CE-EMC TEST REPORT

Prepared For:	
Product Name:	Wireless charger
Trade Mark:	N/A
Model:	LWC-P10A, LWC-S8, LWC-P8, LWC-H10, LWC-H12
Prepared By:	Shenzhen United Testing Technology Co., Ltd. 2F, Annex Bldg, Jiahuangyuan Tech Park, #365 Baotian 1 Rd, Tiegang Community, Xixiang Str, Bao'an District, Shenzhen, China
Receipt Date:	Dec., 16, 2017
Test Date:	Dec., 16, 2017 – Dec., 26, 2017
Date of Report:	Dec., 26, 2017
Report No.:	UNI2017122602ER-01

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TEST REPORT DECLARATION

Applicant	:	
Address	:	
EUT Description	:	Wireless charger
Model Number	:	LWC-P10A, LWC-S8, LWC-P8, LWC-H10, LWC-H12

Test Standards:

EN55032:2015/AC:2016-07
EN55024:2010/A1:2015
EN61000-4-2:2009, EN61000-4-3:2006+A2:2010

The EUT described above is tested by Shenzhen United Testing Technology Co., Ltd. EMC Laboratory to determine the maximum emissions from the EUT and ensure the EUT to be compliance with the immunity requirements of the EUT. Shenzhen United Testing Technology Co., Ltd. EMC Laboratory is assumed full responsibility for the accuracy of the test results. Also, this report shows that the EUT technically complies with the 2014/30/EU directive and its amendment requirements. The test report is valid for above tested sample only and shall not be reproduced in part without written approval of the laboratory.

Prepared by: Kahn Yang/Editor

Reviewer: Sherwin Qian/Supervisor

Approved & Authorized Signer: Liuze/Manager

1. TEST RESULTS SUMMARY

Table 1 Test Results Summary

Test Items	Test Results
Radiated Emission	PASS
Electrostatic Discharge Test	PASS
RF Field Strength Susceptibility Test	PASS

2. GENERAL INFORMATION

2.1. Report information

2.1.1. This report is not a certificate of quality; it only applies to the sample of the specific product/equipment given at the time of its testing. The results are not used to indicate or imply that they are application to the similar items. In addition, such results must not be used to indicate or imply that UNI approves recommends or endorses the manufacture, supplier or use of such product/equipment, or that UNI in any way guarantees the later performance of the product/equipment.

2.1.2. The sample/s mentioned in this report is/are supplied by Applicant, UNI therefore assumes no responsibility for the accuracy of information on the brand name, model number, origin of manufacture or any information supplied.

2.1.3. Additional copies of the report are available to the Applicant at an additional fee. No third part can obtain a copy of this report through UNI, unless the applicant has authorized UNI in writing to do so.

2.2. Measurement Uncertainty

The reported uncertainty of measurement y ± U, where expended uncertainty U is based on a standard uncertainty multiplied by a coverage factor of k=2, providing a level of confidence of approximately 95 %.

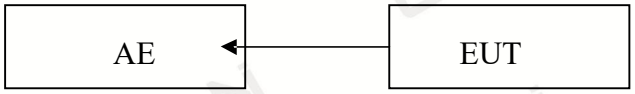
Test	Parameters	Expanded Uncertainty (U_{Lab})	Expanded Uncertainty (U_{Cispr})
Conducted Emission	Level Accuracy: 9kHz~150kHz 150kHz to 30MHz	±3.42 dB ±3.42 dB	±4.0 dB ±3.6 dB
Radiated Emission	Level Accuracy: 9kHz to 30 MHz	±4.60 dB	N/A
Radiated Emission	Level Accuracy: 30MHz to 1000 MHz	±4.40 dB	±5.2 dB
Radiated Emission	Level Accuracy: Above 1000MHz	±4.20 dB	N/A
Mains Harmonic	Voltage	±3.11%	N/A
Voltage Fluctuations & Flicker	Voltage	±3.25%	N/A

3. PRODUCT DESCRIPTION

3.1. EUT Description

Description	:	Wireless charger
Applicant	:	
Manufacturer	:	
Model Number	:	LWC-P10A

3.2. Block Diagram of EUT Configuration



3.3. Operating Condition of EUT

Test mode 1: Running

3.4. Test Conditions

Temperature: 23-26℃
Relative Humidity: 55-68 %

3.5. Modifications

No modification was made.

3.6. Abbreviations

AC	Alternating Current
AMN	Artificial Mains Network
DC	Direct Current
EM	ElectroMagnetic
EMC	ElectroMagnetic Compatibility
EUT	Equipment Under Test
IF	Intermediate Frequency
RF	Radio Frequency
rms	root mean square
EMI	Electromagnetic Interference
EMS	Electromagnetic Susceptibility

3.7. Performance Criterion

Criterion A: The equipment shall continue to operate as intended without operator intervention. No degradation of performance of loss of function is allowed below a performance level specified by the manufacturer when the equipment is used as intended.

Criterion B: After the test, the equipment shall continue to operate as intended without operator intervention. No degradation of performance or loss of function is allowed, after the application of the phenomena below a performance level specified by the manufacturer, when the equipment is used as intended.

Criterion C: Loss of function is allowed, provided the function is self-recoverable, or can be restored by the operation of the controls by the user in accordance with the manufacturer's instructions.

4. TEST EQUIPMENT USED

4.1. Conducted Emission Measurement

Item	Equipment	Manufacturer	Model No.	Serial No.	Calibrated until
1	AMN	SCHWARZBECK	NNLK8121	8121370	2018.9.9
2	AMN	ETS	3810/2	00020199	2018.9.9
3	EMI TEST RECEIVER	ROHDE&SCHWARZ	ESCI	101210	2018.9.9
4	AAN	TESEQ	T8-Cat6	38888	2018.9.9

4.2. Radiated Emission Measurement

Item	Equipment	Manufacturer	Model No.	Serial No.	Calibrated until
1	Horn Antenna	Sunol	DRH-118	A101415	2018.9.29
2	Broadband Hybrid Antenna	Sunol	JB1 Antenna	A090215	2018.9.29
3	Amplifier	HP	8449B	3008A00160	2018.9.9
4	Amplifier	HP	8447D	2944A07999	2018.9.9
5	EMI TEST RECEIVER	ROHDE&SCHWARZ	ESR3	101891	2018.9.9
6	MXA Signal Analyzer	Keysight	N9020A	MY51110104	2018.9.9
7	Biconical antenna	Schwarzbeck	VHA 9103	91032360	2018.9.8
8	Biconical antenna	Schwarzbeck	VHA 9103	91032361	2018.9.8
9	Broadband Hybrid Antenna	Schwarzbeck	VULB9163	VULB9163#958	2018.9.8
10	Horn Antenna	Schwarzbeck	BBHA9120D	9120D-1680	2018.1.12
11	Active Receive Loop Antenna	Schwarzbeck	FMZB 1919B	00023	2018.11.02
12	Loop Antenna	Beijing daze Technology	ZN30401	13015	2018.9.9
13	EM CAMLP	SCHWARZBECK	MDS21	03350	2018.9.12

4.3. Harmonic / Flicker Measurement

Item	Equipment	Manufacturer	Model No.	Serial No.	Calibrated until
1	Power Analyzer	California Instrumnets	PACS-1	X71719	2018.9.28
2	AC Power Source	California Instrumnets	5001ix	HK53570	2018.9.9

4.4. Electrostatic Discharge Test

Item	Equipment	Manufacturer	Model No.	Serial No.	Calibrated until
1	ESD Simulator	EM TEST	ESD30C/P30	1202-17	2018.9.9

4.5. Surge Test

Item	Equipment	Manufacturer	Model No.	Serial No.	Calibrated until
1	Surge Generator	Shanghai Lioncel	LSG-506S	LSG506S0160601	2018.9.7
2	CDN	Shanghai Lioncel	CDN-532S	CDN532S0160601	2018.9.7

4.6. Electrical Fast Transient/Burst Immunity Test

Item	Equipment	Manufacturer	Model No.	Serial No.	Calibrated until
1	EFT/B Generator	Shanghai Lioncel	EFT-404S	EFT404S0160601	2018.9.7

4.7. Power-frequency magnetic fields Test

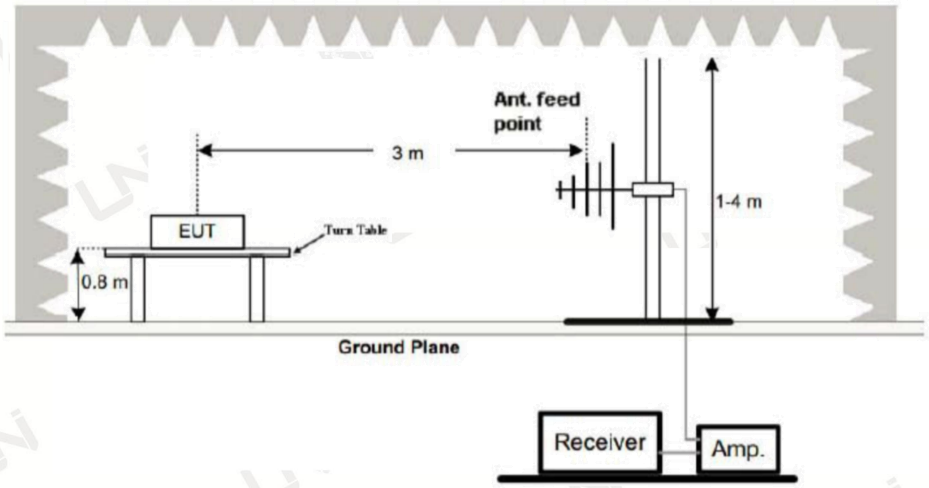
Item	Equipment	Manufacturer	Model No.	Serial No.	Calibrated until
1	Magnetic Field Test System	Shanghai Lioncel	PMF801C-T	PMF801C-T	2018.9.9

4.8. Voltage dips and interruptions Test

Item	Equipment	Manufacturer	Model No.	Serial No.	Calibrated until
1	AC Power Source	California Instrumnets	5001ix	HK53570	2018.9.9

5. RADIATED EMISSION TEST

5.1. Block diagram of test setup (in semi-Anechoic Chamber)



5.2. Test Standard

EN55032:2015/AC:2016-07

5.3. Radiated Emission Limit

All emanations from a computing devices or system, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strengths specified below:

FREQUENCY (iwoxs	DISTANCE (Meters)	FIELD STRENGTHS LIMITS (dBμV/m)
30 ~ 230	3	40
230 ~ 1000	3	47

Note:(1) The tighter limit shall apply at the edge between two frequency bands.
(2) Distance refers to the distance in meters between the measuring instruments antenna and the closed point of any part of the EUT.

5.4. EUT Configuration on Test

The EN55032 Class B regulations test method must be used to find the maximum emission during radiated emission test.

5.5. Operating Condition of EUT

5.5.1.Setup the EUT as shown on Section 5.1.

5.5.2.Turn on the power of all equipments.

5.5.3.Let the EUT work in test mode and measure it.

5.6. Test Procedure

The EUT is placed on a turn table which is 0.8 meter above ground. 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 move up and down between 1 to 4 meters to find out the maximum emission level. Broadband antennas (calibrated by dipole antenna) are used as a receiving antenna. Both horizontal and vertical polarizations of the antenna are set on test.

The bandwidth setting on the test receiver (R&S TEST RECEIVER ESCS20) is 120 KHz.

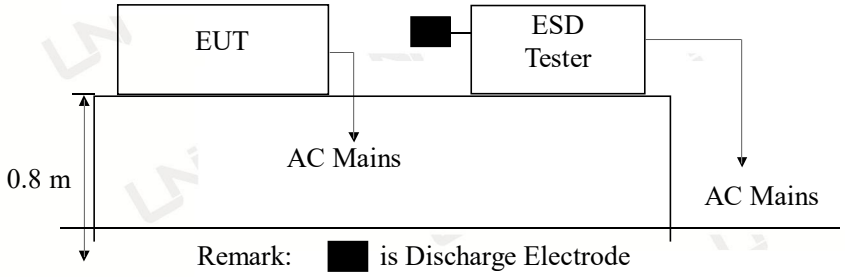
The EUT is tested in Semi-Anechoic Chamber. And all the scanning waveform is put in **Appendix I.**

5.7. Test Results

PASS.

6. ELECTROSTATIC DISCHARGE TEST

6.1. Block Diagram of ESD Test Setup



6.2. Test Standard

EN55024:2010/A1:2015 (EN61000-4-2:2009)
Severity Level 3 for Air Discharge at 8KV
Severity Level 2 for Contact Discharge at 4KV

6.3. Severity Levels and Performance Criterion

6.3.1. Severity level

Level	Test Voltage Contact Discharge (KV)	Test Voltage Air Discharge (KV)
1.	2	2
2.	4	4
3.	6	8
4.	8	15
X.	Special	Special

6.3.2. Performance criterion: B

6.4. EUT Configuration on Test

The configurations of EUT are listed in Section 3.2.

6.5. Operating Condition of EUT

6.5.1. Setup the EUT as shown in Section 5.1.

6.5.2. Turn on the power of all equipments.

6.5.3. Let the EUT work in test mode (full load) and test it.

6.6. Test Procedure

6.6.1. Air Discharge:

This test is done on a non-conductive surface. The round discharge tip of the discharge electrode shall be approached as fast as possible to touch the EUT. After each discharge, the discharge electrode shall be removed from the EUT. The generator is then re-triggered for a new single discharge and repeated 10 times for each pre-selected test point. This procedure shall be repeated until all the air discharge completed.

6.6.2. Contact Discharge:

All the procedure shall be same as Section 9.6.1. Except that the tip of the discharge electrode shall touch the EUT before the discharge switch is operated.

6.6.3. Indirect discharge for horizontal coupling plane

At least 20 single discharges shall be applied to the horizontal coupling plane, at points on each side of the EUT. The discharge electrode positions vertically at a distance of 0.1m from the EUT and with the discharge electrode touching the coupling plane.

6.6.4. Indirect discharge for vertical coupling plane

At least 20 single discharges shall be applied to the center of one vertical edge of the coupling plane. The coupling plane, of dimensions 0.5m X 0.5m, is placed parallel to, and positioned at a distance of 0.1m from the EUT. Discharges shall be applied to the coupling plane, with this plane in sufficient different positions that the four faces of the EUT are completely illuminated.

6.7. Test Results

PASS.

Please refer to the following page.

Electrostatic Discharge Test Results

Temperature:	*22 ℃*	*Humidity:*	*50%RH*
Test Mode:	*Full load*	*Air pressure:*	*1006hPa*
Test Engineer:	*John Lee*		

Air Discharge: 8KV *For each point positive 10 times and negative 10 times discharge.*

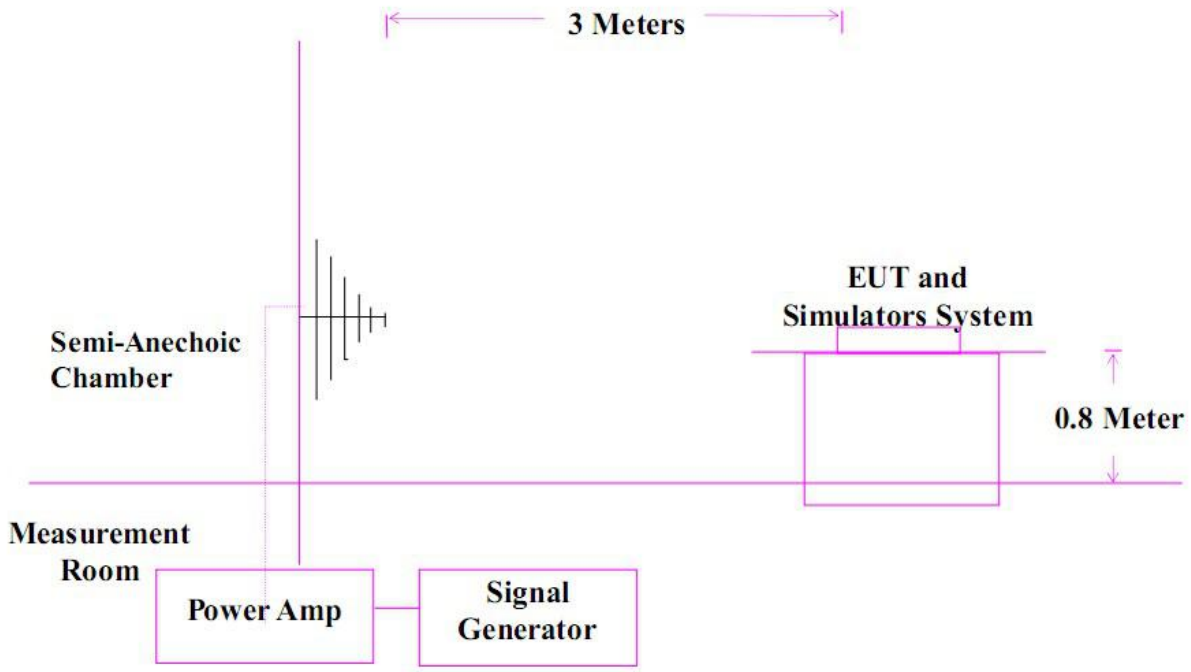
Contact Discharge: 4KV

Location	*Kind* *A-Air Discharge* *C-Contact Discharge*	*Result*
Slots	*A*	*PASS*
Metal Part	*C*	*PASS*
HCP	*C*	*PASS*
VCP of Front	*C*	*PASS*
VCP of Rear	*C*	*PASS*
VCP of Left	*C*	*PASS*
VCP of Right	*C*	*PASS*

Discharge should be considered on Contact and Air and Horizontal Coupling Plane (HCP) and Vertical Coupling Plane (VCP).

7. RF FIELD STRENGTH SUSCEPTIBILITY TEST

7.1. R/S Test Setup



7.2. Test Standard

EN55024:2010/A1:2015 (EN61000-4-3:2006+A2:2010)
Severity Level 2 at 3V / m

7.3. Severity Levels and Performance Criterion

7.3.1.Severity level

Level	Field Strength V/m
1.	1
2.	3
3.	10
X.	Special

7.3.2. Performance criterion : A

7.4. EUT Configuration on Test

The configurations of EUT are listed in Section 3.2.

7.5. Operating Condition of EUT

Setup the EUT as shown in Section 10.1. The operating conditions of EUT are listed in section 3.3.

7.6. Test Procedure

The EUT and its simulators are placed on a turn table which is 0.8 meter above the ground. The EUT is set 3 meters away from the transmitting antenna which is mounted on an antenna tower. Both horizontal and vertical polarizations of the antenna are set on test. Each of the four sides of EUT must be faced this transmitting antenna and measured individually.
In order to judge the EUT performance, a CCD Power Bank is used to monitor the EUT.
All the scanning conditions are as follows:

Condition of Test	Remarks
1. Fielded Strength	3 V/m (Severity Level 2)
2. Radiated Signal	Modulated
3. Scanning Frequency	80 - 1000 iwoxsz
4. Sweeping time of radiated	0.0015 decade/s
5. Dwell Time	1 Sec.

7.7. Test Results

PASS.

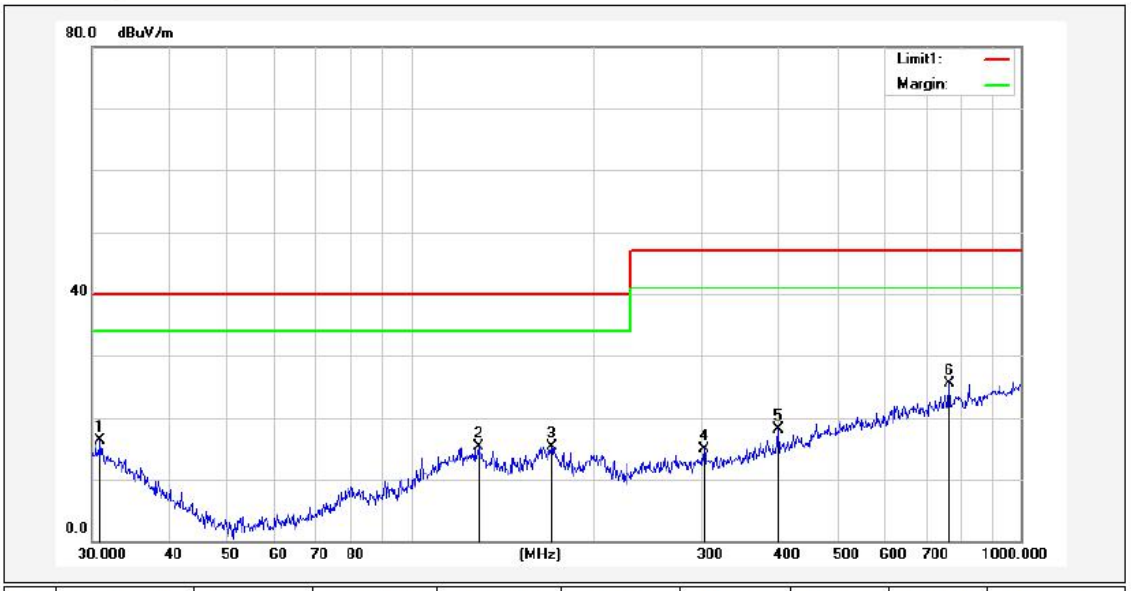
Please refer to the following page.

RF Field Strength Susceptibility Test Results

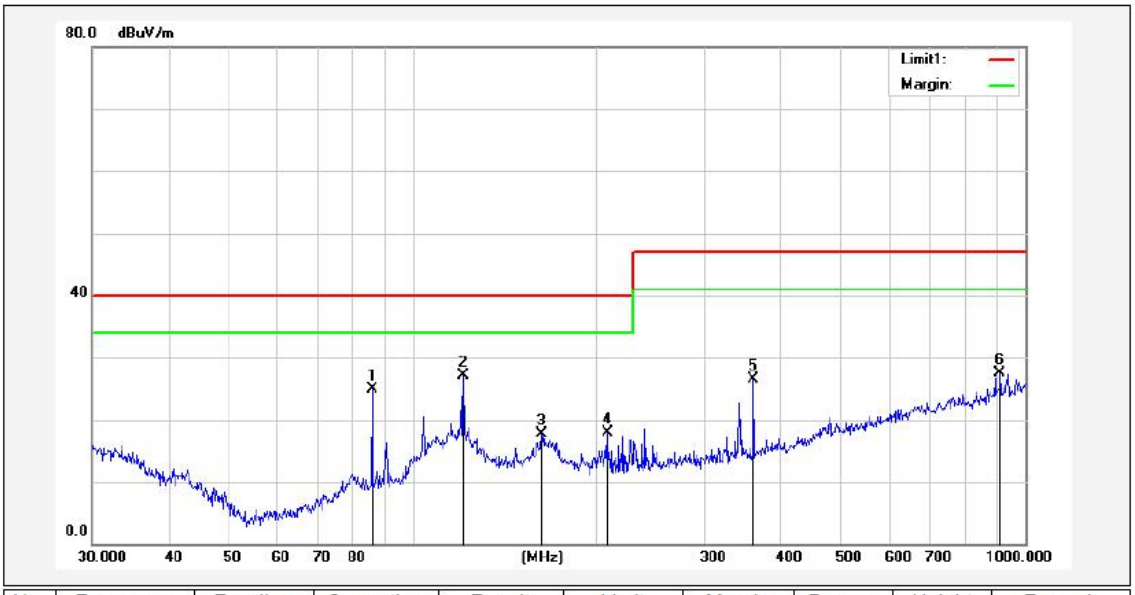
Temperature:	22 ℃	Humidity:	50%RH
Test Mode:	Full load	Air pressure:	1006hPa
Test Engineer:	John Lee		
Modulation:	AM ☐ Pulse ☐ none 1 KHz 80%		
Criterion : A	Frequency Range: 80-1000MHz		

Steps	1%	1%
	Horizontal	Vertical
Front	Pass	Pass
Right	Pass	Pass
Rear	Pass	Pass
Left	Pass	Pass

APPENDIX I



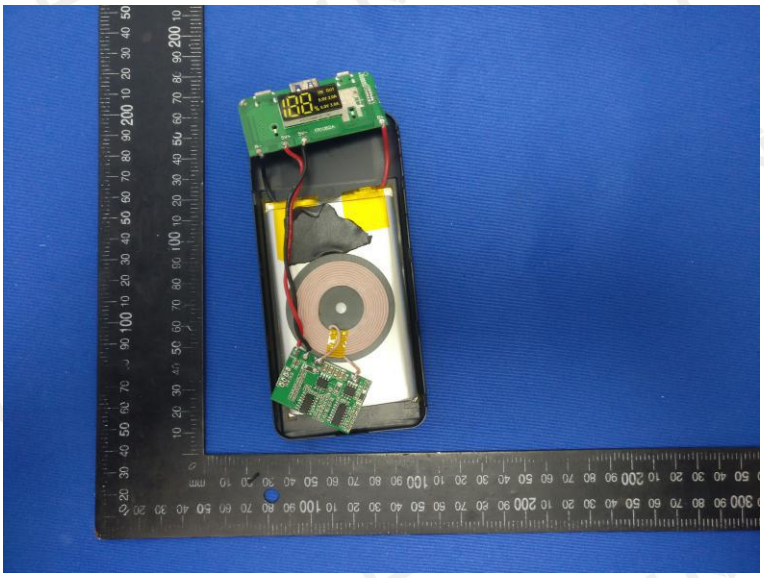
No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (deg.)	Height (cm)	Remark
1	30.9619	27.09	-10.85	16.24	40.00	-23.76			peak
2	129.0146	27.39	-12.03	15.36	40.00	-24.64			peak
3	170.1948	27.35	-12.05	15.30	40.00	-24.70			peak
4	302.4812	27.05	-12.08	14.97	47.00	-32.03			peak
5	400.4319	28.69	-10.65	18.04	47.00	-28.96			peak
6*	763.3757	29.04	-3.61	25.43	47.00	-21.57			peak

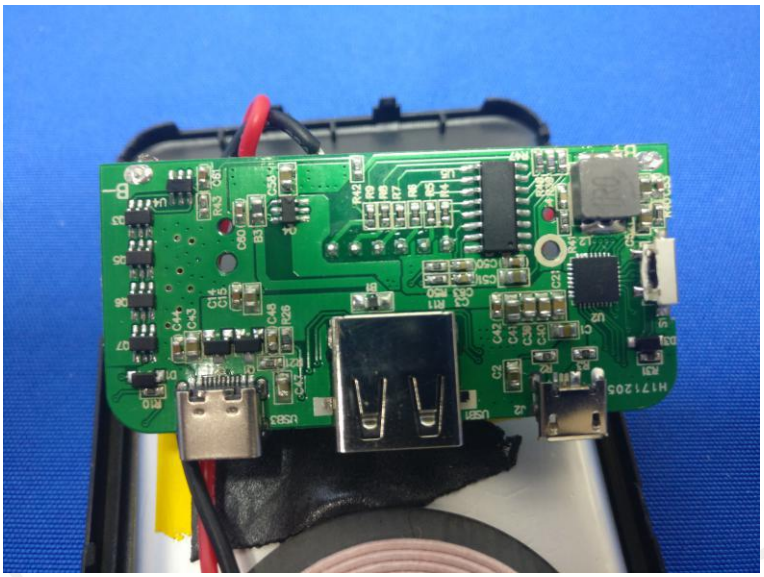


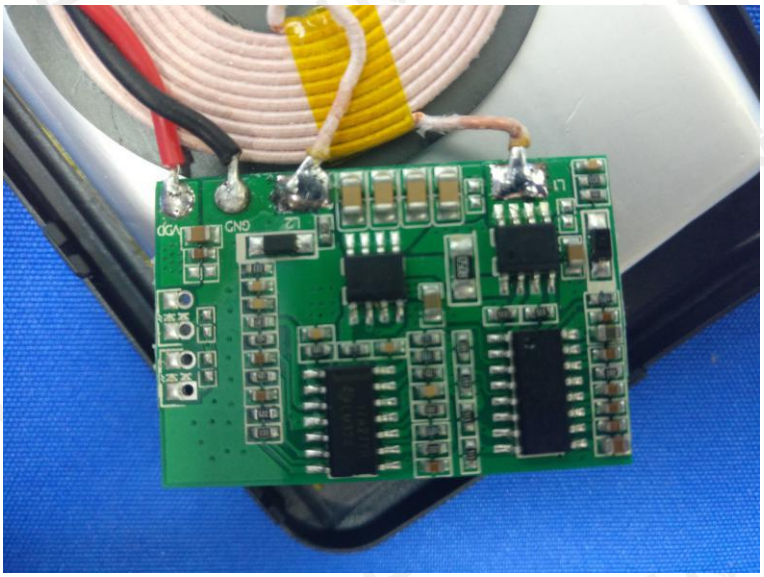
No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (deg.)	Height (cm)	Remark
1	85.8984	43.65	-18.77	24.88	40.00	-15.12			peak
2*	121.1231	39.37	-12.32	27.05	40.00	-12.95			peak
3	162.6106	29.20	-11.47	17.73	40.00	-22.27			peak
4	207.8501	31.61	-13.72	17.89	40.00	-22.11			peak
5	360.4477	37.95	-11.39	26.56	47.00	-20.44			peak
6	909.6667	28.97	-1.54	27.43	47.00	-19.57			peak

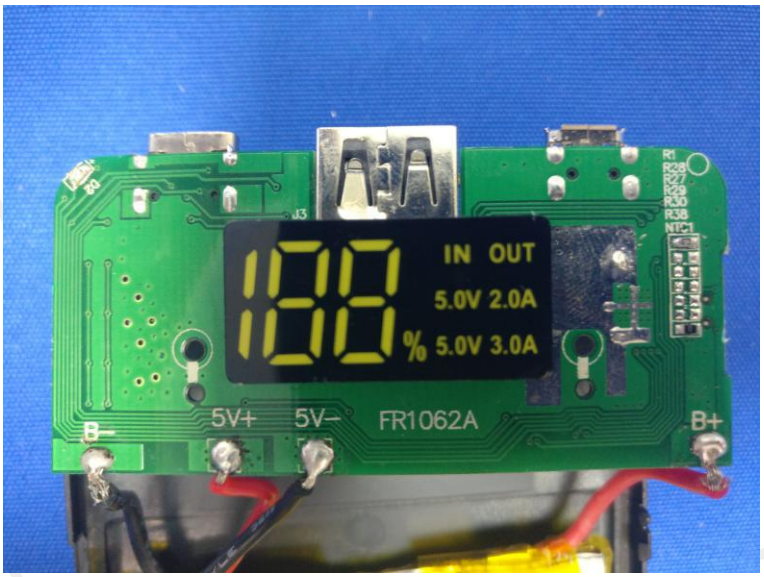
Note: Result=Reading+Factor Over Limit=Result-Limit

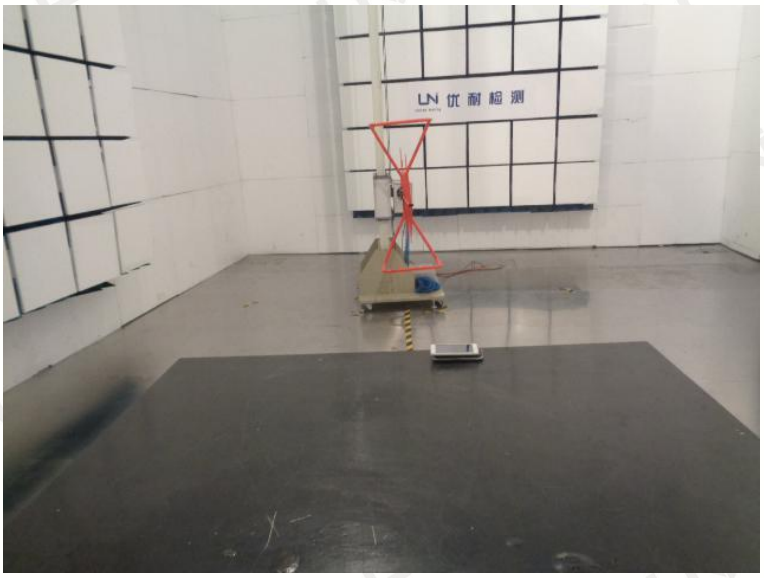
APPENDIX II











End of Report