FCC Test Report

Product Name	Access Point/Sensor
Model No	W-68
FCC ID.	TOR-W68

Applicant	AirTight Networks, Inc.
Address	339 N. Bernardo Avenue, Suite #200, Mountain View, California, USA

Date of Receipt	Sep. 30, 2014
Issue Date	Oct. 20, 2014
Report No.	14A0075R-RFUSP02V00
Report Version	V1.0

Testing Laboratory
0914

The test results relate only to the samples tested.

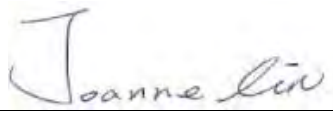
The test results shown in the test report are traceable to the national/international standard through the calibration report of the equipment and evaluated measurement uncertainty herein.

This report must not be used to claim product endorsement by TAF or any agency of the government.

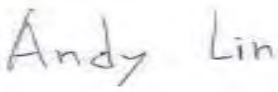
Test Report

Issue Date: Oct. 20, 2014
Report No.: 14A0075R-RFUSP02V00

Product Name	Access Point/Sensor
Applicant	AirTight Networks, Inc.
Address	339 N. Bernardo Avenue, Suite #200, Mountain View, California, USA
Manufacturer	Lite-On Network Communication (Dongguan) Limited
Model No.	W-68
FCC ID.	TOR-W68
EUT Rated Voltage	DC 48V
EUT Test Voltage	DC 48V
Trade Name	AirTight
Applicable Standard	FCC CFR Title 47 Part 15 Subpart C: 2014 ANSI C63.10: 2009, KDB 558074 D01 DTS Meas Guidance v03r02
Test Result	Complied

Documented By : 

(Senior Adm. Specialist / Joanne Lin)

Tested By : 

(Engineer / Andy Lin)

Approved By : 

(Director / Vincent Lin)

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1. GENERAL INFORMATION

1.1. EUT Description

Product Name	Access Point/Sensor
Trade Name	AirTight
Model No.	W-68
FCC ID.	TOR-W68
Frequency Range	2412-2462MHz for 802.11b/g/n-20BW, 2422-2452MHz for 802.11n-40BW
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	PIFA Antenna
Antenna Gain	Refer to the table “Antenna List”
Channel Control	Auto

Antenna List

No.	Manufacturer	Part No.	Antenna Type	Peak Gain
1	LITE-ON	30100006026D (Ant1) 30100005616D (Ant3)	PIFA	3.9 dBi for 2.4 GHz

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 Center Frequency of Each Channel:

Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
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		

Note:

1. The EUT is an Access Point/Sensor with a built-in 802.11a/b/g/n/ac WLAN transceiver, this report for 802.11b/g/n transceiver.
2. Regarding to the operation frequency, the lowest, middle and highest frequency are selected to perform the test.
3. At result of pretests, module supports dual-channel transmission, only the worst case is shown in the report. (802.11b/g/n is chain A+ chain B)
4. 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)
5. 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.
6. 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 MCS0 14.4Mbps 20M-BW)
	Mode 4: Transmit (802.11n MCS0 30Mbps 40M-BW)

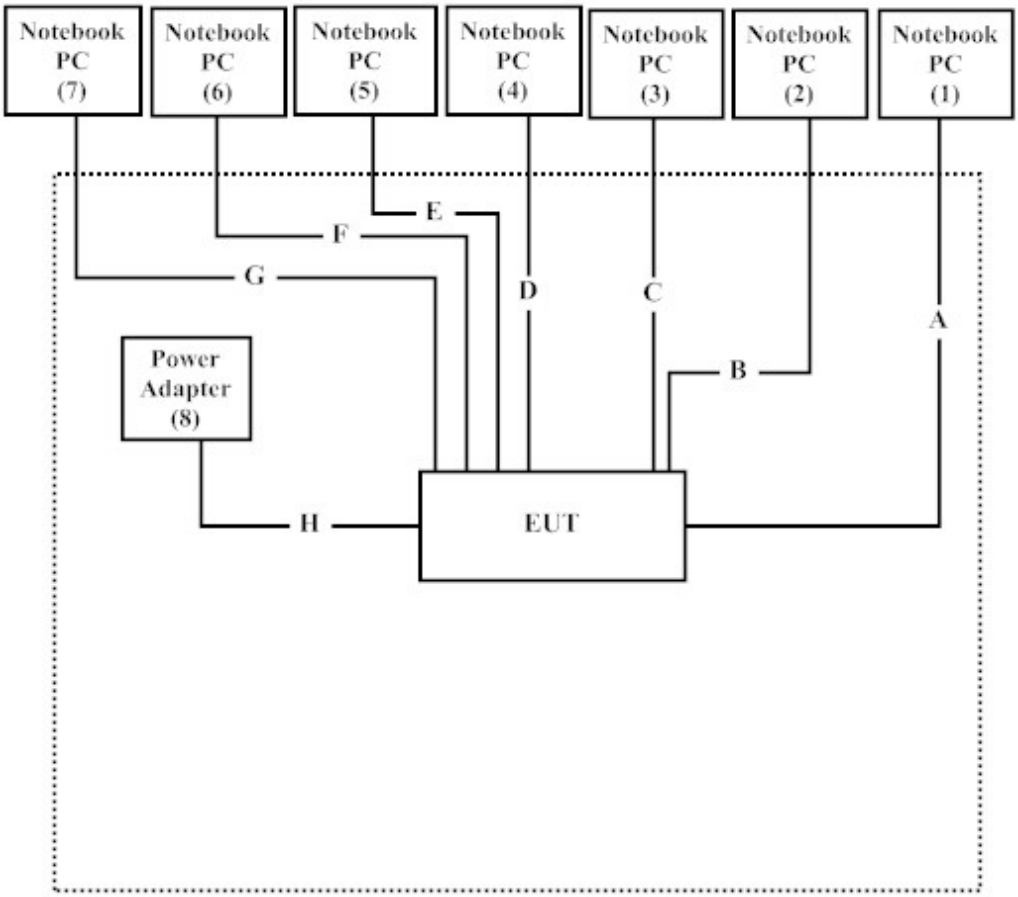
1.3. Tested System Details

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	Notebook PC	DELL	PPT	N/A	Non-Shielded, 0.8m
2	Notebook PC	DELL	PP18L	36119001664	Non-Shielded, 0.8m
3	Notebook PC	DELL	PP18L	42649348672	Non-Shielded, 0.8m
4	Notebook PC	DELL	PP04X	2D2ZM1S	Non-Shielded, 0.8m
5	Notebook PC	DELL	PP04X	C8YYM1S	Non-Shielded, 0.8m
6	Notebook PC	DELL	PP04X	7607342512	Non-Shielded, 0.8m
7	Notebook PC	DELL	D630	00144-023-351-375	Non-Shielded, 0.8m
8	Power Adapter	HOIOTO	PO25-1AD207A	N/A	N/A

Signal Cable Type		Signal cable Description
A	LAN Cable	Non-Shielded, 3 m
B	LAN Cable	Non-Shielded, 3 m
C	LAN Cable	Non-Shielded, 3 m
D	LAN Cable	Non-Shielded, 3 m
E	LAN Cable	Non-Shielded, 3 m
F	LAN Cable	Non-Shielded, 3 m
G	LAN Cable	Non-Shielded, 3 m
H	Power Cable	Shielded, 1.2m, with one ferrite core bonded.

1.4. Configuration of Tested System



1.5. EUT Exercise Software

1. Setup the EUT as shown in Section 1.4
2. Execute software “ART2-GUI (v2.3)” on the EUT.
3. Configure the test mode, the test channel, and the data rate.
4. Press “OK” to start the continuous Transmit.
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/tw/ctg/cts/accreditations.htm

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
E-Mail : service@quietek.com

FCC Accreditation Number: TW1014

2. Conducted Emission

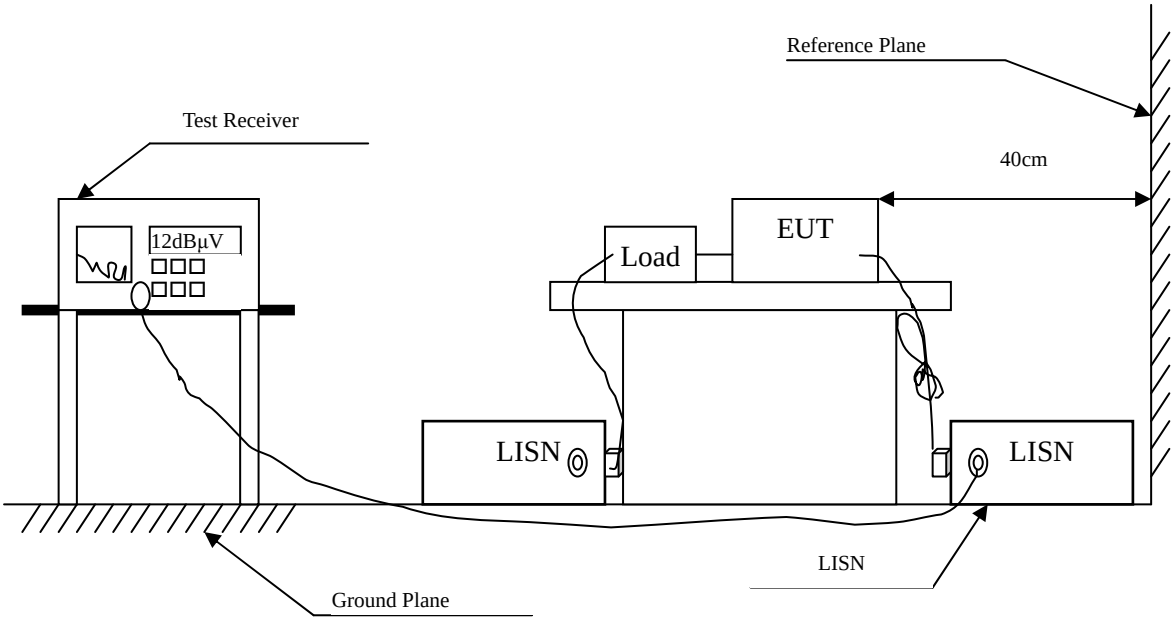
2.1. Test Equipment

	Equipment	Manufacturer	Model No. / Serial No.	Last Cal.	Remark
X	Test Receiver	R & S	ESCS 30 / 825442/018	Sep., 2014	
X	Artificial Mains Network	R & S	ENV4200 / 848411/10	Feb., 2014	Peripherals
X	LISN	R & S	ESH3-Z5 / 825562/002	Feb., 2014	EUT
	DC LISN	Schwarzbeck	8226 / 176	Mar, 2014	EUT
X	Pulse Limiter	R & S	ESH3-Z2 / 357.8810.52	Feb., 2014	
	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 (dBµV) 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: 2009 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

Product : Access Point/Sensor
Test Item : Conducted Emission Test
Power Line : Line 1
Test Mode : Mode 4: Transmit (802.11n MCS0 30Mbps 40M-BW) (2437MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBµV	dBµV	dB	dBµV
Line 1					
Quasi-Peak					
0.189	9.650	38.940	48.590	-16.296	64.886
0.275	9.655	27.710	37.365	-25.064	62.429
0.353	9.659	25.490	35.149	-25.051	60.200
0.388	9.661	23.140	32.801	-26.399	59.200
3.420	9.818	18.010	27.828	-28.172	56.000
18.045	10.144	36.320	46.464	-13.536	60.000
Average					
0.189	9.650	19.400	29.050	-25.836	54.886
0.275	9.655	11.590	21.245	-31.184	52.429
0.353	9.659	13.340	22.999	-27.201	50.200
0.388	9.661	8.520	18.181	-31.019	49.200
3.420	9.818	9.210	19.028	-26.972	46.000
18.045	10.144	31.360	41.504	-8.496	50.000

Note:

1. All Reading Levels are Quasi-Peak and average value.
2. “ “ means the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Product : Access Point/Sensor
Test Item : Conducted Emission Test
Power Line : Line 2
Test Mode : Mode 4: Transmit (802.11n MCS0 30Mbps 40M-BW) (2437MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBµV	dBµV	dB	dBµV
Line 2					
Quasi-Peak					
0.197	9.660	35.930	45.590	-19.067	64.657
0.334	9.658	27.070	36.728	-24.015	60.743
0.560	9.670	21.160	30.830	-25.170	56.000
1.728	9.754	17.480	27.234	-28.766	56.000
13.353	10.071	31.390	41.461	-18.539	60.000
17.752	10.161	36.960	47.121	-12.879	60.000
Average					
0.197	9.660	17.340	27.000	-27.657	54.657
0.334	9.658	10.840	20.498	-30.245	50.743
0.560	9.670	8.240	17.910	-28.090	46.000
1.728	9.754	6.140	15.894	-30.106	46.000
13.353	10.071	26.530	36.601	-13.399	50.000
17.752	10.161	31.620	41.781	-8.219	50.000

Note:

1. All Reading Levels are Quasi-Peak and average value.
2. “ “ means the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

3. Peak Power Output

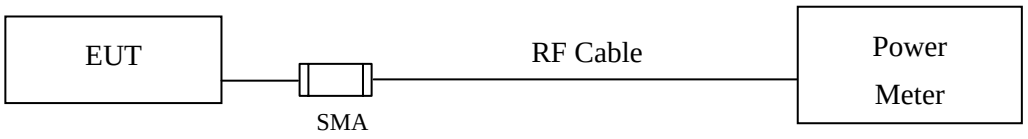
3.1. Test Equipment

	Equipment	Manufacturer	Model No./Serial No.	Last Cal.
X	Power Meter	Anritsu	ML2495A/6K00003357	May, 2014
X	Power Sensor	Anritsu	MA2411B/0738448	Jun., 2014

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 peak power shall be less 1 Watt.

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 Peak Power Output

Product : Access Point/Sensor
Test Item : Peak Power Output Data
Test 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)				Peak Power
		1	2	5.5	11	1
		Measurement Level (dBm)				
01	2412	18.80	--	--	--	21.08
06	2437	18.51	18.44	18.38	18.32	20.71
11	2462	18.79	--	--	--	21.06

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

Chain B

Channel No	Frequency (MHz)	Average Power For different Data Rate (Mbps)				Peak Power
		1	2	5.5	11	1
		Measurement Level (dBm)				
01	2412	18.88	--	--	--	21.11
06	2437	18.75	18.67	18.59	18.40	20.94
11	2462	18.85	--	--	--	21.08

Note: Peak 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
01	2412	1	21.08	21.11	24.11	<30dBm	Pass
06	2437	1	20.71	20.94	23.84	<30dBm	Pass
11	2462	1	21.06	21.08	24.08	<30dBm	Pass

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

Product : Access Point/Sensor
Test Item : Peak Power Output Data
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)								Peak Power
		6	9	12	18	24	36	48	54	6
		Measurement Level (dBm)								
01	2412	14.68	--	--	--	--	--	--	--	24.27
06	2437	18.57	18.44	18.36	18.29	18.17	18.09	17.91	17.86	25.42
11	2462	13.71	--	--	--	--	--	--	--	23.24

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

Chain B

Channel No	Frequency (MHz)	Average Power For different Data Rate (Mbps)								Peak Power
		6	9	12	18	24	36	48	54	6
		Measurement Level (dBm)								
01	2412	15.27	--	--	--	--	--	--	--	24.41
06	2437	18.57	18.4	18.34	18.29	18.19	18.11	18.04	17.92	25.42
11	2462	14.08	--	--	--	--	--	--	--	23.78

Note: Peak 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
01	2412	6	24.27	24.41	27.35	<30dBm	Pass
06	2437	6	25.42	25.42	28.43	<30dBm	Pass
11	2462	6	23.24	23.78	26.53	<30dBm	Pass

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

Product : Access Point/Sensor
Test Item : Peak Power Output Data
Test Site : No.3 OATS
Test Mode : Mode 3: Transmit (802.11n MCS0 14.4Mbps 20M-BW)

Chain A

Channel No	Frequency (MHz)	Average Power For different Data Rate (Mbps)								Peak Power
		14.4	28.9	43.3	57.8	86.7	115.6	130	144.4	14.4
		Measurement Level (dBm)								
01	2412	13.92	--	--	--	--	--	--	--	23.51
06	2437	18.33	18.21	18.14	17.90	17.81	17.66	17.54	17.32	25.39
11	2462	13.66	--	--	--	--	--	--	--	23.13

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

Chain B

Channel No	Frequency (MHz)	Average Power For different Data Rate (Mbps)								Peak Power
		14.4	28.9	43.3	57.8	86.7	115.6	130	144.4	14.4
		Measurement Level (dBm)								
01	2412	14.02	--	--	--	--	--	--	--	23.79
06	2437	18.66	18.54	18.46	18.39	18.31	18.27	18.21	18.11	25.48
11	2462	14.17	--	--	--	--	--	--	--	24.01

Note: Peak 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
01	2412	14.4	23.51	23.79	26.66	<30dBm	Pass
06	2437	14.4	25.39	25.48	28.45	<30dBm	Pass
11	2462	14.4	23.13	24.01	26.60	<30dBm	Pass

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

Product : Access Point/Sensor
Test Item : Peak Power Output Data
Test Site : No.3 OATS
Test Mode : Mode 4: Transmit (802.11n MCS0 30Mbps 40M-BW)

Chain A

Channel No	Frequency (MHz)	Average Power For different Data Rate (Mbps)								Peak Power
		30	60	90	120	180	240	270	300	30
		Measurement Level (dBm)								
03	2422	10.64	--	--	--	--	--	--	--	22.02
06	2437	14.83	14.77	14.67	14.59	14.51	14.44	14.32	14.21	24.58
09	2452	11.52	--	--	--	--	--	--	--	22.71

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

Chain B

Channel No	Frequency (MHz)	Average Power For different Data Rate (Mbps)								Peak Power
		30	60	90	120	180	240	270	300	30
		Measurement Level (dBm)								
03	2422	10.81	--	--	--	--	--	--	--	22.23
06	2437	15.27	15.11	15.08	14.93	14.81	14.79	14.68	14.55	24.88
09	2452	11.67	--	--	--	--	--	--	--	22.84

Note: Peak 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
03	2422	30	22.02	22.23	25.14	<30dBm	Pass
06	2437	30	24.58	24.88	27.74	<30dBm	Pass
09	2452	30	22.71	22.84	25.79	<30dBm	Pass

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

4. Radiated Emission

4.1. Test Equipment

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

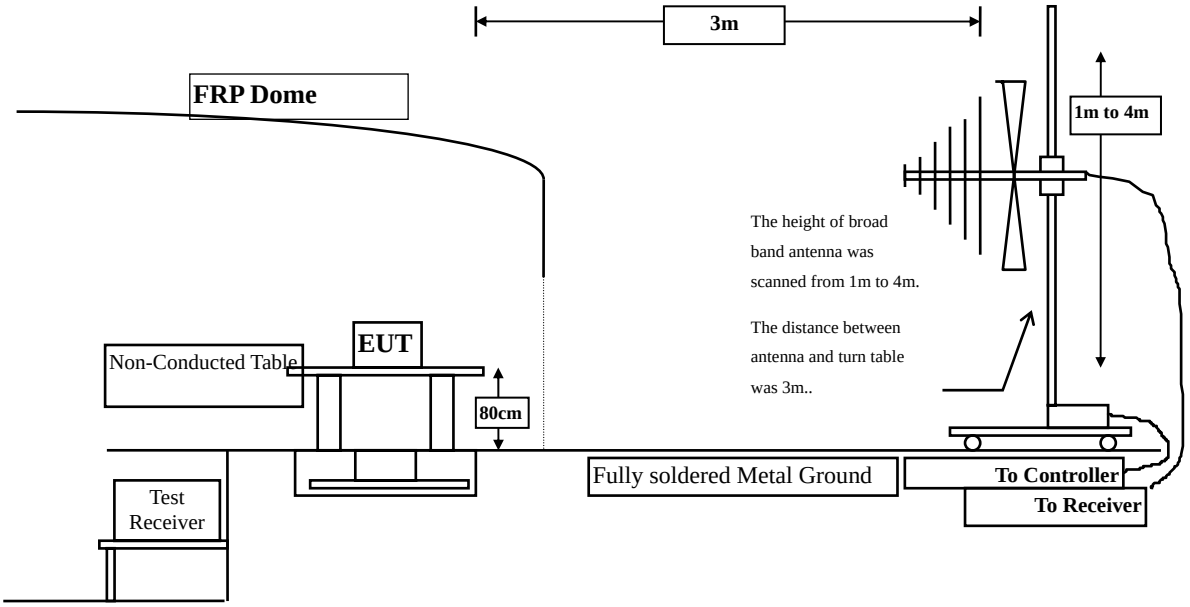
Test Site		Equipment	Manufacturer	Model No./Serial No.	Last Cal.
☒Site # 3	X	Loop Antenna	Teseq	HLA6121 / 37133	Sep., 2014
	X	Bilog Antenna	Schaffner Chase	CBL6112B/2673	Sep., 2014
	X	Horn Antenna	Schwarzbeck	BBHA9120D/D305	Sep., 2014
	X	Horn Antenna	Schwarzbeck	BBHA9170/208	Jul., 2014
	X	Pre-Amplifier	Agilent	8447D/2944A09549	Sep., 2014
	X	Spectrum Analyzer	Agilent	E4407B / US39440758	May, 2014
	X	Test Receiver	R & S	ESCS 30/ 825442/018	Sep., 2014
	X	Coaxial Cable	QuieTek	QTK-CABLE/ CAB5	Feb., 2014
	X	Controller	QuieTek	QTK-CONTROLLER/ CTRL3	N/A
	X	Coaxial Switch	Anritsu	MP59B/6200265729	N/A

Note: 1. All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.

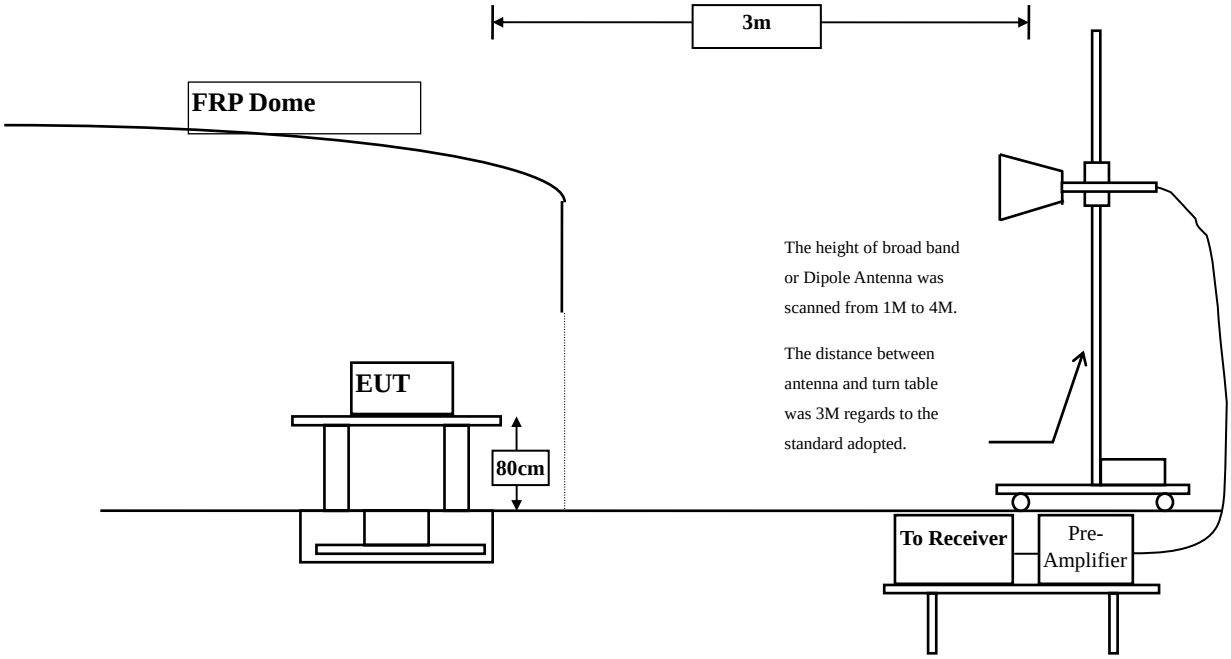
2. The test instruments marked with “X” are used to measure the final test results.

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 20dB 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 (dBμV/m) = 20 log E field strength (uV/m)

4.4. Test Procedure

The EUT was setup according to ANSI C63.10: 2009 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 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: 2009 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 frequency range from 9kHz to 10th harmonics is checked.

4.5. Uncertainty

± 3.9 dB above 1GHz

± 3.8 dB below 1GHz

4.6. Test Result of Radiated Emission

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

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBμV	dBμV/m	dB	dBμV/m
Horizontal					
Peak Detector:					
4824.000	2.428	42.755	45.184	-28.816	74.000
7236.000	9.177	38.223	47.400	-26.600	74.000
9648.000	10.019	37.850	47.870	-26.130	74.000
Average Detector:					
--					
Vertical					
Peak Detector:					
4824.000	2.836	43.307	46.144	-27.856	74.000
7236.000	9.676	38.020	47.696	-26.304	74.000
9648.000	10.556	37.639	48.196	-25.804	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 : Access Point/Sensor
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 1: Transmit (802.11b 1Mbps) (2437 MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBμV	dBμV/m	dB	dBμV/m
Horizontal					
Peak Detector:					
4874.000	2.076	45.279	47.356	-26.644	74.000
7311.000	9.512	38.836	48.348	-25.652	74.000
9748.000	9.630	38.185	47.815	-26.185	74.000
Average Detector:					
--					
Vertical					
Peak Detector:					
4874.000	2.532	47.043	49.575	-24.425	74.000
7311.000	10.089	38.331	48.420	-25.580	74.000
9748.000	10.266	38.543	48.810	-25.190	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 : Access Point/Sensor
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 1: Transmit (802.11b 1Mbps) (2462 MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBμV	dBμV/m	dB	dBμV/m
Horizontal					
Peak Detector:					
4924.000	2.191	46.132	48.323	-25.677	74.000
7386.000	10.373	38.261	48.635	-25.365	74.000
9848.000	9.964	38.556	48.520	-25.480	74.000
Average Detector:					
--					
Vertical					
Peak Detector:					
4924.000	2.805	46.393	49.198	-24.802	74.000
7386.000	11.180	39.220	50.400	-23.600	74.000
9848.000	10.801	38.486	49.287	-24.713	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 : Access Point/Sensor
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 2: Transmit (802.11g 6Mbps) (2412MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBμV	dBμV/m	dB	dBμV/m
Horizontal					
Peak Detector:					
4824.000	2.428	42.330	44.759	-29.241	74.000
7236.000	9.177	41.785	50.962	-23.038	74.000
9648.000	10.019	37.819	47.839	-26.161	74.000
Average Detector:					
--					
Vertical					
Peak Detector:					
4824.000	2.836	40.382	43.219	-30.781	74.000
7236.000	9.676	41.389	51.065	-22.935	74.000
9648.000	10.556	38.510	49.067	-24.933	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 : Access Point/Sensor
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 2: Transmit (802.11g 6Mbps) (2437 MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBμV	dBμV/m	dB	dBμV/m
Horizontal					
Peak Detector:					
4874.000	2.076	44.175	46.252	-27.748	74.000
7311.000	9.512	47.898	57.410	-16.590	74.000
9748.000	9.630	38.259	47.889	-26.111	74.000
Average Detector:					
7311.000	9.512	30.310	39.822	-14.178	54.000
Peak Detector:					
4874.000	2.532	44.415	46.947	-27.053	74.000
7311.000	10.089	49.536	59.625	-14.375	74.000
9748.000	10.266	44.496	54.763	-19.237	74.000
Average Detector:					
7311.000	10.089	30.052	40.141	-13.859	54.000
9748.000	10.266	27.697	37.964	-16.036	54.000

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.

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

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBμV	dBμV/m	dB	dBμV/m
Horizontal					
Peak Detector:					
4924.000	2.191	45.135	47.326	-26.674	74.000
7386.000	10.373	44.366	54.740	-19.260	74.000
9848.000	9.964	39.049	49.013	-24.987	74.000
Average Detector:					
7386.000	10.373	27.147	37.521	-16.479	54.000
Vertical					
Peak Detector:					
4924.000	2.805	44.816	47.621	-26.379	74.000
7386.000	11.180	50.280	61.460	-12.540	74.000
9848.000	10.801	47.447	58.248	-15.752	74.000
Average Detector:					
7386.000	11.180	31.784	42.964	-11.036	54.000
9848.000	10.801	29.476	40.277	-13.723	54.000

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.

Product : Access Point/Sensor
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 3: Transmit (802.11n MCS0 14.4Mbps 20M-BW)(2412MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBμV	dBμV/m	dB	dBμV/m
Horizontal					
Peak Detector:					
4824.000	2.428	42.113	44.542	-29.458	74.000
7236.000	9.177	45.321	54.498	-19.502	74.000
9648.000	10.019	38.031	48.051	-25.949	74.000
Average Detector:					
7236.000	9.177	28.245	37.422	-16.578	54.000
Vertical					
Peak Detector:					
4824.000	2.836	41.584	44.421	-29.579	74.000
7236.000	9.676	46.245	55.921	-18.079	74.000
9648.000	10.556	39.865	50.422	-23.578	74.000
Average Detector:					
7236.000	9.676	29.688	39.364	-14.636	54.000

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.

Product : Access Point/Sensor
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 3: Transmit (802.11n MCS0 14.4Mbps 20M-BW) (2437 MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBμV	dBμV/m	dB	dBμV/m
Horizontal					
Peak Detector:					
4874.000	3.038	42.910	45.947	-28.053	74.000
7311.000	11.795	44.350	56.144	-17.856	74.000
9748.000	12.635	37.490	50.125	-23.875	74.000
Average Detector:					
7311.000	11.795	27.520	39.314	-14.686	54.000
Vertical					
Peak Detector:					
4874.000	5.812	39.830	45.641	-28.359	74.000
7311.000	12.630	42.450	55.079	-18.921	74.000
9748.000	13.126	37.320	50.446	-23.554	74.000
Average Detector:					
7311.000	12.630	25.010	37.639	-16.361	54.000

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.

Product : Access Point/Sensor
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 3: Transmit (802.11n MCS0 14.4Mbps 20M-BW) (2462 MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBμV	dBμV/m	dB	dBμV/m
Horizontal					
Peak Detector:					
4924.000	2.858	39.070	41.927	-32.073	74.000
7386.000	12.127	36.480	48.608	-25.392	74.000
9848.000	12.852	36.900	49.753	-24.247	74.000
Average Detector:					
--					
Vertical					
Peak Detector:					
4924.000	5.521	38.380	43.900	-30.100	74.000
7386.000	13.254	36.720	49.974	-24.026	74.000
9848.000	13.367	36.810	50.177	-23.823	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 : Access Point/Sensor
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 4: Transmit (802.11n MCS0 30Mbps 40M-BW)(2422MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBμV	dBμV/m	dB	dBμV/m
Horizontal					
Peak Detector:					
4844.000	2.280	41.054	43.335	-30.665	74.000
7266.000	9.106	43.133	52.239	-21.761	74.000
9688.000	9.663	38.320	47.983	-26.017	74.000
Average Detector:					
--					
Vertical					
Peak Detector:					
4844.000	2.707	41.491	44.199	-29.801	74.000
7266.000	9.626	44.898	54.524	-19.476	74.000
9688.000	10.284	40.699	50.983	-23.017	74.000
Average Detector:					
7266.000	9.626	26.923	36.549	-17.451	54.000

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.

Product : Access Point/Sensor
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 4: Transmit (802.11n MCS0 30Mbps 40M-BW) (2437 MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBμV	dBμV/m	dB	dBμV/m
Horizontal					
Peak Detector:					
4874.000	3.038	39.160	42.197	-31.803	74.000
7311.000	11.795	38.100	49.894	-24.106	74.000
9748.000	12.635	37.450	50.085	-23.915	74.000
Average Detector:					
--					
Vertical					
Peak Detector:					
4874.000	5.812	37.760	43.571	-30.429	74.000
7311.000	12.630	38.300	50.929	-23.071	74.000
9748.000	13.126	37.450	50.576	-23.424	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 : Access Point/Sensor
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 4: Transmit (802.11n MCS0 30Mbps 40M-BW)(2452 MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBμV	dBμV/m	dB	dBμV/m
Horizontal					
Peak Detector:					
4904.000	2.914	38.000	40.915	-33.085	74.000
7356.000	11.995	36.830	48.824	-25.176	74.000
9808.000	12.475	36.380	48.855	-25.145	74.000
Average Detector:					
--					
Vertical					
Peak Detector:					
4904.000	5.530	38.230	43.761	-30.239	74.000
7356.000	13.005	36.940	49.944	-24.056	74.000
9808.000	12.901	36.800	49.701	-24.299	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 : Access Point/Sensor
Test Item : General Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 1: Transmit (802.11b 1Mbps)(2437 MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBμV	dBμV/m	dB	dBμV/m
Horizontal					
330.700	-4.492	44.339	39.847	-6.153	46.000
480.080	-0.329	37.630	37.301	-8.699	46.000
528.580	1.848	37.348	39.196	-6.804	46.000
604.240	4.770	24.582	29.352	-16.648	46.000
720.640	3.511	29.794	33.305	-12.695	46.000
918.520	6.396	29.900	36.296	-9.704	46.000
Vertical					
119.240	-3.541	37.522	33.981	-9.519	43.500
293.840	-7.738	41.263	33.526	-12.474	46.000
480.080	-4.359	36.869	32.510	-13.490	46.000
528.580	-0.462	34.707	34.245	-11.755	46.000
790.480	2.913	27.258	30.170	-15.830	46.000
924.340	5.550	32.731	38.281	-7.719	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 : Access Point/Sensor
Test Item : General Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 2: Transmit (802.11g 6Mbps)(2437 MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBμV	dBμV/m	dB	dBμV/m
Horizontal					
142.520	-10.427	41.964	31.537	-11.963	43.500
324.880	-4.491	40.068	35.577	-10.423	46.000
454.860	-0.779	41.365	40.585	-5.415	46.000
528.580	1.848	36.999	38.847	-7.153	46.000
722.580	3.496	34.423	37.919	-8.081	46.000
883.600	6.146	25.644	31.789	-14.211	46.000
Vertical					
94.020	-3.539	35.406	31.866	-11.634	43.500
231.760	-8.848	42.793	33.945	-12.055	46.000
394.720	-4.024	43.887	39.863	-6.137	46.000
528.580	-0.462	33.492	33.030	-12.970	46.000
666.320	-1.809	36.541	34.733	-11.267	46.000
792.420	2.889	37.181	40.070	-5.930	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 : Access Point/Sensor
Test Item : General Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 3: Transmit (802.11n MCS0 14.4Mbps 20M-BW)(2437 MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBμV	dBμV/m	dB	dBμV/m
Horizontal					
127.000	-10.017	41.439	31.422	-12.078	43.500
191.020	-10.040	40.249	30.209	-13.291	43.500
324.880	-4.491	38.660	34.169	-11.831	46.000
435.460	-1.920	35.055	33.135	-12.865	46.000
584.840	3.391	26.276	29.667	-16.333	46.000
724.520	3.485	32.611	36.096	-9.904	46.000
Vertical					
167.740	-8.239	40.974	32.735	-10.765	43.500
264.740	-7.681	46.257	38.576	-7.424	46.000
462.620	-3.838	36.014	32.176	-13.824	46.000
528.580	-0.462	33.818	33.356	-12.644	46.000
666.320	-1.809	36.662	34.854	-11.146	46.000
903.000	2.966	29.905	32.871	-13.129	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 : Access Point/Sensor
Test Item : General Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 4: Transmit (802.11n MCS0 30Mbps 40M-BW)(2437 MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBμV	dBμV/m	dB	dBμV/m
Horizontal					
167.740	-10.799	41.157	30.358	-13.142	43.500
342.340	-3.272	41.238	37.966	-8.034	46.000
439.340	-2.009	36.532	34.523	-11.477	46.000
577.080	3.169	30.693	33.862	-12.138	46.000
666.320	2.031	33.267	35.299	-10.701	46.000
924.340	6.240	32.678	38.918	-7.082	46.000
Vertical					
167.740	-8.239	40.543	32.304	-11.196	43.500
295.780	-7.455	39.626	32.171	-13.829	46.000
410.240	-6.616	40.004	33.388	-12.612	46.000
528.580	-0.462	35.535	35.073	-10.927	46.000
697.360	1.311	35.453	36.764	-9.236	46.000
924.340	5.550	30.832	36.382	-9.618	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

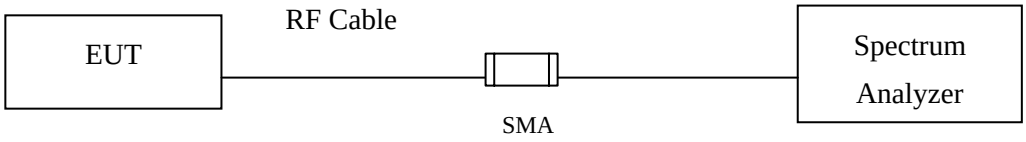
	Equipment	Manufacturer	Model No./Serial No.	Last Cal.
	Spectrum Analyzer	R&S	FSP40 / 100170	Jun., 2014
	Spectrum Analyzer	Agilent	E4407B / US39440758	Jun., 2014
X	Spectrum Analyzer	Agilent	N9010A / MY48030495	Apr., 2014

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 20 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.

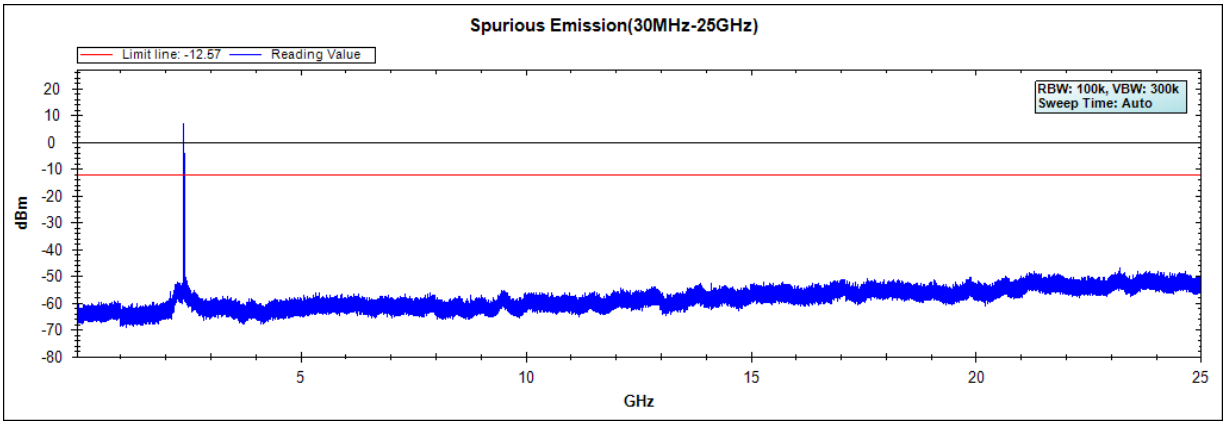
5.5. Uncertainty

The measurement uncertainty
Conducted is defined as ± 1.27dB

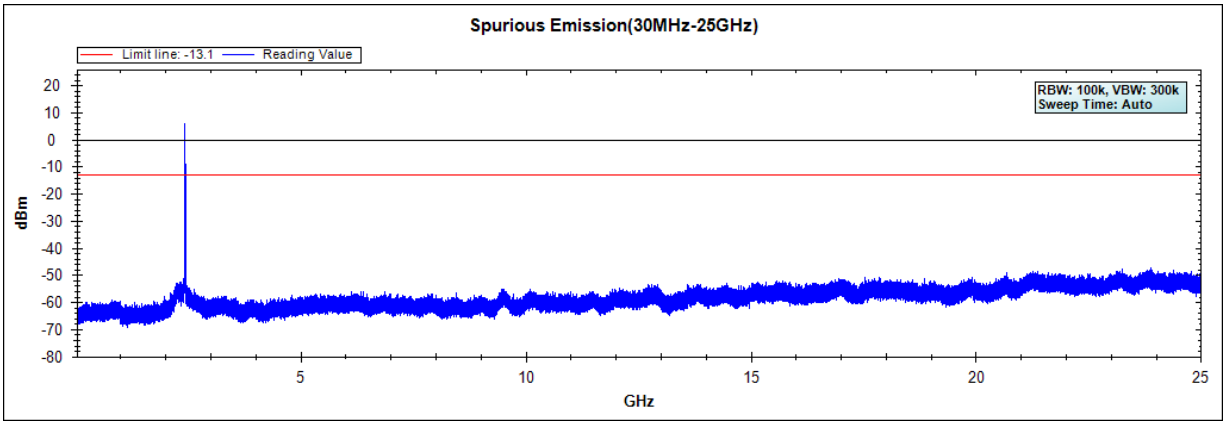
5.6. Test Result of RF antenna conducted test

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

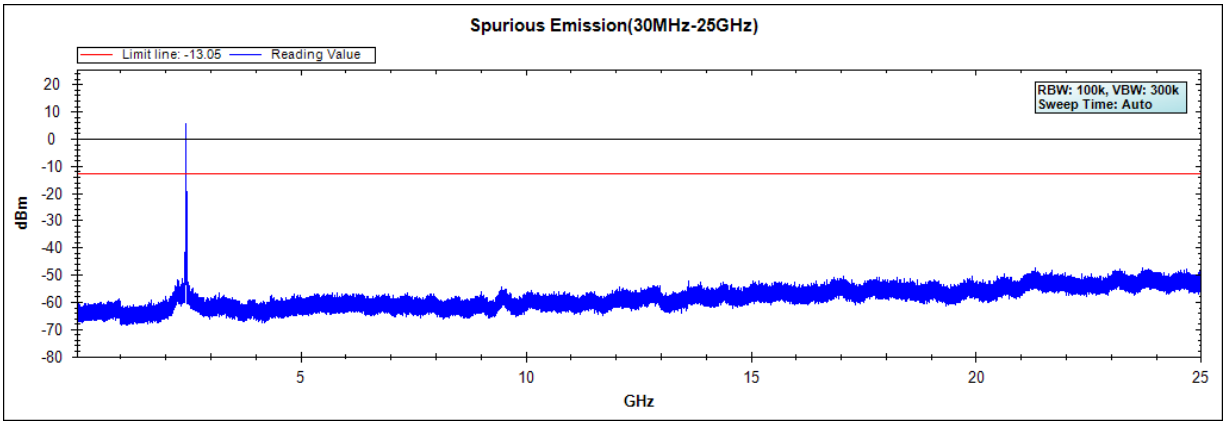
Channel 01 (2412MHz) (Chain A)



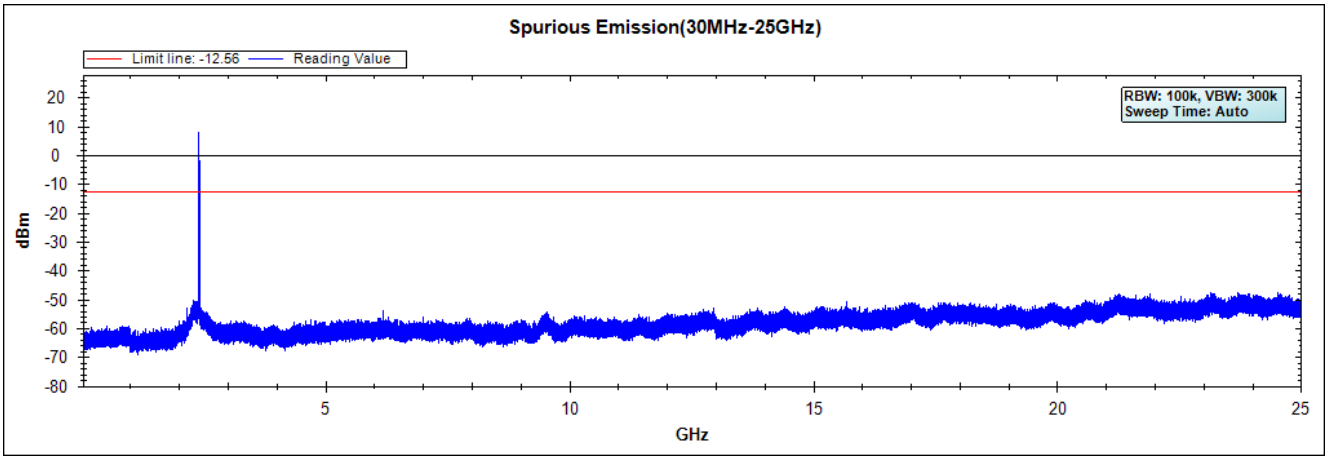
Channel 06 (2437MHz) (Chain A)



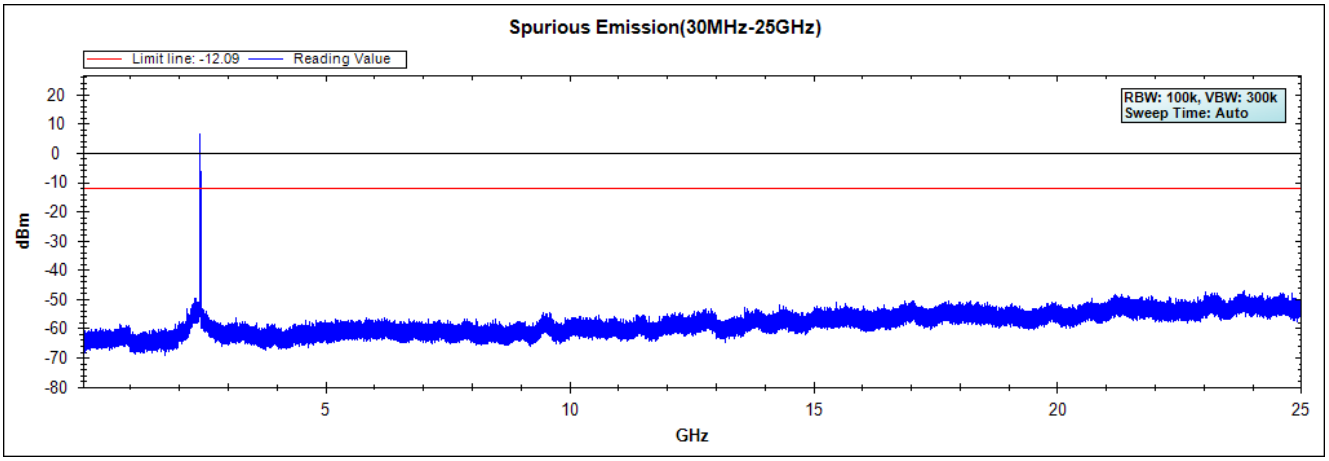
Channel 11 (2462MHz) (Chain A)



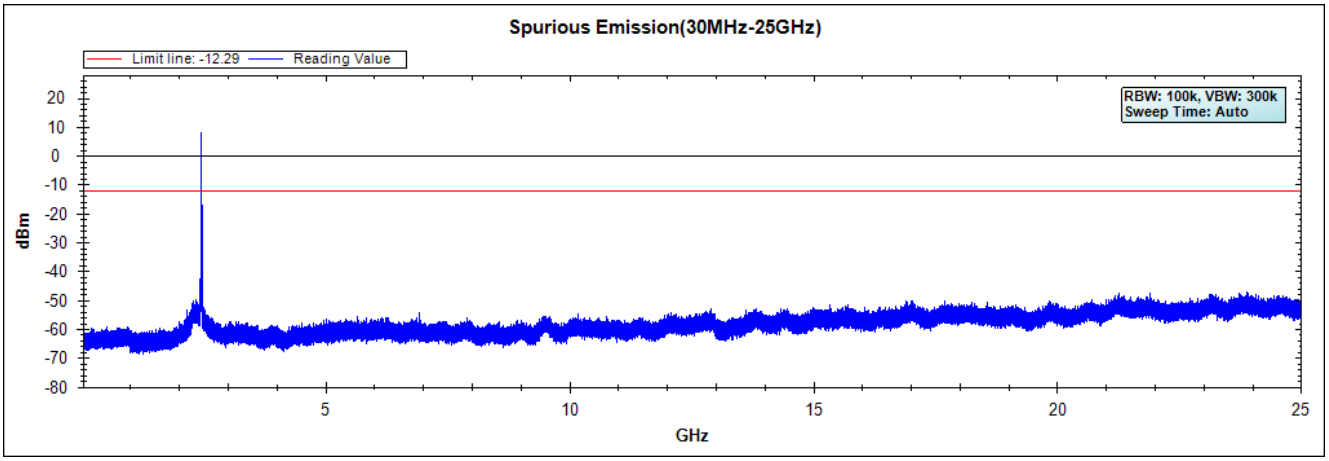
Channel 01 (2412MHz) (Chain B)



Channel 06 (2437MHz) (Chain B)



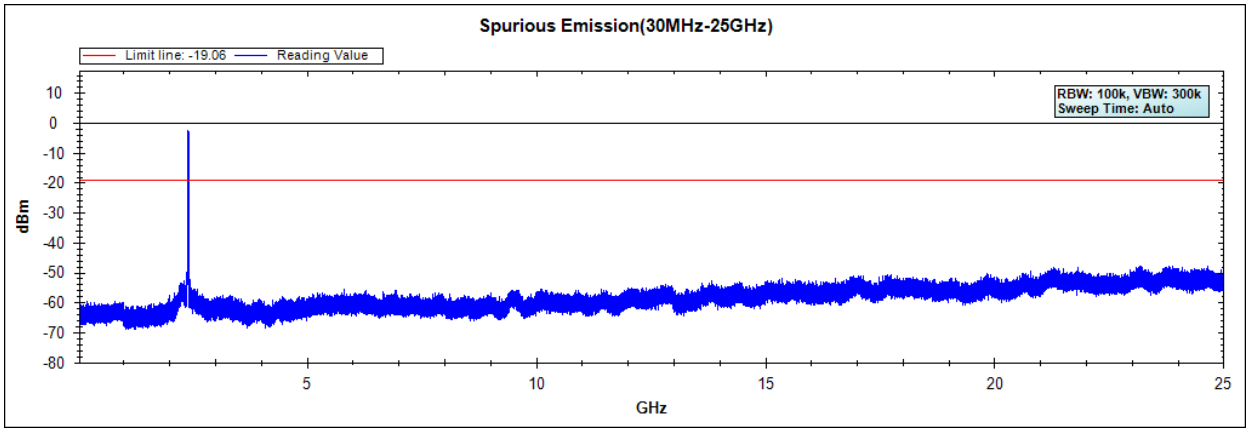
Channel 11 (2462MHz) (Chain B)



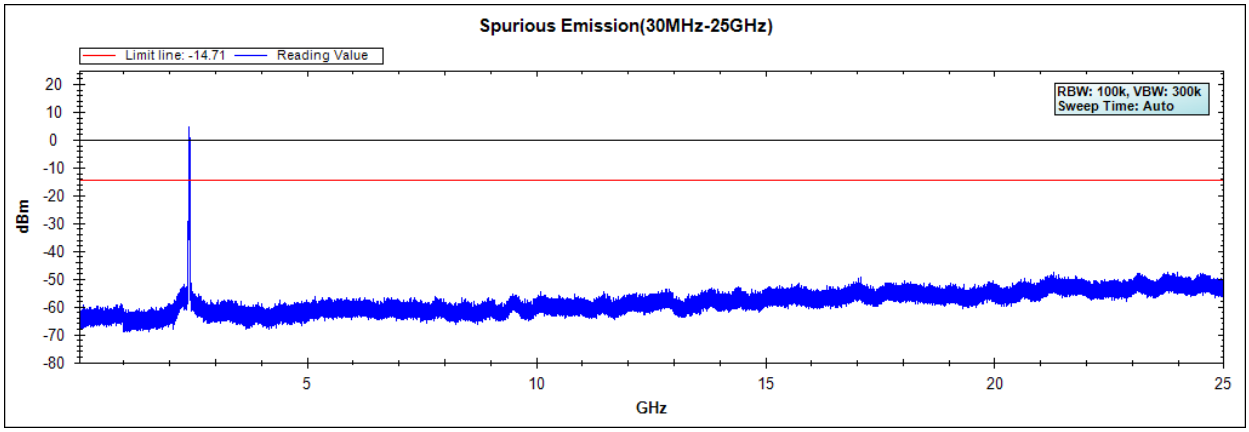
Note: The above test pattern is synthesized by multiple of the frequency range.

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

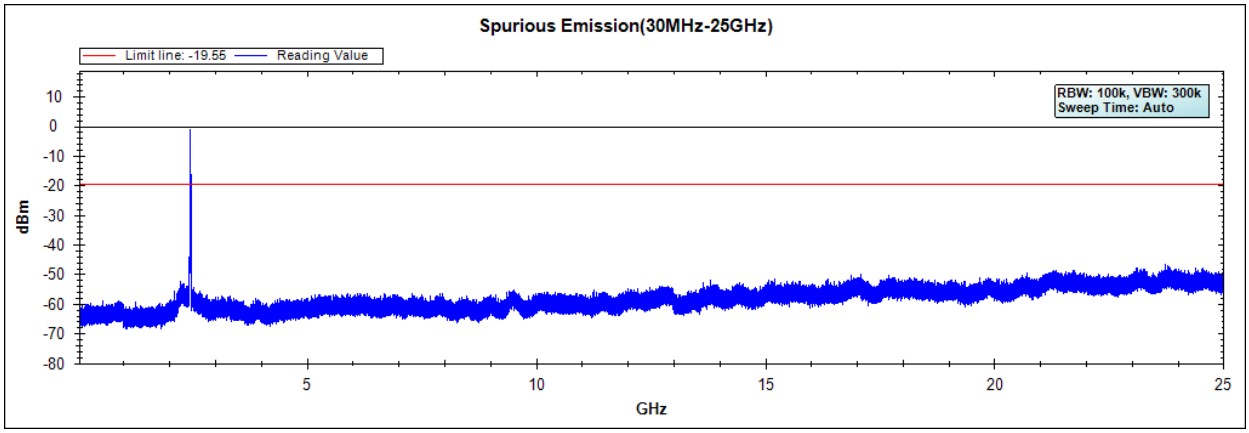
Channel 01 (2412MHz) (Chain A)



Channel 06 (2437MHz)

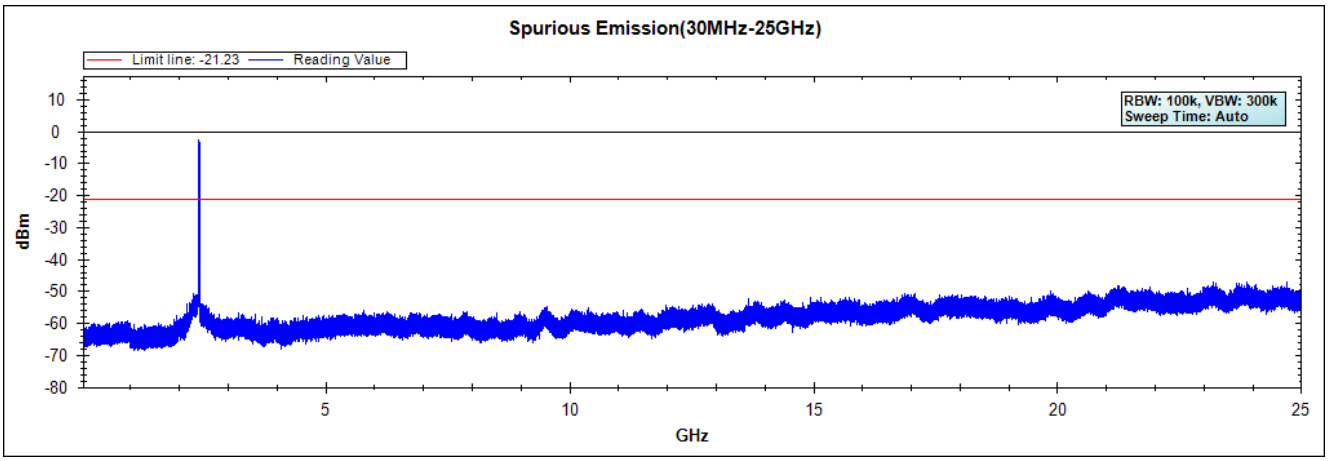


Channel 11 (2462MHz)

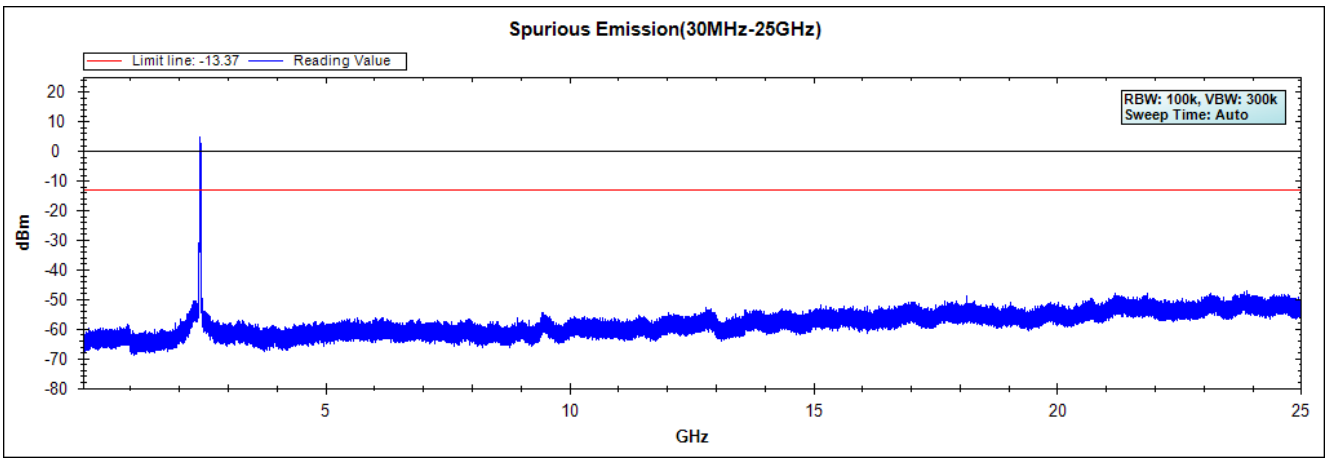


Note: The above test pattern is synthesized by multiple of the frequency range.

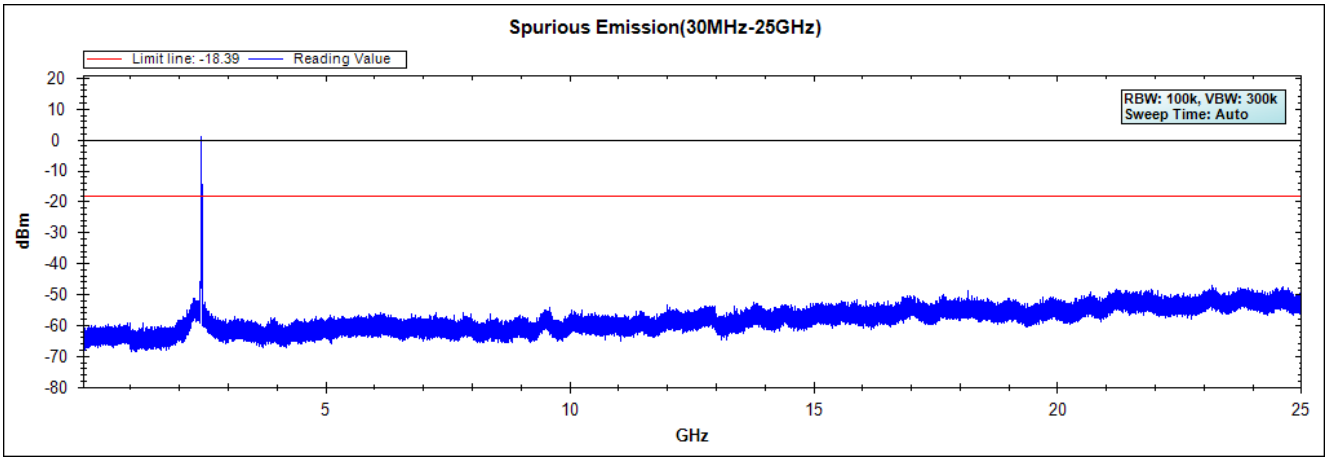
Channel 01 (2412MHz) (Chain B)



Channel 06 (2437MHz) (Chain B)



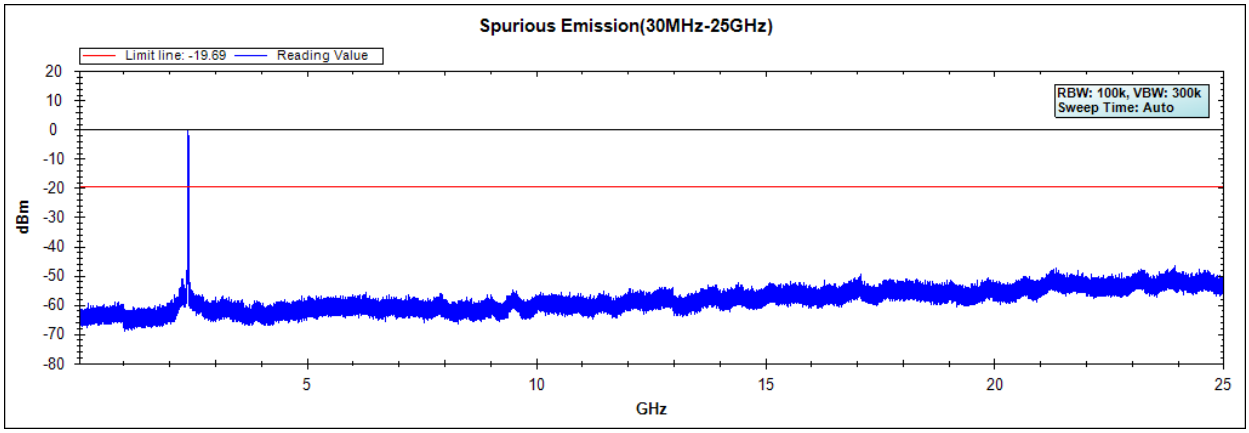
Channel 11 (2462MHz) (Chain B)



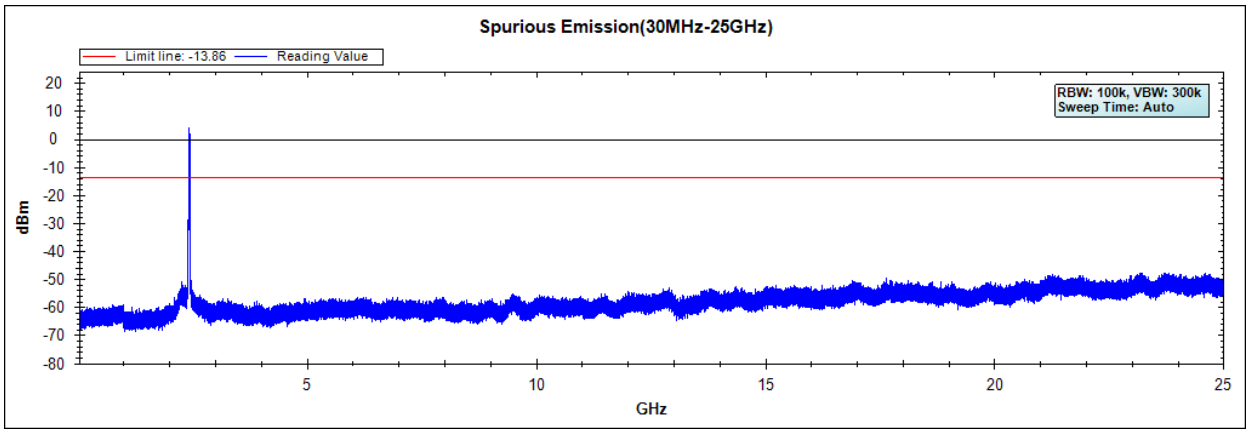
Note: The above test pattern is synthesized by multiple of the frequency range.

Product : Access Point/Sensor
Test Item : RF Antenna Conducted Spurious
Test Site : No.3 OATS
Test Mode : Mode 3: Transmit (802.11n MCS0 14.4Mbps 20M-BW)

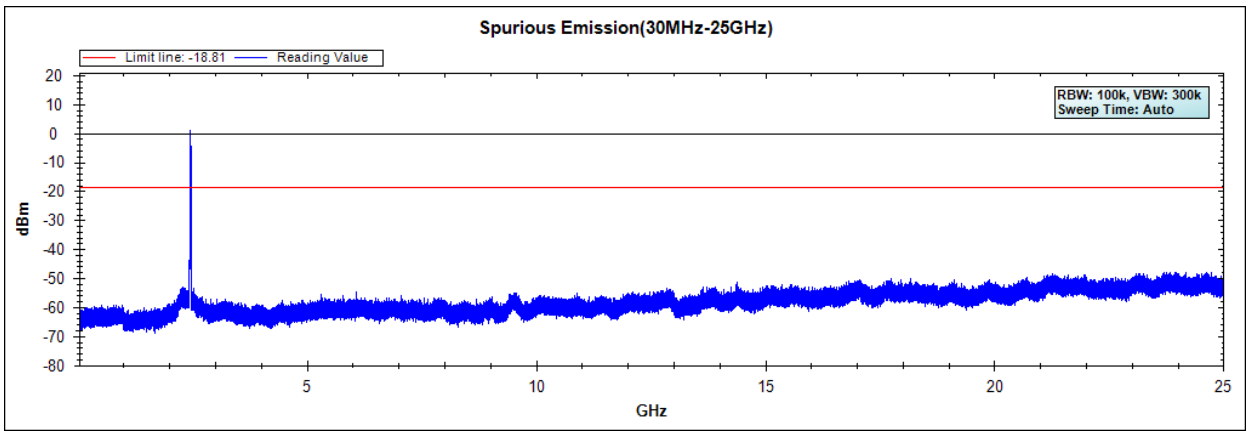
Channel 01 (2412MHz) (Chain A)



Channel 06 (2437MHz) (Chain A)

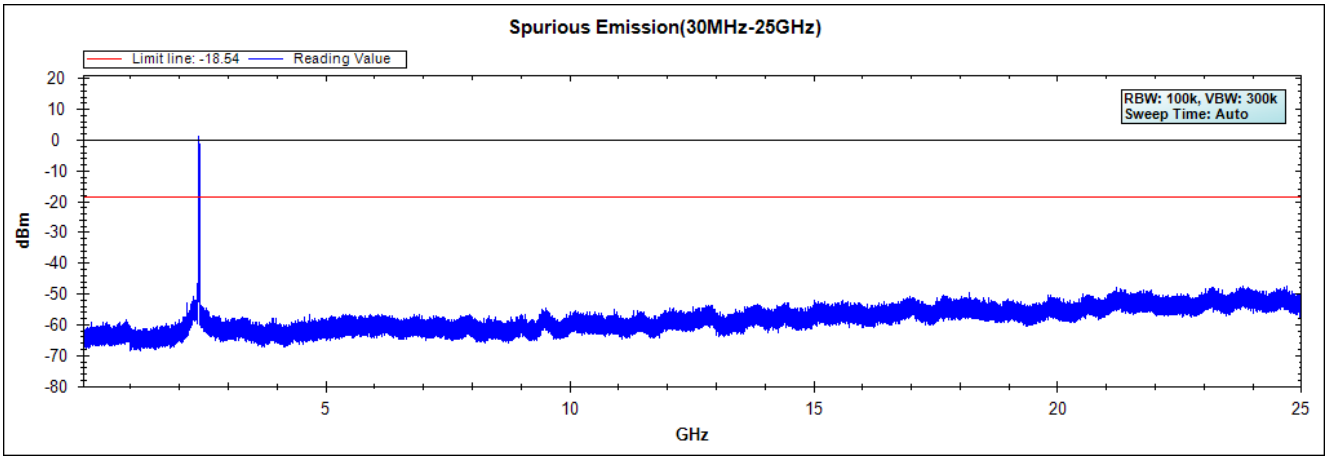


Channel 11 (2462MHz) (Chain A)

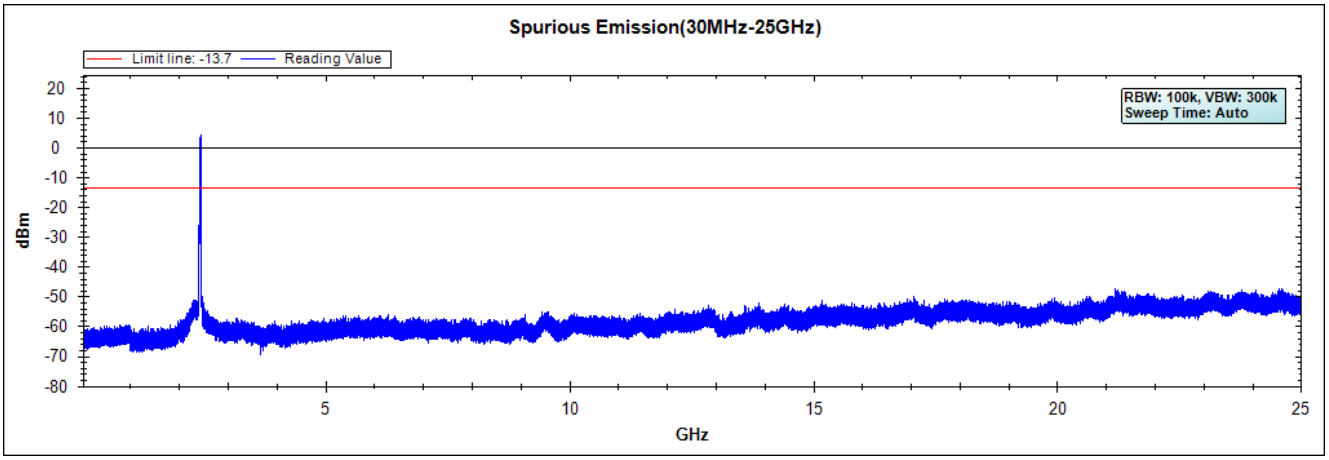


Note: The above test pattern is synthesized by multiple of the frequency range.

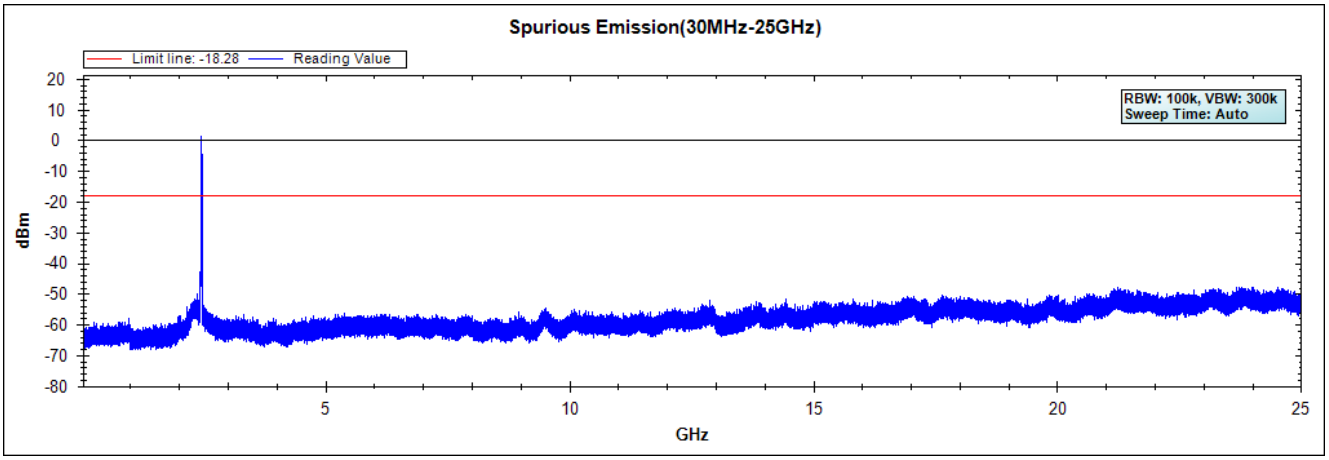
Channel 01 (2412MHz) (Chain B)



Channel 06 (2437MHz) (Chain B)



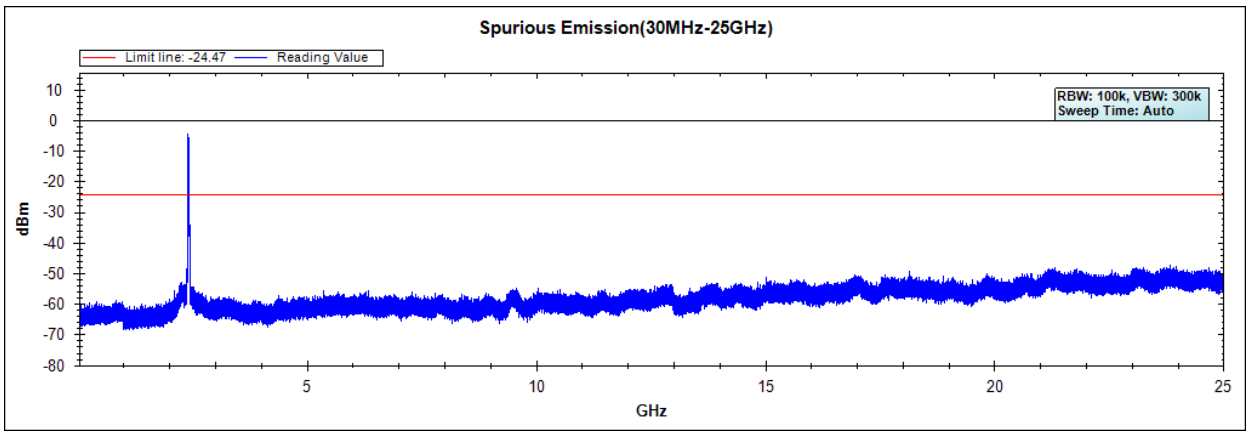
Channel 11 (2462MHz) (Chain B)



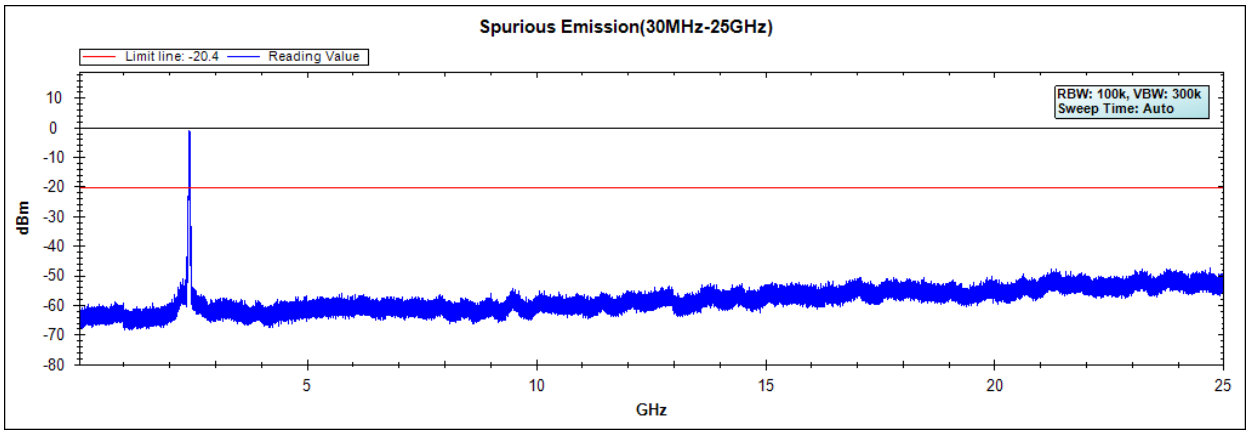
Note: The above test pattern is synthesized by multiple of the frequency range.

Product : Access Point/Sensor
Test Item : RF Antenna Conducted Spurious
Test Site : No.3 OATS
Test Mode : Mode 4: Transmit (802.11n MCS0 30Mbps 40M-BW)

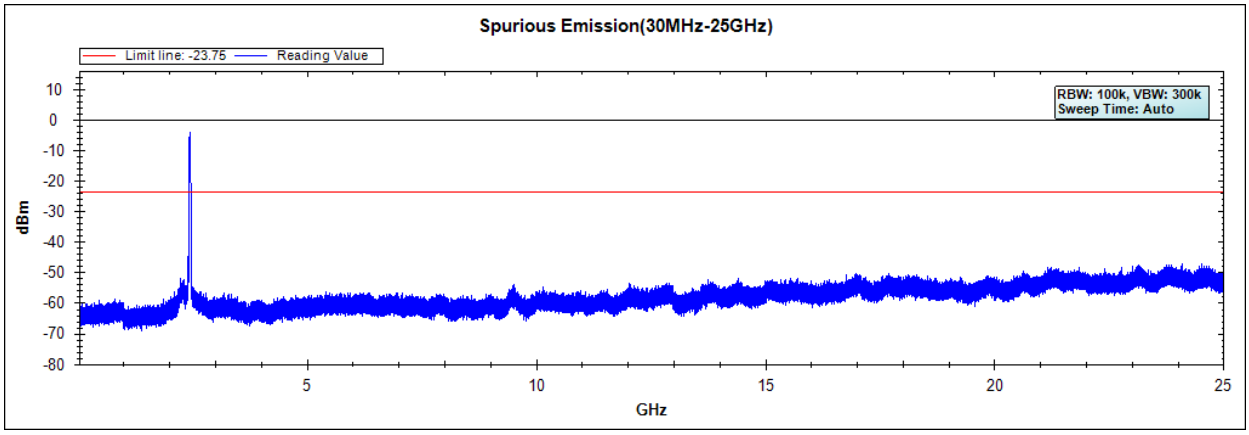
Channel 01 (2422MHz) (Chain A)



Channel 04 (2437MHz) (Chain A)

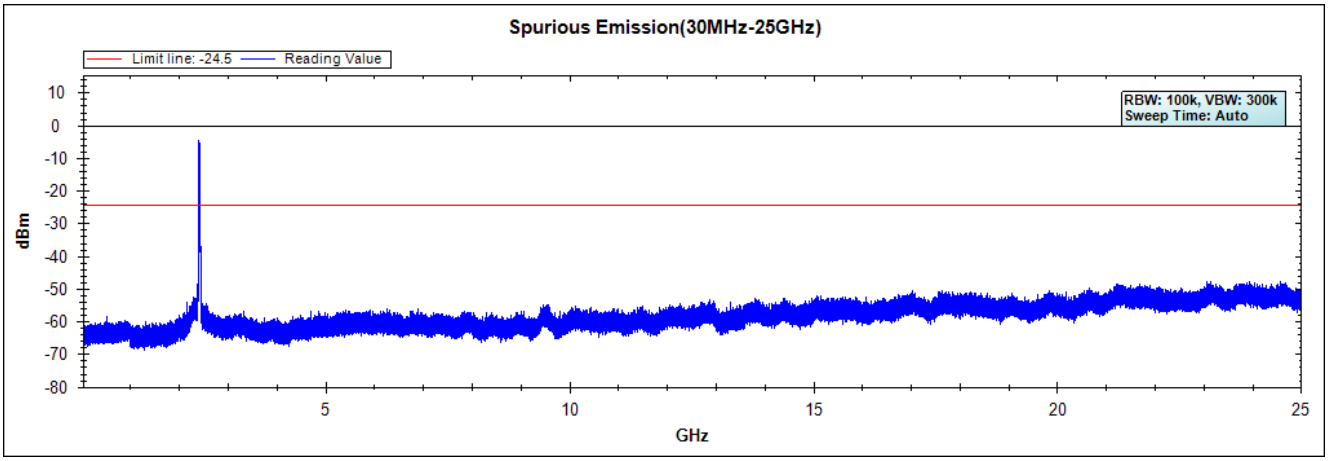


Channel 07 (2452MHz) (Chain A)

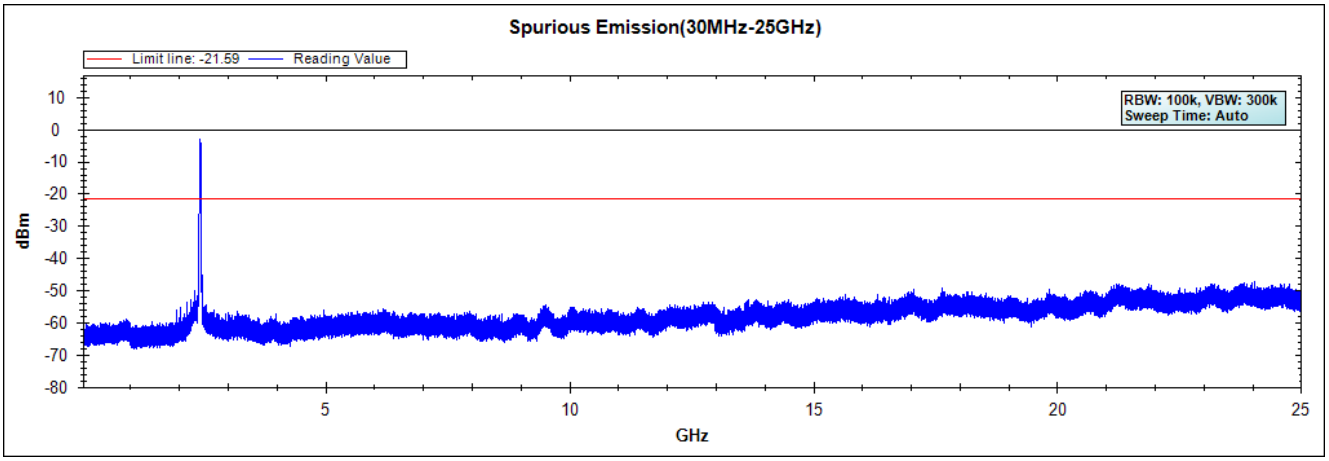


Note: The above test pattern is synthesized by multiple of the frequency range.

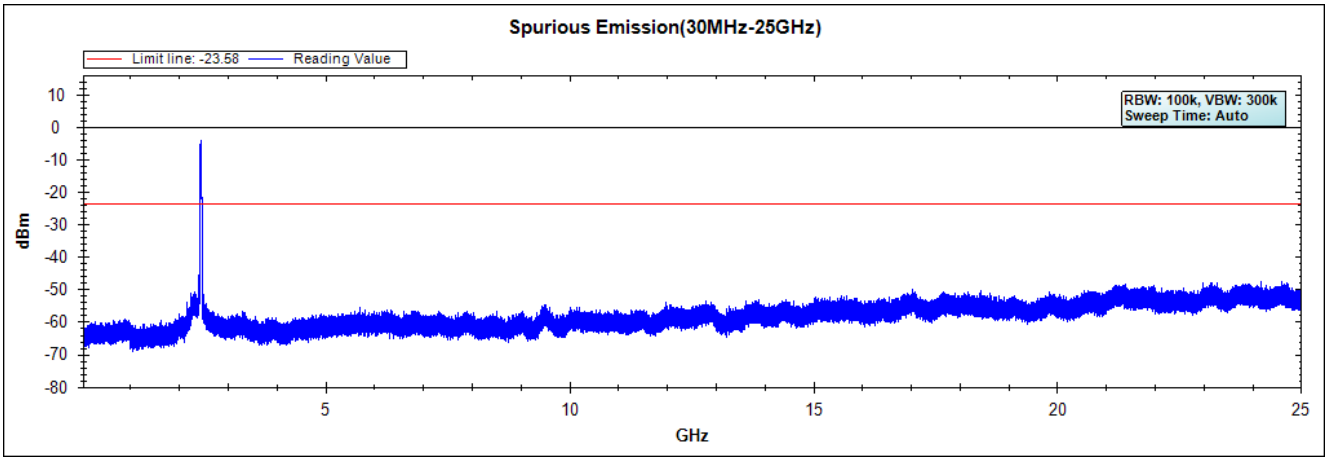
Channel 01 (2422MHz) (Chain B)



Channel 04 (2437MHz) (Chain B)



Channel 07 (2452MHz) (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:

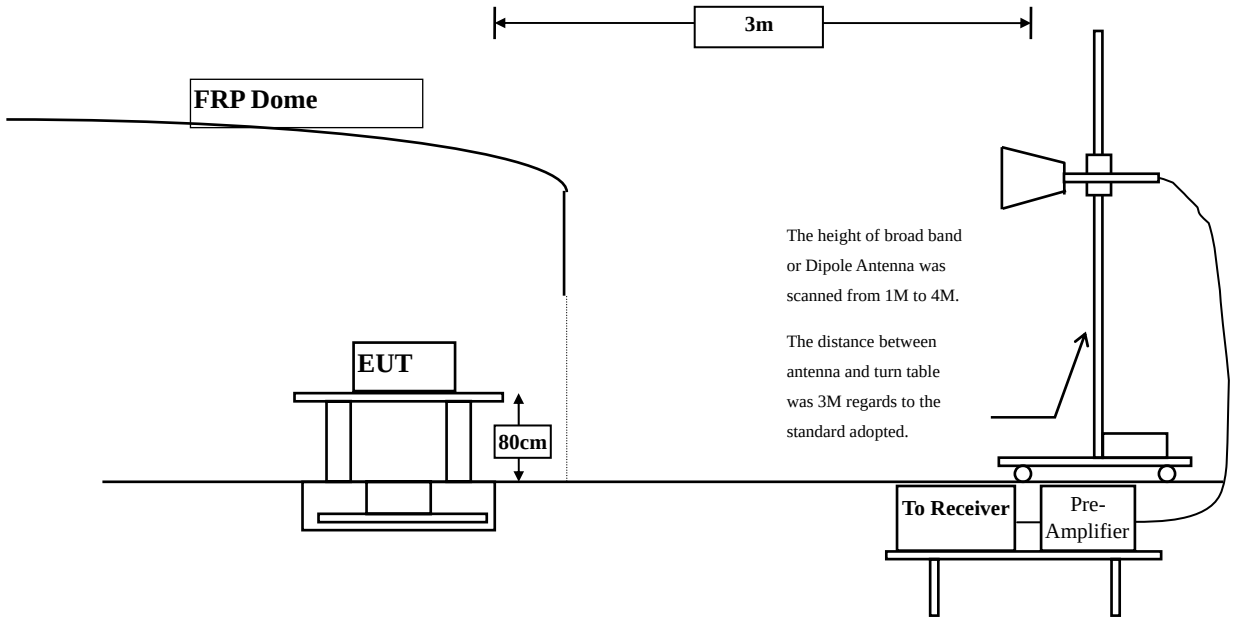
Test Site		Equipment	Manufacturer	Model No./Serial No.	Last Cal.
☒Site # 3		Bilog Antenna	Schaffner Chase	CBL6112B/2673	Sep., 2014
	X	Horn Antenna	Schwarzbeck	BBHA9120D/D305	Sep., 2014
		Horn Antenna	Schwarzbeck	BBHA9170/208	Jul., 2014
	X	Pre-Amplifier	Agilent	8447D/2944A09549	Sep., 2014
	X	Spectrum Analyzer	Agilent	E4407B / US39440758	May, 2014
		Test Receiver	R & S	ESCS 30/ 825442/018	Sep., 2014
	X	Coaxial Cable	QuieTek	QTK-CABLE/ CAB5	Feb., 2014
	X	Controller	QuieTek	QTK-CONTROLLER/ CTRL3	N/A
	X	Coaxial Switch	Anritsu	MP59B/6200265729	N/A

Note: 1. All instruments are calibrated every one year.

2. The test instruments marked by "X" are used to measure the final test results.

6.2. Test Setup

RF Radiated Measurement:



6.3. Limits

Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 20dB 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

The EUT was setup according to ANSI C63.10: 2009 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: 2009 on radiated measurement.

6.5. Uncertainty

± 3.9 dB above 1GHz
± 3.8 dB below 1GHz

6.6. Test Result of Band Edge

Product : Access Point/Sensor
Test Item : Band Edge Data
Test Site : No.3 OATS
Test Mode : Mode 1: Transmit (802.11b 1Mbps) (2412MHz)

RF Radiated Measurement (Horizontal):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Peak Limit (dBμV/m)	Average Limit (dBμV/m)	Result
01 (Peak)	2388.100	33.737	30.645	64.382	74.00	54.00	Pass
01 (Peak)	2390.000	33.739	29.986	63.725	74.00	54.00	Pass
01 (Peak)	2400.000	33.752	32.762	66.513	--	--	Pass
01 (Peak)	2411.000	33.769	82.298	116.067	--	--	Pass
01 (Average)	2369.500	33.722	18.542	52.264	74.00	54.00	Pass
01 (Average)	2387.200	33.737	18.591	52.328	74.00	54.00	Pass
01 (Average)	2390.000	33.739	18.143	51.882	74.00	54.00	Pass
01 (Average)	2400.000	33.752	20.651	54.402	--	--	Pass
01 (Average)	2411.200	33.770	79.256	113.026	--	--	Pass

Figure Channel 01: Horizontal (Peak)

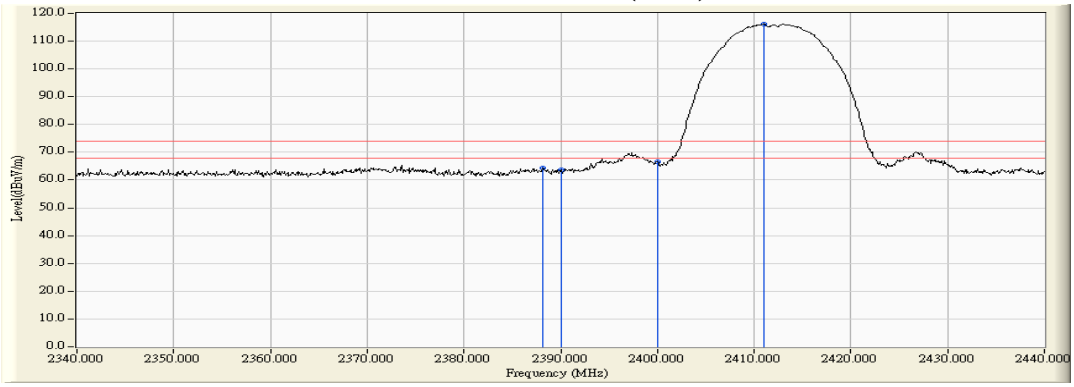
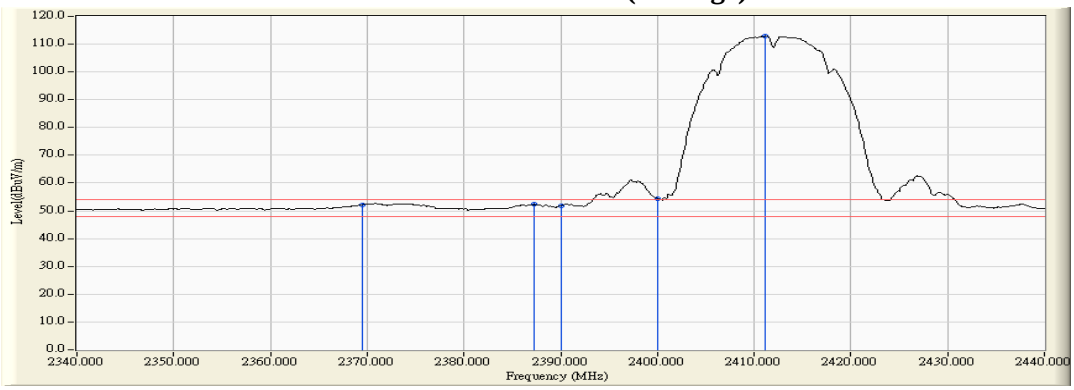


Figure Channel 01: Horizontal (Average)



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 : Access Point/Sensor
Test Item : Band Edge Data
Test Site : No.3 OATS
Test Mode : Mode 1: Transmit (802.11b 1Mbps) (2412MHz)

RF Radiated Measurement (VERTICAL):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Peak Limit (dBμV/m)	Average Limit (dBμV/m)	Result
01 (Peak)	2387.800	32.282	29.235	61.517	74.00	54.00	Pass
01 (Peak)	2390.000	32.267	27.533	59.800	74.00	54.00	Pass
01 (Peak)	2400.000	32.241	29.641	61.882	--	--	Pass
01 (Peak)	2413.100	32.254	71.777	104.031	--	--	Pass
01 (Average)	2390.000	32.267	15.658	47.925	74.00	54.00	Pass
01 (Average)	2400.000	32.241	16.981	49.222	--	--	Pass
01 (Average)	2411.300	32.246	68.662	100.908	--	--	Pass

Figure Channel 01: VERTICAL (Peak)

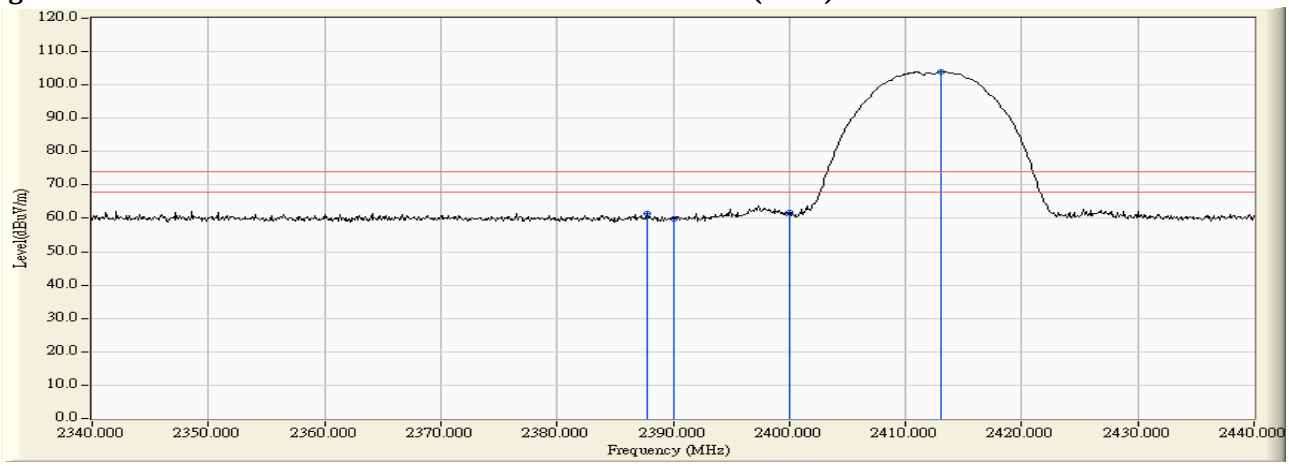
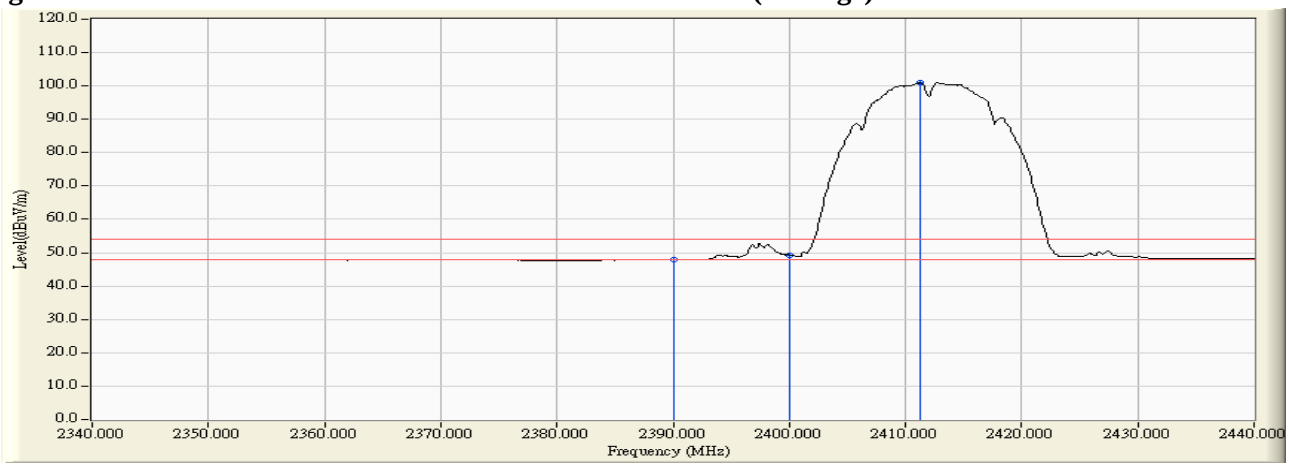


Figure Channel 01: VERTICAL (Average)



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 : Access Point/Sensor
Test Item : Band Edge Data
Test Site : No.3 OATS
Test Mode : Mode 1: Transmit (802.11b 1Mbps) (2462MHz)

RF Radiated Measurement (Horizontal):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Peak Limit (dBμV/m)	Average Limit (dBμV/m)	Result
11 (Peak)	2460.900	33.890	81.420	115.310	--	--	Pass
11 (Peak)	2483.500	33.951	29.128	63.078	74.00	54.00	Pass
11 (Peak)	2484.500	33.953	30.496	64.448	74.00	54.00	Pass
11 (Average)	2461.200	33.890	78.550	112.440	--	--	Pass
11 (Average)	2483.500	33.951	17.705	51.655	74.00	54.00	Pass

Figure Channel 11: Horizontal (Peak)

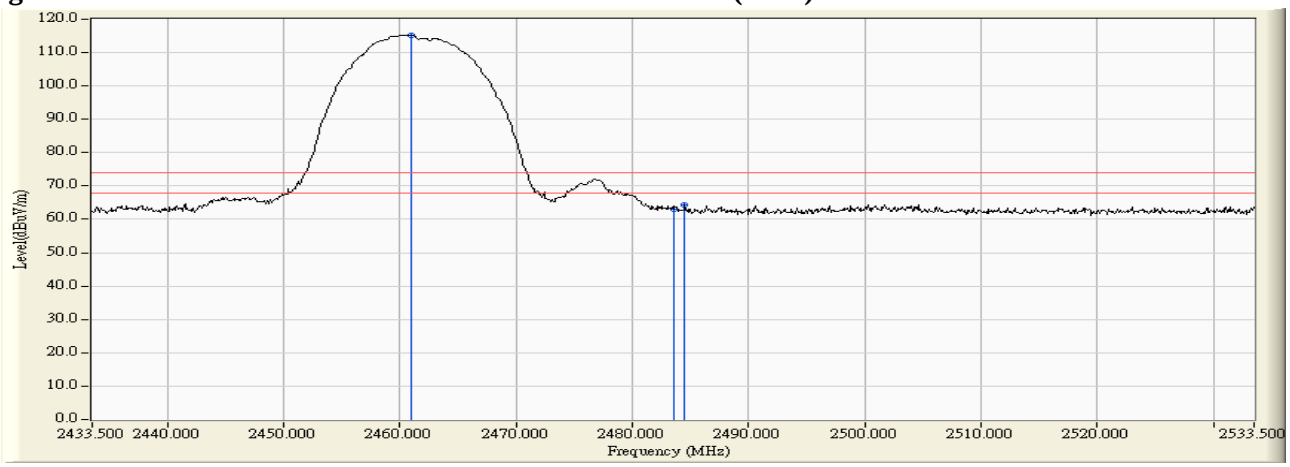
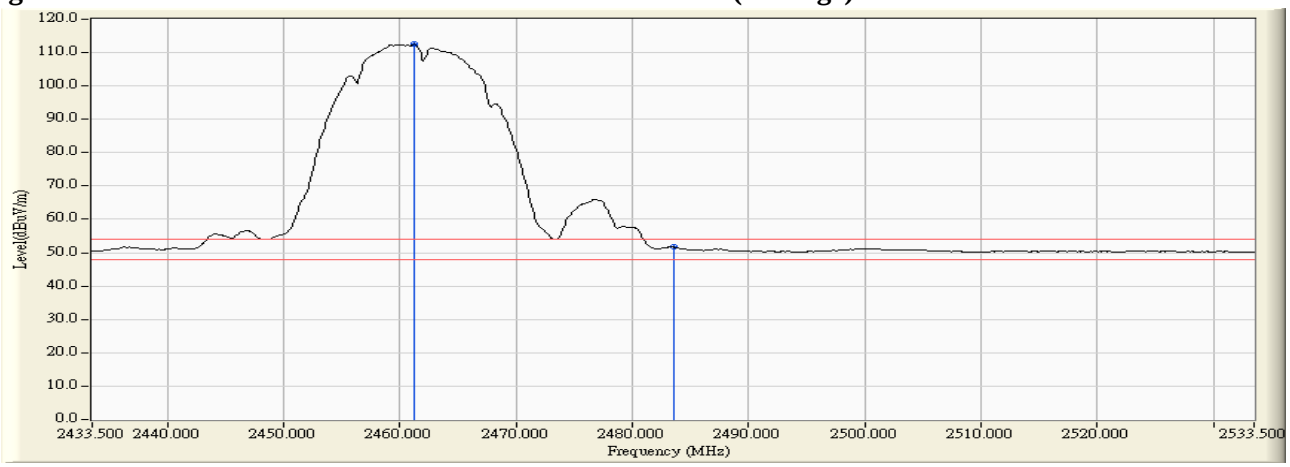


Figure Channel 11: Horizontal (Average)



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 : Access Point/Sensor
Test Item : Band Edge Data
Test Site : No.3 OATS
Test Mode : Mode 1: Transmit (802.11b 1Mbps) (2462MHz)

RF Radiated Measurement (VERTICAL):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Peak Limit (dBμV/m)	Average Limit (dBμV/m)	Result
11 (Peak)	2464.600	32.494	70.876	103.369	--	--	Pass
11 (Peak)	2483.500	32.586	27.987	60.572	74.00	54.00	Pass
11 (Peak)	2487.700	32.605	29.287	61.892	74.00	54.00	Pass
11 (Average)	2464.800	32.494	68.240	100.734	--	--	Pass
11 (Average)	2483.500	32.586	15.757	48.342	74.00	54.00	Pass

Figure Channel 11: VERTICAL (Peak)

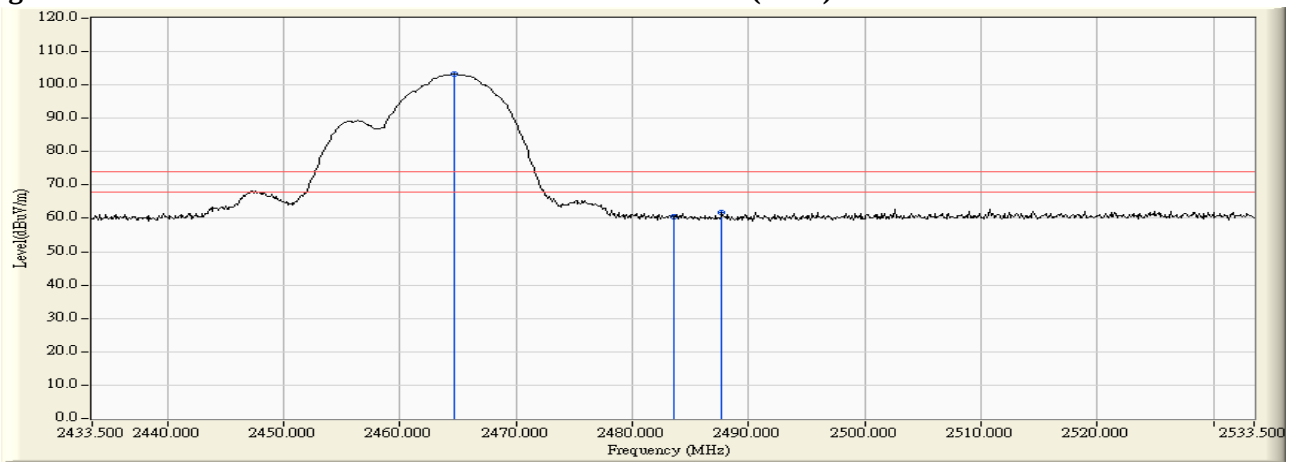
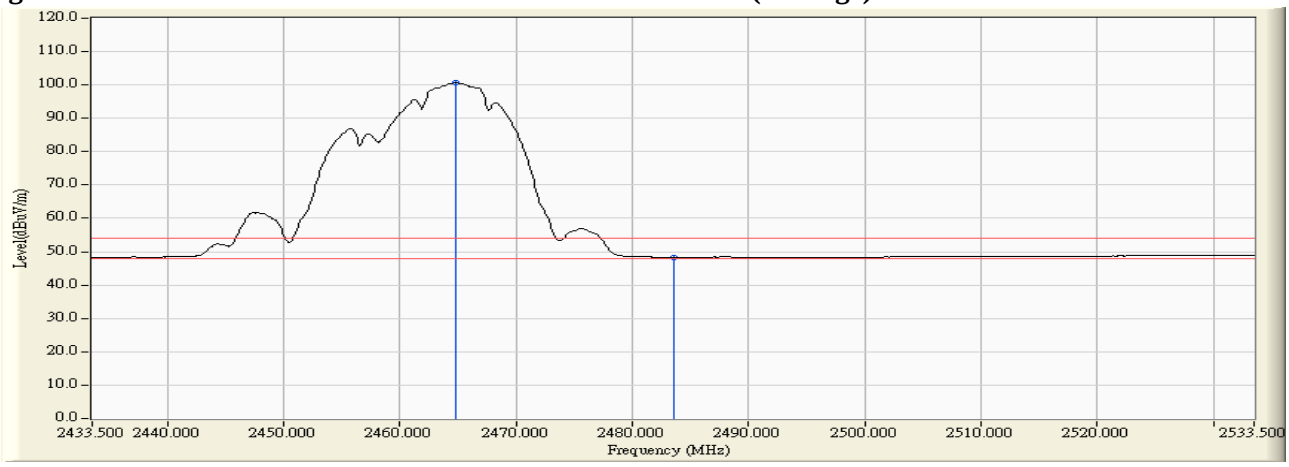


Figure Channel 11: VERTICAL (Average)



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 : Access Point/Sensor
Test Item : Band Edge Data
Test Site : No.3 OATS
Test Mode : Mode 2: Transmit (802.11g 6Mbps) (2412MHz)

RF Radiated Measurement (Horizontal):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Peak Limit (dBμV/m)	Average Limit (dBμV/m)	Result
01 (Peak)	2389.800	33.738	39.937	73.676	74.00	54.00	Pass
01 (Peak)	2390.000	33.739	39.380	73.119	74.00	54.00	Pass
01 (Peak)	2400.000	33.752	56.707	90.458	--	--	Pass
01 (Peak)	2409.100	33.766	80.463	114.229	--	--	Pass
01 (Average)	2390.000	33.739	19.004	52.743	74.00	54.00	Pass
01 (Average)	2400.000	33.752	29.860	63.611	--	--	Pass
01 (Average)	2409.200	33.766	67.895	101.661	--	--	Pass

Figure Channel 01: Horizontal (Peak)

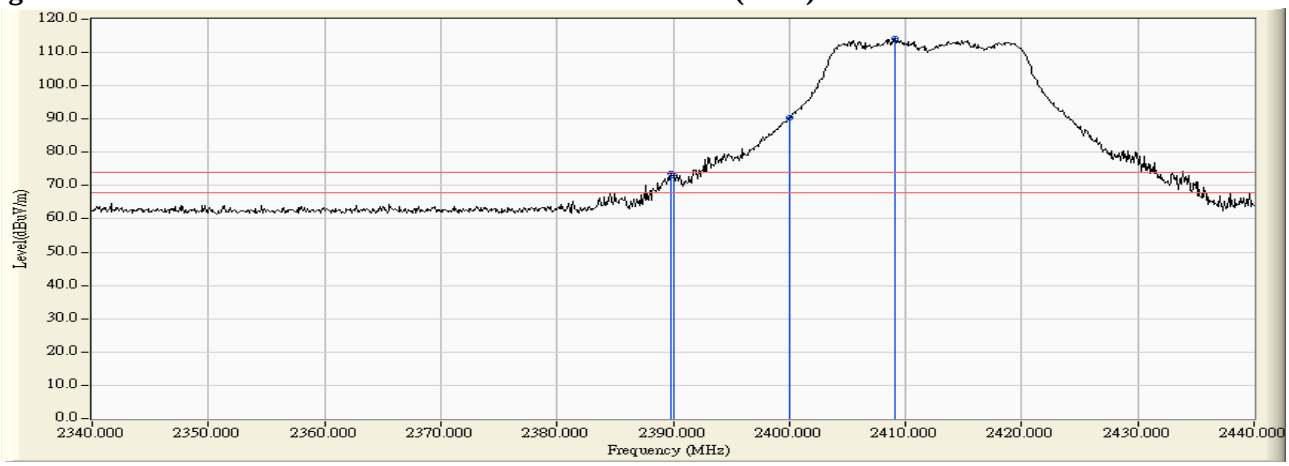
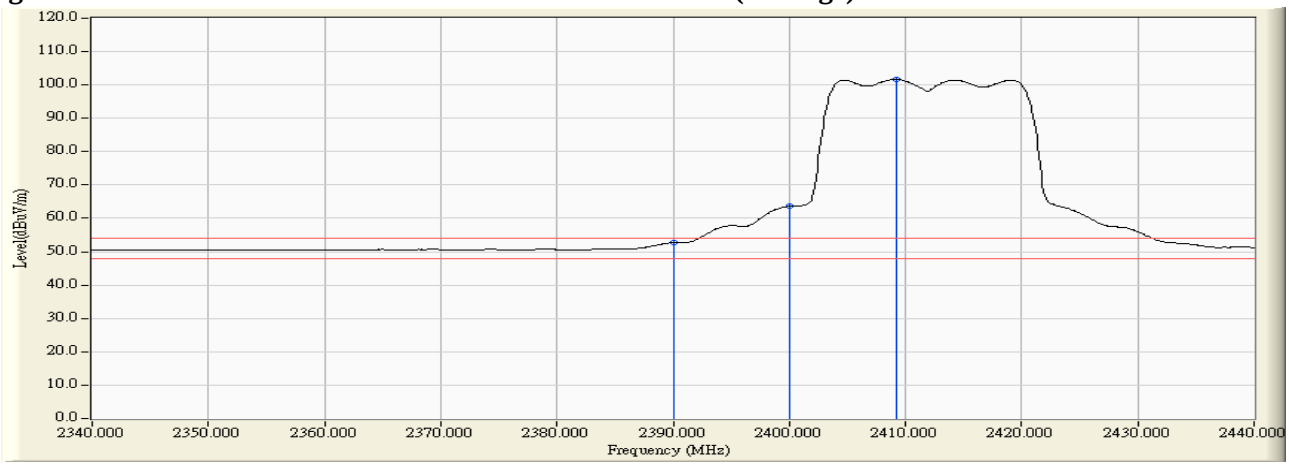


Figure Channel 01: Horizontal (Average)



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 : Access Point/Sensor
Test Item : Band Edge Data
Test Site : No.3 OATS
Test Mode : Mode 2: Transmit (802.11g 6Mbps) (2412MHz)

RF Radiated Measurement (VERTICAL):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Peak Limit (dBμV/m)	Average Limit (dBμV/m)	Result
01 (Peak)	2389.400	32.271	33.362	65.633	74.00	54.00	Pass
01 (Peak)	2390.000	32.267	28.639	60.906	74.00	54.00	Pass
01 (Peak)	2400.000	32.241	47.196	79.437	--	--	Pass
01 (Peak)	2414.700	32.261	70.903	103.164	--	--	Pass
01 (Average)	2390.000	32.267	16.150	48.417	74.00	54.00	Pass
01 (Average)	2400.000	32.241	22.844	55.085	--	--	Pass
01 (Average)	2408.900	32.244	59.109	91.353	--	--	Pass

Figure Channel 01: VERTICAL (Peak)

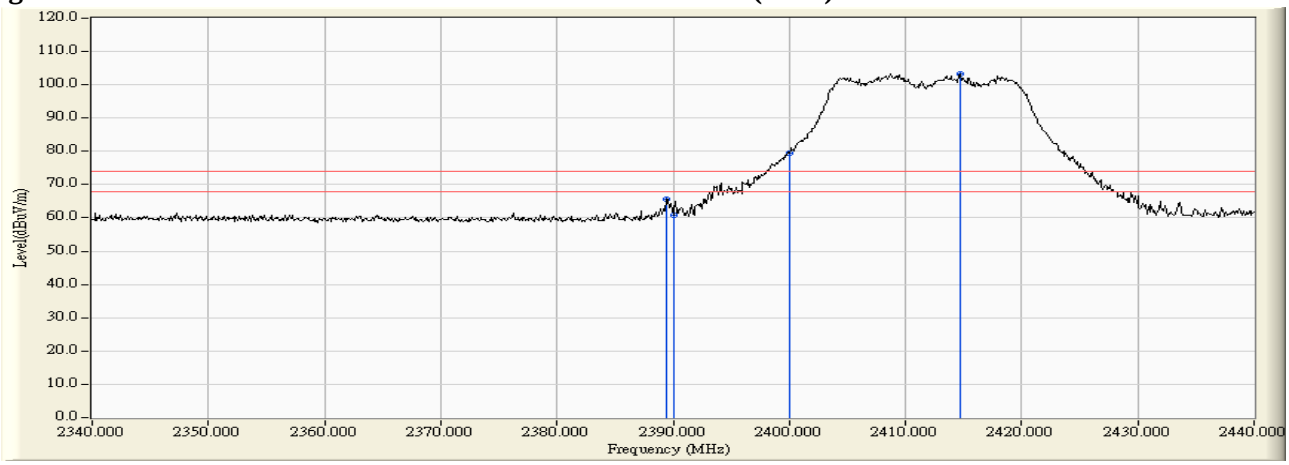
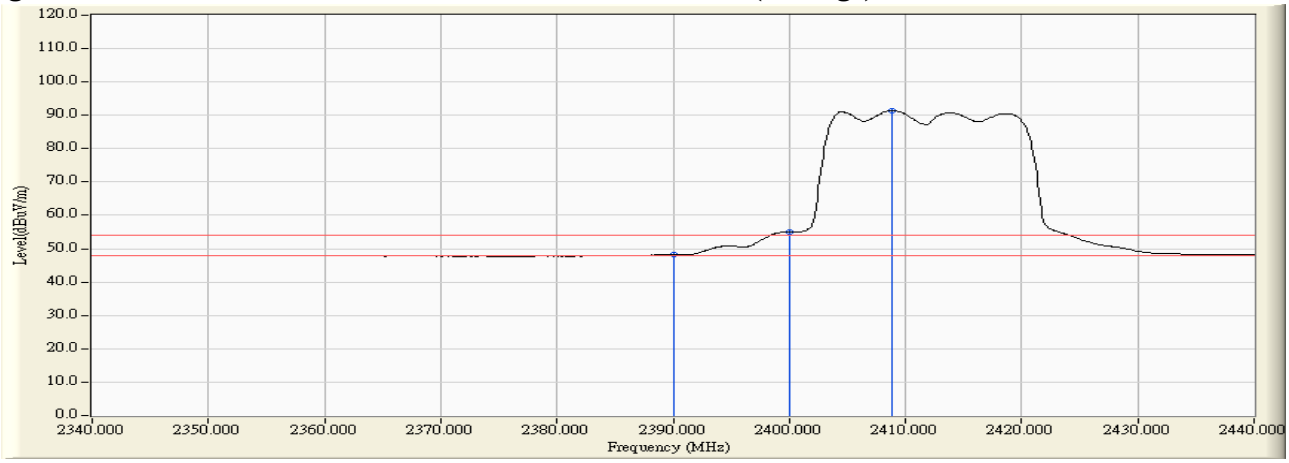


Figure Channel 01: VERTICAL (Average)



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 : Access Point/Sensor
Test Item : Band Edge Data
Test Site : No.3 OATS
Test Mode : Mode 2: Transmit (802.11g 6Mbps) (2462MHz)

RF Radiated Measurement (Horizontal):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Peak Limit (dBμV/m)	Average Limit (dBμV/m)	Result
11 (Peak)	2460.000	33.887	79.062	112.949	--	--	Pass
11 (Peak)	2483.500	33.951	36.980	70.930	74.00	54.00	Pass
11 (Average)	2456.800	33.879	66.840	100.719	--	--	Pass
11 (Average)	2483.500	33.951	18.127	52.077	74.00	54.00	Pass

Figure Channel 11: Horizontal (Peak)

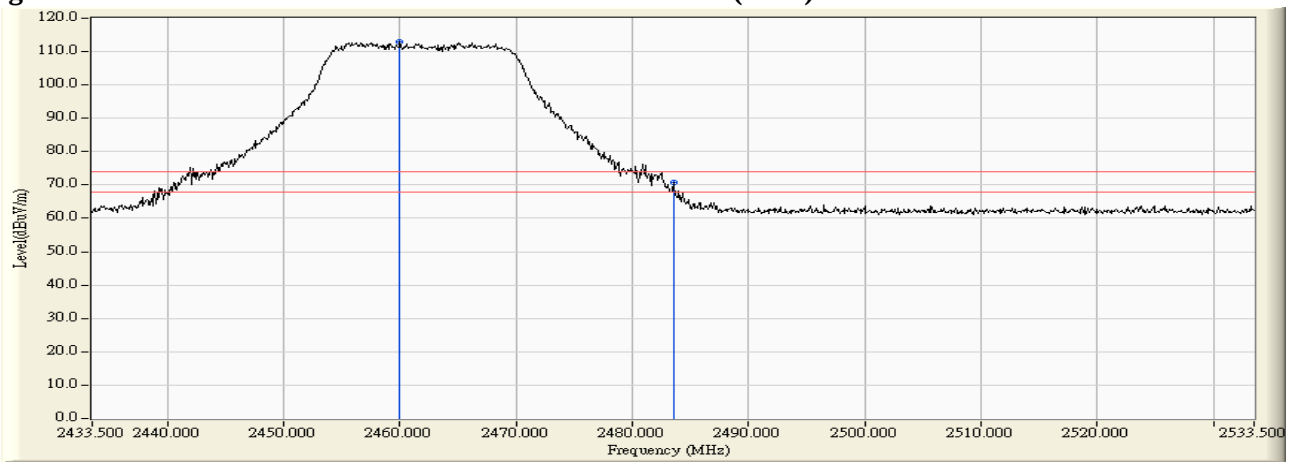
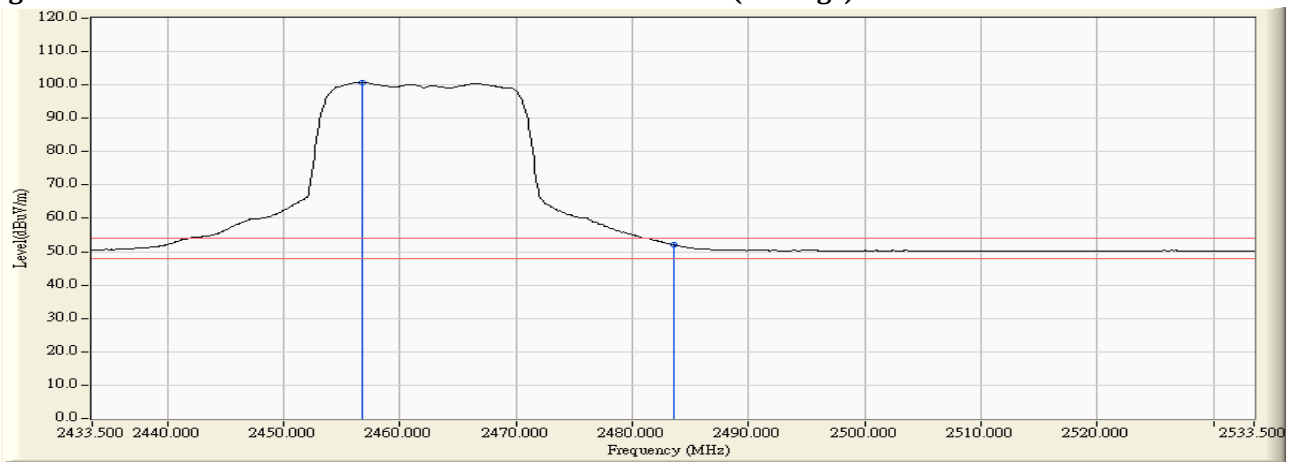


Figure Channel 11: Horizontal (Average)



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 : Access Point/Sensor
Test Item : Band Edge Data
Test Site : No.3 OATS
Test Mode : Mode 2: Transmit (802.11g 6Mbps) (2462MHz)

RF Radiated Measurement (VERTICAL):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Peak Limit (dBμV/m)	Average Limit (dBμV/m)	Result
11 (Peak)	2455.300	32.449	71.590	104.038	--	--	Pass
11 (Peak)	2483.500	32.586	31.538	64.123	74.00	54.00	Pass
11 (Peak)	2484.200	32.588	33.674	66.262	74.00	54.00	Pass
11 (Average)	2455.500	32.450	60.569	93.018	--	--	Pass
11 (Average)	2483.500	32.586	16.120	48.705	74.00	54.00	Pass

Figure Channel 11: VERTICAL (Peak)

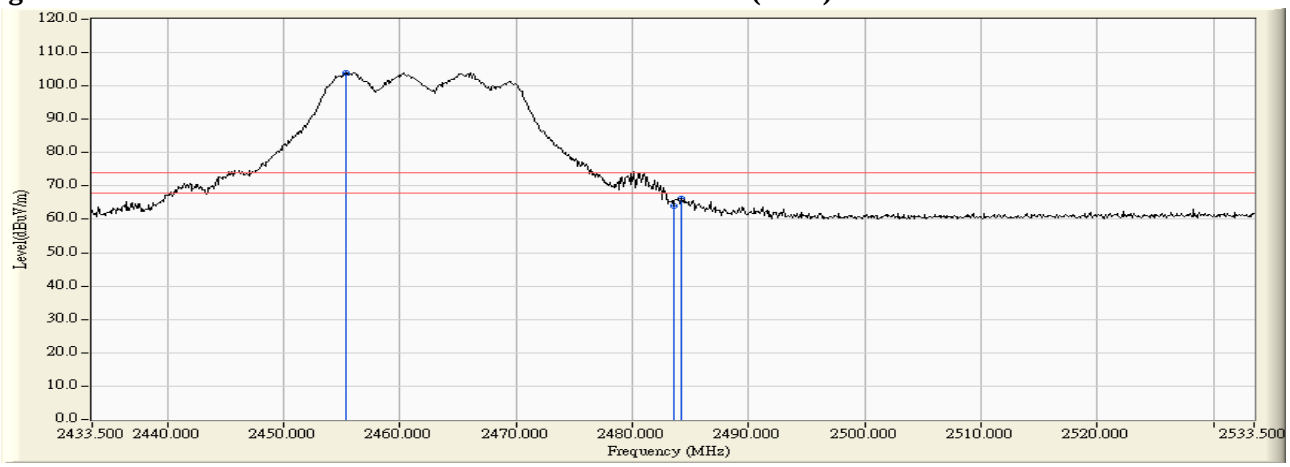
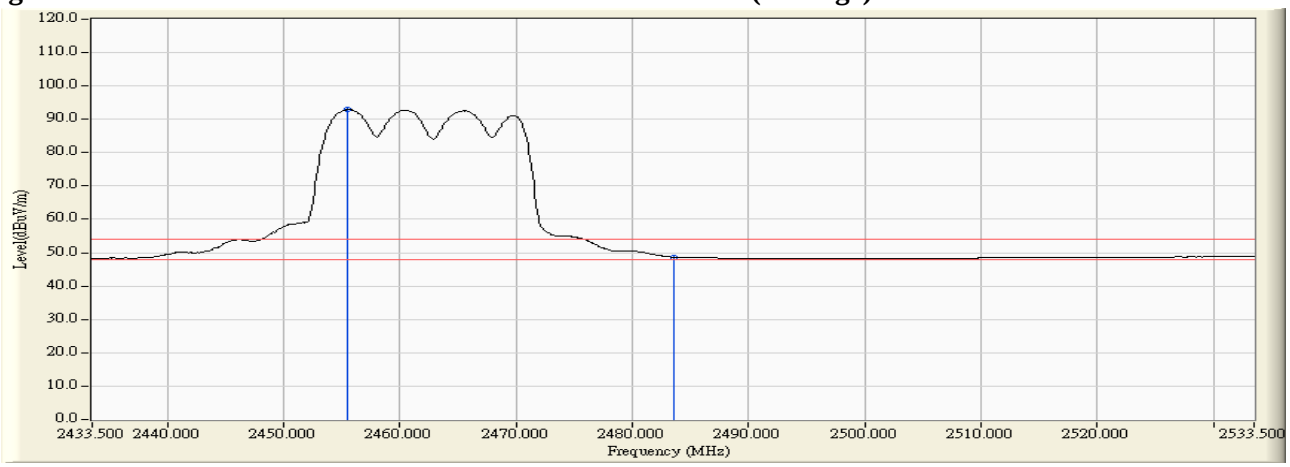


Figure Channel 11: VERTICAL (Average)



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 : Access Point/Sensor
Test Item : Band Edge Data
Test Site : No.3 OATS
Test Mode : Mode 3: Transmit (802.11n MCS0 14.4Mbps 20M-BW) (2412MHz)

RF Radiated Measurement (Horizontal):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Peak Limit (dBμV/m)	Average Limit (dBμV/m)	Result
01 (Peak)	2389.900	33.739	38.163	71.902	74.00	54.00	Pass
01 (Peak)	2390.000	33.739	32.150	65.889	74.00	54.00	Pass
01 (Peak)	2400.000	33.752	56.951	90.702	--	--	Pass
01 (Peak)	2406.200	33.761	79.022	112.783	--	--	Pass
01 (Average)	2390.000	33.739	18.400	52.139	74.00	54.00	Pass
01 (Average)	2400.000	33.752	27.857	61.608	--	--	Pass
01 (Average)	2407.000	33.763	64.613	98.376	--	--	Pass

Figure Channel 01: Horizontal (Peak)

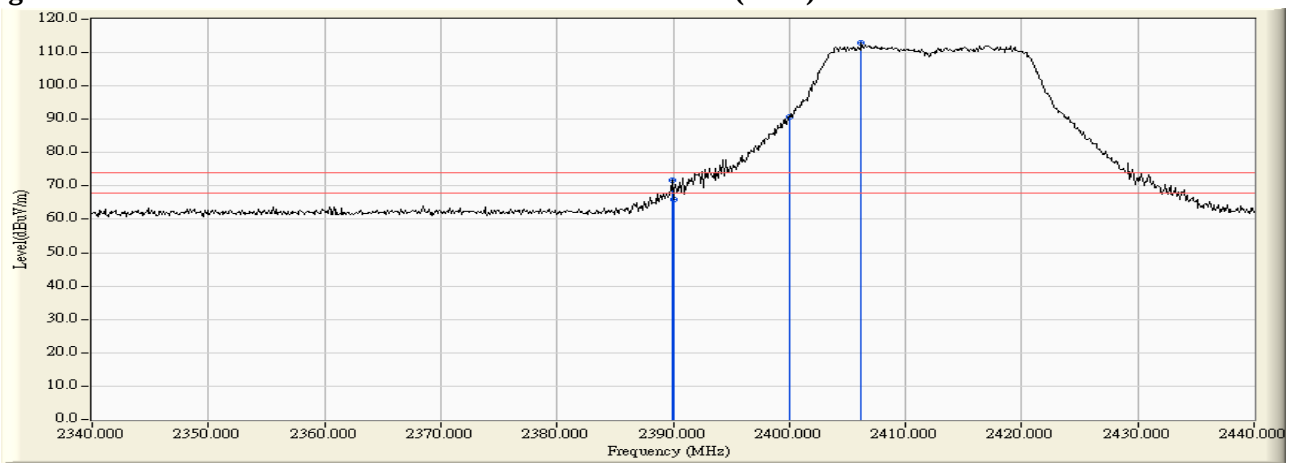
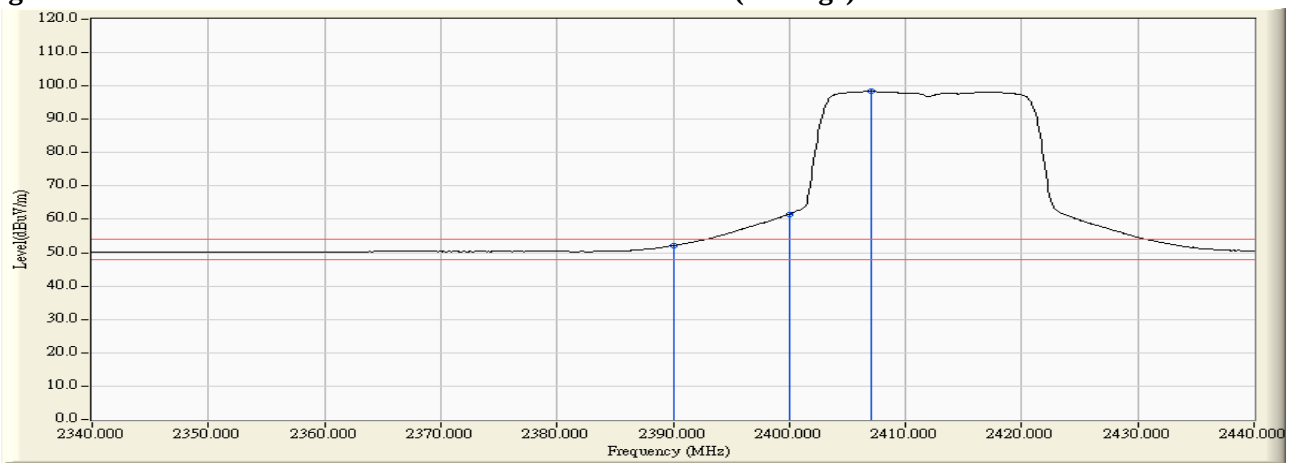


Figure Channel 01: Horizontal (Average)



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 : Access Point/Sensor
Test Item : Band Edge Data
Test Site : No.3 OATS
Test Mode : Mode 3: Transmit (802.11n MCS0 14.4Mbps 20M-BW) (2412MHz)

RF Radiated Measurement (VERTICAL):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Peak Limit (dBμV/m)	Average Limit (dBμV/m)	Result
01 (Peak)	2389.600	32.270	30.092	62.362	74.00	54.00	Pass
01 (Peak)	2390.000	32.267	28.364	60.631	74.00	54.00	Pass
01 (Peak)	2400.000	32.241	48.428	80.669	--	--	Pass
01 (Peak)	2405.200	32.242	70.115	102.357	--	--	Pass
01 (Average)	2390.000	32.267	16.030	48.297	74.00	54.00	Pass
01 (Average)	2400.000	32.241	21.957	54.198	--	--	Pass
01 (Average)	2405.500	32.242	56.428	88.670	--	--	Pass

Figure Channel 01: VERTICAL (Peak)

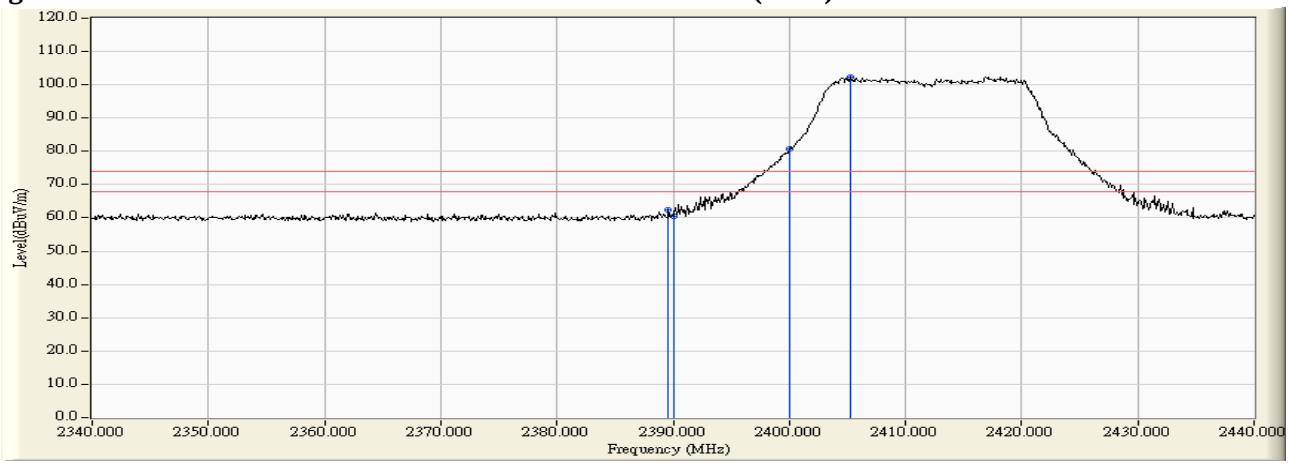
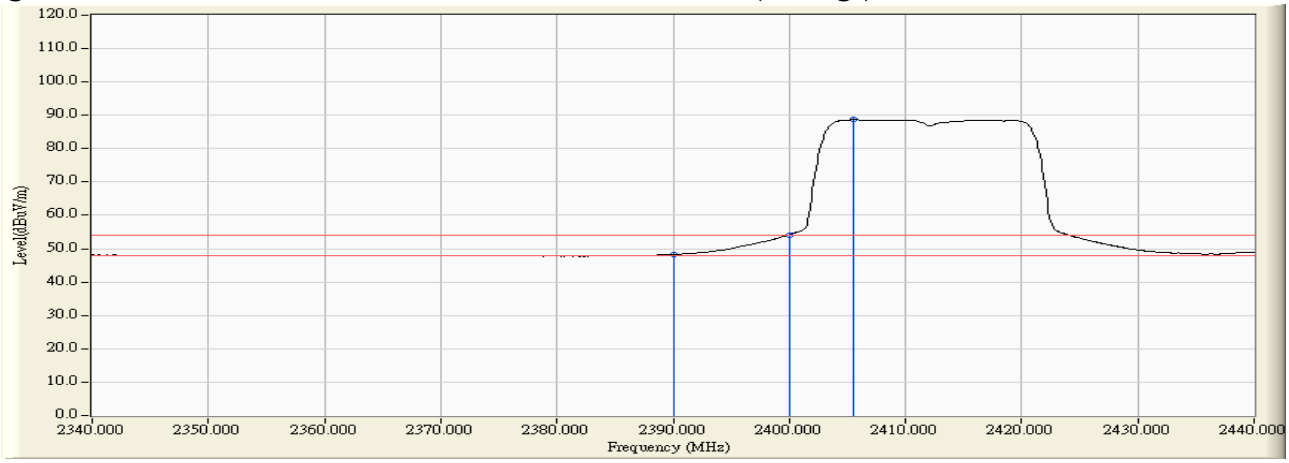


Figure Channel 01: VERTICAL (Average)



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 : Access Point/Sensor
Test Item : Band Edge Data
Test Site : No.3 OATS
Test Mode : Mode 3: Transmit (802.11n MCS0 14.4Mbps 20M-BW) (2462MHz)

RF Radiated Measurement (HORIZONTAL):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Peak Limit (dBμV/m)	Average Limit (dBμV/m)	Result
11 (Peak)	2454.400	33.874	79.137	113.010	--	--	Pass
11 (Peak)	2483.500	33.951	34.279	68.229	74.00	54.00	Pass
11 (Peak)	2483.900	33.951	38.418	72.369	74.00	54.00	Pass
11 (Peak)	2484.700	33.954	37.779	71.732	74.00	54.00	Pass
11 (Average)	2456.800	33.879	64.941	98.820	--	--	Pass
11 (Average)	2483.500	33.951	18.176	52.126	74.00	54.00	Pass

Figure Channel 11: HORIZONTAL (Peak)

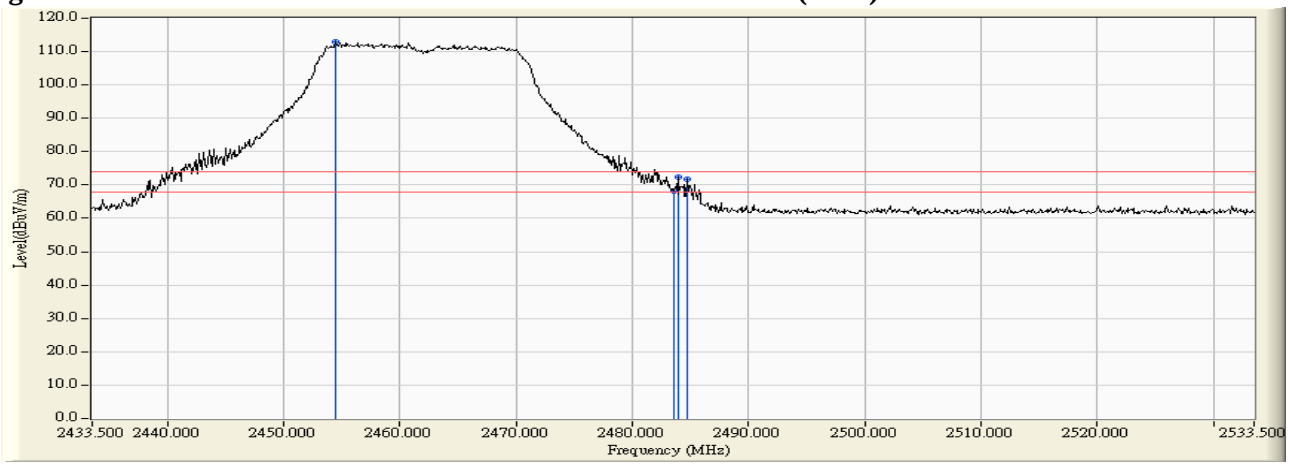
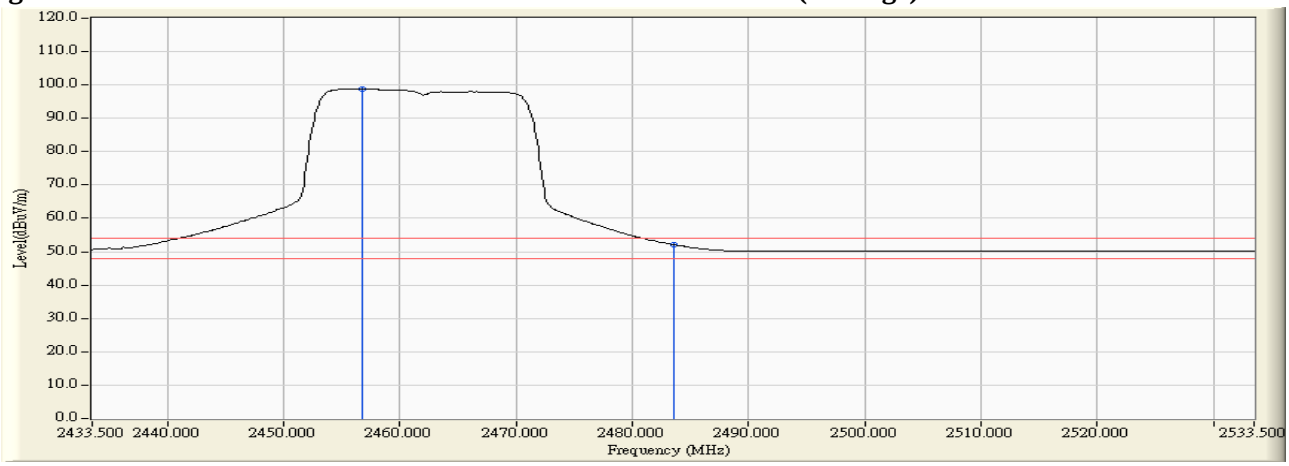


Figure Channel 11: HORIZONTAL (Average)



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 : Access Point/Sensor
Test Item : Band Edge Data
Test Site : No.3 OATS
Test Mode : Mode 3: Transmit (802.11n MCS0 14.4Mbps 20M-BW) (2462MHz)

RF Radiated Measurement (VERTICAL):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Peak Limit (dBμV/m)	Average Limit (dBμV/m)	Result
11 (Peak)	2455.900	32.451	71.029	103.480	--	--	Pass
11 (Peak)	2483.500	32.586	32.395	64.980	74.00	54.00	Pass
11 (Peak)	2484.000	32.587	35.954	68.541	74.00	54.00	Pass
11 (Average)	2455.500	32.450	57.159	89.608	--	--	Pass
11 (Average)	2483.500	32.586	16.526	49.111	74.00	54.00	Pass

Figure Channel 11: VERTICAL (Peak)

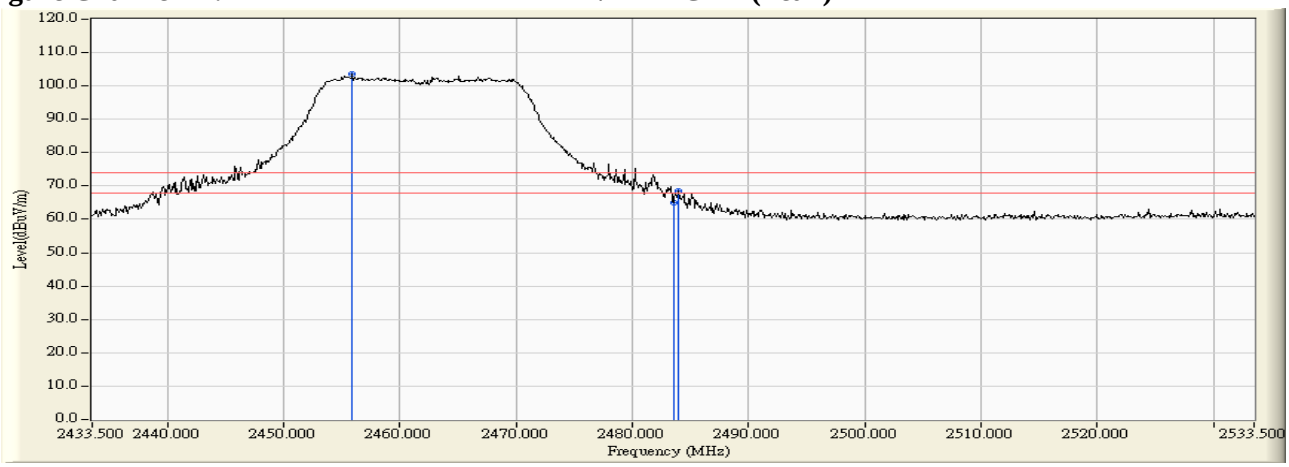
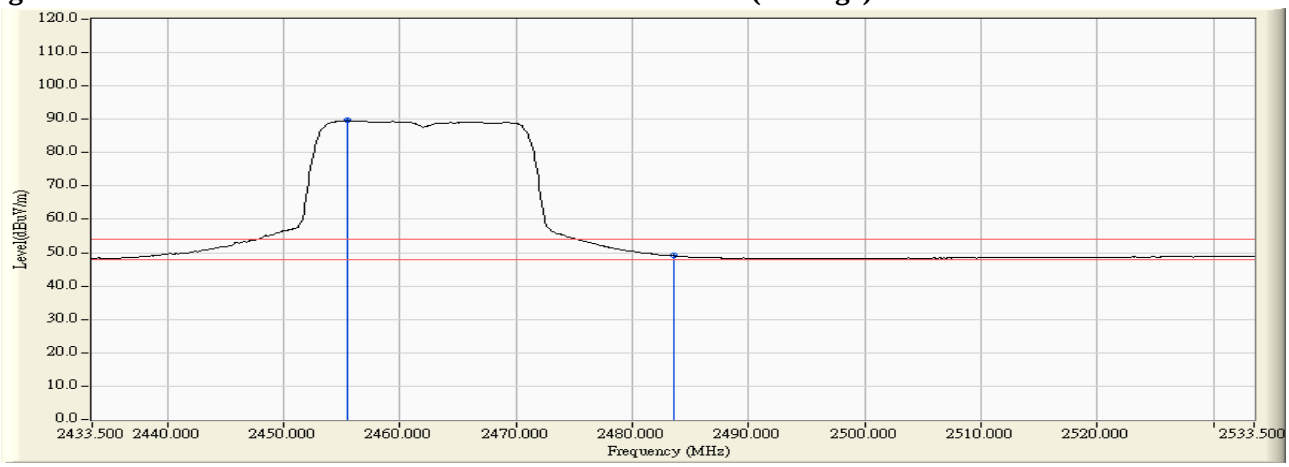


Figure Channel 11: VERTICAL (Average)



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 : Access Point/Sensor
Test Item : Band Edge Data
Test Site : No.3 OATS
Test Mode : Mode 4: Transmit (802.11n MCS0 30Mbps 40M-BW) (2422MHz)

RF Radiated Measurement (HORIZONTAL):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Peak Limit (dBμV/m)	Average Limit (dBμV/m)	Result
03 (Peak)	2389.300	33.739	38.255	71.993	74.00	54.00	Pass
03 (Peak)	2390.000	33.739	35.974	69.713	74.00	54.00	Pass
03 (Peak)	2400.000	33.752	51.216	84.967	--	--	Pass
03 (Peak)	2411.800	33.771	73.733	107.504	--	--	Pass
03 (Average)	2390.000	33.739	18.714	52.453	74.00	54.00	Pass
03 (Average)	2400.000	33.752	23.234	56.985	--	--	Pass
03 (Average)	2409.000	33.766	58.405	92.171	--	--	Pass

Figure Channel 03: HORIZONTAL (Peak)

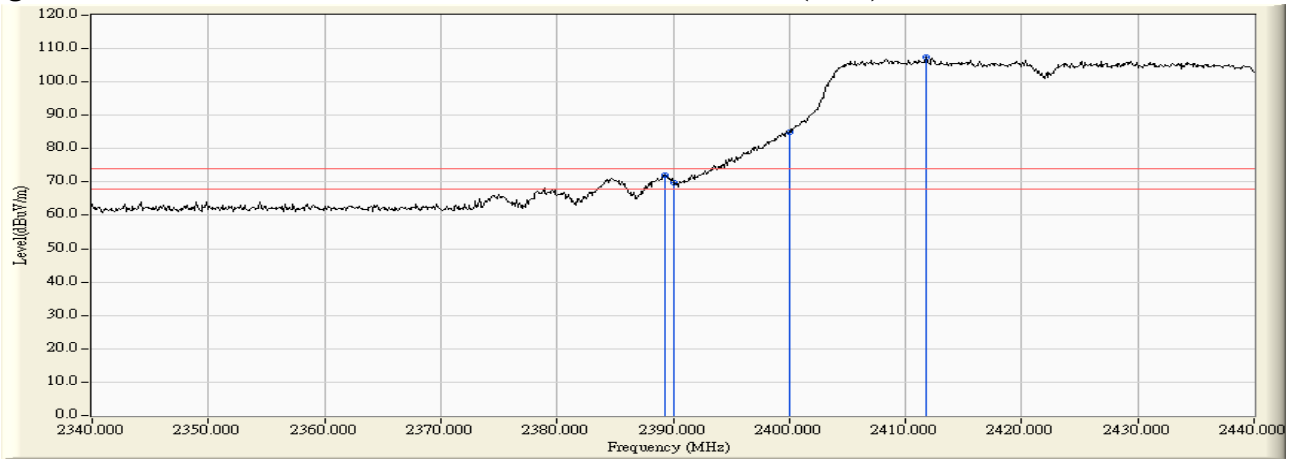
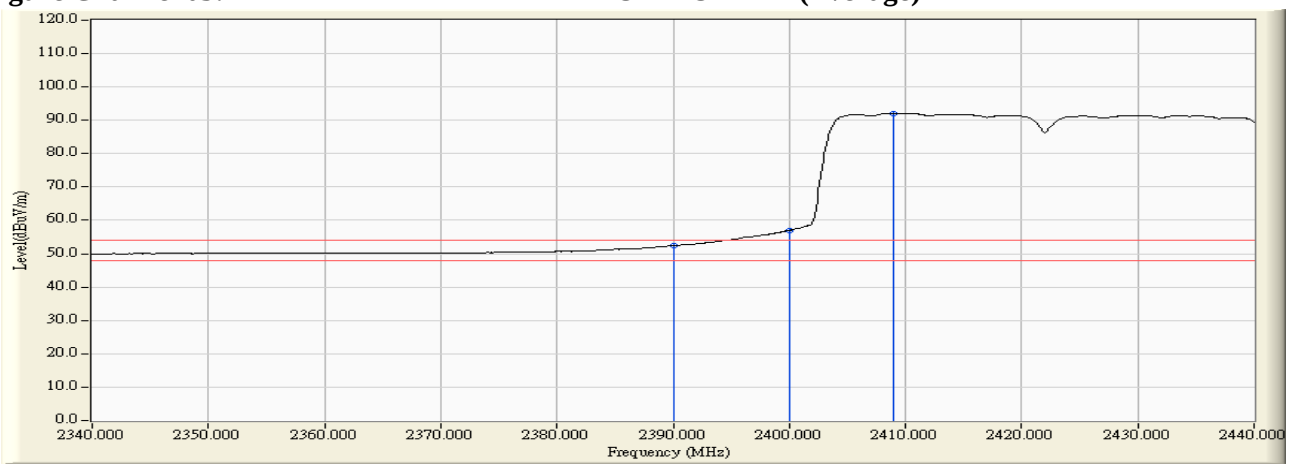


Figure Channel 03: HORIZONTAL (Average)



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 : Access Point/Sensor
Test Item : Band Edge Data
Test Site : No.3 OATS
Test Mode : Mode 4: Transmit (802.11n MCS0 30Mbps 40M-BW) (2422MHz)

RF Radiated Measurement (VERTICAL):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Peak Limit (dBμV/m)	Average Limit (dBμV/m)	Result
03 (Peak)	2387.500	32.285	32.499	64.783	74.00	54.00	Pass
03 (Peak)	2390.000	32.267	29.042	61.309	74.00	54.00	Pass
03 (Peak)	2400.000	32.241	43.336	75.577	--	--	Pass
03 (Peak)	2410.800	32.244	65.072	97.316	--	--	Pass
03 (Average)	2390.000	32.267	16.069	48.336	74.00	54.00	Pass
03 (Average)	2400.000	32.241	19.225	51.466	--	--	Pass
03 (Average)	2433.400	32.346	50.589	82.934	--	--	Pass

Figure Channel 03: VERTICAL (Peak)

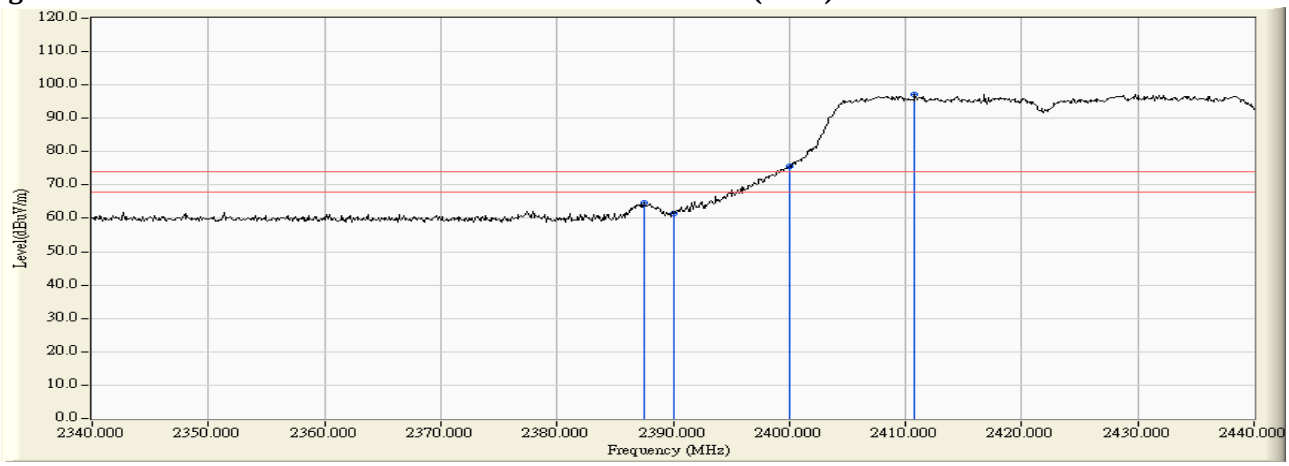
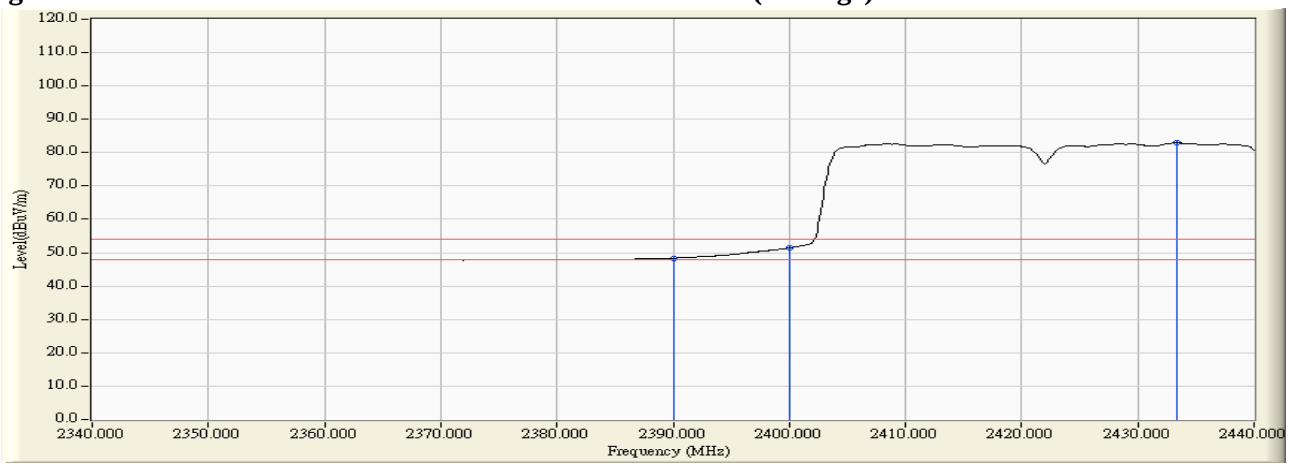


Figure Channel 03: VERTICAL (Average)



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 : Access Point/Sensor
Test Item : Band Edge Data
Test Site : No.3 OATS
Test Mode : Mode 4: Transmit (802.11n MCS0 30Mbps 40M-BW) (2452MHz)

RF Radiated Measurement (HORIZONTAL):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Peak Limit (dBμV/m)	Average Limit (dBμV/m)	Result
09 (Peak)	2442.100	33.843	75.109	108.952	--	--	Pass
09 (Peak)	2483.500	33.951	35.559	69.509	74.00	54.00	Pass
09 (Peak)	2484.800	33.954	39.082	73.035	74.00	54.00	Pass
09 (Peak)	2489.000	33.964	38.715	72.679	74.00	54.00	Pass
09 (Average)	2439.500	33.836	59.246	93.083	--	--	Pass
09 (Average)	2483.500	33.951	18.199	52.149	74.00	54.00	Pass

Figure Channel 09: HORIZONTAL (Peak)

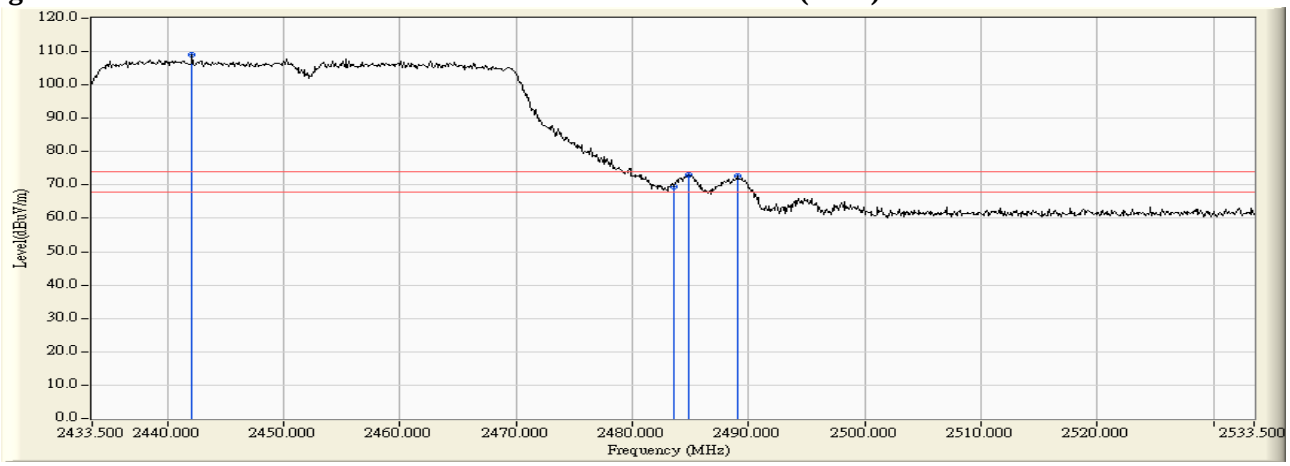
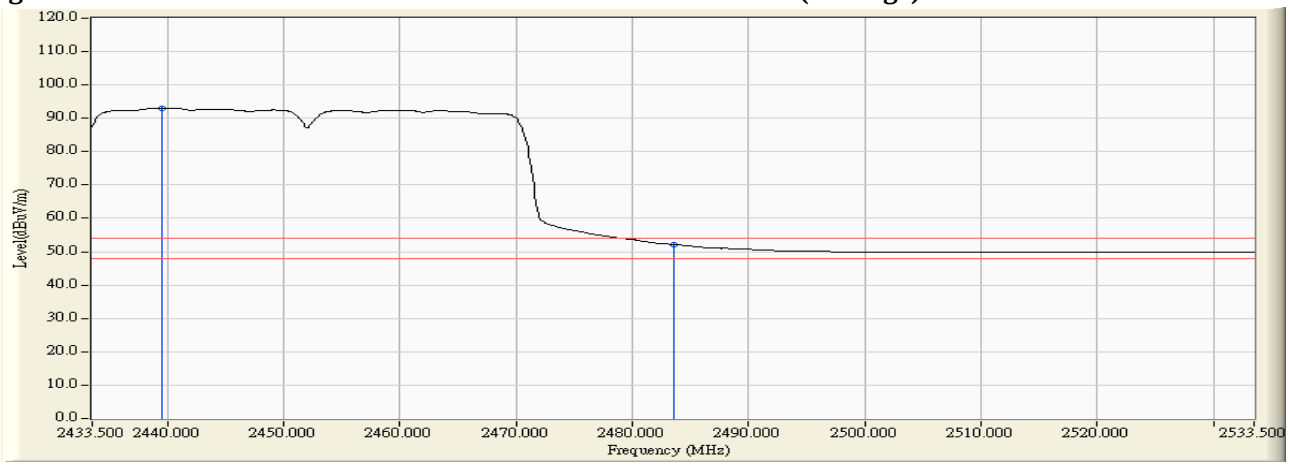


Figure Channel 09: HORIZONTAL (Average)



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 : Access Point/Sensor
Test Item : Band Edge Data
Test Site : No.3 OATS
Test Mode : Mode 4: Transmit (802.11n MCS0 30Mbps 40M-BW) (2452MHz)

RF Radiated Measurement (VERTICAL):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Peak Limit (dBμV/m)	Average Limit (dBμV/m)	Result
09 (Peak)	2440.700	32.379	65.835	98.214	--	--	Pass
09 (Peak)	2483.500	32.586	30.258	62.843	74.00	54.00	Pass
09 (Peak)	2488.400	32.608	34.655	67.264	74.00	54.00	Pass
09 (Average)	2438.400	32.368	51.649	84.017	--	--	Pass
09 (Average)	2483.500	32.586	16.457	49.042	74.00	54.00	Pass

Figure Channel 09: VERTICAL (Peak)

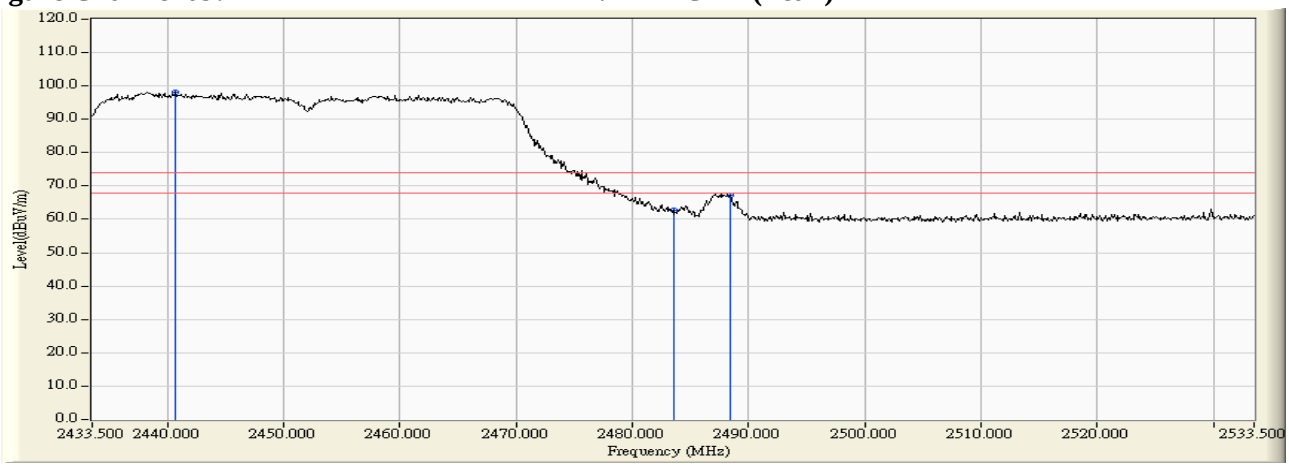
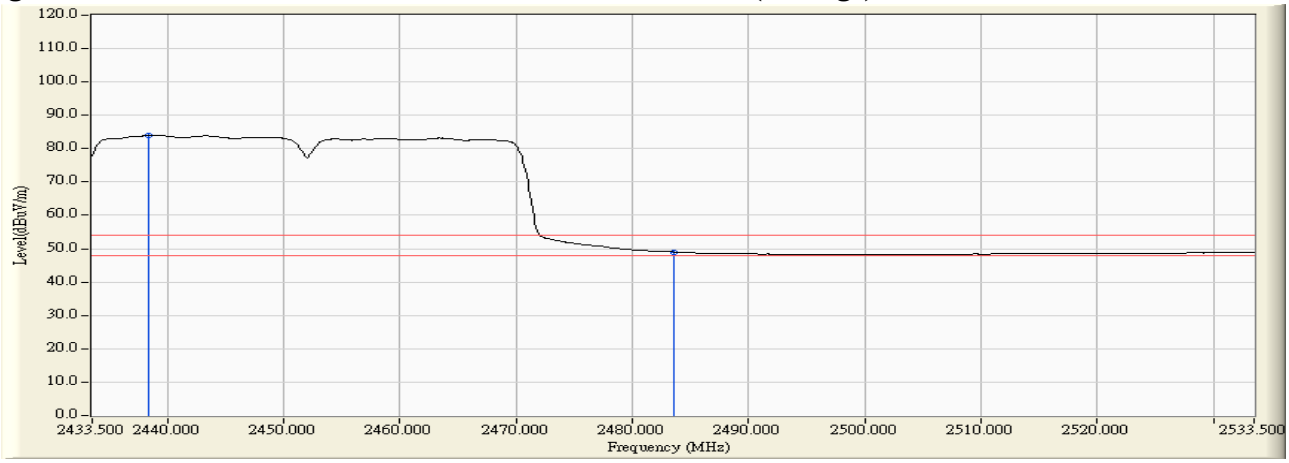


Figure Channel 09: VERTICAL (Average)



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

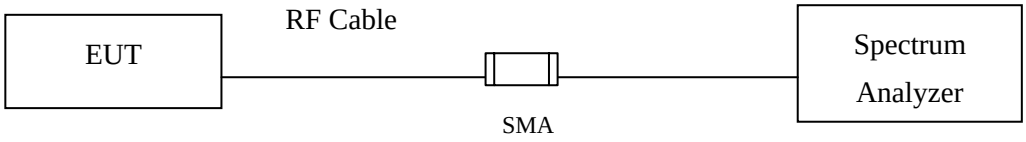
7.1. Test Equipment

	Equipment	Manufacturer	Model No./Serial No.	Last Cal.
	Spectrum Analyzer	R&S	FSP40 / 100170	Jun., 2014
	Spectrum Analyzer	Agilent	E4407B / US39440758	Jun., 2014
X	Spectrum Analyzer	Agilent	N9010A / MY48030495	Apr., 2014

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: 2009; tested according to DTS test procedure of Jan KDB558074 for compliance to FCC 47CFR 15.247 requirements.

7.5. Uncertainty

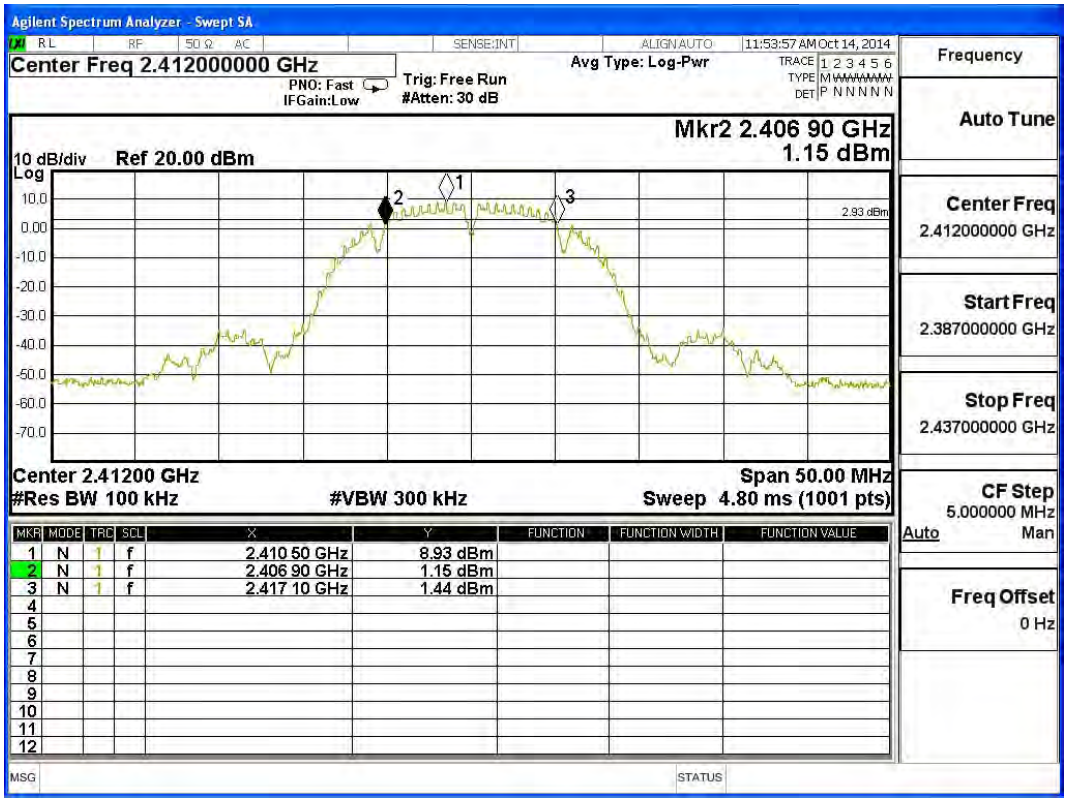
± 150Hz

7.6. Test Result of Occupied Bandwidth

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

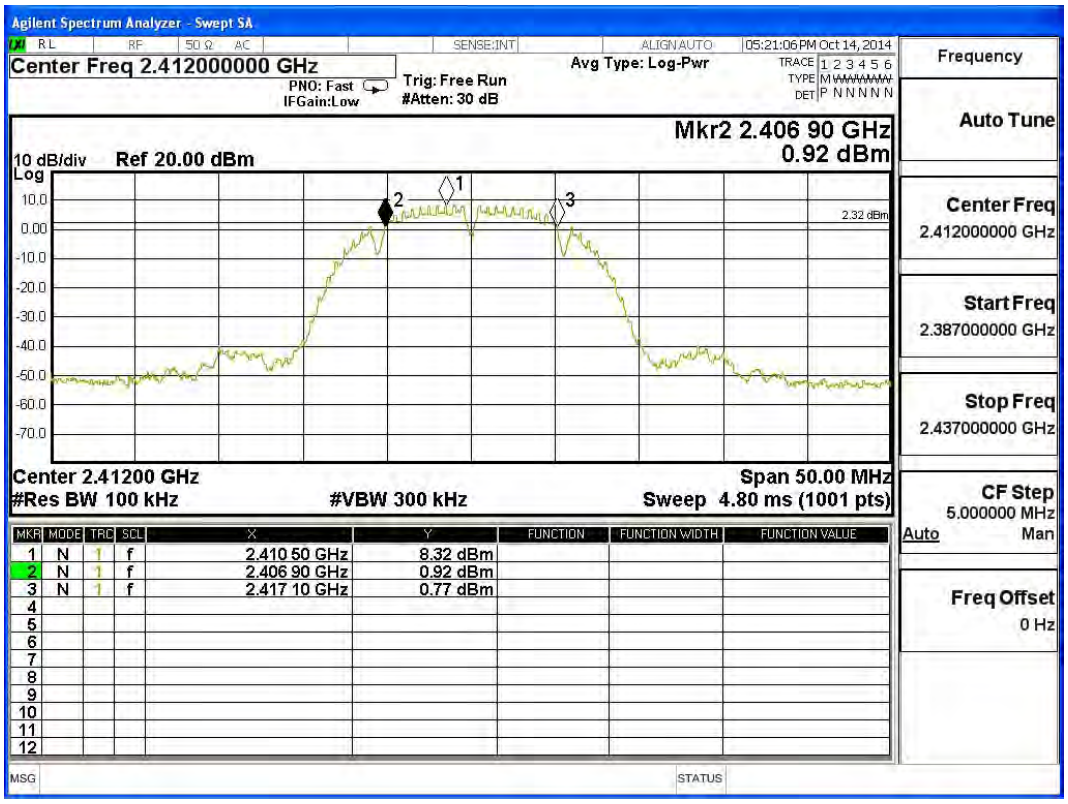
Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
01	2412	10200	>500	Pass

Figure Channel 01: (Chain A)



Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
01	2412	10200	>500	Pass

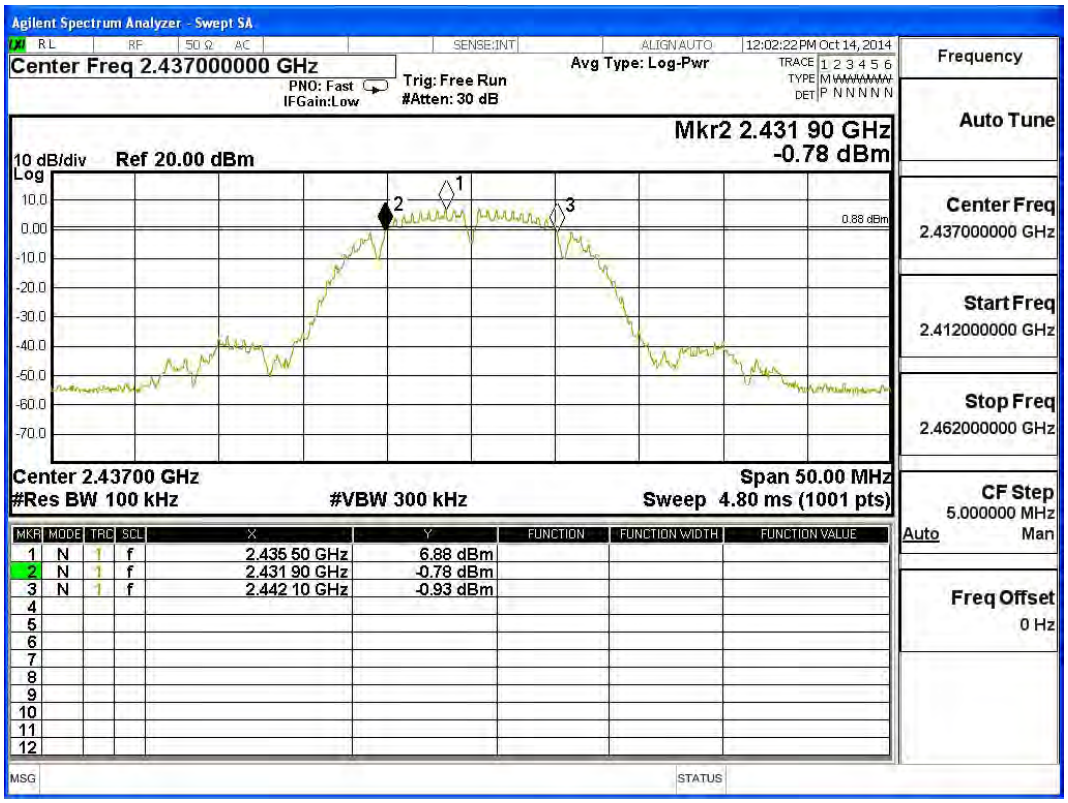
Figure Channel 01: (Chain B)



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

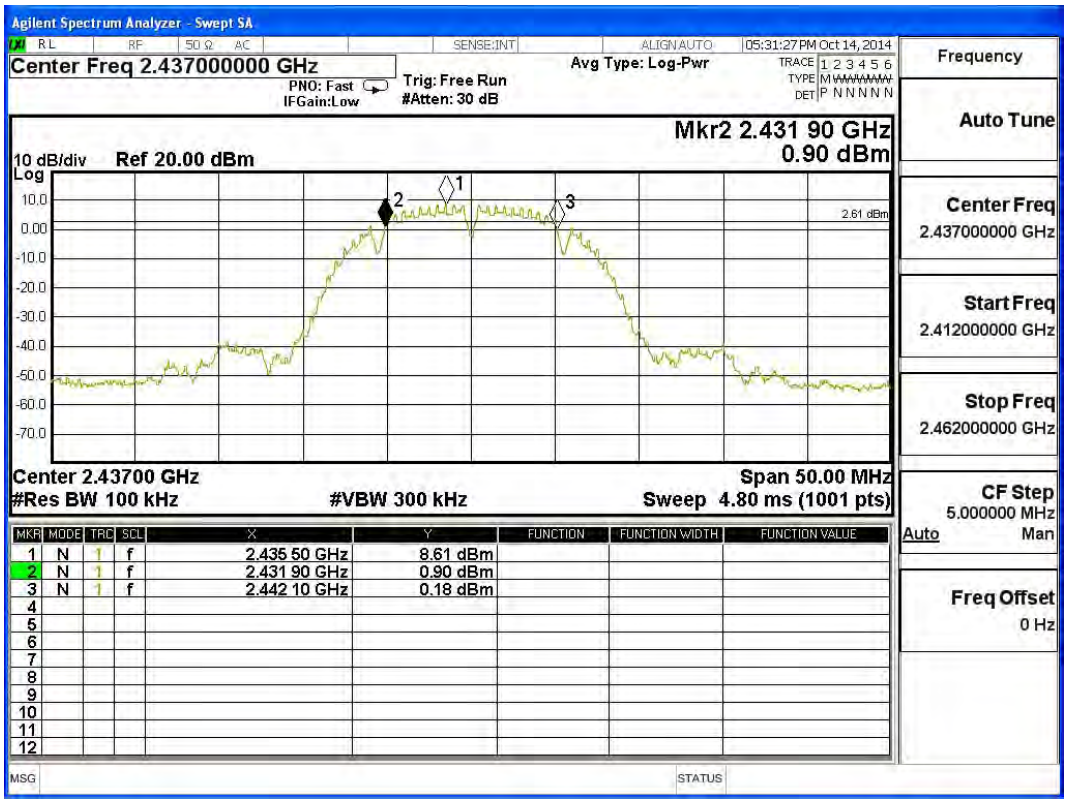
Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
06	2437	10200	>500	Pass

Figure Channel 06: (Chain A)



Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
06	2437	10200	>500	Pass

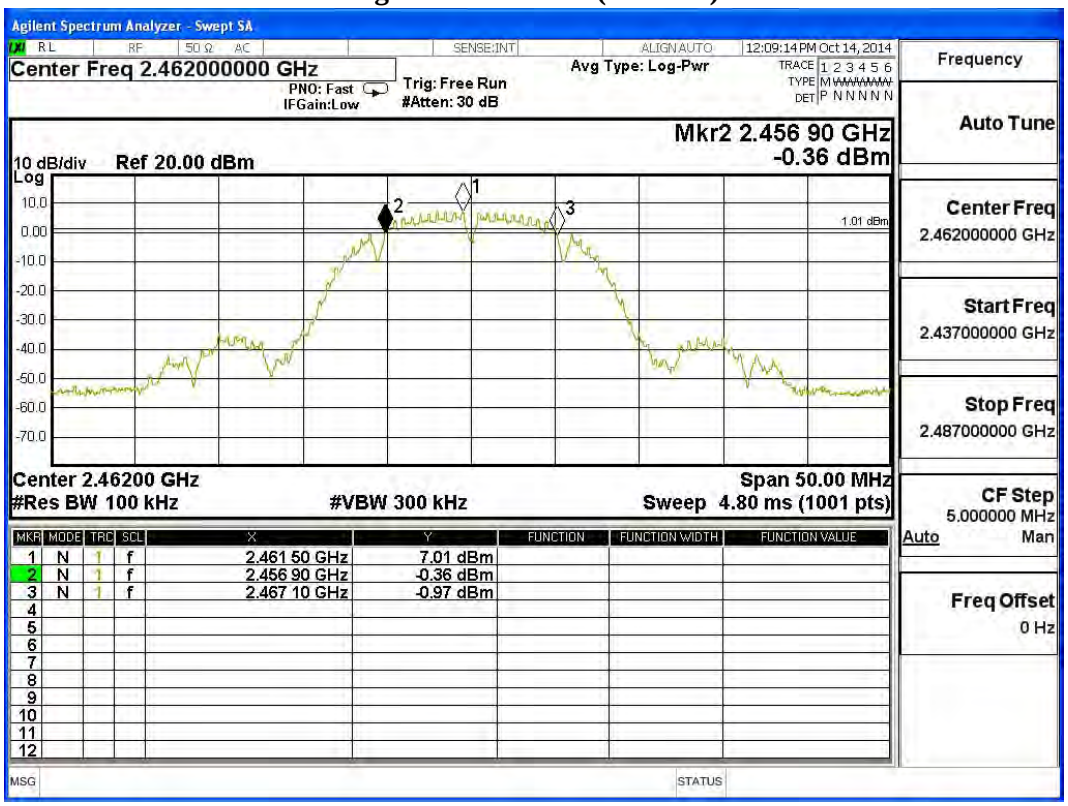
Figure Channel 06: (Chain B)



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

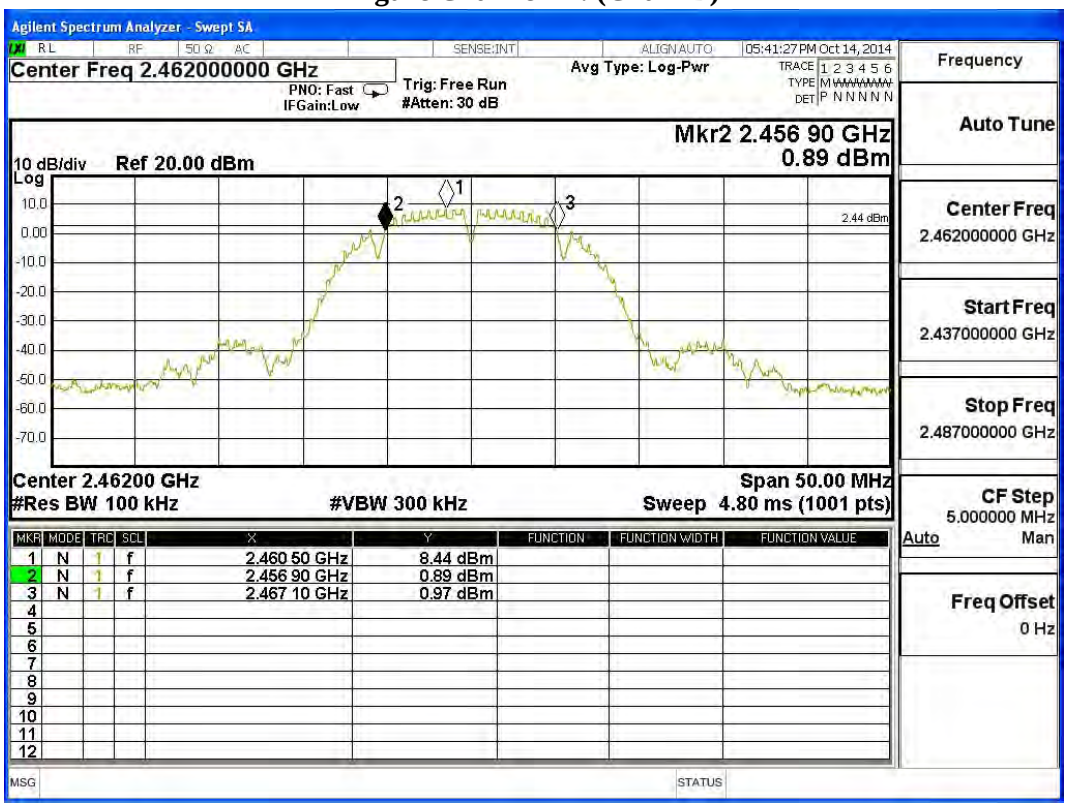
Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
11	2462	10200	>500	Pass

Figure Channel 11: (Chain A)



Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
11	2462	10200	>500	Pass

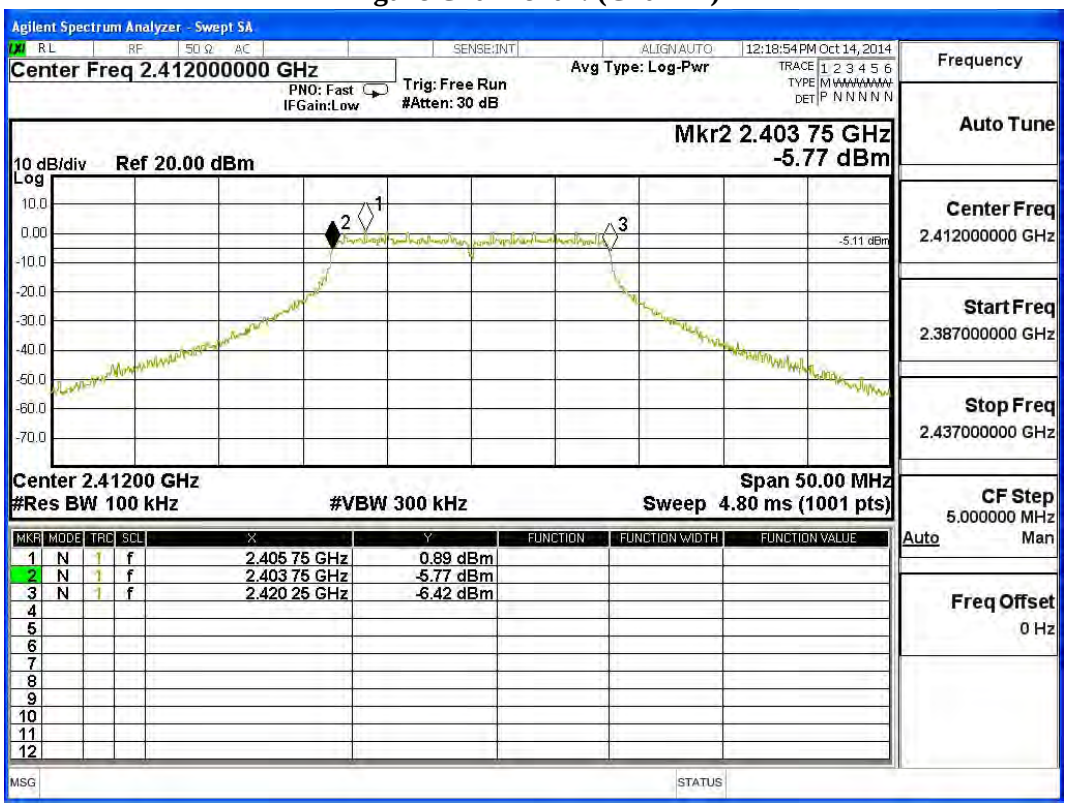
Figure Channel 11: (Chain B)



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

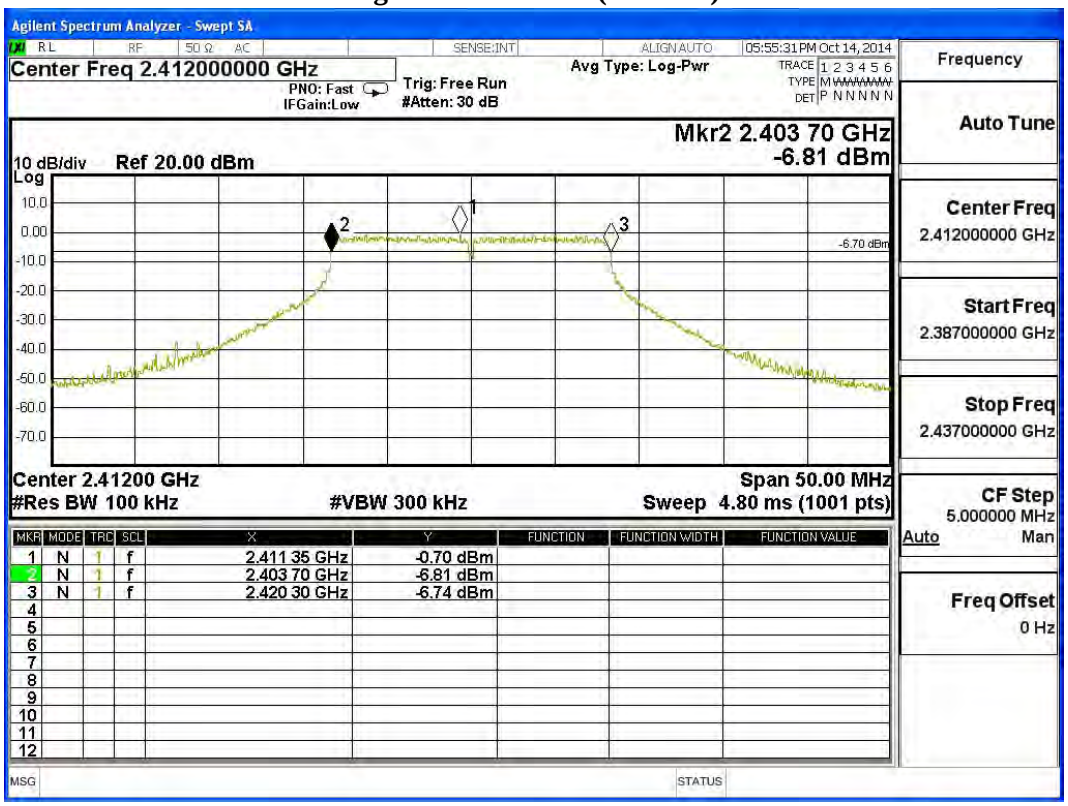
Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
01	2412	16500	>500	Pass

Figure Channel 01: (Chain A)



Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
01	2412	16600	>500	Pass

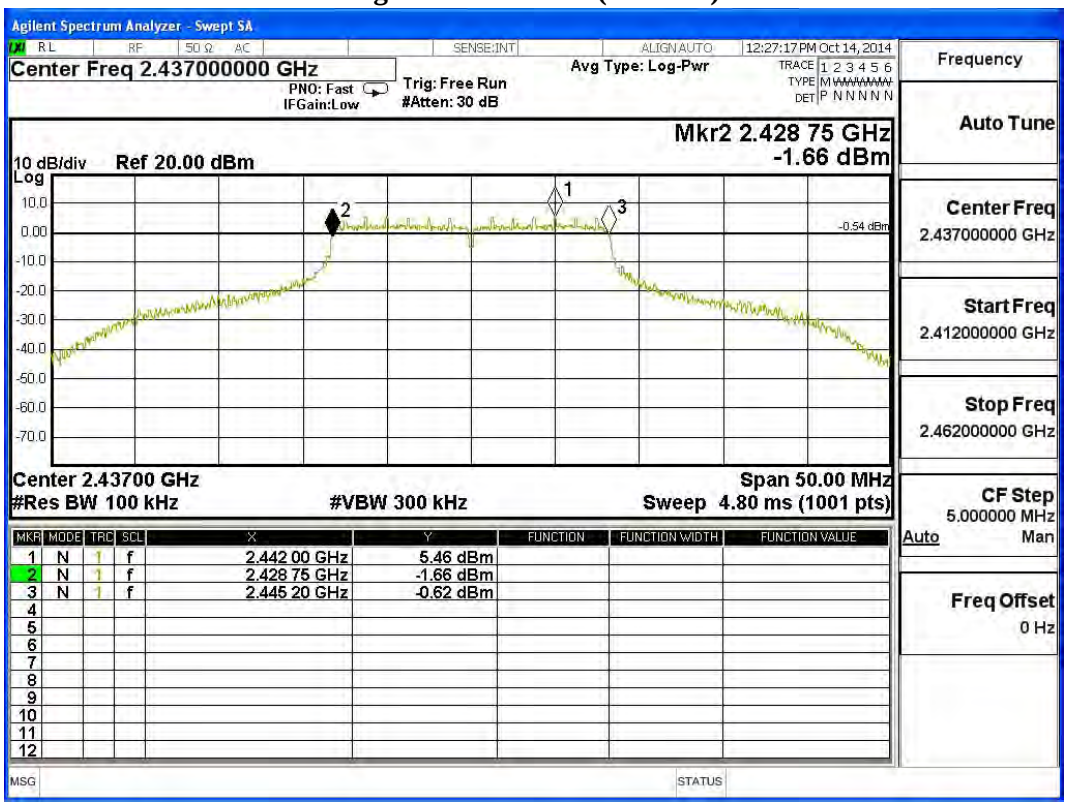
Figure Channel 01: (Chain B)



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

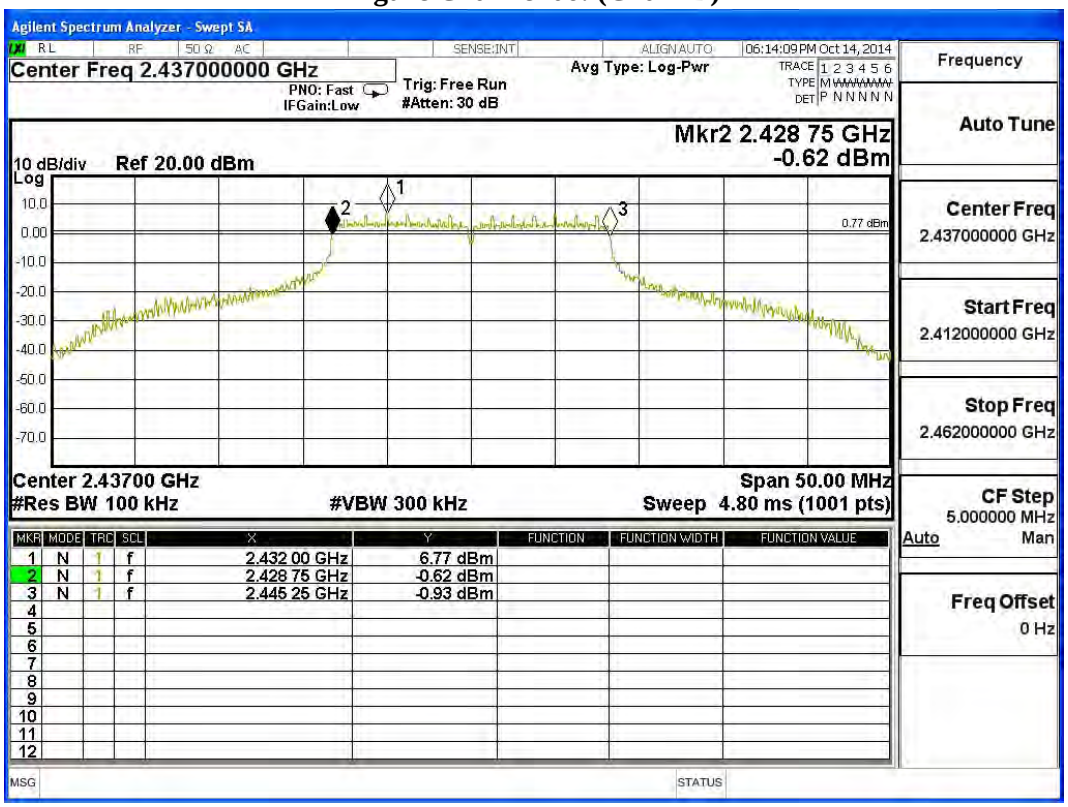
Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
06	2437	16450	>500	Pass

Figure Channel 06: (Chain A)



Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
06	2437	16500	>500	Pass

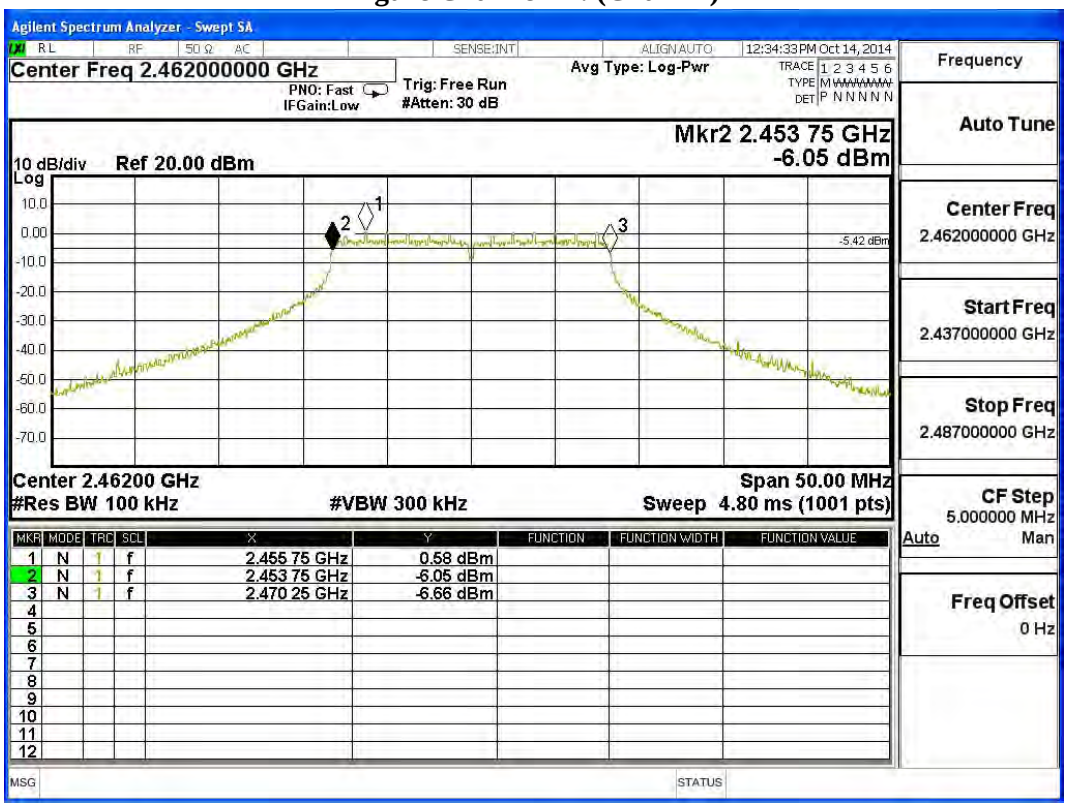
Figure Channel 06: (Chain B)



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

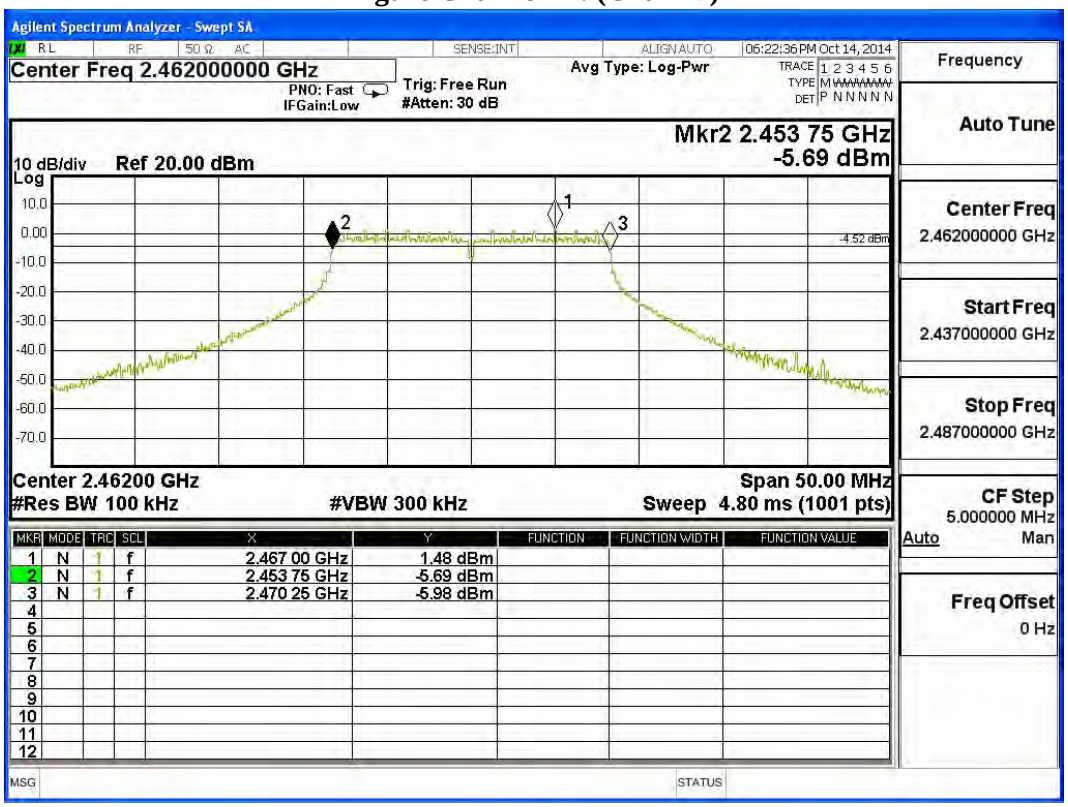
Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
11	2462	16500	>500	Pass

Figure Channel 11: (Chain A)



Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
11	2462	16500	>500	Pass

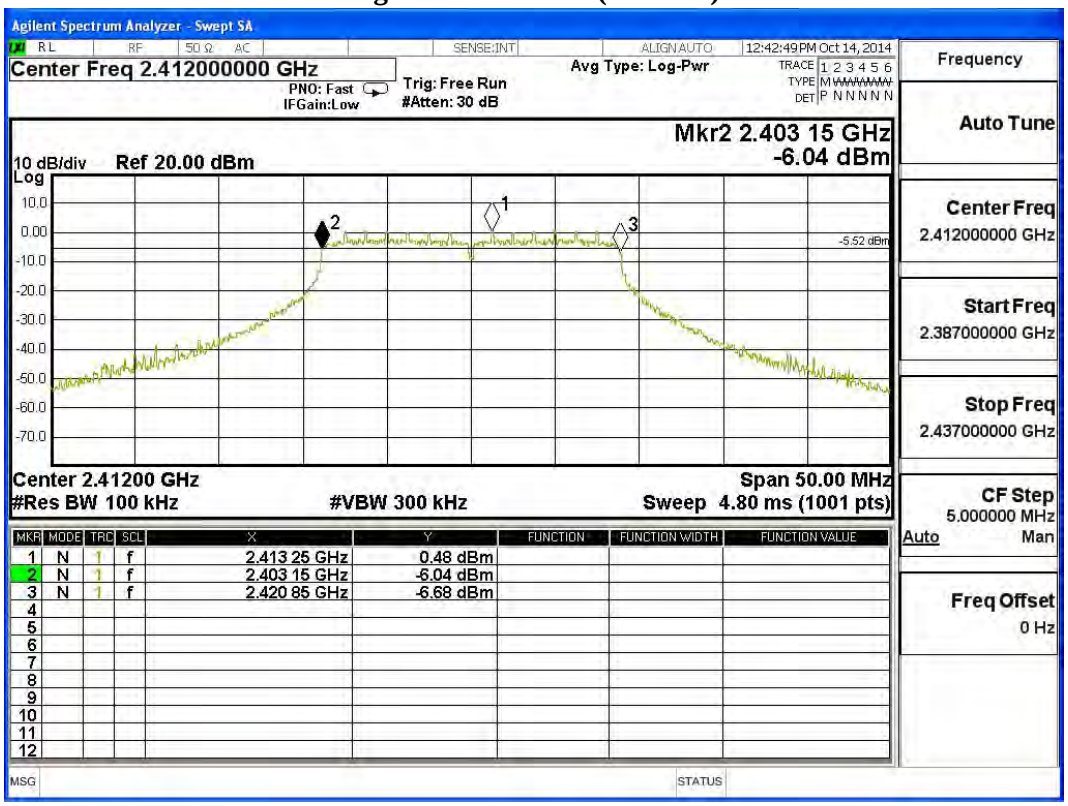
Figure Channel 11: (Chain B)



Product : Access Point/Sensor
Test Item : Occupied Bandwidth Data
Test Site : No.3 OATS
Test Mode : Mode 3: Transmit (802.11n MCS0 14.4Mbps 20M-BW) (2412MHz)

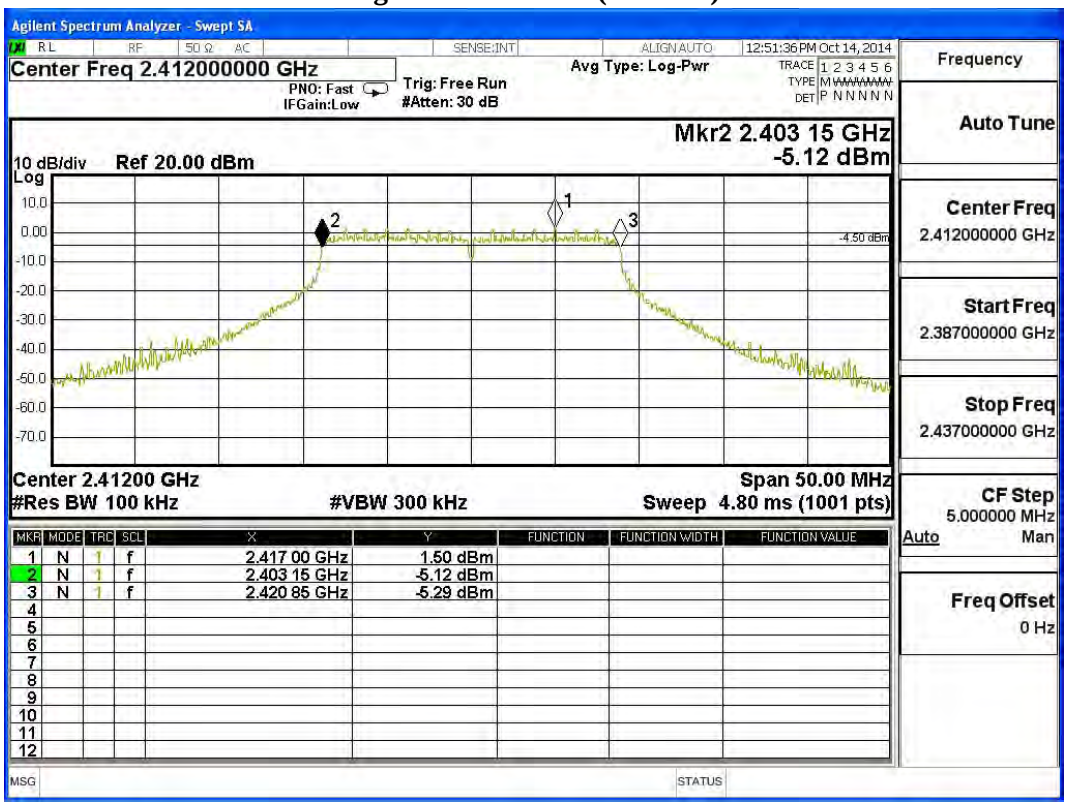
Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
01	2412	17700	>500	Pass

Figure Channel 01: (Chain A)



Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
01	2412	17700	>500	Pass

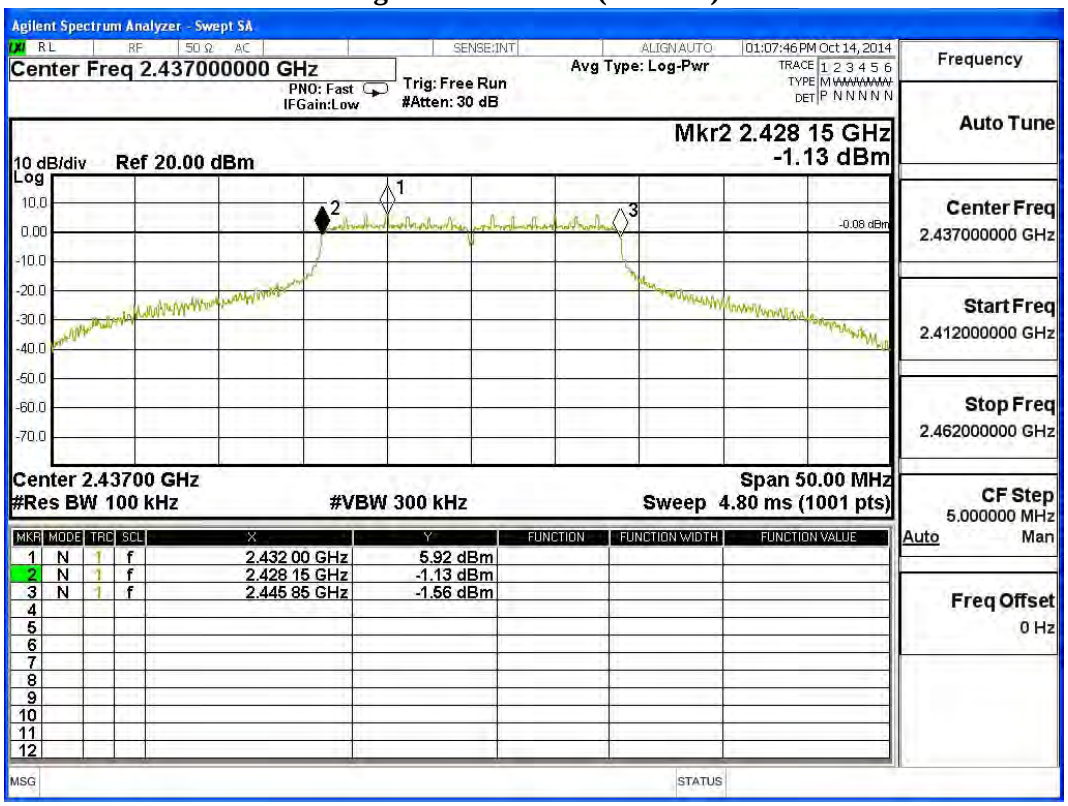
Figure Channel 01: (Chain B)



Product : Access Point/Sensor
Test Item : Occupied Bandwidth Data
Test Site : No.3 OATS
Test Mode : Mode 3: Transmit (802.11n MCS0 14.4Mbps 20M-BW) (2437MHz)

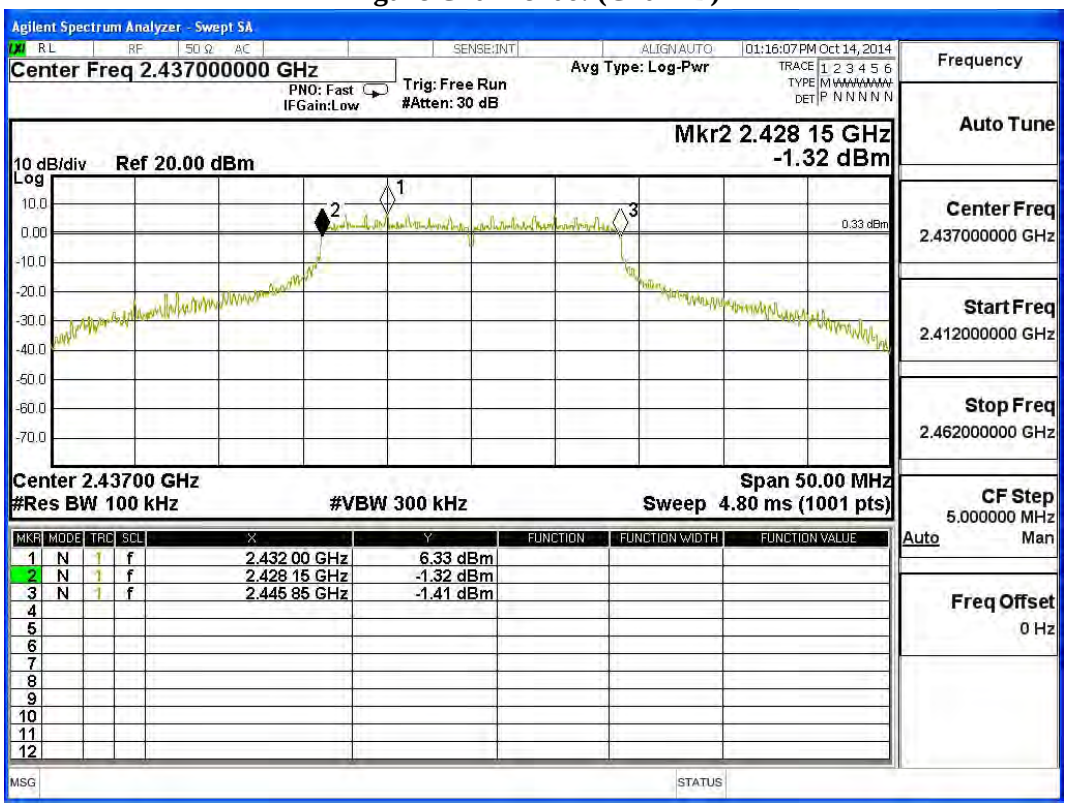
Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
06	2437	17700	>500	Pass

Figure Channel 06: (Chain A)



Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
06	2437	17700	>500	Pass

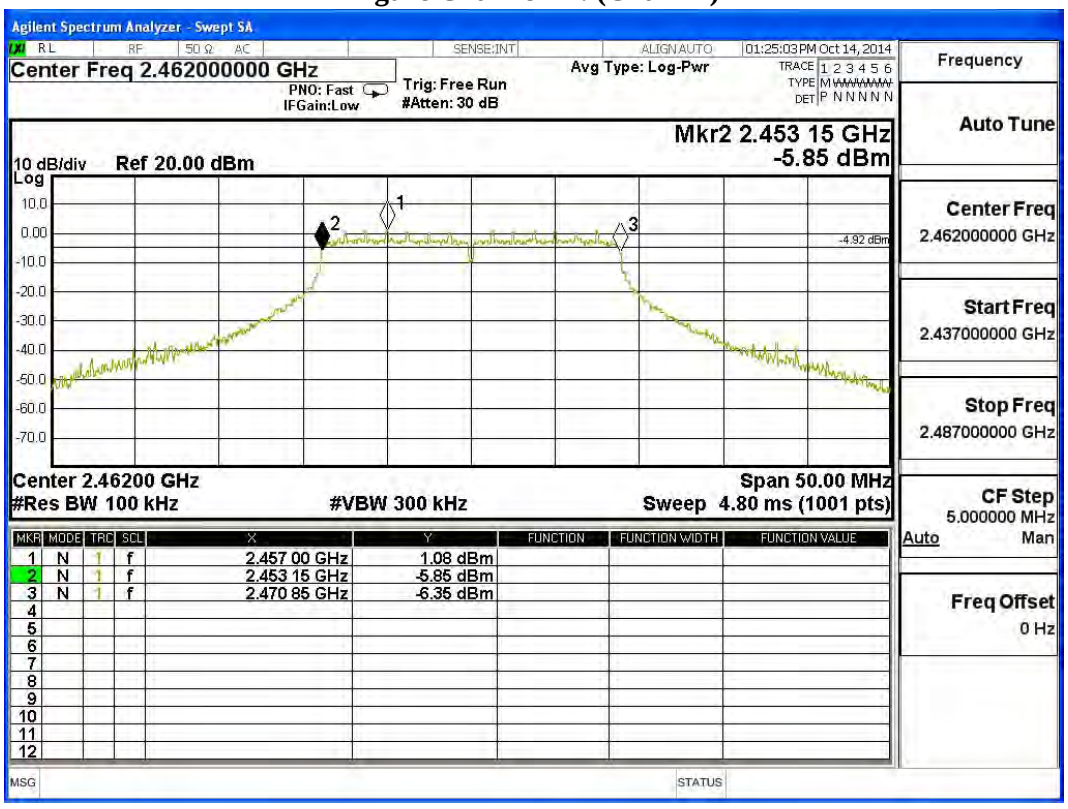
Figure Channel 06: (Chain B)



Product : Access Point/Sensor
Test Item : Occupied Bandwidth Data
Test Site : No.3 OATS
Test Mode : Mode 3: Transmit (802.11n MCS0 14.4Mbps 20M-BW) (2462MHz)

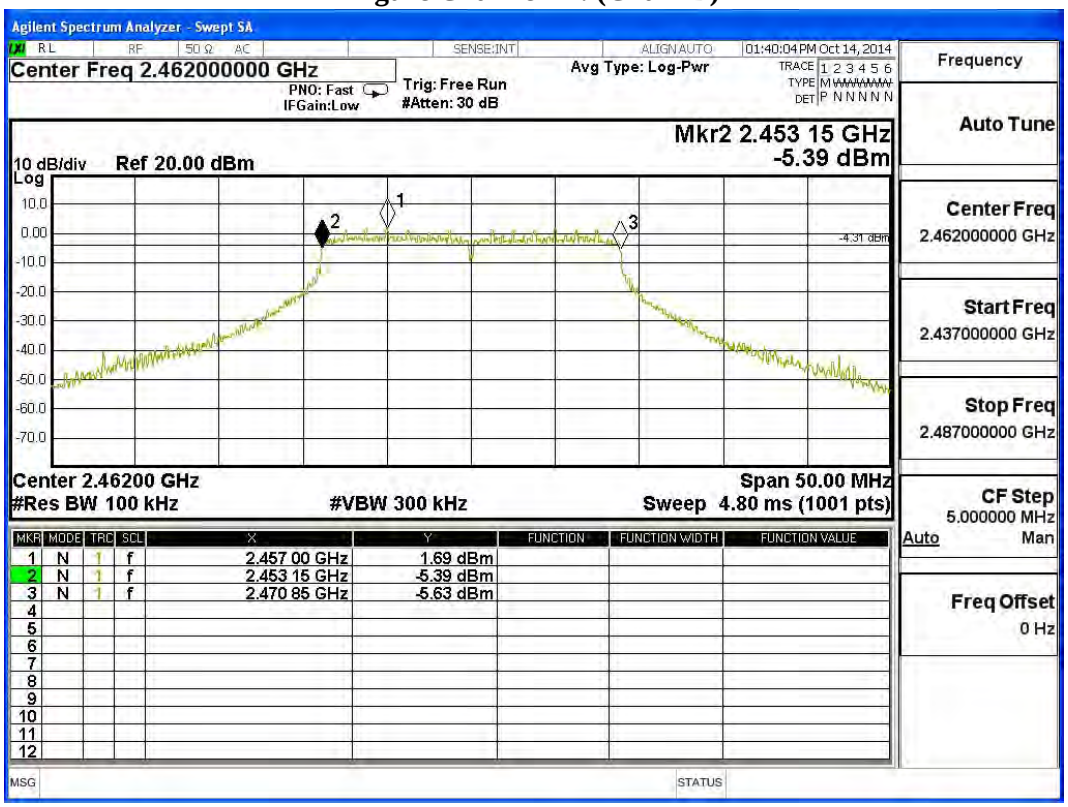
Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
11	2462	17700	>500	Pass

Figure Channel 11: (Chain A)



Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
11	2462	17700	>500	Pass

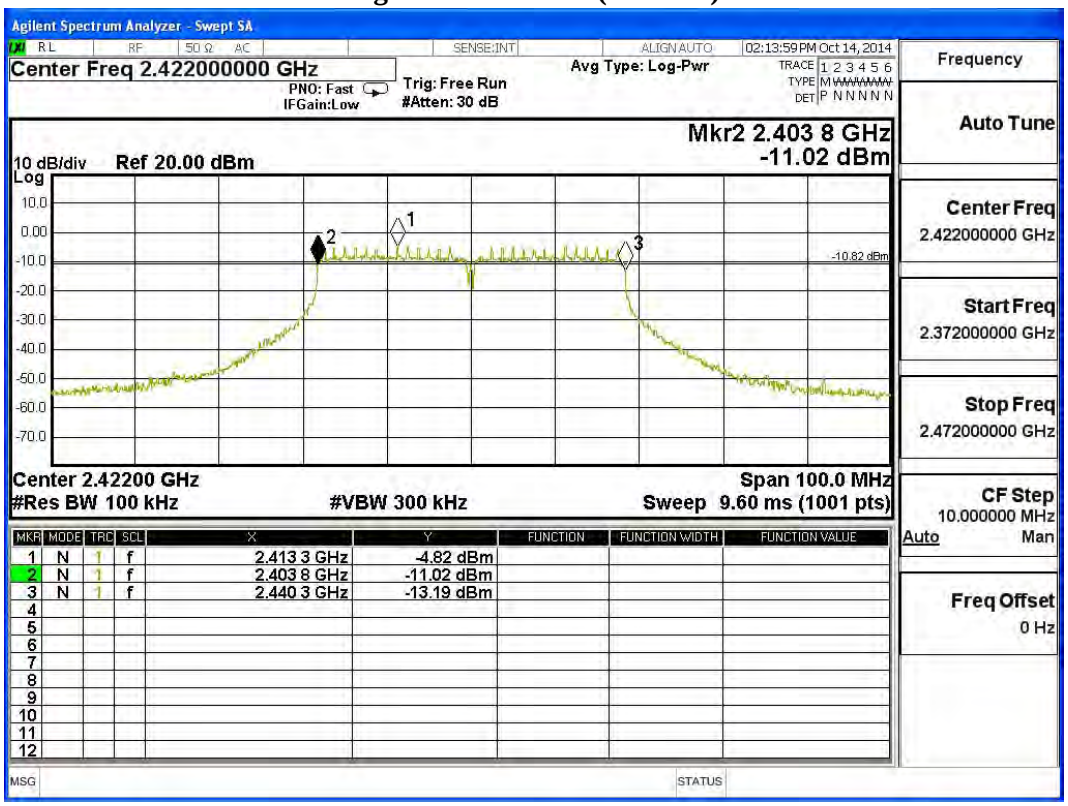
Figure Channel 11: (Chain B)



Product : Access Point/Sensor
Test Item : Occupied Bandwidth Data
Test Site : No.3 OATS
Test Mode : Mode 4: Transmit (802.11n MCS0 30Mbps 40M-BW) (2422MHz)

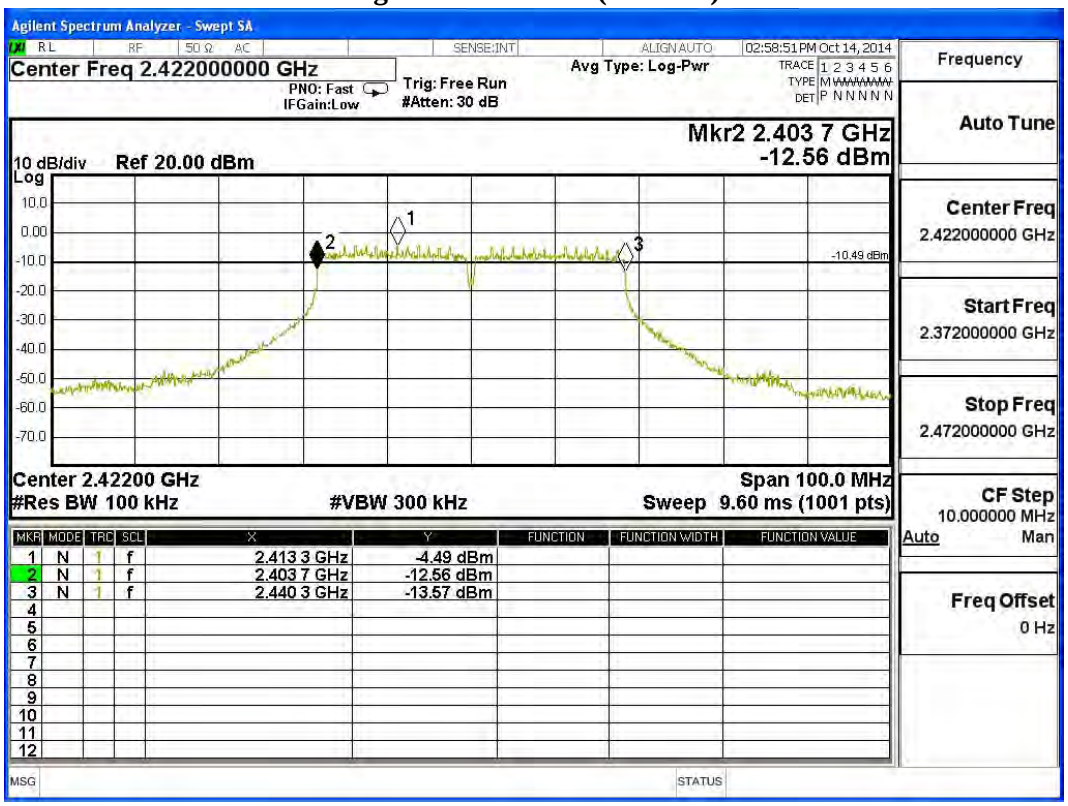
Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
03	2422	36500	>500	Pass

Figure Channel 03: (Chain A)



Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
03	2422	36600	>500	Pass

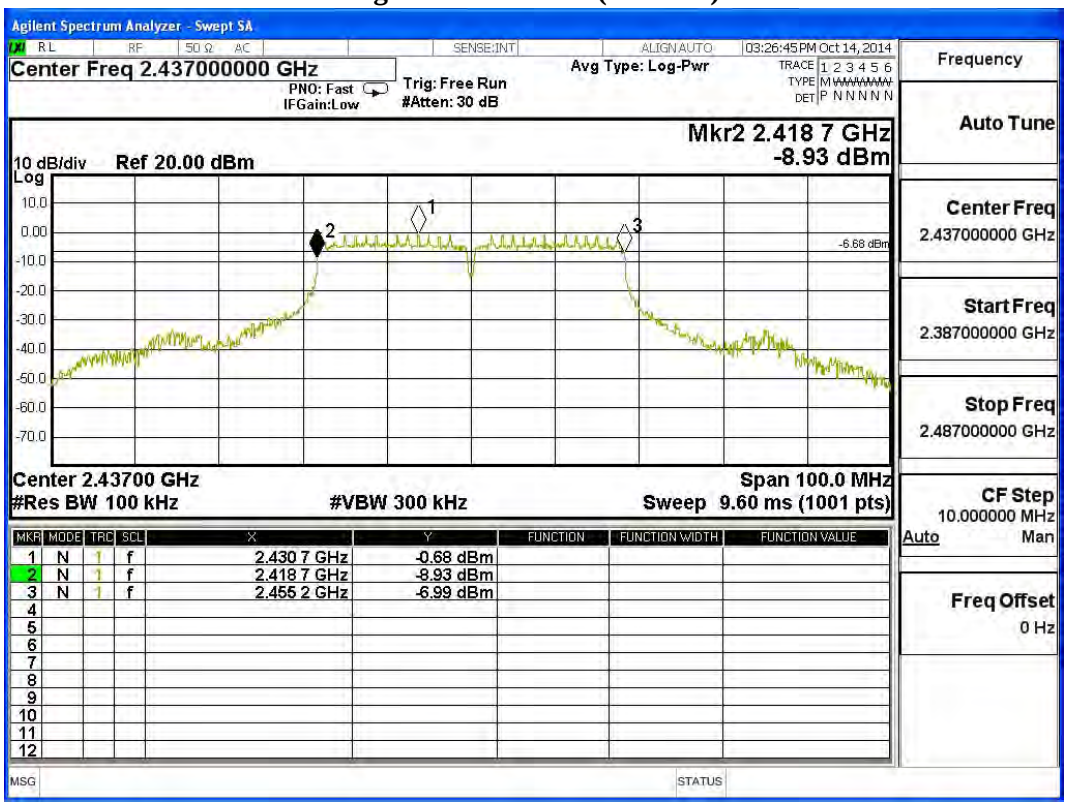
Figure Channel 03: (Chain B)



Product : Access Point/Sensor
Test Item : Occupied Bandwidth Data
Test Site : No.3 OATS
Test Mode : Mode 4: Transmit (802.11n MCS0 30Mbps 40M-BW) (2437MHz)

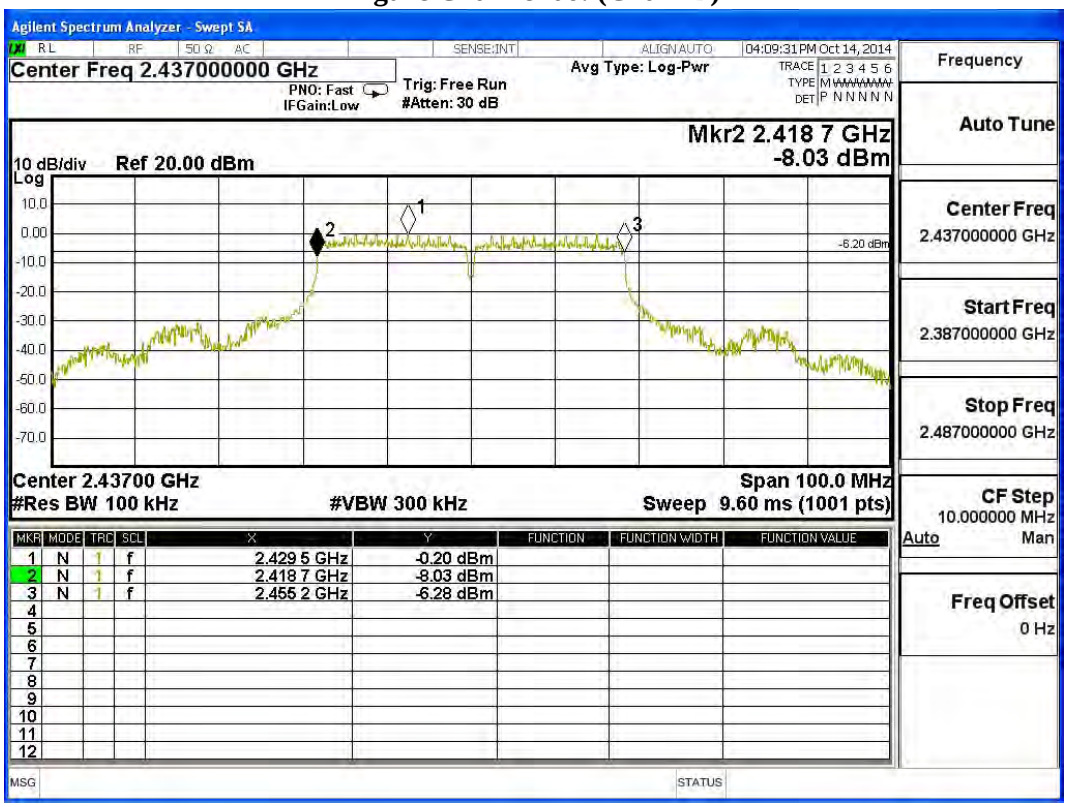
Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
06	2437	36500	>500	Pass

Figure Channel 06: (Chain A)



Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
06	2437	36500	>500	Pass

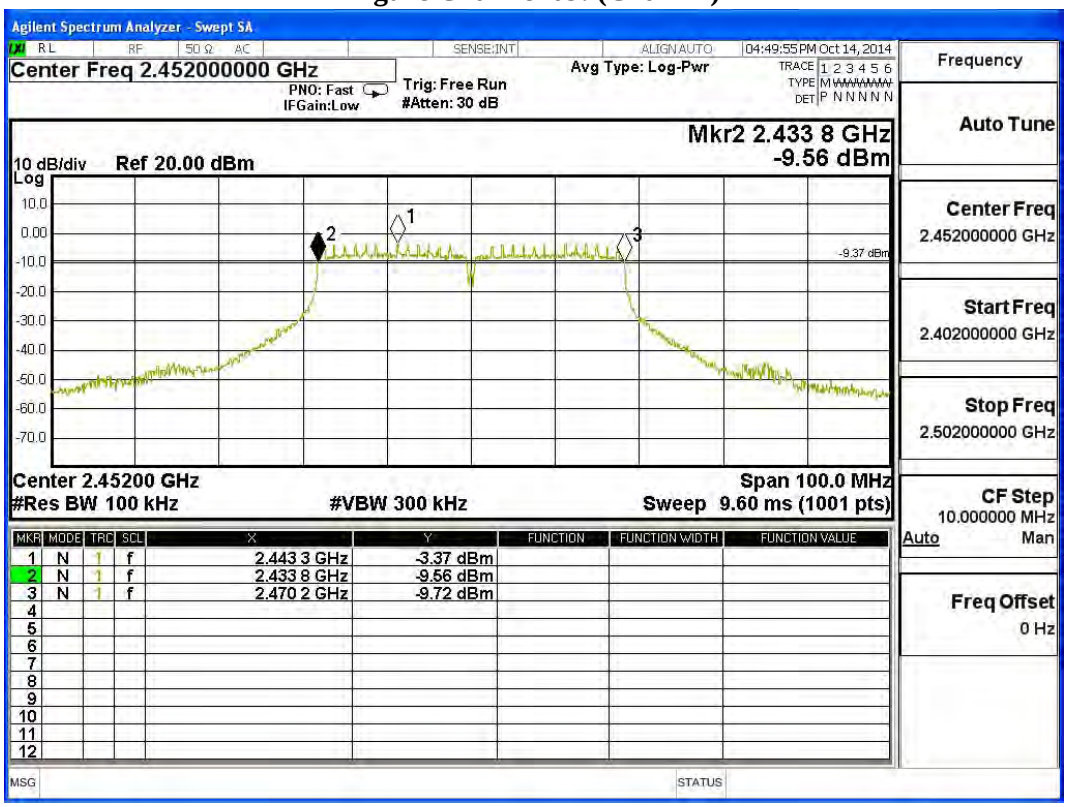
Figure Channel 06: (Chain B)



Product : Access Point/Sensor
Test Item : Occupied Bandwidth Data
Test Site : No.3 OATS
Test Mode : Mode 4: Transmit (802.11n MCS0 30Mbps 40M-BW) (2452MHz)

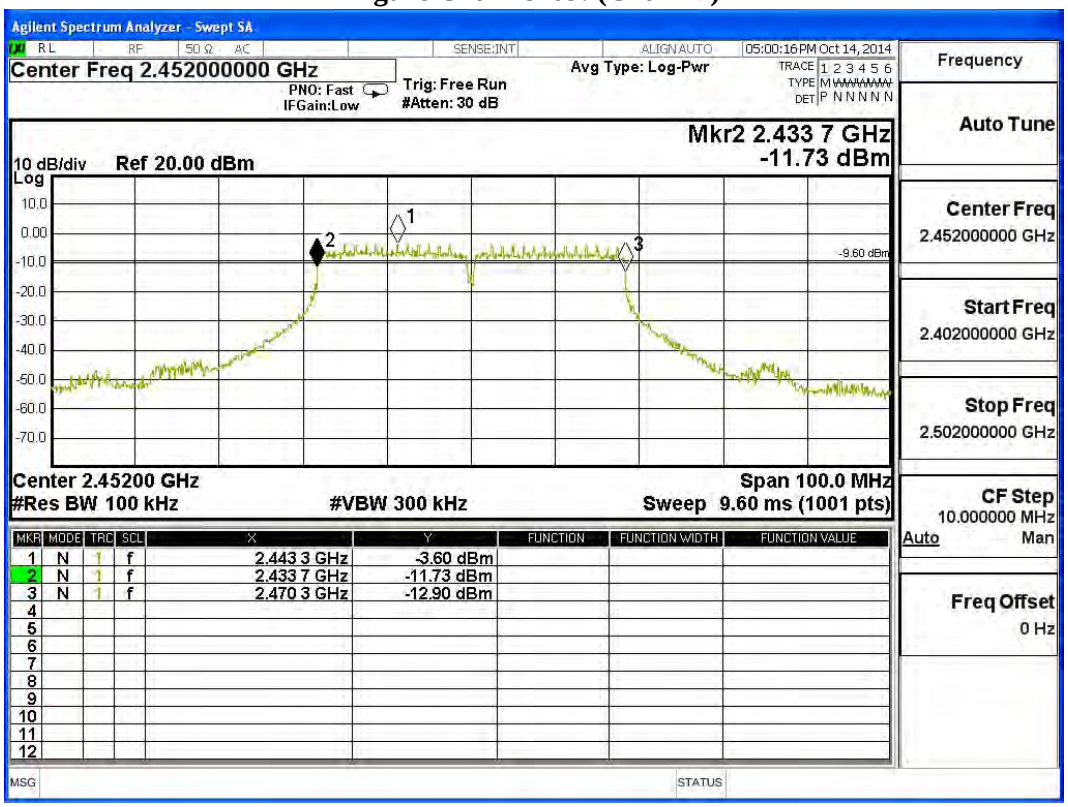
Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
09	2452	36400	>500	Pass

Figure Channel 09: (Chain A)



Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
09	2452	36600	>500	Pass

Figure Channel 09: (Chain B)



8. Power Density

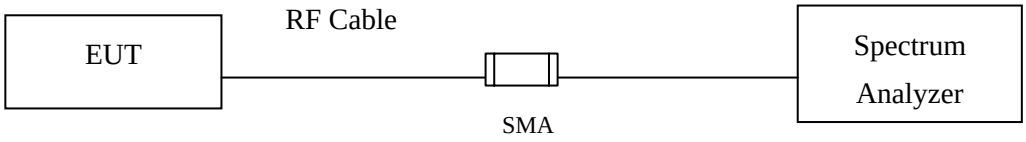
8.1. Test Equipment

	Equipment	Manufacturer	Model No./Serial No.	Last Cal.
	Spectrum Analyzer	R&S	FSP40 / 100170	Jun., 2014
	Spectrum Analyzer	Agilent	E4407B / US39440758	Jun., 2014
X	Spectrum Analyzer	Agilent	N9010A / MY48030495	Apr., 2014

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, 2009; 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 : Access Point/Sensor
Test Item : Power Density Data
Test Site : No.3 OATS
Test Mode : Mode 1: Transmit (802.11b 1Mbps) (2412MHz)

Channel No.	Frequency (MHz)	Chain	PPSD (dBm)	Total PPSD (dBm)	Limit (dBm)	Result
01	2412	A	-1.653	1.357	< 8dBm	Pass
01	2412	B	-1.481	1.529	< 8dBm	Pass

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

Figure Channel 01: (Chain A)

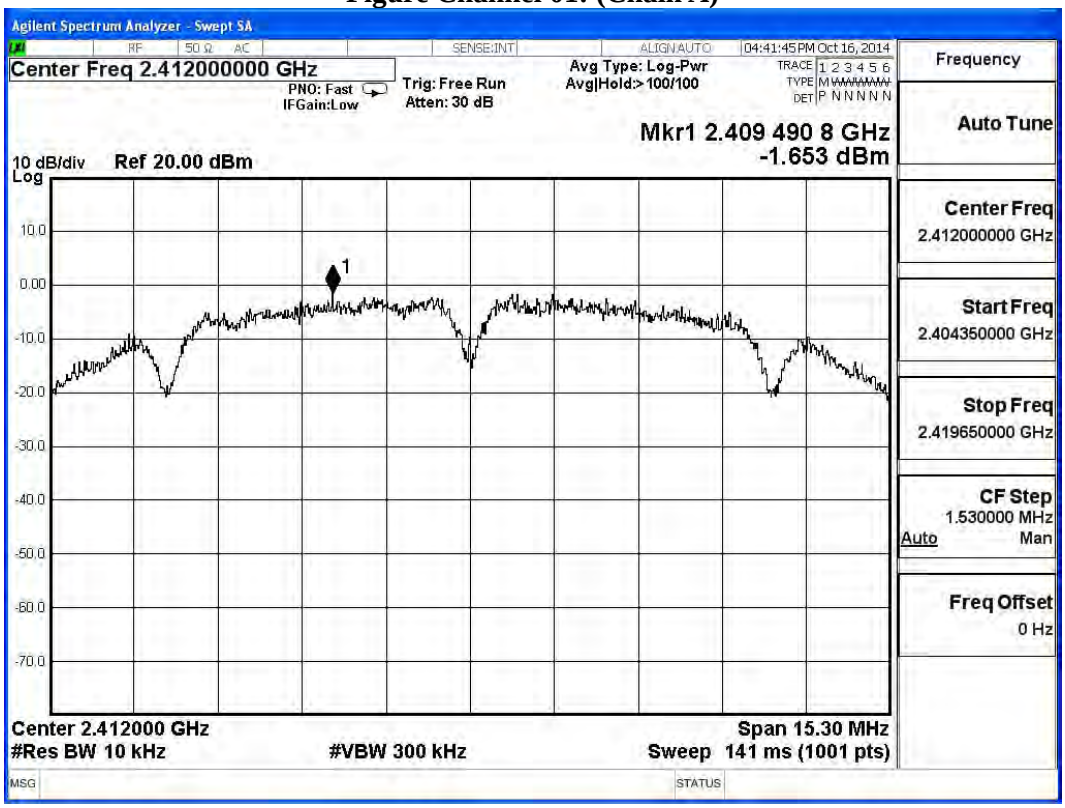
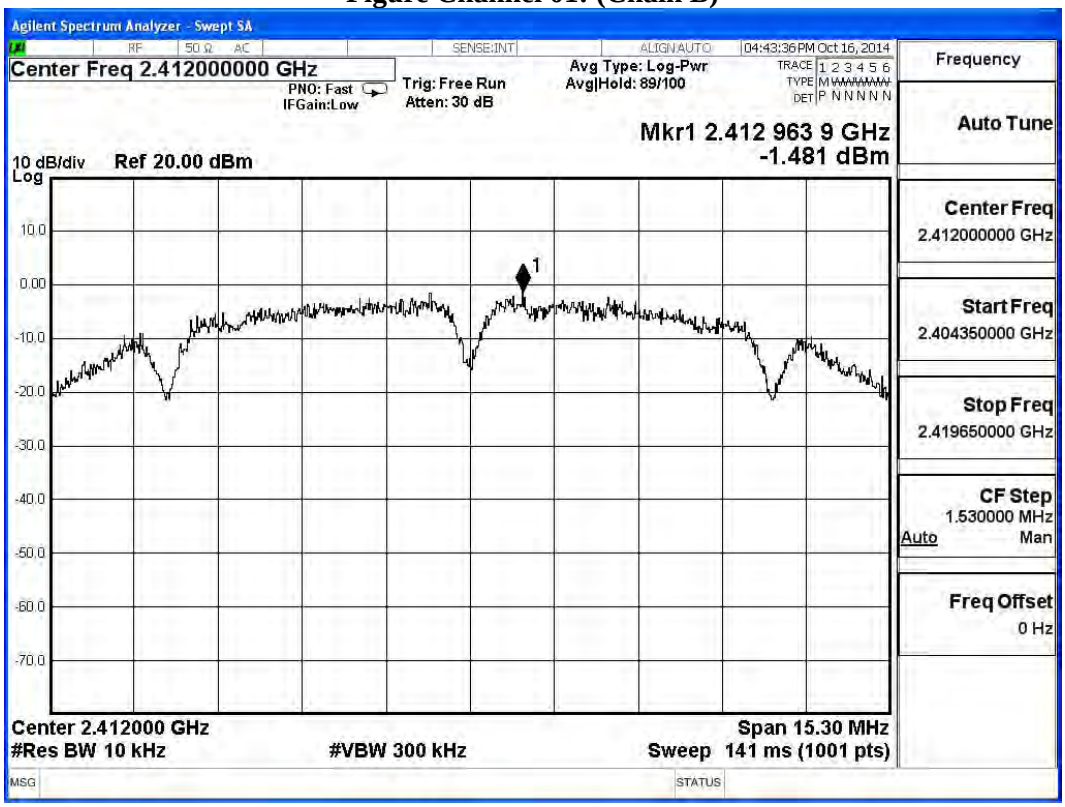


Figure Channel 01: (Chain B)



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

Channel No.	Frequency (MHz)	Chain	PPSD (dBm)	Total PPSD (dBm)	Limit (dBm)	Result
06	2437	A	-0.288	2.722	< 8dBm	Pass
06	2437	B	-0.265	2.745	< 8dBm	Pass

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

Figure Channel 06: (Chain A)

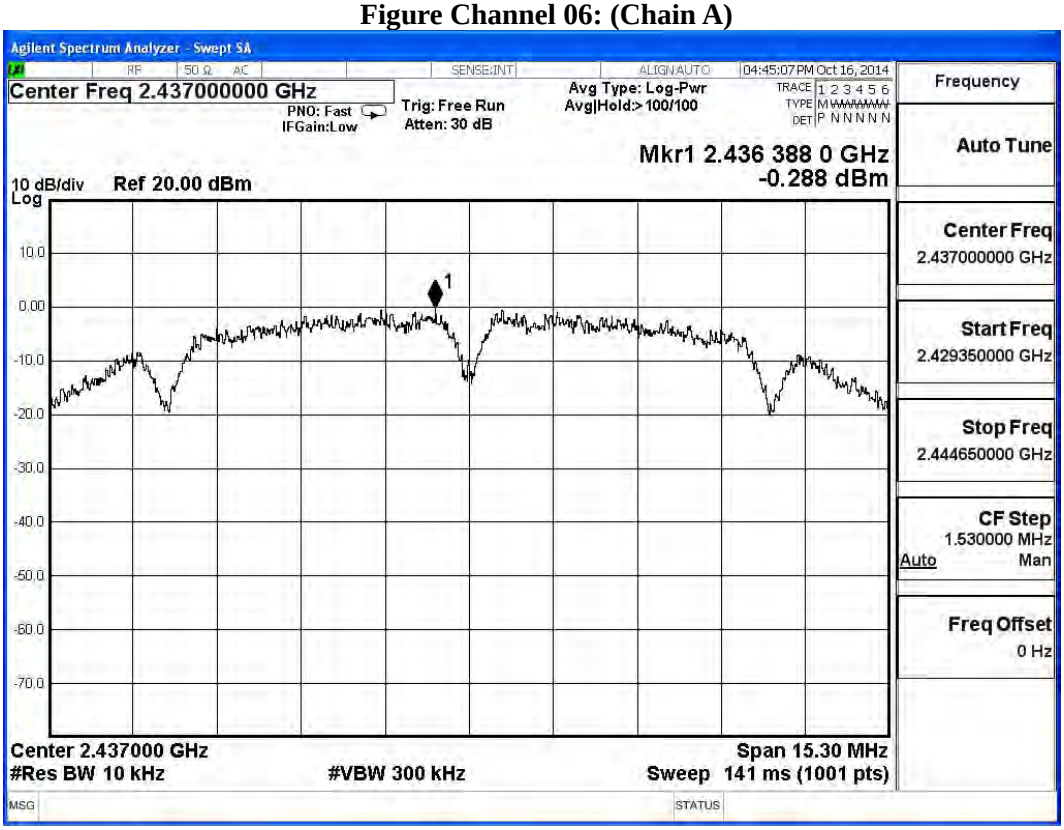
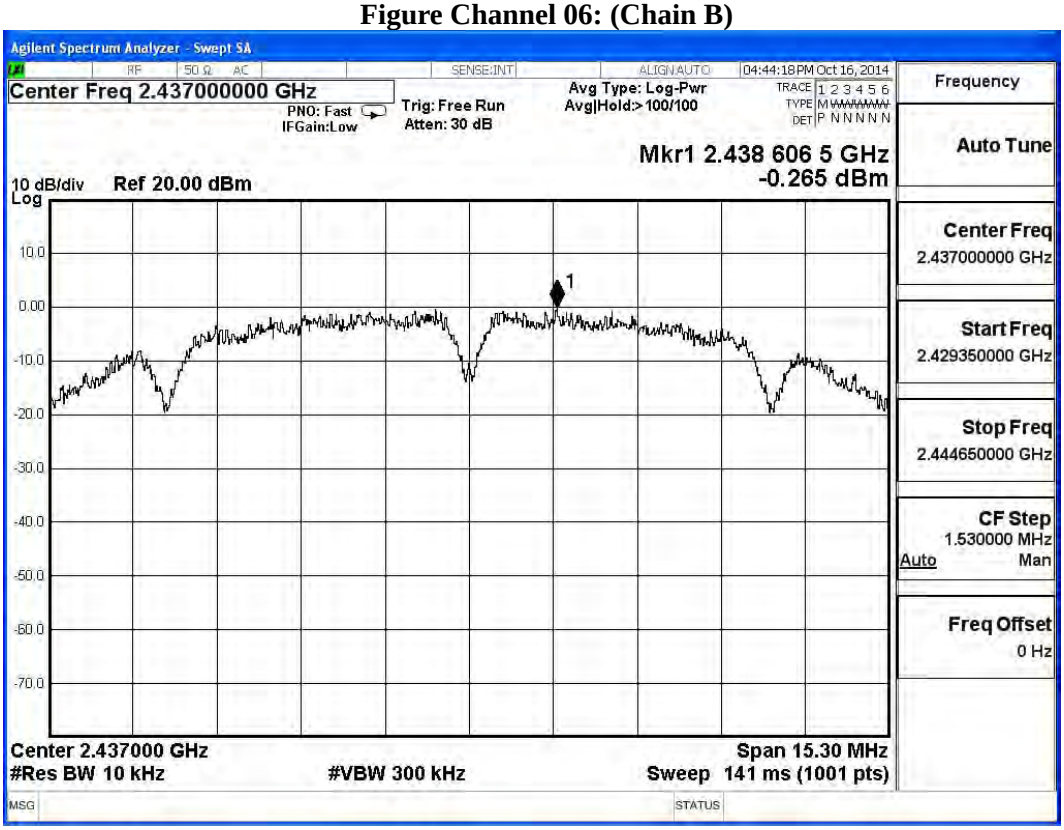


Figure Channel 06: (Chain B)



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

Channel No.	Frequency (MHz)	Chain	PPSD (dBm)	Total PPSD (dBm)	Limit (dBm)	Result
11	2462	A	-0.271	2.739	< 8dBm	Pass
11	2462	B	0.242	3.252	< 8dBm	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)

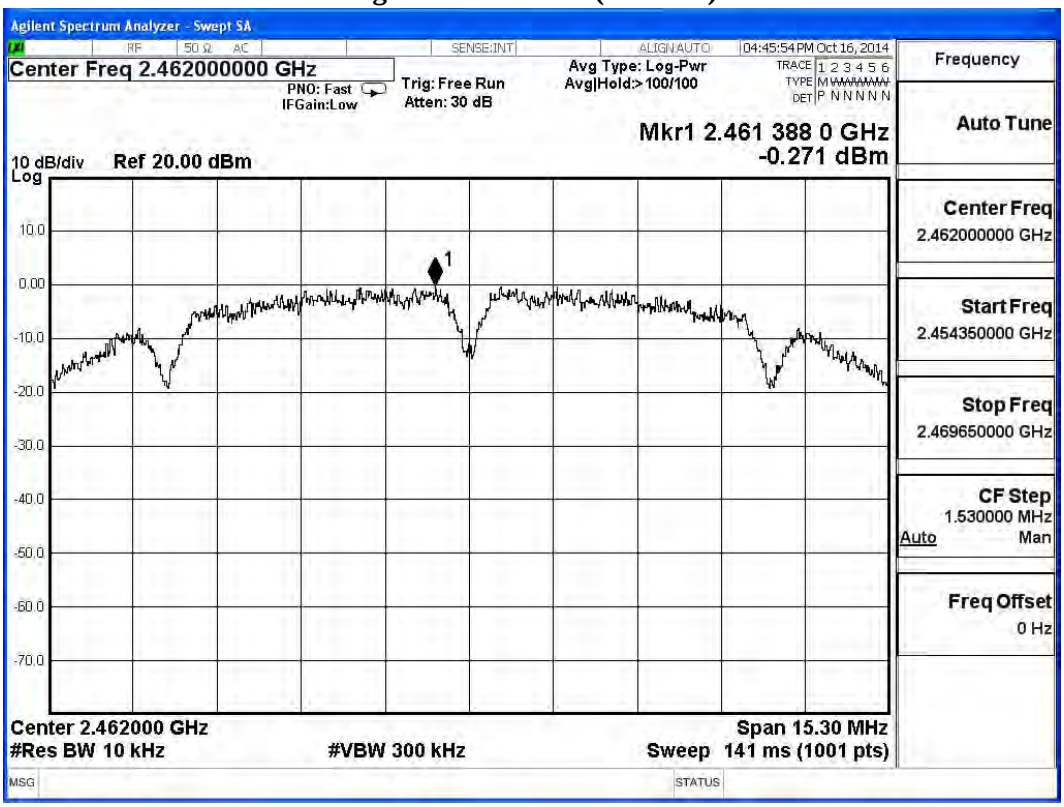
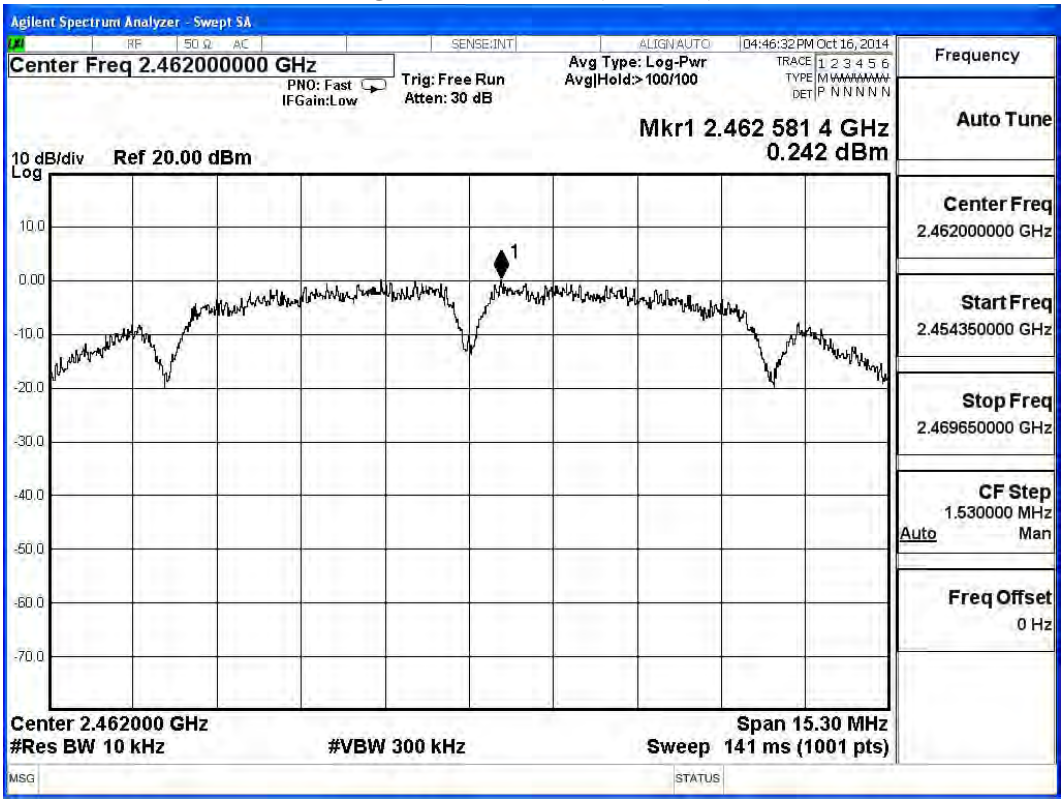


Figure Channel 11: (Chain B)



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

Channel No.	Frequency (MHz)	Chain	PPSD (dBm)	Total PPSD (dBm)	Limit (dBm)	Result
01	2412	A	0.940	3.950	< 8dBm	Pass
01	2412	B	-1.230	1.780	< 8dBm	Pass

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

Figure Channel 01: (Chain A)

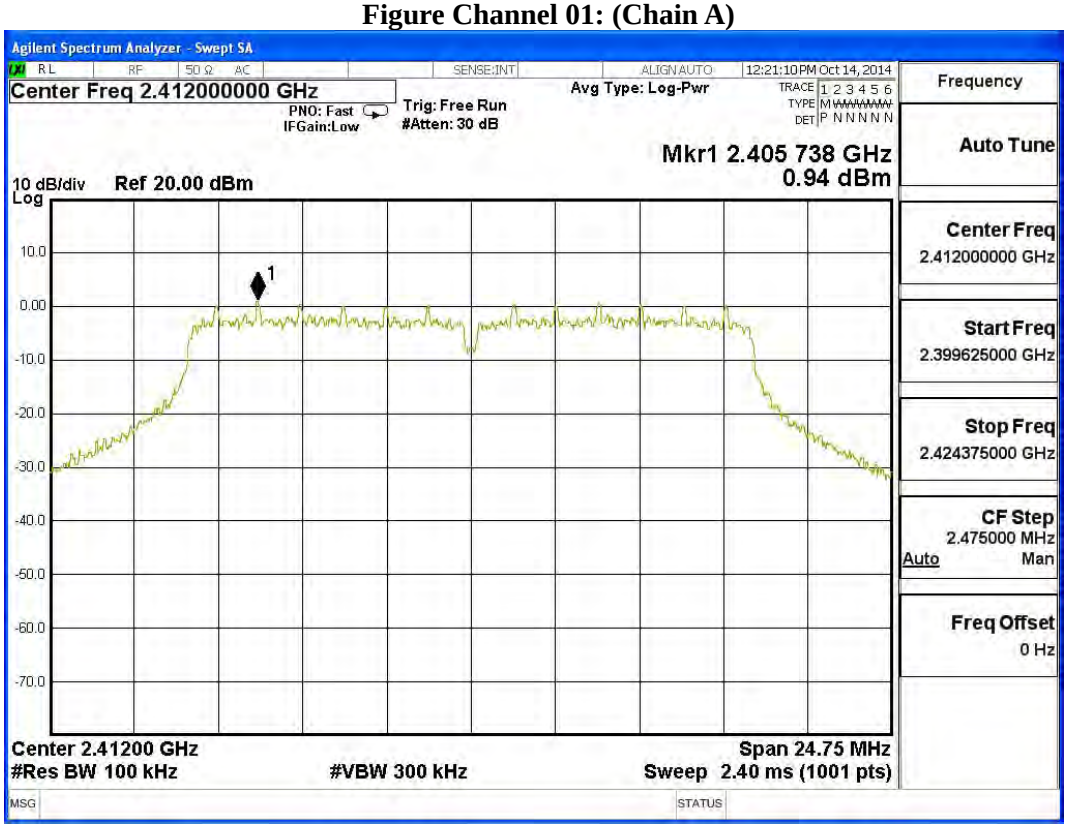
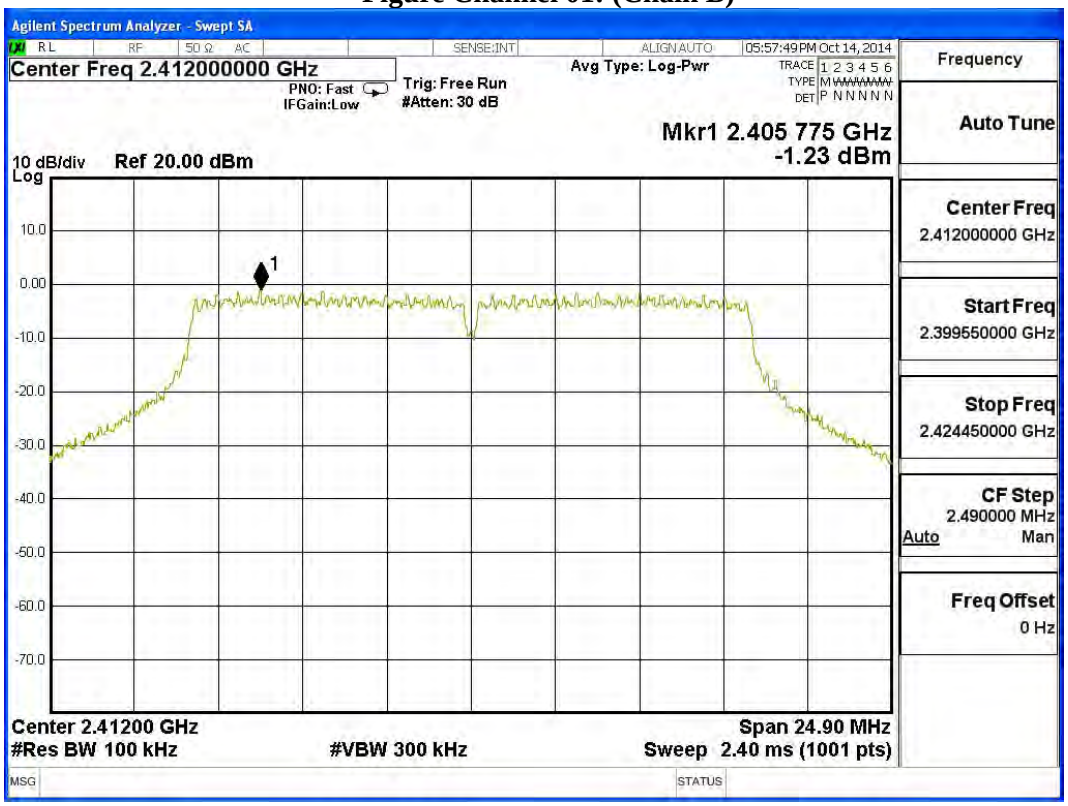


Figure Channel 01: (Chain B)



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

Channel No.	Frequency (MHz)	Chain	PPSD (dBm)	Total PPSD (dBm)	Limit (dBm)	Result
06	2437	A	-1.630	1.380	< 8dBm	Pass
06	2437	B	-1.839	1.171	< 8dBm	Pass

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

Figure Channel 06: (Chain A)

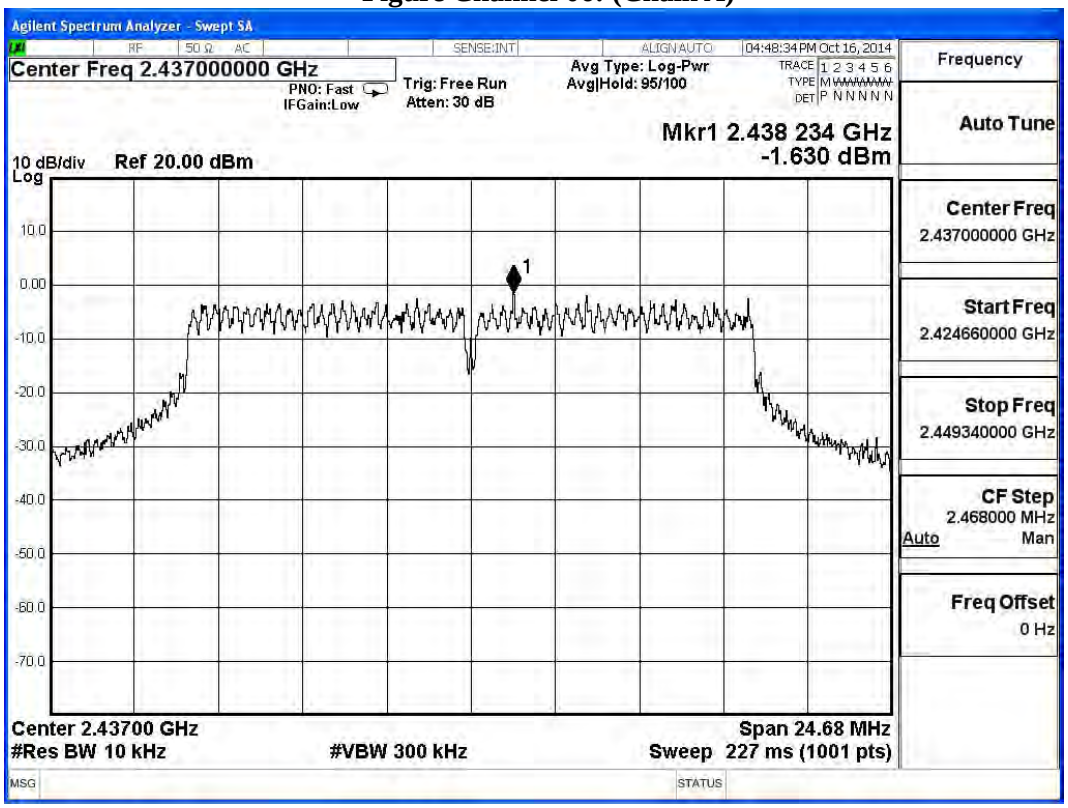
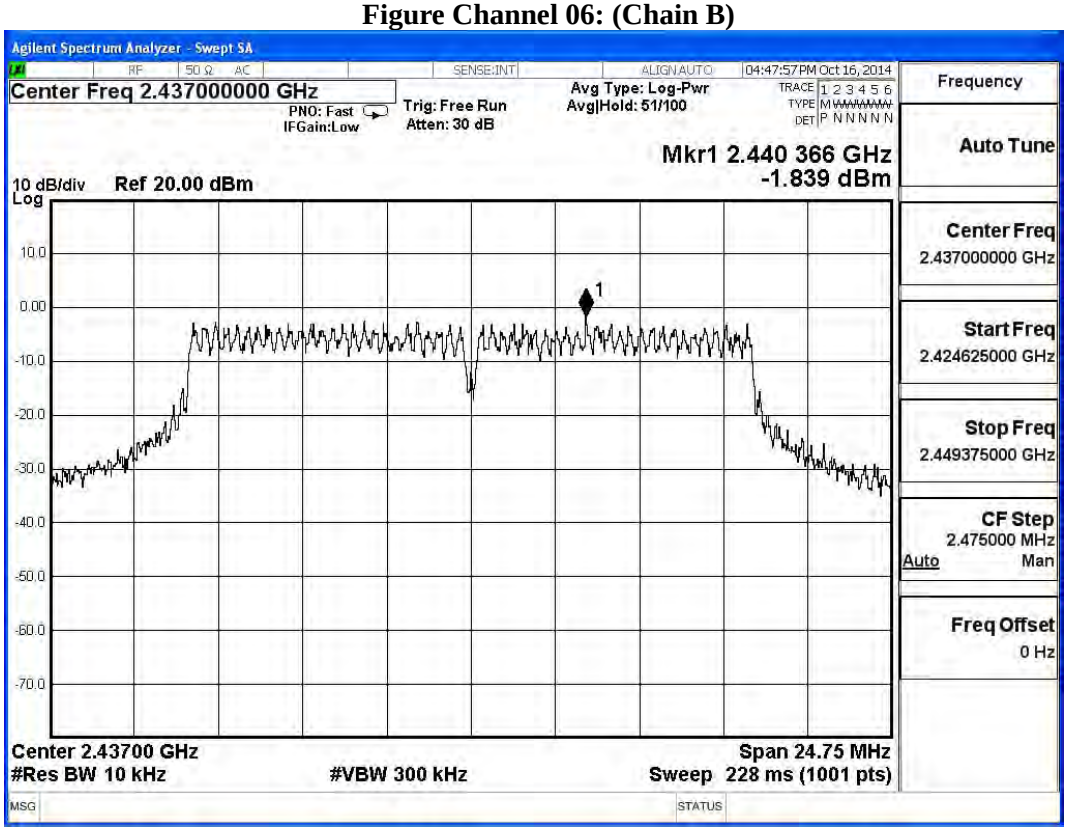


Figure Channel 06: (Chain B)



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

Channel No.	Frequency (MHz)	Chain	PPSD (dBm)	Total PPSD (dBm)	Limit (dBm)	Result
11	2462	A	0.450	3.460	< 8dBm	Pass
11	2462	B	1.610	4.620	< 8dBm	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)

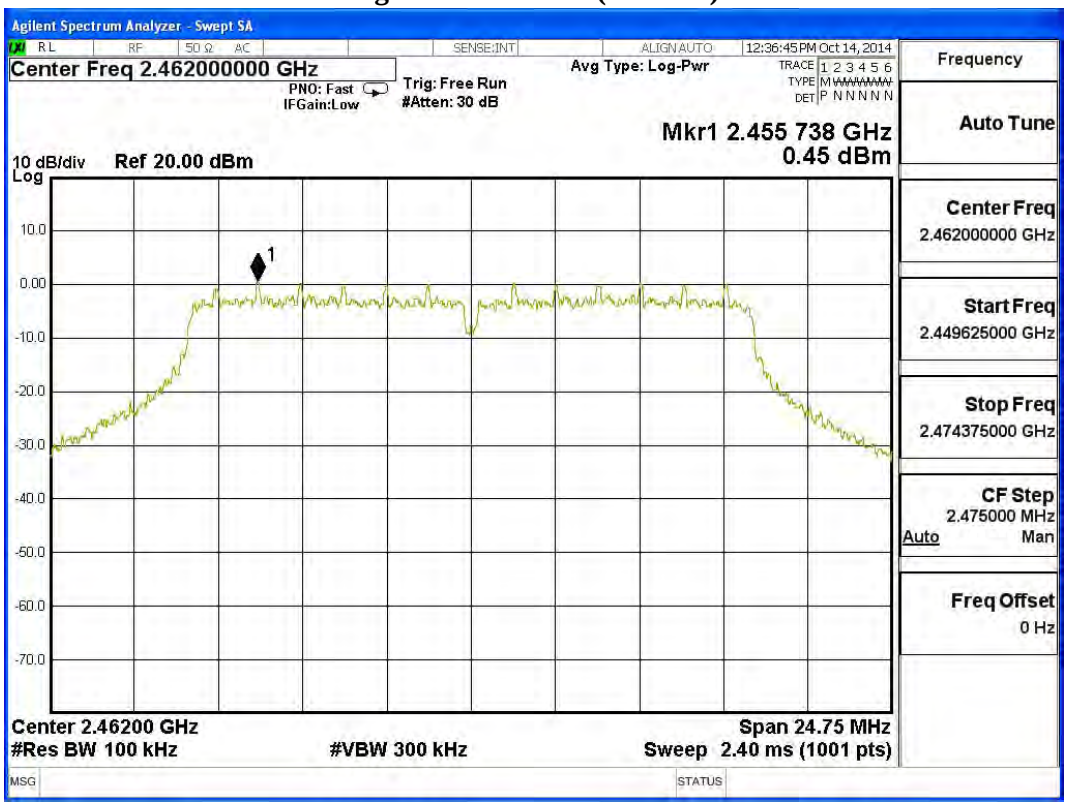
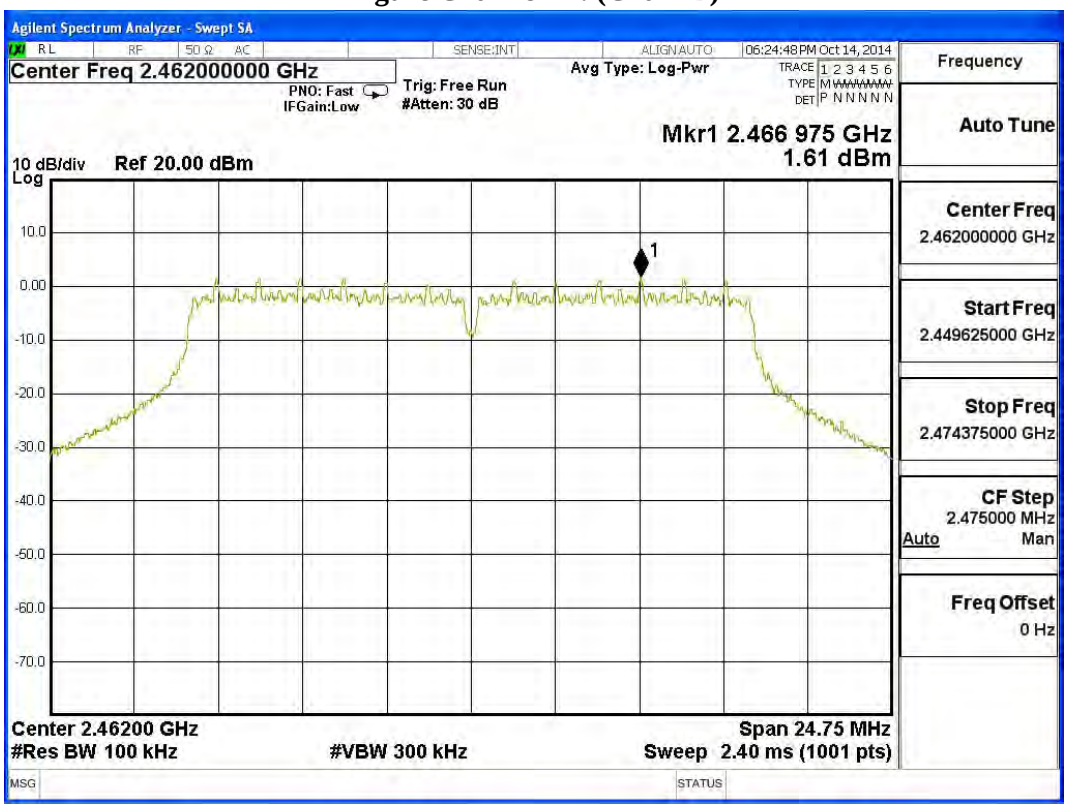


Figure Channel 11: (Chain B)



Product : Access Point/Sensor
Test Item : Power Density Data
Test Site : No.3 OATS
Test Mode : Mode 3: Transmit (802.11n MCS0 14.4Mbps 20M-BW) (2412MHz)

Channel No.	Frequency (MHz)	Chain	PPSD (dBm)	Total PPSD (dBm)	Limit (dBm)	Result
01	2462	A	0.310	3.320	< 8dBm	Pass
01	2462	B	1.460	4.470	< 8dBm	Pass

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

Figure Channel 01: (Chain A)

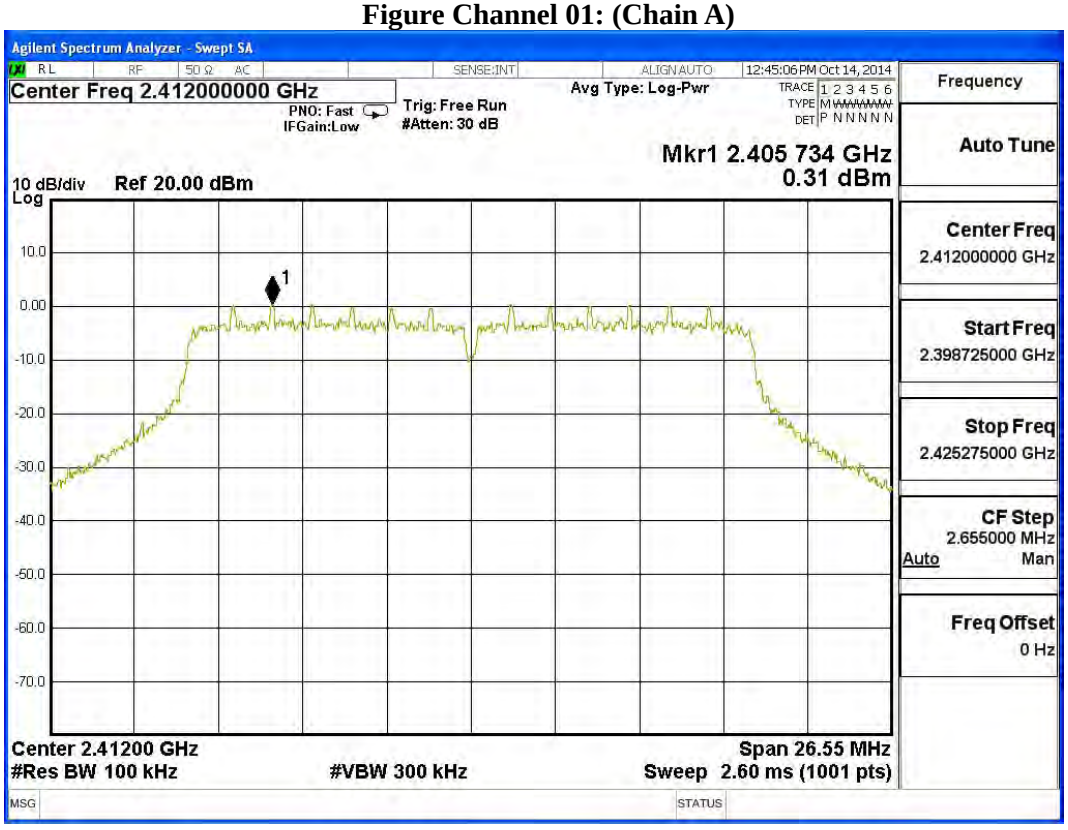
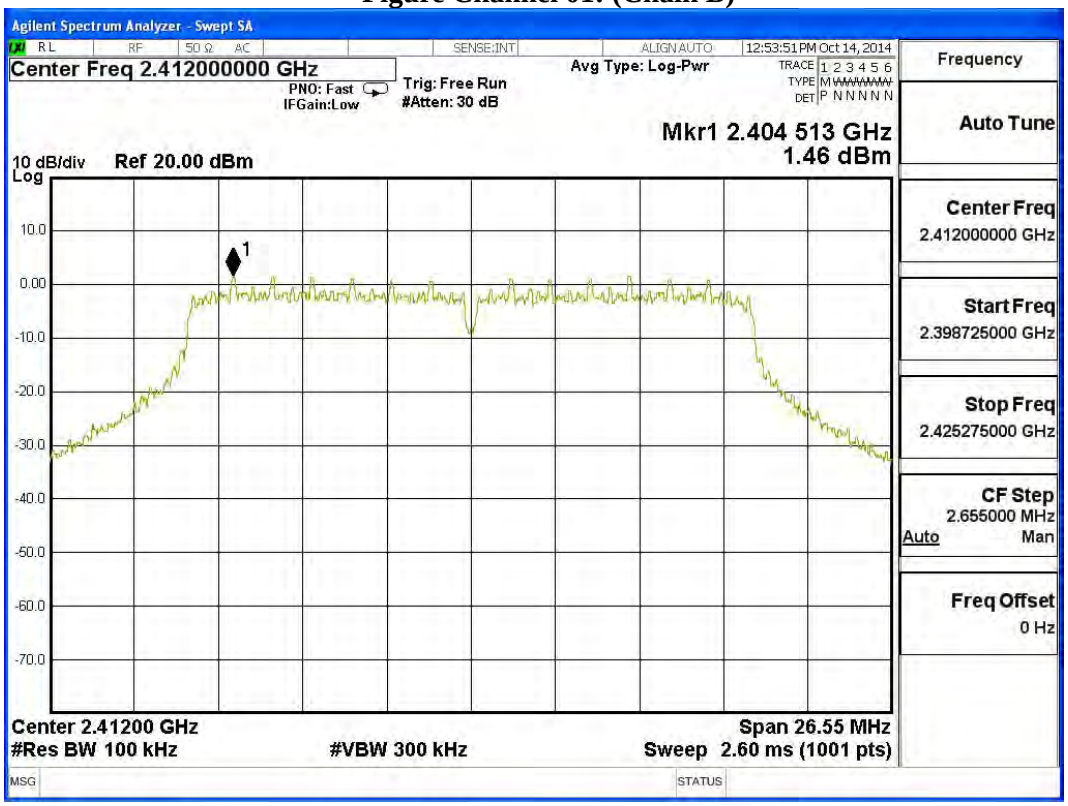


Figure Channel 01: (Chain B)



Product : Access Point/Sensor
Test Item : Power Density Data
Test Site : No.3OATS
Test Mode : Mode 3: Transmit (802.11n MCS0 14.4Mbps 20M-BW) (2437MHz)

Channel No.	Frequency (MHz)	Chain	PPSD (dBm)	Total PPSD (dBm)	Limit (dBm)	Result
06	2437	A	-2.360	0.650	< 8dBm	Pass
06	2437	B	-1.426	1.584	< 8dBm	Pass

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

Figure Channel 06: (Chain A)

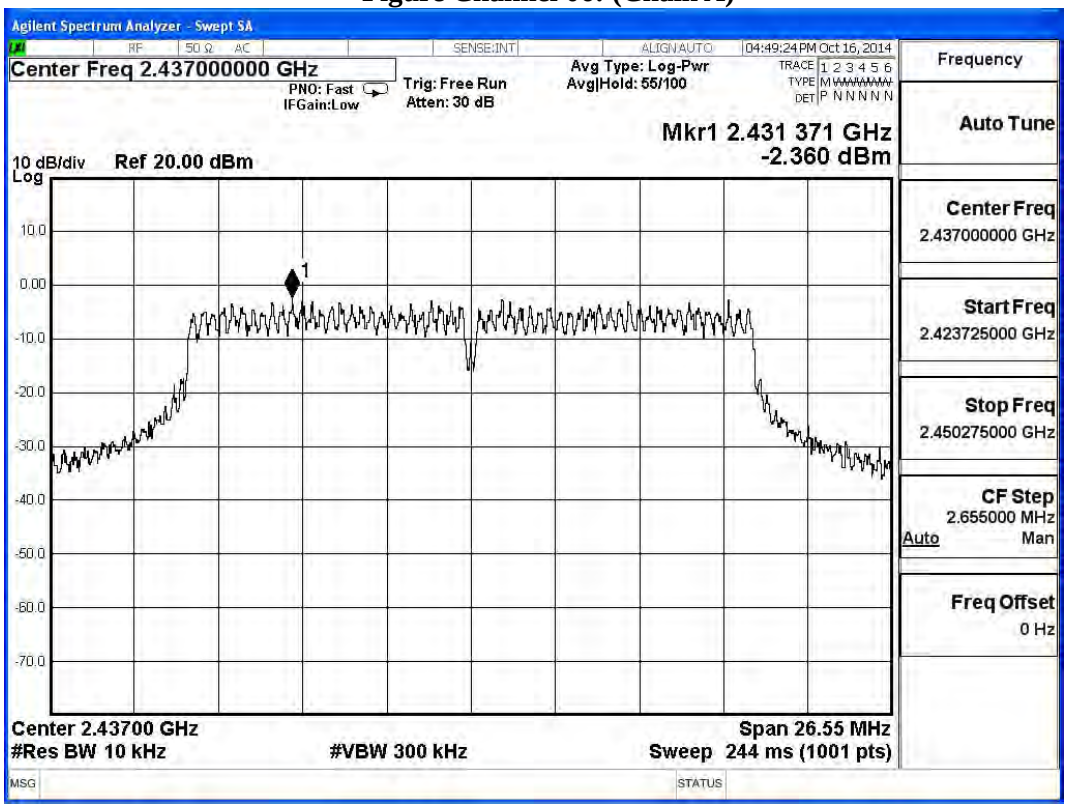
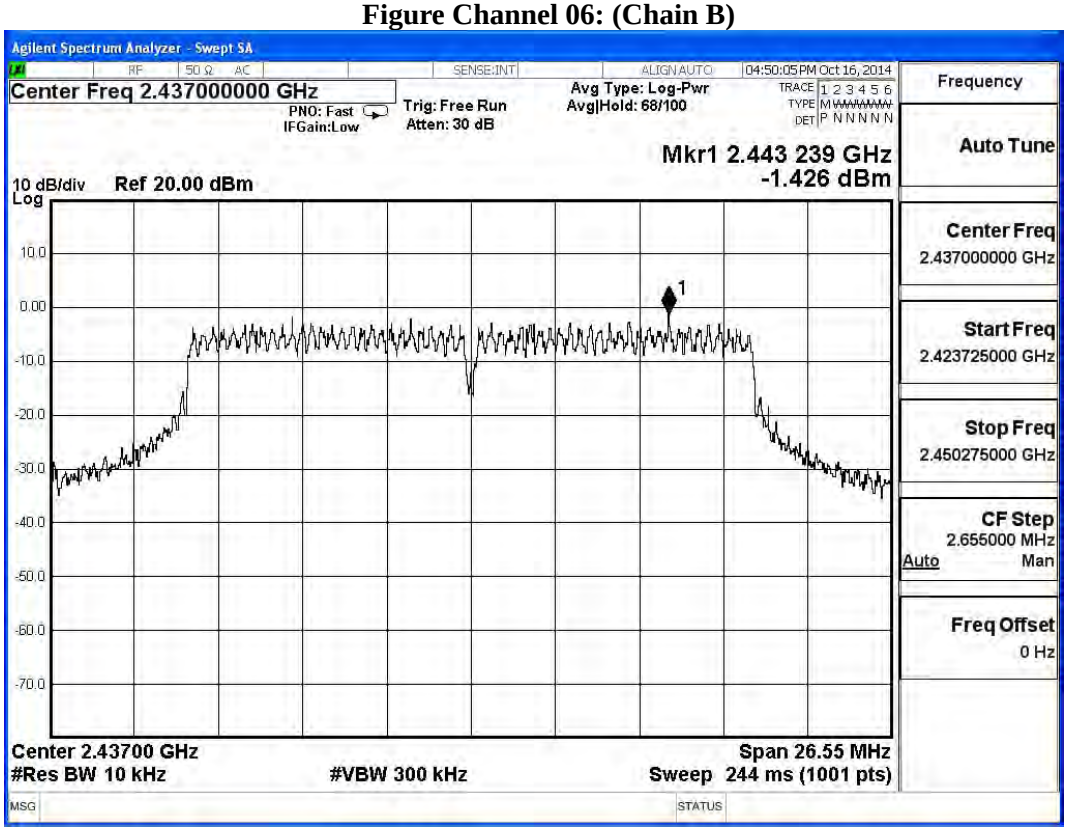


Figure Channel 06: (Chain B)



Product : Access Point/Sensor
Test Item : Power Density Data
Test Site : No.3 OATS
Test Mode : Mode 3: Transmit (802.11n MCS0 14.4Mbps 20M-BW) (2462MHz)

Channel No.	Frequency (MHz)	Chain	PPSD (dBm)	Total PPSD (dBm)	Limit (dBm)	Result
11	2462	A	1.190	4.200	< 8dBm	Pass
11	2462	B	1.720	4.730	< 8dBm	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)

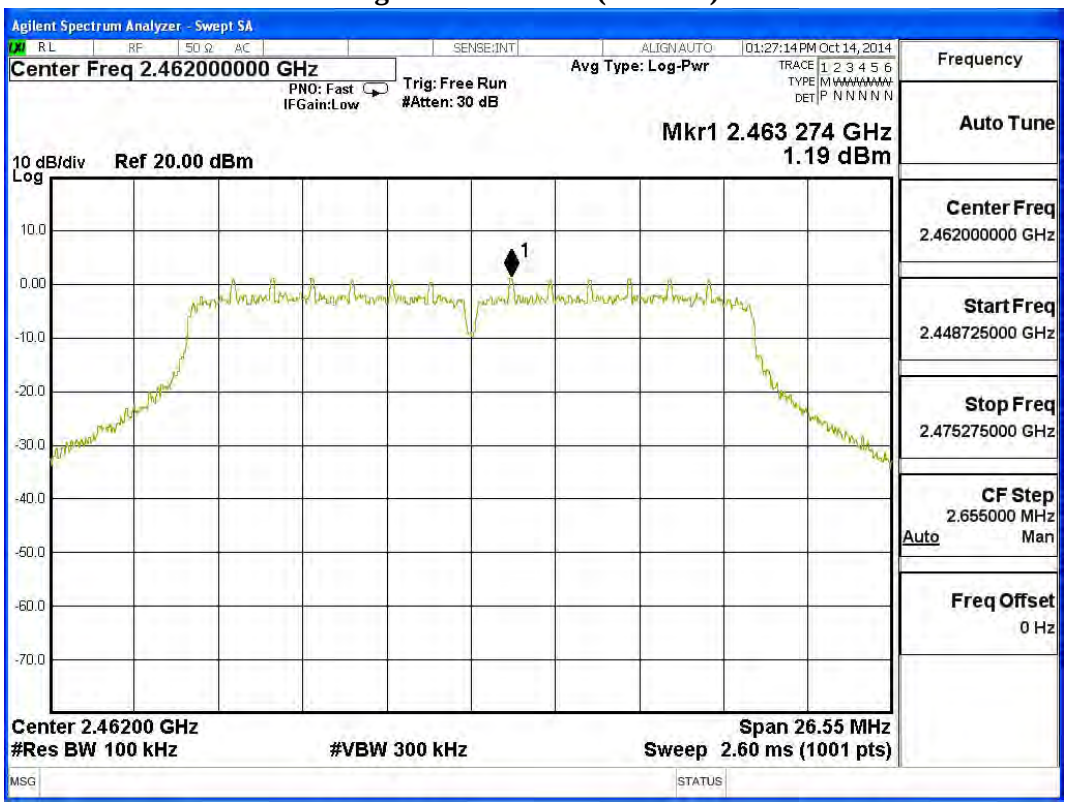
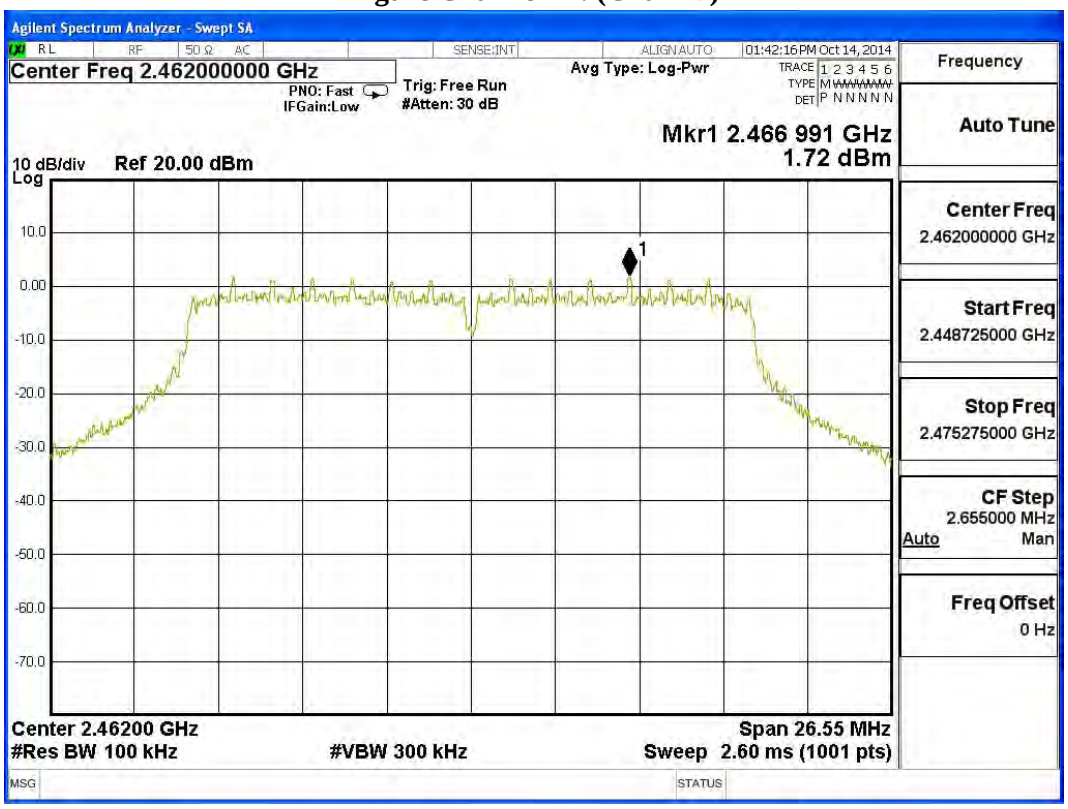


Figure Channel 11: (Chain B)



Product : Access Point/Sensor
Test Item : Power Density Data
Test Site : No.3 OATS
Test Mode : Mode 4: Transmit (802.11n MCS0 30Mbps 40M-BW) (2422MHz)

Channel No.	Frequency (MHz)	Chain	PPSD (dBm)	Total PPSD (dBm)	Limit (dBm)	Result
03	2422	A	-4.470	-1.460	< 8dBm	Pass
03	2422	B	-4.500	-1.490	< 8dBm	Pass

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

Figure Channel 03: (Chain A)

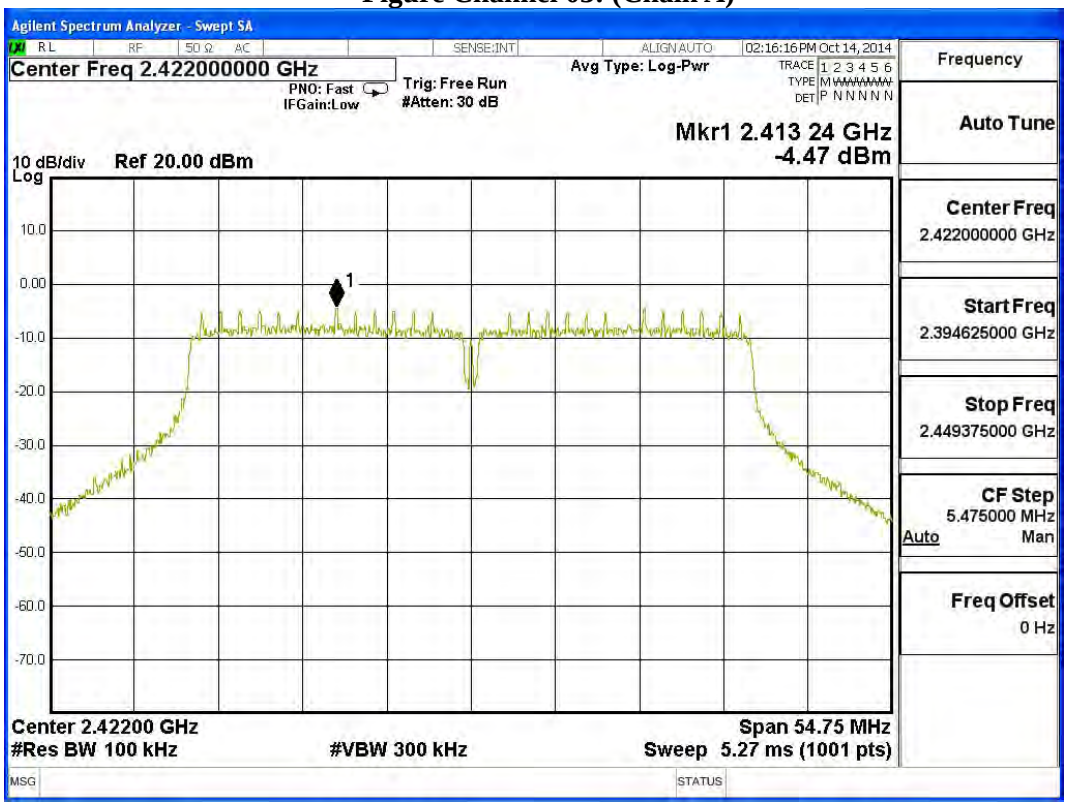
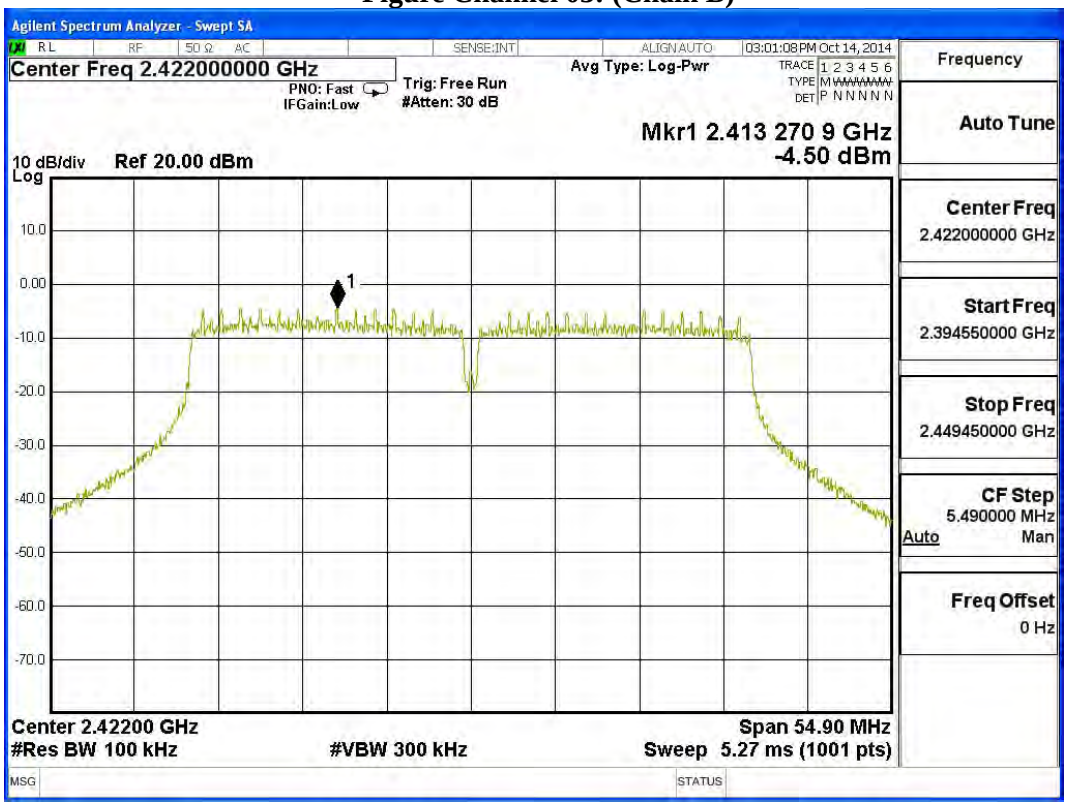


Figure Channel 03: (Chain B)



Product : Access Point/Sensor
Test Item : Power Density Data
Test Site : No.3OATS
Test Mode : Mode 4: Transmit (802.11n MCS0 30Mbps 40M-BW) (2437MHz)

Channel No.	Frequency (MHz)	Chain	PPSD/MHz (dBm)	Total PPSD/MHz (dBm)	Limit (dBm)	Result
06	2437	A	-0.390	2.620	< 8dBm	Pass
06	2437	B	-1.590	1.420	< 8dBm	Pass

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

Figure Channel 06: (Chain A)

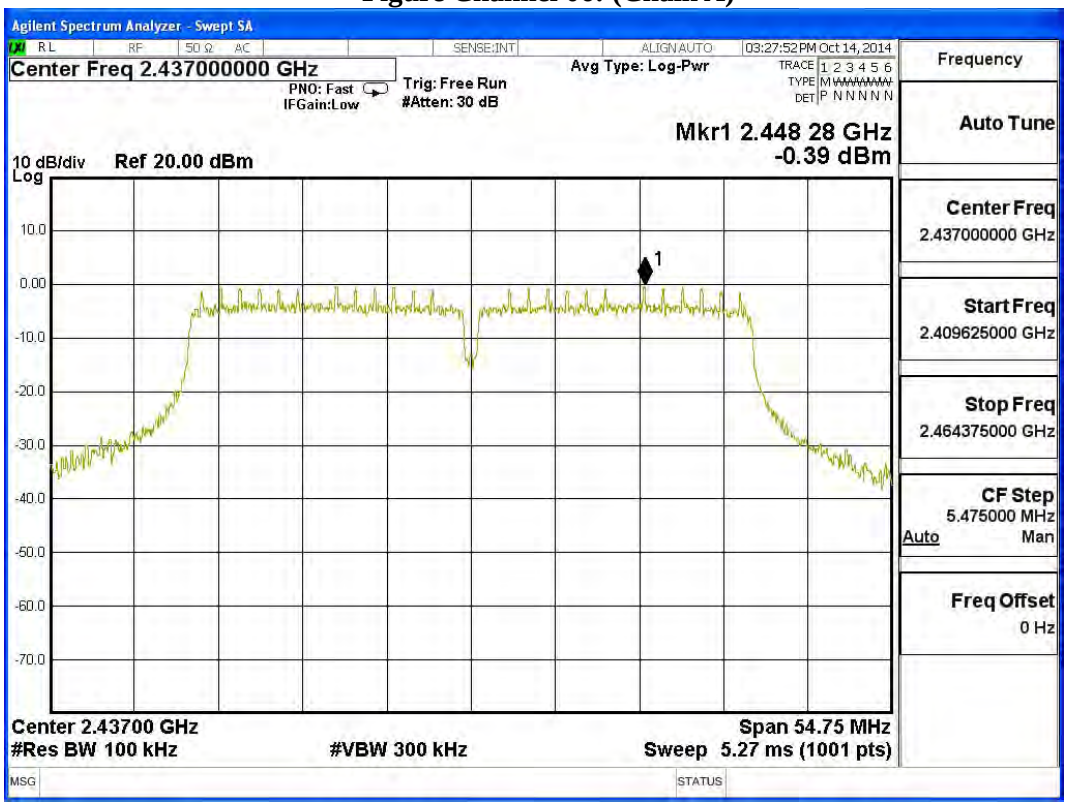
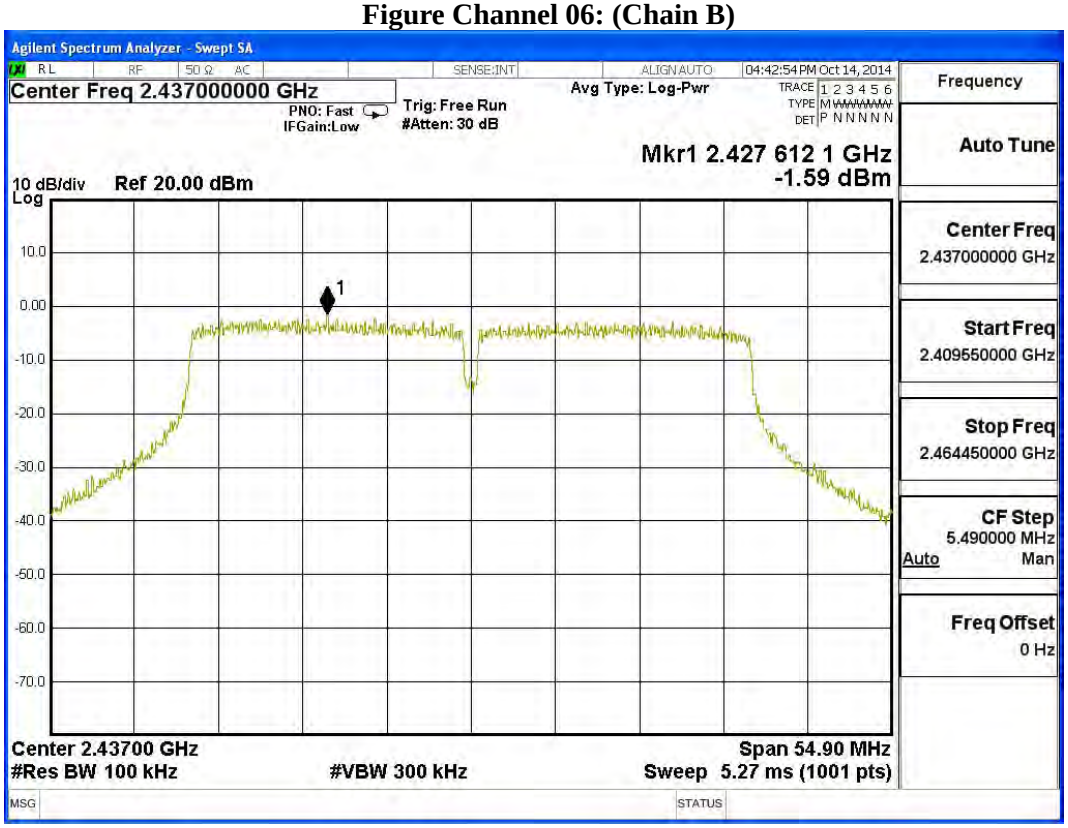


Figure Channel 06: (Chain B)



Product : Access Point/Sensor
Test Item : Power Density Data
Test Site : No.3 OATS
Test Mode : Mode 4: Transmit (802.11n MCS0 30Mbps 40M-BW) (2452MHz)

Channel No.	Frequency (MHz)	Chain	PPSD (dBm)	Total PPSD (dBm)	Limit (dBm)	Result
09	2452	A	-3.750	-0.740	< 8dBm	Pass
09	2452	B	-3.580	-0.570	< 8dBm	Pass

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

Figure Channel 7: (Chain A)

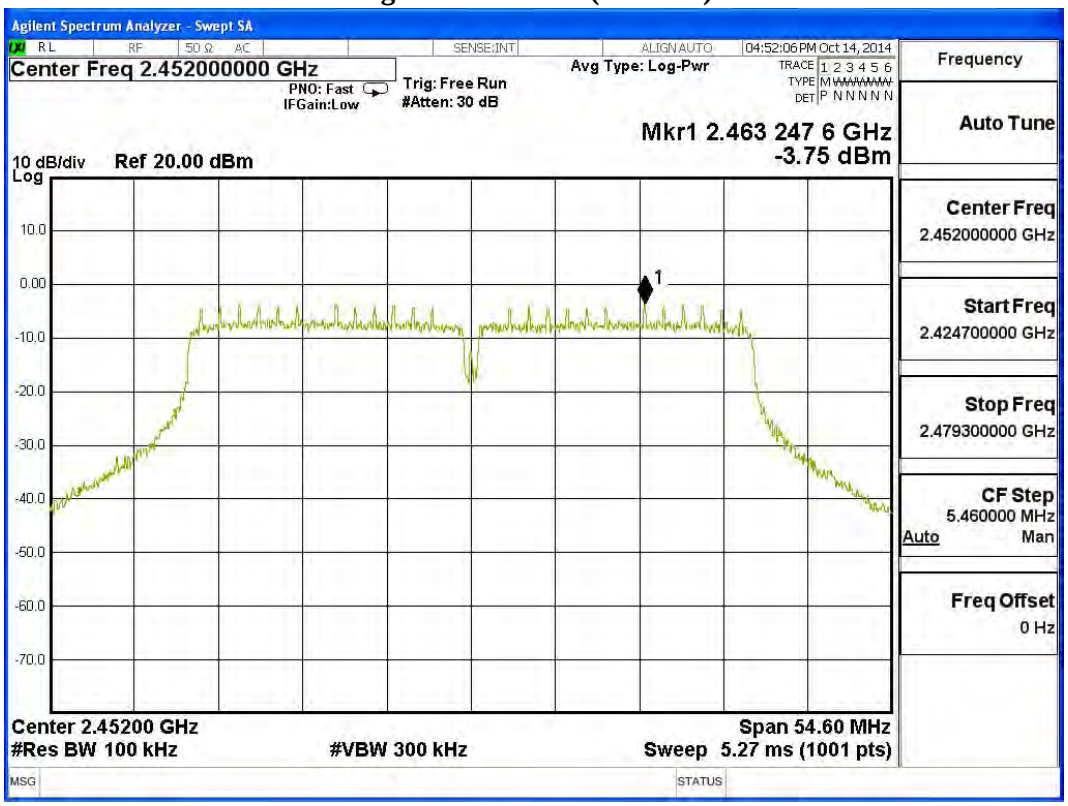


Figure Channel 7: (Chain B)

9. EMI Reduction Method During Compliance Testing

No modification was made during testing.

Attachment 1: EUT Test Photographs

Attachment 2: EUT Detailed Photographs