



# FCC RF Test Report

**APPLICANT** : Zebra Technologies Corporation  
**EQUIPMENT** : WLAN/BT module  
**BRAND NAME** : Zebra  
**MODEL NAME** : 21-148603-0B  
**FCC ID** : UZ7211486030B  
**STANDARD** : FCC Part 15 Subpart E §15.407  
**CLASSIFICATION** : (NII) Unlicensed National Information Infrastructure

The product was received on Nov. 13, 2015 and testing was completed on Nov. 26, 2015. We, SPORTON INTERNATIONAL INC., would like to declare that the tested sample has been evaluated in accordance with the test procedures and has been in compliance with the applicable technical standards.

The test results in this report apply exclusively to the tested model / sample. Without written approval of SPORTON INTERNATIONAL INC., the test report shall not be reproduced except in full.

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Reviewed by: Joseph Lin / Supervisor

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Approved by: Jones Tsai / Manager



## **SPORTON INTERNATIONAL INC.**

**No. 52, Hwa Ya 1<sup>st</sup> Rd., Hwa Ya Technology Park, Kwei-Shan District, Tao Yuan City, Taiwan, R.O.C.**



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## REVISION HISTORY

| REPORT NO.   | VERSION | DESCRIPTION                                | ISSUED DATE   |
|--------------|---------|--------------------------------------------|---------------|
| FR3N0602-02B | Rev. 01 | Updating the FCC 15E standard to new rule. | Mar. 16, 2016 |
|              |         |                                            |               |
|              |         |                                            |               |
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|              |         |                                            |               |

## SUMMARY OF TEST RESULT

| Report Section | FCC Rule           | Description                            | Limit                          | Result | Remark                                    |
|----------------|--------------------|----------------------------------------|--------------------------------|--------|-------------------------------------------|
| 3.1            | 15.403(i)          | 6dB, 26dB and 99% Occupied Bandwidth   | > 500kHz                       | Pass   | -                                         |
| 3.2            | 15.407(a)          | Maximum Conducted Output Power         | ≤ 30 dBm                       | Pass   | -                                         |
| 3.3            | 15.407(a)          | Power Spectral Density                 | ≤ 30 dBm/500kHz                | Pass   | -                                         |
| 3.4            | 15.407(b)          | Unwanted Emissions                     | ≤ -17, -27 dBm/MHz & 15.209(a) | Pass   | Under limit<br>1.06 dB at<br>5860.080 MHz |
| 3.5            | 15.407(g)          | Frequency Stability                    | Within Operation Band          | Pass   | -                                         |
| 3.6            | 15.407(c)          | Automatically Discontinue Transmission | Discontinue Transmission       | Pass   | -                                         |
| 3.7            | 15.203 & 15.407(a) | Antenna Requirement                    | N/A                            | Pass   | -                                         |



# 1 General Description

## 1.1 Applicant

**Zebra Technologies Corporation**  
1 Zebra Plaza, Holtsville, NY 11742

## 1.2 Manufacturer

**Zebra Technologies Corporation**  
1 Zebra Plaza, Holtsville, NY 11742

## 1.3 Product Feature of Equipment Under Test

| Product Feature                 |                                       |
|---------------------------------|---------------------------------------|
| Equipment                       | WLAN/BT module                        |
| Brand Name                      | Zebra                                 |
| Model Name                      | 21-148603-0B                          |
| FCC ID                          | UZ7211486030B                         |
| EUT supports Radios application | WLAN 11a/n HT20<br>Bluetooth v2.1 EDR |
| Host HW Version                 | MV                                    |
| Host SW Version                 | 2.4.42930.0                           |
| Host FW Version                 | X_2.01.0.0.024R                       |
| MFD                             | 11JUL15                               |
| EUT Stage                       | Identical Prototype                   |

**Remark:** The above EUT's information was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.

## 1.4 Product Specification of Equipment Under Test

| Standards-related Product Specification |        |                                                                                                                                                                                                 |  |  |        |        |          |   |   |          |   |   |
|-----------------------------------------|--------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|--------|--------|----------|---|---|----------|---|---|
| Tx/Rx Channel Frequency Range           |        | 5745 MHz ~ 5825 MHz                                                                                                                                                                             |  |  |        |        |          |   |   |          |   |   |
| Maximum Output Power                    |        | <5745 MHz ~ 5825 MHz><br><Ant. 1><br>802.11a : 15.48 dBm / 0.0353 W<br>802.11n HT20 : 15.04 dBm / 0.0319 W<br><Ant. 2><br>802.11a : 15.19 dBm / 0.0330 W<br>802.11n HT20 : 14.53 dBm / 0.0284 W |  |  |        |        |          |   |   |          |   |   |
| 99% Occupied Bandwidth                  |        | 802.11a : 18.95 MHz<br>802.11n HT20 : 19.50 MHz                                                                                                                                                 |  |  |        |        |          |   |   |          |   |   |
| Type of Modulation                      |        | 802.11a/n : OFDM (BPSK / QPSK / 16QAM / 64QAM)                                                                                                                                                  |  |  |        |        |          |   |   |          |   |   |
| Antenna Type                            |        | PIFA Antenna                                                                                                                                                                                    |  |  |        |        |          |   |   |          |   |   |
| Antenna Gain                            |        | <Ant. 1> : 4.19 dBi<br><Ant. 2> : 4.19 dBi                                                                                                                                                      |  |  |        |        |          |   |   |          |   |   |
| Antenna Function Description            |        | <table><tr><td></td><td>Ant. 1</td><td>Ant. 2</td></tr><tr><td>802.11 a</td><td>V</td><td>V</td></tr><tr><td>802.11 n</td><td>V</td><td>V</td></tr></table>                                     |  |  | Ant. 1 | Ant. 2 | 802.11 a | V | V | 802.11 n | V | V |
|                                         | Ant. 1 | Ant. 2                                                                                                                                                                                          |  |  |        |        |          |   |   |          |   |   |
| 802.11 a                                | V      | V                                                                                                                                                                                               |  |  |        |        |          |   |   |          |   |   |
| 802.11 n                                | V      | V                                                                                                                                                                                               |  |  |        |        |          |   |   |          |   |   |

## 1.5 Modification of EUT

No modifications are made to the EUT during all test items.

## 1.6 Testing Location

Sporton Lab is accredited to ISO 17025 by Taiwan Accreditation Foundation (TAF code : 1190) and the FCC designation No. TW1022 under the FCC 2.948(e) by Mutual Recognition Agreement (MRA) in FCC Test.

|                           |                                                                                                                                                                  |
|---------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Test Site</b>          | SPORTON INTERNATIONAL INC.                                                                                                                                       |
| <b>Test Site Location</b> | No. 52, Hwa Ya 1 <sup>st</sup> Rd., Hwa Ya Technology Park,<br>Kwei-Shan District, Tao Yuan City, Taiwan, R.O.C.<br>TEL: +886-3-327-3456<br>FAX: +886-3-328-4978 |
| <b>Test Site No.</b>      | <b>Sporton Site No.</b>                                                                                                                                          |
|                           | TH02-HY                                                                                                                                                          |

**Note:** The test site complies with ANSI C63.4 2014 requirement.

|                           |                                                                                                                                        |
|---------------------------|----------------------------------------------------------------------------------------------------------------------------------------|
| <b>Test Site</b>          | SPORTON INTERNATIONAL INC.                                                                                                             |
| <b>Test Site Location</b> | No.58, Aly. 75, Ln. 564, Wenhua 3rd Rd. Guishan Dist,<br>Taoyuan City, Taiwan (R.O.C.)<br>TEL: +886-3-327-0868<br>FAX: +886-3-327-0855 |
| <b>Test Site No.</b>      | <b>Sporton Site No.</b>                                                                                                                |
|                           | 03CH10-HY                                                                                                                              |

**Note:** The test site complies with ANSI C63.4 2014 requirement.

## 1.7 Applicable Standards

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

- FCC Part 15 Subpart E
- FCC KDB 789033 D02 General UNII Test Procedures New Rules v01r01
- ANSI C63.10-2013

**Remark:** All test items were verified and recorded according to the standards and without any deviation during the test.



## 2 Test Configuration of Equipment Under Test

The EUT has been associated with peripherals and configuration operated in a manner tended to maximize its emission characteristics in a typical application. Frequency range investigated: conducted emission (150 kHz to 30 MHz) and radiated emission (9 kHz to the 10th harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower). For radiated measurement, pre-scanned in three orthogonal panels, X, Y, Z. The worst cases (X plane) were recorded in this report.

The final configuration from all the combinations and the worst-case data rates were investigated by measuring the maximum power across all the data rates and modulation modes under section 2.2.

Based on the worst configuration found above, the RF power setting is set individually to meet FCC compliance limit for the final conducted and radiated tests shown in section 2.3.

### 2.1 Carrier Frequency and Channel

| Frequency Band                       | Channel | Freq.<br>(MHz) | Channel | Freq.<br>(MHz) |
|--------------------------------------|---------|----------------|---------|----------------|
| 5725-5850 MHz<br>Band 4<br>(U-NII-3) | 149     | 5745           | 157     | 5785           |
|                                      | 151     | 5755           | 159     | 5795           |
|                                      | 153     | 5765           | 161     | 5805           |
|                                      | 155     | 5775           | 165     | 5825           |

## 2.2 Pre-Scanned RF Power

Preliminary tests were performed in different data rate and data rate associated with the highest power were chosen for full test in the following tables.

### <Ant. 1>

| 5GHz 802.11a mode |           |                 |        |         |         |         |         |         |         |
|-------------------|-----------|-----------------|--------|---------|---------|---------|---------|---------|---------|
| Channel           | Frequency | Data Rate (MHz) |        |         |         |         |         |         |         |
|                   |           | 6M bps          | 9M bps | 12M bps | 18M bps | 24M bps | 36M bps | 48M bps | 54M bps |
| CH 149            | 5745 MHz  | 13.00           | 12.99  | 12.88   | 12.95   | 12.91   | 12.93   | 12.89   | 12.88   |
| CH 157            | 5785 MHz  | 15.48           | 15.28  | 15.26   | 15.28   | 15.27   | 15.28   | 15.39   | 15.41   |
| CH 165            | 5825 MHz  | 14.81           | 14.80  | 14.75   | 14.74   | 14.71   | 14.75   | 14.73   | 14.51   |

| 5GHz 802.11n HT20 mode |           |                 |       |       |       |       |       |       |       |
|------------------------|-----------|-----------------|-------|-------|-------|-------|-------|-------|-------|
| Channel                | Frequency | Data Rate (MHz) |       |       |       |       |       |       |       |
|                        |           | MCS0            | MCS1  | MCS2  | MCS3  | MCS4  | MCS5  | MCS6  | MCS7  |
| CH 149                 | 5745 MHz  | 12.48           | 12.35 | 12.39 | 12.37 | 12.37 | 12.48 | 12.42 | 12.42 |
| CH 157                 | 5785 MHz  | 15.04           | 14.99 | 14.92 | 14.90 | 14.85 | 14.93 | 14.90 | 14.87 |
| CH 165                 | 5825 MHz  | 14.27           | 14.22 | 14.19 | 14.05 | 14.04 | 14.02 | 14.01 | 13.90 |

### <Ant. 2>

| 5GHz 802.11a mode |           |                 |        |         |         |         |         |         |         |
|-------------------|-----------|-----------------|--------|---------|---------|---------|---------|---------|---------|
| Channel           | Frequency | Data Rate (MHz) |        |         |         |         |         |         |         |
|                   |           | 6M bps          | 9M bps | 12M bps | 18M bps | 24M bps | 36M bps | 48M bps | 54M bps |
| CH 149            | 5745 MHz  | 12.62           | 12.53  | 12.49   | 12.51   | 12.47   | 12.53   | 12.58   | 12.57   |
| CH 157            | 5785 MHz  | 15.19           | 15.17  | 15.18   | 15.16   | 15.13   | 15.13   | 15.13   | 15.06   |
| CH 165            | 5825 MHz  | 14.25           | 14.23  | 14.23   | 14.20   | 14.23   | 14.19   | 14.19   | 14.17   |

| 5GHz 802.11n HT20 mode |           |                 |       |       |       |       |       |       |       |
|------------------------|-----------|-----------------|-------|-------|-------|-------|-------|-------|-------|
| Channel                | Frequency | Data Rate (MHz) |       |       |       |       |       |       |       |
|                        |           | MCS0            | MCS1  | MCS2  | MCS3  | MCS4  | MCS5  | MCS6  | MCS7  |
| CH 149                 | 5745 MHz  | 12.08           | 12.01 | 12.04 | 11.98 | 11.88 | 11.94 | 11.90 | 11.76 |
| CH 157                 | 5785 MHz  | 14.53           | 14.42 | 14.41 | 14.33 | 14.21 | 14.20 | 14.08 | 14.03 |
| CH 165                 | 5825 MHz  | 13.91           | 13.82 | 13.82 | 13.78 | 13.67 | 13.67 | 13.62 | 13.64 |



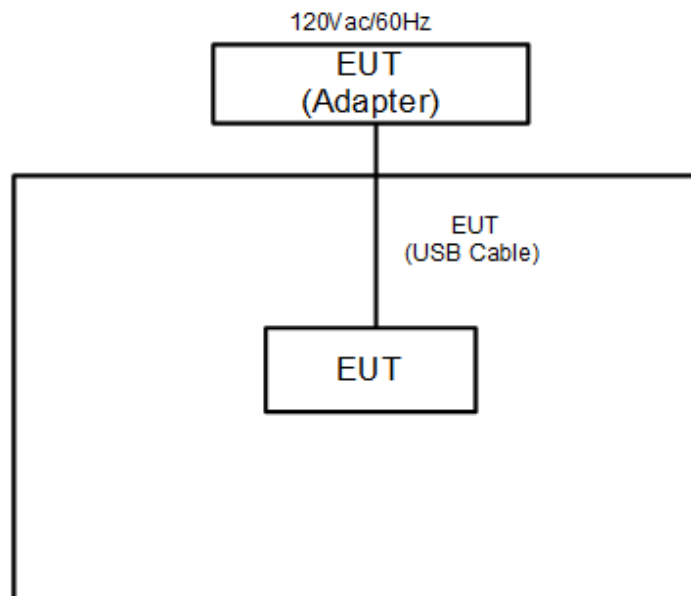
## 2.3 Test Mode

Final test mode of conducted test items and radiated spurious emissions are considering the modulation and worse data rates from the power table described in section 2.2.

| Modulation   | Data Rate |
|--------------|-----------|
| 802.11a      | 6 Mbps    |
| 802.11n HT20 | MCS0      |

| Ch. # |        | Band IV : 5725-5850 MHz |              |
|-------|--------|-------------------------|--------------|
|       |        | 802.11a                 | 802.11n HT20 |
| L     | Low    | 149                     | 149          |
| M     | Middle | 157                     | 157          |
| H     | High   | 165                     | 165          |

## 2.4 Connection Diagram of Test System



## 2.5 EUT Operation Test Setup

The programmed RF utility "XW2DMT", is installed in EUT to provide channel selection, power level, data rate and the application type. RF Utility can send transmitting signal for all testing. The RF output power selection is for the setting of RF output power expected by the customer and is going to be fixed on the firmware of the final end product.

## 2.6 Measurement Results Explanation Example

**For all conducted test items:**

The offset level is set in the spectrum analyzer to compensate the RF cable loss and attenuator factor between EUT conducted output port and spectrum analyzer. With the offset compensation, the spectrum analyzer reading level is exactly the EUT RF output level.

Example :

The spectrum analyzer offset is derived from RF cable loss and attenuator factor.

*Offset = RF cable loss + attenuator factor.*

Following shows an offset computation example with cable loss 4.2 dB and 10dB attenuator.

$$\begin{aligned}
 \text{Offset(dB)} &= \text{RF cable loss(dB)} + \text{attenuator factor(dB)}. \\
 &= 4.2 + 10 = 14.2 \text{ (dB)}
 \end{aligned}$$

### 3 Test Result

#### 3.1 6dB and 26dB and 99% Occupied Bandwidth Measurement

##### 3.1.1 Description of 6dB and 26dB and 99% Occupied Bandwidth

The minimum 6 dB bandwidth shall be at least 500 kHz.

26dB and 99% Occupied bandwidth are reporting only.

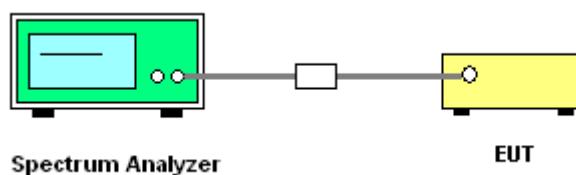
##### 3.1.2 Measuring Instruments

The measuring equipment is listed in the section 4 of this test report.

##### 3.1.3 Test Procedures

1. The testing follows FCC KDB 789033 D02 General UNII Test Procedures New Rules v01r01.  
Section C) Emission bandwidth for the band 5.725-5.85GHz
2. Set RBW = 100kHz.
3. Set the VBW  $\geq 3 \times$  RBW.
4. Detector = Peak.
5. Trace mode = max hold
6. Measure the maximum width of the emission that is 6 dB down from the peak of the emission.
7. Measure and record the results in the test report.

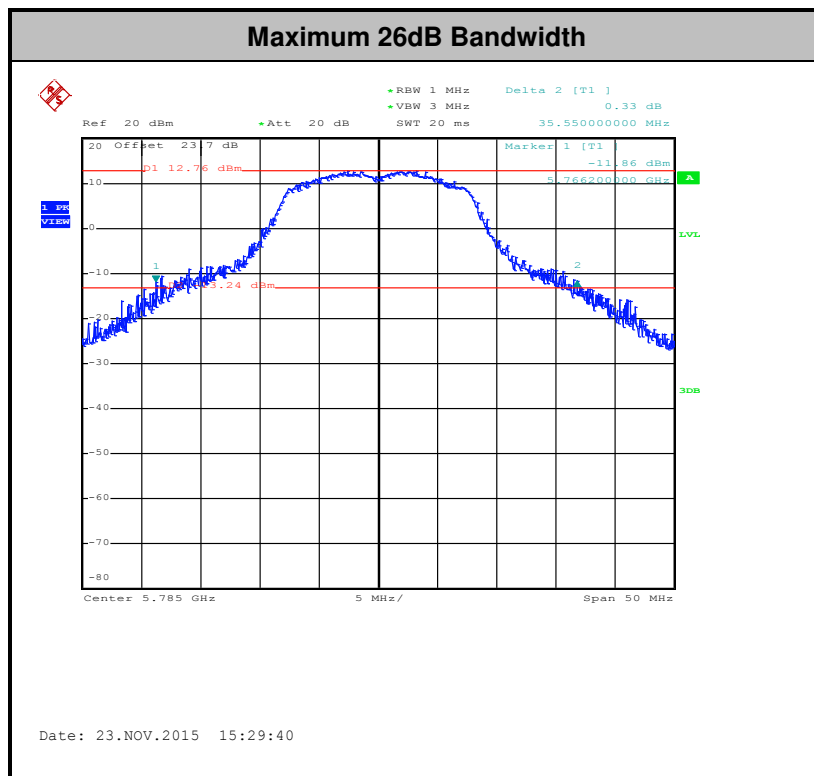
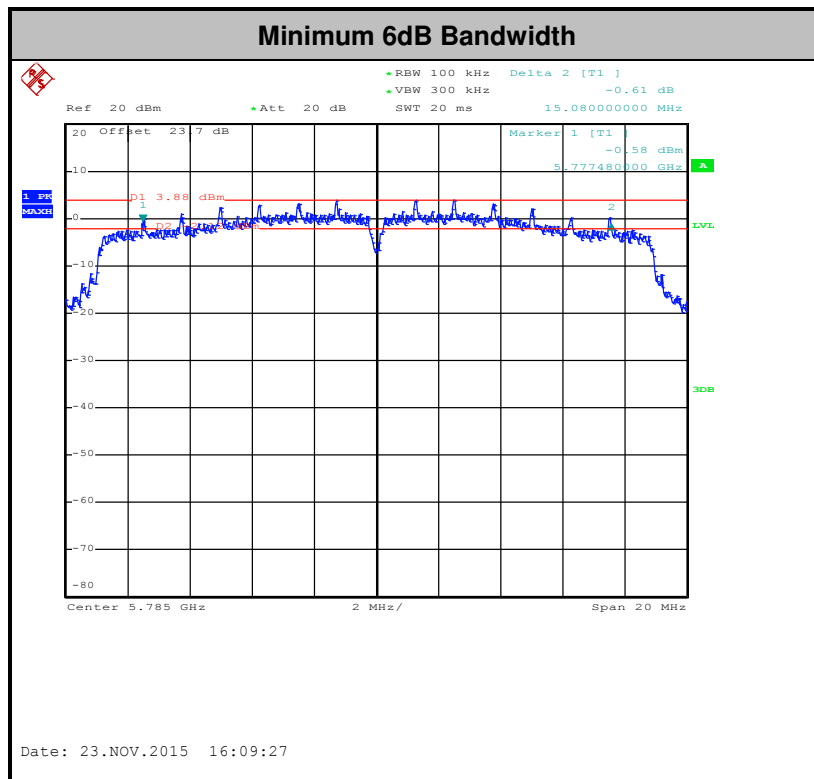
##### 3.1.4 Test Setup

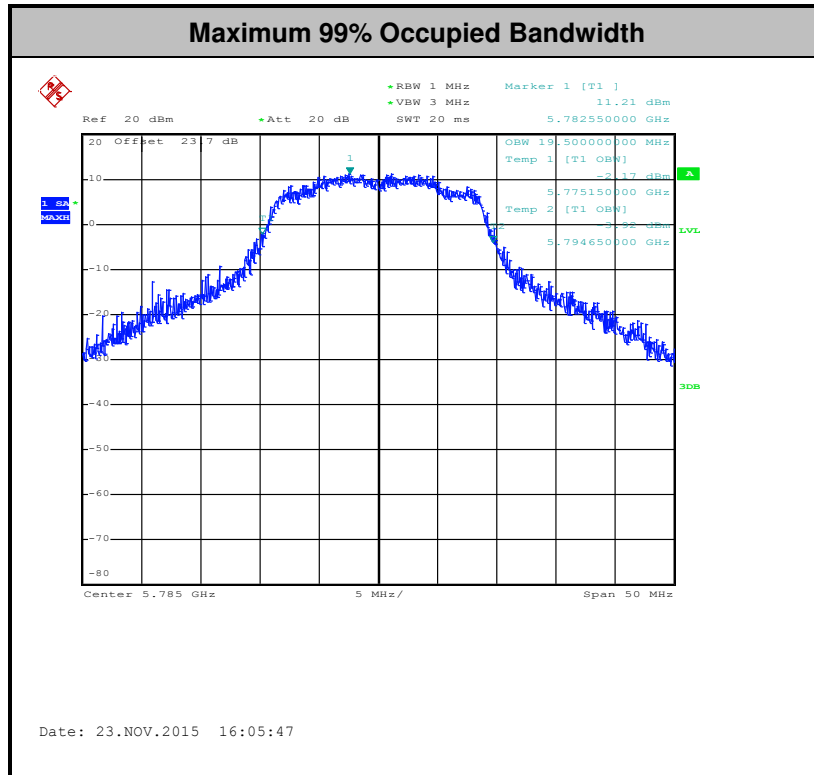




### 3.1.5 Test Result of 6dB Bandwidth

Please refer to Appendix A.





**Note:** The occupied channel bandwidth is maintained within the band of operation for all of the modulations.

## 3.2 Maximum Conducted Output Power Measurement

### 3.2.1 Limit of Maximum Conducted Output Power

For the band 5.725–5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W.

If transmitting antennas of directional gain greater than 6 dBi are used, the peak output power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

### 3.2.2 Measuring Instruments

The measuring equipment is listed in the section 4 of this test report.

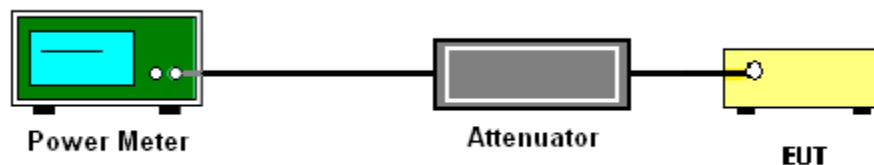
### 3.2.3 Test Procedures

The testing follows Method PM of FCC KDB 789033 D02 General UNII Test Procedures New Rules v01r01.

Method PM (Measurement using an RF average power meter):

1. Measurement is performed using a wideband RF power meter.
2. The EUT is configured to transmit continuously with a consistent duty cycle at its maximum power control level.
3. Measure the average power of the transmitter, and the average power is corrected with duty factor,  $10 \log(1/x)$ , where  $x$  is the duty cycle.

### 3.2.4 Test Setup



### 3.2.5 Test Result of Maximum Conducted Output Power

Please refer to Appendix A.



### **3.3 Power Spectral Density Measurement**

#### **3.3.1 Limit of Power Spectral Density**

For the band 5.725–5.85 GHz, the maximum power spectral density shall not exceed 30 dBm in any 500-kHz band.

If transmitting antennas of directional gain greater than 6 dBi are used, the peak output power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

#### **3.3.2 Measuring Instruments**

The measuring equipment is listed in the section 4 of this test report.

### 3.3.3 Test Procedures

The testing follows FCC KDB 789033 D02 General UNII Test Procedures New Rules v01r01.

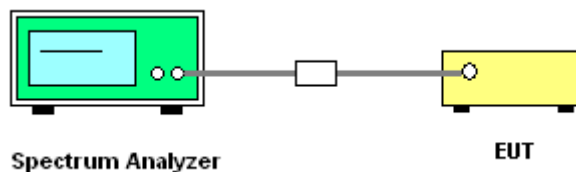
Section F) Maximum power spectral density.

#### # Method SA-2 #

(trace averaging across on and off times of the EUT transmissions, followed by duty cycle correction).

1. The testing follows Method SA-2 of FCC KDB 789033 D02 General UNII Test Procedures New Rules v01r01.
  - Measure the duty cycle.
  - Set span to encompass the entire emission bandwidth (EBW) of the signal.
  - Set RBW = 300 kHz.
  - Set VBW  $\geq$  1 MHz.
  - Number of points in sweep  $\geq$  2 Span / RBW.
  - Sweep time = auto.
  - Detector = RMS
  - Trace average at least 100 traces in power averaging mode.
  - Add  $10 \log(500\text{kHz}/\text{RBW})$  to the test result.
  - Add  $10 \log(1/x)$ , where  $x$  is the duty cycle, to the measured power in order to compute the average power during the actual transmission times. For example, add  $10 \log(1/0.25) = 6$  dB if the duty cycle is 25 percent.
2. The RF output of EUT was connected to the spectrum analyzer by a low loss cable.
3. Each plot has already offset with cable loss, and attenuator loss. Measure the PPSD and record it.

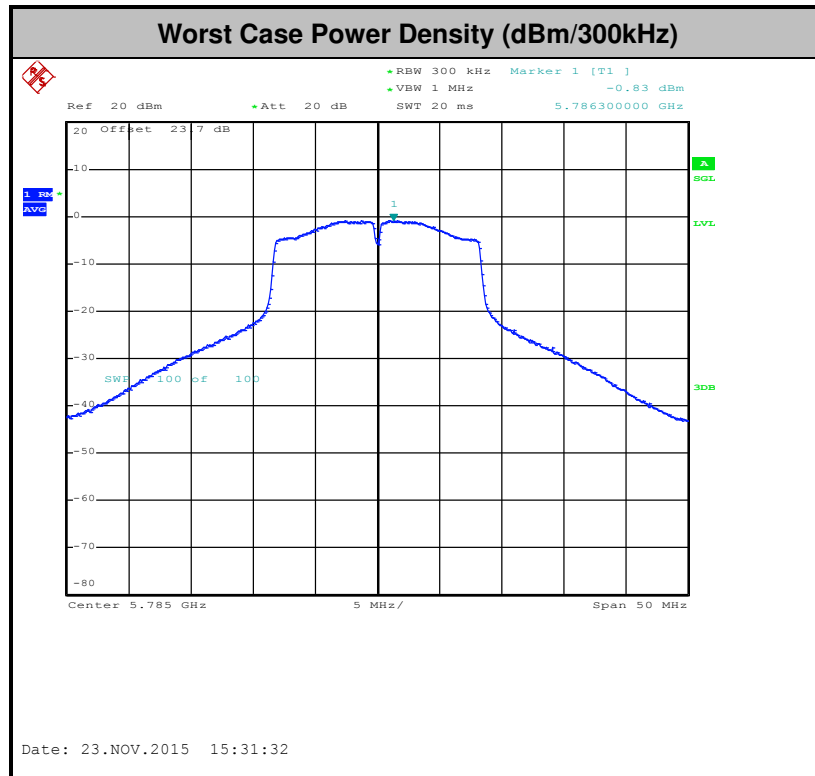
### 3.3.4 Test Setup





### 3.3.5 Test Result of Power Spectral Density

Please refer to Appendix A.



### 3.4 Unwanted Emissions Measurement

This section as specified in FCC Part 15.407(b) is to measure unwanted emissions through radiated measurement for band edge spurious emissions and out of band emissions measurement. The unwanted emissions shall comply with 15.407(b)(1) to (6), and restricted bands per FCC Part 15.205.

#### 3.4.1 Limit of Unwanted Emissions

- (1) For transmitters operating in the 5725-5850 MHz band: all emissions within the frequency range from the band edge to 10 MHz above or below the band edge shall not exceed an EIRP of -17 dBm/MHz (78.3dBμV/m); for frequencies 10 MHz or greater above or below the band edge, emissions shall not exceed an EIRP of -27 dBm/MHz (68.3dBμV/m).
- (2) Unwanted spurious emissions fallen in restricted bands per FCC Part 15.205 shall comply with the general field strength limits set forth in § 15.209 as below table,

| Frequency (MHz) | Field Strength (microvolts/meter) | Measurement Distance (meters) |
|-----------------|-----------------------------------|-------------------------------|
| 0.009 – 0.490   | 2400/F(kHz)                       | 300                           |
| 0.490 – 1.705   | 24000/F(kHz)                      | 30                            |
| 1.705 – 30.0    | 30                                | 30                            |
| 30 – 88         | 100                               | 3                             |
| 88 – 216        | 150                               | 3                             |
| 216 - 960       | 200                               | 3                             |
| Above 960       | 500                               | 3                             |

**Note:** The following formula is used to convert the EIRP to field strength.

$$E = \frac{1000000\sqrt{30P}}{3} \mu\text{V/m, where P is the eirp (Watts)}$$

| EIRP (dBm) | Field Strength at 3m (dBμV/m) |
|------------|-------------------------------|
| -17        | 78.3                          |
| -27        | 68.3                          |

- (3) KDB 789033 D02 General UNII Test Procedures New Rules v01r01 G)2)c) As specified in 15.407(b), emissions above 1000 MHz that are outside of the restricted bands are subject to a peak emission limit of -27 dBm/MHz (or -17 dBm/MHz as specified in 15.407(b)(4)). However, an out-of-band emission that complies with both the average and peak limits of 15.209 is not required to satisfy the -27 dBm/MHz or -17 dBm/MHz peak emission limit.

### 3.4.2 Measuring Instruments

The measuring equipment is listed in the section 4 of this test report.

### 3.4.3 Test Procedures

1. The testing follows FCC KDB 789033 D02 General UNII Test Procedures New Rules v01r01.  
Section G) Unwanted emissions measurement.

- (1) Procedure for Unwanted Emissions Measurements Below 1000MHz

- RBW = 120 kHz
- VBW = 300 kHz
- Detector = Peak
- Trace mode = max hold

- (2) Procedure for Peak Unwanted Emissions Measurements Above 1000 MHz

- RBW = 1 MHz
- VBW  $\geq$  3 MHz
- Detector = Peak
- Sweep time = auto
- Trace mode = max hold

- (3) Procedures for Average Unwanted Emissions Measurements Above 1000MHz

- RBW = 1 MHz
- VBW = 10 Hz, 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.

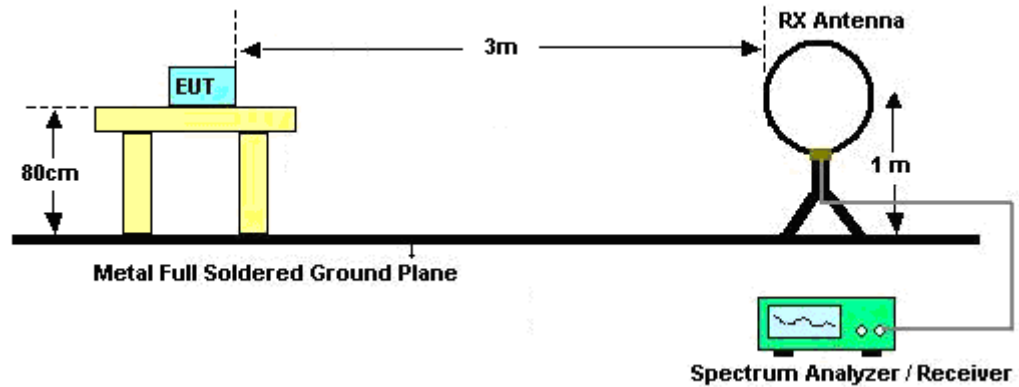
| Antenna | Band              | Duty Cycle(%) | T(us) | 1/T(kHz) | VBW Setting |
|---------|-------------------|---------------|-------|----------|-------------|
| 0       | 802.11a           | 98.57         | -     | -        | 10Hz        |
| 0       | 5GHz 802.11n HT20 | 97.18         | 2760  | 0.36     | 1kHz        |
| 1       | 802.11a           | 98.57         | -     | -        | 10Hz        |
| 1       | 5GHz 802.11n HT20 | 97.18         | 2760  | 0.36     | 1kHz        |



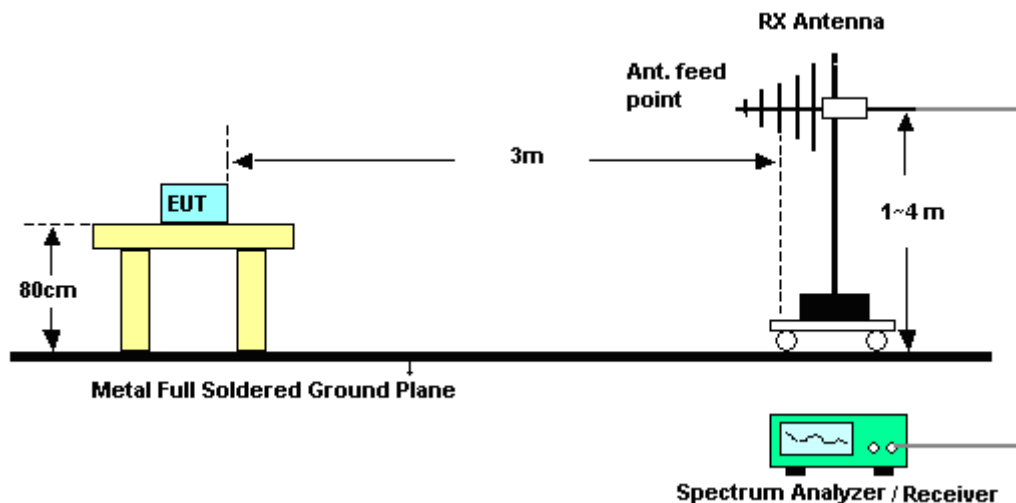
2. The EUT was placed on a turntable with 0.8 meter for frequency below 1GHz and 1.5 meter for frequency above 1GHz respectively above ground.
3. The EUT was set 3 meters from the interference receiving antenna which was mounted on the top of a variable height antenna tower.
4. The antenna is a broadband antenna and its height is adjusted between one meter and four meters above ground to find the maximum value of the field strength for both horizontal polarization and vertical polarization of the antenna.
5. For each suspected emission, the EUT was arranged to its worst case and then adjust the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading.
6. For testing below 1GHz, if the emission level of the EUT in peak mode was 3 dB lower than the limit specified, then peak values of EUT will be reported, otherwise, the emissions will be repeated one by one using the CISPR quasi-peak method and reported.
7. For testing above 1GHz, the emission level of the EUT in peak mode was 20dB lower than average limit (that means the emission level in average mode also complies with the limit in average mode), then peak values of EUT will be reported, otherwise, the emissions will be measured in average mode again and reported.

### 3.4.4 Test Setup

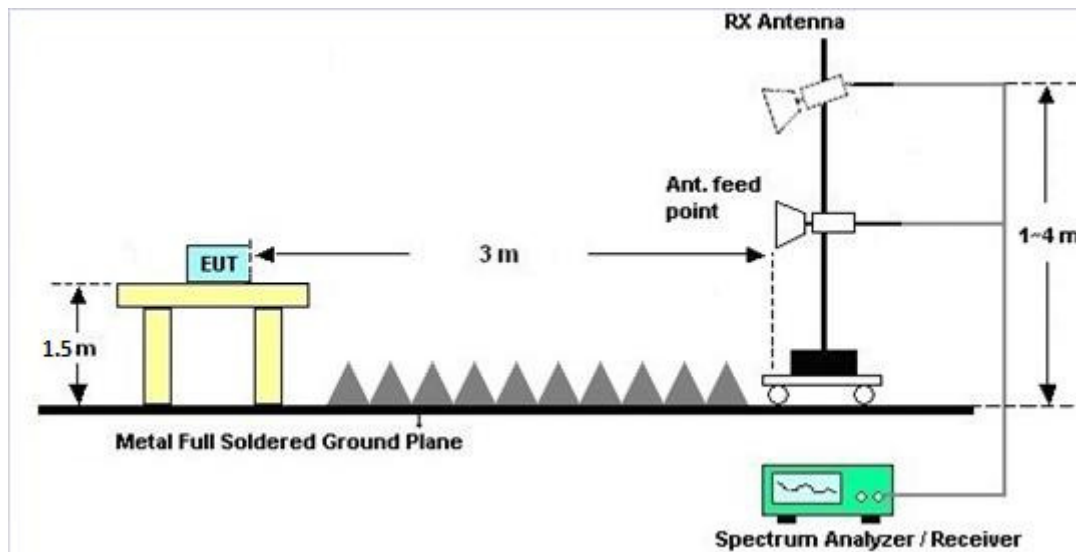
For radiated emissions below 30MHz



For radiated emissions from 30MHz to 1GHz



For radiated emissions above 1GHz



### 3.4.5 Test Results of Radiated Emissions (9 kHz ~ 30 MHz)

The low frequency, which started from 9 kHz to 30MHz, was pre-scanned and the result which was 20dB lower than the limit line per 15.31(o) was not reported.

### 3.4.6 Test Result of Radiated Band Edges

Please refer to Appendix A.

### 3.4.7 Test Result of Unwanted Radiated Emission (30MHz ~ 10th Harmonic)

Please refer to Appendix A.

### 3.5 Frequency Stability Measurement

#### 3.5.1 Limit of Frequency Stability

Manufacturers of U-NII devices are responsible for ensuring frequency stability such that an emission is maintained within the band of operation under all conditions of normal operation as specified in the user's manual.

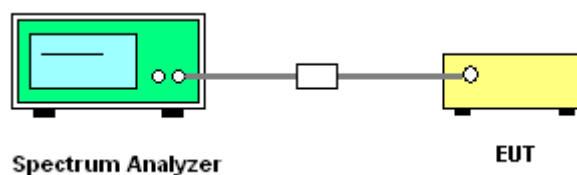
#### 3.5.2 Measuring Instruments

The measuring equipment is listed in the section 4 of this test report.

#### 3.5.3 Test Procedures

1. To ensure emission at the band edge is maintained within the authorized band, those values shall be measured by radiation emissions at upper and lower frequency points, and finally compensated by frequency deviation as procedures below.
2. The EUT was operated at the maximum output power, and connected to the spectrum analyzer, which is set to maximum hold function and peak detector. The peak value of the power envelope was measured and noted. The upper and lower frequency points were respectively measured relatively 10dB lower than the measured peak value.
3. The frequency deviation was calculated by adding the upper frequency point and the lower frequency point divided by two. Those detailed values of frequency deviation are provided in table below.

#### 3.5.4 Test Setup



#### 3.5.5 Test Result of Frequency Stability

Please refer to Appendix A.



## **3.6 Automatically Discontinue Transmission**

### **3.6.1 Limit of Automatically Discontinue Transmission**

The device shall automatically discontinue transmission in case of either absence of information to transmit or operational failure. These provisions are not intended to preclude the transmission of control or signaling information or the use of repetitive codes used by certain digital technologies to complete frame or burst intervals. Applicants shall include in their application for equipment authorization to describe how this requirement is met.

### **3.6.2 Measuring Instruments**

The measuring equipment is listed in the section 4 of this test report.

### **3.6.3 Test Result of Automatically Discontinue Transmission**

While the EUT is not transmitting any information, the EUT can automatically discontinue transmission and become standby mode for power saving. The EUT can detect the controlling signal of ACK message transmitting from remote device and verify whether it shall resend or discontinue transmission.

### 3.7 Antenna Requirements

#### 3.7.1 Standard Applicable

According to FCC 47 CFR Section 15.407(a)(1)(2) ,if transmitting antenna directional gain is greater than 6 dBi, both the peak transmit power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

#### 3.7.2 Antenna Anti-Replacement Construction

An embedded-in antenna design is used.

#### 3.7.3 Antenna Gain

FCC KDB 662911 D01 Multiple Transmitter Output v02r01

For CDD transmissions, directional gain is calculated as

Directional gain =  $G_{ANT} + \text{Array Gain}$ , where Array Gain is as follows.

For power spectral density (PSD) measurements on all devices,

Array Gain =  $10 \log(N_{ANT}/N_{SS}=1)$  dB.

For power measurements on IEEE 802.11 devices,

Array Gain = 0 dB (i.e., no array gain) for  $N_{ANT} \leq 4$ .

The power and PSD limit should be modified if the directional gain of EUT is over 6 dBi,

The directional gain "DG" is calculated as following table.

|         |       |       | DG    | DG    | Power     | PSD       |
|---------|-------|-------|-------|-------|-----------|-----------|
|         |       |       | for   | for   | Limit     | Limit     |
|         | Ant 1 | Ant 2 | Power | PSD   | Reduction | Reduction |
|         | (dBi) | (dBi) | (dBi) | (dBi) | (dB)      | (dB)      |
| Band IV | 4.47  | 4.47  | 4.47  | 7.48  | 0.00      | 1.48      |

*Power limit reduction = Composite gain – 6dBi, ( min = 0 )*

*PSD limit reduction = Composite gain + PSD Array gain – 6dBi, ( min = 0 )*



## 4 List of Measuring Equipment

| Instrument        | Manufacturer      | Model No.                  | Serial No.  | Characteristics               | Calibration Date | Test Date                       | Due Date      | Remark                |
|-------------------|-------------------|----------------------------|-------------|-------------------------------|------------------|---------------------------------|---------------|-----------------------|
| DC Power Supply   | TOPWARD           | 3303D                      | 740889      | N/A                           | May. 27, 2015    | Nov. 24, 2015~<br>Nov. 25, 2015 | May. 26, 2016 | Conducted (TH02-HY)   |
| Power Meter       | Agilent           | E4416A                     | GB41292344  | 300MHz~40GHz                  | Jan. 14, 2015    | Nov. 24, 2015~<br>Nov. 25, 2015 | Jan. 13, 2016 | Conducted (TH02-HY)   |
| Power Sensor      | Agilent           | E9327A                     | US40441548  | 300MHz~40GHz                  | Jan. 14, 2015    | Nov. 24, 2015~<br>Nov. 25, 2015 | Jan. 13, 2016 | Conducted (TH02-HY)   |
| Spectrum Analyzer | Rohde & Schwarz   | FSP40                      | 100055      | 9kHz~40GHz                    | Jun. 18, 2015    | Nov. 24, 2015~<br>Nov. 25, 2015 | Jun. 17, 2016 | Conducted (TH02-HY)   |
| Loop Antenna      | Rohde & Schwarz   | HFH2-Z2                    | 100315      | 9 kHz~30 MHz                  | Sep. 02, 2015    | Nov. 13, 2015~<br>Nov. 26, 2015 | Sep. 01, 2016 | Radiation (03CH10-HY) |
| Bilog Antenna     | TESEQ             | CBL 6111D                  | 35413       | 30MHz~1GHz                    | Oct. 31, 2015    | Nov. 13, 2015~<br>Nov. 26, 2015 | Oct. 30, 2016 | Radiation (03CH10-HY) |
| EMI Test Receiver | Keysight          | N9038A(MXE)                | MY54130085  | 20Hz ~ 8.4GHz                 | Nov. 04, 2015    | Nov. 13, 2015~<br>Nov. 26, 2015 | Nov. 03, 2016 | Radiation (03CH10-HY) |
| Horn Antenna      | SCHWARZBECK       | BBHA 9120 D                | 9120D-1325  | 1GHz ~ 18GHz                  | Sep. 30, 2015    | Nov. 13, 2015~<br>Nov. 26, 2015 | Sep. 29, 2016 | Radiation (03CH10-HY) |
| Preamplifier      | Keysight          | 83017A                     | MY53270078  | 1GHz~26.5GHz                  | Nov. 13, 2015    | Nov. 13, 2015~<br>Nov. 26, 2015 | Nov. 12, 2016 | Radiation (03CH10-HY) |
| Spectrum Analyzer | Keysight          | N9010A                     | MY54200485  | 10Hz ~ 44GHZ                  | Oct. 15, 2015    | Nov. 13, 2015~<br>Nov. 26, 2015 | Oct. 14, 2016 | Radiation (03CH10-HY) |
| Controller        | EMEC              | EM 1000                    | N/A         | Control Turn table & Ant Mast | N/A              | Nov. 13, 2015~<br>Nov. 26, 2015 | N/A           | Radiation (03CH10-HY) |
| Antenna Mast      | EMEC              | AM-BS-4500-B               | N/A         | 1~4m                          | N/A              | Nov. 13, 2015~<br>Nov. 26, 2015 | N/A           | Radiation (03CH10-HY) |
| Turn Table        | EMEC              | TT 2200                    | N/A         | 0-360 degree                  | N/A              | Nov. 13, 2015~<br>Nov. 26, 2015 | N/A           | Radiation (03CH10-HY) |
| Preamplifier      | MITEQ             | AMF-7D-0010<br>1800-30-10P | 1902247     | 1GHz~18GHz                    | Jul. 01, 2015    | Nov. 13, 2015~<br>Nov. 26, 2015 | Jun. 30, 2016 | Radiation (03CH10-HY) |
| Amplifier         | Sonoma-Instrument | 310 N                      | 187282      | 10MHz~1GHz                    | Jan. 14, 2015    | Nov. 13, 2015~<br>Nov. 26, 2015 | Jan. 13, 2016 | Radiation (03CH10-HY) |
| Horn Antenna      | SCHWARZBECK       | BBHA 9170                  | BBHA9170584 | 18GHz- 40GHz                  | Nov. 02, 2015    | Nov. 13, 2015~<br>Nov. 26, 2015 | Nov. 01, 2016 | Radiation (03CH10-HY) |
| Preamplifier      | MITEQ             | JS44-1800400<br>0-33-8P    | 1840917     | 18GHz ~ 40GHz                 | Jun. 02, 2015    | Nov. 13, 2015~<br>Nov. 26, 2015 | Jun. 01, 2016 | Radiation (03CH10-HY) |



## 5 Uncertainty of Evaluation

### Uncertainty of Conducted Emission Measurement (150kHz ~ 30MHz)

|                                                                            |      |
|----------------------------------------------------------------------------|------|
| Measuring Uncertainty for a Level of Confidence<br>of 95% ( $U = 2Uc(y)$ ) | 2.26 |
|----------------------------------------------------------------------------|------|

### Uncertainty of Radiated Emission Measurement (30 MHz ~ 1000 MHz)

|                                                                            |      |
|----------------------------------------------------------------------------|------|
| Measuring Uncertainty for a Level of<br>Confidence of 95% ( $U = 2Uc(y)$ ) | 4.90 |
|----------------------------------------------------------------------------|------|



## **Appendix A. Conducted Test Results**

|                |           |                    |       |    |
|----------------|-----------|--------------------|-------|----|
| Test Engineer: | AC CHANG  | Temperature:       | 21~25 | °C |
| Test Date:     | 104/11/23 | Relative Humidity: | 51~54 | %  |

**TEST RESULTS DATA**  
**6dB and 26dB EBW and 99% OBW**

| Band IV |           |     |     |             |                     |       |                      |       |                      |       |                                 |       |           |
|---------|-----------|-----|-----|-------------|---------------------|-------|----------------------|-------|----------------------|-------|---------------------------------|-------|-----------|
| Mod.    | Data Rate | NTX | CH. | Freq. (MHz) | 99% Bandwidth (MHz) |       | 26dB Bandwidth (MHz) |       | 6 dB Bandwidth (MHz) |       | 6 dB Bandwidth Min. Limit (MHz) |       | Pass/Fail |
|         |           |     |     |             | Ant 1               | Ant 2 | Ant 1                | Ant 2 | Ant 1                | Ant 2 | Ant 1                           | Ant 2 |           |
| 11a     | 6Mbps     | 1   | 149 | 5745        | 17.95               |       | 28.25                |       | 15.62                |       | 0.5                             | 0.5   | Pass      |
| 11a     | 6Mbps     | 1   | 157 | 5785        | 18.95               |       | 35.55                |       | 15.10                |       | 0.5                             | 0.5   | Pass      |
| 11a     | 6Mbps     | 1   | 165 | 5825        | 18.20               |       | 33.05                |       | 15.14                |       | 0.5                             | 0.5   | Pass      |
| HT20    | MCS0      | 1   | 149 | 5745        | 18.80               |       | 27.90                |       | 15.12                |       | 0.5                             | 0.5   | Pass      |
| HT20    | MCS0      | 1   | 157 | 5785        | 19.50               |       | 35.35                |       | 15.08                |       | 0.5                             | 0.5   | Pass      |
| HT20    | MCS0      | 1   | 165 | 5825        | 19.45               |       | 33.75                |       | 15.14                |       | 0.5                             | 0.5   | Pass      |

**TEST RESULTS DATA**  
**Average Power Table**

| Band IV |           |     |     |             |                  |       |                               |       |     |                                 |       |          |       |           |
|---------|-----------|-----|-----|-------------|------------------|-------|-------------------------------|-------|-----|---------------------------------|-------|----------|-------|-----------|
| Mod.    | Data Rate | NTX | CH. | Freq. (MHz) | Duty Factor (dB) |       | Average Conducted Power (dBm) |       |     | FCC Conducted Power Limit (dBm) |       | DG (dBi) |       | Pass/Fail |
|         |           |     |     |             | Ant 1            | Ant 2 | Ant 1                         | Ant 2 | SUM | Ant 1                           | Ant 2 | Ant 1    | Ant 2 |           |
| 11a     | 6Mbps     | 1   | 149 | 5745        | 0.06             | 0.06  | 13.00                         | 12.62 |     | 30.00                           | 30.00 | 4.47     | 4.47  | Pass      |
| 11a     | 6Mbps     | 1   | 157 | 5785        | 0.06             | 0.06  | 15.48                         | 15.19 |     | 30.00                           | 30.00 | 4.47     | 4.47  | Pass      |
| 11a     | 6Mbps     | 1   | 165 | 5825        | 0.06             | 0.06  | 14.81                         | 14.25 |     | 30.00                           | 30.00 | 4.47     | 4.47  | Pass      |
| HT20    | MCS0      | 1   | 149 | 5745        | 0.12             | 0.12  | 19.68                         | 12.48 |     | 30.00                           | 30.00 | 4.47     | 4.47  | Pass      |
| HT20    | MCS0      | 1   | 157 | 5785        | 0.12             | 0.12  | 20.07                         | 15.04 |     | 30.00                           | 30.00 | 4.47     | 4.47  | Pass      |
| HT20    | MCS0      | 1   | 165 | 5825        | 0.12             | 0.12  | 20.01                         | 14.27 |     | 30.00                           | 30.00 | 4.47     | 4.47  | Pass      |

**TEST RESULTS DATA**  
**Power Spectral Density**

| Band IV |           |     |     |             |                  |       |                                 |       |                                    |       |     |                                |       |          |       |            |
|---------|-----------|-----|-----|-------------|------------------|-------|---------------------------------|-------|------------------------------------|-------|-----|--------------------------------|-------|----------|-------|------------|
| Mod.    | Data Rate | NTx | CH. | Freq. (MHz) | Duty Factor (dB) |       | 10log (500kHz /RBW) Factor (dB) |       | Average Power Density (dBm/500kHz) |       |     | Average PSD Limit (dBm/500kHz) |       | DG (dBi) |       | Pass /Fail |
|         |           |     |     |             | Ant 1            | Ant 2 | Ant 1                           | Ant 2 | Ant 1                              | Ant 2 | SUM | Ant 1                          | Ant 2 | Ant 1    | Ant 2 |            |
| 11a     | 6Mbps     | 1   | 149 | 5745        | 0.06             | 0.06  | 2.22                            | 2.22  | -1.38                              |       |     | 30.00                          | 30.00 | 4.47     | 4.47  | Pass       |
| 11a     | 6Mbps     | 1   | 157 | 5785        | 0.06             | 0.06  | 2.22                            | 2.22  | 1.45                               |       |     | 30.00                          | 30.00 | 4.47     | 4.47  | Pass       |
| 11a     | 6Mbps     | 1   | 165 | 5825        | 0.06             | 0.06  | 2.22                            | 2.22  | 0.39                               |       |     | 30.00                          | 30.00 | 4.47     | 4.47  | Pass       |
| HT20    | MCS0      | 1   | 149 | 5745        | 0.12             | 0.12  | 2.22                            | 2.22  | -2.05                              |       |     | 30.00                          | 30.00 | 4.47     | 4.47  | Pass       |
| HT20    | MCS0      | 1   | 157 | 5785        | 0.12             | 0.12  | 2.22                            | 2.22  | 0.44                               |       |     | 30.00                          | 30.00 | 4.47     | 4.47  | Pass       |
| HT20    | MCS0      | 1   | 165 | 5825        | 0.12             | 0.12  | 2.22                            | 2.22  | -0.44                              |       |     | 30.00                          | 30.00 | 4.47     | 4.47  | Pass       |

**TEST RESULTS DATA**  
**Frequency Stability**

| Band IV |           |     |     |             |                        |                           |                           |                  |             |      |
|---------|-----------|-----|-----|-------------|------------------------|---------------------------|---------------------------|------------------|-------------|------|
| Mod.    | Data Rate | NTX | CH. | Freq. (MHz) | Center Frequency (MHz) | Frequency Deviation (MHz) | Frequency Stability (ppm) | Temperature (°C) | Voltage (V) | Note |
| 11a     | 6Mbps     | 1   | 149 | 5745        | 5745.000               | 0.000                     | 0.00                      | 20               | 3.4         |      |
| 11a     | 6Mbps     | 1   | 149 | 5745        | 5745.000               | 0.000                     | 0.00                      | 20               | 4.2         |      |
| 11a     | 6Mbps     | 1   | 149 | 5745        | 5744.975               | -0.025                    | -4.35                     | 20               | 3.7         |      |
| 11a     | 6Mbps     | 1   | 149 | 5745        | 5745.000               | 0.000                     | 0.00                      | -30              | 3.7         |      |
| 11a     | 6Mbps     | 1   | 149 | 5745        | 5745.025               | 0.025                     | 4.35                      | 50               | 3.7         |      |



## Appendix B. Radiated Spurious Emission

|                 |                                   |                     |         |
|-----------------|-----------------------------------|---------------------|---------|
| Test Engineer : | Tsung Lee, Stan Hsieh and Ray Lee | Temperature :       | 23~25°C |
|                 |                                   | Relative Humidity : | 45~48%  |

### Band 4 - 5725~5850MHz

#### WIFI 802.11a (Band Edge @ 3m)

| WIFI<br>Ant.<br>1            | Note | Frequency<br>( MHz ) | Level<br>( dBμV/m ) | Over<br>Limit<br>( dB ) | Limit<br>Line<br>( dBμV/m ) | Read<br>Level<br>( dBμV ) | Antenna<br>Factor<br>( dB/m ) | Cable<br>Loss<br>( dB ) | Preamp<br>Factor<br>( dB ) | Ant<br>Pos<br>( cm ) | Table<br>Pos<br>( deg ) | Peak<br>Avg.<br>( P/A ) | Pol.<br>( H/V ) |
|------------------------------|------|----------------------|---------------------|-------------------------|-----------------------------|---------------------------|-------------------------------|-------------------------|----------------------------|----------------------|-------------------------|-------------------------|-----------------|
| 802.11a<br>CH 149<br>5745MHz |      | 5712.92              | 64.39               | -9.61                   | 74                          | 55.64                     | 32.52                         | 8.3                     | 32.07                      | 100                  | 134                     | P                       | H               |
|                              |      | 5725                 | 71.01               | -7.29                   | 78.3                        | 62.22                     | 32.53                         | 8.33                    | 32.07                      | 100                  | 134                     | P                       | H               |
|                              |      | 5715                 | 52.71               | -1.29                   | 54                          | 43.96                     | 32.52                         | 8.3                     | 32.07                      | 100                  | 134                     | A                       | H               |
|                              | *    | 5743                 | 111.8               | -                       | -                           | 102.99                    | 32.54                         | 8.33                    | 32.06                      | 100                  | 134                     | P                       | H               |
|                              | *    | 5743                 | 105.19              | -                       | -                           | 96.38                     | 32.54                         | 8.33                    | 32.06                      | 100                  | 134                     | A                       | H               |
|                              |      |                      |                     |                         |                             |                           |                               |                         |                            |                      |                         |                         | H               |
|                              |      |                      |                     |                         |                             |                           |                               |                         |                            |                      |                         |                         | H               |
|                              |      |                      |                     |                         |                             |                           |                               |                         |                            |                      |                         |                         | H               |
|                              |      | 5714.76              | 54.91               | -19.09                  | 74                          | 46.16                     | 32.52                         | 8.3                     | 32.07                      | 100                  | 134                     | P                       | V               |
|                              |      | 5724.2               | 66.43               | -11.87                  | 78.3                        | 57.64                     | 32.53                         | 8.33                    | 32.07                      | 100                  | 134                     | P                       | V               |
|                              |      | 5715                 | 46.5                | -7.5                    | 54                          | 37.75                     | 32.52                         | 8.3                     | 32.07                      | 100                  | 43                      | A                       | V               |
|                              | *    | 5747                 | 104.76              | -                       | -                           | 95.95                     | 32.54                         | 8.33                    | 32.06                      | 100                  | 43                      | P                       | V               |
|                              | *    | 5747                 | 98.17               | -                       | -                           | 89.36                     | 32.54                         | 8.33                    | 32.06                      | 100                  | 43                      | A                       | V               |
|                              |      |                      |                     |                         |                             |                           |                               |                         |                            |                      |                         |                         | V               |
|                              |      |                      |                     |                         |                             |                           |                               |                         |                            |                      |                         |                         | V               |
|                              |      |                      |                     |                         |                             |                           |                               |                         |                            |                      |                         |                         | V               |



| WIFI<br>Ant.<br>1                     | Note | Frequency<br>( MHz ) | Level<br>( dBμV/m ) | Over<br>Limit<br>( dB ) | Limit<br>Line<br>( dBμV/m ) | Read<br>Level<br>( dBμV ) | Antenna<br>Factor<br>( dB/m ) | Cable<br>Loss<br>( dB ) | Preamp<br>Factor<br>( dB ) | Ant<br>Pos<br>( cm ) | Table<br>Pos<br>( deg ) | Peak<br>Avg.<br>( P/A ) | Pol.<br>( H/V ) |
|---------------------------------------|------|----------------------|---------------------|-------------------------|-----------------------------|---------------------------|-------------------------------|-------------------------|----------------------------|----------------------|-------------------------|-------------------------|-----------------|
| <b>802.11a<br/>CH 157<br/>5785MHz</b> |      | 5714.92              | 56.67               | -17.33                  | 74                          | 47.92                     | 32.52                         | 8.3                     | 32.07                      | 100                  | 137                     | P                       | H               |
|                                       |      | 5724.2               | 58.42               | -19.88                  | 78.3                        | 49.63                     | 32.53                         | 8.33                    | 32.07                      | 100                  | 137                     | P                       | H               |
|                                       |      | 5714.92              | 48                  | -6                      | 54                          | 39.25                     | 32.52                         | 8.3                     | 32.07                      | 100                  | 137                     | A                       | H               |
|                                       | *    | 5784                 | 114.61              | -                       | -                           | 105.74                    | 32.57                         | 8.35                    | 32.05                      | 100                  | 137                     | P                       | H               |
|                                       | *    | 5784                 | 107.51              | -                       | -                           | 98.64                     | 32.57                         | 8.35                    | 32.05                      | 100                  | 137                     | A                       | H               |
|                                       |      | 5852.8               | 55.23               | -23.07                  | 78.3                        | 46.22                     | 32.61                         | 8.43                    | 32.03                      | 100                  | 137                     | P                       | H               |
|                                       |      | 5862.16              | 54.03               | -19.97                  | 74                          | 45                        | 32.62                         | 8.43                    | 32.02                      | 100                  | 137                     | P                       | H               |
|                                       |      | 5860.08              | 45.7                | -8.3                    | 54                          | 36.67                     | 32.62                         | 8.43                    | 32.02                      | 100                  | 137                     | A                       | H               |
|                                       |      | 5710.92              | 50.64               | -23.36                  | 74                          | 41.89                     | 32.52                         | 8.3                     | 32.07                      | 100                  | 81                      | P                       | V               |
|                                       |      | 5718.28              | 54.14               | -24.16                  | 78.3                        | 45.38                     | 32.53                         | 8.3                     | 32.07                      | 100                  | 81                      | P                       | V               |
|                                       |      | 5714.92              | 42.73               | -11.27                  | 54                          | 33.98                     | 32.52                         | 8.3                     | 32.07                      | 100                  | 81                      | A                       | V               |
|                                       | *    | 5787                 | 107.52              | -                       | -                           | 98.64                     | 32.58                         | 8.35                    | 32.05                      | 100                  | 81                      | P                       | V               |
|                                       | *    | 5787                 | 100.42              | -                       | -                           | 91.54                     | 32.58                         | 8.35                    | 32.05                      | 100                  | 81                      | A                       | V               |
|                                       |      | 5852.48              | 51.69               | -26.61                  | 78.3                        | 42.68                     | 32.61                         | 8.43                    | 32.03                      | 100                  | 81                      | P                       | V               |
|                                       |      | 5868                 | 51.65               | -22.35                  | 74                          | 42.62                     | 32.62                         | 8.43                    | 32.02                      | 100                  | 81                      | P                       | V               |
|                                       |      | 5860.32              | 43.03               | -10.97                  | 54                          | 34                        | 32.62                         | 8.43                    | 32.02                      | 100                  | 81                      | A                       | V               |



| WIFI<br>Ant.<br>1                     | Note                                                                                        | Frequency<br>( MHz ) | Level<br>( dBμV/m ) | Over<br>Limit<br>( dB ) | Limit<br>Line<br>( dBμV/m ) | Read<br>Level<br>( dBμV ) | Antenna<br>Factor<br>( dB/m ) | Cable<br>Loss<br>( dB ) | Preamp<br>Factor<br>( dB ) | Ant<br>Pos<br>( cm ) | Table<br>Pos<br>( deg ) | Peak<br>Avg.<br>( P/A ) | Pol.<br>( H/V ) |
|---------------------------------------|---------------------------------------------------------------------------------------------|----------------------|---------------------|-------------------------|-----------------------------|---------------------------|-------------------------------|-------------------------|----------------------------|----------------------|-------------------------|-------------------------|-----------------|
| <b>802.11a<br/>CH 165<br/>5825MHz</b> | *                                                                                           | 5823                 | 111.98              | -                       | -                           | 103.03                    | 32.6                          | 8.39                    | 32.04                      | 246                  | 126                     | P                       | H               |
|                                       | *                                                                                           | 5823                 | 105.76              | -                       | -                           | 96.81                     | 32.6                          | 8.39                    | 32.04                      | 246                  | 126                     | A                       | H               |
|                                       |                                                                                             | 5852.32              | 72.01               | -6.29                   | 78.3                        | 63                        | 32.61                         | 8.43                    | 32.03                      | 246                  | 126                     | P                       | H               |
|                                       |                                                                                             | 5861.52              | 63.98               | -10.02                  | 74                          | 54.95                     | 32.62                         | 8.43                    | 32.02                      | 246                  | 126                     | P                       | H               |
|                                       |                                                                                             | 5860                 | 52.01               | -1.99                   | 54                          | 42.98                     | 32.62                         | 8.43                    | 32.02                      | 246                  | 126                     | A                       | H               |
|                                       |                                                                                             |                      |                     |                         |                             |                           |                               |                         |                            |                      |                         |                         | H               |
|                                       |                                                                                             |                      |                     |                         |                             |                           |                               |                         |                            |                      |                         |                         | H               |
|                                       |                                                                                             |                      |                     |                         |                             |                           |                               |                         |                            |                      |                         |                         | H               |
|                                       | *                                                                                           | 5824                 | 106.48              | -                       | -                           | 97.53                     | 32.6                          | 8.39                    | 32.04                      | 100                  | 84                      | P                       | V               |
|                                       | *                                                                                           | 5824                 | 100.08              | -                       | -                           | 91.13                     | 32.6                          | 8.39                    | 32.04                      | 100                  | 84                      | A                       | V               |
|                                       |                                                                                             | 5851.28              | 65.16               | -13.14                  | 78.3                        | 56.15                     | 32.61                         | 8.43                    | 32.03                      | 100                  | 84                      | P                       | V               |
|                                       |                                                                                             | 5860.96              | 60.19               | -13.81                  | 74                          | 51.16                     | 32.62                         | 8.43                    | 32.02                      | 100                  | 84                      | P                       | V               |
|                                       |                                                                                             | 5860                 | 47.85               | -6.15                   | 54                          | 38.82                     | 32.62                         | 8.43                    | 32.02                      | 100                  | 84                      | A                       | V               |
|                                       |                                                                                             |                      |                     |                         |                             |                           |                               |                         |                            |                      |                         |                         | V               |
|                                       |                                                                                             |                      |                     |                         |                             |                           |                               |                         |                            |                      |                         |                         | V               |
|                                       |                                                                                             |                      |                     |                         |                             |                           |                               |                         |                            |                      |                         |                         | V               |
|                                       |                                                                                             |                      |                     |                         |                             |                           |                               |                         |                            |                      |                         |                         | V               |
|                                       |                                                                                             |                      |                     |                         |                             |                           |                               |                         |                            |                      |                         |                         | V               |
| <b>Remark</b>                         | 1. No other spurious found.<br>2. All results are PASS against Peak and Average limit line. |                      |                     |                         |                             |                           |                               |                         |                            |                      |                         |                         |                 |



## Band 4 5725~5850MHz

## WIFI 802.11a (Harmonic @ 3m)

| WIFI<br>Ant.<br>1            | Note                                                                                        | Frequency<br>( MHz ) | Level<br>( dBμV/m ) | Over<br>Limit<br>( dB ) | Limit<br>Line<br>( dBμV/m ) | Read<br>Level<br>( dBμV ) | Antenna<br>Factor<br>( dB/m ) | Cable<br>Loss<br>( dB ) | Preamp<br>Factor<br>( dB ) | Ant<br>Pos<br>( cm ) | Table<br>Pos<br>( deg ) | Peak<br>Avg.<br>(P/A) | Pol.<br>(H/V) |
|------------------------------|---------------------------------------------------------------------------------------------|----------------------|---------------------|-------------------------|-----------------------------|---------------------------|-------------------------------|-------------------------|----------------------------|----------------------|-------------------------|-----------------------|---------------|
| 802.11a<br>CH 149<br>5745MHz |                                                                                             | 11490                | 47.04               | -26.96                  | 74                          | 57.25                     | 40.01                         | 12.58                   | 62.8                       | 100                  | 0                       | P                     | H             |
|                              |                                                                                             | 17232                | 47.72               | -26.28                  | 74                          | 51.2                      | 41.05                         | 15.61                   | 60.14                      | 100                  | 0                       | P                     | H             |
|                              |                                                                                             |                      |                     |                         |                             |                           |                               |                         |                            |                      |                         |                       | H             |
|                              |                                                                                             |                      |                     |                         |                             |                           |                               |                         |                            |                      |                         |                       | H             |
|                              |                                                                                             | 11490                | 46.83               | -27.17                  | 74                          | 57.04                     | 40.01                         | 12.58                   | 62.8                       | 100                  | 0                       | P                     | V             |
|                              |                                                                                             | 17232                | 46.36               | -27.64                  | 74                          | 49.84                     | 41.05                         | 15.61                   | 60.14                      | 100                  | 0                       | P                     | V             |
|                              |                                                                                             |                      |                     |                         |                             |                           |                               |                         |                            |                      |                         |                       | V             |
|                              |                                                                                             |                      |                     |                         |                             |                           |                               |                         |                            |                      |                         |                       | V             |
| 802.11a<br>CH 157<br>5785MHz |                                                                                             | 11571                | 46.51               | -27.49                  | 74                          | 56.71                     | 39.88                         | 12.66                   | 62.74                      | 100                  | 0                       | P                     | H             |
|                              |                                                                                             | 17355                | 47.33               | -26.67                  | 74                          | 50.37                     | 41.38                         | 15.79                   | 60.21                      | 100                  | 0                       | P                     | H             |
|                              |                                                                                             |                      |                     |                         |                             |                           |                               |                         |                            |                      |                         |                       | H             |
|                              |                                                                                             |                      |                     |                         |                             |                           |                               |                         |                            |                      |                         |                       | H             |
|                              |                                                                                             | 11571                | 46.02               | -27.98                  | 74                          | 56.22                     | 39.88                         | 12.66                   | 62.74                      | 100                  | 0                       | P                     | V             |
|                              |                                                                                             | 17355                | 46.23               | -27.77                  | 74                          | 49.27                     | 41.38                         | 15.79                   | 60.21                      | 100                  | 0                       | P                     | V             |
|                              |                                                                                             |                      |                     |                         |                             |                           |                               |                         |                            |                      |                         |                       | V             |
|                              |                                                                                             |                      |                     |                         |                             |                           |                               |                         |                            |                      |                         |                       | V             |
| 802.11a<br>CH 165<br>5825MHz |                                                                                             | 11650                | 45.35               | -28.65                  | 74                          | 55.56                     | 39.75                         | 12.73                   | 62.69                      | 100                  | 0                       | P                     | H             |
|                              |                                                                                             | 17472                | 47.8                | -26.2                   | 74                          | 50.49                     | 41.71                         | 15.88                   | 60.28                      | 100                  | 0                       | P                     | H             |
|                              |                                                                                             |                      |                     |                         |                             |                           |                               |                         |                            |                      |                         |                       | H             |
|                              |                                                                                             |                      |                     |                         |                             |                           |                               |                         |                            |                      |                         |                       | H             |
|                              |                                                                                             | 11650                | 46.97               | -27.03                  | 74                          | 57.18                     | 39.75                         | 12.73                   | 62.69                      | 100                  | 0                       | P                     | V             |
|                              |                                                                                             | 17472                | 47.53               | -26.47                  | 74                          | 50.22                     | 41.71                         | 15.88                   | 60.28                      | 100                  | 0                       | P                     | V             |
|                              |                                                                                             |                      |                     |                         |                             |                           |                               |                         |                            |                      |                         |                       | V             |
|                              |                                                                                             |                      |                     |                         |                             |                           |                               |                         |                            |                      |                         |                       | V             |
| Remark                       | 1. No other spurious found.<br>2. All results are PASS against Peak and Average limit line. |                      |                     |                         |                             |                           |                               |                         |                            |                      |                         |                       |               |


**Band 4 5725~5850MHz**
**WIFI 802.11n HT20 (Band Edge @ 3m)**

| WIFI<br>Ant.<br>1                              | Note | Frequency<br>( MHz ) | Level<br>( dBμV/m ) | Over<br>Limit<br>( dB ) | Limit<br>Line<br>( dBμV/m ) | Read<br>Level<br>( dBμV ) | Antenna<br>Factor<br>( dB/m ) | Cable<br>Loss<br>( dB ) | Preamp<br>Factor<br>( dB ) | Ant<br>Pos<br>( cm ) | Table<br>Pos<br>( deg ) | Peak<br>Avg.<br>( P/A ) | Pol.<br>( H/V ) |
|------------------------------------------------|------|----------------------|---------------------|-------------------------|-----------------------------|---------------------------|-------------------------------|-------------------------|----------------------------|----------------------|-------------------------|-------------------------|-----------------|
| <b>802.11n<br/>HT20<br/>CH 149<br/>5745MHz</b> |      | 5711.16              | 58.17               | -15.83                  | 74                          | 49.42                     | 32.52                         | 8.3                     | 32.07                      | 100                  | 132                     | P                       | H               |
|                                                |      | 5724.84              | 72.14               | -6.16                   | 78.3                        | 63.35                     | 32.53                         | 8.33                    | 32.07                      | 100                  | 132                     | P                       | H               |
|                                                |      | 5714.76              | 50.26               | -3.74                   | 54                          | 41.51                     | 32.52                         | 8.3                     | 32.07                      | 100                  | 132                     | A                       | H               |
|                                                | *    | 5744                 | 110.84              | -                       | -                           | 102.03                    | 32.54                         | 8.33                    | 32.06                      | 100                  | 132                     | P                       | H               |
|                                                | *    | 5744                 | 104.05              | -                       | -                           | 95.24                     | 32.54                         | 8.33                    | 32.06                      | 100                  | 132                     | A                       | H               |
|                                                |      |                      |                     |                         |                             |                           |                               |                         |                            |                      |                         |                         | H               |
|                                                |      |                      |                     |                         |                             |                           |                               |                         |                            |                      |                         |                         | H               |
|                                                |      |                      |                     |                         |                             |                           |                               |                         |                            |                      |                         |                         | H               |
|                                                |      | 5714.12              | 53.21               | -20.79                  | 74                          | 44.46                     | 32.52                         | 8.3                     | 32.07                      | 136                  | 41                      | P                       | V               |
|                                                |      | 5725                 | 64.53               | -13.77                  | 78.3                        | 55.74                     | 32.53                         | 8.33                    | 32.07                      | 136                  | 41                      | P                       | V               |
|                                                |      | 5715                 | 45.15               | -8.85                   | 54                          | 36.4                      | 32.52                         | 8.3                     | 32.07                      | 136                  | 41                      | A                       | V               |
|                                                | *    | 5747                 | 104.14              | -                       | -                           | 95.33                     | 32.54                         | 8.33                    | 32.06                      | 136                  | 41                      | P                       | V               |
|                                                | *    | 5747                 | 97.41               | -                       | -                           | 88.6                      | 32.54                         | 8.33                    | 32.06                      | 136                  | 41                      | A                       | V               |
|                                                |      |                      |                     |                         |                             |                           |                               |                         |                            |                      |                         |                         | V               |
|                                                |      |                      |                     |                         |                             |                           |                               |                         |                            |                      |                         |                         | V               |
|                                                |      |                      |                     |                         |                             |                           |                               |                         |                            |                      |                         |                         | V               |



| WIFI<br>Ant.<br>1                    | Note | Frequency<br>( MHz ) | Level<br>( dBμV/m ) | Over<br>Limit<br>( dB ) | Limit<br>Line<br>( dBμV/m ) | Read<br>Level<br>( dBμV ) | Antenna<br>Factor<br>( dB/m ) | Cable<br>Loss<br>( dB ) | Preamp<br>Factor<br>( dB ) | Ant<br>Pos<br>( cm ) | Table<br>Pos<br>( deg ) | Peak<br>Avg.<br>( P/A ) | Pol.<br>( H/V ) |
|--------------------------------------|------|----------------------|---------------------|-------------------------|-----------------------------|---------------------------|-------------------------------|-------------------------|----------------------------|----------------------|-------------------------|-------------------------|-----------------|
| 802.11n<br>HT20<br>CH 157<br>5785MHz |      | 5713.72              | 52.6                | -21.4                   | 74                          | 43.85                     | 32.52                         | 8.3                     | 32.07                      | 100                  | 131                     | P                       | H               |
|                                      |      | 5724.12              | 55.49               | -22.81                  | 78.3                        | 46.7                      | 32.53                         | 8.33                    | 32.07                      | 100                  | 131                     | P                       | H               |
|                                      |      | 5714.2               | 45.37               | -8.63                   | 54                          | 36.62                     | 32.52                         | 8.3                     | 32.07                      | 100                  | 131                     | A                       | H               |
|                                      | *    | 5787                 | 112.73              | -                       | -                           | 103.85                    | 32.58                         | 8.35                    | 32.05                      | 100                  | 131                     | P                       | H               |
|                                      | *    | 5787                 | 105.63              | -                       | -                           | 96.75                     | 32.58                         | 8.35                    | 32.05                      | 100                  | 131                     | A                       | H               |
|                                      |      | 5856.8               | 54.7                | -23.6                   | 78.3                        | 45.67                     | 32.62                         | 8.43                    | 32.02                      | 100                  | 131                     | P                       | H               |
|                                      |      | 5860.48              | 52.91               | -21.09                  | 74                          | 43.88                     | 32.62                         | 8.43                    | 32.02                      | 100                  | 131                     | P                       | H               |
|                                      |      | 5862.4               | 44.17               | -9.83                   | 54                          | 35.14                     | 32.62                         | 8.43                    | 32.02                      | 100                  | 131                     | A                       | H               |
|                                      |      | 5698.6               | 49.75               | -24.25                  | 74                          | 41.02                     | 32.51                         | 8.3                     | 32.08                      | 100                  | 85                      | P                       | V               |
|                                      |      | 5718.68              | 51.23               | -27.07                  | 78.3                        | 42.47                     | 32.53                         | 8.3                     | 32.07                      | 100                  | 85                      | P                       | V               |
|                                      |      | 5713.56              | 41.84               | -12.16                  | 54                          | 33.09                     | 32.52                         | 8.3                     | 32.07                      | 100                  | 85                      | A                       | V               |
|                                      | *    | 5786                 | 105.99              | -                       | -                           | 97.11                     | 32.58                         | 8.35                    | 32.05                      | 100                  | 85                      | P                       | V               |
|                                      | *    | 5786                 | 98.89               | -                       | -                           | 90.01                     | 32.58                         | 8.35                    | 32.05                      | 100                  | 85                      | A                       | V               |
|                                      |      | 5850.16              | 50.33               | -27.97                  | 78.3                        | 41.32                     | 32.61                         | 8.43                    | 32.03                      | 100                  | 85                      | P                       | V               |
|                                      |      | 5882.88              | 51.29               | -22.71                  | 74                          | 42.21                     | 32.63                         | 8.47                    | 32.02                      | 100                  | 85                      | P                       | V               |
|                                      |      | 5862.8               | 42.5                | -11.5                   | 54                          | 33.47                     | 32.62                         | 8.43                    | 32.02                      | 100                  | 85                      | A                       | V               |



| WIFI<br>Ant.<br>1                    | Note                                                                                        | Frequency<br>( MHz ) | Level<br>( dBμV/m ) | Over<br>Limit<br>( dB ) | Limit<br>Line<br>( dBμV/m ) | Read<br>Level<br>( dBμV ) | Antenna<br>Factor<br>( dB/m ) | Cable<br>Loss<br>( dB ) | Preamp<br>Factor<br>( dB ) | Ant<br>Pos<br>( cm ) | Table<br>Pos<br>( deg ) | Peak<br>Avg.<br>( P/A ) | Pol.<br>( H/V ) |
|--------------------------------------|---------------------------------------------------------------------------------------------|----------------------|---------------------|-------------------------|-----------------------------|---------------------------|-------------------------------|-------------------------|----------------------------|----------------------|-------------------------|-------------------------|-----------------|
| 802.11n<br>HT20<br>CH 165<br>5825MHz | *                                                                                           | 5827                 | 112.74              | -                       | -                           | 103.79                    | 32.6                          | 8.39                    | 32.04                      | 245                  | 126                     | P                       | H               |
|                                      | *                                                                                           | 5827                 | 105.47              | -                       | -                           | 96.52                     | 32.6                          | 8.39                    | 32.04                      | 245                  | 126                     | A                       | H               |
|                                      |                                                                                             | 5856.08              | 70.85               | -7.45                   | 78.3                        | 61.82                     | 32.62                         | 8.43                    | 32.02                      | 245                  | 126                     | P                       | H               |
|                                      |                                                                                             | 5861.44              | 63.55               | -10.45                  | 74                          | 54.52                     | 32.62                         | 8.43                    | 32.02                      | 245                  | 126                     | P                       | H               |
|                                      |                                                                                             | 5860.08              | 52.94               | -1.06                   | 54                          | 43.91                     | 32.62                         | 8.43                    | 32.02                      | 245                  | 126                     | A                       | H               |
|                                      |                                                                                             |                      |                     |                         |                             |                           |                               |                         |                            |                      |                         |                         | H               |
|                                      |                                                                                             |                      |                     |                         |                             |                           |                               |                         |                            |                      |                         |                         | H               |
|                                      |                                                                                             |                      |                     |                         |                             |                           |                               |                         |                            |                      |                         |                         | H               |
|                                      | *                                                                                           | 5823                 | 105.96              | -                       | -                           | 97.01                     | 32.6                          | 8.39                    | 32.04                      | 100                  | 85                      | P                       | V               |
|                                      | *                                                                                           | 5823                 | 99.22               | -                       | -                           | 90.27                     | 32.6                          | 8.39                    | 32.04                      | 100                  | 85                      | A                       | V               |
|                                      |                                                                                             | 5850.88              | 66.36               | -11.94                  | 78.3                        | 57.35                     | 32.61                         | 8.43                    | 32.03                      | 100                  | 85                      | P                       | V               |
|                                      |                                                                                             | 5863.68              | 56.15               | -17.85                  | 74                          | 47.12                     | 32.62                         | 8.43                    | 32.02                      | 100                  | 85                      | P                       | V               |
|                                      |                                                                                             | 5860.64              | 47.96               | -6.04                   | 54                          | 38.93                     | 32.62                         | 8.43                    | 32.02                      | 100                  | 85                      | A                       | V               |
|                                      |                                                                                             |                      |                     |                         |                             |                           |                               |                         |                            |                      |                         |                         | V               |
|                                      |                                                                                             |                      |                     |                         |                             |                           |                               |                         |                            |                      |                         |                         | V               |
|                                      |                                                                                             |                      |                     |                         |                             |                           |                               |                         |                            |                      |                         |                         | V               |
|                                      |                                                                                             |                      |                     |                         |                             |                           |                               |                         |                            |                      |                         |                         | V               |
|                                      |                                                                                             |                      |                     |                         |                             |                           |                               |                         |                            |                      |                         |                         | V               |
| Remark                               | 1. No other spurious found.<br>2. All results are PASS against Peak and Average limit line. |                      |                     |                         |                             |                           |                               |                         |                            |                      |                         |                         |                 |



## Band 4 5725~5850MHz

## WIFI 802.11n HT20 (Harmonic @ 3m)

| WIFI<br>Ant.<br>1                    | Note                                                                                        | Frequency<br>( MHz ) | Level<br>( dBμV/m ) | Over<br>Limit<br>( dB ) | Limit<br>Line<br>( dBμV/m ) | Read<br>Level<br>( dBμV ) | Antenna<br>Factor<br>( dB/m ) | Cable<br>Loss<br>( dB ) | Preamp<br>Factor<br>( dB ) | Ant<br>Pos<br>( cm ) | Table<br>Pos<br>( deg ) | Peak<br>Avg.<br>(P/A) | Pol.<br>(H/V) |
|--------------------------------------|---------------------------------------------------------------------------------------------|----------------------|---------------------|-------------------------|-----------------------------|---------------------------|-------------------------------|-------------------------|----------------------------|----------------------|-------------------------|-----------------------|---------------|
| 802.11n<br>HT20<br>CH 149<br>5745MHz |                                                                                             | 11490                | 48.01               | -25.99                  | 74                          | 58.22                     | 40.01                         | 12.58                   | 62.8                       | 100                  | 0                       | P                     | H             |
|                                      |                                                                                             | 17232                | 46.87               | -27.13                  | 74                          | 50.35                     | 41.05                         | 15.61                   | 60.14                      | 100                  | 0                       | P                     | H             |
|                                      |                                                                                             |                      |                     |                         |                             |                           |                               |                         |                            |                      |                         |                       | H             |
|                                      |                                                                                             |                      |                     |                         |                             |                           |                               |                         |                            |                      |                         |                       | H             |
|                                      |                                                                                             | 11490                | 47.35               | -26.65                  | 74                          | 57.56                     | 40.01                         | 12.58                   | 62.8                       | 100                  | 0                       | P                     | V             |
|                                      |                                                                                             | 17232                | 47.69               | -26.31                  | 74                          | 51.17                     | 41.05                         | 15.61                   | 60.14                      | 100                  | 0                       | P                     | V             |
|                                      |                                                                                             |                      |                     |                         |                             |                           |                               |                         |                            |                      |                         |                       | V             |
|                                      |                                                                                             |                      |                     |                         |                             |                           |                               |                         |                            |                      |                         |                       | V             |
| 802.11n<br>HT20<br>CH 157<br>5785MHz |                                                                                             | 11570                | 46.31               | -27.69                  | 74                          | 56.51                     | 39.88                         | 12.66                   | 62.74                      | 100                  | 0                       | P                     | H             |
|                                      |                                                                                             | 17352                | 47.62               | -26.38                  | 74                          | 50.7                      | 41.38                         | 15.75                   | 60.21                      | 100                  | 0                       | P                     | H             |
|                                      |                                                                                             |                      |                     |                         |                             |                           |                               |                         |                            |                      |                         |                       | H             |
|                                      |                                                                                             |                      |                     |                         |                             |                           |                               |                         |                            |                      |                         |                       | H             |
|                                      |                                                                                             | 11570                | 47.09               | -26.91                  | 74                          | 57.29                     | 39.88                         | 12.66                   | 62.74                      | 100                  | 0                       | P                     | V             |
|                                      |                                                                                             | 17352                | 47.89               | -26.11                  | 74                          | 50.97                     | 41.38                         | 15.75                   | 60.21                      | 100                  | 0                       | P                     | V             |
|                                      |                                                                                             |                      |                     |                         |                             |                           |                               |                         |                            |                      |                         |                       | V             |
|                                      |                                                                                             |                      |                     |                         |                             |                           |                               |                         |                            |                      |                         |                       | V             |
| 802.11n<br>HT20<br>CH 165<br>5825MHz |                                                                                             | 11650                | 45.62               | -28.38                  | 74                          | 55.83                     | 39.75                         | 12.73                   | 62.69                      | 100                  | 0                       | P                     | H             |
|                                      |                                                                                             | 17472                | 47.76               | -26.24                  | 74                          | 50.45                     | 41.71                         | 15.88                   | 60.28                      | 100                  | 0                       | P                     | H             |
|                                      |                                                                                             |                      |                     |                         |                             |                           |                               |                         |                            |                      |                         |                       | H             |
|                                      |                                                                                             |                      |                     |                         |                             |                           |                               |                         |                            |                      |                         |                       | H             |
|                                      |                                                                                             | 11650                | 45.3                | -28.7                   | 74                          | 55.51                     | 39.75                         | 12.73                   | 62.69                      | 100                  | 0                       | P                     | V             |
|                                      |                                                                                             | 17472                | 48.35               | -25.65                  | 74                          | 51.04                     | 41.71                         | 15.88                   | 60.28                      | 100                  | 0                       | P                     | V             |
|                                      |                                                                                             |                      |                     |                         |                             |                           |                               |                         |                            |                      |                         |                       | V             |
|                                      |                                                                                             |                      |                     |                         |                             |                           |                               |                         |                            |                      |                         |                       | V             |
| Remark                               | 1. No other spurious found.<br>2. All results are PASS against Peak and Average limit line. |                      |                     |                         |                             |                           |                               |                         |                            |                      |                         |                       |               |

### Emission below 1GHz

**5GHz WIFI 802.11n HT20 (LF @ 3m)**

| WIFI                          | Note                                                                       | Frequency | Level      | Over   | Limit      | Read   | Antenna  | Cable  | Preamp | Ant    | Table   | Peak  | Pol.  |
|-------------------------------|----------------------------------------------------------------------------|-----------|------------|--------|------------|--------|----------|--------|--------|--------|---------|-------|-------|
| Ant.                          |                                                                            |           |            | Limit  | Line       | Level  | Factor   | Loss   | Factor | Pos    | Pos     | Avg.  |       |
| 1                             |                                                                            | ( MHz )   | ( dBμV/m ) | ( dB ) | ( dBμV/m ) | (dBμV) | ( dB/m ) | ( dB ) | ( dB ) | ( cm ) | ( deg ) | (P/A) | (H/V) |
| 5GHz<br>802.11n<br>HT20<br>LF |                                                                            | 139.89    | 19.18      | -24.32 | 43.5       | 38.62  | 11.9     | 1.33   | 32.67  |        |         | P     | H     |
|                               |                                                                            | 240.06    | 21.9       | -24.1  | 46         | 41.03  | 11.98    | 1.62   | 32.73  |        |         | P     | H     |
|                               |                                                                            | 268.14    | 22.39      | -23.61 | 46         | 39.82  | 13.54    | 1.76   | 32.73  | 113    | 157     | P     | H     |
|                               |                                                                            | 311.9     | 21.52      | -24.48 | 46         | 38.23  | 14.15    | 1.88   | 32.74  |        |         | P     | H     |
|                               |                                                                            | 360.2     | 21.1       | -24.9  | 46         | 36.51  | 15.45    | 1.94   | 32.8   |        |         | P     | H     |
|                               |                                                                            | 987.4     | 26.34      | -27.66 | 54         | 30.16  | 24.15    | 3.38   | 31.35  |        |         | P     | H     |
|                               |                                                                            |           |            |        |            |        |          |        |        |        |         |       | H     |
|                               |                                                                            |           |            |        |            |        |          |        |        |        |         |       | H     |
|                               |                                                                            |           |            |        |            |        |          |        |        |        |         |       | H     |
|                               |                                                                            |           |            |        |            |        |          |        |        |        |         |       | H     |
|                               |                                                                            |           |            |        |            |        |          |        |        |        |         |       | H     |
|                               |                                                                            |           |            |        |            |        |          |        |        |        |         |       | H     |
|                               |                                                                            | 41.88     | 29.7       | -10.3  | 40         | 48.47  | 13.38    | 0.65   | 32.8   | 100    | 315     | P     | V     |
|                               |                                                                            | 121.8     | 18.79      | -24.71 | 43.5       | 38.38  | 11.92    | 1.14   | 32.65  |        |         | P     | V     |
|                               |                                                                            | 264.09    | 23.45      | -22.55 | 46         | 40.68  | 13.74    | 1.76   | 32.73  |        |         | P     | V     |
|                               |                                                                            | 515.6     | 19.47      | -26.53 | 46         | 31.72  | 18.36    | 2.33   | 32.94  |        |         | P     | V     |
|                               |                                                                            | 699.7     | 21.63      | -24.37 | 46         | 31.21  | 20.59    | 2.82   | 32.99  |        |         | P     | V     |
|                               |                                                                            | 947.5     | 26.28      | -19.72 | 46         | 30.52  | 24.26    | 3.29   | 31.79  |        |         | P     | V     |
|                               |                                                                            |           |            |        |            |        |          |        |        |        |         |       | V     |
|                               |                                                                            |           |            |        |            |        |          |        |        |        |         |       | V     |
|                               |                                                                            |           |            |        |            |        |          |        |        |        |         | V     |       |
|                               |                                                                            |           |            |        |            |        |          |        |        |        |         | V     |       |
|                               |                                                                            |           |            |        |            |        |          |        |        |        |         | V     |       |
|                               |                                                                            |           |            |        |            |        |          |        |        |        |         | V     |       |
|                               |                                                                            |           |            |        |            |        |          |        |        |        |         | V     |       |
| Remark                        | 1. No other spurious found.<br>2. All results are PASS against limit line. |           |            |        |            |        |          |        |        |        |         |       |       |



**Note symbol**

|     |                                                                                                                                                          |
|-----|----------------------------------------------------------------------------------------------------------------------------------------------------------|
| *   | <b>Fundamental Frequency</b> which can be ignored. However, the level of any unwanted emissions shall not exceed the level of the fundamental frequency. |
| !   | Test result is <b>over limit</b> line.                                                                                                                   |
| P/A | <b>Peak</b> or <b>Average</b>                                                                                                                            |
| H/V | <b>Horizontal</b> or <b>Vertical</b>                                                                                                                     |

A calculation example for radiated spurious emission is shown as below:

| WIFI    | Note | Frequency | Level      | Over   | Limit      | Read     | Antenna  | Cable  | Preamp | Ant    | Table   | Peak    | Pol.    |
|---------|------|-----------|------------|--------|------------|----------|----------|--------|--------|--------|---------|---------|---------|
| Ant.    |      |           |            | Limit  | Line       | Level    | Factor   | Loss   | Factor | Pos    | Pos     | Avg.    |         |
| 1       |      | ( MHz )   | ( dBμV/m ) | ( dB ) | ( dBμV/m ) | ( dBμV ) | ( dB/m ) | ( dB ) | ( dB ) | ( cm ) | ( deg ) | ( P/A ) | ( H/V ) |
| 802.11b |      | 2390      | 55.45      | -18.55 | 74         | 54.51    | 32.22    | 4.58   | 35.86  | 103    | 308     | P       | H       |
| CH 01   |      |           |            |        |            |          |          |        |        |        |         |         |         |
| 2412MHz |      | 2390      | 43.54      | -10.46 | 54         | 42.6     | 32.22    | 4.58   | 35.86  | 103    | 308     | A       | H       |

1. Level(dBμV/m) =

Antenna Factor(dB/m) + Cable Loss(dB) + Read Level(dBμV) - Preamp Factor(dB)

2. Over Limit(dB) = Level(dBμV/m) – Limit Line(dBμV/m)

**For Peak Limit @ 2390MHz:**

1. Level(dBμV/m)

= Antenna Factor(dB/m) + Cable Loss(dB) + Read Level(dBμV) - Preamp Factor(dB)

= 32.22(dB/m) + 4.58(dB) + 54.51(dBμV) – 35.86 (dB)

= 55.45 (dBμV/m)

2. Over Limit(dB)

= Level(dBμV/m) – Limit Line(dBμV/m)

= 55.45(dBμV/m) – 74(dBμV/m)

= -18.55(dB)

**For Average Limit @ 2390MHz:**

1. Level(dBμV/m)

= Antenna Factor(dB/m) + Cable Loss(dB) + Read Level(dBμV) - Preamp Factor(dB)

= 32.22(dB/m) + 4.58(dB) + 42.6(dBμV) – 35.86 (dB)

= 43.54 (dBμV/m)

2. Over Limit(dB)

= Level(dBμV/m) – Limit Line(dBμV/m)

= 43.54(dBμV/m) – 54(dBμV/m)

= -10.46(dB)

**Both peak and average measured complies with the limit line, so test result is “PASS”.**


**Band 4 - 5725~5850MHz**
**WIFI 802.11a (Band Edge @ 3m)**

| WIFI Ant.                    | Note | Frequency | Level      | Over Limit | Limit Line | Read Level | Antenna Factor | Cable Loss | Preamp Factor | Ant Pos | Table Pos | Peak Avg. | Pol.    |
|------------------------------|------|-----------|------------|------------|------------|------------|----------------|------------|---------------|---------|-----------|-----------|---------|
| 2                            |      | ( MHz )   | ( dBμV/m ) | ( dB )     | ( dBμV/m ) | ( dBμV )   | ( dB/m )       | ( dB )     | ( dB )        | ( cm )  | ( deg )   | ( P/A )   | ( H/V ) |
| 802.11a<br>CH 149<br>5745MHz |      | 5711.8    | 62.53      | -11.47     | 74         | 54.37      | 32.52          | 8.3        | 32.66         | 100     | 328       | P         | H       |
|                              |      | 5723.8    | 74.93      | -3.37      | 78.3       | 66.73      | 32.53          | 8.33       | 32.66         | 100     | 328       | P         | H       |
|                              |      | 5715      | 52.16      | -1.84      | 54         | 44         | 32.52          | 8.3        | 32.66         | 100     | 328       | A         | H       |
|                              | *    | 5747      | 110.22     | -          | -          | 102.02     | 32.54          | 8.33       | 32.67         | 100     | 328       | P         | H       |
|                              | *    | 5747      | 103.07     | -          | -          | 94.87      | 32.54          | 8.33       | 32.67         | 100     | 328       | A         | H       |
|                              |      |           |            |            |            |            |                |            |               |         |           |           | H       |
|                              |      |           |            |            |            |            |                |            |               |         |           |           | H       |
|                              |      |           |            |            |            |            |                |            |               |         |           |           | H       |
|                              |      | 5714.92   | 61.37      | -12.63     | 74         | 53.21      | 32.52          | 8.3        | 32.66         | 100     | 141       | P         | V       |
|                              |      | 5724.84   | 73.91      | -4.39      | 78.3       | 65.71      | 32.53          | 8.33       | 32.66         | 100     | 141       | P         | V       |
|                              |      | 5715      | 49.31      | -4.69      | 54         | 41.15      | 32.52          | 8.3        | 32.66         | 100     | 141       | A         | V       |
|                              | *    | 5743      | 106.35     | -          | -          | 98.15      | 32.54          | 8.33       | 32.67         | 100     | 141       | P         | V       |
|                              | *    | 5743      | 99.99      | -          | -          | 91.79      | 32.54          | 8.33       | 32.67         | 100     | 141       | A         | V       |
|                              |      |           |            |            |            |            |                |            |               |         |           |           | V       |
|                              |      |           |            |            |            |            |                |            |               |         |           |           | V       |
|                              |      |           |            |            |            |            |                |            |               |         |           |           | V       |



| WIFI<br>Ant.<br>2                     | Note | Frequency<br>( MHz ) | Level<br>( dBμV/m ) | Over<br>Limit<br>( dB ) | Limit<br>Line<br>( dBμV/m ) | Read<br>Level<br>( dBμV ) | Antenna<br>Factor<br>( dB/m ) | Cable<br>Loss<br>( dB ) | Preamp<br>Factor<br>( dB ) | Ant<br>Pos<br>( cm ) | Table<br>Pos<br>( deg ) | Peak<br>Avg.<br>( P/A ) | Pol.<br>( H/V ) |
|---------------------------------------|------|----------------------|---------------------|-------------------------|-----------------------------|---------------------------|-------------------------------|-------------------------|----------------------------|----------------------|-------------------------|-------------------------|-----------------|
| <b>802.11a<br/>CH 157<br/>5785MHz</b> |      | 5713.88              | 51.71               | -22.29                  | 74                          | 43.55                     | 32.52                         | 8.3                     | 32.66                      | 100                  | 302                     | P                       | H               |
|                                       |      | 5724.28              | 52.21               | -26.09                  | 78.3                        | 44.01                     | 32.53                         | 8.33                    | 32.66                      | 100                  | 302                     | P                       | H               |
|                                       |      | 5715                 | 43.4                | -10.6                   | 54                          | 35.24                     | 32.52                         | 8.3                     | 32.66                      | 100                  | 302                     | A                       | H               |
|                                       | *    | 5787                 | 112.22              | -                       | -                           | 103.97                    | 32.58                         | 8.35                    | 32.68                      | 100                  | 302                     | P                       | H               |
|                                       | *    | 5787                 | 105.22              | -                       | -                           | 96.97                     | 32.58                         | 8.35                    | 32.68                      | 100                  | 302                     | A                       | H               |
|                                       |      | 5853.68              | 51.4                | -26.9                   | 78.3                        | 43.05                     | 32.62                         | 8.43                    | 32.7                       | 100                  | 302                     | P                       | H               |
|                                       |      | 5869.92              | 51.33               | -22.67                  | 74                          | 42.99                     | 32.62                         | 8.43                    | 32.71                      | 100                  | 302                     | P                       | H               |
|                                       |      | 5860.08              | 42.25               | -11.75                  | 54                          | 33.91                     | 32.62                         | 8.43                    | 32.71                      | 100                  | 302                     | A                       | H               |
|                                       |      | 5708.12              | 51.9                | -22.1                   | 74                          | 43.74                     | 32.52                         | 8.3                     | 32.66                      | 100                  | 140                     | P                       | V               |
|                                       |      | 5721.24              | 53.96               | -24.34                  | 78.3                        | 45.79                     | 32.53                         | 8.3                     | 32.66                      | 100                  | 140                     | P                       | V               |
|                                       |      | 5714.6               | 41.47               | -12.53                  | 54                          | 33.31                     | 32.52                         | 8.3                     | 32.66                      | 100                  | 140                     | A                       | V               |
|                                       | *    | 5787                 | 107.3               | -                       | -                           | 99.05                     | 32.58                         | 8.35                    | 32.68                      | 100                  | 140                     | P                       | V               |
|                                       | *    | 5787                 | 100.3               | -                       | -                           | 92.05                     | 32.58                         | 8.35                    | 32.68                      | 100                  | 140                     | A                       | V               |
|                                       |      | 5852.08              | 49.38               | -28.92                  | 78.3                        | 41.04                     | 32.61                         | 8.43                    | 32.7                       | 100                  | 140                     | P                       | V               |
|                                       |      | 5866.56              | 50.37               | -23.63                  | 74                          | 42.03                     | 32.62                         | 8.43                    | 32.71                      | 100                  | 140                     | P                       | V               |
|                                       |      | 5860.72              | 40.93               | -13.07                  | 54                          | 32.59                     | 32.62                         | 8.43                    | 32.71                      | 100                  | 140                     | A                       | V               |



| WIFI<br>Ant.<br>2                     | Note                                                                                        | Frequency<br>( MHz ) | Level<br>( dBμV/m ) | Over<br>Limit<br>( dB ) | Limit<br>Line<br>( dBμV/m ) | Read<br>Level<br>( dBμV ) | Antenna<br>Factor<br>( dB/m ) | Cable<br>Loss<br>( dB ) | Preamp<br>Factor<br>( dB ) | Ant<br>Pos<br>( cm ) | Table<br>Pos<br>( deg ) | Peak<br>Avg.<br>( P/A ) | Pol.<br>( H/V ) |
|---------------------------------------|---------------------------------------------------------------------------------------------|----------------------|---------------------|-------------------------|-----------------------------|---------------------------|-------------------------------|-------------------------|----------------------------|----------------------|-------------------------|-------------------------|-----------------|
| <b>802.11a<br/>CH 165<br/>5825MHz</b> | *                                                                                           | 5827                 | 111.36              | -                       | -                           | 103.06                    | 32.6                          | 8.39                    | 32.69                      | 102                  | 302                     | P                       | H               |
|                                       | *                                                                                           | 5827                 | 104.26              | -                       | -                           | 95.96                     | 32.6                          | 8.39                    | 32.69                      | 102                  | 302                     | A                       | H               |
|                                       |                                                                                             | 5850.72              | 66.94               | -11.36                  | 78.3                        | 58.6                      | 32.61                         | 8.43                    | 32.7                       | 102                  | 302                     | P                       | H               |
|                                       |                                                                                             | 5861.2               | 60.11               | -13.89                  | 74                          | 51.77                     | 32.62                         | 8.43                    | 32.71                      | 102                  | 302                     | P                       | H               |
|                                       |                                                                                             | 5860                 | 51.3                | -2.7                    | 54                          | 42.96                     | 32.62                         | 8.43                    | 32.71                      | 102                  | 302                     | A                       | H               |
|                                       |                                                                                             |                      |                     |                         |                             |                           |                               |                         |                            |                      |                         |                         | H               |
|                                       |                                                                                             |                      |                     |                         |                             |                           |                               |                         |                            |                      |                         |                         | H               |
|                                       |                                                                                             |                      |                     |                         |                             |                           |                               |                         |                            |                      |                         |                         | H               |
|                                       | *                                                                                           | 5824                 | 107.13              | -                       | -                           | 98.83                     | 32.6                          | 8.39                    | 32.69                      | 100                  | 140                     | P                       | V               |
|                                       | *                                                                                           | 5824                 | 99.84               | -                       | -                           | 91.54                     | 32.6                          | 8.39                    | 32.69                      | 100                  | 140                     | A                       | V               |
|                                       |                                                                                             | 5850.88              | 66.05               | -12.25                  | 78.3                        | 57.71                     | 32.61                         | 8.43                    | 32.7                       | 100                  | 140                     | P                       | V               |
|                                       |                                                                                             | 5862.72              | 58.66               | -15.34                  | 74                          | 50.32                     | 32.62                         | 8.43                    | 32.71                      | 100                  | 140                     | P                       | V               |
|                                       |                                                                                             | 5860                 | 47.79               | -6.21                   | 54                          | 39.45                     | 32.62                         | 8.43                    | 32.71                      | 100                  | 140                     | A                       | V               |
|                                       |                                                                                             |                      |                     |                         |                             |                           |                               |                         |                            |                      |                         |                         | V               |
|                                       |                                                                                             |                      |                     |                         |                             |                           |                               |                         |                            |                      |                         |                         | V               |
|                                       |                                                                                             |                      |                     |                         |                             |                           |                               |                         |                            |                      |                         |                         | V               |
|                                       |                                                                                             |                      |                     |                         |                             |                           |                               |                         |                            |                      |                         |                         | V               |
|                                       |                                                                                             |                      |                     |                         |                             |                           |                               |                         |                            |                      |                         |                         | V               |
|                                       |                                                                                             |                      |                     |                         |                             |                           |                               |                         |                            |                      |                         |                         | V               |
| <b>Remark</b>                         | 3. No other spurious found.<br>4. All results are PASS against Peak and Average limit line. |                      |                     |                         |                             |                           |                               |                         |                            |                      |                         |                         |                 |



## Band 4 5725~5850MHz

## WIFI 802.11a (Harmonic @ 3m)

| WIFI<br>Ant.<br>2            | Note                                                                                        | Frequency<br>( MHz ) | Level<br>( dBμV/m ) | Over<br>Limit<br>( dB ) | Limit<br>Line<br>( dBμV/m ) | Read<br>Level<br>( dBμV ) | Antenna<br>Factor<br>( dB/m ) | Cable<br>Loss<br>( dB ) | Preamp<br>Factor<br>( dB ) | Ant<br>Pos<br>( cm ) | Table<br>Pos<br>( deg ) | Peak<br>Avg.<br>( P/A ) | Pol.<br>( H/V ) |
|------------------------------|---------------------------------------------------------------------------------------------|----------------------|---------------------|-------------------------|-----------------------------|---------------------------|-------------------------------|-------------------------|----------------------------|----------------------|-------------------------|-------------------------|-----------------|
| 802.11a<br>CH 149<br>5745MHz |                                                                                             | 11490                | 46.82               | -27.18                  | 74                          | 57.03                     | 40.01                         | 12.58                   | 62.8                       | 100                  | 0                       | P                       | H               |
|                              |                                                                                             | 17232                | 47.04               | -26.96                  | 74                          | 50.52                     | 41.05                         | 15.61                   | 60.14                      | 100                  | 0                       | P                       | H               |
|                              |                                                                                             |                      |                     |                         |                             |                           |                               |                         |                            |                      |                         |                         | H               |
|                              |                                                                                             |                      |                     |                         |                             |                           |                               |                         |                            |                      |                         |                         | H               |
|                              |                                                                                             | 11490                | 46.96               | -27.04                  | 74                          | 57.17                     | 40.01                         | 12.58                   | 62.8                       | 100                  | 0                       | P                       | V               |
|                              |                                                                                             | 17232                | 46.82               | -27.18                  | 74                          | 50.3                      | 41.05                         | 15.61                   | 60.14                      | 100                  | 0                       | P                       | V               |
|                              |                                                                                             |                      |                     |                         |                             |                           |                               |                         |                            |                      |                         |                         | V               |
|                              |                                                                                             |                      |                     |                         |                             |                           |                               |                         |                            |                      |                         |                         | V               |
| 802.11a<br>CH 157<br>5785MHz |                                                                                             | 11571                | 46.63               | -27.37                  | 74                          | 56.83                     | 39.88                         | 12.66                   | 62.74                      | 100                  | 0                       | P                       | H               |
|                              |                                                                                             | 17355                | 47.81               | -26.19                  | 74                          | 50.85                     | 41.38                         | 15.79                   | 60.21                      | 100                  | 0                       | P                       | H               |
|                              |                                                                                             |                      |                     |                         |                             |                           |                               |                         |                            |                      |                         |                         | H               |
|                              |                                                                                             |                      |                     |                         |                             |                           |                               |                         |                            |                      |                         |                         | H               |
|                              |                                                                                             | 11571                | 46.5                | -27.5                   | 74                          | 56.7                      | 39.88                         | 12.66                   | 62.74                      | 100                  | 0                       | P                       | V               |
|                              |                                                                                             | 17355                | 47.65               | -26.35                  | 74                          | 50.69                     | 41.38                         | 15.79                   | 60.21                      | 100                  | 0                       | P                       | V               |
|                              |                                                                                             |                      |                     |                         |                             |                           |                               |                         |                            |                      |                         |                         | V               |
|                              |                                                                                             |                      |                     |                         |                             |                           |                               |                         |                            |                      |                         |                         | V               |
| 802.11a<br>CH 165<br>5825MHz |                                                                                             | 11650                | 45.27               | -28.73                  | 74                          | 55.48                     | 39.75                         | 12.73                   | 62.69                      | 100                  | 0                       | P                       | H               |
|                              |                                                                                             | 17472                | 47.19               | -26.81                  | 74                          | 49.88                     | 41.71                         | 15.88                   | 60.28                      | 100                  | 0                       | P                       | H               |
|                              |                                                                                             |                      |                     |                         |                             |                           |                               |                         |                            |                      |                         |                         | H               |
|                              |                                                                                             |                      |                     |                         |                             |                           |                               |                         |                            |                      |                         |                         | H               |
|                              |                                                                                             | 11650                | 45.67               | -28.33                  | 74                          | 55.88                     | 39.75                         | 12.73                   | 62.69                      | 100                  | 0                       | P                       | V               |
|                              |                                                                                             | 17472                | 47.9                | -26.1                   | 74                          | 50.59                     | 41.71                         | 15.88                   | 60.28                      | 100                  | 0                       | P                       | V               |
|                              |                                                                                             |                      |                     |                         |                             |                           |                               |                         |                            |                      |                         |                         | V               |
|                              |                                                                                             |                      |                     |                         |                             |                           |                               |                         |                            |                      |                         |                         | V               |
| Remark                       | 3. No other spurious found.<br>4. All results are PASS against Peak and Average limit line. |                      |                     |                         |                             |                           |                               |                         |                            |                      |                         |                         |                 |

**Band 4 5725~5850MHz****WIFI 802.11n HT20 (Band Edge @ 3m)**

| WIFI<br>Ant.<br>2                              | Note | Frequency<br>( MHz ) | Level<br>( dBμV/m ) | Over<br>Limit<br>( dB ) | Limit<br>Line<br>( dBμV/m ) | Read<br>Level<br>( dBμV ) | Antenna<br>Factor<br>( dB/m ) | Cable<br>Loss<br>( dB ) | Preamp<br>Factor<br>( dB ) | Ant<br>Pos<br>( cm ) | Table<br>Pos<br>( deg ) | Peak<br>Avg.<br>( P/A ) | Pol.<br>( H/V ) |
|------------------------------------------------|------|----------------------|---------------------|-------------------------|-----------------------------|---------------------------|-------------------------------|-------------------------|----------------------------|----------------------|-------------------------|-------------------------|-----------------|
| <b>802.11n<br/>HT20<br/>CH 149<br/>5745MHz</b> |      | 5714.52              | 60.39               | -13.61                  | 74                          | 52.23                     | 32.52                         | 8.3                     | 32.66                      | 100                  | 324                     | P                       | H               |
|                                                |      | 5724.92              | 73.37               | -4.93                   | 78.3                        | 65.17                     | 32.53                         | 8.33                    | 32.66                      | 100                  | 324                     | P                       | H               |
|                                                |      | 5714.36              | 50.93               | -3.07                   | 54                          | 42.77                     | 32.52                         | 8.3                     | 32.66                      | 100                  | 324                     | A                       | H               |
|                                                | *    | 5746                 | 109.29              | -                       | -                           | 101.09                    | 32.54                         | 8.33                    | 32.67                      | 100                  | 324                     | P                       | H               |
|                                                | *    | 5746                 | 102.33              | -                       | -                           | 94.13                     | 32.54                         | 8.33                    | 32.67                      | 100                  | 324                     | A                       | H               |
|                                                |      |                      |                     |                         |                             |                           |                               |                         |                            |                      |                         |                         | H               |
|                                                |      |                      |                     |                         |                             |                           |                               |                         |                            |                      |                         |                         | H               |
|                                                |      |                      |                     |                         |                             |                           |                               |                         |                            |                      |                         |                         | H               |
|                                                |      | 5709.72              | 57.43               | -16.57                  | 74                          | 49.27                     | 32.52                         | 8.3                     | 32.66                      | 100                  | 139                     | P                       | V               |
|                                                |      | 5724.44              | 67.17               | -11.13                  | 78.3                        | 58.97                     | 32.53                         | 8.33                    | 32.66                      | 100                  | 139                     | P                       | V               |
|                                                |      | 5715                 | 47.66               | -6.34                   | 54                          | 39.5                      | 32.52                         | 8.3                     | 32.66                      | 100                  | 139                     | A                       | V               |
|                                                | *    | 5747                 | 105.48              | -                       | -                           | 97.28                     | 32.54                         | 8.33                    | 32.67                      | 100                  | 139                     | P                       | V               |
|                                                | *    | 5747                 | 98.69               | -                       | -                           | 90.49                     | 32.54                         | 8.33                    | 32.67                      | 100                  | 139                     | A                       | V               |
|                                                |      |                      |                     |                         |                             |                           |                               |                         |                            |                      |                         |                         | V               |
|                                                |      |                      |                     |                         |                             |                           |                               |                         |                            |                      |                         |                         | V               |
|                                                |      |                      |                     |                         |                             |                           |                               |                         |                            |                      |                         |                         | V               |



| WIFI<br>Ant.<br>2                    | Note | Frequency<br>( MHz ) | Level<br>( dBμV/m ) | Over<br>Limit<br>( dB ) | Limit<br>Line<br>( dBμV/m ) | Read<br>Level<br>( dBμV ) | Antenna<br>Factor<br>( dB/m ) | Cable<br>Loss<br>( dB ) | Preamp<br>Factor<br>( dB ) | Ant<br>Pos<br>( cm ) | Table<br>Pos<br>( deg ) | Peak<br>Avg.<br>( P/A ) | Pol.<br>( H/V ) |
|--------------------------------------|------|----------------------|---------------------|-------------------------|-----------------------------|---------------------------|-------------------------------|-------------------------|----------------------------|----------------------|-------------------------|-------------------------|-----------------|
| 802.11n<br>HT20<br>CH 157<br>5785MHz |      | 5708.68              | 51.19               | -22.81                  | 74                          | 43.03                     | 32.52                         | 8.3                     | 32.66                      | 100                  | 301                     | P                       | H               |
|                                      |      | 5719.16              | 52.06               | -26.24                  | 78.3                        | 43.89                     | 32.53                         | 8.3                     | 32.66                      | 100                  | 301                     | P                       | H               |
|                                      |      | 5712.76              | 43.67               | -10.33                  | 54                          | 35.51                     | 32.52                         | 8.3                     | 32.66                      | 100                  | 301                     | A                       | H               |
|                                      | *    | 5787                 | 111.6               | -                       | -                           | 103.35                    | 32.58                         | 8.35                    | 32.68                      | 100                  | 301                     | P                       | H               |
|                                      | *    | 5787                 | 104.5               | -                       | -                           | 96.25                     | 32.58                         | 8.35                    | 32.68                      | 100                  | 301                     | A                       | H               |
|                                      |      | 5855.36              | 52.25               | -26.05                  | 78.3                        | 43.9                      | 32.62                         | 8.43                    | 32.7                       | 100                  | 301                     | P                       | H               |
|                                      |      | 5870.24              | 50.26               | -23.74                  | 74                          | 41.92                     | 32.62                         | 8.43                    | 32.71                      | 100                  | 301                     | P                       | H               |
|                                      |      | 5860                 | 42.78               | -11.22                  | 54                          | 34.44                     | 32.62                         | 8.43                    | 32.71                      | 100                  | 301                     | A                       | H               |
|                                      |      | 5688.76              | 50.43               | -23.57                  | 74                          | 42.27                     | 32.51                         | 8.3                     | 32.65                      | 104                  | 140                     | P                       | V               |
|                                      |      | 5723.08              | 49.86               | -28.44                  | 78.3                        | 41.66                     | 32.53                         | 8.33                    | 32.66                      | 104                  | 140                     | P                       | V               |
|                                      |      | 5697.24              | 41.79               | -12.21                  | 54                          | 33.63                     | 32.51                         | 8.3                     | 32.65                      | 104                  | 140                     | A                       | V               |
|                                      | *    | 5783                 | 106.64              | -                       | -                           | 98.4                      | 32.57                         | 8.35                    | 32.68                      | 104                  | 140                     | P                       | V               |
|                                      | *    | 5783                 | 99.64               | -                       | -                           | 91.4                      | 32.57                         | 8.35                    | 32.68                      | 104                  | 140                     | A                       | V               |
|                                      |      | 5853.2               | 49.94               | -28.36                  | 78.3                        | 41.6                      | 32.61                         | 8.43                    | 32.7                       | 104                  | 140                     | P                       | V               |
|                                      |      | 5879.04              | 50.19               | -23.81                  | 74                          | 41.84                     | 32.63                         | 8.43                    | 32.71                      | 104                  | 140                     | P                       | V               |
|                                      |      | 5869.76              | 41.39               | -12.61                  | 54                          | 33.05                     | 32.62                         | 8.43                    | 32.71                      | 104                  | 140                     | A                       | V               |



| WIFI<br>Ant.<br>2                    | Note                                                         | Frequency<br>( MHz ) | Level<br>( dBμV/m ) | Over<br>Limit<br>( dB ) | Limit<br>Line<br>( dBμV/m ) | Read<br>Level<br>( dBμV ) | Antenna<br>Factor<br>( dB/m ) | Cable<br>Loss<br>( dB ) | Preamp<br>Factor<br>( dB ) | Ant<br>Pos<br>( cm ) | Table<br>Pos<br>( deg ) | Peak<br>Avg.<br>( P/A ) | Pol.<br>( H/V ) |
|--------------------------------------|--------------------------------------------------------------|----------------------|---------------------|-------------------------|-----------------------------|---------------------------|-------------------------------|-------------------------|----------------------------|----------------------|-------------------------|-------------------------|-----------------|
| 802.11n<br>HT20<br>CH 165<br>5825MHz | *                                                            | 5827                 | 110.86              | -                       | -                           | 102.56                    | 32.6                          | 8.39                    | 32.69                      | 100                  | 301                     | P                       | H               |
|                                      | *                                                            | 5827                 | 103.67              | -                       | -                           | 95.37                     | 32.6                          | 8.39                    | 32.69                      | 100                  | 301                     | A                       | H               |
|                                      |                                                              | 5851.36              | 69.72               | -8.58                   | 78.3                        | 61.38                     | 32.61                         | 8.43                    | 32.7                       | 100                  | 301                     | P                       | H               |
|                                      |                                                              | 5862.56              | 64.51               | -9.49                   | 74                          | 56.17                     | 32.62                         | 8.43                    | 32.71                      | 100                  | 301                     | P                       | H               |
|                                      |                                                              | 5860.08              | 52.47               | -1.53                   | 54                          | 44.13                     | 32.62                         | 8.43                    | 32.71                      | 100                  | 301                     | A                       | H               |
|                                      |                                                              |                      |                     |                         |                             |                           |                               |                         |                            |                      |                         |                         | H               |
|                                      |                                                              |                      |                     |                         |                             |                           |                               |                         |                            |                      |                         |                         | H               |
|                                      |                                                              |                      |                     |                         |                             |                           |                               |                         |                            |                      |                         |                         | H               |
|                                      | *                                                            | 5823                 | 106.06              | -                       | -                           | 97.76                     | 32.6                          | 8.39                    | 32.69                      | 100                  | 144                     | P                       | V               |
|                                      | *                                                            | 5823                 | 99.39               | -                       | -                           | 91.09                     | 32.6                          | 8.39                    | 32.69                      | 100                  | 144                     | A                       | V               |
|                                      |                                                              | 5850                 | 64.79               | -9.21                   | 74                          | 56.45                     | 32.61                         | 8.43                    | 32.7                       | 100                  | 144                     | P                       | V               |
|                                      |                                                              | 5860.08              | 58.56               | -15.44                  | 74                          | 50.22                     | 32.62                         | 8.43                    | 32.71                      | 100                  | 144                     | P                       | V               |
|                                      |                                                              | 5860.16              | 49.41               | -4.59                   | 54                          | 41.07                     | 32.62                         | 8.43                    | 32.71                      | 100                  | 144                     | A                       | V               |
|                                      |                                                              |                      |                     |                         |                             |                           |                               |                         |                            |                      |                         |                         | V               |
|                                      |                                                              |                      |                     |                         |                             |                           |                               |                         |                            |                      |                         |                         | V               |
|                                      |                                                              |                      |                     |                         |                             |                           |                               |                         |                            |                      |                         |                         | V               |
| Remark                               | 3. No other spurious found.                                  |                      |                     |                         |                             |                           |                               |                         |                            |                      |                         |                         |                 |
|                                      | 4. All results are PASS against Peak and Average limit line. |                      |                     |                         |                             |                           |                               |                         |                            |                      |                         |                         |                 |



## Band 4 5725~5850MHz

## WIFI 802.11n HT20 (Harmonic @ 3m)

| WIFI<br>Ant.<br>2                    | Note                                                                                        | Frequency<br>( MHz ) | Level<br>( dBμV/m ) | Over<br>Limit<br>( dB ) | Limit<br>Line<br>( dBμV/m ) | Read<br>Level<br>( dBμV ) | Antenna<br>Factor<br>( dB/m ) | Cable<br>Loss<br>( dB ) | Preamp<br>Factor<br>( dB ) | Ant<br>Pos<br>( cm ) | Table<br>Pos<br>( deg ) | Peak<br>Avg.<br>(P/A) | Pol.<br>(H/V) |
|--------------------------------------|---------------------------------------------------------------------------------------------|----------------------|---------------------|-------------------------|-----------------------------|---------------------------|-------------------------------|-------------------------|----------------------------|----------------------|-------------------------|-----------------------|---------------|
| 802.11n<br>HT20<br>CH 149<br>5745MHz |                                                                                             | 11490                | 46.79               | -27.21                  | 74                          | 57                        | 40.01                         | 12.58                   | 62.8                       | 100                  | 0                       | P                     | H             |
|                                      |                                                                                             | 17232                | 46.46               | -27.54                  | 74                          | 49.94                     | 41.05                         | 15.61                   | 60.14                      | 100                  | 0                       | P                     | H             |
|                                      |                                                                                             |                      |                     |                         |                             |                           |                               |                         |                            |                      |                         |                       | H             |
|                                      |                                                                                             |                      |                     |                         |                             |                           |                               |                         |                            |                      |                         |                       | H             |
|                                      |                                                                                             | 11490                | 46.37               | -27.63                  | 74                          | 56.58                     | 40.01                         | 12.58                   | 62.8                       | 100                  | 0                       | P                     | V             |
|                                      |                                                                                             | 17232                | 46.61               | -27.39                  | 74                          | 50.09                     | 41.05                         | 15.61                   | 60.14                      | 100                  | 0                       | P                     | V             |
|                                      |                                                                                             |                      |                     |                         |                             |                           |                               |                         |                            |                      |                         |                       | V             |
|                                      |                                                                                             |                      |                     |                         |                             |                           |                               |                         |                            |                      |                         |                       | V             |
| 802.11n<br>HT20<br>CH 157<br>5785MHz |                                                                                             | 11570                | 46.52               | -27.48                  | 74                          | 56.72                     | 39.88                         | 12.66                   | 62.74                      | 100                  | 0                       | P                     | H             |
|                                      |                                                                                             | 17352                | 47.57               | -26.43                  | 74                          | 50.65                     | 41.38                         | 15.75                   | 60.21                      | 100                  | 0                       | P                     | H             |
|                                      |                                                                                             |                      |                     |                         |                             |                           |                               |                         |                            |                      |                         |                       | H             |
|                                      |                                                                                             |                      |                     |                         |                             |                           |                               |                         |                            |                      |                         |                       | H             |
|                                      |                                                                                             | 11570                | 46.26               | -27.74                  | 74                          | 56.46                     | 39.88                         | 12.66                   | 62.74                      | 100                  | 0                       | P                     | V             |
|                                      |                                                                                             | 17352                | 48.12               | -25.88                  | 74                          | 51.2                      | 41.38                         | 15.75                   | 60.21                      | 100                  | 0                       | P                     | V             |
|                                      |                                                                                             |                      |                     |                         |                             |                           |                               |                         |                            |                      |                         |                       | V             |
|                                      |                                                                                             |                      |                     |                         |                             |                           |                               |                         |                            |                      |                         |                       | V             |
| 802.11n<br>HT20<br>CH 165<br>5825MHz |                                                                                             | 11650                | 45.55               | -28.45                  | 74                          | 55.76                     | 39.75                         | 12.73                   | 62.69                      | 100                  | 0                       | P                     | H             |
|                                      |                                                                                             | 17472                | 48.61               | -25.39                  | 74                          | 51.3                      | 41.71                         | 15.88                   | 60.28                      | 100                  | 0                       | P                     | H             |
|                                      |                                                                                             |                      |                     |                         |                             |                           |                               |                         |                            |                      |                         |                       | H             |
|                                      |                                                                                             |                      |                     |                         |                             |                           |                               |                         |                            |                      |                         |                       | H             |
|                                      |                                                                                             | 11650                | 45.53               | -28.47                  | 74                          | 55.74                     | 39.75                         | 12.73                   | 62.69                      | 100                  | 0                       | P                     | V             |
|                                      |                                                                                             | 17472                | 48.21               | -25.79                  | 74                          | 50.9                      | 41.71                         | 15.88                   | 60.28                      | 100                  | 0                       | P                     | V             |
|                                      |                                                                                             |                      |                     |                         |                             |                           |                               |                         |                            |                      |                         |                       | V             |
|                                      |                                                                                             |                      |                     |                         |                             |                           |                               |                         |                            |                      |                         |                       | V             |
| Remark                               | 3. No other spurious found.<br>4. All results are PASS against Peak and Average limit line. |                      |                     |                         |                             |                           |                               |                         |                            |                      |                         |                       |               |

### Emission below 1GHz

**5GHz WIFI 802.11n HT20 (LF @ 3m)**

| WIFI                          | Note                                                                       | Frequency | Level      | Over   | Limit      | Read   | Antenna  | Cable  | Preamp | Ant    | Table   | Peak  | Pol.  |
|-------------------------------|----------------------------------------------------------------------------|-----------|------------|--------|------------|--------|----------|--------|--------|--------|---------|-------|-------|
| Ant.                          |                                                                            |           |            | Limit  | Line       | Level  | Factor   | Loss   | Factor | Pos    | Pos     | Avg.  |       |
| 2                             |                                                                            | ( MHz )   | ( dBμV/m ) | ( dB ) | ( dBμV/m ) | (dBμV) | ( dB/m ) | ( dB ) | ( dB ) | ( cm ) | ( deg ) | (P/A) | (H/V) |
| 5GHz<br>802.11n<br>HT20<br>LF |                                                                            | 227.91    | 29.76      | -16.24 | 46         | 49.95  | 10.92    | 1.62   | 32.73  |        |         | P     | H     |
|                               |                                                                            | 264.09    | 29.85      | -16.15 | 46         | 41.18  | 19.64    | 1.76   | 32.73  | 100    | 0       | P     | H     |
|                               |                                                                            | 288.12    | 27.9       | -18.1  | 46         | 45.21  | 13.54    | 1.88   | 32.73  |        |         | P     | H     |
|                               |                                                                            | 311.9     | 27.95      | -18.05 | 46         | 44.66  | 14.15    | 1.88   | 32.74  |        |         | P     | H     |
|                               |                                                                            | 360.2     | 20.8       | -25.2  | 46         | 36.21  | 15.45    | 1.94   | 32.8   |        |         | P     | H     |
|                               |                                                                            | 975.5     | 26.57      | -27.43 | 54         | 30.48  | 24.2     | 3.38   | 31.49  |        |         | P     | H     |
|                               |                                                                            |           |            |        |            |        |          |        |        |        |         |       | H     |
|                               |                                                                            |           |            |        |            |        |          |        |        |        |         |       | H     |
|                               |                                                                            |           |            |        |            |        |          |        |        |        |         |       | H     |
|                               |                                                                            |           |            |        |            |        |          |        |        |        |         |       | H     |
|                               |                                                                            |           |            |        |            |        |          |        |        |        |         |       | H     |
|                               |                                                                            |           |            |        |            |        |          |        |        |        |         |       | H     |
|                               |                                                                            | 40.26     | 30.85      | -9.15  | 40         | 43.06  | 19.94    | 0.65   | 32.8   | 100    | 56      | P     | V     |
|                               |                                                                            | 240.06    | 28.74      | -17.26 | 46         | 47.87  | 11.98    | 1.62   | 32.73  |        |         | P     | V     |
|                               |                                                                            | 264.09    | 27.36      | -18.64 | 46         | 44.59  | 13.74    | 1.76   | 32.73  |        |         | P     | V     |
|                               |                                                                            | 311.9     | 18.85      | -27.15 | 46         | 35.56  | 14.15    | 1.88   | 32.74  |        |         | P     | V     |
|                               |                                                                            | 524.7     | 19.47      | -26.53 | 46         | 31.5   | 18.45    | 2.47   | 32.95  |        |         | P     | V     |
|                               |                                                                            | 861.4     | 25.01      | -20.99 | 46         | 31.72  | 22.66    | 3.16   | 32.53  |        |         | P     | V     |
|                               |                                                                            |           |            |        |            |        |          |        |        |        |         |       | V     |
|                               |                                                                            |           |            |        |            |        |          |        |        |        |         |       | V     |
|                               |                                                                            |           |            |        |            |        |          |        |        |        |         | V     |       |
|                               |                                                                            |           |            |        |            |        |          |        |        |        |         | V     |       |
|                               |                                                                            |           |            |        |            |        |          |        |        |        |         | V     |       |
|                               |                                                                            |           |            |        |            |        |          |        |        |        |         | V     |       |
|                               |                                                                            |           |            |        |            |        |          |        |        |        |         | V     |       |
| Remark                        | 3. No other spurious found.<br>4. All results are PASS against limit line. |           |            |        |            |        |          |        |        |        |         |       |       |



**Note symbol**

|     |                                                                                                                                                          |
|-----|----------------------------------------------------------------------------------------------------------------------------------------------------------|
| *   | <b>Fundamental Frequency</b> which can be ignored. However, the level of any unwanted emissions shall not exceed the level of the fundamental frequency. |
| !   | Test result is <b>over limit</b> line.                                                                                                                   |
| P/A | <b>Peak</b> or <b>Average</b>                                                                                                                            |
| H/V | <b>Horizontal</b> or <b>Vertical</b>                                                                                                                     |

A calculation example for radiated spurious emission is shown as below:

| WIFI    | Note | Frequency | Level      | Over   | Limit      | Read     | Antenna  | Cable  | Preamp | Ant    | Table   | Peak    | Pol.    |
|---------|------|-----------|------------|--------|------------|----------|----------|--------|--------|--------|---------|---------|---------|
| Ant.    |      |           |            | Limit  | Line       | Level    | Factor   | Loss   | Factor | Pos    | Pos     | Avg.    |         |
| 2       |      | ( MHz )   | ( dBμV/m ) | ( dB ) | ( dBμV/m ) | ( dBμV ) | ( dB/m ) | ( dB ) | ( dB ) | ( cm ) | ( deg ) | ( P/A ) | ( H/V ) |
| 802.11b |      | 2390      | 55.45      | -18.55 | 74         | 54.51    | 32.22    | 4.58   | 35.86  | 103    | 308     | P       | H       |
| CH 01   |      |           |            |        |            |          |          |        |        |        |         |         |         |
| 2412MHz |      | 2390      | 43.54      | -10.46 | 54         | 42.6     | 32.22    | 4.58   | 35.86  | 103    | 308     | A       | H       |

3. Level(dBμV/m) =

Antenna Factor(dB/m) + Cable Loss(dB) + Read Level(dBμV) - Preamp Factor(dB)

4. Over Limit(dB) = Level(dBμV/m) – Limit Line(dBμV/m)

**For Peak Limit @ 2390MHz:**

3. Level(dBμV/m)

= Antenna Factor(dB/m) + Cable Loss(dB) + Read Level(dBμV) - Preamp Factor(dB)

= 32.22(dB/m) + 4.58(dB) + 54.51(dBμV) – 35.86 (dB)

= 55.45 (dBμV/m)

4. Over Limit(dB)

= Level(dBμV/m) – Limit Line(dBμV/m)

= 55.45(dBμV/m) – 74(dBμV/m)

= -18.55(dB)

**For Average Limit @ 2390MHz:**

3. Level(dBμV/m)

= Antenna Factor(dB/m) + Cable Loss(dB) + Read Level(dBμV) - Preamp Factor(dB)

= 32.22(dB/m) + 4.58(dB) + 42.6(dBμV) – 35.86 (dB)

= 43.54 (dBμV/m)

4. Over Limit(dB)

= Level(dBμV/m) – Limit Line(dBμV/m)

= 43.54(dBμV/m) – 54(dBμV/m)

= -10.46(dB)

**Both peak and average measured complies with the limit line, so test result is “PASS”.**



## **Appendix C. Radiated Spurious Emission Plots**

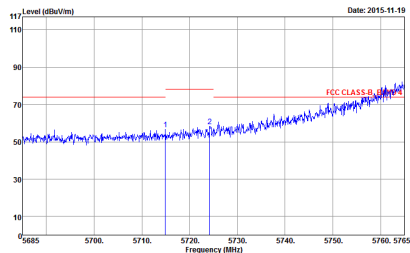
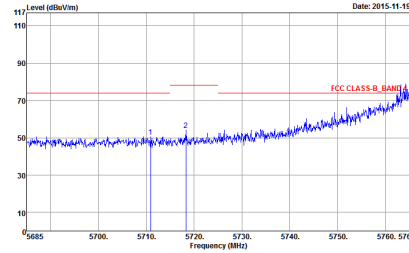
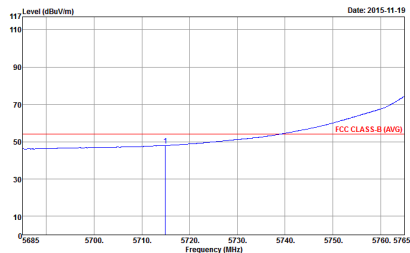
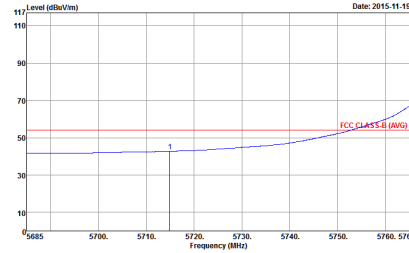
### **Note symbol**

|    |                       |
|----|-----------------------|
| -L | Low channel location  |
| -R | High channel location |



Band 4 - 5725~5850MHz  
WIFI 802.11a (Band Edge @ 3m)

| WIFI | Band 4 5725~5850MHz Band Edge @ 3m                                                                                                                                                                          |                                                                                                                                                                                                           |
|------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ANT  | 802.11a CH149 5745MHz                                                                                                                                                                                       |                                                                                                                                                                                                           |
| 1    | Horizontal                                                                                                                                                                                                  | Vertical                                                                                                                                                                                                  |
| Peak | <p>Site : 03CH10-HY<br/>Condition : FCC CLASS-B_BAND 4 3m HORN 9120D-HF HORIZONTAL<br/>Detector : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto<br/>Project : Peak<br/>Mode : 3N0602-02<br/>Date: 2015-11-19</p> | <p>Site : 03CH10-HY<br/>Condition : FCC CLASS-B_BAND 4 3m HORN 9120D-HF VERTICAL<br/>Detector : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto<br/>Project : Peak<br/>Mode : 3N0602-02<br/>Date: 2015-11-19</p> |
| Avg. | <p>Site : 03CH10-HY<br/>Condition : FCC CLASS-B (AVG) 3m HORN 9120D-HF HORIZONTAL<br/>Detector : RBW:1000.000KHz VBW:0.010KHz SWT:Auto<br/>Project : Peak<br/>Mode : 3N0602-02<br/>Date: 2015-11-19</p>     | <p>Site : 03CH10-HY<br/>Condition : FCC CLASS-B (AVG) 3m HORN 9120D-HF VERTICAL<br/>Detector : RBW:1000.000KHz VBW:0.010KHz SWT:Auto<br/>Project : Peak<br/>Mode : 3N0602-02<br/>Date: 2015-11-19</p>     |

| WIFI | Band 4 5725~5850MHz Band Edge @ 3m                                                                                                                                                                                                 |                                                                                                                                                                                                                                   |
|------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ANT  | 802.11a CH157 5785MHz - L                                                                                                                                                                                                          |                                                                                                                                                                                                                                   |
| 1    | Horizontal                                                                                                                                                                                                                         | Vertical                                                                                                                                                                                                                          |
| Peak |  <p>Site : 03CH10-HV<br/>Condition : FCC CLASS-B_BAND 4 3m HORN 9120D-HF HORIZONTAL<br/>Detector : Peak<br/>Project : 3N0602-02<br/>Mode : 2</p>  |  <p>Site : 03CH10-HV<br/>Condition : FCC CLASS-B_BAND 4 3m HORN 9120D-HF VERTICAL<br/>Detector : Peak<br/>Project : 3N0602-02<br/>Mode : 2</p>  |
| Avg. |  <p>Site : 03CH10-HV<br/>Condition : FCC CLASS-B (AVG) 3m HORN 9120D-HF HORIZONTAL<br/>Detector : Peak<br/>Project : 3N0602-02<br/>Mode : 2</p> |  <p>Site : 03CH10-HV<br/>Condition : FCC CLASS-B (AVG) 3m HORN 9120D-HF VERTICAL<br/>Detector : Peak<br/>Project : 3N0602-02<br/>Mode : 2</p> |

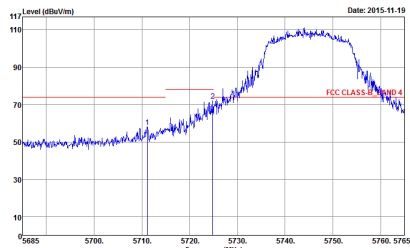
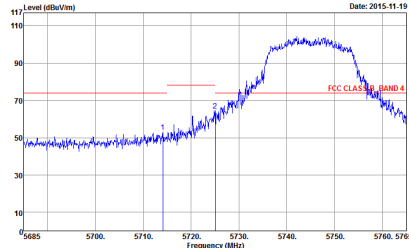
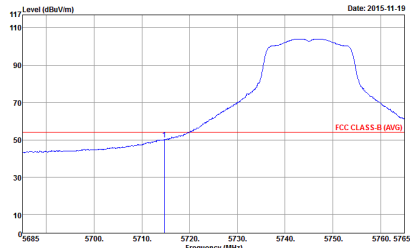
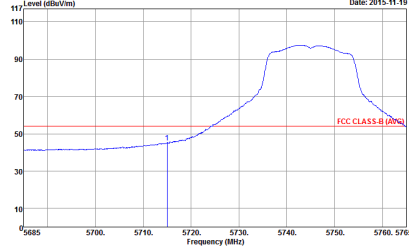


| WIFI | Band 4 5725~5850MHz Band Edge @ 3m                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ANT  | 802.11a CH157 5785MHz - R                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| 1    | Horizontal                                                                                                                                                                                                                                                                                                                                                                                                                                               | Vertical                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Peak | <p>Horizontal Peak Spectrum Plot showing Level (dBuV/m) vs Frequency (MHz) from 5810 to 5890 MHz. The plot shows a noisy baseline with two vertical markers labeled 1 and 2. A red line indicates the FCC CLASS-B_BAND 4 limit. The date is 2015-11-19.</p> <p>Site : 03CH10-HY<br/>Condition : FCC CLASS-B_BAND 4 3m HORN 9120D-HF HORIZONTAL<br/>RBW:1000.000KHz VBW:3000.000KHz SWT:Auto<br/>Detector : Peak<br/>Project : 3N0602-02<br/>Mode : 2</p> | <p>Vertical Peak Spectrum Plot showing Level (dBuV/m) vs Frequency (MHz) from 5810 to 5890 MHz. The plot shows a noisy baseline with two vertical markers labeled 1 and 2. A red line indicates the FCC CLASS-B_BAND 4 limit. The date is 2015-11-19.</p> <p>Site : 03CH10-HY<br/>Condition : FCC CLASS-B_BAND 4 3m HORN 9120D-HF VERTICAL<br/>RBW:1000.000KHz VBW:3000.000KHz SWT:Auto<br/>Detector : Peak<br/>Project : 3N0602-02<br/>Mode : 2</p> |
| Avg. | <p>Horizontal Avg. Spectrum Plot showing Level (dBuV/m) vs Frequency (MHz) from 5810 to 5890 MHz. The plot shows a smooth curve representing the average signal level. A red line indicates the FCC CLASS-B (AVG) limit. The date is 2015-11-19.</p> <p>Site : 03CH10-HY<br/>Condition : FCC CLASS-B (AVG) 3m HORN 9120D-HF HORIZONTAL<br/>RBW:1000.000KHz VBW:0.010KHz SWT:Auto<br/>Detector : Peak<br/>Project : 3N0602-02<br/>Mode : 2</p>            | <p>Vertical Avg. Spectrum Plot showing Level (dBuV/m) vs Frequency (MHz) from 5810 to 5890 MHz. The plot shows a smooth curve representing the average signal level. A red line indicates the FCC CLASS-B (AVG) limit. The date is 2015-11-19.</p> <p>Site : 03CH10-HY<br/>Condition : FCC CLASS-B (AVG) 3m HORN 9120D-HF VERTICAL<br/>RBW:1000.000KHz VBW:0.010KHz SWT:Auto<br/>Detector : Peak<br/>Project : 3N0602-02<br/>Mode : 2</p>            |

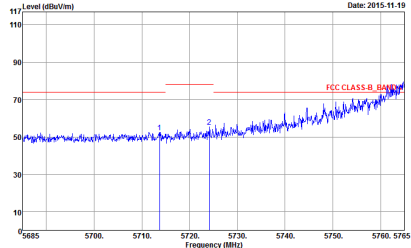
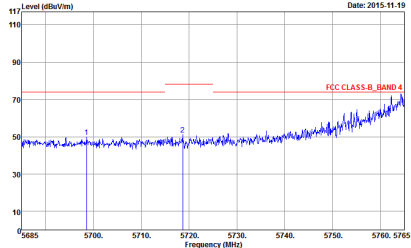
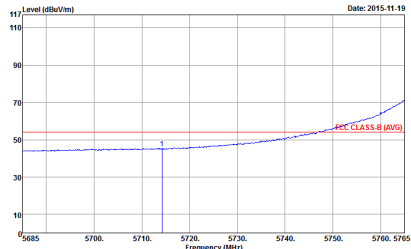
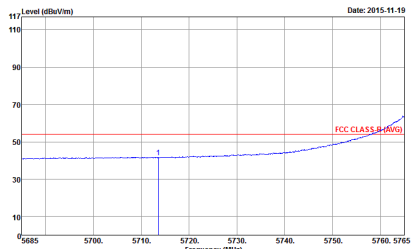


| WIFI | Band 4 5725~5850MHz Band Edge @ 3m                                                                                                                                                                      |                                                                                                                                                                                                       |
|------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ANT  | 802.11a CH165 5825MHz                                                                                                                                                                                   |                                                                                                                                                                                                       |
| 1    | Horizontal                                                                                                                                                                                              | Vertical                                                                                                                                                                                              |
| Peak | <div><p>Site : 03CH10-HY<br/>Condition : FCC CLASS-B_BAND 4 3m HORN 9120D-HF HORIZONTAL<br/>RBW:1000.000KHz VBW:3000.000KHz SWT:Auto<br/>Detector : Peak<br/>Project : 3N0602-02<br/>Mode : 3</p></div> | <div><p>Site : 03CH10-HY<br/>Condition : FCC CLASS-B_BAND 4 3m HORN 9120D-HF VERTICAL<br/>RBW:1000.000KHz VBW:3000.000KHz SWT:Auto<br/>Detector : Peak<br/>Project : 3N0602-02<br/>Mode : 3</p></div> |
| Avg. | <div><p>Site : 03CH10-HY<br/>Condition : FCC CLASS-B (AVG) 3m HORN 9120D-HF HORIZONTAL<br/>RBW:1000.000KHz VBW:0.010KHz SWT:Auto<br/>Detector : Peak<br/>Project : 3N0602-02<br/>Mode : 3</p></div>     | <div><p>Site : 03CH10-HY<br/>Condition : FCC CLASS-B (AVG) 3m HORN 9120D-HF VERTICAL<br/>RBW:1000.000KHz VBW:0.010KHz SWT:Auto<br/>Detector : Peak<br/>Project : 3N0602-02<br/>Mode : 3</p></div>     |

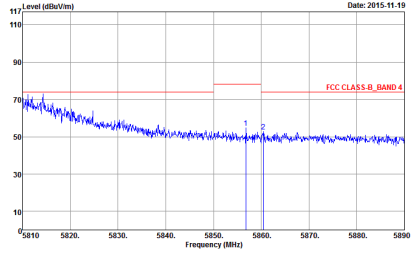
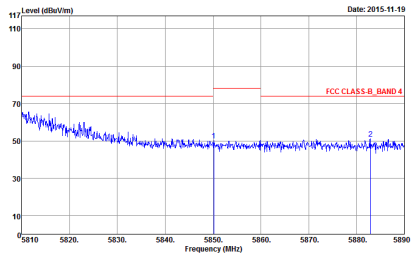
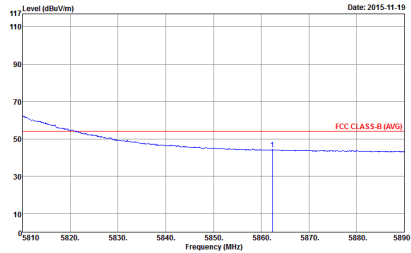
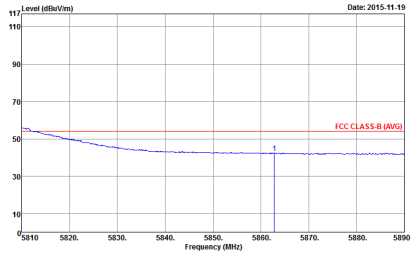
**Band 4 5725~5850MHz**  
**WIFI 802.11n HT20 (Band Edge @ 3m)**

| WIFI        | Band 4 5725~5850MHz Band Edge @ 3m                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                    |
|-------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ANT         | 802.11n HT20 CH149 5745MHz                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                    |
| 1           | Horizontal                                                                                                                                                                                                                                                                          | Vertical                                                                                                                                                                                                                                                                           |
| <b>Peak</b> |  <p>Site : 03CH10-HY<br/> Condition : FCC CLASS-B_BAND 4 3m HORN 9120D-HF HORIZONTAL<br/> RBW:1000.000KHz VBW:3000.000KHz SWT:Auto<br/> Detector : Peak<br/> Project : 3N0602-02<br/> Mode : 4</p> |  <p>Site : 03CH10-HY<br/> Condition : FCC CLASS-B_BAND 4 3m HORN 9120D-HF VERTICAL<br/> RBW:1000.000KHz VBW:3000.000KHz SWT:Auto<br/> Detector : Peak<br/> Project : 3N0602-02<br/> Mode : 4</p> |
| <b>Avg.</b> |  <p>Site : 03CH10-HY<br/> Condition : FCC CLASS-B (AVG) 3m HORN 9120D-HF HORIZONTAL<br/> RBW:1000.000KHz VBW:1000KHz SWT:Auto<br/> Detector : Peak<br/> Project : 3N0602-02<br/> Mode : 4</p>    |  <p>Site : 03CH10-HY<br/> Condition : FCC CLASS-B (AVG) 3m HORN 9120D-HF VERTICAL<br/> RBW:1000.000KHz VBW:1000KHz SWT:Auto<br/> Detector : Peak<br/> Project : 3N0602-02<br/> Mode : 4</p>    |

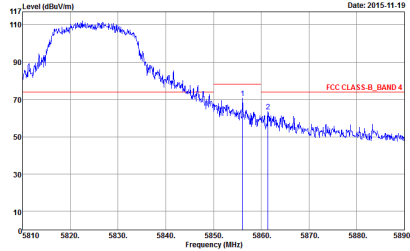
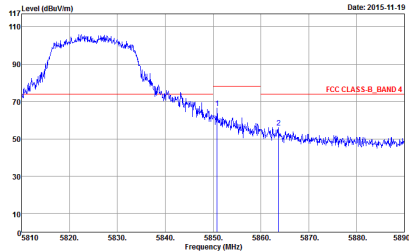
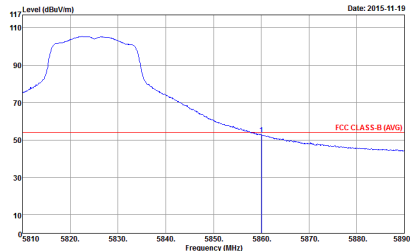
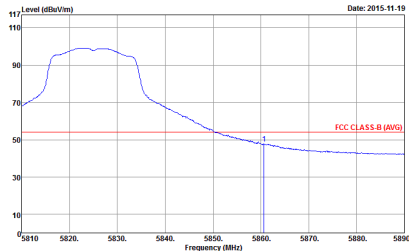


| WIFI | Band 4 5725~5850MHz Band Edge @ 3m                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                |
|------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ANT  | 802.11n HT20 CH157 5785MHz - L                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                |
| 1    | Horizontal                                                                                                                                                                                                                                                                      | Vertical                                                                                                                                                                                                                                                                       |
| Peak | <div><p>Site : 03CH10-HY<br/>Condition : FCC CLASS-B_BAND 4 3m HORN 9120D-HF HORIZONTAL<br/>Detector : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto<br/>Project : 3N0602-02<br/>Mode : 5</p></div> | <div><p>Site : 03CH10-HY<br/>Condition : FCC CLASS-B_BAND 4 3m HORN 9120D-HF VERTICAL<br/>Detector : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto<br/>Project : 3N0602-02<br/>Mode : 5</p></div> |
| Avg. | <div><p>Site : 03CH10-HY<br/>Condition : FCC CLASS-B (AVG) 3m HORN 9120D-HF HORIZONTAL<br/>Detector : RBW:1000.000KHz VBW:1000KHz SWT:Auto<br/>Project : 3N0602-02<br/>Mode : 5</p></div>    | <div><p>Site : 03CH10-HY<br/>Condition : FCC CLASS-B (AVG) 3m HORN 9120D-HF VERTICAL<br/>Detector : RBW:1000.000KHz VBW:1000KHz SWT:Auto<br/>Project : 3N0602-02<br/>Mode : 5</p></div>    |



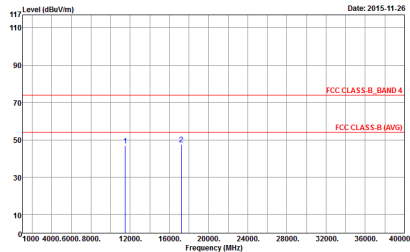
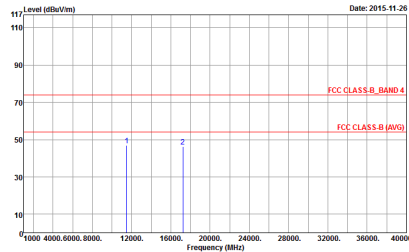
| WIFI | Band 4 5725~5850MHz Band Edge @ 3m                                                                                                                                                                                                           |                                                                                                                                                                                                                                             |
|------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ANT  | 802.11n HT20 CH157 5785MHz - R                                                                                                                                                                                                               |                                                                                                                                                                                                                                             |
| 1    | Horizontal                                                                                                                                                                                                                                   | Vertical                                                                                                                                                                                                                                    |
| Peak | <div><p>Site : 03CH10-HY<br/>Condition : FCC CLASS-B_BAND 4 3m HORN 9120D-HF HORIZONTAL<br/>Detector : Peak<br/>Project : 3N0602-02<br/>Mode : 5</p></div>  | <div><p>Site : 03CH10-HY<br/>Condition : FCC CLASS-B_BAND 4 3m HORN 9120D-HF VERTICAL<br/>Detector : Peak<br/>Project : 3N0602-02<br/>Mode : 5</p></div>  |
| Avg. | <div><p>Site : 03CH10-HY<br/>Condition : FCC CLASS-B (AVG) 3m HORN 9120D-HF HORIZONTAL<br/>Detector : Peak<br/>Project : 3N0602-02<br/>Mode : 5</p></div> | <div><p>Site : 03CH10-HY<br/>Condition : FCC CLASS-B (AVG) 3m HORN 9120D-HF VERTICAL<br/>Detector : Peak<br/>Project : 3N0602-02<br/>Mode : 5</p></div> |



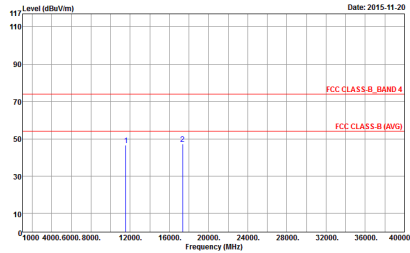
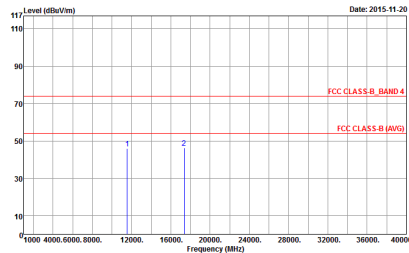
| WIFI | Band 4 5725~5850MHz Band Edge @ 3m                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                         |
|------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ANT  | 802.11n HT20 CH165 5825MHz                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                         |
| 1    | Horizontal                                                                                                                                                                                                                                                                               | Vertical                                                                                                                                                                                                                                                                                |
| Peak | <div><p>Site : 03CH10-HY<br/>Condition : FCC CLASS-B_BAND 4 3m HORN 9120D-HF HORIZONTAL<br/>RBW:1000.000KHz VBW:3000.000KHz SWT:Auto<br/>Detector : Peak<br/>Project : 3N0602-02<br/>Mode : 6</p></div> | <div><p>Site : 03CH10-HY<br/>Condition : FCC CLASS-B_BAND 4 3m HORN 9120D-HF VERTICAL<br/>RBW:1000.000KHz VBW:3000.000KHz SWT:Auto<br/>Detector : Peak<br/>Project : 3N0602-02<br/>Mode : 6</p></div> |
| Avg. | <div><p>Site : 03CH10-HY<br/>Condition : FCC CLASS-B (AVG) 3m HORN 9120D-HF HORIZONTAL<br/>RBW:1000.000KHz VBW:1000KHz SWT:Auto<br/>Detector : Peak<br/>Project : 3N0602-02<br/>Mode : 6</p></div>    | <div><p>Site : 03CH10-HY<br/>Condition : FCC CLASS-B (AVG) 3m HORN 9120D-HF VERTICAL<br/>RBW:1000.000KHz VBW:1000KHz SWT:Auto<br/>Detector : Peak<br/>Project : 3N0602-02<br/>Mode : 6</p></div>    |



Band 4 - 5725~5850MHz  
WIFI 802.11a (Harmonic @ 3m)

| WIFI         | Band 4 5725~5850MHz Harmonic @ 3m                                                                                                                                                                                                            |                                                                                                                                                                                                                                             |
|--------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ANT          | 802.11a CH149 5745MHz                                                                                                                                                                                                                        |                                                                                                                                                                                                                                             |
| 1            | Horizontal                                                                                                                                                                                                                                   | Vertical                                                                                                                                                                                                                                    |
| Peak<br>Avg. | <div><p>Site : 03CH10-HY<br/>Condition : FCC CLASS-B_BAND 4 3m HORN 9120D-HF HORIZONTAL<br/>Detector : Peak<br/>Project : 3N0602-02<br/>Mode : 1</p></div> | <div><p>Site : 03CH10-HY<br/>Condition : FCC CLASS-B_BAND 4 3m HORN 9120D-HF VERTICAL<br/>Detector : Peak<br/>Project : 3N0602-02<br/>Mode : 1</p></div> |



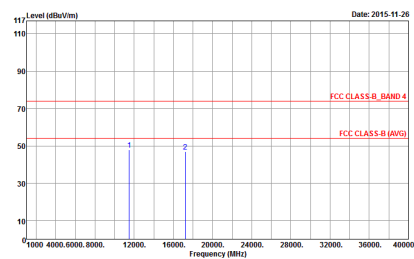
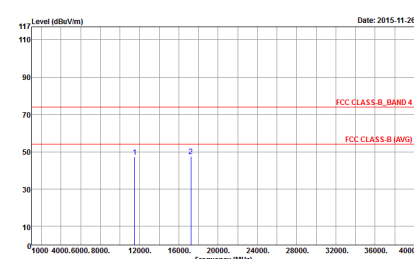
| WIFI         | Band 4 5725~5850MHz Harmonic @ 3m                                                                                                                                                                                                           |                                                                                                                                                                                                                                            |
|--------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ANT          | 802.11a CH157 5785MHz                                                                                                                                                                                                                       |                                                                                                                                                                                                                                            |
| 1            | Horizontal                                                                                                                                                                                                                                  | Vertical                                                                                                                                                                                                                                   |
| Peak<br>Avg. | <div><p>Site : 03CH10-HY<br/>Condition : FCC CLASS-B_BAND 4 3m HORN 9120D-HF HORIZONTAL<br/>Detector : Peak<br/>Project : 3N0602-02<br/>Mode : 2</p></div> | <div><p>Site : 03CH10-HY<br/>Condition : FCC CLASS-B_BAND 4 3m HORN 9120D-HF VERTICAL<br/>Detector : Peak<br/>Project : 3N0602-02<br/>Mode : 2</p></div> |



| WIFI         | Band 4 5725~5850MHz Harmonic @ 3m                                                                                                                          |                                                                                                                                                          |
|--------------|------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------|
| ANT          | 802.11a CH165 5825MHz                                                                                                                                      |                                                                                                                                                          |
| 1            | Horizontal                                                                                                                                                 | Vertical                                                                                                                                                 |
| Peak<br>Avg. | <div><p>Site : 03GH10-HY<br/>Condition : FCC CLASS-B_BAND 4 3m HORN 9120D-HF HORIZONTAL<br/>Detector : Peak<br/>Project : 3N0602-02<br/>Mode : 3</p></div> | <div><p>Site : 03GH10-HY<br/>Condition : FCC CLASS-B_BAND 4 3m HORN 9120D-HF VERTICAL<br/>Detector : Peak<br/>Project : 3N0602-02<br/>Mode : 3</p></div> |



Band 4 5725~5850MHz  
WIFI 802.11n HT20 (Harmonic @ 3m)

| WIFI         | Band 4 5725~5850MHz Harmonic @ 3m                                                                                                                                                                                                 |                                                                                                                                                                                                                                  |
|--------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ANT          | 802.11n HT20 CH149 5745MHz                                                                                                                                                                                                        |                                                                                                                                                                                                                                  |
| 1            | Horizontal                                                                                                                                                                                                                        | Vertical                                                                                                                                                                                                                         |
| Peak<br>Avg. |  <p>Site : 03CH10-HY<br/>Condition : FCC CLASS-B_BAND 4 3m HORN 9120D-HF HORIZONTAL<br/>Detector : Peak<br/>Project : 3N0602-02<br/>Mode : 4</p> |  <p>Site : 03CH10-HY<br/>Condition : FCC CLASS-B_BAND 4 3m HORN 9120D-HF VERTICAL<br/>Detector : Peak<br/>Project : 3N0602-02<br/>Mode : 4</p> |



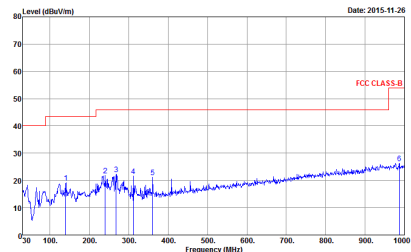
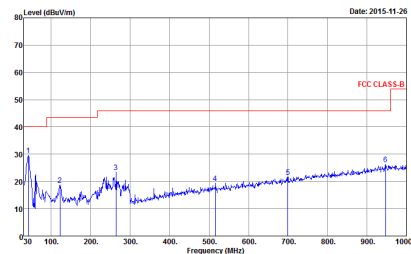
| WIFI         | Band 4 5725~5850MHz Harmonic @ 3m                                                                                                                                                                                            |                                                                                                                                                                                                                            |
|--------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ANT          | 802.11n HT20 CH157 5785MHz                                                                                                                                                                                                   |                                                                                                                                                                                                                            |
| 1            | Horizontal                                                                                                                                                                                                                   | Vertical                                                                                                                                                                                                                   |
| Peak<br>Avg. | <div><p>Level (dBuV/m)</p><p>Date: 2015-11-26</p><p>Frequency (MHz)</p><p>Site : 03CH10-HY<br/>Condition : FCC CLASS-B_BAND 4 3m HORN 9120D-HF HORIZONTAL<br/>Detector : Peak<br/>Project : 3N0602-02<br/>Mode : 5</p></div> | <div><p>Level (dBuV/m)</p><p>Date: 2015-11-26</p><p>Frequency (MHz)</p><p>Site : 03CH10-HY<br/>Condition : FCC CLASS-B_BAND 4 3m HORN 9120D-HF VERTICAL<br/>Detector : Peak<br/>Project : 3N0602-02<br/>Mode : 5</p></div> |



| WIFI         | Band 4 5725~5850MHz Harmonic @ 3m                                                                                                                          |                                                                                                                                                          |
|--------------|------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------|
| ANT          | 802.11n HT20 CH165 5825MHz                                                                                                                                 |                                                                                                                                                          |
| 1            | Horizontal                                                                                                                                                 | Vertical                                                                                                                                                 |
| Peak<br>Avg. | <div><p>Site : 03CH10-HY<br/>Condition : FCC CLASS-B_BAND 4 3m HORN 9120D-HF HORIZONTAL<br/>Detector : Peak<br/>Project : 3N0602-02<br/>Mode : 6</p></div> | <div><p>Site : 03CH10-HY<br/>Condition : FCC CLASS-B_BAND 4 3m HORN 9120D-HF VERTICAL<br/>Detector : Peak<br/>Project : 3N0602-02<br/>Mode : 6</p></div> |



Emission below 1GHz  
5GHz WIFI 802.11n HT20 (LF)

| WIFI         | 5GHz 5725~5850MHz                                                                                                                                                                                                              |                                                                                                                                                                                                                               |
|--------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ANT          | 802.11n HT20 LF                                                                                                                                                                                                                |                                                                                                                                                                                                                               |
| 1            | Horizontal                                                                                                                                                                                                                     | Vertical                                                                                                                                                                                                                      |
| QP /<br>Peak |  <p>Site : 03CH10-HV<br/>Condition : FCC CLASS-B 3m BI-LOG 6111D-LF HORIZONTAL<br/>Detector : Peak<br/>Project : 3N0602-02<br/>Mode : 25</p> |  <p>Site : 03CH10-HV<br/>Condition : FCC CLASS-B 3m BI-LOG 6111D-LF VERTICAL<br/>Detector : Peak<br/>Project : 3N0602-02<br/>Mode : 25</p> |
|              |                                                                                                                                                                                                                                |                                                                                                                                                                                                                               |



**Note symbol**

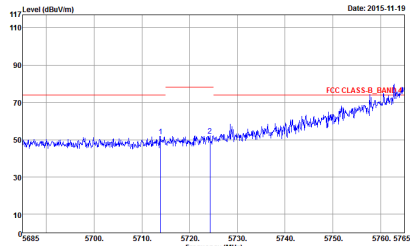
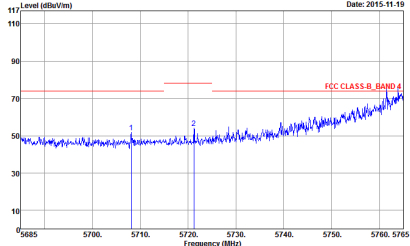
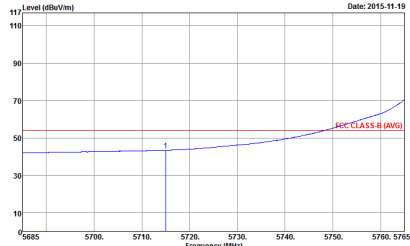
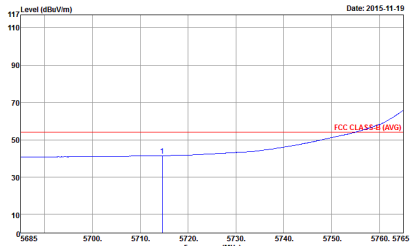
|    |                       |
|----|-----------------------|
| -L | Low channel location  |
| -R | High channel location |



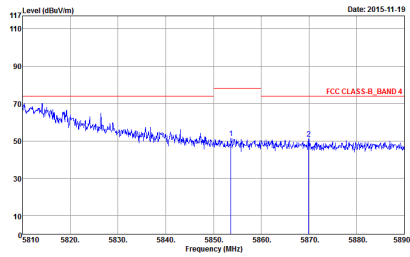
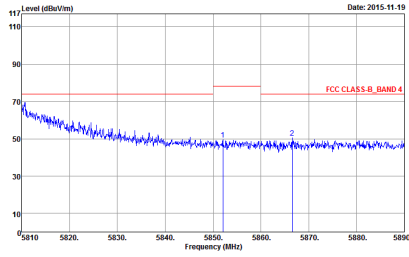
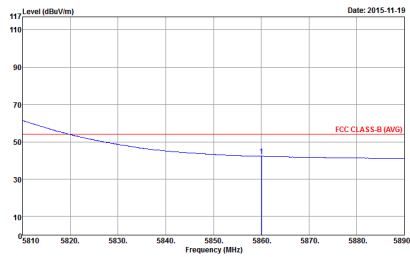
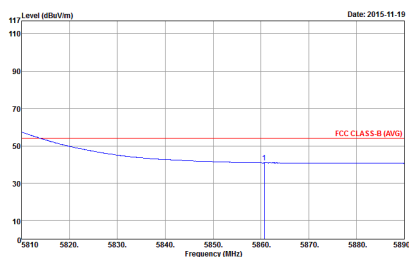
Band 4 - 5725~5850MHz  
WIFI 802.11a (Band Edge @ 3m)

| WIFI | Band 4 5725~5850MHz Band Edge @ 3m                                                                                                               |                                                                                                                                                |
|------|--------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------|
| ANT  | 802.11a CH149 5745MHz                                                                                                                            |                                                                                                                                                |
| 2    | Horizontal                                                                                                                                       | Vertical                                                                                                                                       |
| Peak | <p>Site : 03CH10-HY<br/>Condition : FCC CLASS-B_BAND 4 3m HORN 9120D-HF HORIZONTAL<br/>Detector : Peak<br/>Project : 3N0602-02<br/>Mode : 13</p> | <p>Site : 03CH10-HY<br/>Condition : FCC CLASS-B_BAND 4 3m HORN 9120D-HF VERTICAL<br/>Detector : Peak<br/>Project : 3N0602-02<br/>Mode : 13</p> |
| Avg. | <p>Site : 03CH10-HY<br/>Condition : FCC CLASS-B (AVG) 3m HORN 9120D-HF HORIZONTAL<br/>Detector : Peak<br/>Project : 3N0602-02<br/>Mode : 13</p>  | <p>Site : 03CH10-HY<br/>Condition : FCC CLASS-B (AVG) 3m HORN 9120D-HF VERTICAL<br/>Detector : Peak<br/>Project : 3N0602-02<br/>Mode : 13</p>  |



| WIFI | Band 4 5725~5850MHz Band Edge @ 3m                                                                                                                                                                                                            |                                                                                                                                                                                                                                              |
|------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ANT  | 802.11a CH157 5785MHz - L                                                                                                                                                                                                                     |                                                                                                                                                                                                                                              |
| 2    | Horizontal                                                                                                                                                                                                                                    | Vertical                                                                                                                                                                                                                                     |
| Peak | <div><p>Site : 03CH10-HY<br/>Condition : FCC CLASS-B_BAND 4 3m HORN 9120D-HF HORIZONTAL<br/>Detector : Peak<br/>Project : 3N0602-02<br/>Mode : 14</p></div>  | <div><p>Site : 03CH10-HY<br/>Condition : FCC CLASS-B_BAND 4 3m HORN 9120D-HF VERTICAL<br/>Detector : Peak<br/>Project : 3N0602-02<br/>Mode : 14</p></div>  |
| Avg. | <div><p>Site : 03CH10-HY<br/>Condition : FCC CLASS-B (AVG) 3m HORN 9120D-HF HORIZONTAL<br/>Detector : Peak<br/>Project : 3N0602-02<br/>Mode : 14</p></div> | <div><p>Site : 03CH10-HY<br/>Condition : FCC CLASS-B (AVG) 3m HORN 9120D-HF VERTICAL<br/>Detector : Peak<br/>Project : 3N0602-02<br/>Mode : 14</p></div> |



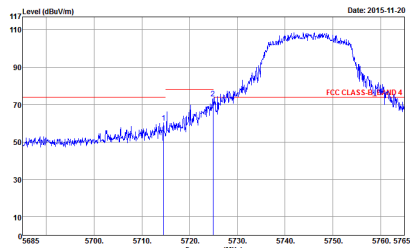
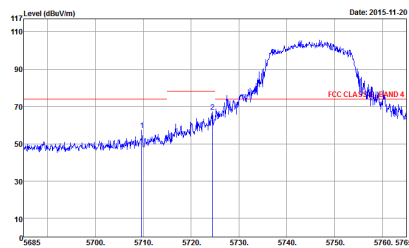
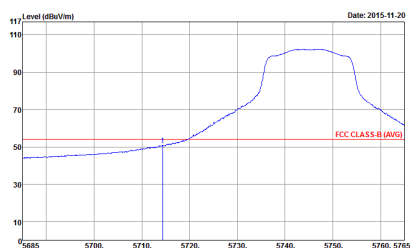
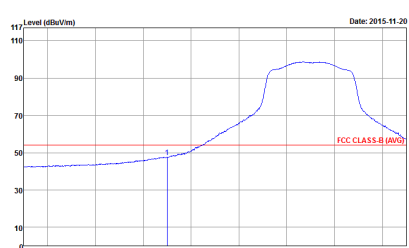
| WIFI | Band 4 5725~5850MHz Band Edge @ 3m                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                          |
|------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ANT  | 802.11a CH157 5785MHz - R                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                          |
| 2    | Horizontal                                                                                                                                                                                                                                                                                | Vertical                                                                                                                                                                                                                                                                                 |
| Peak | <div><p>Site : 03CH10-HY<br/>Condition : FCC CLASS-B_BAND 4 3m HORN 9120D-HF HORIZONTAL<br/>RBW:1000.000KHz VBW:3000.000KHz SWT:Auto<br/>Detector : Peak<br/>Project : 3N0602-02<br/>Mode : 14</p></div> | <div><p>Site : 03CH10-HY<br/>Condition : FCC CLASS-B_BAND 4 3m HORN 9120D-HF VERTICAL<br/>RBW:1000.000KHz VBW:3000.000KHz SWT:Auto<br/>Detector : Peak<br/>Project : 3N0602-02<br/>Mode : 14</p></div> |
| Avg. | <div><p>Site : 03CH10-HY<br/>Condition : FCC CLASS-B (AVG) 3m HORN 9120D-HF HORIZONTAL<br/>RBW:1000.000KHz VBW:0.010KHz SWT:Auto<br/>Detector : Peak<br/>Project : 3N0602-02<br/>Mode : 14</p></div>   | <div><p>Site : 03CH10-HY<br/>Condition : FCC CLASS-B (AVG) 3m HORN 9120D-HF VERTICAL<br/>RBW:1000.000KHz VBW:0.010KHz SWT:Auto<br/>Detector : Peak<br/>Project : 3N0602-02<br/>Mode : 14</p></div>   |



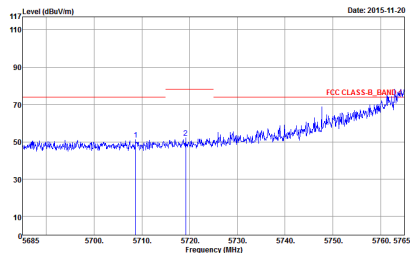
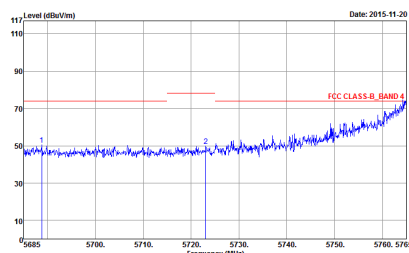
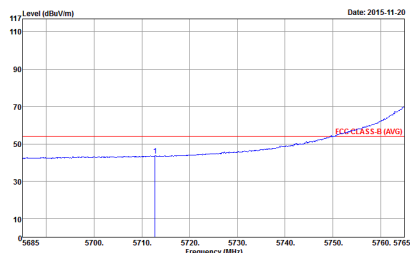
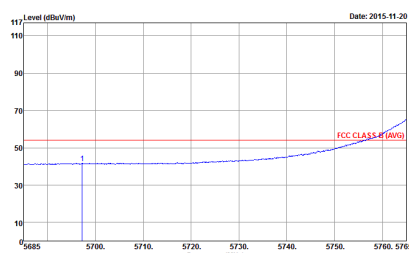
| WIFI | Band 4 5725~5850MHz Band Edge @ 3m                                                                                                                                                                       |                                                                                                                                                                                                        |
|------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ANT  | 802.11a CH165 5825MHz                                                                                                                                                                                    |                                                                                                                                                                                                        |
| 2    | Horizontal                                                                                                                                                                                               | Vertical                                                                                                                                                                                               |
| Peak | <div><p>Site : 03CH10-HY<br/>Condition : FCC CLASS-B_BAND 4 3m HORN 9120D-HF HORIZONTAL<br/>RBW:1000.000KHz VBW:3000.000KHz SWT:Auto<br/>Detector : Peak<br/>Project : 3N0602-02<br/>Mode : 15</p></div> | <div><p>Site : 03CH10-HY<br/>Condition : FCC CLASS-B_BAND 4 3m HORN 9120D-HF VERTICAL<br/>RBW:1000.000KHz VBW:3000.000KHz SWT:Auto<br/>Detector : Peak<br/>Project : 3N0602-02<br/>Mode : 15</p></div> |
| Avg. | <div><p>Site : 03CH10-HY<br/>Condition : FCC CLASS-B (AVG) 3m HORN 9120D-HF HORIZONTAL<br/>RBW:1000.000KHz VBW:0.010KHz SWT:Auto<br/>Detector : Peak<br/>Project : 3N0602-02<br/>Mode : 15</p></div>     | <div><p>Site : 03CH10-HY<br/>Condition : FCC CLASS-B (AVG) 3m HORN 9120D-HF VERTICAL<br/>RBW:1000.000KHz VBW:0.010KHz SWT:Auto<br/>Detector : Peak<br/>Project : 3N0602-02<br/>Mode : 15</p></div>     |



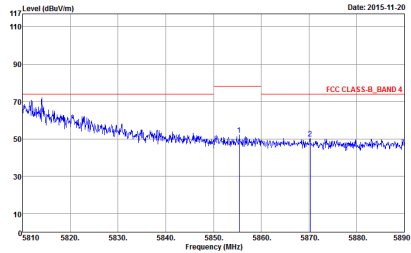
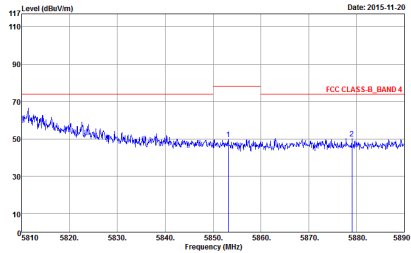
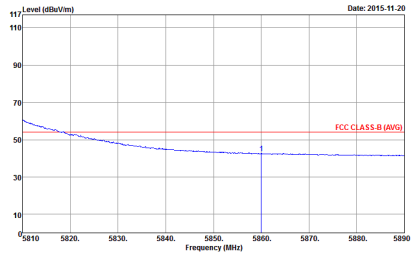
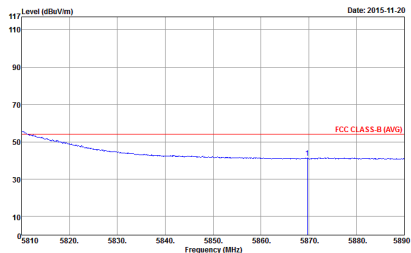
Band 4 5725~5850MHz  
WIFI 802.11n HT20 (Band Edge @ 3m)

| WIFI | Band 4 5725~5850MHz Band Edge @ 3m                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                          |
|------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ANT  | 802.11n HT20 CH149 5745MHz                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                          |
| 2    | Horizontal                                                                                                                                                                                                                                                                                | Vertical                                                                                                                                                                                                                                                                                 |
| Peak | <div><p>Site : 03CH10-HY<br/>Condition : FCC CLASS-B_BAND 4 3m HORN 9120D-HF HORIZONTAL<br/>RBW:1000.000KHz VBW:3000.000KHz SWT:Auto<br/>Detector : Peak<br/>Project : 3N0602-02<br/>Mode : 16</p></div> | <div><p>Site : 03CH10-HY<br/>Condition : FCC CLASS-B_BAND 4 3m HORN 9120D-HF VERTICAL<br/>RBW:1000.000KHz VBW:3000.000KHz SWT:Auto<br/>Detector : Peak<br/>Project : 3N0602-02<br/>Mode : 16</p></div> |
| Avg. | <div><p>Site : 03CH10-HY<br/>Condition : FCC CLASS-B (AVG) 3m HORN 9120D-HF HORIZONTAL<br/>RBW:1000.000KHz VBW:1.000KHz SWT:Auto<br/>Detector : Peak<br/>Project : 3N0602-02<br/>Mode : 16</p></div>   | <div><p>Site : 03CH10-HY<br/>Condition : FCC CLASS-B (AVG) 3m HORN 9120D-HF VERTICAL<br/>RBW:1000.000KHz VBW:1.000KHz SWT:Auto<br/>Detector : Peak<br/>Project : 3N0602-02<br/>Mode : 16</p></div>   |

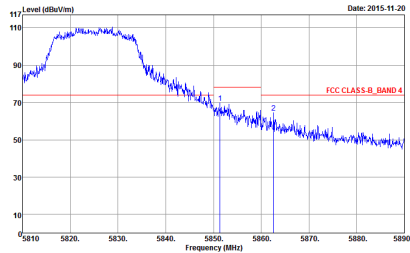
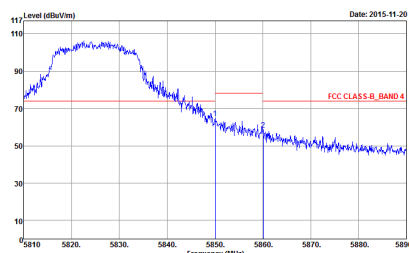
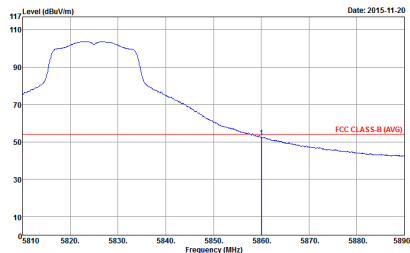
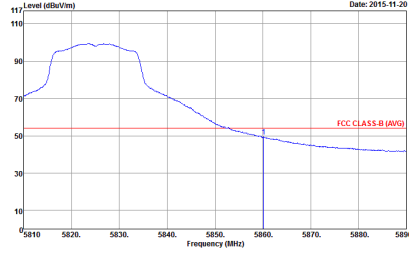


| WIFI | Band 4 5725~5850MHz Band Edge @ 3m                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                          |
|------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ANT  | 802.11n HT20 CH157 5785MHz - L                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                          |
| 2    | Horizontal                                                                                                                                                                                                                                                                                | Vertical                                                                                                                                                                                                                                                                                 |
| Peak | <div><p>Site : 03CH10-HY<br/>Condition : FCC CLASS-B_BAND 4 3m HORN 9120D-HF HORIZONTAL<br/>RBW:1000.000KHz VBW:3000.000KHz SWT:Auto<br/>Detector : Peak<br/>Project : 3N0602-02<br/>Mode : 17</p></div> | <div><p>Site : 03CH10-HY<br/>Condition : FCC CLASS-B_BAND 4 3m HORN 9120D-HF VERTICAL<br/>RBW:1000.000KHz VBW:3000.000KHz SWT:Auto<br/>Detector : Peak<br/>Project : 3N0602-02<br/>Mode : 17</p></div> |
| Avg. | <div><p>Site : 03CH10-HY<br/>Condition : FCC CLASS-B (AVG) 3m HORN 9120D-HF HORIZONTAL<br/>RBW:1000.000KHz VBW:1000KHz SWT:Auto<br/>Detector : Peak<br/>Project : 3N0602-02<br/>Mode : 17</p></div>    | <div><p>Site : 03CH10-HY<br/>Condition : FCC CLASS-B (AVG) 3m HORN 9120D-HF VERTICAL<br/>RBW:1000.000KHz VBW:1000KHz SWT:Auto<br/>Detector : Peak<br/>Project : 3N0602-02<br/>Mode : 17</p></div>    |



| WIFI | Band 4 5725~5850MHz Band Edge @ 3m                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                          |
|------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ANT  | 802.11n HT20 CH157 5785MHz - R                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                          |
| 2    | Horizontal                                                                                                                                                                                                                                                                                | Vertical                                                                                                                                                                                                                                                                                 |
| Peak | <div><p>Site : 03CH10-HY<br/>Condition : FCC CLASS-B_BAND 4 3m HORN 9120D-HF HORIZONTAL<br/>RBW:1000.000KHz VBW:3000.000KHz SWT:Auto<br/>Detector : Peak<br/>Project : 3N0602-02<br/>Mode : 17</p></div> | <div><p>Site : 03CH10-HY<br/>Condition : FCC CLASS-B_BAND 4 3m HORN 9120D-HF VERTICAL<br/>RBW:1000.000KHz VBW:3000.000KHz SWT:Auto<br/>Detector : Peak<br/>Project : 3N0602-02<br/>Mode : 17</p></div> |
| Avg. | <div><p>Site : 03CH10-HY<br/>Condition : FCC CLASS-B (AVG) 3m HORN 9120D-HF HORIZONTAL<br/>RBW:1000.000KHz VBW:1000KHz SWT:Auto<br/>Detector : Peak<br/>Project : 3N0602-02<br/>Mode : 17</p></div>    | <div><p>Site : 03CH10-HY<br/>Condition : FCC CLASS-B (AVG) 3m HORN 9120D-HF VERTICAL<br/>RBW:1000.000KHz VBW:1000KHz SWT:Auto<br/>Detector : Peak<br/>Project : 3N0602-02<br/>Mode : 17</p></div>    |



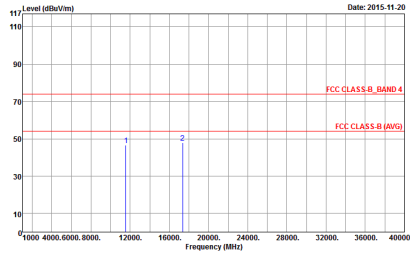
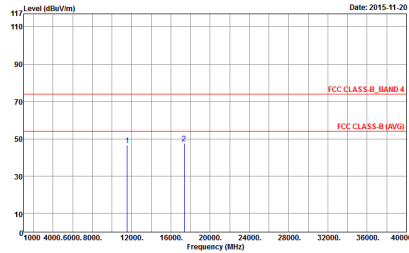
| WIFI | Band 4 5725~5850MHz Band Edge @ 3m                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                          |
|------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ANT  | 802.11n HT20 CH165 5825MHz                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                          |
| 2    | Horizontal                                                                                                                                                                                                                                                                                | Vertical                                                                                                                                                                                                                                                                                 |
| Peak | <div><p>Site : 03CH10-HY<br/>Condition : FCC CLASS-B_BAND 4 3m HORN 9120D-HF HORIZONTAL<br/>RBW:1000.000KHz VBW:3000.000KHz SWT:Auto<br/>Detector : Peak<br/>Project : 3N0602-02<br/>Mode : 18</p></div> | <div><p>Site : 03CH10-HY<br/>Condition : FCC CLASS-B_BAND 4 3m HORN 9120D-HF VERTICAL<br/>RBW:1000.000KHz VBW:3000.000KHz SWT:Auto<br/>Detector : Peak<br/>Project : 3N0602-02<br/>Mode : 18</p></div> |
| Avg. | <div><p>Site : 03CH10-HY<br/>Condition : FCC CLASS-B (AVG) 3m HORN 9120D-HF HORIZONTAL<br/>RBW:1000.000KHz VBW:1.000KHz SWT:Auto<br/>Detector : Peak<br/>Project : 3N0602-02<br/>Mode : 18</p></div>   | <div><p>Site : 03CH10-HY<br/>Condition : FCC CLASS-B (AVG) 3m HORN 9120D-HF VERTICAL<br/>RBW:1000.000KHz VBW:1.000KHz SWT:Auto<br/>Detector : Peak<br/>Project : 3N0602-02<br/>Mode : 18</p></div>   |



Band 4 - 5725~5850MHz  
WIFI 802.11a (Harmonic @ 3m)

| WIFI         | Band 4 5725~5850MHz Harmonic @ 3m                                                                                                                                                                     |                                                                                                                                                                                                     |
|--------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ANT          | 802.11a CH149 5745MHz                                                                                                                                                                                 |                                                                                                                                                                                                     |
| 2            | Horizontal                                                                                                                                                                                            | Vertical                                                                                                                                                                                            |
| Peak<br>Avg. | <div><p>117 Level (dBuV/m) Date: 2015-11-26</p><p>Site : 03CH10-HY<br/>Condition : FCC CLASS-B_BAND 4 3m HORN 9120D-HF HORIZONTAL<br/>Detector : Peak<br/>Project : 3N0602-02<br/>Mode : 13</p></div> | <div><p>117 Level (dBuV/m) Date: 2015-11-26</p><p>Site : 03CH10-HY<br/>Condition : FCC CLASS-B_BAND 4 3m HORN 9120D-HF VERTICAL<br/>Detector : Peak<br/>Project : 3N0602-02<br/>Mode : 13</p></div> |



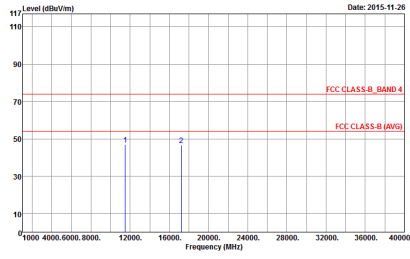
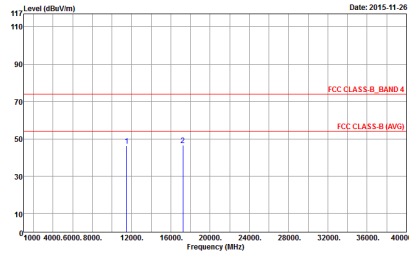
| WIFI         | Band 4 5725~5850MHz Harmonic @ 3m                                                                                                                                                                                                            |                                                                                                                                                                                                                                             |
|--------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ANT          | 802.11a CH157 5785MHz                                                                                                                                                                                                                        |                                                                                                                                                                                                                                             |
| 2            | Horizontal                                                                                                                                                                                                                                   | Vertical                                                                                                                                                                                                                                    |
| Peak<br>Avg. | <div><p>Site : 03CH10-HY<br/>Condition : FCC CLASS-B_BAND 4 3m HORN 9120D-HF HORIZONTAL<br/>Detector : Peak<br/>Project : 3N0602-02<br/>Mode : 14</p></div> | <div><p>Site : 03CH10-HY<br/>Condition : FCC CLASS-B_BAND 4 3m HORN 9120D-HF VERTICAL<br/>Detector : Peak<br/>Project : 3N0602-02<br/>Mode : 14</p></div> |



| WIFI         | Band 4 5725~5850MHz Harmonic @ 3m                                                                                                                           |                                                                                                                                                           |
|--------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|
| ANT          | 802.11a CH165 5825MHz                                                                                                                                       |                                                                                                                                                           |
| 2            | Horizontal                                                                                                                                                  | Vertical                                                                                                                                                  |
| Peak<br>Avg. | <div><p>Site : 03CH10-HY<br/>Condition : FCC CLASS-B_BAND 4 3m HORN 9120D-HF HORIZONTAL<br/>Detector : Peak<br/>Project : 3N0602-02<br/>Mode : 15</p></div> | <div><p>Site : 03CH10-HY<br/>Condition : FCC CLASS-B_BAND 4 3m HORN 9120D-HF VERTICAL<br/>Detector : Peak<br/>Project : 3N0602-02<br/>Mode : 15</p></div> |



Band 4 5725~5850MHz  
WIFI 802.11n HT20 (Harmonic @ 3m)

| WIFI         | Band 4 5725~5850MHz Harmonic @ 3m                                                                                                                                                                                                  |                                                                                                                                                                                                                                   |
|--------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ANT          | 802.11n HT20 CH149 5745MHz                                                                                                                                                                                                         |                                                                                                                                                                                                                                   |
| 2            | Horizontal                                                                                                                                                                                                                         | Vertical                                                                                                                                                                                                                          |
| Peak<br>Avg. |  <p>Site : 03CH10-HY<br/>Condition : FCC CLASS-B_BAND 4 3m HORN 9120D-HF HORIZONTAL<br/>Detector : Peak<br/>Project : 3N0602-02<br/>Mode : 16</p> |  <p>Site : 03CH10-HY<br/>Condition : FCC CLASS-B_BAND 4 3m HORN 9120D-HF VERTICAL<br/>Detector : Peak<br/>Project : 3N0602-02<br/>Mode : 16</p> |



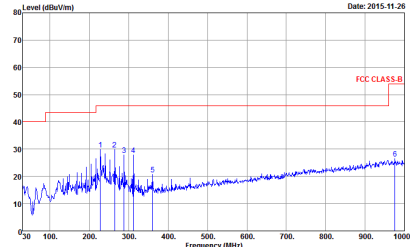
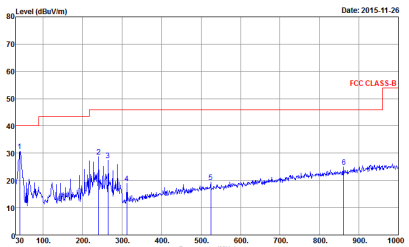
| WIFI         | Band 4 5725~5850MHz Harmonic @ 3m                                                                                                                                                                                             |                                                                                                                                                                                                                             |
|--------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ANT          | 802.11n HT20 CH157 5785MHz                                                                                                                                                                                                    |                                                                                                                                                                                                                             |
| 2            | Horizontal                                                                                                                                                                                                                    | Vertical                                                                                                                                                                                                                    |
| Peak<br>Avg. | <div><p>Level (dBuV/m)</p><p>Date: 2015-11-26</p><p>Frequency (MHz)</p><p>Site : 03CH10-HY<br/>Condition : FCC CLASS-B_BAND 4 3m HORN 9120D-HF HORIZONTAL<br/>Detector : Peak<br/>Project : 3N0602-02<br/>Mode : 17</p></div> | <div><p>Level (dBuV/m)</p><p>Date: 2015-11-26</p><p>Frequency (MHz)</p><p>Site : 03CH10-HY<br/>Condition : FCC CLASS-B_BAND 4 3m HORN 9120D-HF VERTICAL<br/>Detector : Peak<br/>Project : 3N0602-02<br/>Mode : 17</p></div> |



| WIFI         | Band 4 5725~5850MHz Harmonic @ 3m                                                                                                                                                                                             |                                                                                                                                                                                                                             |
|--------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ANT          | 802.11n HT20 CH165 5825MHz                                                                                                                                                                                                    |                                                                                                                                                                                                                             |
| 2            | Horizontal                                                                                                                                                                                                                    | Vertical                                                                                                                                                                                                                    |
| Peak<br>Avg. | <div><p>Level (dBuV/m)</p><p>Date: 2015-11-26</p><p>Frequency (MHz)</p><p>Site : 03CH10-HY<br/>Condition : FCC CLASS-B_BAND 4 3m HORN 9120D-HF HORIZONTAL<br/>Detector : Peak<br/>Project : 3N0602-02<br/>Mode : 18</p></div> | <div><p>Level (dBuV/m)</p><p>Date: 2015-11-26</p><p>Frequency (MHz)</p><p>Site : 03CH10-HY<br/>Condition : FCC CLASS-B_BAND 4 3m HORN 9120D-HF VERTICAL<br/>Detector : Peak<br/>Project : 3N0602-02<br/>Mode : 18</p></div> |



Emission below 1GHz  
5GHz WIFI 802.11n HT20 (LF)

| WIFI         | 5GHz 5725~5850MHz                                                                                                                                                                                                              |                                                                                                                                                                                                                               |
|--------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ANT          | 802.11n HT20 LF                                                                                                                                                                                                                |                                                                                                                                                                                                                               |
| 2            | Horizontal                                                                                                                                                                                                                     | Vertical                                                                                                                                                                                                                      |
| QP /<br>Peak |  <p>Site : 03CH10-HY<br/>Condition : FCC CLASS-B 3m BE-LOG 6111D-LF HORIZONTAL<br/>Detector : Peak<br/>Project : 3N0602-02<br/>Mode : 27</p> |  <p>Site : 03CH10-HY<br/>Condition : FCC CLASS-B 3m BE-LOG 6111D-LF VERTICAL<br/>Detector : Peak<br/>Project : 3N0602-02<br/>Mode : 27</p> |
|              |                                                                                                                                                                                                                                |                                                                                                                                                                                                                               |