



Test Report

Product Name	Wireless 802.11n 4 Ports ADSL2/2+ Router
Model No	PTI-8511N, PTI-8511NU, 8520-R1
FCC ID.	YHYPTI-8511N

Applicant	PARADIGM TECHNOLOGY INC.
Address	8F., No.580, Rueiguang Rd., Nei-Hu, Taipei 114, Taiwan, R.O.C.

Date of Receipt	May. 11, 2010
Issue Date	May. 21, 2010
Report No.	105213R-RFUSP42V01
Report Version	V1.0

The test results relate only to the samples tested.

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Test Report Certification

Issue Date: May. 21, 2010

Report No.: 105213R-RFUSP42V01



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

Product Name	Wireless 802.11n 4 Ports ADSL2/2+ Router
Applicant	PARADIGM TECHNOLOGY INC.
Address	8F., No.580, Rueiguang Rd., Nei-Hu, Taipei 114, Taiwan, R.O.C.
Manufacturer	PARADIGM TECHNOLOGY INC.
Model No.	PTI-8511N, PTI-8511NU, 8520-R1
EUT Rated Voltage	AC 100-240V / 50-60Hz
EUT testing Voltage	AC 120V/60Hz
Trade Name	PTI
Applicable Standard	FCC CFR Title 47 Part 15 Subpart C: 2009 ANSI C63.4: 2003
Test Result	Complied



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Testing Laboratory
0914

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	19
3.1. Test Equipment.....	19
3.2. Test Setup	19
3.3. Limits	19
3.4. Test Procedure	19
3.5. Uncertainty	19
3.6. Test Result of Peak Power Output.....	20
4. Radiated Emission.....	24
4.1. Test Equipment.....	24
4.2. Test Setup	25
4.3. Limits	26
4.4. Test Procedure	27
4.5. Uncertainty	27
4.6. Test Result of Radiated Emission.....	28
5. RF antenna conducted test.....	47
5.1. Test Equipment.....	47
5.2. Test Setup	47
5.3. Limits	47
5.4. Test Procedure	48
5.5. Uncertainty	48
5.6. Test Result of RF antenna conducted test.....	49
6. Band Edge	57
6.1. Test Equipment.....	57
6.2. Test Setup	58
6.3. Limits	58
6.4. Test Procedure	59
6.5. Uncertainty	59
6.6. Test Result of Band Edge	60

7.	Occupied Bandwidth	76
7.1.	Test Equipment	76
7.2.	Test Setup	76
7.3.	Limits	76
7.4.	Test Procedure	76
7.5.	Uncertainty	76
7.6.	Test Result of Occupied Bandwidth	77
8.	Power Density	89
8.1.	Test Equipment	89
8.2.	Test Setup	89
8.3.	Limits	89
8.4.	Test Procedure	90
8.5.	Uncertainty	90
8.6.	Test Result of Power Density	91
9.	EMI Reduction Method During Compliance Testing	103
Attachment 1:	EUT Test Photographs	
Attachment 2:	EUT Detailed Photographs	

1. GENERAL INFORMATION

1.1. EUT Description

Product Name	Wireless 802.11n 4 Ports ADSL2/2+ Router
Trade Name	PTI
Model No.	PTI-8511N, PTI-8511NU, 8520-R1
FCC ID.	YHYPTI-8511N
Frequency Range	2412-2462MHz for 802.11b/g/n-20BW, 2422-2452MHz for 802.11n-40BW
Number of Channels	802.11b/g/n-20MHz: 11, n-40MHz: 7
Data Speed	802.11b: 1-11Mbps, 802.11g: 6-54Mbps, 802.11n: up to 300Mbps
Type of Modulation	802.11b:DSSS (DBPSK, DQPSK, CCK) 802.11g/n:OFDM (BPSK, QPSK, 16QAM, 64QAM)
Antenna Type	Dipole
Antenna Gain	Refer to the table "Antenna List"
Channel Control	Auto
Power Adapter (1)	MFR: DVE, M/N: DSA-12G-12FUS 120120 Input: AC 100-240V, 50-60Hz, 0.3A Output: DC 12V, 1A Cable out: Shielded, 1.8m
Power Adapter (2)	MFR: Broadxent, M/N: AD-121AN Input: AC 120V, 60Hz, 25W Output: DC 12V, 1.0A Cable out: Shielded, 1.8m
Power Adapter (3)	MFR: OEM, M/N: ADS0129-W 120100 Input: AC 100-240V, 50-60Hz, 0.5A Output: DC 12V, 1.0A Cable out: Shielded, 1.8m

Antenna List

No.	Manufacturer	Part No.	Peak Gain
1	Cortec	R-AN2400-3718BX	2.0dBi for 2.4GHz

Note: The antenna of EUT is conform to FCC 15.203

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

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

802.11n-40MHz Center Frequency of Each Channel:

Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
Channel 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 Wireless 802.11n 4 Ports ADSL2/2+ Router with a built-in 2.4GHz WLAN transceiver.
2. The EUT is including three models for different marketing requirement.
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 14.4Mbps and 、 802.11n(40M-BW) is 30Mbps)
5. These tests are conducted on a sample for the purpose of demonstrating compliance of 802.11b/g/n transmitter with Part 15 Subpart C Paragraph 15.247 of spread spectrum devices
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 Wireless 802.11n 4 Ports ADSL2/2+ 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 14.4,28.8,43.4,57.8,86.6,115.6,130 and 144.4Mbps in 802.11n(20M-BW) mode and 30,60,90,120,180,240,270 and 300 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 two antennas to support 2(Transmit) * 2(Receive) MIMO technology.

This Wireless 802.11n 4 Ports ADSL2/2+ 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 Wireless 802.11n 4 Ports ADSL2/2+ 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: Transmit (802.11b 1Mbps)
	Mode 2: Transmit (802.11g 6Mbps)
	Mode 3: Transmit (802.11n MCS8 14.4Mbps 20M-BW)
	Mode 4: Transmit (802.11n MCS8 30Mbps 40M-BW)

NOTE:

1. At result of pretests, Adapter A (DVE / DSA-12G-12 FUS 120120) is the worst case is shown in the report.
2. 802.11 a/b/g are tested by Chain A.
802.11n-20MHz / n-40MHz are tested by Chain A + Chain B.

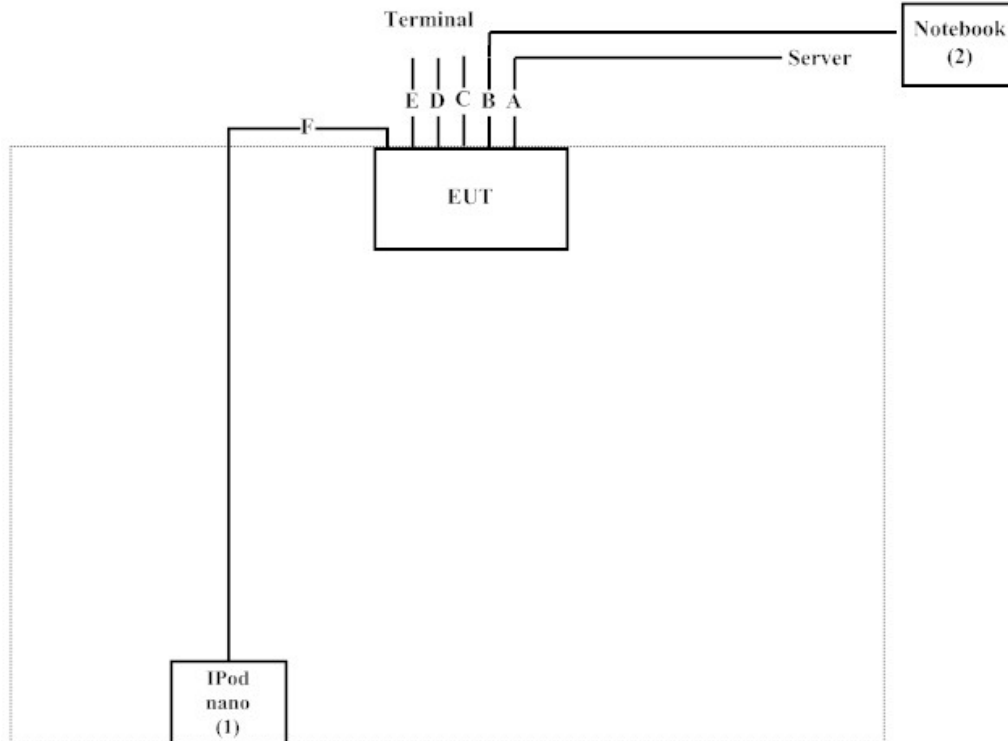
1.3. Tested System Details

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.	FCC ID	Power Cord	
1	iPod nano	Apple	A1236	7K823DWSY0P	N/A	N/A
2	Notebook	DELL	D400	N/A	N/A	Non-Shielded, 1.8m

Signal Cable Type		Signal cable Description
A	Telephone Cable	Non-Shielded, 3.0m
B	LAN Cable	Non-Shielded, 3.0m
C	LAN Cable	Non-Shielded, 1.0m
D	LAN Cable	Non-Shielded, 1.0m
E	LAN Cable	Non-Shielded, 1.0m
F	iPod USB Cable	Shielded, 1.0m

1.4. Configuration of Tested System



1.5. EUT Exercise Software

- (1) Setup the EUT as shown in Section 1.4
- (2) Execute Command on the Notebook.
- (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

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 The address and introduction of Quietek Corporation’s laboratories can be founded in our Web site : <http://www.quietek.com/>

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Accreditation on NVLAP
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2. Conducted Emission

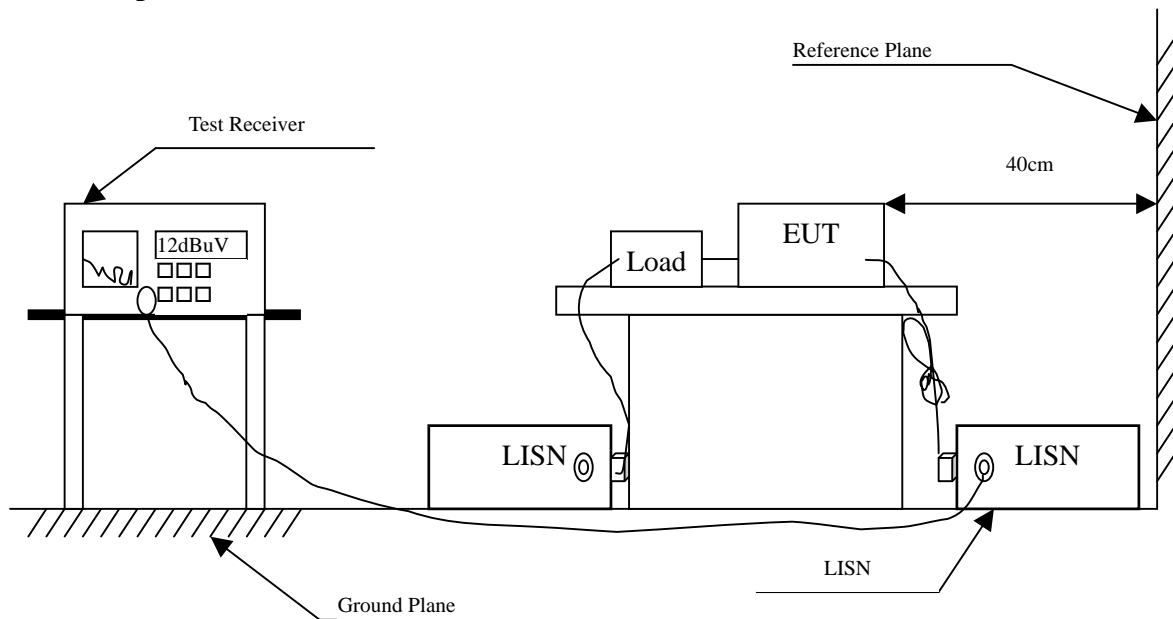
2.1. Test Equipment

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, 2010	
2	L.I.S.N.	R & S	ESH3-Z5/825016/6	May, 2010	EUT
3	L.I.S.N.	Kyoritsu	KNW-407/8-1420-3	May, 2010	Peripherals
4	Pulse Limiter	R & S	ESH3-Z2	May, 2010	
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 : Wireless 802.11n 4 Ports ADSL2/2+ Router
 Test Item : Conducted Emission Test
 Power Line : Line 1
 Test Mode : Mode 4: Transmit (802.11n MCS8 30Mbps 40M-BW) – Adapter A (2437MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV	Margin dB	Limit dBuV
Line 1					
Quasi-Peak					
0.150	9.766	35.700	45.465	-20.535	66.000
0.181	9.724	34.020	43.744	-21.370	65.114
0.252	9.675	32.220	41.895	-21.191	63.086
0.392	9.650	25.500	35.150	-23.936	59.086
0.701	9.630	25.160	34.790	-21.210	56.000
4.791	9.700	25.040	34.740	-21.260	56.000
Average					
0.150	9.766	23.390	33.155	-22.845	56.000
0.181	9.724	27.370	37.094	-18.020	55.114
0.252	9.675	24.230	33.905	-19.181	53.086
0.392	9.650	11.470	21.120	-27.966	49.086
0.701	9.630	15.660	25.290	-20.710	46.000
4.791	9.700	16.200	25.900	-20.100	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 : Wireless 802.11n 4 Ports ADSL2/2+ Router
 Test Item : Conducted Emission Test
 Power Line : Line 2
 Test Mode : Mode 4: Transmit (802.11n MCS8 30Mbps 40M-BW) – Adapter A (2437MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV	Margin dB	Limit dBuV
Line 2					
Quasi-Peak					
0.177	9.736	34.040	43.776	-21.453	65.229
0.240	9.690	30.500	40.190	-23.239	63.429
0.310	9.660	21.720	31.380	-30.049	61.429
0.400	9.650	22.000	31.650	-27.207	58.857
0.607	9.649	21.620	31.269	-24.731	56.000
5.170	9.700	23.960	33.660	-26.340	60.000
Average					
0.177	9.736	20.720	30.456	-24.773	55.229
0.240	9.690	12.220	21.910	-31.519	53.429
0.310	9.660	6.370	16.030	-35.399	51.429
0.400	9.650	10.280	19.930	-28.927	48.857
0.607	9.649	8.280	17.929	-28.071	46.000
5.170	9.700	14.020	23.720	-26.280	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 : Wireless 802.11n 4 Ports ADSL2/2+ Router
 Test Item : Conducted Emission Test
 Power Line : Line 1
 Test Mode : Mode 4: Transmit (802.11n MCS8 30Mbps 40M-BW) – Adapter B (2437MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV	Margin dB	Limit dBuV
Line 1					
Quasi-Peak					
0.162	9.750	41.940	51.690	-13.967	65.657
0.197	9.709	40.720	50.429	-14.228	64.657
0.302	9.650	38.200	47.850	-13.807	61.657
0.361	9.650	37.540	47.190	-12.781	59.971
0.638	9.630	27.620	37.250	-18.750	56.000
13.931	9.950	20.880	30.830	-29.170	60.000
Average					
0.162	9.750	21.590	31.340	-24.317	55.657
0.197	9.709	5.140	14.849	-39.808	54.657
0.302	9.650	12.850	22.500	-29.157	51.657
0.361	9.650	9.060	18.710	-31.261	49.971
0.638	9.630	5.190	14.820	-31.180	46.000
13.931	9.950	5.140	15.090	-34.910	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 : Wireless 802.11n 4 Ports ADSL2/2+ Router
 Test Item : Conducted Emission Test
 Power Line : Line 2
 Test Mode : Mode 4: Transmit (802.11n MCS8 30Mbps 40M-BW) – Adapter B (2437MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV	Margin dB	Limit dBuV
Line 2					
Quasi-Peak					
0.150	9.766	42.760	52.526	-13.474	66.000
0.185	9.727	41.580	51.308	-13.692	65.000
0.236	9.692	40.200	49.892	-13.651	63.543
0.306	9.660	38.660	48.320	-13.223	61.543
0.490	9.640	35.040	44.680	-11.606	56.286
0.783	9.670	20.400	30.070	-25.930	56.000
Average					
0.150	9.766	10.440	20.206	-35.794	56.000
0.185	9.727	4.990	14.718	-40.282	55.000
0.236	9.692	19.490	29.182	-24.361	53.543
0.306	9.660	10.090	19.750	-31.793	51.543
0.490	9.640	8.560	18.200	-28.086	46.286
0.783	9.670	8.970	18.640	-27.360	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 : Wireless 802.11n 4 Ports ADSL2/2+ Router
 Test Item : Conducted Emission Test
 Power Line : Line 1
 Test Mode : Mode 4: Transmit (802.11n MCS8 30Mbps 40M-BW) – Adapter C (2437MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV	Margin dB	Limit dBuV
Line 1					
Quasi-Peak					
0.181	9.724	40.300	50.024	-15.090	65.114
0.228	9.688	34.460	44.148	-19.623	63.771
0.275	9.659	32.540	42.199	-20.230	62.429
0.345	9.650	30.000	39.650	-20.779	60.429
0.959	9.670	28.660	38.330	-17.670	56.000
1.935	9.680	28.800	38.480	-17.520	56.000
Average					
0.181	9.724	16.870	26.594	-28.520	55.114
0.228	9.688	15.890	25.578	-28.193	53.771
0.275	9.659	30.450	40.109	-12.320	52.429
0.345	9.650	17.780	27.430	-22.999	50.429
0.959	9.670	14.100	23.770	-22.230	46.000
1.935	9.680	21.010	30.690	-15.310	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 : Wireless 802.11n 4 Ports ADSL2/2+ Router
 Test Item : Conducted Emission Test
 Power Line : Line 2
 Test Mode : Mode 4: Transmit (802.11n MCS8 30Mbps 40M-BW) – Adapter C (2437MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV	Margin dB	Limit dBuV
Line 2					
Quasi-Peak					
0.154	9.760	40.900	50.661	-15.225	65.886
0.189	9.724	38.860	48.584	-16.302	64.886
0.236	9.692	33.860	43.552	-19.991	63.543
0.338	9.660	29.820	39.480	-21.149	60.629
0.966	9.670	28.920	38.590	-17.410	56.000
1.775	9.680	30.420	40.100	-15.900	56.000
Average					
0.154	9.760	18.000	27.761	-28.125	55.886
0.189	9.724	23.280	33.004	-21.882	54.886
0.236	9.692	15.890	25.582	-27.961	53.543
0.338	9.660	25.800	35.460	-15.169	50.629
0.966	9.670	19.120	28.790	-17.210	46.000
1.775	9.680	21.590	31.270	-14.730	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:

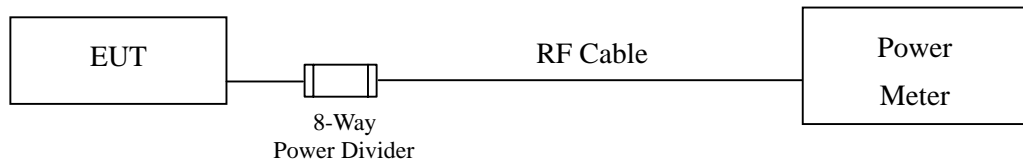
	Equipment	Manufacturer	Model No./Serial No.	Last Cal.
X	Power Meter	Anritsu	ML2495A/6K00003357	May, 2010
X	Power Sensor	Anritsu	MA2411B/0738448	Jun, 2009
X	8-WAY Power Divider	JFW	50PD-647 / 526770 0916	Apr., 2010

Note:

1. All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.
2. The test instruments marked with “X” are used to measure the final test results.
3. The power combiner is used for measure 11n mode.

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 : Wireless 802.11n 4 Ports ADSL2/2+ Router
 Test Item : Peak Power Output Data
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmit (802.11b 1Mbps)

Chain A

Channel No	Frequency (MHz)	Average Power For different Data Rate (Mbps)				Peak Power	Required Limit	Result
		1	2	5.5	11			
		Measurement Level (dBm)						
01	2412	16.9	--	--	--	19.05	<30dBm	Pass
06	2437	16.75	16.72	16.73	16.71	18.92	<30dBm	Pass
11	2462	16.65	--	--	--	18.85	<30dBm	Pass

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

Product : Wireless 802.11n 4 Ports ADSL2/2+ Router
 Test Item : Peak Power Output Data
 Test Site : No.3 OATS
 Test Mode : Mode 2: Transmit (802.11g 6Mbps)

Chain A

Channel No	Frequency (MHz)	Average Power For different Data Rate (Mbps)								Peak Power	Required Limit	Result
		6	9	12	18	24	36	48	54			
		Measurement Level (dBm)										
01	2412	14.68	--	--	--	--	--	--	--	23.34	<30dBm	Pass
06	2437	14.97	14.95	14.94	14.95	14.95	14.93	14.94	14.93	23.58	<30dBm	Pass
11	2462	14.81	--	--	--	--	--	--	--	23.4	<30dBm	Pass

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

Product : Wireless 802.11n 4 Ports ADSL2/2+ Router
 Test Item : Peak Power Output Data
 Test Site : No.3 OATS
 Test Mode : Mode 3: Transmit (802.11n MCS8 14.4Mbps 20M-BW)

Chain A+B

Channel No	Frequency (MHz)	Average Power For different Data Rate (Mbps)								Peak Power	Required Limit	Result
		14.4	28.8	43.4	57.8	86.6	115.6	130	144.4			
		Measurement Level (dBm)										
01	2412	12.79	--	--	--	--	--	--	--	23.17	<30dBm	Pass
06	2437	12.61	12.59	12.58	12.59	12.59	12.57	12.56	12.57	23.05	<30dBm	Pass
11	2462	12.89	--	--	--	--	--	--	--	23.35	<30dBm	Pass

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

Product : Wireless 802.11n 4 Ports ADSL2/2+ Router
 Test Item : Peak Power Output Data
 Test Site : No.3 OATS
 Test Mode : Mode 4: Transmit (802.11n MCS8 30Mbps 40M-BW)

Chain A+B

Channel No	Frequency (MHz)	Average Power For different Data Rate (Mbps)								Peak Power	Required Limit	Result
		30	60	90	120	180	240	270	300			
		Measurement Level (dBm)										
01	2422	12.28	--	--	--	--	--	--	--	22.05	<30dBm	Pass
04	2437	12.16	12.08	12.1	12.09	12.1	12.11	12.08	12.11	21.73	<30dBm	Pass
07	2452	12.85	--	--	--	--	--	--	--	22.51	<30dBm	Pass

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

4. Radiated Emission

4.1. Test Equipment

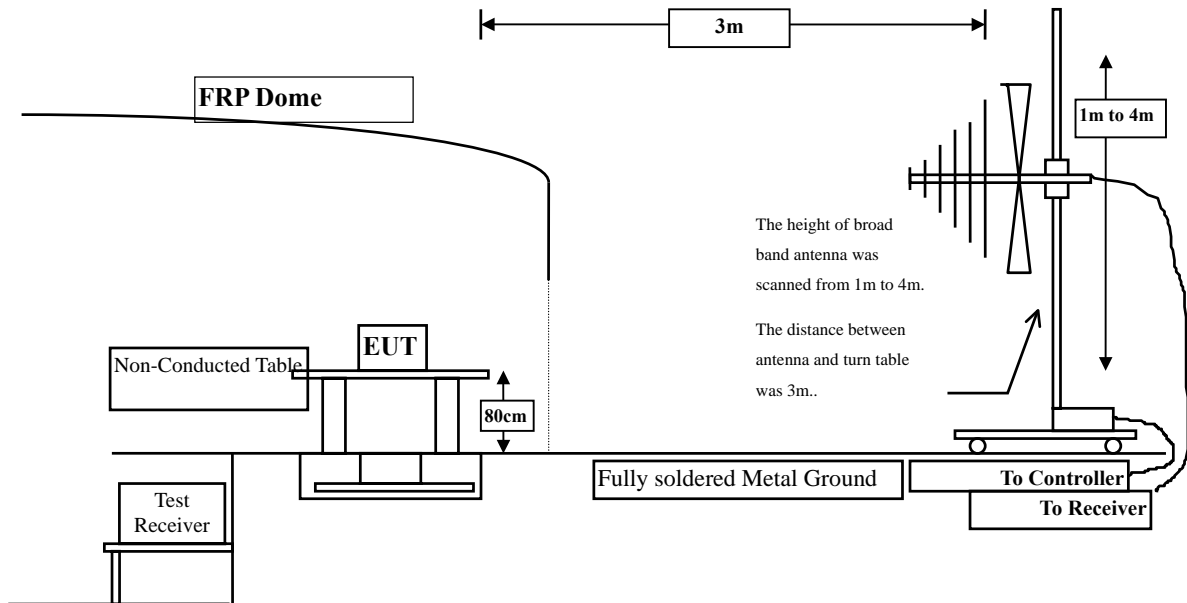
The following test equipment are used during the radiated emission test:

Test Site		Equipment	Manufacturer	Model No./Serial No.	Last Cal.
☒ Site # 3	X	Bilog Antenna	Schaffner Chase	CBL6112B/2673	Sep., 2009
	X	Horn Antenna	Schwarzbeck	BBHA9120D/D305	Sep., 2009
	X	Horn Antenna	Schwarzbeck	BBHA9170/208	Jul., 2009
	X	Pre-Amplifier	Agilent	8447D/2944A09549	Sep., 2009
	X	Spectrum Analyzer	Agilent	E4407B / US39440758	May, 2010
	X	Test Receiver	R & S	ESCS 30/ 825442/018	Sep., 2009
	X	Coaxial Cable	Quietek	QTK-CABLE/ CAB5	Feb., 2010
	X	Controller	Quietek	QTK-CONTROLLER/ CTRL3	N/A
	X	Coaxial Switch	Anritsu	MP59B/6200265729	N/A

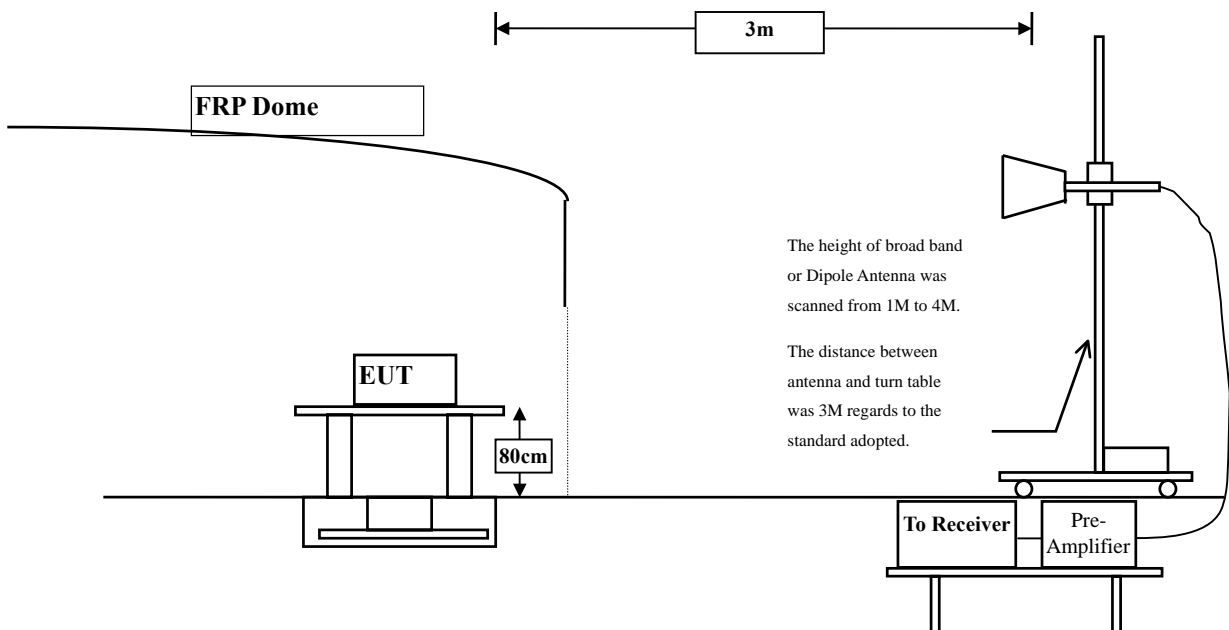
- Note:
1. All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.
 2. The test instruments marked with "X" are used to measure the final test results.

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 : Wireless 802.11n 4 Ports ADSL2/2+ Router
 Test Item : Harmonic Radiated Emission Data
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmit (802.11b 1Mbps) (2412MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
Horizontal					
Peak Detector:					
4824.000	0.246	51.730	51.977	-22.023	74.000
7236.000	7.359	44.540	51.899	-22.101	74.000
9648.000	7.759	39.900	47.660	-26.340	74.000
Average Detector:					
--					
Vertical					
Peak Detector:					
4824.000	0.654	50.910	51.565	-22.435	74.000
7236.000	7.858	44.430	52.288	-21.712	74.000
9648.000	8.296	38.580	46.876	-27.124	74.000
Average Detector:					
--					

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ * ”, 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 : Wireless 802.11n 4 Ports ADSL2/2+ Router
 Test Item : Harmonic Radiated Emission Data
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmit (802.11b 1Mbps) (2437 MHz)

Frequency MHz	Correct Factor dB	Reading Level dBUV	Measurement Level dBUV/m	Margin dB	Limit dBUV/m
Horizontal					
Peak Detector:					
4874.000	-0.058	49.700	49.643	-24.357	74.000
7311.000	7.672	39.910	47.582	-26.418	74.000
9748.000	7.753	40.110	47.863	-26.137	74.000
Average Detector:					
--					
Vertical					
Peak Detector:					
4874.000	0.398	47.740	48.138	-25.862	74.000
7311.000	8.249	41.500	49.749	-24.251	74.000
9748.000	8.389	39.760	48.150	-25.850	74.000
Average Detector:					
--					

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ * ”, 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 : Wireless 802.11n 4 Ports ADSL2/2+ Router
 Test Item : Harmonic Radiated Emission Data
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmit (802.11b 1Mbps) (2462 MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
Horizontal					
Peak Detector:					
4924.000	0.063	47.080	47.143	-26.857	74.000
7386.000	8.504	37.760	46.265	-27.735	74.000
9848.000	8.156	39.820	47.976	-26.024	74.000
Average Detector:					
--					
Vertical					
Peak Detector:					
4924.000	0.677	46.510	47.187	-26.813	74.000
7386.000	9.311	40.150	49.461	-24.539	74.000
9848.000	8.993	40.020	49.012	-24.988	74.000
Average Detector:					
--					

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ * ”, 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 : Wireless 802.11n 4 Ports ADSL2/2+ Router
 Test Item : Harmonic Radiated Emission Data
 Test Site : No.3 OATS
 Test Mode : Mode 2: Transmit (802.11g 6Mbps) (2412MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
Horizontal					
Peak Detector:					
4824.000	0.246	47.670	47.917	-26.083	74.000
7326.000	8.053	40.010	48.063	-25.937	74.000
9648.000	7.759	39.080	46.840	-27.160	74.000
Average Detector:					
--					
Vertical					
Peak Detector:					
4824.000	0.654	46.840	47.495	-26.505	74.000
7236.000	7.858	42.280	50.138	-23.862	74.000
9648.000	8.296	39.710	48.006	-25.994	74.000
Average Detector:					
--					

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ * ”, 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 : Wireless 802.11n 4 Ports ADSL2/2+ Router
 Test Item : Harmonic Radiated Emission Data
 Test Site : No.3 OATS
 Test Mode : Mode 2: Transmit (802.11g 6Mbps) (2437 MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
Horizontal					
Peak Detector:					
4874.000	-0.058	46.840	46.783	-27.217	74.000
7311.000	7.672	38.910	46.582	-27.418	74.000
9748.000	7.753	38.970	46.723	-27.277	74.000
Average Detector:					
--					
Vertical					
Peak Detector:					
4874.000	0.398	44.620	45.018	-28.982	74.000
7311.000	8.249	40.120	48.369	-25.631	74.000
9748.000	8.389	39.080	47.470	-26.530	74.000
Average Detector:					
--					

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ * ”, 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 : Wireless 802.11n 4 Ports ADSL2/2+ Router
 Test Item : Harmonic Radiated Emission Data
 Test Site : No.3 OATS
 Test Mode : Mode 2: Transmit (802.11g 6Mbps) (2462 MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
Horizontal					
Peak Detector:					
4924.000	0.063	45.680	45.743	-28.257	74.000
7386.000	8.504	38.910	47.415	-26.585	74.000
9848.000	8.156	39.620	47.776	-26.224	74.000
Average Detector:					
--					
Vertical					
Peak Detector:					
4924.000	0.677	43.690	44.367	-29.633	74.000
7386.000	9.311	38.600	47.911	-26.089	74.000
9848.000	8.993	39.610	48.602	-25.398	74.000
Average Detector:					
--					

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ * ”, 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 : Wireless 802.11n 4 Ports ADSL2/2+ Router
 Test Item : Harmonic Radiated Emission Data
 Test Site : No.3 OATS
 Test Mode : Mode 3: Transmit (802.11n MCS8 14.4Mbps 20M-BW) (2412MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
Horizontal					
Peak Detector:					
4824.000	0.246	41.840	42.087	-31.913	74.000
7236.000	7.858	39.980	47.838	-26.162	74.000
9648.000	8.296	39.410	47.706	-26.294	74.000
Average Detector:					
--					
Vertical					
Peak Detector:					
4824.000	0.654	43.330	43.985	-30.015	74.000
7236.000	7.858	39.270	47.128	-26.872	74.000
9648.000	8.296	39.250	47.546	-26.454	74.000
Average Detector:					
--					

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ * ”, 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 : Wireless 802.11n 4 Ports ADSL2/2+ Router
 Test Item : Harmonic Radiated Emission Data
 Test Site : No.3 OATS
 Test Mode : Mode 3: Transmit (802.11n MCS8 14.4Mbps 20M-BW) (2437 MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
Horizontal					
Peak Detector:					
4874.000	-0.058	42.510	42.453	-31.547	74.000
7311.000	7.672	38.870	46.542	-27.458	74.000
9748.000	7.753	39.450	47.203	-26.797	74.000

**Average
Detector:**

--

Vertical

Peak Detector:

4874.000	0.398	41.110	41.508	-32.492	74.000
7311.000	8.249	38.770	47.019	-26.981	74.000
9748.000	8.389	39.090	47.480	-26.520	74.000

**Average
Detector:**

--

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ * ”, 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 : Wireless 802.11n 4 Ports ADSL2/2+ Router
 Test Item : Harmonic Radiated Emission Data
 Test Site : No.3 OATS
 Test Mode : Mode 3: Transmit (802.11n MCS8 14.4Mbps 20M-BW) (2462 MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
Horizontal					
Peak Detector:					
4924.000	0.063	41.350	41.413	-32.587	74.000
7386.000	8.504	38.940	47.445	-26.555	74.000
9848.000	8.156	39.440	47.596	-26.404	74.000
Average Detector:					
--					
Vertical					
Peak Detector:					
4924.000	0.677	40.770	41.447	-32.553	74.000
7386.000	9.311	39.840	49.151	-24.849	74.000
9848.000	8.993	40.430	49.422	-24.578	74.000
Average Detector:					
--					

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ * ”, 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 : Wireless 802.11n 4 Ports ADSL2/2+ Router
 Test Item : Harmonic Radiated Emission Data
 Test Site : No.3 OATS
 Test Mode : Mode 4: Transmit (802.11n MCS8 30Mbps 40M-BW)(2422MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
Horizontal					
Peak Detector:					
4844.000	0.098	41.630	41.729	-32.271	74.000
7266.000	7.264	38.420	45.684	-28.316	74.000
9688.000	7.693	38.980	46.673	-27.327	74.000
Average Detector:					
--					
Vertical					
Peak Detector:					
4864.000	0.433	41.870	42.303	-31.697	74.000
7266.000	7.784	37.980	45.764	-28.236	74.000
9688.000	8.314	36.740	45.053	-28.947	74.000
Average Detector:					
--					

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ * ”, 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 : Wireless 802.11n 4 Ports ADSL2/2+ Router
 Test Item : Harmonic Radiated Emission Data
 Test Site : No.3 OATS
 Test Mode : Mode 4: Transmit (802.11n MCS8 30Mbps 40M-BW)(2437 MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
Horizontal					
Peak Detector:					
4874.000	-0.058	43.580	43.523	-30.477	74.000
7311.000	7.672	39.840	47.512	-26.488	74.000
9748.000	7.753	39.470	47.223	-26.777	74.000
Average Detector:					
--					
Vertical					
Peak Detector:					
4874.000	0.398	41.080	41.478	-32.522	74.000
7311.000	8.249	39.830	48.079	-25.921	74.000
9748.000	8.389	39.260	47.650	-26.350	74.000
Average Detector:					
--					

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ * ”, 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 : Wireless 802.11n 4 Ports ADSL2/2+ Router
 Test Item : Harmonic Radiated Emission Data
 Test Site : No.3 OATS
 Test Mode : Mode 4: Transmit (802.11n MCS8 30Mbps 40M-BW)(2452 MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
Horizontal					
Peak Detector:					
4904.000	-0.098	41.270	41.172	-32.828	74.000
7356.000	8.603	37.760	46.363	-27.637	74.000
9808.000	8.070	39.870	47.940	-26.060	74.000
Average Detector:					
--					
Vertical					
Peak Detector:					
4904.000	0.415	40.850	41.265	-32.735	74.000
7356.000	9.317	39.840	49.157	-24.843	74.000
9808.000	8.732	38.470	47.202	-26.798	74.000
Average Detector:					
--					

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ * ”, 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 : Wireless 802.11n 4 Ports ADSL2/2+ Router
 Test Item : General Radiated Emission Data
 Test Site : No.3 OATS
 Test Mode : Pre-test – Adapter A (2437 MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
Horizontal					
441.280	0.444	38.993	39.437	-6.563	46.000
499.480	1.991	38.037	40.027	-5.973	46.000
547.980	4.028	34.746	38.774	-7.226	46.000
666.320	1.879	37.931	39.810	-6.190	46.000
833.160	6.616	31.582	38.198	-7.802	46.000
1000.000	9.564	33.827	43.391	-10.609	54.000
Vertical					
179.380	-0.824	34.848	34.024	-9.476	43.500
222.060	-6.484	42.795	36.310	-9.690	46.000
332.640	-2.255	34.690	32.435	-13.565	46.000
499.480	-0.199	33.943	33.743	-12.257	46.000
666.320	-0.951	33.472	32.521	-13.479	46.000
683.780	2.011	31.120	33.131	-12.869	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 : Wireless 802.11n 4 Ports ADSL2/2+ Router
 Test Item : General Radiated Emission Data
 Test Site : No.3 OATS
 Test Mode : Pre-test – Adapter B (2437 MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
Horizontal					
371.440	0.860	38.101	38.961	-7.039	46.000
406.360	0.628	37.537	38.166	-7.834	46.000
499.480	1.991	35.012	37.002	-8.998	46.000
666.320	1.879	35.679	37.558	-8.442	46.000
833.160	6.616	30.724	37.340	-8.660	46.000
1000.000	9.564	33.574	43.138	-10.862	54.000
Vertical					
125.060	-3.725	35.147	31.422	-12.078	43.500
179.380	-0.824	33.391	32.567	-10.933	43.500
309.360	-4.043	36.387	32.344	-13.656	46.000
381.140	0.816	33.939	34.755	-11.245	46.000
685.720	2.254	33.070	35.324	-10.676	46.000
833.160	1.716	31.798	33.514	-12.486	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 : Wireless 802.11n 4 Ports ADSL2/2+ Router
 Test Item : General Radiated Emission Data
 Test Site : No.3 OATS
 Test Mode : Pre-test – Adapter C (2437 MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
Horizontal					
371.440	0.860	36.230	37.090	-8.910	46.000
499.480	1.991	37.070	39.060	-6.940	46.000
666.320	1.879	36.264	38.143	-7.857	46.000
720.640	3.826	33.566	37.392	-8.608	46.000
833.160	6.616	31.524	38.140	-7.860	46.000
1000.000	9.564	34.246	43.810	-10.190	54.000
Vertical					
181.320	-1.910	35.360	33.450	-10.050	43.500
284.140	-5.517	36.169	30.652	-15.348	46.000
332.640	-2.255	34.773	32.518	-13.482	46.000
499.480	-0.199	34.668	34.468	-11.532	46.000
666.320	-0.951	34.678	33.727	-12.273	46.000
833.160	1.716	31.440	33.156	-12.844	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 : Wireless 802.11n 4 Ports ADSL2/2+ Router
 Test Item : General Radiated Emission Data
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmit (802.11b 1Mbps) (2437 MHz) – Adapter A

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
Horizontal					
371.440	0.860	36.068	36.928	-9.072	46.000
499.480	1.991	37.539	39.529	-6.471	46.000
666.320	1.879	36.414	38.293	-7.707	46.000
707.060	3.066	36.617	39.683	-6.317	46.000
833.160	6.616	32.563	39.179	-6.821	46.000
1000.000	9.564	33.868	43.432	-10.568	54.000
Vertical					
138.640	-5.159	36.791	31.632	-11.868	43.500
179.380	-0.824	37.682	36.858	-6.642	43.500
332.640	-2.255	34.716	32.461	-13.539	46.000
499.480	-0.199	34.922	34.722	-11.278	46.000
666.320	-0.951	35.723	34.772	-11.228	46.000
833.160	1.716	31.329	33.045	-12.955	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 : Wireless 802.11n 4 Ports ADSL2/2+ Router
 Test Item : General Radiated Emission Data
 Test Site : No.3 OATS
 Test Mode : Mode 2: Transmit (802.11g 6Mbps) (2437 MHz) – Adapter A

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
Horizontal					
371.440	0.860	36.243	37.103	-8.897	46.000
406.360	0.628	37.911	38.540	-7.460	46.000
499.480	1.991	36.164	38.154	-7.846	46.000
547.980	4.028	34.990	39.018	-6.982	46.000
666.320	1.879	37.312	39.191	-6.809	46.000
1000.000	9.564	34.341	43.905	-10.095	54.000
Vertical					
179.380	-0.824	35.935	35.111	-8.389	43.500
286.080	-5.409	37.694	32.285	-13.715	46.000
332.640	-2.255	33.363	31.108	-14.892	46.000
381.140	0.816	33.953	34.769	-11.231	46.000
499.480	-0.199	34.473	34.273	-11.727	46.000
666.320	-0.951	34.467	33.516	-12.484	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 : Wireless 802.11n 4 Ports ADSL2/2+ Router
 Test Item : General Radiated Emission Data
 Test Site : No.3 OATS
 Test Mode : Mode 3: Transmit (802.11n MCS8 14.4Mbps 20M-BW) (2437 MHz) – Adapter A

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
Horizontal					
371.440	0.860	37.598	38.458	-7.542	46.000
406.360	0.628	39.067	39.696	-6.304	46.000
499.480	1.991	37.119	39.109	-6.891	46.000
666.320	1.879	37.882	39.761	-6.239	46.000
833.160	6.616	32.252	38.868	-7.132	46.000
1000.000	9.564	33.829	43.393	-10.607	54.000
Vertical					
179.380	-0.824	37.533	36.709	-6.791	43.500
332.640	-2.255	35.075	32.820	-13.180	46.000
499.480	-0.199	33.199	32.999	-13.001	46.000
513.060	0.436	31.919	32.355	-13.645	46.000
666.320	-0.951	33.939	32.988	-13.012	46.000
833.160	1.716	32.217	33.933	-12.067	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 : Wireless 802.11n 4 Ports ADSL2/2+ Router
 Test Item : General Radiated Emission Data
 Test Site : No.3 OATS
 Test Mode : Mode 4: Transmit (802.11n MCS8 30Mbps 40M-BW)(2437 MHz) – Adapter A

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
Horizontal					
441.280	0.444	38.993	39.437	-6.563	46.000
499.480	1.991	38.037	40.027	-5.973	46.000
547.980	4.028	34.746	38.774	-7.226	46.000
666.320	1.879	37.931	39.810	-6.190	46.000
833.160	6.616	31.582	38.198	-7.802	46.000
1000.000	9.564	33.827	43.391	-10.609	54.000
Vertical					
179.380	-0.824	34.848	34.024	-9.476	43.500
222.060	-6.484	42.795	36.310	-9.690	46.000
332.640	-2.255	34.690	32.435	-13.565	46.000
499.480	-0.199	33.943	33.743	-12.257	46.000
666.320	-0.951	33.472	32.521	-13.479	46.000
683.780	2.011	31.120	33.131	-12.869	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.

5. RF antenna conducted test

5.1. Test Equipment

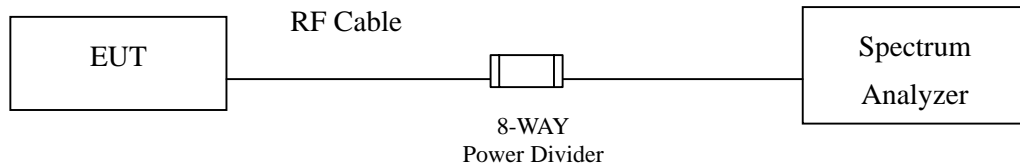
The following test equipments are used during the radiated emission tests:

	Equipment	Manufacturer	Model No./Serial No.	Last Cal.
X	Spectrum Analyzer	R&S	FSP40 / 100170	Jun, 2009
	Spectrum Analyzer	Agilent	E4407B / US39440758	Jun, 2009
	Spectrum Analyzer	Agilent	N9010A / MY48030495	Apr., 2010
X	8-WAY Power Divider	JFW	50PD-647 / 526770 0916	Apr., 2010

- Note:
1. All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.
 2. The test instruments marked with “X” are used to measure the final test results.
 3. The power combiner is used for measure 11n mode.

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

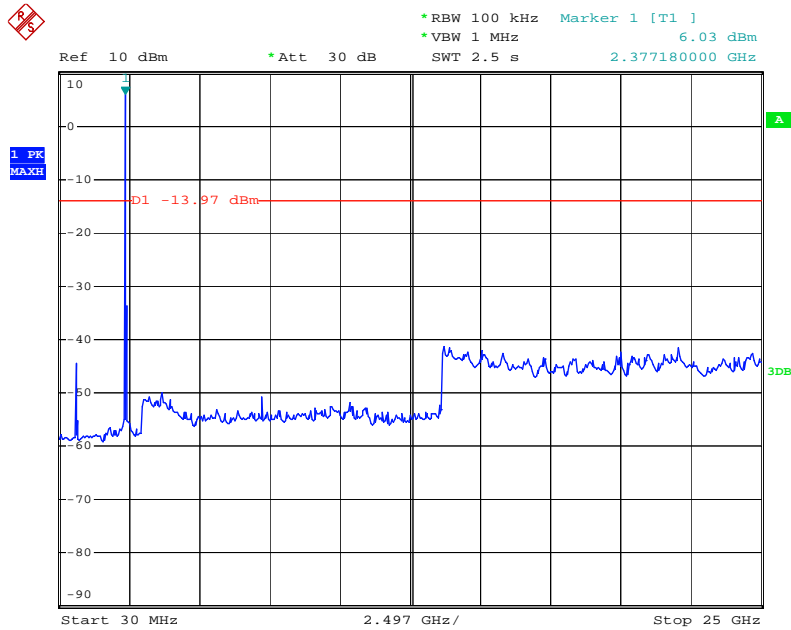
The measurement uncertainty

Conducted is defined as $\pm 1.27\text{dB}$

5.6. Test Result of RF antenna conducted test

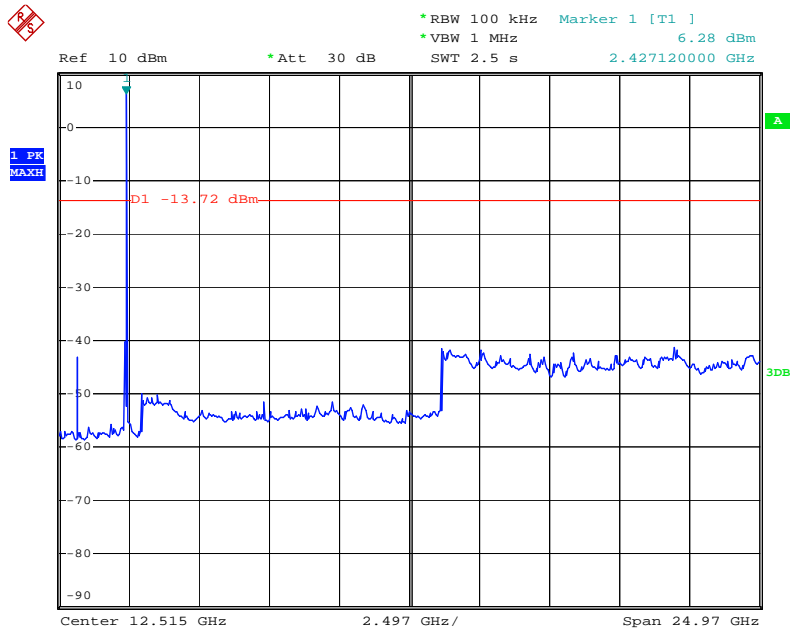
Product : Wireless 802.11n 4 Ports ADSL2/2+ Router
 Test Item : RF antenna conducted test
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmit (802.11b 1Mbps)

Channel 01 (2412MHz) 30-25GHz



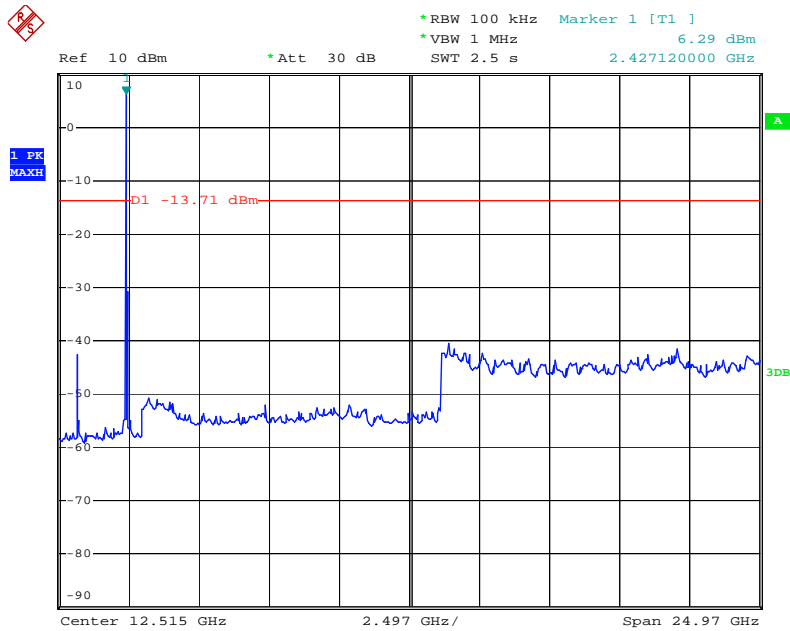
Date: 12.MAY.2010 18:09:41

Channel 06 (2437MHz) 30-25GHz



Date: 12.MAY.2010 18:12:17

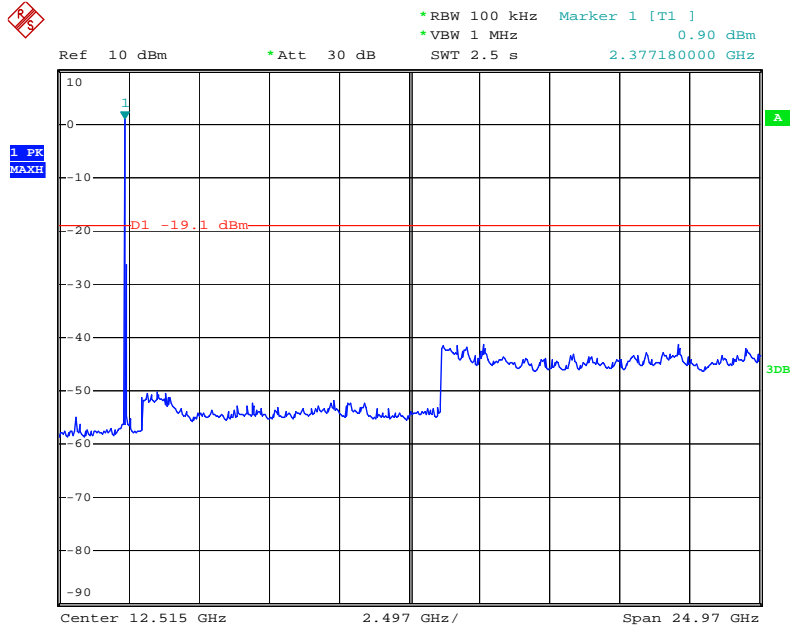
Channel 11 (2462MHz) 30-25GHz



Date: 12.MAY.2010 18:13:37

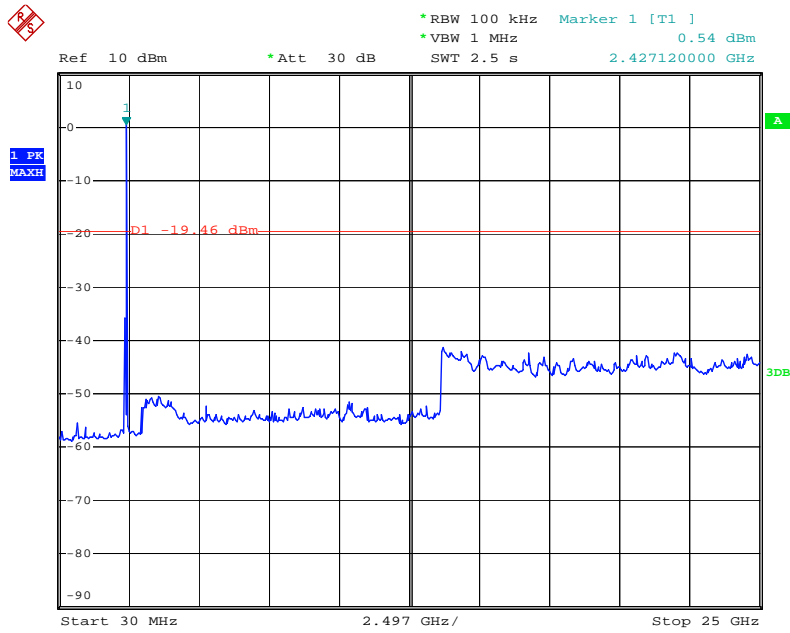
Product : Wireless 802.11n 4 Ports ADSL2/2+ Router
Test Item : RF Antenna Conducted Spurious
Test Site : No.3 OATS
Test Mode : Mode 2: Transmit (802.11g 6Mbps)

Channel 01 (2412MHz) 30-25GHz



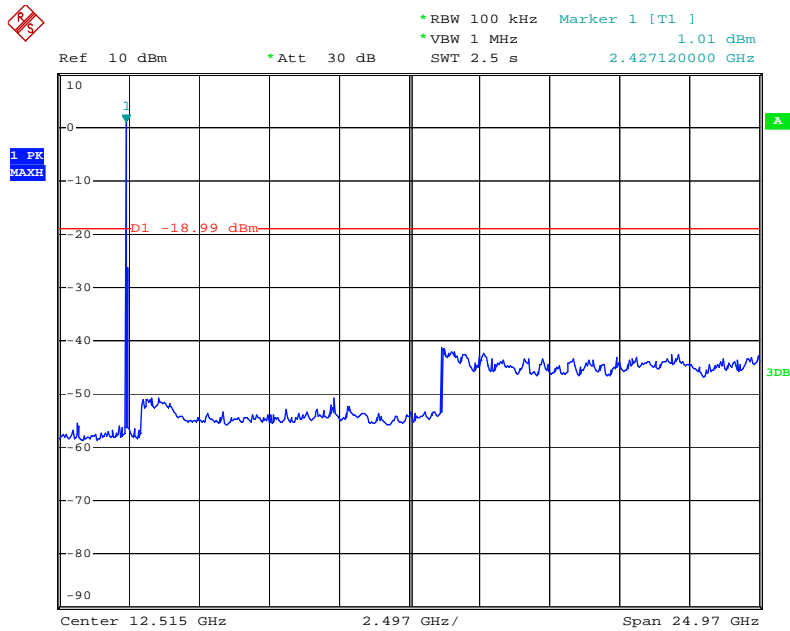
Date: 12.MAY.2010 18:16:52

Channel 06 (2437MHz) 30-25GHz



Date: 13.MAY.2010 09:41:51

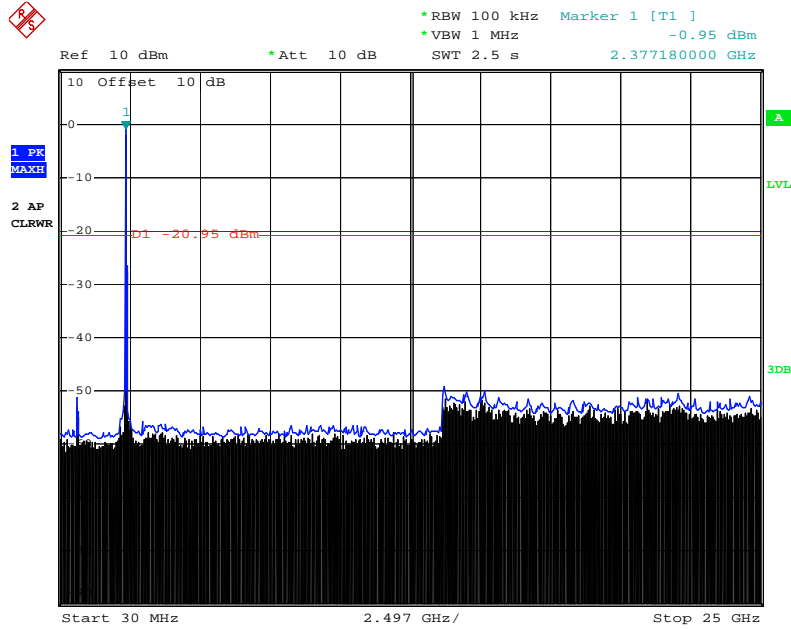
Channel 11 (2462MHz) 30-25GHz



Date: 12.MAY.2010 18:22:34

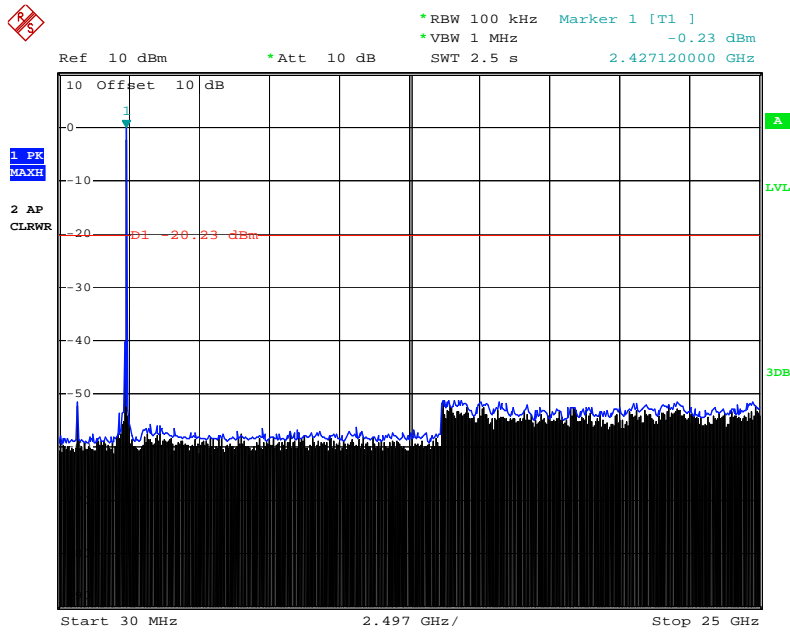
Product : Wireless 802.11n 4 Ports ADSL2/2+ Router
 Test Item : RF Antenna Conducted Spurious
 Test Site : No.3 OATS
 Test Mode : Mode 3: Transmit (802.11n MCS8 14.4Mbps 20M-BW)

Channel 01 (2412MHz) 30-25GHz



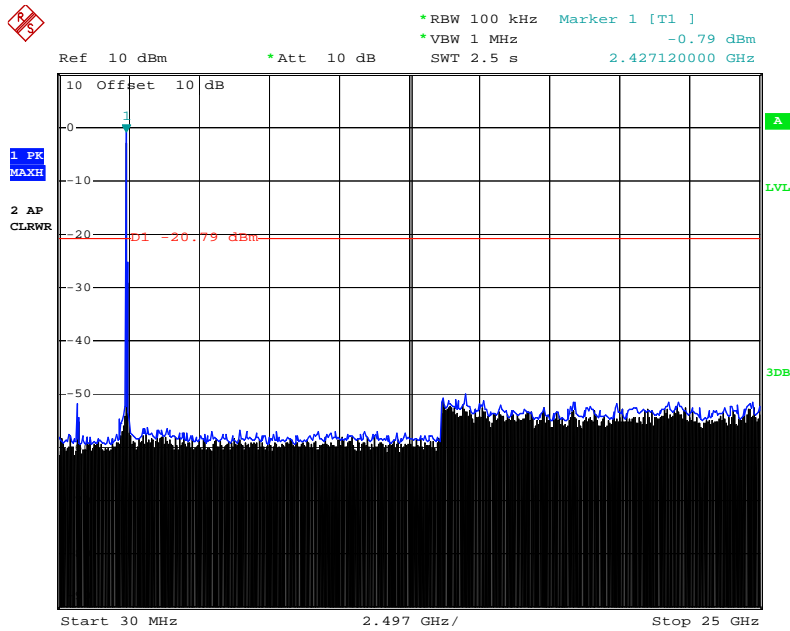
Date: 12.MAY.2010 17:29:28

Channel 06 (2437MHz) 30-25GHz



Date: 12.MAY.2010 17:31:59

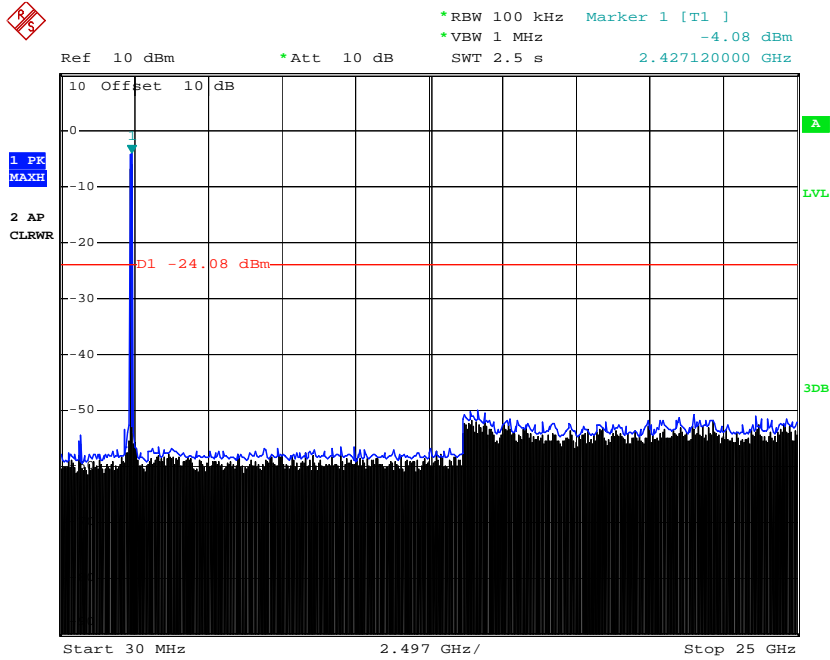
Channel 11 (2462MHz) 30-25GHz



Date: 12.MAY.2010 17:34:17

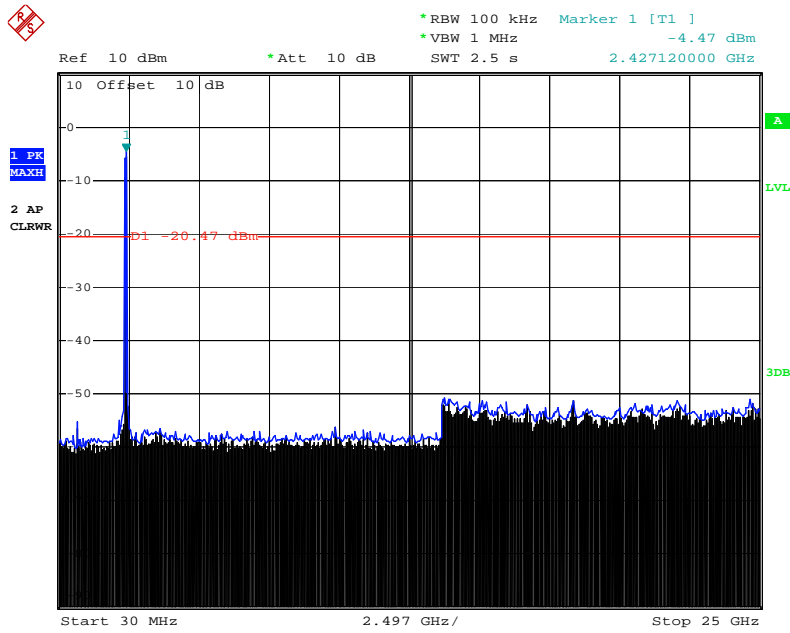
Product : Wireless 802.11n 4 Ports ADSL2/2+ Router
Test Item : RF Antenna Conducted Spurious
Test Site : No.3 OATS
Test Mode : Mode 4: Transmit (802.11n MCS8 30Mbps 40M-BW)

Channel 01 (2422MHz) 30-25GHz



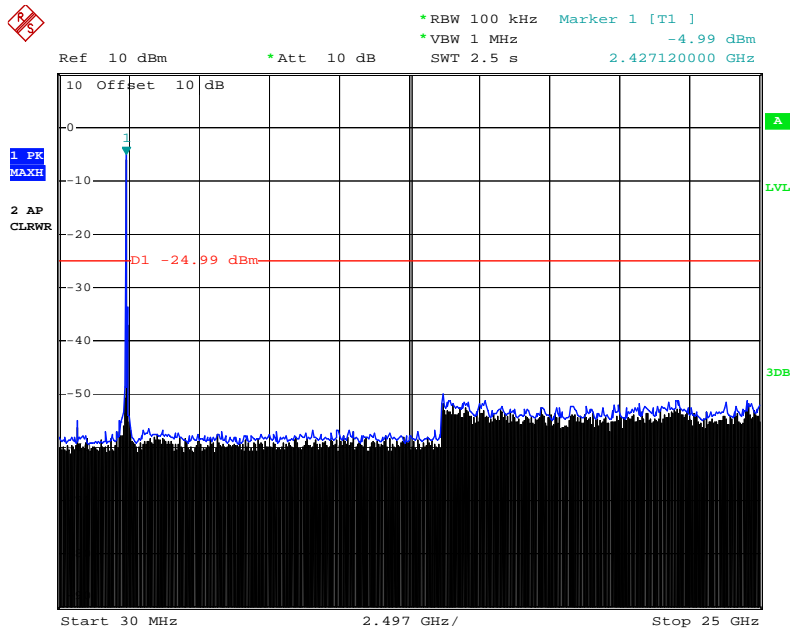
Date: 12.MAY.2010 17:40:07

Channel 04 (2437MHz) 30-25GHz



Date: 12.MAY.2010 17:41:48

Channel 07 (2452MHz) 30-25GHz



Date: 12.MAY.2010 17:43:29

6. Band Edge

6.1. Test Equipment

RF Conducted Measurement

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

	Equipment	Manufacturer	Model No./Serial No.	Last Cal.
X	Spectrum Analyzer	R&S	FSP40 / 100170	Jun, 2009
	Spectrum Analyzer	Agilent	E4407B / US39440758	Jun, 2009
	Spectrum Analyzer	Agilent	N9010A / MY48030495	Apr., 2010
X	8-WAY Power Divider	JFW	50PD-647 / 526770 0916	Apr., 2010

Note:

1. All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.
2. The test instruments marked with "X" are used to measure the final test results.
3. The power combiner is used for measure 11n mode.

RF Radiated Measurement:

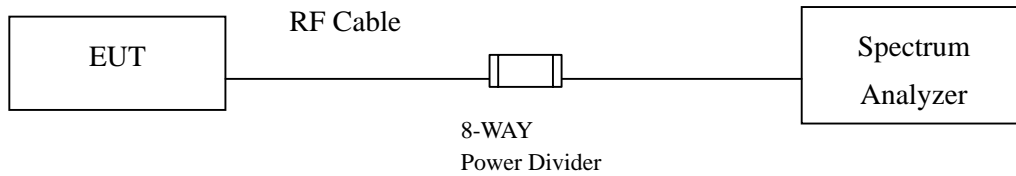
The following test equipments are used during the band edge tests:

Test Site	Equipment	Manufacturer	Model No./Serial No.	Last Cal.
☒ Site # 3	Bilog Antenna	Schaffner Chase	CBL6112B/2673	Sep., 2009
	X Horn Antenna	Schwarzbeck	BBHA9120D/D305	Sep., 2009
	Horn Antenna	Schwarzbeck	BBHA9170/208	Jul., 2009
	X Pre-Amplifier	Agilent	8447D/2944A09549	Sep., 2009
	X Spectrum Analyzer	Agilent	E4407B / US39440758	May, 2010
	Test Receiver	R & S	ESCS 30/ 825442/018	Sep., 2009
	X Coaxial Cable	Quietek	QTK-CABLE/ CAB5	Feb., 2010
	X Controller	Quietek	QTK-CONTROLLER/ CTRL3	N/A
	X Coaxial Switch	Anritsu	MP59B/6200265729	N/A

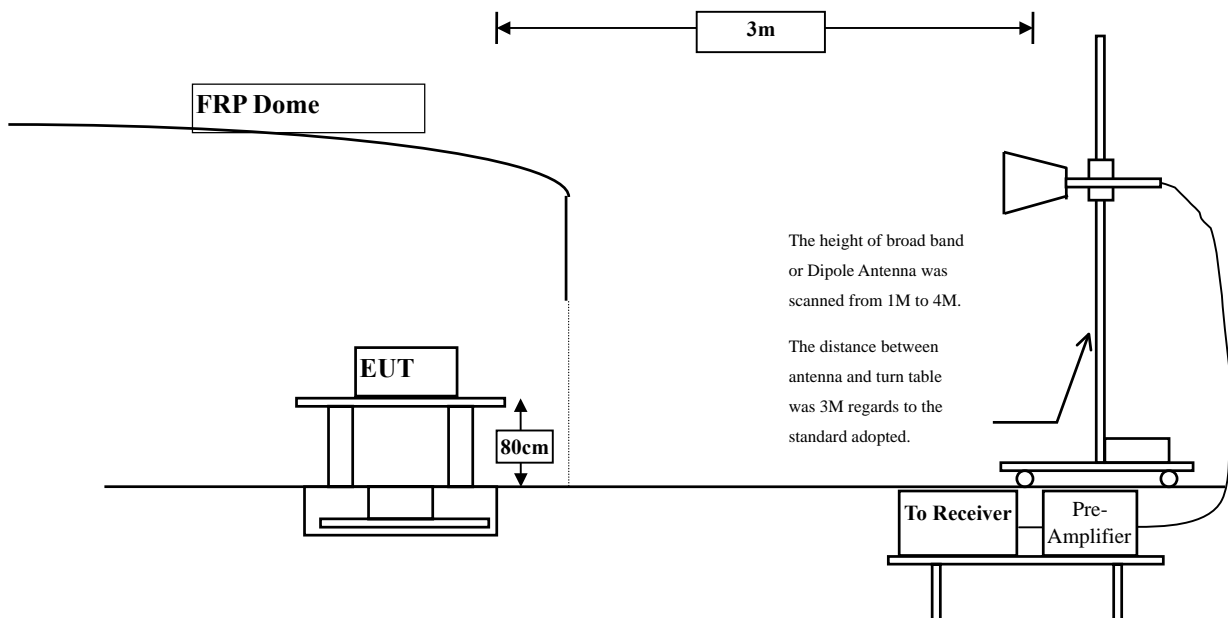
- Note:
1. All instruments are calibrated every one year.
 2. The test instruments marked by "X" are used to measure the final test results.

6.2. Test Setup

RF Conducted Measurement



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 : Wireless 802.11n 4 Ports ADSL2/2+ Router
 Test Item : Band Edge Data
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmit (802.11b 1Mbps)

Fundamental Filed Strength

Antenna Pole	Frequency [MHz]	Correction Factor [dB/m]	Reading Level [dBuV]	Emission Level [dBuV/m]	Detector
Horizontal	2412	-4.644	88.8	84.157	Peak
Vertical	2412	-6.167	99.12	92.954	Peak

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	2386.4	84.157	52.56	31.597	Peak
Vertical	2386.4	92.954	52.56	40.394	Peak

Note:

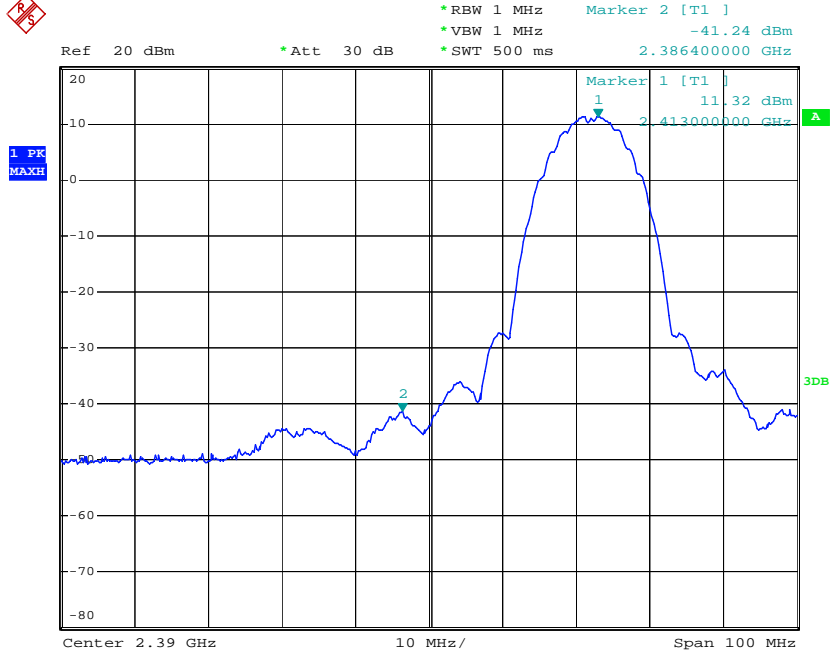
The Band Edge Field Strength was calculated using the Fundamental and Conducted Band Edge measurements per the Marker-Delta Method with the following formula:

Band Edge field Strength = $F - \Delta$

F = Fundamental field Strength (Peak or Average)

Δ = Conducted Band Edge Delta (Peak or Average)

Peak Detector of conducted Band Edge Delta



Date: 13.MAY.2010 17:41:55

Product : Wireless 802.11n 4 Ports ADSL2/2+ Router
 Test Item : Band Edge Data
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmit (802.11b 1Mbps)

Fundamental Filed Strength

Antenna Pole	Frequency [MHz]	Correction Factor [dB/m]	Reading Level [dBuV]	Emission Level [dBuV/m]	Detector
Horizontal	2462	-4.623	84.46	79.837	Peak
Vertical	2462	-6.035	97.07	91.035	Peak

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	2488.1	79.837	53.18	26.657	Peak
Vertical	2488.1	91.035	53.18	37.855	Peak

Note:

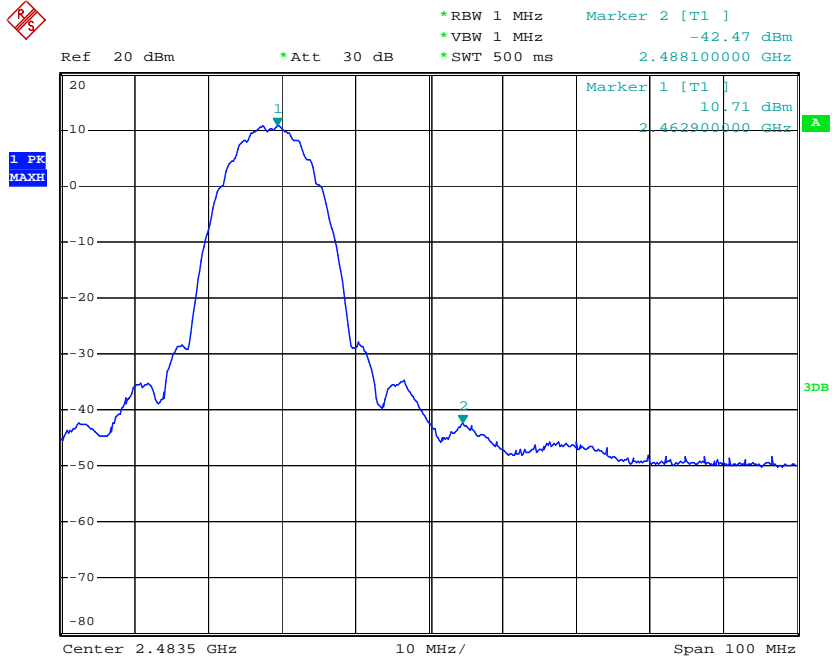
The Band Edge Field Strength was calculated using the Fundamental and Conducted Band Edge measurements per the Marker-Delta Method with the following formula:

Band Edge field Strength = $F - \Delta$

F = Fundamental field Strength (Peak or Average)

Δ = Conducted Band Edge Delta (Peak or Average)

Peak Detector of conducted Band Edge Delta



Date: 13.MAY.2010 16:44:33

Product : Wireless 802.11n 4 Ports ADSL2/2+ Router
 Test Item : Band Edge Data
 Test Site : No.3 OATS
 Test Mode : Mode 2: Transmit (802.11g 6Mbps)

Fundamental Filed Strength

Antenna Pole	Frequency [MHz]	Correction Factor [dB/m]	Reading Level [dBuV]	Emission Level [dBuV/m]	Detector
Horizontal	2412	-4.644	86.68	82.037	Peak
Vertical	2412	-6.167	98.2	92.034	Peak

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	82.037	45.95	36.087	Peak
Vertical	2390	92.034	45.95	46.084	Peak

Note:

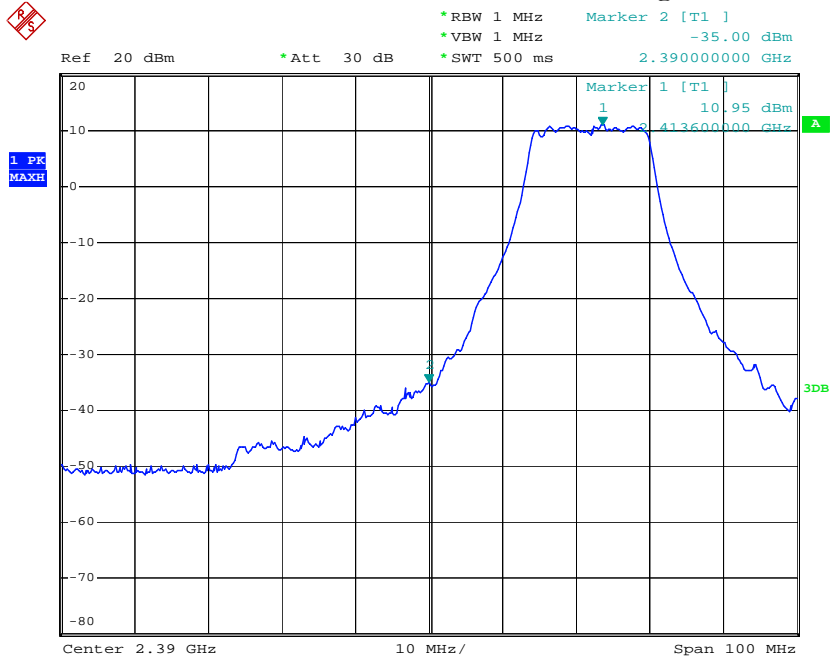
The Band Edge Field Strength was calculated using the Fundamental and Conducted Band Edge measurements per the Marker-Delta Method with the following formula:

Band Edge field Strength = $F - \Delta$

F = Fundamental field Strength (Peak or Average)

Δ = Conducted Band Edge Delta (Peak or Average)

Peak Detector of conducted Band Edge Delta



Date: 13.MAY.2010 17:48:11

Product : Wireless 802.11n 4 Ports ADSL2/2+ Router
 Test Item : Band Edge Data
 Test Site : No.3 OATS
 Test Mode : Mode 2: Transmit (802.11g 6Mbps)

Fundamental Filed Strength

Antenna Pole	Frequency [MHz]	Correction Factor [dB/m]	Reading Level [dBuV]	Emission Level [dBuV/m]	Detector
Horizontal	2462	-4.623	81.59	76.967	Peak
Vertical	2462	-6.035	96.51	90.475	Peak

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	76.967	40.77	36.197	Peak
Vertical	2483.5	90.475	40.77	49.705	Peak

Note:

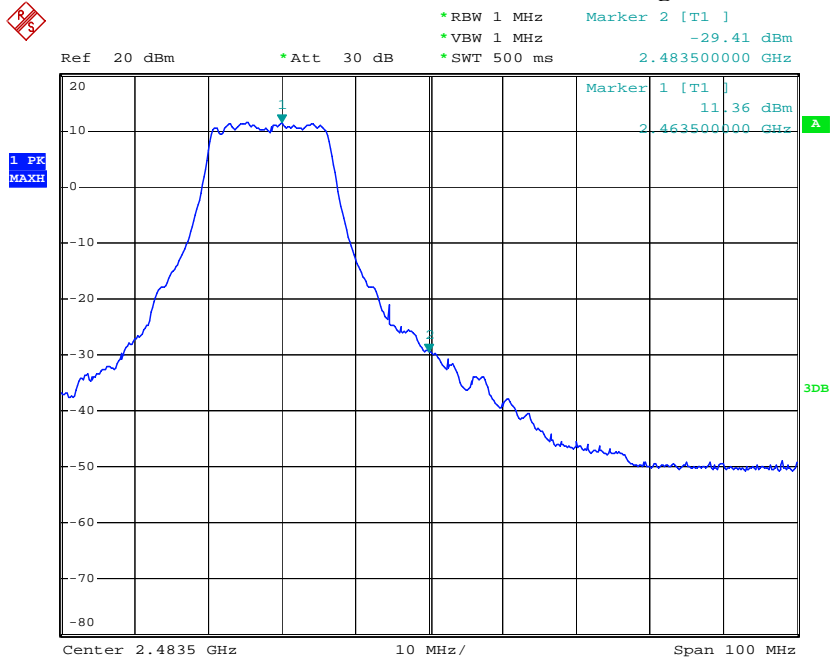
The Band Edge Field Strength was calculated using the Fundamental and Conducted Band Edge measurements per the Marker-Delta Method with the following formula:

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



Date: 13.MAY.2010 17:53:29

Product : Wireless 802.11n 4 Ports ADSL2/2+ Router
 Test Item : Band Edge Data
 Test Site : No.3 OATS
 Test Mode : Mode 3: Transmit (802.11n MCS8 14.4Mbps 20M-BW)

Fundamental Filed Strength

Antenna Pole	Frequency [MHz]	Correction Factor [dB/m]	Reading Level [dBuV]	Emission Level [dBuV/m]	Detector
Horizontal	2412	-4.644	96.49	91.847	Peak
Vertical	2412	-6.167	109.15	102.984	Peak

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	2389.4	91.847	49.78	42.067	Peak
Vertical	2389.4	102.984	49.78	53.204	Peak

Note:

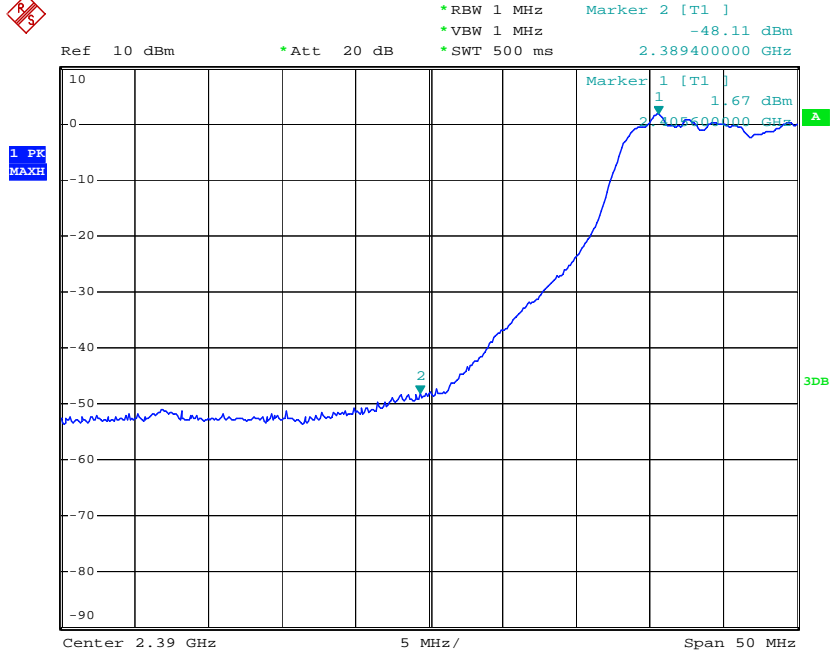
The Band Edge Field Strength was calculated using the Fundamental and Conducted Band Edge measurements per the Marker-Delta Method with the following formula:

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



Date: 18.MAY.2010 11:08:26

Product : Wireless 802.11n 4 Ports ADSL2/2+ Router
 Test Item : Band Edge Data
 Test Site : No.3 OATS
 Test Mode : Mode 3: Transmit (802.11n MCS8 14.4Mbps 20M-BW)

Fundamental Filed Strength

Antenna Pole	Frequency [MHz]	Correction Factor [dB/m]	Reading Level [dBuV]	Emission Level [dBuV/m]	Detector
Horizontal	2462	-4.623	94.95	90.327	Peak
Vertical	2462	-6.035	106.85	100.815	Peak

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	90.327	47.33	42.997	Peak
Vertical	2483.5	100.815	47.33	53.485	Peak

Note:

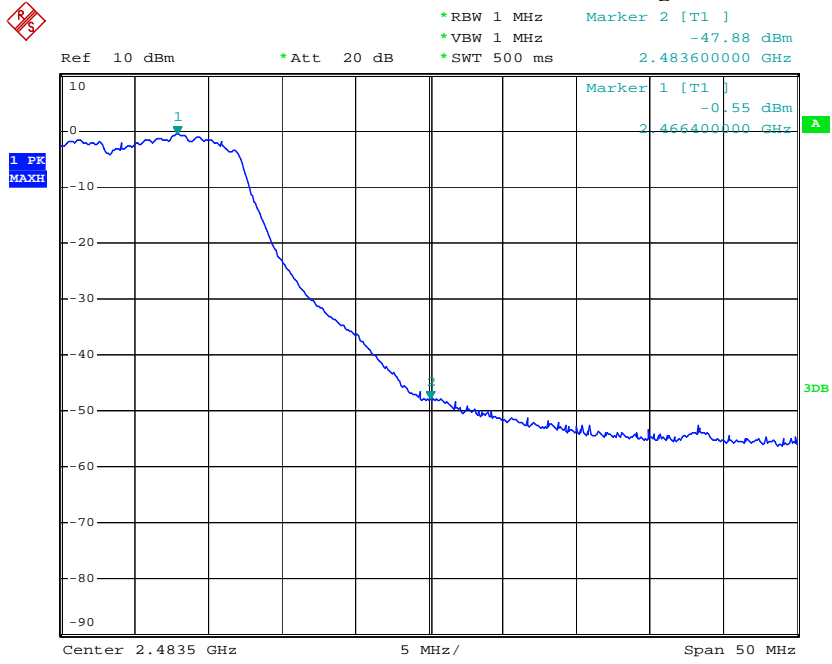
The Band Edge Field Strength was calculated using the Fundamental and Conducted Band Edge measurements per the Marker-Delta Method with the following formula:

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



Date: 18.MAY.2010 11:17:25

Product : Wireless 802.11n 4 Ports ADSL2/2+ Router
 Test Item : Band Edge Data
 Test Site : No.3 OATS
 Test Mode : Mode 4: Transmit (802.11n MCS8 30Mbps 40M-BW)

Fundamental Filed Strength

Antenna Pole	Frequency [MHz]	Correction Factor [dB/m]	Reading Level [dBuV]	Emission Level [dBuV/m]	Detector
Horizontal	2422	-4.641	93.99	89.349	Peak
Horizontal	2422	-4.641	82.09	77.449	Average
Vertical	2422	-6.143	104.19	98.048	Peak
Vertical	2422	-6.143	92.81	86.668	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	89.349	43.2	46.149	Peak
Horizontal	2390	77.449	45.59	31.859	Average
Vertical	2390	98.048	43.2	54.848	Peak
Vertical	2390	86.668	45.59	41.078	Average

Note:

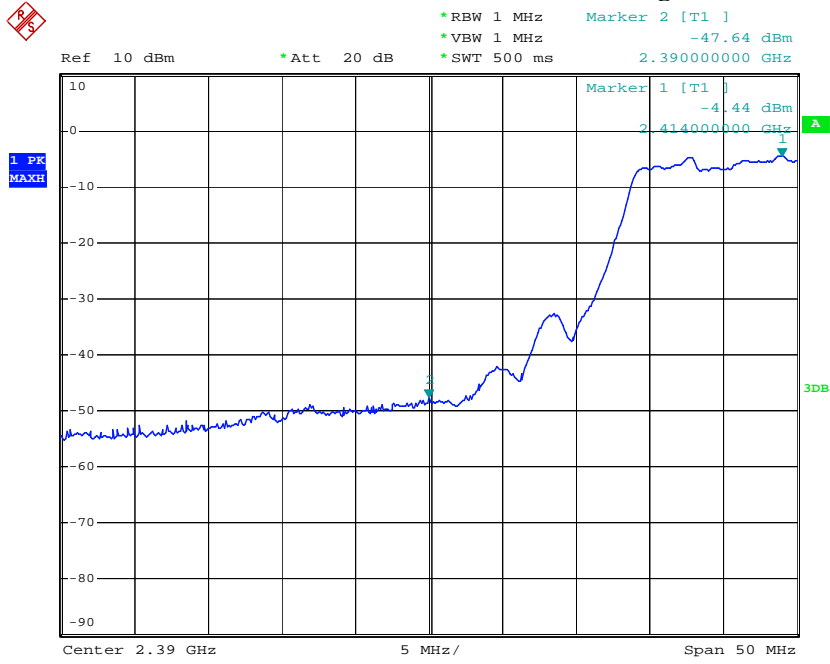
The Band Edge Field Strength was calculated using the Fundamental and Conducted Band Edge measurements per the Marker-Delta Method with the following formula:

Band Edge field Strength = F - Δ

F = Fundamental field Strength (Peak or Average)

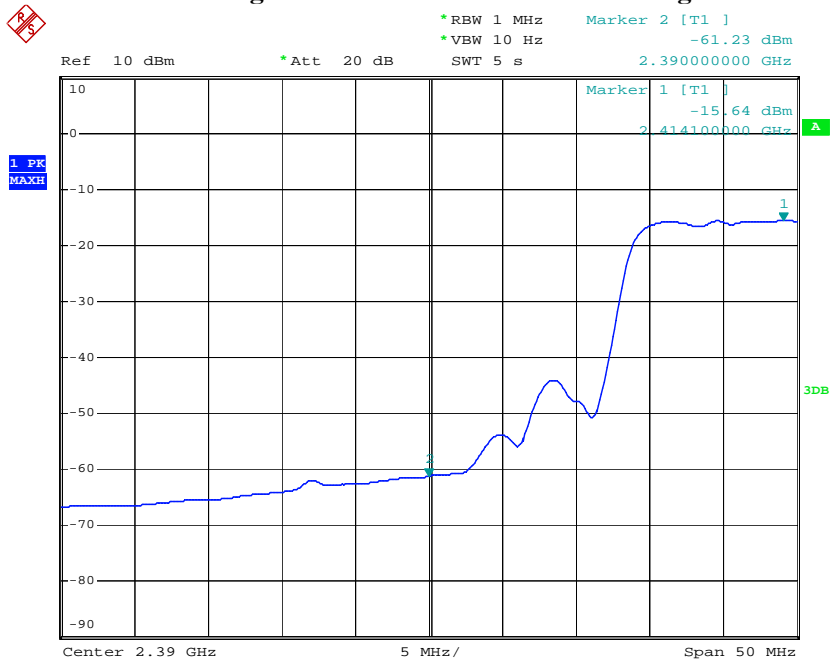
Δ = Conducted Band Edge Delta (Peak or Average)

Peak Detector of conducted Band Edge Delta



Date: 18.MAY.2010 11:23:24

Average Detector of conducted Band Edge Delta



Date: 18.MAY.2010 11:24:17

Product : Wireless 802.11n 4 Ports ADSL2/2+ Router
 Test Item : Band Edge Data
 Test Site : No.3 OATS
 Test Mode : Mode 4: Transmit (802.11n MCS8 30Mbps 40M-BW)

Fundamental Filed Strength

Antenna Pole	Frequency [MHz]	Correction Factor [dB/m]	Reading Level [dBuV]	Emission Level [dBuV/m]	Detector
Horizontal	2452	-4.63	91.61	86.98	Peak
Horizontal	2452	-4.63	80.91	76.28	Average
Vertical	2452	-6.065	103.61	97.545	Peak
Vertical	2452	-6.065	92.69	86.625	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	2486.3	86.98	41.82	45.16	Peak
Horizontal	2483.5	76.28	44.66	31.62	Average
Vertical	2486.3	97.545	41.82	55.725	Peak
Vertical	2483.5	86.625	44.66	41.965	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 = $F - \Delta$

F = Fundamental field Strength (Peak or Average)

Δ = Conducted Band Edge Delta (Peak or Average)

7. Occupied Bandwidth

7.1. Test Equipment

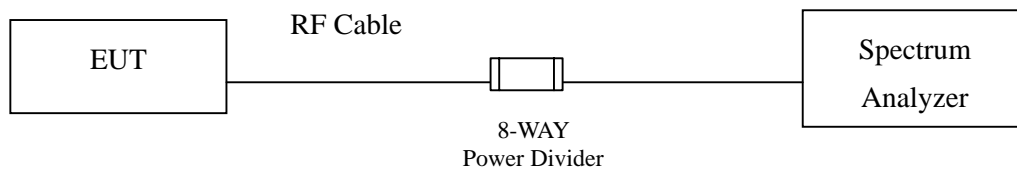
The following test equipments are used during the radiated emission tests:

	Equipment	Manufacturer	Model No./Serial No.	Last Cal.
X	Spectrum Analyzer	R&S	FSP40 / 100170	Jun, 2009
	Spectrum Analyzer	Agilent	E4407B / US39440758	Jun, 2009
	Spectrum Analyzer	Agilent	N9010A / MY48030495	Apr., 2010
X	8-WAY Power Divider	JFW	50PD-647 / 526770 0916	Apr., 2010

Note:

1. All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.
2. The test instruments marked with “X” are used to measure the final test results.
3. The power combiner is used for measure 11n mode.

7.2. Test Setup



7.3. Limits

The minimum bandwidth shall be at least 500 kHz.

7.4. Test Procedure

The EUT was setup according to ANSI C63.4, 2003; tested according to DTS test procedure of Mar. 2005 KDB558074 for compliance to FCC 47CFR 15.247 requirements.

Set RBW = 100 kHz, Span greater than RBW.

7.5. Uncertainty

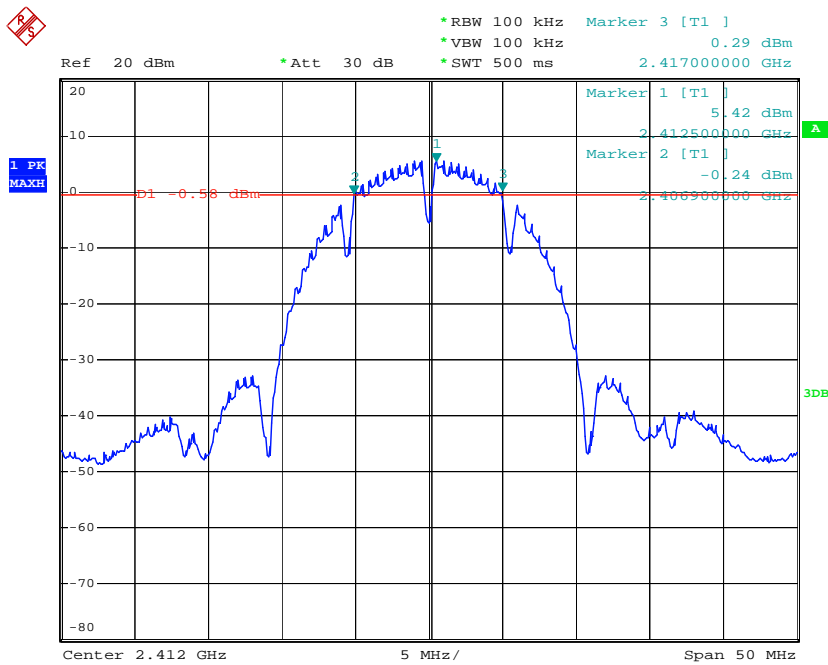
± 150Hz

7.6. Test Result of Occupied Bandwidth

Product : Wireless 802.11n 4 Ports ADSL2/2+ Router
 Test Item : Occupied Bandwidth Data
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmit (802.11b 1Mbps) (2412MHz)

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
1	2412.00	10100	>500	Pass

Figure Channel 1:

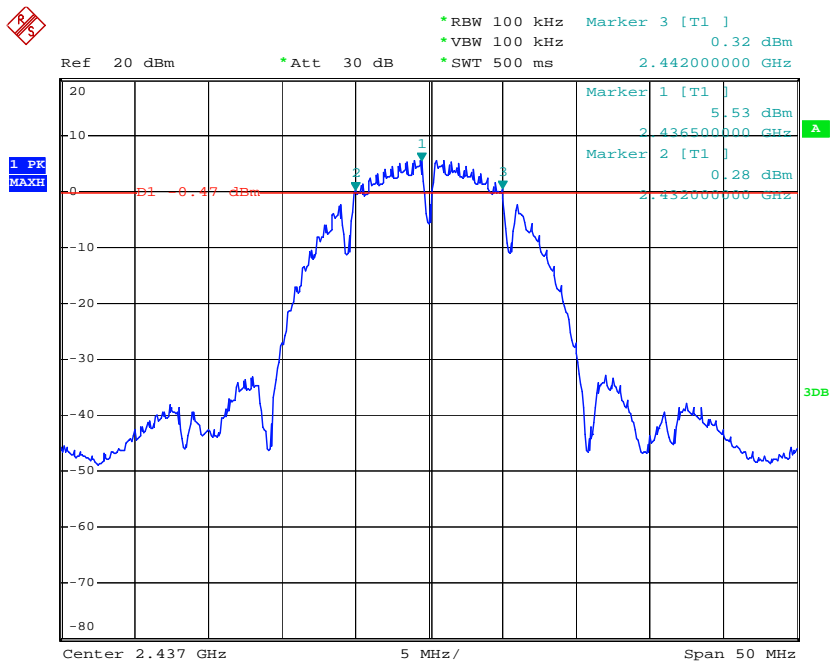


Date: 13.MAY.2010 15:58:49

Product : Wireless 802.11n 4 Ports ADSL2/2+ Router
 Test Item : Occupied Bandwidth Data
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmit (802.11b 1Mbps) (2437MHz)

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
6	2437.00	10000	>500	Pass

Figure Channel 6:

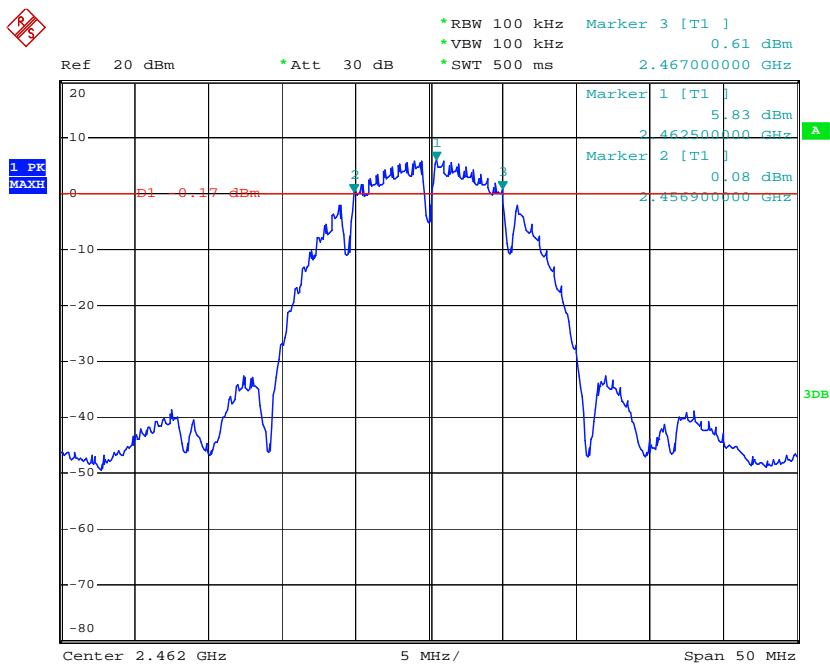


Date: 13.MAY.2010 16:02:22

Product : Wireless 802.11n 4 Ports ADSL2/2+ Router
 Test Item : Occupied Bandwidth Data
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmit (802.11b 1Mbps) (2462MHz)

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
11	2462.00	10100	>500	Pass

Figure Channel 11:

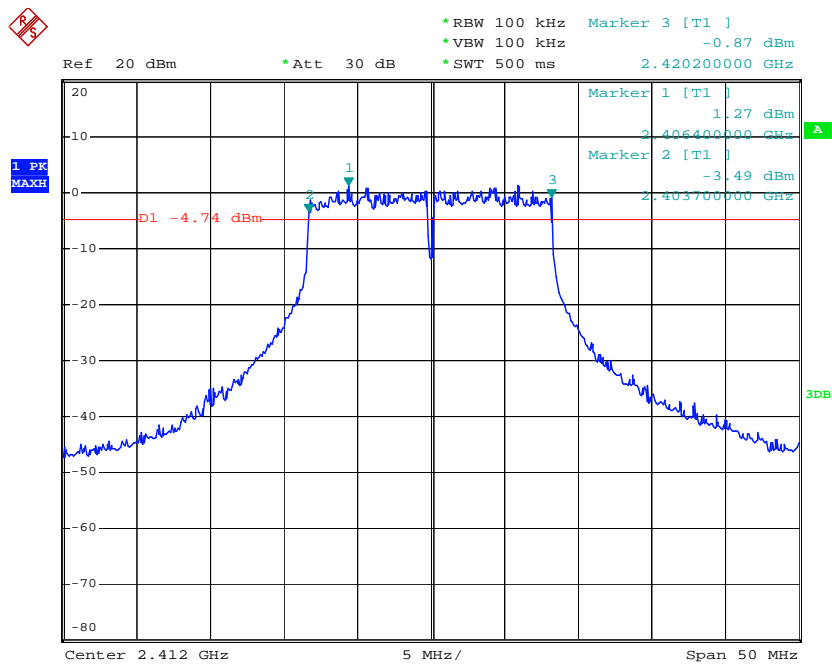


Date: 13.MAY.2010 16:03:58

Product : Wireless 802.11n 4 Ports ADSL2/2+ Router
 Test Item : Occupied Bandwidth Data
 Test Site : No.3 OATS
 Test Mode : Mode 2: Transmit (802.11g 6Mbps) (2412MHz)

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
1	2412.00	16500	>500	Pass

Figure Channel 1:

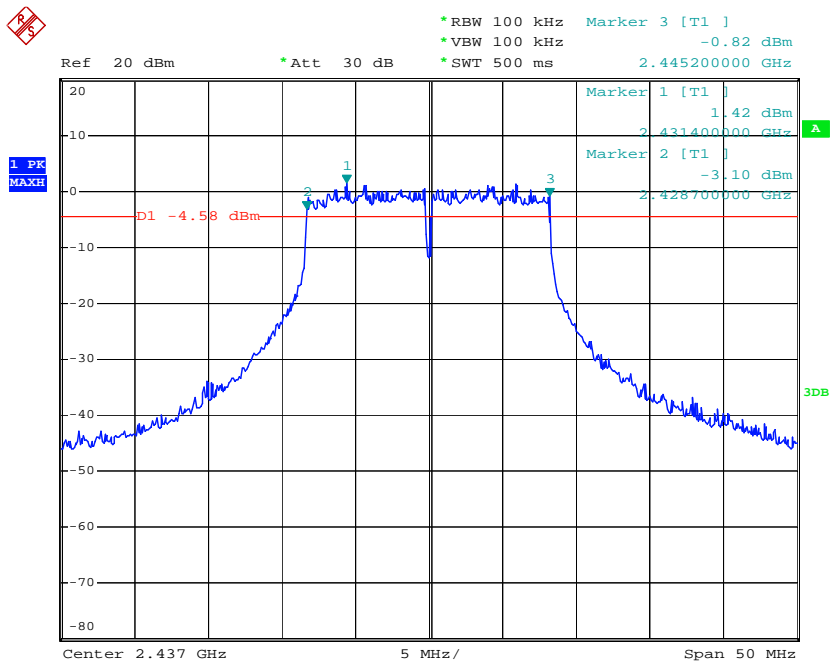


Date: 13.MAY.2010 16:11:07

Product : Wireless 802.11n 4 Ports ADSL2/2+ Router
 Test Item : Occupied Bandwidth Data
 Test Site : No.3 OATS
 Test Mode : Mode 2: Transmit (802.11g 6Mbps) (2437MHz)

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
6	2437.00	16500	>500	Pass

Figure Channel 6:

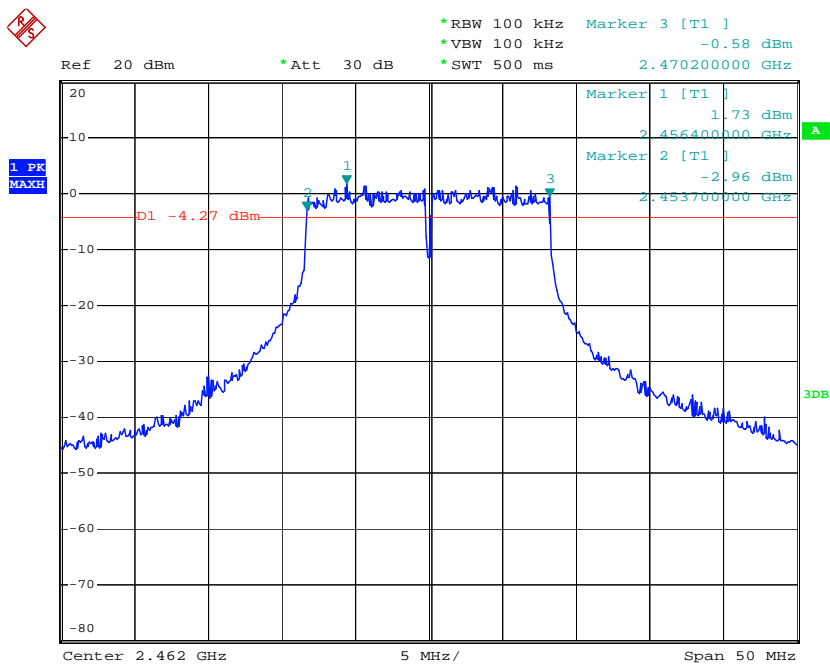


Date: 13.MAY.2010 16:13:27

Product : Wireless 802.11n 4 Ports ADSL2/2+ Router
 Test Item : Occupied Bandwidth Data
 Test Site : No.3 OATS
 Test Mode : Mode 2: Transmit (802.11g 6Mbps) (2462MHz)

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
11	2462.00	16500	>500	Pass

Figure Channel 11:

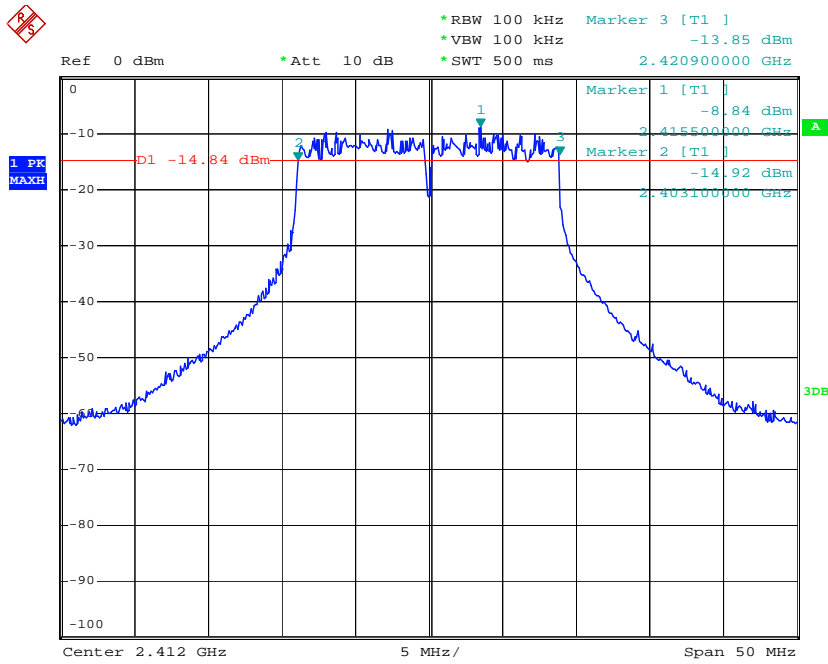


Date: 13.MAY.2010 16:17:39

Product : Wireless 802.11n 4 Ports ADSL2/2+ Router
 Test Item : Occupied Bandwidth Data
 Test Site : No.3 OATS
 Test Mode : Mode 3: Transmit (802.11n MCS8 14.4Mbps 20M-BW) (2412MHz)

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
1	2412.00	17800	>500	Pass

Figure Channel 1:

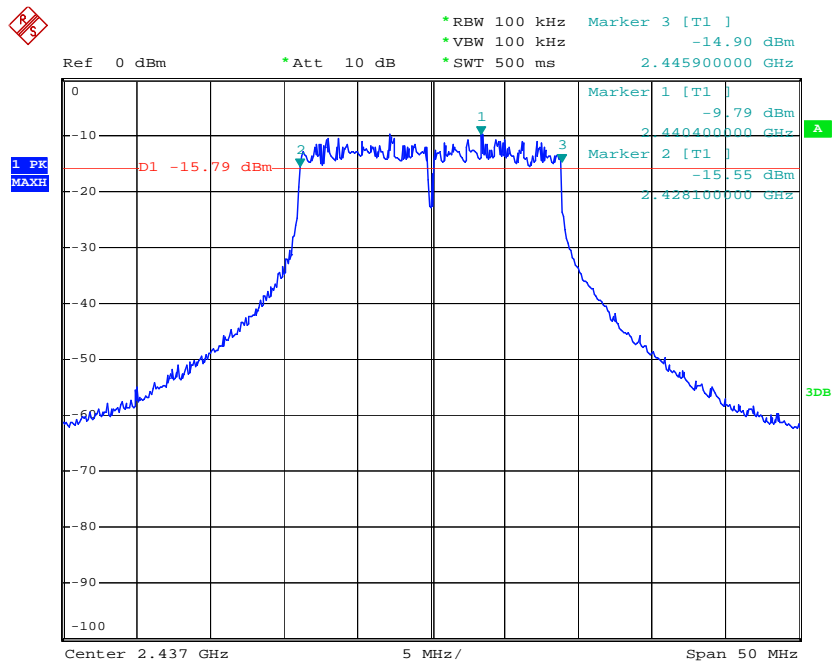


Date: 13.MAY.2010 15:01:33

Product : Wireless 802.11n 4 Ports ADSL2/2+ Router
 Test Item : Occupied Bandwidth Data
 Test Site : No.3 OATS
 Test Mode : Mode 3: Transmit (802.11n MCS8 14.4Mbps 20M-BW) (2437MHz)

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
6	2437.00	17800	>500	Pass

Figure Channel 6:

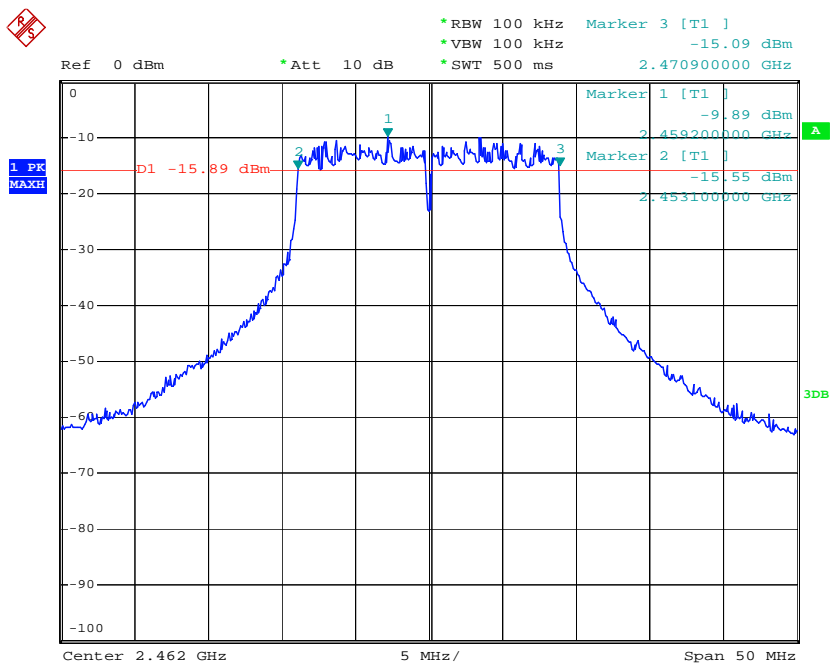


Date: 13.MAY.2010 15:03:44

Product : Wireless 802.11n 4 Ports ADSL2/2+ Router
 Test Item : Occupied Bandwidth Data
 Test Site : No.3 OATS
 Test Mode : Mode 3: Transmit (802.11n MCS8 14.4Mbps 20M-BW) (2462MHz)

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
11	2462.00	17800	>500	Pass

Figure Channel 11:

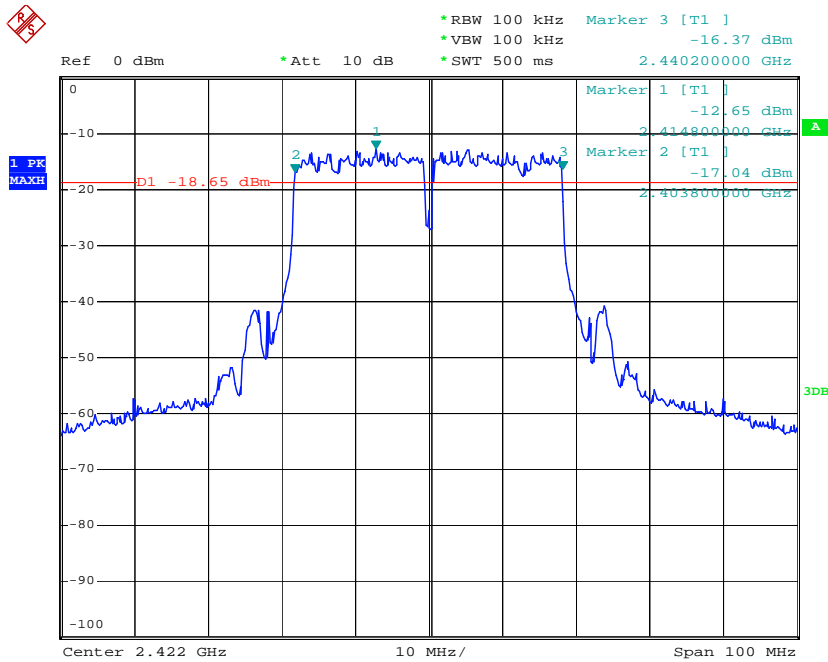


Date: 13.MAY.2010 15:06:07

Product : Wireless 802.11n 4 Ports ADSL2/2+ Router
 Test Item : Occupied Bandwidth Data
 Test Site : No.3 OATS
 Test Mode : Mode 4: Transmit (802.11n MCS8 30Mbps 40M-BW) (2422MHz)

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
1	2422.00	36400	>500	Pass

Figure Channel 1:

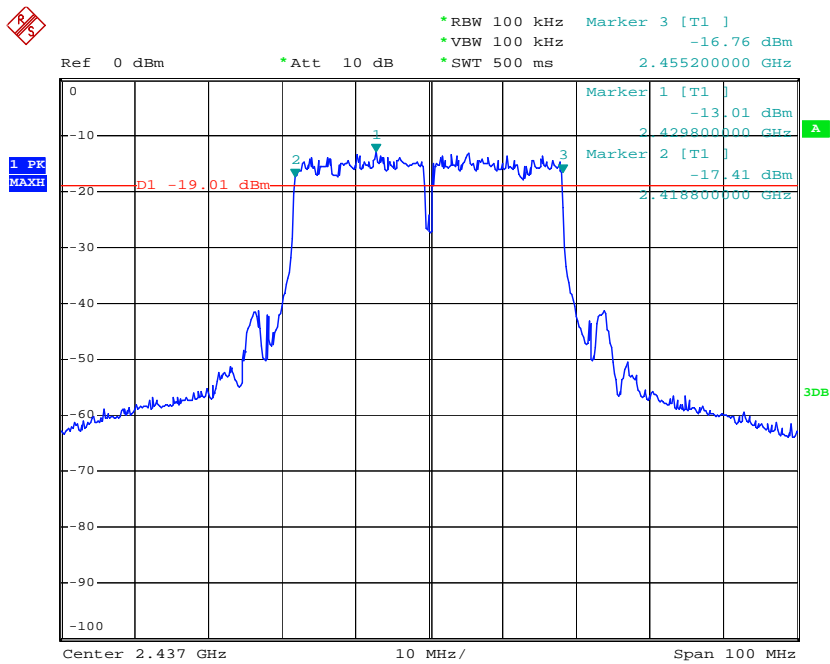


Date: 13.MAY.2010 15:14:53

Product : Wireless 802.11n 4 Ports ADSL2/2+ Router
 Test Item : Occupied Bandwidth Data
 Test Site : No.3 OATS
 Test Mode : Mode 4: Transmit (802.11n MCS8 30Mbps 40M-BW) (2437MHz)

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
4	2437.00	36400	>500	Pass

Figure Channel 4:

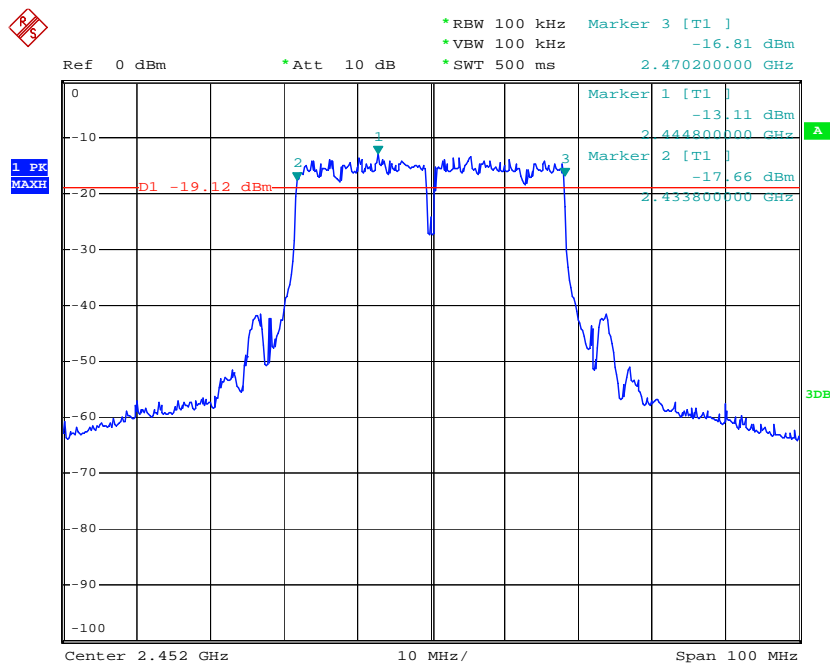


Date: 13.MAY.2010 15:18:42

Product : Wireless 802.11n 4 Ports ADSL2/2+ Router
 Test Item : Occupied Bandwidth Data
 Test Site : No.3 OATS
 Test Mode : Mode 4: Transmit (802.11n MCS8 30Mbps 40M-BW) (2452MHz)

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
7	2452.00	36400	>500	Pass

Figure Channel 7:



Date: 13.MAY.2010 15:27:32

8. Power Density

8.1. Test Equipment

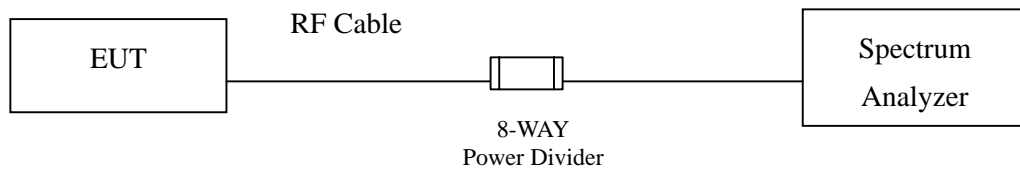
The following test equipments are used during the radiated emission tests:

	Equipment	Manufacturer	Model No./Serial No.	Last Cal.
X	Spectrum Analyzer	R&S	FSP40 / 100170	Jun, 2009
	Spectrum Analyzer	Agilent	E4407B / US39440758	Jun, 2009
	Spectrum Analyzer	Agilent	N9010A / MY48030495	Apr., 2010
X	8-WAY Power Divider	JFW	50PD-647 / 526770 0916	Apr., 2010

Note:

1. All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.
2. The test instruments marked with “X” are used to measure the final test results.
3. The power combiner is used for measure 11n mode.

8.2. Test Setup



8.3. Limits

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

8.4. Test Procedure

The EUT was setup according to ANSI C63.4, 2003; tested according to DTS test procedure of Mar. 2005 KDB558074 for compliance to FCC 47CFR 15.247 requirements.

Set RBW= 3 kHz, VBW=10KHz, Sweep time=(SPAN/3KHz), detector=Peak detector

8.5. Uncertainty

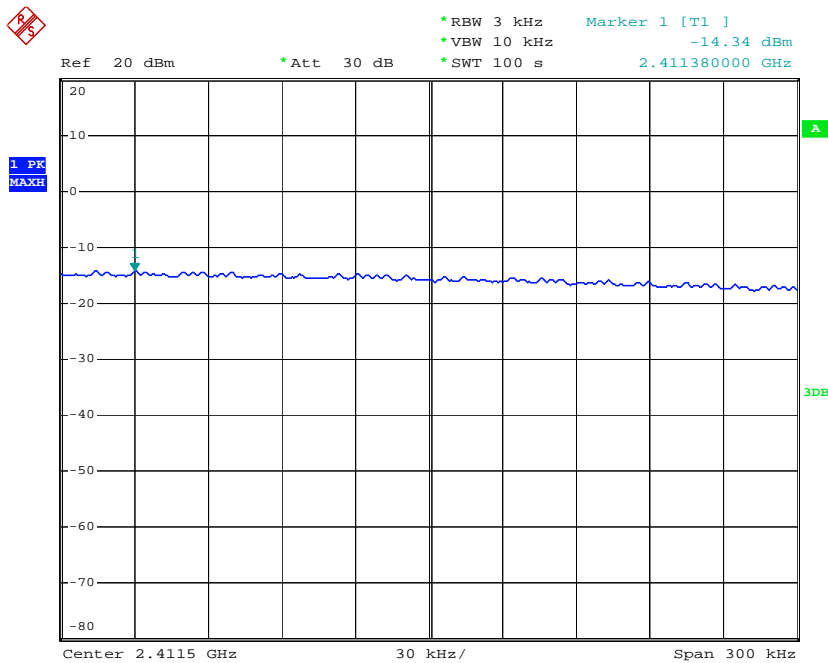
± 1.27 dB

8.6. Test Result of Power Density

Product : Wireless 802.11n 4 Ports ADSL2/2+ Router
 Test Item : Power Density Data
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmit (802.11b 1Mbps) (2412MHz)

Channel No.	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)	Result
1	2412.00	-14.340	< 8dBm	Pass

Figure Channel 1:

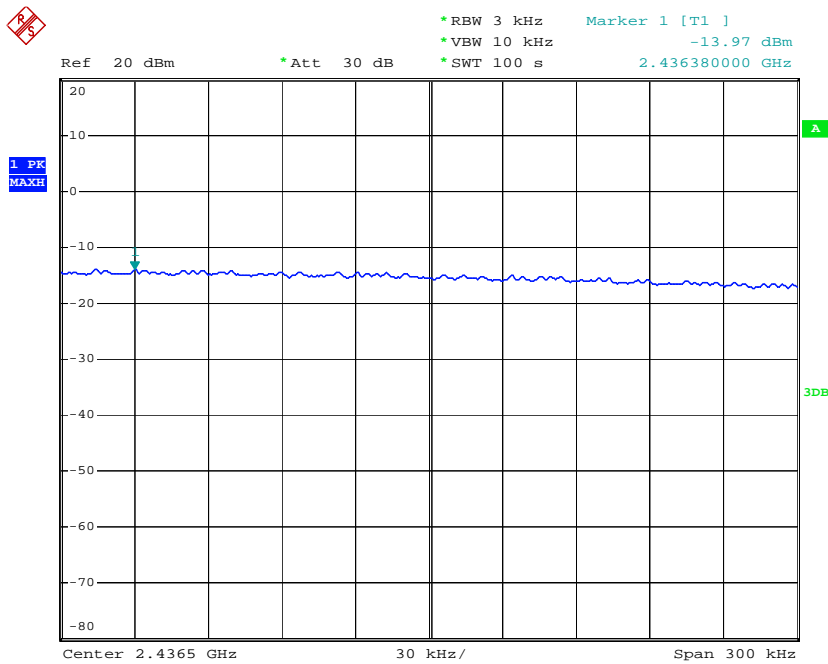


Date: 13.MAY.2010 10:32:14

Product : Wireless 802.11n 4 Ports ADSL2/2+ Router
 Test Item : Power Density Data
 Test Site : No.3OATS
 Test Mode : Mode 1: Transmit (802.11b 1Mbps) (2437MHz)

Channel No.	Frequency (MHz)	Measurement Level (dBm)	Required Limit (dBm)	Result
6	2437.000	-13.970	< 8dBm	Pass

Figure Channel 6:

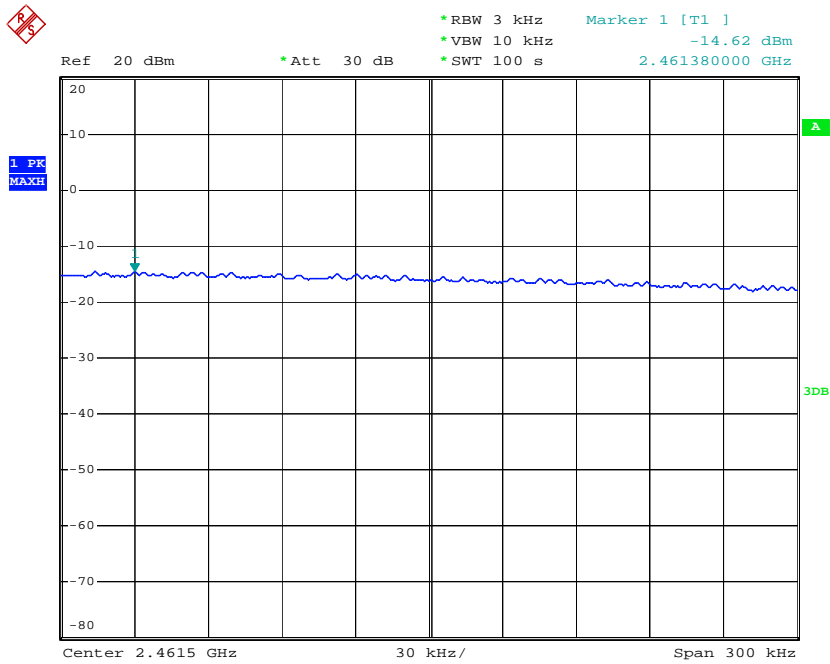


Date: 13.MAY.2010 10:35:56

Product : Wireless 802.11n 4 Ports ADSL2/2+ Router
 Test Item : Power Density Data
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmit (802.11b 1Mbps) (2462MHz)

Channel No.	Frequency (MHz)	Measurement Level (dBm)	Required Limit (dBm)	Result
11	2462.00	-14.620	< 8dBm	Pass

Figure Channel 11:

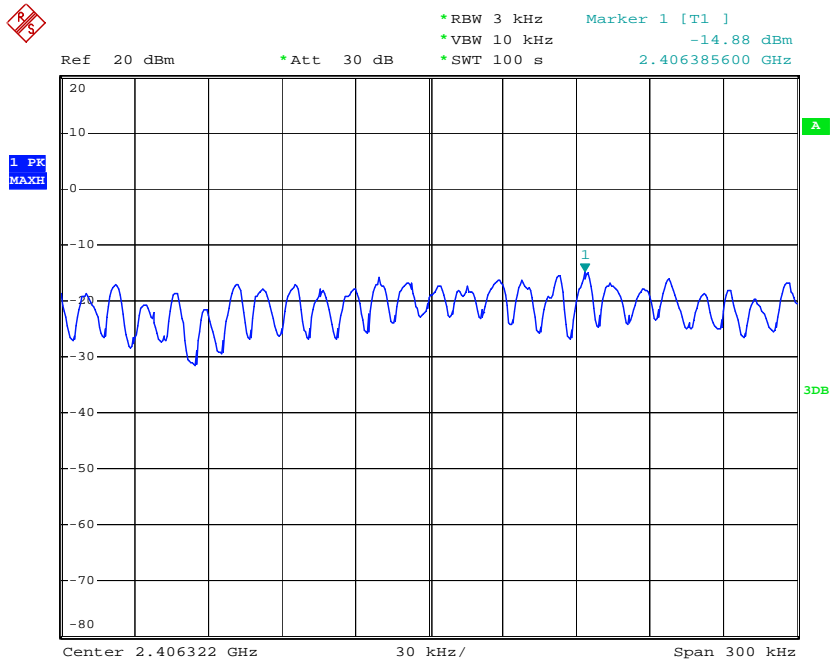


Date: 13.MAY.2010 10:41:14

Product : Wireless 802.11n 4 Ports ADSL2/2+ Router
 Test Item : Power Density Data
 Test Site : No.3 OATS
 Test Mode : Mode 2: Transmit (802.11g 6Mbps) (2412MHz)

Channel No.	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)	Result
1	2412.00	-14.800	< 8dBm	Pass

Figure Channel 1:

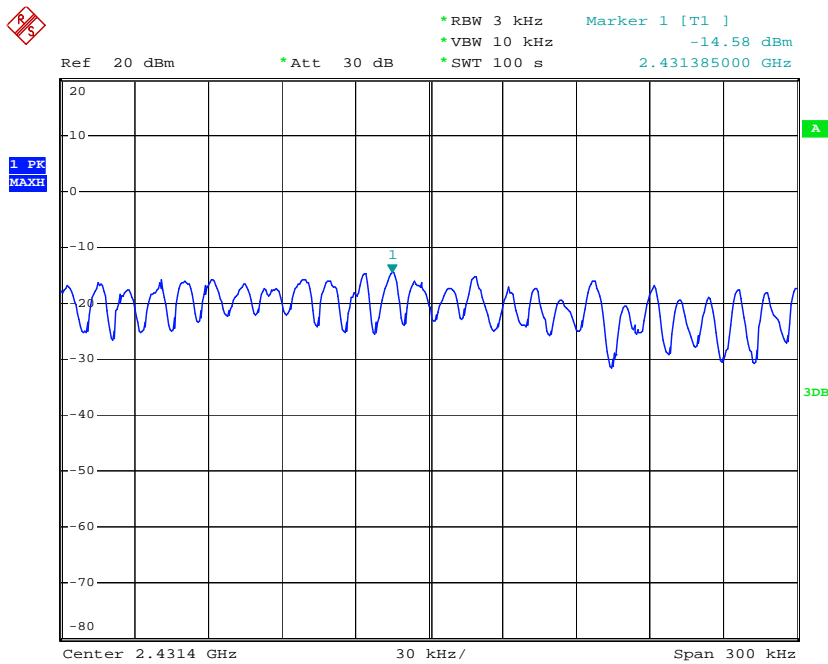


Date: 13.MAY.2010 13:53:07

Product : Wireless 802.11n 4 Ports ADSL2/2+ Router
 Test Item : Power Density Data
 Test Site : No.3OATS
 Test Mode : Mode 2: Transmit (802.11g 6Mbps) (2437MHz)

Channel No.	Frequency (MHz)	Measurement Level (dBm)	Required Limit (dBm)	Result
6	2437.000	-14.580	< 8dBm	Pass

Figure Channel 6:

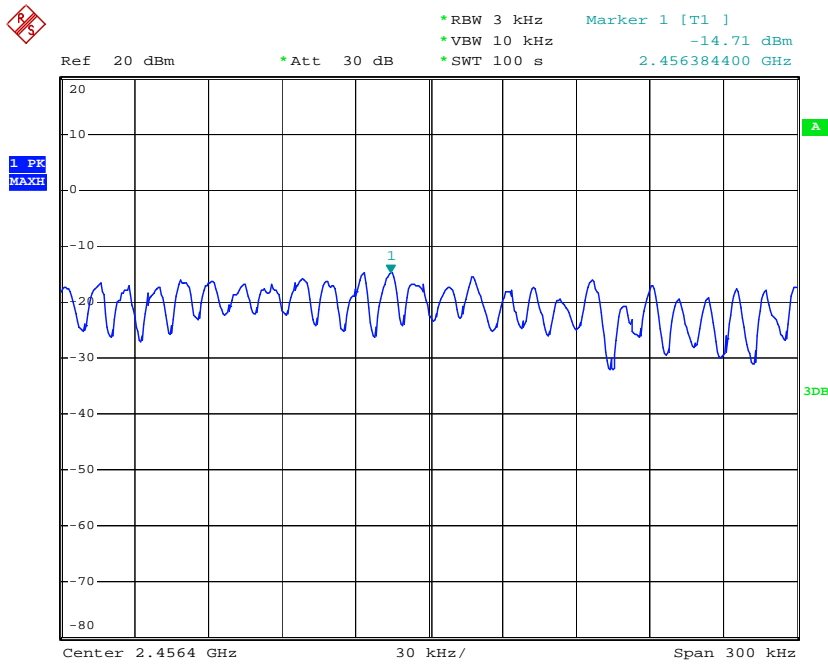


Date: 13.MAY.2010 13:57:41

Product : Wireless 802.11n 4 Ports ADSL2/2+ Router
 Test Item : Power Density Data
 Test Site : No.3 OATS
 Test Mode : Mode 2: Transmit (802.11g 6Mbps) (2462MHz)

Channel No.	Frequency (MHz)	Measurement Level (dBm)	Required Limit (dBm)	Result
11	2462.00	-14.710	< 8dBm	Pass

Figure Channel 11:

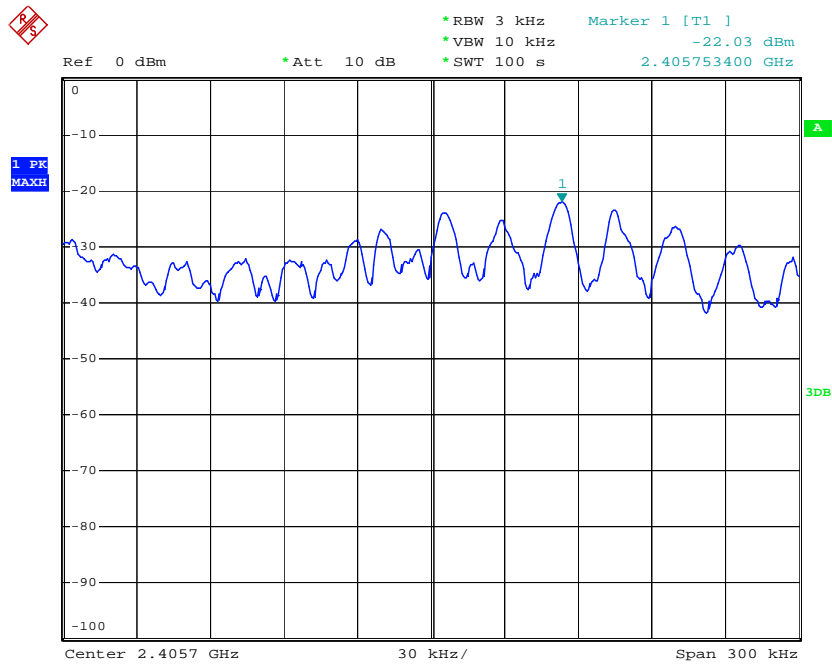


Date: 13.MAY.2010 14:02:11

Product : Wireless 802.11n 4 Ports ADSL2/2+ Router
 Test Item : Power Density Data
 Test Site : No.3 OATS
 Test Mode : Mode 3: Transmit (802.11n MCS8 14.4Mbps 20M-BW) (2412MHz)

Channel No.	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)	Result
1	2412.00	-22.030	< 8dBm	Pass

Figure Channel 1:

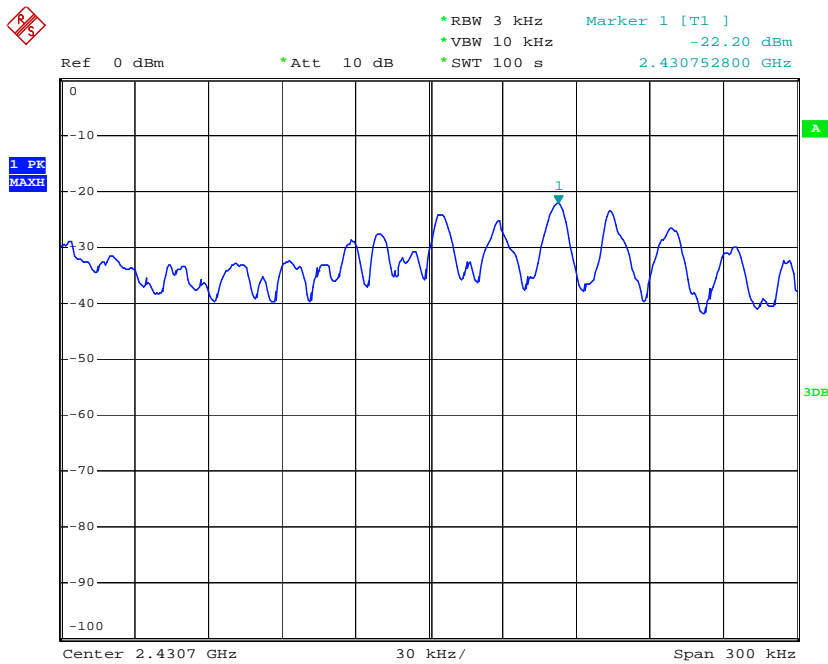


Date: 13.MAY.2010 14:14:00

Product : Wireless 802.11n 4 Ports ADSL2/2+ Router
 Test Item : Power Density Data
 Test Site : No.3OATS
 Test Mode : Mode 3: Transmit (802.11n MCS8 14.4Mbps 20M-BW) (2437MHz)

Channel No.	Frequency (MHz)	Measurement Level (dBm)	Required Limit (dBm)	Result
6	2437.000	-22.200	< 8dBm	Pass

Figure Channel 6:

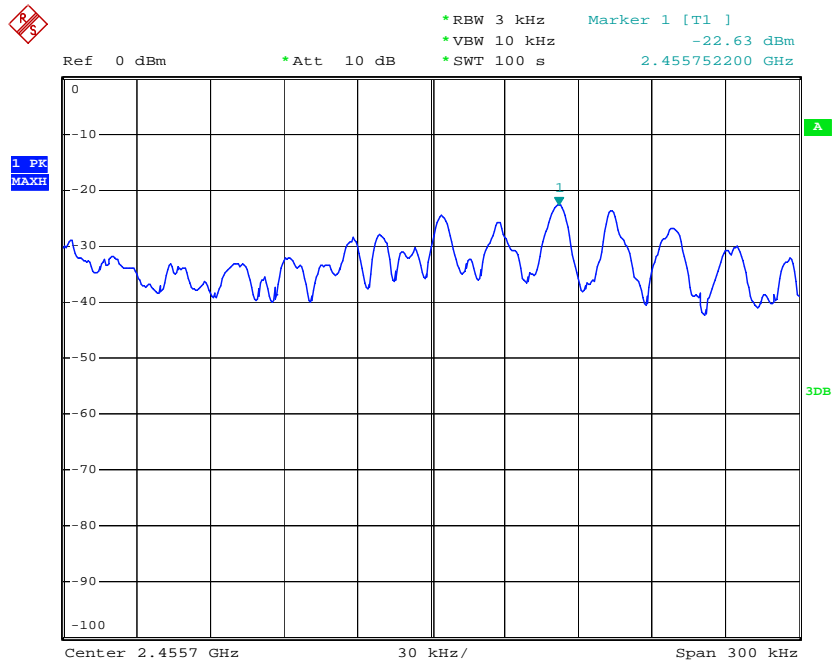


Date: 13.MAY.2010 14:18:18

Product : Wireless 802.11n 4 Ports ADSL2/2+ Router
 Test Item : Power Density Data
 Test Site : No.3 OATS
 Test Mode : Mode 3: Transmit (802.11n MCS8 14.4Mbps 20M-BW) (2462MHz)

Channel No.	Frequency (MHz)	Measurement Level (dBm)	Required Limit (dBm)	Result
11	2462.00	-22.630	< 8dBm	Pass

Figure Channel 11:

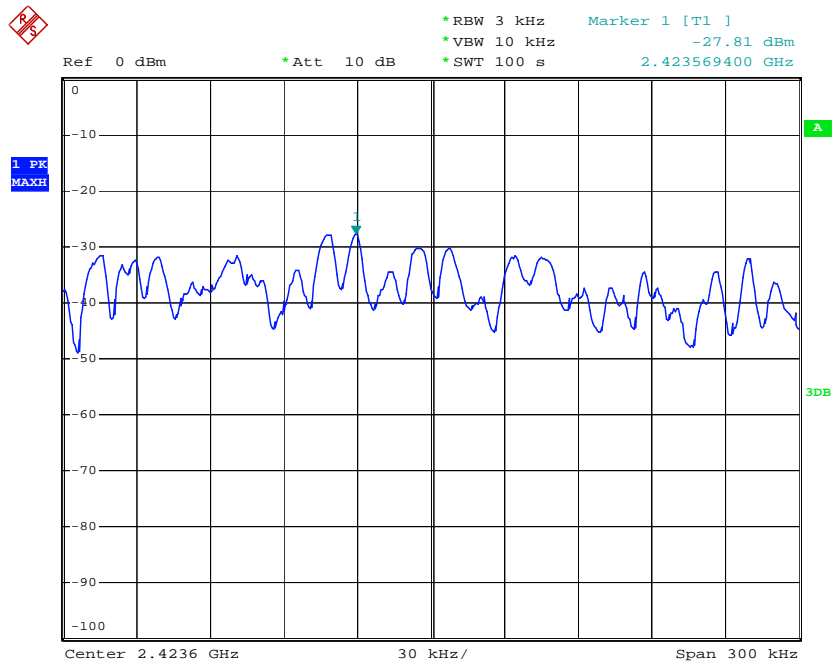


Date: 13.MAY.2010 14:23:35

Product : Wireless 802.11n 4 Ports ADSL2/2+ Router
 Test Item : Power Density Data
 Test Site : No.3 OATS
 Test Mode : Mode 4: Transmit (802.11n MCS8 30Mbps 40M-BW) (2422MHz)

Channel No.	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)	Result
1	2422.00	-27.810	< 8dBm	Pass

Figure Channel 1:

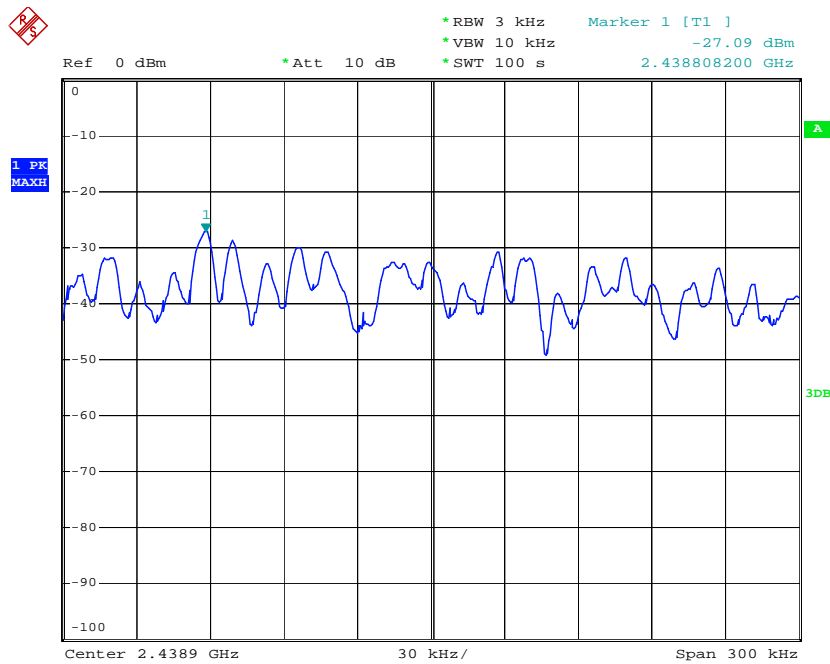


Date: 13.MAY.2010 14:36:10

Product : Wireless 802.11n 4 Ports ADSL2/2+ Router
 Test Item : Power Density Data
 Test Site : No.3OATS
 Test Mode : Mode 4: Transmit (802.11n MCS8 30Mbps 40M-BW) (2437MHz)

Channel No.	Frequency (MHz)	Measurement Level (dBm)	Required Limit (dBm)	Result
4	2437.000	-27.090	< 8dBm	Pass

Figure Channel 4:

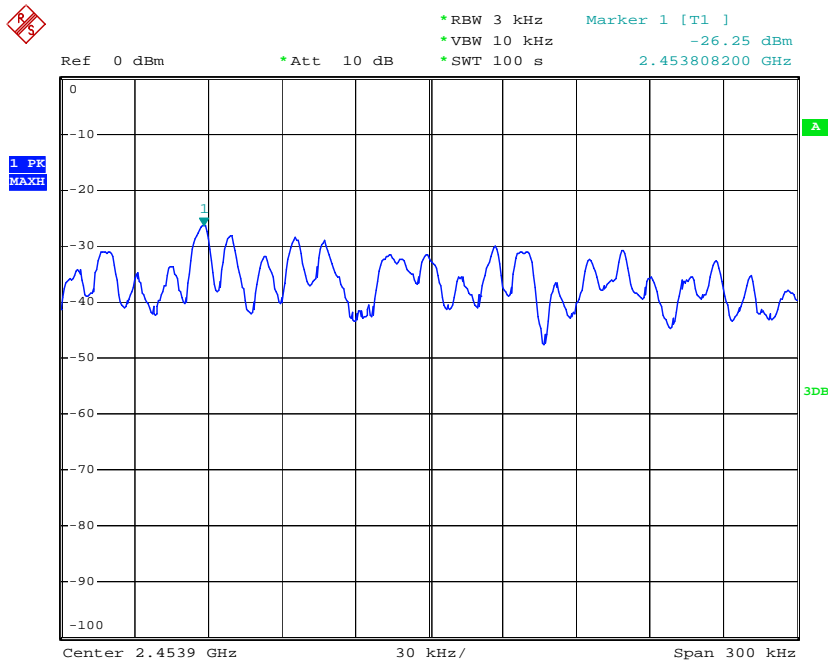


Date: 13.MAY.2010 14:41:38

Product : Wireless 802.11n 4 Ports ADSL2/2+ Router
 Test Item : Power Density Data
 Test Site : No.3 OATS
 Test Mode : Mode 4: Transmit (802.11n MCS8 30Mbps 40M-BW) (2452MHz)

Channel No.	Frequency (MHz)	Measurement Level (dBm)	Required Limit (dBm)	Result
7	2452.00	-26.250	< 8dBm	Pass

Figure Channel 7:



Date: 13.MAY.2010 14:51:47

9. EMI Reduction Method During Compliance Testing

No modification was made during testing.