# FCC Test Report

| | | |
|---|---|---|
| **Applicant** | : | **Wattbricks Products Inc** |
| **Address** | : | **337 N Veniyard, Ontario California 91764 United States** |
| **Product Name** | : | **PORTABLE POWER STATION** |
| **Report Date** | : | **Jun. 27, 2024** |

**Shenzhen Anbotek Compliance Laboratory Limited**

# Contents

# TEST REPORT

| | | |
|---|---|---|
| Applicant | : | Wattbricks Products Inc |
| Manufacturer | : | Huizhou Intelligent Energy Co., Ltd. |
| Product Name | : | PORTABLE POWER STATION |
| Model No. | : | H2500Pro |
| Trade Mark | : | N/A |
| Rating(s) | : | Please see page 6. |
| **Test Standard(s)** | : | **FCC Part15 Subpart C, Paragraph 15.209** |
| **Test Method(s)** | : | **ANSI C63.10: 2020** |

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 Jun. 07, 2024

Date of Test Jun. 07 ~ Jun. 21, 2024

Prepared By Nian xiu Chen

(Nianxiu Chen)

Approved & Authorized Signer Edward pan

(Edward Pan)

# Revision History

| Report Version | Description | Issued Date |
|---|---|---|
| R00 | Original Issue. | Jun. 27, 2024 |
| | | |
| | | |

# 1. General Information

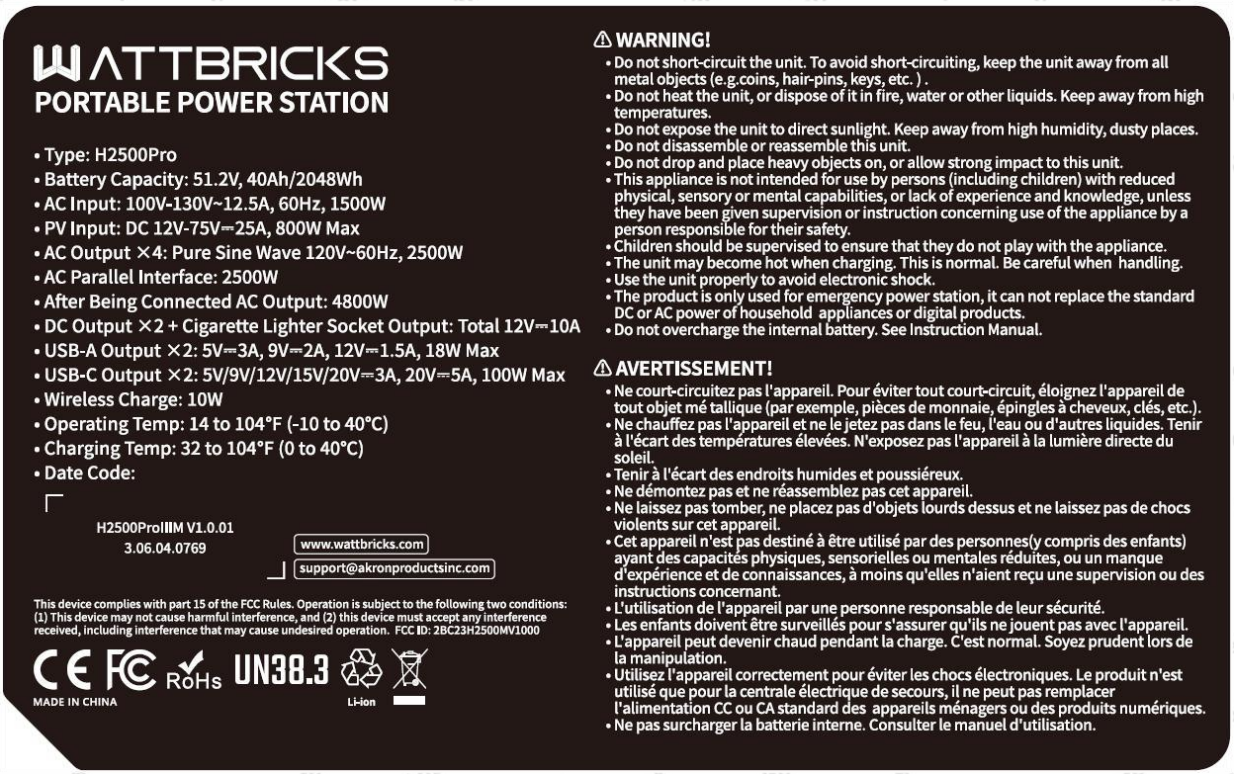
## 1.1. Client Information

| | | |
|---|---|---|
| Applicant | : | Wattbricks Products Inc |
| Address | : | 337 N Veniyard, Ontario California 91764 United States |
| Manufacturer | : | Huizhou Intelligent Energy Co., Ltd. |
| Address | : | 8-9/F,Bldg.E2,Qunyi Industrial Park,Sanhe Avenue, Tonghu Town, Zhongkai High-tech Zone, HuiZhou, 516039, China |
| Factory | : | Huizhou Intelligent Energy Co., Ltd. |
| Address | : | 8-9/F,Bldg.E2,Qunyi Industrial Park,Sanhe Avenue, Tonghu Town, Zhongkai High-tech Zone, HuiZhou, 516039, China |

## 1.2. Description of Device (EUT)

| | | |
|---|---|---|
| Product Name | : | PORTABLE POWER STATION |
| Model No. | : | H2500Pro |
| Trade Mark | : | N/A |
| Test Power Supply | : | AC 120V, 60Hz/ DC 51.2V Battery inside |
| Test Sample No. | : | 1-2-1(Normal Sample), 1-2-2(Engineering Sample) |
| Adapter | : | N/A |
| **RF Specification** | | |
| Operation Frequency | : | 110.1-205kHz |
| Modulation Type | : | ASK |
| Antenna Type | : | Inductive loop coil Antenna |
| **Remark:** 1) All of the RF specification are provided by customer. 2) For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual. | | |

Rating(s):




## 1.3. Auxiliary Equipment Used During Test

| Description | Rating(s) |
|---|---|
| Wireless charging load: | Manufacturer: Shenzhen Ouju Technology Co., Ltd.<br>M/N: CD2577<br>Power: 5W/7.5W/10W/15W |

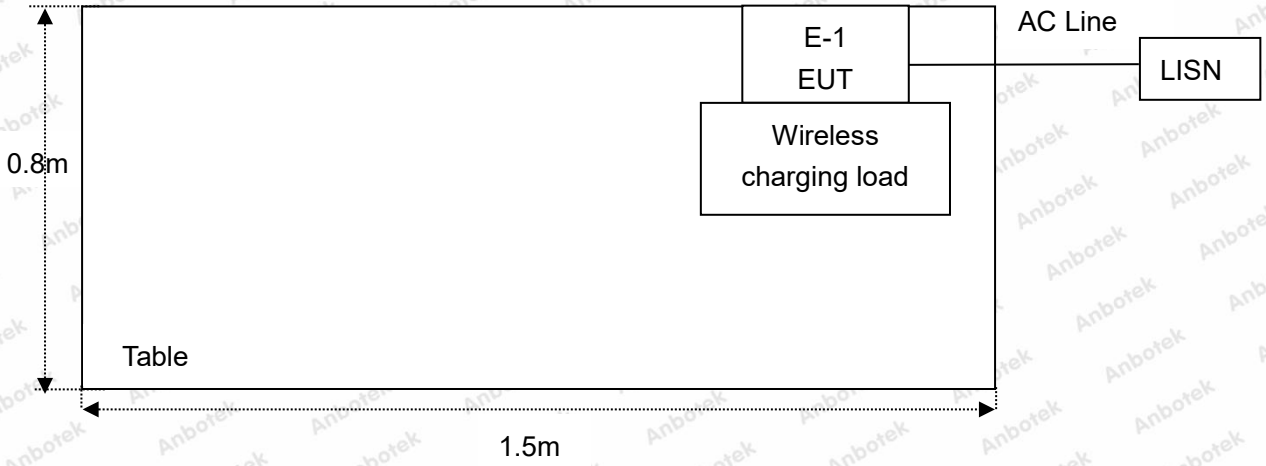
## 1.4. Description of Test Modes

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.

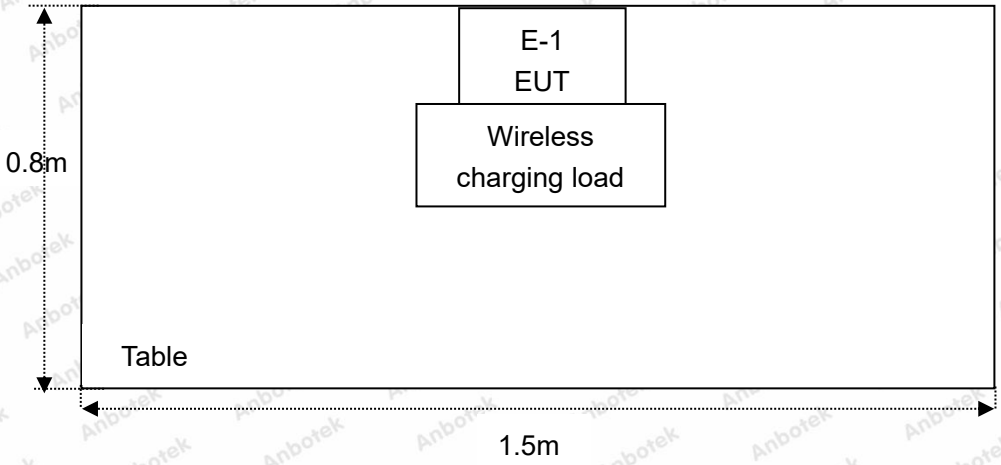
| Pretest Modes | Descriptions |
|---|---|
| Mode 1 | WPT Mode (10W 1% Load) |
| Mode 2 | WPT Mode (10W 50% Load) |
| Mode 3 | WPT Mode (10W 99% Load) |
| Mode 4 | Standby Mode |

## 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 | Jan. 18, 2024 | 1 Year |
| 2. | Three Phase V-type Artificial Power Network | CYBERTEK | EM5040DT | E215040DT001 | Jan. 17, 2024 | 1 Year |
| 3. | EMI Test Receiver | Rohde & Schwarz | ESCI | 100627 | Jan. 17, 2024 | 1 Year |
| 4. | EMI Test Receiver | Rohde & Schwarz | ESR26 | 101481 | Jan. 23, 2024 | 1 Year |
| 5. | MXA Spectrum Analysis | Agilent | N9020A | MY51170037 | Oct. 12, 2023 | 1 Year |
| 6. | EMI Preamplifier | SKET Electronic | LNPA-0118G-45 | SKET-PA-002 | Jan. 17, 2024 | 1 Year |
| 7. | Double Ridged Horn Antenna | SCHWARZBECK | BBHA 9120D | 02555 | Oct. 16, 2022 | 3 Year |
| 8. | Bilog Broadband Antenna | Schwarzbeck | VULB9163 | 345 | Oct. 23, 2022 | 3 Year |
| 9. | Loop Antenna | Schwarzbeck | FMZB1519B | 00053 | Oct. 12, 2023 | 1 Year |
| 10. | Horn Antenna | A-INFO | LB-180400-KF | J211060628 | Oct. 12, 2023 | 1 Year |
| 11. | Pre-amplifier | SONOMA | 310N | 186860 | Jan. 17, 2024 | 1 Year |
| 12. | EMI Test Software EZ-EMC | SHURPLE | N/A | N/A | N/A | N/A |
| 13. | MXA Spectrum Analysis | KEYSIGHT | N9020A | MY53280032 | Oct. 12, 2023 | 1 Year |
| 14. | MXG RF Vector Signal Generator | Agilent | N5182A | MY48180656 | Oct. 12, 2023 | 1 Year |
| 15. | Signal Generator | Agilent | E4421B | MY41000743 | Oct. 12, 2023 | 1 Year |
| 16. | DC Power Supply | IVYTECH | IV3605 | 1804D360510 | Oct. 20, 2023 | 1 Year |
| 17. | Constant Temperature Humidity Chamber | ZHONGJIAN | ZJ-KHWS80B | N/A | Oct. 16, 2023 | 1 Year |
| 18. | Spectrum Analyzer | Rohde & Schwarz | FSV40-N | 102150 | May. 06, 2024 | 1 Year |

## 1.7. Measurement Uncertainty

| Parameter | Uncertainty |
|---|---|
| Conducted emissions (AMN 150kHz~30MHz) | 3.8dB |
| Radiated spurious emissions (Below 30MHz) | 3.53dB |
| Radiated spurious emissions (30MHz~1GHz) | Horizontal: 3.92dB; Vertical: 4.52dB |
| The measurement uncertainty and decision risk evaluated according to AB/WI-RF-F-032. This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2. | |

## 1.8. Description of Test Facility

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

**FCC-Registration No.: 434132**

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. 434132.

**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.

**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.

## 1.9. Disclaimer

1. The test report is invalid if not marked with the signatures of the persons responsible for preparing and approving the test report.
2. The test report is invalid if there is any evidence and/or falsification.
3. The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein.
4. This document may not be altered or revised in any way unless done so by Anbotek and all revisions are duly noted in the revisions section.
5. Content of the test report, in part or in full, cannot be used for publicity and/or promotional purposes without prior written approval from the laboratory.
6. The authenticity of the information provided by the customer is the responsibility of the customer and the laboratory is not responsible for its authenticity.

The laboratory is only responsible for the data released by the laboratory, except for the part provided by the applicant.

# 2. Summary of Test Results

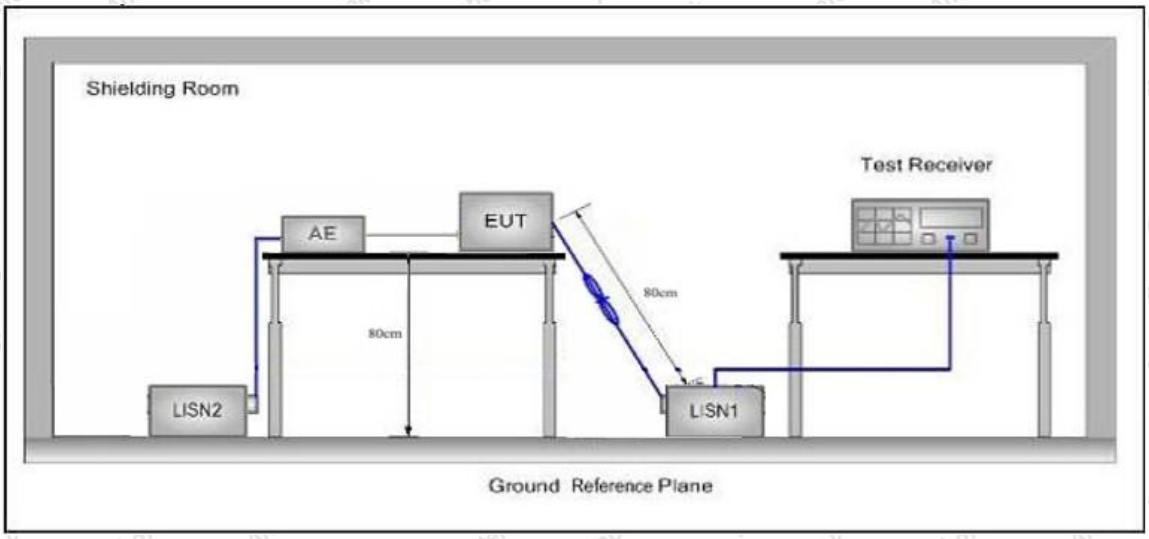
| Standard Section | Test Item | Result |
|---|---|---|
| 15.203 | Antenna Requirement | PASS |
| 15.207 | Conducted Emission Test | PASS |
| 15.205/15.209 | Spurious Emission | PASS |

# 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: 2020 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

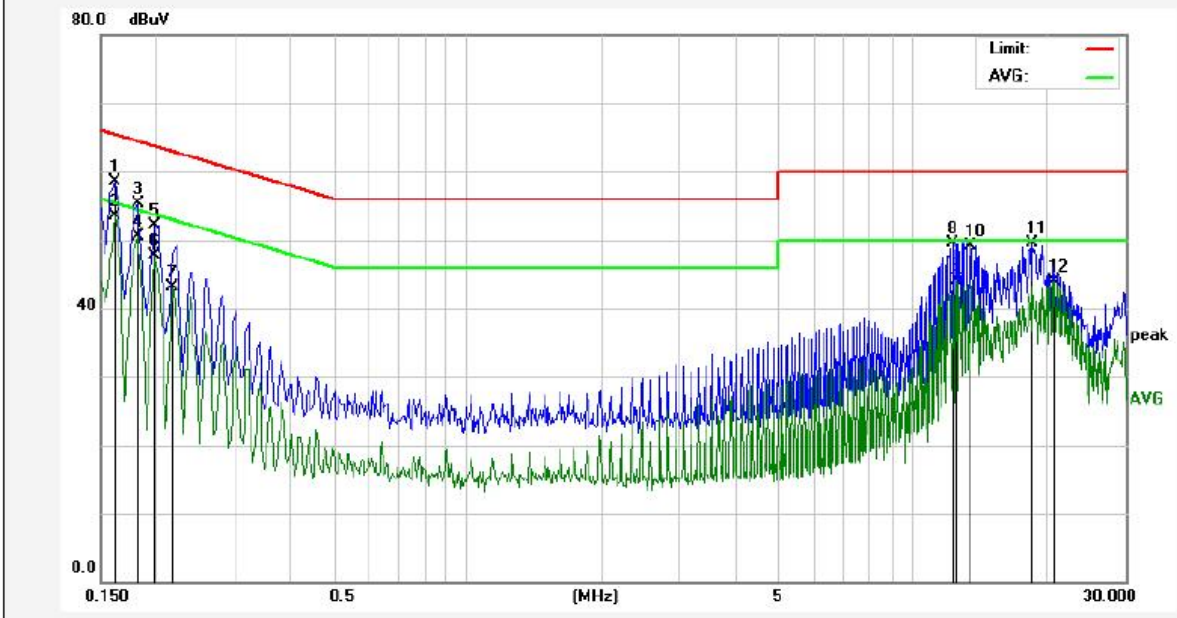
**PASS**

During the test, pre-scan all modes, only the worst case is recorded in the report.

Please to see the following pages.

**Conducted Emission Test Data**

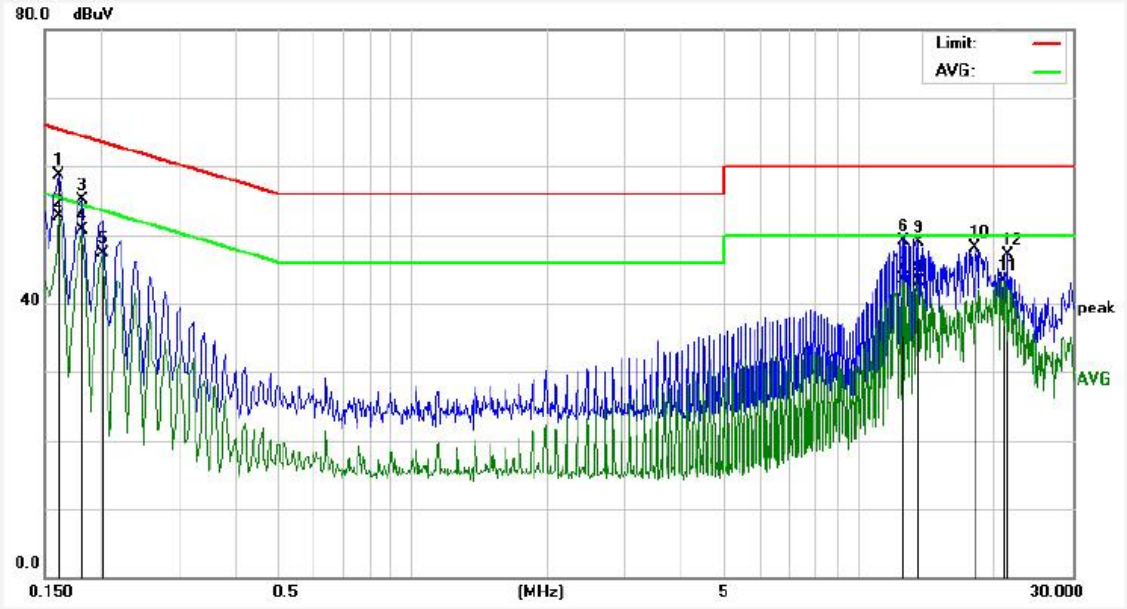
| | |
|---|---|
| Test Site: | 1# Shielded Room |
| Operating Condition: | Mode 3 |
| Test Specification: | AC 120V, 60Hz |
| Comment: | Live Line |
| Temp.(℃)/Hum.(%RH): | 23.4℃/65%RH |




| No. | Freq. (MHz) | Reading (dBuV) | Factor (dB) | Result (dBuV) | Limit (dBuV) | Over Limit (dB) | Detector | Remark |
|---|---|---|---|---|---|---|---|---|
| 1 | 0.1620 | 39.54 | 18.99 | 58.53 | 65.36 | -6.83 | QP | |
| 2 | 0.1620 | 34.46 | 18.99 | 53.45 | 55.36 | -1.91 | AVG | |
| 3 | 0.1819 | 36.26 | 18.96 | 55.22 | 64.39 | -9.17 | QP | |
| 4 | 0.1819 | 31.45 | 18.96 | 50.41 | 54.39 | -3.98 | AVG | |
| 5 | 0.1980 | 33.17 | 18.93 | 52.10 | 63.69 | -11.59 | QP | |
| 6 | 0.1980 | 28.71 | 18.93 | 47.64 | 53.69 | -6.05 | AVG | |
| 7 | 0.2180 | 24.06 | 18.97 | 43.03 | 52.89 | -9.86 | AVG | |
| 8 | 12.3020 | 30.59 | 18.82 | 49.41 | 60.00 | -10.59 | QP | |
| 9 | 12.5380 | 25.26 | 18.83 | 44.09 | 50.00 | -5.91 | AVG | |
| 10 | 13.4980 | 30.28 | 18.83 | 49.11 | 60.00 | -10.89 | QP | |
| 11 | 18.5380 | 30.78 | 18.81 | 49.59 | 60.00 | -10.41 | QP | |
| 12 | 20.7820 | 25.19 | 18.79 | 43.98 | 50.00 | -6.02 | AVG | |

**Conducted Emission Test Data**

| | |
|---|---|
| Test Site: | 1# Shielded Room |
| Operating Condition: | Mode 3 |
| Test Specification: | AC 120V, 60Hz |
| Comment: | Neutral Line |
| Temp.(℃)/Hum.(%RH): | 23.4℃/65%RH |




| No. | Freq. (MHz) | Reading (dBuV) | Factor (dB) | Result (dBuV) | Limit (dBuV) | Over Limit (dB) | Detector | Remark |
|---|---|---|---|---|---|---|---|---|
| 1 | 0.1620 | 39.74 | 18.99 | 58.73 | 65.36 | -6.63 | QP | |
| 2 | 0.1620 | 33.75 | 18.99 | 52.74 | 55.36 | -2.62 | AVG | |
| 3 | 0.1819 | 36.23 | 18.96 | 55.19 | 64.39 | -9.20 | QP | |
| 4 | 0.1819 | 31.75 | 18.96 | 50.71 | 54.39 | -3.68 | AVG | |
| 5 | 0.2020 | 28.31 | 18.93 | 47.24 | 53.52 | -6.28 | AVG | |
| 6 | 12.5380 | 30.37 | 18.83 | 49.20 | 60.00 | -10.80 | QP | |
| 7 | 12.5380 | 24.63 | 18.83 | 43.46 | 50.00 | -6.54 | AVG | |
| 8 | 13.4980 | 24.35 | 18.83 | 43.18 | 50.00 | -6.82 | AVG | |
| 9 | 13.6220 | 30.00 | 18.84 | 48.84 | 60.00 | -11.16 | QP | |
| 10 | 18.1820 | 29.23 | 18.82 | 48.05 | 60.00 | -11.95 | QP | |
| 11 | 20.9700 | 24.43 | 18.78 | 43.21 | 50.00 | -6.79 | AVG | |
| 12 | 21.4780 | 28.24 | 18.78 | 47.02 | 60.00 | -12.98 | QP | |

# 4. Radiation Spurious Emission

## 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

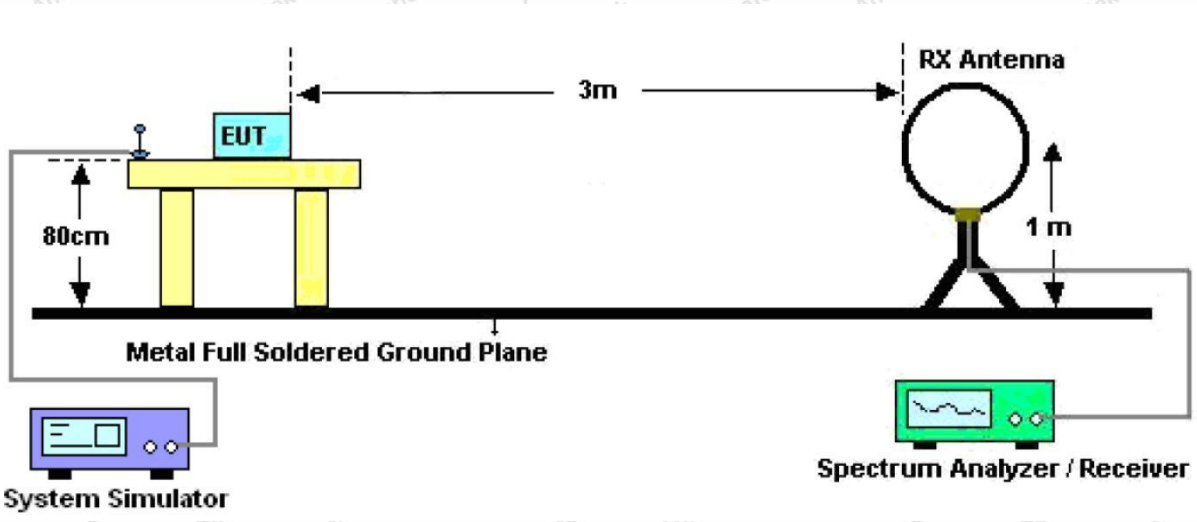



Figure 1. Below 30MHz

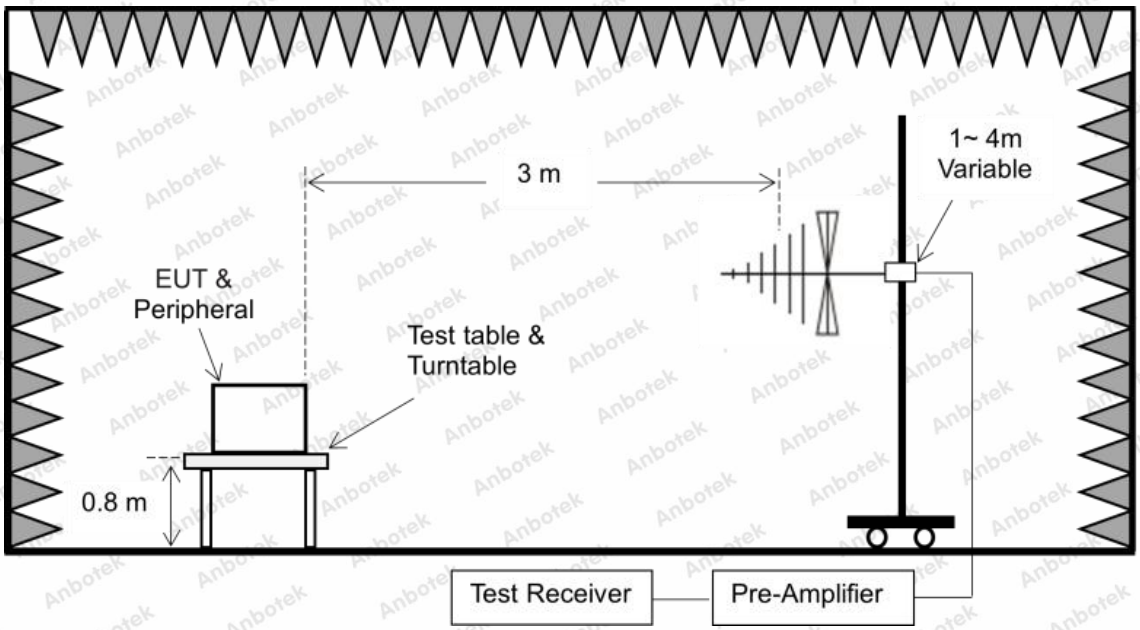



Figure 2. 30MHz to 1GHz

## 4.3. Test Procedure

For below 1GHz: The EUT is placed on a turntable, which is 0.8m 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.

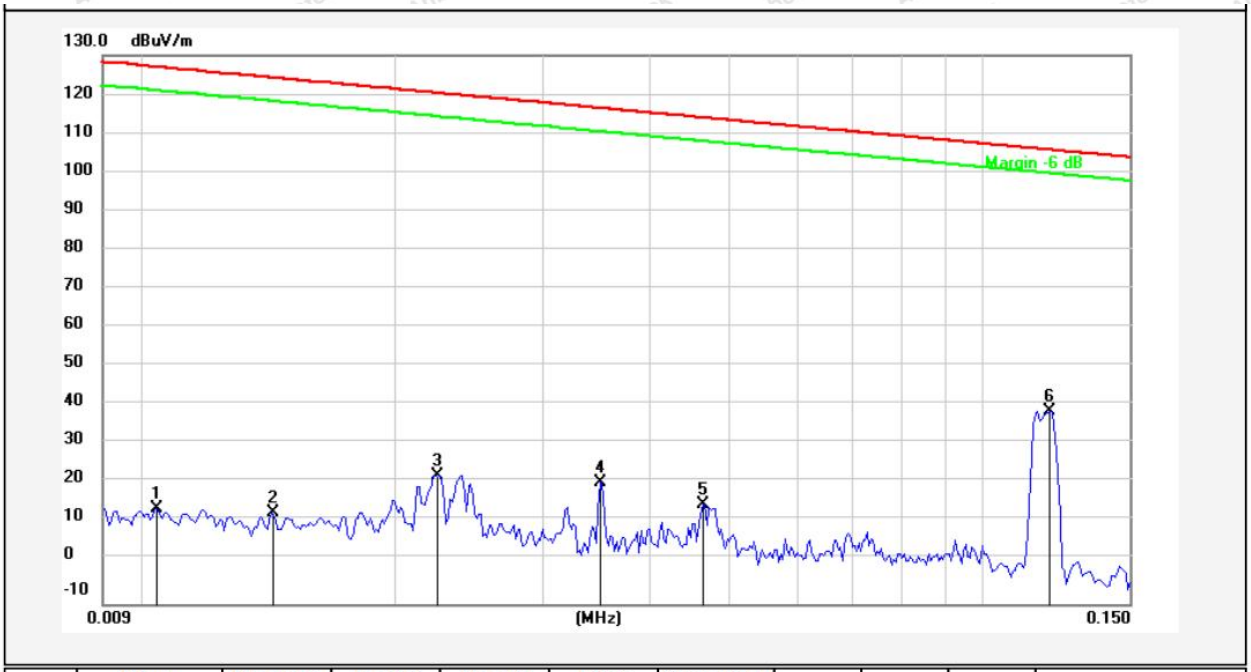
## 4.4. Test Data

**PASS**

During the test, pre-scan all modes, only the worst case is recorded in the report.
Please to see the following pages.

**Test Results (Between 9KHz – 150KHz)**

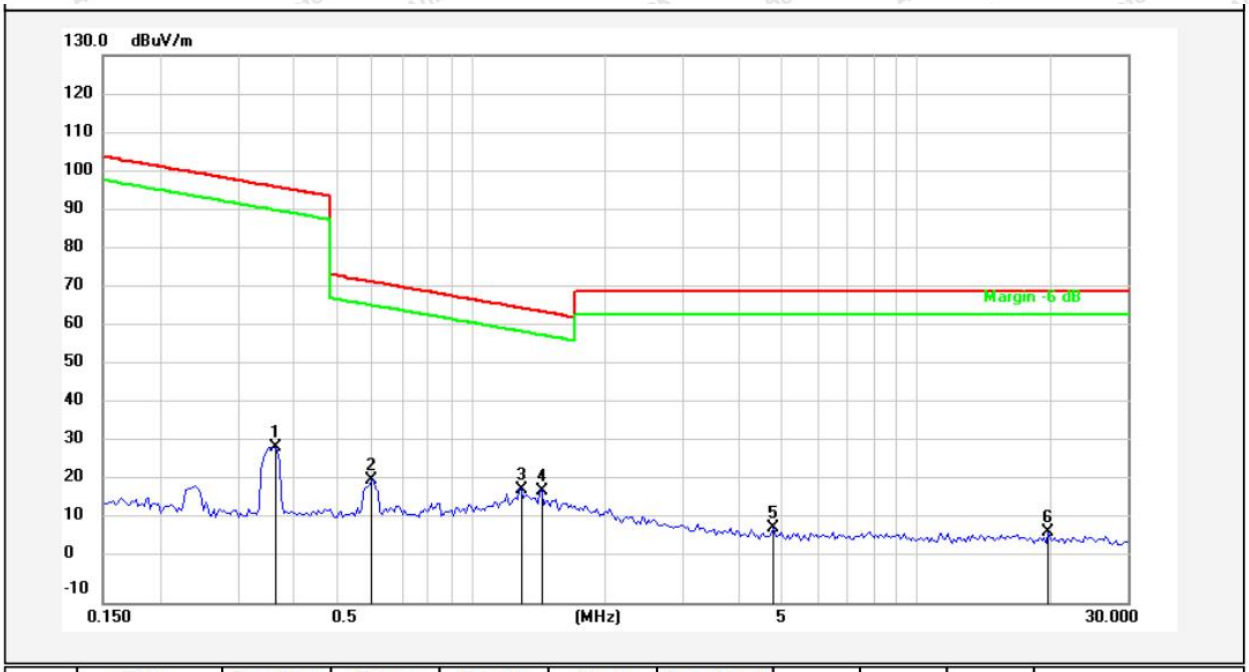
| | |
|---|---|
| Test Mode: | Mode 3 |
| Distance: | 3m |
| Power Source: | DC 51.2V Battery inside |
| Temp.(℃)/Hum.(%RH): | 23.5℃/49%RH |




| No. | Freq. (MHz) | Reading (dBuV) | Factor () | Result (dBuV/m) | Limit (dBuV/m) | Over Limit (dB) | Detector | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.0104 | -5.85 | 20.07 | 14.22 | 127.06 | -112.84 | QP | | | |
| 2 | 0.0143 | -7.08 | 20.22 | 13.14 | 124.31 | -111.17 | QP | | | |
| 3 | 0.0224 | 2.46 | 20.35 | 22.81 | 120.43 | -97.62 | QP | | | |
| 4 | 0.0351 | 0.52 | 20.49 | 21.01 | 116.56 | -95.55 | QP | | | |
| 5 | 0.0465 | -5.03 | 20.45 | 15.42 | 114.13 | -98.71 | QP | | | |
| 6 | 0.1204 | 18.92 | 20.34 | 39.26 | 105.92 | -66.66 | QP | | | |

**Test Results (Between 0.15MHz – 30MHz)**

| | |
|---|---|
| Test Mode: | Mode 3 |
| Distance: | 3m |
| Power Source: | DC 51.2V Battery inside |
| Temp.(℃)/Hum.(%RH): | 23.5℃/49%RH |

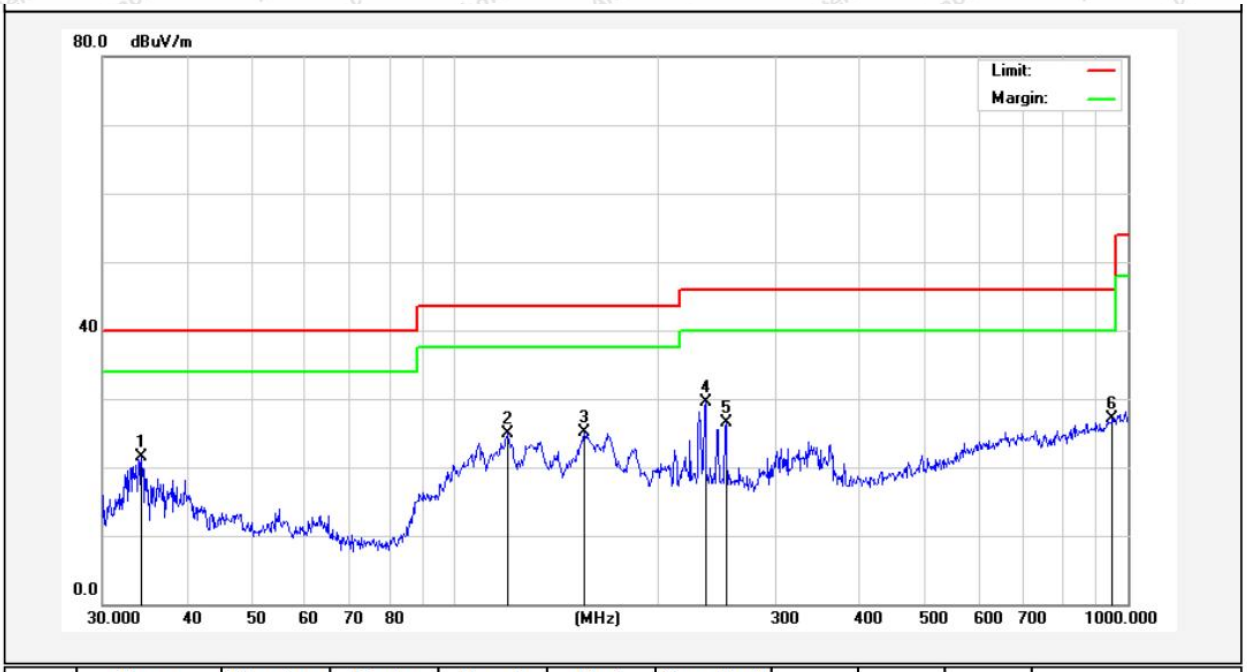



| No. | Freq. (MHz) | Reading (dBuV) | Factor () | Result (dBuV/m) | Limit (dBuV/m) | Over Limit (dB) | Detector | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.3615 | 9.55 | 20.28 | 29.83 | 96.43 | -66.60 | QP | | | |
| 2 | 0.6011 | 1.16 | 20.27 | 21.43 | 72.03 | -50.60 | QP | | | |
| 3 | 1.2892 | -1.36 | 20.26 | 18.90 | 65.42 | -46.52 | QP | | | |
| 4 | 1.4485 | -1.76 | 20.27 | 18.51 | 64.41 | -45.90 | QP | | | |
| 5 | 4.7969 | -11.31 | 20.41 | 9.10 | 69.50 | -60.40 | QP | | | |
| 6 | 19.8445 | -12.47 | 20.59 | 8.12 | 69.50 | -61.38 | QP | | | |

**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.

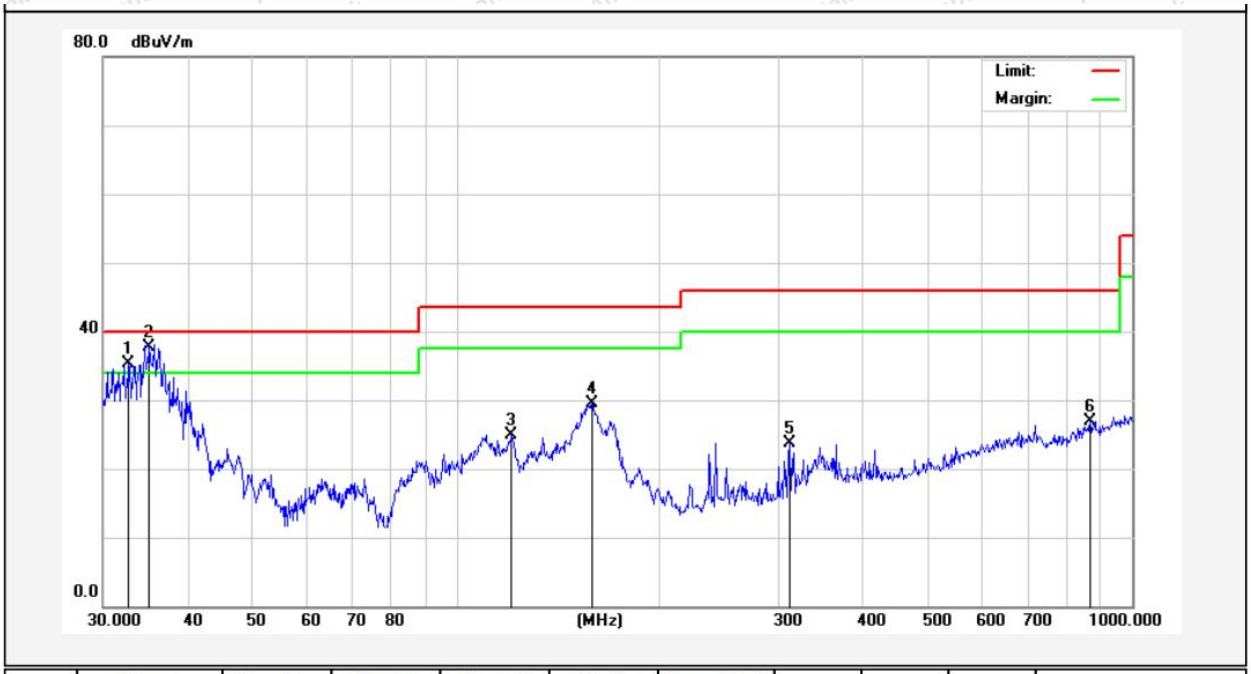
**Test Results (Between 30MHz –1000 MHz)**

| | |
|---|---|
| Test Mode: | Mode 3 |
| Distance: | 3m |
| Power Source: | DC 51.2V Battery inside |
| Polarization: | Horizontal |
| Temp.(℃)/Hum.(%RH): | 20.3℃/46%RH |




| No. | Freq. (MHz) | Reading (dBuV) | Factor (dB/m) | Result (dBuV/m) | Limit (dBuV/m) | Over Limit (dB) | Detector | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 34.2760 | 41.07 | -19.54 | 21.53 | 40.00 | -18.47 | QP | | | |
| 2 | 119.8556 | 45.73 | -20.88 | 24.85 | 43.50 | -18.65 | QP | | | |
| 3 | 155.9101 | 47.53 | -22.37 | 25.16 | 43.50 | -18.34 | QP | | | |
| 4 | 235.8164 | 47.93 | -18.35 | 29.58 | 46.00 | -16.42 | QP | | | |
| 5 | 252.9482 | 44.12 | -17.61 | 26.51 | 46.00 | -19.49 | QP | | | |
| 6 | 948.7610 | 33.14 | -5.99 | 27.15 | 46.00 | -18.85 | QP | | | |

Test Mode: Mode 3
Distance: 3m
Power Source: DC 51.2V Battery inside
Polarization: Vertical
Temp.(℃)/Hum.(%RH): 20.3℃/46%RH




| No. | Freq. (MHz) | Reading (dBuV) | Factor (dB/m) | Result (dBuV/m) | Limit (dBuV/m) | Over Limit (dB) | Detector | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 32.7486 | 54.90 | -19.60 | 35.30 | 40.00 | -4.70 | QP | | | |
| 2 | 35.1878 | 57.25 | -19.47 | 37.78 | 40.00 | -2.22 | QP | | | |
| 3 | 120.6991 | 45.96 | -21.03 | 24.93 | 43.50 | -18.57 | QP | | | |
| 4 | 158.6677 | 51.91 | -22.31 | 29.60 | 43.50 | -13.90 | QP | | | |
| 5 | 311.0867 | 39.89 | -16.11 | 23.78 | 46.00 | -22.22 | QP | | | |
| 6 | 866.0879 | 33.97 | -6.97 | 27.00 | 46.00 | -19.00 | QP | | | |

# 5. Antenna Requirement

## 5.1. Test Standard and Requirement

| | |
|---|---|
| Test Standard | FCC Part15 Section 15.203 |
| Requirement | 1) 15.203 requirement:<br>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. |

## 5.2. Antenna Connected Construction

The antenna is a Inductive loop coil Antenna which permanently attached. It complies with the standard requirement.

# APPENDIX I -- TEST SETUP PHOTOGRAPH

Please refer to separated files Appendix I -- Test Setup Photograph_RF

# APPENDIX II -- EXTERNAL PHOTOGRAPH

Please refer to separated files Appendix II -- External Photograph

# APPENDIX III -- INTERNAL PHOTOGRAPH

Please refer to separated files Appendix III -- Internal Photograph

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