# FCC TEST REPORT

| | | |
|---|---|---|
| Client Name | : | Shenzhen Pilot Technology Co., Ltd |
| Address | : | A1 Building, No.7 Shankeng Road, Shankeng Industrial Park, Shanxia Community, Pinghu Street, Longgang District, Shenzhen, China. |
| Product Name | : | Wireless Power Bank |
| Date | : | Apr. 07, 2020 |

## Shenzhen Anbotek Compliance Laboratory Limited

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# TEST REPORT

| | | |
|---|---|---|
| Applicant | : | Shenzhen Pilot Technology Co., Ltd |
| Manufacturer | : | Shenzhen Pilot Technology Co., Ltd |
| Product Name | : | Wireless Power Bank |
| Model No. | : | WX2010PD, CY3111PBCHE |
| Trade Mark | : | N.A. |
| Rating(s) | : | Type-C Input: DC 5V, 3A/DC 9V, 2A（with DC 3.7V, 10000 mAh battery inside）<br>Type-C/USB-A 1/USB-A 2 Output: DC 5V, 3A/DC 9V, 2A/DC 12V, 1.5A<br>Total Output: 18W（MAX）<br>Wireless Output: 5W/7.5W/10W |
| **Test Standard(s)** | **:** | **FCC Part15 Subpart C 2019, Paragraph 15.209** |
| **Test Method(s)** | **:** | **ANSI C63.10: 2013** |

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 FCC Part 15 Subpart C requirements.

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 Receipt | Mar. 20, 2020 |
| Date of Test | Mar. 20~31, 2020 |
| Prepared By | (Engineer / Dolly Mo) |
| Reviewer | (Supervisor / Bibo Zhang) |
| Approved & Authorized Signer | (Manager / Tom Chen) |


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www.anbotek.com

# 1. General Information

## 1.1. Client Information

| | | |
|---|---|---|
| Applicant | : | Shenzhen Pilot Technology Co., Ltd |
| Address | : | A1 Building, No.7 Shankeng Road, Shankeng Industrial Park, Shanxia Community, Pinghu Street, Longgang District, Shenzhen, China. |
| Manufacturer | : | Shenzhen Pilot Technology Co., Ltd |
| Address | : | A1 Building, No.7 Shankeng Road, Shankeng Industrial Park, Shanxia Community, Pinghu Street, Longgang District, Shenzhen, China. |
| Factory | : | Shenzhen Pilot Technology Co., Ltd |
| Address | : | A1 Building, No.7 Shankeng Road, Shankeng Industrial Park, Shanxia Community, Pinghu Street, Longgang District, Shenzhen, China. |

## 1.2. Description of Device (EUT)

| | | | |
|---|---|---|---|
| Product Name | : | Wireless Power Bank | |
| Model No. | : | WX2010PD, CY3111PBCHE<br>(Note: All samples are the same except the model name, so we prepare "WX2010PD" for test only.) | |
| Trade Mark | : | N.A. | |
| Test Power Supply | : | AC 120V, 60Hz for adapter / DC 3.7V Battery inside | |
| Test Sample No. | : | 1-2-1(Normal Sample), 1-2-1(Engineering Sample) | |
| Product Description | : | Operation Frequency: | 110.1-205KHz |
| | | Modulation Type: | QI |
| | | Antenna Type: | Inductive loop coil Antenna |
| | | Antenna Gain(Peak): | 0 dBi |
| 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

| | | |
|---|---|---|
| Adapter | : | Manufacturer: Anker Innovations Limited |
| | | M/N: A2013<br>Input: 100-240V 50-60Hz 0.7A<br>Output: 3.6-6.5V⎓ 3A/ 6.5-9V⎓ 2A/ 9-12V⎓ 1.5A |

## 1.4. Description of Test Modes

To investigate the maximum EMI emission characteristics generates from EUT, the test system was pre-scanning tested base 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 was evaluated respectively.

| Pretest Mode | Description |
|---|---|
| Mode 1 | Full load, Wireless Power Bank module |

| For Conducted Emission | |
|---|---|
| Final Test Mode | Description |
| Mode 1 | Full load, Wireless Power Bank module |

| For Radiated Emission | |
|---|---|
| Final Test Mode | Description |
| Mode 1 | Full load, Wireless Power Bank module |

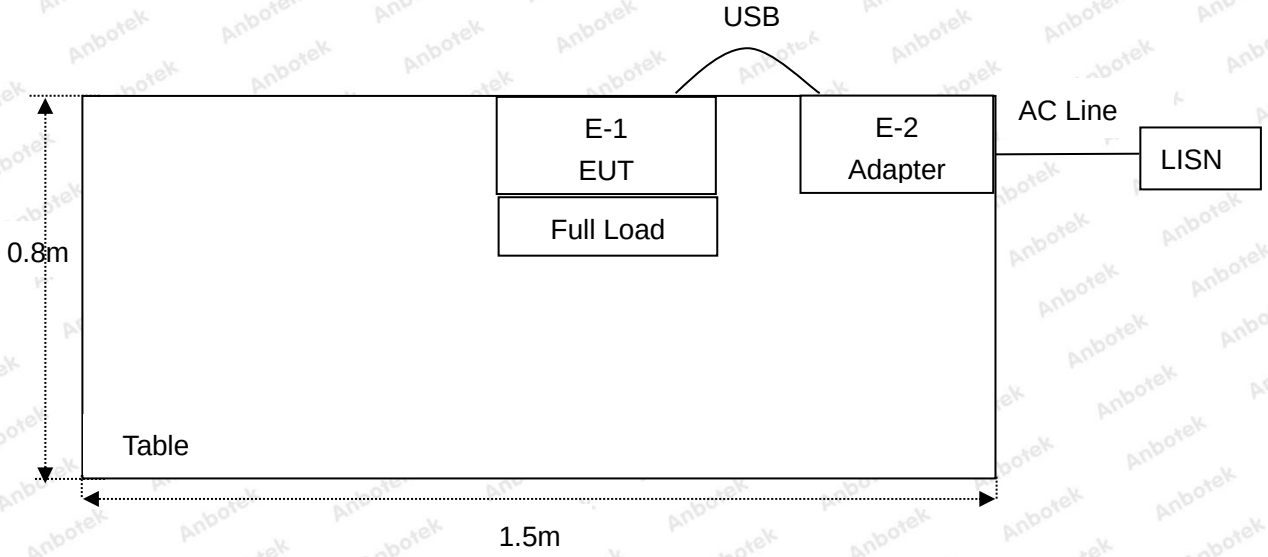
Note: (1)Test channel is 0.1282MHz.

(2) All the situation(full load, half load and empty load) has been tested,only the worst situation (full load) was recorded in the report.

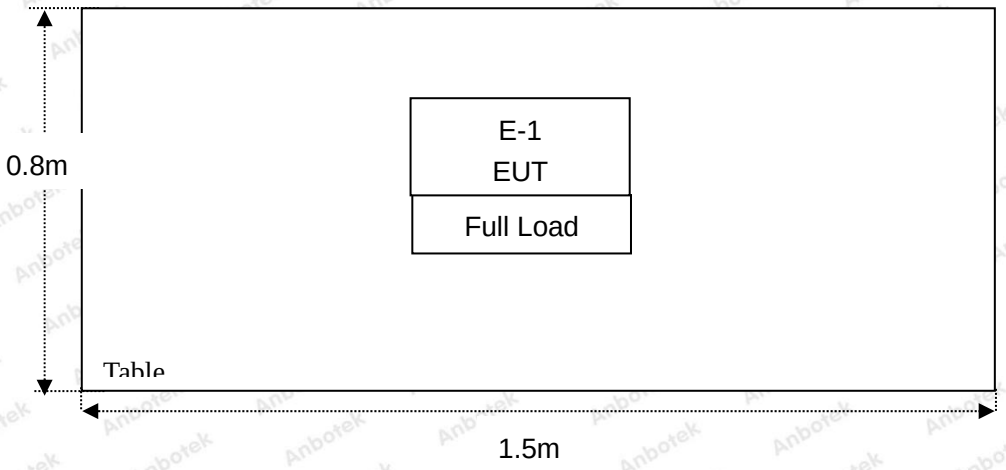
(3)5W/ 7.5W/ 10W All modes have been tested. This report only show the test result of the worst case(Full load 10W).

## 1.5. Description Of Test Setup

CE




RE



## 1.6. Test Equipment List

| Item | Equipment | Manufacturer | Model No. | Serial No. | Last Cal. | Cal. Interval |
|---|---|---|---|---|---|---|
| 1. | L.I.S.N. Artificial Mains Network | Rohde & Schwarz | ENV216 | 100055 | Nov. 04, 2019 | 1 Year |
| 2. | EMI Test Receiver | Rohde & Schwarz | ESPI3 | 101604 | Nov. 04, 2019 | 1 Year |
| 3. | RF Switching Unit | Compliance Direction | RSU-M2 | 38303 | Nov. 04, 2019 | 1 Year |
| 4. | MAX Spectrum Analysis | Agilent | N9020A | MY51170037 | Nov. 04, 2019 | 1 Year |
| 5. | Preamplifier | SKET Electronic | BK1G18G30D | KD17503 | Nov. 04, 2019 | 1 Year |
| 6. | Double Ridged Horn Antenna | Instruments corporation | GTH-0118 | 351600 | Nov. 01, 2019 | 1 Year |
| 7. | Bilog Broadband Antenna | Schwarzbeck | VULB9163 | VULB 9163-289 | Nov. 01, 2019 | 1 Year |
| 8. | Loop Antenna | Schwarzbeck | FMZB1519B | 00053 | Nov. 01, 2019 | 1 Year |
| 9. | Horn Antenna | A-INFO | LB-180400-KF | J211060628 | Nov. 01, 2019 | 1 Year |
| 10. | Pre-amplifier | SONOMA | 310N | 186860 | Nov. 04, 2019 | 1 Year |
| 11. | EMI Test Software EZ-EMC | SHURPLE | N/A | N/A | N/A | N/A |
| 12. | RF Test Control System | YIHENG | YH3000 | 2017430 | Nov. 04, 2019 | 1 Year |
| 13. | Power Sensor | DAER | RPR3006W | 15I00041SN045 | Nov. 04, 2019 | 1 Year |
| 14. | Power Sensor | DAER | RPR3006W | 15I00041SN046 | Nov. 04, 2019 | 1 Year |
| 15. | MXA Spectrum Analysis | Agilent | N9020A | MY51170037 | Nov. 04, 2019 | 1 Year |
| 16. | MXG RF Vector Signal Generator | Agilent | N5182A | MY48180656 | Nov. 04, 2019 | 1 Year |
| 17. | Signal Generator | Agilent | E4421B | MY41000743 | Nov. 04, 2019 | 1 Year |
| 18. | DC Power Supply | LW | TPR-6420D | 374470 | Nov. 04, 2019 | 1 Year |
| 19. | Constant Temperature Humidity Chamber | ZHONGJIAN | ZJ-KHWS80B | N/A | Nov. 04, 2019 | 1 Year |

## 1.7. Measurement Uncertainty

| | | |
|---|---|---|
| Radiation Uncertainty | : | Ur = 3.9 dB (Horizontal) |
| | | Ur = 3.8 dB (Vertical) |
| | | |
| Conduction Uncertainty | : | Uc = 3.4 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 registed 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, September 27, 2019.

**ISED-Registration No.: 8058A**

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, March 07, 2019.

**Test Location**

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

# 2. Summary of Test Results

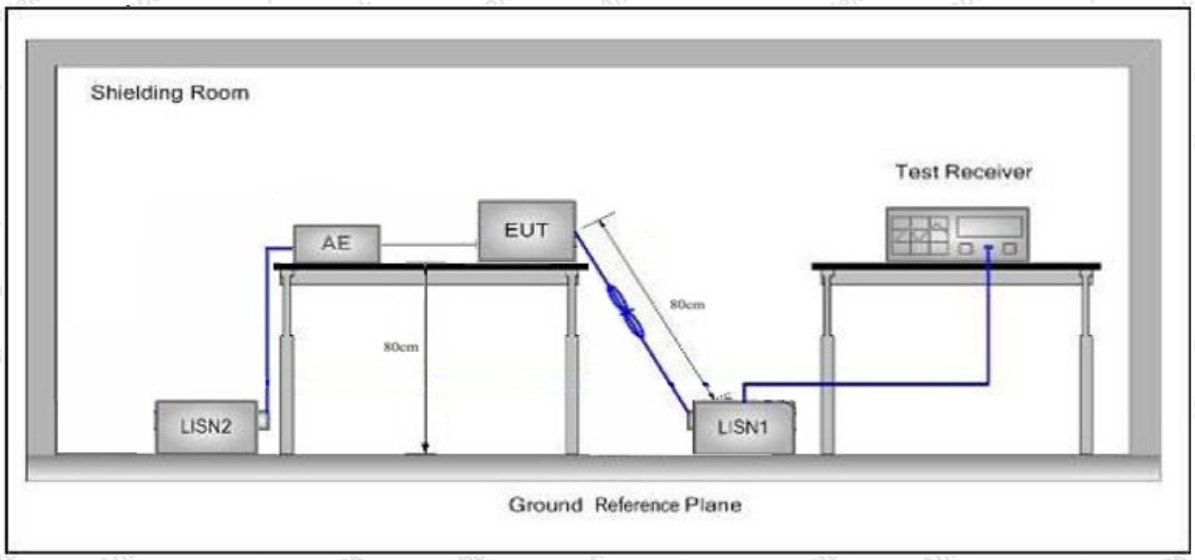
| Standard Section | Test Item | Result |
|---|---|---|
| FCC Part 15, Paragraph 15.207 | Conducted Emission Test | PASS |
| FCC Part 15, Paragraph 15.209(a)(f) | Spurious Emission | PASS |
| Part 15.203 | Antenna Requirement | PASS |

# 3. Conducted Emission Test

## 3.1. Test Standard and Limit

| Test Standard | FCC Part15 Section 15.207 | | |
|---|---|---|---|
| Test Limit | Frequency | Maximum RF Line Voltage (dBuV) | |
| | | Quasi-peak Level | Average Level |
| | 150kHz~500kHz | 66 ~ 56 * | 56 ~ 46 * |
| | 500kHz~5MHz | 56 | 46 |
| | 5MHz~30MHz | 60 | 50 |
| **Remark:** (1) *Decreasing linearly with logarithm of the frequency.<br>(2) The lower limit shall apply at the transition frequency. | | | |

## 3.2. Test Setup




## 3.3. Test Procedure

The EUT system is connected to the power mains through a line impedance stabilization network (L.I.S.N.). This provides a 50ohm coupling impedance for the EUT system. Please refer the block diagram of the test setup and photographs. Both sides of AC line are checked to find out the maximum conducted emission. In order to find the maximum emission levels, the relative positions of equipment and all of the interface cables shall be changed according to FCC ANSI C63.10-2013 on Conducted Emission Measurement.

The bandwidth of test receiver (ESCI) set at 9kHz.

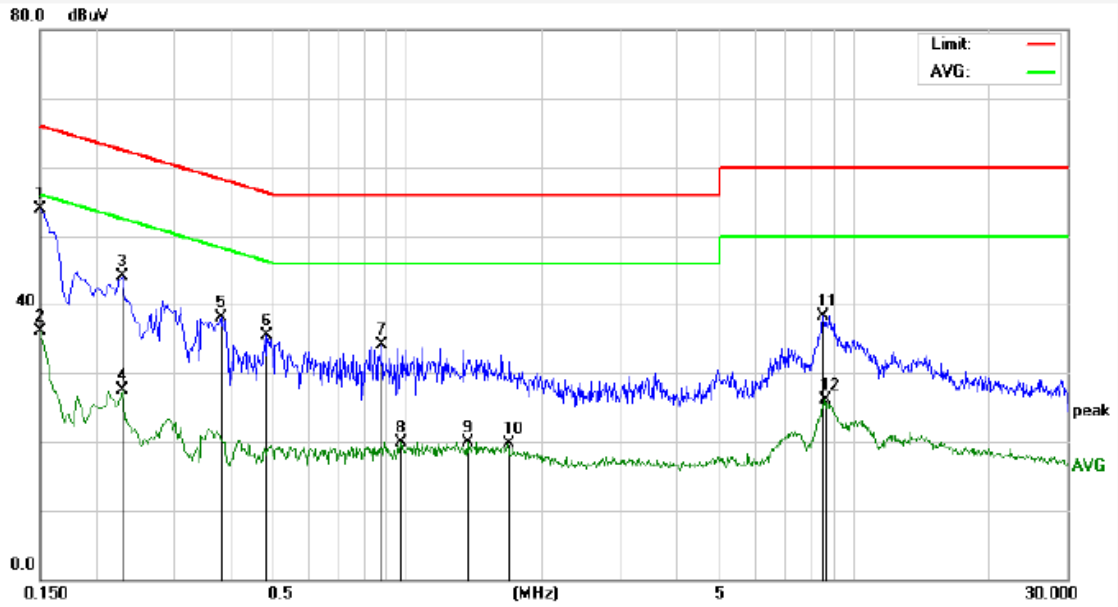
The frequency range from 150kHz to 30MHz is checked.

## 3.4. Test Data

Please to see the following pages

**Conducted Emission Test Data**

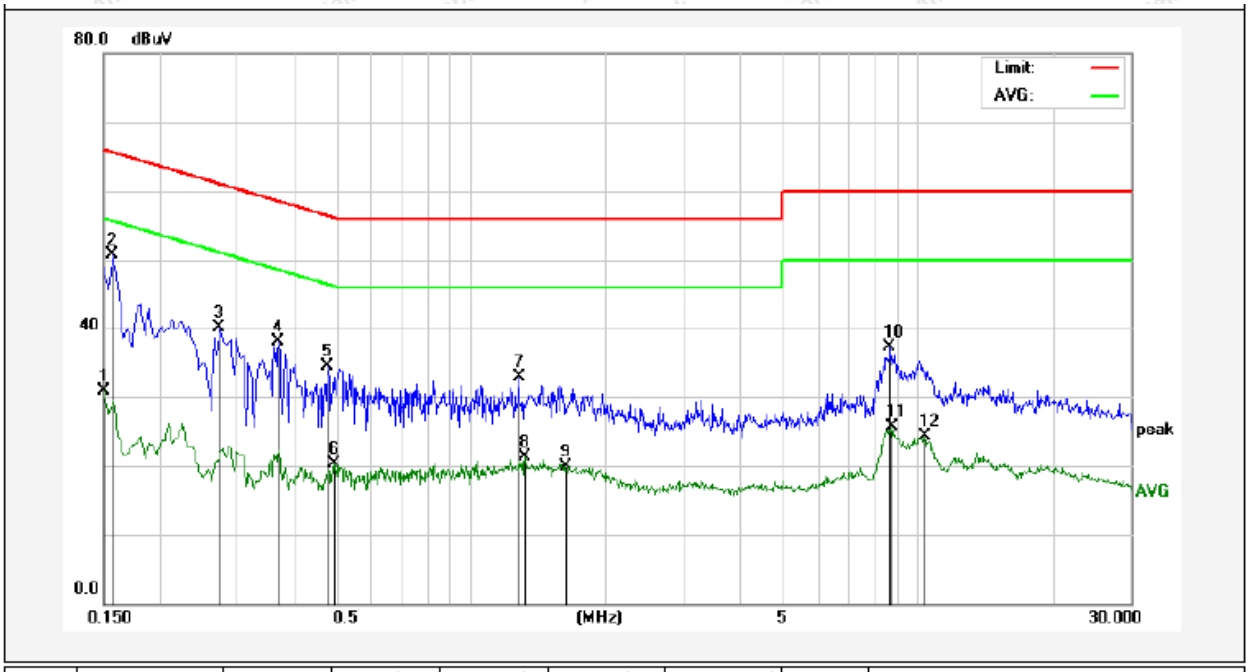
Test Site: 1# Shielded Room
Operating Condition: Mode 1
Test Specification: AC 120V, 60Hz for adapter
Comment: Live Line
Tem.: 22.5℃ Hum.: 52%




| No. | Freq. (MHz) | Reading (dBuV) | Factor (dB) | Result (dBuV) | Limit (dBuV) | Over Limit (dB) | Detector | Remark |
|---|---|---|---|---|---|---|---|---|
| 1 | 0.1500 | 34.07 | 19.90 | 53.97 | 65.99 | -12.02 | QP | |
| 2 | 0.1500 | 16.11 | 19.90 | 36.01 | 55.99 | -19.98 | AVG | |
| 3 | 0.2300 | 24.25 | 19.89 | 44.14 | 62.45 | -18.31 | QP | |
| 4 | 0.2300 | 7.55 | 19.89 | 27.44 | 52.45 | -25.01 | AVG | |
| 5 | 0.3820 | 18.21 | 19.93 | 38.14 | 58.23 | -20.09 | QP | |
| 6 | 0.4860 | 15.48 | 19.97 | 35.45 | 56.24 | -20.79 | QP | |
| 7 | 0.8780 | 13.95 | 20.09 | 34.04 | 56.00 | -21.96 | QP | |
| 8 | 0.9660 | -0.14 | 20.11 | 19.97 | 46.00 | -26.03 | AVG | |
| 9 | 1.3660 | -0.22 | 20.13 | 19.91 | 46.00 | -26.09 | AVG | |
| 10 | 1.6740 | -0.40 | 20.13 | 19.73 | 46.00 | -26.27 | AVG | |
| 11 | 8.5420 | 17.96 | 20.30 | 38.26 | 60.00 | -21.74 | QP | |
| 12 | 8.5740 | 5.85 | 20.30 | 26.15 | 50.00 | -23.85 | AVG | |

**Conducted Emission Test Data**

Test Site: 1# Shielded Room
Operating Condition: Mode 1
Test Specification: AC 120V, 60Hz for adapter
Comment: Neutral Line
Tem.: 22.5℃ Hum.: 52%




| No. | Freq. (MHz) | Reading (dBuV) | Factor (dB) | Result (dBuV) | Limit (dBuV) | Over Limit (dB) | Detector | Remark |
|---|---|---|---|---|---|---|---|---|
| 1 | 0.1500 | 11.09 | 19.90 | 30.99 | 55.99 | -25.00 | AVG | |
| 2 | 0.1580 | 30.81 | 19.90 | 50.71 | 65.56 | -14.85 | QP | |
| 3 | 0.2740 | 20.30 | 19.89 | 40.19 | 60.99 | -20.80 | QP | |
| 4 | 0.3700 | 18.11 | 19.92 | 38.03 | 58.50 | -20.47 | QP | |
| 5 | 0.4780 | 14.55 | 19.97 | 34.52 | 56.37 | -21.85 | QP | |
| 6 | 0.4940 | 0.38 | 19.98 | 20.36 | 46.10 | -25.74 | AVG | |
| 7 | 1.2820 | 12.72 | 20.13 | 32.85 | 56.00 | -23.15 | QP | |
| 8 | 1.3220 | 1.11 | 20.13 | 21.24 | 46.00 | -24.76 | AVG | |
| 9 | 1.6260 | -0.24 | 20.13 | 19.89 | 46.00 | -26.11 | AVG | |
| 10 | 8.6700 | 16.96 | 20.30 | 37.26 | 60.00 | -22.74 | QP | |
| 11 | 8.7299 | 5.43 | 20.31 | 25.74 | 50.00 | -24.26 | AVG | |
| 12 | 10.3540 | 4.05 | 20.33 | 24.38 | 50.00 | -25.62 | AVG | |

# 4. Radiation Spurious Emission and Band Edge

## 4.1. Test Standard and Limit

| Test Standard | FCC Part15 C Section 15.209 and 15.205 | | | | |
|---|---|---|---|---|---|
| Test Limit | Frequency (MHz) | Field strength (microvolt/meter) | Limit (dBuV/m) | Remark | Measurement distance (m) |
| | 0.009MHz~0.490MHz | 2400/F(kHz) | - | - | 300 |
| | 0.490MHz-1.705MHz | 24000/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~1000MHz | 500 | 54.0 | Quasi-peak | 3 |
| | Above 1000MHz | 500 | 54.0 | Average | 3 |
| | | - | 74.0 | Peak | 3 |

**Remark:**
(1)The lower limit shall apply at the transition frequency.
(2) 15.35(b), Unless otherwise specified, the limit on peak radio frequency emissions is 20dB above the maximum permitted average emission limit applicable to the equipment under test. This peak limit applies to the total peak emission level radiated by the device.

## 4.2. Test Setup

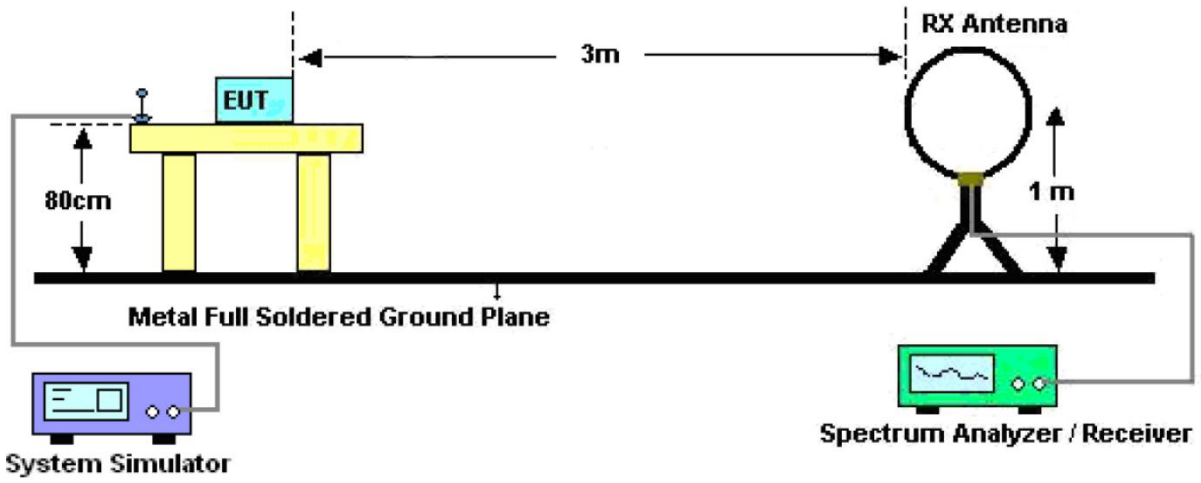



Figure 1. Below 30MHz

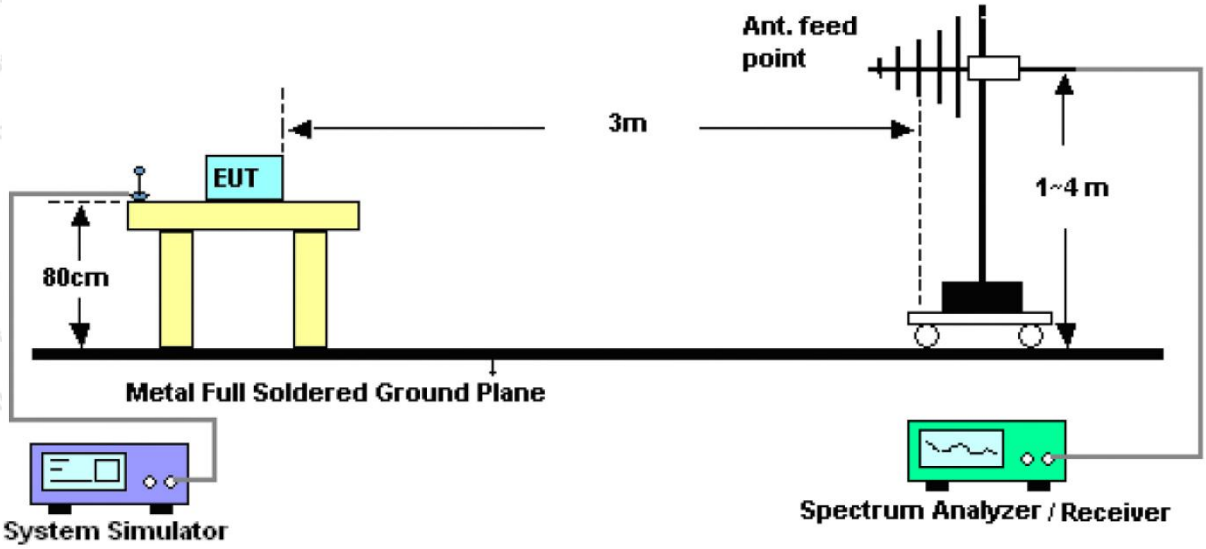



Figure 2. 30MHz to 1GHz

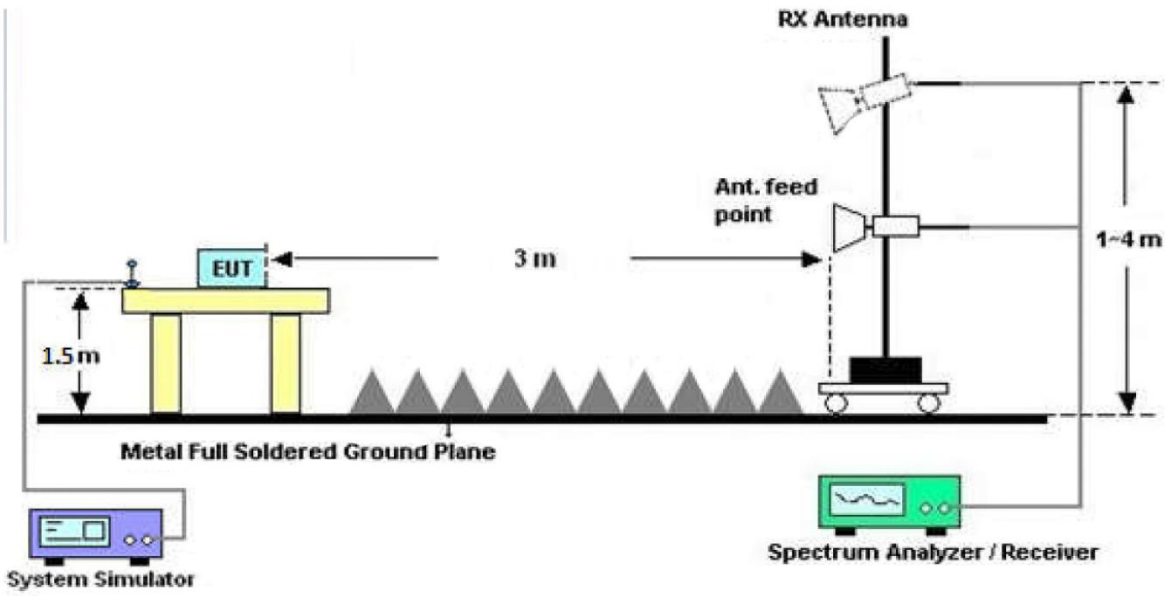



Figure 3. Above 1 GHz

## 4.3. Test Procedure

For below 1GHz: The EUT is placed on a turntable, which is 0.8m above the ground plane.
For above 1GHz: The EUT is placed on a turntable, which is 1.5m above the ground plane.
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. Rotated the EUT through three orthogonal axes to determine the maximum emissions, both horizontal and vertical polarization of the antenna are set on test. The EUT is tested in 9*6*6 Chamber. The device is evaluated in xyz orientation.

For 9kHz to 150kHz, Set the spectrum analyzer as:
RBW = 200Hz, VBW =1kHz, Detector= Quasi-Peak, Trace mode= Max hold, Sweep- auto couple.

For 150kHz to 30MHz, Set the spectrum analyzer as:
RBW = 9KHz, VBW =30kHz, Detector= Quasi-Peak, Trace mode= Max hold, Sweep- auto couple.

For 30MHz to 1000MHz, Set the spectrum analyzer as:
RBW = 100kHz, VBW =300kHz, Detector= Quasi-Peak, Trace mode= Max hold, Sweep- auto couple.

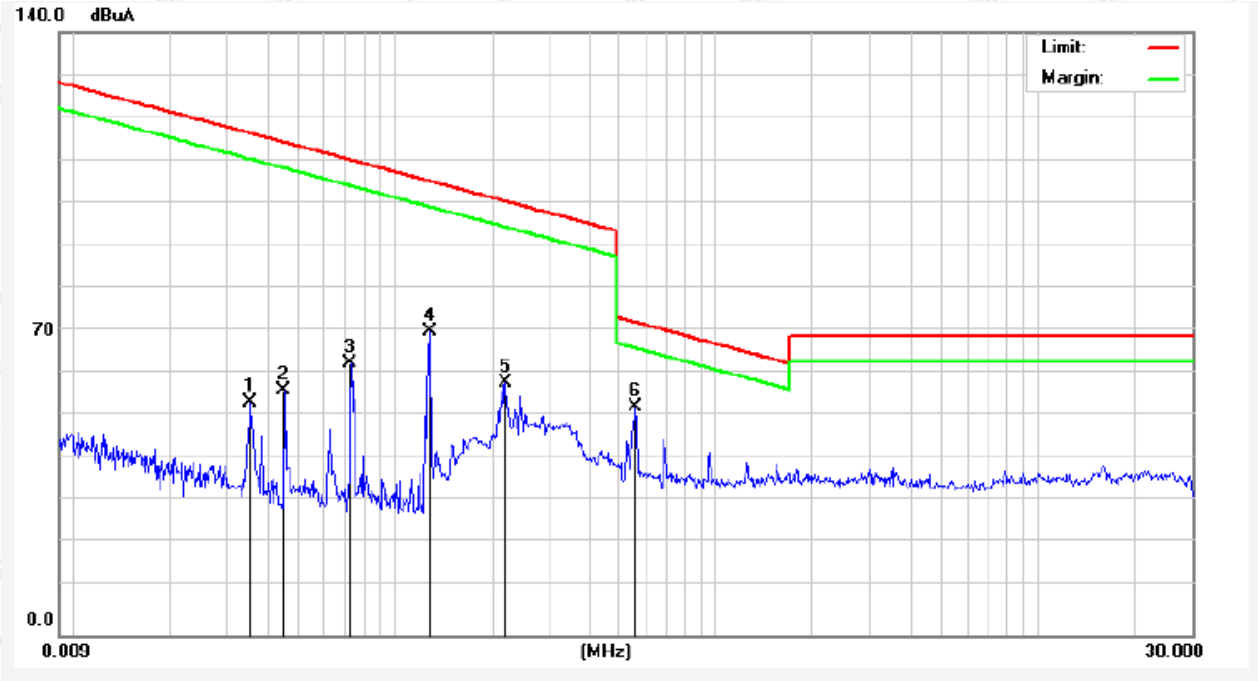
## 4.4. Test Data

**PASS**

Note: The data is in TX mode, and this is the worst mode.

**Test Results (9K~30MHz)**

| | |
|---|---|
| Test Mode: | Mode 1 |
| Power Source: | AC 120V, 60Hz for adapter |
| Temp.(℃)/Hum.(%RH): | 22.1℃/49%RH |
| Distance: | 3m |

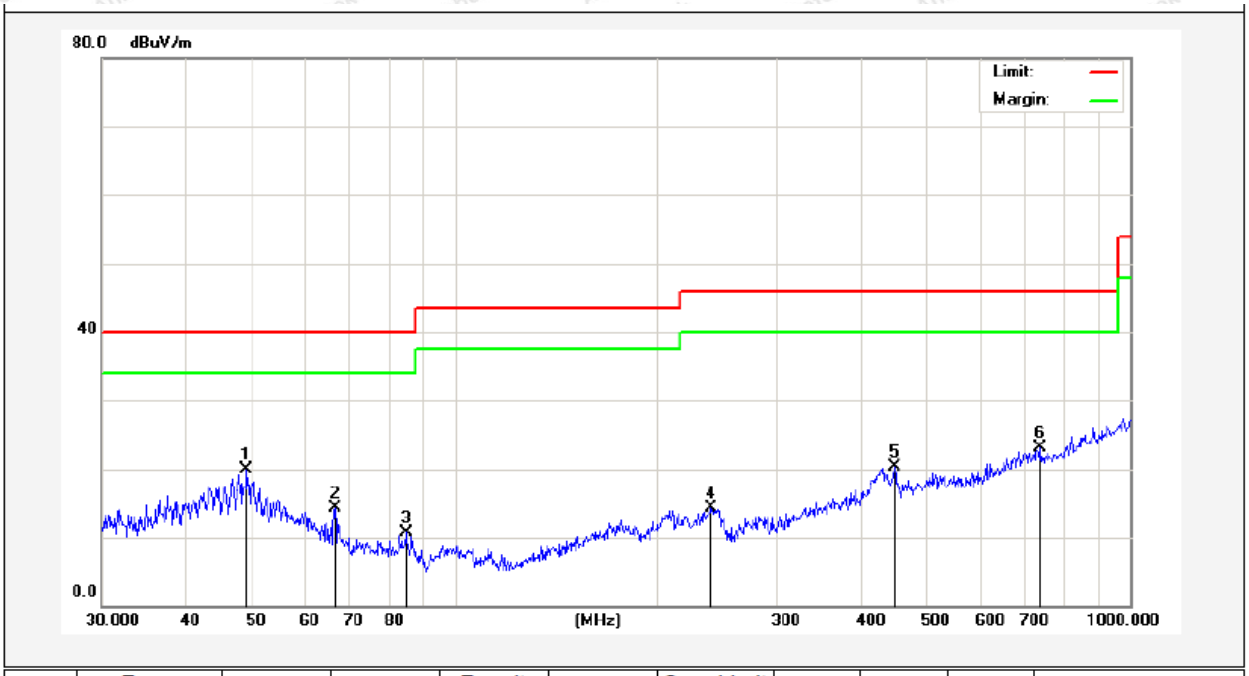



| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamp Factor (dB) | Level (dBuV/m) | Limit (dBuV/m) | Over Limit (dB) | Detector | degree (dge) |
|---|---|---|---|---|---|---|---|---|---|
| 0.0354 | 43.52 | 19.28 | 2.53 | 0 | 65.33 | 136.50 | -71.17 | Peak | 129 |
| 0.0354 | 32.22 | 19.28 | 2.53 | 0 | 54.03 | 116.50 | -62.47 | AV | 129 |
| 0.0451 | 45.91 | 19.28 | 2.53 | 0 | 67.72 | 134.40 | -66.68 | Peak | 325 |
| 0.0451 | 35.18 | 19.28 | 2.53 | 0 | 56.99 | 114.40 | -57.41 | AV | 325 |
| 0.0728 | 50.24 | 19.53 | 2.59 | 0 | 72.36 | 130.27 | -57.91 | Peak | 227 |
| 0.0728 | 41.00 | 19.53 | 2.59 | 0 | 63.12 | 110.27 | -47.15 | AV | 227 |
| 0.1282 | 59.17 | 19.53 | 2.59 | 0 | 81.29 | 125.38 | -44.09 | Peak | 178 |
| 0.1282 | 48.36 | 19.53 | 2.59 | 0 | 70.48 | 105.38 | -34.90 | AV | 178 |
| 0.2199 | 45.10 | 19.53 | 2.59 | 0 | 67.22 | 120.72 | -53.50 | Peak | 267 |
| 0.2199 | 36.34 | 19.53 | 2.59 | 0 | 58.46 | 100.72 | -42.26 | AV | 267 |
| 0.5620 | 29.83 | 20.66 | 2.63 | 0 | 53.12 | 72.61 | -19.49 | QP | 28 |

**Remark:** According to FCC PART 15.209 (d), the emission limits for the frequency bands 9–90 kHz, 110–490 kHz and above 1000 MHz, Radiated emission limits in these three bands are based on measurements employing an average detector.

**Test Results (30~1000MHz)**

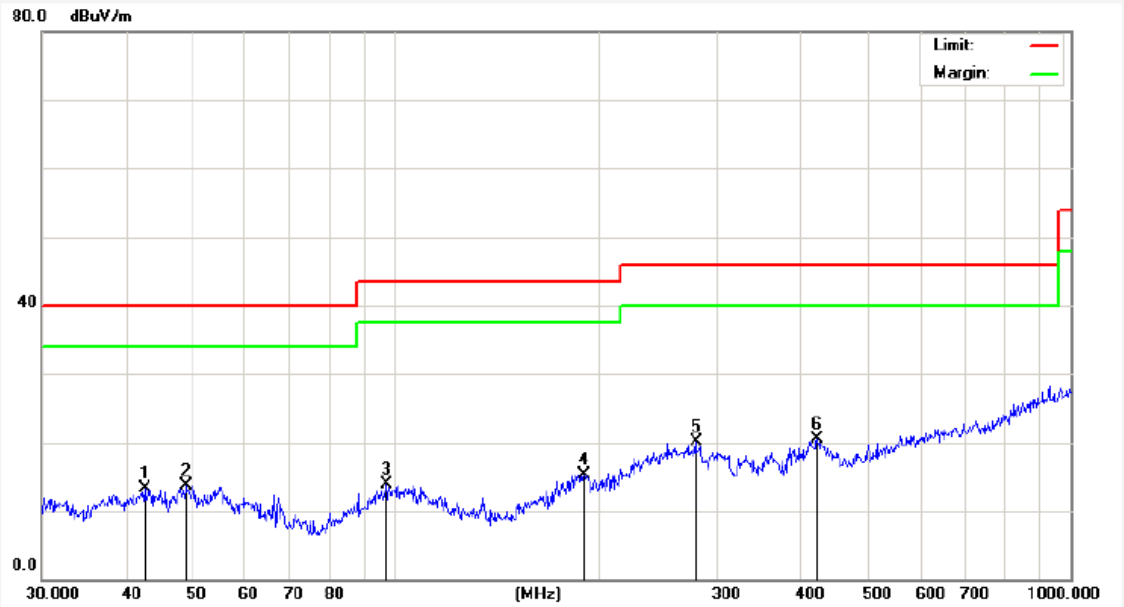
| | |
|---|---|
| Test Mode: | Mode 1 |
| Power Source: | AC 120V, 60Hz for adapter |
| Polarization: | Vertical |
| Temp.(℃)/Hum.(%RH): | 22.1℃/49%RH |
| Distance: | 3m |




| No. | Freq. (MHz) | Reading (dBuV) | Factor (dB/m) | Result (dBuV/m) | Limit (dBuV/m) | Over Limit (dB) | Detector | Height (cm) | degree (deg) | Remark |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 49.1865 | 36.92 | -17.05 | 19.87 | 40.00 | -20.13 | QP | 100 | 0 | |
| 2 | 66.4989 | 34.31 | -20.01 | 14.30 | 40.00 | -25.70 | QP | 100 | 360 | |
| 3 | 84.7019 | 30.35 | -19.65 | 10.70 | 40.00 | -29.30 | QP | 100 | 0 | |
| 4 | 239.9874 | 30.45 | -16.19 | 14.26 | 46.00 | -31.74 | QP | 100 | 360 | |
| 5 | 447.9822 | 34.07 | -13.84 | 20.23 | 46.00 | -25.77 | QP | 100 | 0 | |
| 6 | 737.0714 | 32.27 | -9.22 | 23.05 | 46.00 | -22.95 | QP | 100 | 360 | |

**Test Results (30~1000MHz)**

| | |
|---|---|
| Test Mode: | Mode 1 |
| Power Source: | AC 120V, 60Hz for adapter |
| Polarization: | Horizontal |
| Temp.(℃)/Hum.(%RH): | 22.1℃/49%RH |
| Distance: | 3m |




| No. | Freq. (MHz) | Reading (dBuV) | Factor (dB/m) | Result (dBuV/m) | Limit (dBuV/m) | Over Limit (dB) | Detector | Height (cm) | degree (deg) | Remark |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 42.6000 | 31.05 | -17.79 | 13.26 | 40.00 | -26.74 | QP | 100 | 360 | |
| 2 | 49.1865 | 31.76 | -18.05 | 13.71 | 40.00 | -26.29 | QP | 100 | 0 | |
| 3 | 97.1148 | 36.71 | -22.73 | 13.98 | 43.50 | -29.52 | QP | 100 | 360 | |
| 4 | 190.4050 | 38.46 | -23.13 | 15.33 | 43.50 | -28.17 | QP | 100 | 0 | |
| 5 | 279.0436 | 40.33 | -20.30 | 20.03 | 46.00 | -25.97 | QP | 100 | 360 | |
| 6 | 422.0577 | 35.14 | -14.71 | 20.43 | 46.00 | -25.57 | QP | 100 | 0 | |

# 5. Antenna Requirement

## 5.1. Test Standard and Requirement

| | |
|---|---|
| Test Standard | FCC Part15 Section 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 |

## 5.2. Antenna Connected Construction

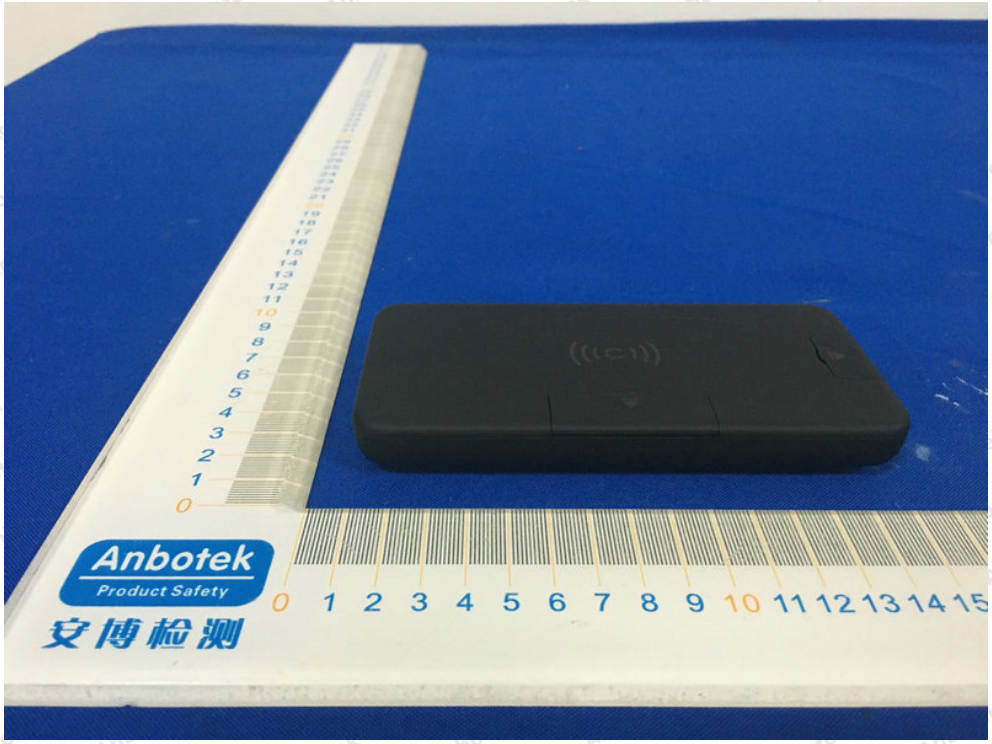
The antenna is a Inductive loop coil Antenna which permanently attached, and the best case gain of the antenna is 0 dBi. It complies with the standard requirement.

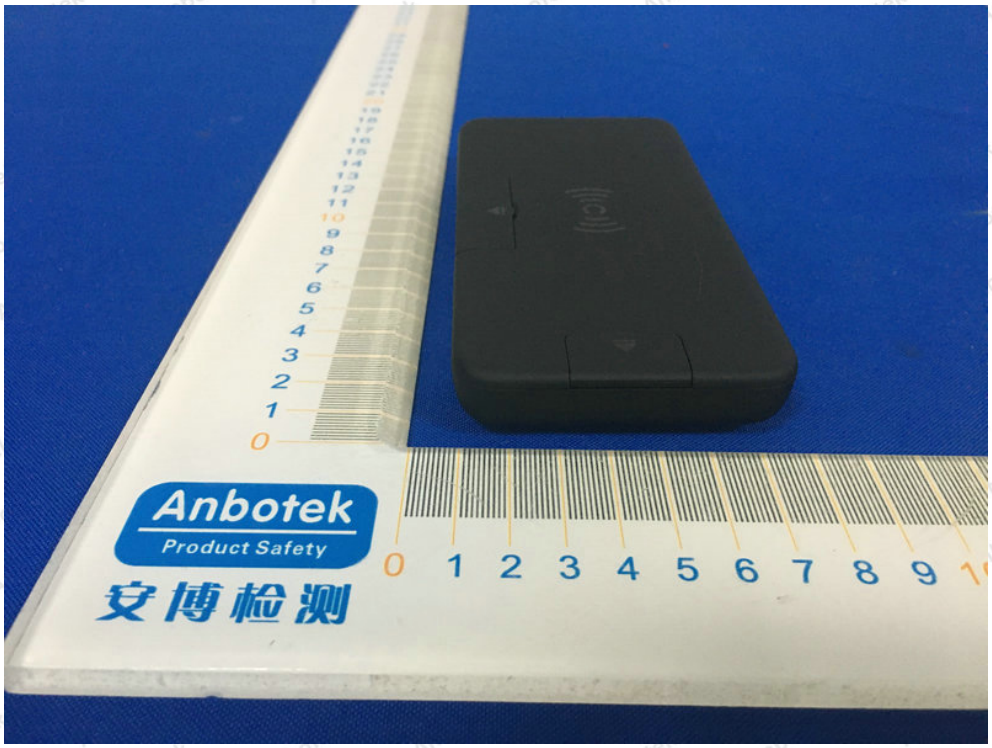
# APPENDIX I -- TEST SETUP PHOTOGRAPH

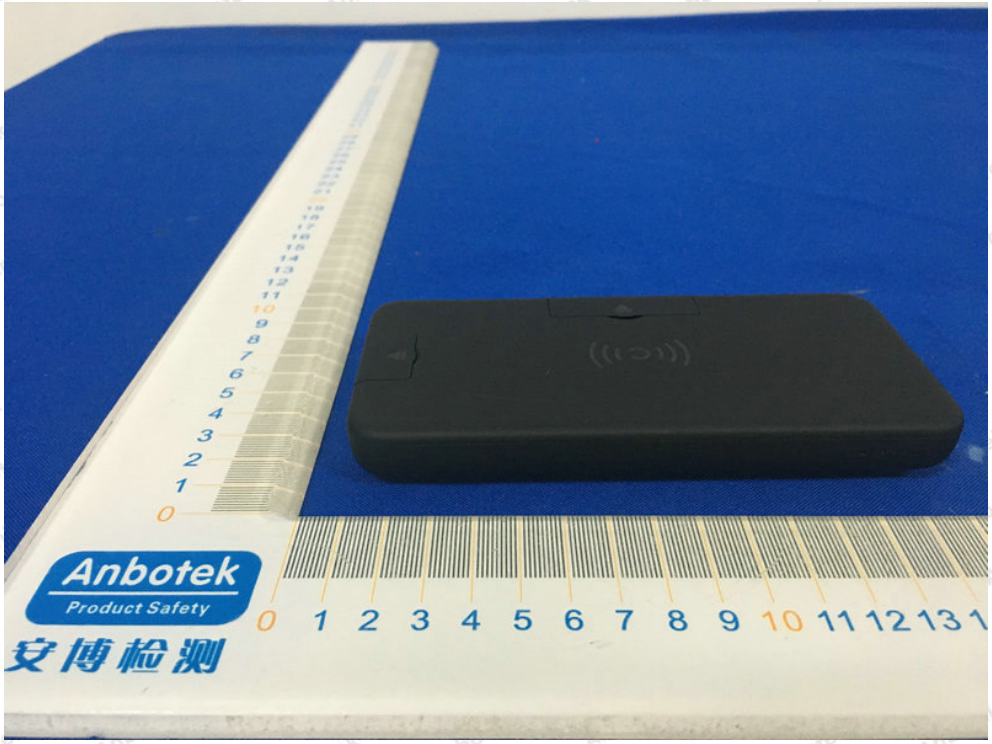
Photo of Conducted Emission Measurement

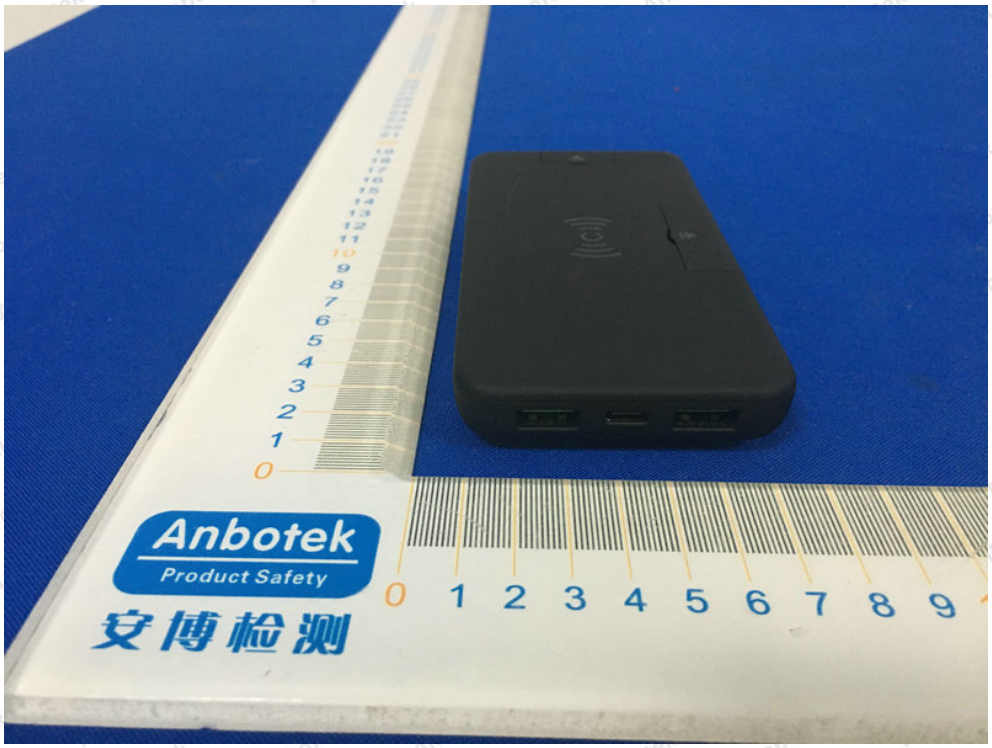
Photo of Radiation Emission Test

# APPENDIX II -- EXTERNAL PHOTOGRAPH

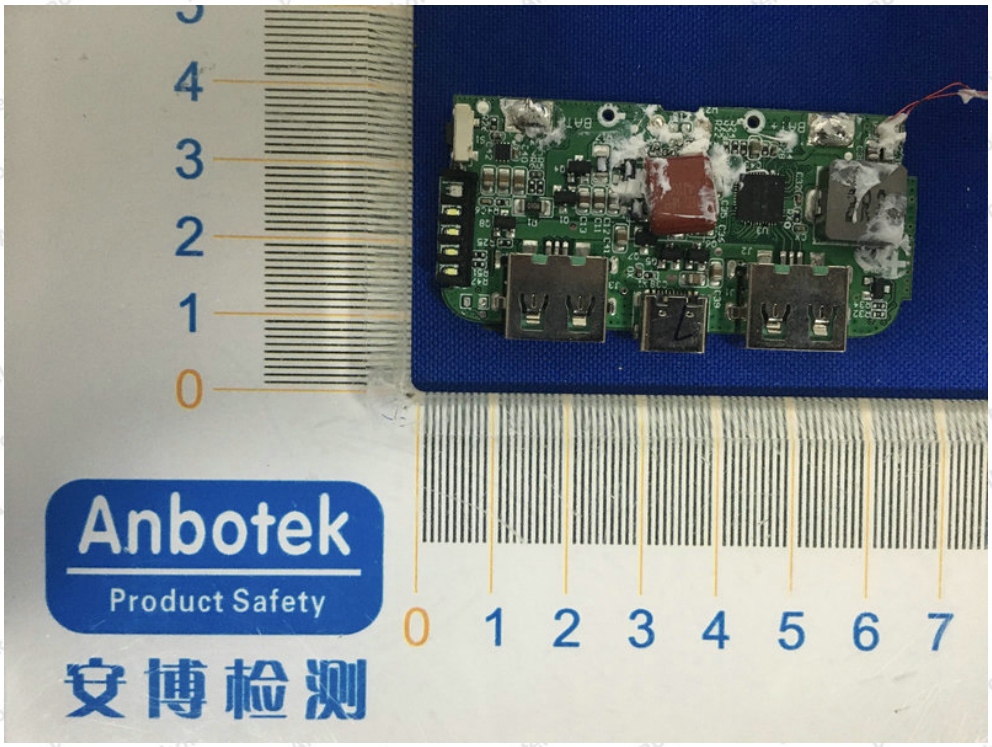

Anbotek
Product Safety
安博检测


Anbotek
Product Safety
安博检测

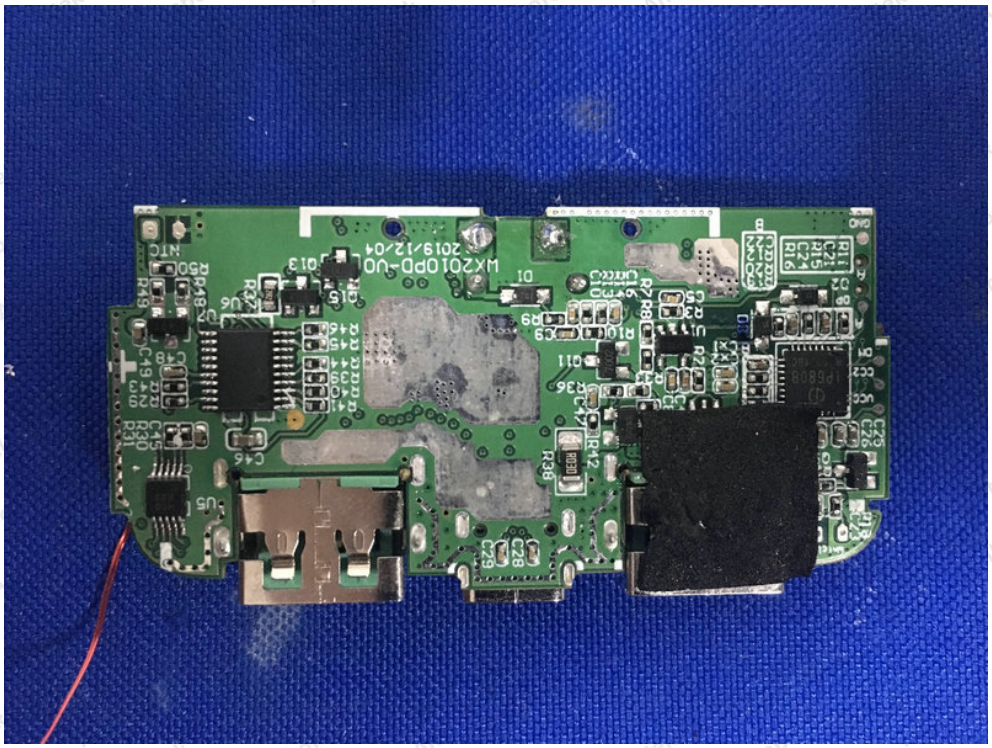

Anbotek
Product Safety
安博检测

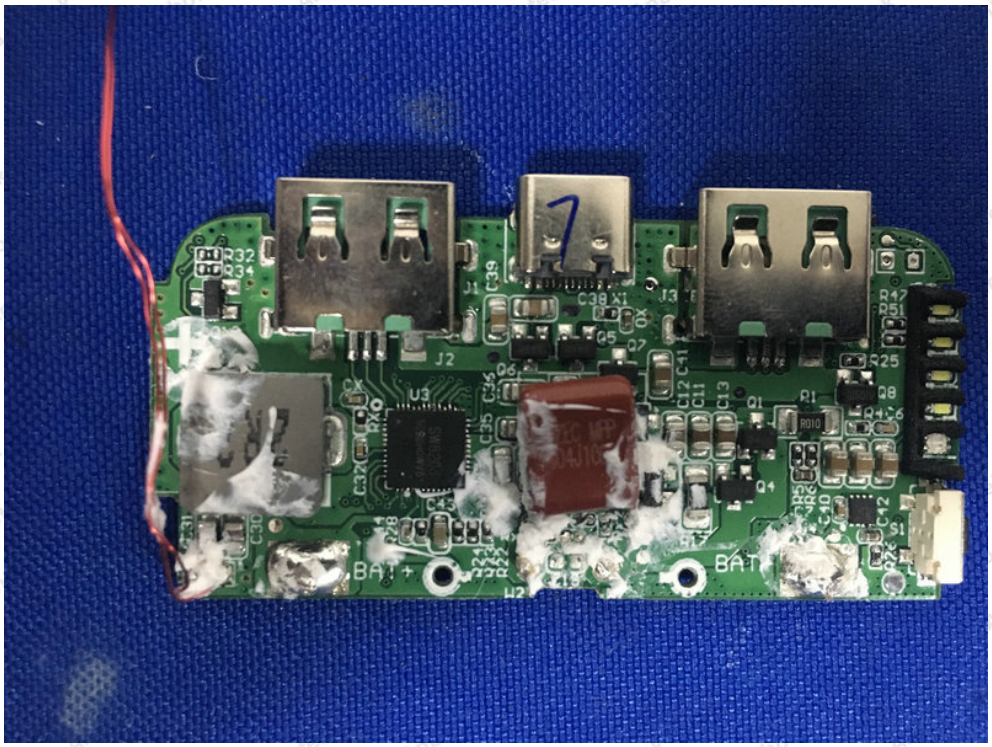

Anbotek
Product Safety
安博检测

# APPENDIX III -- INTERNAL PHOTOGRAPH



Anbotek
Product Safety
安博检测





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