

FCC Test Report

Product Name	802.11ac Dual Band Access Point
Model No	WK-1-O
FCC ID.	SLY-WK1O22

Applicant	Pakedge Device and Software Inc.
Address	3847 Breakwater Avenue, Hayward, CA 94545

Date of Receipt	Mar. 15, 2016
Issue Date	Apr. 07, 2016
Report No.	1630276R-RFUSP01V00
Report Version	V1.0



The test results relate only to the samples tested.

The test results shown in the test report are traceable to the national/international standard through the calibration report of the equipment and evaluated measurement uncertainty herein.

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Test Report

Issue Date: Apr. 07, 2016

Report No.: 1630276R-RFUSP01V00



Product Name	802.11ac Dual Band Access Point
Applicant	Pakedge Device and Software Inc.
Address	3847 Breakwater Avenue, Hayward, CA 94545
Manufacturer	Pakedge Device and Software Inc.
Factory	Lite-On Network Communication (Dongguan) Limited
Model No.	WK-1-O
FCC ID.	SLY-WK1O22
EUT Rated Voltage	DC 48V (Power by PoE)
EUT Test Voltage	AC 120V/60Hz
Trade Name	Pakedge
Applicable Standard	FCC CFR Title 47 Part 15 Subpart C: 2014 ANSI C63.4: 2014, ANSI C63.10: 2013 KDB 558074 D01 DTS Meas Guidance v03r04
Test Result	Complied

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Approved By : Vincent Lin
(Director / Vincent Lin)

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- Attachment 1: EUT Test Photographs
- Attachment 2: EUT Detailed Photographs

1. GENERAL INFORMATION

1.1. EUT Description

Product Name	802.11ac Dual Band Access Point
Trade Name	Pakedge
Model No.	WK-1-O
FCC ID.	SLY-WK1O22
Frequency Range	802.11b/g/n-20MHz:2412-2462MHz,802.11n-40MHz:2422-2452MHz
Number of Channels	802.11b/g/n-20MHz: 11, n-40MHz: 7
Data Speed	802.11b: 1-11Mbps, 802.11g: 6-54Mbps, 802.11n: up to 300Mbps
Type of Modulation	802.11b:DSSS, DBPSK, DQPSK, CCK 802.11g/n: OFDM, BPSK, QPSK, 16QAM, 64QAM
Antenna type	Dipole Antenna
Antenna Gain	Refer to the table “Antenna List”
Channel Control	Auto

Antenna List

No.	Manufacturer	Part No.	Antenna Type	Peak Array Gain
1	Mogear	C1790-510002-A	Dipole Antenna	3.5 dBi For 2.4GHz

Note: The antenna of EUT is conform to FCC 15.203

802.11b/g/n-20MHz Center Frequency of Each Channel:

Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
Channel 01:	2412 MHz	Channel 02:	2417 MHz	Channel 03:	2422 MHz	Channel 04:	2427 MHz
Channel 05:	2432 MHz	Channel 06:	2437 MHz	Channel 07:	2442 MHz	Channel 08:	2447 MHz
Channel 09:	2452 MHz	Channel 10:	2457 MHz	Channel 11:	2462 MHz		

802.11n-40MHz (2.4G Band) Center Working Frequency of Each Channel:

Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
Channel 1:	2422 MHz	Channel 2:	2427 MHz	Channel 3:	2432 MHz	Channel 4:	2437 MHz
Channel 5:	2442 MHz	Channel 6:	2447 MHz	Channel 7:	2452 MHz		

Note:

1. This device is an 802.11ac Dual Band Access Point with a built-in WLAN transceiver.
2. Regarding to the operation frequency, the lowest, middle and highest frequency are selected to perform the test.
3. Lowest and highest data rates are tested in each mode. Only worst case is shown in the report. (802.11b is 1Mbps 、802.11g is 6Mbps 、802.11n(20M-BW) is 14.4Mbps and, 802.11n(40M-BW) is 30Mbps).
4. These tests are conducted on a sample for the purpose of demonstrating compliance of 802.11b/g/n transmitter with Part 15 Subpart C Paragraph 15.247 of spread spectrum devices.
5. The radiation measurements are performed in X, Y, Z axis positioning. Only the worst case is shown in the report.

Test Mode:	Mode 1: Transmit (802.11b 1Mbps)
	Mode 2: Transmit (802.11g 6Mbps)
	Mode 3: Transmit - 802.11n-20BW_14.4Mbps(2.4G Band)
	Mode 4: Transmit - 802.11n-40BW_30Mbps(2.4G Band)

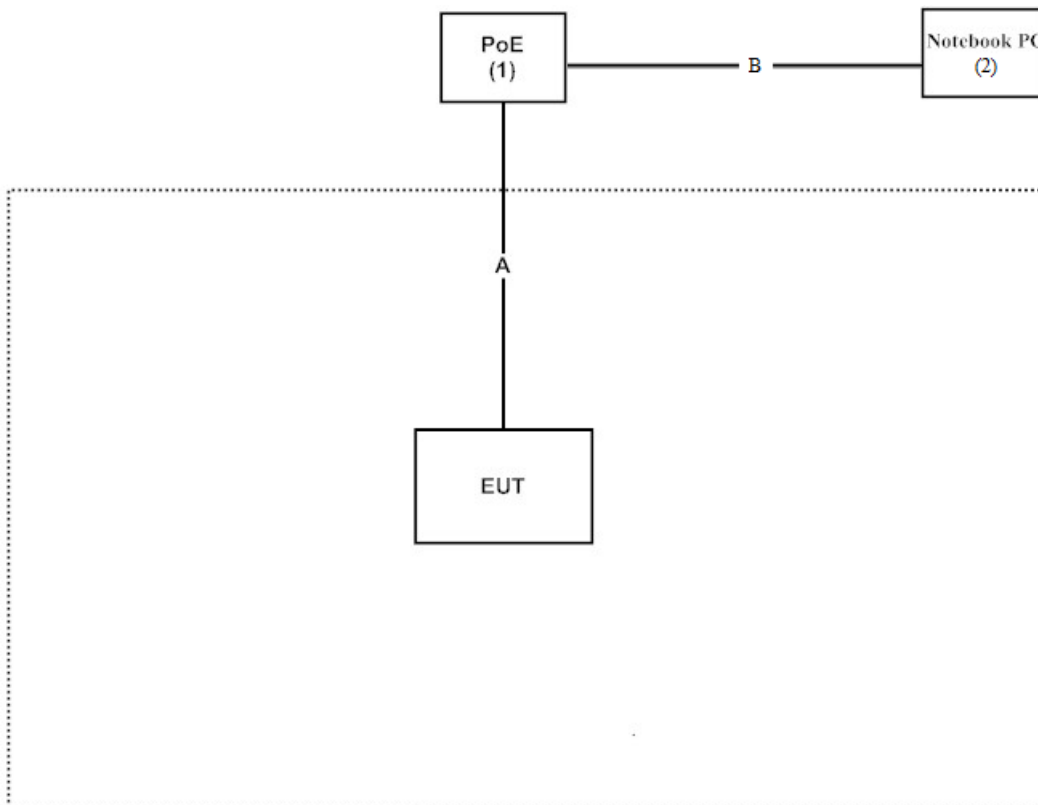
1.3. Tested System Details

The types for all equipment, plus descriptions of all cables used in the tested system (including inserted cards) are:

Product	Manufacturer	Model No.	Serial No.	Power Cord
1 PoE	LINKSYS	LGS108P	13U10C993500R	N/A
2 Notebook PC	DELL	Latitude E5440	HG26TZ1	Non-Shielded, 0.8m

Signal Cable Type	Signal cable Description
A LAN Cable	Non-Shielded, 5.0m
B LAN Cable	Non-Shielded, 5.0m

1.4. Configuration of Tested System



1.5. EUT Exercise Software

- (1) Setup the EUT as shown on 1.4
- (2) Execute “ART2 GUI-V2.3” program on the Notebook PC.
- (3) Configure the test mode, the test channel, and the data rate.
- (4) Start the continuous transmission.
- (5) Verify that the EUT works properly.

1.6. Test Facility

Ambient conditions in the laboratory:

Items	Required (IEC 68-1)	Actual
Temperature (°C)	15-35	20-35
Humidity (%RH)	25-75	50-65
Barometric pressure (mbar)	860-1060	950-1000

The related certificate for our laboratories about the test site and management system can be downloaded from

Quietek Corporation's Web Site: <http://www.quietek.com/chinese/about/certificates.aspx?bval=5>

The address and introduction of Quietek Corporation's laboratories can be founded in our Web site:

<http://www.quietek.com/>

Site Description: File on
Federal Communications Commission
FCC Engineering Laboratory
7435 Oakland Mills Road
Columbia, MD 21046
Registration Number: 92195

Site Name: Quietek Corporation
Site Address: No.5-22, Ruishukeng,
Linkou Dist. New Taipei City 24451,
Taiwan, R.O.C.
TEL: 886-2-8601-3788 / FAX : 886-2-8601-3789
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FCC Accreditation Number: TW1014

2. Conducted Emission

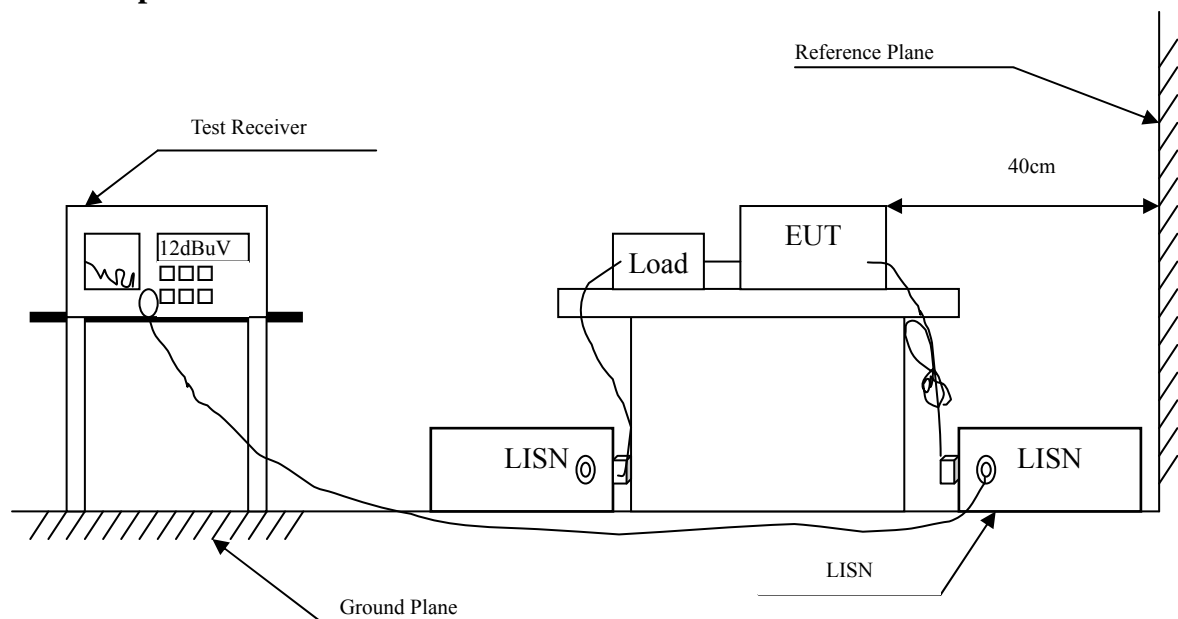
2.1. Test Equipment

	Equipment	Manufacturer	Model No. / Serial No.	Last Cal.	Remark
X	Test Receiver	R & S	ESCS 30 / 825442/018	Sep., 2015	
X	Artificial Mains Network	R & S	ENV4200 / 848411/10	Feb., 2016	Peripherals
X	LISN	R & S	ESH3-Z5 / 825562/002	Feb., 2016	EUT
	DC LISN	Schwarzbeck	8226 / 176	Mar, 2016	EUT
X	Pulse Limiter	R & S	ESH3-Z2 / 357.8810.52	Feb., 2016	
	No.1 Shielded Room				

Note:

1. All equipments are calibrated every one year.
2. The test instruments marked by "X" are used to measure the final test results.

2.2. Test Setup



2.3. Limits

FCC Part 15 Subpart C Paragraph 15.207 (dBuV) Limit		
Frequency MHz	Limits	
	QP	AVG
0.15 - 0.50	66-56	56-46
0.50-5.0	56	46
5.0 - 30	60	50

2.4. Test Procedure

The EUT and simulators are connected to the main power through a line impedance stabilization network (L.I.S.N.). This provides a 50 ohm /50uH coupling impedance for the measuring equipment. The peripheral devices are also connected to the main power through a LISN that provides a 50ohm /50uH coupling impedance with 50ohm termination. (Please refers to the block diagram of the test setup and photographs.)

Both sides of A.C. line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.4: 2014 on conducted measurement.

Conducted emissions were invested over the frequency range from 0.15MHz to 30MHz using a receiver bandwidth of 9kHz.

2.5. Uncertainty

± 2.26 dB

2.6. Test Result of Conducted Emission

Owing to the Adapter of EUT is not sold, this test item is not performed.

3. Maximum Conducted Power

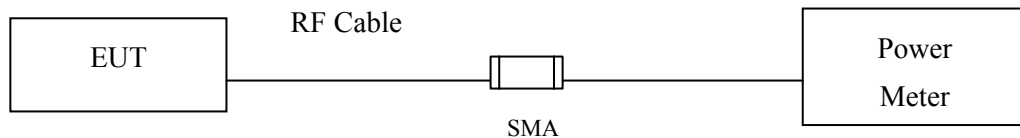
3.1. Test Equipment

	Equipment	Manufacturer	Model No./Serial No.	Last Cal.
X	Power Meter	Anritsu	ML2495A/6K00003357	May, 2015
X	Power Sensor	Anritsu	MA2411B/0738448	Jun, 2015
	Spectrum Analyzer	R&S	FSP40 / 100170	Jun, 2015
	Spectrum Analyzer	Agilent	E4407B / US39440758	Jun, 2015
	Spectrum Analyzer	Agilent	N9010A / MY48030495	Apr., 2016

Note:

1. All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.
2. The test instruments marked with “X” are used to measure the final test results.

3.2. Test Setup



3.3. Limits

The maximum average power shall be less 1 Watt. (Section 15.247 (b)(3))

3.4. Test Procedure

The EUT was tested according to DTS test procedure of KDB 558074 for compliance to FCC 47CFR 15.247 requirements. The maximum peak conducted output power using KDB 558074 D01 DTS Meas Guidance v03r02 section 9.1.2 PKPM1 Peak power meter method.

3.5. Uncertainty

± 1.27 dB

3.6. Test Result of Maximum Conducted Power

Product : 802.11ac Dual Band Access Point
 Test Item : Maximum Conducted Power
 sTest Site : No.3 OATS
 Test Mode : Mode 1: Transmit (802.11b 1Mbps)

CHAIN A

Channel No	Frequency (MHz)	Average Power For different Data Rate (Mbps)			
		1	2	5.5	11
		Measurement Level (dBm)			
01	2412	23.00	--	--	--
06	2437	24.13	23.98	23.57	23.12
11	2462	23.68	--	--	--

Note: Average Power Output Value =Reading value on power meter + cable loss

CHAIN B

Channel No	Frequency (MHz)	Average Power For different Data Rate (Mbps)			
		1	2	5.5	11
		Measurement Level (dBm)			
01	2412	22.58	--	--	--
06	2437	23.42	23.31	22.98	22.67
11	2462	23.58	--	--	--

Note: Average Power Output Value =Reading value on power meter + cable loss

CHAIN A+B

Channel	Frequency (MHz)	Data Rata (Mbps)	Chain A Power (dBm)	Chain B Power (dBm)	Chain A+B Power (dBm)	Limit (dBm)	Result
1	2412	1	23.00	22.58	25.81	<30dBm	Pass
6	2437	1	24.13	23.42	26.80	<30dBm	Pass
11	2462	1	23.68	23.58	26.64	<30dBm	Pass

Note: AveragePower Output Value (dBm) = 10*LOG (Chain A (mW)+ Chain B (mW))

Product : 802.11ac Dual Band Access Point
 Test Item : Maximum Conducted Power
 Test Site : No.3 OATS
 Test Mode : Mode 2: Transmit (802.11g 6Mbps)

CHAIN A

Channel No	Frequency (MHz)	Average Power							
		For different Data Rate (Mbps)							
		6	9	12	18	24	36	48	54
Measurement Level (dBm)									
01	2412	20.68	--	--	--	--	--	--	--
06	2437	22.03	21.89	21.71	21.55	21.45	21.28	21.11	20.99
11	2462	18.28	--	--	--	--	--	--	--

Note: Average Power Output Value = Reading value on power meter + cable loss

CHAIN B

Channel No	Frequency (MHz)	Average Power							
		For different Data Rate (Mbps)							
		6	9	12	18	24	36	48	54
Measurement Level (dBm)									
01	2412	20.49	--	--	--	--	--	--	--
06	2437	21.96	21.81	21.59	21.44	21.31	21.12	20.98	20.88
11	2462	18.17	--	--	--	--	--	--	--

Note: Average Power Output Value = Reading value on power meter + cable loss

CHAIN A+B

Channel	Frequency (MHz)	Data Rata (Mbps)	Chain A Power (dBm)	Chain B Power (dBm)	Chain A+B Power (dBm)	Limit (dBm)	Result
1	2412	6	20.68	20.49	23.60	<30dBm	Pass
6	2437	6	22.03	21.96	25.01	<30dBm	Pass
11	2462	6	18.28	18.17	21.24	<30dBm	Pass

Note: Average Power Output Value (dBm) = 10*LOG (Chain A (mW)+ Chain B (mW))

Product : 802.11ac Dual Band Access Point
 Test Item : Maximum Conducted Power
 Test Site : No.3 OATS
 Test Mode : Mode 3: Transmit - 802.11n-20BW_14.4Mbps(2.4G Band)

CHAIN A

Channel No	Frequency (MHz)	Average Power								
		For different Data Rate (Mbps)								
		HT8	HT9	HT10	HT11	HT12	HT13	HT14	HT15	
Measurement Level (dBm)										
01	2412	19.6	--	--	--	--	--	--	--	--
06	2437	23.99	23.88	23.74	23.58	23.47	23.39	23.31	23.22	
11	2462	19.15	--	--	--	--	--	--	--	--

Note: Average Power Output Value = Reading value on power meter + cable loss

CHAIN B

Channel No	Frequency (MHz)	Average Power								
		For different Data Rate (Mbps)								
		HT8	HT9	HT10	HT11	HT12	HT13	HT14	HT15	
Measurement Level (dBm)										
01	2412	19.5	--	--	--	--	--	--	--	--
06	2437	24.14	24.01	23.81	23.63	23.51	23.41	23.32	23.19	
11	2462	19.04	--	--	--	--	--	--	--	--

Note: Average Power Output Value = Reading value on power meter + cable loss

CHAIN A+B

Channel	Frequency (MHz)	Data Rate (Mbps)	Chain A Power (dBm)	Chain B Power (dBm)	Chain A+B Power (dBm)	Limit (dBm)	Result
1	2412	MCS8	19.60	19.50	22.56	<30dBm	Pass
6	2437	MCS8	23.99	24.14	27.08	<30dBm	Pass
11	2462	MCS8	19.15	19.04	22.11	<30dBm	Pass

Note: Average Power Output Value (dBm) = 10*LOG (Chain A (mW)+ Chain B (mW))

Product : 802.11ac Dual Band Access Point
 Test Item : Maximum Conducted Power
 Test Site : No.3 OATS
 Test Mode : Mode 4: Transmit - 802.11n-40BW_30Mbps(2.4G Band)

CHAIN A

Channel No	Frequency (MHz)	Average Power								
		For different Data Rate (Mbps)								
		HT8	HT9	HT10	HT11	HT12	HT13	HT14	HT15	
Measurement Level (dBm)										
3	2422	18.83	--	--	--	--	--	--	--	--
6	2437	21.38	21.25	21.12	21.03	20.91	20.79	20.71	20.63	
9	2452	16.37	--	--	--	--	--	--	--	--

Note: Average Power Output Value =Reading value on power meter + cable loss

CHAIN B

Channel No	Frequency (MHz)	Average Power								
		For different Data Rate (Mbps)								
		HT8	HT9	HT10	HT11	HT12	HT13	HT14	HT15	
Measurement Level (dBm)										
3	2422	18.82	--	--	--	--	--	--	--	--
6	2437	21.27	21.12	21.01	20.93	20.82	20.74	20.66	20.52	
9	2452	16.26	--	--	--	--	--	--	--	--

Note: Average Power Output Value =Reading value on power meter + cable loss

CHAIN A+B

Channel	Frequency (MHz)	Data Rata (Mbps)	Chain A Power (dBm)	Chain B Power (dBm)	Chain A+B Power (dBm)	Limit (dBm)	Result
3	2422	MCS8	18.83	18.82	21.84	<30dBm	Pass
6	2437	MCS8	21.38	21.27	24.34	<30dBm	Pass
9	2452	MCS8	16.37	16.26	19.33	<30dBm	Pass

Note: Average Power Output Value (dBm) = 10*LOG (Chain A (mW)+ Chain B (mW))

4. Radiated Emission

4.1. Test Equipment

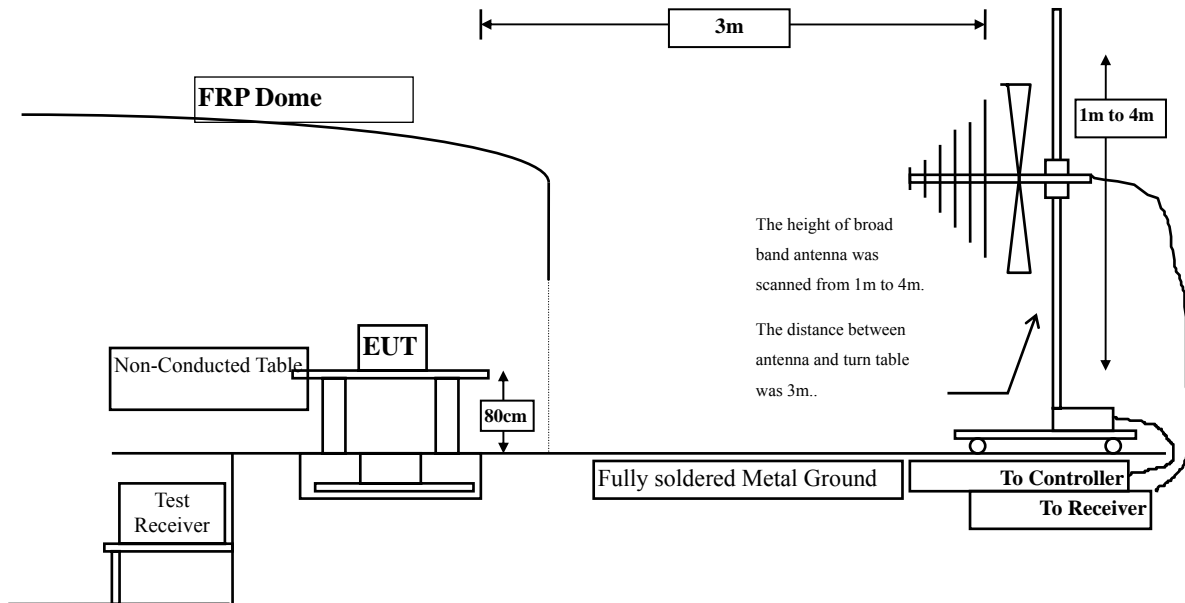
The following test equipments are used during the radiated emission test:

Test Site		Equipment	Manufacturer	Model No./Serial No.	Last Cal.
☒ Site # 3	X	Magnetic Loop Antenna	Teseq	HLA6121/ 37133	Sep, 2015
	X	Bilog Antenna	Schaffner Chase	CBL6112B/ 2707	Jun, 2015
	X	EMI Test Receiver	R&S	ESCS 30/838251/ 001	Jun, 2015
	X	Coaxial Cable	QTK(Arnist)	RG 214/ LC003-RG	Jun, 2015
	X	Coaxial signal switch	Arnist	MP59B/ 6200798682	Jun, 2015

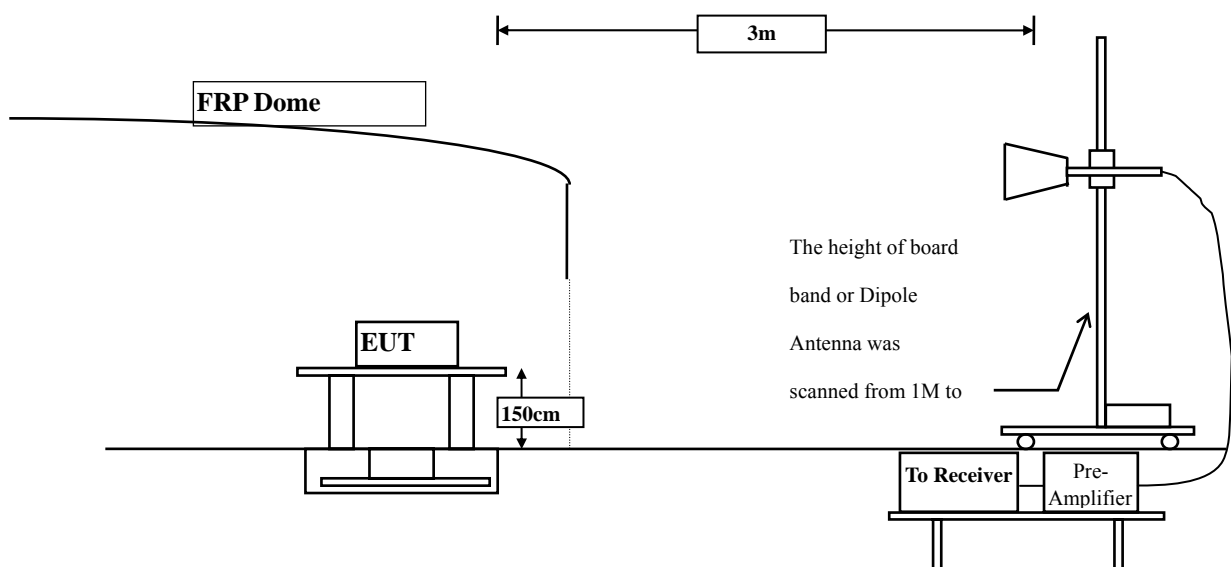
- Note:
1. All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.
 2. The test instruments marked with “X” are used to measure the final test results.

4.2. Test Setup

Radiated Emission Below 1GHz



Radiated Emission Above 1GHz



4.3. Limits

Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 30dB below the level of the fundamental or to the general radiated emission limits in paragraph 15.209, whichever is the lesser attenuation.

FCC Part 15 Subpart C Paragraph 15.209(a) Limits		
Frequency MHz	Field strength (microvolts/meter)	Measurement distance (meter)
0.009-0.490	2400/F(kHz)	300
0.490-1.705	24000/F(kHz)	30
1.705-30	30	30
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

Remarks: E field strength (dBuV/m) = 20 log E field strength (uV/m)

4.4. Test Procedure

The EUT was setup according to ANSI C63.10: 2013 and tested according to DTS test procedure of KDB558074 for compliance to FCC 47CFR 15.247 requirements.

Measuring the frequency range below 1GHz, the EUT is placed on a turn table which is 0.8 meter above ground, when measuring the frequency range above 1GHz, the EUT is placed on a turn table which is 1.5 meter above ground.

The turn table is rotated 360 degrees to determine the position of the maximum emission level.

The EUT was positioned such that the distance from antenna to the EUT was 3 meters.

The antenna is scanned between 1 meter and 4 meters to find out the maximum emission level. This is repeated for both horizontal and vertical polarization of the antenna. In order to find the maximum emission, all of the interface cables were manipulated according to ANSI C63.10: 2013 on radiated measurement.

The resolution bandwidth below 30MHz setting on the field strength meter is 9kHz and 30MHz~1GHz is 120kHz and above 1GHz is 1MHz.

Radiated emission measurements below 30MHz are made using Loop Antenna and 30MHz~1GHz are made using broadband Bilog antenna and above 1GHz are made using Horn Antennas.

The measurement is divided into the Preliminary Measurement and the Final Measurement.

The suspected frequencies are searched for in Preliminary Measurement with the measurement antenna kept pointed at the source of the emission both in azimuth and elevation, with the polarization of the antenna oriented for maximum response. The antenna is pointed at an angle towards the source of the emission, and the EUT is rotated in both height and polarization to maximize the measured emission. The emission is kept within the illumination area of the 3 dB bandwidth of the antenna.

The worst radiated emission is measured in the Open Area Test Site on the Final Measurement.

The measurement frequency range from 9kHz - 10th Harmonic of fundamental was investigated.

4.5. Uncertainty

± 3.9 dB above 1GHz

± 3.8 dB below 1GHz

4.6. Test Result of Radiated Emission

Product : 802.11ac Dual Band Access Point
 Test Item : Harmonic Radiated Emission Data
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmit (802.11b 1Mbps) (2412MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
Horizontal					
Peak Detector:					
4824.000	3.261	33.720	36.981	-37.019	74.000
7236.000	10.650	31.970	42.620	-31.380	74.000
9648.000	13.337	32.490	45.826	-28.174	74.000
Average Detector:					
--					
Vertical					
Peak Detector:					
4824.000	6.421	34.870	41.291	-32.709	74.000
7236.000	11.495	31.930	43.425	-30.575	74.000
9648.000	13.807	31.970	45.776	-28.224	74.000
Average Detector:					
--					

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss –Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : 802.11ac Dual Band Access Point
 Test Item : Harmonic Radiated Emission Data
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmit (802.11b 1Mbps) (2437 MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
Horizontal					
Peak Detector:					
4874.000	3.038	33.840	36.877	-37.123	74.000
7311.000	11.795	33.190	44.984	-29.016	74.000
9748.000	12.635	32.070	44.705	-29.295	74.000
Average Detector:					
--					
Vertical					
Peak Detector:					
4874.000	5.812	34.730	40.541	-33.459	74.000
7311.000	12.630	32.240	44.869	-29.131	74.000
9748.000	13.126	32.640	45.766	-28.234	74.000
Average Detector:					
--					

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : 802.11ac Dual Band Access Point
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 1: Transmit (802.11b 1Mbps) (2462 MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
Horizontal					
Peak Detector:					
4924.000	2.858	33.870	36.727	-37.273	74.000
7386.000	12.127	32.580	44.708	-29.292	74.000
9848.000	12.852	33.520	46.373	-27.627	74.000
Average Detector:					
--					
Vertical					
Peak Detector:					
4924.000	5.521	35.740	41.260	-32.740	74.000
7386.000	13.254	33.470	46.724	-27.276	74.000
9848.000	13.367	32.610	45.977	-28.023	74.000
Average Detector:					
--					

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : 802.11ac Dual Band Access Point
 Test Item : Harmonic Radiated Emission Data
 Test Site : No.3 OATS
 Test Mode : Mode 2: Transmit (802.11g 6Mbps) (2412MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
Horizontal					
Peak Detector:					
4824.000	3.261	33.870	37.131	-36.869	74.000
7236.000	10.650	32.480	43.130	-30.870	74.000
9648.000	13.337	31.970	45.306	-28.694	74.000
Average Detector:					
--					
Vertical					
Peak Detector:					
4824.000	6.421	34.370	40.791	-33.209	74.000
7236.000	11.495	32.190	43.685	-30.315	74.000
9648.000	13.807	32.670	46.476	-27.524	74.000
Average Detector:					
--					

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : 802.11ac Dual Band Access Point
 Test Item : Harmonic Radiated Emission Data
 Test Site : No.3 OATS
 Test Mode : Mode 2: Transmit (802.11g 6Mbps) (2437 MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
Horizontal					
Peak Detector:					
4874.000	3.038	33.980	37.017	-36.983	74.000
7311.000	11.795	32.430	44.224	-29.776	74.000
9748.000	12.635	32.060	44.695	-29.305	74.000
Average Detector:					
--					
Vertical					
Peak Detector:					
4874.000	5.812	36.120	41.931	-32.069	74.000
7311.000	12.630	32.160	44.789	-29.211	74.000
9748.000	13.126	31.920	45.046	-28.954	74.000
Average Detector:					
--					

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : 802.11ac Dual Band Access Point
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 2: Transmit (802.11g 6Mbps) (2462 MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
Horizontal					
Peak Detector:					
4924.000	2.858	34.020	36.877	-37.123	74.000
7386.000	12.127	32.680	44.808	-29.192	74.000
9848.000	12.852	32.540	45.393	-28.607	74.000
Average Detector:					
--					
Vertical					
Peak Detector:					
4924.000	5.521	34.270	39.790	-34.210	74.000
7386.000	13.254	33.010	46.264	-27.736	74.000
9848.000	13.367	32.710	46.077	-27.923	74.000
Average Detector:					
--					

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : 802.11ac Dual Band Access Point
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 3: Transmit - 802.11n-20BW_14.4Mbps(2.4G Band) (2412MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
Horizontal					
Peak Detector:					
4824.000	3.261	34.110	37.371	-36.629	74.000
7236.000	10.650	31.260	41.910	-32.090	74.000
9648.000	13.337	31.880	45.216	-28.784	74.000
Average Detector:					
--					
Vertical					
Peak Detector:					
4824.000	6.421	34.420	40.841	-33.159	74.000
7236.000	11.495	31.970	43.465	-30.535	74.000
9648.000	13.807	32.400	46.206	-27.794	74.000
Average Detector:					
--					

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss –Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : 802.11ac Dual Band Access Point
 Test Item : Harmonic Radiated Emission Data
 Test Site : No.3 OATS
 Test Mode : Mode 3: Transmit - 802.11n-20BW_14.4Mbps(2.4G Band) (2437 MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
Horizontal					
Peak Detector:					
4874.000	3.038	34.070	37.107	-36.893	74.000
7311.000	11.795	31.930	43.724	-30.276	74.000
9748.000	12.635	31.540	44.175	-29.825	74.000
Average Detector:					
--					
Vertical					
Peak Detector:					
4874.000	5.812	39.230	45.041	-28.959	74.000
7311.000	12.630	32.610	45.239	-28.761	74.000
9748.000	13.126	31.830	44.956	-29.044	74.000
Average Detector:					
--					

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : 802.11ac Dual Band Access Point
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 3: Transmit - 802.11n-20BW_14.4Mbps(2.4G Band) (2462 MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
Horizontal					
Peak Detector:					
4924.000	2.858	34.840	37.697	-36.303	74.000
7386.000	12.127	32.880	45.008	-28.992	74.000
9848.000	12.852	33.180	46.033	-27.967	74.000
Average Detector:					
--					
Vertical					
Peak Detector:					
4924.000	5.521	34.510	40.030	-33.970	74.000
7386.000	13.254	32.840	46.094	-27.906	74.000
9848.000	13.367	33.240	46.607	-27.393	74.000
Average Detector:					
--					

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : 802.11ac Dual Band Access Point
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 4: Transmit - 802.11n-40BW_30Mbps(2.4G Band) (2422MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
------------------	-------------------------	--------------------------	--------------------------------	--------------	-----------------

Horizontal

Peak Detector:

4844.000	3.171	32.830	36.001	-37.999	74.000
7266.000	11.162	32.010	43.172	-30.828	74.000
9688.000	12.964	32.420	45.385	-28.615	74.000

Average

Detector:

--

Vertical

Peak Detector:

4844.000	6.178	32.310	38.488	-35.512	74.000
7266.000	11.982	31.570	43.552	-30.448	74.000
9688.000	13.507	31.660	45.168	-28.832	74.000

Average

Detector:

--

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss –Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : 802.11ac Dual Band Access Point
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 4: Transmit - 802.11n-40BW_30Mbps(2.4G Band) (2437 MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
Horizontal					
Peak Detector:					
4874.000	3.038	33.750	36.787	-37.213	74.000
7311.000	11.795	32.110	43.904	-30.096	74.000
9748.000	12.635	31.830	44.465	-29.535	74.000
Average Detector:					
--					
Vertical					
Peak Detector:					
4874.000	5.812	35.170	40.981	-33.019	74.000
7311.000	12.630	31.940	44.569	-29.431	74.000
9748.000	13.126	32.170	45.296	-28.704	74.000
Average Detector:					
--					

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss –Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : 802.11ac Dual Band Access Point
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 4: Transmit - 802.11n-40BW_30Mbps(2.4G Band) (2452 MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
Horizontal					
Peak Detector:					
4904.000	2.914	33.670	36.585	-37.415	74.000
7356.000	11.995	32.850	44.844	-29.156	74.000
9808.000	12.475	32.270	44.745	-29.255	74.000
Average Detector:					
--					
Vertical					
Peak Detector:					
4904.000	5.530	34.470	40.001	-33.999	74.000
7356.000	13.005	32.660	45.664	-28.336	74.000
9808.000	12.901	32.540	45.441	-28.559	74.000
Average Detector:					
--					

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : 802.11ac Dual Band Access Point
 Test Item : General Radiated Emission Data
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmit (802.11b 1Mbps) (2437 MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
Horizontal					
67.957	-12.394	47.300	34.906	-5.094	40.000
299.913	-3.564	38.741	35.177	-10.823	46.000
499.536	0.051	33.598	33.649	-12.351	46.000
624.652	1.861	27.865	29.726	-16.274	46.000
749.768	3.324	28.301	31.625	-14.375	46.000
888.942	6.263	24.107	30.370	-15.630	46.000
Vertical					
94.667	-3.496	39.652	36.156	-7.344	43.500
249.304	-7.622	43.903	36.282	-9.718	46.000
498.130	-1.211	31.377	30.167	-15.833	46.000
565.609	-5.383	46.851	41.467	-4.533	46.000
749.768	2.515	27.386	29.901	-16.099	46.000
940.957	6.566	25.793	32.358	-13.642	46.000

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.
8. No emission found between lowest internal used/generated frequency to 30MHz.

Product : 802.11ac Dual Band Access Point
 Test Item : General Radiated Emission Data
 Test Site : No.3 OATS
 Test Mode : Mode 2: Transmit (802.11g 6Mbps) (2437 MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
Horizontal					
69.362	-12.441	44.089	31.648	-8.352	40.000
299.913	-3.564	37.140	33.576	-12.424	46.000
499.536	0.051	32.663	32.714	-13.286	46.000
600.754	4.009	26.281	30.290	-15.710	46.000
749.768	3.324	27.828	31.152	-14.848	46.000
939.551	6.399	25.259	31.658	-14.342	46.000
Vertical					
249.304	-7.622	42.644	35.023	-10.977	46.000
382.855	-2.110	32.548	30.438	-15.562	46.000
538.899	0.097	40.957	41.054	-4.946	46.000
693.536	2.162	39.431	41.593	-4.407	46.000
772.261	2.895	37.921	40.815	-5.185	46.000
943.768	6.593	27.574	34.167	-11.833	46.000

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.
8. No emission found between lowest internal used/generated frequency to 30MHz.

Product : 802.11ac Dual Band Access Point
 Test Item : General Radiated Emission Data
 Test Site : No.3 OATS
 Test Mode : Mode 3: Transmit - 802.11n-20BW_14.4Mbps(2.4G Band) (2437 MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
Horizontal					
67.957	-12.394	45.369	32.975	-7.025	40.000
249.304	-6.004	38.871	32.867	-13.133	46.000
499.536	0.051	32.740	32.791	-13.209	46.000
600.754	4.009	25.512	29.521	-16.479	46.000
749.768	3.324	29.169	32.493	-13.507	46.000
891.754	5.782	24.967	30.750	-15.250	46.000
Vertical					
104.507	-0.201	37.877	37.676	-5.824	43.500
225.406	-8.629	43.510	34.881	-11.119	46.000
344.899	-3.084	38.551	35.467	-10.533	46.000
500.942	-0.786	40.855	40.068	-5.932	46.000
772.261	2.895	39.827	42.721	-3.279	46.000
949.391	6.615	30.886	37.501	-8.499	46.000

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.
8. No emission found between lowest internal used/generated frequency to 30MHz.

Product : 802.11ac Dual Band Access Point
 Test Item : General Radiated Emission Data
 Test Site : No.3 OATS
 Test Mode : Mode 4: Transmit - 802.11n-40BW_30Mbps(2.4G Band) (2437 MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
Horizontal					
67.957	-12.394	46.008	33.614	-6.386	40.000
299.913	-3.564	43.698	40.134	-5.866	46.000
499.536	0.051	32.895	32.946	-13.054	46.000
624.652	1.861	26.799	28.660	-17.340	46.000
789.130	5.085	24.702	29.787	-16.213	46.000
933.928	6.630	23.688	30.319	-15.681	46.000
Vertical					
96.072	-2.711	40.307	37.596	-5.904	43.500
249.304	-7.622	42.991	35.370	-10.630	46.000
354.739	-3.580	32.540	28.960	-17.040	46.000
600.754	-2.748	44.055	41.307	-4.693	46.000
678.072	0.554	38.099	38.653	-7.347	46.000
932.522	6.075	26.101	32.175	-13.825	46.000

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.
8. No emission found between lowest internal used/generated frequency to 30MHz.

5. RF Antenna conducted test

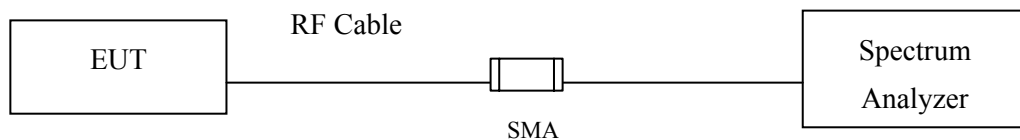
5.1. Test Equipment

	Equipment	Manufacturer	Model No./Serial No.	Last Cal.
X	Spectrum Analyzer	R&S	FSP40 / 100170	Jun, 2015
	Spectrum Analyzer	Agilent	E4407B / US39440758	Jun, 2015
X	Spectrum Analyzer	Agilent	N9010A / MY48030495	Apr., 2016

- Note:
1. All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.
 2. The test instruments marked with “X” are used to measure the final test results.

5.2. Test Setup

RF antenna Conducted Measurement:



5.3. Limits

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 30 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement. Attenuation below the general limits specified in Section 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a) (see Section 15.205(c)).

5.4. Test Procedure

The EUT was tested according to DTS test procedure of KDB558074 for compliance to FCC 47CFR 15.247 requirements.

Set RBW = 100 kHz, Set VBW > RBW, scan up through 10th harmonic.

5.5. Uncertainty

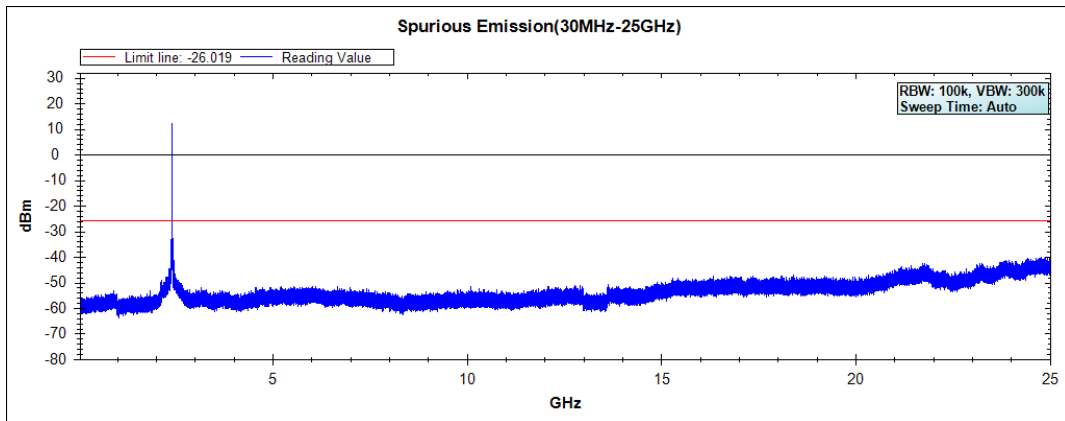
The measurement uncertainty

Conducted is defined as $\pm 1.27\text{dB}$

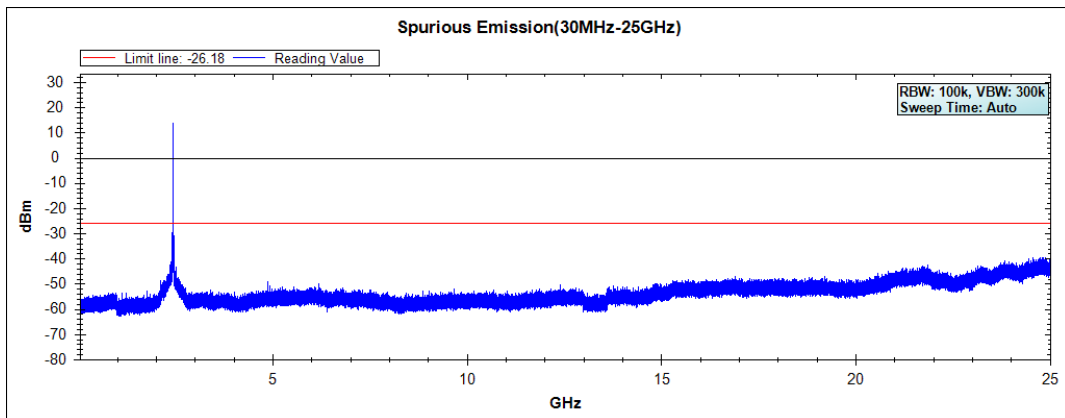
5.6. Test Result of RF antenna conducted test

Product : 802.11ac Dual Band Access Point
 Test Item : RF antenna conducted test
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmit (802.11b 1Mbps)

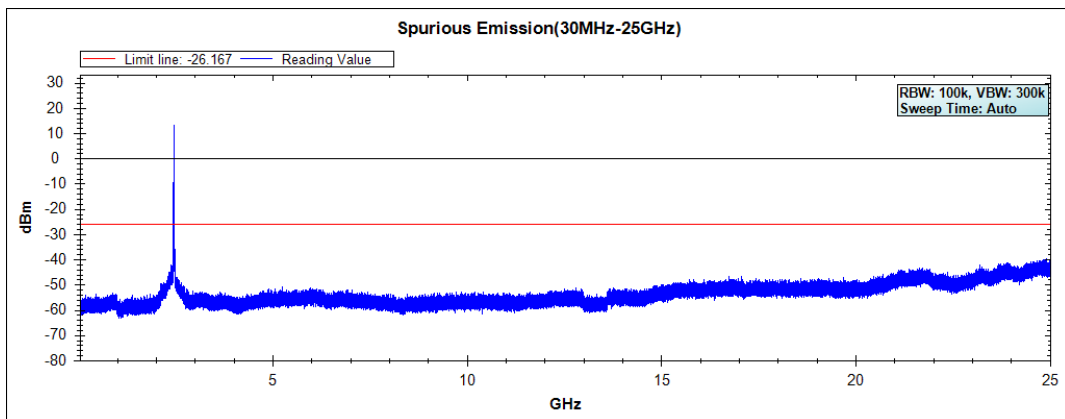
Channel 01 (2412MHz) 30MHz-25GHz-Chain A



Channel 06 (2437MHz) 30MHz -25GHz-Chain A

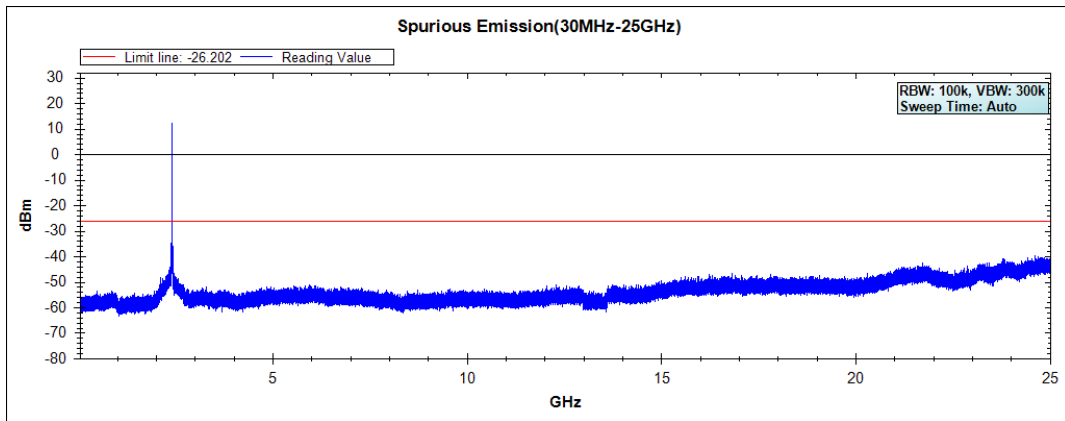


Channel 11 (2462MHz) 30MHz -25GHz-Chain A

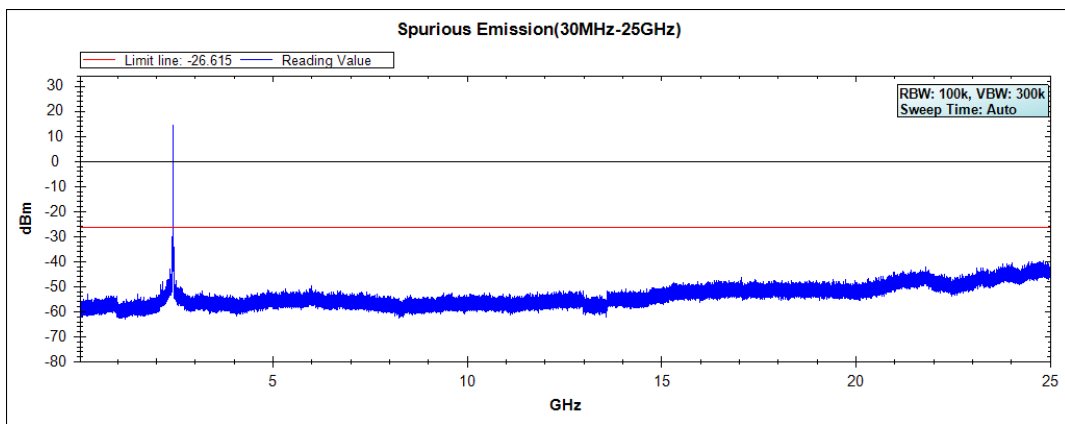


Note: The above test pattern is synthesized by multiple of the frequency range.

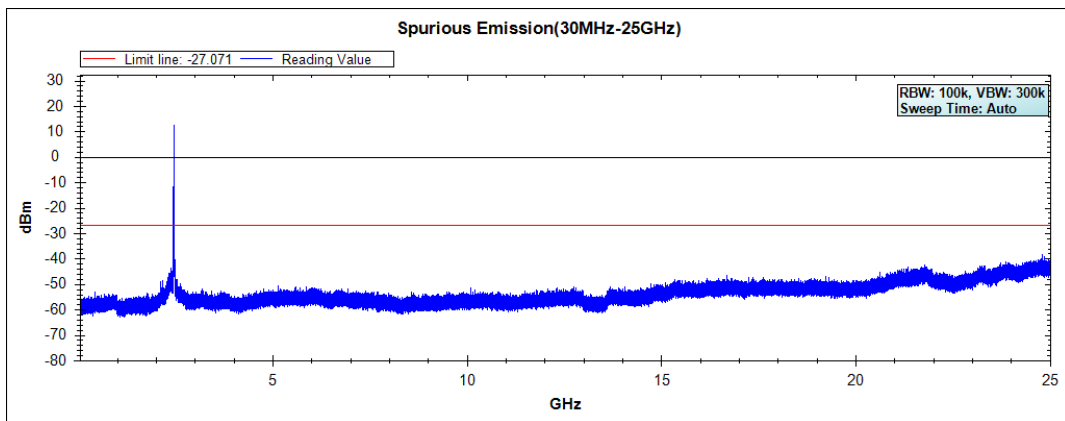
Channel 01 (2412MHz) 30MHz-25GHz-Chain B



Channel 06 (2437MHz) 30MHz -25GHz-Chain B



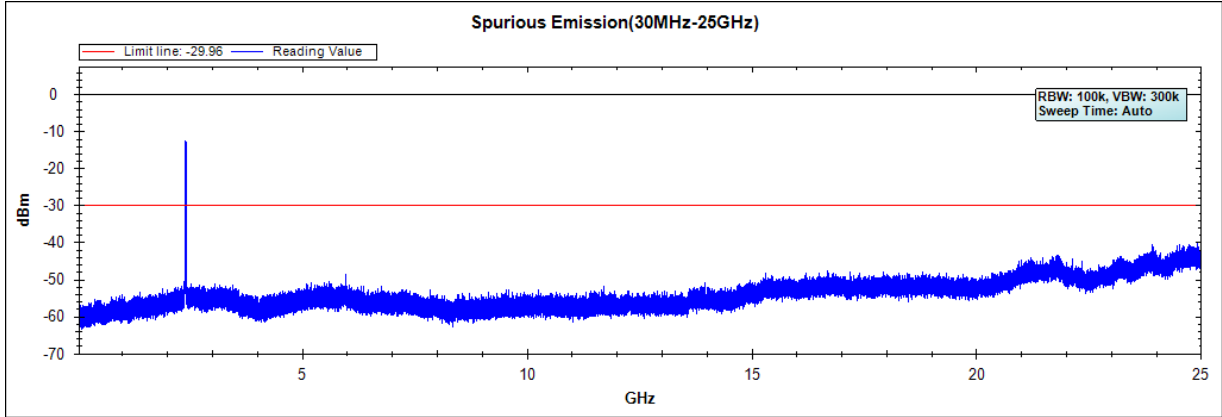
Channel 11 (2462MHz) 30MHz -25GHz-Chain B



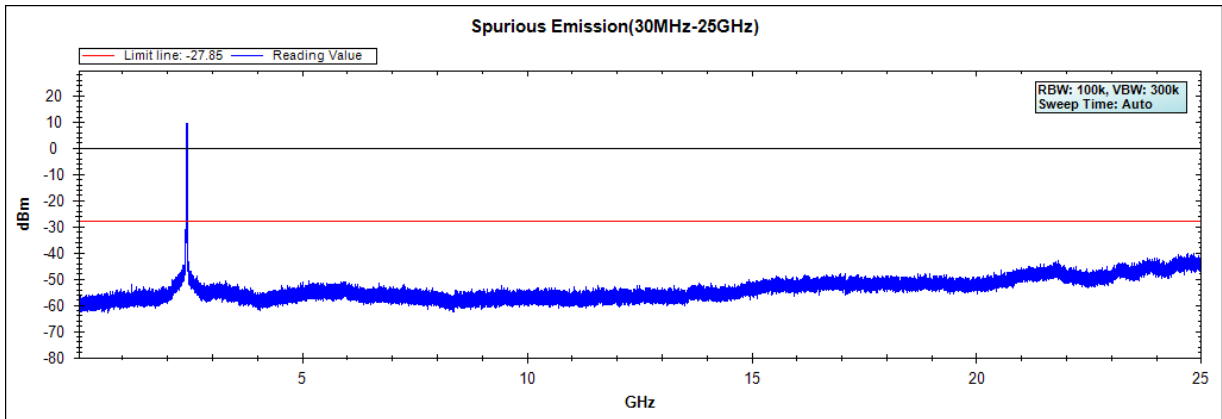
Note: The above test pattern is synthesized by multiple of the frequency range.

Product : 802.11ac Dual Band Access Point
 Test Item : RF Antenna Conducted Spurious
 Test Site : No.3 OATS
 Test Mode : Mode 2: Transmit (802.11g 6Mbps)

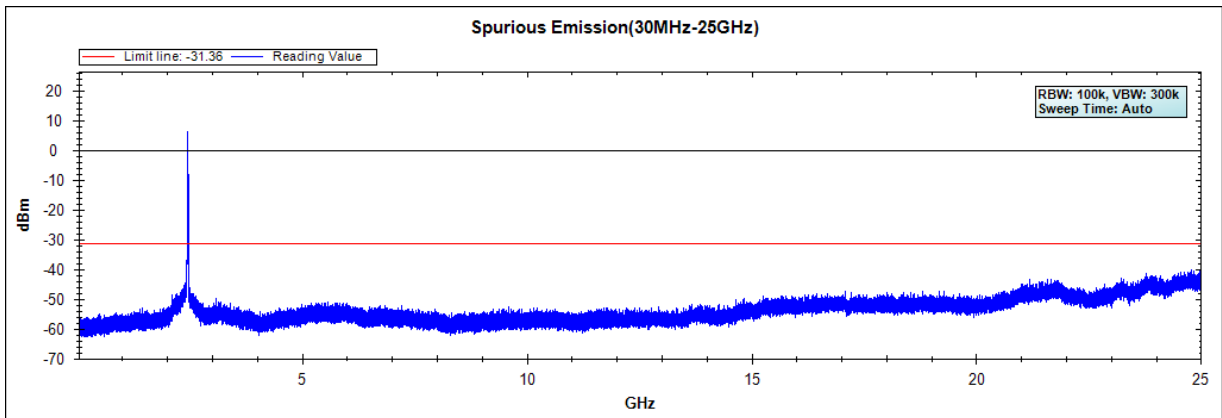
Channel 01 (2412MHz) 30MHz -25GHz-Chain A



Channel 06 (2437MHz) 30MHz -25GHz-Chain A

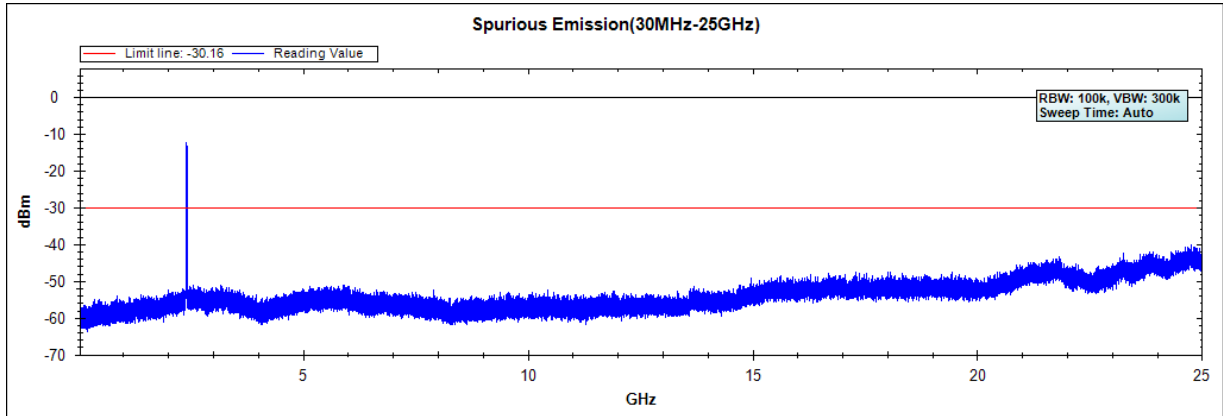


Channel 11 (2462MHz) 30MHz -25GHz-Chain A

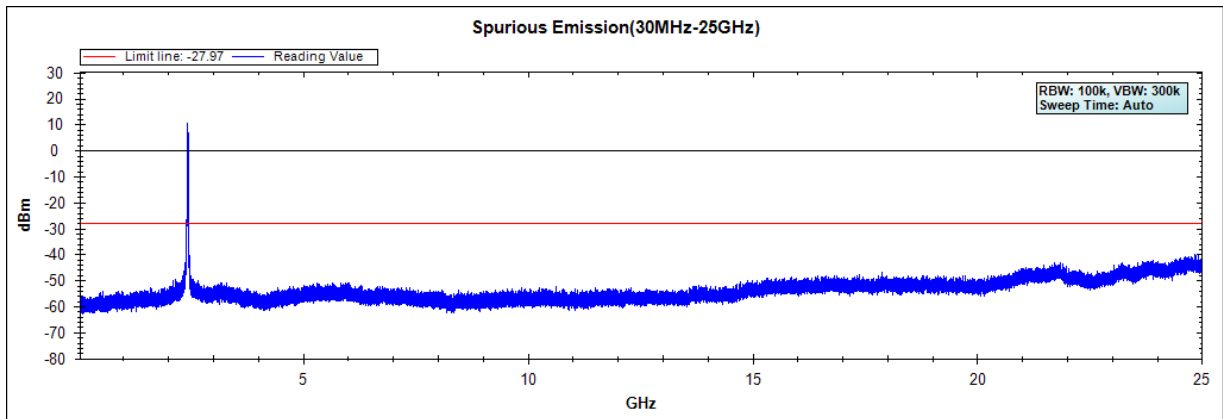


Note: The above test pattern is synthesized by multiple of the frequency range.

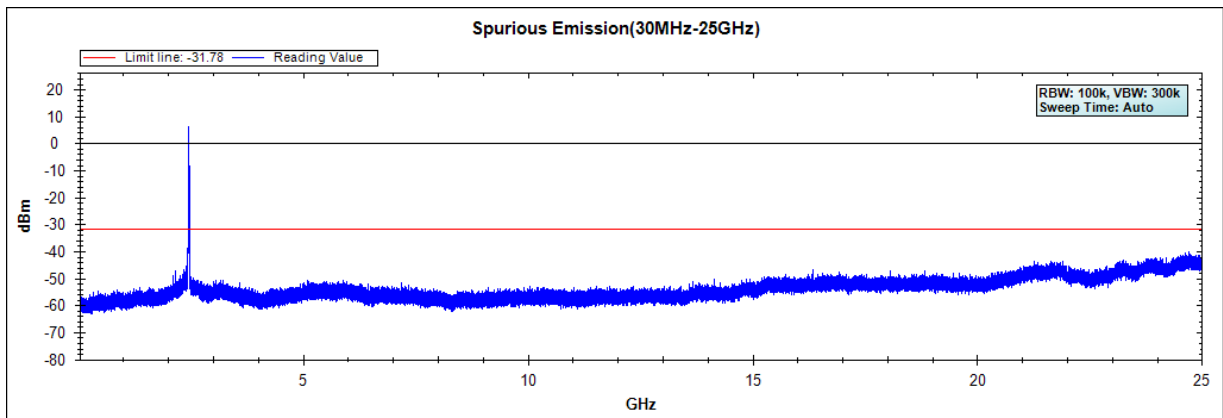
Channel 01 (2412MHz) 30MHz -25GHz-Chain B



Channel 06 (2437MHz) 30MHz -25GHz-Chain B



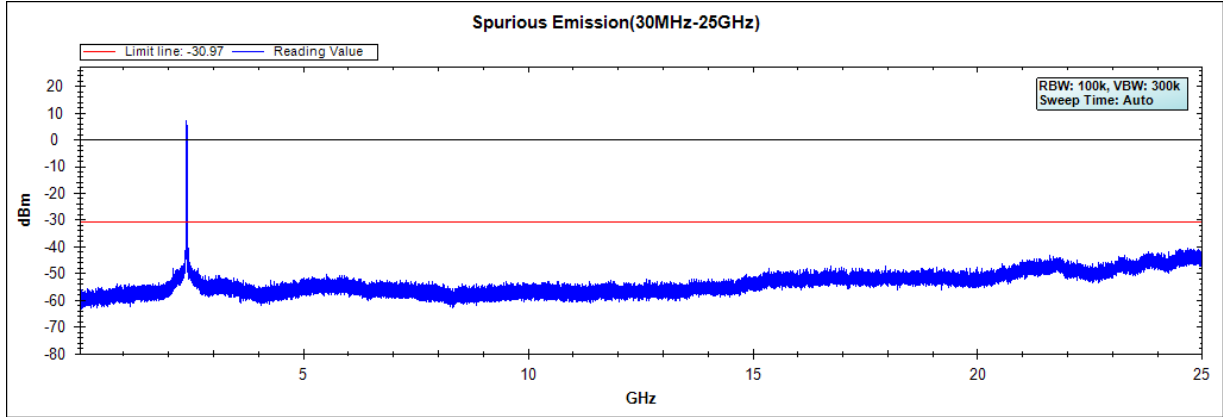
Channel 11 (2462MHz) 30MHz -25GHz-Chain B



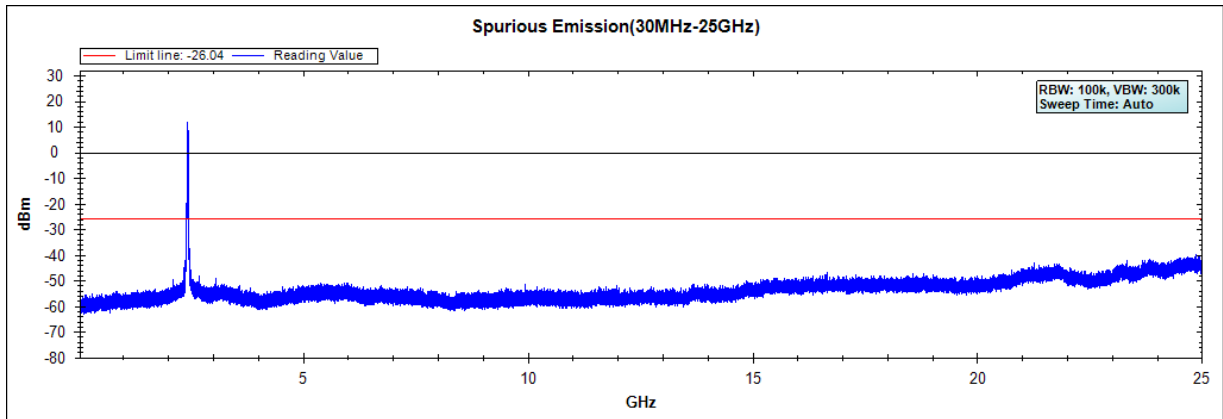
Note: The above test pattern is synthesized by multiple of the frequency range.

Product : 802.11ac Dual Band Access Point
 Test Item : RF Antenna Conducted Spurious
 Test Site : No.3 OATS
 Test Mode : Mode 3: Transmit - 802.11n-20BW_14.4Mbps(2.4G Band)

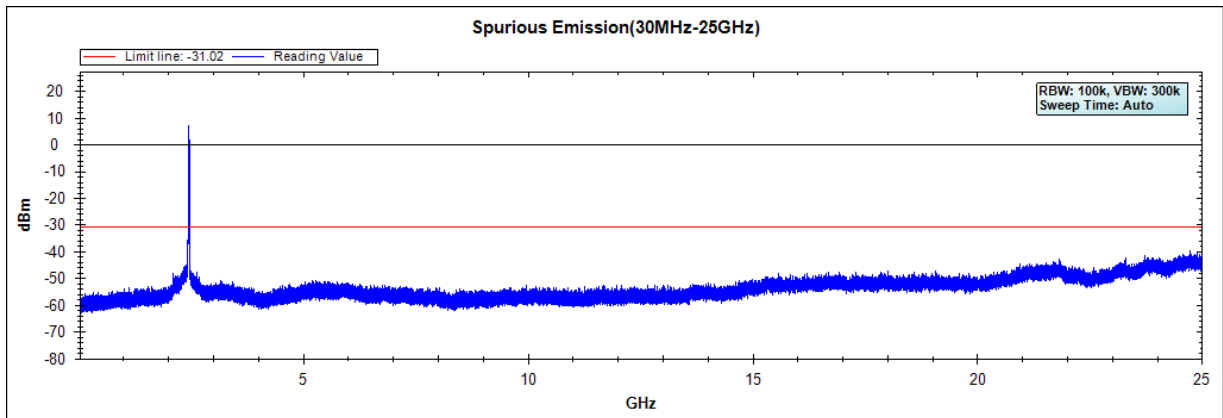
Channel 01 (2412MHz) 30MHz -25GHz-Chain A



Channel 06 (2437MHz) 30MHz -25GHz-Chain A

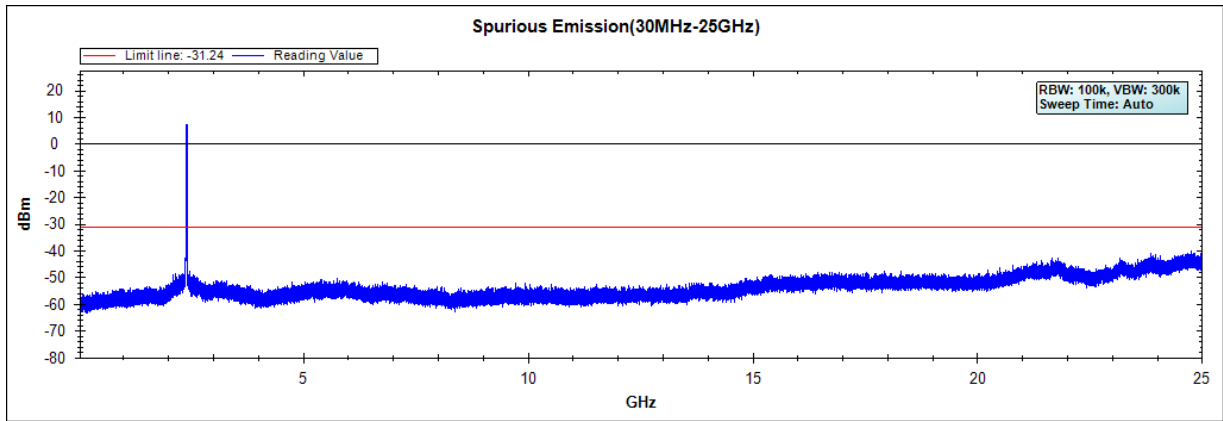


Channel 11 (2462MHz) 30MHz -25GHz-Chain A

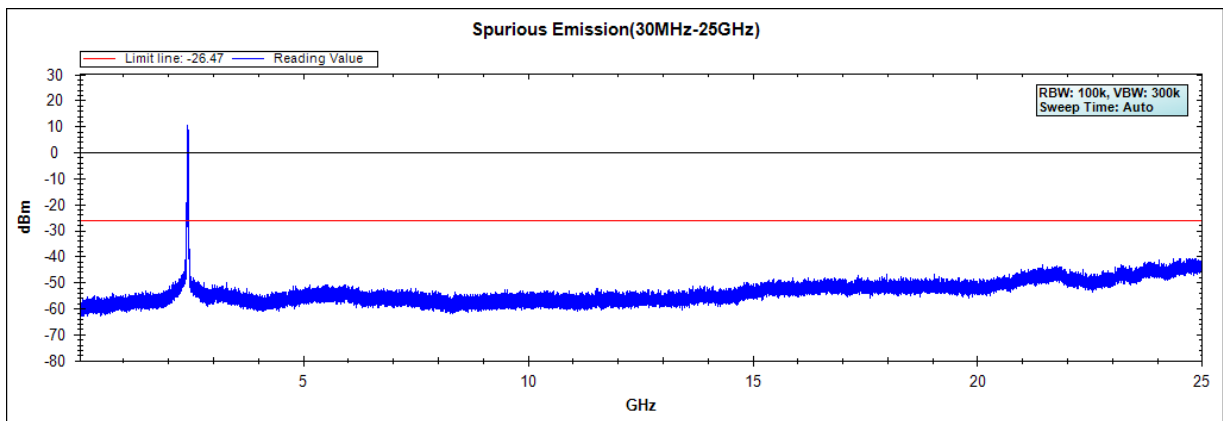


Note: The above test pattern is synthesized by multiple of the frequency range.

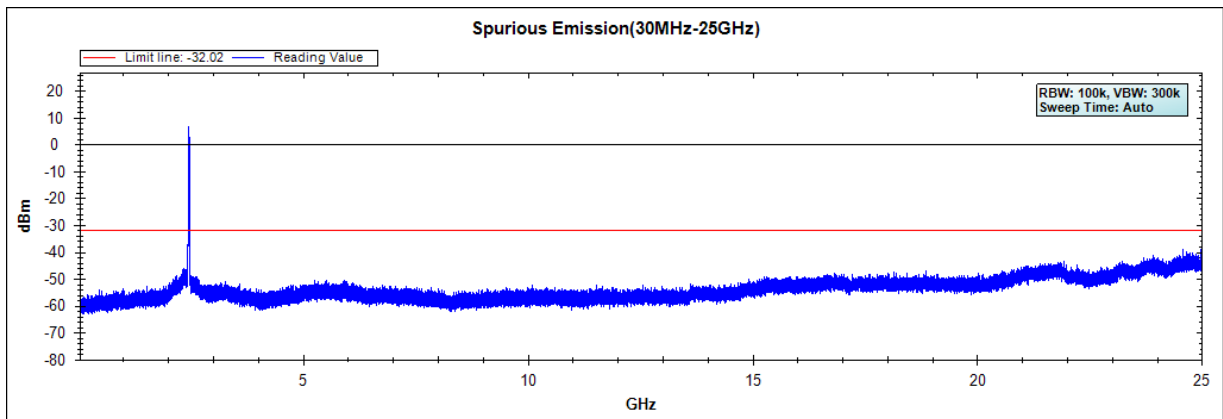
Channel 01 (2412MHz) 30MHz -25GHz-Chain B



Channel 06 (2437MHz) 30MHz -25GHz-Chain B



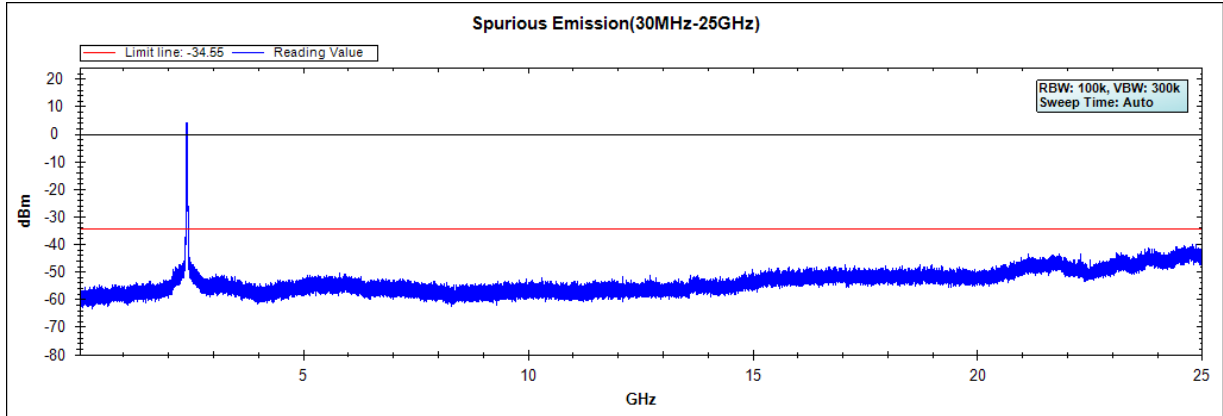
Channel 11 (2462MHz) 30MHz -25GHz-Chain B



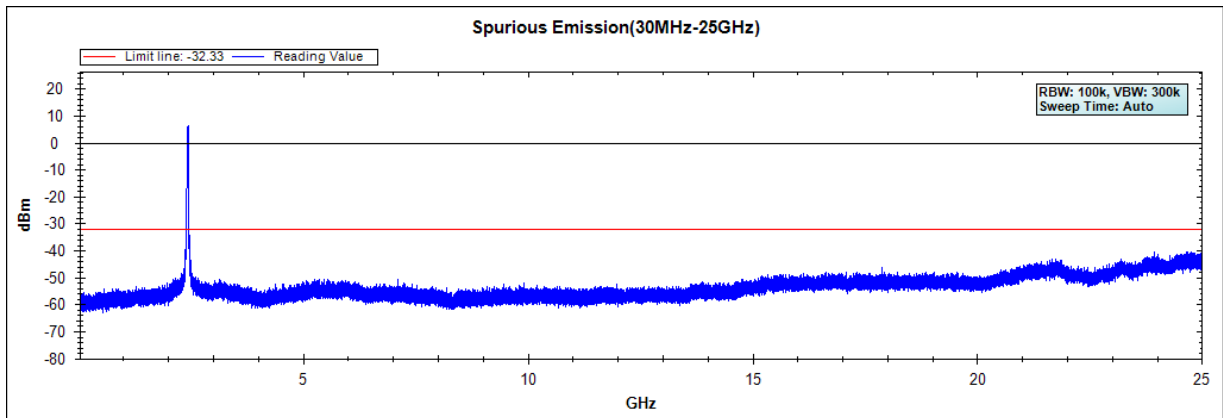
Note: The above test pattern is synthesized by multiple of the frequency range.

Product : 802.11ac Dual Band Access Point
 Test Item : RF Antenna Conducted Spurious
 Test Site : No.3 OATS
 Test Mode : Mode 4: Transmit - 802.11n-40BW_30Mbps(2.4G Band)

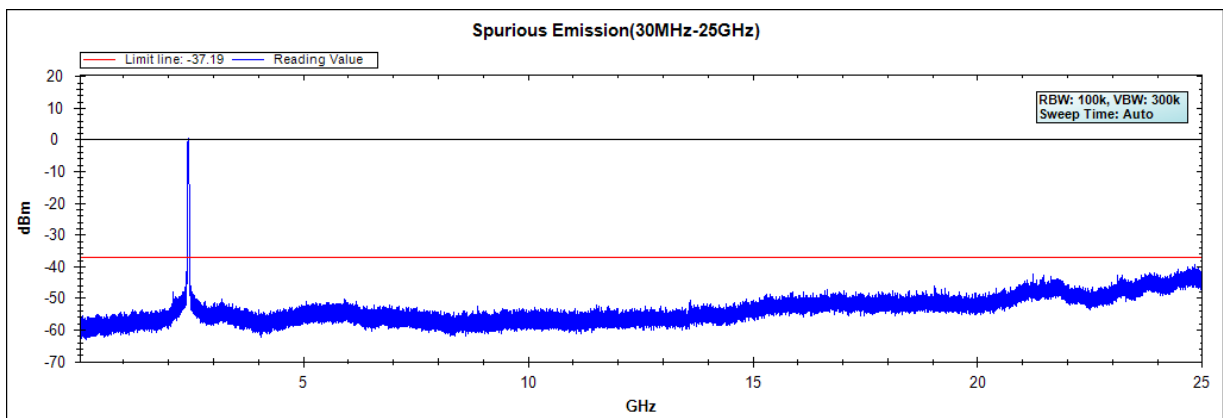
Channel 03 (2422MHz) 30MHz -25GHz-Chain A



Channel 06 (2437MHz) 30MHz -25GHz-Chain A

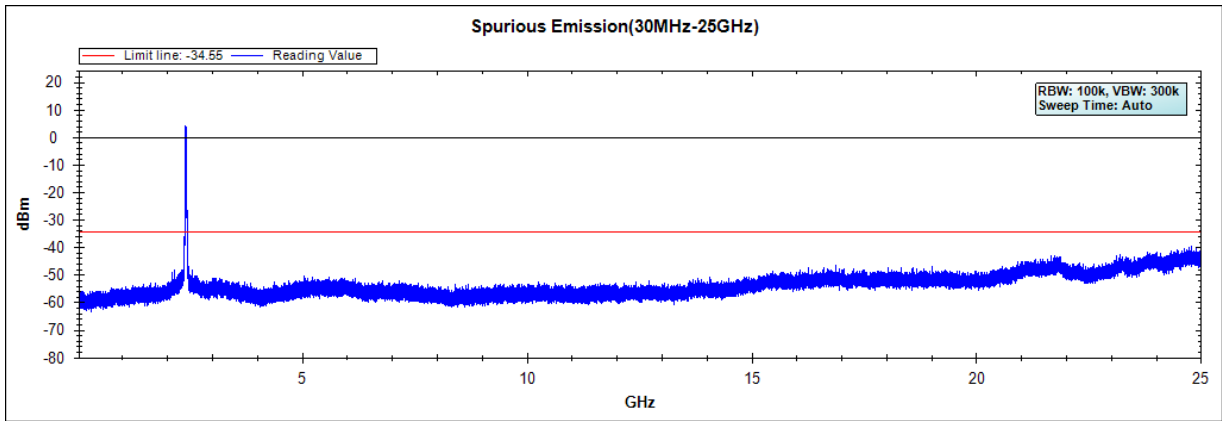


Channel 09 (2452MHz) 30MHz -25GHz-Chain A

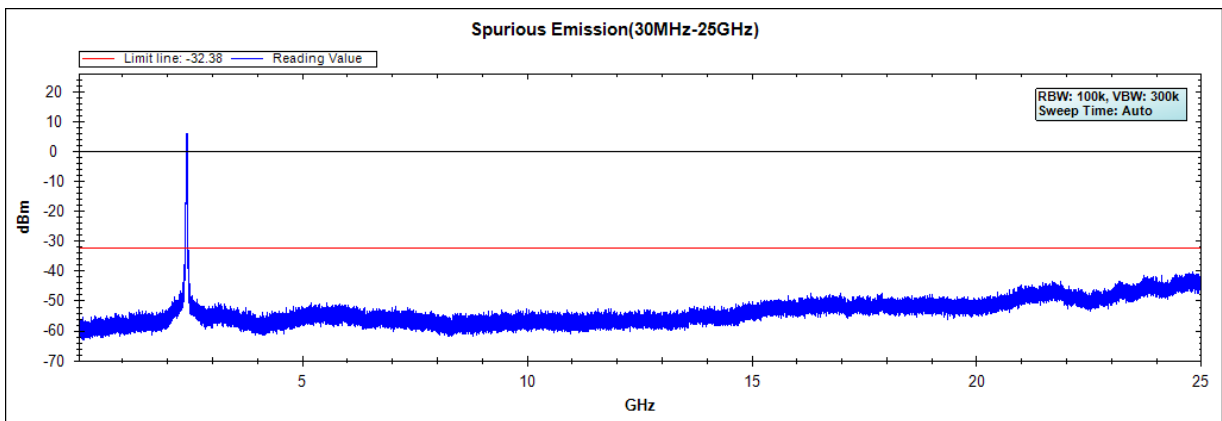


Note: The above test pattern is synthesized by multiple of the frequency range.

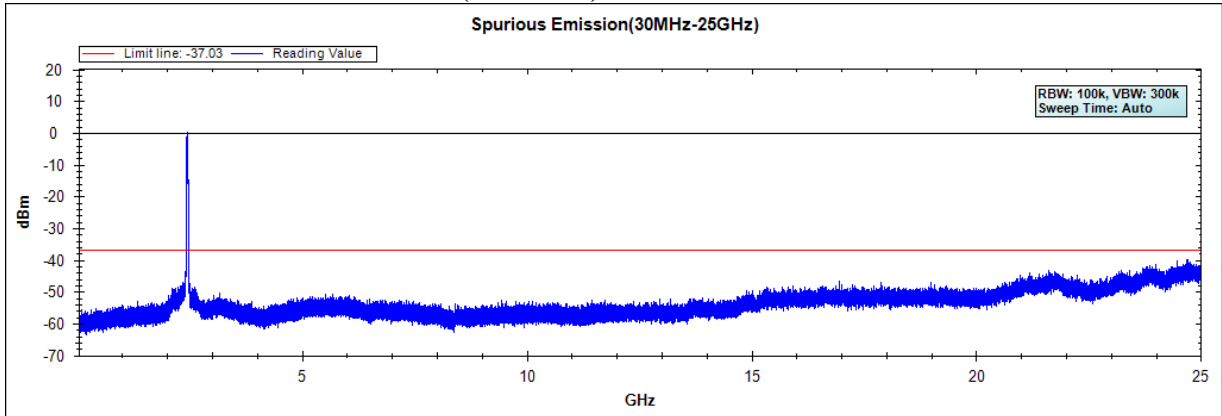
Channel 03 (2422MHz) 30MHz -25GHz-Chain B



Channel 06 (2437MHz) 30MHz -25GHz-Chain B



Channel 09 (2452MHz) 30MHz -25GHz-Chain B



Note: The above test pattern is synthesized by multiple of the frequency range.

6. Band Edge

6.1. Test Equipment

RF Radiated Measurement:

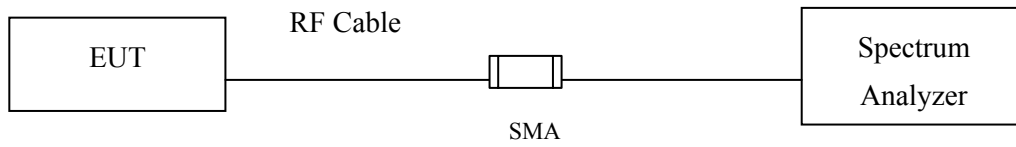
The following test equipments are used during the band edge tests:

Test Site		Equipment	Manufacturer	Model No./Serial No.	Last Cal.
☒ CB # 8	X	Spectrum Analyzer	R&S	FSP40/ 100339	Oct, 2015
	X	Horn Antenna	ETS-Lindgren	3117/ 35205	Mar, 2016
	X	Horn Antenna	Schwarzbeck	BBHA9170/209	Jan, 2016
	X	Horn Antenna	TRC	AH-0801/95051	Aug, 2015
	X	Pre-Amplifier	EMCI	EMC012630SE/980210	Jan, 2016
	X	Pre-Amplifier	MITEQ	JS41-001040000-58-5P/153945	Jul, 2015
	X	Pre-Amplifier	NARDA	DBL-1840N506/013	Jul, 2015

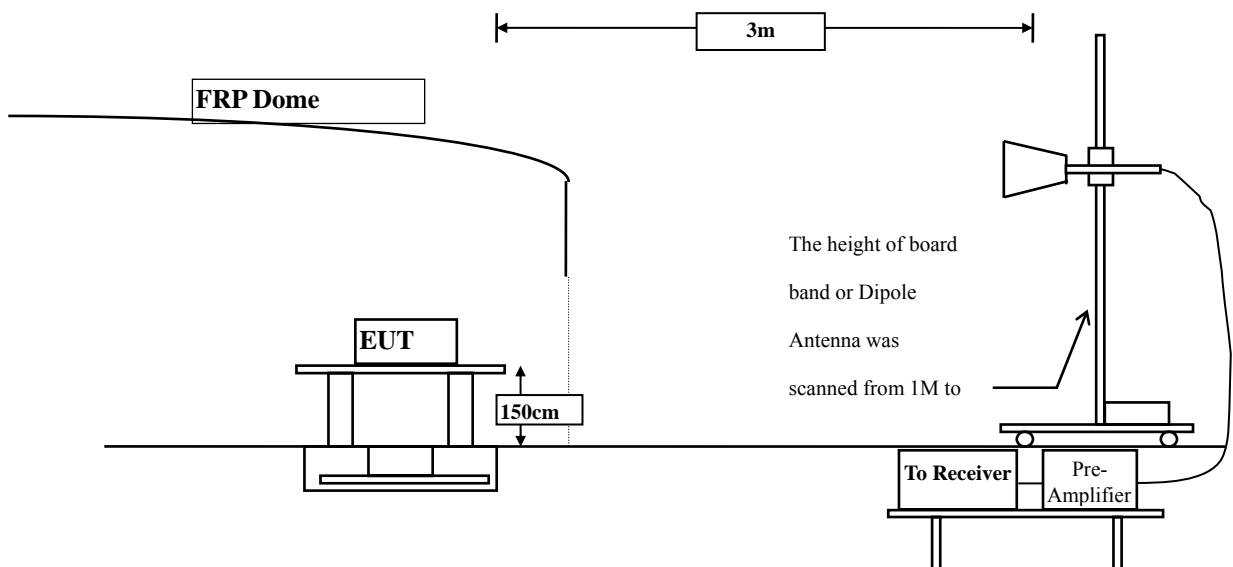
- Note:
1. All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.
 2. The test instruments marked with "X" are used to measure the final test results.

6.2. Test Setup

RF Conducted Measurement



RF Radiated Measurement:



6.3. Limits

Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 30dB below the level of the fundamental or to the general radiated emission limits in paragraph 15.209, whichever is the lesser attenuation.

6.4. Test Procedure

Measuring the frequency range below 1GHz, the EUT is placed on a turn table which is 0.8 meter above ground, when measuring the frequency range above 1GHz, the EUT is placed on a turn table which is 1.5 meter above ground.

The EUT was setup according to ANSI C63.10, 2013 and tested according to DTS test procedure of KDB558074 for compliance to FCC 47CFR 15.247 requirements.

The EUT is placed on a turn table which is 0.8 meter above ground. The turn table is rotated 360 degrees to determine the position of the maximum emission level. The EUT was positioned such that the distance from antenna to the EUT was 3 meters.

The antenna is scanned from 1 meter to 4 meters to find out the maximum emission level. This is repeated for both horizontal and vertical polarization of the antenna. In order to find the maximum emission, all of the interface cables were manipulated according to ANSI C63.10:2013 on radiated measurement.

6.5. Uncertainty

± 3.9 dB above 1GHz

± 3.8 dB below 1GHz

6.6. Test Result of Band Edge

Product : 802.11ac Dual Band Access Point
 Test Item : Band Edge
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmit (802.11b 1Mbps)

RF Radiated Measurement (Horizontal):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Emission Level (dBuV/m)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Result
01 (Peak)	2390.000	31.509	26.000	57.509	74.00	54.00	Pass
01 (Peak)	2400.000	31.561	27.583	59.144	--	--	--
01 (Peak)	2413.043	31.646	65.869	97.515	--	--	--
01 (Average)	2390.000	31.509	13.669	45.178	74.00	54.00	Pass
01 (Average)	2400.000	31.561	13.762	45.323	--	--	--
01 (Average)	2412.754	31.644	62.617	94.261	--	--	--

Figure Channel 01: Horizontal (Peak)

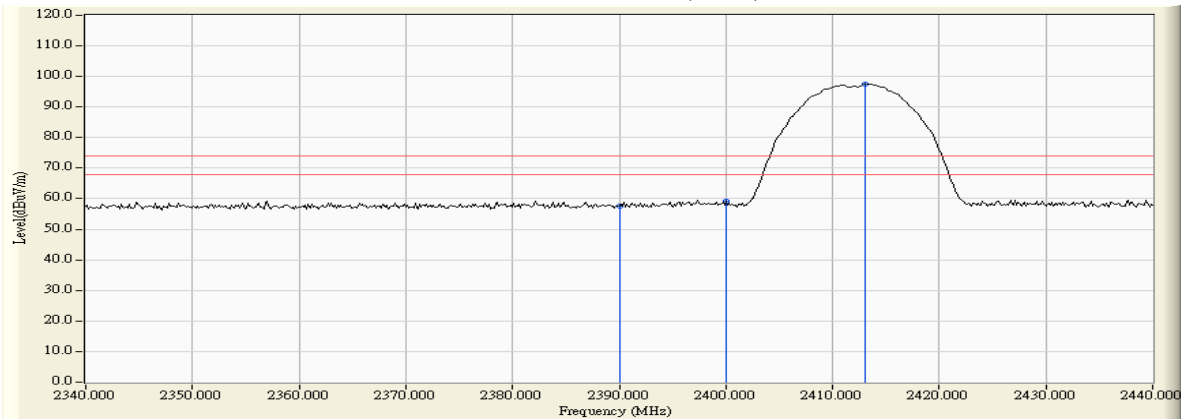
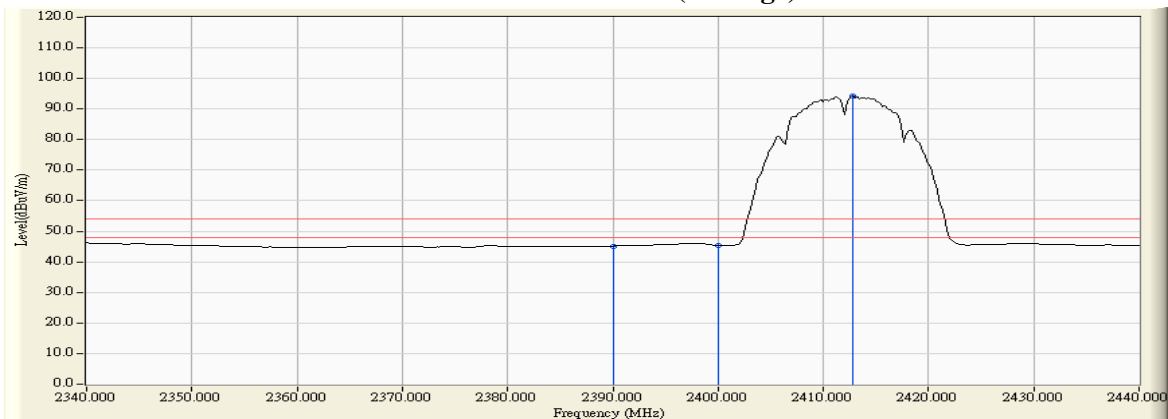


Figure Channel 01: Horizontal (Average)



Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ * ”, means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : 802.11ac Dual Band Access Point
 Test Item : Band Edge
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmit (802.11b 1Mbps)

RF Radiated Measurement (Vertical):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Emission Level (dBuV/m)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Result
01 (Peak)	2372.899	30.995	35.148	66.143	74.00	54.00	Pass
01 (Peak)	2390.000	30.915	32.608	63.523	74.00	54.00	Pass
01 (Peak)	2397.536	30.906	40.408	71.314	--	--	--
01 (Peak)	2400.000	30.912	37.788	68.700	--	--	--
01 (Peak)	2411.014	30.942	86.766	117.709	--	--	--
01 (Average)	2368.841	31.013	20.927	51.940	74.00	54.00	Pass
01 (Average)	2390.000	30.915	20.264	51.179	74.00	54.00	Pass
01 (Average)	2397.101	30.905	30.444	61.349	--	--	--
01 (Average)	2400.000	30.912	25.005	55.917	--	--	--
01 (Average)	2411.304	30.945	83.130	114.075	--	--	--

Figure Channel 01: Vertical (Peak)

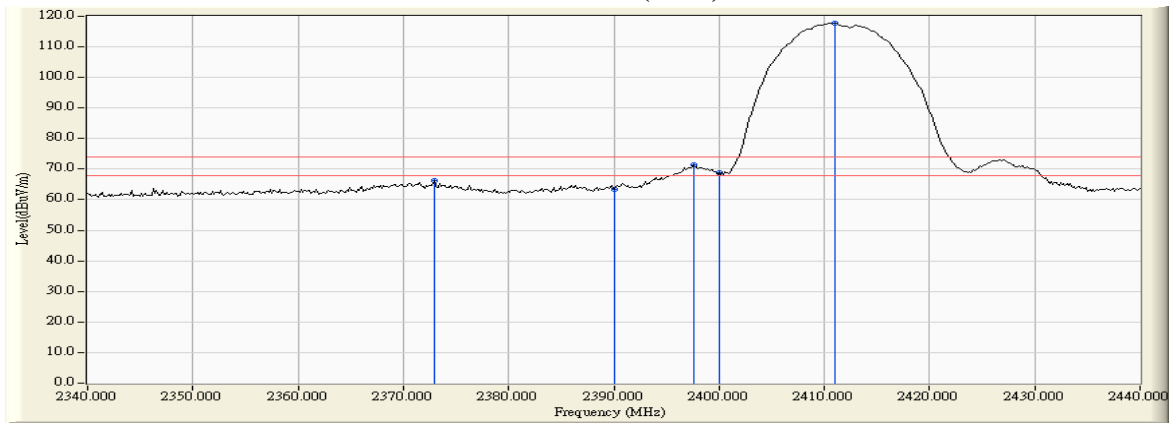
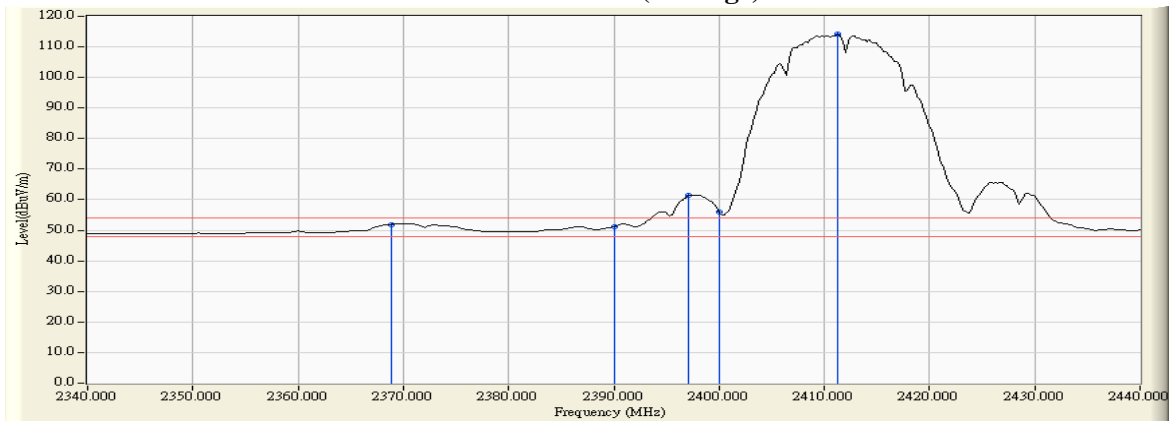


Figure Channel 01: Vertical (Average)



Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ * ”, means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : 802.11ac Dual Band Access Point
 Test Item : Band Edge
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmit (802.11b 1Mbps)

RF Radiated Measurement (Horizontal):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Emission Level (dBuV/m)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Result
11 (Peak)	2460.457	32.008	66.229	98.237	--	--	--
11 (Peak)	2483.500	32.182	26.047	58.229	74.00	54.00	Pass
11 (Peak)	2485.239	32.195	28.095	60.290	74.00	54.00	Pass
11 (Average)	2461.181	32.014	62.774	94.787	--	--	--
11 (Average)	2483.500	32.182	14.043	46.225	74.00	54.00	Pass
11 (Average)	2510.891	32.251	15.262	47.513	74.00	54.00	Pass

Figure Channel 11: Horizontal (Peak)

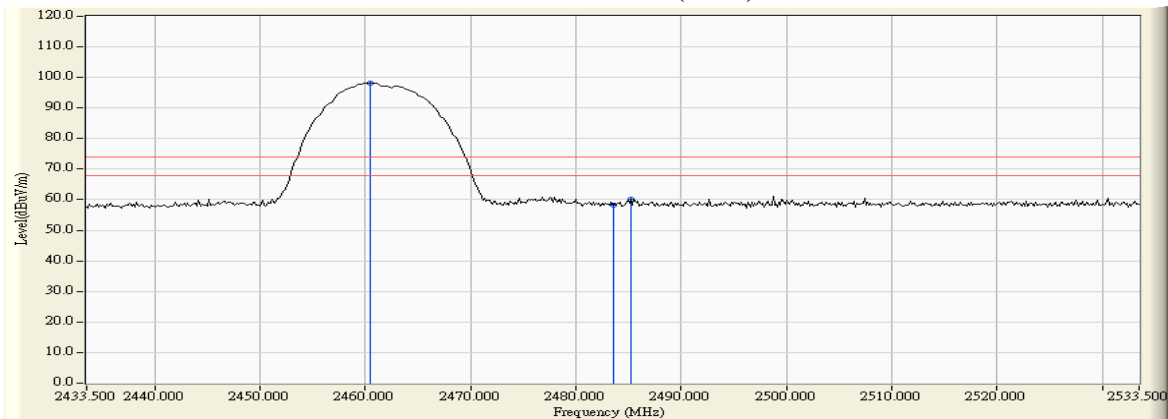
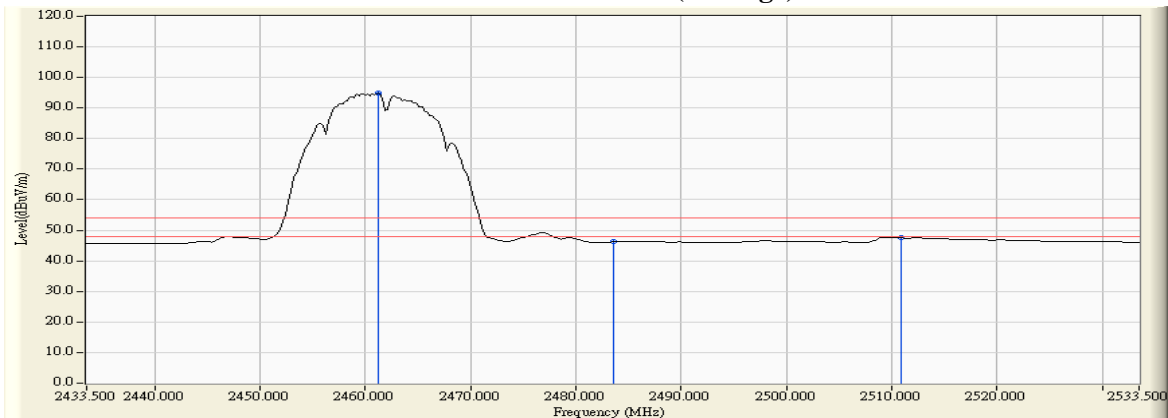


Figure Channel 11: Horizontal (Average)



Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ * ”, means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : 802.11ac Dual Band Access Point
 Test Item : Band Edge
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmit (802.11b 1Mbps)

RF Radiated Measurement (Vertical):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Emission Level (dBuV/m)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Result
11 (Peak)	2460.891	31.283	86.458	117.741	--	--	--
11 (Peak)	2483.500	31.435	32.405	63.840	74.00	54.00	Pass
11 (Average)	2461.181	31.285	82.944	114.229	--	--	--
11 (Average)	2483.500	31.435	21.517	52.952	74.00	54.00	Pass

Figure Channel 11: Vertical (Peak)

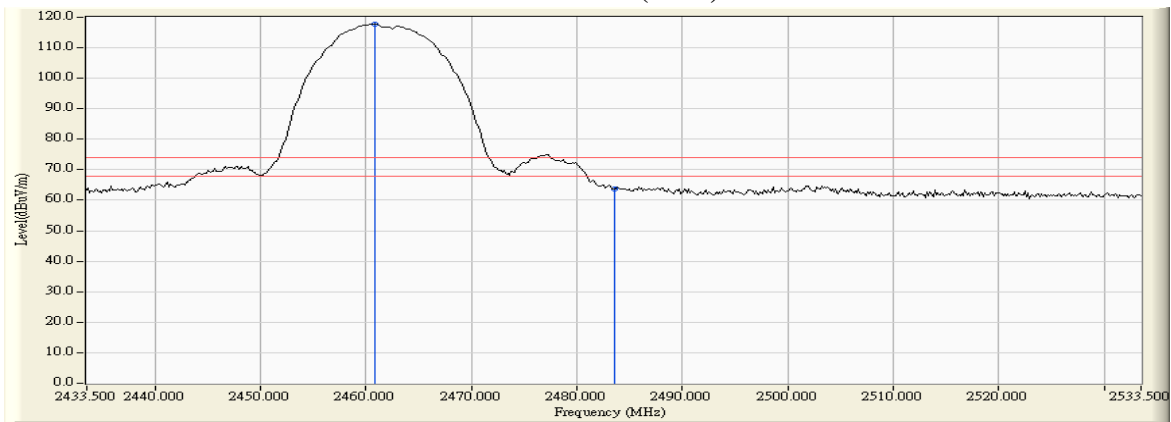
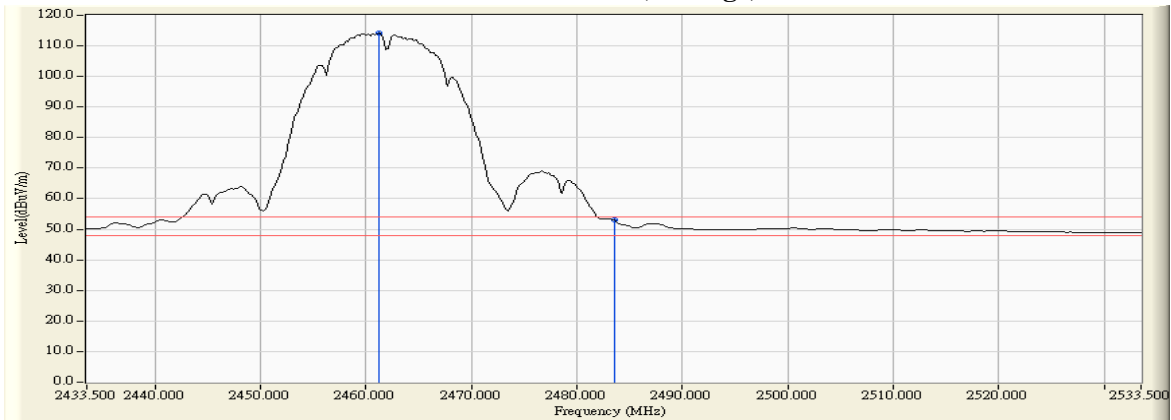


Figure Channel 11: Vertical (Average)



Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ * ”, means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : 802.11ac Dual Band Access Point
 Test Item : Band Edge
 Test Site : No.3 OATS
 Test Mode : Mode 2: Transmit (802.11g 6Mbps)

RF Radiated Measurement (Horizontal):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Emission Level (dBuV/m)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Result
01 (Peak)	2390.000	31.509	26.741	58.250	74.00	54.00	Pass
01 (Peak)	2400.000	31.561	44.429	75.990	--	--	--
01 (Peak)	2404.493	31.590	65.570	97.159	--	--	--
01(Average)	2390.000	31.509	13.806	45.315	74.00	54.00	Pass
01(Average)	2400.000	31.561	19.386	50.947	--	--	--
01(Average)	2404.348	31.588	55.042	86.630	--	--	--

Figure Channel 01: Horizontal (Peak)

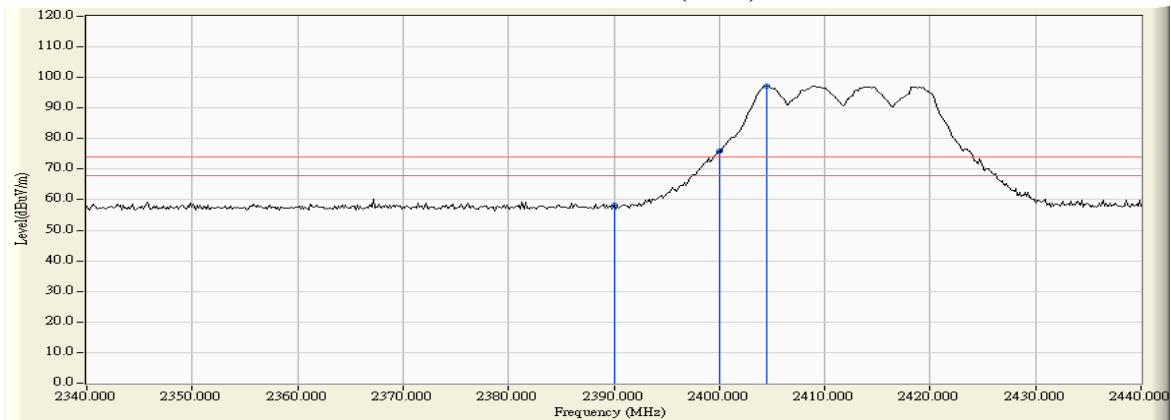
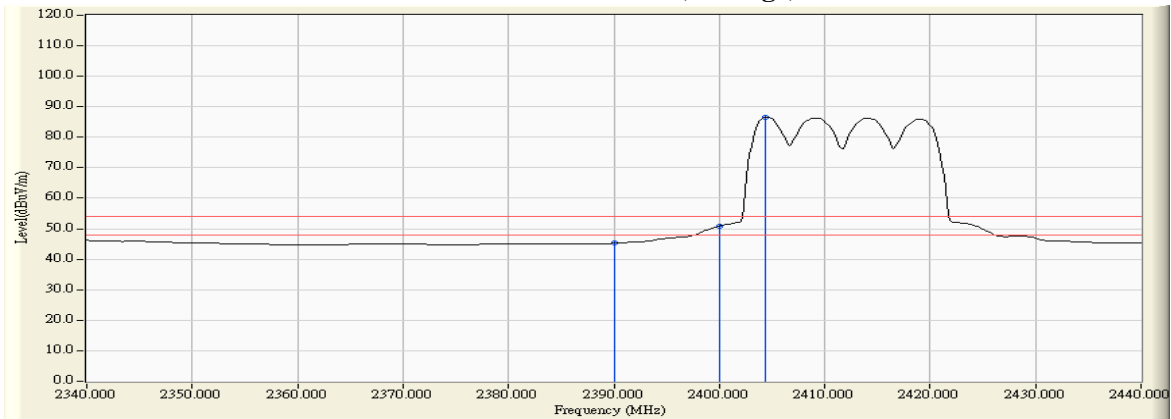


Figure Channel 01: Horizontal (Average)



Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ * ”, means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : 802.11ac Dual Band Access Point
 Test Item : Band Edge
 Test Site : No.3 OATS
 Test Mode : Mode 2: Transmit (802.11g 6Mbps)

RF Radiated Measurement (Vertical):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Emission Level (dBuV/m)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Result
01 (Peak)	2390.000	30.915	40.752	71.667	74.00	54.00	Pass
01 (Peak)	2400.000	30.912	63.407	94.319	--	--	--
01 (Peak)	2409.710	30.939	86.922	117.861	--	--	--
01 (Average)	2390.000	30.915	22.697	53.612	74.00	54.00	Pass
01 (Average)	2400.000	30.912	36.626	67.538	--	--	--
01 (Average)	2414.783	30.968	74.807	105.775	--	--	--

Figure Channel 01: Vertical (Peak)

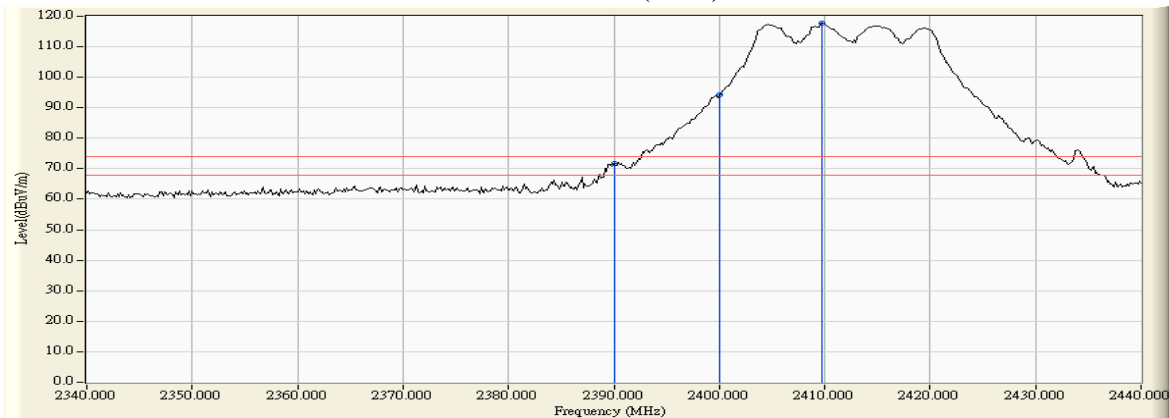
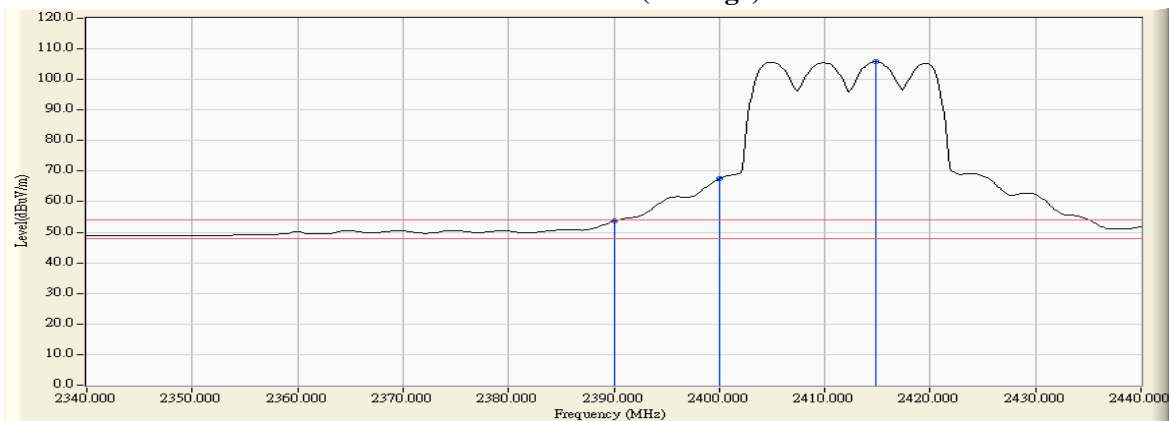


Figure Channel 01: Vertical (Average)



Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ * ”, means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : 802.11ac Dual Band Access Point
 Test Item : Band Edge
 Test Site : No.3 OATS
 Test Mode : Mode 2: Transmit (802.11g 6Mbps)

RF Radiated Measurement (Horizontal):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Emission Level (dBuV/m)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Result
11 (Peak)	2455.384	31.970	63.794	95.763	--	--	--
11 (Peak)	2483.500	32.182	26.927	59.109	74.00	54.00	Pass
11 (Average)	2455.094	31.967	52.152	84.119	--	--	--
11 (Average)	2483.500	32.182	14.109	46.291	74.00	54.00	Pass
11 (Average)	2510.312	32.252	15.313	47.565	74.00	54.00	Pass

Figure Channel 11: Horizontal (Peak)

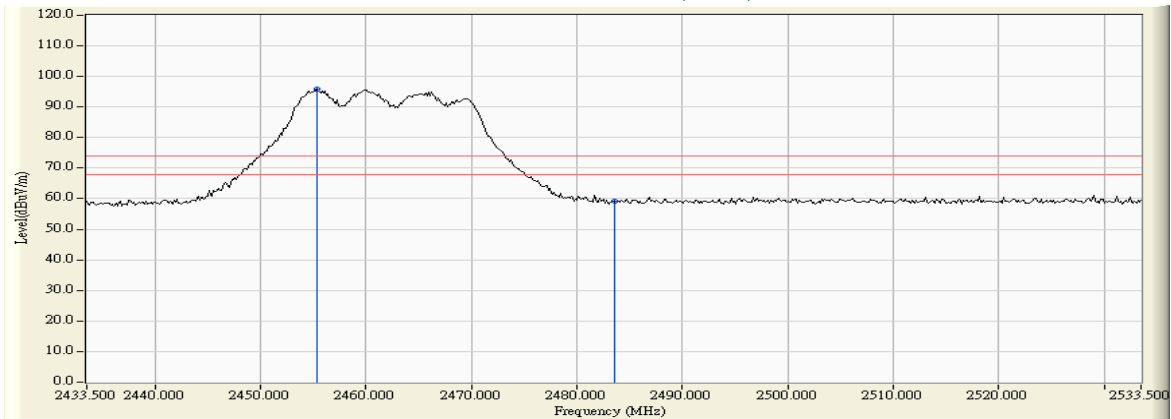
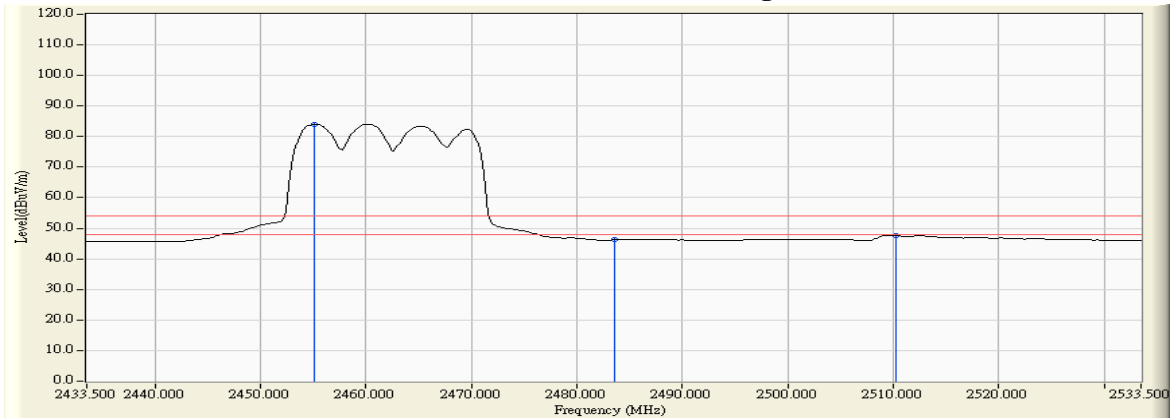


Figure Channel 11: Horizontal (Average)



Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ * ”, means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : 802.11ac Dual Band Access Point
 Test Item : Band Edge
 Test Site : No.3 OATS
 Test Mode : Mode 2: Transmit (802.11g 6Mbps)

RF Radiated Measurement (Vertical):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Emission Level (dBuV/m)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Result
11 (Peak)	2464.804	31.309	83.480	114.789	--	--	--
11 (Peak)	2483.500	31.435	40.928	72.363	74.00	54.00	Pass
11 (Average)	2459.732	31.275	71.665	102.940	--	--	--
11 (Average)	2483.500	31.435	21.696	53.131	74.00	54.00	Pass

Figure Channel 11: Vertical (Peak)

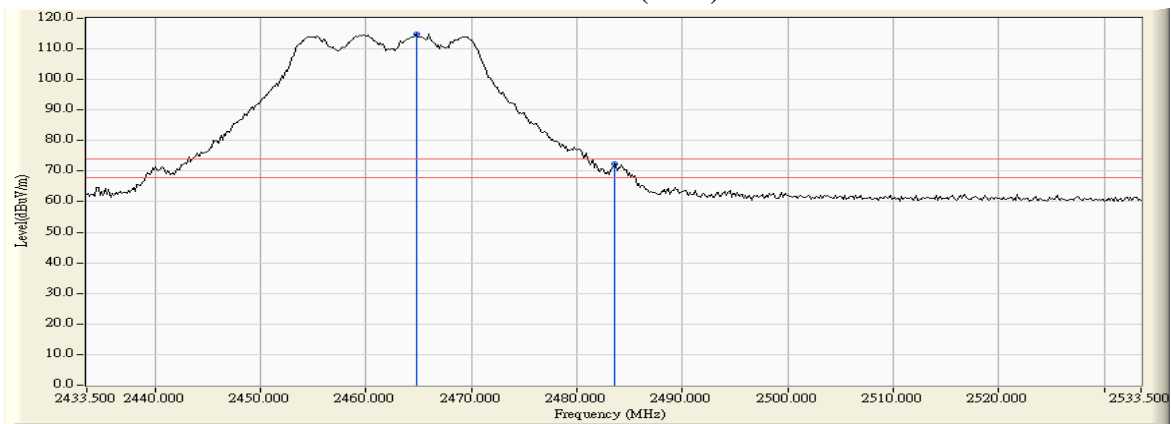


Figure Channel 11: Vertical (Average)



Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ * ”, means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : 802.11ac Dual Band Access Point
 Test Item : Band Edge
 Test Site : No.3 OATS
 Test Mode : Mode 3: Transmit - 802.11n-20BW_14.4Mbps(2.4G Band)

RF Radiated Measurement (Horizontal):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Emission Level (dBuV/m)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Result
01 (Peak)	2390.000	31.509	26.168	57.677	74.00	54.00	Pass
01 (Peak)	2400.000	31.561	44.538	76.099	--	--	--
01 (Peak)	2405.507	31.596	65.140	96.736	--	--	--
01 (Average)	2390.000	31.509	13.742	45.251	74.00	54.00	Pass
01 (Average)	2400.000	31.561	19.203	50.764	--	--	--
01 (Average)	2404.928	31.592	53.209	84.801	--	--	--

Figure Channel 01: Horizontal (Peak)

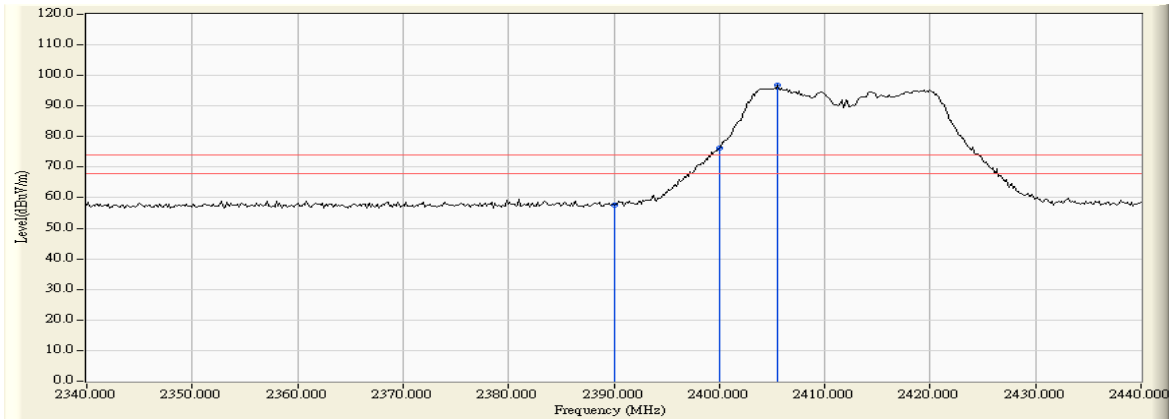
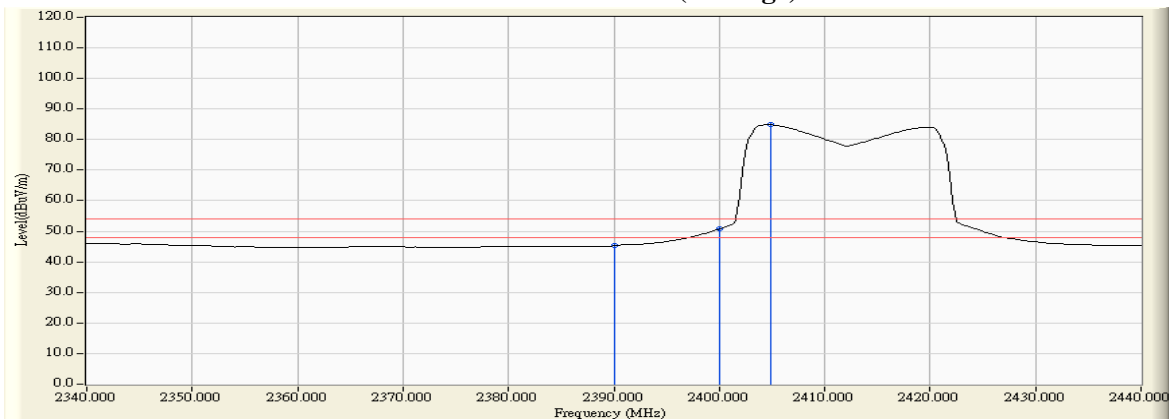


Figure Channel 01: Horizontal (Average)



Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ * ”, means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : 802.11ac Dual Band Access Point
 Test Item : Band Edge
 Test Site : No.3 OATS
 Test Mode : Mode 3: Transmit - 802.11n-20BW_14.4Mbps(2.4G Band)

RF Radiated Measurement (Vertical):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Emission Level (dBuV/m)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Result
01 (Peak)	2389.130	30.919	39.492	70.411	74.00	54.00	Pass
01 (Peak)	2390.000	30.915	37.739	68.654	74.00	54.00	Pass
01 (Peak)	2400.000	30.912	65.231	96.143	--	--	--
01 (Peak)	2404.783	30.926	86.055	116.980	--	--	--
01 (Average)	2390.000	30.915	22.023	52.938	74.00	54.00	Pass
01 (Average)	2400.000	30.912	35.016	65.928	--	--	--
01 (Average)	2405.362	30.927	73.681	104.608	--	--	--

Figure Channel 01: Vertical (Peak)

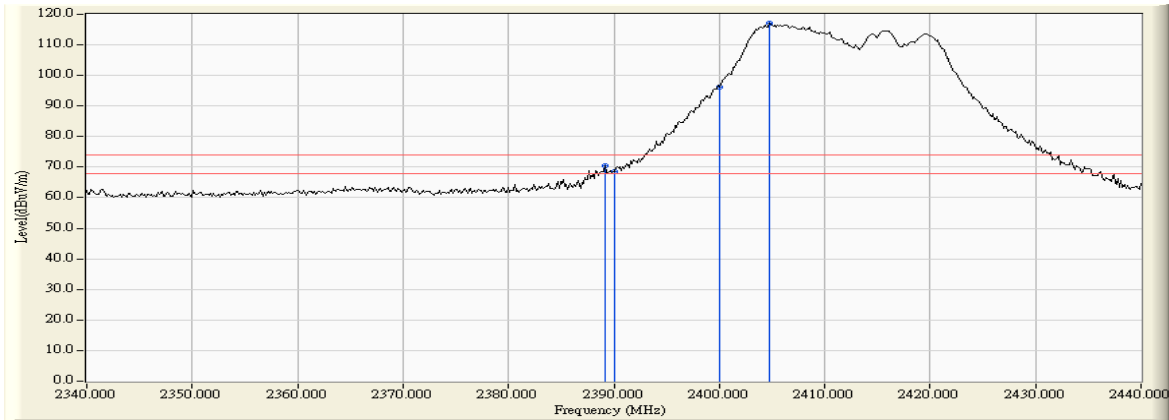
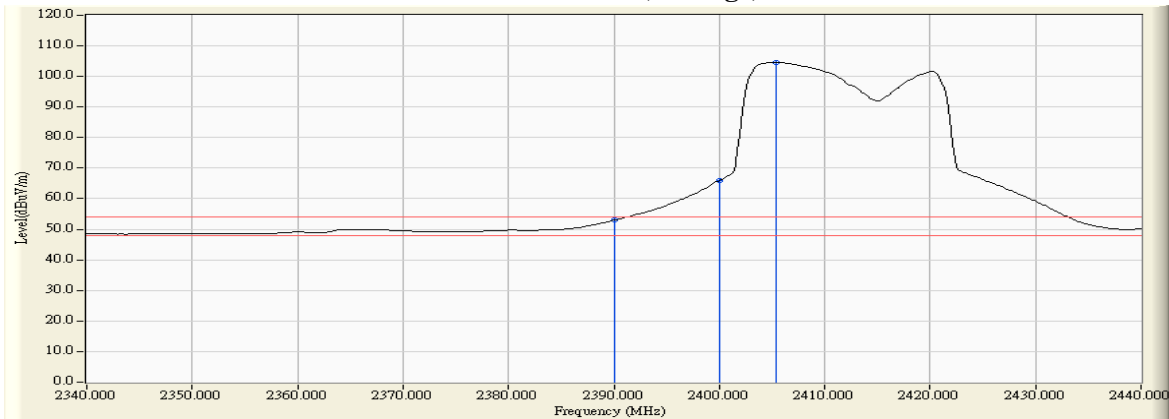


Figure Channel 01: Vertical (Average)



Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ * ”, means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : 802.11ac Dual Band Access Point
 Test Item : Band Edge
 Test Site : No.3 OATS
 Test Mode : Mode 3: Transmit - 802.11n-20BW_14.4Mbps(2.4G Band)

RF Radiated Measurement (Horizontal):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Emission Level (dBuV/m)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Result
11 (Peak)	2455.964	31.974	65.190	97.164	--	--	--
11 (Peak)	2483.500	32.182	27.087	59.269	74.00	54.00	Pass
11 (Average)	2455.529	31.971	53.309	85.279	--	--	--
11 (Average)	2483.500	32.182	14.184	46.366	74.00	54.00	Pass
11 (Average)	2510.746	32.251	15.180	47.431	74.00	54.00	Pass

Figure Channel 11: Horizontal (Peak)

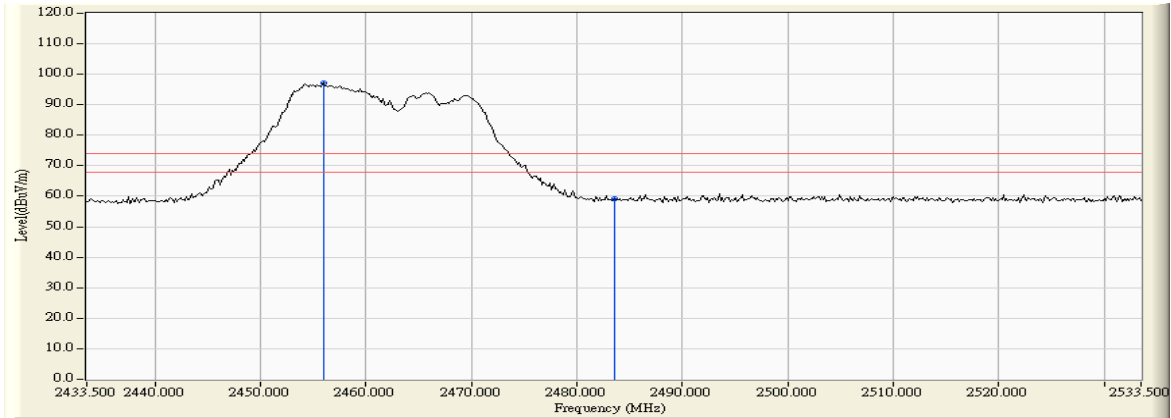
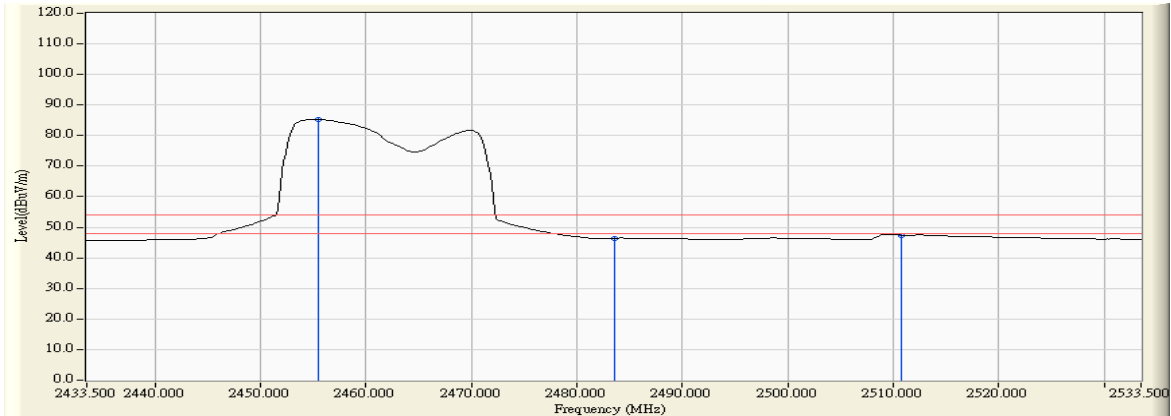


Figure Channel 11: Horizontal (Average)



Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ * ”, means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : 802.11ac Dual Band Access Point
 Test Item : Band Edge
 Test Site : No.3 OATS
 Test Mode : Mode 3: Transmit - 802.11n-20BW_14.4Mbps(2.4G Band)

RF Radiated Measurement (Vertical):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Emission Level (dBuV/m)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Result
11 (Peak)	2455.529	31.246	84.700	115.946	--	--	--
11 (Peak)	2483.500	31.435	37.030	68.465	74.00	54.00	Pass
11 (Peak)	2483.790	31.437	39.280	70.717	74.00	54.00	Pass
11 (Average)	2454.804	31.241	72.488	103.729	--	--	--
11 (Average)	2483.500	31.435	20.772	52.207	74.00	54.00	Pass

Figure Channel 11: Vertical (Peak)

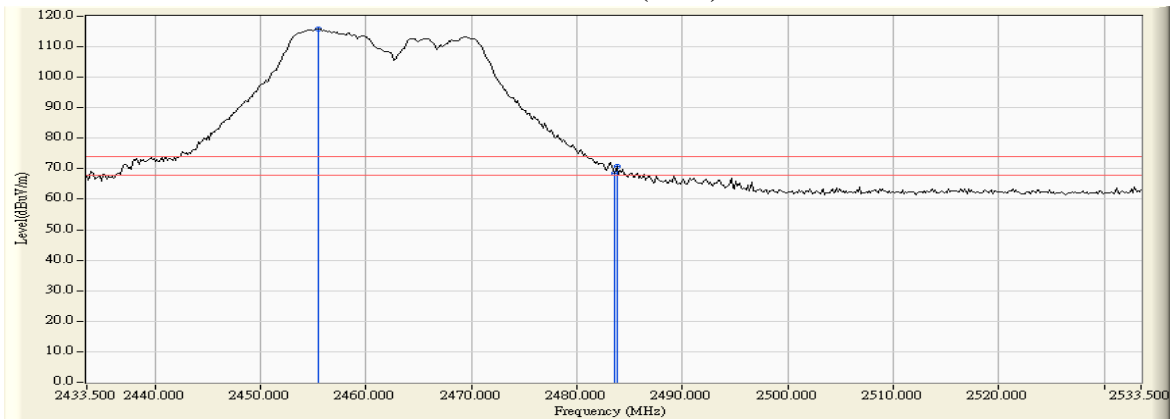
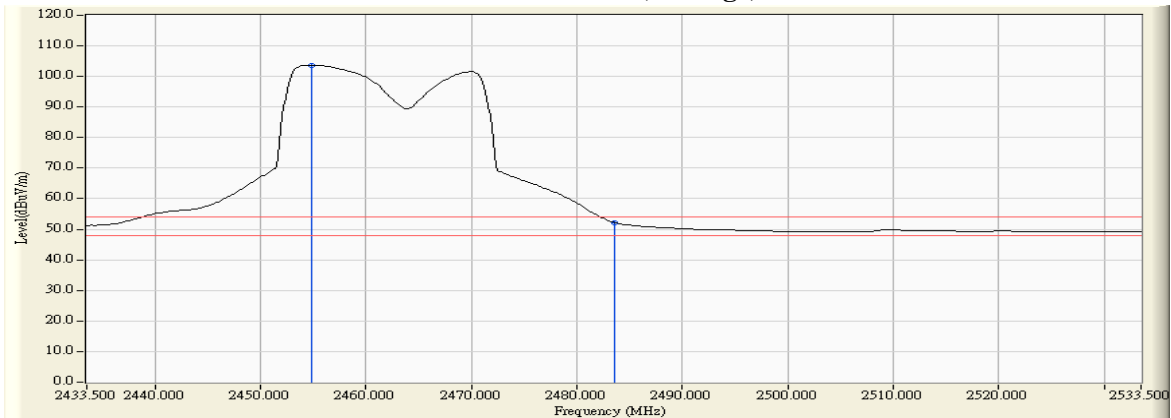


Figure Channel 11: Vertical (Average)



Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ * ”, means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : 802.11ac Dual Band Access Point
 Test Item : Band Edge
 Test Site : No.3 OATS
 Test Mode : Mode 4: Transmit - 802.11n-40BW_30Mbps(2.4G Band)

RF Radiated Measurement (Horizontal):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Emission Level (dBuV/m)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Result
03 (Peak)	2390.000	31.509	27.973	59.482	74.00	54.00	Pass
03 (Peak)	2400.000	31.561	40.630	72.191	--	--	--
03 (Peak)	2408.551	31.615	62.595	94.210	--	--	--
03 (Average)	2390.000	31.509	14.126	45.635	74.00	54.00	Pass
03 (Average)	2400.000	31.561	16.783	48.344	--	--	--
03 (Average)	2410.870	31.629	49.808	81.438	--	--	--

Figure Channel 03: Horizontal (Peak)

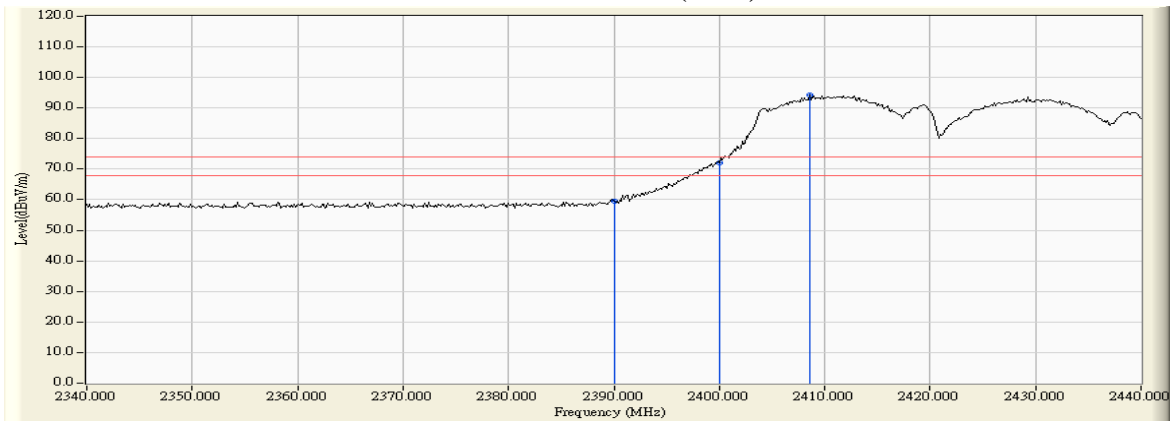
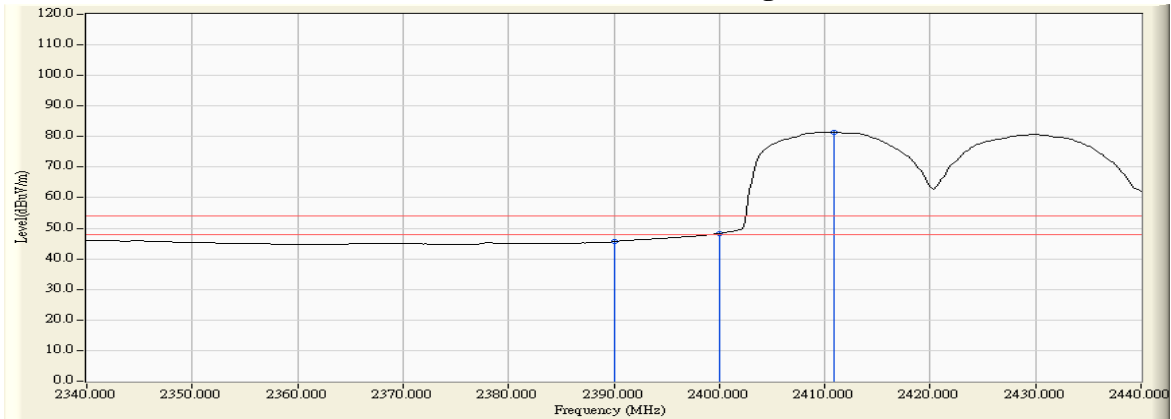


Figure Channel 03: Horizontal (Average)



Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ * ”, means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : 802.11ac Dual Band Access Point
 Test Item : Band Edge
 Test Site : No.3 OATS
 Test Mode : Mode 4: Transmit - 802.11n-40BW_30Mbps(2.4G Band)

RF Radiated Measurement (Vertical):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Emission Level (dBuV/m)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Result
03 (Peak)	2390.000	30.915	41.158	72.073	74.00	54.00	Pass
03 (Peak)	2400.000	30.912	58.755	89.667	--	--	--
03 (Peak)	2420.000	31.004	81.390	112.394	--	--	--
03 (Average)	2390.000	30.915	22.377	53.292	74.00	54.00	Pass
03 (Average)	2400.000	30.912	31.015	61.927	--	--	--
03 (Average)	2420.145	31.005	67.903	98.908	--	--	--

Figure Channel 03: Vertical (Peak)

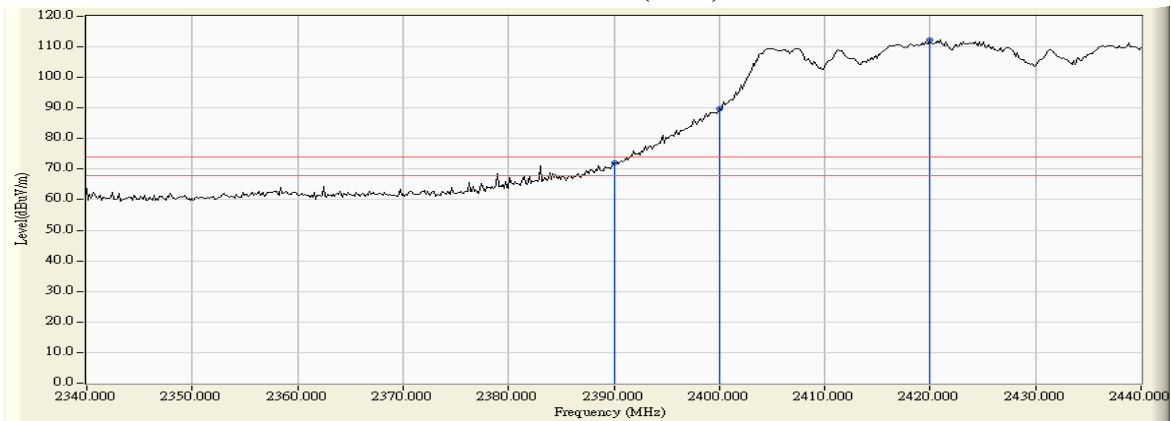
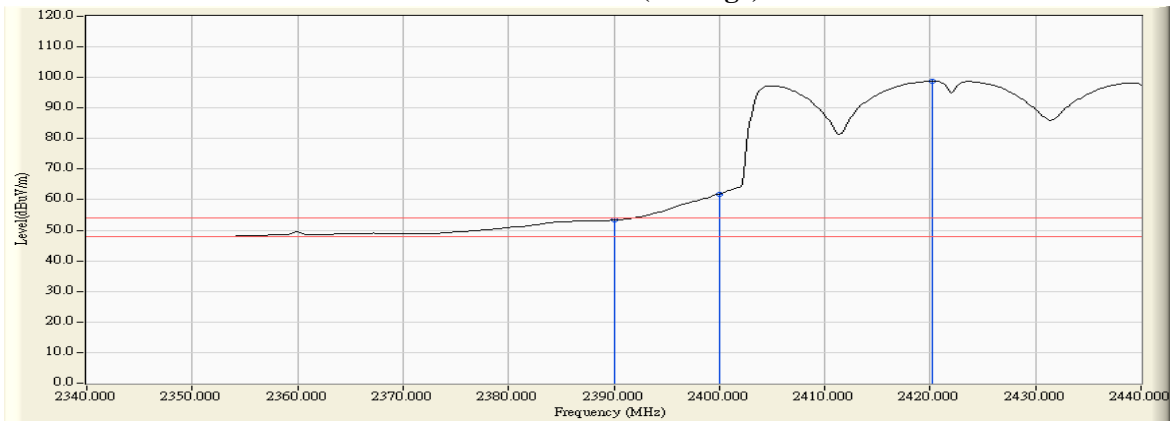


Figure Channel 03: Vertical (Average)



Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ * ”, means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : 802.11ac Dual Band Access Point
 Test Item : Band Edge
 Test Site : No.3 OATS
 Test Mode : Mode 4: Transmit - 802.11n-40BW_30Mbps(2.4G Band)

RF Radiated Measurement (Horizontal):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Emission Level (dBuV/m)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Result
09 (Peak)	2452.920	31.951	58.633	90.584	--	--	--
09 (Peak)	2483.500	32.182	25.943	58.125	74.00	54.00	Pass
09 (Peak)	2490.312	32.233	28.321	60.555	74.00	54.00	Pass
09 (Average)	2453.935	31.958	46.407	78.365	--	--	--
09 (Average)	2483.500	32.182	13.971	46.153	74.00	54.00	Pass
09 (Average)	2511.326	32.250	15.170	47.420	74.00	54.00	Pass

Figure Channel 09: Horizontal (Peak)

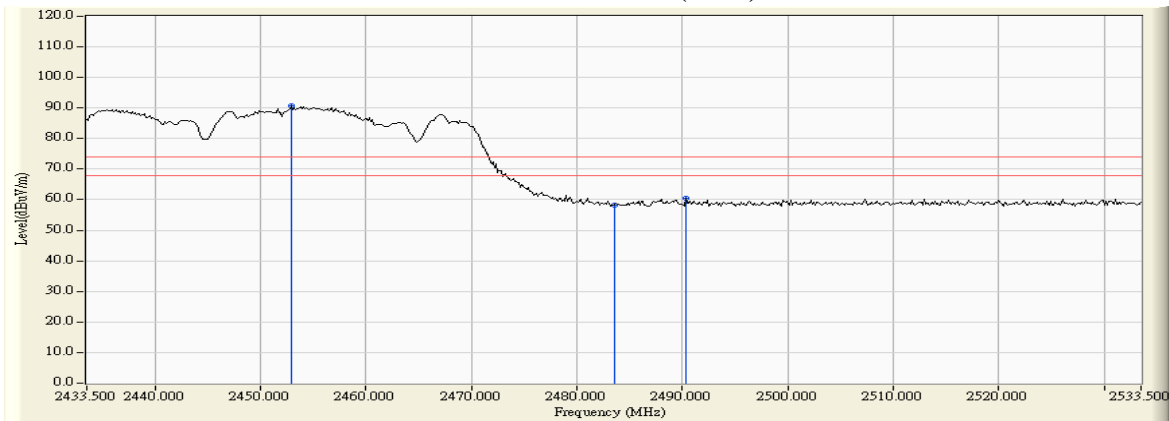
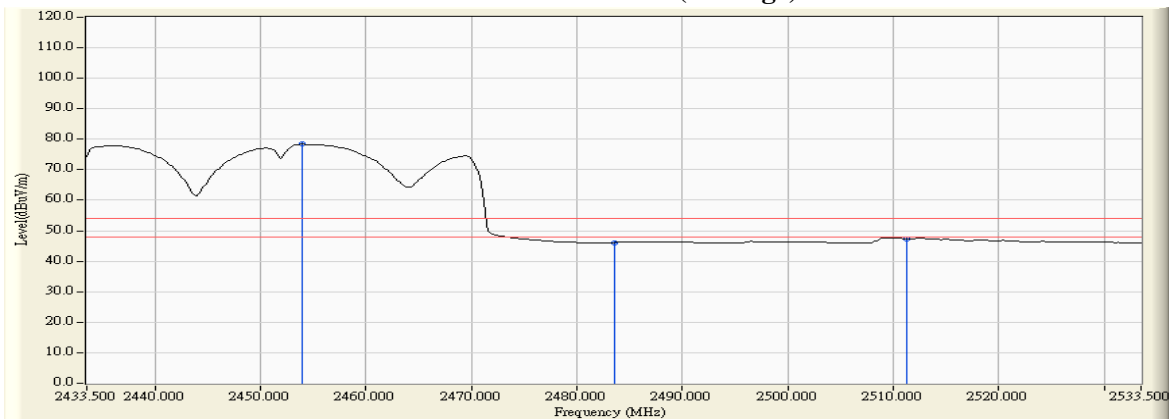


Figure Channel 09: Horizontal (Average)



Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ * ”, means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : 802.11ac Dual Band Access Point
 Test Item : Band Edge
 Test Site : No.3 OATS
 Test Mode : Mode 4: Transmit - 802.11n-40BW_30Mbps(2.4G Band)

RF Radiated Measurement (Vertical):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Emission Level (dBuV/m)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Result
09 (Peak)	2449.877	31.206	79.000	110.207	--	--	--
09 (Peak)	2483.500	31.435	38.823	70.258	74.00	54.00	Pass
09 (Peak)	2483.935	31.438	40.029	71.467	74.00	54.00	Pass
09 (Average)	2450.167	31.208	65.228	96.437	--	--	--
09 (Average)	2483.500	31.435	19.024	50.459	74.00	54.00	Pass
09 (Average)	2490.312	31.481	19.834	51.315	74.00	54.00	Pass

Figure Channel 09: Vertical (Peak)

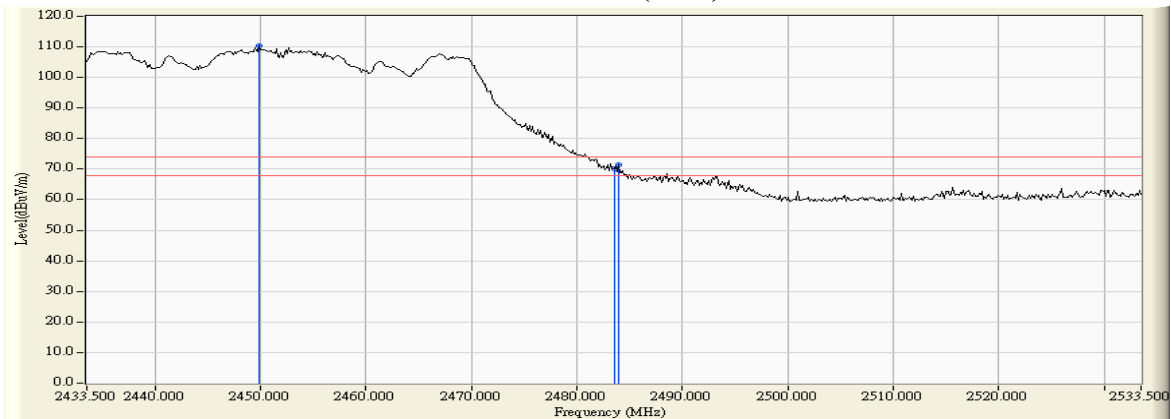
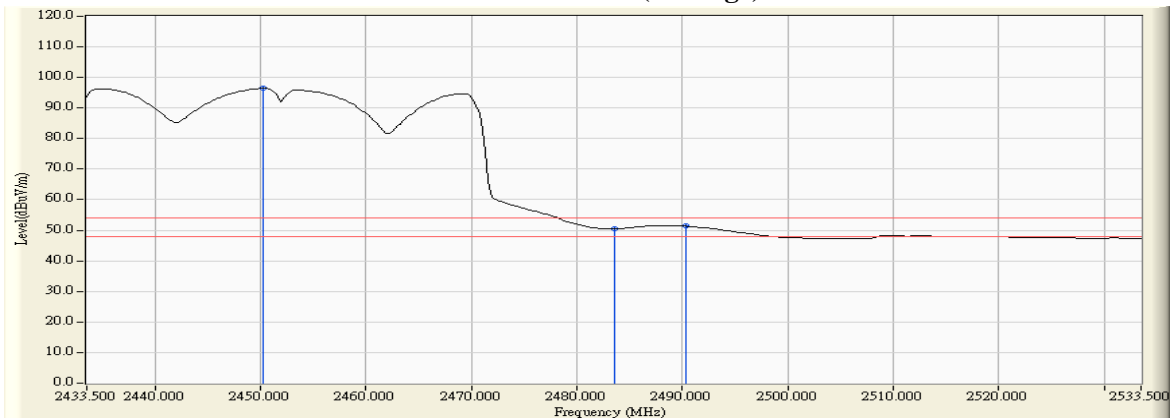


Figure Channel 09: Vertical (Average)



Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ * ”, means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.

7. Occupied Bandwidth

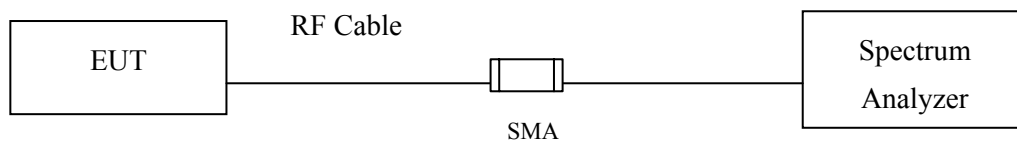
7.1. Test Equipment

	Equipment	Manufacturer	Model No./Serial No.	Last Cal.
	Spectrum Analyzer	R&S	FSP40 / 100170	Jun, 2015
	Spectrum Analyzer	Agilent	E4407B / US39440758	Jun, 2015
X	Spectrum Analyzer	Agilent	N9010A / MY48030495	Apr., 2016

Note:

1. All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.
2. The test instruments marked with “X” are used to measure the final test results.

7.2. Test Setup



7.3. Limits

The minimum bandwidth shall be at least 500 kHz.

7.4. Test Procedure

The EUT was setup according to ANSI C63.10, 2013; tested according to DTS test procedure of KDB558074 for compliance to FCC 47CFR 15.247 requirements.

Set RBW = 1-5% of the emission bandwidth, VBW \geq 3*RBW

7.5. Uncertainty

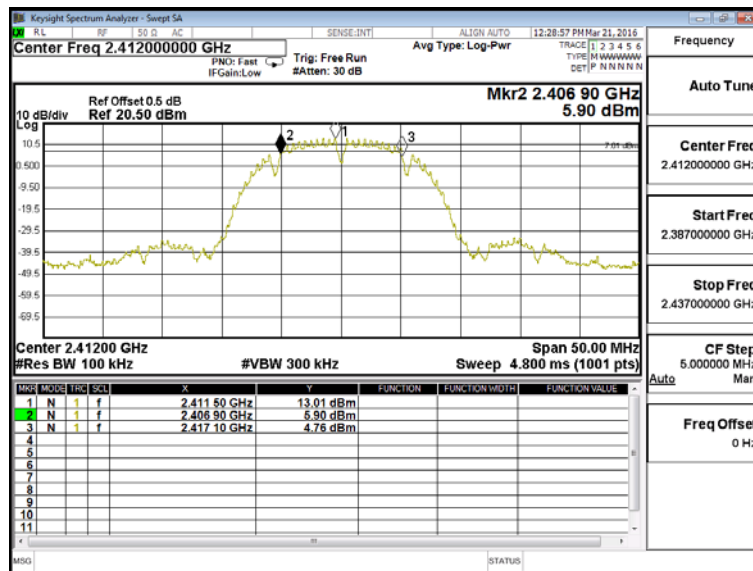
$\pm 150\text{Hz}$

7.6. Test Result of Occupied Bandwidth

Product : 802.11ac Dual Band Access Point
 Test Item : Occupied Bandwidth Data
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmit (802.11b 1Mbps) (2412MHz)

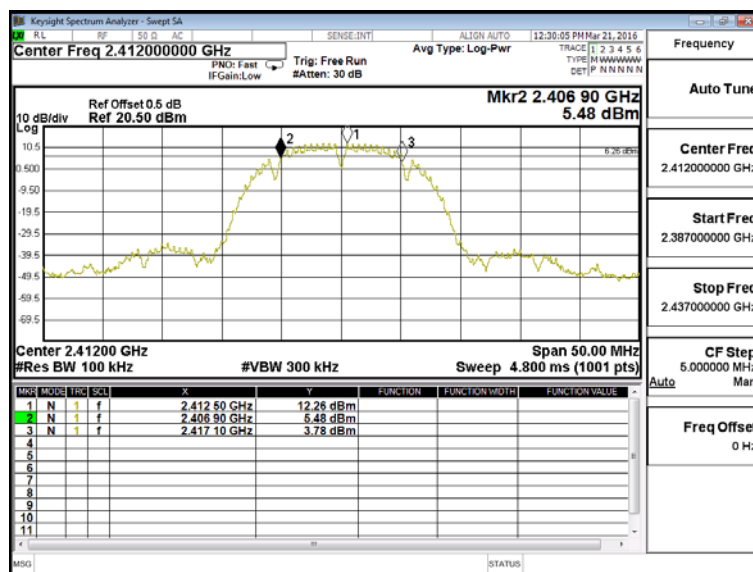
Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
1	2412.00	10200	>500	Pass

Figure Channel 1: (Chain A)



Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
1	2412.00	10200	>500	Pass

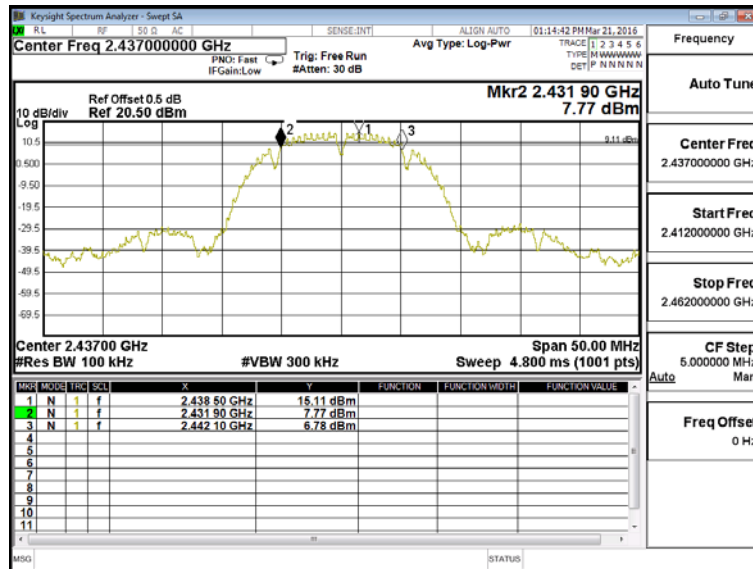
Figure Channel 1: (Chain B)



Product : 802.11ac Dual Band Access Point
 Test Item : Occupied Bandwidth Data
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmit (802.11b 1Mbps) (2437MHz)

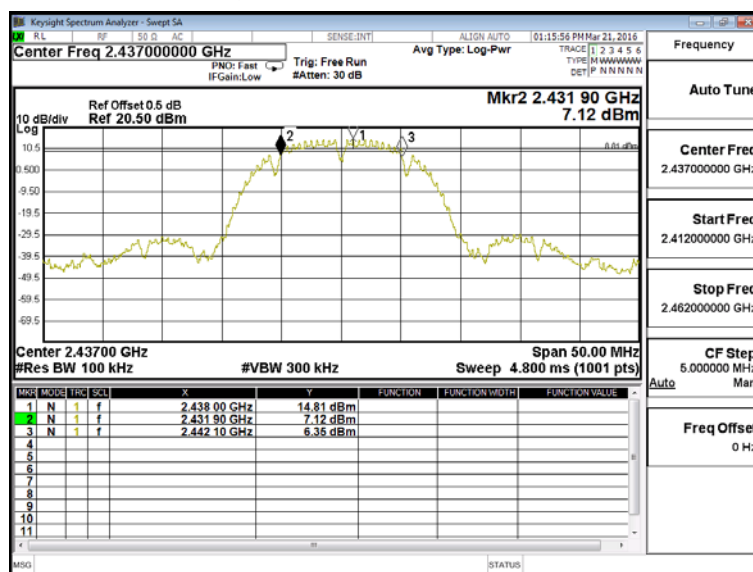
Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
6	2437.00	10200	>500	Pass

Figure Channel 6: (Chain A)



Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
6	2437.00	10200	>500	Pass

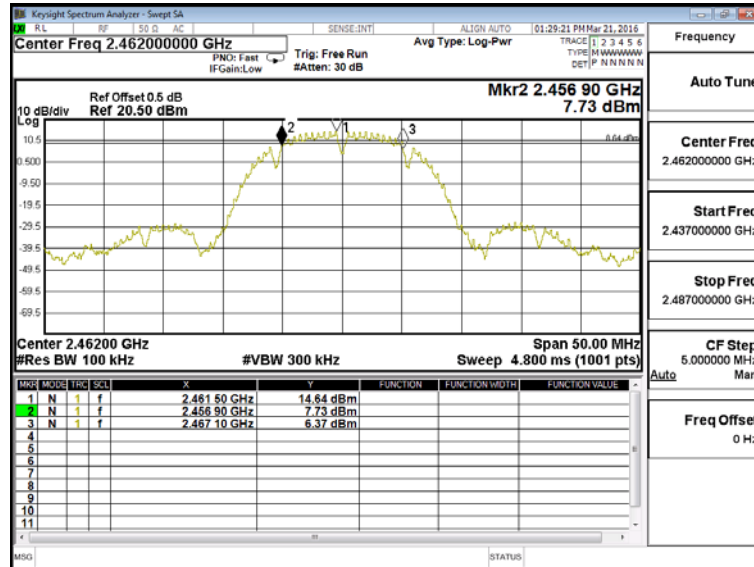
Figure Channel 6: (Chain B)



Product : 802.11ac Dual Band Access Point
 Test Item : Occupied Bandwidth Data
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmit (802.11b 1Mbps) (2462MHz)

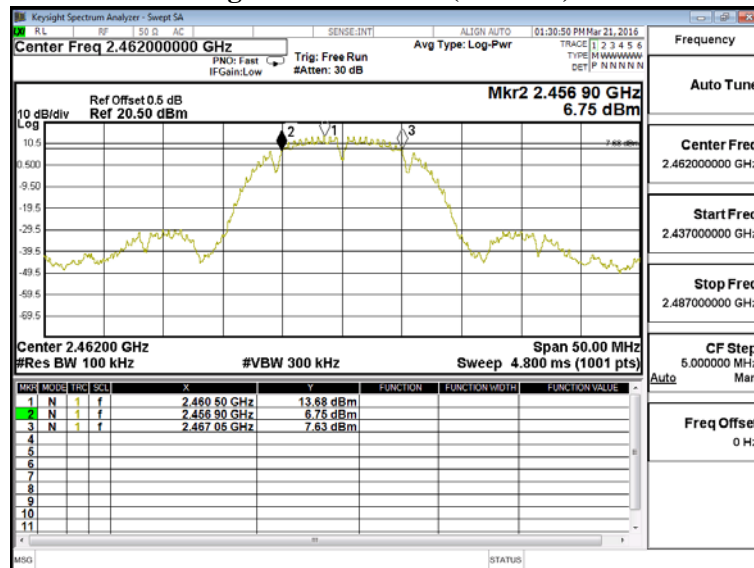
Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
11	2462.00	10200	>500	Pass

Figure Channel 11: (Chain A)



Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
11	2462.00	10150	>500	Pass

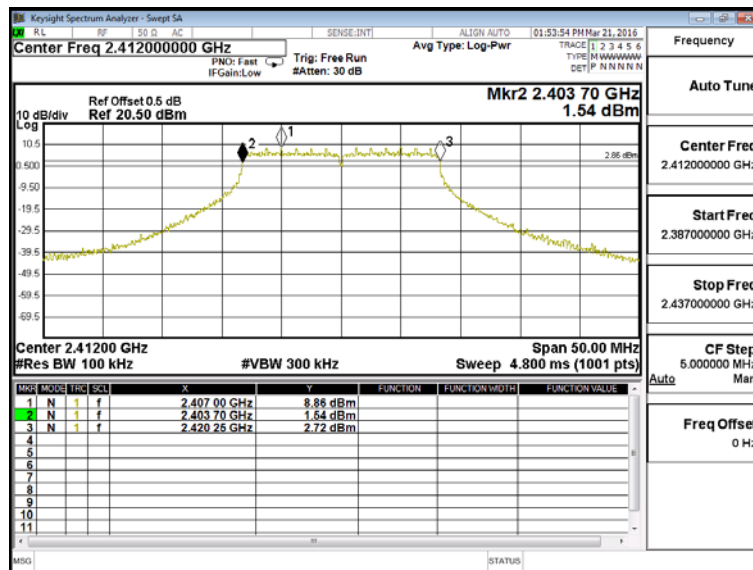
Figure Channel 11: (Chain B)



Product : 802.11ac Dual Band Access Point
 Test Item : Occupied Bandwidth Data
 Test Site : No.3 OATS
 Test Mode : Mode 2: Transmit (802.11g 6Mbps) (2412MHz)

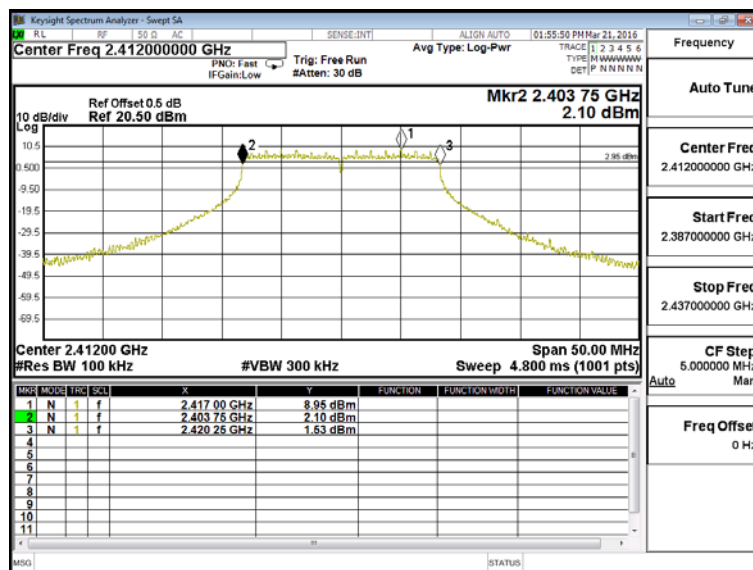
Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
1	2412.00	16550	>500	Pass

Figure Channel 1: (Chain A)



Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
1	2412.00	16550	>500	Pass

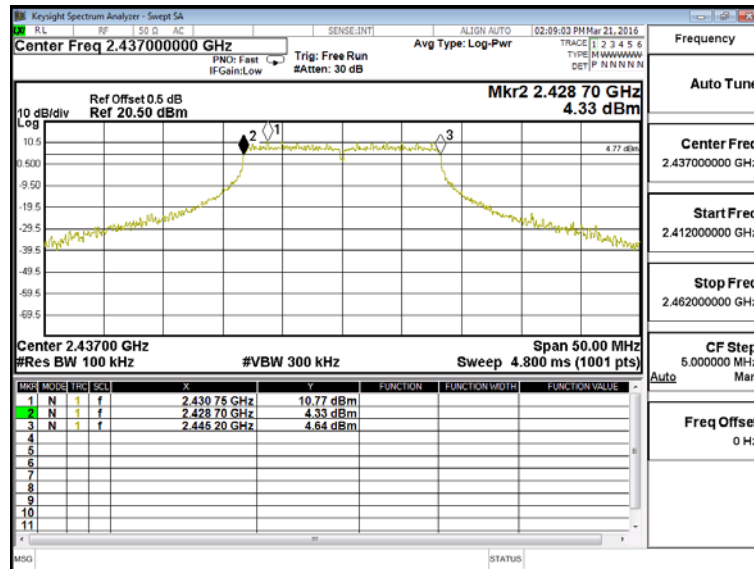
Figure Channel 1: (Chain B)



Product : 802.11ac Dual Band Access Point
 Test Item : Occupied Bandwidth Data
 Test Site : No.3 OATS
 Test Mode : Mode 2: Transmit (802.11g 6Mbps) (2437MHz)

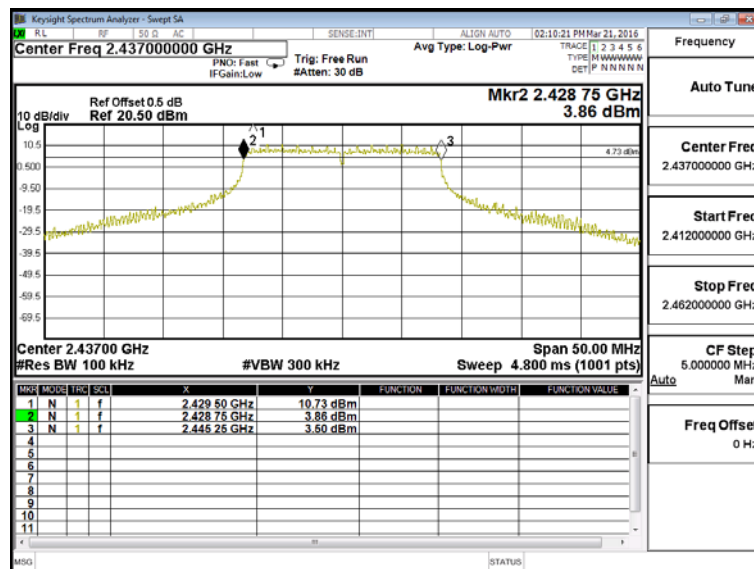
Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
6	2437.00	16500	>500	Pass

Figure Channel 6: (Chain A)



Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
6	2437.00	16500	>500	Pass

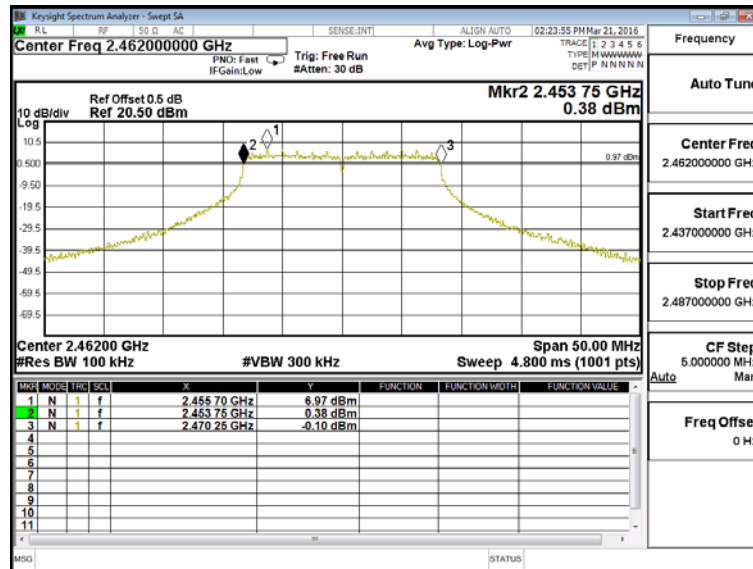
Figure Channel 6: (Chain B)



Product : 802.11ac Dual Band Access Point
 Test Item : Occupied Bandwidth Data
 Test Site : No.3 OATS
 Test Mode : Mode 2: Transmit (802.11g 6Mbps) (2462MHz)

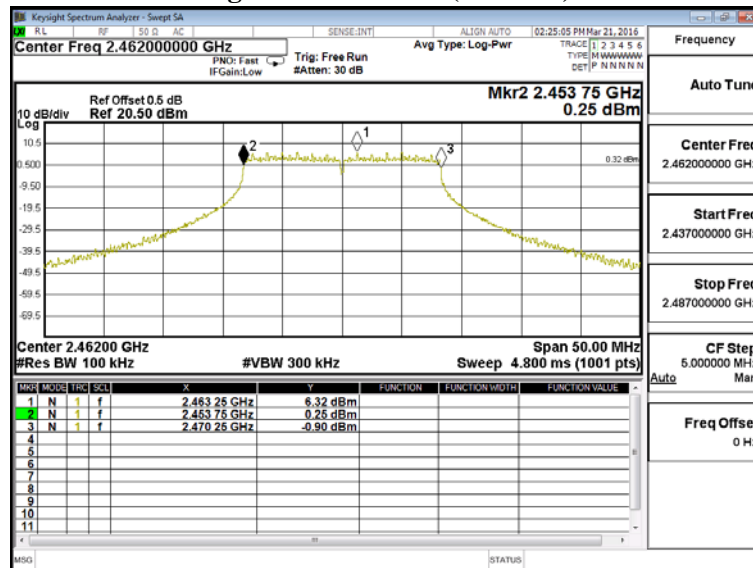
Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
11	2462.00	16500	>500	Pass

Figure Channel 11: (Chain A)



Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
11	2462.00	16500	>500	Pass

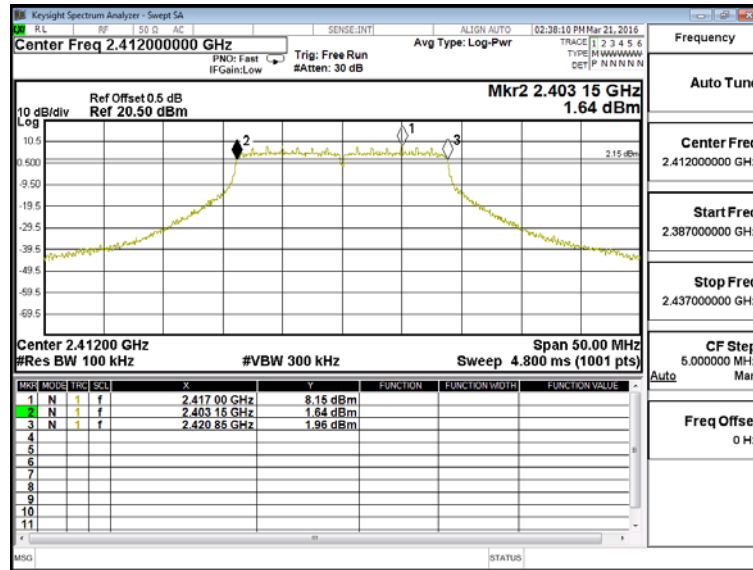
Figure Channel 11: (Chain B)



Product : 802.11ac Dual Band Access Point
 Test Item : Occupied Bandwidth Data
 Test Site : No.3 OATS
 Test Mode : Mode 3: Transmit - 802.11n-20BW_14.4Mbps(2.4G Band) (2412MHz)

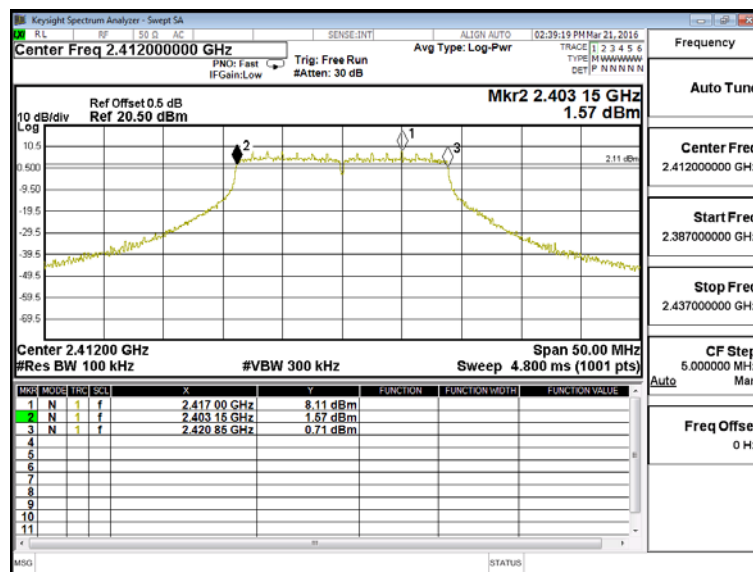
Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
1	2412.00	17700	>500	Pass

Figure Channel 1: (Chain A)



Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
1	2412.00	17700	>500	Pass

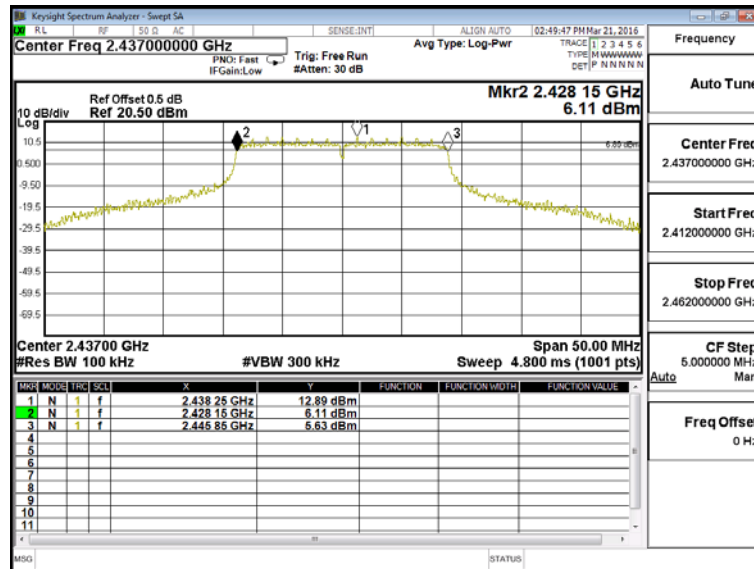
Figure Channel 1: (Chain B)



Product : 802.11ac Dual Band Access Point
 Test Item : Occupied Bandwidth Data
 Test Site : No.3 OATS
 Test Mode : Mode 3: Transmit - 802.11n-20BW_14.4Mbps(2.4G Band) (2437MHz)

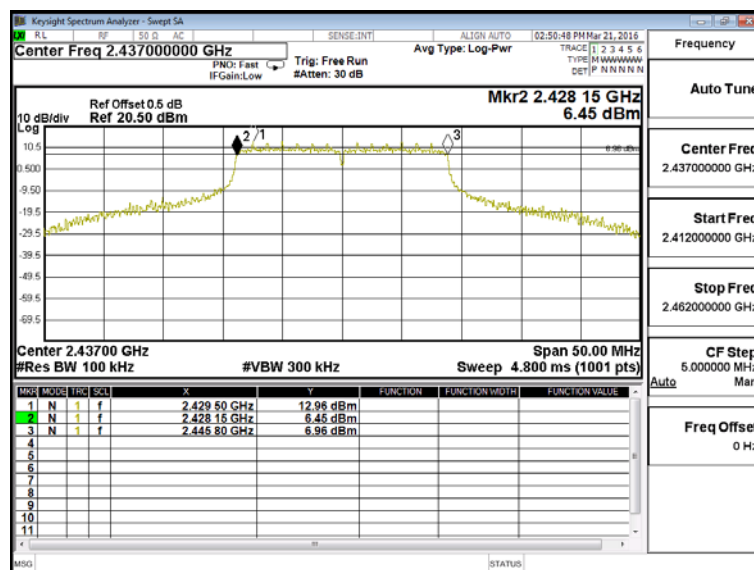
Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
6	2437.00	17700	>500	Pass

Figure Channel 6: (Chain A)



Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
6	2437.00	17650	>500	Pass

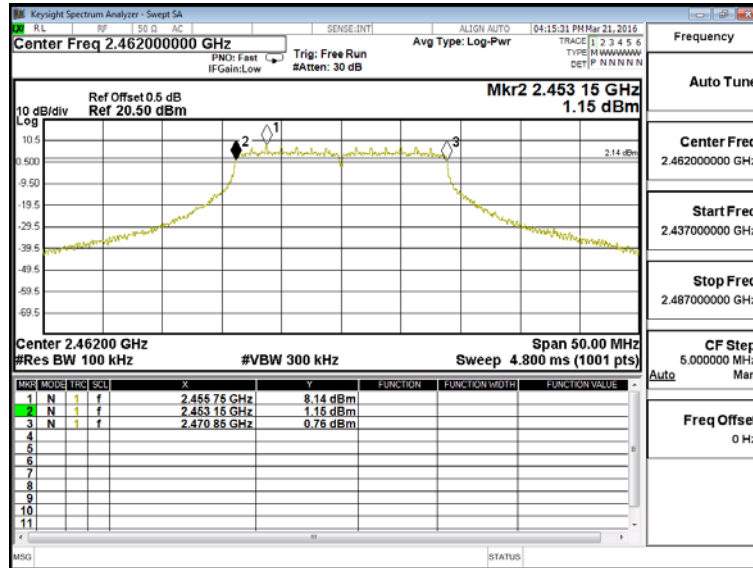
Figure Channel 6: (Chain B)



Product : 802.11ac Dual Band Access Point
 Test Item : Occupied Bandwidth Data
 Test Site : No.3 OATS
 Test Mode : Mode 3: Transmit - 802.11n-20BW_14.4Mbps(2.4G Band) (2462MHz)

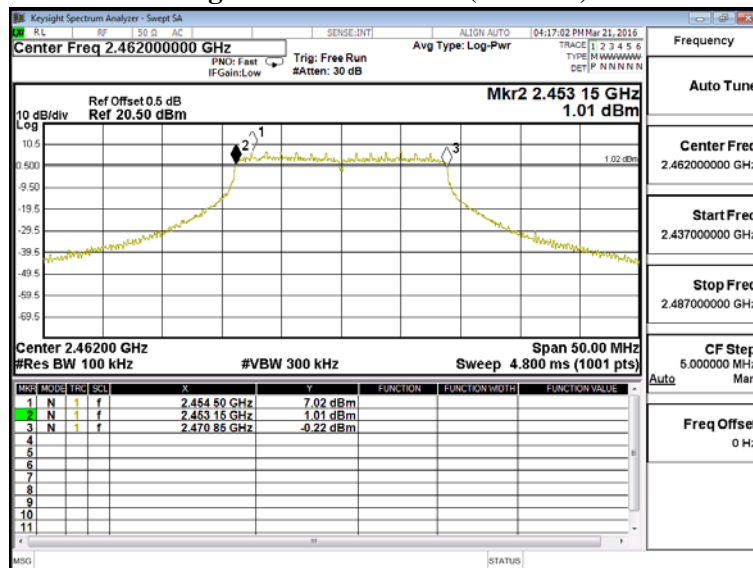
Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
11	2462.00	17700	>500	Pass

Figure Channel 11: (Chain A)



Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
11	2462.00	17700	>500	Pass

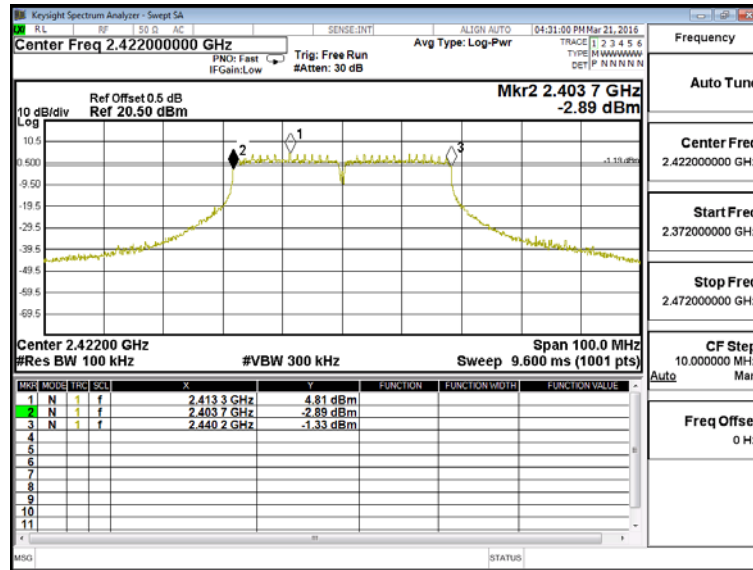
Figure Channel 11: (Chain B)



Product : 802.11ac Dual Band Access Point
 Test Item : Occupied Bandwidth Data
 Test Site : No.3 OATS
 Test Mode : Mode 4: Transmit - 802.11n-40BW_30Mbps(2.4G Band) (2422MHz)

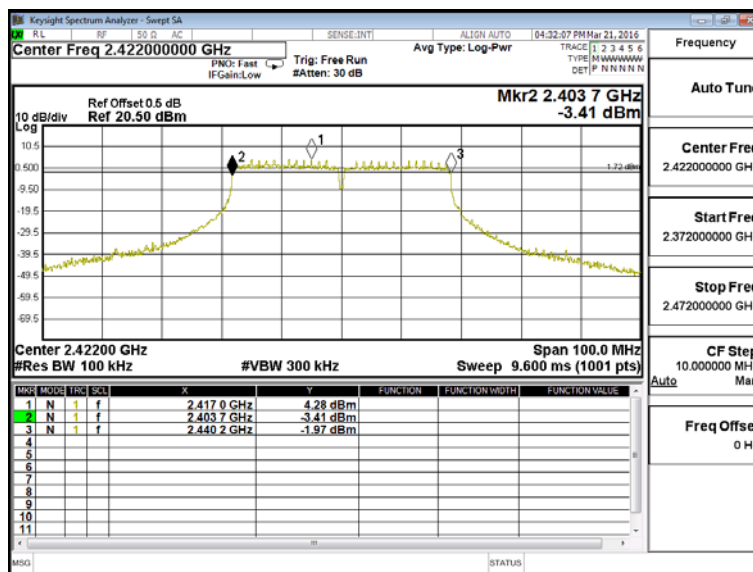
Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
3	2422.00	36500	>500	Pass

Figure Channel 3: (Chain A)



Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
3	2422.00	36500	>500	Pass

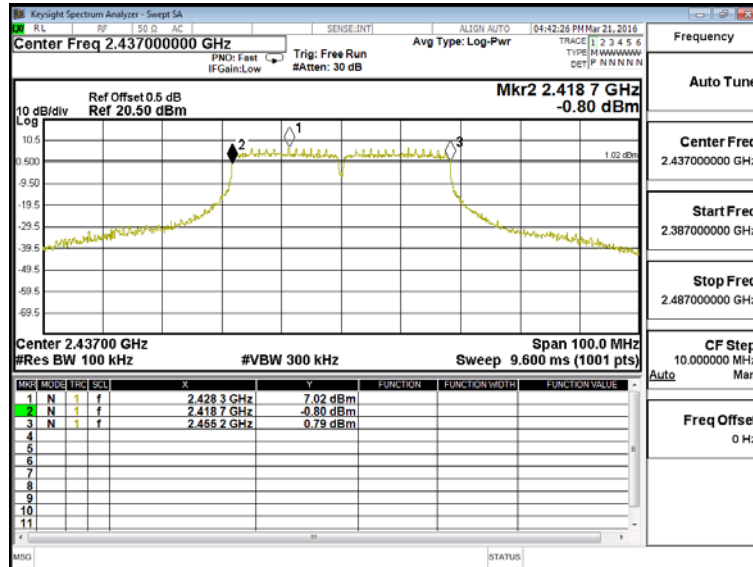
Figure Channel 3: (Chain B)



Product : 802.11ac Dual Band Access Point
 Test Item : Occupied Bandwidth Data
 Test Site : No.3 OATS
 Test Mode : Mode 4: Transmit - 802.11n-40BW_30Mbps(2.4G Band) (2437MHz)

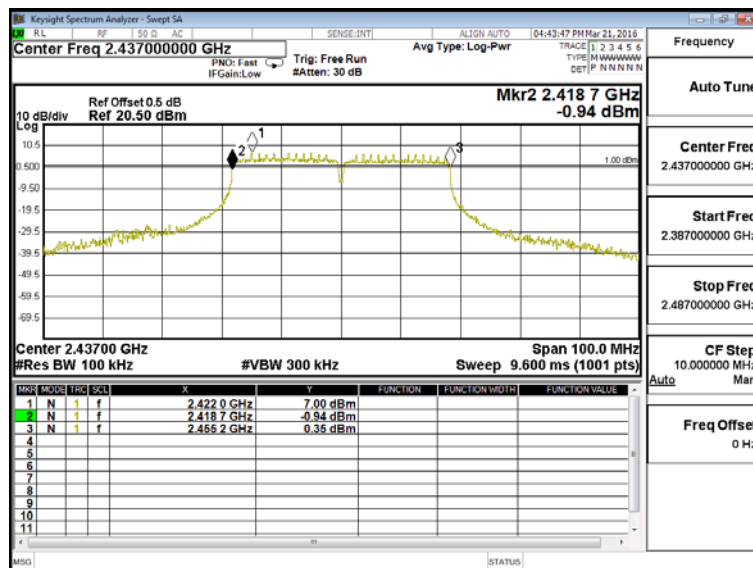
Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
6	2437.00	36500	>500	Pass

Figure Channel 6: (Chain A)



Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
6	2437.00	36500	>500	Pass

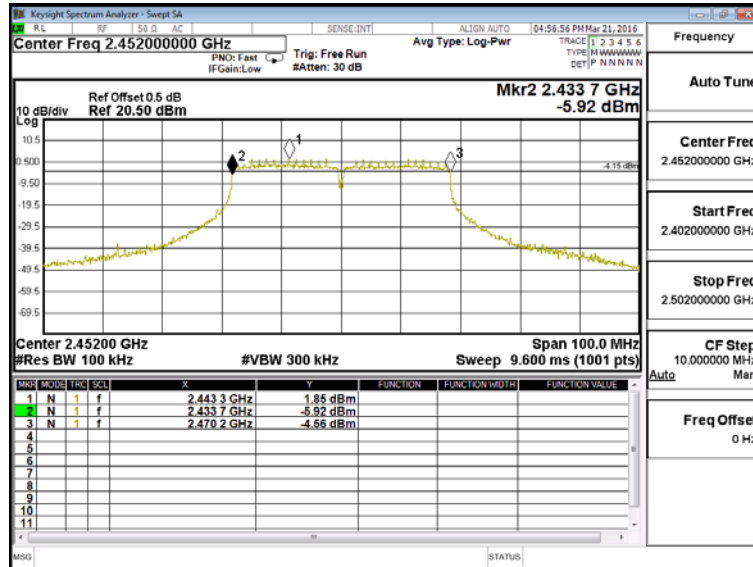
Figure Channel 6: (Chain B)



Product : 802.11ac Dual Band Access Point
 Test Item : Occupied Bandwidth Data
 Test Site : No.3 OATS
 Test Mode : Mode 4: Transmit - 802.11n-40BW_30Mbps(2.4G Band) (2452MHz)

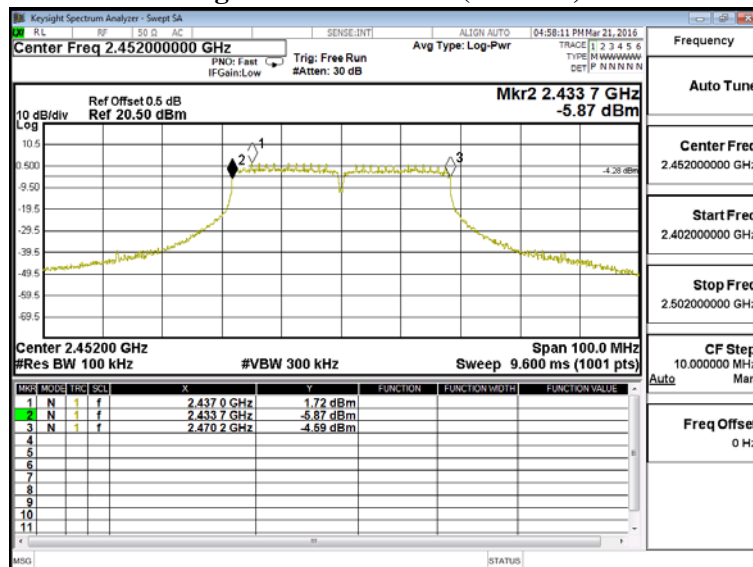
Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
9	2452.00	36500	>500	Pass

Figure Channel 9: (Chain A)



Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
9	2452.00	36500	>500	Pass

Figure Channel 9: (Chain B)



8. Power Density

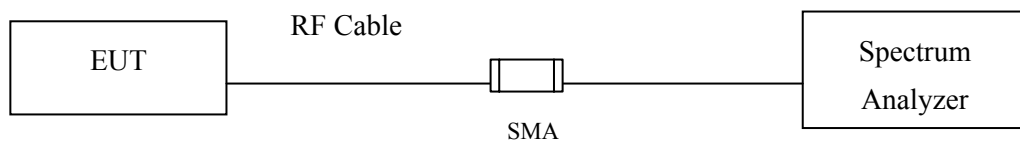
8.1. Test Equipment

	Equipment	Manufacturer	Model No./Serial No.	Last Cal.
	Spectrum Analyzer	R&S	FSP40 / 100170	Jun, 2015
	Spectrum Analyzer	Agilent	E4407B / US39440758	Jun, 2015
X	Spectrum Analyzer	Agilent	N9010A / MY48030495	Apr., 2016

Note:

1. All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.
2. The test instruments marked with “X” are used to measure the final test results.

8.2. Test Setup



8.3. Limits

The transmitted power density averaged over any 1 second interval shall not be greater +8dBm in any 3kHz bandwidth.

8.4. Test Procedure

The EUT was setup according to ANSI C63.10, 2013; tested according to DTS test procedure of KDB 558074 for compliance to FCC 47CFR 15.247 requirements.

The maximum power spectral density using KDB 558074 section 10.2 PKPSD (peak PSD) method.

8.5. Uncertainty

± 1.27 dB

8.6. Test Result of Power Density

Product : 802.11ac Dual Band Access Point
 Test Item : Power Density Data
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmit (802.11b 1Mbps) (2412MHz)

CHAIN	PPSD/MHz (dBm)	Total PPSD/MHz (dBm)1	Limit	Result
A	3.981	6.991	< 7dBm	Pass
B	3.798	6.808	< 7dBm	Pass

Note 1: The quantity $10 \cdot \log 2$ (two antennas) is added to the spectrum peak value according to document 662911 D01.

Figure Channel 1: (Chain A)

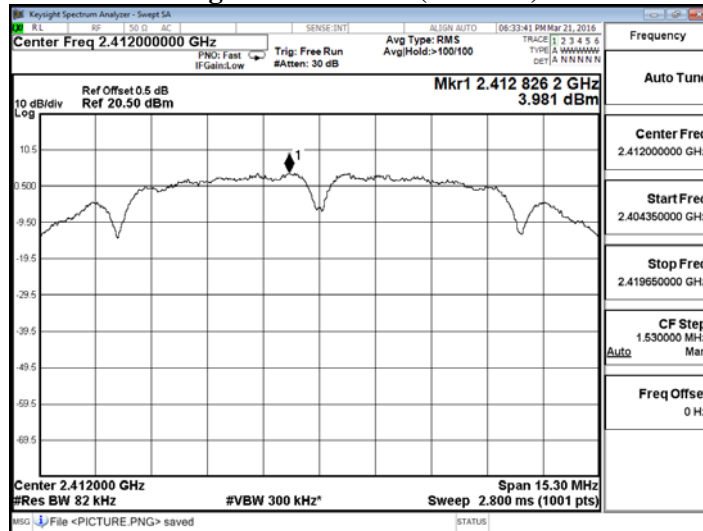
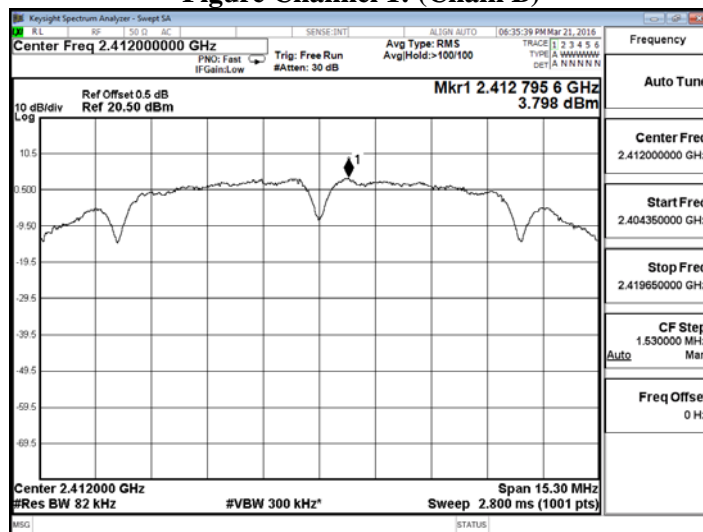


Figure Channel 1: (Chain B)



Product : 802.11ac Dual Band Access Point
 Test Item : Power Density Data
 Test Site : No.3OATS
 Test Mode : Mode 1: Transmit (802.11b 1Mbps) (2437MHz)

CHAIN	PPSD/MHz (dBm)	Total PPSD/MHz (dBm)1	Limit	Result
A	3.820	6.830	< 7dBm	Pass
B	3.385	6.395	< 7dBm	Pass

Note 1: The quantity $10 \cdot \log 2$ (two antennas) is added to the spectrum peak value according to document 662911 D01.

Figure Channel 6: (Chain A)

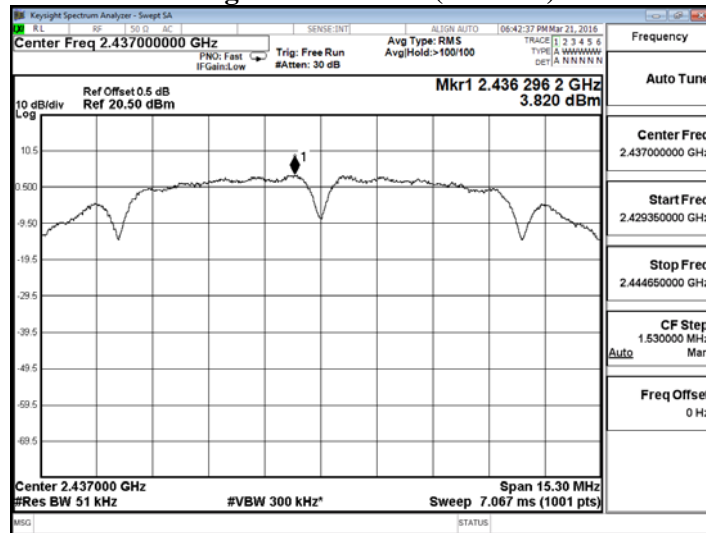
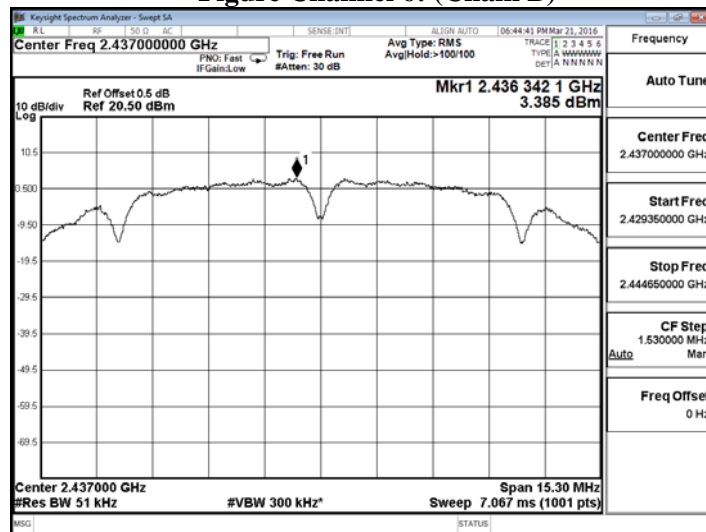


Figure Channel 6: (Chain B)



Product : 802.11ac Dual Band Access Point
 Test Item : Power Density Data
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmit (802.11b 1Mbps) (2462MHz)

CHAIN	PPSD/MHz (dBm)	Total PPSD/MHz (dBm)1	Limit	Result
A	3.833	6.843	< 7dBm	Pass
B	2.929	5.939	< 7dBm	Pass

Note 1: The quantity 10*log 2 (two antennas) is added to the spectrum peak value according to document 662911 D01.

Figure Channel 11: (Chain A)

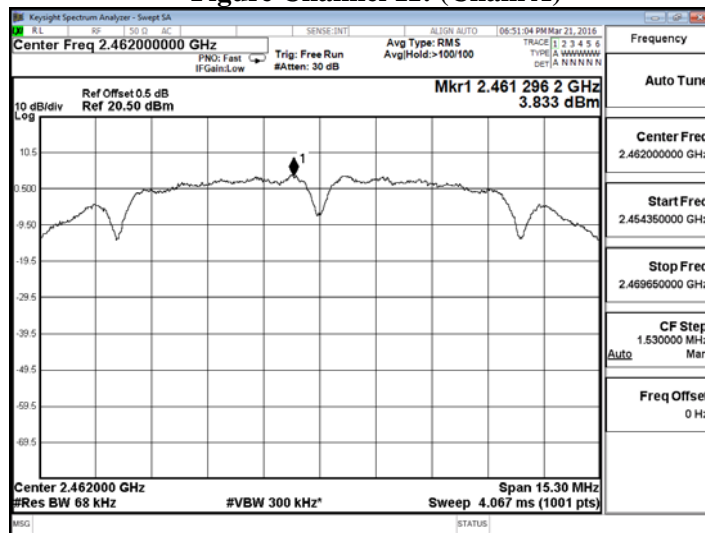
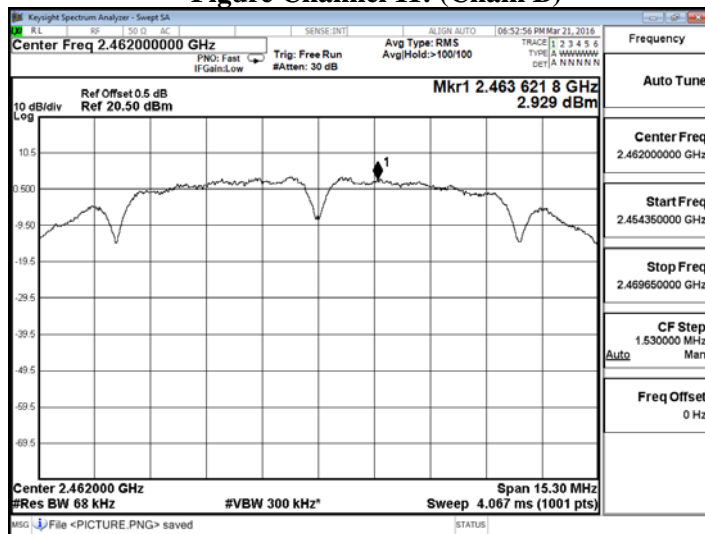


Figure Channel 11: (Chain B)



Product : 802.11ac Dual Band Access Point
 Test Item : Power Density Data
 Test Site : No.3 OATS
 Test Mode : Mode 2: Transmit (802.11g 6Mbps) (2412MHz)

CHAIN	PPSD/MHz (dBm)	Total PPSD/MHz (dBm)1	Limit	Result
A	0.040	3.050	< 7dBm	Pass
B	-0.160	2.850	< 7dBm	Pass

Note 1: The quantity 10*log 2 (two antennas) is added to the spectrum peak value according to document 662911 D01.

Figure Channel 1: (Chain A)

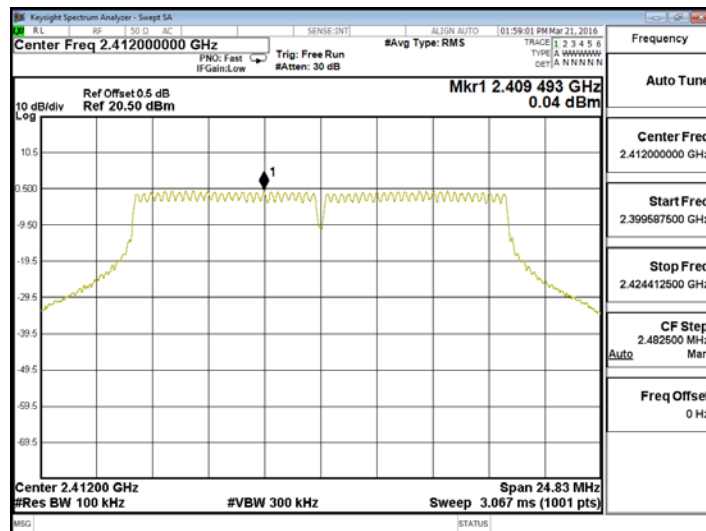
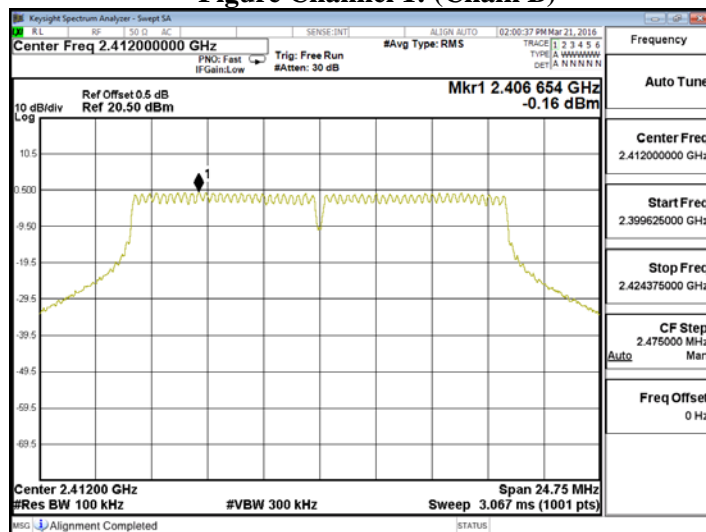


Figure Channel 1: (Chain B)



Product : 802.11ac Dual Band Access Point
 Test Item : Power Density Data
 Test Site : No.3OATS
 Test Mode : Mode 2: Transmit (802.11g 6Mbps) (2437MHz)

CHAIN	PPSD/MHz (dBm)	Total PPSD/MHz (dBm)1	Limit	Result
A	2.150	5.160	< 7dBm	Pass
B	2.030	5.040	< 7dBm	Pass

Note 1: The quantity $10 \cdot \log 2$ (two antennas) is added to the spectrum peak value according to document 662911 D01.

Figure Channel 6: (Chain A)

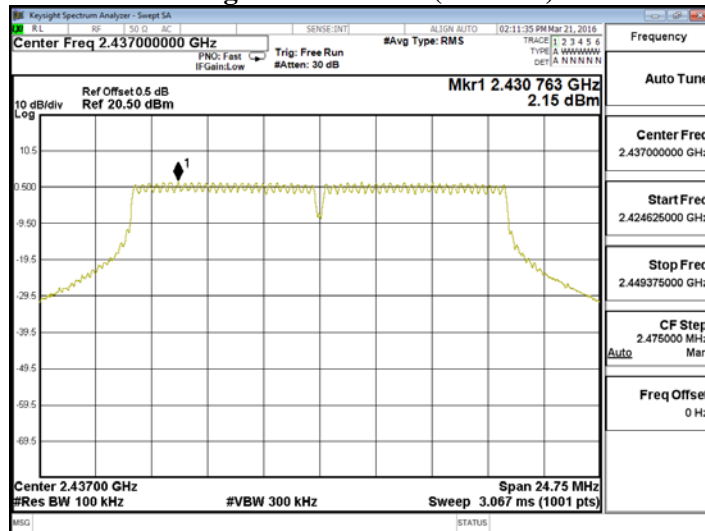
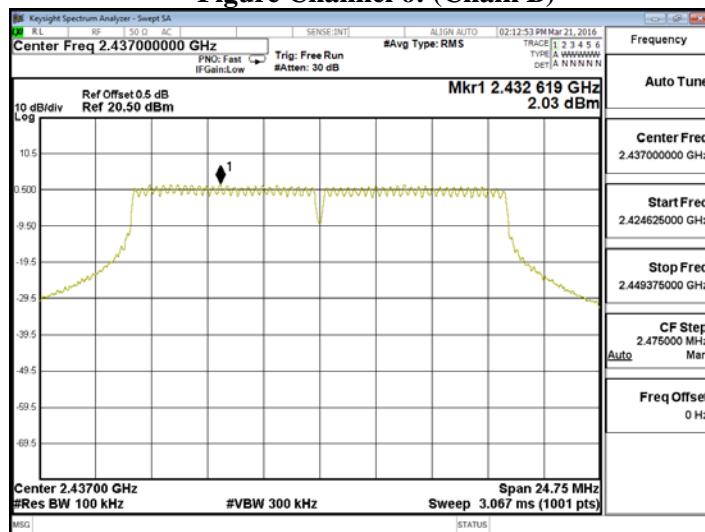


Figure Channel 6: (Chain B)



Product : 802.11ac Dual Band Access Point
 Test Item : Power Density Data
 Test Site : No.3 OATS
 Test Mode : Mode 2: Transmit (802.11g 6Mbps) (2462MHz)

CHAIN	PPSD/MHz (dBm)	Total PPSD/MHz (dBm)1	Limit	Result
A	-1.360	1.650	< 7dBm	Pass
B	-1.780	1.230	< 7dBm	Pass

Note 1: The quantity 10*log 2 (two antennas) is added to the spectrum peak value according to document 662911 D01.

Figure Channel 11: (Chain A)

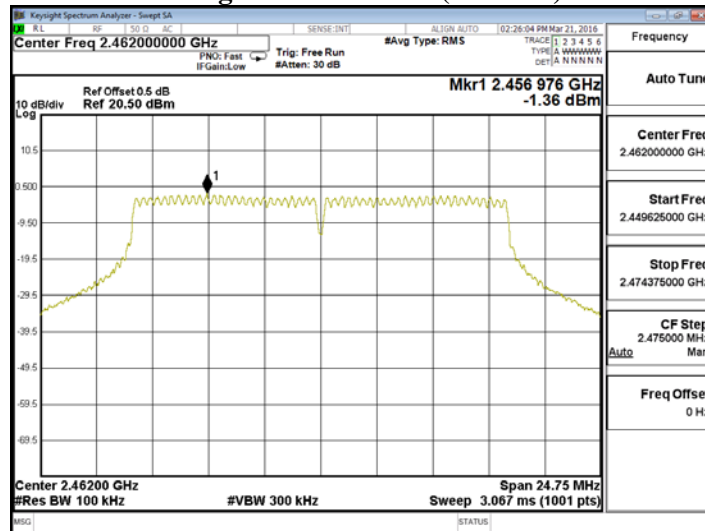
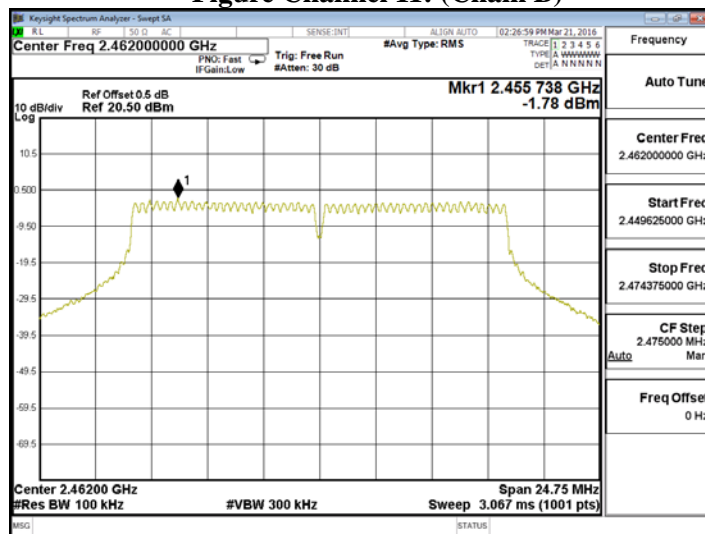


Figure Channel 11: (Chain B)



Product : 802.11ac Dual Band Access Point
 Test Item : Power Density Data
 Test Site : No.3 OATS
 Test Mode : Mode 3: Transmit - 802.11n-20BW_14.4Mbps(2.4G Band) (2412MHz)

CHAIN	PPSD/MHz (dBm)	Total PPSD/MHz (dBm)1	Limit	Result
A	-0.970	2.040	< 7dBm	Pass
B	-1.240	1.770	< 7dBm	Pass

Note 1: The quantity 10*log 2 (two antennas) is added to the spectrum peak value according to document 662911 D01.

Figure Channel 1: (Chain A)

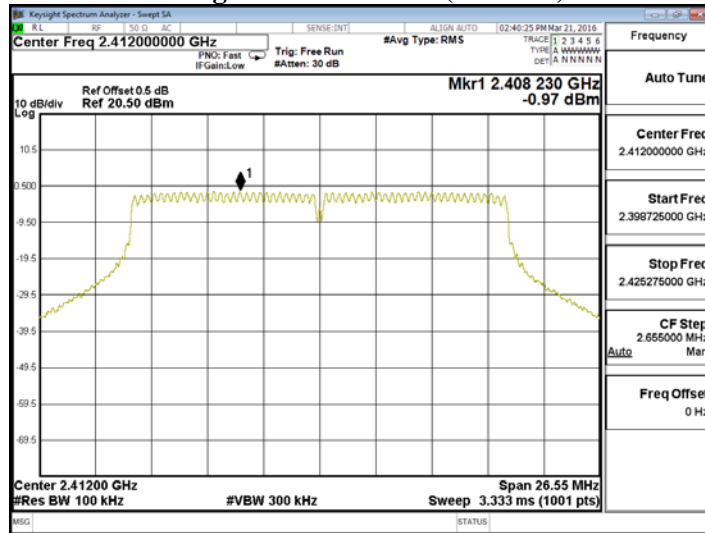
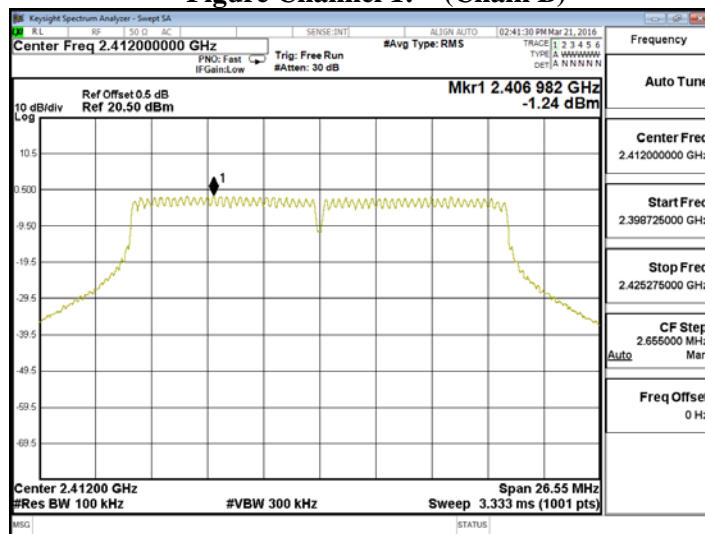


Figure Channel 1: (Chain B)



Product : 802.11ac Dual Band Access Point
 Test Item : Power Density Data
 Test Site : No.3OATS
 Test Mode : Mode 3: Transmit - 802.11n-20BW_14.4Mbps(2.4G Band) (2437MHz)

CHAIN	PPSD/MHz (dBm)	Total PPSD/MHz (dBm)1	Limit	Result
A	3.960	6.970	< 7dBm	Pass
B	3.520	6.530	< 7dBm	Pass

Note 1: The quantity $10 \cdot \log 2$ (two antennas) is added to the spectrum peak value according to document 662911 D01.

Figure Channel 6: (Chain A)

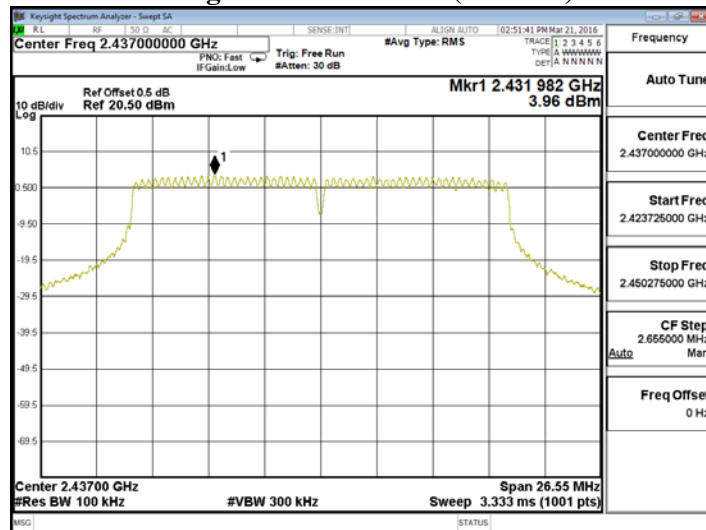
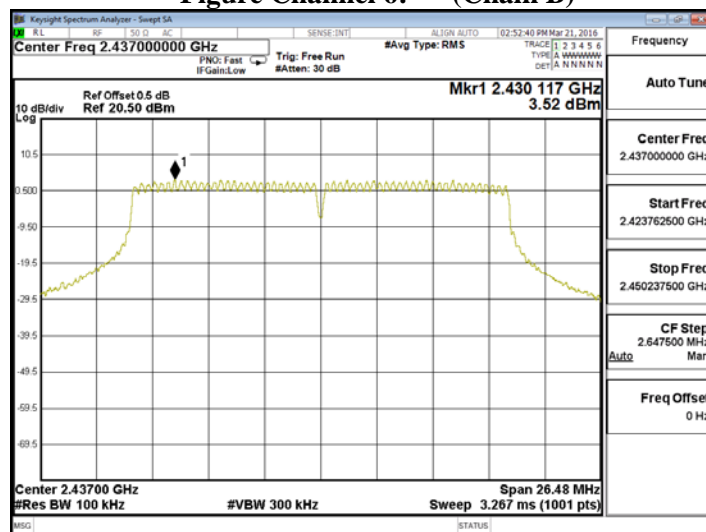


Figure Channel 6: (Chain B)



Product : 802.11ac Dual Band Access Point
 Test Item : Power Density Data
 Test Site : No.3 OATS
 Test Mode : Mode 3: Transmit - 802.11n-20BW_14.4Mbps(2.4G Band) (2462MHz)

CHAIN	PPSD/MHz (dBm)	Total PPSD/MHz (dBm)1	Limit	Result
A	-1.020	1.990	< 7dBm	Pass
B	-2.020	0.990	< 7dBm	Pass

Note 1: The quantity 10*log 2 (two antennas) is added to the spectrum peak value according to document 662911 D01.

Figure Channel 11: (Chain A)

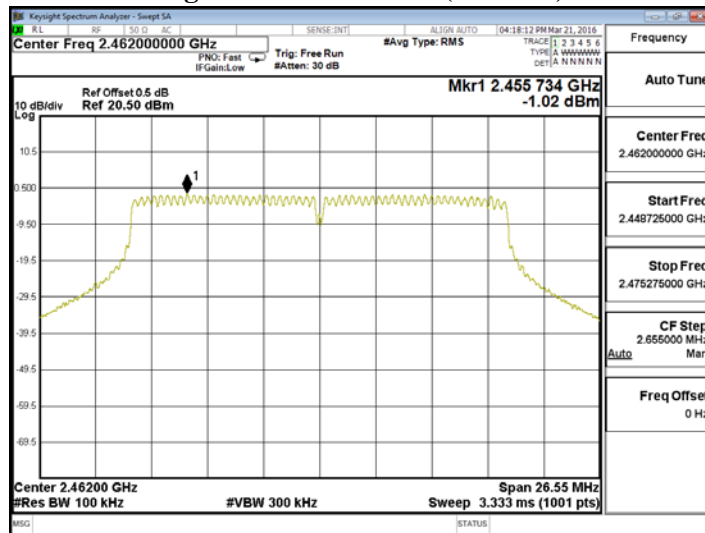
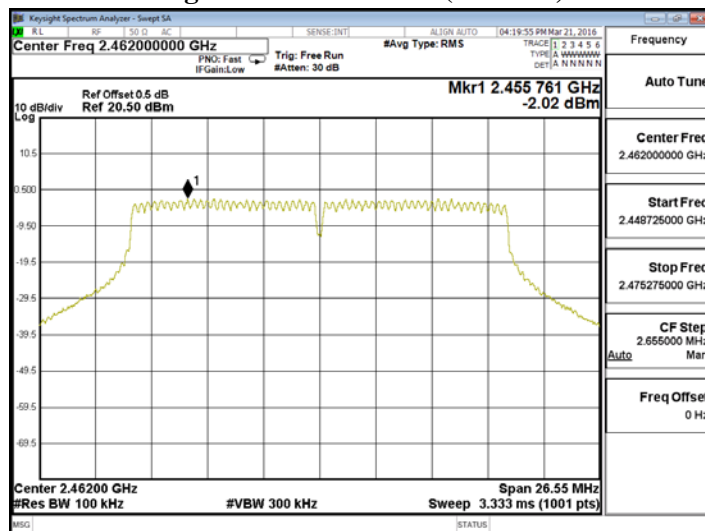


Figure Channel 11: (Chain B)



Product : 802.11ac Dual Band Access Point
 Test Item : Power Density Data
 Test Site : No.3 OATS
 Test Mode : Mode 4: Transmit - 802.11n-40BW_30Mbps(2.4G Band) (2422MHz)

CHAIN	PPSD/MHz (dBm)	Total PPSD/MHz (dBm)1	Limit	Result
A	-4.550	-1.540	< 7dBm	Pass
B	-4.540	-1.530	< 7dBm	Pass

Note 1: The quantity 10*log 2 (two antennas) is added to the spectrum peak value according to document 662911 D01.

Figure Channel 3: (Chain A)

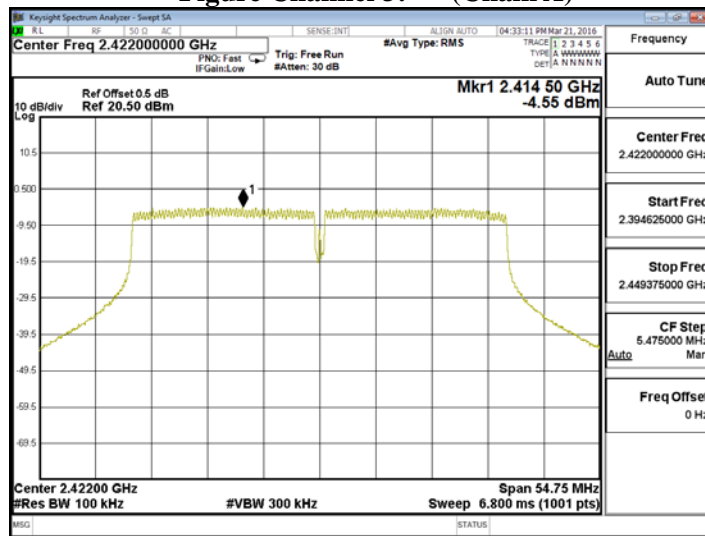
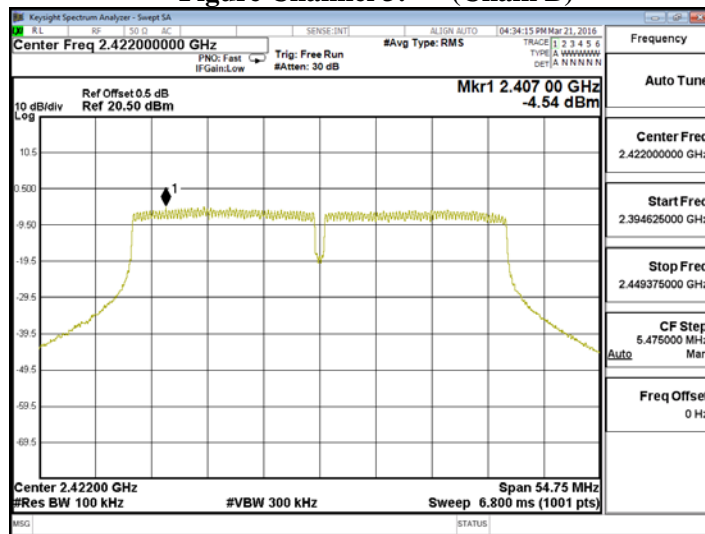


Figure Channel 3: (Chain B)



Product : 802.11ac Dual Band Access Point
 Test Item : Power Density Data
 Test Site : No.3OATS
 Test Mode : Mode 4: Transmit - 802.11n-40BW_30Mbps(2.4G Band) (2437MHz)

CHAIN	PPSD/MHz (dBm)	Total PPSD/MHz (dBm)1	Limit	Result
A	-2.320	0.690	< 7dBm	Pass
B	-2.380	0.630	< 7dBm	Pass

Note 1: The quantity $10 \cdot \log 2$ (two antennas) is added to the spectrum peak value according to document 662911 D01.

Figure Channel 6: (Chain A)

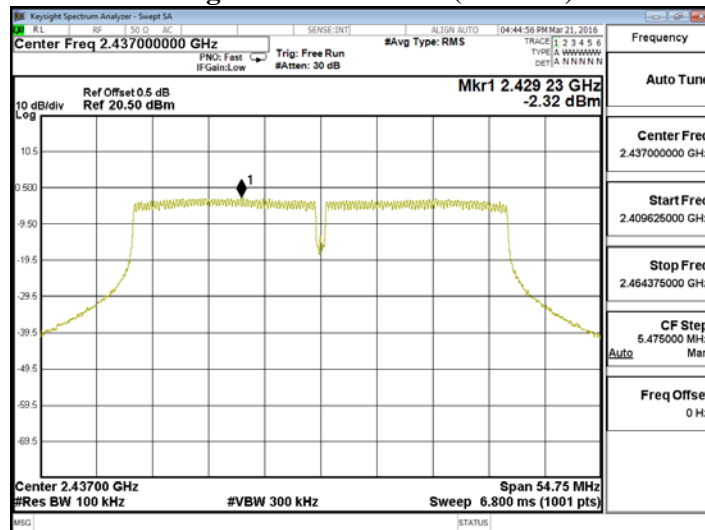
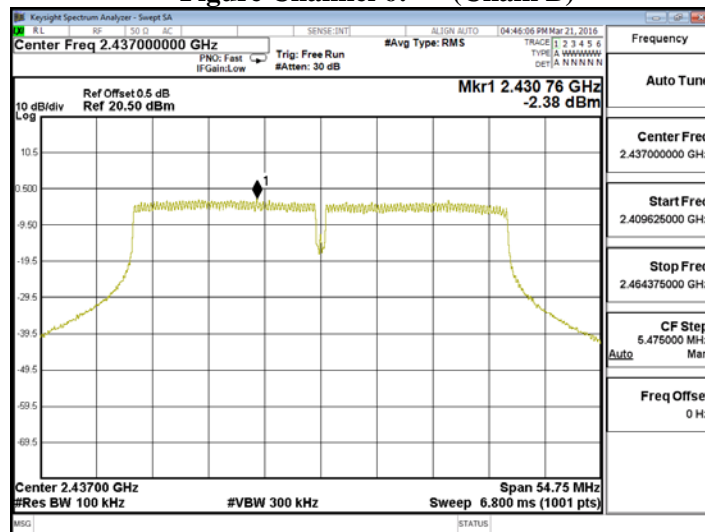


Figure Channel 6: (Chain B)



Product : 802.11ac Dual Band Access Point
 Test Item : Power Density Data
 Test Site : No.3 OATS
 Test Mode : Mode 4: Transmit - 802.11n-40BW_30Mbps(2.4G Band) (2452MHz)

CHAIN	PPSD/MHz (dBm)	Total PPSD/MHz (dBm)1	Limit	Result
A	-7.180	-4.170	< 7dBm	Pass
B	-7.030	-4.020	< 7dBm	Pass

Note 1: The quantity 10*log 2 (two antennas) is added to the spectrum peak value according to document 662911 D01.

Figure Channel 9: (Chain A)

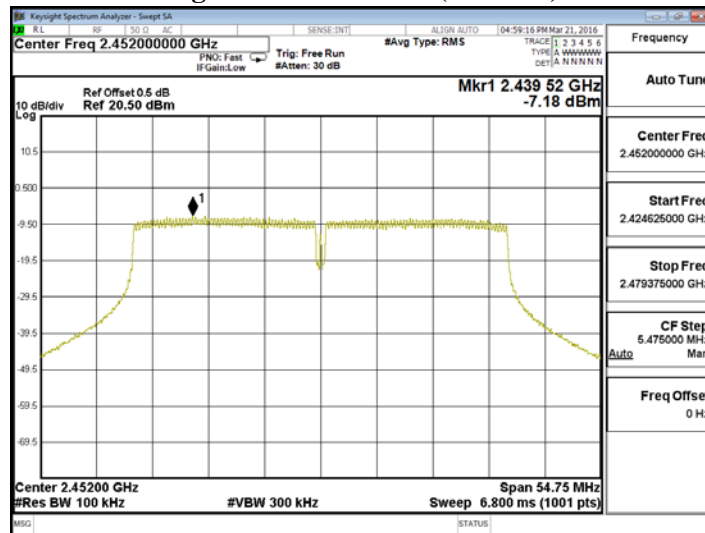
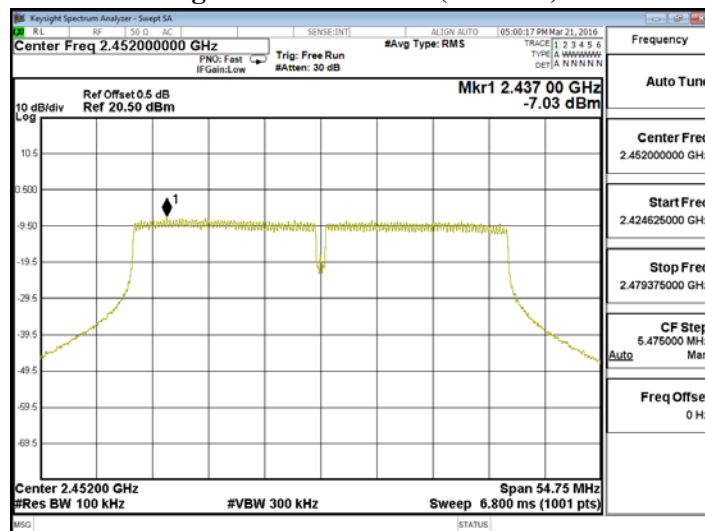


Figure Channel 9: (Chain B)



9. EMI Reduction Method During Compliance Testing

No modification was made during testing.

Attachment 1: EUT Test Photographs

Attachment 2: EUT Detailed Photographs