FCC RF Test Report

APPLICANT	:	Altocumulous LLC
EQUIPMENT	:	Digital Media Receiver
MODEL NAME	:	RS03QR
FCC ID	:	2AHSE-2045
STANDARD	:	FCC Part 15 Subpart E §15.407
CLASSIFICATION	:	(NII) Unlicensed National Information Infrastructure

The product was completed on Jun. 29, 2016. We, SPORTON INTERNATIONAL INC., would like to declare that the tested sample has been evaluated in accordance with the test procedures and has been in compliance with the applicable technical standards.

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

Reviewed by: Joseph Lin / Supervisor

Approved by: Jones Tsai / Manager

Testing Laboratory 1190

SPORTON INTERNATIONAL INC.

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REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FR631725-01E	Rev. 01	Initial issue of report	Jul. 01, 2016
FR631725-01E	Rev. 02	Update report of revising AC Conducted Emission test data	Jul. 19, 2016

SUMMARY OF TEST RESULT

Report Section	FCC Rule	Description	Limit	Result
3.1	15.403(i)	6dB, 26dB and 99% Occupied Bandwidth	> 500kHz	Pass
3.2	15.407(a)	Maximum Conducted Output Power	≤ 30 dBm	Pass
3.3	15.407(a)	Power Spectral Density	≤ 30 dBm/500kHz	Pass
3.4	15.407(b)	Unwanted Emissions	15.407(b)(4)(i) &15.209(a)	Pass
3.5	15.207	AC Conducted Emission	15.207(a)	Pass
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

Altocumulous LLC
300 E. Business Way, Suite 200, Summit Woods Corporate Center Cincinnati, Ohio 45241

1.2 Product Feature of Equipment Under Test

Product Feature	
Equipment	Digital Media Receiver
Model Name	RS03QR
FCC ID	2AHSE-2045
EUT supports Radios application	WLAN 11b/g/n HT20 WLAN 11a/n HT20/HT40 Bluetooth v4.1 EDR/LE

1.3 Product Specification of Equipment Under Test

Standards-related Product Specification	
Tx/Rx Channel Frequency Range	5745 MHz ~ 5825 MHz
Maximum Output Power	**<Ant. 1>** 802.11a : 18.03 dBm / 0.0635 W 802.11n HT20 : 18.01 dBm / 0.0632 W 802.11n HT40 : 18.44 dBm / 0.0698 W **<Ant. 2>** 802.11a : 19.43 dBm / 0.0877 W 802.11n HT20 : 19.41 dBm / 0.0873 W 802.11n HT40 : 18.42 dBm / 0.0695 W
99% Occupied Bandwidth	802.11a : 24.15 MHz 802.11n HT20 : 28.60 MHz 802.11n HT40 : 44.20 MHz
Type of Modulation	802.11a/n : OFDM (BPSK / QPSK / 16QAM / 64QAM)
Antenna Type / Gain	**Ant. 1 :** Fixed internal Antenna with gain 4.08 dBi **Ant. 2 :** Fixed internal Antenna with gain 3.20 dBi
Antenna Function Description	

	Ant. 1	Ant. 2
802.11 a/n	V	V

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.**	
	TH02-HY	CO05-HY

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

Test Site	SPORTON INTERNATIONAL INC.
Test Site Location	No.58, Aly. 75, Ln. 564, Wenhua 3rd Rd. Guishan Dist, Taoyuan City, Taiwan (R.O.C.) TEL: +886-3-327-0868 FAX: +886-3-327-0855
Test Site No.	**Sporton Site No.**
	03CH12-HY

Note: The test site complies with ANSI C63.4 2014 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 v01r02
- ANSI C63.10-2013

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

2 Test Configuration of Equipment Under Test

The EUT has been associated with peripherals and configuration operated in a manner tended to maximize its emission characteristics in a typical application. Frequency range investigated: conducted emission (150 kHz to 30 MHz) and radiated emission (9 kHz to the 10th harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower).

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 "*" were 802.11n HT40.

2.2 Pre-Scanned RF Power

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

<Ant. 1>

5GHz 802.11a mode								
Data Rate (MHz)	**6M bps**	**9M bps**	**12M bps**	**18M bps**	**24M bps**	**36M bps**	**48M bps**	**54M bps**
Average Power (dBm)	18.03	17.70	17.89	17.95	17.69	17.56	17.92	17.95

5GHz 802.11n HT20 mode								
Data Rate (MHz)	**MCS0**	**MCS1**	**MCS2**	**MCS3**	**MCS4**	**MCS5**	**MCS6**	**MCS7**
Average Power (dBm)	18.01	17.81	17.92	17.67	17.59	17.89	17.86	17.82

5GHz 802.11n HT40 mode								
Data Rate (MHz)	**MCS0**	**MCS1**	**MCS2**	**MCS3**	**MCS4**	**MCS5**	**MCS6**	**MCS7**
Average Power (dBm)	18.44	18.41	18.10	18.29	18.03	18.22	18.27	18.32

<Ant. 2>

5GHz 802.11a mode								
Data Rate (MHz)	**6M bps**	**9M bps**	**12M bps**	**18M bps**	**24M bps**	**36M bps**	**48M bps**	**54M bps**
Average Power (dBm)	19.43	19.37	19.14	19.20	19.21	19.37	19.42	19.41

5GHz 802.11n HT20 mode								
Data Rate (MHz)	**MCS0**	**MCS1**	**MCS2**	**MCS3**	**MCS4**	**MCS5**	**MCS6**	**MCS7**
Average Power (dBm)	19.41	19.40	19.31	19.28	19.40	19.32	19.40	19.40

5GHz 802.11n HT40 mode								
Data Rate (MHz)	**MCS0**	**MCS1**	**MCS2**	**MCS3**	**MCS4**	**MCS5**	**MCS6**	**MCS7**
Average Power (dBm)	18.42	18.27	18.35	18.40	18.39	18.12	18.15	17.95

2.3 Test Mode

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

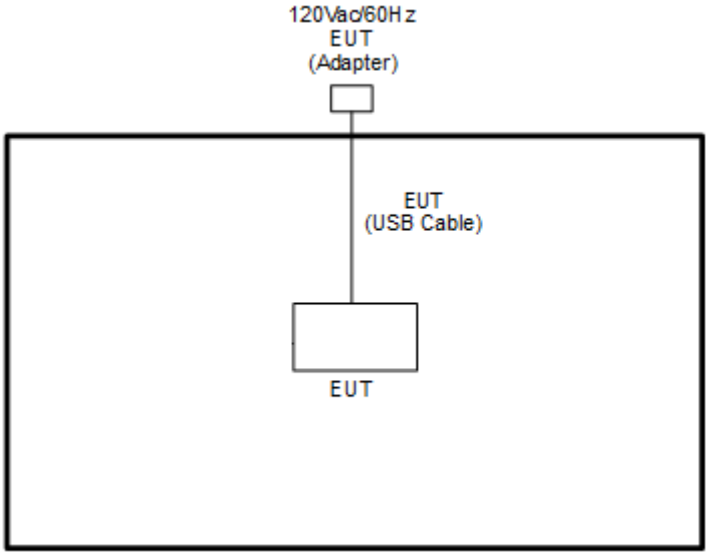
Modulation	Data Rate
802.11a	6 Mbps
802.11n HT20	MCS0
802.11n HT40	MCS0

AC Conducted Emission	Mode 1 : WLAN (5GHz) Link + Bluetooth Link + MP3 + USB Cable (Charging from Adapter)

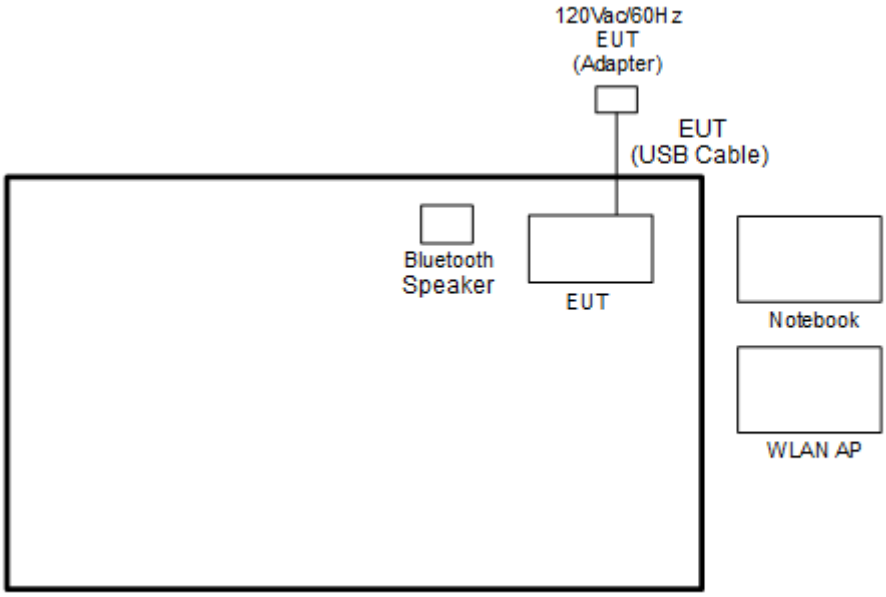
Ch. #		Band IV：5725-5850 MHz		
		802.11a	802.11n HT20	802.11n HT40
L	Low	149	149	151
M	Middle	157	157	-
H	High	165	165	159

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-628	KA2DIR628A2	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.	Bluetooth Speaker	JAWBONE	JAMBOX	V3J-JBE	N/A	N/A

2.6 EUT Operation Test Setup

For WLAN function, programmed RF utility, “Cpmpliance.exe” installed in the notebook make the EUT provide functions like channel selection and power level for continuous transmitting and receiving signals.

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 and 26dB and 99% Occupied Bandwidth Measurement

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

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

26dB and 99% Occupied bandwidth are reporting only.

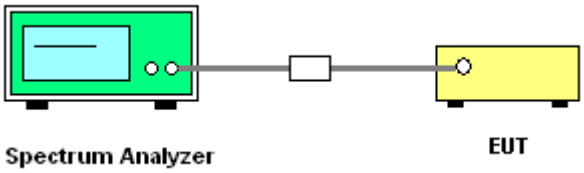
3.1.2 Measuring Instruments

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

3.1.3 Test Procedures

1. The testing follows FCC KDB 789033 D02 General UNII Test Procedures New Rules v01r02. 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.

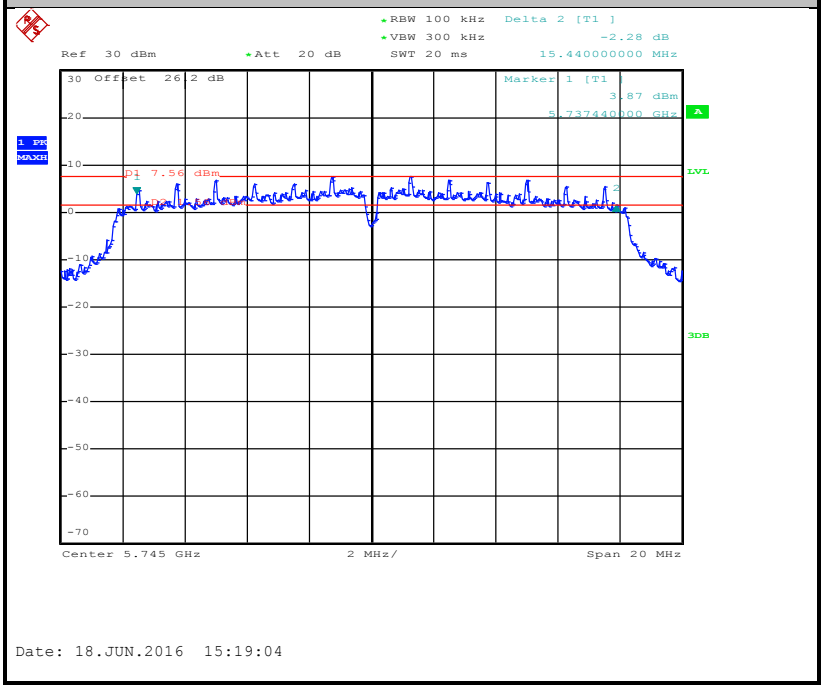
3.1.4 Test Setup



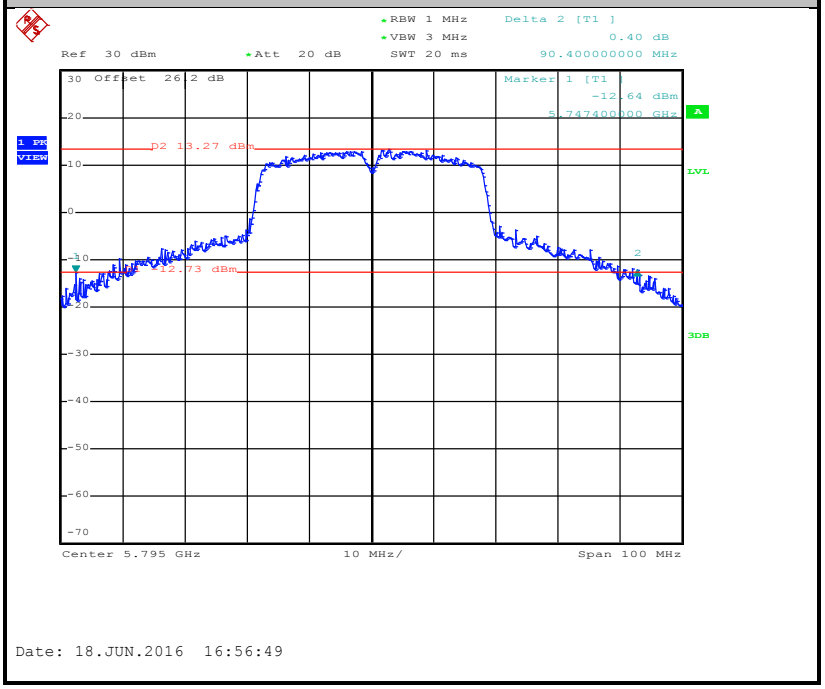
3.1.5 Test Result of 6dB Bandwidth

Please refer to Appendix A.

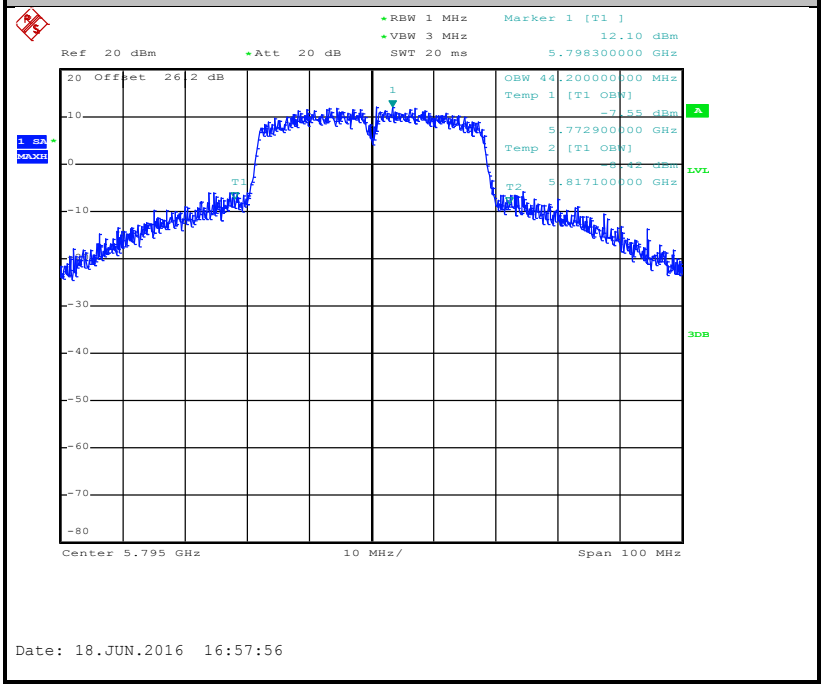
Minimum 6dB Bandwidth



Maximum 26dB Bandwidth



Maximum 99% Occupied 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.

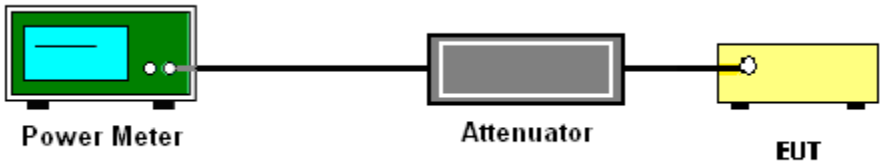
3.2.3 Test Procedures

The testing follows Method PM of FCC KDB 789033 D02 General UNII Test Procedures New Rules v01r02.

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

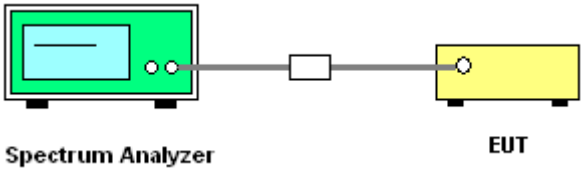
The testing follows FCC KDB 789033 D02 General UNII Test Procedures New Rules v01r02. Section F) Maximum power spectral density.

 # Method SA-2 #

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

1. The testing follows Method SA-2 of FCC KDB 789033 D02 General UNII Test Procedures New Rules v01r02.
   - 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.

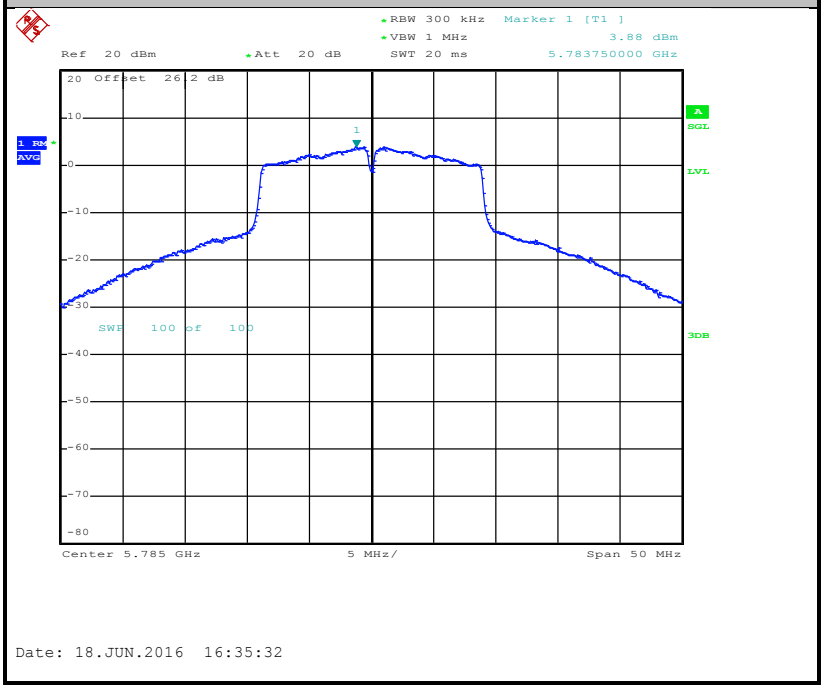
3.3.4 Test Setup



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 5.725-5.85 GHz band:

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

(2) Unwanted spurious emissions fallen in restricted bands per FCC Part15.205 shall comply with the general field strength limits set forth in § 15.209 as below table,

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

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

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

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

(3) KDB 789033 D02 General UNII Test Procedures New Rules v01r02 G)2)c) As specified in 15.407(b), emissions above 1000 MHz that are outside of the restricted bands are subject to a peak emission limit of -27 dBm/MHz (or -17 dBm/MHz as specified in 15.407(b)(4)). However, an out-of-band emission that complies with both the average and peak limits of 15.209 is not required to satisfy the -27 dBm/MHz or -17 dBm/MHz peak emission limit.

3.4.2 Measuring Instruments

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

3.4.3 Test Procedures

1. The testing follows FCC KDB 789033 D02 General UNII Test Procedures New Rules v01r02. 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

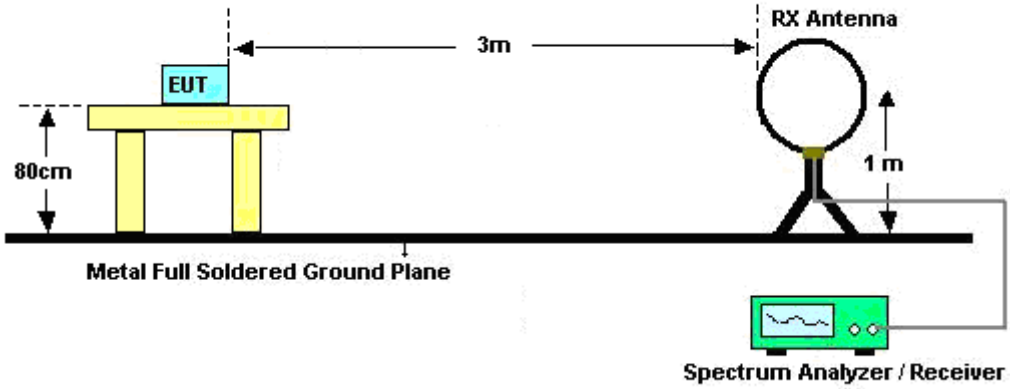
   (3) Procedures for Average Unwanted Emissions Measurements Above 1000MHz

   - 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.

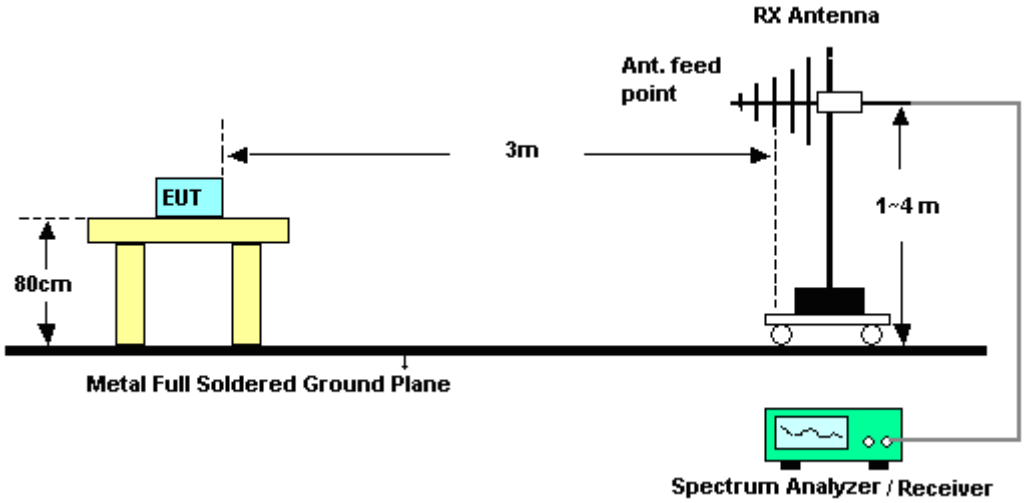
2. The EUT was placed on a turntable with 0.8 meter for frequency below 1GHz and 1.5 meter for frequency above 1GHz respectively above ground.
3. The EUT was set 3 meters from the interference receiving antenna which was mounted on the top of a variable height antenna tower.
4. The antenna is a broadband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

3.4.4 Test Setup

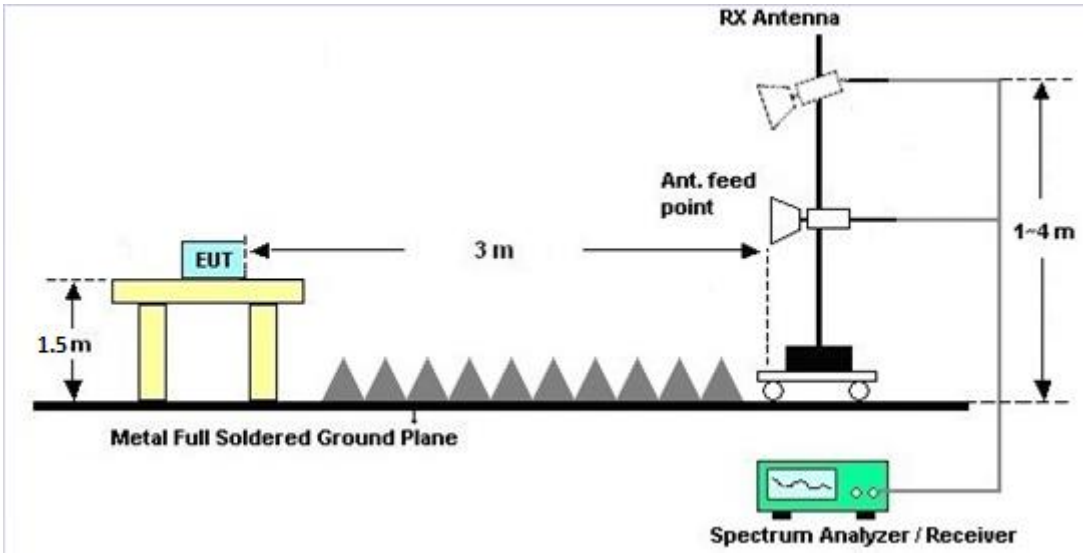
For radiated emissions below 30MHz



For radiated emissions from 30MHz to 1GHz



For radiated emissions above 1GHz



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

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

3.4.6 Test Result of Radiated Band Edges

Please refer to Appendix B and C.

3.4.7 Duty Cycle

Please refer to Appendix D.

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

Please refer to Appendix B and C.

3.5 AC Conducted Emission Measurement

3.5.1 Limit of AC Conducted Emission

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

Frequency of emission (MHz)	Conducted limit (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.

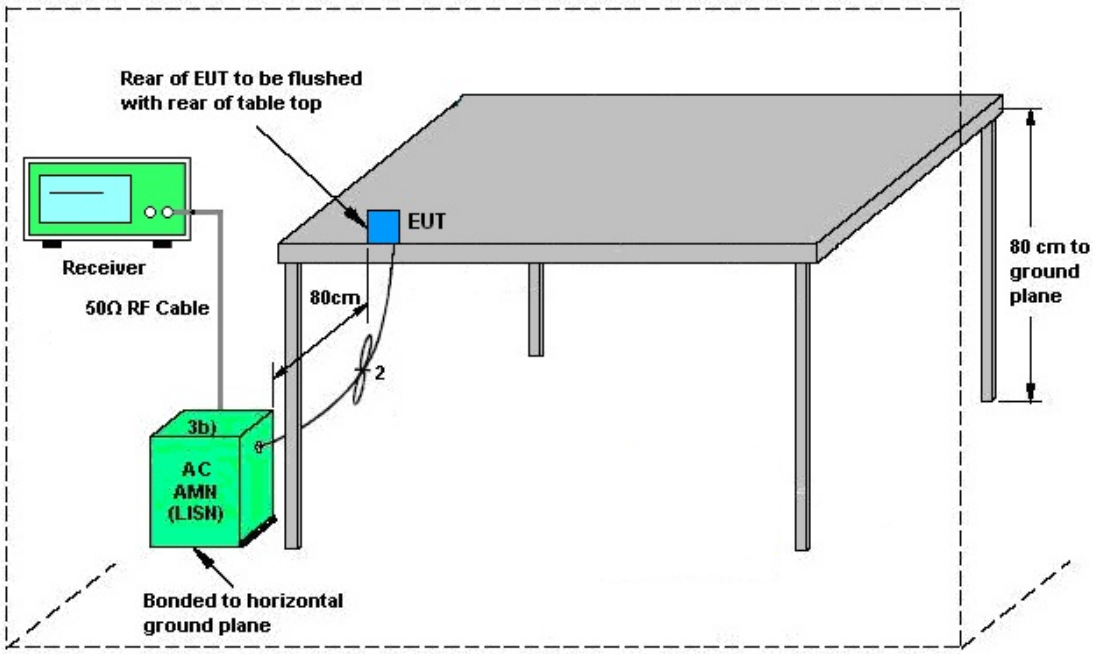
3.5.2 Measuring Instruments

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.

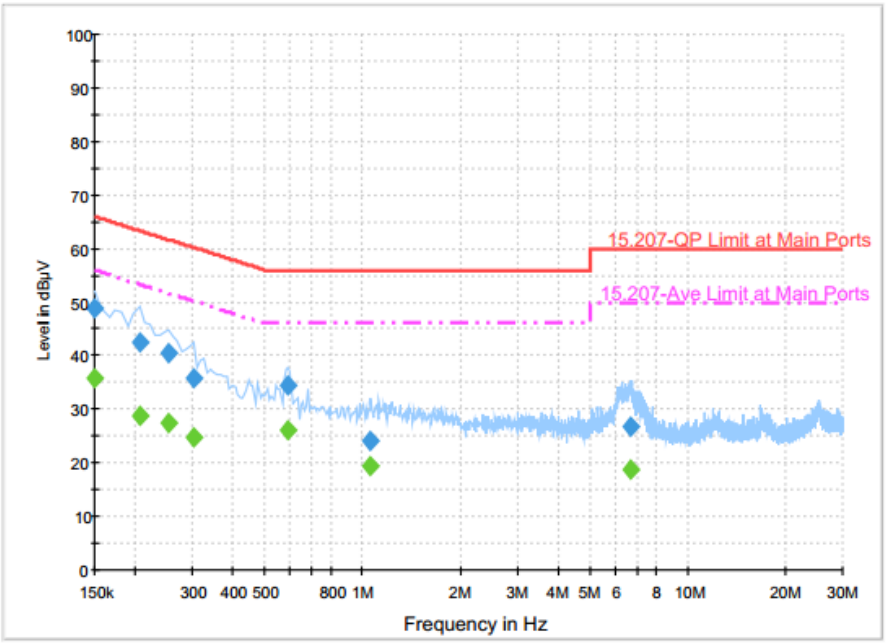
3.5.4 Test Setup



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 :**	24~25℃
Test Engineer :	Kai-Chun Chu	**Relative Humidity :**	49~50%
Test Voltage :	120Vac / 60Hz	**Phase :**	Line
Function Type :	WLAN (5GHz) Link + Bluetooth Link + MP3 + USB Cable (Charging from Adapter)		



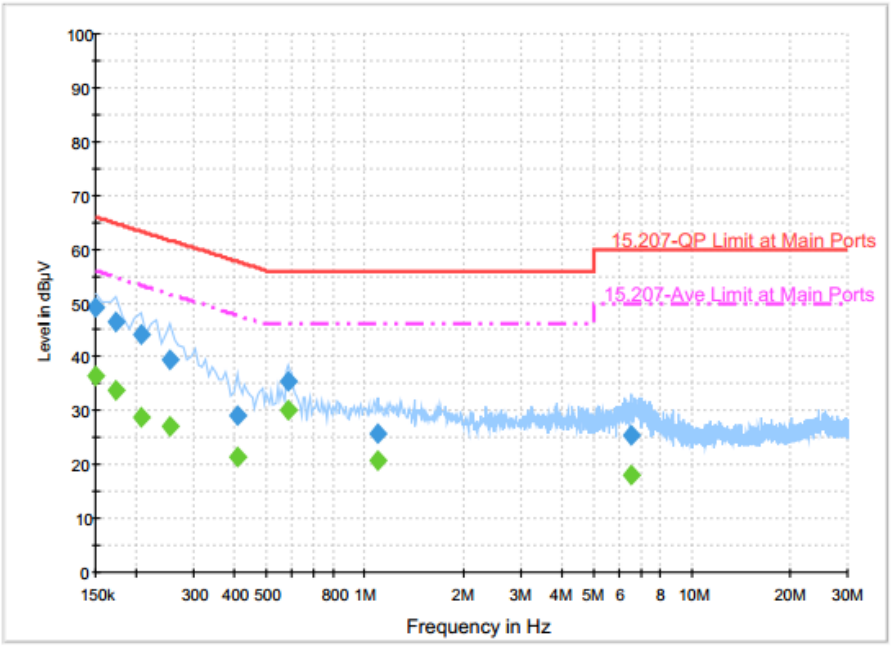
Final Result : QuasiPeak

Frequency (MHz)	QuasiPeak (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.150000	49.0	Off	L1	19.6	17.0	66.0
0.206000	42.6	Off	L1	19.6	20.8	63.4
0.254000	40.3	Off	L1	19.6	21.3	61.6
0.302000	35.9	Off	L1	19.6	24.3	60.2
0.590000	34.5	Off	L1	19.6	21.5	56.0
1.062000	24.0	Off	L1	19.7	32.0	56.0
6.686000	26.6	Off	L1	19.9	33.4	60.0

Final Result : Average

Frequency (MHz)	Average (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.150000	35.7	Off	L1	19.6	20.3	56.0
0.206000	28.8	Off	L1	19.6	24.6	53.4
0.254000	27.4	Off	L1	19.6	24.2	51.6
0.302000	24.6	Off	L1	19.6	25.6	50.2
0.590000	26.1	Off	L1	19.6	19.9	46.0
1.062000	19.5	Off	L1	19.7	26.5	46.0
6.686000	18.8	Off	L1	19.9	31.2	50.0

Test Mode :	Mode 1	**Temperature :**	24~25℃
Test Engineer :	Kai-Chun Chu	**Relative Humidity :**	49~50%
Test Voltage :	120Vac / 60Hz	**Phase :**	Neutral
Function Type :	WLAN (5GHz) Link + Bluetooth Link + MP3 + USB Cable (Charging from Adapter)		



Final Result : QuasiPeak

Frequency (MHz)	QuasiPeak (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.150000	49.0	Off	N	19.6	17.0	66.0
0.174000	46.4	Off	N	19.6	18.4	64.8
0.206000	44.3	Off	N	19.6	19.1	63.4
0.254000	39.6	Off	N	19.6	22.0	61.6
0.406000	29.1	Off	N	19.6	28.6	57.7
0.582000	35.5	Off	N	19.6	20.5	56.0
1.102000	25.7	Off	N	19.6	30.3	56.0
6.550000	25.4	Off	N	19.9	34.6	60.0

Final Result : Average

Frequency (MHz)	Average (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.150000	36.4	Off	N	19.6	19.6	56.0
0.174000	33.7	Off	N	19.6	21.1	54.8
0.206000	28.9	Off	N	19.6	24.5	53.4
0.254000	27.2	Off	N	19.6	24.4	51.6
0.406000	21.6	Off	N	19.6	26.1	47.7
0.582000	30.2	Off	N	19.6	15.8	46.0
1.102000	20.7	Off	N	19.6	25.3	46.0
6.550000	18.0	Off	N	19.9	32.0	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.

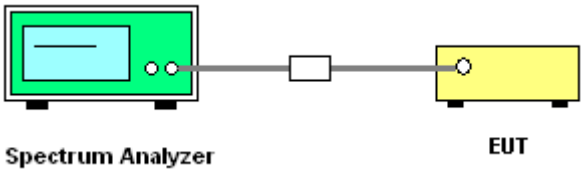
3.6.2 Measuring Instruments

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

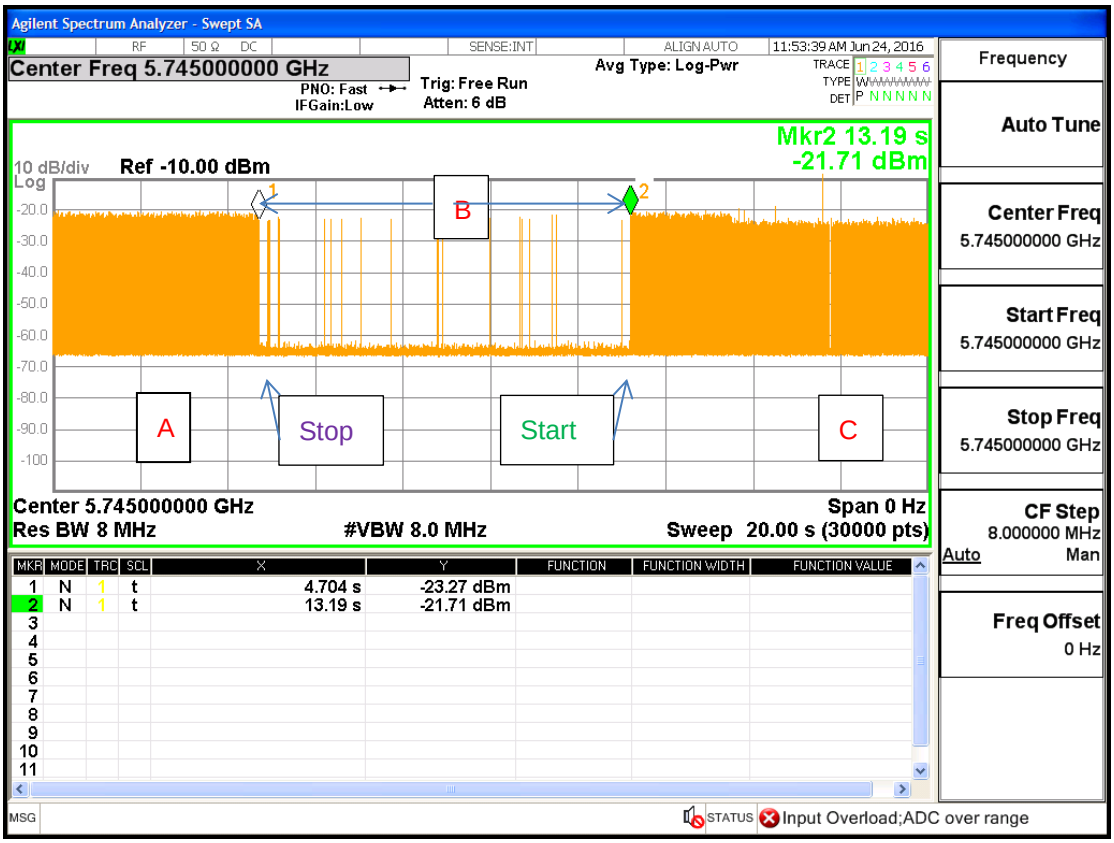
EUT is verified this characteristic during the function check of normal sample associated with an access point:

A. Information start: make EUT supply information to the access point.

B. Information stop: stop supplying information to the access point.
While the EUT is not transmitting any information, the EUT can automatically discontinue transmission and become standby mode for power saving.

C. Information start: make EUT supply information to the access point again.
The EUT can detect the controlling signal of ACK message transmitting from remote device and verify whether it shall resend or discontinue transmission.

5745MHz



Note : The control / signalling information during the period B is precluded.

3.8 Antenna Requirements

3.8.1 Standard Applicable

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

3.8.2 Antenna Anti-Replacement Construction

An embedded-in antenna design is used.

3.8.3 Antenna Gain

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

4 List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Power Meter	Anritsu	ML2495A	1132003	300MHz~40GHz	Aug. 12, 2015	Jun. 14, 2016 ~ Jun. 19, 2016	Aug. 11, 2016	Conducted (TH02-HY)
Power Sensor	Anritsu	MA2411B	1126017	300MHz~40GHz	Aug. 12, 2015	Jun. 14, 2016 ~ Jun. 19, 2016	Aug. 11, 2016	Conducted (TH02-HY)
Spectrum Analyzer	Rohde & Schwarz	FSP40	100057	9kHz-40GHz	Nov. 23, 2015	Jun. 14, 2016 ~ Jun. 19, 2016	Nov. 22, 2016	Conducted (TH02-HY)
Temperature Chamber	ESPEC	SU-241	92003713	-30℃ ~95℃	Jun. 06, 2016	Jun. 14, 2016 ~ Jun. 19, 2016	Jun. 05, 2017	Conducted (TH02-HY)
DC Power Supply	TOPWARD	3303D	740889	N/A	May. 20, 2016	Jun. 14, 2016 ~ Jun. 19, 2016	May. 19, 2017	Conducted (TH02-HY)
AC Power Source	ChainTek	APC-1000W	N/A	N/A	N/A	Jun. 29, 2016	N/A	Conduction (CO05-HY)
EMI Test Receiver	Rohde & Schwarz	ESCI 7	100724	9kHz~7GHz	Aug. 26, 2015	Jun. 29, 2016	Aug. 25, 2016	Conduction (CO05-HY)
LISN	Rohde & Schwarz	ENV216	100080	9kHz~30MHz	Dec. 02, 2015	Jun. 29, 2016	Dec. 01, 2016	Conduction (CO05-HY)
Loop Antenna	Rohde & Schwarz	HFH2-Z2	100315	9 kHz~30 MHz	Sep. 02, 2015	Jun. 24, 2016 ~ Jun. 26, 2016	Sep. 01, 2016	Radiation (03CH12-HY)
Amplifier	SONOMA	310N	187312	9kHz~1GHz	Nov. 20, 2015	Jun. 24, 2016 ~ Jun. 26, 2016	Nov. 19, 2016	Radiation (03CH12-HY)
Spectrum Analyzer	Keysight	N9010A	MY54200486	10Hz ~ 44GHZ	Sep. 24, 2015	Jun. 24, 2016 ~ Jun. 26, 2016	Sep. 23, 2016	Radiation (03CH12-HY)
Bilog Antenna	TESEQ	CBL 6111D	37059	30MHz~1GHz	Dec. 29, 2015	Jun. 24, 2016 ~ Jun. 26, 2016	Dec. 28, 2016	Radiation (03CH12-HY)
EMI Test Receiver	Rohde & Schwarz	ESU26	100390	20Hz~26.5GHz	Dec. 21, 2015	Jun. 24, 2016 ~ Jun. 26, 2016	Dec. 20, 2016	Radiation (03CH12-HY)
Preamplifier	MITEQ	TTA0204	1872107	2GHz~40GHz	Feb. 15, 2016	Jun. 24, 2016 ~ Jun. 26, 2016	Feb. 14, 2017	Radiation (03CH12-HY)
Horn Antenna	SCHWARZBECK	BBHA 9120D	9120D-1328	1GHz ~ 18GHz	Nov. 02, 2015	Jun. 24, 2016 ~ Jun. 26, 2016	Nov. 01, 2016	Radiation (03CH12-HY)
Preamplifier	MITEQ	AMF-7D-0010 1800-30-10P	1815698	1GHz~18GHz	Dec. 14, 2015	Jun. 24, 2016 ~ Jun. 26, 2016	Dec. 13, 2016	Radiation (03CH12-HY)
Antenna Mast	EMEC	AM-BS-4500-B	N/A	1m~4m	N/A	Jun. 24, 2016 ~ Jun. 26, 2016	N/A	Radiation (03CH12-HY)
Turn Table	EMEC	TT2000	N/A	0~360 Degree	N/A	Jun. 24, 2016 ~ Jun. 26, 2016	N/A	Radiation (03CH12-HY)
SHF-EHF Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA9170584	18GHz- 40GHz	Nov. 02, 2015	Jun. 24, 2016 ~ Jun. 26, 2016	Nov. 01, 2016	Radiation (03CH12-HY)

5 Uncertainty of Evaluation

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

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**2.26**

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

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**5.40**

Appendix A. Conducted Test Results

Report Number : FR631725-01E

Test Engineer:	osolemio Chang	Temperature:	21~25	°C
Test Date:	2016/6/14~2016/6/19	Relative Humidity:	51~54	%

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

Band IV													
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	99% Bandwidth (MHz)		26dB Bandwidth (MHz)		6 dB Bandwidth (MHz)		6 dB Bandwidth Min. Limit (MHz)		Pass/Fail
					Ant 1	Ant 2	Ant 1	Ant 2	Ant 1	Ant 2	Ant 1	Ant 2	
11a	6Mbps	1	149	5745	20.10	24.15	40.70	44.70	15.44	16.28	0.5	0.5	Pass
11a	6Mbps	1	157	5785	19.95	23.25	41.00	44.00	15.96	16.32	0.5	0.5	Pass
11a	6Mbps	1	165	5825	19.70	23.05	42.50	43.40	15.88	16.04	0.5	0.5	Pass
HT20	MCS0	1	149	5745	20.65	26.65	43.44	47.16	15.96	17.52	0.5	0.5	Pass
HT20	MCS0	1	157	5785	20.65	28.60	44.64	48.00	16.52	17.52	0.5	0.5	Pass
HT20	MCS0	1	165	5825	21.10	26.60	45.96	48.60	16.92	17.16	0.5	0.5	Pass
HT40	MCS0	1	151	5755	42.00	41.10	87.60	88.00	35.20	35.20	0.5	0.5	Pass
HT40	MCS0	1	159	5795	44.20	41.80	90.40	85.40	35.20	35.20	0.5	0.5	Pass

Report Number : FR631725-01E

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	0.53	0.53	18.03	19.43		30.00	30.00	4.60	4.99		Pass
11a	6Mbps	1	157	5785	0.53	0.53	17.91	19.34		30.00	30.00	4.60	4.99		Pass
11a	6Mbps	1	165	5825	0.53	0.53	17.98	19.39		30.00	30.00	4.60	4.99		Pass
HT20	MCS0	1	149	5745	0.56	0.56	18.01	19.41		30.00	30.00	4.60	4.99		Pass
HT20	MCS0	1	157	5785	0.56	0.56	17.94	19.36		30.00	30.00	4.60	4.99		Pass
HT20	MCS0	1	165	5825	0.56	0.56	17.83	19.40		30.00	30.00	4.60	4.99		Pass
HT40	MCS0	1	151	5755	1.13	1.06	18.44	18.42		30.00	30.00	4.60	4.99		Pass
HT40	MCS0	1	159	5795	1.13	1.06	18.33	18.36		30.00	30.00	4.60	4.99		Pass

Report Number : FR631725-01E

TEST RESULTS DATA
Power Spectral Density

Band IV																
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Duty Factor (dB)		10log (500kHz /RBW) Factor (dB)		Average Power Density (dBm/500kHz)			Average PSD Limit (dBm/500kHz)		DG (dBi)		Pass /Fail
					Ant 1	Ant 2	Ant 1	Ant 2	Ant 1	Ant 2	SUM	Ant 1	Ant 2	Ant 1	Ant 2	
11a	6Mbps	1	149	5745	0.53	0.53	2.22	2.22	4.64	5.53		30.00	30.00	4.60	4.99	Pass
11a	6Mbps	1	157	5785	0.53	0.53	2.22	2.22	5.09	5.55		30.00	30.00	4.60	4.99	Pass
11a	6Mbps	1	165	5825	0.53	0.53	2.22	2.22	5.06	5.99		30.00	30.00	4.60	4.99	Pass
HT20	MCS0	1	149	5745	0.56	0.56	2.22	2.22	4.44	6.25		30.00	30.00	4.60	4.99	Pass
HT20	MCS0	1	157	5785	0.56	0.56	2.22	2.22	4.71	6.66		30.00	30.00	4.60	4.99	Pass
HT20	MCS0	1	165	5825	0.56	0.56	2.22	2.22	4.79	6.45		30.00	30.00	4.60	4.99	Pass
HT40	MCS0	1	151	5755	1.13	1.06	2.22	2.22	1.47	0.92		30.00	30.00	4.60	4.99	Pass
HT40	MCS0	1	159	5795	1.13	1.06	2.22	2.22	2.07	1.26		30.00	30.00	4.60	4.99	Pass

Report Number : FR631725-01E

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	5745.050	0.050	8.70	20	4.5	
11a	6Mbps	1	149	5745	5745.000	0.000	0.00	20	5.2	
11a	6Mbps	1	149	5745	5745.050	0.050	8.70	20	5	
11a	6Mbps	1	149	5745	5745.050	0.050	8.70	0	5	
11a	6Mbps	1	149	5745	5745.050	0.050	8.70	35	5	

Appendix B. Radiated Spurious Emission

Test Engineer :	Alex Jheng , Bill Chang, and Elvis Chen	Temperature :	20~24°C
		Relative Humidity :	45~50%

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		(MHz)	(dBµV/m)	(dB)	(dBµV/m)	(dBµV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
802.11a CH 149 5745MHz		5622	60.11	-8.19	68.3	47.14	32.17	11.79	30.99	100	267	P	H
		5693	60.34	-39.8	100.14	47.26	32.27	11.82	31.01	100	267	P	H
		5718.6	67.44	-43.07	110.51	54.31	32.31	11.84	31.02	100	267	P	H
		5725	77.88	-44.42	122.3	64.75	32.31	11.84	31.02	100	267	P	H
		5746	110.67	-	-	97.5	32.34	11.86	31.03	100	267	P	H
		5746	100.43	-	-	87.26	32.34	11.86	31.03	100	267	A	H
													H
													H
		5602.6	59.87	-8.43	68.3	46.94	32.14	11.77	30.98	100	150	P	V
		5698.2	60.46	-43.51	103.97	47.38	32.27	11.82	31.01	100	150	P	V
		5719.2	69.31	-41.37	110.68	56.18	32.31	11.84	31.02	100	150	P	V
		5724.2	80.01	-40.47	120.48	66.88	32.31	11.84	31.02	100	150	P	V
		5746	112	-	-	98.83	32.34	11.86	31.03	100	150	P	V
		5746	102.03	-	-	88.86	32.34	11.86	31.03	100	150	A	V
													V
													V

WIFI Ant. 1	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11a CH 157 5785MHz		5621.2	59.76	-8.54	68.3	46.79	32.17	11.79	30.99	100	268	P	H
		5653.8	60.54	-10.58	71.12	47.54	32.22	11.79	31.01	100	268	P	H
		5706.4	60.3	-46.79	107.09	47.19	32.29	11.84	31.02	100	268	P	H
		5722.6	59.03	-57.8	116.83	45.9	32.31	11.84	31.02	100	268	P	H
		5783	107.89	-	-	94.67	32.39	11.88	31.05	100	268	P	H
		5783	99.1	-	-	85.88	32.39	11.88	31.05	100	268	A	H
		5854.2	60.29	-52.43	112.72	46.81	32.51	12.03	31.06	100	268	P	H
		5864.8	61.09	-47.06	108.15	47.48	32.51	12.17	31.07	100	268	P	H
		5922.2	60.68	-9.68	70.36	46.86	32.6	12.31	31.09	100	268	P	H
		5938	60.57	-7.73	68.3	46.75	32.6	12.31	31.09	100	268	P	H
													H
													H
		5632.4	60.18	-8.12	68.3	47.22	32.17	11.79	31	100	149	P	V
		5658.8	60.4	-14.44	74.84	47.4	32.22	11.79	31.01	100	149	P	V
		5707.4	60.32	-47.05	107.37	47.21	32.29	11.84	31.02	100	149	P	V
		5724.6	60.43	-60.96	121.39	47.3	32.31	11.84	31.02	100	149	P	V
		5787	111.12	-	-	97.88	32.41	11.88	31.05	100	149	P	V
		5787	100.91	-	-	87.67	32.41	11.88	31.05	100	149	A	V
		5852	60.42	-57.32	117.74	46.97	32.48	12.03	31.06	100	149	P	V
		5855.4	61.37	-49.42	110.79	47.89	32.51	12.03	31.06	100	149	P	V
		5882.2	61.05	-38.9	99.95	47.42	32.53	12.17	31.07	100	149	P	V
		5949.8	60.47	-7.83	68.3	46.48	32.63	12.45	31.09	100	149	P	V
													V
													V

WIFI Ant. 1	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
		5827	110.07	-	-	96.63	32.46	12.03	31.05	100	269	P	H
		5827	100.64	-	-	87.2	32.46	12.03	31.05	100	269	A	H
		5851	70.21	-49.81	120.02	56.76	32.48	12.03	31.06	100	269	P	H
		5855	64.92	-45.98	110.9	51.44	32.51	12.03	31.06	100	269	P	H
		5897.8	60.96	-27.43	88.39	47.31	32.56	12.17	31.08	100	269	P	H
		5929.4	60.69	-7.61	68.3	46.87	32.6	12.31	31.09	100	269	P	H
													H
802.11a													H
CH 165		5824	111.7	-	-	98.26	32.46	12.03	31.05	100	150	P	V
5825MHz		5824	101.96	-	-	88.52	32.46	12.03	31.05	100	150	A	V
		5850.8	73.74	-46.74	120.48	60.29	32.48	12.03	31.06	100	150	P	V
		5857.2	64.86	-45.42	110.28	51.38	32.51	12.03	31.06	100	150	P	V
		5899	61.63	-25.87	87.5	47.98	32.56	12.17	31.08	100	150	P	V
		5931.2	61.27	-7.03	68.3	47.45	32.6	12.31	31.09	100	150	P	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	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	45.82	-28.18	74	45.09	40.11	18.4	57.78	100	0	P	H
		17232	49.87	-18.43	68.3	42.22	41.65	23.14	57.14	100	0	P	H
													H
													H
		11490	48.07	-25.93	74	47.34	40.11	18.4	57.78	100	0	P	V
		17232	49.22	-19.08	68.3	41.57	41.65	23.14	57.14	100	0	P	V
													V
													V
802.11a CH 157 5785MHz		11570	47.52	-26.48	74	46.88	39.95	18.49	57.8	100	0	P	H
		17352	49.99	-18.31	68.3	42.28	42.02	23.25	57.56	100	0	P	H
													H
													H
		11570	47.13	-26.87	74	46.49	39.95	18.49	57.8	100	0	P	V
		17352	49.82	-18.48	68.3	42.11	42.02	23.25	57.56	100	0	P	V
													V
													V
802.11a CH 165 5825MHz		11650	46.7	-27.3	74	46.12	39.8	18.58	57.8	100	0	P	H
		17472	49.53	-18.77	68.3	41.76	42.39	23.36	57.98	100	0	P	H
													H
													H
		11650	46.99	-27.01	74	46.41	39.8	18.58	57.8	100	0	P	V
		17472	48.22	-20.08	68.3	40.45	42.39	23.36	57.98	100	0	P	V
													V
													V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

Band 4 5725~5850MHz

WIFI 802.11n HT20 (Band Edge @ 3m)

WIFI Ant. 1	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
		5645.4	60.25	-8.05	68.3	47.27	32.19	11.79	31	100	266	P	H
		5673.2	60.67	-24.84	85.51	47.62	32.24	11.82	31.01	100	266	P	H
		5719.4	68.89	-41.84	110.73	55.76	32.31	11.84	31.02	100	266	P	H
		5724.6	77.38	-44.01	121.39	64.25	32.31	11.84	31.02	100	266	P	H
		5746	109.53	-	-	96.36	32.34	11.86	31.03	100	266	P	H
		5746	100.32	-	-	87.15	32.34	11.86	31.03	100	266	A	H
802.11n													H
HT20													H
CH 149		5649.8	59.91	-8.39	68.3	46.9	32.22	11.79	31	100	148	P	V
5745MHz		5692.6	61.65	-38.19	99.84	48.57	32.27	11.82	31.01	100	148	P	V
		5717.6	72.92	-37.31	110.23	59.79	32.31	11.84	31.02	100	148	P	V
		5725	82.57	-39.73	122.3	69.44	32.31	11.84	31.02	100	148	P	V
		5746	110.05	-	-	96.88	32.34	11.86	31.03	100	148	P	V
		5746	100.68	-	-	87.51	32.34	11.86	31.03	100	148	A	V
													V
													V

WIFI Ant. 1	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
		5640.6	59.44	-8.86	68.3	46.46	32.19	11.79	31	100	266	P	H
		5684.6	60.45	-33.49	93.94	47.37	32.27	11.82	31.01	100	266	P	H
		5712	60.8	-47.86	108.66	47.69	32.29	11.84	31.02	100	266	P	H
		5723.8	61.89	-57.67	119.56	48.76	32.31	11.84	31.02	100	266	P	H
		5787	108.67	-	-	95.43	32.41	11.88	31.05	100	266	P	H
		5787	99.48	-	-	86.24	32.41	11.88	31.05	100	266	A	H
		5854.8	60.67	-50.69	111.36	47.19	32.51	12.03	31.06	100	266	P	H
		5865.2	60.28	-47.76	108.04	46.67	32.51	12.17	31.07	100	266	P	H
		5913.2	60.11	-16.89	77	46.31	32.58	12.31	31.09	100	266	P	H
		5930.8	60.61	-7.69	68.3	46.79	32.6	12.31	31.09	100	266	P	H
802.11n													H
HT20													H
CH 157		5616.2	59.78	-8.52	68.3	46.83	32.17	11.77	30.99	100	150	P	V
5785MHz		5684.8	60.25	-33.84	94.09	47.17	32.27	11.82	31.01	100	150	P	V
		5715	60.99	-48.51	109.5	47.88	32.29	11.84	31.02	100	150	P	V
		5722.2	61.06	-54.86	115.92	47.93	32.31	11.84	31.02	100	150	P	V
		5783	109.69	-	-	96.47	32.39	11.88	31.05	100	150	P	V
		5783	101.06	-	-	87.84	32.39	11.88	31.05	100	150	A	V
		5853.4	60.72	-53.83	114.55	47.27	32.48	12.03	31.06	100	150	P	V
		5865.2	61.45	-46.59	108.04	47.84	32.51	12.17	31.07	100	150	P	V
		5922.8	60.69	-9.23	69.92	46.87	32.6	12.31	31.09	100	150	P	V
		5935	60.35	-7.95	68.3	46.53	32.6	12.31	31.09	100	150	P	V
													V
													V

WIFI Ant. 1	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11n HT20 CH 165 5825MHz		5824	109.19	-	-	95.75	32.46	12.03	31.05	100	267	P	H
		5824	99.72	-	-	86.28	32.46	12.03	31.05	100	267	A	H
		5851	68.82	-51.2	120.02	55.37	32.48	12.03	31.06	100	267	P	H
		5859	60.65	-49.13	109.78	47.18	32.51	12.03	31.07	100	267	P	H
		5899.4	61.32	-25.88	87.2	47.67	32.56	12.17	31.08	100	267	P	H
		5930.6	60.27	-8.03	68.3	46.45	32.6	12.31	31.09	100	267	P	H
													H
													H
		5824	110.96	-	-	97.52	32.46	12.03	31.05	100	150	P	V
		5824	99.66	-	-	86.22	32.46	12.03	31.05	100	150	A	V
		5850	67.95	-54.35	122.3	54.5	32.48	12.03	31.06	100	150	P	V
		5858.8	64.04	-45.79	109.83	50.57	32.51	12.03	31.07	100	150	P	V
		5888	62.06	-33.59	95.65	48.41	32.56	12.17	31.08	100	150	P	V
		5933.6	61.07	-7.23	68.3	47.25	32.6	12.31	31.09	100	150	P	V
													V
													V

Remark

1. No other spurious found.
2. All results are PASS against Peak and Average limit line.

Band 4 5725~5850MHz

WIFI 802.11n HT20 (Harmonic @ 3m)

WIFI Ant. 1	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11n HT20 CH 149 5745MHz		11490	46.7	-27.3	74	45.97	40.11	18.4	57.78	100	0	P	H
		17232	48.81	-19.49	68.3	41.16	41.65	23.14	57.14	100	0	P	H
													H
													H
		11490	47	-27	74	46.27	40.11	18.4	57.78	100	0	P	V
		17232	49.35	-18.95	68.3	41.7	41.65	23.14	57.14	100	0	P	V
													V
													V
802.11n HT20 CH 157 5785MHz		11570	47.91	-26.09	74	47.27	39.95	18.49	57.8	100	0	P	H
		17355	49.86	-18.44	68.3	42.15	42.02	23.25	57.56	100	0	P	H
													H
													H
		11570	47.66	-26.34	74	47.02	39.95	18.49	57.8	100	0	P	V
		17355	49.64	-18.66	68.3	41.93	42.02	23.25	57.56	100	0	P	V
													V
													V
802.11n HT20 CH 165 5825MHz		11650	46.56	-27.44	74	45.98	39.8	18.58	57.8	100	0	P	H
		17475	48.85	-19.45	68.3	41.08	42.39	23.36	57.98	100	0	P	H
													H
													H
		11650	46.36	-27.64	74	45.78	39.8	18.58	57.8	100	0	P	V
		17475	49.47	-18.83	68.3	41.7	42.39	23.36	57.98	100	0	P	V
													V
													V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

Band 4 5725~5850MHz

WIFI 802.11n HT40 (Band Edge @ 3m)

WIFI Ant. 1	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
		5621.2	59.63	-8.67	68.3	46.66	32.17	11.79	30.99	100	266	P	H
		5699.6	70.07	-34.94	105.01	56.99	32.27	11.82	31.01	100	266	P	H
		5719.8	82.65	-28.19	110.84	69.52	32.31	11.84	31.02	100	266	P	H
		5720.8	83	-29.72	112.72	69.87	32.31	11.84	31.02	100	266	P	H
		5757	107.82	-	-	94.64	32.36	11.86	31.04	100	266	P	H
		5757	97.83	-	-	84.65	32.36	11.86	31.04	100	266	A	H
		5853.4	59.69	-54.86	114.55	46.24	32.48	12.03	31.06	100	266	P	H
		5870.2	60.54	-46.1	106.64	46.93	32.51	12.17	31.07	100	266	P	H
		5898.8	60.23	-27.42	87.65	46.58	32.56	12.17	31.08	100	266	P	H
		5933.8	60.97	-7.33	68.3	47.15	32.6	12.31	31.09	100	266	P	H
802.11n													H
HT40													H
CH 151		5603	59.97	-8.33	68.3	47.05	32.14	11.77	30.99	100	150	P	V
5755MHz		5699	70.3	-34.26	104.56	57.22	32.27	11.82	31.01	100	150	P	V
		5719.2	83.63	-27.05	110.68	70.5	32.31	11.84	31.02	100	150	P	V
		5724.8	85.5	-36.34	121.84	72.37	32.31	11.84	31.02	100	150	P	V
		5757	109.15	-	-	95.97	32.36	11.86	31.04	100	150	P	V
		5757	99.08	-	-	85.9	32.36	11.86	31.04	100	150	A	V
		5850.4	63.15	-58.24	121.39	49.7	32.48	12.03	31.06	100	150	P	V
		5874.4	59.73	-45.74	105.47	46.1	32.53	12.17	31.07	100	150	P	V
		5905	60.76	-22.3	83.06	46.95	32.58	12.31	31.08	100	150	P	V
		5949.8	60.4	-7.9	68.3	46.41	32.63	12.45	31.09	100	150	P	V
													V
													V

WIFI Ant. 1	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
		5616.4	59.71	-8.59	68.3	46.76	32.17	11.77	30.99	100	266	P	H
		5692.4	59.67	-40.03	99.7	46.59	32.27	11.82	31.01	100	266	P	H
		5716.6	62.96	-46.99	109.95	49.85	32.29	11.84	31.02	100	266	P	H
		5722.4	62.95	-53.42	116.37	49.82	32.31	11.84	31.02	100	266	P	H
		5797	106.1	-	-	92.86	32.41	11.88	31.05	100	266	P	H
		5797	96.59	-	-	83.35	32.41	11.88	31.05	100	266	A	H
		5850.4	65.25	-56.14	121.39	51.8	32.48	12.03	31.06	100	266	P	H
		5861.6	63.46	-45.59	109.05	49.85	32.51	12.17	31.07	100	266	P	H
		5887.4	61.56	-34.53	96.09	47.94	32.53	12.17	31.08	100	266	P	H
		5934.2	61.06	-7.24	68.3	47.24	32.6	12.31	31.09	100	266	P	H
802.11n													H
HT40													H
CH 159		5648	59.51	-8.79	68.3	46.53	32.19	11.79	31	100	150	P	V
5795MHz		5654.6	60.26	-11.46	71.72	47.26	32.22	11.79	31.01	100	150	P	V
		5720	61.69	-49.21	110.9	48.56	32.31	11.84	31.02	100	150	P	V
		5722.8	63.48	-53.8	117.28	50.35	32.31	11.84	31.02	100	150	P	V
		5797	107.71	-	-	94.47	32.41	11.88	31.05	100	150	P	V
		5797	98.46	-	-	85.22	32.41	11.88	31.05	100	150	A	V
		5850.2	66.91	-54.93	121.84	53.46	32.48	12.03	31.06	100	150	P	V
		5866.4	64.76	-42.95	107.71	51.15	32.51	12.17	31.07	100	150	P	V
		5884.2	61.37	-37.1	98.47	47.75	32.53	12.17	31.08	100	150	P	V
		5935.6	60.15	-8.15	68.3	46.33	32.6	12.31	31.09	100	150	P	V
													V
													V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

Band 4 5725~5850MHz

WIFI 802.11n HT40 (Harmonic @ 3m)

WIFI Ant. 1	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11n HT40 CH 151 5755MHz		11510	45.82	-28.18	74	45.07	40.1	18.45	57.8	100	0	P	H
		17265	48.38	-19.92	68.3	40.72	41.75	23.17	57.26	100	0	P	H
													H
													H
		11510	47.81	-26.19	74	47.06	40.1	18.45	57.8	100	0	P	V
		17265	48.48	-19.82	68.3	40.82	41.75	23.17	57.26	100	0	P	V
													V
													V
802.11n HT40 CH 159 5795MHz		11590	46.83	-27.17	74	46.18	39.91	18.54	57.8	100	0	P	H
		17385	48.89	-19.41	68.3	41.15	42.13	23.29	57.68	100	0	P	H
													H
													H
		11590	46.8	-27.2	74	46.15	39.91	18.54	57.8	100	0	P	V
		17385	49.04	-19.26	68.3	41.3	42.13	23.29	57.68	100	0	P	V
													V
													V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

Band 4 5725~5850MHz

Emission below 1GHz

5GHz WIFI 802.11a (LF @ 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		(MHz)	(dBµV/m)	(dB)	(dBµV/m)	(dBµV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
5GHz 802.11a LF		60.51	30.02	-9.98	40	49.61	11.8	1.06	32.45			P	H
		109.38	36.93	-6.57	43.5	50.83	17.1	1.43	32.43			P	H
		127.2	37.94	-5.56	43.5	51.05	17.88	1.43	32.42	100	99	P	H
		594	30.5	-15.5	46	34.12	25.28	3.5	32.4			P	H
		735.4	34.76	-11.24	46	35.96	27.25	3.89	32.34			P	H
		958	38.08	-7.92	46	34.19	30.2	4.75	31.06			P	H
													H
													H
													H
													H
													H
													H
		56.19	31.97	-8.03	40	50.61	13.04	0.78	32.46	100	194	QP	V
		56.19	39.32	-0.68	40	57.96	13.04	0.78	32.46	100	194	P	V
		109.38	34.73	-8.77	43.5	48.63	17.1	1.43	32.43			P	V
		122.61	32.89	-10.61	43.5	46.21	17.68	1.43	32.43			P	V
		651.4	32.18	-13.82	46	34.96	26.02	3.61	32.41			P	V
		838.3	35.88	-10.12	46	35.15	28.41	4.28	31.96			P	V
		927.9	37.36	-8.64	46	34.38	29.7	4.6	31.32			P	V
													V
													V
													V
													V
													V
Remark	1. No other spurious found. 2. All results are PASS against limit line.												

Band 4 - 5725~5850MHz

WIFI 802.11a (Band Edge @ 3m)

WIFI Ant. 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		5612.4	59.1	-9.2	68.3	46.18	32.14	11.77	30.99	100	76	P	H
		5699.6	62.67	-42.34	105.01	49.59	32.27	11.82	31.01	100	76	P	H
		5719.4	78.48	-32.25	110.73	65.35	32.31	11.84	31.02	100	76	P	H
		5725	83.76	-38.54	122.3	70.63	32.31	11.84	31.02	100	76	P	H
		5746	111.47	-	-	98.3	32.34	11.86	31.03	100	76	P	H
		5746	102.53	-	-	89.36	32.34	11.86	31.03	100	76	A	H
													H
													H
		5636.8	59.95	-8.35	68.3	46.97	32.19	11.79	31	100	305	P	V
		5700	65.2	-40.1	105.3	52.12	32.27	11.82	31.01	100	305	P	V
		5717	80.48	-29.58	110.06	67.37	32.29	11.84	31.02	100	305	P	V
		5725	87.89	-34.41	122.3	74.76	32.31	11.84	31.02	100	305	P	V
		5747	113.42	-	-	100.25	32.34	11.86	31.03	100	305	P	V
		5747	104.79	-	-	91.62	32.34	11.86	31.03	100	305	A	V
													V
													V

WIFI Ant. 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		5637	60.2	-8.1	68.3	47.22	32.19	11.79	31	100	76	P	H
		5685.6	60.53	-34.15	94.68	47.45	32.27	11.82	31.01	100	76	P	H
		5718.8	60.34	-50.22	110.56	47.21	32.31	11.84	31.02	100	76	P	H
		5724.6	59.92	-61.47	121.39	46.79	32.31	11.84	31.02	100	76	P	H
		5783	109.93	-	-	96.71	32.39	11.88	31.05	100	76	P	H
		5783	100.77	-	-	87.55	32.39	11.88	31.05	100	76	A	H
		5851.6	60.73	-57.92	118.65	47.28	32.48	12.03	31.06	100	76	P	H
		5874.6	60.73	-44.68	105.41	47.1	32.53	12.17	31.07	100	76	P	H
		5883.2	60.45	-38.76	99.21	46.82	32.53	12.17	31.07	100	76	P	H
		5936	61.41	-6.89	68.3	47.59	32.6	12.31	31.09	100	76	P	H
													H
													H
		5612.6	59.75	-8.55	68.3	46.83	32.14	11.77	30.99	100	306	P	V
		5691.6	60.07	-39.04	99.11	46.99	32.27	11.82	31.01	100	306	P	V
		5702.6	60.35	-45.68	106.03	47.23	32.29	11.84	31.01	100	306	P	V
		5721.6	60.84	-53.71	114.55	47.71	32.31	11.84	31.02	100	306	P	V
		5783	111.89	-	-	98.67	32.39	11.88	31.05	100	306	P	V
		5783	103.46	-	-	90.24	32.39	11.88	31.05	100	306	A	V
		5855	60.94	-49.96	110.9	47.46	32.51	12.03	31.06	100	306	P	V
		5855.8	61.34	-49.34	110.68	47.86	32.51	12.03	31.06	100	306	P	V
		5877	61.9	-41.91	103.81	48.27	32.53	12.17	31.07	100	306	P	V
		5926.6	60.88	-7.42	68.3	47.06	32.6	12.31	31.09	100	306	P	V
													V
													V

WIFI Ant. 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)
		5825	110.59	-	-	97.15	32.46	12.03	31.05	100	76	P	H
		5825	101.48	-	-	88.04	32.46	12.03	31.05	100	76	A	H
		5850.2	75.69	-46.15	121.84	62.24	32.48	12.03	31.06	100	76	P	H
		5855.4	72.88	-37.91	110.79	59.4	32.51	12.03	31.06	100	76	P	H
		5878.4	61.06	-41.71	102.77	47.43	32.53	12.17	31.07	100	76	P	H
		5935.8	61.18	-7.12	68.3	47.36	32.6	12.31	31.09	100	76	P	H
													H
802.11a													H
CH 165		5825	112.41	-	-	98.97	32.46	12.03	31.05	100	306	P	V
5825MHz		5825	103.44	-	-	90	32.46	12.03	31.05	100	306	A	V
		5850.2	78.15	-43.69	121.84	64.7	32.48	12.03	31.06	100	306	P	V
		5855	74.3	-36.6	110.9	60.82	32.51	12.03	31.06	100	306	P	V
		5875.8	61.69	-43.02	104.71	48.06	32.53	12.17	31.07	100	306	P	V
		5946.2	60.45	-7.85	68.3	46.46	32.63	12.45	31.09	100	306	P	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. 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	47.03	-26.97	74	46.3	40.11	18.4	57.78	100	0	P	H
		17235	50.61	-17.69	68.3	42.96	41.65	23.14	57.14	100	0	P	H
													H
													H
		11490	47.29	-26.71	74	46.56	40.11	18.4	57.78	100	0	P	V
		17235	49.74	-18.56	68.3	42.09	41.65	23.14	57.14	100	0	P	V
													V
													V
802.11a CH 157 5785MHz		11570	47.6	-26.4	74	46.96	39.95	18.49	57.8	100	0	P	H
		17355	51.56	-16.74	68.3	43.85	42.02	23.25	57.56	100	0	P	H
													H
													H
		11570	47.79	-26.21	74	47.15	39.95	18.49	57.8	100	0	P	V
		17355	49.68	-18.62	68.3	41.97	42.02	23.25	57.56	100	0	P	V
													V
													V
802.11a CH 165 5825MHz		11650	48.41	-25.59	74	47.83	39.8	18.58	57.8	100	0	P	H
		17475	49.96	-18.34	68.3	42.19	42.39	23.36	57.98	100	0	P	H
													H
													H
		11650	47.56	-26.44	74	46.98	39.8	18.58	57.8	100	0	P	V
		17475	49.3	-19	68.3	41.53	42.39	23.36	57.98	100	0	P	V
													V
													V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

Band 4 5725~5850MHz

WIFI 802.11n HT20 (Band Edge @ 3m)

WIFI Ant. 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)
		5646.8	59.6	-8.7	68.3	46.62	32.19	11.79	31	100	76	P	H
		5693	62.51	-37.63	100.14	49.43	32.27	11.82	31.01	100	76	P	H
		5719.4	78.24	-32.49	110.73	65.11	32.31	11.84	31.02	100	76	P	H
		5724.6	87.82	-33.57	121.39	74.69	32.31	11.84	31.02	100	76	P	H
		5745	112.09	-	-	98.92	32.34	11.86	31.03	100	76	P	H
		5745	102	-	-	88.83	32.34	11.86	31.03	100	76	A	H
802.11n													H
HT20													H
CH 149		5623	60.49	-7.81	68.3	47.52	32.17	11.79	30.99	100	306	P	V
5745MHz		5697.6	68.65	-34.88	103.53	55.57	32.27	11.82	31.01	100	306	P	V
		5717	80.46	-29.6	110.06	67.35	32.29	11.84	31.02	100	306	P	V
		5723.8	88.94	-30.62	119.56	75.81	32.31	11.84	31.02	100	306	P	V
		5745	112.59	-	-	99.42	32.34	11.86	31.03	100	306	P	V
		5745	104.13	-	-	90.96	32.34	11.86	31.03	100	306	A	V
													V
													V

WIFI Ant. 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)
		5607.8	59.75	-8.55	68.3	46.83	32.14	11.77	30.99	100	75	P	H
		5680.4	60.12	-30.71	90.83	47.07	32.24	11.82	31.01	100	75	P	H
		5711	60.03	-48.35	108.38	46.92	32.29	11.84	31.02	100	75	P	H
		5721.6	59.97	-54.58	114.55	46.84	32.31	11.84	31.02	100	75	P	H
		5785	109.8	-	-	96.58	32.39	11.88	31.05	100	75	P	H
		5785	101.21	-	-	87.99	32.39	11.88	31.05	100	75	A	H
		5852.4	60.72	-56.11	116.83	47.27	32.48	12.03	31.06	100	75	P	H
		5865.8	61.06	-46.81	107.87	47.45	32.51	12.17	31.07	100	75	P	H
		5913.4	60.11	-16.75	76.86	46.31	32.58	12.31	31.09	100	75	P	H
		5939.2	61.7	-6.6	68.3	47.85	32.63	12.31	31.09	100	75	P	H
802.11n													H
HT20													H
CH 157		5609.6	59.97	-8.33	68.3	47.05	32.14	11.77	30.99	100	306	P	V
5785MHz		5699.4	60.79	-44.07	104.86	47.71	32.27	11.82	31.01	100	306	P	V
		5711.8	60.61	-48	108.61	47.5	32.29	11.84	31.02	100	306	P	V
		5723.4	60.31	-58.34	118.65	47.18	32.31	11.84	31.02	100	306	P	V
		5785	111.82	-	-	98.6	32.39	11.88	31.05	100	306	P	V
		5785	103.46	-	-	90.24	32.39	11.88	31.05	100	306	A	V
		5852.6	61.01	-55.36	116.37	47.56	32.48	12.03	31.06	100	306	P	V
		5855.8	61.14	-49.54	110.68	47.66	32.51	12.03	31.06	100	306	P	V
		5888.2	60.86	-34.64	95.5	47.21	32.56	12.17	31.08	100	306	P	V
		5934.2	59.91	-8.39	68.3	46.09	32.6	12.31	31.09	100	306	P	V
													V
													V

WIFI Ant. 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)
		5825	109.84	-	-	96.4	32.46	12.03	31.05	100	75	P	H
		5825	101.37	-	-	87.93	32.46	12.03	31.05	100	75	A	H
		5852.8	79.48	-36.44	115.92	66.03	32.48	12.03	31.06	100	75	P	H
		5856.2	75.2	-35.36	110.56	61.72	32.51	12.03	31.06	100	75	P	H
		5879	62.12	-40.21	102.33	48.49	32.53	12.17	31.07	100	75	P	H
		5943	60.6	-7.7	68.3	46.61	32.63	12.45	31.09	100	75	P	H
802.11n													H
HT20													H
CH 165		5825	112.63	-	-	99.19	32.46	12.03	31.05	100	306	P	V
5825MHz		5825	103.37	-	-	89.93	32.46	12.03	31.05	100	306	A	V
		5851	80.78	-39.24	120.02	67.33	32.48	12.03	31.06	100	306	P	V
		5855.6	74.49	-36.24	110.73	61.01	32.51	12.03	31.06	100	306	P	V
		5876	61.94	-42.62	104.56	48.31	32.53	12.17	31.07	100	306	P	V
		5949.4	60.54	-7.76	68.3	46.55	32.63	12.45	31.09	100	306	P	V
													V
													V

Remark

1. No other spurious found.
2. All results are PASS against Peak and Average limit line.

Band 4 5725~5850MHz

WIFI 802.11n HT20 (Harmonic @ 3m)

WIFI Ant. 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	46.18	-27.82	74	45.45	40.11	18.4	57.78	100	0	P	H
		17235	50.51	-17.79	68.3	42.86	41.65	23.14	57.14	100	0	P	H
													H
													H
		11490	47.09	-26.91	74	46.36	40.11	18.4	57.78	100	0	P	V
		17235	49.94	-18.36	68.3	42.29	41.65	23.14	57.14	100	0	P	V
													V
													V
802.11n HT20 CH 157 5785MHz		11570	47.7	-26.3	74	47.06	39.95	18.49	57.8	100	0	P	H
		17355	50.18	-18.12	68.3	42.47	42.02	23.25	57.56	100	0	P	H
													H
													H
		11570	48.09	-25.91	74	47.45	39.95	18.49	57.8	100	0	P	V
		17355	49.63	-18.67	68.3	41.92	42.02	23.25	57.56	100	0	P	V
													V
													V
802.11n HT20 CH 165 5825MHz		11650	47.39	-26.61	74	46.81	39.8	18.58	57.8	100	0	P	H
		17475	49.63	-18.67	68.3	41.86	42.39	23.36	57.98	100	0	P	H
													H
													H
		11650	47.02	-26.98	74	46.44	39.8	18.58	57.8	100	0	P	V
		17475	49.71	-18.59	68.3	41.94	42.39	23.36	57.98	100	0	P	V
													V
													V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

Band 4 5725~5850MHz

WIFI 802.11n HT40 (Band Edge @ 3m)

WIFI Ant. 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)
		5617	59.65	-8.65	68.3	46.7	32.17	11.77	30.99	100	76	P	H
		5700	67.44	-37.86	105.3	54.36	32.27	11.82	31.01	100	76	P	H
		5719.6	81.2	-29.59	110.79	68.07	32.31	11.84	31.02	100	76	P	H
		5724.8	81.74	-40.1	121.84	68.61	32.31	11.84	31.02	100	76	P	H
		5755	106.66	-	-	93.47	32.36	11.86	31.03	100	76	P	H
		5755	97.4	-	-	84.21	32.36	11.86	31.03	100	76	A	H
		5850.8	59.66	-60.82	120.48	46.21	32.48	12.03	31.06	100	76	P	H
		5869.8	59.94	-46.81	106.75	46.33	32.51	12.17	31.07	100	76	P	H
		5915.4	60.25	-15.13	75.38	46.45	32.58	12.31	31.09	100	76	P	H
		5947.6	60.46	-7.84	68.3	46.47	32.63	12.45	31.09	100	76	P	H
802.11n													H
HT40													H
CH 151		5611	60.14	-8.16	68.3	47.22	32.14	11.77	30.99	100	305	P	V
5755MHz		5699	71.17	-33.39	104.56	58.09	32.27	11.82	31.01	100	305	P	V
		5719.4	83.52	-27.21	110.73	70.39	32.31	11.84	31.02	100	305	P	V
		5724.4	85.33	-35.6	120.93	72.2	32.31	11.84	31.02	100	305	P	V
		5755	109.38	-	-	96.19	32.36	11.86	31.03	100	305	P	V
		5755	100.03	-	-	86.84	32.36	11.86	31.03	100	305	A	V
		5851	62.61	-57.41	120.02	49.16	32.48	12.03	31.06	100	305	P	V
		5871.6	60.28	-45.97	106.25	46.65	32.53	12.17	31.07	100	305	P	V
		5896	61.35	-28.37	89.72	47.7	32.56	12.17	31.08	100	305	P	V
		5940.8	60.81	-7.49	68.3	46.82	32.63	12.45	31.09	100	305	P	V
													V
													V

WIFI Ant. 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)
		5629.8	59.53	-8.77	68.3	46.57	32.17	11.79	31	100	76	P	H
		5684.6	59.91	-34.03	93.94	46.83	32.27	11.82	31.01	100	76	P	H
		5703.2	63.11	-43.09	106.2	49.99	32.29	11.84	31.01	100	76	P	H
		5725	63.05	-59.25	122.3	49.92	32.31	11.84	31.02	100	76	P	H
		5795	105.92	-	-	92.68	32.41	11.88	31.05	100	76	P	H
		5795	97.45	-	-	84.21	32.41	11.88	31.05	100	76	A	H
		5851.6	70.43	-48.22	118.65	56.98	32.48	12.03	31.06	100	76	P	H
		5866.2	68.4	-39.36	107.76	54.79	32.51	12.17	31.07	100	76	P	H
		5876.8	62.8	-41.16	103.96	49.17	32.53	12.17	31.07	100	76	P	H
		5940.8	61	-7.3	68.3	47.01	32.63	12.45	31.09	100	76	P	H
802.11n													H
HT40													H
CH 159		5645.4	60.34	-7.96	68.3	47.36	32.19	11.79	31	100	306	P	V
5795MHz		5697.8	61.86	-41.82	103.68	48.78	32.27	11.82	31.01	100	306	P	V
		5712.4	63	-45.77	108.77	49.89	32.29	11.84	31.02	100	306	P	V
		5721.2	65.89	-47.75	113.64	52.76	32.31	11.84	31.02	100	306	P	V
		5795	107.88	-	-	94.64	32.41	11.88	31.05	100	306	P	V
		5795	99.65	-	-	86.41	32.41	11.88	31.05	100	306	A	V
		5850.2	71.12	-50.72	121.84	57.67	32.48	12.03	31.06	100	306	P	V
		5857	71.55	-38.79	110.34	58.07	32.51	12.03	31.06	100	306	P	V
		5881	65.16	-35.68	100.84	51.53	32.53	12.17	31.07	100	306	P	V
		5949	60.94	-7.36	68.3	46.95	32.63	12.45	31.09	100	306	P	V
													V
													V

Remark

1. No other spurious found.
2. All results are PASS against Peak and Average limit line.

Band 4 5725~5850MHz

WIFI 802.11n HT40 (Harmonic @ 3m)

WIFI Ant. 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	46.29	-27.71	74	45.54	40.1	18.45	57.8	100	0	P	H
		17265	48.49	-19.81	68.3	40.83	41.75	23.17	57.26	100	0	P	H
													H
													H
		11510	46.3	-27.7	74	45.55	40.1	18.45	57.8	100	0	P	V
		17265	49.24	-19.06	68.3	41.58	41.75	23.17	57.26	100	0	P	V
													V
													V
802.11n HT40 CH 159 5795MHz		11590	47.18	-26.82	74	46.53	39.91	18.54	57.8	100	0	P	H
		17385	49.22	-19.08	68.3	41.48	42.13	23.29	57.68	100	0	P	H
													H
													H
		11590	47.09	-26.91	74	46.44	39.91	18.54	57.8	100	0	P	V
		17385	48.99	-19.31	68.3	41.25	42.13	23.29	57.68	100	0	P	V
													V
													V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

Band 4 5725~5850MHz

Emission below 1GHz

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

WIFI Ant.	Note	Frequency	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Peak Avg.	Pol.
2		(MHz)	(dBµV/m)	(dB)	(dBµV/m)	(dBµV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
5GHz 802.11n HT20 LF		57.81	27.41	-12.59	40	46.67	12.42	0.78	32.46			P	H
		109.38	32.15	-11.35	43.5	46.05	17.1	1.43	32.43			P	H
		127.47	32.98	-10.52	43.5	46.09	17.88	1.43	32.42	100	198	P	H
		564.6	28.53	-17.47	46	32.87	24.76	3.3	32.4			P	H
		671.7	30.14	-15.86	46	32.55	26.18	3.82	32.41			P	H
		891.5	34.55	-11.45	46	32.88	28.85	4.45	31.63			P	H
													H
													H
													H
													H
													H
													H
		58.35	31.86	-8.14	40	51.12	12.42	0.78	32.46	100	133	QP	V
		58.35	39.41	-0.59	40	58.67	12.42	0.78	32.46	100	133	P	V
		99.93	27.91	-15.59	43.5	43.28	16	1.06	32.43			P	V
		133.41	31.88	-11.62	43.5	44.95	17.92	1.43	32.42			P	V
													V
													V
													V
													V
													V
													V
													V
													V
Remark	1. No other spurious found. 2. 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.	
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)

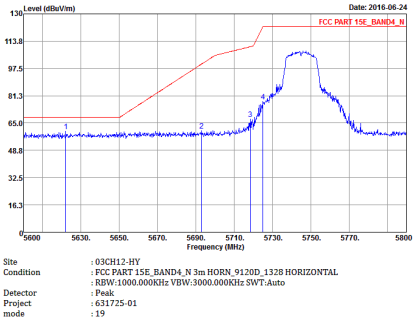
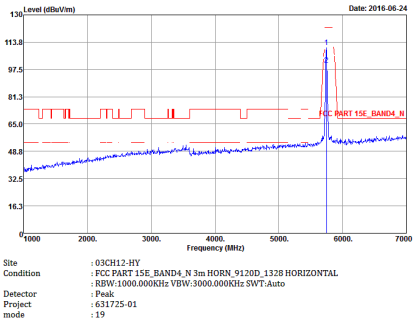
Both peak and average measured complies with the limit line, so test result is "PASS".

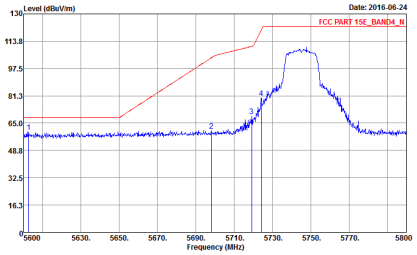
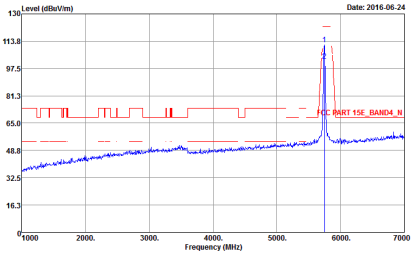
Appendix C. Radiated Spurious Emission Plots

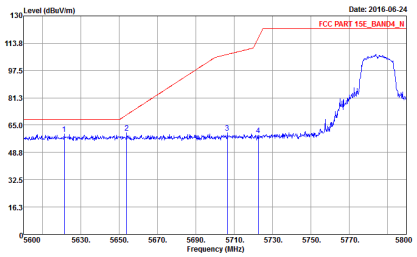
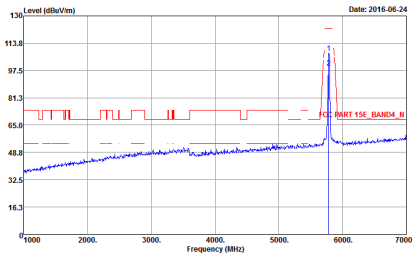
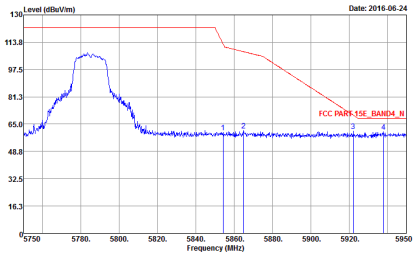
Test Engineer :	Alex Jheng , Bill Chang, and Elvis Chen	Temperature :	20~24°C
		Relative Humidity :	45~50%

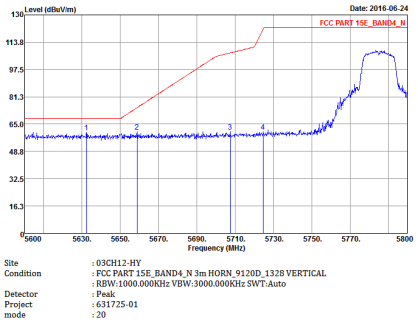
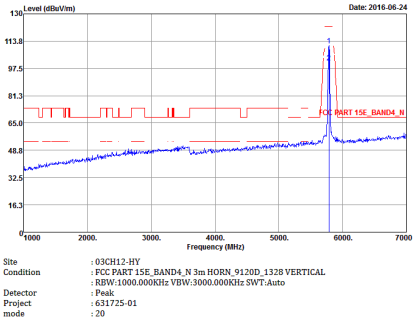
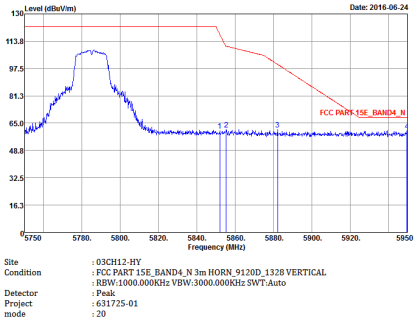
Band 4 - 5725~5850MHz

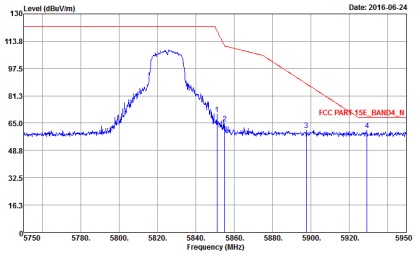
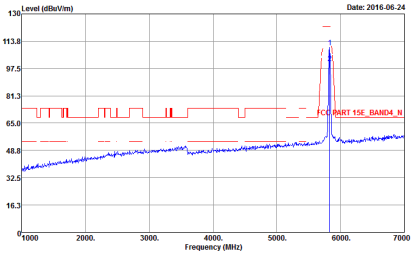
WIFI 802.11a (Band Edge @ 3m)

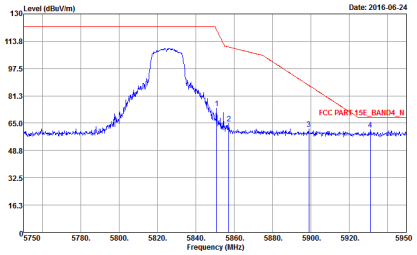
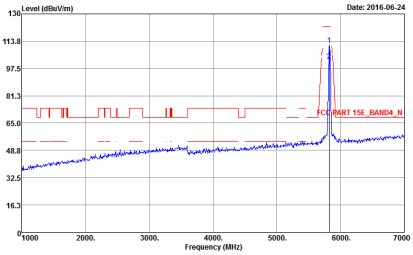
WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11a CH149 5745MHz	
1	Horizontal	Fundamental
Peak		

WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11a CH149 5745MHz	
1	Vertical	Fundamental
Peak	 Site : 03CH12-HY Condition : FCC PART 15E_BAND4_N 3m HORN_9120D_1328 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 631725-01 mode : 19	 Site : 03CH12-HY Condition : FCC PART 15E_BAND4_N 3m HORN_9120D_1328 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 631725-01 mode : 19

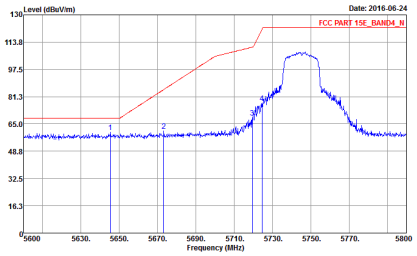
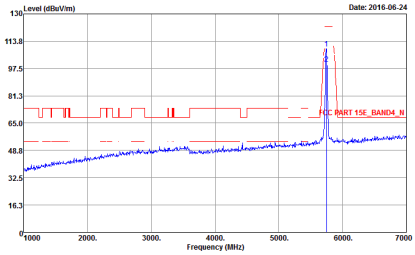
WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11a CH157 5785MHz	
1	Horizontal	Fundamental
Peak	 Site : 03CH12-HY Condition : FCC PART 15E_BAND4_N 3m HORN_9120D_1328 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 631725-01 mode : 20	 Site : 03CH12-HY Condition : FCC PART 15E_BAND4_N 3m HORN_9120D_1328 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 631725-01 mode : 20
Peak	 Site : 03CH12-HY Condition : FCC PART 15E_BAND4_N 3m HORN_9120D_1328 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 631725-01 mode : 20	Left blank

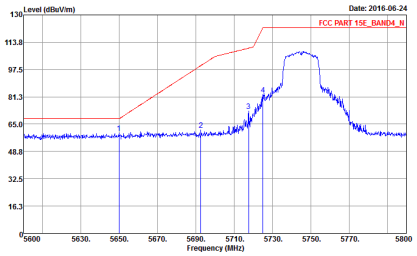
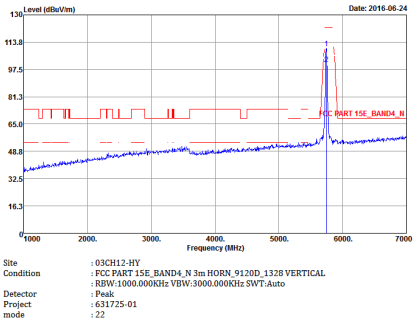
WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11a CH157 5785MHz	
1	Vertical	Fundamental
Peak		
Peak		Left blank

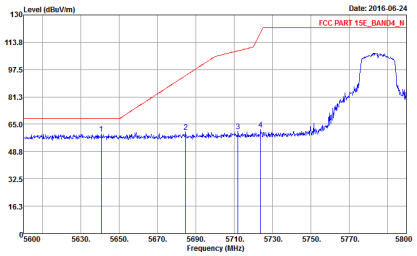
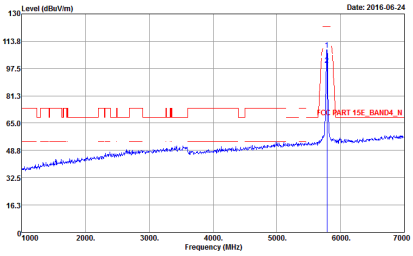
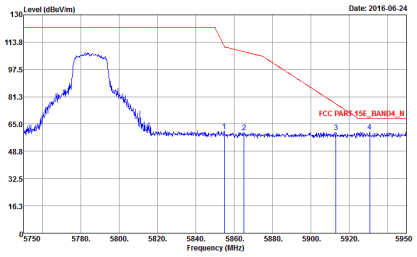
WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11a CH165 5825MHz	
1	Horizontal	Fundamental
Peak	 Site : 03CH12-HY Condition : FCC PART 15E_BAND4_N 3m HORN_9120D_1328 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 631725-01 mode : 21	 Site : 03CH12-HY Condition : FCC PART 15E_BAND4_N 3m HORN_9120D_1328 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 631725-01 mode : 21

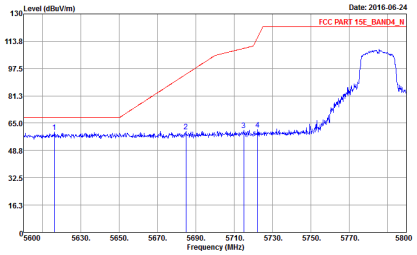
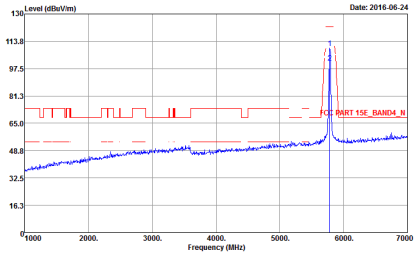
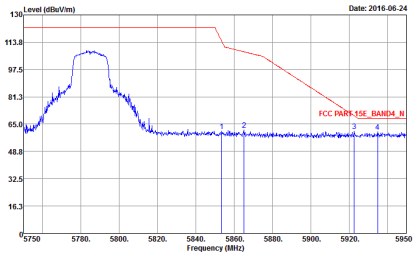
WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11a CH165 5825MHz	
1	Vertical	Fundamental
Peak	 Site : 03CH12-HY Condition : FCC PART 15E_BAND4_N 3m HORN_9120D_1328 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 631725-01 mode : 21	 Site : 03CH12-HY Condition : FCC PART 15E_BAND4_N 3m HORN_9120D_1328 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 631725-01 mode : 21

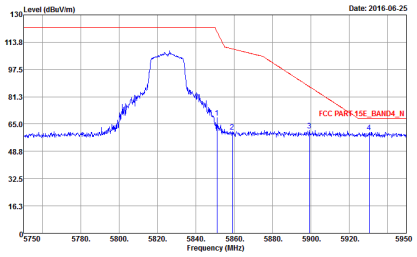
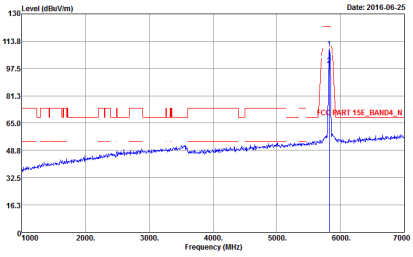
Band 4 5725~5850MHz
WIFI 802.11n HT20 (Band Edge @ 3m)

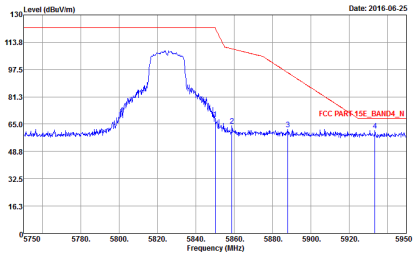
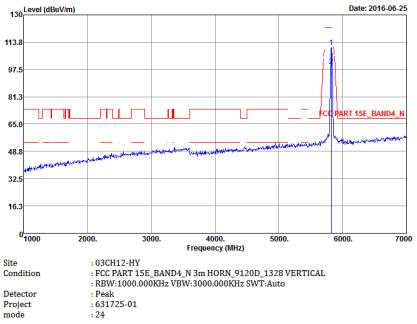
WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11n HT20 CH149 5745MHz	
1	Horizontal	Fundamental
Peak		

WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11n HT20 CH149 5745MHz	
1	Vertical	Fundamental
Peak		

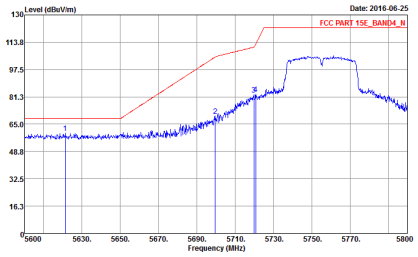
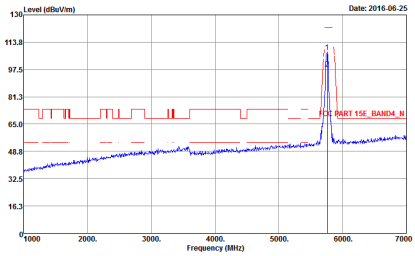
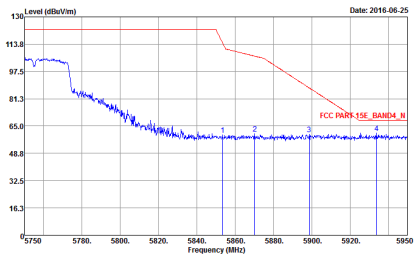
WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11n HT20 CH157 5785MHz	
1	Horizontal	Fundamental
Peak	 Site : 03CH12-HY Condition : FCC PART 15E_BAND4_N 3m HORN_9120D_1328 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 631725-01 mode : 23	 Site : 03CH12-HY Condition : FCC PART 15E_BAND4_N 3m HORN_9120D_1328 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 631725-01 mode : 23
Peak	 Site : 03CH12-HY Condition : FCC PART 15E_BAND4_N 3m HORN_9120D_1328 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 631725-01 mode : 23	Left blank

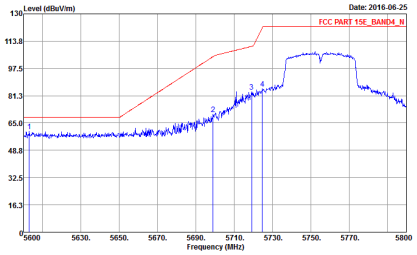
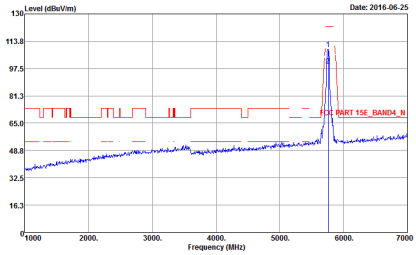
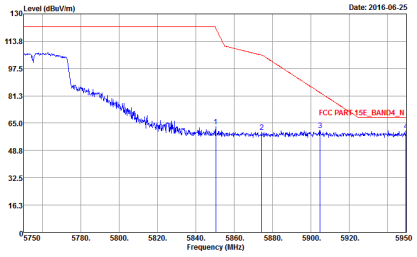
WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11n HT20 CH157 5785MHz	
1	Vertical	Fundamental
Peak	 Site : 03CH12-HY Condition : FCC PART 15E_BAND4_N 3m HORN_9120D_1328 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 631725-01 mode : 23	 Site : 03CH12-HY Condition : FCC PART 15E_BAND4_N 3m HORN_9120D_1328 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 631725-01 mode : 23
Peak	 Site : 03CH12-HY Condition : FCC PART 15E_BAND4_N 3m HORN_9120D_1328 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 631725-01 mode : 23	Left blank

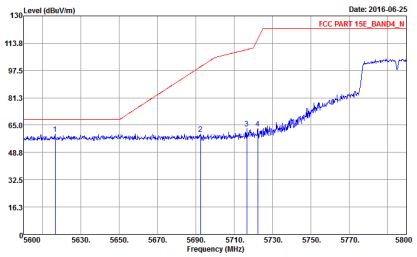
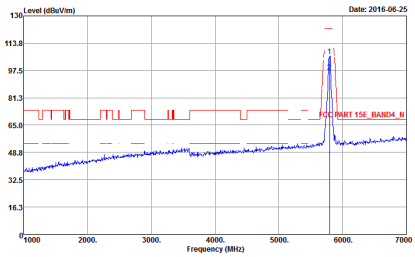
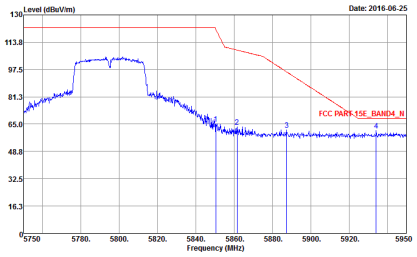
WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11n HT20 CH165 5825MHz	
1	Horizontal	Fundamental
Peak	 Site : 03CH12-HY Condition : FCC PART 15E_BAND4_N 3m HORN_9120D_1328 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 631725-01 mode : 24	 Site : 03CH12-HY Condition : FCC PART 15E_BAND4_N 3m HORN_9120D_1328 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 631725-01 mode : 24

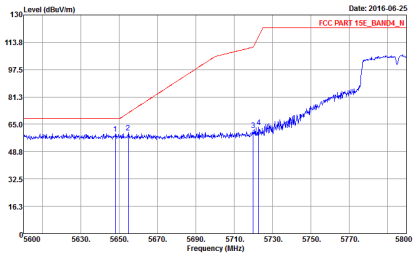
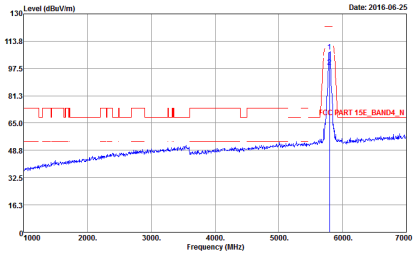
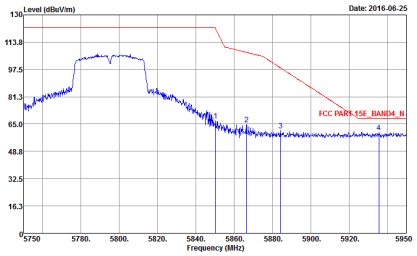
WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11n HT20 CH165 5825MHz	
1	Vertical	Fundamental
Peak		

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	
1	Horizontal	Fundamental
Peak		
Peak		Left blank

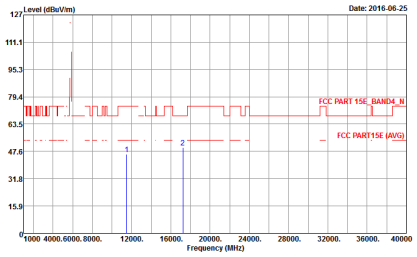
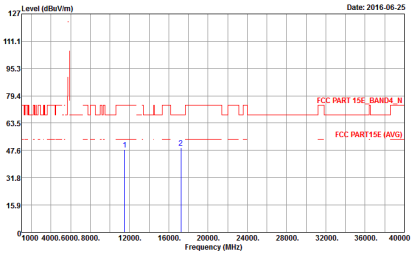
WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11n HT40 CH151 5755MHz	
1	Vertical	Fundamental
Peak	 Site : 03CH12-HY Condition : FCC PART 15E_BAND4_N 3m HORN_9120D_1328 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 631725-01 mode : 25	 Site : 03CH12-HY Condition : FCC PART 15E_BAND4_N 3m HORN_9120D_1328 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 631725-01 mode : 25
Peak	 Site : 03CH12-HY Condition : FCC PART 15E_BAND4_N 3m HORN_9120D_1328 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 631725-01 mode : 25	Left blank

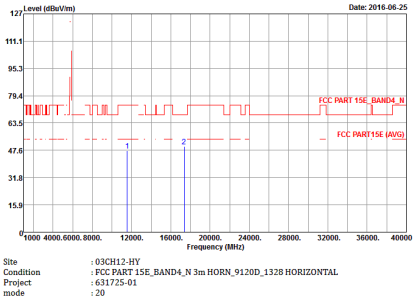
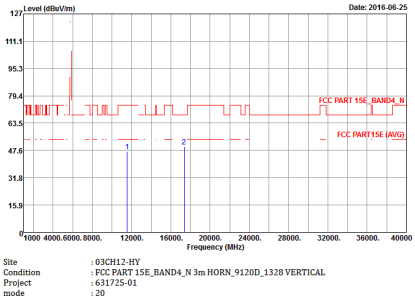
WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11n HT40 CH159 5795MHz	
1	Horizontal	Fundamental
Peak	 Site : 03CH12-HY Condition : FCC PART 15E_BAND4_N 3m HORN_9120D_1328 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 631725-01 mode : 26	 Site : 03CH12-HY Condition : FCC PART 15E_BAND4_N 3m HORN_9120D_1328 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 631725-01 mode : 26
Peak	 Site : 03CH12-HY Condition : FCC PART 15E_BAND4_N 3m HORN_9120D_1328 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 631725-01 mode : 26	Left blank

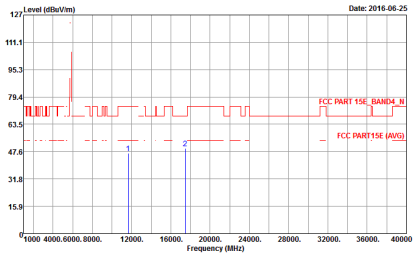
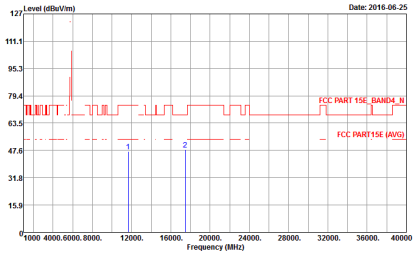
WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11n HT40 CH159 5795MHz	
1	Vertical	Fundamental
Peak	 Site : 03CH12-HY Condition : FCC PART 15E_BAND4_N 3m HORN_9120D_1328 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 631725-01 mode : 26	 Site : 03CH12-HY Condition : FCC PART 15E_BAND4_N 3m HORN_9120D_1328 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 631725-01 mode : 26
Peak	 Site : 03CH12-HY Condition : FCC PART 15E_BAND4_N 3m HORN_9120D_1328 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 631725-01 mode : 26	Left blank

Band 4 - 5725~5850MHz

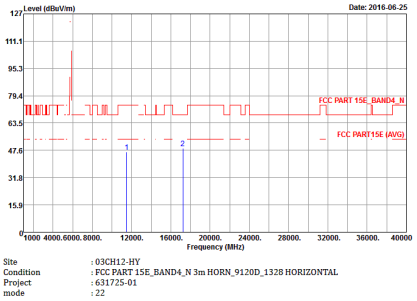
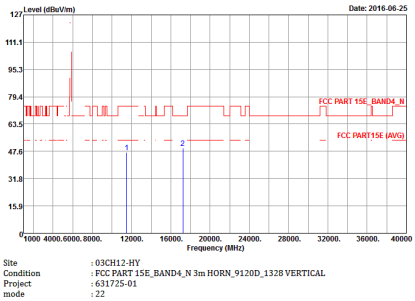
WIFI 802.11a (Harmonic @ 3m)

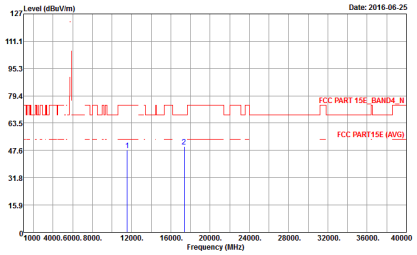
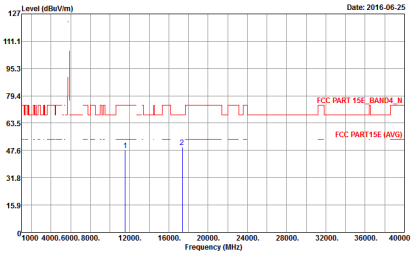
WIFI	Band 4 5725~5850MHz Harmonic @ 3m	
ANT	802.11a CH149 5745MHz	
1	Horizontal	Vertical
Peak Avg.	 Site : 03CH12-HY Condition : FCC PART 15E_BAND4_N 3m HORN_9120D_1328 HORIZONTAL Project : 631725-01 mode : 19	 Site : 03CH12-HY Condition : FCC PART 15E_BAND4_N 3m HORN_9120D_1328 VERTICAL Project : 631725-01 mode : 19

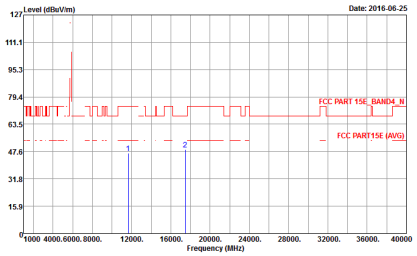
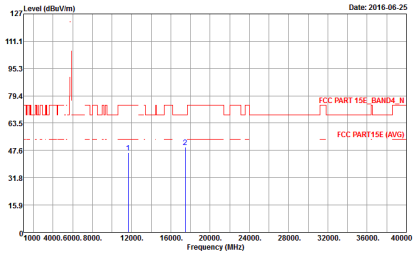
WIFI	Band 4 5725~5850MHz Harmonic @ 3m	
ANT	802.11a CH157 5785MHz	
1	Horizontal	Vertical
Peak Avg.		

WIFI	Band 4 5725~5850MHz Harmonic @ 3m	
ANT	802.11a CH165 5825MHz	
1	Horizontal	Vertical
Peak Avg.	 Site : 03CH12-HY Condition : FCC PART 15E_BAND4_N 3m HORN_9120D_1328 HORIZONTAL Project : 631725-01 mode : 21	 Site : 03CH12-HY Condition : FCC PART 15E_BAND4_N 3m HORN_9120D_1328 VERTICAL Project : 631725-01 mode : 21

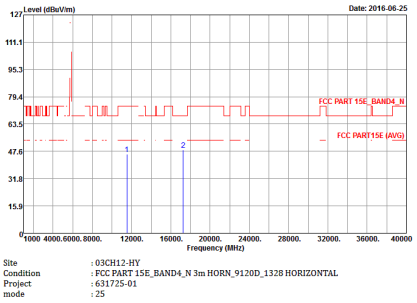
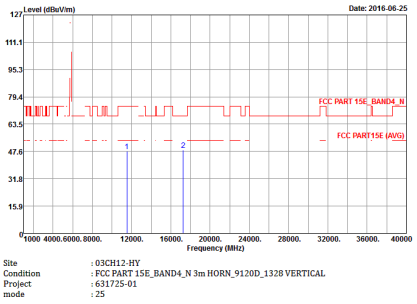
Band 4 5725~5850MHz
WIFI 802.11n HT20 (Harmonic @ 3m)

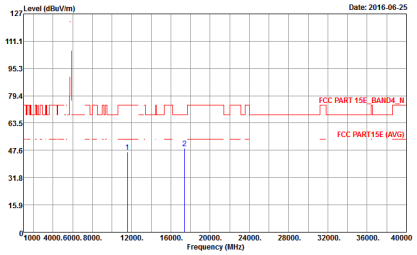
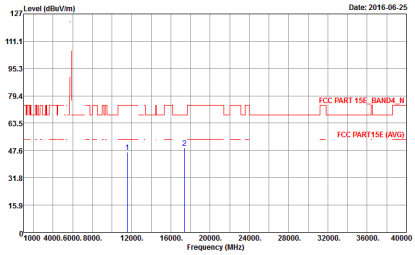
WIFI	Band 4 5725~5850MHz Harmonic @ 3m	
ANT	802.11n HT20 CH149 5745MHz	
1	Horizontal	Vertical
Peak Avg.		

WIFI	Band 4 5725~5850MHz Harmonic @ 3m	
ANT	802.11n HT20 CH157 5785MHz	
1	Horizontal	Vertical
Peak Avg.	 Site : 03CH12-HY Condition : FCC PART 15E_BAND4_N 3m HORN_9120D_1328 HORIZONTAL Project : 631725-01 mode : 23	 Site : 03CH12-HY Condition : FCC PART 15E_BAND4_N 3m HORN_9120D_1328 VERTICAL Project : 631725-01 mode : 23

WIFI	Band 4 5725~5850MHz Harmonic @ 3m	
ANT	802.11n HT20 CH165 5825MHz	
1	Horizontal	Vertical
Peak Avg.	 Site : 03CH12-HY Condition : FCC PART 15E_BAND4_N 3m HORN_9120D_1328 HORIZONTAL Project : 631725-01 mode : 24	 Site : 03CH12-HY Condition : FCC PART 15E_BAND4_N 3m HORN_9120D_1328 VERTICAL Project : 631725-01 mode : 24

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

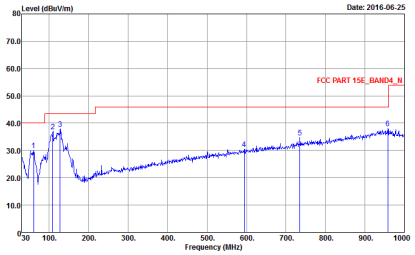
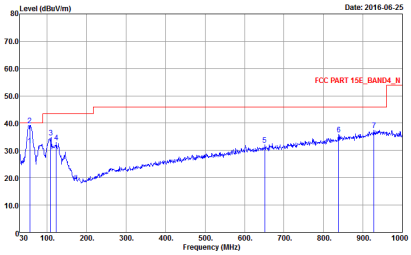
WIFI	Band 4 5725~5850MHz Harmonic @ 3m	
ANT	802.11n HT40 CH151 5755MHz	
1	Horizontal	Vertical
Peak Avg.		

WIFI	Band 4 5725~5850MHz Harmonic @ 3m	
ANT	802.11n HT40 CH159 5795MHz	
1	Horizontal	Vertical
Peak Avg.	 Site : 03CH12-HY Condition : FCC PART 15E_BAND4_N 3m HORN_9120D_1328 HORIZONTAL Project : 631725-01 mode : 26	 Site : 03CH12-HY Condition : FCC PART 15E_BAND4_N 3m HORN_9120D_1328 VERTICAL Project : 631725-01 mode : 26

Band 4 5725~5850MHz

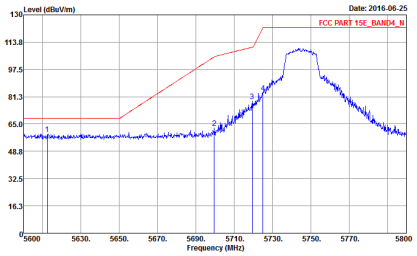
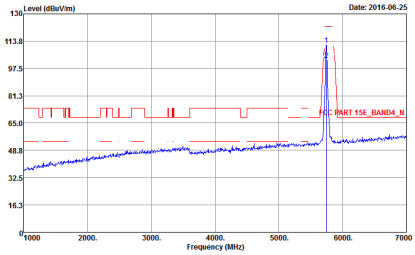
Emission below 1GHz

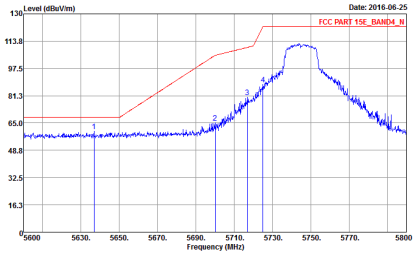
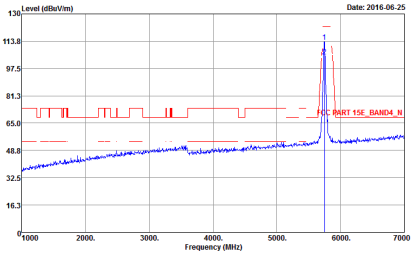
5GHz WIFI 802.11a (LF)

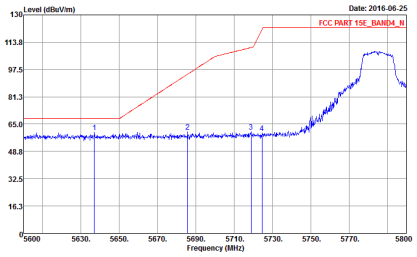
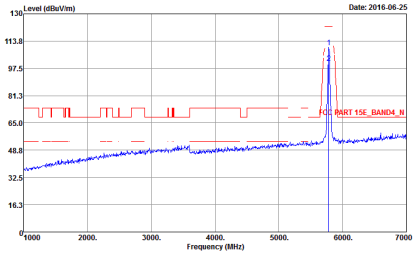
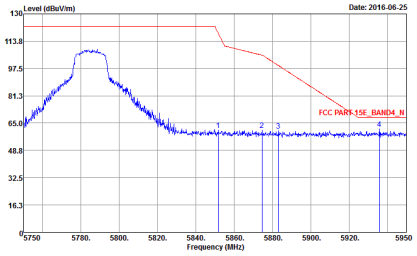
WIFI	5GHz 5725~5850MHz	
ANT	802.11a LF	
1	Horizontal	Vertical
QP / Peak	 Site : 03CH12-HY Condition : FCC PART 15E_BAND4_N 3m BILOG_6111D_37059 HORIZONTAL Detector : Peak Project : 631725-01 mode : 27	 Site : 03CH12-HY Condition : FCC PART 15E_BAND4_N 3m BILOG_6111D_37059 VERTICAL Detector : Peak Project : 631725-01 mode : 27

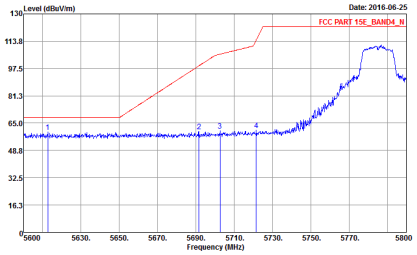
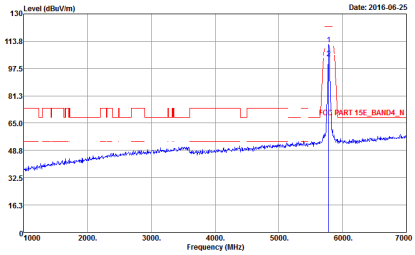
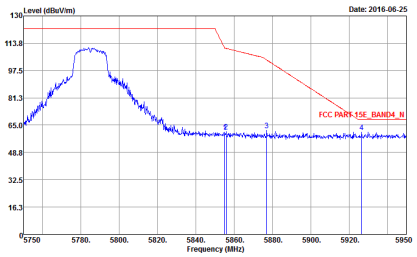
Band 4 - 5725~5850MHz

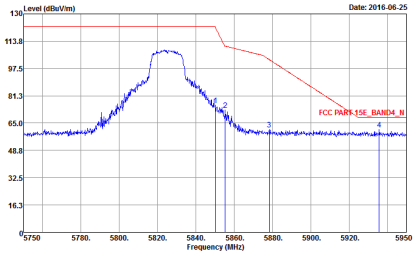
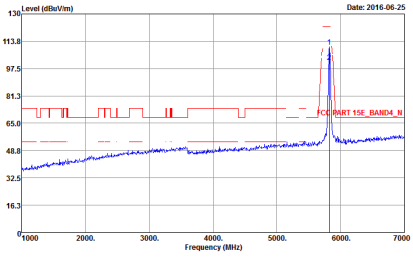
WIFI 802.11a (Band Edge @ 3m)

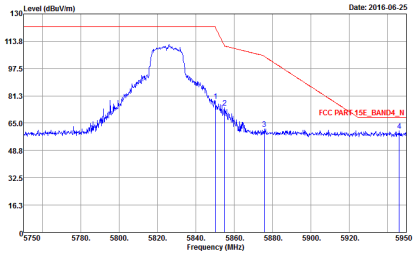
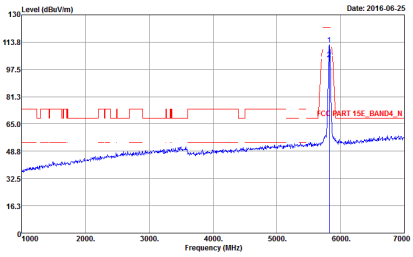
WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11a CH149 5745MHz	
2	Horizontal	Fundamental
Peak		

WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11a CH149 5745MHz	
2	Vertical	Fundamental
Peak	 Site : 03CH12-HY Condition : FCC PART 15E_BAND4_N 3m HORN_9120D_1328 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 631725-01 mode : 27	 Site : 03CH12-HY Condition : FCC PART 15E_BAND4_N 3m HORN_9120D_1328 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 631725-01 mode : 27

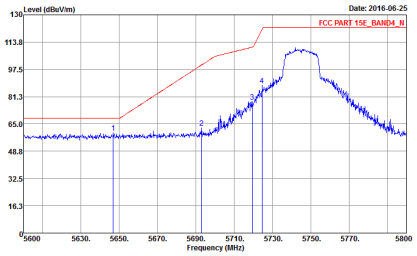
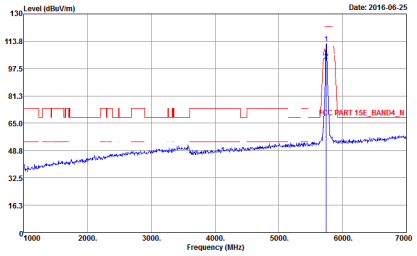
WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11a CH157 5785MHz	
2	Horizontal	Fundamental
Peak	 Site : 03CH12-HY Condition : FCC PART 15E_BAND4_N 3m HORN_9120D_1328 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 631725-01 mode : 28	 Site : 03CH12-HY Condition : FCC PART 15E_BAND4_N 3m HORN_9120D_1328 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 631725-01 mode : 28
Peak	 Site : 03CH12-HY Condition : FCC PART 15E_BAND4_N 3m HORN_9120D_1328 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 631725-01 mode : 28	Left blank

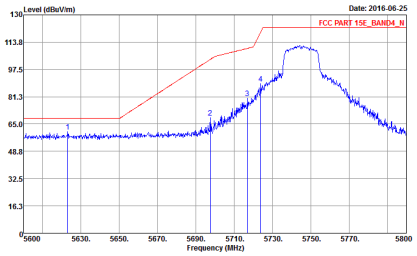
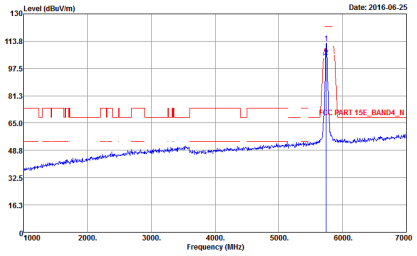
WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11a CH157 5785MHz	
2	Vertical	Fundamental
Peak	 Site : 03CH12-HY Condition : FCC PART 15E_BAND4_N 3m HORN_9120D_1328 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 631725-01 mode : 28	 Site : 03CH12-HY Condition : FCC PART 15E_BAND4_N 3m HORN_9120D_1328 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 631725-01 mode : 28
Peak	 Site : 03CH12-HY Condition : FCC PART 15E_BAND4_N 3m HORN_9120D_1328 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 631725-01 mode : 28	Left blank

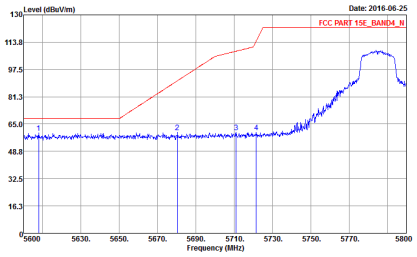
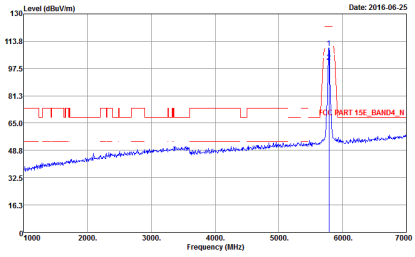
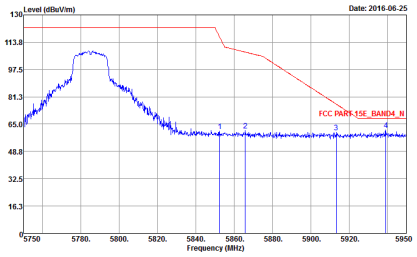
WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11a CH165 5825MHz	
2	Horizontal	Fundamental
Peak	 Site : 03CH12-HY Condition : FCC PART 15E_BAND4_N 3m HORN_9120D_1328 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 631725-01 mode : 29	 Site : 03CH12-HY Condition : FCC PART 15E_BAND4_N 3m HORN_9120D_1328 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 631725-01 mode : 29

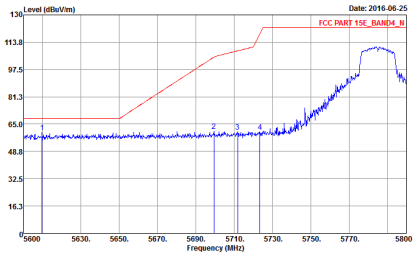
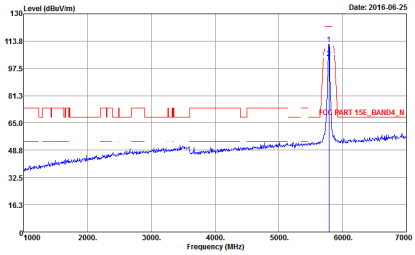
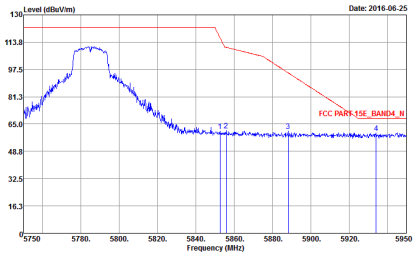
WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11a CH165 5825MHz	
2	Vertical	Fundamental
Peak	 Site : 03CH12-HY Condition : FCC PART 15E_BAND4_N 3m HORN_9120D_1328 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 631725-01 mode : 29	 Site : 03CH12-HY Condition : FCC PART 15E_BAND4_N 3m HORN_9120D_1328 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 631725-01 mode : 29

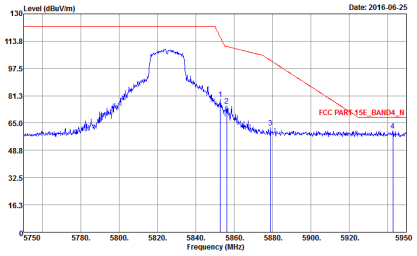
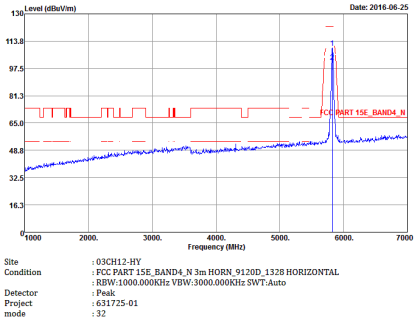
Band 4 5725~5850MHz
WIFI 802.11n HT20 (Band Edge @ 3m)

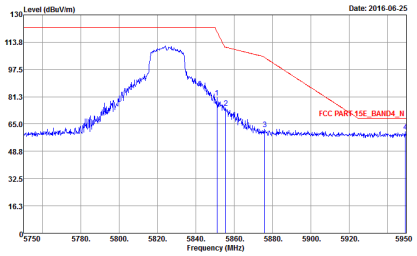
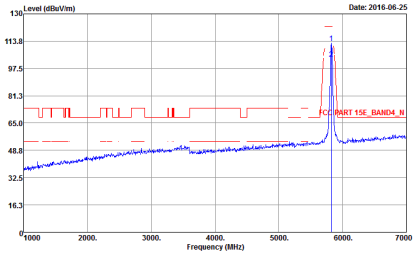
WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11n HT20 CH149 5745MHz	
2	Horizontal	Fundamental
Peak		

WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11n HT20 CH149 5745MHz	
2	Vertical	Fundamental
Peak	 Site : 03CH12-HY Condition : FCC PART 15E_BAND4_N 3m HORN_9120D_1328 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 631725-01 mode : 30	 Site : 03CH12-HY Condition : FCC PART 15E_BAND4_N 3m HORN_9120D_1328 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 631725-01 mode : 30

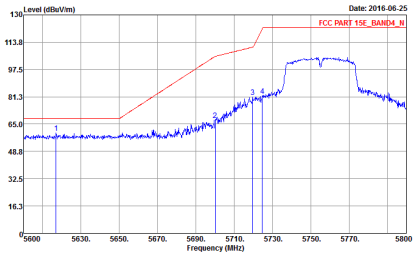
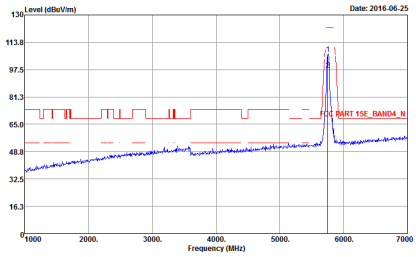
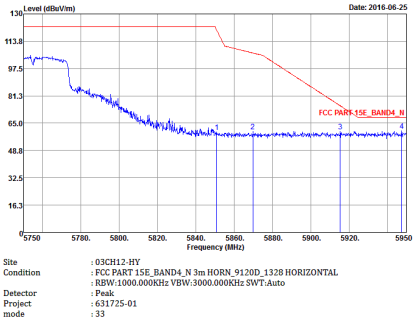
WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11n HT20 CH157 5785MHz	
2	Horizontal	Fundamental
Peak	 Site : 03CH12-HY Condition : FCC PART 15E_BAND4_N 3m HORN_9120D_1328 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 631725-01 mode : 31	 Site : 03CH12-HY Condition : FCC PART 15E_BAND4_N 3m HORN_9120D_1328 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 631725-01 mode : 31
Peak	 Site : 03CH12-HY Condition : FCC PART 15E_BAND4_N 3m HORN_9120D_1328 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 631725-01 mode : 31	Left blank

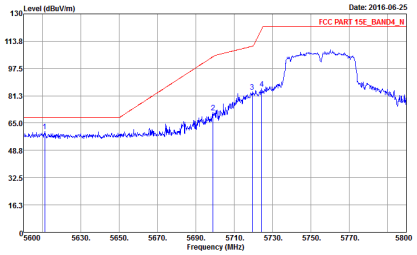
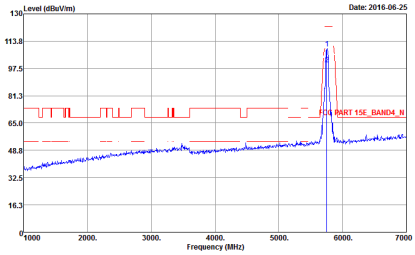
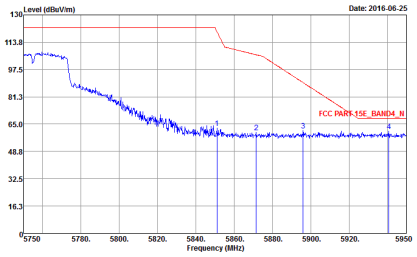
WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11n HT20 CH157 5785MHz	
2	Vertical	Fundamental
Peak	 Site : 03CH12-HY Condition : FCC PART 15E_BAND4_N 3m HORN_9120D_1328 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 631725-01 mode : 31	 Site : 03CH12-HY Condition : FCC PART 15E_BAND4_N 3m HORN_9120D_1328 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 631725-01 mode : 31
Peak	 Site : 03CH12-HY Condition : FCC PART 15E_BAND4_N 3m HORN_9120D_1328 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 631725-01 mode : 31	Left blank

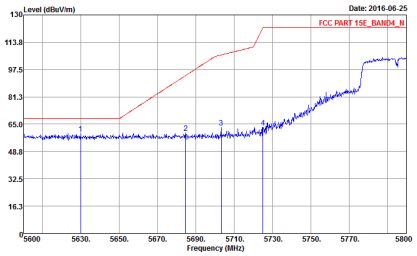
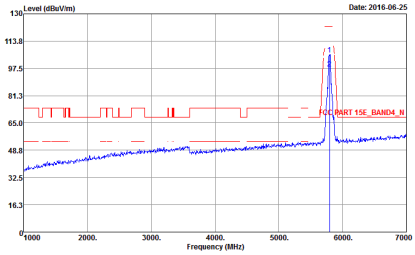
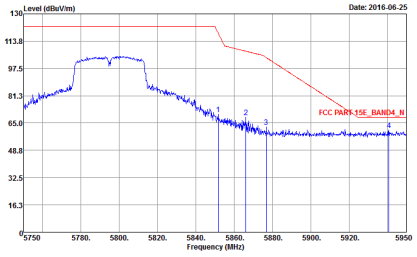
WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11n HT20 CH165 5825MHz	
2	Horizontal	Fundamental
Peak		

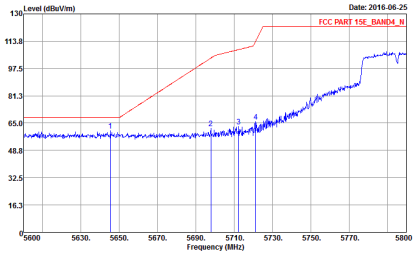
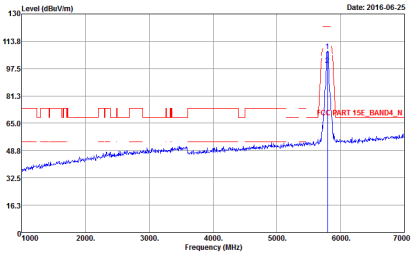
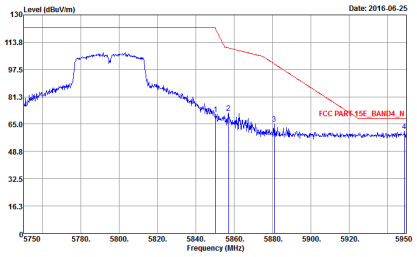
WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11n HT20 CH165 5825MHz	
2	Vertical	Fundamental
Peak	 Site : 03CH12-HY Condition : FCC PART 15E_BAND4_N 3m HORN_9120D_1328 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 631725-01 mode : 32	 Site : 03CH12-HY Condition : FCC PART 15E_BAND4_N 3m HORN_9120D_1328 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 631725-01 mode : 32

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	
2	Horizontal	Fundamental
Peak		
Peak		Left blank

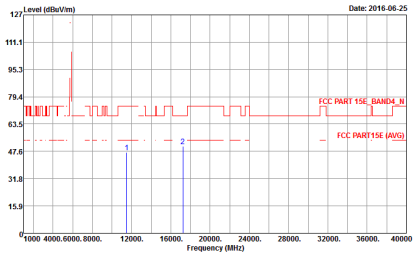
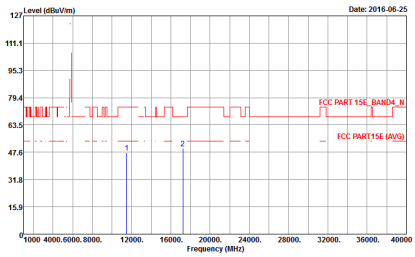
WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11n HT40 CH151 5755MHz	
2	Vertical	Fundamental
Peak	 Site : 03CH12-HY Condition : FCC PART 15E_BAND4_N 3m HORN_9120D_1328 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 631725-01 mode : 33	 Site : 03CH12-HY Condition : FCC PART 15E_BAND4_N 3m HORN_9120D_1328 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 631725-01 mode : 33
Peak	 Site : 03CH12-HY Condition : FCC PART 15E_BAND4_N 3m HORN_9120D_1328 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 631725-01 mode : 33	Left blank

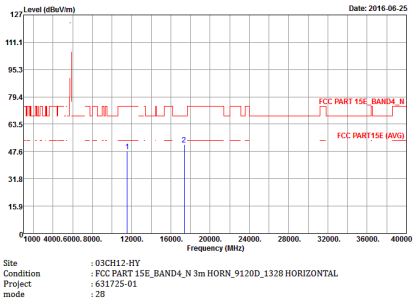
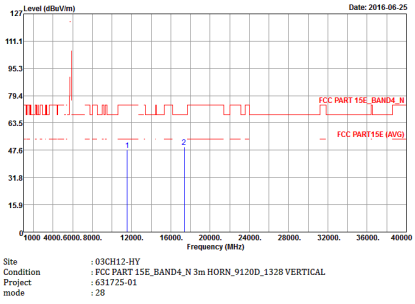
WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11n HT40 CH159 5795MHz	
2	Horizontal	Fundamental
Peak	 Site : 03CH12-HY Condition : FCC PART 15E_BAND4_N 3m HORN_9120D_1328 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 631725-01 mode : 34	 Site : 03CH12-HY Condition : FCC PART 15E_BAND4_N 3m HORN_9120D_1328 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 631725-01 mode : 34
Peak	 Site : 03CH12-HY Condition : FCC PART 15E_BAND4_N 3m HORN_9120D_1328 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 631725-01 mode : 34	Left blank

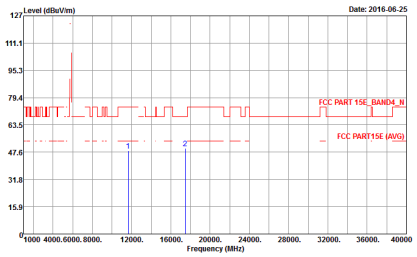
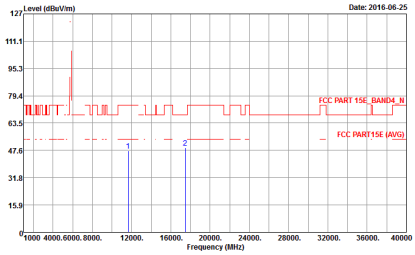
WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11n HT40 CH159 5795MHz	
2	Vertical	Fundamental
Peak	 Site : 03CH12-HY Condition : FCC PART 15E_BAND4_N 3m HORN_9120D_1328 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 631725-01 mode : 34	 Site : 03CH12-HY Condition : FCC PART 15E_BAND4_N 3m HORN_9120D_1328 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 631725-01 mode : 34
Peak	 Site : 03CH12-HY Condition : FCC PART 15E_BAND4_N 3m HORN_9120D_1328 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 631725-01 mode : 34	Left blank

Band 4 - 5725~5850MHz

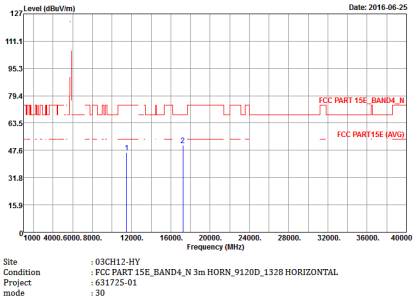
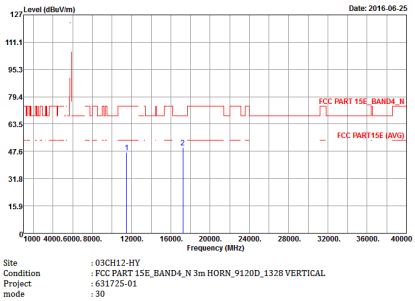
WIFI 802.11a (Harmonic @ 3m)

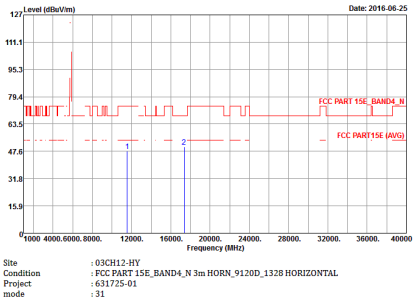
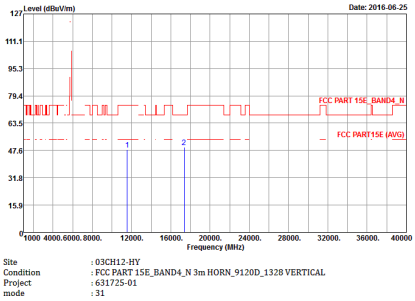
WIFI	Band 4 5725~5850MHz Harmonic @ 3m	
ANT	802.11a CH149 5745MHz	
2	Horizontal	Vertical
Peak Avg.		

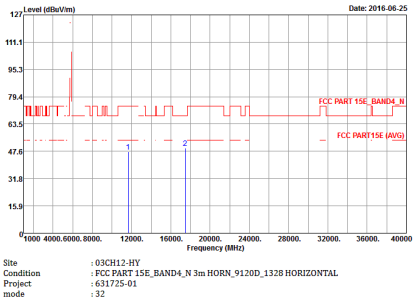
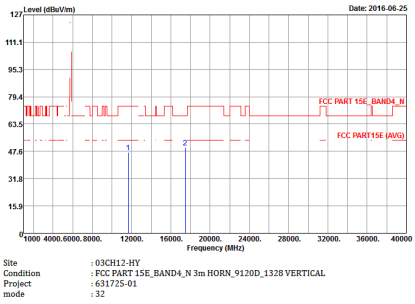
WIFI	Band 4 5725~5850MHz Harmonic @ 3m	
ANT	802.11a CH157 5785MHz	
2	Horizontal	Vertical
Peak Avg.		

WIFI	Band 4 5725~5850MHz Harmonic @ 3m	
ANT	802.11a CH165 5825MHz	
2	Horizontal	Vertical
Peak Avg.	 Site : 03CH12-HY Condition : FCC PART 15E_BAND4_N 3m HORN_9120D_1328 HORIZONTAL Project : 631725-01 mode : 29	 Site : 03CH12-HY Condition : FCC PART 15E_BAND4_N 3m HORN_9120D_1328 VERTICAL Project : 631725-01 mode : 29

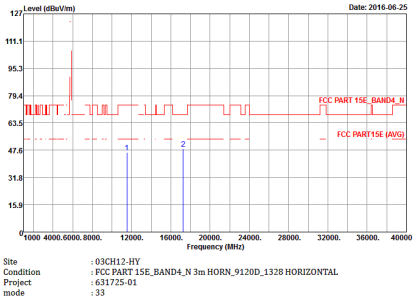
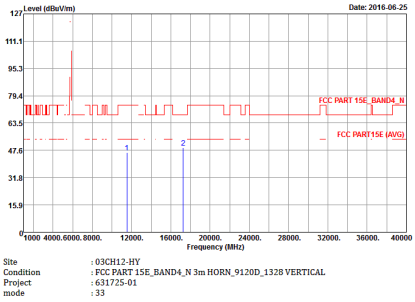
Band 4 5725~5850MHz
WIFI 802.11n HT20 (Harmonic @ 3m)

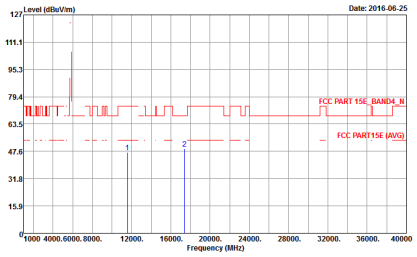
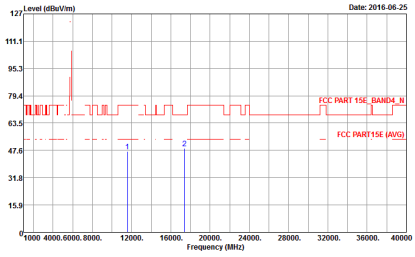
WIFI	Band 4 5725~5850MHz Harmonic @ 3m	
ANT	802.11n HT20 CH149 5745MHz	
2	Horizontal	Vertical
Peak Avg.		

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

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

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

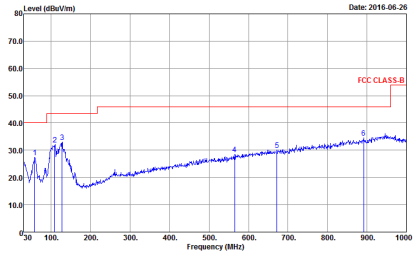
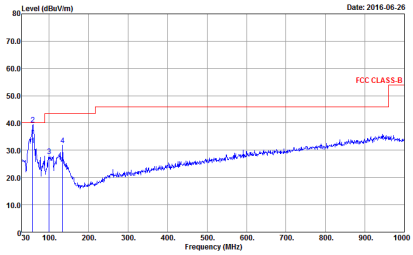
WIFI	Band 4 5725~5850MHz Harmonic @ 3m	
ANT	802.11n HT40 CH151 5755MHz	
2	Horizontal	Vertical
Peak Avg.		

WIFI	Band 4 5725~5850MHz Harmonic @ 3m	
ANT	802.11n HT40 CH159 5795MHz	
2	Horizontal	Vertical
Peak Avg.	 Site : 03CH12-HY Condition : FCC PART 15E_BAND4_N 3m HORN_9120D_1328 HORIZONTAL Project : 631725-01 mode : 34	 Site : 03CH12-HY Condition : FCC PART 15E_BAND4_N 3m HORN_9120D_1328 VERTICAL Project : 631725-01 mode : 34

Band 4 5725~5850MHz

Emission below 1GHz

5GHz WIFI 802.11n HT20 (LF)

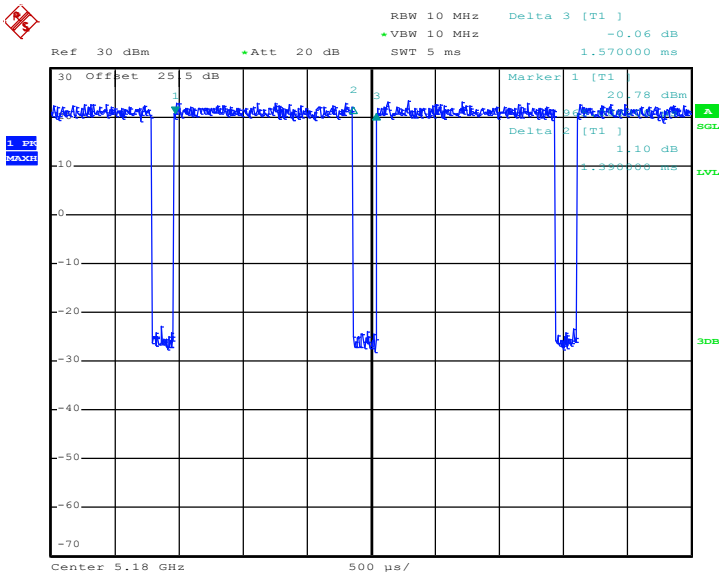
WIFI	5GHz 5725~5850MHz	
ANT	802.11n HT20 LF	
2	Horizontal	Vertical
QP / Peak	 Site : 03CH12-HY Condition : FCC CLASS-B 3m BILOG_6111D_37059 HORIZONTAL Detector : Peak Project : 631725-01 mode : 35	 Site : 03CH12-HY Condition : FCC CLASS-B 3m BILOG_6111D_37059 VERTICAL Detector : Peak Project : 631725-01 mode : 35

Appendix D. Duty Cycle Plots

Antenna	Band	Duty Cycle(%)	T(us)	1/T(kHz)	VBW Setting
1	802.11a	88.54	1390	0.72	1kHz
1	5GHz 802.11n HT20	87.84	1300	0.77	1kHz
1	5GHz 802.11n HT40	77.11	640	1.56	3kHz
2	802.11a	88.54	1390	0.72	1kHz
2	5GHz 802.11n HT20	87.84	1300	0.77	1kHz
2	5GHz 802.11n HT40	78.31	650	1.54	3kHz

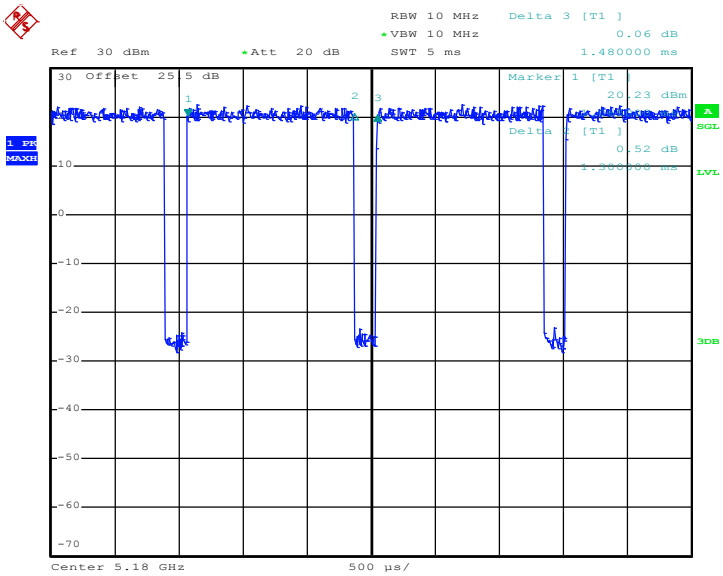
<Ant. 1>

802.11a



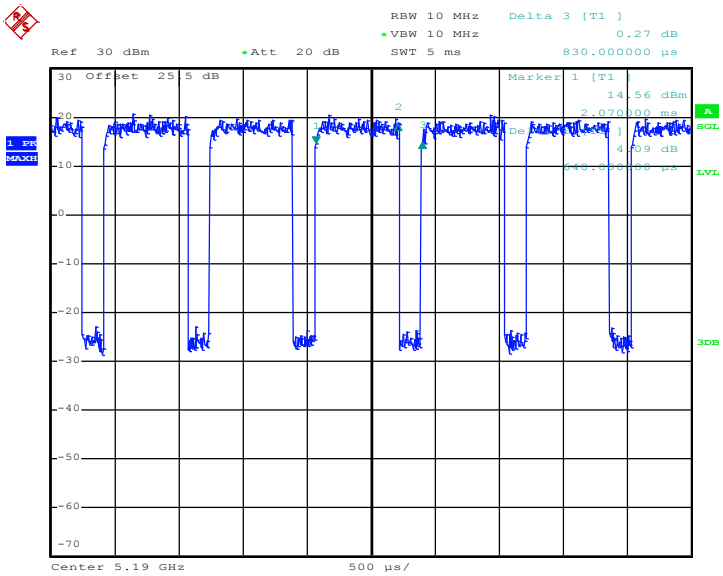
Date: 14.JUN.2016 01:51:42

802.11n HT20



Date: 14.JUN.2016 02:07:52

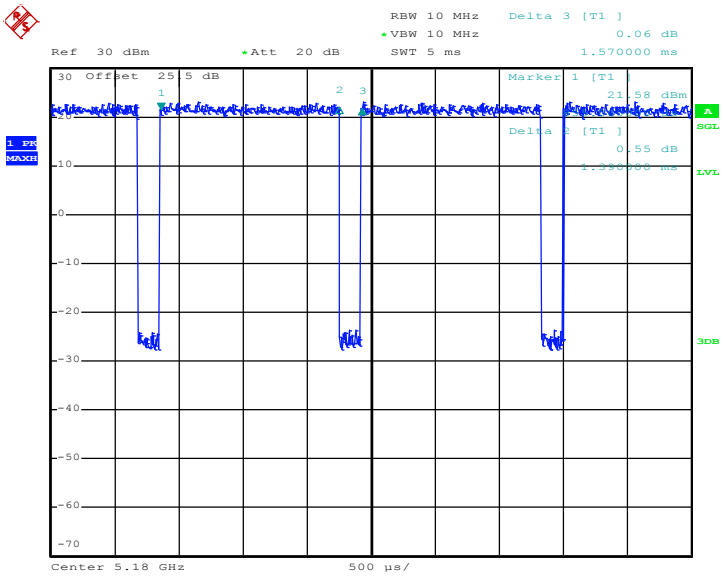
802.11n HT40



Date: 14.JUN.2016 02:14:32

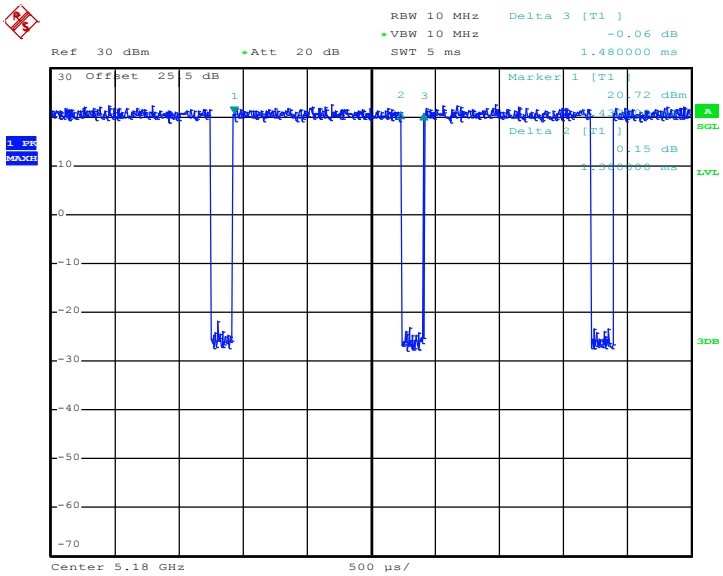
<Ant. 2>

802.11a



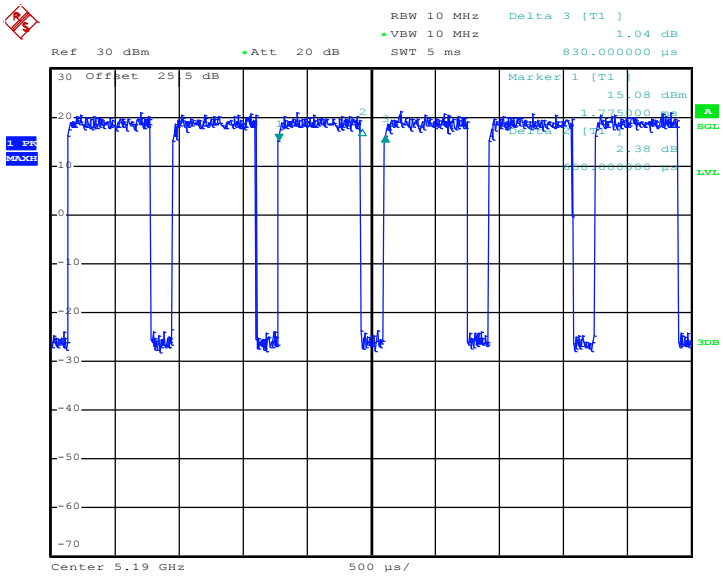
Date: 14.JUN.2016 02:00:43

802.11n HT20



Date: 14.JUN.2016 02:11:14

802.11n HT40



Date: 14.JUN.2016 02:18:07