



# FCC RF Test Report

**APPLICANT** : HTC Corporation  
**EQUIPMENT** : Smartphone  
**MODEL NAME** : 2PWD100  
**FCC ID** : NM82PWD100  
**STANDARD** : FCC Part 15 Subpart E §15.407  
**CLASSIFICATION** : (NII) Unlicensed National Information Infrastructure

The product was received on Jul. 25, 2016 and testing was completed on Aug. 31, 2016. 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.

Reviewed by: Joseph Lin / Supervisor

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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### 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	15.407(b)(4)(i) & 15.209(a)	Pass	Under limit 5.68 dB at 50.520 MHz
3.5	15.207	AC Conducted Emission	15.207(a)	Pass	Under limit 17.00 dB at 0.462 MHz
3.6	15.407(g)	Frequency Stability	Within Operation Band	Pass	-
3.7	15.407(c)	Automatically Discontinue Transmission	Discontinue Transmission	Pass	-
3.8	15.203 & 15.407(a)	Antenna Requirement	N/A	Pass	-



# 1 General Description

## 1.1 Applicant

**HTC Corporation**

No. 23, Xinghua Rd., Taoyuan District, Taoyuan City, Taiwan 330

## 1.2 Manufacturer

**HTC Corporation**

No. 23, Xinghua Rd., Taoyuan District, Taoyuan City, Taiwan 330

## 1.3 Product Feature of Equipment Under Test

Product Feature	
<b>Equipment</b>	Smartphone
<b>Model Name</b>	2PWD100
<b>FCC ID</b>	NM82PWD100
<b>Sample 1</b>	EUT with battery 1 and LCD panel 1_black
<b>Sample 2</b>	EUT with battery 2 and LCD panel 2_white
<b>EUT supports Radios application</b>	GSM/EGPRS/WCDMA/HSPA/LTE/NFC WLAN 11a/b/g/n HT20/HT40 Bluetooth EDR/LE
<b>EUT Stage</b>	Production Unit

**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	
<b>Tx/Rx Channel Frequency Range</b>	5745 MHz ~ 5825 MHz
<b>Maximum Output Power</b>	802.11a : 15.77 dBm / 0.0378 W 802.11n HT20 : 16.78 dBm / 0.0476 W 802.11n HT40 : 16.37 dBm / 0.0434 W
<b>99% Occupied Bandwidth</b>	802.11a : 18.75 MHz 802.11n HT20 : 20.6 MHz 802.11n HT40 : 38.5 MHz
<b>Type of Modulation</b>	OFDM (BPSK / QPSK / 16QAM / 64QAM)
<b>Antenna Type</b>	PIFA Antenna
<b>Antenna Gain</b>	-3.00 dBi

## 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, Kwei-Shan District, Tao Yuan City, Taiwan, R.O.C. TEL: +886-3-327-3456 FAX: +886-3-328-4978	
<b>Test Site No.</b>	<b>Sporton Site No.</b>	
	TH02-HY	CO05-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, Taoyuan City, Taiwan (R.O.C.) TEL: +886-3-327-0868 FAX: +886-3-327-0855	
<b>Test Site No.</b>	<b>Sporton Site No.</b>	
	03CH12-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 v01r03
- ♦ ANSI C63.10-2013

**Remark:**

1. All test items were verified and recorded according to the standards and without any deviation during the test.
2. This EUT has also been tested and complied with the requirements of FCC Part 15, Subpart B, recorded in a separate test report.



## 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 (Y plane) were recorded in this report.

### 2.1 Carrier Frequency and Channel

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

**Note:** The above Frequency and Channel in boldface were 802.11n HT40.



## 2.2 Test Mode

Final test mode of conducted test items and radiated spurious emissions are considering the modulation and worse data rates as below table.

Modulation	Data Rate
802.11a	6 Mbps
802.11n HT20	MCS0
802.11n HT40	MCS0

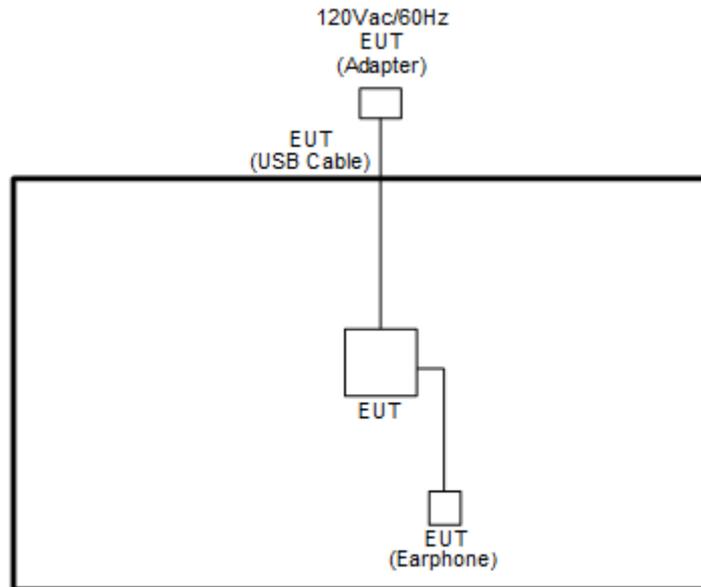
**Remark:** For radiated spurious emissions, the test was performed with USB Cable 2, Adapter 1, Earphone 1, and Sample 1.

<b>AC Conducted Emission</b>	Mode 1 : GSM850 Idle + Bluetooth Link + WLAN (5GHz) Link + USB Cable 2 (Charging from Adapter 2) + Earphone 2 + MP3 for Sample 1
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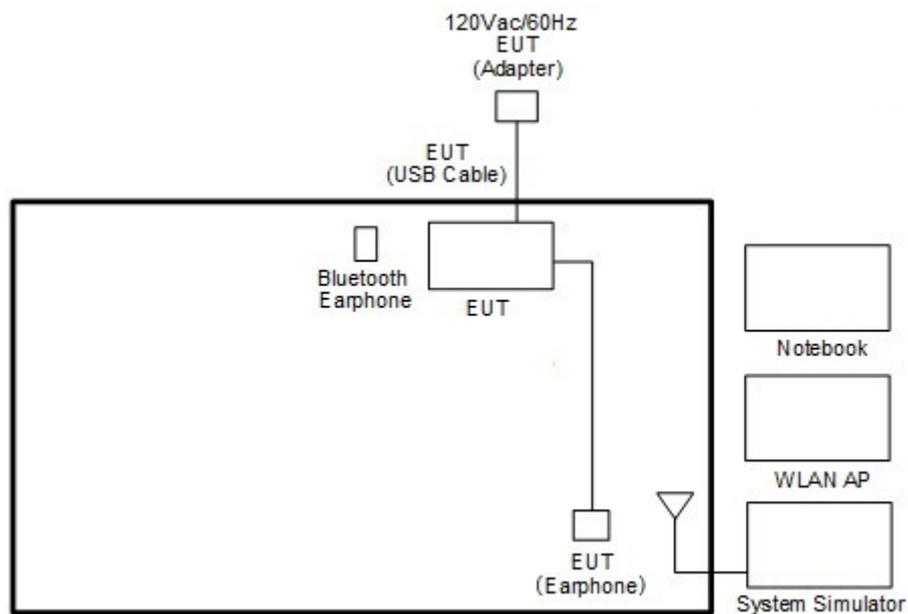
Ch. #		Band IV : 5725-5850 MHz		
		802.11a	802.11n HT20	802.11n HT40
L	Low	149	149	151
M	Middle	157	157	-
H	High	165	165	159

## 2.3 Connection Diagram of Test System

<WLAN Tx Mode>



<AC Conducted Emission Mode>





### 2.4 Support Unit used in test configuration and system

Item	Equipment	Trade Name	Model Name	FCC ID	Data Cable	Power Cord
1.	System Simulator	Anritsu	MT8820C	N/A	N/A	Unshielded, 1.8 m
2.	Bluetooth Earphone	Sony Ericsson	MW600	PY7DDA-2029	N/A	N/A
3.	WLAN AP	D-Link	DIR-628	KA2DIR628A2	N/A	Unshielded, 1.8 m
4.	Notebook	DELL	Latitude E6320	FCC DoC/ Contains FCC ID: QDS-BRCM1054	N/A	AC I/P: Unshielded, 1.2 m DC O/P: Shielded, 1.8 m
5.	SD Card	SanDisk	MicroSD HC	FCC DoC	N/A	N/A

### 2.5 EUT Operation Test Setup

For WLAN RF test items, an engineering test program (was provided and enabled to make EUT continuous transmit/receive).

### 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.

$$\text{Offset} = \text{RF cable loss} + \text{attenuator factor}.$$

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.

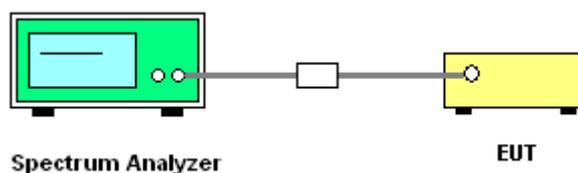
##### 3.1.2 Measuring Instruments

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 v01r03.  
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.

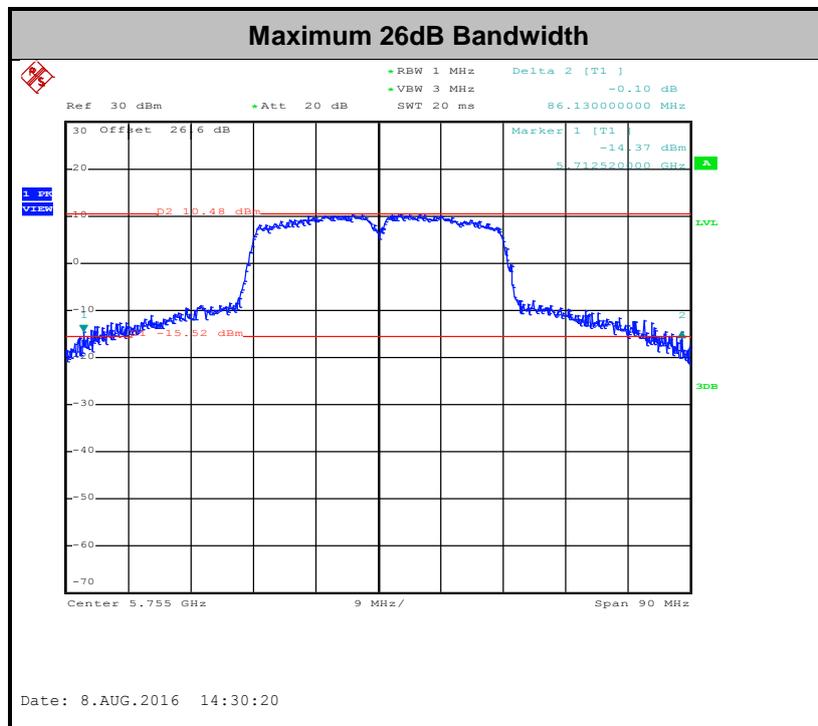
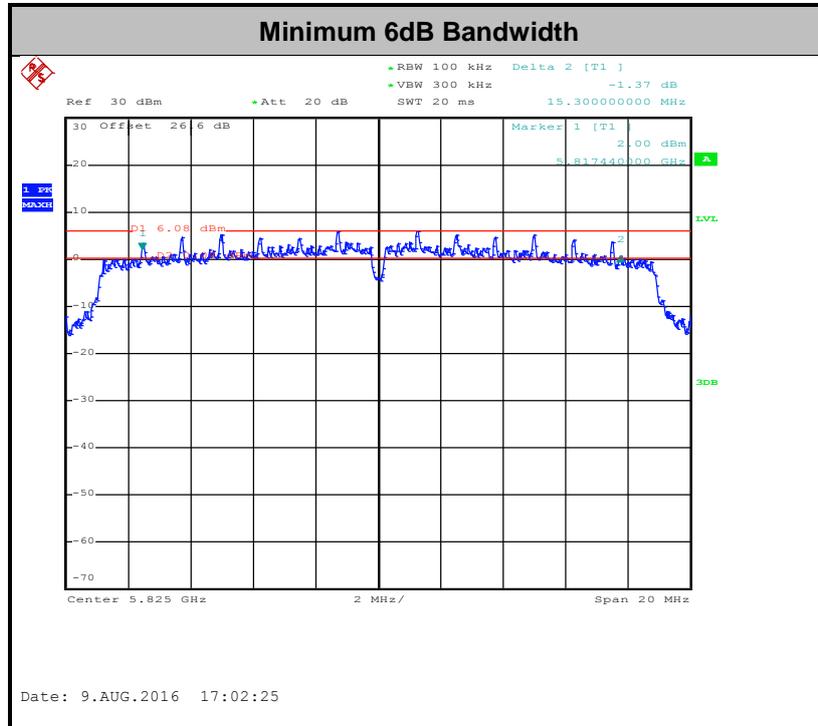
##### 3.1.4 Test Setup

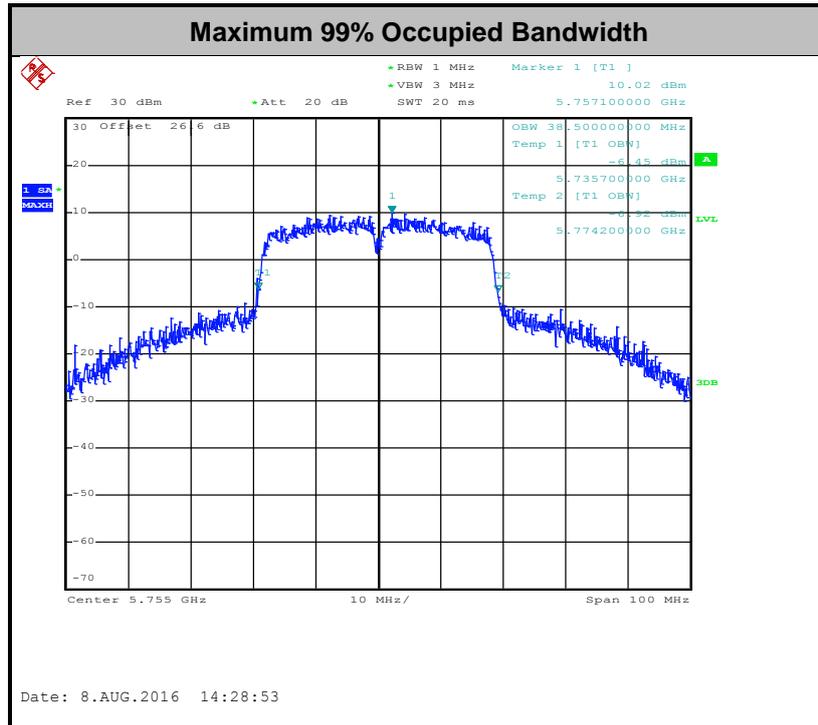




### 3.1.5 Test Result of 6dB Bandwidth

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.

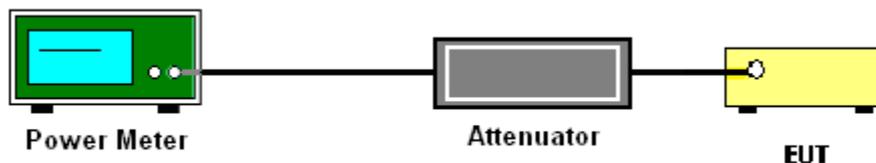
### 3.2.3 Test Procedures

The testing follows Method PM of FCC KDB 789033 D02 General UNII Test Procedures New Rules v01r03.

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

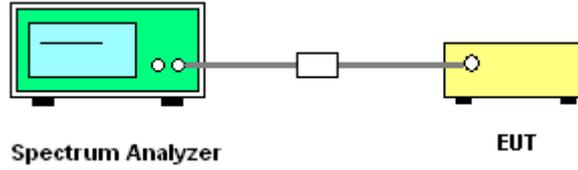
The testing follows FCC KDB 789033 D02 General UNII Test Procedures New Rules v01r03. Section F) Maximum power spectral density.

##### # Method SA-2 #

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

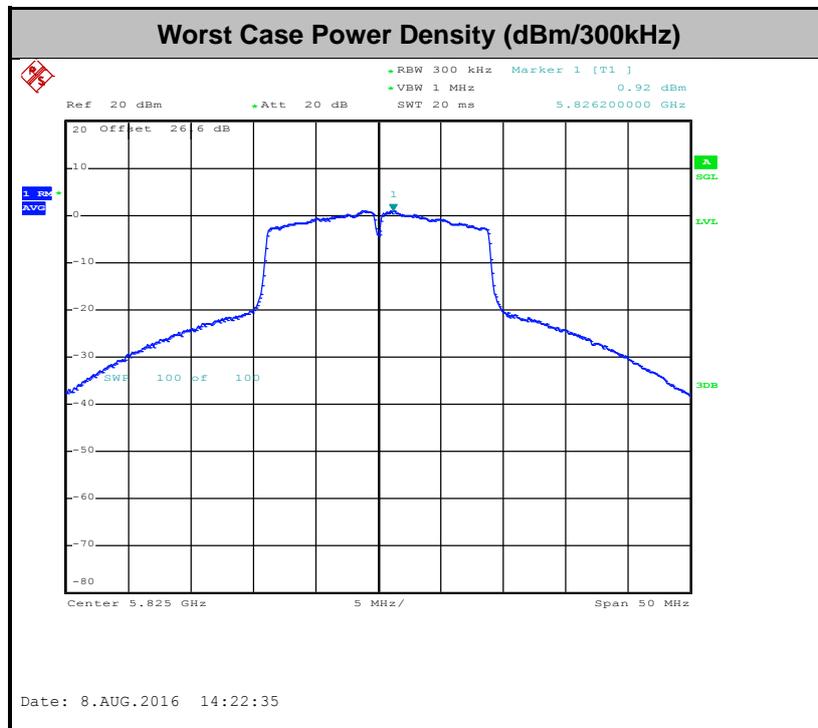
- Measure the duty cycle.
  - Set span to encompass the entire emission bandwidth (EBW) of the signal.
  - Set RBW = 300 kHz.
  - Set VBW  $\geq$  1 MHz.
  - Number of points in sweep  $\geq$  2 Span / RBW.
  - Sweep time = auto.
  - Detector = RMS
  - Trace average at least 100 traces in power averaging 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.
1. The RF output of EUT was connected to the spectrum analyzer by a low loss cable.
  2. 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 Part15.205.

#### 3.4.1 Limit of Unwanted Emissions

(1) For transmitters operating in the 5.725-5.85 GHz band:

15.407(b)(4)(i) All emissions shall be limited to a level of -27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.

(2) Unwanted spurious emissions fallen in restricted bands per FCC Part15.205 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 v01r03 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.

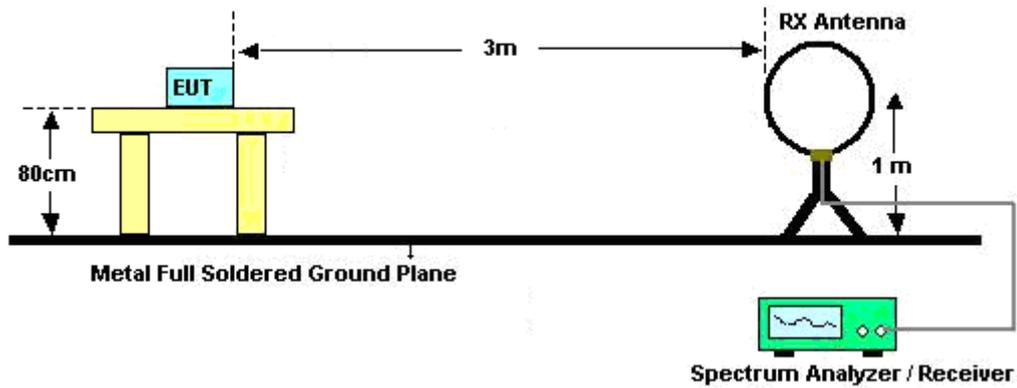
### 3.4.3 Test Procedures

1. The testing follows FCC KDB 789033 D02 General UNII Test Procedures New Rules v01r03. 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.
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.

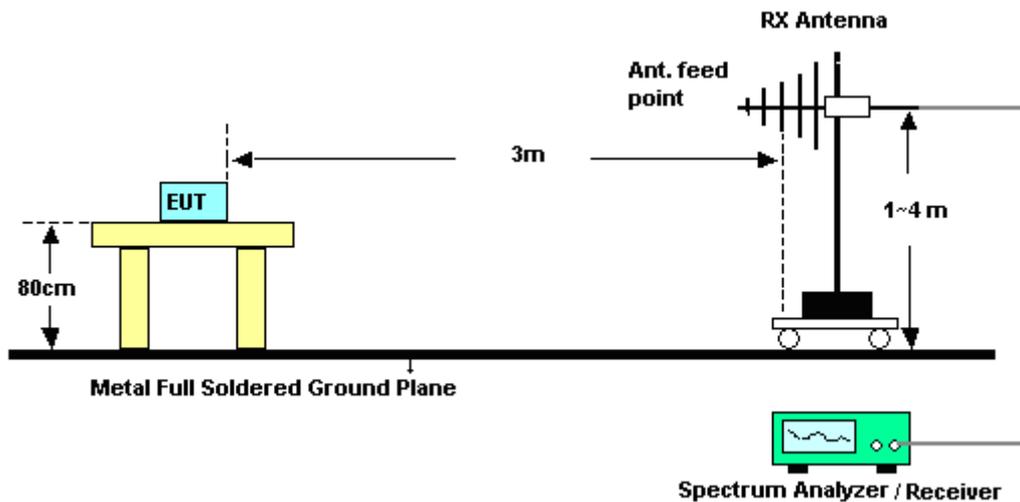
- 7. For testing above 1GHz, the emission level of the EUT in peak mode was 20dB lower than average limit (that means the emission level in average mode also complies with the limit in average mode), then peak values of EUT will be reported, otherwise, the emissions will be measured in average mode again and reported.

### 3.4.4 Test Setup

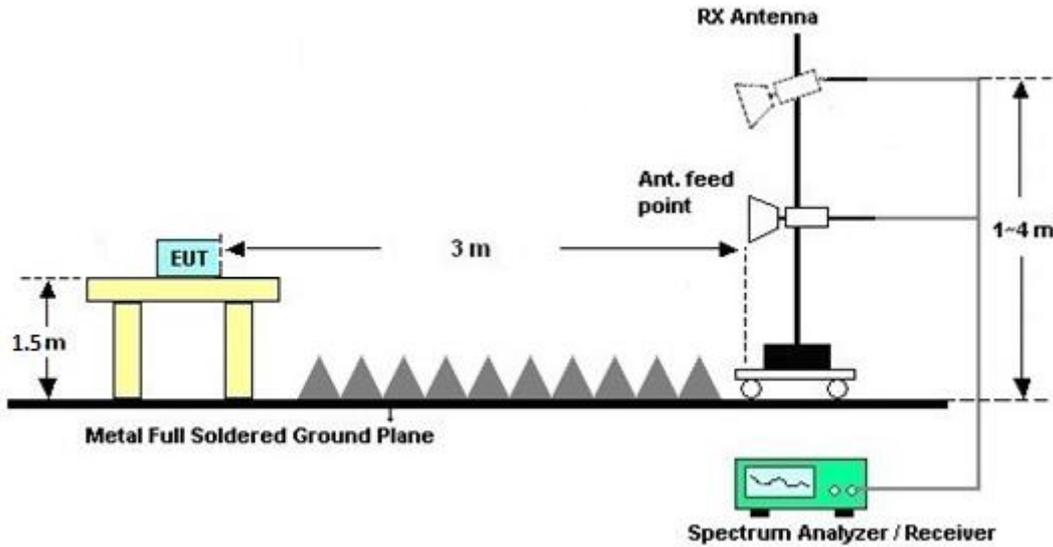
For radiated emissions below 30MHz



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 B and C.

### 3.4.7 Duty Cycle

Please refer to Appendix D.

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

Please refer to Appendix B and C.



### 3.5 AC Conducted Emission Measurement

#### 3.5.1 Limit of AC Conducted Emission

For equipment that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits in the following table.

Frequency of emission (MHz)	Conducted limit (dB $\mu$ V)	
	Quasi-peak	Average
0.15-0.5	66 to 56*	56 to 46*
0.5-5	56	46
5-30	60	50

\*Decreases with the logarithm of the frequency.

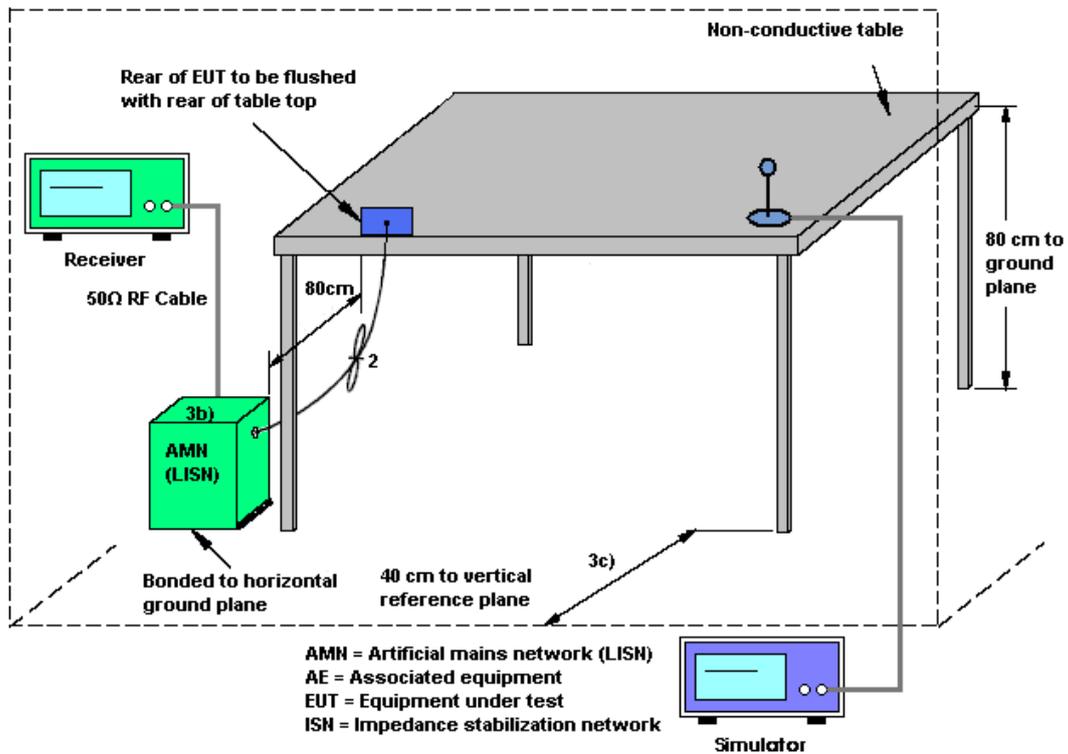
#### 3.5.2 Measuring Instruments

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

#### 3.5.3 Test Procedures

1. The EUT was placed 0.4 meter from the conducting wall of the shielding room was kept at least 80 centimeters from any other grounded conducting surface.
2. Connect EUT to the power mains through a line impedance stabilization network (LISN).
3. All the support units are connecting to the other LISN.
4. The LISN provides 50 ohm coupling impedance for the measuring instrument.
5. The FCC states that a 50 ohm, 50 microhenry LISN should be used.
6. Both sides of AC line were checked for maximum conducted interference.
7. The frequency range from 150 kHz to 30 MHz was searched.
8. Set the test-receiver system to Peak Detect Function and specified bandwidth with Maximum Hold Mode.

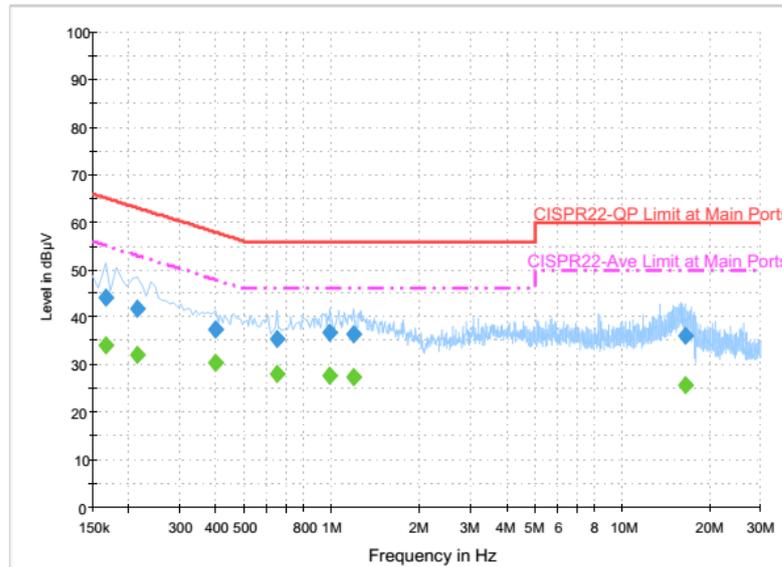
### 3.5.4 Test Setup





### 3.5.5 Test Result of AC Conducted Emission

Test Mode :	Mode 1	Temperature :	24~25°C
Test Engineer :	Kai-Chun Chu	Relative Humidity :	44~45%
Test Voltage :	120Vac / 60Hz	Phase :	Line
Function Type :	GSM850 Idle + Bluetooth Link + WLAN (5GHz) Link + USB Cable 2 (Charging from Adapter 2) + Earphone 2 + MP3 for Sample 1		



#### Final Result : QuasiPeak

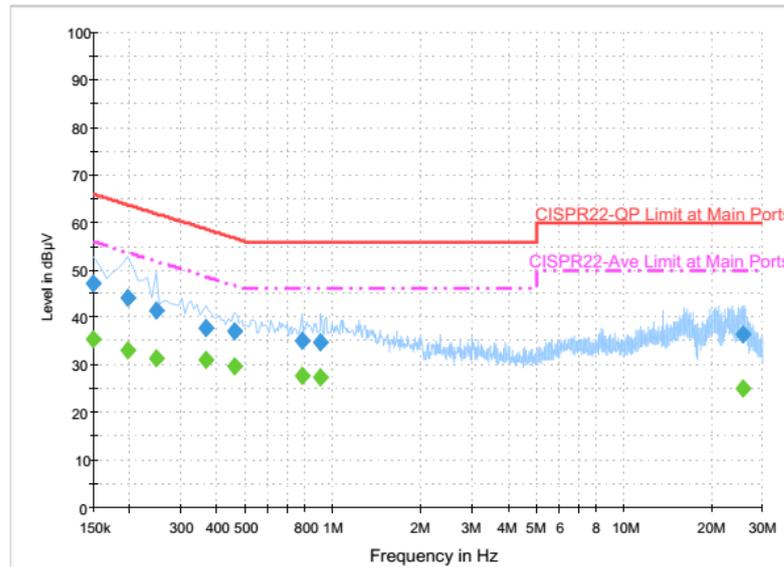
Frequency (MHz)	QuasiPeak (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.166000	44.3	Off	L1	19.6	20.9	65.2
0.214000	41.9	Off	L1	19.6	21.1	63.0
0.398000	37.3	Off	L1	19.6	20.6	57.9
0.646000	35.5	Off	L1	19.6	20.5	56.0
0.990000	36.9	Off	L1	19.7	19.1	56.0
1.190000	36.6	Off	L1	19.7	19.4	56.0
16.550000	36.2	Off	L1	20.5	23.8	60.0

#### Final Result : Average

Frequency (MHz)	Average (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.166000	34.1	Off	L1	19.6	21.1	55.2
0.214000	32.0	Off	L1	19.6	21.0	53.0
0.398000	30.5	Off	L1	19.6	17.4	47.9
0.646000	28.0	Off	L1	19.6	18.0	46.0
0.990000	27.8	Off	L1	19.7	18.2	46.0
1.190000	27.4	Off	L1	19.7	18.6	46.0
16.550000	25.9	Off	L1	20.5	24.1	50.0



Test Mode :	Mode 1	Temperature :	24~25°C
Test Engineer :	Kai-Chun Chu	Relative Humidity :	44~45%
Test Voltage :	120Vac / 60Hz	Phase :	Neutral
Function Type :	GSM850 Idle + Bluetooth Link + WLAN (5GHz) Link + USB Cable 2 (Charging from Adapter 2) + Earphone 2 + MP3 for Sample 1		



**Final Result : QuasiPeak**

Frequency (MHz)	QuasiPeak (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.150000	47.2	Off	N	19.6	18.8	66.0
0.198000	44.2	Off	N	19.6	19.5	63.7
0.246000	41.6	Off	N	19.6	20.3	61.9
0.366000	38.0	Off	N	19.6	20.6	58.6
0.462000	37.1	Off	N	19.6	19.6	56.7
0.782000	35.3	Off	N	19.6	20.7	56.0
0.910000	34.9	Off	N	19.6	21.1	56.0
25.710000	36.5	Off	N	21.1	23.5	60.0

**Final Result : Average**

Frequency (MHz)	Average (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.150000	35.6	Off	N	19.6	20.4	56.0
0.198000	33.1	Off	N	19.6	20.6	53.7
0.246000	31.4	Off	N	19.6	20.5	51.9
0.366000	31.0	Off	N	19.6	17.6	48.6
0.462000	29.7	Off	N	19.6	17.0	46.7
0.782000	27.8	Off	N	19.6	18.2	46.0
0.910000	27.5	Off	N	19.6	18.5	46.0
25.710000	25.2	Off	N	21.1	24.8	50.0

### 3.6 Frequency Stability Measurement

#### 3.6.1 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.

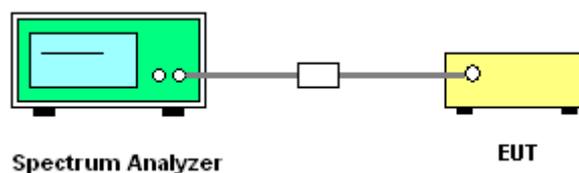
#### 3.6.2 Measuring Instruments

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

#### 3.6.3 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.

#### 3.6.4 Test Setup



#### 3.6.5 Test Result of Frequency Stability

Please refer to Appendix A.



## **3.7 Automatically Discontinue Transmission**

### **3.7.1 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.

### **3.7.2 Measuring Instruments**

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

### **3.7.3 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.



## **3.8 Antenna Requirements**

### **3.8.1 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.

### **3.8.2 Antenna Anti-Replacement Construction**

An embedded-in antenna design is used.

### **3.8.3 Antenna Gain**

The antenna gain is less than 6 dBi. Therefore, it is not necessary to reduce maximum peak output power limit.



## 4 List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Power Meter	Anritsu	ML2495A	0932001	300MHz~40GHz	Oct. 05, 2015	Jul. 27, 2016 ~ Aug. 31, 2016	Oct. 04, 2016	Conducted (TH02-HY)
Power Sensor	Anritsu	MA2411B	0846202	300MHz~40GHz	Oct. 05, 2015	Jul. 27, 2016 ~ Aug. 31, 2016	Oct. 04, 2016	Conducted (TH02-HY)
Spectrum Analyzer	Rohde & Schwarz	FSP40	100057	9kHz-40GHz	Nov. 23, 2015	Jul. 27, 2016 ~ Aug. 31, 2016	Nov. 22, 2016	Conducted (TH02-HY)
Programmable Power Supply	GW Instek	PSS-2005	GEO821763	N/A	Nov. 13, 2015	Jul. 27, 2016 ~ Aug. 31, 2016	Nov. 12, 2016	Conducted (TH02-HY)
AC Power Source	ChainTek	APC-1000W	N/A	N/A	N/A	Aug. 30, 2016	N/A	Conduction (CO05-HY)
LISN	Rohde & Schwarz	ENV216	100080	9kHz~30MHz	Dec. 02, 2015	Aug. 30, 2016	Dec. 01, 2016	Conduction (CO05-HY)
EMI Test Receiver	Keysight	N9038A(MXE)	MY54130085	20Hz ~ 8.4GHz	Nov. 04, 2015	Aug. 30, 2016	Nov. 03, 2016	Conduction (CO05-HY)
Loop Antenna	Rohde & Schwarz	HFH2-Z2	100315	9 kHz~30 MHz	Sep. 02, 2015	Aug. 20, 2016 ~ Aug. 26, 2016	Sep. 01, 2016	Radiation (03CH12-HY)
Amplifier	SONOMA	310N	187312	9kHz~1GHz	Nov. 20, 2015	Aug. 20, 2016 ~ Aug. 26, 2016	Nov. 19, 2016	Radiation (03CH12-HY)
Spectrum Analyzer	Keysight	N9010A	MY54200486	10Hz ~ 44GHZ	Sep. 24, 2015	Aug. 20, 2016 ~ Aug. 26, 2016	Sep. 23, 2016	Radiation (03CH12-HY)
Bilog Antenna	TESEQ	CBL 6111D	37059	30MHz~1GHz	Dec. 29, 2015	Aug. 20, 2016 ~ Aug. 26, 2016	Dec. 28, 2016	Radiation (03CH12-HY)
EMI Test Receiver	Rohde & Schwarz	ESU26	100390	20Hz~26.5GHz	Dec. 21, 2015	Aug. 20, 2016 ~ Aug. 26, 2016	Dec. 20, 2016	Radiation (03CH12-HY)
Preamplifier	MITEQ	TTA0204	1872107	2GHz~40GHz	Feb. 15, 2016	Aug. 20, 2016 ~ Aug. 26, 2016	Feb. 14, 2017	Radiation (03CH12-HY)
Horn Antenna	SCHWARZBECK	BBHA 9120D	9120D-1328	1GHz ~ 18GHz	Nov. 02, 2015	Aug. 20, 2016 ~ Aug. 26, 2016	Nov. 01, 2016	Radiation (03CH12-HY)
Preamplifier	MITEQ	AMF-7D-0010 1800-30-10P	1815698	1GHz~18GHz	Dec. 14, 2015	Aug. 20, 2016 ~ Aug. 26, 2016	Dec. 13, 2016	Radiation (03CH12-HY)
Preamplifier	Keysight	83017A	MY53270148	1GHz~26.5GHz	Jan. 30, 2016	Aug. 20, 2016 ~ Aug. 26, 2016	Jan. 29, 2017	Radiation (03CH12-HY)
Antenna Mast	EMEC	AM-BS-4500-B	N/A	1m~4m	N/A	Aug. 20, 2016 ~ Aug. 26, 2016	N/A	Radiation (03CH12-HY)
Turn Table	EMEC	TT2000	N/A	0~360 Degree	N/A	Aug. 20, 2016 ~ Aug. 26, 2016	N/A	Radiation (03CH12-HY)
SHF-EHF Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA917058 4	18GHz- 40GHz	Nov. 02, 2015	Aug. 20, 2016 ~ Aug. 26, 2016	Nov. 01, 2016	Radiation (03CH12-HY)



## 5 Uncertainty of Evaluation

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

Measuring Uncertainty for a Level of Confidence of 95% ( $U = 2Uc(y)$ )	2.26
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### Uncertainty of Radiated Emission Measurement (30 MHz ~ 1000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% ( $U = 2Uc(y)$ )	5.1
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### Uncertainty of Radiated Emission Measurement (1000 MHz ~ 18000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% ( $U = 2Uc(y)$ )	5.2
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### Uncertainty of Radiated Emission Measurement (18000 MHz ~ 40000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% ( $U = 2Uc(y)$ )	4.7
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## **Appendix A. Conducted Test Results**

Test Engineer:	AC Chang and PHYang	Temperature:	21~25	°C
Test Date:	2016/07/27 ~ 2016/08/31	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)	26 dB Bandwidth (MHz)	6 dB Bandwidth (MHz)	6dB Bandwidth min. Limit (MHz)	Pass/Fail
11a	6M bps	1	149	5745	18.4	40.4	15.76	0.5	Pass
11a	6Mbps	1	157	5785	18.3	40.6	15.62	0.5	Pass
11a	6Mbps	1	165	5825	18.75	41.1	15.7	0.5	Pass
HT20	MCS 0	1	149	5745	20.6	43..8	15.32	0.5	Pass
HT20	MCS 0	1	157	5785	19.5	42.9	15.42	0.5	Pass
HT20	MCS 0	1	165	5825	20.1	46.4	15.3	0.5	Pass
HT40	MCS 0	1	151	5755	38.5	86.13	35.16	0.5	Pass
HT40	MCS 0	1	159	5795	37.2	85.59	35.16	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
11a	6M bps	1	149	5745	0.12	15.38	30.00	-3.00		Pass
11a	6Mbps	1	157	5785	0.12	15.48	30.00	-3.00		Pass
11a	6Mbps	1	165	5825	0.12	15.77	30.00	-3.00		Pass
HT20	MCS 0	1	149	5745	0.13	16.43	30.00	-3.00		Pass
HT20	MCS 0	1	157	5785	0.13	16.78	30.00	-3.00		Pass
HT20	MCS 0	1	165	5825	0.13	16.37	30.00	-3.00		Pass
HT40	MCS 0	1	151	5755	0.28	16.06	30.00	-3.00		Pass
HT40	MCS 0	1	159	5795	0.28	16.37	30.00	-3.00		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
11a	6M bps	1	149	5745	0.12	2.22	2.30	30.00	-3.00	Pass
11a	6Mbps	1	157	5785	0.12	2.22	2.82	30.00	-3.00	Pass
11a	6Mbps	1	165	5825	0.12	2.22	2.96	30.00	-3.00	Pass
HT20	MCS 0	1	149	5745	0.13	2.22	3.21	30.00	-3.00	Pass
HT20	MCS 0	1	157	5785	0.13	2.22	3.13	30.00	-3.00	Pass
HT20	MCS 0	1	165	5825	0.13	2.22	3.27	30.00	-3.00	Pass
HT40	MCS 0	1	151	5755	0.28	2.22	-0.83	30.00	-3.00	Pass
HT40	MCS 0	1	159	5795	0.28	2.22	-0.85	30.00	-3.00	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	6M bps	1	149	5745	5745.000	0.000	0.00	20	3.6	
11a	6M bps	1	149	5745	5745.000	0.000	0.00	20	4.4	
11a	6M bps	1	149	5745	5745.050	0.050	8.70	20	3.85	
11a	6M bps	1	149	5745	5744.975	-0.025	-4.35	-30	3.85	
11a	6M bps	1	149	5745	5745.075	0.075	13.05	50	3.85	



## Appendix B. Radiated Spurious Emission

<b>Test Engineer :</b>	Karl Hou, Nick Yu, and Peter Liao	<b>Temperature :</b>	22~24°C
		<b>Relative Humidity :</b>	53~58%

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

WIFI Ant. 1	Note	Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB/m )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Peak Avg. ( P/A )	Pol. ( H/V )	
802.11a CH 149 5745MHz		5616.2	53.25	-14.95	68.2	40.3	32.17	11.77	30.99	296	166	P	H	
		5691.6	54.69	-44.32	99.01	41.61	32.27	11.82	31.01	296	166	P	H	
		5719.4	67.49	-43.14	110.63	54.36	32.31	11.84	31.02	296	166	P	H	
		5724.8	77.07	-44.67	121.74	63.94	32.31	11.84	31.02	296	166	P	H	
	*	5746	103.34	-	-	90.17	32.34	11.86	31.03	296	166	P	H	
	*	5746	92.74	-	-	79.57	32.34	11.86	31.03	296	166	A	H	
														H
														H
			5638	53.1	-15.1	68.2	40.12	32.19	11.79	31	171	1	P	V
			5696.4	54.34	-48.21	102.55	41.26	32.27	11.82	31.01	171	1	P	V
			5718.4	68.89	-41.46	110.35	55.76	32.31	11.84	31.02	171	1	P	V
			5725	75.58	-46.62	122.2	62.45	32.31	11.84	31.02	171	1	P	V
		*	5746	103.75	-	-	90.58	32.34	11.86	31.03	171	1	P	V
		*	5746	93.29	-	-	80.12	32.34	11.86	31.03	171	1	A	V
													V	
													V	



WIFI Ant. 1	Note	Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB/m )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Peak Avg. ( P/A )	Pol. ( H/V )
		5650	53.15	-15.05	68.2	40.14	32.22	11.79	31	303	175	P	H
		5684.8	53.73	-40.26	93.99	40.65	32.27	11.82	31.01	303	175	P	H
		5717.6	53.81	-56.32	110.13	40.68	32.31	11.84	31.02	303	175	P	H
		5723.8	52.89	-66.57	119.46	39.76	32.31	11.84	31.02	303	175	P	H
	*	5783	102.62	-	-	89.4	32.39	11.88	31.05	303	175	P	H
	*	5783	92.1	-	-	78.88	32.39	11.88	31.05	303	175	A	H
		5853	52.97	-62.39	115.36	39.52	32.48	12.03	31.06	303	175	P	H
		5857.2	54.54	-55.64	110.18	41.06	32.51	12.03	31.06	303	175	P	H
		5910	54.28	-24.99	79.27	40.48	32.58	12.31	31.09	303	175	P	H
		5947.8	53.9	-14.3	68.2	39.91	32.63	12.45	31.09	303	175	P	H
													H
													H
<b>802.11a</b>													
<b>CH 157</b>													
<b>5785MHz</b>		5617.6	53.13	-15.07	68.2	40.18	32.17	11.77	30.99	168	1	P	V
		5695	53.88	-47.63	101.51	40.8	32.27	11.82	31.01	168	1	P	V
		5717	54.18	-55.78	109.96	41.07	32.29	11.84	31.02	168	1	P	V
		5724	53.67	-66.25	119.92	40.54	32.31	11.84	31.02	168	1	P	V
	*	5787	103.73	-	-	90.49	32.41	11.88	31.05	168	1	P	V
	*	5787	93.14	-	-	79.9	32.41	11.88	31.05	168	1	A	V
		5853.6	52.72	-61.27	113.99	39.24	32.51	12.03	31.06	168	1	P	V
		5870.2	54.08	-52.46	106.54	40.47	32.51	12.17	31.07	168	1	P	V
		5892.6	54.66	-37.48	92.14	41.01	32.56	12.17	31.08	168	1	P	V
		5930.6	54.01	-14.19	68.2	40.19	32.6	12.31	31.09	168	1	P	V
													V
													V



WiFi Ant. 1	Note	Frequency ( MHz )	Level ( dBµV/m )	Over Limit ( dB )	Limit Line ( dBµV/m )	Read Level ( dBµV )	Antenna Factor ( dB/m )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Peak Avg. ( P/A )	Pol. ( H/V )	
802.11a CH 165 5825MHz	*	5827	102.46	-	-	89.02	32.46	12.03	31.05	308	173	P	H	
	*	5827	93.27	-	-	79.83	32.46	12.03	31.05	308	173	A	H	
		5850	68.45	-53.75	122.2	55	32.48	12.03	31.06	308	173	P	H	
		5857.2	61.27	-48.91	110.18	47.79	32.51	12.03	31.06	308	173	P	H	
		5889.8	54.12	-40.1	94.22	40.47	32.56	12.17	31.08	308	173	P	H	
		5933.2	53.84	-14.36	68.2	40.02	32.6	12.31	31.09	308	173	P	H	
														H
														H
	*	5824	102.54	-	-	89.1	32.46	12.03	31.05	177	1	P	V	
	*	5824	93.09	-	-	79.65	32.46	12.03	31.05	177	1	A	V	
		5850.6	67.51	-53.32	120.83	54.06	32.48	12.03	31.06	177	1	P	V	
		5855.2	60.86	-49.88	110.74	47.38	32.51	12.03	31.06	177	1	P	V	
		5883.2	55.28	-43.83	99.11	41.65	32.53	12.17	31.07	177	1	P	V	
		5928.6	53.69	-14.51	68.2	39.87	32.6	12.31	31.09	177	1	P	V	
														V
														V
													V	
<b>Remark</b>	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.													



Band 4 5725~5850MHz

WIFI 802.11a (Harmonic @ 3m)

WIFI Ant. 1	Note	Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB/m )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Peak Avg. ( P/A )	Pol. ( H/V )
802.11a CH 149 5745MHz		11490	47.4	-26.6	74	46.67	40.11	18.4	57.78	100	0	P	H
		17232	49.78	-18.42	68.2	42.13	41.65	23.14	57.14	100	0	P	H
													H
													H
		11490	47.3	-26.7	74	46.57	40.11	18.4	57.78	100	0	P	V
		17232	47.8	-20.4	68.2	40.15	41.65	23.14	57.14	100	0	P	V
													V
													V
802.11a CH 157 5785MHz		11570	46.12	-27.88	74	45.48	39.95	18.49	57.8	100	0	P	H
		17352	49.95	-18.25	68.2	42.24	42.02	23.25	57.56	100	0	P	H
													H
													H
		11570	46.1	-27.9	74	45.46	39.95	18.49	57.8	100	0	P	V
		17352	48.21	-19.99	68.2	40.5	42.02	23.25	57.56	100	0	P	V
													V
													V
802.11a CH 165 5825MHz		11650	47.13	-26.87	74	46.55	39.8	18.58	57.8	100	0	P	H
		17472	49.34	-18.86	68.2	41.57	42.39	23.36	57.98	100	0	P	H
													H
													H
		11650	46.34	-27.66	74	45.76	39.8	18.58	57.8	100	0	P	V
		17472	49.35	-18.85	68.2	41.58	42.39	23.36	57.98	100	0	P	V
													V
													V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



Band 4 5725~5850MHz

WIFI 802.11n HT20 (Band Edge @ 3m)

WIFI Ant. 1	Note	Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB/m )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Peak Avg. ( P/A )	Pol. ( H/V )	
802.11n HT20 CH 149 5745MHz		5611.4	52.65	-15.55	68.2	39.73	32.14	11.77	30.99	248	183	P	H	
		5698	56.59	-47.14	103.73	43.51	32.27	11.82	31.01	248	183	P	H	
		5716.8	71.18	-38.73	109.91	58.07	32.29	11.84	31.02	248	183	P	H	
		5724	76.95	-42.97	119.92	63.82	32.31	11.84	31.02	248	183	P	H	
	*	5746	103.02	-	-	89.85	32.34	11.86	31.03	248	183	P	H	
	*	5746	92.3	-	-	79.13	32.34	11.86	31.03	248	183	A	H	
														H
														H
			5632.6	53.43	-14.77	68.2	40.45	32.19	11.79	31	393	0	P	V
			5694.2	55.6	-45.32	100.92	42.52	32.27	11.82	31.01	393	0	P	V
			5717.6	71.78	-38.35	110.13	58.65	32.31	11.84	31.02	393	0	P	V
			5723	79.23	-38.41	117.64	66.1	32.31	11.84	31.02	393	0	P	V
	*		5746	104.26	-	-	91.09	32.34	11.86	31.03	393	0	P	V
	*		5746	93.4	-	-	80.23	32.34	11.86	31.03	393	0	A	V
														V
													V	



WIFI Ant. 1	Note	Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB/m )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Peak Avg. ( P/A )	Pol. ( H/V )
		5609.2	53.85	-14.35	68.2	40.93	32.14	11.77	30.99	236	181	P	H
		5686	53.87	-41	94.87	40.79	32.27	11.82	31.01	236	181	P	H
		5702	53.32	-52.44	105.76	40.2	32.29	11.84	31.01	236	181	P	H
		5723.4	54.04	-64.51	118.55	40.91	32.31	11.84	31.02	236	181	P	H
	*	5785	102.88	-	-	89.66	32.39	11.88	31.05	236	181	P	H
	*	5785	92.21	-	-	78.99	32.39	11.88	31.05	236	181	A	H
		5853.4	53.24	-61.21	114.45	39.79	32.48	12.03	31.06	236	181	P	H
		5855.8	53.37	-57.21	110.58	39.89	32.51	12.03	31.06	236	181	P	H
		5910	54.05	-25.22	79.27	40.25	32.58	12.31	31.09	236	181	P	H
		5926.8	54.52	-13.68	68.2	40.7	32.6	12.31	31.09	236	181	P	H
802.11n													H
HT20													H
CH 157		5643.2	53.03	-15.17	68.2	40.05	32.19	11.79	31	385	0	P	V
5785MHz		5698.8	55.47	-48.85	104.32	42.39	32.27	11.82	31.01	385	0	P	V
		5708	53.18	-54.26	107.44	40.07	32.29	11.84	31.02	385	0	P	V
		5723.2	52.7	-65.4	118.1	39.57	32.31	11.84	31.02	385	0	P	V
	*	5788	103.24	-	-	90	32.41	11.88	31.05	385	0	P	V
	*	5788	92.67	-	-	79.43	32.41	11.88	31.05	385	0	A	V
		5850.4	53.16	-68.13	121.29	39.71	32.48	12.03	31.06	385	0	P	V
		5861.2	53.24	-55.82	109.06	39.63	32.51	12.17	31.07	385	0	P	V
		5882.8	54.32	-45.09	99.41	40.69	32.53	12.17	31.07	385	0	P	V
		5939.8	53.65	-14.55	68.2	39.8	32.63	12.31	31.09	385	0	P	V
													V
													V



WIFI Ant. 1	Note	Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB/m )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Peak Avg. ( P/A )	Pol. ( H/V )	
802.11n HT20 CH 165 5825MHz	*	5824	104.94	-	-	91.5	32.46	12.03	31.05	310	187	P	H	
	*	5824	93.92	-	-	80.48	32.46	12.03	31.05	310	187	A	H	
		5850.6	71.85	-48.98	120.83	58.4	32.48	12.03	31.06	310	187	P	H	
		5855	65.97	-44.83	110.8	52.49	32.51	12.03	31.06	310	187	P	H	
		5882.2	54.81	-45.04	99.85	41.18	32.53	12.17	31.07	310	187	P	H	
		5932.2	54.38	-13.82	68.2	40.56	32.6	12.31	31.09	310	187	P	H	
														H
														H
	*	5824	104.62	-	-	91.18	32.46	12.03	31.05	381	0	P	V	
	*	5824	93.48	-	-	80.04	32.46	12.03	31.05	381	0	A	V	
		5850	69.51	-52.69	122.2	56.06	32.48	12.03	31.06	381	0	P	V	
		5857.2	64.44	-45.74	110.18	50.96	32.51	12.03	31.06	381	0	P	V	
		5922.2	54.29	-15.97	70.26	40.47	32.6	12.31	31.09	381	0	P	V	
		5948.2	53.41	-14.79	68.2	39.42	32.63	12.45	31.09	381	0	P	V	
														V
														V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.													



Band 4 5725~5850MHz

WIFI 802.11n HT20 (Harmonic @ 3m)

WIFI Ant. 1	Note	Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB/m )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Peak Avg. ( P/A )	Pol. ( H/V )
802.11n HT20 CH 149 5745MHz		11490	46.52	-27.48	74	45.79	40.11	18.4	57.78	100	0	P	H
		17232	49.64	-18.56	68.2	41.99	41.65	23.14	57.14	100	0	P	H
													H
													H
		11490	47.18	-26.82	74	46.45	40.11	18.4	57.78	100	0	P	V
		17232	47.81	-20.39	68.2	40.16	41.65	23.14	57.14	100	0	P	V
													V
802.11n HT20 CH 157 5785MHz		11570	46.55	-27.45	74	45.91	39.95	18.49	57.8	100	0	P	H
		17352	50.52	-17.68	68.2	42.81	42.02	23.25	57.56	100	0	P	H
													H
													H
		11570	46.67	-27.33	74	46.03	39.95	18.49	57.8	100	0	P	V
		17352	49.09	-19.11	68.2	41.38	42.02	23.25	57.56	100	0	P	V
													V
802.11n HT20 CH 165 5825MHz		11650	46.72	-27.28	74	46.14	39.8	18.58	57.8	100	0	P	H
		17472	49.05	-19.15	68.2	41.28	42.39	23.36	57.98	100	0	P	H
													H
													H
		11650	48.04	-25.96	74	47.46	39.8	18.58	57.8	100	0	P	V
		17472	49.24	-18.96	68.2	41.47	42.39	23.36	57.98	100	0	P	V
													V
Remark	1. No other spurious found.												
	2. All results are PASS against Peak and Average limit line.												



Band 4 5725~5850MHz

WIFI 802.11n HT40 (Band Edge @ 3m)

WIFI Ant. 1	Note	Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB/m )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Peak Avg. ( P/A )	Pol. ( H/V )
		5644.6	54.01	-14.19	68.2	41.03	32.19	11.79	31	300	187	P	H
		5697	65.05	-37.94	102.99	51.97	32.27	11.82	31.01	300	187	P	H
		5719	76.22	-34.3	110.52	63.09	32.31	11.84	31.02	300	187	P	H
		5721	77.54	-35.54	113.08	64.41	32.31	11.84	31.02	300	187	P	H
	*	5755	100.17	-	-	86.98	32.36	11.86	31.03	300	187	P	H
	*	5755	89.47	-	-	76.28	32.36	11.86	31.03	300	187	A	H
		5853.8	52.81	-60.73	113.54	39.33	32.51	12.03	31.06	300	187	P	H
		5864.6	54.27	-53.84	108.11	40.66	32.51	12.17	31.07	300	187	P	H
		5886	54.84	-42.19	97.03	41.22	32.53	12.17	31.08	300	187	P	H
		5937	53.18	-15.02	68.2	39.36	32.6	12.31	31.09	300	187	P	H
802.11n													H
HT40													H
CH 151		5626.4	54.19	-14.01	68.2	41.22	32.17	11.79	30.99	385	339	P	V
5755MHz		5694	63.89	-36.89	100.78	50.81	32.27	11.82	31.01	385	339	P	V
		5718.4	74.18	-36.17	110.35	61.05	32.31	11.84	31.02	385	339	P	V
		5724.2	78.58	-41.8	120.38	65.45	32.31	11.84	31.02	385	339	P	V
	*	5755	100.45	-	-	87.26	32.36	11.86	31.03	385	339	P	V
	*	5755	89.74	-	-	76.55	32.36	11.86	31.03	385	339	A	V
		5850.6	53.24	-67.59	120.83	39.79	32.48	12.03	31.06	385	339	P	V
		5863.4	53.85	-54.6	108.45	40.24	32.51	12.17	31.07	385	339	P	V
		5916.2	54.19	-20.5	74.69	40.39	32.58	12.31	31.09	385	339	P	V
		5938.2	53.7	-14.5	68.2	39.88	32.6	12.31	31.09	385	339	P	V
													V
													V



WIFI Ant. 1	Note	Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB/m )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Peak Avg. ( P/A )	Pol. ( H/V )
		5626.2	53.42	-14.78	68.2	40.45	32.17	11.79	30.99	355	204	P	H
		5687.6	54.47	-41.58	96.05	41.39	32.27	11.82	31.01	355	204	P	H
		5719.6	56.74	-53.95	110.69	43.61	32.31	11.84	31.02	355	204	P	H
		5721	57.94	-55.14	113.08	44.81	32.31	11.84	31.02	355	204	P	H
	*	5795	101.28	-	-	88.04	32.41	11.88	31.05	355	204	P	H
	*	5795	90.63	-	-	77.39	32.41	11.88	31.05	355	204	A	H
		5851.6	64.35	-54.2	118.55	50.9	32.48	12.03	31.06	355	204	P	H
		5855	62.89	-47.91	110.8	49.41	32.51	12.03	31.06	355	204	P	H
		5883.2	55.91	-43.2	99.11	42.28	32.53	12.17	31.07	355	204	P	H
		5931.2	53.73	-14.47	68.2	39.91	32.6	12.31	31.09	355	204	P	H
802.11n													H
HT40													H
CH 159		5616	53.59	-14.61	68.2	40.64	32.17	11.77	30.99	380	339	P	V
5795MHz		5693.6	53.97	-46.51	100.48	40.89	32.27	11.82	31.01	380	339	P	V
		5707.4	57.46	-49.81	107.27	44.35	32.29	11.84	31.02	380	339	P	V
		5725	59.4	-62.8	122.2	46.27	32.31	11.84	31.02	380	339	P	V
	*	5795	100.78	-	-	87.54	32.41	11.88	31.05	380	339	P	V
	*	5795	89.7	-	-	76.46	32.41	11.88	31.05	380	339	A	V
		5850	60.38	-61.82	122.2	46.93	32.48	12.03	31.06	380	339	P	V
		5858.6	60.24	-49.55	109.79	46.77	32.51	12.03	31.07	380	339	P	V
		5903	54.09	-30.35	84.44	40.3	32.56	12.31	31.08	380	339	P	V
		5940	54.43	-13.77	68.2	40.58	32.63	12.31	31.09	380	339	P	V
													V
													V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



Band 4 5725~5850MHz

WIFI 802.11n HT40 (Harmonic @ 3m)

WIFI Ant. 1	Note	Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB/m )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Peak Avg. ( P/A )	Pol. ( H/V )
802.11n HT40 CH 151 5755MHz		11510	47.39	-26.61	74	46.64	40.1	18.45	57.8	100	0	P	H
		17268	47.98	-20.22	68.2	40.32	41.75	23.17	57.26	100	0	P	H
													H
													H
		11510	46.05	-27.95	74	45.3	40.1	18.45	57.8	100	0	P	V
		17268	48.86	-19.34	68.2	41.2	41.75	23.17	57.26	100	0	P	V
													V
													V
802.11n HT40 CH 159 5795MHz		11590	45.55	-28.45	74	44.9	39.91	18.54	57.8	100	0	P	H
		17388	49.99	-18.21	68.2	42.25	42.13	23.29	57.68	100	0	P	H
													H
													H
		11590	45.69	-28.31	74	45.04	39.91	18.54	57.8	100	0	P	V
		17388	47.93	-20.27	68.2	40.19	42.13	23.29	57.68	100	0	P	V
													V
													V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average 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 Ant. 1	Note	Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB/m )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Peak Avg. ( P/A )	Pol. ( 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

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

**For Peak Limit @ 2390MHz:**

- 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)
- Over Limit(dB)  
= Level(dBμV/m) – Limit Line(dBμV/m)  
= 55.45(dBμV/m) – 74(dBμV/m)  
= -18.55(dB)

**For Average Limit @ 2390MHz:**

- 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)
- 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”.**



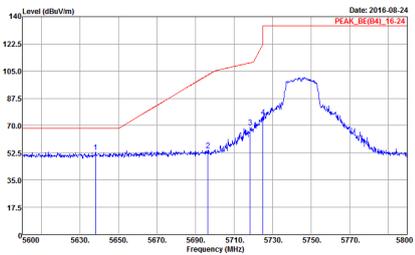
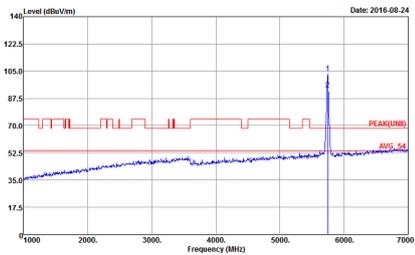
## Appendix C. Radiated Spurious Emission Plots

Test Engineer :	Karl Hou, Nick Yu, and Peter Liao	Temperature :	22~24°C
		Relative Humidity :	53~58%

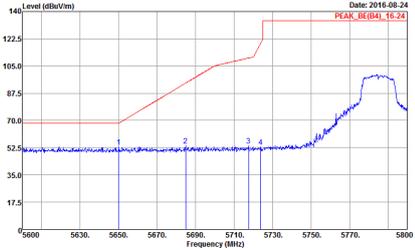
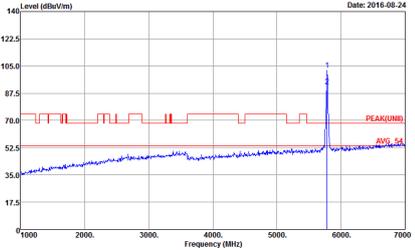
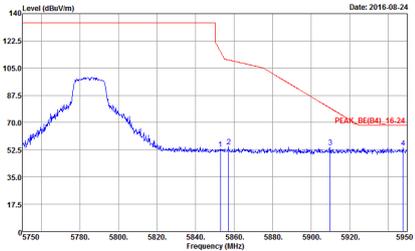
**Band 4 - 5725~5850MHz**  
**WIFI 802.11a (Band Edge @ 3m)**

WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11a CH149 5745MHz	
1	Horizontal	Fundamental
Peak	<p>Date: 2016-08-24 PEAK_BE(B4)_16-24</p> <p>Site : 03CH12-HY Condition : PEAK_BE(B4)_16-24 3m HORN 9120D_1328 HORIZONTAL RBW:1000.000KHz VBW:3000.000KHz SWT:auto Detector : Peak Project : 672509 Mode : 44 Setting : 18.5</p>	<p>Date: 2016-08-24 PEAK(LIN)B AVG_44</p> <p>Site : 03CH12-HY Condition : PEAK(LIN)I 3m HORN 9120D_1328 HORIZONTAL RBW:1000.000KHz VBW:3000.000KHz SWT:auto Detector : Peak Project : 672509 Mode : 44 Setting : 18.5</p>

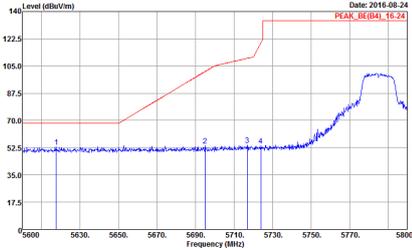
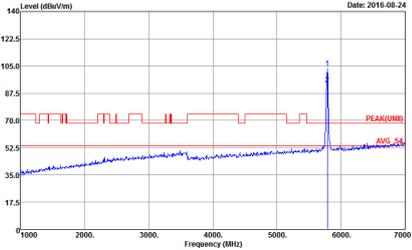
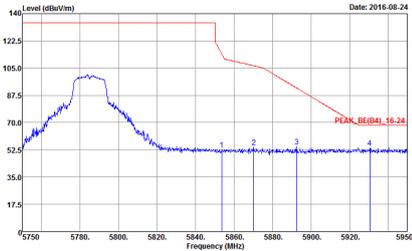


WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11a CH149 5745MHz	
1	Vertical	Fundamental
Peak	 <p>Date: 2016-08-24 PEAK: 115.22</p> <p>Site : 03CH12-HY Condition : PEAK_RE(B4)_16-24 3m HORN 9120D_1328 VERTICAL Detector : Peak Project : 672509 Mode : 44 Setting : 18.5</p>	 <p>Date: 2016-08-24 PEAK(UMB) AVG: 54</p> <p>Site : 03CH12-HY Condition : PEAK(UMB) 3m HORN 9120D_1328 VERTICAL Detector : Peak Project : 672509 Mode : 44 Setting : 18.5</p>



WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11a CH157 5785MHz	
1	Horizontal	Fundamental
Peak	 <p>Date: 2016-08-24 PEAK_BE(B4)_16-24</p> <p>Site : 03CH12-HY Condition : PEAK_BE(B4)_16-24 3m HORN 9120D_1328 HORIZONTAL Detector : Peak Project : 672509 Mode : 45 Setting : 18.5</p>	 <p>Date: 2016-08-24</p> <p>Site : 03CH12-HY Condition : PEAK(UMI) 3m HORN 9120D_1328 HORIZONTAL Detector : Peak Project : 672509 Mode : 45 Setting : 18.5</p>
Peak	 <p>Date: 2016-08-24</p> <p>Site : 03CH12-HY Condition : PEAK_BE(B4)_16-24 3m HORN 9120D_1328 HORIZONTAL Detector : Peak Project : 672509 Mode : 45 Setting : 18.5</p>	Left blank

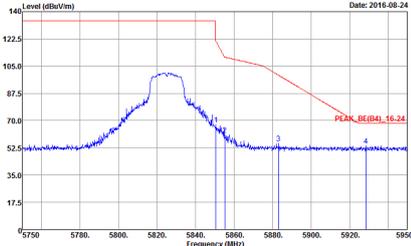
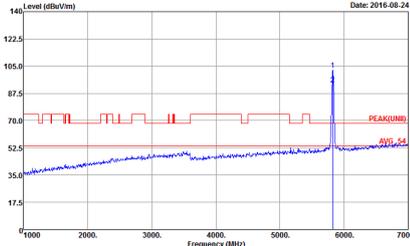


WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11a CH157 5785MHz	
1	Vertical	Fundamental
Peak	 <p>Date: 2016-08-24 PEAK_BE(B4)_16-24</p> <p>Site : 03CH12-HY Condition : PEAK_BE(B4)_16-24 3m HORN 9120D_1328 VERTICAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 672509 Mode : 45 Setting : 18.5</p>	 <p>Date: 2016-08-24 PEAK(UMB) AVG_24</p> <p>Site : 03CH12-HY Condition : PEAK(UMB) 3m HORN 9120D_1328 VERTICAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 672509 Mode : 45 Setting : 18.5</p>
Peak	 <p>Date: 2016-08-24 PEAK_BE(B4)_16-24</p> <p>Site : 03CH12-HY Condition : PEAK_BE(B4)_16-24 3m HORN 9120D_1328 VERTICAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 672509 Mode : 45 Setting : 18.5</p>	Left blank



WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11a CH165 5825MHz	
1	Horizontal	Fundamental
Peak	<p>Date: 2016-08-24</p> <p>Site : 03CH12-HY            Condition : PEAK_BE(B4)_16-24 3m HORN 91.000, 13.00 HORIZONTAL            RBW:1000.000KHz VBW:3000.000KHz SWT:Auto            Detector : Peak            Project : 672509            Mode : 46            Setting : 18.5</p>	<p>Date: 2016-08-24</p> <p>Site : 03CH12-HY            Condition : PEAK(UNI) 3m HORN 91.000, 13.00 HORIZONTAL            RBW:1000.000KHz VBW:3000.000KHz SWT:Auto            Detector : Peak            Project : 672509            Mode : 46            Setting : 18.5</p>



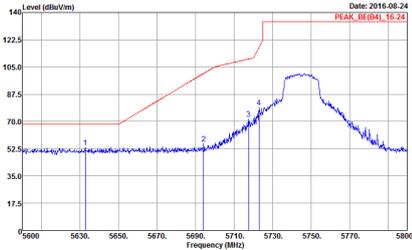
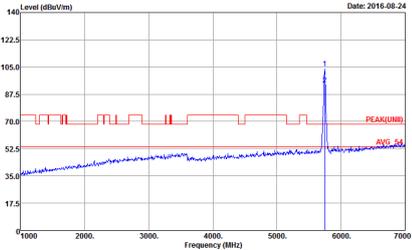
WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11a CH165 5825MHz	
1	Vertical	Fundamental
Peak	 <p>Date: 2016-08-24</p> <p>Level (dBuV/m)</p> <p>Frequency (MHz)</p> <p>PEAK (dBuV) : 116.24</p> <p>Site : 03CH12-HY  Condition : PEAK (dBuV) 16-24 3m HORN 9120D_1328 VERTICAL  : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto  Detector : Peak  Project : 672509  Mode : 46  Setting : 18.5</p>	 <p>Date: 2016-08-24</p> <p>Level (dBuV/m)</p> <p>Frequency (MHz)</p> <p>PEAK (dBuV) : 116.24</p> <p>Site : 03CH12-HY  Condition : PEAK (dBuV) 3m HORN 9120D_1328 VERTICAL  : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto  Detector : Peak  Project : 672509  Mode : 46  Setting : 18.5</p>



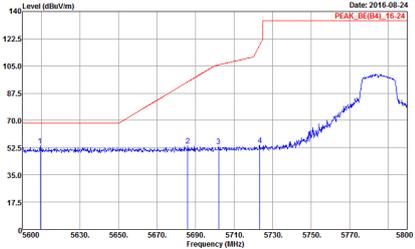
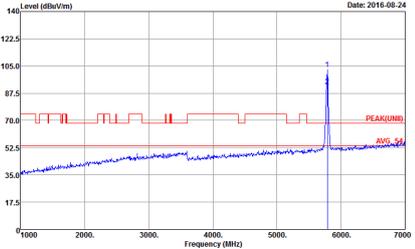
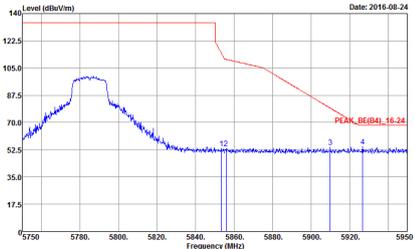
**Band 4 5725~5850MHz**  
**WIFI 802.11n HT20 (Band Edge @ 3m)**

WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11n HT20 CH149 5745MHz	
1	Horizontal	Fundamental
<b>Peak</b>	<p>Site : 03CH12-HY            Condition : PEAK_BE(54)_16-24 3m HORN_9120D_1328 HORIZONTAL            RBW:1000.000KHz VBW:3000.000KHz SWT:Auto            Detector : Peak            Project : 672509            Mode : 47            Setting : 19</p>	<p>Site : 03CH12-HY            Condition : PEAK(UM) 3m HORN_9120D_1328 HORIZONTAL            RBW:1000.000KHz VBW:3000.000KHz SWT:Auto            Detector : Peak            Project : 672509            Mode : 47            Setting : 19</p>



WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11n HT20 CH149 5745MHz	
1	Vertical	Fundamental
Peak	 <p>Date: 2016-08-24 PEAK: 061049_16-24</p> <p>Site : 09CH12-HY Condition : PEAK_RE(B4)_16-24 3m HORN 9120D_1328 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 672509 Mode : 47 Setting : 19</p>	 <p>Date: 2016-08-24 PEAK(UMB) AVG: 54</p> <p>Site : 09CH12-HY Condition : PEAK(UMB)_3m HORN 9120D_1328 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 672509 Mode : 47 Setting : 19</p>

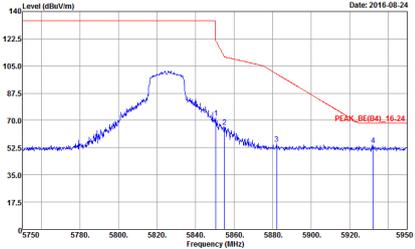
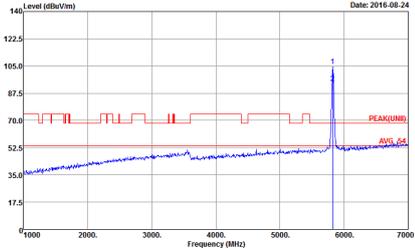


WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11n HT20 CH157 5785MHz	
1	Horizontal	Fundamental
Peak	 <p>Date: 2016-08-24 PEAK_BE(B4)_16-24</p> <p>Site : 03CH12-HY Condition : PEAK_BE(B4)_16-24 3m HORN 9120D_1328 HORIZONTAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 672509 Mode : 48 Setting : 19</p>	 <p>Date: 2016-08-24 PEAK(UM)</p> <p>Site : 03CH12-HY Condition : PEAK(UM) 3m HORN 9120D_1328 HORIZONTAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 672509 Mode : 48 Setting : 19</p>
Peak	 <p>Date: 2016-08-24 PEAK_BE(B4)_16-24</p> <p>Site : 03CH12-HY Condition : PEAK_BE(B4)_16-24 3m HORN 9120D_1328 HORIZONTAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 672509 Mode : 48 Setting : 19</p>	Left blank

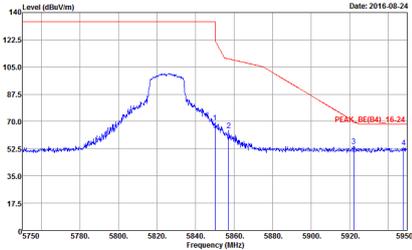
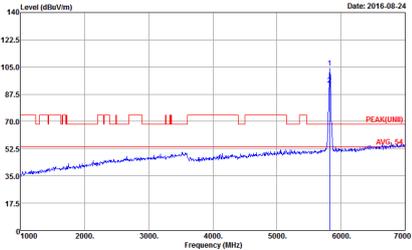


WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11n HT20 CH157 5785MHz	
1	Vertical	Fundamental
Peak	<p>Site : 03CH12-HY          Condition : PEAK_BE(B4)_16-24 3m HORN 9120D_1328 VERTICAL          Detector : Peak          Project : 672509          Mode : 40          Setting : 19</p>	<p>Site : 03CH12-HY          Condition : PEAK(UNI) 3m HORN 9120D_1328 VERTICAL          Detector : Peak          Project : 672509          Mode : 40          Setting : 19</p>
Peak	<p>Site : 03CH12-HY          Condition : PEAK_BE(B4)_16-24 3m HORN 9120D_1328 VERTICAL          Detector : Peak          Project : 672509          Mode : 40          Setting : 19</p>	Left blank



WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11n HT20 CH165 5825MHz	
1	Horizontal	Fundamental
Peak	 <p>Date: 2016-08-24</p> <p>Site : 03CH12-HY          Condition : PEAK_BE(B4)_16-24 3m HORN 91.000_13.000 HORIZONTAL          RBW:1000.000KHz VBW:3000.000KHz SWT:Auto          Detector : Peak          Project : 672509          Mode : 49          Setting : 19</p>	 <p>Date: 2016-08-24</p> <p>Site : 03CH12-HY          Condition : PEAK(UM) 3m HORN 91.000_13.000 HORIZONTAL          RBW:1000.000KHz VBW:3000.000KHz SWT:Auto          Detector : Peak          Project : 672509          Mode : 49          Setting : 19</p>

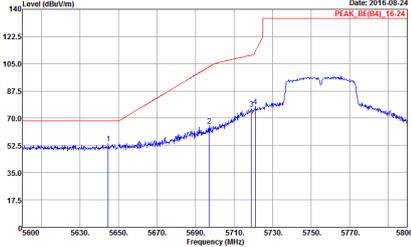
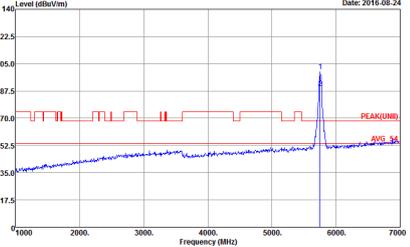
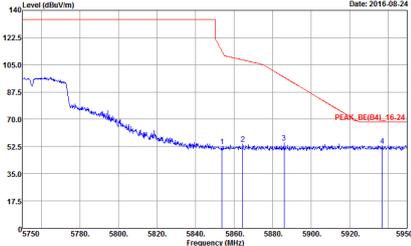


WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11n HT20 CH165 5825MHz	
1	Vertical	Fundamental
Peak	 <p>Date: 2016-08-24</p> <p>Site : 03CH12-HY            Condition : PEAK_RE(B4)_16-24 3m HORN 9120D_1328 VERTICAL            : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto            Detector : Peak            Project : 672509            Mode : 49            Setting : 19</p>	 <p>Date: 2016-08-24</p> <p>Site : 03CH12-HY            Condition : PEAK(FUND) 3m HORN 9120D_1328 VERTICAL            : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto            Detector : Peak            Project : 672509            Mode : 49            Setting : 19</p>

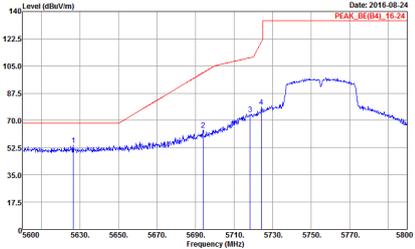
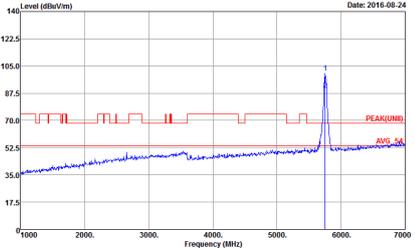
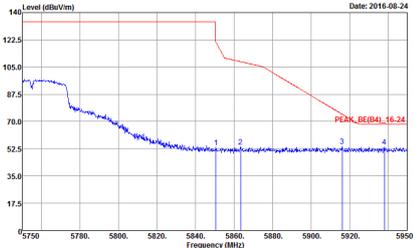


Band 4 5725~5850MHz

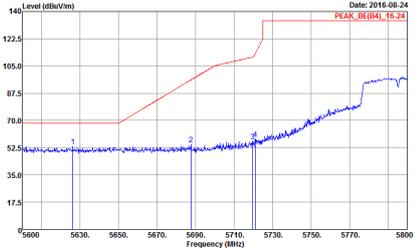
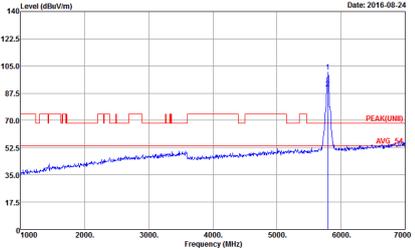
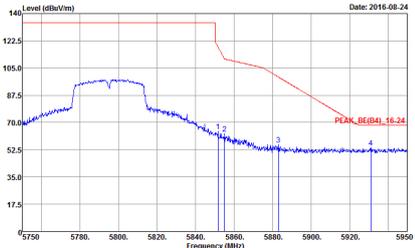
WIFI 802.11n HT40 (Band Edge @ 3m)

WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11n HT40 CH151 5755MHz	
1	Horizontal	Fundamental
Peak	 <p>Site : 03CH12-HY  Condition : PEAK_BE(B4)_16-24 3m HORN_9120D_1328 HORIZONTAL  Detector : Peak  Project : 672509  Mode : 50  Setting : 10</p>	 <p>Site : 03CH12-HY  Condition : PEAK(UMI) 3m HORN_9120D_1328 HORIZONTAL  Detector : Peak  Project : 672509  Mode : 50  Setting : 10</p>
Peak	 <p>Site : 03CH12-HY  Condition : PEAK_BE(B4)_16-24 3m HORN_9120D_1328 HORIZONTAL  Detector : Peak  Project : 672509  Mode : 50  Setting : 10</p>	Left blank

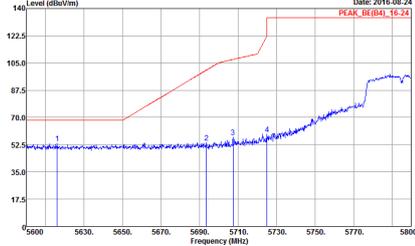
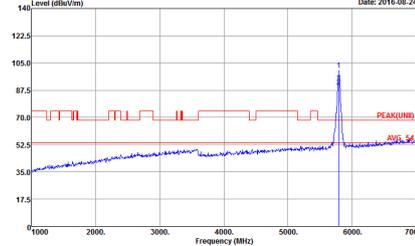
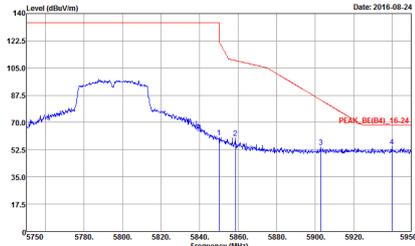


WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11n HT40 CH151 5755MHz	
1	Vertical	Fundamental
Peak	 <p>Date: 2016-08-24 PEAK_BE(B4)_16-24</p> <p>Site : 03CH12-HY Condition : PEAK_BE(B4)_16-24 3m HORN 9120D_1328 VERTICAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 672509 Mode : 50 Setting : 18</p>	 <p>Date: 2016-08-24 PEAK(UM)</p> <p>Site : 03CH12-HY Condition : PEAK(UM) 3m HORN 9120D_1328 VERTICAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 672509 Mode : 50 Setting : 18</p>
Peak	 <p>Date: 2016-08-24 PEAK_BE(B4)_16-24</p> <p>Site : 03CH12-HY Condition : PEAK_BE(B4)_16-24 3m HORN 9120D_1328 VERTICAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 672509 Mode : 50 Setting : 18</p>	Left blank



WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11n HT40 CH159 5795MHz	
1	Horizontal	Fundamental
Peak	 <p>Date: 2016-08-24 PEAK_BE(B4)_16-24</p> <p>Site : 03CH12-HY Condition : PEAK_BE(B4)_16-24 3m HORN_9120D_1318 HORIZONTAL : RBW:1000.000KHz; VBW:3000.000KHz; SWT:Auto Detector : Peak Project : 672509 Mode : S1 Setting : 18</p>	 <p>Date: 2016-08-24 PEAK(UM)</p> <p>Site : 03CH12-HY Condition : PEAK(UM) 3m HORN_9120D_1318 HORIZONTAL : RBW:1000.000KHz; VBW:3000.000KHz; SWT:Auto Detector : Peak Project : 672509 Mode : S1 Setting : 18</p>
Peak	 <p>Date: 2016-08-24 PEAK_BE(B4)_16-24</p> <p>Site : 03CH12-HY Condition : PEAK_BE(B4)_16-24 3m HORN_9120D_1318 HORIZONTAL : RBW:1000.000KHz; VBW:3000.000KHz; SWT:Auto Detector : Peak Project : 672509 Mode : S1 Setting : 18</p>	Left blank



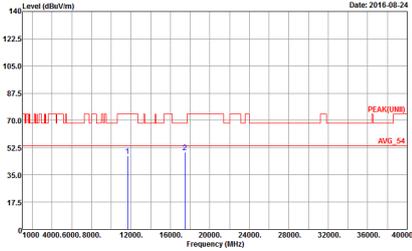
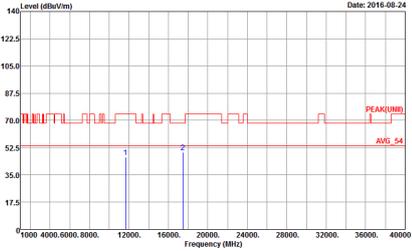
WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11n HT40 CH159 5795MHz	
1	Vertical	Fundamental
Peak	 <p>Date: 2016-08-24 PEAK_BE(B4)_16-24</p> <p>Site : 03CH12-HY Condition : PEAK_BE(B4)_16-24 3m HORN_9120D_132B VERTICAL Detector : Peak Project : 672509 Mode : S1 Setting : 1B</p>	 <p>Date: 2016-08-24 PEAK(UM)</p> <p>Site : 03CH12-HY Condition : PEAK(UM) 3m HORN_9120D_132B VERTICAL Detector : Peak Project : 672509 Mode : S1 Setting : 1B</p>
Peak	 <p>Date: 2016-08-24 PEAK_BE(B4)_16-24</p> <p>Site : 03CH12-HY Condition : PEAK_BE(B4)_16-24 3m HORN_9120D_132B VERTICAL Detector : Peak Project : 672509 Mode : S1 Setting : 1B</p>	Left blank





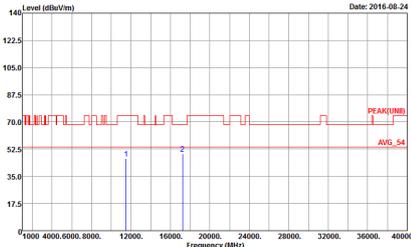
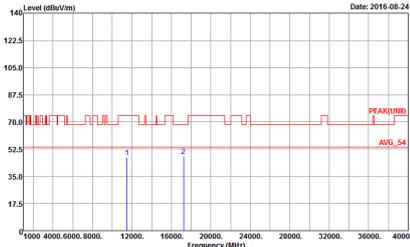
WIFI	Band 4 5725-5850MHz Harmonic @ 3m	
ANT	802.11a CH157 5785MHz	
1	Horizontal	Vertical
<p><b>Peak</b></p> <p><b>Avg.</b></p>	<p>Horizontal Spectrum Plot (Date: 2016-08-24)</p> <p>Site : 03CH12-HY          Condition : PEAK(UNI) 3m HORN_9120D_1328 HORIZONTAL          Detector : Peak          Project : 672509          Mode : 45</p>	<p>Vertical Spectrum Plot (Date: 2016-08-24)</p> <p>Site : 03CH12-HY          Condition : PEAK(UNI) 3m HORN_9120D_1328 VERTICAL          Detector : Peak          Project : 672509          Mode : 45</p>



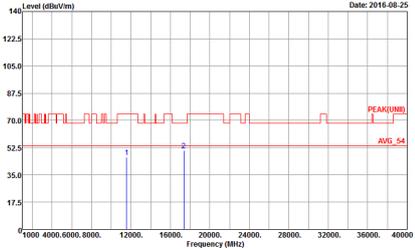
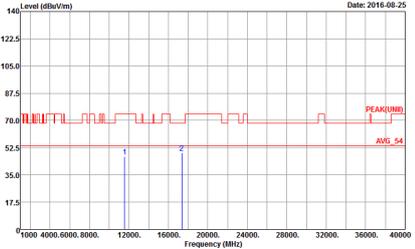
WIFI	Band 4 5725-5850MHz Harmonic @ 3m	
ANT	802.11a CH165 5825MHz	
1	Horizontal	Vertical
<p><b>Peak</b></p> <p><b>Avg.</b></p>	 <p>Date: 2016-08-24</p> <p>Site : 03CH12-HY            Condition : PEAK(UNI) 3m HORN_9120D_1328 HORIZONTAL            Detector : Peak            Project : 672509            Mode : 46</p>	 <p>Date: 2016-08-24</p> <p>Site : 03CH12-HY            Condition : PEAK(UNI) 3m HORN_9120D_1328 VERTICAL            Detector : Peak            Project : 672509            Mode : 46</p>



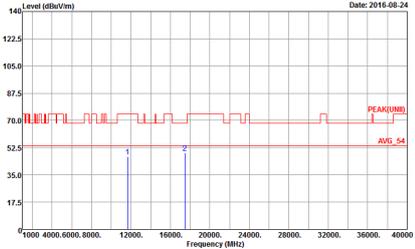
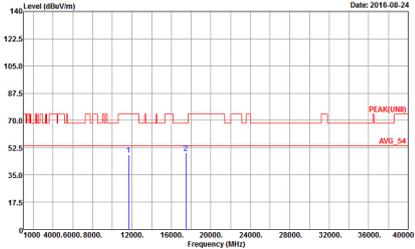
**Band 4 5725~5850MHz**  
**WIFI 802.11n HT20 (Harmonic @ 3m)**

WIFI	Band 4 5725~5850MHz Harmonic @ 3m	
ANT	802.11n HT20 CH149 5745MHz	
1	Horizontal	Vertical
<p><b>Peak</b> <b>Avg.</b></p>	 <p>Site : 03CH12-HY          Condition : PEAK(UNI) 3m HORN_9120D_1328 HORIZONTAL          Detector : Peak          Project : 672509          Mode : -47</p>	 <p>Site : 03CH12-HY          Condition : PEAK(UNI) 3m HORN_9120D_1328 VERTICAL          Detector : Peak          Project : 672509          Mode : -47</p>



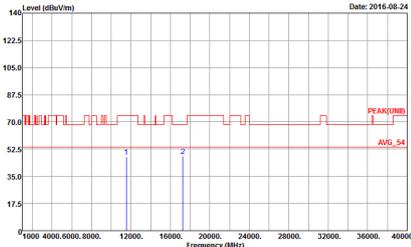
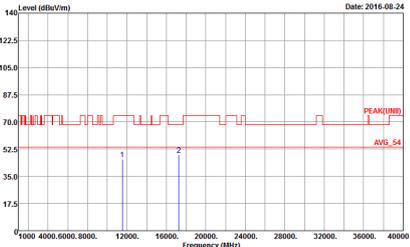
WIFI	Band 4 5725-5850MHz Harmonic @ 3m	
ANT	802.11n HT20 CH157 5785MHz	
1	Horizontal	Vertical
Peak Avg.	 <p>Site : 03CH12-HY Condition : PEAK(UNI) 3m HORN_9120D_1328 HORIZONTAL Detector : Peak Project : 672509 Mode : 48</p>	 <p>Site : 03CH12-HY Condition : PEAK(UNI) 3m HORN_9120D_1328 VERTICAL Detector : Peak Project : 672509 Mode : 48</p>



WIFI	Band 4 5725-5850MHz Harmonic @ 3m	
ANT	802.11n HT20 CH165 5825MHz	
1	Horizontal	Vertical
<p><b>Peak</b></p> <p><b>Avg.</b></p>	 <p>Site :03CH12-HY            Condition :PEAK[UNI] 3m HORN_9120D_1328 HORIZONTAL            Detector :Peak            Project :672509            Mode :49</p>	 <p>Site :03CH12-HY            Condition :PEAK[UNI] 3m HORN_9120D_1328 VERTICAL            Detector :Peak            Project :672509            Mode :49</p>



**Band 4 5725~5850MHz**  
**WIFI 802.11n HT40 (Harmonic @ 3m)**

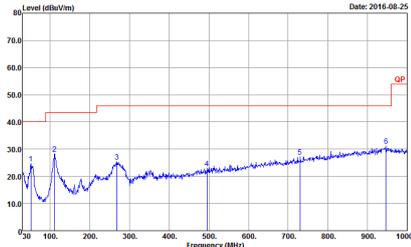
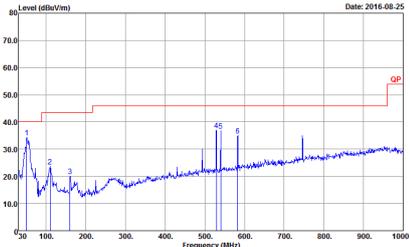
WIFI	Band 4 5725~5850MHz Harmonic @ 3m	
ANT	802.11n HT40 CH151 5755MHz	
1	Horizontal	Vertical
<p><b>Peak</b> <b>Avg.</b></p>	 <p>Site : 03CH12-HY          Condition : PEAK(UNII) 3m HORN_9120D_1328 HORIZONTAL          Detector : Peak          Project : 672509          Mode : 50</p>	 <p>Site : 03CH12-HY          Condition : PEAK(UNII) 3m HORN_9120D_1328 VERTICAL          Detector : Peak          Project : 672509          Mode : 50</p>



WIFI	Band 4 5725-5850MHz Harmonic @ 3m	
ANT	802.11n HT40 CH159 5795MHz	
1	Horizontal	Vertical
Peak Avg.	<p>Site : 03CH12-HY Condition : PEAK(UNI) 3m HORN_9120D_1328 HORIZONTAL Detector : Peak Project : 672509 Mode : 51</p>	<p>Site : 03CH12-HY Condition : PEAK(UNI) 3m HORN_9120D_1328 VERTICAL Detector : Peak Project : 672509 Mode : 51</p>



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

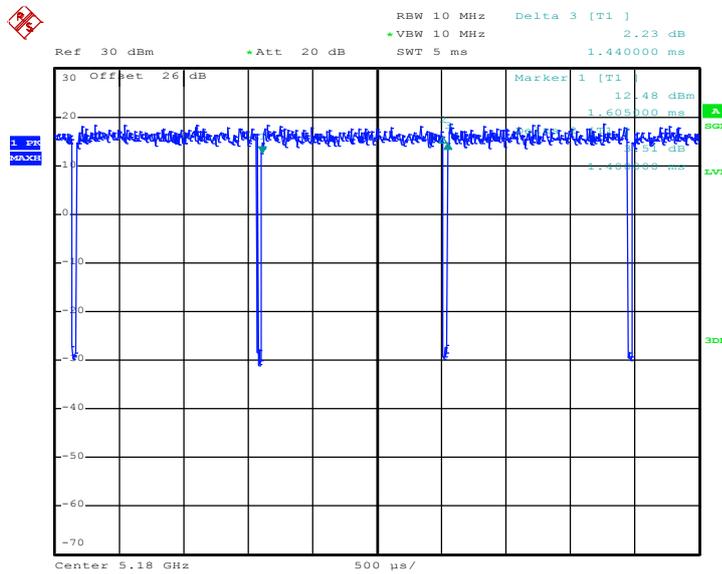
WIFI	5GHz 5725~5850MHz	
ANT	802.11n HT20 LF	
1	Horizontal	Vertical
QP / Peak	 <p>Site : 03CH12-HY Condition : QP 3m BIL06_6111D_37059 HORIZONTAL Detector : Peak Project : 672509 Mode : S2</p>	 <p>Site : 03CH12-HY Condition : QP 3m BIL06_6111D_37059 VERTICAL Detector : Peak Project : 672509 Mode : S2</p>



### Appendix D. Duty Cycle Plots

Antenna	Band	Duty Cycle (%)	T(us)	1/T(kHz)	VBW Setting
1	802.11a	97.22	1400.00	0.71	1kHz
1	5GHz 802.11n HT20	97.02	1300.00	0.77	1kHz
1	5GHz 802.11n HT40	93.86	642.00	1.56	3kHz

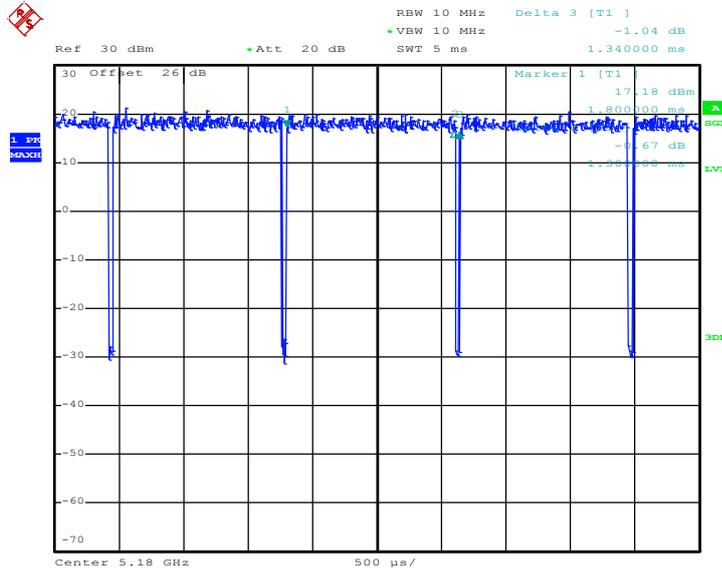
#### 802.11a



Date: 27.JUL.2016 15:02:30

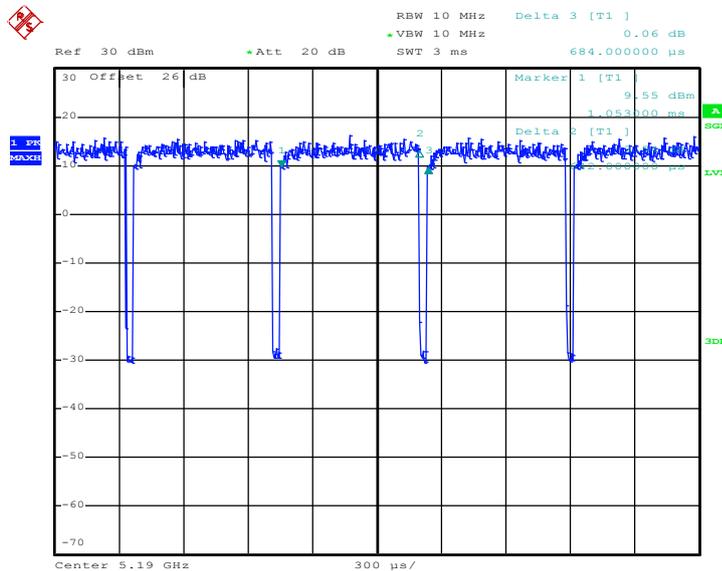


802.11n HT20



Date: 27.JUL.2016 16:17:10

802.11n HT40



Date: 27.JUL.2016 17:18:07