

FCC TEST REPORT

For

Anker Technology Co., Limited

PowerWave 7.5 Pad

Model No.: A2514

Prepared For : Anker Technology Co., Limited
Address : Room 1318-19, Hollywood Plaza, 610 Nathan Road, Mongkok, Kowloon,
Hongkong


Prepared By : Shenzhen Anbotek Compliance Laboratory Limited
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Report Number : SZAWW171219003-01
Date of Test : Dec. 19, 2017~Jan. 09, 2018
Date of Report : Jan. 09, 2018

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TEST REPORT

Applicant : Anker Technology Co., Limited
Manufacturer : Anker Technology Co., Limited
Product Name : PowerWave 7.5 Pad
Model No. : A2514
Trade Mark : 
Rating(s) : Input: DC 12V, 1.5A
Wireless Output: DC 5V 0.95A/DC 9V 0.5A

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 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 : Dec. 19, 2017~Jan. 09, 2018

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	:	Anker Technology Co., Limited
Address	:	Room 1318-19, Hollywood Plaza, 610 Nathan Road, Mongkok, Kowloon, Hongkong
Manufacturer	:	Anker Technology Co., Limited
Address	:	Room 1318-19, Hollywood Plaza, 610 Nathan Road, Mongkok, Kowloon, Hongkong

1.2. Description of Device (EUT)

Product Name	:	PowerWave 7.5 Pad	
Model No.	:	A2514	
Trade Mark	:		
Test Power Supply	:	AC 120V, 60Hz for adapter/AC 240V, 60Hz for adapter	
Product Description	:	Operation Frequency:	110-130KHz
	:	Number of Channel:	21 Channels
	:	Modulation Type:	MSK
	:	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	:	Manufacturer: Anker Technology Co. Limited M/N: A2013 Input: AC 100-240V, 50-60Hz, 0.7A Output: 3.6-6.5V, 3A/6.5-9V, 2A/9-12V, 1.5A
Mobile Phone	:	Manufacturer: SAMSUNG
	:	M/N: SM-G9550 S/N: R28J636WJ1B CE, FCC, DOC

1.4. Description of Test Modes

To investigate the maximum EMI emission characteristics generated from EUT, the test system was pre-scanning tested based on the consideration of following EUT operation mode or test configuration mode which possibly 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	CH21
Mode 4	TX+Charging Mode

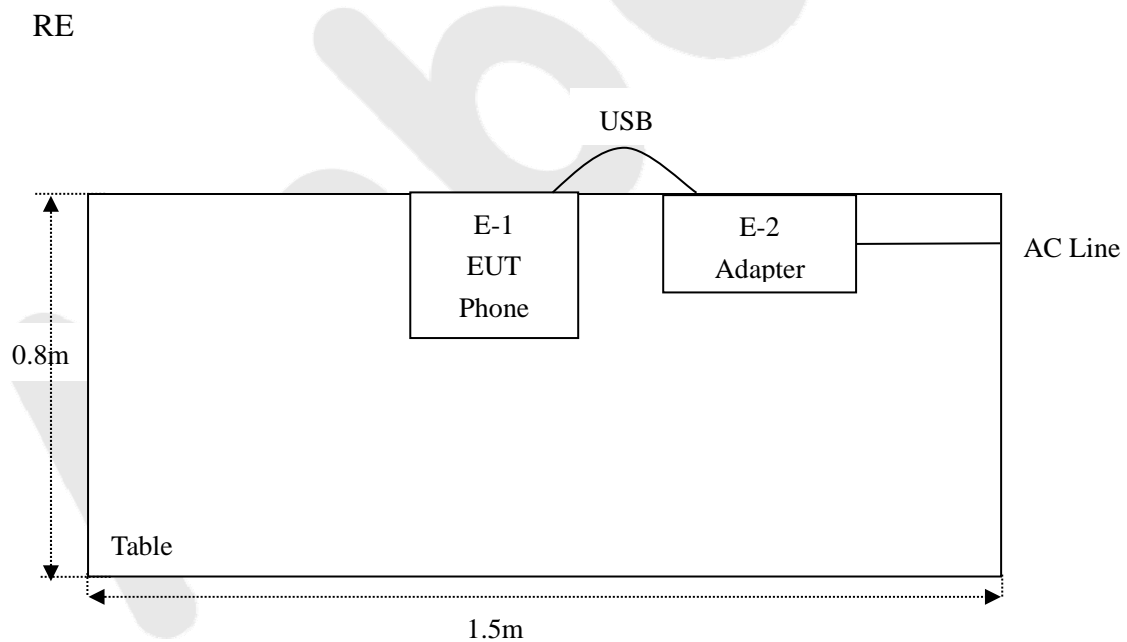
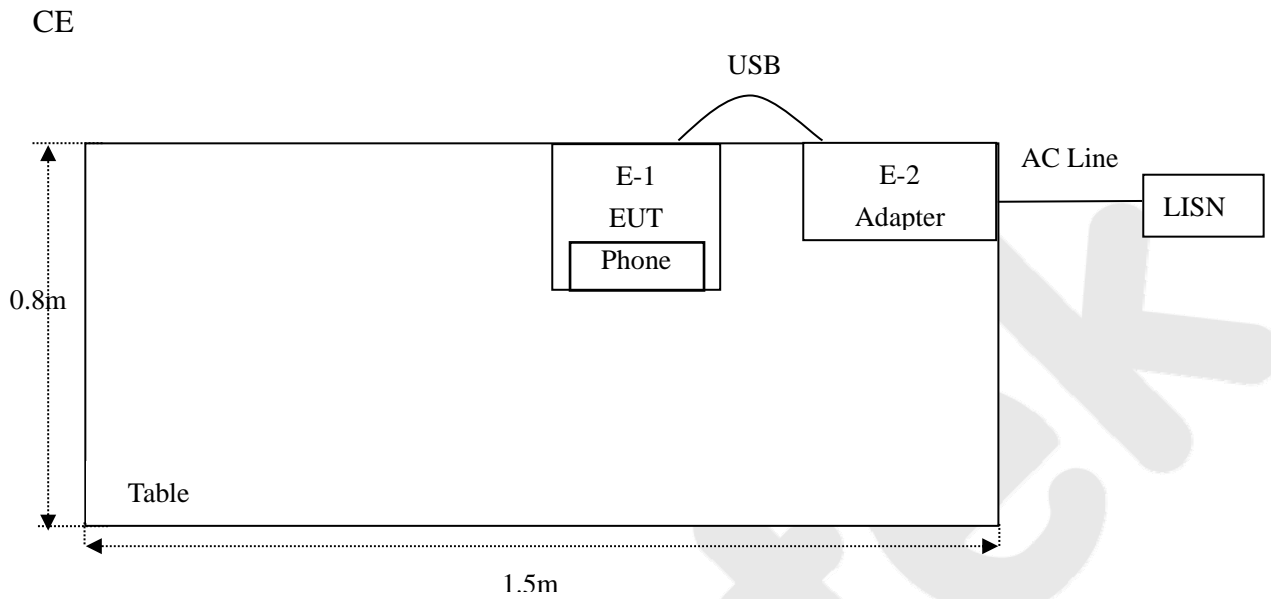
For Conducted Emission	
Final Test Mode	Description
Mode 4	TX+Charging Mode

For Radiated Emission	
Final Test Mode	Description
Mode 1	CH01
Mode 2	CH10
Mode 3	CH21

1.5. List of channels

Channel	Freq. (MHz)	Channel	Freq. (MHz)	Channel	Freq. (MHz)	Channel	Freq. (MHz)	Channel	Freq. (MHz)
01	0.110	06	0.115	11	0.120	16	0.125	21	0.130
02	0.111	07	0.116	12	0.121	17	0.126	/	/
03	0.112	08	0.117	13	0.122	18	0.127	/	/
04	0.113	09	0.118	14	0.123	19	0.128	/	/
05	0.114	10	0.119	15	0.124	20	0.129	/	/

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	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.	Spectrum Analysis	Agilent	N9038A	MY53227295	May 27, 2017	1 Year
6.	Preamplifier	SKET Electronic	BK1G18G30 D	KD17503	May 27, 2017	1 Year
7.	EMI Test Receiver	Rohde & Schwarz	ESPI	101604	May 27, 2017	1 Year
8.	Double Ridged Horn Antenna	Instruments corporation	GTH-0118	351600	May 31, 2017	1 Year
9.	Bilog Broadband Antenna	Schwarzbeck	VULB9163	VULB 9163-289	May 31, 2017	1 Year
10.	Loop Antenna	Schwarzbeck	HFH2-Z2	100047	Apr. 03, 2017	1 Year
11.	Horn Antenna	Schwarzbeck	BBHA9170	9170-375	May 27, 2017	1 Year
12.	Pre-amplifier	SONOMA	310N	186860	May 27, 2017	1 Year
13.	Pre-amplifier	SKET Electronic	BK1G40G50 A	KD25352	May 27, 2017	1 Year
14.	EMI Test Software EZ-EMC	SHURPLE	N/A	N/A	N/A	N/A
15.	Power Sensor	DAER	RPR3006W	15I00041SN045	May 27, 2017	1 Year
16.	Power Sensor	DAER	RPR3006W	15I00041SN046	May 27, 2017	1 Year
17.	MXA Spectrum Analysis	Agilent	N9020A	MY51170037	May 27, 2017	1 Year
18.	MXG RF Vector Signal Generator	Agilent	N5182A	MY48180656	May 27, 2017	1 Year
19.	Signal Generator	Agilent	E4421B	MY41000743	May 27, 2017	1 Year
20.	DC Power supply	IVYTECH	IV6003	1601D6030007	May 26, 2017	1 Year
21.	TEMP&HUMI PROGRAMMABLE CHAMBER	Sertep	ZJ-HWHS80 B	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.: 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

All Emissions tests were performed at
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

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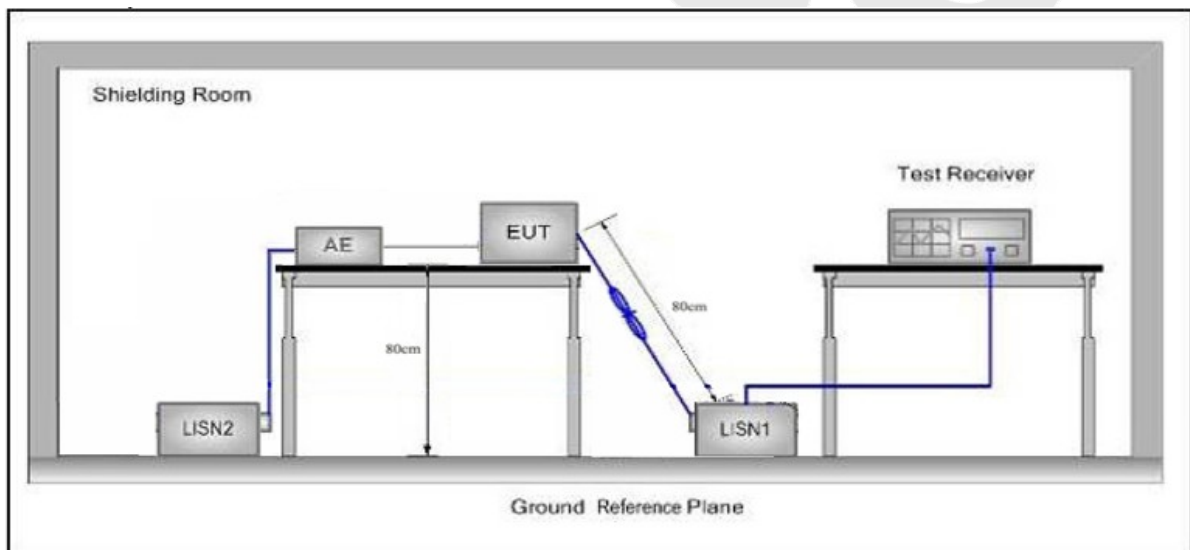
3. Conducted Emission Test

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.

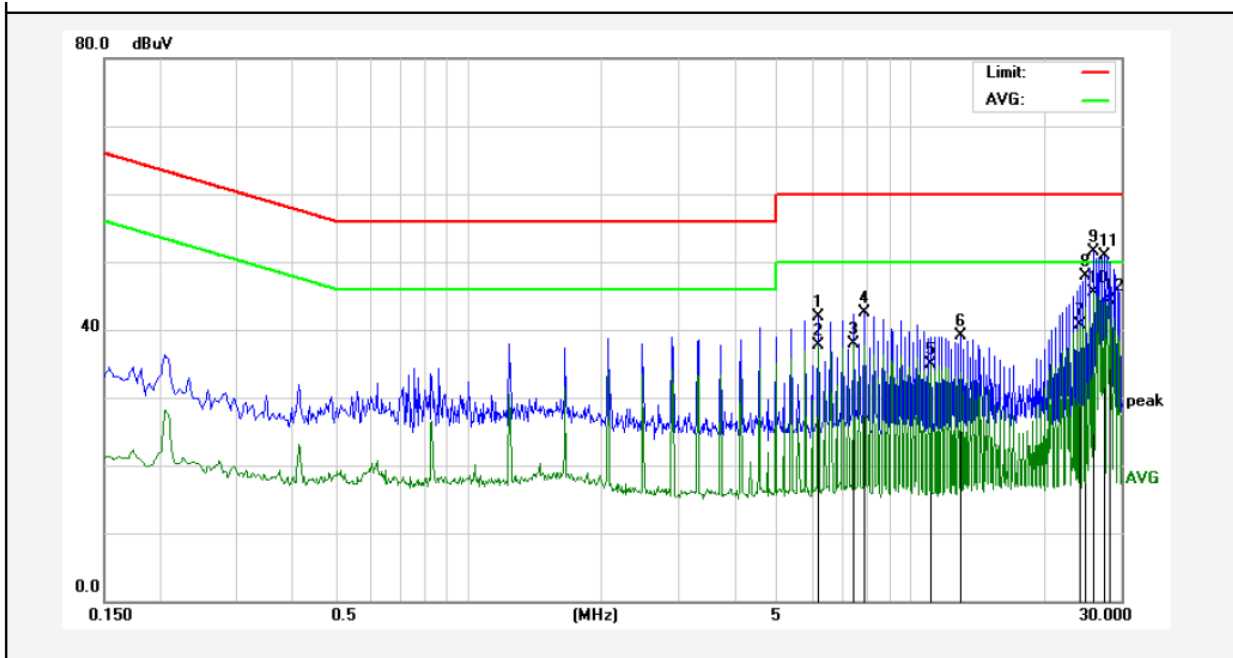
The frequency range from 150kHz to 30MHz is checked.

3.4. Test Data

Please to see the following pages

Conducted Emission Test Data

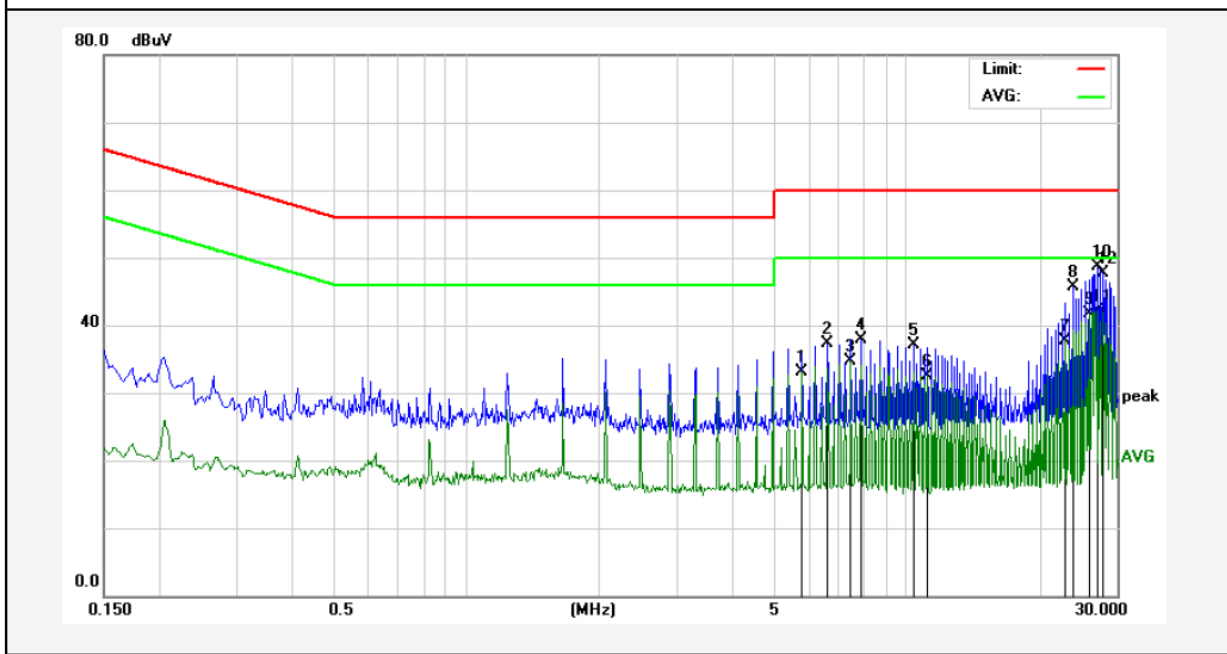
Test Site: 1# Shielded Room
 Operating Condition: TX+Charging Mode
 Test Specification: AC 120V, 60Hz for adapter
 Comment: Live Line
 Tem.:25°C Hum.:50%



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit dBuV	Over Limit (dB)	Detector	Remark
1	6.2100	21.63	20.24	41.87	60.00	-18.13	QP	
2	6.2100	17.42	20.24	37.66	50.00	-12.34	AVG	
3	7.4500	17.63	20.27	37.90	50.00	-12.10	AVG	
4	7.8660	22.18	20.28	42.46	60.00	-17.54	QP	
5	11.1820	14.53	20.32	34.85	50.00	-15.15	AVG	
6	13.0420	18.83	20.29	39.12	60.00	-20.88	QP	
7	24.2260	20.34	20.29	40.63	50.00	-9.37	AVG	
8	25.0459	27.70	20.28	47.98	60.00	-12.02	QP	
9	25.8779	31.19	20.28	51.47	60.00	-8.53	QP	
10	25.8779	25.28	20.28	45.56	50.00	-4.44	AVG	
11	27.5420	30.61	20.27	50.88	60.00	-9.12	QP	
12	28.3660	24.07	20.27	44.34	50.00	-5.66	AVG	

Conducted Emission Test Data

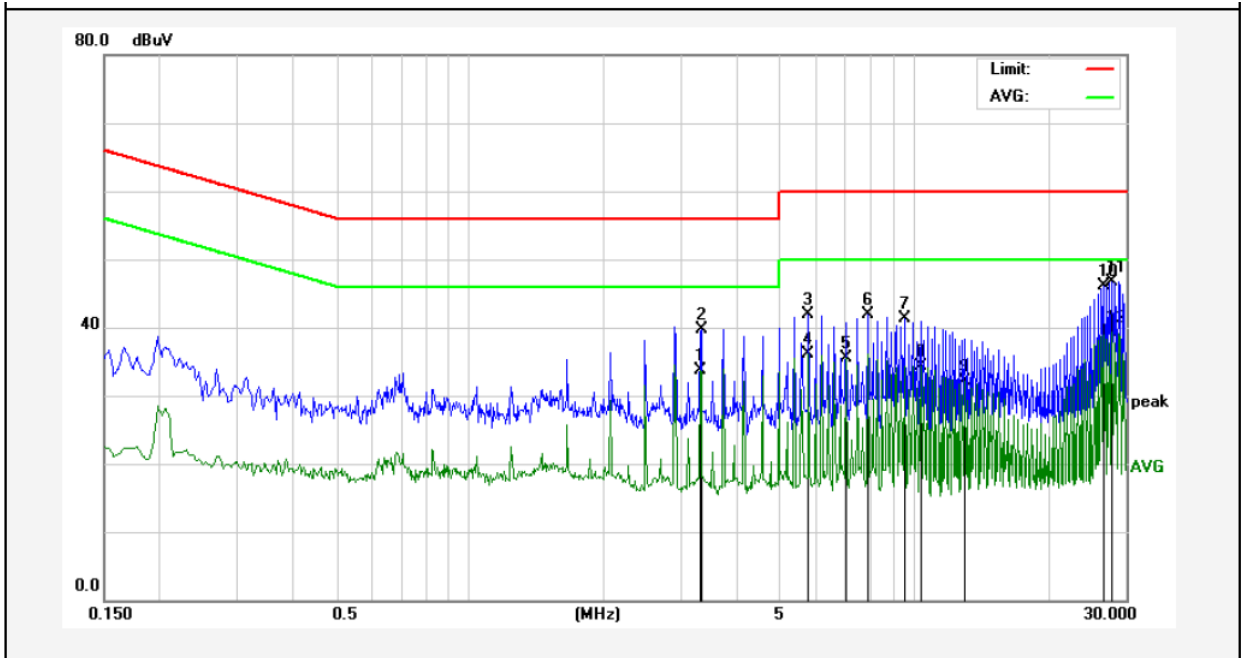
Test Site: 1# Shielded Room
 Operating Condition: TX+Charging Mode
 Test Specification: AC 120V, 60Hz for adapter
 Comment: Neutral Line
 Tem.:25°C Hum.:50%



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit dBuV	Over Limit (dB)	Detector	Remark
1	5.7980	12.94	20.23	33.17	50.00	-16.83	AVG	
2	6.6260	17.00	20.25	37.25	60.00	-22.75	QP	
3	7.4540	14.47	20.27	34.74	50.00	-15.26	AVG	
4	7.8660	17.69	20.28	37.97	60.00	-22.03	QP	
5	10.3500	16.86	20.33	37.19	60.00	-22.81	QP	
6	11.1780	12.13	20.32	32.45	50.00	-17.55	AVG	
7	22.9740	17.50	20.30	37.80	50.00	-12.20	AVG	
8	23.8020	25.33	20.29	45.62	60.00	-14.38	QP	
9	25.8740	21.38	20.28	41.66	50.00	-8.34	AVG	
10	27.1140	28.41	20.28	48.69	60.00	-11.31	QP	
11	27.1140	21.92	20.28	42.20	50.00	-7.80	AVG	
12	27.9380	27.52	20.27	47.79	60.00	-12.21	QP	

Conducted Emission Test Data

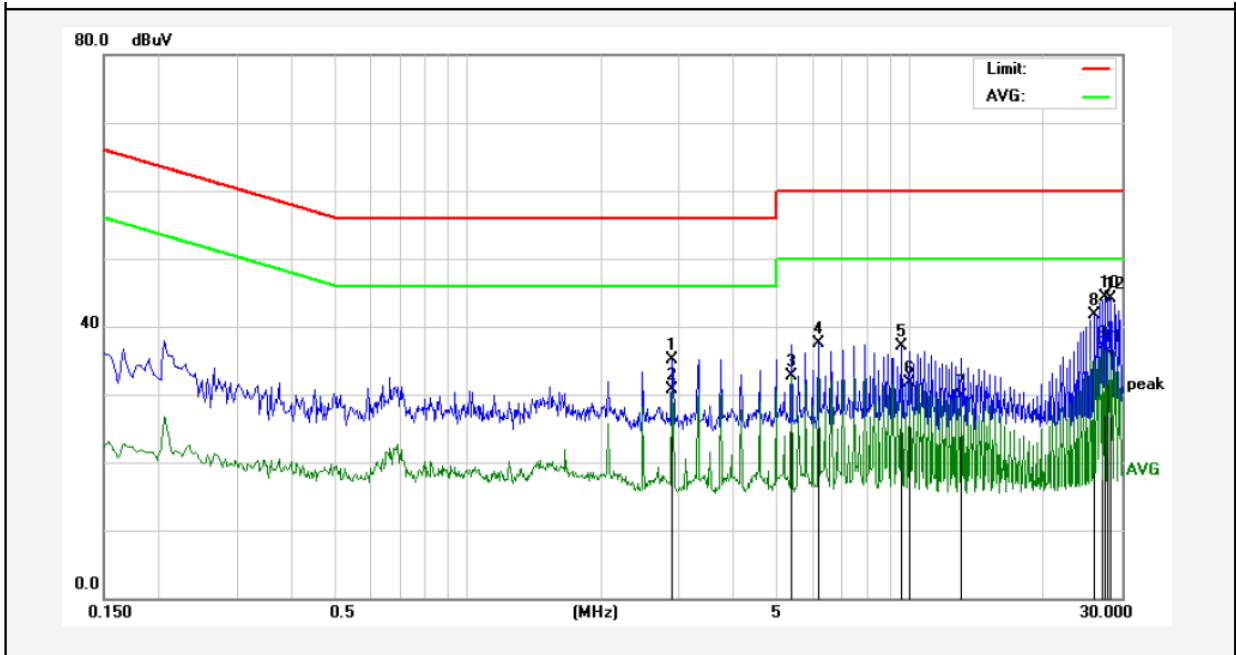
Test Site: 1# Shielded Room
 Operating Condition: TX+Charging Mode
 Test Specification: AC 240V, 60Hz for adapter
 Comment: Live Line
 Tem.:25°C Hum.:50%



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit dBuV	Over Limit (dB)	Detector	Remark
1	3.3100	13.48	20.17	33.65	46.00	-12.35	AVG	
2	3.3140	19.61	20.17	39.78	56.00	-16.22	QP	
3	5.7980	21.74	20.23	41.97	60.00	-18.03	QP	
4	5.7980	15.82	20.23	36.05	50.00	-13.95	AVG	
5	7.0380	15.21	20.26	35.47	50.00	-14.53	AVG	
6	7.8660	21.66	20.28	41.94	60.00	-18.06	QP	
7	9.5180	20.89	20.33	41.22	60.00	-18.78	QP	
8	10.3500	13.99	20.33	34.32	50.00	-15.68	AVG	
9	13.0380	11.90	20.29	32.19	50.00	-17.81	AVG	
10	26.7020	25.91	20.28	46.19	60.00	-13.81	QP	
11	27.9420	26.43	20.27	46.70	60.00	-13.30	QP	
12	27.9420	19.12	20.27	39.39	50.00	-10.61	AVG	

Conducted Emission Test Data

Test Site: 1# Shielded Room
 Operating Condition: TX+Charging Mode
 Test Specification: AC 240V, 60Hz for adapter
 Comment: Neutral Line
 Tem.:25°C Hum.:50%



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit dBuV	Over Limit (dB)	Detector	Remark
1	2.8980	15.03	20.16	35.19	56.00	-20.81	QP	
2	2.8980	10.49	20.16	30.65	46.00	-15.35	AVG	
3	5.3820	12.41	20.22	32.63	50.00	-17.37	AVG	
4	6.2100	17.24	20.24	37.48	60.00	-22.52	QP	
5	9.5219	16.80	20.33	37.13	60.00	-22.87	QP	
6	9.9340	11.27	20.34	31.61	50.00	-18.39	AVG	
7	13.0420	9.38	20.29	29.67	50.00	-20.33	AVG	
8	25.8740	21.45	20.28	41.73	60.00	-18.27	QP	
9	27.1140	16.57	20.28	36.85	50.00	-13.15	AVG	
10	27.5260	24.11	20.27	44.38	60.00	-15.62	QP	
11	27.9500	16.04	20.27	36.31	50.00	-13.69	AVG	
12	28.3620	23.86	20.27	44.13	60.00	-15.87	QP	

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
	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

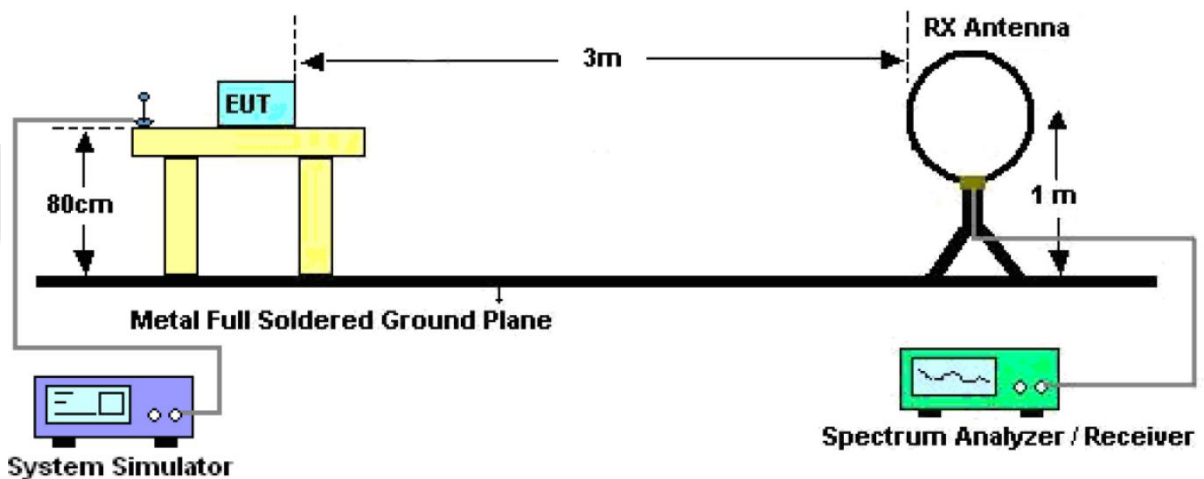


Figure 1. Below 30MHz

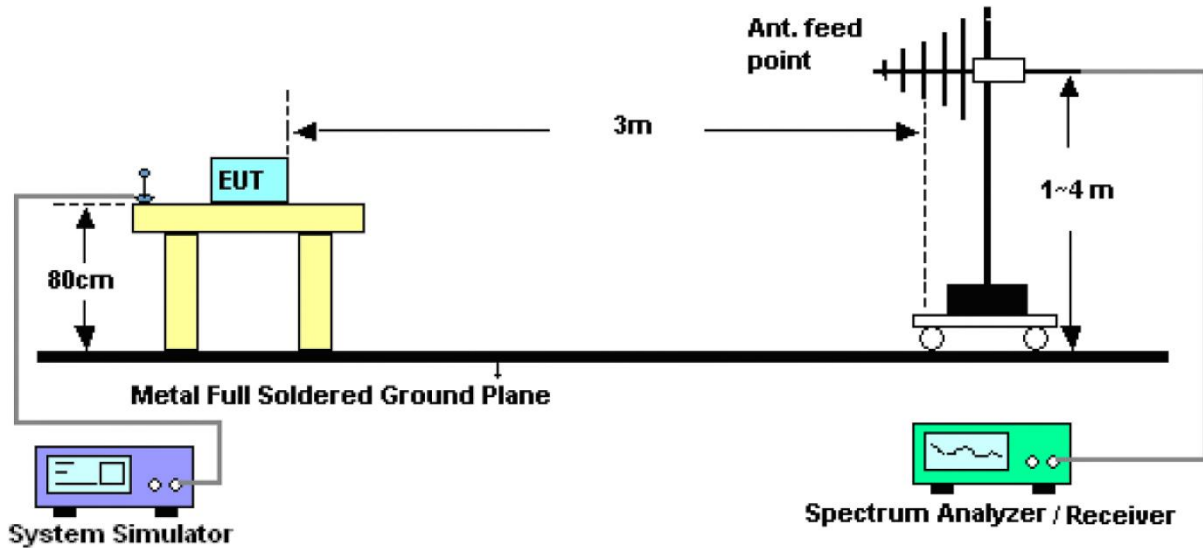


Figure 2. 30MHz to 1GHz

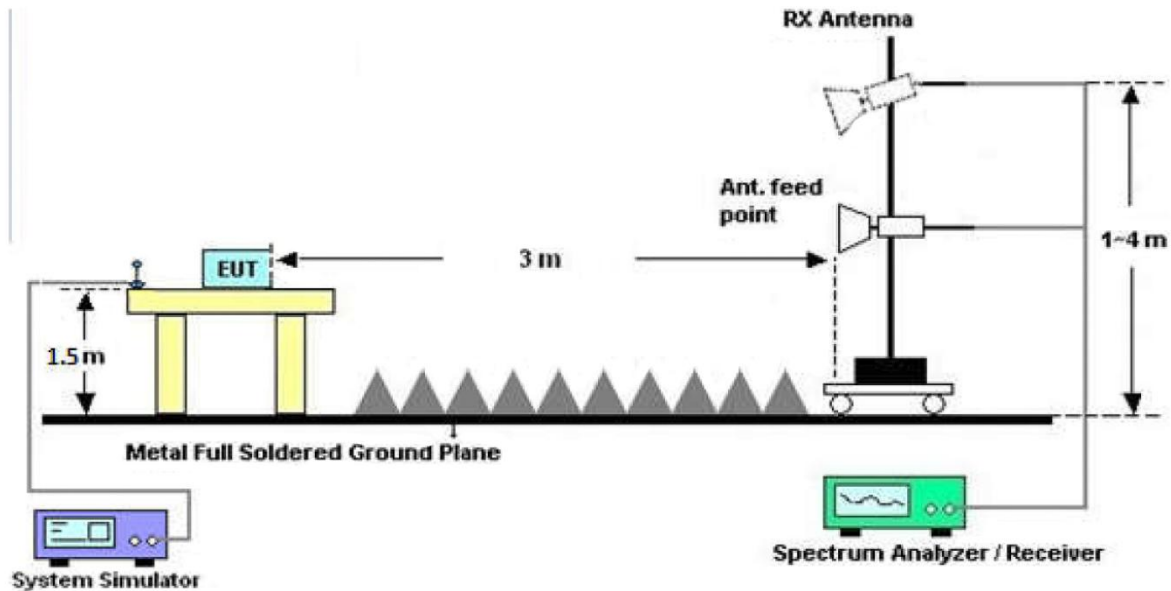


Figure 3. Above 1 GHz

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

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Test Results

(Between 9KHz – 30MHz)

Job No.:	SZAWW171219003-01		
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+Charging Mode	Distance:	3m

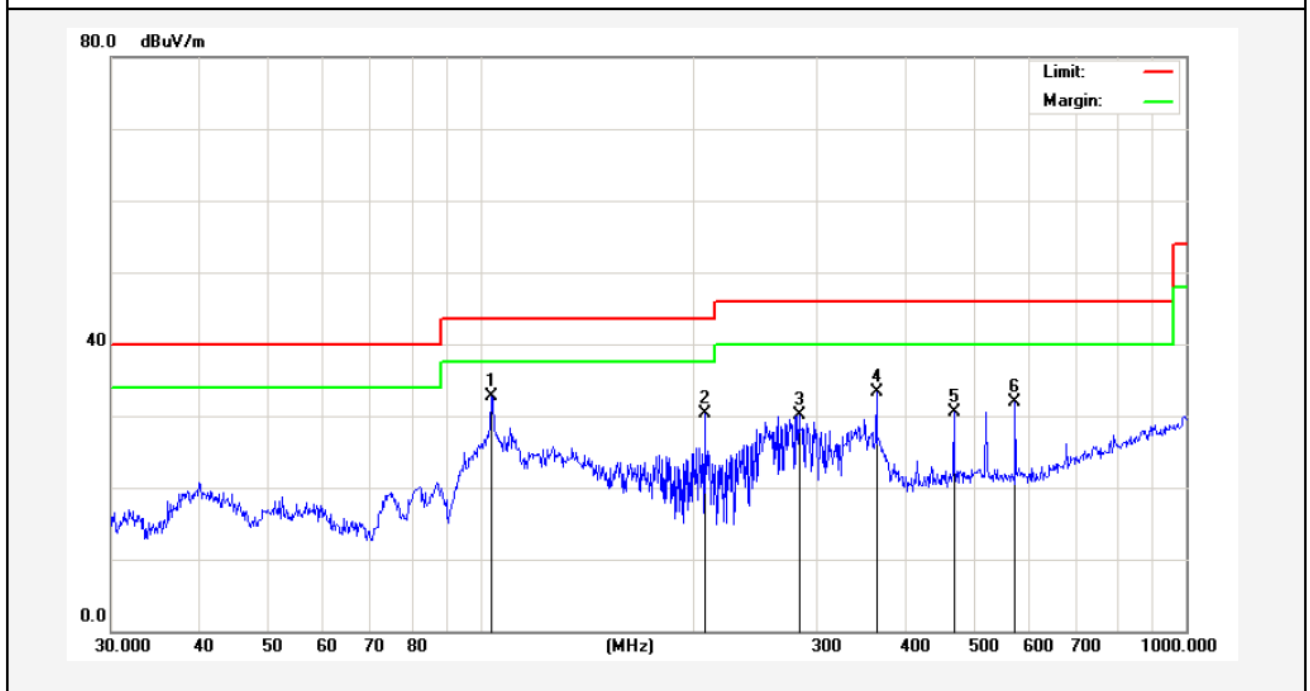


Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	degree
									(dgc)
0.0355	59.92	19.30	2.53	0	81.75	136.54	-54.79	Peak	15
0.0355	57.11	19.30	2.53	0	78.94	116.54	-37.60	AV	15
0.1104	75.53	19.30	2.53	0	97.36	126.71	-29.35	Peak	33
0.1104	57.74	19.30	2.53	0	79.57	106.71	-27.14	AV	33
0.1216	70.83	19.29	2.54	0	92.66	125.87	-33.21	Peak	124
0.1216	58.62	19.29	2.54	0	80.45	105.87	-25.42	AV	124
0.1369	68.24	19.36	2.55	0	90.15	124.84	-34.69	Peak	101
0.1369	50.27	19.36	2.55	0	72.18	104.84	-32.66	AV	101
0.2220	53.85	19.63	2.59	0	76.07	120.66	-44.59	Peak	324
0.2220	33.92	19.63	2.59	0	56.14	100.66	-44.52	AV	324
0.5220	43.11	20.32	2.60	0	66.03	73.25	-7.22	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.

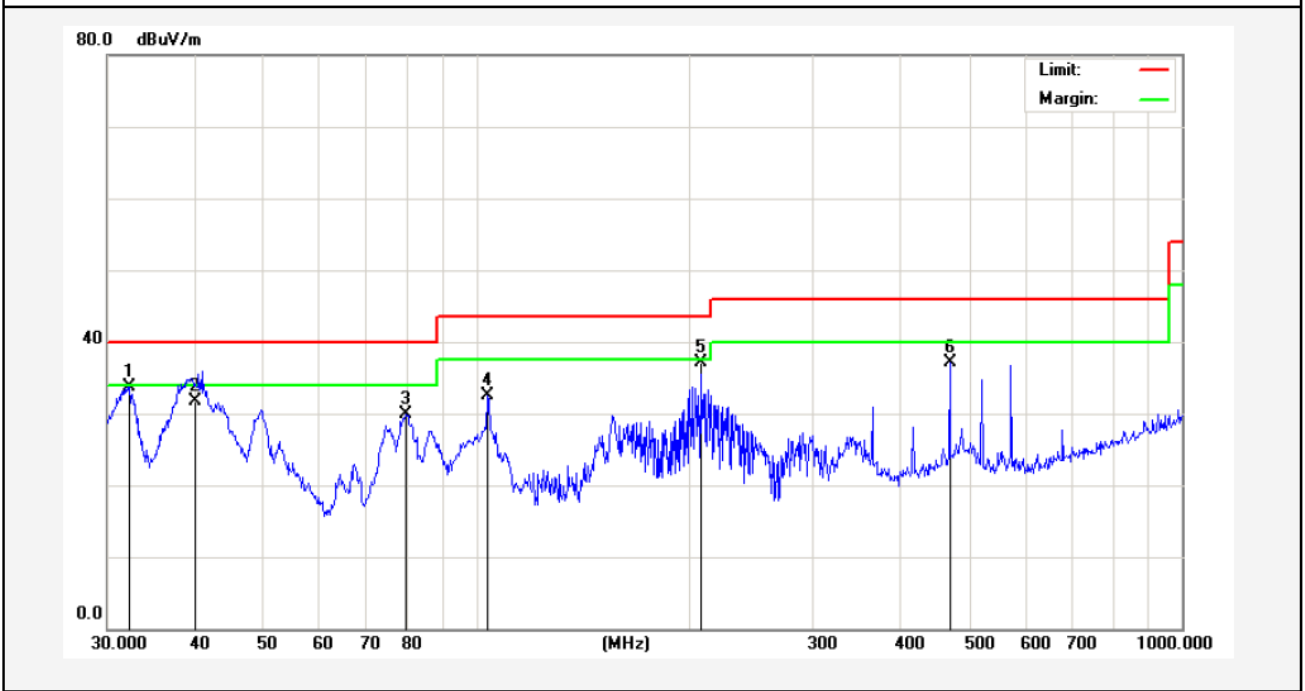
(Between 30MHz –1000 MHz)

Job No.:	SZAWW171219003-01	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+Charging 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	103.8055	53.46	-20.71	32.75	43.50	-10.75	QP	300	62	
2	207.8501	49.35	-19.05	30.30	43.50	-13.20	QP	300	143	
3	282.9852	48.09	-17.98	30.11	46.00	-15.89	QP	300	214	
4	364.2595	46.96	-13.58	33.38	46.00	-12.62	QP	300	276	
5	468.8762	42.28	-11.85	30.43	46.00	-15.57	QP	300	304	
6	572.6144	43.00	-11.16	31.84	46.00	-14.16	QP	300	360	

Job No.:	SZAWW171219003-01	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+Charging Mode	Distance:	3m



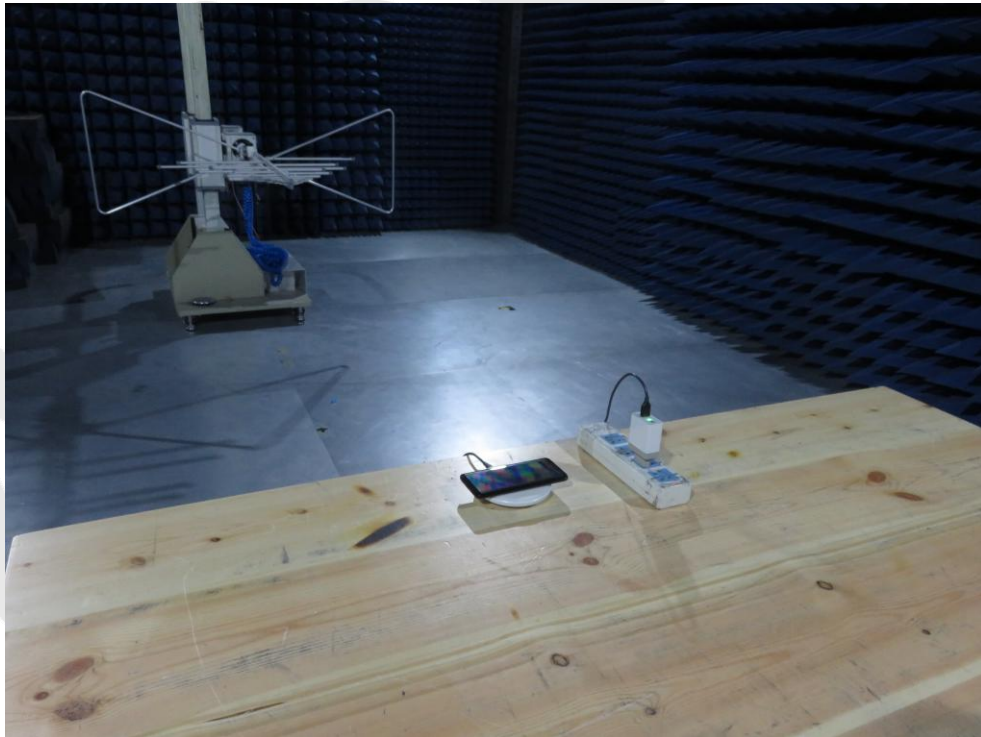
No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/)	Over Limit (dB)	Detector	Height (cm)	degree (deg)	Remark
1	32.2925	50.60	-16.88	33.72	40.00	-6.28	QP	300	45	
2	39.9846	45.16	-13.37	31.79	40.00	-8.21	QP	300	124	
3	79.5209	49.69	-19.85	29.84	40.00	-10.16	QP	300	165	
4	103.8055	47.17	-14.71	32.46	43.50	-11.04	QP	300	254	
5	208.0101	51.79	-14.65	37.14	43.50	-6.36	QP	300	300	
6	468.8762	48.93	-11.85	37.08	46.00	-8.92	QP	300	360	

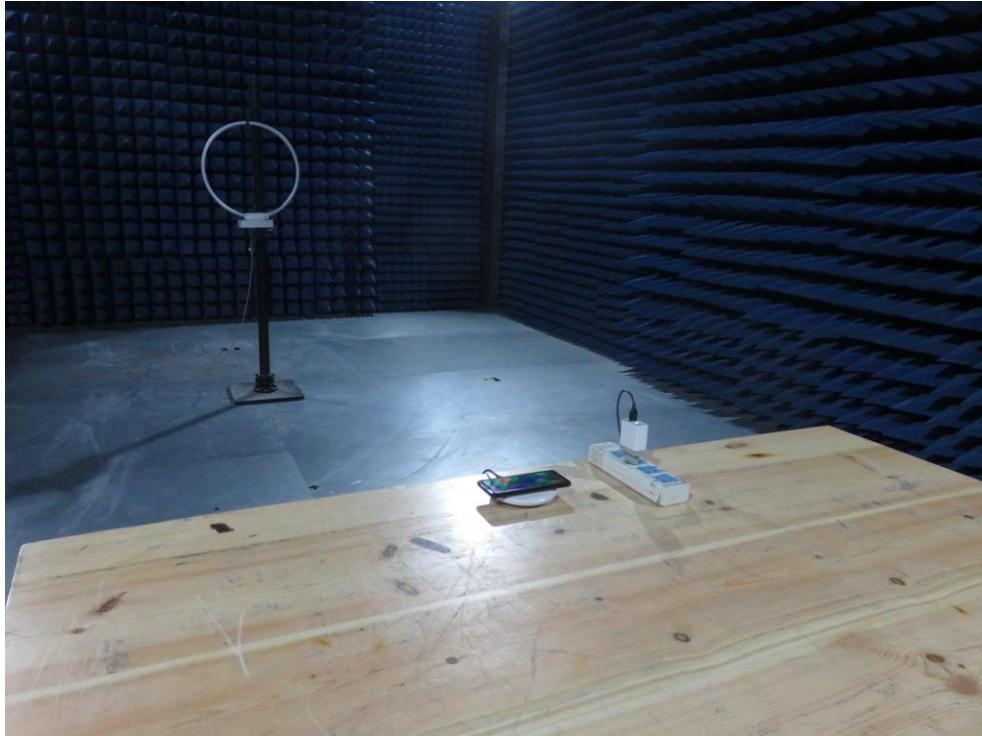
APPENDIX I -- TEST SETUP PHOTOGRAPH

Photo of Conducted Emission Measurement



Photo of Radiation Emission Test





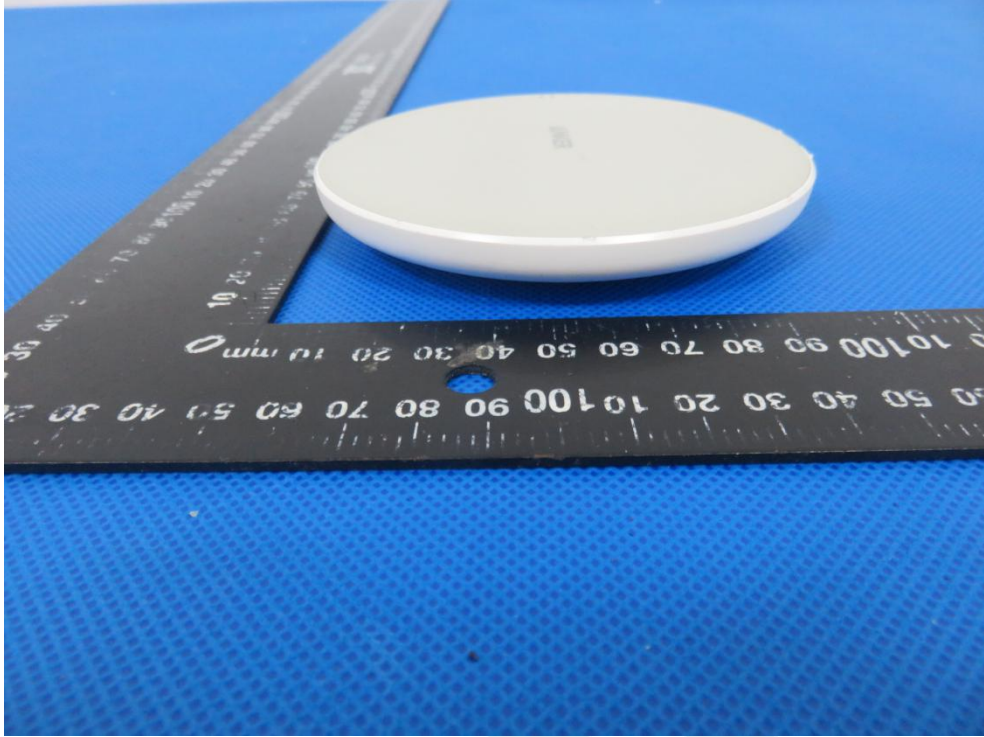
Anbotek

APPENDIX II -- EXTERNAL PHOTOGRAPH



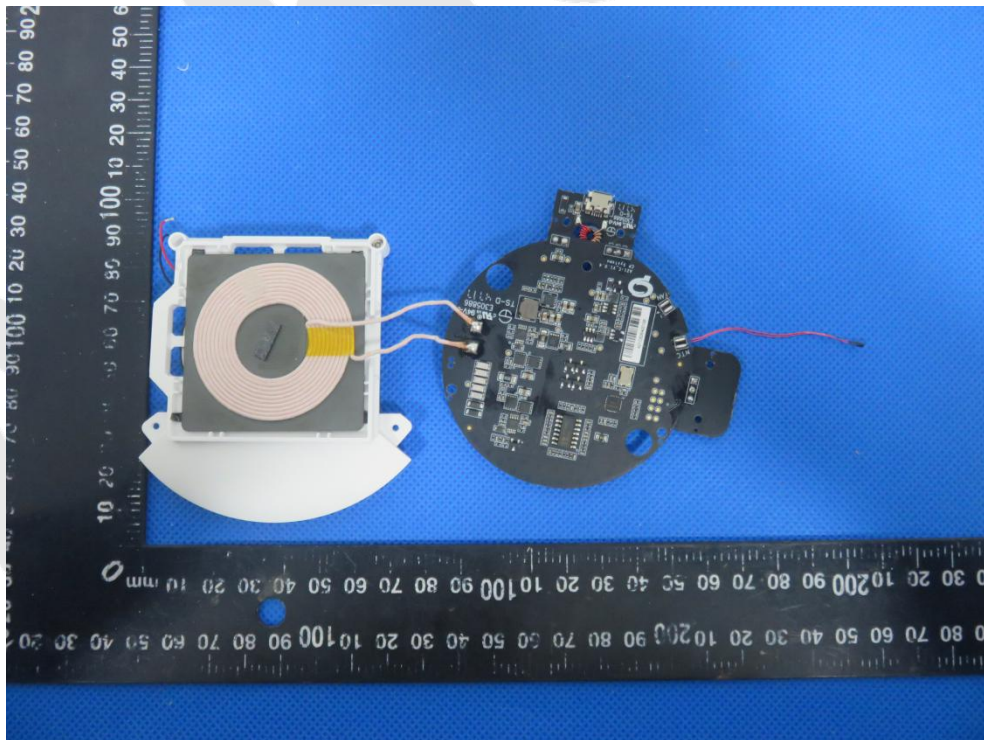
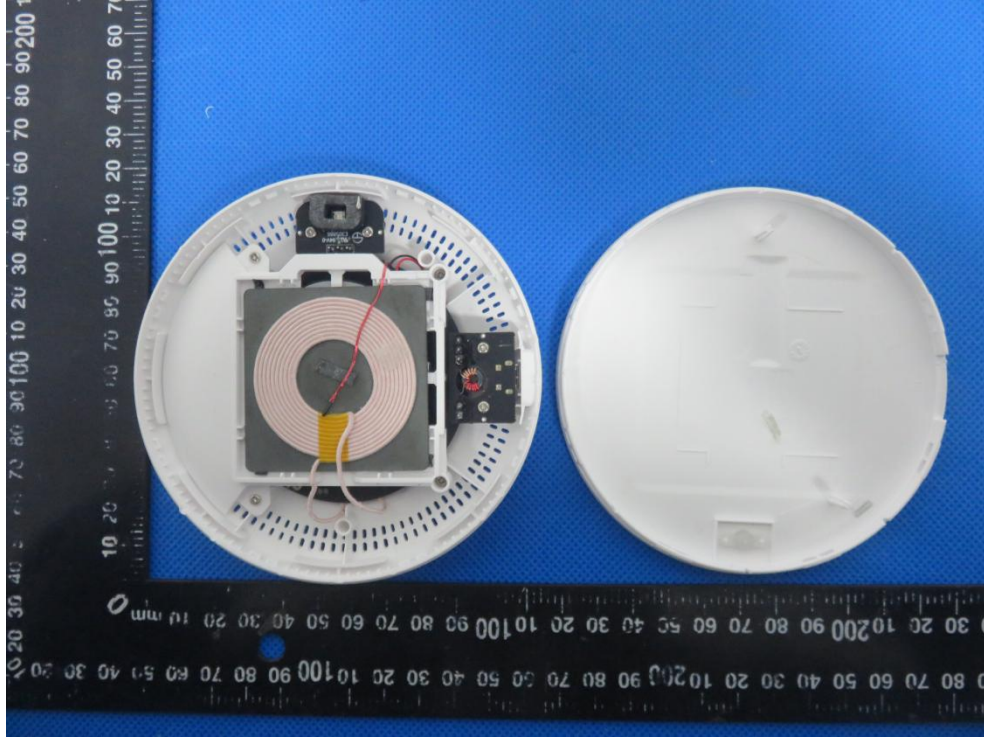


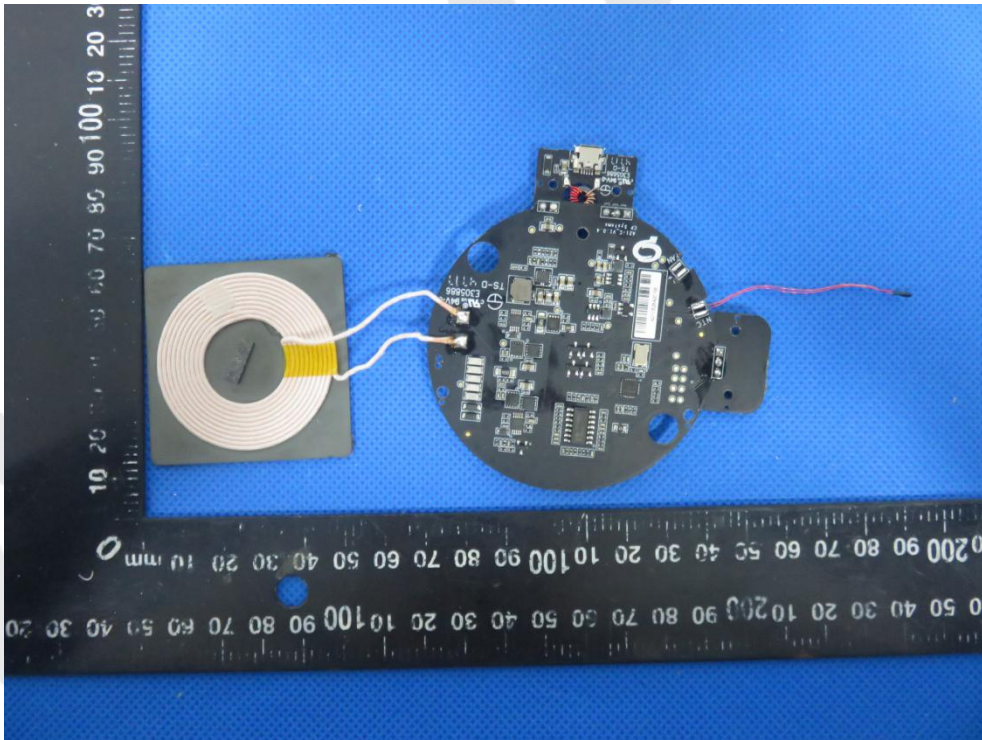
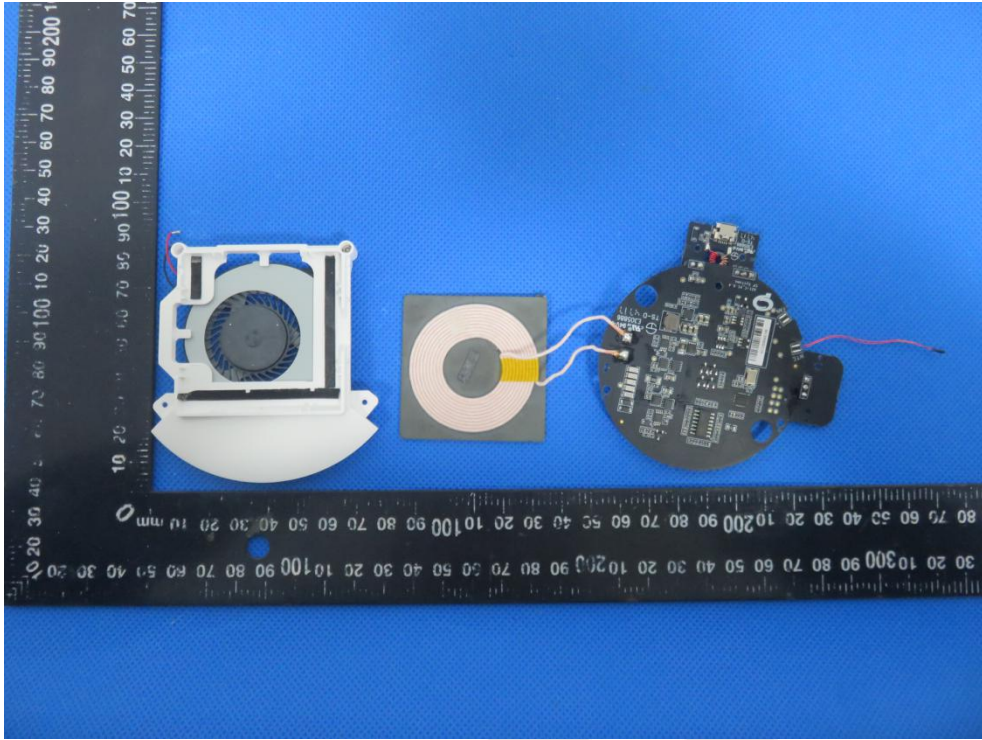


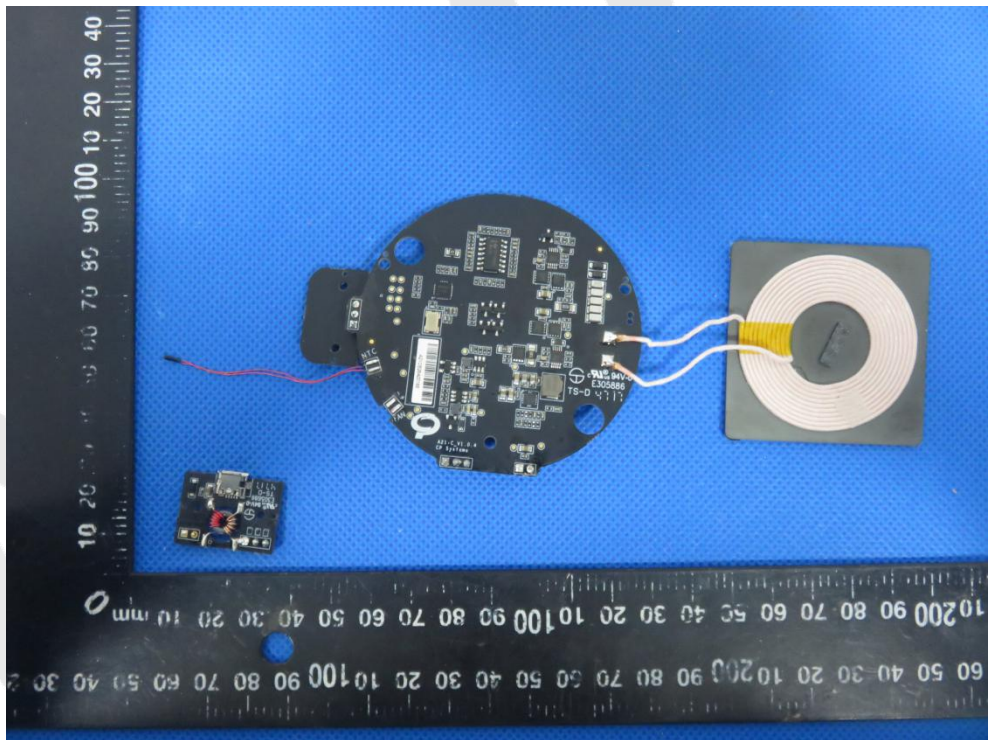
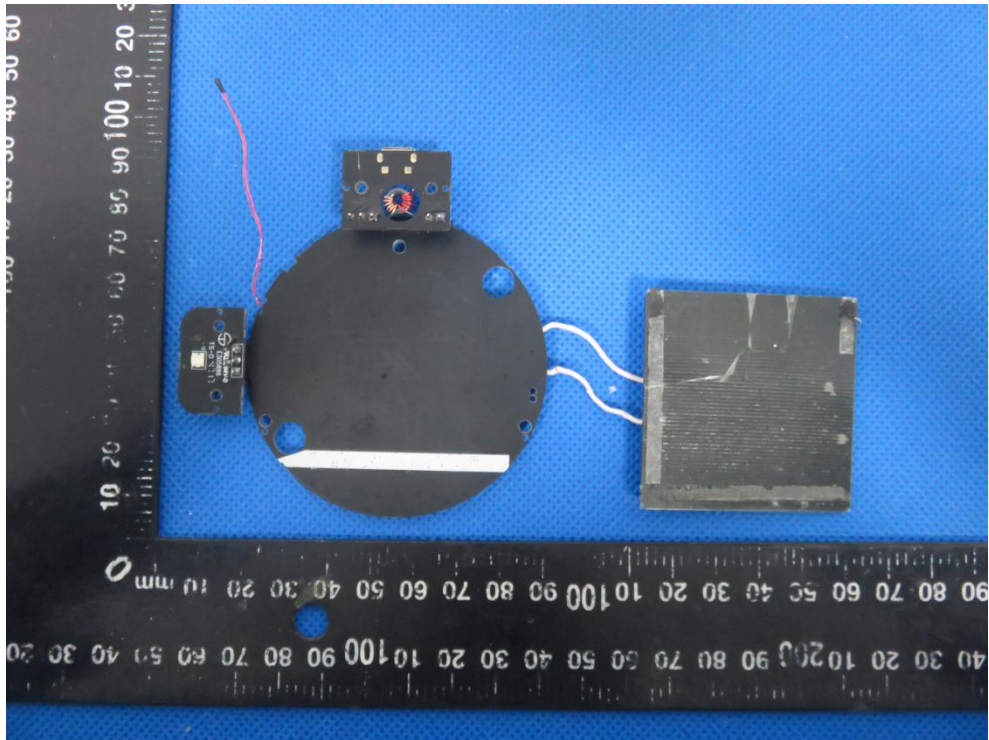


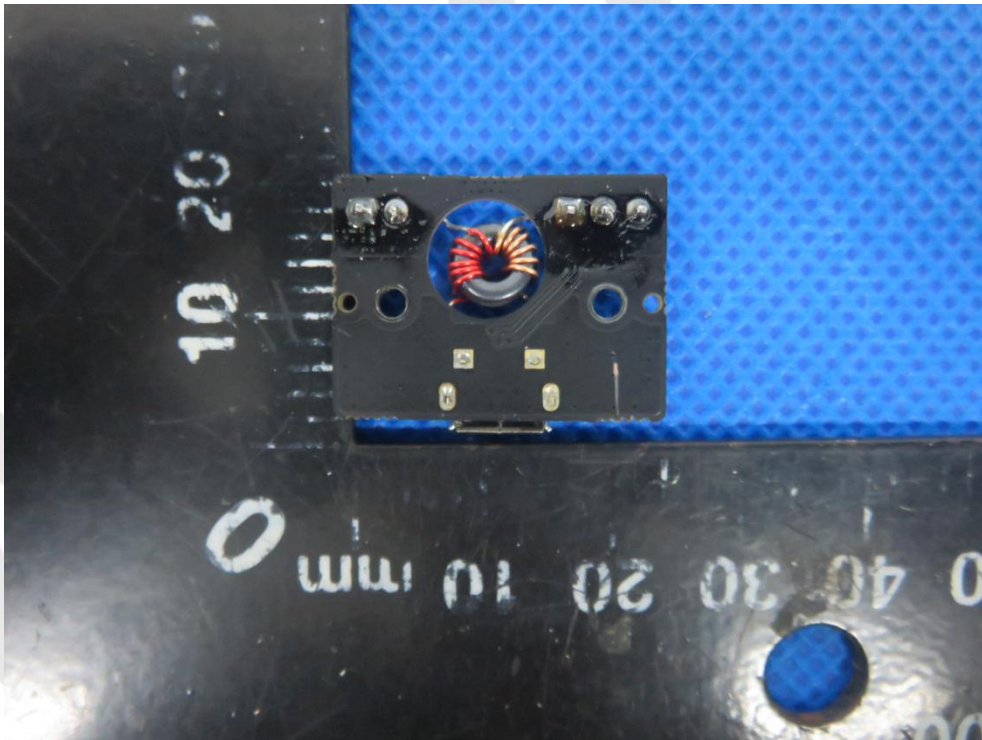
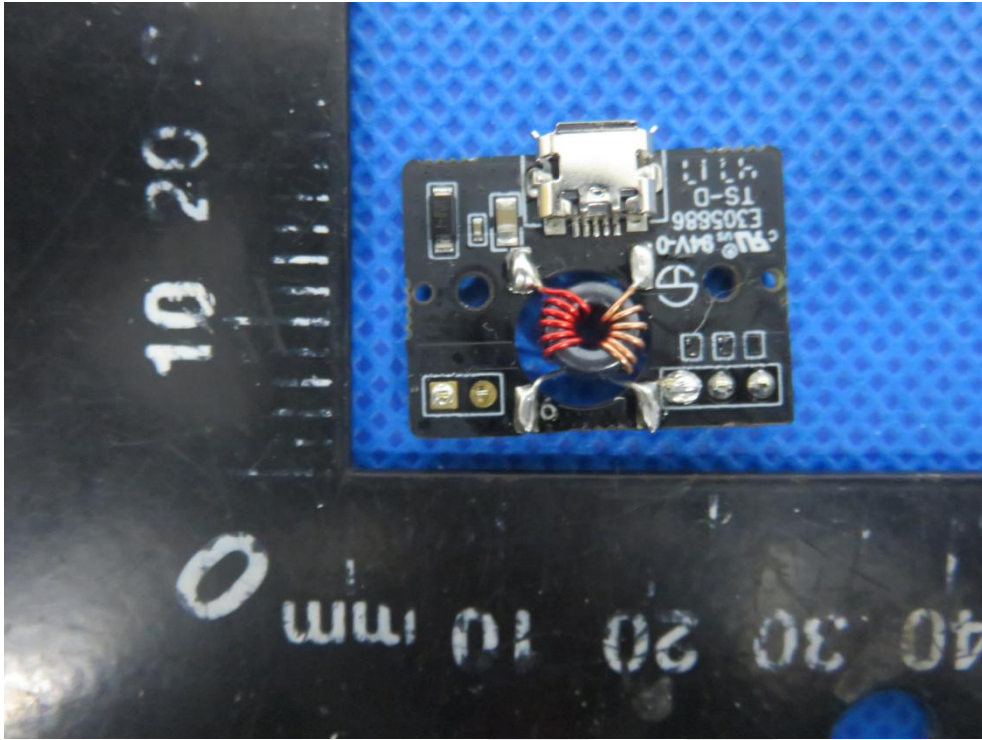
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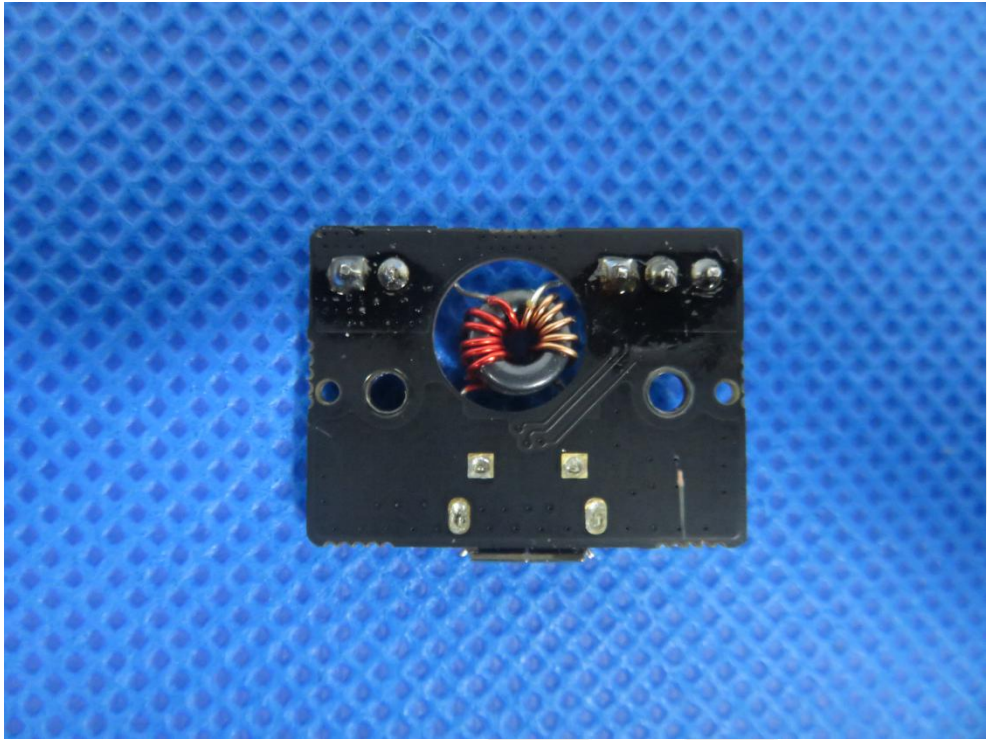
APPENDIX III -- INTERNAL PHOTOGRAPH

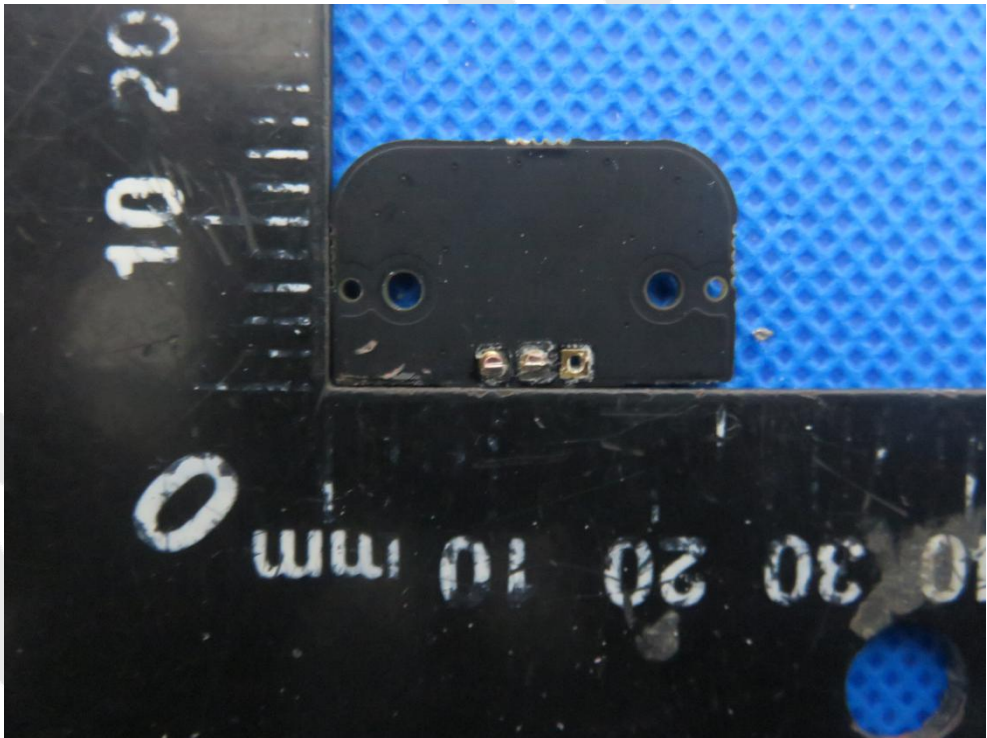
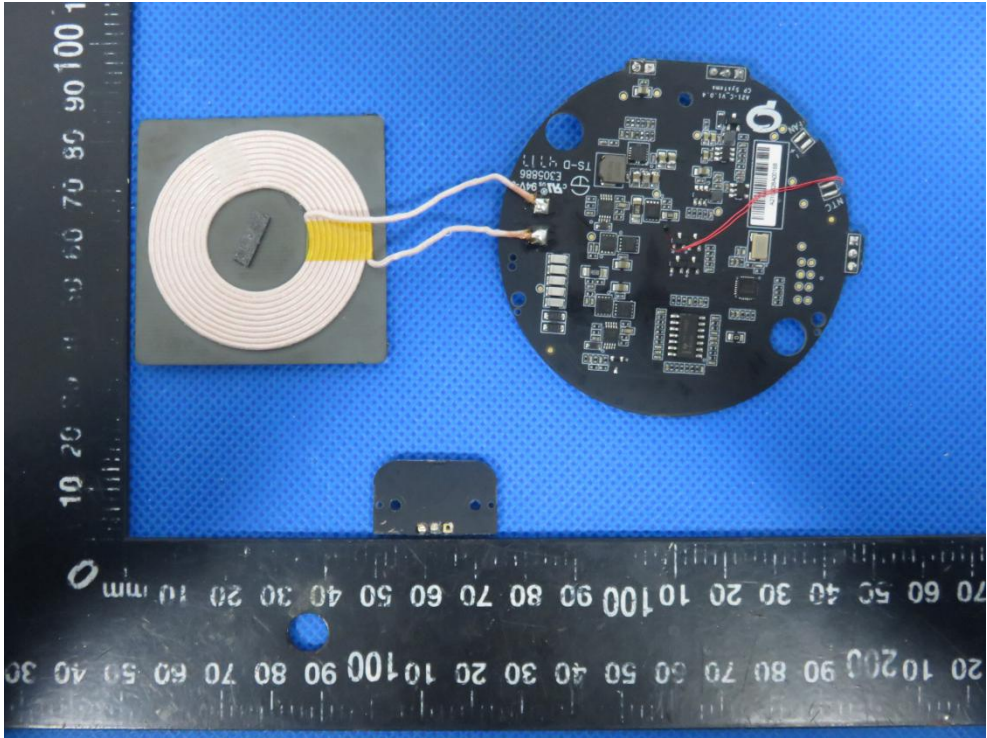


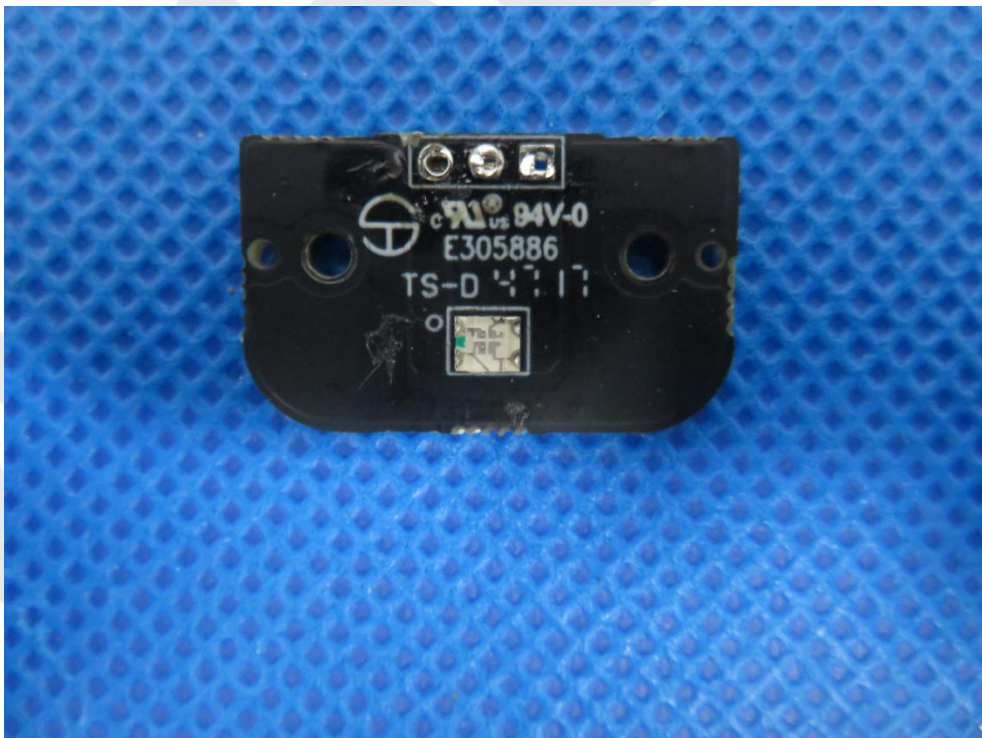
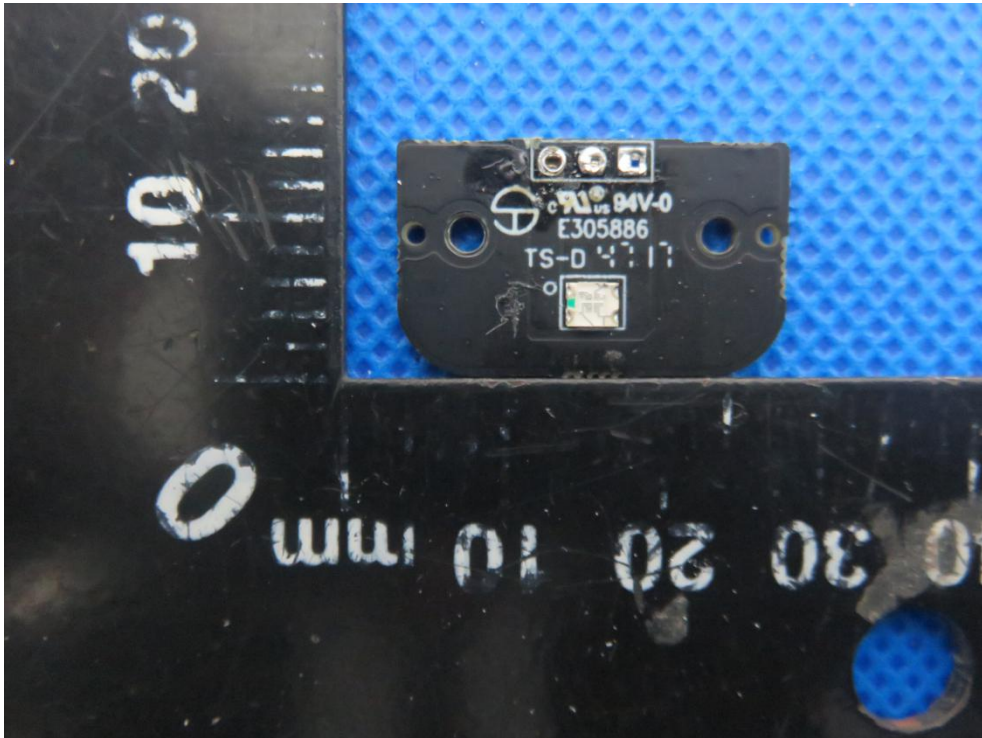


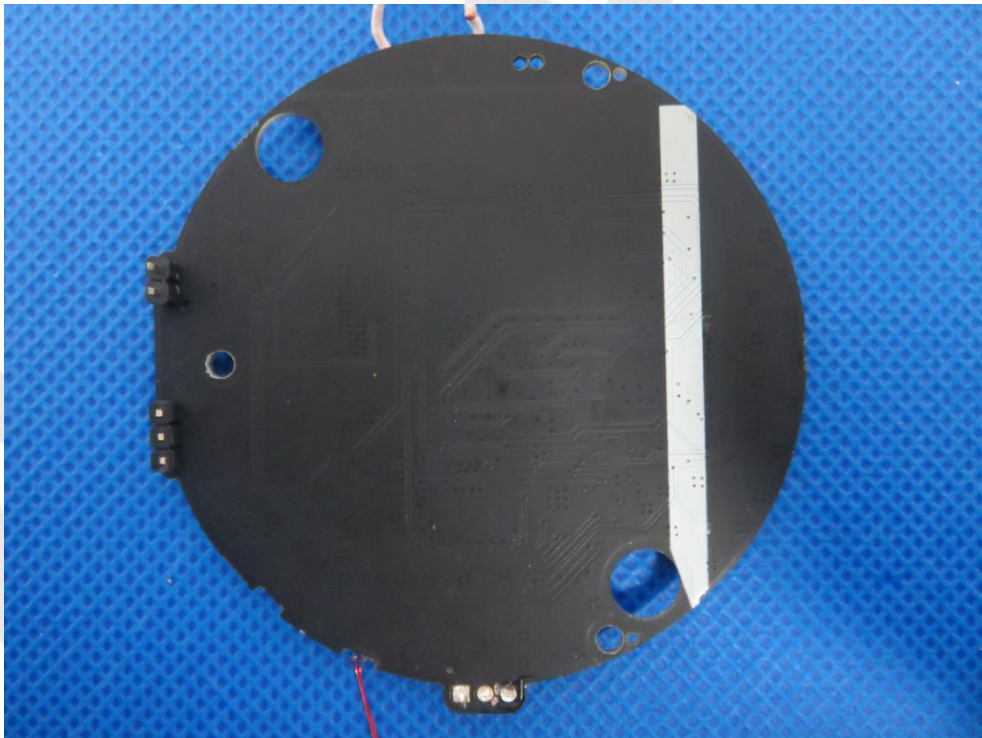
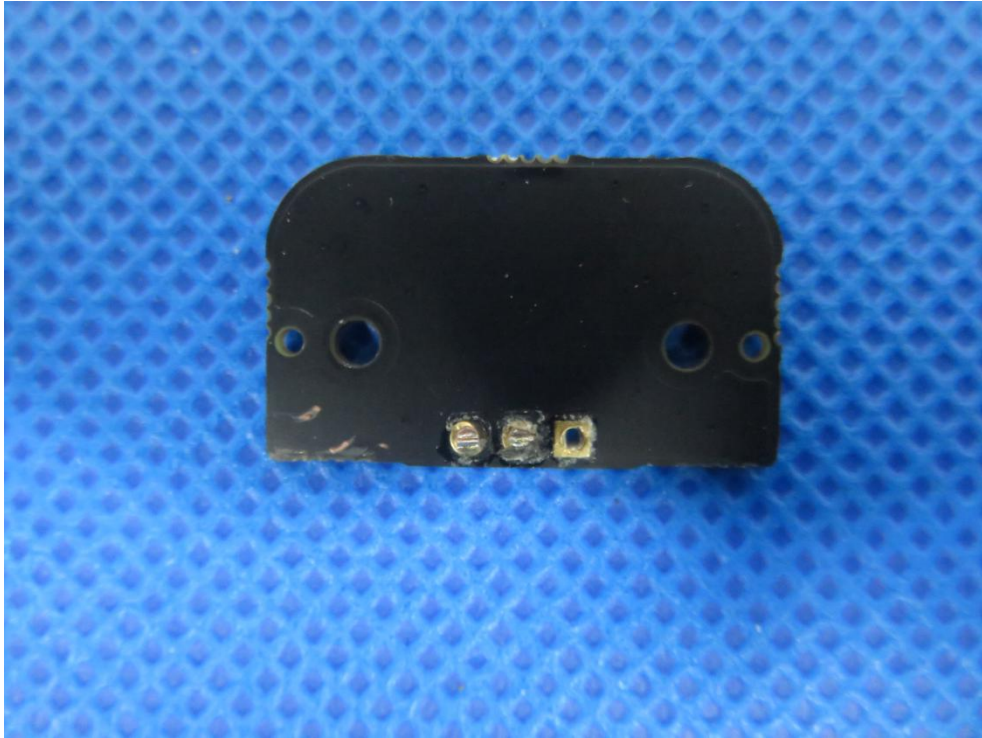


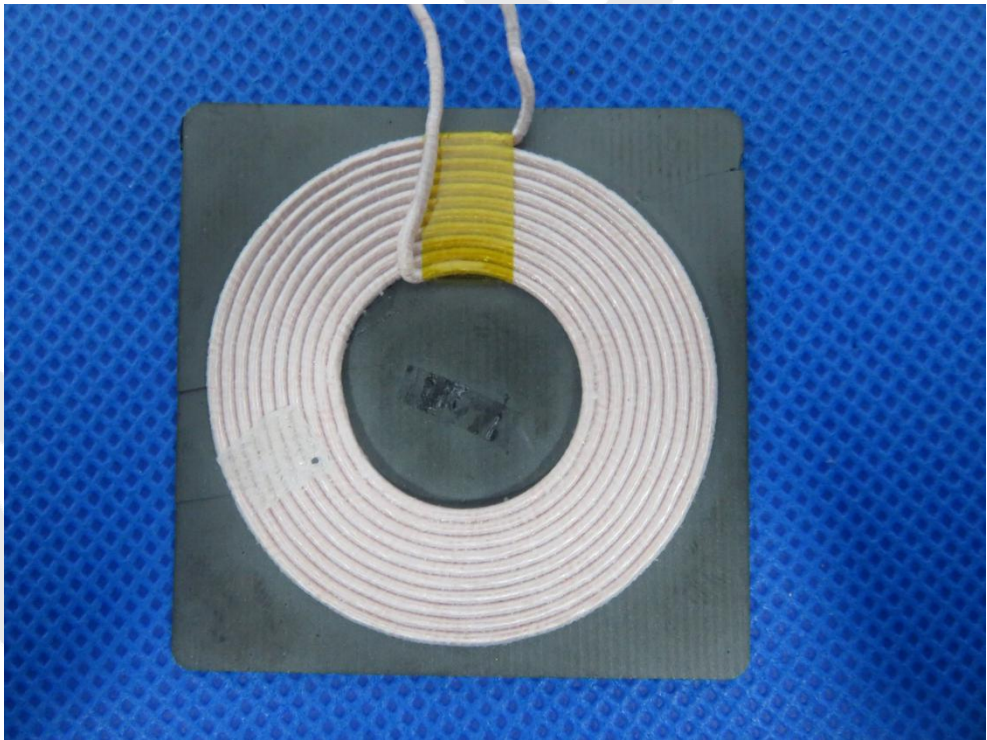
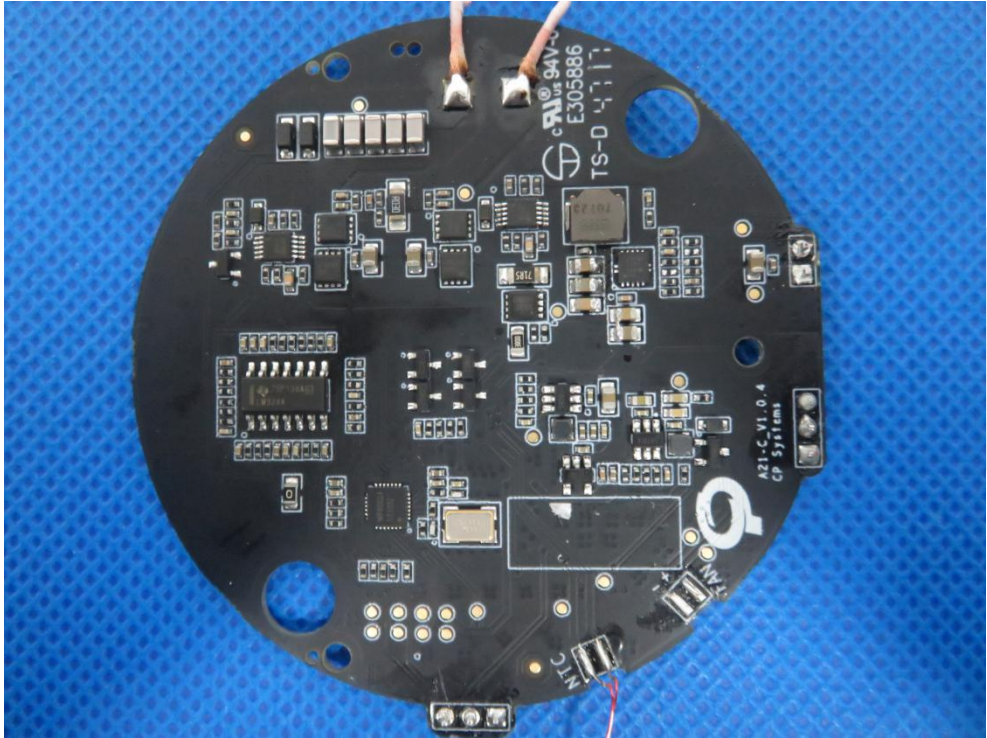












End of Report