

TEST REPORT

Applicant Name : PO FUNG ELECTRONIC (HK) INTERNATIONAL GROUP COMPANY LIMITED
Address : Room 1508, 15/F, Office Tower II, Grand Plaza, 625 Nathan Road, Kowloon, Hong Kong
Report Number : XMTN1220114-02072E-EM-01A
FCC ID: 2AJGM-MP88

Test Standard (s)
FCC PART 15B

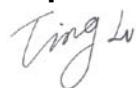
Sample Description

Product Type: TWO WAY RADIO
Model No.: MP88
Multiple Model: A88, BF-88ST PRO, BF-88A PRO, TH-88A, BF-888S+, BF-88A Plus, FRS-A88
Trade Mark: BAOFENG, POFUNG
Date Received: 2022-01-14
Date of Test: 2022-01-21 to 2022-02-14
Report Date: 2022-02-23

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

Prepared and Checked By:



Ting Lü
EMC Engineer

Approved By:



Candy Li
EMC Engineer

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

Shenzhen Accurate Technology Co., Ltd. is not responsible for the authenticity of any test data provided by the applicant. Data included from the applicant that may affect test results are marked with an asterisk "*". Customer model name, addresses, names, trademarks etc. are not considered data.

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GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

Product	TWO WAY RADIO
Tested Model	MP88
Multiple Model	A88, BF-88ST PRO, BF-88A PRO, TH-88A, BF-888S+, BF-88A Plus, FRS-A88
Model Difference	Please refer to the DoS letter
Frequency Range	462.5625-462.7125MHz (Rx) 467.5625-467.7125MHz (Rx) 462.5500-462.7250MHz (Rx)
Highest Operation Frequency	467.7125MHz (provided by the applicant.)
Voltage Range	DC 3.7V from battery or DC 5V from Adapter
Sample number	XMTN1220114-02072E-RF-S1 (Assigned by ATC)
Sample/EUT Status	Good condition
Adapter information	Model: DSA-5PF07-05 Input: AC 100-240V, 50/60Hz, 0.2A Output: DC 5V,1.0A

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

The lab has been recognized by Innovation, Science and Economic Development Canada to test to Canadian radio equipment requirements, the CAB identifier: CN0016. 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: Charging (Note: The Radio unit must be powered off during charging, which was declared by applicant.)

Test mode 2: Receiver at 462.6375MHz

Test mode 3: Receiver at 467.6375MHz

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
BOLD	Earphone	Unknown	Unknown
AGILENT	Vector Signal Generator	N5182A	MY50143401

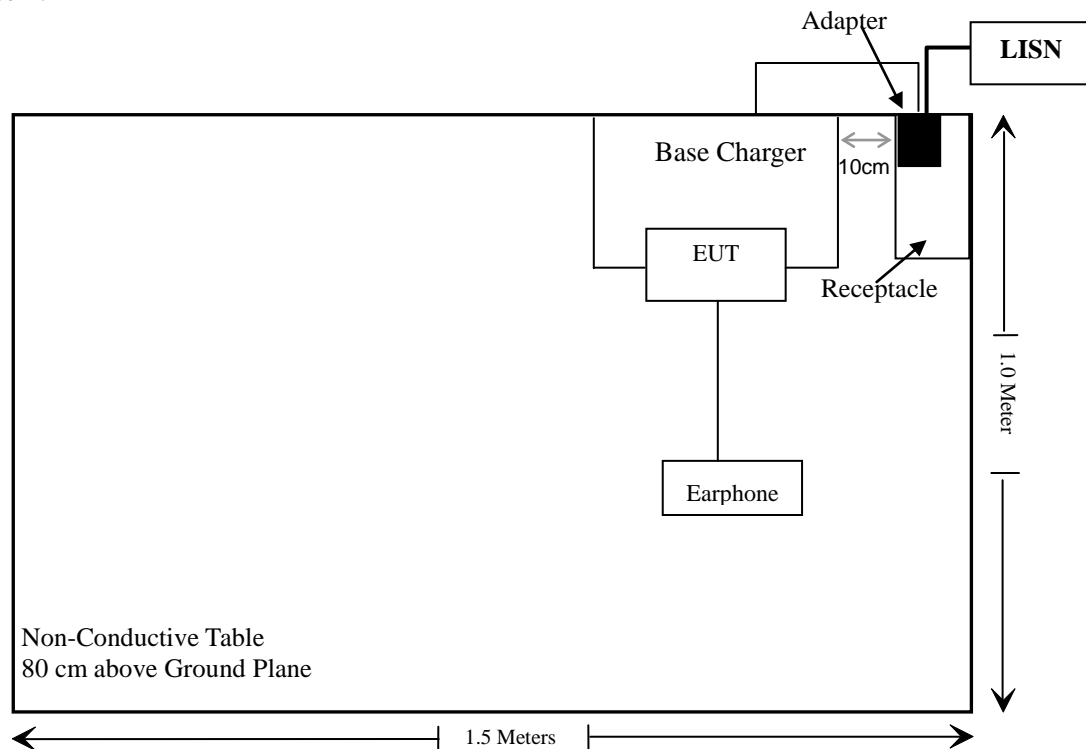
External I/O Cable

Cable Description	Length (m)	From Port	To Port
Unshielded Detachable USB Power Cable	0.8	Adapter	EUT(Charger)
Unshielded Detachable Earphone Cable	1.3	EUT	Earphone

Block Diagram of Radiated Test Setup

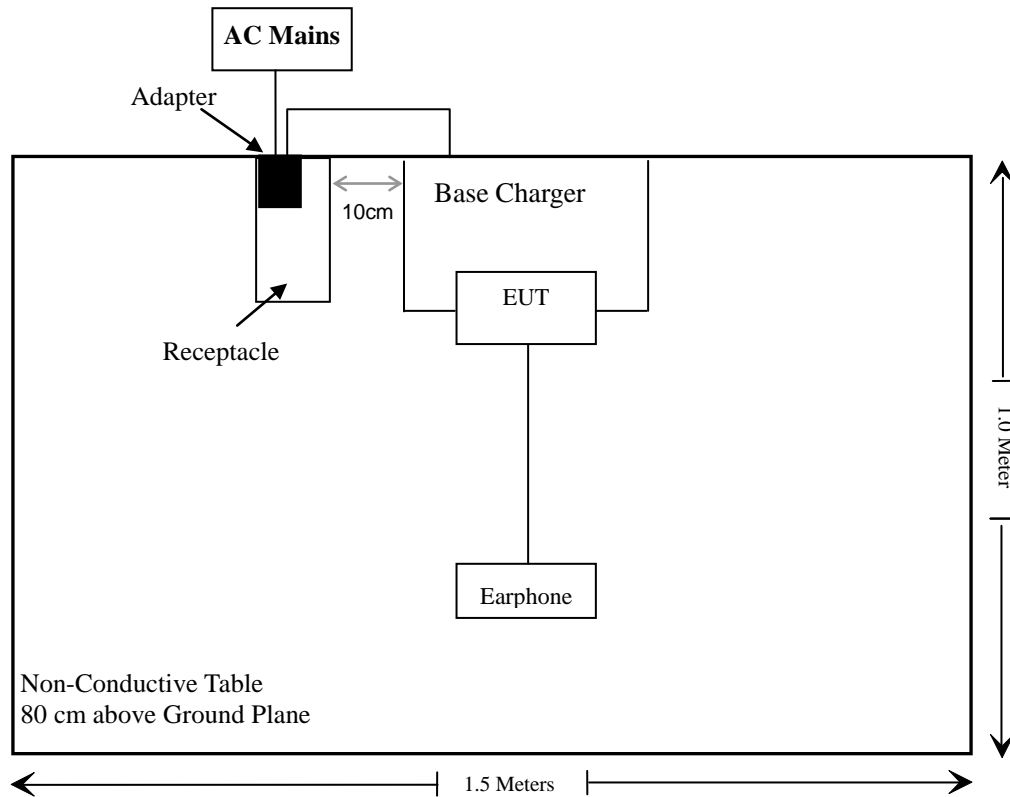
For conducted emission:

Test Mode 1:

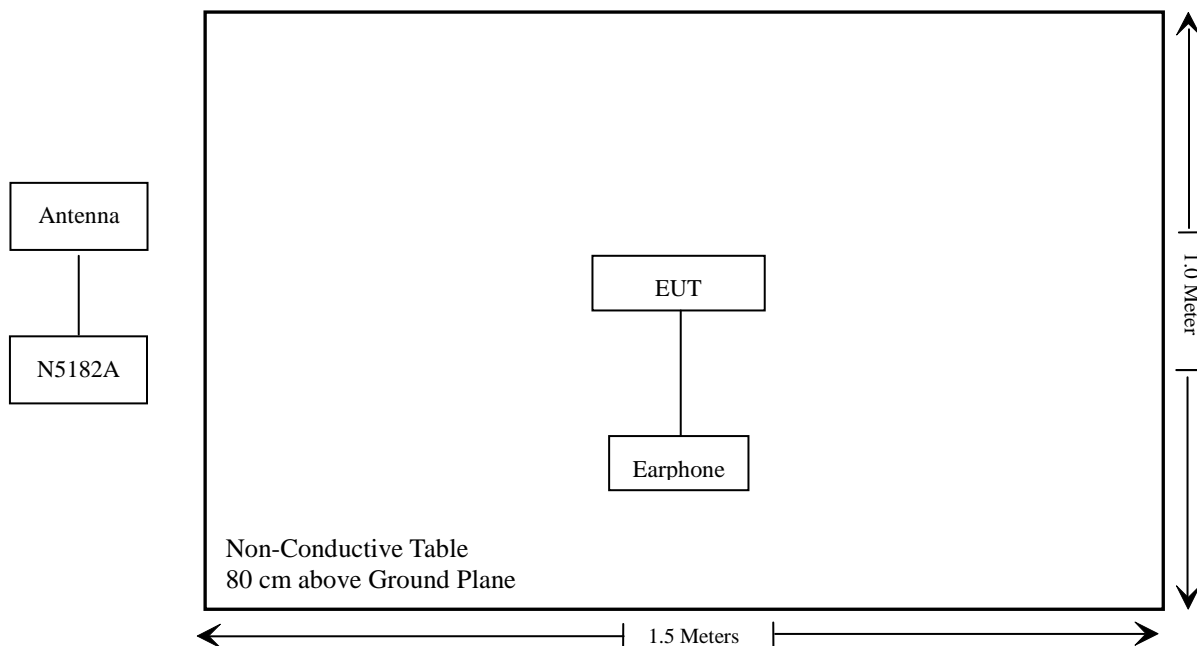


For Radiated emission:

Test mode 1:



Test mode 2-3:



SUMMARY OF TEST RESULTS

FCC Rules	Description of Test	Results
§15.107	Conducted Emissions	Compliant
§15.109	Radiated Emissions	Compliant

TEST EQUIPMENT LIST

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Conducted Emissions Test					
Rohde & Schwarz	EMI Test Receiver	ESCI	100784	2021/12/13	2022/12/12
R & S	L.I.S.N.	ENV216	101314	2021/12/13	2022/12/12
Anritsu Corp	50Ω Coaxial Switch	MP59B	6200506474	2021/12/13	2022/12/12
Unknown	RF Coaxial Cable	No.17	N0350	2021/12/13	2022/12/12
Conducted Emission Test Software: e3 19821b(V9)					
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	2021/12/14	2022/12/13
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

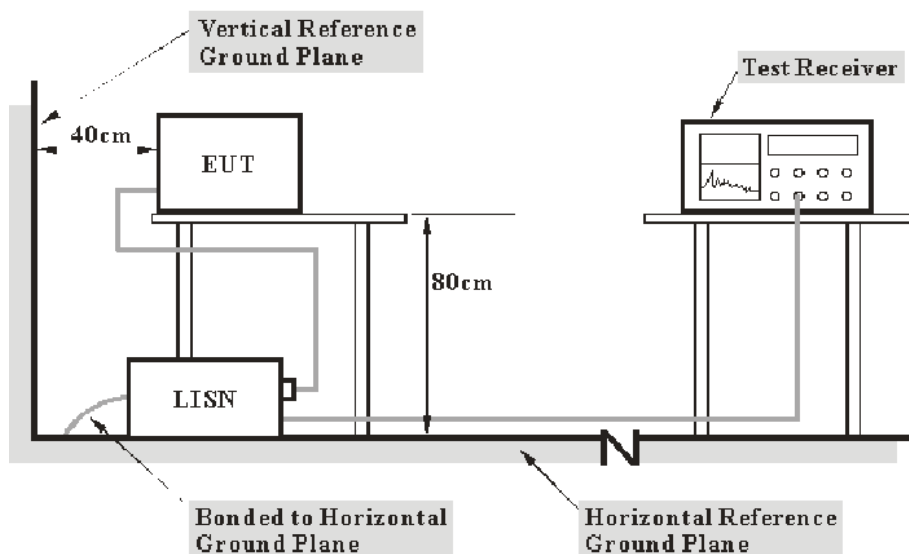
* **Statement of Traceability:** Shenzhen Accurate Technology Co., Ltd. attests that all calibrations have been performed in accordance to requirements that traceable to National Primary Standards and International System of Units (SI).

FCC §15.107 – CONDUCTED EMISSIONS

Applicable Standard

According to FCC§15.107

EUT Setup



Note: 1. Support units were connected to second LISN.
 2. Both of LISNs (AMN) 80 cm from EUT and at the least 80 cm from other units and other metal planes support units.

The measurement procedure of EUT setup is according with ANSI C63.4-2014. The related limit was specified in FCC Part 15.107 Class B.

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 Setup

The EMI test receiver was set to investigate the spectrum from 150 kHz to 30 MHz.

During the conducted emission test, the EMI test receiver was set with the following configurations:

Frequency Range	IF B/W
150 kHz – 30 MHz	9 kHz

Test Procedure

Maximizing procedure was performed on the six (6) highest emissions of the EUT.

All final data was recorded in the Quasi-peak and average detection mode.

Factor & Over Limit Calculation

The factor is calculated by adding LISN VDF (Voltage Division Factor) and Cable Loss. The basic equation is as follows:

$$\text{Factor} = \text{LISN VDF} + \text{Cable Loss}$$

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

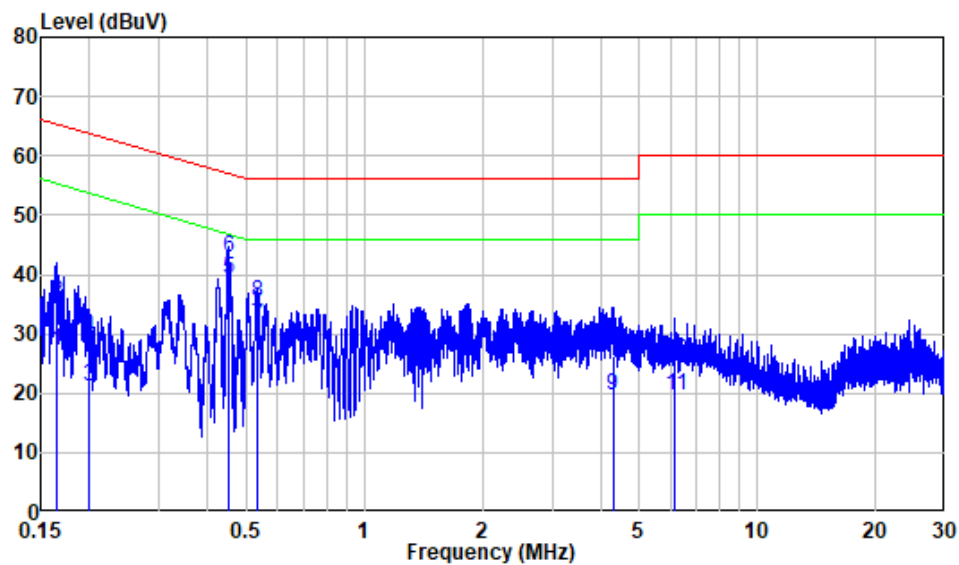
$$\begin{aligned}\text{Over Limit} &= \text{Level} - \text{Limit} \\ \text{Level} &= \text{Read Level} + \text{Factor}\end{aligned}$$

Test Data

Environmental Conditions

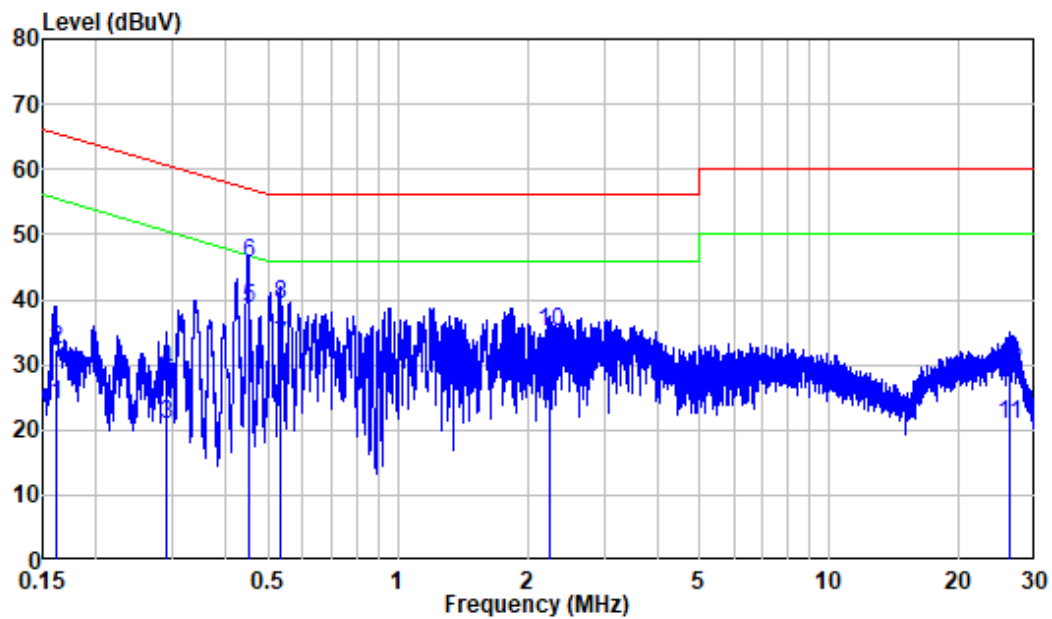
Temperature:	25 °C
Relative Humidity:	64 %
ATM Pressure:	101.0 kPa

The testing was performed by Bin Duan on 2022-01-21.

Test mode 1:**AC 120V/60Hz, Line:**

Site : Shielding Room
 Condition: Line
 Mode : Charging
 Model : MP88
 Power : AC 120V 60Hz

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dBuV	dBuV	dBuV	dB	
1	0.164	9.87	17.45	27.32	55.25	-27.93	Average
2	0.164	9.87	25.57	35.44	65.25	-29.81	QP
3	0.200	9.80	11.44	21.24	53.61	-32.37	Average
4	0.200	9.80	19.52	29.32	63.61	-34.29	QP
5	0.452	9.80	29.56	39.36	46.85	-7.49	Average
6	0.452	9.80	32.94	42.74	56.85	-14.11	QP
7	0.534	9.81	21.57	31.38	46.00	-14.62	Average
8	0.534	9.81	25.58	35.39	56.00	-20.61	QP
9	4.286	9.95	9.56	19.51	46.00	-26.49	Average
10	4.286	9.95	16.33	26.28	56.00	-29.72	QP
11	6.182	10.04	9.65	19.69	50.00	-30.31	Average
12	6.182	10.04	15.26	25.30	60.00	-34.70	QP

AC 120V/60Hz, Neutral:

Site : Shielding Room
 Condition: Neutral
 Mode : Charging
 Model : MP88
 Power : AC 120V 60Hz

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dBuV	dBuV	dBuV	dB	
1	0.161	9.80	13.97	23.77	55.43	-31.66	Average
2	0.161	9.80	22.45	32.25	65.43	-33.18	QP
3	0.291	9.80	10.97	20.77	50.50	-29.73	Average
4	0.291	9.80	19.07	28.87	60.50	-31.63	QP
5	0.449	9.80	28.93	38.73	46.89	-8.16	Average
6	0.449	9.80	35.67	45.47	56.89	-11.42	QP
7	0.534	9.81	22.97	32.78	46.00	-13.22	Average
8	0.534	9.81	29.42	39.23	56.00	-16.77	QP
9	2.250	9.82	15.76	25.58	46.00	-20.42	Average
10	2.250	9.82	25.29	35.11	56.00	-20.89	QP
11	26.053	10.16	10.60	20.76	50.00	-29.24	Average
12	26.053	10.16	18.79	28.95	60.00	-31.05	QP

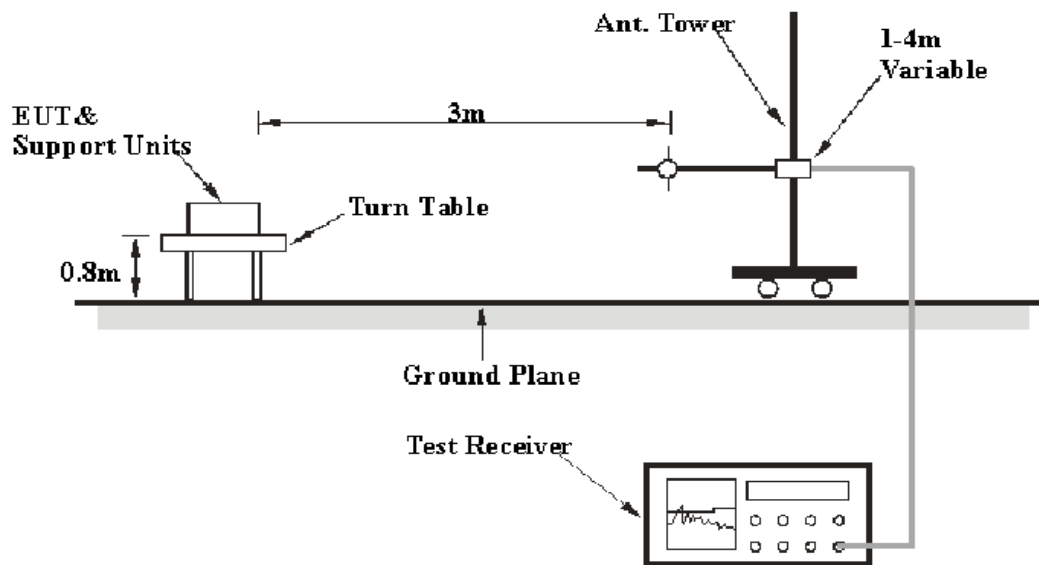
FCC §15.109 - RADIATED EMISSIONS

Applicable Standard

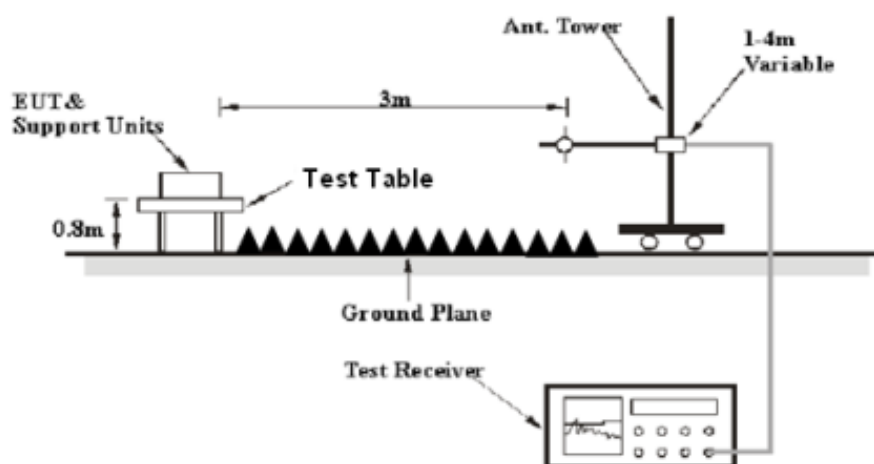
FCC §15.109

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 Setup

The system was investigated from 30 MHz to 5 GHz.

During the radiated emission test, the EMI test receiver 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	10 MHz	/	AV

Test Procedure

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

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.

Factor & Over Limit Calculation

The Factor is calculated by adding the Antenna Factor and Cable Loss, and subtracting the Amplifier Gain from the Meter Reading. 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:

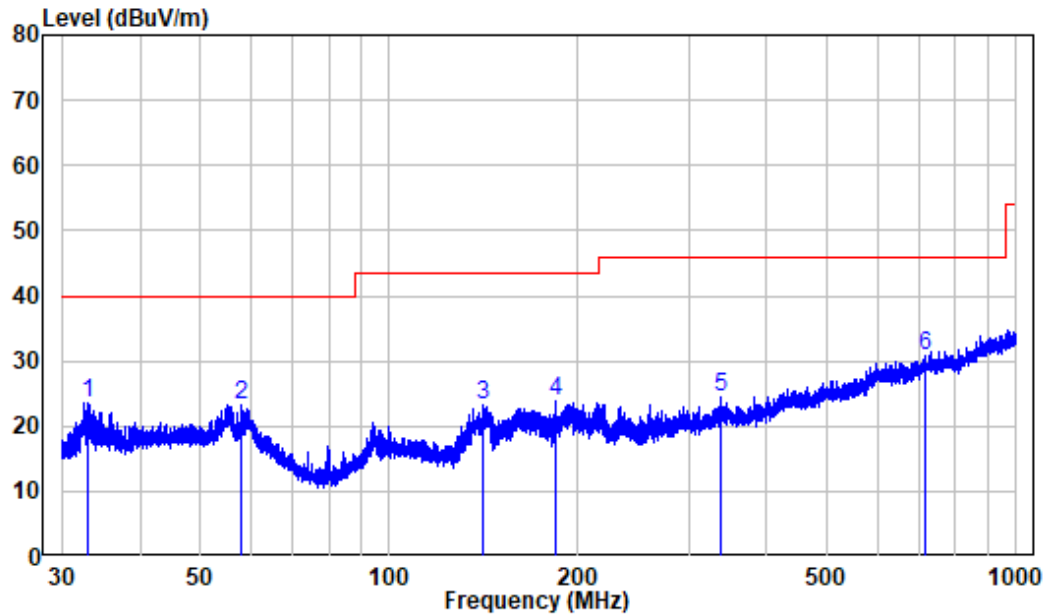
$$\begin{aligned}\text{Over Limit} &= \text{Level} - \text{Limit} \\ \text{Level} &= \text{Reading} + \text{Factor}\end{aligned}$$

Test Data**Environmental Conditions**

Temperature:	25°C
Relative Humidity:	64 %
ATM Pressure:	101.0 kPa

The testing was performed by Chao Mo on 2022-01-21 to 02-14.

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:****Horizontal:**

Site : chamber

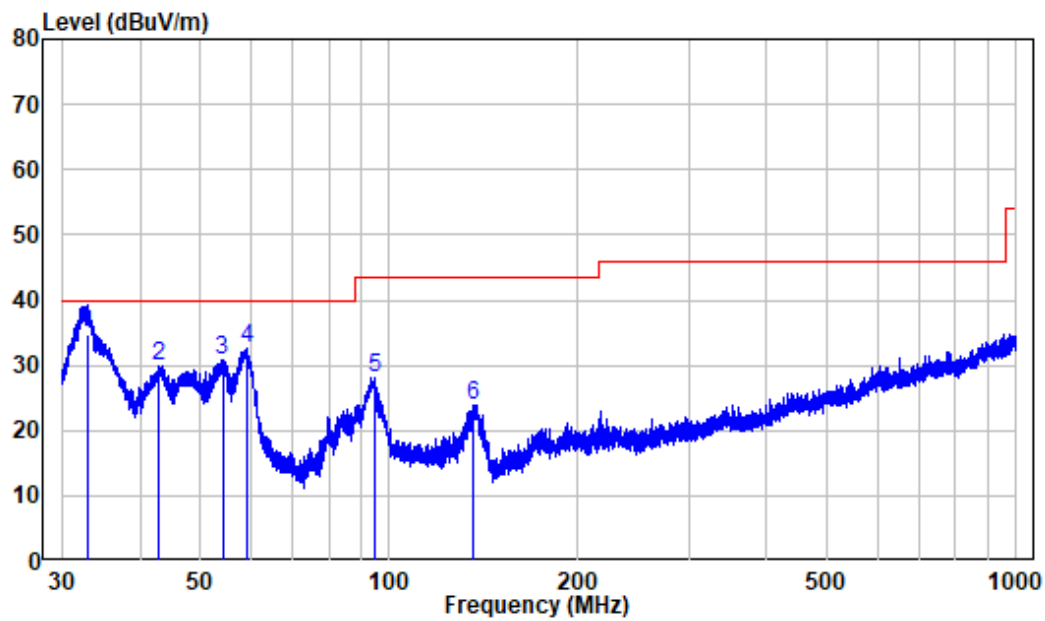
Condition: 3m HORIZONTAL

Job NO. : XMTN1220114-02072E-RF

Test Mode: Charging

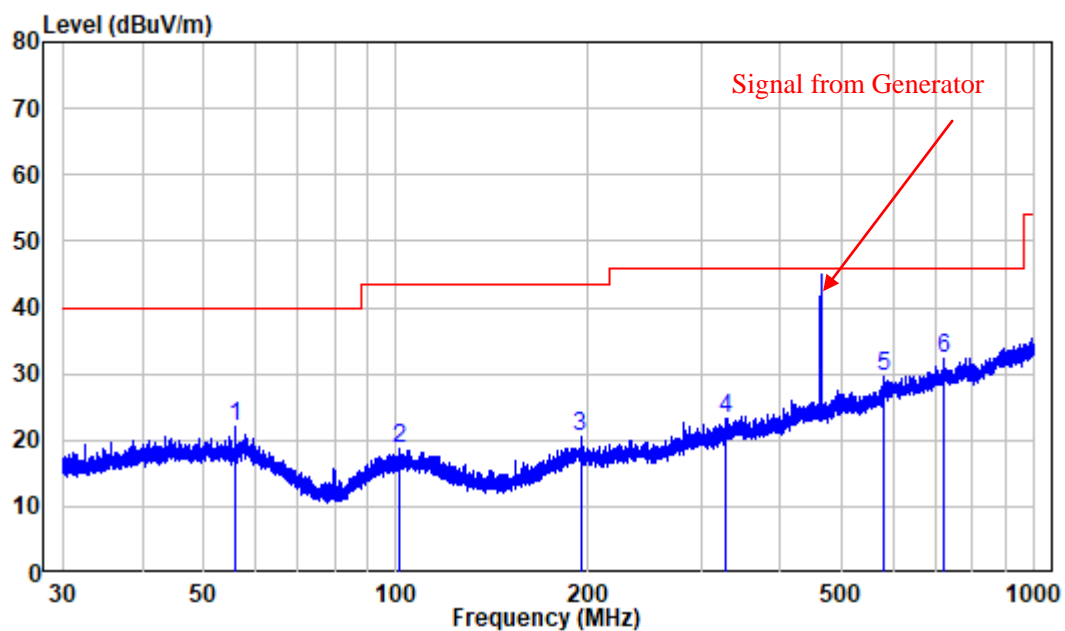
	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	33.037	-11.91	35.54	23.63	40.00	-16.37	Peak
2	57.898	-9.87	33.01	23.14	40.00	-16.86	Peak
3	140.650	-15.35	38.61	23.26	43.50	-20.24	Peak
4	184.409	-12.10	35.91	23.81	43.50	-19.69	Peak
5	338.549	-7.31	31.67	24.36	46.00	-21.64	Peak
6	713.860	-1.31	32.08	30.77	46.00	-15.23	Peak

Vertical



Site : chamber
Condition: 3m VERTICAL
Job NO. : XMTN1220114-02072E-RF
Test Mode: Charging

	Freq	Factor	Read Level	Level	Limit	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	32.936	-11.93	46.60	34.67	40.00	-5.33	QP
2	42.825	-9.89	39.91	30.02	40.00	-9.98	Peak
3	54.166	-10.26	41.18	30.92	40.00	-9.08	Peak
4	59.232	-10.31	42.92	32.61	40.00	-7.39	Peak
5	94.719	-12.63	40.58	27.95	43.50	-15.55	Peak
6	136.221	-14.98	38.85	23.87	43.50	-19.63	Peak

Test mode 2:**Horizontal:**

Site : chamber

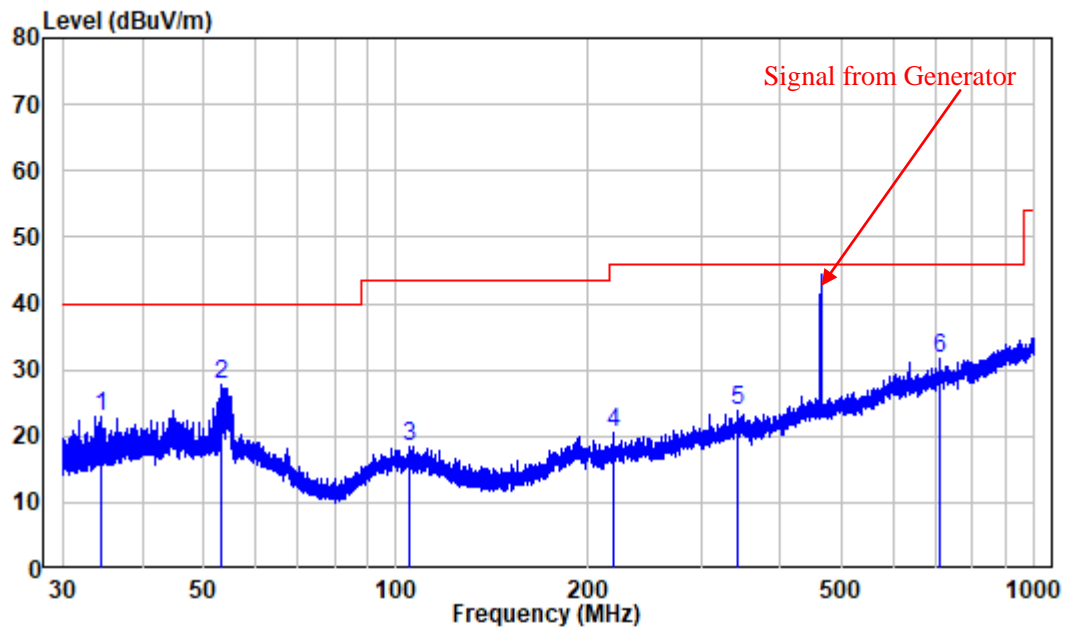
Condition: 3m HORIZONTAL

Job NO. : XMTN1220114-02072E-RF

Test Mode: Receiver at 462.6375MHz

	Freq	Factor	Read Level	Level	Limit	Over	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	56.025	-10.12	32.20	22.08	40.00	-17.92	Peak
2	101.333	-11.72	30.50	18.78	43.50	-24.72	Peak
3	194.453	-11.26	31.82	20.56	43.50	-22.94	Peak
4	328.319	-7.86	30.96	23.10	46.00	-22.90	Peak
5	582.487	-2.91	32.36	29.45	46.00	-16.55	Peak
6	722.042	-1.23	33.44	32.21	46.00	-13.79	Peak

Vertical



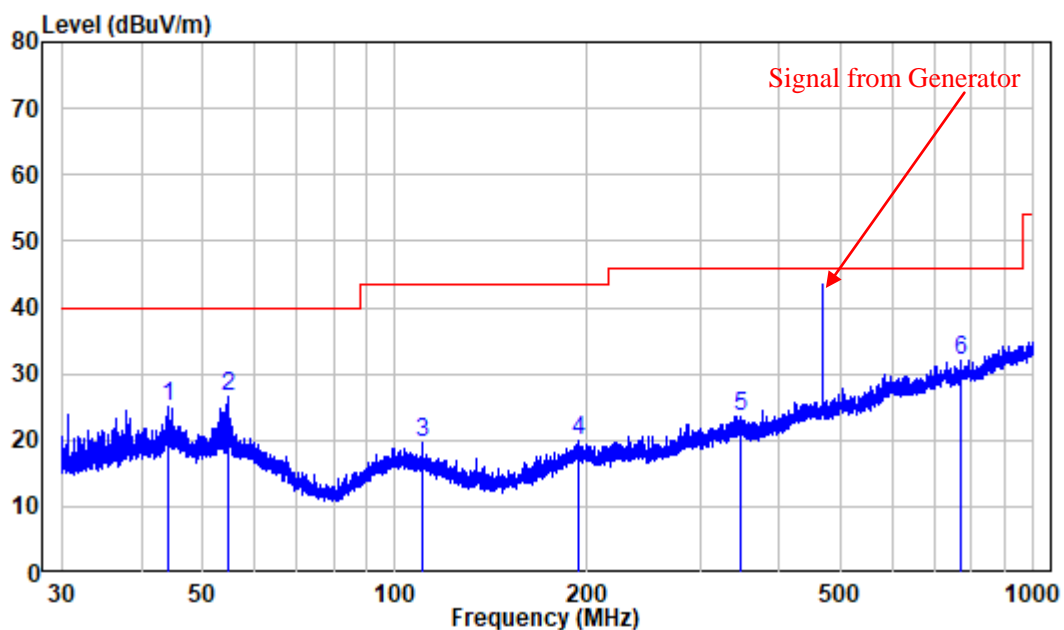
Site : chamber

Condition: 3m VERTICAL

Job NO. : XMTN1220114-02072E-RF

Test Mode: Receiver at 462.6375MHz

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	34.472	-11.60	34.69	23.09	40.00	-16.91	Peak
2	53.318	-10.14	37.89	27.75	40.00	-12.25	Peak
3	104.949	-11.87	30.33	18.46	43.50	-25.04	Peak
4	218.500	-11.51	32.18	20.67	46.00	-25.33	Peak
5	343.481	-7.16	30.97	23.81	46.00	-22.19	Peak
6	710.427	-1.44	33.17	31.73	46.00	-14.27	Peak

Test mode 3:**Horizontal:**

Site : chamber

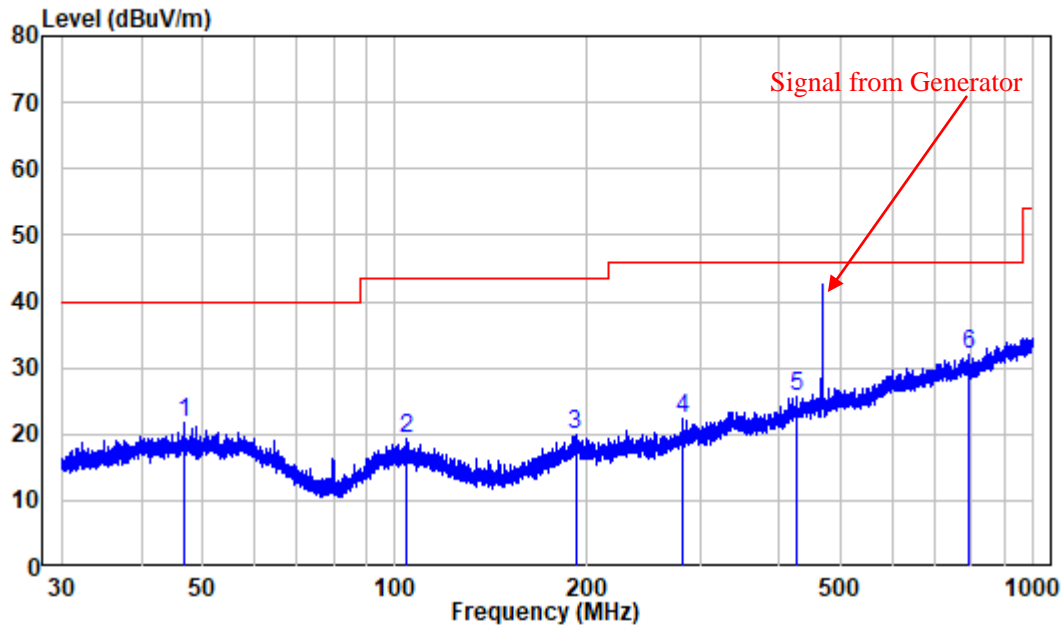
Condition: 3m VERTICAL

Job NO. : XMTN1220114-02072E-RF

Test Mode: Receiver at 467.6375MHz

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	43.947	-9.82	34.93	25.11	40.00	-14.89	Peak
2	54.739	-10.21	36.74	26.53	40.00	-13.47	Peak
3	110.327	-12.02	31.72	19.70	43.50	-23.80	Peak
4	193.179	-11.17	31.05	19.88	43.50	-23.62	Peak
5	347.418	-7.20	30.80	23.60	46.00	-22.40	Peak
6	769.760	-0.15	32.24	32.09	46.00	-13.91	Peak

Vertical



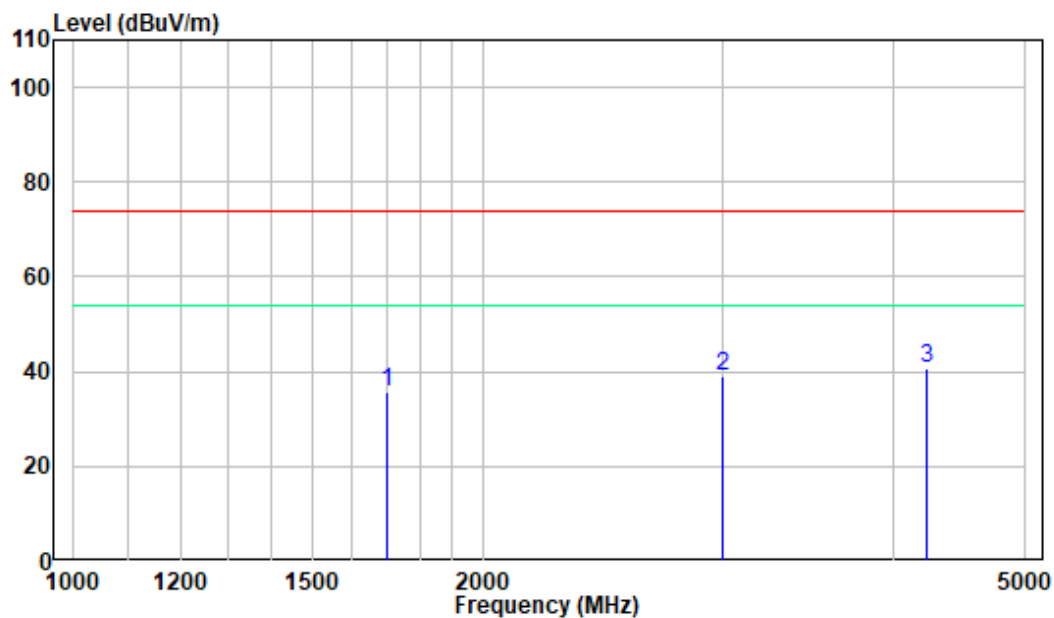
Site : chamber

Condition: 3m HORIZONTAL

Job NO. : XMTN1220114-02072E-RF

Test Mode: Receiver at 467.6375MHz

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	46.851	-9.92	31.80	21.88	40.00	-18.12	Peak
2	103.988	-11.80	31.17	19.37	43.50	-24.13	Peak
3	191.661	-11.18	30.97	19.79	43.50	-23.71	Peak
4	282.737	-9.29	31.62	22.33	46.00	-23.67	Peak
5	424.284	-5.68	31.32	25.64	46.00	-20.36	Peak
6	794.788	-0.53	32.67	32.14	46.00	-13.86	Peak

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

Site : chamber

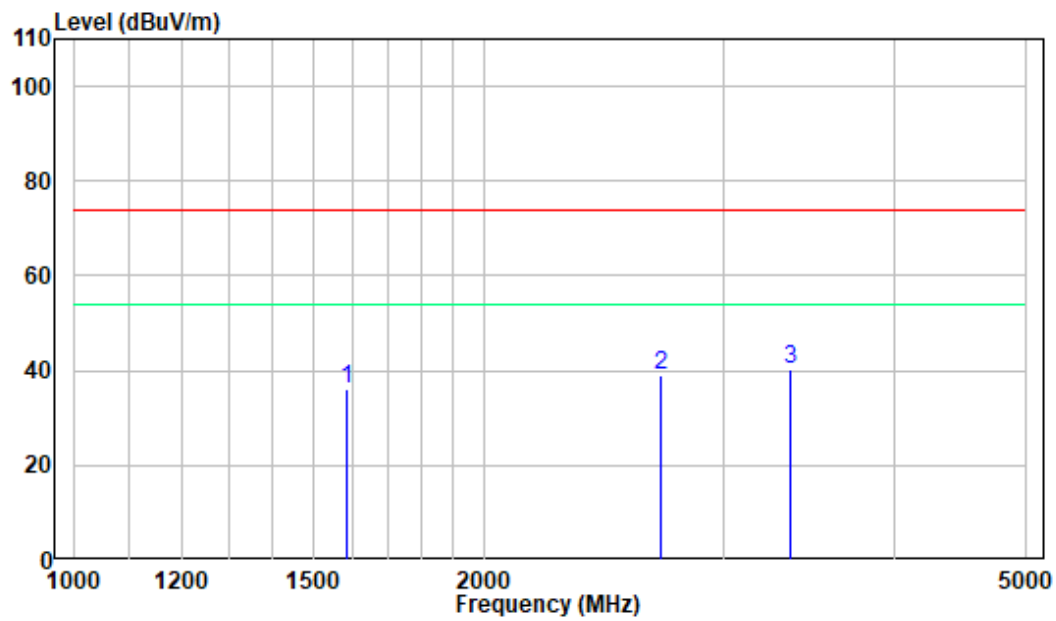
Condition: 3m HORIZONTAL

Job NO. : XMTN1220114-02072E-RF

Test Mode: Charging

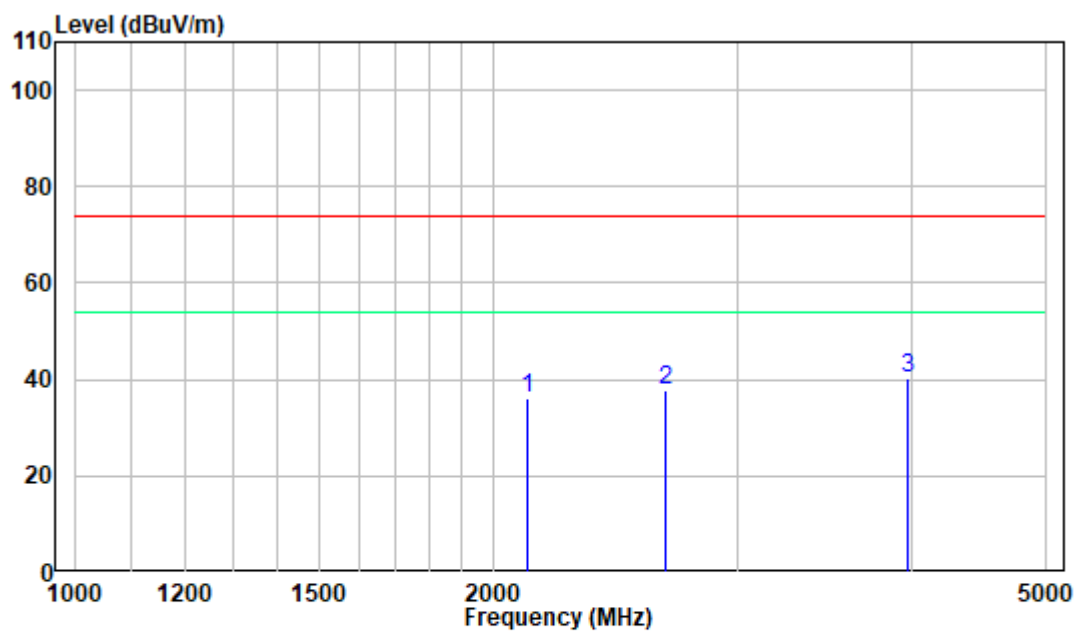
	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	1701.854	-8.94	44.44	35.50	74.00	-38.50	Peak
2	2998.281	-5.82	44.95	39.13	74.00	-34.87	Peak
3	4229.384	-5.03	45.51	40.48	74.00	-33.52	Peak

Vertical



Site : chamber
Condition: 3m VERTICAL
Job NO. : XMTN1220114-02072E-RF
Test Mode: Charging

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	1589.017	-9.05	45.01	35.96	74.00	-38.04	Peak
2	2695.042	-6.62	45.64	39.02	74.00	-34.98	Peak
3	3353.132	-6.00	46.21	40.21	74.00	-33.79	Peak

Test mode 2:**Horizontal:**

Site : chamber

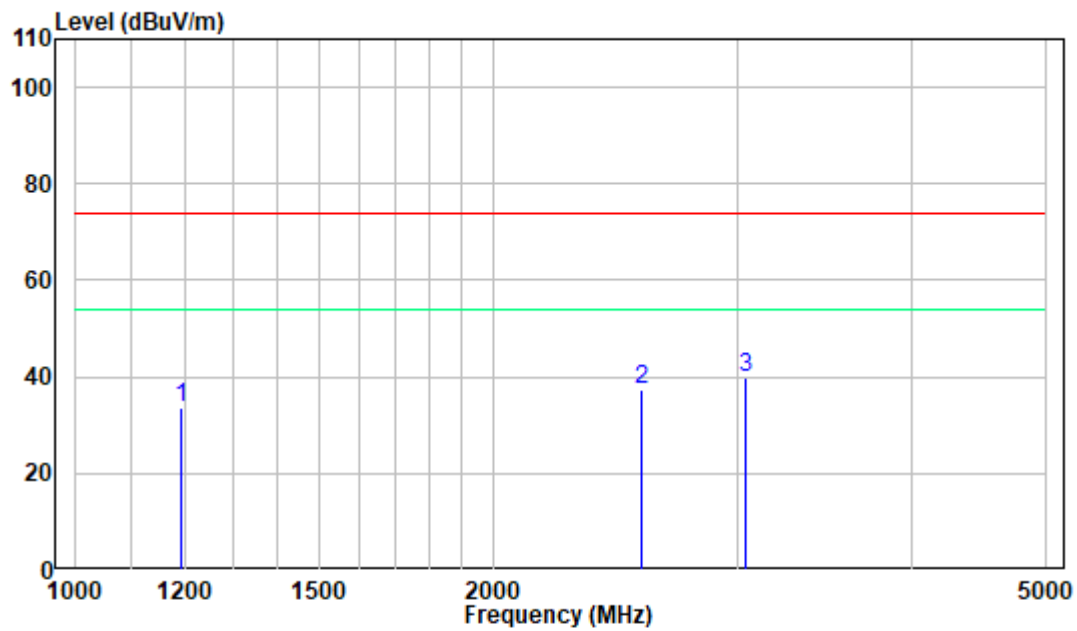
Condition: 3m HORIZONTAL

Job NO. : XMTN1220114-02072E-RF

Test Mode: Receiver at 462.6375MHz

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	2117.848	-7.23	43.50	36.27	74.00	-37.73	Peak
2	2657.889	-6.79	44.66	37.87	74.00	-36.13	Peak
3	3974.472	-5.47	45.82	40.35	74.00	-33.65	Peak

Vertical



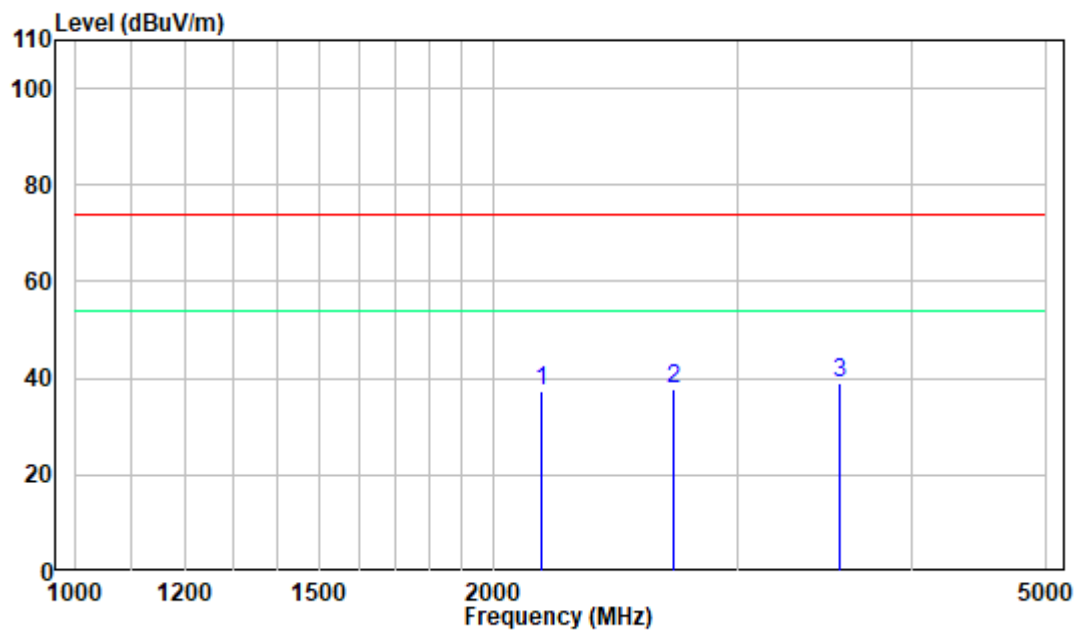
Site : chamber

Condition: 3m VERTICAL

Job NO. : XMTN1220114-02072E-RF

Test Mode: Receiver at 462.6375MHz

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	1193.196	-10.26	44.02	33.76	74.00	-40.24	Peak
2	2560.786	-6.92	44.48	37.56	74.00	-36.44	Peak
3	3041.415	-5.84	45.51	39.67	74.00	-34.33	Peak

Test mode 3:**Horizontal:**

Site : chamber

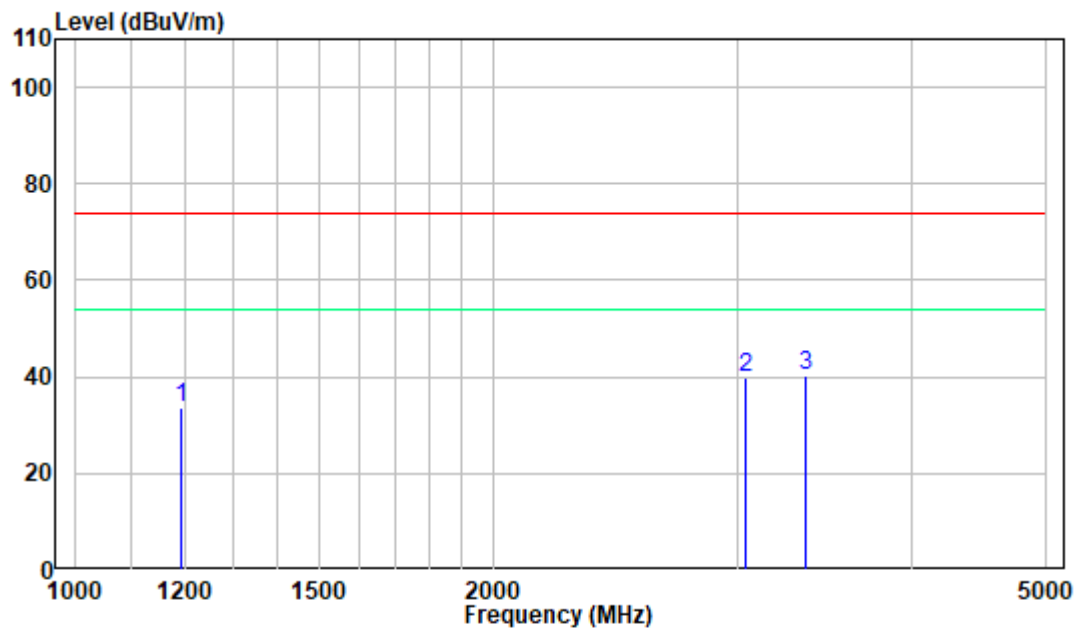
Condition: 3m HORIZONTAL

Job NO. : XMTN1220114-02072E-RF

Test Mode: Receiver at 467.6375MHz

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	2168.289	-7.22	44.45	37.23	74.00	-36.77	Peak
2	2692.874	-6.64	44.53	37.89	74.00	-36.11	Peak
3	3551.721	-5.87	45.04	39.17	74.00	-34.83	Peak

Vertical



Site : chamber

Condition: 3m VERTICAL

Job NO. : XMTN1220114-02072E-RF

Test Mode: Receiver at 467.6375MHz

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	1193.196	-10.26	44.02	33.76	74.00	-40.24	Peak
2	3041.415	-5.84	45.51	39.67	74.00	-34.33	Peak
3	3353.132	-6.00	46.21	40.21	74.00	-33.79	Peak

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