

EMC TEST REPORT

For

Shenzhen U-Angel Technology Co., Ltd.

Power Bank

Test Model:

Additional model: P322.14

Prepared for :
Address :

Prepared by : Shenzhen SIT Testing Technology Co., Ltd.
Address : Room 401, Building A2, The 2nd Industrial Zone of Zhu'ao,
Gushu, Xixiang, Bao'an District, Shenzhen, Guangdong,
China
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Date of receipt of test sample : September 10, 2019
Number of tested samples : 1
Serial number : Prototype
Date of Test : September 10, 2019~ September 17, 2019
Date of Report : September 17, 2019



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. : SIT190906230801ER-1

Date Of Issue : September 17, 2019

Testing Laboratory Name : Shenzhen SIT Testing Technology Co., Ltd.

Address : Room 401, Building A2, The 2nd Industrial Zone of Zhu'ao, Gushu, Xixiang, 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 V2.2.0 (2017-03)
 Final draft ETSI EN 301 489-3 V2.1.1 (2017-03)

Test Report Form No. : EMC-1.0

TRF Originator : Shenzhen SIT Testing Technology Co., Ltd.

Master TRF : Dated 2017-02

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Test Item Description. : Power Bank

Trade Mark :

Test Model : P322.14

Ratings : Micro Input: 5V $\overline{=}$ 2A, 9V $\overline{=}$ 2A; Type-C Input: 5V $\overline{=}$ 2A, 9V $\overline{=}$ 2A;
 Type-C Output: 5V $\overline{=}$ 3A, 9V $\overline{=}$ 2A, 12V $\overline{=}$ 1.5A;
 Type-A Output: 5V $\overline{=}$ 3A, 9V $\overline{=}$ 2A, 12V $\overline{=}$ 1.5A;
 WIRELESS Output: 10W/7.5W/5W.

Result : Positive

Compiled by:

Debe Yu

Project Engineer

Supervised by:

Jessica

Project Supervisor

Approved by:

Kevin San
 Technical Director

EMC -- TEST REPORT

Test Report No. :

September 17, 2019
Date of issue

| | |
|-----------------------------|--------------|
| Test Model | : H100DW |
| EUT..... | : 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 |
| 00 | September 16, 2019 | Initial Issue | Kevin Sun |
| | | | |
| | | | |

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1. GENERAL INFORMATION

1.1. Product Description for Equipment Under Test (EUT)

| | | |
|---------------------|---|---|
| EUT | : | Power Bank |
| Test Model | : | H100DW |
| Power Supply | : | Micro Input:5V \pm 2A, 9V \pm 2A; Type-C Input: 5V \pm 2A, 9V \pm 2A; Type-C Output: 5V \pm 3A, 9V \pm 2A, 12V \pm 1.5A; Type-A Output: 5V \pm 3A, 9V \pm 2A, 12V \pm 1.5A; WIRELESS Output:10W/7.5W/5W. |
| Number of Channels | : | 1 |
| Modulation Type | : | ASK |
| Antenna Description | : | Ferrite Antenna, 2 dBi(Max.) |

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 | 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 V2.2.0 (2017-03) and 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 V2.2.0 (2017-03) and Final draft ETSI EN 301 489-3 V2.1.1 (2017-03).

1.5. Description of Test Facility

Not mentioned for the time being

1.6. Support equipment List

| Manufacturer | Description | Model | Serial Number | Certificate |
|--------------|-------------|-------|---------------|-------------|
| -- | -- | -- | -- | -- |

1.7. External I/O

| I/O Port Description | Quantity | Cable |
|----------------------|----------|-------|
| USB port | 1 | -- |
| | | |

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

TM1: Normal operation

TM2: Idle

***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

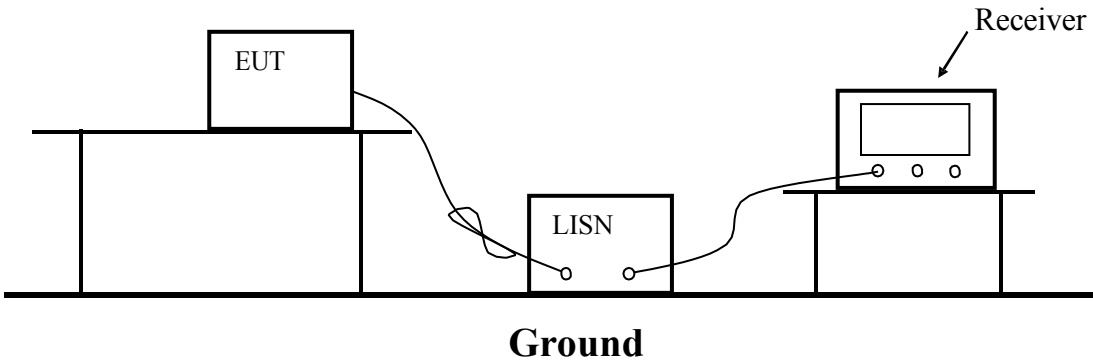
ETSI EN 301 489-1 V2.2.0 (2017-03)/EN 55032 Class B

Limits for Power 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 DC 5V Charging power from adapter which received 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 30 MHz.
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.

4. RADIATED DISTURBANCE

4.1. Radiated Emission Limit

ETSI EN 301 489-1 V2.2.0 (2017-03)/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 |

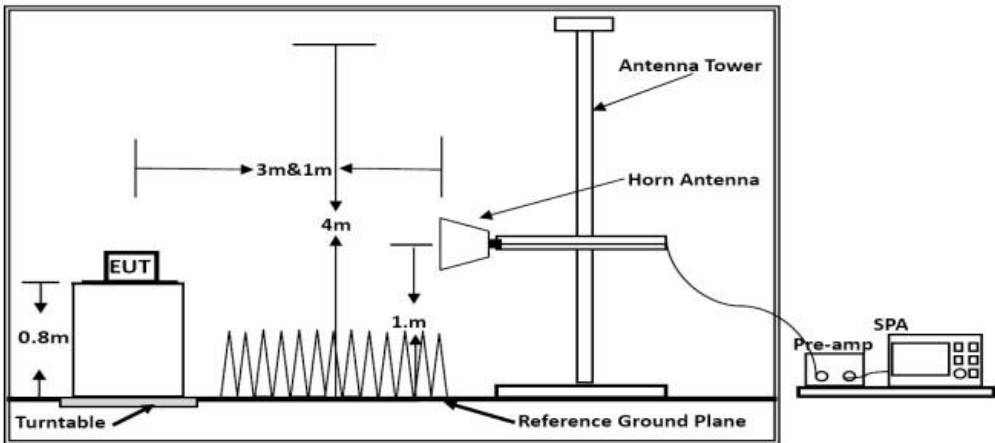
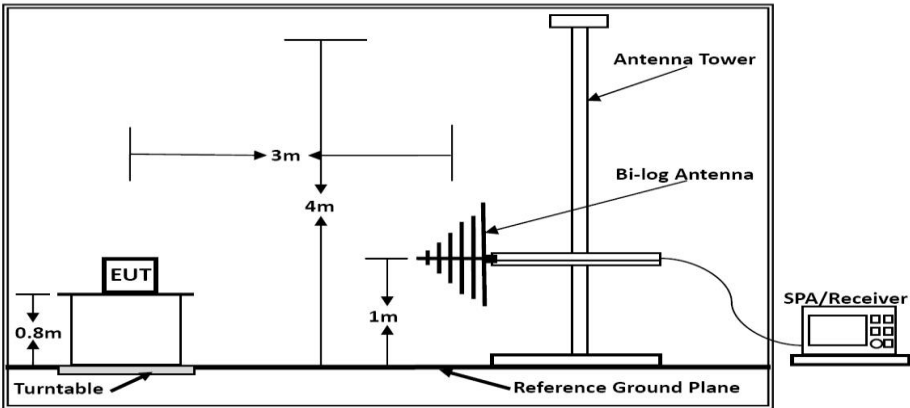
Note: (1) The smaller limit shall apply at the combination point between two frequency bands. (2) Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the EUT.

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



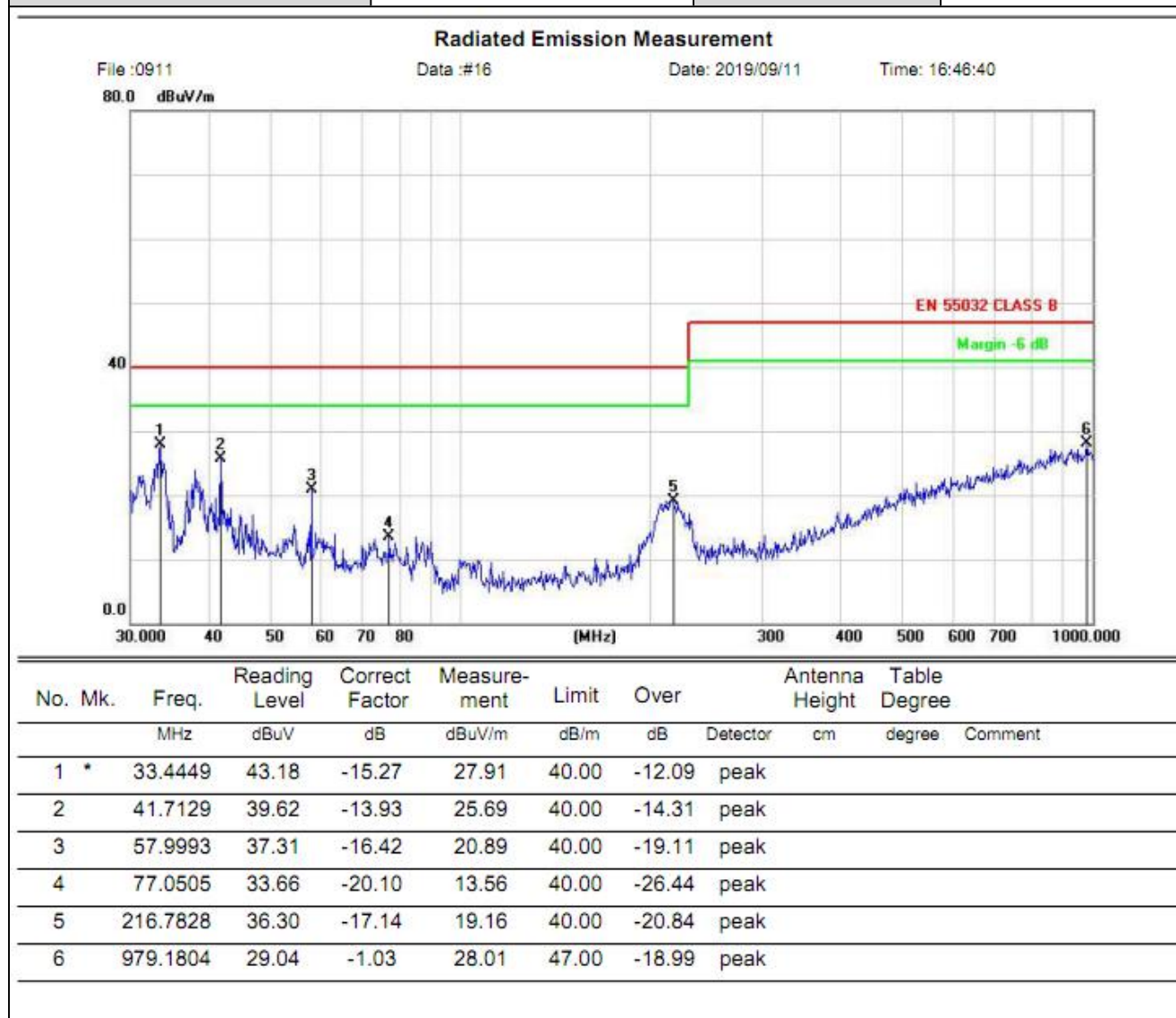
4.3. Test Procedure

Please refer to ETSI EN 301 489-1 Clause 8.2.3 and EN 55032 Annex A.2 for the measurement methods.

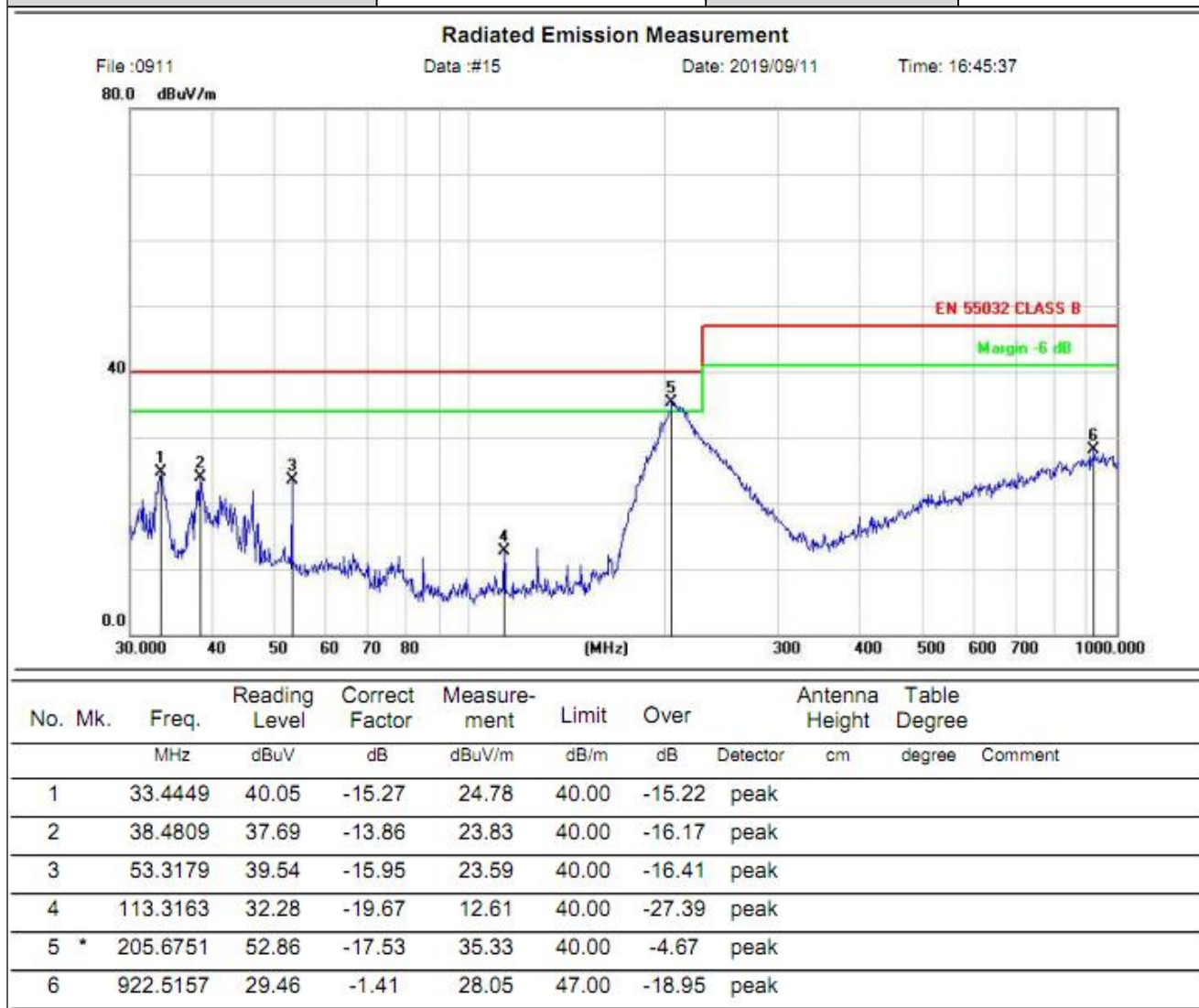
4.4. Test Data

The worst test mode of the EUT was TM1, and its test data was showed as the follow:

| | | | |
|--------------------------|---------------|-------------------|--------------------|
| Model No. | H100DW | Test Mode | 230V/50Hz |
| Environmental Conditions | 24°C,44.2% RH | Detector Function | Quasi-peak |
| Pol | Vertical | Distance | 3m |
| Test Engineer | DebeYu | Test date: | September 11, 2019 |



| | | | |
|--------------------------|---------------|-------------------|--------------------|
| Model No. | H100DW | Test Mode | 230V/50Hz |
| Environmental Conditions | 24°C,44.2% RH | Detector Function | Quasi-peak |
| Pol | Horizontal | Distance | 3m |
| Test Engineer | DebeYu | Test date: | September 11, 2019 |

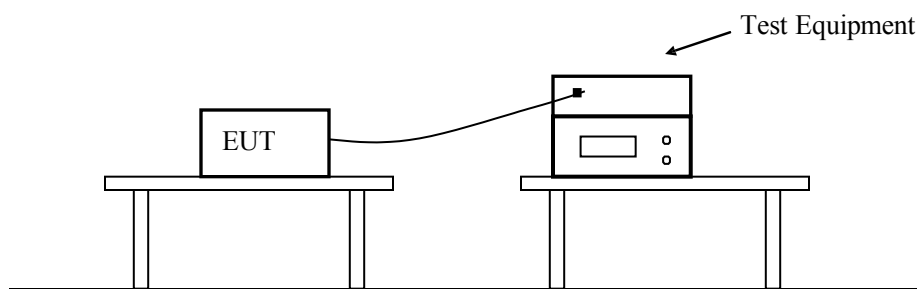


| | |
|-----------------------------------|-----------------------------|
| Test Mode: TM1(above 1GHz) | Tested by: DebeYu |
| Test voltage: AC 230V | Test Distance: 3m |
| Detector Function: Peak+AV | Test Results: Passed |

| Frequency MHz | Emission Level dB μ V/m | | Limits dB μ V/m | | Margin dB μ V/m | | Polarization |
|------------------|--------------------------------|-------|------------------------|----|------------------------|--------|--------------|
| | Peak | AV | Peak | AV | Peak | AV | |
| 1352.37 | 46.57 | 34.69 | 70 | 50 | -23.43 | -15.31 | H |
| 1879.53 | 42.69 | 33.67 | 70 | 50 | -27.31 | -16.33 | H |
| 2191.53 | 45.64 | 35.41 | 70 | 50 | -24.36 | -14.59 | H |
| 3291.78 | 48.58 | 34.95 | 70 | 54 | -21.42 | -19.05 | H |
| 4330.17 | 53.61 | 38.42 | 70 | 54 | -16.39 | -15.58 | H |
| 5888.35 | 52.69 | 36.74 | 70 | 54 | -17.31 | -17.26 | H |
| 1351.38 | 55.42 | 36.02 | 70 | 50 | -14.58 | -13.98 | V |
| 1878.53 | 53.67 | 34.73 | 70 | 50 | -16.33 | -15.27 | V |
| 2190.06 | 58.59 | 35.94 | 70 | 50 | -11.41 | -14.06 | V |
| 3295.04 | 57.94 | 36.13 | 70 | 54 | -12.06 | -17.87 | V |
| 4332.73 | 52.47 | 35.35 | 70 | 54 | -17.53 | -18.65 | V |
| 5882.40 | 53.74 | 35.68 | 70 | 54 | -16.26 | -18.32 | V |

5. HARMONIC CURRENT EMISSIONS

5.1. Test Configuration



5.2. Test Standard

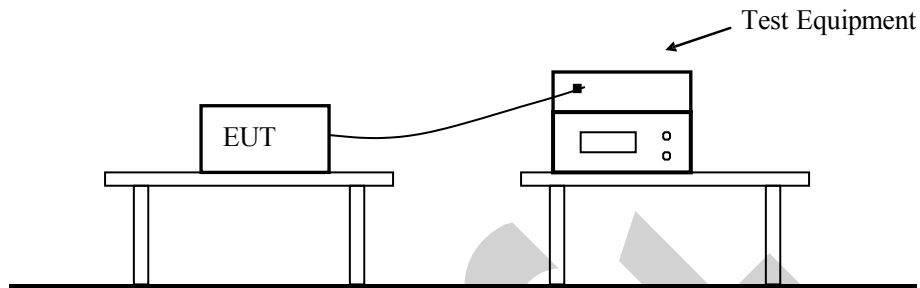
According to ETSI EN 301 489-1 V2.2.0 (2017-03)& EN 61000-3-2: 2014

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 ETSI EN 301 489-1 V2.2.0 (2017-03)& EN 61000-3-3: 2013

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)

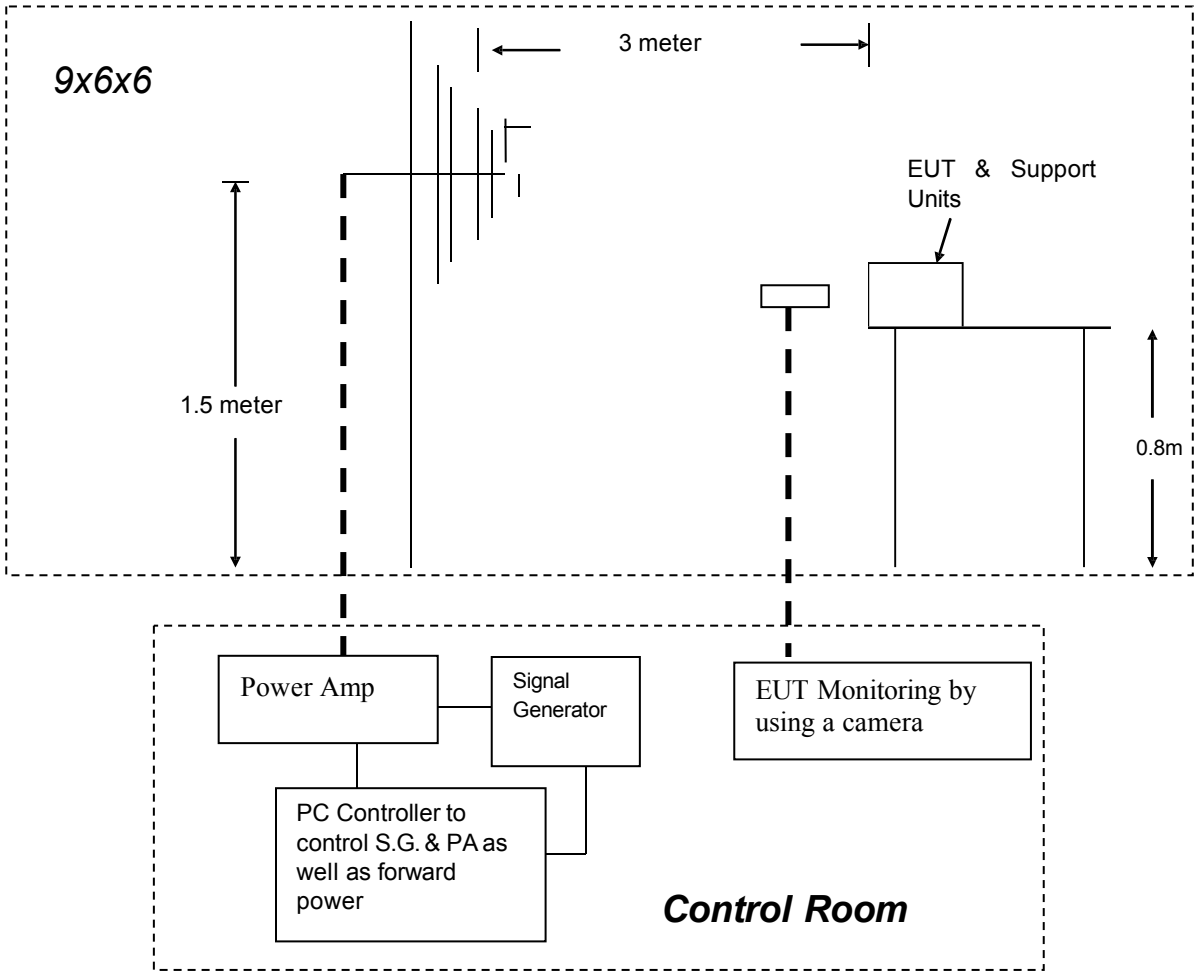
For equipment of type II or type III that requires a communication link that is maintained during the test, this shall be verified by appropriate means supplied by the manufacturer during each individual exposure in the test sequence. Where the EUT is a transceiver, under no circumstances shall the transmitter 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 EN 301 489-1, Final draft ETSI EN 301 489-3(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. |

8.5. Test Result

| RF ELECTROMAGNETIC FIELD | | | |
|--------------------------|---|-------------|--------------------|
| Standard | <input type="checkbox"/> IEC 61000-4-3 <input checked="" type="checkbox"/> EN 61000-4-3 | | |
| Applicant | Shenzhen U-Angel Technology Co., Ltd. | | |
| EUT | Power Bank | Temperature | 24℃ |
| M/N | H100DW | Humidity | 44.2% |
| Test Mode | TM1-TM2 | Criterion | B |
| Test Engineer | DebeYu | Test Date | September 11, 2019 |

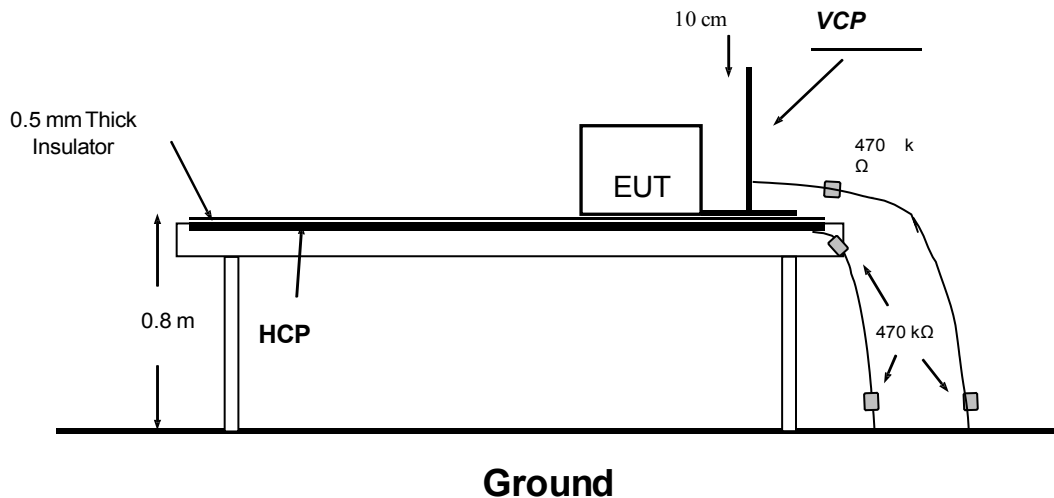
| EUT Working Mode | Antenna Polarity | Frequency (MHz) | Field Strength (V/m) | Observation | Position | Conclusion |
|------------------|------------------|-----------------|----------------------|-------------|--------------------------|------------|
| Operating Mode | Vertical | 80-6000 | 3 | See Note | Front, Right, Left, Back | Pass |
| | Horizontal | 80-6000 | 3 | See Note | Front, Right, Left, Back | Pass |
| Idle | Vertical | 80-6000 | 3 | See Note | Front, Right, Left, Back | Pass |
| | Horizontal | 80-6000 | 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 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 V2.2.0 (2017-03)/ 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 9.2.1. 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.

Electrostatic Discharge Test Results

| | | | |
|----------------------|---|--------------------|--------------------|
| Standard | <input type="checkbox"/> IEC 61000-4-2 <input checked="" type="checkbox"/> EN 61000-4-2 | | |
| Applicant | Shenzhen U-Angel Technology Co., Ltd. | | |
| EUT | Power Bank | Temperature | 23℃ |
| M/N | H100DW | Humidity | 44% |
| Criterion | B | Pressure | 1021mbar |
| Test Mode | TM1-TM2 | Test Date | September 11, 2019 |
| Test Engineer | DebeYu | | |

TEST RESULT OF TM1-TM2

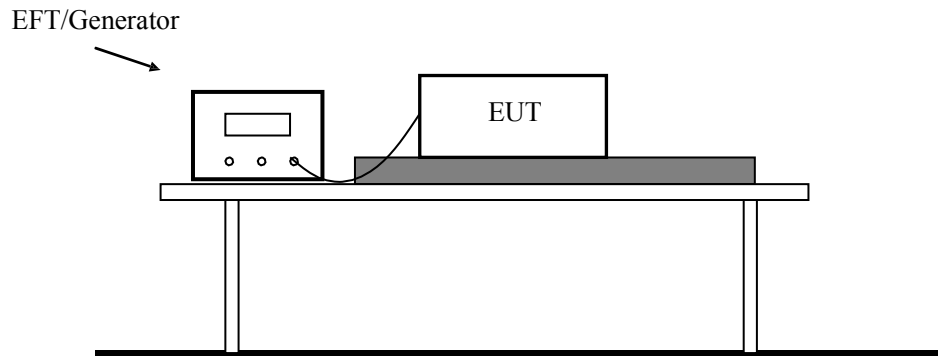
| Test Voltage | Coupling | Observation | Result (Pass/Fail) |
|------------------|------------------------|-------------|--------------------|
| ±2KV, ±4kV | Contact Discharge | TT, TR | Pass |
| ±2KV, ±4kV, ±8kV | Air Discharge | TT, TR | Pass |
| ±2KV, ±4kV | Indirect Discharge HCP | TT, TR | Pass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

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

ETSI EN 301 489-1 V2.1.1/ EN61000-4-4: 2012
Test level 2 at 1 kV

Test level

| Level | Open Circuit Output Test Voltage $\pm 10\%$ | |
|-------|---|---|
| | 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.

Electrical Fast Transient/Burst Test Results

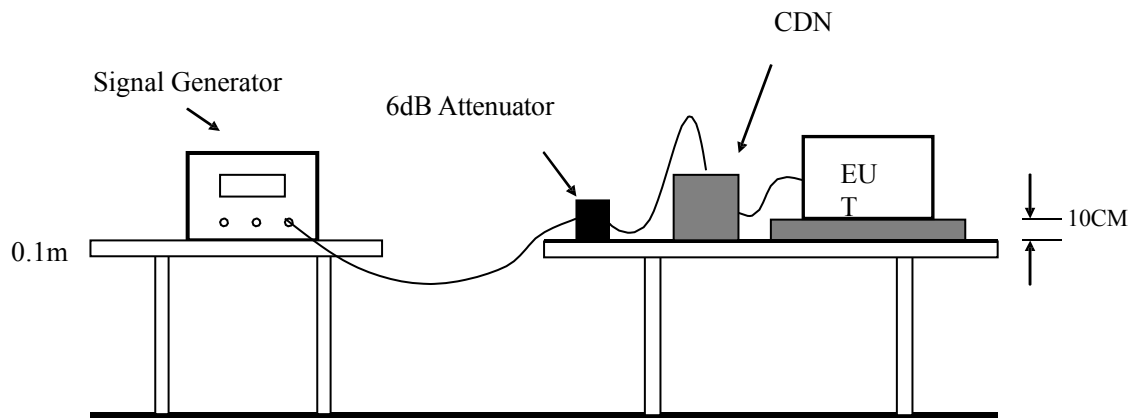
| | | | |
|----------------------|---|--------------------|--------------------|
| Standard | <input type="checkbox"/> IEC 61000-4-4 <input checked="" type="checkbox"/> EN 61000-4-4 | | |
| Applicant | Shenzhen U-Angel Technology Co., Ltd. | | |
| EUT | Power Bank | Temperature | 25℃ |
| M/N | H100DW | Humidity | 45% |
| Test Mode | TM1-TM2 | Criterion | B |
| Test Engineer | DebeYu | Test Date | September 11, 2019 |

TEST RESULT OF TM1-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

ETSI EN 301 489-1 V2.1.1/ 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.

Injected Currents Susceptibility Test Results

| | | | |
|----------------------|---|--------------------|--------------------|
| Standard | <input type="checkbox"/> IEC 61000-4-6 <input checked="" type="checkbox"/> EN 61000-4-6 | | |
| Applicant | Shenzhen U-Angel Technology Co., Ltd. | | |
| EUT | Power Bank | Temperature | 24.2℃ |
| M/N | H100DW | Humidity | 44.7% |
| Test Mode | TM2-TM2 | Criterion | A |
| Test Engineer | DebeYu | Test Date | September 11, 2019 |

TEST RESULT OF TM1-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

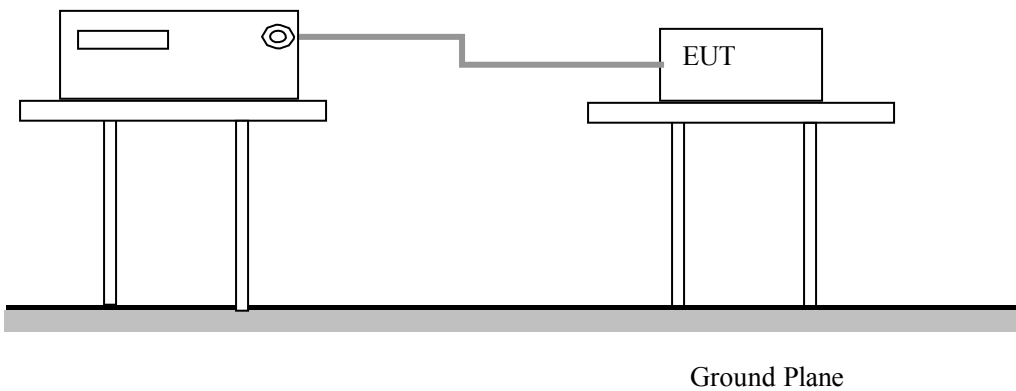
2. Measurement Equipment :

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 / 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 $\pm 10\%$ | | |
|---|-----------------------|---|
| 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.

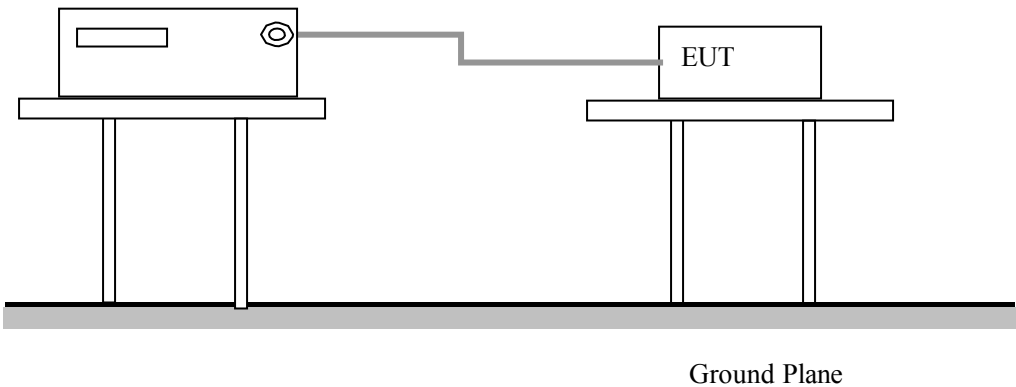
12.4. Test Data

| Surge Immunity Test Result | | | |
|----------------------------|---|-------------|--------------------|
| Standard | <input type="checkbox"/> IEC 61000-4-5 <input checked="" type="checkbox"/> EN 61000-4-5 | | |
| Applicant | Shenzhen U-Angel Technology Co., Ltd. | | |
| EUT | Power Bank | Temperature | 25℃ |
| M/N | H100DW | Humidity | 45% |
| Test Mode | TM1-TM2 | Criterion | A |
| Test Engineer | DebeYu | Test Date | September 11, 2019 |

| TEST RESULT OF TM1-TM2 | | | | | |
|------------------------|----------|---------------------|-----------------|--------------------|--------------------|
| Location | Polarity | Phase Angle | Number of Pulse | Pulse Voltage (KV) | Result (Pass/Fail) |
| L-N | + | 0°, 90°, 180°, 270° | 5 | 1.0 | Pass |
| | - | 0°, 90°, 180°, 270° | 5 | 1.0 | Pass |
| | | | | | |
| | | | | | |

13. VOLTAGE DIPS/INTERRUPTIONS IMMUNITY TEST

13.1. Test Configuration



13.2. Test Standard

ETSI EN 301 489-1 V2.1.1/ 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

| Voltage Dips And Interruptions Test Results | | | |
|---|---|--------------------|--------------------|
| Standard | <input type="checkbox"/> IEC 61000-4-11 <input checked="" type="checkbox"/> EN 61000-4-11 | | |
| Applicant | Shenzhen U-Angel Technology Co., Ltd. | | |
| EUT | Power Bank | Temperature | 25℃ |
| M/N | HI00DW | Humidity | 45 % |
| Test Mode | TM1-TM2 | Criterion | A |
| Test Engineer | DebeYu | Test Date | September 11, 2019 |

| TEST RESULT OF TM1-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

| Test Equipment | Manufacturer | Model No. | Serial No. | Last Cal. | Due Date |
|---|-----------------|----------------------|-------------|------------|------------|
| EMI Test Receiver | ROHDE & SCHWARZ | ESCI | 101142 | 2018-12-18 | 2019-12-17 |
| 10dB Attenuator | SCHWARZBECK | OSPAM236 | 9729 | 2018-12-18 | 2019-12-17 |
| Artificial Mains | ROHDE & SCHWARZ | ENV216 | 101288 | 2018-12-18 | 2019-12-17 |
| EMI Test Software | AUDIX | E3 | N/A | 2018-12-18 | 2019-12-17 |
| EMI Test Receiver | ROHDE & SCHWARZ | ESCI | 101142 | 2018-12-18 | 2019-12-17 |
| Absorbing clamp | ROHDE & SCHWARZ | MDS 21 | 4033 | 2018-12-18 | 2019-12-17 |
| EMI Test Software | AUDIX | E3 | N/A | 2018-12-18 | 2019-12-17 |
| EMI Test Receiver | ROHDE & SCHWARZ | ESCI | 101142 | 2018-12-18 | 2019-12-17 |
| Triple-loop Antenna | EVERFINE | LLA-2 | 11050003 | 2018-12-18 | 2019-12-17 |
| EMI Test Receiver | ROHDE & SCHWARZ | ESPI | 101840 | 2018-12-18 | 2019-12-17 |
| EMI Test Software | AUDIX | E3 | N/A | 2018-12-18 | 2019-12-17 |
| 3m Semi Anechoic Chamber | SIDT FRANKONIA | SAC-3M | 03CH03-HY | 2018-12-18 | 2019-12-17 |
| EMI Test Receiver | ROHDE & SCHWARZ | ESCI | 101142 | 2018-12-18 | 2019-12-17 |
| Log per Antenna | SCHWARZBECK | VULB9163 | 9163-470 | 2018-12-18 | 2019-12-17 |
| EMI Test Software | AUDIX | E3 | N/A | 2018-12-18 | 2019-12-17 |
| Positioning Controller | MF | MF-7082 | / | 2018-12-18 | 2019-12-17 |
| Power Analyzer Test System | Voltech | PM6000 | 20000670053 | 2018-12-18 | 2019-12-17 |
| ESD Simulator | KIKUSUI | KC001311 | KES4021 | 2018-10-03 | 2019-10-02 |
| SIGNAL GENERATOR | R&S | SMB100A | 105942 | 2018-12-14 | 2019-12-13 |
| RF Power Amplifier | BONN Elektronik | BLWA0830-160/100/40D | 128740 | 2018-12-14 | 2019-12-13 |
| Log-periodic Antenna | SCHWARZBECK | STLP9128D | 043 | 2018-12-14 | 2019-12-13 |
| Power Meter | R&S | 102031 | 16829 | 2018-12-14 | 2019-12-13 |
| Electrical fast transient(EFT)generator | 3CTEST | EFT-4021 | EC0461044 | 2018-12-18 | 2019-12-17 |
| Coupling Clamp | 3CTEST | EFTC | EC0442098 | 2018-12-18 | 2019-12-17 |
| Surge test system | 3CTEST | SG5006G | EC5581070 | 2018-12-18 | 2019-12-17 |
| Coupling/decoupling network | 3CTEST | SGN-5010G | CS5591033 | 2018-12-18 | 2019-12-17 |
| Simu lator | FRA NKONIA | CIT-10 | A126A1195 | 2018-12-18 | 2019-12-17 |
| CDN | FRA NKONIA | CDN-M2 | 5100100100 | 2018-12-18 | 2019-12-17 |
| CDN | FRA NKONIA | CDN-M3 | 0900-11 | 2018-12-18 | 2019-12-17 |
| Attenuator | FRA NKONIA | ATT6 | 0010222A | 2018-12-18 | 2019-12-17 |
| Voltage dips and up generator | 3CTEST | VDG-1105G | EC0171014 | 2018-12-18 | 2019-12-17 |

15. PHOTOGRAPHS OF TEST SETUP

15.1. Photo of Radiated Emissions Measurement



16. EXTERNAL AND INTERNAL PHOTOS OF THE EUT

Appearance photograph of EUT



Appearance photograph of EUT



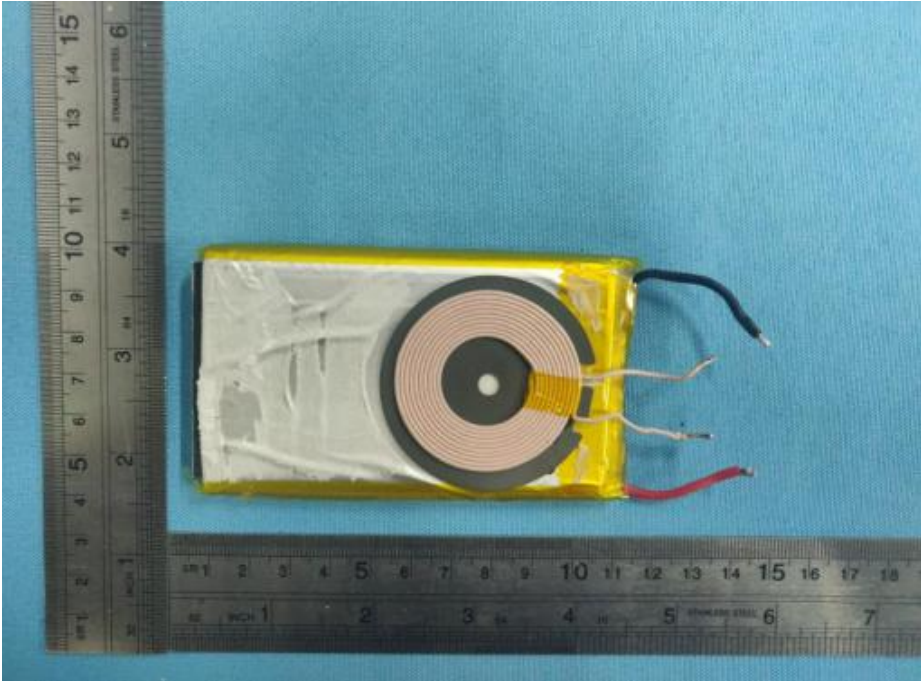
Appearance photograph of EUT



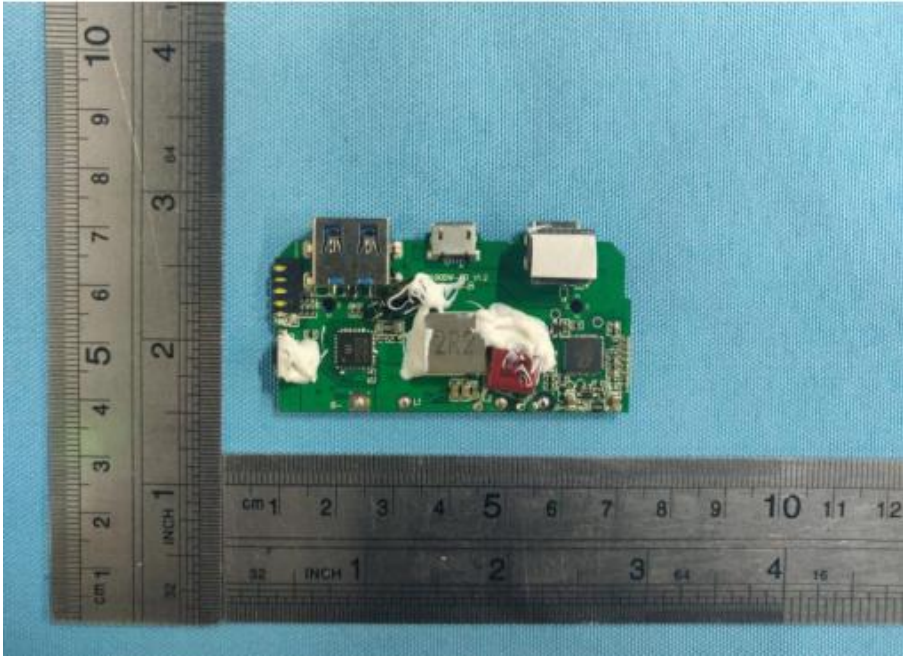
Appearance photograph of EUT



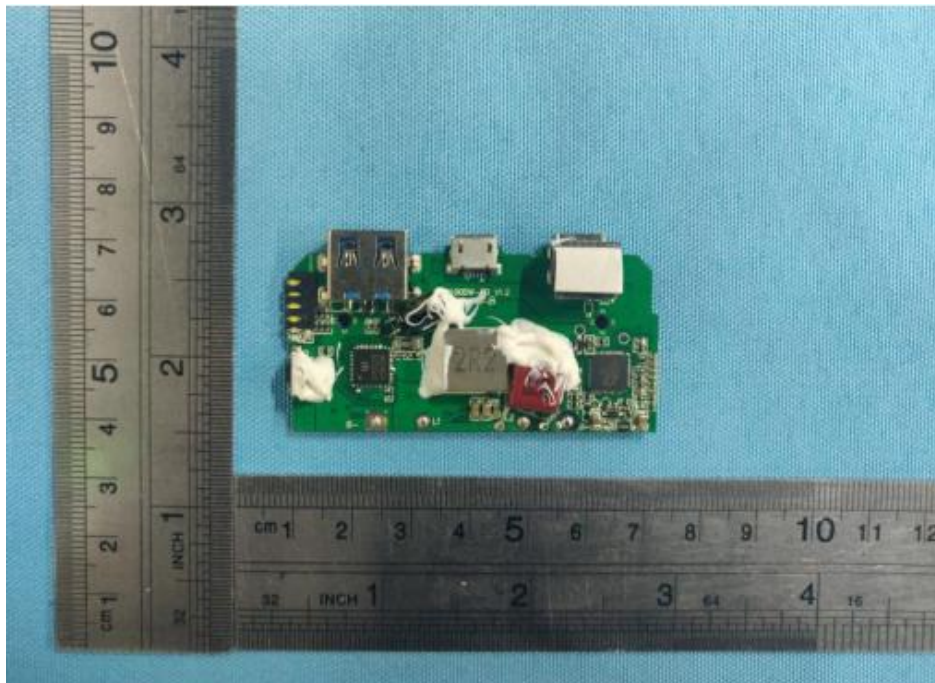
Appearance photograph of EUT



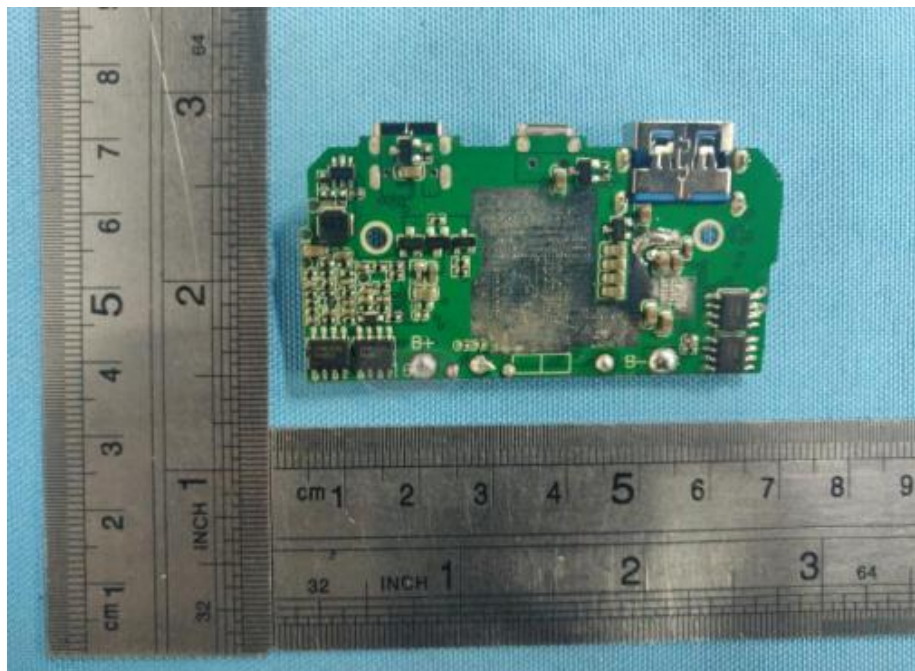
Appearance photograph of EUT



Appearance photograph of EUT



Appearance photograph of EUT



Appearance photograph of EUT



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