FCC TEST REPORT

For

Adam Elements International Co., LTD.

OMNIA Q1 10W wireless charging pad

Model No.: OMNIA Q1

Prepared For	:	Adam Elements International Co., LTD.
Address	:	10F.-3, No.54, Songjiang Rd., Zhongshan Dist., Taipei City, Taiwan 104
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	:	SZAWW180713007-01
Date of Receipt	:	Jul. 13, 2018
Date of Test	:	Jul. 13~26, 2018
Date of Report	:	Jul. 26, 2018

Contents

TEST REPORT

Applicant	:	Adam Elements International Co., LTD.
Manufacturer	:	Adam Elements International Co., LTD.
Product Name	:	OMNIA Q1 10W wireless charging pad
Model No.	:	OMNIA Q1
Trade Mark	:	ADAM elements
Rating(s)	:	Input: DC 5V, 2A / DC 9V, 2A Output: DC 5V, 1A / DC 9V, 1.1A

Test Standard(s)	:	**FCC Part15 Subpart C 2018, Paragraph 15.209**
Test Method(s)	:	**ANSI C63.10: 2013**

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 Test: Jul. 13~26, 2018

Prepared by: (Engineer / Oliay Yang)

Reviewer: (Supervisor / Snowy Meng)

Approved & Authorized Signer: (Manager / Sally Zhang)

1. General Information

1.1. Client Information

Applicant	:	Adam Elements International Co., LTD.
Address	:	10F.-3, No.54, Songjiang Rd., Zhongshan Dist., Taipei City, Taiwan 104
Manufacturer	:	Adam Elements International Co., LTD.
Address	:	10F.-3, No.54, Songjiang Rd., Zhongshan Dist., Taipei City, Taiwan 104

1.2. Description of Device (EUT)

Product Name	:	OMNIA Q1 10W wireless charging pad	
Model No.	:	OMNIA Q1	
Trade Mark	:	ADAM elements	
Test Power Supply	:	AC 120V, 60Hz for adapter / AC 240V, 60Hz for adapter	
Test Sample No.	:	S1(Normal Sample), S2(Engineering Sample)	
Product Description	:	Operation Frequency:	127.7KHz
		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	:	Model: A2013 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.

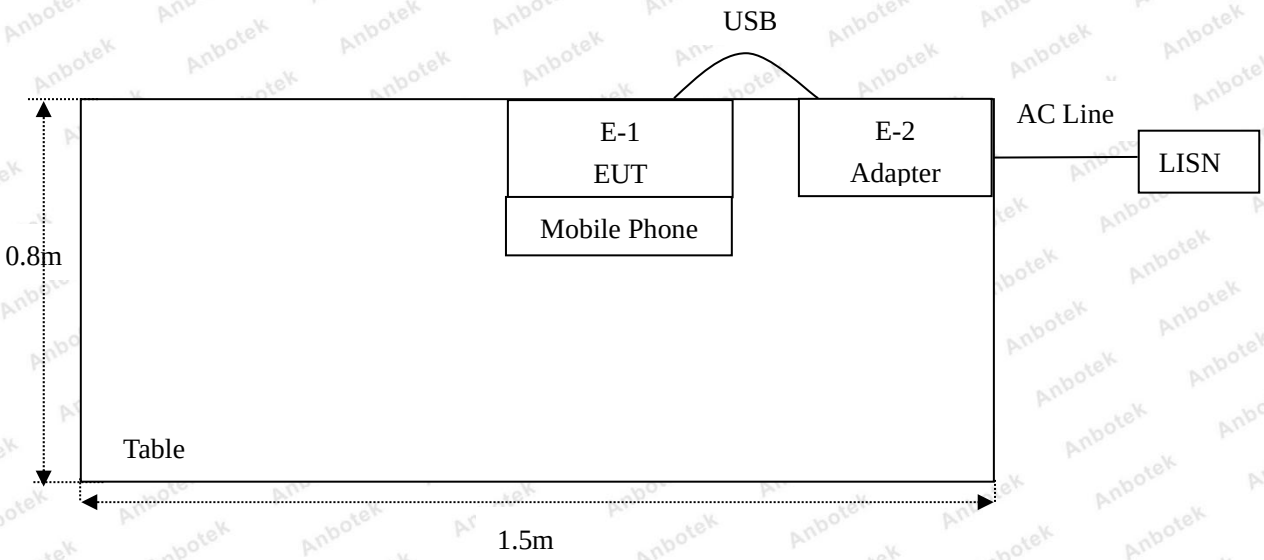
Pretest Mode	Description
Mode 1	Keeping TX+Charging mode

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

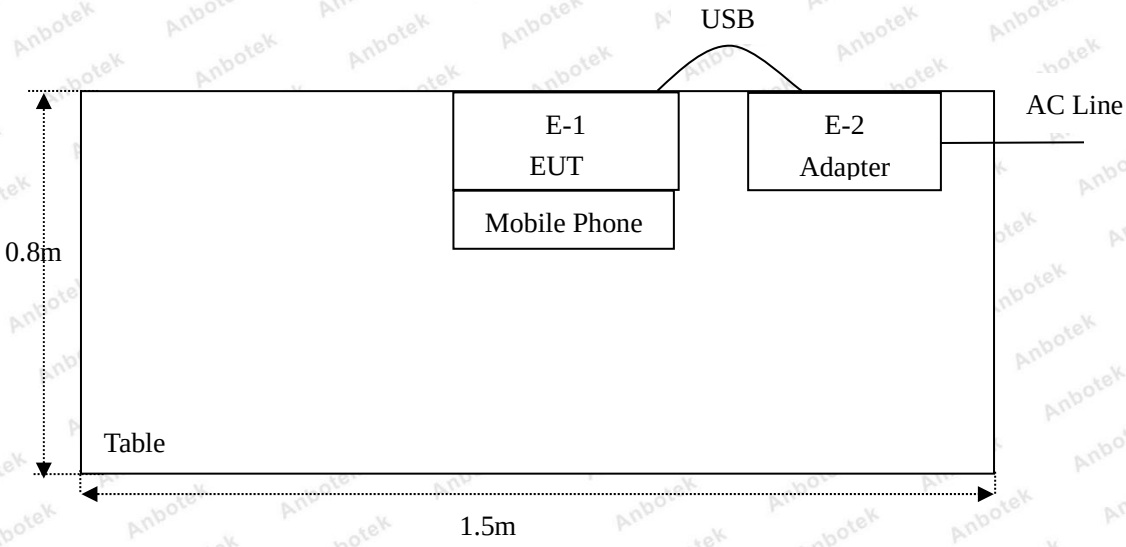
For Radiated Emission	
Final Test Mode	Description
Mode 1	Keeping TX+Charging mode

1.5. Description Of Test Setup

CE



RE



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	Nov. 05, 2018	1 Year
2.	EMI Test Receiver	Rohde & Schwarz	ESPI3	101604	Nov. 05, 2018	1 Year
3.	RF Switching Unit	Compliance Direction	RSU-M2	38303	Nov. 05, 2018	1 Year
4.	Spectrum Analysis	Agilent	E4407B	US39390582	Nov. 05, 2018	1 Year
5.	MAX Spectrum Analysis	Agilent	N9020A	MY51170037	Nov. 05, 2018	1 Year
6.	Preamplifier	SKET Electronic	BK1G18G30D	KD17503	Nov. 05, 2018	1 Year
7.	Double Ridged Horn Antenna	Instruments corporation	GTH-0118	351600	Nov. 20, 2018	1 Year
8.	Bilog Broadband Antenna	Schwarzbeck	VULB9163	VULB 9163-289	Nov. 19, 2018	1 Year
9.	Loop Antenna	Schwarzbeck	FMZB1519B	00053	Nov. 20, 2018	1 Year
10.	Horn Antenna	A-INFO	LB-180400-KF	J211060628	Nov. 20, 2018	1 Year
11.	Pre-amplifier	SONOMA	310N	186860	Nov. 05, 2018	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	Nov. 05, 2018	1 Year
14.	Power Sensor	DAER	RPR3006W	15I00041SN045	Nov. 05, 2018	1 Year
15.	Power Sensor	DAER	RPR3006W	15I00041SN046	Nov. 05, 2018	1 Year
16.	MXA Spectrum Analysis	Agilent	N9020A	MY51170037	Nov. 05, 2018	1 Year
17.	MXG RF Vector Signal Generator	Agilent	N5182A	MY48180656	Nov. 05, 2018	1 Year
18.	Signal Generator	Agilent	E4421B	MY41000743	Nov. 05, 2018	1 Year
19.	DC Power Supply	IVYTECH	IV3605	1804D360510	Apr. 02, 2018	1 Year
20.	Constant Temperature Humidity Chamber	ZHONGJIAN	ZJ-KHWS80B	N/A	Nov. 01, 2018	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 Anbotek Compliance Laboratory Limited, EMC Laboratory has been registed 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

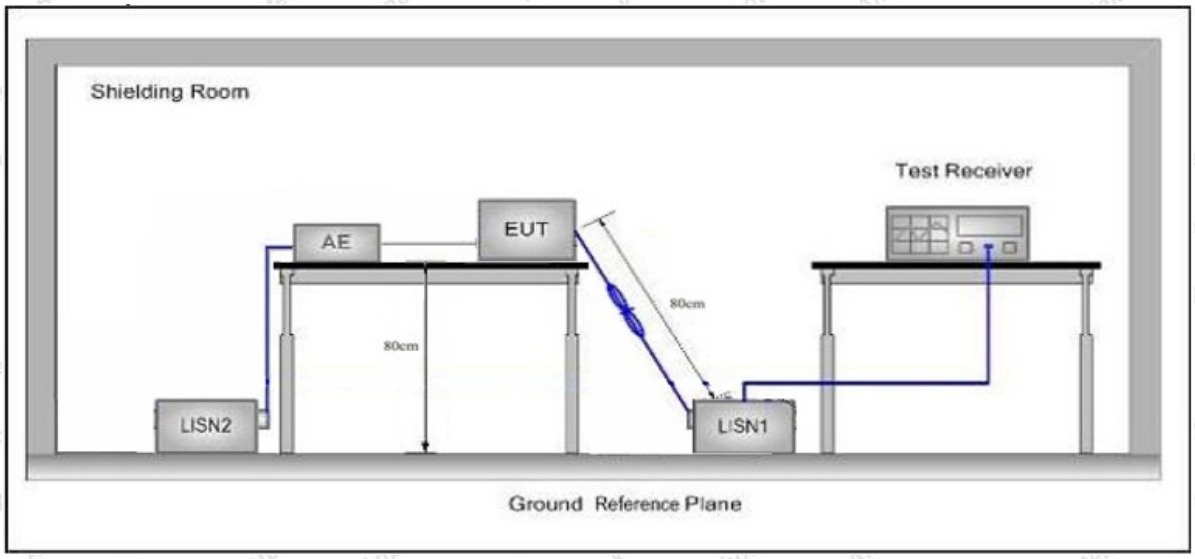
Standard Section	Test Item	Result
FCC Part 15, Paragraph 15.207	Conducted Emission Test	PASS
FCC Part 15, Paragraph 15.209(a)(f)	Spurious Emission	PASS

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

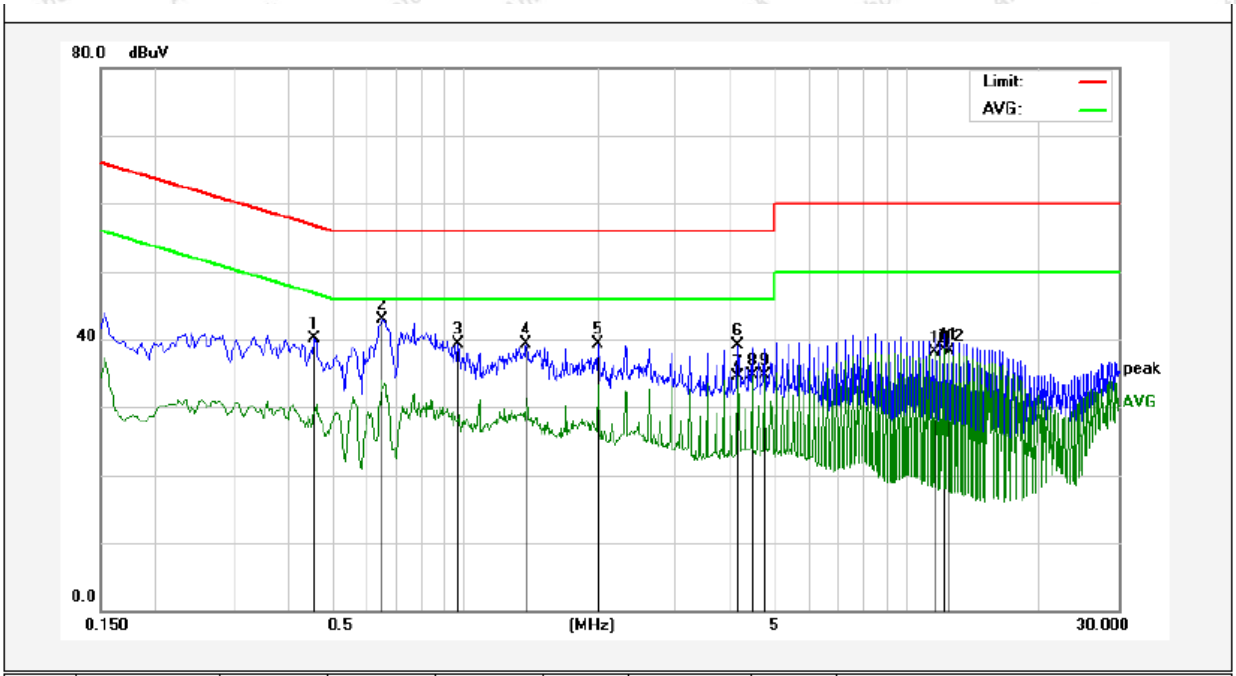
Test Site: 1# Shielded Room

Operating Condition: Keeping TX+Charging mode

Test Specification: AC 240V, 60Hz for adapter

Comment: Live Line

Tem.: 22.2℃ Hum.: 60%



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit dBuV	Over Limit (dB)	Detector	Remark
1	0.4580	20.20	19.96	40.16	56.73	-16.57	QP	
2	0.6500	22.96	20.02	42.98	56.00	-13.02	QP	
3	0.9660	19.14	20.11	39.25	56.00	-16.75	QP	
4	1.3740	19.09	20.13	39.22	56.00	-16.78	QP	
5	1.9980	19.09	20.14	39.23	56.00	-16.77	QP	
6	4.1540	18.88	20.18	39.06	56.00	-16.94	QP	
7	4.1540	14.32	20.18	34.50	46.00	-11.50	AVG	
8	4.4620	14.48	20.19	34.67	46.00	-11.33	AVG	
9	4.7700	14.52	20.20	34.72	46.00	-11.28	AVG	
10	11.5380	17.76	20.32	38.08	50.00	-11.92	AVG	
11	12.1540	18.14	20.31	38.45	50.00	-11.55	AVG	
12	12.4620	18.01	20.30	38.31	50.00	-11.69	AVG	

Conducted Emission Test Data

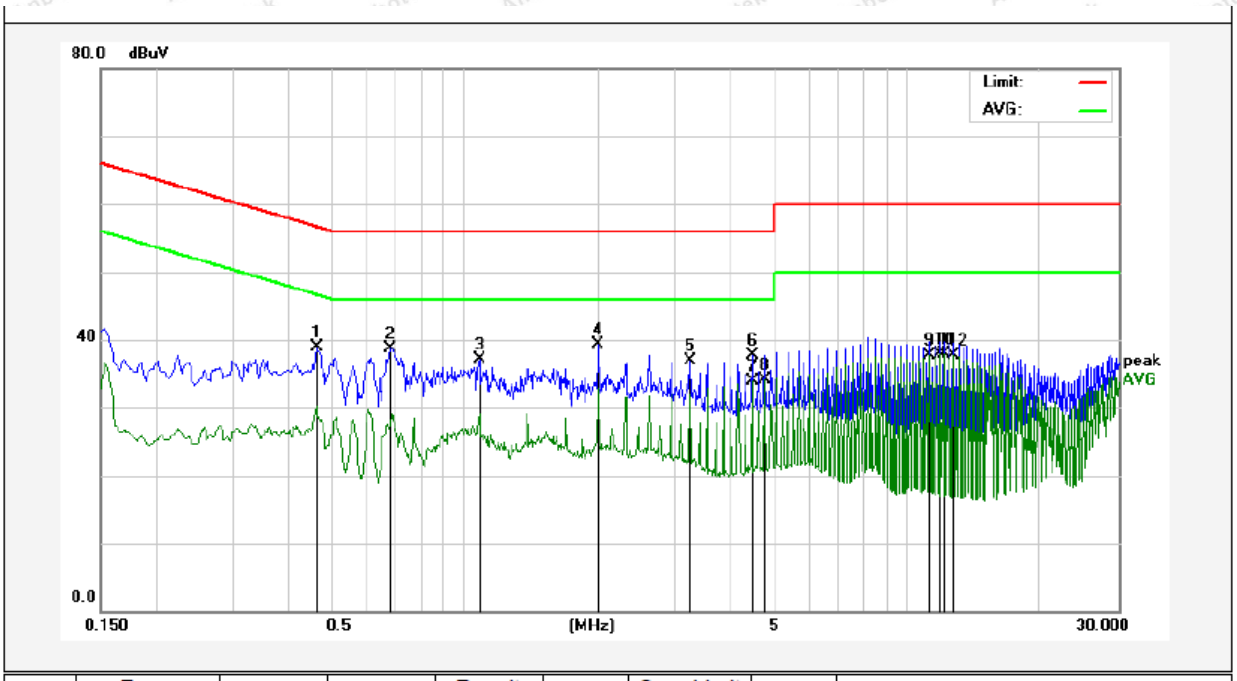
Test Site: 1# Shielded Room

Operating Condition: Keeping TX+Charging mode

Test Specification: AC 240V, 60Hz for adapter

Comment: Neutral Line

Tem.: 22.2℃ Hum.: 60%



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit dBuV	Over Limit (dB)	Detector	Remark
1	0.4620	19.00	19.96	38.96	56.66	-17.70	QP	
2	0.6820	18.75	20.03	38.78	56.00	-17.22	QP	
3	1.0780	17.07	20.12	37.19	56.00	-18.81	QP	
4	2.0020	19.09	20.14	39.23	56.00	-16.77	QP	
5	3.2300	16.81	20.16	36.97	56.00	-19.03	QP	
6	4.4620	17.49	20.19	37.68	56.00	-18.32	QP	
7	4.4620	13.79	20.19	33.98	46.00	-12.02	AVG	
8	4.7700	13.83	20.20	34.03	46.00	-11.97	AVG	
9	11.2299	17.32	20.32	37.64	50.00	-12.36	AVG	
10	11.8460	17.63	20.31	37.94	50.00	-12.06	AVG	
11	12.1540	17.55	20.31	37.86	50.00	-12.14	AVG	
12	12.7700	17.31	20.30	37.61	50.00	-12.39	AVG	

Conducted Emission Test Data

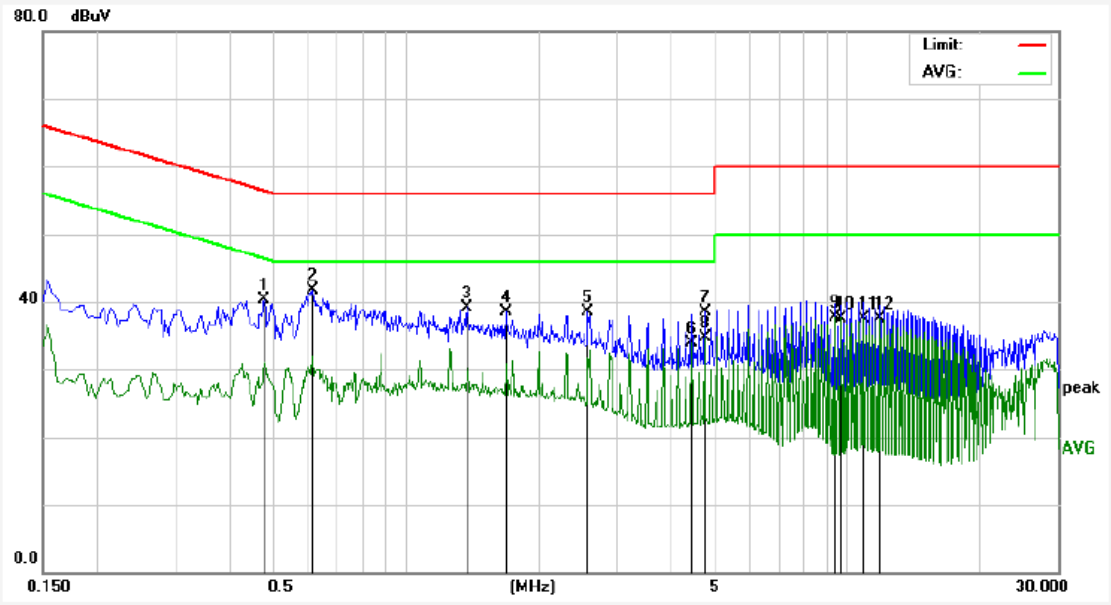
Test Site: 1# Shielded Room

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	0.4780	20.37	19.97	40.34	56.37	-16.03	QP	
2	0.6140	21.77	20.01	41.78	56.00	-14.22	QP	
3	1.3779	19.07	20.13	39.20	56.00	-16.80	QP	
4	1.6860	18.44	20.13	38.57	56.00	-17.43	QP	
5	2.5900	18.26	20.15	38.41	56.00	-17.59	QP	
6	4.4500	13.73	20.19	33.92	46.00	-12.08	AVG	
7	4.7580	18.24	20.20	38.44	56.00	-17.56	QP	
8	4.7580	14.57	20.20	34.77	46.00	-11.23	AVG	
9	9.3620	17.35	20.32	37.67	50.00	-12.33	AVG	
10	9.6700	17.27	20.33	37.60	50.00	-12.40	AVG	
11	10.8979	17.15	20.33	37.48	50.00	-12.52	AVG	
12	11.8180	17.12	20.31	37.43	50.00	-12.57	AVG	

Conducted Emission Test Data

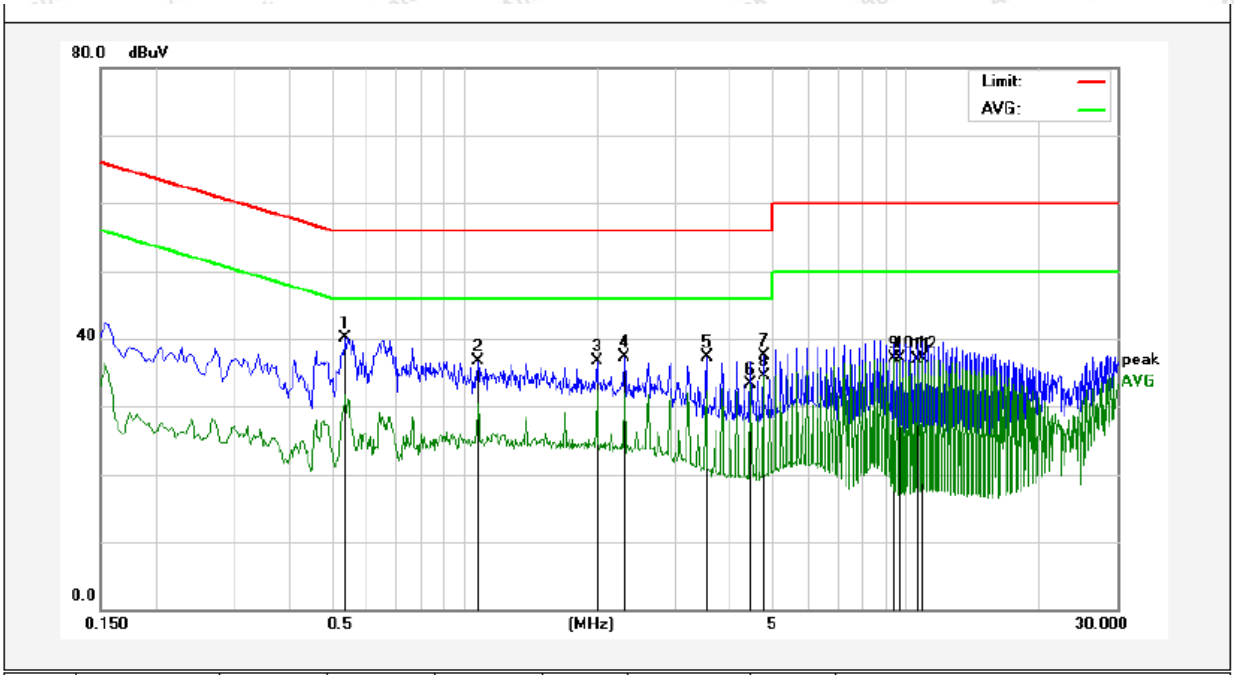
Test Site: 1# Shielded Room

Operating Condition: Keeping TX+Charging mode

Test Specification: AC 120V, 60Hz for adapter

Comment: Neutral Line

Tem.: 22.2℃ Hum.: 60%



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit dBuV	Over Limit (dB)	Detector	Remark
1	0.5380	20.03	19.99	40.02	56.00	-15.98	QP	
2	1.0740	16.58	20.12	36.70	56.00	-19.30	QP	
3	1.9940	16.64	20.14	36.78	56.00	-19.22	QP	
4	2.3020	17.23	20.15	37.38	56.00	-18.62	QP	
5	3.5300	17.04	20.17	37.21	56.00	-18.79	QP	
6	4.4500	13.07	20.19	33.26	46.00	-12.74	AVG	
7	4.7580	17.33	20.20	37.53	56.00	-18.47	QP	
8	4.7580	14.33	20.20	34.53	46.00	-11.47	AVG	
9	9.3620	16.84	20.32	37.16	50.00	-12.84	AVG	
10	9.6700	16.80	20.33	37.13	50.00	-12.87	AVG	
11	10.5900	16.61	20.33	36.94	50.00	-13.06	AVG	
12	10.8979	16.75	20.33	37.08	50.00	-12.92	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

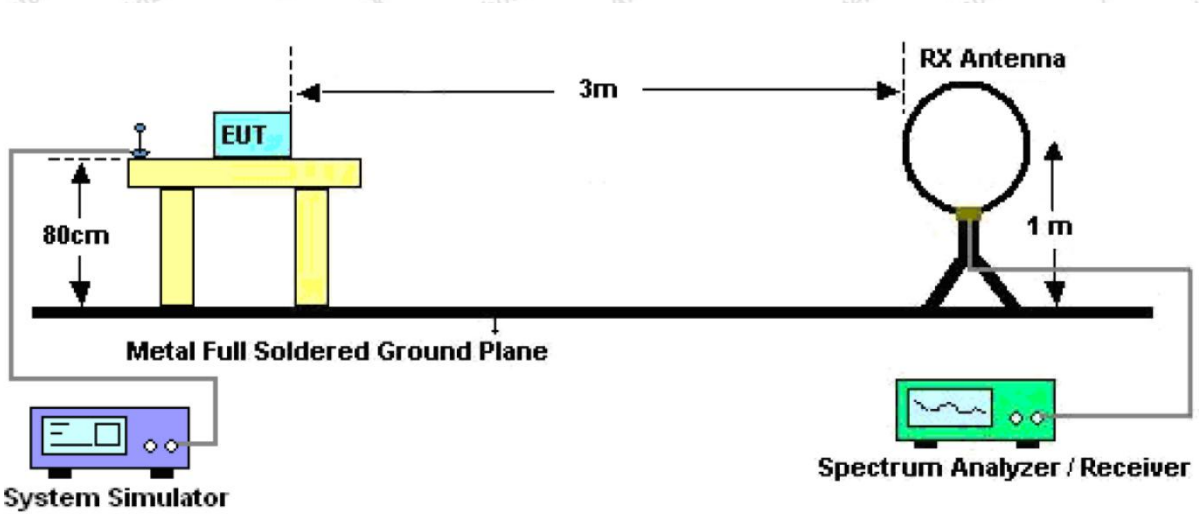


Figure 1. Below 30MHz

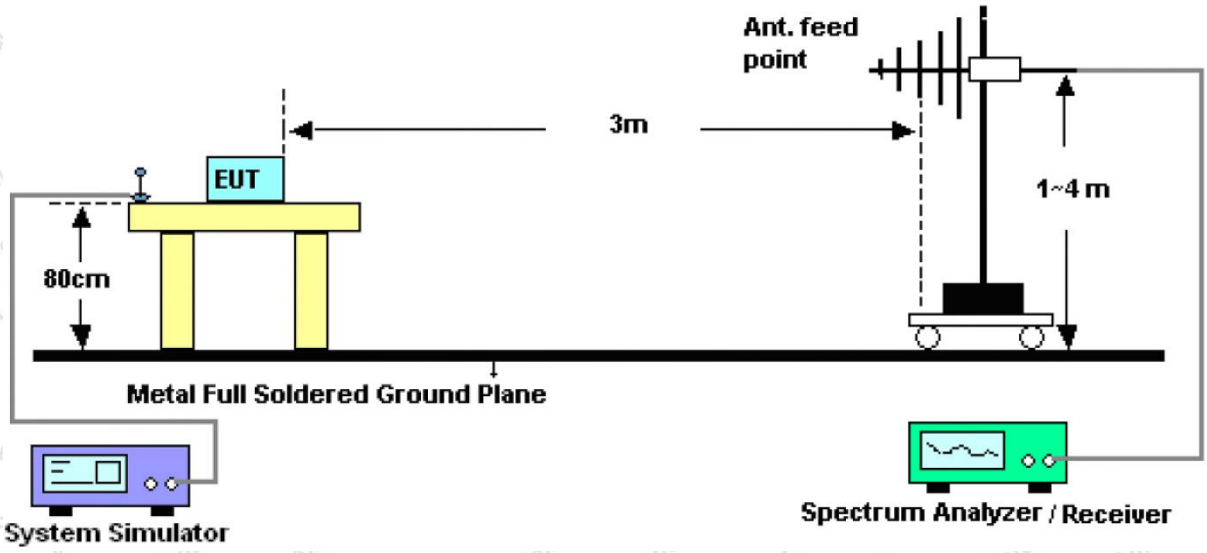


Figure 2. 30MHz to 1GHz

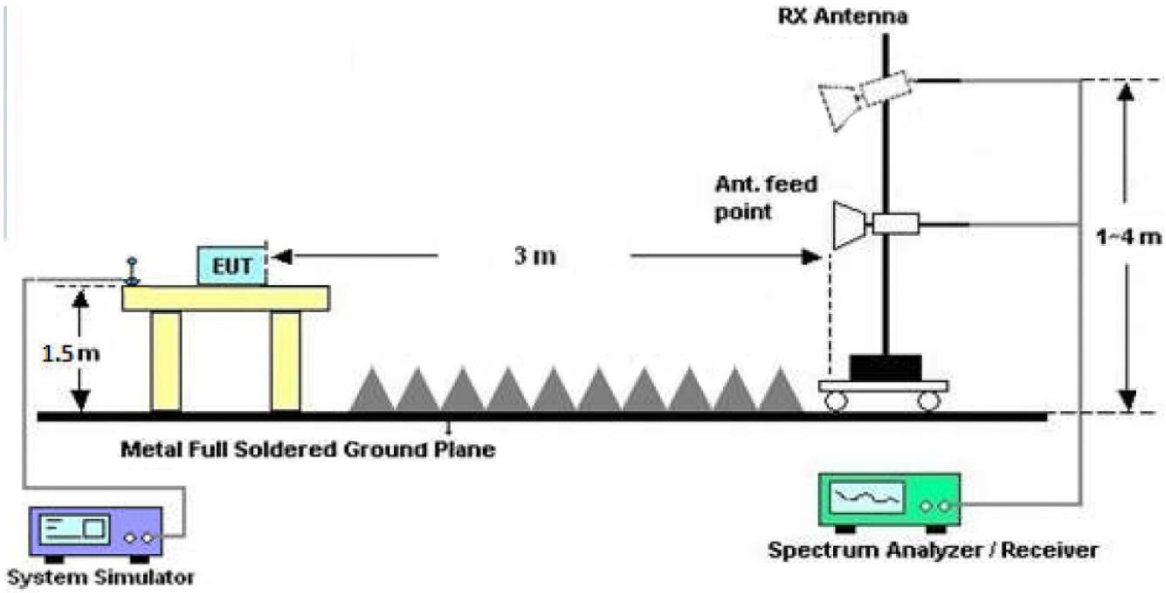


Figure 3. Above 1 GHz

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.

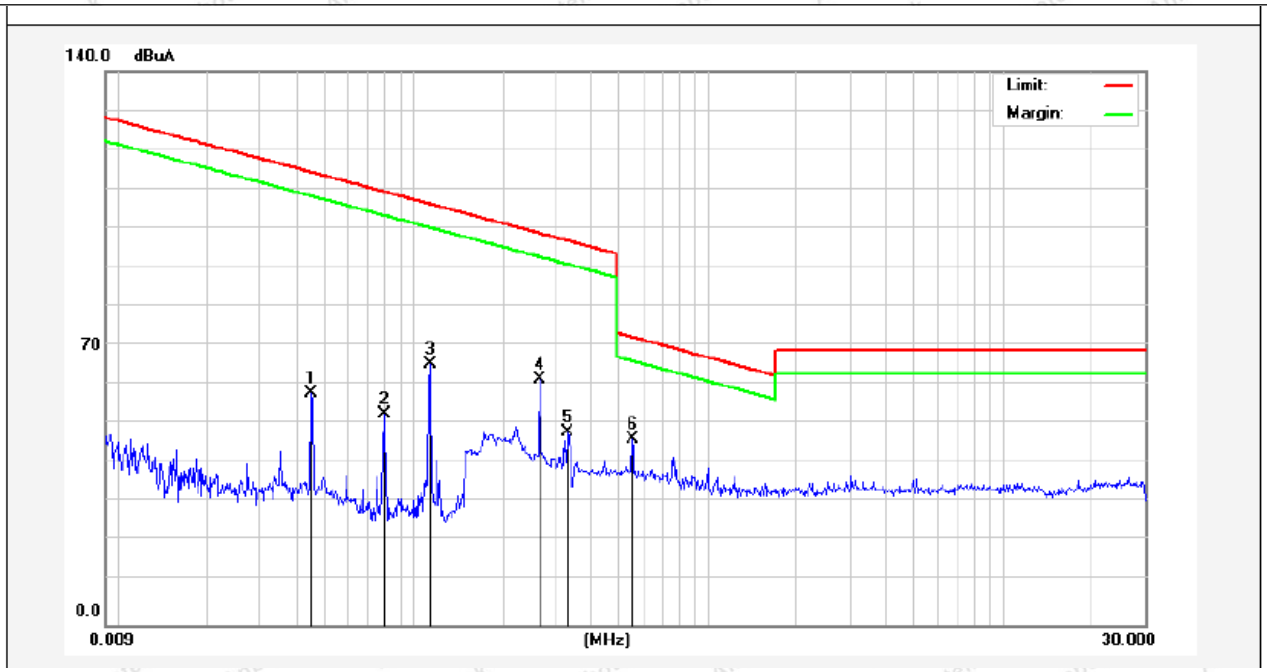
4.4. Test Data

PASS

Test Results

(Between 9KHz – 30MHz)

Job No.:	**SZAWW180713007-01**		
Standard:	**FCC PART15 C _3m**	**Power Source:**	**AC 120V, 60Hz for adapter**
Test item:	**Radiation Test**	**Temp.(℃)/Hum.(%RH):**	**24.7(℃)/51%RH**
Test Mode:	**Mode 1**	**Distance:**	**3m**

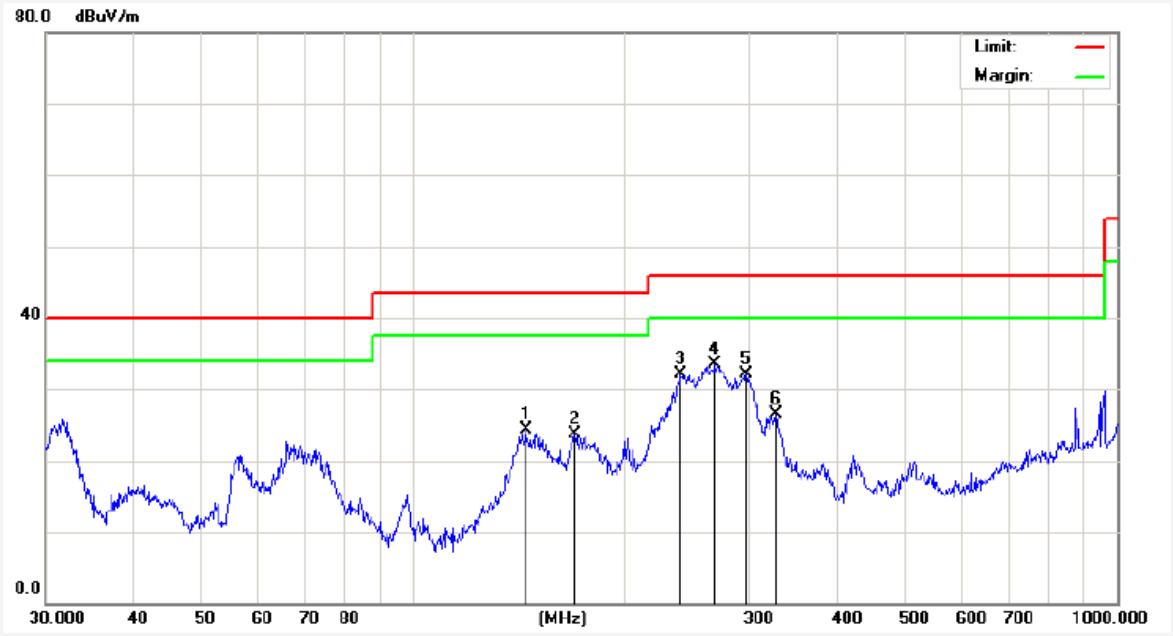


Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	degree (dge)
0.0451	47.65	19.61	2.57	0	69.83	134.40	-64.57	Peak	44
0.0451	36.40	19.61	2.57	0	58.58	114.40	-55.82	AV	44
0.0792	39.89	19.61	2.57	0	62.07	129.54	-67.47	Peak	147
0.0792	31.29	19.61	2.57	0	53.47	109.54	-56.07	AV	147
0.1273	54.41	19.61	2.57	0	76.59	125.80	-49.21	Peak	352
0.1273	43.73	19.61	2.57	0	65.91	105.80	-39.89	AV	352
0.2671	49.72	19.63	2.59	0	71.94	119.04	-47.10	Peak	258
0.2671	39.87	19.63	2.59	0	62.09	99.04	-36.95	AV	258
0.3339	35.95	19.63	2.59	0	58.17	117.11	-58.94	Peak	314
0.3339	26.44	19.63	2.59	0	48.66	97.11	-48.45	AV	314
0.5540	24.97	19.65	2.61	0	47.23	72.73	-25.50	QP	129

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.

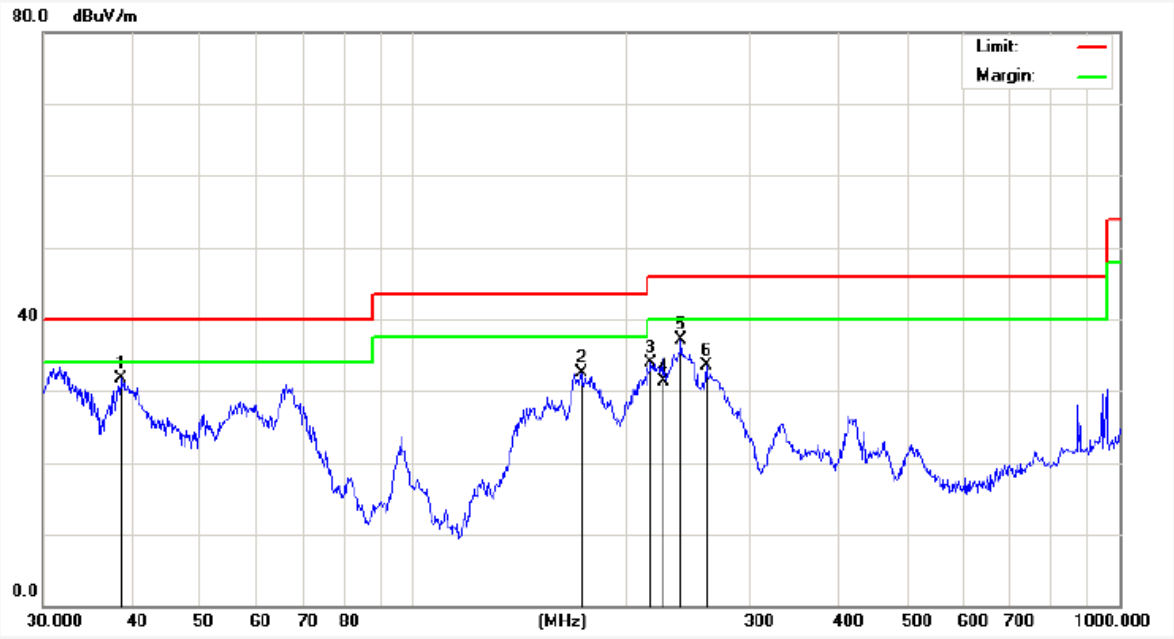
(Between 30MHz –1000 MHz)

Job No.:	**SZAWW180713007-01**	**Polarization:**	**Horizontal**
Standard:	**FCC PART15 C _3m**	**Power Source:**	**AC 120V, 60Hz for adapter**
Test item:	**Radiation Test**	**Temp.(℃)/Hum.(%RH):**	**24.3(℃)/55%RH**
Test Mode:	**Mode 1**	**Distance:**	**3m**



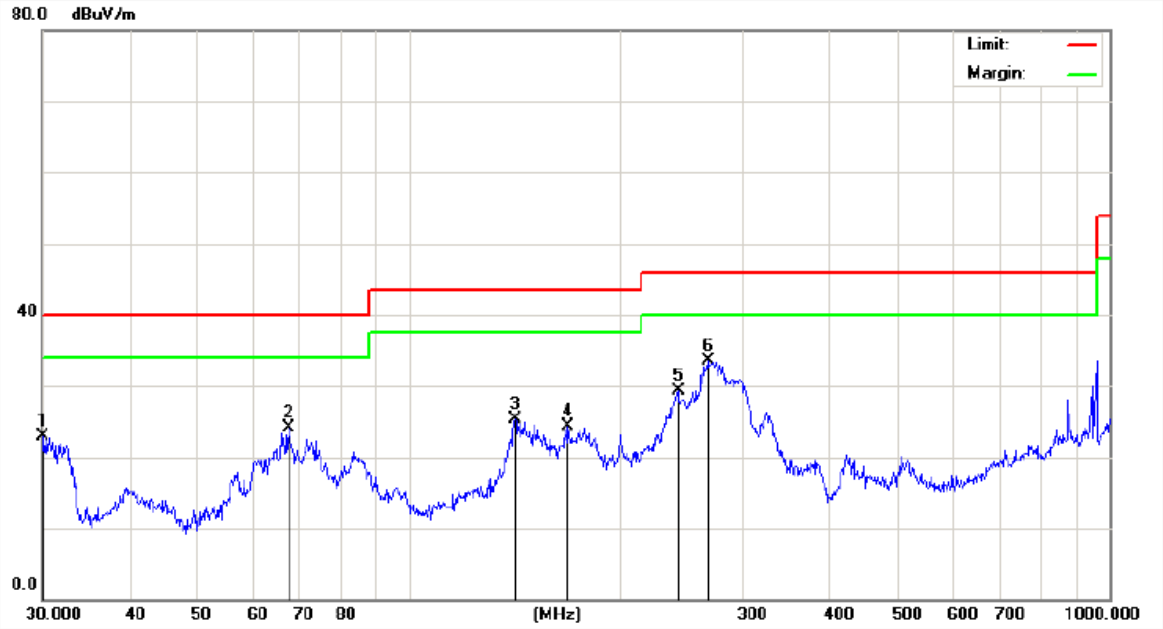
No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/	Over Limit (dB)	Detector	Height (cm)	degree (deg)	Remark
1	144.3348	45.75	-21.43	24.32	43.50	-19.18	QP	300	0	
2	169.5990	43.37	-19.62	23.75	43.50	-19.75	QP	300	96	
3	239.9874	49.67	-17.49	32.18	46.00	-13.82	QP	300	173	
4	268.4853	51.83	-18.35	33.48	46.00	-12.52	QP	300	242	
5	297.2241	49.82	-17.74	32.08	46.00	-13.92	QP	300	330	
6	327.8873	41.33	-14.88	26.45	46.00	-19.55	QP	300	360	

Job No.:	**SZAWW180713007-01**	**Polarization:**	**Vertical**
Standard:	**FCC PART15 C _3m**	**Power Source:**	**AC 120V, 60Hz for adapter**
Test item:	**Radiation Test**	**Temp.(℃)/Hum.(%RH):**	**24.3(℃)/55%RH**
Test Mode:	**Mode 1**	**Distance:**	**3m**



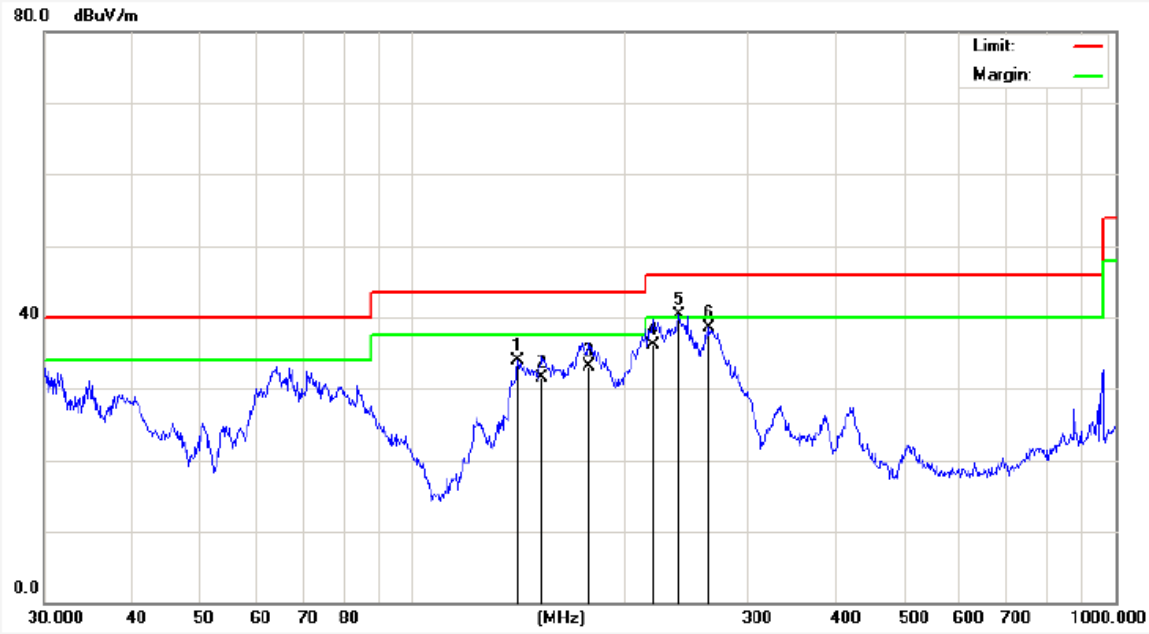
No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/	Over Limit (dB)	Detector	Height (cm)	degree (deg)	Remark
1	38.6160	45.90	-14.12	31.78	40.00	-8.22	QP	300	0	
2	173.2051	48.91	-16.33	32.58	43.50	-10.92	QP	300	37	
3	217.5443	48.27	-14.38	33.89	46.00	-12.11	QP	300	99	
4	226.0994	45.33	-14.06	31.27	46.00	-14.73	QP	300	104	
5	239.9874	50.58	-13.49	37.09	46.00	-8.91	QP	300	202	
6	260.1444	47.05	-13.60	33.45	46.00	-12.55	QP	300	360	

Job No.:	**SZAWW180713007-01**	**Polarization:**	**Horizontal**
Standard:	**FCC PART15 C _3m**	**Power Source:**	**AC 240V, 60Hz for adapter**
Test item:	**Radiation Test**	**Temp.(℃)/Hum.(%RH):**	**24.3(℃)/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	41.37	-18.52	22.85	40.00	-17.15	QP	300	0	
2	67.4382	43.95	-19.81	24.14	40.00	-15.86	QP	300	27	
3	141.8262	46.78	-21.47	25.31	43.50	-18.19	QP	300	56	
4	169.0054	44.02	-19.70	24.32	43.50	-19.18	QP	300	124	
5	242.5253	46.97	-17.63	29.34	46.00	-16.66	QP	300	227	
6	267.5455	51.96	-18.38	33.58	46.00	-12.42	QP	300	360	

Job No.:	**SZAWW180713007-01**	**Polarization:**	**Vertical**
Standard:	**FCC PART15 C _3m**	**Power Source:**	**AC 240V, 60Hz for adapter**
Test item:	**Radiation Test**	**Temp.(℃)/Hum.(%RH):**	**24.3(℃)/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	141.3298	51.34	-17.47	33.87	43.50	-9.63	QP	300	0	
2	153.2004	48.76	-17.19	31.57	43.50	-11.93	QP	300	24	
3	178.7584	49.11	-15.94	33.17	43.50	-10.33	QP	300	37	
4	219.8449	50.52	-14.32	36.20	46.00	-9.80	QP	300	121	
5	239.1473	53.81	-13.52	40.29	46.00	-5.71	QP	300	212	
6	263.8190	52.38	-13.86	38.52	46.00	-7.48	QP	300	360	

APPENDIX I -- TEST SETUP PHOTOGRAPH

Photo of Conducted Emission Measurement

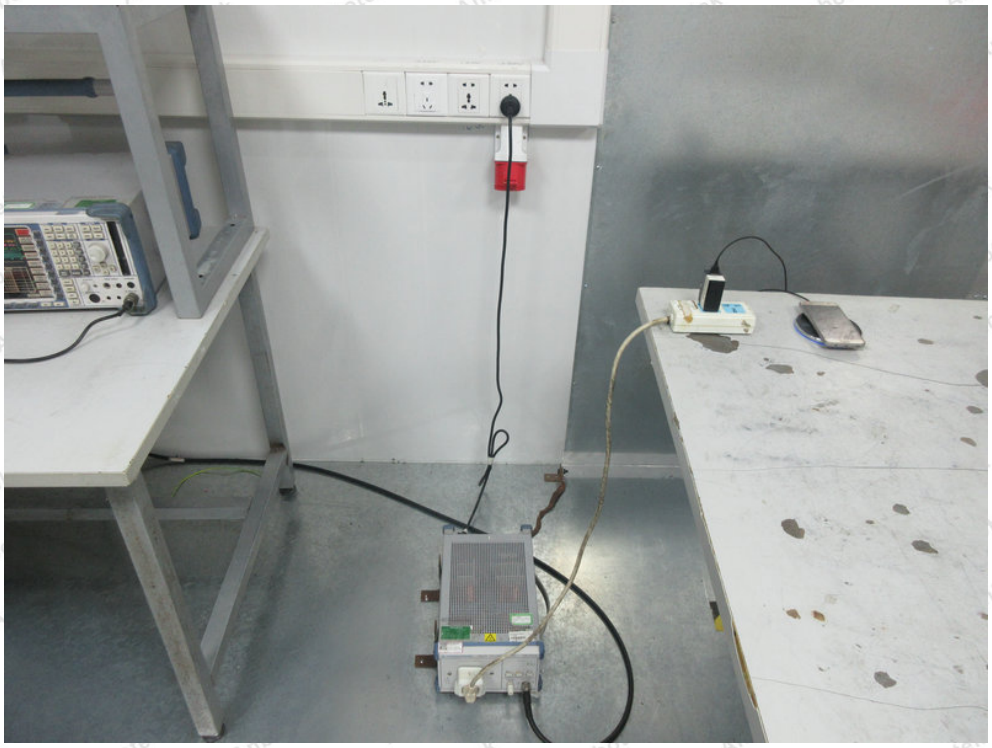
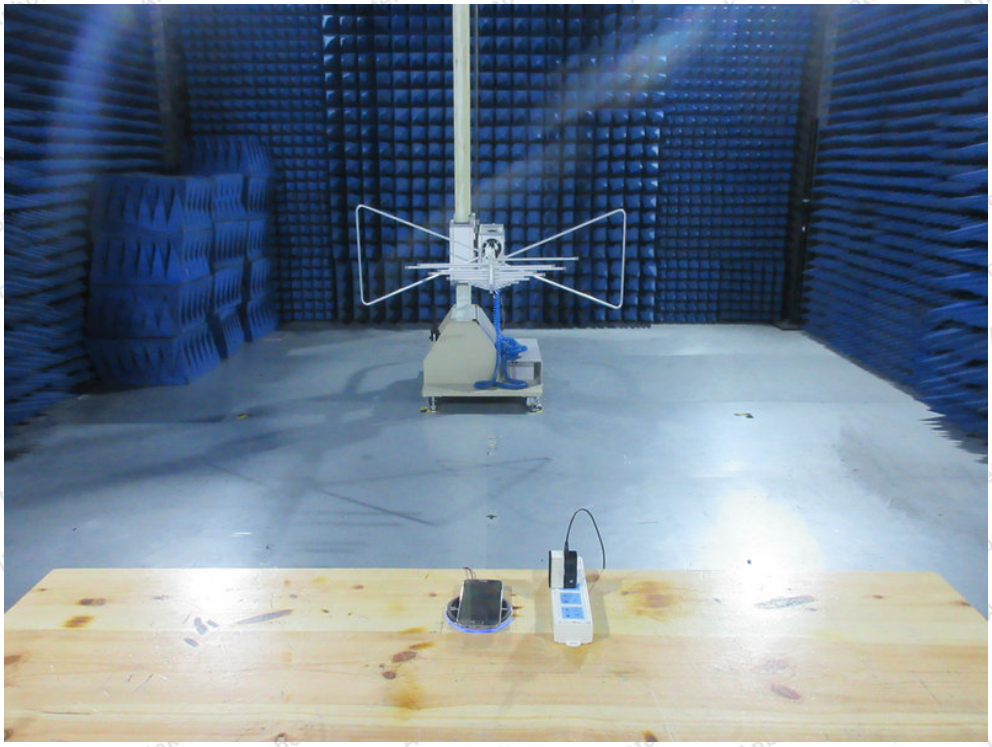
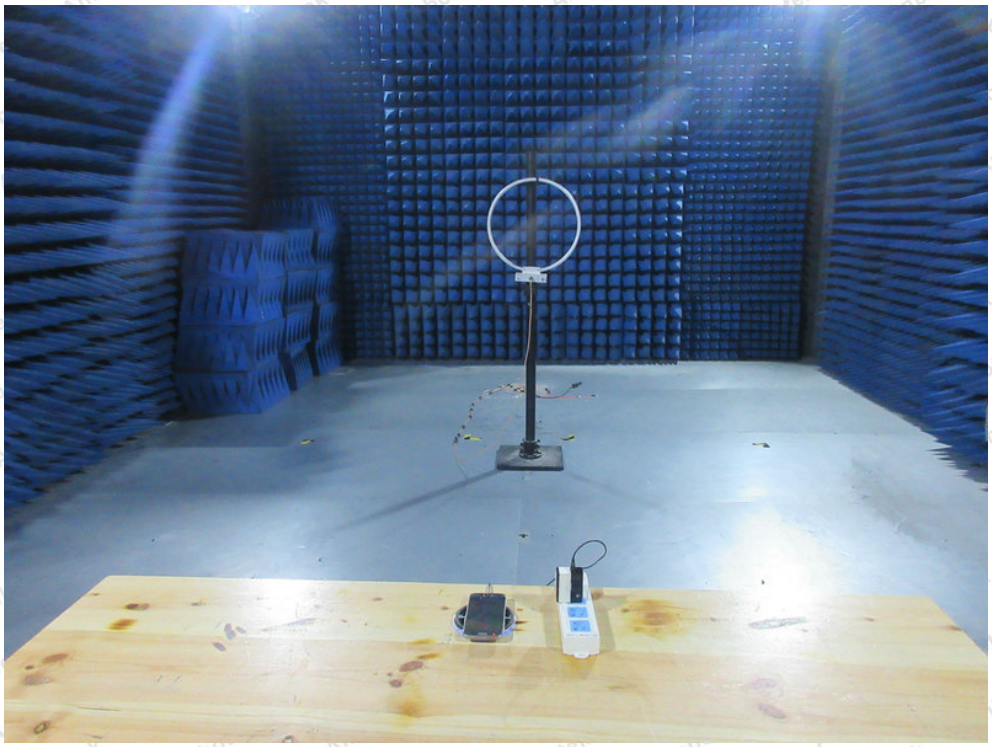
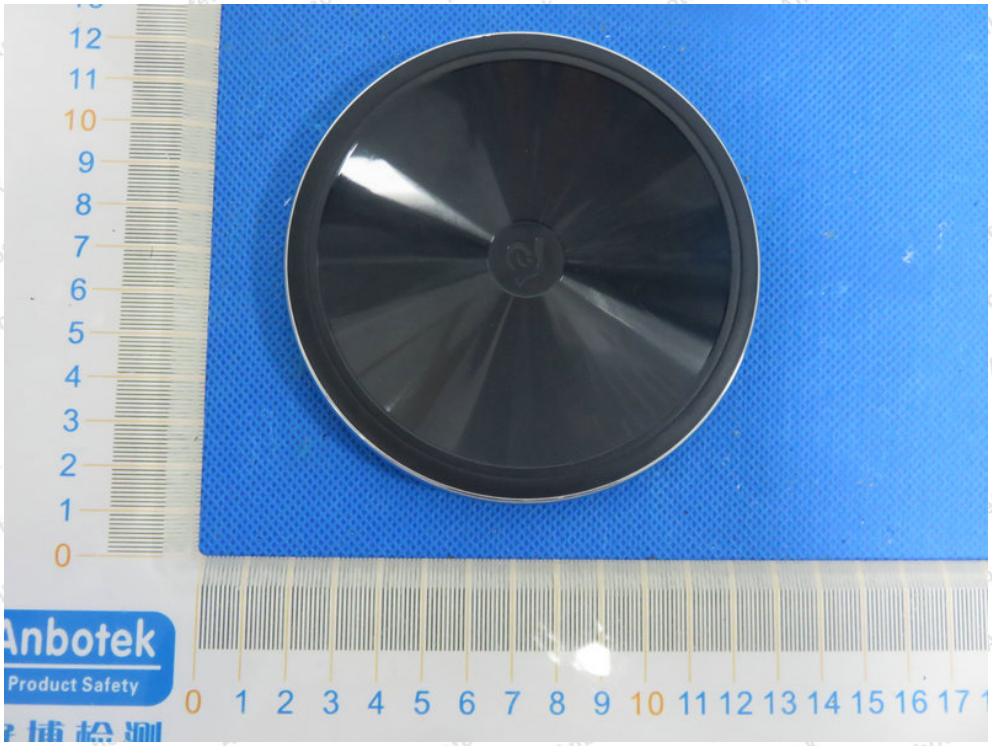


Photo of Radiation Emission Test





APPENDIX II -- EXTERNAL PHOTOGRAPH

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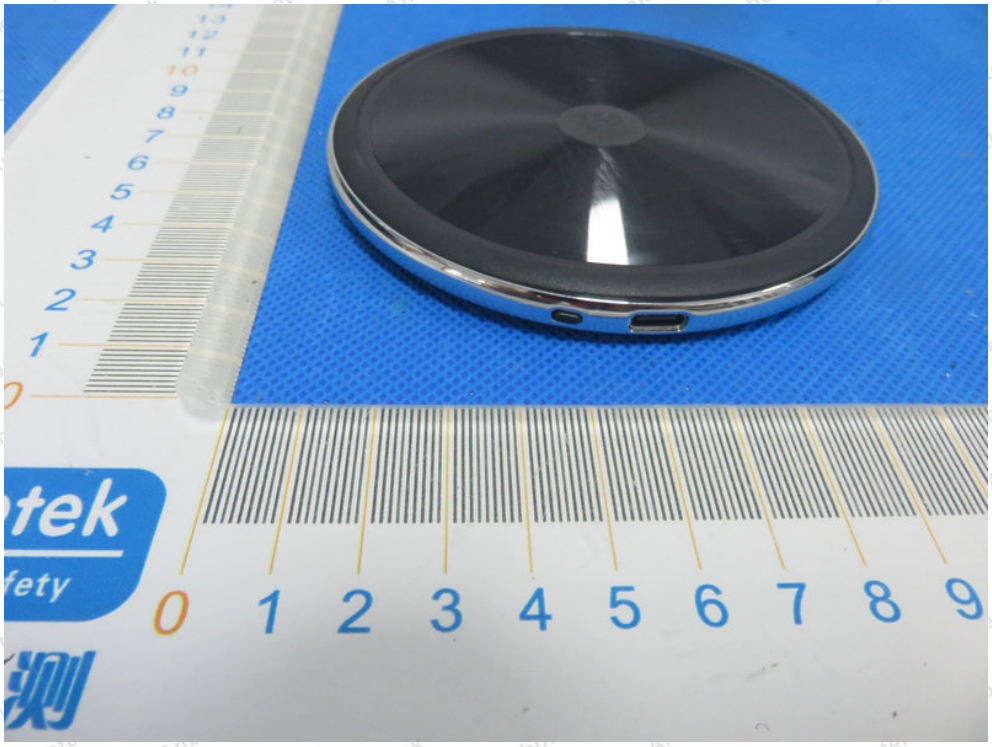
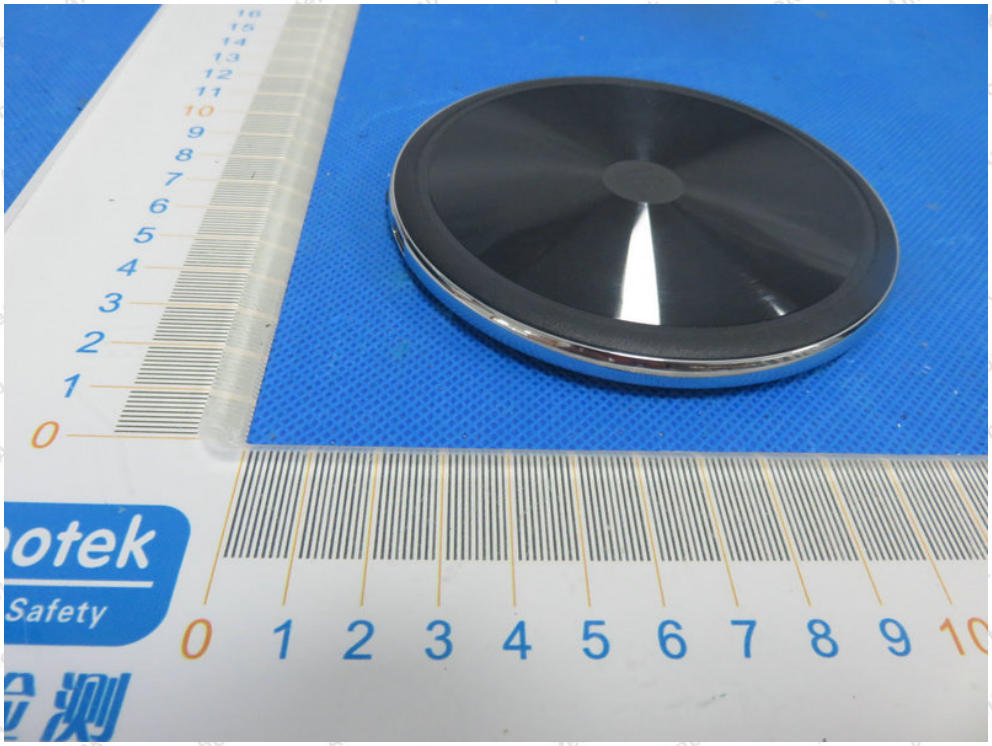
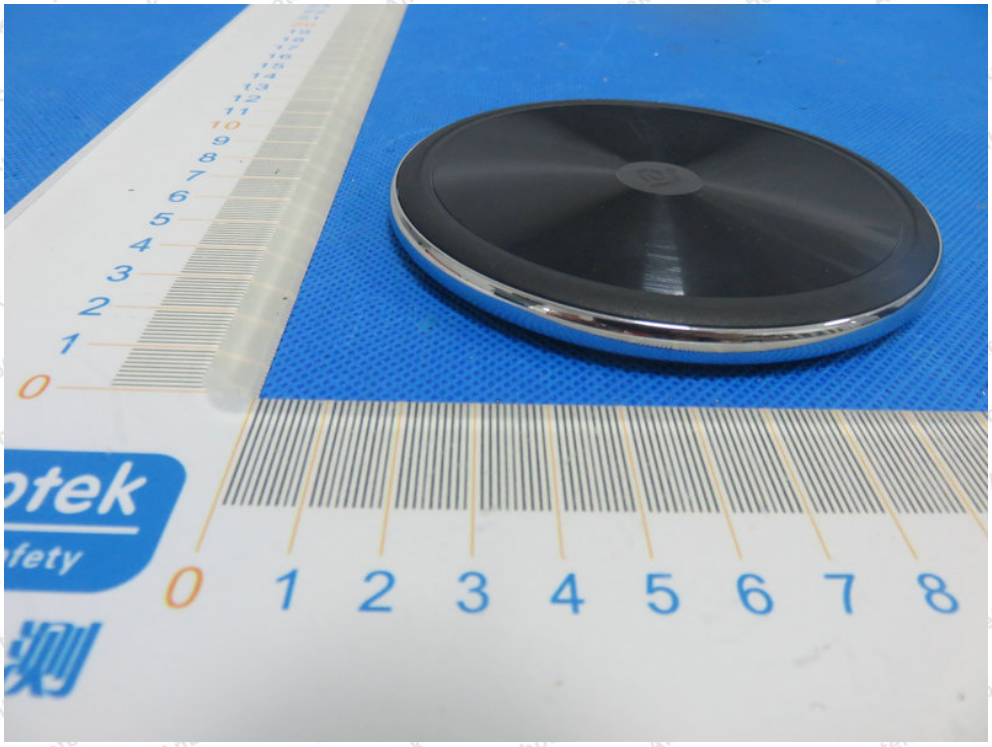
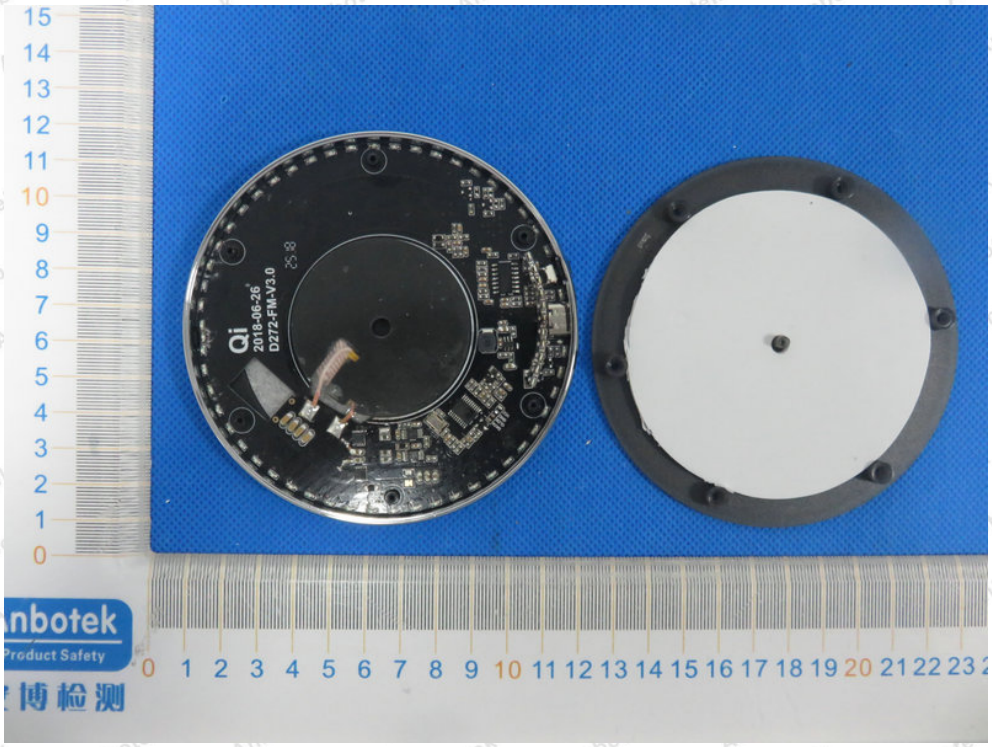
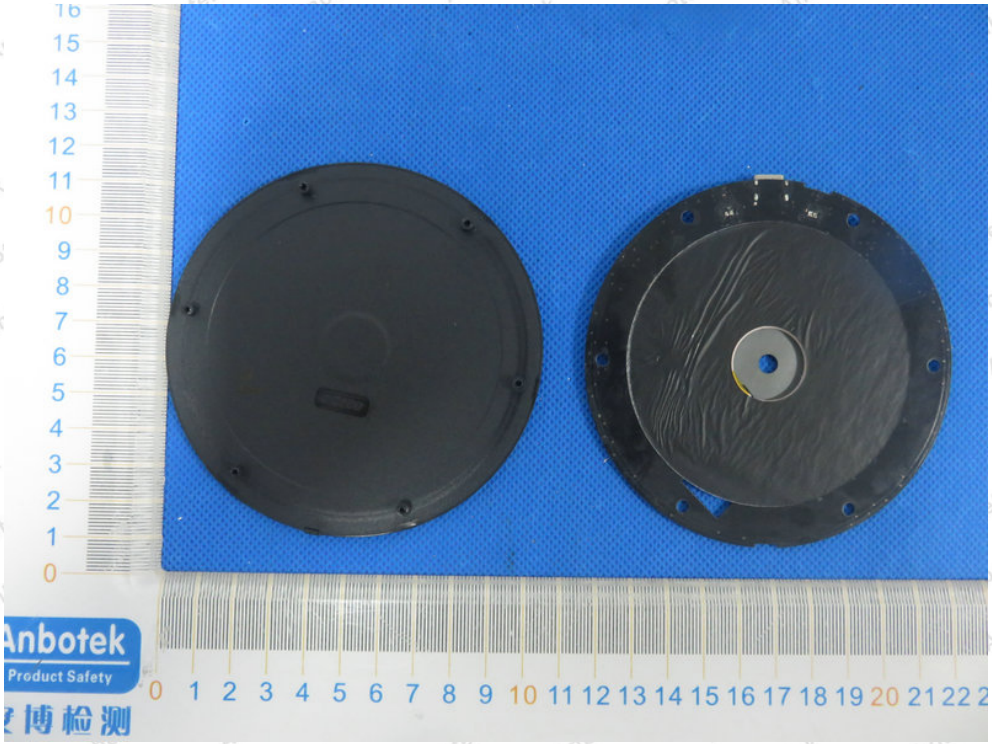


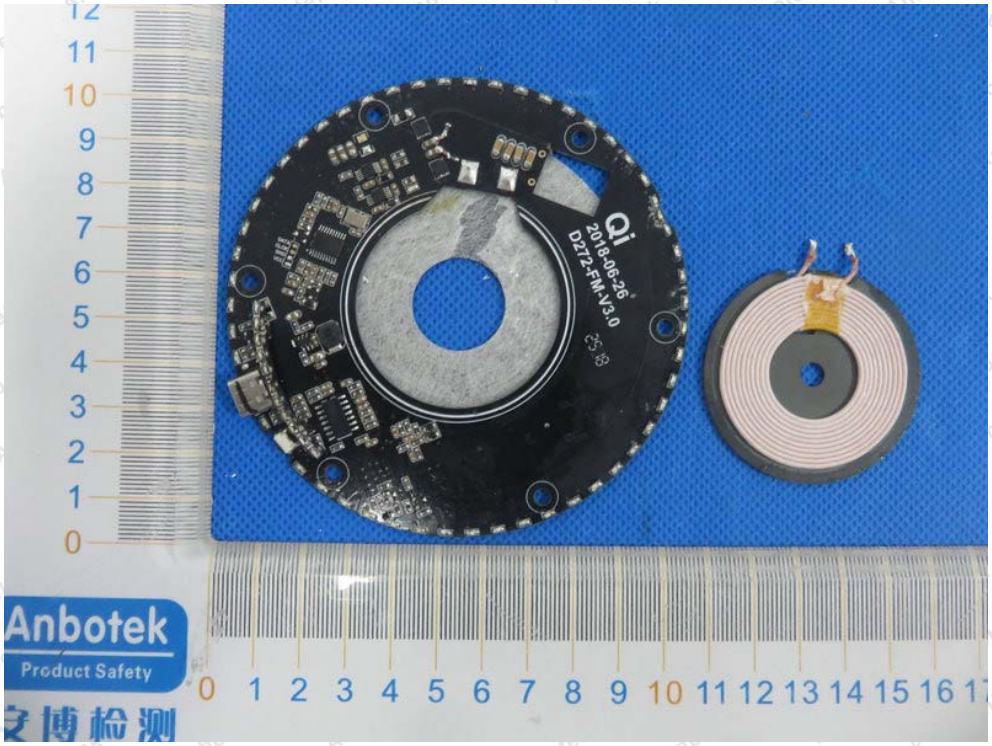




APPENDIX III -- INTERNAL PHOTOGRAPH



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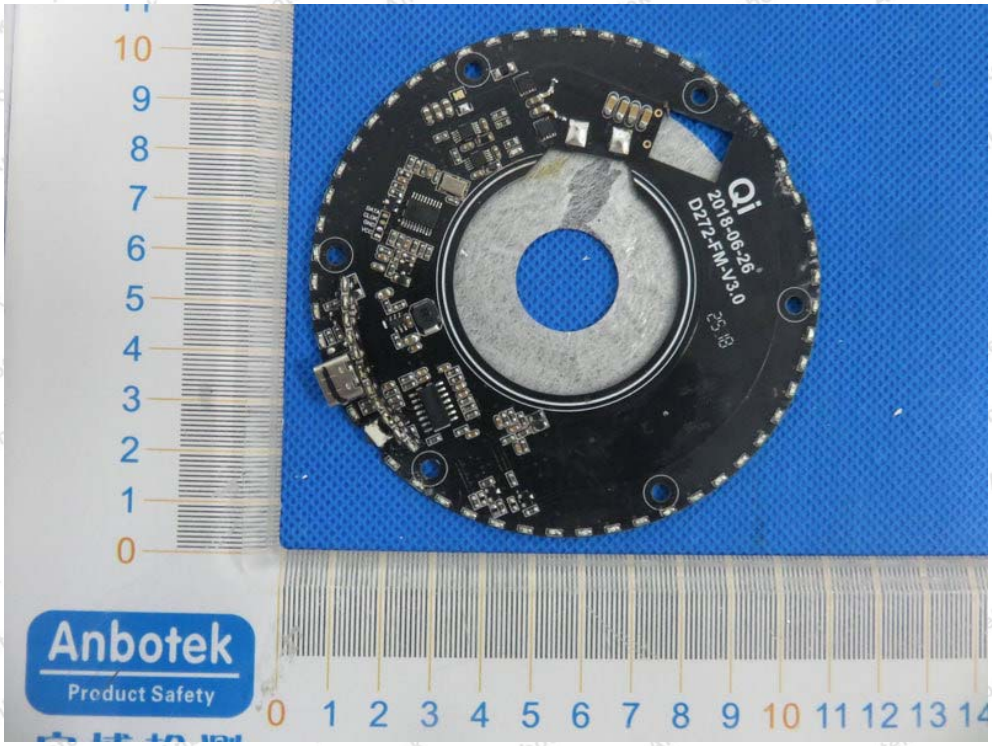
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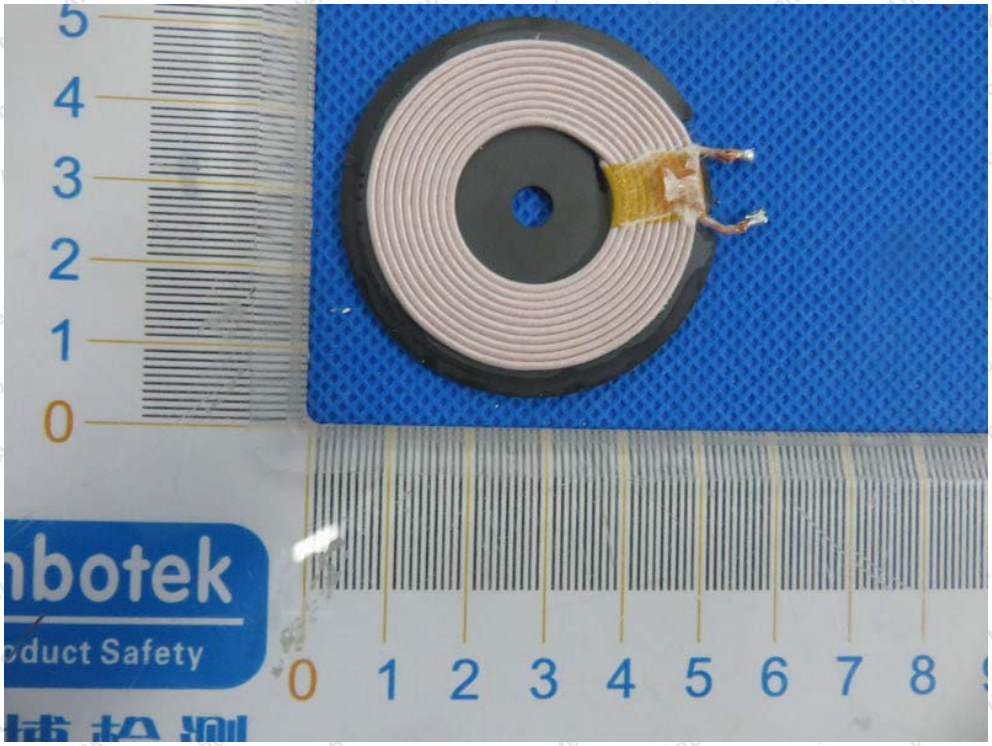
Product Safety



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