FCC TEST REPORT

For

Shenzhen Huaqi Technology Co., Ltd.

Wireless charger

Model No.: HQ-S

Prepared For	:	Shenzhen Huaqi Technology Co., Ltd.
Address	:	Rm 810, Nanyuan Commercial Building, Minbao Road, Minzhi Street, Longhua District, Shenzhen, China
Prepared By	:	Shenzhen Anbotek Compliance Laboratory Limited
Address	:	1/F., Building 1, SEC Industrial Park, No.0409 Qianhai Road, Nanshan District, Shenzhen, Guangdong, China Tel: (86) 755-26066544 Fax: (86) 755-26014772
Report Number	:	R0217060251W1
Date of Test	:	Jul. 01~10, 2017
Date of Report	:	Jul. 10, 2017

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TEST REPORT

Applicant	:	Shenzhen Huaqi Technology Co., Ltd.
Manufacturer	:	Shenzhen Huaqi Technology Co., Ltd.
Product Name	:	Wireless charger
Model No.	:	HQ-S
Trade Mark	:	华湛精英
Rating(s)	:	Input: DC 5V, 1A Output: DC 5V, 0.95A

Test Standard(s) : FCC Part15 Subpart C 2016, 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. 01~10, 2017

Prepared by : : Winkey Wang

(Tested Engineer / Winkey Wang)

Reviewer : : Tangcy. T.

(Project Manager / Tangcy. T)

Approved & Authorized Signer : : Tom Chen

(Manager / Tom Chen)

1. General Information

1.1. Client Information

Applicant	:	Shenzhen Huaqi Technology Co., Ltd.
Address	:	Rm 810, Nanyuan Commercial Building, Minbao Road, Minzhi Street, Longhua District, Shenzhen, China
Manufacturer	:	Shenzhen Huaqi Technology Co., Ltd.
Address	:	Rm 810, Nanyuan Commercial Building, Minbao Road, Minzhi Street, Longhua District, Shenzhen, China

1.2. Description of Device (EUT)

Product Name	:	Wireless charger	
Model No.	:	HQ-S	
Trade Mark	:	华淇精英	
Test Power Supply	:	AC 120V, 60Hz for adapter / AC 240V, 60Hz for adapter	
Product Description	:	Operation Frequency:	110-205KHz
		Number of Channel:	20 Channels
		Modulation Type:	MSK
		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

Mobile Phone	:	Manufacturer: SAMSUNG
		M/N: SM-G9550 S/N: R28J636WJ1B CE , FCC, DOC
Adapter	:	Manufacturer: ZTE M/N: STC-A2050I1000USBA-C S/N: 201202102100876 Input: 100-240V~50/60Hz 0.3A Output: DC 5V, 1000mA

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	CH01
Mode 2	CH10
Mode 3	CH20
Mode 4	Keeping TX mode

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

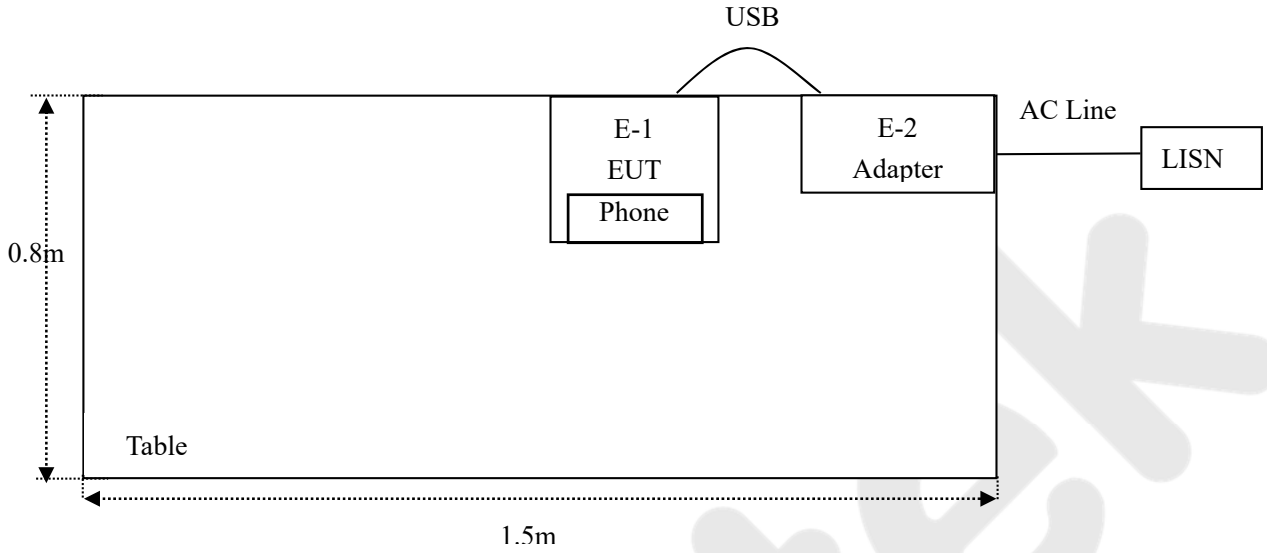
For Radiated Emission	
Final Test Mode	Description
Mode 1	CH01
Mode 2	CH10
Mode 3	CH20

1.5. List of channels

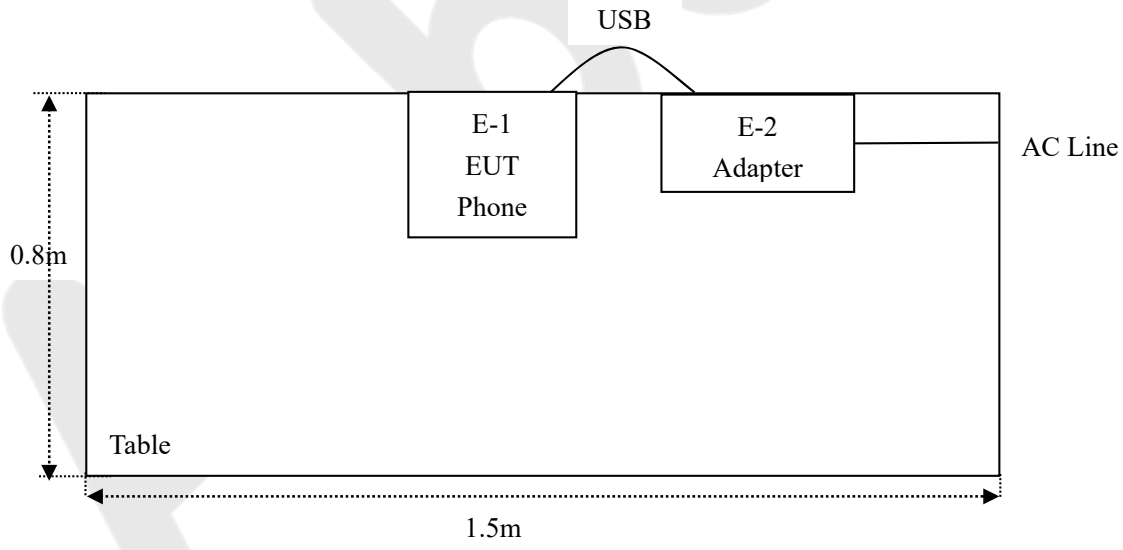
Channel	Freq. (MHz)	Channel	Freq. (MHz)	Channel	Freq. (MHz)	Channel	Freq. (MHz)
1	0.110	6	0.135	11	0.160	16	0.185
2	0.115	7	0.140	12	0.165	17	0.190
3	0.120	8	0.145	13	0.170	18	0.195
4	0.125	9	0.150	14	0.175	19	0.200
5	0.130	10	0.155	15	0.180	20	0.205

1.6. Description Of Test Setup

CE



RE



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	May 27, 2017	1 Year
2.	EMI Test Receiver	Rohde & Schwarz	ESCI	100627	May 27, 2017	1 Year
3.	RF Switching Unit	Compliance Direction	RSU-M2	38303	May 27, 2017	1 Year
4.	Spectrum Analysis	Agilent	E4407B	US39390582	May 27, 2017	1 Year
5.	Preamplifier	SKET Electronic	BK1G18G30D	KD17503	May 27, 2017	1 Year
6.	EMI Test Receiver	Rohde & Schwarz	ESPI	101604	May 27, 2017	1 Year
7.	Double Ridged Horn Antenna	Instruments corporation	GTH-0118	351600	May 31, 2017	1 Year
8.	Bilog Broadband Antenna	Schwarzbeck	VULB9163	VULB 9163-289	May 31, 2017	1 Year
9.	Loop Antenna	Schwarzbeck	HFH2-Z2	100047	Apr. 03, 2017	1 Year
10.	Pre-amplifier	SONOMA	310N	186860	May 27, 2017	1 Year
11.	EMI Test Software EZ-EMC	SHURPLE	N/A	N/A	N/A	N/A
12.	Power Sensor	DAER	RPR3006W	15I00041SN045	May 27, 2017	1 Year
13.	Power Sensor	DAER	RPR3006W	15I00041SN046	May 27, 2017	1 Year
14.	MXA Spectrum Analysis	Agilent	N9020A	MY51170037	May 27, 2017	1 Year
15.	MXG RF Vector Signal Generator	Agilent	N5182A	MY48180656	May 27, 2017	1 Year
16.	Signal Generator	Agilent	E4421B	MY41000743	May 27, 2017	1 Year
17.	DC Power supply	IVYTECH	IV6003	1601D6030007	May 26, 2017	1 Year
18.	TEMP&HUMI PROGRAMMABLE CHAMBER	Sertep	ZJ-HWHS80B	ZJ-17042804	Mar. 03, 2017	1 Year

1.8. Measurement Uncertainty

Radiation Uncertainty	:	Ur = 4.1 dB (Horizontal)
		Ur = 4.3 dB (Vertical)
Conduction Uncertainty	:	Uc = 3.4dB

1.9. Description of Test Facility

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

FCC-Registration No.: 752021

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 752021, July 06, 2016.

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

All Emissions tests were performed at

Shenzhen Anbotek Compliance Laboratory Limited. at 1/F., Building 1, SEC Industrial Park, No.0409 Qianhai Road, Nanshan District, Shenzhen, Guangdong, China

2. Summary of Test Results

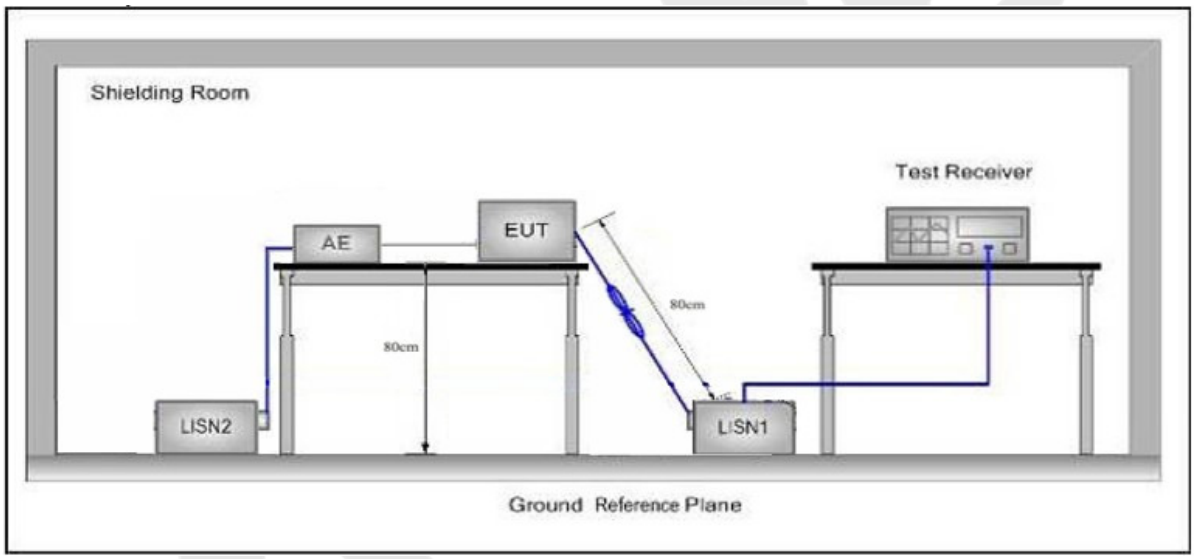
Standard Section	Test Item	Result
FCC Part 15, Paragraph 15.207	Conducted Emission Test	PASS
FCC Part 15, Paragraph 15.209(a)(f)	Spurious Emission	PASS

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

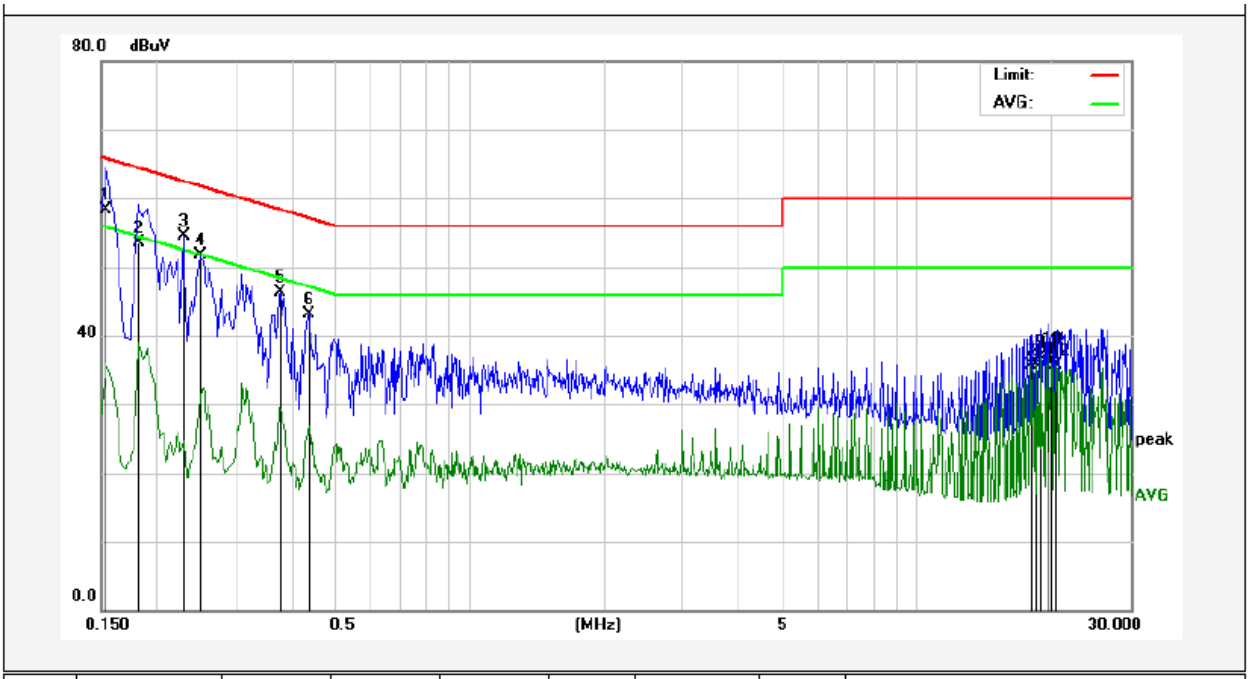
Test Site: 1# Shielded Room

Operating Condition: Keeping TX mode

Test Specification: AC 120V, 60Hz for adapter

Comment: Live Line

Tem.:25℃ Hum.:50%



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit dBuV	Over Limit (dB)	Detector	Remark
1	0.1539	38.48	19.90	58.38	65.78	-7.40	QP	
2	0.1819	33.59	19.90	53.49	64.39	-10.90	QP	
3	0.2300	34.61	19.89	54.50	62.45	-7.95	QP	
4	0.2500	31.72	19.89	51.61	61.75	-10.14	QP	
5	0.3780	26.31	19.93	46.24	58.32	-12.08	QP	
6	0.4380	23.10	19.95	43.05	57.10	-14.05	QP	
7	17.9260	15.48	20.31	35.79	50.00	-14.21	AVG	
8	18.5380	15.37	20.32	35.69	50.00	-14.31	AVG	
9	18.9020	16.49	20.32	36.81	50.00	-13.19	AVG	
10	19.5700	17.01	20.33	37.34	50.00	-12.66	AVG	
11	20.0500	15.63	20.34	35.97	50.00	-14.03	AVG	
12	20.4420	15.30	20.33	35.63	50.00	-14.37	AVG	

Conducted Emission Test Data

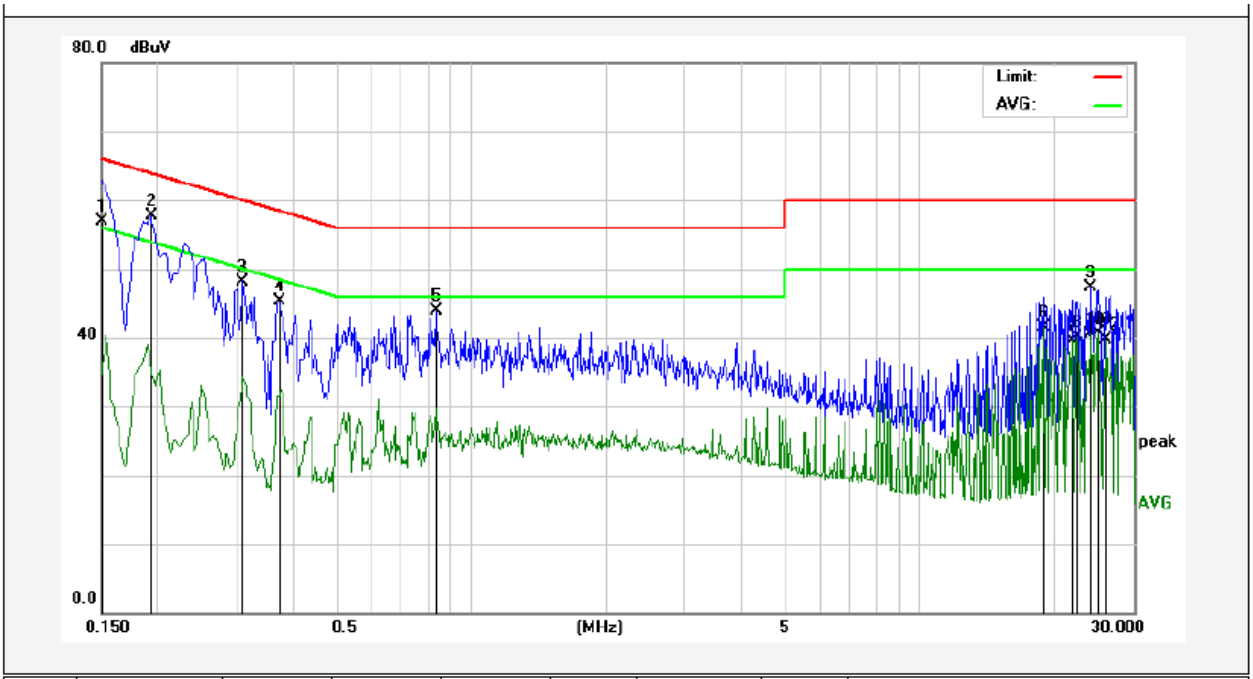
Test Site: 1# Shielded Room

Operating Condition: Keeping TX mode

Test Specification: AC 120V, 60Hz for adapter

Comment: Neutral Line

Tem.:25℃ Hum.:50%



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit dBuV	Over Limit (dB)	Detector	Remark
1	0.1500	37.03	19.90	56.93	65.99	-9.06	QP	
2	0.1940	37.77	19.90	57.67	63.86	-6.19	QP	
3	0.3100	28.31	19.89	48.20	59.97	-11.77	QP	
4	0.3740	25.43	19.92	45.35	58.41	-13.06	QP	
5	0.8380	23.83	20.08	43.91	56.00	-12.09	QP	
6	18.9140	21.09	20.32	41.41	50.00	-8.59	AVG	
7	21.9060	19.28	20.32	39.60	50.00	-10.40	AVG	
8	22.4140	19.71	20.31	40.02	50.00	-9.98	AVG	
9	24.1140	26.97	20.29	47.26	60.00	-12.74	QP	
10	24.1140	20.20	20.29	40.49	50.00	-9.51	AVG	
11	25.0580	20.42	20.28	40.70	50.00	-9.30	AVG	
12	26.0459	19.41	20.28	39.69	50.00	-10.31	AVG	

Conducted Emission Test Data

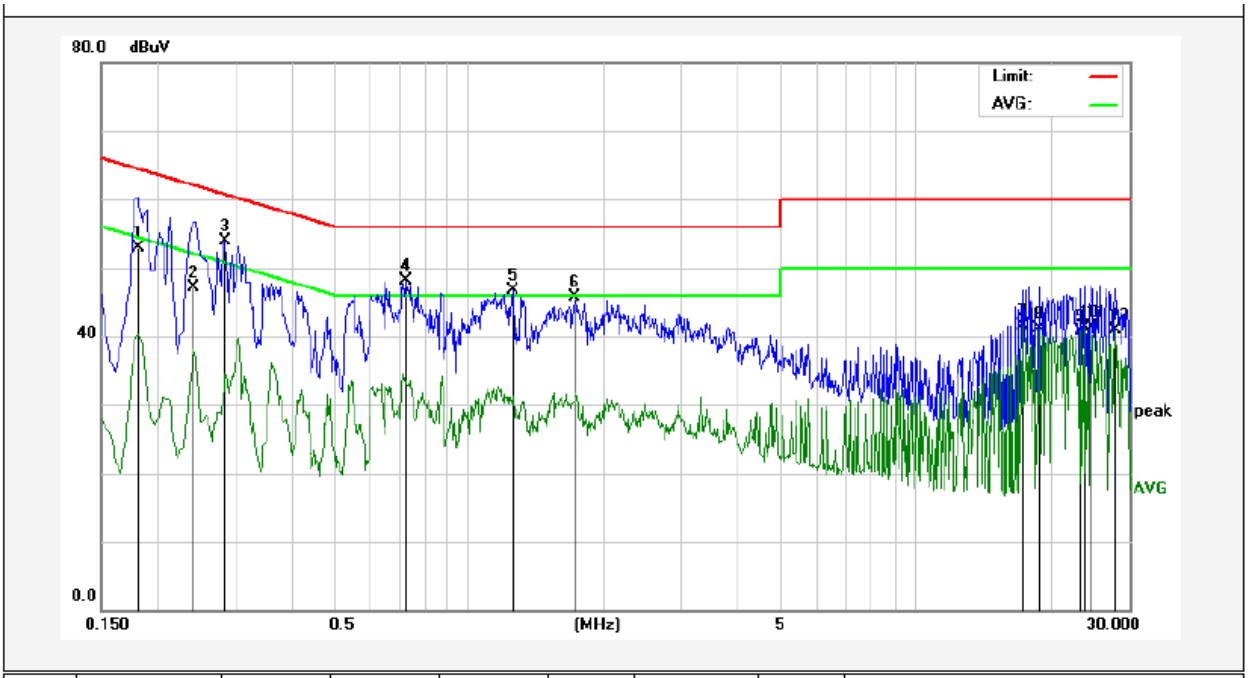
Test Site: 1# Shielded Room

Operating Condition: Keeping TX mode

Test Specification: AC 240V, 60Hz for adapter

Comment: Live Line

Tem.:25℃ Hum.:50%



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit dBuV	Over Limit (dB)	Detector	Remark
1	0.1819	32.92	19.90	52.82	64.39	-11.57	QP	
2	0.2420	27.31	19.89	47.20	62.02	-14.82	QP	
3	0.2860	34.11	19.89	54.00	60.64	-6.64	QP	
4	0.7220	28.00	20.05	48.05	56.00	-7.95	QP	
5	1.2540	26.62	20.13	46.75	56.00	-9.25	QP	
6	1.7260	25.60	20.13	45.73	56.00	-10.27	QP	
7	17.3300	21.25	20.30	41.55	50.00	-8.45	AVG	
8	18.9020	20.83	20.32	41.15	50.00	-8.85	AVG	
9	23.4980	20.44	20.30	40.74	50.00	-9.26	AVG	
10	23.7900	21.11	20.29	41.40	50.00	-8.60	AVG	
11	24.7380	20.95	20.28	41.23	50.00	-8.77	AVG	
12	27.8860	20.54	20.27	40.81	50.00	-9.19	AVG	

Conducted Emission Test Data

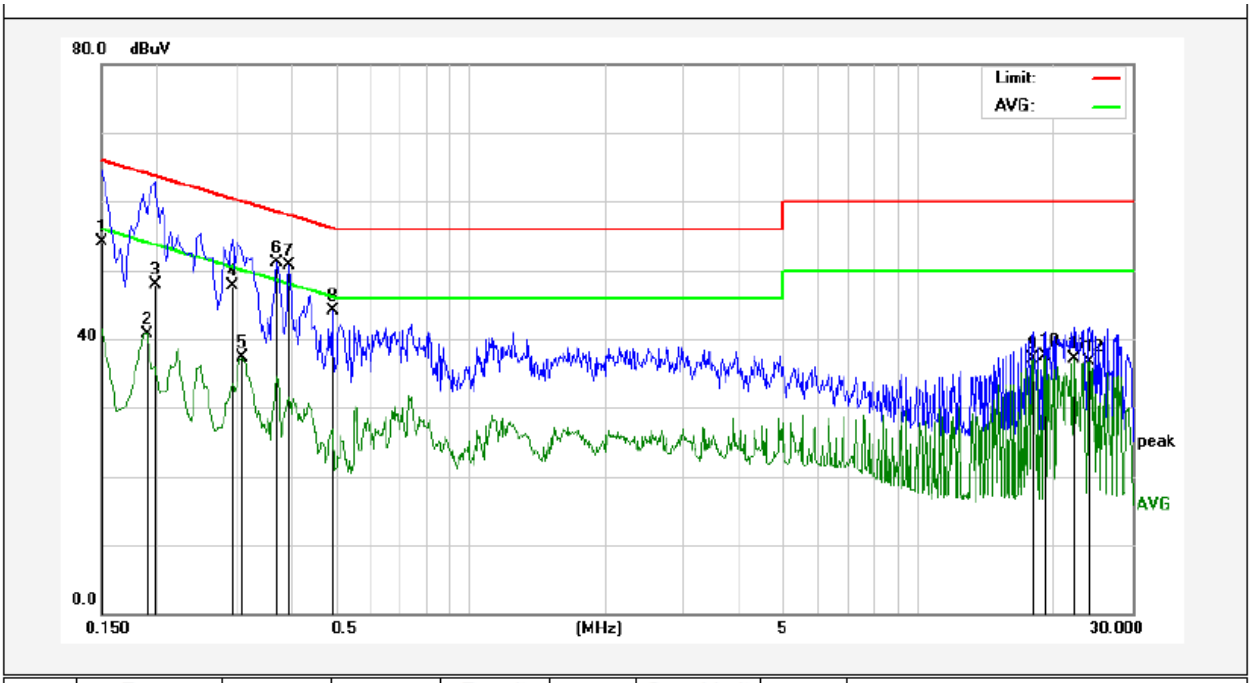
Test Site: 1# Shielded Room

Operating Condition: Keeping TX mode

Test Specification: AC 240V, 60Hz for adapter

Comment: Neutral Line

Tem.:25℃ Hum.:50%



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit dBuV	Over Limit (dB)	Detector	Remark
1	0.1500	34.14	19.90	54.04	65.99	-11.95	QP	
2	0.1900	20.79	19.90	40.69	54.03	-13.34	AVG	
3	0.1980	28.03	19.90	47.93	63.69	-15.76	QP	
4	0.2940	27.75	19.89	47.64	60.41	-12.77	QP	
5	0.3100	17.51	19.89	37.40	49.97	-12.57	AVG	
6	0.3700	31.25	19.92	51.17	58.50	-7.33	QP	
7	0.3940	30.79	19.93	50.72	57.98	-7.26	QP	
8	0.4940	24.21	19.98	44.19	56.10	-11.91	QP	
9	17.9540	16.83	20.31	37.14	50.00	-12.86	AVG	
10	19.2139	17.26	20.33	37.59	50.00	-12.41	AVG	
11	22.2099	16.70	20.31	37.01	50.00	-12.99	AVG	
12	23.9380	16.43	20.29	36.72	50.00	-13.28	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

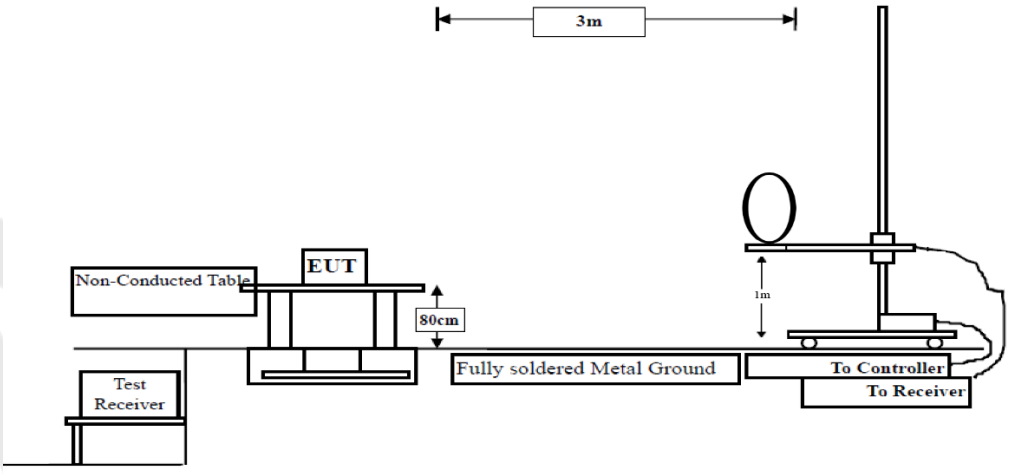


Figure 1. Below 30MHz

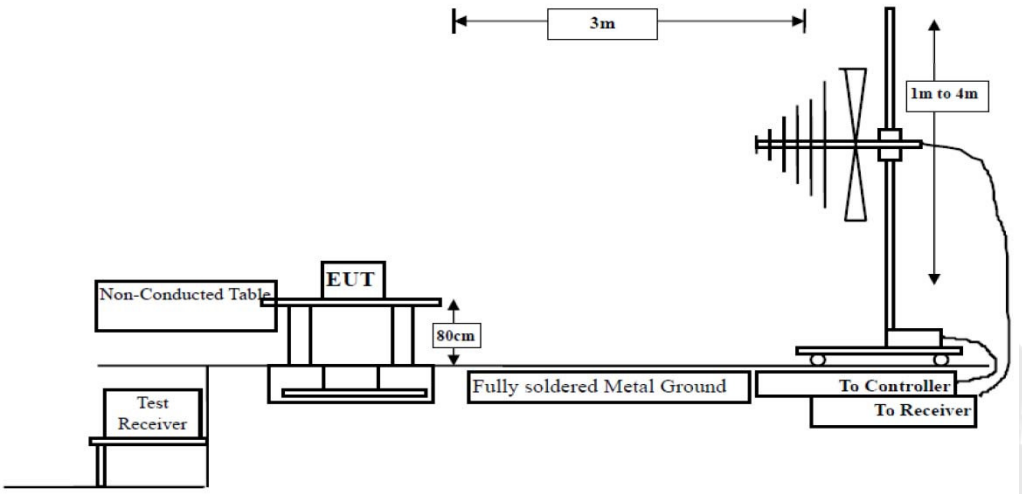


Figure 2. 30MHz to 1GHz

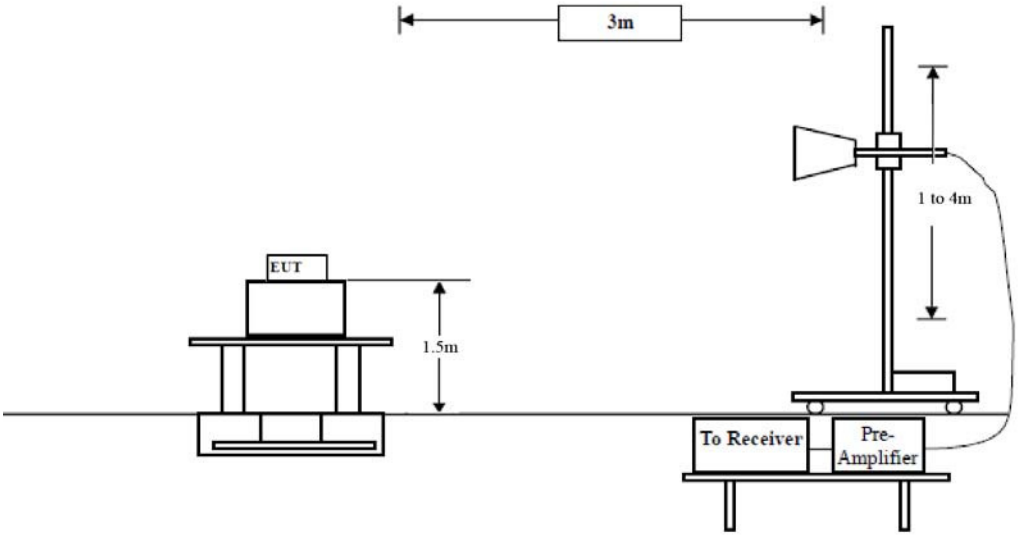


Figure 3. Above 1 GHz

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.

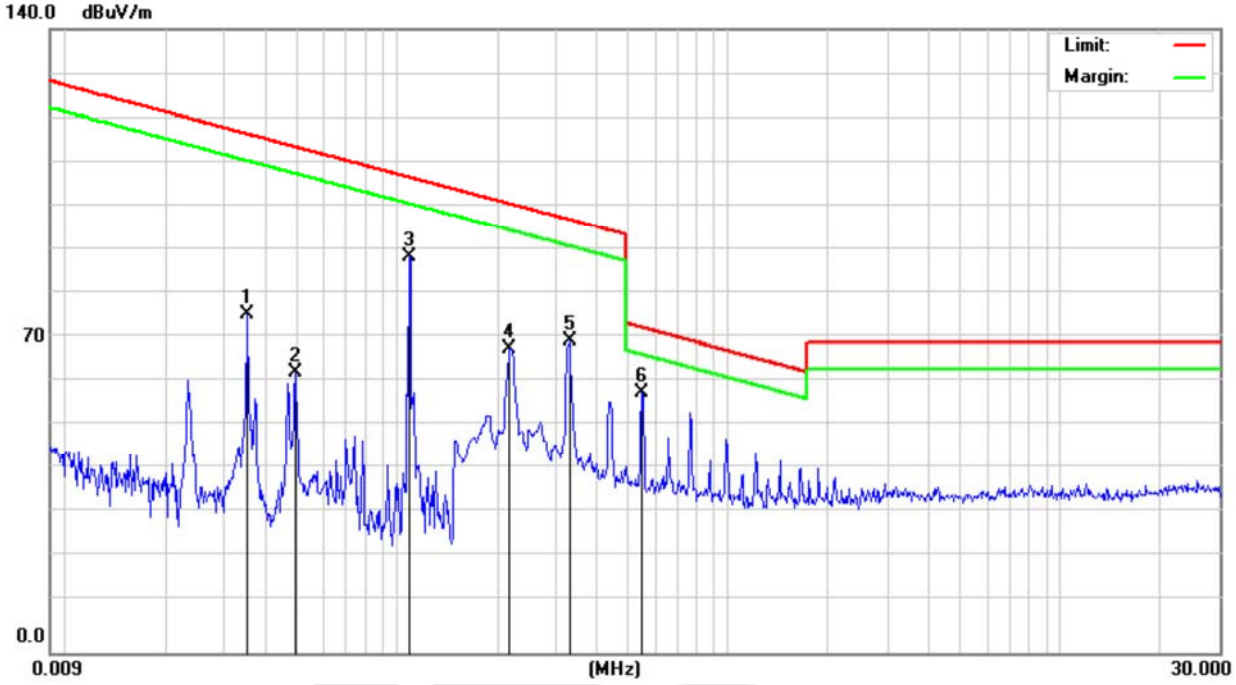
4.4. Test Data

PASS

Test Results

(Between 9KHz – 30MHz)

Job No.:	**0217060251W**		
Standard:	**FCC PART15 C _3m**	**Power Source:**	**AC 120V, 60Hz for adapter**
Test item:	**Radiation Test**	**Temp.(C)/Hum.(%RH):**	**24.4(C)/50%RH**
Test Mode:	**TX Mode**	**Distance:**	**3m**

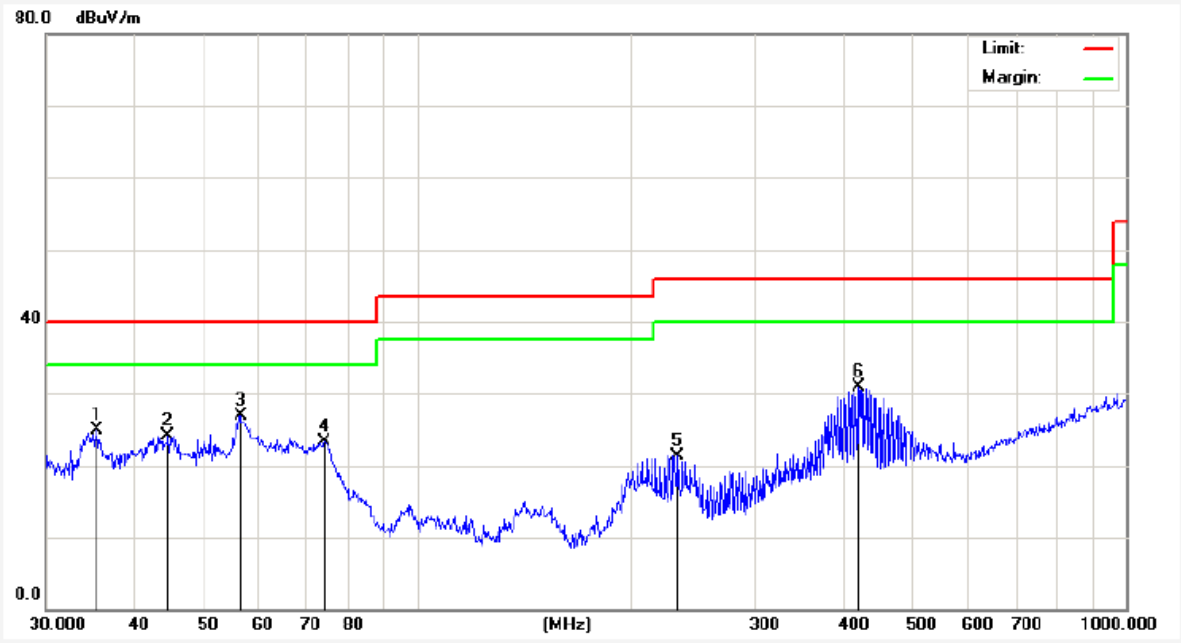


Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	degree (dge)
0.0354	54.07	19.28	2.53	0	75.88	136.50	-60.62	Peak	15
0.0354	50.88	19.28	2.53	0	72.69	116.50	-43.81	AV	15
0.0495	41.09	19.28	2.53	0	62.90	133.60	-70.70	Peak	33
0.0495	39.54	19.28	2.53	0	61.35	113.60	-52.25	AV	33
0.1107	67.01	19.30	2.54	0	88.85	126.08	-37.23	Peak	124
0.1107	64.37	19.30	2.54	0	86.21	106.08	-19.87	AV	124
0.2180	46.26	19.38	2.55	0	68.19	120.79	-52.60	Peak	101
0.2180	44.80	19.38	2.55	0	66.73	100.79	-34.06	AV	101
0.3300	47.60	19.53	2.59	0	69.72	117.21	-47.49	Peak	324
0.3300	45.27	19.53	2.59	0	67.39	97.21	-29.82	AV	324
0.5460	35.30	20.34	2.60	0	58.24	72.86	-14.62	QP	0

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.

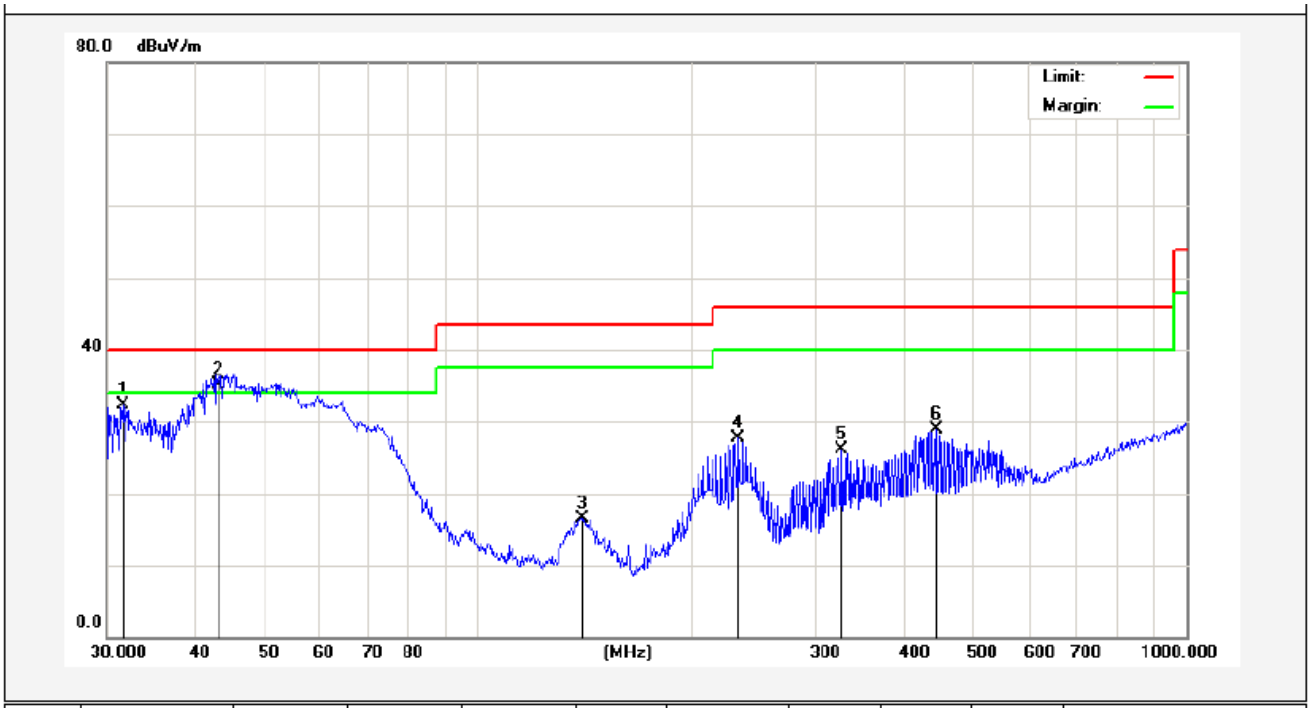
(Between 30MHz –1000 MHz)

Job No.:	**0217060251W**	**Polarization:**	**Horizontal**
Standard:	**FCC PART15 C _3m**	**Power Source:**	**AC 120V, 60Hz for adapter**
Test item:	**Radiation Test**	**Temp.(C)/Hum.(%RH):**	**24.4(C)/50%RH**
Test Mode:	**TX Mode**	**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	35.3750	38.85	-13.99	24.86	40.00	-15.14	QP	300	81	
2	44.5868	36.33	-12.17	24.16	40.00	-15.84	QP	300	74	
3	56.3948	41.98	-15.05	26.93	40.00	-13.07	QP	300	90	
4	74.1351	43.82	-20.42	23.40	40.00	-16.60	QP	300	124	
5	233.3487	40.08	-18.76	21.32	46.00	-24.68	QP	300	220	
6	419.1081	43.33	-12.40	30.93	46.00	-15.07	QP	300	14	

Job No.:	**0217060251W**	**Plarization:**	**Vertical**
Standard:	**FCC PART15 C _3m**	**Power Source:**	**AC 120V, 60Hz for adapter**
Test item:	**Radiation Test**	**Temp.(C)/Hum.(%RH):**	**24.4(C)/50%RH**
Test Mode:	**TX Mode**	**Distance:**	**3m**

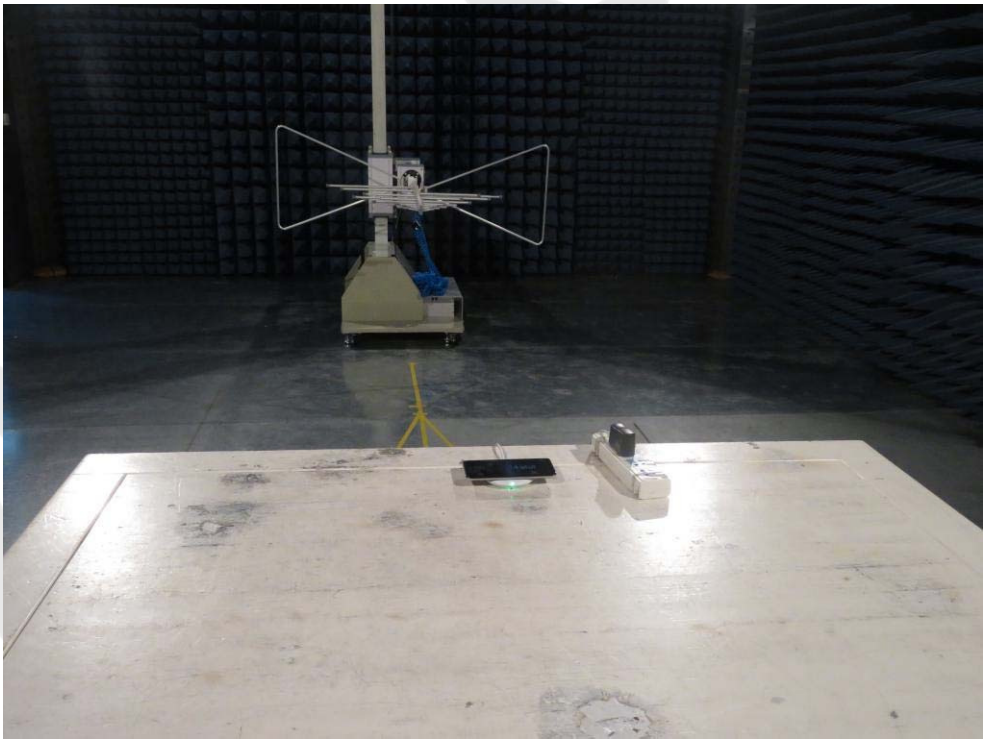


No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/	Over Limit (dB)	Detector	Height (cm)	degree (deg)	Remark
1	31.6202	48.39	-16.09	32.30	40.00	-7.70	QP	300	41	
2	43.0652	46.59	-11.58	35.01	40.00	-4.99	QP	300	92	
3	140.8351	35.01	-18.46	16.55	43.50	-26.95	QP	300	77	
4	233.3487	42.05	-14.43	27.62	46.00	-18.38	QP	300	162	
5	326.7395	40.05	-13.93	26.12	46.00	-19.88	QP	300	270	
6	444.8514	40.36	-11.43	28.93	46.00	-17.07	QP	300	41	

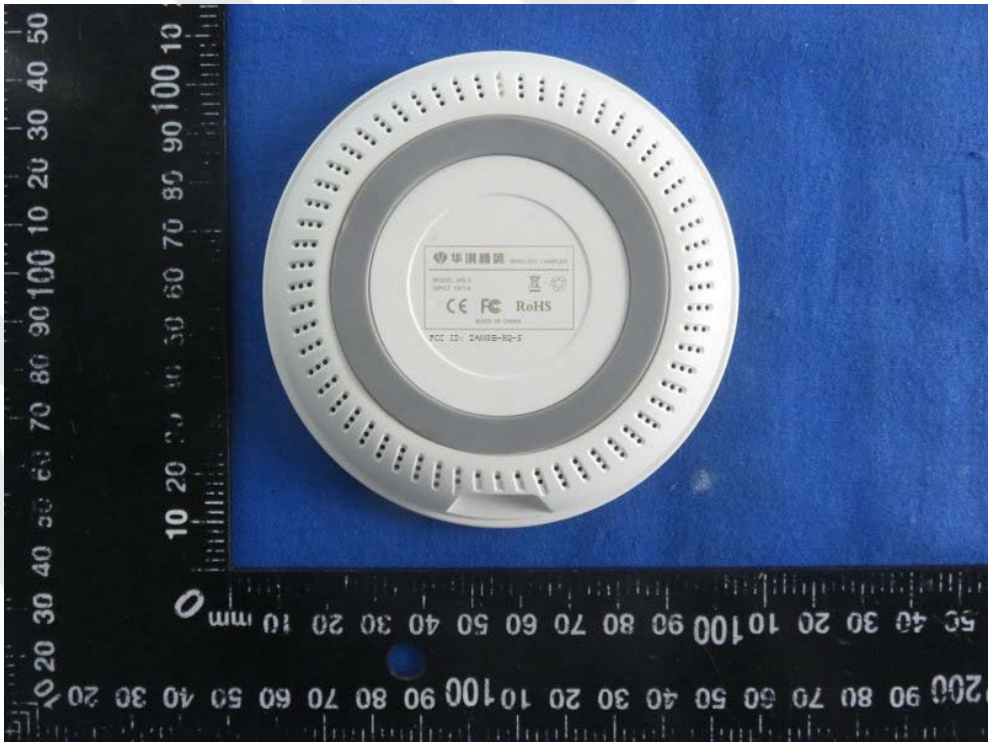
APPENDIX I -- TEST SETUP PHOTOGRAPH

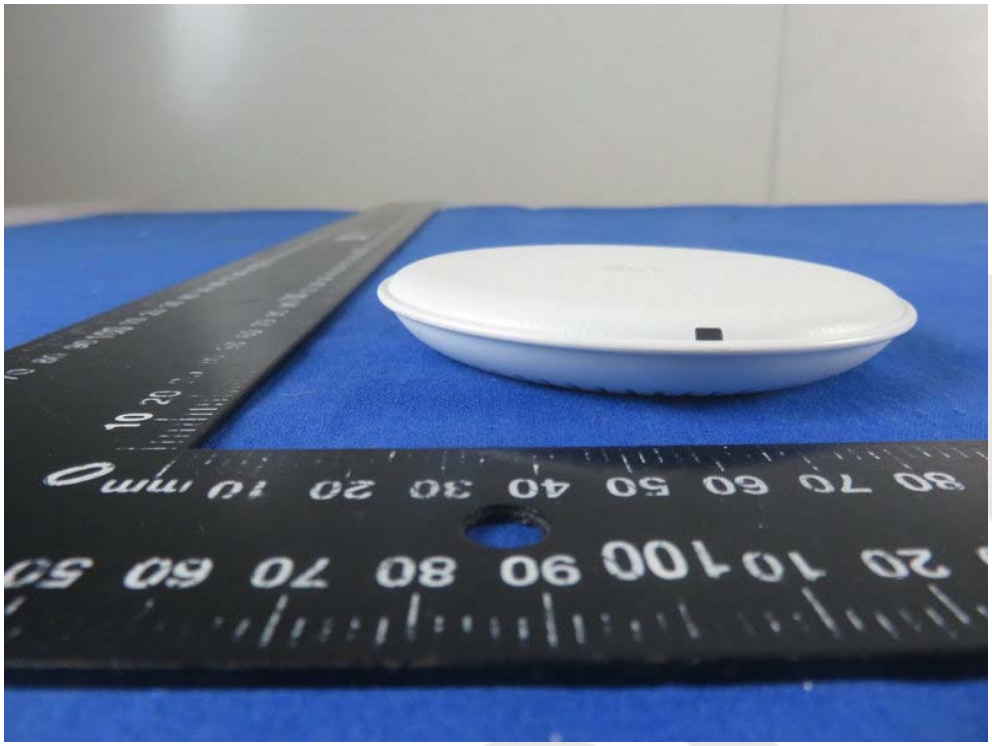
Photo of Conducted Emission Measurement

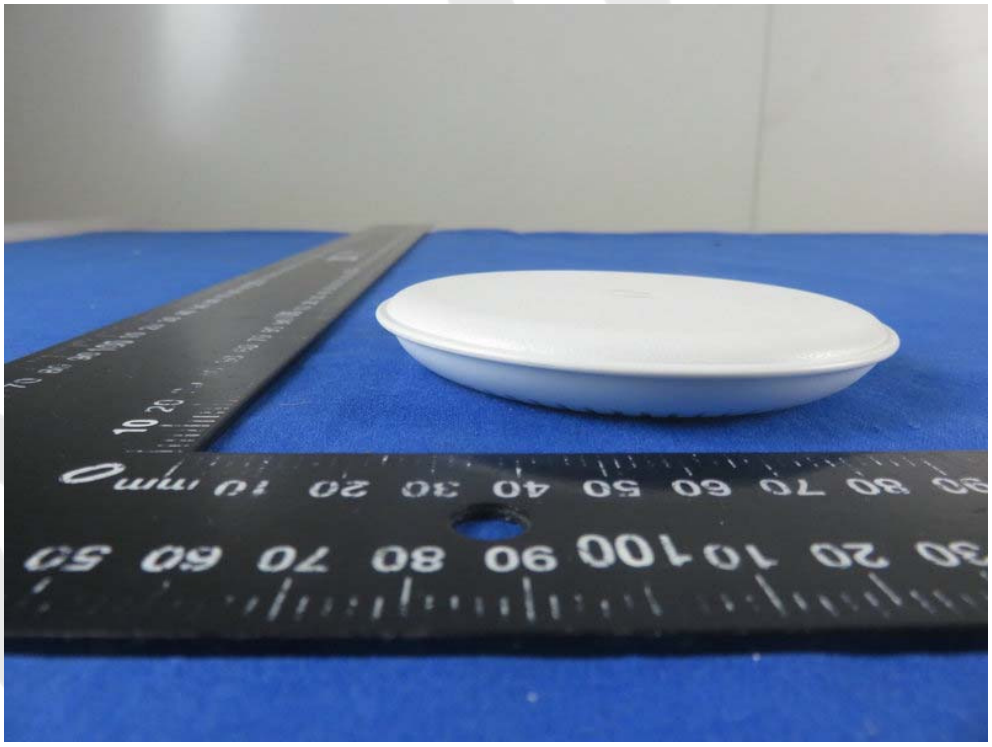
Photo of Radiation Emission Test

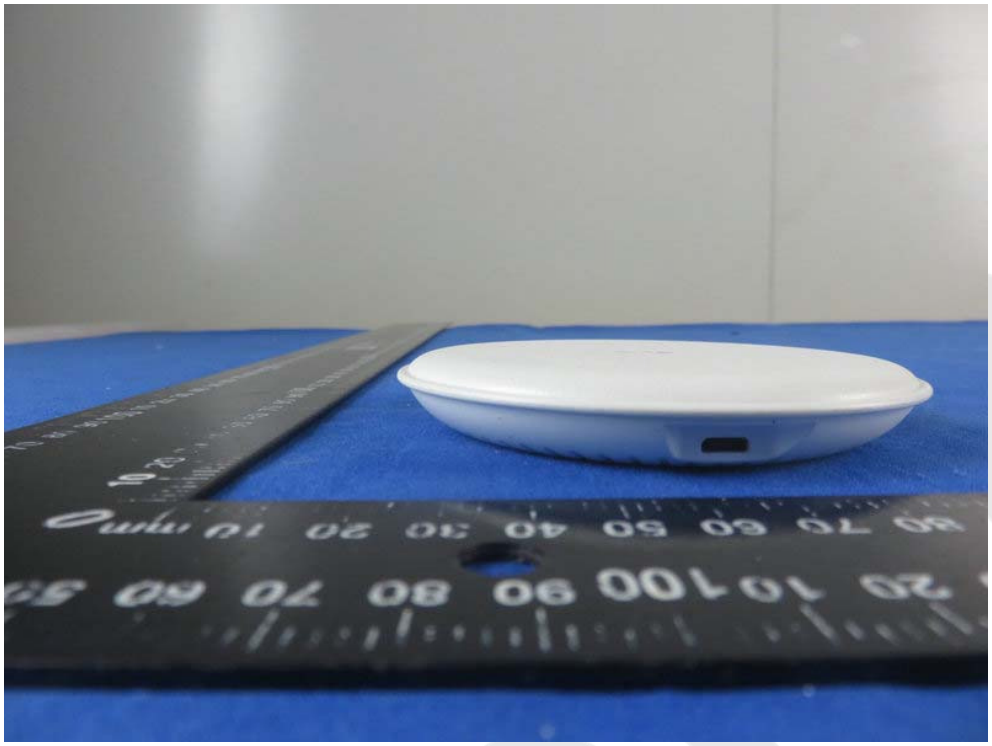


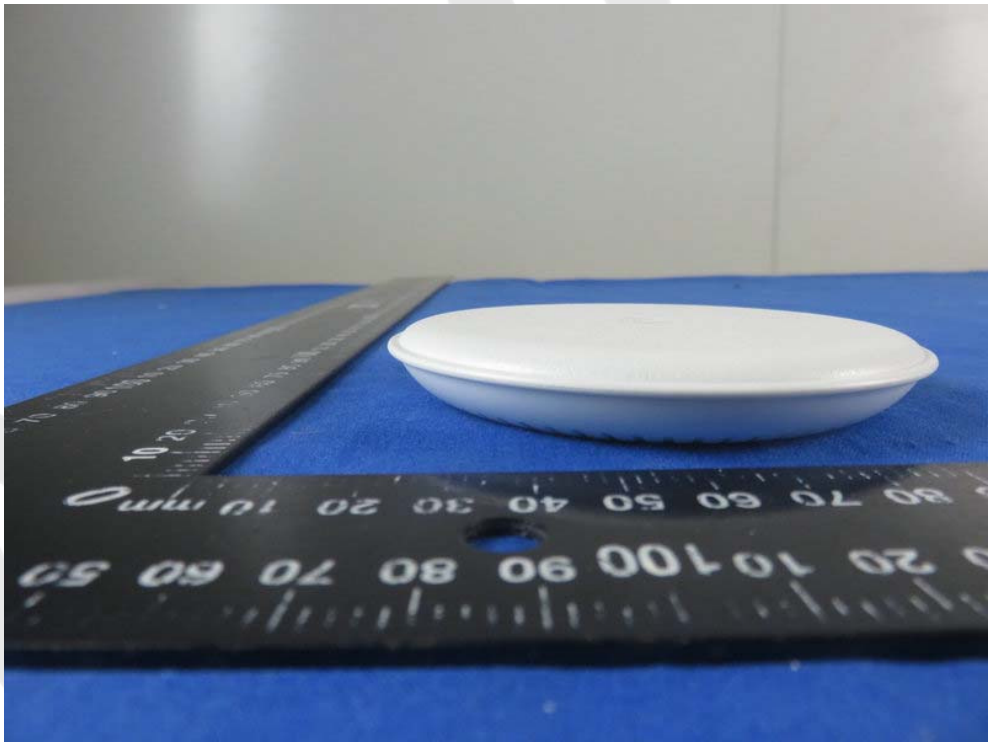
APPENDIX II -- EXTERNAL PHOTOGRAPH



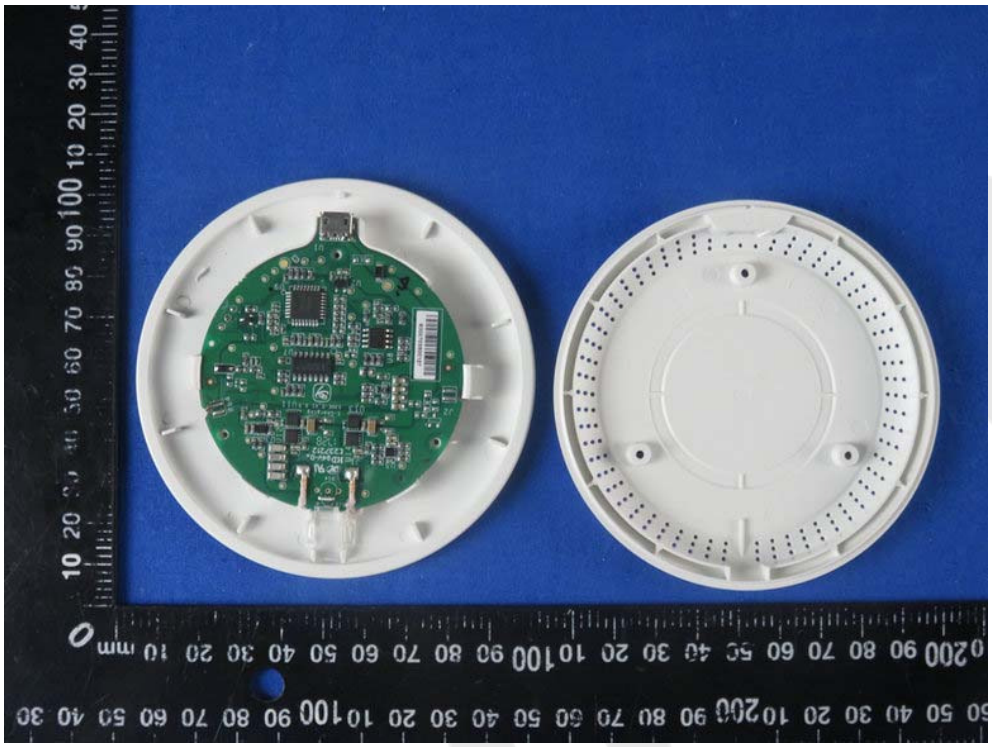


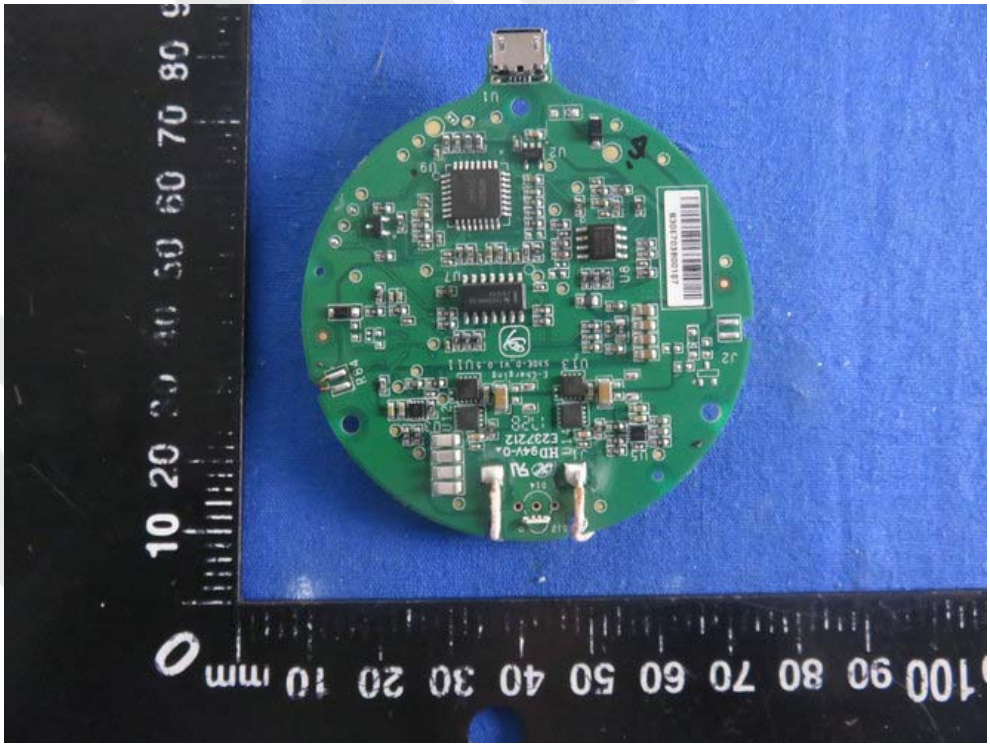


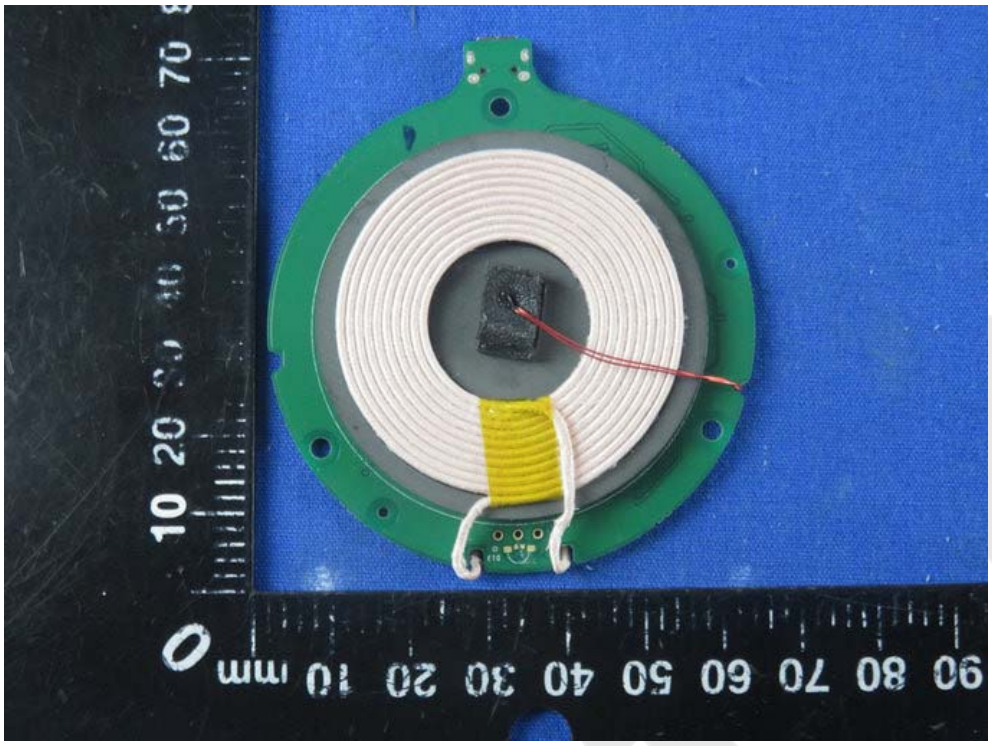




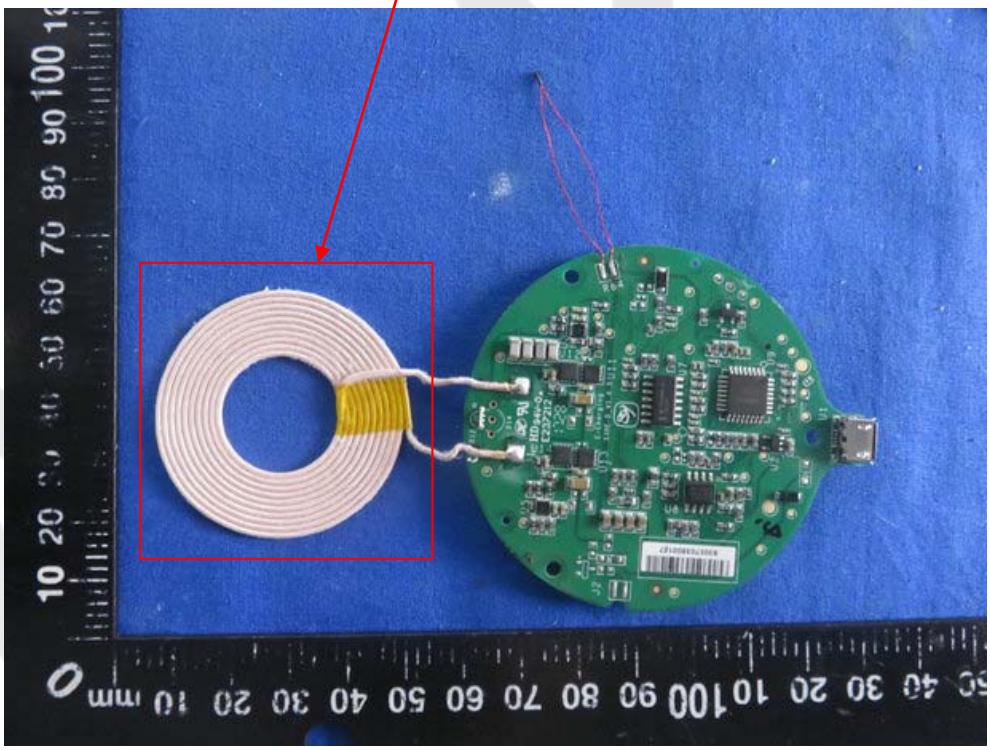
APPENDIX III -- INTERNAL PHOTOGRAPH

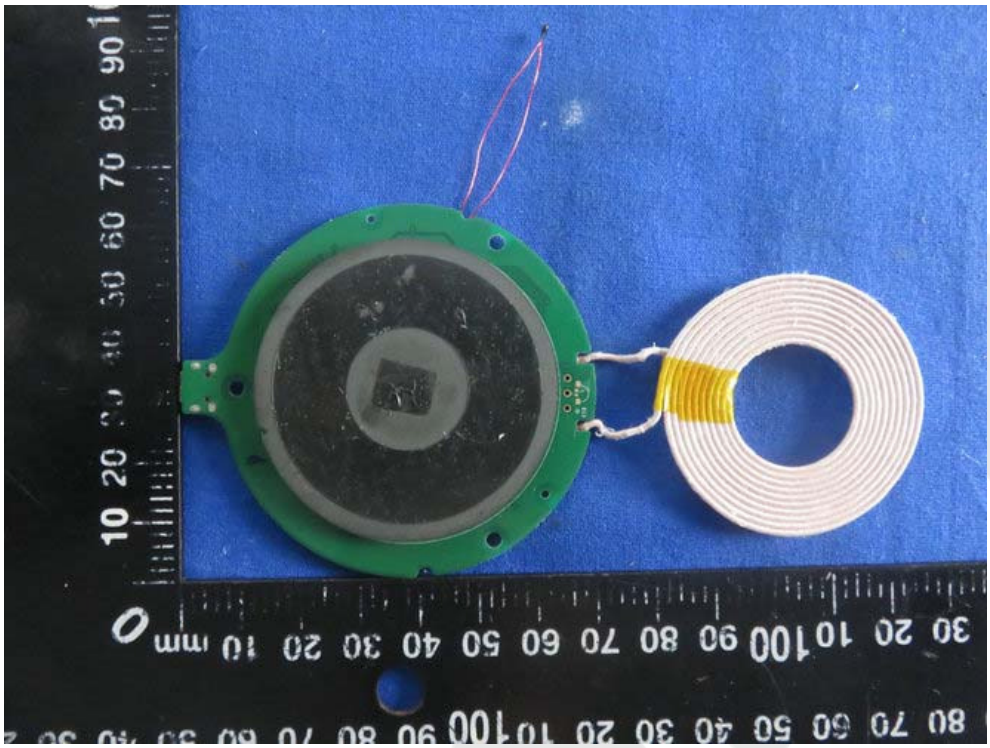


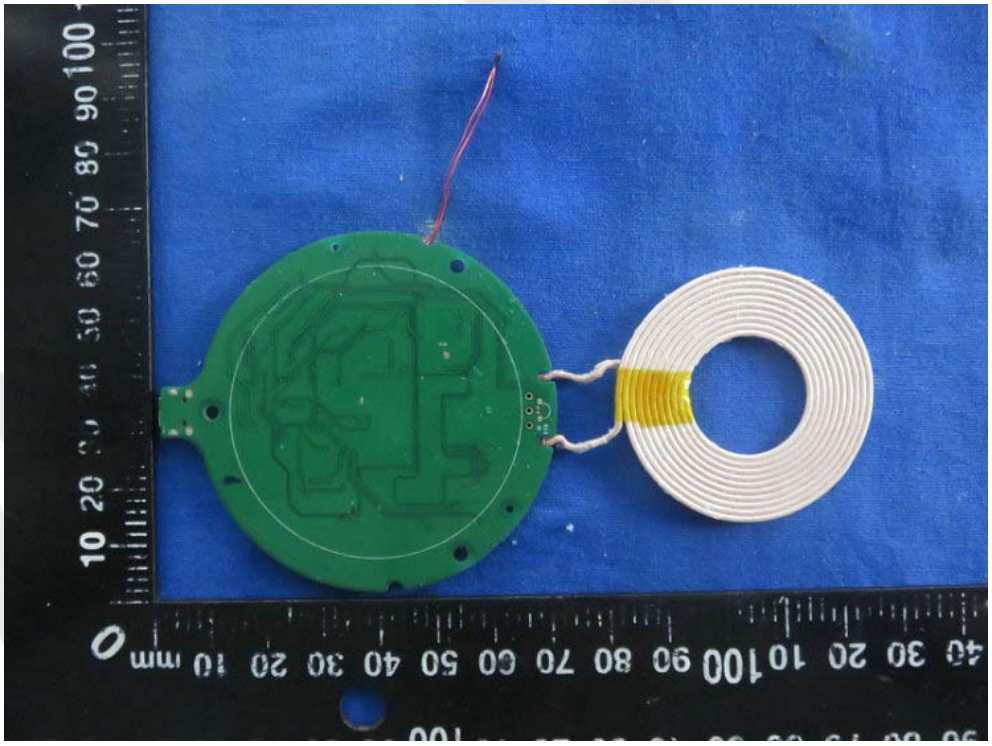


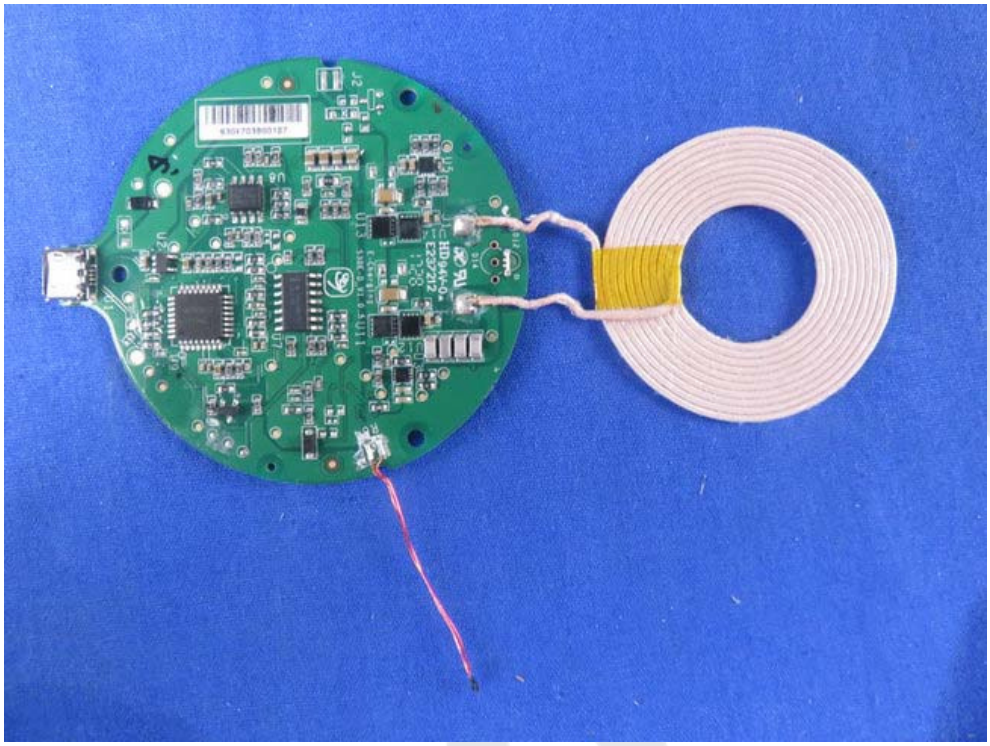


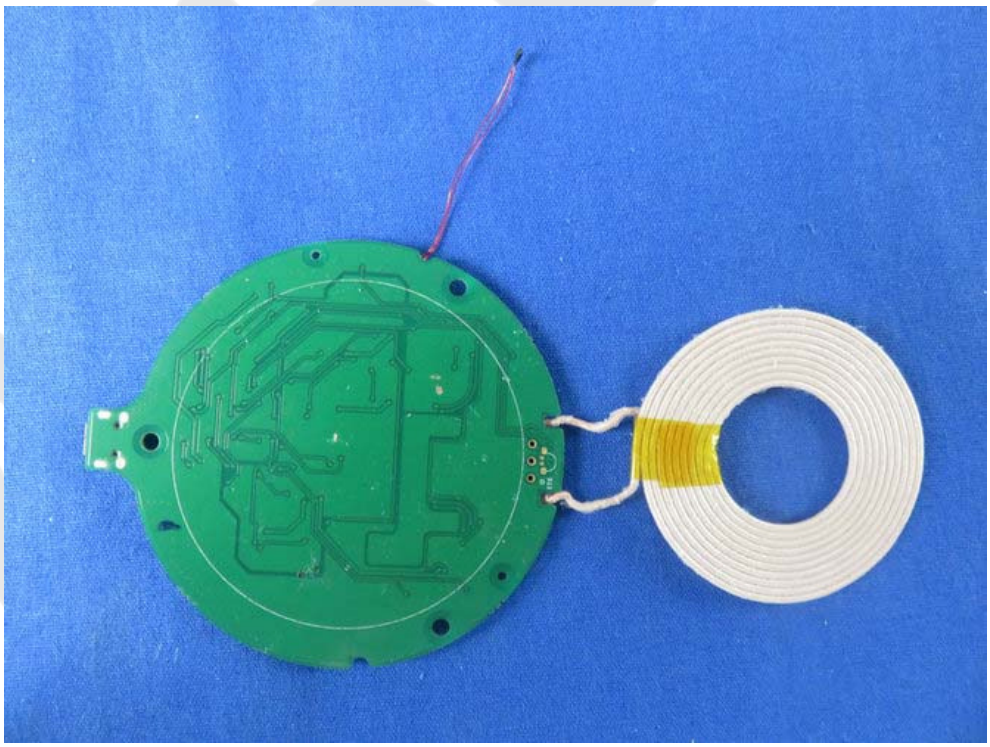
Inductive loop coil Antenna

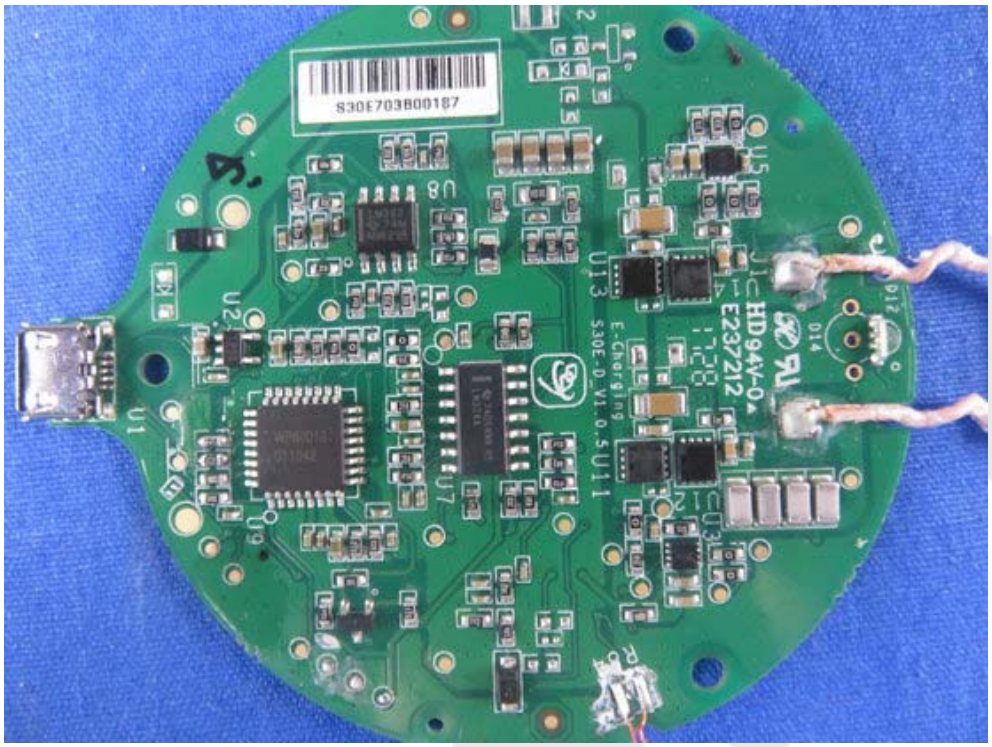








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