

# FCC Test Report

Report No.: AGC01645180602FE05

**FCC ID** : 2AQJO-S12

**APPLICATION PURPOSE** : Original Equipment

**PRODUCT DESIGNATION** : WIFI smart socket

**BRAND NAME** : N/A

**MODEL NAME** : S01,S02,S03,S04,S05,S06,S07,S08,S09,S11,S12,S13,S14,  
S15,S16,S17,S18,S19,S21,S22,S23S,24,S25,S26,S27,S28,  
S29,S31,S32,S33,S34,S35,S36,S37,S38,S39,S41,S42,S43,  
S44,S45,S46,S47,S48,S49,S51,S52,S53,S54,S55,S56,S57,  
S58,S59,S61,S62,S63,S64,S65,S66,S67,S68,S69,S71,S72,  
S73,S74,S75,S76,S77,S78,S79,S81,S82,S83,S84,S85,S86,  
S87,S88,S89,S91,S92,S93,S94,S95,S96,S97,S98,S99

**CLIENT** : Shenzhen Sonida Digital Technology Co.,Ltd

**DATE OF ISSUE** : Aug. 27, 2018

**STANDARD(S)** : FCC Part 15.247

**TEST PROCEDURE(S)**

**REPORT VERSION** : V1.1

**Attestation of Global Compliance (Shenzhen) Co., Ltd**

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### Report Revise Record

| Report Version | Revise Time     | Issued Date   | Valid Version | Notes           |
|----------------|-----------------|---------------|---------------|-----------------|
| V1.0           | /               | July 31, 2018 | Invalid       | Initial Release |
| V1.1           | 1 <sup>st</sup> | Aug. 27, 2018 | Valid         | Revise Report   |

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## 1. VERIFICATION OF CONFORMITY

|                                 |                                                                                                                                                                                                                                                                                                                                                                            |
|---------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Applicant</b>                | Shenzhen Sonida Digital Technology Co.,Ltd                                                                                                                                                                                                                                                                                                                                 |
| <b>Address</b>                  | 6F ,B Bldg, Zhengchangda Technology Park,Tangwei jian'an Rd,Fuyong St., Bao'an Dist., Shenzhen, China                                                                                                                                                                                                                                                                      |
| <b>Manufacturer</b>             | Shenzhen Sonida Digital Technology Co.,Ltd                                                                                                                                                                                                                                                                                                                                 |
| <b>Address</b>                  | 6F ,B Bldg, Zhengchangda Technology Park,Tangwei jian'an Rd,Fuyong St., Bao'an Dist., Shenzhen, China                                                                                                                                                                                                                                                                      |
| <b>Product Designation</b>      | WIFI smart socket                                                                                                                                                                                                                                                                                                                                                          |
| <b>Brand Name</b>               | N/A                                                                                                                                                                                                                                                                                                                                                                        |
| <b>Test Model</b>               | S12                                                                                                                                                                                                                                                                                                                                                                        |
| <b>Serial Model</b>             | S01,S02,S03,S04,S05,S06,S07,S08,S09,S11 S13,S14, S15,S16,S17,S18,S19,S21,S22,S23S,24,S25,S26,S27, S28,S29,S31,S32,S33,S34,S35,S36,S37,S38,S39,S41, S42,S43,S44,S45,S46,S47,S48,S49,S51,S52,S53,S54, S55,S56,S57,S58,S59,S61,S62,S63,S64,S65,S66,S67, S68,S69,S71,S72,S73,S74,S75,S76,S77,S78,S79,S81, S82,S83,S84,S85,S86,S87,S88,S89,S91,S92,S93,S94, S95,S96,S97,S98,S99 |
| <b>Difference Description</b>   | All the same except the model name.                                                                                                                                                                                                                                                                                                                                        |
| <b>Date of test</b>             | June 25, 2018~July 31, 2018                                                                                                                                                                                                                                                                                                                                                |
| <b>Deviation</b>                | None                                                                                                                                                                                                                                                                                                                                                                       |
| <b>Condition of Test Sample</b> | Normal                                                                                                                                                                                                                                                                                                                                                                     |

We hereby certify that:

The above equipment was tested by Attestation of Global Compliance (Shenzhen) Co., Ltd. The test data, data evaluation, test procedures, and equipment configurations shown in this report were made in accordance with the procedures given in ANSI C63.10 (2013) and the energy emitted by the sample EUT tested as described in this report is in compliance with radiated emission limits of FCC Rules Part 15.247.

Tested By

*Nice.xie*

Nice Xie(Xie xiaosong)

July 31, 2018

Reviewed By

*Bart xie*

Bart Xie(Xie Xiaobin)

Aug. 27, 2018

Approved By

*Forrest lei*

Forrest Lei(Lei Yonggang)  
Authorized Officer

Aug. 27, 2018

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## 2. GENERAL INFORMATION

### 2.1. PRODUCT DESCRIPTION

The EUT is designed as "WIFI smart socket". It is designed by way of utilizing the DSSS and OFDM technology to achieve the system operation.

A major technical description of EUT is described as following

|                            |                                                                                                             |
|----------------------------|-------------------------------------------------------------------------------------------------------------|
| <b>Operation Frequency</b> | 2.412 GHz ~ 2.462GHz                                                                                        |
| <b>Output Power</b>        | Please refer to FCC ID <b>2ANDL-TYWE2S</b> and test report number: <b>RSA170915001-00A</b> for test results |
| <b>Modulation</b>          | DSSS(DBPSK/DQPSK/CCK);OFDM(BPSK/QPSK/16-QAM/64-QAM)                                                         |
| <b>Number of channels</b>  | 11 Channels (IEEE802.11b/g/n20)                                                                             |
| <b>Hardware Version</b>    | V10                                                                                                         |
| <b>Software Version</b>    | V1.0                                                                                                        |
| <b>Antenna Designation</b> | PCB Antenna                                                                                                 |
| <b>Antenna Gain</b>        | 3.0dBi                                                                                                      |
| <b>Power Supply</b>        | DC 3.3V                                                                                                     |

### 2.2. TABLE OF CARRIER FREQUENCIES

| Frequency Band | Channel Number | Frequency |
|----------------|----------------|-----------|
| 2400~2472MHZ   | 1              | 2412 MHZ  |
|                | 2              | 2417 MHZ  |
|                | 3              | 2422 MHZ  |
|                | 4              | 2427 MHZ  |
|                | 5              | 2432 MHZ  |
|                | 6              | 2437 MHZ  |
|                | 7              | 2442 MHZ  |
|                | 8              | 2447 MHZ  |
|                | 9              | 2452 MHZ  |
|                | 10             | 2457 MHZ  |
|                | 11             | 2462 MHZ  |

Note: For 20MHZ bandwidth system use Channel 1 to Channel 11

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### 2.3. IEEE 802.11N MODULATION SCHEME

| MCS Index | Nss | Modulation | R   | NBPSC | NCBPS |       | NDBPS |       | Data rate(Mbps) |       |
|-----------|-----|------------|-----|-------|-------|-------|-------|-------|-----------------|-------|
|           |     |            |     |       | 20MHz | 40MHz | 20MHz | 40MHz | 20MHz           | 40MHz |
| 0         | 1   | BPSK       | 1/2 | 1     | 52    | 108   | 26    | 54    | 6.5             | 13.5  |
| 1         | 1   | QPSK       | 1/2 | 2     | 104   | 216   | 52    | 108   | 13.0            | 27.0  |
| 2         | 1   | QPSK       | 3/4 | 2     | 104   | 216   | 78    | 162   | 19.5            | 40.5  |
| 3         | 1   | 16-QAM     | 1/2 | 4     | 208   | 432   | 104   | 216   | 26.0            | 54.0  |
| 4         | 1   | 16-QAM     | 3/4 | 4     | 208   | 432   | 156   | 324   | 39.0            | 81.0  |
| 5         | 1   | 64-QAM     | 2/3 | 6     | 312   | 648   | 208   | 432   | 52.0            | 108.0 |
| 6         | 1   | 64-QAM     | 3/4 | 6     | 312   | 648   | 234   | 489   | 58.5            | 121.5 |
| 7         | 1   | 64-QAM     | 5/6 | 6     | 312   | 648   | 260   | 540   | 65.0            | 135.0 |

| Symbol | Explanation                             |
|--------|-----------------------------------------|
| NSS    | Number of spatial streams               |
| R      | Code rate                               |
| NBPSC  | Number of coded bits per single carrier |
| NCBPS  | Number of coded bits per symbol         |
| NDBPS  | Number of data bits per symbol          |
| GI     | Guard interval                          |

### 2.4. RELATED SUBMITTAL(S) / GRANT (S)

This submittal(s) (test report) is intended for **FCC ID: 2AQJO-S12** filing to comply with the FCC Part 15 requirements.

### 2.5. TEST METHODOLOGY

Both conducted and radiated testing was performed according to the procedures in ANSI C63.10 (2013). Radiated testing was performed at an antenna to EUT distance 3 meters.

### 2.6. SPECIAL ACCESSORIES

Refer to section 5.2.

### 2.7. EQUIPMENT MODIFICATIONS

Not available for this EUT intended for grant.

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### 3. MEASUREMENT UNCERTAINTY

Conducted measurement: +/- 3.18dB

Radiated measurement: +/- 3.91dB

### 4. DESCRIPTION OF TEST MODES

| NO. | TEST MODE DESCRIPTION |
|-----|-----------------------|
| 1   | Low channel TX        |
| 2   | Middle channel TX     |
| 3   | High channel TX       |
| 4   | Normal operating      |

Note:

Transmit by 802.11b with Data rate (1/2/5.5/11)

Transmit by 802.11g with Data rate (6/9/12/18/24/36/48/54)

Transmit by 802.11n (20MHz) with Data rate (6.5/13/19.5/26/39/52/58.5/65)

**Note:**

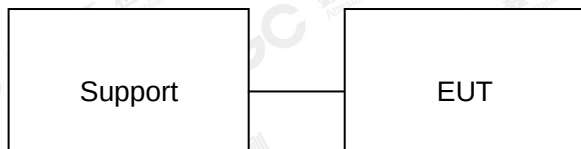
1. The EUT has been set to operate continuously on the lowest, middle and highest operation frequency Individually, and the eut is operating at its maximum duty cycle>or equal 98%
2. All modes under which configure applicable have been tested and the worst mode test data recording in the test report, if no other mode data.
3. For Radiated Emission, 3axis were chosen for testing for each applicable mode.

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## 5. SYSTEM TEST CONFIGURATION

### 5.1. CONFIGURATION OF EUT SYSTEM

Configure 1:



### 5.2. EQUIPMENT USED IN EUT SYSTEM

Support equipment

| Item | Equipment         | Model No. | ID or Specification | Remark |
|------|-------------------|-----------|---------------------|--------|
| 1    | WIFI smart socket | S12       | 2AQJO-S12           | EUT    |

### 5.3. SUMMARY OF TEST RESULTS

| FCC RULES | DESCRIPTION OF TEST      | RESULT    |
|-----------|--------------------------|-----------|
| \$15.209  | Radiated Emission        | Compliant |
| \$15.207  | Line Conduction Emission | Compliant |

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## 6. TEST FACILITY

|                           |                                                                                                                                                                                                                  |
|---------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Test Site</b>          | Attestation of Global Compliance (Shenzhen) Co., Ltd                                                                                                                                                             |
| <b>Location</b>           | 1-2F., Bldg.2, No.1-4, Chaxi Sanwei Technical Industrial Park, Gushu, Xixiang, Bao'an District B112-B113, Bldg.12, Baoan Bldg Materials Center, No.1 of Xixiang Inner Ring Road, Baoan District, Shenzhen 518012 |
| <b>NVLAP LAB CODE</b>     | 600153-0                                                                                                                                                                                                         |
| <b>Designation Number</b> | CN5028                                                                                                                                                                                                           |
| <b>Description</b>        | Attestation of Global Compliance(Shenzhen) Co., Ltd is accredited by National Voluntary Laboratory Accreditation program, NVLAP Code 600153-0                                                                    |

## ALL TEST EQUIPMENT LIST

| Equipment                    | Manufacturer | Model       | S/N        | Cal. Date     | Cal. Due      |
|------------------------------|--------------|-------------|------------|---------------|---------------|
| TEST RECEIVER                | R&S          | ESPI        | 101206     | Jun.12, 2018  | Jun.11, 2019  |
| LISN                         | R&S          | ESH2-Z5     | 100086     | Aug.21, 2017  | Aug.20, 2018  |
| TEST RECEIVER                | R&S          | ESCI        | 10096      | Jun.12, 2018  | Jun.11, 2019  |
| EXA Signal Analyzer          | Agilent      | N9010A      | MY53470504 | Dec.08, 2017  | Dec.07, 2018  |
| Horn antenna                 | SCHWARZBECK  | BBHA 9170   | #768       | Sep.20, 2017  | Sep.19, 2018  |
| preamplifier                 | ChengYi      | EMC184045SE | 980508     | Sep.15, 2017  | Sep.14, 2018  |
| Double-Ridged Waveguide Horn | ETS LINDGREN | 3117        | 00034609   | May.18, 2017  | May.17, 2019  |
| Broadband Preamplifier       | SCHWARZBECK  | BBV 9718    | 9718-205   | Jun.12, 2018  | Jun.11, 2019  |
| ANTENNA                      | SCHWARZBECK  | VULB9168    | D69250     | Sep.28, 2017  | Sep.27, 2018  |
| SIGNAL ANALYZER              | Agilent      | N9020A      | MY52090123 | Sep. 21, 2017 | Sep. 20, 2018 |
| USB Wideband Power Sensor    | Agilent      | U2021XA     | MY54110007 | Sep. 21, 2017 | Sep. 20, 2018 |
| LOOP ANTENNA                 | A.H          | SAS-562B    | /          | Mar.01, 2018  | Feb.28, 2019  |

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## 7. RADIATED EMISSION

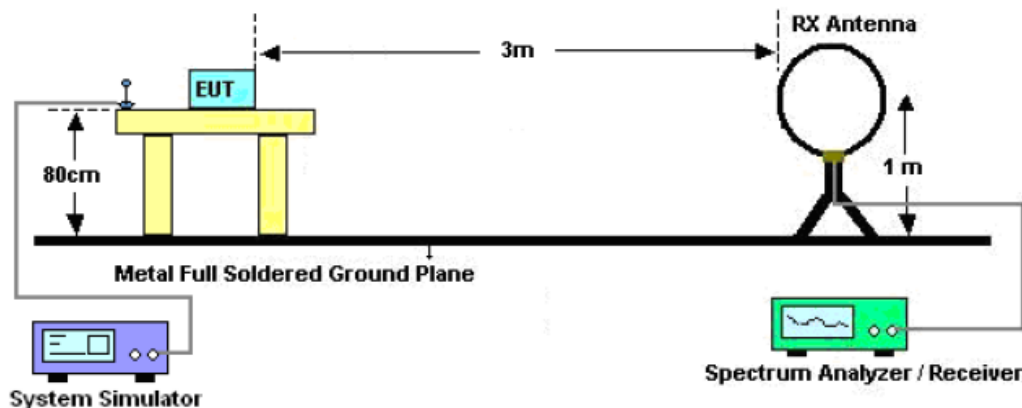
### 7.1. MEASUREMENT PROCEDURE

1. The EUT was placed on the top of the turntable 0.8 or 1.5 meter above ground. The phase center of the receiving antenna mounted on the top of a height-variable antenna tower was placed 3 meters far away from the turntable.
2. Power on the EUT and all the supporting units. The turntable was rotated by 360 degrees to determine the position of the highest radiation.
3. The height of the broadband receiving antenna was varied between one meter and four meters above ground to find the maximum emissions field strength of both horizontal and vertical polarization.
4. For each suspected emissions, the antenna tower was scan (from 1 M to 4 M) and then the turntable was rotated (from 0 degree to 360 degrees) to find the maximum reading.
5. Set the test-receiver system to Peak or CISPR quasi-peak Detect Function with specified bandwidth under Maximum Hold Mode.
6. For emissions above 1GHz, use 1MHz RBW and 3MHz VBW for peak reading. Place the measurement antenna away from each area of the EUT determined to be a source of emissions at the specified measurement distance, while keeping the measurement antenna aimed at the source of emissions at each frequency of significant emissions, with polarization oriented for maximum response. The measurement antenna may have to be higher or lower than the EUT, depending on the radiation pattern of the emission and staying aimed at the emission source for receiving the maximum signal. The final measurement antenna elevation shall be that which maximizes the emissions. The measurement antenna elevation for maximum emissions shall be restricted to a range of heights of from 1 m to 4 m above the ground or reference ground plane.
7. When the radiated emissions limits are expressed in terms of the average value of the emissions, and pulsed operation is employed, the measurement field strength shall be determined by averaging over one complete pulse train, including blanking intervals, as long as the pulse train does not exceed 0.1 seconds. As an alternative (provided the transmitter operates for longer than 0.1 seconds) or in cases where the pulse train exceeds 0.1 seconds, the measured field strength shall be determined from the average absolute voltage during a 0.1 second interval during which the field strength is at its maximum values.
8. If the emissions level of the EUT in peak mode was 3 dB lower than the average limit specified, then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions which do not have 3 dB margin will be repeated one by one using the quasi-peak method for below 1GHz.
9. For testing above 1GHz, the emissions level of the EUT in peak mode was lower than average limit (that means the emissions level in peak mode also complies with the limit in average mode), then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions will be measured in average mode again and reported.
10. In case the emission is lower than 30MHz, loop antenna has to be used for measurement and the recorded data should be QP measured by receiver. High - Low scan is not required in this case.

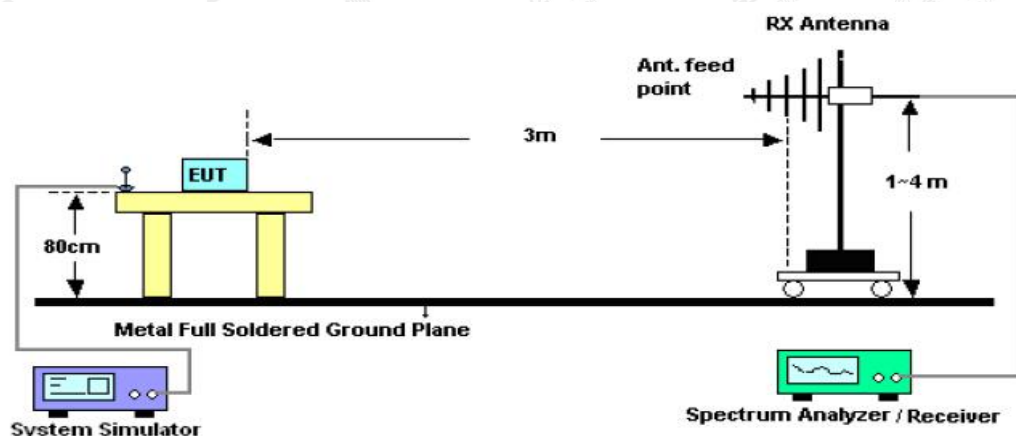
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## 7.2. TEST SETUP

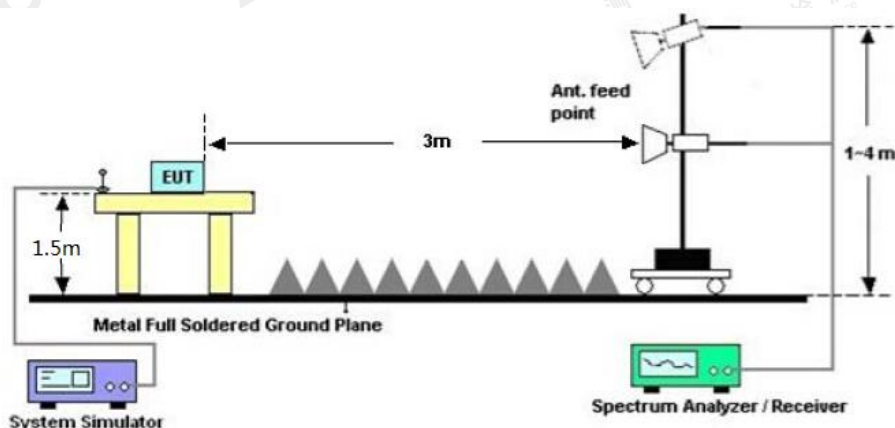
### Radiated Emission Test-Setup Frequency Below 30MHz



### RADIATED EMISSION TEST SETUP 30MHz-1000MHz



### RADIATED EMISSION TEST SETUP ABOVE 1000MHz



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### 7.3. LIMITS AND MEASUREMENT RESULT

15.209(a) Limit in the below table has to be followed

| Frequencies<br>(MHz) | Field Strength<br>(micorvolts/meter) | Measurement Distance<br>(meters) |
|----------------------|--------------------------------------|----------------------------------|
| 0.009~0.490          | 2400/F(KHz)                          | 300                              |
| 0.490~1.705          | 24000/F(KHz)                         | 30                               |
| 1.705~30.0           | 30                                   | 30                               |
| 30~88                | 100                                  | 3                                |
| 88~216               | 150                                  | 3                                |
| 216~960              | 200                                  | 3                                |
| Above 960            | 500                                  | 3                                |

Note: All modes were tested for restricted band radiated emission,  
The test records reported below are the worst result compared to other modes.

### 7.4. TEST RESULT

#### RADIATED EMISSION BELOW 30MHZ

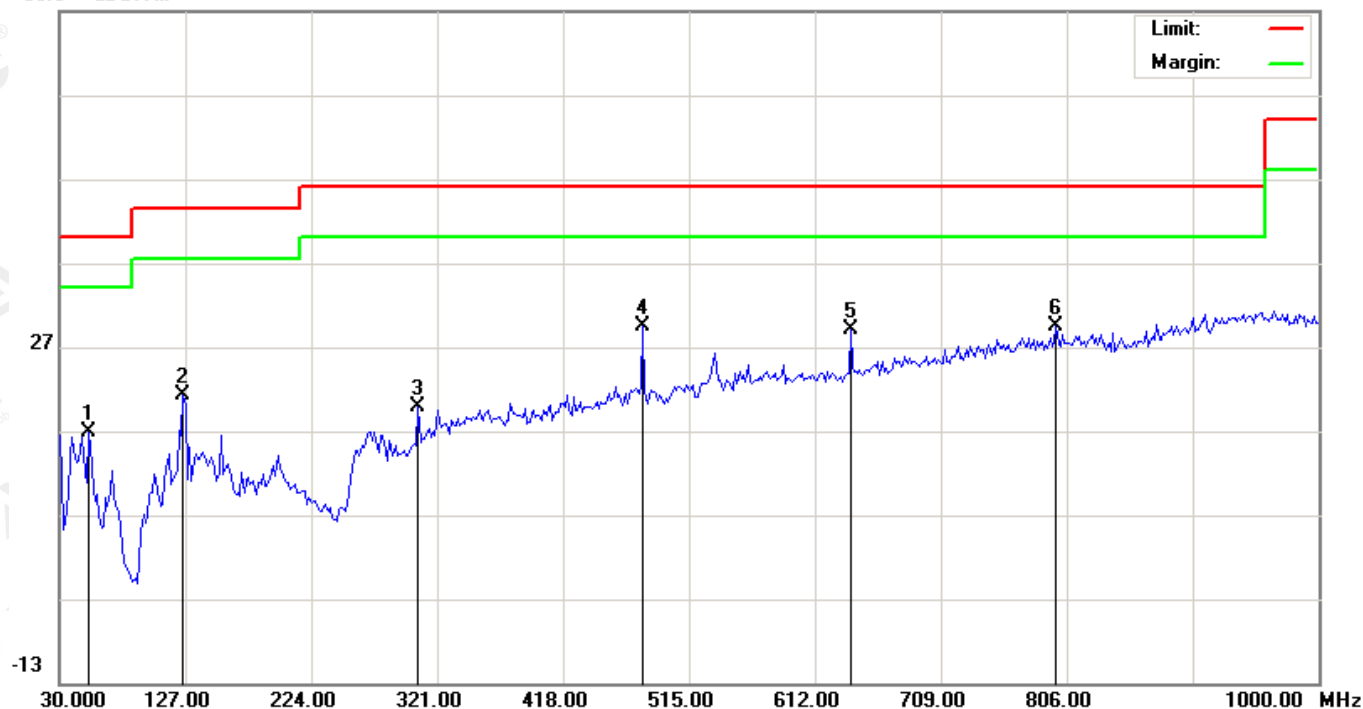
No emission found between lowest internal used/generated frequencies to 30MHz.

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# RADIATED EMISSION BELOW 1GHZ

|             |                                     |                   |                |
|-------------|-------------------------------------|-------------------|----------------|
| EUT         | WIFI smart socket                   | Model Name        | S12            |
| Temperature | 25°C                                | Relative Humidity | 55.4%          |
| Pressure    | 960hPa                              | Test Voltage      | Normal Voltage |
| Test Mode   | 802.11b with data rate 1<br>2412MHZ | Antenna           | Horizontal     |

66.9 dBuV/m



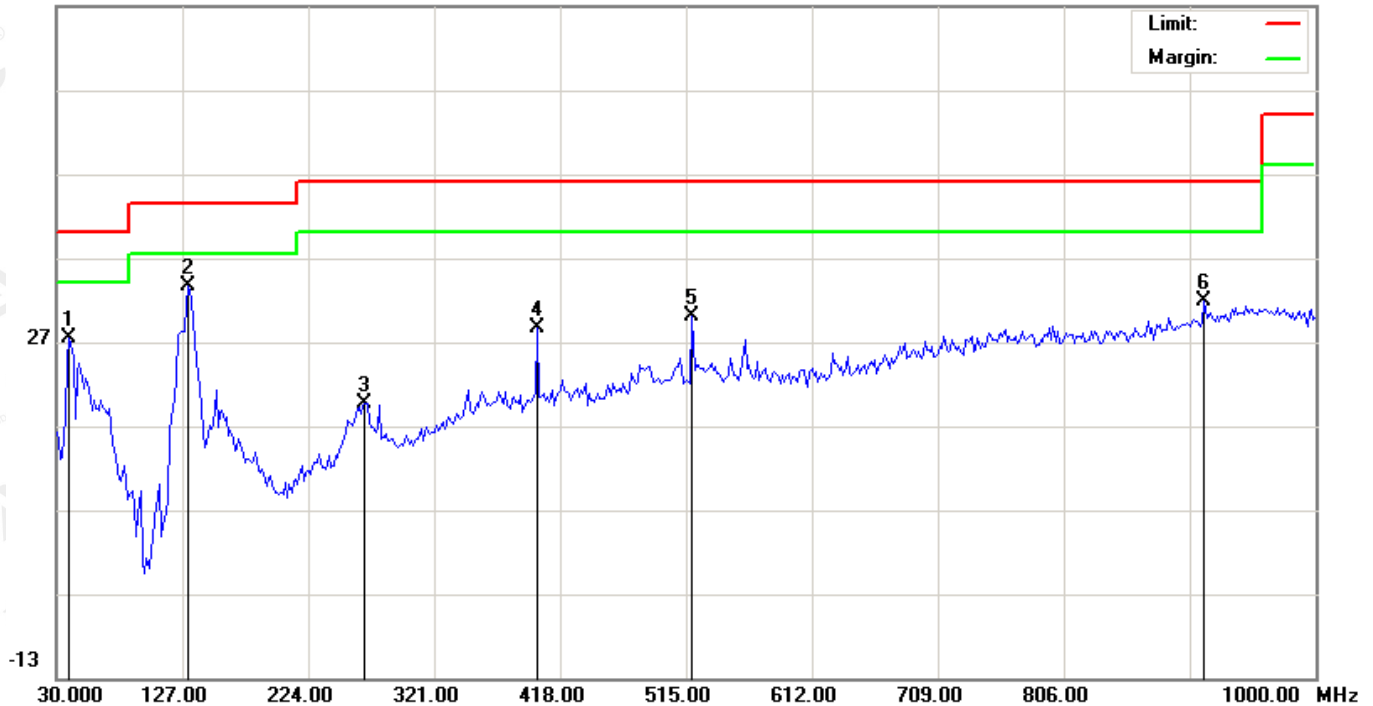
| No. | Mk | Freq.<br>MHz | Reading<br>dBuV | Factor<br>dB/m | Measurement<br>dBuV/m | Limit<br>dBuV/m | Over<br>dB | Detector | Antenna<br>Height<br>cm | Table<br>Degree<br>degree | Comment |
|-----|----|--------------|-----------------|----------------|-----------------------|-----------------|------------|----------|-------------------------|---------------------------|---------|
| 1   |    | 52.6333      | 8.37            | 8.41           | 16.78                 | 40.00           | -23.22     | peak     |                         |                           |         |
| 2   |    | 125.3833     | 12.84           | 8.37           | 21.21                 | 43.50           | -22.29     | peak     |                         |                           |         |
| 3   |    | 306.4500     | 3.91            | 15.84          | 19.75                 | 46.00           | -26.25     | peak     |                         |                           |         |
| 4   | *  | 479.4333     | 8.55            | 20.91          | 29.46                 | 46.00           | -16.54     | peak     |                         |                           |         |
| 5   |    | 639.4833     | 5.13            | 23.82          | 28.95                 | 46.00           | -17.05     | peak     |                         |                           |         |
| 6   |    | 797.9167     | 2.03            | 27.29          | 29.32                 | 46.00           | -16.68     | peak     |                         |                           |         |

**RESULT: PASS**

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|             |                                     |                   |                |
|-------------|-------------------------------------|-------------------|----------------|
| EUT         | WIFI smart socket                   | Model Name        | S12            |
| Temperature | 25°C                                | Relative Humidity | 55.4%          |
| Pressure    | 960hPa                              | Test Voltage      | Normal Voltage |
| Test Mode   | 802.11b with data rate 1<br>2412MHZ | Antenna           | Vertical       |

66.9 dBuV/m



| No. | Mk | Freq.<br>MHz | Reading<br>dBuV | Factor<br>dB/m | Measurement<br>dBuV/m | Limit<br>dBuV/m | Over<br>dB | Detector | Antenna<br>Height<br>cm | Table<br>Degree<br>degree | Comment |
|-----|----|--------------|-----------------|----------------|-----------------------|-----------------|------------|----------|-------------------------|---------------------------|---------|
| 1   |    | 39.7000      | 18.89           | 8.51           | 27.40                 | 40.00           | -12.60     | peak     |                         |                           |         |
| 2   | *  | 131.8500     | 21.86           | 11.80          | 33.66                 | 43.50           | -9.84      | peak     |                         |                           |         |
| 3   |    | 267.6500     | 5.16            | 14.43          | 19.59                 | 46.00           | -26.41     | peak     |                         |                           |         |
| 4   |    | 400.2167     | 9.58            | 19.08          | 28.66                 | 46.00           | -17.34     | peak     |                         |                           |         |
| 5   |    | 519.8500     | 8.28            | 21.67          | 29.95                 | 46.00           | -16.05     | peak     |                         |                           |         |
| 6   |    | 914.3167     | 2.71            | 29.01          | 31.72                 | 46.00           | -14.28     | peak     |                         |                           |         |

## RESULT: PASS

### Note:

- Factor=Antenna Factor + Cable loss, Margin=Measurement-Limit.
- The "Factor" value can be calculated automatically by software of measurement system.
- All test modes had been pre-tested. The 802.11b at low channel is the worst case and recorded in the report.

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**RADIATED EMISSION ABOVE 1GHZ**

|                    |                                     |                          |                |
|--------------------|-------------------------------------|--------------------------|----------------|
| <b>EUT</b>         | WIFI smart socket                   | <b>Model Name</b>        | S12            |
| <b>Temperature</b> | 25°C                                | <b>Relative Humidity</b> | 55.4%          |
| <b>Pressure</b>    | 960hPa                              | <b>Test Voltage</b>      | Normal Voltage |
| <b>Test Mode</b>   | 802.11b with data rate 1<br>2412MHZ | <b>Antenna</b>           | Horizontal     |

| Frequency<br>(MHz) | Meter Reading<br>(dBμV) | Factor<br>(dB) | Emission Level<br>(dBμV/m) | Limits<br>(dBμV/m) | Margin<br>(dB) | Value Type |
|--------------------|-------------------------|----------------|----------------------------|--------------------|----------------|------------|
| 4824.063           | 48.66                   | 3.72           | 52.38                      | 74                 | -21.62         | peak       |
| 4824.076           | 42.24                   | 3.72           | 45.96                      | 54                 | -8.04          | AVG        |
| 7236.115           | 43.81                   | 8.15           | 51.96                      | 74                 | -22.04         | peak       |
| 7236.098           | 38.73                   | 8.15           | 46.88                      | 54                 | -7.12          | AVG        |

Remark:

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

|                    |                                     |                          |                |
|--------------------|-------------------------------------|--------------------------|----------------|
| <b>EUT</b>         | WIFI smart socket                   | <b>Model Name</b>        | S12            |
| <b>Temperature</b> | 25°C                                | <b>Relative Humidity</b> | 55.4%          |
| <b>Pressure</b>    | 960hPa                              | <b>Test Voltage</b>      | Normal Voltage |
| <b>Test Mode</b>   | 802.11b with data rate 1<br>2412MHZ | <b>Antenna</b>           | Vertical       |

| Frequency<br>(MHz) | Meter Reading<br>(dBμV) | Factor<br>(dB) | Emission Level<br>(dBμV/m) | Limits<br>(dBμV/m) | Margin<br>(dB) | Value Type |
|--------------------|-------------------------|----------------|----------------------------|--------------------|----------------|------------|
| 4824.039           | 47.81                   | 3.72           | 51.53                      | 74                 | -22.47         | peak       |
| 4824.090           | 41.59                   | 3.72           | 45.31                      | 54                 | -8.69          | AVG        |
| 7236.085           | 43.77                   | 8.15           | 51.92                      | 74                 | -22.08         | peak       |
| 7236.112           | 37.63                   | 8.15           | 45.78                      | 54                 | -8.22          | AVG        |

Remark:

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

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|                    |                                     |                          |                |
|--------------------|-------------------------------------|--------------------------|----------------|
| <b>EUT</b>         | WIFI smart socket                   | <b>Model Name</b>        | S12            |
| <b>Temperature</b> | 25°C                                | <b>Relative Humidity</b> | 55.4%          |
| <b>Pressure</b>    | 960hPa                              | <b>Test Voltage</b>      | Normal Voltage |
| <b>Test Mode</b>   | 802.11b with data rate 1<br>2437MHZ | <b>Antenna</b>           | Horizontal     |

| Frequency<br>(MHz)                                    | Meter Reading<br>(dBμV) | Factor<br>(dB) | Emission Level<br>(dBμV/m) | Limits<br>(dBμV/m) | Margin<br>(dB) | Value Type |
|-------------------------------------------------------|-------------------------|----------------|----------------------------|--------------------|----------------|------------|
| 4874.032                                              | 49.62                   | 3.75           | 53.37                      | 74                 | -20.63         | peak       |
| 4874.116                                              | 45.47                   | 3.75           | 49.22                      | 54                 | -4.78          | AVG        |
| 7311.035                                              | 43.83                   | 8.16           | 51.99                      | 74                 | -22.01         | peak       |
| 7311.040                                              | 38.79                   | 8.16           | 46.95                      | 54                 | -7.05          | AVG        |
| Remark:                                               |                         |                |                            |                    |                |            |
| Factor = Antenna Factor + Cable Loss – Pre-amplifier. |                         |                |                            |                    |                |            |

|                    |                                     |                          |                |
|--------------------|-------------------------------------|--------------------------|----------------|
| <b>EUT</b>         | WIFI smart socket                   | <b>Model Name</b>        | S12            |
| <b>Temperature</b> | 25°C                                | <b>Relative Humidity</b> | 55.4%          |
| <b>Pressure</b>    | 960hPa                              | <b>Test Voltage</b>      | Normal Voltage |
| <b>Test Mode</b>   | 802.11b with data rate 1<br>2437MHZ | <b>Antenna</b>           | Vertical       |

| Frequency<br>(MHz)                                    | Meter Reading<br>(dBμV) | Factor<br>(dB) | Emission Level<br>(dBμV/m) | Limits<br>(dBμV/m) | Margin<br>(dB) | Value Type |
|-------------------------------------------------------|-------------------------|----------------|----------------------------|--------------------|----------------|------------|
| 4874.079                                              | 48.47                   | 3.75           | 52.22                      | 74                 | -21.78         | peak       |
| 4874.098                                              | 43.39                   | 3.75           | 47.14                      | 54                 | -6.86          | AVG        |
| 7311.026                                              | 44.57                   | 8.16           | 52.73                      | 74                 | -21.27         | peak       |
| 7311.074                                              | 38.72                   | 8.16           | 46.88                      | 54                 | -7.12          | AVG        |
| Remark:                                               |                         |                |                            |                    |                |            |
| Factor = Antenna Factor + Cable Loss – Pre-amplifier. |                         |                |                            |                    |                |            |

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|                    |                                     |                          |                |
|--------------------|-------------------------------------|--------------------------|----------------|
| <b>EUT</b>         | WIFI smart socket                   | <b>Model Name</b>        | S12            |
| <b>Temperature</b> | 25°C                                | <b>Relative Humidity</b> | 55.4%          |
| <b>Pressure</b>    | 960hPa                              | <b>Test Voltage</b>      | Normal Voltage |
| <b>Test Mode</b>   | 802.11b with data rate 1<br>2462MHZ | <b>Antenna</b>           | Horizontal     |

| Frequency<br>(MHz)                                    | Meter Reading<br>(dBμV) | Factor<br>(dB) | Emission Level<br>(dBμV/m) | Limits<br>(dBμV/m) | Margin<br>(dB) | Value Type |
|-------------------------------------------------------|-------------------------|----------------|----------------------------|--------------------|----------------|------------|
| 4924.076                                              | 49.58                   | 3.81           | 53.39                      | 74                 | -20.61         | peak       |
| 4924.053                                              | 45.86                   | 3.81           | 49.67                      | 54                 | -4.33          | AVG        |
| 7386.057                                              | 44.95                   | 8.19           | 53.14                      | 74                 | -20.86         | peak       |
| 7386.060                                              | 38.63                   | 8.19           | 46.82                      | 54                 | -7.18          | AVG        |
| Remark:                                               |                         |                |                            |                    |                |            |
| Factor = Antenna Factor + Cable Loss – Pre-amplifier. |                         |                |                            |                    |                |            |

|                    |                                     |                          |                |
|--------------------|-------------------------------------|--------------------------|----------------|
| <b>EUT</b>         | WIFI smart socket                   | <b>Model Name</b>        | S12            |
| <b>Temperature</b> | 25°C                                | <b>Relative Humidity</b> | 55.4%          |
| <b>Pressure</b>    | 960hPa                              | <b>Test Voltage</b>      | Normal Voltage |
| <b>Test Mode</b>   | 802.11b with data rate 1<br>2462MHZ | <b>Antenna</b>           | Vertical       |

| Frequency<br>(MHz)                                    | Meter Reading<br>(dBμV) | Factor<br>(dB) | Emission Level<br>(dBμV/m) | Limits<br>(dBμV/m) | Margin<br>(dB) | Value Type |
|-------------------------------------------------------|-------------------------|----------------|----------------------------|--------------------|----------------|------------|
| 4924.032                                              | 48.57                   | 3.81           | 52.38                      | 74                 | -21.62         | peak       |
| 4924.035                                              | 42.26                   | 3.81           | 46.07                      | 54                 | -7.93          | AVG        |
| 7386.063                                              | 43.13                   | 8.19           | 51.32                      | 74                 | -22.68         | peak       |
| 7386.056                                              | 38.49                   | 8.19           | 46.68                      | 54                 | -7.32          | AVG        |
| Remark:                                               |                         |                |                            |                    |                |            |
| Factor = Antenna Factor + Cable Loss – Pre-amplifier. |                         |                |                            |                    |                |            |

## RESULT: PASS

### Note:

Other emissions from 1GHz to 25 GHz are considered as ambient noise. No recording in the test report.

Factor = Antenna Factor + Cable loss - Amplifier gain, Over=Measure-Limit.

The "Factor" value can be calculated automatically by software of measurement system.

All test modes had been pre-tested. The 802.11b mode is the worst case and recorded in the report.

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## 8. FCC LINE CONDUCTED EMISSION TEST

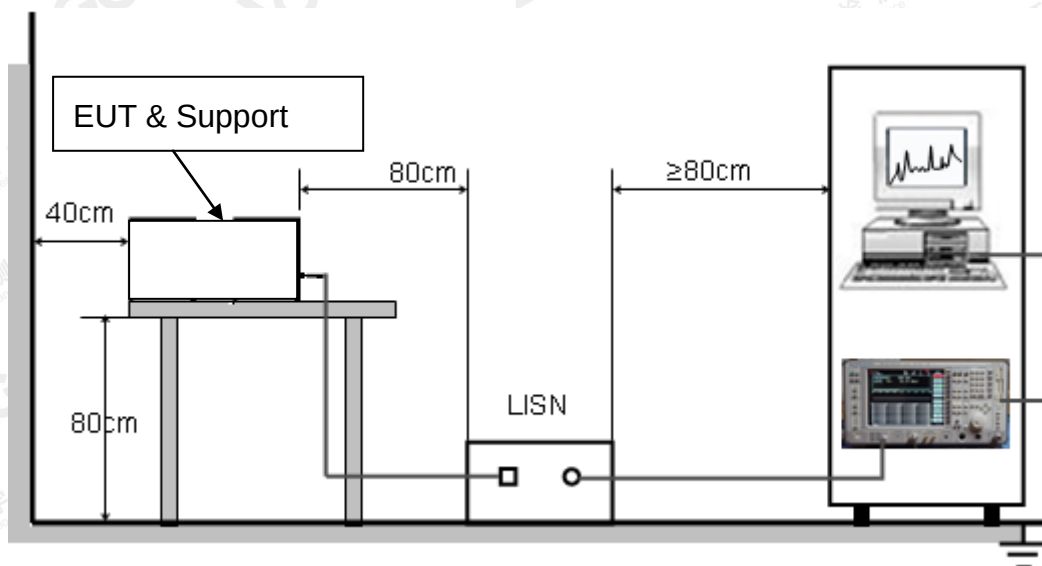
### 8.1. LIMITS OF LINE CONDUCTED EMISSION TEST

| Frequency     | Maximum RF Line Voltage |                |
|---------------|-------------------------|----------------|
|               | Q.P.( dBuV)             | Average( dBuV) |
| 150kHz~500kHz | 66-56                   | 56-46          |
| 500kHz~5MHz   | 56                      | 46             |
| 5MHz~30MHz    | 60                      | 50             |

Note:

1. The lower limit shall apply at the transition frequency.
2. The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.50 MHz.

### 8.2. BLOCK DIAGRAM OF LINE CONDUCTED EMISSION TEST



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### 8.3. PRELIMINARY PROCEDURE OF LINE CONDUCTED EMISSION TEST

1. The equipment was set up as per the test configuration to simulate typical actual usage per the user's manual. When the EUT is a tabletop system, a wooden table with a height of 0.8 meters is used and is placed on the ground plane as per ANSI C63.10 (see Test Facility for the dimensions of the ground plane used). When the EUT is a floor-standing equipment, it is placed on the ground plane which has a 3-12 mm non-conductive covering to insulate the EUT from the ground plane.
2. Support equipment, if needed, was placed as per ANSI C63.10.
3. All I/O cables were positioned to simulate typical actual usage as per ANSI C63.10.
4. All support equipments received AC120V/60Hz power from a LISN, if any.
5. The EUT received charging voltage by adapter which received 120V/60Hz power by a LISN..
6. The test program was started. Emissions were measured on each current carrying line of the EUT using a spectrum Analyzer / Receiver connected to the LISN powering the EUT. The LISN has two monitoring points: Line 1 (Hot Side) and Line 2 (Neutral Side). Two scans were taken: one with Line 1 connected to Analyzer / Receiver and Line 2 connected to a 50 ohm load; the second scan had Line 1 connected to a 50 ohm load and Line 2 connected to the Analyzer / Receiver.
7. Analyzer / Receiver scanned from 150 kHz to 30MHz for emissions in each of the test modes.
8. During the above scans, the emissions were maximized by cable manipulation.
9. The test mode(s) were scanned during the preliminary test.

Then, the EUT configuration and cable configuration of the above highest emission level were recorded for reference of final testing.

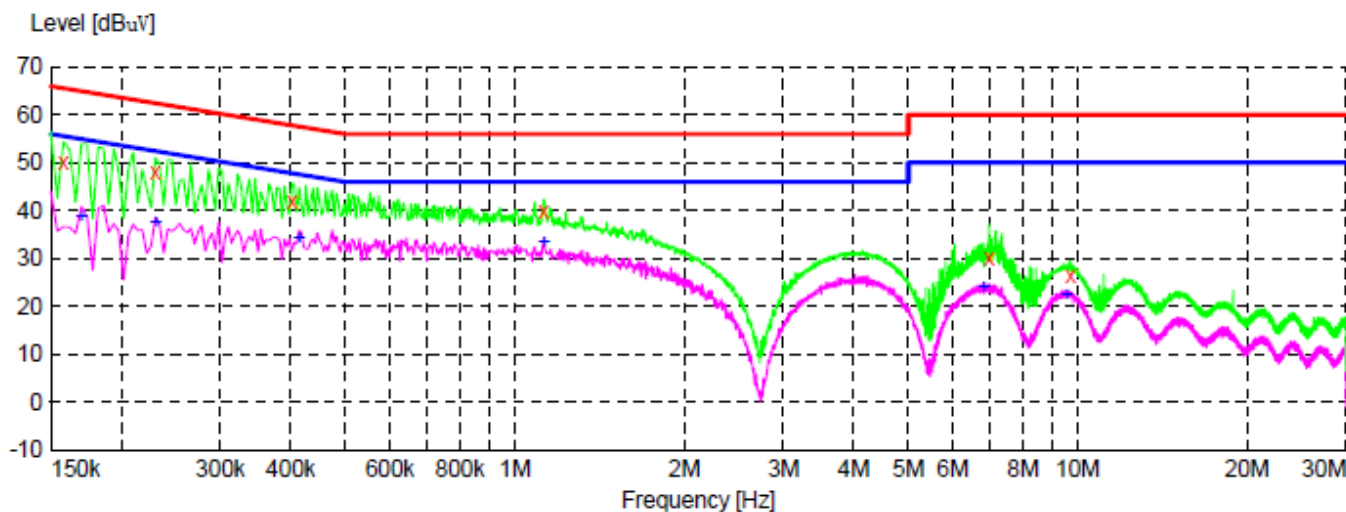
### 8.4. FINAL PROCEDURE OF LINE CONDUCTED EMISSION TEST

1. EUT and support equipment was set up on the test bench as per step 2 of the preliminary test.
2. A scan was taken on both power lines, Line 1 and Line 2, recording at least the six highest emissions. Emission frequency and amplitude were recorded into a computer in which correction factors were used to calculate the emission level and compare reading to the applicable limit. If EUT emission level was less -2dB to the A.V. limit in Peak mode, then the emission signal was re-checked using Q.P and Average detector.
3. The test data of the worst case condition(s) was reported on the Summary Data page.

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## 8.5. TEST RESULT OF LINE CONDUCTED EMISSION TEST

### LINE CONDUCTED EMISSION TEST-L1



#### MEASUREMENT RESULT:

| Frequency<br>MHz | Level<br>dBuV | Transd<br>dB | Limit<br>dBuV | Margin<br>dB | Detector | Line |
|------------------|---------------|--------------|---------------|--------------|----------|------|
| 0.158000         | 50.20         | 10.0         | 66            | 15.4         | QP       | L1   |
| 0.230000         | 48.10         | 10.1         | 62            | 14.3         | QP       | L1   |
| 0.402000         | 41.80         | 10.0         | 58            | 16.0         | QP       | L1   |
| 1.126000         | 39.70         | 10.1         | 56            | 16.3         | QP       | L1   |
| 6.954000         | 30.20         | 9.8          | 60            | 29.8         | QP       | L1   |
| 9.718000         | 26.40         | 10.5         | 60            | 33.6         | QP       | L1   |

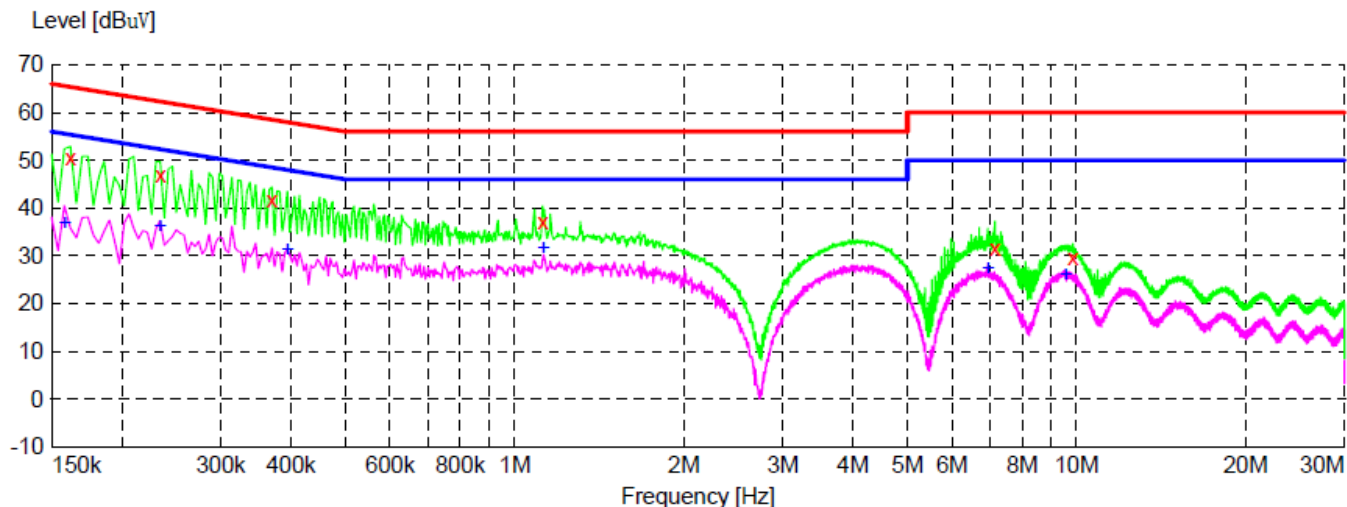
#### MEASUREMENT RESULT:

| Frequency<br>MHz | Level<br>dBuV | Transd<br>dB | Limit<br>dBuV | Margin<br>dB | Detector | Line |
|------------------|---------------|--------------|---------------|--------------|----------|------|
| 0.170000         | 38.70         | 10.0         | 55            | 16.3         | AV       | L1   |
| 0.230000         | 37.40         | 10.1         | 52            | 15.0         | AV       | L1   |
| 0.414000         | 34.20         | 10.0         | 48            | 13.4         | AV       | L1   |
| 1.126000         | 33.30         | 10.1         | 46            | 12.7         | AV       | L1   |
| 6.794000         | 24.10         | 9.8          | 50            | 25.9         | AV       | L1   |
| 9.558000         | 22.50         | 10.4         | 50            | 27.5         | AV       | L1   |

**RESULT: PASS**

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# LINE CONDUCTED EMISSION TEST-N



## MEASUREMENT RESULT:

| Frequency<br>MHz | Level<br>dBuV | Transd<br>dB | Limit<br>dBuV | Margin<br>dB | Detector | Line |
|------------------|---------------|--------------|---------------|--------------|----------|------|
| 0.162000         | 50.60         | 10.0         | 65            | 14.8         | QP       | N    |
| 0.234000         | 47.10         | 10.1         | 62            | 15.2         | QP       | N    |
| 0.370000         | 41.60         | 10.0         | 59            | 16.9         | QP       | N    |
| 1.122000         | 37.20         | 10.1         | 56            | 18.8         | QP       | N    |
| 7.162000         | 31.60         | 9.8          | 60            | 28.4         | QP       | N    |
| 9.858000         | 29.50         | 10.5         | 60            | 30.5         | QP       | N    |

## MEASUREMENT RESULT:

| Frequency<br>MHz | Level<br>dBuV | Transd<br>dB | Limit<br>dBuV | Margin<br>dB | Detector | Line |
|------------------|---------------|--------------|---------------|--------------|----------|------|
| 0.158000         | 36.90         | 10.0         | 56            | 18.7         | AV       | N    |
| 0.234000         | 36.10         | 10.1         | 52            | 16.2         | AV       | N    |
| 0.394000         | 31.30         | 10.0         | 48            | 16.7         | AV       | N    |
| 1.126000         | 31.40         | 10.1         | 46            | 14.6         | AV       | N    |
| 6.954000         | 27.20         | 9.8          | 50            | 22.8         | AV       | N    |
| 9.566000         | 25.90         | 10.4         | 50            | 24.1         | AV       | N    |

**RESULT: PASS**

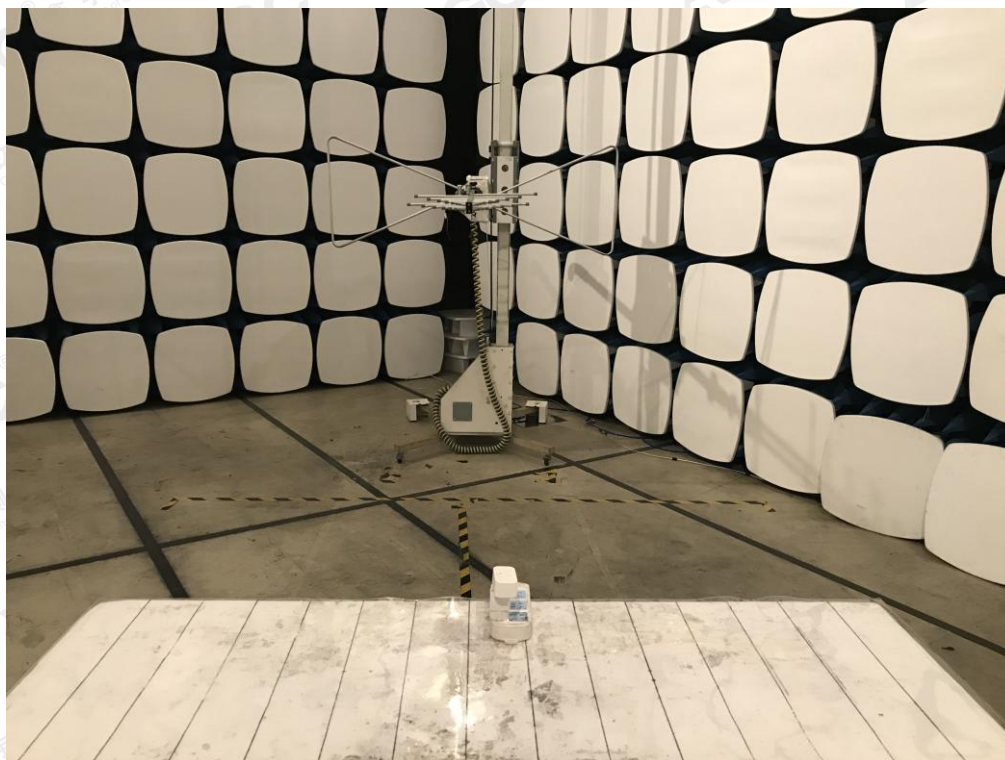
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## APPENDIX A: PHOTOGRAPHS OF TEST SETUP

### FCC LINE CONDUCTED EMISSION TEST SETUP



FCC RADIATED EMISSION TEST SETUP



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FCC RADIATED EMISSION-ABOVE 1G TEST SETUP



----END OF REPORT---

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