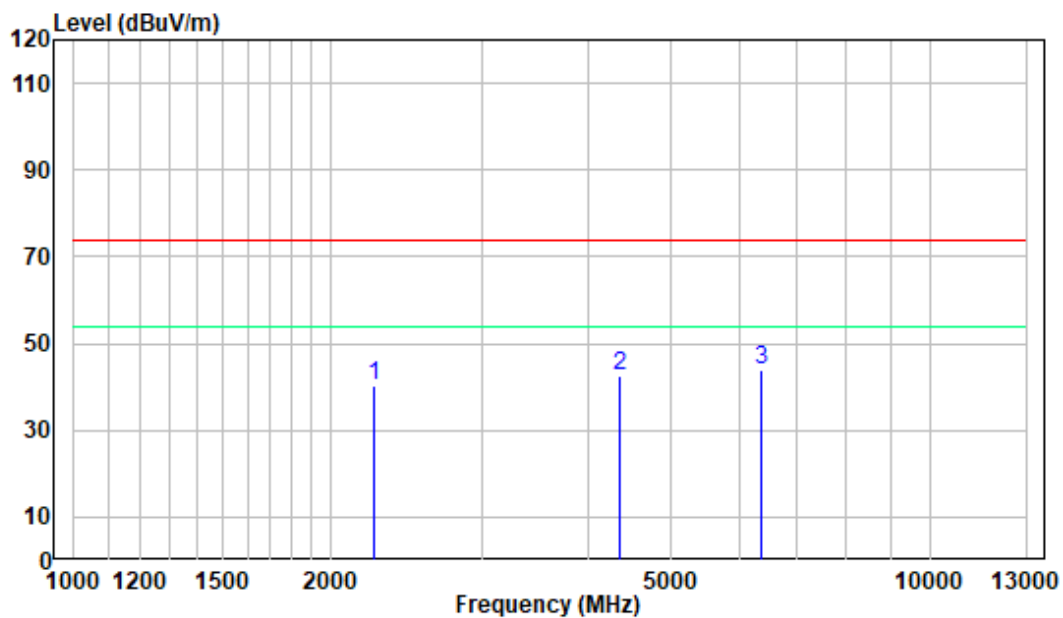
Condition: 3m HORIZONTAL

Job No. : XMTN1221014-47139E-EM

Test Mode: Receiver at 174MHz

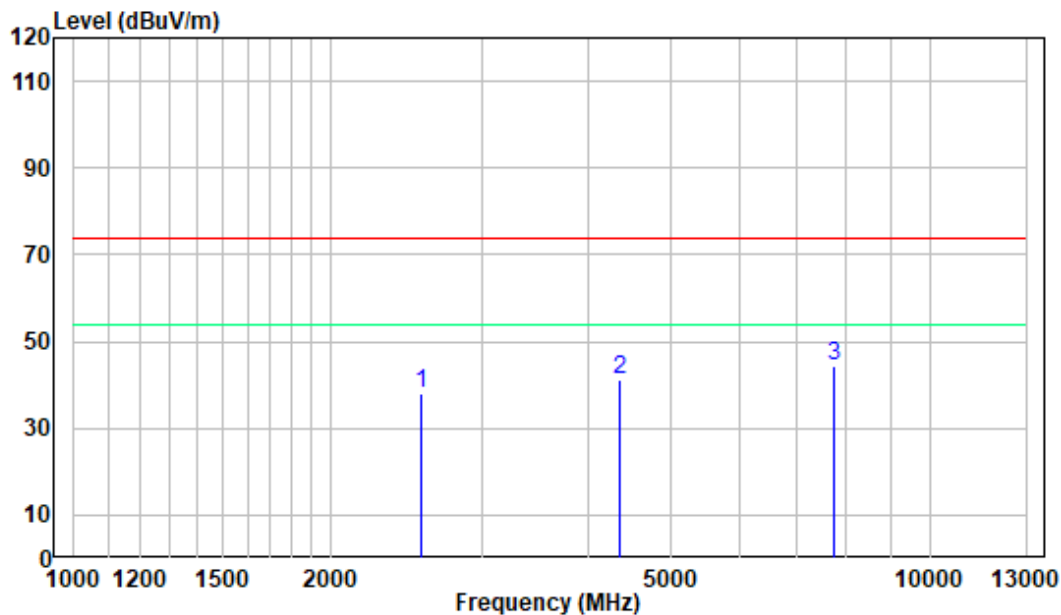
	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	1146.000	-10.30	49.04	38.74	74.00	-35.26	Peak
2	2748.000	-6.61	46.83	40.22	74.00	-33.78	Peak
3	5313.000	-2.45	45.02	42.57	74.00	-31.43	Peak

Vertical



Site : chamber
Condition: 3m VERTICAL
Job No. : XMTN1221014-47139E-EM
Test Mode: Receiver at 174MHz

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	2249.000	-7.21	47.32	40.11	74.00	-33.89	Peak
2	4353.000	-4.81	47.38	42.57	74.00	-31.43	Peak
3	6347.000	-0.10	44.11	44.01	74.00	-29.99	Peak

Test mode 5: Receiver at 400MHz**Horizontal:**

Site : chamber

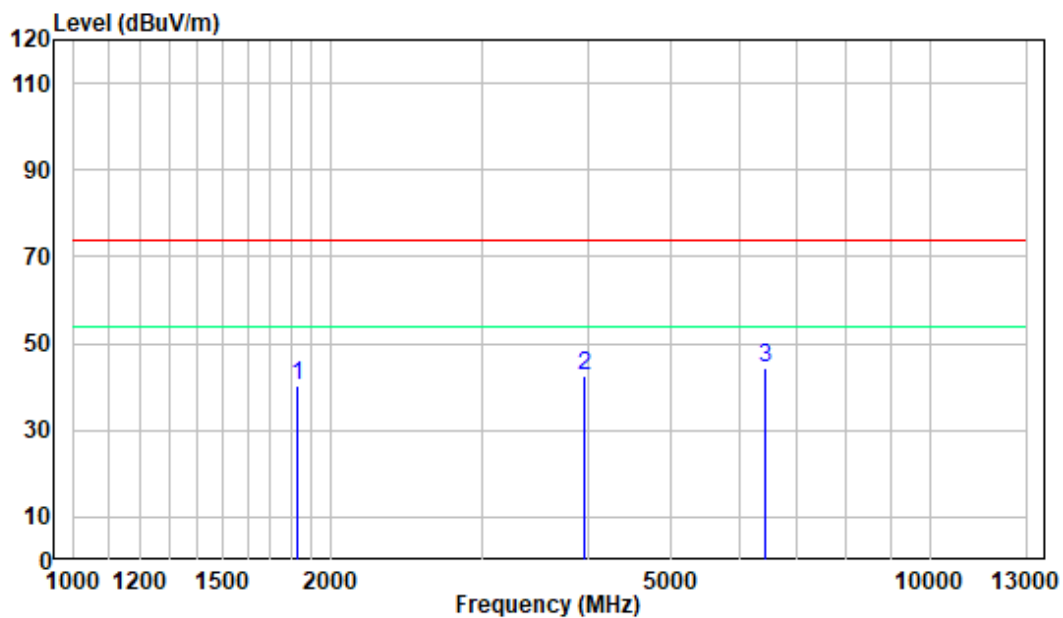
Condition: 3m HORIZONTAL

Job No. : XMTN1221014-47139E-EM

Test Mode: Receiver at 400MHz

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	2547.000	-6.96	45.10	38.14	74.00	-35.86	Peak
2	4347.000	-4.81	45.83	41.02	74.00	-32.98	Peak
3	7749.000	3.92	40.50	44.42	74.00	-29.58	Peak

Vertical



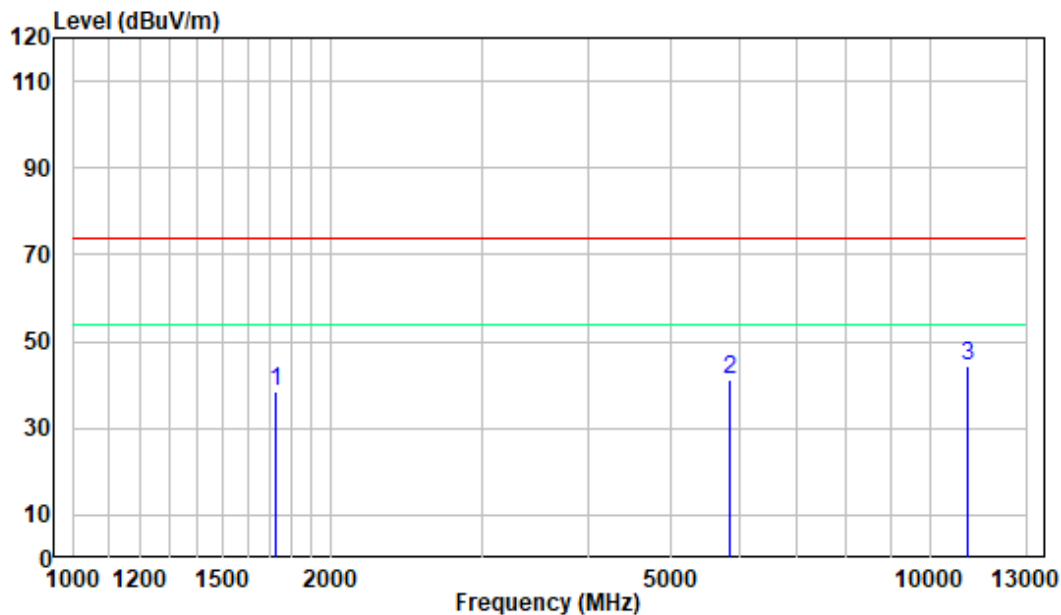
Site : chamber

Condition: 3m VERTICAL

Job No. : XMTN1221014-47139E-EM

Test Mode: Receiver at 400MHz

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	1826.000	-8.56	48.68	40.12	74.00	-33.88	Peak
2	3947.000	-5.49	48.05	42.56	74.00	-31.44	Peak
3	6439.000	0.25	44.13	44.38	74.00	-29.62	Peak

Test mode 6: Receiver at 460MHz**Horizontal:**

Site : chamber

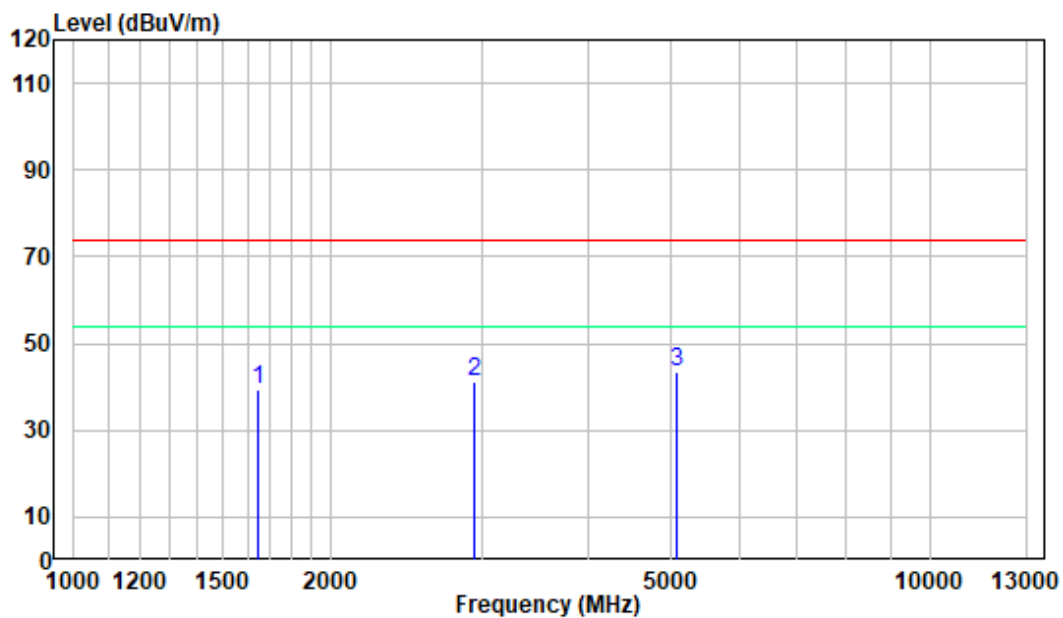
Condition: 3m HORIZONTAL

Job No. : XMTN1221014-47139E-EM

Test Mode: Receiver at 460MHz

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	1724.000	-8.87	47.42	38.55	74.00	-35.45	Peak
2	5840.000	-1.82	42.85	41.03	74.00	-32.97	Peak
3	11067.000	9.31	34.90	44.21	74.00	-29.79	Peak

Vertical



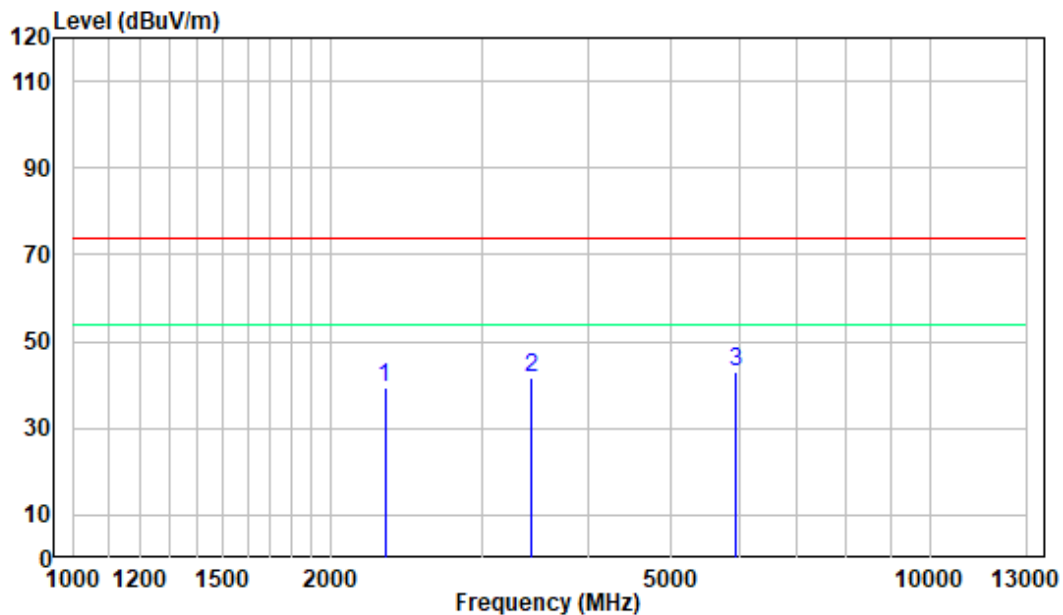
Site : chamber

Condition: 3m VERTICAL

Job No. : XMTN1221014-47139E-EM

Test Mode: Receiver at 460MHz

	Freq	Factor	Read Level	Limit Level	Over Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	1643.000	-9.07	48.56	39.49	74.00	-34.51	Peak
2	2941.000	-5.98	47.03	41.05	74.00	-32.95	Peak
3	5069.000	-2.87	46.45	43.58	74.00	-30.42	Peak

Test mode 7: Receiver at 520MHz**Horizontal:**

Site : chamber

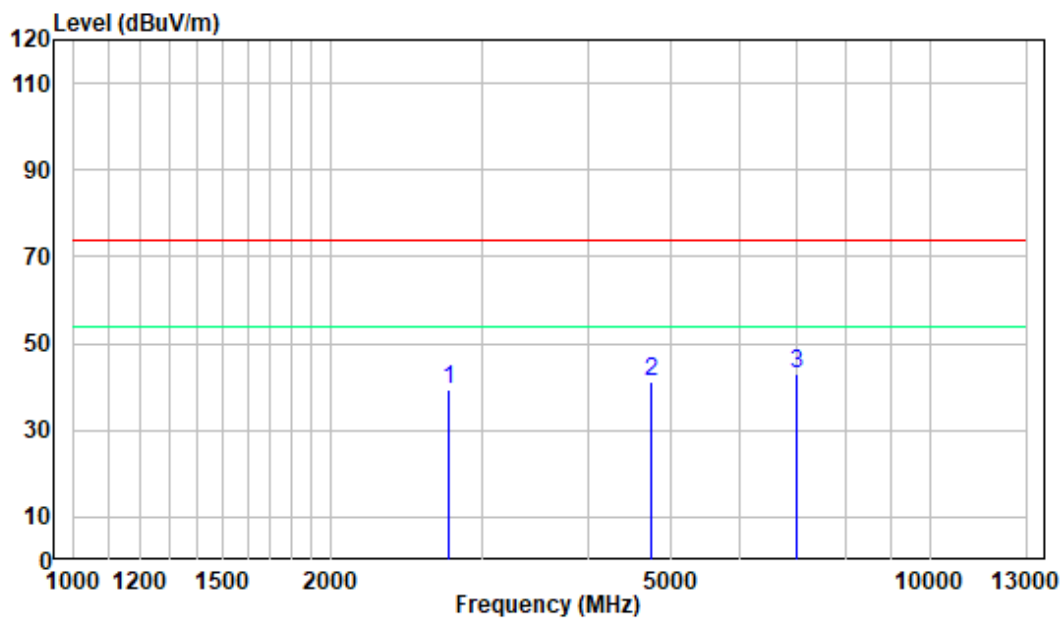
Condition: 3m HORIZONTAL

Job No. : XMTN1221014-47139E-EM

Test Mode: Receiver at 520MHz

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	2314.000	-7.24	46.68	39.44	74.00	-34.56	Peak
2	3427.000	-5.98	47.66	41.68	74.00	-32.32	Peak
3	5937.000	-1.80	44.94	43.14	74.00	-30.86	Peak

Vertical



Site : chamber

Condition: 3m VERTICAL

Job No. : XMTN1221014-47139E-EM

Test Mode: Receiver at 520MHz

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	2746.000	-6.60	46.02	39.42	74.00	-34.58	Peak
2	4735.000	-3.77	44.79	41.02	74.00	-32.98	Peak
3	6983.000	2.21	41.01	43.22	74.00	-30.78	Peak

FCC §15.111 - ANTENNA CONDUCTED POWER FOR RECEIVERS

Applicable Standard

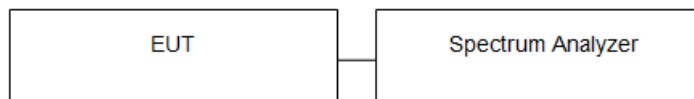
FCC §15.111

Limit

The antenna conducted power of the receiver as defined in §15.111 shall not exceed the values given in the following tables

Frequency Range	Limit
9 kHz to 5 GHz	2.0 nW (-57 dBm)

EUT Setup



Test Procedure

1. The receiver antenna terminal connected to a spectrum analyzer.
2. The test data of the worst case condition was reported on the following Data page.

Test Data

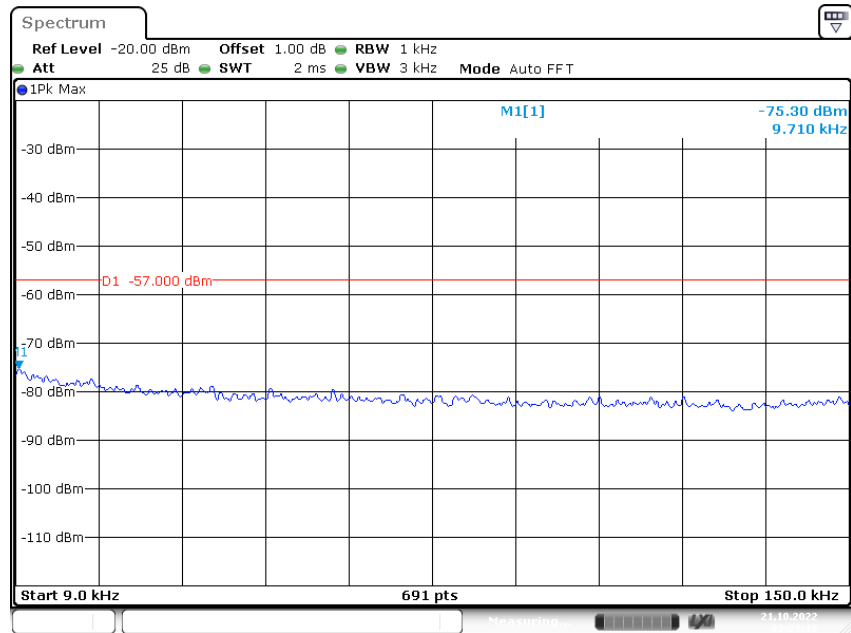
Environmental Conditions

Temperature:	25 °C
Relative Humidity:	52 %
ATM Pressure:	101.0 kPa

The testing was performed by Jesse Chen on 2022-10-21

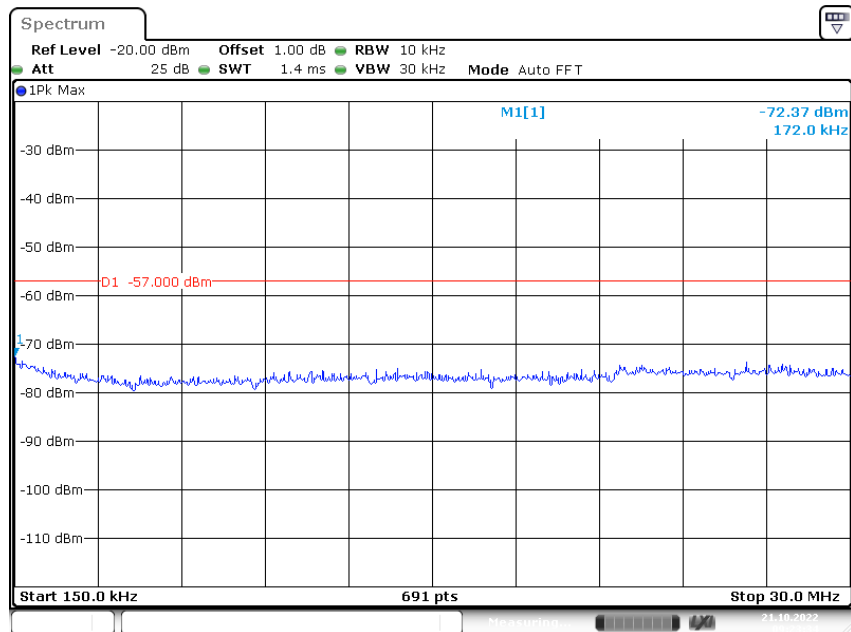
Worst case for Test mode 1:

Conducted Measurement (9 kHz to 150 kHz)



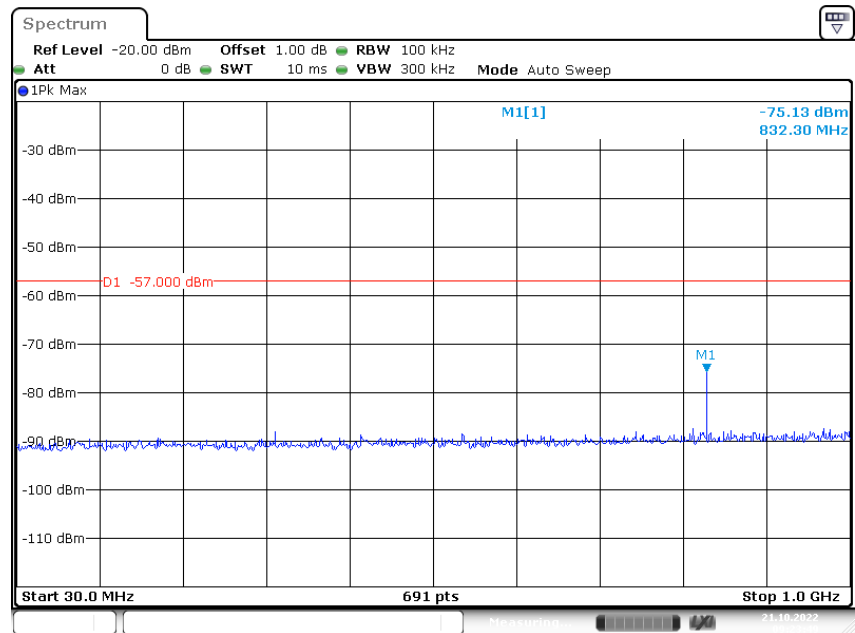
Date: 21.OCT.2022 09:23:18

Conducted Measurement (150 kHz to 30MHz)



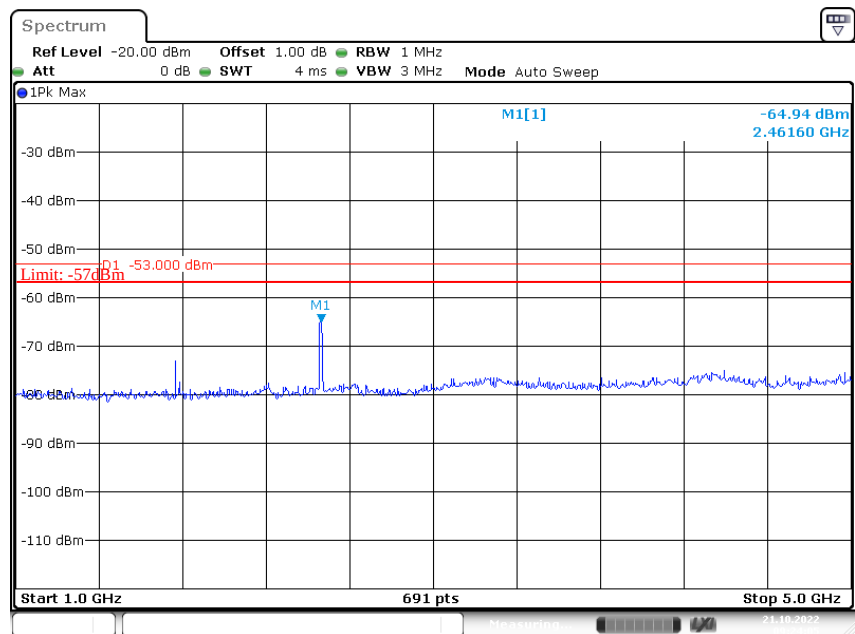
Date: 21.OCT.2022 09:23:34

Conducted Measurement (30MHz to 1GHz)



Date: 21.OCT.2022 09:23:49

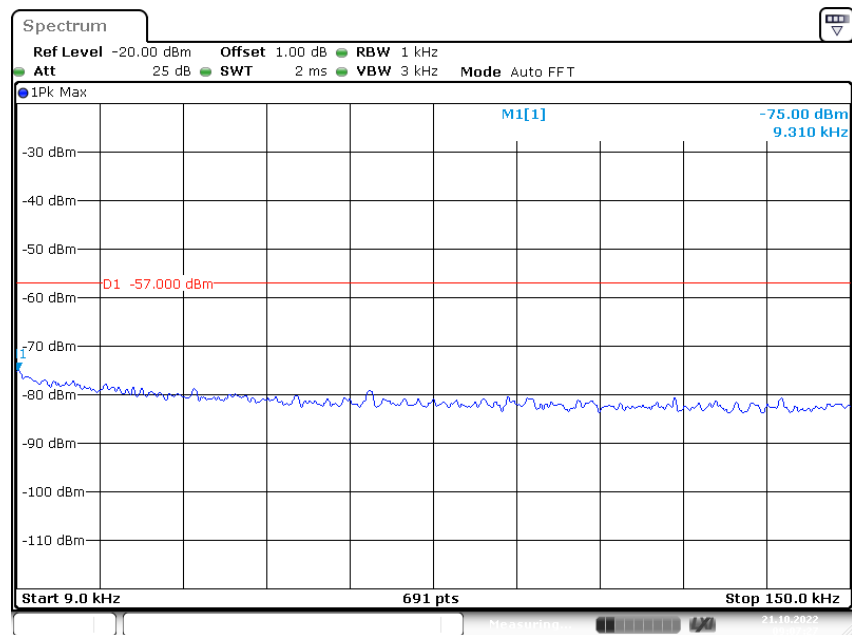
Conducted Measurement (1GHz to 5GHz)



Date: 21.OCT.2022 09:24:05

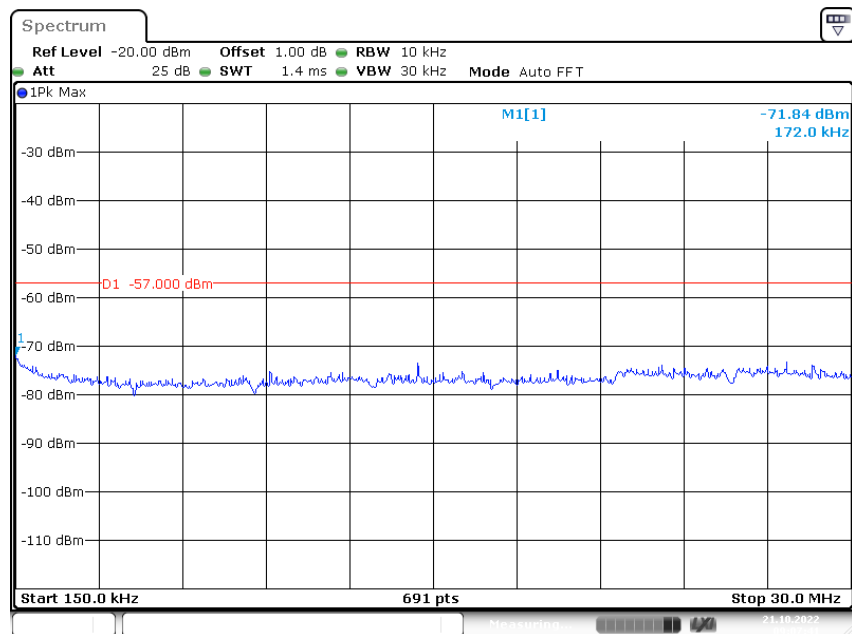
Worst case for Test mode 2:

Conducted Measurement (9 kHz to 150 kHz)



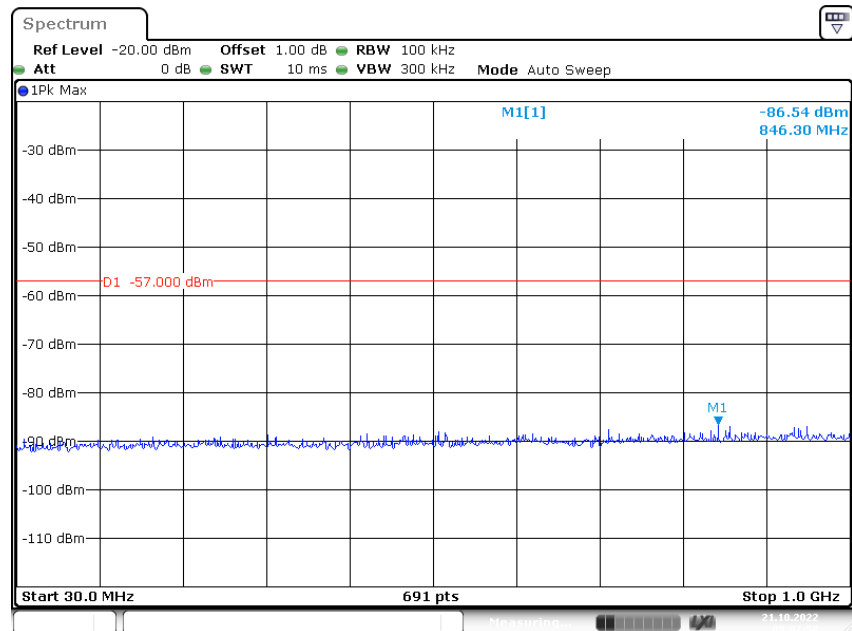
Date: 21.OCT.2022 09:07:27

Conducted Measurement (150 kHz to 30MHz)



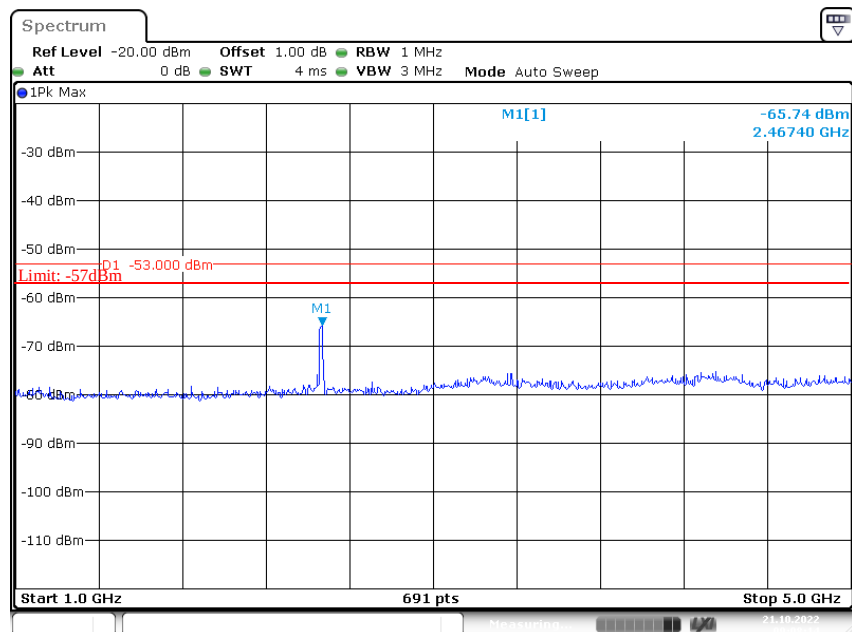
Date: 21.OCT.2022 09:07:41

Conducted Measurement (30MHz to 1GHz)



Date: 21.OCT.2022 09:07:58

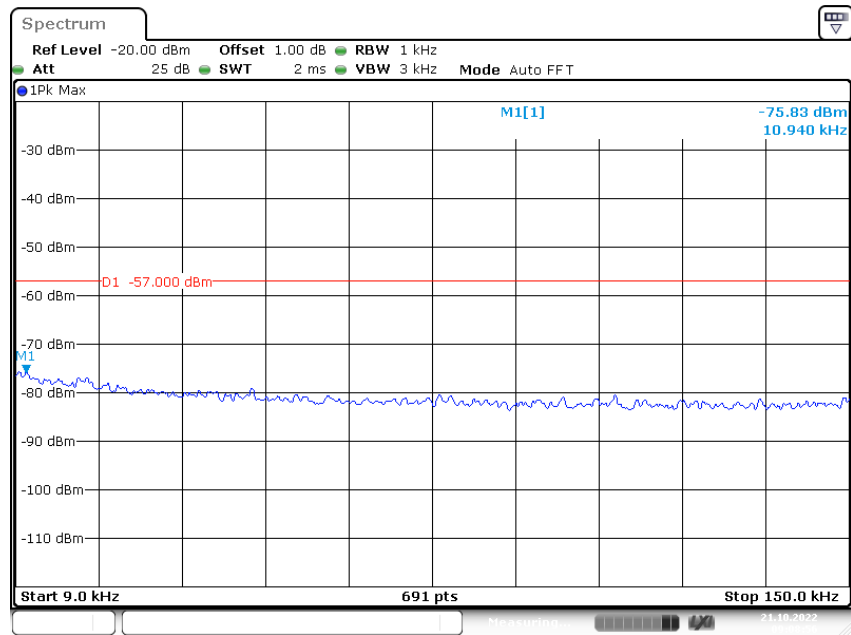
Conducted Measurement (1GHz to 5GHz)



Date: 21.OCT.2022 09:08:14

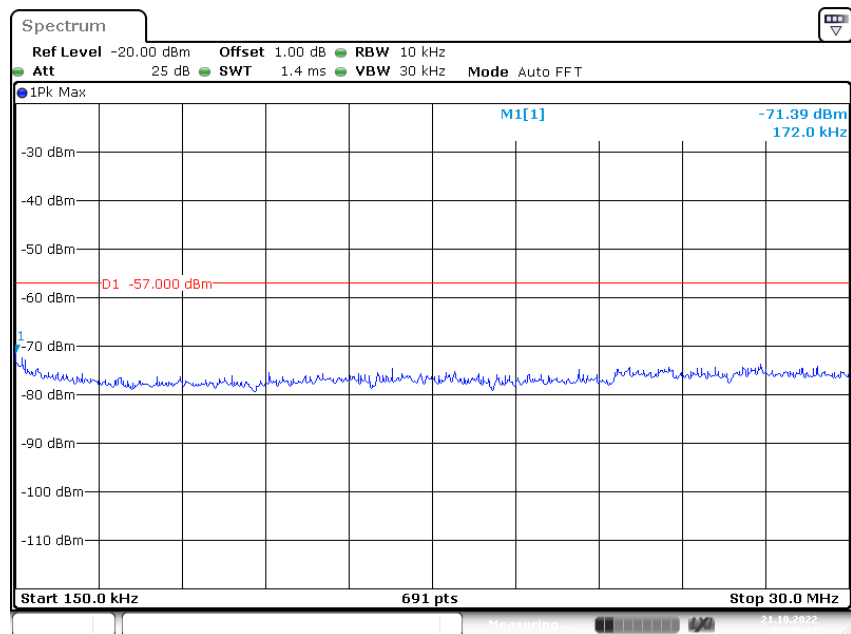
Worst case for Test mode 3:

Conducted Measurement (9 kHz to 150 kHz)



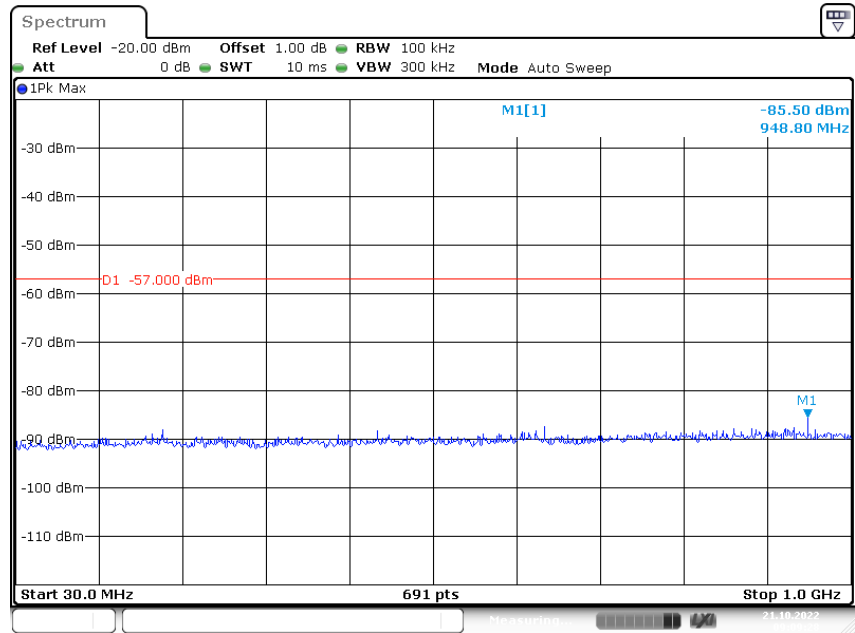
Date: 21.OCT.2022 09:08:56

Conducted Measurement (150 kHz to 30MHz)



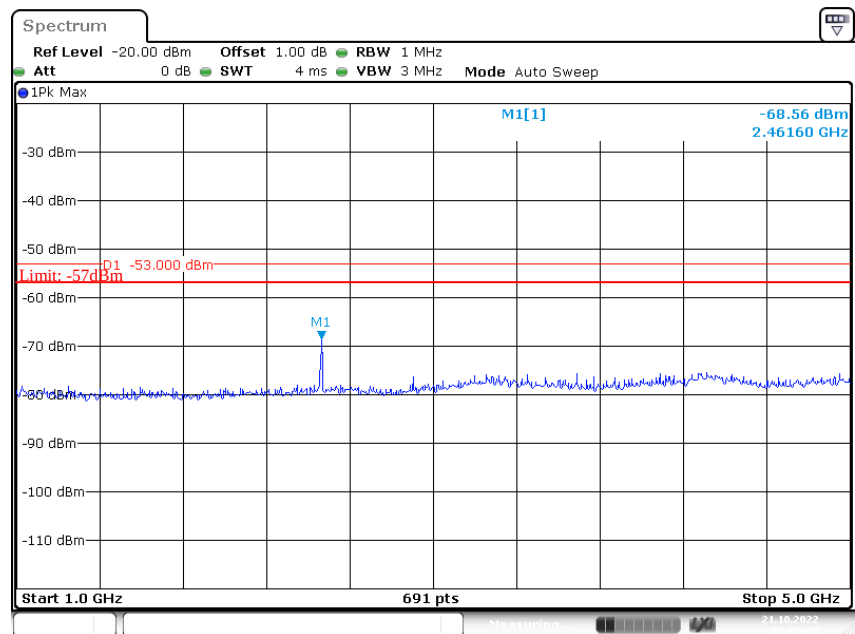
Date: 21.OCT.2022 09:09:12

Conducted Measurement (30MHz to 1GHz)



Date: 21.OCT.2022 09:09:28

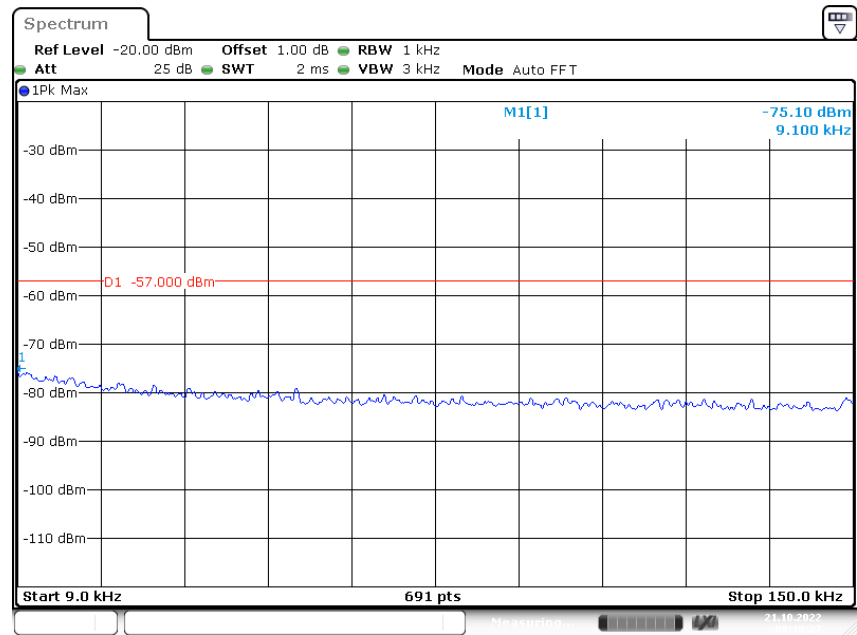
Conducted Measurement (1GHz to 5GHz)



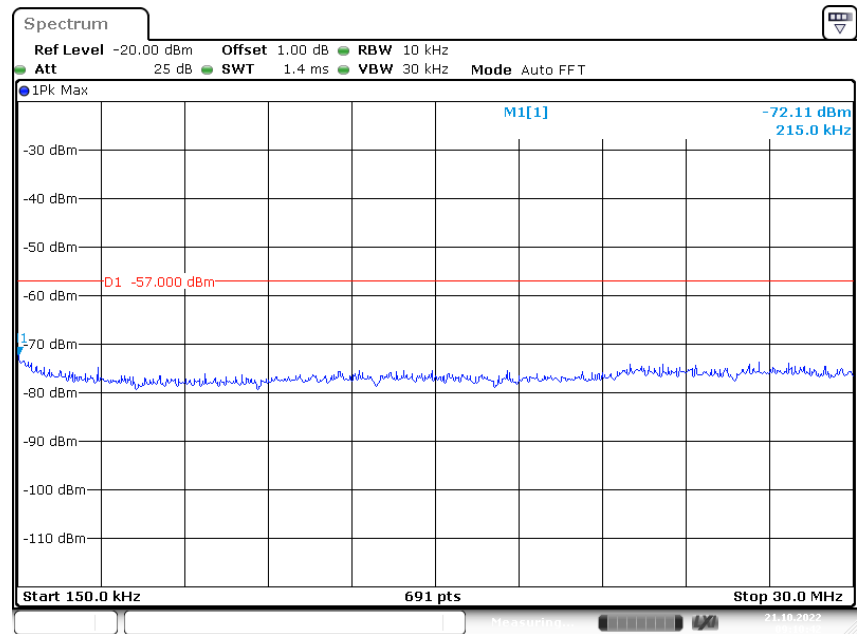
Date: 21.OCT.2022 09:09:43

Worst case for Test mode 4:

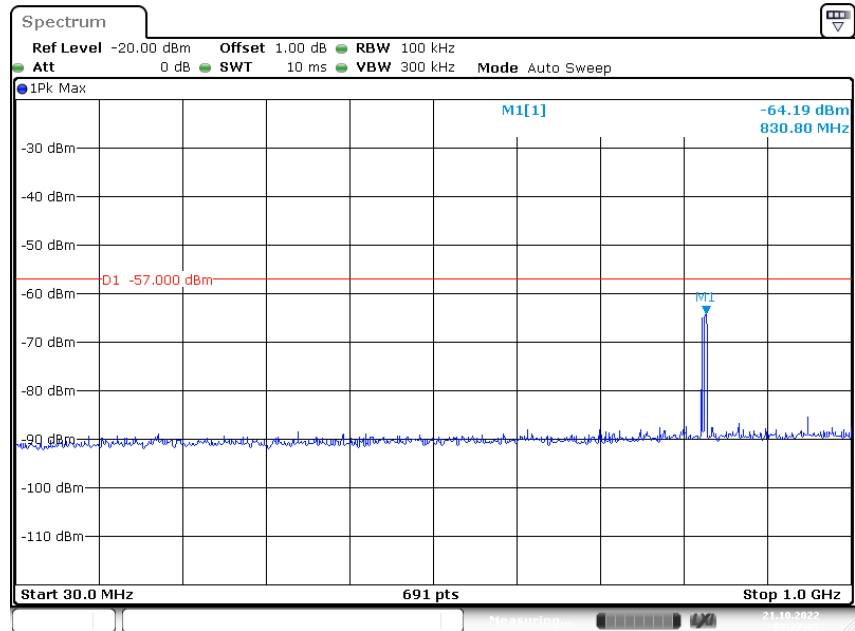
Conducted Measurement (9 kHz to 150 kHz)



Conducted Measurement (150 kHz to 30MHz)

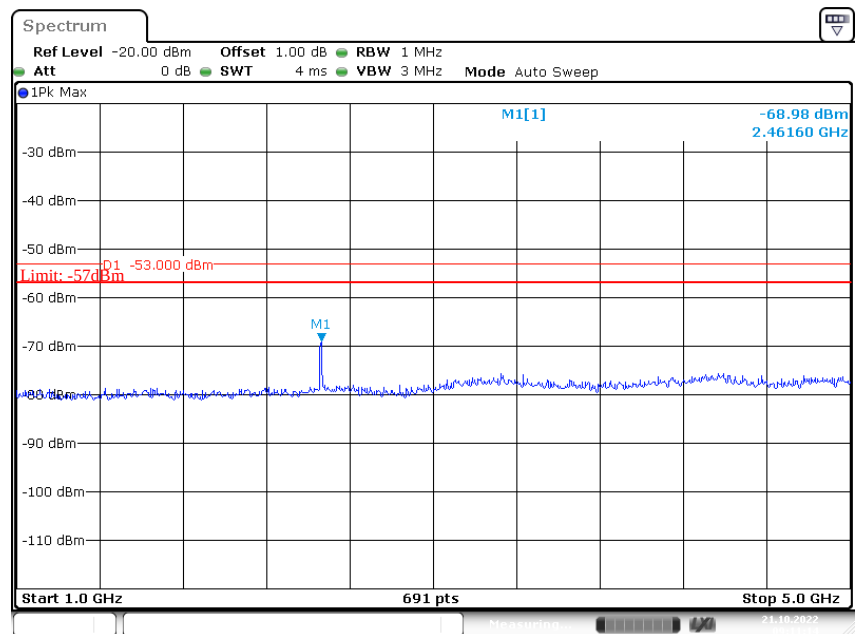


Conducted Measurement (30MHz to 1GHz)



Date: 21.OCT.2022 09:27:05

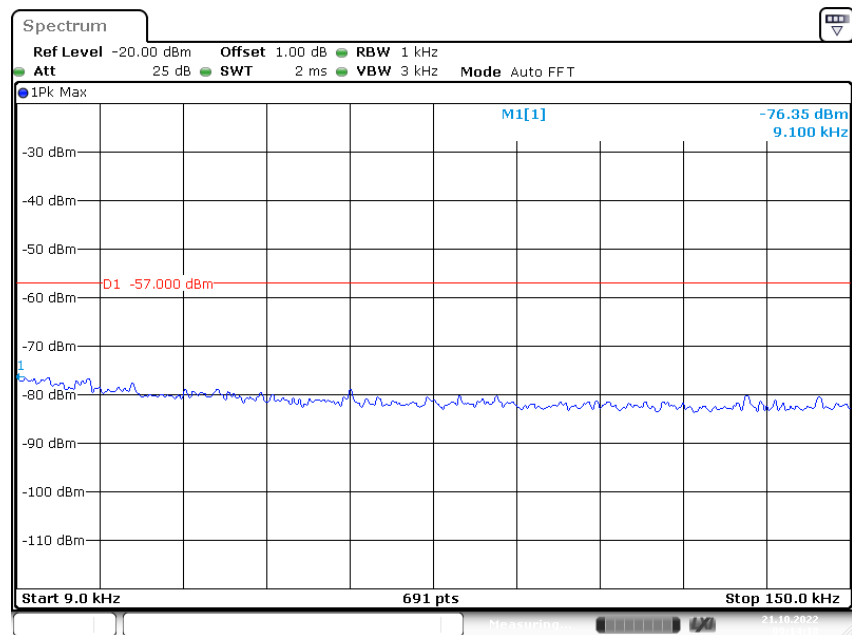
Conducted Measurement (1GHz to 5GHz)



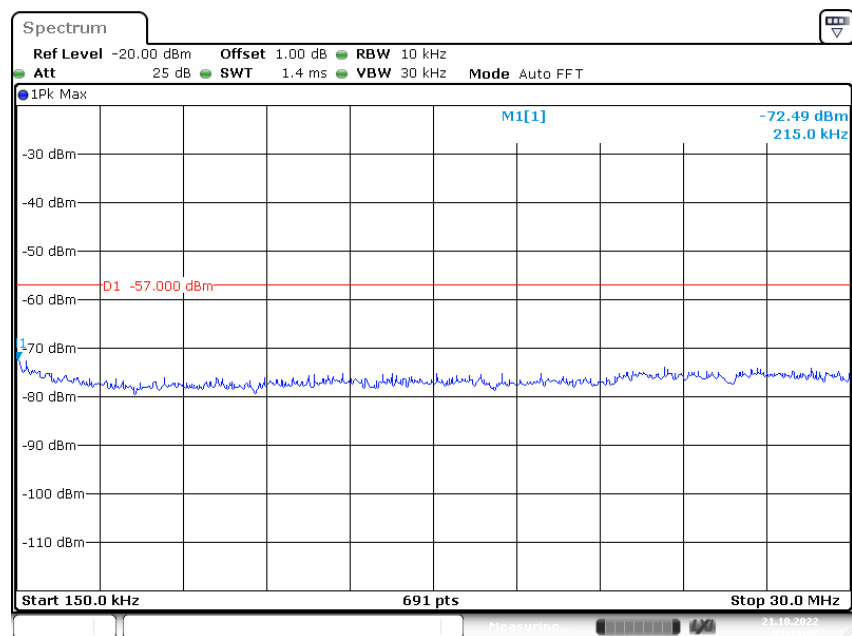
Date: 21.OCT.2022 09:11:14

Worst case for Test mode 5:

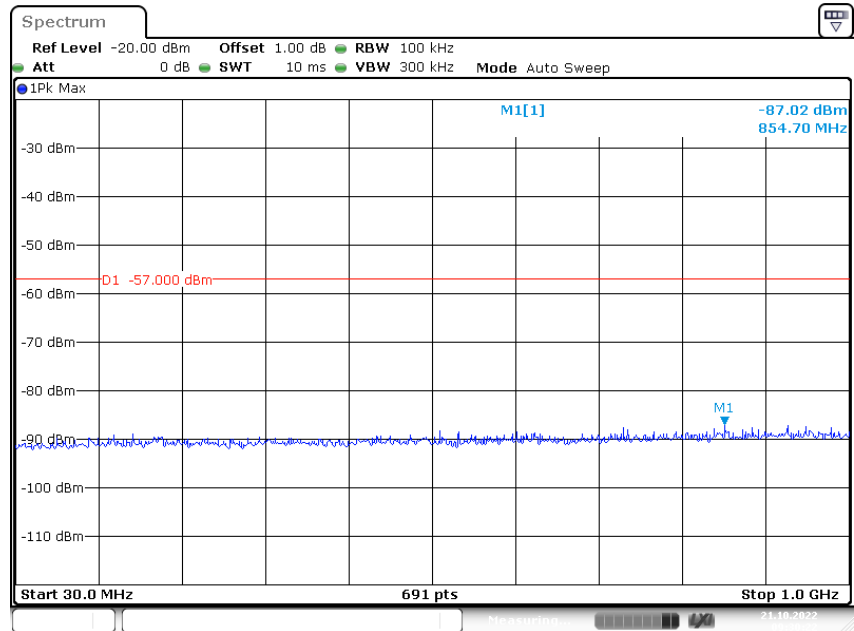
Conducted Measurement (9 kHz to 150 kHz)



Conducted Measurement (150 kHz to 30MHz)

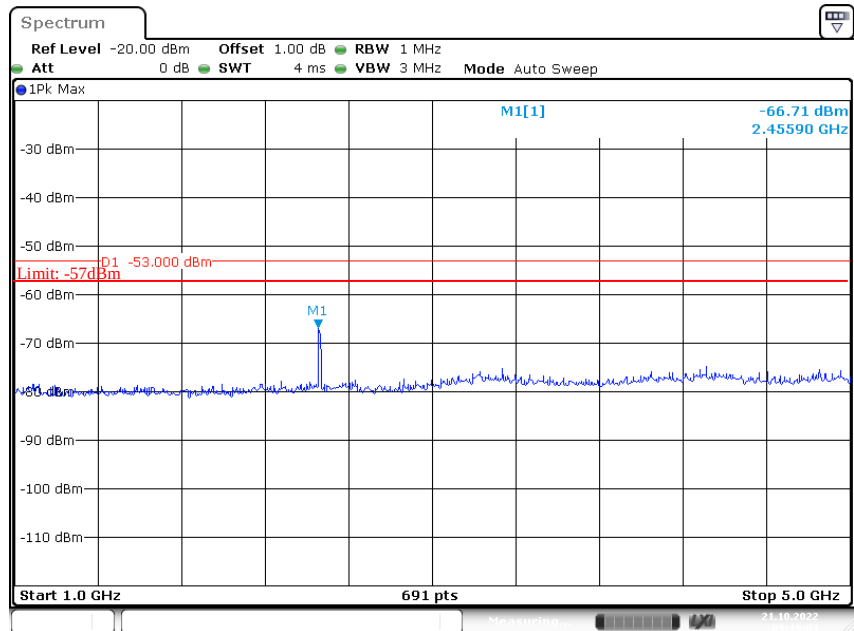


Conducted Measurement (30MHz to 1GHz)



Date: 21.OCT.2022 09:30:22

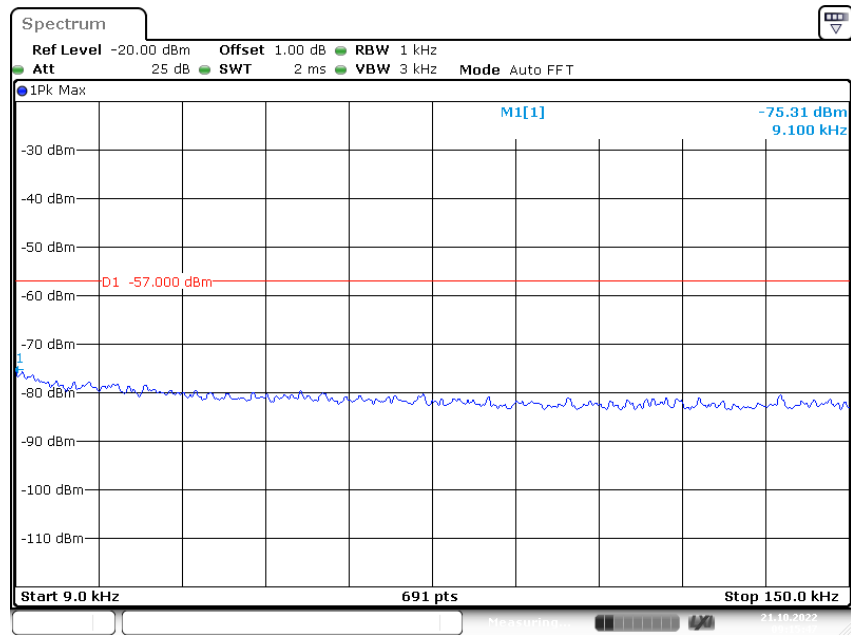
Conducted Measurement (1GHz to 5GHz)



Date: 21.OCT.2022 09:15:05

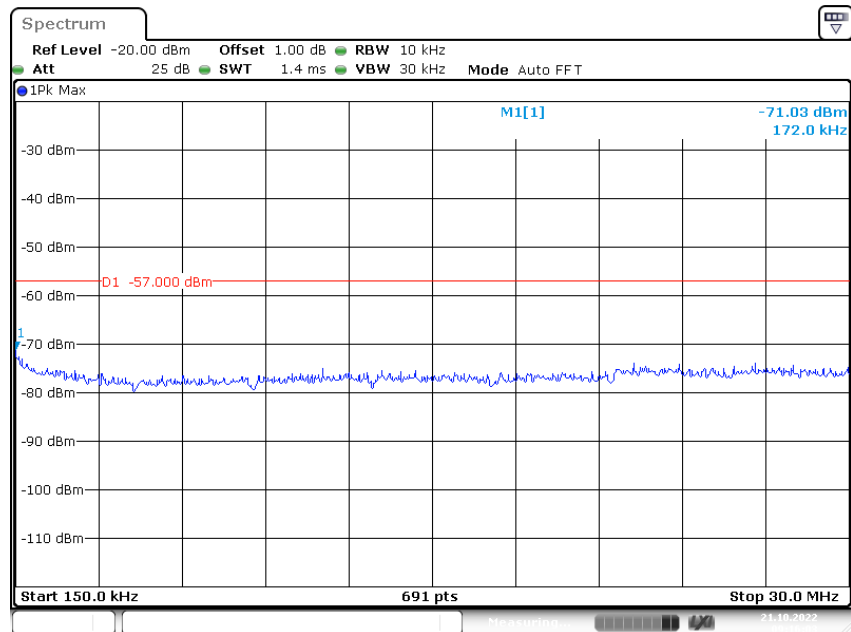
Worst case for Test mode 6:

Conducted Measurement (9 kHz to 150 kHz)



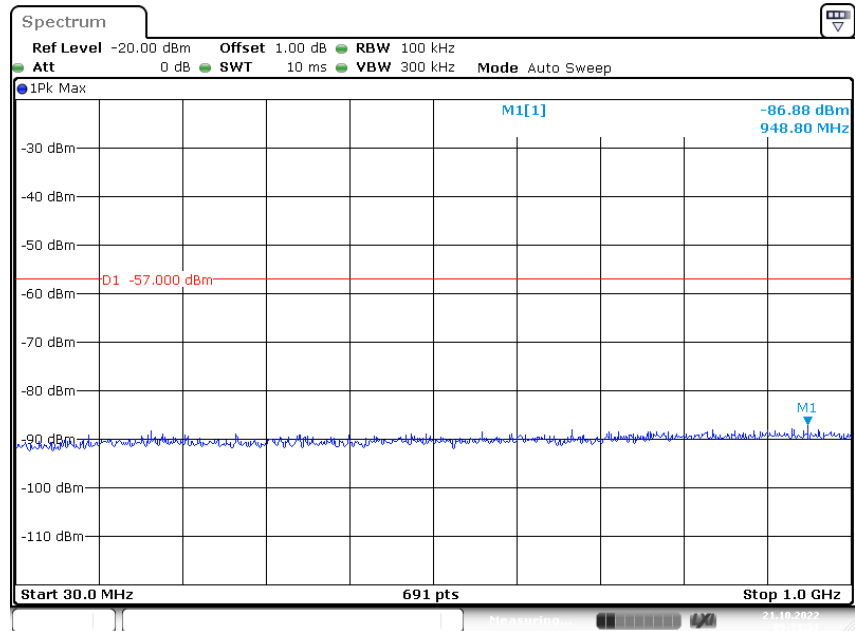
Date: 21.OCT.2022 09:15:48

Conducted Measurement (150 kHz to 30MHz)



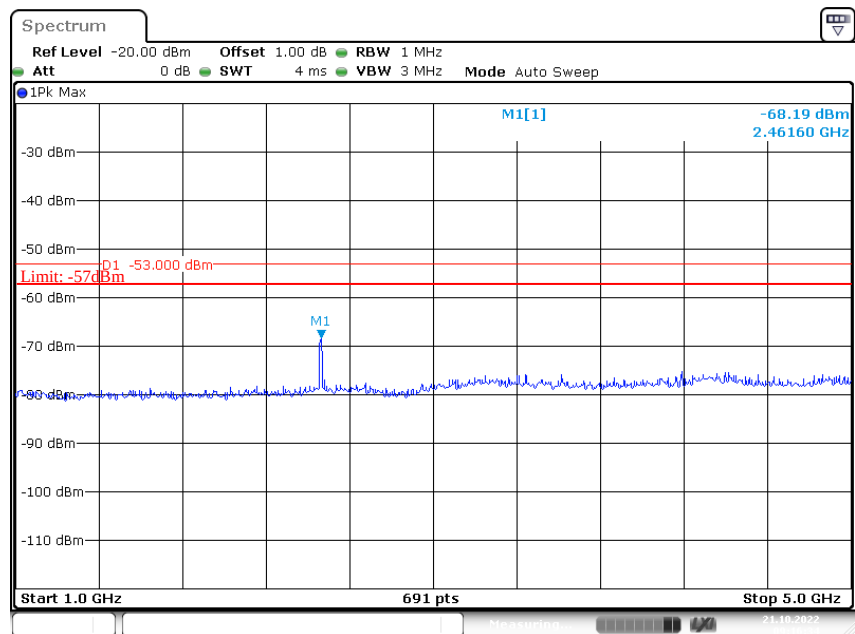
Date: 21.OCT.2022 09:16:04

Conducted Measurement (30MHz to 1GHz)



Date: 21.OCT.2022 09:31:32

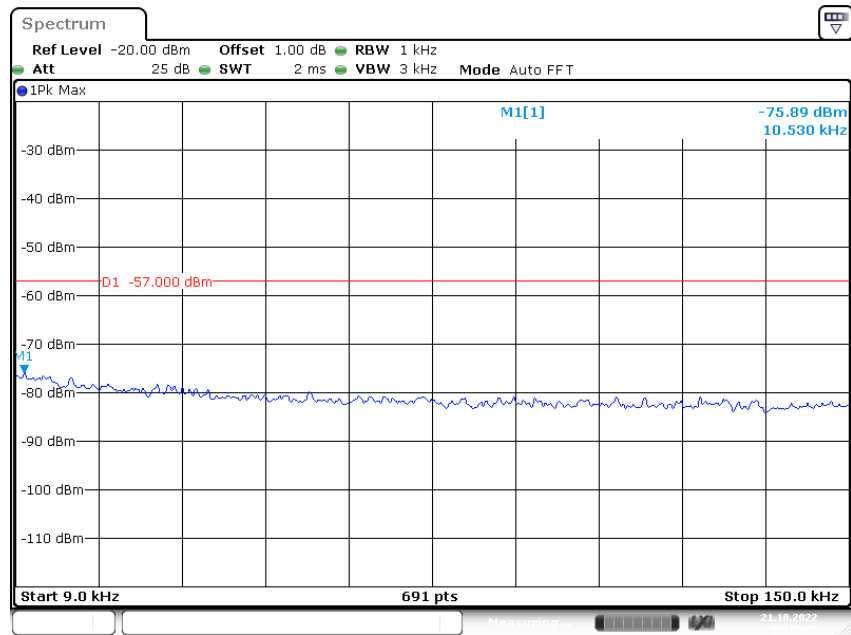
Conducted Measurement (1GHz to 5GHz)



Date: 21.OCT.2022 09:16:35

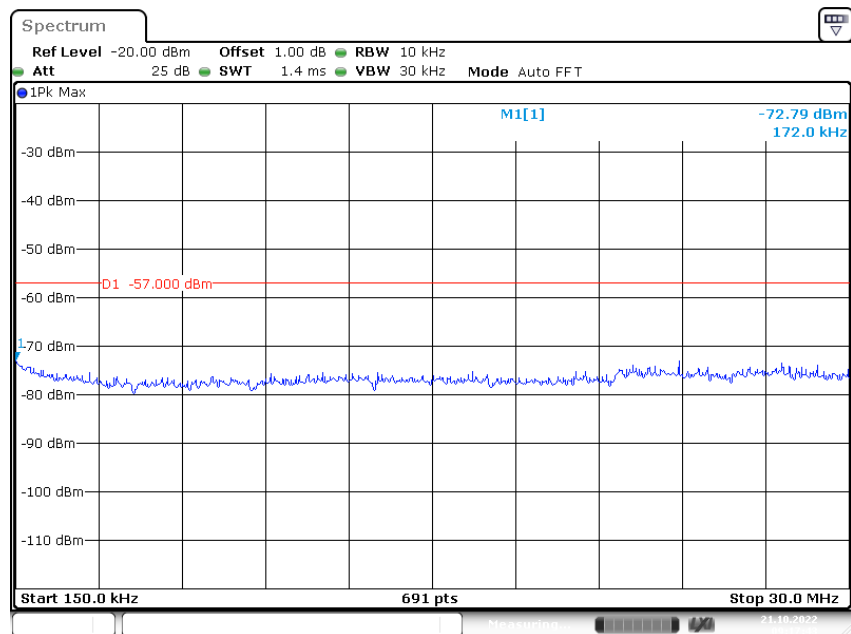
Worst case for Test mode 7:

Conducted Measurement (9 kHz to 150 kHz)



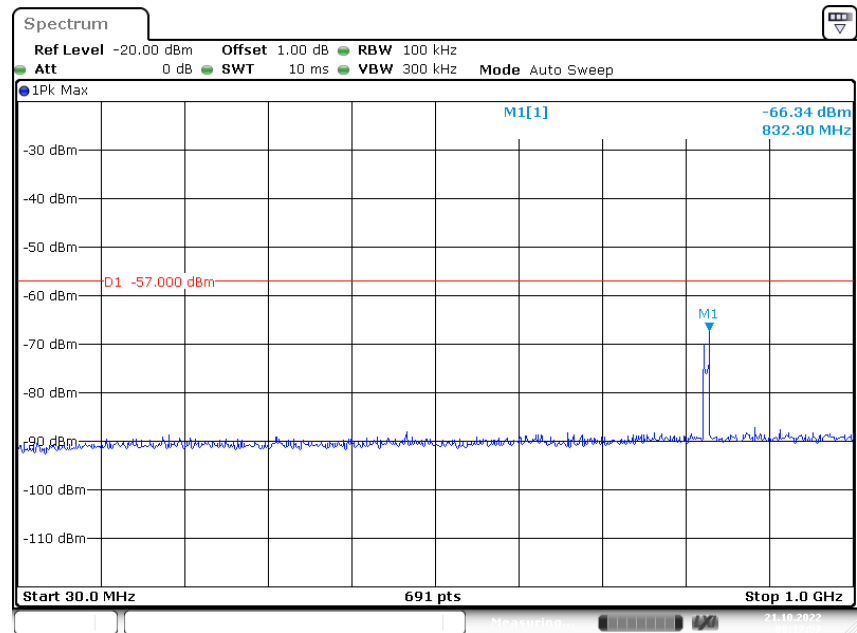
Date: 21.OCT.2022 09:17:27

Conducted Measurement (150 kHz to 30MHz)



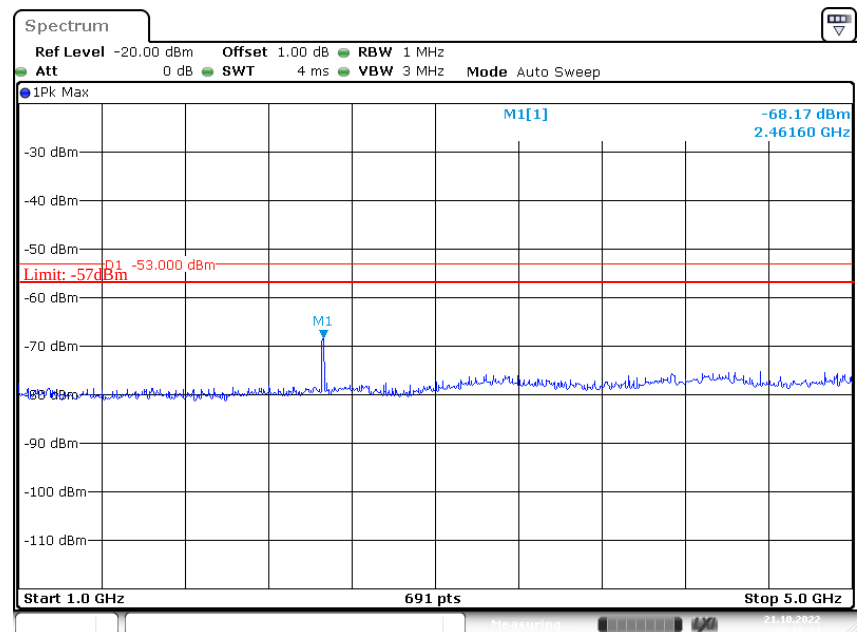
Date: 21.OCT.2022 09:17:43

Conducted Measurement (30MHz to 1GHz)



Date: 21.OCT.2022 09:17:58

Conducted Measurement (1GHz to 5GHz)



Date: 21.OCT.2022 09:18:14

FCC §15.121(b) - SCANNING RECEIVERS AND FREQUENCY CONVERTERS USED WITH SCANNING RECEIVERS

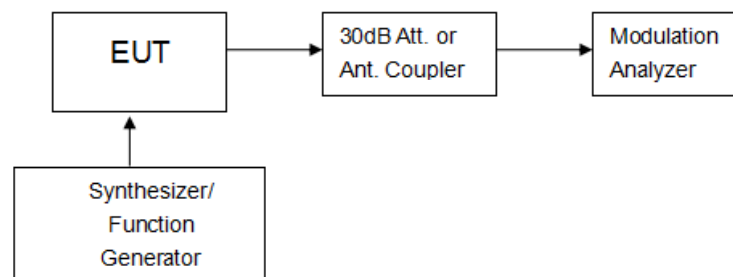
Applicable Standard

FCC §15.121(b)

Limit

Except as provided in paragraph (c) of this section, scanning receivers shall reject any signals from the Cellular Radiotelephone Service frequency bands that are 38 dB or lower based upon a 12 dB SINAD measurement, which is considered the threshold where a signal can be clearly discerned from any interference that may be present.

EUT Setup



Test Procedure

- 1) Connected the EUT as shown in the above block diagram.
- 2) Apply a RF signal to the receiver input port at lowest, middle and highest channel frequencies of receiver operation band.
- 3) Adjust the audio output level of the receiver to it's rated value with the distortion less than 10%.
- 4) Adjust the RF Signal Generator Output Power to produce 12 dB SINAD without the audio output power dropping by more than 3 dB. This output level of the RF SG at each channel frequency is the sensitivity of the receiver.
- 5) Select the lowest or worse-case sensitivity level for all of the bands as the reference sensitivity.
- 6) Adjust the RF Signal Generator output to a level of +60 dB above the reference sensitivity obtained in step 5) and its frequency to the frequency points in the cellular band.
- 7) Set the Receiver squelch to threshold, the signal required to open the squelch must be lower than the reference sensitivity level.
- 8) Set the receiver in a scanning mode and allow it to scan through it's complete receiving range.
- 9) If the receiver unsquelched or stopped on any frequency, receiving at this frequency, then adjust the signal generator output level until 12 dB SINAD is produced, this level is the spurious value and the difference between the reference sensitivity and the spurious value is the rejection ratio and must be at least 38dB.
- 10) Repeat above procedure at the frequencies 824, 836.0, and 849 MHz for the mobile band, and 869, 881.5, and 894 MHz for the cellular base band.

Test Data**Environmental Conditions**

Temperature:	25 °C
Relative Humidity:	52 %
ATM Pressure:	101.0 kPa

The testing was performed by Jesse Chen on 2022-10-21

Test mode: Scanning receiver

EUT's Scanning Frequency Range (MHz)	Test Frequencies of Cellular Band (MHz)	Measurement Result (dB)	Limit (dB)
136-174	824, 836.0, 849, 869, 881.5, 894	48	>38
400-520	824, 836.0, 849, 869, 881.5, 894	46	>38

Note: Only the worst test result was recorded.

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