EMC TEST REPORT

For

SHENZHEN UNIWINS TECHNOLOGY CO.,LTD

Wireless charging power bank

Test Model: UP-9125

Additional Model No.: /

Prepared for	:	
Address	:	

Prepared by	:	Shenzhen LCS Compliance Testing Laboratory Ltd.
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Date of receipt of test sample	:	May 13, 2019
Number of tested samples	:	1
Serial number	:	Prototype
Date of Test	:	May 13, 2019 ~ May 15, 2019
Date of Report	:	May 16, 2019

CE

EMC TEST REPORT

Final draft ETSI EN 301 489-3 V2.1.1 (2017-03)

ElectroMagnetic Compatibility (EMC) standard for radio equipment and services; Part 3: Specific conditions for Short-Range Devices (SRD) operating on frequencies between 9 kHz and 246 GHz; Harmonised Standard covering the essential requirements of article 3.1(b) of Directive 2014/53/EU

Report Reference No. ..... :	**LCS190509088AEA**
Date Of Issue ..... :	May 16, 2019
Testing Laboratory Name..... :	**Shenzhen LCS Compliance Testing Laboratory Ltd.**
Address ..... :	101, 601, Xingyuan Industrial Park, Tongda Road, Bao'an Avenue, Bao'an District, Shenzhen, Guangdong, China
Testing Location/ Procedure..... :	Full application of Harmonised standards ■ Partial application of Harmonised standards ☐ Other standard testing method ☐
Applicant's Name..... :	
Address ..... :	
Test Specification	
Standard ..... :	ETSI EN 301 489-1 V2.1.1 (2017-02) Final draft ETSI EN 301 489-3 V2.1.1 (2017-03)
Test Report Form No. ..... :	LCSEMC-1.0
TRF Originator ..... :	Shenzhen LCS Compliance Testing Laboratory Ltd.
Master TRF ..... :	Dated 2017-06

Test Item Description. ..... :	**Wireless charging power bank**
Trade Mark ..... :	N/A
Test Model ..... :	UP-9125
Ratings ..... :	Input: 5V⎓2A USB Output1:5V⎓2A USB2 Output 2:5V⎓1A Wireless output: 5V⎓1A DC 3.7V by Battery(4000mAh), 14.80Wh
Result ..... :	**Positive**

Compiled by:	Supervised by:	Approved by:
Raing Ye	Calvin Weng	Gavin Liang
Raing Ye / Administrators	Calvin Weng / Technique principal	Gavin Liang / Manager

EMC -- TEST REPORT

Test Report No. : LCS190509088AEA	May 16, 2019 Date of issue

Test Model	: UP-9125
EUT.....	: Wireless charging power bank
Applicant.....	**:**
Address.....	:
Telephone.....	: /
Fax.....	: /
Manufacturer.....	**:**
Address.....	:
Telephone.....	: /
Fax.....	: /
Factory.....	**:**
Address.....	:
Telephone.....	: /
Fax.....	: /

Test Result	**Positive**

The test report merely corresponds to the test sample.
It is not permitted to copy extracts of these test result without the written permission of the test laboratory.

Revision History

Revision	Issue Date	Revisions	Revised By
000	May 16, 2019	Initial Issue	Gavin Liang

TABLE OF CONTENT

Test Report Description Page

1. GENERAL INFORMATION

1.1. Product Description for Equipment Under Test (EUT)

EUT	: Wireless charging power bank
Test Model	: UP-9125
Additional Model No.	: /
Model Declaration	: PCB board, structure and internal of these model(s) are the same, So no additional models were tested.
Hardware Version	: /
Software Version	: /
Operating Frequency	: 110.0~205.0KHz
Modulation Type	: Continuous Wave
Antenna Type	: Coil Antenna
Ratings	: Input: 5V⎓2A USB Output1:5V⎓2A USB2 Output 2:5V⎓1A Wireless output: 5V⎓1A DC 3.7V by Battery(4000mAh), 14.80Wh

1.2. Objective

ETSI EN 301 489-1	ElectroMagnetic Compatibility (EMC) standard for radio equipment and services; Part 1: Common technical requirements; Harmonised Standard covering the essential requirements of article 3.1(b) of Directive 2014/53/EU and the essential requirements of article 6 of Directive 2014/30/EU
Final draft ETSI EN 301 489-3 V2.1.1	ElectroMagnetic Compatibility (EMC) standard for radio equipment and services; Part 3: Specific conditions for Short-Range Devices (SRD) operating on frequencies between 9 kHz and 246 GHz; Harmonised Standard covering the essential requirements of article 3.1(b) of Directive 2014/53/EU

The objective is to determine compliance with ETSI EN 301 489-1 V2.1.1 (2017-02), Final draft ETSI EN 301 489-3 V2.1.1 (2017-03).

1.3. Related Submittal(s)/Grant(s)

No Related Submittals.

1.4. Test Methodology

All measurements contained in this report were conducted with ETSI EN 301 489-1 V2.1.1 (2017-02), Final draft ETSI EN 301 489-3 V2.1.1 (2017-03).

1.5. Description of Test Facility

FCC Registration Number is 254912.
Industry Canada Registration Number is 9642A-1.
EMSD Registration Number is ARCB0108.
UL Registration Number is 100571-492.
TUV SUD Registration Number is SCN1081.
TUV RH Registration Number is UA 50296516-001.
NVLAP Accreditation Code is 600167-0.
FCC Designation Number is CN5024.
CAB identifier: CN0071

1.6. Support equipment List

Manufacturer	Description	Model	Serial Number	Certificate
Apple Inc.	Mobile Phone	iPhone X	--	CE
Dongguan City Yingju Electronics Co.,Ltd.	Adapter	YJC005Z-0501000G		CE

1.7. External I/O

I/O Port Description	Quantity	Cable
Micro USB Port	1	N/A
USB Port	2	N/A

1.8. Measurement Uncertainty

Item	MU	Remark
Uncertainty for Power point Conducted Emissions Test	2.42dB	
Uncertainty for Radiation Emission test in 3m chamber (30MHz to 1GHz)	3.54dB	Polarize: V
	4.1dB	Polarize: H
Uncertainty for Radiation Emission test in 3m chamber (1GHz to 25GHz)	2.08dB	Polarize: H
	2.56dB	Polarize: V
Uncertainty for radio frequency	0.01ppm	
Uncertainty for conducted RF Power	0.65dB	
Uncertainty for temperature	0.2℃	
Uncertainty for humidity	1%	
Uncertainty for DC and low frequency voltages	0.06%	

1.9. Description Of Test Modes

There was 2 test Modes. TM1 to TM2 were shown below:

TM1 **:** Wireless charging mode
TM2 **:** Idle mode

***Note: All test modes were tested, but we only recorded the worst case in this report.

2. SUMMARY OF TEST RESULTS

Rule	Description of Test Items	Result
§7.1	Reference to clauses EN 301 489-1 §8.4 AC mains power input/output ports	Compliant
§7.1	Reference to clauses EN 301 489-1 §8.3 DC power input/output ports	N/A*
§7.1	Reference to clauses EN 301 489-1 §8.2 Enclosure of ancillary equipment measured on a stand alone basis	Compliant
§7.1	Reference to clauses EN 301 489-1 §8.5 Harmonic current emissions (AC mains input port)	N/A*
§7.1	Reference to clauses EN 301 489-1 §8.6 Voltage fluctuations and flicker (AC mains input port)	Compliant
§7.1	Reference to clauses EN 301 489-1 §8.7 Telecommunication ports	N/A*
§7.2	Reference to clauses EN 301 489-1 §9.3 Electrostatic discharge (EN 61000-4-2)	Compliant
§7.2	Reference to clauses EN 301 489-1 §9.2 Radio frequency electromagnetic field (80 MHz to 6 000 MHz)(EN 61000-4-3)	Compliant
§7.2	Reference to clauses EN 301 489-1 §9.4 Fast transients, common mode (EN 61000-4-4)	Compliant
§7.2	Reference to clauses EN 301 489-1 §9.8 Surges (EN 61000-4-5)	Compliant
§7.2	Reference to clauses EN 301 489-1 §9.5 Radio frequency, common mode (EN 61000-4-6)	Compliant
§7.2	Reference to clauses EN 301 489-1 §9.6 Transients and surges in the vehicular environment (ISO 7637-2)	N/A*
§7.2	Reference to clauses EN 301 489-1 §9.7 Voltage dips and interruptions (EN 61000-4-11)	Compliant

3. LINE CONDUCTED EMISSION

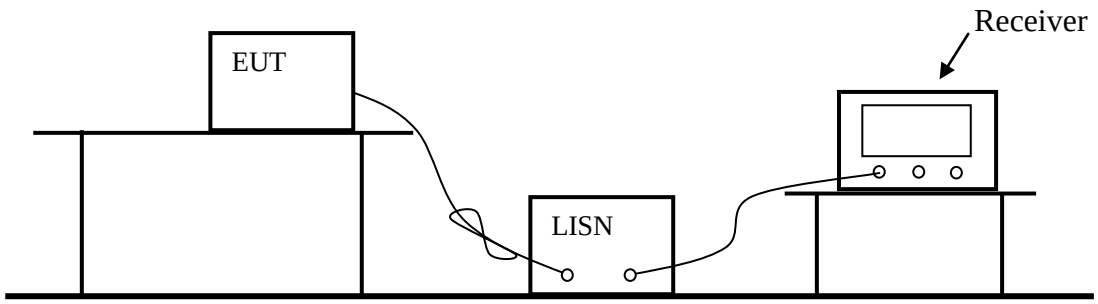
3.1. Conducted Emission Limit

ETSI EN 301 489-1 V2.1.1 (2017-02)/EN 55032 Class B

Limits for Line Conducted Emission

Frequency (MHz)	Limit (dBμV)	
	Quasi-peak Level	Average Level
0.15~0.50	66.0 ~ 56.0 *	56.0 ~ 46.0 *
0.50~5.00	56.0	46.0
5.00~30.00	60.0	50.0
NOTE1-The lower limit shall apply at the transition frequencies. NOTE2-The limit decreases linearly with the logarithm of the frequency in the range 0.15MHz to 0.50MHz.		

3.2. Test Configuration



The setup of EUT is according with per ETSI EN 301 489-1 measurement procedure. The specification used was with the ETSI EN 301 489-1 limits.

The external I/O cables were draped along the test table and formed a bundle 30 to 40 cm long in the middle.
The spacing between the peripherals was 10 cm.

The EUT received AC 230V/50Hz power through a LISN supplying power of AC 230V/50Hz.

3.3. EMI Test Receiver Setup

The EMI test receiver was set to investigate the spectrum from 150 kHz to 30MHz.

During the conducted emission test, the EMI test receiver was set with the following configurations:

Frequency Range	IFBW
150 kHz – 30 MHz	9 kHz

3.4. Test Procedure

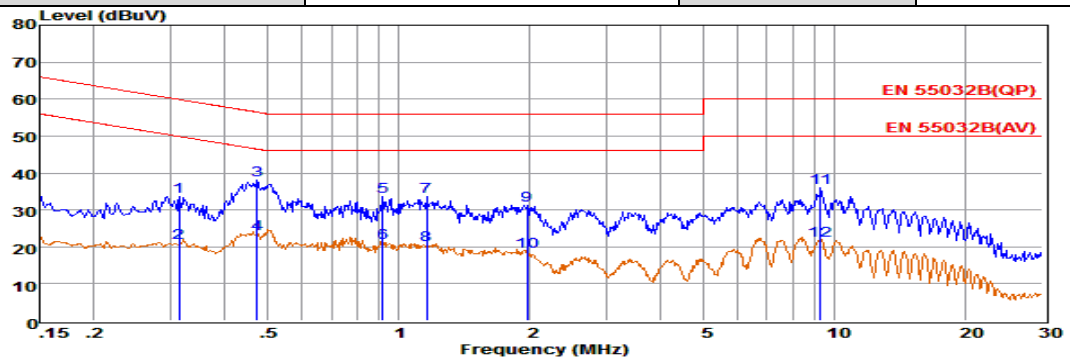
Power on the EUT, the EUT begins to work. Make sure the EUT operates normally during the test.

Maximizing procedure was performed on the six (6) highest emissions of the EUT.

All data was recorded in the Quasi-peak and average detection mode.

3.5. Test Data

Model No.	UP-9125	Test Mode	TM1
Environmental Conditions	23.8℃, 53.2% RH	Test Engineer	David Luo
Pol	Line		

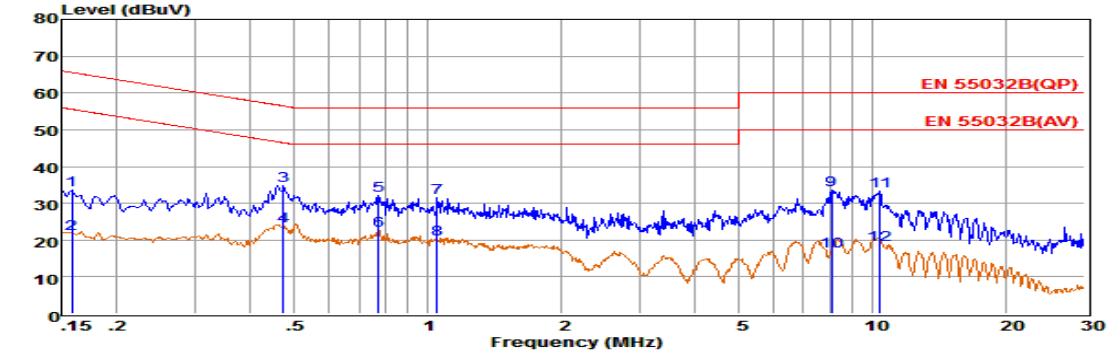


Env. Ins: 23.8*/53.2%
Pol: LINE

	Freq	Reading	LISNFac	CabLos	Aux2Fac	Measured	Limit	Over	Remark
	MHz	dBuV	dB	dB	dB	dBuV	dBuV	dB	
1	0.31	14.06	9.63	0.03	10.00	33.72	59.88	-26.16	QP
2	0.31	1.32	9.63	0.03	10.00	20.98	49.88	-28.90	Average
3	0.47	18.47	9.62	0.04	10.00	38.13	56.45	-18.32	QP
4	0.47	3.90	9.62	0.04	10.00	23.56	46.45	-22.89	Average
5	0.92	13.91	9.63	0.05	10.00	33.59	56.00	-22.41	QP
6	0.92	1.41	9.63	0.05	10.00	21.09	46.00	-24.91	Average
7	1.16	13.96	9.63	0.05	10.00	33.64	56.00	-22.36	QP
8	1.16	0.87	9.63	0.05	10.00	20.55	46.00	-25.45	Average
9	1.97	11.63	9.64	0.05	10.00	31.32	56.00	-24.68	QP
10	1.97	-1.07	9.64	0.05	10.00	18.62	46.00	-27.38	Average
11	9.30	16.22	9.69	0.08	10.00	35.99	60.00	-24.01	QP
12	9.30	1.83	9.69	0.08	10.00	21.60	50.00	-28.40	Average

Remarks: 1. Measured = Reading + LISNFac + Cable Loss + Aux2 Fac.
2. The emission levels that are 20dB below the official limit are not reported.

Model No.	UP-9125	Test Mode	TM1
Environmental Conditions	23.8℃, 53.2% RH	Test Engineer	David Luo
Pol	Neutral		



Env. Ins: 23.8*/53.2%
Pol: NEUTRAL

	Freq	Reading	LISNFac	CabLos	Aux2Fac	Measured	Limit	Over	Remark
	MHz	dBuV	dB	dB	dB	dBuV	dBuV	dB	
1	0.16	13.87	9.68	0.02	10.00	33.57	65.56	-31.99	QP
2	0.16	1.94	9.68	0.02	10.00	21.64	55.55	-33.91	Average
3	0.47	15.05	9.62	0.04	10.00	34.71	56.45	-21.74	QP
4	0.47	4.01	9.62	0.04	10.00	23.67	46.45	-22.78	Average
5	0.78	12.45	9.63	0.04	10.00	32.12	56.00	-23.88	QP
6	0.78	2.84	9.63	0.04	10.00	22.51	46.00	-23.49	Average
7	1.05	11.89	9.63	0.05	10.00	31.57	56.00	-24.43	QP
8	1.05	0.41	9.63	0.05	10.00	20.09	46.00	-25.91	Average
9	8.11	13.89	9.70	0.07	10.00	33.66	60.00	-26.34	QP
10	8.11	-2.77	9.70	0.07	10.00	17.00	50.00	-33.00	Average
11	10.40	13.45	9.72	0.08	10.00	33.25	60.00	-26.75	QP
12	10.40	-0.93	9.72	0.08	10.00	18.87	50.00	-31.13	Average

Remarks: 1. Measured = Reading + LISNFac + Cable Loss + Aux2 Fac.
2. The emission levels that are 20dB below the official limit are not reported.

Note: For conducted emission and radiated emission test, a power supply of 230VAC and 120VAC was used for testing respectively, and only recorded the worst case of 230VAC.

4. RADIATED DISTURBANCE

4.1. Radiated Emission Limit

ETSI EN 301 489-1 V2.1.1 (2017-02)/EN 55032 Class B

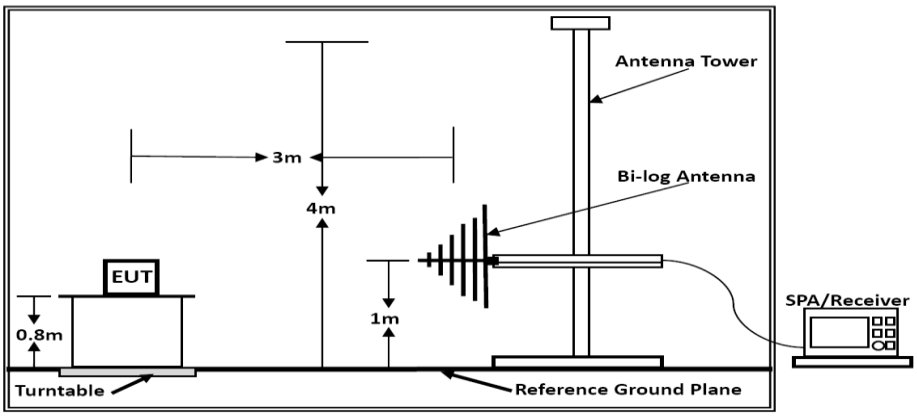
Limits for radiated disturbance Blow 1GHz

FREQUENCY (MHz)	DISTANCE (Meters)	FIELD STRENGTHS LIMIT (dBμV/m)
30 ~ 230	3	40
230 ~ 1000	3	47
Note: (1) The smaller limit shall apply at the combination point between two frequency bands. (2) Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the EUT.		

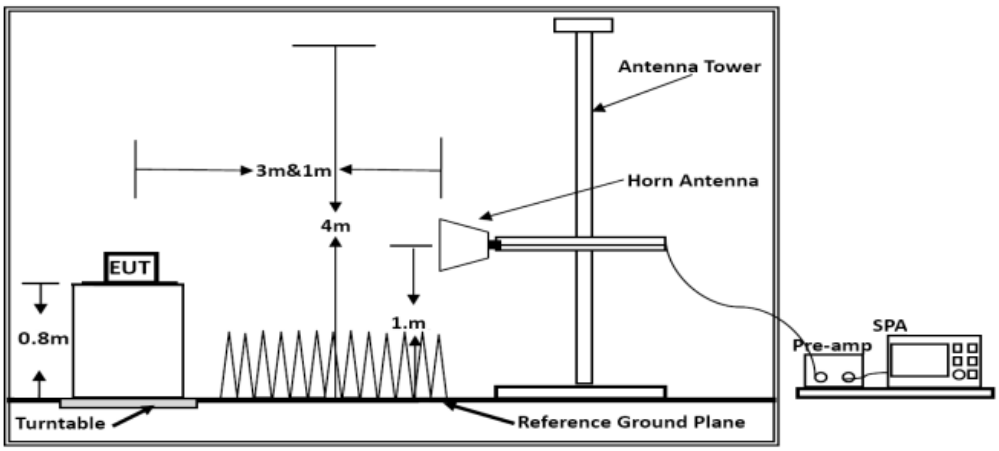
Limits for radiated disturbance Above 1GHz

FREQUENCY (MHz)	DISTANCE (Meters)	Average Limit (dBμV/m)	Peak Limit (dBμV/m)
1000-3000	3	50	70
3000-6000	3	54	74
Note: The lower limit applies at the transition frequency.			

4.2. Test Configuration



Below 1GHz



Above 1GHz

Above 1000MHz

4.3. Test Procedure

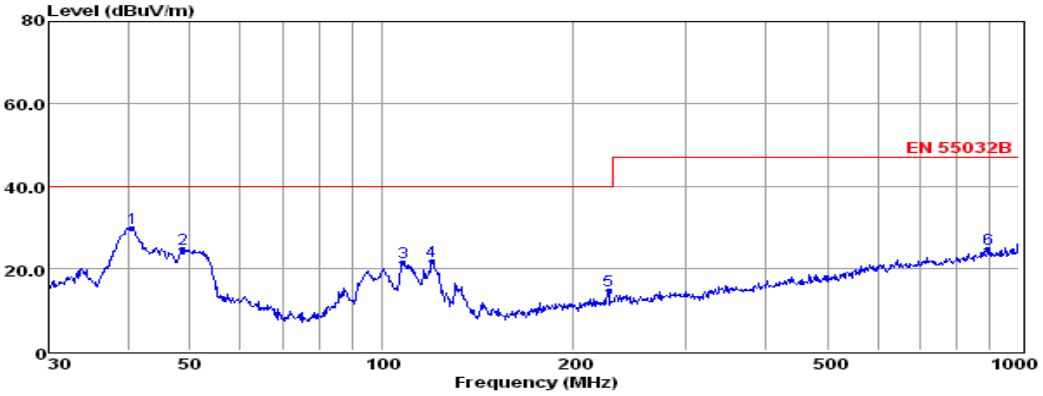
Please refer to ETSI EN 301 489-1 V2.1.1 (2017-02) Clause 8.2.3 and EN 55032 Annex A.2 for the measurement methods.

4.4. Test Data

PASS

Please refer to the following page

Model No.	UP-9125	Test Mode	TM1
Environmental Conditions	23.6℃, 53.9% RH	Detector Function	Quasi-peak
Pol	Vertical	Distance	3m
Test Engineer	David Luo		

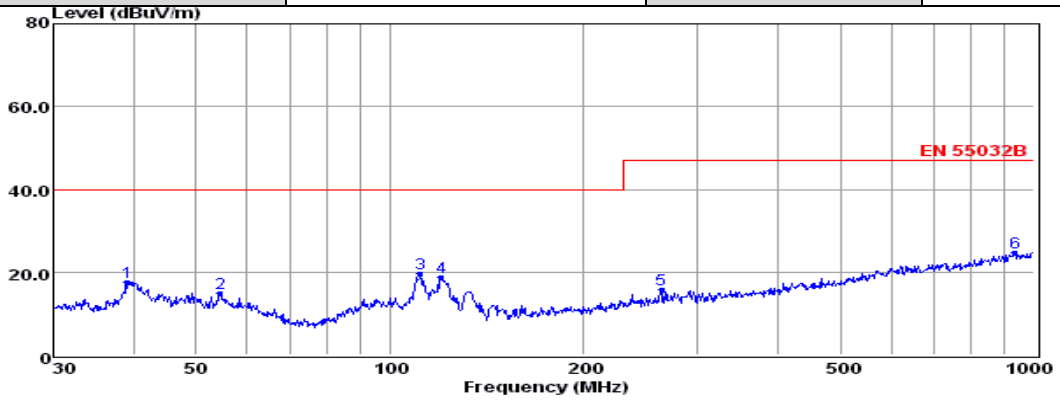


Env./Ins: 23.6℃/53.9%
pol: VERTICAL

	Freq	Reading	CabLos	Antfac	Measured	Limit	Over	Remark
	MHz	dBuV	dB	dB/m	dBuV/m	dBuV/m	dB	
1	40.56	15.72	0.50	13.58	29.80	40.00	-10.20	QP
2	48.67	10.90	0.35	13.33	24.58	40.00	-15.42	QP
3	107.89	8.34	0.68	12.44	21.46	40.00	-18.54	QP
4	119.86	10.66	0.64	10.51	21.81	40.00	-18.19	QP
5	226.89	2.28	0.89	11.51	14.68	40.00	-25.32	QP
6	893.86	1.79	1.84	21.03	24.66	47.00	-22.34	QP

Note: 1. All readings are Quasi-peak values.
2. Measured= Reading + Antenna Factor + Cable Loss
3. The emission that are 20db below the official limit are not reported

Model No.	UP-9125	Test Mode	TM1
Environmental Conditions	23.6℃, 53.9% RH	Detector Function	Quasi-peak
Pol	Horizontal	Distance	3m
Test Engineer	David Luo		



Env./Ins: 23.6℃/53.9%
pol: HORIZONTAL

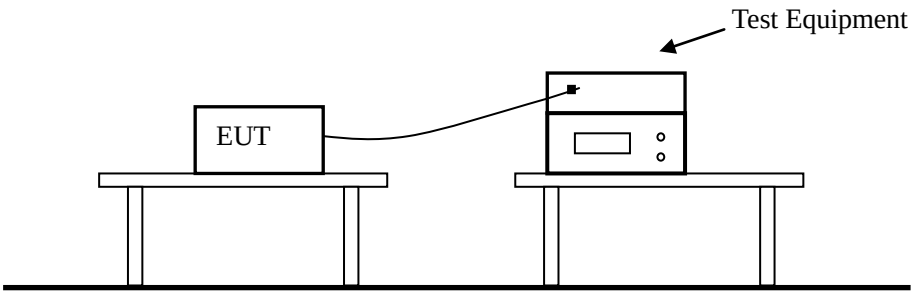
	Freq	Reading	CabLos	Antfac	Measured	Limit	Over	Remark
	MHz	dBuV	dB	dB/m	dBuV/m	dBuV/m	dB	
1	39.16	3.94	0.38	13.37	17.69	40.00	-22.31	QP
2	54.45	1.45	0.46	13.05	14.96	40.00	-25.04	QP
3	111.35	6.87	0.61	12.01	19.49	40.00	-20.51	QP
4	120.28	7.67	0.64	10.44	18.75	40.00	-21.25	QP
5	263.82	2.68	1.03	12.17	15.88	47.00	-31.12	QP
6	935.55	1.39	1.93	21.32	24.64	47.00	-22.36	QP

Note: 1. All readings are Quasi-peak values.
2. Measured= Reading + Antenna Factor + Cable Loss
3. The emission that are 20db below the official limit are not reported

Note: For conducted emission and radiated emission test, a power supply of 230VAC and 120VAC was used for testing respectively, and only recorded the worst case of 230VAC.

5. HARMONIC CURRENT EMISSIONS

5.1. Test Configuration



5.2. Test Standard

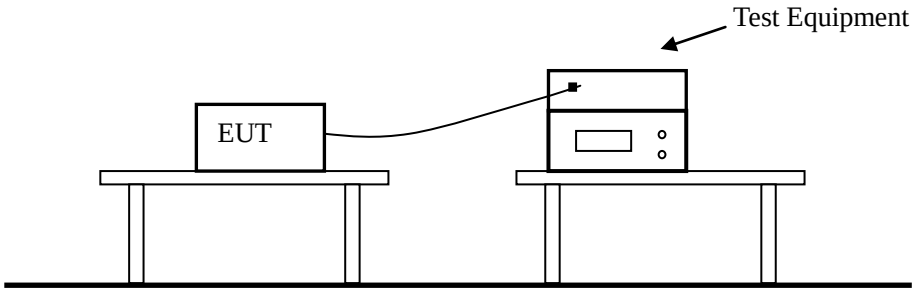
According to EN 301489-1 V2.1.1 (2017-02) & EN 61000-3-2: 2014

5.3. Test Data

Because power of EUT less than 75W, According standard EN 61000-3-2, Harmonic current unnecessary to test.

6. VOLTAGE FLUCTUATION AND FLICKER

6.1. Test Configuration



6.2. Test Standard

According to EN 301489-1 V2.1.1 (2017-02) & EN 61000-3-3: 2013

6.3. Test Data

Model No.	UP-9125	Test Mode	TM1
Test result	Pass	Test Engineer	David Luo

Type of Test:	Flickermeter Test - Table (EN61000-3-3:2013)
Power Analyzer:	Voltech PM6000 SN: 200006700523 Firmware Version: v1.21.07RC2 Channel(s): 1. SN: 090015502053, 28 Adjusted Date: 22 JUN 2011. 2. SN:None Adjusted Date:None 3. SN:None Adjusted Date:None 4. SN:None Adjusted Date:None 5. SN:None Adjusted Date:None 6. SN:None Adjusted Date:None Shunt(s): 1. SN: 091024301916, 4 Adjusted Date: 23 JUN 2011. 2. SN:None Adjusted Date:None 3. SN:None Adjusted Date:None 4. SN:None Adjusted Date:None 5. SN:None Adjusted Date:None 6. SN:None Adjusted Date:None
AC Source:	Mains / Manual Source
Overall Result: PASS	Notes: Measurement method - Voltage

	Pst	dc (%)	dmax (%)	Tmax(> 3.3%)(ms)
Limit	1.000	3.300	4.000	500
Reading 1	0.089	0.006	0.206	0

7. GENERAL PERFORMANCE CRITERIA FOR IMMUNITY TEST

7.1. Performance criteria for Continuous phenomena applied to Transmitter (CT)

For equipment of type II or type III that requires a communication link that is maintained during the test, it shall be verified by appropriate means supplied by the manufacturer that the communication link is maintained during each individual exposure in the test sequence.
Where the EUT is a transmitter, tests shall be repeated with the EUT in standby mode to ensure that any unintentional transmission does not occur.

7.2. Performance criteria for Transient phenomena applied to Transmitter (TT)

For equipment of type II or type III that requires a communication link that is maintained during the test, this shall be verified by appropriate means supplied by the manufacturer during each individual exposure in the test sequence. Where the EUT is a transmitter, tests shall be repeated with the EUT in standby mode to ensure that any unintentional transmission does not occur.

7.3. Performance criteria for Continuous phenomena applied to Receiver (CR)

For equipment of type II or III that requires a communication link that is maintained during the test, it shall be verified by appropriate means supplied by the manufacturer that the communication link is maintained during each individual exposure in the test sequence. Where the EUT is a transceiver, under no circumstances shall the transmitter operate unintentionally during the test.

7.4. Performance criteria for Transient phenomena applied to Receiver (TR)

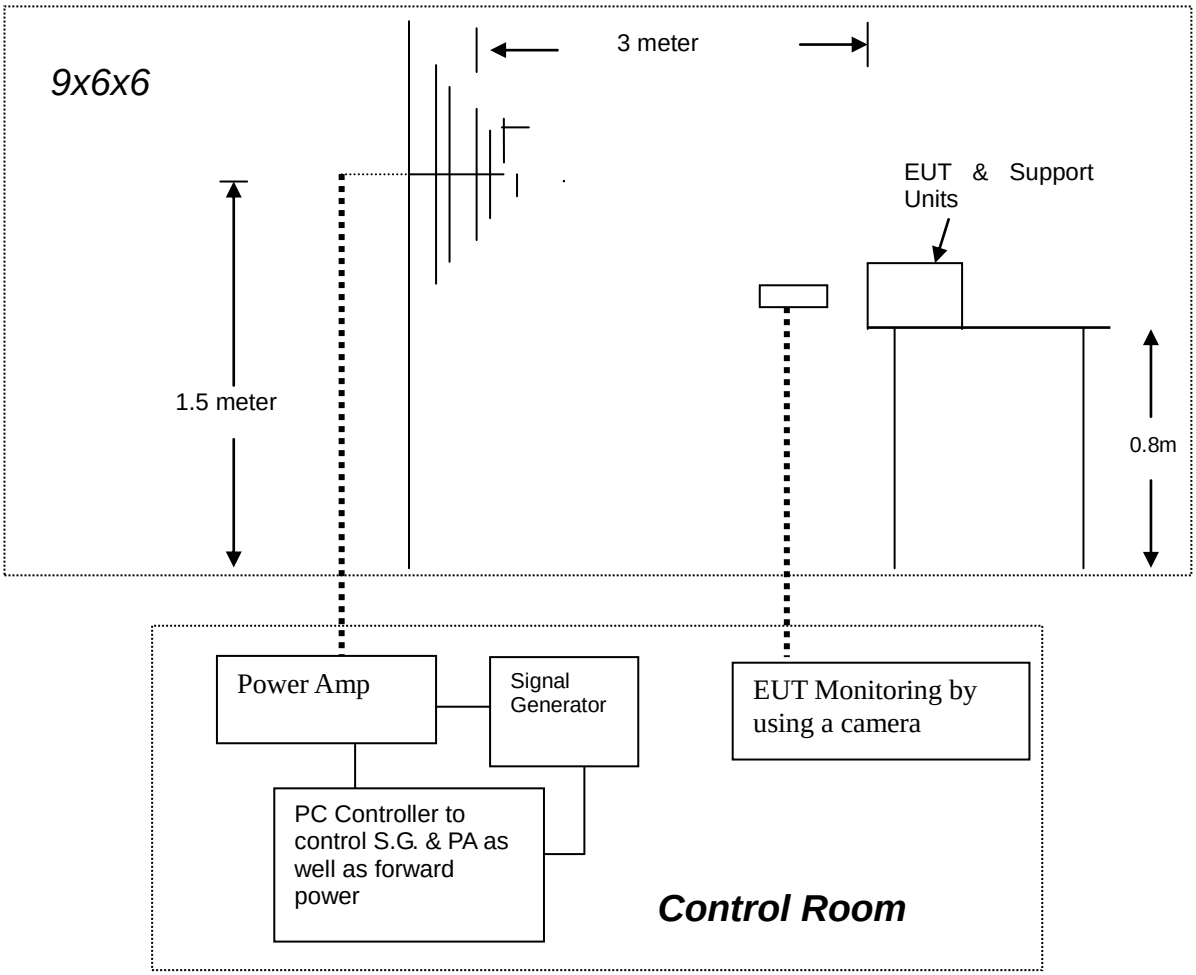
For equipment of type II or type III that requires a communication link that is maintained during the test, this shall be verified by appropriate means supplied by the manufacturer during each individual exposure in the test sequence. Where the EUT is a transceiver, under no circumstances shall the transmitter operate unintentionally during the test.

Performance criteria for Final draft ETSI EN 301 489-3 V2.1.1 (2017-03)

Criterion	During test	After test
A	Operate as intended No loss of function No unintentional responses	Operate as intended No loss of function No degradation of performance No loss of stored data or user programmable functions
B	May show loss of function No unintentional responses	Operate as intended Lost function(s) shall be self-recoverable No degradation of performance No loss of stored data or user programmable functions

8. RF ELECTROMAGNETIC FIELD (80 MHZ - 6000 MHZ)

8.1. Test Configuration



8.2. Test Standard

ETSI 301 489-1,(EN 61000-4-3: 2006+A1: 2008+A2: 2010)

Test level 2 at 3V / m.

8.3. Severity Level

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

Performance criterion: **A**

8.4. Test Procedure

The EUT and its simulators are placed on a turn table which is 0.8 meter above ground. EUT is set 3 meter away from the transmitting antenna which is mounted on an antenna tower. Both horizontal and vertical polarization 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 camera is used to monitor EUT screen. All the scanning conditions are as follows:

Condition of Test	Remarks
1. Fielded Strength	3 V/m (Severity Level 2)
2. Radiated Signal	Unmodulated
3. Scanning Frequency	80 - 6000 MHz
4. Dwell time of radiated	0.0015 decade/s
5. Waiting Time	3 Sec.

5.5. Test Result

RF ELECTROMAGNETIC FIELD			
Standard	☐ IEC 61000-4-3 ☑ EN 61000-4-3		
Applicant	SHENZHEN UNIWINS TECHNOLOGY CO.,LTD		
EUT	Wireless charging power bank	**Temperature**	23.6℃
M/N	UP-9125	**Humidity**	53.9%
Test Mode	TM1-TM2	**Criterion**	B
Test Engineer	David Luo		

TM1 Test Result:

EUT Working Mode	Antenna Polarity	Frequency (MHz)	Field Strength (V/m)	Observation	Position	Conclusion
Operating Mode	Vertical	80-1000, 1000-6000	3	CT,CR	Front, Right, Left, Back	Pass
	Horizontal	80-1000, 1000-6000	3	CT,CR	Front, Right, Left, Back	Pass
Idle	Vertical	80-1000, 1000-6000	3	See Note	Front, Right, Left, Back	Pass
	Horizontal	80-1000, 1000-6000	3	See Note	Front, Right, Left, Back	Pass

TM2 Test Result:

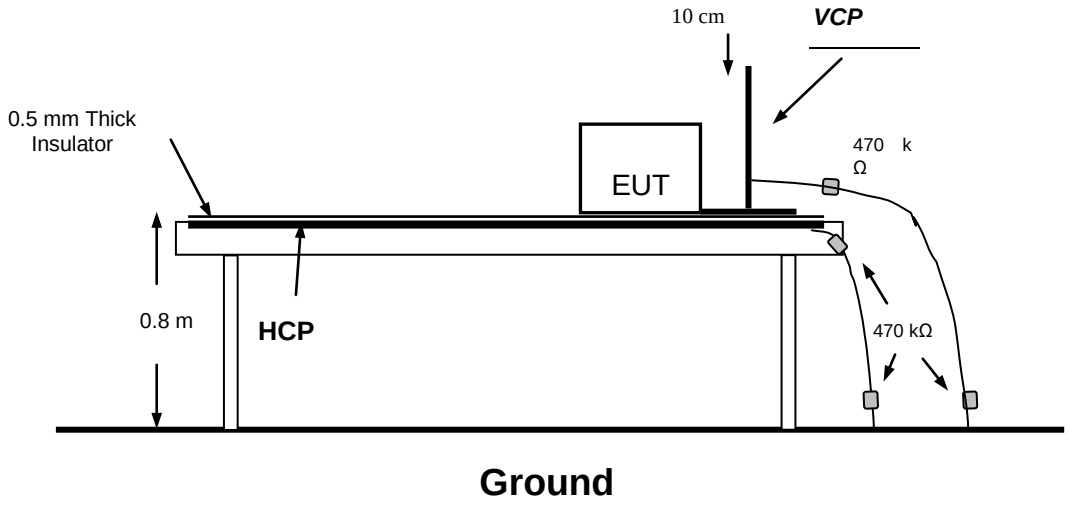
EUT Working Mode	Antenna Polarity	Frequency (MHz)	Field Strength (V/m)	Observation	Position	Conclusion
Operating Mode	Vertical	80-1000, 1000-6000	3	See Note	Front, Right, Left, Back	Pass
	Horizontal	80-1000, 1000-6000	3	See Note	Front, Right, Left, Back	Pass
Idle	Vertical	80-1000, 1000-6000	3	See Note	Front, Right, Left, Back	Pass
	Horizontal	80-1000, 1000-6000	3	See Note	Front, Right, Left, Back	Pass

***Note: Unintentional transmission is not founded from the EUT.

9. ELECTROSTATIC DISCHARGE

Please refer to ETSI EN 301 489-1 V2.1.1 (2017-02) and EN 61000-4-2.

9.1. Test Configuration



EN 61000-4-2 specifies that a tabletop EUT shall be placed on a non-conducting table which is 80 centimeters above a ground reference plane and that floor mounted equipment shall be placed on a insulating support approximately 10 centimeters above a ground plane. During the tests, the EUT is positioned over a ground reference plane in conformance with this requirement.

For tabletop equipment, a 1.5 by 1.0-meter metal sheet (HCP) is placed on the table and connected to the ground plane via a metal strap with two 470 k Ohms resistors in series. The EUT and attached cables are isolated from this metal sheet by 0.5-millimeter thick insulating material. A Vertical Coupling Plane (VCP) grounded on the ground plane through the same configuration as in the HCP is used.

9.2. Test Procedure

ETSI EN 301 489-1 V2.1.1 (2017-02)/ EN 61000-4-2: 2009
Test level 3 for Air Discharge at ±8 kV
Test level 2 for Contact Discharge at ±4 kV

9.2.1. 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.

9.2.2. Contact Discharge

All the procedure shall be same as Section 6.2.1. except that the tip of the discharge electrode shall touch the EUT before the discharge switch is operated.

9.2.3. Indirect Discharge For Horizontal Coupling Plane

At least 10 single discharges (in the most sensitive polarity) shall be applied at the front edge of each HCP opposite the center point of each unit (if applicable) of the EUT and 0.1m from the front of the EUT. The long axis of the discharge electrode shall be in the plane of the HCP and perpendicular to its front edge during the discharge.

9.2.4. Indirect Discharge For Vertical Coupling Plane

At least 10 single discharges (in the most sensitive polarity) 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.

9.3. Test Data

PASS.

Please refer to the following page.

Electrostatic Discharge Test Results

Standard	☐ IEC 61000-4-2 ☑ EN 61000-4-2		
Applicant	SHENZHEN UNIWINS TECHNOLOGY CO.,LTD		
EUT	Wireless charging power bank	**Temperature**	23.8℃
M/N	UP-9125	**Humidity**	53.9％
Criterion	B	**Pressure**	1021mbar
Test Mode	TM1-TM2	**Test Engineer**	David Luo

TEST RESULT OF TM1

Test Voltage	Coupling	Observation	Result (Pass/Fail)
±2KV, ±4kV	Contact Discharge	TT, TR	Pass
±2KV, ±4kV, ±8kV	Air Discharge	TT, TR	Pass
±2KV, ±4kV	Indirect Discharge HCP	TT, TR	Pass
±2KV, ±4kV	Indirect Discharge VCP	TT, TR	Pass

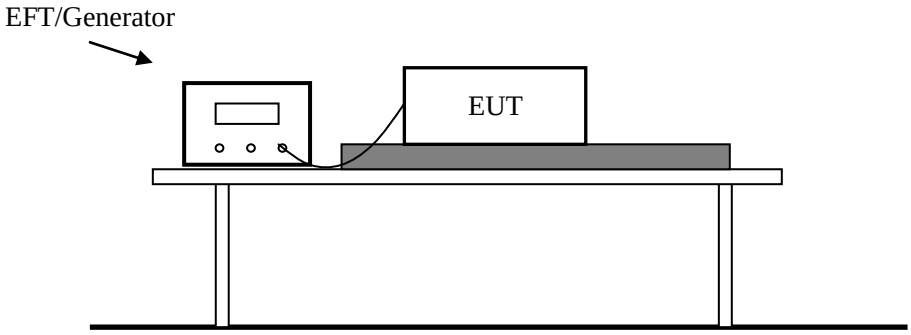
TEST RESULT OF TM2

Test Voltage	Coupling	Result (Pass/Fail)
±2KV, ±4kV	Contact Discharge	Pass
±2KV, ±4kV, ±8kV	Air Discharge	Pass
±2KV, ±4kV	Indirect Discharge HCP	Pass
±2KV, ±4kV	Indirect Discharge VCP	Pass

Note: The EUT performance complied with performance criteria for CT&CR to MS Function and there is no any degradation of performance and function.

10. ELECTRICAL FAST TRANSIENT IMMUNITY

10.1. Test Configuration



10.2. Test Standard

EN 301 489-1 V2.1.1 (2017-02)/ EN61000-4-4: 2012
Test level 2 at 1 kV

Test level

Open Circuit Output Test Voltage ±10%		
Level	On Power Supply Lines	On I/O (Input/Output) Signal data and control lines
1	0.5 kV	0.25 kV
2	1 kV	0.5 kV
3	2 kV	1 kV
4	4 kV	2 kV
X	Special	Special

Performance criterion: B

10.3. Test Procedure

The EUT is put on the table, which is 0.8 meter high above the ground. This reference ground plane shall project beyond the EUT by at least 0.1m on all sides and the minimum distance between EUT and all other conductive structure, except the ground plane beneath the EUT, shall be more than 0.5m.

10.4.1. For input and output AC power ports:
The EUT is connected to the power mains by using a coupling device, which couples the EFT interference signal to AC power lines. Both polarities of the test voltage should be applied during compliance test and the duration of the test is 2 minutes.

10.4.2. For signal lines and control lines ports: No I/O ports. It's unnecessary to test.

10.4.3. For DC output line ports: It's unnecessary to test.

10.4. Test Data

PASS.

Please refer to the following page.

Electrical Fast Transient/Burst Test Results

Standard	☐ IEC 61000-4-4 ☑ EN 61000-4-4		
Applicant	SHENZHEN UNIWINS TECHNOLOGY CO.,LTD		
EUT	Wireless charging power bank	**Temperature**	23.8℃
M/N	UP-9125	**Humidity**	53.9％
Test Mode	TM1-TM2	**Criterion**	B
Test Engineer	David Luo		

TEST RESULT OF TM1

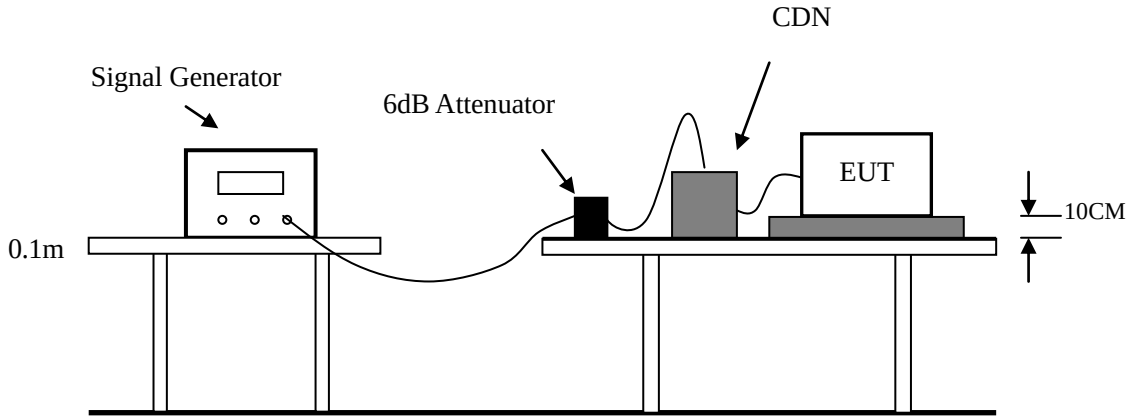
Line	Test Voltage	Polarity	Observation	Result (Pass/Fail)
L	1KV	+/-	TT, TR	Pass
N	1KV	+/-	TT, TR	Pass
L-N	1KV	+/-	TT, TR	Pass

TEST RESULT OF TM2

Line	Test Voltage	Polarity	Result (Pass/Fail)
L	1KV	+/-	Pass
N	1KV	+/-	Pass
L-N	1KV	+/-	Pass

11. RF COMMON MODE

11.1. Test Configuration



11.2. Test Standard

EN 301 489-1 V2.1.1 (2017-02)/ EN 61000-4-6: 2014
Test level 2 at 3 V (r.m.s.), 0.15 MHz ~ 80 MHz,
Modulation type: AM
Modulation depth: 80%
Modulation signal: 1 kHz

Test level

Level	Voltage Level (r.m.s..) (V)
1	1
2	3
3	10
X	Special

Performance criterion: A

11.3. Test Procedure

11.3.1. Let the EUT work in test mode and test it.

11.3.2. The EUT are placed on an insulating support 0.1 m high above a ground reference plane. CDN (coupling and decoupling device) is placed on the ground plane about 0.3 m from EUT. Cables between CDN and EUT are as short as possible, and their height above the ground reference plane shall be between 30 and 50 mm (where possible).

11.3.3. The disturbance signal described below is injected to EUT through CDN.

11.3.4. The EUT operates within its operational mode(s) under intended climatic conditions after power on.

11.3.5. The frequency range is swept from 150 kHz to 80 MHz using 3V signal level, and with the disturbance signal 80% amplitude modulated with a 1kHz sine wave.

11.3.6. The rate of sweep shall not exceed 1.5*10-3 decades/s. Where the frequency is swept incrementally, the step size shall not exceed 1% of the start and thereafter 1% of the preceding frequency value.

11.3.7. Recording the EUT operating situation during compliance testing and decide the EUT immunity criterion.

11.4. Test Data

PASS.

Please refer to the following page.

Injected Currents Susceptibility Test Results

Standard	☐ IEC 61000-4-6 ☑ EN 61000-4-6		
Applicant	SHENZHEN UNIWINS TECHNOLOGY CO.,LTD		
EUT	Wireless charging power bank	**Temperature**	23.8℃
M/N	UP-9125	**Humidity**	53.2%
Test Mode	TM1-TM2	**Criterion**	A
Test Engineer	David Luo		

TEST RESULT OF TM1

Frequency Range (MHz)	Injected Position	Strength (Unmodulated)	Observation	Result (Pass/Fail)
0.15 ~ 80	AC Mains	3V	CT, CR	Pass

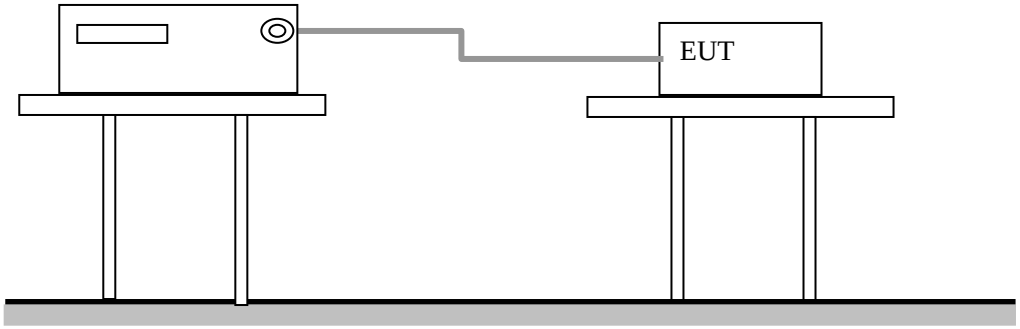
TEST RESULT OF TM2

Frequency Range (MHz)	Injected Position	Strength (Unmodulated)	Result (Pass/Fail)
0.15 ~ 80	AC Mains	3V	Pass

Remark:
1. Modulation Signal:1kHz 80% AM
2. Measurement Equipment :
Simulator: CIT-10 (FRANKONIA)
CDN : ☑CDN-M2 (FRANKONIA)
☐CDN-M3 (FRANKONIA)

12. SURGES, LINE TO LINE AND LINE TO GROUND

12.1. Test Configuration



12.2. Test Standard

ETSI EN 301 489-1 V2.1.1 (2017-02) / EN 61000-4-5: 2014
L-N: Test level 2 at 1 kV
L-PE, N-PE Test Level 3 at 2kV

Test Level

Open Circuit Output Test Voltage ±10%		
Level	On Power Supply Lines	On I/O (Input/Output) Signal data and control lines
1	0.5 kV	0.25 kV
2	1 kV	0.5 kV
3	2 kV	1 kV
4	4 kV	2 kV
X	Special	Special

Performance criterion: B

12.3. Test Procedure

12.3.1. For line to line coupling mode, provide a 0.5 kV 1.2/50us voltage surge (at open-circuit condition).
12.3.2. At least 5 positive and 5 negative (polarity) tests with a maximum 1/min repetition rate are conducted during test.
12.3.3. Different phase angles are done individually.
12.3.4. Record the EUT operating situation during compliance test and decide the EUT immunity criterion for above each test.

12.4. Test Data

PASS.

Please refer to the following page.

Surge Immunity Test Result

Standard	☐ IEC 61000-4-5 ☑ EN 61000-4-5		
Applicant	SHENZHEN UNIWINS TECHNOLOGY CO.,LTD		
EUT	Wireless charging power bank	**Temperature**	23.8℃
M/N	UP-9125	**Humidity**	53.9％
Test Mode	TM1-TM2	**Criterion**	A
Test Engineer	David Luo		

TEST RESULT OF TM1

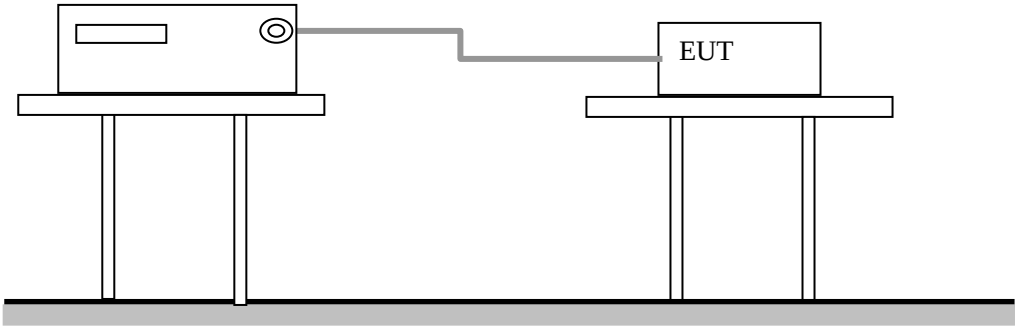
Location	Polarity	Phase Angle	Number of Pulse	Pulse Voltage (KV)	Observation	Result (Pass/Fail)
L-N	+	0^o, 90^o, 180^o, 270^o	5	1.0	TT, TR	Pass
	-	0^o, 90^o, 180^o, 270^o	5	1.0	TT, TR	Pass

TEST RESULT OF TM2

Location	Polarity	Phase Angle	Number of Pulse	Pulse Voltage (KV)	Result (Pass/Fail)
L-N	+	0^o, 90^o, 180^o, 270^o	5	1.0	Pass
	-	0^o, 90^o, 180^o, 270^o	5	1.0	Pass

13. VOLTAGE DIPS/INTERRUPTIONS IMMUNITY TEST

13.1. Test Configuration



Ground Plane

13.2. Test Standard

ETSI EN 301 489-1 V2.1.1 (2017-02)/ EN 61000-4-11: 2004
Test levels and Performance Criterion

Test Level

Voltage Reduction %UT	Voltage dips %UT	Duration (in period)
100	0	0.5
100	0	1
30	70	5
Voltage Reduction %UT	Voltage Interruptions %UT	Duration (in period)
100	0	250

Performance criterion: B&C

13.3. Test Procedure

13.3.1. The interruption is introduced at selected phase angles with specified duration.

13.3.2. Record any degradation of performance.

13.4. Test Data

PASS.

Please refer to the following page.

Voltage Dips And Interruptions Test Results

Standard	☐ IEC 61000-4-11 ☑ EN 61000-4-11		
Applicant	SHENZHEN UNIWINS TECHNOLOGY CO.,LTD		
EUT	Wireless charging power bank	**Temperature**	23.8℃
M/N	UP-9125	**Humidity**	53.9%
Test Mode	TM1-TM2	**Criterion**	A
Test Engineer	David Luo		

TEST RESULT OF TM1

Test Level % U_T	Voltage Dips & Short Interruptions % U_T	Duration (in periods)	Observation	Result (Pass/Fail)
0	100	0.5P	TT, TR	Pass
0	100	1P	TT, TR	Pass
70	30	25P	TT, TR	Pass
0	100	250P	TT, TR	Pass

TEST RESULT OF TM2

Test Level % U_T	Voltage Dips & Short Interruptions % U_T	Duration (in periods)	Result (Pass/Fail)
0	100	0.5P	Pass
0	100	1P	Pass
70	30	25P	Pass
0	100	250P	Pass

14. LIST OF MEASURING EQUIPMENT

LINE CONDUCTED EMISSION

Item	Equipment	Manufacturer	Model No.	Serial No.	Cal Date	Due Date
1	EMI Test Software	AUDIX	E3	/	2018-06-16	2019-06-15
2	EMI Test Receiver	R&S	ESPI	101840	2018-06-16	2019-06-15
3	Artificial Mains	R&S	ENV216	101288	2018-06-16	2019-06-15
4	10dB Attenuator	SCHWARZBECK	MTS-IMP-136	261115-001-0032	2018-06-16	2019-06-15

RADIATED DISTURBANCE

Item	Equipment	Manufacturer	Model No.	Serial No.	Cal Date	Due Date
1	EMI Test Software	AUDIX	E3	/	2018-06-16	2019-06-15
2	3m Semi Anechoic Chamber	SIDT FRANKONIA	SAC-3M	03CH03-HY	2018-06-16	2019-06-15
3	Positioning Controller	MF	MF-7082	/	2018-06-16	2019-06-15
4	By-log Antenna	SCHWARZBECK	VULB9163	9163-470	2018-07-26	2019-07-25
5	Horn Antenna	SCHWARZBECK	BBHA 9120D	9120D-1925	2018-07-02	2019-07-01
6	EMI Test Receiver	R&S	ESR 7	101181	2018-06-16	2019-06-15
7	RS SPECTRUM ANALYZER	R&S	FSP40	100503	2018-11-15	2019-11-14
8	AMPLIFIER	QuieTek	QTK	CHM/0809065	2018-11-15	2019-11-14
9	RF Cable-R03m	Jye Bao	RG142	CB021	2018-06-16	2019-06-15
10	RF Cable-HIGH	SUHNER	SUCOFLEX 106	03CH03-HY	2018-06-16	2019-06-15

VOLTAGE FLUCTUATION AND FLICKER/HARMONIC CURRENT EMISSIONS

Item	Equipment	Manufacturer	Model No.	Serial No.	Cal Date	Due Date
1	Power Analyzer Test System	Voltech	PM6000	200006700523	2018-06-16	2019-06-15

RF ELECTROMAGNETIC FIELD

Item	Equipment	Manufacturer	Model No.	Serial No.	Cal Date	Due Date
1	RS Test Software	Tonscend	/	/	2018-06-16	2019-06-15
2	ESG Vector Signal Generator	Agilent	E4438C	MY42081396	2018-11-15	2019-11-14
3	3m Semi Anechoic Chamber	SIDT FRANKONIA	SAC-3M	03CH03-HY	2018-06-16	2019-06-15
4	RF POWER AMPLIFIER	OPHIR	5225R	1052	NCR	NCR
5	RF POWER AMPLIFIER	OPHIR	5273F	1019	NCR	NCR
6	Stacked Broadband Log Periodic Antenna	SCHWARZBECK	STLP 9128	9128ES-145	NCR	NCR
7	Stacked Mikrowellen Log.-Per Antenna	SCHWARZBECK	STLP 9149	9149-484	NCR	NCR
8	Electric field probe	Narda S.TS./PMM	EP601	611WX80208	2019-03-25	2020-03-24

ELECTROSTATIC DISCHARGE

Item	Equipment	Manufacturer	Model No.	Serial No.	Cal Date	Due Date
1	ESD Simulator	SCHLODER	SESD 230	604035	2018-07-02	2019-07-01

ELECTRICAL FAST TRANSIENT IMMUNITY

Item	Equipment	Manufacturer	Model No.	Serial No.	Cal Date	Due Date
1	Immunity Simulative Generator	EM TEST	UCS500 M4	0101-34	2018-11-15	2019-11-14
2	CAPACITANCE COUPLING CLAMP	3CTEST	EFTC	EC0441098	2018-06-16	2019-06-15

RF COMMON MODE

Item	Equipment	Manufacturer	Model No.	Serial No.	Cal Date	Due Date
1	Simulator	FRANKONIA	CIT-10/75	A126A1195	2018-06-16	2019-06-15
2	CDN	FRANKONIA	CDN-M2+M3	A2210177	2018-06-16	2019-06-15
3	6dB Attenuator	FRANKONIA	DAM25W	1172040	2018-06-16	2019-06-15

SURGES, LINE TO LINE AND LINE TO GROUND

Item	Equipment	Manufacturer	Model No.	Serial No.	Cal Date	Due Date
1	Immunity Simulative Generator	EM TEST	UCS500 M4	0101-34	2018-11-15	2019-11-14

VOLTAGE DIPS/INTERRUPTIONS IMMUNITY TEST

Item	Equipment	Manufacturer	Model No.	Serial No.	Cal Date	Due Date
1	Voltage dips and up generator	3CTEST	VDG-1105G	EC0171014	2018-06-16	2019-06-15

RADIATED ELECTROMAGNETIC DISTURBANCES

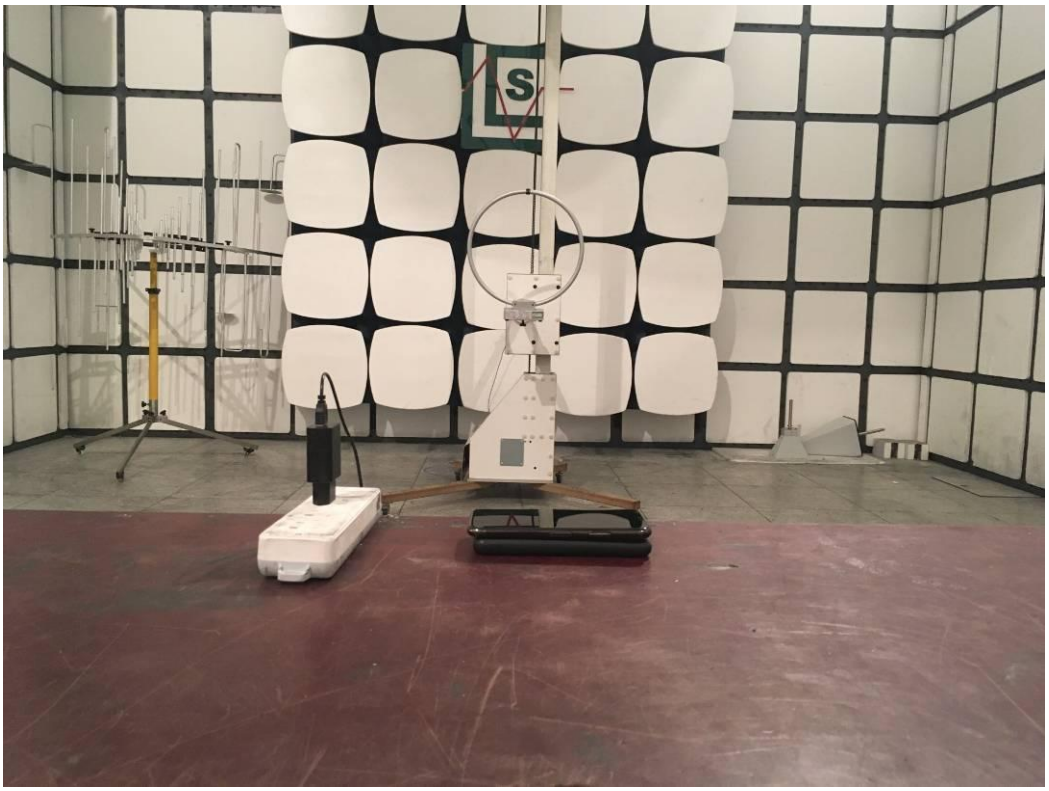
Item	Equipment	Manufacturer	Model No.	Serial No.	Cal Date	Due Date
1	Large Loop Antenna	LAPLACE	LLA-2	9161	2018-06-16	2019-06-15
2	10dB Attenuator	Mini-circuits	HAT-10	15542	2018-06-16	2019-06-15
3	EMI Test Software	AUDIX	E3	/	2018-06-16	2019-06-15
4	EMI Test Receiver	R&S	ESPI	101840	2018-06-16	2019-06-15

Note: All equipment is calibrated through GUANGZHOU LISAI CALIBRATION AND TEST CO.,LTD.

15. TEST SETUP PHOTOGRAPHS

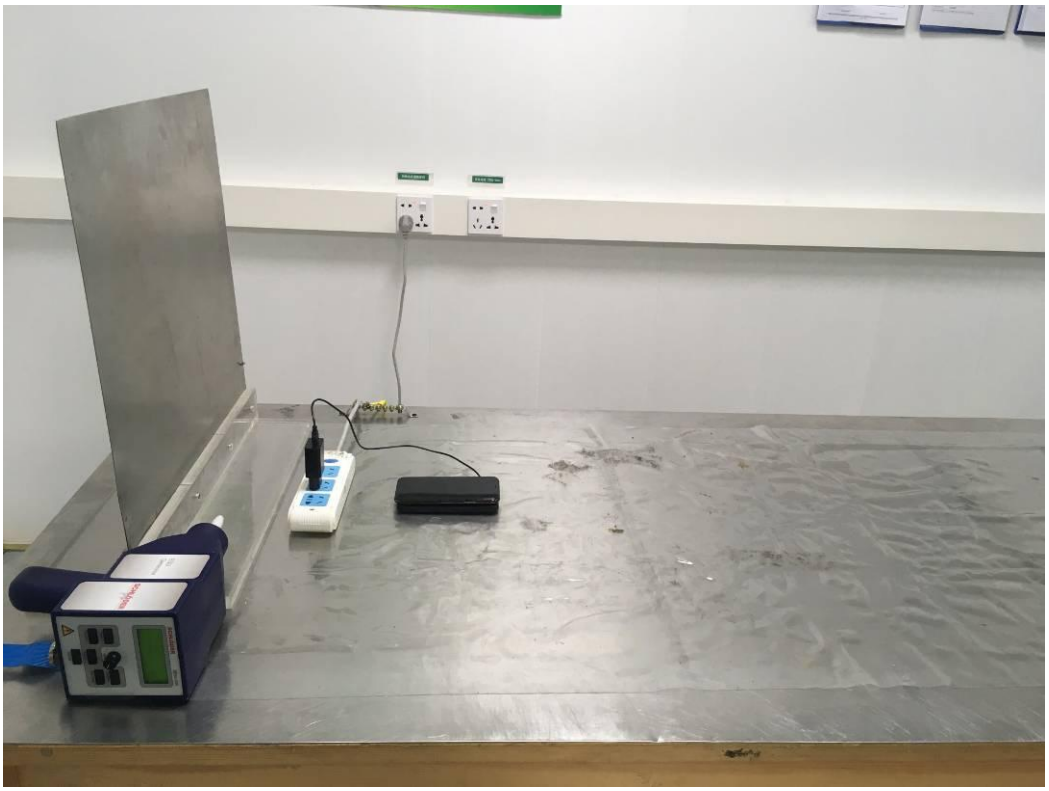
Conducted Emission

Radiated Emission below 30MHz

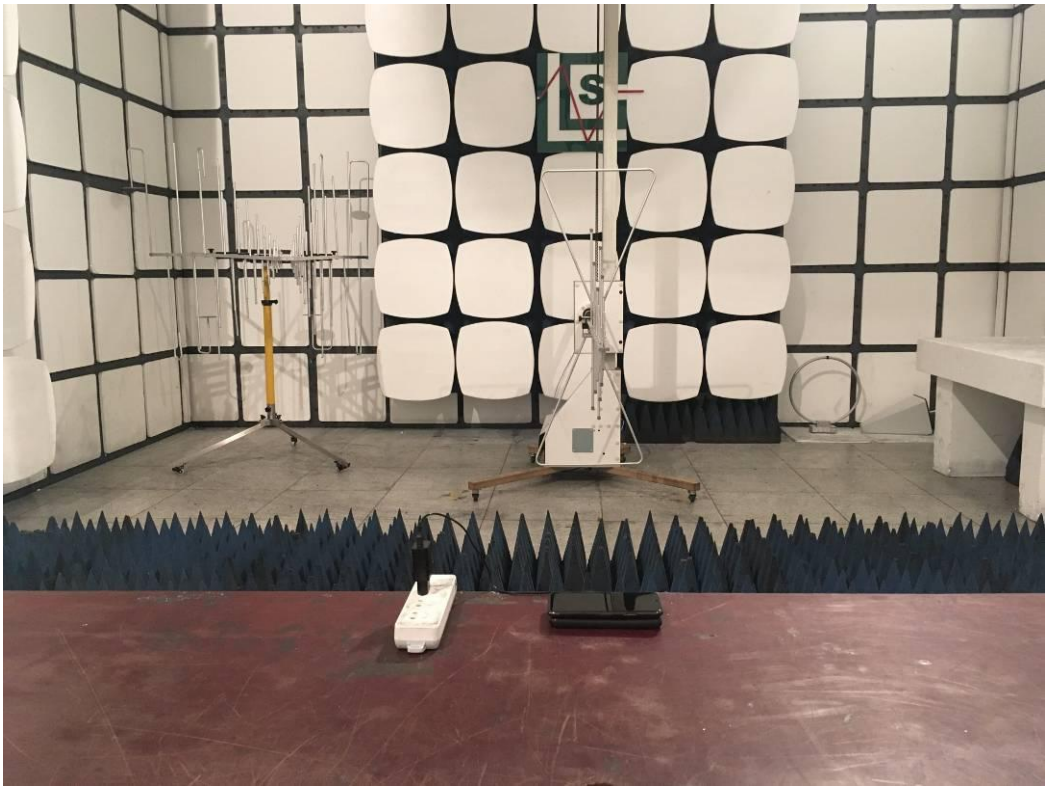


Radiated Emission Above 1GHz

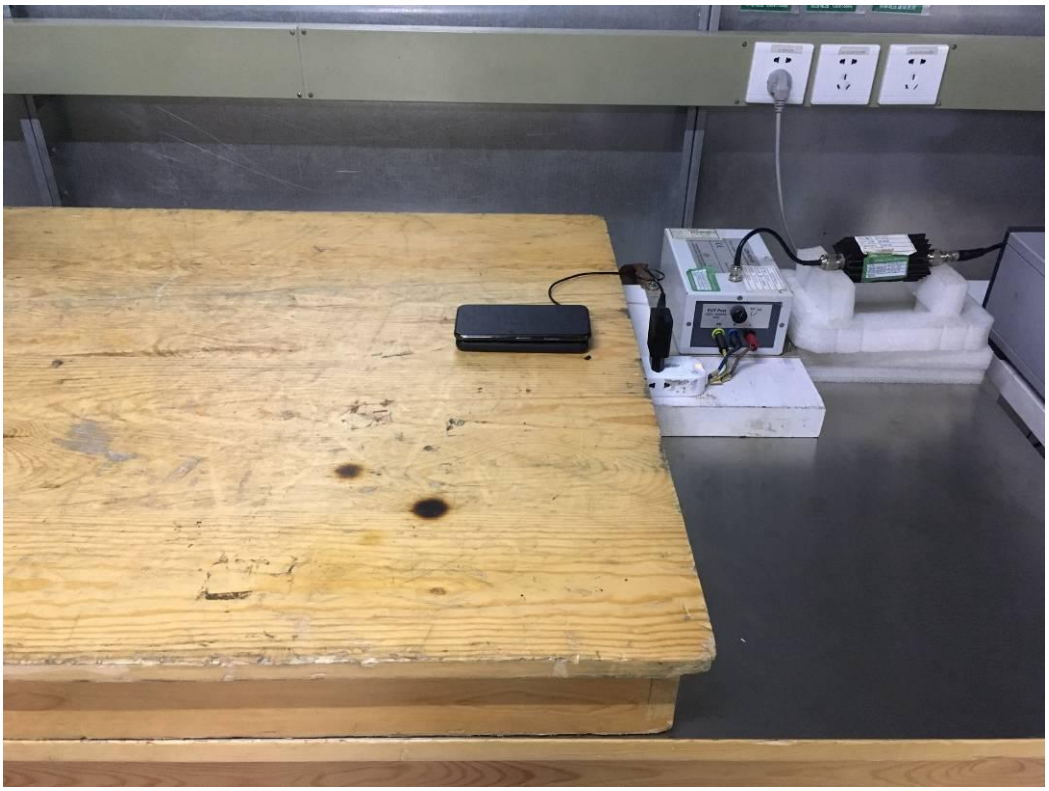
Flicker



ESD



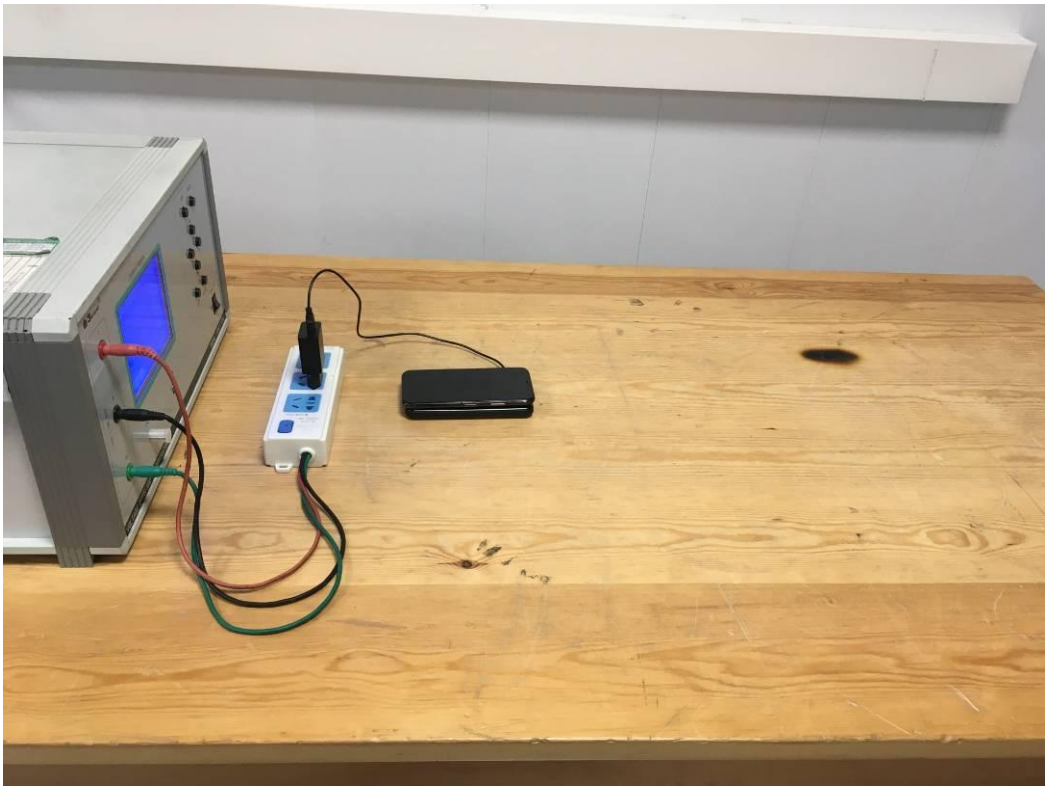
RS



CS

EFT

Surge



Dips

16. EUT EXTERIOR AND INTERIOR PHOTOGRAPHS

Fig. 1

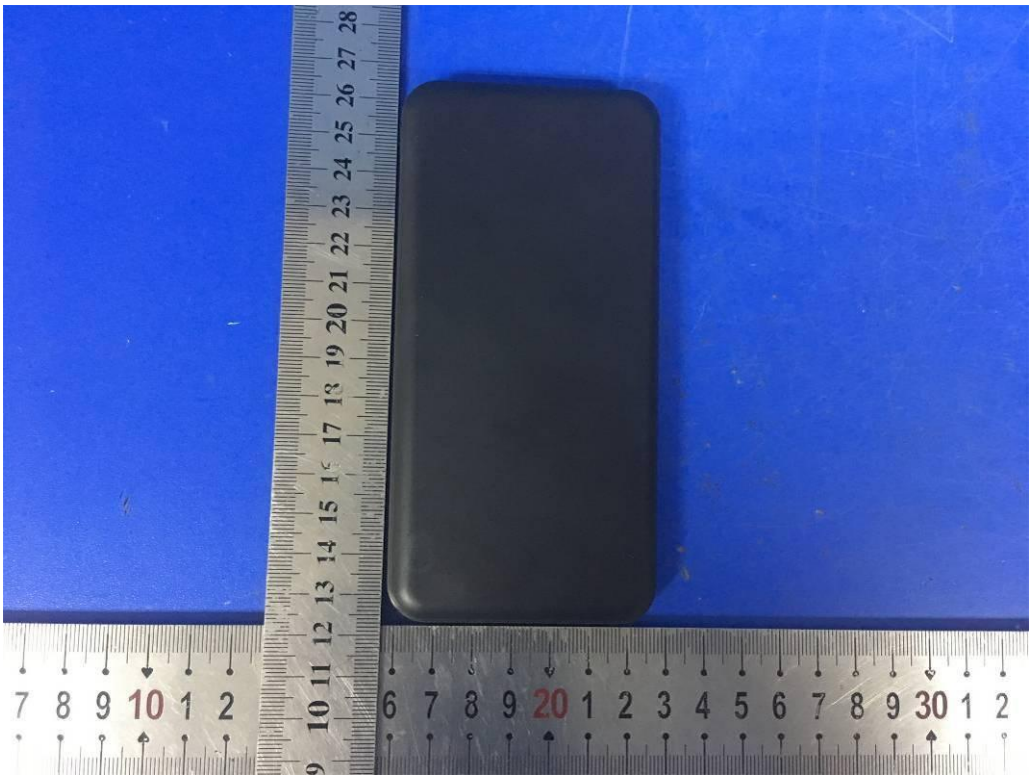


Fig. 2

Fig. 3

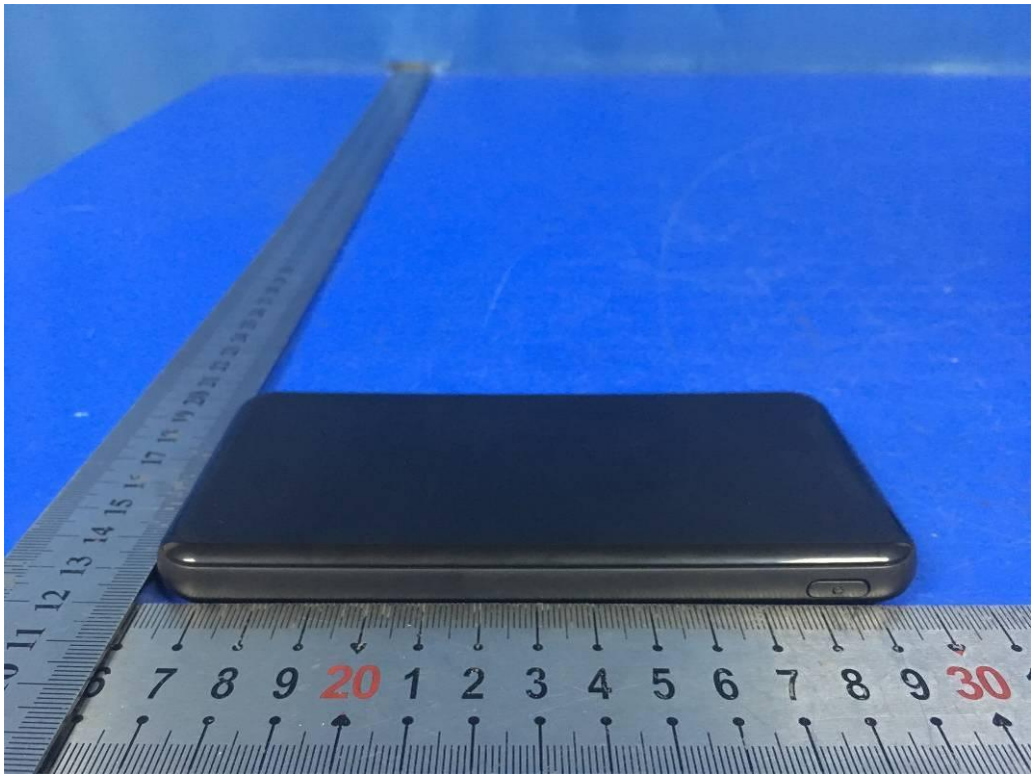


Fig. 4

Fig. 5

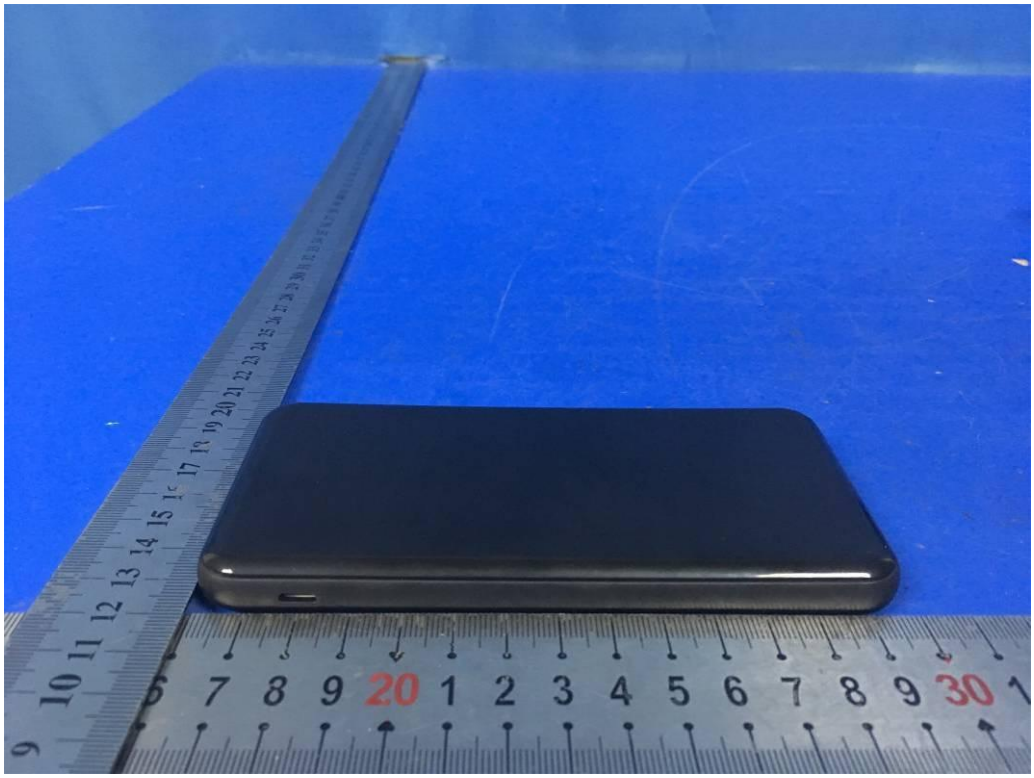


Fig. 6

Fig. 7

Fig. 8

Fig. 9

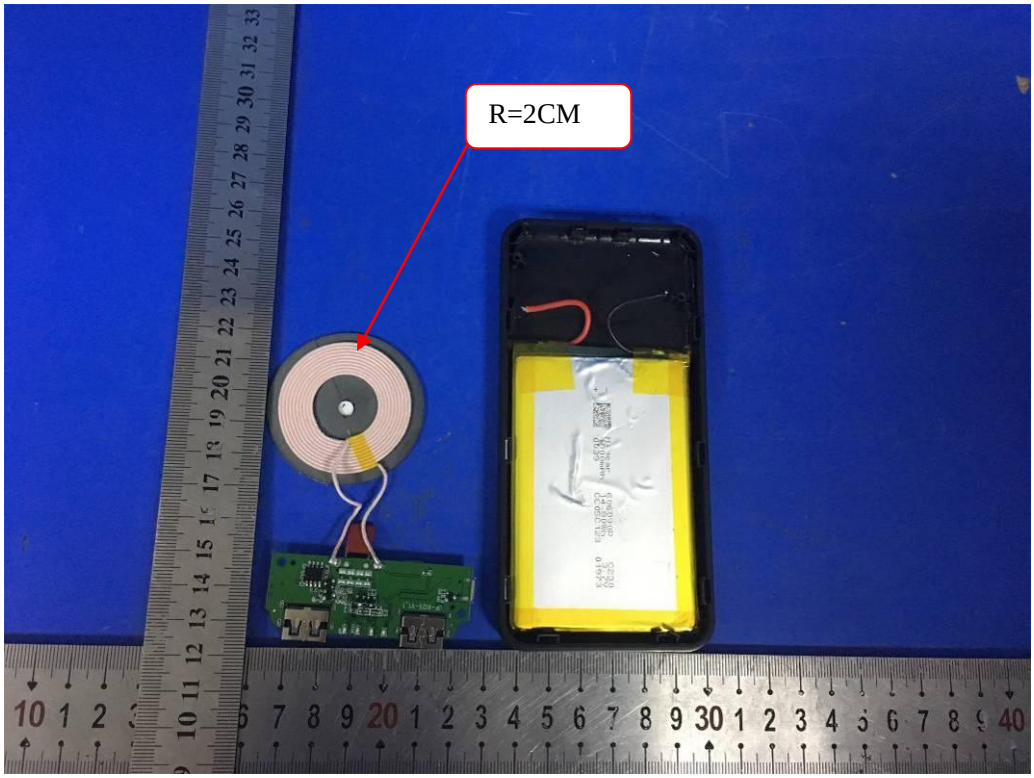


Fig. 10

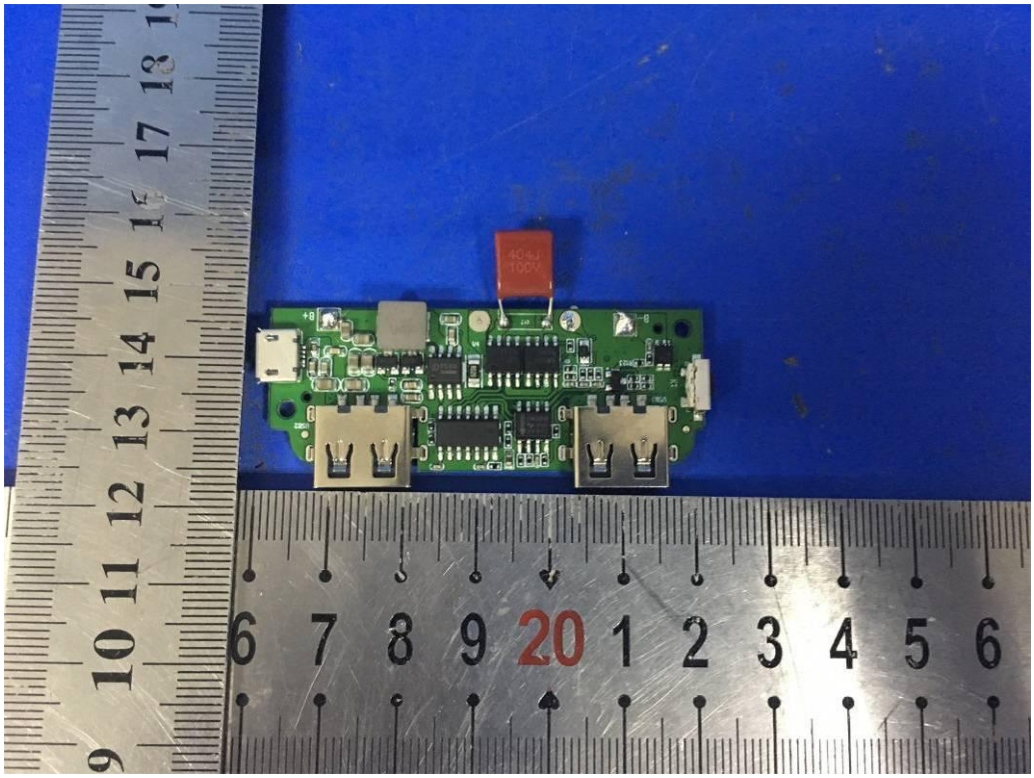


Fig. 11

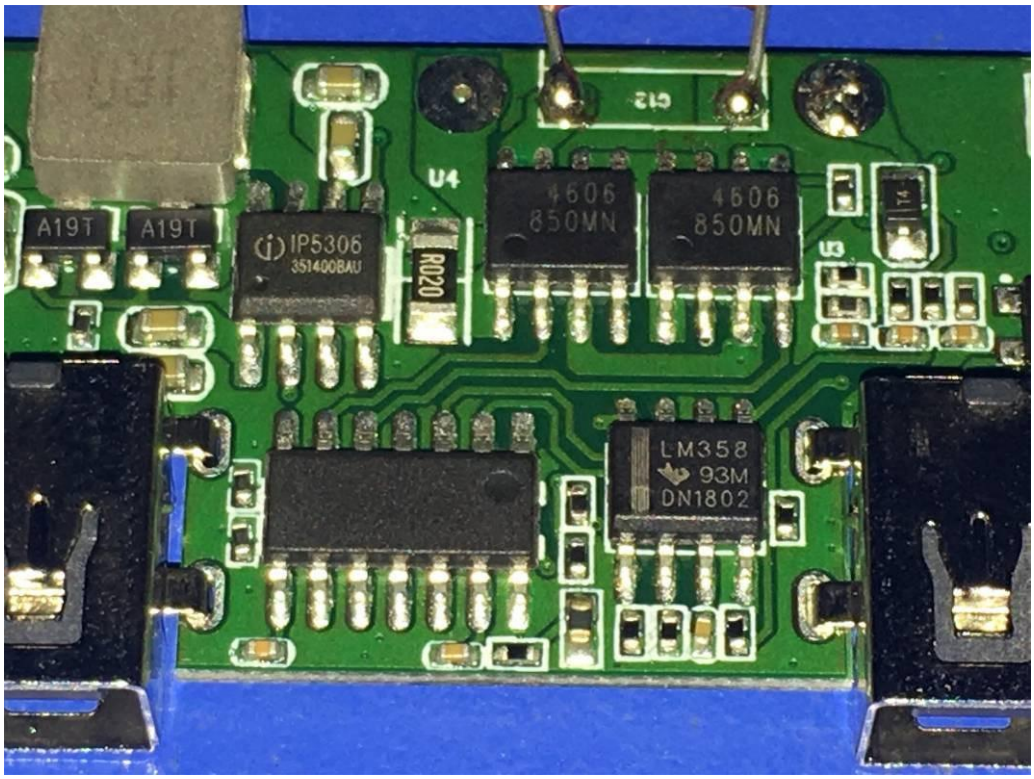


Fig. 12

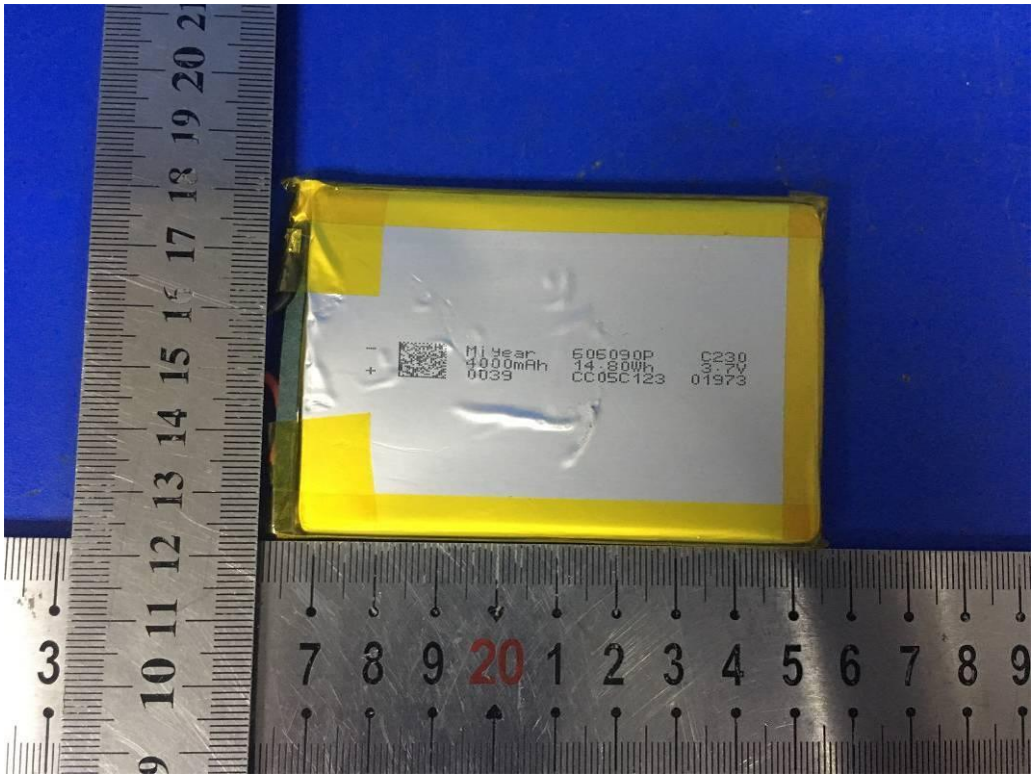


Fig. 13

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