



Test Report (Class II Permissive Change)

Product Name	Intel® Centrino® Wireless-N 100
Model No	100BNHMW
FCC ID.	PD9100BNH

Applicant	Intel Corporation
Address	100 Center Point Circle Suite 200 Columbia, SC 29210

Date of Receipt	Dec. 22, 2011
Issue Date	Jan. 17, 2012
Report No.	11C430R-RFUSP42V01
Report Version	V1.0



The test results relate only to the samples tested.

The test report shall not be reproduced except in full without the written approval of Quietek Corporation.

This report must not be used to claim product endorsement by NVLAP any agency of the U.S. Government

Test Report Certification

Issue Date: Jan. 17, 2012

Report No.: 11C430R-RFUSP42V01


Accredited by NIST (NVLAP)

NVLAP Lab Code: 200533-0

Product Name	Intel® Centrino® Wireless-N 100
Applicant	Intel Corporation
Address	100 Center Point Circle Suite 200 Columbia, SC 29210
Manufacturer	Intel Corporation
Model No.	100BNHMW
FCC ID.	PD9100BNH
EUT Rated Voltage	DC 3.3V (via Mini-PCI Express slot)
EUT Test Voltage	AC 120V/60Hz
Trade Name	Intel
Applicable Standard	FCC CFR Title 47 Part 15 Subpart C: 2010 ANSI C63.4: 2003
Test Result	Complied

The test results relate only to the samples tested.

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(Engineer / Jack Hsu)

Approved By : Vincent Lin
(Manager / Vincent Lin)

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1. GENERAL INFORMATION

1.1. EUT Description

Product Name	Intel® Centrino® Wireless-N 100
Trade Name	Intel
Model No.	100BNHMW
FCC ID.	PD9100BNH
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 135Mbps
Type of Modulation	802.11b:DSSS (DBPSK, DQPSK, CCK) 802.11g/n:OFDM (BPSK, QPSK, 16QAM, 64QAM)
Antenna Type	Dipole
Antenna Gain	Refer to the table "Antenna List"
Channel Control	Auto

Antenna List

No.	Manufacturer	Part No.	Peak Gain
1	TYCO + Amphenol + Hirose	TYCO Antenna: 1556292-1 Amphenol Connector: 901-10097 Hirose Cable: U.FL-2LP-04N1-A-(100)	2.88 dBi for 2.4 GHz
2	Air802 + Amphenol + Hirose	Air 802 Antenna: ANRD245X05-RTP Amphenol Connector: 901-10097 Hirose Cable: U.FL-2LP-04N1-A-(100)	-1.65 dBi for 2.4 GHz

Note:

1. The antenna of EUT is conform to FCC 15.203.
2. Only the higher gain antenna was tested and recorded in this report.

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

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

802.11n-40MHz Center Frequency of Each Channel:

Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
Channel 03:	2422 MHz	Channel 04:	2427 MHz	Channel 05:	2432 MHz	Channel 06:	2437 MHz
Channel 07:	2442 MHz	Channel 08:	2447 MHz	Channel 09:	2452 MHz		

Note:

1. The EUT is an Intel® Centrino® Wireless-N 100 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. 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 6.5Mbps and 、 802.11n(40M-BW) is 13.5Mbps)
4. These tests are conducted on a sample for the purpose of demonstrating compliance of 802.11b/g/n transmitter with Part 15 Subpart C Paragraph 15.247 of spread spectrum devices.
5. This is to request a Class II permissive change for **FCC ID: PD9100BNH**, originally granted on **10/14/2010**.

The major change filed under this application is:

Change #1: Addition new antenna

Antenna type: Dipole antenna

Test Mode:	Mode 1: Transmit (802.11b 1Mbps)
	Mode 2: Transmit (802.11g 6Mbps)
	Mode 3: Transmit (802.11n MCS0 6.5Mbps 20M-BW)
	Mode 4: Transmit (802.11n MCS0 13.5Mbps 40M-BW)

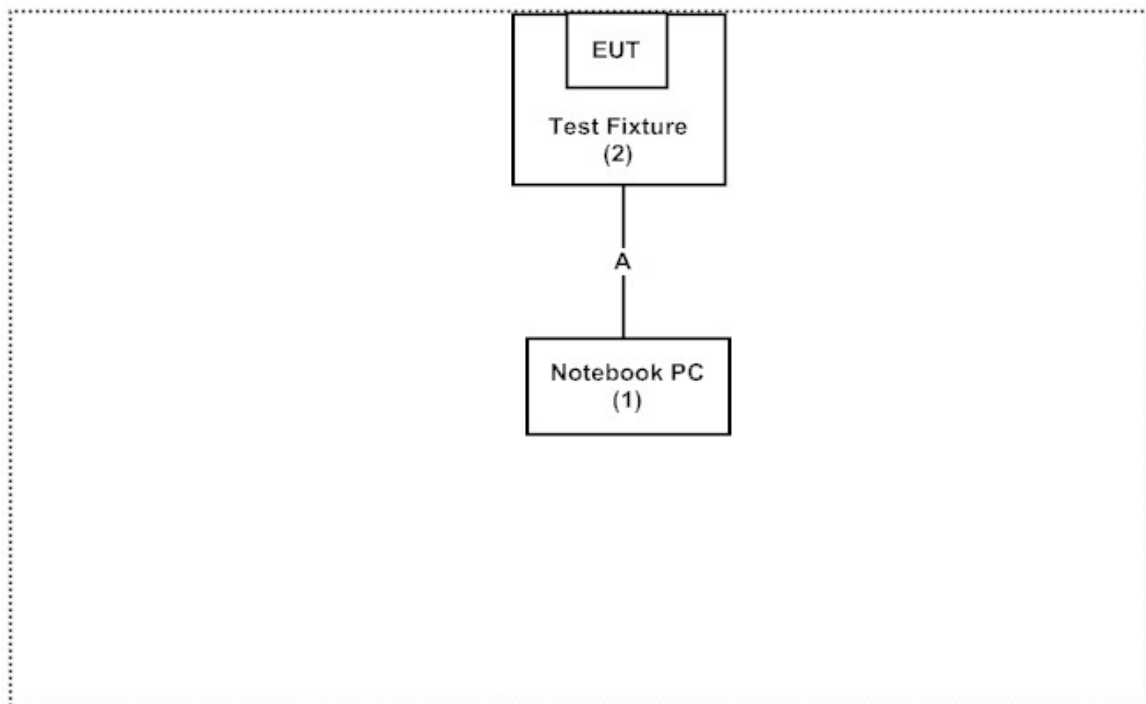
1.3. Tested System Details

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	N/A	N/A	Non-Shielded, 1.8m
2 Test Fixture	Intel	N/A	N/A	N/A

Signal Cable Type	Signal cable Description
A Test Fixture Line	Non-Shielded, 0.15m

1.4. Configuration of Tested System



1.5. EUT Exercise Software

- (1) Setup the EUT as shown in Section 1.4
- (2) Execute “DRTU v1.5.3-0320” program on the Notebook.
- (3) Configure the test mode, the test channel, and the data rate.
- (4) Press “OK” to start the continuous Transmit.
- (5) Verify that the EUT works properly.

1.6. Test Facility

Ambient conditions in the laboratory:

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

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

Quietek Corporation's Web Site: <http://www.quietek.com/tw/ctg/cts/accreditations.htm>

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

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

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

Accreditation on NVLAP
 NVLAP Lab Code: 200533-0

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. Peak Power Output

2.1. Test Equipment

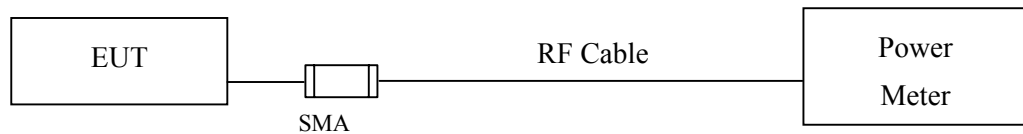
	Equipment	Manufacturer	Model No./Serial No.	Last Cal.
X	Power Meter	Anritsu	ML2495A/6K00003357	May, 2011
X	Power Sensor	Anritsu	MA2411B/0738448	Jun, 2011

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.

2.2. Test Setup

Conducted Measurement



2.3. Limits

The maximum peak power shall be less 1 Watt.

2.4. Test Procedure

The EUT was tested according to DTS test procedure of Jan. 2012 KDB558074 for compliance to FCC 47CFR 15.247 requirements.

2.5. Uncertainty

± 1.27 dB

2.6. Test Result of Peak Power Output

Product : Intel® Centrino® Wireless-N 100
 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)	Measurement		Required Limit	Result
		(Average)	(Peak)		
01	2412	16.25	19.26	1Watt= 30 dBm	Pass
06	2437	16.37	19.3	1Watt= 30 dBm	Pass
11	2462	16.23	19.19	1Watt= 30 dBm	Pass

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

Product : Intel® Centrino® Wireless-N 100
 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)	Measurement		Required Limit	Result
		(Average)	(Peak)		
01	2412	11.28	20.21	1Watt= 30 dBm	Pass
06	2437	15.28	22.70	1Watt= 30 dBm	Pass
11	2462	9.49	19.23	1Watt= 30 dBm	Pass

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

Product : Intel® Centrino® Wireless-N 100
 Test Item : Peak Power Output Data
 Test Site : No.3 OATS
 Test Mode : Mode 3: Transmit (802.11n MCS0 6.5Mbps 20M-BW)

CHAIN A

Channel No.	Frequency (MHz)	Measurement		Required Limit	Result
		(Average)	(Peak)		
01	2412	10.90	19.63	1Watt= 30 dBm	Pass
06	2437	15.21	22.62	1Watt= 30 dBm	Pass
11	2462	10.12	20.01	1Watt= 30 dBm	Pass

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

Product : Intel® Centrino® Wireless-N 100
Test Item : Peak Power Output Data
Test Site : No.3 OATS
Test Mode : Mode 4: Transmit (802.11n MCS0 13.5Mbps 40M-BW)

CHAIN A

Channel No.	Frequency (MHz)	Measurement		Required Limit	Result
		(Average)	(Peak)		
03	2422	10.02	18.92	1Watt= 30 dBm	Pass
06	2437	11.98	20.54	1Watt= 30 dBm	Pass
09	2452	9.03	18.94	1Watt= 30 dBm	Pass

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

3. Radiated Emission

3.1. Test Equipment

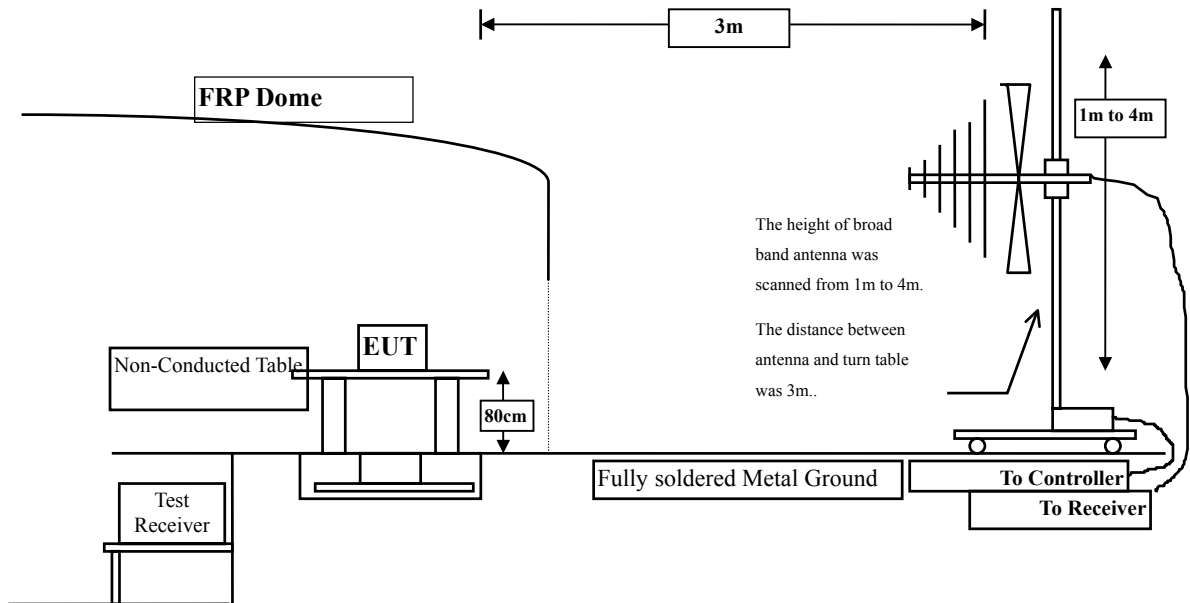
The following test equipment are used during the radiated emission test:

Test Site		Equipment	Manufacturer	Model No./Serial No.	Last Cal.
☒ Site # 3	X	Bilog Antenna	Schaffner Chase	CBL6112B/2673	Sep., 2011
	X	Horn Antenna	Schwarzbeck	BBHA9120D/D305	Sep., 2011
	X	Horn Antenna	Schwarzbeck	BBHA9170/208	Jul., 2011
	X	Pre-Amplifier	Agilent	8447D/2944A09549	Sep., 2011
	X	Spectrum Analyzer	Agilent	E4407B / US39440758	May, 2011
	X	Test Receiver	R & S	ESCS 30/ 825442/018	Sep., 2011
	X	Coaxial Cable	Quietek	QTK-CABLE/ CAB5	Feb., 2011
	X	Controller	Quietek	QTK-CONTROLLER/ CTRL3	N/A
	X	Coaxial Switch	Anritsu	MP59B/6200265729	N/A

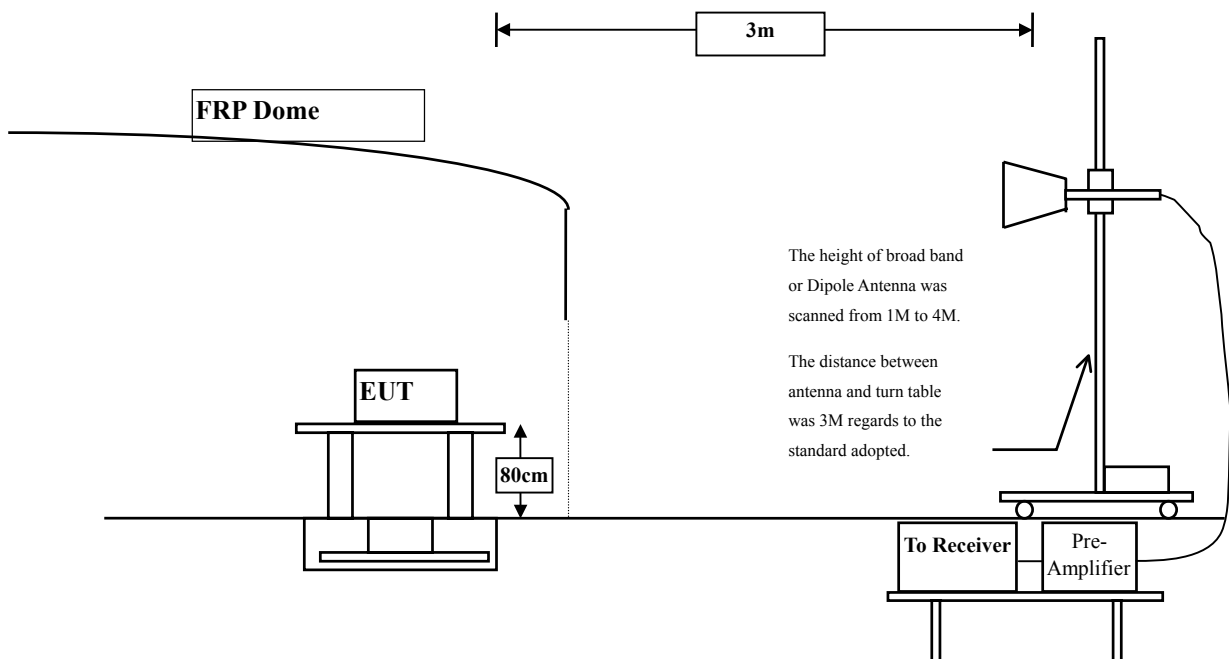
- Note:
1. All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.
 2. The test instruments marked with “X” are used to measure the final test results.

3.2. Test Setup

Radiated Emission Below 1GHz



Radiated Emission Above 1GHz



3.3. 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	uV/m @3m	dBuV/m@3m
30-88	100	40
88-216	150	43.5
216-960	200	46
Above 960	500	54

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

3.4. Test Procedure

The EUT was setup according to ANSI C63.4, 2003 and tested according to DTS test procedure of Jan. 2012 KDB558074 for compliance to FCC 47CFR 15.247 requirements.

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

The antenna is scanned between 1 meter and 4 meters to find out the maximum emission level. This is repeated for both horizontal and vertical polarization of the antenna. In order to find the maximum emission, all of the interface cables were manipulated according to ANSI C63.4:2003 on radiated measurement.

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

Radiated emission measurements below 1GHz are made using broadband Bilog antenna and above 1GHz are made using Horn Antennas.

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

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

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

The frequency range from 30MHz to 10th harmonics is checked.

3.5. Uncertainty

± 3.9 dB above 1GHz

± 3.8 dB below 1GHz

3.6. Test Result of Radiated Emission

Product : Intel® Centrino® Wireless-N 100
 Test Item : Harmonic Radiated Emission Data
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmit (802.11b 1Mbps) (2412MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
Horizontal					
Peak Detector:					
4824.000	3.261	37.620	40.881	-33.119	74.000
7236.000	10.650	36.020	46.670	-27.330	74.000
9648.000	13.337	36.050	49.386	-24.614	74.000
Average Detector:					
--					
Vertical					
Peak Detector:					
4824.000	6.421	39.090	45.511	-28.489	74.000
7236.000	11.495	36.670	48.165	-25.835	74.000
9648.000	13.807	36.200	50.006	-23.994	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 : Intel® Centrino® Wireless-N 100
 Test Item : Harmonic Radiated Emission Data
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmit (802.11b 1Mbps) (2437 MHz)

Frequency MHz	Correct Factor dB	Reading Level dBUV	Measurement Level dBUV/m	Margin dB	Limit dBUV/m
Horizontal					
Peak Detector:					
4874.000	3.038	37.210	40.247	-33.753	74.000
7311.000	11.795	35.730	47.524	-26.476	74.000
9748.000	12.635	37.060	49.695	-24.305	74.000
Average Detector:					
--					
Vertical					
Peak Detector:					
4874.000	5.812	39.710	45.521	-28.479	74.000
7311.000	12.630	36.120	48.749	-25.251	74.000
9748.000	13.126	37.040	50.166	-23.834	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 : Intel® Centrino® Wireless-N 100
 Test Item : Harmonic Radiated Emission Data
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmit (802.11b 1Mbps) (2462 MHz)

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

Horizontal

Peak Detector:

4924.000	2.858	37.330	40.187	-33.813	74.000
7386.000	12.127	35.230	47.358	-26.642	74.000
9848.000	12.852	36.430	49.283	-24.717	74.000

Average Detector:

--

Vertical

Peak Detector:

4924.000	5.521	39.930	45.450	-28.550	74.000
7386.000	13.254	35.450	48.704	-25.296	74.000
9848.000	13.367	36.070	49.437	-24.563	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 : Intel® Centrino® Wireless-N 100
 Test Item : Harmonic Radiated Emission Data
 Test Site : No.3 OATS
 Test Mode : Mode 2: Transmit (802.11g 6Mbps) (2412MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
Horizontal					
Peak Detector:					
4824.000	3.261	37.760	41.021	-32.979	74.000
7236.000	10.650	35.790	46.440	-27.560	74.000
9648.000	13.337	36.170	49.506	-24.494	74.000
Average Detector:					
--					
Vertical					
Peak Detector:					
4824.000	6.421	37.640	44.061	-29.939	74.000
7236.000	11.495	36.360	47.855	-26.145	74.000
9648.000	13.807	36.180	49.986	-24.014	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 : Intel® Centrino® Wireless-N 100
 Test Item : Harmonic Radiated Emission Data
 Test Site : No.3 OATS
 Test Mode : Mode 2: Transmit (802.11g 6Mbps) (2437 MHz)

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

Horizontal
Peak Detector:

4874.000	3.038	37.170	40.207	-33.793	74.000
7311.000	11.795	35.510	47.304	-26.696	74.000
9748.000	12.635	36.240	48.875	-25.125	74.000

Average Detector:

--

Peak Detector:

4874.000	5.812	38.130	43.941	-30.059	74.000
7311.000	12.630	36.530	49.159	-24.841	74.000
9748.000	13.126	37.000	50.126	-23.874	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 : Intel® Centrino® Wireless-N 100
 Test Item : Harmonic Radiated Emission Data
 Test Site : No.3 OATS
 Test Mode : Mode 2: Transmit (802.11g 6Mbps) (2462 MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
Horizontal					
Peak Detector:					
4924.000	2.858	37.080	39.937	-34.063	74.000
7386.000	12.127	35.280	47.408	-26.592	74.000
9848.000	12.852	37.170	50.023	-23.977	74.000
Average Detector:					
--					
Vertical					
Peak Detector:					
4924.000	5.521	36.990	42.510	-31.490	74.000
7386.000	13.254	35.110	48.364	-25.636	74.000
9848.000	13.367	36.230	49.597	-24.403	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 : Intel® Centrino® Wireless-N 100
 Test Item : Harmonic Radiated Emission Data
 Test Site : No.3 OATS
 Test Mode : Mode 3: Transmit (802.11n MCS0 6.5Mbps 20M-BW)(2412MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
Horizontal					
Peak Detector:					
4824.000	3.261	37.750	41.011	-32.989	74.000
7236.000	10.650	35.730	46.380	-27.620	74.000
9648.000	13.337	36.050	49.386	-24.614	74.000
Average Detector:					
--					
Vertical					
Peak Detector:					
4824.000	6.421	37.830	44.251	-29.749	74.000
7236.000	11.495	35.710	47.205	-26.795	74.000
9648.000	13.807	36.010	49.816	-24.184	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 : Intel® Centrino® Wireless-N 100
 Test Item : Harmonic Radiated Emission Data
 Test Site : No.3 OATS
 Test Mode : Mode 3: Transmit (802.11n MCS0 6.5Mbps 20M-BW) (2437 MHz)

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

Horizontal

Peak Detector:

4874.000	3.038	37.640	40.677	-33.323	74.000
7311.000	11.795	35.730	47.524	-26.476	74.000
9748.000	12.635	36.510	49.145	-24.855	74.000

Average Detector:

--

Vertical

Peak Detector:

4874.000	5.812	37.110	42.921	-31.079	74.000
7311.000	12.630	35.630	48.259	-25.741	74.000
9748.000	13.126	36.660	49.786	-24.214	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 : Intel® Centrino® Wireless-N 100
 Test Item : Harmonic Radiated Emission Data
 Test Site : No.3 OATS
 Test Mode : Mode 3: Transmit (802.11n MCS0 6.5Mbps 20M-BW) (2462 MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
Horizontal					
Peak Detector:					
4924.000	2.858	37.360	40.217	-33.783	74.000
7386.000	12.127	35.520	47.648	-26.352	74.000
9848.000	12.852	36.570	49.423	-24.577	74.000
Average Detector:					
--					
Vertical					
Peak Detector:					
4924.000	5.521	37.160	42.680	-31.320	74.000
7386.000	13.254	35.330	48.584	-25.416	74.000
9848.000	13.367	36.490	49.857	-24.143	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 : Intel® Centrino® Wireless-N 100
 Test Item : Harmonic Radiated Emission Data
 Test Site : No.3 OATS
 Test Mode : Mode 4: Transmit (802.11n MCS0 13.5Mbps 40M-BW)(2422MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
Horizontal					
Peak Detector:					
4844.000	3.171	37.030	40.201	-33.799	74.000
7266.000	11.162	35.340	46.502	-27.498	74.000
9688.000	12.964	36.520	49.485	-24.515	74.000
Average Detector:					
--					
Vertical					
Peak Detector:					
4844.000	6.178	37.130	43.308	-30.692	74.000
7266.000	11.982	35.570	47.552	-26.448	74.000
9688.000	13.507	36.860	50.368	-23.632	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 : Intel® Centrino® Wireless-N 100
 Test Item : Harmonic Radiated Emission Data
 Test Site : No.3 OATS
 Test Mode : Mode 4: Transmit (802.11n MCS0 13.5Mbps 40M-BW) (2437 MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
Horizontal					
Peak Detector:					
4874.000	3.038	37.030	40.067	-33.933	74.000
7311.000	11.795	35.010	46.804	-27.196	74.000
9748.000	12.635	36.440	49.075	-24.925	74.000
Average Detector:					
--					
Vertical					
Peak Detector:					
4874.000	5.812	36.800	42.611	-31.389	74.000
7311.000	12.630	35.310	47.939	-26.061	74.000
9748.000	13.126	36.280	49.406	-24.594	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 : Intel® Centrino® Wireless-N 100
 Test Item : Harmonic Radiated Emission Data
 Test Site : No.3 OATS
 Test Mode : Mode 4: Transmit (802.11n MCS0 13.5Mbps 40M-BW)(2452 MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
Horizontal					
Peak Detector:					
4904.000	2.914	37.340	40.255	-33.745	74.000
7356.000	11.995	35.320	47.314	-26.686	74.000
9808.000	12.475	36.330	48.805	-25.195	74.000
Average Detector:					
--					
Vertical					
Peak Detector:					
4904.000	5.530	36.840	42.371	-31.629	74.000
7356.000	13.005	35.280	48.284	-25.716	74.000
9808.000	12.901	36.560	49.461	-24.539	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 : Intel® Centrino® Wireless-N 100
 Test Item : General Radiated Emission Data
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmit (802.11b 1Mbps)(2437 MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
Horizontal					
49.400	-11.018	43.967	32.949	-7.051	40.000
198.780	-10.661	43.971	33.310	-10.190	43.500
255.040	-5.098	43.353	38.255	-7.745	46.000
596.480	4.017	30.010	34.027	-11.973	46.000
800.180	5.141	25.534	30.675	-15.325	46.000
934.040	6.612	26.545	33.157	-12.843	46.000
Vertical					
37.760	-1.539	32.357	30.818	-9.182	40.000
92.080	-3.339	34.877	31.538	-11.962	43.500
177.440	-8.339	41.554	33.215	-10.285	43.500
377.260	-1.765	28.538	26.773	-19.227	46.000
676.020	0.041	31.561	31.602	-14.398	46.000
961.200	7.260	28.329	35.589	-18.411	54.000

Note:

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

Product : Intel® Centrino® Wireless-N 100
 Test Item : General Radiated Emission Data
 Test Site : No.3 OATS
 Test Mode : Mode 2: Transmit (802.11g 6Mbps)(2437 MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
Horizontal					
80.440	-12.510	41.519	29.009	-10.991	40.000
163.860	-11.344	47.369	36.025	-7.475	43.500
255.040	-5.098	43.933	38.835	-7.165	46.000
348.160	-2.268	35.459	33.191	-12.809	46.000
600.360	3.977	26.877	30.854	-15.146	46.000
934.040	6.612	30.695	37.307	-8.693	46.000
Vertical					
55.220	-4.699	32.541	27.842	-12.158	40.000
123.120	-3.921	41.190	37.269	-6.231	43.500
288.020	-8.189	39.418	31.229	-14.771	46.000
540.220	0.121	33.502	33.623	-12.377	46.000
769.140	2.923	26.932	29.855	-16.145	46.000
961.200	7.260	28.551	35.811	-18.189	54.000

Note:

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

Product : Intel® Centrino® Wireless-N 100
 Test Item : General Radiated Emission Data
 Test Site : No.3 OATS
 Test Mode : Mode 3: Transmit (802.11n MCS0 6.5Mbps 20M-BW)(2437 MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
Horizontal					
99.840	-7.471	37.020	29.549	-13.951	43.500
198.780	-10.661	44.893	34.232	-9.268	43.500
255.040	-5.098	43.086	37.988	-8.012	46.000
390.840	-1.849	38.084	36.235	-9.765	46.000
709.000	3.458	29.505	32.963	-13.037	46.000
930.160	7.187	33.501	40.688	-5.312	46.000
Vertical					
51.340	-7.145	40.996	33.851	-6.149	40.000
92.080	-3.339	32.809	29.470	-14.030	43.500
344.280	-3.171	29.389	26.219	-19.781	46.000
612.000	-1.631	36.040	34.409	-11.591	46.000
759.440	2.532	34.534	37.066	-8.934	46.000
961.200	7.260	28.106	35.366	-18.634	54.000

Note:

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

Product : Intel® Centrino® Wireless-N 100
 Test Item : General Radiated Emission Data
 Test Site : No.3 OATS
 Test Mode : Mode 4: Transmit (802.11n MCS0 13.5Mbps 40M-BW)(2437 MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
Horizontal					
39.700	-3.616	27.481	23.865	-16.135	40.000
198.780	-10.661	44.538	33.877	-9.623	43.500
255.040	-5.098	44.297	39.199	-6.801	46.000
400.540	-2.276	32.056	29.780	-16.220	46.000
666.320	2.031	28.988	31.020	-14.980	46.000
934.040	6.612	27.329	33.941	-12.059	46.000
Vertical					
37.760	-1.539	31.337	29.798	-10.202	40.000
99.840	-0.021	27.316	27.295	-16.205	43.500
336.520	-4.630	30.728	26.098	-19.902	46.000
528.580	-0.462	32.356	31.894	-14.106	46.000
765.260	2.313	35.321	37.634	-8.366	46.000
961.200	7.260	28.306	35.566	-18.434	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.

4. Band Edge

4.1. Test Equipment

RF Conducted Measurement

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

	Equipment	Manufacturer	Model No./Serial No.	Last Cal.
	Spectrum Analyzer	R&S	FSP40 / 100170	Jun, 2011
	Spectrum Analyzer	Agilent	E4407B / US39440758	Jun, 2011
X	Spectrum Analyzer	Agilent	N9010A / MY48030495	Apr., 2011

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.

RF Radiated Measurement:

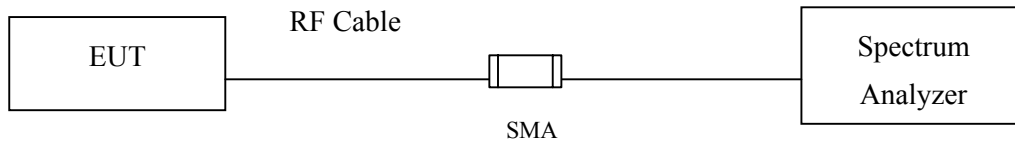
The following test equipments are used during the band edge tests:

Test Site	Equipment	Manufacturer	Model No./Serial No.	Last Cal.	
☒ Site # 3		Bilog Antenna	Schaffner Chase	CBL6112B/2673	Sep., 2011
	X	Horn Antenna	Schwarzbeck	BBHA9120D/D305	Sep., 2011
		Horn Antenna	Schwarzbeck	BBHA9170/208	Jul., 2011
	X	Pre-Amplifier	Agilent	8447D/2944A09549	Sep., 2011
	X	Spectrum Analyzer	Agilent	E4407B / US39440758	May, 2011
		Test Receiver	R & S	ESCS 30/ 825442/018	Sep., 2011
	X	Coaxial Cable	Quietek	QTK-CABLE/ CAB5	Feb., 2011
	X	Controller	Quietek	QTK-CONTROLLER/ CTRL3	N/A
	X	Coaxial Switch	Anritsu	MP59B/6200265729	N/A

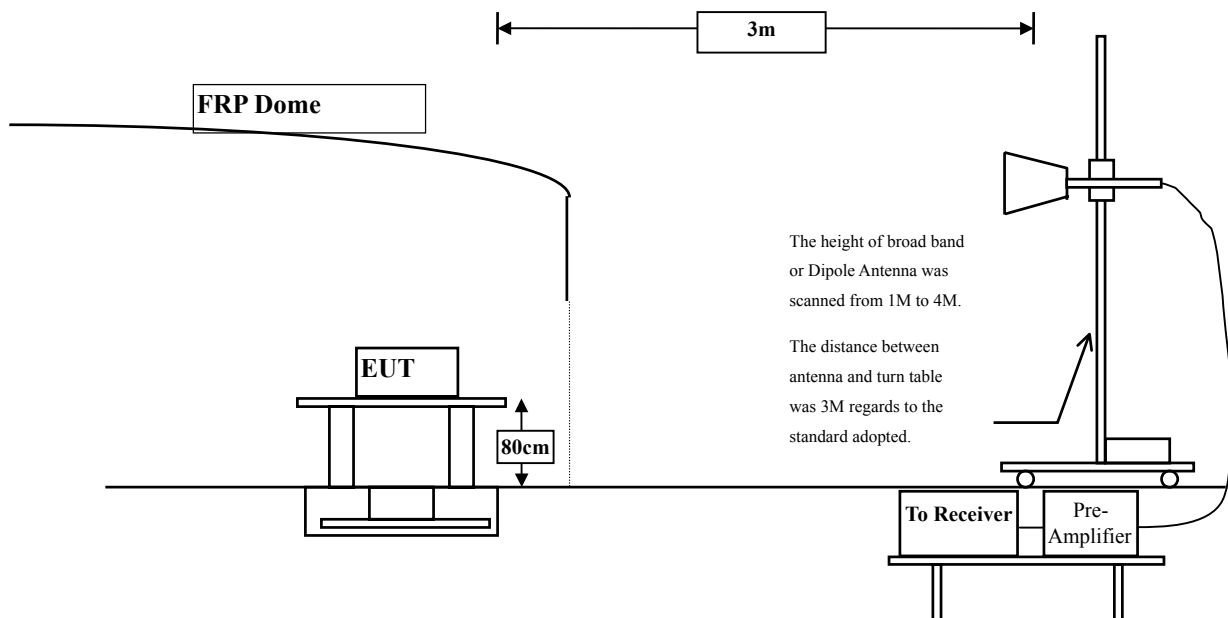
- Note:
1. All instruments are calibrated every one year.
 2. The test instruments marked by “X” are used to measure the final test results.

4.2. Test Setup

RF Conducted Measurement



RF Radiated Measurement:



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.

4.4. Test Procedure

The EUT was setup according to ANSI C63.4, 2003 and tested according to DTS test procedure of Jan. 2012 KDB558074 for compliance to FCC 47CFR 15.247 requirements.

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

The antenna is scanned from 1 meter to 4 meters to find out the maximum emission level. This is repeated for both horizontal and vertical polarization of the antenna. In order to find the maximum emission, all of the interface cables were manipulated according to ANSI C63.4:2003 on radiated measurement.

4.5. Uncertainty

± 3.9 dB above 1GHz

± 3.8 dB below 1GHz

4.6. Test Result of Band Edge

Product : Intel® Centrino® Wireless-N 100
 Test Item : Band Edge Data
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmit (802.11b 1Mbps)

Frequency (MHz)	Power Settings Measured (dBm)	
	(Average)	
2412	16.25	

Fundamental Filed Strength

Antenna Pole	Frequency [MHz]	Correction Factor [dB/m]	Reading Level [dBuV]	Emission Level [dBuV/m]	Detector
Horizontal	2412	31.775	58.069	89.843	Peak
Horizontal	2412	31.77	53.752	85.522	Average
Vertical	2412	28.806	76.348	105.154	Peak
Vertical	2412	28.8	72.071	100.871	Average

Note: 1: Spectrum Analyzer setting:

Peak detector: RBW=1MHz, VBW=1MHz

Average detector: RBW=1MHz, VBW=10Hz

Band Edge Test Data

Antenna Pole	Test Frequency (MHz)	Fundamental (dBuV/m)	Δ (dB)	Band Edge Field Strength (dBuV/m)	Limit (dBuV/m)	Detector
Horizontal	2390	89.843	39.53	50.313	74.000	Peak
Horizontal	2390	85.522	56.51	29.012	54.000	Average
Vertical	2390	105.154	39.53	65.624	74.000	Peak
Vertical	2390	100.871	56.51	44.361	54.000	Average

Note:

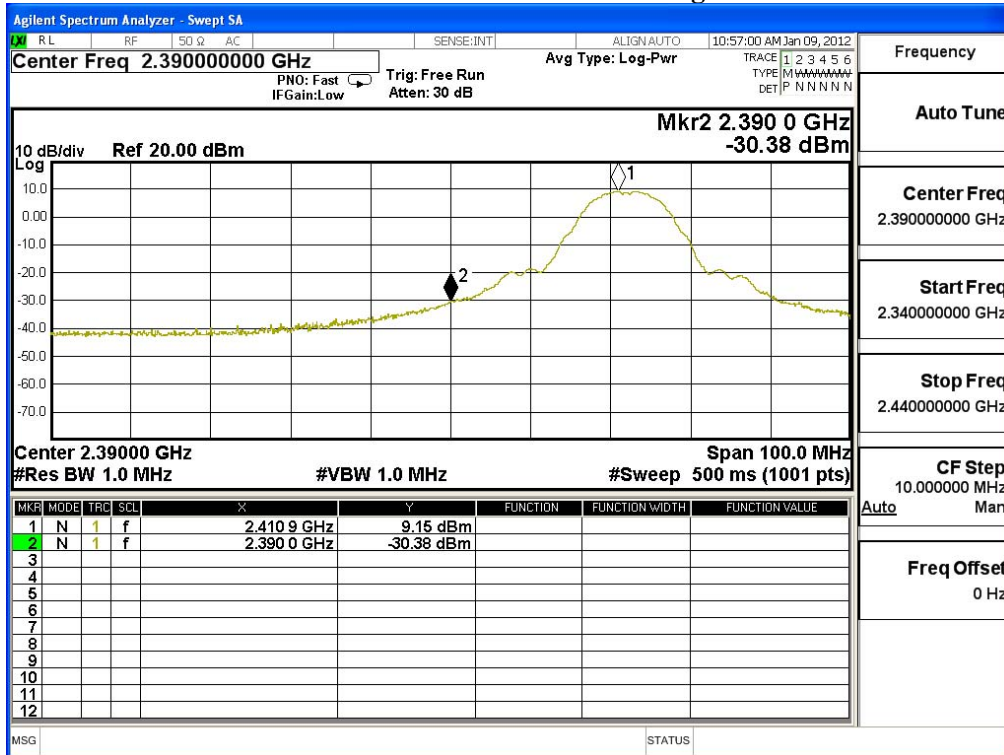
The Band Edge Field Strength was calculated using the Fundamental and Conducted Band Edge measurements per the Marker-Delta Method with the following formula:

Band Edge field Strength = F - Δ

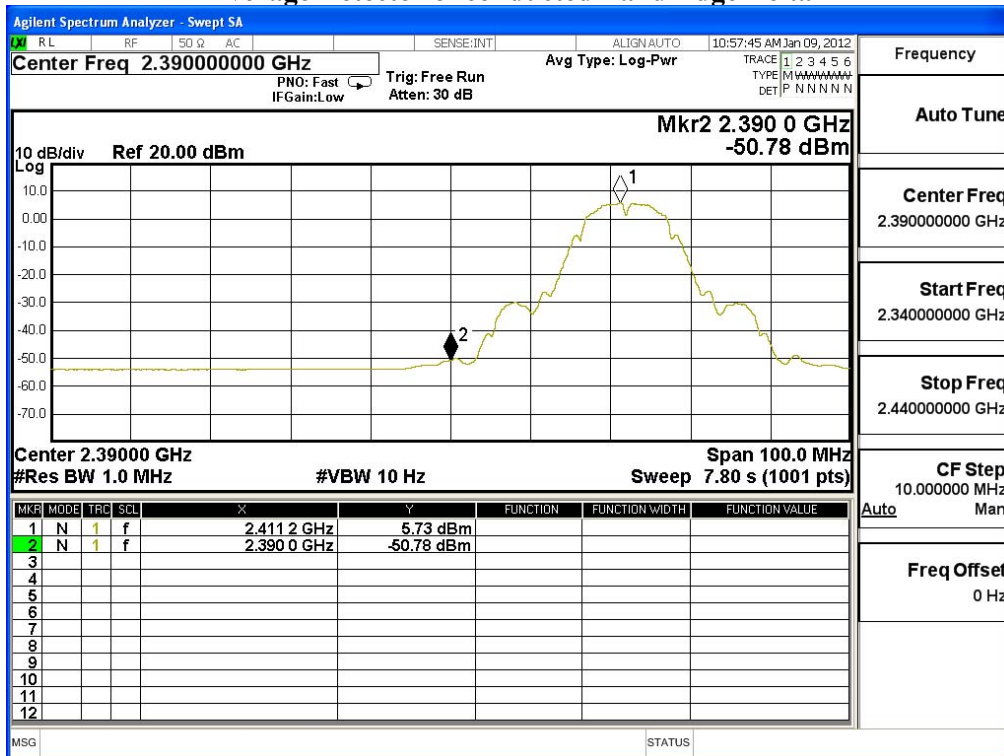
F = Fundamental field Strength (Peak or Average)

Δ = Conducted Band Edge Delta (Peak or Average)

Peak Detector of conducted Band Edge Delta



Average Detector of conducted Band Edge Delta



Product : Intel® Centrino® Wireless-N 100
 Test Item : Band Edge Data
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmit (802.11b 1Mbps)

Frequency (MHz)	Power Settings Measured (dBm)	
	(Average)	
2462	16.23	

Fundamental Filed Strength

Antenna Pole	Frequency [MHz]	Correction Factor [dB/m]	Reading Level [dBuV]	Emission Level [dBuV/m]	Detector
Horizontal	2462	30.379	60.465	90.844	Peak
Horizontal	2462	30.379	56.26	86.639	Average
Vertical	2462	28.965	76.062	105.026	Peak
Vertical	2462	28.965	71.779	100.744	Average

Note: 1: Spectrum Analyzer setting:

Peak detector: RBW=1MHz, VBW=1MHz

Average detector: RBW=1MHz, VBW=10Hz

Band Edge Test Data

Antenna Pole	Test Frequency (MHz)	Fundamental (dBuV/m)	Δ (dB)	Band Edge Field Strength (dBuV/m)	Limit (dBuV/m)	Detector
Horizontal	2483.5	90.844	40.43	50.414	74.000	Peak
Horizontal	2483.5	86.639	58.32	28.319	54.000	Average
Vertical	2483.5	105.026	40.43	64.596	74.000	Peak
Vertical	2483.5	100.744	58.32	42.424	54.000	Average

Note:

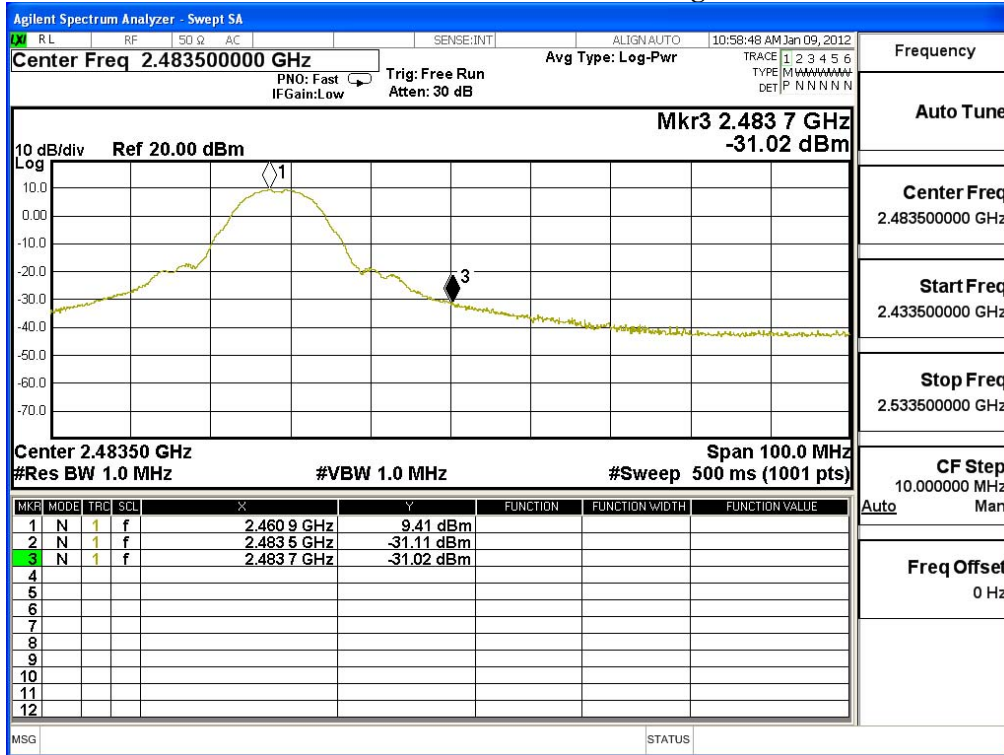
The Band Edge Field Strength was calculated using the Fundamental and Conducted Band Edge measurements per the Marker-Delta Method with the following formula:

Band Edge field Strength = F - Δ

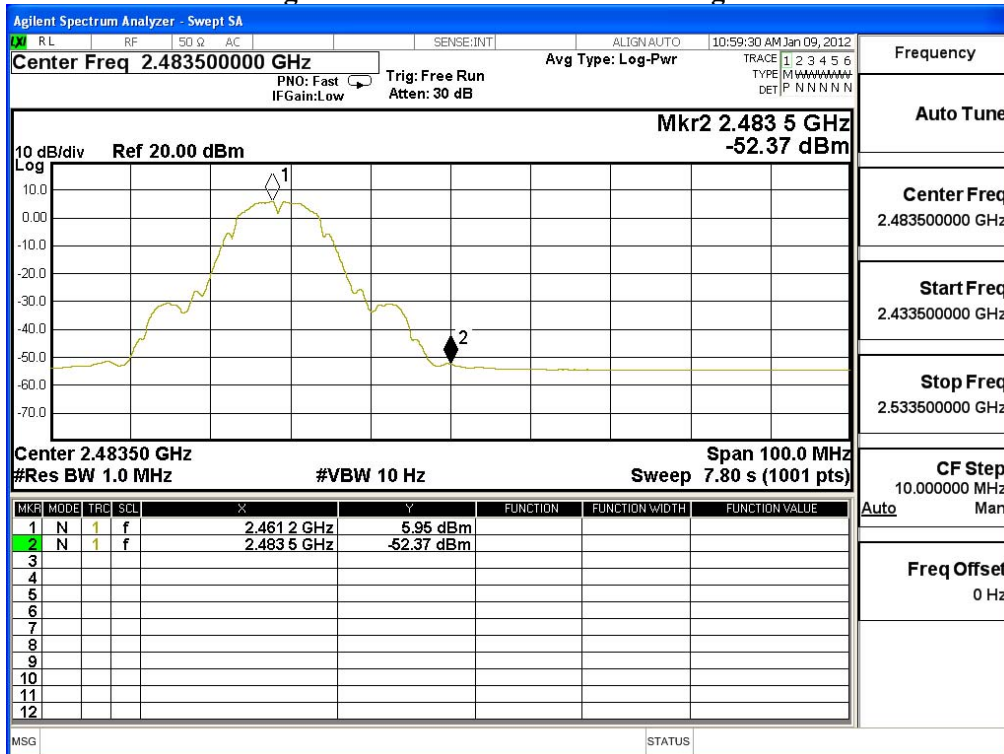
F = Fundamental field Strength (Peak or Average)

Δ = Conducted Band Edge Delta (Peak or Average)

Peak Detector of conducted Band Edge Delta



Average Detector of conducted Band Edge Delta



Product : Intel® Centrino® Wireless-N 100
 Test Item : Band Edge Data
 Test Site : No.3 OATS
 Test Mode : Mode 2: Transmit (802.11g 6Mbps)

Frequency (MHz)	Power Settings Measured (dBm)	
	(Average)	
2412	12.28	

Fundamental Filed Strength

Antenna Pole	Frequency [MHz]	Correction Factor [dB/m]	Reading Level [dBuV]	Emission Level [dBuV/m]	Detector
Horizontal	2412	30.328	56.121	86.45	Peak
Horizontal	2412	30.328	46.639	76.967	Average
Vertical	2412	28.799	73.294	102.092	Peak
Vertical	2412	28.811	62.516	91.327	Average

Note: 1:Spectrum Analyzer setting:

Peak detector: RBW=1MHz, VBW=1MHz

Average detector: RBW=1MHz, VBW=10Hz

Band Edge Test Data

Antenna Pole	Test Frequency (MHz)	Fundamental (dBuV/m)	Δ (dB)	Band Edge Field Strength (dBuV/m)	Limit (dBuV/m)	Detector
Horizontal	2389.7	86.45	33.44	53.01	74.000	Peak
Horizontal	2390	76.967	43.49	33.477	54.000	Average
Vertical	2389.7	102.092	33.44	68.652	74.000	Peak
Vertical	2390	91.327	43.49	47.837	54.000	Average

Note:

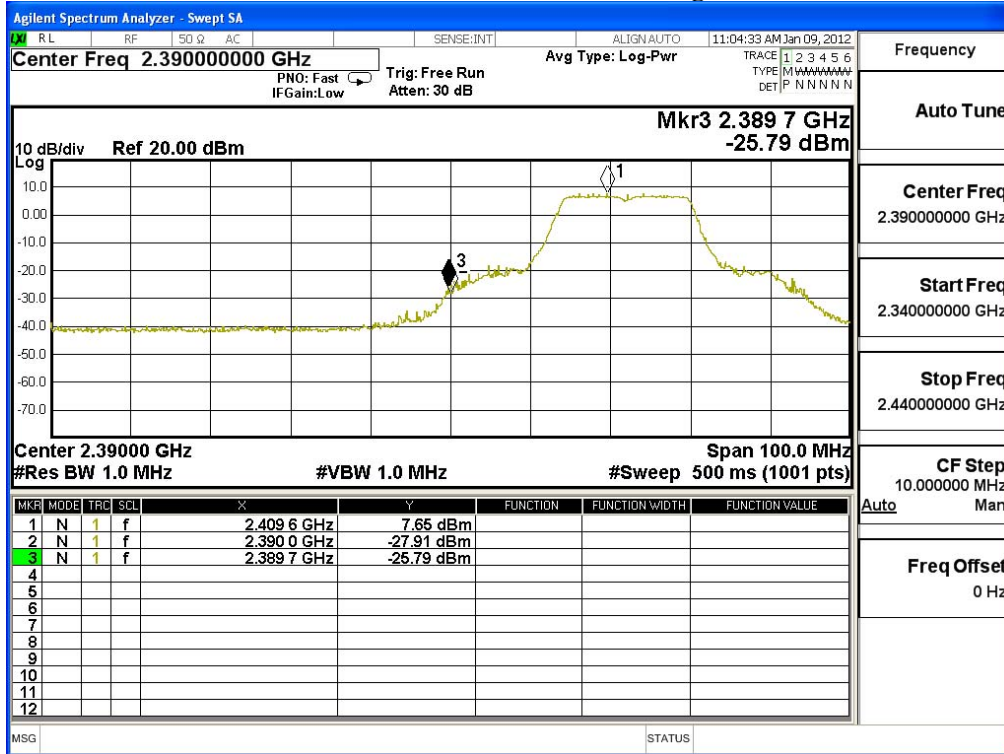
The Band Edge Field Strength was calculated using the Fundamental and Conducted Band Edge measurements per the Marker-Delta Method with the following formula:

Band Edge field Strength = F - Δ

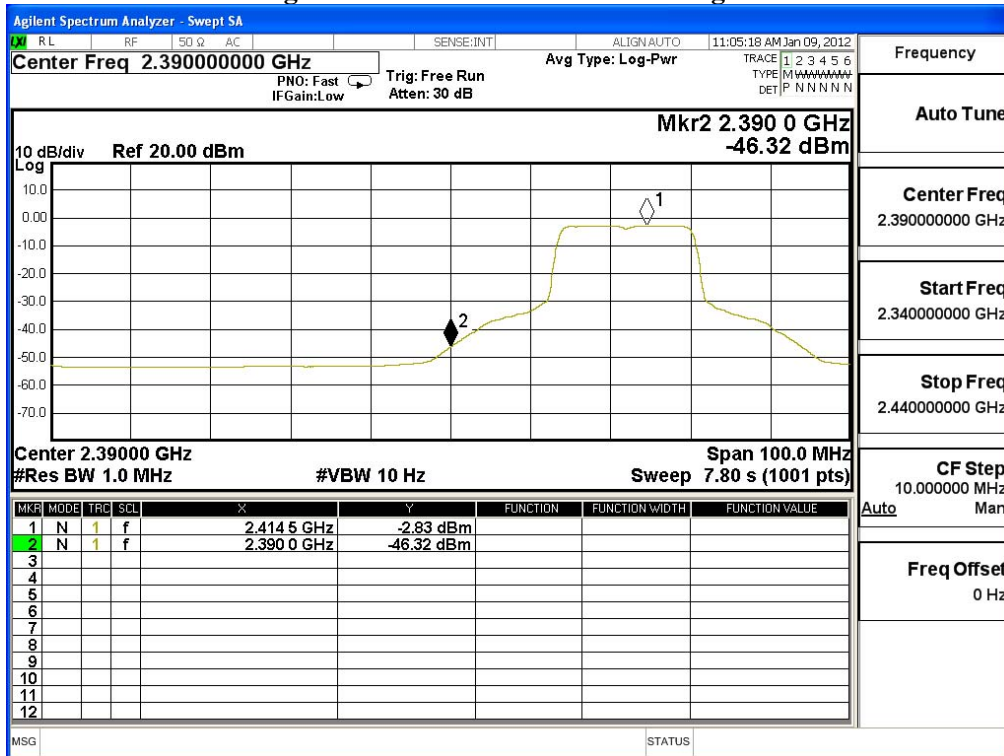
F = Fundamental field Strength (Peak or Average)

Δ = Conducted Band Edge Delta (Peak or Average)

Peak Detector of conducted Band Edge Delta



Average Detector of conducted Band Edge Delta



Product : Intel® Centrino® Wireless-N 100
 Test Item : Band Edge Data
 Test Site : No.3 OATS
 Test Mode : Mode 2: Transmit (802.11g 6Mbps)

Frequency (MHz)	Power Settings Measured (dBm)	
	(Average)	
2462	11.09	

Fundamental Filed Strength

Antenna Pole	Frequency [MHz]	Correction Factor [dB/m]	Reading Level [dBuV]	Emission Level [dBuV/m]	Detector
Horizontal	2462	30.374	59.205	89.579	Peak
Horizontal	2462	30.385	47.513	77.898	Average
Vertical	2462	28.98	72.184	101.164	Peak
Vertical	2462	28.979	61.833	90.812	Average

Note: 1:Spectrum Analyzer setting:

Peak detector: RBW=1MHz, VBW=1MHz

Average detector: RBW=1MHz, VBW=10Hz

Band Edge Test Data

Antenna Pole	Test Frequency (MHz)	Fundamental (dBuV/m)	Δ (dB)	Band Edge Field Strength (dBuV/m)	Limit (dBuV/m)	Detector
Horizontal	2484.1	89.579	35.65	53.929	74.000	Peak
Horizontal	2483.5	77.898	44.83	33.068	54.000	Average
Vertical	2484.1	101.164	35.65	65.514	74.000	Peak
Vertical	2483.5	90.812	44.83	45.982	54.000	Average

Note:

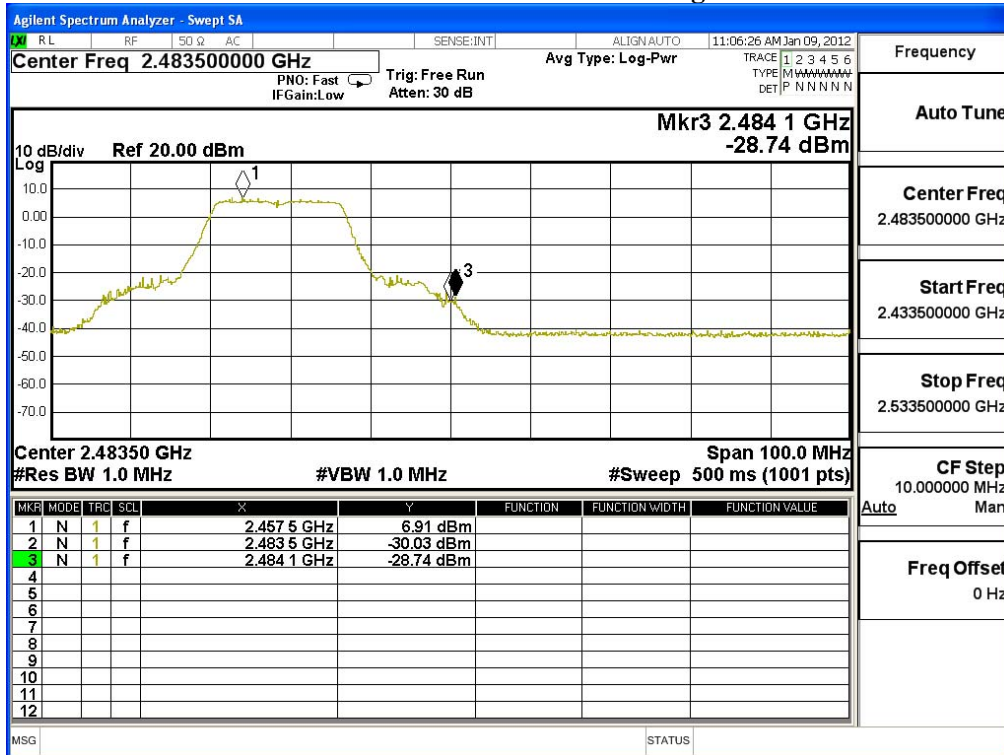
The Band Edge Field Strength was calculated using the Fundamental and Conducted Band Edge measurements per the Marker-Delta Method with the following formula:

Band Edge field Strength = F - Δ

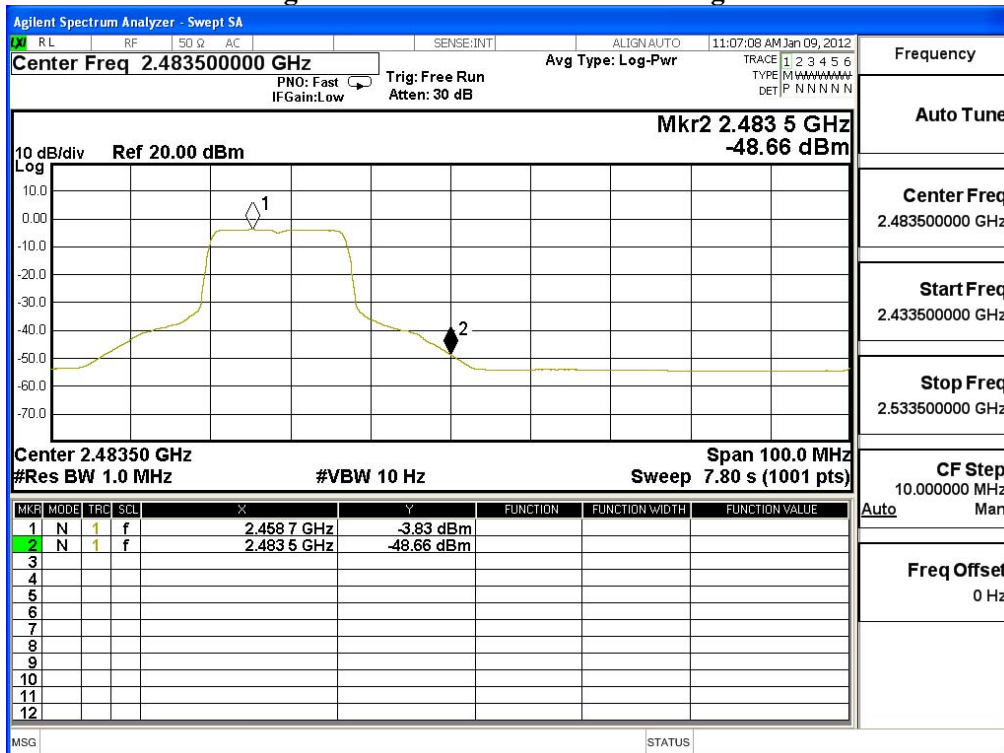
F = Fundamental field Strength (Peak or Average)

Δ = Conducted Band Edge Delta (Peak or Average)

Peak Detector of conducted Band Edge Delta



Average Detector of conducted Band Edge Delta



Product : Intel® Centrino® Wireless-N 100
 Test Item : Band Edge Data
 Test Site : No.3 OATS
 Test Mode : Mode 3: Transmit (802.11n MCS0 6.5Mbps 20M-BW)

Frequency (MHz)	Power Settings Measured (dBm)	
	(Average)	
2412	11.90	

Fundamental Filed Strength

Antenna Pole	Frequency [MHz]	Correction Factor [dB/m]	Reading Level [dBuV]	Emission Level [dBuV/m]	Detector
Horizontal	2412	30.321	55.25	85.571	Peak
Horizontal	2412	30.328	45.663	75.992	Average
Vertical	2412	28.798	73.144	101.942	Peak
Vertical	2412	28.799	62.769	91.568	Average

Note: 1:Spectrum Analyzer setting:

Peak detector: RBW=1MHz, VBW=1MHz

Average detector: RBW=1MHz, VBW=10Hz

Band Edge Test Data

Antenna Pole	Test Frequency (MHz)	Fundamental (dBuV/m)	Δ (dB)	Band Edge Field Strength (dBuV/m)	Limit (dBuV/m)	Detector
Horizontal	2389.8	85.571	35	50.571	74.000	Peak
Horizontal	2390	75.992	43.97	32.022	54.000	Average
Vertical	2389.8	101.942	35	66.942	74.000	Peak
Vertical	2390	91.568	43.97	47.598	54.000	Average

Note:

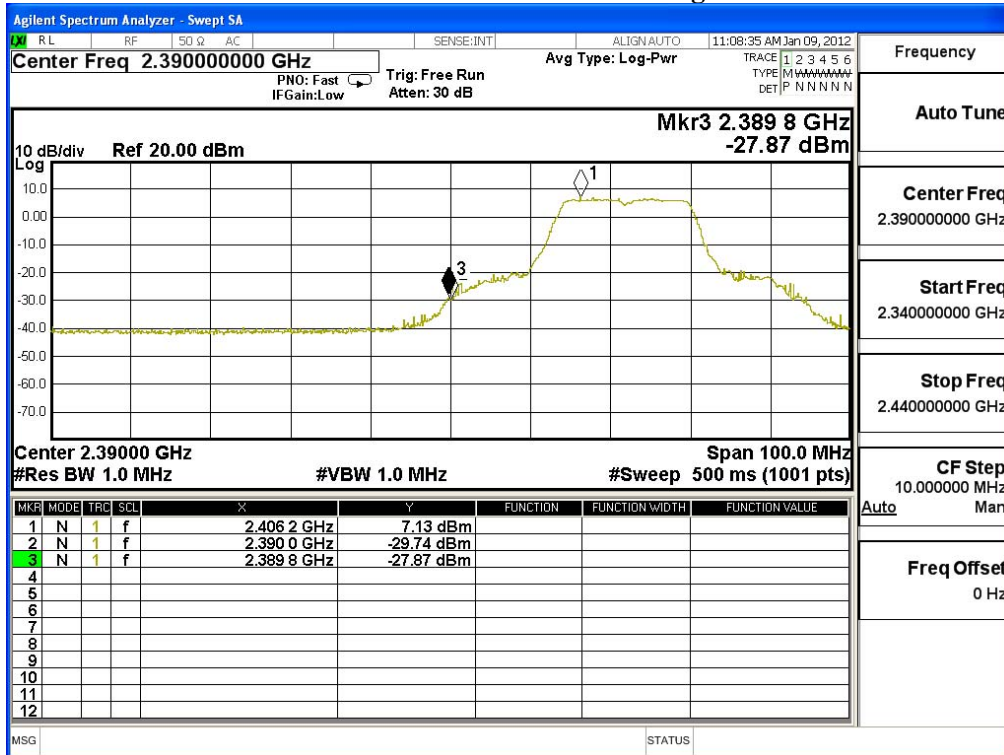
The Band Edge Field Strength was calculated using the Fundamental and Conducted Band Edge measurements per the Marker-Delta Method with the following formula:

Band Edge field Strength = F - Δ

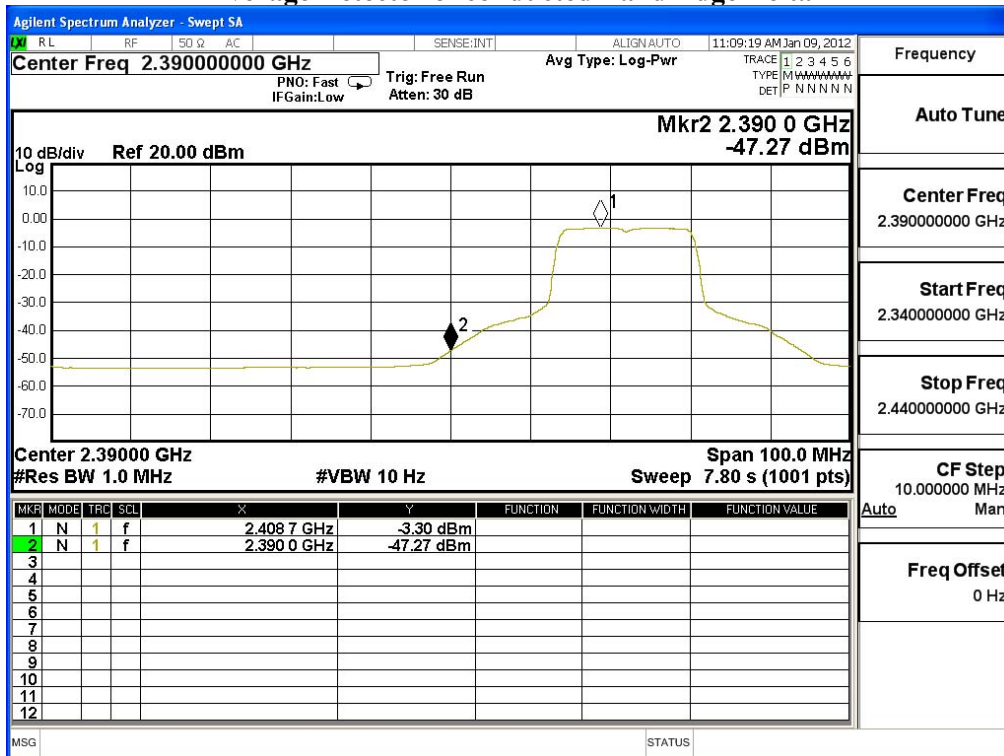
F = Fundamental field Strength (Peak or Average)

Δ = Conducted Band Edge Delta (Peak or Average)

Peak Detector of conducted Band Edge Delta



Average Detector of conducted Band Edge Delta



Product : Intel® Centrino® Wireless-N 100
 Test Item : Band Edge Data
 Test Site : No.3 OATS
 Test Mode : Mode 3: Transmit (802.11n MCS0 6.5Mbps 20M-BW)

Frequency (MHz)	Power Settings Measured (dBm)	
	(Average)	
2462	12.20	

Fundamental Filed Strength

Antenna Pole	Frequency [MHz]	Correction Factor [dB/m]	Reading Level [dBuV]	Emission Level [dBuV/m]	Detector
Horizontal	2462	30.376	58.248	88.624	Peak
Horizontal	2462	30.376	48.099	78.475	Average
Vertical	2462	28.982	72.836	101.819	Peak
Vertical	2462	28.957	62.597	91.554	Average

Note: 1: Spectrum Analyzer setting:

Peak detector: RBW=1MHz, VBW=1MHz

Average detector: RBW=1MHz, VBW=10Hz

Band Edge Test Data

Antenna Pole	Test Frequency (MHz)	Fundamental (dBuV/m)	Δ (dB)	Band Edge Field Strength (dBuV/m)	Limit (dBuV/m)	Detector
Horizontal	2483.5	88.624	35.23	53.394	74.000	Peak
Horizontal	2483.5	78.475	43.32	35.155	54.000	Average
Vertical	2483.5	101.819	35.23	66.589	74.000	Peak
Vertical	2483.5	91.554	43.32	48.234	54.000	Average

Note:

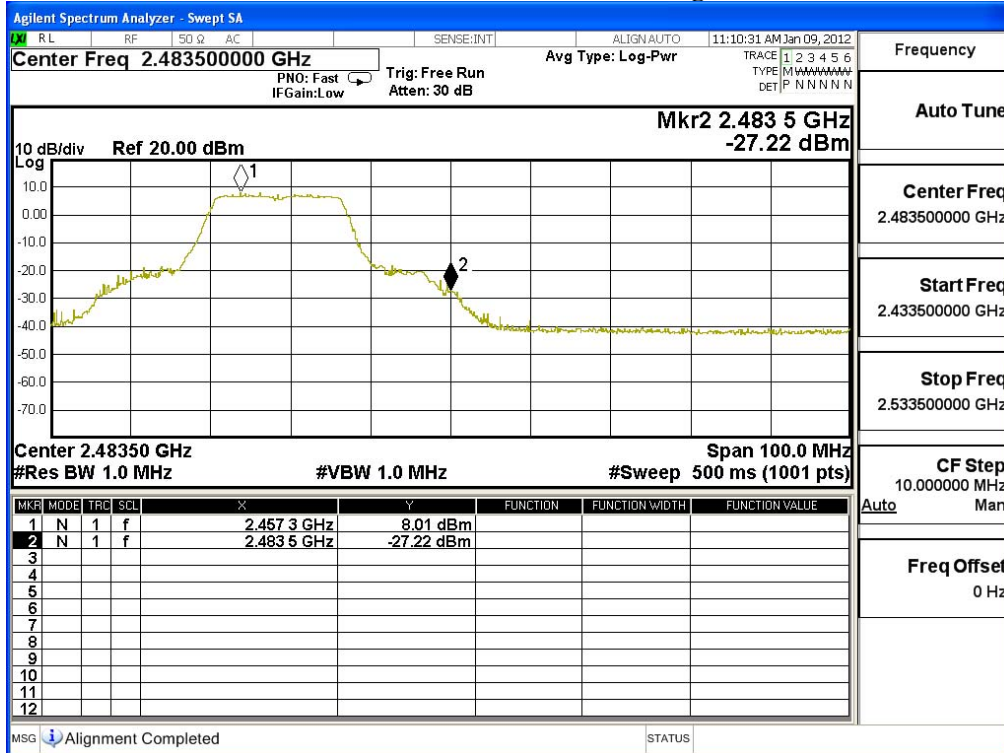
The Band Edge Field Strength was calculated using the Fundamental and Conducted Band Edge measurements per the Marker-Delta Method with the following formula:

Band Edge field Strength = F - Δ

F = Fundamental field Strength (Peak or Average)

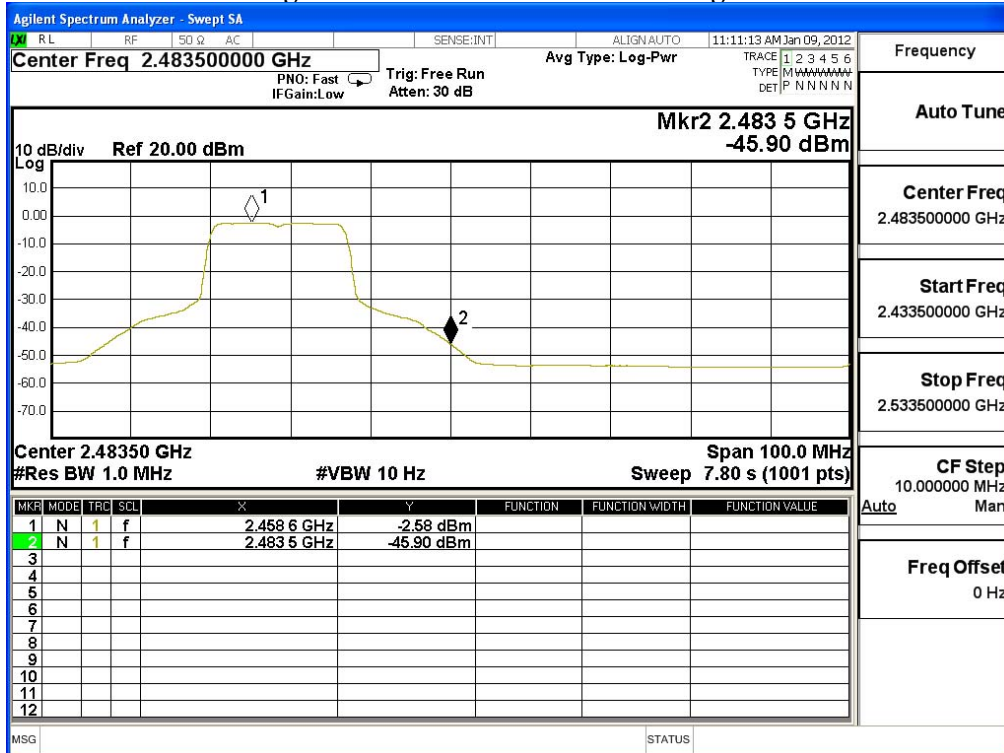
Δ = Conducted Band Edge Delta (Peak or Average)

Peak Detector of conducted Band Edge Delta



Frequency	
Auto Tune	
Center Freq	2.483500000 GHz
Start Freq	2.433500000 GHz
Stop Freq	2.533500000 GHz
CF Step	10.000000 MHz
Auto	Man
Freq Offset	0 Hz

Average Detector of conducted Band Edge Delta



Frequency	
Auto Tune	
Center Freq	2.483500000 GHz
Start Freq	2.433500000 GHz
Stop Freq	2.533500000 GHz
CF Step	10.000000 MHz
Auto	Man
Freq Offset	0 Hz

Product : Intel® Centrino® Wireless-N 100
 Test Item : Band Edge Data
 Test Site : No.3 OATS
 Test Mode : Mode 4: Transmit (802.11n MCS0 13.5Mbps 40M-BW)

Frequency (MHz)	Power Settings Measured (dBm)	
	(Average)	
2422	10.81	

Fundamental Filed Strength

Antenna Pole	Frequency [MHz]	Correction Factor [dB/m]	Reading Level [dBuV]	Emission Level [dBuV/m]	Detector
Horizontal	2422	30.325	54.91	85.235	Peak
Horizontal	2422	30.324	44.999	75.323	Average
Vertical	2422	28.799	70.963	99.762	Peak
Vertical	2422	28.799	60.781	89.58	Average

Note: 1: Spectrum Analyzer setting:

Peak detector: RBW=1MHz, VBW=1MHz

Average detector: RBW=1MHz, VBW=10Hz

Band Edge Test Data

Antenna Pole	Test Frequency (MHz)	Fundamental (dBuV/m)	Δ (dB)	Band Edge Field Strength (dBuV/m)	Limit (dBuV/m)	Detector
Horizontal	2388.9	85.235	31.54	53.695	74.000	Peak
Horizontal	2390	75.323	36.743	38.58	54.000	Average
Vertical	2388.9	99.762	31.54	68.222	74.000	Peak
Vertical	2390	89.58	36.743	52.837	54.000	Average

Note:

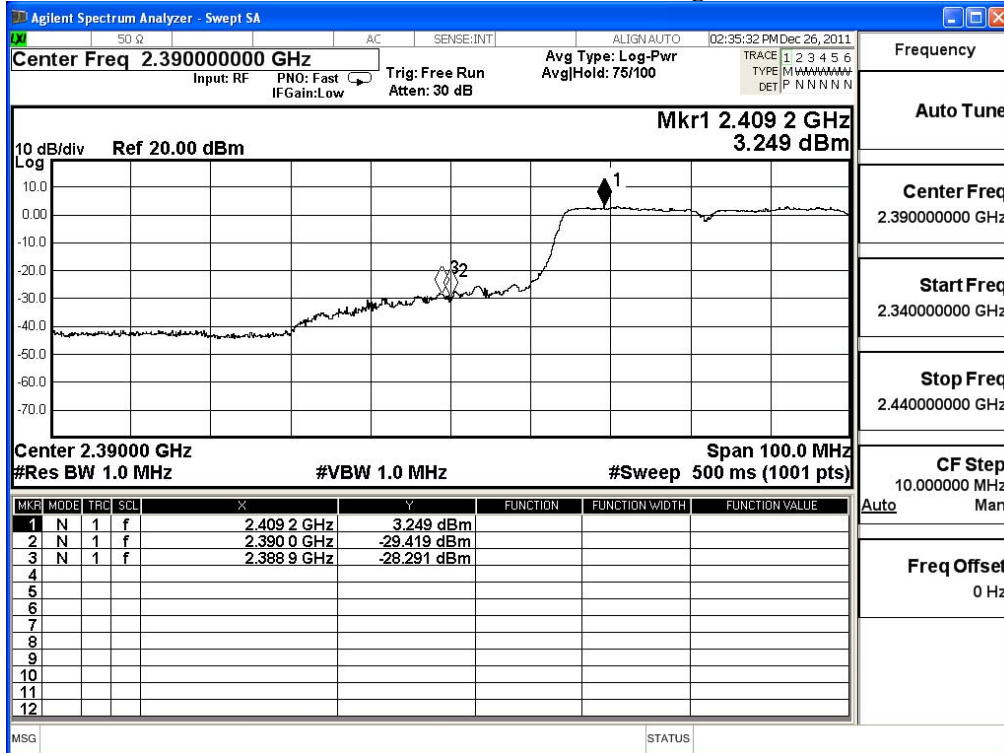
The Band Edge Field Strength was calculated using the Fundamental and Conducted Band Edge measurements per the Marker-Delta Method with the following formula:

Band Edge field Strength = F - Δ

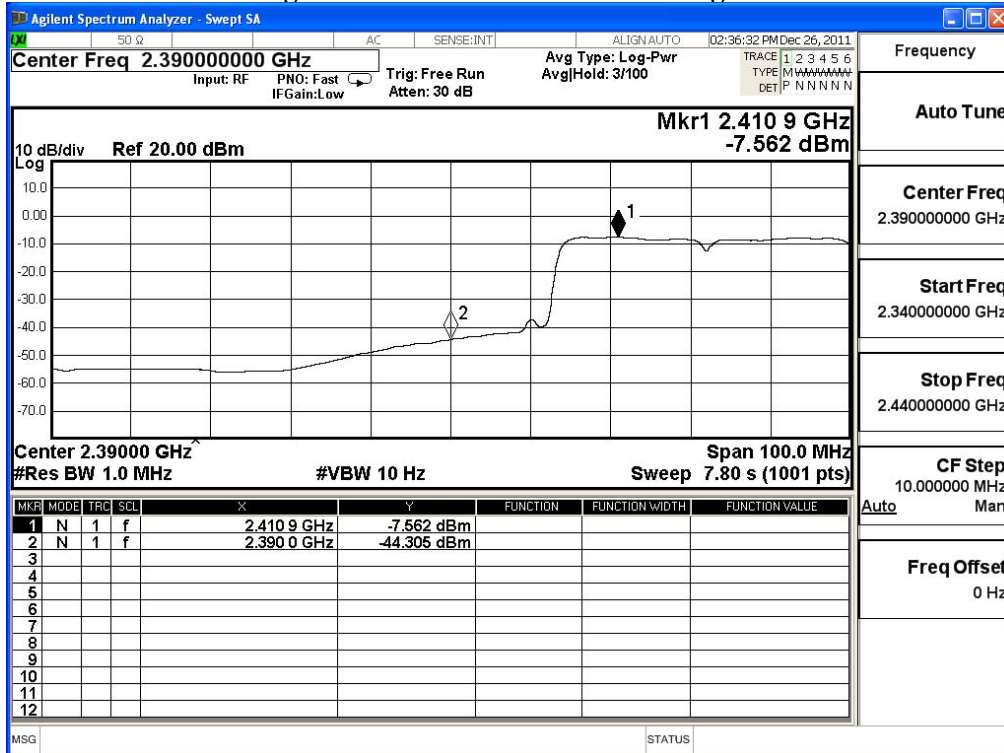
F = Fundamental field Strength (Peak or Average)

Δ = Conducted Band Edge Delta (Peak or Average)

Peak Detector of conducted Band Edge Delta



Average Detector of conducted Band Edge Delta



Product : Intel® Centrino® Wireless-N 100
 Test Item : Band Edge Data
 Test Site : No.3 OATS
 Test Mode : Mode 4: Transmit (802.11n MCS0 13.5Mbps 40M-BW)

Frequency (MHz)	Power Settings Measured (dBm)	
	(Average)	
2452	10.79	

Fundamental Filed Strength

Antenna Pole	Frequency [MHz]	Correction Factor [dB/m]	Reading Level [dBuV]	Emission Level [dBuV/m]	Detector
Horizontal	2452	30.351	58.405	88.756	Peak
Horizontal	2452	30.348	47.852	78.2	Average
Vertical	2452	28.887	70.952	99.839	Peak
Vertical	2452	28.892	59.556	88.448	Average

Note: 1: Spectrum Analyzer setting:

Peak detector: RBW=1MHz, VBW=1MHz

Average detector: RBW=1MHz, VBW=10Hz

Band Edge Test Data

Antenna Pole	Test Frequency (MHz)	Fundamental (dBuV/m)	Δ (dB)	Band Edge Field Strength (dBuV/m)	Limit (dBuV/m)	Detector
Horizontal	2483.8	88.756	28.96	59.796	74.000	Peak
Horizontal	2483.6	78.2	36.59	41.61	54.000	Average
Vertical	2483.8	99.839	28.96	70.879	74.000	Peak
Vertical	2483.6	88.448	36.59	51.858	54.000	Average

Note:

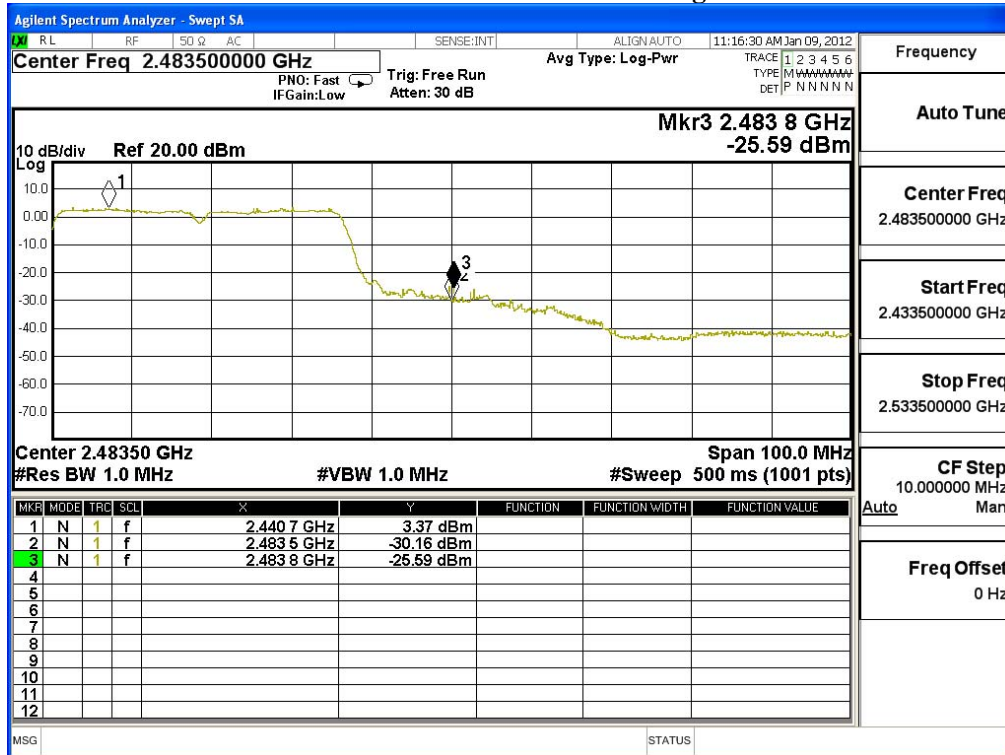
The Band Edge Field Strength was calculated using the Fundamental and Conducted Band Edge measurements per the Marker-Delta Method with the following formula:

Band Edge field Strength = F - Δ

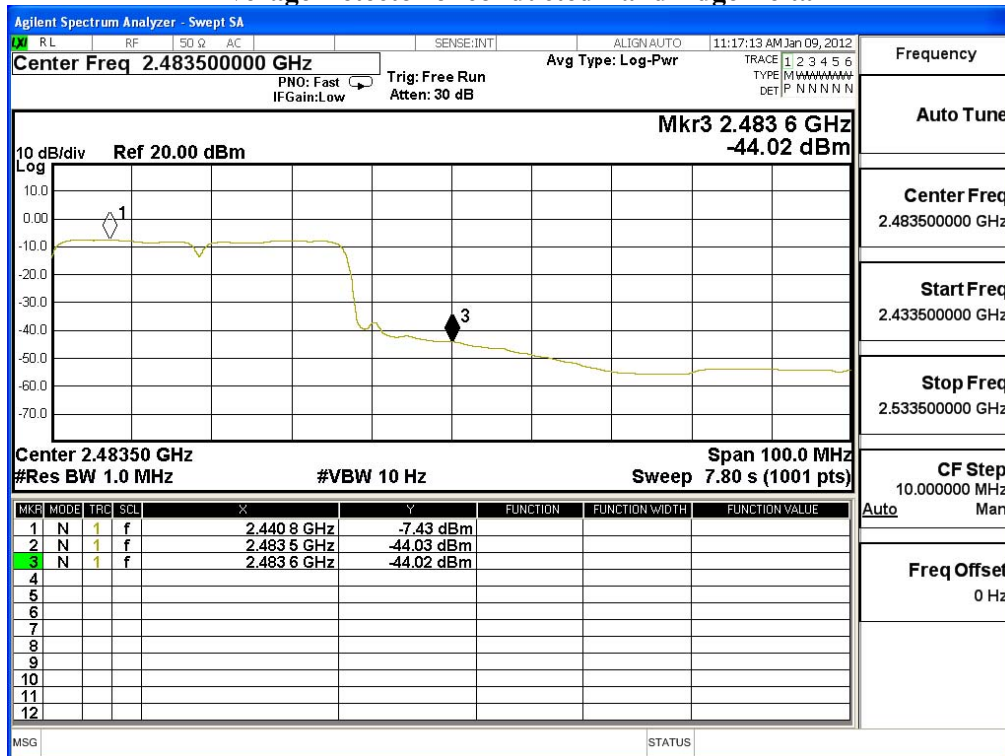
F = Fundamental field Strength (Peak or Average)

Δ = Conducted Band Edge Delta (Peak or Average)

Peak Detector of conducted Band Edge Delta



Average Detector of conducted Band Edge Delta



5. EMI Reduction Method During Compliance Testing

No modification was made during testing.

Attachment 1: EUT Test Photographs

Attachment 2: EUT Detailed Photographs