

RADIO TEST REPORT

FCC ID: WA5AC1100

Product : Smart Plug

Trade Mark : **ecowitt**®

Model Name : AC1100

Family Model : AC1100BU

Report No. : S23082206502001

Prepared for

Shenzhen Fine Offset Electronics Co., Ltd.
A, 4/F, Bldg.C, Dist.A, Minzhu Jiujiu Ind. City, Xihuan Rd., Shajing St.,
Baoan Dist. Shenzhen, Guangdong, China

Prepared by

Shenzhen NTEK Testing Technology Co., Ltd.
1&5/F, Building C, 1&2/F, Building E, Fenda Science Park, Sanwei Community,
Hangcheng Street, Baoan District, Shenzhen ,Guangdong, China
Tel. 400-800-6106, 0755-2320 0050, 0755-2320 0090
Website: <http://www.ntek.org.cn>

TEST RESULT CERTIFICATION

Applicant's name : Shenzhen Fine Offset Electronics Co., Ltd.
Address : A, 4/F, Bldg.C, Dist.A, Minzhu Jiujiu Ind. City, Xihuan Rd., Shajing St., Baoan Dist. Shenzhen, Guangdong, China

Manufacturer's Name : Shenzhen Fine Offset Electronics Co., Ltd.
Address : A, 4/F, Bldg.C, Dist.A, Minzhu Jiujiu Ind. City, Xihuan Rd., Shajing St., Baoan Dist. Shenzhen, Guangdong, China

Product description

Product name : Smart Plug
Model and/or type reference : AC1100
Family Model AC1100BU
Rating(s) : 100VAC~240VAC

Standards : FCC Part15.249

Test procedure ANSI C63.10-2013

This device described above has been tested by NTEK, and the test results show that the equipment under test (EUT) is in compliance with the FCC requirements. And it is applicable only to the tested sample identified in the report.

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Test Sample Number.....: S230822065003

Date of Test.....:

Date (s) of performance of tests: 23 Aug. 2023 ~ 28 Sep. 2023

Date of Issue.....: 28 Sep. 2023

Test Result.....: **Pass**

Testing Engineer : Allen Liu
(Allen Liu)

Authorized Signatory : Alex Li
(Alex Li)

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1. SUMMARY OF TEST RESULTS

Test procedures according to the technical standards:

| FCC Part15, Subpart C (15.249) | | | |
|---------------------------------------|----------------------------|----------|--------|
| Standard Section | Test Item | Judgment | Remark |
| 15.207 | Conducted Emission | Pass | |
| 15.203 | Antenna Requirement | Pass | |
| 15.249 15.209 | Radiated Spurious Emission | Pass | |
| 15.249(2) | Frequency Tolerance | N/A | |
| 15.249(a) | Fundamental Measurement | Pass | |
| 15.205 | Band Edge Emission | Pass | |
| 15.215 | Occupied Bandwidth | Pass | |

1.1 TEST FACILITY

Shenzhen NTEK Testing Technology Co., Ltd
 Add. : 1&5/F, Building C, 1&2/F, Building E, Fenda Science Park, Sanwei Community,
 Hangcheng Street, Baoan District, Shenzhen ,Guangdong, China
 FCC FRN Registration No.:463705; FCC FRN Designation Number: CN1184
 IC Registration No.:9270A-1
 CNAS Registration No.:L5516

1.2 MEASUREMENT UNCERTAINTY

The reported uncertainty of measurement $y \pm U$, where expended uncertainty U is based on a standard uncertainty multiplied by a coverage factor of $k=2$, providing a level of confidence of approximately **95 %**.

| No. | Item | Uncertainty |
|-----|------------------------------|-------------------------|
| 1 | Conducted Emission Test | $\pm 1.38\text{dB}$ |
| 2 | RF power,conducted | $\pm 0.16\text{dB}$ |
| 3 | Spurious emissions,conducted | $\pm 0.21\text{dB}$ |
| 4 | All emissions,radiated(<1G) | $\pm 4.68\text{dB}$ |
| 5 | All emissions,radiated(>1G) | $\pm 4.89\text{dB}$ |
| 6 | Temperature | $\pm 0.5^\circ\text{C}$ |
| 7 | Humidity | $\pm 2\%$ |
| 8 | Occupied bandwidth | $\pm 3.7\text{dB}$ |

2. GENERAL INFORMATION

2.1 GENERAL DESCRIPTION OF EUT

| | |
|---------------------|--|
| Equipment | Smart Plug |
| Trade Mark | ecowitt® |
| Model Name | AC1100 |
| Family Model | AC1100BU |
| Model Difference | All models are the same circuit and RF module, except the packaging. |
| Product Description | The EUT is a Smart Plug |
| | Operation Frequency: 915MHz |
| | Modulation Type: FSK |
| | Antenna Designation: Spring antenna |
| | Antenna Gain(Peak) 2.15dBi |
| | Based on the application, features, or specification exhibited in User's Manual. More details of EUT technical specification, please refer to the User's Manual. |
| Channel List | Please refer to the Note 2. |
| Adapter | N/A |
| Battery | N/A |
| Power Rating | 100VAC~240VAC |
| Hardware version | WHP0266H1V04 |
| Firmware version | N/A |
| Software version | AC1100_0x6DF6_V1.0.2(00 80).HPO |

Note:

1. For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual.

2.

| | |
|---------|----------------|
| Channel | Frequency(MHz) |
| 01 | 915 |

3.

Table for Filed Antenna

| Ant. | Brand | Model Name | Antenna Type | Connector | Gain (dBi) | NOTE |
|------|-------|------------|----------------|-----------|------------|---------|
| 1 | N/A | N/A | Spring antenna | N/A | 2.15 | Antenna |

Note:The device does not support simultaneous transmission

2.2 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.

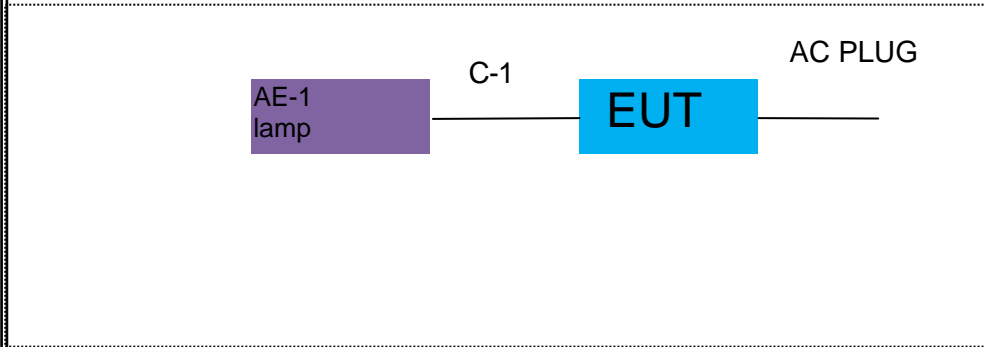
| Pretest Mode | Description |
|--------------|-------------|
| Mode 1 | CH01 |
| Mode 2 | Normal link |

| For Radiated Spurious Emission | |
|---------------------------------------|-------------|
| Pretest Mode | Description |
| Mode 1 | CH01 |

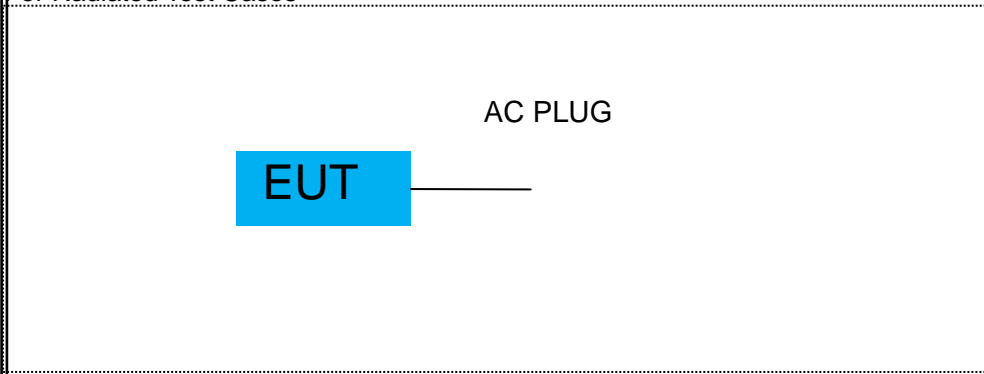
| For Conducted Emission | |
|-------------------------------|-------------|
| Final Test Mode | Description |
| Mode 1 | CH01 |
| Mode 2 | Normal link |

2.3 BLOCK DIGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED

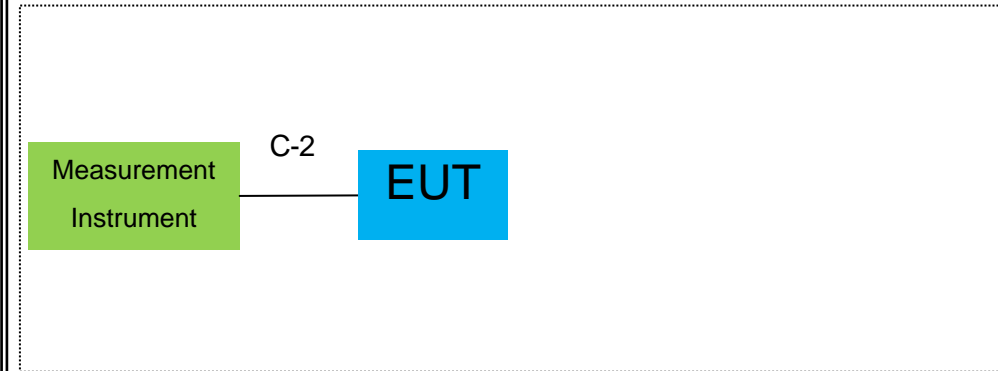
For AC Conducted Emission Mode



For Radiated Test Cases



For Conducted Test Cases



2.4 DESCRIPTION OF SUPPORT UNITS (CONDUCTED MODE)

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

| Item | Equipment | Mfr/Brand | Model/Type No. | Series No. | Note |
|------|------------|-----------|----------------|------------|-------------|
| | Smart Plug | N/A | AC1100 | N/A | EUT |
| AE-1 | lamp | N/A | N/A | N/A | Peripherals |
| | | | | | |
| | | | | | |
| | | | | | |

| Item | Cable Type | Shielded Type | Ferrite Core | Length | Note |
|------|-------------|---------------|--------------|--------|------|
| C-1 | Power Cable | NO | NO | 1.2m | |
| C-2 | RF Cable | YES | NO | 0.1m | |
| | | | | | |
| | | | | | |
| | | | | | |

Note:

- (1) The support equipment was authorized by Declaration of Confirmation.
- (2) For detachable type I/O cable should be specified the length in cm in 『Length』 column.

2.5 EQUIPMENTS LIST FOR ALL TEST ITEMS

Radiation Test equipment

| | Kind of Equipment | Manufacturer | Type No. | Serial No. | Last calibration | Calibrated until | Calibration period |
|----|------------------------------------|--------------|-------------|---------------|------------------|------------------|--------------------|
| 1 | Spectrum Analyzer | Agilent | E4407B | MY45108040 | 2023.03.27 | 2024.03.26 | 1 year |
| 2 | Spectrum Analyzer | Agilent | N9020A | MY49100060 | 2023.05.29 | 2024.05.28 | 1 year |
| 3 | Spectrum Analyzer | R&S | FSV40 | 101417 | 2023.03.27 | 2024.03.26 | 1 year |
| 4 | Test Receiver | R&S | ESPI7 | 101318 | 2023.03.27 | 2024.03.26 | 1 year |
| 5 | Bilog Antenna | TESEQ | CBL6111D | 31216 | 2023.03.27 | 2024.03.26 | 1 year |
| 6 | 50Ω Coaxial Switch | Anritsu | MP59B | 6200983705 | 2023.05.06 | 2026.05.05 | 3 year |
| 7 | Horn Antenna | EM | EM-AH-10180 | 2011071402 | 2023.03.27 | 2024.03.26 | 1 year |
| 8 | Broadband Horn Antenna | SCHWARZBECK | BBHA 9170 | 803 | 2022.11.08 | 2023.11.07 | 1 year |
| 9 | Amplifier | EMC | EMC051835SE | 980246 | 2023.05.29 | 2024.05.28 | 1 year |
| 10 | Active Loop Antenna | SCHWARZBECK | FMZB 1519B | 055 | 2022.11.08 | 2023.11.07 | 1 year |
| 11 | Power Meter | DARE | RPR3006W | 15100041SN084 | 2022.11.08 | 2023.11.07 | 1 year |
| 12 | Test Cable (9KHz-30MHz) | N/A | R-01 | N/A | 2023.05.06 | 2026.05.05 | 3 year |
| 13 | Test Cable (30MHz-1GHz) | N/A | R-02 | N/A | 2023.05.06 | 2026.05.05 | 3 year |
| 14 | High Test Cable(1G-40G Hz) | N/A | R-03 | N/A | 2022.06.17 | 2025.06.16 | 3 year |
| 15 | High Test Cable(1G-40G Hz) | N/A | R-04 | N/A | 2022.06.17 | 2025.06.16 | 3 year |
| 16 | Filter | TRILTHIC | 2400MHz | 29 | 2022.11.08 | 2023.11.07 | 3 year |
| 17 | temporary antenna connector (Note) | NTS | R001 | N/A | N/A | N/A | N/A |

Note:

We will use the temporary antenna connector (soldered on the PCB board) When conducted test
And this temporary antenna connector is listed within the instrument list

Conduction Test equipment

| Item | Kind of Equipment | Manufacturer | Type No. | Serial No. | Last calibration | Calibrated until | Calibration period |
|------|-------------------------|--------------|-----------|------------|------------------|------------------|--------------------|
| 1 | Test Receiver | R&S | ESCI | 101160 | 2023.03.27 | 2024.03.26 | 1 year |
| 2 | LISN | R&S | ENV216 | 101313 | 2023.03.27 | 2024.03.26 | 1 year |
| 3 | LISN | SCHWARZBECK | NNLK 8129 | 8129245 | 2023.03.27 | 2024.03.26 | 1 year |
| 4 | 50Ω Coaxial Switch | ANRITSU CORP | MP59B | 6200983704 | 2023.05.06 | 2026.05.05 | 3 year |
| 5 | Test Cable (9KHz-30MHz) | N/A | C01 | N/A | 2023.05.06 | 2026.05.05 | 3 year |
| 6 | Test Cable (9KHz-30MHz) | N/A | C02 | N/A | 2023.05.06 | 2026.05.05 | 3 year |
| 7 | Test Cable (9KHz-30MHz) | N/A | C03 | N/A | 2023.05.06 | 2026.05.05 | 3 year |

Note: Each piece of equipment is scheduled for calibration once a year except the Test Cable which is scheduled for calibration every 3 years.

3. ANTENNA REQUIREMENT

3.1 STANDARD REQUIREMENT

15.203 requirement: For intentional device, according to 15.203: 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.

3.2 EUT ANTENNA

The EUT antenna is Spring Antenna (Gain: 2.15dBi). It comply with the standard requirement.

3.3 CONDUCTED EMISSION MEASUREMENT

3.3.1 POWER LINE CONDUCTED EMISSION Limits (Frequency Range 150KHz-30MHz)

| FREQUENCY (MHz) | Class A (dBuV) | | Class B (dBuV) | | Standard |
|-----------------|----------------|---------|----------------|-----------|----------|
| | Quasi-peak | Average | Quasi-peak | Average | |
| 0.15 -0.5 | | | 66 - 56 * | 56 - 46 * | CISPR |
| 0.50 -5.0 | | | 56.00 | 46.00 | CISPR |
| 5.0 -30.0 | | | 60.00 | 50.00 | CISPR |

| | | | | | |
|-----------|--|--|-----------|-----------|--------|
| 0.15 -0.5 | | | 66 - 56 * | 56 - 46 * | LP002. |
| 0.50 -5.0 | | | 56.00 | 46.00 | LP002. |
| 5.0 -30.0 | | | 60.00 | 50.00 | LP002. |

Note:

- (1) The tighter limit applies at the band edges.
- (2) The limit of " * " marked band means the limitation decreases linearly with the logarithm of the frequency in the range.

The following table is the setting of the receiver

| Receiver Parameters | Setting |
|---------------------|----------|
| Attenuation | 10 dB |
| Start Frequency | 0.15 MHz |
| Stop Frequency | 30 MHz |
| IF Bandwidth | 9 kHz |

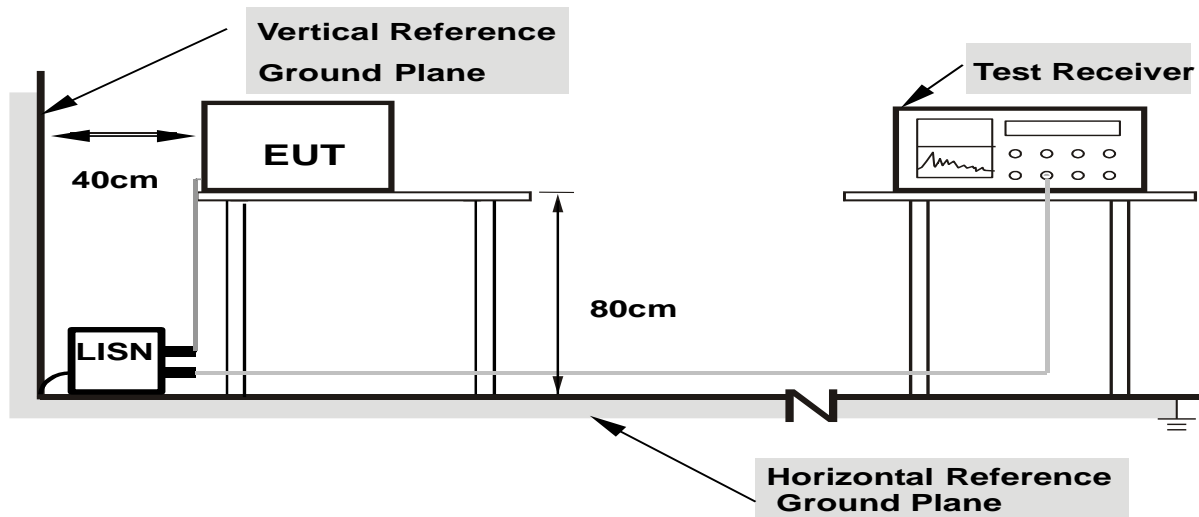
3.3.2 TEST PROCEDURE

- a. The EUT was placed 0.4 meters from the horizontal ground plane with EUT being connected to the power mains through a line impedance stabilization network (LISN). All other support equipments powered from additional LISN(s). The LISN provide 50 Ohm/ 50uH of coupling impedance for the measuring instrument.
- b. Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.
- c. I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.
- d. LISN at least 80 cm from nearest part of EUT chassis.
- e. For the actual test configuration, please refer to the related Item –EUT Test Photos.

3.3.3 DEVIATION FROM TEST STANDARD

No deviation

3.3.4 TEST SETUP



- Note: 1.Support units were connected to second LISN.**
2.Both of LISNs (AMN) are 80 cm from EUT and at least 80 from other units and other metal planes

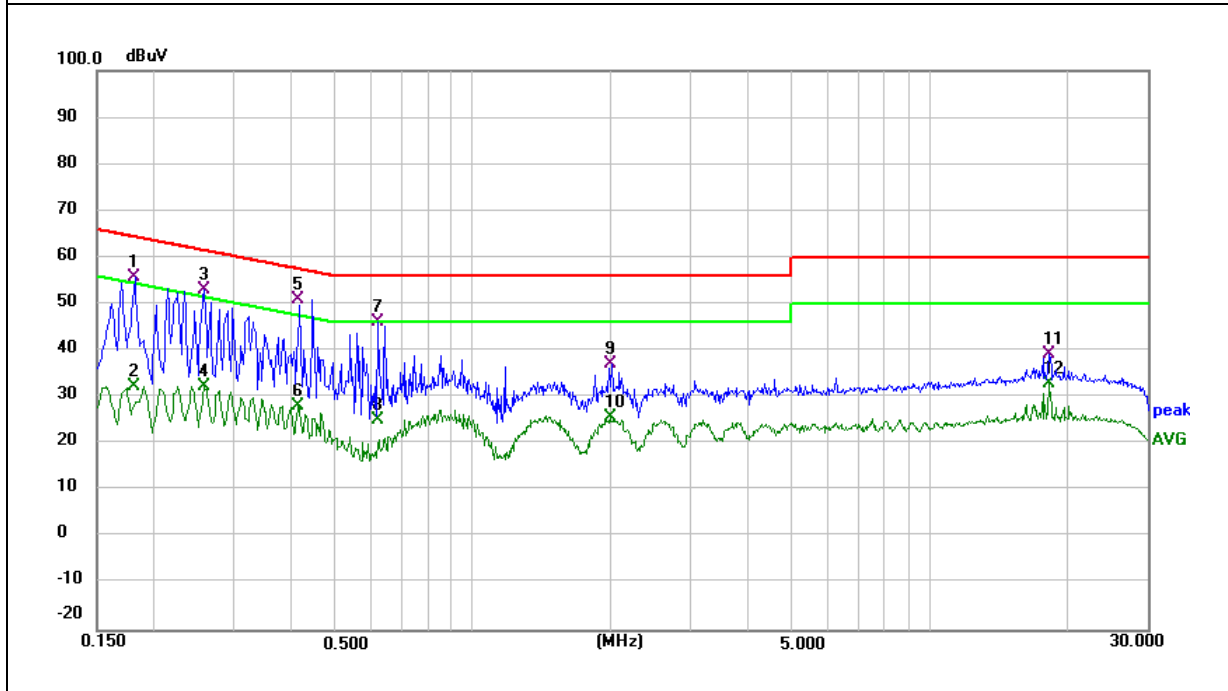
3.2.5 TEST RESULT

| | | | |
|----------------|--------------|---------------------|--------|
| EUT : | Smart Plug | Model Name. : | AC1100 |
| Temperature : | 25 °C | Relative Humidity : | 55% |
| Pressure : | 1010hPa | Phase : | L |
| Test Voltage : | AC 120V/60Hz | Test Mode : | Mode 1 |

| Frequency (MHz) | Reading Level (dBμV) | Correct Factor (dB) | Measure-ment (dBμV) | Limits (dBμV) | Margin (dB) | Remark |
|-----------------|----------------------|---------------------|---------------------|---------------|-------------|--------|
| 0.1819 | 35.68 | 19.99 | 55.67 | 64.40 | -8.73 | QP |
| 0.1819 | 12.41 | 19.99 | 32.40 | 54.40 | -22.00 | AVG |
| 0.2580 | 33.04 | 20.01 | 53.05 | 61.50 | -8.45 | QP |
| 0.2580 | 12.22 | 20.01 | 32.23 | 51.50 | -19.27 | AVG |
| 0.4140 | 30.91 | 20.04 | 50.95 | 57.57 | -6.62 | QP |
| 0.4140 | 8.00 | 20.04 | 28.04 | 47.57 | -19.53 | AVG |
| 0.6180 | 26.14 | 20.06 | 46.20 | 56.00 | -9.80 | QP |
| 0.6180 | 5.15 | 20.06 | 25.21 | 46.00 | -20.79 | AVG |
| 1.9980 | 17.17 | 20.09 | 37.26 | 56.00 | -18.74 | QP |
| 1.9980 | 5.70 | 20.09 | 25.79 | 46.00 | -20.21 | AVG |
| 18.2459 | 19.15 | 20.18 | 39.33 | 60.00 | -20.67 | QP |
| 18.2459 | 12.79 | 20.18 | 32.97 | 50.00 | -17.03 | AVG |

Remark:

1. All readings are Quasi-Peak and Average values.
2. Factor = Insertion Loss + Cable Loss.

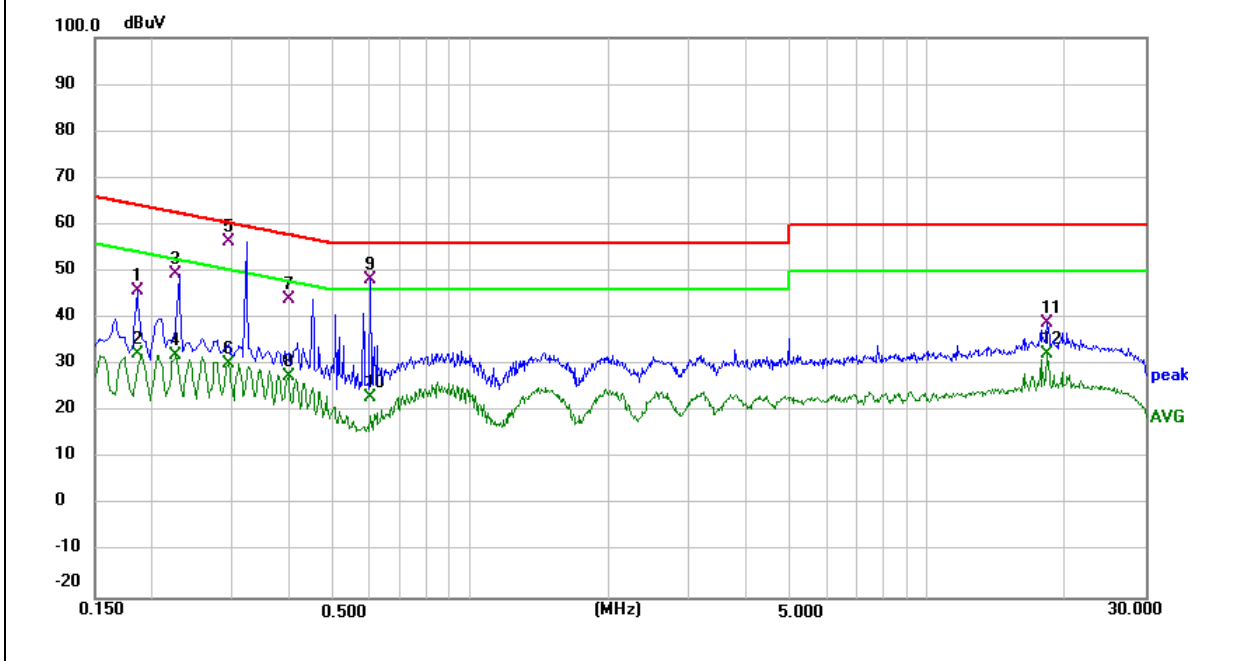


| | | | |
|----------------|--------------|---------------------|--------|
| EUT : | Smart Plug | Model Name. : | AC1100 |
| Temperature : | 25 °C | Relative Humidity : | 55% |
| Pressure : | 1010hPa | Phase : | N |
| Test Voltage : | AC 120V/60Hz | Test Mode : | Mode 1 |

| Frequency (MHz) | Reading Level (dBμV) | Correct Factor (dB) | Measure-ment (dBμV) | Limits (dBμV) | Margin (dB) | Remark |
|-----------------|----------------------|---------------------|---------------------|---------------|-------------|--------|
| 0.1860 | 25.94 | 19.99 | 45.93 | 64.21 | -18.28 | QP |
| 0.1860 | 12.24 | 19.99 | 32.23 | 54.21 | -21.98 | AVG |
| 0.2260 | 29.30 | 20.01 | 49.31 | 62.60 | -13.29 | QP |
| 0.2260 | 11.99 | 20.01 | 32.00 | 52.60 | -20.60 | AVG |
| 0.2940 | 36.40 | 20.01 | 56.41 | 60.41 | -4.00 | QP |
| 0.2940 | 10.33 | 20.01 | 30.34 | 50.41 | -20.07 | AVG |
| 0.3980 | 23.90 | 20.03 | 43.93 | 57.90 | -13.97 | QP |
| 0.3980 | 7.38 | 20.03 | 27.41 | 47.90 | -20.49 | AVG |
| 0.6020 | 28.06 | 20.06 | 48.12 | 56.00 | -7.88 | QP |
| 0.6020 | 3.03 | 20.06 | 23.09 | 46.00 | -22.91 | AVG |
| 18.2459 | 18.65 | 20.18 | 38.83 | 60.00 | -21.17 | QP |
| 18.2459 | 12.16 | 20.18 | 32.34 | 50.00 | -17.66 | AVG |

Remark:

1. All readings are Quasi-Peak and Average values.
2. Factor = Insertion Loss + Cable Loss.



3.4 RADIATED EMISSION MEASUREMENT

3.4.1 Radiated Emission Limits (FCC 15.209)

| Frequencies (MHz) | Field Strength (micorvolts/meter) | Measurement Distance (meters) |
|-------------------|-----------------------------------|-------------------------------|
| 0.009~0.490 | 2400/F(KHz) | 300 |
| 0.490~1.705 | 24000/F(KHz) | 30 |
| 1.705~30.0 | 30 | 30 |
| Frequency (MHz) | Limit (dBuV) | |
| 30~88 | 40 | 3 |
| 88~216 | 43.5 | 3 |
| 216~960 | 46 | 3 |
| 960 -10000 | 54.00 | 3 |
| *902 - 928 | 94.00 | 3 |

Note:

- (1) The tighter limit applies at the band edges.
- (2) Emission level (dBuV/m)=20log Emission level (uV/m).
- (3) *Note: This is the limit for the fundamental frequency.

LIMITS OF RADIATED EMISSION MEASUREMENT (FCC 15.249)

| Frequency of Emission (MHz) | Field Strength of fundamental ((millivolts /meter) | Field Strength of Harmonics (microvolts/meter) |
|-----------------------------|--|--|
| 902-928 | 50 | 500 |

Notes:

- (1) Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limits in Section 15.209, whichever is the lesser attenuation.

| Spectrum Parameter | Setting |
|---------------------------------------|-----------------------|
| Attenuation | Auto |
| Start Frequency | 1000 MHz |
| Stop Frequency | 10th carrier harmonic |
| RB / VB (emission in restricted band) | 1MHz / 1MHz for Peak |

| Receiver Parameter | Setting |
|------------------------|----------------------------------|
| Attenuation | Auto |
| Start ~ Stop Frequency | 9kHz~150kHz / RB 200Hz for QP |
| Start ~ Stop Frequency | 150kHz~30MHz / RB 9kHz for QP |
| Start ~ Stop Frequency | 30MHz~1000MHz / RB 120kHz for QP |

3.4.2 TEST PROCEDURE

- a. The measuring distance of at 3 m shall be used for measurements at frequency up to 1GHz. For frequencies above 1GHz, any suitable measuring distance may be used.
- b. The EUT was placed on the top of a rotating table 0.8 m for below 1GHz and 1.5m for above 1GHz the ground at a 3 meter. The table was rotated 360 degrees to determine the position of the highest radiation.
- c. The height of the equipment or of the substitution antenna shall be 0.8 m for below 1GHz and 1.5m for above 1GHz; the height of the test antenna shall vary between 1 m to 4 m. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. The initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured.
- e. If the Peak Mode measured value compliance with and lower than Quasi Peak Mode Limit, the EUT shall be deemed to meet QP Limits and then no additional QP Mode measurement performed.
- f. For the actual test configuration, please refer to the related Item –EUT Test Photos.

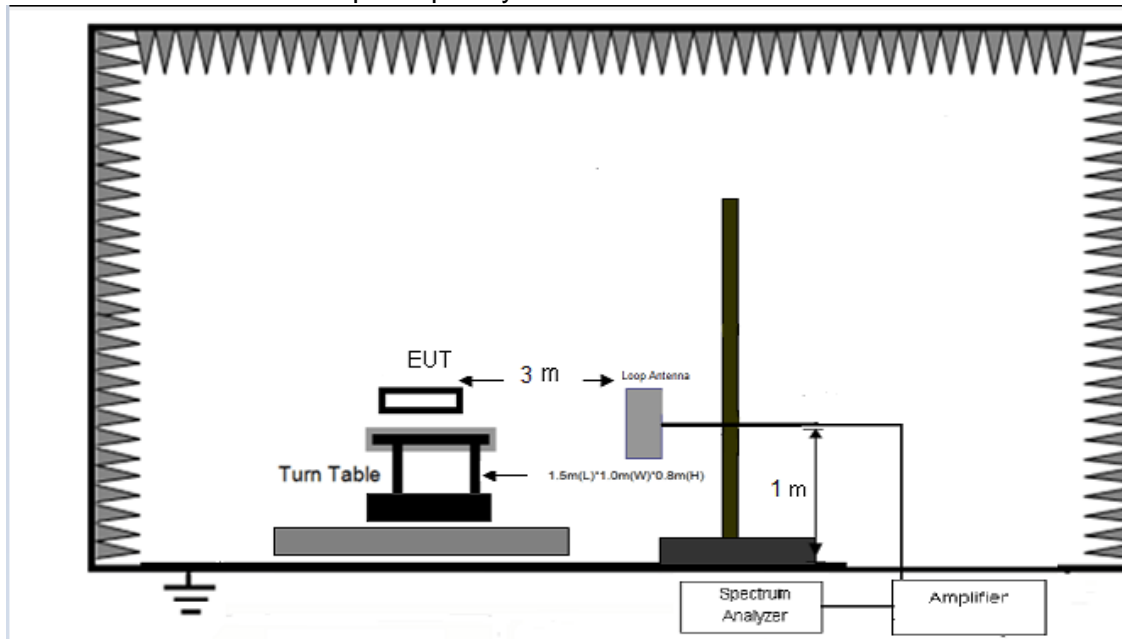
Note:

Both horizontal and vertical antenna polarities were tested and performed pretest to three orthogonal axis. The worst case emissions were reported

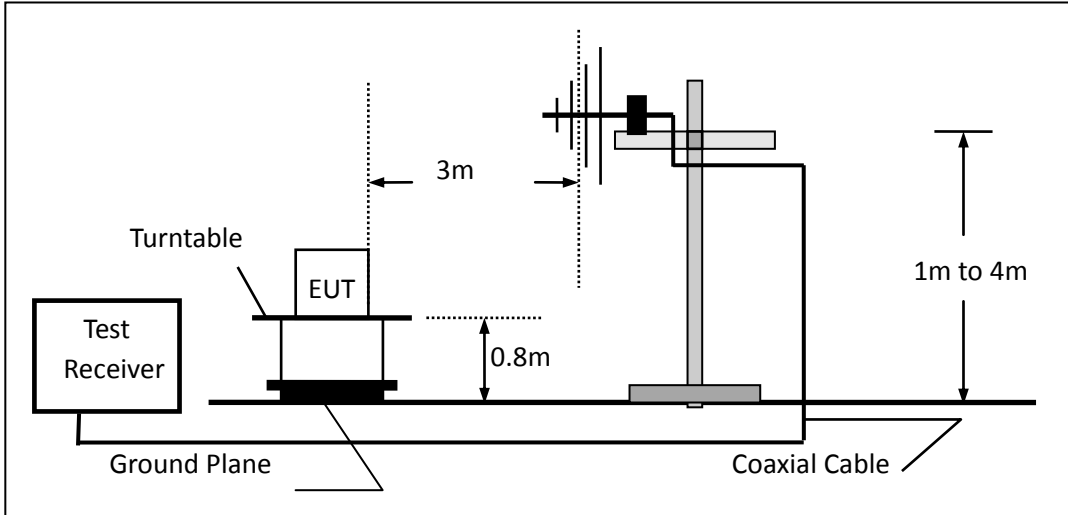
3.4.3 DEVIATION FROM TEST STANDARD

No deviation

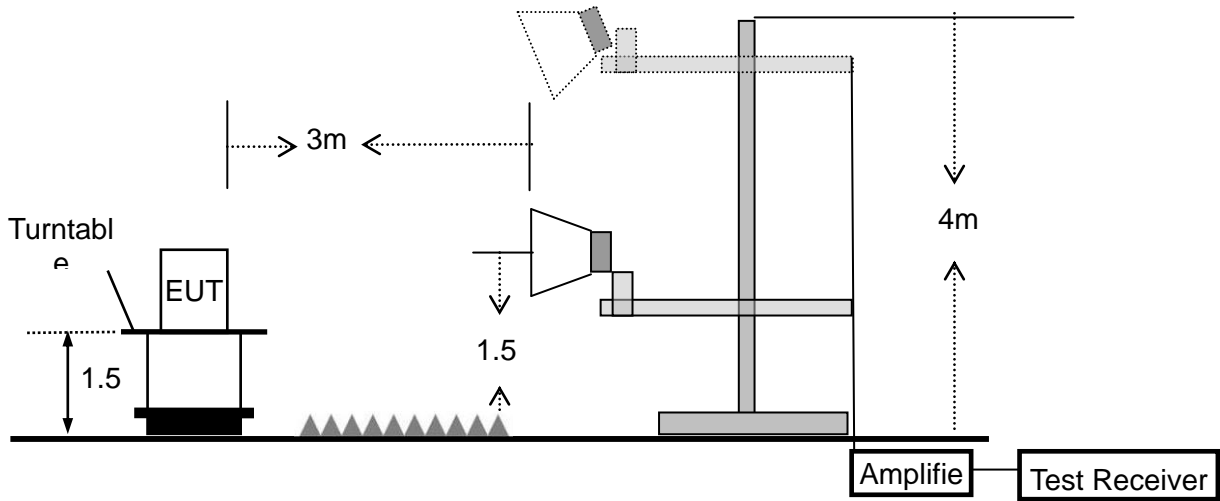
(A) Radiated Emission Test-Up Frequency Below 30MHz



(B) Radiated Emission Test-Up Frequency 30MHz~1GHz



(C) Radiated Emission Test-Up Frequency Above 1GHz



3.4.4 TEST RESULTS (BELOW 30MHz)

| | | | |
|---------------|------------|---------------------|--------------|
| EUT : | Smart Plug | Model Name. : | AC1100 |
| Temperature : | 20 °C | Relative Humidity : | 48% |
| Pressure : | 1010 hPa | Test Voltage : | AC 120V/60Hz |
| Test Mode : | TX | Polarization : | -- |

| Freq. | Reading | Limit | Margin | State |
|-------|----------|----------|--------|-------|
| (MHz) | (dBuV/m) | (dBuV/m) | (dB) | P/F |
| -- | -- | -- | -- | PASS |
| -- | -- | -- | -- | PASS |

Note:

The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.

Remark :1. Emission level in dBuV/m=20 log (uV/m)

2. Measurement was performed at an antenna to the closed point of EUT distance of meters.

3. For Frequency 9kHz~30MHz:

Distance extrapolation factor =40log(Specific distance/ test distance)(dB);

Limit line=Specific limits(dBuV) + distance extrapolation factor.

For Frequency above 30MHz:

Distance extrapolation factor =20log(Specific distance/ test distance)(dB);

Limit line=Specific limits(dBuV) + distance extrapolation factor.

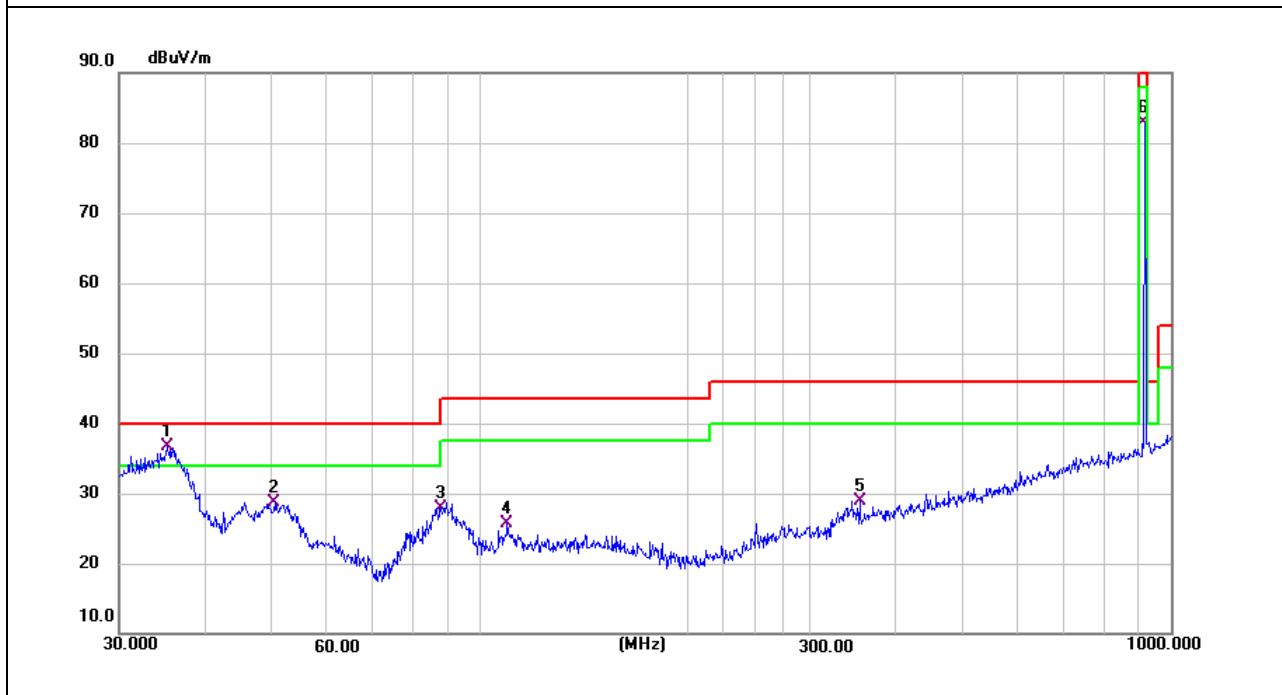
3.4.5 TEST RESULTS (BELOW 1000 MHz)

| | | | |
|---------------|------------|---------------------|--------------|
| EUT : | Smart Plug | Model Name : | AC1100 |
| Temperature : | 25 °C | Relative Humidity : | 51% |
| Pressure : | 1010 hPa | Test Voltage : | AC 120V/60Hz |
| Test Mode : | Mode 1 | Polarization : | Vertical |

| Frequency (MHz) | Meter Reading (dBµV) | Factor (dB) | Emission Level (dBµV/m) | Limits (dBµV/m) | Margin (dB) | Detector Type |
|-----------------|----------------------|-------------|-------------------------|-----------------|-------------|---------------|
| 35.2512 | 13.13 | 23.56 | 36.69 | 40.00 | -3.31 | QP |
| 50.4089 | 13.70 | 15.07 | 28.77 | 40.00 | -11.23 | QP |
| 87.7248 | 11.53 | 16.43 | 27.96 | 40.00 | -12.04 | QP |
| 109.4116 | 7.32 | 18.29 | 25.61 | 43.50 | -17.89 | QP |
| 354.1831 | 7.07 | 21.93 | 29.00 | 46.00 | -17.00 | QP |
| 915.0000 | 51.94 | 30.96 | 82.90 | 94.00 | -11.10 | QP |

Remark:

1. Factor = Antenna Factor + Cable Loss – Pre-amplifier.

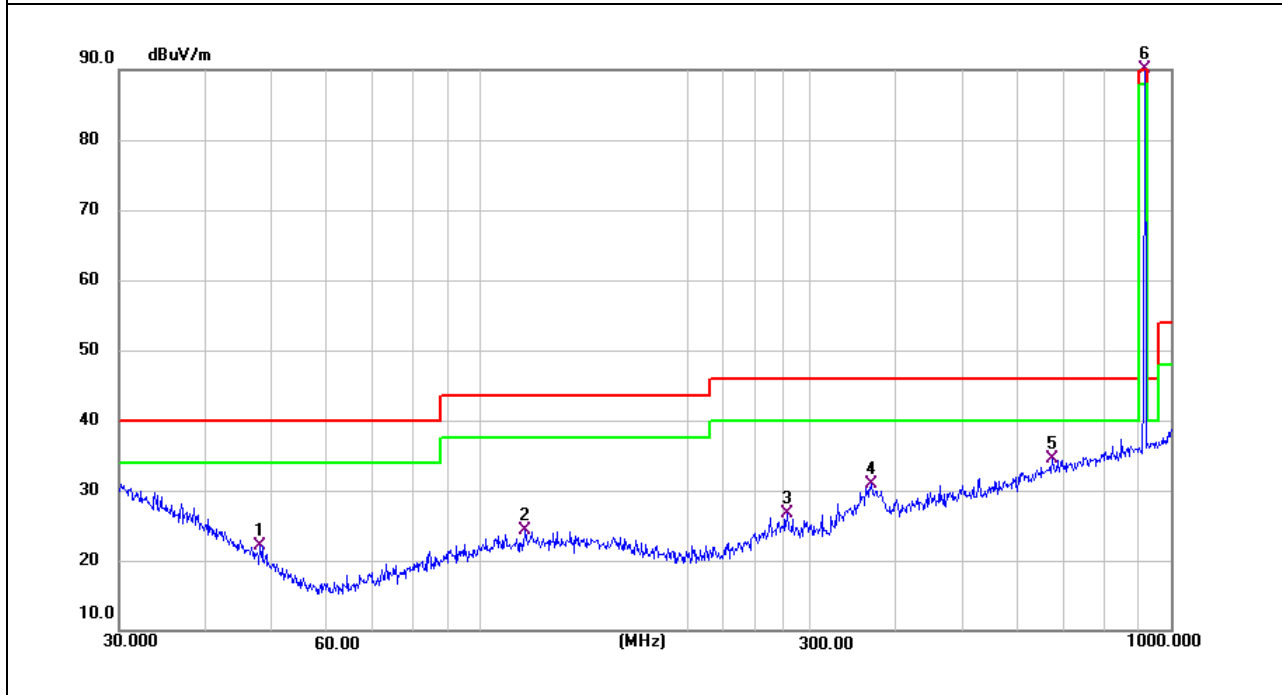


| | | | |
|---------------|------------|---------------------|--------------|
| EUT : | Smart Plug | Model Name : | AC1100 |
| Temperature : | 25 °C | Relative Humidity : | 51% |
| Pressure : | 1010 hPa | Test Voltage : | AC 120V/60Hz |
| Test Mode : | Mode 1 | Polarization : | Horizontal |

| Frequency (MHz) | Meter Reading (dBμV) | Factor (dB) | Emission Level (dBμV/m) | Limits (dBμV/m) | Margin (dB) | Detector Type |
|-----------------|----------------------|-------------|-------------------------|-----------------|-------------|---------------|
| 47.9940 | 5.67 | 16.42 | 22.09 | 40.00 | -17.91 | QP |
| 116.1321 | 5.72 | 18.65 | 24.37 | 43.50 | -19.13 | QP |
| 278.0668 | 6.72 | 19.94 | 26.66 | 46.00 | -19.34 | QP |
| 368.1116 | 8.40 | 22.50 | 30.90 | 46.00 | -15.10 | QP |
| 672.8444 | 6.99 | 27.53 | 34.52 | 46.00 | -11.48 | QP |
| 915.0000 | 59.15 | 30.97 | 90.12 | 94.00 | -3.88 | QP |

Remark:

1. Factor = Antenna Factor + Cable Loss – Pre-amplifier.

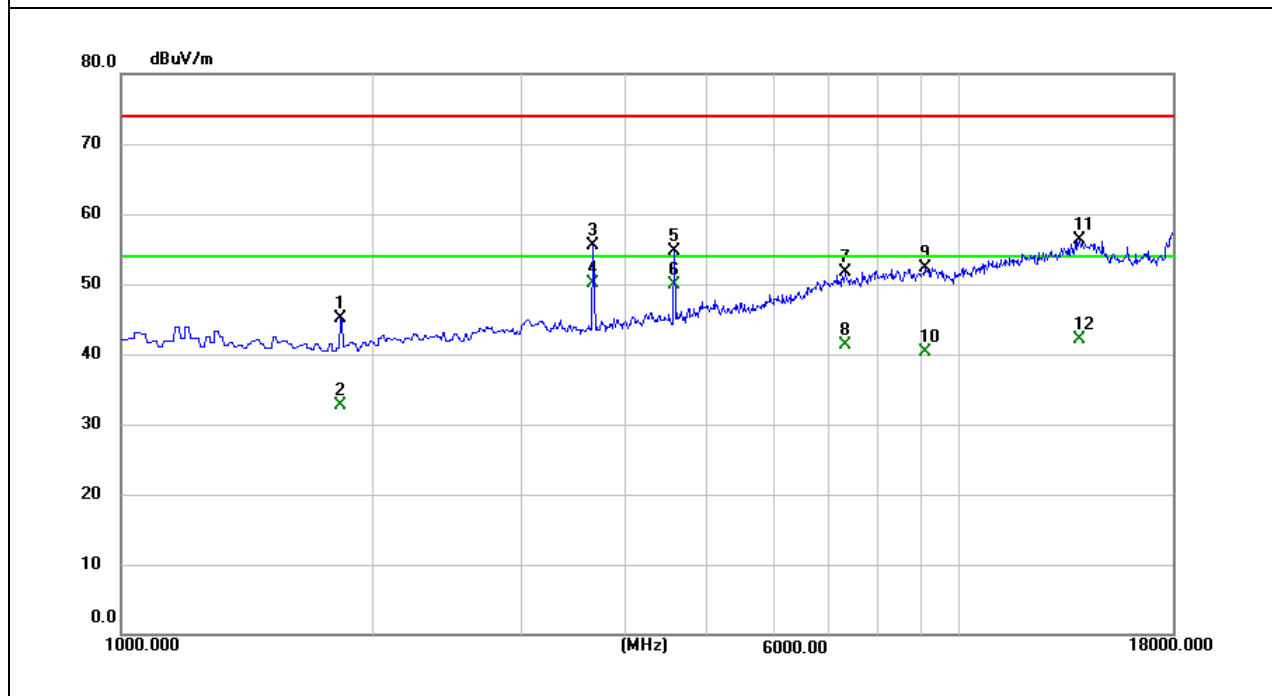


3.4.6 TEST RESULTS (ABOVE 1000 MHZ)

| | | | |
|---------------|------------|---------------------|--------------|
| EUT : | Smart Plug | Model Name : | AC1100 |
| Temperature : | 25 °C | Relative Humidity : | 51% |
| Pressure : | 1010 hPa | Test Voltage : | AC 120V/60Hz |
| Test Mode : | Mode 1 | Polarization : | Horizontal |

| Frequency (MHz) | Meter Reading (dBµV) | Factor (dB) | Emission Level (dBµV/m) | Limits (dBµV/m) | Margin (dB) | Detector Type |
|-----------------|----------------------|-------------|-------------------------|-----------------|-------------|---------------|
| 1824.302 | 39.57 | 5.55 | 45.12 | 74.00 | -28.88 | peak |
| 1824.302 | 27.10 | 5.55 | 32.65 | 54.00 | -21.35 | AVG |
| 3652.000 | 44.88 | 10.59 | 55.47 | 74.00 | -18.53 | peak |
| 3659.300 | 39.40 | 10.62 | 50.02 | 54.00 | -3.98 | AVG |
| 4570.000 | 41.84 | 12.77 | 54.61 | 74.00 | -19.39 | peak |
| 4574.000 | 37.16 | 12.78 | 49.94 | 54.00 | -4.06 | AVG |
| 7290.000 | 32.31 | 19.39 | 51.70 | 74.00 | -22.30 | peak |
| 7290.000 | 21.86 | 19.39 | 41.25 | 54.00 | -12.75 | AVG |
| 9092.000 | 31.25 | 21.11 | 52.36 | 74.00 | -21.64 | peak |
| 9092.000 | 19.22 | 21.11 | 40.33 | 54.00 | -13.67 | AVG |
| 13886.000 | 30.64 | 25.63 | 56.27 | 74.00 | -17.73 | peak |
| 13886.000 | 16.42 | 25.63 | 42.05 | 54.00 | -11.95 | AVG |

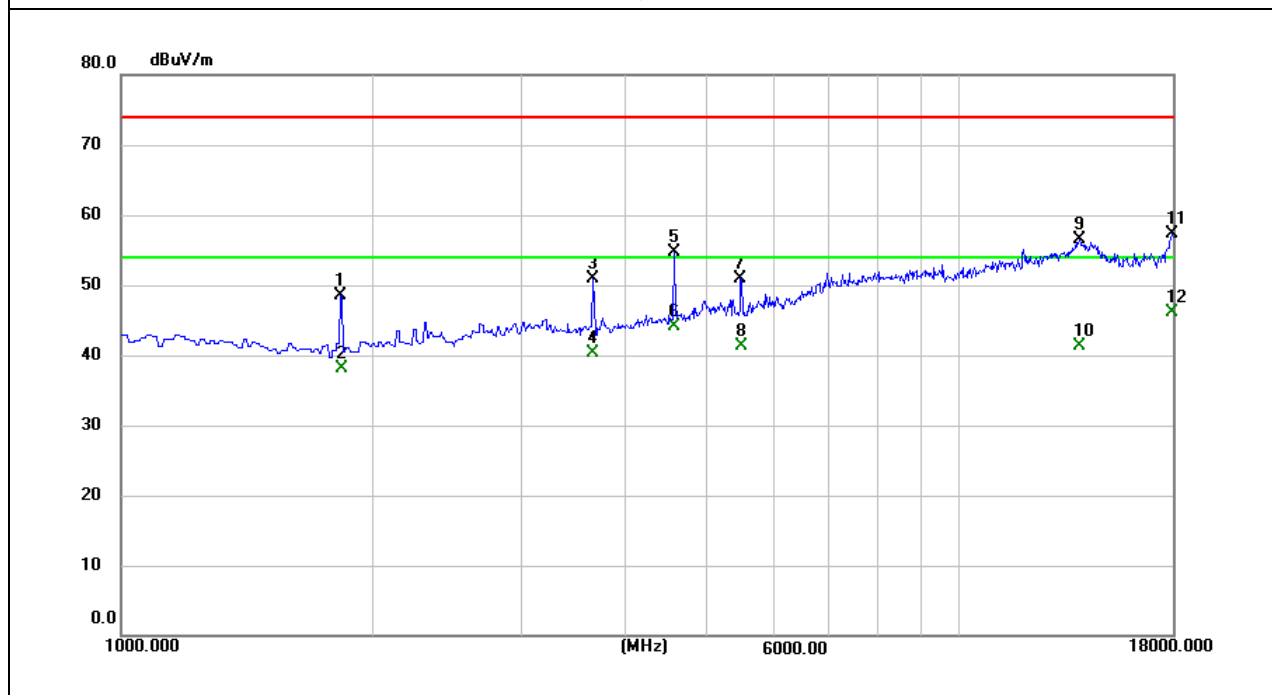
Remark:
Factor = Antenna Factor + Cable Loss – Pre-amplifier.



| | | | |
|---------------|------------|---------------------|--------------|
| EUT : | Smart Plug | Model Name : | AC1100 |
| Temperature : | 25 °C | Relative Humidity : | 51% |
| Pressure : | 1010 hPa | Test Voltage : | AC 120V/60Hz |
| Test Mode : | Mode 1 | Polarization : | Vertical |

| Frequency (MHz) | Meter Reading (dBμV) | Factor (dB) | Emission Level (dBμV/m) | Limits (dBμV/m) | Margin (dB) | Detector Type |
|--------------------|-------------------------|----------------|----------------------------|--------------------|----------------|---------------|
| 1824.302 | 42.93 | 5.55 | 48.48 | 74.00 | -25.52 | peak |
| 1833.000 | 32.44 | 5.58 | 38.02 | 54.00 | -15.98 | AVG |
| 3650.582 | 40.26 | 10.59 | 50.85 | 74.00 | -23.15 | peak |
| 3652.000 | 29.66 | 10.59 | 40.25 | 54.00 | -13.75 | AVG |
| 4570.000 | 41.85 | 12.77 | 54.62 | 74.00 | -19.38 | peak |
| 4573.500 | 31.37 | 12.78 | 44.15 | 54.00 | -9.85 | AVG |
| 5487.260 | 36.75 | 14.15 | 50.90 | 74.00 | -23.10 | peak |
| 5488.000 | 27.07 | 14.15 | 41.22 | 54.00 | -12.78 | AVG |
| 13886.000 | 30.96 | 25.63 | 56.59 | 74.00 | -17.41 | peak |
| 13886.000 | 15.63 | 25.63 | 41.26 | 54.00 | -12.74 | AVG |
| 17983.000 | 31.54 | 25.73 | 57.27 | 74.00 | -16.73 | peak |
| 17983.000 | 20.42 | 25.73 | 46.15 | 54.00 | -7.85 | AVG |

Remark:
Factor = Antenna Factor + Cable Loss – Pre-amplifier.



Note:

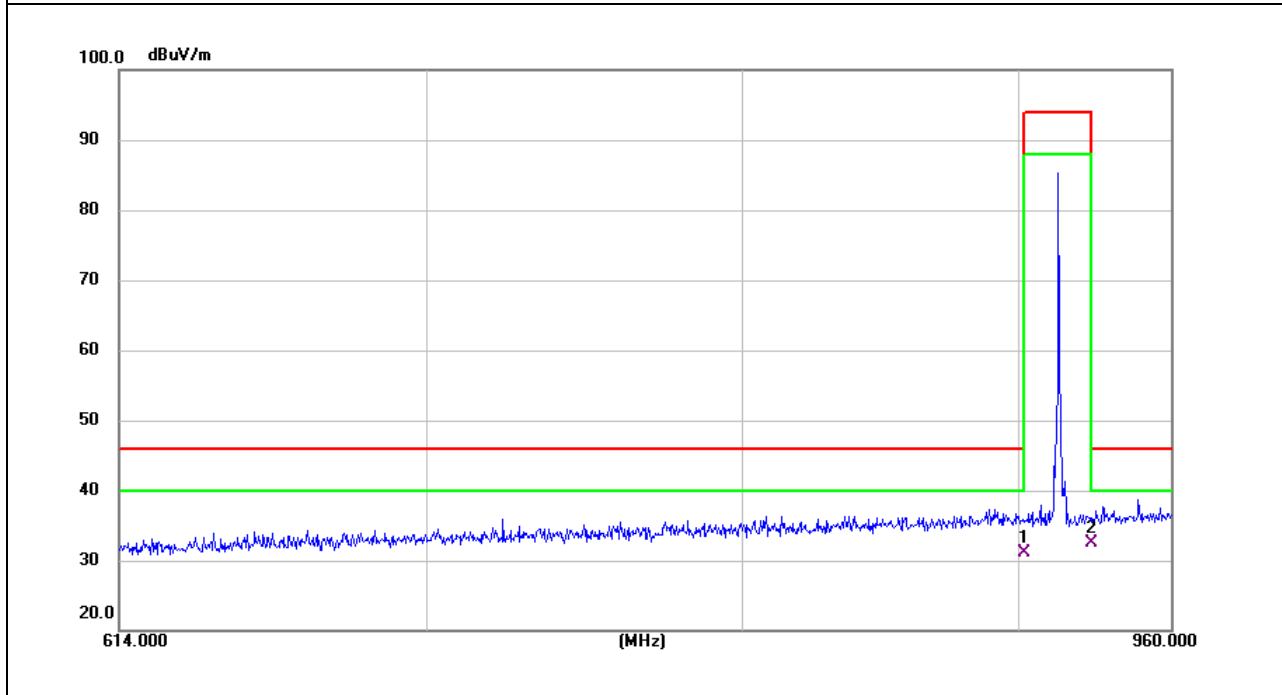
- 1) EUT Pre-scan X/Y/Z orientation, only worst case is presented in the report(X orientation).
- 2) Since the PEAK test results are below the AV limit, according to 15.31, the amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.

3.4.7 TEST RESULTS (RESTRICTED BANDS REQUIREMENTS)

| | | | |
|---------------|------------|---------------------|--------------|
| EUT : | Smart Plug | Model Name : | AC1100 |
| Temperature : | 25 °C | Relative Humidity : | 51% |
| Pressure : | 1010 hPa | Test Voltage : | AC 120V/60Hz |
| Test Mode : | TX-915MHz | Polarization : | Horizontal |

| Frequency (MHz) | Meter Reading (dBμV) | Factor (dB) | Emission Level (dBμV/m) | Limits (dBμV/m) | Margin (dB) | Detector Type |
|-----------------|----------------------|-------------|-------------------------|-----------------|-------------|---------------|
| 902.0000 | 0.39 | 30.81 | 31.20 | 46.00 | -14.80 | QP |
| 928.0000 | 1.38 | 31.12 | 32.50 | 46.00 | -13.50 | QP |

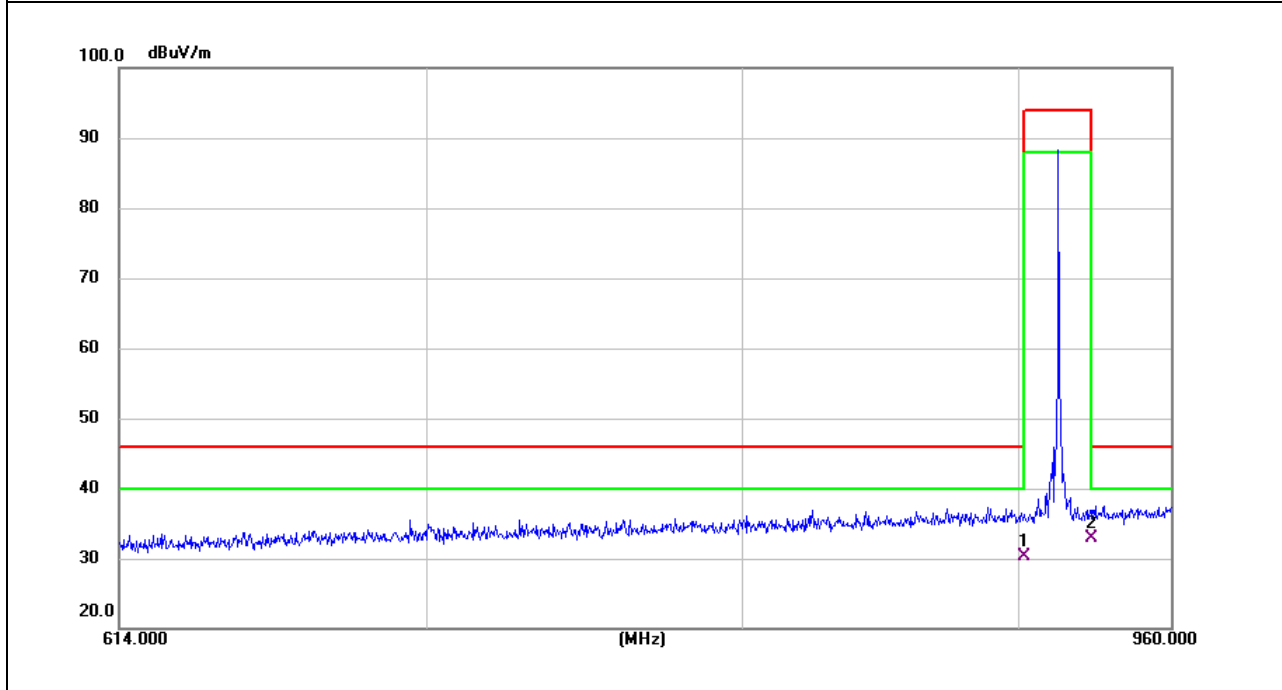
Remark:
Factor = Antenna Factor + Cable Loss – Pre-amplifier.



| | | | |
|---------------|------------|---------------------|--------------|
| EUT : | Smart Plug | Model Name : | AC1100 |
| Temperature : | 25 °C | Relative Humidity : | 51% |
| Pressure : | 1010 hPa | Test Voltage : | AC 120V/60Hz |
| Test Mode : | TX-915MHz | Polarization : | Vertical |

| Frequency (MHz) | Meter Reading (dBμV) | Factor (dB) | Emission Level (dBμV/m) | Limits (dBμV/m) | Margin (dB) | Detector Type |
|-----------------|----------------------|-------------|-------------------------|-----------------|-------------|---------------|
| 902.0000 | -0.56 | 30.81 | 30.25 | 46.00 | -15.75 | QP |
| 928.0000 | 1.78 | 31.12 | 32.90 | 46.00 | -13.10 | QP |

Remark:
Factor = Antenna Factor + Cable Loss – Pre-amplifier.



4. BANDWIDTH TEST

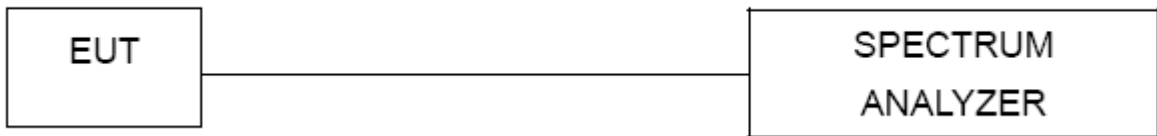
4.1 TEST PROCEDURE

- a. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below,
- b. Spectrum Setting : The resolution bandwidth (RBW) shall be in the range of 1% to 5% of the actual occupied / x dB bandwidth and the video bandwidth (VBW) shall not be smaller than three times the RBW value., Sweep time = Auto.

4.2 DEVIATION FROM STANDARD

No deviation.

4.3 TEST SETUP

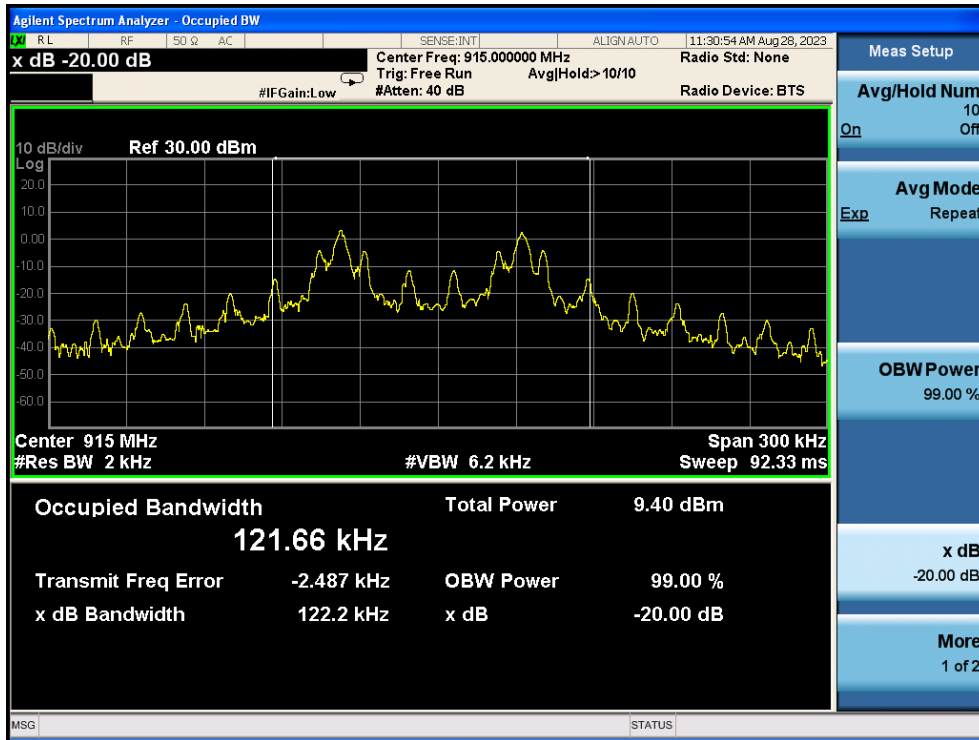


6. TEST RESULTS

| | | | |
|---------------|------------|---------------------|--------------|
| EUT : | Smart Plug | Model Name : | AC1100 |
| Temperature : | 26 °C | Relative Humidity : | 53% |
| Pressure : | 1020 hPa | Test Power : | AC 120V/60Hz |
| Test Mode : | Mode 1 | | |

| Test Channel | Frequency (MHz) | 20 dBc Bandwidth (MHz) |
|--------------|-----------------|------------------------|
| CH01 | 915 | 0.122 |

915 MHz



END OF REPORT