Bandedge

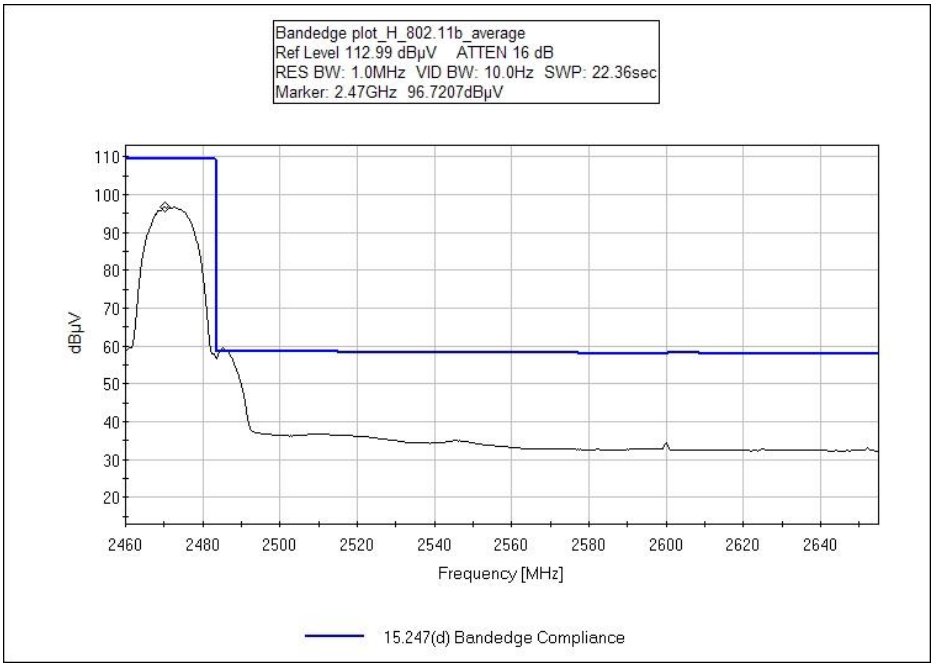
Test Conditions / Setup

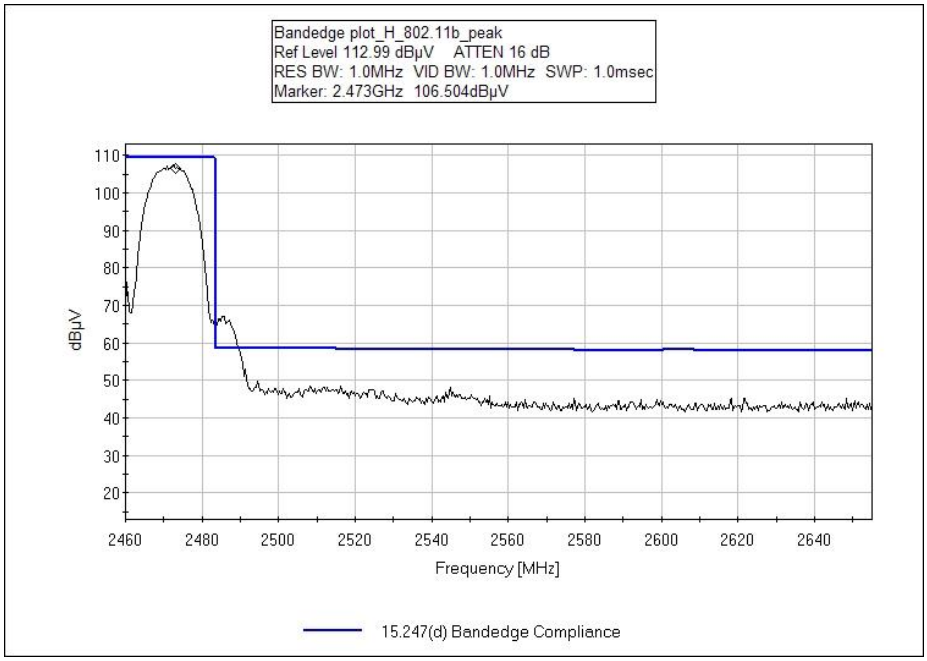
The EUT is placed on the wooden table lined with Styrofoam of 10 cm thickness. The EUT seeking modular approval is placed on an extender card installed on a support development PCB. One out of five Ethernet port and serial port of the development card is connected to remotely located support Ethernet hub and laptops. The EUT is transmitting at rated power and exercising all the intended functionalities.
Antenna gain = 0 dBi
802.11n without antenna diversity.
802.11 b/g/n
Freq: 2400-2483.5MHz
802.11b: 11.0 mbps short CCK .
Freq:2412MHz, 2442MHz, 2472MHz, Firmware power setting= 14.5dBm, 14.5dBm, 12.5dBm
802.11g: 54.0 mbps. OFDM
Freq:2412MHz, 2442MHz, 2472MHz, Firmware power setting= 13.5dBm, 13.5dBm, 13.5dBm
802.11n: 28.9 mbps.MCS3
Freq:2412MHz, 2442MHz, 2472MHz, Firmware power setting= 13.5dBm , 13.5dBm, 9.5dBm
802.11n: 72.2 mbps.MCS3
Freq:2412MHz, 2442MHz, 2472MHz, Firmware power setting= 9.5dBm, 9.5dBm, 9.5dBm
Frequency range of measurement = Fundamental
9 kH -150 kHz; RBW=200 Hz, VBW=200 Hz;150 kHz-30 MHz; RBW=9 kHz,VBW=9 kHz;30 MHz-1000 MHz; RBW=120 kHz, VBW=120 kHz,1000 MHz-25000MHz;RBW=1 MHz, VBW=1 MHz.
Test environment conditions: 21.1°C, 36% relative humidity, 100kPa
Emission profile of the EUT rotated along three orthogonal axis was investigated. Applicable data rate was investigated. Recorded data represent worse case emission.

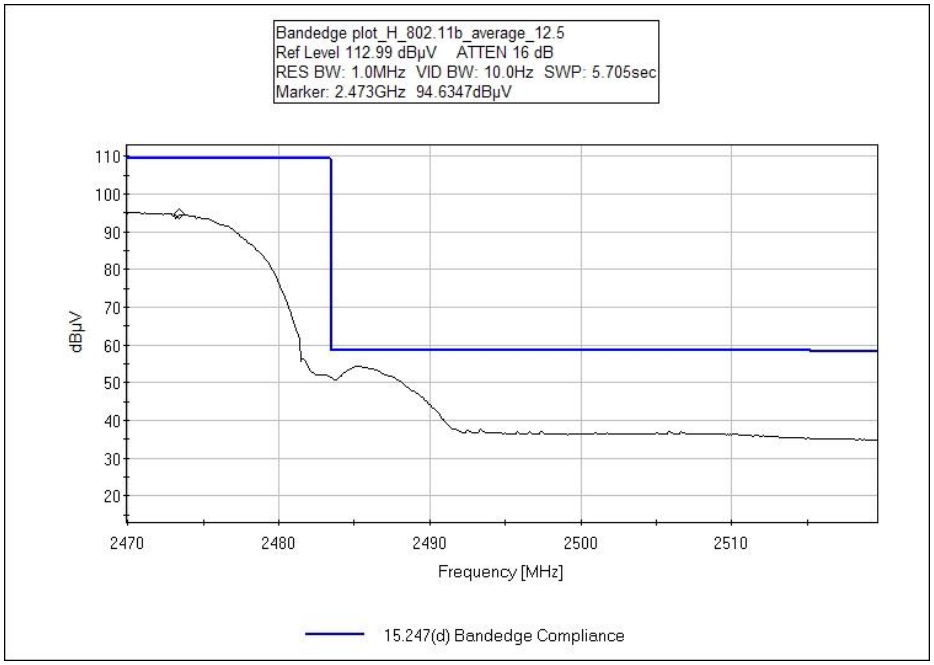
Engineer Name: E. Wong

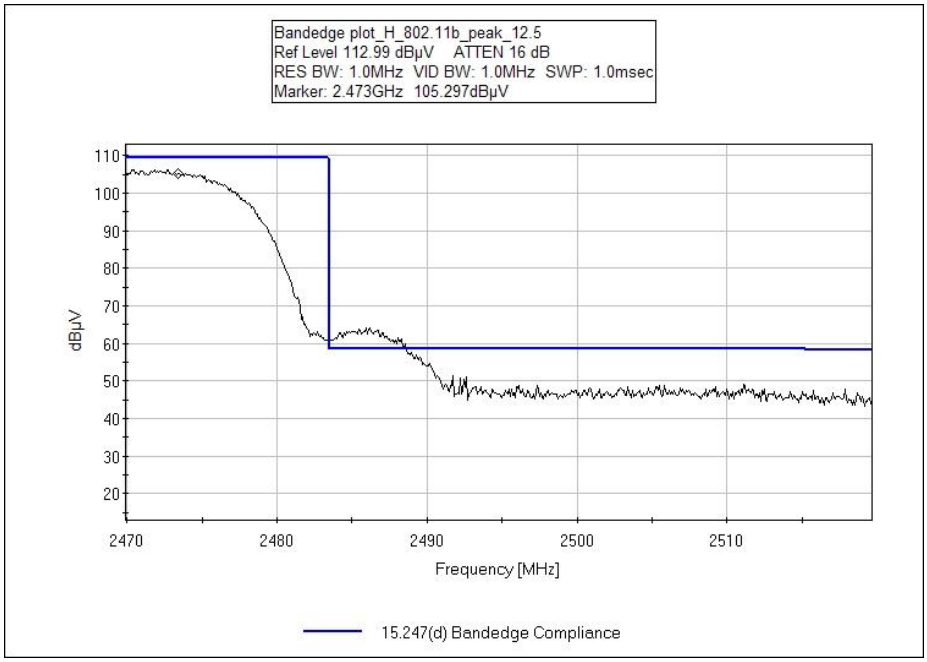
Test Equipment					
Asset/Serial #	**Description**	**Model**	**Manufacturer**	**Cal Date**	**Cal Due**
AN02672	Spectrum Analyzer	E4446A	Agilent	8/9/2010	8/9/2012
AN00849	Horn Antenna	3115	AstroLab	4/23/2010	4/23/2012
AN03239	Cable	32022-2-29094K-24TC	AstroLab	8/30/2011	8/30/2013
ANP05563	Cable	ANDL-1-PNMN-48	Andrews	9/3/2010	9/3/2012
ANP05421	Cable	Sucoflex 104A	Huber & Suhner	2/8/2012	2/8/2014

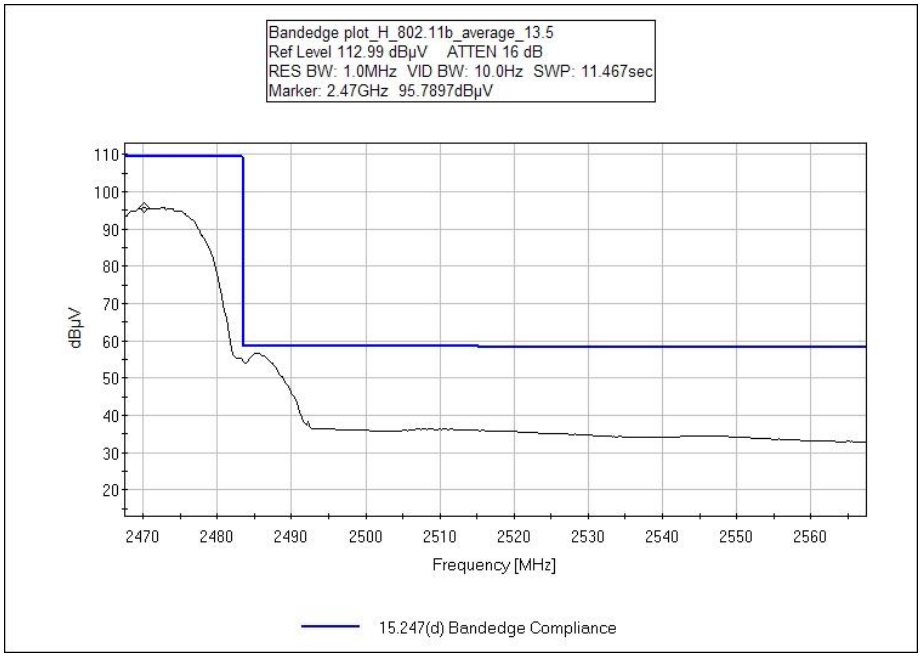
Test Data

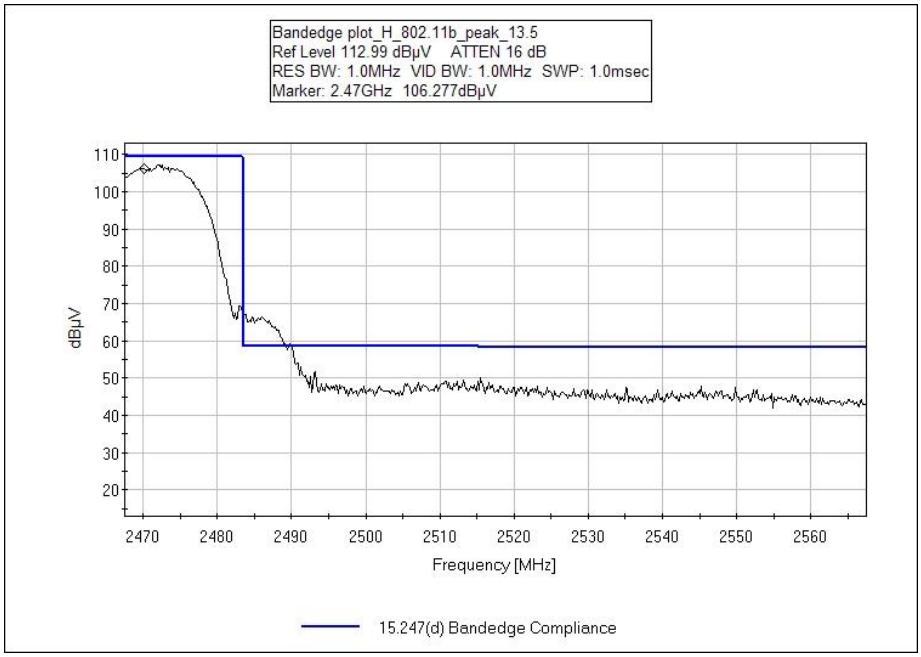

Bandedge plot_H_802.11b_average
Ref Level 112.99 dBµV ATTEN 16 dB
RES BW: 1.0MHz VID BW: 10.0Hz SWP: 22.36sec
Marker: 2.47GHz 96.7207dBµV
dBµV
110
100
90
80
70
60
50
40
30
20
2460
2480
2500
2520
2540
2560
2580
2600
2620
2640
Frequency [MHz]
15.247(d) Bandedge Compliance

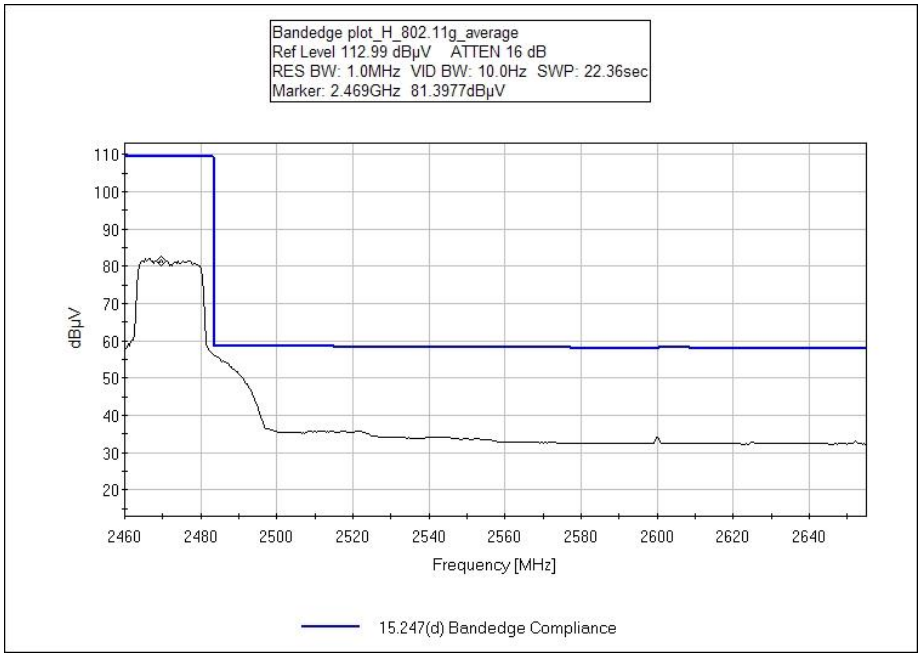

Bandedge plot_H_802.11b_peak
Ref Level 112.99 dBµV ATTEN 16 dB
RES BW: 1.0MHz VID BW: 1.0MHz SWP: 1.0msec
Marker: 2.473GHz 106.504dBµV
dBµV
110
100
90
80
70
60
50
40
30
20
2460
2480
2500
2520
2540
2560
2580
2600
2620
2640
Frequency [MHz]
15.247(d) Bandedge Compliance

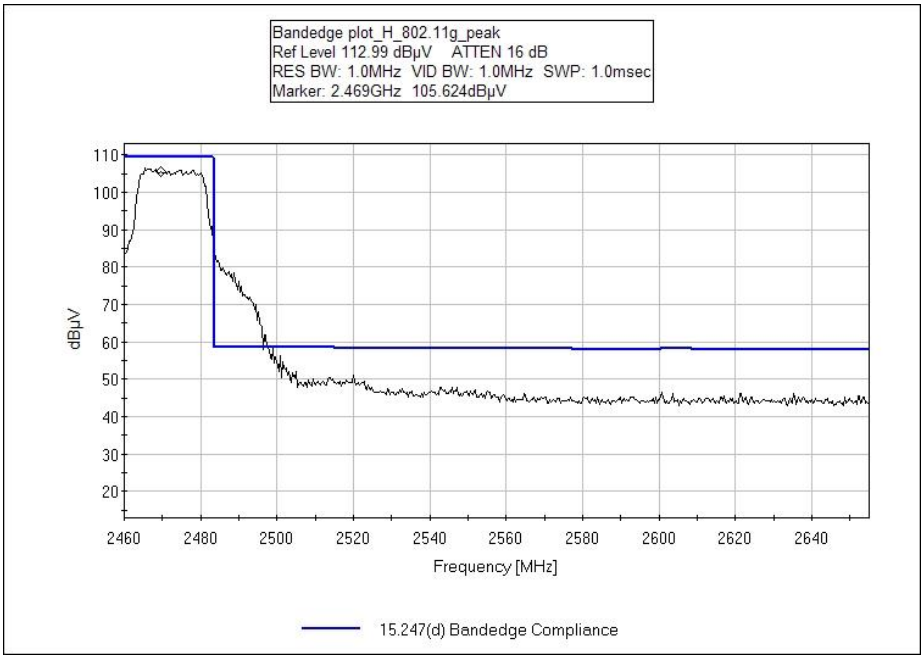

Bandedge plot_H_802.11b_average_12.5
Ref Level 112.99 dBµV ATTEN 16 dB
RES BW: 1.0MHz VID BW: 10.0Hz SWP: 5.705sec
Marker: 2.473GHz 94.6347dBµV
dBµV
Frequency [MHz]
15.247(d) Bandedge Compliance

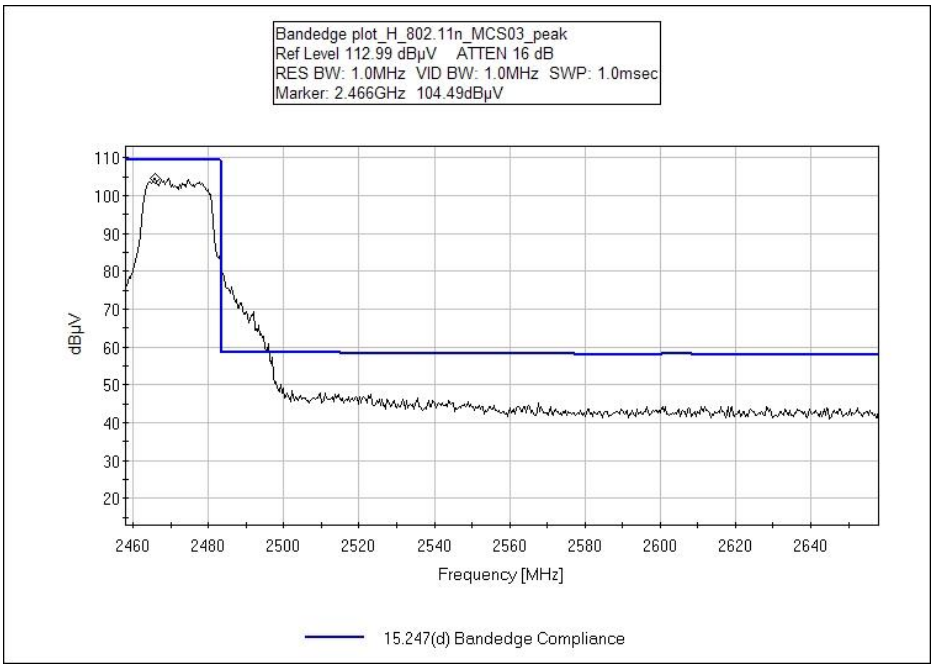

Bandedge plot_H_802.11b_peak_12.5
Ref Level 112.99 dBµV ATTEN 16 dB
RES BW: 1.0MHz VID BW: 1.0MHz SWP: 1.0msec
Marker: 2.473GHz 105.297dBµV
dBµV
Frequency [MHz]
15.247(d) Bandedge Compliance

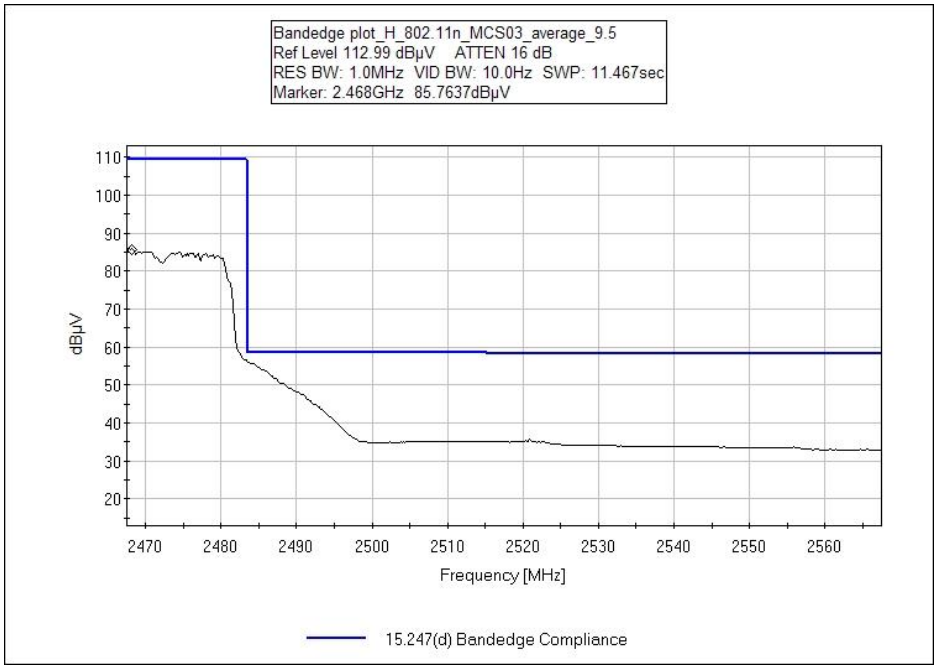

Bandedge plot_H_802.11b_average_13.5
Ref Level 112.99 dBµV ATTEN 16 dB
RES BW: 1.0MHz VID BW: 10.0Hz SWP: 11.467sec
Marker: 2.47GHz 95.7897dBµV
dBµV
Frequency [MHz]
15.247(d) Bandedge Compliance

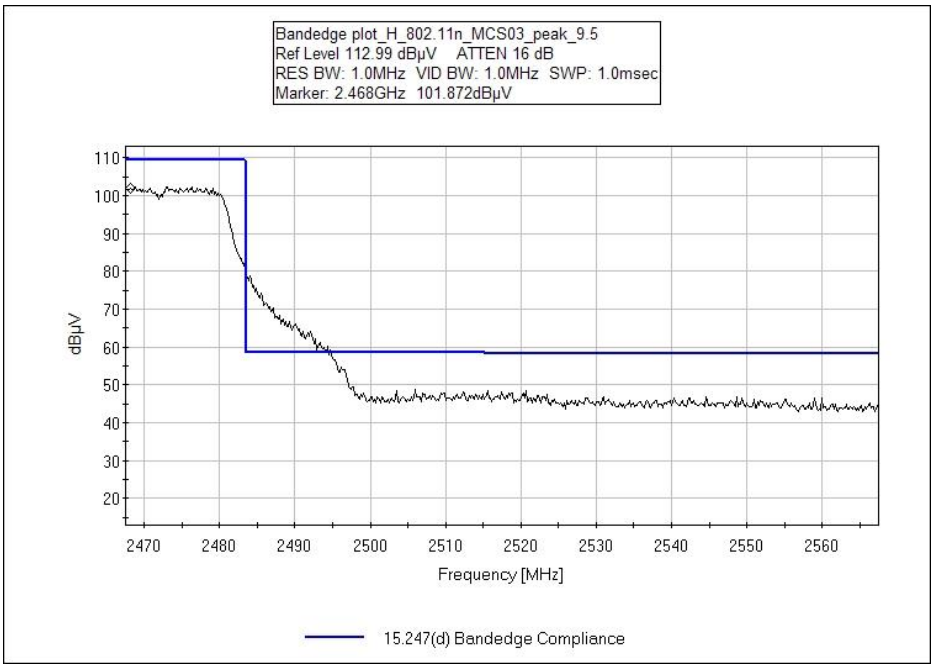

Bandedge plot_H_802.11b_peak_13.5
Ref Level 112.99 dBµV ATTEN 16 dB
RES BW: 1.0MHz VID BW: 1.0MHz SWP: 1.0msec
Marker: 2.47GHz 106.277dBµV
dBµV
Frequency [MHz]
15.247(d) Bandedge Compliance

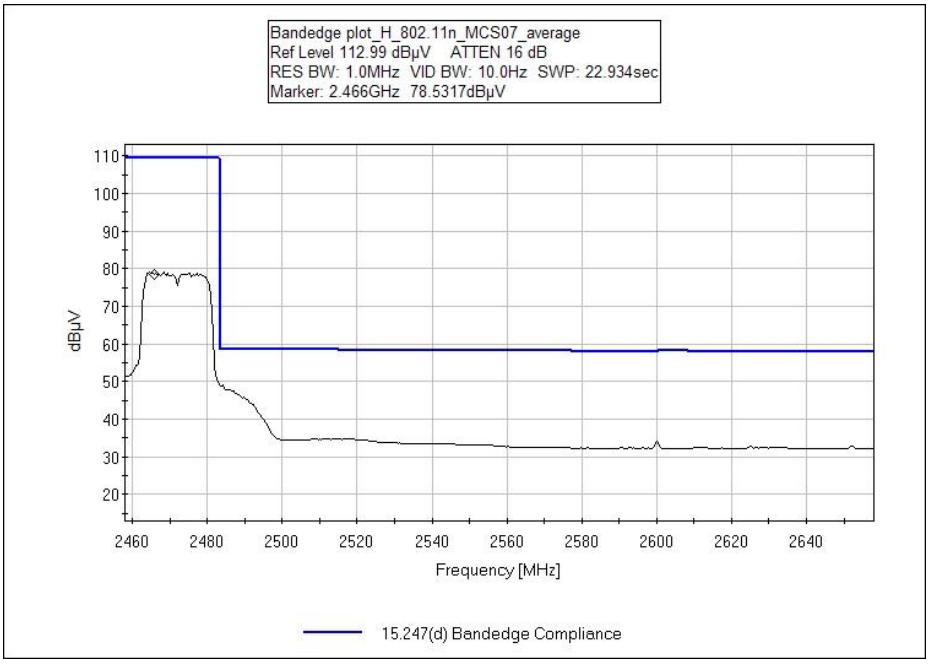

Bandedge plot_H_802.11g_average
Ref Level 112.99 dBµV ATTEN 16 dB
RES BW: 1.0MHz VID BW: 10.0Hz SWP: 22.36sec
Marker: 2.469GHz 81.3977dBµV
dBµV
Frequency [MHz]
15.247(d) Bandedge Compliance

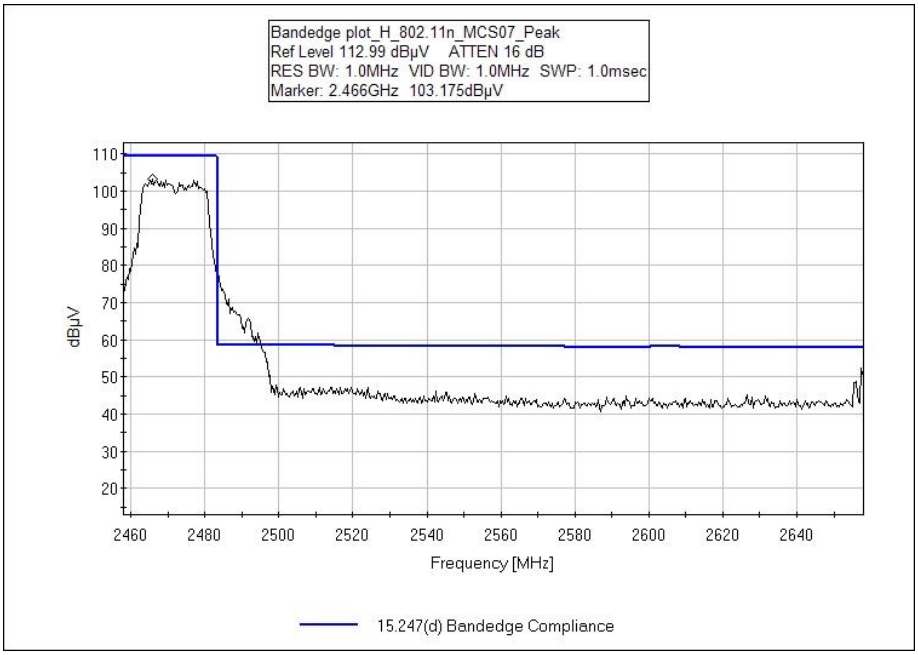

Bandedge plot_H_802.11g_peak
Ref Level 112.99 dBµV ATTEN 16 dB
RES BW: 1.0MHz VID BW: 1.0MHz SWP: 1.0msec
Marker: 2.469GHz 105.624dBµV
dBµV
Frequency [MHz]
15.247(d) Bandedge Compliance

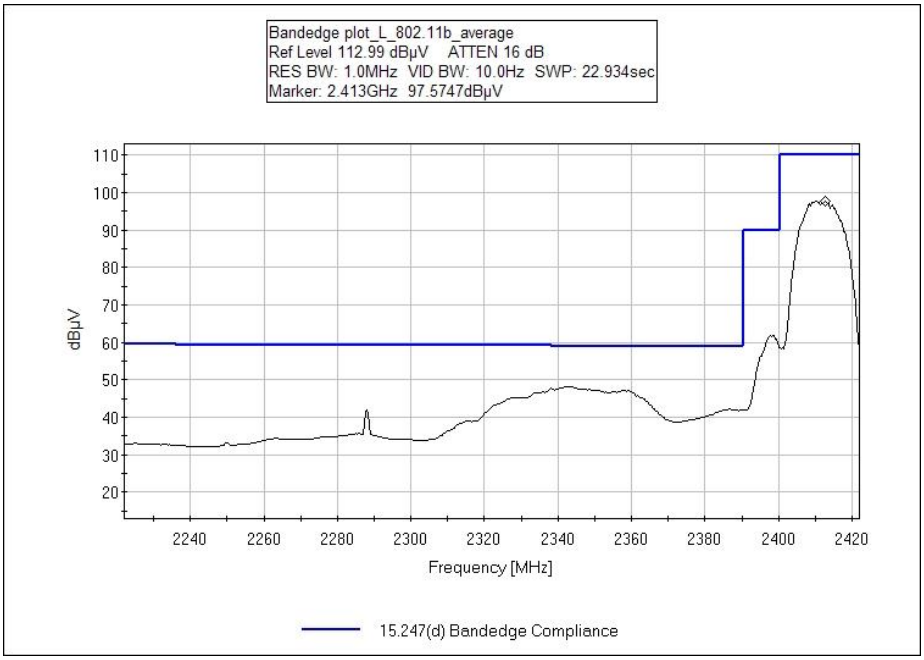

Bandedge plot_H_802.11n_MCS03_peak
Ref Level 112.99 dBµV ATTEN 16 dB
RES BW: 1.0MHz VID BW: 1.0MHz SWP: 1.0msec
Marker: 2.466GHz 104.49dBµV
dBµV
110
100
90
80
70
60
50
40
30
20
2460
2480
2500
2520
2540
2560
2580
2600
2620
2640
Frequency [MHz]
15.247(d) Bandedge Compliance

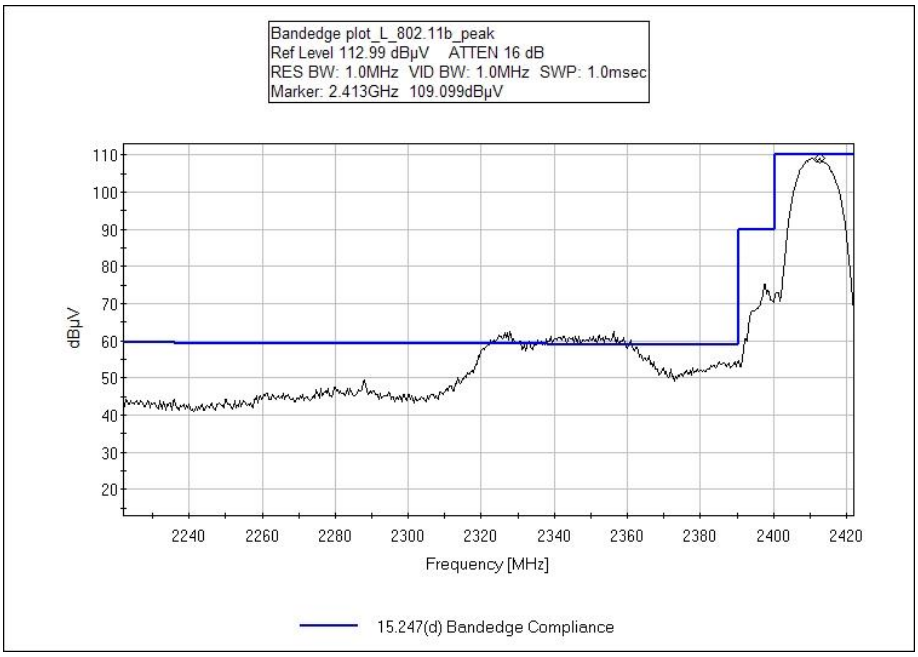

Bandedge plot_H_802.11n_MCS03_average_9.5
Ref Level 112.99 dBµV ATTEN 16 dB
RES BW: 1.0MHz VID BW: 10.0Hz SWP: 11.467sec
Marker: 2.468GHz 85.7637dBµV
dBµV
Frequency [MHz]
15.247(d) Bandedge Compliance

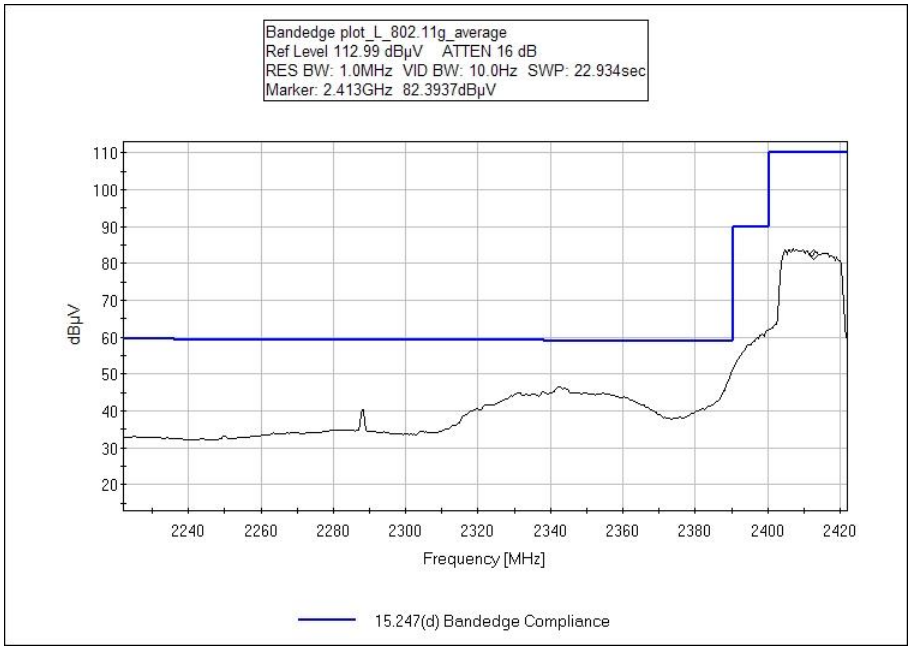

Bandedge plot_H_802.11n_MCS03_peak_9.5
Ref Level 112.99 dBµV ATTEN 16 dB
RES BW: 1.0MHz VID BW: 1.0MHz SWP: 1.0msec
Marker: 2.468GHz 101.872dBµV
dBµV
Frequency [MHz]
15.247(d) Bandedge Compliance

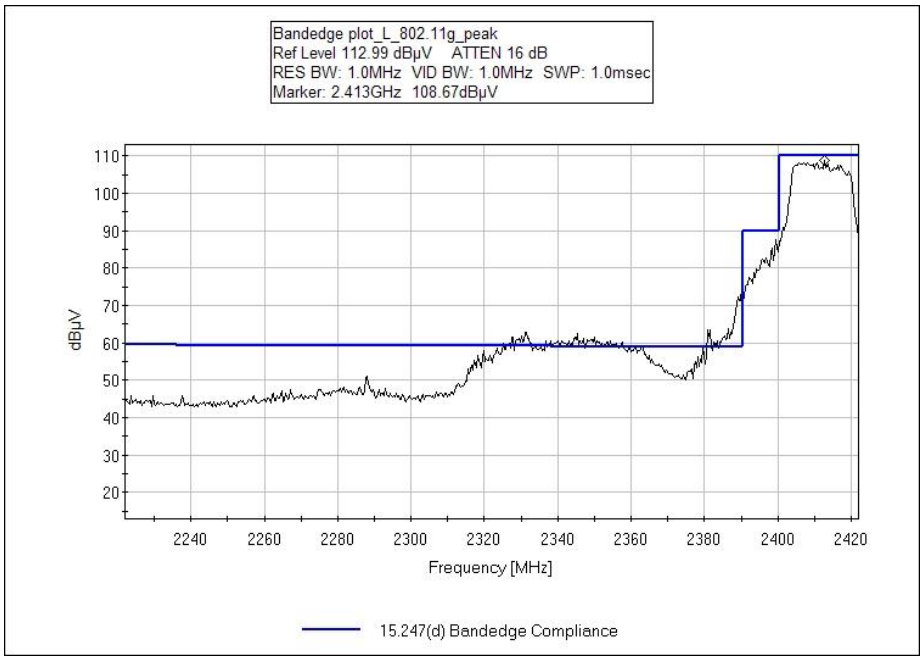

Bandedge plot_H_802.11n_MCS07_average
Ref Level 112.99 dBµV ATTEN 16 dB
RES BW: 1.0MHz VID BW: 10.0Hz SWP: 22.934sec
Marker: 2.466GHz 78.5317dBµV
dBµV
Frequency [MHz]
15.247(d) Bandedge Compliance

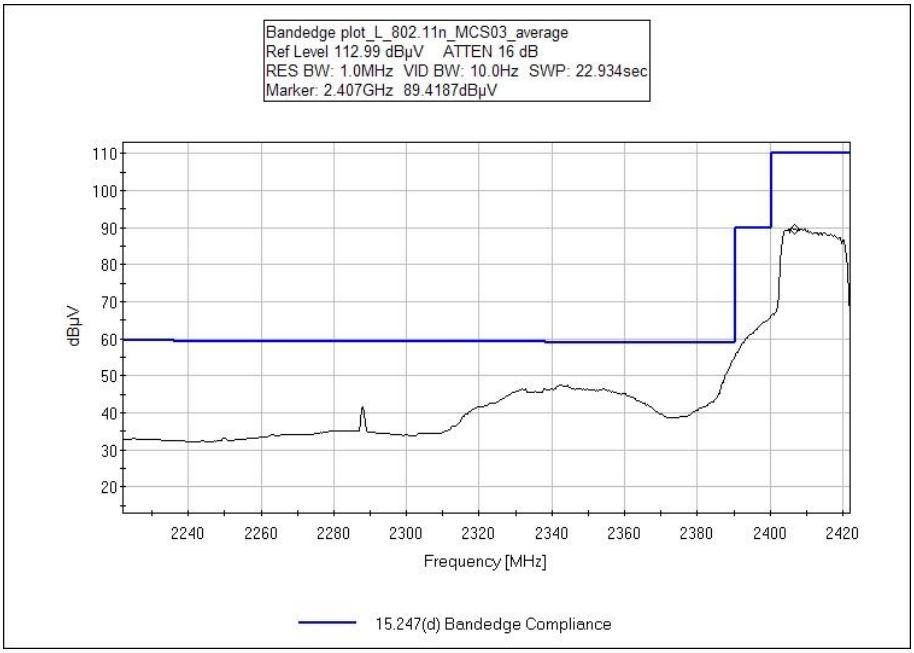

Bandedge plot_H_802.11n_MCS07_Peak
Ref Level 112.99 dBµV ATTEN 16 dB
RES BW: 1.0MHz VID BW: 1.0MHz SWP: 1.0msec
Marker: 2.466GHz 103.175dBµV
dBµV
Frequency [MHz]
15.247(d) Bandedge Compliance

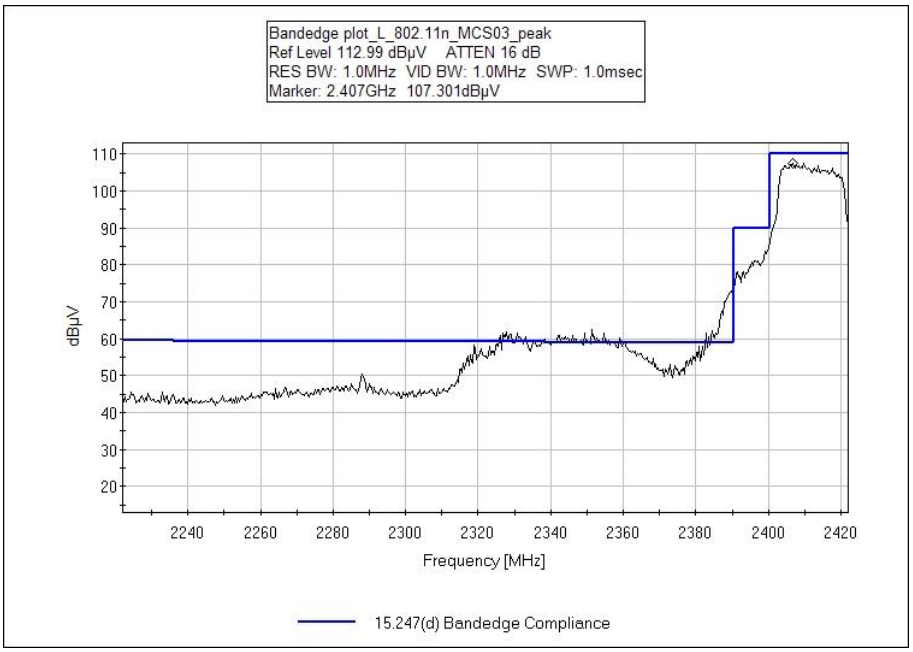

Bandedge plot_L_802.11b_average
Ref Level 112.99 dBµV ATTEN 16 dB
RES BW: 1.0MHz VID BW: 10.0Hz SWP: 22.934sec
Marker: 2.413GHz 97.5747dBµV
dBµV
Frequency [MHz]
15.247(d) Bandedge Compliance

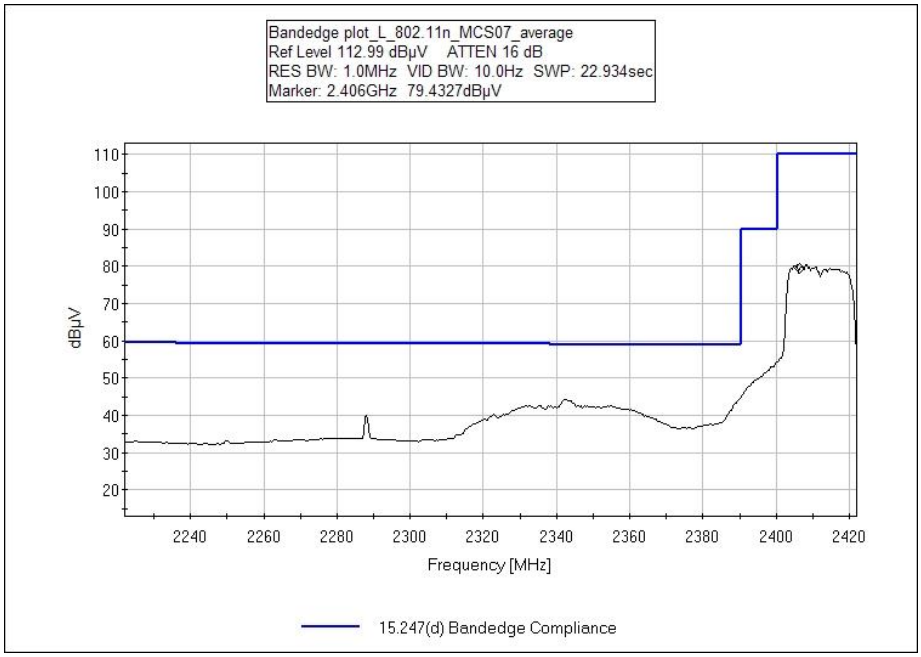

Bandedge plot_L_802.11b_peak
Ref Level 112.99 dBµV ATTEN 16 dB
RES BW: 1.0MHz VID BW: 1.0MHz SWP: 1.0msec
Marker: 2.413GHz 109.099dBµV
dBµV
Frequency [MHz]
15.247(d) Bandedge Compliance

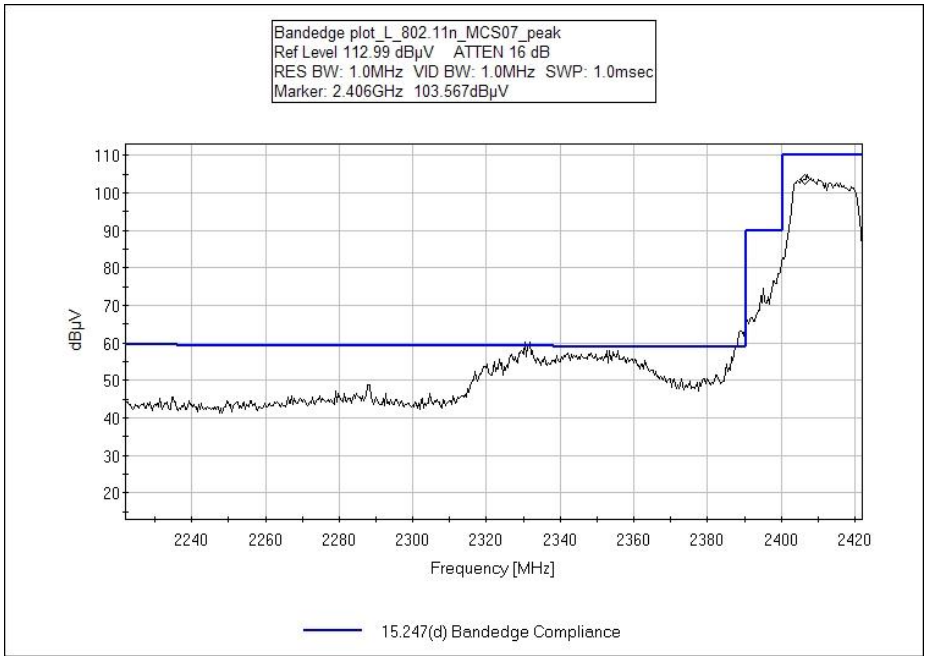

Bandedge plot_L_802.11g_average
Ref Level 112.99 dBµV ATTEN 16 dB
RES BW: 1.0MHz VID BW: 10.0Hz SWP: 22.934sec
Marker: 2.413GHz 82.3937dBµV
dBµV
110
100
90
80
70
60
50
40
30
20
2240
2260
2280
2300
2320
2340
2360
2380
2400
2420
Frequency [MHz]
15.247(d) Bandedge Compliance


Bandedge plot_L_802.11g_peak
Ref Level 112.99 dBµV ATTEN 16 dB
RES BW: 1.0MHz VID BW: 1.0MHz SWP: 1.0msec
Marker: 2.413GHz 108.67dBµV
dBµV
110
100
90
80
70
60
50
40
30
20
2240
2260
2280
2300
2320
2340
2360
2380
2400
2420
Frequency [MHz]
15.247(d) Bandedge Compliance


Bandedge plot_L_802.11n_MCS03_average
Ref Level 112.99 dBµV ATTEN 16 dB
RES BW: 1.0MHz VID BW: 10.0Hz SWP: 22.934sec
Marker: 2.407GHz 89.4187dBµV
dBµV
Frequency [MHz]
15.247(d) Bandedge Compliance


Bandedge plot_L_802.11n_MCS03_peak
Ref Level 112.99 dBµV ATTEN 16 dB
RES BW: 1.0MHz VID BW: 1.0MHz SWP: 1.0msec
Marker: 2.407GHz 107.301dBµV
dBµV
Frequency [MHz]
15.247(d) Bandedge Compliance


Bandedge plot_L_802.11n_MCS07_average
Ref Level 112.99 dBµV ATTEN 16 dB
RES BW: 1.0MHz VID BW: 10.0Hz SWP: 22.934sec
Marker: 2.406GHz 79.4327dBµV
dBµV
Frequency [MHz]
15.247(d) Bandedge Compliance


Bandedge plot_L_802.11n_MCS07_peak
Ref Level 112.99 dBµV ATTEN 16 dB
RES BW: 1.0MHz VID BW: 1.0MHz SWP: 1.0msec
Marker: 2.406GHz 103.567dBµV
dBµV
Frequency [MHz]
15.247(d) Bandedge Compliance

Test Setup Photos

15.247(d) / 15.209 Radiated Spurious Emissions

Test Data Sheets

Test Location: CKC Laboratories, Inc. • 110 N. Olinda Place • Brea, CA 92823 • (714) 993-6112

Customer: **Silex Technology America, Inc.**
Specification: **15.247(d) / 15.209 Radiated Spurious Emissions**
Work Order #: **92711** Date: 2/20/2012
Test Type: **Maximized Emissions** Time: 09:44:00
Equipment: **802.11bgn Access Point** Sequence#: 2
Manufacturer: Silex Technology America, Inc. Tested By: E. Wong
Model: Wi3-530
S/N: NA

***Test Equipment*:**

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN02672	Spectrum Analyzer	E4446A	8/9/2010	8/9/2012
T2	AN01995	Biconilog Antenna	CBL6111C	3/8/2010	3/8/2012
T3	AN00309	Preamp	8447D	5/7/2010	5/7/2012
T4	ANP05050	Cable	RG223/U	3/21/2011	3/21/2013
T5	ANP05198	Cable	8268	12/21/2010	12/21/2012
T6	AN00786	Preamp	83017A	8/5/2010	8/5/2012
T7	AN00849	Horn Antenna	3115	4/23/2010	4/23/2012
T8	AN03239	Cable	32022-2-29094K-24TC	8/30/2011	8/30/2013
T9	ANP05563	Cable	ANDL-1-PNMN-48	9/3/2010	9/3/2012
T10	ANP05421	Cable	Sucoflex 104A	2/8/2012	2/8/2014
	AN01413	Horn Antenna-ANSI C63.5 Antenna Factors (dB)	84125-80008	12/2/2010	12/2/2012
	AN01413	Horn Antenna-1 Meter Antenna Factors (dB) - SAE ARP 958	84125-80008	12/2/2010	12/2/2012
	AN00314	Loop Antenna	6502	6/30/2010	6/30/2012
T11	AN02744	High Pass Filter	11SH10-3000/T10000-O/O	3/5/2010	3/5/2012

***Equipment Under Test* (* = EUT):**

Function	Manufacturer	Model #	S/N
802.11bgn Access Point*	Silex Technology America, Inc.	Wi3-530	NA

Support Devices:

Function	Manufacturer	Model #	S/N
Ethernet Hub	Netgear	DS108	DS18006180179
Laptop	Lenovo	X61	7675CTO
Laptop	Sony	PCG-982L	2832330
Power Supply	Condor	HK-CH13-A05	NA
Development board	Silex Technology America, Inc.	PN 128-00205-200	NA

Test Conditions / Notes:

The EUT is placed on the wooden table lined with Styrofoam of 10 cm thickness. The EUT seeking modular approval is placed on an extender card installed on a support development PCB.

One out of five Ethernet port and serial port of the development card is connected to remotely located support Ethernet hub and laptops.

The EUT is transmitting at rated power and exercising all the intended functionalities.

Antenna gain = 0 dBi
802.11n without antenna diversity.
802.11 b/g/n
Freq: 2400-2483.5MHz

802.11b: 11.0 mbps short CCK. Freq:2412MHz, 2442MHz, 2472MHz, Firmware power setting= 14.5dBm, 14.5dBm, 12.5dBm
802.11g: 54.0 mbps. OFDM Freq:2412MHz, 2442MHz, 2472MHz, Firmware power setting= 13.5dBm, 13.5dBm, 13.5dBm
802.11n: 28.9 mbps.MCS3 Freq:2412MHz, 2442MHz, 2472MHz, Firmware power setting= 13.5dBm , 13.5dBm, 9.5dBm
802.11n: 72.2 mbps.MCS7 Freq:2412MHz, 2442MHz, 2472MHz, Firmware power setting= 9.5dBm, 9.5dBm, 9.5dBm

Frequency range of measurement = 9 kHz- 25GHz.
9 kH -150 kHz; RBW=200 Hz, VBW=200 Hz; 150 kHz-30 MHz; RBW=9 kHz, VBW=9 kHz;30 MHz-1000 MHz; RBW=120 kHz, VBW=120 kHz,1000 MHz-25000MHz;RBW=1 MHz, VBW=1 MHz.

Test environment conditions: 21.1°C, 36% relative humidity, 100kPa

Emission profile of the EUT rotated along three orthogonal axis was investigated. Applicable data rate was investigated. Recorded data represent worse case emission.

Ext Attn: 0 dB

Measurement Data: Reading listed by margin. Test Distance: 3 Meters

#	Freq	Rdng	T1 T5 T9	T2 T6 T10	T3 T7 T11	T4 T8	Dist	Corr	Spec	Margin	Polar
	MHz	dBµV	dB	dB	dB	dB	Table	dBµV/m	dBµV/m	dB	Ant
1	124.995M QP	55.1	+0.0 +1.9 +0.0	+12.1 +0.0 +0.0	-27.8 +0.0 +0.0	+0.2 +0.0	+0.0	41.5	43.5 Non intentional radiator	-2.0	Horiz
^	124.995M	55.9	+0.0 +1.9 +0.0	+12.1 +0.0 +0.0	-27.8 +0.0 +0.0	+0.2 +0.0	+0.0	42.3	43.5 Non intentional radiator	-1.2	Horiz

3	4884.917M Ave	47.8	+0.0 +0.0 +4.5	+0.0 -37.1 +1.8	+0.0 +33.1 +0.4	+0.0 +0.5	+0.0	51.0	54.0 802.11g_X	-3.0	Vert
4	4944.000M Ave	47.7	+0.0 +0.0 +4.5	+0.0 -37.1 +1.8	+0.0 +33.2 +0.4	+0.0 +0.5	+0.0	51.0	54.0 802.11b_X	-3.0	Horiz
5	2200.250M Ave	56.1	+0.0 +0.0 +2.9	+0.0 -38.1 +1.3	+0.0 +28.2 +0.0	+0.0 +0.4	+0.0	50.8	54.0	-3.2	Horiz
6	2485.433M Ave	55.3	+0.0 +0.0 +3.2	+0.0 -37.9 +1.3	+0.0 +28.5 +0.0	+0.0 +0.4	+0.0	50.8	54.0 802.11b_X_banded ge H_12.5dBm	-3.2	Horiz
^	2485.433M	64.3	+0.0 +0.0 +3.2	+0.0 -37.9 +1.3	+0.0 +28.5 +0.0	+0.0 +0.4	+0.0	59.8	54.0 802.11b_X_banded ge H_12.5dBm	+5.8	Horiz
8	4883.867M Ave	45.1	+0.0 +0.0 +4.5	+0.0 -37.1 +1.8	+0.0 +33.1 +0.4	+0.0 +0.5	+0.0	48.3	54.0 802.11b_X	-5.7	Horiz
9	325.075M	49.6	+0.0 +3.2 +0.0	+14.1 +0.0 +0.0	-27.8 +0.0 +0.0	+0.3 +0.0	+0.0	39.4	46.0	-6.6	Horiz
10	2200.250M Ave	52.4	+0.0 +0.0 +2.9	+0.0 -38.1 +1.3	+0.0 +28.2 +0.0	+0.0 +0.4	+0.0	47.1	54.0	-6.9	Horiz
11	4943.834M Ave	43.8	+0.0 +0.0 +4.5	+0.0 -37.1 +1.8	+0.0 +33.2 +0.4	+0.0 +0.5	+0.0	47.1	54.0 802.11g_X	-6.9	Horiz
^	4943.834M	58.6	+0.0 +0.0 +4.5	+0.0 -37.1 +1.8	+0.0 +33.2 +0.4	+0.0 +0.5	+0.0	61.9	54.0 802.11g_X	+7.9	Horiz
13	4944.000M Ave	43.7	+0.0 +0.0 +4.5	+0.0 -37.1 +1.8	+0.0 +33.2 +0.4	+0.0 +0.5	+0.0	47.0	54.0 802.11b_Y	-7.0	Horiz
14	4883.933M Ave	42.4	+0.0 +0.0 +4.5	+0.0 -37.1 +1.8	+0.0 +33.1 +0.4	+0.0 +0.5	+0.0	45.6	54.0 802.11b_Y	-8.4	Horiz
15	4884.917M Ave	42.1	+0.0 +0.0 +4.5	+0.0 -37.1 +1.8	+0.0 +33.1 +0.4	+0.0 +0.5	+0.0	45.3	54.0 802.11g_X	-8.7	Horiz
^	4884.917M	59.3	+0.0 +0.0 +4.5	+0.0 -37.1 +1.8	+0.0 +33.1 +0.4	+0.0 +0.5	+0.0	62.5	54.0 802.11g_X	+8.5	Horiz
17	4823.950M Ave	42.1	+0.0 +0.0 +4.4	+0.0 -37.1 +1.8	+0.0 +33.0 +0.4	+0.0 +0.5	+0.0	45.1	54.0 802.11b_X	-8.9	Horiz
18	4944.000M Ave	41.8	+0.0 +0.0 +4.5	+0.0 -37.1 +1.8	+0.0 +33.2 +0.4	+0.0 +0.5	+0.0	45.1	54.0 802.11b_Z	-8.9	Horiz
19	4943.917M Ave	41.5	+0.0 +0.0 +4.5	+0.0 -37.1 +1.8	+0.0 +33.2 +0.4	+0.0 +0.5	+0.0	44.8	54.0 802.11b_X	-9.2	Vert

20	250.000M	48.9	+0.0 +2.8 +0.0	+12.7 +0.0 +0.0	-27.8 +0.0 +0.0	+0.2 +0.0	+0.0	36.8	46.0	-9.2	Horiz
21	4943.833M Ave	41.3	+0.0 +0.0 +4.5	+0.0 -37.1 +1.8	+0.0 +33.2 +0.4	+0.0 +0.5	+0.0	44.6	54.0 802.11b_Z	-9.4	Vert
22	2199.833M Ave	49.7	+0.0 +0.0 +2.9	+0.0 -38.1 +1.3	+0.0 +28.2 +0.0	+0.0 +0.4	+0.0	44.4	54.0	-9.6	Vert
^	2199.833M	52.8	+0.0 +0.0 +2.9	+0.0 -38.1 +1.3	+0.0 +28.2 +0.0	+0.0 +0.4	+0.0	47.5	54.0	-6.5	Vert
24	4883.933M Ave	41.0	+0.0 +0.0 +4.5	+0.0 -37.1 +1.8	+0.0 +33.1 +0.4	+0.0 +0.5	+0.0	44.2	54.0 802.11b_Y	-9.8	Vert
25	325.067M	46.4	+0.0 +3.2 +0.0	+14.1 +0.0 +0.0	-27.8 +0.0 +0.0	+0.3 +0.0	+0.0	36.2	46.0	-9.8	Vert
26	400.008M	43.9	+0.0 +3.6 +0.0	+16.2 +0.0 +0.0	-27.9 +0.0 +0.0	+0.3 +0.0	+0.0	36.1	46.0	-9.9	Horiz
27	4944.300M Ave	40.7	+0.0 +0.0 +4.5	+0.0 -37.1 +1.8	+0.0 +33.2 +0.4	+0.0 +0.5	+0.0	44.0	54.0 802.11n_3_X	-10.0	Horiz
^	4944.300M	56.4	+0.0 +0.0 +4.5	+0.0 -37.1 +1.8	+0.0 +33.2 +0.4	+0.0 +0.5	+0.0	59.7	54.0 802.11n_3_X	+5.7	Horiz
29	1799.967M	51.1	+0.0 +0.0 +2.6	+0.0 -38.2 +1.1	+0.0 +27.0 +0.0	+0.0 +0.3	+0.0	43.9	54.0	-10.1	Horiz
30	260.083M	47.9	+0.0 +2.8 +0.0	+12.8 +0.0 +0.0	-27.8 +0.0 +0.0	+0.2 +0.0	+0.0	35.9	46.0	-10.1	Horiz
31	4824.000M Ave	40.8	+0.0 +0.0 +4.4	+0.0 -37.1 +1.8	+0.0 +33.0 +0.4	+0.0 +0.5	+0.0	43.8	54.0 802.11b_Y	-10.2	Vert
32	4884.083M Ave	40.5	+0.0 +0.0 +4.5	+0.0 -37.1 +1.8	+0.0 +33.1 +0.4	+0.0 +0.5	+0.0	43.7	54.0 802.11b_Z	-10.3	Vert
33	4883.867M Ave	40.4	+0.0 +0.0 +4.5	+0.0 -37.1 +1.8	+0.0 +33.1 +0.4	+0.0 +0.5	+0.0	43.6	54.0 802.11b_X	-10.4	Vert
34	4824.000M Ave	40.1	+0.0 +0.0 +4.4	+0.0 -37.1 +1.8	+0.0 +33.0 +0.4	+0.0 +0.5	+0.0	43.1	54.0 802.11b_Y	-10.9	Horiz
35	400.017M	42.8	+0.0 +3.6 +0.0	+16.2 +0.0 +0.0	-27.9 +0.0 +0.0	+0.3 +0.0	+0.0	35.0	46.0	-11.0	Vert
36	375.000M	43.5	+0.0 +3.5 +0.0	+15.5 +0.0 +0.0	-27.9 +0.0 +0.0	+0.3 +0.0	+0.0	34.9	46.0	-11.1	Vert

37	4883.917M Ave	39.7	+0.0 +0.0 +4.5	+0.0 -37.1 +1.8	+0.0 +33.1 +0.4	+0.0 +0.5	+0.0	42.9	54.0 802.11b_Z	-11.1	Horiz
^	4883.933M	55.0	+0.0 +0.0 +4.5	+0.0 -37.1 +1.8	+0.0 +33.1 +0.4	+0.0 +0.5	+0.0	58.2	54.0 802.11b_Y	+4.2	Horiz
39	357.617M	43.6	+0.0 +3.3 +0.0	+15.1 +0.0 +0.0	-27.8 +0.0 +0.0	+0.3 +0.0	+0.0	34.5	46.0	-11.5	Vert
40	4824.167M Ave	39.2	+0.0 +0.0 +4.4	+0.0 -37.1 +1.8	+0.0 +33.0 +0.4	+0.0 +0.5	+0.0	42.2	54.0 802.11b_Z	-11.8	Vert
41	4944.000M Ave	38.6	+0.0 +0.0 +4.5	+0.0 -37.1 +1.8	+0.0 +33.2 +0.4	+0.0 +0.5	+0.0	41.9	54.0 802.11b_Y	-12.1	Vert
42	4824.041M Ave	38.4	+0.0 +0.0 +4.4	+0.0 -37.1 +1.8	+0.0 +33.0 +0.4	+0.0 +0.5	+0.0	41.4	54.0 802.11b_Z	-12.6	Horiz
43	260.057M	45.4	+0.0 +2.8 +0.0	+12.8 +0.0 +0.0	-27.8 +0.0 +0.0	+0.2 +0.0	+0.0	33.4	46.0	-12.6	Vert
44	4944.000M Ave	37.8	+0.0 +0.0 +4.5	+0.0 -37.1 +1.8	+0.0 +33.2 +0.4	+0.0 +0.5	+0.0	41.1	54.0 802.11n_3_Y	-12.9	Horiz
^	4944.000M	59.4	+0.0 +0.0 +4.5	+0.0 -37.1 +1.8	+0.0 +33.2 +0.4	+0.0 +0.5	+0.0	62.7	54.0 802.11b_X	+8.7	Horiz
^	4944.000M	56.2	+0.0 +0.0 +4.5	+0.0 -37.1 +1.8	+0.0 +33.2 +0.4	+0.0 +0.5	+0.0	59.5	54.0 802.11b_Y	+5.5	Horiz
^	4944.000M	54.5	+0.0 +0.0 +4.5	+0.0 -37.1 +1.8	+0.0 +33.2 +0.4	+0.0 +0.5	+0.0	57.8	54.0 802.11b_Z	+3.8	Horiz
^	4944.000M	50.5	+0.0 +0.0 +4.5	+0.0 -37.1 +1.8	+0.0 +33.2 +0.4	+0.0 +0.5	+0.0	53.8	54.0 802.11n_3_Y	-0.2	Horiz
49	292.557M	44.4	+0.0 +3.0 +0.0	+13.2 +0.0 +0.0	-27.8 +0.0 +0.0	+0.2 +0.0	+0.0	33.0	46.0	-13.0	Vert
50	4945.833M Ave	37.6	+0.0 +0.0 +4.5	+0.0 -37.1 +1.8	+0.0 +33.2 +0.4	+0.0 +0.5	+0.0	40.9	54.0 802.11g_Y	-13.1	Vert
51	4944.633M Ave	37.6	+0.0 +0.0 +4.5	+0.0 -37.1 +1.8	+0.0 +33.2 +0.4	+0.0 +0.5	+0.0	40.9	54.0 802.11n_7_X	-13.1	Horiz
^	4944.633M	53.1	+0.0 +0.0 +4.5	+0.0 -37.1 +1.8	+0.0 +33.2 +0.4	+0.0 +0.5	+0.0	56.4	54.0 802.11n_7_X	+2.4	Horiz
53	1624.900M	49.1	+0.0 +0.0 +2.5	+0.0 -38.2 +1.1	+0.0 +26.1 +0.0	+0.0 +0.3	+0.0	40.9	54.0	-13.1	Vert

54	4884.133M Ave	37.7	+0.0 +0.0 +4.5	+0.0 -37.1 +1.8	+0.0 +33.1 +0.4	+0.0 +0.5	+0.0	40.9	54.0 802.11g_Y	-13.1	Horiz
^	4884.133M	53.4	+0.0 +0.0 +4.5	+0.0 -37.1 +1.8	+0.0 +33.1 +0.4	+0.0 +0.5	+0.0	56.6	54.0 802.11g_Y	+2.6	Horiz
56	4821.347M Ave	37.7	+0.0 +0.0 +4.4	+0.0 -37.1 +1.8	+0.0 +33.0 +0.4	+0.0 +0.5	+0.0	40.7	54.0 802.11g_X	-13.3	Horiz
^	4821.347M	53.3	+0.0 +0.0 +4.4	+0.0 -37.1 +1.8	+0.0 +33.0 +0.4	+0.0 +0.5	+0.0	56.3	54.0 802.11g_X	+2.3	Horiz
58	4883.800M Ave	37.5	+0.0 +0.0 +4.5	+0.0 -37.1 +1.8	+0.0 +33.1 +0.4	+0.0 +0.5	+0.0	40.7	54.0 802.11g_Z	-13.3	Horiz
59	4823.913M Ave	37.6	+0.0 +0.0 +4.4	+0.0 -37.1 +1.8	+0.0 +33.0 +0.4	+0.0 +0.5	+0.0	40.6	54.0 802.11g_Z	-13.4	Horiz
^	4823.913M	52.7	+0.0 +0.0 +4.4	+0.0 -37.1 +1.8	+0.0 +33.0 +0.4	+0.0 +0.5	+0.0	55.7	54.0 802.11g_Z	+1.7	Horiz
61	4823.950M Ave	37.4	+0.0 +0.0 +4.4	+0.0 -37.1 +1.8	+0.0 +33.0 +0.4	+0.0 +0.5	+0.0	40.4	54.0 802.11b_X	-13.6	Vert
62	161.545M	44.6	+0.0 +2.2 +0.0	+10.6 +0.0 +0.0	-27.7 +0.0 +0.0	+0.1 +0.0	+0.0	29.8	43.5	-13.7	Horiz
63	4824.750M Ave	37.3	+0.0 +0.0 +4.4	+0.0 -37.1 +1.8	+0.0 +33.0 +0.4	+0.0 +0.5	+0.0	40.3	54.0 802.11g_Y	-13.7	Horiz
^	4824.750M	54.9	+0.0 +0.0 +4.4	+0.0 -37.1 +1.8	+0.0 +33.0 +0.4	+0.0 +0.5	+0.0	57.9	54.0 802.11g_Y	+3.9	Horiz
65	1799.967M	47.3	+0.0 +0.0 +2.6	+0.0 -38.2 +1.1	+0.0 +27.0 +0.0	+0.0 +0.3	+0.0	40.1	54.0	-13.9	Horiz
66	4824.167M Ave	37.0	+0.0 +0.0 +4.4	+0.0 -37.1 +1.8	+0.0 +33.0 +0.4	+0.0 +0.5	+0.0	40.0	54.0 802.11n_3_Y	-14.0	Horiz
67	4945.833M Ave	36.7	+0.0 +0.0 +4.5	+0.0 -37.1 +1.8	+0.0 +33.2 +0.4	+0.0 +0.5	+0.0	40.0	54.0 802.11g_Y	-14.0	Horiz
68	128.500M	43.0	+0.0 +1.9 +0.0	+12.0 +0.0 +0.0	-27.8 +0.0 +0.0	+0.2 +0.0	+0.0	29.3	43.5	-14.2	Vert
69	4945.833M Ave	36.4	+0.0 +0.0 +4.5	+0.0 -37.1 +1.8	+0.0 +33.2 +0.4	+0.0 +0.5	+0.0	39.7	54.0 802.11g_Z	-14.3	Horiz
^	4945.833M	51.7	+0.0 +0.0 +4.5	+0.0 -37.1 +1.8	+0.0 +33.2 +0.4	+0.0 +0.5	+0.0	55.0	54.0 802.11g_Z	+1.0	Horiz

^	4945.833M	50.0	+0.0	+0.0	+0.0	+0.0	+0.0	53.3	54.0	-0.7	Horiz
			+0.0	-37.1	+33.2	+0.5			802.11g_Y		
			+4.5	+1.8	+0.4						
72	4945.833M	36.4	+0.0	+0.0	+0.0	+0.0	+0.0	39.7	54.0	-14.3	Vert
	Ave		+0.0	-37.1	+33.2	+0.5			802.11g_Z		
			+4.5	+1.8	+0.4						
^	4945.833M	52.3	+0.0	+0.0	+0.0	+0.0	+0.0	55.6	54.0	+1.6	Vert
			+0.0	-37.1	+33.2	+0.5			802.11g_Y		
			+4.5	+1.8	+0.4						
^	4945.833M	51.5	+0.0	+0.0	+0.0	+0.0	+0.0	54.8	54.0	+0.8	Vert
			+0.0	-37.1	+33.2	+0.5			802.11g_Z		
			+4.5	+1.8	+0.4						
75	4883.833M	36.4	+0.0	+0.0	+0.0	+0.0	+0.0	39.6	54.0	-14.4	Horiz
	Ave		+0.0	-37.1	+33.1	+0.5			802.11n_3_Y		
			+4.5	+1.8	+0.4						
^	4883.867M	56.5	+0.0	+0.0	+0.0	+0.0	+0.0	59.7	54.0	+5.7	Horiz
			+0.0	-37.1	+33.1	+0.5			802.11b_X		
			+4.5	+1.8	+0.4						
^	4883.800M	52.6	+0.0	+0.0	+0.0	+0.0	+0.0	55.8	54.0	+1.8	Horiz
			+0.0	-37.1	+33.1	+0.5			802.11g_Z		
			+4.5	+1.8	+0.4						
^	4883.917M	51.8	+0.0	+0.0	+0.0	+0.0	+0.0	55.0	54.0	+1.0	Horiz
			+0.0	-37.1	+33.1	+0.5			802.11b_Z		
			+4.5	+1.8	+0.4						
^	4883.833M	50.5	+0.0	+0.0	+0.0	+0.0	+0.0	53.7	54.0	-0.3	Horiz
			+0.0	-37.1	+33.1	+0.5			802.11n_3_Y		
			+4.5	+1.8	+0.4						
80	4883.583M	36.2	+0.0	+0.0	+0.0	+0.0	+0.0	39.4	54.0	-14.6	Horiz
	Ave		+0.0	-37.1	+33.1	+0.5			802.11n_3_Z		
			+4.5	+1.8	+0.4						
81	1000.042M	52.4	+0.0	+0.0	+0.0	+0.0	+0.0	39.4	54.0	-14.6	Vert
	Ave		+0.0	-40.4	+24.2	+0.3					
			+2.0	+0.9	+0.0						
^	1000.042M	56.9	+0.0	+0.0	+0.0	+0.0	+0.0	43.9	54.0	-10.1	Vert
			+0.0	-40.4	+24.2	+0.3					
			+2.0	+0.9	+0.0						
83	4823.417M	36.3	+0.0	+0.0	+0.0	+0.0	+0.0	39.3	54.0	-14.7	Vert
	Ave		+0.0	-37.1	+33.0	+0.5			802.11g_Y		
			+4.4	+1.8	+0.4						
^	4823.417M	50.6	+0.0	+0.0	+0.0	+0.0	+0.0	53.6	54.0	-0.4	Vert
			+0.0	-37.1	+33.0	+0.5			802.11g_Y		
			+4.4	+1.8	+0.4						
85	1000.042M	52.2	+0.0	+0.0	+0.0	+0.0	+0.0	39.2	54.0	-14.8	Horiz
	Ave		+0.0	-40.4	+24.2	+0.3					
			+2.0	+0.9	+0.0						
^	1000.042M	56.5	+0.0	+0.0	+0.0	+0.0	+0.0	43.5	54.0	-10.5	Horiz
			+0.0	-40.4	+24.2	+0.3					
			+2.0	+0.9	+0.0						
87	4883.800M	35.7	+0.0	+0.0	+0.0	+0.0	+0.0	38.9	54.0	-15.1	Vert
	Ave		+0.0	-37.1	+33.1	+0.5			802.11g_Z		
			+4.5	+1.8	+0.4						

^	4883.800M	50.6	+0.0 +0.0 +4.5	+0.0 -37.1 +1.8	+0.0 +33.1 +0.4	+0.0 +0.5	+0.0	53.8	54.0 802.11g_Z	-0.2	Vert
89	4944.000M Ave	35.5	+0.0 +0.0 +4.5	+0.0 -37.1 +1.8	+0.0 +33.2 +0.4	+0.0 +0.5	+0.0	38.8	54.0 802.11n_3_Y	-15.2	Vert
90	1500.000M	48.1	+0.0 +0.0 +2.4	+0.0 -38.4 +1.0	+0.0 +25.3 +0.0	+0.0 +0.3	+0.0	38.7	54.0	-15.3	Horiz
91	1600.170M	47.1	+0.0 +0.0 +2.5	+0.0 -38.2 +1.1	+0.0 +25.9 +0.0	+0.0 +0.3	+0.0	38.7	54.0 802.11b_Z	-15.3	Horiz
92	4943.834M Ave	35.3	+0.0 +0.0 +4.5	+0.0 -37.1 +1.8	+0.0 +33.2 +0.4	+0.0 +0.5	+0.0	38.6	54.0 802.11g_X	-15.4	Vert
93	4882.500M Ave	35.3	+0.0 +0.0 +4.5	+0.0 -37.1 +1.8	+0.0 +33.1 +0.4	+0.0 +0.5	+0.0	38.5	54.0 802.11n_3_Z	-15.5	Vert
^	4882.500M	48.0	+0.0 +0.0 +4.5	+0.0 -37.1 +1.8	+0.0 +33.1 +0.4	+0.0 +0.5	+0.0	51.2	54.0 802.11n_3_Z	-2.8	Vert
95	4824.083M Ave	35.5	+0.0 +0.0 +4.4	+0.0 -37.1 +1.8	+0.0 +33.0 +0.4	+0.0 +0.5	+0.0	38.5	54.0 802.11n_3_Z	-15.5	Horiz
96	4942.500M Ave	35.1	+0.0 +0.0 +4.5	+0.0 -37.1 +1.8	+0.0 +33.2 +0.4	+0.0 +0.5	+0.0	38.4	54.0 802.11n_3_Z	-15.6	Vert
^	4942.500M	46.8	+0.0 +0.0 +4.5	+0.0 -37.1 +1.8	+0.0 +33.2 +0.4	+0.0 +0.5	+0.0	50.1	54.0 802.11n_3_Z	-3.9	Vert
98	432.050M	37.0	+0.0 +3.8 +0.0	+16.9 +0.0 +0.0	-27.8 +0.0 +0.0	+0.3 +0.0	+0.0	30.2	46.0	-15.8	Vert
99	1799.900M Ave	45.2	+0.0 +0.0 +2.6	+0.0 -38.2 +1.1	+0.0 +27.0 +0.0	+0.0 +0.3	+0.0	38.0	54.0	-16.0	Vert
^	1799.900M	50.0	+0.0 +0.0 +2.6	+0.0 -38.2 +1.1	+0.0 +27.0 +0.0	+0.0 +0.3	+0.0	42.8	54.0	-11.2	Vert
101	1499.900M	47.4	+0.0 +0.0 +2.4	+0.0 -38.4 +1.0	+0.0 +25.3 +0.0	+0.0 +0.3	+0.0	38.0	54.0	-16.0	Vert
102	2000.000M	43.5	+0.0 +0.0 +2.8	+0.0 -38.0 +1.2	+0.0 +28.0 +0.0	+0.0 +0.4	+0.0	37.9	54.0	-16.1	Horiz
103	219.160M	44.3	+0.0 +2.6 +0.0	+10.5 +0.0 +0.0	-27.8 +0.0 +0.0	+0.2 +0.0	+0.0	29.8	46.0	-16.2	Horiz
104	1600.070M	46.2	+0.0 +0.0 +2.5	+0.0 -38.2 +1.1	+0.0 +25.9 +0.0	+0.0 +0.3	+0.0	37.8	54.0	-16.2	Vert

105	197.345M	43.2	+0.0 +2.5 +0.0	+9.0 +0.0 +0.0	-27.7 +0.0 +0.0	+0.2 +0.0	+0.0	27.2	43.5	-16.3	Horiz
106	4891.500M Ave	34.4	+0.0 +0.0 +4.5	+0.0 -37.1 +1.8	+0.0 +33.1 +0.4	+0.0 +0.5	+0.0	37.6	54.0 802.11n_3_X	-16.4	Horiz
^	4891.500M	46.8	+0.0 +0.0 +4.5	+0.0 -37.1 +1.8	+0.0 +33.1 +0.4	+0.0 +0.5	+0.0	50.0	54.0 802.11n_3_X	-4.0	Horiz
108	308.873M	40.5	+0.0 +3.1 +0.0	+13.6 +0.0 +0.0	-27.8 +0.0 +0.0	+0.2 +0.0	+0.0	29.6	46.0	-16.4	Vert
109	1400.000M Ave	47.5	+0.0 +0.0 +2.4	+0.0 -38.7 +1.0	+0.0 +25.1 +0.0	+0.0 +0.3	+0.0	37.6	54.0	-16.4	Horiz
^	1400.000M	52.4	+0.0 +0.0 +2.4	+0.0 -38.7 +1.0	+0.0 +25.1 +0.0	+0.0 +0.3	+0.0	42.5	54.0	-11.5	Horiz
111	271.130M	40.9	+0.0 +2.9 +0.0	+13.0 +0.0 +0.0	-27.7 +0.0 +0.0	+0.3 +0.0	+0.0	29.4	46.0	-16.6	Horiz
112	4884.917M Ave	34.1	+0.0 +0.0 +4.5	+0.0 -37.1 +1.8	+0.0 +33.1 +0.4	+0.0 +0.5	+0.0	37.3	54.0 802.11g_X	-16.7	Vert
113	4884.500M Ave	34.1	+0.0 +0.0 +4.5	+0.0 -37.1 +1.8	+0.0 +33.1 +0.4	+0.0 +0.5	+0.0	37.3	54.0 802.11n_3_Y	-16.7	Vert
^	4884.500M	45.9	+0.0 +0.0 +4.5	+0.0 -37.1 +1.8	+0.0 +33.1 +0.4	+0.0 +0.5	+0.0	49.1	54.0 802.11n_3_Y	-4.9	Vert
115	4824.167M Ave	34.1	+0.0 +0.0 +4.4	+0.0 -37.1 +1.8	+0.0 +33.0 +0.4	+0.0 +0.5	+0.0	37.1	54.0 802.11n_3_Y	-16.9	Vert
116	4943.333M Ave	33.8	+0.0 +0.0 +4.5	+0.0 -37.1 +1.8	+0.0 +33.2 +0.4	+0.0 +0.5	+0.0	37.1	54.0 802.11n_3_Z	-16.9	Horiz
^	4943.333M	45.8	+0.0 +0.0 +4.5	+0.0 -37.1 +1.8	+0.0 +33.2 +0.4	+0.0 +0.5	+0.0	49.1	54.0 802.11n_3_Z	-4.9	Horiz
118	4882.700M Ave	33.8	+0.0 +0.0 +4.5	+0.0 -37.1 +1.8	+0.0 +33.1 +0.4	+0.0 +0.5	+0.0	37.0	54.0 802.11n_7_X	-17.0	Horiz
^	4882.700M	48.8	+0.0 +0.0 +4.5	+0.0 -37.1 +1.8	+0.0 +33.1 +0.4	+0.0 +0.5	+0.0	52.0	54.0 802.11n_7_X	-2.0	Horiz
120	1935.983M Ave	42.3	+0.0 +0.0 +2.8	+0.0 -38.0 +1.2	+0.0 +27.7 +0.0	+0.0 +0.3	+0.0	36.3	54.0	-17.7	Vert
^	1935.983M	47.5	+0.0 +0.0 +2.8	+0.0 -38.0 +1.2	+0.0 +27.7 +0.0	+0.0 +0.3	+0.0	41.5	54.0	-12.5	Vert

122	4943.917M Ave	32.9	+0.0 +0.0 +4.5	+0.0 -37.1 +1.8	+0.0 +33.2 +0.4	+0.0 +0.5	+0.0	36.2	54.0 802.11n_Z	-17.8	Vert
^	4944.000M	51.2	+0.0 +0.0 +4.5	+0.0 -37.1 +1.8	+0.0 +33.2 +0.4	+0.0 +0.5	+0.0	54.5	54.0 802.11b_Y	+0.5	Vert
^	4944.000M	47.2	+0.0 +0.0 +4.5	+0.0 -37.1 +1.8	+0.0 +33.2 +0.4	+0.0 +0.5	+0.0	50.5	54.0 802.11n_3_Y	-3.5	Vert
125	4884.133M Ave	33.0	+0.0 +0.0 +4.5	+0.0 -37.1 +1.8	+0.0 +33.1 +0.4	+0.0 +0.5	+0.0	36.2	54.0 802.11g_Y	-17.8	Vert
^	4884.083M	53.0	+0.0 +0.0 +4.5	+0.0 -37.1 +1.8	+0.0 +33.1 +0.4	+0.0 +0.5	+0.0	56.2	54.0 802.11b_Z	+2.2	Vert
^	4884.133M	45.7	+0.0 +0.0 +4.5	+0.0 -37.1 +1.8	+0.0 +33.1 +0.4	+0.0 +0.5	+0.0	48.9	54.0 802.11g_Y	-5.1	Vert
128	4943.667M Ave	32.7	+0.0 +0.0 +4.5	+0.0 -37.1 +1.8	+0.0 +33.2 +0.4	+0.0 +0.5	+0.0	36.0	54.0 802.11n_3_X	-18.0	Vert
^	4943.667M	44.0	+0.0 +0.0 +4.5	+0.0 -37.1 +1.8	+0.0 +33.2 +0.4	+0.0 +0.5	+0.0	47.3	54.0 802.11n_3_X	-6.7	Vert
130	1400.233M Ave	45.9	+0.0 +0.0 +2.4	+0.0 -38.7 +1.0	+0.0 +25.1 +0.0	+0.0 +0.3	+0.0	36.0	54.0	-18.0	Vert
^	1400.233M	51.5	+0.0 +0.0 +2.4	+0.0 -38.7 +1.0	+0.0 +25.1 +0.0	+0.0 +0.3	+0.0	41.6	54.0	-12.4	Vert
132	4824.679M Ave	32.9	+0.0 +0.0 +4.4	+0.0 -37.1 +1.8	+0.0 +33.0 +0.4	+0.0 +0.5	+0.0	35.9	54.0 802.11g_Z	-18.1	Vert
^	4824.679M	47.7	+0.0 +0.0 +4.4	+0.0 -37.1 +1.8	+0.0 +33.0 +0.4	+0.0 +0.5	+0.0	50.7	54.0 802.11g_Z	-3.3	Vert
134	4883.967M Ave	32.5	+0.0 +0.0 +4.5	+0.0 -37.1 +1.8	+0.0 +33.1 +0.4	+0.0 +0.5	+0.0	35.7	54.0 802.11n_Z	-18.3	Vert
^	4883.933M	53.1	+0.0 +0.0 +4.5	+0.0 -37.1 +1.8	+0.0 +33.1 +0.4	+0.0 +0.5	+0.0	56.3	54.0 802.11b_Y	+2.3	Vert
^	4883.867M	52.8	+0.0 +0.0 +4.5	+0.0 -37.1 +1.8	+0.0 +33.1 +0.4	+0.0 +0.5	+0.0	56.0	54.0 802.11b_X	+2.0	Vert
^	4883.967M	44.2	+0.0 +0.0 +4.5	+0.0 -37.1 +1.8	+0.0 +33.1 +0.4	+0.0 +0.5	+0.0	47.4	54.0 802.11n_Z	-6.6	Vert
138	269.330M	39.3	+0.0 +2.9 +0.0	+12.9 +0.0 +0.0	-27.7 +0.0 +0.0	+0.3 +0.0	+0.0	27.7	46.0	-18.3	Horiz

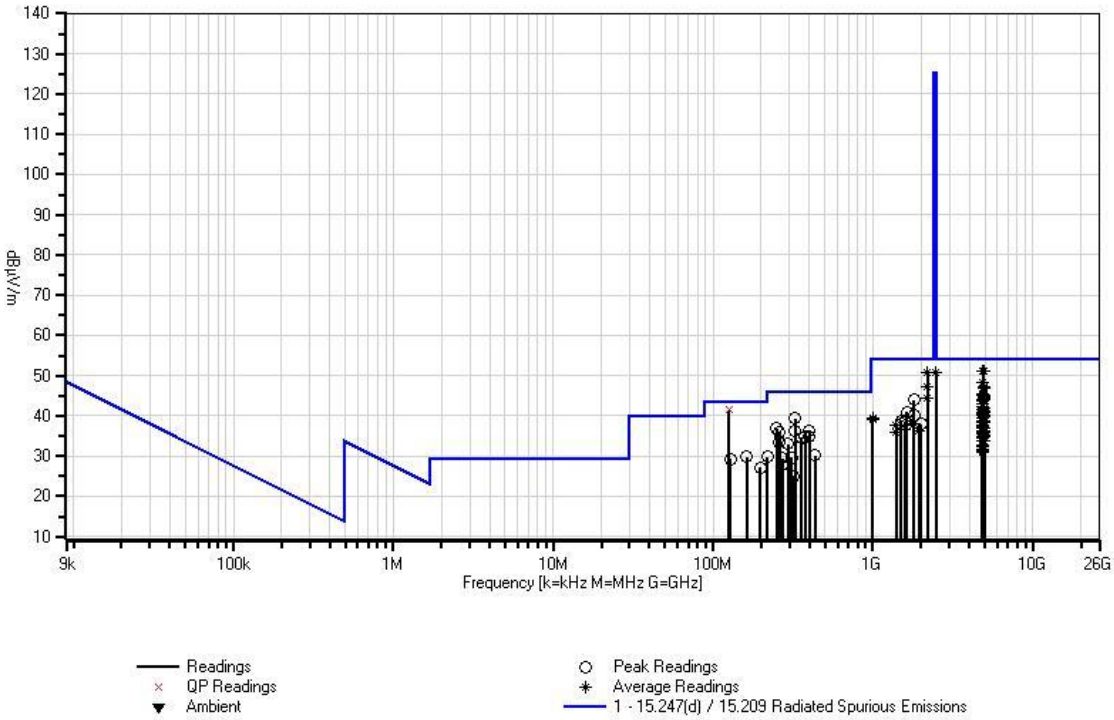
139	4826.156M Ave	32.6	+0.0 +0.0 +4.4	+0.0 -37.1 +1.8	+0.0 +33.0 +0.4	+0.0 +0.5	+0.0	35.6	54.0 802.11g_X	-18.4	Vert
140	4826.833M Ave	32.5	+0.0 +0.0 +4.4	+0.0 -37.1 +1.8	+0.0 +33.0 +0.4	+0.0 +0.5	+0.0	35.5	54.0 802.11n_3_Z	-18.5	Vert
^	4826.833M	44.6	+0.0 +0.0 +4.4	+0.0 -37.1 +1.8	+0.0 +33.0 +0.4	+0.0 +0.5	+0.0	47.6	54.0 802.11n_3_Z	-6.4	Vert
142	4880.000M Ave	32.2	+0.0 +0.0 +4.5	+0.0 -37.1 +1.8	+0.0 +33.1 +0.4	+0.0 +0.5	+0.0	35.4	54.0 802.11n_3_X	-18.6	Vert
^	4880.000M	45.1	+0.0 +0.0 +4.5	+0.0 -37.1 +1.8	+0.0 +33.1 +0.4	+0.0 +0.5	+0.0	48.3	54.0 802.11n_3_X	-5.7	Vert
144	4947.333M Ave	31.8	+0.0 +0.0 +4.5	+0.0 -37.1 +1.8	+0.0 +33.2 +0.4	+0.0 +0.5	+0.0	35.1	54.0 802.11n_7_Y	-18.9	Horiz
^	4947.333M	45.3	+0.0 +0.0 +4.5	+0.0 -37.1 +1.8	+0.0 +33.2 +0.4	+0.0 +0.5	+0.0	48.6	54.0 802.11n_7_Y	-5.4	Horiz
146	4940.750M Ave	31.8	+0.0 +0.0 +4.5	+0.0 -37.1 +1.8	+0.0 +33.2 +0.4	+0.0 +0.5	+0.0	35.1	54.0 802.11n_Z	-18.9	Horiz
^	4940.750M	45.4	+0.0 +0.0 +4.5	+0.0 -37.1 +1.8	+0.0 +33.2 +0.4	+0.0 +0.5	+0.0	48.7	54.0 802.11n_Z	-5.3	Horiz
148	4824.167M Ave	32.0	+0.0 +0.0 +4.4	+0.0 -37.1 +1.8	+0.0 +33.0 +0.4	+0.0 +0.5	+0.0	35.0	54.0 802.11n_3_X	-19.0	Horiz
149	4943.833M Ave	31.6	+0.0 +0.0 +4.5	+0.0 -37.1 +1.8	+0.0 +33.2 +0.4	+0.0 +0.5	+0.0	34.9	54.0 802.11n_7_Y	-19.1	Vert
^	4943.917M	53.9	+0.0 +0.0 +4.5	+0.0 -37.1 +1.8	+0.0 +33.2 +0.4	+0.0 +0.5	+0.0	57.2	54.0 802.11b_X	+3.2	Vert
^	4943.833M	53.6	+0.0 +0.0 +4.5	+0.0 -37.1 +1.8	+0.0 +33.2 +0.4	+0.0 +0.5	+0.0	56.9	54.0 802.11b_Z	+2.9	Vert
^	4943.834M	51.6	+0.0 +0.0 +4.5	+0.0 -37.1 +1.8	+0.0 +33.2 +0.4	+0.0 +0.5	+0.0	54.9	54.0 802.11g_X	+0.9	Vert
^	4943.917M	44.5	+0.0 +0.0 +4.5	+0.0 -37.1 +1.8	+0.0 +33.2 +0.4	+0.0 +0.5	+0.0	47.8	54.0 802.11n_Z	-6.2	Vert
^	4943.833M	43.1	+0.0 +0.0 +4.5	+0.0 -37.1 +1.8	+0.0 +33.2 +0.4	+0.0 +0.5	+0.0	46.4	54.0 802.11n_7_Y	-7.6	Vert
155	4824.200M Ave	31.4	+0.0 +0.0 +4.4	+0.0 -37.1 +1.8	+0.0 +33.0 +0.4	+0.0 +0.5	+0.0	34.4	54.0 802.11n_Z	-19.6	Horiz

^	4824.167M	50.9	+0.0	+0.0	+0.0	+0.0	+0.0	53.9	54.0	-0.1	Horiz
			+0.0	-37.1	+33.0	+0.5			802.11n_3_Y		
			+4.4	+1.8	+0.4						
^	4824.167M	45.0	+0.0	+0.0	+0.0	+0.0	+0.0	48.0	54.0	-6.0	Horiz
			+0.0	-37.1	+33.0	+0.5			802.11n_3_X		
			+4.4	+1.8	+0.4						
^	4824.200M	44.9	+0.0	+0.0	+0.0	+0.0	+0.0	47.9	54.0	-6.1	Horiz
			+0.0	-37.1	+33.0	+0.5			802.11n_Z		
			+4.4	+1.8	+0.4						
159	4824.033M	31.4	+0.0	+0.0	+0.0	+0.0	+0.0	34.4	54.0	-19.6	Horiz
	Ave		+0.0	-37.1	+33.0	+0.5			802.11n_7_X		
			+4.4	+1.8	+0.4						
^	4824.083M	57.3	+0.0	+0.0	+0.0	+0.0	+0.0	60.3	54.0	+6.3	Horiz
			+0.0	-37.1	+33.0	+0.5			802.11n_3_Z		
			+4.4	+1.8	+0.4						
^	4823.950M	55.3	+0.0	+0.0	+0.0	+0.0	+0.0	58.3	54.0	+4.3	Horiz
			+0.0	-37.1	+33.0	+0.5			802.11b_X		
			+4.4	+1.8	+0.4						
^	4824.000M	53.2	+0.0	+0.0	+0.0	+0.0	+0.0	56.2	54.0	+2.2	Horiz
			+0.0	-37.1	+33.0	+0.5			802.11b_Y		
			+4.4	+1.8	+0.4						
^	4824.041M	51.4	+0.0	+0.0	+0.0	+0.0	+0.0	54.4	54.0	+0.4	Horiz
			+0.0	-37.1	+33.0	+0.5			802.11b_Z		
			+4.4	+1.8	+0.4						
^	4824.033M	42.3	+0.0	+0.0	+0.0	+0.0	+0.0	45.3	54.0	-8.7	Horiz
			+0.0	-37.1	+33.0	+0.5			802.11n_7_X		
			+4.4	+1.8	+0.4						
165	4881.633M	30.6	+0.0	+0.0	+0.0	+0.0	+0.0	33.8	54.0	-20.2	Horiz
	Ave		+0.0	-37.1	+33.1	+0.5			802.11n_Z		
			+4.5	+1.8	+0.4						
^	4881.633M	43.4	+0.0	+0.0	+0.0	+0.0	+0.0	46.6	54.0	-7.4	Horiz
			+0.0	-37.1	+33.1	+0.5			802.11n_Z		
			+4.5	+1.8	+0.4						
167	4944.967M	30.5	+0.0	+0.0	+0.0	+0.0	+0.0	33.8	54.0	-20.2	Vert
	Ave		+0.0	-37.1	+33.2	+0.5			802.11n_7_X		
			+4.5	+1.8	+0.4						
^	4944.967M	42.9	+0.0	+0.0	+0.0	+0.0	+0.0	46.2	54.0	-7.8	Vert
			+0.0	-37.1	+33.2	+0.5			802.11n_7_X		
			+4.5	+1.8	+0.4						
169	318.516M	35.5	+0.0	+13.9	-27.8	+0.2	+0.0	25.0	46.0	-21.0	Horiz
			+3.2	+0.0	+0.0	+0.0					
			+0.0	+0.0	+0.0						
170	4823.600M	29.6	+0.0	+0.0	+0.0	+0.0	+0.0	32.6	54.0	-21.4	Horiz
	Ave		+0.0	-37.1	+33.0	+0.5			802.11n_7_Y		
			+4.4	+1.8	+0.4						
^	4823.600M	40.4	+0.0	+0.0	+0.0	+0.0	+0.0	43.4	54.0	-10.6	Horiz
			+0.0	-37.1	+33.0	+0.5			802.11n_7_Y		
			+4.4	+1.8	+0.4						
172	4883.600M	29.4	+0.0	+0.0	+0.0	+0.0	+0.0	32.6	54.0	-21.4	Horiz
	Ave		+0.0	-37.1	+33.1	+0.5			802.11n_7_Y		
			+4.5	+1.8	+0.4						

^	4883.583M	48.5	+0.0	+0.0	+0.0	+0.0	+0.0	51.7	54.0	-2.3	Horiz
			+0.0	-37.1	+33.1	+0.5			802.11n_3_Z		
			+4.5	+1.8	+0.4						
^	4883.600M	44.5	+0.0	+0.0	+0.0	+0.0	+0.0	47.7	54.0	-6.3	Horiz
			+0.0	-37.1	+33.1	+0.5			802.11n_7_Y		
			+4.5	+1.8	+0.4						
175	4824.167M	29.3	+0.0	+0.0	+0.0	+0.0	+0.0	32.3	54.0	-21.7	Vert
	Ave		+0.0	-37.1	+33.0	+0.5			802.11n_3_X		
			+4.4	+1.8	+0.4						
176	4882.700M	28.6	+0.0	+0.0	+0.0	+0.0	+0.0	31.8	54.0	-22.2	Vert
	Ave		+0.0	-37.1	+33.1	+0.5			802.11n_7_X		
			+4.5	+1.8	+0.4						
^	4882.700M	40.0	+0.0	+0.0	+0.0	+0.0	+0.0	43.2	54.0	-10.8	Vert
			+0.0	-37.1	+33.1	+0.5			802.11n_7_X		
			+4.5	+1.8	+0.4						
178	4824.133M	28.7	+0.0	+0.0	+0.0	+0.0	+0.0	31.7	54.0	-22.3	Vert
	Ave		+0.0	-37.1	+33.0	+0.5			802.11n_Z		
			+4.4	+1.8	+0.4						
^	4824.167M	51.4	+0.0	+0.0	+0.0	+0.0	+0.0	54.4	54.0	+0.4	Vert
			+0.0	-37.1	+33.0	+0.5			802.11b_Z		
			+4.4	+1.8	+0.4						
^	4824.167M	48.7	+0.0	+0.0	+0.0	+0.0	+0.0	51.7	54.0	-2.3	Vert
			+0.0	-37.1	+33.0	+0.5			802.11n_3_Y		
			+4.4	+1.8	+0.4						
^	4824.167M	42.3	+0.0	+0.0	+0.0	+0.0	+0.0	45.3	54.0	-8.7	Vert
			+0.0	-37.1	+33.0	+0.5			802.11n_3_X		
			+4.4	+1.8	+0.4						
^	4824.133M	41.5	+0.0	+0.0	+0.0	+0.0	+0.0	44.5	54.0	-9.5	Vert
			+0.0	-37.1	+33.0	+0.5			802.11n_Z		
			+4.4	+1.8	+0.4						
183	4883.600M	28.5	+0.0	+0.0	+0.0	+0.0	+0.0	31.7	54.0	-22.3	Vert
	Ave		+0.0	-37.1	+33.1	+0.5			802.11n_7_Y		
			+4.5	+1.8	+0.4						
^	4883.600M	41.0	+0.0	+0.0	+0.0	+0.0	+0.0	44.2	54.0	-9.8	Vert
			+0.0	-37.1	+33.1	+0.5			802.11n_7_Y		
			+4.5	+1.8	+0.4						
185	4826.176M	28.4	+0.0	+0.0	+0.0	+0.0	+0.0	31.4	54.0	-22.6	Vert
	Ave		+0.0	-37.1	+33.0	+0.5			802.11n_7_Y		
			+4.4	+1.8	+0.4						
^	4826.156M	46.6	+0.0	+0.0	+0.0	+0.0	+0.0	49.6	54.0	-4.4	Vert
			+0.0	-37.1	+33.0	+0.5			802.11g_X		
			+4.4	+1.8	+0.4						
^	4826.176M	40.2	+0.0	+0.0	+0.0	+0.0	+0.0	43.2	54.0	-10.8	Vert
			+0.0	-37.1	+33.0	+0.5			802.11n_7_Y		
			+4.4	+1.8	+0.4						

188	4824.033M Ave	28.1	+0.0 +0.0 +4.4	+0.0 -37.1 +1.8	+0.0 +33.0 +0.4	+0.0 +0.5	+0.0	31.1	54.0 802.11n_7_X	-22.9	Vert
^	4824.000M	52.9	+0.0 +0.0 +4.4	+0.0 -37.1 +1.8	+0.0 +33.0 +0.4	+0.0 +0.5	+0.0	55.9	54.0 802.11b_Y	+1.9	Vert
^	4823.950M	50.0	+0.0 +0.0 +4.4	+0.0 -37.1 +1.8	+0.0 +33.0 +0.4	+0.0 +0.5	+0.0	53.0	54.0 802.11b_X	-1.0	Vert
^	4824.033M	40.2	+0.0 +0.0 +4.4	+0.0 -37.1 +1.8	+0.0 +33.0 +0.4	+0.0 +0.5	+0.0	43.2	54.0 802.11n_7_X	-10.8	Vert

CKC Laboratories, Inc. Date: 2/20/2012 Time: 09:44:00 Silex Technology America, Inc. WO#: 92711
15.247(d) / 15.209 Radiated Spurious Emissions Test Distance: 3 Meters Sequence#: 2 Ext ATTN: 0 dB



Test Setup Photos

X AXIS

Y AXIS

Z AXIS

15.247(e) Power Spectral Density

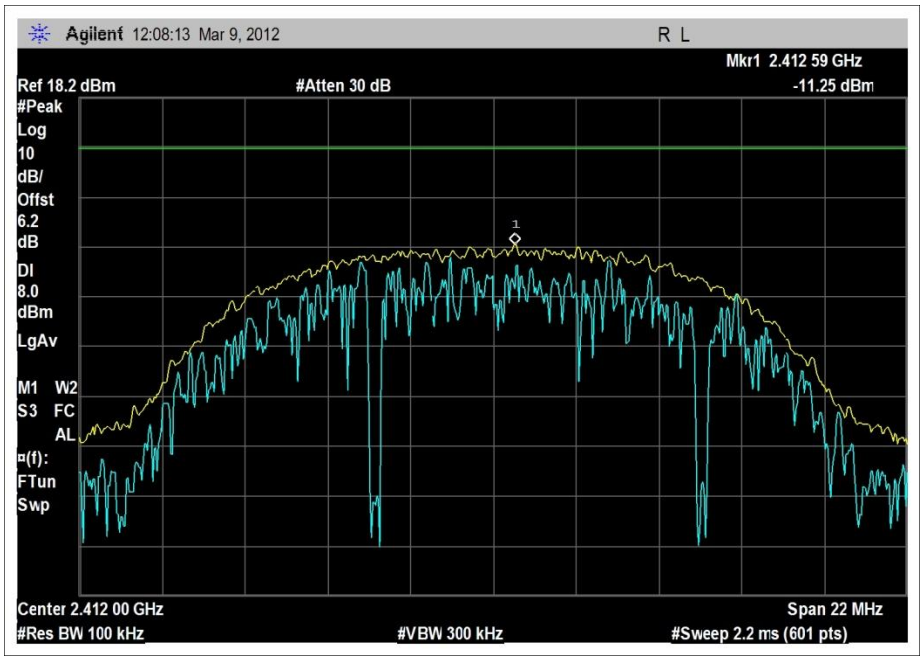
Test Conditions / Setup

The EUT is placed on the wooden table lined with Styrofoam of 10 cm thickness. The EUT seeking modular approval is placed on an extender card installed on a support development PCB. One out of five Ethernet port and serial port of the development card is connected to remotely located support Ethernet hub and laptops. The EUT is transmitting at rated power and exercising all the intended functionalities. RF characteristic measured at the antenna port.
Antenna gain = 0 dBi
802.11n without antenna diversity.
802.11 b/g/n
Freq: 2400-2483.5MHz
802.11b: 11.0 mbps short CCK .
Freq:2412MHz, 2442MHz, 2472MHz, Firmware power setting= 14.5dBm, 14.5dBm, 12.5dBm
802.11g: 54.0 mbps. OFDM
Freq:2412MHz, 2442MHz, 2472MHz, Firmware power setting= 13.5dBm, 13.5dBm, 13.5dBm
802.11n: 28.9 mbps.MCS3
Freq:2412MHz, 2442MHz, 2472MHz, Firmware power setting= 13.5dBm , 13.5dBm, 9.5dBm
802.11n: 72.2 mbps.MCS7
Freq:2412MHz, 2442MHz, 2472MHz, Firmware power setting= 9.5dBm, 9.5dBm, 9.5dBm
Test method in accordance with FCC document: 558074 D01 DTS Meas Guidance V01
Sec 5.3.1, measurement procedure PKPSD
Frequency range of measurement = Fundamental
Test environment conditions: 21.1°C, 36% relative humidity, 100kPa
15.31(e) compliance: the supply voltage was varied between 85% and 115% of the nominal rated supply voltage, no change in the Fundamental signal level was observed.

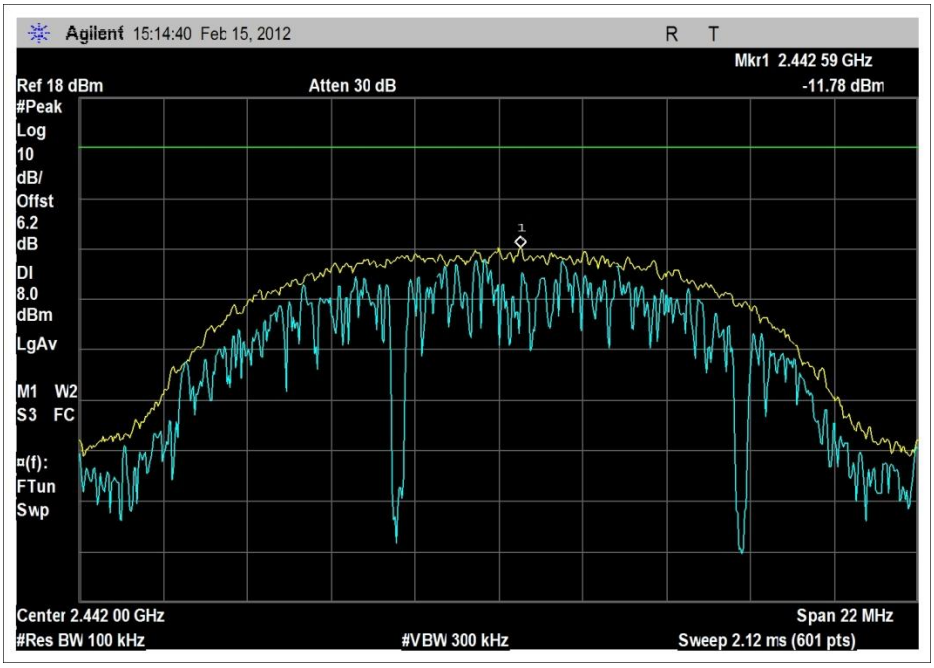
Engineer Name: E. Wong

Test Equipment					
Asset/Serial #	**Description**	**Model**	**Manufacturer**	**Cal Date**	**Cal Due**
AN02672	Spectrum Analyzer	E4446A	Agilent	8/9/2010	8/9/2012
ANP06153	Cable	16301	AstroLab	10/27/2011	10/27/2013

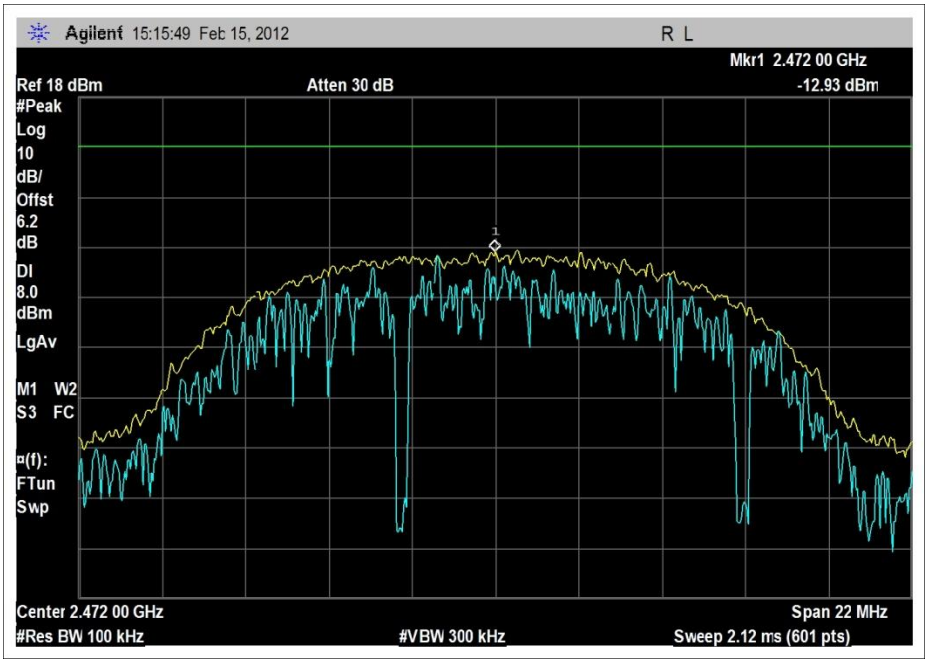
Test Data



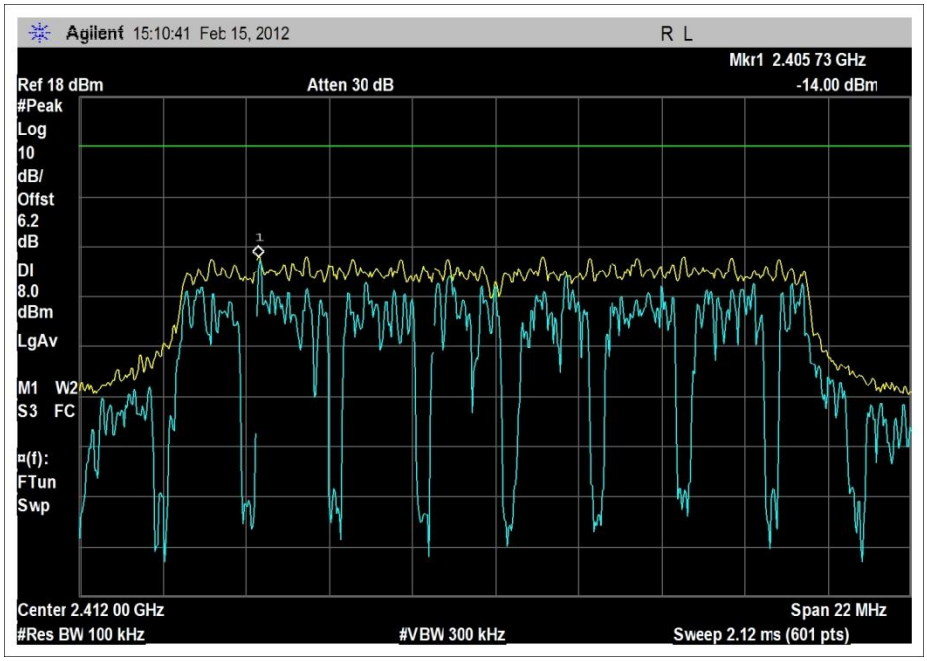
Peak PSD 802.11b 2412MHz



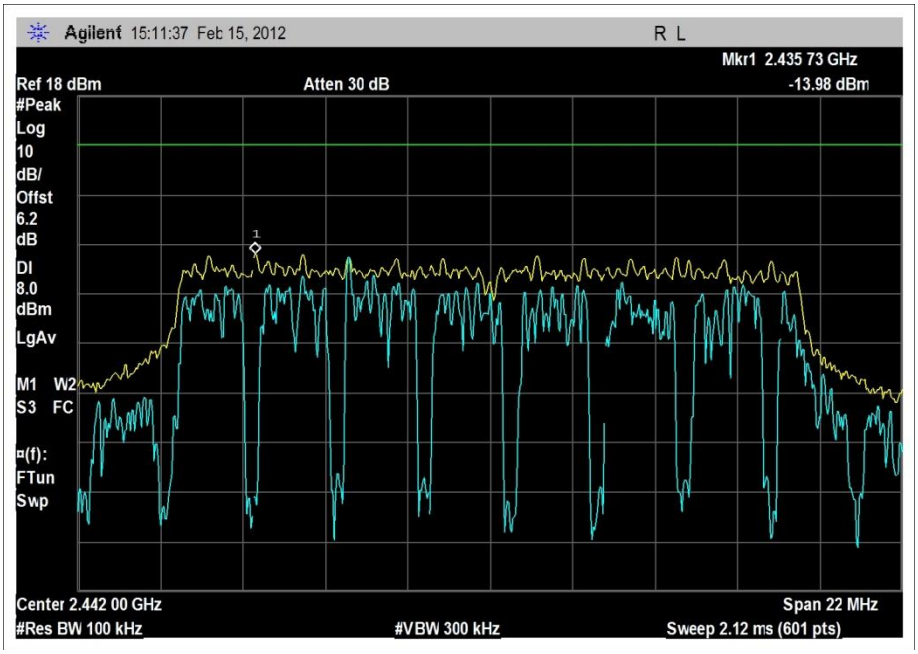
Peak PSD 802.11b 2442MHz



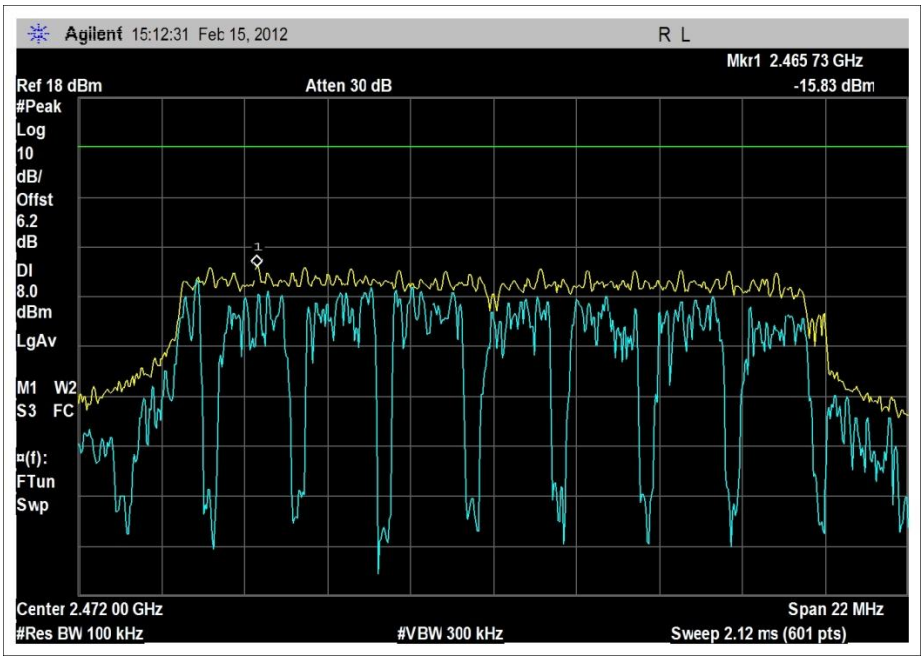
Peak PSD 802.11b 2472MHz



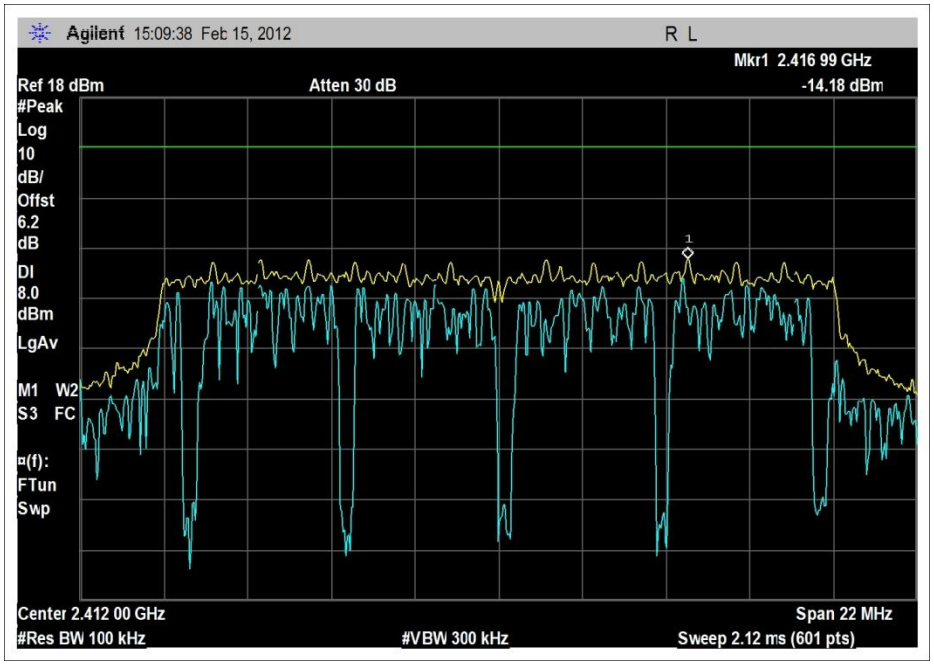
Peak PSD 802.11g 2412MHz



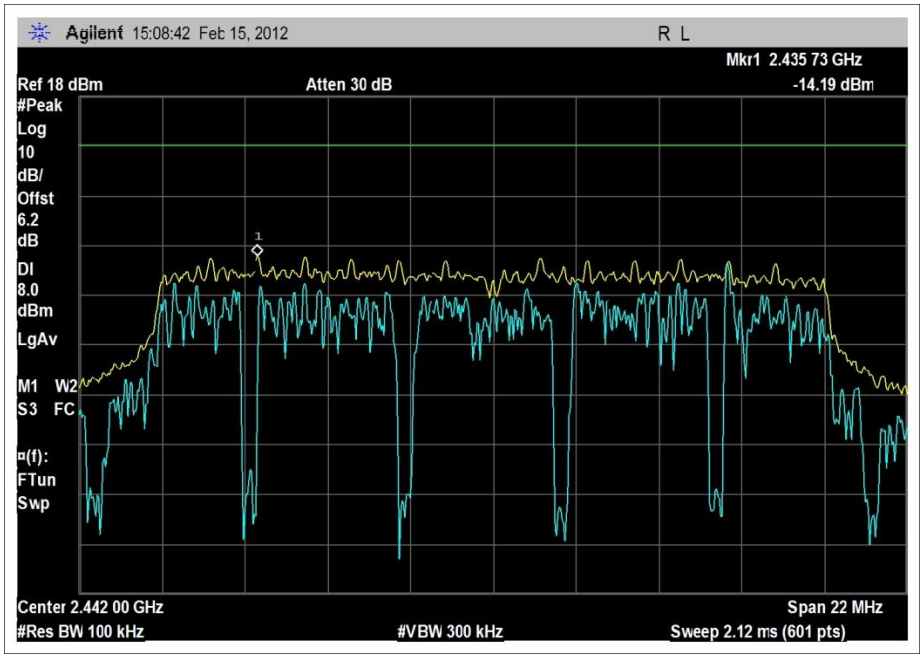
Peak PSD 802.11g 2442MHz



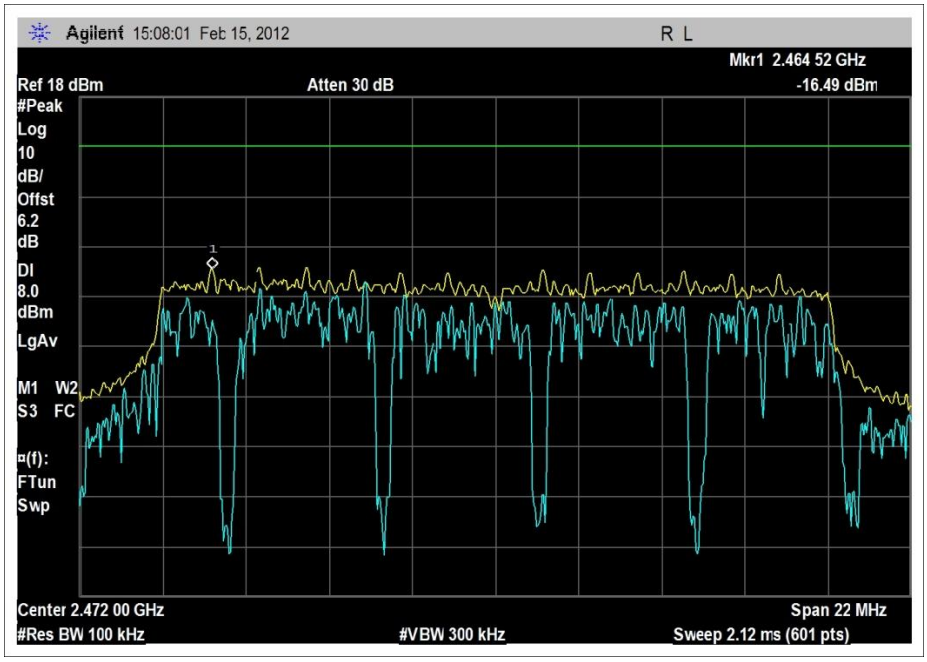
Peak PSD 802.11g 2472MHz



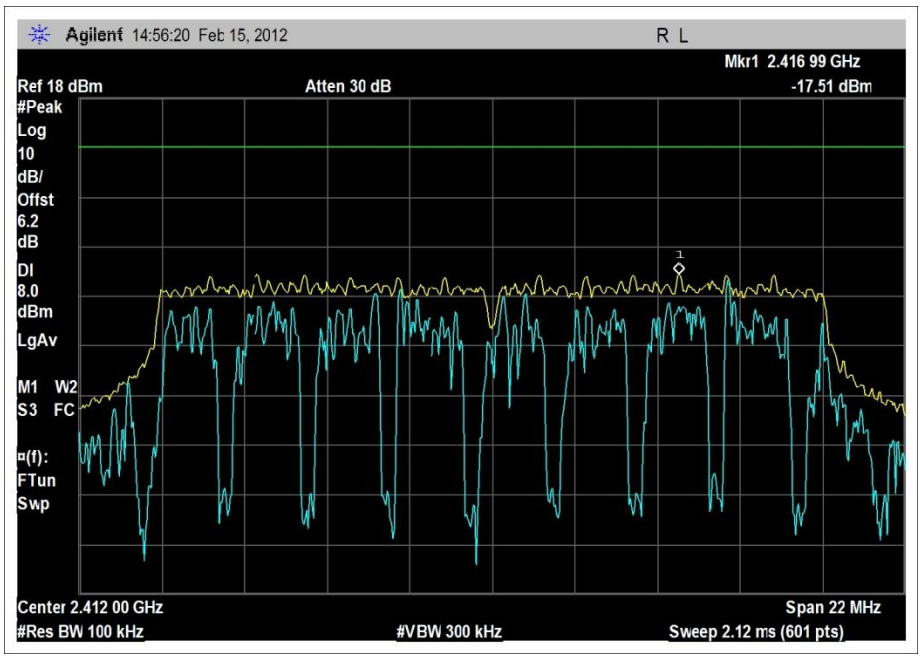
Peak PSD 802.11n MCS03 2412MHz



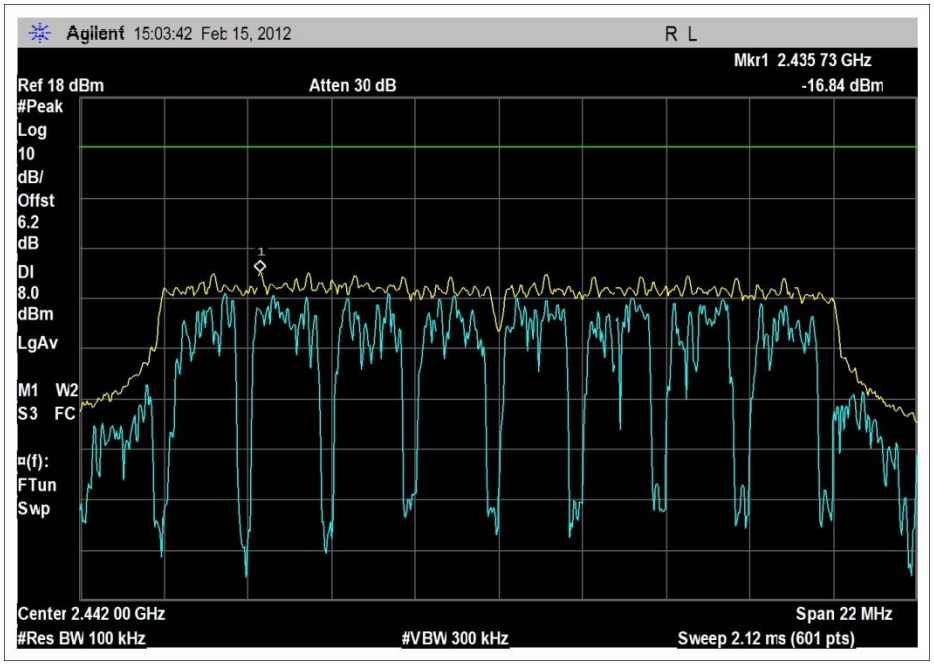
Peak PSD 802.11n MCS03 2442MHz



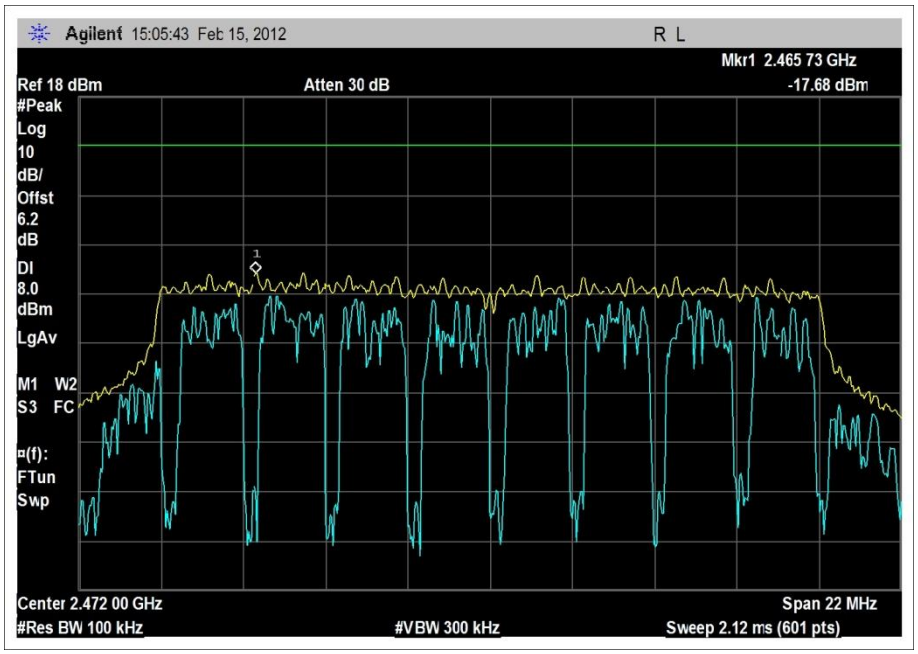
Peak PSD 802.11n MCS03 2472MHz



Peak PSD 802.11n MCS07 2412MHz



Peak PSD 802.11n MCS07 2442MHz



Peak PSD 802.11n MCS07 2472MHz

Test Setup Photos

RSS-210

99 % Bandwidth

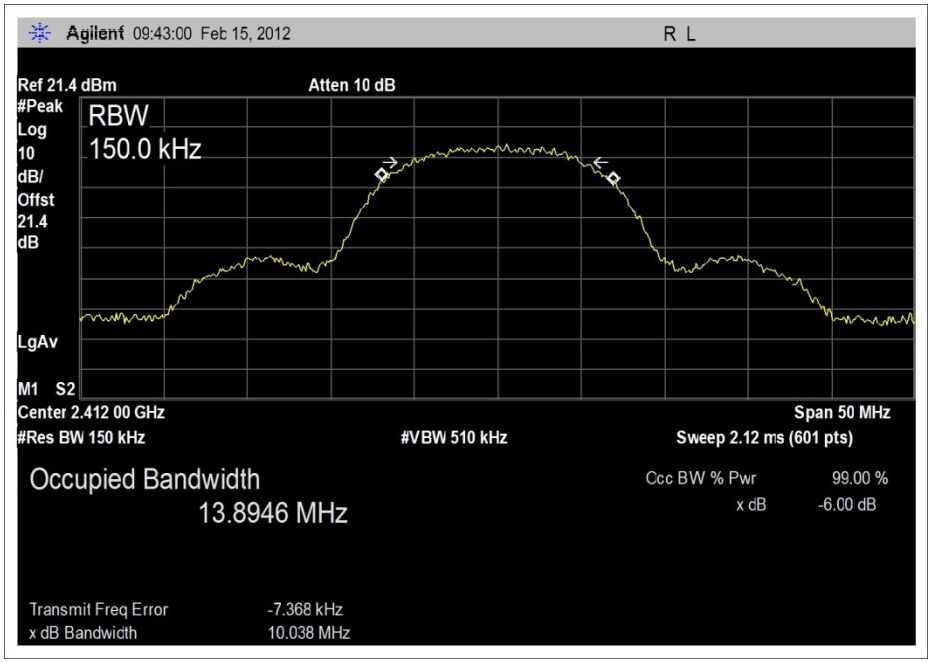
Test Conditions / Setup

The EUT is placed on the wooden table lined with Styrofoam of 10 cm thickness. The EUT seeking modular approval is placed on an extender card installed on a support development PCB. One out of five Ethernet port and serial port of the development card is connected to remotely located support Ethernet hub and laptops. The EUT is transmitting at rated power and exercising all the intended functionalities. RF characteristic measured at the antenna port.
Antenna gain = 0 dBi
802.11n without antenna diversity.
802.11 b/g/n
Freq: 2400-2483.5MHz
802.11b: 11.0 mbps short CCK.
Freq: 2412MHz, 2442MHz, 2472MHz, Firmware power setting= 14.5dBm, 14.5dBm, 12.5dBm
802.11g: 54.0 mbps. OFDM
Freq: 2412MHz, 2442MHz, 2472MHz, Firmware power setting= 13.5dBm, 13.5dBm, 13.5dBm
802.11n: 28.9 mbps.MCS3
Freq: 2412MHz, 2442MHz, 2472MHz, Firmware power setting= 13.5dBm , 13.5dBm, 9.5dBm
802.11n: 72.2 mbps.MCS7
Freq: 2412MHz, 2442MHz, 2472MHz, Firmware power setting= 9.5dBm, 9.5dBm, 9.5dBm
Test method in accordance with FCC document: 558074 D01 DTS Meas Guidance V01
Sec 5.1.1, EBW measurement procedure
Frequency range of measurement = Fundamental
Test environment conditions: 21.1°C, 36% relative humidity, 100kPa
15.31(e) compliance: the supply voltage was varied between 85% and 115% of the nominal rated supply voltage, no change in the Fundamental signal level was observed.

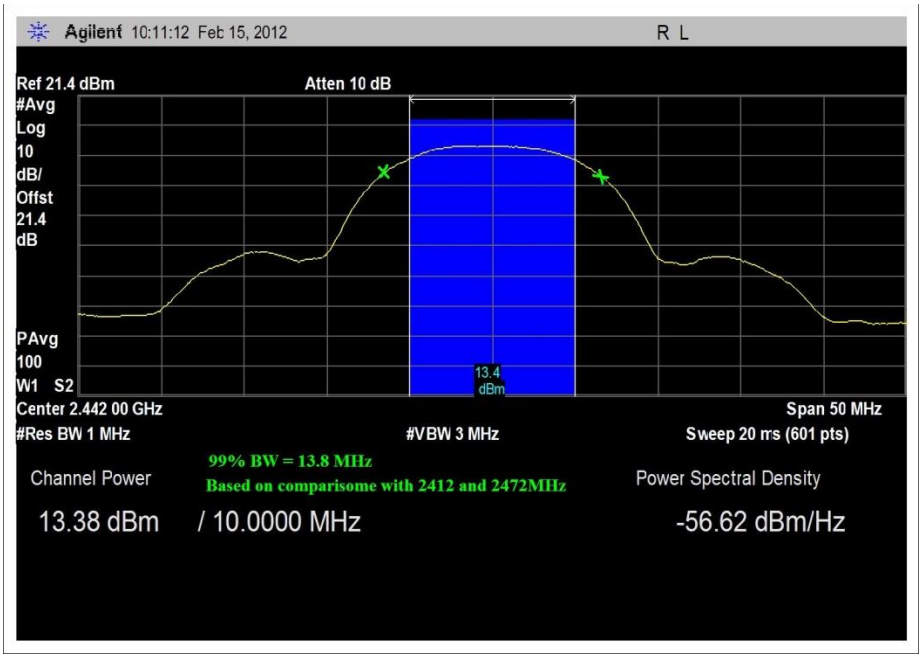
Engineer Name: E. Wong

Test Equipment					
Asset/Serial #	**Description**	**Model**	**Manufacturer**	**Cal Date**	**Cal Due**
AN02672	Spectrum Analyzer	E4446A	Agilent	8/9/2010	8/9/2012
ANP06153	Cable	16301	AstroLab	10/27/2011	10/27/2013

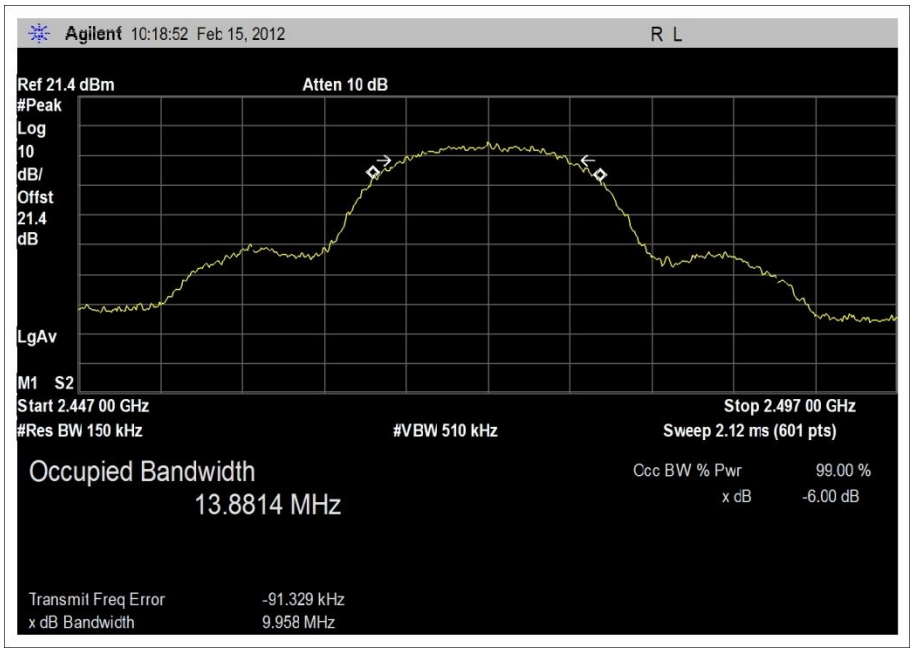
Test Plots



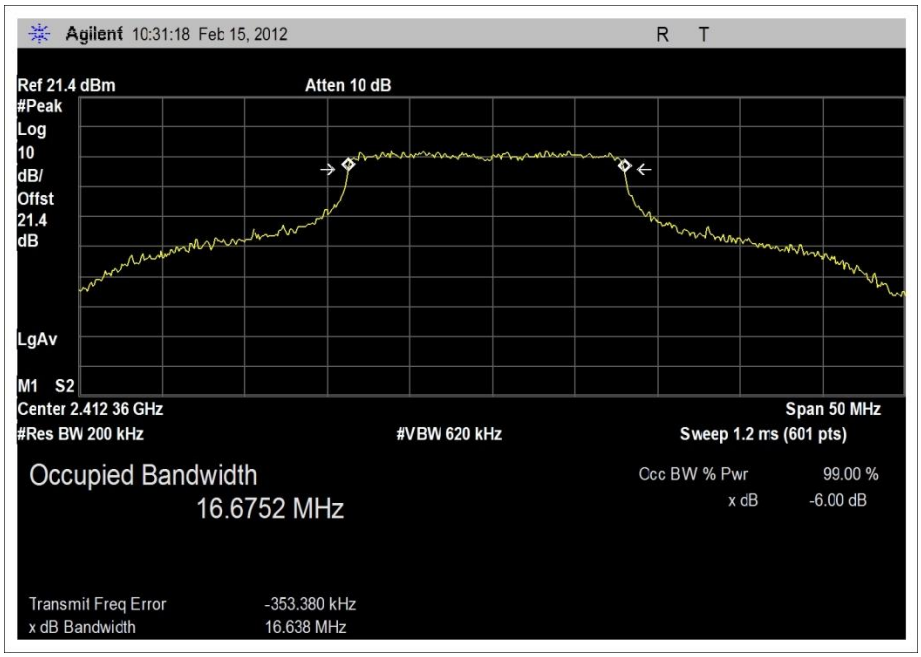
99% BW 802.11b 2412MHz



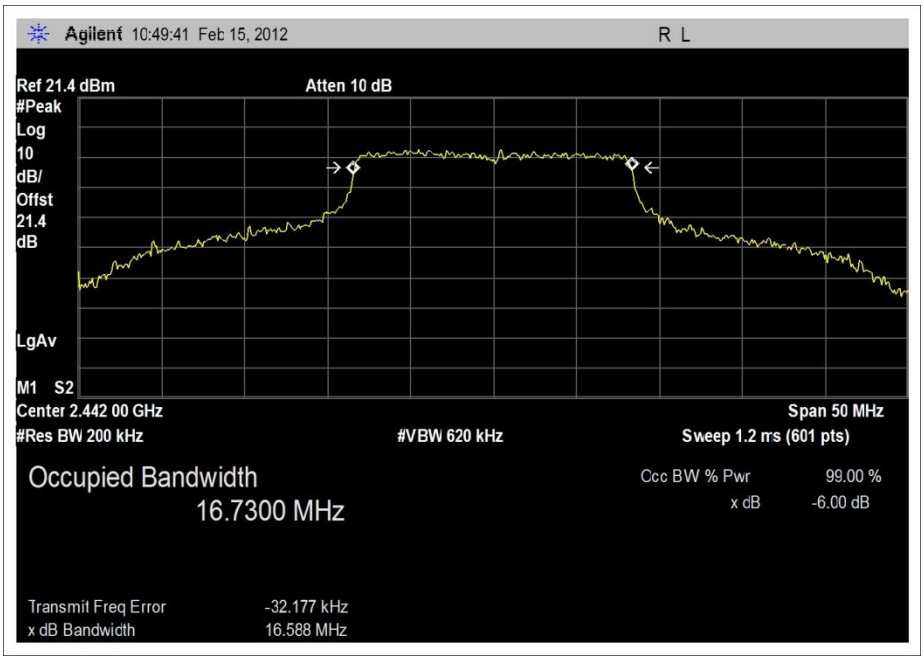
99% BW 802.11b 2442MHz



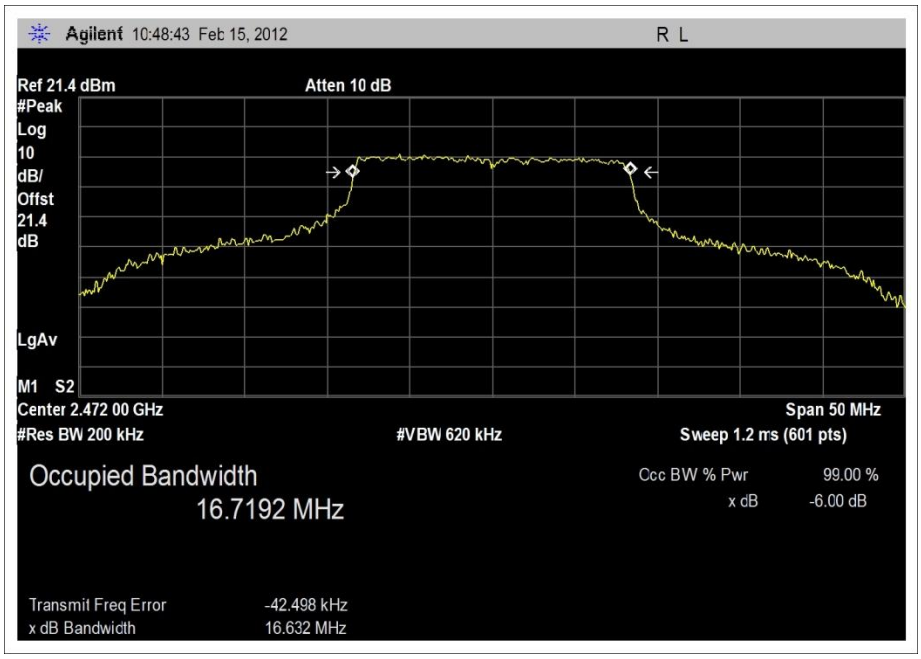
99% BW 802.11b 2472MHz



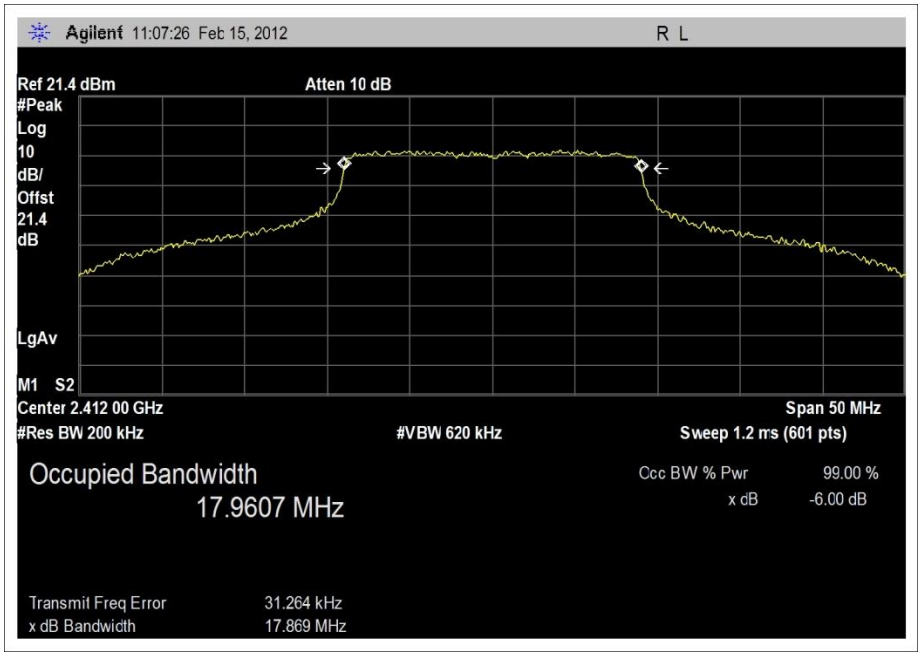
99% BW 802.11g 2412MHz



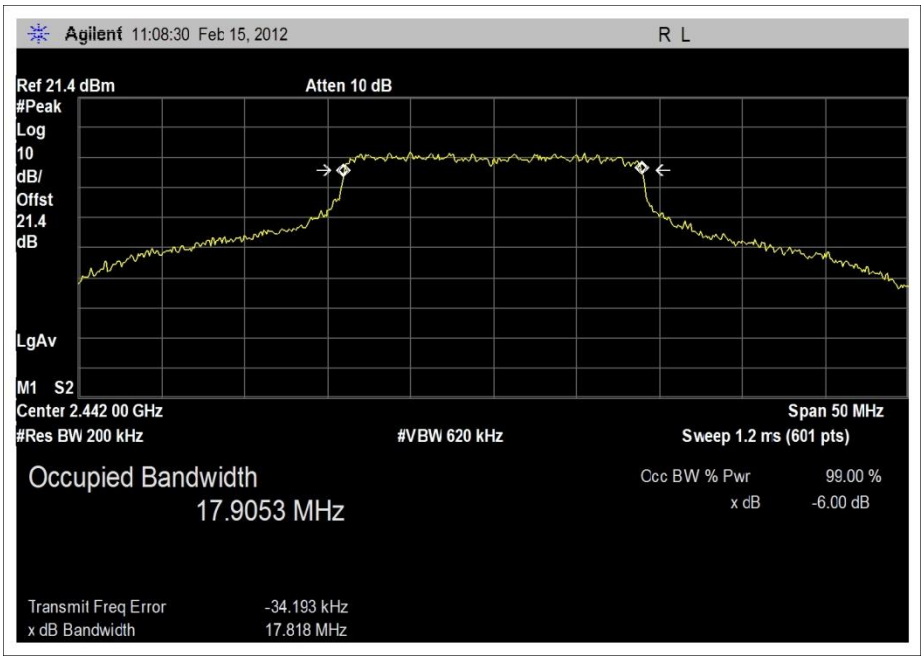
99% BW 802.11g 2442MHz



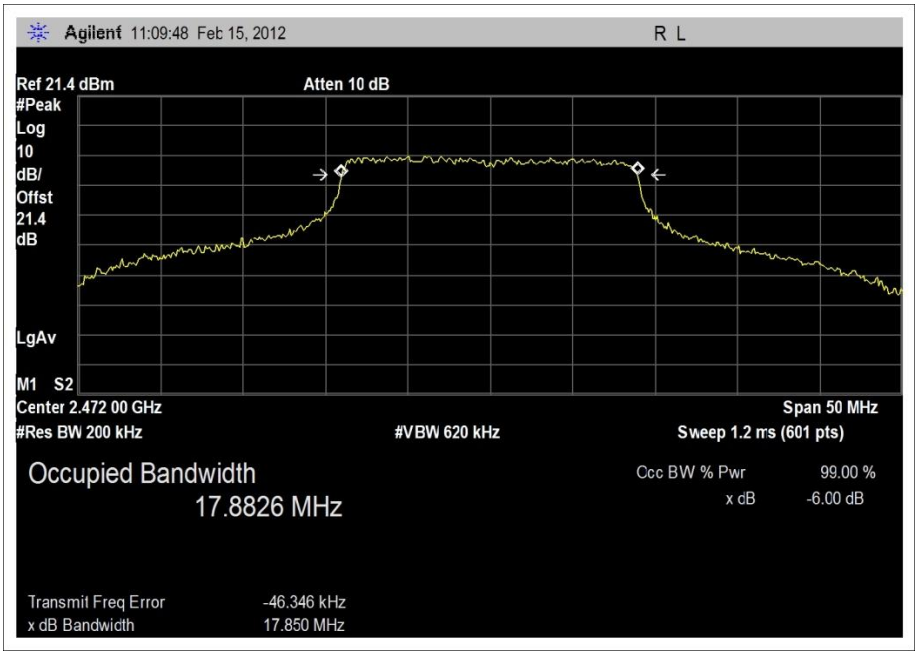
99% BW 802.11g 2472MHz



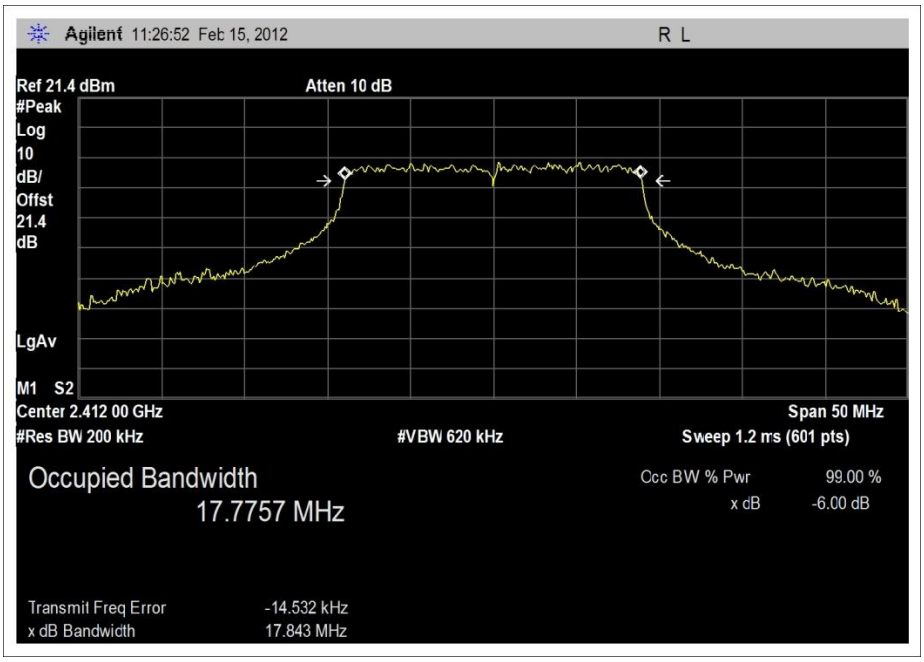
99% BW 802.11n MCS03 2412MHz



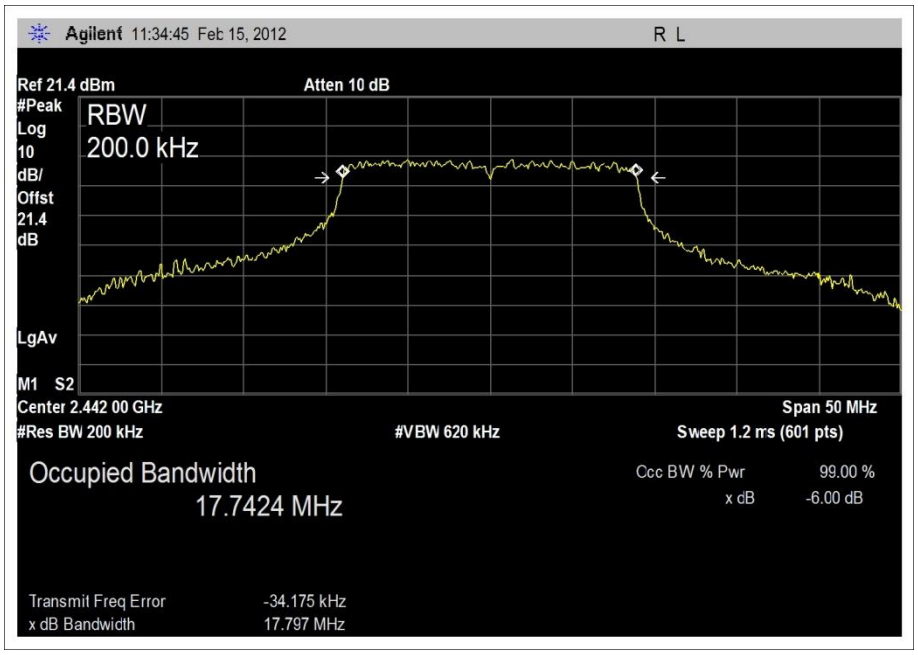
99% BW 802.11n MCS03 2442MHz



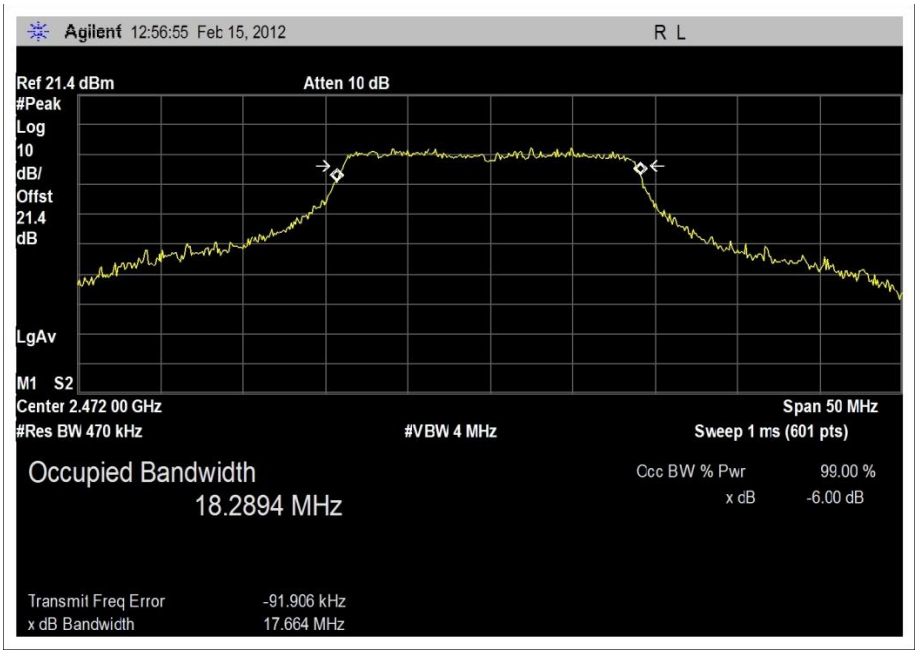
99% BW 802.11n MCS03 2472MHz



99% BW 802.11n MCS07 2412MHz



99% BW 802.11n MCS07 2442MHz



99% BW 802.11n MCS07 2472MHz

Test Setup Photos

SUPPLEMENTAL INFORMATION

Measurement Uncertainty

Uncertainty Value	Parameter
4.73 dB	Radiated Emissions
3.34 dB	Mains Conducted Emissions
3.30 dB	Disturbance Power

The reported measurement uncertainties are calculated based on the worst case of all laboratory environments from CKC Laboratories, Inc. test sites. Only those parameters which require estimation of measurement uncertainty are reported. The reported worst case measurement uncertainty is less than the maximum values derived in CISPR 16-4-2. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k=2. Compliance is deemed to occur provided measurements are below the specified limits.

Emissions Test Details

TESTING PARAMETERS

Unless otherwise indicated, the following configuration parameters are used for equipment setup: The cables were routed consistent with the typical application by varying the configuration of the test sample. Interface cables were connected to the available ports of the test unit. The effect of varying the position of the cables was investigated to find the configuration that produced maximum emissions. Cables were of the type and length specified in the individual requirements. The length of cable that produced maximum emissions was selected.

The equipment under test (EUT) was set up in a manner that represented its normal use, as shown in the setup photographs. Any special conditions required for the EUT to operate normally are identified in the comments that accompany the emissions tables.

The emissions data was taken with a spectrum analyzer or receiver. Incorporating the applicable correction factors for distance, antenna, cable loss and amplifier gain, the data was reduced as shown in the table below. The corrected data was then compared to the applicable emission limits. Preliminary and final measurements were taken in order to ensure that all emissions from the EUT were found and maximized.

CORRECTION FACTORS

The basic spectrum analyzer reading was converted using correction factors as shown in the highest emissions readings in the tables. For radiated emissions in dBµV/m, the spectrum analyzer reading in dBµV was corrected by using the following formula. This reading was then compared to the applicable specification limit.

SAMPLE CALCULATIONS		
	Meter reading	(dBµV)
+	Antenna Factor	(dB)
+	Cable Loss	(dB)
-	Distance Correction	(dB)
-	Preamplifier Gain	(dB)
=	Corrected Reading	(dBµV/m)

TEST INSTRUMENTATION AND ANALYZER SETTINGS

The test instrumentation and equipment listed were used to collect the emissions data. A spectrum analyzer or receiver was used for all measurements. Unless otherwise specified, the following table shows the measuring equipment bandwidth settings that were used in designated frequency bands. For testing emissions, an appropriate reference level and a vertical scale size of 10 dB per division were used.

MEASURING EQUIPMENT BANDWIDTH SETTINGS PER FREQUENCY RANGE			
TEST	BEGINNING FREQUENCY	ENDING FREQUENCY	BANDWIDTH SETTING
CONDUCTED EMISSIONS	150 kHz	30 MHz	9 kHz
RADIATED EMISSIONS	30 MHz	1000 MHz	120 kHz
RADIATED EMISSIONS	1000 MHz	>1 GHz	1 MHz

SPECTRUM ANALYZER/RECEIVER DETECTOR FUNCTIONS

The notes that accompany the measurements contained in the emissions tables indicate the type of detector function used to obtain the given readings. Unless otherwise noted, all readings were made in the "positive peak" detector mode. Whenever a "quasi-peak" or "average" reading was recorded, the measurement was annotated with a "QP" or an "Ave" on the appropriate rows of the data sheets. In cases where quasi-peak or average limits were employed and data exists for multiple measurement types for the same frequency then the peak measurement was retained in the report for reference, however the numbering for the affected row was removed and an arrow or carrot ("^") was placed in the far left-hand column indicating that the row above takes precedence for comparison to the limit. The following paragraphs describe in more detail the detector functions and when they were used to obtain the emissions data.

Peak

In this mode, the spectrum analyzer or receiver recorded all emissions at their peak value as the frequency band selected was scanned. By combining this function with another feature called "peak hold," the measurement device had the ability to measure intermittent or low duty cycle transient emission peak levels. In this mode the measuring device made a slow scan across the frequency band selected and measured the peak emission value found at each frequency across the band.

Quasi-Peak

Quasi-peak measurements were taken using the quasi-peak detector when the true peak values exceeded or were within 2 dB of a quasi-peak specification limit. Additional QP measurements may have been taken at the discretion of the operator.

Average

Average measurements were taken using the average detector when the true peak values exceeded or were within 2 dB of an average specification limit. Additional average measurements may have been taken at the discretion of the operator. If the specification or test procedure requires trace averaging, then the averaging was performed using 100 samples or as required by the specification. All other average measurements are performed using video bandwidth averaging. To make these measurements, the test engineer reduces the video bandwidth on the measuring device until the modulation of the signal is filtered out. At this point the measuring device is set into the linear mode and the scan time is reduced.