



# EMC TEST REPORT

For

Shenzhen Damin Energy Technology Co., Ltd

Jump Starter

Test Model: CAT797

Prepared for : Shenzhen Damin Energy Technology Co., Ltd  
Address : B717, Tang Shang Building, No. 35 Xinqiao Section of  
Guangshen Road, Shangxing Community, Xinqiao  
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Prepared by : Shenzhen LCS Compliance Testing Laboratory Ltd.  
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Date of receipt of test sample : February 28, 2023  
Number of tested samples : 2  
Sample No : A022723065-1, A022723065-2  
Date of Test : February 28, 2023 ~ April 20, 2023  
Date of Report : March 28, 2024





### EMC TEST REPORT

#### EN 55032:2015/A11:2020

Electromagnetic compatibility of multimedia equipment - Emission Requirements

#### EN 55035:2017/A11:2020

Electromagnetic compatibility of multimedia equipment – Immunity requirements

**Report Reference No.** ..... : **LCSA022723065E001**

**Date of Issue** ..... : March 28, 2024

**Testing Laboratory Name** .... : **Shenzhen LCS Compliance Testing Laboratory Ltd.**

**Address** ..... : Room 101, 201, Building A and Room 301, Building C, Juji Industrial Park, Yabianxueziwei, Shajing Street, 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** ..... : **Shenzhen Damin Energy Technology Co., Ltd**

**Address** ..... : B717, Tang Shang Building, No. 35 Xinqiao Section of Guangshen Road, Shangxing Community, Xinqiao Street, Baoan District, Shenzhen City, Guangdong Province, China

#### Test Specification

**Standard**..... : EN 55032:2015/A11:2020  
EN 55035:2017/A11:2020  
EN IEC 61000-3-2: 2019/A1:2021  
EN 61000-3-3:2013/A2:2021

**Test Report Form No.**..... : LCSEMC-1.0

**TRF Originator**..... : Shenzhen LCS Compliance Testing Laboratory Ltd.

**Master TRF**..... : Dated 2011-03

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**Test Item Description**..... : **Jump Starter**

**Trade Mark**..... : N/A

**Test Model**..... : CAT797

**Ratings**..... : Please Refer to Page 9

**Result**..... : **Positive**

**Compiled by:**

**Supervised by:**

**Approved by:**

Coco Song / File administrators

Baron Wen/Technique principal

Gavin Liang/ Manager



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# EMC -- TEST REPORT

|  |  |
|--|--|
| <b>Test Report No. :</b> LCSA022723065E001 | <u>March 28, 2024</u><br>Date of issue |
|--|--|

|                          |   |
|--------------------------|---|
| <b>Test Model.....</b>   | <b>: CAT797</b>   |
| <b>EUT.....</b>          | <b>: Jump Starter</b>   |
| <b>Applicant.....</b>    | <b>: Shenzhen Damin Energy Technology Co., Ltd</b>  |
| <b>Address.....</b>      | <b>: B717, Tang Shang Building, No. 35 Xinqiao Section of Guangshen Road, Shangxing Community, Xinqiao Street, Baoan District, Shenzhen City, Guangdong Province, China</b> |
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| <b>Manufacturer.....</b> | <b>: Shenzhen Damin Energy Technology Co., Ltd</b>  |
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| <b>Telephone.....</b>    | <b>: /</b>  |
| <b>Fax.....</b>          | <b>: /</b>  |

|                    |                 |
|--------------------|-----------------|
| <b>Test Result</b> | <b>Positive</b> |
|--------------------|-----------------|

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 Content   | Revised By |
|----------|----------------|---|------------|
| 000      | April 21, 2023 | Initial Issue   | --         |
| 001      | March 28, 2024 | Declared by applicant, other information and results contained in this report are not changed, original test report become invalid. | Coco Song  |
|          |                |   |            |





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## 1. TEST STANDARDS

The tests were performed according to following standards:

EN 55032:2015/A11:2020 Electromagnetic compatibility of multimedia equipment - Emission Requirements

EN 55035:2017/A11:2020 Electromagnetic compatibility of multimedia equipment - Immunity requirements

EN IEC 61000-3-2: 2019/A1:2021 Electromagnetic compatibility (EMC) -- Part 3-2: Limits - Limits for harmonic current emissions (equipment input current up to and including 16 A per phase)

EN 61000-3-3:2013/A2:2021 Electromagnetic compatibility (EMC) -- Part 3-3: Limits - Limitation of voltage changes, voltage fluctuations and flicker in public low-voltage supply systems, for equipment with rated current  $\leq 16$  A per phase and not subject to conditional connection



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## 2.SUMMARY OF STANDARDS AND RESULTS

### 2.1. Description of Standards and Results

The EUT have been tested according to the applicable standards as referenced below.

| Emission (EN 55032:2015/A11:2020)                        |                                |                      |         |
|--|--------------------------------|----------------------|---------|
| Description of Test Item                                 | Standard                       | Limits               | Results |
| Conducted disturbance at mains terminals                 | EN 55032:2015/A11:2020         | Class B              | PASS    |
| Conducted disturbance at telecommunication port          | EN 55032:2015/A11:2020         | Class B              | N/A     |
| Radiated disturbance                                     | EN 55032:2015/A11:2020         | Class B              | PASS    |
| Harmonic current emissions                               | EN IEC 61000-3-2: 2019/A1:2021 | Class A              | N/A     |
| Voltage fluctuations & flicker                           | EN 61000-3-3:2013/A2:2021      | -----                | PASS    |
| Immunity (EN 55035:2017/A11:2020)                        |                                |                      |         |
| Description of Test Item                                 | Basic Standard                 | Performance Criteria | Results |
| Electrostatic discharge (ESD)                            | EN 61000-4-2:2009              | B                    | PASS    |
| Radio-frequency, Continuous radiated disturbance         | EN IEC 61000-4-3: 2020         | A                    | PASS    |
| Electrical fast transient (EFT)                          | EN 61000-4-4: 2012             | B                    | PASS    |
| Surge (Input a.c. power ports)                           | EN 61000-4-5: 2014/A1: 2017    | B                    | PASS    |
| Surge (Telecommunication ports)                          |                                | B                    | N/A     |
| Conducted disturbances induced by radio-frequency fields | EN 61000-4-6:2014/AC:2015      | A                    | PASS    |
| Power frequency magnetic field                           | EN 61000-4-8: 2010             | A                    | PASS    |
| Voltage dips, >95% reduction                             | EN IEC 61000-4-11:2020         | B                    | PASS    |
| Voltage dips, 30% reduction                              |                                | C                    | PASS    |
| Voltage interruptions                                    |                                | C                    | PASS    |
| ***Note: N/A is an abbreviation for Not Applicable.      |                                |                      |         |

#### Test mode:

|        |           |        |
|--------|-----------|--------|
| Mode 1 | Charging  | Record |
| Mode 2 | Full Load | Record |

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



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## 2.2. Description of Performance Criteria

### General Performance Criteria

Examples of functions defined by the manufacturer to be evaluated during testing include, but are not limited to, the following:

- essential operational modes and states;

#### 2.2.1. Performance criterion A

The equipment shall continue to operate as intended without operator intervention. No degradation of performance or loss of function is allowed below a performance level specified by the manufacture when the equipment is used as intended. The performance level may be replaced by a permissible loss of performance. If the minimum performance level or the permissible performance loss is not specified by the manufacturer, then either of these may be derived from the product description and documentation, and by what the user may reasonably expect from the equipment if used as intended.

#### 2.2.2. Performance 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 manufacture, when the equipment is used as intended. The performance level may be replaced by a permissible loss of performance.

During the test, degradation of performance is allowed. However, no change of operation state or stored data is allowed to persist after the test.

If the minimum performance level (or the permissible performance loss) is not specified by the manufacturer, then either of these may be derived from the product description and documentation, and by what the user may reasonably expect from the equipment if used as intended.

#### 2.2.3. Performance 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 manufacture's instructions.

Functions, and/or information stored in non-volatile memory, or protected by a battery backup, shall not be lost.







### 3. GENERAL INFORMATION

#### 3.1. Description of Device (EUT)

EUT : Jump Starter

Trade Mark : N/A

Test Model : CAT797

Power Supply :

- Rating Capacity: 64000mAH
- Starting voltage :12/24V
- Starting current: 3000A (12V) — 1500A( 24V)
- Input voltage: 19V-(3A)
- USB output: QC 18W
- Type-c: PD45W
- DC output: 12V-16.5V Max 10A
- Vehicle charging source port: 12-16.5V Max 10A

EUT Clock Frequency : ≤108MHz

| Highest internal frequency (Fx) | Highest measured frequency      |
|---------------------------------|---------------------------------|
| Fx ≤ 108 MHz                    | 1 GHz                           |
| 108 MHz < Fx ≤ 500 MHz          | 2 GHz                           |
| 500 MHz < Fx ≤ 1 GHz            | 5 GHz                           |
| Fx > 1 GHz                      | 5 × Fx up to a maximum of 6 GHz |

NOTE 1 For FM and TV broadcast receivers, Fx is determined from the highest frequency generated or used excluding the local oscillator and tuned frequencies.  
Where Fx is unknown, the radiated emission measurements shall be performed up to 6 GHz.

#### 3.2. Description of Support Device

| Name | Manufacturers | M/N | S/N |
|------|---------------|-----|-----|
| -    | -             | -   | -   |

#### 3.3. Description of Test Facility

NVLAP Accreditation Code is 600167-0.

FCC Designation Number is CN5024.

CAB identifier is CN0071.

CNAS Registration Number is L4595.





### 3.4. Statement of The Measurement Uncertainty

The data and results referenced in this document are true and accurate. The reader is cautioned that there may be errors within the calibration limits of the equipment and facilities. The measurement uncertainty was calculated for all measurements listed in this test report acc. To CISPR 16 – 4 “Specification for radio disturbance and immunity measuring apparatus and methods – Part 4: Uncertainty in EMC Measurements” and is documented in the LCS quality system acc. To DIN EN ISO/IEC 17025. Furthermore, component and process variability of devices similar to that tested may result in additional deviation. The manufacturer has the sole responsibility of continued compliance of the device.

### 3.5. Measurement Uncertainty

| Test   | Parameters  | Expanded uncertainty ( $U_{lab}$ ) | Expanded uncertainty ( $U_{cisp}$ ) |
|--|---|------------------------------------|-------------------------------------|
| Conducted Emission   | Level accuracy<br>(9kHz to 150kHz)<br>(150kHz to 30MHz) | $\pm 2.63$ dB<br>$\pm 2.35$ dB     | $\pm 3.8$ dB<br>$\pm 3.4$ dB        |
| Power Disturbance  | Level accuracy<br>(30MHz to 300MHz)                     | $\pm 2.90$ dB                      | $\pm 4.5$ dB                        |
| Electromagnetic Radiated Emission (3-loop)   | Level accuracy<br>(9kHz to 30MHz)                       | $\pm 3.60$ dB                      | $\pm 3.3$ dB                        |
| Radiated Emission  | Level accuracy<br>(9kHz to 30MHz)                       | $\pm 3.68$ dB                      | N/A                                 |
| Radiated Emission  | Level accuracy<br>(30MHz to 1000MHz)                    | $\pm 3.48$ dB                      | $\pm 5.3$ dB                        |
| Radiated Emission  | Level accuracy<br>(above 1000MHz)                       | $\pm 3.90$ dB                      | $\pm 5.2$ dB                        |
| Mains Harmonic   | Voltage   | $\pm 0.510\%$                      | N/A                                 |
| Voltage Fluctuations & Flicker   | Voltage   | $\pm 0.510\%$                      | N/A                                 |
| 1) Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the apparatus.<br>2) The reported expanded uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor of $k=2$ , which for a normal distribution corresponds to a coverage probability of approximately 95%. |   |                                    |                                     |





## 4. MEASURING DEVICES AND TEST EQUIPMENT

### LINE CONDUCTED EMISSION

| Item | Equipment         | Manufacturer | Model No. | Serial No. | Cal Date   | Due Date   |
|------|-------------------|--------------|-----------|------------|------------|------------|
| 1    | EMI Test Software | Farad        | EZ        | /          | N/A        | N/A        |
| 2    | EMI Test Receiver | R&S          | ESR3      | 102312     | 2023-02-25 | 2024-02-24 |
| 3    | Artificial Mains  | R&S          | ENV216    | 101288     | 2022-06-16 | 2023-06-15 |
| 4    | Pulse Limiter     | R&S          | ESH3-Z2   | 102750-NB  | 2022-08-17 | 2023-08-16 |

### RADIATED DISTURBANCE

| Item | Equipment             | Manufacturer | Model No.  | Serial No. | Cal Date   | Due Date   |
|------|-----------------------|--------------|------------|------------|------------|------------|
| 1    | EMI Test Software     | AUDIX        | E3         | /          | N/A        | N/A        |
| 2    | By-log Antenna        | SCHWARZBECK  | VULB9163   | 9163-470   | 2021-09-12 | 2024-09-11 |
| 3    | Horn Antenna          | SCHWARZBECK  | BBHA 9120D | 9120D-1925 | 2021-09-05 | 2024-09-04 |
| 4    | EMI Test Receiver     | R&S          | ESR3       | 102311     | 2022-08-17 | 2023-08-16 |
| 5    | Broadband Preampifier | /            | BP-01M18G  | P190501    | 2022-06-16 | 2023-06-15 |

### VOLTAGE FLUCTUATION AND FLICKER/HARMONIC CURRENT EMISSIONS

| Item | Equipment                              | Manufacturer | Model No. | Serial No.           | Cal Date   | Due Date   |
|------|--|--------------|-----------|----------------------|------------|------------|
| 1    | HARMONICS&FLICKER MEASUREMENT SYSTEM   | EVERFINE     | HFM-3000  | P630850CD14<br>11116 | 2023-02-25 | 2024-02-24 |
| 2    | HARMONICS&FLICKER TESTING POWER SOURCE | EVERFINE     | HFS-4000  | P624486CD14<br>11124 | 2023-02-25 | 2024-02-24 |

### RF ELECTROMAGNETIC FIELD

| Item | Equipment                              | Manufacturer | Model No.         | Serial No.     | Cal Date   | Due Date   |
|------|--|--------------|-------------------|----------------|------------|------------|
| 1    | MXG Vector Signal Generator            | Agilent      | E4438C            | MY42081396(6G) | 2022-06-16 | 2023-06-15 |
| 2    | RF POWER AMPLIFIER                     | SKET         | HAP_0306<br>G-50W | /              | 2022-06-16 | 2023-06-15 |
| 3    | RF POWER AMPLIFIER                     | OPHIR        | 5225R             | 1052           | 2022-06-16 | 2023-06-15 |
| 4    | RF POWER AMPLIFIER                     | OPHIR        | 5273F             | 1019           | 2022-06-16 | 2023-06-15 |
| 5    | Stacked Broadband Log Periodic Antenna | SCHWARZBECK  | STLP 9128         | 9128ES-145     | NCR        | NCR        |
| 6    | Stacked Mikrowellen Log.-Per           | SCHWARZBECK  | STLP 9149         | 9149-484       | NCR        | NCR        |
| 7    | RS Electric field probe                | narda        | EP601             | 611WX80208     | 2022-06-16 | 2023-06-15 |

Note: NCR means no calibration requirement

### ELECTROSTATIC DISCHARGE

| Item | Equipment     | Manufacturer | Model No. | Serial No. | Cal Date   | Due Date   |
|------|---------------|--------------|-----------|------------|------------|------------|
| 1    | ESD Simulator | SCHLODER     | SESD 230  | 604035     | 2022-07-18 | 2023-07-17 |

### 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    | 2022-08-17 | 2023-08-16 |
| 2    | Electric fast pulse group generator | 3ctest       | EFT-4001G | EC0461044  | 2022-10-31 | 2023-10-30 |



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**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    | 2022-08-17 | 2023-08-16 |

**Conducted disturbances induced by radio-frequency fields**

| Item | Equipment      | Manufacturer | Model No. | Serial No. | Cal Date   | Due Date   |
|------|----------------|--------------|-----------|------------|------------|------------|
| 1    | Simulator      | FRANKONIA    | CIT-10/75 | A126A1195  | 2022-08-17 | 2023-08-16 |
| 2    | CDN            | FRANKONIA    | CDN-M2+M3 | A2210177   | 2022-06-16 | 2023-06-15 |
| 3    | 6dB Attenuator | FRANKONIA    | DAM25W    | 1172040    | 2022-06-16 | 2023-06-15 |

**MAGNETIC FIELD SUSCEPTIBILITY TEST**

| Item | Equipment                                  | Manufacturer | Model No.   | Serial No. | Cal Date   | Due Date   |
|------|--|--------------|-------------|------------|------------|------------|
| 1    | Power frequency mag-field generator System | EVERFINE     | EMS61000-8K | 906003     | 2022-06-16 | 2023-06-15 |

**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  | 2022-06-16 | 2023-06-15 |

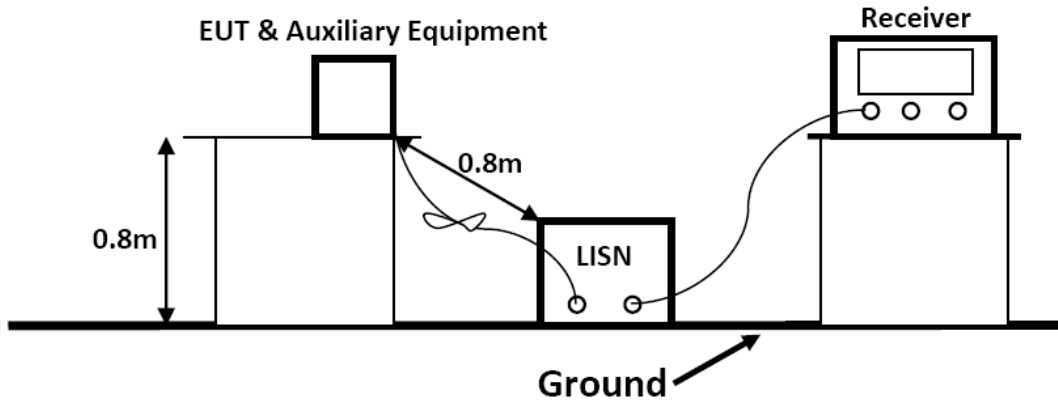
NCR --- No calibration requirement.



## 5. TEST RESULTS

### 5.1. POWER LINE CONDUCTED EMISSION MEASUREMENT

#### 5.1.1. Block Diagram of Test Setup



#### 5.1.2. Test Standard

EN 55032:2015/A11:2020 Class B

| Power Line Conducted Emission Limits (Class B) |                    |               |
|--|--------------------|---------------|
| Frequency (MHz)                                | Limit (dB $\mu$ V) |               |
|  | 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.

#### 5.1.3. EUT Configuration on Test

The following equipments are installed on Power Line Conducted Emission Measurement to meet the EN 55032 requirement and operating regulations in a manner, which tends to maximize its emission characteristics in a normal application.

#### 5.1.4. Operating Condition of EUT

- 5.1.4.1. Setup the EUT as shown on Section 5.1.1
- 5.1.4.2. Turn on the power of all equipments.
- 5.1.4.3. Let the EUT work in measuring mode(1) and measure it.





### 5.1.5. Test Procedure

The EUT is put on the plane 0.8m high above the ground by insulating support and connected to the AC mains through Line Impedance Stability Network (L.I.S.N). This provided 50-ohm coupling impedance for the tested equipments. Both sides of AC line are investigated to find out the maximum conducted emission according to the EN 55032 regulations during conducted emission measurement.

The bandwidth of the field strength meter is set at 9kHz in 150kHz~30MHz.

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

### 5.1.6. Test Results

**PASS.**

Refer to attached Annex B.1



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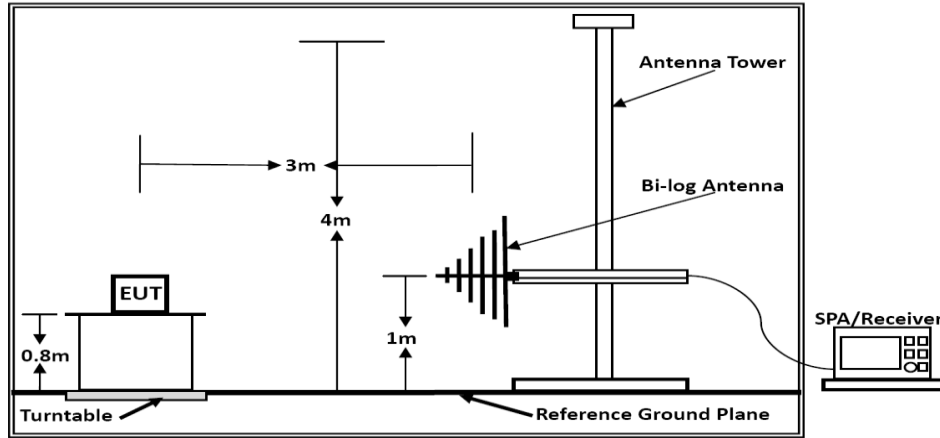
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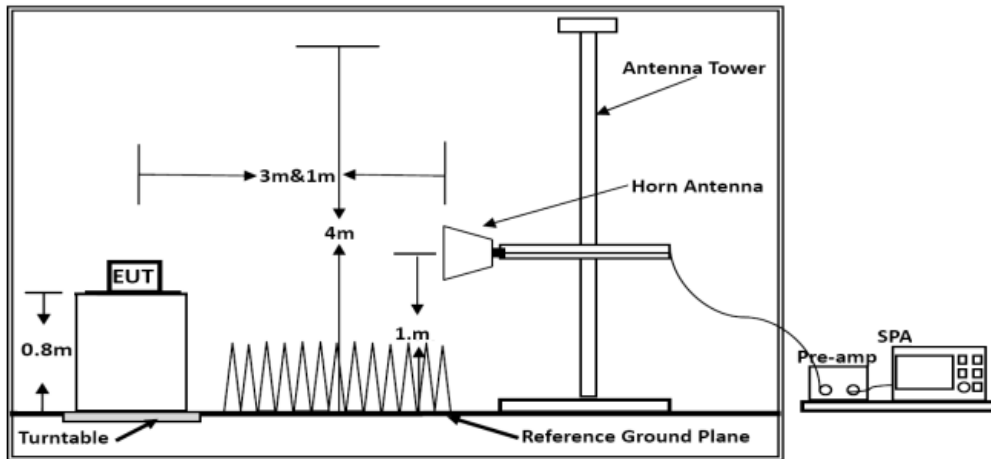


## 5.2. RADIATED EMISSION MEASUREMENT

### 5.2.1. Block Diagram of Test Setup



Below 1GHz



Above 1GHz





### 5.2.2. Test Standard

EN 55032:2015/A11:2020 Class B

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

| Limits for Radiated Emission Below 1GHz  |                   |                                      |                              |
|--|-------------------|--------------------------------------|------------------------------|
| Frequency (MHz)  | Distance (Meters) | Field Strengths Limit (dB $\mu$ V/m) |                              |
| 30 ~ 230   | 3                 | 40                                   |                              |
| 230 ~ 1000   | 3                 | 47                                   |                              |
| ***Note:<br>(1) The smaller limit shall apply at the combination point between two frequency bands.<br>(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 Emission Above 1GHz  |                   |                                      |                              |
| Frequency (MHz)  | Distance (Meters) | Peak Limit (dB $\mu$ V/m)            | Average Limit (dB $\mu$ V/m) |
| 1000 ~ 3000  | 3                 | 70                                   | 50                           |
| 3000 ~ 6000  | 3                 | 74                                   | 54                           |
| ***Note: The lower limit applies at the transition frequency.  |                   |                                      |                              |

### 5.2.3. EUT Configuration on Test

The EN 55032 regulations test method must be used to find the maximum emission during radiated emission measurement.

### 5.2.4. Operating Condition of EUT

5.2.4.1. Turn on the power.

5.2.4.2. Let the EUT work in the test mode(1) and measure it.

### 5.2.5. Test Procedure

The EUT is placed on a turntable, which is 0.8 meter high above the ground. The turntable 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 an antenna tower. The antenna can be moved up and down from 1 to 4 meters to find out the maximum emission level. By-log antenna is used as a receiving antenna. Both horizontal and vertical polarization of the antenna is set on test.

The bandwidth of the EMI test receiver is set at RBW/VBW=120kHz/300kHz and the frequency range from 30MHz to 1000MHz is checked.

The bandwidth of the Spectrum analyzer is set at RBW/VBW=1MHz/3MHz and the frequency range from 1GHz to the frequency which about 5th carrier harmonic or 6GHz is checked.

### 5.2.6. Test Results

**PASS.**

Refer to attached Annex B.2



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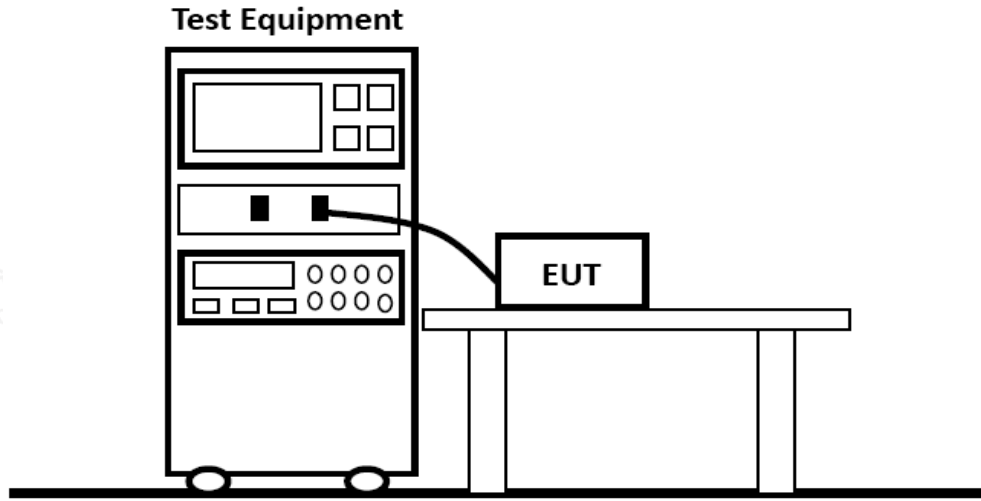
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### 5.3. HARMONIC CURRENT EMISSION MEASUREMENT

#### 5.3.1. Block Diagram of Test Setup



#### 5.3.2. Test Standard

EN IEC 61000-3-2: 2019/A1:2021

#### 5.3.3. Operating Condition of EUT

Same as Section 5.2.4, except the test setup replaced as Section 5.3.1.

#### 5.3.4. Test Results

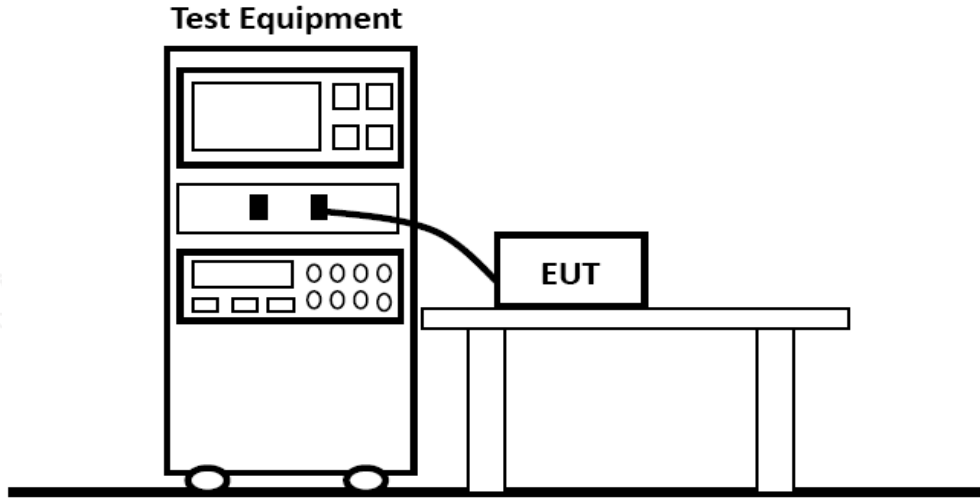
Refer to attached Annex B.3





## 5.4. VOLTAGE FLUCTUATION AND FLICKER MEASUREMENT

### 5.4.1. Block Diagram of Test Setup



### 5.4.2. Test Standard

EN 61000-3-3:2013/A2:2021

### 5.4.3. Operating Condition of EUT

Same as Section 5.2.4, except the test setup replaced as Section 5.4.1.

### 5.4.4. Test Results

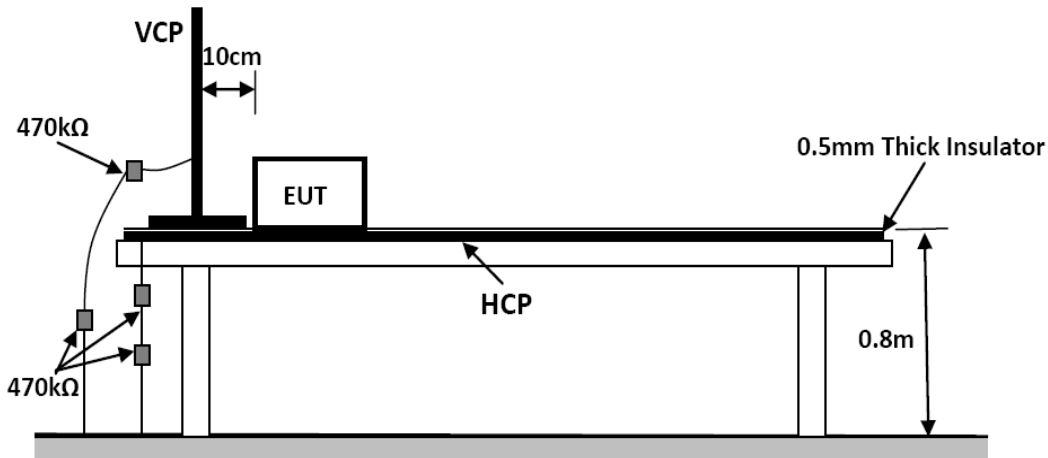
**PASS.**

Refer to attached Annex B.4



## 5.5. ELECTROSTATIC DISCHARGE IMMUNITY TEST

### 5.5.1. Block Diagram of Test Setup



### 5.5.2. Test Standard

EN 55035:2017/A11:2020 (EN 61000-4-2:2009, Severity Level: 3 / Air Discharge:  $\pm 8\text{KV}$ , Level: 2 / Contact Discharge:  $\pm 4\text{KV}$ )

### 5.5.3. Severity Levels and Performance Criterion

#### 5.5.3.1. Severity level

| Level | Test Voltage Contact Discharge (KV) | Test Voltage Air Discharge (KV) |
|-------|-------------------------------------|---------------------------------|
| 1     | $\pm 2$                             | $\pm 2$                         |
| 2     | $\pm 4$                             | $\pm 4$                         |
| 3     | $\pm 6$                             | $\pm 8$                         |
| 4     | $\pm 8$                             | $\pm 15$                        |
| X     | Special                             | Special                         |

#### 5.5.3.2. Performance Criterion

Performance Criterion: B

### 5.5.4. EUT Configuration on Test

The configuration of EUT is listed in Section 5.5.1.

### 5.5.5. Operating Condition of EUT

Same as conducted emission measurement, which is listed in Section 5.1.4. Except the test set up replaced by Section 5.5.1.





### 5.5.6. Test Procedure

#### 5.2.6.1. Air Discharge

This test is done on a non-conductive surfaces. The round discharge tip of the Electrostatic Discharge simulator shall be approached as fast as possible then to touch the EUT. After each discharge, the simulator shall be removed from the EUT. The simulator is then re-triggered for a new single discharge and repeated 25 times for each pre-selected test point. This procedure shall be repeated until all the air discharge completed

#### 5.2.6.2. Contact Discharge

All the procedure shall be same as air discharge, except using the acute discharge tip. The top end of the Electrostatic Discharge simulator is touch the EUT all the time when the simulator is re-triggered for a new single discharge and repeated 25 times for each pre-selected test point.

#### 5.2.6.3. Indirect Discharge For Horizontal Coupling Plane

The vertical coupling plane(VCP) is placed 0.1m away from EUT. The top end of Electrostatic Discharge simulator should aim at the center of one border of the VCP for at least 25 times discharge.

#### 5.2.6.4. Indirect Discharge For Vertical Coupling Plane

The top end of Electrostatic Discharge simulator should place at the point 0.1m away from EUT on the horizontal coupling plane(HCP). At least 25 times discharge should be done for every pre-selected point around EUT.

Record any performance degradation of the EUT during the test and judge the test result according to ce criterion.

### 5.5.7. Test Results

**PASS.**

Refer to attached Annex B.5



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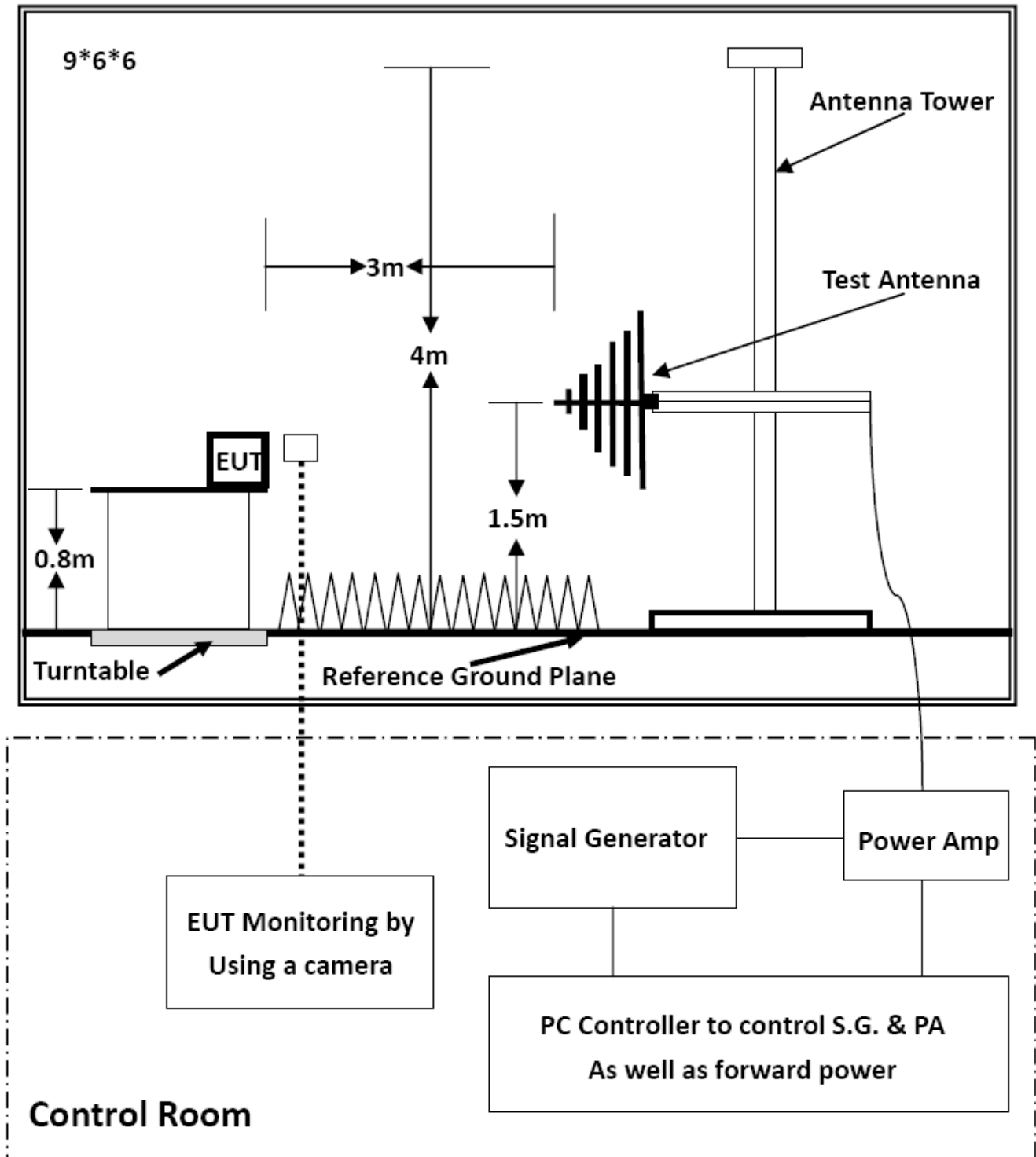
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## 5.6. RF FIELD STRENGTH SUSCEPTIBILITY TEST

### 5.6.1. Block Diagram of Test Setup





### 5.6.2. Test Standard

EN 55035:2017/A11:2020 (EN IEC 61000-4-3: 2020 Severity Level: 2, 3V/m)

### 5.6.3. Severity Levels and Performance Criterion

#### 5.6.3.1. Severity level

| Level | Field Strength (V/m) |
|-------|----------------------|
| 1     | 1                    |
| 2     | 3                    |
| 3     | 10                   |
| X     | 1                    |

#### 5.6.3.2. Performance Criterion

Performance Criterion: A

### 5.6.4. EUT Configuration on Test

The configuration of EUT is listed in Section 5.6.1.

### 5.6.5. Operating Condition of EUT

Same as radiated emission measurement, which is listed in Section 5.2.4, except the test setup replaced as Section 5.6.1.

### 5.6.6. Test Procedure

The EUT are placed on a table, which is 0.8 meter high 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 polarization of the antenna is set on test. Each of the four sides of the EUT must be faced this transmitting antenna and measured individually. In order to judge the EUT performance, a CCD Recording is used to monitor its screen. All the scanning conditions are as following:

| Condition of Test                 | Remark                             |
|-----------------------------------|------------------------------------|
| Fielded Strength                  | 3 V/m (Severity Level 2)           |
| Radiated Signal                   | Unmodulated                        |
| Test Frequency Range (swept test) | 80-1000MHz                         |
| Test Frequency (spot test)        | 1800MHz, 2600MHz, 3500MHz, 5000MHz |
| Dwell time of radiated            | 0.0015 decade/s                    |
| Waiting Time                      | 3 Sec.                             |

### 5.6.7. Test Results

**PASS.**

Refer to attached Annex B.6



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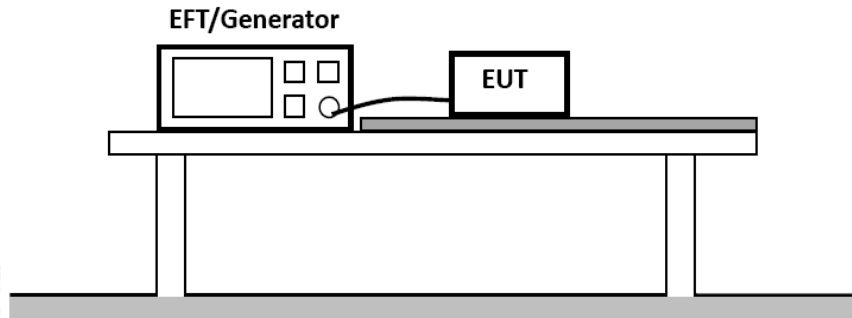
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## 5.7. ELECTRICAL FAST TRANSIENT/BURST IMMUNITY TEST

### 5.7.1. Block Diagram of Test Setup



### 5.7.2. Test Standard

EN 55035:2017/A11:2020 (EN 61000-4-4: 2012, Severity Level, Level 2: 1KV)

### 5.7.3. Severity Levels and Performance Criterion

#### 5.7.3.1. Severity 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   |

#### 5.7.3.2. Performance Criterion

Performance Criterion: B

### 5.7.4. EUT Configuration on Test

The configuration of EUT is listed in Section 5.7.1.

### 5.7.5. Operating Condition of EUT

5.7.5.1. Setup the EUT as shown in Section 5.7.1.

5.7.5.2. Turn on the power of all equipments.

5.7.5.3. Let the EUT work in test mode(1) and measure it.





### 5.7.6. 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.

#### 5.7.6.1. 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 1 mins.

#### 5.7.6.2. For signal lines and control lines ports:

It's unnecessary to test.

#### 5.7.6.3. For DC output line ports:

It's unnecessary to test.

### 5.7.7. Test Results

**PASS.**

Refer to attached Annex B.7



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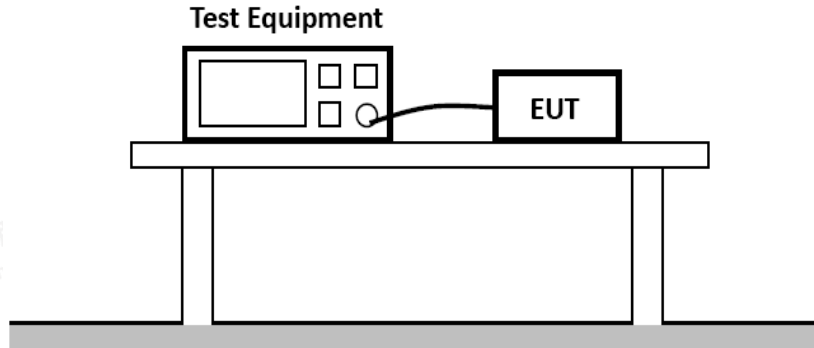
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## 5.8. SURGE IMMUNITY TEST

### 5.8.1. Block Diagram of Test Setup



### 5.8.2. Test Standard

EN 55035:2017/A11:2020 (EN 61000-4-5: 2014/A1: 2017, Severity Level: Line to Line: Level 2, 1.0KV, Line to Earth: Level 3, 2.0KV)

### 5.8.3. Severity Levels and Performance Criterion

#### 5.8.3.1. Severity level

| Severity Level | Open-Circuit Test Voltage (KV) |
|----------------|--------------------------------|
| 1              | 0.5                            |
| 2              | 1.0                            |
| 3              | 2.0                            |
| 4              | 4.0                            |
| *              | Special                        |

#### 5.8.3.2. Performance Criterion

Performance Criterion: B

### 5.8.4. EUT Configuration on Test

The configuration of EUT is listed in Section 5.8.1.

### 5.8.5. Operating Condition of EUT

5.8.5.1. Setup the EUT as shown in Section 5.8.1.

5.8.5.1. Turn on the power of all equipments.

5.8.5.1. Let the EUT work in test mode (1) and measure it.





### 5.8.6. Test Procedure

5.8.6.1. Set up the EUT and test generator as shown on Section 5.8.1.

5.8.6.2. For line to line coupling mode, provide a 1.0 KV 1.2/50us voltage surge (at open-circuit condition) and 8/20us current surge to EUT selected points.

5.8.6.3. At least 5 positive and 5 negative (polarity) tests with a maximum 1/min repetition rate are conducted during test.

5.8.6.4. Different phase angles are done individually.

5.8.6.5. Record the EUT operating situation during compliance test and decide the EUT immunity criterion for above each test.

### 5.8.7. Test Results

**PASS.**

Refer to attached Annex B.8



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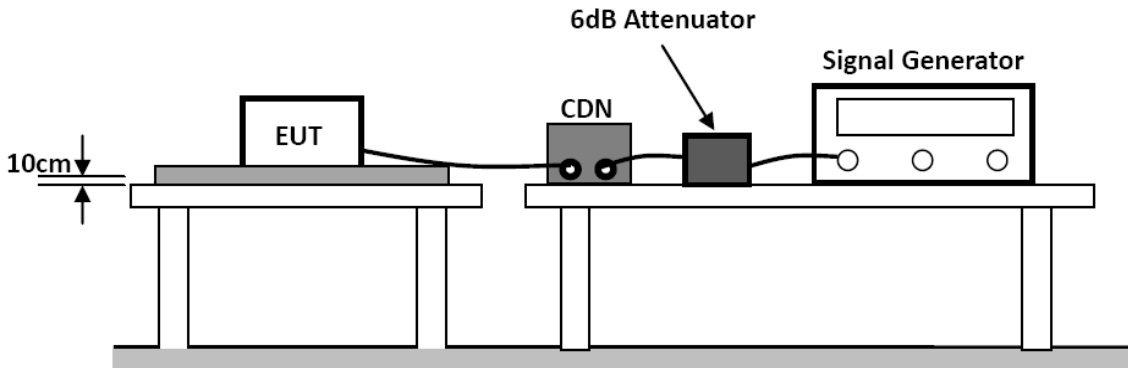
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## 5.9. Conducted disturbances induced by radio-frequency fields TEST

### 5.9.1. Block Diagram of Test Setup



### 5.9.2. Test Standard

EN 55035:2017/A11:2020(EN 61000-4-6:2014/AC:2015, Severity Level: Level 2, (0.15MHz ~ 80MHz))

### 5.9.3. Severity Levels and Performance Criterion

#### 5.9.3.1. Severity level

| Level | Field Strength (V) |
|-------|--------------------|
| 1     | 1                  |
| 2     | 3                  |
| 3     | 10                 |
| X     | Special            |

#### 5.9.3.2. Performance Criterion

Performance Criterion: A

### 5.9.4. EUT Configuration on Test

The configuration of EUT is listed in Section 5.9.1.

### 5.9.5. Operating Condition of EUT

5.9.5.1. Setup the EUT as shown in Section 5.9.1.

5.9.5.2. Turn on the power of all equipments.

5.9.5.3. Let the EUT work in test mode(1) and measure it.





### 5.9.6. Test Procedure

- 5.9.6.1. Set up the EUT, CDN and test generators as shown on Section 5.9.1.
- 5.9.6.2. Let the EUT work in test mode and measure it.
- 5.9.6.3. The EUT are placed on an insulating support 0.1m high above a ground reference plane. CDN (coupling and decoupling device) is placed on the ground plane about 0.3m 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).
- 5.9.6.4. The disturbance signal described below is injected to EUT through CDN.
- 5.9.6.5. The EUT operates within its operational mode(s) under intended climatic conditions after power on.
- 5.9.6.6. The frequency range is swept from 150kHz to 10MHz using 3V signal level, 10MHz to 30MHz using 3V to 1V signal level, 30MHz to 80MHz using 1V signal level, and with the disturbance signal 80% amplitude modulated with a 1kHz sine wave.
- 5.9.6.7. The rate of sweep shall not exceed  $1.5 \times 10^{-3}$  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.
- 5.9.6.8. Recording the EUT operating situation during compliance testing and decide the EUT immunity criterion.

### 5.9.7. Test Results

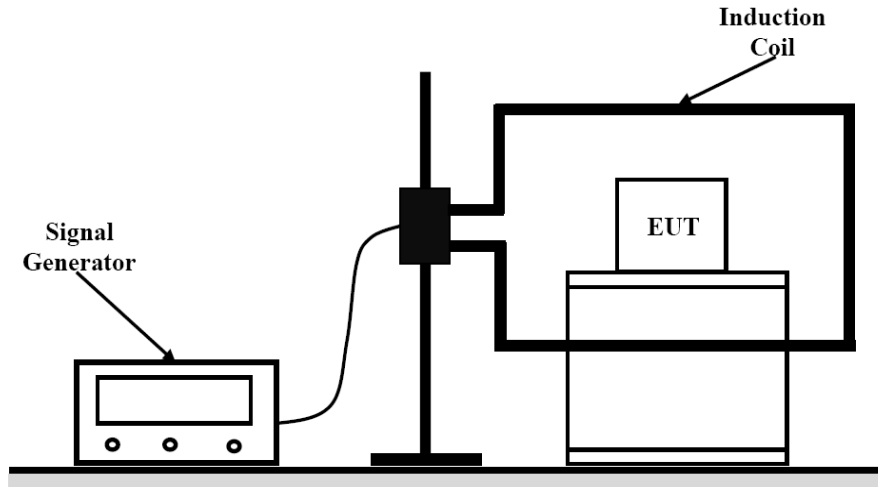
**PASS.**

Refer to attached Annex B.9



## 5.10. MAGNETIC FIELD SUSCEPTIBILITY TEST

### 5.10.1. Block Diagram of Test Setup



### 5.10.2. Test Standard

EN 55035:2017/A11:2020 (EN 61000-4-8: 2010, Severity Level: Level 1, 1A/m)

### 5.10.3. Severity Levels and Performance Criterion

#### 5.10.3.1. Severity level

| Level | Field Strength (A/m) |
|-------|----------------------|
| 1     | 1                    |
| 2     | 3                    |
| 3     | 10                   |
| 4     | 30                   |
| 5     | 100                  |
| X     | Special              |

#### 5.10.3.2. Performance Criterion

Performance Criterion: A

### 5.10.4. EUT Configuration on Test

The configuration of EUT is listed in Section 5.10.1.

### 5.10.5. Test Procedure

EUT is placed on an insulating support of 0.1m high above a table of 0.8m high. There is a minimum 1m\*1m ground metallic plane put on this table. EUT is put in the center of the magnetic coil then two orientations of the magnetic coil, horizontal and vertical, shall be rotated in order to expose the EUT to the difference polarization magnetic field.

Record any performance degradation of the EUT during the test and judge the test result according to performance criterion.

### 5.10.6. Test Results

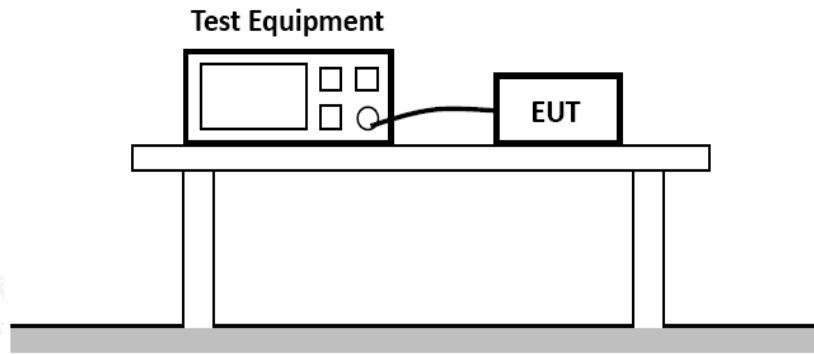
**PASS.**

Refer to attached Annex B.10



## 5.11. VOLTAGE DIPS AND INTERRUPTIONS TEST

### 5.11.1. Block Diagram of Test Setup



### 5.11.2. Test Standard

EN 55035:2017/A11:2020 (EN IEC 61000-4-11:2020)

### 5.11.3. Severity Levels and Performance Criterion

#### 5.11.3.1. Severity level

| Test Level                   |                         |                         |
|------------------------------|-------------------------|-------------------------|
| Voltage Reduction<br>$\%U_T$ | Voltage Dips<br>$\%U_T$ | Duration<br>(in Period) |
| 100                          | 0                       | 0.5                     |
| 100                          | 0                       | 1                       |
| 30                           | 70                      | 5                       |
| Voltage Reduction<br>$\%U_T$ | Voltage Dips<br>$\%U_T$ | Duration<br>(in Period) |
| 100                          | 0                       | 250                     |

#### 5.11.3.2. Performance Criterion

Performance Criterion: B&C

### 5.11.4. EUT Configuration on Test

The configuration of EUT is listed in Section 5.11.1.

### 5.11.5. Operating Condition of EUT

5.11.5.1. Setup the EUT as shown in Section 5.11.1.

5.11.5.2. Turn on the power of all equipments.

5.11.5.3. Let the EUT work in test mode (1) and measure it.

### 5.11.6. Test Procedure

5.11.6.1. Set up the EUT and test generator as shown on Section 5.11.1.

5.11.6.2. The interruptions are introduced at selected phase angles with specified duration.

5.11.6.3. Record any degradation of performance.

### 5.11.7. Test Results

**PASS.**

Refer to attached Annex B.11





## Annex A

(Test photograph)



Test Setup Photo of Power Line Conducted Measurement



Test Setup Photo of Radiated Measurement (30MHz~1GHz)





Test Setup Photo of Harmonic & Flicker Measurement



Test Setup Photo of Electrostatic Discharge Test





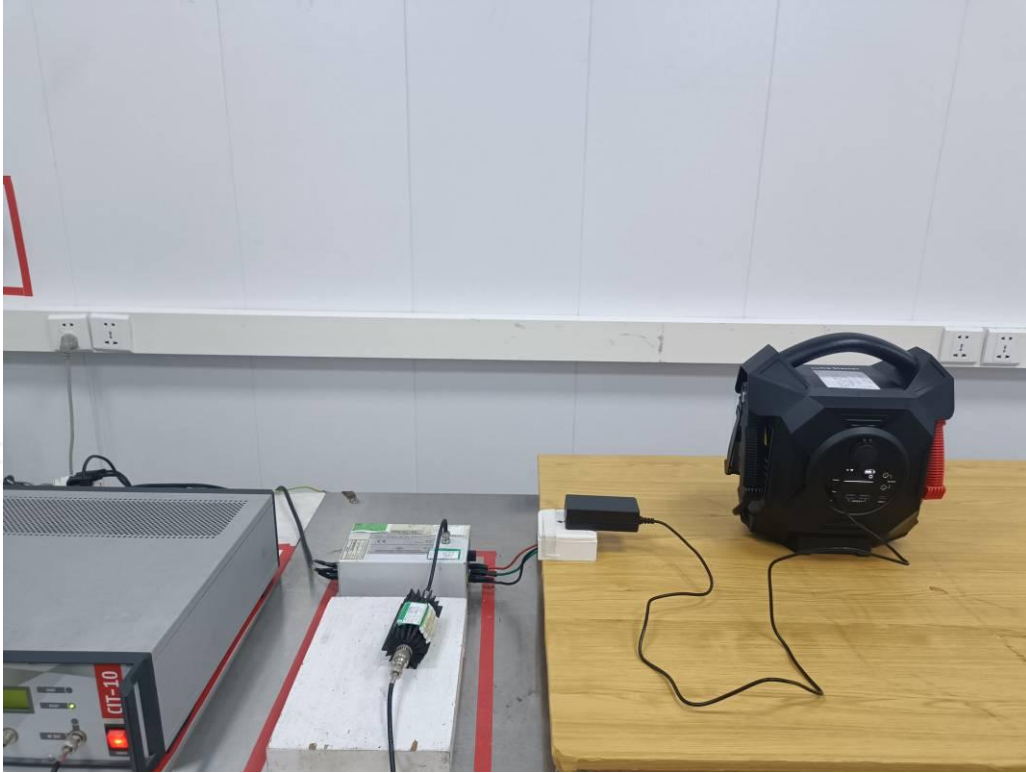


Rf Field Strength Susceptibility Test



Photo of Electrical Fast Transient/Burst Test & Surge Immunity Test



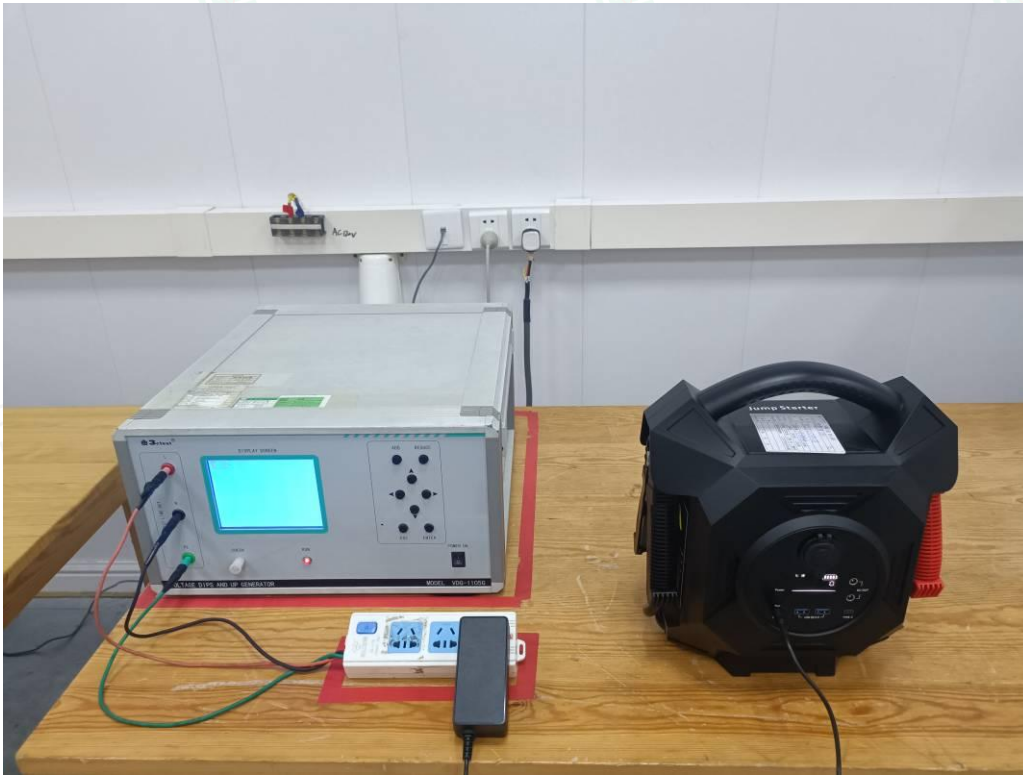


Test Setup Photo of Injected Currents Susceptibility Test



Test Setup Photo of Magnetic Field Immunity Test





Test Setup Photo of Voltage Dips and Interruptions Test



Photo of Radiated emission Measurement(30-1000MHz) (Mode 2)





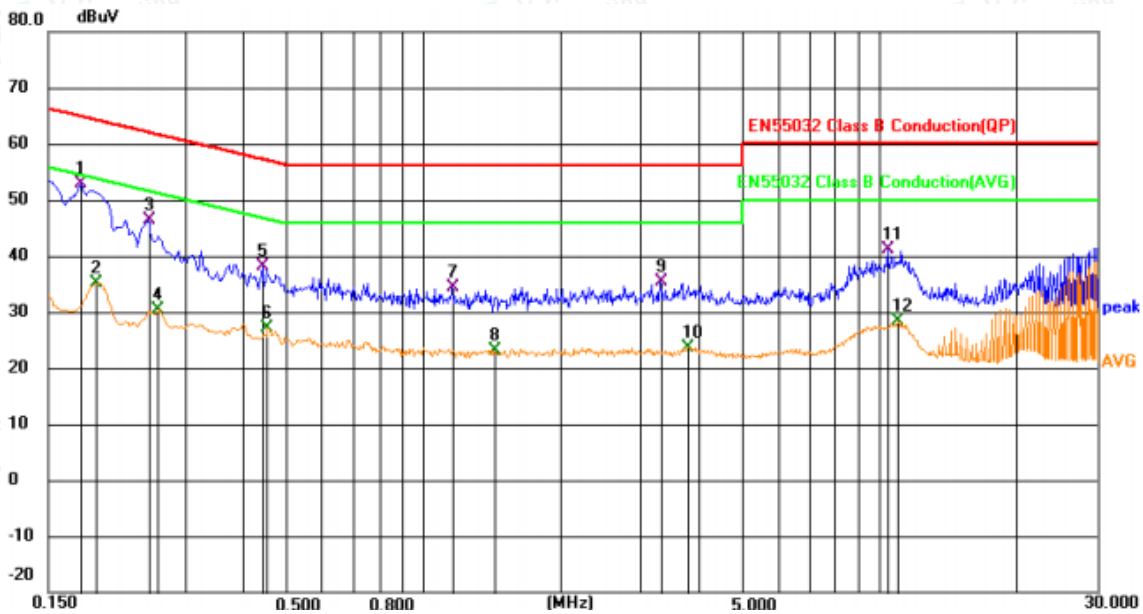
# ANNEX B

(Emission and Immunity test results)

## B.1 POWER LINE CONDUCTED EMISSION MEASUREMENT

|                           |                  |
|---------------------------|------------------|
| Environmental Conditions: | 24.3°C, 53.5% RH |
| Test Voltage:             | AC 230V,50Hz     |
| Test Model:               | CAT797           |
| Test Mode:                | Mode 1           |
| Test Engineer:            | Xf Peng          |
| Pol:                      | Line             |

Detailed results are shown below



| No. Mk. | Freq. MHz | Reading Level dBuV | Correct Factor dB | Measurement dBuV | Limit dBuV | Margin dB | Detector | Comment |
|---------|-----------|--------------------|-------------------|------------------|------------|-----------|----------|---------|
| 1 *     | 0.1771    | 33.13              | 19.63             | 52.76            | 64.62      | -11.86    | QP       |         |
| 2       | 0.1906    | 15.58              | 19.63             | 35.21            | 54.01      | -18.80    | AVG      |         |
| 3       | 0.2491    | 26.80              | 19.63             | 46.43            | 61.79      | -15.36    | QP       |         |
| 4       | 0.2626    | 10.76              | 19.63             | 30.39            | 51.35      | -20.96    | AVG      |         |
| 5       | 0.4426    | 18.49              | 19.64             | 38.13            | 57.01      | -18.88    | QP       |         |
| 6       | 0.4561    | 7.38               | 19.64             | 27.02            | 46.76      | -19.74    | AVG      |         |
| 7       | 1.1581    | 14.80              | 19.65             | 34.45            | 56.00      | -21.55    | QP       |         |
| 8       | 1.4326    | 3.51               | 19.66             | 23.17            | 46.00      | -22.83    | AVG      |         |
| 9       | 3.2956    | 15.63              | 19.70             | 35.33            | 56.00      | -20.67    | QP       |         |
| 10      | 3.8041    | 3.91               | 19.70             | 23.61            | 46.00      | -22.39    | AVG      |         |
| 11      | 10.4461   | 21.25              | 19.85             | 41.10            | 60.00      | -18.90    | QP       |         |
| 12      | 10.9771   | 8.48               | 19.85             | 28.33            | 50.00      | -21.67    | AVG      |         |

Note: Margin= Reading level + Correct factor – Limit

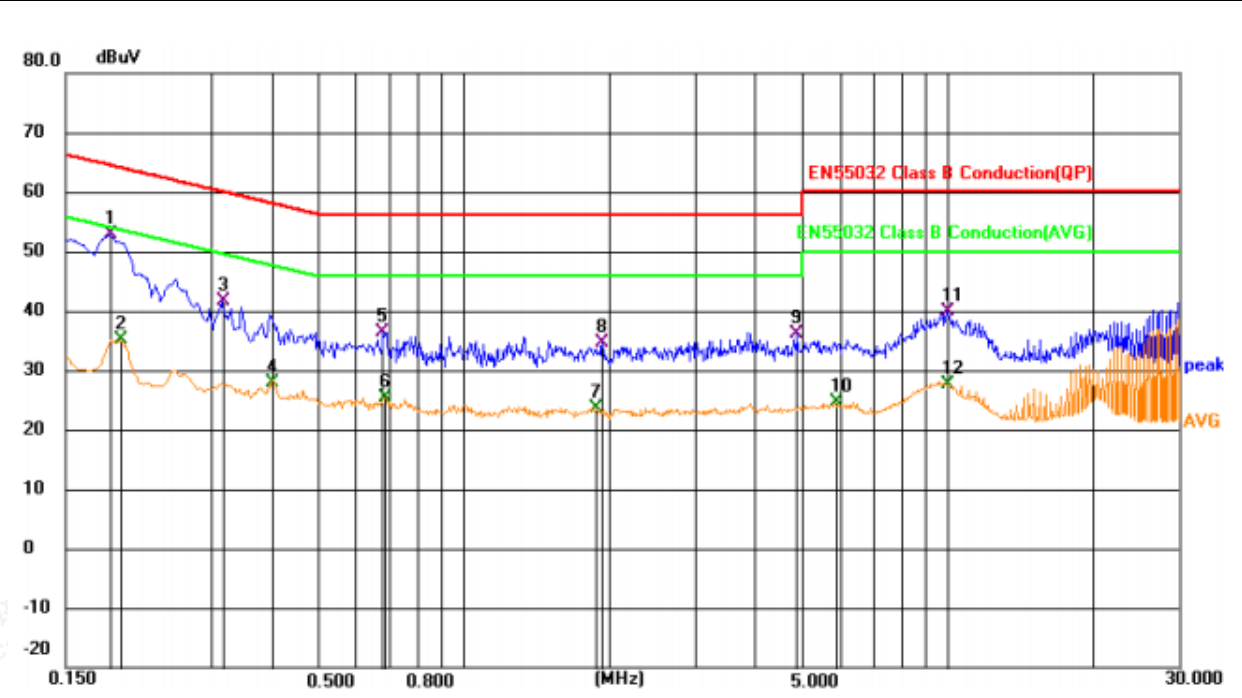
Correct Factor= Lisen Factor+Cable Factor+Limiter Factor





|                           |                  |
|---------------------------|------------------|
| Environmental Conditions: | 24.3°C, 53.5% RH |
| Test Voltage:             | AC 230V,50Hz     |
| Test Model:               | CAT797           |
| Test Mode:                | Mode 1           |
| Test Engineer:            | Xf Peng          |
| Pol:                      | Neutral          |

Detailed results are shown below



| No. | Mk. | Freq.<br>MHz | Reading<br>Level<br>dBuV | Correct<br>Factor<br>dB | Measure-<br>ment<br>dBuV | Limit<br>dBuV | Margin<br>dB | Detector | Comment |
|-----|-----|--------------|--------------------------|-------------------------|--------------------------|---------------|--------------|----------|---------|
| 1   | *   | 0.1861       | 33.19                    | 19.63                   | 52.82                    | 64.21         | -11.39       | QP       |         |
| 2   |     | 0.1951       | 15.43                    | 19.63                   | 35.06                    | 53.82         | -18.76       | AVG      |         |
| 3   |     | 0.3166       | 22.03                    | 19.63                   | 41.66                    | 59.80         | -18.14       | QP       |         |
| 4   |     | 0.3997       | 8.20                     | 19.63                   | 27.83                    | 47.86         | -20.03       | AVG      |         |
| 5   |     | 0.6809       | 16.74                    | 19.65                   | 36.39                    | 56.00         | -19.61       | QP       |         |
| 6   |     | 0.6855       | 5.76                     | 19.65                   | 25.41                    | 46.00         | -20.59       | AVG      |         |
| 7   |     | 1.8825       | 3.89                     | 19.68                   | 23.57                    | 46.00         | -22.43       | AVG      |         |
| 8   |     | 1.9365       | 15.01                    | 19.68                   | 34.69                    | 56.00         | -21.31       | QP       |         |
| 9   |     | 4.8886       | 16.45                    | 19.80                   | 36.25                    | 56.00         | -19.75       | QP       |         |
| 10  |     | 5.8606       | 4.80                     | 19.80                   | 24.60                    | 50.00         | -25.40       | AVG      |         |
| 11  |     | 9.9421       | 19.92                    | 19.85                   | 39.77                    | 60.00         | -20.23       | QP       |         |
| 12  |     | 10.0591      | 7.84                     | 19.85                   | 27.69                    | 50.00         | -22.31       | AVG      |         |

Note: Margin= Reading level + Correct factor – Limit  
 Correct Factor= Lisen Factor+Cable Factor+Limiter Factor

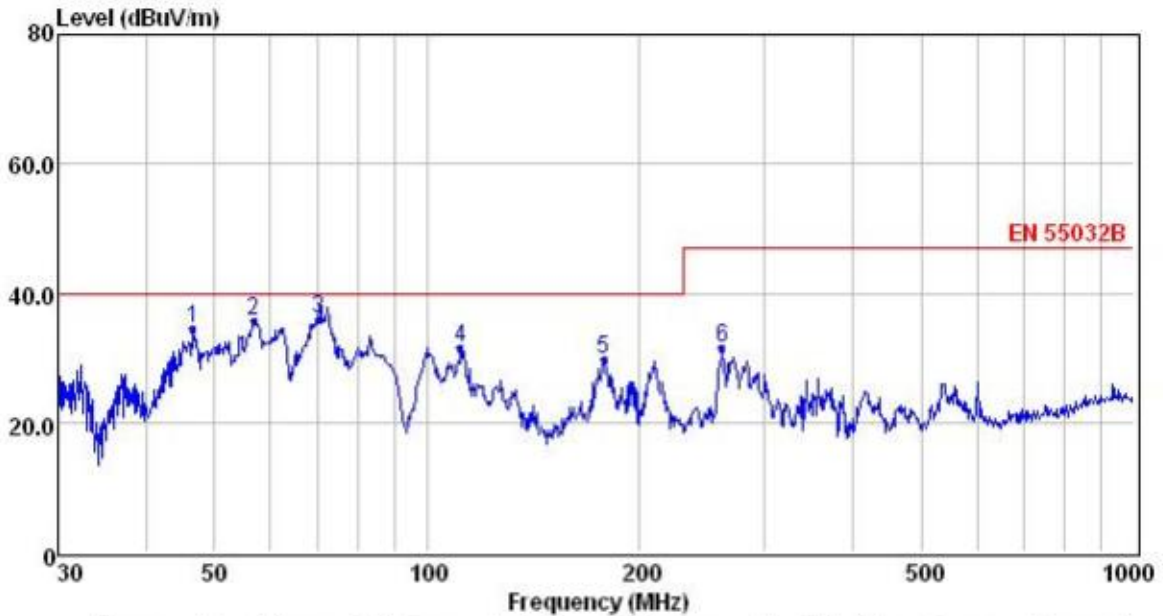




### B.2 Radiated Disturbance Test Results (30MHz to 1000MHz)

|                           |                |
|---------------------------|----------------|
| Environmental Conditions: | 22.3°C, 53% RH |
| Test Voltage:             | AC 230V,50Hz   |
| Test Model:               | CAT797         |
| Test Mode:                | Mode 1         |
| Test Engineer:            | Xing Mo        |
| Pol:                      | Vertical       |

Detailed results are shown below



|   | Freq   | Reading | CabLos | Antfac | Measured | Limit  | Over   | Remark |
|---|--------|---------|--------|--------|----------|--------|--------|--------|
|   | MHz    | dBuV    | dB     | dB/m   | dBuV/m   | dBuV/m | dB     |        |
| 1 | 46.67  | 22.07   | 0.57   | 11.81  | 34.45    | 40.00  | -5.55  | QP     |
| 2 | 56.79  | 22.59   | 0.64   | 12.53  | 35.76    | 40.00  | -4.24  | QP     |
| 3 | 70.34  | 25.10   | 0.70   | 10.19  | 35.99    | 40.00  | -4.01  | QP     |
| 4 | 111.35 | 19.34   | 0.86   | 11.29  | 31.49    | 40.00  | -8.51  | QP     |
| 5 | 178.13 | 18.71   | 1.13   | 9.78   | 29.62    | 40.00  | -10.38 | QP     |
| 6 | 261.98 | 17.35   | 1.28   | 12.79  | 31.42    | 47.00  | -15.58 | QP     |

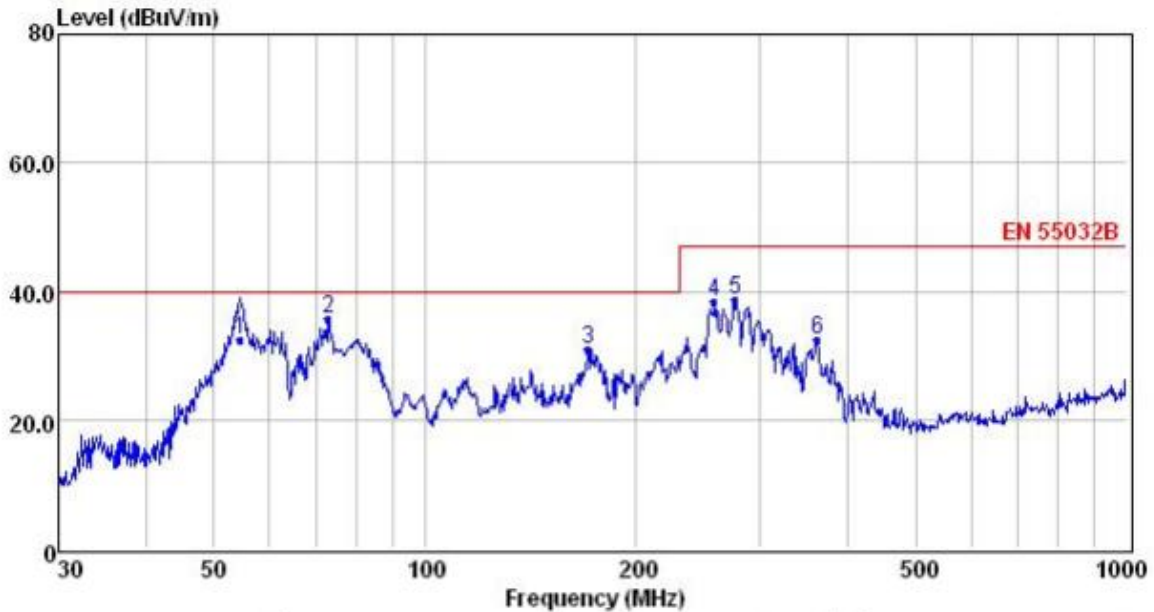
- Note: 1. All readings are Quasi-peak values.  
 2. Measured= Reading + Antenna Factor + Cable Loss  
 3. The emission that are 20db below the official limit are not reported





|                           |                |
|---------------------------|----------------|
| Environmental Conditions: | 22.3°C, 53% RH |
| Test Voltage:             | AC 230V,50Hz   |
| Test Model:               | CAT797         |
| Test Mode:                | Mode 1         |
| Test Engineer:            | Xing Mo        |
| Pol:                      | Horizontal     |

Detailed results are shown below



|   | Freq   | Reading | CabLos | Antfac | Measured | Limit  | Over   | Remark |
|---|--------|---------|--------|--------|----------|--------|--------|--------|
|   | MHz    | dBuV    | dB     | dB/m   | dBuV/m   | dBuV/m | dB     |        |
| 1 | 54.45  | 19.31   | 0.62   | 12.55  | 32.48    | 40.00  | -7.52  | QP     |
| 2 | 72.85  | 24.98   | 0.71   | 10.08  | 35.77    | 40.00  | -4.23  | QP     |
| 3 | 170.79 | 20.18   | 1.11   | 9.71   | 31.00    | 40.00  | -9.00  | QP     |
| 4 | 258.33 | 24.38   | 1.27   | 12.68  | 38.33    | 47.00  | -8.67  | QP     |
| 5 | 277.09 | 24.00   | 1.29   | 13.24  | 38.53    | 47.00  | -8.47  | QP     |
| 6 | 362.98 | 16.39   | 1.37   | 14.69  | 32.45    | 47.00  | -14.55 | QP     |

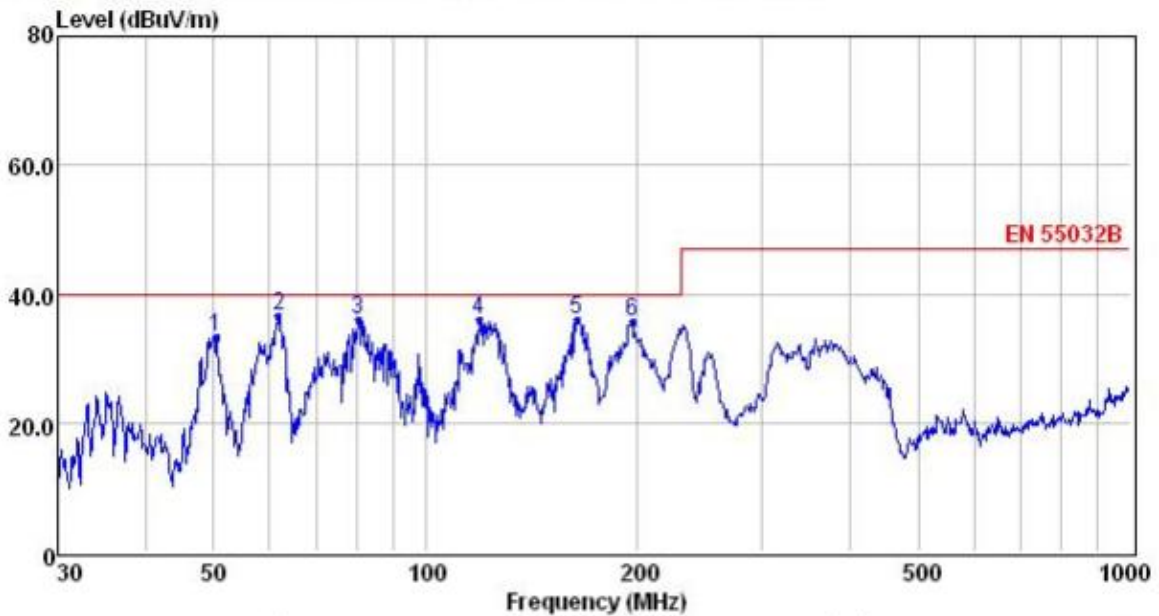
- Note: 1. All readings are Quasi-peak values.  
 2. Measured= Reading + Antenna Factor + Cable Loss  
 3. The emission that are 20db below the official limit are not reported





|                           |                |
|---------------------------|----------------|
| Environmental Conditions: | 22.3°C, 53% RH |
| Test Voltage:             | DC             |
| Test Model:               | CAT797         |
| Test Mode:                | Mode 2         |
| Test Engineer:            | Xing Mo        |
| Pol:                      | Vertical       |

Detailed results are shown below



|   | Freq   | Reading | CabLos | Antfac | Measured | Limit  | Over  | Remark |
|---|--------|---------|--------|--------|----------|--------|-------|--------|
|   | MHz    | dBuV    | dB     | dB/m   | dBuV/m   | dBuV/m | dB    |        |
| 1 | 50.41  | 20.02   | 0.60   | 12.60  | 33.22    | 40.00  | -6.78 | QP     |
| 2 | 61.78  | 23.87   | 0.66   | 12.06  | 36.59    | 40.00  | -3.41 | QP     |
| 3 | 80.08  | 25.55   | 0.74   | 9.80   | 36.09    | 40.00  | -3.91 | QP     |
| 4 | 119.02 | 24.31   | 0.90   | 10.68  | 35.89    | 40.00  | -4.11 | QP     |
| 5 | 163.76 | 25.54   | 1.08   | 9.39   | 36.01    | 40.00  | -3.99 | QP     |
| 6 | 196.51 | 23.88   | 1.19   | 10.63  | 35.70    | 40.00  | -4.30 | 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

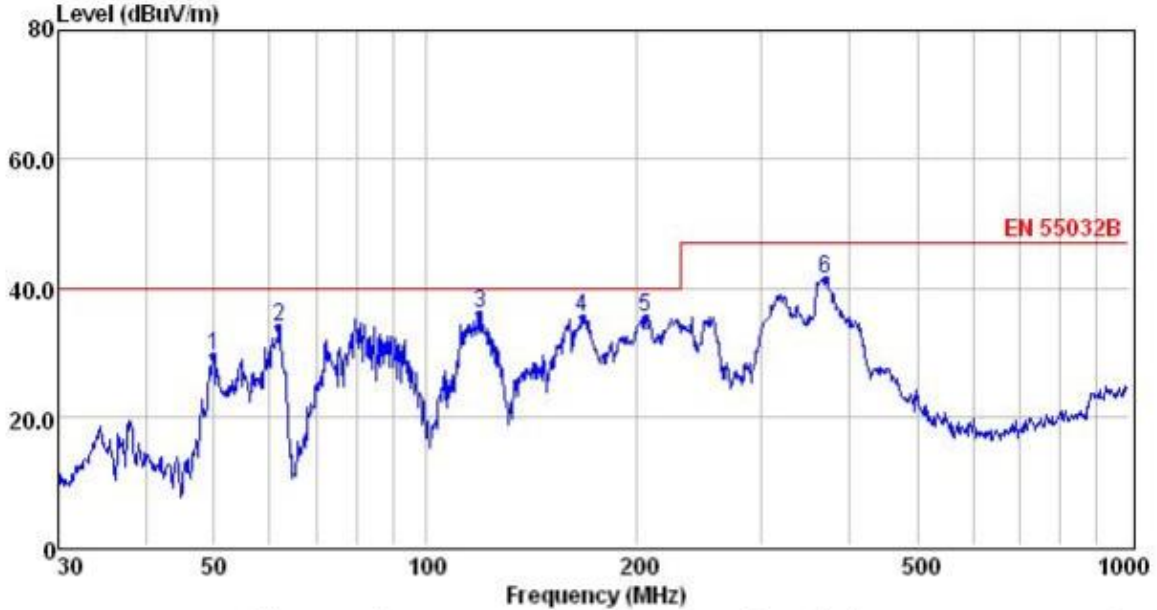






|                           |                |
|---------------------------|----------------|
| Environmental Conditions: | 22.3°C, 53% RH |
| Test Voltage:             | DC             |
| Test Model:               | CAT797         |
| Test Mode:                | Mode 2         |
| Test Engineer:            | Xing Mo        |
| Pol:                      | Horizontal     |

Detailed results are shown below



|   | Freq   | Reading | CabLos | Antfac | Measured | Limit  | Over   | Remark |
|---|--------|---------|--------|--------|----------|--------|--------|--------|
|   | MHz    | dBuV    | dB     | dB/m   | dBuV/m   | dBuV/m | dB     |        |
| 1 | 49.88  | 16.30   | 0.60   | 12.57  | 29.47    | 40.00  | -10.53 | QP     |
| 2 | 61.78  | 21.24   | 0.66   | 12.06  | 33.96    | 40.00  | -6.04  | QP     |
| 3 | 119.44 | 24.42   | 0.90   | 10.64  | 35.96    | 40.00  | -4.04  | QP     |
| 4 | 167.24 | 24.59   | 1.10   | 9.56   | 35.25    | 40.00  | -4.75  | QP     |
| 5 | 205.68 | 23.20   | 1.21   | 11.06  | 35.47    | 40.00  | -4.53  | QP     |
| 6 | 370.70 | 25.29   | 1.38   | 14.57  | 41.24    | 47.00  | -5.76  | QP     |

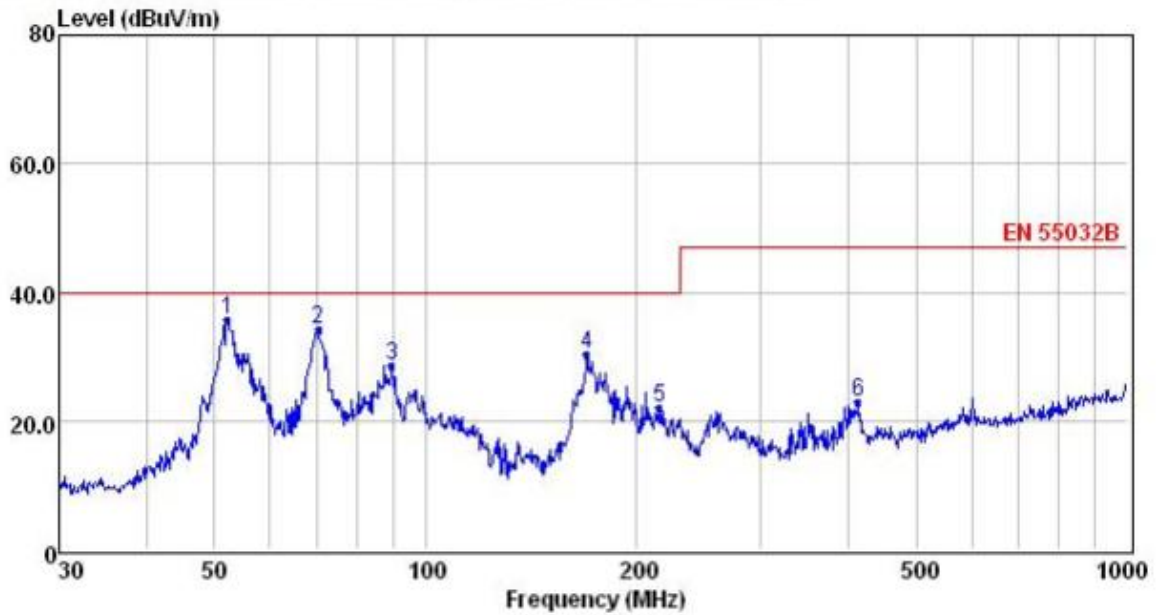
- Note: 1. All readings are Quasi-peak values.  
 2. Measured= Reading + Antenna Factor + Cable Loss  
 3. The emission that are 20db below the official limit are not reported





|                           |                |
|---------------------------|----------------|
| Environmental Conditions: | 22.3°C, 53% RH |
| Test Voltage:             | DC             |
| Test Model:               | CAT797         |
| Test Mode:                | Mode 2         |
| Test Engineer:            | Xing Mo        |
| Pol:                      | Vertical       |
| Note:                     | DC 12V         |

Detailed results are shown below



|   | Freq   | Reading | CabLos | Antfac | Measured | Limit  | Over   | Remark |
|---|--------|---------|--------|--------|----------|--------|--------|--------|
|   | MHz    | dBuV    | dB     | dB/m   | dBuV/m   | dBuV/m | dB     |        |
| 1 | 52.21  | 22.57   | 0.61   | 12.58  | 35.76    | 40.00  | -4.24  | QP     |
| 2 | 70.34  | 23.36   | 0.70   | 10.19  | 34.25    | 40.00  | -5.75  | QP     |
| 3 | 89.59  | 18.19   | 0.77   | 9.51   | 28.47    | 40.00  | -11.53 | QP     |
| 4 | 169.60 | 19.58   | 1.10   | 9.68   | 30.36    | 40.00  | -9.64  | QP     |
| 5 | 215.27 | 9.37    | 1.22   | 11.49  | 22.08    | 40.00  | -17.92 | QP     |
| 6 | 413.27 | 6.31    | 1.41   | 15.18  | 22.90    | 47.00  | -24.10 | QP     |

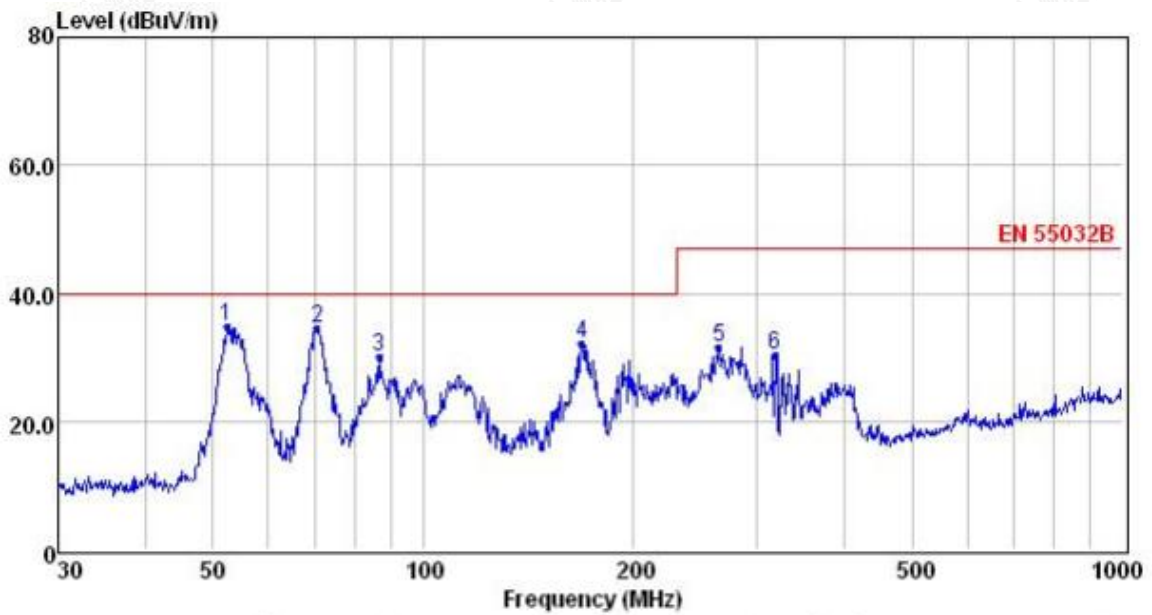
- Note: 1. All readings are Quasi-peak values.  
 2. Measured= Reading + Antenna Factor + Cable Loss  
 3. The emission that are 20db below the official limit are not reported





|                           |                |
|---------------------------|----------------|
| Environmental Conditions: | 22.3°C, 53% RH |
| Test Voltage:             | DC             |
| Test Model:               | CAT797         |
| Test Mode:                | Mode 2         |
| Test Engineer:            | Xing Mo        |
| Pol:                      | Horizontal     |
| Note:                     | DC 12V         |

Detailed results are shown below



|   | Freq<br>MHz | Reading<br>dBUV | CabLos<br>dB | Antfac<br>dB/m | Measured<br>dBUV/m | Limit<br>dBUV/m | Over<br>dB | Remark |
|---|-------------|-----------------|--------------|----------------|--------------------|-----------------|------------|--------|
| 1 | 52.39       | 21.55           | 0.61         | 12.57          | 34.73              | 40.00           | -5.27      | QP     |
| 2 | 70.58       | 23.75           | 0.70         | 10.18          | 34.63              | 40.00           | -5.37      | QP     |
| 3 | 86.50       | 19.80           | 0.76         | 9.60           | 30.16              | 40.00           | -9.84      | QP     |
| 4 | 168.41      | 21.44           | 1.10         | 9.62           | 32.16              | 40.00           | -7.84      | QP     |
| 5 | 264.75      | 17.23           | 1.28         | 12.88          | 31.39              | 47.00           | -15.61     | QP     |
| 6 | 318.82      | 15.57           | 1.33         | 13.55          | 30.45              | 47.00           | -16.55     | QP     |

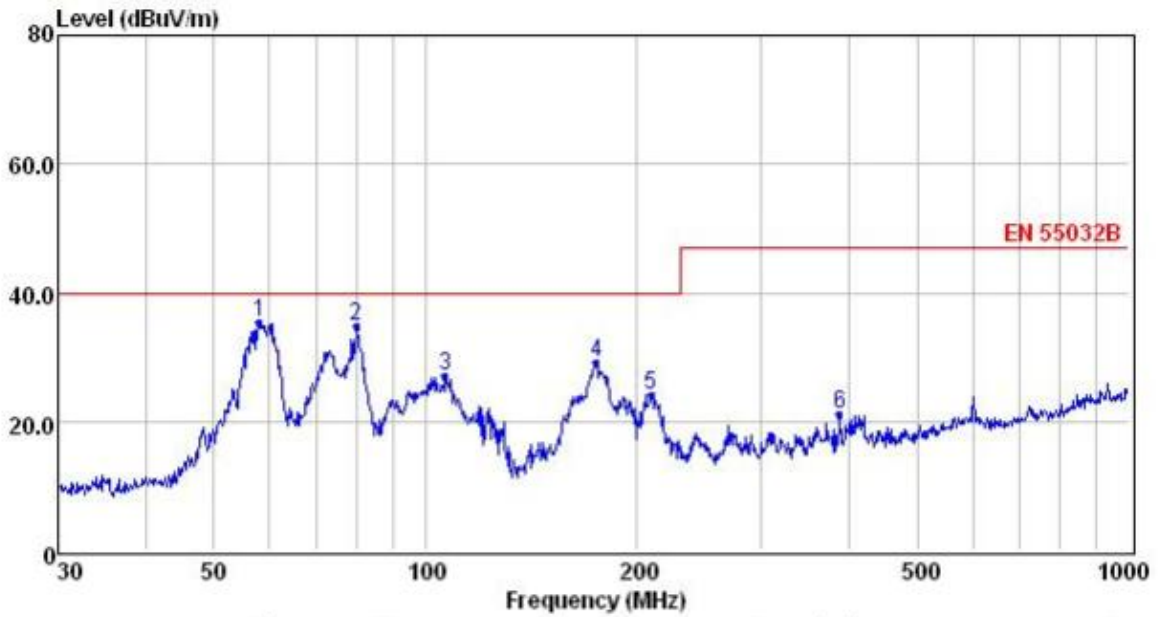
- Note: 1. All readings are Quasi-peak values.  
 2. Measured= Reading + Antenna Factor + Cable Loss  
 3. The emission that are 20db below the official limit are not reported





|                           |                |
|---------------------------|----------------|
| Environmental Conditions: | 22.3°C, 53% RH |
| Test Voltage:             | DC             |
| Test Model:               | CAT797         |
| Test Mode:                | Mode 2         |
| Test Engineer:            | Xing Mo        |
| Pol:                      | Vertical       |
| Note:                     | USB-A          |

Detailed results are shown below



|   | Freq   | Reading | CabLos | Antfac | Measured | Limit  | Over   | Remark |
|---|--------|---------|--------|--------|----------|--------|--------|--------|
|   | MHz    | dBuV    | dB     | dB/m   | dBuV/m   | dBuV/m | dB     |        |
| 1 | 58.00  | 22.21   | 0.64   | 12.52  | 35.37    | 40.00  | -4.63  | QP     |
| 2 | 79.80  | 24.31   | 0.73   | 9.81   | 34.85    | 40.00  | -5.15  | QP     |
| 3 | 106.76 | 15.07   | 0.84   | 11.18  | 27.09    | 40.00  | -12.91 | QP     |
| 4 | 175.04 | 18.18   | 1.12   | 9.75   | 29.05    | 40.00  | -10.95 | QP     |
| 5 | 209.31 | 11.77   | 1.21   | 11.23  | 24.21    | 40.00  | -15.79 | QP     |
| 6 | 387.99 | 5.08    | 1.39   | 14.61  | 21.08    | 47.00  | -25.92 | QP     |

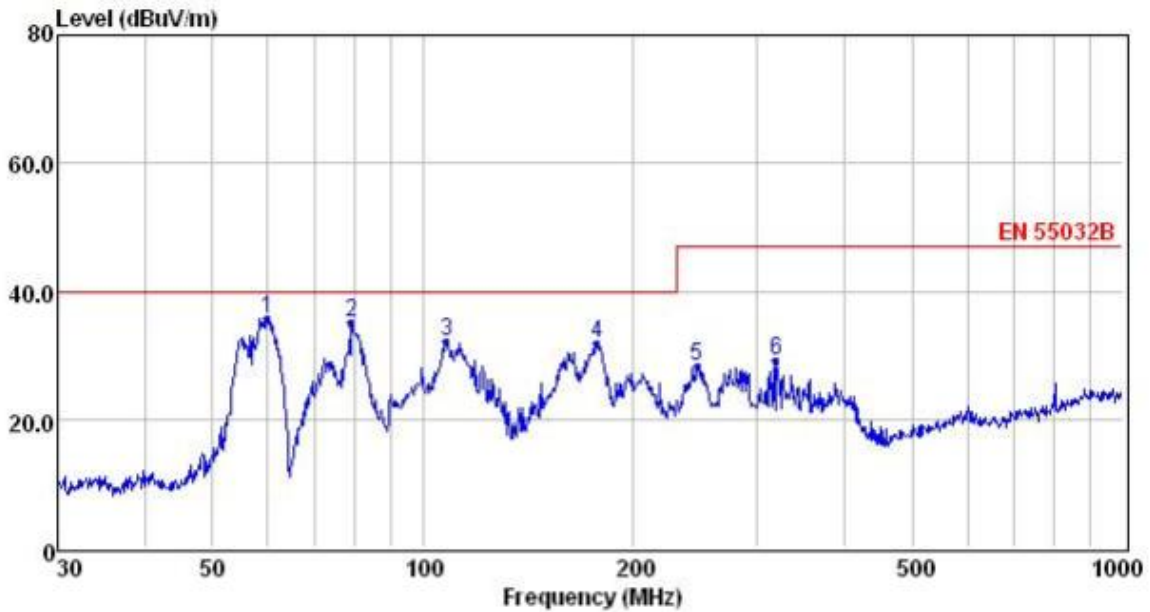
- Note: 1. All readings are Quasi-peak values.  
 2. Measured= Reading + Antenna Factor + Cable Loss  
 3. The emission that are 20db below the official limit are not reported





|                           |                |
|---------------------------|----------------|
| Environmental Conditions: | 22.3°C, 53% RH |
| Test Voltage:             | DC             |
| Test Model:               | CAT797         |
| Test Mode:                | Mode 2         |
| Test Engineer:            | Xing Mo        |
| Pol:                      | Horizontal     |
| Note:                     | USB-A          |

Detailed results are shown below



|   | Freq   | Reading | CabLos | Antfac | Measured | Limit  | Over   | Remark |
|---|--------|---------|--------|--------|----------|--------|--------|--------|
|   | MHz    | dBuV    | dB     | dB/m   | dBuV/m   | dBuV/m | dB     |        |
| 1 | 59.86  | 22.63   | 0.65   | 12.50  | 35.78    | 40.00  | -4.22  | QP     |
| 2 | 78.97  | 24.63   | 0.73   | 9.84   | 35.20    | 40.00  | -4.80  | QP     |
| 3 | 107.89 | 20.14   | 0.84   | 11.26  | 32.24    | 40.00  | -7.76  | QP     |
| 4 | 177.51 | 21.04   | 1.13   | 9.78   | 31.95    | 40.00  | -8.05  | QP     |
| 5 | 246.81 | 14.79   | 1.26   | 12.34  | 28.39    | 47.00  | -18.61 | QP     |
| 6 | 319.94 | 14.39   | 1.34   | 13.54  | 29.27    | 47.00  | -17.73 | QP     |

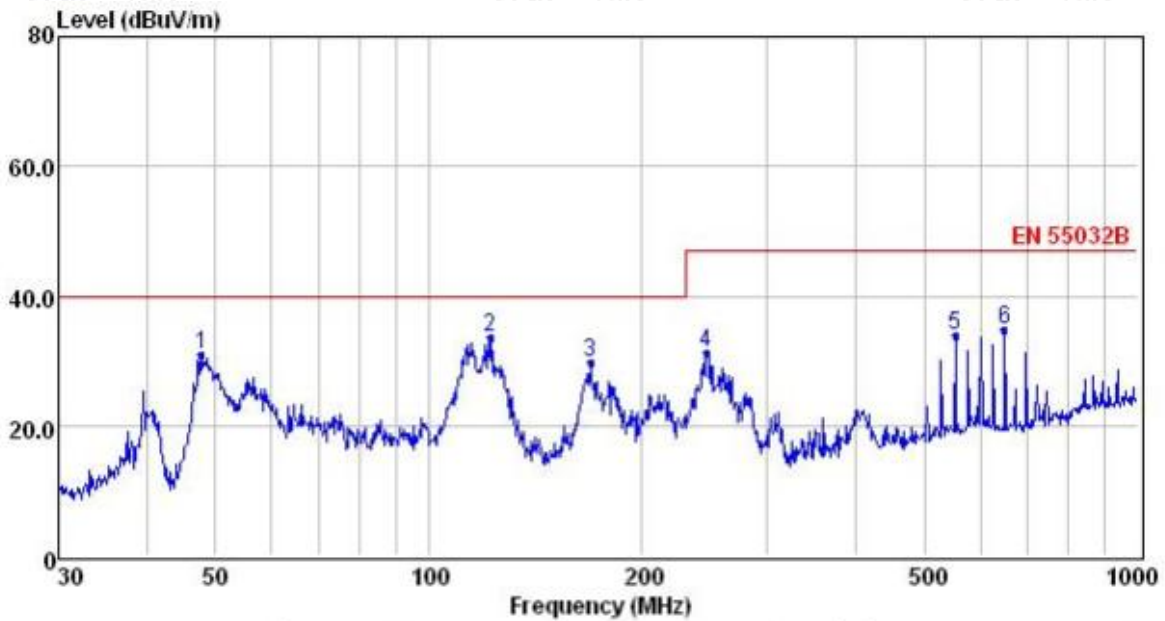
- Note: 1. All readings are Quasi-peak values.  
 2. Measured= Reading + Antenna Factor + Cable Loss  
 3. The emission that are 20db below the official limit are not reported





|                           |                |
|---------------------------|----------------|
| Environmental Conditions: | 22.3°C, 53% RH |
| Test Voltage:             | DC             |
| Test Model:               | CAT797         |
| Test Mode:                | Mode 2         |
| Test Engineer:            | Xing Mo        |
| Pol:                      | Vertical       |
| Note:                     | USB-C          |

Detailed results are shown below



|   | Freq   | Reading | CabLos | Antfac | Measured | Limit  | Over   | Remark |
|---|--------|---------|--------|--------|----------|--------|--------|--------|
|   | MHz    | dBuV    | dB     | dB/m   | dBuV/m   | dBuV/m | dB     |        |
| 1 | 47.83  | 18.34   | 0.58   | 12.09  | 31.01    | 40.00  | -8.99  | QP     |
| 2 | 121.98 | 22.37   | 0.91   | 10.36  | 33.64    | 40.00  | -6.36  | QP     |
| 3 | 169.01 | 18.95   | 1.10   | 9.65   | 29.70    | 40.00  | -10.30 | QP     |
| 4 | 246.81 | 17.61   | 1.26   | 12.34  | 31.21    | 47.00  | -15.79 | QP     |
| 5 | 552.88 | 14.57   | 1.50   | 17.80  | 33.87    | 47.00  | -13.13 | QP     |
| 6 | 649.66 | 14.55   | 1.65   | 18.60  | 34.80    | 47.00  | -12.20 | QP     |

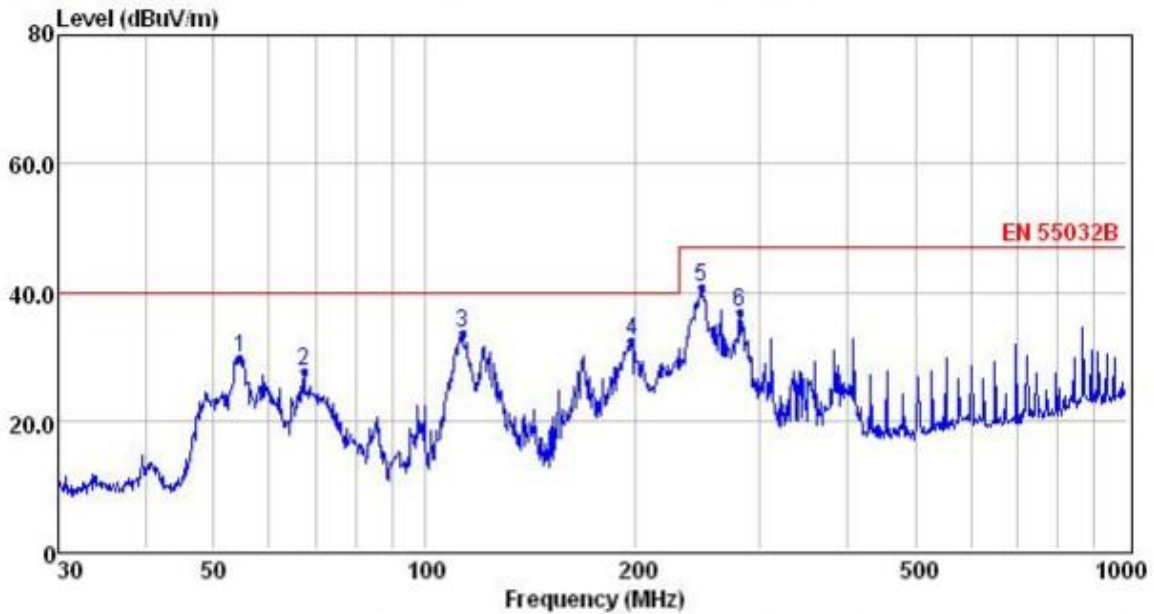
- Note: 1. All readings are Quasi-peak values.  
 2. Measured= Reading + Antenna Factor + Cable Loss  
 3. The emission that are 20db below the official limit are not reported





|                           |                |
|---------------------------|----------------|
| Environmental Conditions: | 22.3°C, 53% RH |
| Test Voltage:             | DC             |
| Test Model:               | CAT797         |
| Test Mode:                | Mode 2         |
| Test Engineer:            | Xing Mo        |
| Pol:                      | Horizontal     |
| Note:                     | USB-C          |

Detailed results are shown below



|   | Freq   | Reading | CabLos | Antfac | Measured | Limit  | Over   | Remark |
|---|--------|---------|--------|--------|----------|--------|--------|--------|
|   | MHz    | dBuV    | dB     | dB/m   | dBuV/m   | dBuV/m | dB     |        |
| 1 | 54.45  | 16.59   | 0.62   | 12.55  | 29.76    | 40.00  | -10.24 | QP     |
| 2 | 67.20  | 16.26   | 0.69   | 10.81  | 27.76    | 40.00  | -12.24 | QP     |
| 3 | 113.32 | 21.63   | 0.87   | 11.13  | 33.63    | 40.00  | -6.37  | QP     |
| 4 | 197.20 | 20.53   | 1.19   | 10.66  | 32.38    | 40.00  | -7.62  | QP     |
| 5 | 247.68 | 26.98   | 1.26   | 12.36  | 40.60    | 47.00  | -6.40  | QP     |
| 6 | 281.01 | 22.23   | 1.30   | 13.32  | 36.85    | 47.00  | -10.15 | 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





### B.3 HARMONIC CURRENT EMISSION MEASUREMENT

N/A

Because the power of EUT is less than 75W, according standard EN 61000-3-2, harmonic current unnecessary to test.

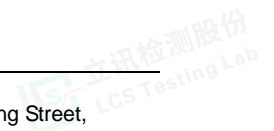
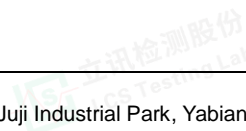
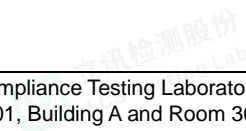






### B.4 VOLTAGE FLUCTUATION AND FLICKER MEASUREMENT

|  |              |                      |        |                             |        |  |  |  |               |  |                |  |  |            |      |                 |     |      |        |      |                |      |      |          |      |                |      |      |     |       |            |       |      |     |       |            |       |      |
|--|--------------|----------------------|--------|-----------------------------|--------|--|--|--|---------------|--|----------------|--|--|------------|------|-----------------|-----|------|--------|------|----------------|------|------|----------|------|----------------|------|------|-----|-------|------------|-------|------|-----|-------|------------|-------|------|
| <b>Test Model</b>  | CAT797       | <b>Test Engineer</b> | Hy Luo |                             |        |  |  |  |               |  |                |  |  |            |      |                 |     |      |        |      |                |      |      |          |      |                |      |      |     |       |            |       |      |     |       |            |       |      |
| <b>Test Voltage</b>  | AC 230V/50Hz |                      |        |                             |        |  |  |  |               |  |                |  |  |            |      |                 |     |      |        |      |                |      |      |          |      |                |      |      |     |       |            |       |      |     |       |            |       |      |
| Customer :   |              | Result : PASS        |        |                             |        |  |  |  |               |  |                |  |  |            |      |                 |     |      |        |      |                |      |      |          |      |                |      |      |     |       |            |       |      |     |       |            |       |      |
| <p><b>Pst and Limit</b></p>  |              |                      |        |                             |        |  |  |  |               |  |                |  |  |            |      |                 |     |      |        |      |                |      |      |          |      |                |      |      |     |       |            |       |      |     |       |            |       |      |
| <p><b>Plt and Limit</b></p>  |              |                      |        |                             |        |  |  |  |               |  |                |  |  |            |      |                 |     |      |        |      |                |      |      |          |      |                |      |      |     |       |            |       |      |     |       |            |       |      |
| <p><b>Relevant Parameter and Judgement During Test Period</b></p> <table border="1"> <tr> <td>Vrms at the end of test (V)</td> <td>229.67</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Error Max (%)</td> <td></td> <td>Test Limit (%)</td> <td></td> <td></td> </tr> <tr> <td>T-max (ms)</td> <td>0.00</td> <td>Test Limit (ms)</td> <td>500</td> <td>Pass</td> </tr> <tr> <td>dc (%)</td> <td>0.00</td> <td>Test Limit (%)</td> <td>3.30</td> <td>Pass</td> </tr> <tr> <td>dmax (%)</td> <td>0.00</td> <td>Test Limit (%)</td> <td>4.00</td> <td>Pass</td> </tr> <tr> <td>Pst</td> <td>0.017</td> <td>Test Limit</td> <td>1.000</td> <td>Pass</td> </tr> <tr> <td>Plt</td> <td>0.017</td> <td>Test Limit</td> <td>0.650</td> <td>Pass</td> </tr> </table> |              |                      |        | Vrms at the end of test (V) | 229.67 |  |  |  | Error Max (%) |  | Test Limit (%) |  |  | T-max (ms) | 0.00 | Test Limit (ms) | 500 | Pass | dc (%) | 0.00 | Test Limit (%) | 3.30 | Pass | dmax (%) | 0.00 | Test Limit (%) | 4.00 | Pass | Pst | 0.017 | Test Limit | 1.000 | Pass | Plt | 0.017 | Test Limit | 0.650 | Pass |
| Vrms at the end of test (V)  | 229.67       |                      |        |                             |        |  |  |  |               |  |                |  |  |            |      |                 |     |      |        |      |                |      |      |          |      |                |      |      |     |       |            |       |      |     |       |            |       |      |
| Error Max (%)  |              | Test Limit (%)       |        |                             |        |  |  |  |               |  |                |  |  |            |      |                 |     |      |        |      |                |      |      |          |      |                |      |      |     |       |            |       |      |     |       |            |       |      |
| T-max (ms)   | 0.00         | Test Limit (ms)      | 500    | Pass                        |        |  |  |  |               |  |                |  |  |            |      |                 |     |      |        |      |                |      |      |          |      |                |      |      |     |       |            |       |      |     |       |            |       |      |
| dc (%)   | 0.00         | Test Limit (%)       | 3.30   | Pass                        |        |  |  |  |               |  |                |  |  |            |      |                 |     |      |        |      |                |      |      |          |      |                |      |      |     |       |            |       |      |     |       |            |       |      |
| dmax (%)   | 0.00         | Test Limit (%)       | 4.00   | Pass                        |        |  |  |  |               |  |                |  |  |            |      |                 |     |      |        |      |                |      |      |          |      |                |      |      |     |       |            |       |      |     |       |            |       |      |
| Pst  | 0.017        | Test Limit           | 1.000  | Pass                        |        |  |  |  |               |  |                |  |  |            |      |                 |     |      |        |      |                |      |      |          |      |                |      |      |     |       |            |       |      |     |       |            |       |      |
| Plt  | 0.017        | Test Limit           | 0.650  | Pass                        |        |  |  |  |               |  |                |  |  |            |      |                 |     |      |        |      |                |      |      |          |      |                |      |      |     |       |            |       |      |     |       |            |       |      |





## B.5 ELECTROSTATIC DISCHARGE IMMUNITY TEST

| Electrostatic Discharge Test Results |   |               |          |
|--------------------------------------|---|---------------|----------|
| Standard                             | <input type="checkbox"/> IEC 61000-4-2 <input checked="" type="checkbox"/> EN 61000-4-2 |               |          |
| Applicant                            | Shenzhen Damin Energy Technology Co., Ltd   |               |          |
| EUT                                  | Jump Starter  | Temperature   | 24.2°C   |
| M/N                                  | CAT797  | Humidity      | 53.1%    |
| Criterion                            | B   | Pressure      | 1021mbar |
| Test Mode                            | Mode 1  | Test Engineer | Hy Luo   |

| Air Discharge |                                     |                                     |                                     |                                     |                          |  |
|---------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|--------------------------|--|
| Test Points   | Test Levels                         |                                     |                                     | Results                             |                          |  |
|               | ± 2kV                               | ± 4kV                               | ± 8kV                               | Passed                              | Fail                     | Performance Criterion  |
| Front         | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> A <input checked="" type="checkbox"/> B |
| Back          | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> A <input checked="" type="checkbox"/> B |
| Left          | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> A <input checked="" type="checkbox"/> B |
| Right         | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> A <input checked="" type="checkbox"/> B |
| Top           | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> A <input checked="" type="checkbox"/> B |
| Bottom        | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> A <input checked="" type="checkbox"/> B |

| Contact Discharge |                                     |                                     |                                     |                          |                            |                                       |
|-------------------|-------------------------------------|-------------------------------------|-------------------------------------|--------------------------|----------------------------|---------------------------------------|
| Test Points       | Test Levels                         |                                     | Results                             |                          |                            |                                       |
|                   | ± 2 kV                              | ±4 kV                               | Passed                              | Fail                     | Performance Criterion      |                                       |
| Front             | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> A | <input checked="" type="checkbox"/> B |
| Back              | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> A | <input checked="" type="checkbox"/> B |
| Left              | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> A | <input checked="" type="checkbox"/> B |
| Right             | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> A | <input checked="" type="checkbox"/> B |
| Top               | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> A | <input checked="" type="checkbox"/> B |
| Bottom            | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> A | <input checked="" type="checkbox"/> B |

| Discharge To Horizontal Coupling Plane |                                     |                                     |                                     |                          |                            |                                       |
|--|-------------------------------------|-------------------------------------|-------------------------------------|--------------------------|----------------------------|---------------------------------------|
| Side of EUT                            | Test Levels                         |                                     | Results                             |                          |                            |                                       |
|  | ± 2 kV                              | ± 4 kV                              | Passed                              | Fail                     | Performance Criterion      |                                       |
| Front                                  | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> A | <input checked="" type="checkbox"/> B |
| Back                                   | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> A | <input checked="" type="checkbox"/> B |
| Left                                   | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> A | <input checked="" type="checkbox"/> B |
| Right                                  | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> A | <input checked="" type="checkbox"/> B |

| Discharge To Vertical Coupling Plane |                                     |                                     |                                     |                          |                            |                                       |
|--------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|--------------------------|----------------------------|---------------------------------------|
| Side of EUT                          | Test Levels                         |                                     | Results                             |                          |                            |                                       |
|                                      | ± 2 kV                              | ± 4 kV                              | Passed                              | Fail                     | Performance Criterion      |                                       |
| Front                                | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> A | <input checked="" type="checkbox"/> B |
| Back                                 | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> A | <input checked="" type="checkbox"/> B |
| Left                                 | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> A | <input checked="" type="checkbox"/> B |
| Right                                | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> A | <input checked="" type="checkbox"/> B |



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## B.6 RF FIELD STRENGTH SUSCEPTIBILITY TEST

## RF Field Strength Susceptibility Test Results

|                       |  |                      |        |
|-----------------------|--|----------------------|--------|
| <b>Standard</b>       | <input type="checkbox"/> IEC 61000-4-3 <input checked="" type="checkbox"/> EN 61000-4-3                      |                      |        |
| <b>Applicant</b>      | Shenzhen Damin Energy Technology Co., Ltd  |                      |        |
| <b>EUT</b>            | Jump Starter   | <b>Temperature</b>   | 23.5°C |
| <b>M/N</b>            | CAT797   | <b>Humidity</b>      | 53.2%  |
| <b>Field Strength</b> | 3 V/m  | <b>Criterion</b>     | A      |
| <b>Test Mode</b>      | Mode 1   | <b>Test Engineer</b> | Hy Luo |
| <b>Test Frequency</b> | 80MHz to 1000MHz (swept test)<br>1800MHz, 2600MHz, 3500MHz,<br>5000MHz (spot test)                           |                      |        |
| <b>Modulation</b>     | <input type="checkbox"/> None <input type="checkbox"/> Pulse <input checked="" type="checkbox"/> AM 1KHz 80% |                      |        |
| <b>Steps</b>          | 1%   |                      |        |

|              | Horizontal | Vertical |
|--------------|------------|----------|
| <b>Front</b> | PASS       | PASS     |
| <b>Right</b> | PASS       | PASS     |
| <b>Rear</b>  | PASS       | PASS     |
| <b>Left</b>  | PASS       | PASS     |

Note:



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## B.7 ELECTRICAL FAST TRANSIENT/BURST IMMUNITY TEST

## Electrical Fast Transient/Burst Test Results

|                      |   |                    |        |
|----------------------|---|--------------------|--------|
| <b>Standard</b>      | <input type="checkbox"/> IEC 61000-4-4 <input checked="" type="checkbox"/> EN 61000-4-4 |                    |        |
| <b>Applicant</b>     | Shenzhen Damin Energy Technology Co., Ltd   |                    |        |
| <b>EUT</b>           | Jump Starter  | <b>Temperature</b> | 23.7°C |
| <b>M/N</b>           | CAT797  | <b>Humidity</b>    | 53.5%  |
| <b>Test Mode</b>     | Mode 1  | <b>Criterion</b>   | B      |
| <b>Test Engineer</b> | Hy Luo  |                    |        |

| Line        | Test Voltage | Result (+) | Result (-) |
|-------------|--------------|------------|------------|
| L           | 1KV          | PASS       | PASS       |
| N           | 1KV          | PASS       | PASS       |
| PE          |              |            |            |
| L-N         | 1KV          | PASS       | PASS       |
| L-PE        |              |            |            |
| N-PE        |              |            |            |
| L-N-PE      |              |            |            |
| Signal Line |              |            |            |
| I/O Cable   |              |            |            |

Note:



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## B.8 SURGE IMMUNITY TEST

## Surge Immunity Test Result

|                      |   |                    |        |
|----------------------|---|--------------------|--------|
| <b>Standard</b>      | <input type="checkbox"/> IEC 61000-4-5 <input checked="" type="checkbox"/> EN 61000-4-5 |                    |        |
| <b>Applicant</b>     | Shenzhen Damin Energy Technology Co., Ltd   |                    |        |
| <b>EUT</b>           | Jump Starter  | <b>Temperature</b> | 23.7°C |
| <b>M/N</b>           | CAT797  | <b>Humidity</b>    | 53.5%  |
| <b>Test Mode</b>     | Mode 1  | <b>Criterion</b>   | B      |
| <b>Test Engineer</b> | Hy Luo  |                    |        |

| Location    | Polarity | Phase Angle | Number of Pulse | Pulse Voltage (KV) | Result |
|-------------|----------|-------------|-----------------|--------------------|--------|
| L-N         | +        | 90°         | 5               | 1.0                | PASS   |
|             | -        | 270°        | 5               | 1.0                | PASS   |
| L-PE        |          |             |                 |                    |        |
| N-PE        |          |             |                 |                    |        |
| Signal Line |          |             |                 |                    |        |
| Note        |          |             |                 |                    |        |



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**B.9 Conducted disturbances induced by radio-frequency fields TEST****Conducted disturbances induced by radio-frequency fields Test Results**

|                      |   |                    |        |
|----------------------|---|--------------------|--------|
| <b>Standard</b>      | <input type="checkbox"/> IEC 61000-4-6 <input checked="" type="checkbox"/> EN 61000-4-6 |                    |        |
| <b>Applicant</b>     | Shenzhen Damin Energy Technology Co., Ltd   |                    |        |
| <b>EUT</b>           | Jump Starter  | <b>Temperature</b> | 23.7°C |
| <b>M/N</b>           | CAT797  | <b>Humidity</b>    | 53.5%  |
| <b>Test Mode</b>     | Mode 1  | <b>Criterion</b>   | A      |
| <b>Test Engineer</b> | Hy Luo  |                    |        |

| Frequency Range (MHz) | Injected Position | Strength (Unmodulated) | Criterion | Result |
|-----------------------|-------------------|------------------------|-----------|--------|
| 0.15 ~ 10             | AC Mains          | 3V                     | A         | PASS   |
| 10 ~ 30               |                   | 3V ~ 1V                |           |        |
| 30 ~ 80               |                   | 1V                     |           |        |
|                       |                   |                        |           |        |
|                       |                   |                        |           |        |
|                       |                   |                        |           |        |

Note:





## B.10 MAGNETIC FIELD SUSCEPTIBILITY TEST

| Magnetic Field Immunity Test Result |   |                    |        |
|-------------------------------------|---|--------------------|--------|
| <b>Standard</b>                     | <input type="checkbox"/> IEC 61000-4-8 <input checked="" type="checkbox"/> EN 61000-4-8 |                    |        |
| <b>Applicant</b>                    | Shenzhen Damin Energy Technology Co., Ltd   |                    |        |
| <b>EUT</b>                          | Jump Starter  | <b>Temperature</b> | 23.7°C |
| <b>M/N</b>                          | CAT797  | <b>Humidity</b>    | 53.5%  |
| <b>Test Mode</b>                    | Mode 1  | <b>Criterion</b>   | A      |
| <b>Test Engineer</b>                | Hy Luo  |                    |        |

| Test Level (A/M) | Testing Duration | Coil Orientation | Criterion | Result |
|------------------|------------------|------------------|-----------|--------|
| 1                | 5 mins           | X                | A         | PASS   |
| 1                | 5 mins           | Y                | A         | PASS   |
| 1                | 5 mins           | Z                | A         | PASS   |

Note:



**B.11 VOLTAGE DIPS AND INTERRUPTIONS TEST**

| Voltage Dips And Interruptions Test Results |   |                    |        |
|---|---|--------------------|--------|
| <b>Standard</b>                             | <input type="checkbox"/> IEC 61000-4-11 <input checked="" type="checkbox"/> EN 61000-4-11 |                    |        |
| <b>Applicant</b>                            | Shenzhen Damin Energy Technology Co., Ltd   |                    |        |
| <b>EUT</b>                                  | Jump Starter  | <b>Temperature</b> | 23.4°C |
| <b>M/N</b>                                  | CAT797  | <b>Humidity</b>    | 53.7%  |
| <b>Test Mode</b>                            | Mode 1  | <b>Criterion</b>   | B&C    |
| <b>Test Engineer</b>                        | Hy Luo  |                    |        |

| Test Level<br>% U <sub>T</sub> | Voltage Dips & Short Interruptions<br>% U <sub>T</sub> | Duration<br>(in periods) | Criterion | Result |
|--------------------------------|--|--------------------------|-----------|--------|
| 0                              | 100  | 0.5P                     | B         | PASS   |
| 70                             | 30   | 25P                      | C         | PASS   |
| 0                              | 100  | 250P                     | C         | PASS   |

Note:



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# ANNEX C

(External and internal photos of the EUT)



Fig. 1



Fig. 2



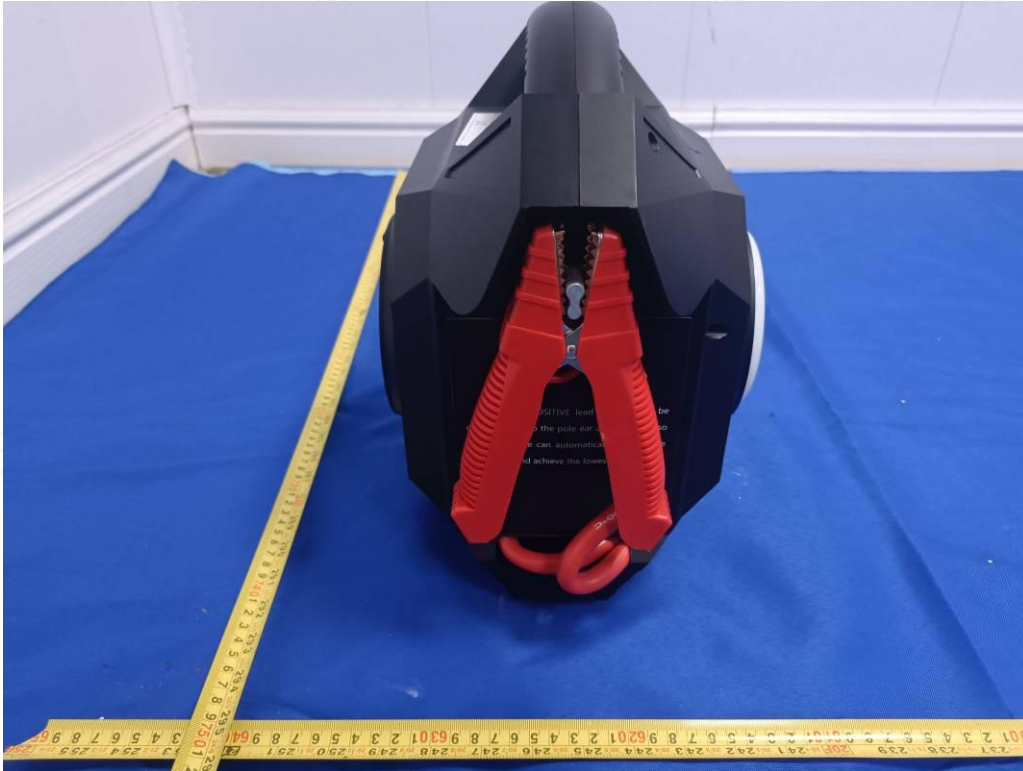


Fig. 3

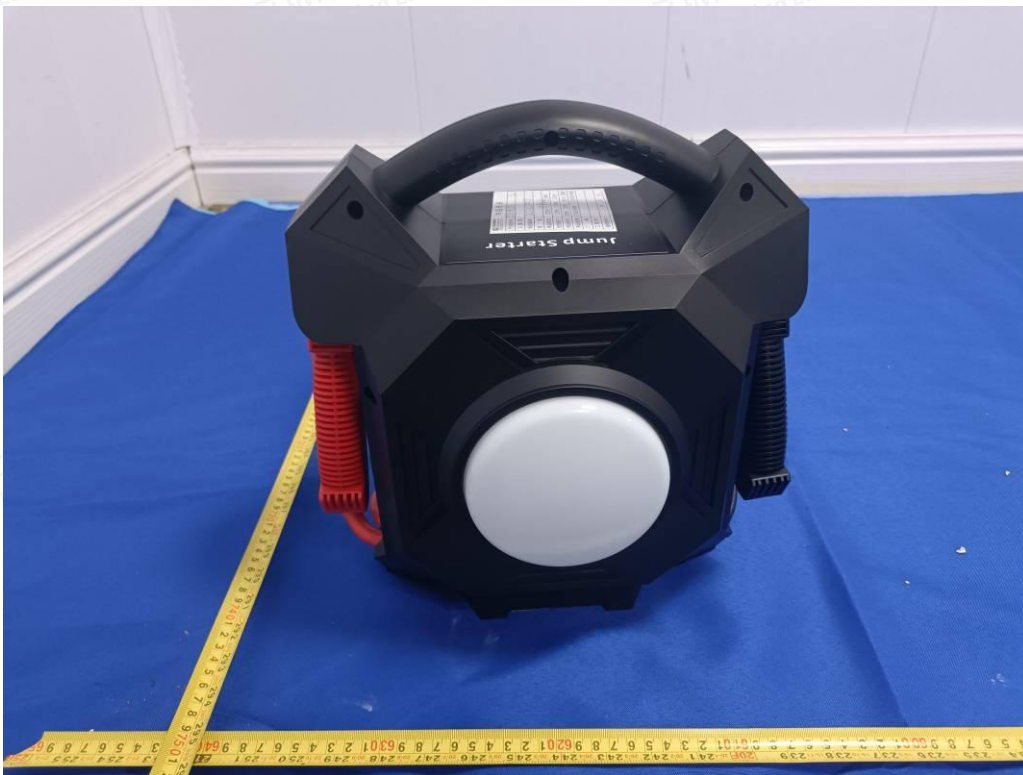


Fig. 4





Fig. 5



Fig. 6



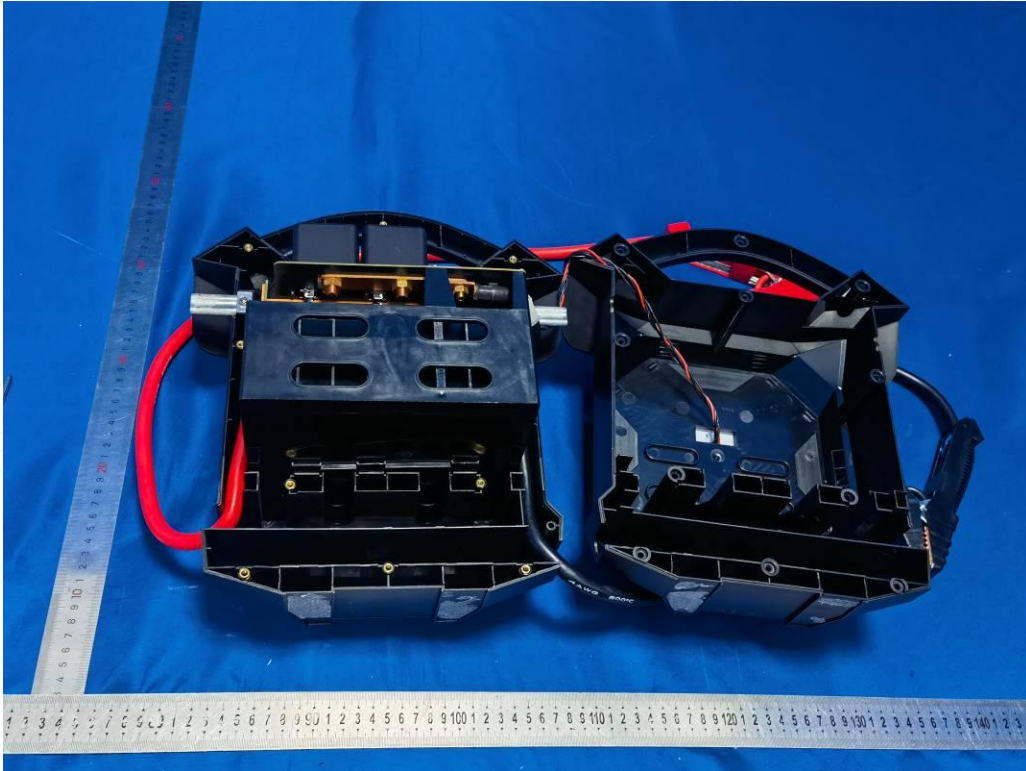


Fig. 7

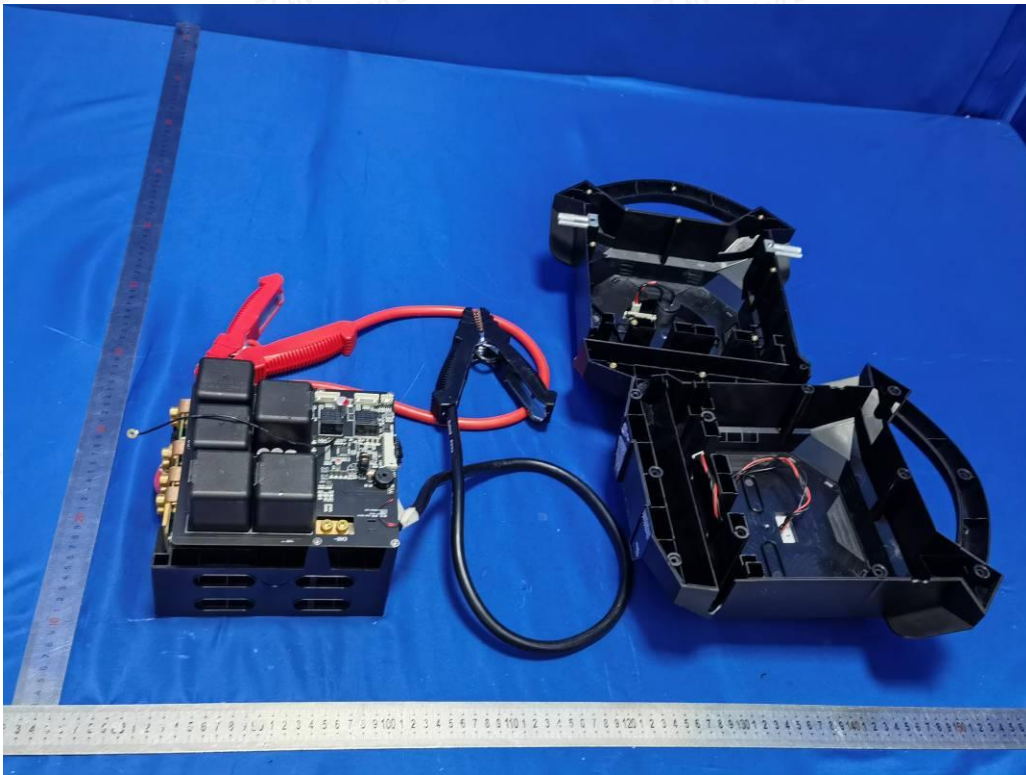


Fig. 8



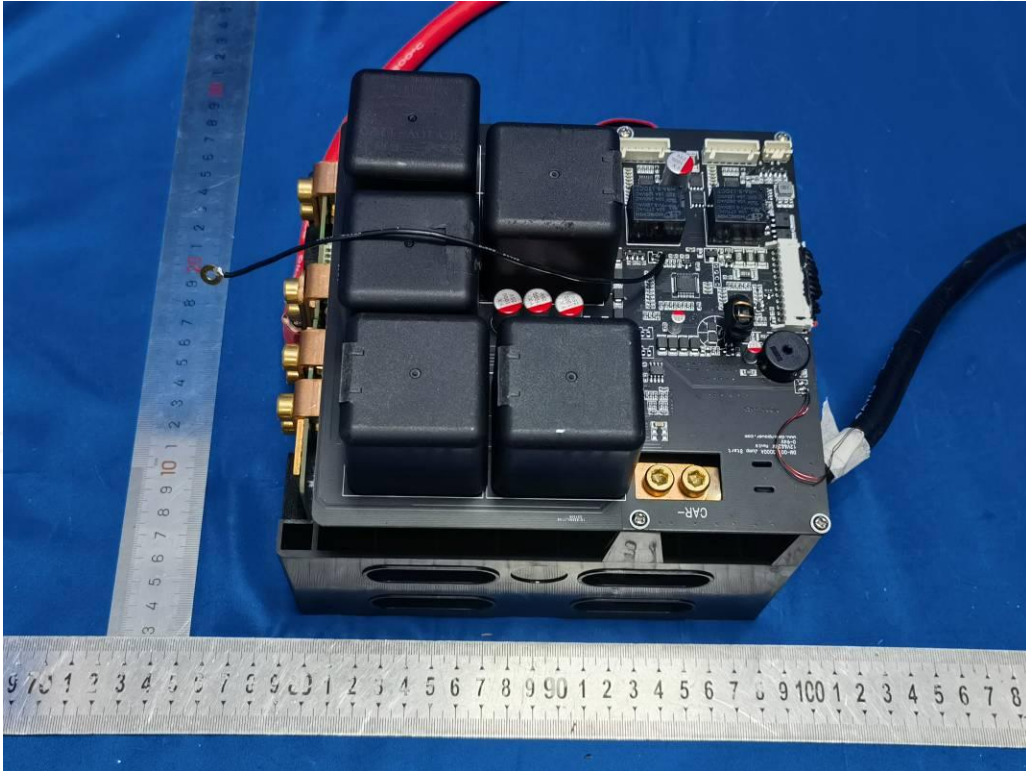


Fig. 9

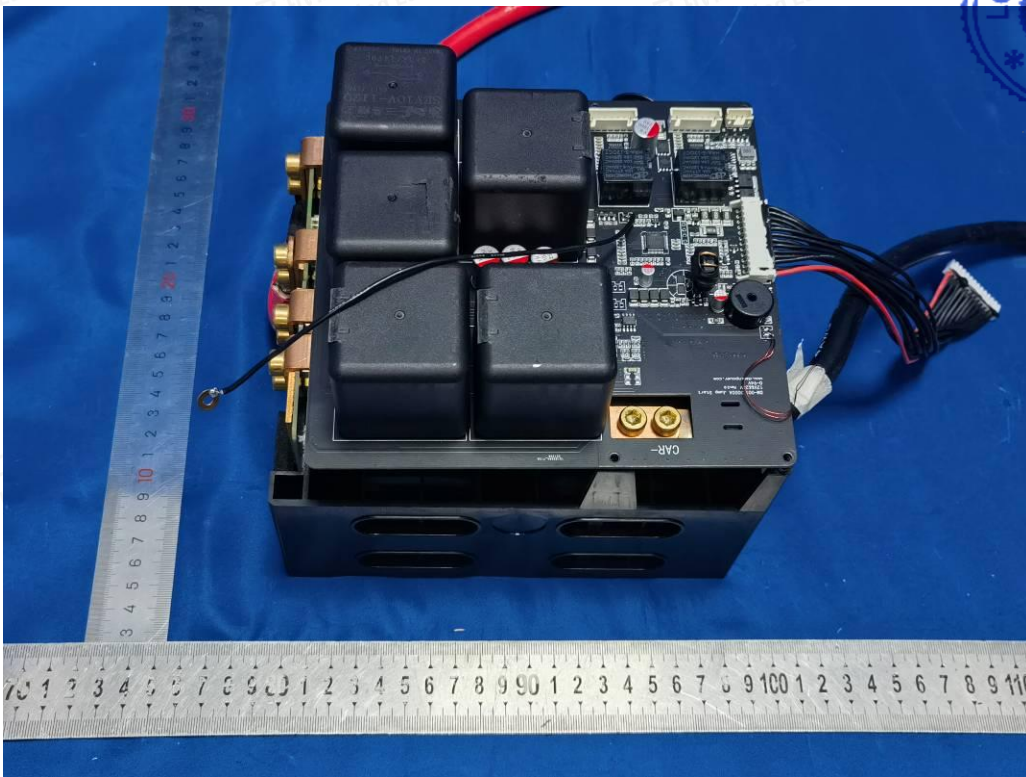


Fig. 10



----- THE END OF TEST REPORT -----

