



FCC RF Test Report

APPLICANT : Ubiquiti Networks, Inc.
EQUIPMENT : Mesh Points
BRAND NAME : ULABS
MODEL NAME : AFi-P-HD
FCC ID : SWX-AFPHD
STANDARD : FCC Part 15 Subpart E §15.407
CLASSIFICATION : (NII) Unlicensed National Information Infrastructure

The product was received on Mar. 07, 2016 and testing was completed on Jul. 20, 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

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REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FR630314-01D	Rev. 01	Initial issue of report	Jul. 26, 2016



SUMMARY OF TEST RESULT

Report Section	FCC Rule	Description	Limit	Result	Remark
3.1	2.1049 15.403(i)	26dB & 99% Bandwidth	-	Pass	-
3.2	15.407(a)	Maximum Conducted Output Power	≤ 30 dBm (depend on band)	Pass	-
3.3	15.407(a)	Power Spectral Density	≤ 17 dBm (depend on band)	Pass	-
3.4	15.407(b)	Unwanted Emissions	$\leq -17, -27$ dBm (depend on band)&15.209(a)	Pass	Under limit 0.87 dB at 208.740 MHz for Quasi-Peak
3.5	15.207	AC Conducted Emission	15.207(a)	Pass	Under limit 18.90 dB at 0.822 MHz
3.6	15.407(g)	Frequency Stability	Within Operation Band	Pass	-
3.7	15.407(c)	Automatically Discontinue Transmission	Discontinue Transmission	Pass	-
3.8	15.203 & 15.407(a)	Antenna Requirement	N/A	Pass	-



1 General Description

1.1 Applicant

Ubiquiti Networks, Inc.

12F, No. 105, Song Ren Rd., SinYi District, Taipei 110, Taiwan

1.2 Manufacturer

Ubiquiti Networks, Inc.

12F, No. 105, Song Ren Rd., SinYi District, Taipei 110, Taiwan

1.3 Product Feature of Equipment Under Test

Product Feature	
Equipment	Mesh Points
Brand Name	ULABS
Model Name	AFi-P-HD
FCC ID	SWX-AFPHD
EUT supports Radios application	WLAN 11a/b/g/n HT20/HT40 WLAN 11ac VHT20/VHT40/VHT80 Bluetooth v4.0 EDR/LE
EUT Stage	Identical Prototype

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

1.4 Product Specification of Equipment Under Test

Standards-related Product Specification				
Tx/Rx Channel Frequency Range	5180 MHz ~ 5240 MHz			
Maximum Output Power	MIMO <Ant. 1 + 2 + 3> 802.11a : 24.57 dBm / 0.2864 W 802.11n HT20 : 24.67 dBm / 0.2931 W 802.11n HT40 : 25.68 dBm / 0.3698 W 802.11ac VHT20: 24.65 dBm / 0.2917 W 802.11ac VHT40: 25.66 dBm / 0.3681 W 802.11ac VHT80: 13.28 dBm / 0.0213 W			
99% Occupied Bandwidth	802.11a : 18.10 MHz 802.11n HT20 : 18.75 MHz 802.11n HT40 : 36.90 MHz 802.11ac VHT20 : 18.75 MHz 802.11ac VHT40 : 36.80 MHz 802.11ac VHT80 : 76.08 MHz			
Type of Modulation	802.11a/n : OFDM (BPSK / QPSK / 16QAM / 64QAM) 802.11ac : OFDM (BPSK / QPSK / 16QAM / 64QAM / 256QAM)			
Antenna Type	Ant. 1 : PIFA Antenna Ant. 2 : PIFA Antenna Ant. 3 : PIFA Antenna			
Antenna Gain	Ant. 1 : 5.00 dBi Ant. 2 : 5.00 dBi Ant. 3 : 5.00 dBi			
Antenna Function Description		Ant. 1	Ant. 2	Ant. 3
	802.11 a/n/ac MIMO	V	V	V

1.5 Modification of EUT

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

1.6 Testing Location

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

Test Site	SPORTON INTERNATIONAL INC.		
Test Site Location	No. 52, Hwa Ya 1 st Rd., Hwa Ya Technology Park, Kwei-Shan District, Tao Yuan City, Taiwan, R.O.C. TEL: +886-3-327-3456 FAX: +886-3-328-4978		
Test Site No.	Sporton Site No.		
	TH05-HY	CO05-HY	03CH06-HY

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

1.7 Applicable Standards

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

- ♦ FCC Part 15 Subpart E
- ♦ FCC KDB 789033 D02 General UNII Test Procedures New Rules v01r02
- ♦ FCC KDB 662911 D01 Multiple Transmitter Output v02r01.
- ♦ FCC KDB 644545 D03 Guidance for IEEE 802 11ac New Rules v01
- ♦ ANSI C63.10-2013

Remark:

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



2 Test Configuration of Equipment Under Test

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

2.1 Carrier Frequency and Channel

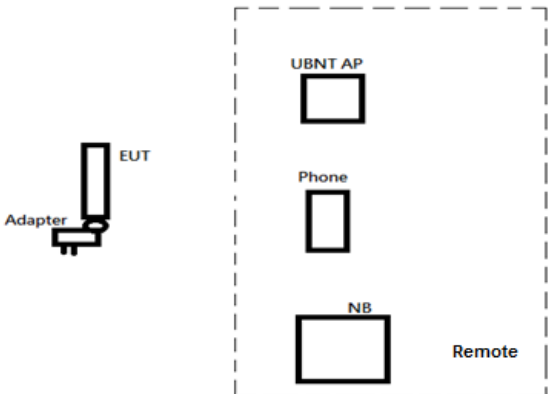
Frequency Band	Channel	Freq. (MHz)	Channel	Freq. (MHz)
5150-5250 MHz Band 1 (U-NII-1)	36	5180	44	5220
	38	5190	46	5230
	40	5200	48	5240
	42	5210		

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

2.2 Test Mode

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

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

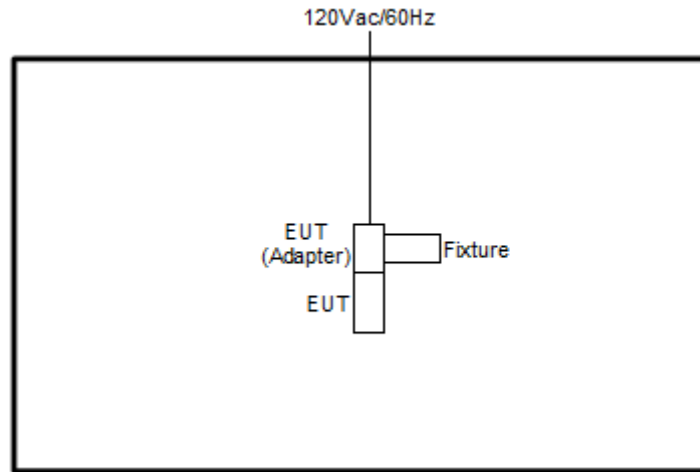
AC Conducted Emission	Mode 1 : WLAN Link + Adapter
Remark: The following figure was the connection diagram.	
	

Ch. #		Band I : 5150-5250 MHz	Band I : 5150-5250 MHz	Band I : 5150-5250 MHz
		802.11a	802.11n HT20	802.11n HT40
L	Low	36	38	100
M	Middle	44	-	116
H	High	48	46	140

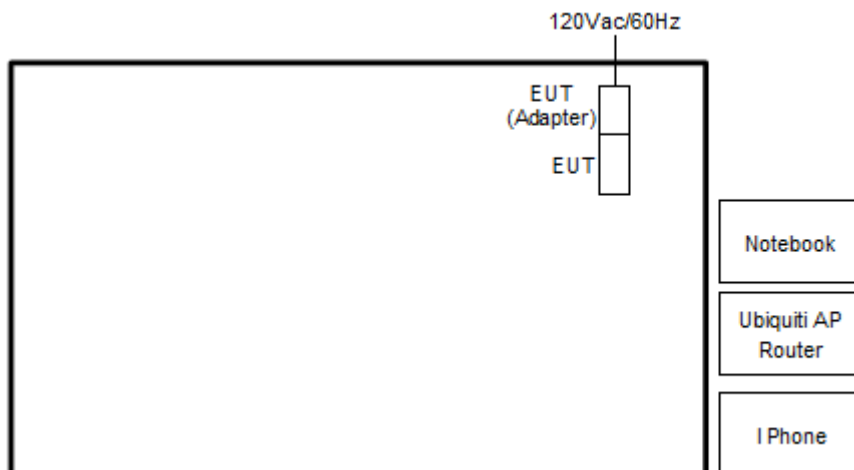
Ch. #		Band I : 5150-5250 MHz	Band I : 5150-5250 MHz	Band I : 5150-5250 MHz
		802.11ac VHT20	802.11ac VHT40	802.11ac VHT80
L	Low	38	-	100
M	Middle	-	42	116
H	High	46	-	140

2.3 Connection Diagram of Test System

<WLAN Tx Mode>



<AC Conducted Emission Mode>



2.4 Support Unit used in test configuration and system

Item	Equipment	Trade Name	Model Name	FCC ID	Data Cable	Power Cord
1.	Ubiquiti AP Router	Ubiquiti	AFi-R	N/A	N/A	N/A
2.	Fixture	N/A	N/A	N/A	N/A	N/A
3.	I Phone	Apple	I Phone6S	N/A	N/A	N/A
4.	PoE	Ubiquiti	GP-A240-050G	N/A	N/A	POE
5.	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

2.5 EUT Operation Test Setup

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

2.6 Measurement Results Explanation Example

For all conducted test items:

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

Example :

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

Offset = RF cable loss + attenuator factor.

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

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

3 Test Result

3.1 26dB & 99% Occupied Bandwidth Measurement

3.1.1 Description of 26dB & 99% Occupied Bandwidth

This section is for reporting purpose only.

There is no restriction limits for bandwidth.

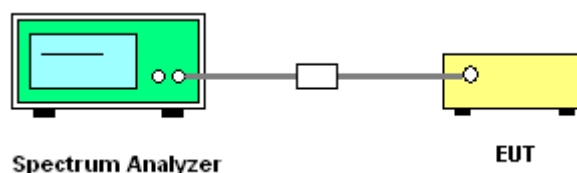
3.1.2 Measuring Instruments

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

3.1.3 Test Procedures

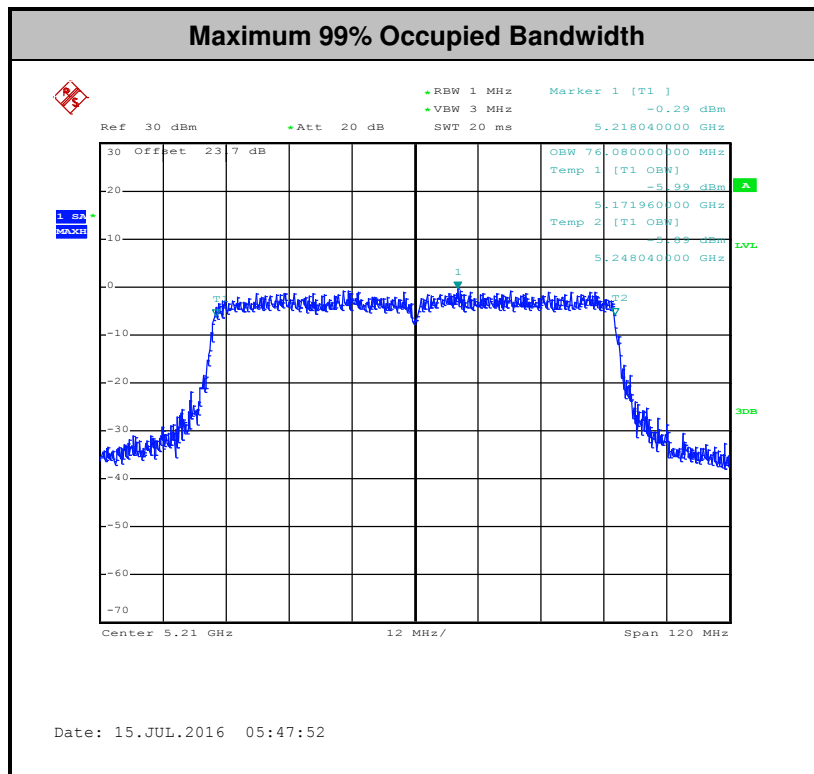
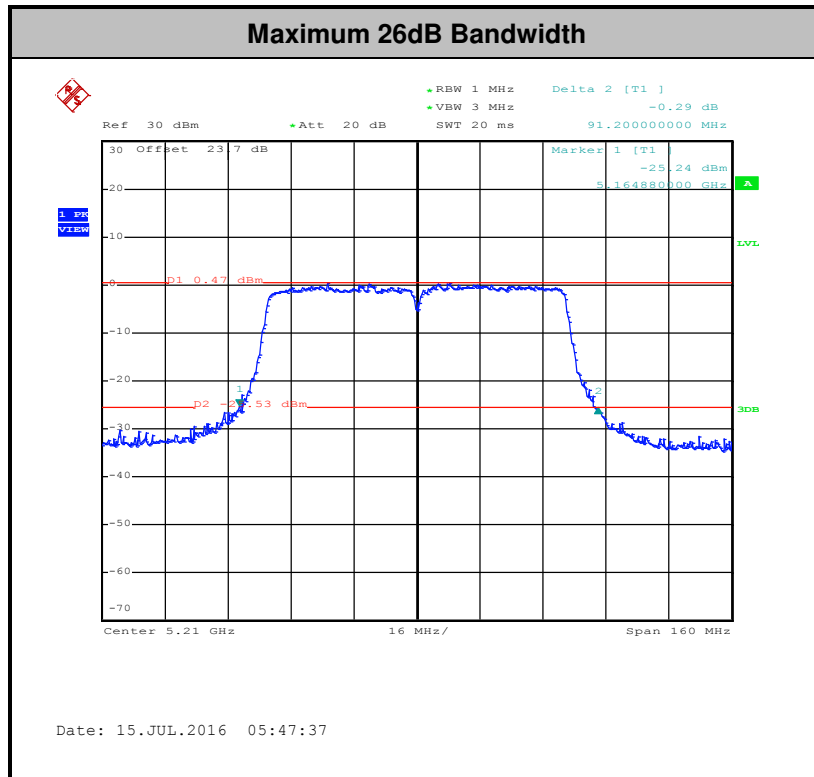
1. The testing follows FCC KDB 789033 D02 General UNII Test Procedures New Rules v01r02. Section C) Emission bandwidth
2. Set RBW = approximately 1% of the emission bandwidth.
3. Set the VBW > RBW.
4. Detector = Peak.
5. Trace mode = max hold
6. Measure the maximum width of the emission that is 26 dB down from the peak of the emission. Compare this with the RBW setting of the analyzer. Readjust RBW and repeat measurement as needed until the RBW/EBW ratio is approximately 1%.
7. For 99% Bandwidth Measurement, the spectrum analyzer's resolution bandwidth (RBW) is set 1MHz and set the Video bandwidth (VBW) $\geq 3 * \text{RBW}$.
8. Measure and record the results in the test report.

3.1.4 Test Setup



3.1.5 Test Result of 26dB & 99% Occupied Bandwidth

Please refer to Appendix A.



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

3.2 Maximum Conducted Output Power Measurement

3.2.1 Limit of Maximum Conducted Output Power

For mobile and portable client devices in the 5.15–5.25 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed 250 mW.

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.

Note that U-NII-2 band, devices with a maximum e.i.r.p. greater than 500 mW shall implement TPC in order to have the capability to operate at least 6 dB below the maximum permitted e.i.r.p. of 1 W.

3.2.2 Measuring Instruments

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

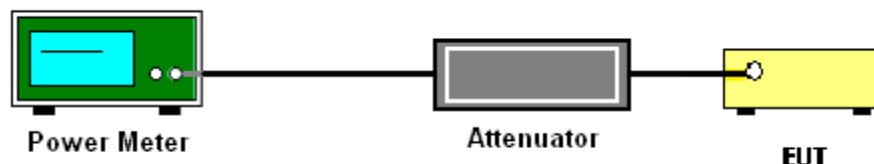
3.2.3 Test Procedures

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 mobile and portable client devices in the 5.15–5.25 GHz band, the maximum power spectral density shall not exceed 11dBm in any 1 megahertz 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).

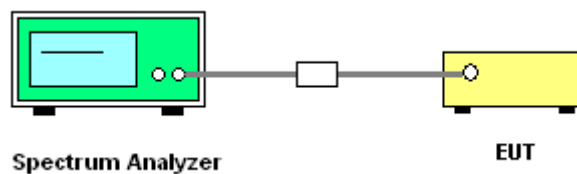
1. The testing follows Method SA-2 of FCC KDB 789033 D02 General UNII Test Procedures New Rules v01r02.
 - Measure the duty cycle.
 - Set span to encompass the entire emission bandwidth (EBW) of the signal.
 - Set RBW = 1 MHz.
 - Set VBW $\geq$ 3 MHz.
 - Number of points in sweep $\geq$ 2 Span / RBW.
 - Sweep time = auto.
 - Detector = RMS
 - Trace average at least 100 traces in power averaging mode.
 - Add $10 \log(1/x)$, where x is the duty cycle, to the measured power in order to compute the average power during the actual transmission times. For example, add $10 \log(1/0.25) = 6$ dB if the duty cycle is 25 percent.
2. The RF output of EUT was connected to the spectrum analyzer by a low loss cable.
3. Each plot has already offset with cable loss, and attenuator loss. Measure the PPSD and record it.

4. For MIMO mode, calculation method follows FCC KDB 662911 D01 Multiple Transmitter Output v02r01.

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

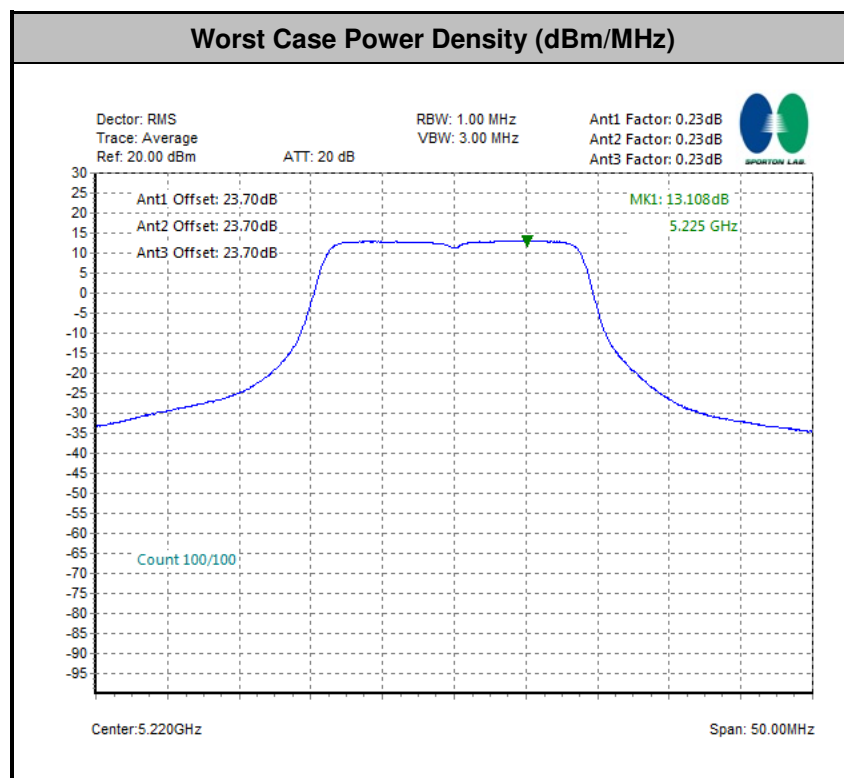
The total final Power Spectral Density is from a device with 2 transmitter outputs. The spectrum measurements of the individual outputs are all performed with the same span and number of points, the spectrum value in the first spectral bin of output 1 is summed with that in the first spectral bin of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

3.3.4 Test Setup



3.3.5 Test Result of Power Spectral Density

Please refer to Appendix A.



Note: Average Power Density (dB) = Measured value+ Duty Factor

3.4 Unwanted Emissions Measurement

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

3.4.1 Limit of Unwanted Emissions

- (1) For transmitters operating in the 5150-5250 MHz band: all emissions outside of the 5150-5350 MHz band shall not exceed an EIRP of -27dBm/MHz.
- (2) Unwanted spurious emissions fallen in restricted bands per FCC Part 15.205 shall comply with the general field strength limits set forth in § 15.209 as below table,

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

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

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

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

- (3) KDB789033 D02 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

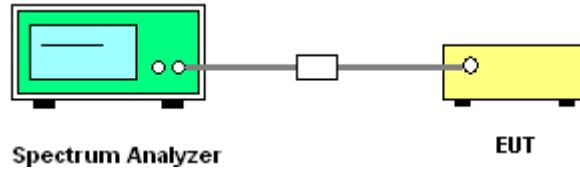
The measuring equipment is listed in the section 4 of this test report.

3.4.3 Test Procedures

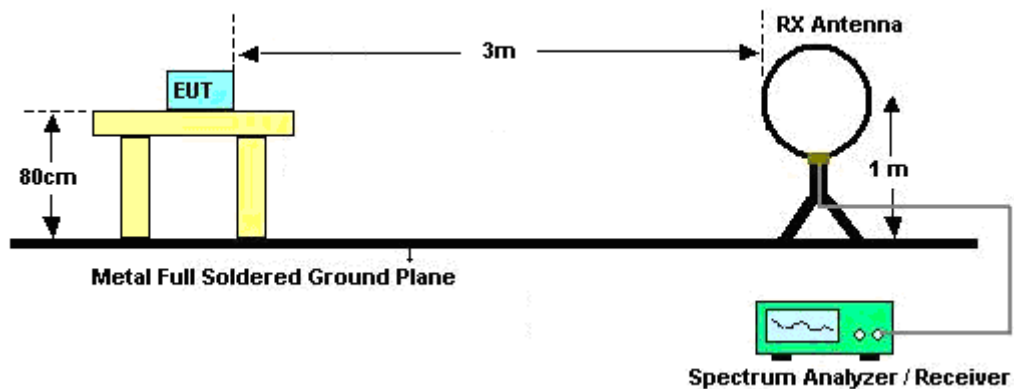
1. The testing follows FCC KDB 789033 D02 General UNII Test Procedures New Rules v01r02.
Section G) Unwanted emissions measurement.
 - (1) Procedure for Unwanted Emissions Measurements Below 1000MHz
 - RBW = 120 kHz
 - VBW = 300 kHz
 - Detector = Peak
 - Trace mode = max hold
 - (2) Procedure for Peak Unwanted Emissions Measurements Above 1000 MHz
 - RBW = 1 MHz
 - VBW $\geq$ 3 MHz
 - Detector = Peak
 - Sweep time = auto
 - Trace mode = max hold
 - (3) Procedures for Average Unwanted Emissions Measurements Above 1000MHz
 - RBW = 1 MHz
 - VBW = 10 Hz, when duty cycle is no less than 98 percent.
 - VBW $\geq$ 1/T, when duty cycle is less than 98 percent where T is the minimum transmission duration over which the transmitter is on and is transmitting at its maximum power control level for the tested mode of operation.
2. The EUT was placed on a turntable with 0.8 meter for frequency below 1GHz and 1.5 meter for frequency above 1GHz respectively above ground.
3. The EUT was set 3 meters from the interference receiving antenna which was mounted on the top of a variable height antenna tower.
4. The antenna is a broadband antenna and its height is adjusted between one meter and four meters above ground to find the maximum value of the field strength for both horizontal polarization and vertical polarization of the antenna.
5. For each suspected emission, the EUT was arranged to its worst case and then adjust the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading.
6. For testing below 1GHz, if the emission level of the EUT in peak mode was 3 dB lower than the limit specified, then peak values of EUT will be reported, otherwise, the emissions will be repeated one by one using the CISPR quasi-peak method and reported.
7. For testing above 1GHz, the emission level of the EUT in peak mode was 20dB lower than average limit (that means the emission level in average mode also complies with the limit in average mode), then peak values of EUT will be reported, otherwise, the emissions will be measured in average mode again and reported.

3.4.4 Test Setup

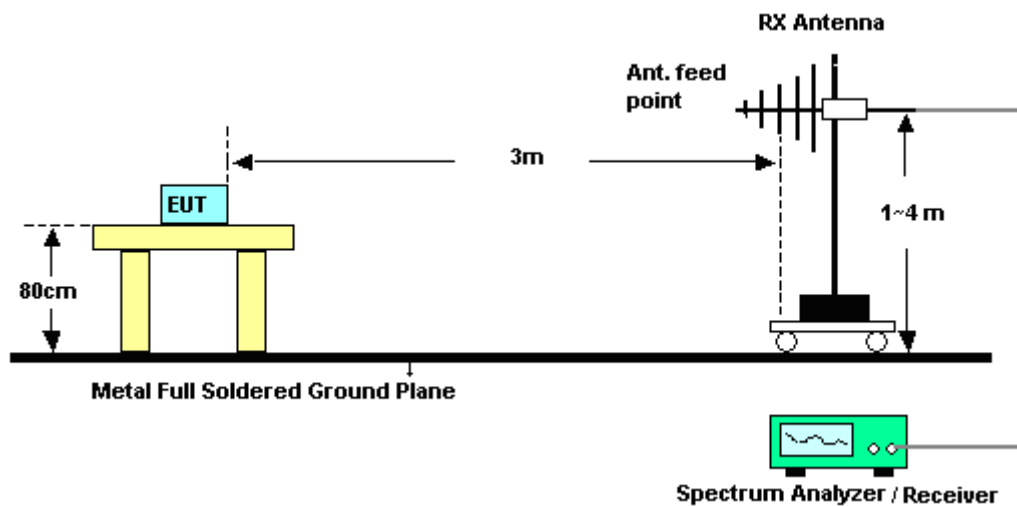
For Conducted Measurement Setup:



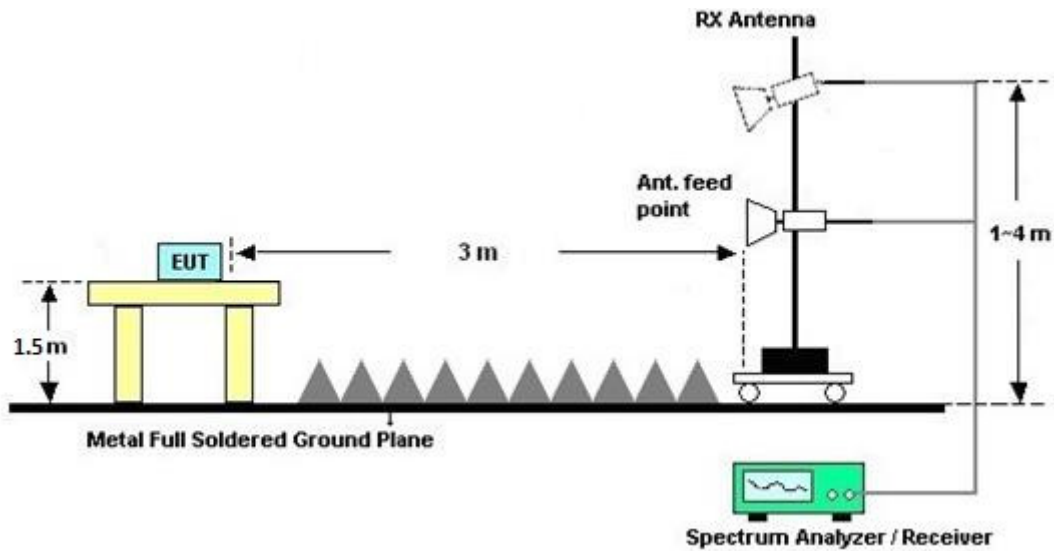
For radiated emissions below 30MHz



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.



3.4.9 Test Result of Conducted Spurious at Band Edges in the Restricted Band

Band 1 - 5150~5250MHz

WIFI 802.11a (Band Edge)

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Grounding	MIMO	Peak
Ant. 1+2+3(1)		(MHz)	(dBm)	Limit (dB)	Line (dBm)	Level (dBm)	Gain (dBi)	Loss (dB)	Factor (dB)	Factor (dB)	Gain (dBi)	Avg. (P/A)
802.11a CH 36 5180MHz		5149.24	-31.86	-10.66	-21.2	-47.93	5	6.3	0	0	4.77	P
		5149.76	-41.77	-0.57	-41.2	-57.84	5	6.3	0	0	4.77	A
	*	5178	22.5	-	-	6.43	5	6.3	0	0	4.77	P
	*	5178	15.57	-	-	-0.5	5	6.3	0	0	4.77	A
802.11a CH 44 5220MHz		5149.76	-32.44	-11.24	-21.2	-48.51	5	6.3	0	0	4.77	P
		5150	-42.93	-1.73	-41.2	-59	5	6.3	0	0	4.77	A
	*	5224	27.89	-	-	11.82	5	6.3	0	0	4.77	P
	*	5224	17.36	-	-	1.29	5	6.3	0	0	4.77	A
		5367.6	-35.28	-14.08	-21.2	-51.35	5	6.3	0	0	4.77	P
		5442.72	-45.07	-3.87	-41.2	-61.14	5	6.3	0	0	4.77	A
802.11a CH 48 5240MHz		5143	-35.15	-13.95	-21.2	-51.22	5	6.3	0	0	4.77	P
		5028.34	-44.7	-3.5	-41.2	-60.77	5	6.3	0	0	4.77	A
	*	5236	28.7	-	-	12.63	5	6.3	0	0	4.77	P
	*	5236	18.04	-	-	1.97	5	6.3	0	0	4.77	A
		5439.6	-32.26	-11.06	-21.2	-48.33	5	6.3	0	0	4.77	P
		5350.56	-42.77	-1.57	-41.2	-58.84	5	6.3	0	0	4.77	A
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.											



Band 1 5150~5250MHz

WIFI 802.11a (Harmonic)

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Grounding	MIMO	Peak
Ant.				Limit	Line	Level	Gain	Loss	Factor	Factor	Gain	Avg.
1+2+3(1)		(MHz)	(dBm)	(dB)	(dBm)	(dBm)	(dBi)	(dB)	(dB)	(dB)	(dBi)	(P/A)
802.11a CH 36 5180MHz		10365	-61.42	-34.42	-27	-42.79	5	6.3	34.7	0	4.77	P
		15542	-43.05	-21.85	-21.2	-24.39	5	6.3	34.73	0	4.77	P
802.11a CH 44 5220MHz		10440	-58.64	-31.64	-27	-40.09	5	6.3	34.62	0	4.77	P
		15654	-34.82	-13.62	-21.2	-16.07	5	6.3	34.82	0	4.77	P
		15654	-44	-2.8	-41.2	-25.25	5	6.3	34.82	0	4.77	A
		20876	-76.86	-55.66	-21.2	-57.95	5	6.3	34.98	0	4.77	P
802.11a CH 48 5240MHz		10480	-56.28	-29.28	-27	-37.78	5	6.3	34.57	0	4.77	P
		15738	-39.49	-18.29	-21.2	-20.68	5	6.3	34.88	0	4.77	P
		15738	-46.12	-4.92	-41.2	-27.31	5	6.3	34.88	0	4.77	A
		20946	-65	-43.8	-21.2	-46.08	5	6.3	34.99	0	4.77	P
Remark	1. No other spurious found.											
	2. All results are PASS against Peak and Average limit line.											



Band 1 5150~5250MHz

WIFI 802.11n HT20 (Band Edge)

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Grounding	MIMO	Peak
Ant.				Limit	Line	Level	Gain	Loss	Factor	Factor	Gain	Avg.
1+2+3(1)		(MHz)	(dBm)	(dB)	(dBm)	(dBm)	(dBi)	(dB)	(dB)	(dB)	(dBi)	(P/A)
802.11n HT20 CH 36 5180MHz		5146.64	-31.86	-10.66	-21.2	-47.93	5	6.3	0	0	4.77	P
		5150	-41.99	-0.79	-41.2	-58.06	5	6.3	0	0	4.77	A
	*	5182	22.75	-	-	6.68	5	6.3	0	0	4.77	P
	*	5182	15.39	-	-	-0.68	5	6.3	0	0	4.77	A
802.11n HT20 CH 44 5220MHz		5147.16	-32.8	-11.6	-21.2	-48.87	5	6.3	0	0	4.77	P
		5148.72	-42.48	-1.28	-41.2	-58.55	5	6.3	0	0	4.77	A
	*	5218	28.07	-	-	12	5	6.3	0	0	4.77	P
	*	5218	17.58	-	-	1.51	5	6.3	0	0	4.77	A
		5410.56	-32.88	-11.68	-21.2	-48.95	5	6.3	0	0	4.77	P
		5458.32	-42.68	-1.48	-41.2	-58.75	5	6.3	0	0	4.77	A
802.11n HT20 CH 48 5240MHz		5093.08	-32.3	-11.1	-21.2	-48.37	5	6.3	0	0	4.77	P
		5149.76	-41.48	-0.28	-41.2	-57.55	5	6.3	0	0	4.77	A
	*	5236	28.9	-	-	12.83	5	6.3	0	0	4.77	P
	*	5236	18.32	-	-	2.25	5	6.3	0	0	4.77	A
		5373.6	-30.26	-9.06	-21.2	-46.33	5	6.3	0	0	4.77	P
		5449.68	-41.5	-0.3	-41.2	-57.57	5	6.3	0	0	4.77	A
Remark	1. No other spurious found.											
	2. All results are PASS against Peak and Average limit line.											



Band 1 5150~5250MHz
WIFI 802.11n HT20 (Harmonic)

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Grounding	MIMO	Peak
Ant.				Limit	Line	Level	Gain	Loss	Factor	Factor	Gain	Avg.
1+2+3(1)		(MHz)	(dBm)	(dB)	(dBm)	(dBm)	(dBi)	(dB)	(dB)	(dB)	(dBi)	(P/A)
802.11n HT20 CH 36 5180MHz		10365	-60.57	-33.57	-27	-41.94	5	6.3	34.7	0	4.77	P
		15556	-53.15	-31.95	-21.2	-34.47	5	6.3	34.75	0	4.77	P
802.11n HT20 CH 44 5220MHz		10445	-60.09	-33.09	-27	-41.54	5	6.3	34.62	0	4.77	P
		15654	-37.98	-16.78	-21.2	-19.23	5	6.3	34.82	0	4.77	P
		15654	-44.74	-3.54	-41.2	-25.99	5	6.3	34.82	0	4.77	A
802.11n HT20 CH 48 5240MHz		10480	-59.54	-32.54	-27	-41.04	5	6.3	34.57	0	4.77	P
		15724	-39.61	-18.41	-21.2	-20.82	5	6.3	34.86	0	4.77	P
		15724	-47.45	-6.25	-41.2	-28.66	5	6.3	34.86	0	4.77	A
		20960	-72.83	-51.63	-21.2	-53.9	5	6.3	35	0	4.77	P
Remark	1. No other spurious found.											
	2. All results are PASS against Peak and Average limit line.											



Band 1 5150~5250MHz

WIFI 802.11n HT40 (Band Edge)

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Grounding	MIMO	Peak
Ant.				Limit	Line	Level	Gain	Loss	Factor	Factor	Gain	Avg.
1+2+3(1)		(MHz)	(dBm)	(dB)	(dBm)	(dBm)	(dBi)	(dB)	(dB)	(dB)	(dBi)	(P/A)
802.11n HT40 CH 38 5190MHz		5148.46	-31.55	-10.35	-21.2	-47.62	5	6.3	0	0	4.77	P
		5149.5	-41.83	-0.63	-41.2	-57.9	5	6.3	0	0	4.77	A
	*	5188	13.74	-	-	-2.33	5	6.3	0	0	4.77	P
	*	5188	4.45	-	-	-11.62	5	6.3	0	0	4.77	A
		5419.44	-37.43	-16.23	-21.2	-53.5	5	6.3	0	0	4.77	P
		5452.56	-47.34	-6.14	-41.2	-63.41	5	6.3	0	0	4.77	A
802.11n HT40 CH 46 5230MHz		5137.02	-33.56	-12.36	-21.2	-49.63	5	6.3	0	0	4.77	P
		5150	-41.91	-0.71	-41.2	-57.98	5	6.3	0	0	4.77	A
	*	5230	22.38	-	-	6.31	5	6.3	0	0	4.77	P
	*	5230	13.08	-	-	-2.99	5	6.3	0	0	4.77	P
		5455.44	-34.41	-13.21	-21.2	-50.48	5	6.3	0	0	4.77	P
		5455.2	-43.56	-2.36	-41.2	-59.63	5	6.3	0	0	4.77	A
Remark	1. No other spurious found.											
	2. All results are PASS against Peak and Average limit line.											



Band 1 5150~5250MHz
WIFI 802.11n HT40 (Harmonic)

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Grounding	MIMO	Peak
Ant.				Limit	Line	Level	Gain	Loss	Factor	Factor	Gain	Avg.
1+2+3(1)		(MHz)	(dBm)	(dB)	(dBm)	(dBm)	(dBi)	(dB)	(dB)	(dB)	(dBi)	(P/A)
802.11n HT40 CH 38 5190MHz		10405	-73.39	-46.39	-27	-54.81	5	6.3	34.65	0	4.77	P
		15584	-70.81	-49.61	-21.2	-52.11	5	6.3	34.77	0	4.77	P
802.11n HT40 CH 46 5230MHz		10485	-64.58	-37.58	-27	-46.08	5	6.3	34.57	0	4.77	P
		15738	-49.94	-28.74	-21.2	-31.13	5	6.3	34.88	0	4.77	P
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.											



Band 1 5150~5250MHz

WIFI 802.11ac VHT80 (Band Edge)

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Grounding	MIMO	Peak
Ant.				Limit	Line	Level	Gain	Loss	Factor	Factor	Gain	Avg.
1+2+3(1)		(MHz)	(dBm)	(dB)	(dBm)	(dBm)	(dBi)	(dB)	(dB)	(dB)	(dBi)	(P/A)
802.11ac VHT80 CH 42 5210MHz		5147.68	-32.51	-11.31	-21.2	-48.58	5	6.3	0	0	4.77	P
		5149.5	-42.22	-1.02	-41.2	-58.29	5	6.3	0	0	4.77	A
	*	5210	7.01	-	-	-9.06	5	6.3	0	0	4.77	P
	*	5210	-0.97	-	-	-17.04	5	6.3	0	0	4.77	A
		5448.24	-40.02	-18.82	-21.2	-56.09	5	6.3	0	0	4.77	P
		5438.16	-47.85	-6.65	-41.2	-63.92	5	6.3	0	0	4.77	A
Remark	1. No other spurious found.											
	2. All results are PASS against Peak and Average limit line.											


Band 1 5150~5250MHz
WIFI 802.11ac VHT80 (Harmonic)

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Grounding	MIMO	Peak
Ant.				Limit	Line	Level	Gain	Loss	Factor	Factor	Gain	Avg.
1+2+3(1)		(MHz)	(dBm)	(dB)	(dBm)	(dBm)	(dBi)	(dB)	(dB)	(dB)	(dBi)	(P/A)
802.11ac VHT80 CH 42 5210MHz		10415	-80.24	-53.24	-27	-61.66	5	6.3	34.65	0	4.77	P
		15626	-84.13	-62.93	-21.2	-65.4	5	6.3	34.8	0	4.77	P
Remark	1. No other spurious found.											
	2. All results are PASS against Peak and Average limit line.											



Emission below 1GHz

WIFI 802.11a (LF)

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Grounding	MIMO	Peak
Ant.				Limit	Line	Level	Gain	Loss	Factor	Factor	Gain	Avg.
1+2+3(1)		(MHz)	(dBm)	(dB)	(dBm)	(dBm)	(dBi)	(dB)	(dB)	(dB)	(dBi)	(P/A)
802.11a LF		90.48	-91.87	-40.17	-51.7	-80.44	5	6.3	32.2	4.7	4.77	P
		168.78	-86.63	-34.93	-51.7	-75.18	5	6.3	32.22	4.7	4.77	P
		261.66	-85.65	-36.45	-49.2	-74.29	5	6.3	32.13	4.7	4.77	P
		452.6	-71.89	-22.69	-49.2	-60.51	5	6.3	32.15	4.7	4.77	P
		633.2	-88.93	-39.73	-49.2	-77.51	5	6.3	32.19	4.7	4.77	P
		955.9	-83.22	-34.02	-49.2	-73.05	5	6.3	30.94	4.7	4.77	P
Remark	1. No other spurious found. 2. All results are PASS against limit line.											



Band 1 - 5150~5250MHz
WIFI 802.11a (Band Edge)

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Grounding	MIMO	Peak
Ant.				Limit	Line	Level	Gain	Loss	Factor	Factor	Gain	Avg.
1+2+3(2)		(MHz)	(dBm)	(dB)	(dBm)	(dBm)	(dBi)	(dB)	(dB)	(dB)	(dBi)	(P/A)
802.11a CH 36 5180MHz		5149.5	-31.9	-10.7	-21.2	-47.97	5	6.3	0	0	4.77	P
		5150	-42.51	-1.31	-41.2	-58.58	5	6.3	0	0	4.77	A
	*	5176	22.03	-	-	5.96	5	6.3	0	0	4.77	P
	*	5176	15.56	-	-	-0.51	5	6.3	0	0	4.77	A
802.11a CH 44 5220MHz		5146.64	-31.14	-9.94	-21.2	-47.21	5	6.3	0	0	4.77	P
		5150	-44.39	-3.19	-41.2	-60.46	5	6.3	0	0	4.77	A
	*	5224	27.71	-	-	11.64	5	6.3	0	0	4.77	P
	*	5224	17.54	-	-	1.47	5	6.3	0	0	4.77	A
		5445.12	-36.86	-15.66	-21.2	-52.93	5	6.3	0	0	4.77	P
		5451.36	-46.92	-5.72	-41.2	-62.99	5	6.3	0	0	4.77	A
802.11a CH 48 5240MHz		5140.4	-33.14	-11.94	-21.2	-49.21	5	6.3	0	0	4.77	P
		5148.72	-44.19	-2.99	-41.2	-60.26	5	6.3	0	0	4.77	A
	*	5248	28.68	-	-	12.61	5	6.3	0	0	4.77	P
	*	5248	17.94	-	-	1.87	5	6.3	0	0	4.77	A
		5375.76	-35.07	-13.87	-21.2	-51.14	5	6.3	0	0	4.77	P
		5456.16	-45.13	-3.93	-41.2	-61.2	5	6.3	0	0	4.77	A
Remark	3. No other spurious found. 4. All results are PASS against Peak and Average limit line.											



Band 1 5150~5250MHz

WIFI 802.11a (Harmonic)

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Grounding	MIMO	Peak
Ant.				Limit	Line	Level	Gain	Loss	Factor	Factor	Gain	Avg.
1+2+3(2)		(MHz)	(dBm)	(dB)	(dBm)	(dBm)	(dBi)	(dB)	(dB)	(dB)	(dBi)	(P/A)
802.11a CH 36 5180MHz		10365	-59.58	-32.58	-27	-40.95	5	6.3	34.7	0	4.77	P
		15556	-47.46	-26.26	-21.2	-28.78	5	6.3	34.75	0	4.77	P
802.11a CH 44 5220MHz		10435	-53.48	-26.48	-27	-34.93	5	6.3	34.62	0	4.77	P
		15654	-42.64	-21.44	-21.2	-23.89	5	6.3	34.82	0	4.77	P
		20890	-76.72	-55.52	-21.2	-57.81	5	6.3	34.98	0	4.77	P
802.11a CH 48 5240MHz		10480	-54.11	-27.11	-27	-35.61	5	6.3	34.57	0	4.77	P
		15724	-47.95	-26.75	-21.2	-29.16	5	6.3	34.86	0	4.77	P
		20960	-66.27	-45.07	-21.2	-47.34	5	6.3	35	0	4.77	P
Remark	3. No other spurious found.											
	4. All results are PASS against Peak and Average limit line.											



Band 1 5150~5250MHz

WIFI 802.11n HT20 (Band Edge)

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Grounding	MIMO	Peak
Ant.				Limit	Line	Level	Gain	Loss	Factor	Factor	Gain	Avg.
1+2+3(2)		(MHz)	(dBm)	(dB)	(dBm)	(dBm)	(dBi)	(dB)	(dB)	(dB)	(dBi)	(P/A)
802.11n HT20 CH 36 5180MHz		5150	-32.63	-11.43	-21.2	-48.7	5	6.3	0	0	4.77	P
		5149.76	-42.17	-0.97	-41.2	-58.24	5	6.3	0	0	4.77	A
	*	5180	21.43	-	-	5.36	5	6.3	0	0	4.77	P
	*	5180	14.17	-	-	-1.9	5	6.3	0	0	4.77	A
802.11n HT20 CH 44 5220MHz		5150	-33.94	-12.74	-21.2	-50.01	5	6.3	0	0	4.77	P
		5149.76	-44.47	-3.27	-41.2	-60.54	5	6.3	0	0	4.77	A
	*	5220	26.76	-	-	10.69	5	6.3	0	0	4.77	P
	*	5220	17.66	-	-	1.59	5	6.3	0	0	4.77	A
		5423.52	-34.74	-13.54	-21.2	-50.81	5	6.3	0	0	4.77	P
		5451.12	-45.9	-4.7	-41.2	-61.97	5	6.3	0	0	4.77	A
802.11n HT20 CH 48 5240MHz		5145.34	-32.29	-11.09	-21.2	-48.36	5	6.3	0	0	4.77	P
		5148.46	-43.26	-2.06	-41.2	-59.33	5	6.3	0	0	4.77	A
	*	5242	29.14	-	-	13.07	5	6.3	0	0	4.77	P
	*	5242	18.65	-	-	2.58	5	6.3	0	0	4.77	A
		5377.92	-34.37	-13.17	-21.2	-50.44	5	6.3	0	0	4.77	P
		5456.16	-45.16	-3.96	-41.2	-61.23	5	6.3	0	0	4.77	A
Remark	3. No other spurious found.											
	4. All results are PASS against Peak and Average limit line.											



Band 1 5150~5250MHz

WIFI 802.11n HT20 (Harmonic)

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Grounding	MIMO	Peak
Ant.				Limit	Line	Level	Gain	Loss	Factor	Factor	Gain	Avg.
1+2+3(2)		(MHz)	(dBm)	(dB)	(dBm)	(dBm)	(dBi)	(dB)	(dB)	(dB)	(dBi)	(P/A)
802.11n HT20 CH 36 5180MHz		10365	-58.89	-31.89	-27	-40.26	5	6.3	34.7	0	4.77	P
		15556	-57.87	-36.67	-21.2	-39.19	5	6.3	34.75	0	4.77	P
802.11n HT20 CH 44 5220MHz		10435	-53.98	-26.98	-27	-35.43	5	6.3	34.62	0	4.77	P
		15654	-42.34	-21.14	-21.2	-23.59	5	6.3	34.82	0	4.77	P
802.11n HT20 CH 48 5240MHz		10475	-59.35	-32.35	-27	-40.85	5	6.3	34.57	0	4.77	P
		15738	-47.25	-26.05	-21.2	-28.44	5	6.3	34.88	0	4.77	P
		20974	-71.45	-50.25	-21.2	-52.52	5	6.3	35	0	4.77	P
Remark	3. No other spurious found.											
	4. All results are PASS against Peak and Average limit line.											



Band 1 5150~5250MHz

WIFI 802.11n HT40 (Band Edge)

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Grounding	MIMO	Peak
Ant.				Limit	Line	Level	Gain	Loss	Factor	Factor	Gain	Avg.
1+2+3(2)		(MHz)	(dBm)	(dB)	(dBm)	(dBm)	(dBi)	(dB)	(dB)	(dB)	(dBi)	(P/A)
802.11n HT40 CH 38 5190MHz		5145.08	-33.37	-12.17	-21.2	-49.44	5	6.3	0	0	4.77	P
		5149.76	-42.3	-1.1	-41.2	-58.37	5	6.3	0	0	4.77	A
	*	5190	13.72	-	-	-2.35	5	6.3	0	0	4.77	P
	*	5190	4.53	-	-	-11.54	5	6.3	0	0	4.77	A
		5452.56	-41.71	-20.51	-21.2	-57.78	5	6.3	0	0	4.77	P
		5450.88	-50.52	-9.32	-41.2	-66.59	5	6.3	0	0	4.77	A
802.11n HT40 CH 46 5230MHz		5137.02	-34.03	-12.83	-21.2	-50.1	5	6.3	0	0	4.77	P
		5150	-43.09	-1.89	-41.2	-59.16	5	6.3	0	0	4.77	A
	*	5230	21.85	-	-	5.78	5	6.3	0	0	4.77	P
	*	5230	12.43	-	-	-3.64	5	6.3	0	0	4.77	A
		5455.68	-35.76	-14.56	-21.2	-51.83	5	6.3	0	0	4.77	P
		5458.8	-45.3	-4.1	-41.2	-61.37	5	6.3	0	0	4.77	A
Remark	3. No other spurious found.											
	4. All results are PASS against Peak and Average limit line.											



Band 1 5150~5250MHz
WIFI 802.11n HT40 (Harmonic)

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Grounding	MIMO	Peak
Ant.				Limit	Line	Level	Gain	Loss	Factor	Factor	Gain	Avg.
1+2+3(2)		(MHz)	(dBm)	(dB)	(dBm)	(dBm)	(dBi)	(dB)	(dB)	(dB)	(dBi)	(P/A)
802.11n HT40 CH 38 5190MHz		10395	-69.4	-42.4	-27	-50.8	5	6.3	34.67	0	4.77	P
		15570	-77.23	-56.03	-21.2	-58.55	5	6.3	34.75	0	4.77	P
802.11n HT40 CH 46 5230MHz		10465	-60.85	-33.85	-27	-42.32	5	6.3	34.6	0	4.77	P
		15710	-53.45	-32.25	-21.2	-34.66	5	6.3	34.86	0	4.77	P
Remark	3. No other spurious found. 4. All results are PASS against Peak and Average limit line.											



Band 1 5150~5250MHz

WIFI 802.11ac VHT80 (Band Edge)

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Grounding	MIMO	Peak
Ant.				Limit	Line	Level	Gain	Loss	Factor	Factor	Gain	Avg.
1+2+3(2)		(MHz)	(dBm)	(dB)	(dBm)	(dBm)	(dBi)	(dB)	(dB)	(dB)	(dBi)	(P/A)
802.11ac VHT80 CH 42 5210MHz		5148.2	-34.76	-13.56	-21.2	-50.83	5	6.3	0	0	4.77	P
		5150	-42.33	-1.13	-41.2	-58.4	5	6.3	0	0	4.77	A
	*	5210	6.57	-	-	-9.5	5	6.3	0	0	4.77	P
	*	5210	-0.41	-	-	-16.48	5	6.3	0	0	4.77	A
		5399.04	-41.28	-20.08	-21.2	-57.35	5	6.3	0	0	4.77	P
		5443.68	-48.68	-7.48	-41.2	-64.75	5	6.3	0	0	4.77	A
Remark	3. No other spurious found.											
	4. All results are PASS against Peak and Average limit line.											


Band 1 5150~5250MHz
WIFI 802.11ac VHT80 (Harmonic)

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Grounding	MIMO	Peak
Ant.				Limit	Line	Level	Gain	Loss	Factor	Factor	Gain	Avg.
1+2+3(2)		(MHz)	(dBm)	(dB)	(dBm)	(dBm)	(dBi)	(dB)	(dB)	(dB)	(dBi)	(P/A)
802.11ac VHT80 CH 42 5210MHz		10435	-78.6	-51.6	-27	-60.05	5	6.3	34.62	0	4.77	P
		25174	-78.6	-51.6	-27	-59.46	5	6.3	35.21	0	4.77	P
Remark	3. No other spurious found.											
	4. All results are PASS against Peak and Average limit line.											



Emission below 1GHz

WIFI 802.11a (LF)

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Grounding	MIMO	Peak
Ant.				Limit	Line	Level	Gain	Loss	Factor	Factor	Gain	Avg.
1+2+3(2)		(MHz)	(dBm)	(dB)	(dBm)	(dBm)	(dBi)	(dB)	(dB)	(dB)	(dBi)	(P/A)
802.11a LF		49.44	-93.55	-38.35	-55.2	-82.06	5	6.3	32.26	4.7	4.77	P
		200.91	-85.55	-33.85	-51.7	-74.09	5	6.3	32.23	4.7	4.77	P
		297.3	-84.58	-35.38	-49.2	-73.28	5	6.3	32.07	4.7	4.77	P
		451.2	-71.23	-22.03	-49.2	-59.85	5	6.3	32.15	4.7	4.77	P
		598.9	-89.22	-40.02	-49.2	-77.78	5	6.3	32.21	4.7	4.77	P
		861.4	-84.45	-35.25	-49.2	-73.57	5	6.3	31.65	4.7	4.77	P
Remark	3. No other spurious found. 4. All results are PASS against limit line.											



Band 1 - 5150~5250MHz
WIFI 802.11a (Band Edge)

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Grounding	MIMO	Peak
Ant.				Limit	Line	Level	Gain	Loss	Factor	Factor	Gain	Avg.
1+2+3(3)		(MHz)	(dBm)	(dB)	(dBm)	(dBm)	(dBi)	(dB)	(dB)	(dB)	(dBi)	(P/A)
802.11a CH 36 5180MHz		5148.72	-31.2	-10	-21.2	-47.27	5	6.3	0	0	4.77	P
		5150	-41.96	-0.76	-41.2	-58.03	5	6.3	0	0	4.77	A
	*	5176	23.3	-	-	7.23	5	6.3	0	0	4.77	P
	*	5176	16.19	-	-	0.12	5	6.3	0	0	4.77	A
802.11a CH 44 5220MHz		5149.76	-32.72	-11.52	-21.2	-48.79	5	6.3	0	0	4.77	P
		5149.5	-41.56	-0.36	-41.2	-57.63	5	6.3	0	0	4.77	A
	*	5224	28.29	-	-	12.22	5	6.3	0	0	4.77	P
	*	5224	17.75	-	-	1.68	5	6.3	0	0	4.77	A
		5374.56	-33.8	-12.6	-21.2	-49.87	5	6.3	0	0	4.77	P
		5440.08	-43.18	-1.98	-41.2	-59.25	5	6.3	0	0	4.77	A
802.11a CH 48 5240MHz		5145.6	-33.17	-11.97	-21.2	-49.24	5	6.3	0	0	4.77	P
		5148.2	-42.87	-1.67	-41.2	-58.94	5	6.3	0	0	4.77	A
	*	5242	30.06	-	-	13.99	5	6.3	0	0	4.77	P
	*	5242	18.41	-	-	2.34	5	6.3	0	0	4.77	A
		5359.2	-33.86	-12.66	-21.2	-49.93	5	6.3	0	0	4.77	P
		5359.92	-44.13	-2.93	-41.2	-60.2	5	6.3	0	0	4.77	A
Remark	5. No other spurious found. 6. All results are PASS against Peak and Average limit line.											



Band 1 5150~5250MHz

WIFI 802.11a (Harmonic)

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Grounding	MIMO	Peak
Ant.				Limit	Line	Level	Gain	Loss	Factor	Factor	Gain	Avg.
1+2+3(3)		(MHz)	(dBm)	(dB)	(dBm)	(dBm)	(dBi)	(dB)	(dB)	(dB)	(dBi)	(P/A)
802.11a CH 36 5180MHz		10360	-71.76	-44.76	-27	-53.13	5	6.3	34.7	0	4.77	P
		15542	-53.75	-32.55	-21.2	-35.09	5	6.3	34.73	0	4.77	P
802.11a CH 44 5220MHz		10450	-61.41	-34.41	-27	-42.88	5	6.3	34.6	0	4.77	P
		15668	-35.19	-13.99	-21.2	-16.44	5	6.3	34.82	0	4.77	P
		15668	-43.85	-2.65	-41.2	-25.1	5	6.3	34.82	0	4.77	A
		20890	-70.58	-49.38	-21.2	-51.67	5	6.3	34.98	0	4.77	P
802.11a CH 48 5240MHz		10470	-62.9	-35.9	-27	-44.37	5	6.3	34.6	0	4.77	P
		15724	-35.41	-14.21	-21.2	-16.62	5	6.3	34.86	0	4.77	P
		15724	-42.22	-1.02	-41.2	-23.43	5	6.3	34.86	0	4.77	A
		20946	-70.5	-49.3	-21.2	-51.58	5	6.3	34.99	0	4.77	P
Remark	5. No other spurious found.											
	6. All results are PASS against Peak and Average limit line.											



Band 1 5150~5250MHz

WIFI 802.11n HT20 (Band Edge)

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Grounding	MIMO	Peak
Ant.				Limit	Line	Level	Gain	Loss	Factor	Factor	Gain	Avg.
1+2+3(3)		(MHz)	(dBm)	(dB)	(dBm)	(dBm)	(dBi)	(dB)	(dB)	(dB)	(dBi)	(P/A)
802.11n HT20 CH 36 5180MHz		5149.24	-31.11	-9.91	-21.2	-47.18	5	6.3	0	0	4.77	P
		5149.76	-41.63	-0.43	-41.2	-57.7	5	6.3	0	0	4.77	A
	*	5176	22.52	-	-	6.45	5	6.3	0	0	4.77	P
	*	5176	15.03	-	-	-1.04	5	6.3	0	0	4.77	A
802.11n HT20 CH 44 5220MHz		5141.96	-31	-9.8	-21.2	-47.07	5	6.3	0	0	4.77	P
		5148.98	-41.92	-0.72	-41.2	-57.99	5	6.3	0	0	4.77	A
	*	5224	28.05	-	-	11.98	5	6.3	0	0	4.77	P
	*	5224	17.53	-	-	1.46	5	6.3	0	0	4.77	A
		5369.52	-32.95	-11.75	-21.2	-49.02	5	6.3	0	0	4.77	P
		5359.92	-43.56	-2.36	-41.2	-59.63	5	6.3	0	0	4.77	A
802.11n HT20 CH 48 5240MHz		5148.2	-31.14	-9.94	-21.2	-47.21	5	6.3	0	0	4.77	P
		5148.72	-41.67	-0.47	-41.2	-57.74	5	6.3	0	0	4.77	A
	*	5236	29.15	-	-	13.08	5	6.3	0	0	4.77	P
	*	5236	18.52	-	-	2.45	5	6.3	0	0	4.77	A
		5354.88	-33.35	-12.15	-21.2	-49.42	5	6.3	0	0	4.77	P
		5439.84	-43.61	-2.41	-41.2	-59.68	5	6.3	0	0	4.77	A
Remark	5. No other spurious found.											
	6. All results are PASS against Peak and Average limit line.											



Band 1 5150~5250MHz
WIFI 802.11n HT20 (Harmonic)

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Grounding	MIMO	Peak
Ant.				Limit	Line	Level	Gain	Loss	Factor	Factor	Gain	Avg.
1+2+3(3)		(MHz)	(dBm)	(dB)	(dBm)	(dBm)	(dBi)	(dB)	(dB)	(dB)	(dBi)	(P/A)
802.11n HT20 CH 36 5180MHz		10360	-72.02	-45.02	-27	-53.39	5	6.3	34.7	0	4.77	P
		15556	-53.6	-32.4	-21.2	-34.92	5	6.3	34.75	0	4.77	P
802.11n HT20 CH 44 5220MHz		10455	-62.91	-35.91	-27	-44.38	5	6.3	34.6	0	4.77	P
		15668	-36.65	-15.45	-21.2	-17.9	5	6.3	34.82	0	4.77	P
		15668	-43.1	-1.9	-41.2	-24.35	5	6.3	34.82	0	4.77	A
		20890	-67.74	-46.54	-21.2	-48.83	5	6.3	34.98	0	4.77	P
802.11n HT20 CH 48 5240MHz		10480	-61.69	-34.69	-27	-43.19	5	6.3	34.57	0	4.77	P
		15710	-34.38	-13.18	-21.2	-15.59	5	6.3	34.86	0	4.77	P
		15710	-41.9	-0.7	-41.2	-23.11	5	6.3	34.86	0	4.77	A
		20946	-67.41	-46.21	-21.2	-48.49	5	6.3	34.99	0	4.77	P
Remark	5. No other spurious found.											
	6. All results are PASS against Peak and Average limit line.											



Band 1 5150~5250MHz

WIFI 802.11n HT40 (Band Edge)

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Grounding	MIMO	Peak
Ant.				Limit	Line	Level	Gain	Loss	Factor	Factor	Gain	Avg.
1+2+3(3)		(MHz)	(dBm)	(dB)	(dBm)	(dBm)	(dBi)	(dB)	(dB)	(dB)	(dBi)	(P/A)
802.11n HT40 CH 38 5190MHz		5149.76	-34.78	-13.58	-21.2	-50.85	5	6.3	0	0	4.77	P
		5150	-41.44	-0.24	-41.2	-57.51	5	6.3	0	0	4.77	A
	*	5190	14.91	-	-	-1.16	5	6.3	0	0	4.77	P
	*	5190	4.59	-	-	-11.48	5	6.3	0	0	4.77	A
		5449.44	-37.88	-16.68	-21.2	-53.95	5	6.3	0	0	4.77	P
		5439.84	-47.62	-6.42	-41.2	-63.69	5	6.3	0	0	4.77	A
802.11n HT40 CH 46 5230MHz		5149.76	-33.38	-12.18	-21.2	-49.45	5	6.3	0	0	4.77	P
		5150	-42.69	-1.49	-41.2	-58.76	5	6.3	0	0	4.77	A
	*	5236	22.92	-	-	6.85	5	6.3	0	0	4.77	P
	*	5236	12.31	-	-	-3.76	5	6.3	0	0	4.77	A
		5416.08	-34.72	-13.52	-21.2	-50.79	5	6.3	0	0	4.77	P
		5440.08	-42.24	-1.04	-41.2	-58.31	5	6.3	0	0	4.77	A
Remark	5. No other spurious found.											
	6. All results are PASS against Peak and Average limit line.											



Band 1 5150~5250MHz
WIFI 802.11n HT40 (Harmonic)

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Grounding	MIMO	Peak
Ant.				Limit	Line	Level	Gain	Loss	Factor	Factor	Gain	Avg.
1+2+3(3)		(MHz)	(dBm)	(dB)	(dBm)	(dBm)	(dBi)	(dB)	(dB)	(dB)	(dBi)	(P/A)
802.11n HT40 CH 38 5190MHz		10400	-80.18	-53.18	-27	-61.6	5	6.3	34.65	0	4.77	P
		15584	-65.96	-44.76	-21.2	-47.26	5	6.3	34.77	0	4.77	P
802.11n HT40 CH 46 5230MHz		10390	-80.59	-53.59	-27	-61.99	5	6.3	34.67	0	4.77	P
		15584	-67.3	-46.1	-21.2	-48.6	5	6.3	34.77	0	4.77	P
Remark	5. No other spurious found. 6. All results are PASS against Peak and Average limit line.											



Band 1 5150~5250MHz

WIFI 802.11ac VHT80 (Band Edge)

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Grounding	MIMO	Peak
Ant.				Limit	Line	Level	Gain	Loss	Factor	Factor	Gain	Avg.
1+2+3(3)		(MHz)	(dBm)	(dB)	(dBm)	(dBm)	(dBi)	(dB)	(dB)	(dB)	(dBi)	(P/A)
802.11ac VHT80 CH 42 5210MHz		5147.68	-35.33	-14.13	-21.2	-51.4	5	6.3	0	0	4.77	P
		5150	-41.67	-0.47	-41.2	-57.74	5	6.3	0	0	4.77	A
	*	5210	7.55	-	-	-8.52	5	6.3	0	0	4.77	P
	*	5210	-0.79	-	-	-16.86	5	6.3	0	0	4.77	A
		5406.72	-41	-19.8	-21.2	-57.07	5	6.3	0	0	4.77	P
		5457.6	-48.64	-7.44	-41.2	-64.71	5	6.3	0	0	4.77	A
Remark	5. No other spurious found.											
	6. All results are PASS against Peak and Average limit line.											



Band 1 5150~5250MHz

WIFI 802.11ac VHT80 (Harmonic)

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Grounding	MIMO	Peak
Ant.				Limit	Line	Level	Gain	Loss	Factor	Factor	Gain	Avg.
1+2+3(3)		(MHz)	(dBm)	(dB)	(dBm)	(dBm)	(dBi)	(dB)	(dB)	(dB)	(dBi)	(P/A)
802.11ac VHT80 CH 42 5210MHz		10525	-79.32	-52.32	-27	-60.86	5	6.3	34.53	0	4.77	P
		15682	-80.85	-59.65	-21.2	-62.08	5	6.3	34.84	0	4.77	P
Remark	5. No other spurious found.											
	6. All results are PASS against Peak and Average limit line.											



Emission below 1GHz

WIFI 802.11a (LF)

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Grounding	MIMO	Peak
Ant.				Limit	Line	Level	Gain	Loss	Factor	Factor	Gain	Avg.
1+2+3(3)		(MHz)	(dBm)	(dB)	(dBm)	(dBm)	(dBi)	(dB)	(dB)	(dB)	(dBi)	(P/A)
802.11a LF		81.3	-89.27	-34.07	-55.2	-77.82	5	6.3	32.22	4.7	4.77	P
		131.25	-88.44	-36.74	-51.7	-77.01	5	6.3	32.2	4.7	4.77	P
		195.51	-84.43	-32.73	-51.7	-72.97	5	6.3	32.23	4.7	4.77	P
		451.2	-71.64	-22.44	-49.2	-60.26	5	6.3	32.15	4.7	4.77	P
		812.4	-83.45	-34.25	-49.2	-72.34	5	6.3	31.88	4.7	4.77	P
		955.9	-83.22	-34.02	-49.2	-73.05	5	6.3	30.94	4.7	4.77	P
Remark	5. No other spurious found. 6. 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	Peak or Average

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

3.5 AC Conducted Emission Measurement

3.5.1 Limit of AC Conducted Emission

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

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

*Decreases with the logarithm of the frequency.

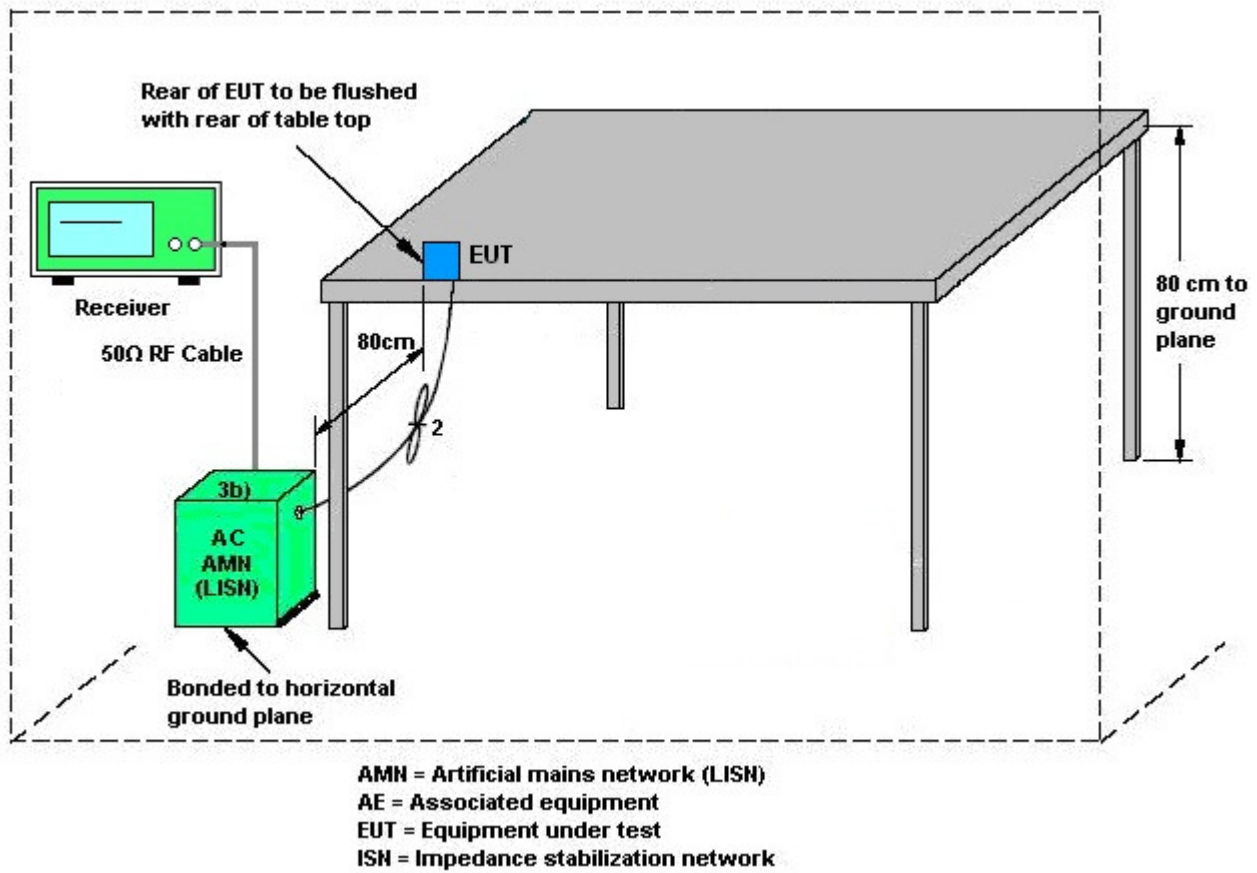
3.5.2 Measuring Instruments

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

3.5.3 Test Procedures

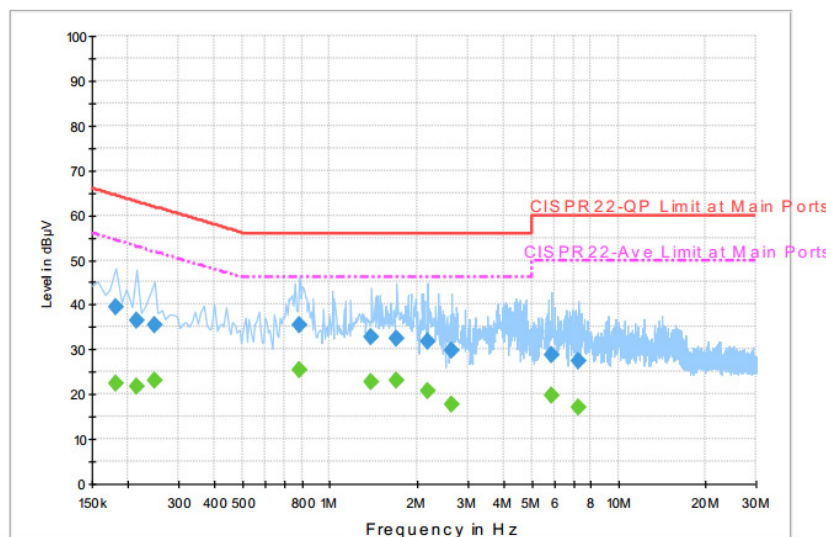
1. The EUT was placed 0.4 meter from the conducting wall of the shielding room was kept at least 80 centimeters from any other grounded conducting surface.
2. Connect EUT to the power mains through a line impedance stabilization network (LISN).
3. All the support units are connecting to the other LISN.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

3.5.4 Test Setup



3.5.5 Test Result of AC Conducted Emission

Test Mode :	Mode 1	Temperature :	22~23℃
Test Engineer :	Arthur Hsieh	Relative Humidity :	59~60%
Test Voltage :	120Vac / 60Hz	Phase :	Line
Function Type :	WLAN Link + Adapter		



Final Result : QuasiPeak

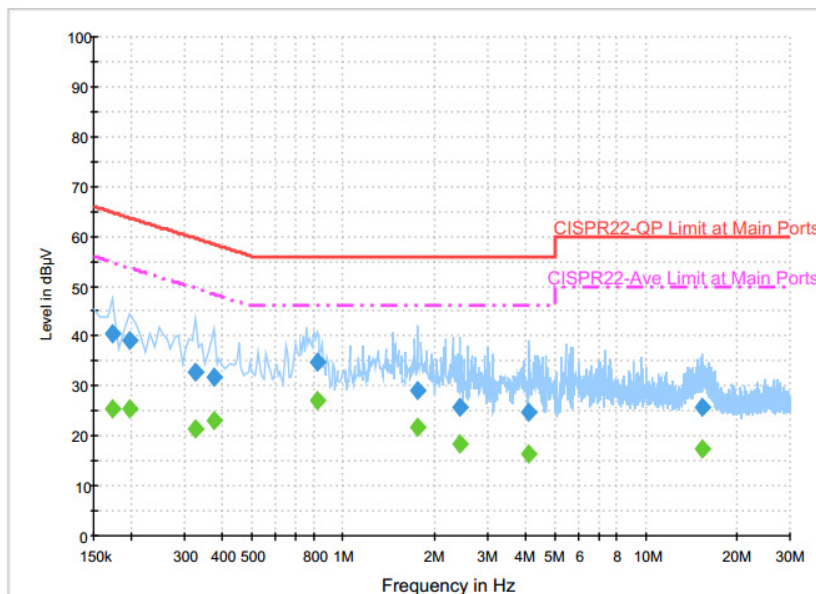
Frequency (MHz)	QuasiPeak (dBμV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.182000	39.3	Off	L1	19.6	25.1	64.4
0.214000	36.6	Off	L1	19.6	26.4	63.0
0.246000	35.3	Off	L1	19.6	26.6	61.9
0.782000	35.5	Off	L1	19.6	20.5	56.0
1.398000	32.7	Off	L1	19.7	23.3	56.0
1.710000	32.5	Off	L1	19.7	23.5	56.0
2.182000	31.9	Off	L1	19.6	24.1	56.0
2.646000	29.6	Off	L1	19.7	26.4	56.0
5.854000	28.9	Off	L1	19.9	31.1	60.0
7.310000	27.5	Off	L1	20.0	32.5	60.0

Final Result : Average

Frequency (MHz)	Average (dBμV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.182000	22.3	Off	L1	19.6	32.1	54.4
0.214000	21.7	Off	L1	19.6	31.3	53.0
0.246000	23.0	Off	L1	19.6	28.9	51.9
0.782000	25.3	Off	L1	19.6	20.7	46.0
1.398000	22.9	Off	L1	19.7	23.1	46.0
1.710000	23.0	Off	L1	19.7	23.0	46.0
2.182000	20.8	Off	L1	19.6	25.2	46.0
2.646000	17.6	Off	L1	19.7	28.4	46.0
5.854000	19.7	Off	L1	19.9	30.3	50.0
7.310000	17.2	Off	L1	20.0	32.8	50.0



Test Mode :	Mode 1	Temperature :	22~23°C
Test Engineer :	Arthur Hsieh	Relative Humidity :	59~60%
Test Voltage :	120Vac / 60Hz	Phase :	Neutral
Function Type :	WLAN Link + Adapter		

**Final Result : QuasiPeak**

Frequency (MHz)	QuasiPeak (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.174000	40.4	Off	N	19.6	24.4	64.8
0.198000	39.2	Off	N	19.6	24.5	63.7
0.326000	32.9	Off	N	19.6	26.7	59.6
0.374000	31.9	Off	N	19.6	26.5	58.4
0.822000	34.9	Off	N	19.6	21.1	56.0
1.766000	29.1	Off	N	19.7	26.9	56.0
2.430000	25.8	Off	N	19.6	30.2	56.0
4.126000	24.8	Off	N	19.8	31.2	56.0
15.438000	25.9	Off	N	20.5	34.1	60.0

Final Result : Average

Frequency (MHz)	Average (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.174000	25.5	Off	N	19.6	29.3	54.8
0.198000	25.3	Off	N	19.6	28.4	53.7
0.326000	21.3	Off	N	19.6	28.3	49.6
0.374000	23.2	Off	N	19.6	25.2	48.4
0.822000	27.1	Off	N	19.6	18.9	46.0
1.766000	21.6	Off	N	19.7	24.4	46.0
2.430000	18.4	Off	N	19.6	27.6	46.0
4.126000	16.3	Off	N	19.8	29.7	46.0
15.438000	17.3	Off	N	20.5	32.7	50.0

3.6 Frequency Stability Measurement

3.6.1 Limit of Frequency Stability

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

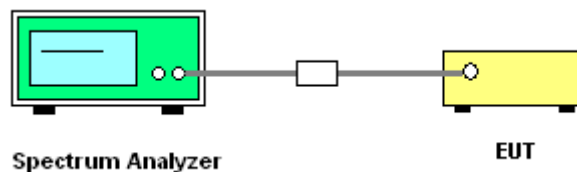
3.6.2 Measuring Instruments

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

3.6.3 Test Procedures

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

3.6.4 Test Setup



3.6.5 Test Result of Frequency Stability

Please refer to Appendix A.



3.7 Automatically Discontinue Transmission

3.7.1 Limit of Automatically Discontinue Transmission

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

3.7.2 Measuring Instruments

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

3.7.3 Test Result of Automatically Discontinue Transmission

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

3.8 Antenna Requirements

3.8.1 Standard Applicable

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

3.8.2 Antenna Anti-Replacement Construction

An embedded-in antenna design is used.

3.8.3 Antenna Gain

FCC KDB 662911 D01 Multiple Transmitter Output v02r01

For CDD transmissions, directional gain is calculated as

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

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

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

For power measurements on IEEE 802.11 devices,

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

Directional gain may be calculated by using the formulas applicable to equal gain antennas with G_{ANT} set equal to the gain of the antenna having the highest gain;

The EUT supports CDD mode.

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

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

				for	for	Limit	Limit
	Ant 1	Ant 2	Ant 3	Power	PSD	Reduction	Reduction
	(dBi)	(dBi)	(dBi)	(dBi)	(dBi)	(dB)	(dB)
Band I	5.00	5.00	5.00	5.00	9.77	0.00	3.77

$\text{Power Limit Reduction} = DG(\text{Power}) - 6\text{dBi}, (\text{min} = 0)$

$\text{PSD Limit Reduction} = DG(\text{PSD}) - 6\text{dBi}, (\text{min} = 0)$



4 List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Power Meter	Anritsu	ML2495A	1218006	300MHz~40GHz	Oct. 07, 2015	Jun.23,2016~ Jul. 16, 2016	Oct. 06, 2016	Conducted (TH05-HY)
Power Sensor	Anritsu	MA2411B	0846202	300MHz~40GHz	Oct. 05, 2015	Jun.23,2016~ Jul. 16, 2016	Oct. 04, 2016	Conducted (TH05-HY)
Spectrum Analyzer	Rohde & Schwarz	FSP40	100057	9kHz-40GHz	Nov. 23, 2015	Jun.23,2016~ Jul. 16, 2016	Nov. 22, 2016	Conducted (TH05-HY)
AC Power Source	AC POWER	AFC-500W	F10407001 1	50Hz~60Hz	Dec. 02, 2015	Jun.23,2016~ Jul. 16, 2016	Dec. 01, 2016	Conducted (TH05-HY)
AC Power Source	ChainTek	APC-1000W	N/A	N/A	N/A	Jun. 15, 2016	N/A	Conduction (CO05-HY)
EMI Test Receiver	Rohde & Schwarz	ESCI 7	100724	9kHz~7GHz	Aug. 26, 2015	Jun. 15, 2016	Aug. 25, 2016	Conduction (CO05-HY)
LISN	Rohde & Schwarz	ENV216	100080	9kHz~30MHz	Dec. 02, 2015	Jun. 15, 2016	Dec. 01, 2016	Conduction (CO05-HY)
Bilog Antenna	Schaffner	CBL6111C	2725	30MHz~1GHz	Nov. 17, 2015	Jul. 16, 2016 ~ Jul. 20, 2016	Nov. 16, 2016	Radiation (03CH06-HY)
EMI Test Receiver	Rohde & Schwarz	ESU26	100472	20Hz~26.5GHz	Jan. 07, 2016	Jul. 16, 2016 ~ Jul. 20, 2016	Jan. 06, 2017	Radiation (03CH06-HY)
Spectrum Analyzer	Rohde & Schwarz	FSP40	100055	9kHz~40GHz	Jun. 17, 2016	Jul. 16, 2016 ~ Jul. 20, 2016	Jun. 16, 2017	Radiation (03CH06-HY)
Horn Antenna	SCHWARZBECK	BBHA 9120 D	9120D-115 6	1GHz~18GHz	Aug. 21, 2015	Jul. 16, 2016 ~ Jul. 20, 2016	Aug. 20, 2016	Radiation (03CH06-HY)
Preamplifier	Agilent	8449B	3008A0191 7	1GHz~26.5GHz	Apr. 18, 2016	Jul. 16, 2016 ~ Jul. 20, 2016	Apr. 17, 2017	Radiation (03CH06-HY)
Preamplifier	SONOMA	310N	186713	9kHz~1GHz	Apr. 19, 2016	Jul. 16, 2016 ~ Jul. 20, 2016	Apr. 18, 2017	Radiation (03CH06-HY)
Preamplifier	MITEQ	AMF-7D-0010 1800-30-10P	1850117	1GHz ~ 18GHz	Jun. 22, 2016	Jul. 16, 2016 ~ Jul. 20, 2016	Jun. 21, 2017	Radiation (03CH06-HY)
Preamplifier	MITEQ	JS44-180040 00-33-8P	1840917	18GHz ~ 40GHz	Jun. 14, 2016	Jul. 16, 2016 ~ Jul. 20, 2016	Jun. 13, 2017	Radiation (03CH06-HY)
Antenna Mast	MF	MF-7802	MF780208 212	1m~4m	N/A	Jul. 16, 2016 ~ Jul. 20, 2016	N/A	Radiation (03CH06-HY)
Turn Table	INN-CO	DS2000	420/650/00	0-360 degree	N/A	Jul. 16, 2016 ~ Jul. 20, 2016	N/A	Radiation (03CH06-HY)
Loop Antenna	Rohde & Schwarz	HFH2-Z2	100315	9 kHz~30 MHz	Sep. 02, 2015	Jul. 16, 2016 ~ Jul. 20, 2016	Sep. 01, 2016	Radiation (03CH06-HY)
SHF-EHF Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA9170 251	18GHz- 40GHz	Oct. 12, 2015	Jul. 16, 2016 ~ Jul. 20, 2016	Oct. 11, 2016	Radiation (03CH06-HY)



5 Uncertainty of Evaluation

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

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

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	4.00
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Uncertainty of Radiated Emission Measurement (30 MHz ~ 1000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	4.00
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Appendix A. Conducted Test Results

Report Number : FR630314-01D

Test Engineer:	Bill Kuo	Temperature:	21~25	°C
Test Date:	2016/6/23~2016/7/16	Relative Humidity:	51~54	%

TEST RESULTS DATA
26dB and 99% OBW

Band I																
Mod.	Data Rate	NTx	CH.	Freq. (MHz)	26 dB Bandwidth (MHz)				99% Bandwidth (MHz)				IC 99% Bandwidth EIRP Limit (dBm)			
					Ant 1	Ant 2	Ant 3	Ant 4	Ant 1	Ant 2	Ant 3	Ant 4	Ant 1	Ant 2	Ant 3	Ant 4
11a	6Mbps	3	36	5180	24.37	23.76	23.52		17.65	17.65	17.60		22.47	22.47	22.46	
11a	6Mbps	3	44	5220	24.24	24.06	23.16		18.10	17.75	17.60		22.58	22.49	22.46	
11a	6Mbps	3	48	5240	24.39	24.30	23.52		17.85	17.75	17.65		22.52	22.49	22.47	
HT20	MCS0	3	36	5180	24.72	24.60	24.01		18.65	18.75	18.65		22.71	22.73	22.71	
HT20	MCS0	3	44	5220	25.2	24.78	24.36		18.70	18.75	18.70		22.72	22.73	22.72	
HT20	MCS0	3	48	5240	25.92	24.84	24.36		18.65	18.65	18.65		22.71	22.71	22.71	
HT40	MCS0	3	38	5190	45.36	46.80	46.56		36.80	36.80	36.90		23.01	23.01	23.01	
HT40	MCS0	3	46	5230	49.68	46.08	46.20		36.90	36.80	36.70		23.01	23.01	23.01	
VHT20	MCS0	3	36	5180	24.96	24.74	24.24		18.70	18.75	18.75		22.72	22.73	22.73	
VHT20	MCS0	3	44	5220	24.6	24.24	24.24		18.75	18.65	18.70		22.73	22.71	22.72	
VHT20	MCS0	3	48	5240	25.08	24.24	24.48		18.75	18.70	18.75		22.73	22.72	22.73	
VHT40	MCS0	3	38	5190	45.84	45.36	44.40		36.70	36.80	36.80		23.01	23.01	23.01	
VHT40	MCS0	3	46	5230	47.52	47.28	45.60		36.80	36.80	36.80		23.01	23.01	23.01	
VHT80	MCS0	3	42	5210	91.2	90.56	88.16		76.08	76.08	75.96		23.01	23.01	23.01	

TEST RESULTS DATA
Average Power Table

FCC Band I															
Mod.	Data Rate	NTx	CH.	Freq. (MHz)	Ant	Average Conducted Power with duty factor (dBm)					FCC Power Limit (dBm)	DG (dBi)	FCC EIRP Power (dBm)	FCC EIRP Power Limit (dBm)	Pass/Fail
						Ant 1	Ant 2	Ant 3	Ant 4	SUM					
11a	6Mbps	3	36	5180	1+2+3	19.07	18.30	18.77		23.50	30.00	5.00	28.50	-	Pass
11a	6Mbps	3	44	5220	1+2+3	20.14	19.30	19.10		24.31	30.00	5.00	29.31	-	Pass
11a	6Mbps	3	48	5240	1+2+3	20.44	19.64	19.24		24.57	30.00	5.00	29.57	-	Pass
HT20	MCS0	3	36	5180	1+2+3	18.32	17.82	18.28		22.92	30.00	5.00	27.92	-	Pass
HT20	MCS0	3	44	5220	1+2+3	20.41	19.65	19.58		24.67	30.00	5.00	29.67	-	Pass
HT20	MCS0	3	48	5240	1+2+3	20.50	19.62	19.08		24.55	30.00	5.00	29.55	-	Pass
HT40	MCS0	3	38	5190	1+2+3	12.68	12.05	12.82		17.30	30.00	5.00	22.30	-	Pass
HT40	MCS0	3	46	5230	1+2+3	21.50	20.52	20.62		25.68	30.00	5.00	30.68	-	Pass
VHT20	MCS0	3	36	5180	1+2+3	18.22	17.92	18.22		22.90	30.00	5.00	27.90	-	Pass
VHT20	MCS0	3	44	5220	1+2+3	20.58	19.62	19.32		24.65	30.00	5.00	29.65	-	Pass
VHT20	MCS0	3	48	5240	1+2+3	20.42	19.58	19.22		24.54	30.00	5.00	29.54	-	Pass
VHT40	MCS0	3	38	5190	1+2+3	12.66	12.06	12.79		17.29	30.00	5.00	22.29	-	Pass
VHT40	MCS0	3	46	5230	1+2+3	21.26	20.49	20.89		25.66	30.00	5.00	30.66	-	Pass
VHT80	MCS0	3	42	5210	1+2+3	8.82	8.15	8.54		13.28	30.00	5.00	18.28	-	Pass

TEST RESULTS DATA
Power Spectral Density

FCC Band I													
Mod.	Data Rate	NTx	CH.	Freq. (MHz)	Ant	Duty Factor (dB)				Average PSD with Duty Factor (dBm/MHz)	PSD Limit (dBm/MHz)	DG (dBi)	Pass /Fail
						Ant 1	Ant 2	Ant 3	Ant 4				
11a	6Mbps	3	36	5180	1+2+3	0.25	0.25	0.25		12.673	13.23	9.77	Pass
11a	6Mbps	3	44	5220	1+2+3	0.25	0.25	0.25		12.839	13.23	9.77	Pass
11a	6Mbps	3	48	5240	1+2+3	0.25	0.25	0.25		12.96	13.23	9.77	Pass
HT20	MCS0	3	36	5180	1+2+3	0.27	0.23	0.23		11.883	13.23	9.77	Pass
HT20	MCS0	3	44	5220	1+2+3	0.27	0.23	0.23		13.078	13.23	9.77	Pass
HT20	MCS0	3	48	5240	1+2+3	0.27	0.23	0.23		12.756	13.23	9.77	Pass
HT40	MCS0	3	38	5190	1+2+3	0.51	0.43	0.43		3.33	13.23	9.77	Pass
HT40	MCS0	3	46	5230	1+2+3	0.51	0.43	0.43		11.013	13.23	9.77	Pass
VHT20	MCS0	3	36	5180	1+2+3	0.23	0.23	0.23		11.824	13.23	9.77	Pass
VHT20	MCS0	3	44	5220	1+2+3	0.23	0.23	0.23		13.108	13.23	9.77	Pass
VHT20	MCS0	3	48	5240	1+2+3	0.23	0.23	0.23		12.762	13.23	9.77	Pass
VHT40	MCS0	3	38	5190	1+2+3	0.47	0.47	0.50		3.041	13.23	9.77	Pass
VHT40	MCS0	3	46	5230	1+2+3	0.47	0.47	0.50		10.953	13.23	9.77	Pass
VHT80	MCS0	3	42	5210	1+2+3	0.90	0.86	0.85		-4.502	13.23	9.77	Pass

TEST RESULTS DATA
Frequency Stability

Band I										
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Center Frequency (MHz)	Frequency Deviation (MHz)	Frequency Stability (ppm)	Temperature (°C)	Voltage (V)	Note
11a	6Mbps	1	36	5180	5180.000	0.000	0.00	20	108	
11a	6Mbps	1	36	5180	5180.000	0.000	0.00	20	132	
11a	6Mbps	1	36	5180	5180.000	0.000	0.00	20	120	
11a	6Mbps	1	36	5180	5180.000	0.000	0.00	-30	120	
11a	6Mbps	1	36	5180	5180.000	0.000	0.00	50	120	



Appendix B. Radiated Spurious Emission

Test Engineer :	Donny Tang and Hayden Wu	Temperature :	19~21°C
		Relative Humidity :	50~55%

Band 1 - 5150~5250MHz

WIFI 802.11a (Band Edge @ 3m)

WIFI Ant. 1+2+3	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 36 5180MHz		5066.56	56.68	-17.32	74	47.68	31.55	11.33	33.88	100	57	P	H
		5143.78	45.18	-8.82	54	36.02	31.62	11.42	33.88	100	57	A	H
	*	5180	102.26	-	-	93.02	31.65	11.47	33.88	100	57	P	H
	*	5180	93.34	-	-	84.1	31.65	11.47	33.88	100	57	A	H
													H
													H
		5010.4	57.26	-16.74	74	48.35	31.51	11.28	33.88	100	312	P	V
		5143	45.1	-8.9	54	35.94	31.62	11.42	33.88	100	312	A	V
	*	5182	98.29	-	-	89.05	31.65	11.47	33.88	100	312	P	V
	*	5182	90.24	-	-	81	31.65	11.47	33.88	100	312	A	V
													V
													V
802.11a CH 44 5220MHz		5087.36	56.2	-17.8	74	47.13	31.57	11.38	33.88	100	57	P	H
		5145.6	45.02	-8.98	54	35.86	31.62	11.42	33.88	100	57	A	H
	*	5220	102.97	-	-	93.66	31.67	11.52	33.88	100	57	P	H
	*	5220	91.43	-	-	82.12	31.67	11.52	33.88	100	57	A	H
		5367.36	56.1	-17.9	74	47.09	31.79	11.09	33.87	100	57	P	H
		5421.12	44.75	-9.25	54	35.81	31.83	10.98	33.87	100	57	A	H
		5021.06	55.8	-18.2	74	46.87	31.53	11.28	33.88	112	312	P	V
		5100.62	45.12	-8.88	54	36.04	31.58	11.38	33.88	112	312	A	V
	*	5220	99.98	-	-	90.67	31.67	11.52	33.88	112	312	P	V
	*	5220	88.44	-	-	79.13	31.67	11.52	33.88	112	312	A	V
		5410.08	57.25	-16.75	74	48.32	31.82	10.98	33.87	112	312	P	V
		5434.08	44.71	-9.29	54	35.76	31.85	10.97	33.87	112	312	A	V



802.11a CH 48 5240MHz	*	5240	102.68	-	-	93.46	31.69	11.41	33.88	102	56	P	H
	*	5240	92.68	-	-	83.46	31.69	11.41	33.88	102	56	A	H
		5397.36	56.16	-17.84	74	47.23	31.82	10.98	33.87	102	56	P	H
		5414.88	44.72	-9.28	54	35.78	31.83	10.98	33.87	102	56	A	H
													H
													H
	*	5240	98.31	-	-	89.09	31.69	11.41	33.88	109	313	P	V
	*	5240	88.31	-	-	79.09	31.69	11.41	33.88	109	313	A	V
		5433.12	56.31	-17.69	74	47.36	31.85	10.97	33.87	109	313	P	V
		5389.2	44.75	-9.25	54	35.83	31.81	10.98	33.87	109	313	A	V
													V
													V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



Band 1 5150~5250MHz

WIFI 802.11a (Harmonic @ 3m)

WIFI Ant. 1+2+3	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 36 5180MHz		10360	56.97	-11.33	68.3	63.31	39.83	13.99	60.16	100	0	P	H
		15540	48.15	-25.85	74	55.46	38.34	13.25	58.9	100	0	P	H
													H
													H
		10360	63.46	-4.84	68.3	69.8	39.83	13.99	60.16	100	0	P	V
		15540	60.99	-13.01	74	106.64	0	13.25	58.9	300	126	P	V
		15540	44.19	-9.81	54	89.84	0	13.25	58.9	300	126	A	V
													V
802.11a CH 44 5220MHz		10440	60.55	-7.75	68.3	66.54	39.97	14.12	60.08	100	0	P	H
		15660	54.65	-19.35	74	61.76	38.15	13.31	58.57	203	332	P	H
		15660	35.88	-18.12	54	42.99	38.15	13.31	58.57	203	332	A	H
													H
		10440	64.31	-3.99	68.3	70.3	39.97	14.12	60.08	100	0	P	V
		15660	60.77	-13.23	74	67.88	38.15	13.31	58.57	312	119	P	V
		15660	42.82	-11.18	54	49.93	38.15	13.31	58.57	312	119	A	V
													V
802.11a CH 48 5240MHz		10480	57.99	-10.31	68.3	63.75	40.07	14.19	60.02	100	0	P	H
		15720	48.86	-25.14	74	55.86	38.04	13.33	58.37	100	0	P	H
													H
													H
		10480	65.47	-2.83	68.3	71.23	40.07	14.19	60.02	152	201	P	V
		15720	61.68	-12.32	74	68.68	38.04	13.33	58.37	323	131	P	V
		15720	42.06	-11.94	54	49.06	38.04	13.33	58.37	323	131	A	V
													V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



Band 1 5150~5250MHz

WIFI 802.11n HT20 (Band Edge @ 3m)

WIFI Ant. 1+2+3	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 36 5180MHz		5101.92	56.32	-17.68	74	47.24	31.58	11.38	33.88	100	58	P	H
		5137.54	45.11	-8.89	54	35.96	31.61	11.42	33.88	100	58	A	H
	*	5180	102.17	-	-	92.93	31.65	11.47	33.88	100	58	P	H
	*	5180	90.72	-	-	81.48	31.65	11.47	33.88	100	58	A	H
													H
													H
		5104.26	57.11	-16.89	74	48.03	31.58	11.38	33.88	100	313	P	V
		5131.04	45.11	-8.89	54	35.96	31.61	11.42	33.88	100	313	A	V
	*	5180	98.92	-	-	89.68	31.65	11.47	33.88	100	313	P	V
	*	5180	87.47	-	-	78.23	31.65	11.47	33.88	100	313	A	V
													V
													V
802.11n HT20 CH 44 5220MHz		5017.68	56.49	-17.51	74	47.58	31.51	11.28	33.88	101	57	P	H
		5135.98	45.24	-8.76	54	36.09	31.61	11.42	33.88	101	57	A	H
	*	5220	105.87	-	-	96.56	31.67	11.52	33.88	101	57	P	H
	*	5220	94.46	-	-	85.15	31.67	11.52	33.88	101	57	A	H
		5423.52	56.53	-17.47	74	47.59	31.83	10.98	33.87	101	57	P	H
		5436.96	44.78	-9.22	54	35.83	31.85	10.97	33.87	101	57	A	H
		5149.5	56.67	-17.33	74	47.51	31.62	11.42	33.88	128	312	P	V
		5087.62	45.11	-8.89	54	36.04	31.57	11.38	33.88	128	312	A	V
	*	5218	101.04	-	-	91.73	31.67	11.52	33.88	128	312	P	V
	*	5218	89.63	-	-	80.32	31.67	11.52	33.88	128	312	A	V
		5359.44	55.89	-18.11	74	46.89	31.78	11.09	33.87	128	312	P	V
		5424.48	44.79	-9.21	54	35.85	31.83	10.98	33.87	128	312	A	V



802.11n HT20 CH 48 5240MHz	*	5240	102.3	-	-	93.08	31.69	11.41	33.88	100	58	P	H
	*	5240	91.44	-	-	82.22	31.69	11.41	33.88	100	58	A	H
		5405.04	55.75	-18.25	74	46.82	31.82	10.98	33.87	100	58	P	H
		5353.92	44.99	-9.01	54	35.99	31.78	11.09	33.87	100	58	A	H
													H
													H
	*	5240	99.39	-	-	90.17	31.69	11.41	33.88	112	312	P	V
	*	5240	89.17	-	-	79.95	31.69	11.41	33.88	112	312	A	V
		5400.72	56.39	-17.61	74	47.46	31.82	10.98	33.87	112	312	P	V
		5365.68	44.88	-9.12	54	35.87	31.79	11.09	33.87	112	312	A	V
													V
													V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



Band 1 5150~5250MHz
WIFI 802.11n HT20 (Harmonic @ 3m)

WIFI Ant. 1+2+3	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 36 5180MHz		10360	55.99	-12.31	68.3	62.33	39.83	13.99	60.16	100	0	P	H
		15540	44.67	-29.33	74	51.98	38.34	13.25	58.9	100	0	P	H
													H
													H
		10360	61.24	-7.06	68.3	67.58	39.83	13.99	60.16	100	0	P	V
		15540	59.44	-14.56	74	66.75	38.34	13.25	58.9	2261	119	P	V
		15540	40.66	-13.34	54	47.97	38.34	13.25	58.9	2261	119	A	V
													V
802.11n HT20 CH 44 5220MHz		10440	59.67	-8.63	68.3	65.66	39.97	14.12	60.08	100	0	P	H
		15660	54.8	-19.2	74	61.91	38.15	13.31	58.57	100	333	P	H
		15660	35.54	-18.46	54	42.65	38.15	13.31	58.57	100	333	A	H
													H
		10440	64.05	-4.25	68.3	70.04	39.97	14.12	60.08	100	0	P	V
		15660	61.37	-12.63	74	68.48	38.15	13.31	58.57	121	310	P	V
		15660	43.25	-10.75	54	50.36	38.15	13.31	58.57	121	310	A	V
													V
802.11n HT20 CH 48 5240MHz		10480	58.26	-10.04	68.3	64.02	40.07	14.19	60.02	100	0	P	H
		15720	48.8	-25.2	74	55.8	38.04	13.33	58.37	100	0	P	H
													H
													H
		10480	66.58	-1.72	68.3	72.34	40.07	14.19	60.02	153	208	P	V
		15720	58.45	-15.55	74	65.45	38.04	13.33	58.37	198	111	P	V
		15720	39.68	-14.32	54	46.68	38.04	13.33	58.37	198	111	A	V
													V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



Band 1 5150~5250MHz

WIFI 802.11n HT40 (Band Edge @ 3m)

WIFI Ant. 1+2+3	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 38 5190MHz		5130.78	56.04	-17.96	74	46.89	31.61	11.42	33.88	100	58	P	H
		5145.6	46.13	-7.87	54	36.97	31.62	11.42	33.88	100	58	A	H
	*	5190	92.98	-	-	83.74	31.65	11.47	33.88	100	58	P	H
	*	5190	81.71	-	-	72.47	31.65	11.47	33.88	100	58	A	H
		5376	56.74	-17.26	74	47.73	31.79	11.09	33.87	100	58	P	H
		5416.32	45.63	-8.37	54	36.69	31.83	10.98	33.87	100	58	A	H
		5117	56.13	-17.87	74	47	31.59	11.42	33.88	128	312	P	V
		5082.94	45.81	-8.19	54	36.74	31.57	11.38	33.88	128	312	A	V
	*	5190	91.61	-	-	82.37	31.65	11.47	33.88	128	312	P	V
	*	5190	80.94	-	-	71.7	31.65	11.47	33.88	128	312	A	V
		5392.8	55.82	-18.18	74	46.9	31.81	10.98	33.87	128	312	P	V
		5436.48	45.38	-8.62	54	36.43	31.85	10.97	33.87	128	312	A	V
802.11n HT40 CH 46 5230MHz		5015.6	56.03	-17.97	74	47.12	31.51	11.28	33.88	100	57	P	H
		5148.98	46.04	-7.96	54	36.88	31.62	11.42	33.88	100	57	A	H
	*	5230	101.62	-	-	92.29	31.69	11.52	33.88	100	57	P	H
	*	5230	91.12	-	-	81.79	31.69	11.52	33.88	100	57	A	H
		5390.64	57.62	-16.38	74	48.7	31.81	10.98	33.87	100	57	P	H
		5363.52	45.62	-8.38	54	36.61	31.79	11.09	33.87	100	57	A	H
		5067.6	56.09	-17.91	74	47.09	31.55	11.33	33.88	100	311	P	V
		5081.12	45.75	-8.25	54	36.68	31.57	11.38	33.88	100	311	A	V
	*	5230	98.56	-	-	89.23	31.69	11.52	33.88	100	311	P	V
	*	5230	88.06	-	-	78.73	31.69	11.52	33.88	100	311	A	V
		5354.64	55.97	-18.03	74	46.97	31.78	11.09	33.87	100	311	P	V
		5423.76	45.45	-8.55	54	36.51	31.83	10.98	33.87	100	311	A	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



Band 1 5150~5250MHz
WIFI 802.11n HT40 (Harmonic @ 3m)

WIFI Ant. 1+2+3	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 38 5190MHz		10380	48.26	-20.04	68.3	54.47	39.87	14.06	60.14	100	0	P	H
		15570	41.23	-32.77	74	48.48	38.29	13.27	58.81	100	0	P	H
													H
													H
		10380	53.82	-14.48	68.3	60.03	39.87	14.06	60.14	100	0	P	V
		15570	41.6	-32.4	74	48.85	38.29	13.27	58.81	100	0	P	V
													V
													V
802.11n HT40 CH 46 5230MHz		10460	57.9	-10.4	68.3	63.77	40	14.19	60.06	100	0	P	H
		15690	45.98	-28.02	74	53.02	38.1	13.33	58.47	100	0	P	H
													H
													H
		10460	63.58	-4.72	68.3	69.45	40	14.19	60.06	100	0	P	V
		15690	54.45	-19.55	74	61.49	38.1	13.33	58.47	318	119	P	V
		15690	42.83	-11.17	54	49.87	38.1	13.33	58.47	318	119	A	V
													V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



Band 1 5150~5250MHz
WIFI 802.11ac VHT80 (Band Edge @ 3m)

WIFI Ant. 1+2+3	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11ac VHT80 CH 42 5210MHz		5139.62	55.86	-18.14	74	46.7	31.62	11.42	33.88	100	58	P	H
		5145.34	47.4	-6.6	54	38.24	31.62	11.42	33.88	100	58	A	H
	*	5210	86.41	-	-	77.1	31.67	11.52	33.88	100	58	P	H
	*	5210	76.69	-	-	67.38	31.67	11.52	33.88	100	58	A	H
		5427.36	55.98	-18.02	74	47.05	31.83	10.97	33.87	100	58	P	H
		5371.2	46.72	-7.28	54	37.71	31.79	11.09	33.87	100	58	A	H
		5086.06	56.44	-17.56	74	47.37	31.57	11.38	33.88	100	312	P	V
		5138.58	46.96	-7.04	54	37.81	31.61	11.42	33.88	100	312	A	V
	*	5210	83.71	-	-	74.4	31.67	11.52	33.88	100	312	P	V
	*	5210	73.99	-	-	64.68	31.67	11.52	33.88	100	312	A	V
		5417.52	55.92	-18.08	74	46.98	31.83	10.98	33.87	100	312	P	V
		5353.2	46.87	-7.13	54	37.87	31.78	11.09	33.87	100	312	A	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

**Band 1 5150~5250MHz****WIFI 802.11ac VHT80 (Harmonic @ 3m)**

WIFI Ant. 1+2+3	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11ac VHT80 CH 42 5210MHz		10420	44.62	-23.68	68.3	50.67	39.93	14.12	60.1	100	0	P	H
		15630	38.64	-35.36	74	45.78	38.18	13.29	58.61	100	0	P	H
													H
													H
		10420	45.47	-22.83	68.3	51.52	39.93	14.12	60.1	100	0	P	V
		15630	38.83	-35.17	74	45.97	38.18	13.29	58.61	100	0	P	V
													V
													V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



Emission below 1GHz

WIFI 802.11n HT20 (LF @ 3m)

WIFI Ant. 1+2+3	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 LF		114.78	38.63	-4.87	43.5	50.89	17.43	2.02	31.71	-	-	P	H
		208.74	42.63	-0.87	43.5	56.3	16.06	1.99	31.72	100	322	Q	H
		283.53	40.65	-5.35	46	50.87	19.22	2.26	31.7	-	-	P	H
		302.1	34.9	-11.1	46	44.72	19.59	2.28	31.69	-	-	P	H
		311.9	35.12	-10.88	46	44.65	19.9	2.27	31.7	-	-	P	H
		363	34.22	-11.78	46	42.23	21.41	2.31	31.73	-	-	P	H
													H
													H
													H
													H
													H
													H
		41.61	32.74	-7.26	40	43.89	18.88	1.75	31.78	-	-	P	V
		206.31	40.48	-3.02	43.5	54.2	16.03	1.97	31.72	100	1	Q	V
		275.7	37.73	-8.27	46	48.08	19.1	2.25	31.7	-	-	P	V
		360.9	34.39	-11.61	46	42.46	21.36	2.3	31.73	-	-	P	V
		918.8	31.45	-14.55	46	29.66	29.88	3.26	31.35	-	-	P	V
		955.2	31.74	-14.26	46	28.99	30.7	3.06	31.01	-	-	P	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	Peak or Average
H/V	Horizontal or Vertical



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

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Peak	Pol.
Ant.				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
1+2		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
802.11b		2390	55.45	-18.55	74	54.51	32.22	4.58	35.86	103	308	P	H
CH 01													
2412MHz		2390	43.54	-10.46	54	42.6	32.22	4.58	35.86	103	308	A	H

1. Level(dBμV/m) =

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

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

For Peak Limit @ 2390MHz:

1. Level(dBμV/m)

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

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

= 55.45 (dBμV/m)

2. Over Limit(dB)

= Level(dBμV/m) – Limit Line(dBμV/m)

= 55.45(dBμV/m) – 74(dBμV/m)

= -18.55(dB)

For Average Limit @ 2390MHz:

1. Level(dBμV/m)

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

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

= 43.54 (dBμV/m)

2. Over Limit(dB)

= Level(dBμV/m) – Limit Line(dBμV/m)

= 43.54(dBμV/m) – 54(dBμV/m)

= -10.46(dB)

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



Appendix C. Radiated Spurious Emission

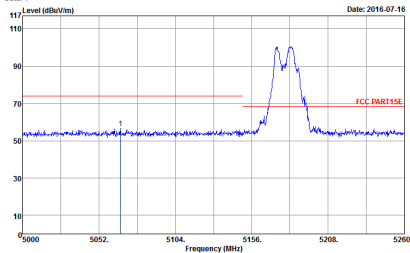
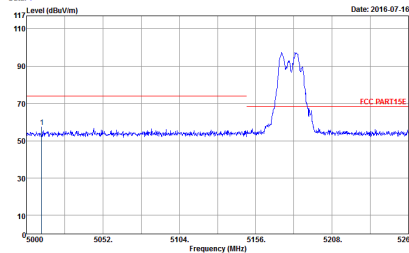
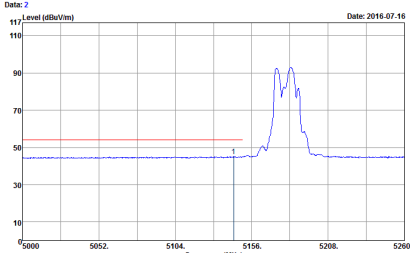
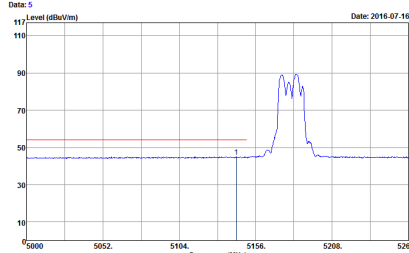
Test Engineer :	Donny Tang and Hayden Wu	Temperature :	19~21°C
		Relative Humidity :	50~55%

Note symbol

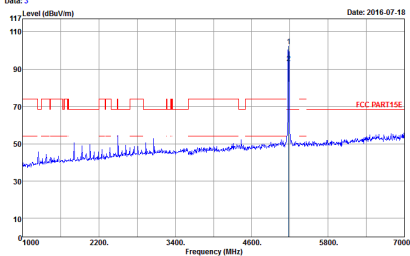
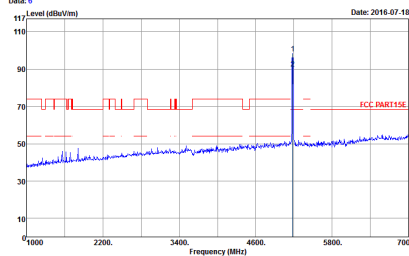
-L	Low channel location
-R	High channel location



Band 1 - 5150~5250MHz
WIFI 802.11a (Band Edge @ 3m)

WIFI	Band 1 5150~5250MHz Band Edge @ 3m	
ANT	802.11a CH36 5180MHz	
1+2+3	Horizontal	Vertical
Peak	Data: 1  Site : 03CH06-HY Condition : FCC PART15E 3m 91200_1156_150827 HORIZONTAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 630314-01 Power : POE 24V Memo : Mode 1	Data: 4  Site : 03CH06-HY Condition : FCC PART15E 3m 91200_1156_150827 VERTICAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 630314-01 Power : POE 24V Memo : Mode 1
Avg.	Data: 2  Site : 03CH06-HY Condition : FCC PART15E (AVG) 3m 91200_1156_150827 HORIZONTAL RBW:1000.000KHz VBW:1.000KHz SWT:Auto Detector : Peak Project : 630314-01 Power : POE 24V Memo : Mode 1	Data: 5  Site : 03CH06-HY Condition : FCC PART15E (AVG) 3m 91200_1156_150827 VERTICAL RBW:1000.000KHz VBW:1.000KHz SWT:Auto Detector : Peak Project : 630314-01 Power : POE 24V Memo : Mode 1



WIFI	Band 1 5150~5250MHz Fundamental @ 3m	
ANT	802.11a CH36 5180MHz	
1+2+3	Horizontal	Vertical
Peak Avg.	Data: 3  Site : 08CH06-HY Condition : FCC PART15E 3m 91200_1156_150827 HORIZONTAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 630314-01 Power : POE 24V Memo : Mode 1	Data: 6  Site : 08CH06-HY Condition : FCC PART15E 3m 91200_1156_150827 VERTICAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 630314-01 Power : POE 24V Memo : Mode 1



WIFI	Band 1 5150~5250MHz Band Edge @ 3m	
ANT	802.11a CH44 5220MHz - L	
1+2+3	Horizontal	Vertical
Peak	Data: 1 Level (dBuV/m) Date: 2016-07-17 Site : 03CH06-HY Condition : FCC PART15E 3m 91200_1156_150827 HORIZONTAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 630314-01 Power : POE 24V Memo : Mode 2	Data: 6 Level (dBuV/m) Date: 2016-07-16 Site : 03CH06-HY Condition : FCC PART15E 3m 91200_1156_150827 VERTICAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 630314-01 Power : POE 24V Memo : Mode 2
Avg.	Data: 2 Level (dBuV/m) Date: 2016-07-17 Site : 03CH06-HY Condition : FCC PART15E (AVG) 3m 91200_1156_150827 HORIZONTAL RBW:1000.000KHz VBW:1.000KHz SWT:Auto Detector : Peak Project : 630314-01 Power : POE 24V Memo : Mode 2	Data: 7 Level (dBuV/m) Date: 2016-07-16 Site : 03CH06-HY Condition : FCC PART15E (AVG) 3m 91200_1156_150827 VERTICAL RBW:1000.000KHz VBW:1.000KHz SWT:Auto Detector : Peak Project : 630314-01 Power : POE 24V Memo : Mode 2



WIFI	Band 1 5150~5250MHz Band Edge @ 3m	
ANT	802.11a CH44 5220MHz - R	
1+2+3	Horizontal	Vertical
Peak	Data: 4 Level (dBuV/m) Date: 2016.07.17 Site : 03CH06-HY Condition : FCC PART15E 3m 91200_1156_150827 HORIZONTAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 630314-01 Power : POE 24V Memo : Mode 2	Data: 9 Level (dBuV/m) Date: 2016.07.16 Site : 03CH06-HY Condition : FCC PART15E 3m 91200_1156_150827 VERTICAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 630314-01 Power : POE 24V Memo : Mode 2
Avg.	Data: 5 Level (dBuV/m) Date: 2016.07.17 Site : 03CH06-HY Condition : FCC PART15E (AVG) 3m 91200_1156_150827 HORIZONTAL RBW:1000.000KHz VBW:1.000KHz SWT:Auto Detector : Peak Project : 630314-01 Power : POE 24V Memo : Mode 2	Data: 10 Level (dBuV/m) Date: 2016.07.16 Site : 03CH06-HY Condition : FCC PART15E (AVG) 3m 91200_1156_150827 VERTICAL RBW:1000.000KHz VBW:1.000KHz SWT:Auto Detector : Peak Project : 630314-01 Power : POE 24V Memo : Mode 2



WIFI	Band 1 5150~5250MHz Fundamental @ 3m	
ANT	802.11a CH44 5220MHz	
1+2+3	Horizontal	Vertical
Peak Avg.	Data: 3 Site : 08CH06-HY Condition : FCC PART15E 3m 91200_1156_150827 HORIZONTAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 630314-01 Power : POE 24V Memo : Mode 2	Data: 8 Site : 08CH06-HY Condition : FCC PART15E 3m 91200_1156_150827 VERTICAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 630314-01 Power : POE 24V Memo : Mode 2



WIFI	Band 1 5150~5250MHz Band Edge @ 3m	
ANT	802.11a CH48 5240MHz - R	
1+2+3	Horizontal	Vertical
Peak	Date: 2 Level (dBuV/m) Date: 2016-07-17 Site : 03CH06-HY Condition : FCC PART15E 3m 91200_1156_150827 HORIZONTAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 630314-01 Power : POE 24V Memo : Mode 3	Date: 5 Level (dBuV/m) Date: 2016-07-17 Site : 03CH06-HY Condition : FCC PART15E 3m 91200_1156_150827 VERTICAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 630314-01 Power : POE 24V Memo : Mode 3
Avg.	Date: 3 Level (dBuV/m) Date: 2016-07-17 Site : 03CH06-HY Condition : FCC PART15E (AVG) 3m 91200_1156_150827 HORIZONTAL RBW:1000.000KHz VBW:1.000KHz SWT:Auto Detector : Peak Project : 630314-01 Power : POE 24V Memo : Mode 3	Date: 6 Level (dBuV/m) Date: 2016-07-17 Site : 03CH06-HY Condition : FCC PART15E (AVG) 3m 91200_1156_150827 VERTICAL RBW:1000.000KHz VBW:1.000KHz SWT:Auto Detector : Peak Project : 630314-01 Power : POE 24V Memo : Mode 3



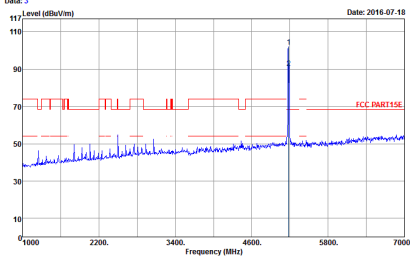
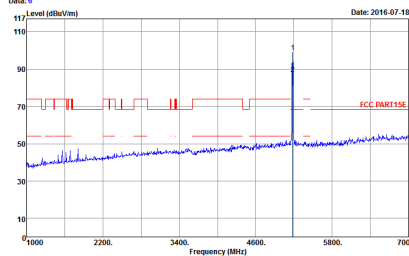
WIFI	Band 1 5150~5250MHz Fundamental @ 3m	
ANT	802.11a CH48 5240MHz	
1+2+3	Horizontal	Vertical
Peak Avg.	Date: 1 Level (dBuV/m) Frequency (MHz) Site : 03CH06-HY Condition : FCC PART15E 3m 91200_1156_150827 HORIZONTAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 630314-01 Power : POE 24V Memo : Mode 3	Date: 4 Level (dBuV/m) Frequency (MHz) Site : 03CH06-HY Condition : FCC PART15E 3m 91200_1156_150827 VERTICAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 630314-01 Power : POE 24V Memo : Mode 3



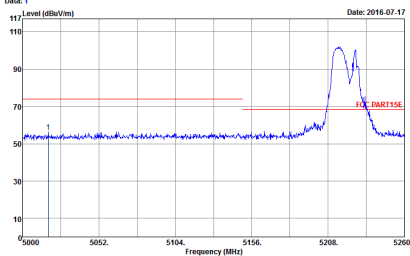
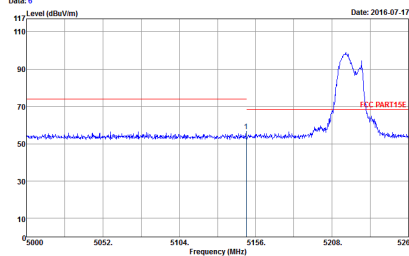
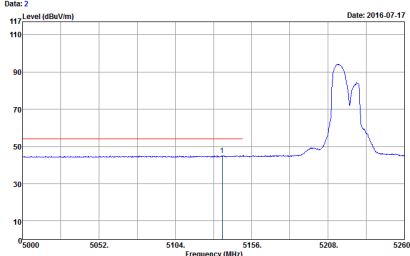
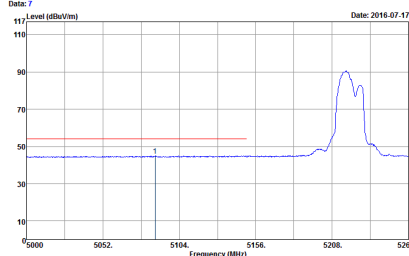
Band 1 5150~5250MHz
WIFI 802.11n HT20 (Band Edge @ 3m)

WIFI	Band 1 5150~5250MHz Band Edge @ 3m	
ANT	802.11n HT20 CH36 5180MHz	
1+2+3	Horizontal	Vertical
Peak	Date: 1 117 Level (dBuV/m) Date: 2016-07-17 Site : 03CH06-HY Condition : FCC PART15E 3m 91200_1156_150827 HORIZONTAL Detector : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Project : Peak Power : 630314-01 Memo : POE 24V Mode 4	Date: 4 117 Level (dBuV/m) Date: 2016-07-17 Site : 03CH06-HY Condition : FCC PART15E 3m 91200_1156_150827 VERTICAL Detector : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Project : Peak Power : 630314-01 Memo : POE 24V Mode 4
Avg.	Date: 2 117 Level (dBuV/m) Date: 2016-07-17 Site : 03CH06-HY Condition : FCC PART15E (AVG) 3m 91200_1156_150827 HORIZONTAL Detector : RBW:1000.000KHz VBW:1.000KHz SWT:Auto Project : Peak Power : 630314-01 Memo : POE 24V Mode 4	Date: 5 117 Level (dBuV/m) Date: 2016-07-17 Site : 03CH06-HY Condition : FCC PART15E (AVG) 3m 91200_1156_150827 VERTICAL Detector : RBW:1000.000KHz VBW:1.000KHz SWT:Auto Project : Peak Power : 630314-01 Memo : POE 24V Mode 4



WIFI	Band 1 5150~5250MHz Fundamental @ 3m	
ANT	802.11n HT20 CH36 5180MHz	
1+2+3	Horizontal	Vertical
Peak Avg.	Data: 3  Site : 08CH06-HY Condition : FCC PART15E 3m 91200_1156_150827 HORIZONTAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 630314-01 Power : POE 24V Memo : Mode 4	Data: 6  Site : 08CH06-HY Condition : FCC PART15E 3m 91200_1156_150827 VERTICAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 630314-01 Power : POE 24V Memo : Mode 4



WIFI	Band 1 5150~5250MHz Band Edge @ 3m	
ANT	802.11n HT20 CH44 5220MHz - L	
1+2+3	Horizontal	Vertical
Peak	Data: 1  Site : 03CH06-HY Condition : FCC PART15E 3m 91200_1156_150827 HORIZONTAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 630314-01 Power : POE 24V Memo : Mode 5	Data: 6  Site : 03CH06-HY Condition : FCC PART15E 3m 91200_1156_150827 VERTICAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 630314-01 Power : POE 24V Memo : Mode 5
Avg.	Data: 2  Site : 03CH06-HY Condition : FCC PART15E (AVG) 3m 91200_1156_150827 HORIZONTAL RBW:1000.000KHz VBW:1.000KHz SWT:Auto Detector : Peak Project : 630314-01 Power : POE 24V Memo : Mode 5	Data: 7  Site : 03CH06-HY Condition : FCC PART15E (AVG) 3m 91200_1156_150827 VERTICAL RBW:1000.000KHz VBW:1.000KHz SWT:Auto Detector : Peak Project : 630314-01 Power : POE 24V Memo : Mode 5



WIFI	Band 1 5150~5250MHz Band Edge @ 3m	
ANT	802.11n HT20 CH44 5220MHz - R	
1+2+3	Horizontal	Vertical
Peak	Data: 4 Level (dBuV/m) Date: 2016.07.17 Site : 03CH06-HY Condition : FCC PART15E 3m 91200_1156_150827 HORIZONTAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 630314-01 Power : POE 24V Memo : Mode 5	Data: 9 Level (dBuV/m) Date: 2016.07.17 Site : 03CH06-HY Condition : FCC PART15E 3m 91200_1156_150827 VERTICAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 630314-01 Power : POE 24V Memo : Mode 5
Avg.	Data: 5 Level (dBuV/m) Date: 2016.07.17 Site : 03CH06-HY Condition : FCC PART15E (AVG) 3m 91200_1156_150827 HORIZONTAL RBW:1000.000KHz VBW:1.000KHz SWT:Auto Detector : Peak Project : 630314-01 Power : POE 24V Memo : Mode 5	Data: 10 Level (dBuV/m) Date: 2016.07.17 Site : 03CH06-HY Condition : FCC PART15E (AVG) 3m 91200_1156_150827 VERTICAL RBW:1000.000KHz VBW:1.000KHz SWT:Auto Detector : Peak Project : 630314-01 Power : POE 24V Memo : Mode 5



WIFI	Band 1 5150~5250MHz Fundamental @ 3m	
ANT	802.11n HT20 CH44 5220MHz	
1+2+3	Horizontal	Vertical
Peak Avg.	Graph 3: Horizontal Site : 08CH06-HY Condition : FCC PART15E 3m 91200_1156_150827 HORIZONTAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 630314-01 Power : POE 24V Memo : Mode 5	Graph 8: Vertical Site : 08CH06-HY Condition : FCC PART15E 3m 91200_1156_150827 VERTICAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 630314-01 Power : POE 24V Memo : Mode 5



WIFI	Band 1 5150~5250MHz Band Edge @ 3m	
ANT	802.11n HT20 CH48 5240MHz - R	
1+2+3	Horizontal	Vertical
Peak	Date: 2 Level (dBuV/m) Date: 2016-07-17 Site : 03CH06-HY Condition : FCC PART15E 3m 91200_1156_150827 HORIZONTAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 630314-01 Power : POE 24V Memo : Mode 6	Date: 5 Level (dBuV/m) Date: 2016-07-17 Site : 03CH06-HY Condition : FCC PART15E 3m 91200_1156_150827 VERTICAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 630314-01 Power : POE 24V Memo : Mode 6
Avg.	Date: 3 Level (dBuV/m) Date: 2016-07-17 Site : 03CH06-HY Condition : FCC PART15E (AVG) 3m 91200_1156_150827 HORIZONTAL RBW:1000.000KHz VBW:1.000KHz SWT:Auto Detector : Peak Project : 630314-01 Power : POE 24V Memo : Mode 6	Date: 6 Level (dBuV/m) Date: 2016-07-17 Site : 03CH06-HY Condition : FCC PART15E (AVG) 3m 91200_1156_150827 VERTICAL RBW:1000.000KHz VBW:1.000KHz SWT:Auto Detector : Peak Project : 630314-01 Power : POE 24V Memo : Mode 6



WIFI	Band 1 5150~5250MHz Fundamental @ 3m	
ANT	802.11n HT20 CH48 5240MHz	
1+2+3	Horizontal	Vertical
Peak Avg.	Date: 1 Level (dBuV/m) 110 90 70 50 30 10 0 1000 2200 3400 4600 5800 7000 Frequency (MHz) Site : 03CH06-1HY Condition : FCC PART15E 3m 91200_1156_150827 HORIZONTAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 630314-01 Power : POE 24V Memo : Mode 6	Date: 4 Level (dBuV/m) 110 90 70 50 30 10 0 1000 2200 3400 4600 5800 7000 Frequency (MHz) Site : 03CH06-1HY Condition : FCC PART15E 3m 91200_1156_150827 VERTICAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 630314-01 Power : POE 24V Memo : Mode 6



Band 1 5150~5250MHz
WIFI 802.11n HT40 (Band Edge @ 3m)

WIFI	Band 1 5150~5250MHz Band Edge @ 3m	
ANT	802.11n HT40 CH38 5190MHz - L	
1+2+3	Horizontal	Vertical
Peak	Date: 1 117 Level (dBuV/m) Date: 2016-07-17 Site : 03CH06-HY Condition : FCC PART15E 3m 91200_1156_150827 HORIZONTAL Detector : Peak Project : 630314-01 Power : POE 24V Memo : Mode 7	Date: 6 117 Level (dBuV/m) Date: 2016-07-17 Site : 03CH06-HY Condition : FCC PART15E 3m 91200_1156_150827 VERTICAL Detector : Peak Project : 630314-01 Power : POE 24V Memo : Mode 7
Avg.	Date: 2 117 Level (dBuV/m) Date: 2016-07-17 Site : 03CH06-HY Condition : FCC PART15E (AVG) 3m 91200_1156_150827 HORIZONTAL Detector : Peak Project : 630314-01 Power : POE 24V Memo : Mode 7	Date: 7 117 Level (dBuV/m) Date: 2016-07-17 Site : 03CH06-HY Condition : FCC PART15E (AVG) 3m 91200_1156_150827 VERTICAL Detector : Peak Project : 630314-01 Power : POE 24V Memo : Mode 7

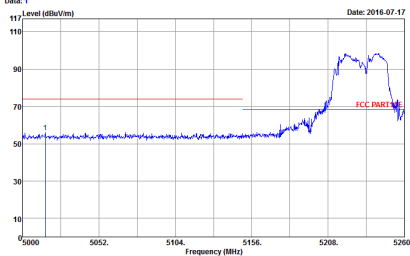
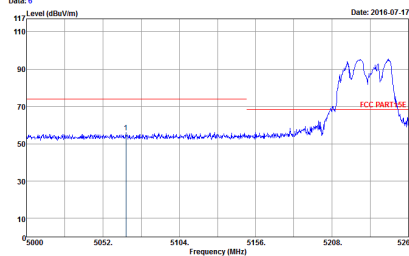
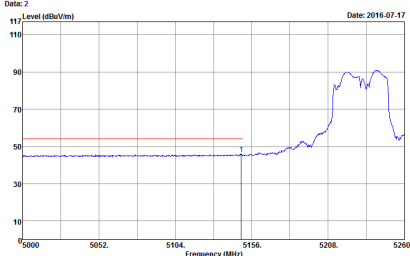
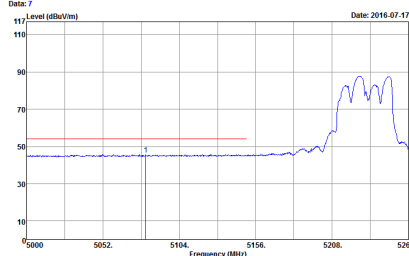


WIFI	Band 1 5150~5250MHz Band Edge @ 3m	
ANT	802.11n HT40 CH38 5190MHz - R	
1+2+3	Horizontal	Vertical
Peak	Data: 4 Level (dBuV/m) Date: 2016-07-17 Site : 03CH06-HY Condition : FCC PART15E 3m 91200_1156_150827 HORIZONTAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 630314-01 Power : POE 24V Memo : Mode 7	Data: 9 Level (dBuV/m) Date: 2016-07-17 Site : 03CH06-HY Condition : FCC PART15E 3m 91200_1156_150827 VERTICAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 630314-01 Power : POE 24V Memo : Mode 7
Avg.	Data: 5 Level (dBuV/m) Date: 2016-07-17 Site : 03CH06-HY Condition : FCC PART15E (AVG) 3m 91200_1156_150827 HORIZONTAL RBW:1000.000KHz VBW:3.000KHz SWT:Auto Detector : Peak Project : 630314-01 Power : POE 24V Memo : Mode 7	Data: 10 Level (dBuV/m) Date: 2016-07-17 Site : 03CH06-HY Condition : FCC PART15E (AVG) 3m 91200_1156_150827 VERTICAL RBW:1000.000KHz VBW:3.000KHz SWT:Auto Detector : Peak Project : 630314-01 Power : POE 24V Memo : Mode 7

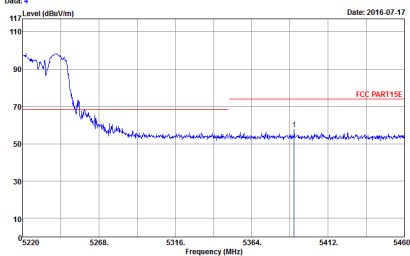
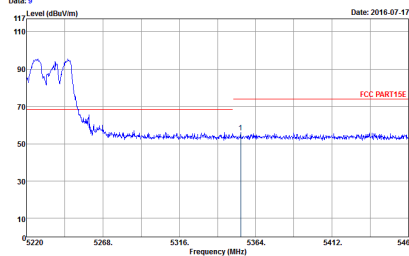
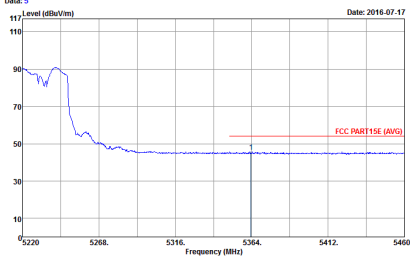
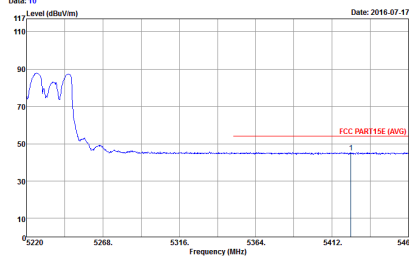


WIFI	Band 1 5150~5250MHz Fundamental @ 3m	
ANT	802.11n HT40 CH38 5190MHz	
1+2+3	Horizontal	Vertical
Peak Avg.	Graph 3: Horizontal Site : 08CH06-HY Condition : FCC PART15E 3m 91200_1156_150827 HORIZONTAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 630314-01 Power : POE 24V Memo : Mode 7	Graph 8: Vertical Site : 08CH06-HY Condition : FCC PART15E 3m 91200_1156_150827 VERTICAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 630314-01 Power : POE 24V Memo : Mode 7

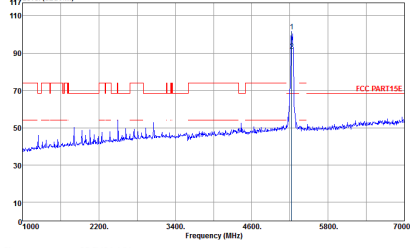
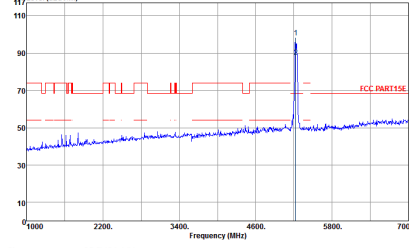


WIFI	Band 1 5150~5250MHz Band Edge @ 3m	
ANT	802.11n HT40 CH46 5230MHz - L	
1+2+3	Horizontal	Vertical
Peak	Data: 1  Site : 03CH06-HY Condition : FCC PART15E 3m 91200_1156_150827 HORIZONTAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 630314-01 Power : POE 24V Memo : Mode 8	Data: 6  Site : 03CH06-HY Condition : FCC PART15E 3m 91200_1156_150827 VERTICAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 630314-01 Power : POE 24V Memo : Mode 8
Avg.	Data: 2  Site : 03CH06-HY Condition : FCC PART15E (AVG) 3m 91200_1156_150827 HORIZONTAL RBW:1000.000KHz VBW:3.000KHz SWT:Auto Detector : Peak Project : 630314-01 Power : POE 24V Memo : Mode 8	Data: 7  Site : 03CH06-HY Condition : FCC PART15E (AVG) 3m 91200_1156_150827 VERTICAL RBW:1000.000KHz VBW:3.000KHz SWT:Auto Detector : Peak Project : 630314-01 Power : POE 24V Memo : Mode 8



WIFI	Band 1 5150~5250MHz Band Edge @ 3m	
ANT	802.11n HT40 CH46 5230MHz - R	
1+2+3	Horizontal	Vertical
Peak	Data: 4  Site : 03CH06-HY Condition : FCC PART15E 3m 91200_1156_150827 HORIZONTAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 630314-01 Power : POE 24V Memo : Mode 8	Data: 9  Site : 03CH06-HY Condition : FCC PART15E 3m 91200_1156_150827 VERTICAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 630314-01 Power : POE 24V Memo : Mode 8
Avg.	Data: 5  Site : 03CH06-HY Condition : FCC PART15E (AVG) 3m 91200_1156_150827 HORIZONTAL RBW:1000.000KHz VBW:3.000KHz SWT:Auto Detector : Peak Project : 630314-01 Power : POE 24V Memo : Mode 8	Data: 10  Site : 03CH06-HY Condition : FCC PART15E (AVG) 3m 91200_1156_150827 VERTICAL RBW:1000.000KHz VBW:3.000KHz SWT:Auto Detector : Peak Project : 630314-01 Power : POE 24V Memo : Mode 8



WIFI	Band 1 5150~5250MHz Fundamental @ 3m	
ANT	802.11n HT40 CH46 5230MHz	
1+2+3	Horizontal	Vertical
Peak Avg	Date: 3 Level (dBuV/m) Date: 2016-07-18  Site : 08CH06-HY Condition : FCC PART15E 3m 91200_1156_150827 HORIZONTAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 630314-01 Power : POE 24V Memo : Mode 8	Date: 8 Level (dBuV/m) Date: 2016-07-18  Site : 08CH06-HY Condition : FCC PART15E 3m 91200_1156_150827 VERTICAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 630314-01 Power : POE 24V Memo : Mode 8



Band 1 5150~5250MHz
WIFI 802.11ac VHT80 (Band Edge @ 3m)

WIFI	Band 1 5150~5250MHz Band Edge @ 3m	
ANT	802.11ac VHT80 CH42 5210MHz - L	
1+2+3	Horizontal	Vertical
Peak	Date: 1 117 Level (dBuV/m) Date: 2016-07-17 Site : 03CH06-HY Condition : FCC PART15E 3m 91200_1156_150827 HORIZONTAL Detector : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Project : Peak Power : 630314-01 Memo : POE 24V Mode 9	Date: 6 117 Level (dBuV/m) Date: 2016-07-17 Site : 03CH06-HY Condition : FCC PART15E 3m 91200_1156_150827 VERTICAL Detector : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Project : Peak Power : 630314-01 Memo : POE 24V Mode 9
Avg.	Date: 2 117 Level (dBuV/m) Date: 2016-07-17 Site : 03CH06-HY Condition : FCC PART15E (AVG) 3m 91200_1156_150827 HORIZONTAL Detector : RBW:1000.000KHz VBW:10.000KHz SWT:Auto Project : Peak Power : 630314-01 Memo : POE 24V Mode 9	Date: 7 117 Level (dBuV/m) Date: 2016-07-17 Site : 03CH06-HY Condition : FCC PART15E (AVG) 3m 91200_1156_150827 VERTICAL Detector : RBW:1000.000KHz VBW:10.000KHz SWT:Auto Project : Peak Power : 630314-01 Memo : POE 24V Mode 9

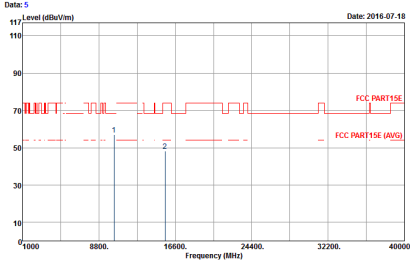
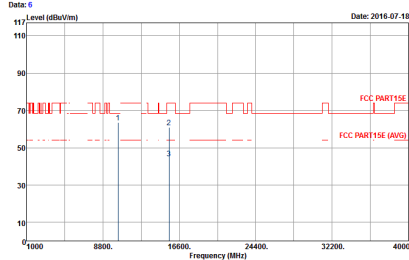


WIFI	Band 1 5150~5250MHz Band Edge @ 3m	
ANT	802.11ac VHT80 CH42 5210MHz - R	
1+2+3	Horizontal	Vertical
Peak	Data: 4 Level (dBuV/m) Date: 2016.07.17 Site : 03CH06-HY Condition : FCC PART15E 3m 91200_1156_150827 HORIZONTAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 630314-01 Power : POE 24V Memo : Mode 9	Data: 9 Level (dBuV/m) Date: 2016.07.17 Site : 03CH06-HY Condition : FCC PART15E 3m 91200_1156_150827 VERTICAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 630314-01 Power : POE 24V Memo : Mode 9
Avg.	Data: 5 Level (dBuV/m) Date: 2016.07.17 Site : 03CH06-HY Condition : FCC PART15E (AVG) 3m 91200_1156_150827 HORIZONTAL RBW:1000.000KHz VBW:10.000KHz SWT:Auto Detector : Peak Project : 630314-01 Power : POE 24V Memo : Mode 9	Data: 10 Level (dBuV/m) Date: 2016.07.17 Site : 03CH06-HY Condition : FCC PART15E (AVG) 3m 91200_1156_150827 VERTICAL RBW:1000.000KHz VBW:10.000KHz SWT:Auto Detector : Peak Project : 630314-01 Power : POE 24V Memo : Mode 9



WIFI	Band 1 5150~5250MHz Fundamental @ 3m	
ANT	802.11ac VHT80 CH42 5210MHz	
1+2+3	Horizontal	Vertical
Peak Avg	Date: 3 Level (dBuV/m) Date: 2016-07-18 Site : 08CH06-HY Condition : FCC PART15E 3m 91200_1156_150827 HORIZONTAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 630314-01 Power : POE 24V Memo : Mode 9	Date: 8 Level (dBuV/m) Date: 2016-07-18 Site : 08CH06-HY Condition : FCC PART15E 3m 91200_1156_150827 VERTICAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 630314-01 Power : POE 24V Memo : Mode 9

Band 1 - 5150~5250MHz
WIFI 802.11a (Harmonic @ 3m)

WIFI	Band 1 5150~5250MHz Harmonic @ 3m	
ANT	802.11a CH36 5180MHz	
1+2+3	Horizontal	Vertical
Peak Avg.	 Site : 08CH06-HY Condition : FCC PART15E 3m SHF-EHF HORN HORIZONTAL Detector : Peak Project : 630314-01 Power : POE 24V Memo : Mode 1	 Site : 08CH06-HY Condition : FCC PART15E 3m SHF-EHF HORN VERTICAL Detector : Peak Project : 630314-01 Power : POE 24V Memo : Mode 1

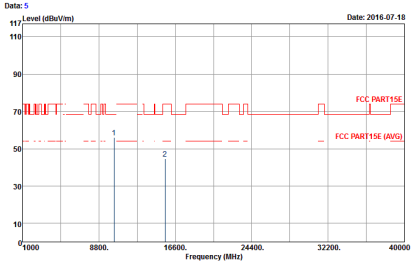
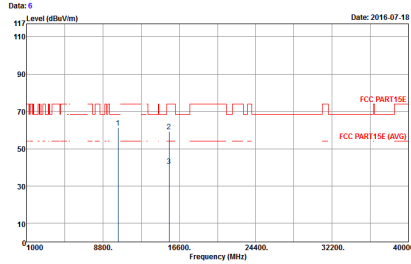


WIFI	Band 1 5150~5250MHz Harmonic @ 3m	
ANT	802.11a CH44 5220MHz	
1+2+3	Horizontal	Vertical
Peak Avg.	Graph 5: Horizontal Site : 030406-HY Condition : FCC PART15E 3m SHF-EHF HORN HORIZONTAL Detector : Peak Project : 630314-01 Power : POE 24V Memo : Mode 2	Graph 6: Vertical Site : 030406-HY Condition : FCC PART15E 3m SHF-EHF HORN VERTICAL Detector : Peak Project : 630314-01 Power : POE 24V Memo : Mode 2

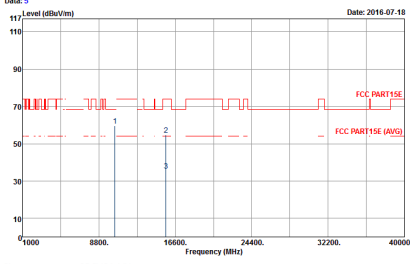
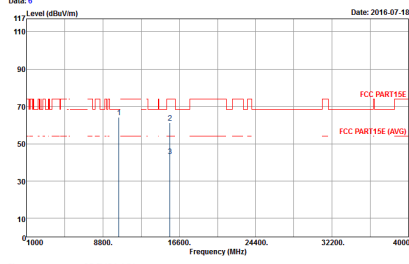


WIFI	Band 1 5150~5250MHz Harmonic @ 3m	
ANT	802.11a CH48 5240MHz	
1+2+3	Horizontal	Vertical
Peak Avg.	Graph 5: Horizontal Spectrum Plot Site : 03C406-HY Condition : FCC PART15E 3m 91200_1156_150827 HORIZONTAL Detector : Peak Project : 630314-01 Power : POE 24V Memo : Mode 3	Graph 6: Vertical Spectrum Plot Site : 03C406-HY Condition : FCC PART15E 3m 91200_1156_150827 VERTICAL Detector : Peak Project : 630314-01 Power : POE 24V Memo : Mode 3

Band 1 5150~5250MHz
WIFI 802.11n HT20 (Harmonic @ 3m)

WIFI	Band 1 5150~5250MHz Harmonic @ 3m	
ANT	802.11n HT20 CH36 5180MHz	
1+2+3	Horizontal	Vertical
Peak Avg.	 Date: 5 Level (dBuV/m) Date: 2016-07-18 FCC PART15E FCC PART15E (AVG) 1 2 1000 8800 16600 24400 32200 40000 Frequency (MHz) Site : 03CH06-HY Condition : FCC PART15E 3m 91200_1156_150827 HORIZONTAL Detector : Peak Project : 630314-01 Power : POE 24V Memo : Mode 4	 Date: 6 Level (dBuV/m) Date: 2016-07-18 FCC PART15E FCC PART15E (AVG) 1 2 3 1000 8800 16600 24400 32200 40000 Frequency (MHz) Site : 03CH06-HY Condition : FCC PART15E 3m 91200_1156_150827 VERTICAL Detector : Peak Project : 630314-01 Power : POE 24V Memo : Mode 4



WIFI	Band 1 5150~5250MHz Harmonic @ 3m	
ANT	802.11n HT20 CH44 5220MHz	
1+2+3	Horizontal	Vertical
Peak Avg.	Graph 5: Horizontal Spectrum  Site : 08C406-HY Condition : FCC PART15E 3m 91200_1156_150827 HORIZONTAL Detector : Peak Project : 630314-01 Power : POE 24V Memo : Mode 5	Graph 6: Vertical Spectrum  Site : 08C406-HY Condition : FCC PART15E 3m 91200_1156_150827 VERTICAL Detector : Peak Project : 630314-01 Power : POE 24V Memo : Mode 5



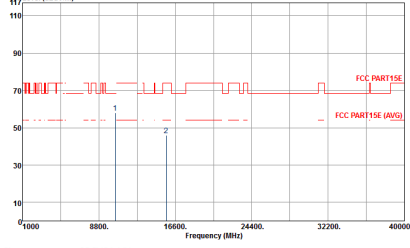
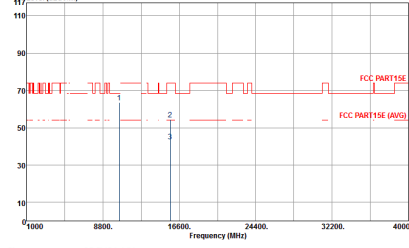
WIFI	Band 1 5150~5250MHz Harmonic @ 3m	
ANT	802.11n HT20 CH48 5240MHz	
1+2+3	Horizontal	Vertical
Peak Avg.	Data: 5 Level (dBuV/m) Date: 2016-07-18 Site : 08C406-HY Condition : FCC PART15E 3m 91200_1156_150827 HORIZONTAL Detector : Peak Project : 630314-01 Power : POE 24V Memo : Mode 6	Data: 6 Level (dBuV/m) Date: 2016-07-18 Site : 08C406-HY Condition : FCC PART15E 3m 91200_1156_150827 VERTICAL Detector : Peak Project : 630314-01 Power : POE 24V Memo : Mode 6



Band 1 5150~5250MHz
WIFI 802.11n HT40 (Harmonic @ 3m)

WIFI	Band 1 5150~5250MHz Harmonic @ 3m	
ANT	802.11n HT40 CH38 5190MHz	
1+2+3	Horizontal	Vertical
Peak Avg.	Horizontal Date: 5 Level (dBu/Vm) Date: 2016-07-17 Site : 03CH06-HY Condition : FCC PART15E 3m SHF-EHF HORN HORIZONTAL Detector : Peak Project : 630314-01 Power : POE 24V Memo : Mode 7	Vertical Date: 6 Level (dBu/Vm) Date: 2016-07-17 Site : 03CH06-HY Condition : FCC PART15E 3m SHF-EHF HORN VERTICAL Detector : Peak Project : 630314-01 Power : POE 24V Memo : Mode 7



WIFI	Band 1 5150~5250MHz Harmonic @ 3m	
ANT	802.11n HT40 CH46 5230MHz	
1+2+3	Horizontal	Vertical
Peak Avg.	Data: 5 Level (dBuV/m) Date: 2016-07-17  Site : 03C-H06-HY Condition : FCC PART15E 3m SHF-EHF HORN HORIZONTAL Detector : Peak Project : 630314-01 Power : POE 24V Memo : Mode 8	Data: 6 Level (dBuV/m) Date: 2016-07-17  Site : 03C-H06-HY Condition : FCC PART15E 3m SHF-EHF HORN VERTICAL Detector : Peak Project : 630314-01 Power : POE 24V Memo : Mode 8

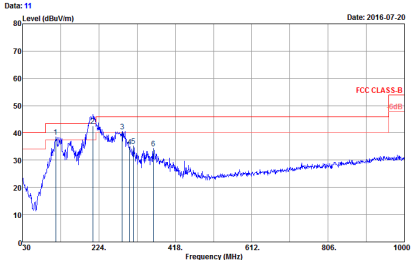
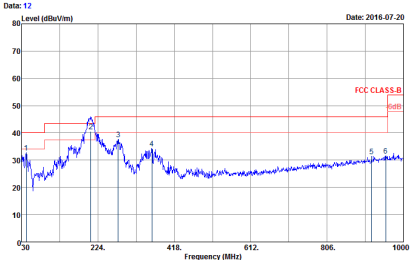


Band 1 5150~5250MHz
WIFI 802.11ac VHT80 (Harmonic @ 3m)

WIFI	Band 1 5150~5250MHz Harmonic @ 3m	
ANT	802.11ac VHT80 CH42 5210MHz	
1+2+3	Horizontal	Vertical
Peak Avg.	Horizontal Date: 5 Level (dBuV/m) Date: 2016.07.17 Site : 03CH06-HY Condition : FCC PART15E 3m SHF-EHF HORN HORIZONTAL Detector : Peak Project : 630314-01 Power : POE 24V Memo : Mode 9	Vertical Date: 6 Level (dBuV/m) Date: 2016.07.17 Site : 03CH06-HY Condition : FCC PART15E 3m SHF-EHF HORN VERTICAL Detector : Peak Project : 630314-01 Power : POE 24V Memo : Mode 9

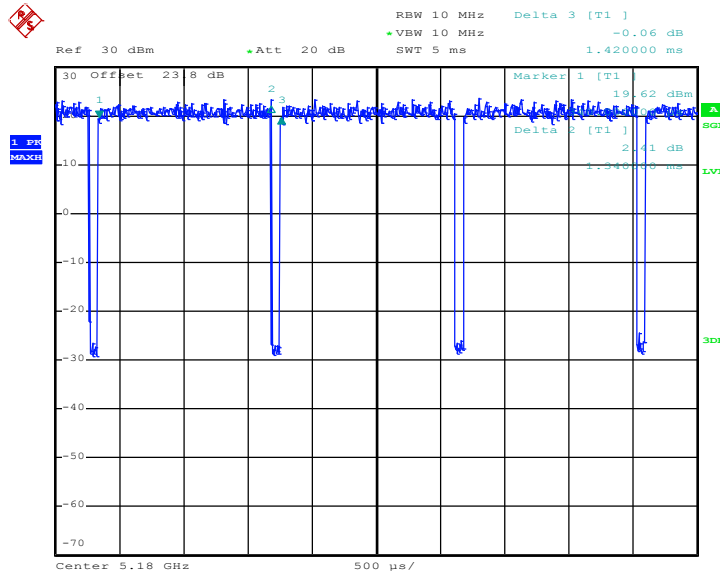


Emission below 1GHz
5GHz WIFI 802.11n HT20 (LF)

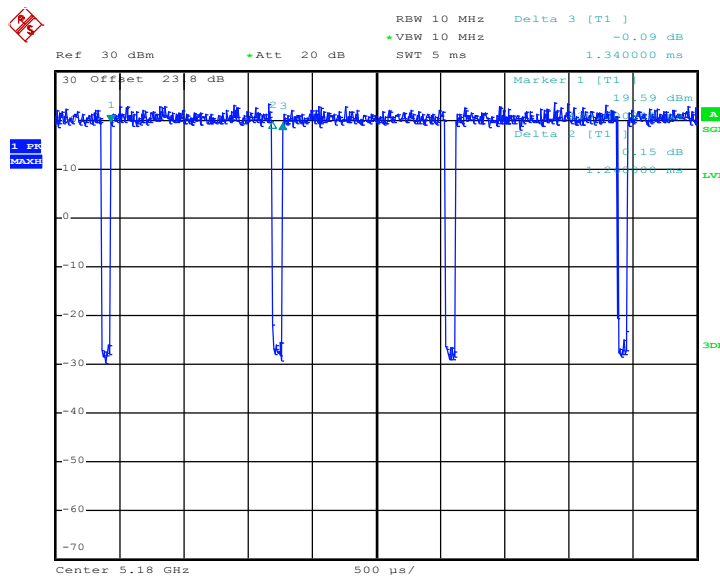
WIFI	5GHz WIFI	
ANT	802.11n HT20 LF	
1+2+3	Horizontal	Vertical
QP / Peak	Date: 11  Site : 03CH06-HY Condition : FCC CLASS-B 3m LF_ANT_2725 HORIZONTAL Detector : Peak Project : 630314-01 Power : POE 24V Memo : Mode 10	Date: 12  Site : 03CH06-HY Condition : FCC CLASS-B 3m LF_ANT_2725 VERTICAL Detector : Peak Project : 630314-01 Power : POE 24V Memo : Mode 10

Appendix D. Duty Cycle Plots

Antenna	Band	Duty Cycle(%)	T(us)	1/T(kHz)	VBW Setting
MIMO Ant. 1	802.11a	94.37	1340	0.75	1kHz
MIMO Ant. 2	802.11a	94.41	1350	0.74	1kHz
MIMO Ant. 3	802.11a	94.37	1340	0.75	1kHz
MIMO Ant. 1	5GHz 802.11n HT20	94.03	1260	0.79	1kHz
MIMO Ant. 2	5GHz 802.11n HT20	94.74	1260	0.79	1kHz
MIMO Ant. 3	5GHz 802.11n HT20	94.74	1260	0.79	1kHz
MIMO Ant. 1	5GHz 802.11n HT40	88.89	624	1.60	3kHz
MIMO Ant. 2	5GHz 802.11n HT40	90.48	627	1.59	3kHz
MIMO Ant. 3	5GHz 802.11n HT40	90.52	630	1.59	3kHz
MIMO Ant. 1	5GHz 802.11ac VHT20	94.78	1270	0.79	1kHz
MIMO Ant. 2	5GHz 802.11ac VHT20	94.78	1270	0.79	1kHz
MIMO Ant. 3	5GHz 802.11ac VHT20	94.78	1270	0.79	1kHz
MIMO Ant. 1	5GHz 802.11ac VHT40	89.74	630	1.59	3kHz
MIMO Ant. 2	5GHz 802.11ac VHT40	89.74	630	1.59	3kHz
MIMO Ant. 3	5GHz 802.11ac VHT40	89.03	633	1.58	3kHz
MIMO Ant. 1	5GHz 802.11ac VHT80	81.25	312	3.21	10kHz
MIMO Ant. 2	5GHz 802.11ac VHT80	82.11	312	3.21	10kHz
MIMO Ant. 3	5GHz 802.11ac VHT80	82.29	316	3.16	10kHz

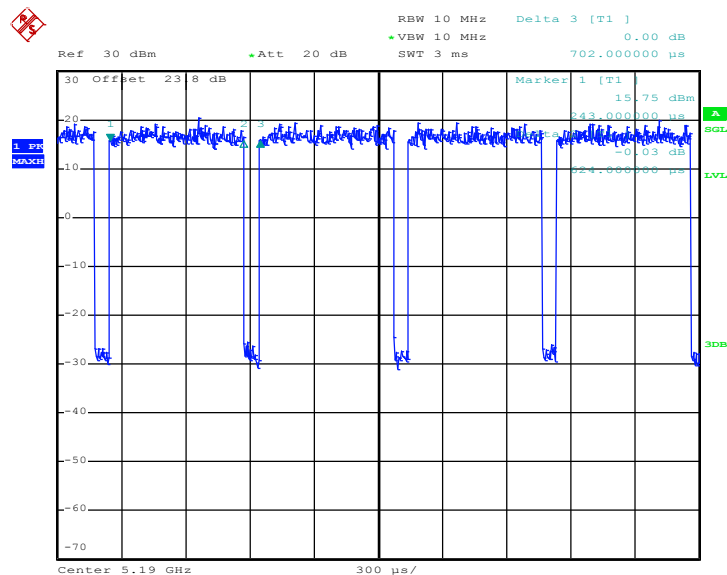
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802.11a


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802.11n HT20


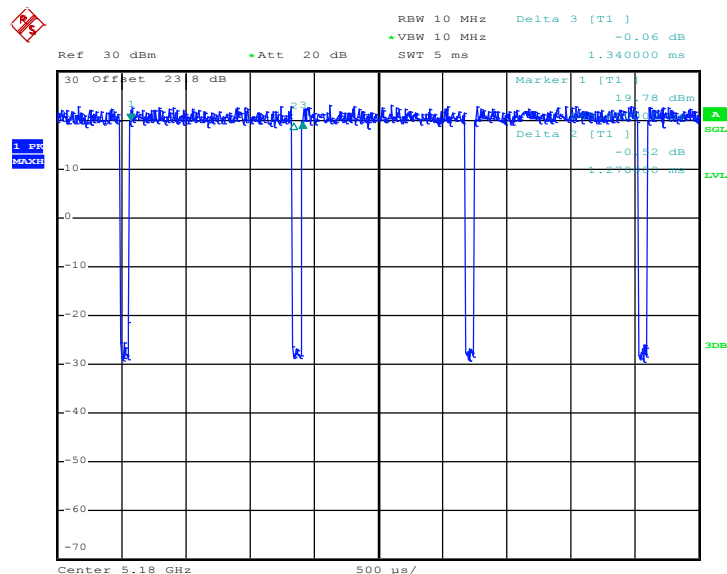
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802.11n HT40



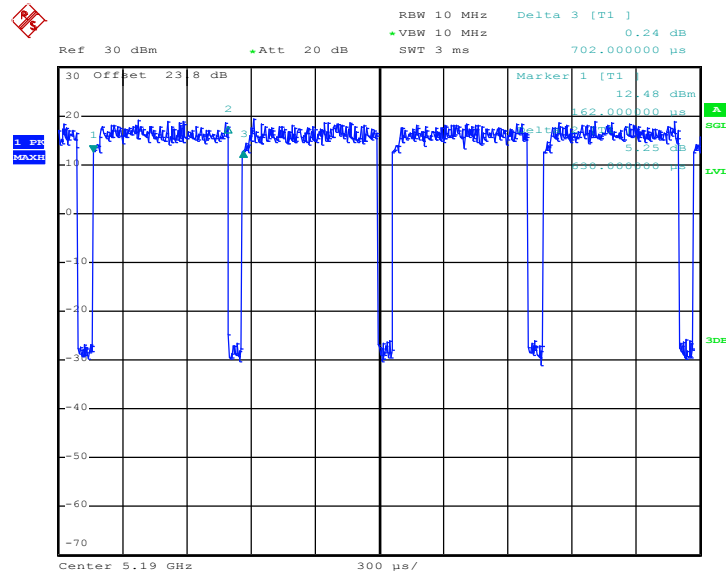
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802.11ac VHT20



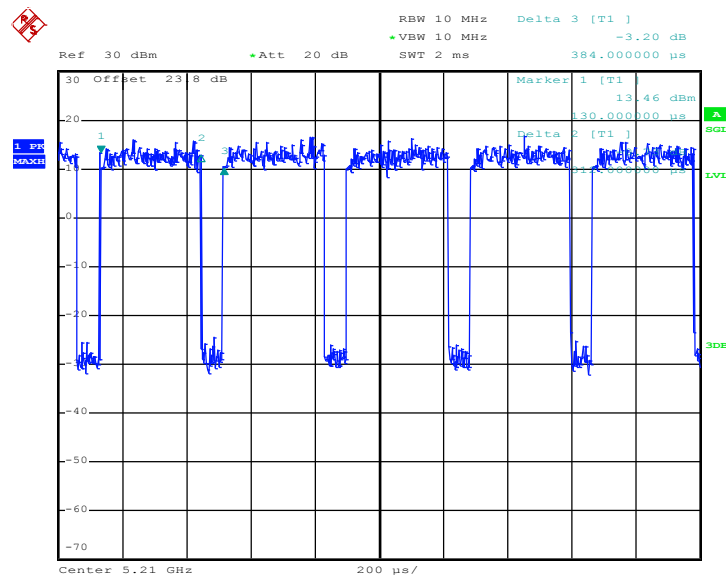
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802.11ac VHT40

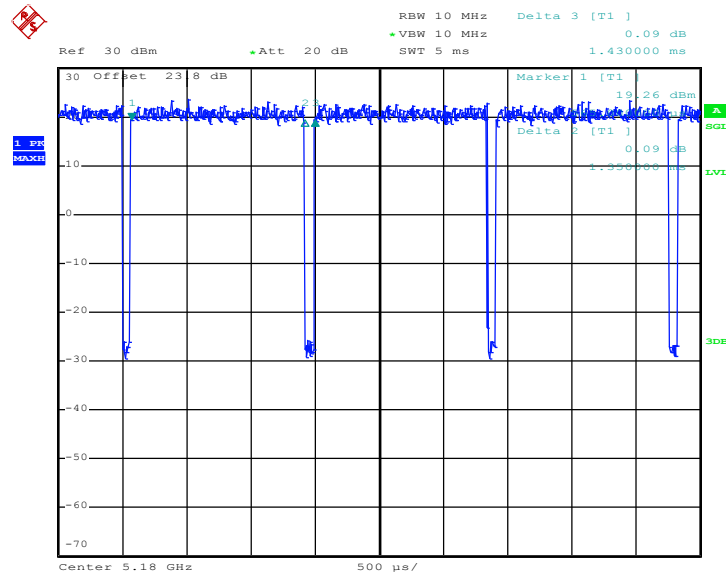


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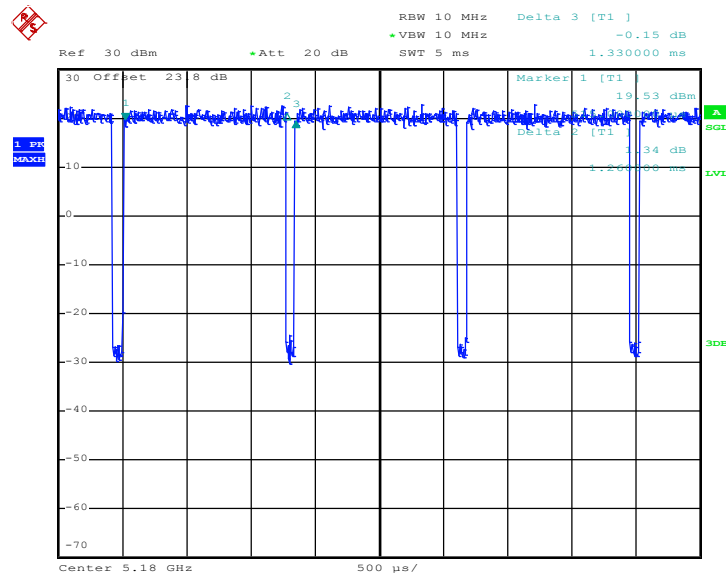
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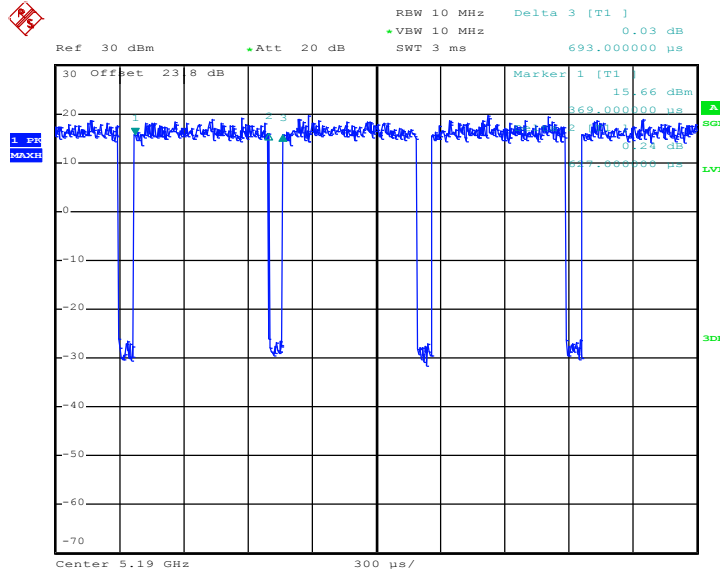
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802.11n HT20


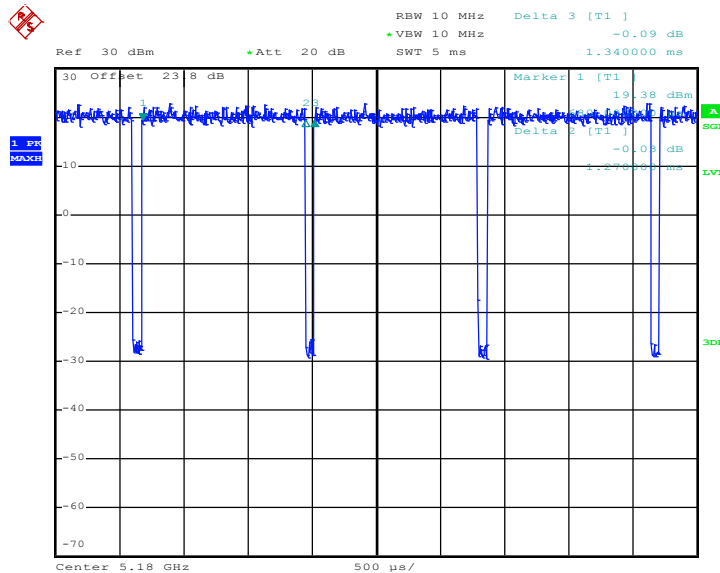
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802.11n HT40



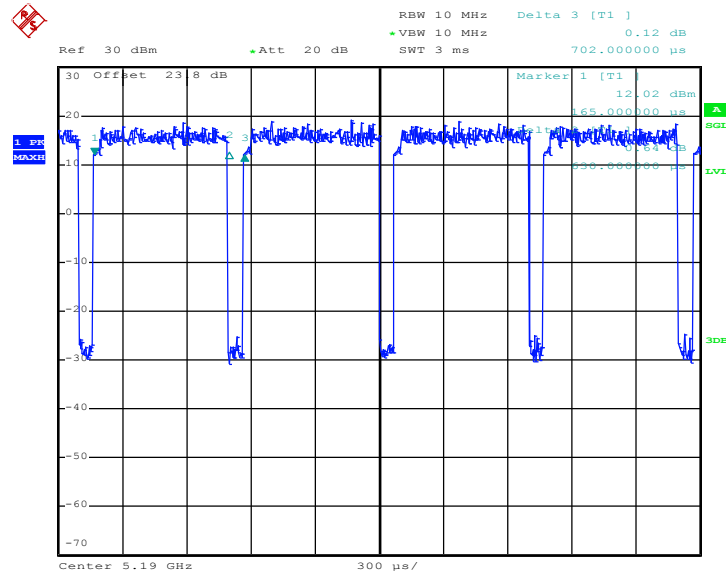
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802.11ac VHT20



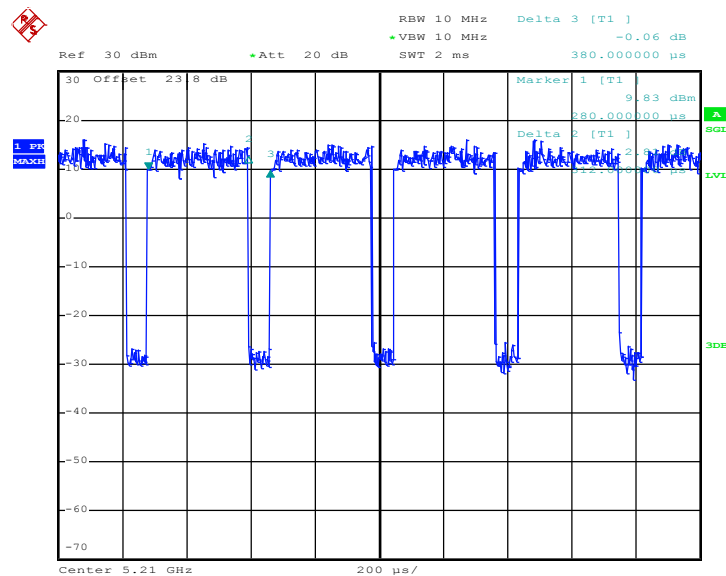
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802.11ac VHT40

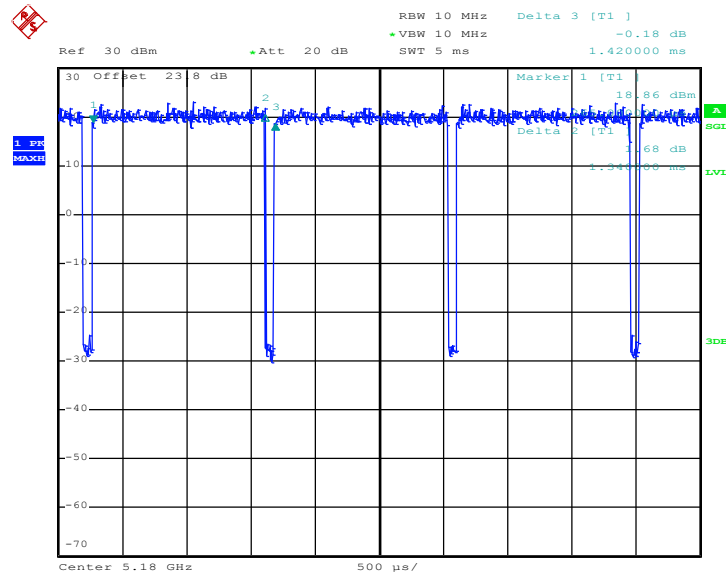


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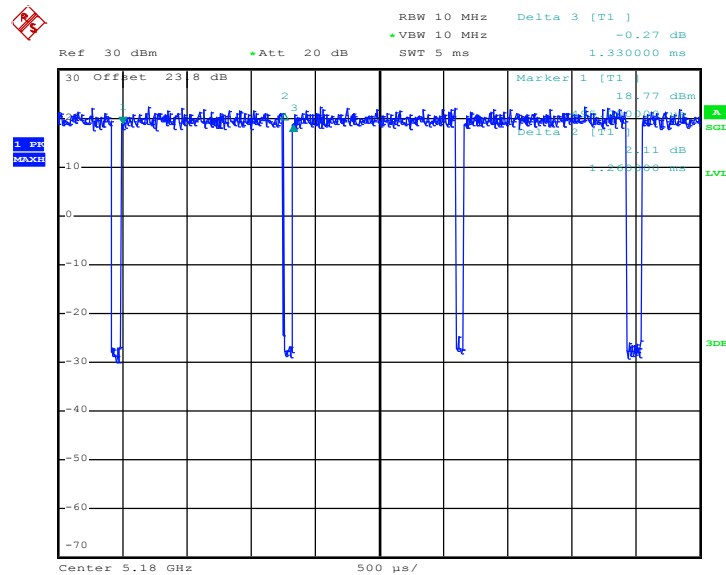
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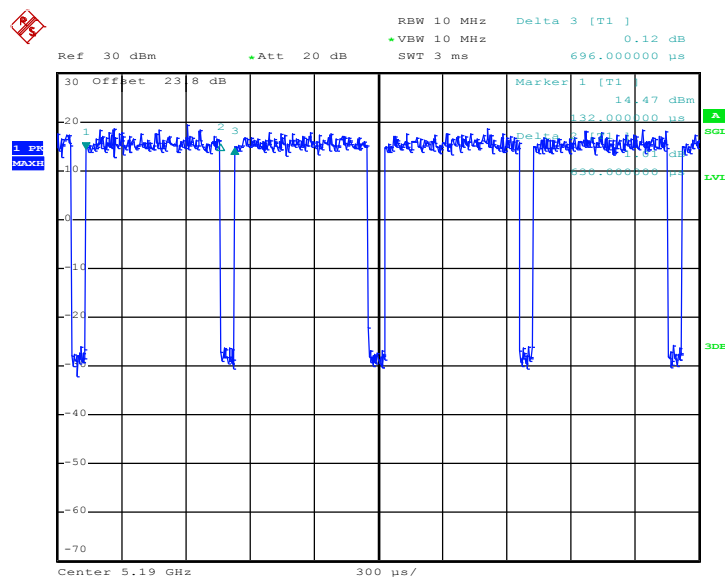
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802.11n HT20


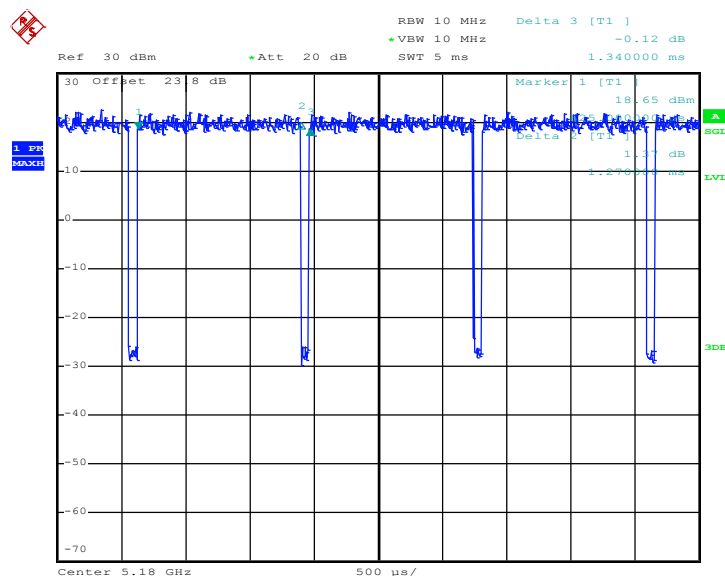
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802.11n HT40



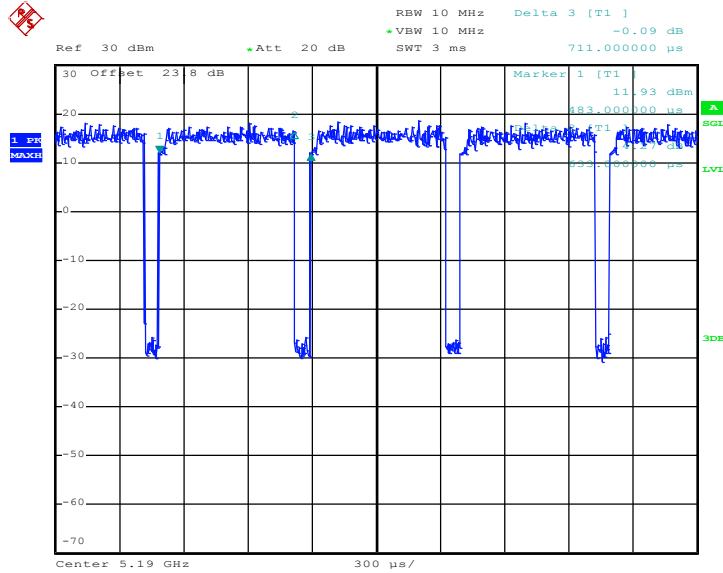
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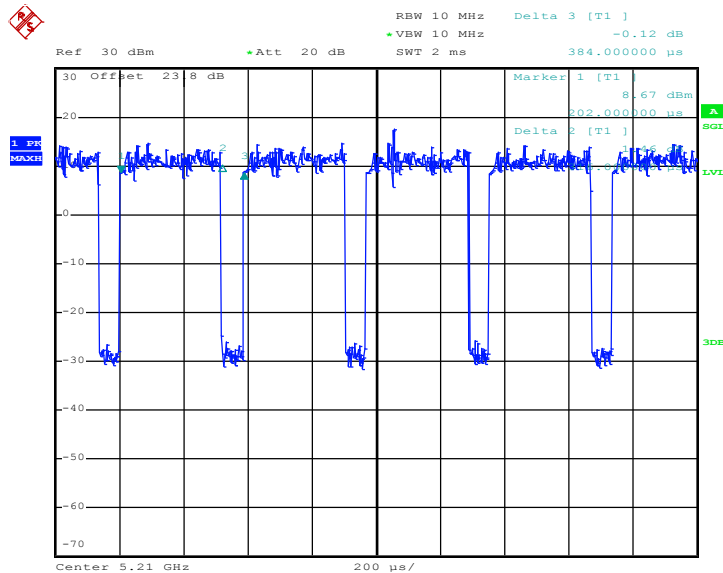
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802.11ac VHT40



Date: 25.MAR.2016 21:39:30

802.11ac VHT80



Date: 25.MAR.2016 21:45:07