Test Report

Product Name	802.11b/g/n WLAN USB Dongle
Model No	RE150U-DT, JW301UE, WUA-0614, MT4206, WUA-0624
FCC ID.	XKRRE150U-DT

Applicant	BaudTec Corporation
Address	12F, No.181, Sec.1, Tatung Rd., Hsi-Chih City ,Taipei County, 221, Taiwan. R.O.C.

Date of Receipt	June 09, 2009
Issue Date	July 13, 2009
Report No.	096144R-RFUSP37V02
Report Version	V1.0

Test Report Certification

Issue Date: July 13, 2009
Report No.: 096144R-RFUSP37V02

Accredited by NIST (NVLAP)
NVLAP Lab Code: 200533-0

Product Name	802.11b/g/n WLAN USB Dongle
Applicant	BaudTec Corporation
Address	12F, No.181, Sec.1, Tatung Rd., Hsi-Chih City ,Taipei County, 221, Taiwan. R.O.C.
Manufacturer	BaudTec Corporation
Model No.	RE150U-DT, JW301UE, WUA-0614, MT4206, WUA-0624
Rated Voltage	AC 120V/60Hz
Working Voltage	DC 5V (Power by USB)
Trade Name	BaudTec
Applicable Standard	FCC CFR Title 47 Part 15 Subpart C: 2008 ANSI C63.4: 2003
Test Result	Complied

NVLAP Lab Code: 200533-0

The test results relate only to the samples tested.
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This report must not be used to claim product endorsement by NVLAP any agency of the U.S. Government

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(Senior Adm. Specialist / Genie Chang)

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Approved By :
(Manager / Vincent Lin)

Testing Laboratory
0914

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1. GENERAL INFORMATION

1.1. EUT Description

Product Name	802.11b/g/n WLAN USB Dongle
Trade Name	BaudTec
Model No.	RE150U-DT, JW301UE, WUA-0614, MT4206, WUA-0624
FCC ID.	XKRRE150U-DT
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: 6.5-135Mbps
Type of Modulation	802.11b:DSSS, DBPSK, DQPSK, CCK 802.11g/n:OFDM, BPSK, QPSK, 16QAM, 64QAM
Antenna Type	Dipole
Type of Antenna joint	Reverse SMA
Antenna Gain	Refer to the table “Antenna List”
Channel Control	Auto

Antenna List

No.	Manufacturer	Part No.	Peak Gain
1	KINSUN	6642-2.4G-SMA	5 dBi in 2.4GHz
2	KINSUN	6602-2.4G-SMA	2 dBi in 2.4GHz
3	KINSUN	6640103041-15M	2.69 dBi in 2.4GHz
4	Cortec	AB2400-4809RS	2 dBi in 2.4GHz

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 01:	2422 MHz	Channel 02:	2427 MHz	Channel 03:	2432 MHz	Channel 04:	2437 MHz
Channel 05:	2442 MHz	Channel 06:	2447 MHz	Channel 07:	2452 MHz		

Note:

1. The EUT is a 802.11b/g/n WLAN USB Dongle with a built-in 2.4GHz WLAN transceiver.
2. The different Model No is for market use.
3. Regarding to the operation frequency, the lowest, middle and highest frequency are selected to perform the test.
4. Lowest and highest data rates are tested in each mode. Only worst case is shown in the report. (802.11b is 1Mbps 、802.11g is 6Mbps、802.11n(20M-BW) is 6.5Mbps and 、802.11n(40M-BW) is 13.5Mbps)
5. These tests are conducted on a sample for the purpose of demonstrating compliance of 802.11b/g/n transmitter with Part 15 Subpart C Paragraph 15.247 of spread spectrum devices
6. The radiation measurements are performed in X, Y, Z axis positioning. Only the worst case is shown in the report.

1.2. Operational Description

The EUT is a 802.11b/g/n WLAN USB Dongle with 11 channels. This device provided four kinds of transmitting speed 1, 2, 5.5 and 11Mbps and the device of RF carrier is DBPSK, DQPSK and CCK (IEEE 802.11b). The device provided of eight kinds of transmitting speed 6, 9, 12, 18, 24, 36, 48 and 54Mbps the device of RF carrier is BPSK, QPSK, 16QAM and 64QAM (IEEE 802.11g).

The device provided of eight kinds of transmitting speed 6.5、13、19.5、26、39、52、58.5 and 65Mbps in 802.11n(20M-BW) mode and 13.5、27、40.5、54、81、108、121.5 and 135Mbps(40M-BW) the device of RF carrier is BPSK, QPSK, 16QAM and 64QAM (IEEE 802.11n).

This 802.11b/g/n WLAN USB Dongle, compliant with IEEE 802.11b and IEEE 802.11g/n, is a high-efficiency Wireless LAN adapter. It allows your computer to connect to a wireless network and to share resources, such as files or printers without being bound to the network wires. Operation in 2.4GHz Direst Sequence Spread Spectrum (DSSS) and Orthogonal Frequency Division Multiplexing (OFDM) radio transmission, the 802.11b/g/n WLAN USB Dongle Wired Equivalent Protection (WEP) algorithm is used. In addition, its standard compliance ensures that it can communicate with any IEEE 802.11b and IEEE 802.11g/n network.

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

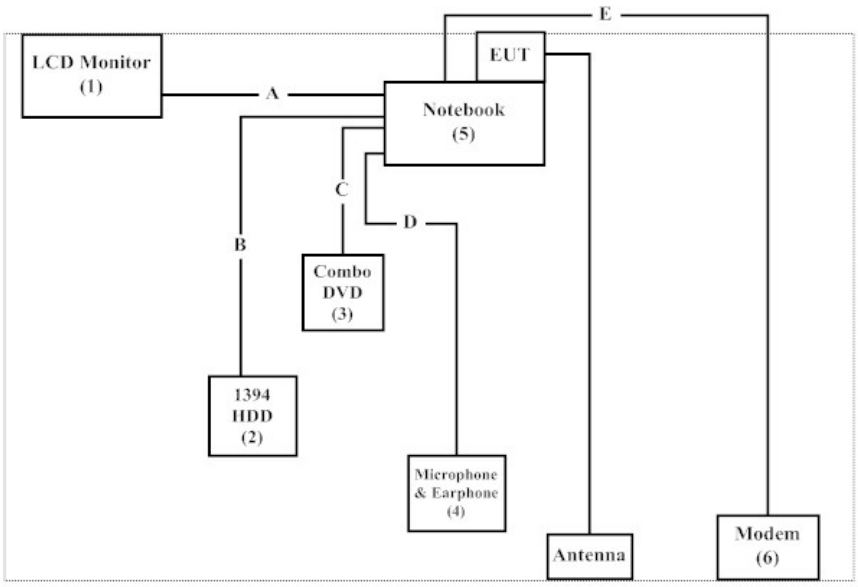
1.3. Tested System Details

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)	Monitor	Dell	2407WFPb	CN-0FC255-46633-67T-04HS	Non-Shielded, 1.8m
(2)	COMBO HDD	TeraSys	F12-UF	A0100215-64b0006	Non-Shielded, 1.8m
(3)	COMBO DVD	Dell	PD-01S	N/A	Non-Shielded, 2.0m
(4)	Microphone & Earphone	PCHOME	N/A	N/A	N/A
(5)	Notebook PC	DELL	PPT	N/A	Non-Shielded, 1.8m
(6)	Modem	ACEEX	DM-1414	0102027533	Non-Shielded, 1.8m

Signal Cable Type		Signal cable Description
A	VGA Cable	Shielded, 1.8m with two ferrite cores bonded.
B	1394 Cable	Non-Shielded, 1.2m
C	USB Cable	Non-Shielded, 0.3m
D	Microphone & Earphone Cable	Non-Shielded, 2.0m
E	RS-232 Cable	Non-Shielded, 1.2m

1.4. Configuration of Tested System



1.5. EUT Exercise Software

(1) Setup the EUT as shown in Section 1.3

(2) Execute “MP819xVC program”Ver 0.20.309.2009 on the EUT.

(3) Configure the test mode, the test channel, and the data rate.

(4) Press “OK” to start the continuous transmission.

(5) Verify that the EUT works properly.

1.6. Test Facility

Ambient conditions in the laboratory:

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

The related certificate for our laboratories about the test site and management system can be downloaded from QuieTek Corporation's Web Site : http://tw.quietek.com/modules/myalbum/
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
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Registration Number: 92195

Accreditation on NVLAP
NVLAP Lab Code: 200533-0

Site Name: Quietek Corporation
Site Address: No. 5-22, Ruei-Shu Valley, Ruei-Ping Tsuen,
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E-Mail : service@quietek.com

FCC Accreditation Number: TW1014

Testing Laboratory
0914

2. Conducted Emission

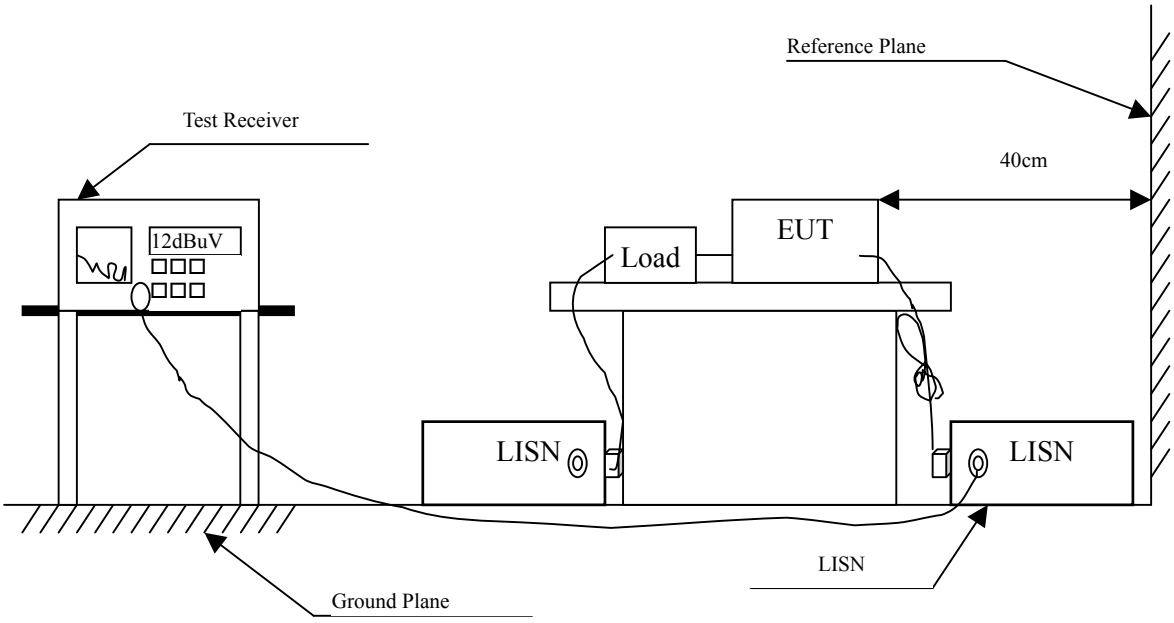
2.1. Test Equipment

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

Item	Instrument	Manufacturer	Type No./Serial No	Last Cal.	Remark
1	Test Receiver	R & S	ESCS 30/825442/17	May, 2009	
2	L.I.S.N.	R & S	ESH3-Z5/825016/6	May, 2009	EUT
3	L.I.S.N.	Kyoritsu	KNW-407/8-1420-3	May, 2009	Peripherals
4	Pulse Limiter	R & S	ESH3-Z2	May, 2009	
5	No.1 Shielded Room			N/A	

Note: All instruments are calibrated every one year.

2.2. Test Setup



2.3. Limits

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

2.4. Test Procedure

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

Both sides of A.C. line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.4: 2003 on conducted measurement.

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

2.5. Uncertainty

± 2.26 dB

2.6. Test Result of Conducted Emission

Product : 802.11b/g/n WLAN USB Dongle
Test Item : Conducted Emission Test
Power Line : Line 1
Test Mode : Mode 4: Transmitter (802.11n MCS0 13.5Mbps 40M-BW) (2437MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV	dB	dBuV
Line 1					
Quasi-Peak					
0.150	9.766	33.140	42.906	-23.094	66.000
0.177	9.730	30.140	39.869	-25.360	65.229
0.259	9.670	32.050	41.720	-21.166	62.886
0.545	9.640	36.790	46.430	-9.570	56.000
0.658	9.630	35.210	44.840	-11.160	56.000
1.209	9.670	31.160	40.830	-15.170	56.000
Average					
0.150	9.766	21.980	31.746	-24.254	56.000
0.177	9.730	21.910	31.639	-23.590	55.229
0.259	9.670	22.510	32.180	-20.706	52.886
0.545	9.640	28.170	37.810	-8.190	46.000
0.658	9.630	22.940	32.570	-13.430	46.000
1.209	9.670	21.980	31.650	-14.350	46.000

Note:

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

Product : 802.11b/g/n WLAN USB Dongle
Test Item : Conducted Emission Test
Power Line : Line 2
Test Mode : Mode 4: Transmitter (802.11n MCS0 13.5Mbps 40M-BW) (2437MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV	dB	dBuV
Line 2					
Quasi-Peak					
0.166	9.748	27.670	37.417	-28.126	65.543
0.193	9.721	41.730	51.451	-13.320	64.771
0.306	9.660	26.440	36.100	-25.443	61.543
0.545	9.640	18.460	28.100	-27.900	56.000
0.685	9.650	23.040	32.690	-23.310	56.000
1.244	9.670	41.820	51.490	-4.510	56.000
Average					
0.166	9.748	14.390	24.137	-31.406	55.543
0.193	9.721	20.910	30.631	-24.140	54.771
0.306	9.660	13.900	23.560	-27.983	51.543
0.545	9.640	10.120	19.760	-26.240	46.000
0.685	9.650	12.000	21.650	-24.350	46.000
1.244	9.670	21.380	31.050	-14.950	46.000

Note:

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

3. Peak Power Output

3.1. Test Equipment

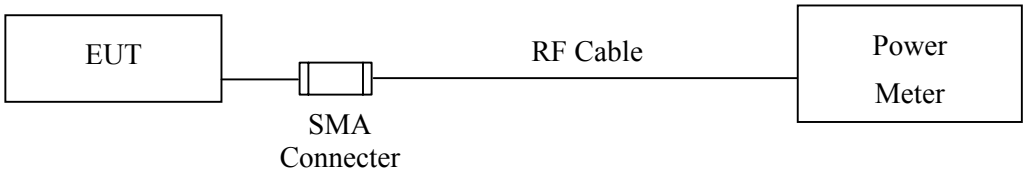
The following test equipments are used during the radiated emission tests:

	Equipment	Manufacturer	Model No./Serial No.	Last Cal.
X	Power Meter	Anritsu	ML2495A/6K00003357	May, 2009
X	Power Sensor	Anritsu	MA2491A/034457	May, 2009

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

3.2. Test Setup

Conducted Measurement



3.3. Limits

The maximum peak power shall be less 1 Watt.

3.4. Test Procedure

The EUT was tested according to DTS test procedure of Mar. 2005 KDB558074 for compliance to FCC 47CFR 15.247 requirements.

3.5. Uncertainty

± 1.27 dB

3.6. Test Result of Peak Power Output

Product : 802.11b/g/n WLAN USB Dongle
Test Item : Peak Power Output Data
Test Site : No.3 OATS
Test Mode : Mode 1: Transmitter (802.11b 1Mbps)

Cable Loss=0.5dB		Peak Power Output				
Channel No.	Frequency (MHz)	Data Rate				Required Limit
		1	2	5.5	11	
1	2412.00	15.44	--	--	--	1Watt= 30 dBm
6	2437.00	15.16	15.14	15.12	15.13	1Watt= 30 dBm
11	2462.00	15.44	--	--	--	1Watt= 30 dBm

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

Product : 802.11b/g/n WLAN USB Dongle
Test Item : Peak Power Output Data
Test Site : No.3 OATS
Test Mode : Mode 2: Transmitter (802.11g 6Mbps)

Cable Loss=0.5dB		Peak Power Output								
Channel No.	Frequency (MHz)	Data Rate								Required Limit
		6	9	12	18	24	36	48	54	
1	2412.00	20.26	--	--	--	--	--	--	--	1Watt= 30 dBm
6	2437.00	20.27	20.24	20.23	20.21	20.18	20.19	20.21	20.22	1Watt= 30 dBm
11	2462.00	20.04	--	--	--	--	--	--	--	1Watt= 30 dBm

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

Product : 802.11b/g/n WLAN USB Dongle
Test Item : Peak Power Output Data
Test Site : No.3 OATS
Test Mode : Mode 3: Transmitter (802.11n MCS0 6.5Mbps 20M-BW)

Cable Loss=0.5dB		Peak Power Output								
Channel No.	Frequency (MHz)	Data Rate								Required Limit
		14.4	28.8	43.4	57.8	86.6	115.6	130	144.4	
1	2412.00	20.04	--	--	--	--	--	--	--	1Watt= 30 dBm
6	2437.00	20.22	20.21	20.18	20.16	20.18	20.16	20.14	20.19	1Watt= 30 dBm
11	2462.00	20.05	--	--	--	--	--	--	--	1Watt= 30 dBm

Note: Peak Power Output Value =Ant A + Ant B

Product : 802.11b/g/n WLAN USB Dongle
Test Item : Peak Power Output Data
Test Site : No.3 OATS
Test Mode : Mode 4: Transmitter (802.11n MCS0 13.5Mbps 40M-BW)

Cable Loss=0.5dB		Peak Power Output								
Channel No.	Frequency (MHz)	Data Rate								Required Limit
		30	60	90	120	180	240	270	300	
1	2422.00	20.36	--	--	--	--	--	--	--	1Watt= 30 dBm
4	2437.00	20.17	20.14	20.12	20.11	20.13	20.11	20.12	20.14	1Watt= 30 dBm
7	2452.00	19.99	--	--	--	--	--	--	--	1Watt= 30 dBm

Note: Peak Power Output Value =Ant A + Ant B

4. Radiated Emission

4.1. Test Equipment

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

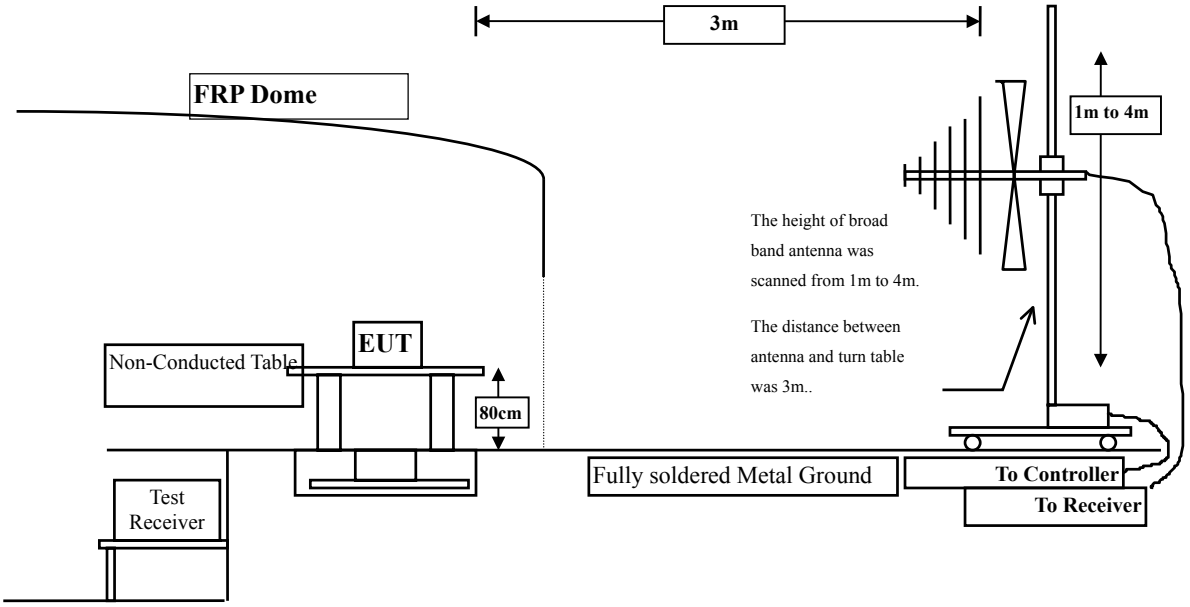
Test Site	Equipment		Manufacturer	Model No./Serial No.	Last Cal.
☒Site # 3	X	Bilog Antenna	Schaffner Chase	CBL6112B/2673	Sep., 2008
	X	Horn Antenna	Schwarzbeck	BBHA9120D/D305	Sep., 2008
	X	Horn Antenna	Schwarzbeck	BBHA9170/208	Jul., 2009
	X	Pre-Amplifier	AGILENT	8447D/2944A09549	Sep., 2008
	X	Test Receiver	R & S	ESCS 30/ 825442/018	Sep., 2008
	X	Spectrum Analyzer	Advantest	R3162/91700283	Oct., 2008
	X	Coaxial Cable	QuieTek	QTK-CABLE/ CAB5	Feb., 2009
	X	Controller	QuieTek	QTK-CONTROLLER/ CTRL3	N/A
	X	Coaxial Switch	Anritsu	MP59B/6200265729	N/A

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

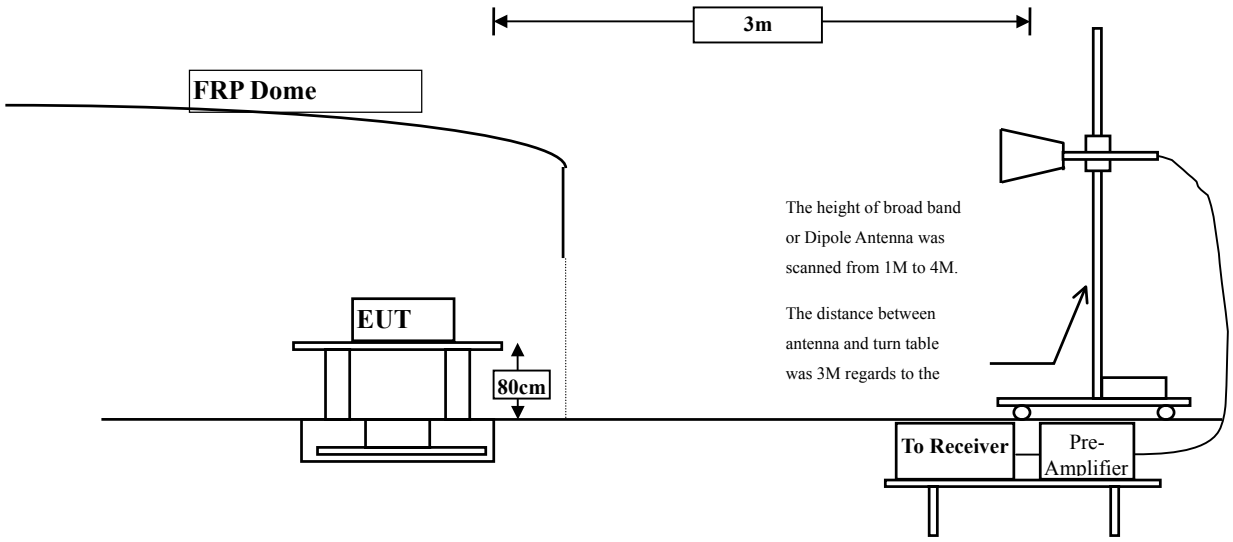
2. The test instruments marked with "X" are used to measure the final test results.

4.2. Test Setup

Radiated Emission Below 1GHz



Radiated Emission Above 1GHz



4.3. Limits

Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 20dB below the level of the fundamental or to the general radiated emission limits in paragraph 15.209, whichever is the lesser attenuation.

FCC Part 15 Subpart C Paragraph 15.209(a) Limits		
Frequency MHz	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)

4.4. Test Procedure

The EUT was setup according to ANSI C63.4, 2003 and tested according to DTS test procedure of Mar. 2005 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 beamwidth of the antenna.
The worst radiated emission is measured in the Open Area Test Site on the Final Measurement.
The measurement frequency range form 30MHz - 10th Harmonic of fundamental was investigated.

4.5. Uncertainty

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

4.6. Test Result of Radiated Emission

Product : 802.11b/g/n WLAN USB Dongle
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 1: Transmitter (802.11b 1Mbps) (2412MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Peak Detector:					
4824.000	9.582	41.010	50.592	-23.408	74.000
7236.000	14.401	36.600	51.001	-22.999	74.000
9648.000	19.795	35.780	55.575	-18.425	74.000
Average Detector:					
9648.000	19.795	22.720	42.515	-11.485	54.000
Vertical					
Peak Detector:					
4824.000	8.462	44.280	52.742	-21.258	74.000
7236.000	15.412	36.740	52.152	-21.848	74.000
9648.000	19.005	35.890	54.895	-19.105	74.000
Average Detector:					
9648.000	19.005	23.050	42.055	-11.945	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. " * ", means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : 802.11b/g/n WLAN USB Dongle
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 1: Transmitter (802.11b 1Mbps) (2437 MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	Db	dBuV	dBuV/m	Db	dBuV/m
Horizontal					
Peak Detector:					
4874.000	9.473	40.690	50.163	-23.837	74.000
7311.000	14.540	35.030	49.569	-24.431	74.000
9748.000	20.024	36.450	56.475	-17.525	74.000
Average					
Detector:					
9748.000	20.024	22.950	42.975	-11.025	54.000
Vertical					
Peak Detector:					
4874.000	8.882	43.330	52.211	-21.789	74.000
7311.000	15.283	35.070	50.353	-23.647	74.000
9748.000	19.228	36.130	55.359	-18.641	74.000
Average					
Detector:					
9748.000	19.228	23.090	42.319	-11.681	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. " * ", means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : 802.11b/g/n WLAN USB Dongle
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 1: Transmitter (802.11b 1Mbps) (2462 MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	Db	dBuV	dBuV/m	Db	dBuV/m
Horizontal Peak Detector:					
4924.000	9.487	39.900	49.386	-24.614	74.000
7386.000	14.798	34.490	49.288	-24.712	74.000
9848.000	20.005	36.140	56.146	-17.854	74.000
Average Detector:					
9848.000	20.005	22.870	42.876	-11.124	54.000
Vertical Peak Detector:					
4924.000	9.415	41.510	50.924	-23.076	74.000
7386.000	15.269	34.590	49.859	-24.141	74.000
9848.000	19.191	36.270	55.461	-18.539	74.000
Average Detector:					
9848.000	19.191	23.090	42.281	-11.719	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. " * ", means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : 802.11b/g/n WLAN USB Dongle
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 2: Transmitter (802.11g 6Mbps) (2412MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	Db	dBuV	dBuV/m	Db	dBuV/m
Horizontal					
Peak Detector:					
4824.000	9.582	40.410	49.992	-24.008	74.000
7236.000	14.401	35.860	50.261	-23.739	74.000
9648.000	19.795	35.730	55.525	-18.475	74.000
Average Detector:					
9648.000	19.795	22.980	42.775	-11.225	54.000
Vertical					
Peak Detector:					
4824.000	8.462	44.990	53.452	-20.548	74.000
7236.000	15.412	36.710	52.122	-21.878	74.000
9648.000	19.005	35.510	54.515	-19.485	74.000
Average Detector:					
9648.000	19.005	23.210	42.215	-11.785	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. " * ", means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : 802.11b/g/n WLAN USB Dongle
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 2: Transmitter (802.11g 6Mbps) (2437 MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	Db	dBuV	dBuV/m	Db	dBuV/m
Horizontal Peak Detector:					
4874.000	9.473	39.350	48.823	-25.177	74.000
7311.000	14.540	34.620	49.159	-24.841	74.000
9748.000	20.024	35.510	55.535	-18.465	74.000
Average Detector:					
9748.000	20.024	22.920	42.945	-11.055	54.000
Vertical Peak Detector:					
4874.000	8.882	41.570	50.451	-23.549	74.000
7311.000	15.283	36.490	51.773	-22.227	74.000
9748.000	19.228	37.120	56.349	-17.651	74.000
Average Detector:					
9748.000	19.228	23.200	42.429	-11.571	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. " * ", means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : 802.11b/g/n WLAN USB Dongle
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 2: Transmitter (802.11g 6Mbps) (2462 MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	Db	dBuV	dBuV/m	Db	dBuV/m
Horizontal					
Peak Detector:					
4924.000	9.487	37.870	47.356	-26.644	74.000
7386.000	14.798	34.270	49.068	-24.932	74.000
9848.000	20.005	35.850	55.856	-18.144	74.000
Average					
Detector:					
9848.000	20.005	22.860	42.866	-11.134	54.000
Vertical					
Peak Detector:					
4924.000	9.415	38.150	47.564	-26.436	74.000
7386.000	15.269	35.620	50.889	-23.111	74.000
9848.000	19.191	36.080	55.271	-18.729	74.000
Average					
Detector:					
9848.000	19.191	23.110	42.301	-11.699	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. " * ", means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : 802.11b/g/n WLAN USB Dongle
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 3: Transmitter (802.11n MCS0 6.5Mbps 20M-BW) (2412MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	Db	dBuV	dBuV/m	Db	dBuV/m
Horizontal					
Peak Detector:					
4824.000	9.582	37.150	46.732	-27.268	74.000
7236.000	14.401	35.790	50.191	-23.809	74.000
9648.000	19.795	35.620	55.415	-18.585	74.000
Average Detector:					
9648.000	19.795	23.050	42.845	-11.155	54.000
Vertical					
Peak Detector:					
4824.000	8.462	38.250	46.712	-27.288	74.000
7236.000	15.412	35.570	50.982	-23.018	74.000
9648.000	19.005	35.870	54.875	-19.125	74.000
Average Detector:					
9648.000	19.005	23.110	42.115	-11.885	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. " * ", means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : 802.11b/g/n WLAN USB Dongle
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 3: Transmitter (802.11n MCS0 6.5Mbps 20M-BW) (2437 MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	Db	dBuV	dBuV/m	Db	dBuV/m
Horizontal Peak Detector:					
4874.000	9.473	39.500	48.973	-25.027	74.000
7311.000	14.540	34.570	49.109	-24.891	74.000
9748.000	20.024	36.010	56.035	-17.965	74.000
Average Detector:					
9748.000	20.024	23.130	43.155	-10.845	54.000
Vertical Peak Detector:					
4874.000	8.882	41.780	50.661	-23.339	74.000
7311.000	15.283	35.670	50.953	-23.047	74.000
9748.000	19.228	36.000	55.229	-18.771	74.000
Average Detector:					
9748.000	19.228	23.210	42.439	-11.561	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. " * ", means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : 802.11b/g/n WLAN USB Dongle
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 3: Transmitter (802.11n MCS0 6.5Mbps 20M-BW) (2462 MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	Db	dBuV	dBuV/m	Db	dBuV/m
Horizontal					
Peak Detector:					
4924.000	9.487	37.200	46.686	-27.314	74.000
7386.000	14.798	35.690	50.488	-23.512	74.000
9848.000	20.005	36.030	56.036	-17.964	74.000
Average					
Detector:					
9848.000	20.005	23.190	43.196	-10.804	54.000
Vertical					
Peak Detector:					
4924.000	9.415	37.770	47.184	-26.816	74.000
7386.000	15.269	34.690	49.959	-24.041	74.000
9848.000	19.191	35.900	55.091	-18.909	74.000
Average					
Detector:					
9848.000	19.191	22.980	42.171	-11.829	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. " * ", means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : 802.11b/g/n WLAN USB Dongle
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 4: Transmitter (802.11n MCS0 13.5Mbps 40M-BW) (2422MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	Db	dBuV	dBuV/m	Db	dBuV/m
Horizontal					
Peak Detector:					
4844.000	9.536	36.890	46.426	-27.574	74.000
7266.000	14.459	35.750	50.209	-23.791	74.000
9688.000	19.847	36.020	55.867	-18.133	74.000
Average Detector:					
9688.000	19.847	23.050	42.897	-11.103	54.000
Vertical					
Peak Detector:					
4844.000	8.627	38.000	46.627	-27.373	74.000
7266.000	15.363	35.780	51.144	-22.856	74.000
9688.000	19.057	36.880	55.937	-18.063	74.000
Average Detector:					
9688.000	19.057	23.160	42.217	-11.783	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. " * ", means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : 802.11b/g/n WLAN USB Dongle
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 4: Transmitter (802.11n MCS0 13.5Mbps 40M-BW) (2437 MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal Peak Detector:					
4874.000	9.473	38.500	47.973	-26.027	74.000
7311.000	14.540	35.290	49.829	-24.171	74.000
9748.000	20.024	36.660	56.685	-17.315	74.000
Average Detector:					
9748.000	20.024	23.080	43.105	-10.895	54.000
Vertical Peak Detector:					
4874.000	8.882	40.710	49.591	-24.409	74.000
7311.000	15.283	35.640	50.923	-23.077	74.000
9748.000	19.228	36.230	55.459	-18.541	74.000
Average Detector:					
9748.000	19.228	23.210	42.439	-11.561	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. " * ", means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : 802.11b/g/n WLAN USB Dongle
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 4: Transmitter (802.11n MCS0 13.5Mbps 40M-BW) (2452 MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal Peak Detector:					
4904.000	9.518	38.090	47.608	-26.392	74.000
7356.000	14.741	34.850	49.590	-24.410	74.000
9808.000	20.066	36.530	56.596	-17.404	74.000
Average Detector:					
9808.000	20.066	23.090	43.156	-10.844	54.000
Vertical Peak Detector:					
4904.000	9.235	37.320	46.554	-27.446	74.000
7356.000	15.318	35.170	50.488	-23.512	74.000
9808.000	19.266	36.250	55.516	-18.484	74.000
Average Detector:					
9808.000	19.266	23.110	42.376	-11.624	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. " * ", means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : 802.11b/g/n WLAN USB Dongle
Test Item : General Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 1: Transmitter (802.11b 1Mbps)(2437 MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
256.980	-5.478	37.123	31.645	-14.355	46.000
398.600	-2.791	30.566	27.775	-18.225	46.000
499.480	-0.442	30.346	29.903	-16.097	46.000
697.360	2.720	23.328	26.048	-19.952	46.000
870.020	4.798	23.217	28.015	-17.985	46.000
967.020	6.391	24.425	30.816	-23.184	54.000
Vertical					
251.160	-7.898	42.119	34.221	-11.779	46.000
371.440	-3.274	35.854	32.579	-13.421	46.000
499.480	-1.342	30.177	28.834	-17.166	46.000
674.080	-0.947	32.889	31.942	-14.058	46.000
875.840	1.211	27.972	29.183	-16.817	46.000
965.080	7.397	23.027	30.424	-23.576	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. " * ", means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : 802.11b/g/n WLAN USB Dongle
Test Item : General Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 2: Transmitter (802.11g 6Mbps)(2437 MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
255.040	-5.498	42.564	37.066	-8.934	46.000
371.440	-1.634	36.137	34.502	-11.498	46.000
507.240	0.254	29.609	29.863	-16.137	46.000
674.080	2.353	32.772	35.125	-10.875	46.000
875.840	4.861	26.799	31.660	-14.340	46.000
932.100	6.430	24.526	30.956	-15.044	46.000
Vertical					
249.220	-8.023	42.266	34.243	-11.757	46.000
371.440	-3.274	36.384	33.109	-12.891	46.000
499.480	-1.342	30.853	29.510	-16.490	46.000
674.080	-0.947	33.069	32.122	-13.878	46.000
875.840	1.211	28.699	29.910	-16.090	46.000
967.020	7.541	23.536	31.077	-22.923	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. " * ", means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : 802.11b/g/n WLAN USB Dongle
Test Item : General Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 3: Transmitter (802.11n MCS0 6.5Mbps 20M-BW)(2437 MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
249.220	-6.403	42.266	35.863	-10.137	46.000
371.440	-1.634	36.384	34.749	-11.251	46.000
497.540	-0.760	31.657	30.897	-15.103	46.000
633.340	1.387	28.419	29.806	-16.194	46.000
763.320	3.813	25.818	29.632	-16.368	46.000
875.840	4.861	28.699	33.560	-12.440	46.000
Vertical					
253.100	-7.994	41.738	33.745	-12.255	46.000
371.440	-3.274	35.600	32.325	-13.675	46.000
499.480	-1.342	28.985	27.642	-18.358	46.000
749.740	1.998	23.870	25.868	-20.132	46.000
899.120	2.608	27.089	29.697	-16.303	46.000
967.020	7.541	22.791	30.332	-23.668	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. " * ", means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : 802.11b/g/n WLAN USB Dongle
Test Item : General Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 4: Transmitter (802.11n MCS0 13.5Mbps 40M-BW)(2437 MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
255.040	-5.498	39.850	34.352	-11.648	46.000
359.800	-2.120	29.737	27.618	-18.382	46.000
544.100	2.992	24.303	27.295	-18.705	46.000
674.080	2.353	34.328	36.681	-9.319	46.000
786.600	4.305	23.994	28.299	-17.701	46.000
930.160	6.700	22.428	29.128	-16.872	46.000
Vertical					
253.100	-7.994	40.129	32.136	-13.864	46.000
371.440	-3.274	34.426	31.151	-14.849	46.000
629.460	-4.201	27.795	23.594	-22.406	46.000
763.320	1.823	24.853	26.677	-19.323	46.000
825.400	3.125	24.872	27.996	-18.004	46.000
961.200	6.724	23.404	30.128	-23.872	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. " * ", means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.

5. RF antenna conducted test

5.1. Test Equipment

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

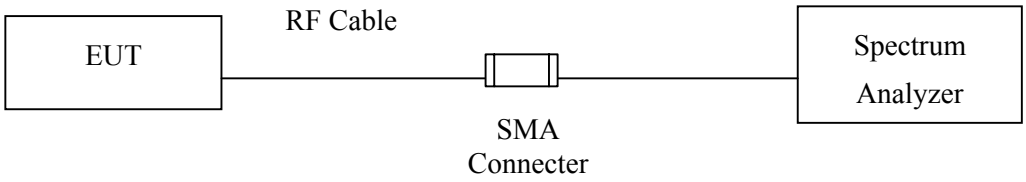
	Equipment	Manufacturer	Model No./Serial No.	Last Cal.
	Spectrum Analyzer	R&S	FSP40 / 100170	Nov, 2008
	Spectrum Analyzer	Agilent	E4407B / US39440758	May, 2009
X	Spectrum Analyzer	Agilent	N9010A / MY48030495	Apr., 2009

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

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

5.2. Test Setup

RF antenna Conducted Measurement:



5.3. Limits

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement. Attenuation below the general limits specified in Section 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a) (see Section 15.205(c)).

5.4. Test Procedure

The EUT was tested according to DTS test procedure of Mar. 2005 KDB558074 for compliance to FCC 47CFR 15.247 requirements.

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

5.5. Uncertainty

The measurement uncertainty
Conducted is defined as ± 1.27dB

5.6. Test Result of RF antenna conducted test

Product : 802.11b/g/n WLAN USB Dongle
Test Item : RF antenna conducted test
Test Site : No.3 OATS
Test Mode : Mode 1: Transmitter (802.11b 1Mbps)

Channel 01 (2412MHz) 30 MHz -25GHz

Channel 06 (2437MHz) 30 MHz -25GHz

Channel 11 (2462MHz) 30 MHz -25GHz

Product : 802.11b/g/n WLAN USB Dongle
Test Item : RF Antenna Conducted Spurious
Test Site : No.3 OATS
Test Mode : Mode 2: Transmitter (802.11g 6Mbps)

Channel 01 (2412MHz) 30 MHz -25GHz

Channel 06 (2437MHz) 30 MHz -25GHz

Channel 11 (2462MHz) 30 MHz -25GHz

Product : 802.11b/g/n WLAN USB Dongle
Test Item : RF Antenna Conducted Spurious
Test Site : No.3 OATS
Test Mode : Mode 3: Transmitter (802.11n MCS0 6.5Mbps 20M-BW)

Channel 01 (2412MHz) 30 MHz -25GHz

Channel 06 (2437MHz) 30 MHz -25GHz

Channel 11 (2462MHz) 30 MHz -25GHz

Product : 802.11b/g/n WLAN USB Dongle
Test Item : RF Antenna Conducted Spurious
Test Site : No.3 OATS
Test Mode : Mode 4: Transmitter (802.11n MCS0 13.5Mbps 40M-BW)

Channel 01 (2422MHz) 30 MHz -25GHz

Channel 04 (2437MHz) 30 MHz -25GHz

Channel 07 (2452MHz) 30MHz-25GHz

6. Band Edge

6.1. Test Equipment

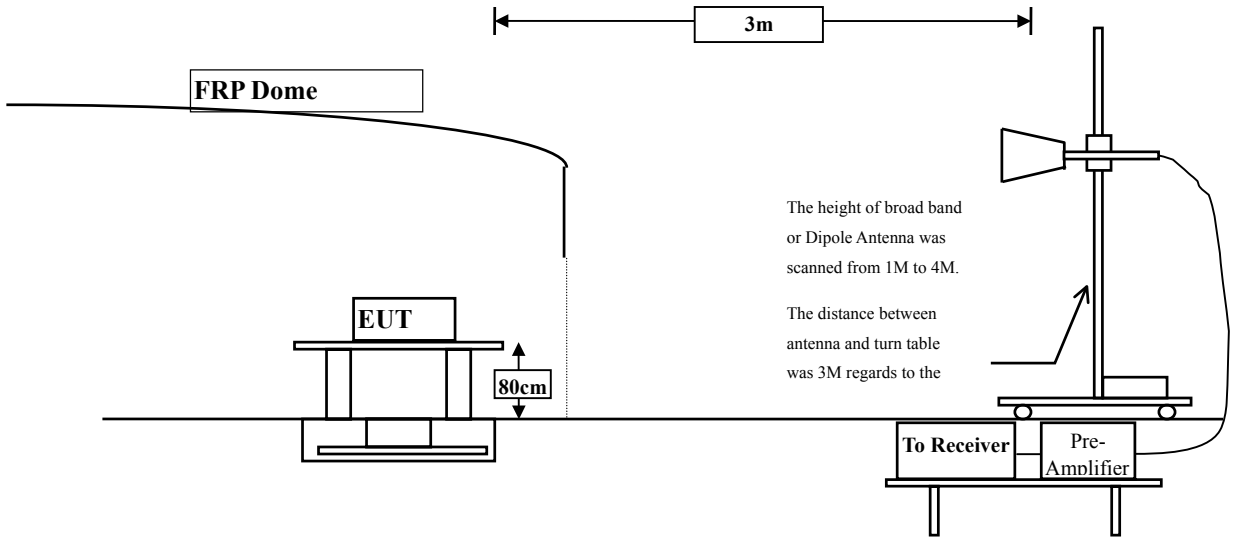
The following test equipments are used during the band edge tests:

Test Site		Equipment	Manufacturer	Model No./Serial No.	Last Cal.
☒Site # 3	X	Spectrum Analyzer	Agilent	N9010A / MY48030495	Apr, 2009
		Bilog Antenna	Schaffner Chase	CBL6112B/2673	Sep., 2008
	X	Horn Antenna	Schwarzbeck	BBHA9120D/D305	Sep., 2008
	X	Pre-Amplifier	AGILENT	8447D/2944A09549	Sep., 2008
	X	Test Receiver	R & S	ESCS 30/ 825442/018	Sep., 2008
	X	Spectrum Analyzer	Advantest	R3162/91700283	Oct., 2008
	X	Coaxial Cable	QuieTek	QTK-CABLE/ CAB5	Feb., 2009
	X	Controller	QuieTek	QTK-CONTROLLER/ CTRL3	N/A
	X	Coaxial Switch	Anritsu	MP59B/6200265729	N/A

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

6.2. Test Setup

RF Radiated Measurement:



6.3. Limits

Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 20dB below the level of the fundamental or to the general radiated emission limits in paragraph 15.209, whichever is the lesser attenuation.

6.4. Test Procedure

The EUT was setup according to ANSI C63.4, 2003 and tested according to DTS test procedure of Mar. 2005 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.

6.5. Uncertainty

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

6.6. Test Result of Band Edge

Product : 802.11b/g/n WLAN USB Dongle
Test Item : Band Edge Data
Test Site : No.3 OATS
Test Mode : Mode 1: Transmitter (802.11b 1Mbps) (2412MHz)

Marker Delta Method (Low band)

Fundamental Filed Strength

Antenna Pole	Frequency [MHz]	Correction Factor [dB/m]	Reading Level [dBuV]	Emission Level [dBuV/m]	Detector
Horizontal	2412	36.613	58.524	95.137	Peak
Horizontal	2412	36.855	50.411	87.266	Average
Vertical	2412	35.630	75.965	111.595	Peak
Vertical	2412	35.624	68.617	104.241	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)	Detector
Horizontal	2372.3	95.137	54.048	41.089	Peak
Horizontal	2372.3	87.266	57.507	29.759	Average
Vertical	2372.3	111.595	54.048	54.186	Peak
Vertical	2372.3	104.241	57.507	46.734	Average

Note:

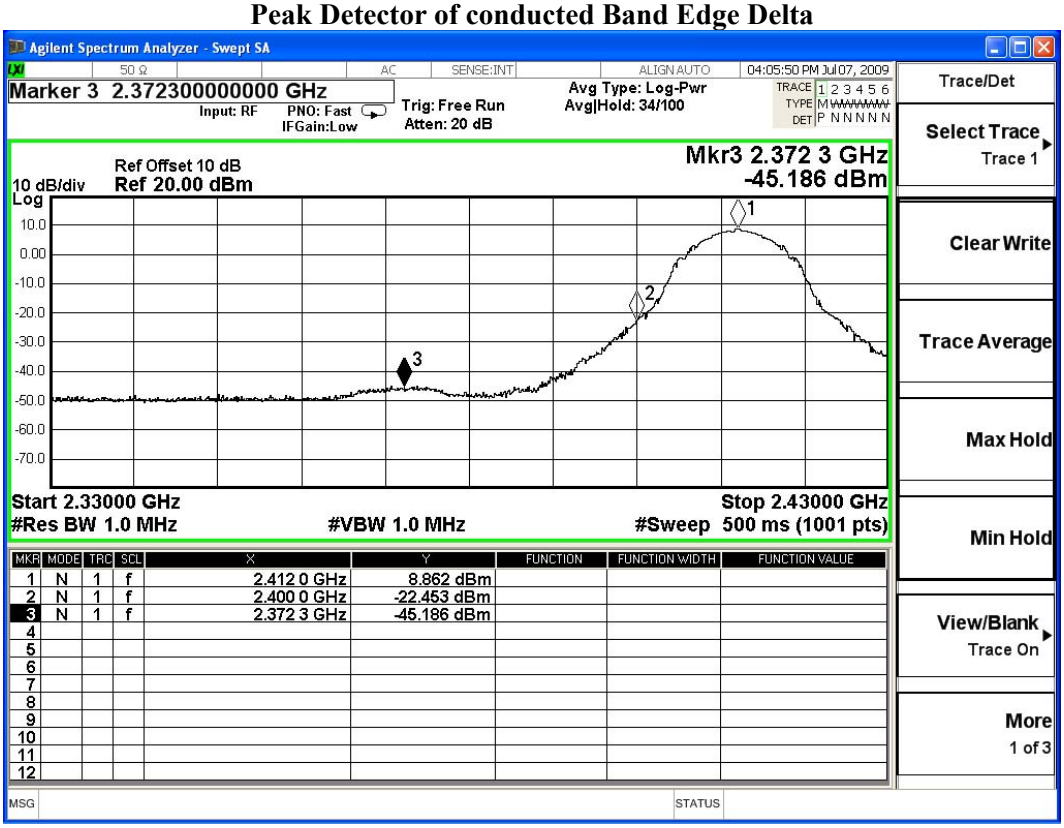
1. The Marker Delta Method is refer to FCC DA 00-705.
2. The Band Edge Field Strength was calculated using the Fundamental and Conducted Band Edge measurements per the Marker-Delta Method with the following formula:

   Band Edge field Strength = F - Δ

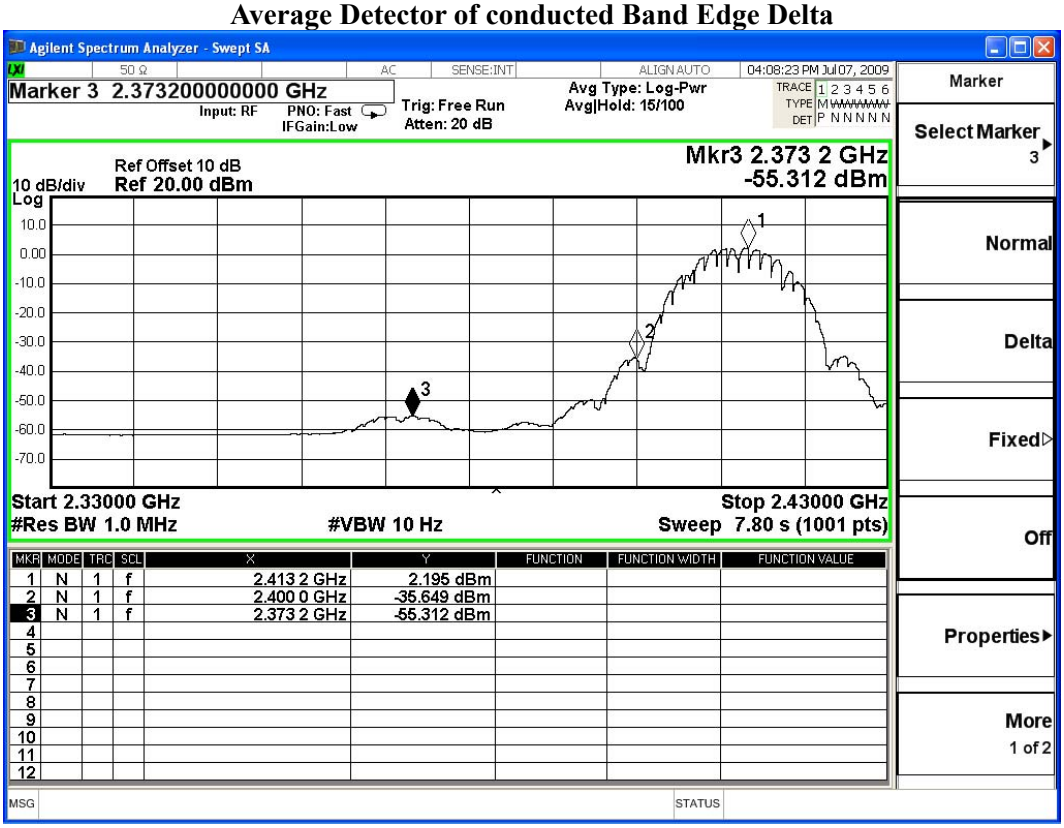
   F = Fundamental field Strength (Peak or Average)

   Δ = Conducted Band Edge Delta (Peak or Average)
3. AVG Measurement=Peak Measurement + Duty Cycle.
4. If Duty Cycle is smaller than -20dB,based on FCC part15 the duty cycle correction factor is -20dB for calculating average emission.

Peak Detector of conducted Band Edge Delta



Average Detector of conducted Band Edge Delta



Product : 802.11b/g/n WLAN USB Dongle
Test Item : Band Edge Data
Test Site : No.3 OATS
Test Mode : Mode 1: Transmitter (802.11b 1Mbps) (2462MHz)

Marker Delta Method (Low band)

Fundamental Filed Strength

Antenna Pole	Frequency [MHz]	Correction Factor [dB/m]	Reading Level [dBuV]	Emission Level [dBuV/m]	Detector
Horizontal	2462	56.392	36.669	96.537	Peak
Horizontal	2462	52.394	35.186	87.580	Average
Vertical	2462	72.865	36.038	108.903	Peak
Vertical	2462	65.820	36.030	101.849	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)	Detector
Horizontal	2483.5	96.537	50.566	45.971	Peak
Horizontal	2483.5	87.580	58.230	29.350	Average
Vertical	2483.5	108.903	50.566	58.337	Peak
Vertical	2483.5	101.849	58.230	43.619	Average

Note:

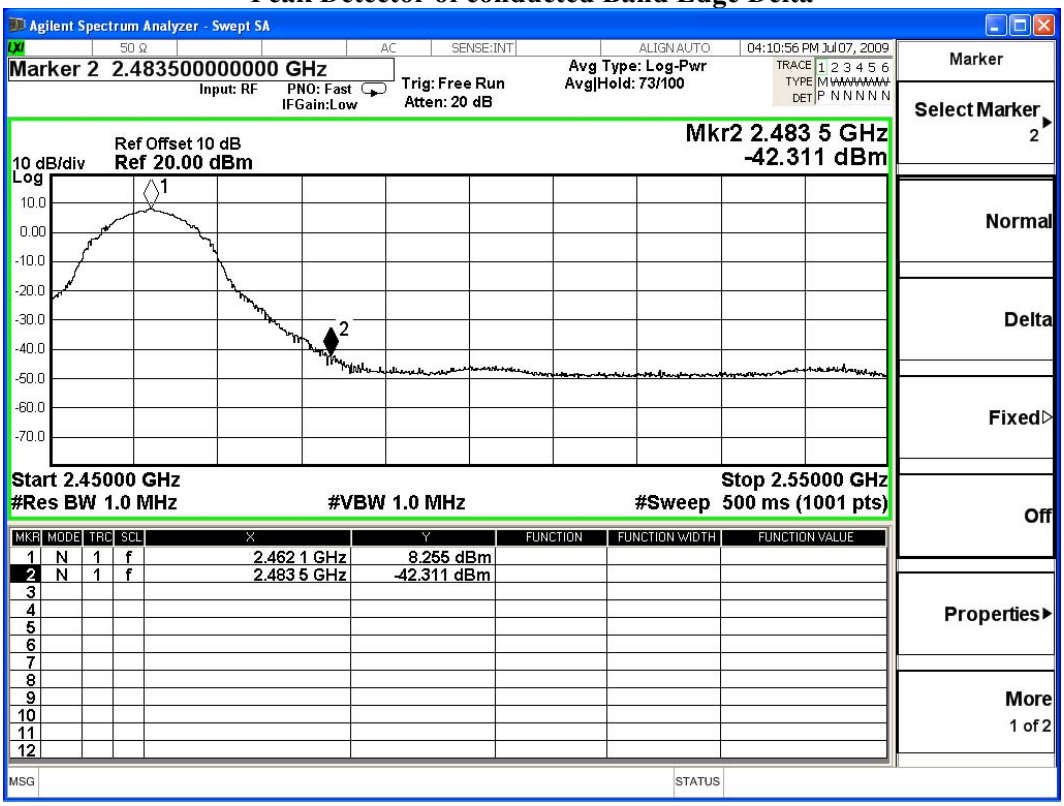
1. The Marker Delta Method is refer to FCC DA 00-705.
2. The Band Edge Field Strength was calculated using the Fundamental and Conducted Band Edge measurements per the Marker-Delta Method with the following formula:

   Band Edge field Strength = F - Δ

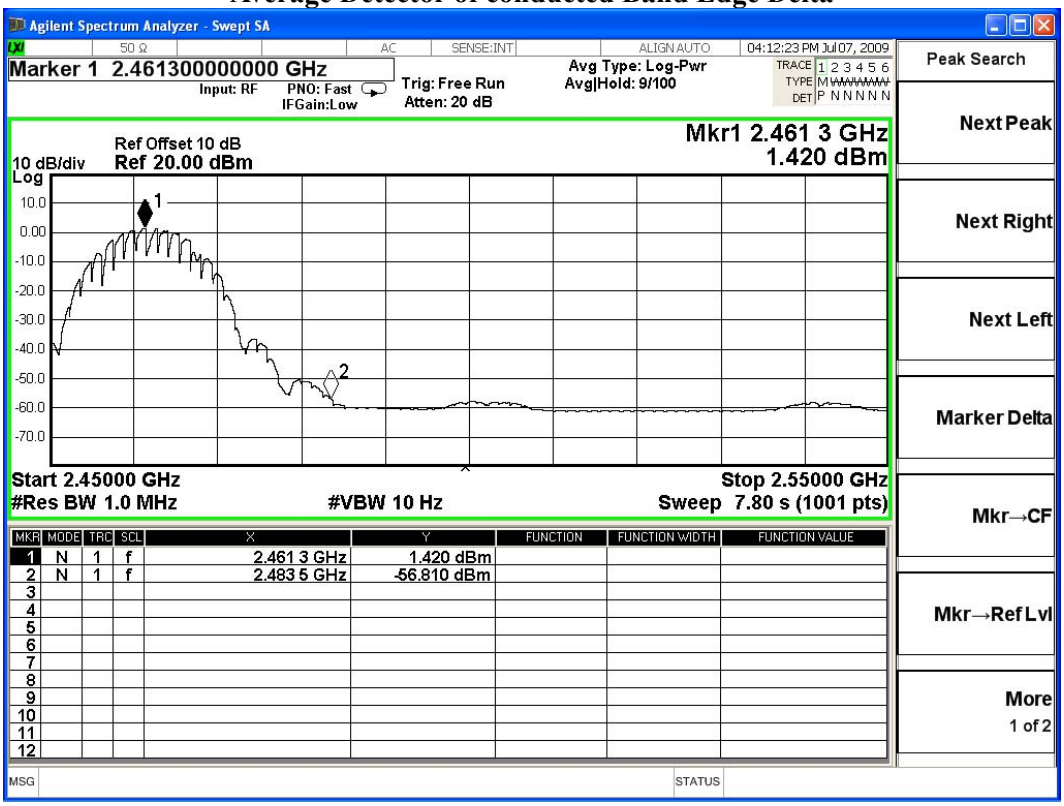
   F = Fundamental field Strength (Peak or Average)

   Δ = Conducted Band Edge Delta (Peak or Average)
3. AVG Measurement=Peak Measurement + Duty Cycle.
4. If Duty Cycle is smaller than -20dB,based on FCC part15 the duty cycle correction factor is -20dB for calculating average emission.

Peak Detector of conducted Band Edge Delta



Average Detector of conducted Band Edge Delta



Product : 802.11b/g/n WLAN USB Dongle
Test Item : Band Edge Data
Test Site : No.3 OATS
Test Mode : Mode 2: Transmitter (802.11g 6Mbps) (2412MHz)

Marker Delta Method (Low band)

Fundamental Filed Strength

Antenna Pole	Frequency [MHz]	Correction Factor [dB/m]	Reading Level [dBuV]	Emission Level [dBuV/m]	Detector
Horizontal	2412	36.613	60.731	97.344	Peak
Horizontal	2412	35.827	42.581	78.408	Average
Vertical	2412	35.660	74.656	110.316	Peak
Vertical	2412	35.664	61.189	96.853	Average

Note: 1:Spectrum Analyzer setting:

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

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

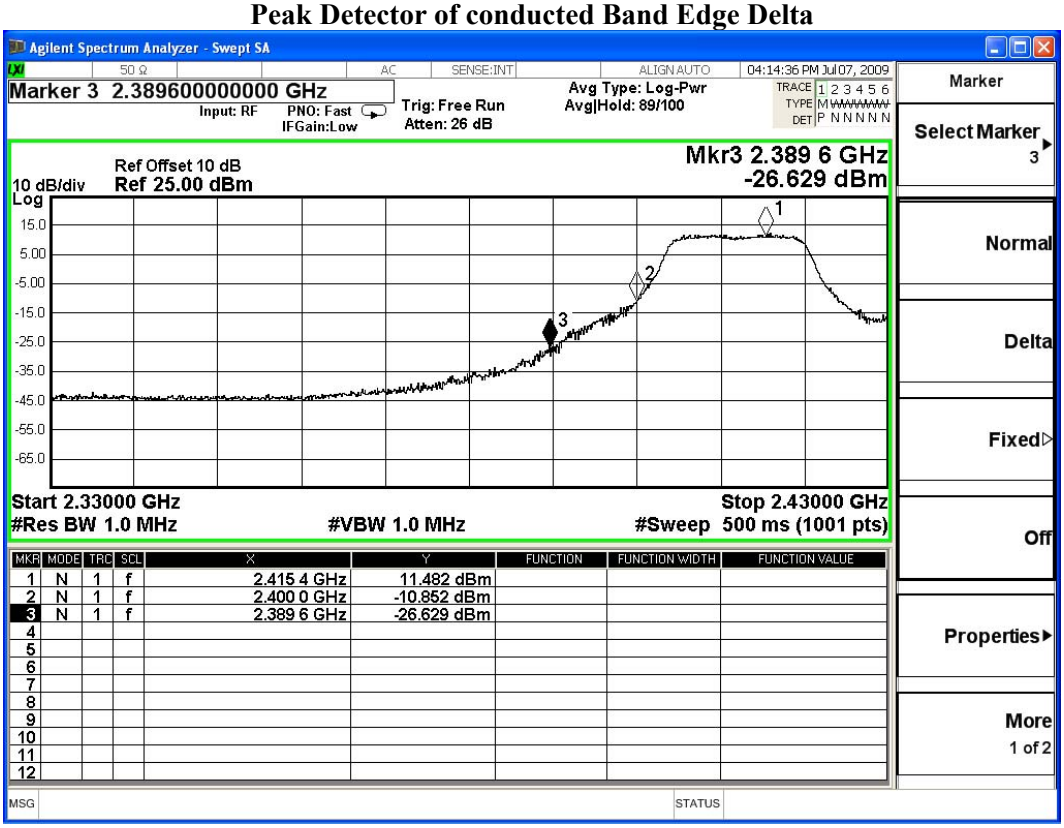
Band Edge Test Data

Antenna Pole	Test Frequency (MHz)	Fundamental (dBuV/m)	Δ (dB)	Band Edge Field Strength (dBuV/m)	Detector
Horizontal	2389.6	97.344	38.111	59.223	Peak
Horizontal	2389.6	78.408	46.537	31.871	Average
Vertical	2389.6	110.316	38.111	72.205	Peak
Vertical	2389.6	96.853	46.537	50.316	Average

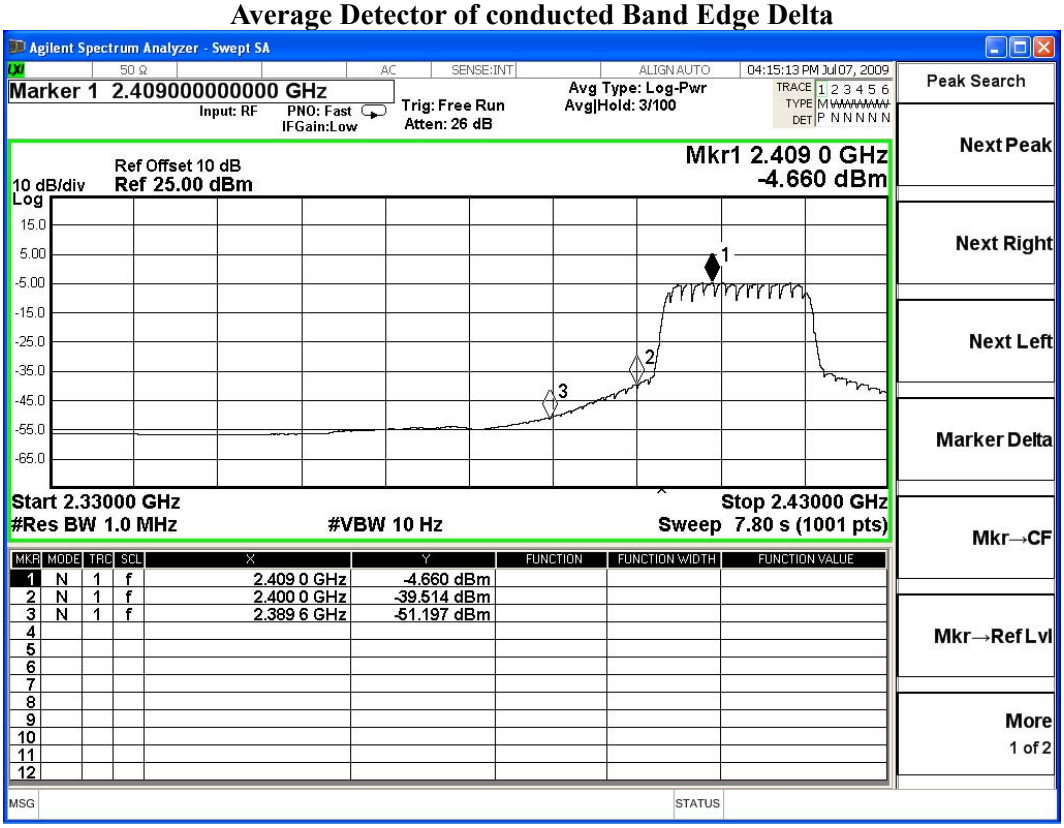
Note:

1. The Marker Delta Method is refer to FCC DA 00-705.
2. 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)
3. AVG Measurement=Peak Measurement + Duty Cycle.
4. If Duty Cycle is smaller than -20dB,based on FCC part15 the duty cycle correction factor is -20dB for calculating average emission.

Peak Detector of conducted Band Edge Delta



Average Detector of conducted Band Edge Delta



Product : 802.11b/g/n WLAN USB Dongle
Test Item : Band Edge Data
Test Site : No.3 OATS
Test Mode : Mode 2: Transmitter (802.11g 6Mbps) (2462MHz)

Marker Delta Method (Low band)

Fundamental Filed Strength

Antenna Pole	Frequency [MHz]	Correction Factor [dB/m]	Reading Level [dBuV]	Emission Level [dBuV/m]	Detector
Horizontal	2462	58.420	36.682	95.102	Peak
Horizontal	2462	40.963	36.098	77.061	Average
Vertical	2462	74.227	36.050	110.274	Peak
Vertical	2462	58.127	36.010	94.137	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)	Detector
Horizontal	2483.5	95.102	41.366	53.736	Peak
Horizontal	2483.5	77.061	45.205	31.856	Average
Vertical	2483.5	110.274	41.366	68.908	Peak
Vertical	2483.5	94.137	45.205	48.932	Average

Note:

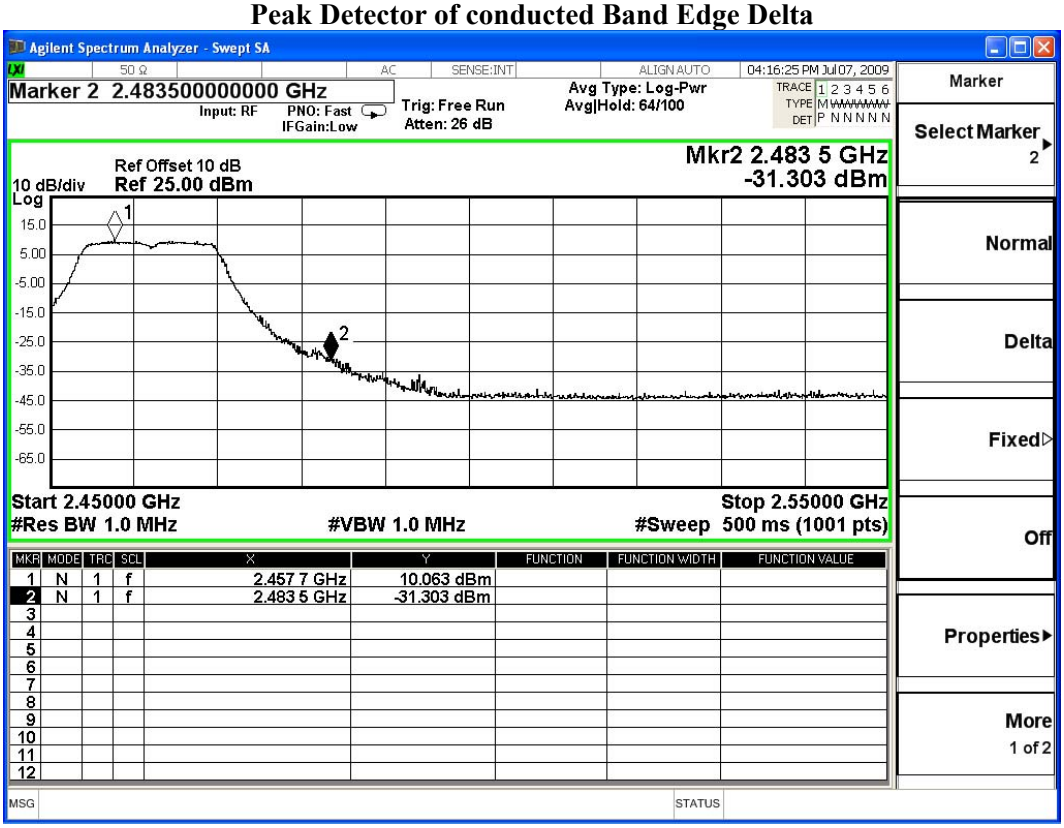
1. The Marker Delta Method is refer to FCC DA 00-705.
2. The Band Edge Field Strength was calculated using the Fundamental and Conducted Band Edge measurements per the Marker-Delta Method with the following formula:

   Band Edge field Strength = F - Δ

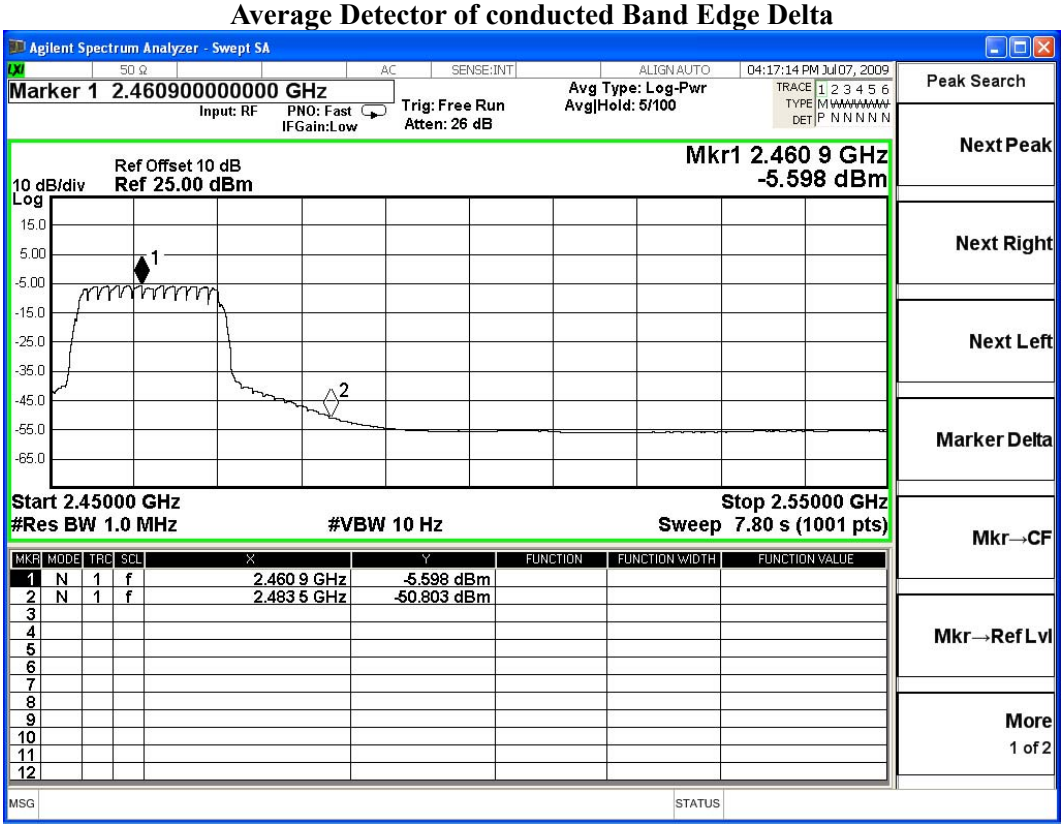
   F = Fundamental field Strength (Peak or Average)

   Δ = Conducted Band Edge Delta (Peak or Average)
3. AVG Measurement=Peak Measurement + Duty Cycle.
4. If Duty Cycle is smaller than -20dB,based on FCC part15 the duty cycle correction factor is -20dB for calculating average emission.

Peak Detector of conducted Band Edge Delta



Average Detector of conducted Band Edge Delta



Product : 802.11b/g/n WLAN USB Dongle
Test Item : Band Edge Data
Test Site : No.3 OATS
Test Mode : Mode 3: Transmitter (802.11n MCS0 6.5Mbps 20M-BW) (2412MHz)

Marker Delta Method (Low band)

Fundamental Filed Strength

Antenna Pole	Frequency [MHz]	Correction Factor [dB/m]	Reading Level [dBuV]	Emission Level [dBuV/m]	Detector
Horizontal	2412	36.613	59.956	96.569	Peak
Horizontal	2412	35.969	42.639	78.608	Average
Vertical	2412	35.610	74.034	109.664	Peak
Vertical	2412	35.664	59.962	95.626	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)	Detector
Horizontal	2390	96.569	37.342	59.227	Peak
Horizontal	2390	78.608	46.171	32.437	Average
Vertical	2390	109.664	37.342	72.332	Peak
Vertical	2390	95.626	46.171	49.455	Average

Note:

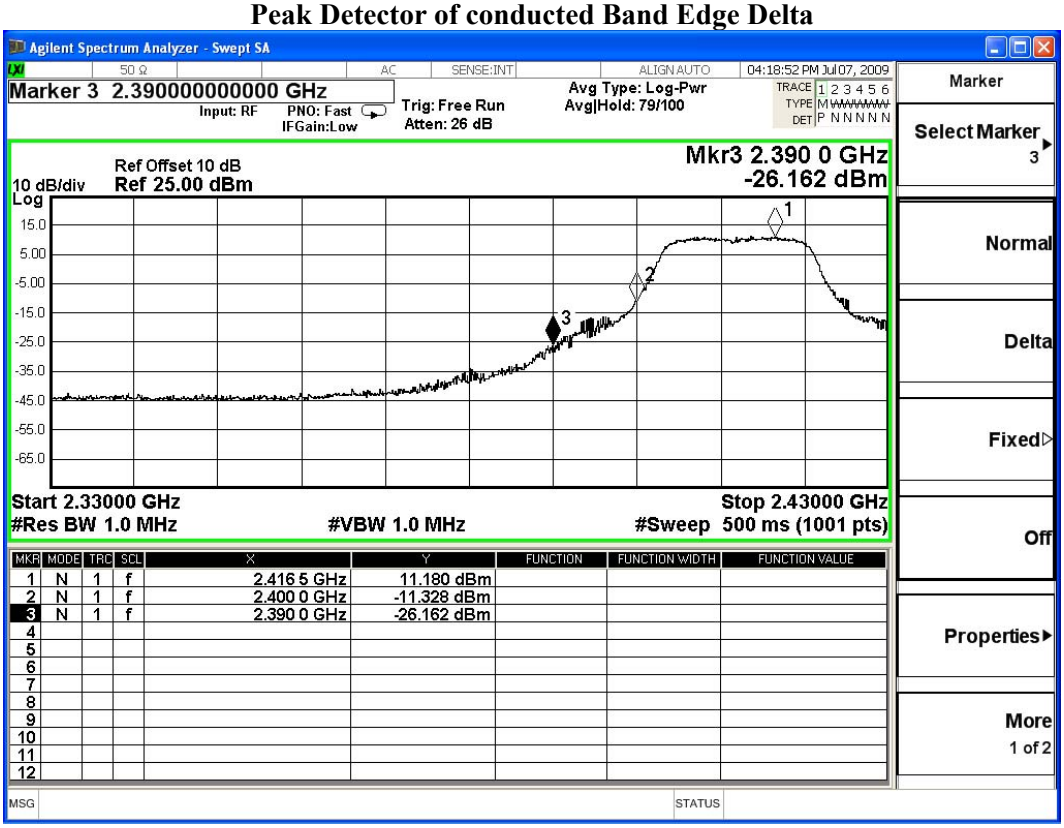
1. The Marker Delta Method is refer to FCC DA 00-705.
2. The Band Edge Field Strength was calculated using the Fundamental and Conducted Band Edge measurements per the Marker-Delta Method with the following formula:

   Band Edge field Strength = F - Δ

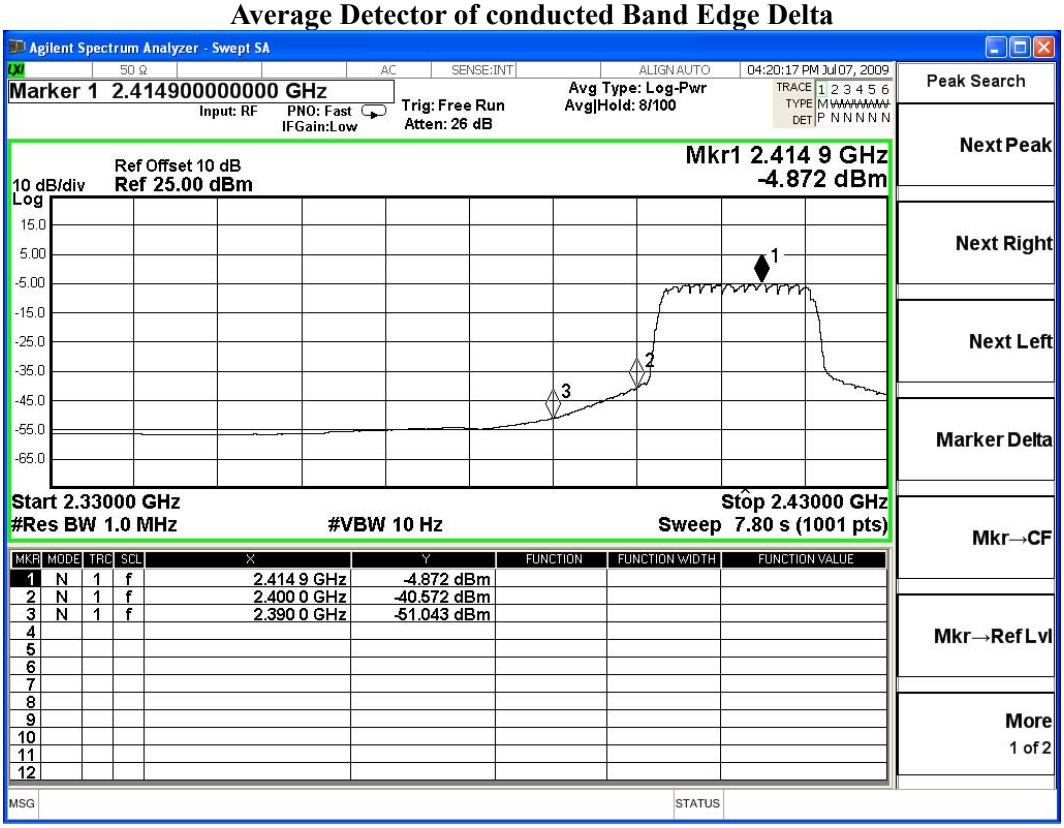
   F = Fundamental field Strength (Peak or Average)

   Δ = Conducted Band Edge Delta (Peak or Average)
3. AVG Measurement=Peak Measurement + Duty Cycle.
4. If Duty Cycle is smaller than -20dB,based on FCC part15 the duty cycle correction factor is -20dB for calculating average emission.

Peak Detector of conducted Band Edge Delta



Average Detector of conducted Band Edge Delta



Product : 802.11b/g/n WLAN USB Dongle
Test Item : Band Edge Data
Test Site : No.3 OATS
Test Mode : Mode 3: Transmitter (802.11n MCS0 6.5Mbps 20M-BW) (2462MHz)

Marker Delta Method (Low band)

Fundamental Filed Strength

Antenna Pole	Frequency [MHz]	Correction Factor [dB/m]	Reading Level [dBuV]	Emission Level [dBuV/m]	Detector
Horizontal	2462	57.216	36.684	93.901	Peak
Horizontal	2462	40.737	36.069	76.806	Average
Vertical	2462	73.539	35.070	108.609	Peak
Vertical	2462	58.516	36.015	94.531	Average

Note: 1:Spectrum Analyzer setting:

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

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

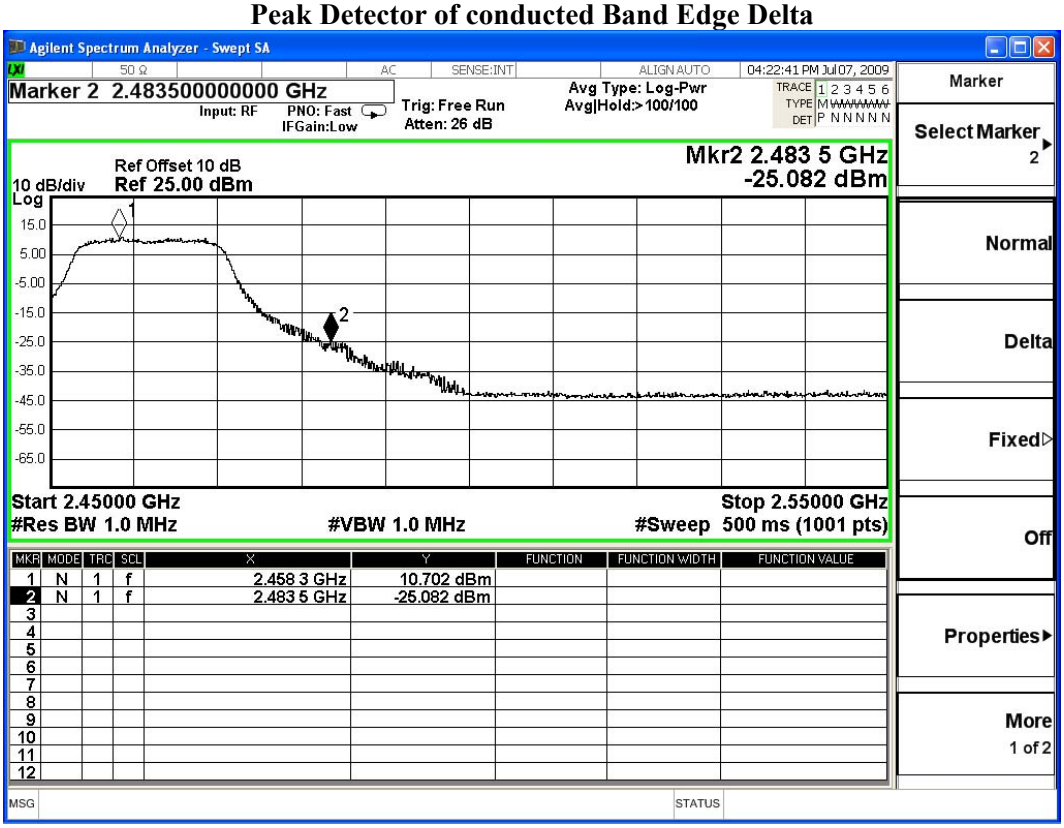
Band Edge Test Data

Antenna Pole	Test Frequency (MHz)	Fundamental (dBuV/m)	Δ (dB)	Band Edge Field Strength (dBuV/m)	Detector
Horizontal	2483.5	93.901	35.784	58.117	Peak
Horizontal	2483.5	76.806	44.227	32.579	Average
Vertical	2483.5	108.609	35.784	72.825	Peak
Vertical	2483.5	94.531	44.227	50.304	Average

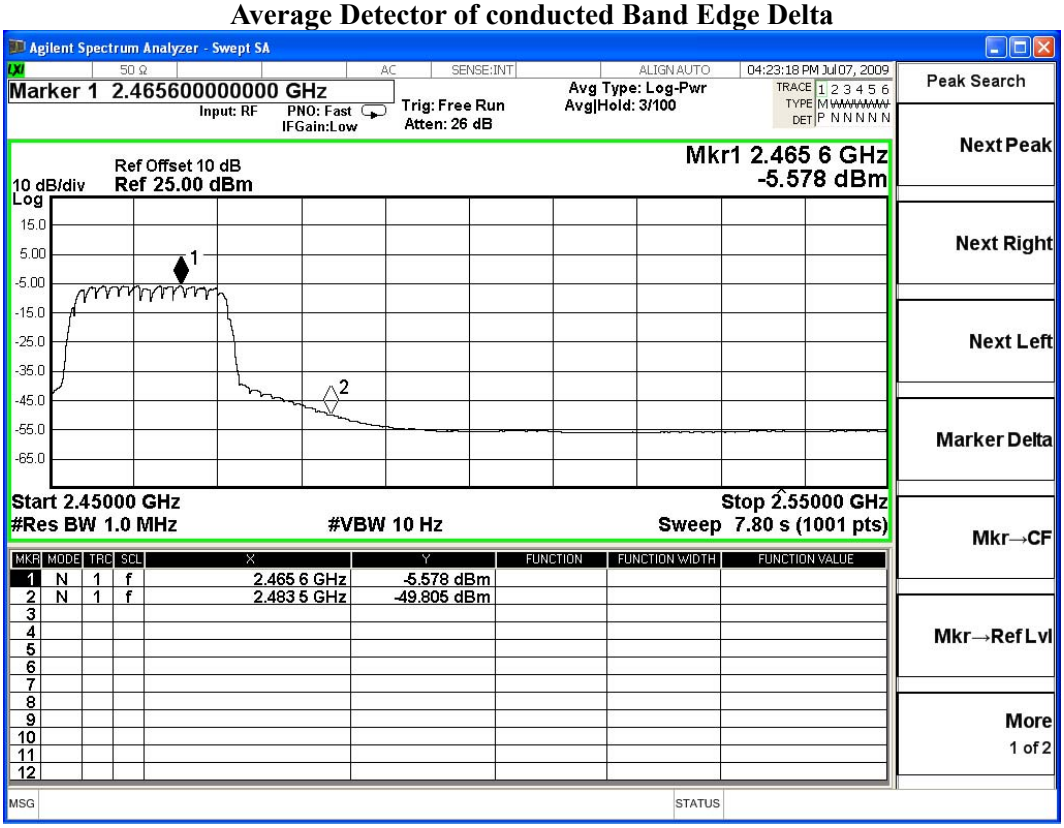
Note:

1. The Marker Delta Method is refer to FCC DA 00-705.
2. 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)
3. AVG Measurement=Peak Measurement + Duty Cycle.
4. If Duty Cycle is smaller than -20dB,based on FCC part15 the duty cycle correction factor is -20dB for calculating average emission.

Peak Detector of conducted Band Edge Delta



Average Detector of conducted Band Edge Delta



Product : 802.11b/g/n WLAN USB Dongle
Test Item : Band Edge Data
Test Site : No.3 OATS
Test Mode : Mode 4: Transmitter (802.11n MCS0 13.5Mbps 40M-BW) (2422MHz)

Marker Delta Method (Low band)

Fundamental Filed Strength

Antenna Pole	Frequency [MHz]	Correction Factor [dB/m]	Reading Level [dBuV]	Emission Level [dBuV/m]	Detector
Horizontal	2422	36.613	58.700	95.313	Peak
Horizontal	2422	35.559	34.924	70.483	Average
Vertical	2422	35.684	71.106	106.790	Peak
Vertical	2422	35.676	51.113	86.789	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)	Detector
Horizontal	2388.5	95.313	33.923	61.390	Peak
Horizontal	2387.7	70.483	34.678	35.805	Average
Vertical	2388.5	106.790	33.923	72.867	Peak
Vertical	2387.7	86.789	34.678	52.111	Average

Note:

1. The Marker Delta Method is refer to FCC DA 00-705.
2. 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)
3. AVG Measurement=Peak Measurement + Duty Cycle.
4. If Duty Cycle is smaller than -20dB,based on FCC part15 the duty cycle correction factor is -20dB for calculating average emission.