

FCC TEST REPORT

Client Name : Casetagram Limited

Address : 11/F, Fun Tower, 35 Hung To Road KWUN TONG
KOWLOON HONG KONG

Product Name : Magnetic Wireless Charger

Date : Oct. 26, 2021



Shenzhen Anbotech Compliance Laboratory Limited



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TEST REPORT

Applicant : Casetagram Limited
Manufacturer : Casetagram Limited
Product Name : Magnetic Wireless Charger
Model No. : CTF-T-ATE-211686FREBLK
Trade Mark : CASETIFY
Rating(s) : Input: DC 5V/1.5A, DC 9V, 2A, DC12V, 1.5A
Wireless output: 5W, 7.5W, 10W, 15W

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 Anbotech 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 Anbotech 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 Anbotech Compliance Laboratory Limited.

Date of Receipt

Aug. 31, 2021

Date of Test

Aug. 31~ Sept. 28, 2021

Prepared By

Ella Liang

(Ella Liang)

Approved & Authorized Signer

Kingkong Jin

(Kingkong Jin)



1. General Information

1.1. Client Information

Applicant	:	Casetagram Limited
Address	:	11/F, Fun Tower, 35 Hung To Road KWUN TONG KOWLOON HONG KONG
Manufacturer	:	Casetagram Limited
Address	:	11/F, Fun Tower, 35 Hung To Road KWUN TONG KOWLOON HONG KONG
Factory	:	Casetagram Limited
Address	:	11/F, Fun Tower, 35 Hung To Road KWUN TONG KOWLOON HONG KONG

1.2. Description of Device (EUT)

Product Name	:	Magnetic Wireless Charger
Model No.	:	CTF-T-ATE-211686FREBLK
Trade Mark	:	CASETIFY
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 (Provide by customer)
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: A2630 Input: 100-240V-1.3A,50-60Hz USB-C Output: 5V---3A, 9V---2A USB-A Output: 5V---4A
Wireless charging load	:	Manufacturer: Shenzhen Ouju Technology Co., Ltd. M/N: CD2577 Power: 5W/7.5W/10W/15W Last Cal.: Oct. 26, 2020 Cal. Interval: 1 Year

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

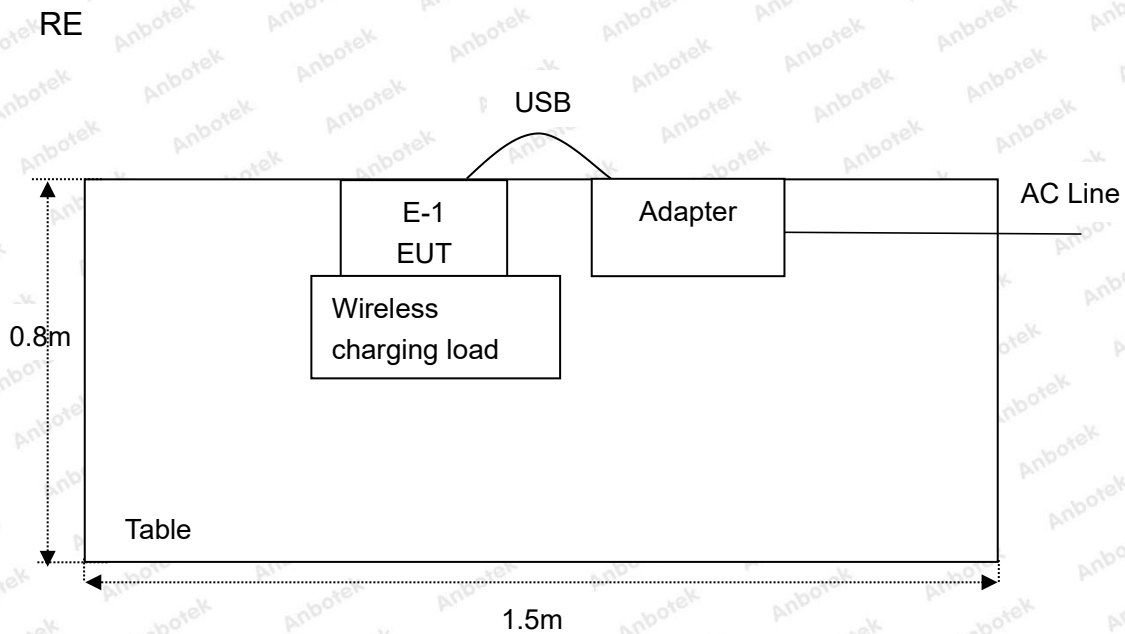
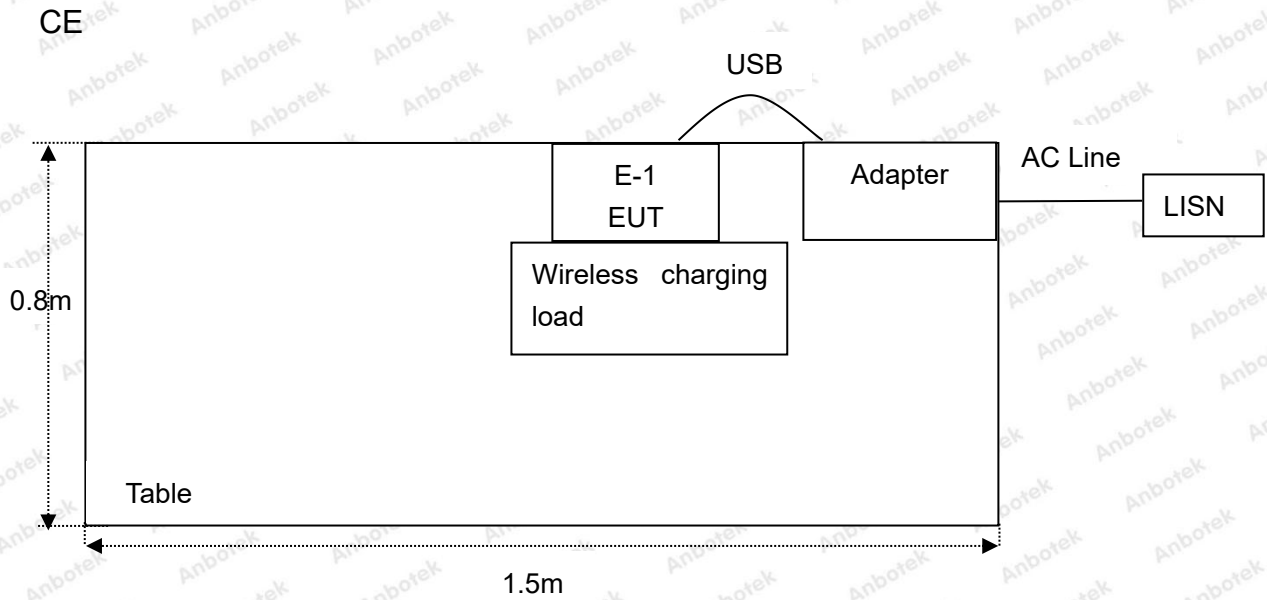
For Radiated Emission	
Final Test Mode	Description
Mode 1	Wireless Charging Mode

Note: (1)Test channel is 0.1368MHz.

(2) All the situation(full load, half load and empty load) has been tested,only the worst situation (full load 15W) 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.	RF Switching Unit	Compliance Direction	RSU-M2	38303	Oct. 26, 2020	1 Year
4.	Software Name EZ-EMC	Ferrari Technology	ANB-03A	N/A	N/A	N/A
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	15I00041SN045	Oct. 26, 2020	1 Year
15.	Power Sensor	DAER	RPR3006W	15I00041SN046	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.

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.

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
Part 15.203	Antenna Requirement	PASS

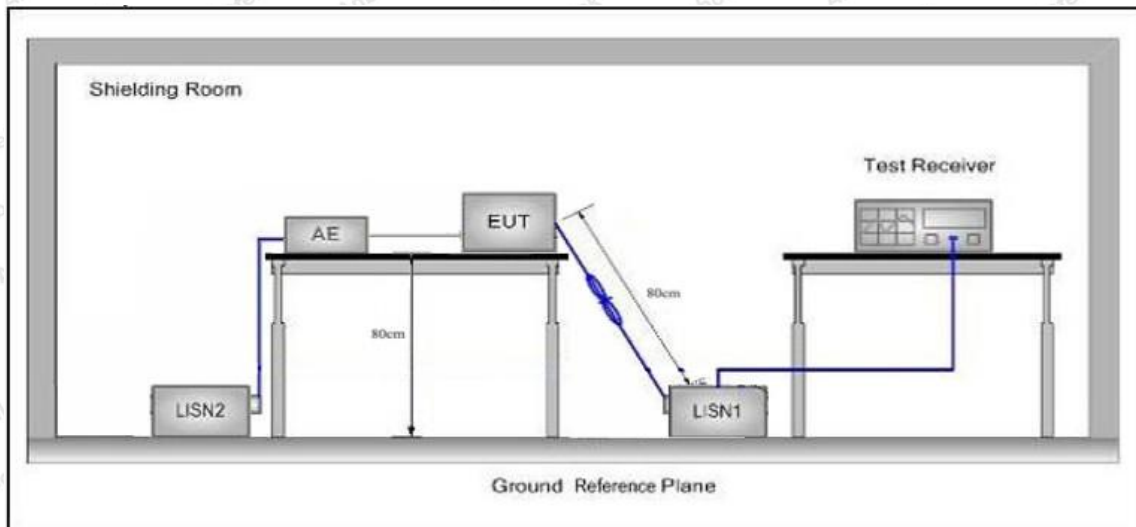
3. Conducted Emission Test

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

Shenzhen Anbotech Compliance Laboratory Limited

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

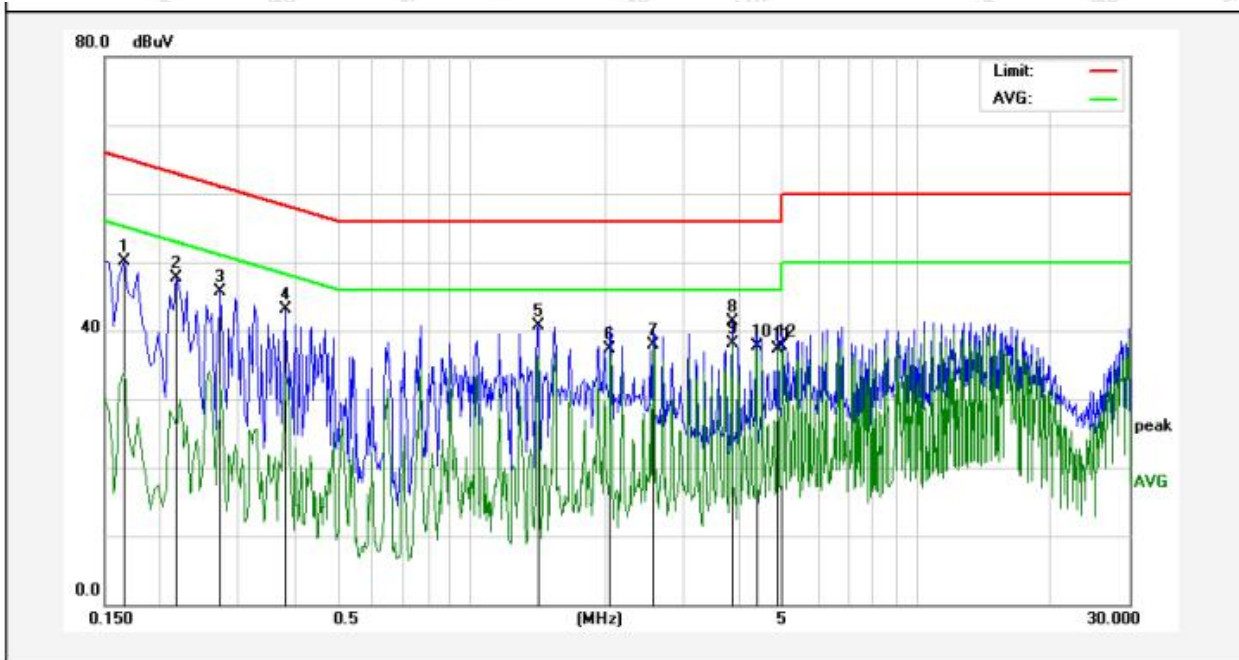
Tel: (86) 755-26066440 Fax: (86) 755-26014772 Email: service@anbotech.com

Code:AB-RF-05-a

Hotline
400-003-0500
www.anbotech.com

Conducted Emission Test Data

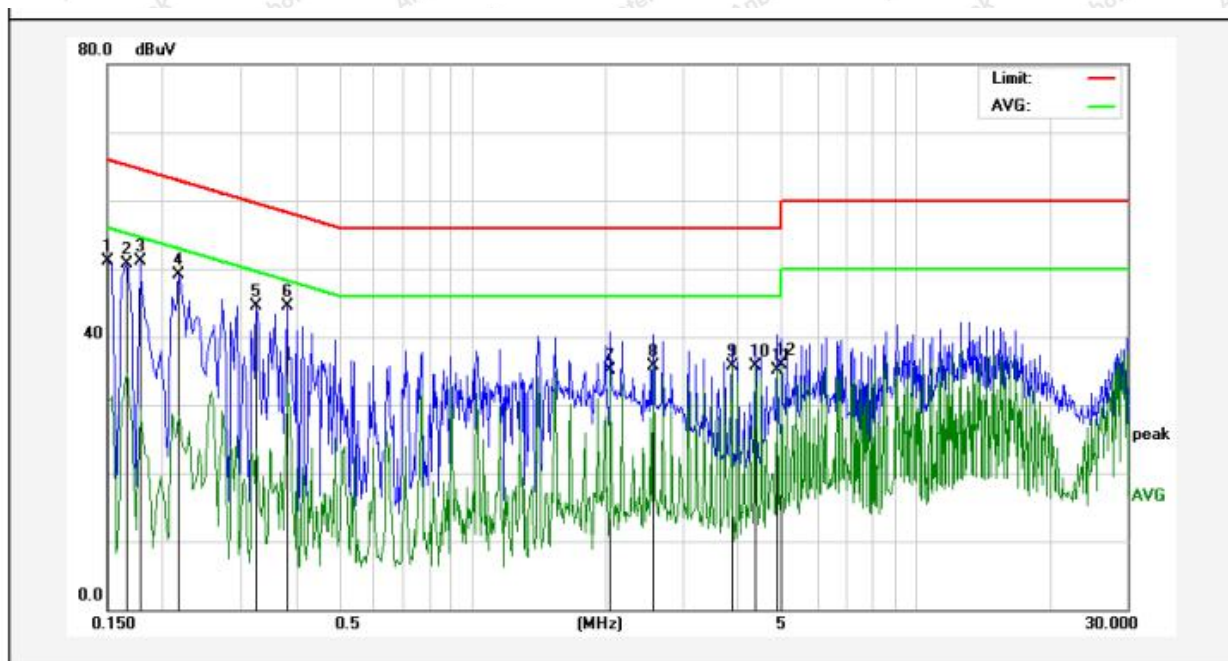
Test Site: 1# Shielded Room
 Operating Condition: Mode 1
 Test Specification: AC 240V, 60Hz for adapter
 Comment: Live Line
 Tem.: 24.8℃ Hum.: 48%



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit (dBuV)	Over Limit (dB)	Detector	Remark
1	0.1660	39.95	10.12	50.07	65.15	-15.08	QP	
2	0.2180	37.51	10.12	47.63	62.89	-15.26	QP	
3	0.2740	35.56	10.13	45.69	60.99	-15.30	QP	
4	0.3820	33.05	10.11	43.16	58.23	-15.07	QP	
5	1.4140	30.58	10.14	40.72	56.00	-15.28	QP	
6	2.0500	27.09	10.12	37.21	46.00	-8.79	AVG	
7	2.5620	27.80	10.12	37.92	46.00	-8.08	AVG	
8	3.8540	31.18	10.12	41.30	56.00	-14.70	QP	
9	3.8540	28.04	10.12	38.16	46.00	-7.84	AVG	
10	4.3659	27.64	10.11	37.75	46.00	-8.25	AVG	
11	4.8820	27.24	10.11	37.35	46.00	-8.65	AVG	
12	4.9980	27.65	10.11	37.76	46.00	-8.24	AVG	

Conducted Emission Test Data

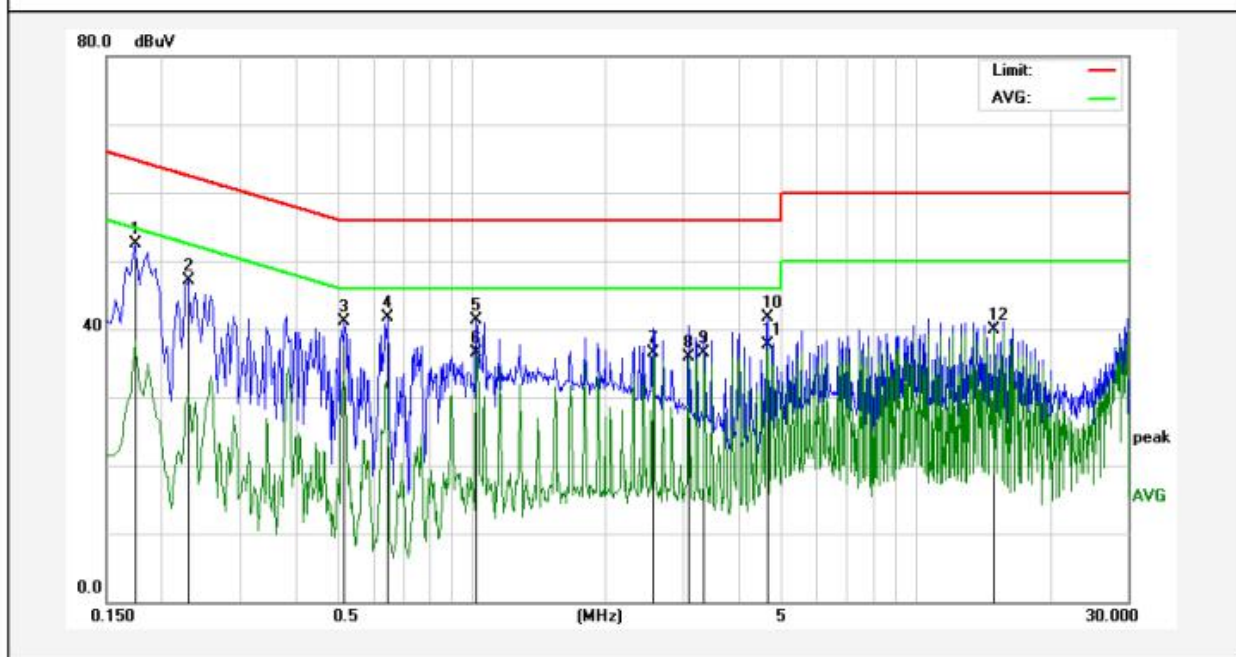
Test Site: 1# Shielded Room
 Operating Condition: Mode 1
 Test Specification: AC 240V, 60Hz for adapter
 Comment: Neutral Line
 Tem.: 24.8℃ Hum.: 48%



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit (dBuV)	Over Limit (dB)	Detector	Remark
1	0.1500	40.93	10.11	51.04	65.99	-14.95	QP	
2	0.1660	40.62	10.12	50.74	65.15	-14.41	QP	
3	0.1780	40.95	10.12	51.07	64.57	-13.50	QP	
4	0.2180	39.05	10.12	49.17	62.89	-13.72	QP	
5	0.3260	34.44	10.12	44.56	59.55	-14.99	QP	
6	0.3820	34.39	10.11	44.50	58.23	-13.73	QP	
7	2.0500	25.05	10.12	35.17	46.00	-10.83	AVG	
8	2.5620	25.68	10.12	35.80	46.00	-10.20	AVG	
9	3.8460	25.66	10.12	35.78	46.00	-10.22	AVG	
10	4.3580	25.56	10.11	35.67	46.00	-10.33	AVG	
11	4.8700	25.02	10.11	35.13	46.00	-10.87	AVG	
12	4.9980	25.73	10.11	35.84	46.00	-10.16	AVG	

Conducted Emission Test Data

Test Site: 1# Shielded Room
 Operating Condition: Mode 1
 Test Specification: AC 120V, 60Hz for adapter
 Comment: Live Line
 Tem.: 24.8°C Hum.: 48%

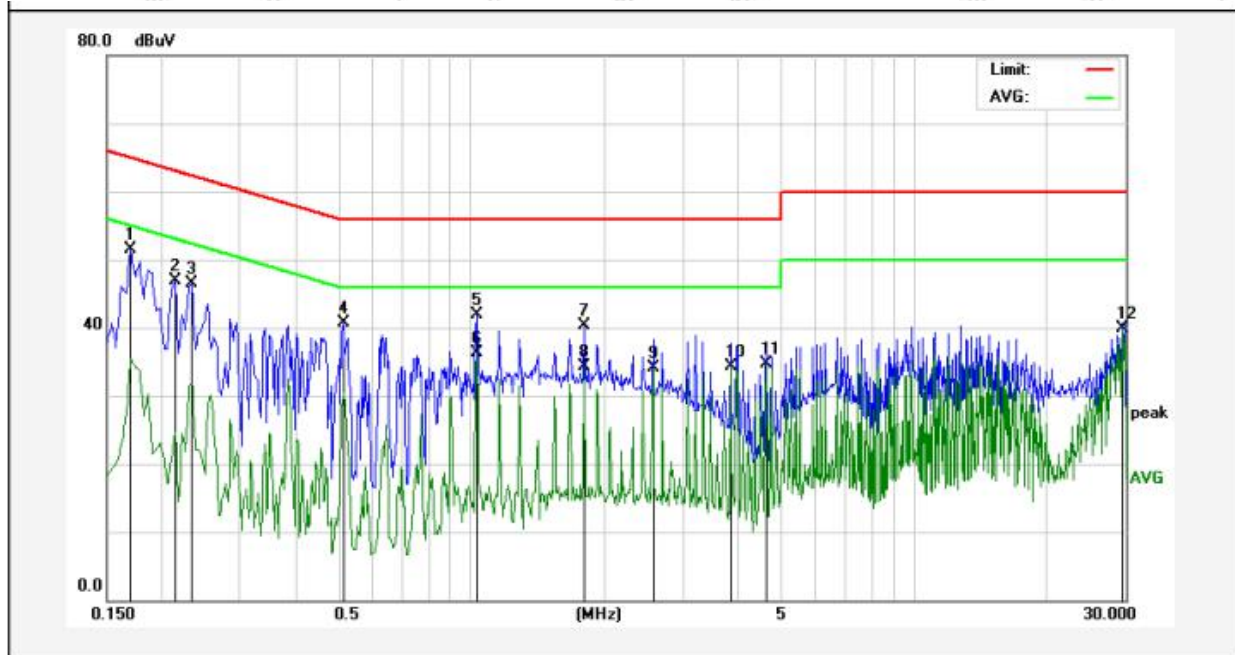


No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit (dBuV)	Over Limit (dB)	Detector	Remark
1	0.1740	42.46	10.12	52.58	64.76	-12.18	QP	
2	0.2300	36.96	10.12	47.08	62.45	-15.37	QP	
3	0.5180	30.88	10.15	41.03	56.00	-14.97	QP	
4	0.6460	31.57	10.15	41.72	56.00	-14.28	QP	
5	1.0260	31.17	10.15	41.32	56.00	-14.68	QP	
6	1.0260	26.36	10.15	36.51	46.00	-9.49	AVG	
7	2.5660	26.39	10.12	36.51	46.00	-9.49	AVG	
8	3.0780	25.77	10.12	35.89	46.00	-10.11	AVG	
9	3.3340	26.48	10.12	36.60	46.00	-9.40	AVG	
10	4.6260	31.61	10.11	41.72	56.00	-14.28	QP	
11	4.6260	27.55	10.11	37.66	46.00	-8.34	AVG	
12	15.0020	29.74	10.17	39.91	50.00	-10.09	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.: 24.8°C Hum.: 48%



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit (dBuV)	Over Limit (dB)	Detector	Remark
1	0.1700	41.46	10.12	51.58	64.96	-13.38	QP	
2	0.2140	36.81	10.12	46.93	63.04	-16.11	QP	
3	0.2340	36.32	10.12	46.44	62.30	-15.86	QP	
4	0.5140	30.49	10.15	40.64	56.00	-15.36	QP	
5	1.0300	31.69	10.15	41.84	56.00	-14.16	QP	
6	1.0300	26.23	10.15	36.38	46.00	-9.62	AVG	
7	1.7980	30.09	10.13	40.22	56.00	-15.78	QP	
8	1.7980	24.18	10.13	34.31	46.00	-11.69	AVG	
9	2.5700	23.90	10.12	34.02	46.00	-11.98	AVG	
10	3.8540	24.16	10.12	34.28	46.00	-11.72	AVG	
11	4.6260	24.55	10.11	34.66	46.00	-11.34	AVG	
12	29.4220	29.47	10.35	39.82	50.00	-10.18	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

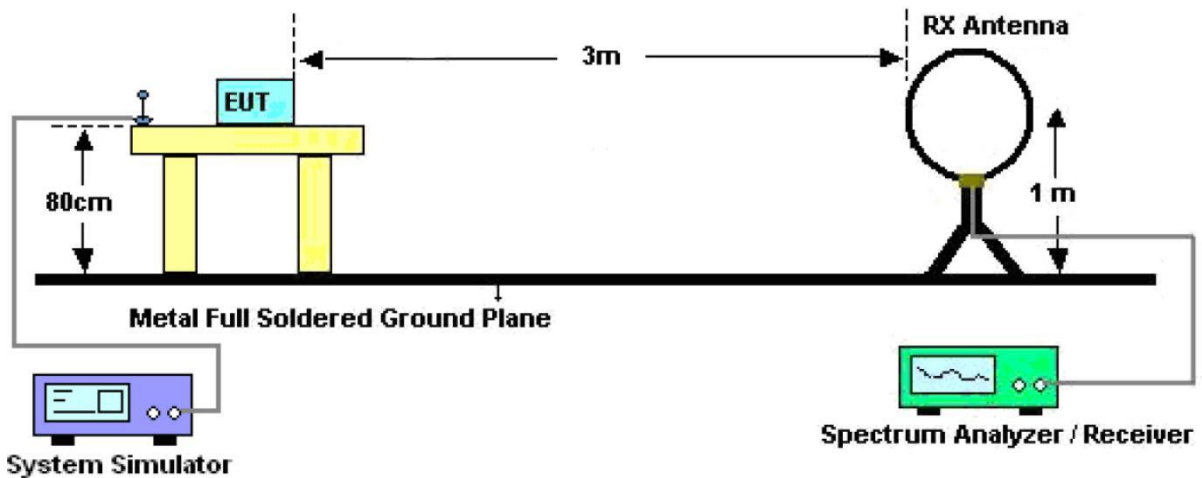


Figure 1. Below 30MHz

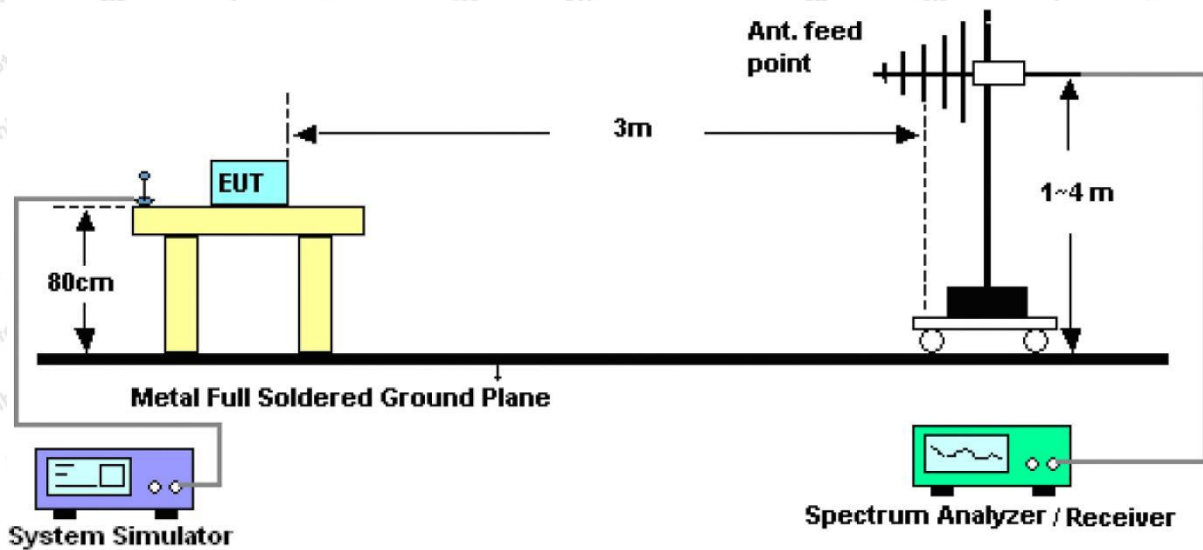


Figure 2. 30MHz to 1GHz

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.

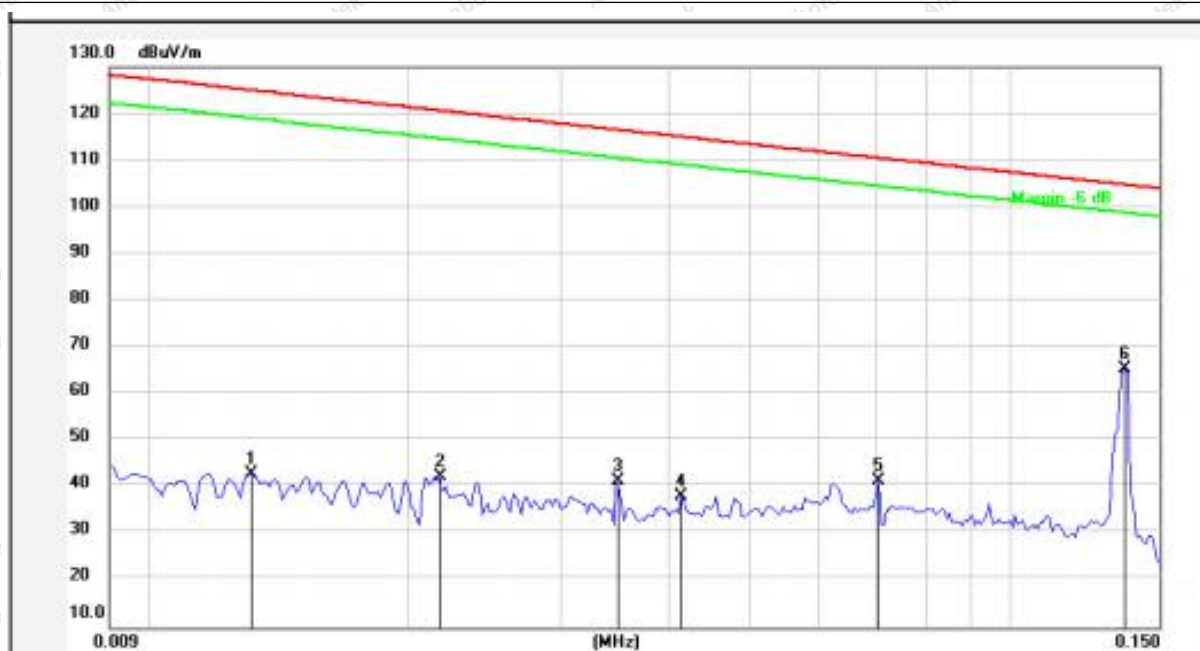
4.4. Test Data

PASS

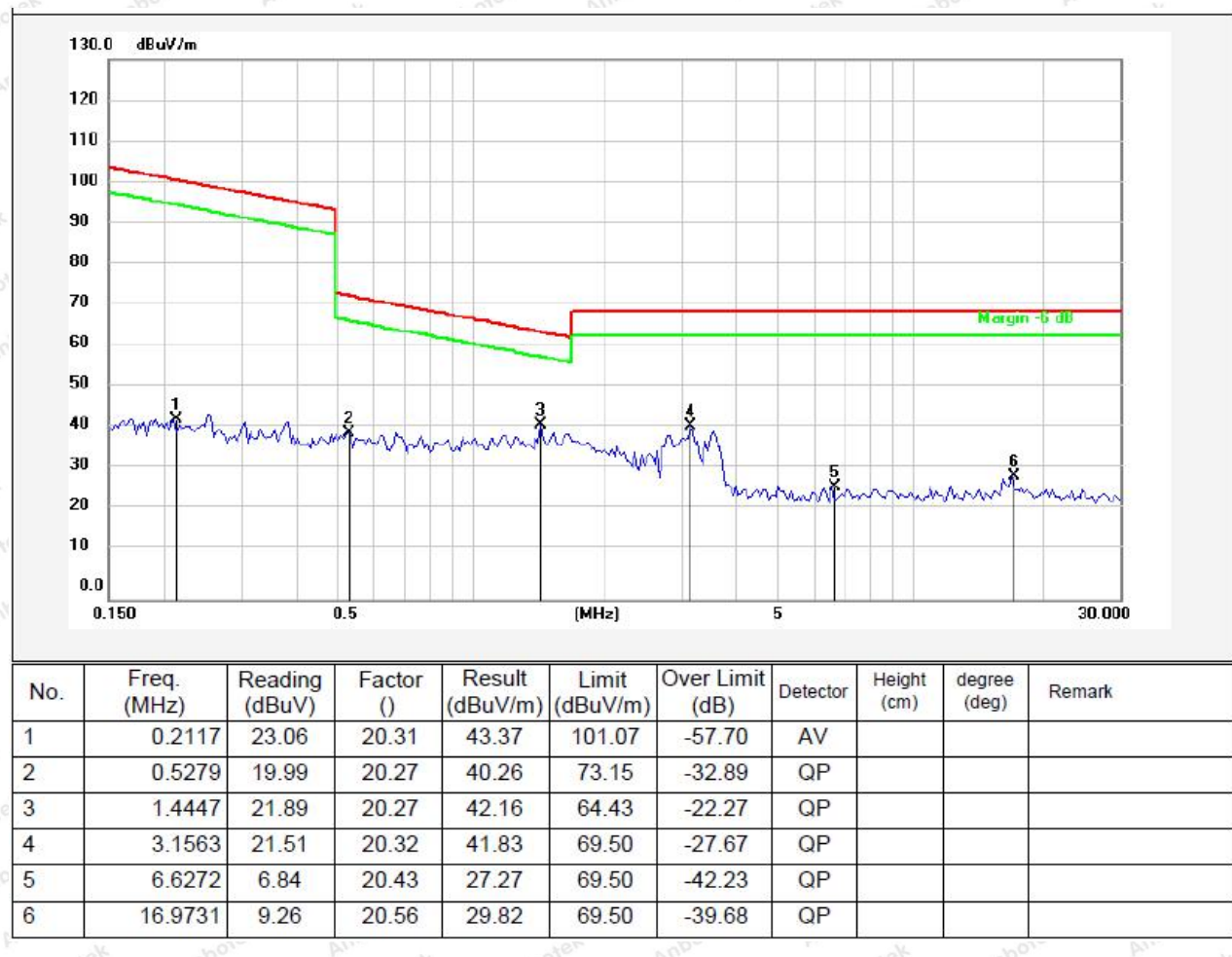
Note: The data is in TX mode, and this is the worst mode.

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):** 24.2°C/57%RH**Test Mode:** Mode 1**Distance:** 3m

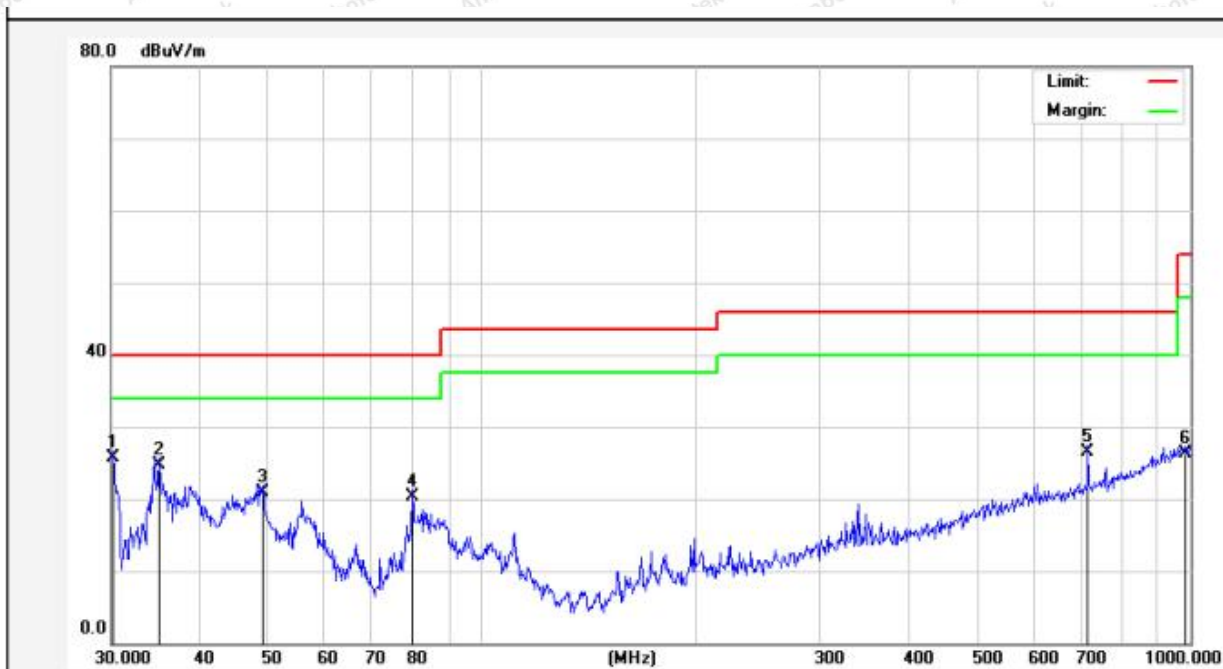
No.	Freq. (MHz)	Reading (dBuV)	Factor ()	Result (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Height (cm)	degree (deg)	Remark
1	0.0131	22.71	20.16	42.87	125.07	-82.20	AV			
2	0.0217	22.06	20.33	42.39	120.71	-78.32	AV			
3	0.0350	20.83	20.49	41.32	116.58	-75.26	AV			
4	0.0417	17.69	20.43	38.12	115.07	-76.95	AV			
5	0.0704	21.05	20.37	41.42	110.55	-69.13	AV			
6	0.1368	44.97	20.33	65.30	104.81	-39.51	AV			



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.

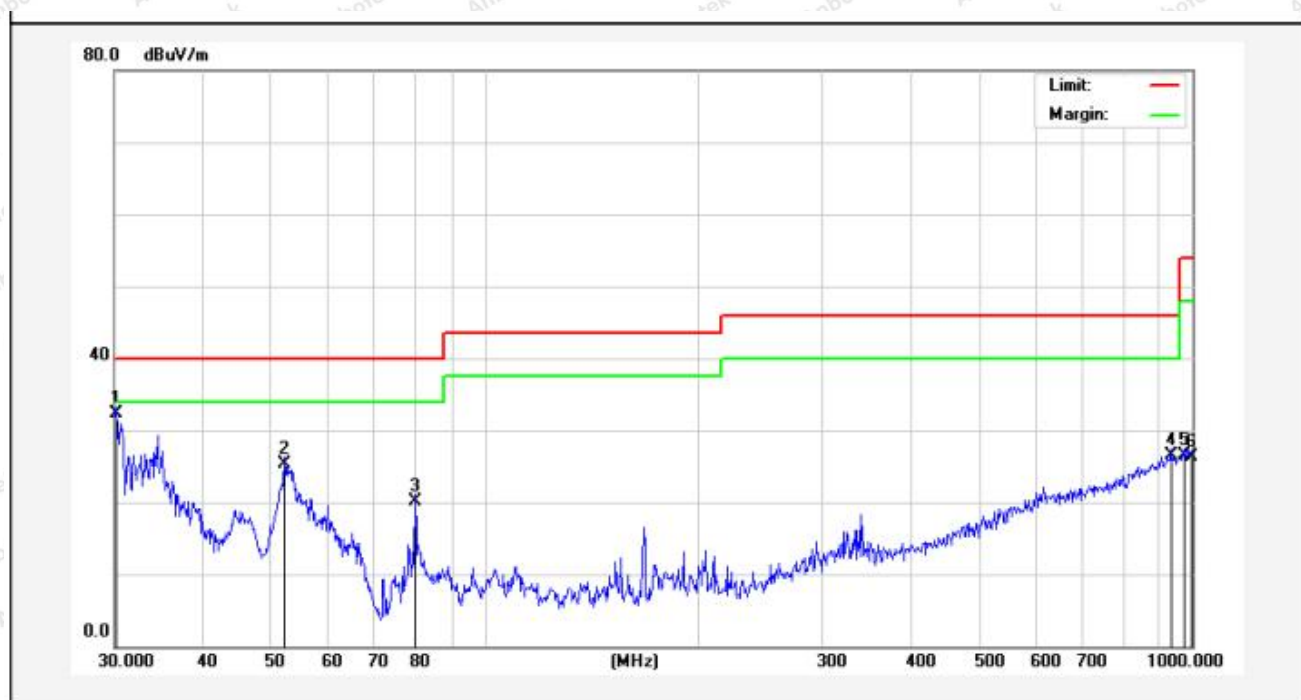


(Between 30MHz –1000 MHz)

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):****23.1℃/15%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	30.2111	45.17	-19.42	25.75	40.00	-14.25	QP	100	360	
2	35.1278	42.30	-17.51	24.79	40.00	-15.21	QP	100	0	
3	49.1865	35.72	-14.75	20.97	40.00	-19.03	QP	100	360	
4	79.8003	42.02	-21.70	20.32	40.00	-19.68	QP	100	0	
5	716.6820	32.30	-5.75	26.55	46.00	-19.45	QP	100	360	
6	982.6200	26.33	-0.08	26.25	54.00	-27.75	QP	100	0	

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):** 23.1°C/15%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	30.2111	49.56	-17.16	32.40	40.00	-7.60	QP	100	360	
2	52.2079	40.81	-15.59	25.22	40.00	-14.78	QP	100	0	
3	79.8003	37.91	-17.72	20.19	40.00	-19.81	QP	100	360	
4	932.2715	27.58	-1.14	26.44	46.00	-19.56	QP	100	0	
5	972.3374	26.88	-0.33	26.55	54.00	-27.45	QP	100	360	
6	996.4996	26.00	0.24	26.24	54.00	-27.76	QP	100	0	

5. Antenna Requirement

5.1. Test Standard and Requirement

Test Standard	FCC Part15 Section 15.203
Requirement	An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

5.2. Antenna Connected Construction

The antenna is a Inductive loop coil Antenna which permanently attached, and the best case gain of the antenna is 0 dBi. It complies with the standard requirement.

APPENDIX I -- TEST SETUP PHOTOGRAPH

Photo of Conducted Emission Measurement

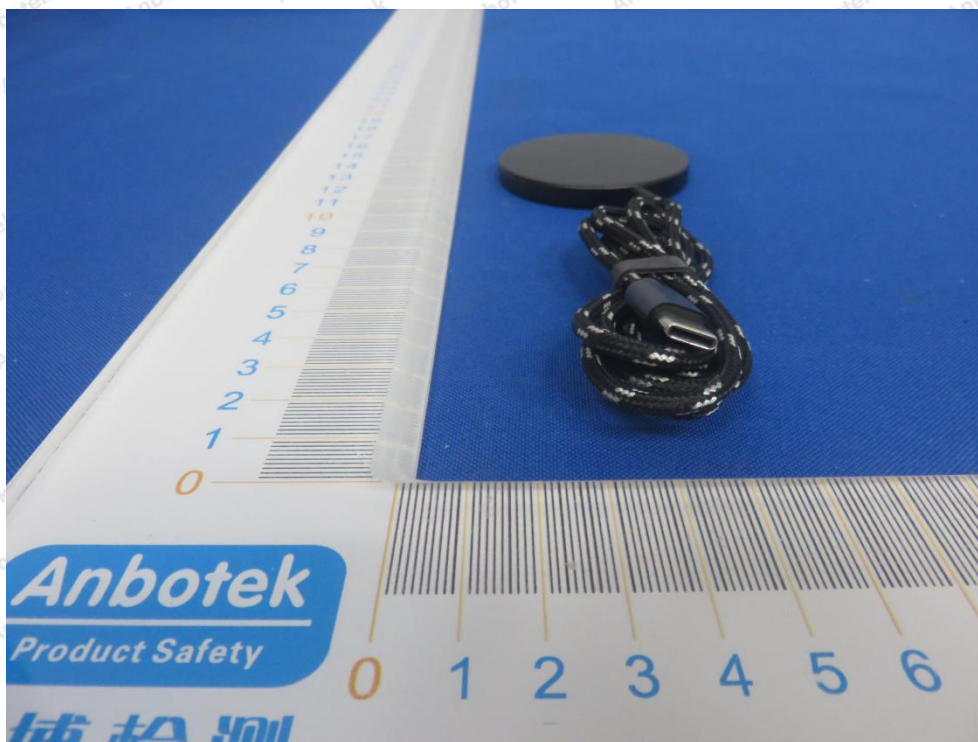


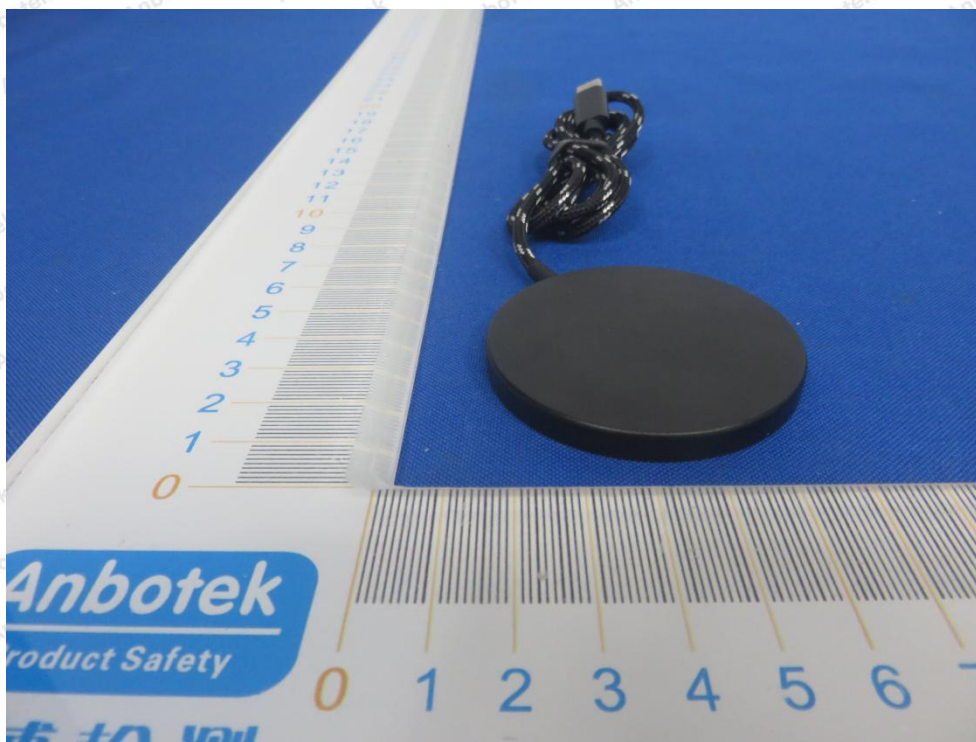
Photo of Radiation Emission Test

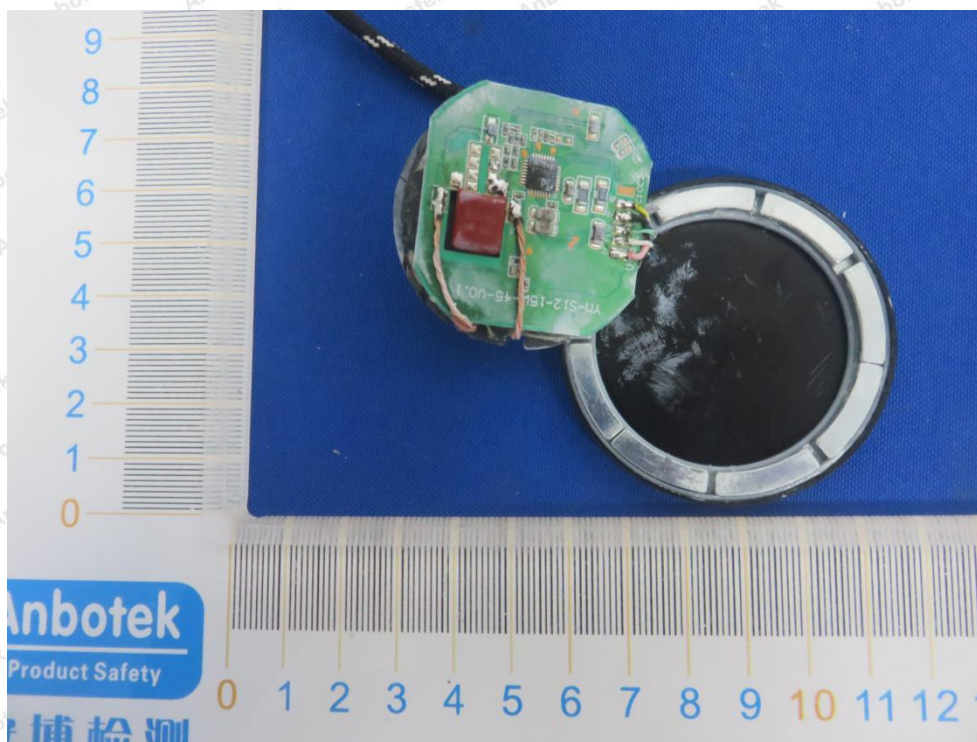
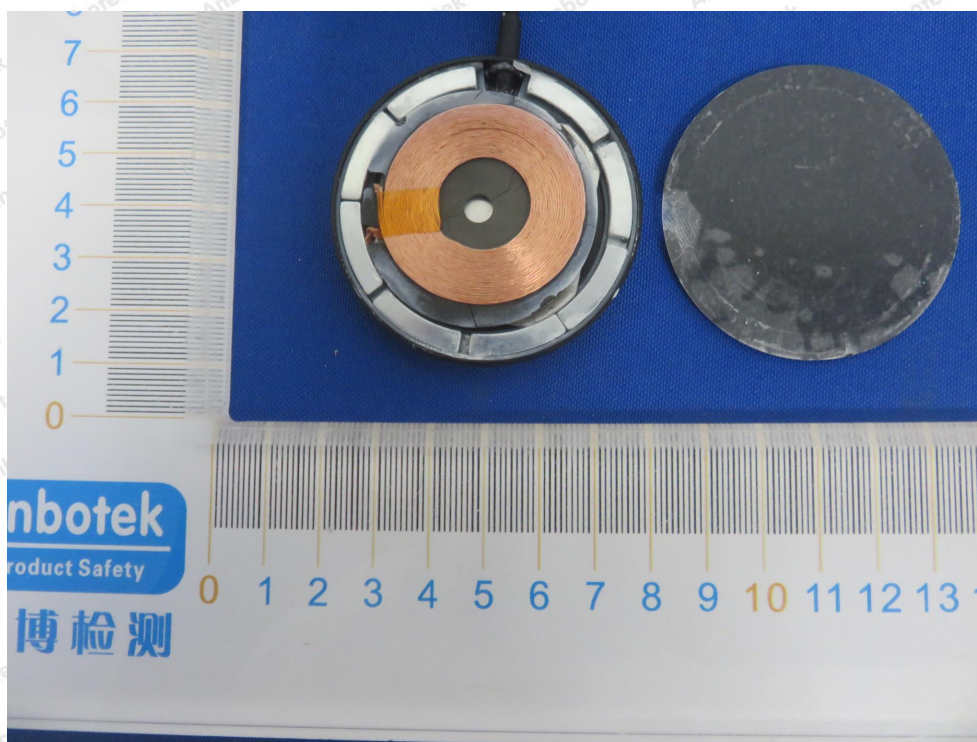


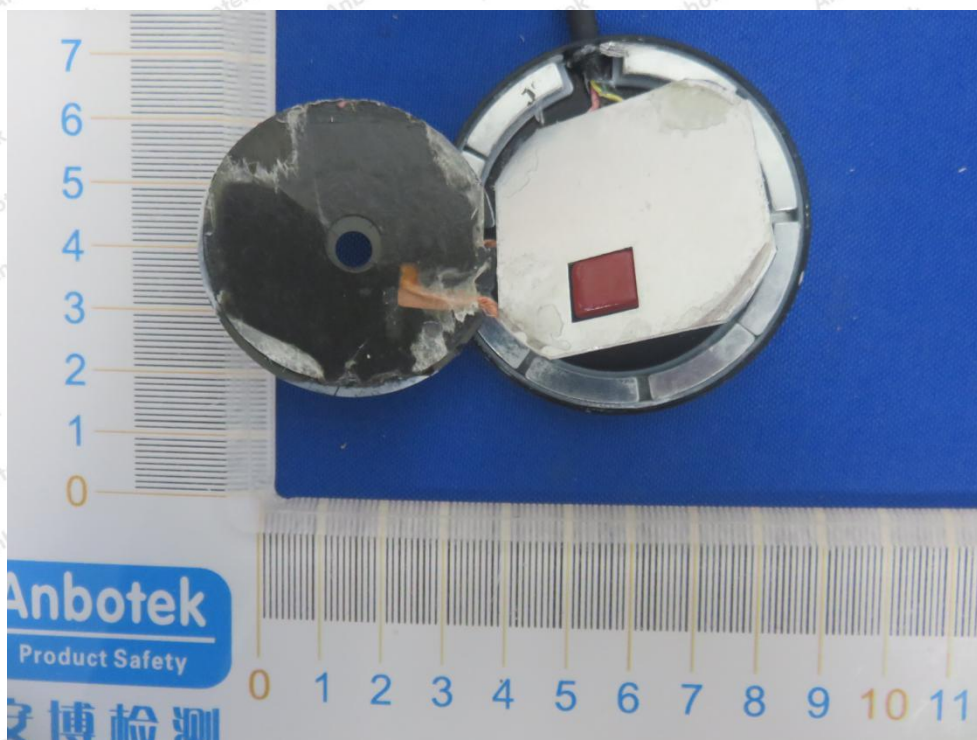


APPENDIX II -- EXTERNAL PHOTOGRAPH





APPENDIX III -- INTERNAL PHOTOGRAPH



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