

FCC TEST REPORT

Client Name : Anker Innovations Limited

Address : Room 1318-19, Hollywood Plaza, 610 Nathan Road,
Mongkok, Kowloon, Hong Kong

Product Name : PowerWave Magnetic Pad Lite

Date : Aug. 18, 2021



Shenzhen Anbotech Compliance Laboratory Limited

* Approved *



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TEST REPORT

Applicant : Anker Innovations Limited
Manufacturer : Anker Innovations Limited
Product Name : PowerWave Magnetic Pad Lite
Model No. : A2567
Trade Mark : ANKER
Rating(s) : Input: DC 5V/3A, DC 9V/2A, DC 12V/2A
Wireless output: 5W, 7.5W, 10W
Test Standard(s) : FCC Part15 Subpart C, Paragraph 15.209
Test Method(s) : ANSI C63.10: 2020

The device described above is tested by Shenzhen Anbotek Compliance Laboratory Limited to determine the maximum emission levels emanating from the device and the severe levels of the device can endure and its performance criterion. The measurement results are contained in this test report and Shenzhen Anbotek Compliance Laboratory Limited is assumed full of responsibility for the accuracy and completeness of these measurements. Also, this report shows that the EUT (Equipment Under Test) is technically compliant with the FCC Part 15 Subpart C requirements.

This report applies to above tested sample only and shall not be reproduced in part without written approval of Shenzhen Anbotek Compliance Laboratory Limited.

Date of Receipt

May 14, 2021

Date of Test

May 14~Jun. 30, 2021

Prepared By



(Ella Liang)

Approved & Authorized Signer



(Kingkong Jin)

1. General Information

1.1. Client Information

Applicant	:	Anker Innovations Limited
Address	:	Room 1318-19, Hollywood Plaza, 610 Nathan Road, Mongkok, Kowloon, Hongkong
Manufacturer	:	Anker Innovations Limited
Address	:	Room 1318-19, Hollywood Plaza, 610 Nathan Road, Mongkok, Kowloon, Hongkong
Factory	:	Gopod Group Holding Limited.
Address	:	4-5-6/F, Building 8 & 1F, Building 3#, LianJian Science and Technology Industrial Park, HuaRong Rd, Tongsheng Community, DaLang Street, LongHua District, Shenzhen

1.2. Description of Device (EUT)

Product Name	:	PowerWave Magnetic Pad Lite	
Model No.	:	A2567	
Trade Mark	:	ANKER	
Test Power Supply	:	AC 120V, 60Hz for adapter / AC 240V, 60Hz for adapter	
Test Sample No.	:	1-2-1(Normal Sample), 1-2-2(Engineering Sample)	
Product Description	:	Operation Frequency:	111-205KHz
		Modulation Type:	FSK
		Antenna Type:	Inductive loop coil Antenna
		Antenna Gain(Peak):	0 dBi
Remark: 1) For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual.			

1.3. Auxiliary Equipment Used During Test

Adapter	:	M/N: A1540 Input: AC 100-240V, 0.75A, 50-60Hz Output: 14.5V $\pm$ 2A, 5.2V $\pm$ 2.4A
Mobile Phone	:	iPhone 12

1.4. Description of Test Modes

To investigate the maximum EMI emission characteristics generates from EUT, the test system was pre-scanning tested base on the consideration of following EUT operation mode or test configuration mode which possible have effect on EMI emission level. Each of these EUT operation mode(s) or test configuration mode(s) mentioned above was evaluated respectively.

Pretest Mode	Description
Mode 1	Wireless Charging Mode

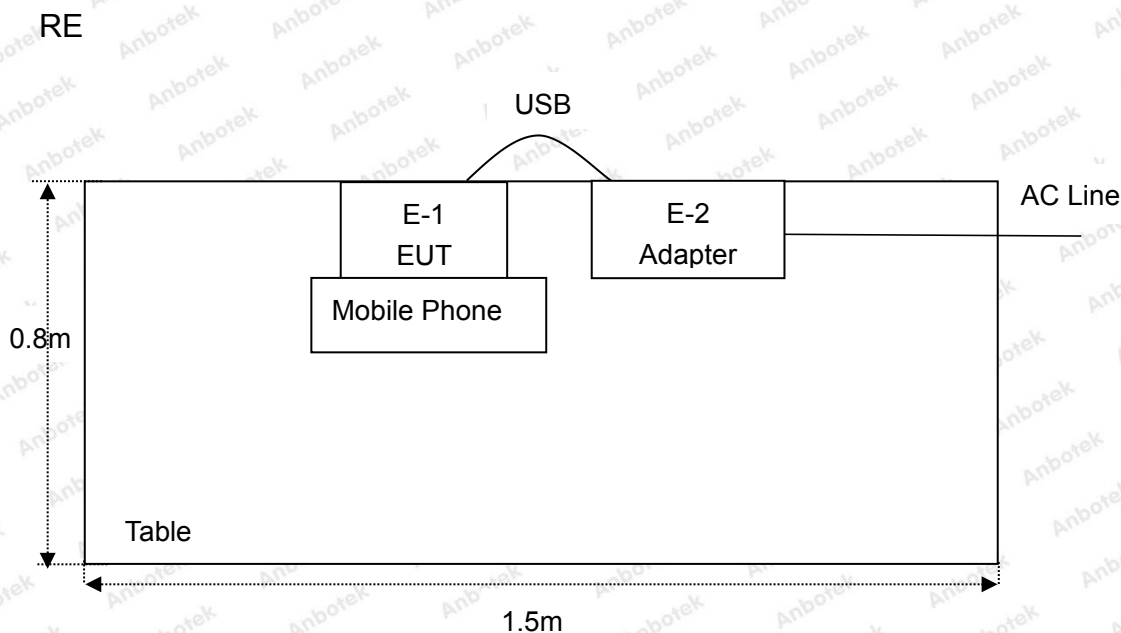
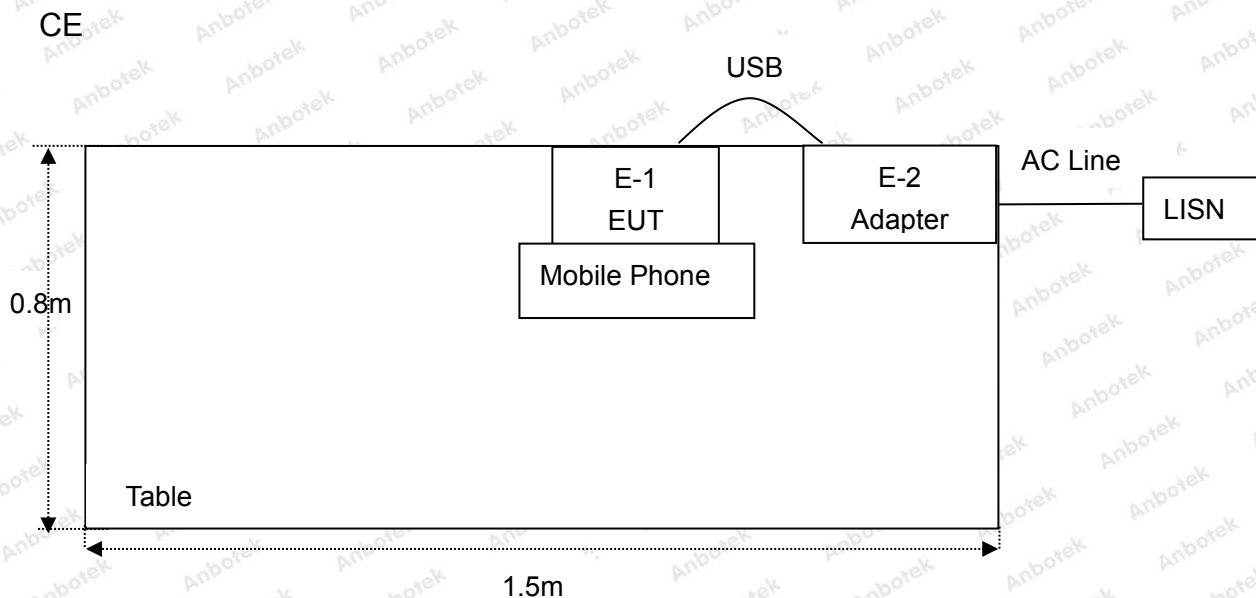
For Conducted Emission	
Final Test Mode	Description
Mode 1	Wireless Charging Mode

For Radiated Emission	
Final Test Mode	Description
Mode 1	Wireless Charging Mode

Note: (1)Test channel is 0.1275MHz.

(2) All the situation(full load, half load and empty load) has been tested,only the worst situation (full load 10W) was recorded in the report.

1.5. Description Of Test Setup



1.6. Test Equipment List

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	L.I.S.N. Artificial Mains Network	Rohde & Schwarz	ENV216	100055	Oct. 26, 2020	1 Year
2.	EMI Test Receiver	Rohde & Schwarz	ESCI	100627	Oct. 26, 2020	1 Year
3.	EMI Test Receiver	Rohde & Schwarz	ESR26	101481	Oct. 26, 2020	1 Year
4.	RF Switching Unit	Compliance Direction	RSU-M2	38303	Oct. 26, 2020	1 Year
5.	MAX Spectrum Analysis	Agilent	N9020A	MY51170037	Oct. 26, 2020	1 Year
6.	Preamplifier	SKET Electronic	BK1G18G30 D	KD17503	Oct. 26, 2020	1 Year
7.	Double Ridged Horn Antenna	Instruments corporation	GTH-0118	351600	Nov. 02, 2020	2 Year
8.	Bilog Broadband Antenna	Schwarzbeck	VULB9163	VULB 9163-289	Nov. 02, 2020	2 Year
9.	Loop Antenna	Schwarzbeck	FMZB1519B	00053	Nov. 02, 2020	2 Year
10.	Horn Antenna	A-INFO	LB-180400-K F	J211060628	Nov. 02, 2020	2 Year
11.	Pre-amplifier	SONOMA	310N	186860	Oct. 26, 2020	1 Year
12.	EMI Test Software EZ-EMC	SHURPLE	N/A	N/A	N/A	N/A
13.	RF Test Control System	YIHENG	YH3000	2017430	Oct. 26, 2020	1 Year
14.	Power Sensor	DAER	RPR3006W	15100041SN045	Oct. 26, 2020	1 Year
15.	Power Sensor	DAER	RPR3006W	15100041SN046	Oct. 26, 2020	1 Year
16.	MXA Spectrum Analysis	Agilent	N9020A	MY51170037	Oct. 26, 2020	1 Year
17.	MXG RF Vector Signal Generator	Agilent	N5182A	MY48180656	Oct. 26, 2020	1 Year
18.	Signal Generator	Agilent	E4421B	MY41000743	Oct. 26, 2020	1 Year
19.	DC Power Supply	IVYTECH	IV3605	1804D360510	Oct. 26, 2020	1 Year
20.	Constant Temperature Humidity Chamber	ZHONGJIAN	ZJ-KHWS80 B	N/A	Oct. 26, 2020	1 Year



1.7. Measurement Uncertainty

Radiation Uncertainty	:	Ur = 3.9 dB (Horizontal)
		Ur = 3.8 dB (Vertical)
Conduction Uncertainty	:	Uc = 3.4 dB

1.8. Description of Test Facility

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

FCC-Registration No.: 184111

Shenzhen Anbotech Compliance Laboratory Limited, 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. Registration No. 184111, September 30, 2020.

ISED-Registration No.: 8058A

Shenzhen Anbotech Compliance Laboratory Limited, EMC Laboratory has been registered and fully described in a report filed with the (ISED) Innovation, Science and Economic Development Canada. The acceptance letter from the ISED is maintained in our files. Registration 8058A, September 30, 2020.

Test Location

Shenzhen Anbotech Compliance Laboratory Limited.

1/F, Building D, Sogood Science and Technology Park, Sanwei community, Hangcheng Street, Bao'an District, Shenzhen, Guangdong, China.518102



2. Summary of Test Results

Standard Section	Test Item	Result
FCC Part 15, Paragraph 15.207	Conducted Emission Test	PASS
FCC Part 15, Paragraph 15.209(a)(f)	Spurious Emission	PASS

This is a Class II application of the device, the difference between the original device and current one described as following:

- (1) Delete the material L2&C29 on the PCB board.
- (2) Add the material C20A on the PCB board.
- (3) Change the IC SC5003 located at the U2 position of the PCB board the IC SC5004.
- (4) Change the HW Version to "D467C2&D473B2-V3.0"

Based on the change made to the device, all the test items were performed.



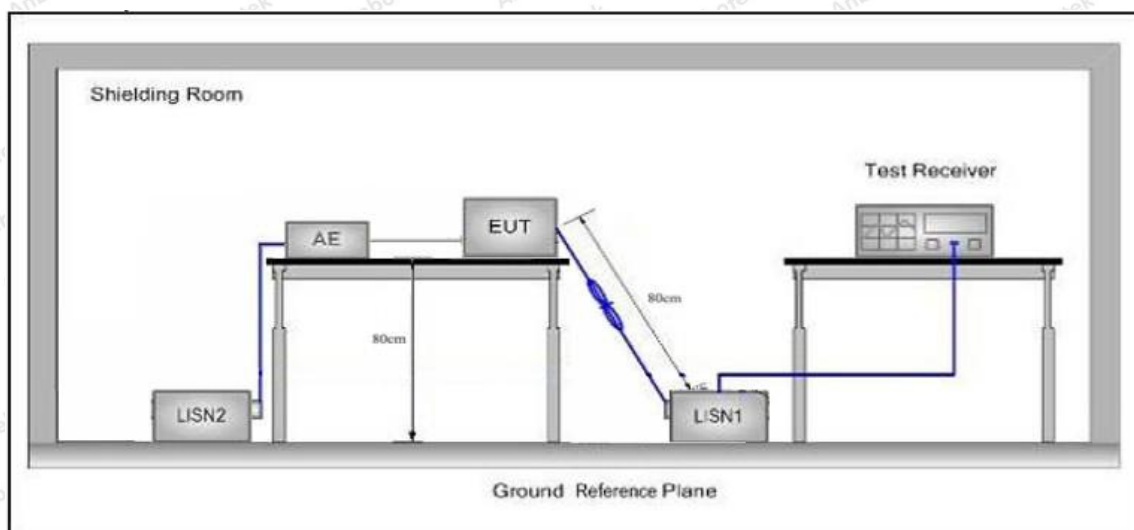
3. Conducted Emission Test

3.1. Test Standard and Limit

Test Standard	FCC Part15 Section 15.207		
Test Limit	Frequency	Maximum RF Line Voltage (dBuV)	
		Quasi-peak Level	Average Level
	150kHz~500kHz	66 ~ 56 *	56 ~ 46 *
	500kHz~5MHz	56	46
	5MHz~30MHz	60	50

Remark: (1) *Decreasing linearly with logarithm of the frequency.
(2) The lower limit shall apply at the transition frequency.

3.2. Test Setup



3.3. Test Procedure

The EUT system is connected to the power mains through a line impedance stabilization network (L.I.S.N.). This provides a 50ohm coupling impedance for the EUT system. Please refer the block diagram of the test setup and photographs. Both sides of AC line are checked to find out the maximum conducted emission. In order to find the maximum emission levels, the relative positions of equipment and all of the interface cables shall be changed according to FCC ANSI C63.10: 2020 on Conducted Emission Measurement.

The bandwidth of test receiver (ESCI) set at 9kHz.

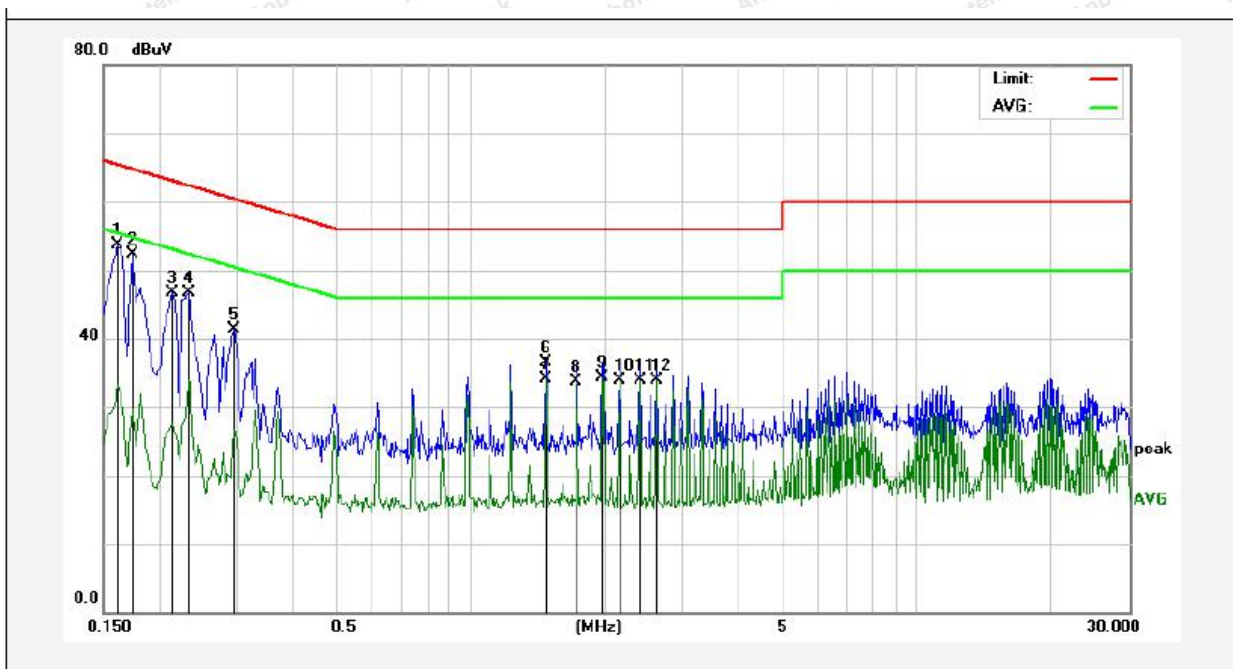
The frequency range from 150kHz to 30MHz is checked.

3.4. Test Data

Please to see the following pages

Conducted Emission Test Data

Test Site: 1# Shielded Room
Operating Condition: Mode 1
Test Specification: AC 120V, 60Hz for adapter
Comment: Live Line
Tem.: 23.5°C Hum.: 49%

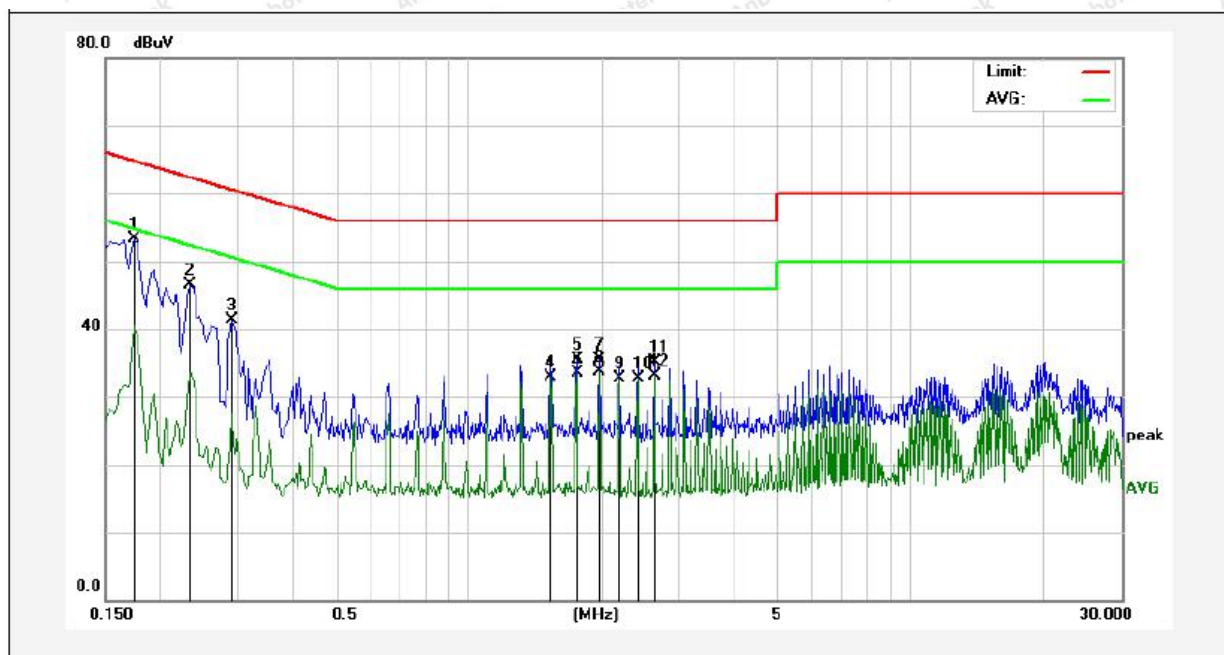


No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit (dBuV)	Over Limit (dB)	Detector	Remark
1	0.1620	33.81	19.90	53.71	65.36	-11.65	QP	
2	0.1740	32.47	19.90	52.37	64.76	-12.39	QP	
3	0.2140	26.73	19.90	46.63	63.04	-16.41	QP	
4	0.2340	26.82	19.89	46.71	62.30	-15.59	QP	
5	0.2940	21.46	19.89	41.35	60.41	-19.06	QP	
6	1.4780	16.28	20.13	36.41	56.00	-19.59	QP	
7	1.4780	14.03	20.13	34.16	46.00	-11.84	AVG	
8	1.7340	13.65	20.13	33.78	46.00	-12.22	AVG	
9	1.9780	14.14	20.14	34.28	46.00	-11.72	AVG	
10	2.1619	13.72	20.14	33.86	46.00	-12.14	AVG	
11	2.4020	13.68	20.15	33.83	46.00	-12.17	AVG	
12	2.6140	13.69	20.15	33.84	46.00	-12.16	AVG	



Conducted Emission Test Data

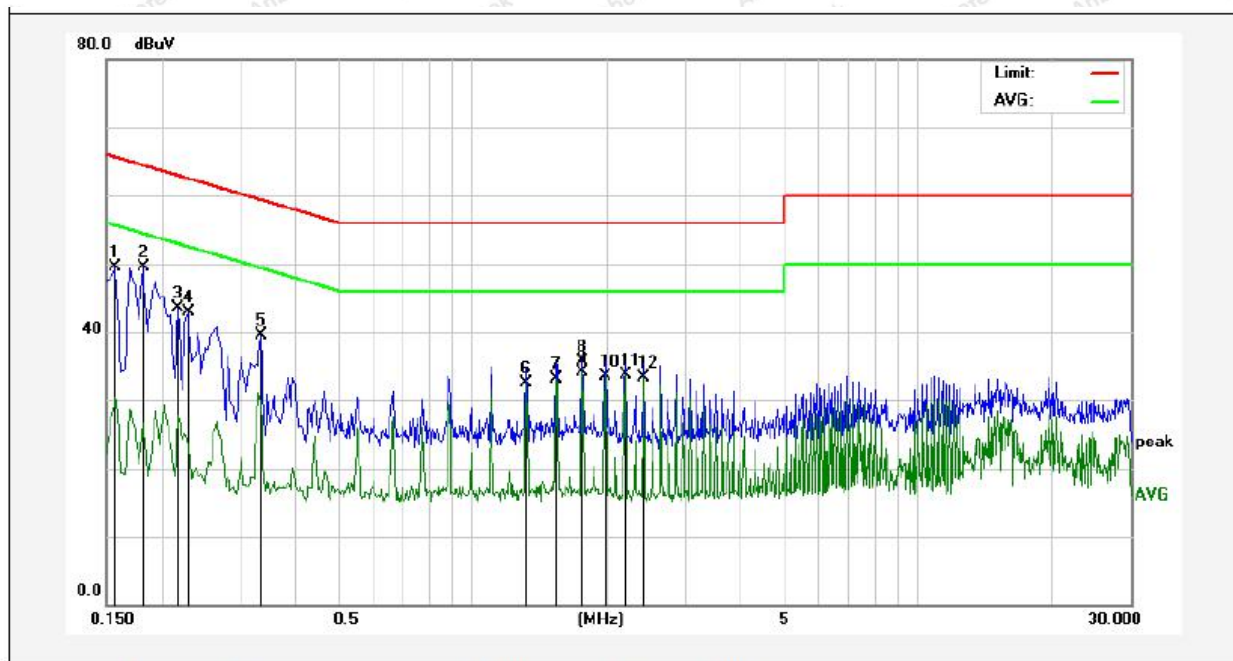
Test Site: 1# Shielded Room
Operating Condition: Mode 1
Test Specification: AC 120V, 60Hz for adapter
Comment: Neutral Line
Tem.: 23.5℃ Hum.: 49%



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit (dBuV)	Over Limit (dB)	Detector	Remark
1	0.1740	33.45	19.90	53.35	64.76	-11.41	QP	
2	0.2340	26.63	19.89	46.52	62.30	-15.78	QP	
3	0.2900	21.33	19.89	41.22	60.52	-19.30	QP	
4	1.5339	12.80	20.13	32.93	46.00	-13.07	AVG	
5	1.7540	15.41	20.14	35.55	56.00	-20.45	QP	
6	1.7540	13.40	20.14	33.54	46.00	-12.46	AVG	
7	1.9740	15.27	20.14	35.41	56.00	-20.59	QP	
8	1.9740	13.47	20.14	33.61	46.00	-12.39	AVG	
9	2.1940	12.48	20.14	32.62	46.00	-13.38	AVG	
10	2.4100	12.49	20.15	32.64	46.00	-13.36	AVG	
11	2.6300	14.88	20.15	35.03	56.00	-20.97	QP	
12	2.6300	13.04	20.15	33.19	46.00	-12.81	AVG	

Conducted Emission Test Data

Test Site: 1# Shielded Room
 Operating Condition: Mode 1
 Test Specification: AC 240V, 60Hz for adapter
 Comment: Live Line
 Tem.: 23.5°C Hum.: 49%

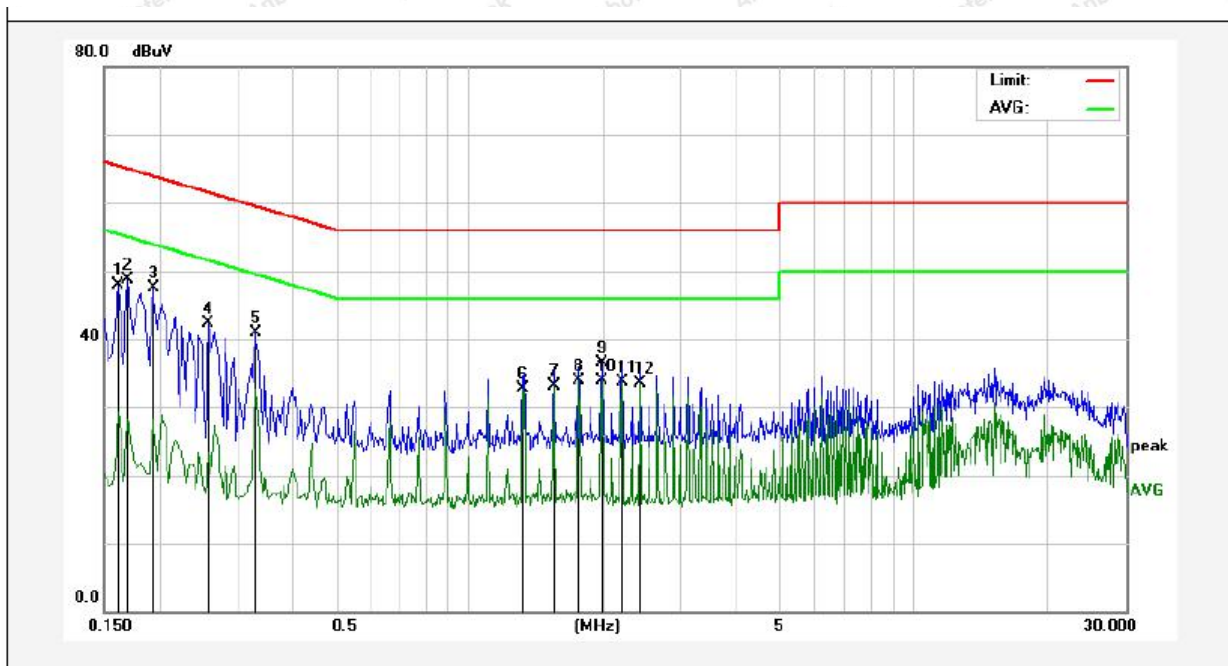


No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit (dBuV)	Over Limit (dB)	Detector	Remark
1	0.1580	29.63	19.90	49.53	65.56	-16.03	QP	
2	0.1819	29.52	19.90	49.42	64.39	-14.97	QP	
3	0.2180	23.69	19.90	43.59	62.89	-19.30	QP	
4	0.2300	23.01	19.89	42.90	62.45	-19.55	QP	
5	0.3339	19.55	19.91	39.46	59.35	-19.89	QP	
6	1.3220	12.36	20.13	32.49	46.00	-13.51	AVG	
7	1.5420	12.89	20.13	33.02	46.00	-12.98	AVG	
8	1.7620	15.59	20.14	35.73	56.00	-20.27	QP	
9	1.7700	14.02	20.14	34.16	46.00	-11.84	AVG	
10	1.9820	13.46	20.14	33.60	46.00	-12.40	AVG	
11	2.2020	13.49	20.14	33.63	46.00	-12.37	AVG	
12	2.4219	13.14	20.15	33.29	46.00	-12.71	AVG	



Conducted Emission Test Data

Test Site: 1# Shielded Room
Operating Condition: Mode 1
Test Specification: AC 240V, 60Hz for adapter
Comment: Neutral Line
Tem.: 23.5°C Hum.: 49%



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit (dBuV)	Over Limit (dB)	Detector	Remark
1	0.1620	27.92	19.90	47.82	65.36	-17.54	QP	
2	0.1700	28.81	19.90	48.71	64.96	-16.25	QP	
3	0.1940	27.65	19.90	47.55	63.86	-16.31	QP	
4	0.2580	22.35	19.89	42.24	61.49	-19.25	QP	
5	0.3300	20.97	19.90	40.87	59.45	-18.58	QP	
6	1.3220	12.48	20.13	32.61	46.00	-13.39	AVG	
7	1.5500	12.94	20.13	33.07	46.00	-12.93	AVG	
8	1.7700	13.70	20.14	33.84	46.00	-12.16	AVG	
9	1.9820	16.34	20.14	36.48	56.00	-19.52	QP	
10	1.9820	13.70	20.14	33.84	46.00	-12.16	AVG	
11	2.2020	13.64	20.14	33.78	46.00	-12.22	AVG	
12	2.4219	13.33	20.15	33.48	46.00	-12.52	AVG	



4. Radiation Spurious Emission

4.1. Test Standard and Limit

Test Standard	FCC Part15 C Section 15.209 and 15.205				
Test Limit	Frequency (MHz)	Field strength (microvolt/meter)	Limit (dBuV/m)	Remark	Measurement distance (m)
	0.009MHz~0.490MHz	2400/F(kHz)	-	-	300
	0.490MHz~1.705MHz	24000/F(kHz)	-	-	30
	1.705MHz~30MHz	30	-	-	30
	30MHz~88MHz	100	40.0	Quasi-peak	3
	88MHz~216MHz	150	43.5	Quasi-peak	3
	216MHz~960MHz	200	46.0	Quasi-peak	3
	960MHz~1000MHz	500	54.0	Quasi-peak	3
	Above 1000MHz	500	54.0	Average	3
		-	74.0	Peak	3

Remark:

(1)The lower limit shall apply at the transition frequency.

(2) 15.35(b), Unless otherwise specified, the limit on peak radio frequency emissions is 20dB above the maximum permitted average emission limit applicable to the equipment under test. This peak limit applies to the total peak emission level radiated by the device.

4.2. Test Setup

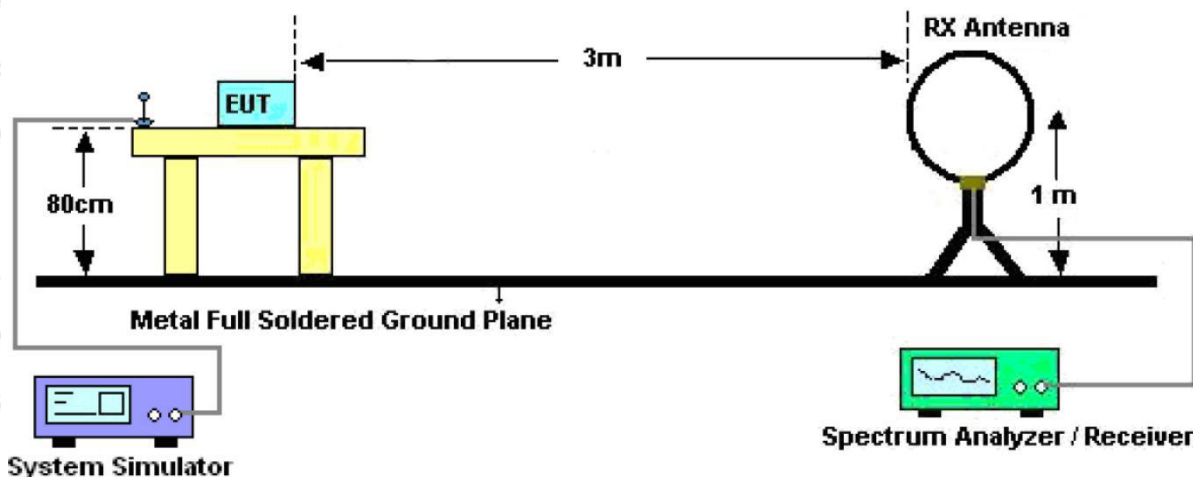


Figure 1. Below 30MHz

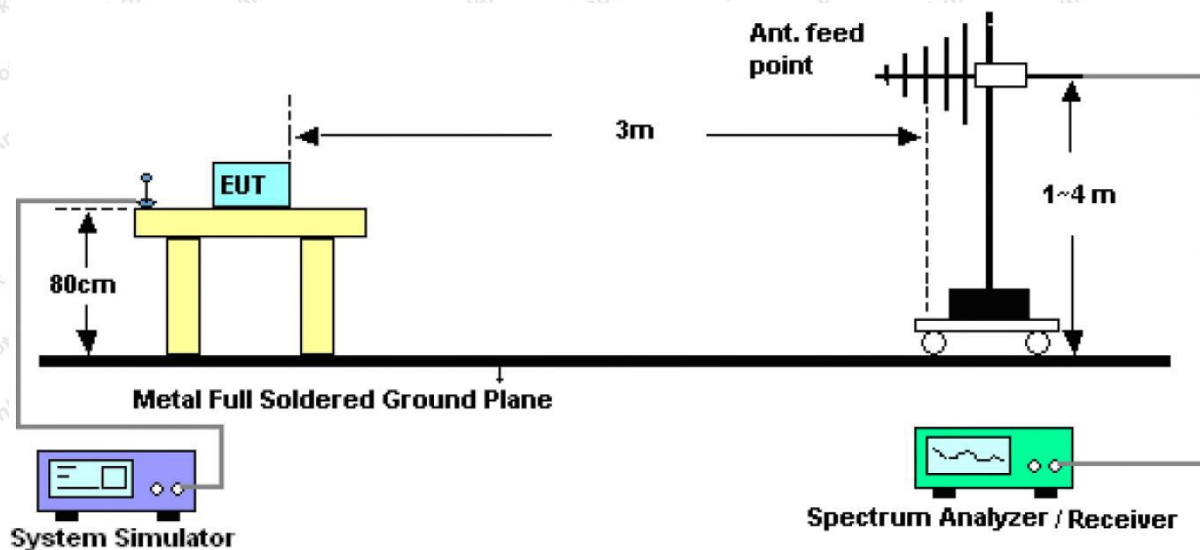


Figure 2. 30MHz to 1GHz

4.3. Test Procedure

For below 1GHz: The EUT is placed on a turntable, which is 0.8m above the ground plane. The turn table can rotate 360 degrees to determine the position of the maximum emission level. The EUT is set 3 meters away from the receiving antenna which is mounted on a antenna tower. The antenna can be moved up and down from 1 to 4 meters to find out the maximum emission level. Rotated the EUT through three orthogonal axes to determine the maximum emissions, both horizontal and vertical polarization of the antenna are set on test. The EUT is tested in 9*6*6 Chamber. The device is evaluated in xyz orientation.

For 9kHz to 150kHz, Set the spectrum analyzer as:

RBW = 200Hz, VBW = 1kHz, Detector= Quasi-Peak, Trace mode= Max hold, Sweep- auto couple.

For 150kHz to 30MHz, Set the spectrum analyzer as:

RBW = 9KHz, VBW = 30kHz, Detector= Quasi-Peak, Trace mode= Max hold, Sweep- auto couple.

For 30MHz to 1000MHz, Set the spectrum analyzer as:

RBW = 100kHz, VBW = 300kHz, Detector= Quasi-Peak, Trace mode= Max hold, Sweep- auto couple.

4.4. Test Data

PASS

Note: The data is in TX mode, and this is the worst mode.

Test Results

(Between 9KHz – 30MHz)

Standard: FCC PART15 C _3m**Power Source:**

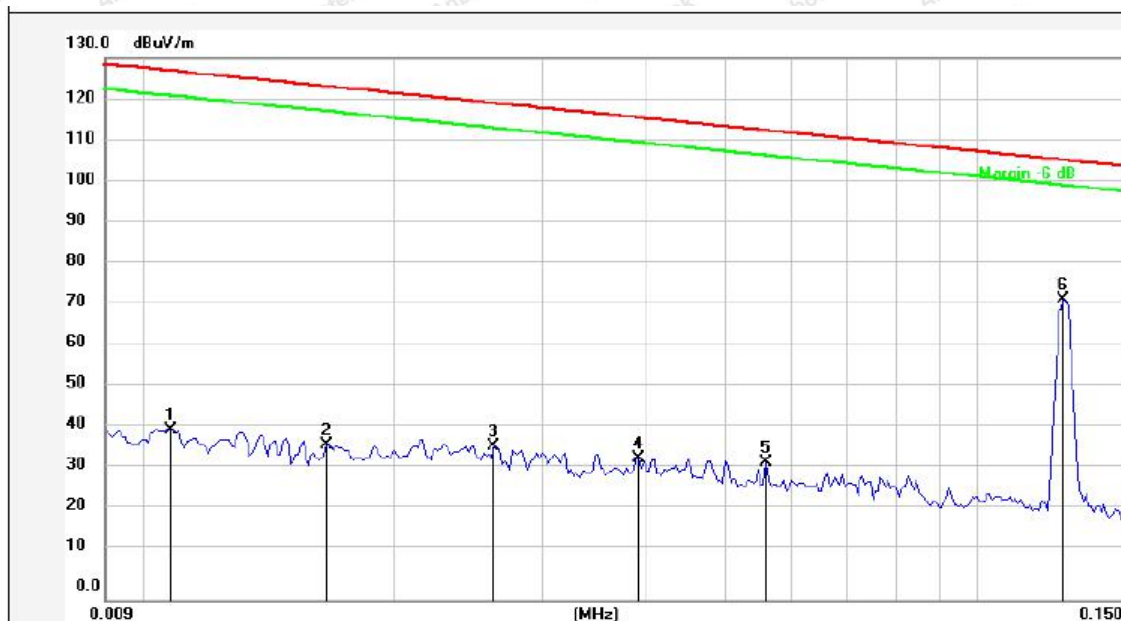
AC 120V, 60Hz for adapter

Test item: Radiation Test**Temp.(C)/Hum.(%RH):**

23°C/49%RH

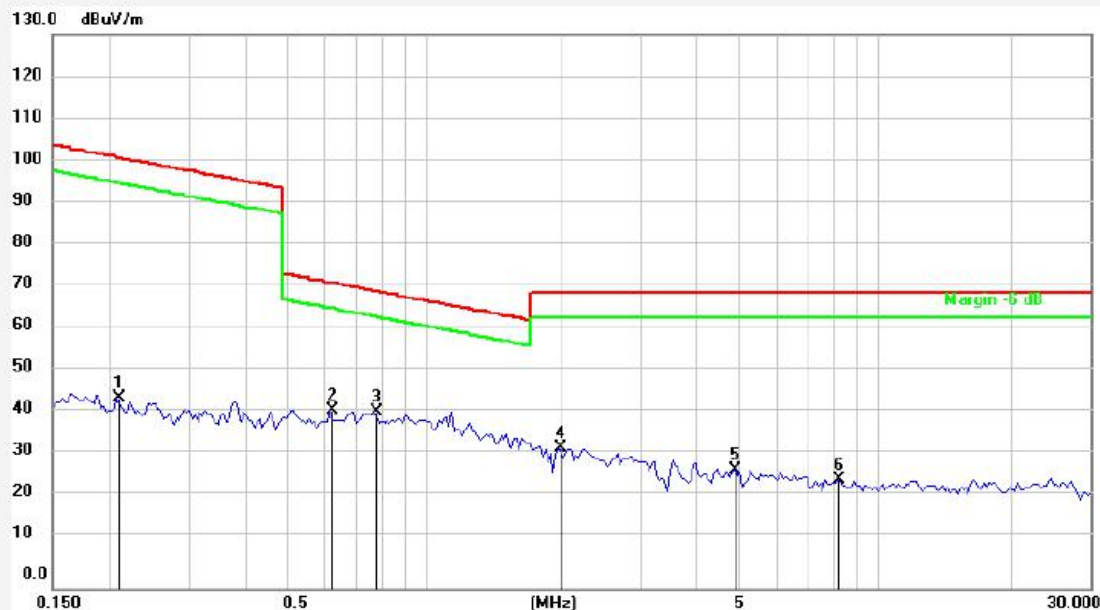
Test Mode: Mode 1**Distance:**

3m



No.	Freq. (MHz)	Reading (dBuV)	Factor ()	Result (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Height (cm)	degree (deg)	Remark
1	0.0108	20.64	20.06	40.70	126.82	-86.12	AV			
2	0.0165	16.98	20.22	37.20	123.16	-85.96	AV			
3	0.0263	16.60	20.39	36.99	119.12	-82.13	AV			
4	0.0393	13.61	20.43	34.04	115.64	-81.60	AV			
5	0.0560	12.50	20.35	32.85	112.58	-79.73	AV			
6	0.1275	51.50	20.34	71.84	105.45	-33.61	AV			

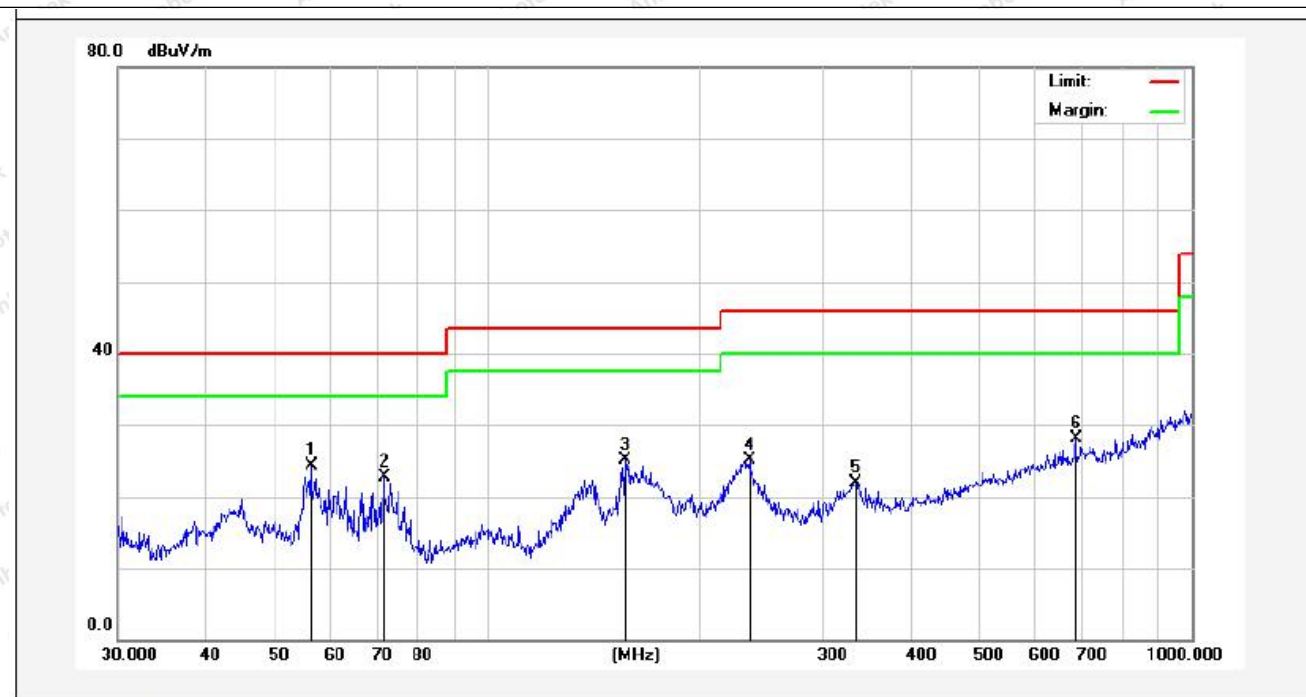




No.	Freq. (MHz)	Reading (dBuV)	Factor ()	Result (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Height (cm)	degree (deg)	Remark
1	0.2089	24.41	20.31	44.72	101.18	-56.46	AV			
2	0.6189	21.61	20.27	41.88	71.78	-29.90	QP			
3	0.7752	21.13	20.25	41.38	69.83	-28.45	QP			
4	1.9854	12.62	20.28	32.90	69.50	-36.60	QP			
5	4.8867	7.30	20.42	27.72	69.50	-41.78	QP			
6	8.3008	5.14	20.50	25.64	69.50	-43.86	QP			

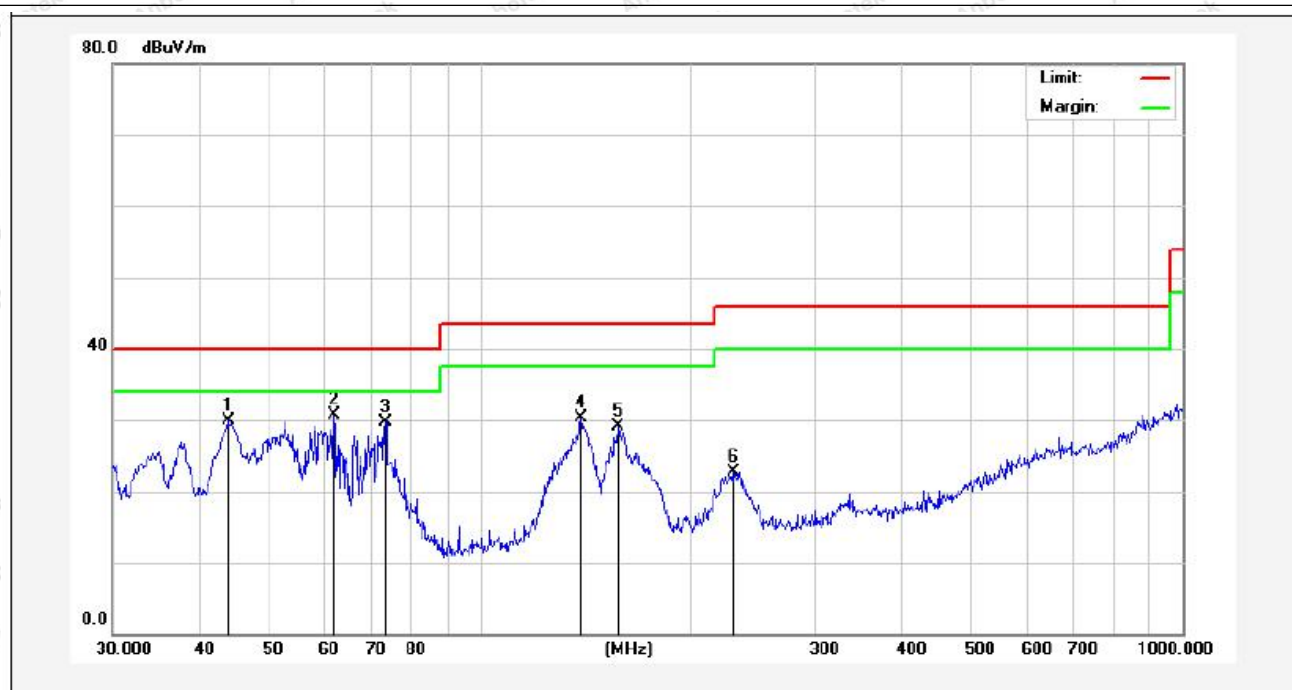
Remark: According to FCC PART 15.209 (d), the emission limits for the frequency bands 9–90 kHz, 110–490 kHz and above 1000 MHz, Radiated emission limits in these three bands are based on measurements employing an average detector.

(Between 30MHz –1000 MHz)

Standard: FCC PART15 C _3m**Polarization:****Horizontal****Test item:** Radiation Test**Power Source:****AC 120V, 60Hz for adapter****Test Mode:** Mode 1**Temp.(C)/Hum.(%RH):****22.5℃/50%RH****Distance:** 3m

No.	Freq. (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Height (cm)	degree (deg)	Remark
1	56.3948	40.77	-16.44	24.33	40.00	-15.67	peak			
2	71.5806	43.44	-20.73	22.71	40.00	-17.29	peak			
3	157.0074	46.48	-21.45	25.03	43.50	-18.47	peak			
4	235.8164	44.15	-19.13	25.02	46.00	-20.98	peak			
5	333.6867	35.24	-13.42	21.82	46.00	-24.18	peak			
6	684.7454	34.33	-6.25	28.08	46.00	-17.92	peak			



Standard: FCC PART15 C _3m**Polarization:****Vertical****Test item:** Radiation Test**Power Source:****AC 120V, 60Hz for adapter****Test Mode:** Mode 1**Temp.(C)/Hum.(%RH):****23.5℃/46%RH****Distance:** 3m

No.	Freq. (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Height (cm)	degree (deg)	Remark
1	43.8119	43.95	-13.98	29.97	40.00	-10.03	peak			
2	61.9951	47.56	-16.92	30.64	40.00	-9.36	peak			
3	73.3593	48.11	-18.44	29.67	40.00	-10.33	peak			
4	139.3613	50.37	-20.01	30.36	43.50	-13.14	peak			
5	157.0074	48.65	-19.56	29.09	43.50	-14.41	peak			
6	229.2931	38.86	-16.08	22.78	46.00	-23.22	peak			



APPENDIX I -- TEST SETUP PHOTOGRAPH

Please refer to separated files for Test Setup Photos of the EUT.

APPENDIX II -- EXTERNAL PHOTOGRAPH

Please refer to separated files for External Photos of the EUT.

APPENDIX III -- INTERNAL PHOTOGRAPH

Please refer to separated files for Internal Photos of the EUT.

----- End of Report -----

