FCC Test Report

Product Name	Gateway
Model No	PSC03-2A; PSC03-2B; PSC03-2C; PSC03-2D; PSC03-2E
FCC ID.	RHHPSC03

Applicant	Philio Technology Corporation
Address	8F.,No.653-2,Zhongzheng Rd., Xinzhuang Dist., New Taipei City 24257,Taiwan(R.O.C)

Date of Receipt	June. 03, 2015
Issue Date	July. 23, 2015
Report No.	1560165R-RFUSP26V00
Report Version	V1.0

Testing Laboratory
3023

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

Issue Date: July. 23, 2015
Report No.: 1560165R-RFUSP26V00

Product Name	Gateway
Applicant	Philio Technology Corporation
Address	8F.,No.653-2,Zhongzheng Rd., Xinzhuang Dist., New Taipei City 24257,Taiwan(R.O.C)
Manufacturer	Philio Technology Corporation
Model No.	PSC03-2A; PSC03-2B; PSC03-2C; PSC03-2D; PSC03-2E
FCC ID.	RHHPSC03
EUT Rated Voltage	AC 100-240V, 50/60Hz
EUT Test Voltage	AC 120V/60Hz
Trade Name	
Applicable Standard	FCC CFR Title 47 Part 15 Subpart C: 2014 ANSI C63.4: 2014, ANSI C63.10: 2013 KDB 558074 D01 DTS Meas Guidance v03r03
Test Result	Complied

Documented By : Leven Huang
(Senior Adm. Specialist / Leven Huang)

Tested By : Jerry Tsai
(Engineer / Jerry Tsai)

Approved By :
(Director / Vincent Lin)

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1. GENERAL INFORMATION

1.1. EUT Description

Product Name	Gateway
Trade Name	
Model No.	PSC03-2A; PSC03-2B; PSC03-2C; PSC03-2D; PSC03-2E
FCC ID.	RHHPSC03
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	Monopole Antenna
Antenna Gain	Refer to the table “Antenna List”
Channel Control	Auto
USB Cable	Shielded,1.0m
Power Adapter	MFR: Ktec, M/N: KSAS0050500100VUU Input: AC 100-240V, 50/60Hz, 0.18A Output: DC 5V, 1.0A

Antenna List

No.	Manufacturer	Part No.	Antenna Type	Peak Gain
1	Philio	PSC03-1 (Ant2) PSC03-1 (Ant3)	Monopole Antenna	1.96dBi 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 a Gateway with a built-in 2.4GHz WLAN transceiver.
2. Regarding to the operation frequency, the lowest, middle and highest frequency are selected to perform the test.
3. The different of the each model is shown as below:

Model No	PSC03-2A	PSC03-2B	PSC03-2C	PSC03-2D	PSC03-2E
SIREN	V	X	X	X	X
USB Function	V	V	X	V	V
Battery	V	X	X	V	X
Top case	Normal	Slim type	Slim type	Slim type	Slim type
Jump Wires	X	V	X	X	X
Adapter	5V/1A;5V/2A	5V/1A;5V/2A	5V/1A;5V/2A	5V/1A;5V/2A	5V/1A;5V/2A

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.

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)

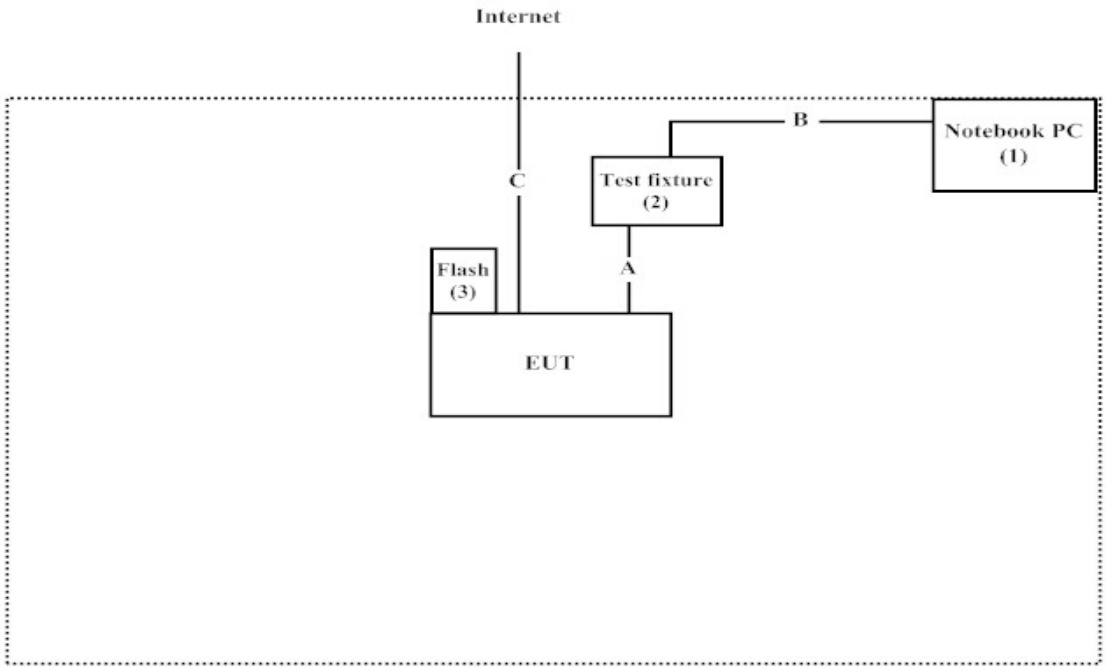
1.3. Tested System Details

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	Test Fixture	ASUS	N/A	N/A	N/A
3	FLASH	Transcend	JF110	132706-1218	N/A

Signal Cable Type		Signal cable Description
A	Signal Cable	Non-Shielded, 0.25m
B	USB Cable	Shielded, 0.2m
C	LAN Cable	Non-Shielded, 1.8m

1.4. Configuration of Tested System



1.5. EUT Exercise Software

(1) Setup the EUT as shown in Section 1.4
(2) Execute software “PUTTY V0.63” on the Notebook PC.
(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/chinese/about/certificates.aspx?bval=5
The address and introduction of QuieTek Corporation's laboratories can be founded in our Web site: http://www.quietek.com/

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

Site Name: Quietek Corporation
Site Address: No.5-22, Ruishukeng,
Linkou Dist. New Taipei City 24451,
Taiwan, R.O.C.
TEL: 886-2-8601-3788 / FAX : 886-2-8601-3789
E-Mail : service@quietek.com

FCC Accreditation Number: TW1014

2. Conducted Emission

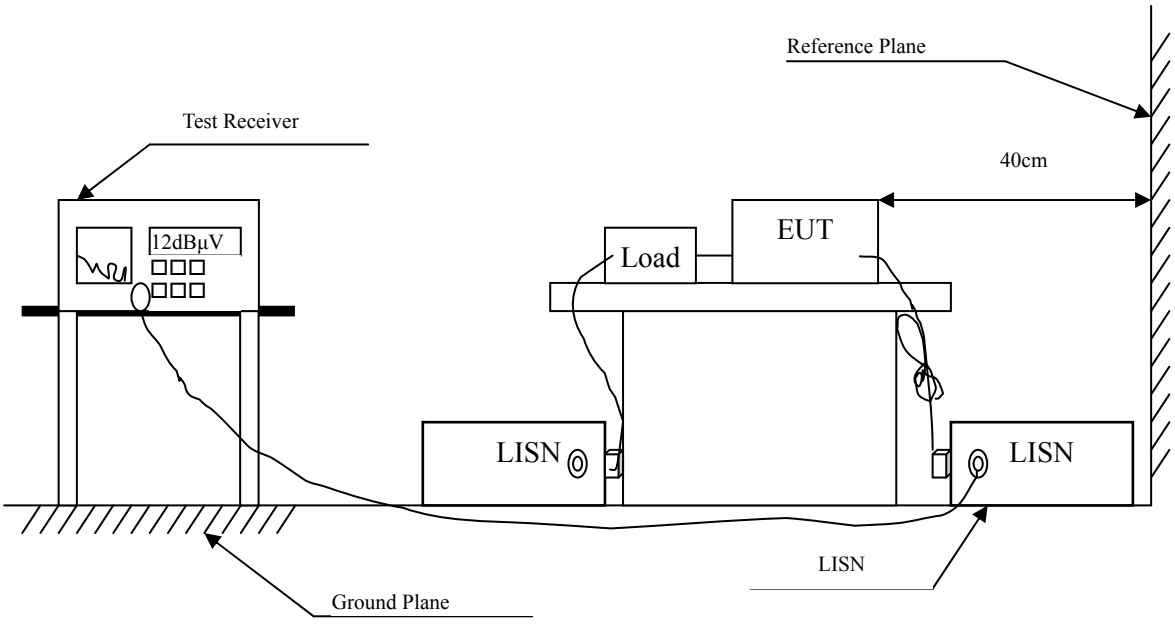
2.1. Test Equipment

	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., 2015	Peripherals
X	LISN	R & S	ESH3-Z5 / 825562/002	Feb., 2015	EUT
	DC LISN	Schwarzbeck	8226 / 176	Mar., 2015	EUT
X	Pulse Limiter	R & S	ESH3-Z2 / 357.8810.52	Feb., 2015	
	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: 2014 on conducted measurement.
Conducted emissions were invested over the frequency range from 0.15MHz to 30MHz using a receiver bandwidth of 9kHz.

2.5. Uncertainty

± 2.26 dB

2.6. Test Result of Conducted Emission

Product : Gateway
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					
0.177	9.663	34.290	43.953	-21.276	65.229
0.209	9.661	28.060	37.721	-26.593	64.314
0.259	9.664	22.320	31.984	-30.902	62.886
0.318	9.667	21.650	31.317	-29.883	61.200
0.474	9.675	30.420	40.095	-16.648	56.743
0.654	9.685	19.330	29.015	-26.985	56.000
Average					
0.177	9.663	22.510	32.173	-23.056	55.229
0.209	9.661	12.940	22.601	-31.713	54.314
0.259	9.664	12.460	22.124	-30.762	52.886
0.318	9.667	13.800	23.467	-27.733	51.200
0.474	9.675	20.380	30.055	-16.688	46.743
0.654	9.685	7.480	17.165	-28.835	46.000

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 : Gateway
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					
0.154	9.670	35.470	45.140	-20.746	65.886
0.193	9.660	26.210	35.870	-28.901	64.771
0.216	9.661	29.380	39.041	-25.073	64.114
0.248	9.663	25.820	35.483	-27.717	63.200
0.275	9.665	17.270	26.935	-35.494	62.429
0.494	9.676	29.420	39.096	-17.075	56.171
Average					
0.154	9.670	18.450	28.120	-27.766	55.886
0.193	9.660	8.750	18.410	-36.361	54.771
0.216	9.661	20.140	29.801	-24.313	54.114
0.248	9.663	14.480	24.143	-29.057	53.200
0.275	9.665	2.680	12.345	-40.084	52.429
0.494	9.676	19.130	28.806	-17.365	46.171

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, 2015
X	Power Sensor	Anritsu	MA2411B/0738448	Jun, 2015

Note:

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

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 : Gateway
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	Required Limit	Result
		1	2	5.5	11	1		
		Measurement Level (dBm)						
01	2412	13.34	--	--	--	16.38	<30dBm	Pass
06	2437	13.52	13.52	13.43	13.38	16.52	<30dBm	Pass
11	2462	13.76	--	--	--	16.74	<30dBm	Pass

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	Required Limit	Result
		1	2	5.5	11	1		
		Measurement Level (dBm)						
01	2412	13.14	--	--	--	16.14	<30dBm	Pass
06	2437	13.32	13.21	13.16	13.02	16.35	<30dBm	Pass
11	2462	13.55	--	--	--	16.49	<30dBm	Pass

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

Product : Gateway
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	Required Limit	Result
		6	9	12	18	24	36	48	54	6		
		Measurement Level (dBm)										
01	2412	10.58	--	--	--	--	--	--	--	18.36	<30dBm	Pass
06	2437	10.72	10.02	9.48	8.94	8.45	7.86	7.32	6.78	18.72	<30dBm	Pass
11	2462	10.75	--	--	--	--	--	--	--	17.81	<30dBm	Pass

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	Required Limit	Result
		6	9	12	18	24	36	48	54	6		
		Measurement Level (dBm)										
01	2412	10.24	--	--	--	--	--	--	--	18.04	<30dBm	Pass
06	2437	10.41	9.84	9.27	8.7	8.13	7.56	6.99	6.42	18.53	<30dBm	Pass
11	2462	10.49	--	--	--	--	--	--	--	17.41	<30dBm	Pass

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

Product : Gateway
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	10.31	--	--	--	--	--	--	--	18.24
06	2437	10.34	9.41	8.69	7.97	7.25	6.53	5.81	5.09	18.09
11	2462	10.25	--	--	--	--	--	--	--	18.11

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	10.71	--	--	--	--	--	--	--	19.29
06	2437	11.16	10.58	10	9.42	8.84	8.26	7.68	7.12	20.18
11	2462	11.75	--	--	--	--	--	--	--	20.23

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
1	2412	14.4	18.24	19.29	21.81	<30dBm	Pass
6	2437	14.4	18.09	20.18	22.27	<30dBm	Pass
11	2462	14.4	18.11	20.23	22.31	<30dBm	Pass

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

Product : Gateway
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	9.95	--	--	--	--	--	--	--	17.79
06	2437	9.94	9.34	8.72	8.1	7.48	6.86	6.24	5.62	17.88
09	2452	10.08	--	--	--	--	--	--	--	17.96

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	10.32	--	--	--	--	--	--	--	20.41
06	2437	10.66	10.26	9.68	9.1	8.52	7.94	7.36	6.78	20.32
09	2452	110.16	--	--	--	--	--	--	--	20.54

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
3	2422	30	17.79	20.41	22.30	<30dBm	Pass
6	2437	30	17.88	20.32	22.28	<30dBm	Pass
9	2452	30	17.96	20.54	22.45	<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 equipments are used during the radiated emission test:

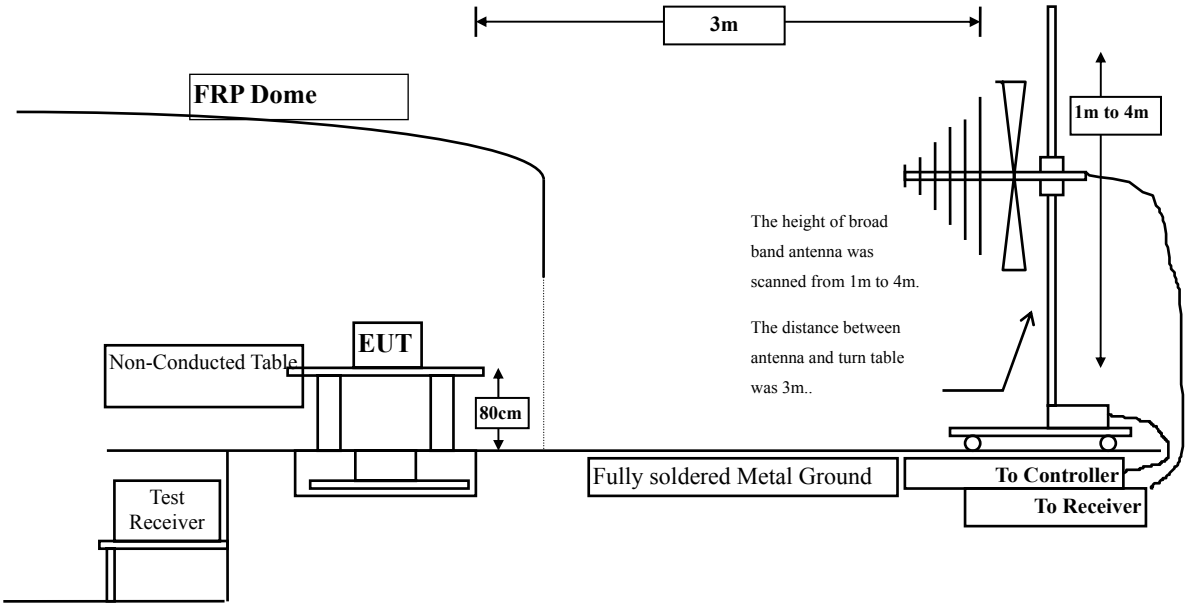
Test Site	Equipment		Manufacturer	Model No./Serial No.	Last Cal.
☒Site # 3	X	Magnetic Loop Antenna	Teseq	HLA6121/ 37133	Sep, 2014
	X	Bilog Antenna	Schaffner Chase	CBL6112B/ 2707	Jun, 2015
	X	EMI Test Receiver	R&S	ESCS 30/838251/ 001	Jun, 2015
	X	Coaxial Cable	QTK(Arnist)	RG 214/ LC003-RG	Jun, 2015
	X	Coaxial signal switch	Arnist	MP59B/ 6200798682	Jun, 2015

Test Site	Equipment		Manufacturer	Model No./Serial No.	Last Cal.
☒CB # 8	X	Spectrum Analyzer	R&S	FSP40/ 100339	Oct, 2014
	X	Horn Antenna	ETS-Lindgren	3117/ 35205	Mar, 2015
	X	Horn Antenna	Schwarzbeck	BBHA9170/209	Jan, 2015
	X	Horn Antenna	TRC	AH-0801/95051	Aug, 2014
	X	Pre-Amplifier	EMCI	EMC012630SE/980210	Jan, 2015
	X	Pre-Amplifier	MITEQ	JS41-001040000-58-5P/153945	Jul, 2015
	X	Pre-Amplifier	NARDA	DBL-1840N506/013	Jul, 2015

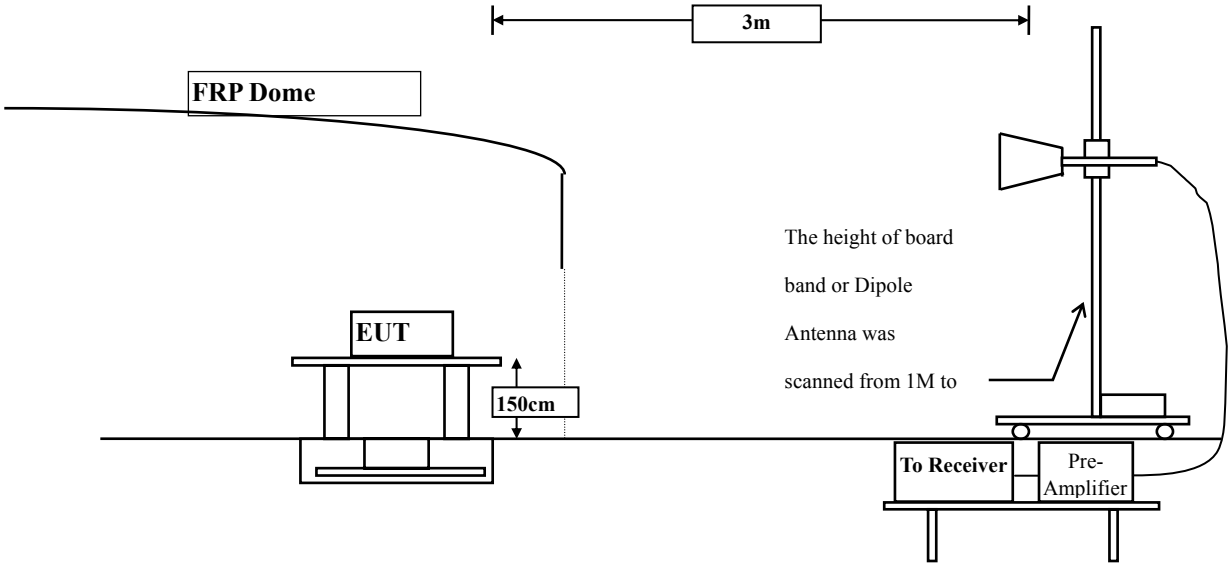
Note: 1. All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.
2. The test instruments marked with "X" are used to measure the final test results.

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: 2013 and tested according to DTS test procedure of KDB558074 for compliance to FCC 47CFR 15.247 requirements.

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

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

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

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

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

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

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

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

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

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

4.5. Uncertainty

± 3.9 dB above 1GHz

± 3.8 dB below 1GHz

4.6. Test Result of Radiated Emission

Product : Gateway
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	3.261	49.510	52.771	-21.229	74.000
7236.000	10.650	36.290	46.940	-27.060	74.000
9648.000	13.337	34.290	47.626	-26.374	74.000
Average Detector:					
--					
Vertical					
Peak Detector:					
4824.000	6.421	46.590	53.011	-20.989	74.000
7236.000	11.495	35.590	47.085	-26.915	74.000
9648.000	13.807	34.590	48.396	-25.604	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 : Gateway
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	3.038	49.590	52.627	-21.373	74.000
7311.000	11.795	36.590	48.384	-25.616	74.000
9748.000	12.635	34.250	46.885	-27.115	74.000
Average Detector:					
--					
Vertical					
Peak Detector:					
4874.000	5.812	46.220	52.031	-21.969	74.000
7311.000	12.630	35.590	48.219	-25.781	74.000
9748.000	13.126	34.590	47.716	-26.284	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 : Gateway
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	2.858	49.296	52.153	-21.847	74.000
7386.000	12.127	35.980	48.108	-25.892	74.000
9848.000	12.852	34.290	47.143	-26.857	74.000
Average Detector:					
--					
Vertical					
Peak Detector:					
4924.000	2.858	47.873	50.730	-23.270	74.000
7386.000	13.254	36.510	49.764	-24.236	74.000
9848.000	13.367	35.590	48.957	-25.043	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 : Gateway
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	3.261	47.160	50.421	-23.579	74.000
7236.000	10.650	36.510	47.160	-26.840	74.000
9648.000	13.337	35.120	48.456	-25.544	74.000
Average Detector:					
--					
Vertical					
Peak Detector:					
4824.000	6.421	45.290	51.711	-22.289	74.000
7236.000	11.495	36.210	47.705	-26.295	74.000
9648.000	13.807	34.510	48.316	-25.684	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 : Gateway
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	3.038	47.150	50.187	-23.813	74.000
7311.000	11.795	36.510	48.304	-25.696	74.000
9748.000	12.635	35.260	47.895	-26.105	74.000
Average Detector:					
--					
Peak Detector:					
4874.000	5.812	45.560	51.371	-22.629	74.000
7311.000	12.630	36.460	49.089	-24.911	74.000
9748.000	13.126	36.220	49.346	-24.654	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 : Gateway
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	2.858	47.290	50.147	-23.853	74.000
7386.000	12.127	36.590	48.718	-25.282	74.000
9848.000	12.852	35.290	48.143	-25.857	74.000
Average Detector:					
--					
Vertical					
Peak Detector:					
4924.000	5.521	47.290	52.810	-21.190	74.000
7386.000	13.254	36.290	49.544	-24.456	74.000
9848.000	13.367	35.220	48.587	-25.413	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 : Gateway
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	3.261	44.290	47.551	-26.449	74.000
7236.000	10.650	35.150	45.800	-28.200	74.000
9648.000	13.337	35.120	48.456	-25.544	74.000
Average Detector:					
--					
Vertical					
Peak Detector:					
4824.000	6.421	42.150	48.571	-25.429	74.000
7236.000	11.495	35.150	46.645	-27.355	74.000
9648.000	13.807	36.120	49.926	-24.074	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 : Gateway
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	44.230	47.267	-26.733	74.000
7311.000	11.795	35.120	46.914	-27.086	74.000
9748.000	12.635	35.120	47.755	-26.245	74.000
Average Detector:					
--					
Vertical					
Peak Detector:					
4874.000	5.812	42.180	47.991	-26.009	74.000
7311.000	12.630	35.170	47.799	-26.201	74.000
9748.000	13.126	35.950	49.076	-24.924	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 : Gateway
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	44.960	47.817	-26.183	74.000
7386.000	12.127	35.950	48.078	-25.922	74.000
9848.000	12.852	35.480	48.333	-25.667	74.000
Average Detector:					
--					
Vertical					
Peak Detector:					
4924.000	5.521	42.650	48.170	-25.830	74.000
7386.000	13.254	35.150	48.404	-25.596	74.000
9848.000	13.367	35.960	49.327	-24.673	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 : Gateway
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	3.171	39.590	42.761	-31.239	74.000
7266.000	11.162	35.590	46.752	-27.248	74.000
9688.000	12.964	35.120	48.085	-25.915	74.000
Average Detector:					
--					
Vertical					
Peak Detector:					
4844.000	6.178	38.290	44.468	-29.532	74.000
7266.000	11.982	35.150	47.132	-26.868	74.000
9688.000	13.507	34.290	47.798	-26.202	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 : Gateway
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	39.540	42.577	-31.423	74.000
7311.000	11.795	35.150	46.944	-27.056	74.000
9748.000	12.635	35.290	47.925	-26.075	74.000
Average Detector:					
--					
Vertical					
Peak Detector:					
4874.000	5.812	39.150	44.961	-29.039	74.000
7311.000	12.630	35.290	47.919	-26.081	74.000
9748.000	13.126	35.110	48.236	-25.764	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 : Gateway
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	39.150	42.065	-31.935	74.000
7356.000	11.995	35.140	47.134	-26.866	74.000
9808.000	12.475	35.140	47.615	-26.385	74.000
Average Detector:					
--					
Vertical					
Peak Detector:					
4904.000	5.530	35.120	40.651	-33.349	74.000
7356.000	13.005	36.260	49.264	-24.736	74.000
9808.000	12.901	35.290	48.191	-25.809	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 : Gateway
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					
150.280	-7.870	48.856	40.986	-2.514	43.500
241.460	-6.590	39.843	33.253	-12.747	46.000
390.840	0.962	39.000	39.962	-6.038	46.000
516.940	3.200	36.230	39.430	-6.570	46.000
800.180	6.417	29.640	36.057	-9.943	46.000
972.840	7.189	26.436	33.625	-20.375	54.000
Vertical					
241.460	-6.000	39.375	33.375	-12.625	46.000
379.200	0.881	37.393	38.274	-7.726	46.000
536.340	1.609	26.399	28.008	-17.992	46.000
722.580	-0.757	32.153	31.396	-14.604	46.000
821.520	3.036	22.243	25.279	-20.721	46.000
924.340	3.149	32.288	35.437	-10.563	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 : Gateway
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					
231.760	-8.217	46.715	38.498	-7.502	46.000
336.520	-3.399	32.471	29.072	-16.928	46.000
538.280	3.316	21.392	24.708	-21.292	46.000
691.540	3.722	27.409	31.131	-14.869	46.000
815.700	6.451	25.715	32.166	-13.834	46.000
1000.000	9.564	34.309	43.873	-10.127	54.000
Vertical					
179.380	-0.824	36.621	35.797	-7.703	43.500
297.720	-4.356	34.010	29.654	-16.346	46.000
394.720	-1.697	30.249	28.552	-17.448	46.000
600.360	1.302	24.548	25.850	-20.150	46.000
769.140	2.558	28.434	30.992	-15.008	46.000
885.540	1.322	30.454	31.776	-14.224	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 : Gateway
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					
239.520	-6.878	45.270	38.392	-7.608	46.000
371.440	0.860	30.019	30.879	-15.121	46.000
501.420	2.019	34.009	36.028	-9.972	46.000
652.740	1.899	27.613	29.512	-16.488	46.000
802.120	6.356	26.815	33.171	-12.829	46.000
943.740	6.843	29.324	36.167	-9.833	46.000
Vertical					
237.580	-6.537	45.880	39.343	-6.657	46.000
396.660	-2.039	33.068	31.029	-14.971	46.000
526.640	1.152	24.654	25.806	-20.194	46.000
687.660	2.292	29.681	31.973	-14.027	46.000
842.860	2.378	25.806	28.184	-17.816	46.000
970.900	2.967	29.842	32.809	-21.191	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.
8. No emission found between lowest internal used/generated frequency to 30MHz.

Product : Gateway
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					
239.520	-6.878	45.070	38.192	-7.808	46.000
390.840	0.962	32.229	33.191	-12.809	46.000
518.880	3.203	25.156	28.359	-17.641	46.000
679.900	2.823	27.935	30.758	-15.242	46.000
844.800	6.442	28.667	35.109	-10.891	46.000
972.840	7.189	29.088	36.277	-17.723	54.000
Vertical					
239.520	-6.138	43.870	37.732	-8.268	46.000
381.140	0.816	30.023	30.839	-15.161	46.000
513.060	0.436	26.977	27.413	-18.587	46.000
652.740	-3.101	32.113	29.012	-16.988	46.000
802.120	2.966	28.315	31.281	-14.719	46.000
947.620	3.231	34.385	37.616	-8.384	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

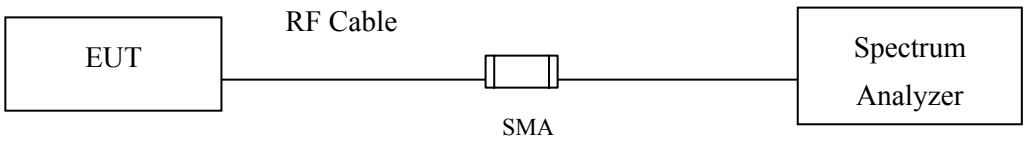
5.1. Test Equipment

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

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

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.

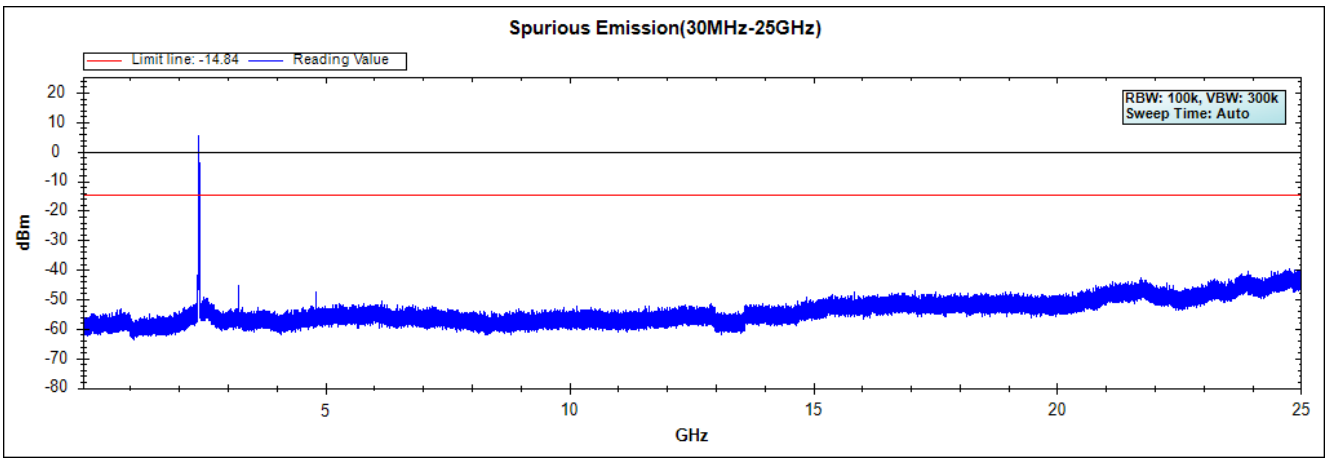
5.5. Uncertainty

The measurement uncertainty
Conducted is defined as ± 1.27dB

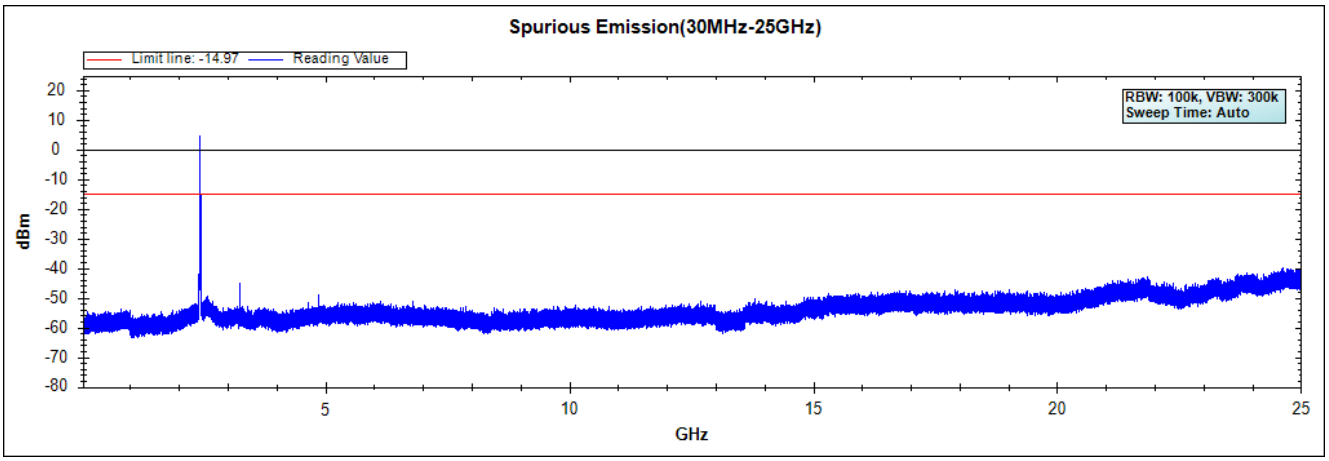
5.6. Test Result of RF antenna conducted test

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

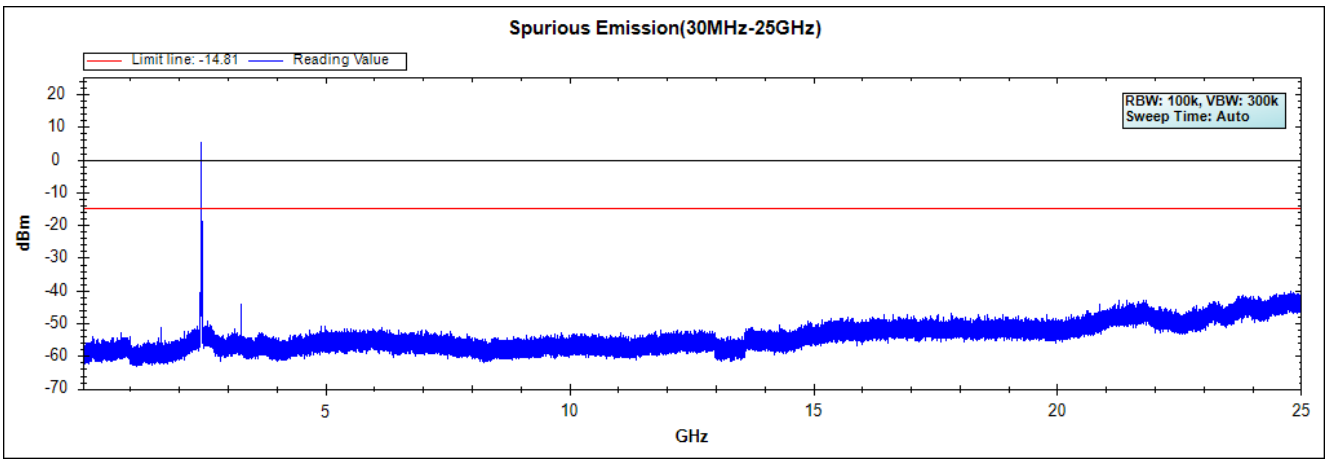
Channel 01 (2412MHz)



Channel 06 (2437MHz)



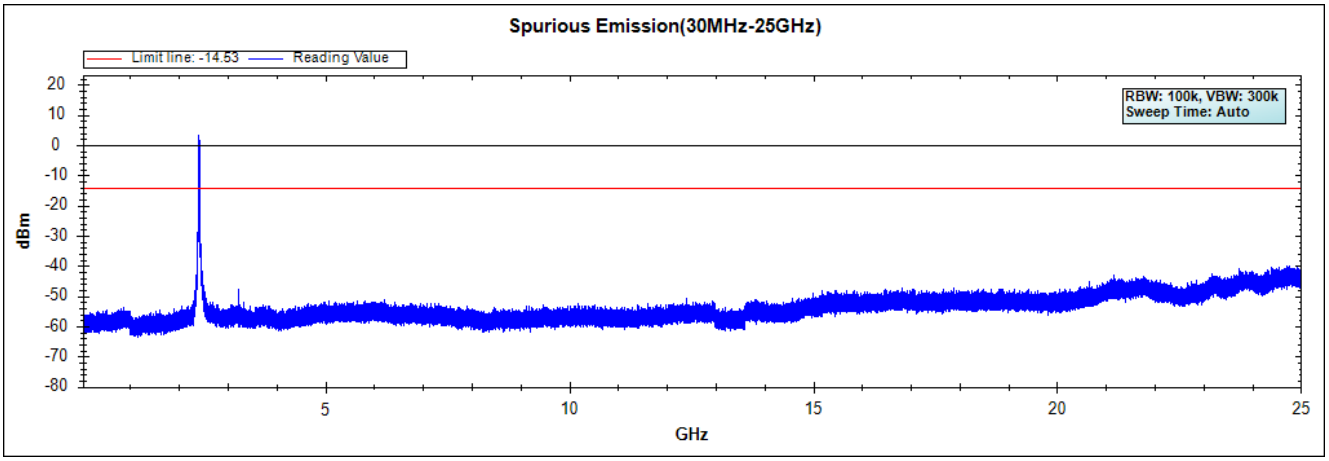
Channel 11 (2462MHz)



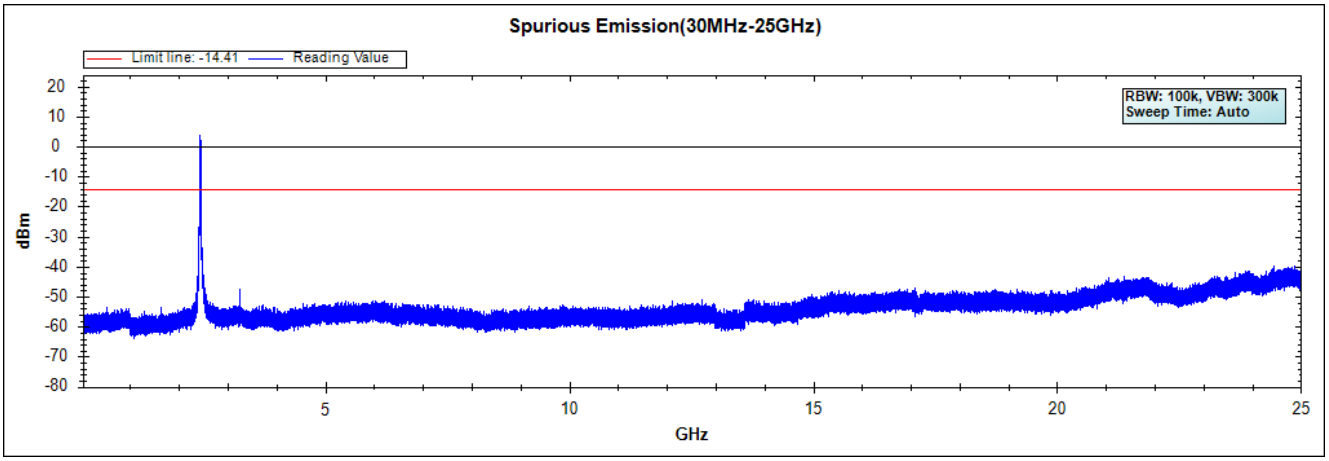
Note: The above test pattern is synthesized by multiple of the frequency range.

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

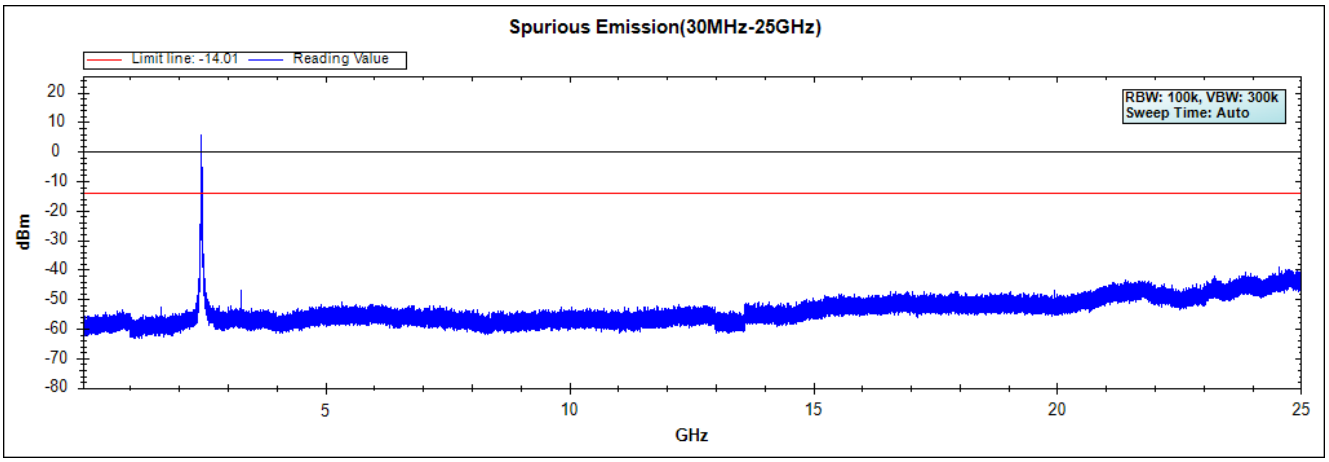
Channel 01 (2412MHz)



Channel 11 (2437MHz)



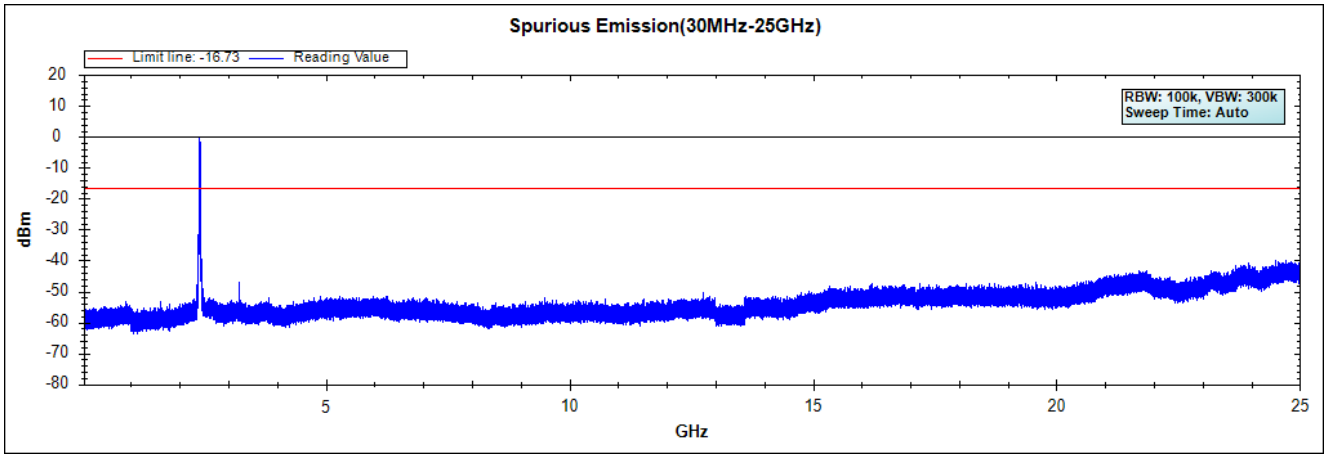
Channel 11 (2462MHz)



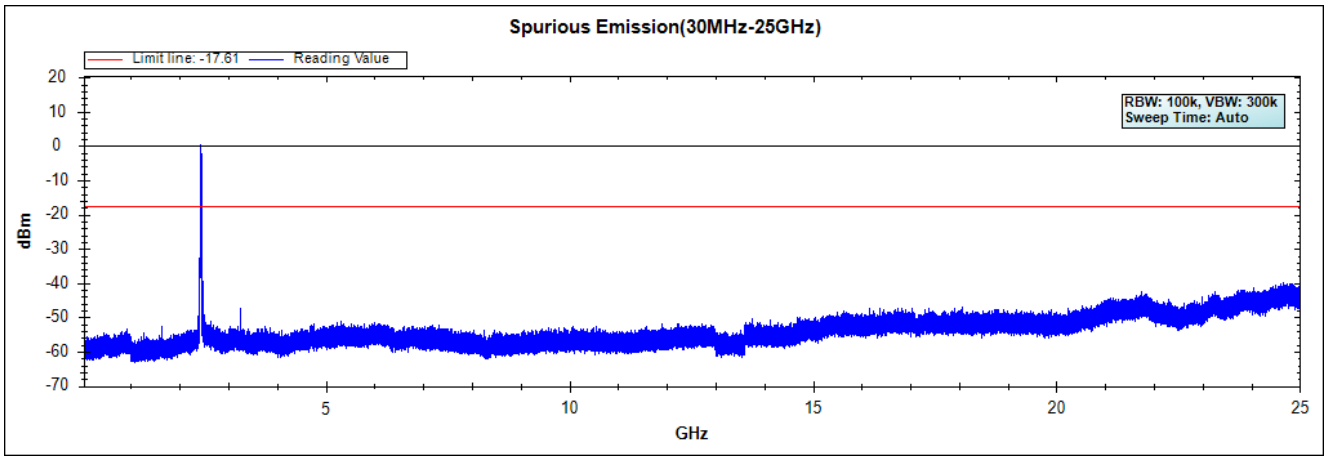
Note: The above test pattern is synthesized by multiple of the frequency range.

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

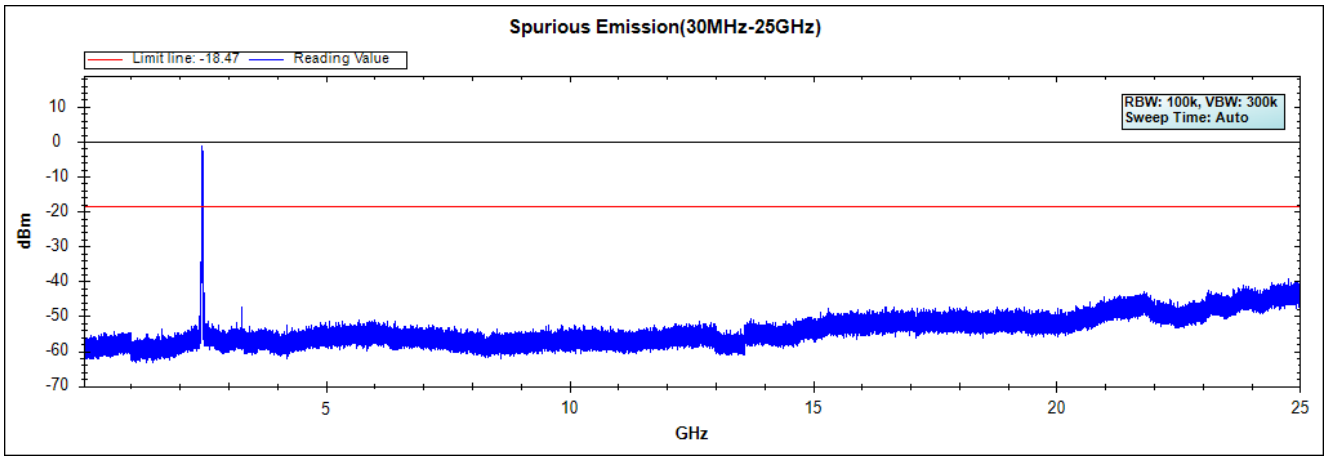
Channel 01 (2412MHz) -Chain A



Channel 06 (2437MHz) -Chain A

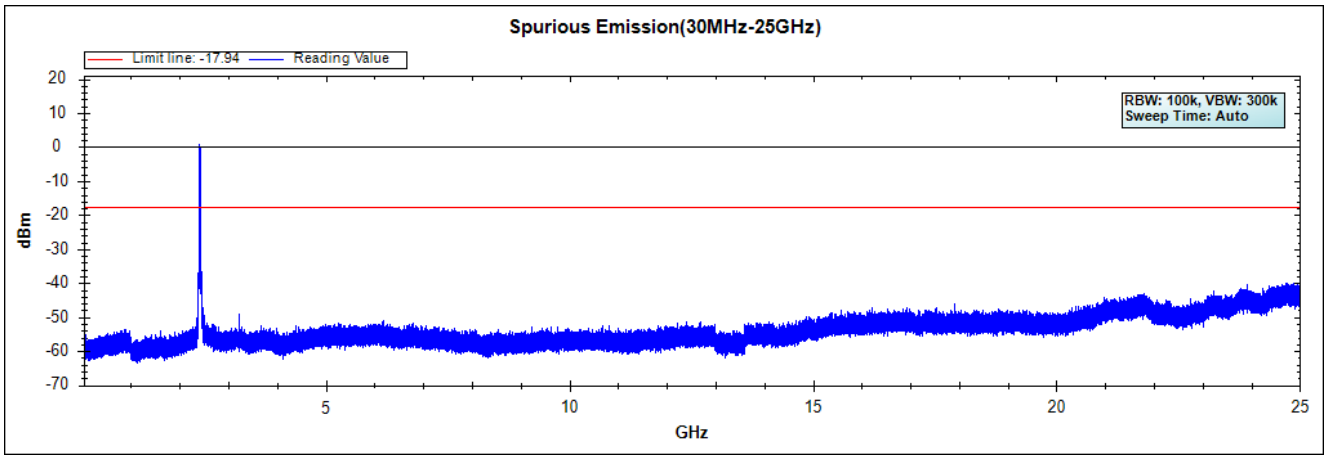


Channel 11 (2462MHz) -Chain A

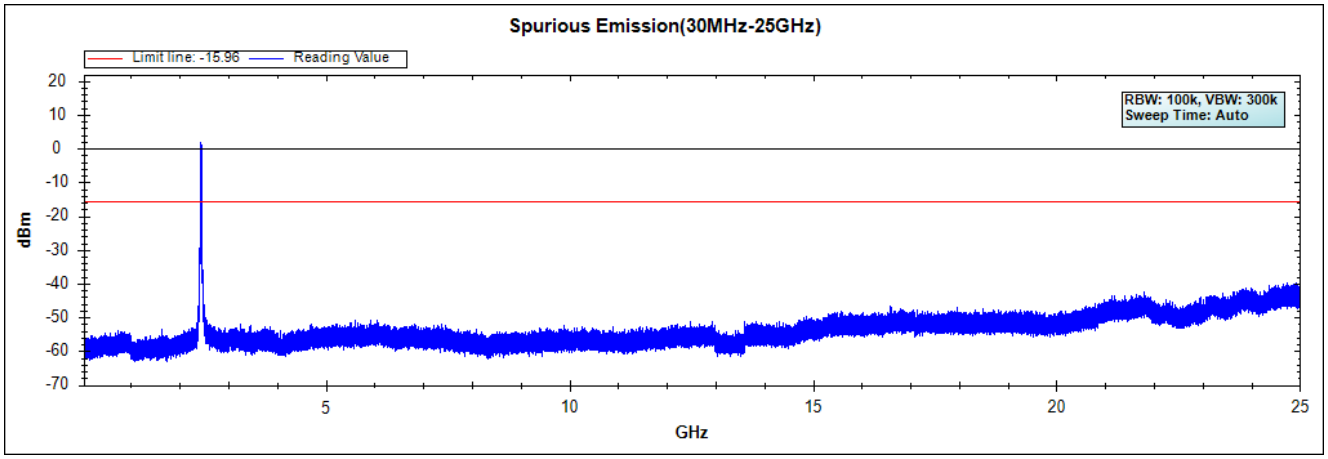


Note: The above test pattern is synthesized by multiple of the frequency range.

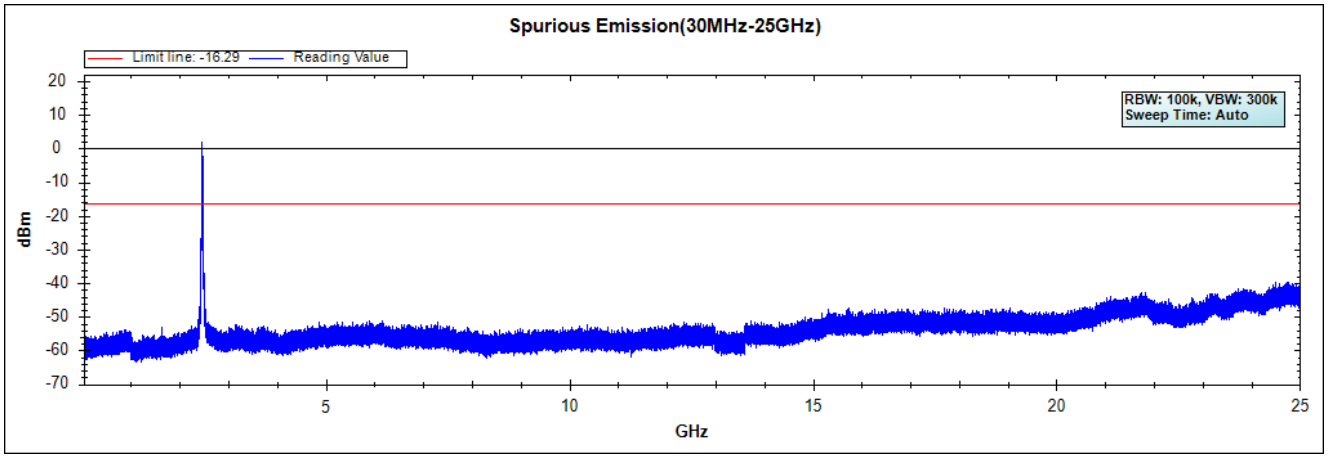
Channel 01 (2412MHz) -Chain B



Channel 06 (2437MHz) -Chain B



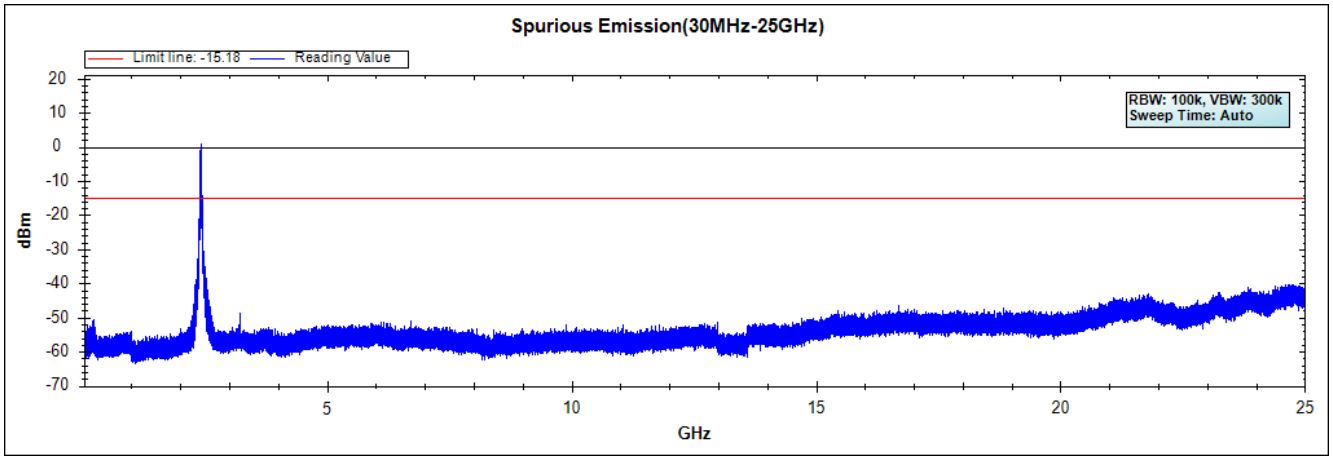
Channel 11 (2462MHz) -Chain B



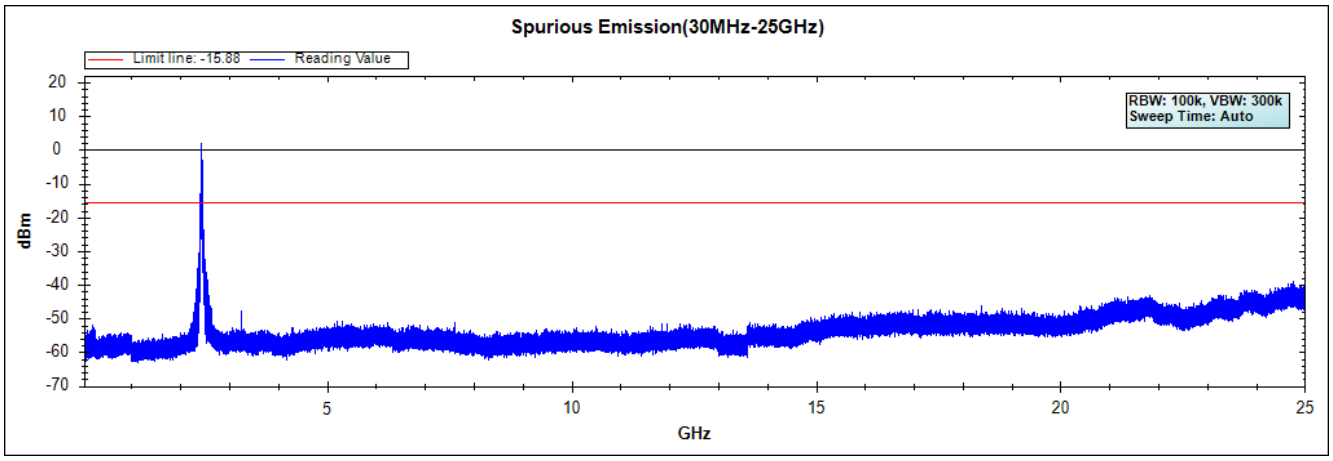
Note: The above test pattern is synthesized by multiple of the frequency range.

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

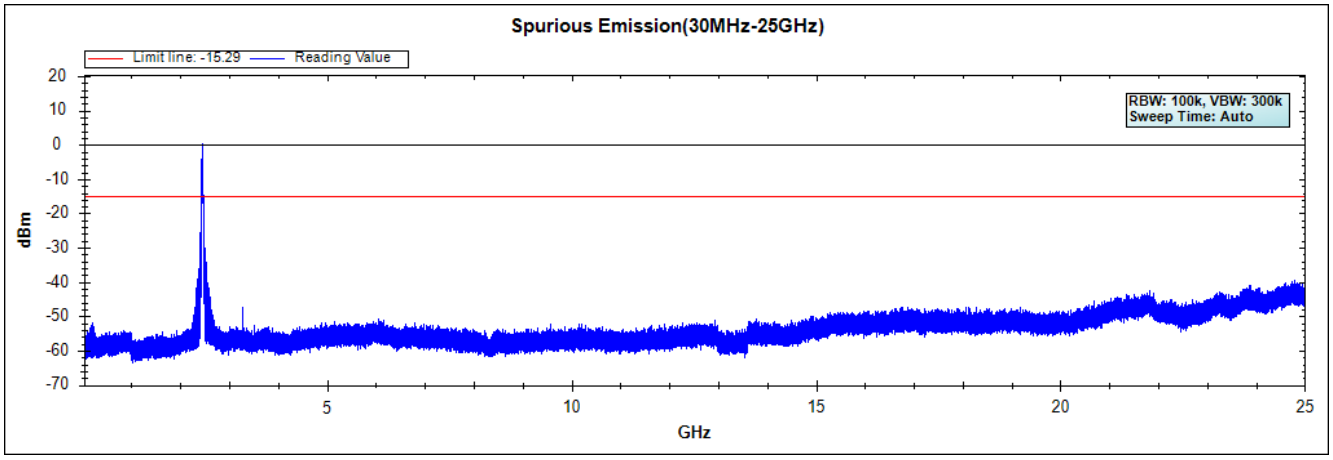
Channel 03 (2422MHz) -Chain A



Channel 06 (2437MHz) -Chain A

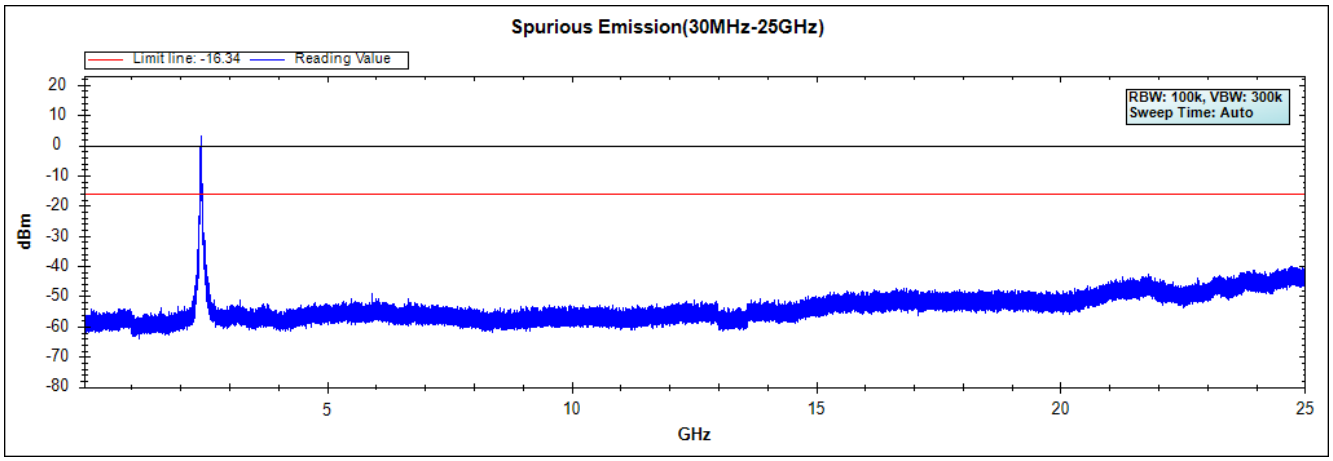


Channel 09 (2452MHz) -Chain A

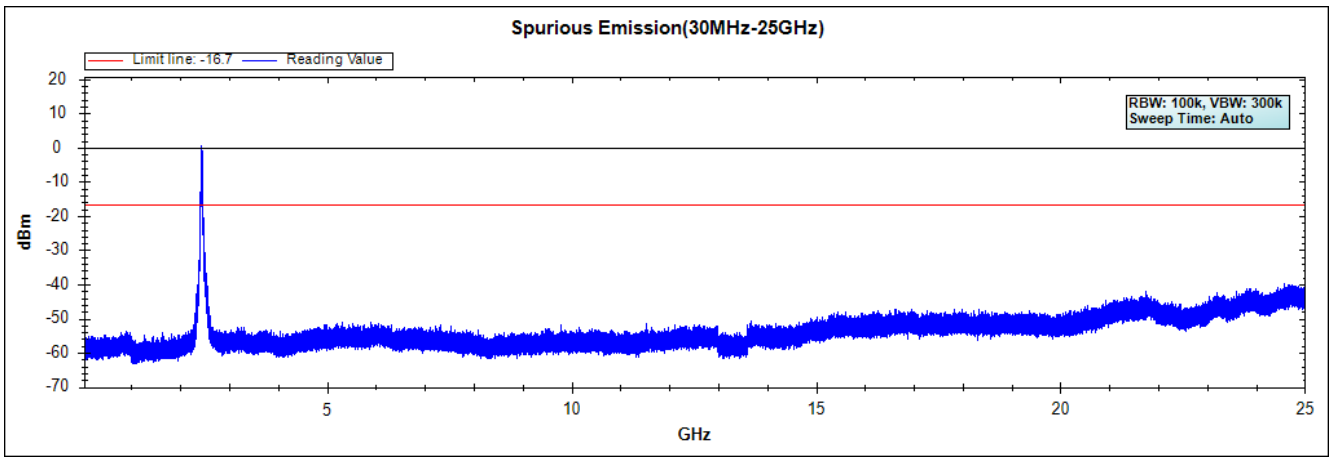


Note: The above test pattern is synthesized by multiple of the frequency range.

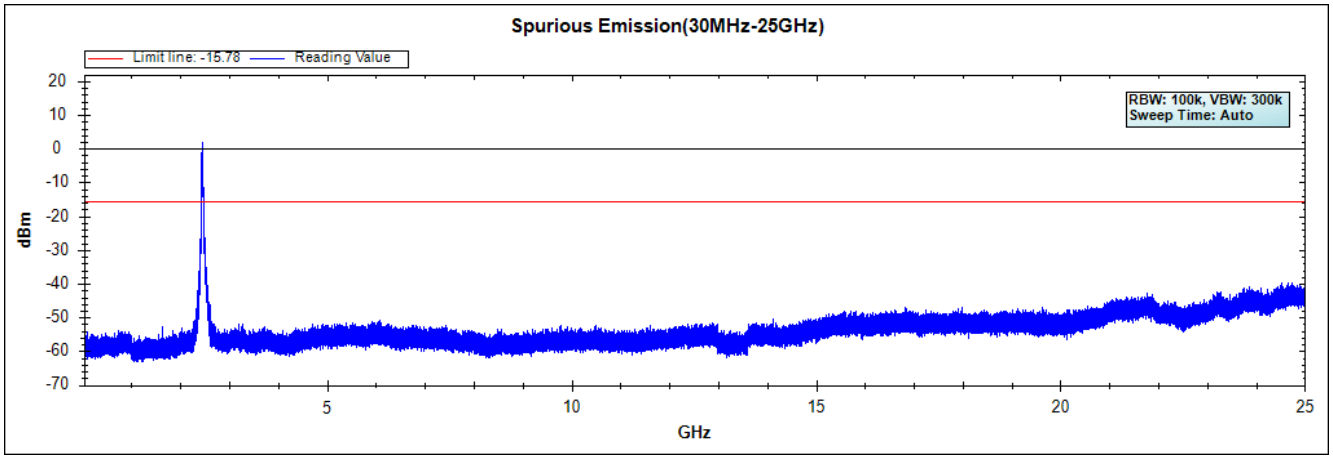
Channel 03 (2422MHz) -Chain B



Channel 06 (2437MHz) -Chain B



Channel 09 (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:

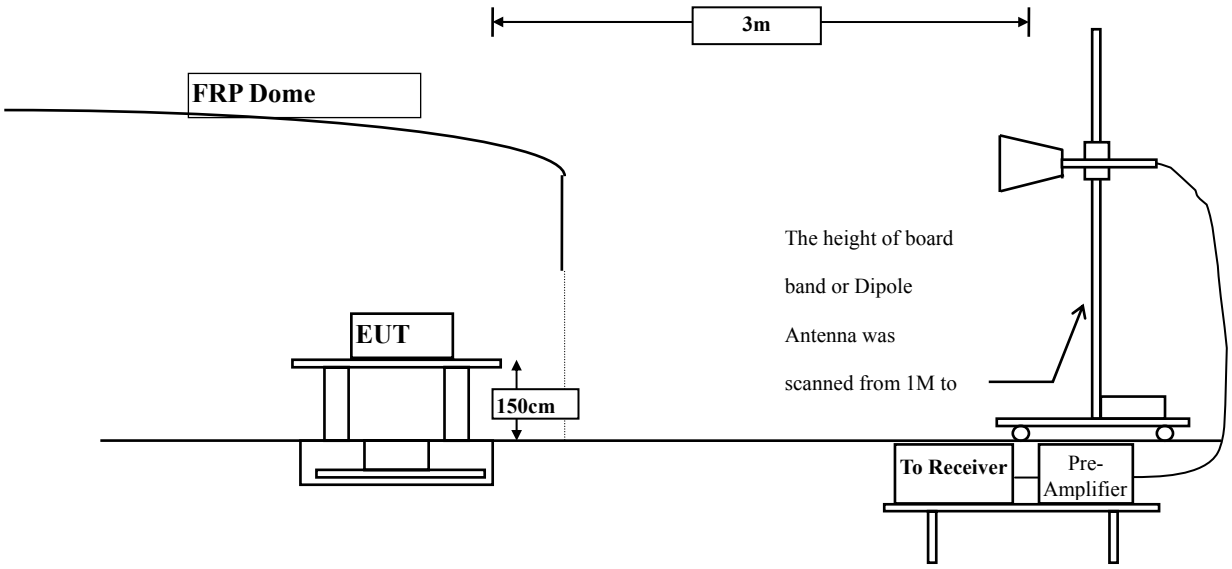
The following test equipments are used during the band edge tests:

Test Site	Equipment		Manufacturer	Model No./Serial No.	Last Cal.
☒CB # 8	X	Spectrum Analyzer	R&S	FSP40/ 100339	Oct, 2014
	X	Horn Antenna	ETS-Lindgren	3117/ 35205	Mar, 2015
	X	Horn Antenna	Schwarzbeck	BBHA9170/209	Jan, 2015
	X	Horn Antenna	TRC	AH-0801/95051	Aug, 2014
	X	Pre-Amplifier	EMCI	EMC012630SE/980210	Jan, 2015
	X	Pre-Amplifier	MITEQ	JS41-001040000-58-5P/153945	Jul, 2015
	X	Pre-Amplifier	NARDA	DBL-1840N506/013	Jul, 2015

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, 2013 and tested according to DTS test procedure of KDB558074 for compliance to FCC 47CFR 15.247 requirements.
The EUT is placed on a turn table which is 1.5 meter above ground. The turn table is rotated 360 degrees to determine the position of the maximum emission level. The EUT was positioned such that the distance from antenna to the EUT was 3 meters.
The antenna is scanned from 1 meter to 4 meters to find out the maximum emission level. This is repeated for both horizontal and vertical polarization of the antenna. In order to find the maximum emission, all of the interface cables were manipulated according to ANSI C63.10:2013 on radiated measurement.

6.5. Uncertainty

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

6.6. Test Result of Band Edge

Product : Gateway
Test Item : Band Edge
Test Site : No.3 OATS
Test Mode : Mode 1: Transmit (802.11b 1Mbps)

RF Radiated Measurement (Horizontal):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Emission Level (dBuV/m)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Result
01 (Peak)	2387.826	31.501	27.778	59.279	74.00	54.00	Pass
01 (Peak)	2390.000	31.509	26.823	58.332	74.00	54.00	Pass
01 (Peak)	2400.000	31.561	32.974	64.535	--	--	--
01 (Peak)	2413.043	31.646	71.698	103.344	--	--	--
01 (Average)	2390.000	31.509	14.249	45.758	74.00	54.00	Pass
01 (Average)	2400.000	31.561	22.832	54.393	--	--	--
01 (Average)	2414.348	31.657	68.596	100.252	--	--	--

Figure Channel 01: Horizontal (Peak)

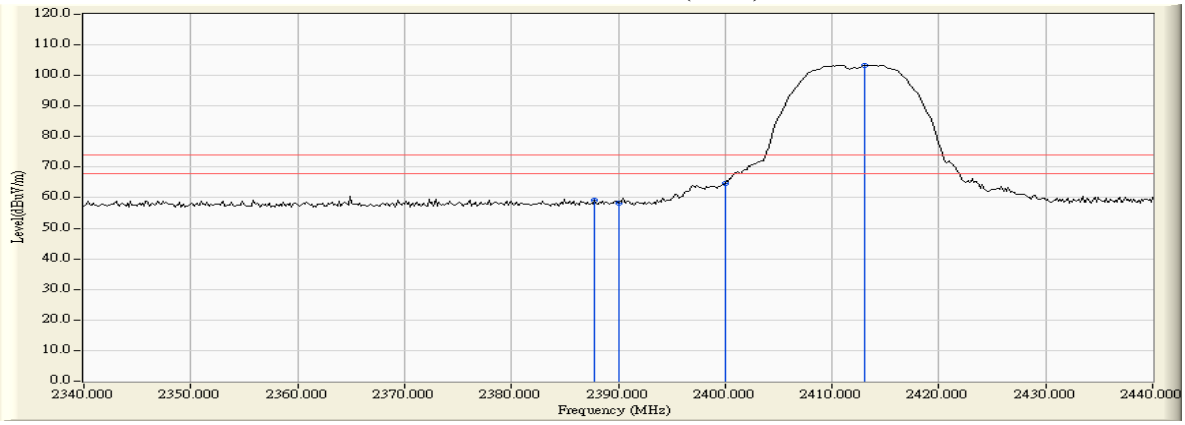
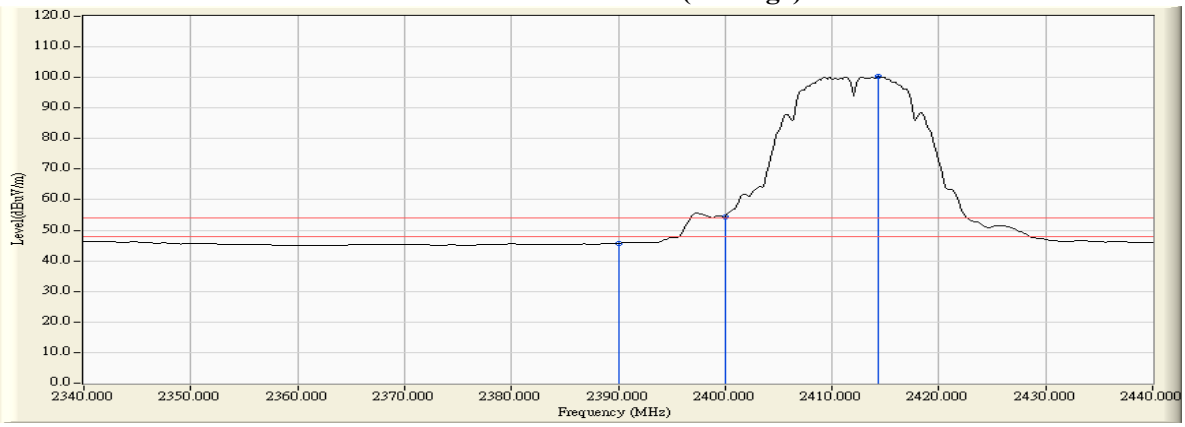


Figure Channel 01: Horizontal (Average)



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 : Gateway
Test Item : Band Edge
Test Site : No.3 OATS
Test Mode : Mode 1: Transmit (802.11b 1Mbps)

RF Radiated Measurement (Vertical):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Emission Level (dBuV/m)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Result
01 (Peak)	2388.986	30.920	27.809	58.729	74.00	54.00	Pass
01 (Peak)	2390.000	30.915	25.877	56.792	74.00	54.00	Pass
01 (Peak)	2400.000	30.912	27.335	58.247	--	--	--
01 (Peak)	2413.043	30.957	61.859	92.815	--	--	--
01 (Average)	2390.000	30.915	13.633	44.548	74.00	54.00	Pass
01 (Average)	2400.000	30.912	15.863	46.775	--	--	--
01 (Average)	2414.348	30.966	58.637	89.602	--	--	--

Figure Channel 01: Vertical (Peak)

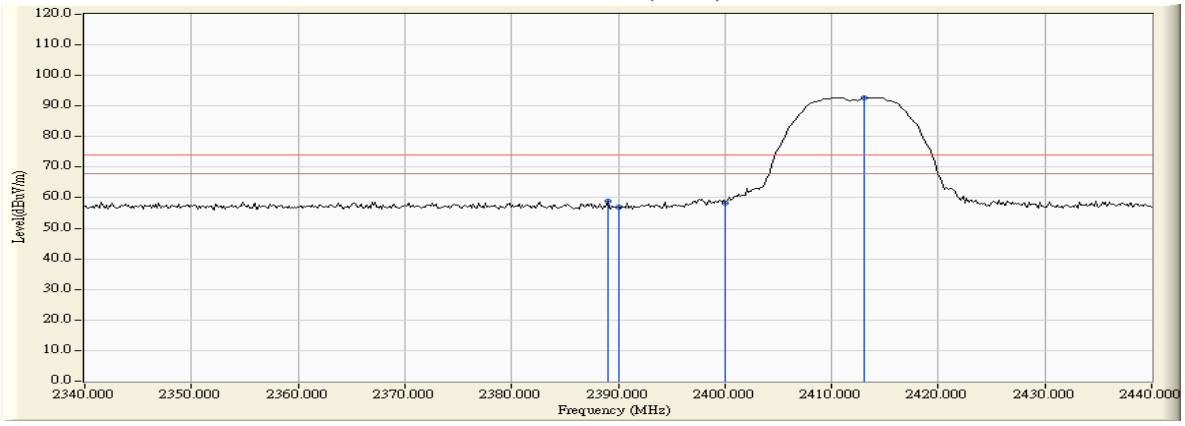
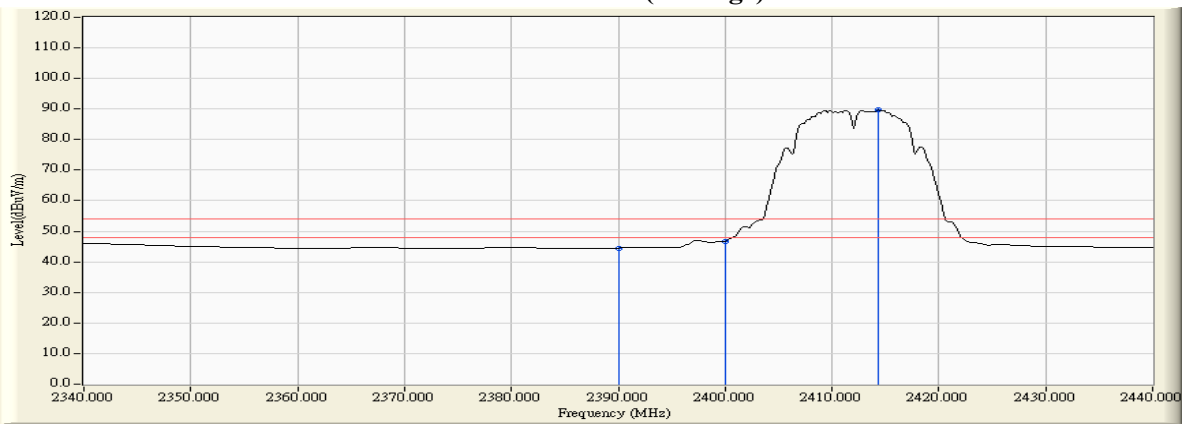


Figure Channel 01: Vertical (Average)



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 : Gateway
Test Item : Band Edge
Test Site : No.3 OATS
Test Mode : Mode 1: Transmit (802.11b 1Mbps)

RF Radiated Measurement (Horizontal):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Emission Level (dBuV/m)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Result
11 (Peak)	2460.891	32.011	71.426	103.437	--	--	--
11 (Peak)	2483.500	32.182	28.014	60.196	74.00	54.00	Pass
11 (Peak)	2489.152	32.225	28.578	60.803	74.00	54.00	Pass
11 (Average)	2461.181	32.014	68.053	100.066	--	--	--
11 (Average)	2483.500	32.182	14.670	46.852	74.00	54.00	Pass

Figure Channel 11: Horizontal (Peak)

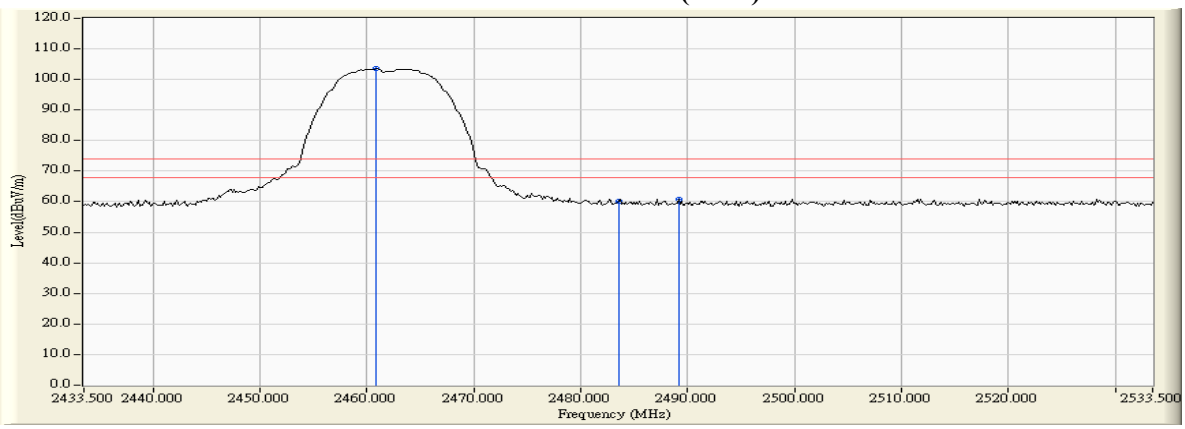
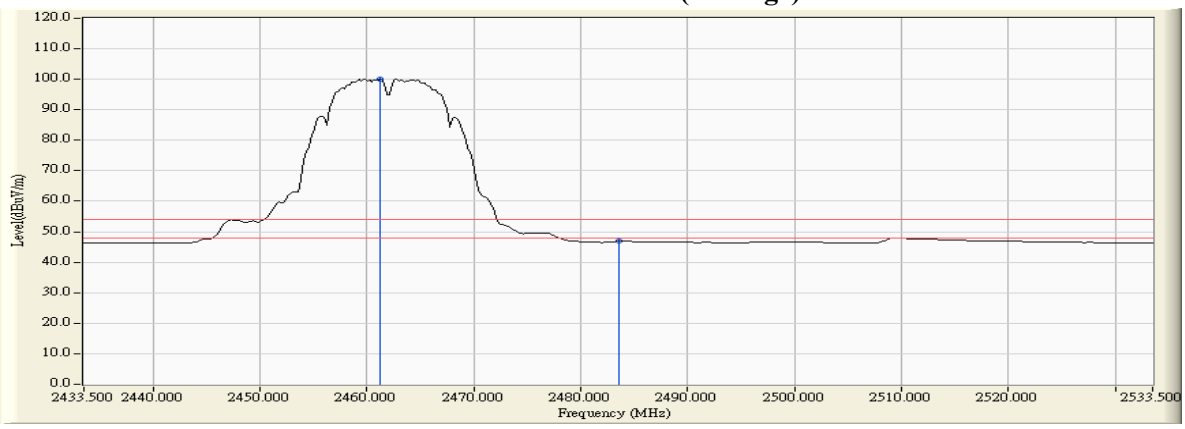


Figure Channel 11: Horizontal (Average)



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 : Gateway
Test Item : Band Edge
Test Site : No.3 OATS
Test Mode : Mode 1: Transmit (802.11b 1Mbps)

RF Radiated Measurement (Vertical):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Emission Level (dBuV/m)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Result
11 (Peak)	2463.065	31.298	63.178	94.476	--	--	--
11 (Peak)	2483.500	31.435	26.903	58.338	74.00	54.00	Pass
11 (Average)	2462.775	31.295	59.911	91.207	--	--	--
11 (Average)	2483.500	31.435	14.175	45.610	74.00	54.00	Pass

Figure Channel 11: Vertical (Peak)

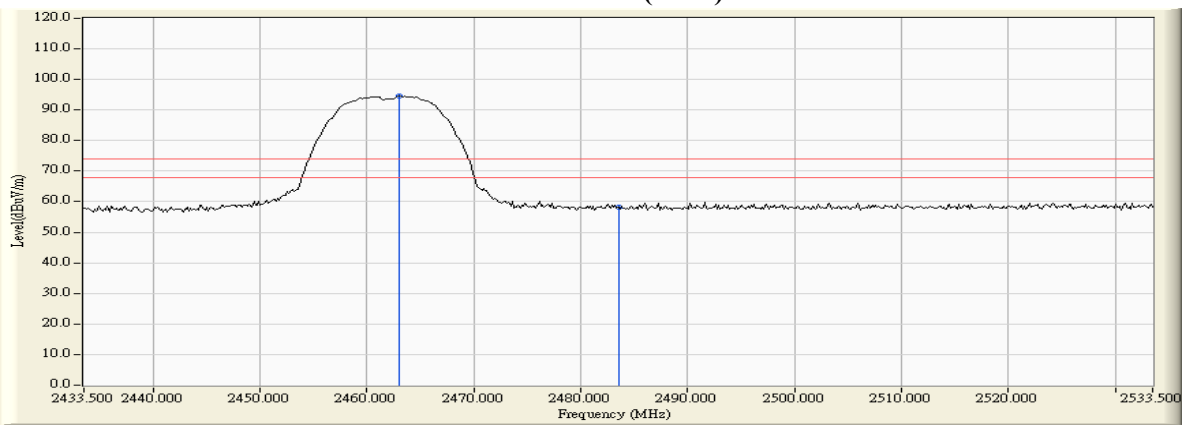
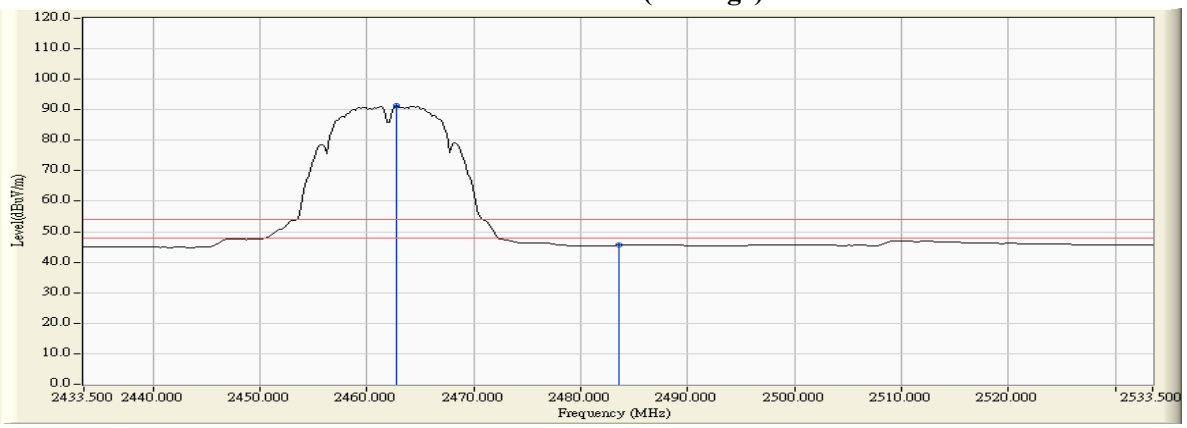


Figure Channel 11: Vertical (Average)



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 : Gateway
Test Item : Band Edge
Test Site : No.3 OATS
Test Mode : Mode 2: Transmit (802.11g 6Mbps)

RF Radiated Measurement (Horizontal):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Emission Level (dBuV/m)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Result
01 (Peak)	2390.000	31.509	31.544	63.053	74.00	54.00	Pass
01 (Peak)	2400.000	31.561	51.280	82.841	--	--	--
01 (Peak)	2413.043	31.646	72.062	103.708	--	--	--
01(Average)	2390.000	31.509	15.500	47.009	74.00	54.00	Pass
01(Average)	2400.000	31.561	25.463	57.024	--	--	--
01(Average)	2419.420	31.695	62.186	93.881	--	--	--

Figure Channel 01: Horizontal (Peak)

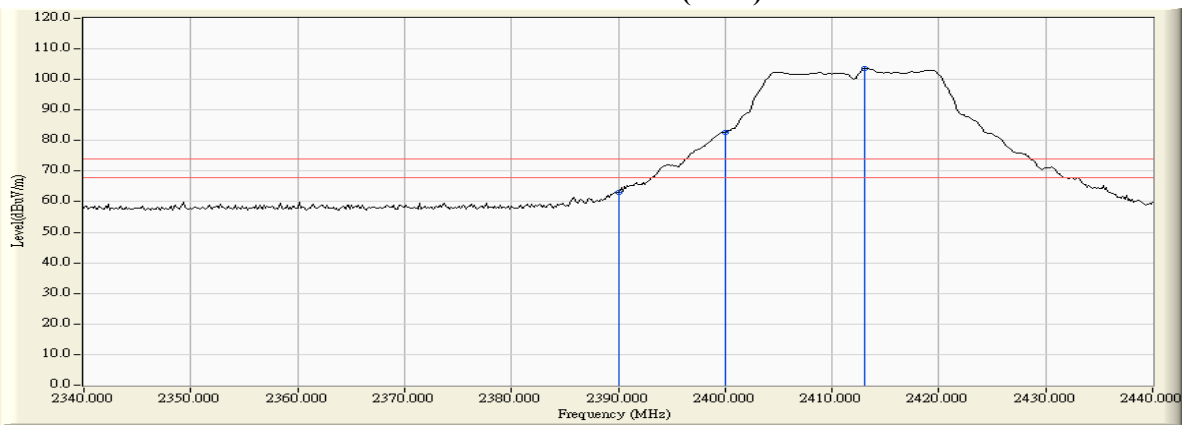
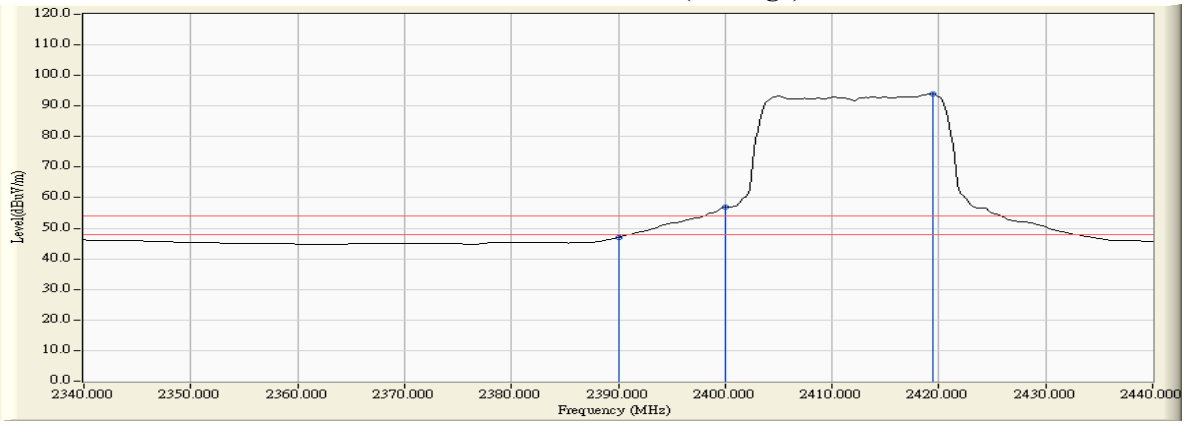


Figure Channel 01: Horizontal (Average)



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 : Gateway
Test Item : Band Edge
Test Site : No.3 OATS
Test Mode : Mode 2: Transmit (802.11g 6Mbps)

RF Radiated Measurement (Vertical):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Emission Level (dBuV/m)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Result
01 (Peak)	2390.000	30.915	28.551	59.466	74.00	54.00	Pass
01 (Peak)	2400.000	30.912	45.839	76.751	--	--	--
01 (Peak)	2413.188	30.957	66.783	97.740	--	--	--
01 (Average)	2390.000	30.915	14.265	45.180	74.00	54.00	Pass
01 (Average)	2400.000	30.912	21.122	52.034	--	--	--
01 (Average)	2419.420	31.000	56.948	87.948	--	--	--

Figure Channel 01: Vertical (Peak)

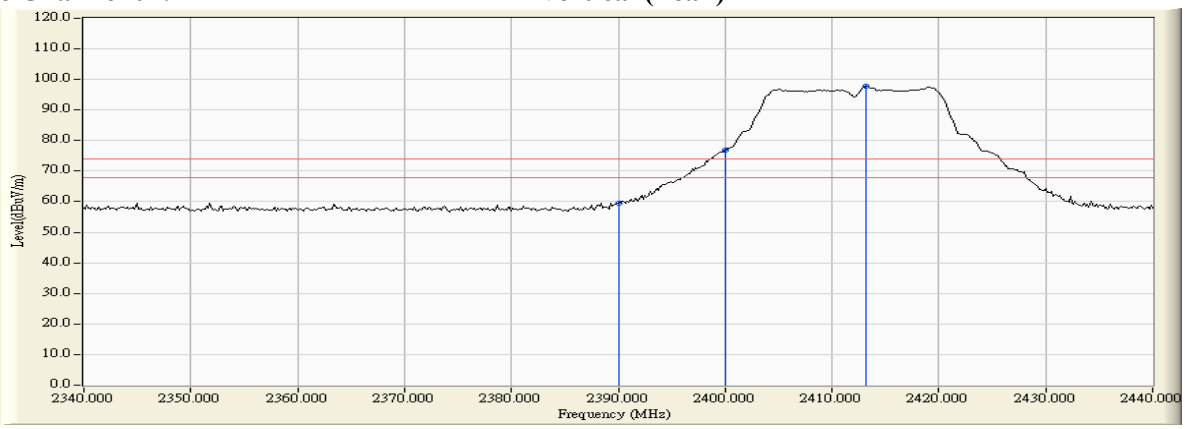
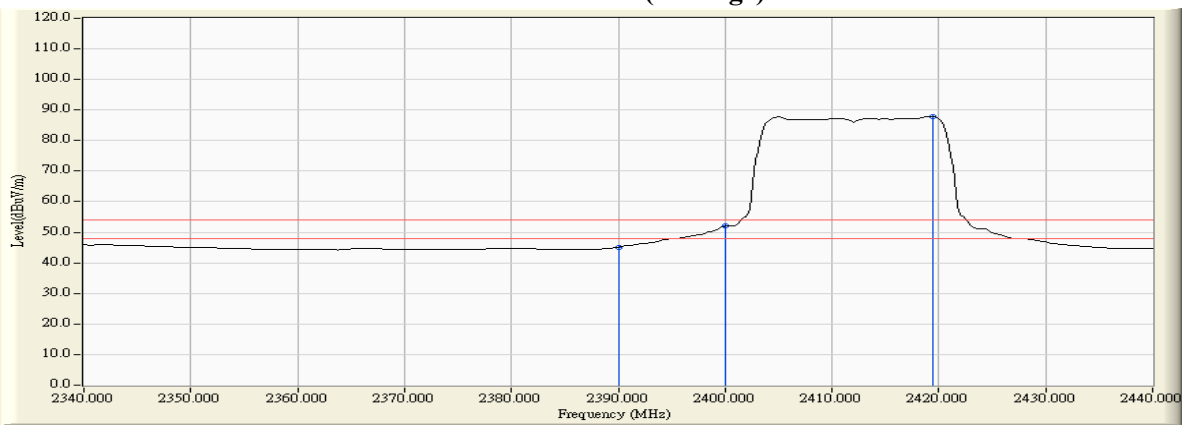


Figure Channel 01: Vertical (Average)



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 : Gateway
Test Item : Band Edge
Test Site : No.3 OATS
Test Mode : Mode 2: Transmit (802.11g 6Mbps)

RF Radiated Measurement (Horizontal):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Emission Level (dBuV/m)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Result
11 (Peak)	2463.065	32.028	72.023	104.050	--	--	--
11 (Peak)	2483.500	32.182	40.124	72.306	74.00	54.00	Pass
11 (Average)	2469.442	32.076	61.270	93.346	--	--	--
11 (Average)	2483.500	32.182	18.792	50.974	74.00	54.00	Pass

Figure Channel 11: Horizontal (Peak)

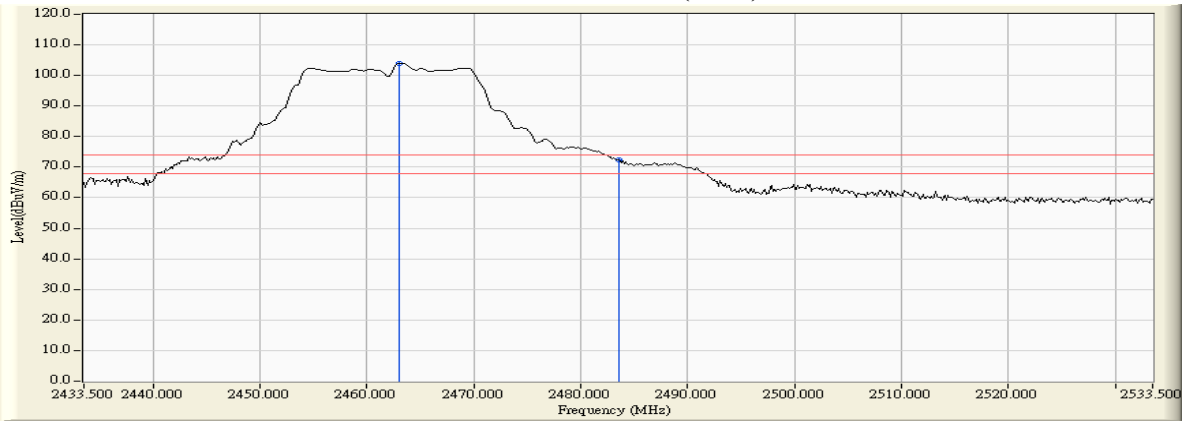
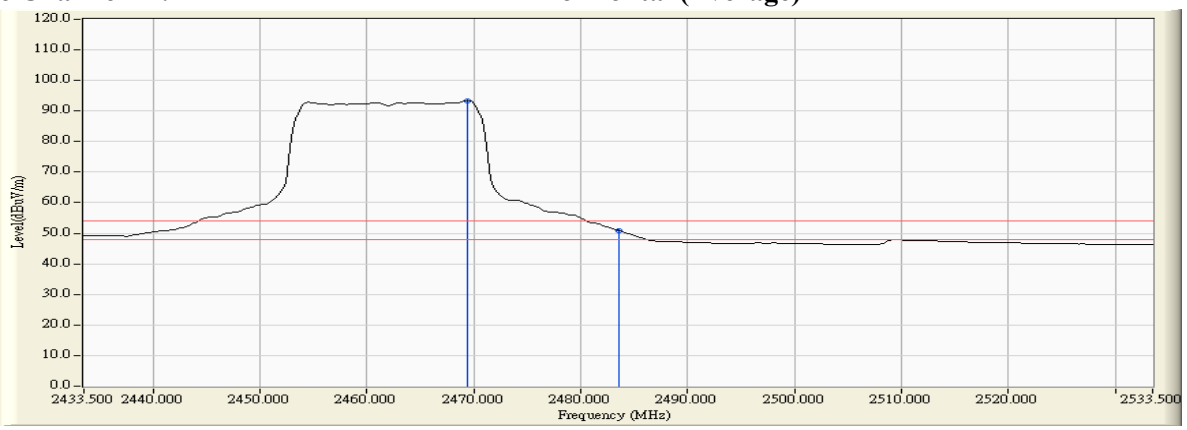


Figure Channel 11: Horizontal (Average)



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 : Gateway
Test Item : Band Edge
Test Site : No.3 OATS
Test Mode : Mode 2: Transmit (802.11g 6Mbps)

RF Radiated Measurement (Vertical):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Emission Level (dBuV/m)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Result
11 (Peak)	2463.210	31.299	66.015	97.314	--	--	--
11 (Peak)	2483.500	31.435	34.452	65.887	74.00	54.00	Pass
11 (Average)	2469.442	31.341	55.356	86.696	--	--	--
11 (Average)	2483.500	31.435	15.998	47.433	74.00	54.00	Pass

Figure Channel 11: Vertical (Peak)

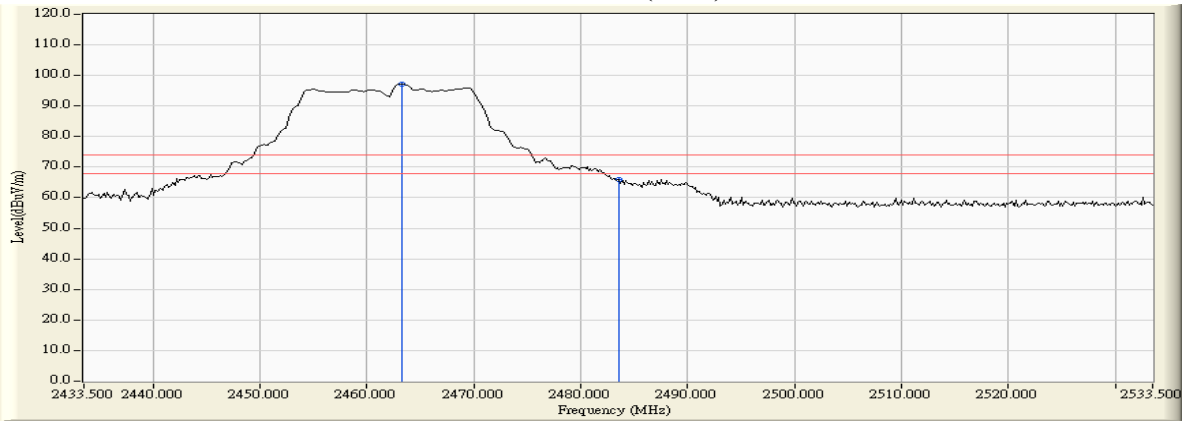
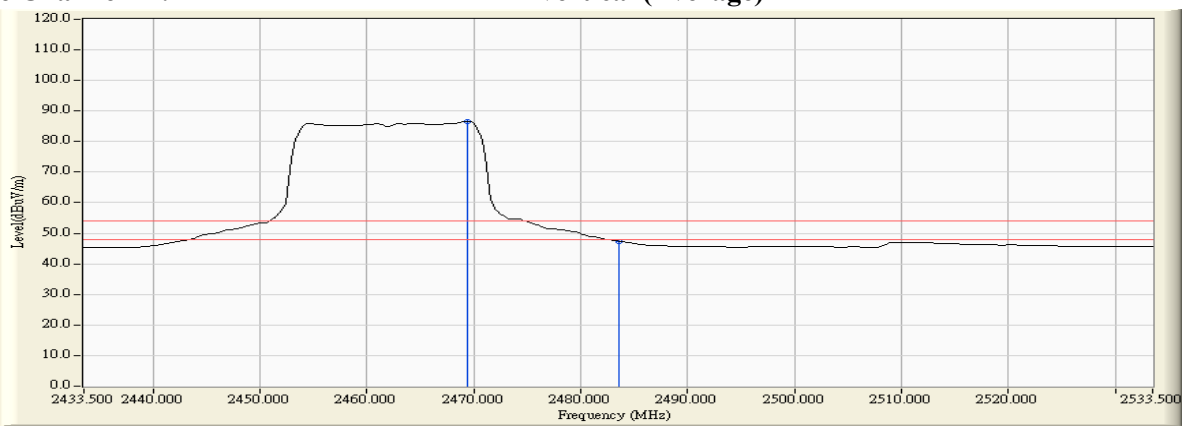


Figure Channel 11: Vertical (Average)



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 : Gateway
Test Item : Band Edge
Test Site : No.3 OATS
Test Mode : Mode 3: Transmit (802.11n MCS0 14.4Mbps 20M-BW)

RF Radiated Measurement (Horizontal):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Emission Level (dBuV/m)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Result
01 (Peak)	2389.130	31.506	33.828	65.334	74.00	54.00	Pass
01 (Peak)	2390.000	31.509	33.194	64.703	74.00	54.00	Pass
01 (Peak)	2400.000	31.561	46.292	77.853	--	--	--
01 (Peak)	2404.928	31.592	72.236	103.828	--	--	--
01 (Average)	2390.000	31.509	17.361	48.870	74.00	54.00	Pass
01 (Average)	2400.000	31.561	25.895	57.456	--	--	--
01 (Average)	2404.493	31.590	61.894	93.483	--	--	--

Figure Channel 01: Horizontal (Peak)

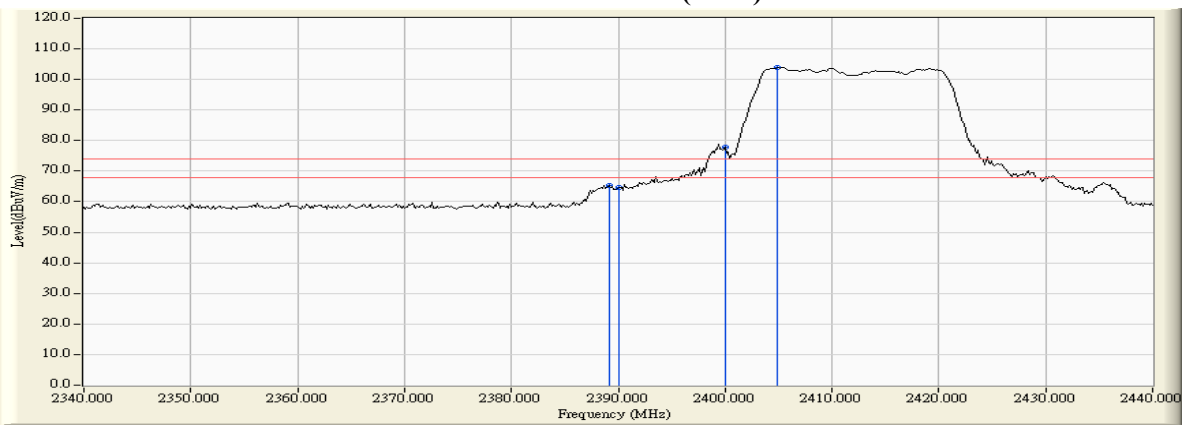
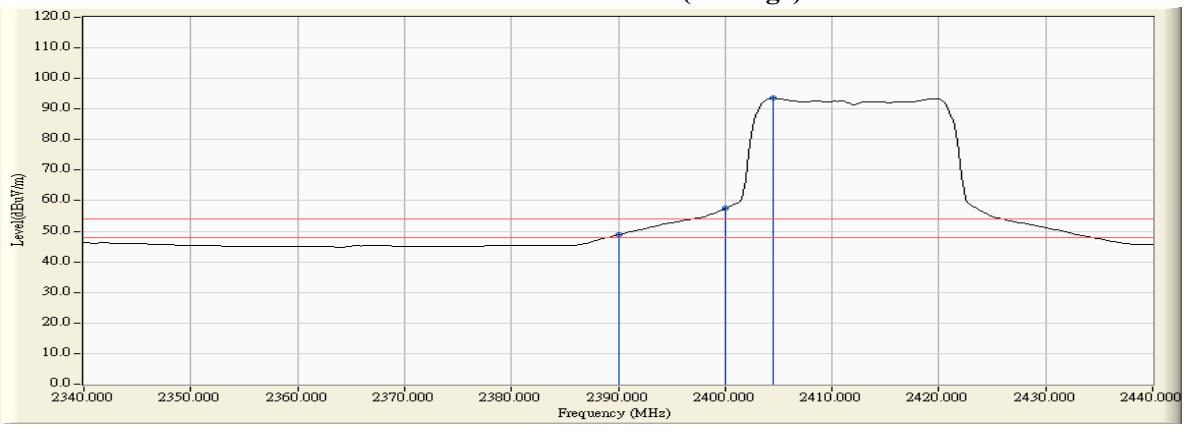


Figure Channel 01: Horizontal (Average)



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 : Gateway
Test Item : Band Edge
Test Site : No.3 OATS
Test Mode : Mode 3: Transmit (802.11n MCS0 14.4Mbps 20M-BW)

RF Radiated Measurement (Vertical):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Emission Level (dBuV/m)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Result
01 (Peak)	2390.000	30.915	26.372	57.287	74.00	54.00	Pass
01 (Peak)	2400.000	30.912	32.230	63.142	--	--	--
01 (Peak)	2409.855	30.940	64.096	95.035	--	--	--
01 (Average)	2390.000	30.915	14.144	45.059	74.00	54.00	Pass
01 (Average)	2400.000	30.912	18.329	49.241	--	--	--
01 (Average)	2419.565	31.001	53.738	84.739	--	--	--

Figure Channel 01: Vertical (Peak)

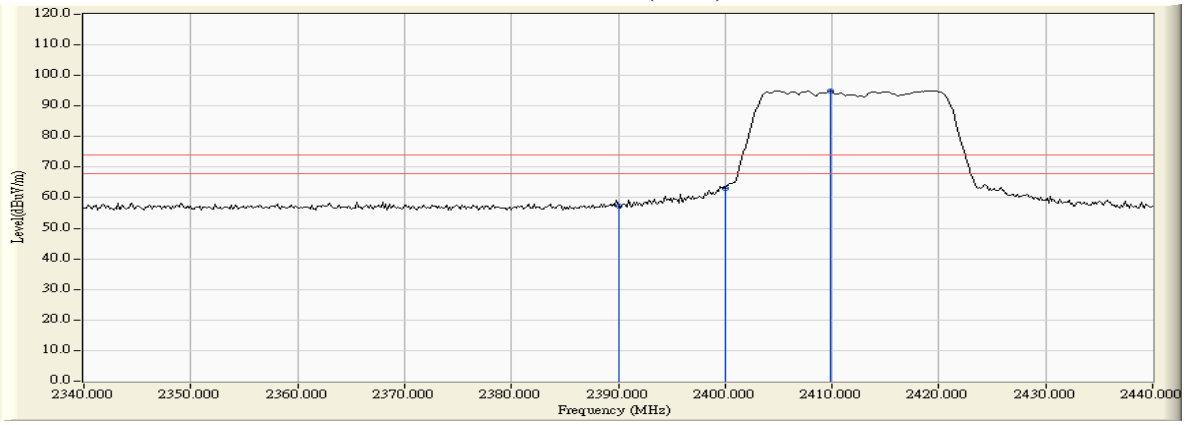
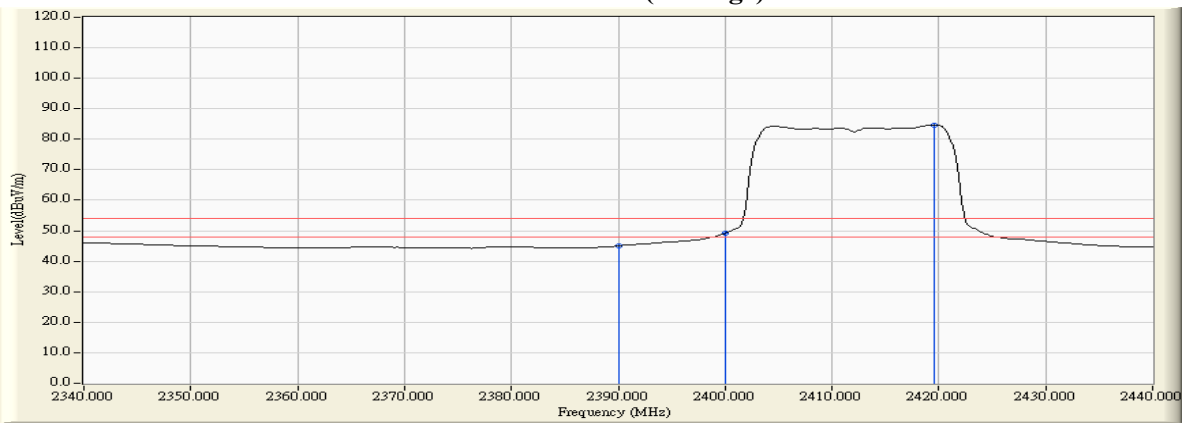


Figure Channel 01: Vertical (Average)



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 : Gateway
Test Item : Band Edge
Test Site : No.3 OATS
Test Mode : Mode 3: Transmit (802.11n MCS0 14.4Mbps 20M-BW)

RF Radiated Measurement (Horizontal):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Emission Level (dBuV/m)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Result
11 (Peak)	2457.703	31.987	71.725	103.712	--	--	--
11 (Peak)	2483.500	32.182	31.080	63.262	74.00	54.00	Pass
11 (Peak)	2485.529	32.197	33.411	65.608	74.00	54.00	Pass
11 (Average)	2454.370	31.961	61.196	93.158	--	--	--
11 (Average)	2483.500	32.182	16.685	48.867	74.00	54.00	Pass

Figure Channel 11: Horizontal (Peak)

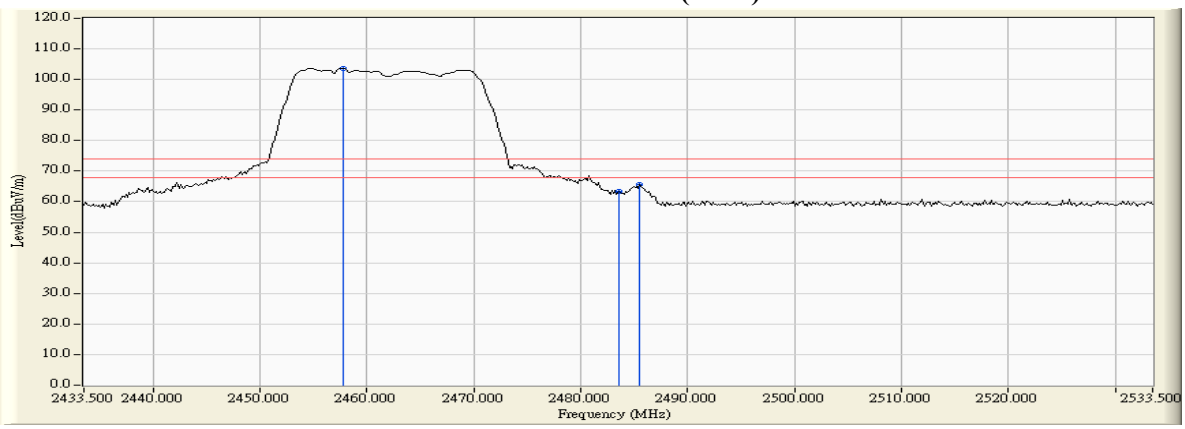
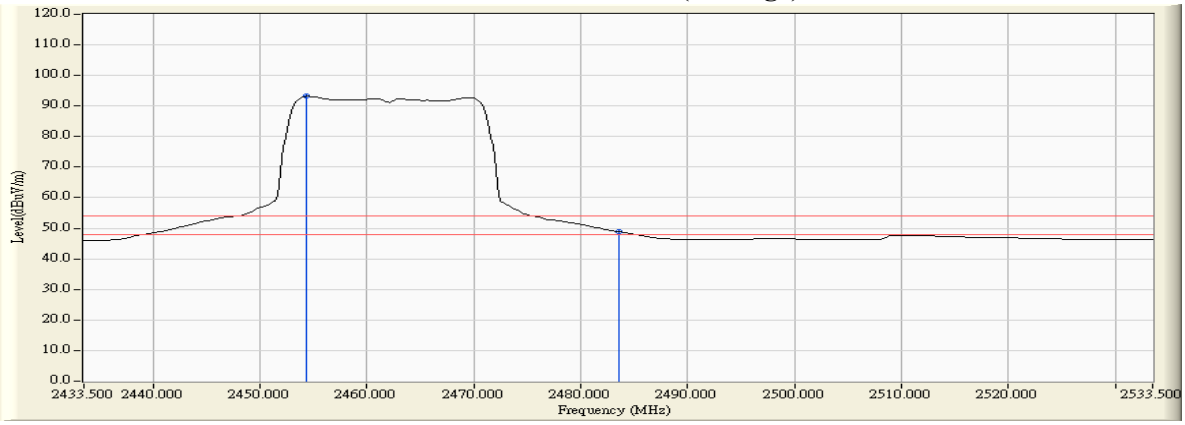


Figure Channel 11: Horizontal (Average)



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 : Gateway
Test Item : Band Edge
Test Site : No.3 OATS
Test Mode : Mode 3: Transmit (802.11n MCS0 14.4Mbps 20M-BW)

RF Radiated Measurement (Vertical):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Emission Level (dBuV/m)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Result
11 (Peak)	2469.007	31.338	65.283	96.621	--	--	--
11 (Peak)	2483.500	31.435	28.189	59.624	74.00	54.00	Pass
11 (Peak)	2484.370	31.441	29.218	60.659	74.00	54.00	Pass
11 (Average)	2469.732	31.343	54.613	85.955	--	--	--
11 (Average)	2483.500	31.435	14.833	46.268	74.00	54.00	Pass

Figure Channel 11: Vertical (Peak)

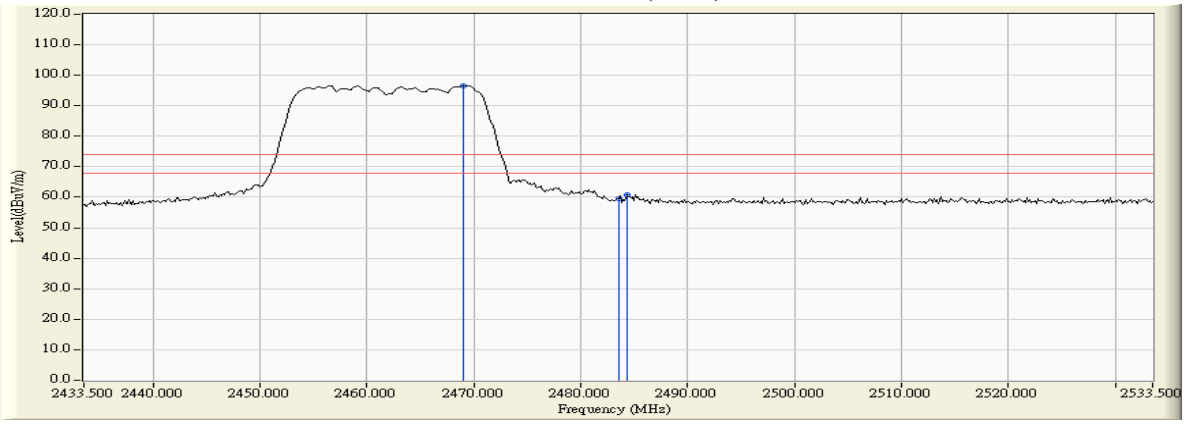
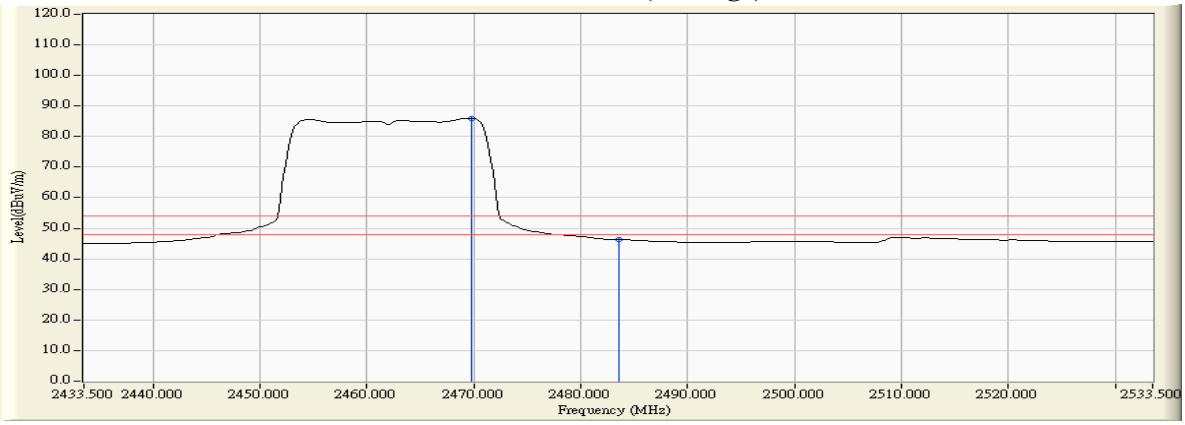


Figure Channel 11: Vertical (Average)



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 : Gateway
Test Item : Band Edge
Test Site : No.3 OATS
Test Mode : Mode 4: Transmit (802.11n MCS0 30Mbps 40M-BW)

RF Radiated Measurement (Horizontal):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Emission Level (dBuV/m)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Result
03 (Peak)	2390.000	31.509	35.027	66.536	74.00	54.00	Pass
03 (Peak)	2400.000	31.561	39.633	71.194	--	--	--
03 (Peak)	2417.536	31.680	69.336	101.017	--	--	--
03 (Average)	2390.000	31.509	20.022	51.531	74.00	54.00	Pass
03 (Average)	2400.000	31.561	28.081	59.642	--	--	--
03 (Average)	2438.986	31.845	58.911	90.756	--	--	--

Figure Channel 03: Horizontal (Peak)

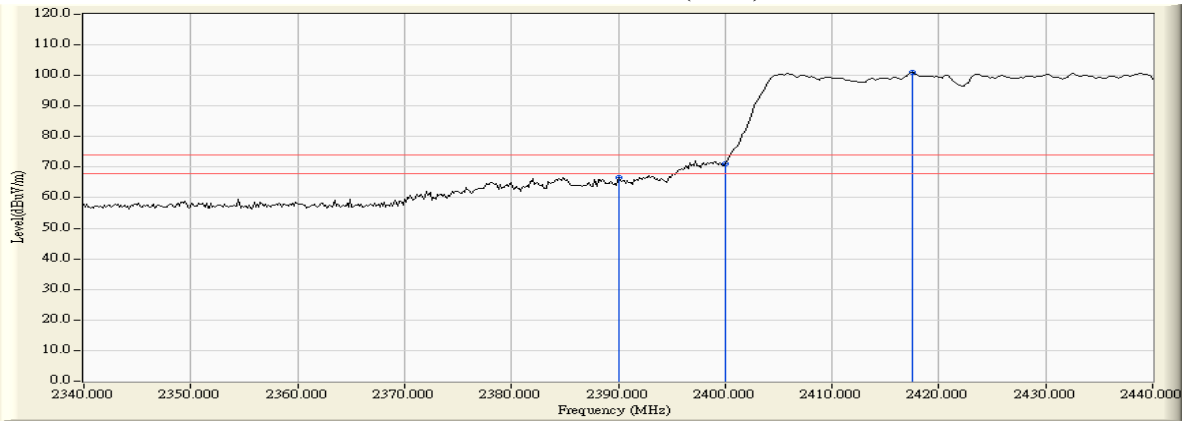
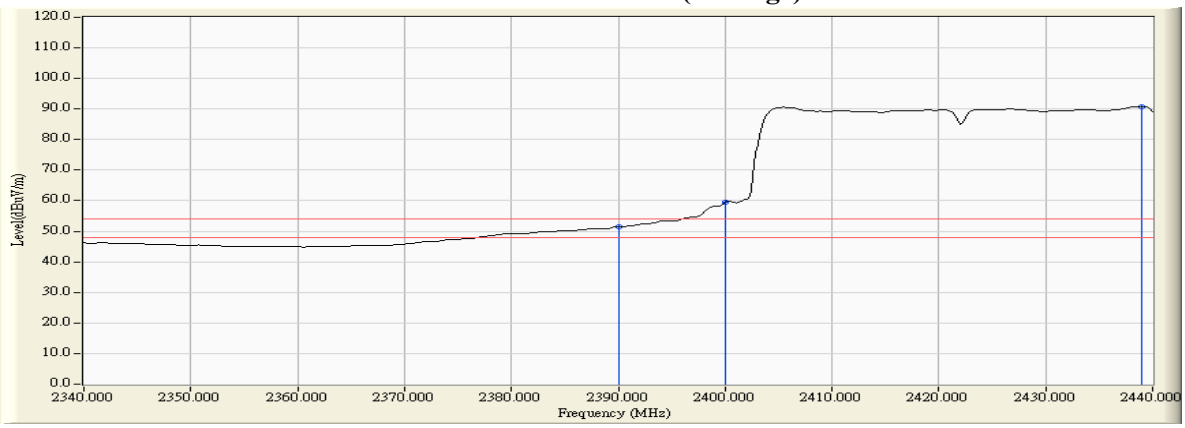


Figure Channel 03: Horizontal (Average)



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 : Gateway
Test Item : Band Edge
Test Site : No.3 OATS
Test Mode : Mode 4: Transmit (802.11n MCS0 30Mbps 40M-BW)

RF Radiated Measurement (Vertical):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Emission Level (dBuV/m)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Result
03 (Peak)	2382.609	30.950	28.355	59.304	74.00	54.00	Pass
03 (Peak)	2390.000	30.915	27.003	57.918	74.00	54.00	Pass
03 (Peak)	2400.000	30.912	31.683	62.595	--	--	--
03 (Peak)	2437.681	31.124	61.290	92.414	--	--	--
03 (Average)	2390.000	30.915	14.650	45.565	74.00	54.00	Pass
03 (Average)	2438.986	31.133	50.987	82.119	--	--	--

Figure Channel 03: Vertical (Peak)

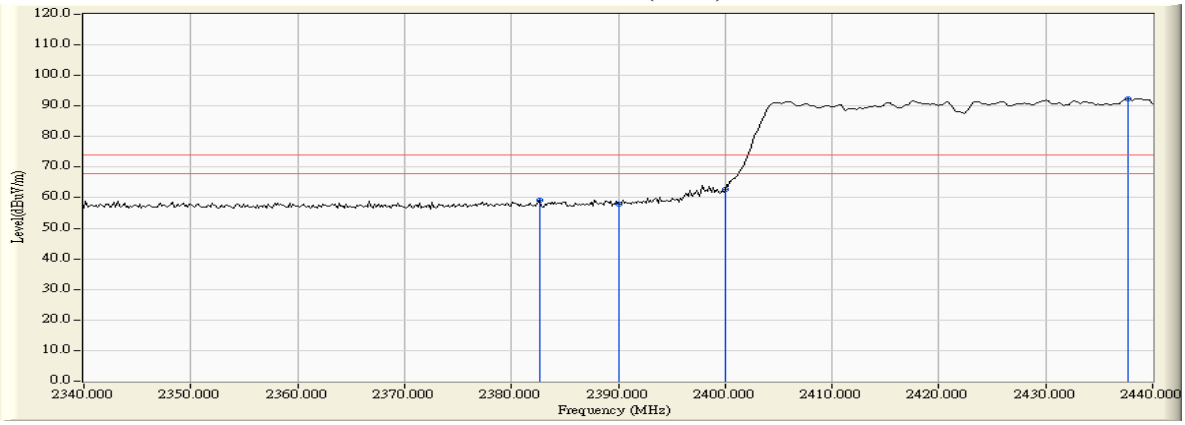
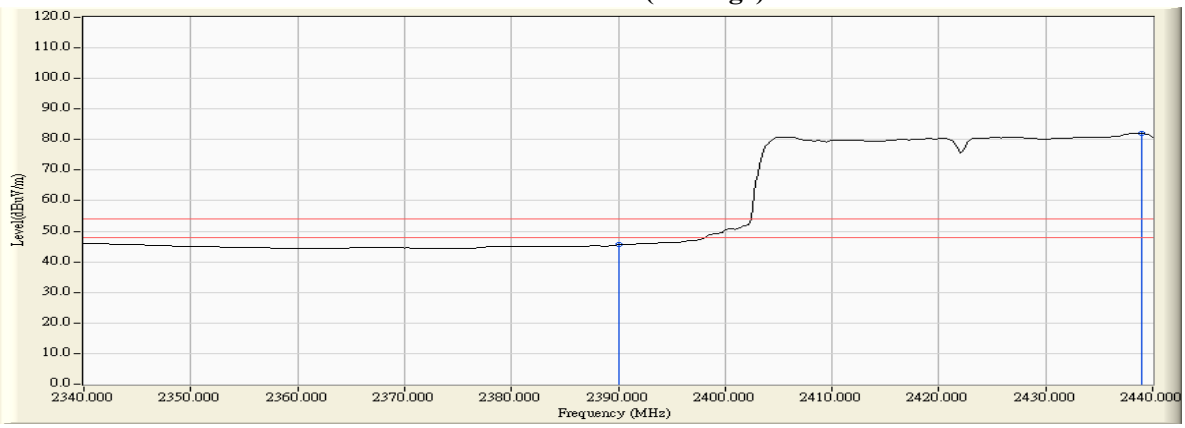


Figure Channel 03: Vertical (Average)



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 : Gateway
Test Item : Band Edge
Test Site : No.3 OATS
Test Mode : Mode 4: Transmit (802.11n MCS0 30Mbps 40M-BW)

RF Radiated Measurement (Horizontal):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Emission Level (dBuV/m)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Result
09 (Peak)	2434.804	31.813	69.428	101.241	--	--	--
09 (Peak)	2483.500	32.182	33.595	65.777	74.00	54.00	Pass
09 (Average)	2434.949	31.814	59.116	90.930	--	--	--
09 (Average)	2483.500	32.182	18.109	50.291	74.00	54.00	Pass

Figure Channel 09: Horizontal (Peak)

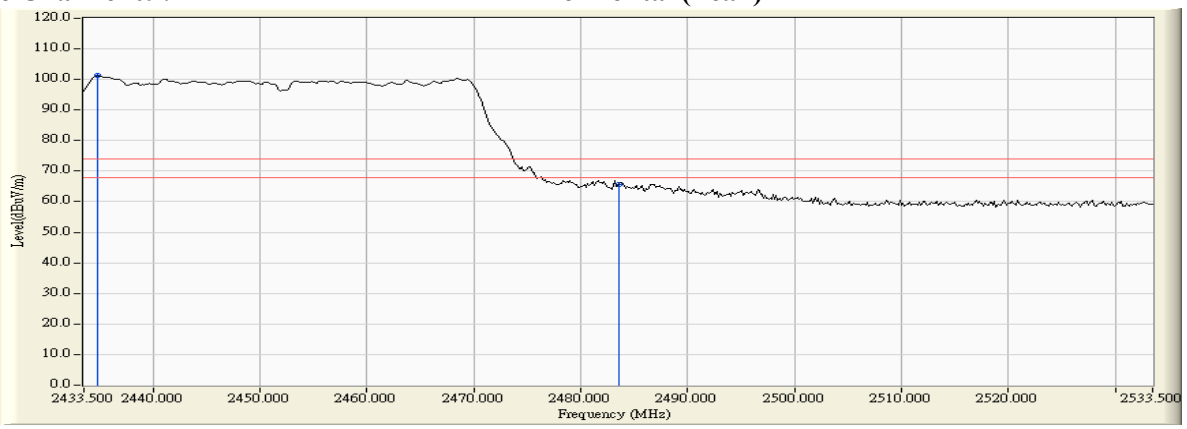
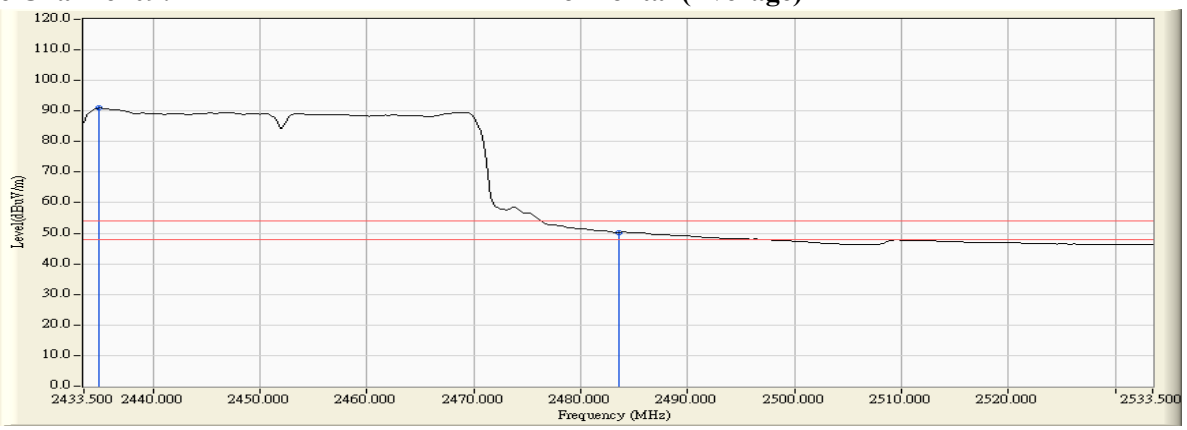


Figure Channel 09: Horizontal (Average)



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 : Gateway
Test Item : Band Edge
Test Site : No.3 OATS
Test Mode : Mode 4: Transmit (802.11n MCS0 30Mbps 40M-BW)

RF Radiated Measurement (Vertical):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Emission Level (dBuV/m)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Result
09 (Peak)	2468.283	31.332	62.252	93.585	--	--	--
09 (Peak)	2483.500	31.435	28.907	60.342	74.00	54.00	Pass
09 (Average)	2469.007	31.338	51.688	83.026	--	--	--
09 (Average)	2483.500	31.435	15.564	46.999	74.00	54.00	Pass

Figure Channel 09: Vertical (Peak)

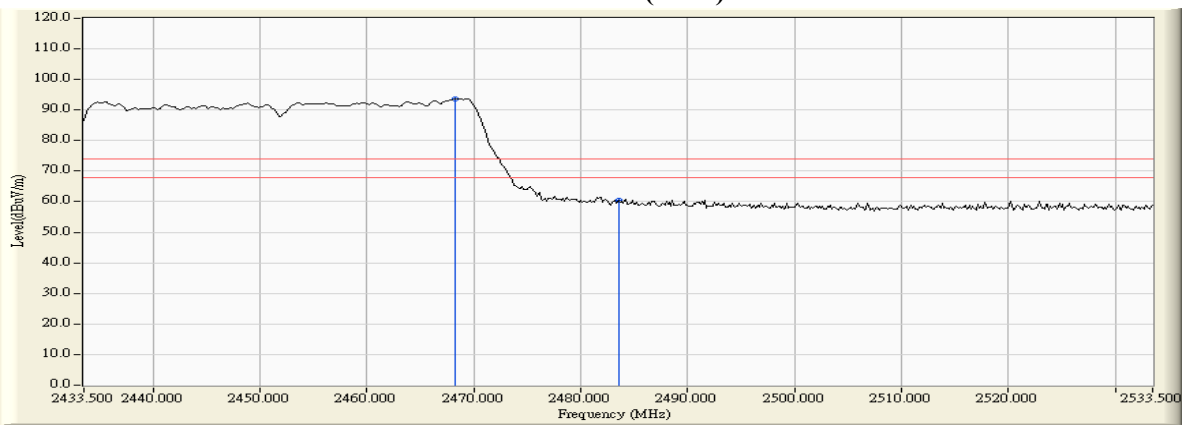
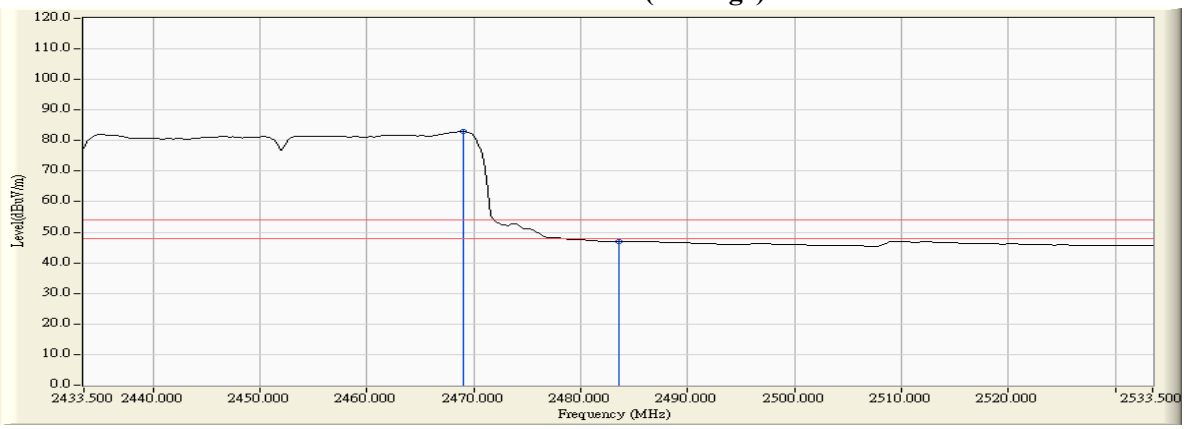


Figure Channel 09: Vertical (Average)



Note:

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

7. Occupied Bandwidth

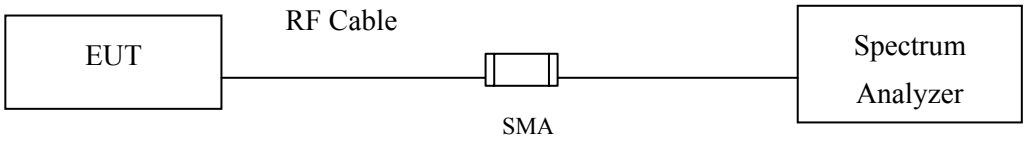
7.1. Test Equipment

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

Note:

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

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 C63.4: 2014; tested according to DTS test procedure of Jan KDB558074 for compliance to FCC 47CFR 15.247 requirements.

7.5. Uncertainty

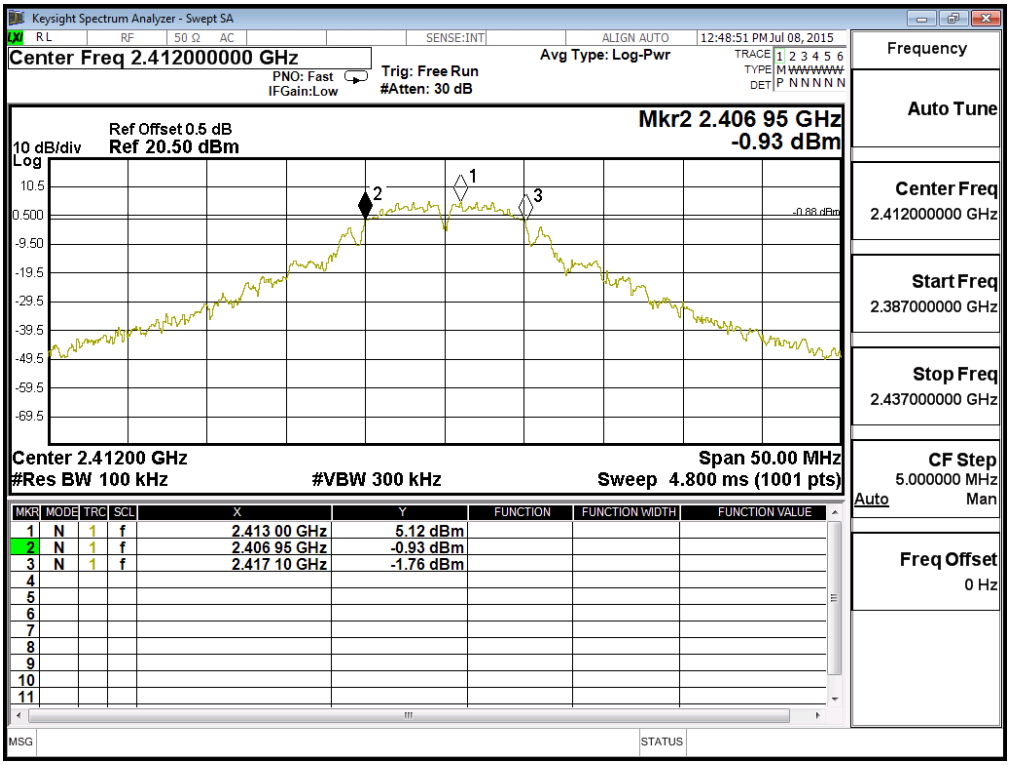
± 150Hz

7.6. Test Result of Occupied Bandwidth

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

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
1	2412	10150	>500	Pass

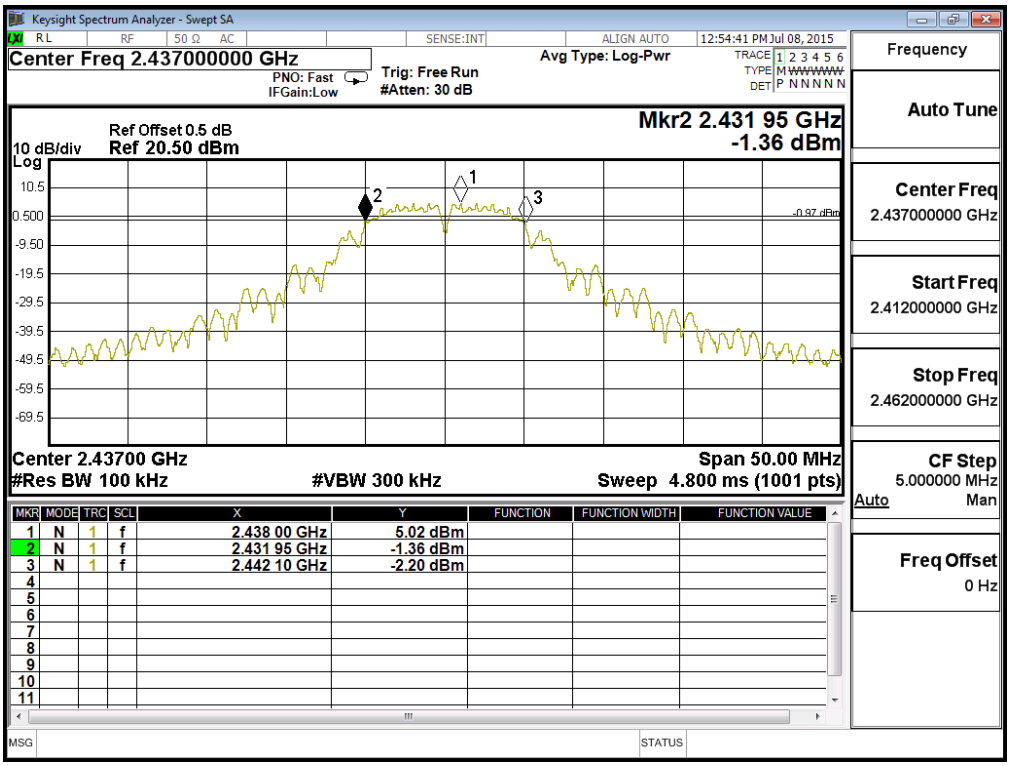
Figure Channel 1:



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

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
6	2437	10150	>500	Pass

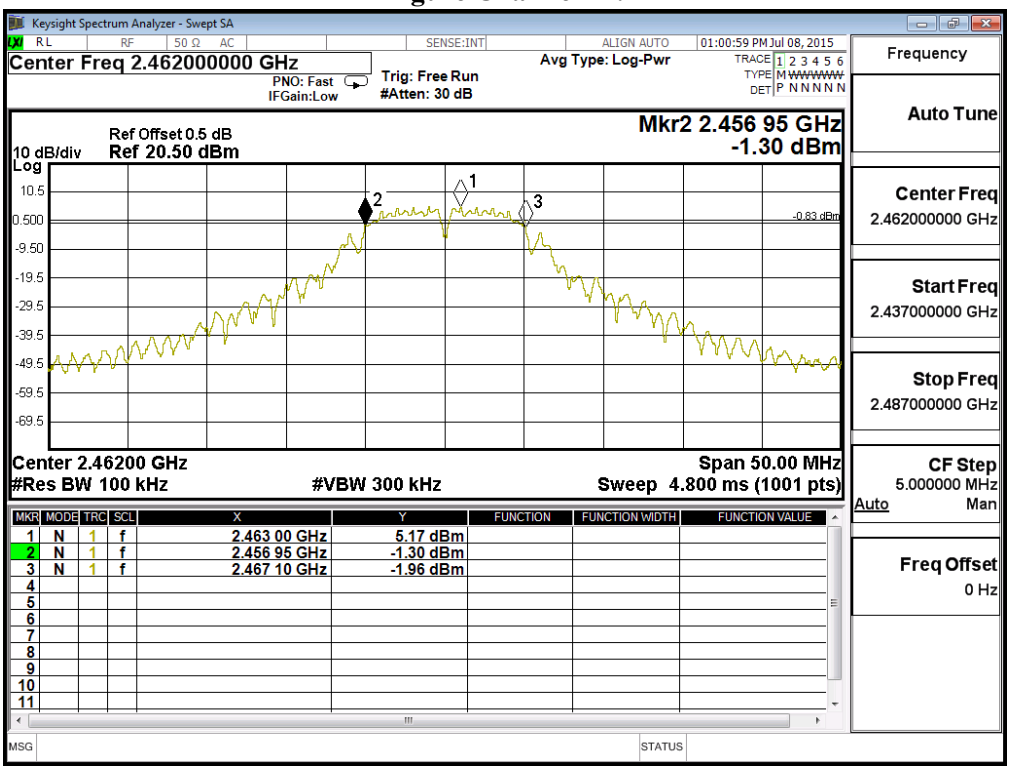
Figure Channel 6:



Product : Gateway
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	10150	>500	Pass

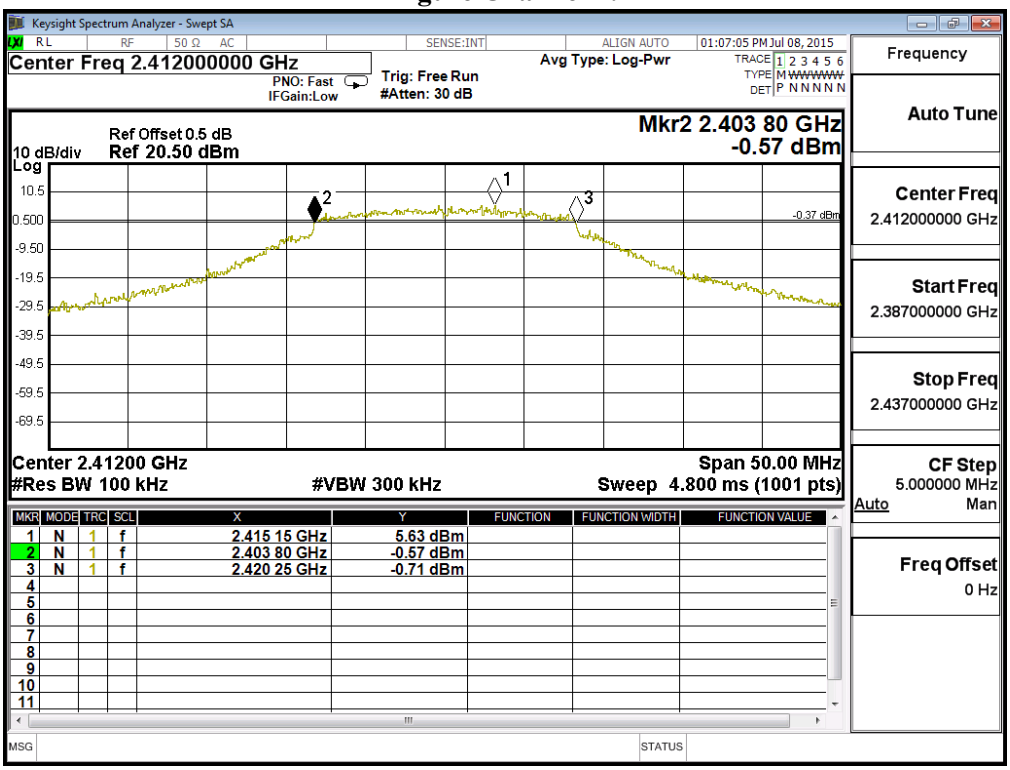
Figure Channel 11:



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

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
1	2412	16450	>500	Pass

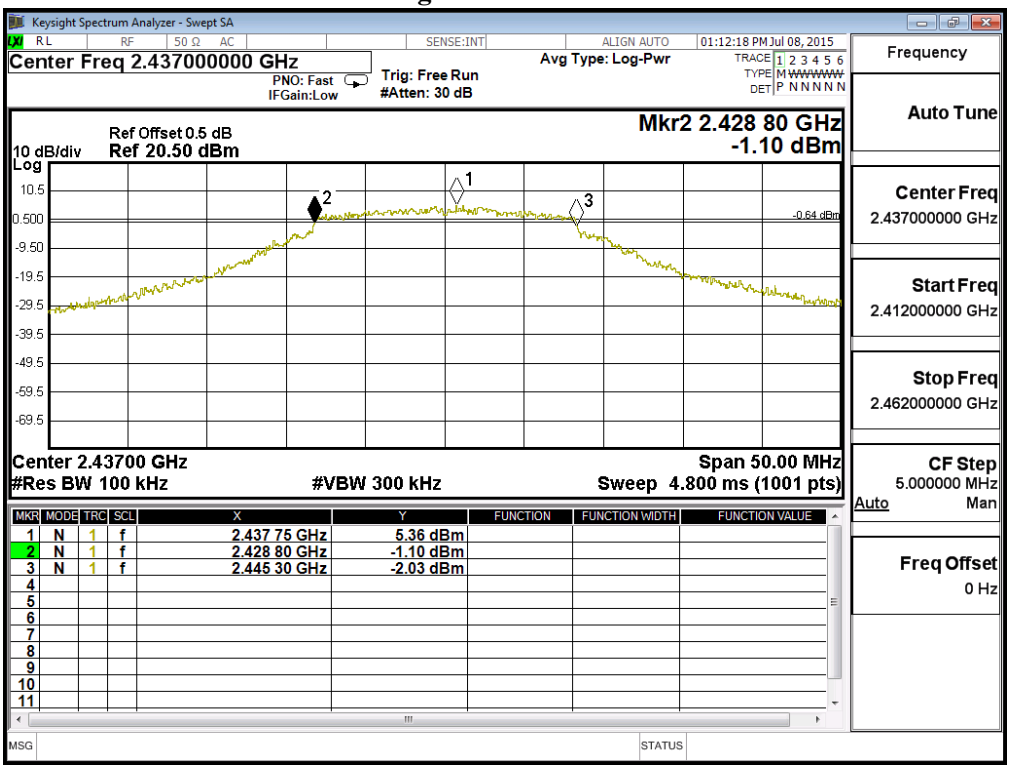
Figure Channel 1:



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

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
6	2437	16500	>500	Pass

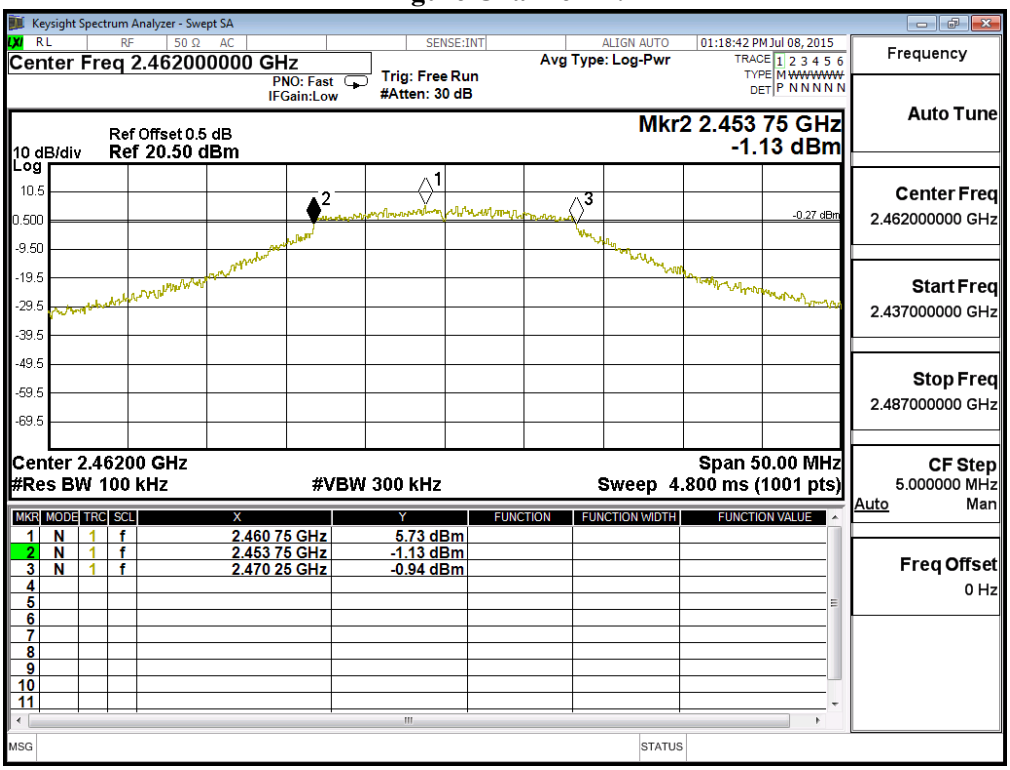
Figure Channel 6:



Product : Gateway
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

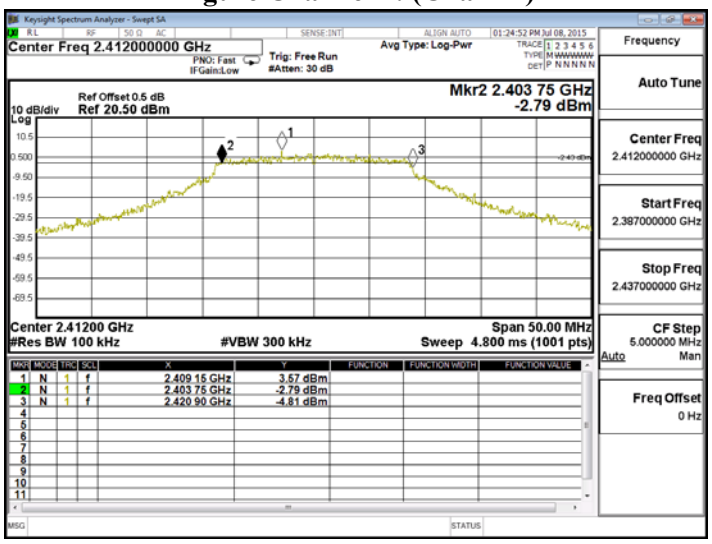
Figure Channel 11:



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

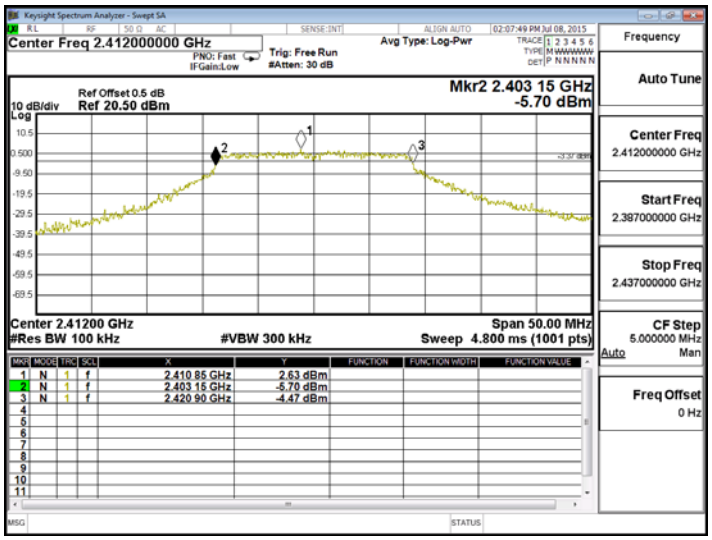
Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
1	2412	17150	>500	Pass

Figure Channel 1: (Chain A)



Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
1	2412	17750	>500	Pass

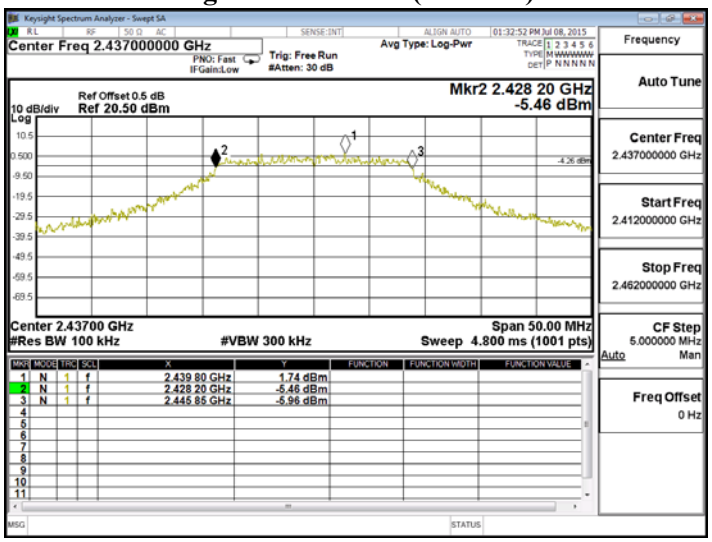
Figure Channel 1: (Chain B)



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

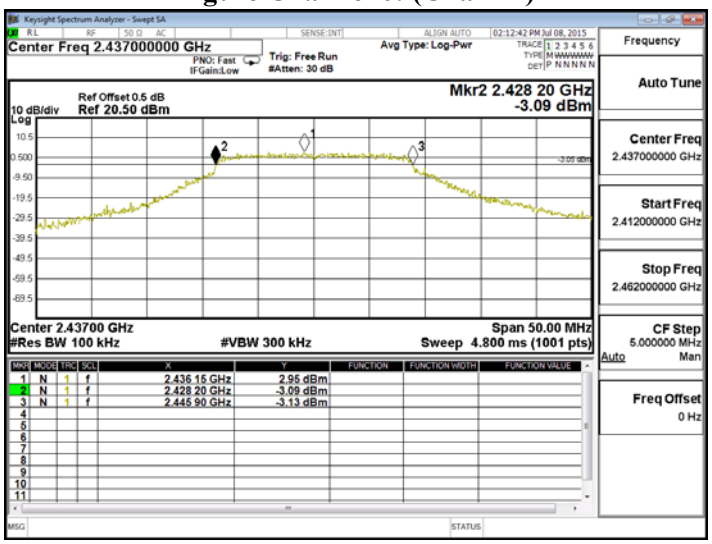
Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
6	2437	17650	>500	Pass

Figure Channel 6: (Chain A)



Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
6	2437	17700	>500	Pass

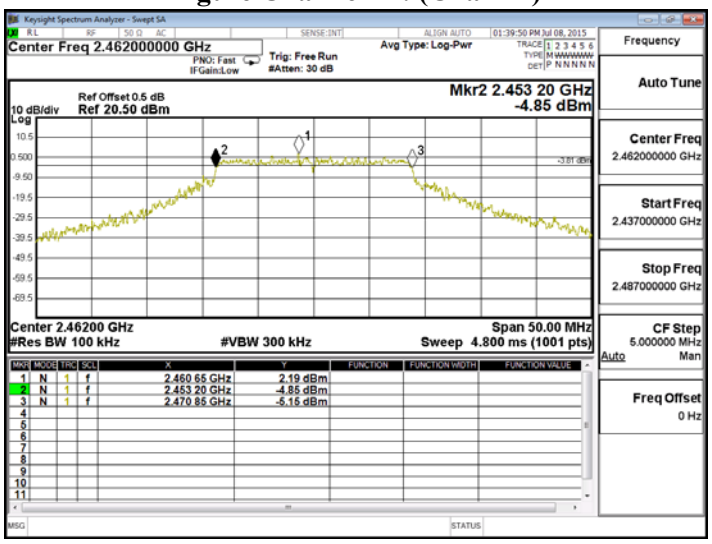
Figure Channel 6: (Chain B)



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

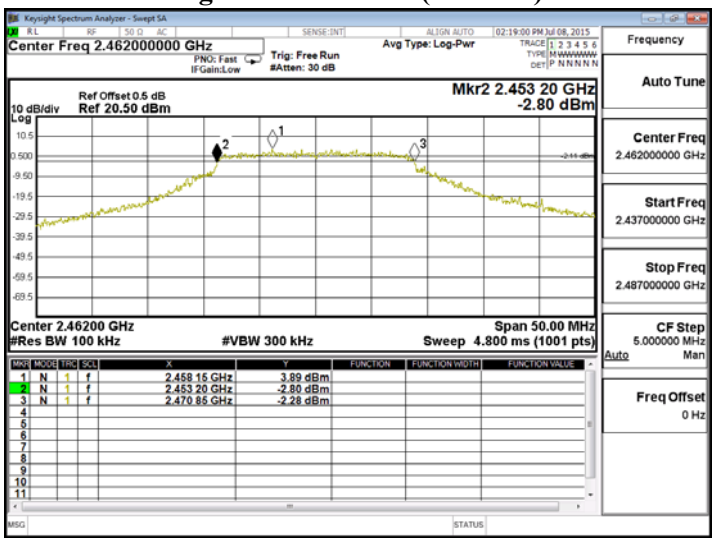
Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
11	2462	17650	>500	Pass

Figure Channel 11: (Chain A)



Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
11	2462	17650	>500	Pass

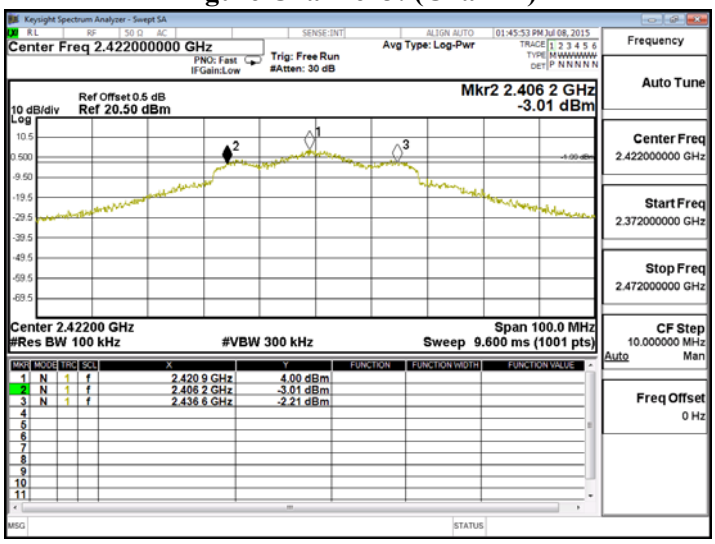
Figure Channel 11: (Chain B)



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

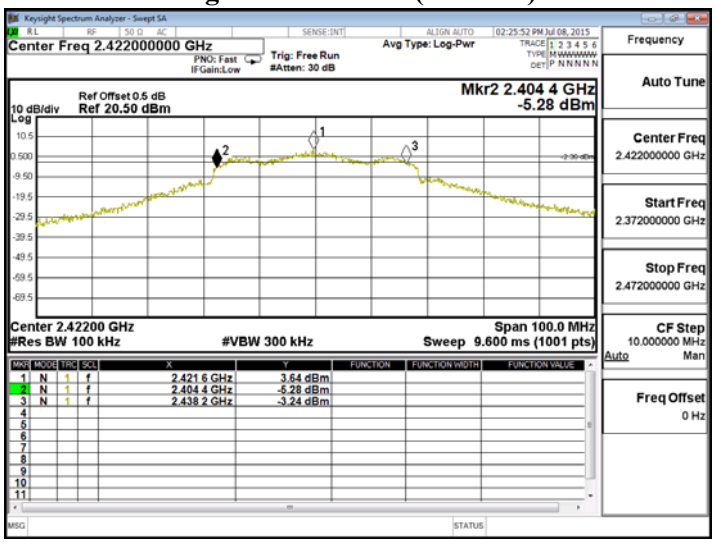
Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
3	2422	30400	>500	Pass

Figure Channel 3: (Chain A)



Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
3	2422	33800	>500	Pass

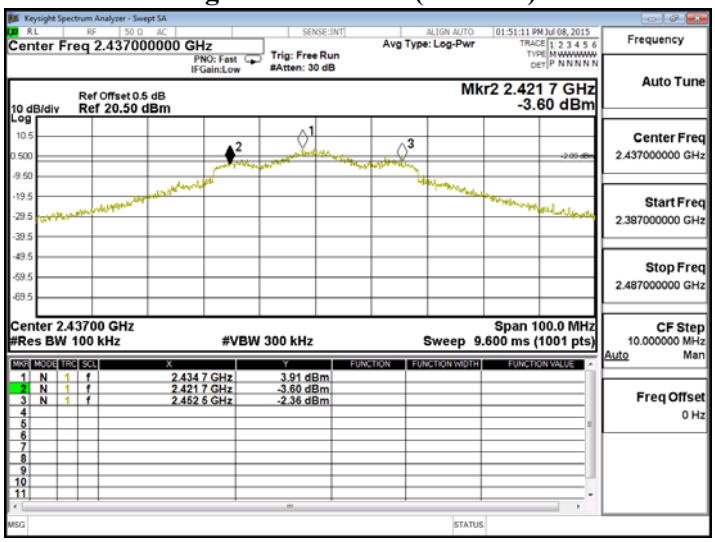
Figure Channel 3: (Chain B)



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

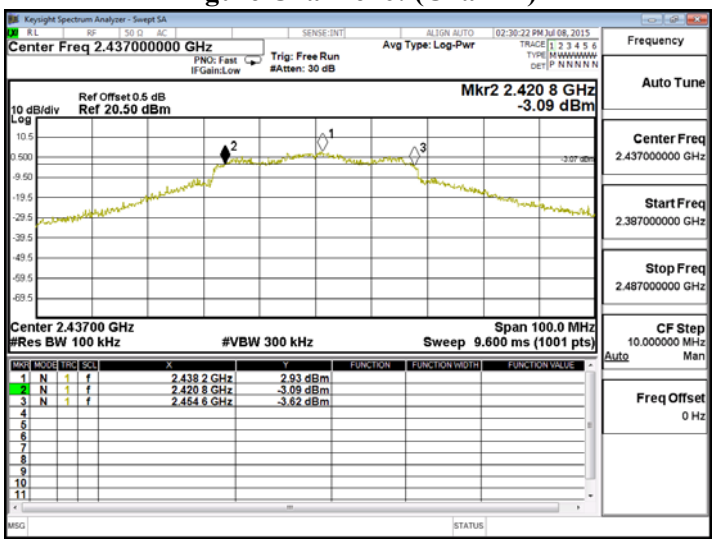
Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
6	2437	30800	>500	Pass

Figure Channel 6: (Chain A)



Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
6	2437	33800	>500	Pass

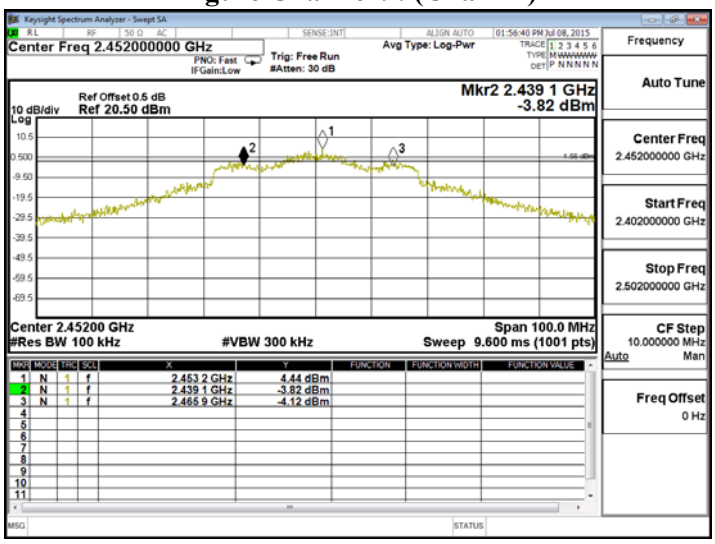
Figure Channel 6: (Chain B)



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

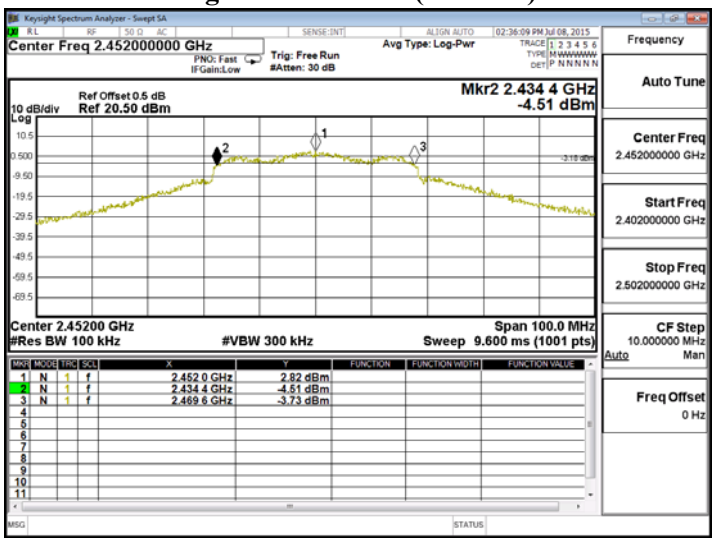
Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
9	2452	26800	>500	Pass

Figure Channel 9: (Chain A)



Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
9	2452	35200	>500	Pass

Figure Channel 9: (Chain B)



8. Power Density

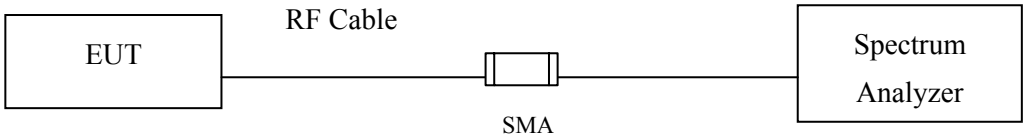
8.1. Test Equipment

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

Note:

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

8.2. Test Setup



8.3. Limits

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

8.4. Test Procedure

The EUT was setup according to ANSI C63.10, 2013; tested according to DTS test procedure of KDB 558074 for compliance to FCC 47CFR 15.247 requirements.
The maximum power spectral density using KDB 558074 section 10.2 PKPSD (peak PSD) method.

8.5. Uncertainty

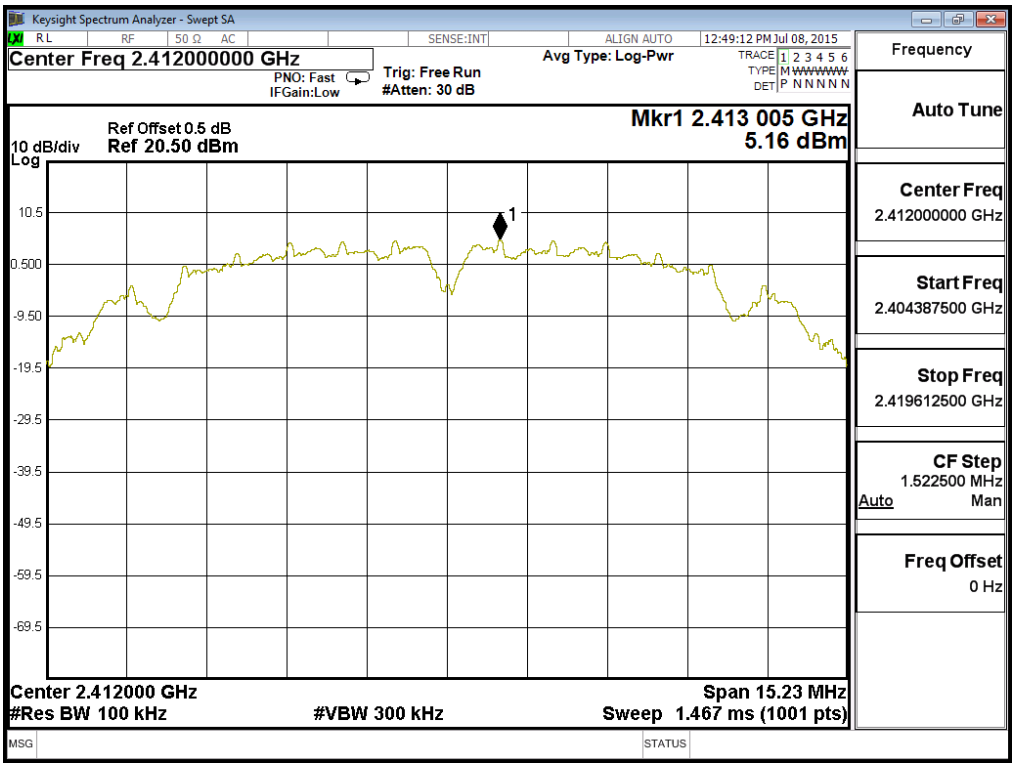
± 1.27 dB

8.6. Test Result of Power Density

Product : Gateway
Test Item : Power Density Data
Test Site : No.3 OATS
Test Mode : Mode 1: Transmit (802.11b 1Mbps) (2412MHz)

Channel No.	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)	Result
1	2412	5.16	< 8dBm	Pass

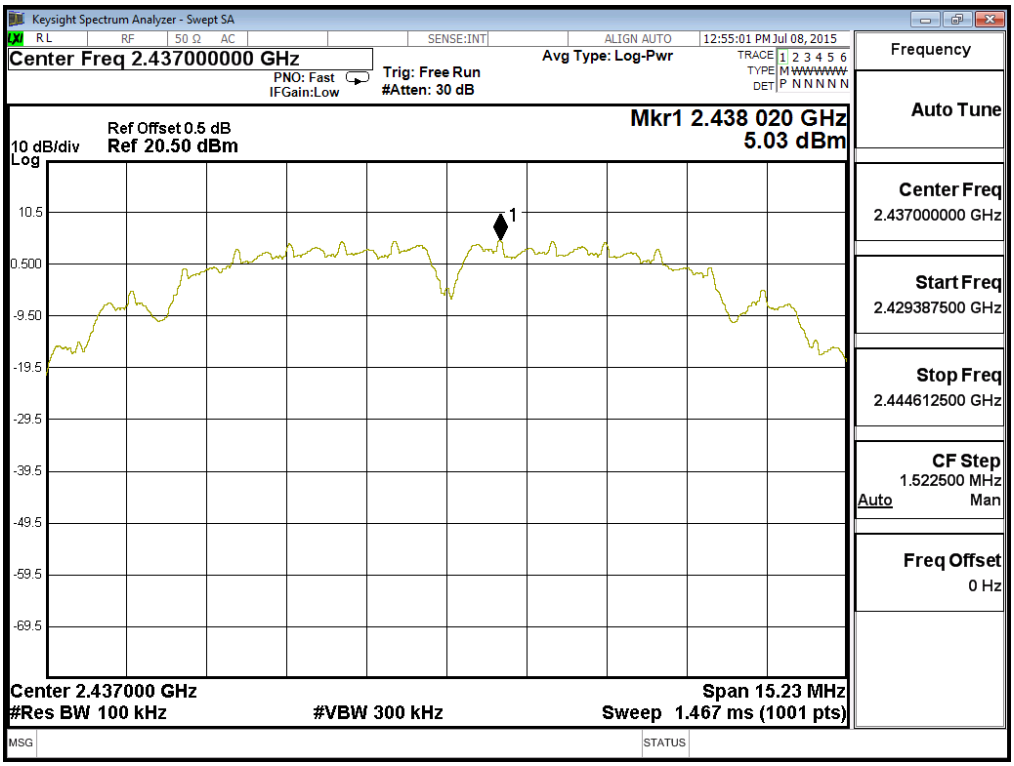
Figure Channel 1:



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

Channel No.	Frequency (MHz)	Measurement Level (dBm)	Required Limit (dBm)	Result
6	2437	5.03	< 8dBm	Pass

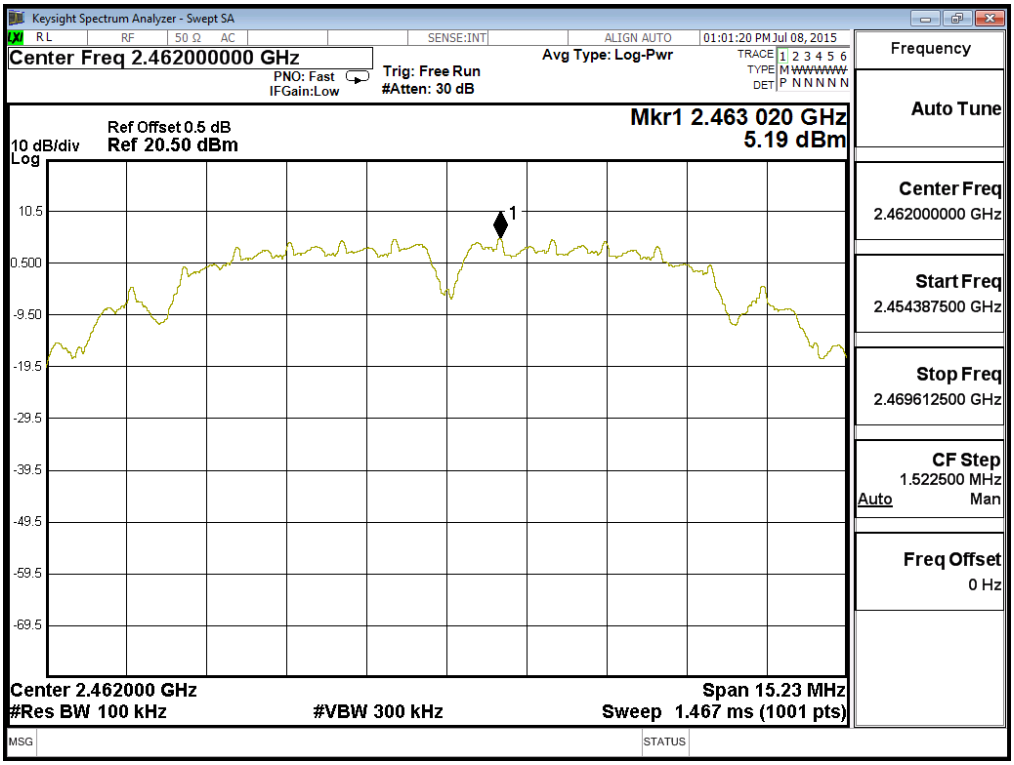
Figure Channel 6:



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

Channel No.	Frequency (MHz)	Measurement Level (dBm)	Required Limit (dBm)	Result
11	2462	5.19	< 8dBm	Pass

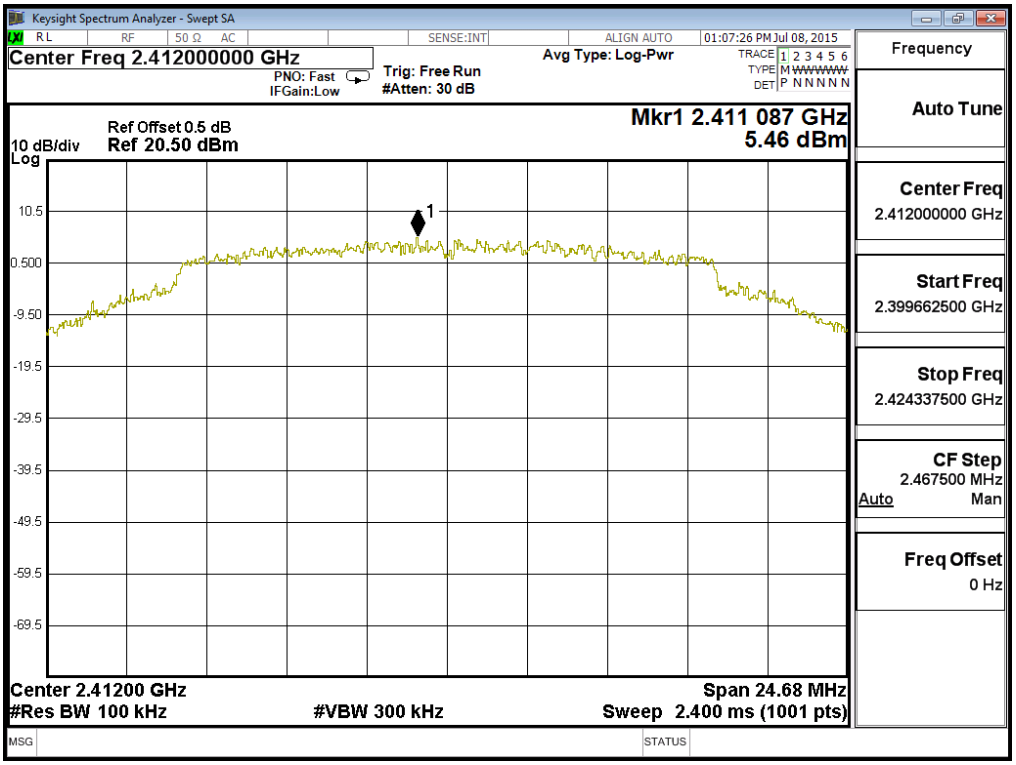
Figure Channel 11:



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

Channel No.	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)	Result
1	2412	5.46	< 8dBm	Pass

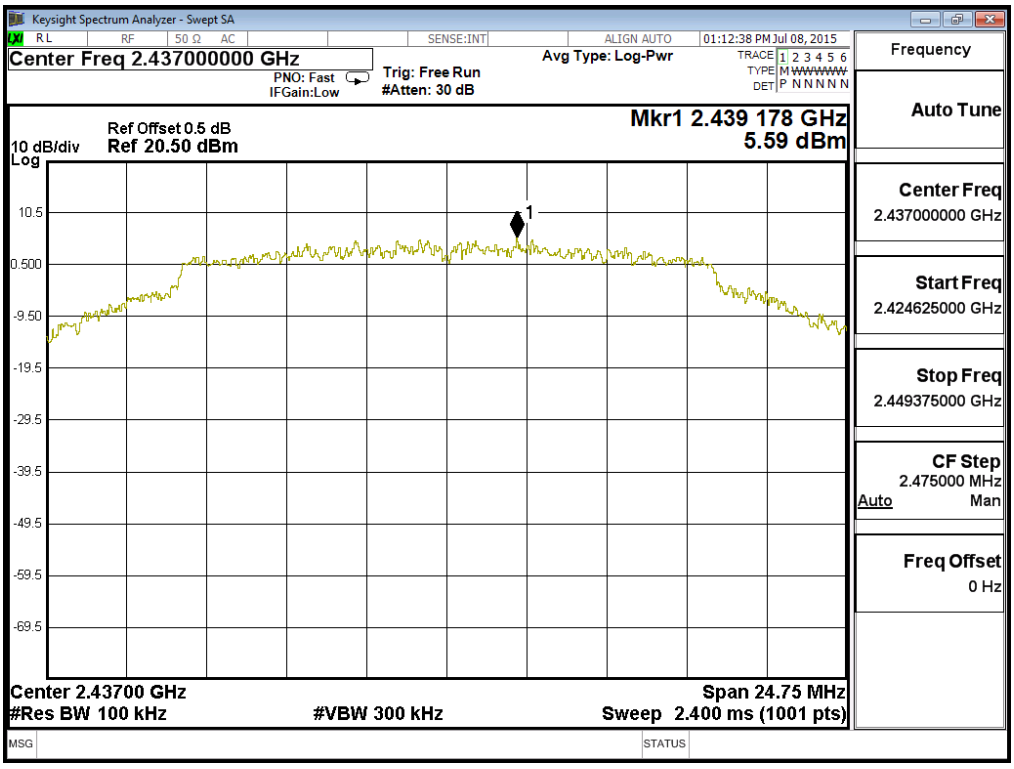
Figure Channel 1:



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

Channel No.	Frequency (MHz)	Measurement Level (dBm)	Required Limit (dBm)	Result
6	2437	5.59	< 8dBm	Pass

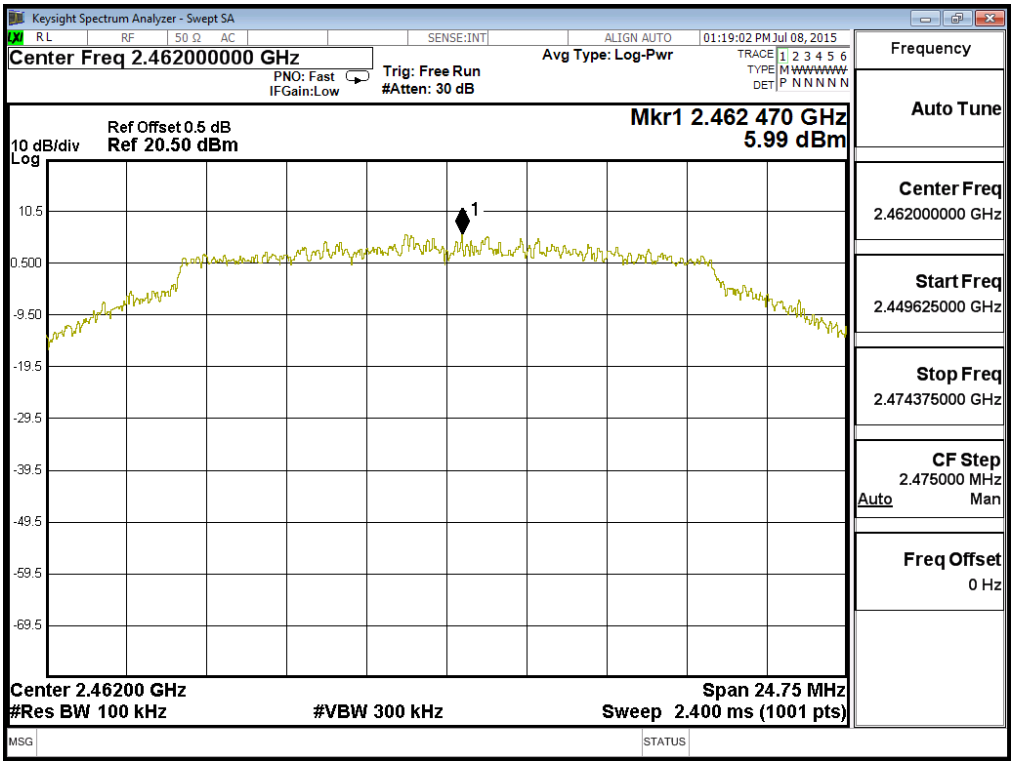
Figure Channel 6:



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

Channel No.	Frequency (MHz)	Measurement Level (dBm)	Required Limit (dBm)	Result
11	2462	5.99	< 8dBm	Pass

Figure Channel 11:



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

CHAIN	PPSD/MHz (dBm)	Total PPSD/MHz (dBm)1	Limit	Result
A	3.270	6.280	< 8dBm	Pass
B	2.060	5.070	< 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 1: (Chain A)

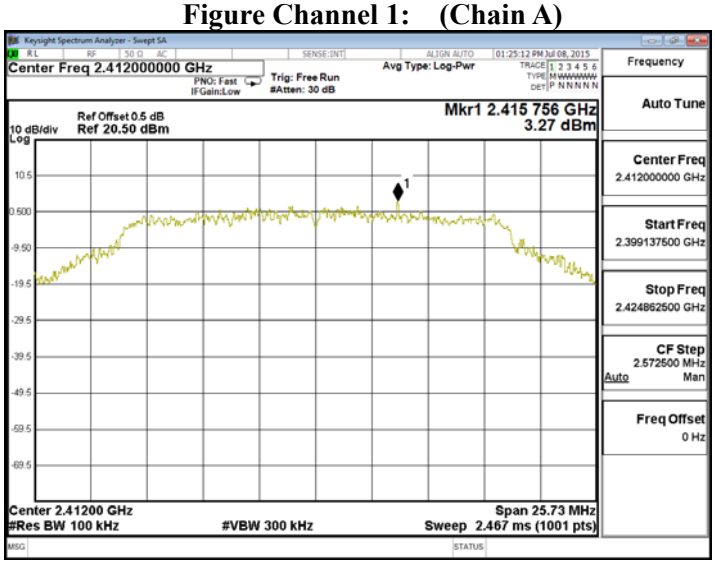
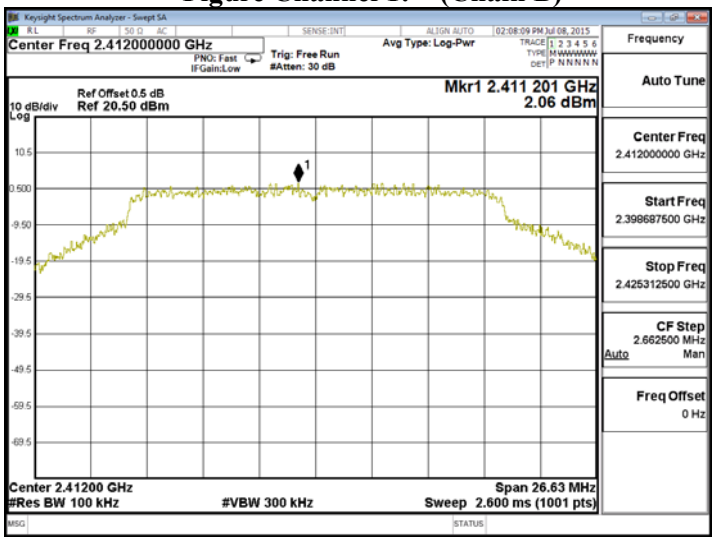


Figure Channel 1: (Chain B)



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

CHAIN	PPSD/MHz (dBm)	Total PPSD/MHz (dBm)1	Limit	Result
A	2.390	5.400	< 8dBm	Pass
B	4.040	7.050	< 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 6: (Chain A)

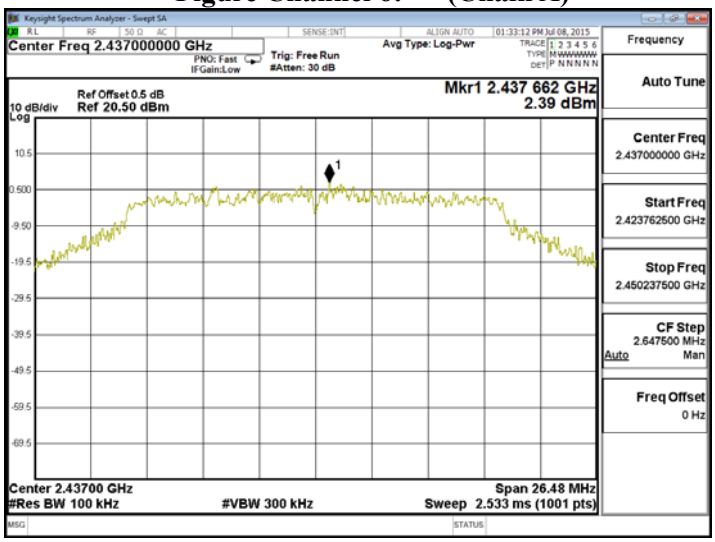
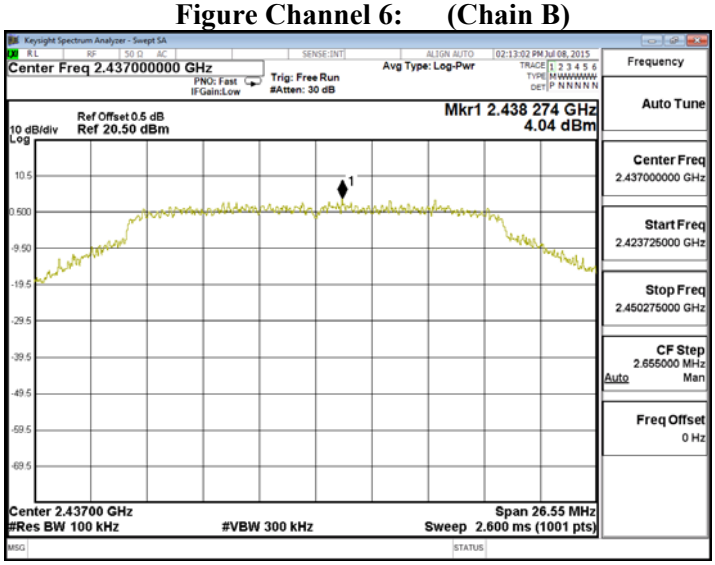


Figure Channel 6: (Chain B)



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

CHAIN	PPSD/MHz (dBm)	Total PPSD/MHz (dBm)1	Limit	Result
A	1.530	4.540	< 8dBm	Pass
B	3.710	6.720	< 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)

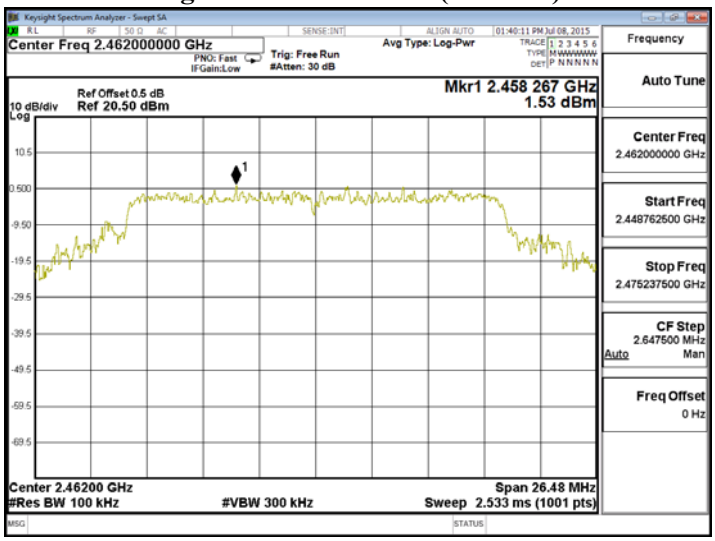
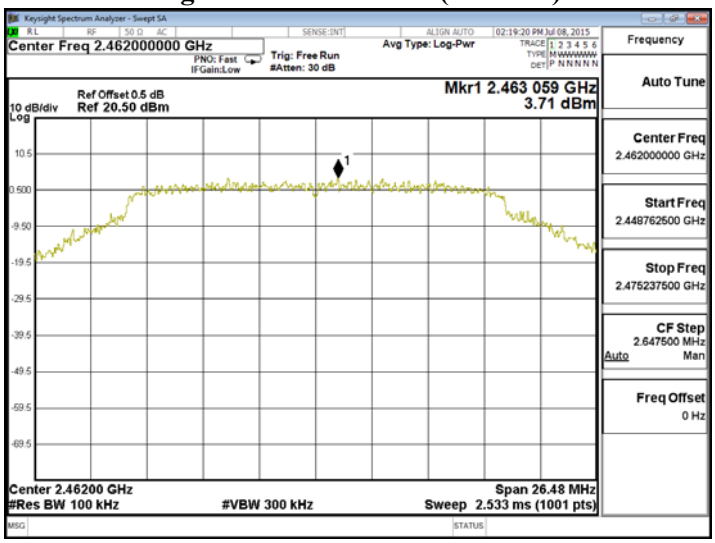


Figure Channel 11: (Chain B)



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

CHAIN	PPSD/MHz (dBm)	Total PPSD/MHz (dBm)1	Limit	Result
A	4.820	7.830	< 8dBm	Pass
B	3.660	6.670	< 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 1: (Chain A)

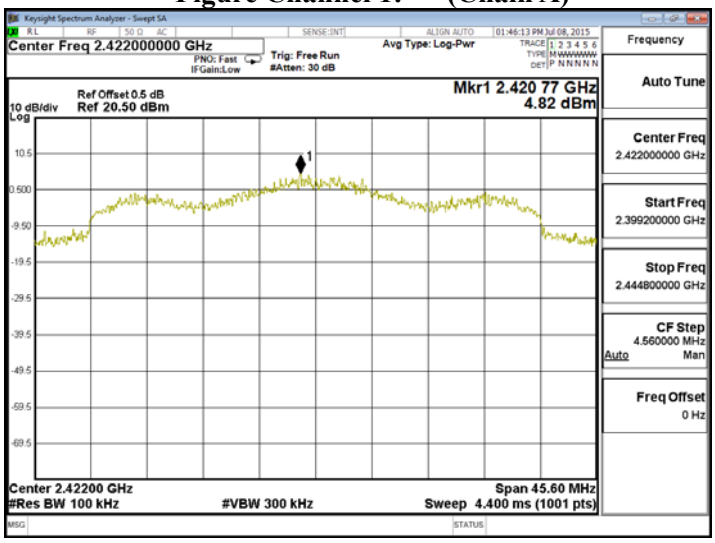
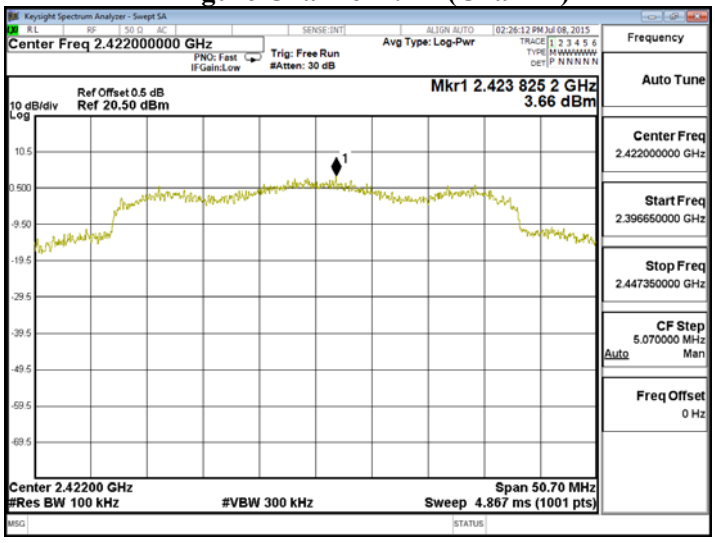


Figure Channel 1: (Chain B)



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

CHAIN	PPSD/MHz (dBm)	Total PPSD/MHz (dBm)1	Limit	Result
A	4.120	7.130	< 8dBm	Pass
B	3.300	6.310	< 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 4: (Chain A)

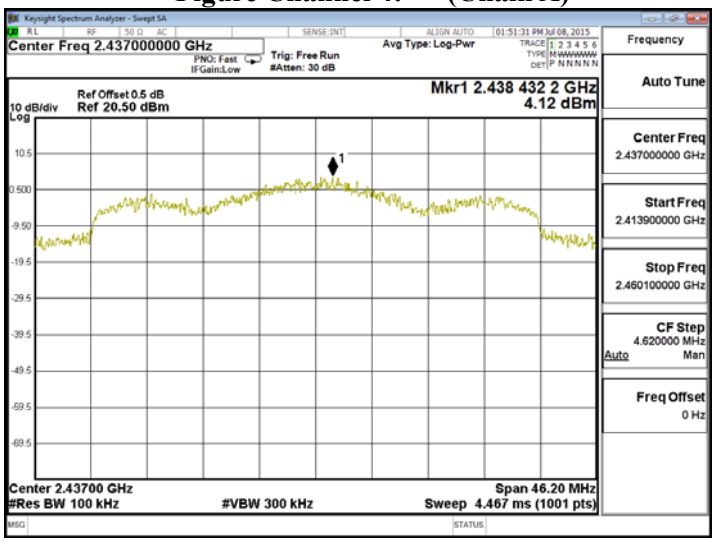
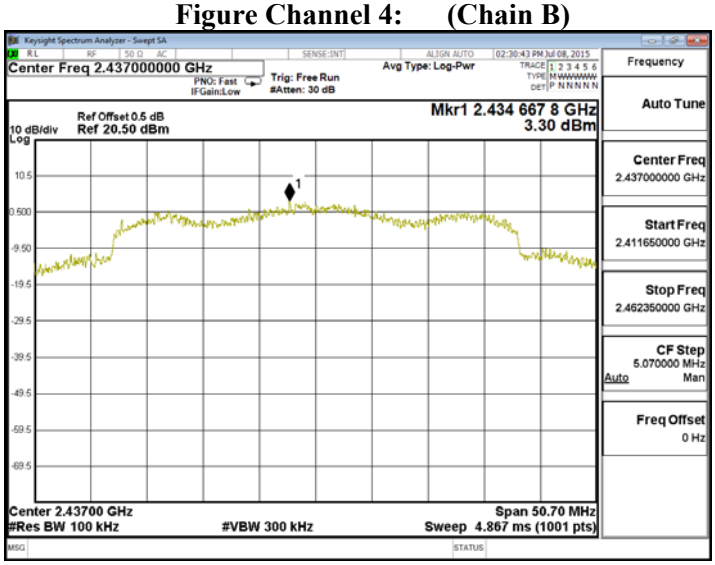


Figure Channel 4: (Chain B)



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

CHAIN	PPSD/MHz (dBm)	Total PPSD/MHz (dBm)1	Limit	Result
A	4.710	7.720	< 8dBm	Pass
B	4.220	7.230	< 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)

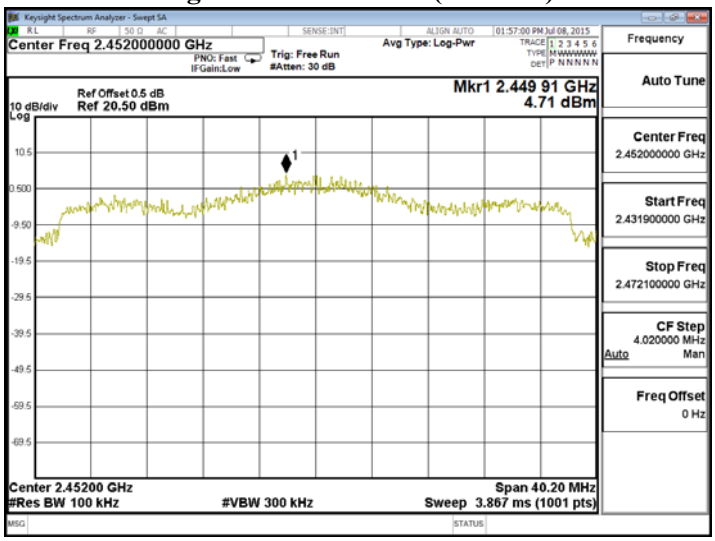
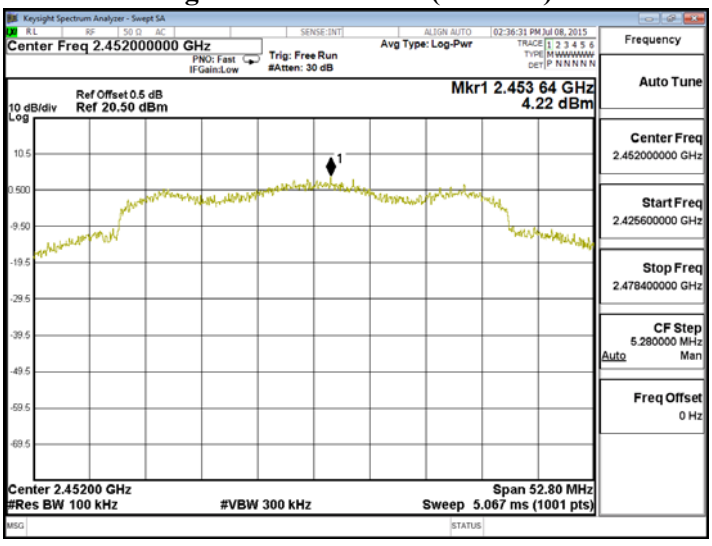


Figure Channel 7: (Chain B)



9. EMI Reduction Method During Compliance Testing

No modification was made during testing.