

FCC TEST REPORT

For

Anker Technology Co., Limited

PowerWave 7.5 Stand

Model No.: A2522

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 : SZAWW171220006-01
Date of Test : Dec. 19, 2017~Jan. 09, 2018
Date of Report : Jan. 09, 2018

Contents

1. General Information.....	4
1.1. Client Information.....	4
1.2. Description of Device (EUT).....	4
1.3. Auxiliary Equipment Used During Test.....	4
1.4. Description of Test Modes.....	5
1.5. List of channels.....	5
1.6. Description Of Test Setup.....	6
1.7. Test Equipment List.....	7
1.8. Measurement Uncertainty.....	8
1.9. Description of Test Facility.....	8
2. Summary of Test Results.....	9
3. Conducted Emission Test.....	10
3.1. Test Standard and Limit.....	10
3.2. Test Setup.....	10
3.3. Test Procedure.....	10
3.4. Test Data.....	10
4. Radiation Spurious Emission and Band Edge.....	15
4.1. Test Standard and Limit.....	15
4.2. Test Setup.....	15
4.3. Test Procedure.....	16
4.4. Test Data.....	17
APPENDIX I -- TEST SETUP PHOTOGRAPH.....	21
APPENDIX II -- EXTERNAL PHOTOGRAPH.....	23
APPENDIX III -- INTERNAL PHOTOGRAPH.....	27

TEST REPORT

Applicant : Anker Technology Co., Limited
Manufacturer : Anker Technology Co., Limited
Product Name : PowerWave 7.5 Stand
Model No. : A2522
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 :





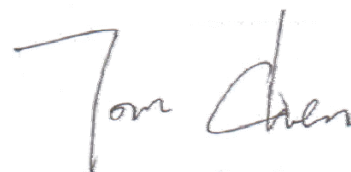
(Tested Engineer / Winkey Wang)

Reviewer :



(Project Manager / Tangcy. T)

Approved & Authorized Signer :



(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 Stand
Model No.	:	A2522
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 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	CH21
Mode 4	TX+Charging Mode

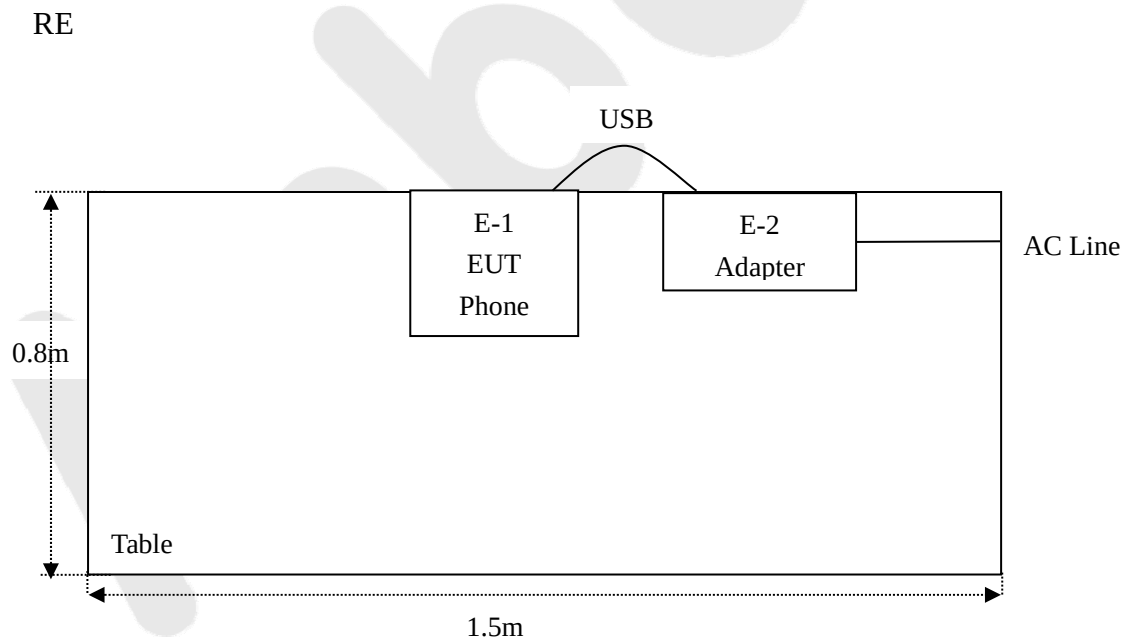
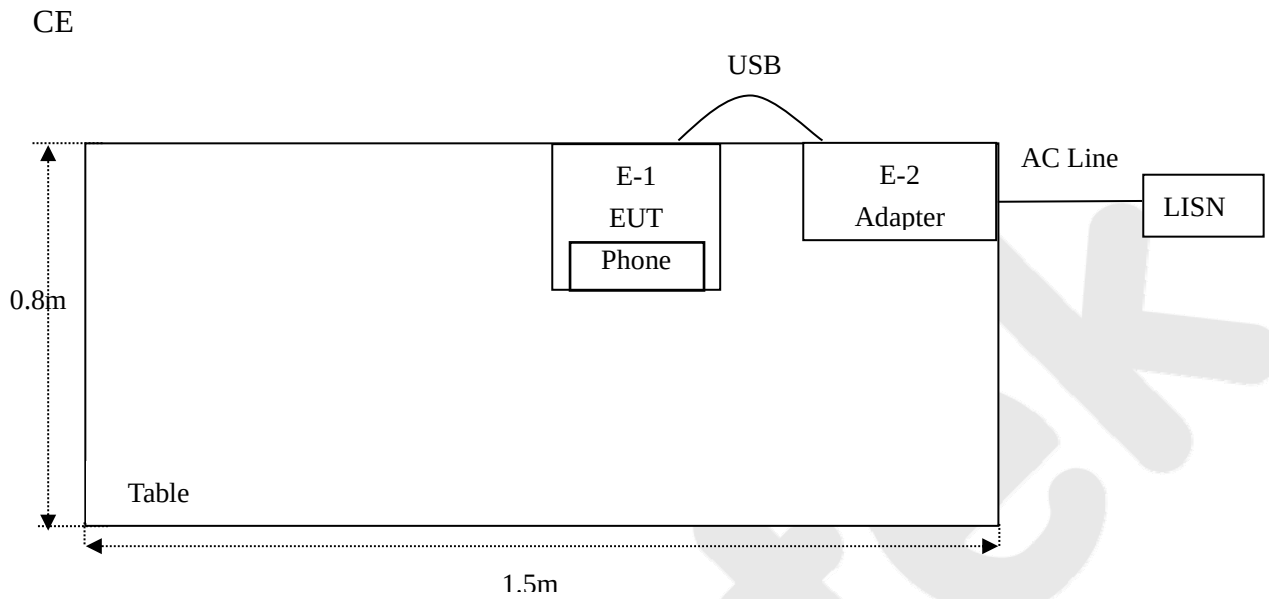
For Conducted Emission	
Final Test Mode	Description
Mode 4	TX+Charging Mode

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

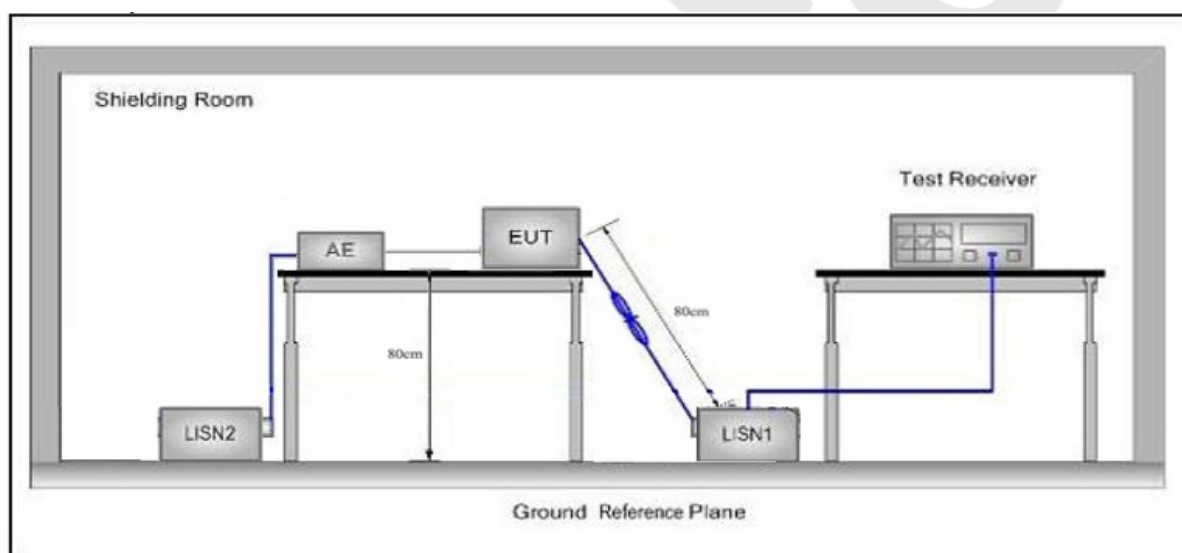
3. Conducted Emission Test

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.

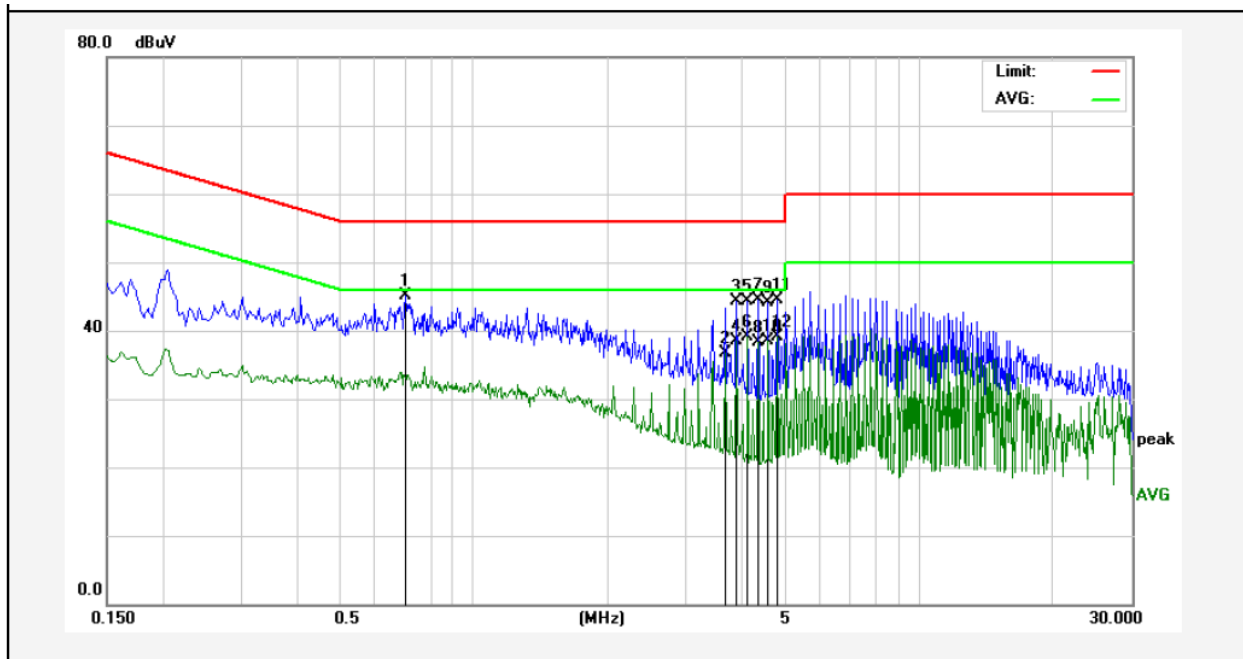
The frequency range from 150kHz to 30MHz is checked.

3.4. Test Data

Please to see the following pages

Conducted Emission Test Data

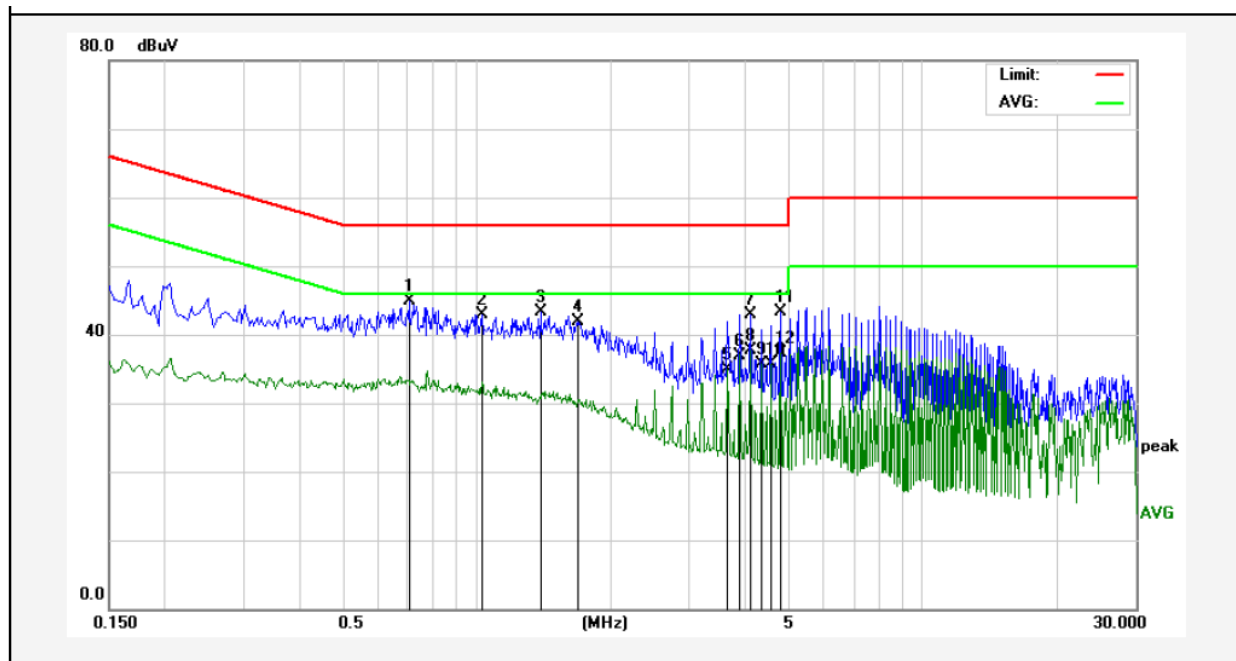
Test Site: 1# Shielded Room
Operating Condition: TX+Charging Mode
Test Specification: AC 120V, 60Hz for adapter
Comment: Live Line
Tem.:25℃ Hum.:50%



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit (dBuV)	Over Limit (dB)	Detector	Remark
1	0.7019	27.01	18.04	45.05	56.00	-10.95	QP	
2	3.6660	18.48	18.17	36.65	46.00	-9.35	AVG	
3	3.8940	26.11	18.18	44.29	56.00	-11.71	QP	
4	3.8940	20.26	18.18	38.44	46.00	-7.56	AVG	
5	4.1219	26.18	18.18	44.36	56.00	-11.64	QP	
6	4.1219	20.83	18.18	39.01	46.00	-6.99	AVG	
7	4.3539	26.40	18.19	44.59	56.00	-11.41	QP	
8	4.3539	20.03	18.19	38.22	46.00	-7.78	AVG	
9	4.5819	25.91	18.20	44.11	56.00	-11.89	QP	
10	4.5819	20.37	18.20	38.57	46.00	-7.43	AVG	
11	4.8099	26.22	18.20	44.42	56.00	-11.58	QP	
12	4.8099	20.95	18.20	39.15	46.00	-6.85	AVG	

Conducted Emission Test Data

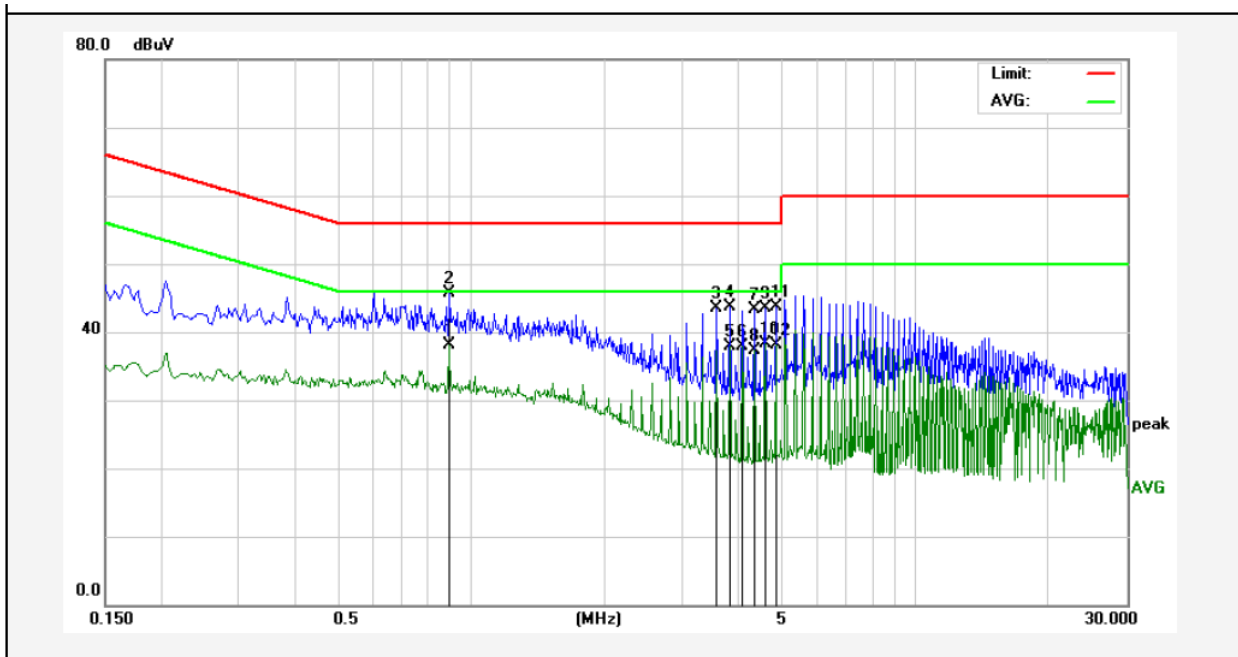
Test Site: 1# Shielded Room
Operating Condition: TX+Charging Mode
Test Specification: AC 120V, 60Hz for adapter
Comment: Neutral Line
Tem.:25℃ Hum.:50%



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit dBuV	Over Limit (dB)	Detector	Remark
1	0.7060	26.91	18.04	44.95	56.00	-11.05	QP	
2	1.0300	24.84	18.12	42.96	56.00	-13.04	QP	
3	1.3940	25.16	18.13	43.29	56.00	-12.71	QP	
4	1.6980	23.77	18.13	41.90	56.00	-14.10	QP	
5	3.6580	16.66	18.17	34.83	46.00	-11.17	AVG	
6	3.8940	18.82	18.18	37.00	46.00	-9.00	AVG	
7	4.1060	24.82	18.18	43.00	56.00	-13.00	QP	
8	4.1220	19.43	18.18	37.61	46.00	-8.39	AVG	
9	4.3420	17.43	18.19	35.62	46.00	-10.38	AVG	
10	4.5700	17.58	18.20	35.78	46.00	-10.22	AVG	
11	4.8100	25.04	18.20	43.24	56.00	-12.76	QP	
12	4.8100	19.06	18.20	37.26	46.00	-8.74	AVG	

Conducted Emission Test Data

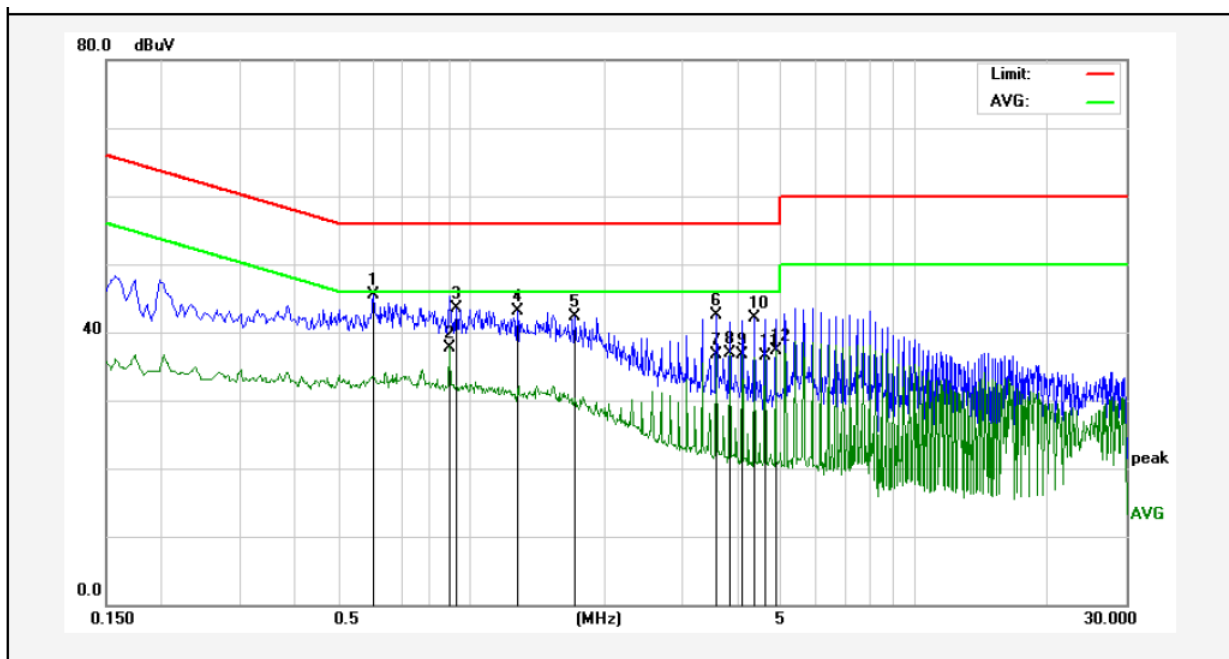
Test Site: 1# Shielded Room
Operating Condition: TX+Charging Mode
Test Specification: AC 240V, 60Hz for adapter
Comment: Live Line
Tem.:25℃ Hum.:50%



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit dBuV	Over Limit (dB)	Detector	Remark
1	0.8940	19.95	18.09	38.04	46.00	-7.96	AVG	
2	0.8980	27.60	18.09	45.69	56.00	-10.31	QP	
3	3.5780	25.27	18.17	43.44	56.00	-12.56	QP	
4	3.8340	25.58	18.18	43.76	56.00	-12.24	QP	
5	3.8340	19.72	18.18	37.90	46.00	-8.10	AVG	
6	4.0900	19.65	18.18	37.83	46.00	-8.17	AVG	
7	4.3460	25.12	18.19	43.31	56.00	-12.69	QP	
8	4.3460	19.09	18.19	37.28	46.00	-8.72	AVG	
9	4.5980	25.33	18.20	43.53	56.00	-12.47	QP	
10	4.5980	20.12	18.20	38.32	46.00	-7.68	AVG	
11	4.8540	25.55	18.20	43.75	56.00	-12.25	QP	
12	4.8540	19.96	18.20	38.16	46.00	-7.84	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℃ Hum.:50%



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit dBuV	Over Limit (dB)	Detector	Remark
1	0.6020	27.42	18.01	45.43	56.00	-10.57	QP	
2	0.8940	19.71	18.09	37.80	46.00	-8.20	AVG	
3	0.9260	25.40	18.10	43.50	56.00	-12.50	QP	
4	1.2700	24.89	18.13	43.02	56.00	-12.98	QP	
5	1.7140	24.21	18.13	42.34	56.00	-13.66	QP	
6	3.5780	24.32	18.17	42.49	56.00	-13.51	QP	
7	3.5780	18.59	18.17	36.76	46.00	-9.24	AVG	
8	3.8340	18.73	18.18	36.91	46.00	-9.09	AVG	
9	4.0900	18.47	18.18	36.65	46.00	-9.35	AVG	
10	4.3460	23.88	18.19	42.07	56.00	-13.93	QP	
11	4.5980	18.25	18.20	36.45	46.00	-9.55	AVG	
12	4.8540	19.03	18.20	37.23	46.00	-8.77	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

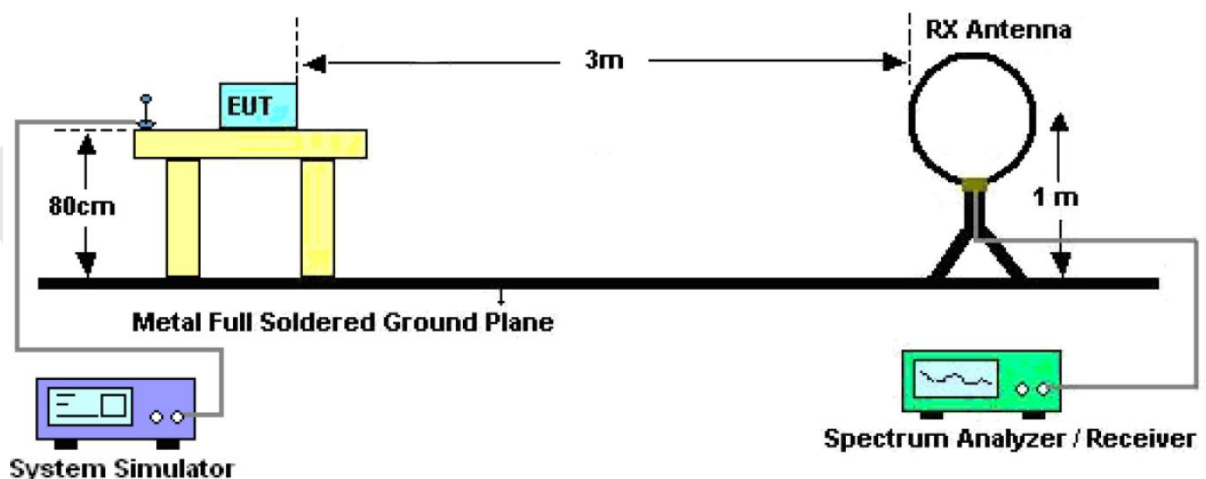


Figure 1. Below 30MHz

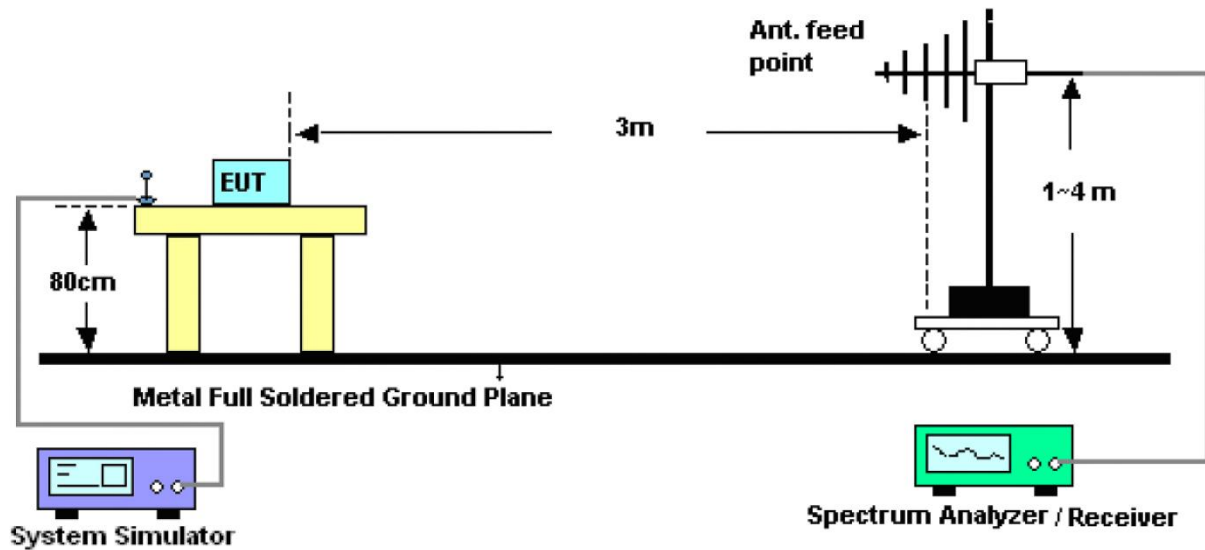


Figure 2. 30MHz to 1GHz

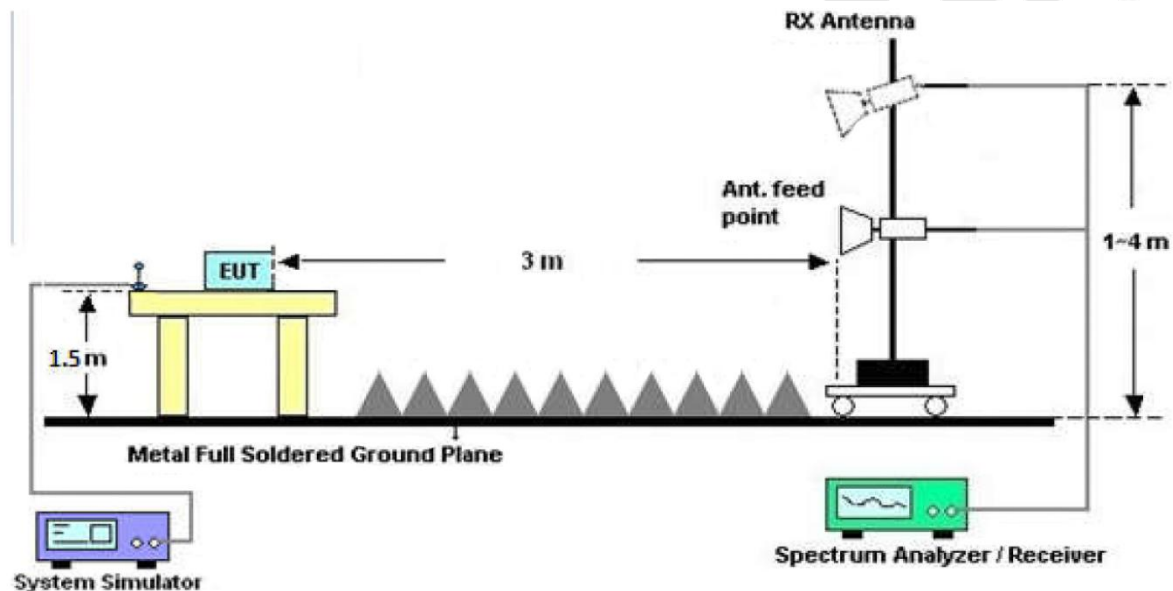


Figure 3. Above 1 GHz

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

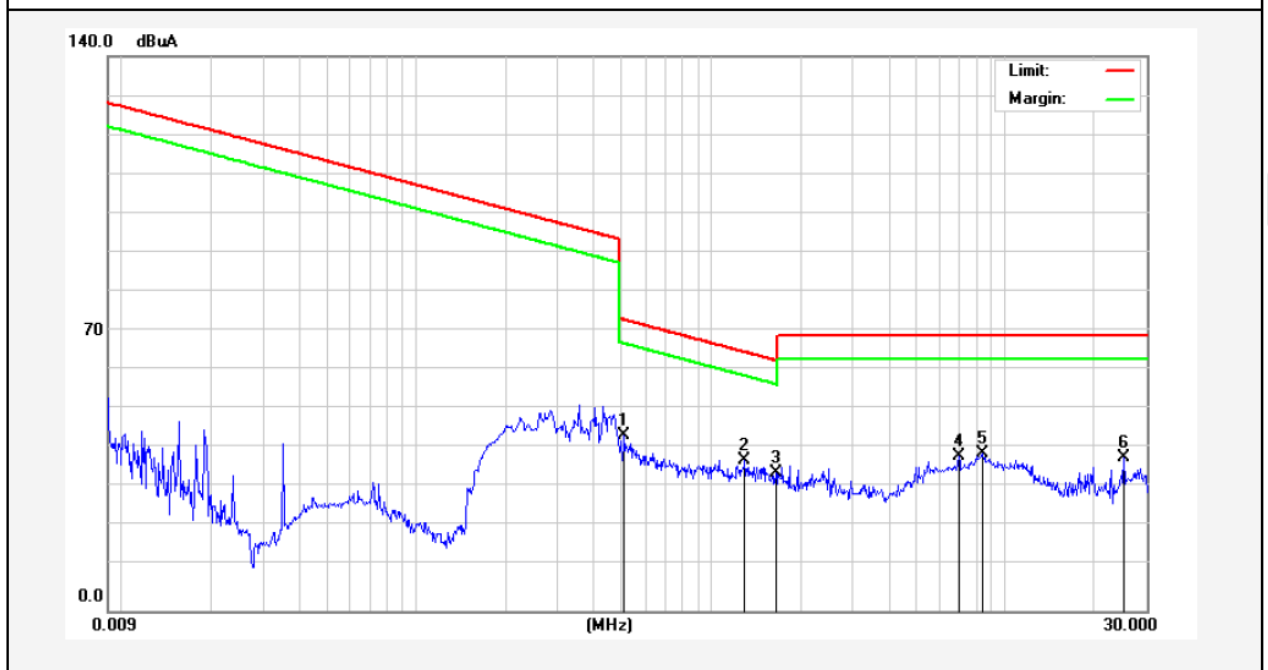
PASS

Anbotek

Test Results

(Between 9KHz – 30MHz)

Job No.:	SZAWW171220006-01		
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

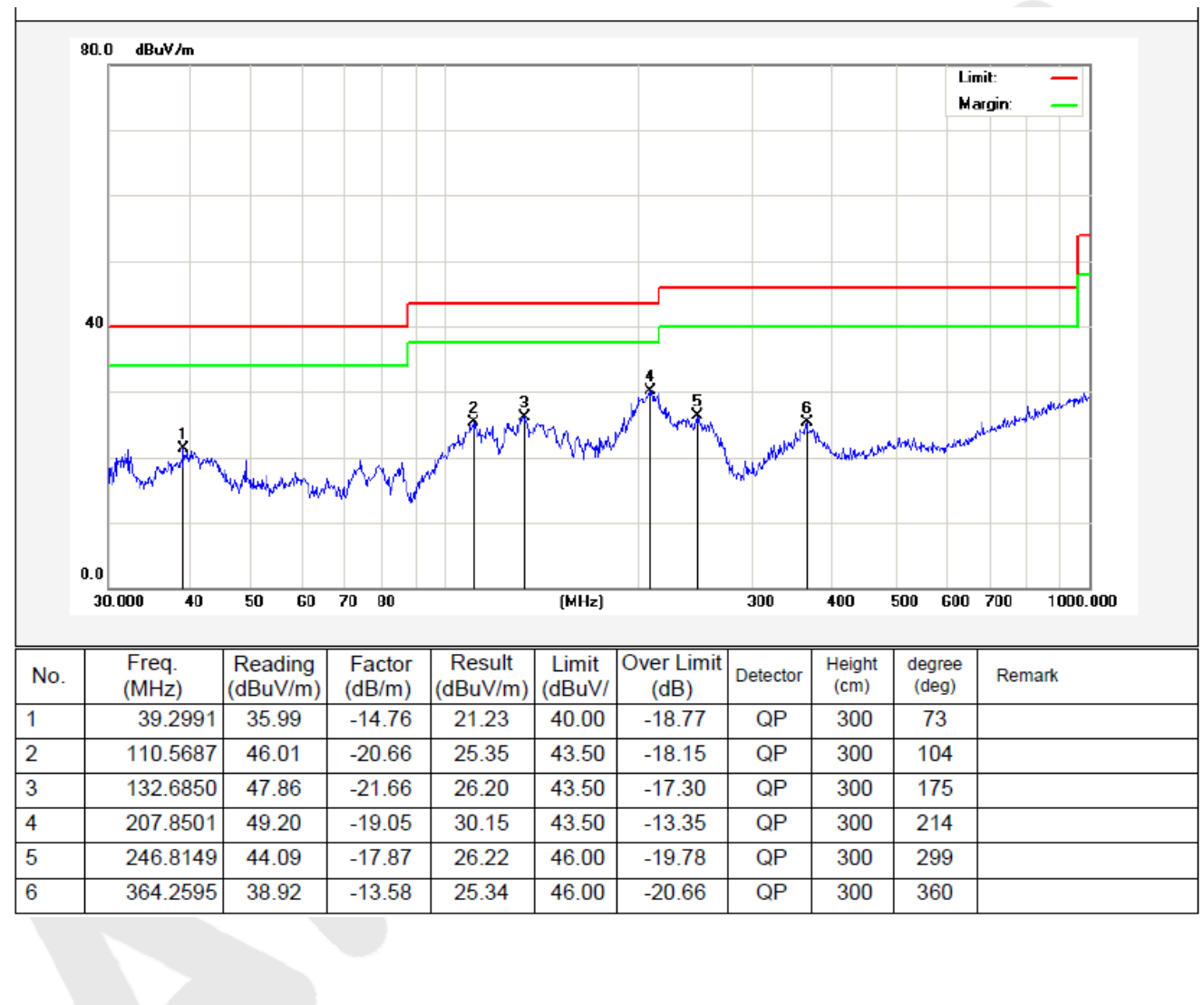


0.0355	61.01	19.30	2.53	0	82.84	136.54	-53.70	Peak	15
0.0355	43.95	19.30	2.53	0	65.78	116.54	-50.76	AV	15
0.1106	79.41	19.30	2.53	0	101.24	126.69	-25.45	Peak	33
0.1106	68.65	19.30	2.53	0	90.48	106.69	-16.21	AV	33
0.1372	54.48	19.29	2.54	0	76.31	124.83	-48.52	Peak	124
0.1372	37.85	19.29	2.54	0	59.68	104.83	-45.15	AV	124
0.3339	57.25	19.36	2.55	0	79.16	117.12	-37.96	Peak	101
0.3339	37.64	19.36	2.55	0	59.55	97.12	-37.57	AV	101
0.7300	38.55	19.63	2.59	0	60.77	90.34	-29.57	QP	324
0.9940	31.70	20.32	2.60	0	54.62	73.25	-18.63	QP	0

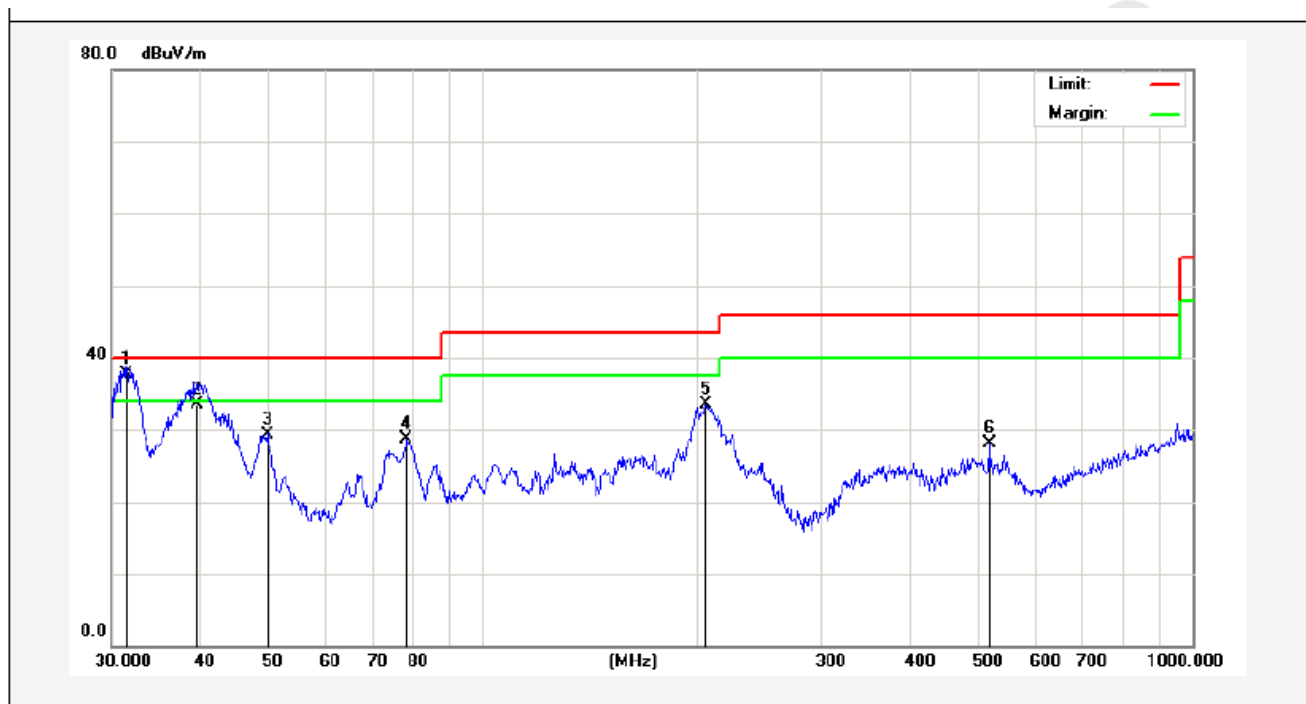
Remark: According to FCC PART 15.209 (d), the emission limits for the frequency bands 9–90 kHz, 110–490 kHz and above 1000 MHz, Radiated emission limits in these three bands are based on measurements employing an average detector.

(Between 30MHz –1000 MHz)

Job No.:	SZAWW171220006-01	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



Job No.:	SZAWW171220006-01	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



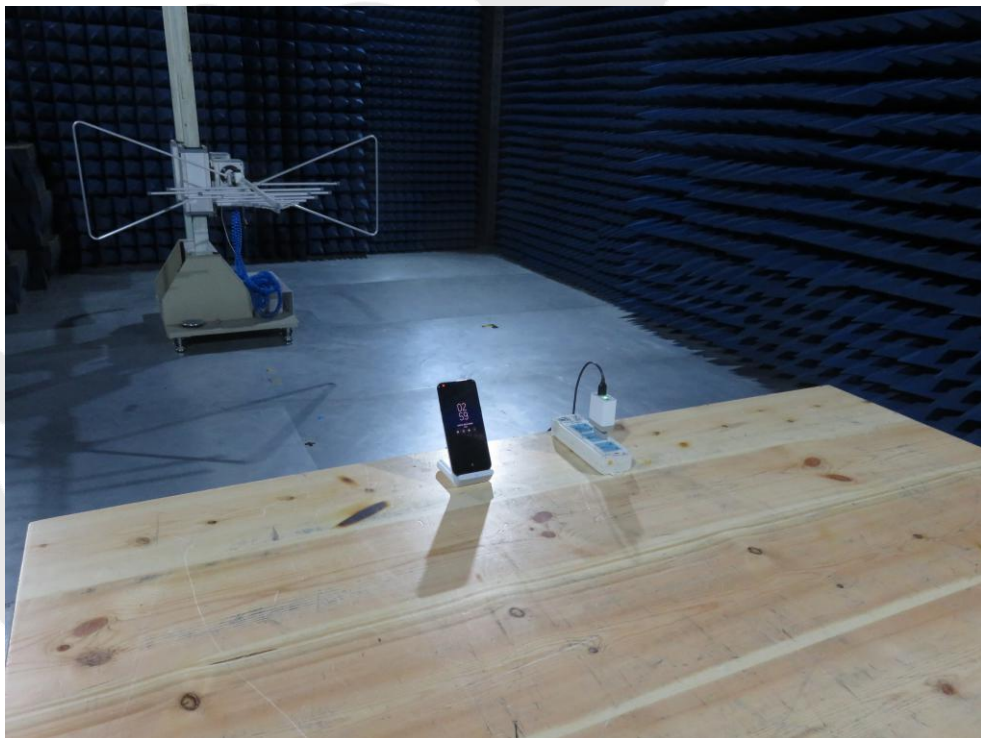
No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/)	Over Limit (dB)	Detector	Height (cm)	degree (deg)	Remark
1	31.5595	54.79	-17.09	37.70	40.00	-2.30	QP	300	36	
2	39.5757	47.16	-13.60	33.56	40.00	-6.44	QP	300	95	
3	49.7068	44.89	-15.49	29.40	40.00	-10.60	QP	300	124	
4	78.1389	48.88	-20.08	28.80	40.00	-11.20	QP	300	246	
5	206.3976	48.14	-14.69	33.45	43.50	-10.05	QP	300	304	
6	517.2480	38.71	-10.66	28.05	46.00	-17.95	QP	300	360	

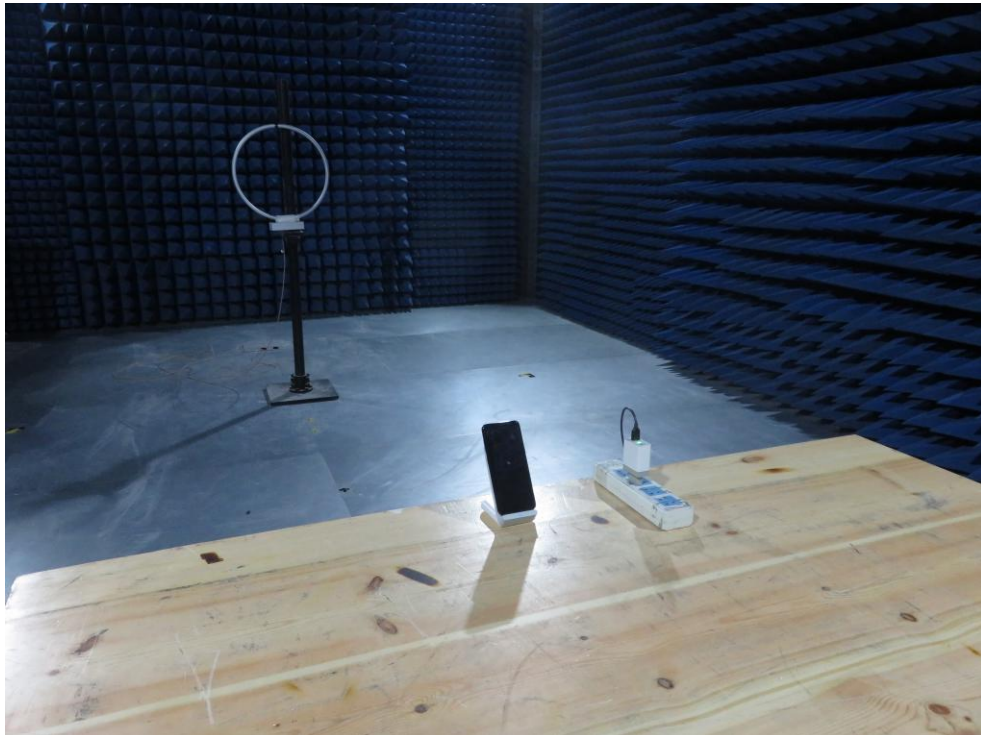
APPENDIX I -- TEST SETUP PHOTOGRAPH

Photo of Conducted Emission Measurement



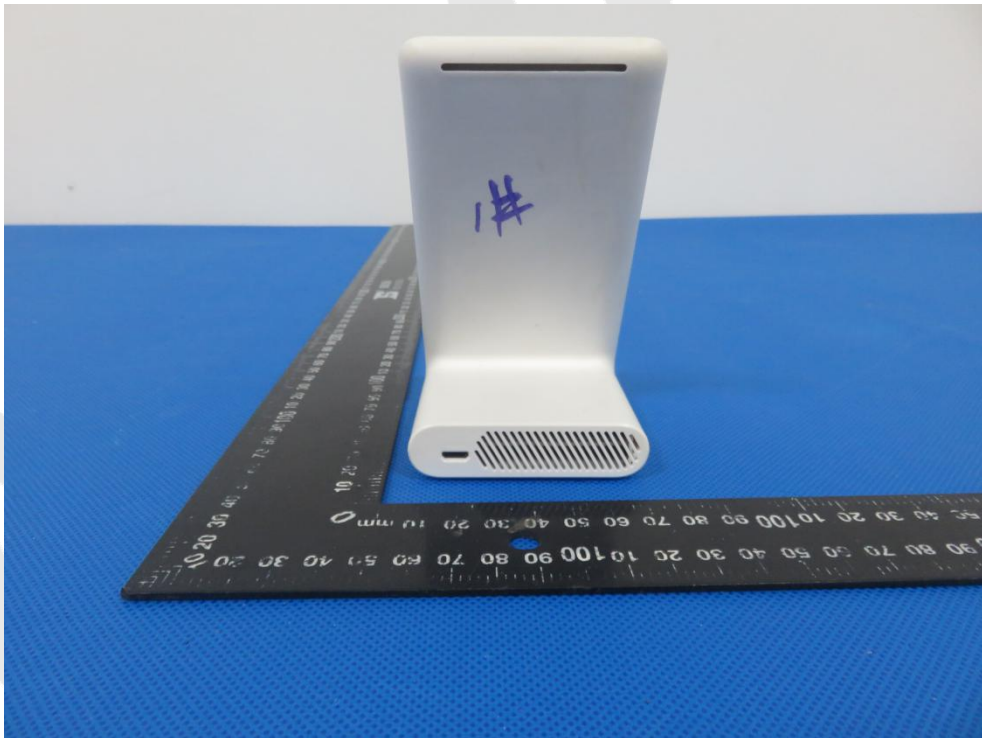
Photo of Radiation Emission Test

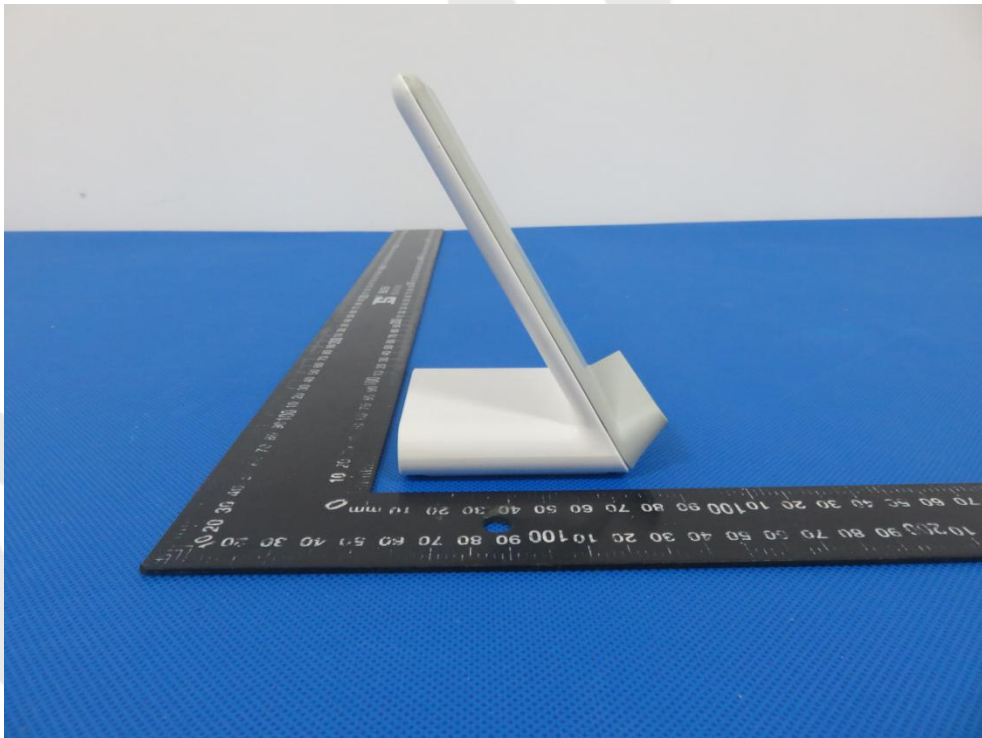
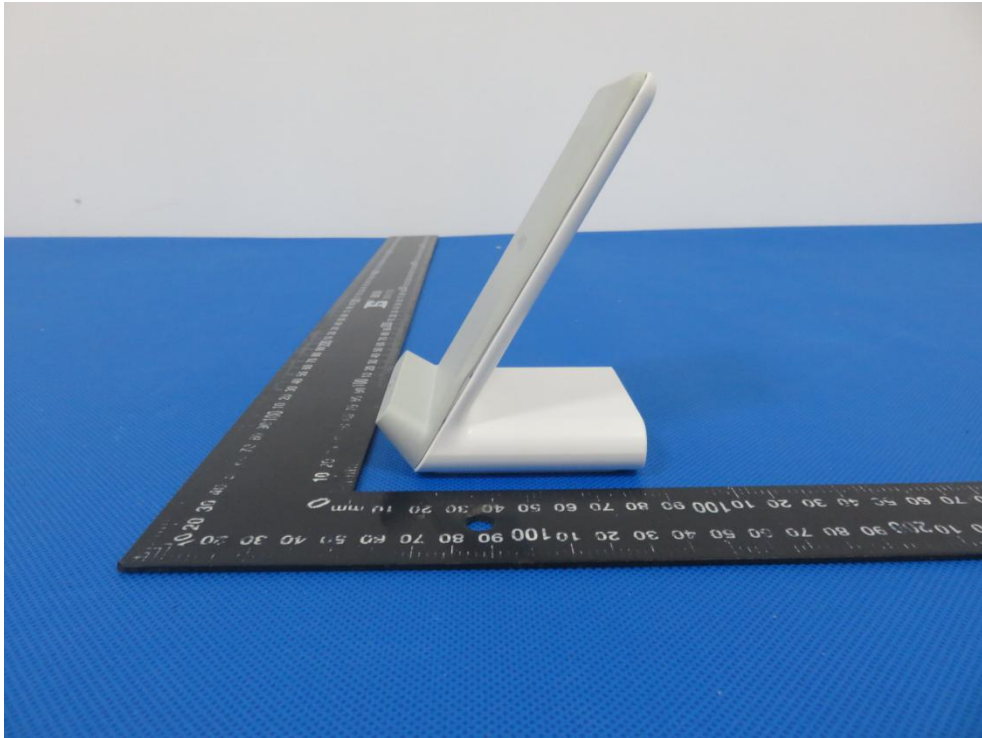


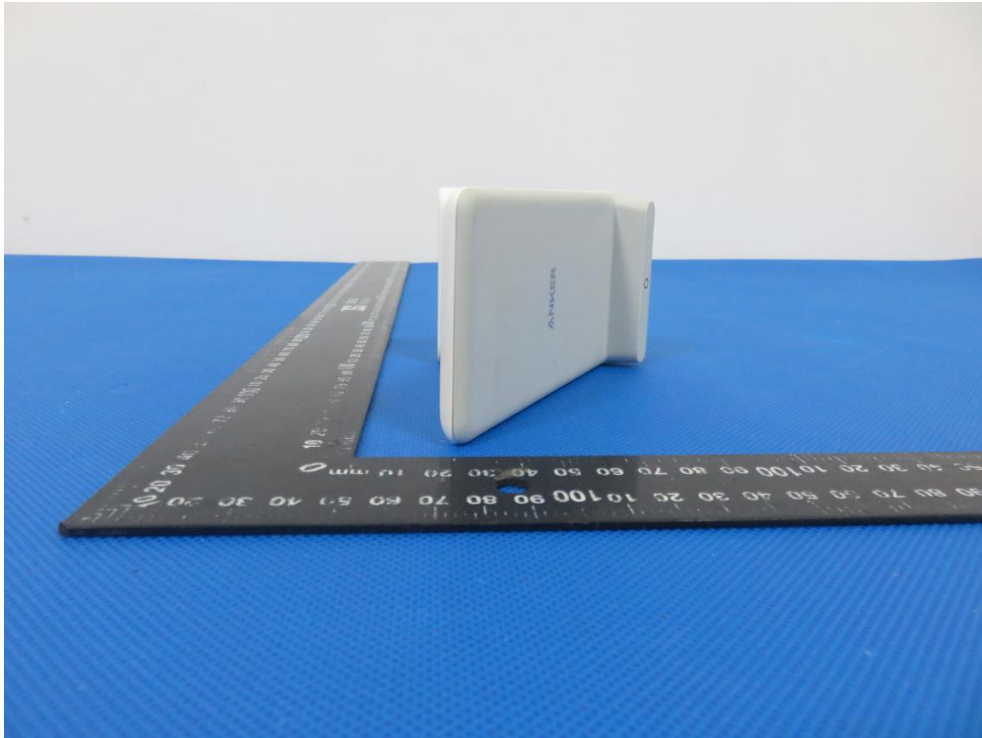


APPENDIX II -- EXTERNAL PHOTOGRAPH

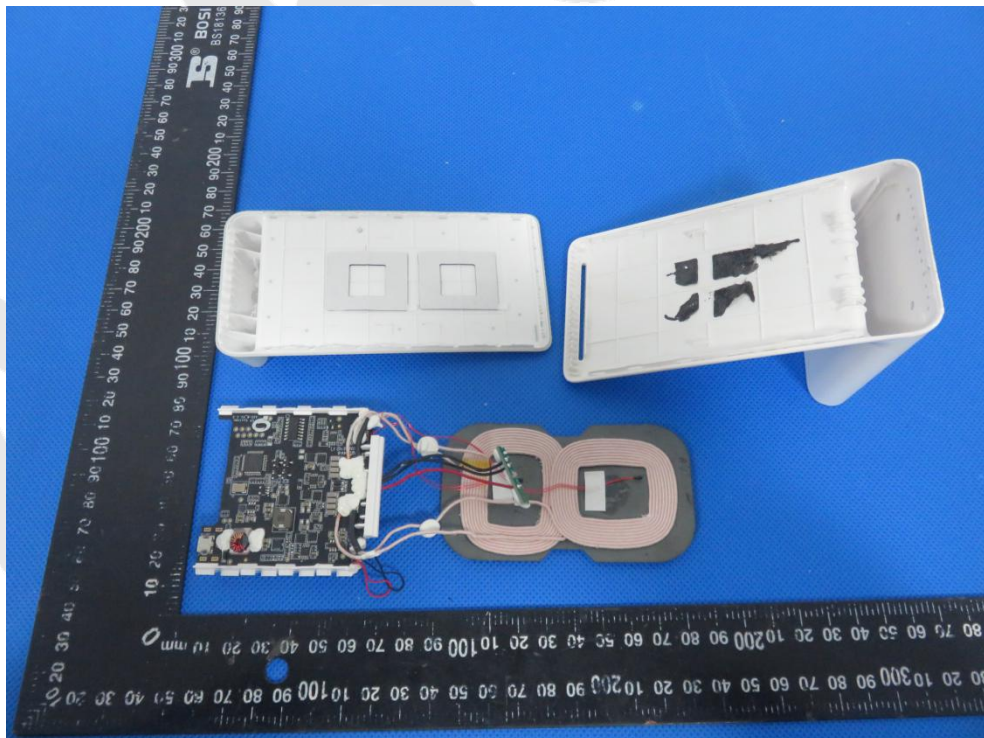
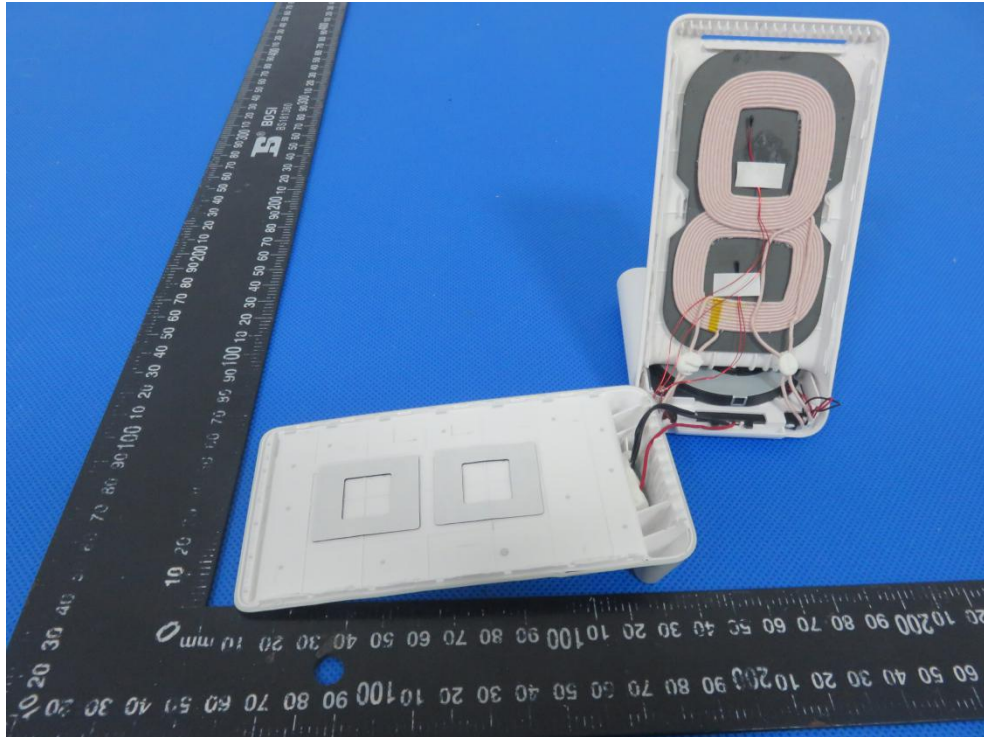


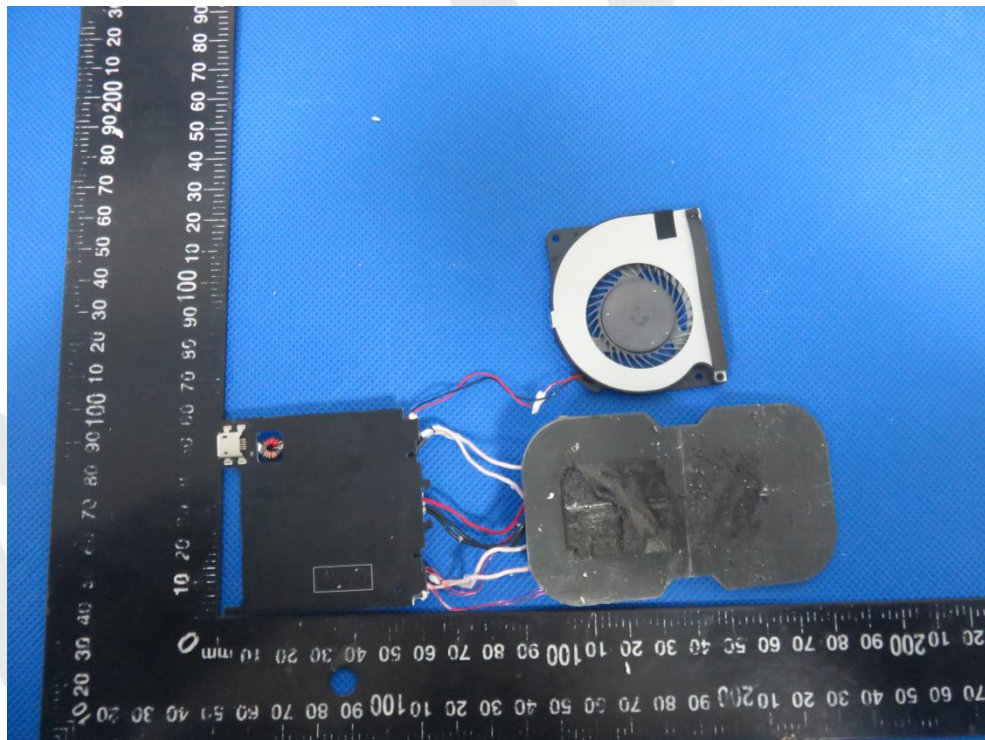
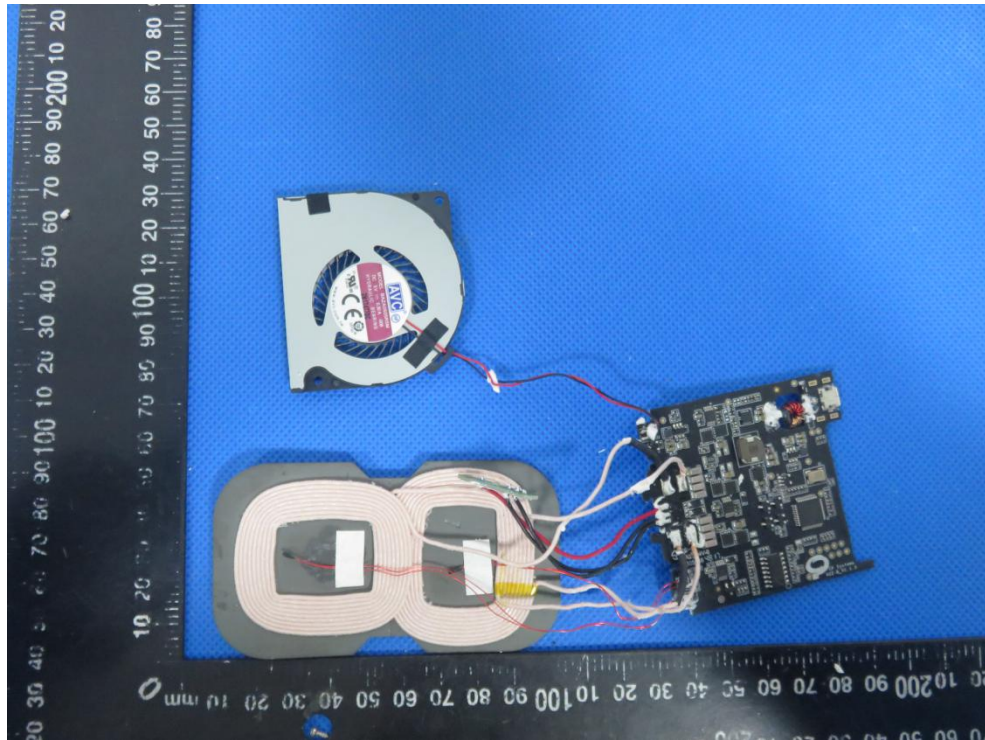


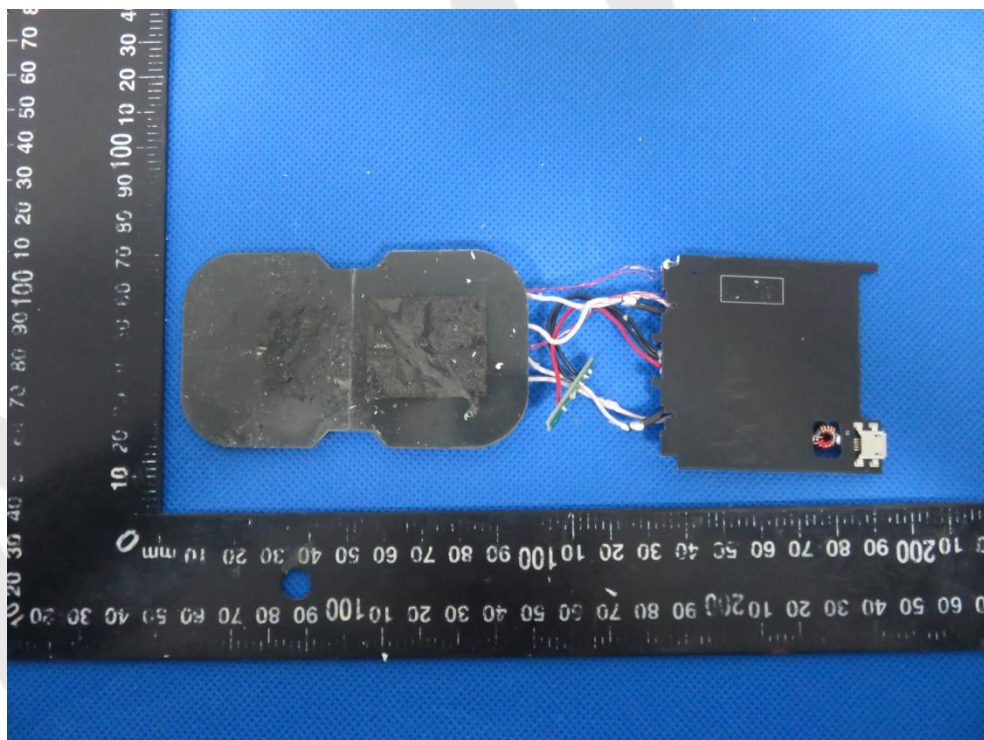
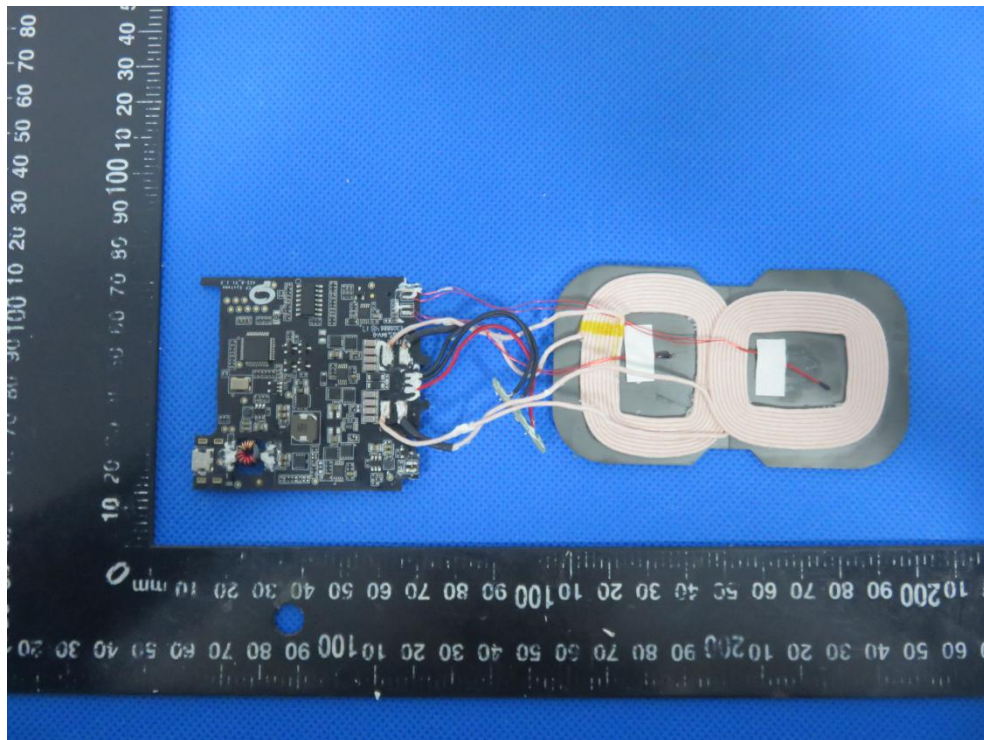


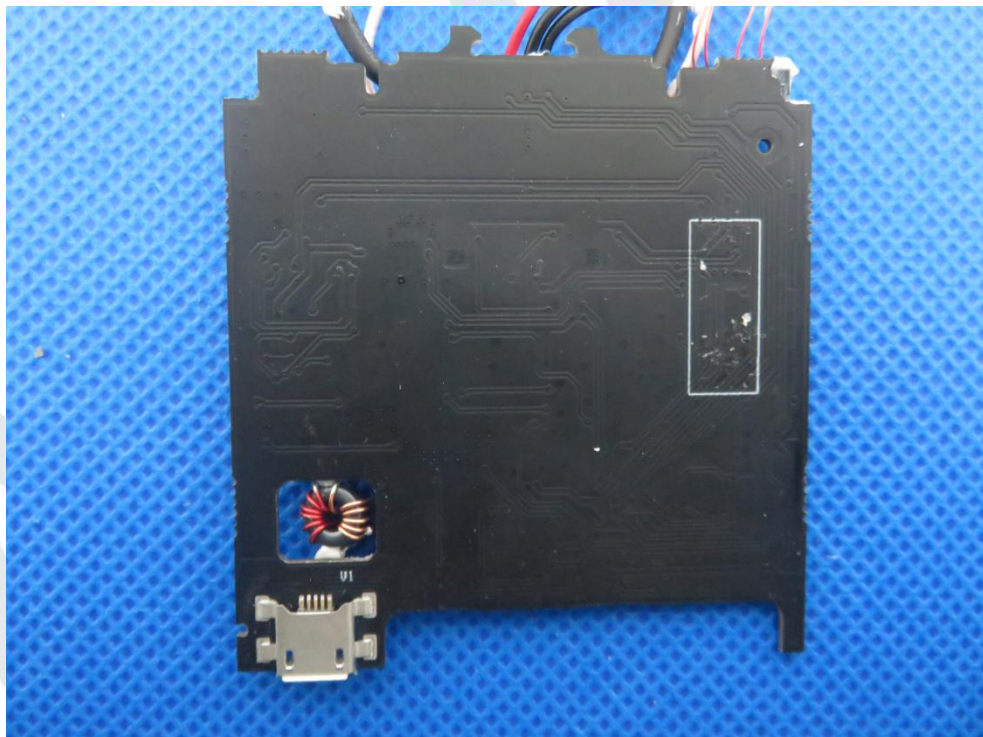
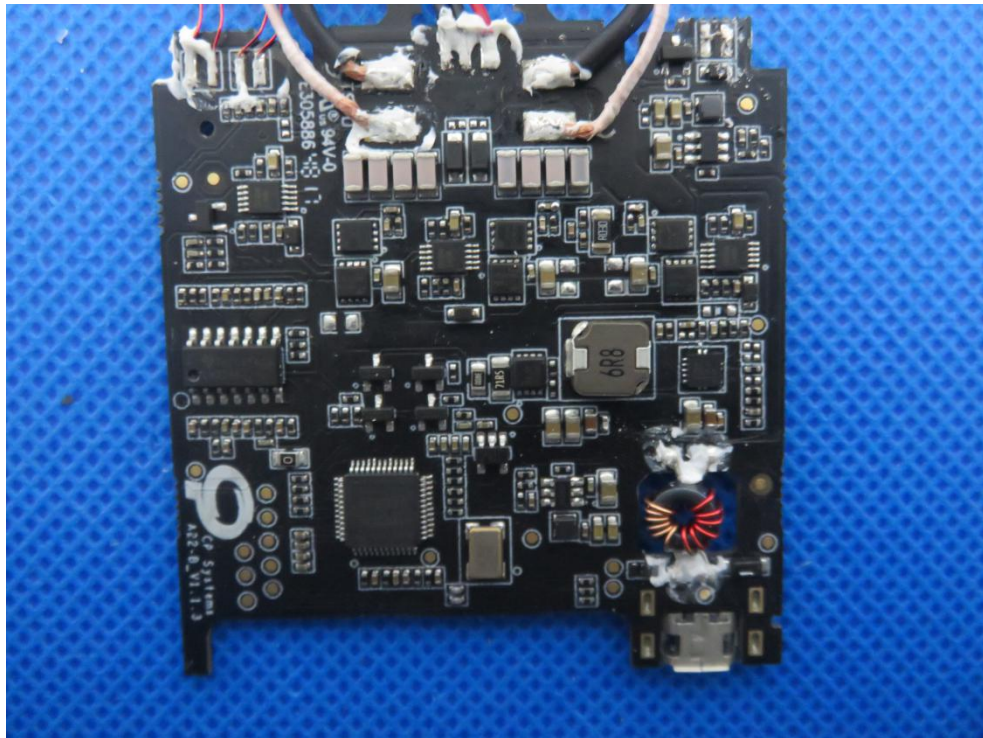


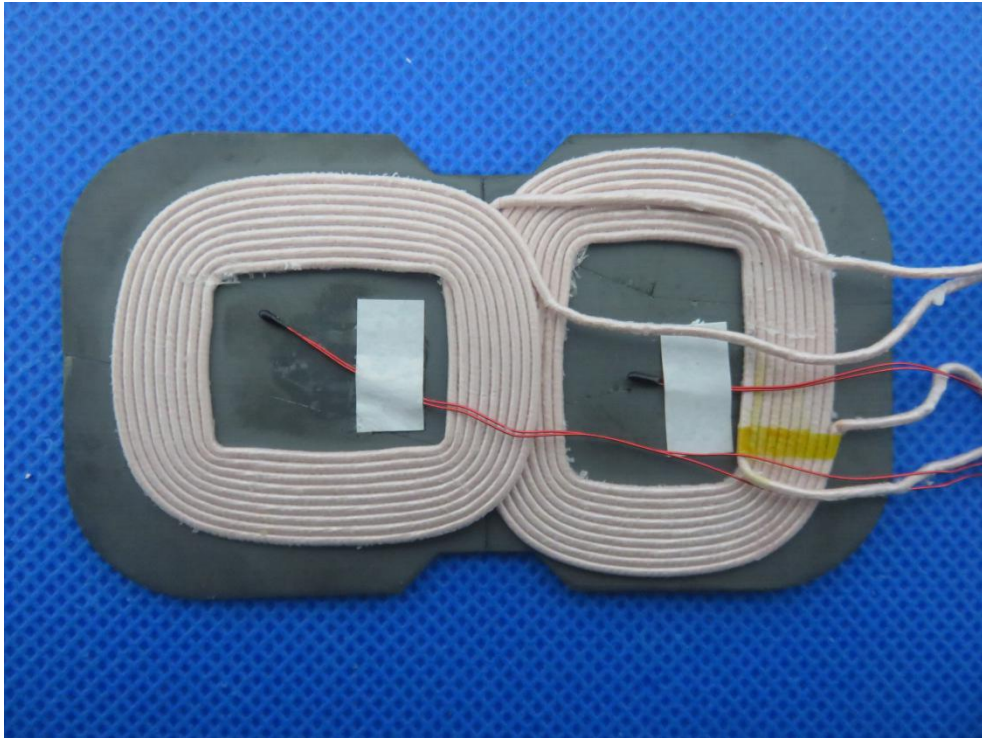
APPENDIX III -- INTERNAL PHOTOGRAPH











End of Report