

EMC Test Report

For

Wireless Charger Power Bank

Model No.: P51W, FC-K10W

Prepared For :

Address :

Prepared By : Shenzhen Anbotek Compliance Laboratory Limited

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Report Number : SZABE180119001-01

Date of Test : Jan. 23~26, 2018

Date of Report : Jan. 26, 2018

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TEST REPORT

Applicant :
Manufacturer :
Product Name : Wireless Charger Power Bank
Model No. : P51W, FC-K10W
Trade Mark :
Rating(s) : Battery Capacity: 10000mAh /3.7V 37Wh
Rated Capacity: 6800mAh/5V(TYP 1A)
Input: Micro 5V=== 2A 9V=== 2A 12V=== 1.5A
Input: Type-C: 5V=== 3A 9V=== 2A 12V=== 1.5A
Output: Wireless charger: 5V/5W 9V/10W
Output: Type-C: 5V=== 3A 9V=== 2A 12V=== 1.5A
Output: QC3.0 5V=== 3A 9V=== 2A 12V=== 1.5A

**Test Standard(s) : EN 55032: 2015;
EN 55024: 2010+A1: 2015;
(IEC 61000-4-2; IEC 61000-4-3)**

The device described above is tested by Shenzhen Anbotek Compliance Laboratory Limited to determine the maximum emission levels emanating from the device and the severe levels of the device can endure and its performance criterion. The measurement results are contained in this test report and Shenzhen Anbotek Compliance Laboratory Limited is assumed full of responsibility for the accuracy and completeness of these measurements. Also, this report shows that the EUT (Equipment Under Test) is technically compliant with the EN 55032 and EN 55024 requirements. The Project in IEC 61000-4-3 was tested in Shenzhen EMTEK Co., Ltd.

This report applies to above tested sample only and shall not be reproduced in part without written approval of Shenzhen Anbotek Compliance Laboratory Limited.

Date of Test: Jan. 23~26, 2018

Prepared By:



Baron Wen
(Tested Engineer / Baron Wen)

Reviewer:

Lucy Xu
(Project Manager / Lucy Xu)

Approved & Authorized Signer:

Tom Chen
(Manager / Tom Chen)

1. General Information

1.1. Client Information

| | | |
|--------------|---|--|
| Applicant | : | |
| Address | : | |
| Manufacturer | : | |
| Address | : | |
| Factory | : | |
| Address | : | |

1.2. Description of Device (EUT)

| | | | |
|--|---|---|-----|
| Product Name | : | Wireless Charger Power Bank | |
| Model No. | : | P51W, FC-K10W (Note: All samples are the same except the model number & appearance, so we prepare “P51W” for EMC test only.) | |
| Trade Mark | : | | |
| Test Power Supply | : | DC 5V for adapter/ DC 3.7V by battery | |
| Product Description | : | Adapter: | N/A |
| Remark: (1) For a more detailed features description, please refer to the manufacturer’s specifications or the User’s Manual. | | | |

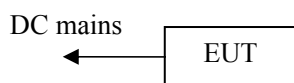
1.3. Auxiliary Equipment Used During Test

| | | |
|-----|---|--|
| N/A | : | |
|-----|---|--|

1.4. Description of Test Modes

| Pretest Modes | Descriptions |
|---------------|--------------|
| Mode 1 | Charging |
| Mode 2 | Full Load |

For Mode 1 Block Diagram of Test Setup



For Mode 2 Block Diagram of Test Setup



1.5. Test Summary

| Test Items | Test Modes | Status |
|---|------------------|--------|
| Power Line Conducted Emission Test (150KHz To 30MHz) | / | N |
| Radiated Emission Test (30MHz To 1000MHz) | Mode 1 Mode 2 | P |
| Electrostatic Discharge immunity Test | Mode 1 Mode 2 | P |
| RF Field Strength susceptibility Test | Mode 1 Mode 2 | P |
| Electrical Fast Transient/Burst Immunity Test | / | N |
| Surge Immunity Test | / | N |
| Injected Currents Susceptibility Test | / | N |
| Magnetic Field Susceptibility Test | / | N |
| Voltage Dips and Interruptions Test | / | N |
| P) Indicates that the through the test. N) Don't test. | | |

1.6. Test Equipment List

Radiated Emission Measurement

| Item | Equipment | Manufacturer | Model No. | Serial No. | Last Cal. | Cal. Interval |
|------|-------------------------|--------------------|-----------|---------------|---------------|---------------|
| 1. | EMI Test Receiver | Rohde & Schwarz | ESPI | 101604 | Nov. 17, 2017 | 1 Year |
| 2. | Bilog Broadband Antenna | Schwarzbeck | VULB9163 | VULB 9163-289 | Nov. 20, 2017 | 1 Year |
| 3. | Pre-amplifier | SONOMA | 310N | 186860 | Nov. 17, 2017 | 1 Year |
| 4. | Software Name EZ-EMC | Ferrari Technology | ANB-03A | N/A | N/A | N/A |

Electrostatic Discharge Measurement

| Item | Equipment | Manufacturer | Model No. | Serial No. | Last Cal. | Cal. Interval |
|------|----------------|--------------|-----------|------------|---------------|---------------|
| 1. | ESD Simulators | 3Ctest | ESD-30T | ES0131505 | Nov. 17, 2017 | 1 Year |

R/S Immunity Measurement

| Item | Equipment | Manufacturer | Model No. | Serial No. | Last Cal. | Cal. Interval |
|------|------------------------------|--------------|--------------|-------------|--------------|---------------|
| 1 | RF Power Meter. Dual Channel | BOONTON | 4232A | 10539 | May 20, 2017 | 1 year |
| 2 | 50ohm Diode Power Sensor | BOONTON | 51011EMC | 34236/36164 | May 20, 2017 | 1 year |
| 3 | Broad-Band Horn Antenna | SCHWARZBECK | BBHA9120 L3F | 332 | May 20, 2017 | 1 year |
| 4 | Power Amplifier (0.08-1G) | MILMEGA | 80RF1000-175 | 1059345 | May 20, 2017 | 1 year |
| 5 | Power Amplifier (1-2G) | MILMEGA | AS0102-55 | 1018770 | May 20, 2017 | 1 year |
| 6 | Power Amplifier (2-6G) | MILMEGA | AS1860-50 | 1059346 | May 20, 2017 | 1 year |
| 7 | Signal Generator | Agilent | N5181A | MY50145187 | May 20, 2017 | 1 year |
| 8 | Field Strength Meter | HOLADAY | HI-6005 | N/A | May 20, 2017 | 1 year |
| 9 | RS232 Fiber Optic Modem | HOLADAY | HI-4413P | N/A | May 20, 2017 | 1 year |
| 10 | Log.-Per. Antenna | SCHWARZBECK | VULP 9118E | N/A | May 20, 2017 | 1 year |

1.7. Measurement Uncertainty

| | | |
|-------------------------|---|--------------------------|
| Radiation Uncertainty | : | Ur = 4.1 dB (Horizontal) |
| | | Ur = 4.3 dB (Vertical) |
| Conduction Uncertainty | : | Uc = 3.4 dB |
| Disturbance Uncertainty | : | Ud = 2.6 dB |

1.8. Description of Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

FCC-Registration No.: 184111

Shenzhen Anbotek Compliance Laboratory Limited, 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. 184111, July 31, 2017.

ISED-Registration No.: 8058A-1

Shenzhen Anbotek Compliance Laboratory Limited, EMC Laboratory has been registered and fully described in a report filed with the (ISED) Innovation, Science and Economic Development Canada. The acceptance letter from the ISED is maintained in our files. Registration 8058A-1, June 13, 2016.

CNAS - LAB Code: L3503

Shenzhen Anbotek Compliance Laboratory Limited., Laboratory has been assessed and in compliance with CNAS/CL01: 2006 accreditation criteria for testing laboratories (identical to ISO/IEC 17025:2005 General Requirements) for the Competence of Testing Laboratories.

Test Location

All Emissions tests were performed at Shenzhen Anbotek Compliance Laboratory Limited.
1/F, Building D, Sogood Science and Technology Park, Sanwei community, Hangcheng Street, Bao'an District, Shenzhen, Guangdong, China.518102

1.9. EMS Performance Criteria

- ✓ A: Normal performance within the specification limits
- ✓ B: Temporary degradation or loss of function or performance which is self-recoverable
- ✓ C: Temporary degradation or loss of function or performance which requires operator intervention or system reset
- ✓ D: Degradation or loss of function which is not recoverable due to damage of equipment (components) or software, or loss of data

Note: The manufacturer's specification may define effects on the EUT which may be considered insignificant, and therefore acceptable.

This classification may be used as a guide in formulating performance criteria, by committees responsible for generic, product and product-family standards, or as a framework for the agreement on performance criteria between the manufacturer and the purchaser, for example where no suitable generic, product or product-family standard exists.

2. Radiated Emission Test

2.1. Test Standard and Limit

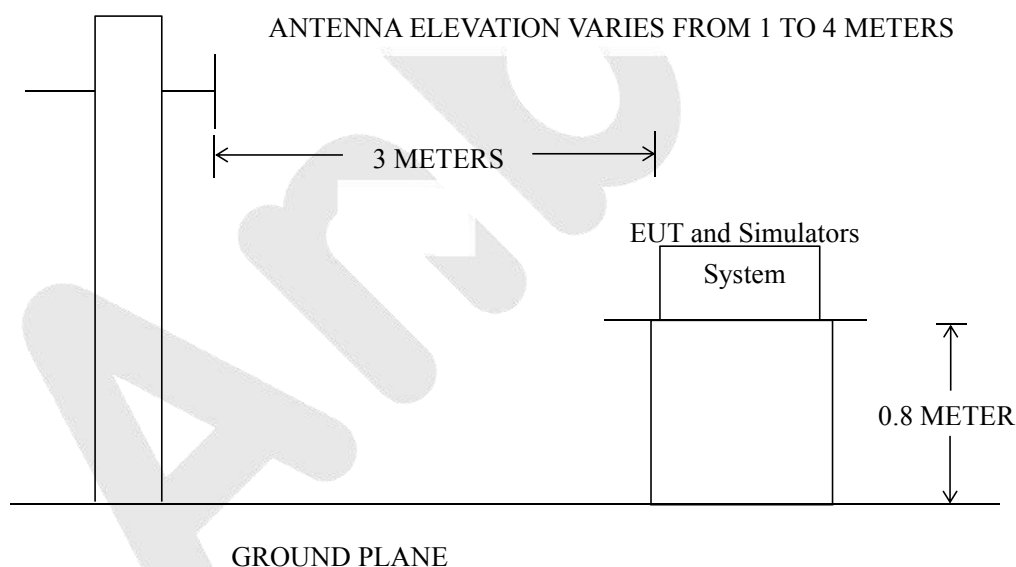
| | |
|---------------|----------|
| Test Standard | EN 55032 |
|---------------|----------|

Radiated Emission Test Limit

| Test Limit | Frequency (MHz) | DISTANCE (Meters) | FIELD STRENGTHS LIMIT (dB μ V/m) |
|------------|-----------------|-------------------|--------------------------------------|
| | 30 ~ 230 | 3 | 40 |
| | 230 ~ 1000 | 3 | 47 |

Remark: (1) The smaller limit shall apply at the combination point between two frequency bands.
 (2) Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the EUT.
 (3) $3M \text{ Limit} = 10M \text{ Limit} + k$ $k = 20 \log(D1/D2) = 10$
 $3M \text{ Limit} = 10M \text{ Limit} + 10$
 (D1= 10M D2=3M)

2.2. Test Setup



2.3. EUT Configuration on Measurement

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

2.4. Operating Condition of EUT

- 2.5.1. Setup the EUT as shown in Section 2.2.
- 2.5.2. Turn on the power of all equipments.
- 2.5.3. Let the EUT work in test mode and measure it.

2.5. Test Procedure

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

The bandwidth of the Receiver (ESCI) is set at 120kHz.

The EUT is tested in 9*6*6 Chamber.

The test results are listed in Section 2.6.

2.6. Test Results

PASS

The frequency range from 30MHz to 1000MHz is investigated.

The test curves are shown in the following pages.

Test item: Radiation Test Polarization: Horizontal
Standard: (RE)EN55032 Power Source: DC 5V for adapter
Distance: 3m Temp.(°C)/Hum.(%RH): 24.3(°C)/55%RH
Test Mode: Charging



| No. | Freq. (MHz) | Reading (dBUV/m) | Factor (°) | Result (dBUV/m) | Limit (dBUV/ | Over Limit (dB) | Detector | Height (cm) | degree (deg) | Remark |
|-----|-------------|------------------|------------|-----------------|--------------|-----------------|----------|-------------|--------------|--------|
| 1 | 43.7352 | 30.69 | -15.15 | 15.54 | 40.00 | -24.46 | peak | | | |
| 2 | 53.0382 | 31.25 | -15.32 | 15.93 | 40.00 | -24.07 | peak | | | |
| 3 | 108.8377 | 32.21 | -17.39 | 14.82 | 40.00 | -25.18 | peak | | | |
| 4 | 217.5443 | 32.27 | -15.64 | 16.63 | 40.00 | -23.37 | peak | | | |
| 5 | 303.5437 | 32.57 | -13.53 | 19.04 | 47.00 | -27.96 | peak | | | |
| 6 | 377.9211 | 33.27 | -11.87 | 21.40 | 47.00 | -25.60 | peak | | | |

Note: Result=Reading+Factor Over Limit=Result-Limit

Test item: Radiation Test Polarization: Vertical
Standard: (RE)EN55032 Power Source: DC 5V for adapter
Distance: 3m Temp.(°C)/Hum.(%RH): 24.3(°C)/55%RH
Test Mode: Charging



| No. | Freq. (MHz) | Reading (dBuV/m) | Factor () | Result (dBuV/m) | Limit (dBuV/) | Over Limit (dB) | Detector | Height (cm) | degree (deg) | Remark |
|-----|-------------|------------------|------------|-----------------|---------------|-----------------|----------|-------------|--------------|--------|
| 1 | 31.8986 | 38.50 | -17.77 | 20.73 | 40.00 | -19.27 | peak | | | |
| 2 | 39.7146 | 37.51 | -15.88 | 21.63 | 40.00 | -18.37 | peak | | | |
| 3 | 46.9125 | 34.34 | -14.92 | 19.42 | 40.00 | -20.58 | peak | | | |
| 4 | 52.5753 | 33.25 | -15.26 | 17.99 | 40.00 | -22.01 | peak | | | |
| 5 | 65.4579 | 33.20 | -17.61 | 15.59 | 40.00 | -24.41 | peak | | | |
| 6 | 100.5806 | 32.60 | -16.72 | 15.88 | 40.00 | -24.12 | peak | | | |

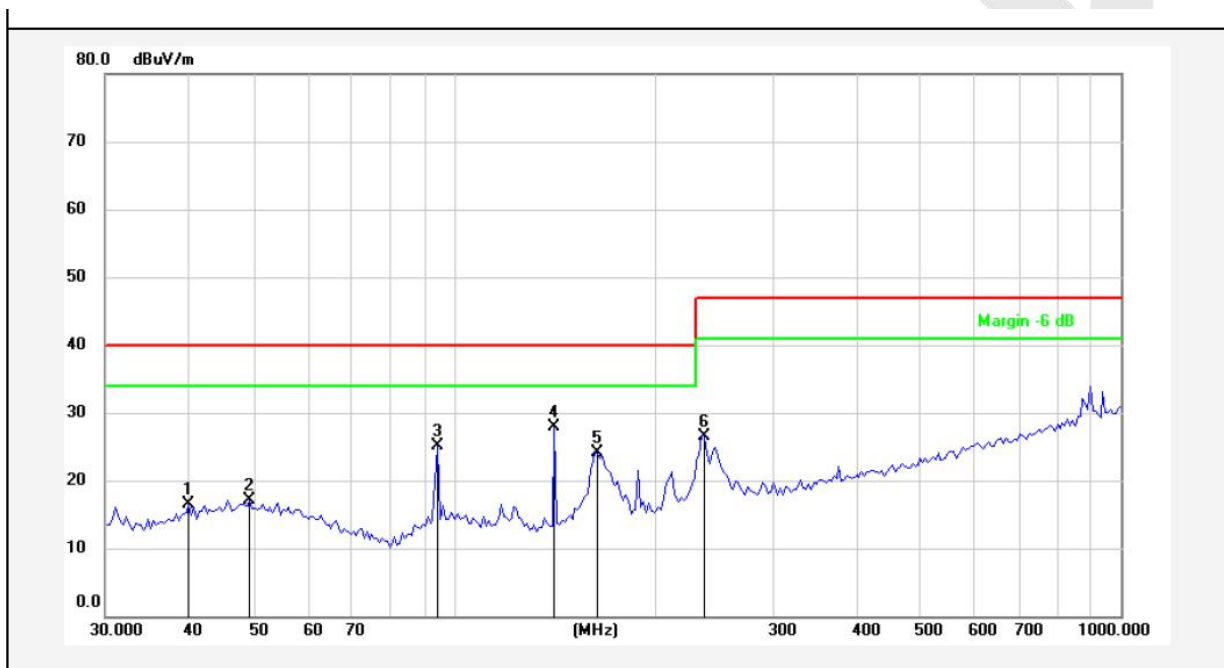
Note: Result=Reading+Factor Over Limit=Result-Limit

Test item: Radiation Test Polarization: Horizontal

Standard: (RE)EN55032 Power Source: DC 3.7V by battery

Distance: 3m Temp.(°C)/Hum.(%RH): 24.3(°C)/55%RH

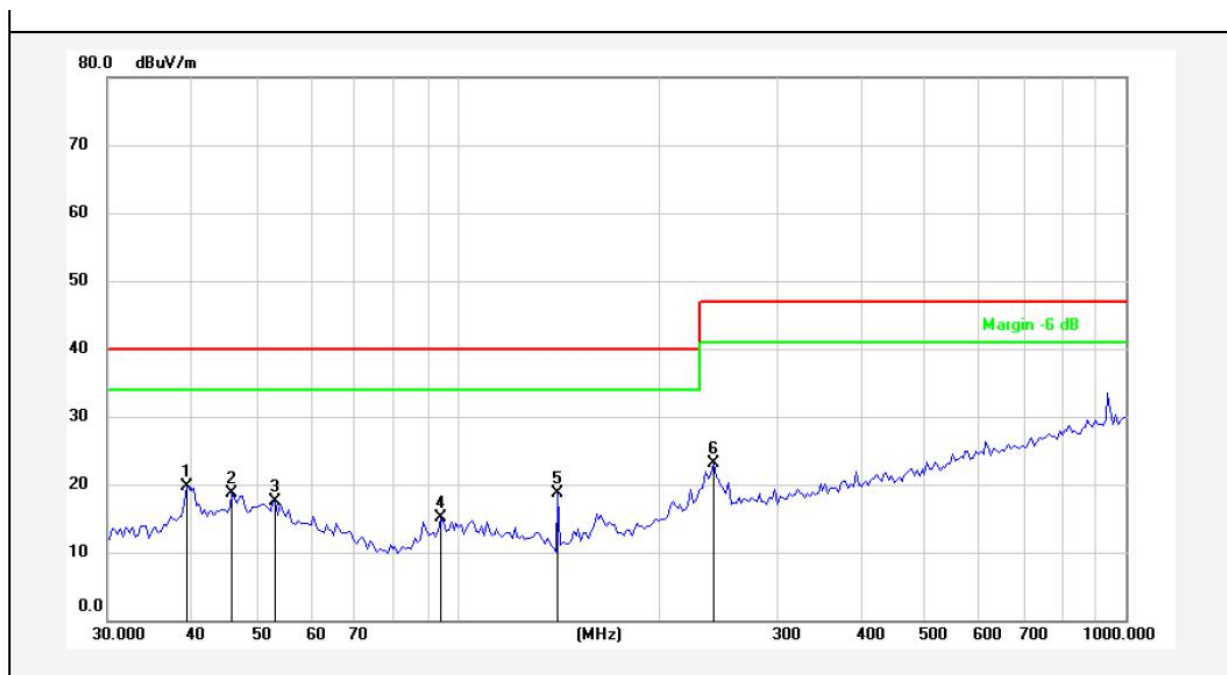
Test Mode: Full Load(USB1+USB2+Type-C)



| No. | Freq. (MHz) | Reading (dBuV/m) | Factor () | Result (dBuV/m) | Limit (dBuV/) | Over Limit (dB) | Detector | Height (cm) | degree (deg) | Remark |
|-----|-------------|------------------|------------|-----------------|---------------|-----------------|----------|-------------|--------------|--------|
| 1 | 40.0644 | 32.20 | -15.77 | 16.43 | 40.00 | -23.57 | peak | | | |
| 2 | 49.4460 | 32.11 | -14.91 | 17.20 | 40.00 | -22.80 | peak | | | |
| 3 | 94.5941 | 42.70 | -17.53 | 25.17 | 40.00 | -14.83 | peak | | | |
| 4 | 141.5777 | 48.01 | -20.14 | 27.87 | 40.00 | -12.13 | peak | | | |
| 5 | 164.3301 | 43.17 | -19.03 | 24.14 | 40.00 | -15.86 | peak | | | |
| 6 | 235.4033 | 41.66 | -15.06 | 26.60 | 47.00 | -20.40 | peak | | | |

Note: Result=Reading+Factor Over Limit=Result-Limit

Test item: Radiation Test Polarization: Vertical
Standard: (RE)EN55032 Power Source: DC 3.7V by battery
Distance: 3m Temp.(°C)/Hum.(%RH): 24.3(°C)/55%RH
Test Mode: Full Load (USB1+USB2+Type-C)



| No. | Freq. (MHz) | Reading (dBuV/m) | Factor () | Result (dBuV/m) | Limit (dBuV/) | Over Limit (dB) | Detector | Height (cm) | degree (deg) | Remark |
|-----|----------------|---------------------|---------------|--------------------|------------------|--------------------|----------|----------------|-----------------|--------|
| 1 | 39.3680 | 35.67 | -16.01 | 19.66 | 40.00 | -20.34 | peak | | | |
| 2 | 46.0970 | 33.63 | -14.92 | 18.71 | 40.00 | -21.29 | peak | | | |
| 3 | 53.5052 | 32.83 | -15.39 | 17.44 | 40.00 | -22.56 | peak | | | |
| 4 | 94.5940 | 32.73 | -17.53 | 15.20 | 40.00 | -24.80 | peak | | | |
| 5 | 141.5777 | 38.83 | -20.14 | 18.69 | 40.00 | -21.31 | peak | | | |
| 6 | 241.6762 | 37.87 | -14.86 | 23.01 | 47.00 | -23.99 | peak | | | |

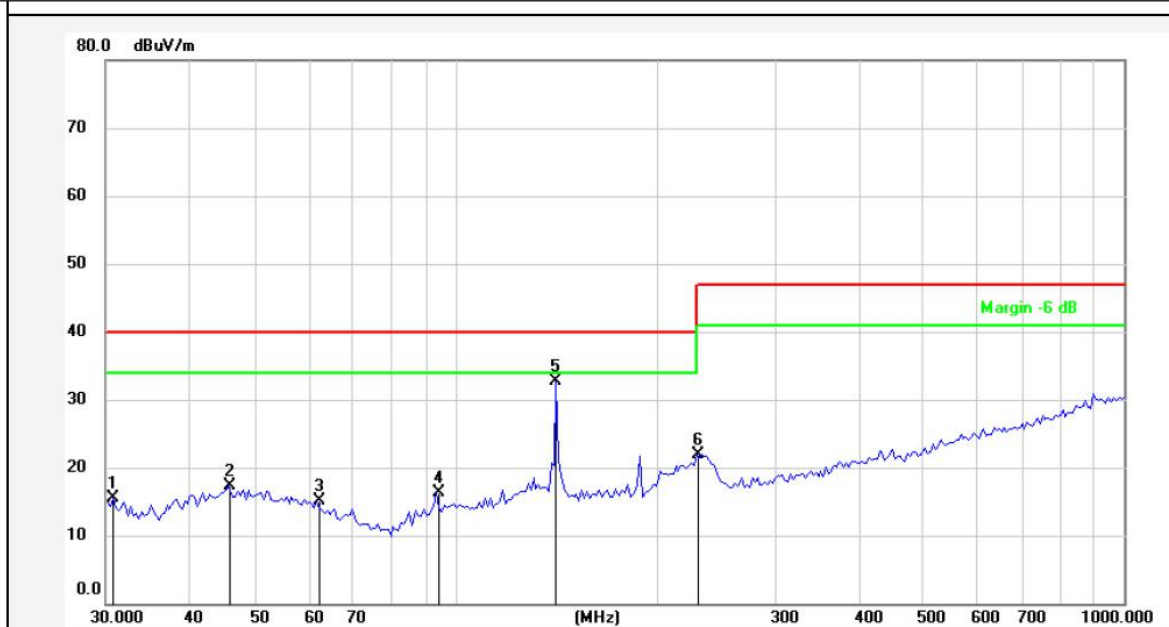
Note: Result=Reading+Factor Over Limit=Result-Limit

Test item: Radiation Test **Polarization:** Horizontal

Standard: (RE)EN55032 **Power Source:** DC 3.7V by battery

Distance: 3m **Temp.(°C)/Hum.(%RH):** 24.3(°C)/55%RH

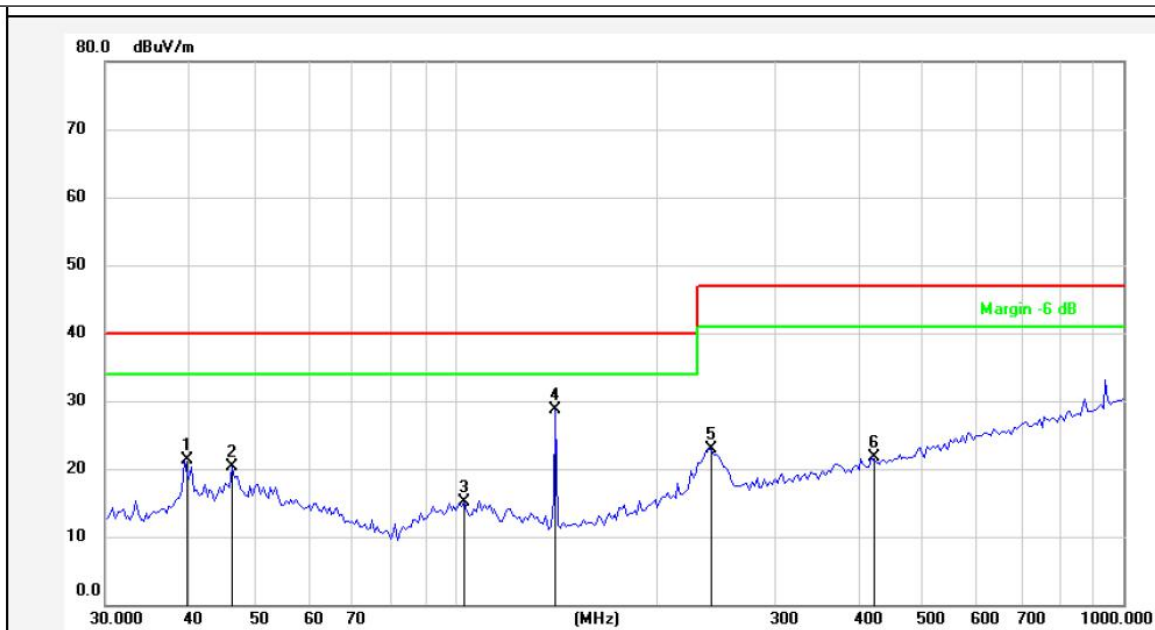
Test Mode: Full Load (Type-C5V, 3A)



| No. | Freq. (MHz) | Reading (dBuV/m) | Factor () | Result (dBuV/m) | Limit (dBuV/) | Over Limit (dB) | Detector | Height (cm) | degree (deg) | Remark |
|-----|-------------|------------------|------------|-----------------|---------------|-----------------|----------|-------------|--------------|--------|
| 1 | 30.7994 | 33.41 | -17.84 | 15.57 | 40.00 | -24.43 | peak | | | |
| 2 | 45.6948 | 32.26 | -14.93 | 17.33 | 40.00 | -22.67 | peak | | | |
| 3 | 62.1039 | 32.01 | -16.82 | 15.19 | 40.00 | -24.81 | peak | | | |
| 4 | 93.7685 | 33.92 | -17.67 | 16.25 | 40.00 | -23.75 | peak | | | |
| 5 | 141.5777 | 52.92 | -20.14 | 32.78 | 40.00 | -7.22 | peak | | | |
| 6 | 229.2931 | 37.24 | -15.27 | 21.97 | 40.00 | -18.03 | peak | | | |

Note: Result=Reading+Factor Over Limit=Result-Limit

Test item: Radiation Test Polarization: Vertical
Standard: (RE)EN55032 Power Source: DC 3.7V by battery
Distance: 3m Temp.(°C)/Hum.(%RH): 24.3(°C)/55%RH
Test Mode: Full Load (Type-C5V, 3A)



| No. | Freq. (MHz) | Reading (dBuV/m) | Factor (°) | Result (dBuV/m) | Limit (dBuV/) | Over Limit (dB) | Detector | Height (cm) | degree (deg) | Remark |
|-----|-------------|------------------|------------|-----------------|---------------|-----------------|----------|-------------|--------------|--------|
| 1 | 39.3681 | 37.39 | -16.01 | 21.38 | 40.00 | -18.62 | peak | | | |
| 2 | 46.5030 | 35.25 | -14.92 | 20.33 | 40.00 | -19.67 | peak | | | |
| 3 | 103.2609 | 32.02 | -16.94 | 15.08 | 40.00 | -24.92 | peak | | | |
| 4 | 141.5777 | 48.75 | -20.14 | 28.61 | 40.00 | -11.39 | peak | | | |
| 5 | 239.5670 | 37.92 | -14.93 | 22.99 | 47.00 | -24.01 | peak | | | |
| 6 | 419.8436 | 32.71 | -11.05 | 21.66 | 47.00 | -25.34 | peak | | | |

Note: Result=Reading+Factor Over Limit=Result-Limit

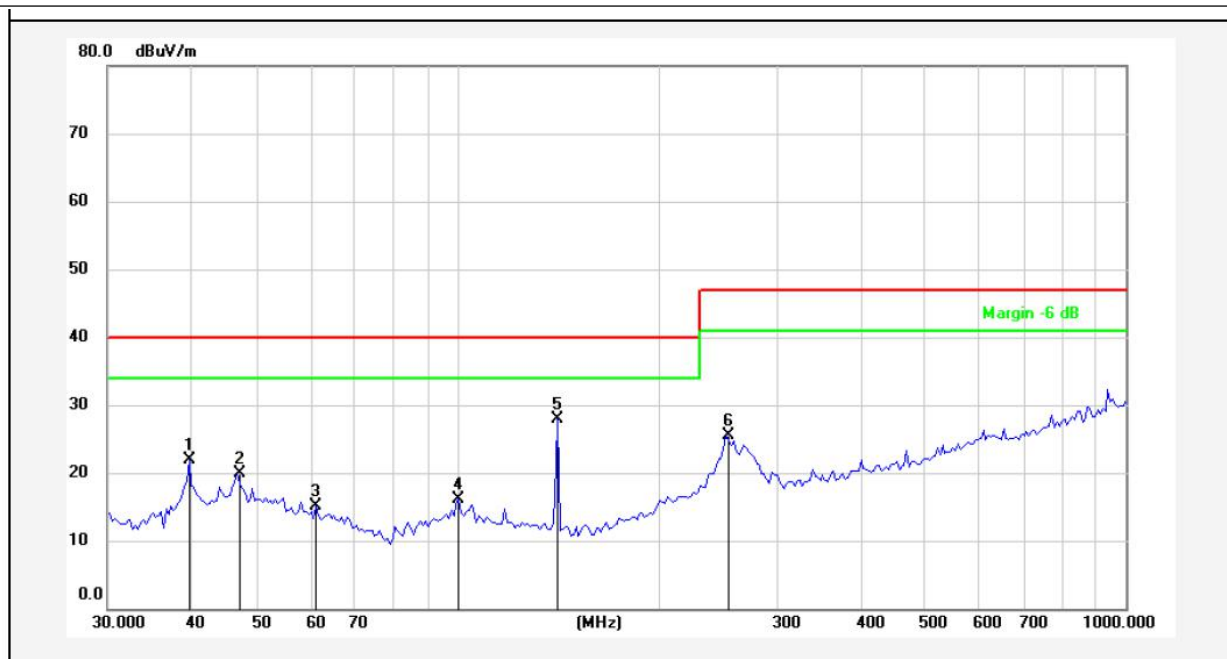
Test item: Radiation Test **Polarization:** Horizontal
Standard: (RE)EN55032 **Power Source:** DC 3.7V by battery
Distance: 3m **Temp.(°C)/Hum.(%RH):** 24.3(°C)/55%RH
Test Mode: Full Load (Type-C9V, 2A)



| No. | Freq. (MHz) | Reading (dBuV/m) | Factor () | Result (dBuV/m) | Limit (dBuV/) | Over Limit (dB) | Detector | Height (cm) | degree (deg) | Remark |
|-----|-------------|------------------|------------|-----------------|---------------|-----------------|----------|-------------|--------------|--------|
| 1 | 47.7422 | 32.02 | -14.92 | 17.10 | 40.00 | -22.90 | peak | | | |
| 2 | 58.9217 | 32.64 | -16.17 | 16.47 | 40.00 | -23.53 | peak | | | |
| 3 | 92.1388 | 33.26 | -17.93 | 15.33 | 40.00 | -24.67 | peak | | | |
| 4 | 141.5777 | 52.77 | -20.14 | 32.63 | 40.00 | -7.37 | peak | | | |
| 5 | 187.4241 | 37.87 | -17.38 | 20.49 | 40.00 | -19.51 | peak | | | |
| 6 | 263.8190 | 47.18 | -14.32 | 32.86 | 47.00 | -14.14 | peak | | | |

Note: Result=Reading+Factor Over Limit=Result-Limit

Test item: Radiation Test Polarization: Vertical
Standard: (RE)EN55032 Power Source: DC 3.7V by battery
Distance: 3m Temp.(°C)/Hum.(%RH): 24.3(°C)/55%RH
Test Mode: Full Load (Type-C9V, 2A)



| No. | Freq. (MHz) | Reading (dBuV/m) | Factor (°) | Result (dBuV/m) | Limit (dBuV/) | Over Limit (dB) | Detector | Height (cm) | degree (deg) | Remark |
|-----|-------------|------------------|------------|-----------------|---------------|-----------------|----------|-------------|--------------|--------|
| 1 | 39.7146 | 37.75 | -15.88 | 21.87 | 40.00 | -18.13 | peak | | | |
| 2 | 46.9125 | 34.79 | -14.92 | 19.87 | 40.00 | -20.13 | peak | | | |
| 3 | 61.5618 | 31.72 | -16.70 | 15.02 | 40.00 | -24.98 | peak | | | |
| 4 | 100.5806 | 32.74 | -16.72 | 16.02 | 40.00 | -23.98 | peak | | | |
| 5 | 141.5777 | 48.03 | -20.14 | 27.89 | 40.00 | -12.11 | peak | | | |
| 6 | 252.5051 | 40.05 | -14.54 | 25.51 | 47.00 | -21.49 | peak | | | |

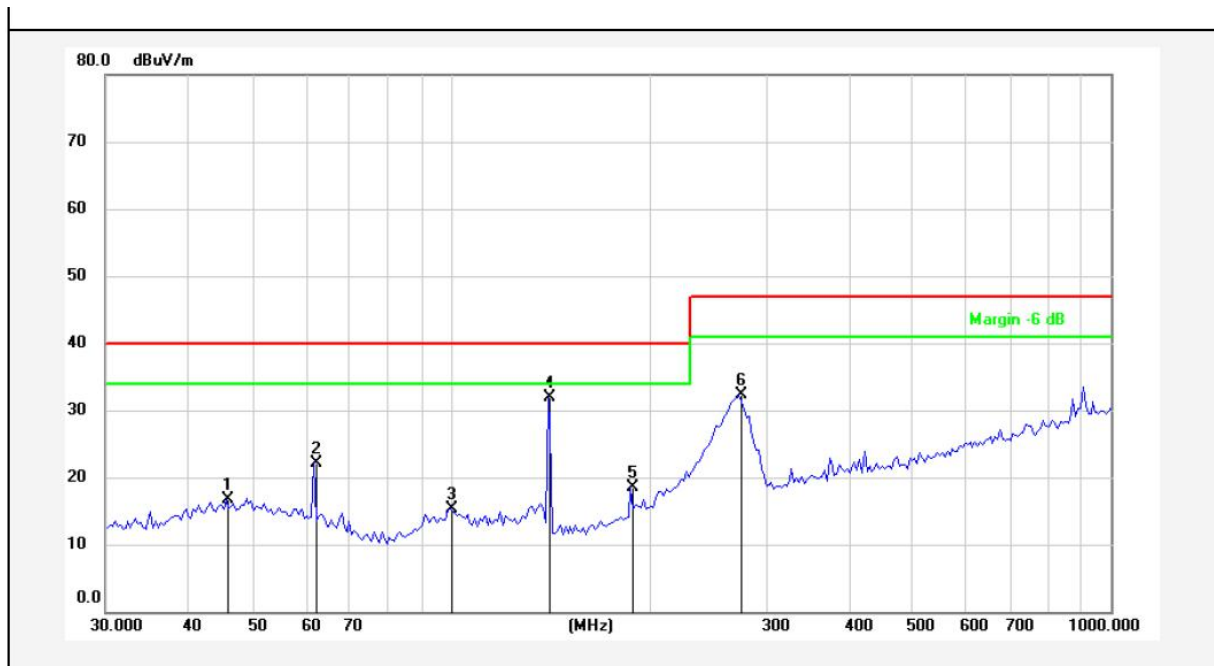
Note: Result=Reading+Factor Over Limit=Result-Limit

Test item: Radiation Test Polarization: Horizontal

Standard: (RE)EN55032 Power Source: DC 3.7V by battery

Distance: 3m Temp.(°C)/Hum.(%RH): 24.3(°C)/55%RH

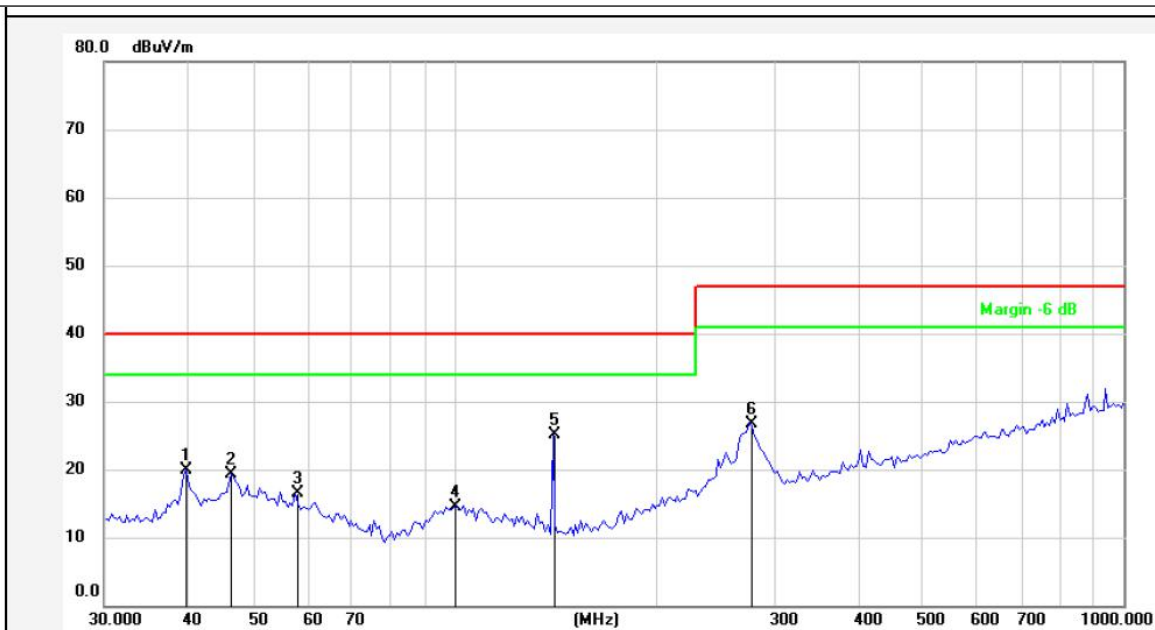
Test Mode: Full Load (Type-C12V, 1.5A)



| No. | Freq. (MHz) | Reading (dBuV/m) | Factor (°) | Result (dBuV/m) | Limit (dBuV/) | Over Limit (dB) | Detector | Height (cm) | degree (deg) | Remark |
|-----|-------------|------------------|------------|-----------------|---------------|-----------------|----------|-------------|--------------|--------|
| 1 | 45.6948 | 31.66 | -14.93 | 16.73 | 40.00 | -23.27 | peak | | | |
| 2 | 62.1039 | 38.96 | -16.82 | 22.14 | 40.00 | -17.86 | peak | | | |
| 3 | 99.7028 | 32.06 | -16.72 | 15.34 | 40.00 | -24.66 | peak | | | |
| 4 | 140.3421 | 52.04 | -20.20 | 31.84 | 40.00 | -8.16 | peak | | | |
| 5 | 187.4241 | 35.88 | -17.38 | 18.50 | 40.00 | -21.50 | peak | | | |
| 6 | 273.2341 | 46.46 | -14.14 | 32.32 | 47.00 | -14.68 | peak | | | |

Note: Result=Reading+Factor Over Limit=Result-Limit

Test item: Radiation Test Polarization: Vertical
Standard: (RE)EN55032 Power Source: DC 3.7V by battery
Distance: 3m Temp.(°C)/Hum.(%RH): 24.3(°C)/55%RH
Test Mode: Full Load (Type-C12V, 1.5A)



| No. | Freq. (MHz) | Reading (dBuV/m) | Factor (°) | Result (dBuV/m) | Limit (dBuV/) | Over Limit (dB) | Detector | Height (cm) | degree (deg) | Remark |
|-----|-------------|------------------|------------|-----------------|---------------|-----------------|----------|-------------|--------------|--------|
| 1 | 39.7146 | 35.79 | -15.88 | 19.91 | 40.00 | -20.09 | peak | | | |
| 2 | 46.5030 | 34.28 | -14.92 | 19.36 | 40.00 | -20.64 | peak | | | |
| 3 | 57.8977 | 32.55 | -16.01 | 16.54 | 40.00 | -23.46 | peak | | | |
| 4 | 100.5806 | 31.31 | -16.72 | 14.59 | 40.00 | -25.41 | peak | | | |
| 5 | 140.3421 | 45.28 | -20.20 | 25.08 | 40.00 | -14.92 | peak | | | |
| 6 | 275.6399 | 40.78 | -14.09 | 26.69 | 47.00 | -20.31 | peak | | | |

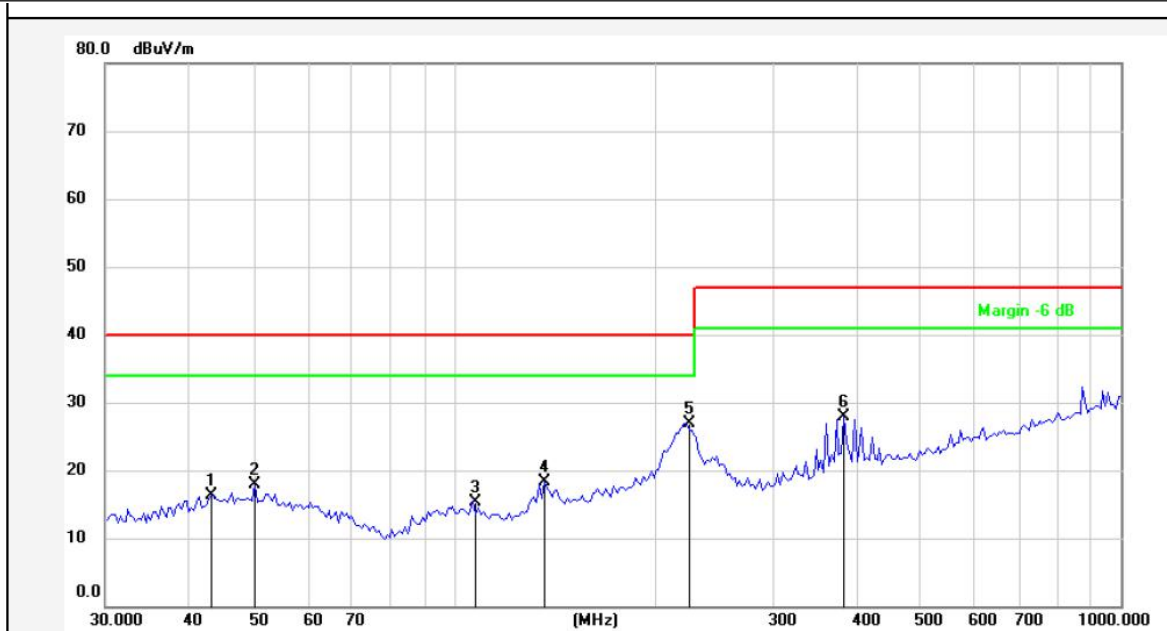
Note: Result=Reading+Factor Over Limit=Result-Limit

Test item: Radiation Test Polarization: Horizontal

Standard: (RE)EN55032 Power Source: DC 3.7V by battery

Distance: 3m Temp.(°C)/Hum.(%RH): 24.3(°C)/55%RH

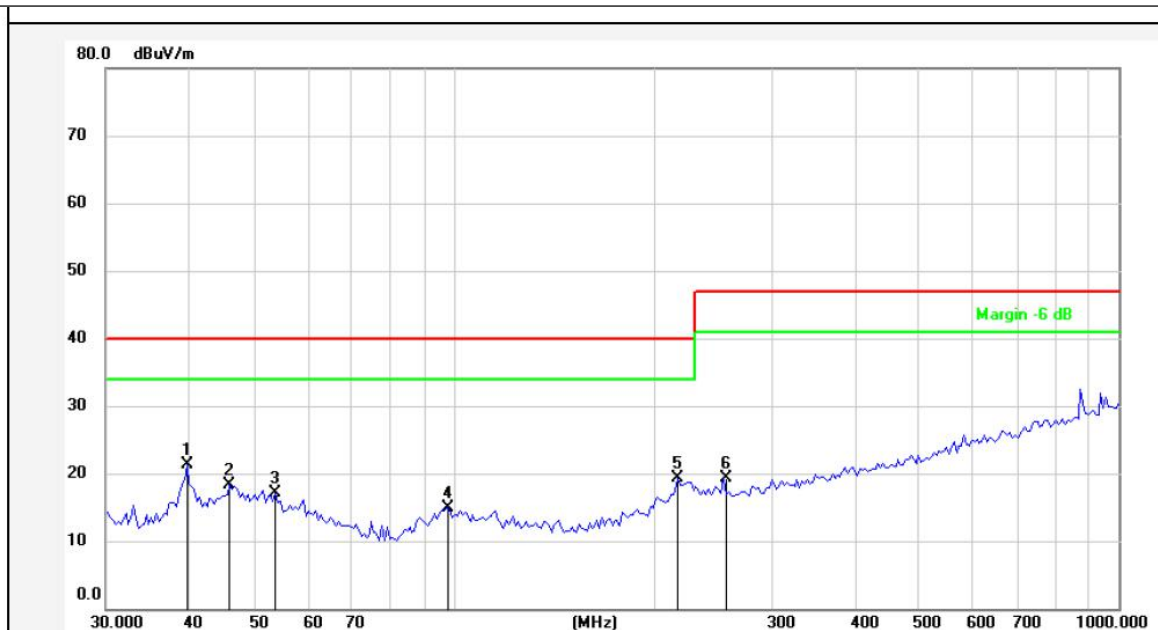
Test Mode: Full Load (QC5V, 3A)



| No. | Freq. (MHz) | Reading (dBuV/m) | Factor () | Result (dBuV/m) | Limit (dBuV/) | Over Limit (dB) | Detector | Height (cm) | degree (deg) | Remark |
|-----|-------------|------------------|------------|-----------------|---------------|-----------------|----------|-------------|--------------|--------|
| 1 | 43.3534 | 31.49 | -15.22 | 16.27 | 40.00 | -23.73 | peak | | | |
| 2 | 50.3206 | 32.76 | -14.95 | 17.81 | 40.00 | -22.19 | peak | | | |
| 3 | 106.9461 | 32.64 | -17.24 | 15.40 | 40.00 | -24.60 | peak | | | |
| 4 | 136.6993 | 38.41 | -20.06 | 18.35 | 40.00 | -21.65 | peak | | | |
| 5 | 223.3415 | 42.40 | -15.45 | 26.95 | 40.00 | -13.05 | peak | | | |
| 6 | 384.6055 | 39.65 | -11.72 | 27.93 | 47.00 | -19.07 | peak | | | |

Note: Result=Reading+Factor Over Limit=Result-Limit

Test item: Radiation Test Polarization: Vertical
Standard: (RE)EN55032 Power Source: DC 3.7V by battery
Distance: 3m Temp.(°C)/Hum.(%RH): 24.3(°C)/55%RH
Test Mode: Full Load (QC5V, 3A)



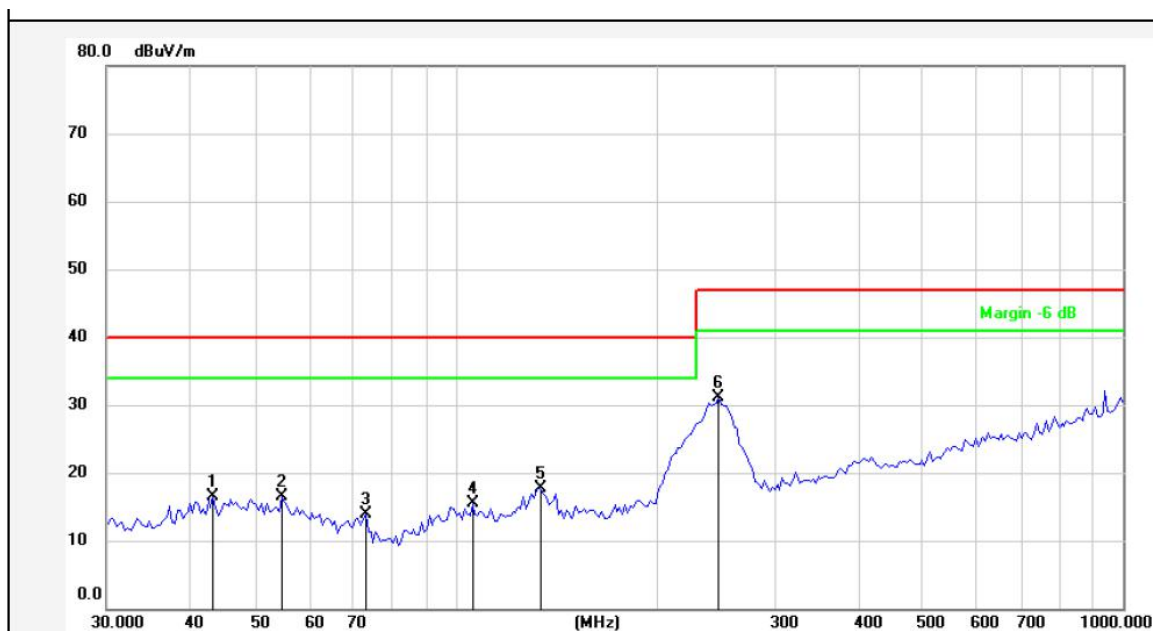
Note: Result=Reading+Factor Over Limit=Result-Limit

Test item: Radiation Test Polarization: Horizontal

Standard: (RE)EN55032 Power Source: DC 3.7V by battery

Distance: 3m Temp.(°C)/Hum.(%RH): 24.3(°C)/55%RH

Test Mode: Full Load (QC9V, 2A)



| No. | Freq. (MHz) | Reading (dBuV/m) | Factor () | Result (dBuV/m) | Limit (dBuV/) | Over Limit (dB) | Detector | Height (cm) | degree (deg) | Remark |
|-----|----------------|---------------------|---------------|--------------------|------------------|--------------------|----------|----------------|-----------------|--------|
| 1 | 43.3534 | 31.72 | -15.22 | 16.50 | 40.00 | -23.50 | peak | | | |
| 2 | 54.9310 | 32.11 | -15.58 | 16.53 | 40.00 | -23.47 | peak | | | |
| 3 | 73.3593 | 33.23 | -19.35 | 13.88 | 40.00 | -26.12 | peak | | | |
| 4 | 106.0126 | 32.58 | -17.17 | 15.41 | 40.00 | -24.59 | peak | | | |
| 5 | 133.1511 | 37.69 | -19.91 | 17.78 | 40.00 | -22.22 | peak | | | |
| 6 | 248.1165 | 45.76 | -14.65 | 31.11 | 47.00 | -15.89 | peak | | | |

Note: Result=Reading+Factor Over Limit=Result-Limit

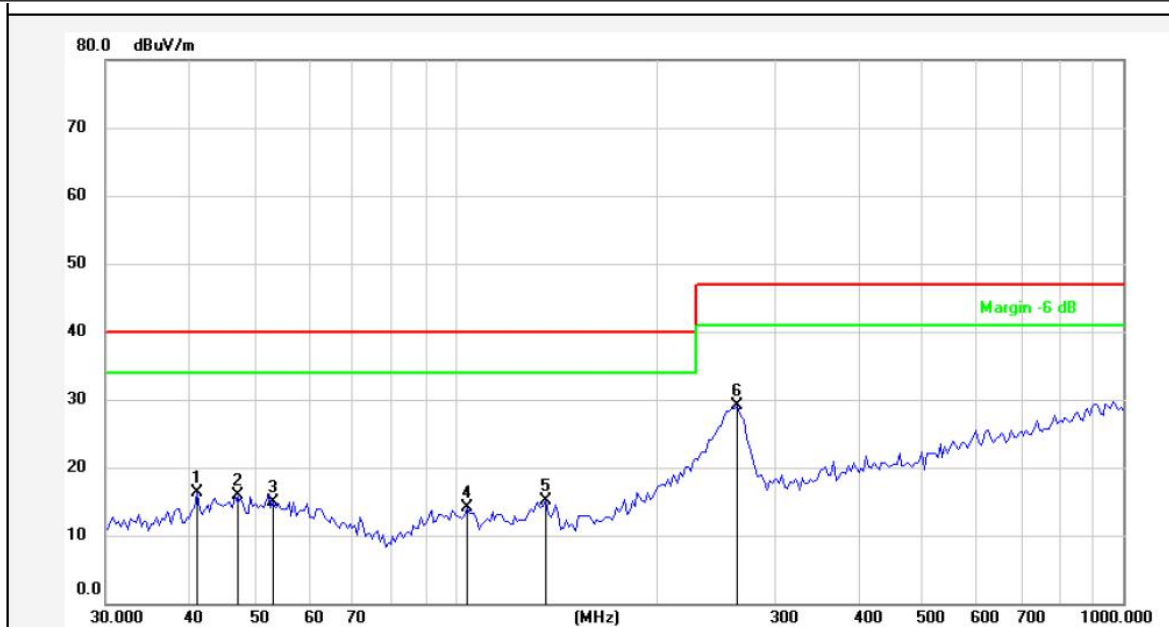
Test item: Radiation Test Polarization: Vertical
Standard: (RE)EN55032 Power Source: DC 3.7V by battery
Distance: 3m Temp.(°C)/Hum.(%RH): 24.3(°C)/55%RH
Test Mode: Full Load (QC9V, 2A)



| No. | Freq. (MHz) | Reading (dBuV/m) | Factor () | Result (dBuV/m) | Limit (dBuV/) | Over Limit (dB) | Detector | Height (cm) | degree (deg) | Remark |
|-----|-------------|------------------|------------|-----------------|---------------|-----------------|----------|-------------|--------------|--------|
| 1 | 39.0245 | 35.24 | -16.13 | 19.11 | 40.00 | -20.89 | peak | | | |
| 2 | 47.3255 | 33.15 | -14.92 | 18.23 | 40.00 | -21.77 | peak | | | |
| 3 | 55.4147 | 30.76 | -15.65 | 15.11 | 40.00 | -24.89 | peak | | | |
| 4 | 101.4663 | 32.49 | -16.78 | 15.71 | 40.00 | -24.29 | peak | | | |
| 5 | 125.2260 | 34.14 | -19.06 | 15.08 | 40.00 | -24.92 | peak | | | |
| 6 | 248.1165 | 36.49 | -14.65 | 21.84 | 47.00 | -25.16 | peak | | | |

Note: Result=Reading+Factor Over Limit=Result-Limit

Test item: Radiation Test Polarization: Horizontal
Standard: (RE)EN55032 Power Source: DC 3.7V by battery
Distance: 3m Temp.(°C)/Hum.(%RH): 24.3(°C)/55%RH
Test Mode: Full Load (QC12V, 1.5A)



| No. | Freq. (MHz) | Reading (dBuV/m) | Factor () | Result (dBuV/m) | Limit (dBuV/) | Over Limit (dB) | Detector | Height (cm) | degree (deg) | Remark |
|-----|-------------|------------------|------------|-----------------|---------------|-----------------|----------|-------------|--------------|--------|
| 1 | 41.1320 | 31.84 | -15.60 | 16.24 | 40.00 | -23.76 | peak | | | |
| 2 | 46.9125 | 30.85 | -14.92 | 15.93 | 40.00 | -24.07 | peak | | | |
| 3 | 53.5052 | 30.24 | -15.39 | 14.85 | 40.00 | -25.15 | peak | | | |
| 4 | 104.1701 | 31.14 | -17.01 | 14.13 | 40.00 | -25.87 | peak | | | |
| 5 | 136.6993 | 35.10 | -20.06 | 15.04 | 40.00 | -24.96 | peak | | | |
| 6 | 263.8190 | 43.36 | -14.32 | 29.04 | 47.00 | -17.96 | peak | | | |

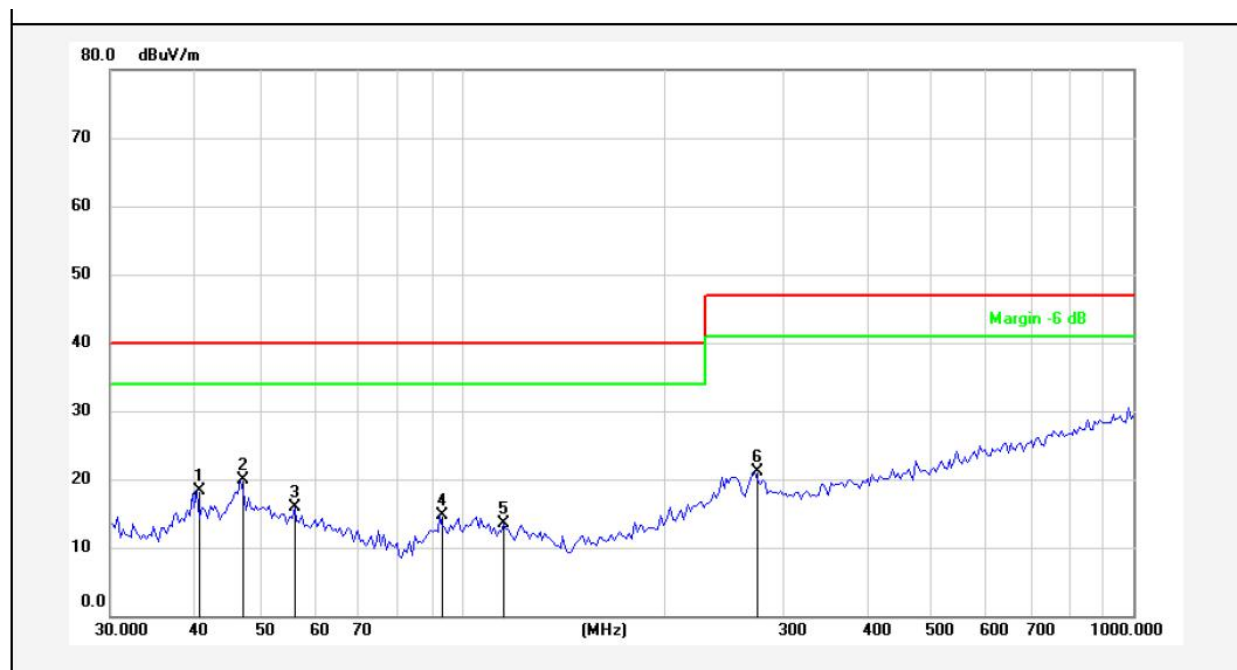
Note: Result=Reading+Factor Over Limit=Result-Limit

Test item: Radiation Test Polarization: Vertical

Standard: (RE)EN55032 Power Source: DC 3.7V by battery

Distance: 3m Temp.(°C)/Hum.(%RH): 24.3(°C)/55%RH

Test Mode: Full Load (QC12V, 1.5A)



| No. | Freq. (MHz) | Reading (dBuV/m) | Factor () | Result (dBuV/m) | Limit (dBuV/) | Over Limit (dB) | Detector | Height (cm) | degree (deg) | Remark |
|-----|-------------|------------------|------------|-----------------|---------------|-----------------|----------|-------------|--------------|--------|
| 1 | 40.4172 | 34.08 | -15.71 | 18.37 | 40.00 | -21.63 | peak | | | |
| 2 | 46.9125 | 34.91 | -14.92 | 19.99 | 40.00 | -20.01 | peak | | | |
| 3 | 56.3948 | 31.65 | -15.79 | 15.86 | 40.00 | -24.14 | peak | | | |
| 4 | 92.9501 | 32.52 | -17.80 | 14.72 | 40.00 | -25.28 | peak | | | |
| 5 | 115.7256 | 31.38 | -17.95 | 13.43 | 40.00 | -26.57 | peak | | | |
| 6 | 273.2341 | 35.27 | -14.14 | 21.13 | 47.00 | -25.87 | peak | | | |

Note: Result=Reading+Factor Over Limit=Result-Limit

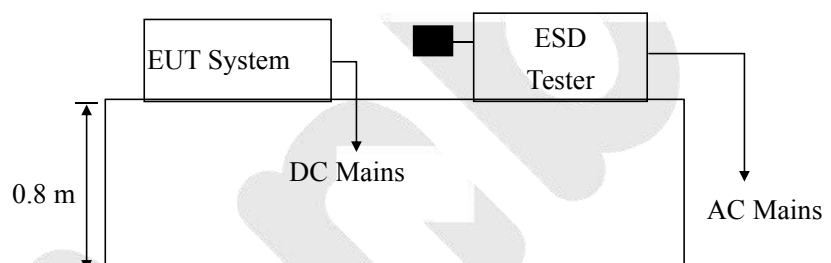
3. Electrostatic Discharge Immunity Test

3.1. Test Standard and Level

| | |
|--|--------------------------|
| Test Standard: | EN 55024 (IEC 61000-4-2) |
| Performance Criterion: | B |
| Severity Level: 3 / Air Discharge: $\pm 8\text{kV}$, Level: 2 / Contact Discharge: $\pm 4\text{kV}$ | |

| Test Level | | |
|------------|--|------------------------------------|
| Level | Test Voltage Contact Discharge (kV) | Test Voltage Air Discharge (kV) |
| 1. | ± 2 | ± 2 |
| 2. | ± 4 | ± 4 |
| 3. | ± 6 | ± 8 |
| 4. | ± 8 | ± 15 |
| X. | Special | Special |

3.2. Test Setup



3.3. EUT Configuration on Measurement

The following equipments are installed on electrostatic discharge immunity measurement to meet EN 55024 requirements and operating in a manner which tends to maximize its emission characteristics in a normal application.

3.4. Operating Condition of EUT

- 3.4.1. Setup the EUT as shown on Section 3.2.
- 3.4.2. Turn on the power of all equipments.
- 3.4.3. After that, let the EUT work in test mode measure it.

3.5. Test Procedure

3.5.1. Air Discharge:

This test is done on a non-conductive surface. The round discharge tip of the discharge electrode shall be approached as fast as possible to touch the EUT. After each discharge, the discharge electrode shall be removed from the EUT. The generator is then re-triggered for a new single discharge and repeated 10 times for each pre-selected test point. This procedure shall be repeated until all the air discharge completed

3.5.2. Contact Discharge:

All the procedure shall be same as Section 3.5.1. except that the tip of the discharge electrode shall touch the EUT before the discharge switch is operated.

3.5.3. Indirect discharge for horizontal coupling plane

At least 50 single discharges shall be applied to the horizontal coupling plane, at points on each side of the EUT. The discharge electrode positions vertically at a distance of 0.1m from the EUT and with the discharge electrode touching the coupling plane.

3.5.4. Indirect discharge for vertical coupling plane

At least 50 single discharge shall be applied to the center of one vertical edge of the coupling plane. The coupling plane, of dimensions 0.5m × 0.5m, is placed parallel to, and positioned at a distance of 0.1m from the EUT. Discharges shall be applied to the coupling plane, with this plane in sufficient different positions that the four faces of the EUT are completely illuminated.

3.6. Test Results

PASS

Please refer to the following page.

Electrostatic Discharge Test Results

Shenzhen Anbotek Compliance Laboratory Limited

| | | | |
|-----------------------|---|----------------------|--|
| Air discharge : | ±8.0kV | Temperature : | 25℃ |
| Contact discharge : | ±4.0kV | Humidity : | 54% |
| Power Supply : | DC 5V for adapter / DC 3.7V by battery | Criterion required : | B |
| Number of discharge : | 25 | Test Result: | <input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail |

| Location | | Kind A-Air Discharge C-Contact Discharge | Result |
|----------------------|-----------|--|---|
| Slot of the EUT | 10 points | A | <input checked="" type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D |
| Others | 8 points | A | <input checked="" type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D |
| USB Port | 2 points | A | <input checked="" type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D |
| Metal surface of EUT | 4 points | C | <input checked="" type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D |
| HCP | 4 points | C | <input checked="" type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D |
| VCP of the front | 4 points | C | <input checked="" type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D |
| VCP of the rear | 4 points | C | <input checked="" type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D |
| VCP of the left | 4 points | C | <input checked="" type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D |
| VCP of the right | 4 points | C | <input checked="" type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D |
| | | | |
| | | | |

Note: Discharge should be considered on Contact and Air and Horizontal Coupling Plane (HCP) and Vertical Coupling Plane (VCP).

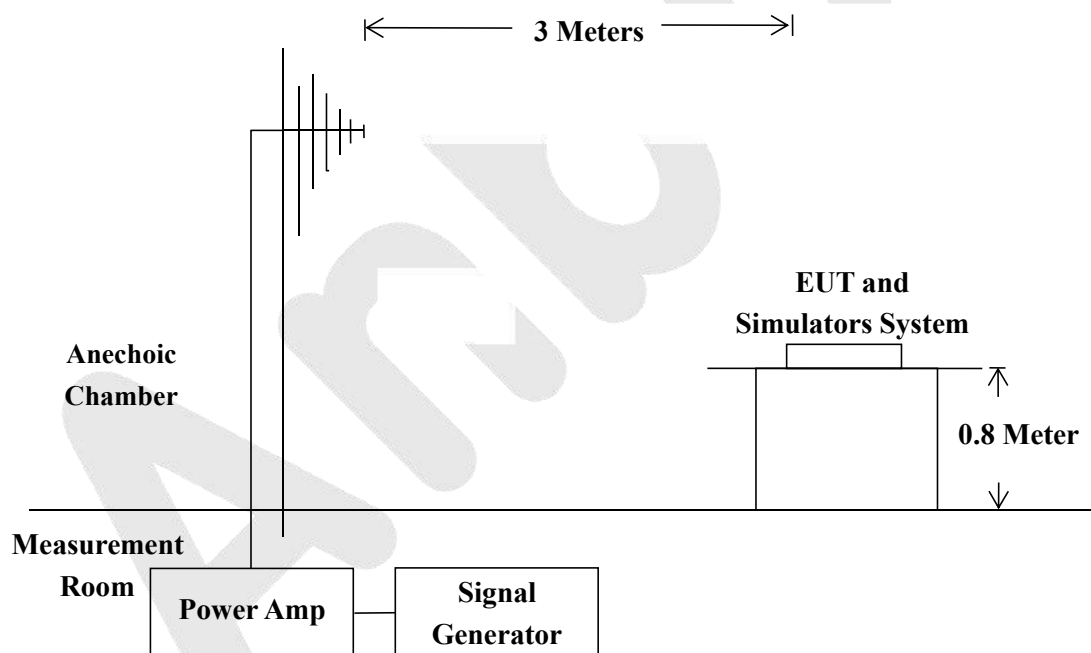
4. RF Field Strength Susceptibility Test

4.1. Test Standard and Level

| | |
|------------------------|--------------------------|
| Test Standard: | EN 55024 (IEC 61000-4-3) |
| Performance criterion: | A |
| Severity Level 2: 3V/m | |

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

4.2. Test Setup



4.3. EUT Configuration on Measurement

The following equipments are installed on RF Field Strength susceptibility Measurement to meet EN 55024 requirements and operating in a manner which tends to maximize its emission characteristics in a normal application.

4.4. Operating Condition of EUT

- 4.4.1. Setup the EUT as shown on Section 4.2.
- 4.4.2. Turn on the power of all equipments.
- 4.4.3. After that, let the EUT work in test mode measure it.

4.5. 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 are 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 camera is used to monitor its screen.

All the scanning conditions are as following:

| Condition of Test | Remarks |
|------------------------|--------------------------|
| Fielded Strength | 3 V/m (Severity Level 2) |
| Radiated Signal | Unmodulated |
| Scanning Frequency | 80 - 1000 MHz |
| Sweep time of radiated | 0.0015 Decade/s |
| Dwell Time | Remarks |

4.6. Measuring Results

PASS

Please refer to the following page.

RF Field Strength Susceptibility Test Results

Shenzhen Anbotek Compliance Laboratory Limited

| | | | | | |
|--|--|-------------------|--|--------|----------|
| Field Strength : | 3V/m | Temperature : | 25°C | | |
| Criterion required : | A | Humidity : | 54% | | |
| Power Supply : | DC 5V for adapter / DC 3.7V by battery | Frequency Range : | 80 | MHz to | 1000 MHz |
| Test Result : | <input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail | | | | |
| Modulation : <input checked="" type="checkbox"/> AM 1 KHz 80% <input type="checkbox"/> Pulse <input type="checkbox"/> none | | | | | |
| Azimuth | Horizontal | Vertical | Result | | |
| Front | 3V/m | 3V/m | <input checked="" type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D | | |
| Right | 3V/m | 3V/m | <input checked="" type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D | | |
| Rear | 3V/m | 3V/m | <input checked="" type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D | | |
| Left | 3V/m | 3V/m | <input checked="" type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D | | |
| <p>Note: The Project was tested in Shenzhen EMTEK Co., Ltd.</p> | | | | | |

APPENDIX I -- TEST SETUP PHOTOGRAPH

Photo of Radiated Emission Test

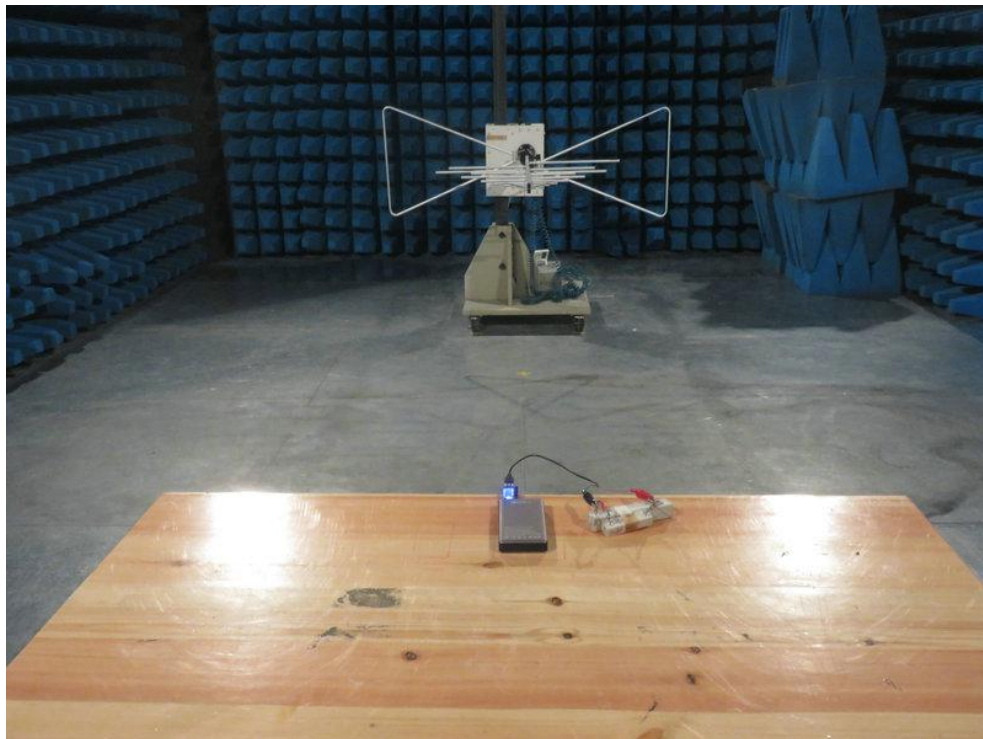


Photo of Electrostatic Discharge Immunity Test

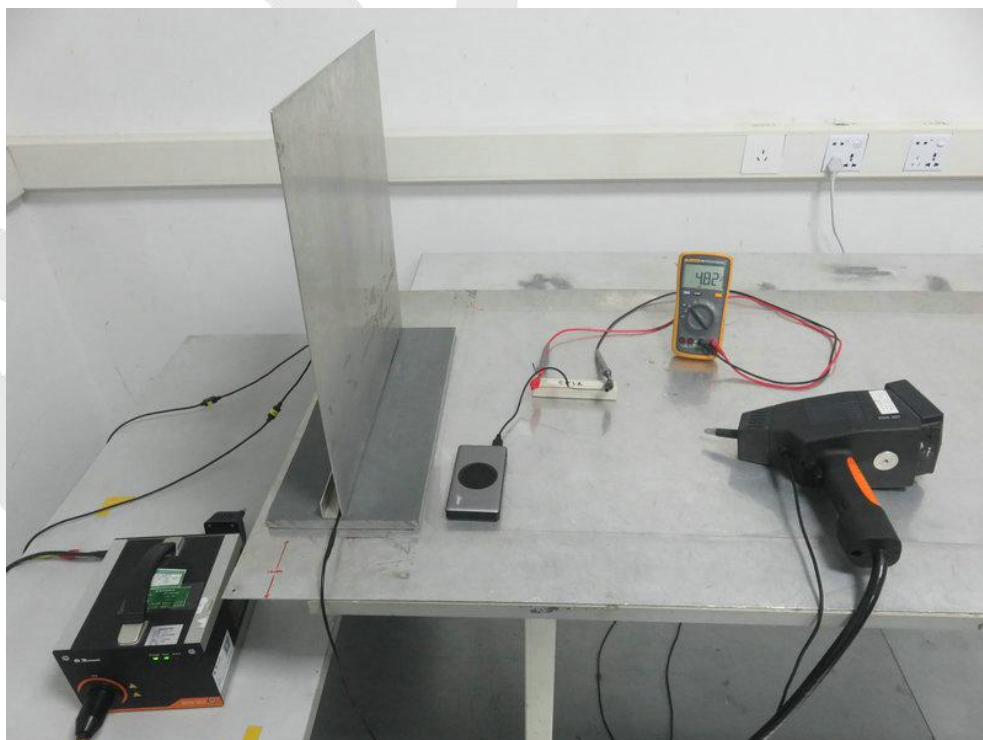
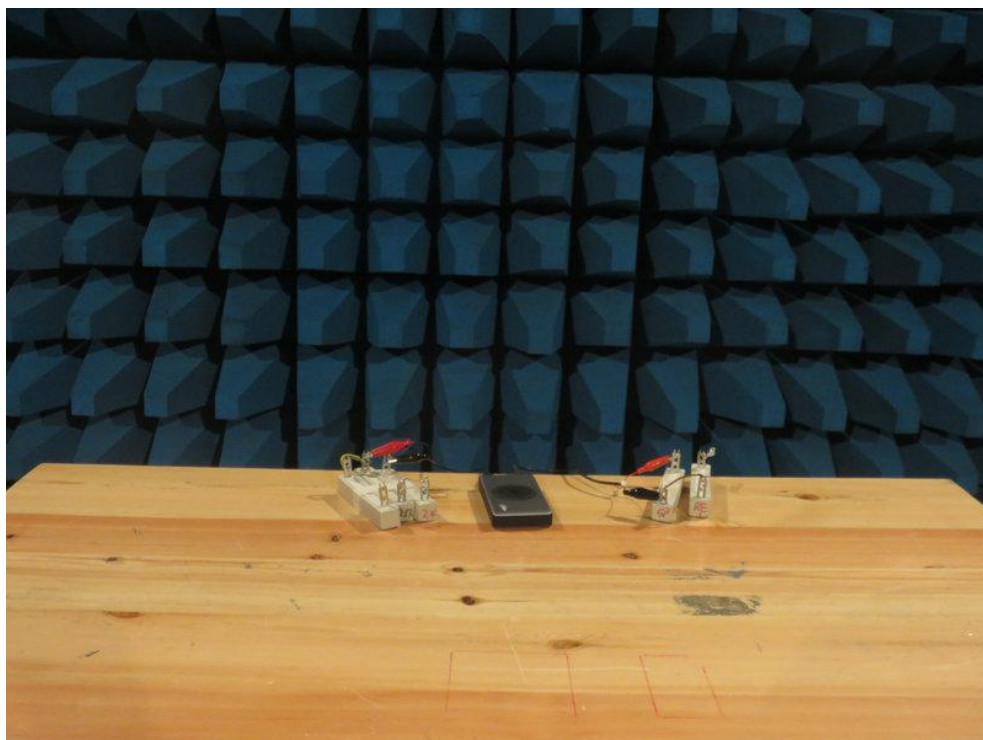
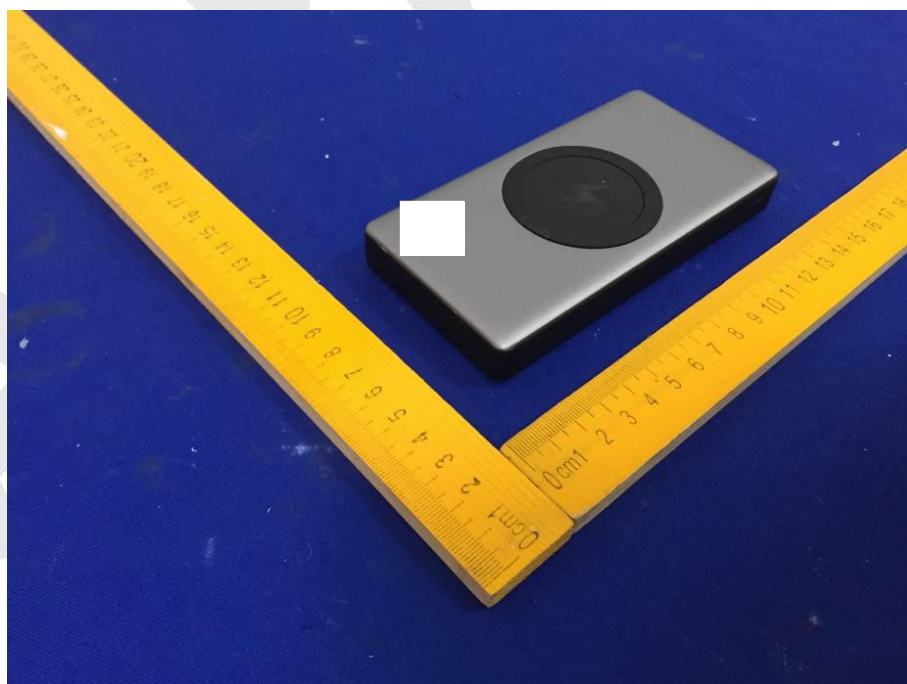
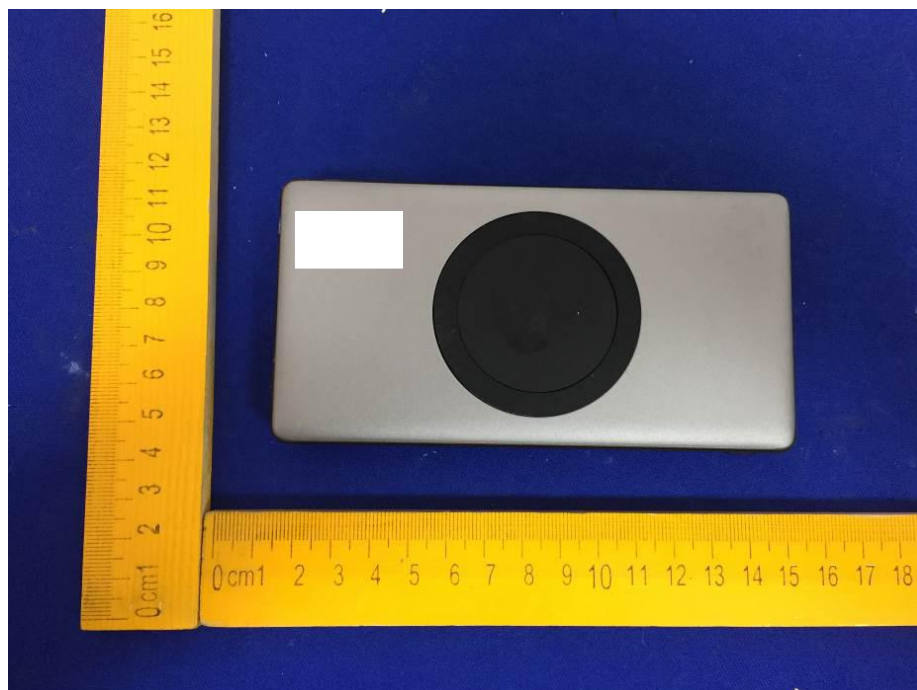
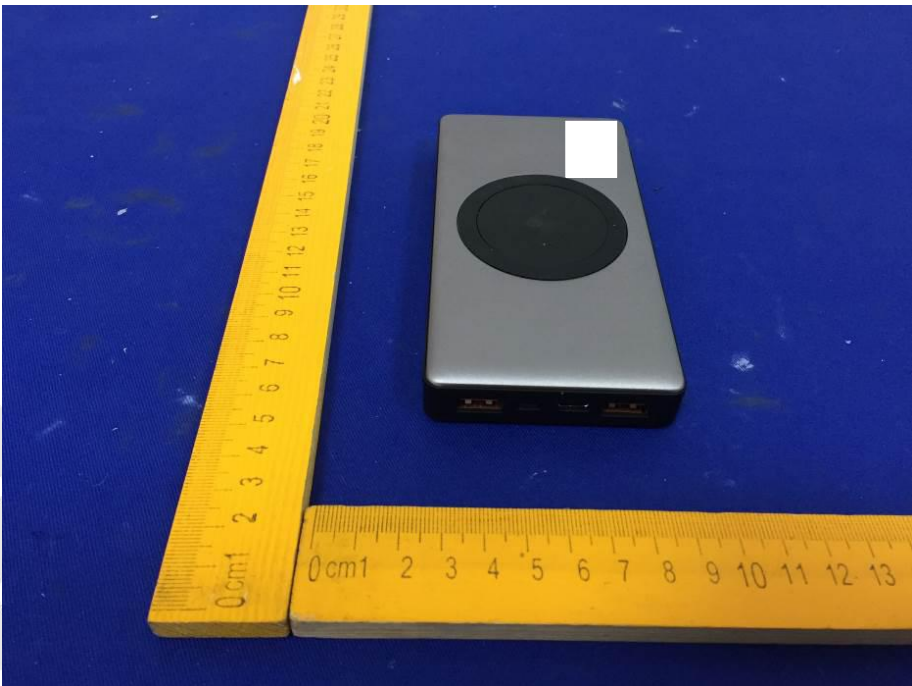


Photo of RF Field Strength susceptibility Test

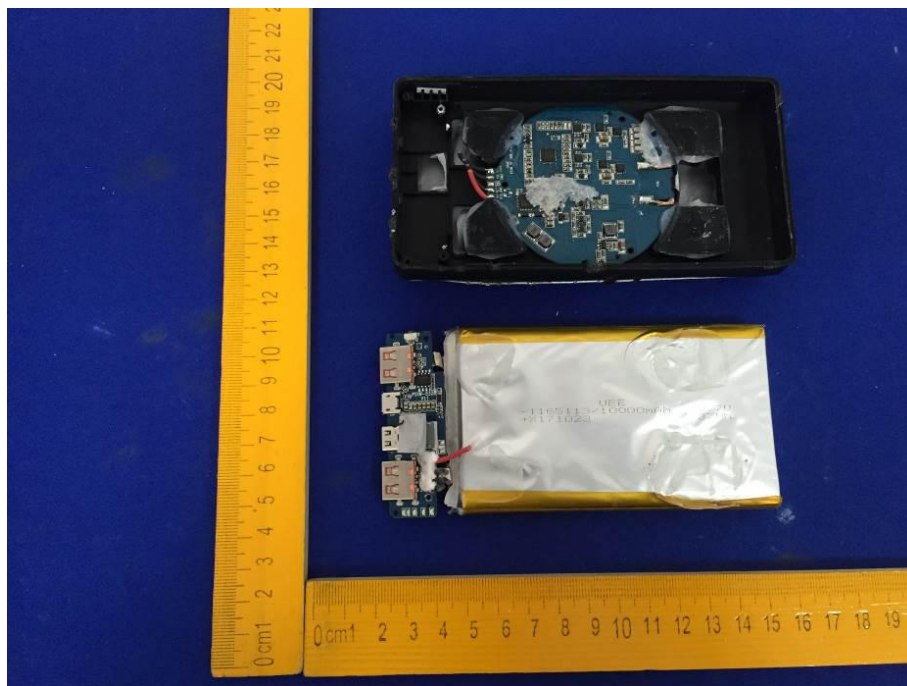


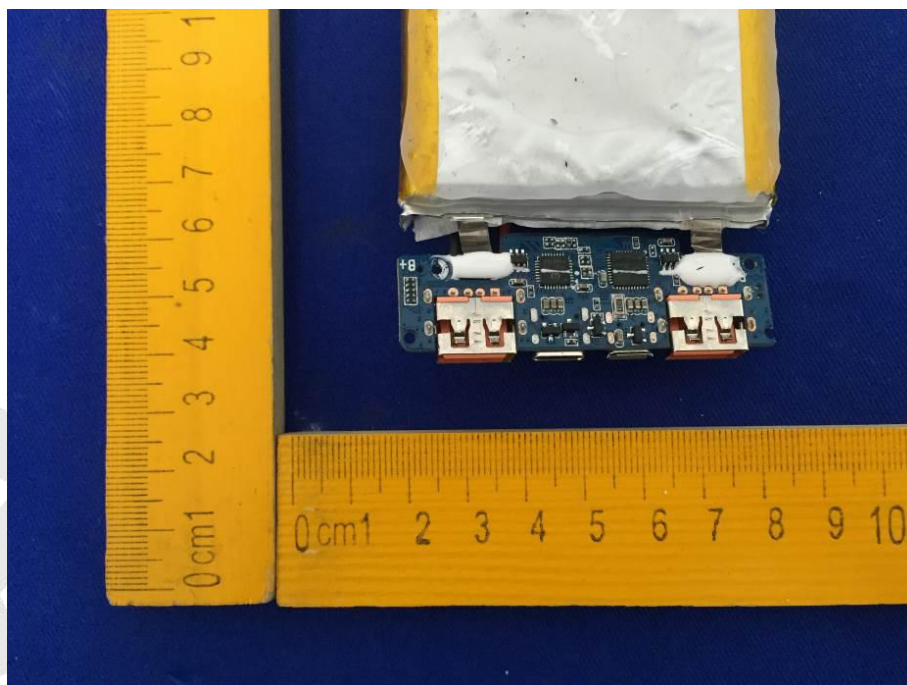
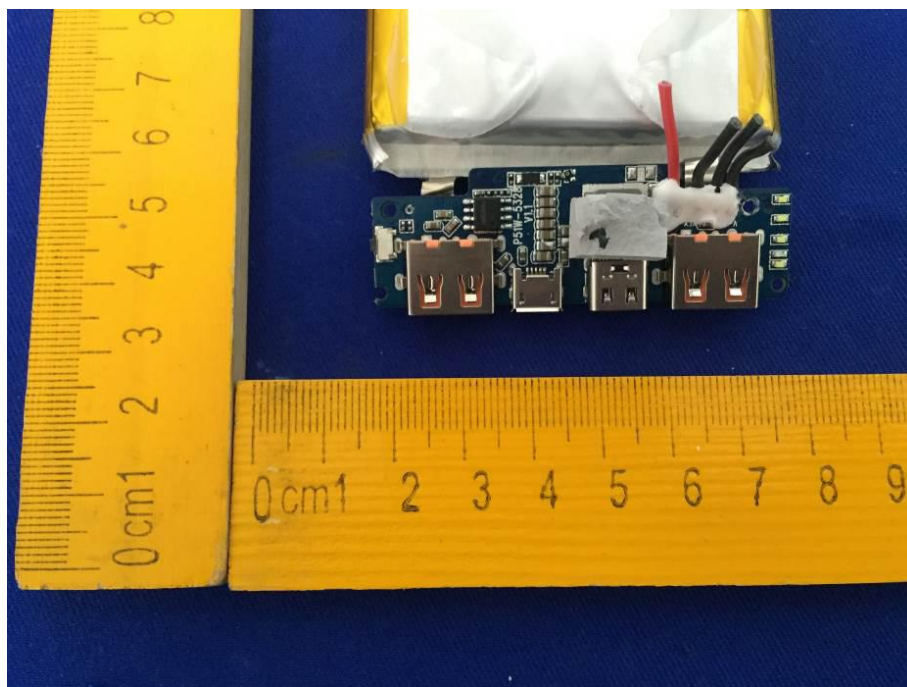
APPENDIX II -- EXTERNAL PHOTOGRAPH





APPENDIX III -- INTERNAL PHOTOGRAPH





CE Label

1. The CE conformity marking must consist of the initials 'CE' taking the following form:

If the CE marking is reduced or enlarged, the proportions given in the above graduated drawing must be respected.

2. The CE marking must have a height of at least 5 mm except where this is not possible on account of the nature of the apparatus.
3. The CE marking must be affixed to the product or to its data plate. Additionally it must be affixed to the packaging, if any, and to the accompanying documents.
4. The CE marking must be affixed visibly, legibly and indelibly.
It must have the same height as the initials 'CE'.

----- End of Report -----