



Test Report

Product Name	Multi-functional Gigabit Wireless N Router
Model No	RT-N16
FCC ID.	MSQRTN16

Applicant	ASUSTeK COMPUTER INC.
Address	No. 15, Li-Te Rd., Peitou, Taipei, Taiwan, R.O.C.

Date of Receipt	Mar. 09, 2009
Issue Date	Apr. 13, 2009
Report No.	093143R-RFUSP05V01
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: Apr. 13, 2009

Report No.: 093143R-RFUSP05V01



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

Product Name	Multi-functional Gigabit Wireless N Router
Applicant	ASUSTeK COMPUTER INC.
Address	No. 15, Li-Te Rd., Peitou, Taipei, Taiwan, R.O.C.
Manufacturer	1. PEGATRON CORPORATION Taoyuan Mfg 2. Protek (Shanghai) Limited. 3. NorthTec Asia (Shanghai) Limited.
Model No.	RT-N16
Rated Voltage	AC 120V/60Hz
Working Voltage	AC 100-240V /50-60Hz
Trade Name	ASUS
Applicable Standard	FCC CFR Title 47 Part 15 Subpart C: 2007 ANSI C63.4: 2003
Test Result	Complied



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

Documented By : Rita Huang
(Engineering Adm. Specialist /
Rita Huang)



Tested By : Eason Hung
(Engineer / Eason Hung)

Approved By : Vincent Lin
(Manager / Vincent Lin)



TABLE OF CONTENTS

Description	Page
1. GENERAL INFORMATION	5
1.1. EUT Description.....	5
1.2. Operational Description	7
1.3. Tested System Details.....	8
1.4. Configuration of Tested System	8
1.5. EUT Exercise Software	9
1.6. Test Facility	10
2. Conducted Emission.....	11
2.1. Test Equipment.....	11
2.2. Test Setup	11
2.3. Limits	12
2.4. Test Procedure	12
2.5. Uncertainty	12
2.6. Test Result of Conducted Emission.....	13
3. Peak Power Output	21
3.1. Test Equipment.....	21
3.2. Test Setup	21
3.3. Limits	21
3.4. Test Procedure	21
3.5. Uncertainty	21
3.6. Test Result of Peak Power Output.....	22
4. Radiated Emission.....	26
4.1. Test Equipment.....	26
4.2. Test Setup	27
4.3. Limits	28
4.4. Test Procedure	29
4.5. Uncertainty	29
4.6. Test Result of Radiated Emission.....	30
5. RF antenna conducted test.....	50
5.1. Test Equipment.....	50
5.2. Test Setup	50
5.3. Limits	50
5.4. Test Procedure	50
5.5. Uncertainty	51
5.6. Test Result of RF antenna conducted test.....	52
6. Band Edge	60
6.1. Test Equipment.....	60
6.2. Test Setup	60
6.3. Limits	61
6.4. Test Procedure	61
6.5. Uncertainty	61
6.6. Test Result of Band Edge	62

7.	Occupied Bandwidth.....	78
7.1.	Test Equipment.....	78
7.2.	Test Setup	78
7.3.	Limits	78
7.4.	Test Procedure	78
7.5.	Uncertainty	78
7.6.	Test Result of Occupied Bandwidth	79
8.	Power Density	91
8.1.	Test Equipment.....	91
8.2.	Test Setup	91
8.3.	Limits	91
8.4.	Test Procedure	91
8.5.	Uncertainty	91
8.6.	Test Result of Power Density	92
9.	EMI Reduction Method During Compliance Testing	104

Attachment 1: EUT Test Photographs

Attachment 2: EUT Detailed Photographs

1. GENERAL INFORMATION

1.1. EUT Description

Product Name	Multi-functional Gigabit Wireless N Router
Trade Name	ASUS
Model No.	RT-N16
FCC ID.	MSQRTN16
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: 13-270Mbps
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
Power Adapter (1)	MFR: LEADER, M/N: MU18-2120125-A1 Input: AC 100-240V, 50-60Hz 0.6A Output: DC 12V, 1.25A Cable out: Non-Shielded, 1.8m, with one ferrite core bonded.
Power Adapter (2)	MFR: AMIGO, M/N: AMS3-1201250FU Input: AC 100-240V, 50-60Hz 0.5A Output: DC 12V, 1.25A Cable out: Non-Shielded, 1.8m, with one ferrite core bonded.

Antenna List

No.	Manufacturer	Part No.	Antenna Type	Peak Gain
1	ARISTOTLE	RFA-02-C5M3-B32	Dipole	2.5dBi in 2.4 GHz

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 Multi-functional Gigabit Wireless N Router 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 13Mbps and 、 802.11n(40M-BW) is 27Mbps)
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. 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 Multi-functional Gigabit Wireless N Router 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 13,26,39,52,78,104,117 and 130Mbps in 802.11n(20M-BW) mode and 27,54,81,108,162,216,243 and 270 Mbps(40M-BW) the device of RF carrier is BPSK, QPSK, 16QAM and 64QAM (IEEE 802.11n), The IEEE 802.11n is Multiple In Multiple out (MIMO) Technology, and three antennas to support 2(Transmit) * 3(Receive) MIMO technology.

The device adapts direct sequence spread spectrum modulation. The antenna provides diversity function to improve the receiving function.

This Multi-functional Gigabit Wireless N Router, 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 Direct Sequence Spread Spectrum (DSSS) and Orthogonal Frequency Division Multiplexing (OFDM) radio transmission, the Multi-functional Gigabit Wireless N Router 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)-Adapter 1
	Mode 2: Transmitter (802.11g 6Mbps)-Adapter 1
	Mode 3: Transmitter (802.11n MCS8 13Mbps 20M-BW)-Adapter 1
	Mode 4: Transmitter (802.11n MCS8 27Mbps 40M-BW)-Adapter 1
	Mode 5: Transmitter (802.11b 1Mbps)-Adapter 2
	Mode 6: Transmitter (802.11g 6Mbps)-Adapter 2
	Mode 7: Transmitter (802.11n MCS8 13Mbps 20M-BW)-Adapter 2
	Mode 8: Transmitter (802.11n MCS8 27Mbps 40M-BW)-Adapter 2

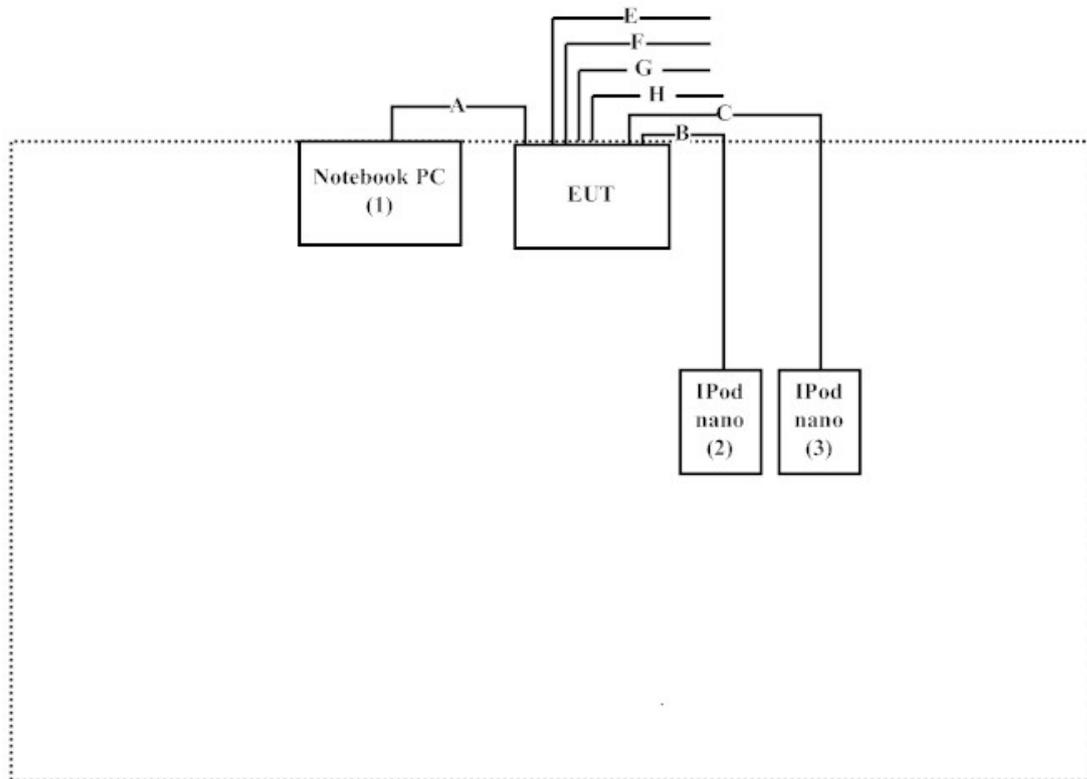
1.3. Tested System Details

The types for all equipment, plus descriptions of all cables used in the tested system (including inserted cards) are:

	Product	Manufacturer	Model No.	Serial No.	Power Cord
(1)	Notebook PC	DELL	PPT	N/A	Non-Shielded, 0.8m
(2)	iPod nano	Apple	A1199	YM706LT0VQ5	N/A
(3)	iPod nano	Apple	A1199	YM706LZQVQ5	N/A

Signal Cable Type	Signal cable Description
A	RJ-45 Cable
B	USB Cable
C	USB Cable
D	RJ-45 Cable
E	RJ-45 Cable
F	RJ-45 Cable
G	RJ-45 Cable
H	RJ-45 Cable

1.4. Configuration of Tested System



1.5. EUT Exercise Software

- (1) Setup the EUT as shown in Section 1.4
- (2) Execute “TELNET.exe” on the EUT.
- (3) Configure the test mode, the test channel, and the data rate to start the continuous transmit
- (4) 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
 Columbia, MD 21046
 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,
 Lin-Kou Shiang, Taipei,
 Taiwan, R.O.C.
 TEL: 886-2-8601-3788 / FAX : 886-2-8601-3789
 E-Mail : service@quietek.com

FCC Accreditation Number: TW1014



2. Conducted Emission

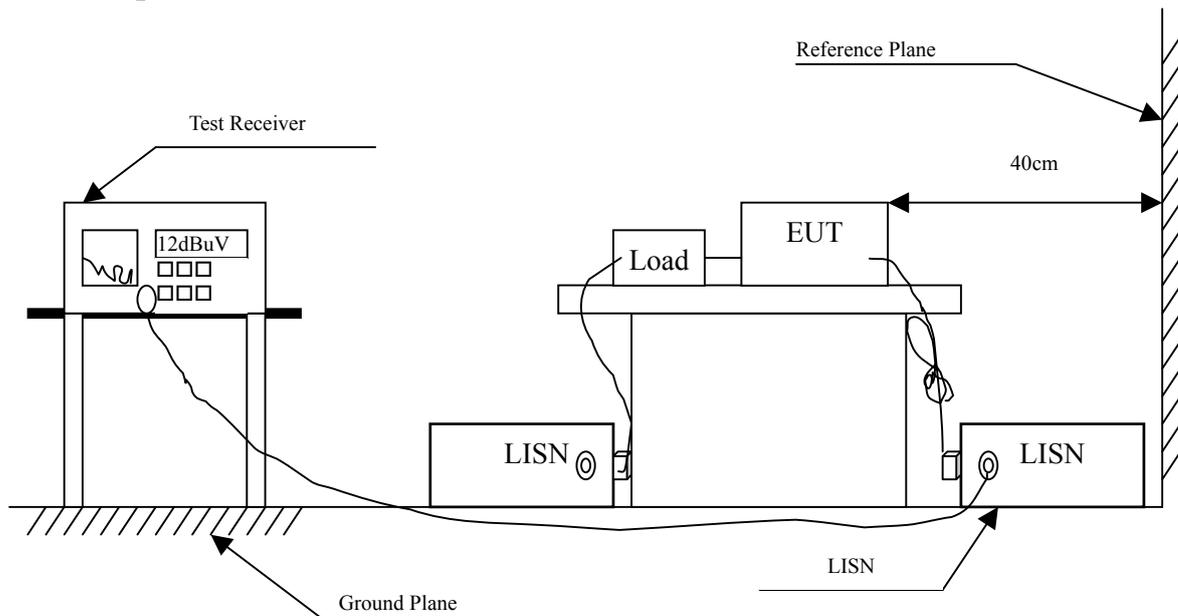
2.1. Test Equipment

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, 2008	
2	L.I.S.N.	R & S	ESH3-Z5/825016/6	May, 2008	EUT
3	L.I.S.N.	Kyoritsu	KNW-407/8-1420-3	May, 2008	Peripherals
4	Pulse Limiter	R & S	ESH3-Z2	May, 2008	
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 : Multi-functional Gigabit Wireless N Router
 Test Item : Conducted Emission Test
 Power Line : Line 1
 Test Mode : Mode 3: Transmitter (802.11n MCS8 13Mbps 20M-BW)-Adapter 1 (2437MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV	Margin dB	Limit dBuV
Line 1					
Quasi-Peak					
0.197	9.823	44.950	54.773	-9.884	64.657
0.263	9.830	35.070	44.900	-17.871	62.771
0.326	9.830	30.590	40.420	-20.551	60.971
0.388	9.820	31.010	40.830	-18.370	59.200
4.154	9.860	23.030	32.890	-23.110	56.000
16.685	10.190	24.760	34.950	-25.050	60.000
Average					
0.197	9.823	35.450	45.273	-9.384	54.657
0.263	9.830	26.090	35.920	-16.851	52.771
0.326	9.830	24.670	34.500	-16.471	50.971
0.388	9.820	27.480	37.300	-11.900	49.200
4.154	9.860	21.080	30.940	-15.060	46.000
16.685	10.190	18.170	28.360	-21.640	50.000

Note:

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

Product : Multi-functional Gigabit Wireless N Router
 Test Item : Conducted Emission Test
 Power Line : Line 2
 Test Mode : Mode 3: Transmitter (802.11n MCS8 13Mbps 20M-BW)-Adapter 1 (2437MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV	Margin dB	Limit dBuV
Line 2					
Quasi-Peak					
0.201	9.860	36.300	46.160	-18.383	64.543
0.259	9.857	37.120	46.977	-15.909	62.886
0.326	9.850	29.810	39.660	-21.311	60.971
0.388	9.840	27.870	37.710	-21.490	59.200
7.787	9.910	23.530	33.440	-26.560	60.000
16.412	10.220	29.650	39.870	-20.130	60.000
Average					
0.201	9.860	25.690	35.550	-18.993	54.543
0.259	9.857	26.830	36.687	-16.199	52.886
0.326	9.850	24.160	34.010	-16.961	50.971
0.388	9.840	22.850	32.690	-16.510	49.200
7.787	9.910	18.550	28.460	-21.540	50.000
16.412	10.220	25.400	35.620	-14.380	50.000

Note:

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

Product : Multi-functional Gigabit Wireless N Router
 Test Item : Conducted Emission Test
 Power Line : Line 1
 Test Mode : Mode 4: Transmitter (802.11n MCS8 27Mbps 40M-BW)-Adapter 1 (2437MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV	Margin dB	Limit dBuV
Line 1					
Quasi-Peak					
0.193	9.821	45.790	55.611	-9.160	64.771
0.263	9.830	34.500	44.330	-18.441	62.771
0.388	9.820	30.870	40.690	-18.510	59.200
0.779	9.830	22.370	32.200	-23.800	56.000
4.150	9.860	23.670	33.530	-22.470	56.000
16.611	10.190	26.150	36.340	-23.660	60.000
Average					
0.193	9.821	36.360	46.181	-8.590	54.771
0.263	9.830	25.590	35.420	-17.351	52.771
0.388	9.820	27.420	37.240	-11.960	49.200
0.779	9.830	18.830	28.660	-17.340	46.000
4.150	9.860	21.750	31.610	-14.390	46.000
16.611	10.190	19.610	29.800	-20.200	50.000

Note:

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

Product : Multi-functional Gigabit Wireless N Router
 Test Item : Conducted Emission Test
 Power Line : Line 2
 Test Mode : Mode 4: Transmitter (802.11n MCS8 27Mbps 40M-BW)-Adapter 1 (2437MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV	Margin dB	Limit dBuV
Line 2					
Quasi-Peak					
0.197	9.860	43.640	53.500	-11.157	64.657
0.255	9.858	32.750	42.608	-20.392	63.000
0.322	9.850	28.920	38.770	-22.316	61.086
0.392	9.840	25.370	35.210	-23.876	59.086
7.845	9.910	23.170	33.080	-26.920	60.000
16.150	10.220	28.680	38.900	-21.100	60.000
Average					
0.197	9.860	33.240	43.100	-11.557	54.657
0.255	9.858	22.710	32.568	-20.432	53.000
0.322	9.850	23.720	33.570	-17.516	51.086
0.392	9.840	20.080	29.920	-19.166	49.086
7.845	9.910	18.630	28.540	-21.460	50.000
16.150	10.220	24.070	34.290	-15.710	50.000

Note:

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

Product : Multi-functional Gigabit Wireless N Router
 Test Item : Conducted Emission Test
 Power Line : Line 1
 Test Mode : Mode 7: Transmitter (802.11n MCS8 13Mbps 20M-BW)-Adapter 2 (2437MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV	Margin dB	Limit dBuV
Line 1					
Quasi-Peak					
0.189	9.714	22.770	32.484	-32.402	64.886
0.494	9.640	36.820	46.460	-9.711	56.171
0.740	9.638	24.420	34.058	-21.942	56.000
2.396	9.680	23.320	33.000	-23.000	56.000
7.677	9.780	22.720	32.500	-27.500	60.000
18.771	9.960	24.800	34.760	-25.240	60.000
Average					
0.189	9.714	10.430	20.144	-34.742	54.886
0.494	9.640	27.200	36.840	-9.331	46.171
0.740	9.638	6.890	16.528	-29.472	46.000
2.396	9.680	12.050	21.730	-24.270	46.000
7.677	9.780	13.080	22.860	-27.140	50.000
18.771	9.960	17.620	27.580	-22.420	50.000

Note:

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

Product : Multi-functional Gigabit Wireless N Router
 Test Item : Conducted Emission Test
 Power Line : Line 2
 Test Mode : Mode 7: Transmitter (802.11n MCS8 13Mbps 20M-BW)-Adapter 2 (2437MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV	Margin dB	Limit dBuV
Line 2					
Quasi-Peak					
0.185	9.727	37.450	47.178	-17.822	65.000
0.459	9.640	24.170	33.810	-23.361	57.171
0.709	9.650	23.060	32.710	-23.290	56.000
4.662	9.700	5.120	14.820	-41.180	56.000
7.548	9.770	12.120	21.890	-38.110	60.000
18.990	10.030	23.280	33.310	-26.690	60.000
Average					
0.185	9.727	27.930	37.658	-17.342	55.000
0.459	9.640	14.960	24.600	-22.571	47.171
0.709	9.650	10.720	20.370	-25.630	46.000
4.662	9.700	-2.150	7.550	-38.450	46.000
7.548	9.770	2.420	12.190	-37.810	50.000
18.990	10.030	15.550	25.580	-24.420	50.000

Note:

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

Product : Multi-functional Gigabit Wireless N Router
 Test Item : Conducted Emission Test
 Power Line : Line 1
 Test Mode : Mode 8: Transmitter (802.11n MCS8 27Mbps 40M-BW)-Adapter 2 (2437MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV	Margin dB	Limit dBuV
Line 1					
Quasi-Peak					
0.181	9.724	30.720	40.444	-24.670	65.114
0.455	9.640	19.810	29.450	-27.836	57.286
0.783	9.650	19.370	29.020	-26.980	56.000
2.459	9.680	17.340	27.020	-28.980	56.000
4.767	9.700	23.090	32.790	-23.210	56.000
18.400	9.960	22.090	32.050	-27.950	60.000
Average					
0.181	9.724	25.420	35.144	-19.970	55.114
0.455	9.640	7.360	17.000	-30.286	47.286
0.783	9.650	9.940	19.590	-26.410	46.000
2.459	9.680	7.490	17.170	-28.830	46.000
4.767	9.700	13.390	23.090	-22.910	46.000
18.400	9.960	14.370	24.330	-25.670	50.000

Note:

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

Product : Multi-functional Gigabit Wireless N Router
 Test Item : Conducted Emission Test
 Power Line : Line 2
 Test Mode : Mode 8: Transmitter (802.11n MCS8 27Mbps 40M-BW)-Adapter 2 (2437MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV	Margin dB	Limit dBuV
Line 2					
Quasi-Peak					
0.197	9.719	24.030	33.749	-30.908	64.657
0.435	9.648	35.960	45.608	-12.249	57.857
0.759	9.664	22.600	32.264	-23.736	56.000
4.349	9.700	11.340	21.040	-34.960	56.000
7.552	9.770	5.340	15.110	-44.890	60.000
18.275	10.020	20.190	30.210	-29.790	60.000
Average					
0.197	9.719	10.220	19.939	-34.718	54.657
0.435	9.648	26.690	36.338	-11.519	47.857
0.759	9.664	12.150	21.814	-24.186	46.000
4.349	9.700	1.580	11.280	-34.720	46.000
7.552	9.770	-0.630	9.140	-40.860	50.000
18.275	10.020	12.930	22.950	-27.050	50.000

Note:

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

3. Peak Power Output

3.1. Test Equipment

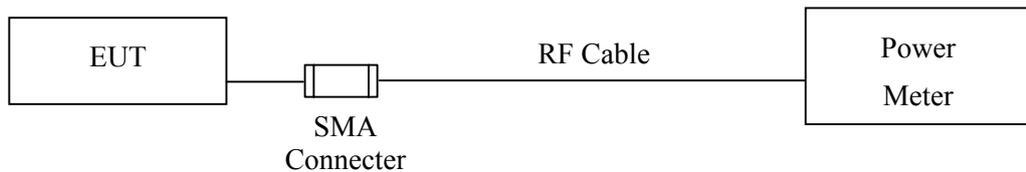
The following test equipments are used during the radiated emission tests:

Equipment	Manufacturer	Model No./Serial No.	Last Cal.
X Power Meter	Anritsu	ML2495A/6K00003357	May, 2008
X Power Sensor	Anritsu	MA2491A/034457	May, 2008

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 : Multi-functional Gigabit Wireless N Router
 Test Item : Peak Power Output Data
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmitter (802.11b 1Mbps)-Adapter 1

Cable Loss=0.5dB		Peak Power Output				Required Limit
Channel No.	Frequency (MHz)	Data Rate				
		1	2	5.5	11	
1	2412.00	19.00	18.96	18.74	18.63	1Watt= 30 dBm
6	2437.00	18.77	--	--	--	1Watt= 30 dBm
11	2462.00	18.30	--	--	--	1Watt= 30 dBm

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

Product : Multi-functional Gigabit Wireless N Router
 Test Item : Peak Power Output Data
 Test Site : No.3 OATS
 Test Mode : Mode 2: Transmitter (802.11g 6Mbps)-Adapter 1

Cable Loss=0.5dB		Peak Power Output								Required Limit
Channel No.	Frequency (MHz)	Data Rate								
		6	9	12	18	24	36	48	54	
1	2412.00	22.80	22.78	22.75	22.78	22.75	22.74	22.77	22.73	1Watt= 30 dBm
6	2437.00	22.76	--	--	--	--	--	--	--	1Watt= 30 dBm
11	2462.00	22.54	--	--	--	--	--	--	--	1Watt= 30 dBm

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

Product : Multi-functional Gigabit Wireless N Router
 Test Item : Peak Power Output Data
 Test Site : No.3 OATS
 Test Mode : Mode 3: Transmitter (802.11n MCS8 13Mbps 20M-BW)-Adapter 1

Ant A+ Ant B

Cable Loss=0.5dB		Peak Power Output								Required Limit
Channel No.	Frequency (MHz)	Data Rate								
		6.5	13	19.5	26	39	52	58.5	65	
1	2412.00	24.98	24.76	24.82	24.84	24.7	24.77	24.75	24.51	1Watt= 30 dBm
6	2437.00	28.16	--	--	--	--	--	--	--	1Watt= 30 dBm
11	2462.00	24.00	--	--	--	--	--	--	--	1Watt= 30 dBm

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

Product : Multi-functional Gigabit Wireless N Router
 Test Item : Peak Power Output Data
 Test Site : No.3 OATS
 Test Mode : Mode 4: Transmitter (802.11n MCS8 27Mbps 40M-BW)-Adapter 1

Ant A + Ant B

Cable Loss=0.5dB		Peak Power Output								Required Limit
Channel No.	Frequency (MHz)	Data Rate								
		13.5	27	40.5	54	81	108	121.5	135	
1	2422.00	24.65	24.33	24.31	23.95	23.52	23.54	23.12	22.99	1Watt= 30 dBm
4	2437.00	25.17	--	--	--	--	--	--	--	1Watt= 30 dBm
7	2452.00	24.98	--	--	--	--	--	--	--	1Watt= 30 dBm

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

4. Radiated Emission

4.1. Test Equipment

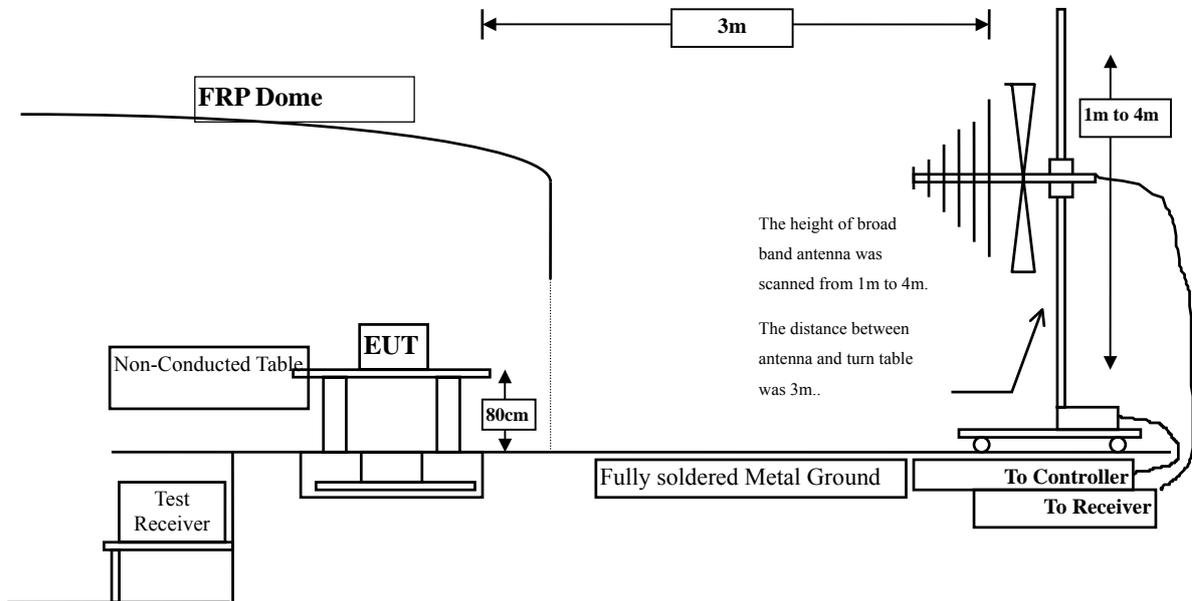
The following test equipment are used during the radiated emission test:

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., 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

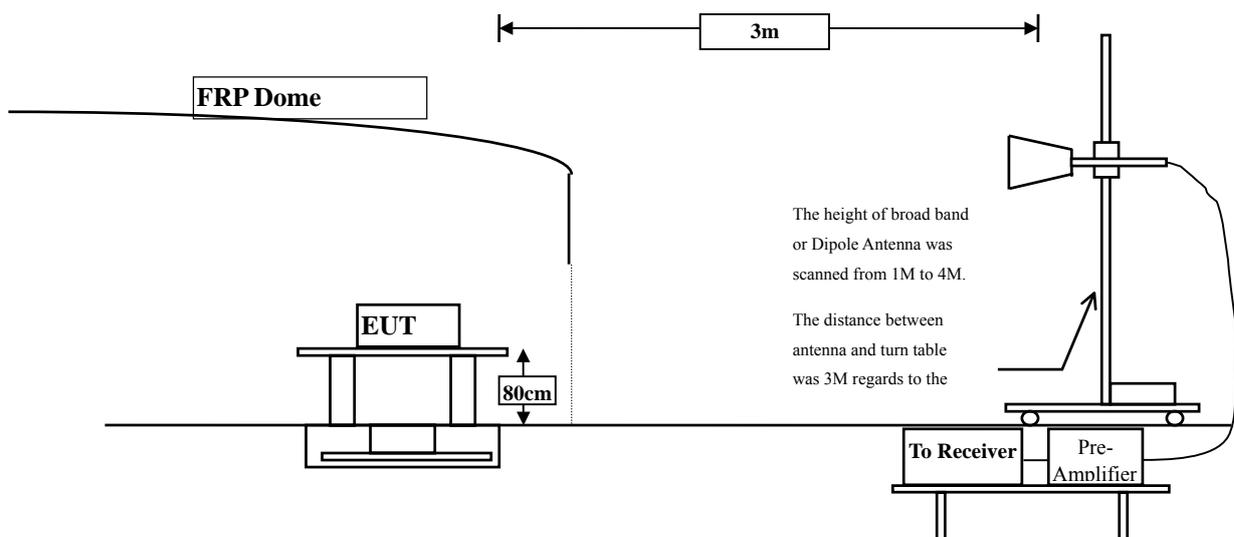
- Note:
1. All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.
 2. The test instruments marked with "X" are used to measure the final test results.

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

4.5. Uncertainty

± 3.9 dB above 1GHz

± 3.8 dB below 1GHz

4.6. Test Result of Radiated Emission

Product : Multi-functional Gigabit Wireless N Router
 Test Item : Harmonic Radiated Emission Data
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmitter (802.11b 1Mbps)-Adapter 1 (2412MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
Horizontal					
Peak Detector:					
4824.000	9.577	37.630	47.207	-26.793	74.000
7236.000	14.401	33.200	47.600	-26.400	74.000
9648.000	19.795	36.510	56.305	-17.695	74.000
Average Detector:					
9648.000	19.795	23.390	43.185	-10.815	54.000
Vertical					
Peak Detector:					
4824.000	8.463	37.180	45.643	-28.357	74.000
7236.000	15.412	35.330	50.741	-23.259	74.000
9648.000	19.003	36.480	55.483	-18.517	74.000
Average Detector:					
9648.000	19.003	23.090	42.093	-11.907	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 : Multi-functional Gigabit Wireless N Router
 Test Item : Harmonic Radiated Emission Data
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmitter (802.11b 1Mbps)-Adapter 1 (2437 MHz)

Frequency MHz	Correct Factor Db	Reading Level dBuV	Measurement Level dBuV/m	Margin Db	Limit dBuV/m
Horizontal					
Peak Detector:					
4874.000	9.471	37.820	47.291	-26.709	74.000
7311.000	14.540	34.890	49.430	-24.570	74.000
9748.000	20.023	36.620	56.643	-17.357	74.000
Average Detector:					
9748.000	20.023	22.520	42.543	-11.457	54.000
Vertical					
Peak Detector:					
4874.000	8.878	37.480	46.358	-27.642	74.000
7311.000	15.282	34.890	50.171	-23.829	74.000
9748.000	19.229	35.750	54.980	-19.020	74.000
Average Detector:					
9748.000	19.229	22.570	41.800	-12.200	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 : Multi-functional Gigabit Wireless N Router
 Test Item : Harmonic Radiated Emission Data
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmitter (802.11b 1Mbps)-Adapter 1 (2462 MHz)

Frequency MHz	Correct Factor Db	Reading Level dBuV	Measurement Level dBuV/m	Margin Db	Limit dBuV/m
Horizontal					
Peak Detector:					
4924.000	9.483	38.080	47.562	-26.438	74.000
7386.000	14.798	35.200	49.998	-24.002	74.000
9848.000	20.005	36.690	56.696	-17.304	74.000
Average Detector:					
9848.000	20.005	22.440	42.446	-11.554	54.000
Vertical					
Peak Detector:					
4924.000	9.411	37.190	46.601	-27.399	74.000
7386.000	15.270	35.140	50.410	-23.590	74.000
9848.000	19.187	37.150	56.337	-17.663	74.000
Average Detector:					
9848.000	19.187	25.060	44.247	-9.753	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 : Multi-functional Gigabit Wireless N Router
 Test Item : Harmonic Radiated Emission Data
 Test Site : No.3 OATS
 Test Mode : Mode 2: Transmitter (802.11g 6Mbps)-Adapter 1 (2412MHz)

Frequency MHz	Correct Factor Db	Reading Level dBuV	Measurement Level dBuV/m	Margin Db	Limit dBuV/m
Horizontal					
Peak Detector:					
4824.000	9.577	37.800	47.377	-26.623	74.000
7236.000	14.401	36.100	50.500	-23.500	74.000
9648.000	19.795	35.990	55.785	-18.215	74.000
Average Detector:					
9648.000	19.003	23.040	42.043	-11.957	54.000
Vertical					
Peak Detector:					
4824.000	8.463	37.880	46.343	-27.657	74.000
7236.000	15.412	35.540	50.951	-23.049	74.000
9648.000	19.003	35.990	54.993	-19.007	74.000
Average Detector:					
9648.000	19.003	22.800	41.803	-12.197	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 : Multi-functional Gigabit Wireless N Router
 Test Item : Harmonic Radiated Emission Data
 Test Site : No.3 OATS
 Test Mode : Mode 2: Transmitter (802.11g 6Mbps)-Adapter 1 (2437 MHz)

Frequency MHz	Correct Factor Db	Reading Level dBuV	Measurement Level dBuV/m	Margin Db	Limit dBuV/m
Horizontal					
Peak Detector:					
4874.000	9.471	37.250	46.721	-27.279	74.000
7311.000	14.540	34.990	49.530	-24.470	74.000
9748.000	20.023	35.820	55.843	-18.157	74.000
Average Detector:					
9748.000	20.023	22.480	42.503	-11.497	54.000
Vertical					
Peak Detector:					
4874.000	8.878	37.090	45.968	-28.032	74.000
7311.000	15.282	35.310	50.591	-23.409	74.000
9748.000	19.229	36.350	55.580	-18.420	74.000
Average Detector:					
9748.000	19.229	23.063	42.293	-11.707	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 : Multi-functional Gigabit Wireless N Router
 Test Item : Harmonic Radiated Emission Data
 Test Site : No.3 OATS
 Test Mode : Mode 2: Transmitter (802.11g 6Mbps)-Adapter 1 (2462 MHz)

Frequency MHz	Correct Factor Db	Reading Level dBuV	Measurement Level dBuV/m	Margin Db	Limit dBuV/m
Horizontal					
Peak Detector:					
4924.000	9.483	38.060	47.542	-26.458	74.000
7386.000	14.798	35.340	50.138	-23.862	74.000
9848.000	20.005	36.340	56.346	-17.654	74.000
Average Detector:					
9848.000	20.005	22.460	42.466	-11.534	54.000
Vertical					
Peak Detector:					
4924.000	9.411	37.050	46.461	-27.539	74.000
7386.000	15.270	34.040	49.310	-24.690	74.000
9848.000	19.187	36.330	55.517	-18.483	74.000
Average Detector:					
9848.000	19.187	23.590	42.777	-11.223	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 : Multi-functional Gigabit Wireless N Router
 Test Item : Harmonic Radiated Emission Data
 Test Site : No.3 OATS
 Test Mode : Mode 3: Transmitter (802.11n MCS8 13Mbps 20M-BW)-Adapter 1 (2412MHz)

Frequency MHz	Correct Factor Db	Reading Level dBuV	Measurement Level dBuV/m	Margin Db	Limit dBuV/m
Horizontal					
Peak Detector:					
4824.000	9.577	37.900	47.477	-26.523	74.000
7236.000	14.401	35.890	50.290	-23.710	74.000
9648.000	19.795	35.950	55.745	-18.255	74.000
Average					
Detector:					
9648.000	19.795	22.850	42.645	-11.355	54.000
Vertical					
Peak Detector:					
4824.000	8.463	38.280	46.743	-27.257	74.000
7236.000	15.412	36.030	51.441	-22.559	74.000
9648.000	19.003	36.160	55.163	-18.837	74.000
Average					
Detector:					
9648.000	19.003	23.230	42.233	-11.767	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 : Multi-functional Gigabit Wireless N Router
 Test Item : Harmonic Radiated Emission Data
 Test Site : No.3 OATS
 Test Mode : Mode 3: Transmitter (802.11n MCS8 13Mbps 20M-BW)-Adapter 1 (2437 MHz)

Frequency MHz	Correct Factor Db	Reading Level dBuV	Measurement Level dBuV/m	Margin Db	Limit dBuV/m
Horizontal					
Peak Detector:					
4874.000	9.471	38.170	47.641	-26.359	74.000
7311.000	14.540	34.580	49.120	-24.880	74.000
9748.000	20.023	36.170	56.193	-17.807	74.000
Average Detector:					
9748.000	20.023	22.470	42.493	-11.507	54.000
Vertical					
Peak Detector:					
4874.000	8.878	37.820	46.698	-27.302	74.000
7311.000	15.282	34.690	49.971	-24.029	74.000
9748.000	19.229	35.890	55.120	-18.880	74.000
Average Detector:					
9748.000	19.229	22.980	42.210	-11.790	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 : Multi-functional Gigabit Wireless N Router
 Test Item : Harmonic Radiated Emission Data
 Test Site : No.3 OATS
 Test Mode : Mode 3: Transmitter (802.11n MCS8 13Mbps 20M-BW)-Adapter 1 (2462 MHz)

Frequency MHz	Correct Factor Db	Reading Level dBuV	Measurement Level dBuV/m	Margin Db	Limit dBuV/m
Horizontal					
Peak Detector:					
4924.000	9.483	38.010	47.492	-26.508	74.000
7386.000	14.798	34.790	49.588	-24.412	74.000
9848.000	20.005	34.920	54.926	-19.074	74.000
Average Detector:					
9848.000	20.005	23.090	43.096	-10.904	54.000
Vertical					
Peak Detector:					
4924.000	9.411	37.170	46.581	-27.419	74.000
7386.000	15.270	35.250	50.520	-23.480	74.000
9848.000	19.187	36.200	55.387	-18.613	74.000
Average Detector:					
9848.000	19.187	24.310	43.497	-10.503	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 : Multi-functional Gigabit Wireless N Router
 Test Item : Harmonic Radiated Emission Data
 Test Site : No.3 OATS
 Test Mode : Mode 4: Transmitter (802.11n MCS8 27Mbps 40M-BW)-Adapter 1 (2422MHz)

Frequency MHz	Correct Factor Db	Reading Level dBuV	Measurement Level dBuV/m	Margin Db	Limit dBuV/m
Horizontal					
Peak Detector:					
4844.000	9.535	37.940	47.475	-26.525	74.000
7266.000	14.458	34.890	49.348	-24.652	74.000
9688.000	19.845	35.980	55.824	-18.176	74.000
Average					
Detector:					
9688.000	19.845	22.690	42.534	-11.466	54.000
Vertical					
Peak Detector:					
4844.000	8.629	38.041	46.670	-27.330	74.000
7266.000	15.361	35.360	50.721	-23.279	74.000
9688.000	19.053	35.840	54.892	-19.108	74.000
Average					
Detector:					
9688.000	19.053	23.350	42.402	-11.598	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 : Multi-functional Gigabit Wireless N Router
 Test Item : Harmonic Radiated Emission Data
 Test Site : No.3 OATS
 Test Mode : Mode 4: Transmitter (802.11n MCS8 27Mbps 40M-BW)-Adapter 1 (2437 MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
Horizontal					
Peak Detector:					
4874.000	9.471	37.870	47.341	-26.659	74.000
7311.000	14.540	35.050	49.590	-24.410	74.000
9748.000	20.023	38.490	58.513	-15.487	74.000
Average Detector:					
9748.000	20.023	22.600	42.623	-11.377	54.000
Vertical					
Peak Detector:					
4874.000	8.878	36.730	45.608	-28.392	74.000
7311.000	15.282	34.590	49.871	-24.129	74.000
9748.000	19.229	38.220	57.450	-16.550	74.000
Average Detector:					
9748.000	19.229	30.090	49.320	-4.680	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 : Multi-functional Gigabit Wireless N Router
 Test Item : Harmonic Radiated Emission Data
 Test Site : No.3 OATS
 Test Mode : Mode 4: Transmitter (802.11n MCS8 27Mbps 40M-BW)-Adapter 1 (2452 MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
Horizontal					
Peak Detector:					
4904.000	9.514	37.510	47.024	-26.976	74.000
7356.000	14.736	33.310	48.046	-25.954	74.000
9808.000	20.065	36.370	56.435	-17.565	74.000
Average Detector:					
9808.000	20.065	22.630	42.695	-11.305	54.000
Vertical					
Peak Detector:					
4904.000	9.234	36.630	45.863	-28.137	74.000
7356.000	15.316	33.790	49.105	-24.895	74.000
9808.000	19.267	38.340	57.607	-16.393	74.000
Average Detector:					
9808.000	19.267	27.290	46.557	-7.443	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 : Multi-functional Gigabit Wireless N Router
 Test Item : General Radiated Emission Data
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmitter (802.11b 1Mbps)-Adapter 1(2437 MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
Horizontal					
30.000	1.712	28.248	29.960	-10.040	40.000
253.100	-5.784	42.189	36.406	-9.594	46.000
375.320	-1.779	37.942	36.163	-9.837	46.000
499.480	-0.442	36.028	35.585	-10.415	46.000
625.580	1.302	34.189	35.491	-10.509	46.000
951.500	6.120	27.189	33.309	-12.691	46.000
Vertical					
95.960	-3.072	35.168	32.096	-11.404	43.500
332.640	-5.159	40.458	35.299	-10.701	46.000
375.320	-2.599	37.060	34.461	-11.539	46.000
526.640	-0.945	30.518	29.574	-16.426	46.000
625.580	-3.068	33.007	29.939	-16.061	46.000
965.080	7.397	28.657	36.054	-17.946	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 : Multi-functional Gigabit Wireless N Router
 Test Item : General Radiated Emission Data
 Test Site : No.3 OATS
 Test Mode : Mode 2: Transmitter (802.11g 6Mbps)-Adapter 1(2437 MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
Horizontal					
37.760	-4.281	28.691	24.411	-15.589	40.000
222.060	-10.819	50.589	39.769	-6.231	46.000
375.320	-1.779	38.282	36.503	-9.497	46.000
499.480	-0.442	36.751	36.308	-9.692	46.000
625.580	1.302	34.840	36.142	-9.858	46.000
1000.000	8.637	26.671	35.308	-18.692	54.000
Vertical					
105.660	-0.627	31.875	31.249	-12.251	43.500
297.720	-7.627	43.126	35.499	-10.501	46.000
375.320	-2.599	36.435	33.836	-12.164	46.000
534.400	-1.100	28.772	27.672	-18.328	46.000
625.580	-3.068	31.915	28.847	-17.153	46.000
875.840	1.211	37.524	38.735	-7.265	46.000

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ * ”, 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 : Multi-functional Gigabit Wireless N Router
 Test Item : General Radiated Emission Data
 Test Site : No.3 OATS
 Test Mode : Mode 3: Transmitter (802.11n MCS8 13Mbps 20M-BW)-Adapter 1(2437 MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
Horizontal					
30.000	1.712	27.807	29.519	-10.481	40.000
224.000	-10.716	49.296	38.580	-7.420	46.000
317.120	-4.562	44.599	40.037	-5.963	46.000
375.320	-1.779	38.336	36.557	-9.443	46.000
625.580	1.302	33.490	34.792	-11.208	46.000
1000.000	8.637	27.716	36.353	-17.647	54.000
Vertical					
109.540	-0.829	31.480	30.651	-12.849	43.500
303.540	-7.240	43.428	36.188	-9.812	46.000
375.320	-2.599	36.517	33.918	-12.082	46.000
538.280	-0.506	28.172	27.666	-18.334	46.000
875.840	1.211	35.134	36.345	-9.655	46.000
965.080	7.397	27.514	34.911	-19.089	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 : Multi-functional Gigabit Wireless N Router
 Test Item : General Radiated Emission Data
 Test Site : No.3 OATS
 Test Mode : Mode 4: Transmitter (802.11n MCS8 27Mbps 40M-BW)-Adapter 1(2437 MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
Horizontal					
30.000	1.712	27.558	29.270	-10.730	40.000
216.240	-11.097	47.297	36.200	-9.800	46.000
288.020	-5.106	44.914	39.808	-6.192	46.000
625.580	1.302	35.157	36.459	-9.541	46.000
850.620	5.590	28.323	33.913	-12.087	46.000
1000.000	8.637	28.187	36.824	-17.176	54.000
Vertical					
107.600	-0.710	32.115	31.405	-12.095	43.500
299.660	-7.331	42.989	35.658	-10.342	46.000
375.320	-2.599	37.051	34.452	-11.548	46.000
625.580	-3.068	33.396	30.328	-15.672	46.000
875.840	1.211	38.923	40.134	-5.866	46.000
1000.000	3.847	28.048	31.895	-22.105	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 : Multi-functional Gigabit Wireless N Router
 Test Item : General Radiated Emission Data
 Test Site : No.3 OATS
 Test Mode : Mode 5: Transmitter (802.11b 1Mbps)-Adapter 2 (2437 MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
Horizontal					
105.660	-7.047	30.881	23.835	-19.665	43.500
322.940	-4.730	40.625	35.895	-10.105	46.000
375.320	-1.779	39.536	37.757	-8.243	46.000
499.480	-0.442	37.280	36.837	-9.163	46.000
625.580	1.302	35.778	37.080	-8.920	46.000
1000.000	8.637	27.370	36.007	-17.993	54.000
Vertical					
31.940	-0.886	33.438	32.552	-7.448	40.000
92.080	-3.585	38.981	35.396	-8.104	43.500
297.720	-7.627	41.946	34.319	-11.681	46.000
375.320	-2.599	38.863	36.264	-9.736	46.000
679.900	0.562	37.406	37.968	-8.032	46.000
875.840	1.211	37.545	38.756	-7.244	46.000

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ * ”, 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 : Multi-functional Gigabit Wireless N Router
 Test Item : General Radiated Emission Data
 Test Site : No.3 OATS
 Test Mode : Mode 6: Transmitter (802.11g 6Mbps)-Adapter 2 (2437 MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
Horizontal					
30.000	1.712	29.290	31.002	-8.998	40.000
286.080	-5.222	44.137	38.915	-7.085	46.000
375.320	-1.779	39.464	37.685	-8.315	46.000
499.480	-0.442	36.593	36.150	-9.850	46.000
625.580	1.302	34.366	35.668	-10.332	46.000
674.080	2.353	33.891	36.244	-9.756	46.000
Vertical					
31.940	-0.886	33.396	32.510	-7.490	40.000
220.120	-9.223	41.078	31.855	-14.145	46.000
299.660	-7.331	42.137	34.806	-11.194	46.000
375.320	-2.599	38.852	36.253	-9.747	46.000
689.600	2.094	28.502	30.596	-15.404	46.000
875.840	1.211	37.647	38.858	-7.142	46.000

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ * ”, 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 : Multi-functional Gigabit Wireless N Router
 Test Item : General Radiated Emission Data
 Test Site : No.3 OATS
 Test Mode : Mode 7: Transmitter (802.11n MCS8 13Mbps 20M-BW)-Adapter 2 (2437 MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
Horizontal					
30.000	1.712	27.487	29.199	-10.801	40.000
94.020	-8.453	30.631	22.177	-21.323	43.500
288.020	-5.106	43.478	38.372	-7.628	46.000
375.320	-1.779	38.251	36.472	-9.528	46.000
499.480	-0.442	37.166	36.723	-9.277	46.000
996.120	7.185	28.368	35.553	-18.447	54.000
Vertical					
45.520	-4.715	36.353	31.638	-8.362	40.000
299.660	-7.331	42.184	34.853	-11.147	46.000
375.320	-2.599	39.338	36.739	-9.261	46.000
875.840	1.211	38.623	39.834	-6.166	46.000
965.080	7.397	27.780	35.177	-18.823	54.000
1000.000	3.847	29.104	32.951	-21.049	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 : Multi-functional Gigabit Wireless N Router
 Test Item : General Radiated Emission Data
 Test Site : No.3 OATS
 Test Mode : Mode 8: Transmitter (802.11n MCS8 27Mbps 40M-BW)-Adapter 2(2437 MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
Horizontal					
30.000	1.712	29.058	30.770	-9.230	40.000
227.880	-9.339	45.870	36.531	-9.469	46.000
375.320	-1.779	40.046	38.267	-7.733	46.000
499.480	-0.442	35.565	35.122	-10.878	46.000
625.580	1.302	35.573	36.875	-9.125	46.000
996.120	7.185	28.609	35.794	-18.206	54.000
Vertical					
31.940	-0.886	34.463	33.577	-6.423	40.000
224.000	-9.076	41.524	32.448	-13.552	46.000
299.660	-7.331	42.049	34.718	-11.282	46.000
375.320	-2.599	38.727	36.128	-9.872	46.000
875.840	1.211	38.394	39.605	-6.395	46.000
967.020	7.541	28.308	35.849	-18.151	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

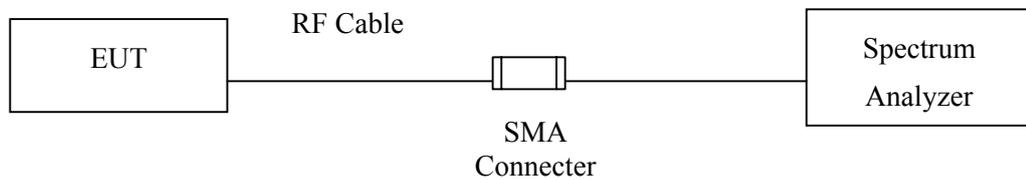
The following test equipments are used during the radiated emission tests:

	Equipment	Manufacturer	Model No./Serial No.	Last Cal.
	Spectrum Analyzer	R&S	FSP40 / 100170	Nov, 2008
	Spectrum Analyzer	Agilent	E4407B / US39440758	May, 2008
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 $\pm 1.27\text{dB}$

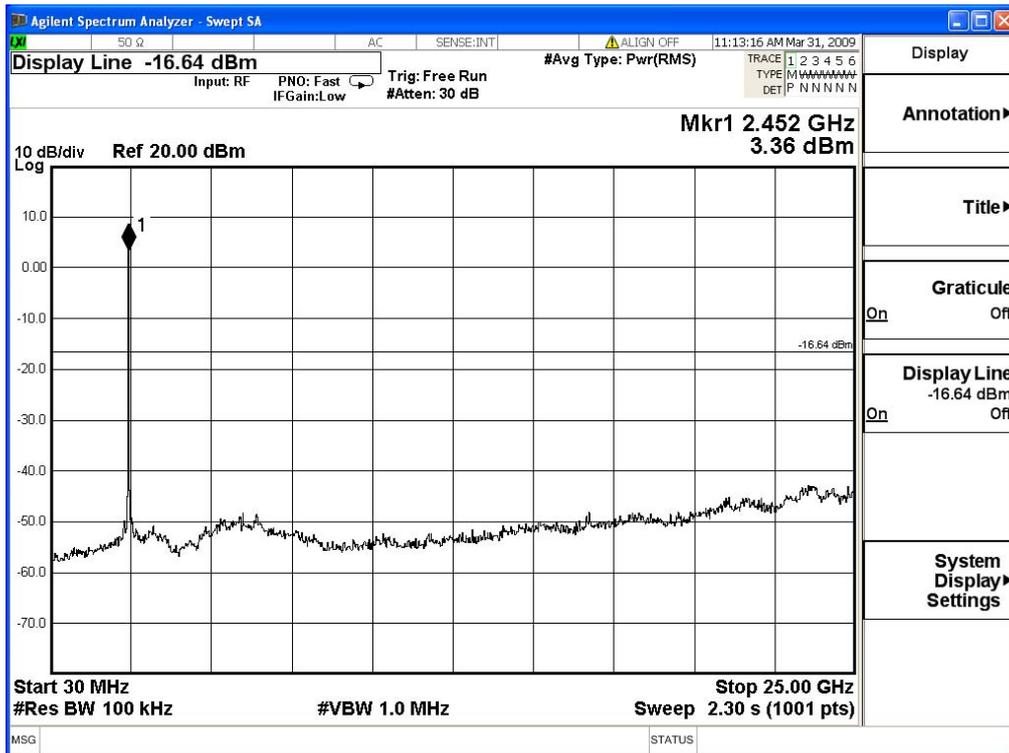
5.6. Test Result of RF antenna conducted test

Product : Multi-functional Gigabit Wireless N Router
 Test Item : RF antenna conducted test
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmitter (802.11b 1Mbps)-Adapter 1

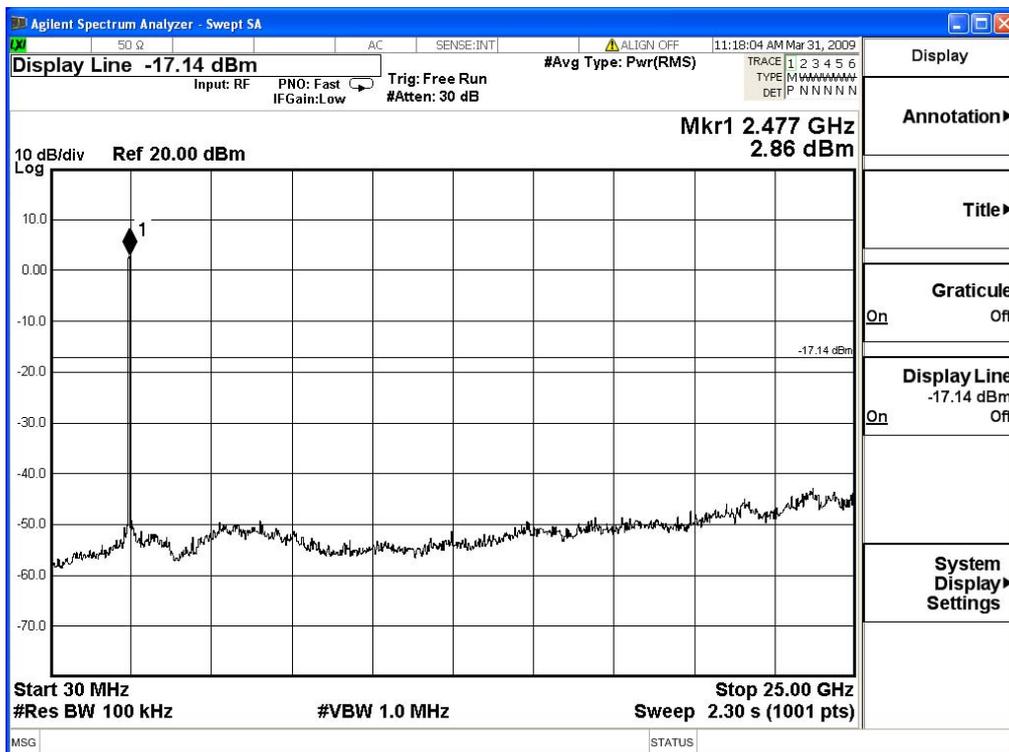
Channel 01 (2412MHz) 30 MHz -25GHz



Channel 06 (2437MHz) 30 MHz -25GHz



Channel 11 (2462MHz) 30 MHz -25GHz

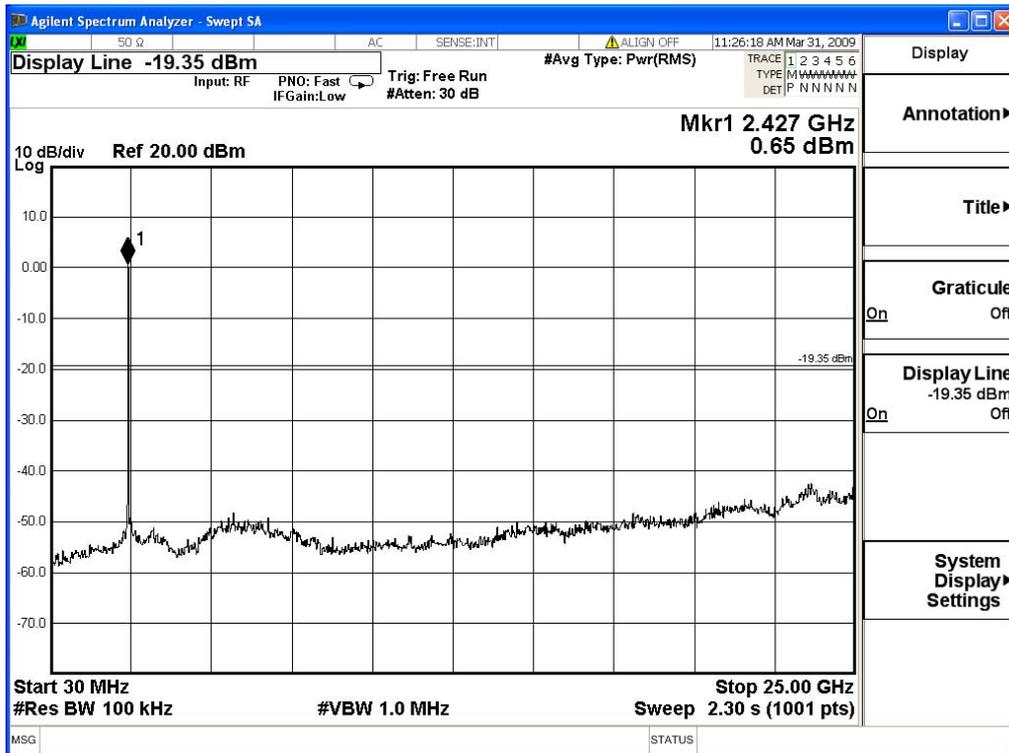


Product : Multi-functional Gigabit Wireless N Router
 Test Item : RF Antenna Conducted Spurious
 Test Site : No.3 OATS
 Test Mode : Mode 2: Transmitter (802.11g 6Mbps)-Adapter 1

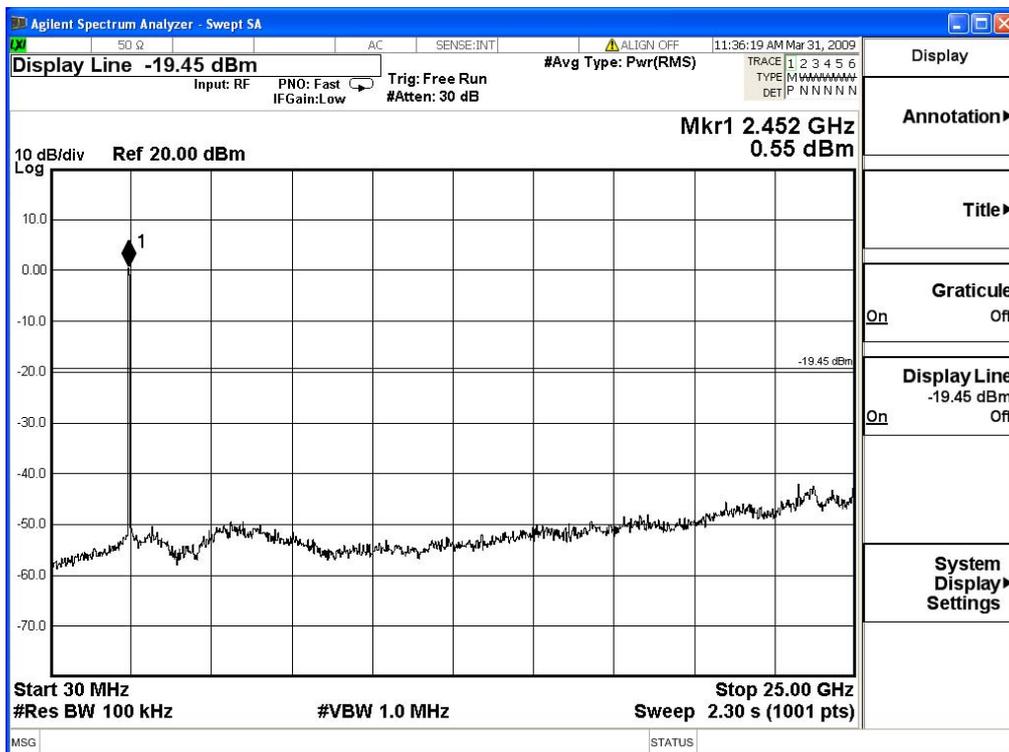
Channel 01 (2412MHz) 30 MHz -25GHz



Channel 06 (2437MHz) 30 MHz -25GHz

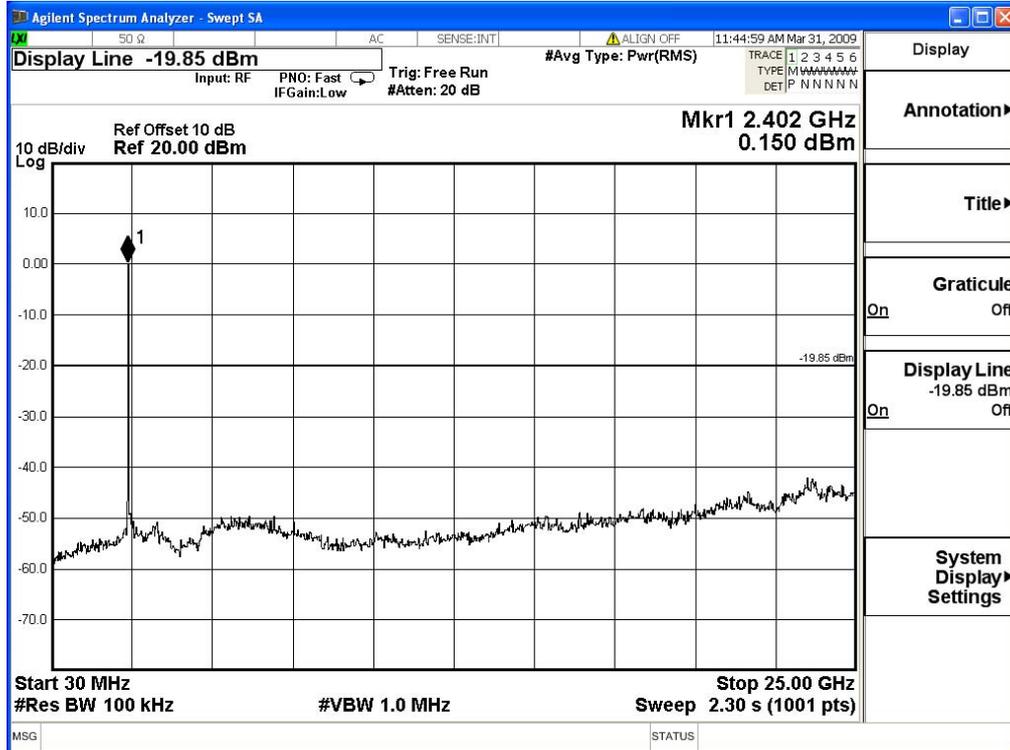


Channel 11 (2462MHz) 30 MHz -25GHz

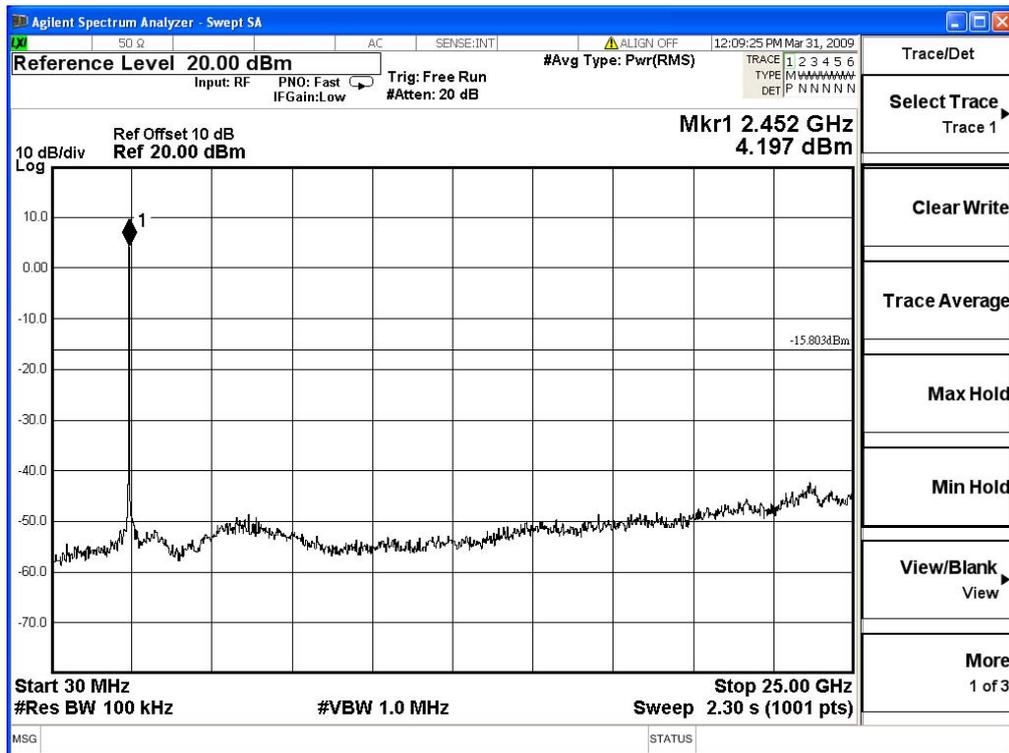


Product : Multi-functional Gigabit Wireless N Router
 Test Item : RF Antenna Conducted Spurious
 Test Site : No.3 OATS
 Test Mode : Mode 3: Transmitter (802.11n MCS8 13Mbps 20M-BW)-Adapter 1

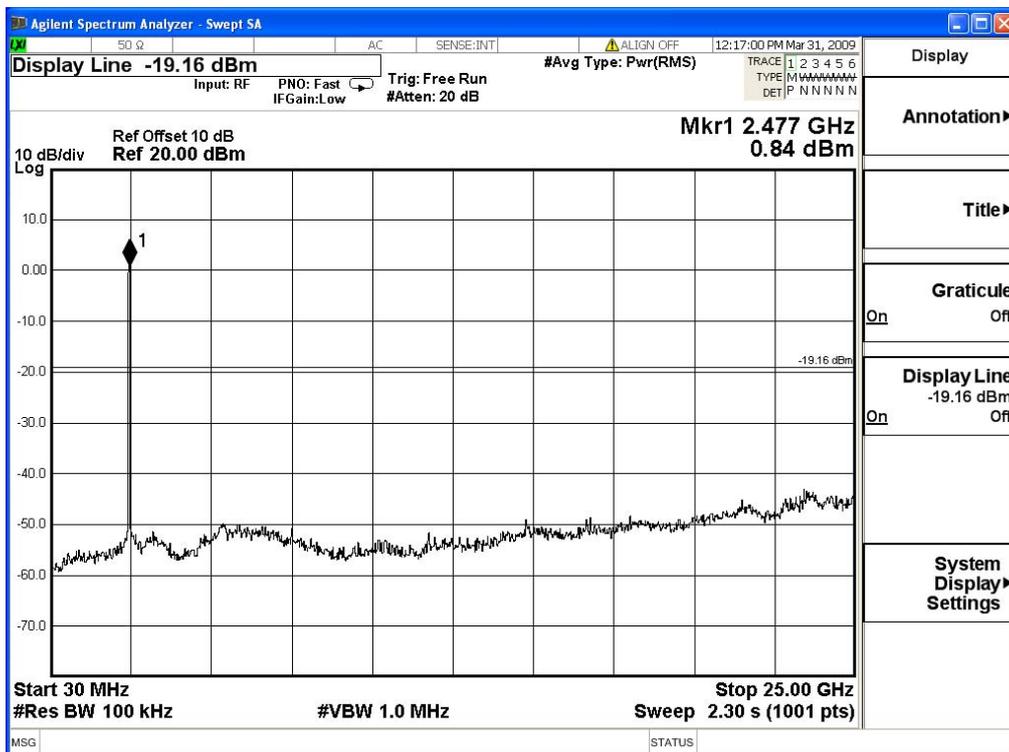
Channel 01 (2412MHz) 30 MHz -25GHz



Channel 06 (2437MHz) 30 MHz -25GHz



Channel 11 (2462MHz) 30 MHz -25GHz

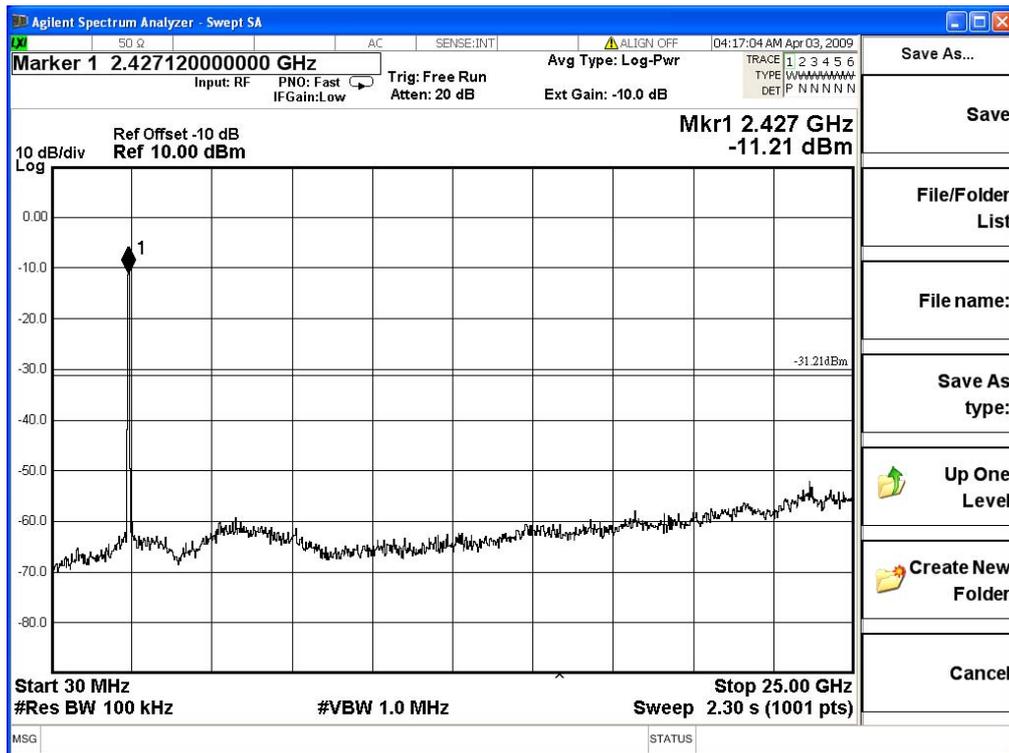


Product : Multi-functional Gigabit Wireless N Router
 Test Item : RF Antenna Conducted Spurious
 Test Site : No.3 OATS
 Test Mode : Mode 4: Transmitter (802.11n MCS8 27Mbps 40M-BW)-Adapter 1

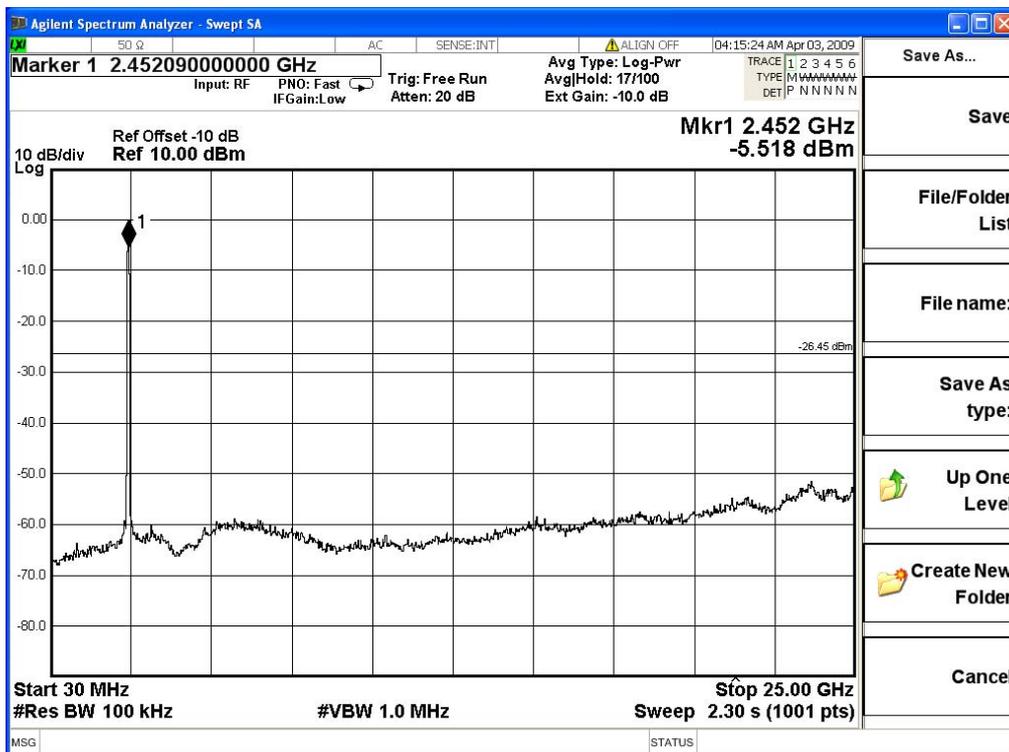
Channel 01 (2422MHz) 30 MHz -25GHz



Channel 04 (2437MHz) 30 MHz -25GHz



Channel 07 (2452MHz) 30MHz-25GHz



6. Band Edge

6.1. Test Equipment

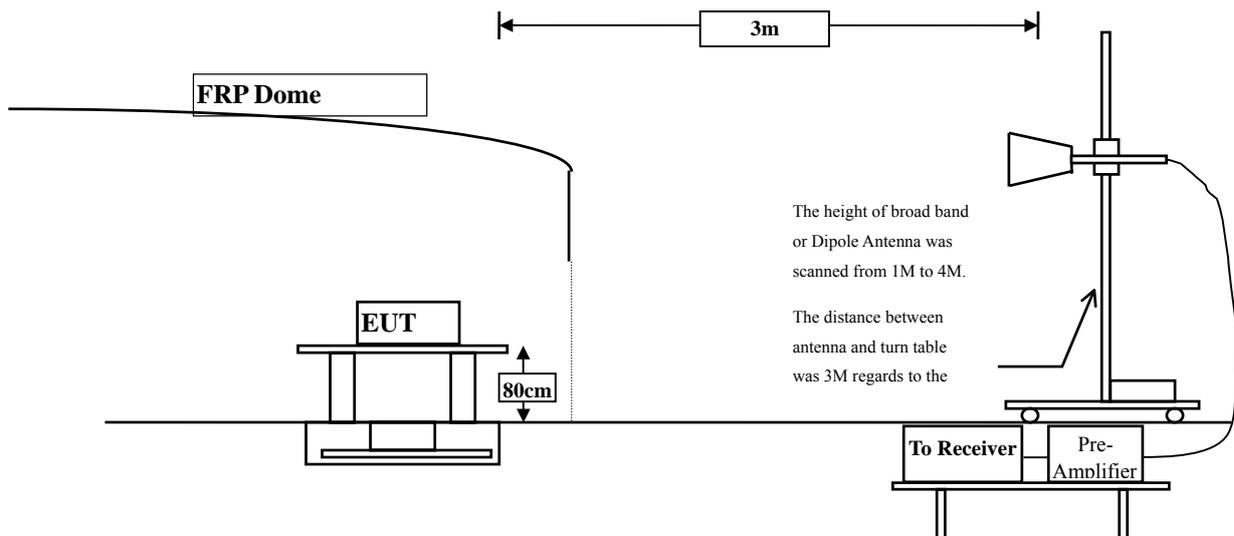
The following test equipments are used during the band edge tests:

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 : Multi-functional Gigabit Wireless N Router
 Test Item : Band Edge Data
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmitter (802.11b 1Mbps)-Adapter 1-Channel 1

Fundamental Filed Strength

Antenna Pole	Frequency [MHz]	Reading Level [dBuV]	Correction Factor [dB/m]	Emission Level [dBuV/m]	Detector
Horizontal	2412	69.447	29.737	99.214	Peak
Horizontal	2412	65.712	29.734	95.445	Average
Vertical	2412	75.392	29.737	105.129	Peak
Vertical	2412	71.515	29.733	101.308	Average

Note: 1:Spectrum Analyzer setting:

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

Average detector: RBW=1MHz, VBW=30Hz

Band Edge Test Data

Antenna Pole	Test Frequency (MHz)	Fundamental (dBuV/m)	Δ (dB)	Band Edge Field Strength (dBuV/m)	Detector
Horizontal	2390	99.214	45.448	53.766	Peak
Horizontal	2390	95.445	54.594	40.851	Average
Vertical	2390	105.129	45.448	59.681	Peak
Vertical	2390	101.308	54.594	46.714	Average

Note:

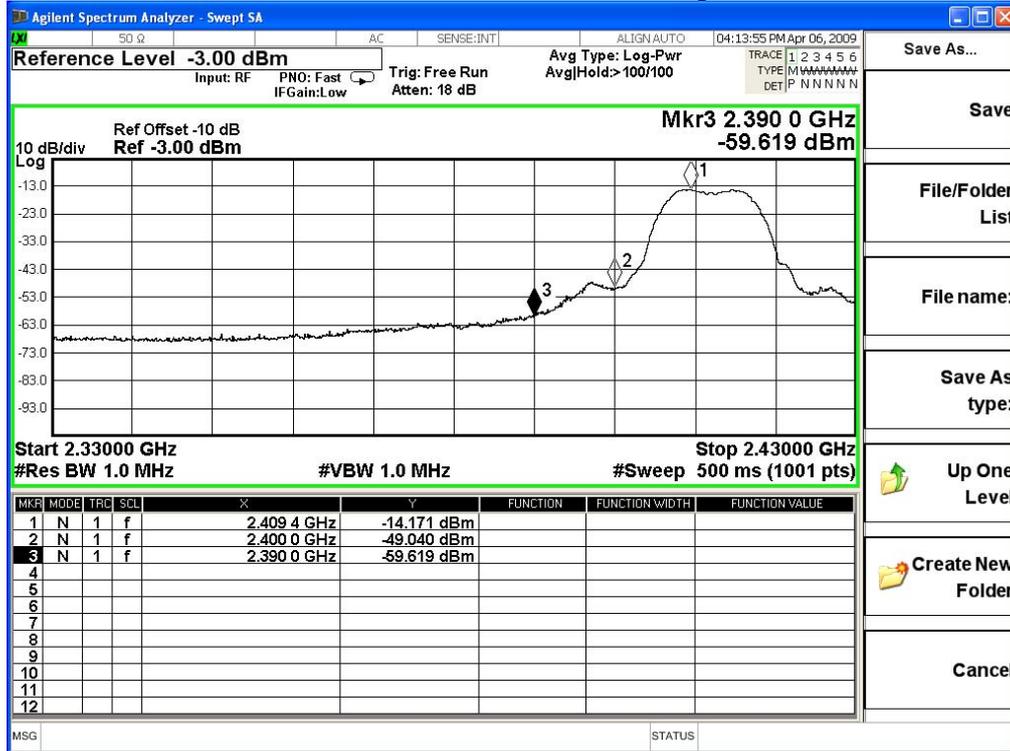
The Band Edge Field Strength was calculated using the Fundamental and Conducted Band Edge measurements per the Marker-Delta Method with the following formula:

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 : Multi-functional Gigabit Wireless N Router
 Test Item : Band Edge Data
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmitter (802.11b 1Mbps)-Adapter 1 -Channel 11

Fundamental Filed Strength

Antenna Pole	Frequency [MHz]	Reading Level [dB(uV)]	Correction Factor [dB/m]	Emission Level [dB(uV/m)]	Detector
Horizontal	2462	68.918	29.921	98.839	Peak
Horizontal	2462	65.206	29.925	95.131	Average
Vertical	2462	78.251	29.950	108.202	Peak
Vertical	2462	74.102	29.924	104.027	Average

Note: 1:Spectrum Analyzer setting:

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

Average detector: RBW=1MHz, VBW=30Hz

Band Edge Test Data

Antenna Pole	Test Frequency (MHz)	Fundamental (dBuV/m)	Δ (dB)	Band Edge Field Strength (dBuV/m)	Detector
Horizontal	2483.5	98.839	45.017	53.882	Peak
Horizontal	2483.5	95.131	54.829	40.302	Average
Vertical	2483.5	108.202	45.017	63.185	Peak
Vertical	2483.5	104.027	54.829	49.198	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)

Product : Multi-functional Gigabit Wireless N Router
 Test Item : Band Edge Data
 Test Site : No.3 OATS
 Test Mode : Mode 2: Transmitter (802.11g 6Mbps)-Adapter 1 -Channel 1

Fundamental Filed Strength

Antenna Pole	Frequency [MHz]	Reading Level [dBuV]	Correction Factor [dB/m]	Emission Level [dBuV/m]	Detector
Horizontal	2412	62.626	29.708	92.334	Peak
Horizontal	2412	49.925	29.735	79.660	Average
Vertical	2412	75.351	29.707	105.238	Peak
Vertical	2412	62.511	29.734	92.245	Average

Note: 1:Spectrum Analyzer setting:

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

Average detector: RBW=1MHz, VBW=30Hz

Band Edge Test Data

Antenna Pole	Test Frequency (MHz)	Fundamental (dBuV/m)	Δ (dB)	Band Edge Field Strength (dBuV/m)	Detector
Horizontal	2390	92.334	34.767	60.567	Peak
Horizontal	2389.1	79.660	42.760	36.900	Average
Vertical	2390	105.238	34.767	70.471	Peak
Vertical	2389.1	92.245	42.760	49.485	Average

Note:

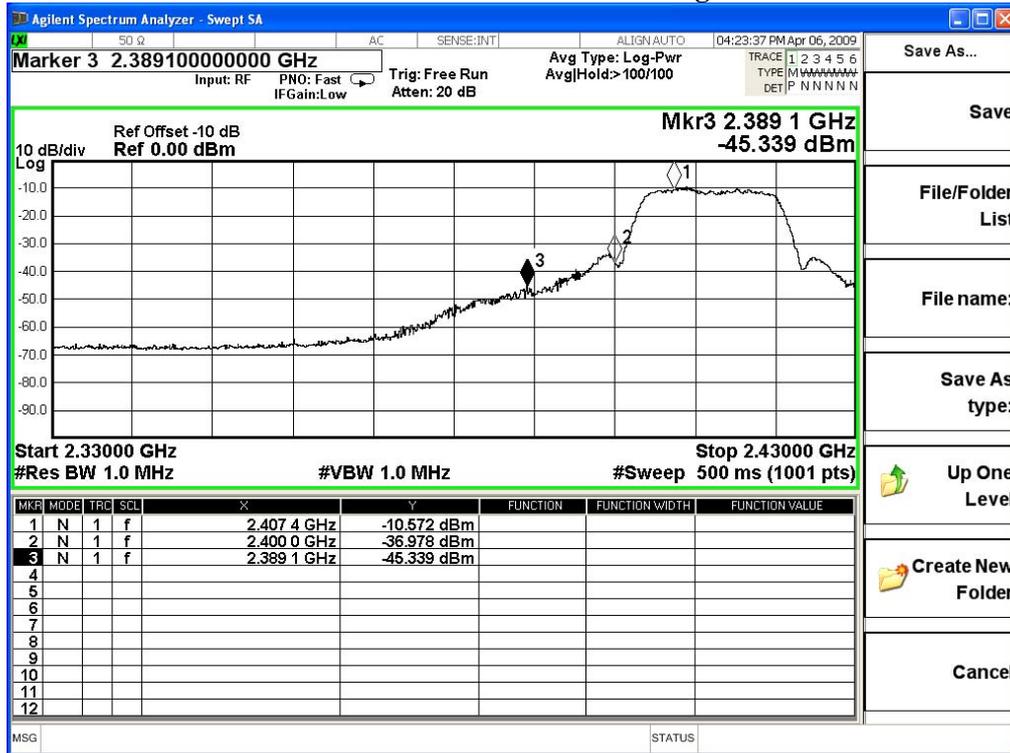
The Band Edge Field Strength was calculated using the Fundamental and Conducted Band Edge measurements per the Marker-Delta Method with the following formula:

Band Edge field Strength = F - Δ

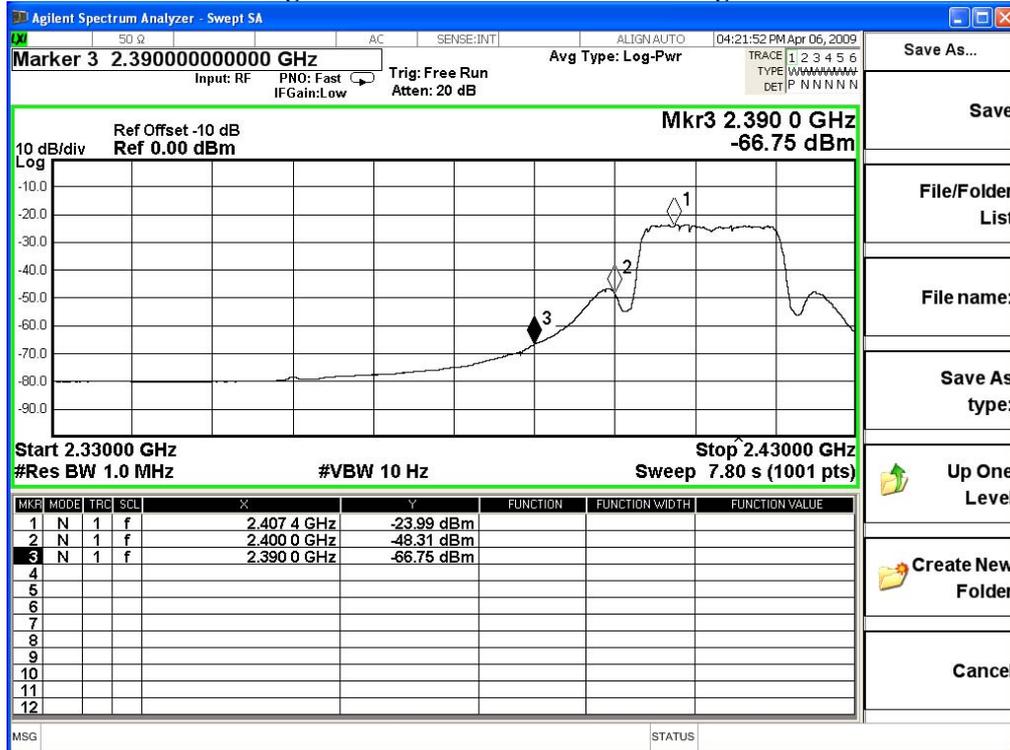
F = Fundamental field Strength (Peak or Average)

Δ = Conducted Band Edge Delta (Peak or Average)

Peak Detector of conducted Band Edge Delta



Average Detector of conducted Band Edge Delta



Product : Multi-functional Gigabit Wireless N Router
 Test Item : Band Edge Data
 Test Site : No.3 OATS
 Test Mode : Mode 2: Transmitter (802.11g 6Mbps)-Adapter 1 -Channel 11

Fundamental Filed Strength

Antenna Pole	Frequency [MHz]	Reading Level [dB(uV)]	Correction Factor [dB/m]	Emission Level [dB(uV/m)]	Detector
Horizontal	2462	64.000	29.923	93.922	Peak
Horizontal	2462	51.694	29.950	81.645	Average
Vertical	2462	76.729	29.920	106.649	Peak
Vertical	2462	63.814	29.952	93.766	Average

Note: 1:Spectrum Analyzer setting:

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

Average detector: RBW=1MHz, VBW=30Hz

Band Edge Test Data

Antenna Pole	Test Frequency (MHz)	Fundamental (dBuV/m)	Δ (dB)	Band Edge Field Strength (dBuV/m)	Detector
Horizontal	2483.5	93.922	41.323	52.599	Peak
Horizontal	2483.5	81.645	46	35.645	Average
Vertical	2483.5	106.649	41.323	65.326	Peak
Vertical	2483.5	93.766	46	47.766	Average

Note:

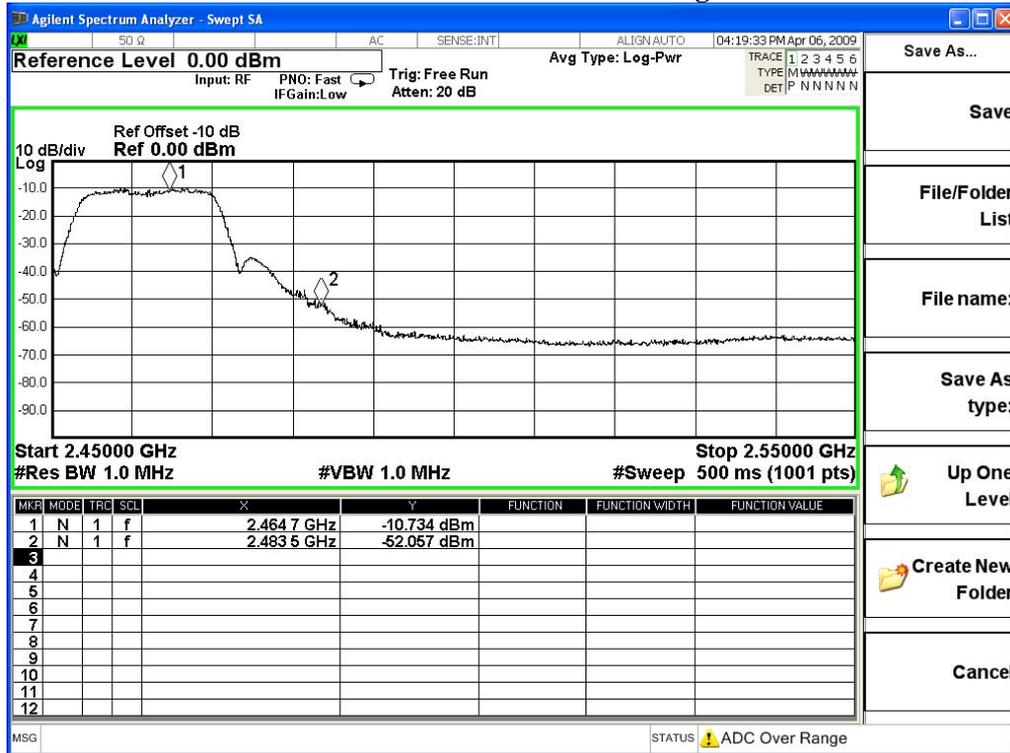
The Band Edge Field Strength was calculated using the Fundamental and Conducted Band Edge measurements per the Marker-Delta Method with the following formula:

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

