



# FCC Test Report

**Client Name** : SHENZHEN AILSEE TECHNICAL.,LTD

**Client Address** : Building B, Zone A, Huafeng First Technology  
Park, Hangcheng Street, Bao 'an District, Shenzhen

**Product Name** : Smart Floodlight Camera

**Report Date** : 09. 12, 2023

**Shenzhen Tian Hai Test Technology Co., Ltd.**



## Contents

|                                                              |    |
|--------------------------------------------------------------|----|
| 1. General Information .....                                 | 6  |
| 1.1. Client Information .....                                | 6  |
| 1.2. Description of Device (EUT) .....                       | 6  |
| 1.3. Auxiliary Equipment Used During Test .....              | 7  |
| 1.4. Description of Test Configuration .....                 | 7  |
| 1.5. Test Equipment List .....                               | 8  |
| 1.6. Measurement Uncertainty .....                           | 9  |
| 1.7. Description of Test Facility .....                      | 9  |
| 2. Summary of Test Results .....                             | 10 |
| 3. Conducted Emission Test .....                             | 11 |
| 3.1. Test Standard and Limit .....                           | 11 |
| 3.2. Test Setup .....                                        | 11 |
| 3.3. Test Procedure .....                                    | 11 |
| 3.4. Test Data .....                                         | 11 |
| 4. Radiation Spurious Emission and Band Edge .....           | 14 |
| 4.1. Test Standard and Limit .....                           | 14 |
| 4.2. Test Setup .....                                        | 14 |
| 4.3. Test Procedure .....                                    | 15 |
| 4.4. Test Data .....                                         | 16 |
| 5. Maximum Peak Output Power Test .....                      | 23 |
| 5.1. Test Standard and Limit .....                           | 23 |
| 5.2. Test Setup .....                                        | 23 |
| 5.3. Test Procedure .....                                    | 23 |
| 5.4. Test Data .....                                         | 23 |
| 6. 6DB Occupy Bandwidth Test .....                           | 24 |
| 6.1. Test Standard and Limit .....                           | 24 |
| 6.2. Test Setup .....                                        | 24 |
| 6.3. Test Procedure .....                                    | 24 |
| 6.4. Test Data .....                                         | 24 |
| 7. Power Spectral Density Test .....                         | 25 |
| 7.1. Test Standard and Limit .....                           | 25 |
| 7.2. Test Setup .....                                        | 25 |
| 7.3. Test Procedure .....                                    | 25 |
| 7.4. Test Data .....                                         | 25 |
| 8. 100kHz Bandwidth of Frequency Band Edge Requirement ..... | 26 |
| 8.1. Test Standard and Limit .....                           | 26 |
| 8.2. Test Setup .....                                        | 26 |
| 8.3. Test Procedure .....                                    | 26 |
| 8.4. Test Data .....                                         | 26 |
| 9. Antenna Requirement .....                                 | 27 |



|                                          |    |
|------------------------------------------|----|
| 9.1. Test Standard and Requirement.....  | 27 |
| 9.2. Antenna Connected Construction..... | 27 |
| APPENDIX I -- TEST SETUP PHOTOGRAPH..... | 28 |
| APPENDIX II -- EXTERNAL PHOTOGRAPH.....  | 28 |
| APPENDIX III -- INTERNAL PHOTOGRAPH..... | 28 |
| APPENDIX IV -- Test Data.....            | 28 |



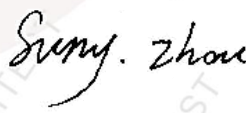


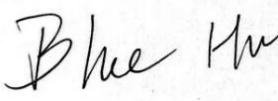
## TEST REPORT

Applicant : SHENZHEN AILSEE TECHNICAL.,LTD  
Manufacturer : Building B, Zone A, Huafeng First Technology Park, Hangcheng Street, Bao 'an District, Shenzhen  
Product Name : Smart Floodlight Camera  
Model No. : R11-30E, RXX-20R/X/C/E, RXX-30G/R/C/E, RXX-40G/R/C/E, RXX-60R/G/C/E (XX represents 1-20)  
Trade Mark : AILSEE  
Rating(s) : Input: AC 100-240V  
Output: DC 5V/2A  
Test Standard(s) : FCC Part15 Subpart C, Section 15.247  
Test Method(s) : ANSI C63.10: 2020, KDB 558074 D01 15.247 Meas Guidance v05r02

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 : 09. 05, 2023  
Date of Test : 09. 05 ~09. 11, 2023  
Tested by :   
(Suny Zhuo)

Reviewed by :   
(Blue Hu)

Approved & Authorized Signer :   
(Binglee)



### Revision History

| Report Version | Description     | Issued Date  |
|----------------|-----------------|--------------|
| R00            | Original Issue. | 08. 10, 2022 |
|                |                 |              |
|                |                 |              |



## 1. General Information

### 1.1. Client Information

|              |   |                                                                                                |
|--------------|---|------------------------------------------------------------------------------------------------|
| Applicant    | : | SHENZHEN AILSEE TECHNICAL., LTD                                                                |
| Address      | : | Building B, Zone A, Huafeng First Technology Park, Hangcheng Street, Bao'an District, Shenzhen |
| Manufacturer | : | SHENZHEN AILSEE TECHNICAL., LTD                                                                |
| Address      | : | Building B, Zone A, Huafeng First Technology Park, Hangcheng Street, Bao'an District, Shenzhen |
| Factory      | : | SHENZHEN AILSEE TECHNICAL., LTD                                                                |
| Address      | : | Building B, Zone A, Huafeng First Technology Park, Hangcheng Street, Bao'an District, Shenzhen |

### 1.2. Description of Device (EUT)

|                                                                                                                                                                                                                                                                                                      |   |                                                                                                                                                                                                                                       |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Product Name                                                                                                                                                                                                                                                                                         | : | Smart Floodlight Camera                                                                                                                                                                                                               |
| Model No.                                                                                                                                                                                                                                                                                            | : | R11-30E, RXX-20R/X/C/E, RXX-30G/R/C/E, RXX-40G/R/C/E, RXX-60R/G/C/E (XX represents 1-20)<br>(Note: Only the appearance size and pixel resolution are different, and all sample circuit principles and PCB versions are the same.)     |
| Trade Mark                                                                                                                                                                                                                                                                                           | : | AILSEE                                                                                                                                                                                                                                |
| Test Power Supply                                                                                                                                                                                                                                                                                    | : | Input: AC 100-240V<br>Output: DC 5V/2A                                                                                                                                                                                                |
| Test Sample No.                                                                                                                                                                                                                                                                                      | : | 1-2-1(Normal Sample), 1-2-2(Engineering Sample)                                                                                                                                                                                       |
| Operation Mode                                                                                                                                                                                                                                                                                       | : | <input checked="" type="checkbox"/> 802.11b <input checked="" type="checkbox"/> 802.11g <input checked="" type="checkbox"/> 802.11n(HT20) <input checked="" type="checkbox"/> 802.11n(HT40)                                           |
| Operation Frequency                                                                                                                                                                                                                                                                                  | : | 2412~2462MHz                                                                                                                                                                                                                          |
| Number of Channel                                                                                                                                                                                                                                                                                    | : | 11 Channel for 20MHz bandwidth (2412~2462MHz)<br>7 channels for 40MHz bandwidth (2422~2452MHz)                                                                                                                                        |
| Modulation Type                                                                                                                                                                                                                                                                                      | : | <input checked="" type="checkbox"/> 802.11b: DSSS (CCK, DQPSK, DBPSK)<br><input checked="" type="checkbox"/> 802.11g: OFDM (BPSK, QPSK, 16QAM, 64QAM)<br><input checked="" type="checkbox"/> 802.11n: OFDM (BPSK, QPSK, 16QAM, 64QAM) |
| Antenna Type                                                                                                                                                                                                                                                                                         | : | FPC antenna                                                                                                                                                                                                                           |
| Antenna Gain(Peak)                                                                                                                                                                                                                                                                                   | : | 2.72 dBi (Provided by customer)                                                                                                                                                                                                       |
| <b>Remark:</b> 1) For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual.<br>2) The power supply voltage shall be determined by the customer and communicated with the seller to confirm that it can be used normally in the United States |   |                                                                                                                                                                                                                                       |



### 1.3. Auxiliary Equipment Used During Test

| Description   | Model       | Manufacturer |
|---------------|-------------|--------------|
| AC/DC Adapter | BY-U1-50200 | /            |

### 1.4. Description of Test Configuration

| Channel | Freq.<br>(MHz) | Channel | Freq.<br>(MHz) | Channel | Freq.<br>(MHz) | Channel | Freq.<br>(MHz) |
|---------|----------------|---------|----------------|---------|----------------|---------|----------------|
| 01      | 2412           | 04      | 2427           | 07      | 2442           | 10      | 2457           |
| 02      | 2417           | 05      | 2432           | 08      | 2447           | 11      | 2462           |
| 03      | 2422           | 06      | 2437           | 09      | 2452           |         |                |

Note:

1. The engineering test program was provided and the EUT was programmed to be in continuously transmitting mode.
2. For 802.11b, 802.11g, and 802.11n(HT20) modes were test with channel 1, 6, 11.  
For 802.11n(HT40) modes were test with channel 3, 6, 9.



### 1.5. Test Equipment List

| Conducted Emission                     |                       |                      |                  |                 |
|----------------------------------------|-----------------------|----------------------|------------------|-----------------|
| Kind of Equipment                      | Manufacturer          | Type                 | S/N              | Calibrate until |
| EMI Test Receiver                      | R&S                   | ESR7                 | 102333           | 2023-11-13      |
| L.I.S.N                                | Schwarzbeck           | NNLK 8128            | 5089             | 2023-11-13      |
| 8-Wire ISN CAT6                        | Schwarzbeck           | NTFM 8158            | 231              | 2023-11-13      |
| Pulse Limiter                          | Schwarzbeck           | VTSD 9561-F          | 847              | 2023-11-13      |
| Test software                          | FALA                  | /                    | EMC-CON<br>3A1.1 | /               |
| Radiated Emission (3m)                 |                       |                      |                  |                 |
| EMI Test Receiver                      | R&S                   | ESR7                 | 102333           | 2023-11-13      |
| MXA Signal Analyzer                    | Keysight              | N9020A               | MY51281805       | 2024-04-20      |
| Bilog Antenna                          | Schwarzbeck           | VULB 9168            | 01148            | 2023-11-20      |
| Pre-Amplifier                          | Schwarzbeck           | BBV 9718 B           | 00109            | 2023-11-13      |
| Pre-Amplifier                          | Schwarzbeck           | BBV 9743 B           | 00253            | 2023-11-13      |
| Pre-Amplifier                          | GUANGGU<br>ELECTRONIC | GLNA18-40GK-5<br>372 | 20210331001      | 2023-11-13      |
| Active Loop Antenna                    | Schwarzbeck           | FMZB 1519 B          | 00148            | 2023-11-13      |
| Horn Antenna                           | Schwarzbeck           | BBHA 9120            | 02379            | 2023-11-20      |
| Horn Antenna                           | A-INFO                | LB-180400-KF         | J258792          | 2023-11-20      |
| Test software                          | FALA                  | /                    | FA-03A2 RE       | /               |
| RF Test System                         |                       |                      |                  |                 |
| Wideband radio<br>communication tester | R&S                   | CMW500               | 131134           | 2023-11-13      |
| EXA Signal Analyzer                    | Keysight              | N9010A               | MY54488841       | 2024-04-20      |
| MXG Vector Signal<br>Generator         | Agilent               | N5182B               | MY59100603       | 2024-04-20      |
| Signal Generator                       | R&S                   | SMB100A              | 113650           | 2024-04-20      |
| RF control unit                        | Tonscend              | JS0806-2             | 21C8060397       | /               |
| DC Power supply                        | Agilent               | E3632A               | MY50120052       | /               |
| RF test system                         | Tonscend              | /                    | V2.6.88.0346     | /               |



## 1.6. Measurement Uncertainty

|                        |   |             |
|------------------------|---|-------------|
| Radiation Uncertainty  | : | Ur = 6.3 dB |
| Conduction Uncertainty | : | Uc = 3.8 dB |

- (1) Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the apparatus.
- (2) The reported expanded uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor of  $k=2$ , which for a normal distribution corresponds to a coverage probability of approximately 95%.
- (3) The measurement uncertainty is not included in the test result.

## 1.7. Description of Test Facility

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

### FCC-Registration No.: 6827.01

Shenzhen Tian Hai Test Technology Co., Ltd, 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. 6827.01

### Test Location

Shenzhen Tian Hai Test Technology Co., Ltd.

125-126, No.66, Zhangge Road, Zhangge Community, Fucheng Street, Longhua District, Shenzhen, Guangdong, China



## 2. Summary of Test Results

| Standard Section                                            | Test Item                   | Result |
|-------------------------------------------------------------|-----------------------------|--------|
| 15.203/15.247(c)                                            | Antenna Requirement         | PASS   |
| 15.207                                                      | Conducted Emission          | PASS   |
| 15.205/15.209                                               | Spurious Emission           | PASS   |
| 15.247(b)(3)                                                | Conducted Peak Output Power | PASS   |
| 15.247(a)(2)                                                | 6dB Occupied Bandwidth      | PASS   |
| 15.247(e)                                                   | Power Spectral Density      | PASS   |
| 15.247(d)                                                   | Band Edge                   | PASS   |
| <b>Remark:</b> "N/A" is an abbreviation for Not Applicable. |                             |        |

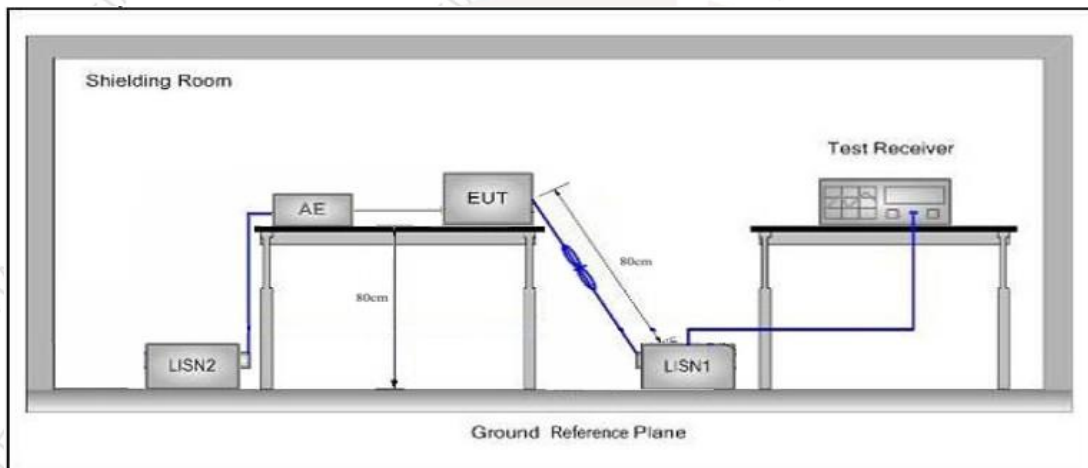


### 3. Conducted Emission Test

#### 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            |
| <b>Remark:</b> (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

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

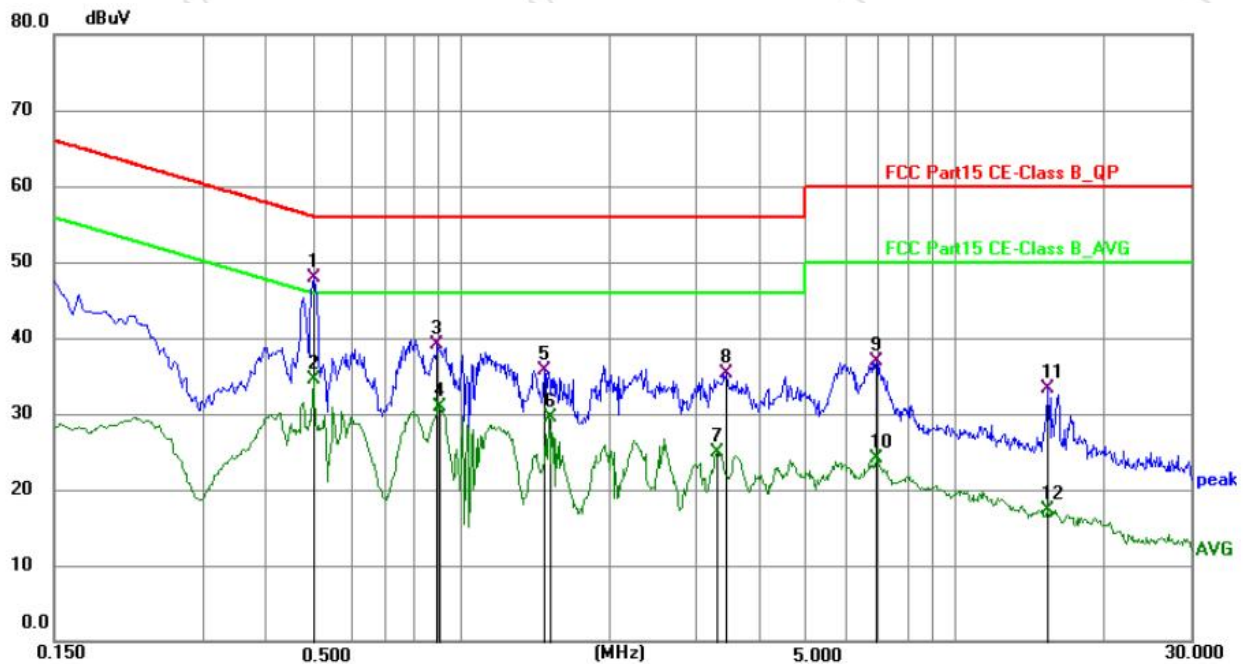
AC conducted emission pre-test at both at AC 120V/60Hz and AC 240V/60Hz modes, recorded worst case AC 120V/60Hz.

Please to see the following pages.



### Conducted Emission Test Data

Test Site: 1# Shielded Room  
Operating Condition: 802.11n (HT20) 2412MHz  
Test Specification: AC 120V/60Hz  
Comment: Live Line  
Temp.(°C)/Hum.(%RH): 22.1°C/52%RH  
Model No: R11-30E



| No. | Frequency (MHz) | Reading (dBuV) | Factor (dB) | Level (dBuV) | Limit (dBuV) | Margin (dB) | Detector | P/F |
|-----|-----------------|----------------|-------------|--------------|--------------|-------------|----------|-----|
| 1 * | 0.5010          | 37.26          | 10.62       | 47.88        | 56.00        | -8.12       | QP       | P   |
| 2   | 0.5010          | 23.81          | 10.62       | 34.43        | 46.00        | -11.57      | AVG      | P   |
| 3   | 0.8970          | 28.39          | 10.65       | 39.04        | 56.00        | -16.96      | QP       | P   |
| 4   | 0.9013          | 20.29          | 10.65       | 30.94        | 46.00        | -15.06      | AVG      | P   |
| 5   | 1.4775          | 25.13          | 10.66       | 35.79        | 56.00        | -20.21      | QP       | P   |
| 6   | 1.5088          | 18.80          | 10.68       | 29.48        | 46.00        | -16.52      | AVG      | P   |
| 7   | 3.3090          | 14.26          | 10.70       | 24.96        | 46.00        | -21.04      | AVG      | P   |
| 8   | 3.4394          | 24.69          | 10.70       | 35.39        | 56.00        | -20.61      | QP       | P   |
| 9   | 6.9260          | 26.14          | 10.73       | 36.87        | 60.00        | -23.13      | QP       | P   |
| 10  | 6.9260          | 13.40          | 10.73       | 24.13        | 50.00        | -25.87      | AVG      | P   |
| 11  | 15.4540         | 22.39          | 10.86       | 33.25        | 60.00        | -26.75      | QP       | P   |
| 12  | 15.4540         | 6.46           | 10.86       | 17.32        | 50.00        | -32.68      | AVG      | P   |

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

Report No.: TH2309047-C02-R01

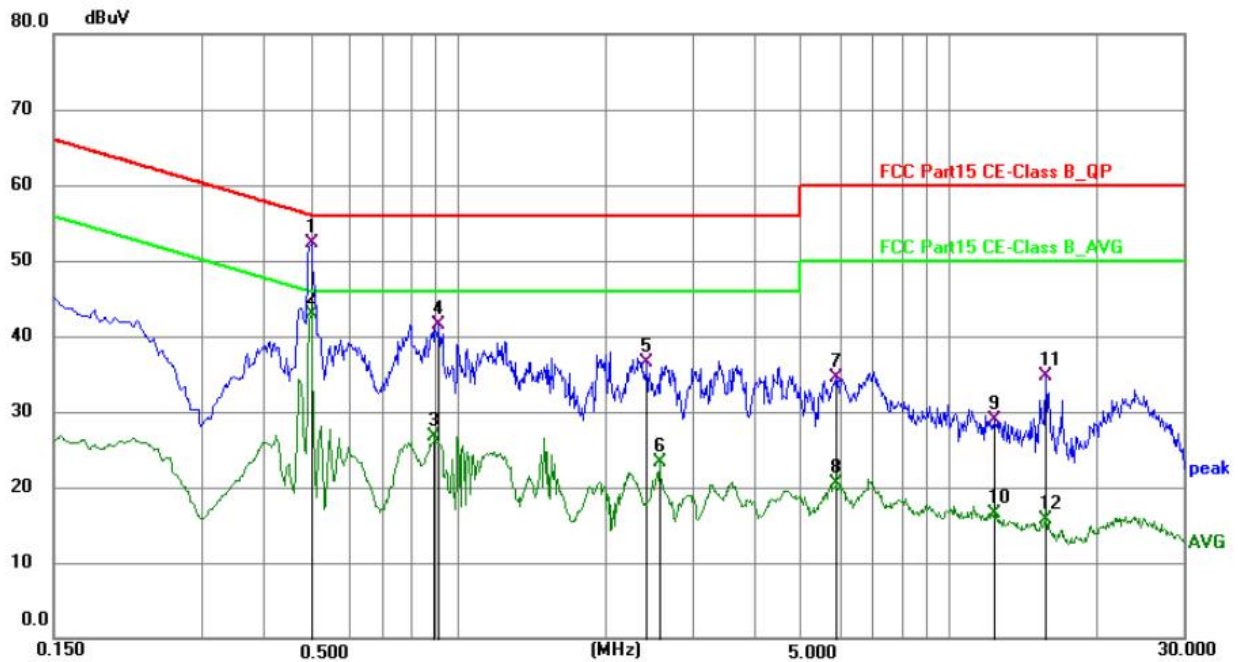
FCC ID: 2BCTB-R11-30E

Page 12 of 28



## Conducted Emission Test Data

Test Site: 1# Shielded Room  
Operating Condition: 802.11n (HT20) 2412MHz  
Test Specification: AC 120V/60Hz  
Comment: Neutral Line  
Temp.(°C)/Hum.(%RH): 22.1°C/52%RH  
Model No: R11-30E



| No. | Frequency (MHz) | Reading (dBuV) | Factor (dB) | Level (dBuV) | Limit (dBuV) | Margin (dB) | Detector | P/F |
|-----|-----------------|----------------|-------------|--------------|--------------|-------------|----------|-----|
| 1   | 0.5010          | 41.67          | 10.62       | 52.29        | 56.00        | -3.71       | QP       | P   |
| 2 * | 0.5010          | 32.22          | 10.62       | 42.84        | 46.00        | -3.16       | AVG      | P   |
| 3   | 0.8970          | 16.01          | 10.65       | 26.66        | 46.00        | -19.34      | AVG      | P   |
| 4   | 0.9150          | 30.92          | 10.65       | 41.57        | 56.00        | -14.43      | QP       | P   |
| 5   | 2.4315          | 25.90          | 10.69       | 36.59        | 56.00        | -19.41      | QP       | P   |
| 6   | 2.5710          | 12.60          | 10.69       | 23.29        | 46.00        | -22.71      | AVG      | P   |
| 7   | 5.8818          | 23.77          | 10.72       | 34.49        | 60.00        | -25.51      | QP       | P   |
| 8   | 5.9134          | 9.81           | 10.72       | 20.53        | 50.00        | -29.47      | AVG      | P   |
| 9   | 12.3445         | 17.98          | 10.86       | 28.84        | 60.00        | -31.16      | QP       | P   |
| 10  | 12.3445         | 5.66           | 10.86       | 16.52        | 50.00        | -33.48      | AVG      | P   |
| 11  | 15.7553         | 23.81          | 10.87       | 34.68        | 60.00        | -25.32      | QP       | P   |
| 12  | 15.7553         | 4.86           | 10.87       | 15.73        | 50.00        | -34.27      | AVG      | P   |

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



## 4. Radiation Spurious Emission and Band Edge

### 4.1. Test Standard and Limit

| Test Standard | FCC Part15 C Section 15.209 and 15.205 |                                  |                |            |                          |
|---------------|----------------------------------------|----------------------------------|----------------|------------|--------------------------|
| Test Limit    | Frequency (MHz)                        | Field strength (microvolt/meter) | Limit (dBuV/m) | Remark     | Measurement distance (m) |
|               | 0.009MHz~0.490MHz                      | 2400/F(kHz)                      | -              | -          | 300                      |
|               | 0.490MHz~1.705MHz                      | 24000/F(kHz)                     | -              | -          | 30                       |
|               | 1.705MHz~30MHz                         | 30                               | -              | -          | 30                       |
|               | 30MHz~88MHz                            | 100                              | 40.0           | Quasi-peak | 3                        |
|               | 88MHz~216MHz                           | 150                              | 43.5           | Quasi-peak | 3                        |
|               | 216MHz~960MHz                          | 200                              | 46.0           | Quasi-peak | 3                        |
|               | 960MHz~1000MHz                         | 500                              | 54.0           | Quasi-peak | 3                        |
|               | Above 1000MHz                          | 500                              | 54.0           | Average    | 3                        |
|               |                                        | -                                | 74.0           | Peak       | 3                        |

#### Remark:

(1)The lower limit shall apply at the transition frequency.

(2) 15.35(b), Unless otherwise specified, the limit on peak radio frequency emissions is 20dB above the maximum permitted average emission limit applicable to the equipment under test. This peak limit applies to the total peak emission level radiated by the device.

### 4.2. Test Setup

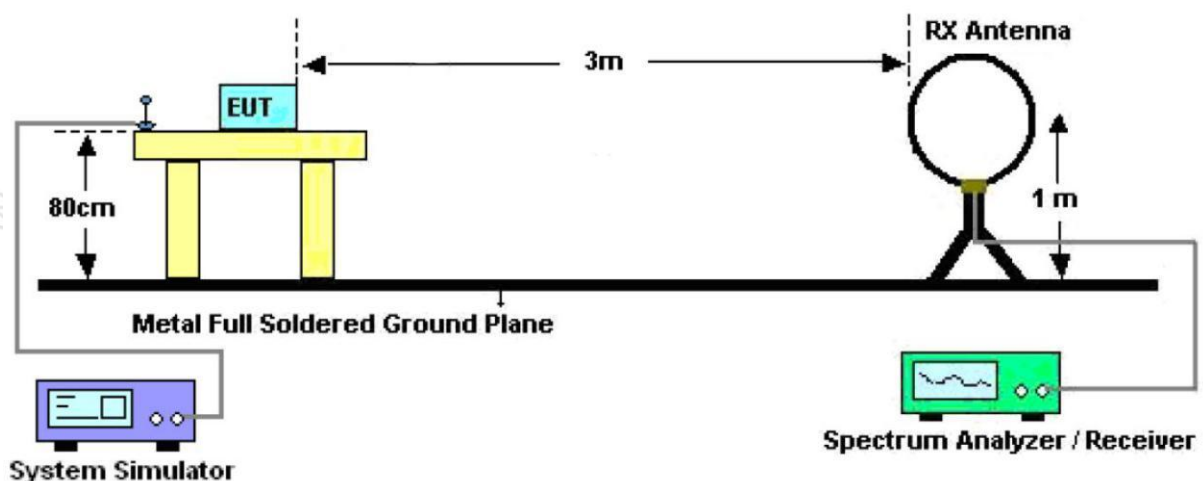


Figure 1. Below 30MHz

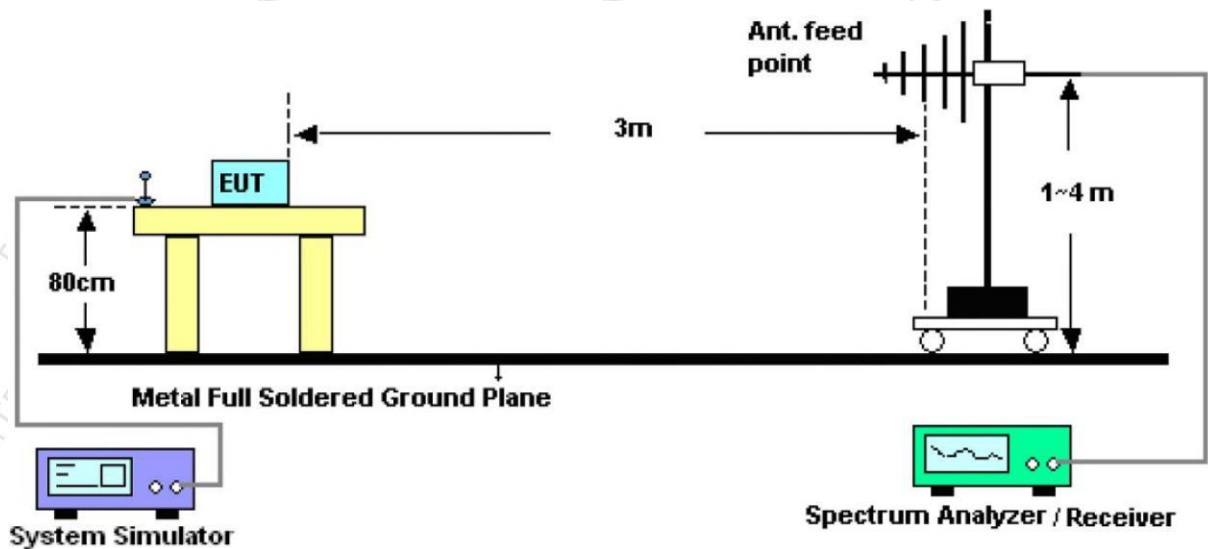


Figure 2. 30MHz to 1GHz

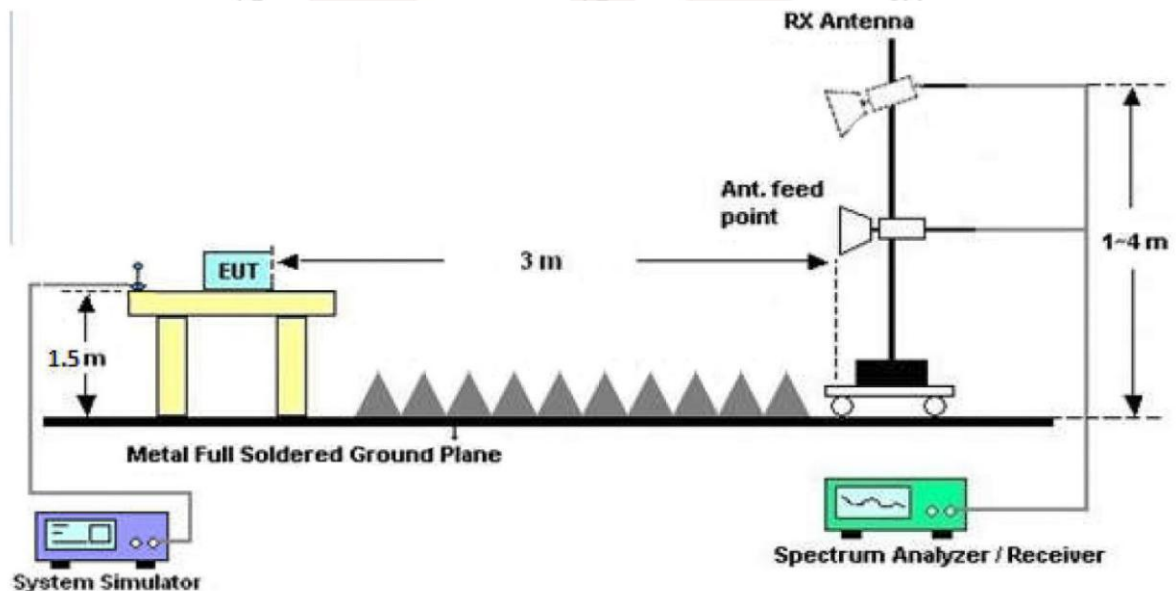


Figure 3. Above 1 GHz

### 4.3. Test Procedure

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

For above 1GHz: The EUT is placed on a turntable, which is 1.5m above the ground plane.

The turn table can rotate 360 degrees to determine the position of the maximum emission level. The EUT is set 3 meters away from the receiving antenna which is mounted on a antenna tower. The antenna can be moved up and down from 1 to 4 meters to find out the maximum emission level. Rotated the EUT through three orthogonal axes to determine the maximum emissions, both horizontal and vertical polarization of the antenna are set on test. The EUT is tested in 9\*6\*6 Chamber. The device is evaluated in xyz orientation.



For the radiated emission test above 1GHz:

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.

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.

For above 1GHz, Set the spectrum analyzer as:

RBW = 1MHz, VBW = 1MHz, Detector= Peak, Trace mode= Max hold, Sweep- auto couple.

For average measurement:

–VBW=10Hz, When duty cycle is no less than 98 percent

– $VBW \geq 1/T$ , when duty cycle is less than 98 percent where T is the minimum transmission duration over which the transmitter is on and is transmitting at its maximum power control level for the tested mode of operation, so refer to this clause 5.4 duty cycle.

## 4.4. Test Data

### PASS

During the test, Pre-scan all kind of the place mode (X-axis, Y-axis, Z-axis), and found the X-axis is the worst case.

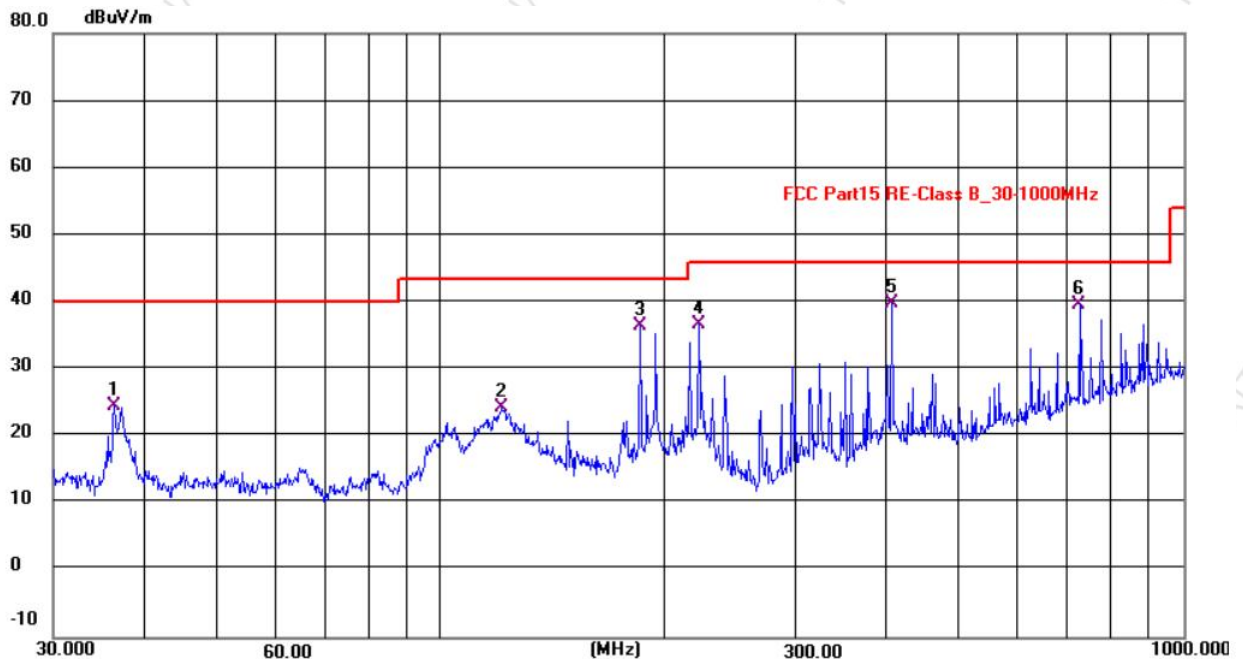
The test results of 9kHz-30MHz was attenuated more than 20dB below the permissible limits, so the results don't record in the report.

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



### Test Results (30~1000MHz)

Test Mode: 802.11n (HT20) 2412MHz  
Power Source: AC 120V/60Hz  
Polarization: Horizontal  
Temp.(°C)/Hum.(%RH): 23°C/56%RH  
Model No: R11-30E



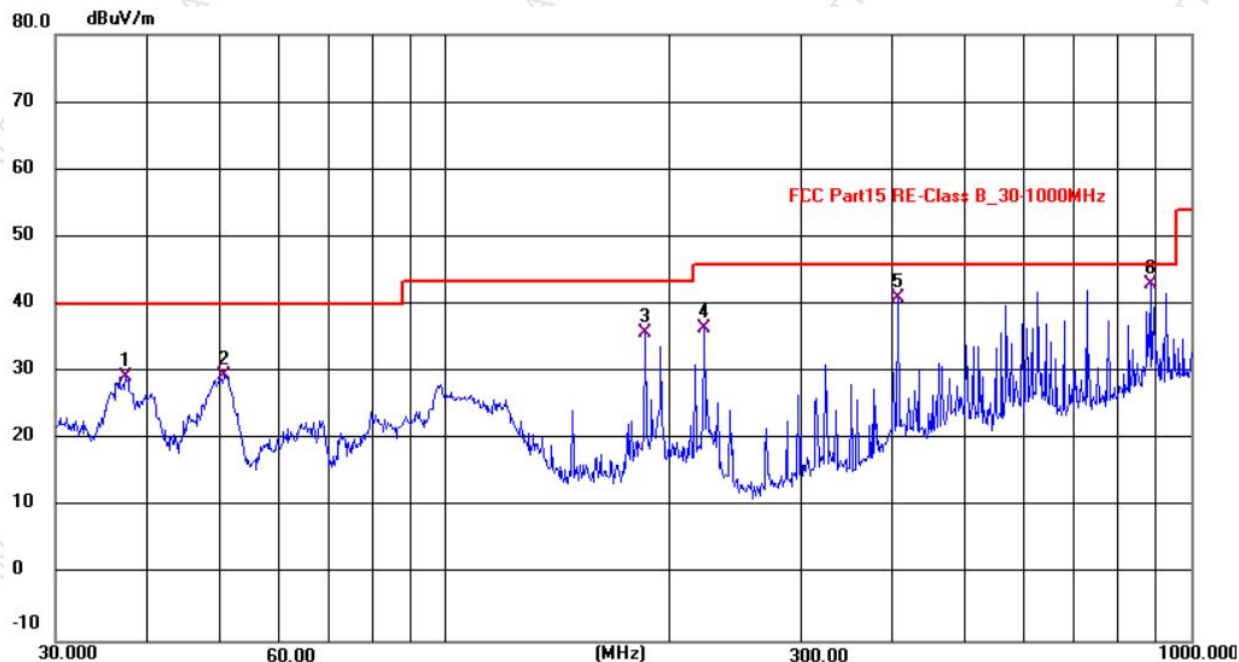
| No. | Frequency (MHz) | Reading (dBuV) | Factor (dB/m) | Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector |
|-----|-----------------|----------------|---------------|----------------|----------------|-------------|----------|
| 1   | 36.3813         | 39.80          | -15.22        | 24.58          | 40.00          | -15.42      | QP       |
| 2   | 120.9108        | 40.76          | -16.46        | 24.30          | 43.50          | -19.20      | QP       |
| 3   | 185.7882        | 53.70          | -17.23        | 36.47          | 43.50          | -7.03       | QP       |
| 4   | 222.9501        | 55.30          | -18.64        | 36.66          | 46.00          | -9.34       | QP       |
| 5 * | 405.3766        | 52.36          | -12.54        | 39.82          | 46.00          | -6.18       | QP       |
| 6   | 725.5319        | 45.09          | -5.46         | 39.63          | 46.00          | -6.37       | QP       |

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



### Test Results (30~1000MHz)

Test Mode: 802.11n (HT20) 2412MHz  
Power Source: AC 120V/60Hz  
Polarization: Vertical  
Temp.(°C)/Hum.(%RH): 22.5°C/50%RH  
Model No: R11-30E



| No. | Frequency (MHz) | Reading (dBuV) | Factor (dB/m) | Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector |
|-----|-----------------|----------------|---------------|----------------|----------------|-------------|----------|
| 1   | 37.4165         | 44.44          | -15.09        | 29.35          | 40.00          | -10.65      | QP       |
| 2   | 50.4089         | 44.50          | -15.05        | 29.45          | 40.00          | -10.55      | QP       |
| 3   | 185.7882        | 52.96          | -17.23        | 35.73          | 43.50          | -7.77       | QP       |
| 4   | 222.9502        | 55.17          | -18.64        | 36.53          | 46.00          | -9.47       | QP       |
| 5   | 405.3766        | 53.53          | -12.54        | 40.99          | 46.00          | -5.01       | QP       |
| 6 * | 882.9534        | 46.64          | -3.64         | 43.00          | 46.00          | -3.00       | QP       |

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



**Test Results (Above 1000MHz)**

| Test Mode: 802.11n (HT20) Mode |                |               | Test channel: Lowest |                     |                 |              |
|--------------------------------|----------------|---------------|----------------------|---------------------|-----------------|--------------|
| Peak value:                    |                |               |                      |                     |                 |              |
| Frequency (MHz)                | Reading (dBuV) | Factor (dB/m) | Result (dBuV/m)      | Limit Line (dBuV/m) | Over Limit (dB) | polarization |
| 2412                           | 36.21          | 25.32         | 61.53                | 74.00               | -12.47          | Vertical     |
| 4824                           | 35.41          | 31.41         | 66.82                | 74.00               | -7.18           | Vertical     |
| 7236                           | 26.44          | 36.35         | 62.79                | 74.00               | -11.21          | Vertical     |
| 9648                           | *              |               |                      | 74.00               |                 | Vertical     |
| 12060                          | *              |               |                      | 74.00               |                 | Vertical     |
| 2412                           | 35.58          | 25.32         | 60.90                | 74.00               | -13.10          | Horizontal   |
| 4824                           | 32.14          | 31.41         | 63.55                | 74.00               | -10.45          | Horizontal   |
| 7236                           | 24.19          | 36.35         | 60.54                | 74.00               | -13.46          | Horizontal   |
| 9648                           | *              |               |                      | 74.00               |                 | Horizontal   |
| 12060                          | *              |               |                      | 74.00               |                 | Horizontal   |
| Average value:                 |                |               |                      |                     |                 |              |
| Frequency (MHz)                | Reading (dBuV) | Factor (dB/m) | Result (dBuV/m)      | Limit Line (dBuV/m) | Over Limit (dB) | polarization |
| 2412                           | 21.14          | 25.36         | 46.5                 | 54.00               | -7.50           | Vertical     |
| 4824                           | 18.97          | 28.45         | 47.42                | 54.00               | -6.58           | Vertical     |
| 7236                           | 19.99          | 26.28         | 46.27                | 54.00               | -7.73           | Vertical     |
| 9648                           | *              |               |                      | 54.00               |                 | Vertical     |
| 12060                          | *              |               |                      | 54.00               |                 | Vertical     |
| 2412                           | 18.89          | 25.36         | 44.25                | 54.00               | -9.75           | Horizontal   |
| 4824                           | 20.14          | 28.45         | 48.59                | 54.00               | -5.41           | Horizontal   |
| 7236                           | 15.69          | 26.28         | 41.97                | 54.00               | -12.03          | Horizontal   |
| 9648                           | *              |               |                      | 54.00               |                 | Horizontal   |
| 12060                          | *              |               |                      | 54.00               |                 | Horizontal   |

**Remark:**

1.Result =Reading + Factor

2. "\*" means the test results were attenuated more than 20dB below the permissible limits, so the results don't record in the report.



**Test Results (Above 1000MHz)**

| Test Mode: 802.11n (HT20) Mode |                |               |                 | Test channel: Middle |                 |              |
|--------------------------------|----------------|---------------|-----------------|----------------------|-----------------|--------------|
| Peak value:                    |                |               |                 |                      |                 |              |
| Frequency (MHz)                | Reading (dBuV) | Factor (dB/m) | Result (dBuV/m) | Limit Line (dBuV/m)  | Over Limit (dB) | polarization |
| 2437                           | 36.63          | 25.32         | 61.95           | 74.00                | -12.05          | Vertical     |
| 4874                           | 31.82          | 31.41         | 63.23           | 74.00                | -10.77          | Vertical     |
| 7311                           | 30.21          | 36.35         | 66.56           | 74.00                | -7.44           | Vertical     |
| 9748                           | *              |               |                 | 74.00                |                 | Vertical     |
| 12185                          | *              |               |                 | 74.00                |                 | Vertical     |
| 2437                           | 35.47          | 25.32         | 60.79           | 74.00                | -13.21          | Horizontal   |
| 4874                           | 32.14          | 31.41         | 63.55           | 74.00                | -10.45          | Horizontal   |
| 7311                           | 29.87          | 36.35         | 66.22           | 74.00                | -7.78           | Horizontal   |
| 9748                           | *              |               |                 | 74.00                |                 | Horizontal   |
| 12185                          | *              |               |                 | 74.00                |                 | Horizontal   |
| Average value:                 |                |               |                 |                      |                 |              |
| Frequency (MHz)                | Reading (dBuV) | Factor (dB/m) | Result (dBuV/m) | Limit Line (dBuV/m)  | Over Limit (dB) | polarization |
| 2437                           | 17.84          | 25.36         | 43.2            | 54.00                | -10.80          | Vertical     |
| 4874                           | 17.65          | 28.45         | 46.1            | 54.00                | -7.90           | Vertical     |
| 7311                           | 16.58          | 26.28         | 42.86           | 54.00                | -11.14          | Vertical     |
| 9748                           | *              |               |                 | 54.00                |                 | Vertical     |
| 12185                          | *              |               |                 | 54.00                |                 | Vertical     |
| 2437                           | 18.88          | 25.36         | 44.24           | 54.00                | -9.76           | Horizontal   |
| 4874                           | 16.61          | 28.45         | 45.06           | 54.00                | -8.94           | Horizontal   |
| 7311                           | 17.08          | 26.28         | 43.36           | 54.00                | -10.64          | Horizontal   |
| 9748                           | *              |               |                 | 54.00                |                 | Horizontal   |
| 12185                          | *              |               |                 | 54.00                |                 | Horizontal   |

Remark:

1.Result =Reading + Factor

2. "\*" means the test results were attenuated more than 20dB below the permissible limits, so the results don't record in the report.



## Test Results (Above 1000MHz)

| Test Mode: 802.11n (HT20) Mode |                |               |                 | Test channel: Highest |                 |              |
|--------------------------------|----------------|---------------|-----------------|-----------------------|-----------------|--------------|
| Peak value:                    |                |               |                 |                       |                 |              |
| Frequency (MHz)                | Reading (dBuV) | Factor (dB/m) | Result (dBuV/m) | Limit Line (dBuV/m)   | Over Limit (dB) | polarization |
| 2462                           | 36.32          | 25.18         | 61.5            | 74.00                 | -12.50          | Vertical     |
| 4924                           | 34.25          | 31.67         | 65.92           | 74.00                 | -8.08           | Vertical     |
| 7386                           | 27.49          | 35.87         | 63.36           | 74.00                 | -10.64          | Vertical     |
| 9848                           | *              |               |                 | 74.00                 |                 | Vertical     |
| 12310                          | *              |               |                 | 74.00                 |                 | Vertical     |
| 2462                           | 35.55          | 25.18         | 60.73           | 74.00                 | -13.27          | Horizontal   |
| 4924                           | 36.47          | 31.67         | 68.14           | 74.00                 | -5.86           | Horizontal   |
| 7386                           | 28.62          | 35.87         | 64.49           | 74.00                 | -9.51           | Horizontal   |
| 9848                           | *              |               |                 | 74.00                 |                 | Horizontal   |
| 12310                          | *              |               |                 | 74.00                 |                 | Horizontal   |
| Average value:                 |                |               |                 |                       |                 |              |
| Frequency (MHz)                | Reading (dBuV) | Factor (dB/m) | Result (dBuV/m) | Limit Line (dBuV/m)   | Over Limit (dB) | polarization |
| 2462                           | 22.30          | 25.36         | 47.66           | 54.00                 | -6.34           | Vertical     |
| 4924                           | 18.14          | 28.45         | 46.59           | 54.00                 | -7.41           | Vertical     |
| 7386                           | 17.02          | 26.28         | 43.3            | 54.00                 | -10.70          | Vertical     |
| 9848                           | *              |               |                 | 54.00                 |                 | Vertical     |
| 12310                          | *              |               |                 | 54.00                 |                 | Vertical     |
| 2462                           | 20.03          | 25.36         | 45.39           | 54.00                 | -8.61           | Horizontal   |
| 4924                           | 18.09          | 28.45         | 46.54           | 54.00                 | -7.46           | Horizontal   |
| 7386                           | 18.27          | 26.28         | 44.55           | 54.00                 | -9.45           | Horizontal   |
| 9848                           | *              |               |                 | 54.00                 |                 | Horizontal   |
| 12310                          | *              |               |                 | 54.00                 |                 | Horizontal   |

### Remark:

1. During the test, pre-scan. 802.11b, g, n (HT20), n (HT40) mode, and find that 802.11n (HT20) mode is worse. The report only records this mode.
2. Result=Reading + Factor/Over Limit=Result-Limit
3. "\*" means the test results were attenuated more than 20dB below the permissible limits, so the results don't record in the report.



**Radiated Band Edge:**

| Test Mode: 802.11n (HT20) Mode |                |               |                 | Test channel: Lowest  |                 |              |          |
|--------------------------------|----------------|---------------|-----------------|-----------------------|-----------------|--------------|----------|
| Frequency (MHz)                | Reading (dBUV) | Factor (dB/m) | Result (dBUV/m) | Limit (dBUV/m)        | Over Limit (dB) | Antenna Pol. | Detector |
| 2390                           | 18.98          | 23.57         | 42.55           | 54.00                 | -11.45          | H            | AVG      |
| 2400                           | 21.14          | 23.64         | 44.78           | 54.00                 | -9.22           | V            | AVG      |
| 2390                           | 43.21          | 23.70         | 66.91           | 74.00                 | -7.09           | H            | Peak     |
| 2400                           | 41.39          | 23.91         | 65.30           | 74.00                 | -8.70           | V            | Peak     |
| Test Mode: 802.11n (HT20) Mode |                |               |                 | Test channel: Highest |                 |              |          |
| Frequency (MHz)                | Reading (dBUV) | Factor (dB/m) | Result (dBUV/m) | Limit (dBUV/m)        | Over Limit (dB) | Antenna Pol. | Detector |
| 2483.5                         | 23.21          | 23.57         | 46.78           | 54.00                 | -7.22           | H            | AVG      |
| 2500                           | 21.38          | 23.64         | 45.02           | 54.00                 | -8.98           | V            | AVG      |
| 2483.5                         | 44.18          | 23.70         | 67.88           | 74.00                 | -6.12           | H            | Peak     |
| 2500                           | 40.19          | 23.91         | 64.10           | 74.00                 | -9.90           | V            | Peak     |

**Remark:Remark:**

1. During the test, pre-scan the. 802.11b,g,n(HT20), n(HT40) mode, and found the 802.11n (HT20) mode is worse case , the report only record this mode.
2. Result=Reading + Factor/Over Limit=Result-Limit

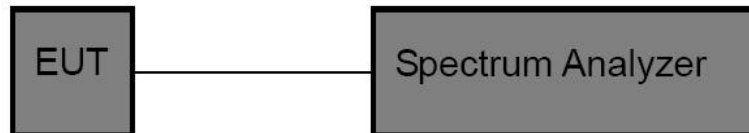


## 5. Maximum Peak Output Power Test

### 5.1. Test Standard and Limit

|               |                                    |
|---------------|------------------------------------|
| Test Standard | FCC Part15 C Section 15.247 (b)(3) |
| Test Limit    | 1W (30dBm)                         |

### 5.2. Test Setup



### 5.3. Test Procedure

1. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram above.

2.Spectrum Setting:

RBW=1MHz, VBW=3MHz, Detector=Peak (If 20dB BW  $\leq$  1 MHz)

RBW=3MHz, VBW=8MHz, Detector=Peak (If 20dB BW > 1 MHz)

3. The EUT was set to continuously transmitting in the max power during the test.

### 5.4. Test Data

Pass

Please refer to Appendix C of the Appendix Test Data.

#### Additional test for duty cycle.

Please refer to Appendix G of the Appendix Test Data.

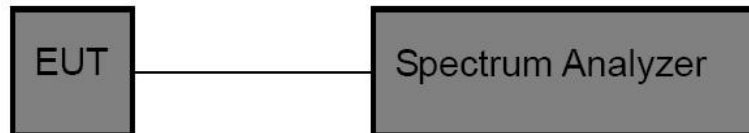


## 6. 6DB Occupy Bandwidth Test

### 6.1. Test Standard and Limit

|               |                                    |
|---------------|------------------------------------|
| Test Standard | FCC Part15 C Section 15.247 (a)(2) |
| Test Limit    | $\geq 500\text{kHz}$               |

### 6.2. Test Setup



### 6.3. Test Procedure

1. Place the EUT on the table and set it in the transmitting mode.
2. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer.
3. Set the spectrum analyzer as:  
RBW= 100kHz, VBW $\geq 3$ \*RBW  
Detector= Peak  
Trace mode= Max hold.  
Sweep- auto couple.
4. Mark the peak frequency and -6dB (upper and lower) frequency.
5. Repeat until all the rest channels are investigated.

### 6.4. Test Data

Pass

Please refer to Appendix A of the Appendix Test Data.

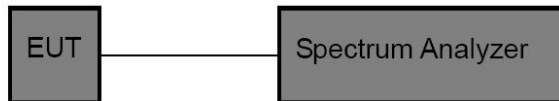


## 7. Power Spectral Density Test

### 7.1. Test Standard and Limit

|               |                      |
|---------------|----------------------|
| Test Standard | FCC Part15 C Section |
| Test Limit    | 8dBm/3KHz            |

### 7.2. Test Setup



### 7.3. Test Procedure

1. Place the EUT on the table and set it in transmitting mode. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer.
2. Set the spectrum analyzer as RBW = 3kHz, VBW = 10kHz, Span = 1.5xDTS BW
3. Record the max. reading.
4. Repeat the above procedure until the measurements for all frequencies are completed.

### 7.4. Test Data

Pass

Please refer to Appendix D of the Appendix Test Data.

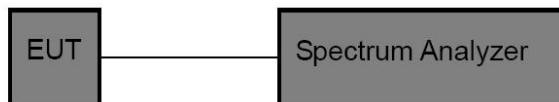


## 8. 100kHz Bandwidth of Frequency Band Edge Requirement

### 8.1. Test Standard and Limit

|               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|---------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Test Standard | FCC Part15 C Section 15.247 (d)                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Test Limit    | In any 100 kHz bandwidth outside the frequency bands in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20dB below that in the 100kHz bandwidth within the band that contains the highest level of the desired power, In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in 15.209(a). |

### 8.2. Test Setup



### 8.3. Test Procedure

Using the following spectrum analyzer setting:

1. Set the RBW = 100KHz.
2. Set the VBW = 300KHz.
3. Sweep time = auto couple.
4. Detector function = peak.
5. Trace mode = max hold.
6. Allow trace to fully stabilize.

### 8.4. Test Data

Pass

Please refer to Appendix E&F of the Appendix Test Data.

**Sidebands are tested using the conduction method**



## 9. Antenna Requirement

### 9.1. Test Standard and Requirement

|               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|---------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Test Standard | FCC Part15 Section 15.203 /247(c)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Requirement   | <p>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.</p> <p>2) 15.247(c) (1)(i) requirement:<br/>Systems operating in the 2400-2483.5 MHz band that is used exclusively for fixed. Point-to-point operations may employ transmitting antennas with directional gain greater than 6dBi provided the maximum conducted output power of the intentional radiator is reduced by 1 dB for every 3 dB that the directional gain of the antenna exceeds 6 dBi.</p> |

### 9.2. Antenna Connected Construction

The antenna is a FPC antenna which permanently attached, and the best case gain of the antenna is 2.72dBi It complies with the standard requirement.



## **APPENDIX I -- TEST SETUP PHOTOGRAPH**

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

## **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

## **APPENDIX IV -- Test Data**

Please refer to separated files Appendix IV -- Test Data

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