

FCC TEST REPORT

For

Gopod Group Limited.

10W Wireless charger

Model No.: GW13E, GW13E-FM, GW13E-FB, GW13C-FM, GW13C-FB, GW13C, GW13BN,
GW13D

Prepared For : Gopod Group Limited.

Address : 6/F., 235 Wing Lok Trade Centre, Sheung Wan, Hong Kong, China

Prepared By : Shenzhen Anbotek Compliance Laboratory Limited

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

Tel: (86) 755-26066440

Fax: (86) 755-26014772

Report Number : SZAWW180712003-01

Date of Receipt : Jul. 12, 2018

Date of Test : Jul. 12~Aug. 01, 2018

Date of Report : Aug. 01, 2018

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TEST REPORT

Applicant : Gopod Group Limited.
Manufacturer : Gopod Group Holding Limited
Product Name : 10W Wireless charger
Model No. : GW13E, GW13E-FM, GW13E-FB, GW13C-FM, GW13C-FB, GW13C, GW13BN, GW13D
Trade Mark : N.A.
Rating(s) : Input: DC 5V, 2A / DC 9V, 2A
Output: DC 5V, 1A / DC 9V, 1.1A

Test Standard(s) : FCC Part15 Subpart C 2017, Paragraph 15.209

Test Method(s) : ANSI C63.10: 2013

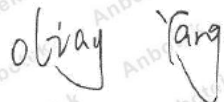
The device described above is tested by Shenzhen Anbotech Compliance Laboratory Limited to determine the maximum emission levels emanating from the device and the severe levels of the device can endure and its performance criterion. The measurement results are contained in this test report and Shenzhen 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 Test

Jul. 12~Aug. 01, 2018

Prepared by


(Engineer / Oliay Yang)

Reviewer



(Supervisor / Calvin Liu)

Approved & Authorized Signer


(Manager / Tom Chen)

1. General Information

1.1. Client Information

Applicant	:	Gopod Group Limited.
Address	:	6/F., 235 Wing Lok Trade Centre, Sheung Wan, Hong Kong, China
Manufacturer	:	Gopod Group Holding Limited
Address	:	4-6/F, Building 8, Lian Jian Industrial Park, Hua Rong Rd, DaLang, LongHua New District, Shenzhen, China

1.2. Description of Device (EUT)

Product Name	:	10W Wireless charger	
Model No.	:	GW13E, GW13E-FM, GW13E-FB, GW13C-FM, GW13C-FB, GW13C, GW13BN, GW13D (Note: All samples are the same except the name, so we prepare "GW13E" for test only.)	
Trade Mark	:	N.A.	
Test Power Supply	:	AC 120V, 60Hz for adapter / AC 240V, 60Hz for adapter	
Test Sample No.	:	S1, S2	
Product Description	:	Operation Frequency:	127.7KHz
	:	Number of Channel:	1 Channel
	:	Modulation Type:	FSK
	:	Antenna Type:	Loop 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	:	Input: 100-240V 50-60Hz 0.7A Output: 3.6-6.5V=== 3A/ 6.5-9V=== 2A/ 9-12V=== 1.5A
	:	
Mobile Phone	:	Samsung

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	Keeping TX+Charging mode

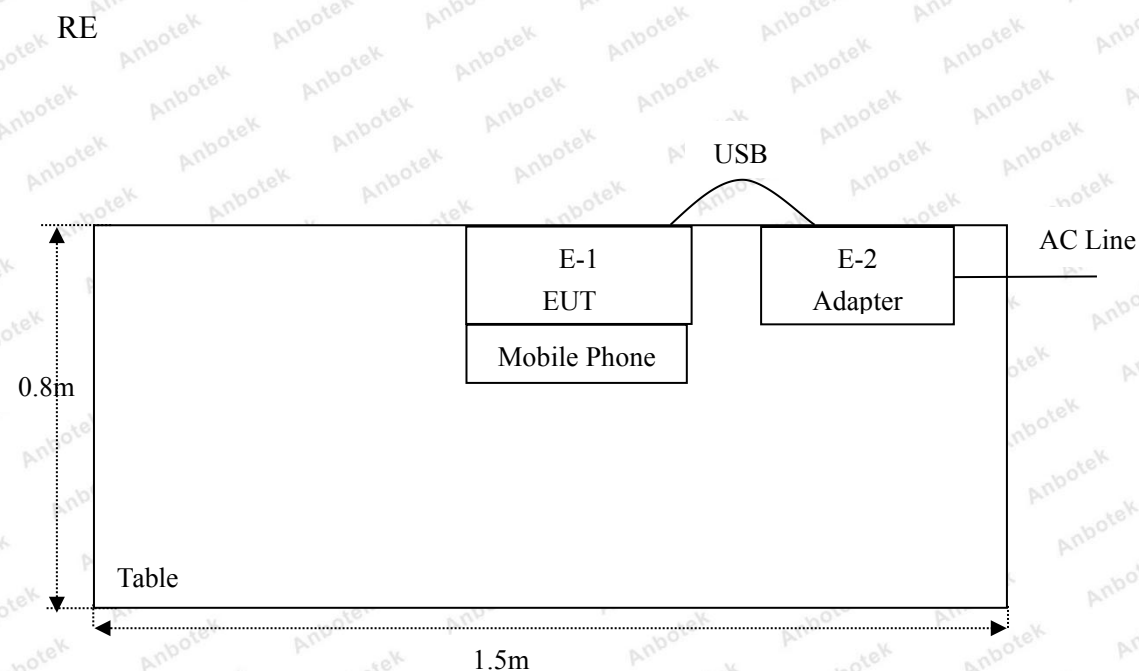
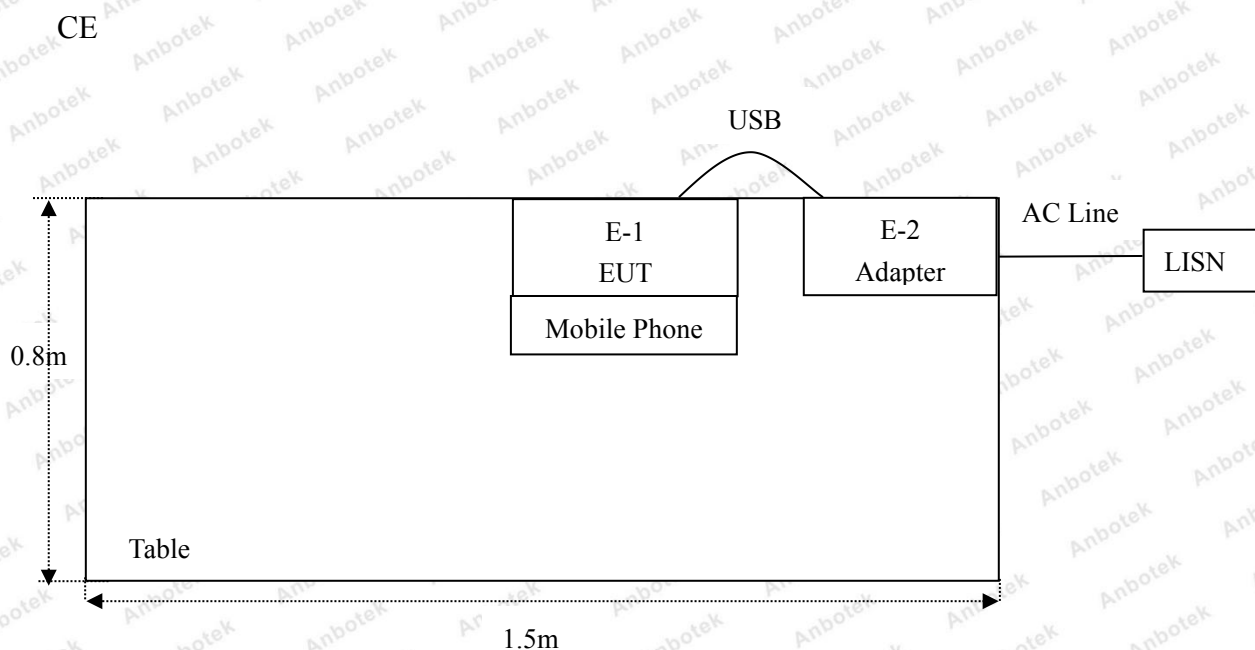
For Conducted Emission	
Final Test Mode	Description
Mode 1	Keeping TX+Charging mode

For Radiated Emission	
Final Test Mode	Description
Mode 1	Keeping TX+Charging mode

1.5. List of channel

Channel	Freq.
	(KHz)
01	127.7

1.6. Description Of Test Setup



1.7. 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	Nov. 17, 2017	1 Year
2.	EMI Test Receiver	Rohde & Schwarz	ESCI	100627	Nov. 17, 2017	1 Year
3.	RF Switching Unit	Compliance Direction	RSU-M2	38303	Nov. 17, 2017	1 Year
4.	Spectrum Analysis	Agilent	E4407B	US39390582	Nov. 17, 2017	1 Year
5.	Spectrum Analysis	Agilent	N9038A	MY53227295	Nov. 17, 2017	1 Year
6.	Preamplifier	SKET Electronic	BK1G18G30D	KD17503	Nov. 17, 2017	1 Year
7.	EMI Test Receiver	Rohde & Schwarz	ESCI	100627	Nov. 17, 2017	1 Year
8.	Double Ridged Horn Antenna	Instruments corporation	GTH-0118	351600	Nov. 20, 2017	1 Year
9.	Bilog Broadband Antenna	Schwarzbeck	VULB9163	VULB 9163-289	Nov. 20, 2017	1 Year
10.	Loop Antenna	Schwarzbeck	HFH2-Z2	100047	Nov. 17, 2017	1 Year
11.	Horn Antenna	Schwarzbeck	BBHA9170	9170-375	Nov. 17, 2017	1 Year
12.	Pre-amplifier	SONOMA	310N	186860	Nov. 17, 2017	1 Year
13.	EMI Test Software EZ-EMC	SHURPLE	N/A	N/A	N/A	N/A
14.	RF Test Control System	YIHENG	YH3000	2017430	Nov. 18, 2017	1 Year
15.	Power Sensor	DAER	RPR3006W	15I00041SN045	Nov. 17, 2017	1 Year
16.	Power Sensor	DAER	RPR3006W	15I00041SN046	Nov. 17, 2017	1 Year
17.	MXA Spectrum Analysis	Agilent	N9020A	MY51170037	Nov. 18, 2017	1 Year
18.	MXG RF Vector Signal Generator	Agilent	N5182A	MY48180656	Nov. 18, 2017	1 Year
19.	Signal Generator	Agilent	E4421B	MY41000743	Nov. 18, 2017	1 Year
20.	DC Power Supply	LW	TPR-6410D	349315	Nov. 01, 2017	1 Year
21.	Constant Temperature Humidity Chamber	Sertep	ZJ-HWHS80B	ZJ-17042804	Nov. 01, 2017	1 Year

1.8. Description of Test Facility

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

FCC-Registration No.: 184111

Shenzhen Anbotek 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, July 31, 2017.

ISED-Registration No.: 8058A-1

Shenzhen Anbotek 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-1, June 13, 2016.

Test Location

Shenzhen Anbotek 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

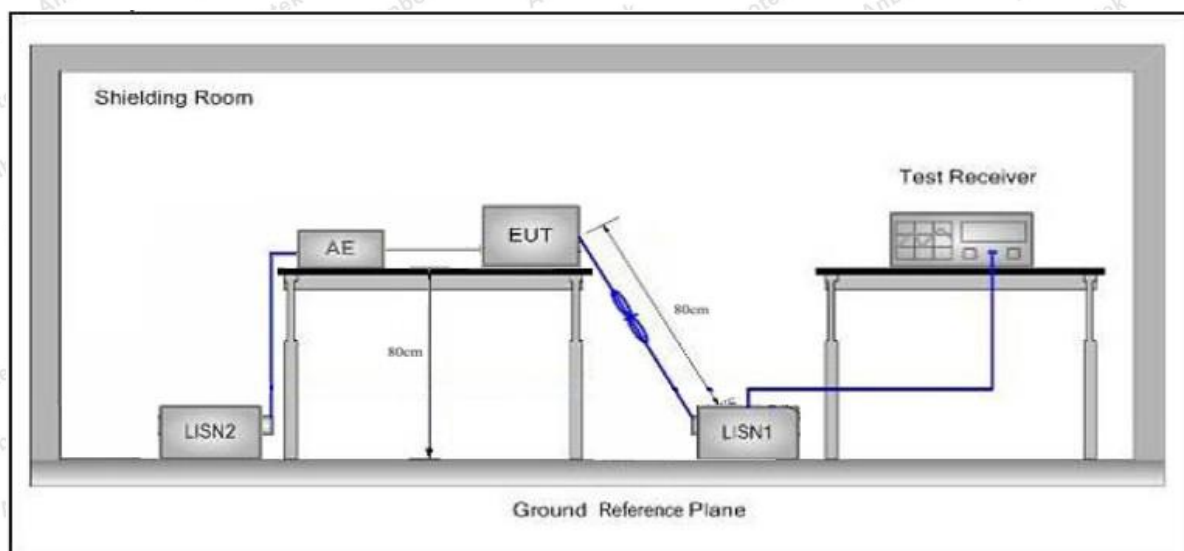
Standard Section	Test Item	Result
FCC Part 15, Paragraph 15.207	Conducted Emission Test	PASS
FCC Part 15, Paragraph 15.209(a)(f)	Spurious Emission	PASS

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 C63.10-2013 on Conducted Emission Measurement.

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

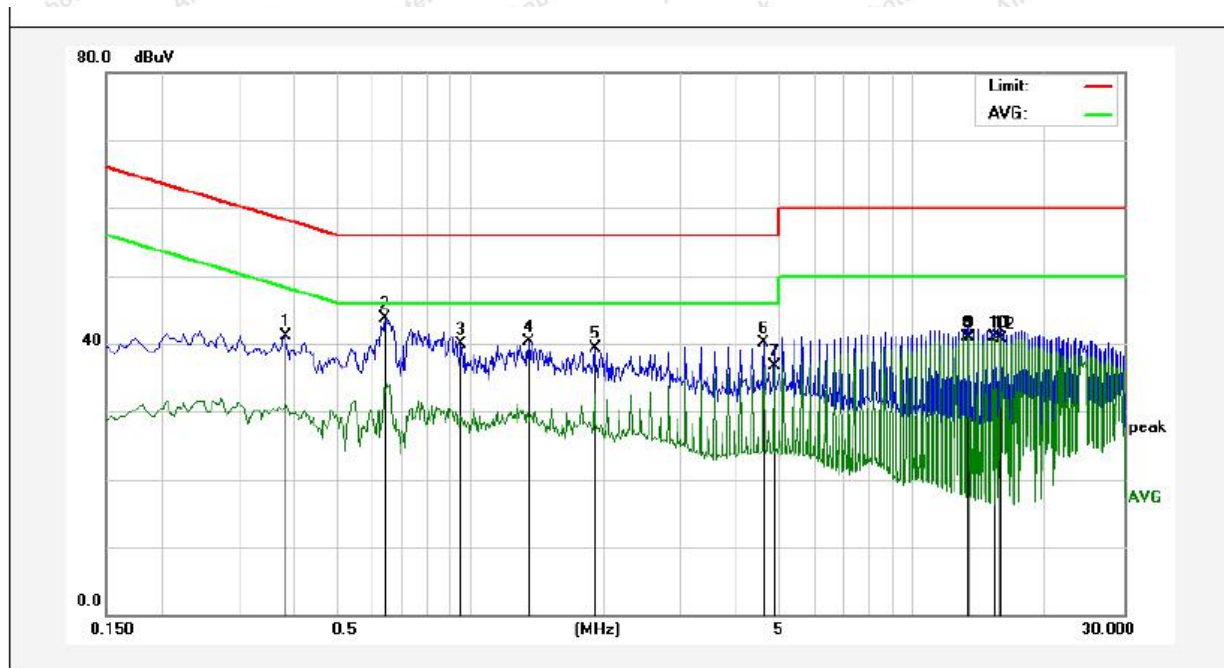
The frequency range from 150kHz to 30MHz is checked.

3.4. Test Data

Please to see the following pages

Conducted Emission Test Data

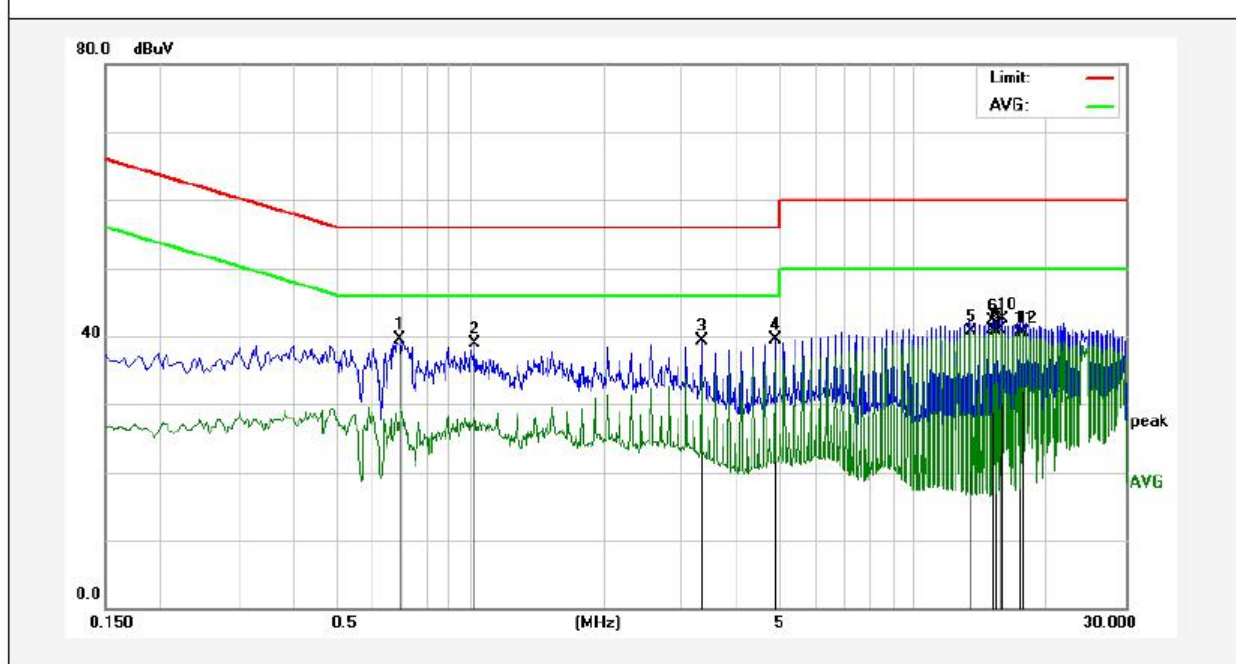
Test Site: 1# Shielded Room
Operating Condition: Keeping TX+Charging mode
Test Specification: AC 240V, 60Hz for adapter
Comment: Live Line
Tem.: 22.2°C Hum.: 60%



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit dBuV	Over Limit (dB)	Detector	Remark
1	0.3820	21.08	19.93	41.01	58.23	-17.22	QP	
2	0.6419	23.75	20.02	43.77	56.00	-12.23	QP	
3	0.9580	19.79	20.11	39.90	56.00	-16.10	QP	
4	1.3580	20.24	20.13	40.37	56.00	-15.63	QP	
5	1.9180	19.16	20.14	39.30	56.00	-16.70	QP	
6	4.5979	19.86	20.20	40.06	56.00	-15.94	QP	
7	4.8539	16.53	20.20	36.73	46.00	-9.27	AVG	
8	13.2859	20.55	20.29	40.84	50.00	-9.16	AVG	
9	13.5419	20.63	20.28	40.91	50.00	-9.09	AVG	
10	15.3299	20.72	20.27	40.99	50.00	-9.01	AVG	
11	15.5859	20.69	20.27	40.96	50.00	-9.04	AVG	
12	15.8419	20.45	20.27	40.72	50.00	-9.28	AVG	

Conducted Emission Test Data

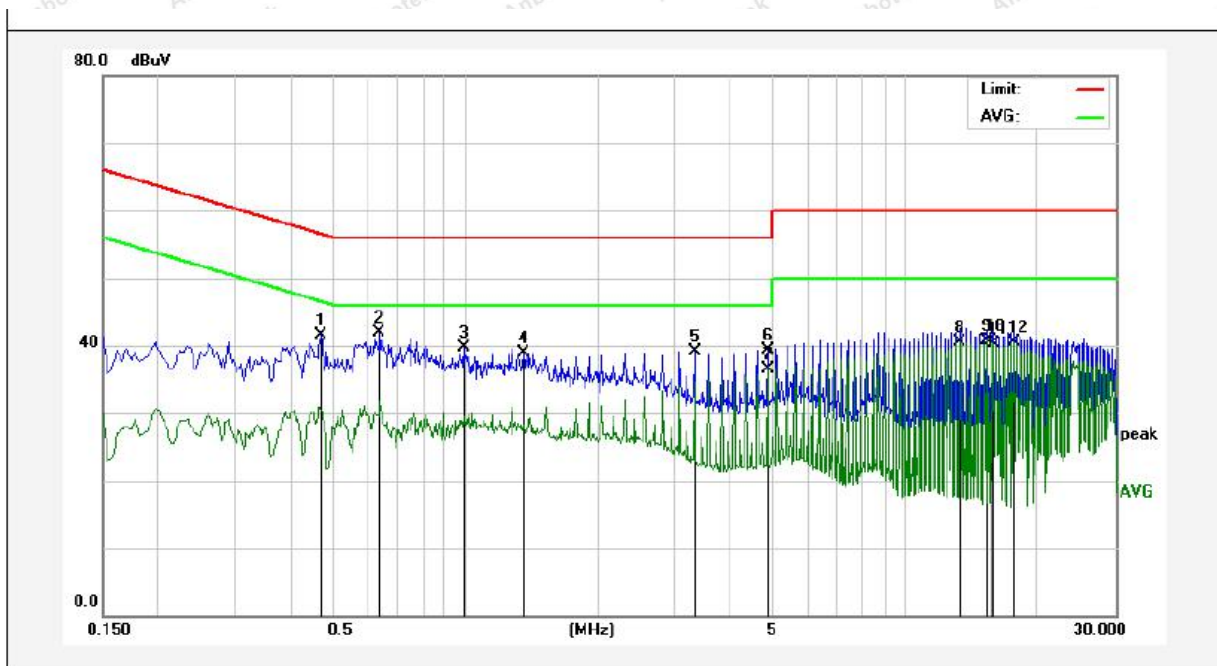
Test Site: 1# Shielded Room
Operating Condition: Keeping TX+Charging mode
Test Specification: AC 240V, 60Hz for adapter
Comment: Neutral Line
Tem.: 22.2°C Hum.: 60%



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit dBuV	Over Limit (dB)	Detector	Remark
1	0.6940	19.56	20.04	39.60	56.00	-16.40	QP	
2	1.0220	18.83	20.12	38.95	56.00	-17.05	QP	
3	3.3220	19.06	20.17	39.23	56.00	-16.77	QP	
4	4.8540	19.25	20.20	39.45	56.00	-16.55	QP	
5	13.5420	20.39	20.28	40.67	50.00	-9.33	AVG	
6	15.0740	22.06	20.26	42.32	60.00	-17.68	QP	
7	15.0740	20.58	20.26	40.84	50.00	-9.16	AVG	
8	15.3300	20.49	20.27	40.76	50.00	-9.24	AVG	
9	15.5860	20.66	20.27	40.93	50.00	-9.07	AVG	
10	15.8420	22.30	20.27	42.57	60.00	-17.43	QP	
11	17.3740	20.21	20.30	40.51	50.00	-9.49	AVG	
12	17.6299	20.30	20.30	40.60	50.00	-9.40	AVG	

Conducted Emission Test Data

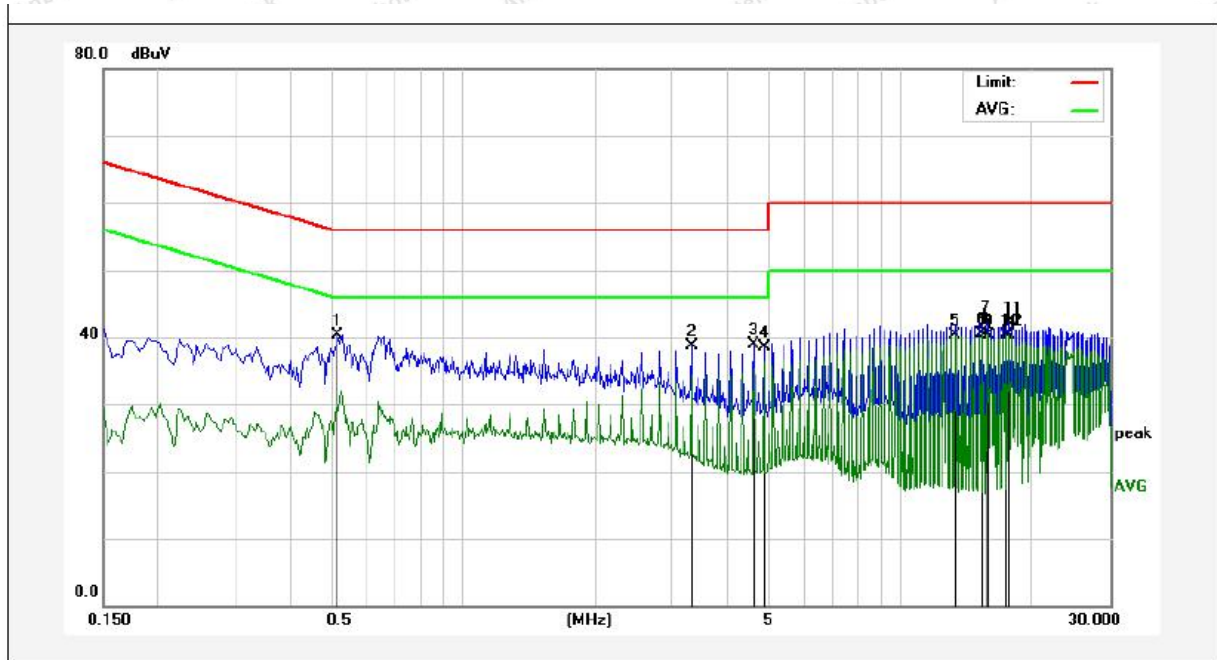
Test Site: 1# Shielded Room
Operating Condition: Keeping TX+Charging mode
Test Specification: AC 120V, 60Hz for adapter
Comment: Live Line
Tem.: 22.2℃ Hum.: 60%



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit dBuV	Over Limit (dB)	Detector	Remark
1	0.4700	21.59	19.97	41.56	56.51	-14.95	QP	
2	0.6380	21.93	20.02	41.95	56.00	-14.05	QP	
3	0.9900	19.60	20.12	39.72	56.00	-16.28	QP	
4	1.3580	18.87	20.13	39.00	56.00	-17.00	QP	
5	3.3220	19.00	20.17	39.17	56.00	-16.83	QP	
6	4.8540	19.16	20.20	39.36	56.00	-16.64	QP	
7	4.8540	16.38	20.20	36.58	46.00	-9.42	AVG	
8	13.2860	20.30	20.29	40.59	50.00	-9.41	AVG	
9	15.3300	20.36	20.27	40.63	50.00	-9.37	AVG	
10	15.5860	20.44	20.27	40.71	50.00	-9.29	AVG	
11	15.8420	20.11	20.27	40.38	50.00	-9.62	AVG	
12	17.6299	20.12	20.30	40.42	50.00	-9.58	AVG	

Conducted Emission Test Data

Test Site: 1# Shielded Room
Operating Condition: Keeping TX+Charging mode
Test Specification: AC 120V, 60Hz for adapter
Comment: Neutral Line
Tem.: 22.2°C Hum.: 60%



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit dBuV	Over Limit (dB)	Detector	Remark
1	0.5180	20.37	19.99	40.36	56.00	-15.64	QP	
2	3.3220	18.58	20.17	38.75	56.00	-17.25	QP	
3	4.5980	18.80	20.20	39.00	56.00	-17.00	QP	
4	4.8540	18.35	20.20	38.55	56.00	-17.45	QP	
5	13.2860	20.03	20.29	40.32	50.00	-9.68	AVG	
6	15.3300	20.15	20.27	40.42	50.00	-9.58	AVG	
7	15.5860	21.95	20.27	42.22	60.00	-17.78	QP	
8	15.5860	20.26	20.27	40.53	50.00	-9.47	AVG	
9	15.8420	19.97	20.27	40.24	50.00	-9.76	AVG	
10	17.3740	19.94	20.30	40.24	50.00	-9.76	AVG	
11	17.6299	21.90	20.30	42.20	60.00	-17.80	QP	
12	17.6299	19.99	20.30	40.29	50.00	-9.71	AVG	

4. Radiation Spurious Emission and Band Edge

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

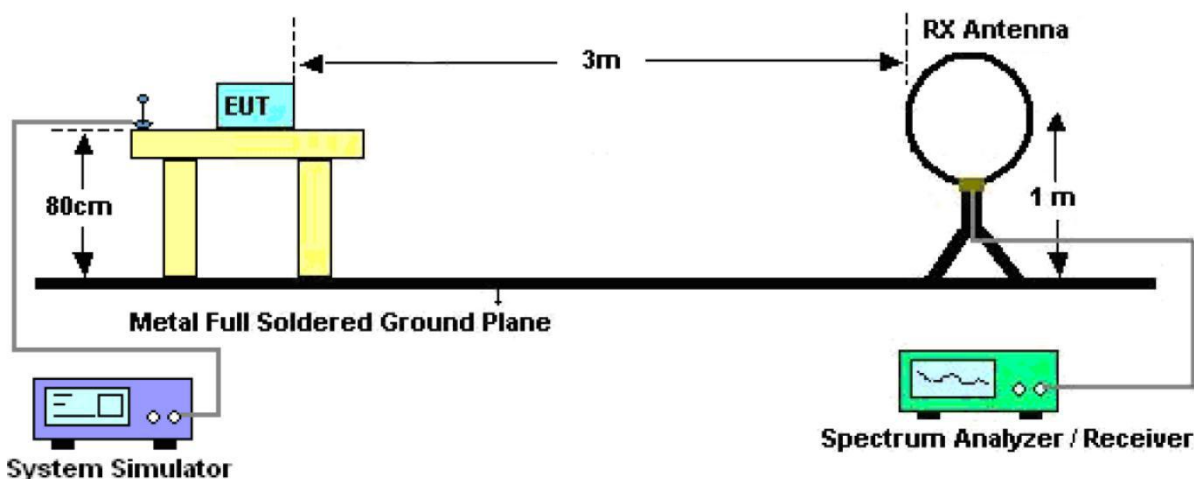


Figure 1. Below 30MHz

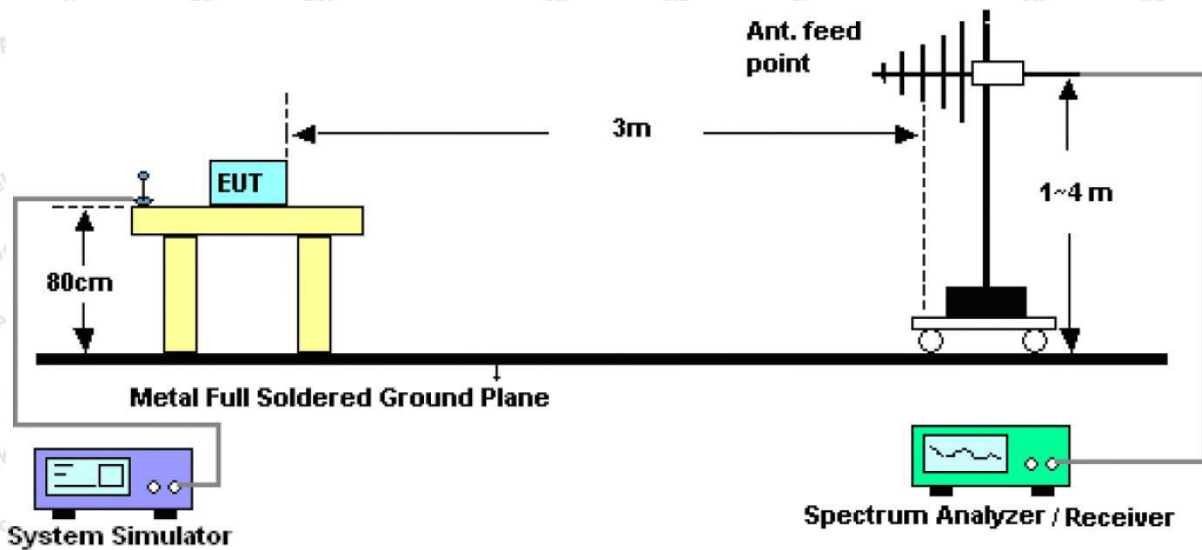


Figure 2. 30MHz to 1GHz

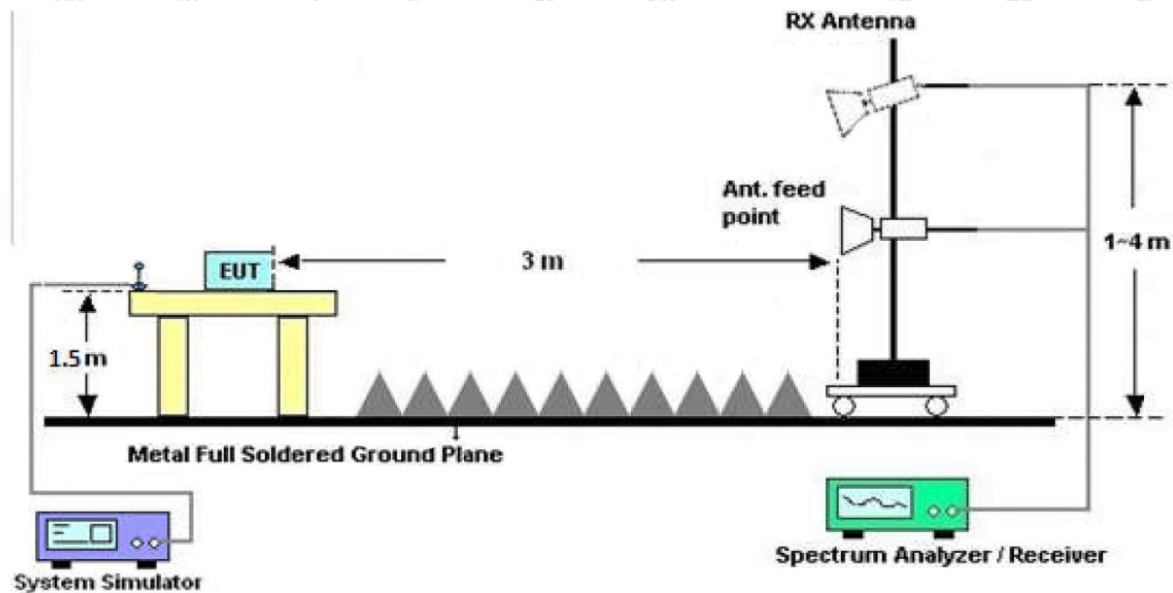


Figure 3. Above 1 GHz

4.3. Test Procedure

For below 1GHz: The EUT is placed on a turntable, which is 0.8m above the ground plane.

For above 1GHz: The EUT is placed on a turntable, which is 1.5m 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

Test Results

(Between 9KHz – 30MHz)

Job No.: SZAWW180712003-01

Standard: FCC PART15 C_3m

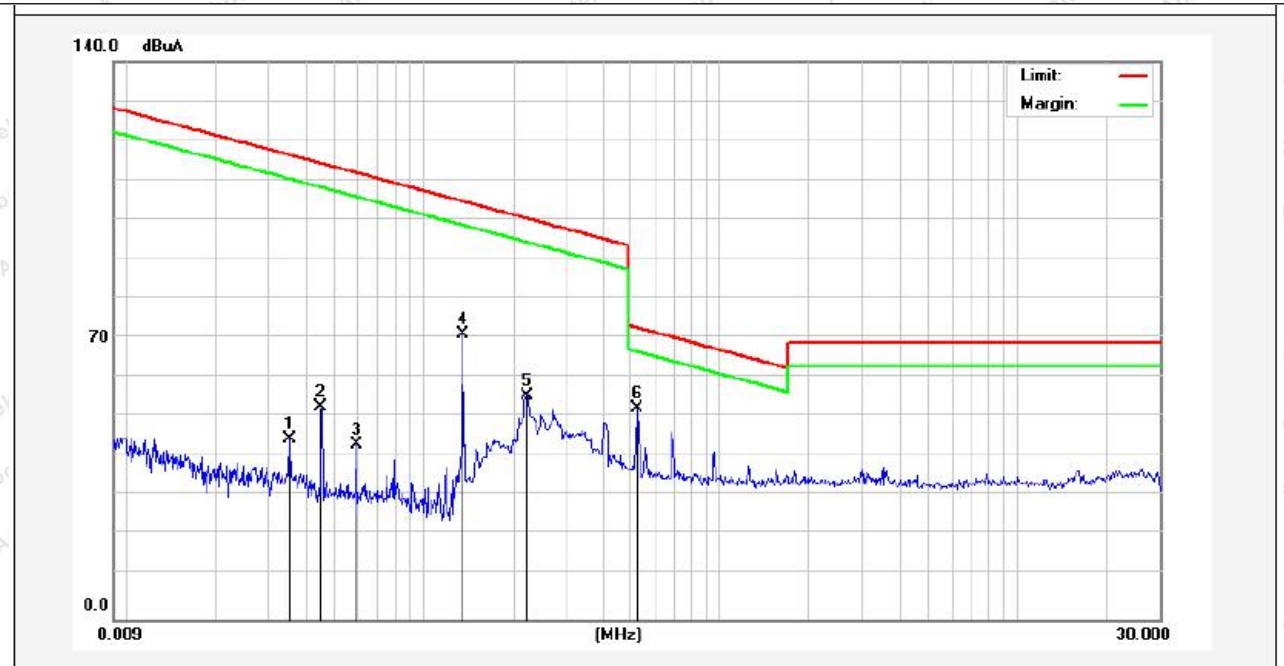
Power Source: AC 120V, 60Hz for adapter

Test item: Radiation Test

Temp.(°C)/Hum.(%RH): 24.7(°C)/51%RH

Test Mode: Mode 1

Distance: 3m

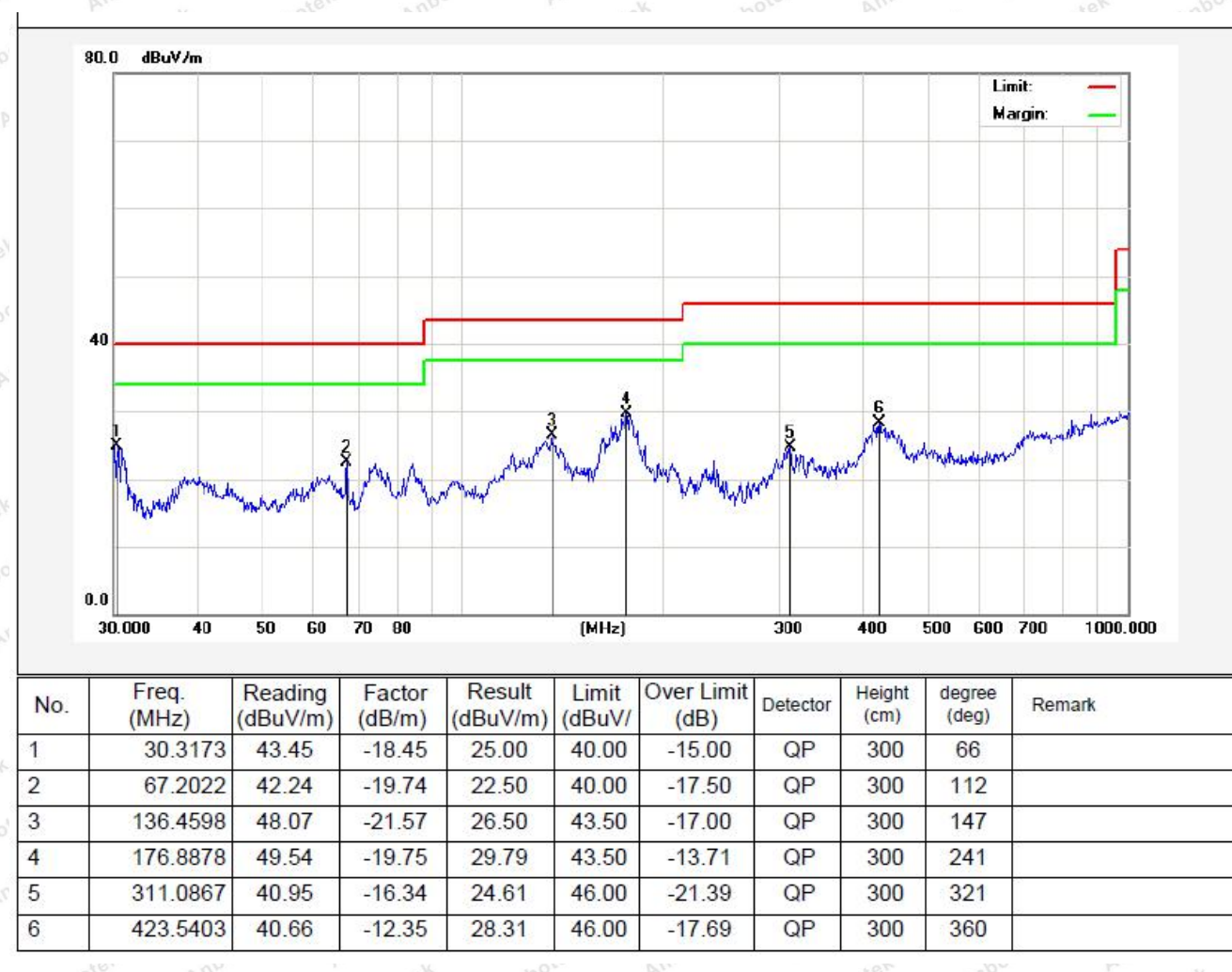


Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	degree (dgc)
0.0352	32.99	19.61	2.57	0	55.17	136.55	-81.38	Peak	33
0.0352	23.27	19.61	2.57	0	45.45	116.55	-71.10	AV	33
0.0451	41.61	19.61	2.57	0	63.79	134.40	-70.61	Peak	247
0.0451	31.31	19.61	2.57	0	53.49	114.40	-60.91	AV	247
0.0592	30.48	19.61	2.57	0	52.66	132.05	-79.39	Peak	159
0.0592	21.60	19.61	2.57	0	43.78	112.05	-68.27	AV	159
0.1275	60.11	19.63	2.59	0	82.33	124.87	-42.54	Peak	104
0.1275	49.32	19.63	2.59	0	71.54	104.87	-33.33	AV	104
0.2220	44.15	19.63	2.59	0	66.37	120.64	-54.27	Peak	324
0.2220	33.87	19.63	2.59	0	56.09	100.64	-44.55	AV	324
0.5260	30.82	19.65	2.61	0	53.08	73.18	-20.10	QP	98

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)

Job No.:	SZAWW180712003-01	Polarization:	Horizontal
Standard:	FCC PART15 C _3m	Power Source:	AC 120V, 60Hz for adapter
Test item:	Radiation Test	Temp.(°C)/Hum.(%RH):	24.3(°C)/55%RH
Test Mode:	Mode 1	Distance:	3m



Job No.:	SZAWW180712003-01	Polarization:	Vertical
Standard:	FCC PART15 C_3m	Power Source:	AC 120V, 60Hz for adapter
Test item:	Radiation Test	Temp.(°C)/Hum.(%RH):	24.3(°C)/55%RH
Test Mode:	Mode 1	Distance:	3m



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/)	Over Limit (dB)	Detector	Height (cm)	degree (deg)	Remark
1	30.1054	53.56	-17.52	36.04	40.00	-3.96	QP	300	69	
2	38.4809	44.60	-14.20	30.40	40.00	-9.60	QP	300	112	
3	84.7019	52.19	-18.06	34.13	40.00	-5.87	QP	300	174	
4	133.1311	53.72	-17.02	36.70	43.50	-6.80	QP	300	229	
5	176.2686	52.39	-16.12	36.27	43.50	-7.23	QP	300	267	
6	417.6411	38.19	-11.35	26.84	46.00	-19.16	QP	300	324	

Job No.:	SZAWW180712003-01	Polarization:	Horizontal
Standard:	FCC PART15 C_3m	Power Source:	AC 240V, 60Hz for adapter
Test item:	Radiation Test	Temp.(°C)/Hum.(%RH):	24.3(°C)/55%RH
Test Mode:	Mode 1	Distance:	3m



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/	Over Limit (dB)	Detector	Height (cm)	degree (deg)	Remark
1	30.8535	43.05	-18.31	24.74	40.00	-15.26	QP	300	79	
2	39.9942	37.77	-14.37	23.40	40.00	-16.60	QP	300	125	
3	135.5062	45.26	-21.59	23.67	43.50	-19.83	QP	300	166	
4	178.7584	48.24	-19.81	28.43	43.50	-15.07	QP	300	221	
5	306.7537	43.00	-16.87	26.13	46.00	-19.87	QP	300	269	
6	413.2706	39.25	-12.55	26.70	46.00	-19.30	QP	300	321	

Job No.: SZAWW180712003-01 **Polarization:** Vertical
Standard: FCC PART15 C_3m **Power Source:** AC 240V, 60Hz for adapter
Test item: Radiation Test **Temp.(°C)/Hum.(%RH):** 24.3(°C)/55%RH
Test Mode: Mode 1 **Distance:** 3m



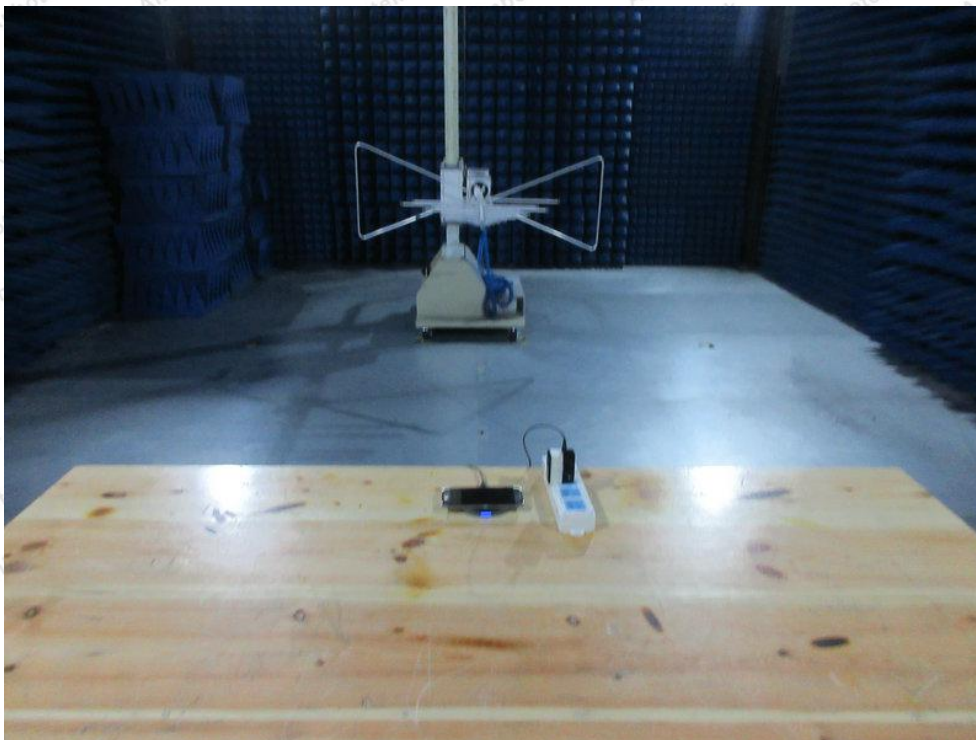
No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/	Over Limit (dB)	Detector	Height (cm)	degree (deg)	Remark
1	30.8535	51.54	-17.31	34.23	40.00	-5.77	QP	300	55	
2	30.9135	51.66	-17.28	34.38	40.00	-5.62	QP	300	88	
3	38.4809	48.36	-14.20	34.16	40.00	-5.84	QP	300	123	
4	121.1231	45.04	-15.49	29.55	43.50	-13.95	QP	300	177	
5	139.3613	47.41	-17.44	29.97	43.50	-13.53	QP	300	231	
6	163.1818	47.89	-16.77	31.12	43.50	-12.38	QP	300	269	
7	400.4319	37.86	-11.86	26.00	46.00	-20.00	QP	300	330	

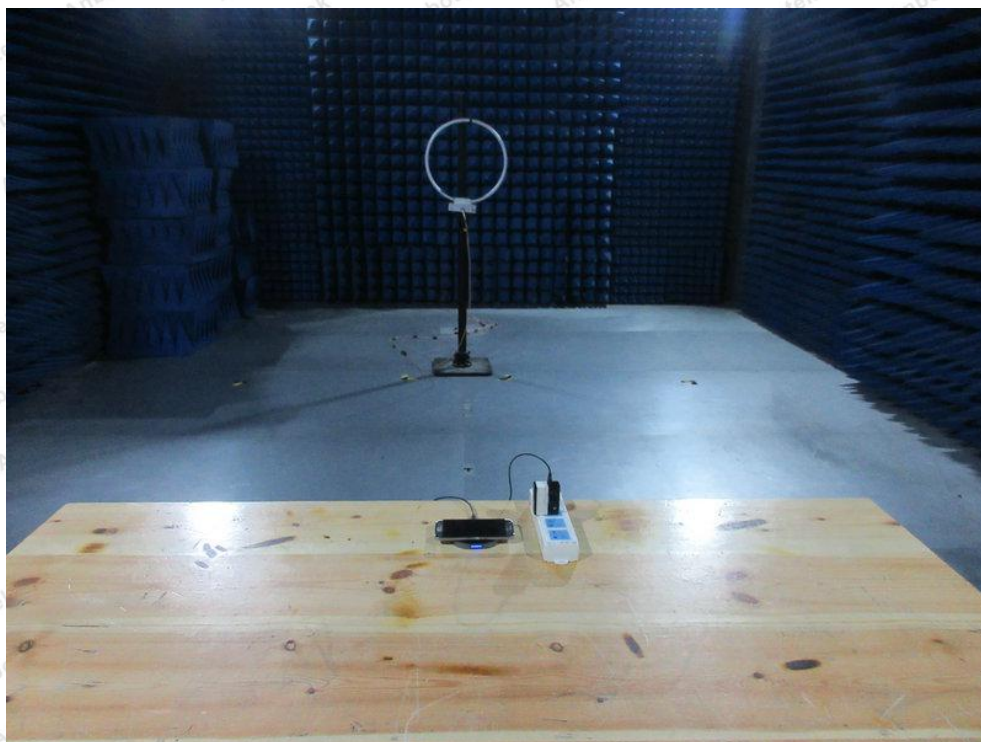
APPENDIX I-- TEST SETUP PHOTOGRAPH

Photo of Conducted Emission Measurement

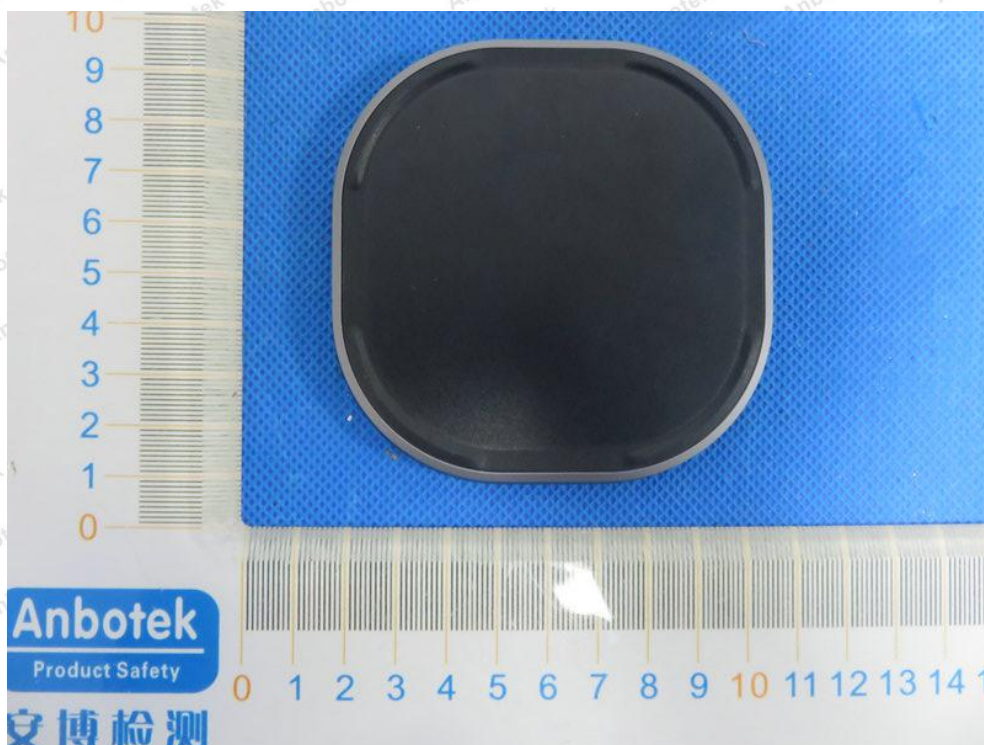


Photo of Radiation Emission Test

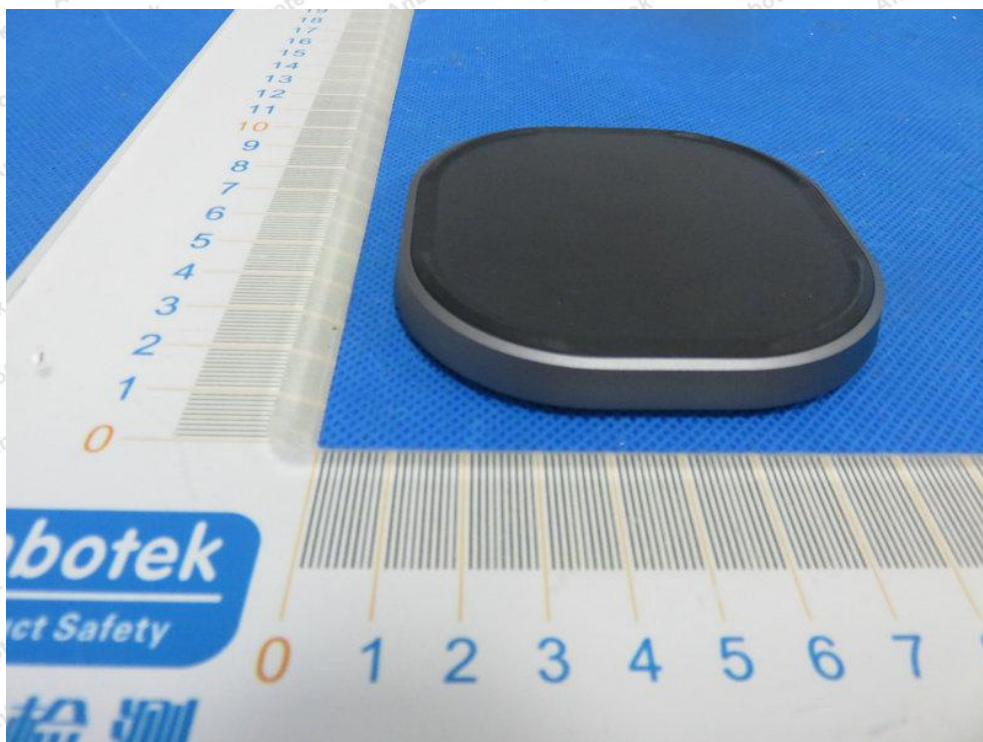


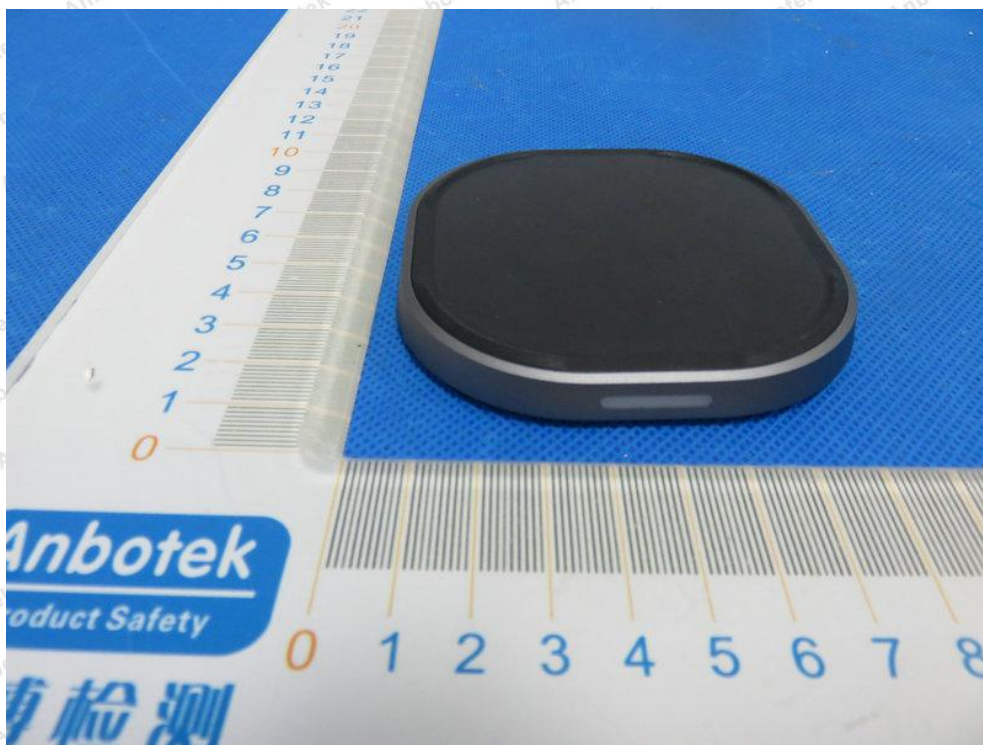


APPENDIX II -- EXTERNAL PHOTOGRAPH

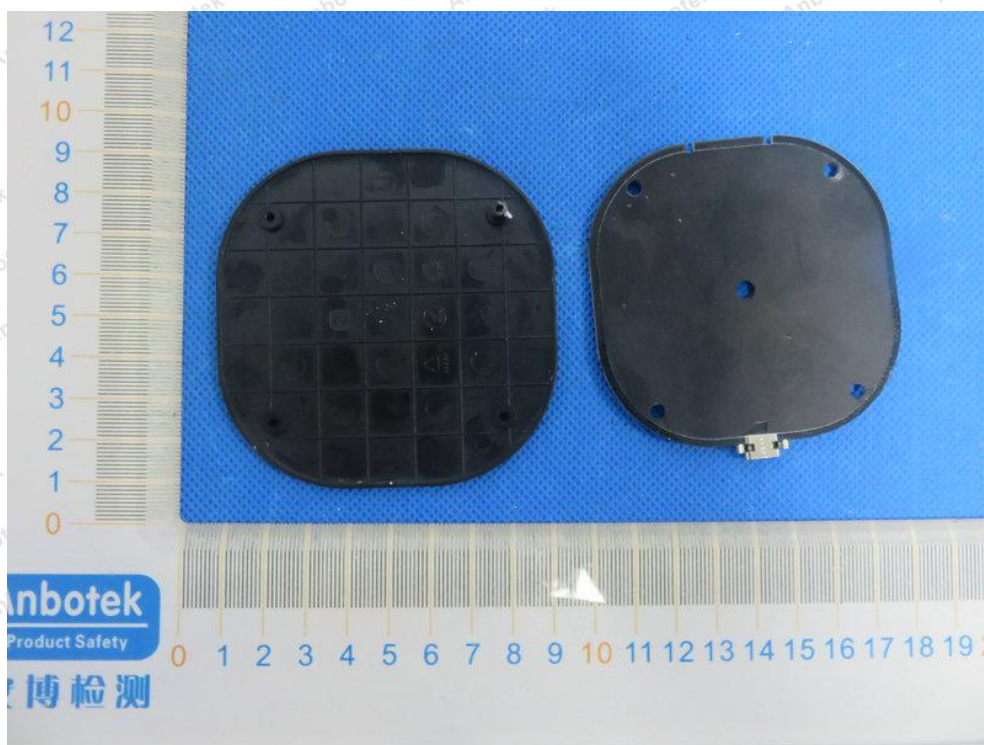


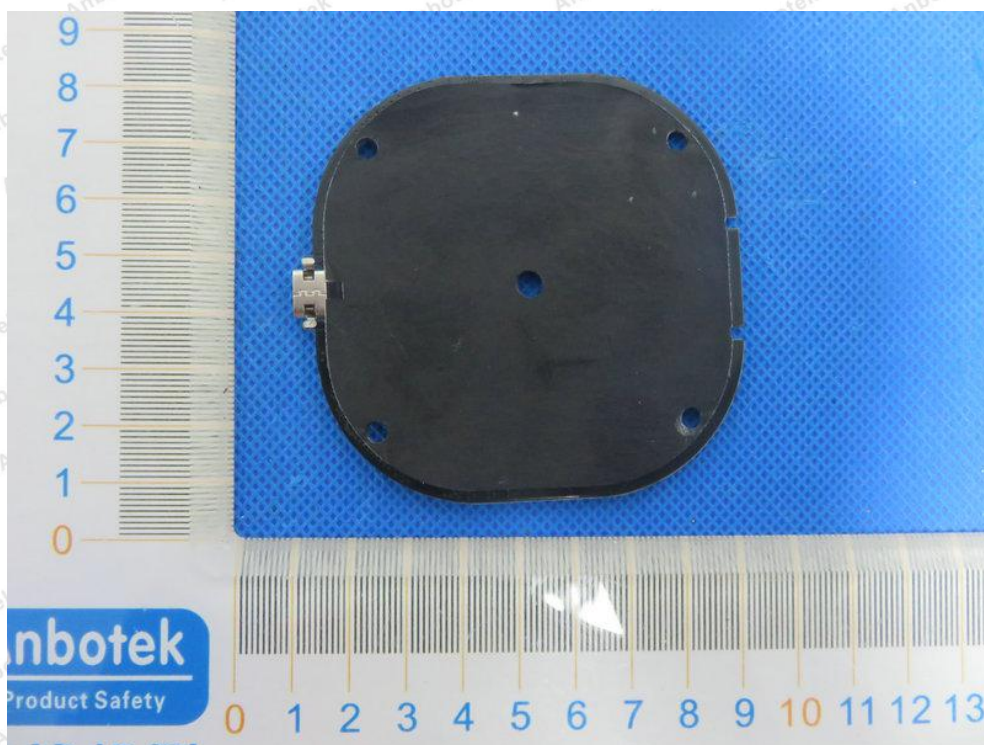






APPENDIX III -- INTERNAL PHOTOGRAPH







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