

### Shenzhen Huaxia Testing Technology Co., Ltd.

1F., Block A of Tongsheng Technology Building, Huahui Road, Dalang Street, Longhua District, Shenzhen, China

Telephone: +8 Fax: +8 Website: w

+86-755-26648640 +86-755-26648637 www.cqa-cert.com

Report Template Version: V05 Report Template Revision Date: 2021-11-03

# **Test Report**

| Report No.:<br>Applicant:<br>Address of Applicant: | CQASZ20231001790E-01<br>Shenzhen Rihuida Electronics Co., Ltd.<br>F 1-4, BUILDING 4, FUZHONG INDUSTRIAL PARK FUYONG STREET<br>BAOAN DISTRICT,SHENZHEN, China |
|--|--|
| Equipment Under Test                               | (EUT):   |
| Product:   | Wireless Charger Power Bank  |
| Model No.:   | GX-PBWC-10, DS07   |
| Test Model No.:                                    | GX-PBWC-10   |
| Brand Name:  | N/A  |
| FCC ID:  | 2AWXP-GX-PBWX-10   |
| Standards:   | 47 CFR Part 15, Subpart C  |
| Date of Receipt:                                   | 2023-10-8  |
| Date of Test:                                      | 2023-10-8 to 2023-10-13  |
| Date of Issue:                                     | 2023-10-27   |
| Test Result:                                       | PASS*  |

\*In the configuration tested, the EUT complied with the standards specified above

| Tested By:     | Jol          |              |
|----------------|--------------|--------------|
|                | ( Joe Wang ) | TESTING TEQU |
| Reviewed By: _ | Timo Lej     |              |
|                | ( Timo Lei ) | <b>氢华夏准测</b> |
| Approved By: _ | Jamos        | APPROVED *   |
|                | ( Jack Ai )  |              |

The test report is effective only with both signature and specialized stamp, The result(s) shown in this report refer only to the sample(s) tested. Without written approval of CQA, this report can't be reproduced except in full.



## 1 Version

## **Revision History Of Report**

| Report No.           | Version | Description    | Issue Date |
|----------------------|---------|----------------|------------|
| CQASZ20231001790E-01 | Rev.01  | Initial report | 2023-10-27 |



## 2 Test Summary

| Test Item   | Test Requirement                            | Test method      | Result |
|---|---|------------------|--------|
| Antenna Requirement                                   | 47 CFR Part 15, Subpart C Section<br>15.203 | ANSI C63.10 2013 | PASS   |
| AC Power Line<br>Conducted<br>Emission                | 47 CFR Part 15, Subpart C Section<br>15.207 | ANSI C63.10 2013 | PASS   |
| 20dB Occupied<br>Bandwidth                            | 47 CFR Part 15, Subpart C Section<br>15.215 | ANSI C63.10 2013 | PASS   |
| Radiated Emission ,<br>Radiated Spurious<br>Emissions | 47 CFR Part 15, Subpart C Section<br>15.209 | ANSI C63.10 2013 | PASS   |



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## 4 General Information

## 4.1 Client Information

| Applicant:               | Shenzhen Rihuida Electronics Co., Ltd.  |
|--------------------------|---|
| Address of Applicant:    | F 1-4, BUILDING 4, FUZHONG INDUSTRIAL PARK FUYONG STREET<br>BAOAN DISTRICT, SHENZHEN, China   |
| Manufacturer:            | Shenzhen Firstar Battery Co., Limited   |
| Address of Manufacturer: | 1st/2nd /3rd /4th Floor of Building 2, Fuzhong Industrial Park, Huaide<br>Community, Fuyong Street, Bao' an District, Shenzhen City, Guangdong<br>Province, China |
| Factory:                 | Shenzhen Firstar Battery Co., Limited   |
| Address of Factory:      | 1st/2nd /3rd /4th Floor of Building 2, Fuzhong Industrial Park, Huaide<br>Community, Fuyong Street, Bao' an District, Shenzhen City, Guangdong<br>Province, China |

## 4.2 General Description of EUT

| Product Name:     | Wireless Charger Power Bank                            |
|-------------------|--|
| Model No.:        | GX-PBWC-10, DS07                                       |
| Test Model No.:   | GX-PBWC-10   |
| Brand Name:       | N/A  |
| Software Version: | IP6808   |
| Hardware Version: | IP5356   |
| EUT Power Supply: | DC 5V3A, 9V2A, 12V1.5A Battery: 10000mAh(38.5Wh/3.85V) |

## 4.3 **Product Specification subjective to this standard**

| Equipment Category:        | Non-ISM frequency |
|----------------------------|-------------------|
| Operation Frequency range: | 110kHz-205kHz     |
| Modulation Type:           | ASK               |
| Antenna Type:              | Induction coil    |
| Antenna Gain:              | 0dBi              |

Note:

1. In section 15.31(m), regards to the operating frequency range less 1 MHz.



## 4.4 Test Environment

| Radiated Emissions:                                 |   |  |
|---|---|--|
| Temperature:  | 25.5 °C                                 |  |
| Humidity:   | 53 % RH                                 |  |
| Atmospheric Pressure:                               | 1009 mbar                               |  |
| <b>Conducted Emissions:</b>                         |   |  |
| Temperature:  | 25.8 °C                                 |  |
| Humidity:   | 58 % RH                                 |  |
| Atmospheric Pressure:                               | 1009 mbar                               |  |
| Radio conducted item test (RF Conducted test room): |   |  |
| Temperature:  | 27.1 °C                                 |  |
| Humidity:   | 56 % RH                                 |  |
| Atmospheric Pressure:                               | 1009 mbar                               |  |
| Test Mode:  |   |  |
| Mode a:   | Keep the EUT Wireless Out Put 5W        |  |
| Mode b:   | Keep the EUT Wireless Out Put 7.5W      |  |
| Mode c:   | Keep the EUT Wireless Out Put 10W       |  |
| Mode d:   | Keep the EUT Wireless Out Put 15W (Max) |  |

reflected in this report is the fully loaded state

## 4.5 Description of Support Units

The EUT has been tested with associated equipment below.

1) Support equipment

| Description          | Manufacturer | Model No.       | Certification | Supplied by |
|----------------------|--------------|-----------------|---------------|-------------|
| Wireless charge load | /            | 1               | /             | CQA         |
| Adapter              | /            | LPL-C010050200Z | 1             | CQA         |

2) Cable

| Cable No. | Description | Manufacturer | Cable Type/Length | Supplied by |
|-----------|-------------|--------------|-------------------|-------------|
| 1         | /           | /            | /                 | 1           |



## 4.6 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 **Shenzhen Huaxia Testing Technology Co., Ltd.** 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.

| No. | Item                           | Uncertainty | Notes |
|-----|--------------------------------|-------------|-------|
| 1   | Radiated Emission (Below 1GHz) | 5.12dB      | (1)   |
| 2   | Radiated Emission (Above 1GHz) | 4.60dB      | (1)   |
| 3   | Occupied Bandwidth             | 1.1%        | (1)   |
| 4   | Temperature test               | 0.8°C       | (1)   |
| 5   | Humidity test                  | 2.0%        | (1)   |

Hereafter the best measurement capability for CQA laboratory is reported:

(1)This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

## 4.7 Test Location

Shenzhen Huaxia Testing Technology Co., Ltd.

1F., Block A of Tongsheng Technology Building, Huahui Road, Dalang Street, Longhua District, Shenzhen, China

#### 4.8 Test Facility

#### • A2LA (Certificate No. 4742.01)

Shenzhen Huaxia Testing Technology Co., Ltd., Shenzhen EMC Laboratory is accredited by the American Association for Laboratory Accreditation(A2LA). Certificate No. 4742.01.

#### • FCC Registration No.: 522263

Shenzhen Huaxia Testing Technology Co., Ltd., Shenzhen EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Registration No.:522263

### 4.9 Deviation from Standards

None.

### 4.10Other Information Requested by the Customer

None.



## 4.11Equipment List

| Test Equipment                | Manufacturer | Model No.                  | Instrument<br>No. | Calibration<br>Date | Calibration<br>Due Date |
|-------------------------------|--------------|----------------------------|-------------------|---------------------|-------------------------|
| EMI Test Receiver             | R&S          | ESR7                       | CQA-005           | 2023/9/8            | 2024/9/7                |
| Spectrum analyzer             | R&S          | FSU26                      | CQA-038           | 2023/9/8            | 2024/9/7                |
| Preamplifier                  | MITEQ        | AMF-6D-02001800-29-<br>20P | CQA-036           | 2023/9/8            | 2024/9/7                |
| Loop antenna                  | Schwarzbeck  | FMZB1516                   | CQA-060           | 2021/9/16           | 2024/9/15               |
| Bilog Antenna                 | R&S          | HL562                      | CQA-011           | 2021/9/16           | 2024/9/15               |
| Horn Antenna                  | R&S          | HF906                      | CQA-012           | 2021/9/16           | 2024/9/15               |
| Horn Antenna                  | Schwarzbeck  | BBHA 9170                  | CQA-088           | 2021/9/16           | 2024/9/15               |
| Coaxial Cable<br>(Above 1GHz) | CQA          | N/A                        | C007              | 2023/9/8            | 2024/9/7                |
| Coaxial Cable<br>(Below 1GHz) | CQA          | N/A                        | C013              | 2023/9/8            | 2024/9/7                |
| Antenna Connector             | CQA          | RFC-01                     | CQA-080           | 2023/9/8            | 2024/9/7                |
| RF<br>cable(9KHz~40GHz)       | CQA          | RF-01                      | CQA-079           | 2023/9/8            | 2024/9/7                |
| Power divider                 | MIDWEST      | PWD-2533-02-SMA-79         | CQA-067           | 2023/9/8            | 2024/9/7                |
| EMI Test Receiver             | R&S          | ESR7                       | CQA-005           | 2023/9/8            | 2024/9/7                |
| LISN                          | R&S          | ENV216                     | CQA-003           | 2023/9/8            | 2024/9/7                |
| Coaxial cable                 | CQA          | N/A                        | CQA-C009          | 2023/9/8            | 2024/9/7                |
| DC power                      | KEYSIGHT     | E3631A                     | CQA-028           | 2023/9/8            | 2024/9/7                |





## 5 Test results and Measurement Data

### 5.1 Antenna Requirement

#### **Standard requirement:** 47 CFR Part 15C Section 15.203

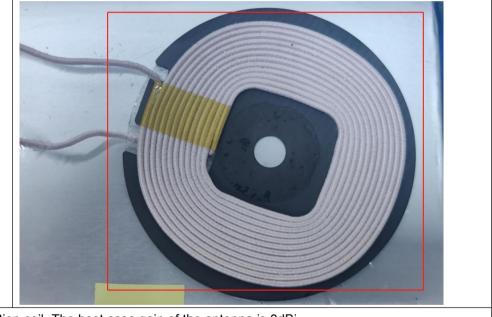
#### 15.203 requirement:

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

15.247(b) (4) requirement:

The conducted output power limit specified in paragraph (b) of this section is based on the use of antennas with directional gains that do not exceed 6 dBi. Except as shown in paragraph (c) of this section, if transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values in paragraphs (b)(1), (b)(2), and (b)(3) of this section, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.





The antenna is Induction coil. The best case gain of the antenna is 0dBi.



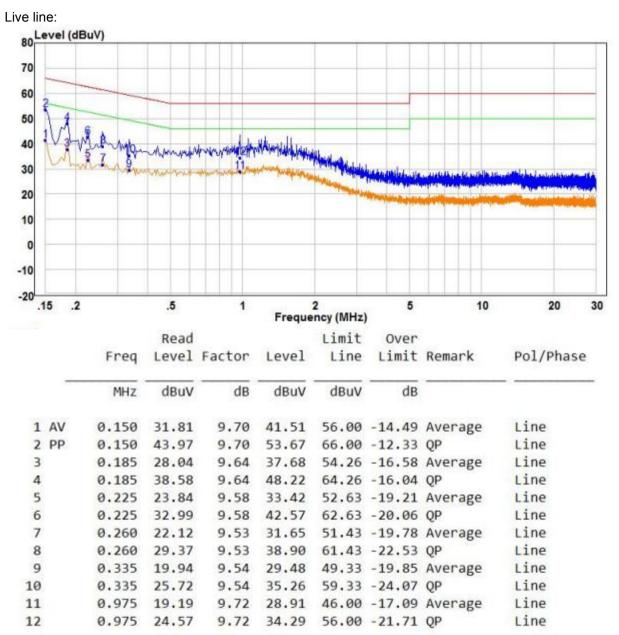
| Test Requirement:     | 47 CFR Part 15C Section 15.207   |  |  |  |  |
|-----------------------|--|--|--|--|--|
| Test Method:          | ANSI C63.10: 2013  |  |  |  |  |
| Test Frequency Range: | 150kHz to 30MHz  |  |  |  |  |
| Limit:                |  | Limit (dBuV)   |  |  |  |
|                       | Frequency range (MHz)  | Quasi-peak   | Average  |  |  |
|                       | 0.15-0.5   | 66 to 56*  | 56 to 46*  |  |  |
|                       | 0.5-5  | 56   | 46   |  |  |
|                       | 5-30   | 60   | 50   |  |  |
|                       | * Decreases with the logarithn   | n of the frequency.  | ·  |  |  |
| Test Procedure:       | 1) The mains terminal disturb<br>room.   | -  |  |  |  |
|                       | 2) The EUT was connected<br>Impedance Stabilization N<br>impedance. The power<br>connected to a second LIS<br>plane in the same way a<br>multiple socket outlet strip<br>single LISN provided the ratio  | etwork) which provides<br>cables of all other<br>SN 2, which was bonde<br>as the LISN 1 for the<br>was used to connect r | s a 50Ω/50μH + 5Ω linear<br>units of the EUT were<br>d to the ground reference<br>unit being measured. A<br>multiple power cables to a |  |  |
|                       | 3) The tabletop EUT was placed upon a non-metallic table 0.8m above the<br>ground reference plane. And for floor-standing arrangement, the EUT was<br>placed on the horizontal ground reference plane.   |  |  |  |  |
|                       | 4) The test was performed with a vertical ground reference plane. The rear of<br>the EUT shall be 0.4 m from the vertical ground reference plane. The<br>vertical ground reference plane was bonded to the horizontal ground<br>reference plane. The LISN 1 was placed 0.8 m from the boundary of the<br>unit under test and bonded to a ground reference plane for LISNs<br>mounted on top of the ground reference plane. This distance was between<br>the closest points of the LISN 1 and the EUT. All other units of the EUT<br>and associated equipment was at least 0.8 m from the LISN 2. |  |  |  |  |
|                       | <ol> <li>In order to find the maximum emission, the relative positions of equipment<br/>and all of the interface cables must be changed according to<br/>ANSI C63.10: 2013 on conducted measurement.</li> </ol>  |  |  |  |  |
| Test Setup:           |  |  |  |  |  |
|                       | Shielding Room   | AE<br>USN2 + AC Ma<br>Ground Reference Plane   | Test Receiver  |  |  |
|                       |  |  |  |  |  |
| Test Results:         | Pass   |  |  |  |  |

## 5.2 Conducted Emissions



#### **Measurement Data**

The worst case:mode d



Remark:

1. The following Quasi-Peak and Average measurements were performed on the EUT:

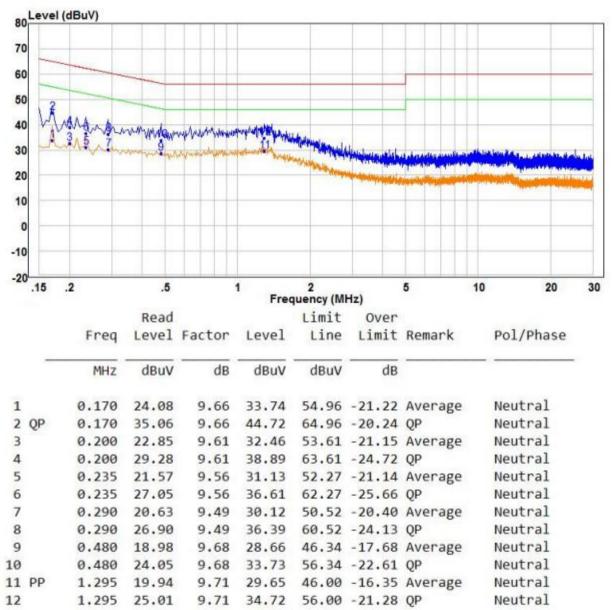
- 2. Final Test Level =Receiver Reading + LISN Factor + Cable Loss.
- 3. If the Peak value under Average limit, the Average value is not recorded in the report.



The worst case:

mode d:

Neutral line:



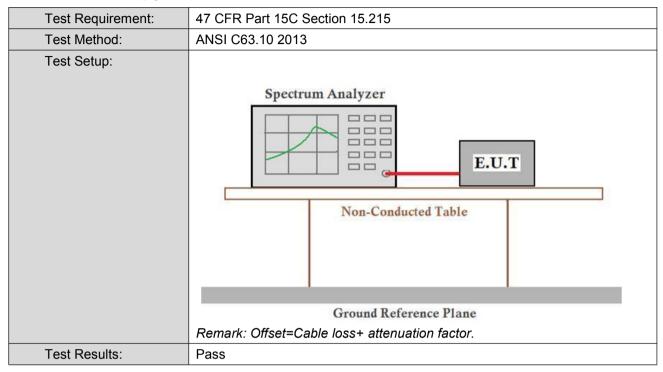
Remark:

1. The following Quasi-Peak and Average measurements were performed on the EUT:

- 2. Final Test Level =Receiver Reading + LISN Factor + Cable Loss.
- 3. If the Peak value under Average limit, the Average value is not recorded in the report.



## 5.3 20dB Occupy Bandwidth

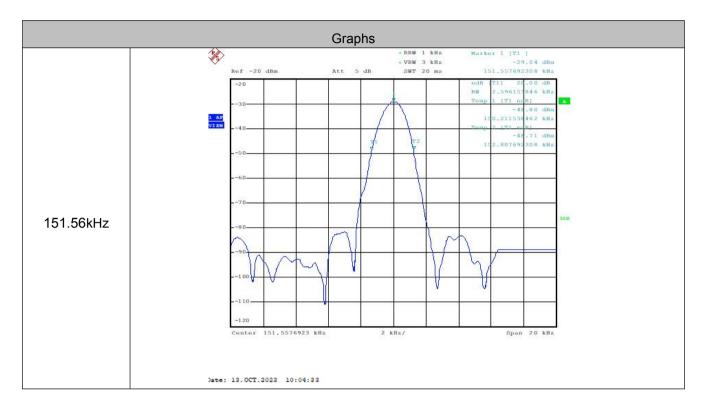


#### Measurement Data

| Mode d               |                            |        |  |  |
|----------------------|----------------------------|--------|--|--|
| Test Frequency (kHz) | 20dB Occupy Bandwidth (Hz) | Result |  |  |
| 151.56               | 2596                       | Pass   |  |  |



#### Test plot as follows:



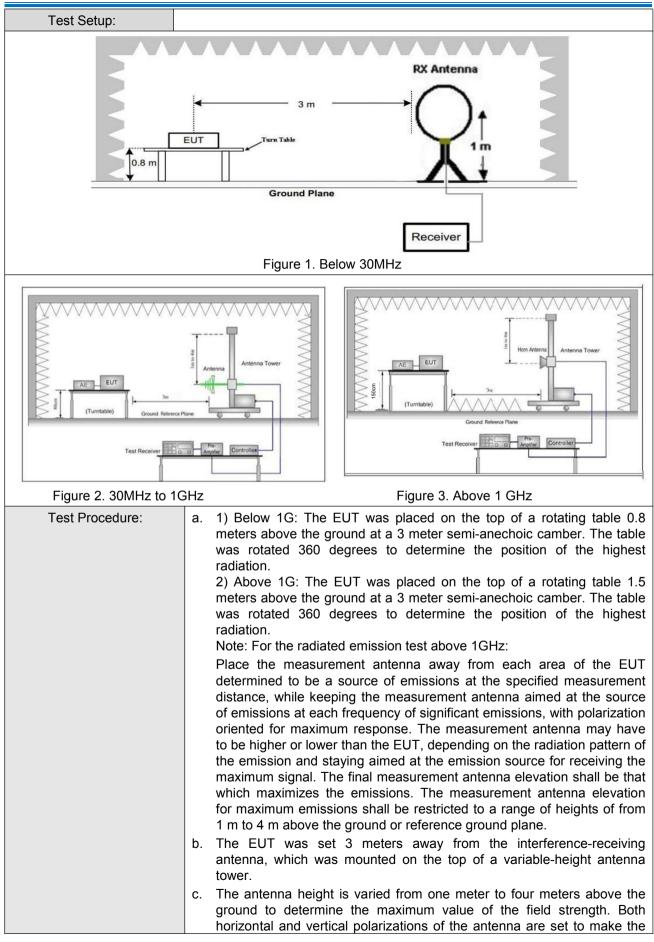


## 5.4 Radiated Spurious Emission & Restricted bands

| Test Requirement: | 47 CFR Part 15C Section 15.209 and 15.205   |             |                                |                        |               |                           |  |
|-------------------|---|-------------|--------------------------------|------------------------|---------------|---------------------------|--|
| Test Method:      | ANSI C63.10 2013  |             |                                |                        |               |                           |  |
| Test Site:        | Measurement Distance  | : 3n        | n (Semi-Anech                  | noic Cham              | ber)          |                           |  |
| Receiver Setup:   | Frequency Det   |             | Detector                       | RBW                    | VBW           | Remark                    |  |
|                   | 0.009MHz-0.090MH  | z           | Peak                           | 10kHz                  | z 30kHz       | Peak                      |  |
|                   | 0.009MHz-0.090MH  | z           | Average                        | 10kHz                  | z 30kHz       | Average                   |  |
|                   | 0.090MHz-0.110MH  | z           | Quasi-peak                     | 10kHz                  | z 30kHz       | Quasi-peak                |  |
|                   | 0.110MHz-0.490MH  | z           | Peak                           | 10kHz                  | z 30kHz       | Peak                      |  |
|                   | 0.110MHz-0.490MH  | z           | Average                        | 10kHz                  | z 30kHz       | Average                   |  |
|                   | 0.490MHz -30MHz   |             | Quasi-peak                     | 10kHz                  | z 30kHz       | Quasi-peak                |  |
|                   | 30MHz-1GHz  |             | Quasi-peak                     | 100 kH                 | lz 300kHz     | Quasi-peak                |  |
|                   | Above 1GHz  |             | Peak                           | 1MHz                   | : 3MHz        | Peak                      |  |
|                   |   |             | Peak                           | 1MHz                   | : 10Hz        | Average                   |  |
| Limit:            | Frequency   |             | eld strength<br>crovolt/meter) | Limit<br>(dBuV/m)      | Remark        | Measuremer<br>distance (m |  |
|                   | 0.009MHz-0.490MHz   | 2           | 400/F(kHz)                     | -                      | -             | 300                       |  |
|                   | 0.490MHz-1.705MHz   | 24          | 000/F(kHz)                     | -                      | -             | 30                        |  |
|                   | 1.705MHz-30MHz  |             | 30                             | -                      | -             | 30                        |  |
|                   | 30MHz-88MHz   |             | 100                            | 40.0                   | Quasi-peak    | 3                         |  |
|                   | 88MHz-216MHz  |             | 150                            | 43.5                   | Quasi-peak    | 3                         |  |
|                   | 216MHz-960MHz   |             | 200                            | 46.0                   | Quasi-peak    | 3                         |  |
|                   | 960MHz-1GHz500Above 1GHz500   |             | 500                            | 54.0                   | Quasi-peak    | 3                         |  |
|                   |   |             | 54.0                           | Average                | 3             |                           |  |
|                   | Note: 15.35(b),<br>frequency emissions is<br>limit applicable to the e<br>peak emission level rac | 20c<br>quip | B above the ment under t       | maximum<br>est. This p | permitted ave | erage emission            |  |









|               | measurement.   |
|---------------|--|
|               | d. For each suspected emission, the EUT was arranged to its worst case<br>and then the antenna was tuned to heights from 1 meter to 4 meters (for<br>the test frequency of below 30MHz, the antenna was tuned to heights 1<br>meter) and the rotatable table was turned from 0 degrees to 360<br>degrees to find the maximum reading.                  |
|               | e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.  |
|               | f. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet. |
|               | g. Repeat above procedures until all frequencies measured was complete.  |
| Test Results: | Pass   |

| Radiated Emission below 9k~30MHz |        |
|----------------------------------|--------|
| the worst case                   |        |
| Test mode:                       | Mode d |

| Frequency<br>MHz | Detector | Reading<br>dB(uV) | Factor<br>dB<br>(1/m) | Level<br>dB(uV/m)<br>Peak | Limit<br>dB(uV/m)<br>Average | Margin<br>dB | Pass/Fail |
|------------------|----------|-------------------|-----------------------|---------------------------|------------------------------|--------------|-----------|
| 0.118            | AV       | 42.62             | 19.80                 | 62.42                     | 106.16                       | -43.73       | Pass      |
| 0.105            | AV       | 39.27             | 19.80                 | 59.07                     | 107.20                       | -48.13       | Pass      |
| 0.282            | AV       | 41.48             | 19.80                 | 61.28                     | 98.59                        | -37.32       | Pass      |
| 0.337            | QP       | 38.16             | 19.80                 | 57.96                     | 97.04                        | -39.08       | Pass      |
| 1.076            | QP       | 18.52             | 19.70                 | 38.22                     | 66.97                        | -28.75       | Pass      |
| 9.580            | QP       | 12.43             | 19.70                 | 32.13                     | 69.54                        | -37.41       | Pass      |

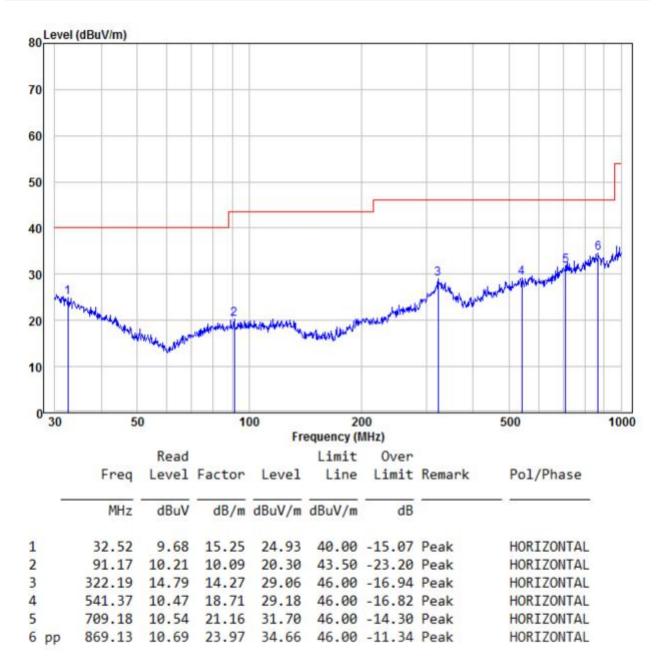
Note: No other emissions found between lowest internal used/generated frequencies to 30MHz. The peak level of the emission is less than the average limit, so the average level shall be less than1 the limit without test.



### Shenzhen Huaxia Testing Technology Co., Ltd.

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| Radiated Emission          |        |            |  |  |
|----------------------------|--------|------------|--|--|
| 30MHz~1GHz, the worst case |        |            |  |  |
| Test mode:                 | Mode d | Horizontal |  |  |



Remark:

The field strength is calculated by adding the Antenna Factor, Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows:

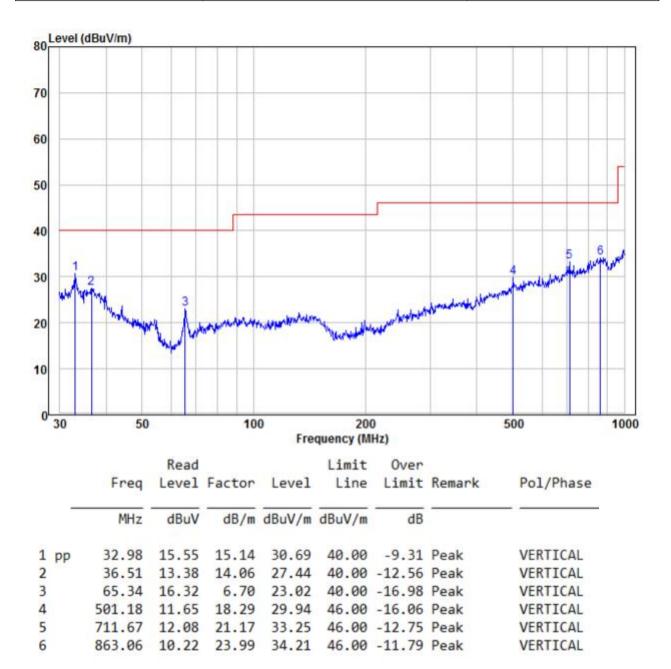
Final Test Level =Receiver Reading + Antenna Factor + Cable Factor



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| 30MHz~1GHz, the worst case |        |          |  |
|----------------------------|--------|----------|--|
| Test mode:                 | Mode d | Vertical |  |



Remark:

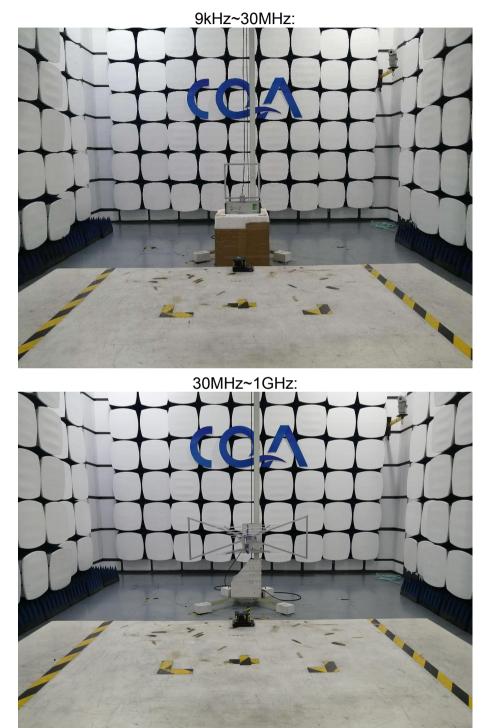
The field strength is calculated by adding the Antenna Factor, Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows:

Final Test Level =Receiver Reading + Antenna Factor + Cable Factor



## 6 Photographs - EUT Test Setup

## 6.1 Radiated Emission





### 6.2 Conducted Emission





## 7 Photographs - EUT Constructional Details







## Shenzhen Huaxia Testing Technology Co., Ltd.







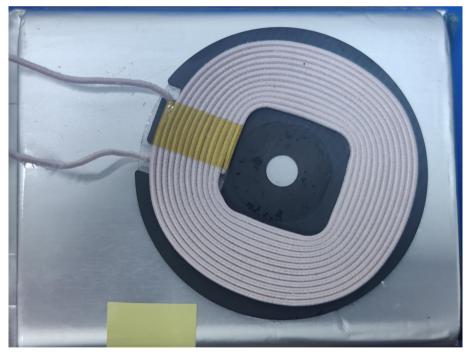
## Shenzhen Huaxia Testing Technology Co., Ltd.



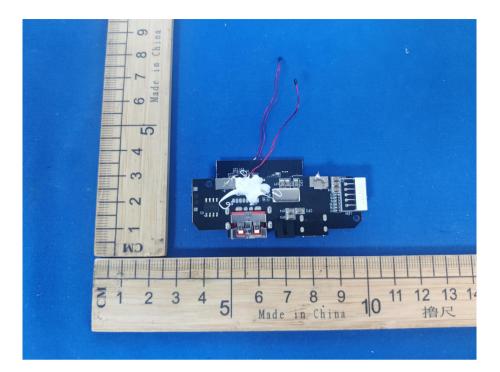


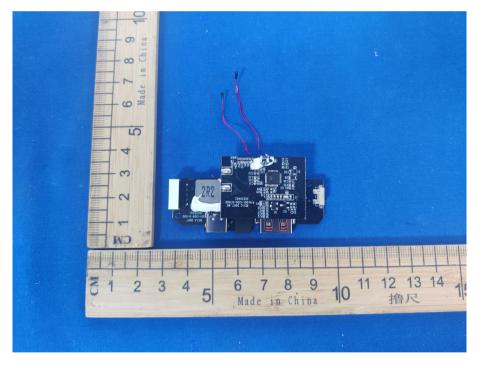
















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