# Tonghua Intelligent Technology Co., Ltd.

# TEST REPORT

**SCOPE OF WORK**
EMC TESTING–REFER TO PAGE 2

**REPORT NUMBER**
230824005GZU-003

**ISSUE DATE** **[REVISED DATE]**

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# TEST REPORT

| | | |
|---|---|---|
| Applicant Name & Address | : | Tonghua Intelligent Technology Co., Ltd.<br>Sangyuan Industrial zone, Dongcheng district, Dongguan, Guangdong, China |
| Manufacturing Site | : | Same as applicant |
| Intertek Report No: | | 230824005GZU-003 |
| FCC ID: | | 2BCMW-ST-MULC-BLK |

## Test standards

**47 CFR PART 1, Subpart I, Section 1.1310**
**KDB 680106 D01 Wireless Power Transfer v04**

## Sample Description

| | | |
|---|---|---|
| Product | : | Surge Protective Device |
| Model No. | : | ST-MULC-BLK, ST-MULC8-BLK, AD6008, TH8065C |
| Electrical Rating | : | 125VAC, 60Hz, 13A, 1625W<br>USB Output: Total 20W Max.<br>USB C Output: DC 5V/3A, 9V/2.22A,12V/1.67A, PD20W Max.<br>USB A Output: DC 5V/3A, 9V/2A,12V/1.5A QC18W Max.<br>USB A+C Output: DC 5V/3.1A Max<br>Wireless Charging: 5W, 7.5W, 10W |
| Serial No. | : | Not Labeled |
| Date Received | : | 22 August 2023 |
| Date Test Conducted | : | 22 September 2023-28 September 2023 |

Prepared and Checked By

Dean Liu

Project Engineer

Approved By:

Strong Yao

Manager

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## CONTENT

**TEST REPORT**

## 1.0 TEST RESULT SUMMARY

Classification of EUT: Class B

| Test Item | Standard | Result |
|---|---|---|
| EMF | 47 CFR PART 1, Subpart I, Section 1.1310 | PASS |

Remark:
When determining the test results, measurement uncertainty of tests has been considered.

**TEST REPORT**

## 2.0 General Description

### 2.1 Product Description

| | |
|---|---|
| Operating Frequency | 111-149KHz |
| Type of Modulation: | Load modulation |
| Antenna Type | Inductive loop coil antenna |
| Power Supply: | 125VAC, 60Hz, 13A, 1625W<br>USB Output: Total 20W Max.<br>USB C Output: DC 5V/3A, 9V/2.22A,12V/1.67A, PD20W Max.<br>USB A Output: DC 5V/3A, 9V/2A,12V/1.5A QC18W Max.<br>USB A+C Output: DC 5V/3.1A Max<br>Wireless Charging: 5W, 7.5W, 10W |
| Power cord: | wires unscreened cable |

### 2.2 Test Facility

Room102/104, No 203, KeZhu Road, Science City, GETDD Guangzhou, China

A2LA Certificate Number 0078.10
Intertek Testing Services Shenzhen Ltd. Guangzhou Branch is accredited by A2LA and Listed in FCC website. FCC accredited test labs may perform both Certification testing under Parts 15 and 18 and Declaration of Conformity testing.

### 2.3 EUT Exercising Software

N/A

### 2.4 Special Accessories

N/A

### 2.5 Equipment Modification

Any modifications installed previous to testing by Tonghua Intelligent Technology Co., Ltd. will be incorporated in each production model sold / leased in the United States.

No modifications were installed by Intertek Testing Services Shenzhen Ltd. Guangzhou Branch.

**TEST REPORT**

## 2.6 Support Equipment List and Description

This product was tested with corresponding support equipment as below:
Support Equipment:

| Equipment | Model No. | Rating | Supplier |
|---|---|---|---|
| 6 pieces of cement resistor | -- | 0.5/1/2/5Ω，50W | Client |
| Voltage controller | -- | Output:5V/9V/12V | Client |
| WPT client | -- | 15W.max | Client |
| 2 pieces of incandescent lamp | -- | 100W | Intertek |

Cabel:

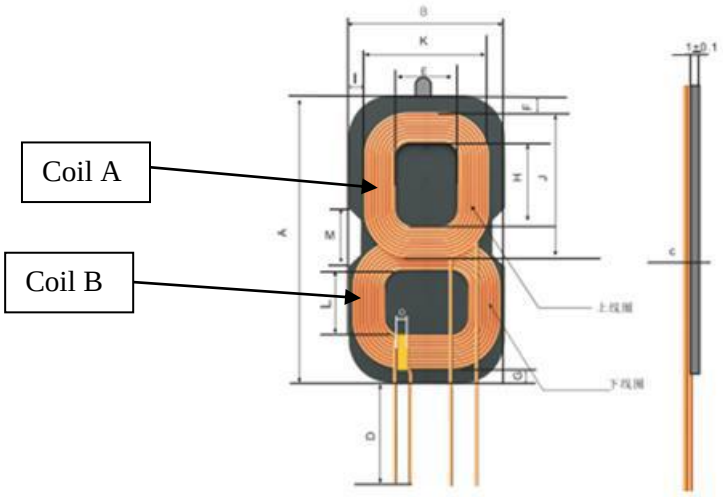
| Description | Model No. | Connector type | Cable length/type | Supplied by |
|---|---|---|---|---|
| 1st cement resistor cord | -- | USB Type A | 0.6 m(unshielded) | Intertek |
| 2nd cement resistor cord | -- | USB Type A | 0.6 m(unshielded) | Intertek |
| 3rd cement resistor cord | -- | USB Type C | 0.8 m(unshielded) | Intertek |
| 1st incandescent lamp cord | -- | Plug | 0.4 m(unshielded) | Intertek |
| 2nd incandescent lamp cord | -- | Plug | 0.4 m(unshielded) | Intertek |

**Remark:** The EUT with two coils, the EUT can't transmit simultaneously, the two coils are designed because the client (like cell phone) may be placed vertically or horizontally or client size, the WPT client was one of typical client devices, it's selected such that the EUT was fully exercised at maximum power from its transmitter. It will not be sold together.

To investigate the maximum EMI emission characteristics generates from EUT, the test system was pre-scanning tested based on the consideration of following EUT operation mode or test configuration mode which possible have effect on EMI emission level. Each of these EUT operation mode(s) or test configuration mode(s) mentioned above evaluated respectively

| Pretest mode | Description | |
|---|---|---|
| Standby Mode | kept transmitting continuously | |
| Charging Mode | CH: Low | WPT client is charging at 1% battery power, 50% and 99% battery power respectively, keep transmitting continuously |
| | CH: Middle | |
| | CH: High | |

**TEST REPORT**




Mode 1: Coil A transmitting

Mode 2: Coil B transmitting

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## 3.0 EMF TEST

### 3.1 Standard Requirement

Systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy level in excess limit for maximum permissible exposure. In accordance with 47 CFR FCC Part 2 Subpart J, section 2.1091 this device has been defined as a mobile device whereby a distance of 0.1m normally can be maintained between the user and the device.

**(a) Limits for Occupational / Controlled Exposure**

| Frequency Range (MHz) | Electric Field Strength (E) (V/m) | Magnetic Field Strength (H) (A/m) | Power Density (S)(mW/cm$^2$) | Averaging Times $\|E\|^2$, $\|H\|^2$ or S (minutes) |
|---|---|---|---|---|
| 0.3-3.0 | 614 | 1.63 | (100)* | 6 |
| 3.0-30 | 1842/f | 4.89/f | (900/f)* | 6 |
| 30-300 | 61.4 | 0.163 | 1.0 | 6 |
| 300-1500 | -- | -- | F/300 | 6 |
| 1500-100000 | -- | -- | 5 | 6 |

**(b) Limits for General Population / Uncontrolled Exposure**

| Frequency Range (MHz) | Electric Field Strength (E) (V/m) | Magnetic Field Strength (H) (A/m) | Power Density (S)(mW/cm$^2$) | Averaging Times $\|E\|^2$, $\|H\|^2$ or S (minutes) |
|---|---|---|---|---|
| 0.3-1.34 | 614 | 1.63 | (100)* | 30 |
| 1.34-30 | 824/f | 2.19/f | (180/f)* | 30 |
| 30-300 | 27.5 | 0.073 | 0.2 | 30 |
| 300-1500 | -- | -- | F/1500 | 30 |
| 1500-100000 | -- | -- | 1.0 | 30 |

Note: f=frequency in MHz; *Plane-wave equivalent power density

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### 3.2 Test Data

Input Voltage: 120V/60Hz
Ambient Condition: 24℃, 50%RH

Test distance: 20 cm surrounding the device.

H-Filed Strength:
Mode 1:

| Test Position | Probe Measure Result (A/m) | | | 50% Limit (A/m) | Limit (A/m) |
|---|---|---|---|---|---|
| | WPT client in 1% battery power | WPT client in 50% battery power | WPT client in 99% battery power | | |
| Side 1 | 0.487 | 0.475 | 0.497 | 0.815 | 1.63 |
| Side 2 | 0.384 | 0.391 | 0.375 | 0.815 | 1.63 |
| Side 3 | 0.363 | 0.372 | 0.334 | 0.815 | 1.63 |
| Side 4 | 0.298 | 0.327 | 0.316 | 0.815 | 1.63 |
| Top | 0.646 | 0.625 | 0.631 | 0.815 | 1.63 |

Mode 2:

| Test Position | Probe Measure Result (A/m) | | | 50% Limit (A/m) | Limit (A/m) |
|---|---|---|---|---|---|
| | WPT client in 1% battery power | WPT client in 50% battery power | WPT client in 99% battery power | | |
| Side 1 | 0.503 | 0.497 | 0.483 | 0.815 | 1.63 |
| Side 2 | 0.383 | 0.379 | 0.387 | 0.815 | 1.63 |
| Side 3 | 0.357 | 0.364 | 0.357 | 0.815 | 1.63 |
| Side 4 | 0.308 | 0.302 | 0.308 | 0.815 | 1.63 |
| Top | 0.676 | 0.695 | 0.679 | 0.815 | 1.63 |

## 4.0 Test Equipment List

| Equipment No. | Equipment | Model | Manufacturer | Cal. Due date (DD-MM-YYYY) | Last calibration date (DD-MM-YYYY) |
|---|---|---|---|---|---|
| EM007-03 | Exposure Level Tester | ELT-400 | Narda | 07/03/2024 | 08/03/2023 |

**********End of the test report**********