FCC RF Test Report

APPLICANT	:	Sony Mobile Communications Inc.
EQUIPMENT	:	GSM/WCDMA/LTE Phone + Bluetooth, DTS/UNII a/b/g/n/ac, ANT+, and NFC
BRAND NAME	:	Sony
FCC ID	:	PY7-PM0900
STANDARD	:	FCC Part 15 Subpart E §15.407
CLASSIFICATION	:	(NII) Unlicensed National Information Infrastructure

The product was received on Jul. 16, 2015 and testing was completed on Aug. 15, 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.

Reviewed by: Joseph Lin / Supervisor

Approved by: Jones Tsai / Manager

Testing Laboratory
1190

SPORTON INTERNATIONAL INC.
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TABLE OF CONTENTS

REVISION HISTORY **3**

SUMMARY OF TEST RESULT **4**

1 GENERAL DESCRIPTION **5**

1.1 Applicant 5
1.2 Manufacturer 5
1.3 Feature of Equipment Under Test 5
1.4 Modification of EUT 7
1.5 Testing Location 7
1.6 Applicable Standards 8

2 TEST CONFIGURATION OF EQUIPMENT UNDER TEST **9**

2.1 Carrier Frequency and Channel 9
2.2 Pre-Scanned RF Power 9
2.3 Test Mode 13
2.4 Connection Diagram of Test System 15
2.5 Support Unit used in test configuration and system 16
2.6 EUT Operation Test Setup 16
2.7 Measurement Results Explanation Example 16

3 TEST RESULT **17**

3.1 6dB Bandwidth Measurement 17
3.2 Maximum Conducted Output Power Measurement 19
3.3 Power Spectral Density Measurement 20
3.4 Unwanted Emissions Measurement 23
3.5 AC Conducted Emission Measurement 28
3.6 Frequency Stability Measurement 32
3.7 Automatically Discontinue Transmission 33
3.8 Antenna Requirements 34

4 LIST OF MEASURING EQUIPMENT **36**

5 UNCERTAINTY OF EVALUATION **38**

APPENDIX A. CONDUCTED TEST RESULTS

APPENDIX B. RADIATED TEST RESULTS

APPENDIX C. RADIATED SPURIOUS EMISSION

REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FR571610G	Rev. 01	Initial issue of report	Aug. 31, 2015

SUMMARY OF TEST RESULT

Report Section	FCC Rule	Description	Limit	Result	Remark
3.1	15.403(i)	6dB 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 2.17 dB at 5707.960 MHz
3.5	15.207	AC Conducted Emission	15.207(a)	Pass	Under limit 21.90 dB at 0.694 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

Sony Mobile Communications Inc.
Nya Vattentornet, 22188 Lund, Sweden

1.2 Manufacturer

Sony Mobile Communications Inc.
1-8-15 Konan, Minato-ku, Tokyo, 108-0075, Japan

1.3 Feature of Equipment Under Test

GSM/WCDMA/LTE, Bluetooth, DTS/UNII a/b/g/n/ac, ANT+, NFC, and GPS

Product Specification subjective to this standard	
Antenna Type	Main Antenna : Monopole Antenna Aux. Antenna : Monopole Antenna
Antenna Gain	Main Antenna : -4.10 dBi Aux. Antenna : -2.20 dBi

EUT Information List				
IMEI	HW Version	SW Version	S/N	Performed Test Item
004402455309033	A	32.0.A.0.323	CB5A276KW0	RF conducted measurement
004402455308415			CB5A2741W1	Radiated Spurious Emission
004402455306211			CB5A2741RU	Conducted Emission

Accessory List	
AC Adapter	Model No. : UCH20
	Type No. : AC-0061-US
	S/N : 5815W22500081 (for Radiation Spurious Emission) 2115W15500021 (for Conducted Emission)
Earphone	Model No. : MDR-NC31E
	Type No. : AG-1110
USB Cable	Model No. : UCB11
	Type No. : AI-0120
	S/N : 10115W02400028C (for Radiated Spurious Emission) 1522A73000065C4 (for Conducted Emission)

Note:

1. Above EUT list and accessory list used are electrically identical per declared by manufacturer.
2. Above the accessories list are used to exercise the EUT during test.
3. For other wireless features of this EUT, test report will be issued separately.

1.4 Modification of EUT

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

1.5 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.

Test Site	SPORTON INTERNATIONAL INC.	
Test Site Location	No. 52, Hwa Ya 1st 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	
Test Site No.	**Sporton Site No.**	
	TH05-HY	CO05-HY

Test Site Location	No. 52, Hwa Ya 1st Rd., Hwa Ya Technology Park, Kwei-Shan District, Tao Yuan City, Taiwan, R.O.C. TEL: +886-3-3273456 / FAX: +886-3-3284978
Test Site No.	**Sporton Site No.**
	03CH10-HY

Note: The test site complies with ANSI C63.4 2009 requirement.

1.6 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 v01
- FCC KDB 662911 D01 Multiple Transmitter Output v02r01.
- FCC KDB 644545 D03 Guidance for IEEE 802 11ac New Rules v01
- ANSI C63.10-2009

Remark:

1. All test items were verified and recorded according to the standards and without any deviation during the test.
2. FCC permits the use of the 1.5 meter table as an alternative in C63.10-2013 through inquiry tracking number 961829.

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.

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

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

2.2 Pre-Scanned RF Power

The data rates were set in

6 Mbps for 802.11a, MCS0 for 802.11n HT20, and MCS0 for 802.11n HT40 for Ant. 1 and Ant. 2;

MCS8 for 802.11n HT20 and MCS8 for 802.11n HT40 for MIMO <Ant. 1 + 2>;

MCS0 for 802.11n VHT20, MCS0 for 802.11n VHT40, and MCS0 for 802.11n VHT80, due to the customer declared.

SISO <Ant. 1>

5GHz 802.11a mode			
Data Rate (MHz)	6M bps		
Channel	CH149	CH157	CH165
Frequency	5745	5785	5825
Average Power (dBm)	9.71	9.34	9.19

5GHz 802.11n HT20 mode			
Data Rate (MHz)	MCS0		
Channel	CH149	CH157	CH165
Frequency	5745	5785	5825
Average Power (dBm)	9.46	9.17	9.19

5GHz 802.11n HT40 mode		
Data Rate (MHz)	MCS0	
Channel	CH151	CH159
Frequency	5755	5795
Average Power (dBm)	9.83	9.12

5GHz 802.11ac VHT20 mode			
Data Rate (MHz)	MCS0		
Channel	CH149	CH157	CH165
Frequency	5745	5785	5825
Average Power (dBm)	9.33	9.19	9.20

5GHz 802.11ac VHT40 mode		
Data Rate (MHz)	MCS0	
Channel	CH151	CH159
Frequency	5755	5795
Average Power (dBm)	9.61	9.32

5GHz 802.11ac VHT80 mode	
Data Rate (MHz)	MCS0
Channel	CH155
Frequency	5775
Average Power (dBm)	9.72

SISO <Ant. 2>

5GHz 802.11a mode			
Data Rate (MHz)	6M bps		
Channel	CH149	CH157	CH165
Frequency	5745	5785	5825
Average Power (dBm)	9.59	9.11	9.23

5GHz 802.11n HT20 mode			
Data Rate (MHz)	MCS0		
Channel	CH149	CH157	CH165
Frequency	5745	5785	5825
Average Power (dBm)	9.36	9.31	9.37

5GHz 802.11n HT40 mode		
Data Rate (MHz)	MCS0	
Channel	CH151	CH159
Frequency	5755	5795
Average Power (dBm)	9.74	9.32

5GHz 802.11ac VHT20 mode			
Data Rate (MHz)	MCS0		
Channel	CH149	CH157	CH165
Frequency	5745	5785	5825
Average Power (dBm)	9.37	9.23	9.36

5GHz 802.11ac VHT40 mode		
Data Rate (MHz)	MCS0	
Channel	CH151	CH159
Frequency	5755	5795
Average Power (dBm)	9.56	9.67

5GHz 802.11ac VHT80 mode	
Data Rate (MHz)	MCS0
Channel	CH155
Frequency	5775
Average Power (dBm)	9.88

MIMO <Ant. 1+2>

5GHz 802.11a mode			
Data Rate (MHz)	6M bps		
Channel	CH149	CH157	CH165
Frequency	5745	5785	5825
Average Power (dBm)	12.72	12.34	12.24

5GHz 802.11n HT20 mode			
Data Rate (MHz)	MCS8		
Channel	CH149	CH157	CH165
Frequency	5745	5785	5825
Average Power (dBm)	12.59	12.33	12.43

5GHz 802.11n HT40 mode		
Data Rate (MHz)	MCS8	
Channel	CH151	CH159
Frequency	5755	5795
Average Power (dBm)	12.84	12.45

5GHz 802.11ac VHT20 mode			
Data Rate (MHz)	MCS0		
Channel	CH149	CH157	CH165
Frequency	5745	5785	5825
Average Power (dBm)	12.57	12.35	12.46

5GHz 802.11ac VHT40 mode		
Data Rate (MHz)	MCS0	
Channel	CH151	CH159
Frequency	5755	5795
Average Power (dBm)	12.62	12.68

5GHz 802.11ac VHT80 mode	
Data Rate (MHz)	MCS0
Channel	CH155
Frequency	5775
Average Power (dBm)	12.88

Note: MIMO Ant. 1+2 is a calculated result from sum of the power MIMO Ant. 1 and MIMO Ant. 2.

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.

The radiated spurious emissions testing were performed in n-mode only for HT20/40, which covers ac-mode testing.

Single Antenna

Modulation	Data Rate
802.11a	6 Mbps
802.11n HT20	MCS0
802.11n HT40	MCS0
802.11ac VHT20	MCS0
802.11ac VHT40	MCS0
802.11ac VHT80	MCS0

MIMO Antenna

Modulation	Data Rate
802.11a	6 Mbps
802.11n HT20	MCS8
802.11n HT40	MCS8
802.11ac VHT20	MCS0
802.11ac VHT40	MCS0
802.11ac VHT80	MCS0

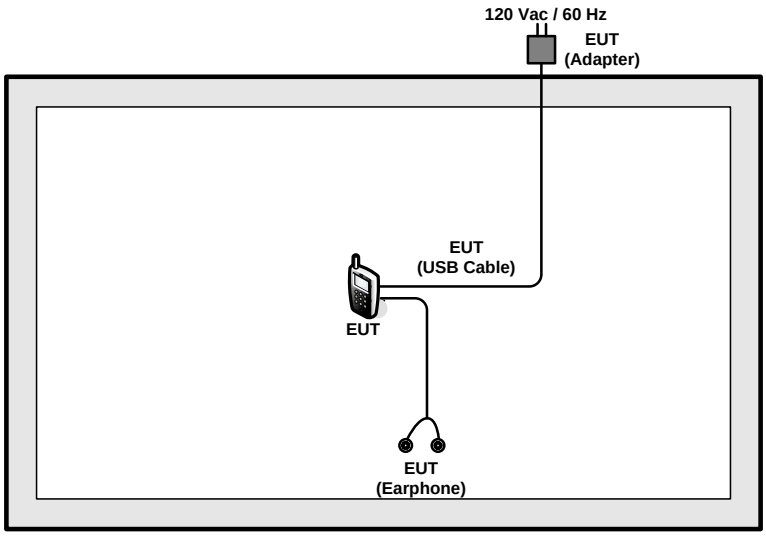
AC Conducted Emission	Mode 1 : WLAN (5GHz) Link + Earphone + USB Cable (Charging from Adapter)

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

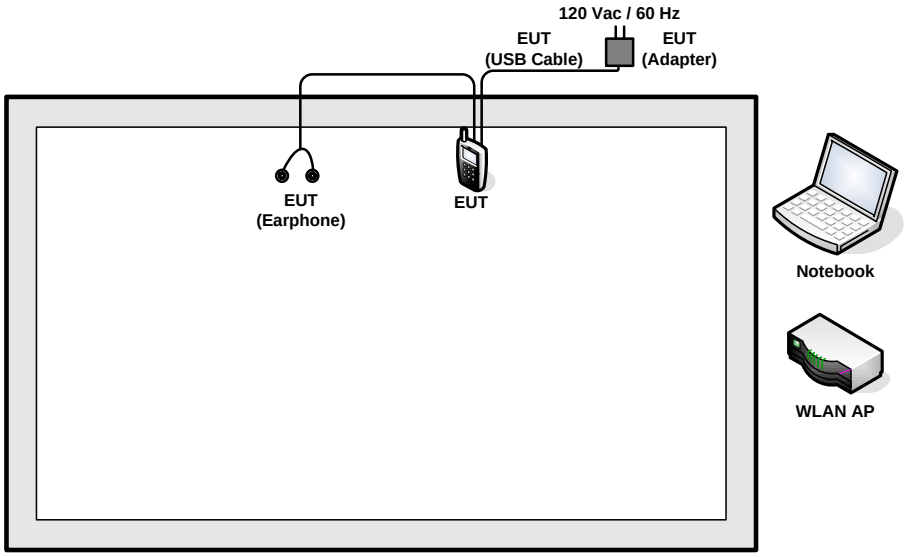
Ch. #		Band IV：5725-5850 MHz		
		802.11ac VHT20	802.11ac VHT40	802.11ac VHT80
L	Low	149	151	-
M	Middle	157	-	155
H	High	165	159	-

2.4 Connection Diagram of Test System

<WLAN Tx Mode>



<AC Conducted Emission Mode>



2.5 Support Unit used in test configuration and system

Item	Equipment	Trade Name	Model Name	FCC ID	Data Cable	Power Cord
1.	WLAN AP	D-Link	DIR-865	KA2IR865LA1	N/A	Unshielded, 1.8 m
2.	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
3.	SD Card	SanDisk	MicroSD HC	FCC DoC	N/A	N/A

2.6 EUT Operation Test Setup

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

2.7 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.

Offset(dB) = RF cable loss(dB) + attenuator factor(dB).

= 4.2 + 10 = 14.2 (dB)

3 Test Result

3.1 6dB Bandwidth Measurement

3.1.1 Description of 6dB Bandwidth

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

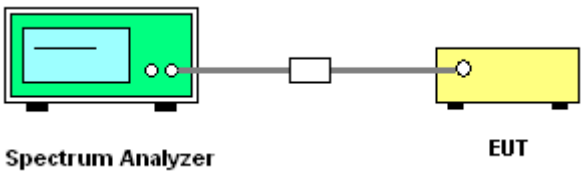
3.1.2 Measuring Instruments

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 v01. Section C) Emission bandwidth for the band 5.725-5.85GHz
2. Set RBW = 100kHz.
3. Set the VBW ≥ 3 x 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.

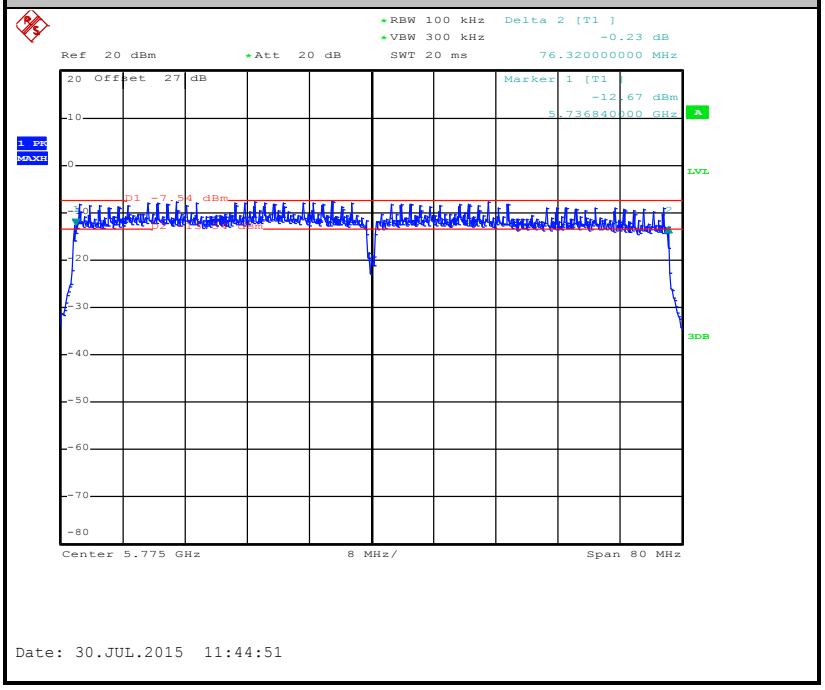
3.1.4 Test Setup



3.1.5 Test Result of 6dB Bandwidth

Please refer to Appendix A.

Maximum 6dB Bandwidth



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.

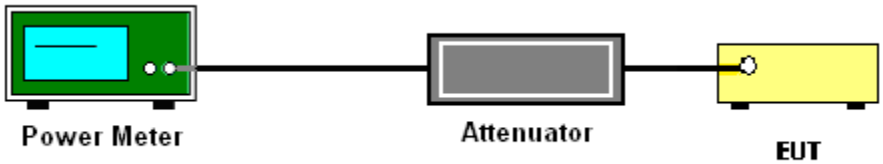
3.2.3 Test Procedures

The testing follows Method PM of FCC KDB 789033 D02 General UNII Test Procedures New Rules v01.

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 v01.
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).

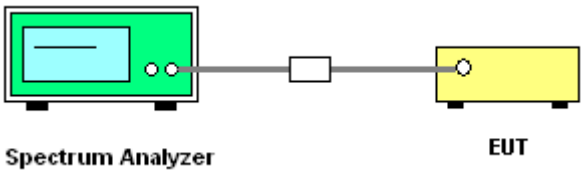
1. The testing follows Method SA-2 of FCC KDB 789033 D01 General UNII Test Procedures v01r03.
   - Measure the duty cycle.
   - Set span to encompass the entire emission bandwidth (EBW) of the signal.
   - Set RBW = 300 kHz.
   - Set VBW ≥ 1 MHz.
   - Number of points in sweep ≥ 2 Span / RBW.
   - Sweep time = auto.
   - Detector = RMS
   - Trace average at least 100 traces in power averaging mode.
   - Add 10 log(500kHz/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.
4. For MIMO mode, calculation method follows FCC KDB 662911 D01 Multiple Transmitter Output v02r01.

   Method (1): Measure and sum the spectra across the outputs.

   The total final Power Spectral Density is from a device with 2 transmitter outputs. The spectrum measurements of the individual outputs are all performed with the same span and number of points, the spectrum value in the first spectral bin of output 1 is summed with that in the first spectral bin of output 2 to obtain the value for the first frequency bin of the summed spectrum.

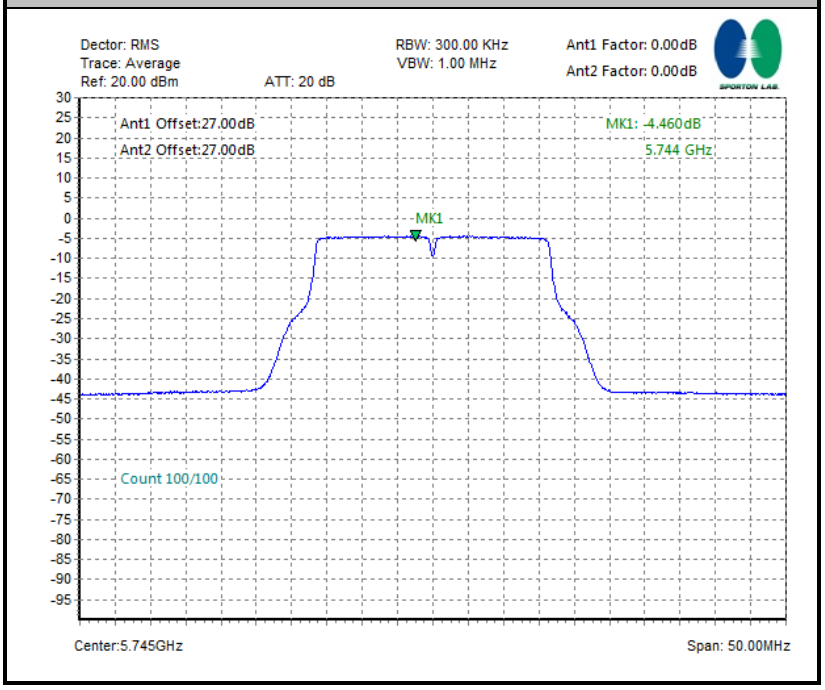
3.3.4 Test Setup



3.3.5 Test Result of Power Spectral Density

Please refer to Appendix A.

Worst Case Power Density (dBm/300kHz)



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 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 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.

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

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

(3) KDB789033 v01r03 H)2)c)(i) 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 v01. 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 ≥ 3 MHz
   - Detector = Peak
   - Sweep time = auto
   - Trace mode = max hold

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

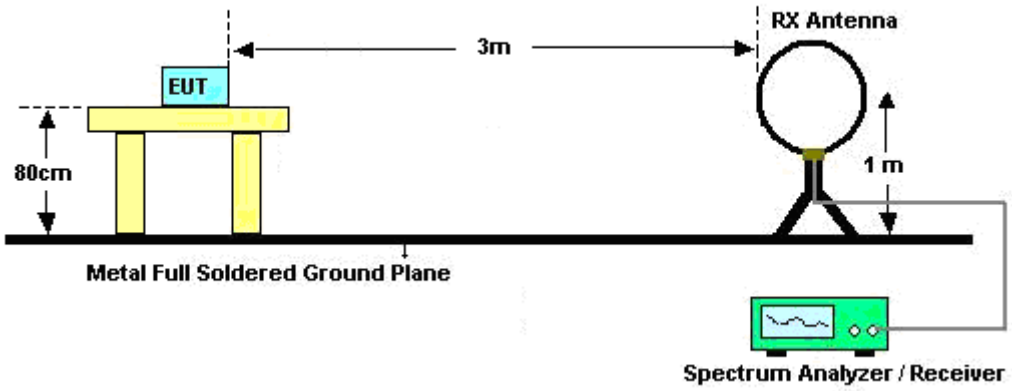
   - RBW = 1 MHz
   - VBW = 10 Hz, when duty cycle is no less than 98 percent.
   - VBW ≥ 1/T, when duty cycle is less than 98 percent where T is the minimum transmission duration over which the transmitter is on and is transmitting at its maximum power control level for the tested mode of operation.

Antenna	Band	Duty Cycle(%)	T(us)	1/T(kHz)	VBW Setting
1+2	802.11a for Ant1	100	-	-	10Hz
1+2	802.11a for Ant2	100	-	-	
1+2	802.11n HT20 for Ant1	98.67	-	-	
1+2	802.11n HT20 for Ant2	98.67	-	-	
1+2	802.11n HT40 for Ant1	97.35	736	1.36	2kHz
1+2	802.11n HT40 for Ant2	97.37	740	1.35	
1+2	802.11ac VHT80 for Ant1	94.85	368	2.72	3kHz
1+2	802.11ac VHT80 for Ant2	94.79	364	2.75	

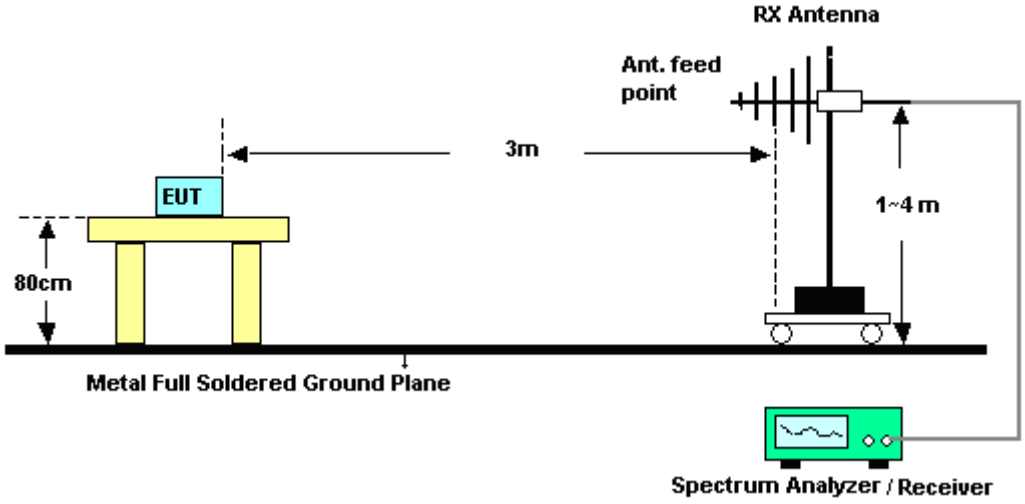
2. The EUT was placed on a turntable with 0.8 meter for frequency below 1GHz and 1.5 meter for frequency above 1GHz respectively above ground.
3. The EUT was set 3 meters from the interference receiving antenna which was mounted on the top of a variable height antenna tower.
4. The antenna is a broadband 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

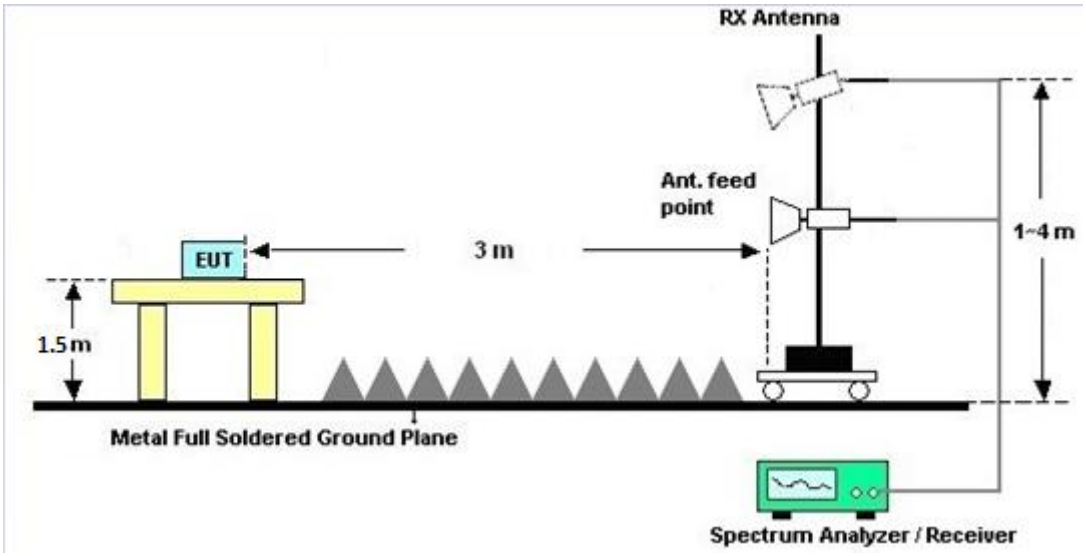
For radiated emissions below 30MHz



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 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 (dBμV)	
	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.

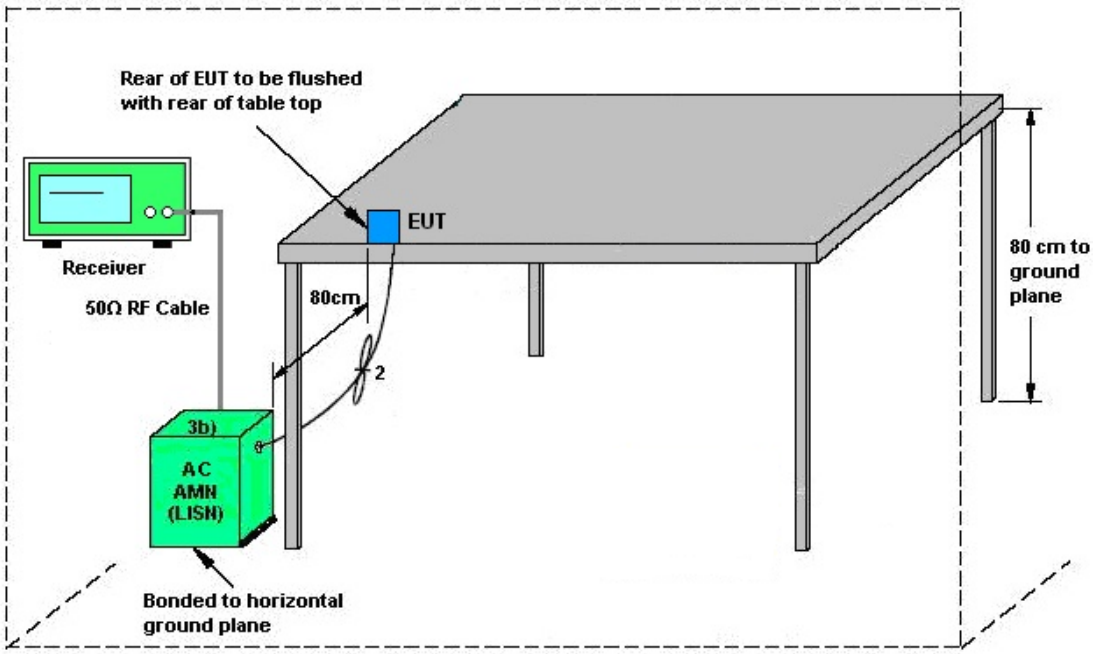
3.5.2 Measuring Instruments

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.

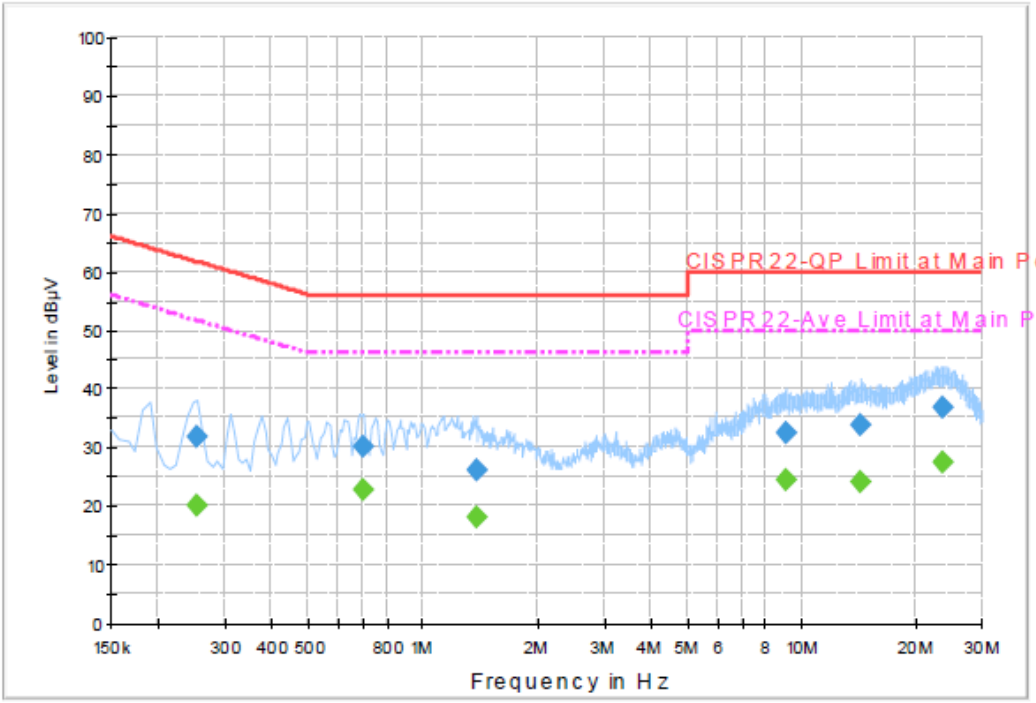
3.5.4 Test Setup



AMN = Artificial mains network (LISN)
AE = Associated equipment
EUT = Equipment under test
ISN = Impedance stabilization network

3.5.5 Test Result of AC Conducted Emission

Test Mode :	Mode 1	**Temperature :**	23~25℃
Test Engineer :	Eric Jeng	**Relative Humidity :**	58~61%
Test Voltage :	120Vac / 60Hz	**Phase :**	Line
Function Type :	WLAN (5GHz) Link + Earphone + USB Cable (Charging from Adapter)		



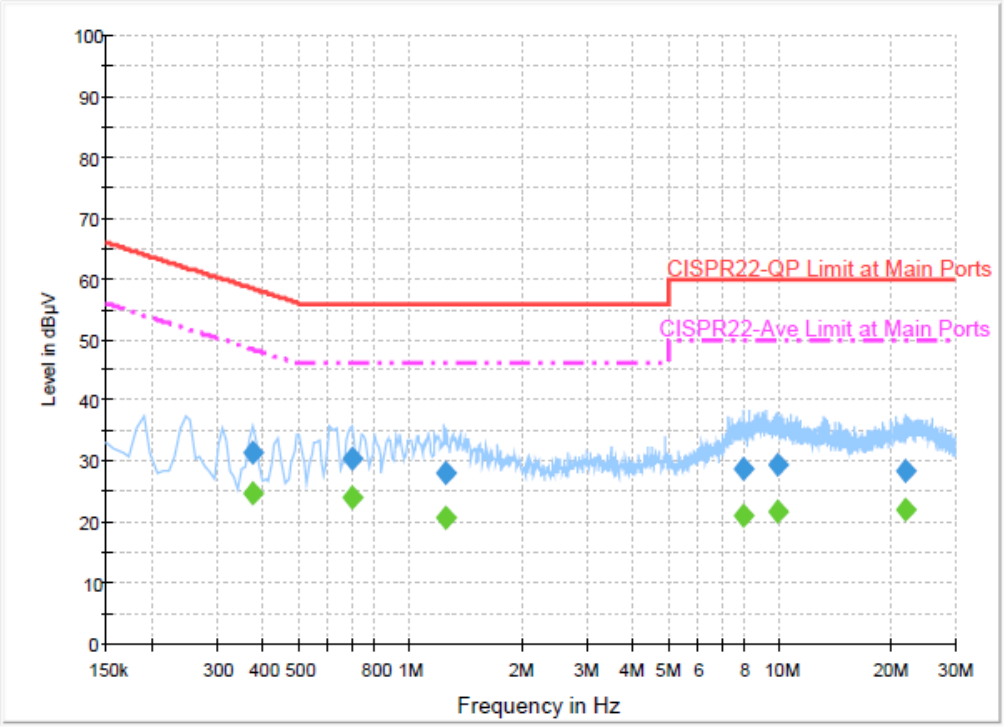
Final Result : QuasiPeak

Frequency (MHz)	QuasiPeak (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.254000	31.9	Off	L1	19.4	29.7	61.6
0.694000	30.2	Off	L1	19.6	25.8	56.0
1.382000	26.1	Off	L1	19.6	29.9	56.0
9.070000	32.6	Off	L1	19.9	27.4	60.0
14.406000	33.8	Off	L1	20.0	26.2	60.0
23.598000	36.9	Off	L1	20.0	23.1	60.0

Final Result : Average

Frequency (MHz)	Average (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.254000	19.9	Off	L1	19.4	31.7	51.6
0.694000	22.9	Off	L1	19.6	23.1	46.0
1.382000	18.1	Off	L1	19.6	27.9	46.0
9.070000	24.3	Off	L1	19.9	25.7	50.0
14.406000	24.1	Off	L1	20.0	25.9	50.0
23.598000	27.5	Off	L1	20.0	22.5	50.0

Test Mode :	Mode 1	**Temperature :**	23~25℃
Test Engineer :	Eric Jeng	**Relative Humidity :**	58~61%
Test Voltage :	120Vac / 60Hz	**Phase :**	Neutral
Function Type :	WLAN (5GHz) Link + Earphone + USB Cable (Charging from Adapter)		



Final Result : QuasiPeak

Frequency (MHz)	QuasiPeak (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.374000	31.4	Off	N	19.5	27.0	58.4
0.694000	30.4	Off	N	19.6	25.6	56.0
1.254000	28.1	Off	N	19.6	27.9	56.0
8.022000	28.6	Off	N	19.8	31.4	60.0
9.934000	29.5	Off	N	19.9	30.5	60.0
21.966000	28.4	Off	N	20.1	31.6	60.0

Final Result : Average

Frequency (MHz)	Average (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.374000	24.7	Off	N	19.5	23.7	48.4
0.694000	24.1	Off	N	19.6	21.9	46.0
1.254000	20.9	Off	N	19.6	25.1	46.0
8.022000	21.1	Off	N	19.8	28.9	50.0
9.934000	21.6	Off	N	19.9	28.4	50.0
21.966000	22.2	Off	N	20.1	27.8	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.

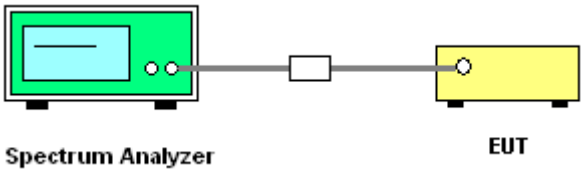
3.6.2 Measuring Instruments

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

FCC KDB 662911 D01 Multiple Transmitter Output v02r01

For CDD transmissions, directional gain is calculated as

$$DirectionalGain = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{SS}} \left\{ \sum_{k=1}^{N_{ANT}} g_{j,k} \right\}^2}{N_{ANT}} \right]$$

where

Each antenna is driven by no more than one spatial stream;

N_{SS} = the number of independent spatial streams of data;

N_{ANT} = the total number of antennas

$g_{j,k} = 10^{G_k/20}$ if the kth antenna is being fed by spatial stream j, or zero if it is not;

G_k is the gain in dBi of the kth antenna.

The EUT supports CDD mode.

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.

	Ant 1 (dBi)	Ant 2 (dBi)	DG for Power (dBi)	DG for PSD (dBi)	Power Limit Reduction (dB)	PSD Limit Reduction (dB)
Band IV	-4.10	-2.20	-0.09	-0.09	0.00	0.00

Power Limit Reduction = DG(Power) – 6dBi, (min = 0)

PSD Limit Reduction = DG(PSD) – 6dBi, (min = 0)

4 List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Power Meter	Anritsu	ML2495A	1218006	300MHz~40GHz	Oct. 18, 2014	Jul. 20, 2015 ~ Jul. 30, 2015	Oct. 17, 2015	Conducted (TH05-HY)
Power Sensor	Anritsu	MA2411B	1207363	300MHz~40GHz	Oct. 18, 2014	Jul. 20, 2015 ~ Jul. 30, 2015	Oct. 17, 2015	Conducted (TH05-HY)
Spectrum Analyzer	Rohde & Schwarz	FSP40	100057	9kHz-40GHz	Oct. 17, 2014	Jul. 20, 2015 ~ Jul. 30, 2015	Oct. 16, 2015	Conducted (TH05-HY)
Temperature Chamber	ESPEC	SU-241	92003713	-30˚C~95˚C	Jun. 15, 2015	Jul. 20, 2015 ~ Jul. 30, 2015	Jun. 14, 2016	Conducted (TH05-HY)
Hygrometer	Testo	608-H1	34897199	N/A	May. 04, 2015	Jul. 20, 2015 ~ Jul. 30, 2015	May. 03, 2016	Conducted (TH05-HY)
RF Cable	HARBOUR INDUSTRIES	LL142	Infinet CA3601-3601-DLL	0.1MHz~40GHz	Mar. 06, 2015	Jul. 20, 2015 ~ Jul. 30, 2015	Mar. 05, 2016	Conducted (TH05-HY)
EMI Test Receiver	Rohde & Schwarz	ESCS 30	100356	9kHz – 2.75GHz	Dec. 01, 2014	Aug. 15, 2015	Nov. 30, 2015	Conduction (CO05-HY)
Hygrometer	Testo	608-H1	34913912	N/A	Apr. 20, 2015	Aug. 15, 2015	Apr. 19, 2016	Conduction (CO05-HY)
LISN	Rohde & Schwarz	ENV216	100080	9kHz~30MHz	Dec. 02, 2014	Aug. 15, 2015	Dec. 01, 2015	Conduction (CO05-HY)
AC Power Source	ChainTek	APC-1000W	N/A	N/A	N/A	Aug. 15, 2015	N/A	Conduction (CO05-HY)
LF Cable	HUBER + SUHNER	RG-214/U	LF01	N/A	Jan. 07, 2015	Aug. 15, 2015	Jan. 06, 2016	Conduction (CO05-HY)
Test Software	N/A	EMC32	8.40.0	N/A	N/A	Aug. 15, 2015	N/A	Conduction (CO05-HY)

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA9170584	18GHz- 40GHz	Nov. 03, 2014	Aug. 07, 2015 ~ Aug. 12, 2015	Nov. 02, 2015	Radiation (03CH10-HY)
Loop Antenna	TESEQ	HLA 6120	31244	9kHZ~30MHz	Feb. 02, 2015	Aug. 07, 2015 ~ Aug. 12, 2015	Feb. 01, 2016	Radiation (03CH10-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 104	MY84209521	9kHz~1GHz	Dec. 04, 2014	Aug. 07, 2015 ~ Aug. 12, 2015	Dec. 03, 2015	Radiation (03CH10-HY)
Amplifier	SONOMA	310N	187311	9kHz~1GHz	Nov. 24, 2014	Aug. 07, 2015 ~ Aug. 12, 2015	Nov. 23, 2015	Radiation (03CH10-HY)
Bilog Antenna	TESEQ	CBL 6111D	35413	30MHz~1GHz	Oct. 24, 2014	Aug. 07, 2015 ~ Aug. 12, 2015	Oct. 23, 2015	Radiation (03CH10-HY)
EMI Test Receiver	Keysight	N9038A	MY54130085	20Hz ~ 8.4GHz	Nov. 05, 2014	Aug. 07, 2015 ~ Aug. 12, 2015	Nov. 04, 2015	Radiation (03CH10-HY)
Horn Antenna	SCHWARZBECK	BBHA 9120 D	9120D-1325	1GHz ~ 18GHz	Oct. 03, 2014	Aug. 07, 2015 ~ Aug. 12, 2015	Oct. 02, 2015	Radiation (03CH10-HY)
Hygrometer	TECPEL	DTM-303B	TP140320	N/A	Nov. 17, 2014	Aug. 07, 2015 ~ Aug. 12, 2015	Nov. 16, 2015	Radiation (03CH10-HY)
Preamplifier	Keysight	83017A	MY53270078	1GHz~26.5GHz	Nov. 20, 2014	Aug. 07, 2015 ~ Aug. 12, 2015	Nov. 19, 2015	Radiation (03CH10-HY)
Preamplifier	MITEQ	AMF-7D-00101800-30-10P	1902246	1GHz~18GHz	Nov. 25, 2014	Aug. 07, 2015 ~ Aug. 12, 2015	Nov. 24, 2015	Radiation (03CH10-HY)
Spectrum Analyzer	Keysight	N9010A	MY54200485	10Hz ~ 44GHZ	Oct. 14, 2014	Aug. 07, 2015 ~ Aug. 12, 2015	Oct. 13, 2015	Radiation (03CH10-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 104	MY249564 MY249524 MY283184	25GHz~40GHz	Nov. 06, 2014	Aug. 07, 2015 ~ Aug. 12, 2015	Nov. 05, 2015	Radiation (03CH10-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 104	MY249564 MY249524 MY283184	30MHz~1GHz	Nov. 06, 2014	Aug. 07, 2015 ~ Aug. 12, 2015	Nov. 05, 2015	Radiation (03CH10-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 104	MY249564 MY249524 MY283184	1GHz~25GHz	Nov. 06, 2014	Aug. 07, 2015 ~ Aug. 12, 2015	Nov. 05, 2015	Radiation (03CH10-HY)
Controller	EMEC	EM 1000	N/A	Control Turn table & Ant Mast	N/A	Aug. 07, 2015 ~ Aug. 12, 2015	N/A	Radiation (03CH10-HY)
Antenna Mast	EMEC	AM-BS-4500-B	N/A	1~4m	N/A	Aug. 07, 2015 ~ Aug. 12, 2015	N/A	Radiation (03CH10-HY)
Turn Table	EMEC	TT 2200	N/A	0-360 degree	N/A	Aug. 07, 2015 ~ Aug. 12, 2015	N/A	Radiation (03CH10-HY)
Preamplifier	MITEQ	JS44-18004000-33-8P	1840917	18GHz ~ 40GHz	Jun. 02, 2015	Aug. 07, 2015 ~ Aug. 12, 2015	Jun. 01, 2016	Radiation (03CH10-HY)
Filter	Wainwright	WLKS4500-8SS	SN19	4.5G Low Pass	Oct. 01, 2014	Aug. 07, 2015 ~ Aug. 12, 2015	Sep. 30, 2015	Radiation (03CH10-HY)
Filter	Microwave Circuits	H07G18G3	SN8009-01	7GHz HPF	Oct. 01, 2014	Aug. 07, 2015 ~ Aug. 12, 2015	Sep. 30, 2015	Radiation (03CH10-HY)
Test Software	Audix	E3	6.2009-8-24	N/A	N/A	Aug. 07, 2015 ~ Aug. 12, 2015	N/A	Radiation (03CH10-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**

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

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**4.90**

Appendix A. Conducted Test Results

Report Number : FR571610G

Test Engineer:	Osolemio Chang / Tommy Lee	Temperature:	21~25	°C
Test Date:	2015/07/20 ~ 2015/07/30	Relative Humidity:	51~54	%

Report Number : FR571610G

TEST RESULTS DATA
6dB and 99% OBW

FCC Band IV									
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	6 dB Bandwidth (MHz)		FCC 6 dB Bandwidth Min. Limit (MHz)		Pass/Fail
					Ant 1	Ant 2	Ant 1	Ant 2	
11a	6Mbps	2	149	5745	16.36	16.32	0.5		Pass
11a	6Mbps	2	157	5785	16.36	16.32	0.5		Pass
11a	6Mbps	2	165	5825	16.36	16.32	0.5		Pass
HT20	MCS8	2	149	5745	17.56	17.60	0.5		Pass
HT20	MCS8	2	157	5785	17.56	17.60	0.5		Pass
HT20	MCS8	2	165	5825	17.56	17.60	0.5		Pass
HT40	MCS8	2	151	5755	36.32	36.32	0.5		Pass
HT40	MCS8	2	159	5795	36.32	36.32	0.5		Pass
VHT20	MCS0	2	149	5745	17.56	17.60	0.5		Pass
VHT20	MCS0	2	157	5785	17.56	17.60	0.5		Pass
VHT20	MCS0	2	165	5825	17.56	17.60	0.5		Pass
VHT40	MCS0	2	151	5755	36.32	36.32	0.5		Pass
VHT40	MCS0	2	159	5795	36.32	36.32	0.5		Pass
VHT80	MCS0	2	155	5775	75.84	76.32	0.5		Pass

Report Number : FR571610G

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	0.08	0.08	9.71	9.59		30.00	30.00	-4.10	-2.20		Pass
11a	6Mbps	1	157	5785	0.08	0.08	9.34	9.11		30.00	30.00	-4.10	-2.20		Pass
11a	6Mbps	1	165	5825	0.08	0.08	9.19	9.23		30.00	30.00	-4.10	-2.20		Pass
HT20	MCS0	1	149	5745	0.06	0.09	16.71	9.46		30.00	30.00	-4.10	-2.20		Pass
HT20	MCS0	1	157	5785	0.06	0.09	16.42	9.17		30.00	30.00	-4.10	-2.20		Pass
HT20	MCS0	1	165	5825	0.06	0.09	16.46	9.19		30.00	30.00	-4.10	-2.20		Pass
HT40	MCS0	1	151	5755	0.18	0.21	9.83	9.74		30.00	30.00	-4.10	-2.20		Pass
HT40	MCS0	1	159	5795	0.18	0.21	9.12	9.32		30.00	30.00	-4.10	-2.20		Pass
VHT20	MCS0	1	149	5745	0.06	0.09	9.33	9.37		30.00	30.00	-4.10	-2.20		Pass
VHT20	MCS0	1	157	5785	0.06	0.09	9.19	9.23		30.00	30.00	-4.10	-2.20		Pass
VHT20	MCS0	1	165	5825	0.06	0.09	9.20	9.36		30.00	30.00	-4.10	-2.20		Pass
VHT40	MCS0	1	151	5755	0.21	0.21	9.61	9.56		30.00	30.00	-4.10	-2.20		Pass
VHT40	MCS0	1	159	5795	0.21	0.21	9.32	9.67		30.00	30.00	-4.10	-2.20		Pass
VHT80	MCS0	1	155	5775	0.37	0.43	9.72	9.88		30.00	30.00	-4.10	-2.20		Pass
11a	6Mbps	2	149	5745	0.00	0.00	9.89	9.52	12.72	30.00		-0.09			Pass
11a	6Mbps	2	157	5785	0.00	0.00	9.53	9.13	12.34	30.00		-0.09			Pass
11a	6Mbps	2	165	5825	0.00	0.00	9.22	9.24	12.24	30.00		-0.09			Pass
HT20	MCS8	2	149	5745	0.06	0.06	9.73	9.43	12.59	30.00		-0.09			Pass
HT20	MCS8	2	157	5785	0.06	0.06	9.24	9.40	12.33	30.00		-0.09			Pass
HT20	MCS8	2	165	5825	0.06	0.06	9.30	9.54	12.43	30.00		-0.09			Pass
HT40	MCS8	2	151	5755	0.12	0.12	9.98	9.67	12.84	30.00		-0.09			Pass
HT40	MCS8	2	159	5795	0.12	0.12	9.54	9.34	12.45	30.00		-0.09			Pass
VHT20	MCS0	2	149	5745	0.06	0.06	9.65	9.45	12.57	30.00		-0.09			Pass
VHT20	MCS0	2	157	5785	0.06	0.06	9.49	9.18	12.35	30.00		-0.09			Pass
VHT20	MCS0	2	165	5825	0.06	0.06	9.52	9.37	12.46	30.00		-0.09			Pass
VHT40	MCS0	2	151	5755	0.12	0.12	9.65	9.57	12.62	30.00		-0.09			Pass
VHT40	MCS0	2	159	5795	0.12	0.12	9.56	9.77	12.68	30.00		-0.09			Pass
VHT80	MCS0	2	155	5775	0.23	0.23	9.97	9.77	12.88	30.00		-0.09			Pass

Report Number : FR571610G

TEST RESULTS DATA
Power Spectral Density

FCC 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	2	149	5745	0.00	0.00	2.22				-2.24	30.00		-0.09		Pass
11a	6Mbps	2	157	5785	0.00	0.00	2.22				-2.58	30.00		-0.09		Pass
11a	6Mbps	2	165	5825	0.00	0.00	2.22				-2.71	30.00		-0.09		Pass
HT20	MCS8	2	149	5745	0.06	0.06	2.22				-2.68	30.00		-0.09		Pass
HT20	MCS8	2	157	5785	0.06	0.06	2.22				-2.76	30.00		-0.09		Pass
HT20	MCS8	2	165	5825	0.06	0.06	2.22				-2.75	30.00		-0.09		Pass
HT40	MCS8	2	151	5755	0.12	0.12	2.22				-5.17	30.00		-0.09		Pass
HT40	MCS8	2	159	5795	0.12	0.12	2.22				-5.93	30.00		-0.09		Pass
VHT20	MCS0	2	149	5745	0.06	0.06	2.22				-2.59	30.00		-0.09		Pass
VHT20	MCS0	2	157	5785	0.06	0.06	2.22				-2.90	30.00		-0.09		Pass
VHT20	MCS0	2	165	5825	0.06	0.06	2.22				-2.83	30.00		-0.09		Pass
VHT40	MCS0	2	151	5755	0.12	0.12	2.22				-5.52	30.00		-0.09		Pass
VHT40	MCS0	2	159	5795	0.12	0.12	2.22				-5.69	30.00		-0.09		Pass
VHT80	MCS0	2	155	5775	0.23	0.23	2.22				-3.19	30.00		-0.09		Pass

Report Number : FR571610G

TEST RESULTS DATA
Frequency Stability

Band IV										
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Center Frequency (MHz)	Frequency Deviation (MHz)	Frequency Stablility (ppm)	Temperature (˚C)	Voltage (V)	Note
11a	6Mbps	1	149	5745	5745.000	0.000	0.00	20	3.6	
11a	6Mbps	1	149	5745	5745.000	0.000	0.00	20	4.2	
11a	6Mbps	1	149	5745	5745.000	0.000	0.00	20	3.8	
11a	6Mbps	1	149	5745	5745.050	0.050	8.70	-10	3.8	
11a	6Mbps	1	149	5745	5745.000	0.000	0.00	55	3.8	

Appendix B. Radiated Spurious Emission

Test Engineer :	Elvis Chen, Stan Hsieh, and Karl Hou	Temperature :	21~22°C
		Relative Humidity :	43~44%

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.
1+2		(MHz)	(dBµV/m)	(dB)	(dBµV/m)	(dBµV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
802.11a CH 149 5745MHz		5696.12	51.24	-22.76	74	43.08	32.51	8.3	32.65	126	18	P	H
		5723.08	50.47	-27.83	78.3	42.27	32.53	8.33	32.66	126	18	P	H
		5697.24	41.67	-12.33	54	33.51	32.51	8.3	32.65	126	18	A	H
	*	5744	99.23	-	-	91.03	32.54	8.33	32.67	126	18	P	H
	*	5744	92.22	-	-	84.02	32.54	8.33	32.67	126	18	A	H
													H
													H
													H
		5714.2	53.13	-20.87	74	44.97	32.52	8.3	32.66	138	350	P	V
		5724.92	59.73	-18.57	78.3	51.53	32.53	8.33	32.66	138	350	P	V
		5714.84	43.72	-10.28	54	35.56	32.52	8.3	32.66	138	350	A	V
	*	5743	104.1	-	-	95.9	32.54	8.33	32.67	138	350	P	V
	*	5743	96.72	-	-	88.52	32.54	8.33	32.67	138	350	A	V
													V
													V
													V

WIFI Ant. 1+2	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 157 5785MHz		5687.08	50.32	-23.68	74	42.16	32.51	8.3	32.65	175	210	P	H
		5721.32	50.15	-28.15	78.3	41.98	32.53	8.3	32.66	175	210	P	H
		5696.36	41	-13	54	32.84	32.51	8.3	32.65	175	210	A	H
	*	5787	97.35	-	-	89.1	32.58	8.35	32.68	175	210	P	H
	*	5787	90.43	-	-	82.18	32.58	8.35	32.68	175	210	A	H
		5851.36	51.54	-26.76	78.3	43.2	32.61	8.43	32.7	175	210	P	H
		5875.6	50.55	-23.45	74	42.2	32.63	8.43	32.71	175	210	P	H
		5879.84	41.24	-12.76	54	32.89	32.63	8.43	32.71	175	210	A	H
		5709.24	51.16	-22.84	74	43	32.52	8.3	32.66	153	351	P	V
		5717.4	50.94	-27.36	78.3	42.78	32.52	8.3	32.66	153	351	P	V
		5714.44	41.62	-12.38	54	33.46	32.52	8.3	32.66	153	351	A	V
	*	5783	101.6	-	-	93.36	32.57	8.35	32.68	153	351	P	V
	*	5783	95.16	-	-	86.92	32.57	8.35	32.68	153	351	A	V
		5857.36	51.08	-27.22	78.3	42.73	32.62	8.43	32.7	153	351	P	V
		5883.6	50.76	-23.24	74	42.38	32.63	8.47	32.72	153	351	P	V
		5879.52	41.32	-12.68	54	32.97	32.63	8.43	32.71	153	351	A	V

WIFI Ant. 1+2	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)
	*	5827	96.79	-	-	88.49	32.6	8.39	32.69	114	360	P	H
	*	5827	90.27	-	-	81.97	32.6	8.39	32.69	114	360	A	H
		5853.2	50.81	-27.49	78.3	42.47	32.61	8.43	32.7	114	360	P	H
		5877.36	50.79	-23.21	74	42.44	32.63	8.43	32.71	114	360	P	H
		5878	41.34	-12.66	54	32.99	32.63	8.43	32.71	114	360	A	H
													H
													H
802.11a													H
CH 165	*	5824	101.38	-	-	93.08	32.6	8.39	32.69	134	350	P	V
5825MHz	*	5824	95.02	-	-	86.72	32.6	8.39	32.69	134	350	A	V
		5850.32	51.85	-26.45	78.3	43.51	32.61	8.43	32.7	134	350	P	V
		5870.08	51.64	-22.36	74	43.3	32.62	8.43	32.71	134	350	P	V
		5860	42.06	-11.94	54	33.72	32.62	8.43	32.71	134	350	A	V
													V
													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 802.11a (Harmonic @ 3m)

WIFI Ant. 1+2	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	45.9	-28.1	74	56.11	40.01	12.58	62.8	100	0	P	H
		17232	47.09	-26.91	74	50.57	41.05	15.61	60.14	100	0	P	H
													H
													H
		11490	46.35	-27.65	74	56.56	40.01	12.58	62.8	100	0	P	V
		17232	46.72	-27.28	74	50.2	41.05	15.61	60.14	100	0	P	V
													V
													V
802.11a CH 157 5785MHz		11570	46	-28	74	56.2	39.88	12.66	62.74	100	0	P	H
		17352	47.48	-26.52	74	50.56	41.38	15.75	60.21	100	0	P	H
													H
													H
		11570	46.45	-27.55	74	56.65	39.88	12.66	62.74	100	0	P	V
		17352	47.66	-26.34	74	50.74	41.38	15.75	60.21	100	0	P	V
													V
													V
802.11a CH 165 5825MHz		11650	44.64	-29.36	74	54.85	39.75	12.73	62.69	100	0	P	H
		17472	48.37	-25.63	74	51.06	41.71	15.88	60.28	100	0	P	H
													H
													H
		11650	45.25	-28.75	74	55.46	39.75	12.73	62.69	100	0	P	V
		17472	47.12	-26.88	74	49.81	41.71	15.88	60.28	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+2	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)
		5704.52	51.01	-22.99	74	42.84	32.52	8.3	32.65	100	15	P	H
		5723.08	52.6	-25.7	78.3	44.4	32.53	8.33	32.66	100	15	P	H
		5700.28	41.19	-12.81	54	33.03	32.51	8.3	32.65	100	15	A	H
	*	5745	96.85	-	-	88.65	32.54	8.33	32.67	100	15	P	H
	*	5745	88.5	-	-	80.3	32.54	8.33	32.67	100	15	A	H
													H
802.11n													H
HT20													H
CH 149		5712.2	53.87	-20.13	74	45.71	32.52	8.3	32.66	110	344	P	V
5745MHz		5724.12	58.67	-19.63	78.3	50.47	32.53	8.33	32.66	110	344	P	V
		5715	43.7	-10.3	54	35.54	32.52	8.3	32.66	110	344	A	V
	*	5743	101.34	-	-	93.14	32.54	8.33	32.67	110	344	P	V
	*	5743	94.22	-	-	86.02	32.54	8.33	32.67	110	344	A	V
													V
													V
													V

WIFI Ant. 1+2	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 157 5785MHz		5697.32	50.83	-23.17	74	42.67	32.51	8.3	32.65	100	18	P	H
		5720.76	50.24	-28.06	78.3	42.07	32.53	8.3	32.66	100	18	P	H
		5696.12	40.97	-13.03	54	32.81	32.51	8.3	32.65	100	18	A	H
	*	5783	96.61	-	-	88.37	32.57	8.35	32.68	100	18	P	H
	*	5783	88.9	-	-	80.66	32.57	8.35	32.68	100	18	A	H
		5853.6	50.72	-27.58	78.3	42.37	32.62	8.43	32.7	100	18	P	H
		5883.28	50.95	-23.05	74	42.57	32.63	8.47	32.72	100	18	P	H
		5882	41.14	-12.86	54	32.75	32.63	8.47	32.71	100	18	A	H
		5702.6	51.59	-22.41	74	43.42	32.52	8.3	32.65	100	341	P	V
		5719.96	50.41	-27.89	78.3	42.24	32.53	8.3	32.66	100	341	P	V
		5705.32	41.51	-12.49	54	33.35	32.52	8.3	32.66	100	341	A	V
	*	5787	101.76	-	-	93.51	32.58	8.35	32.68	100	341	P	V
	*	5787	94	-	-	85.75	32.58	8.35	32.68	100	341	A	V
		5859.68	50.55	-27.75	78.3	42.21	32.62	8.43	32.71	100	341	P	V
		5880.16	50.67	-23.33	74	42.32	32.63	8.43	32.71	100	341	P	V
		5879.6	41.26	-12.74	54	32.91	32.63	8.43	32.71	100	341	A	V

WIFI Ant. 1+2	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)
	*	5823	95.09	-	-	86.79	32.6	8.39	32.69	103	14	P	H
	*	5823	87.41	-	-	79.11	32.6	8.39	32.69	103	14	A	H
		5855.2	50.8	-27.5	78.3	42.45	32.62	8.43	32.7	103	14	P	H
		5886.48	50.6	-23.4	74	42.22	32.63	8.47	32.72	103	14	P	H
		5876.96	41.26	-12.74	54	32.91	32.63	8.43	32.71	103	14	A	H
													H
802.11n													H
HT20													H
CH 165	*	5823	100.14	-	-	91.84	32.6	8.39	32.69	100	346	P	V
5825MHz	*	5823	92.43	-	-	84.13	32.6	8.39	32.69	100	346	A	V
		5854.4	51.75	-26.55	78.3	43.4	32.62	8.43	32.7	100	346	P	V
		5860.48	51.51	-22.49	74	43.17	32.62	8.43	32.71	100	346	P	V
		5860	41.81	-12.19	54	33.47	32.62	8.43	32.71	100	346	A	V
													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+2	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	46.72	-27.28	74	56.93	40.01	12.58	62.8	100	0	P	H
		17232	47.39	-26.61	74	50.87	41.05	15.61	60.14	100	0	P	H
													H
													H
		11490	45.72	-28.28	74	55.93	40.01	12.58	62.8	100	0	P	V
		17232	47.8	-26.2	74	51.28	41.05	15.61	60.14	100	0	P	V
													V
													V
802.11n HT20 CH 157 5785MHz		11570	46.52	-27.48	74	56.72	39.88	12.66	62.74	100	0	P	H
		17352	48.14	-25.86	74	51.22	41.38	15.75	60.21	100	0	P	H
													H
													H
		11570	47.38	-26.62	74	57.58	39.88	12.66	62.74	100	0	P	V
		17352	47.53	-26.47	74	50.61	41.38	15.75	60.21	100	0	P	V
													V
													V
802.11n HT20 CH 165 5825MHz		11650	45.56	-28.44	74	55.77	39.75	12.73	62.69	100	0	P	H
		17472	47.87	-26.13	74	50.56	41.71	15.88	60.28	100	0	P	H
													H
													H
		11650	46.05	-27.95	74	56.26	39.75	12.73	62.69	100	0	P	V
		17472	50.11	-23.89	74	52.8	41.71	15.88	60.28	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 HT40 (Band Edge @ 3m)

WIFI Ant. 1+2	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		5711.56	52.25	-21.75	74	44.09	32.52	8.3	32.66	100	19	P	H
		5720.92	52.33	-25.97	78.3	44.16	32.53	8.3	32.66	100	19	P	H
		5714.84	42.24	-11.76	54	34.08	32.52	8.3	32.66	100	19	A	H
	*	5753	91.19	-	-	82.97	32.56	8.33	32.67	100	19	P	H
	*	5753	84.72	-	-	76.5	32.56	8.33	32.67	100	19	A	H
		5855.52	50.25	-28.05	78.3	41.9	32.62	8.43	32.7	100	19	P	H
		5872.64	50.97	-23.03	74	42.62	32.63	8.43	32.71	100	19	P	H
		5881.76	41.37	-12.63	54	32.98	32.63	8.47	32.71	100	19	A	H
		5710.6	60.32	-13.68	74	52.16	32.52	8.3	32.66	111	335	P	V
		5720.36	61.6	-16.7	78.3	53.43	32.53	8.3	32.66	111	335	P	V
		5715	50.12	-3.88	54	41.96	32.52	8.3	32.66	111	335	A	V
	*	5753	99.42	-	-	91.2	32.56	8.33	32.67	111	335	P	V
	*	5753	91.22	-	-	83	32.56	8.33	32.67	111	335	A	V
		5856.48	51.56	-26.74	78.3	43.21	32.62	8.43	32.7	111	335	P	V
		5862.96	50.36	-23.64	74	42.02	32.62	8.43	32.71	111	335	P	V
		5883.6	41.42	-12.58	54	33.04	32.63	8.47	32.72	111	335	A	V

WIFI Ant. 1+2	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 159 5795MHz		5696.28	51.23	-22.77	74	43.07	32.51	8.3	32.65	100	18	P	H
		5717.4	50.8	-27.5	78.3	42.64	32.52	8.3	32.66	100	18	P	H
		5691.64	41.1	-12.9	54	32.94	32.51	8.3	32.65	100	18	A	H
	*	5793	94.22	-	-	85.97	32.58	8.35	32.68	100	18	P	H
	*	5793	86.56	-	-	78.31	32.58	8.35	32.68	100	18	A	H
		5858.64	50.64	-27.66	78.3	42.3	32.62	8.43	32.71	100	18	P	H
		5861.68	52.11	-21.89	74	43.77	32.62	8.43	32.71	100	18	P	H
		5880.88	41.29	-12.71	54	32.94	32.63	8.43	32.71	100	18	A	H
		5706.36	52.84	-21.16	74	44.68	32.52	8.3	32.66	100	335	P	V
		5724.52	52.99	-25.31	78.3	44.79	32.53	8.33	32.66	100	335	P	V
		5715	42.34	-11.66	54	34.18	32.52	8.3	32.66	100	335	A	V
	*	5793	99.5	-	-	91.25	32.58	8.35	32.68	100	335	P	V
	*	5793	91.32	-	-	83.07	32.58	8.35	32.68	100	335	A	V
		5850.11	52.31	-25.99	78.3	43.97	32.61	8.43	32.7	100	335	P	V
		5863.2	53.24	-20.76	74	44.9	32.62	8.43	32.71	100	335	P	V
		5860	42.38	-11.62	54	34.04	32.62	8.43	32.71	100	335	A	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+2	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	47.85	-26.15	74	58.07	40	12.58	62.8	100	0	P	H
		17268	45.76	-28.24	74	49.11	41.15	15.66	60.16	100	0	P	H
													H
													H
		11510	47.1	-26.9	74	57.32	40	12.58	62.8	100	0	P	V
		17268	46.54	-27.46	74	49.89	41.15	15.66	60.16	100	0	P	V
													V
													V
802.11n HT40 CH 159 5795MHz		11590	46.2	-27.8	74	56.43	39.84	12.66	62.73	100	0	P	H
		17388	47.7	-26.3	74	50.67	41.47	15.79	60.23	100	0	P	H
													H
													H
		11590	45.15	-28.85	74	55.38	39.84	12.66	62.73	100	0	P	V
		17388	47.07	-26.93	74	50.04	41.47	15.79	60.23	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 802.11ac VHT80 (Band Edge @ 3m)

WIFI Ant. 1+2	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)
802.11ac VHT80 CH 155 5775MHz		5701.16	52.01	-21.99	74	43.84	32.52	8.3	32.65	100	10	P	H
		5722.44	51.74	-26.56	78.3	43.54	32.53	8.33	32.66	100	10	P	H
		5714.76	45.08	-8.92	54	36.92	32.52	8.3	32.66	100	10	A	H
	*	5777	92.32	-	-	84.07	32.57	8.35	32.67	100	10	P	H
	*	5777	84.22	-	-	75.97	32.57	8.35	32.67	100	10	A	H
		5859.52	52.32	-25.98	78.3	43.98	32.62	8.43	32.71	100	10	P	H
		5872.16	51.45	-22.55	74	43.1	32.63	8.43	32.71	100	10	P	H
		5872.72	44.05	-9.95	54	35.7	32.63	8.43	32.71	100	10	A	H
		5700.04	59.58	-14.42	74	51.42	32.51	8.3	32.65	104	343	P	V
		5724.68	59.31	-18.99	78.3	51.11	32.53	8.33	32.66	104	343	P	V
		5707.96	51.83	-2.17	54	43.67	32.52	8.3	32.66	104	343	A	V
	*	5773	97.25	-	-	89	32.57	8.35	32.67	104	343	P	V
	*	5773	89.1	-	-	80.85	32.57	8.35	32.67	104	343	A	V
		5855.68	53.67	-24.63	78.3	45.32	32.62	8.43	32.7	104	343	P	V
		5863.76	54.33	-19.67	74	45.99	32.62	8.43	32.71	104	343	P	V
		5862.48	45.96	-8.04	54	37.62	32.62	8.43	32.71	104	343	A	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

Band 4 5725~5850MHz

WIFI 802.11ac VHT80 (Harmonic @ 3m)

WIFI Ant. 1+2	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)
802.11ac VHT80 CH 155 5775MHz		11550	47.34	-26.66	74	57.57	39.91	12.62	62.76	100	0	P	H
		17328	47.94	-26.06	74	51.09	41.29	15.75	60.19	100	0	P	H
													H
													H
		11550	46.09	-27.91	74	56.32	39.91	12.62	62.76	100	0	P	V
		17328	47.8	-26.2	74	50.95	41.29	15.75	60.19	100	0	P	V
													V
													V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

Emission below 1GHz

5GHz WIFI 802.11a (LF @ 3m)

WIFI Ant. 1+2	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)
5GHz 802.11a LF		30.54	18.15	-21.85	40	30.86	19.46	0.65	32.82			P	H
		100.74	17.79	-25.71	43.5	38.78	10.5	1.14	32.63			P	H
		201.72	17.28	-26.22	43.5	38.38	10.15	1.48	32.73			P	H
		643.7	20.95	-25.05	46	31.21	20.13	2.62	33.01			P	H
		800.5	24.21	-21.79	46	32.02	22.1	2.97	32.88			P	H
		948.2	26.28	-19.72	46	30.49	24.28	3.29	31.78	100	55	P	H
													H
													H
													H
													H
													H
													H
		30	22.79	-17.21	40	34.96	20	0.65	32.82			P	V
		39.45	23.23	-16.77	40	40.88	14.5	0.65	32.8	100	49	P	V
		62.67	20.13	-19.87	40	45.66	6.28	0.93	32.74			P	V
		712.3	21.95	-24.05	46	31.27	20.84	2.82	32.98			P	V
		864.2	24.26	-21.74	46	30.92	22.7	3.16	32.52			P	V
		959.4	26.24	-19.76	46	30.35	24.26	3.29	31.66			P	V
													V
													V
													V
													V
													V
													V
Remark	1. No other spurious found. 2. All results are PASS against limit line.												

Emission below 1GHz

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

WIFI Ant. 1+2	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)
5GHz 802.11n HT20 LF		30.54	17.3	-22.7	40	30.01	19.46	0.65	32.82			P	H
		101.01	18.42	-25.08	43.5	39.41	10.5	1.14	32.63			P	H
		201.99	17.68	-25.82	43.5	38.78	10.15	1.48	32.73			P	H
		671	21.45	-24.55	46	31.41	20.37	2.67	33			P	H
		761.3	22.78	-23.22	46	31.07	21.72	2.91	32.92			P	H
		902	26.13	-19.87	46	31.98	23.24	3.2	32.29	100	95	P	H
													H
													H
													H
													H
													H
													H
		30.54	22.66	-17.34	40	35.37	19.46	0.65	32.82			P	V
		39.18	22.92	-17.08	40	40.01	15.06	0.65	32.8	100	196	P	V
		70.5	16.08	-23.92	40	41.05	6.82	0.93	32.72			P	V
		722.1	21.76	-24.24	46	30.86	21.05	2.82	32.97			P	V
		836.2	24.52	-21.48	46	31.73	22.39	3.07	32.67			P	V
		949.6	26.42	-19.58	46	30.59	24.3	3.29	31.76			P	V
													V
													V
													V
													V
													V
													V
Remark	1. No other spurious found. 2. All results are PASS against limit line.												

Emission below 1GHz

5GHz WIFI 802.11n HT40 (LF @ 3m)

WIFI Ant. 1+2	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)
5GHz 802.11n HT40 LF		32.43	17.03	-22.97	40	30.82	18.38	0.65	32.82			P	H
		100.74	17.34	-26.16	43.5	38.33	10.5	1.14	32.63			P	H
		201.72	18.18	-25.32	43.5	39.28	10.15	1.48	32.73			P	H
		720.7	22.06	-23.94	46	31.2	21.01	2.82	32.97			P	H
		836.9	24.08	-21.92	46	31.28	22.4	3.07	32.67			P	H
		951.7	26.51	-19.49	46	30.67	24.29	3.29	31.74	100	68	P	H
													H
													H
													H
													H
													H
													H
		30	23	-17	40	35.17	20	0.65	32.82			P	V
		39.99	23.13	-16.87	40	40.78	14.5	0.65	32.8	100	87	P	V
		62.13	17.86	-22.14	40	43.45	6.22	0.93	32.74			P	V
		741	22.18	-23.82	46	30.79	21.42	2.91	32.94			P	V
		853	23.98	-22.02	46	30.86	22.54	3.16	32.58			P	V
		957.3	26.94	-19.06	46	31.06	24.27	3.29	31.68			P	V
													V
													V
													V
													V
													V
													V
Remark	1. No other spurious found. 2. All results are PASS against limit line.												

Emission below 1GHz

5GHz WIFI 802.11ac VHT80 (LF @ 3m)

WIFI Ant. 1+2	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)
802.11ac VHT80 LF		31.35	17.49	-22.51	40	30.2	19.46	0.65	32.82			P	H
		100.74	17.05	-26.45	43.5	38.04	10.5	1.14	32.63			P	H
		201.72	18.12	-25.38	43.5	39.22	10.15	1.48	32.73			P	H
		728.4	22.95	-23.05	46	31.83	21.17	2.91	32.96			P	H
		808.9	23.97	-22.03	46	31.56	22.17	3.07	32.83			P	H
		943.3	26.56	-19.44	46	30.94	24.17	3.29	31.84	100	98	P	H
													H
													H
													H
													H
													H
													H
		30.27	22.89	-17.11	40	35.06	20	0.65	32.82			P	V
		39.72	23.77	-16.23	40	41.42	14.5	0.65	32.8	100	117	P	V
		64.02	17.12	-22.88	40	42.59	6.34	0.93	32.74			P	V
		729.8	22.13	-23.87	46	30.99	21.19	2.91	32.96			P	V
		827.1	23.39	-22.61	46	30.73	22.32	3.07	32.73			P	V
		942.6	26.22	-19.78	46	30.62	24.15	3.29	31.84			P	V
													V
													V
													V
													V
													V
													V
Remark	3. No other spurious found. 4. All results are PASS against limit line.												

Note symbol

*	**Fundamental Frequency** which can be ignored. However, the level of any unwanted emissions shall not exceed the level of the fundamental frequency.
!	Test result is **over limit** line.
P/A	**P**eak or **A**verage
H/V	**H**orizontal or **V**ertical

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+2		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
802.11b CH 01 2412MHz		2390	55.45	-18.55	74	54.51	32.22	4.58	35.86	103	308	P	H
		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)

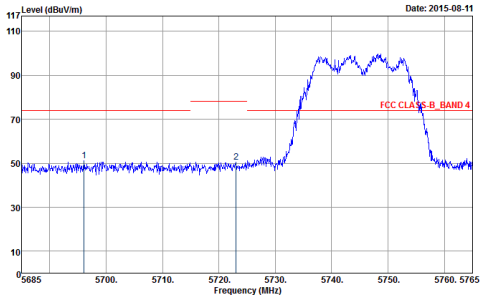
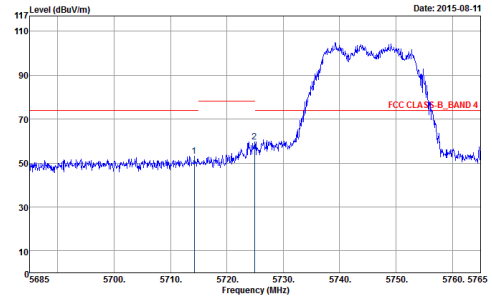
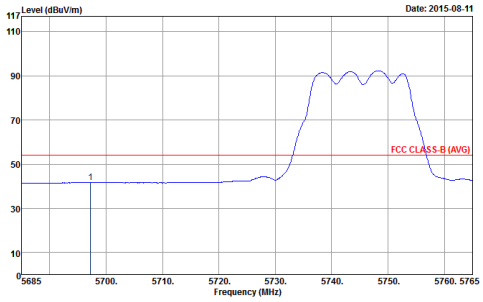
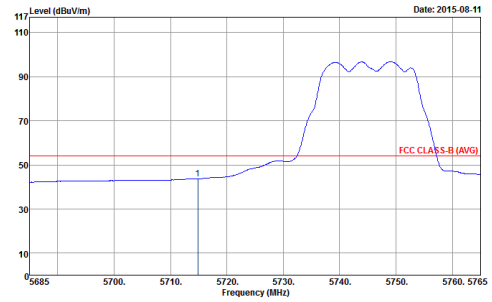
Both peak and average measured complies with the limit line, so test result is "PASS".

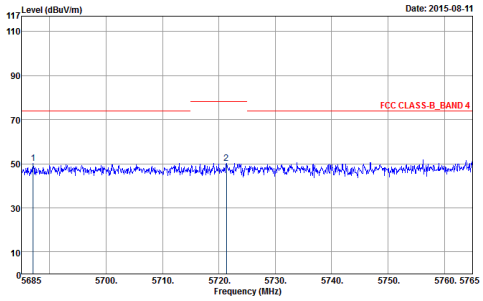
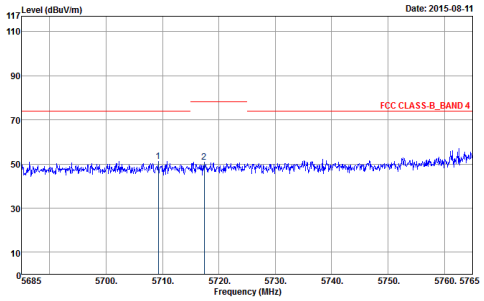
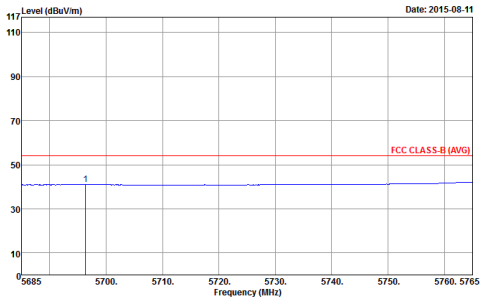
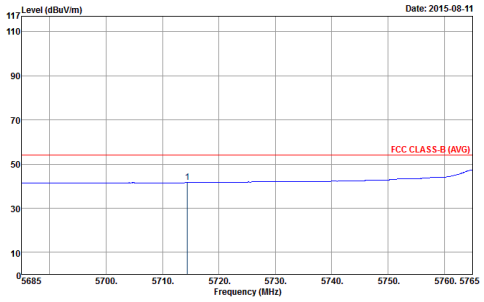
Appendix C. Radiated Spurious Emission

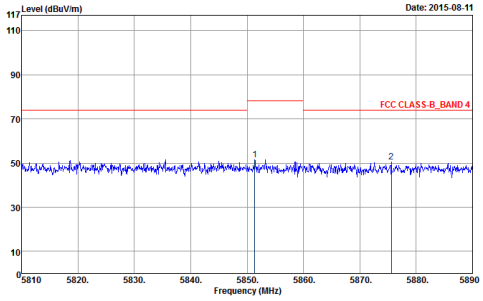
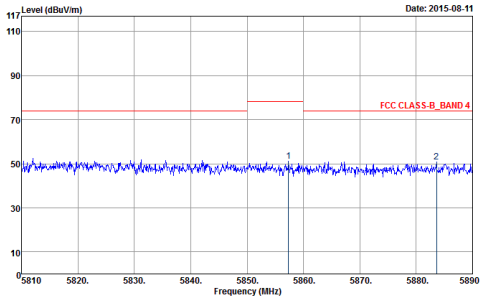
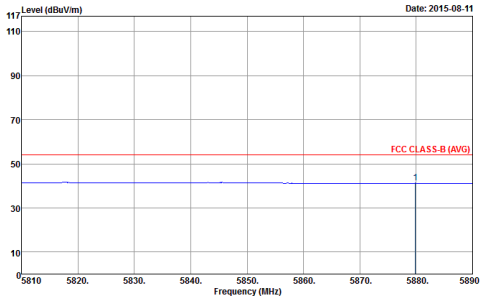
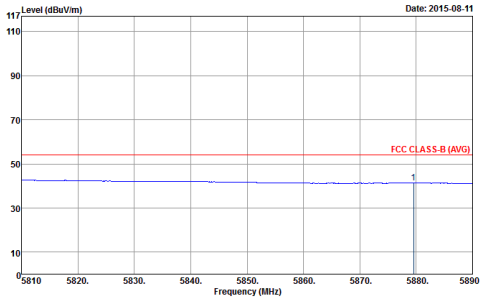
Test Engineer :	Elvis Chen, Stan Hsieh, and Karl Hou	Temperature :	21~22°C
		Relative Humidity :	43~44%

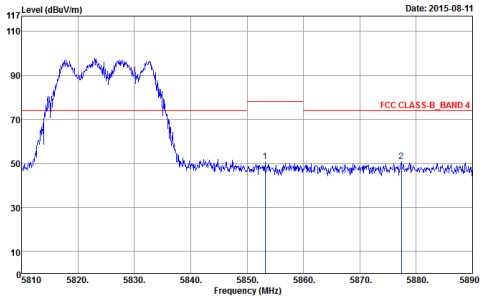
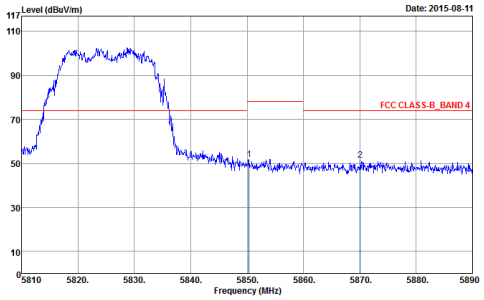
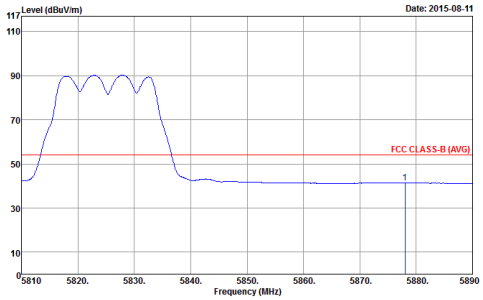
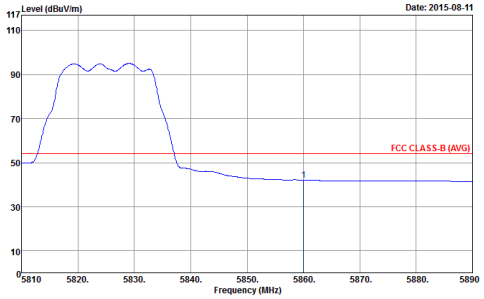
Band 4 - 5725~5850MHz

WIFI 802.11a (Band Edge @ 3m)

WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11a CH149 5745MHz	
1+2	Horizontal	Vertical
Peak		
Avg.		

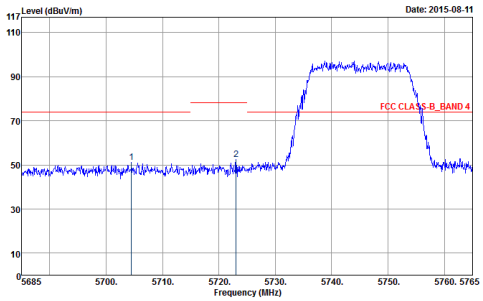
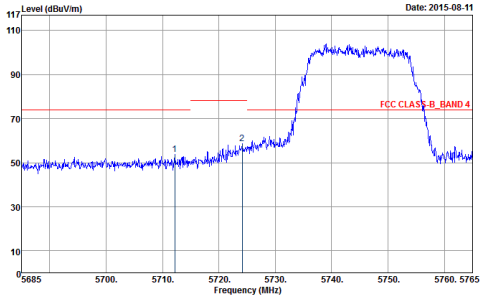
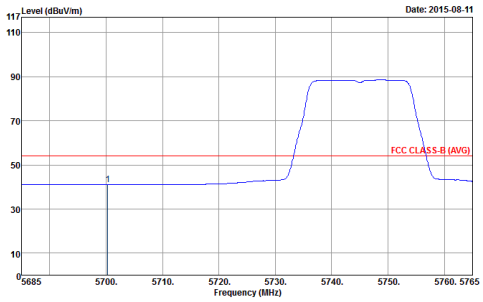
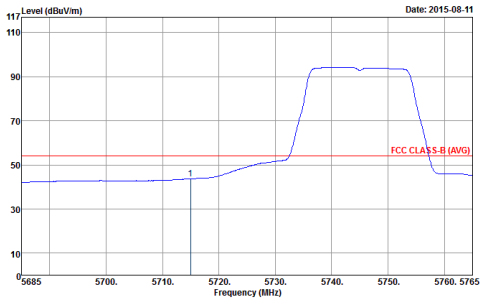
WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11a CH157 5785MHz – Low channel location	
1+2	Horizontal	Vertical
Peak	 Site : 03CH10-HY Condition : FCC CLASS-B_BAND 4 3m HORN 9120D-HF HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak	 Site : 03CH10-HY Condition : FCC CLASS-B_BAND 4 3m HORN 9120D-HF VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak
Avg.	 Site : 03CH10-HY Condition : FCC CLASS-B (AVG) 3m HORN 9120D-HF HORIZONTAL : RBW:1000.000KHz VBW:0.010KHz SWT:Auto Detector : Peak	 Site : 03CH10-HY Condition : FCC CLASS-B (AVG) 3m HORN 9120D-HF VERTICAL : RBW:1000.000KHz VBW:0.010KHz SWT:Auto Detector : Peak

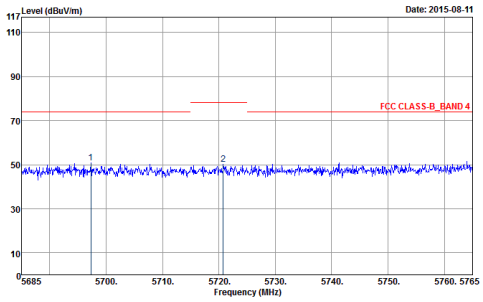
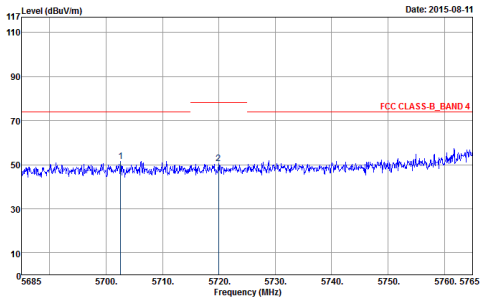
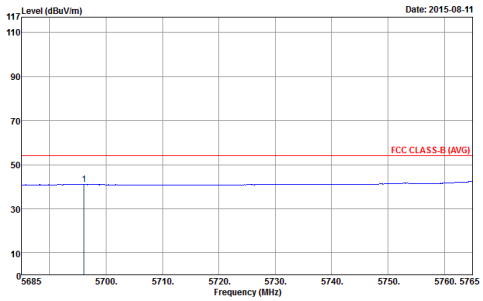
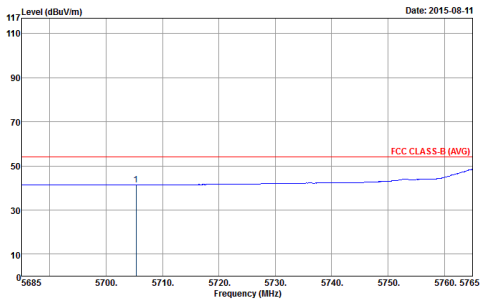
WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11a CH157 5785MHz – High channel location	
1+2	Horizontal	Vertical
Peak	 Site : 03CH10-HY Condition : FCC CLASS-B_BAND 4 3m HORN 9120D-HF HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak	 Site : 03CH10-HY Condition : FCC CLASS-B_BAND 4 3m HORN 9120D-HF VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak
Avg.	 Site : 03CH10-HY Condition : FCC CLASS-B (AVG) 3m HORN 9120D-HF HORIZONTAL : RBW:1000.000KHz VBW:0.010KHz SWT:Auto Detector : Peak	 Site : 03CH10-HY Condition : FCC CLASS-B (AVG) 3m HORN 9120D-HF VERTICAL : RBW:1000.000KHz VBW:0.010KHz SWT:Auto Detector : Peak

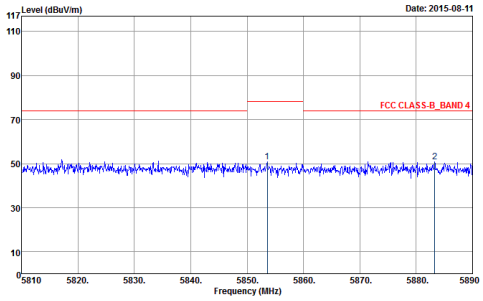
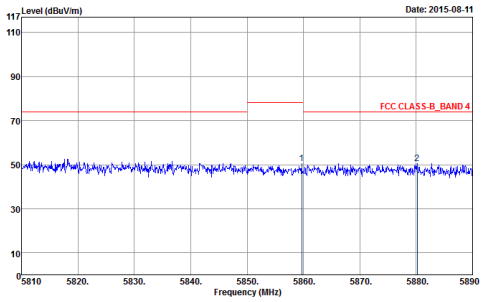
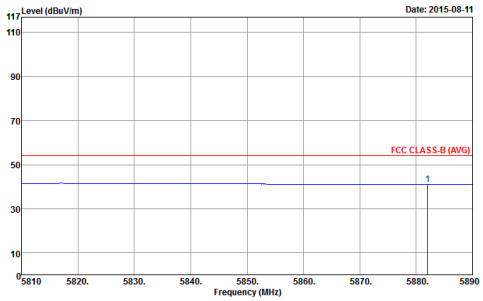
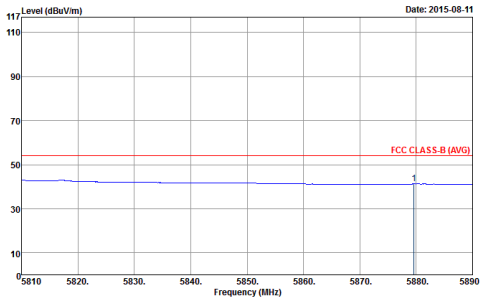
WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11a CH165 5825MHz	
1+2	Horizontal	Vertical
Peak	 Site : 03CH10-HY Condition : FCC CLASS-B_BAND 4 3m HORN 9120D-HF HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak	 Site : 03CH10-HY Condition : FCC CLASS-B_BAND 4 3m HORN 9120D-HF VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak
Avg.	 Site : 03CH10-HY Condition : FCC CLASS-B (AVG) 3m HORN 9120D-HF HORIZONTAL : RBW:1000.000KHz VBW:0.010KHz SWT:Auto Detector : Peak	 Site : 03CH10-HY Condition : FCC CLASS-B (AVG) 3m HORN 9120D-HF VERTICAL : RBW:1000.000KHz VBW:0.010KHz SWT:Auto Detector : Peak

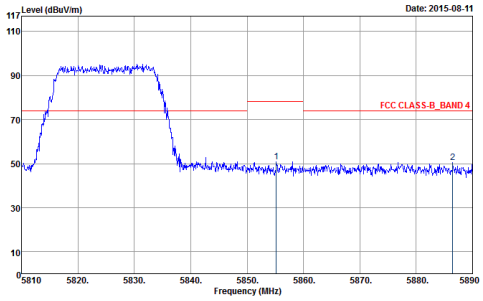
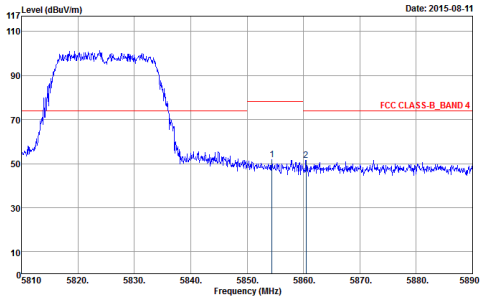
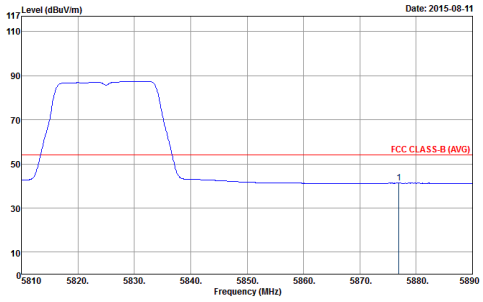
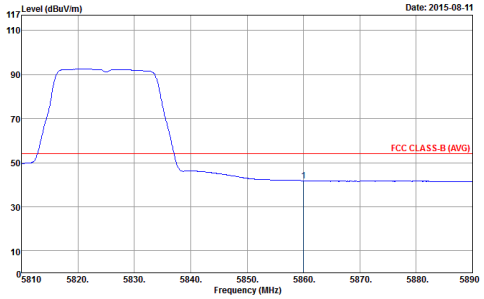
Band 4 5725~5850MHz

WIFI 802.11n HT20 (Band Edge @ 3m)

WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11n HT20 CH149 5745MHz	
1+2	Horizontal	Vertical
Peak	 Site : 03CH10-HY Condition : FCC CLASS-B_BAND 4 3m HORN 9120D-HF HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak	 Site : 03CH10-HY Condition : FCC CLASS-B_BAND 4 3m HORN 9120D-HF VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak
Avg.	 Site : 03CH10-HY Condition : FCC CLASS-B (AV6) 3m HORN 9120D-HF HORIZONTAL : RBW:1000.000KHz VBW:0.010KHz SWT:Auto Detector : Peak	 Site : 03CH10-HY Condition : FCC CLASS-B (AV6) 3m HORN 9120D-HF VERTICAL : RBW:1000.000KHz VBW:0.010KHz SWT:Auto Detector : Peak

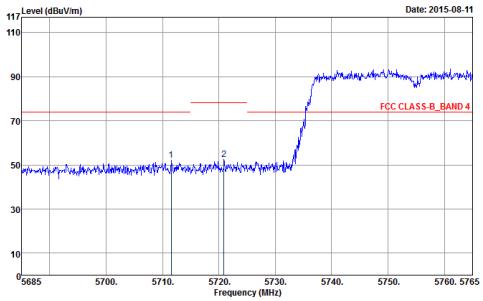
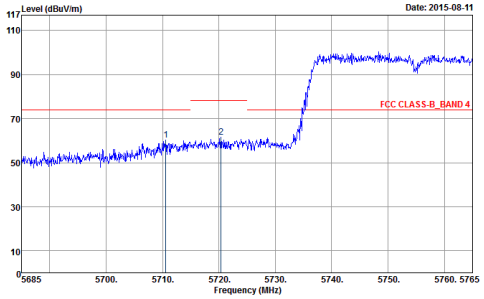
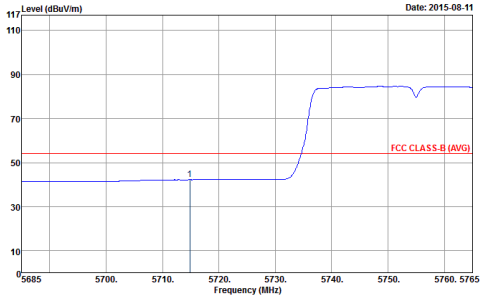
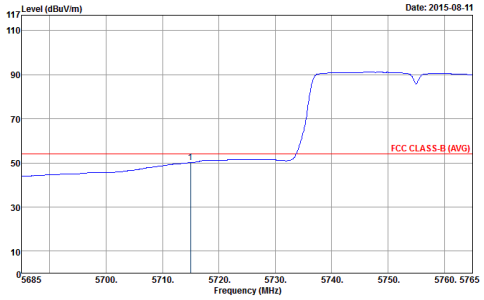
WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11n HT20 CH157 5785MHz – Low channel location	
1+2	Horizontal	Vertical
Peak	 Site : 03CH10-HY Condition : FCC CLASS-B_BAND 4 3m HORN 9120D-HF HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak	 Site : 03CH10-HY Condition : FCC CLASS-B_BAND 4 3m HORN 9120D-HF VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak
Avg.	 Site : 03CH10-HY Condition : FCC CLASS-B (AVG) 3m HORN 9120D-HF HORIZONTAL : RBW:1000.000KHz VBW:0.010KHz SWT:Auto Detector : Peak	 Site : 03CH10-HY Condition : FCC CLASS-B (AVG) 3m HORN 9120D-HF VERTICAL : RBW:1000.000KHz VBW:0.010KHz SWT:Auto Detector : Peak

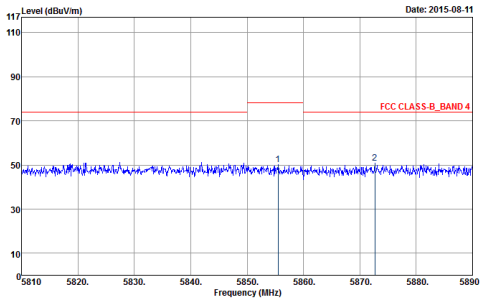
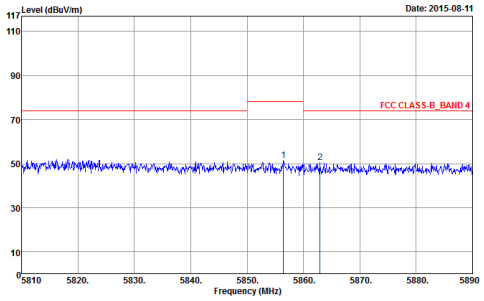
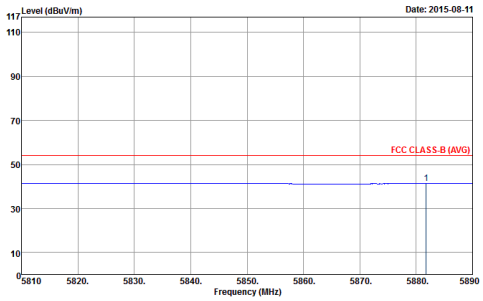
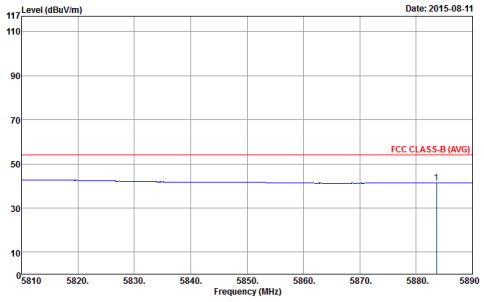
WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11n HT20 CH157 5785MHz – High channel location	
1+2	Horizontal	Vertical
Peak	 Site : 03CH10-HY Condition : FCC CLASS-B_BAND 4 3m HORN 9120D-HF HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak	 Site : 03CH10-HY Condition : FCC CLASS-B_BAND 4 3m HORN 9120D-HF VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak
Avg.	 Site : 03CH10-HY Condition : FCC CLASS-B (AVG) 3m HORN 9120D-HF HORIZONTAL : RBW:1000.000KHz VBW:0.010KHz SWT:Auto Detector : Peak	 Site : 03CH10-HY Condition : FCC CLASS-B (AVG) 3m HORN 9120D-HF VERTICAL : RBW:1000.000KHz VBW:0.010KHz SWT:Auto Detector : Peak

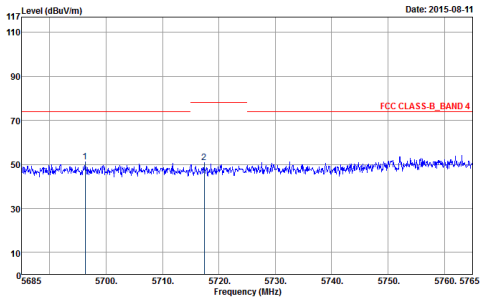
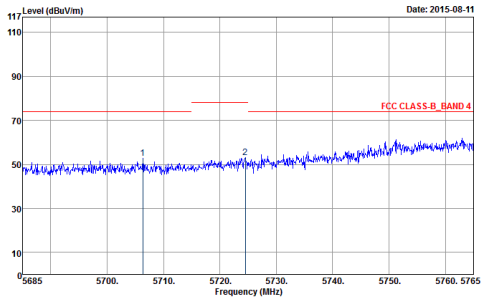
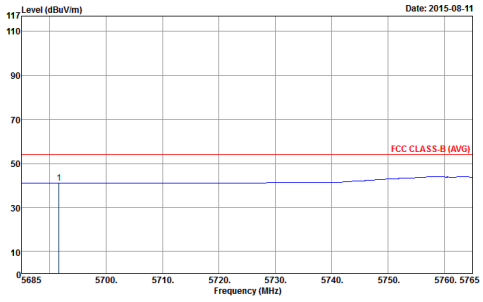
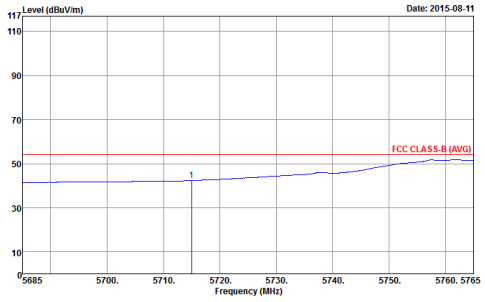
WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11n HT20 CH165 5825MHz	
1+2	Horizontal	Vertical
Peak	 Site : 03CH10-HY Condition : FCC CLASS-B_BAND 4 3m HORN 9120D-HF HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak	 Site : 03CH10-HY Condition : FCC CLASS-B_BAND 4 3m HORN 9120D-HF VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak
Avg.	 Site : 03CH10-HY Condition : FCC CLASS-B (AVG) 3m HORN 9120D-HF HORIZONTAL : RBW:1000.000KHz VBW:0.010KHz SWT:Auto Detector : Peak	 Site : 03CH10-HY Condition : FCC CLASS-B (AVG) 3m HORN 9120D-HF VERTICAL : RBW:1000.000KHz VBW:0.010KHz SWT:Auto Detector : Peak

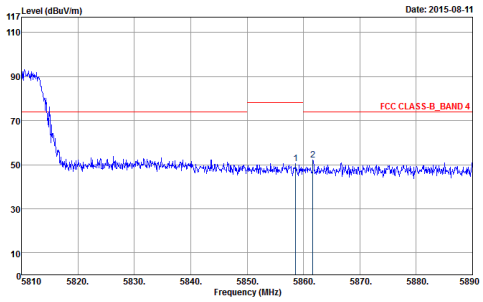
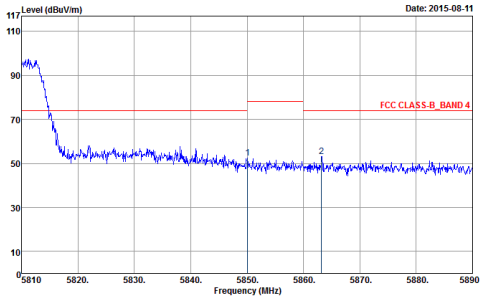
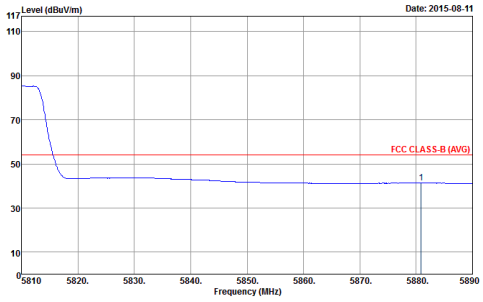
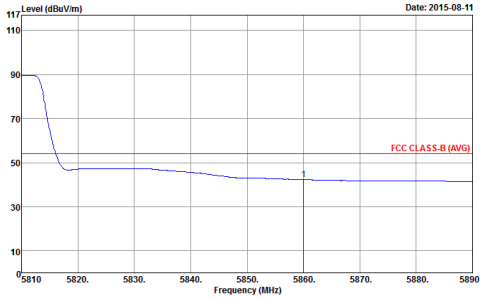
Band 4 5725~5850MHz

WIFI 802.11n HT40 (Band Edge @ 3m)

WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11n HT40 CH151 5755MHz – Low channel location	
1+2	Horizontal	Vertical
Peak	 Site : 03CH10-HY Condition : FCC CLASS-B_BAND 4 3m HORN 9120D-HF HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak	 Site : 03CH10-HY Condition : FCC CLASS-B_BAND 4 3m HORN 9120D-HF VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak
Avg.	 Site : 03CH10-HY Condition : FCC CLASS-B (AVG) 3m HORN 9120D-HF HORIZONTAL : RBW:1000.000KHz VBW:2.000KHz SWT:Auto Detector : Peak	 Site : 03CH10-HY Condition : FCC CLASS-B (AVG) 3m HORN 9120D-HF VERTICAL : RBW:1000.000KHz VBW:2.000KHz SWT:Auto Detector : Peak

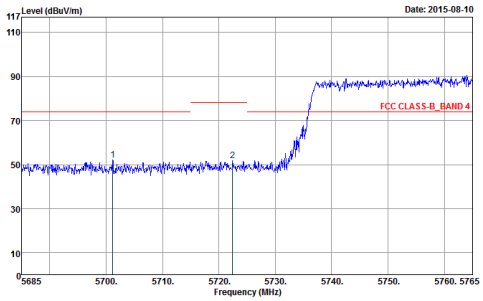
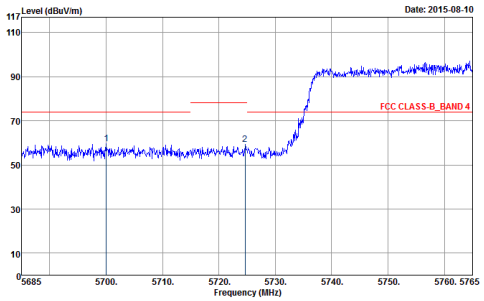
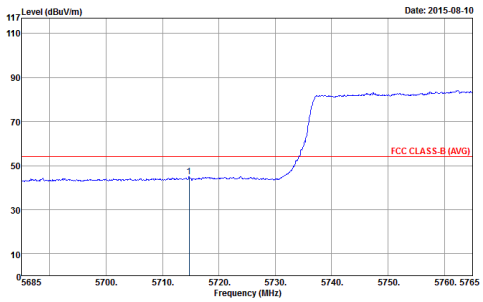
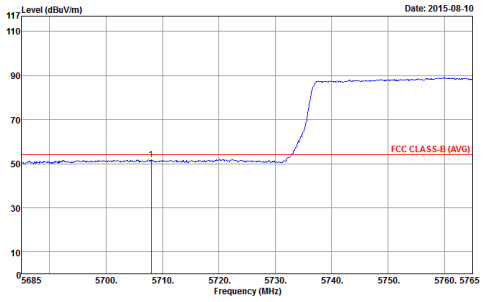
WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11n HT40 CH151 5755MHz – High channel location	
1+2	Horizontal	Vertical
Peak	 Site : 03CH10-HY Condition : FCC CLASS-B_BAND 4 3m HORN 9120D-HF HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak	 Site : 03CH10-HY Condition : FCC CLASS-B_BAND 4 3m HORN 9120D-HF VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak
Avg.	 Site : 03CH10-HY Condition : FCC CLASS-B (AVG) 3m HORN 9120D-HF HORIZONTAL : RBW:1000.000KHz VBW:2.000KHz SWT:Auto Detector : Peak	 Site : 03CH10-HY Condition : FCC CLASS-B (AVG) 3m HORN 9120D-HF VERTICAL : RBW:1000.000KHz VBW:2.000KHz SWT:Auto Detector : Peak

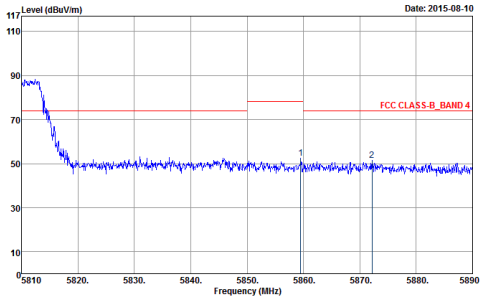
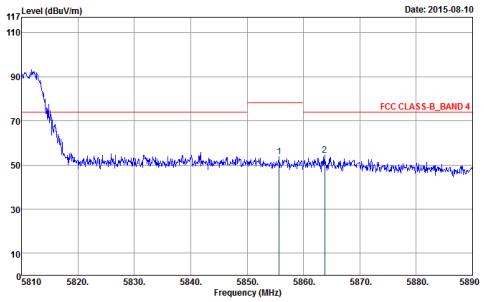
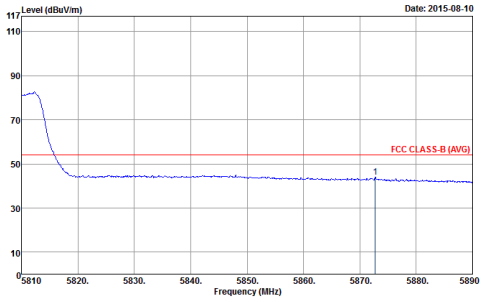
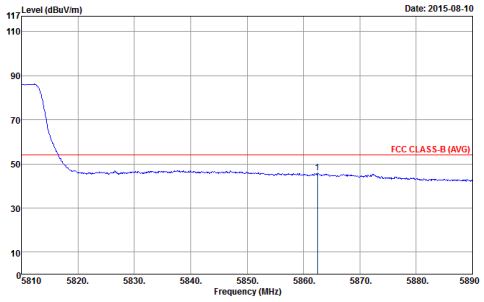
WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11n HT40 CH159 5795MHz – Low channel location	
1+2	Horizontal	Vertical
Peak	 Site : 03CH10-HY Condition : FCC CLASS-B_BAND 4 3m HORN 9120D-HF HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak	 Site : 03CH10-HY Condition : FCC CLASS-B_BAND 4 3m HORN 9120D-HF VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak
Avg.	 Site : 03CH10-HY Condition : FCC CLASS-B (AVG) 3m HORN 9120D-HF HORIZONTAL : RBW:1000.000KHz VBW:2.000KHz SWT:Auto Detector : Peak	 Site : 03CH10-HY Condition : FCC CLASS-B (AVG) 3m HORN 9120D-HF VERTICAL : RBW:1000.000KHz VBW:2.000KHz SWT:Auto Detector : Peak

WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11n HT40 CH159 5795MHz – High channel location	
1+2	Horizontal	Vertical
Peak	 Site : 03CH10-HY Condition : FCC CLASS-B_BAND 4 3m HORN 9120D-HF HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak	 Site : 03CH10-HY Condition : FCC CLASS-B_BAND 4 3m HORN 9120D-HF VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak
Avg.	 Site : 03CH10-HY Condition : FCC CLASS-B (AVG) 3m HORN 9120D-HF HORIZONTAL : RBW:1000.000KHz VBW:2.000KHz SWT:Auto Detector : Peak	 Site : 03CH10-HY Condition : FCC CLASS-B (AVG) 3m HORN 9120D-HF VERTICAL : RBW:1000.000KHz VBW:2.000KHz SWT:Auto Detector : Peak

Band 4 5725~5850MHz

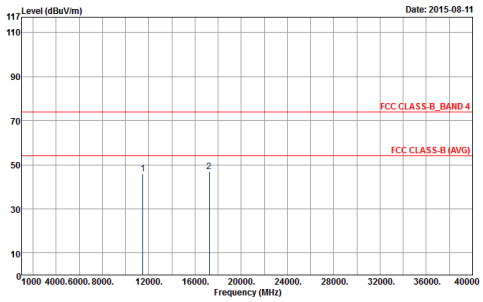
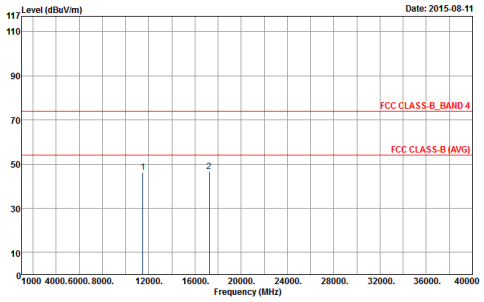
WIFI 802.11ac VHT80 (Band Edge @ 3m)

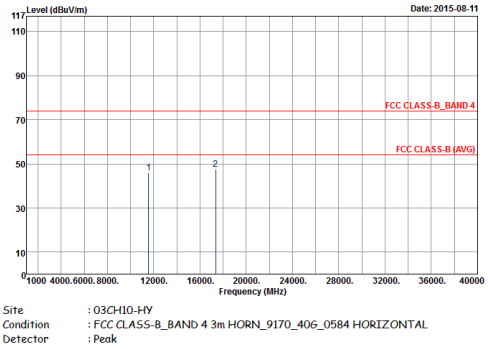
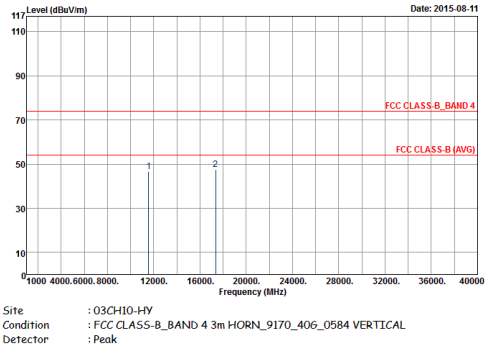
WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11ac VHT80 CH155 5775MHz – Low channel location	
1+2	Horizontal	Vertical
Peak	 Site : 03CH10-HY Condition : FCC CLASS-B_BAND 4 3m HORN 9120D-HF HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak	 Site : 03CH10-HY Condition : FCC CLASS-B_BAND 4 3m HORN 9120D-HF VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak
Avg.	 Site : 03CH10-HY Condition : FCC CLASS-B (AVG) 3m HORN 9120D-HF HORIZONTAL : RBW:1000.000KHz VBW:3.000KHz SWT:Auto Detector : Peak	 Site : 03CH10-HY Condition : FCC CLASS-B (AVG) 3m HORN 9120D-HF VERTICAL : RBW:1000.000KHz VBW:3.000KHz SWT:Auto Detector : Peak

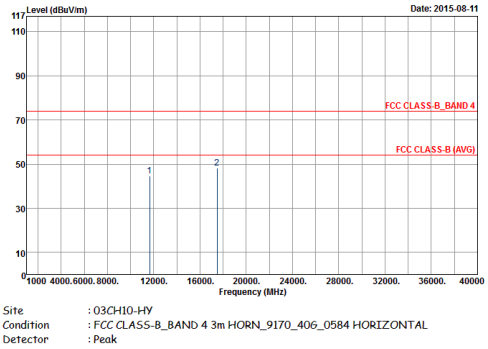
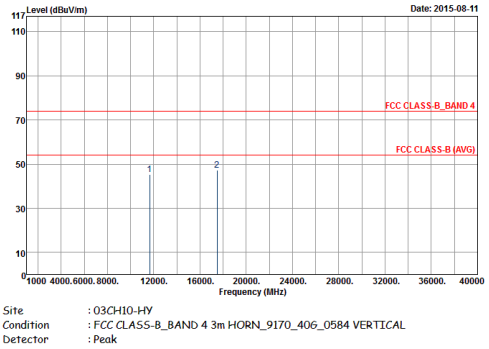
WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11ac VHT80 CH155 5775MHz – High channel location	
1+2	Horizontal	Vertical
Peak	 Site : 03CH10-HY Condition : FCC CLASS-B_BAND 4 3m HORN 9120D-HF HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak	 Site : 03CH10-HY Condition : FCC CLASS-B_BAND 4 3m HORN 9120D-HF VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak
Avg.	 Site : 03CH10-HY Condition : FCC CLASS-B (AVG) 3m HORN 9120D-HF HORIZONTAL : RBW:1000.000KHz VBW:3.000KHz SWT:Auto Detector : Peak	 Site : 03CH10-HY Condition : FCC CLASS-B (AVG) 3m HORN 9120D-HF VERTICAL : RBW:1000.000KHz VBW:3.000KHz SWT:Auto Detector : Peak

Band 4 - 5725~5850MHz

WIFI 802.11a (Harmonic @ 3m)

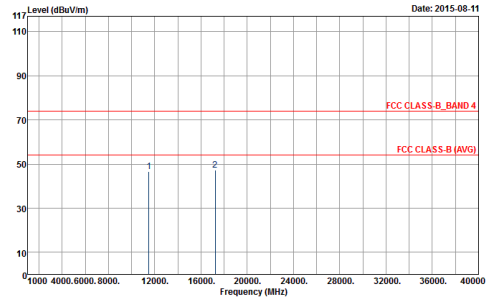
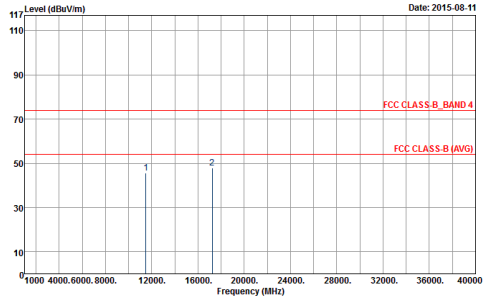
WIFI	Band 4 5725~5850MHz Harmonic @ 3m	
ANT	802.11a CH149 5745MHz	
1+2	Horizontal	Vertical
Peak Avg.	 Site : 03CH10-HY Condition : FCC CLASS-B_BAND 4 3m HORN_9170_406_0584 HORIZONTAL Detector : Peak	 Site : 03CH10-HY Condition : FCC CLASS-B_BAND 4 3m HORN_9170_406_0584 VERTICAL Detector : Peak

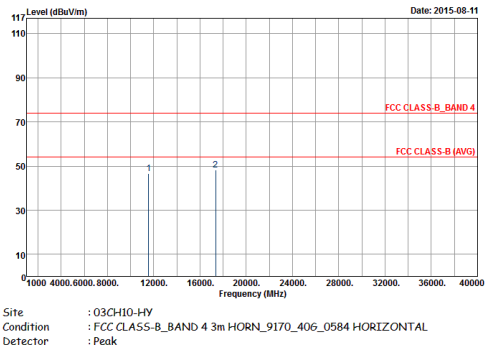
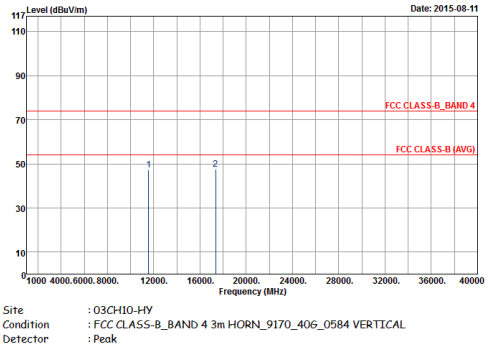
WIFI	Band 4 5725~5850MHz Harmonic @ 3m	
ANT	802.11a CH157 5785MHz	
1+2	Horizontal	Vertical
Peak Avg.		

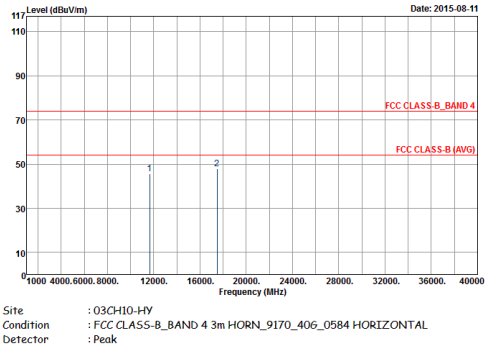
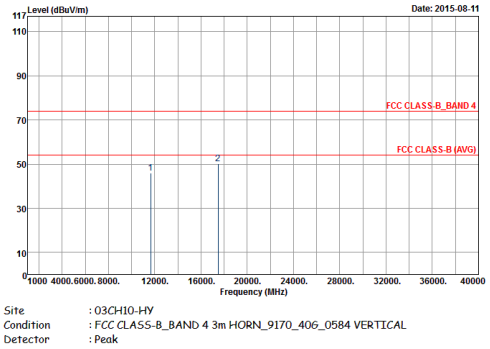
WIFI	Band 4 5725~5850MHz Harmonic @ 3m	
ANT	802.11a CH165 5825MHz	
1+2	Horizontal	Vertical
Peak Avg.		

Band 4 5725~5850MHz

WIFI 802.11n HT20 (Harmonic @ 3m)

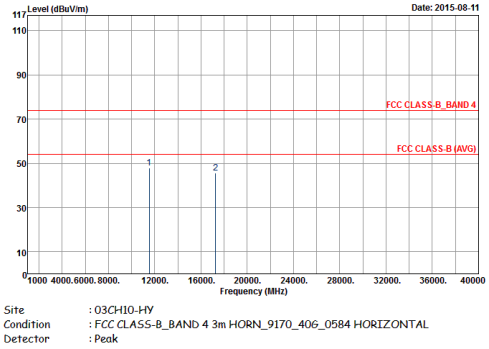
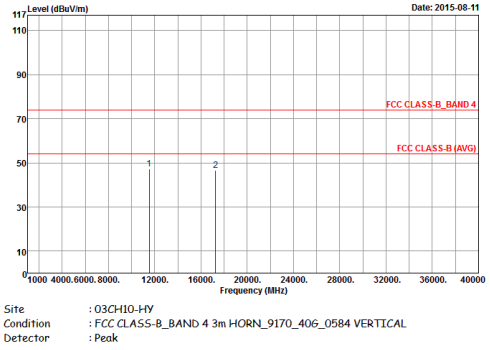
WIFI	Band 4 5725~5850MHz Harmonic @ 3m	
ANT	802.11n HT20 CH149 5745MHz	
1+2	Horizontal	Vertical
Peak Avg.		

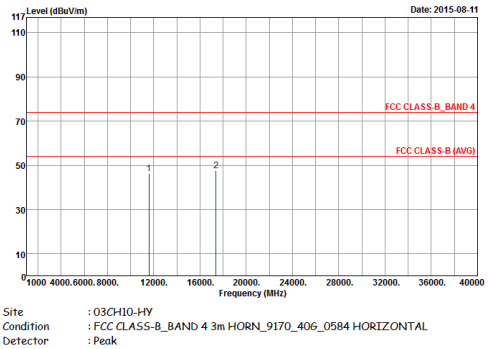
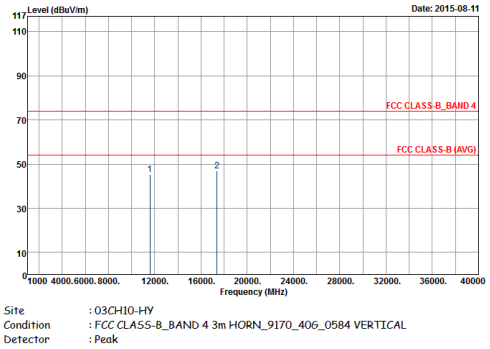
WIFI	Band 4 5725~5850MHz Harmonic @ 3m	
ANT	802.11n HT20 CH157 5785MHz	
1+2	Horizontal	Vertical
Peak Avg.	 	

WIFI	Band 4 5725~5850MHz Harmonic @ 3m	
ANT	802.11n HT20 CH165 5825MHz	
1+2	Horizontal	Vertical
Peak Avg.		

Band 4 5725~5850MHz

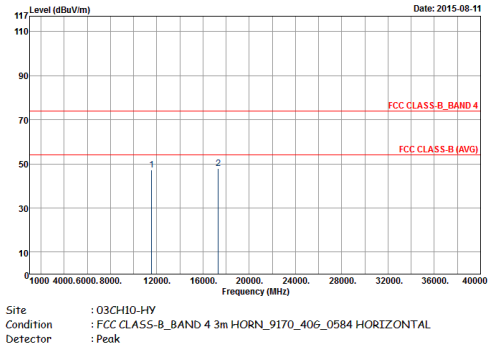
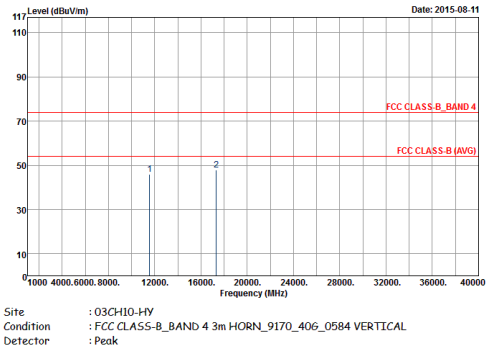
WIFI 802.11n HT40 (Harmonic @ 3m)

WIFI	Band 4 5725~5850MHz Harmonic @ 3m	
ANT	802.11n HT40 CH151 5755MHz	
1+2	Horizontal	Vertical
Peak Avg.		

WIFI	Band 4 5725~5850MHz Harmonic @ 3m	
ANT	802.11n HT40 CH159 5795MHz	
1+2	Horizontal	Vertical
Peak Avg.		

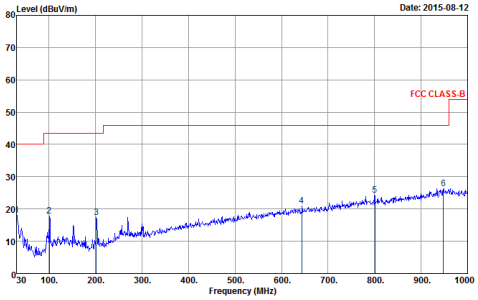
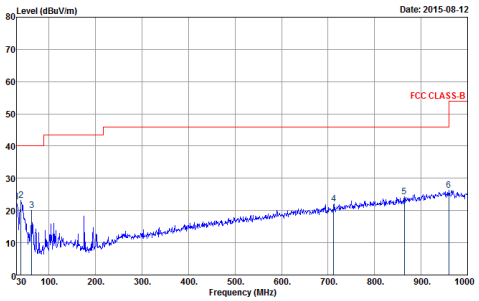
Band 4 5725~5850MHz

WIFI 802.11ac VHT80 (Harmonic @ 3m)

WIFI	Band 4 5725~5850MHz Harmonic @ 3m	
ANT	802.11ac VHT80 CH155 5775MHz	
1+2	Horizontal	Vertical
Peak Avg.		

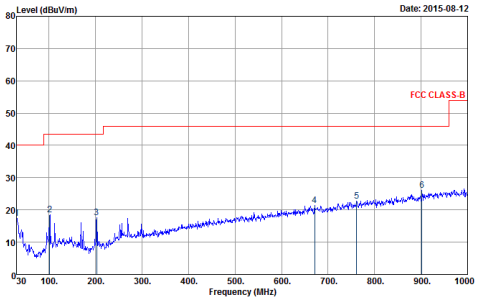
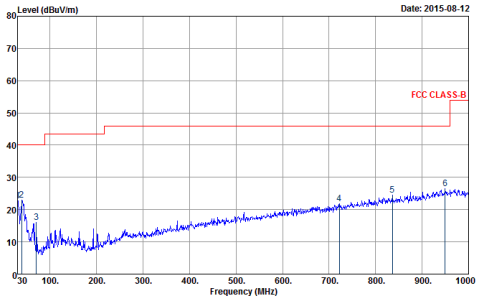
Emission below 1GHz

5GHz WIFI 802.11a (LF)

WIFI	5GHz 5725~5850MHz	
ANT	802.11a LF	
1+2	Horizontal	Vertical
QP / Peak	 Site : 03CH10-HY Condition : FCC CLASS-B 3m BI-LOG 6111D-LF HORIZONTAL Detector : Peak	 Site : 03CH10-HY Condition : FCC CLASS-B 3m BI-LOG 6111D-LF VERTICAL Detector : Peak

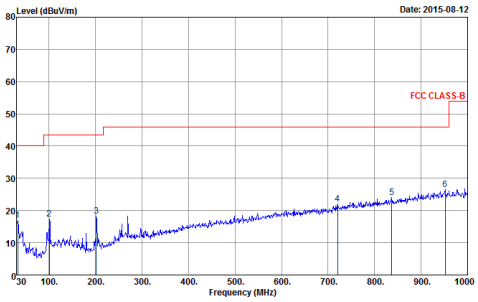
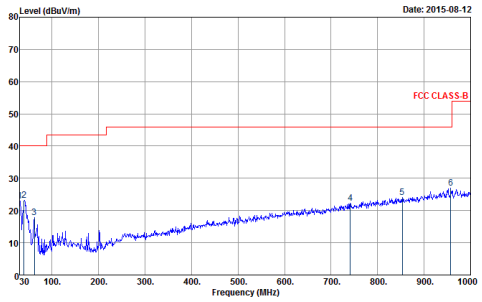
Emission below 1GHz

5GHz WIFI 802.11n HT20 (LF)

WIFI	5GHz 5725~5850MHz	
ANT	802.11n HT20 LF	
1+2	Horizontal	Vertical
QP / Peak	 Site : 03CH10-HY Condition : FCC CLASS-B 3m BI-LOG 6111D-LF HORIZONTAL Detector : Peak	 Site : 03CH10-HY Condition : FCC CLASS-B 3m BI-LOG 6111D-LF VERTICAL Detector : Peak

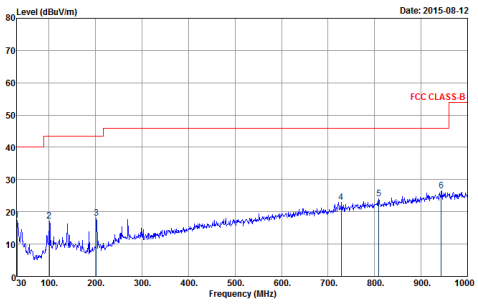
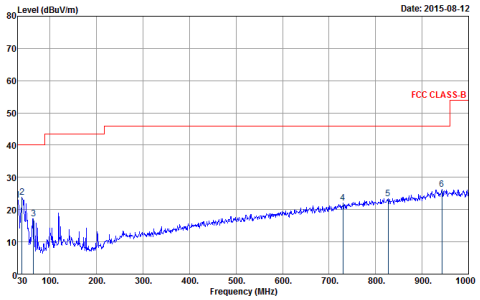
Emission below 1GHz

5GHz WIFI 802.11n HT40 (LF)

WIFI	5GHz 5725~5850MHz	
ANT	802.11n HT40 LF	
1+2	Horizontal	Vertical
QP / Peak	 Site : 03CH10-HY Condition : FCC CLASS-B 3m BI-LOG 6111D-LF HORIZONTAL Detector : Peak	 Site : 03CH10-HY Condition : FCC CLASS-B 3m BI-LOG 6111D-LF VERTICAL Detector : Peak

Emission below 1GHz

5GHz WIFI 802.11ac VHT80 (LF)

WIFI	5GHz 5725~5850MHz	
ANT	802.11ac VHT80 LF	
1+2	Horizontal	Vertical
QP / Peak	 Site : 03CH10-HY Condition : FCC CLASS-B 3m BI-LOG 6111D-LF HORIZONTAL Detector : Peak	 Site : 03CH10-HY Condition : FCC CLASS-B 3m BI-LOG 6111D-LF VERTICAL Detector : Peak