FCC 47 CFR PART 15 SUBPART C

Product Type : ADSL2+ WLAN Router

Applicant : DrayTek Corp.

Address No. 26, Fu-Shing Rd., HuKou County, Hsin-Chu Industrial Park, Hsin-Chu,Taiwan 303 R.O.C.
Trade Name : DrayTek

Model Number : Vigor 2710ne

Serial Model Number : Vigor 2710e, Vigor 2711ue, Vigor 2712ne, Vigor 2712e, Vigor 2712ue
Test Specification : FCC 47 CFR PART 15 SUBPART C: Oct, 2008
ANSI C63.4-2003

Issue Date : Mar. 30, 2010

Issue by

A Test Lab Techno Corp.
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TAF
Testing Laboratory
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Taiwan Accreditation Foundation accreditation number: 1330

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Revision History

Rev.	Issue Date	Revisions	Revised By
00	Feb. 11, 2010	Initial Issue	
01	Mar. 05, 2010	Add antenna # 3 and model difference list	Linda Su
02	Mar. 30, 2010	Change photo of antenna # 3	Linda Su

Test Report Verification

Issued Date: 2010/03/30

Product Type	:	ADSL2+ WLAN Router
Applicant	:	DrayTek Corp.
Address	:	No. 26, Fu-Shing Rd., HuKou County, Hsin-Chu Industrial Park, Hsin-Chu,Taiwan 303 R.O.C.
Trade Name	:	DrayTek
Model Number	:	Vigor 2710ne
Serial Model Number	:	Vigor 2710e, Vigor 2711ue, Vigor 2712ne, Vigor 2712e, Vigor 2712ue
FCC ID	:	VGYV2710NE
EUT Rated Voltage	:	AC 100-240V, 47-63Hz, 0.35A
Test Voltage	:	120 Vac / 60 Hz
Applicable Standard	:	FCC 47 CFR PART 15 SUBPART C: Oct, 2008 ANSI C63.4-2003
Test Result	:	Complied
Performed Lab.	:	A Test Lab Techno Corp. No. 140-1, Changan Street, Bade City, Taoyuan Country 334, Taiwan R.O.C. Tel：+86-3-2710188 / Fax：+86-3-2710190 Taiwan Accreditation Foundation accreditation number: 1330 http://www.atl-lab.com.tw/e-index.htm

The above equipment has been tested by A Test Lab Techno Corp., and found compliance with the requirements set forth in the Electromagnetic Compatibility Directive 2004/108/EC and technical standards mentioned above. The results of testing in this report apply only to the product/system, which was tested. Other similar equipment will not necessarily produce the same results due to production tolerance and measurement uncertainties.

Approved By : Miller Lee Reviewed By : John Chen

(Manager) (Miller Lee) (Testing Engineer) (John Cheng)

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1 General Information

1.1 Summary of Test Result

Standard		Item	Result	Remark
15.247	**RSS-GEN**			
15.207	7.2.2	AC Power Conducted Emission	PASS	-----
-----	6	Receiver Radiated Emissions	PASS	-----
Standard		**Item**	**Result**	**Remark**
15.247	**RSS-210**			
15.247(d)	A8.5	Transmitter Radiated Emissions	PASS	-----
15.247(b)	A8.4	Max. Output Power	PASS	-----
15.247(a)(2)	A8.2 (a)	6dB RF Bandwidth	PASS	-----
15.247(e)	A8.2 (b)	Power Spectral Density	PASS	-----
15.247(c)	A8.5	Out of Band Conducted Spurious Emission	PASS	-----
15.247(d)	A8.5	Band Edge Measurement	PASS	-----
15.247(c)	A8.5	Occupied Bandwidth Measurement	PASS	-----
15.203	-	Antenna Requirement	PASS	-----

The test results of this report relate only to the tested sample(s) identified in this report. Manufacturer or whom it may concern should recognize the pass or fail of the test result.

1.2 Measurement Uncertainty

Conducted Emission

The measurement uncertainty is evaluated as ± 2.24 dB.

Radiated Emission

The measurement uncertainty of 30 MHz - 1GHz is evaluated as ± 3.072dB.

2 EUT Description

Product	:	ADSL2+ WLAN Router
Trade Name	:	DrayTek
Model No.	:	Vigor 2710ne
Applicant	:	DrayTek Corp. No. 26, Fu-Shing Rd., HuKou County, Hsin-Chu Industrial Park, Hsin-Chu,Taiwan 303 R.O.C.
Manufacturer	:	DrayTek Corp. No. 26, Fu-Shing Rd., HuKou County, Hsin-Chu Industrial Park, Hsin-Chu,Taiwan 303 R.O.C.
FCC ID	:	VGYV2710NE
Frequency Range	:	2412 ~ 2462 MHz, 2422 ~ 2452 MHz
Modulation Type	:	IEEE 802.11b:DSSS(CCK, DQPSK, DBPSK) IEEE 802.11g:DSSS(CCK, DQPSK, DBPSK)+ OFDM(QPSK, BPSK, 16-QAM, 64-QAM) draft 802.11n Standard-20MHz channel mode: OFDM(6.5,7.2, 13,14.4, 14.44, 19.5,217,26,28.89,28.9,39.43.3,43.33,52,57.78, 57.8, 58.5, 65.0, 72.2, 78, 86.67,104,115.56,117,130 and 144.44 Mbps) draft 802.11n Wide-40MHz channel mode: OFDM(13.5,15,27,30,40.5, 45,54,60,81,90,108,120, 121.5,135,150,162,180,216,240,243,270 and 300 Mbps)
Antenna Type	:	External Type
Antenna Gain	:	2 dBi
Max. RF Output Power	:	IEEE 802.11b: 0.111 W / 20.45 dBm IEEE 802.11g: 0.311 W / 24.93 dBm draft 802.11n Standard-20MHz: 0.294 W / 24.69 dBm draft 802.11n Wide-40MHz: 0.210 W / 23.22 dBm
Component		
Power Adapter	:	CWT, CAP012121 Input:100-240Vac, 47-63Hz, 0.35A Output: 12Vdc, 1.0A Cable out: Non-Shielded, 1.54 m

Difference Description of EUT

Vigor 2710 series model list and difference							
item	**Model No.**	**4port LAN 10/100TX (4xRJ45)**	**Single LAN 10/100TX (1xRJ45)**	**WAN ADSL**	**WLAN 11b/g/n 1T1R**	**USB HOST**	**12VDC 1A**
1	Vigor 2710ne	V		V	V		V
2	Vigor 2710e	V		V			V
3	Vigor 2711ue	V		V		V	V
4	Vigor 2712ne		V	V	V		V
5	Vigor 2712e		V	V			V
6	Vigor 2712ue		V	V		V	V

The model (DrayTek Vigor 2710ne) have different WLAN antenna for sell. The other circuit designed is the same. The WLAN antenna models list below.

Component Name	Component Model Number	Antenna Specification	Remark
WLAN Antenna (1)	MAG. LAYERS, 450-7000002-00	External Type, Gain: 2dBi	(*)
WLAN Antenna (2)	MAG. LAYERS, 450-9001000-00	External Type, Gain: 2dBi	
WLAN Antenna (3)	MAG. LAYERS, EDA-8709-2G4C1-A31	External Type, Gain: 2dBi	

Remark: (*) The testing used.

3 Test Methodology

3.1. Mode of Operation

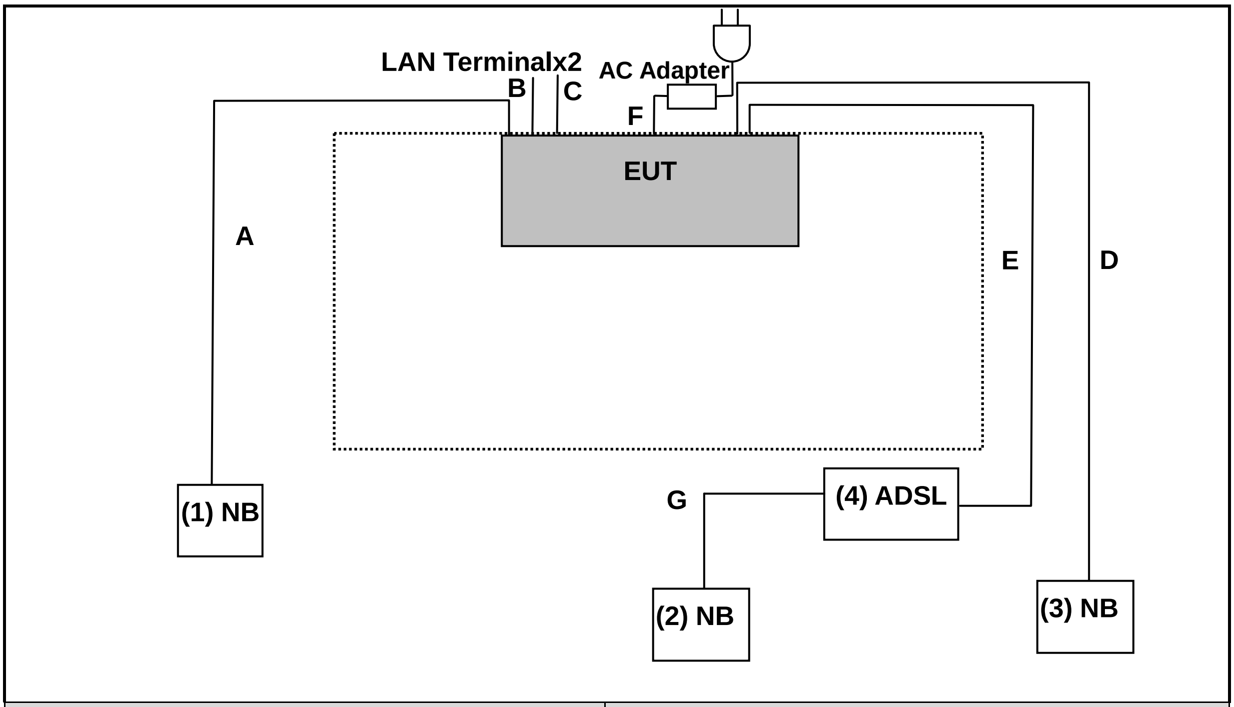
Decision of Test ATL has verified the construction and function in typical operation. All the test modes were carried out with the EUT in normal operation, which was shown in this test report and defined as:

Test Mode
Mode 1: Normal Operation Mode
Mode 2: IEEE 802.11b Link Mode
Mode 3: IEEE 802.11g Link Mode
Mode 4: draft 802.11n Standard-20MHz Link Mode
Mode 5: draft 802.11n Wide-40MHz Link Mode

3.2. EUT Exercise Software

1.	Setup the EUT and simulators as shown on 3.3.
2.	Turn on the power of all equipment.
3.	Data will communicate between notebook and partner notebook through EUT.
4.	The personal notebook's and partner notebook's panel will show the transmitting and receiving characteristics when the communication is success.

3.3. Configuration of Test System Details



Signal Cable Type		Signal Cable Description
A	LAN Cable	Non-Shielded, 7m
B	LAN Cable	Non-Shielded, 7m
C	LAN Cable	Non-Shielded, 7m
D	LAN Cable	Non-Shielded, 7m
E	Telecom Cable	Non-Shielded, 7m
F	Power Cable	Non-Shielded, 1.54m
G	LAN Cable	Non-Shielded, 3m

Devices Description					
Product		Manufacturer	Model No.	Serial No.	Power Cord
1.	Notebook	DELL	D531	GCDCD-T6HYQ-3MQ8R-JCPD3-3G8G2	Non-Shielded, 1.5m with one core
2.	Notebook	DELL	D830	CN-OHN341-48643-88Q-1221	Non-Shielded, 1.5m with one core
3.	Notebook	DELL	D531	CN-OXM006-48643-87A-3398	Non-Shielded, 1.5m with one core
4.	ADSL	DrayTek	VigorAccess	A24M	Non-Shielded, 1.8m

3.4. Test Site Environment

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

4 Conducted Emission Measurement

4.1. Limit

Frequency (MHz)	Quasi-peak	Average
0.15 - 0.5	66 to 56	56 to 46
0.50 - 5.0	56	46
5.0 - 30.0	60	50

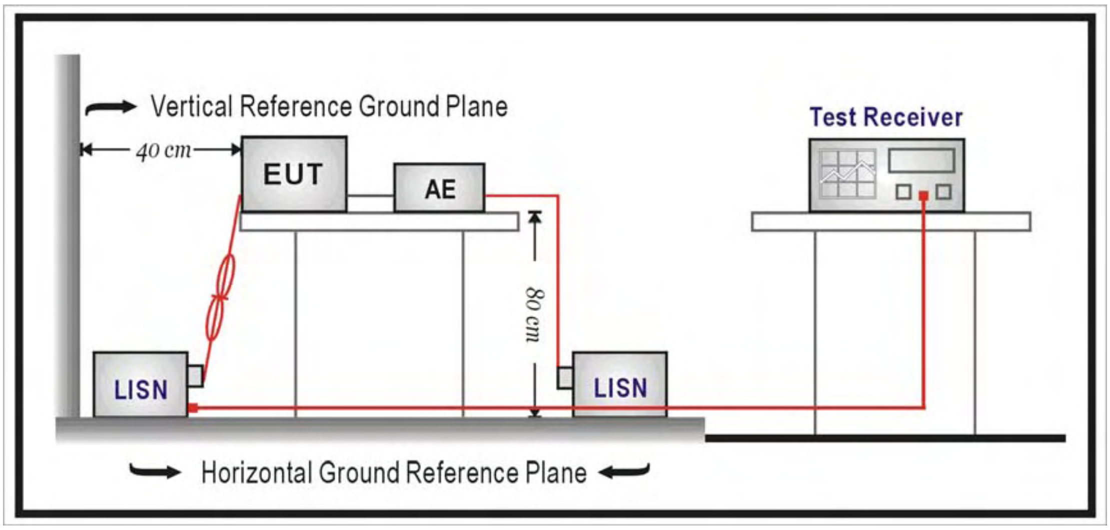
4.2. Test Instruments

Describe	Manufacturer	Model No.	Serial No.	Cal. Date	Remark
Test Receiver	R&S	ESCI	100367	07/01/2009	(1)
LISN	EMCO	3816/2 SH	00060110	06/05/2009	(1)
LISN	EMCO	3816/2 SH	00060111	06/29/2009	(1)
Transient Limiter	ELECTRO-METRICS	EM-7600	777	09/22/2009	(2)
Test Site	ATL	TE02	TE02	N.C.R.	-----

Remark: (1) Calibration period 1 year. (2) Calibration period 2 years.

NOTE: N.C.R. = No Calibration Request.

4.3. Test Setup


Vertical Reference Ground Plane
40 cm
EUT
AE
80 cm
Test Receiver
LISN
LISN
Horizontal Ground Reference Plane

4.4. Test Procedure

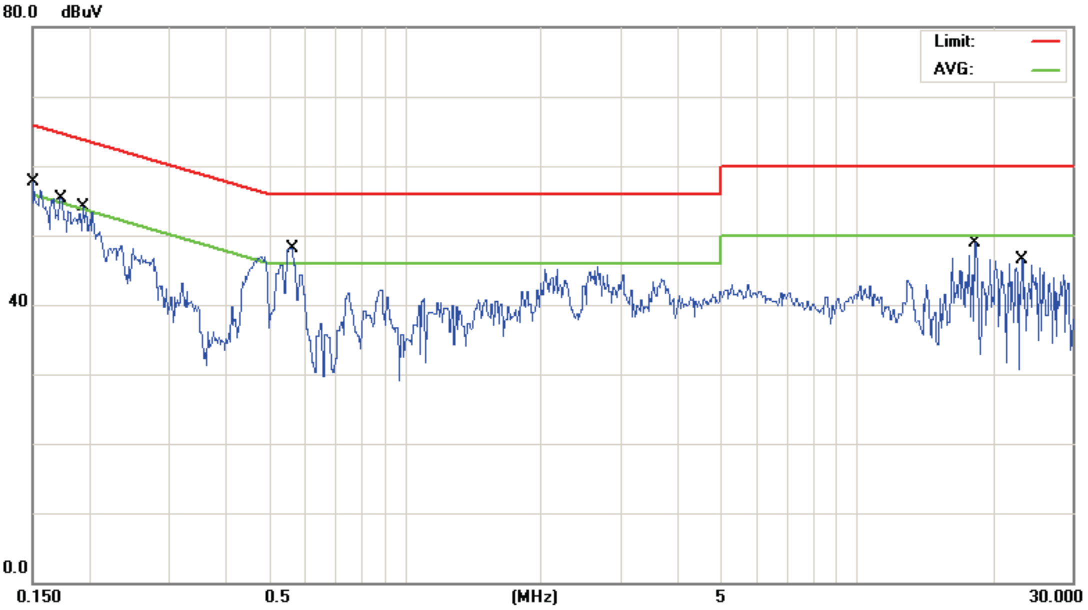
The power line conducted emission measurements were performed in a shielded enclosure. The EUT was assembled on a wooden table which is 80 centimeters high, was placed 40 centimeters from the back wall and at least 1 meter from the sidewall.

Power was fed to the EUT from the public utility power grid through a line filter and EMCO Model 3162/2 SH Line Impedance Stabilization Networks (LISN). The LISN housing, measuring instrumentation case, ground plane, etc., were electrically bonded together at the same RF potential. The Spectrum analyzer was connected to the AC line through an isolation transformer. The 50-ohm output of the LISN was connected to the spectrum analyzer directly. Conducted emission levels were in the CISPR quasi-peak detection mode. The analyzer's 6 dB bandwidth was set to 9 KHz. No post-detector video filter was used.

The spectrum was scanned from 150 KHz to 30 MHz. The physical arrangement of the test system and associated cabling was varied (within the scope of arrangements likely to be encountered in actual use) to determine the effect on the unit's emanations in amplitude and frequency. All spurious emission frequencies were observed. The highest emission amplitudes relative to the appropriate limit were measured and have been recorded in paragraph 4.1.

4.5. Test Result

File :09-0339-EPO(Conduction) Data :#3 Date: 2009/12/29 Time: 下午 02:39:04



Site : Conducted
Limit: CISPR22 Class B Conduction(QP)
EUT: ADSL2+ WLAN Router
M/N: Vigor2710ne
Mode: 1
Note:

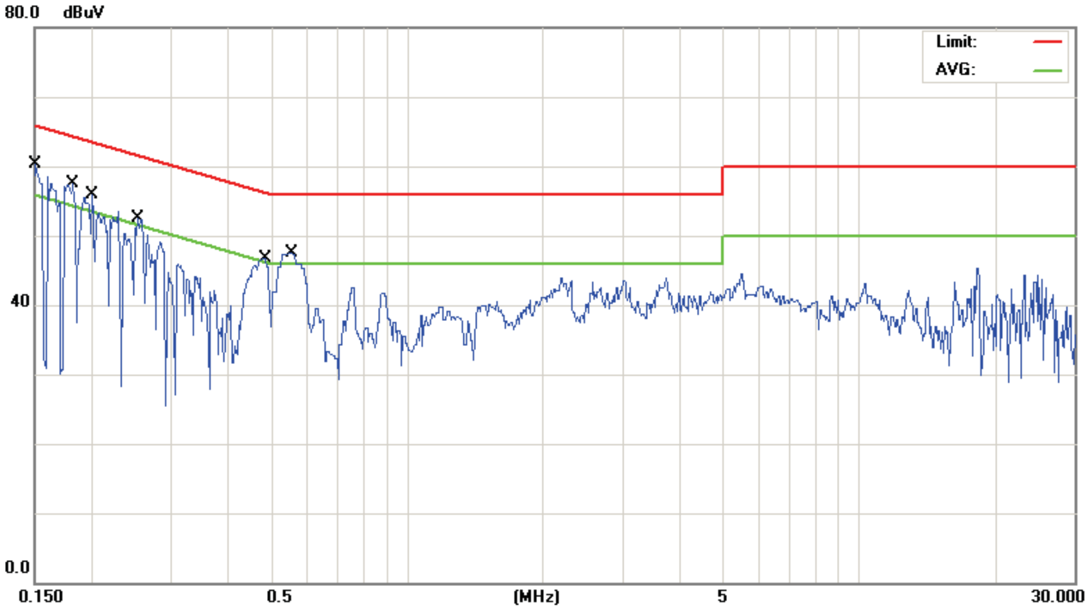
Phase: *L1*
Power: AC 120V/60Hz

Temperature: 26 ℃
Humidity: 55 %

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1		0.1507	35.50	9.73	45.23	65.96	-20.73	QP	
2		0.1507	16.60	9.73	26.33	55.96	-29.63	AVG	
3		0.1724	32.70	9.73	42.43	64.84	-22.41	QP	
4		0.1724	17.40	9.73	27.13	54.84	-27.71	AVG	
5		0.1934	38.30	9.74	48.04	63.88	-15.84	QP	
6		0.1934	22.00	9.74	31.74	53.88	-22.14	AVG	
7	*	0.5630	32.70	9.79	42.49	56.00	-13.51	QP	
8		0.5630	16.20	9.79	25.99	46.00	-20.01	AVG	
9		18.2500	27.00	10.28	37.28	60.00	-22.72	QP	
10		18.2500	19.50	10.28	29.78	50.00	-20.22	AVG	
11		23.1500	12.10	10.37	22.47	60.00	-37.53	QP	
12		23.1500	3.80	10.37	14.17	50.00	-35.83	AVG	

*:Maximum data x:Over limit !:over margin ●Reference Only

File :09-0339-EPO(Conduction) Data :#4 Date: 2009/12/29 Time: 下午 02:42:25



Site : Conducted
Limit: CISPR22 Class B Conduction(QP)
EUT: ADSL2+ WLAN Router
M/N: Vigor2710ne
Mode: 1
Note:

Phase: *L2*
Power: AC 120V/60Hz

Temperature: 26 ℃
Humidity: 55 %

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	Detector	Comment
		MHz	dBuV	dB	dBuV	dBuV	dB		
1		0.1507	39.10	9.73	48.83	65.96	-17.13	QP	
2		0.1507	15.00	9.73	24.73	55.96	-31.23	AVG	
3		0.1822	35.70	9.74	45.44	64.38	-18.94	QP	
4		0.1822	13.90	9.74	23.64	54.38	-30.74	AVG	
5		0.2004	37.70	9.74	47.44	63.59	-16.15	QP	
6		0.2004	21.70	9.74	31.44	53.59	-22.15	AVG	
7		0.2529	32.80	9.75	42.55	61.66	-19.11	QP	
8		0.2529	17.30	9.75	27.05	51.66	-24.61	AVG	
9		0.4839	32.20	9.78	41.98	56.27	-14.29	QP	
10		0.4839	17.40	9.78	27.18	46.27	-19.09	AVG	
11	*	0.5540	32.20	9.79	41.99	56.00	-14.01	QP	
12		0.5540	17.90	9.79	27.69	46.00	-18.31	AVG	

*:Maximum data x:Over limit !:over margin ●Reference Only

5 Radiated Interference Measurement

5.1. Limit

Frequency Range (MHz)	Peak (dBuV)
30 to 88	39
88 to 216	43.5
216 to 960	46.4
Above 960	49.5

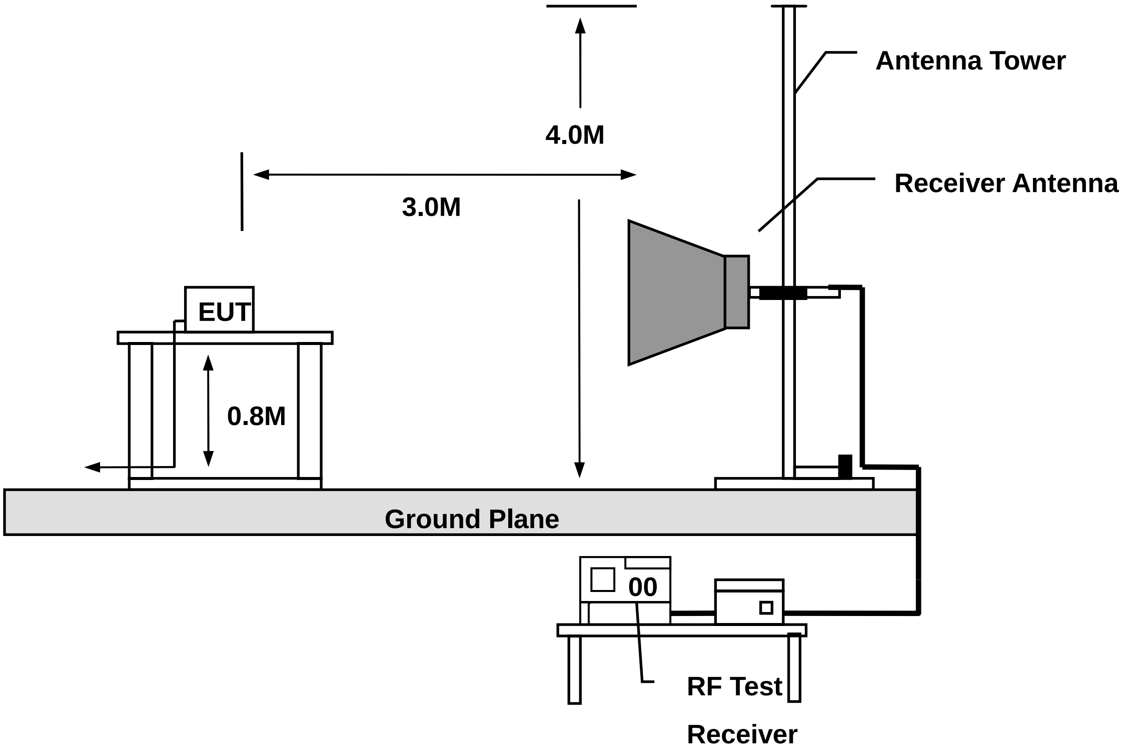
5.2. Test Instruments

3 Meter Chamber					
Equipment	**Manufacturer**	**Model No.**	**Serial No.**	**Cal. Date**	**Remark**
RF Pre-selector	Agilent	N9039A	MY46520256	01/27/2009	(2)
Spectrum Analyzer	Agilent	E4446A	MY46180578	01/20/2009	(2)
Pre Amplifier	Agilent	8449B	3008A02237	07/01/2009	(1)
Pre Amplifier	Agilent	8447D	2944A10961	06/30/2009	(1)
Broadband Antenna (30MHz~1GHz)	SCHWARZBECK MESS-ELEKTRONIK	VULB9163	9163-270	06/23/2009	(2)
Horn Antenna (1~18GHz)	SCHWARZBECK MESS-ELEKTRONIK	BBHA9120D	9120D-550	07/01/2009	(2)
Horn Antenna (18~40GHz)	SCHWARZBECK MESS-ELEKTRONIK	BBHA9170	9170-320	06/30/2009	(2)
Test Site	ATL	TE01	TE01	N.C.R.	-----

Remark: (1) Calibration period 1 year. (2) Calibration period 2 years.

NOTE: N.C.R. = No Calibration Request.

5.3. Setup



5.4. Test Procedure

Final radiation measurements were made on a three-meter, Semi Anechoic Chamber. The EUT system was placed on a nonconductive turntable which is 0.8 meters height, top surface 1.0 x 1.5 meter. The spectrum was examined from 250 MHz to 2.5 GHz in order to cover the whole spectrum below 10th harmonic which could generate from the EUT. During the test, EUT was set to transmit continuously & Measurements spectrum range from 30 MHz to 26.5 GHz is investigated.

For measurements below 1 GHz the resolution bandwidth is set to 100 kHz for peak detection measurements or 120 kHz for quasi-peak detection measurements. Peak detection is used unless otherwise noted as quasi-peak.

For measurements above 1 GHz the resolution bandwidth is set to 1 MHz, and then the video bandwidth is set to 1 MHz for peak measurements and 10 Hz for average measurements.

A nonconductive material surrounded the EUT to supporting the EUT for standing on tree orthogonal planes. At each condition, the EUT was rotated 360 degrees, and the antenna was raised and lowered from one to four meters to find the maximum emission levels. Measurements were taken using both horizontal and vertical antenna polarization.

SCHWARZBECK MESS-ELEKTRONIK Biconilog Antenna (mode VULB9163) at 3 Meter and the SCHWARZBECK Double Ridged Guide Antenna (model BBHA9120D&9170) was used in frequencies 1 – 26.5 GHz at a distance of 1 meter. All test results were extrapolated to equivalent signal at 3 meters utilizing an inverse linear distance extrapolation Factor (20dB/decade).

For testing above 1GHz, the emission level of the EUT in peak mode was 20dB lower than average limit (that means the emission level in peak mode also complies with the limit in average mode), then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions will be measured in average mode again and reported.

Appropriate preamplifiers were used for improving sensitivity and precautions were taken to avoid overloading or desensitizing the spectrum analyzer. No post – detector video filters were used in the test.

The spectrum analyzer's 6 dB bandwidth was set to 1 MHz, and the analyzer was operated in the peak detection mode, for frequencies both below and up 1 GHz. The average levels were obtained by subtracting the duty cycle correction factor from the peak readings.

The following procedures were used to convert the emission levels measured in decibels referenced to 1 microvolt (dBuV) into field intensity in micro volts pre meter (uV/m).

The actual field intensity in decibels referenced to 1 microvolt in to field intensity in micro colts per meter (dBuV/m).

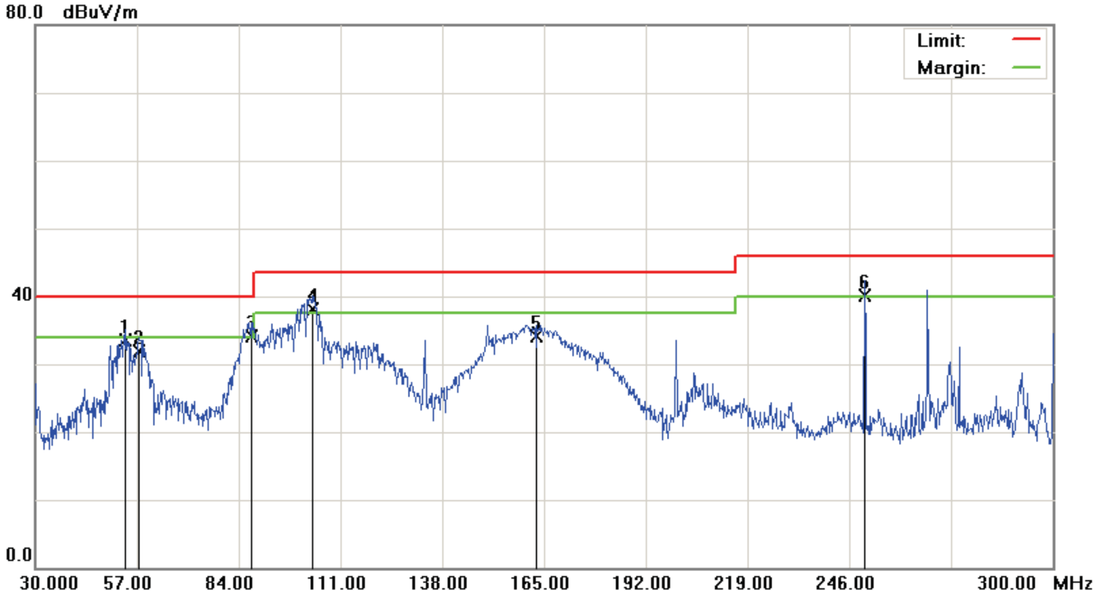
The actual field is intensity in referenced to 1 microvolt per meter (dBuV/m) is determined by algebraically adding the measured reading in dBuV, the antenna factor (dB), and cable loss (dB) and Subtracting the gain of preamplifier (dB) is auto calculate in spectrum analyzer.

(1) Amplitude (dBuV/m) = FI (dBuV) +AF (dBuV) +CL (dBuV)-Gain (dB)
FI= Reading of the field intensity.
AF= Antenna factor.
CL= Cable loss.
P.S Amplitude is auto calculate in spectrum analyzer.

(2) Actual Amplitude (dBuV/m) = Amplitude (dBuV)-Dis(dB)
The FCC specified emission limits were calculated according the EUT operating frequency and by following linear interpolation equations:
(a) For fundamental frequency : Transmitter Output < +30dBm
(b) For spurious frequency : Spurious emission limits = fundamental emission limit /10

5.5. Test Result

File :Vigor2710nE(Nomal Operat   Data :#1   Date: 2009/12/18   Time: 下午 09:50:25

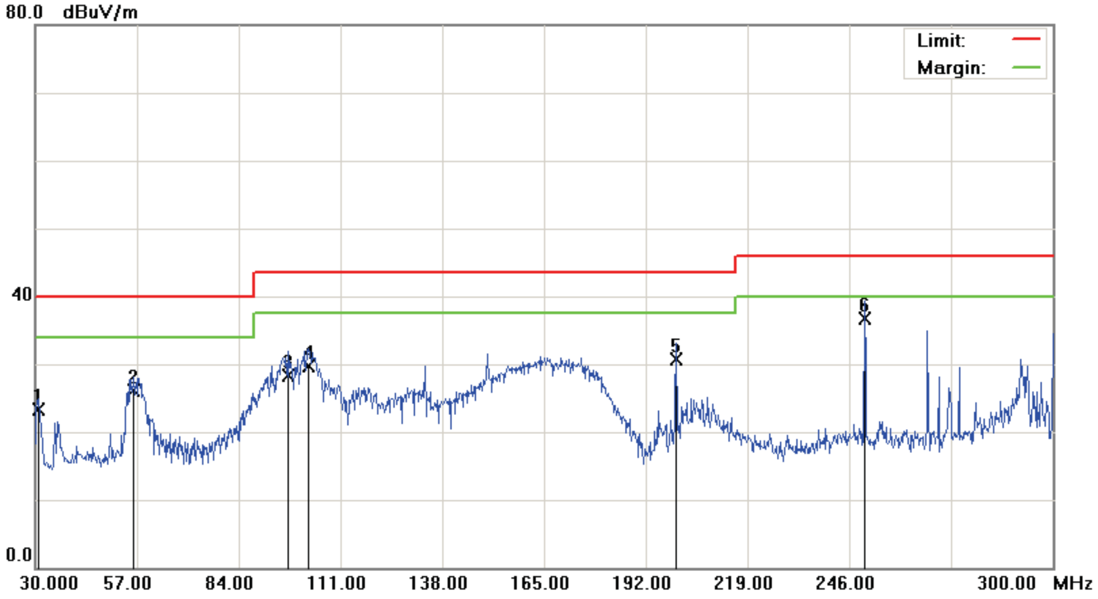


Site: : 966 Chamber   Polarization: *Vertical*   Temperature: 22 ℃
Limit: FCC Class B 3M Radiation   Power: Humidity: 60 %
EUT: ADSL2+ WLAN Router   Distance: 3m
M/N: Vigor2710ne
Mode: 1
Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1		54.0300	45.62	-12.20	33.42	40.00	-6.58	QP			
2		57.5400	44.25	-12.38	31.87	40.00	-8.13	QP			
3	!	87.2400	48.24	-14.04	34.20	40.00	-5.80	QP			
4	*	103.4400	50.15	-11.98	38.17	43.50	-5.33	QP			
5		163.1100	49.58	-15.38	34.20	43.50	-9.30	QP			
6	!	250.0500	50.88	-10.82	40.06	46.00	-5.94	QP			

*:Maximum data   x:Over limit   !:over margin

File :Vigor2710nE(Nomal Operat   Data :#3   Date: 2009/12/18   Time: 下午 08:45:47

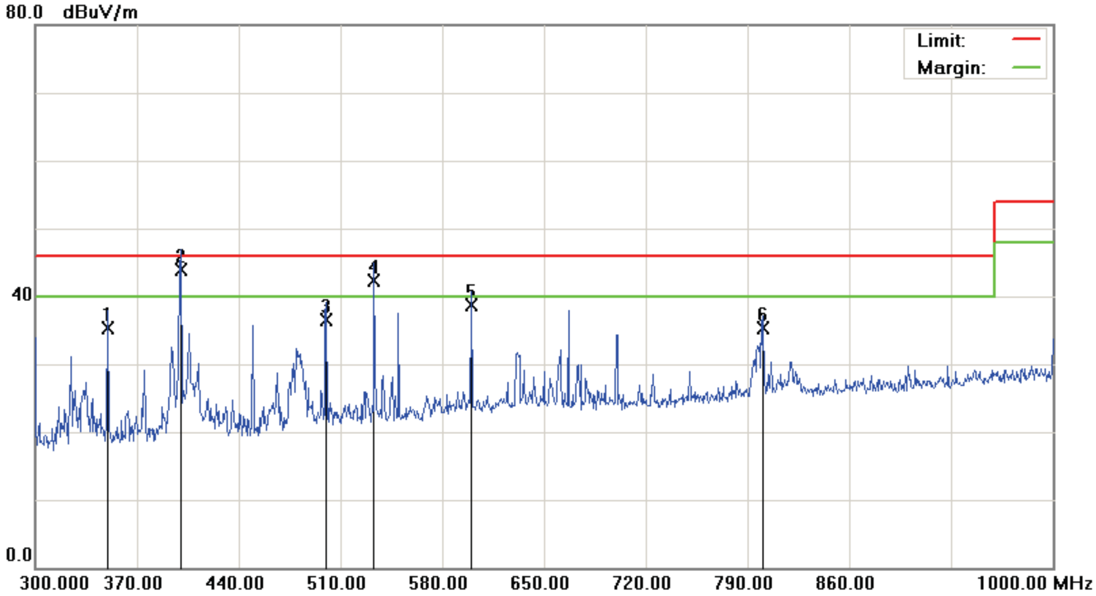


Site:	: 966 Chamber	Polarization:	*Horizontal*	Temperature:	22 ℃
Limit:	FCC Class B 3M Radiation	Power:		Humidity:	60 %
EUT:	ADSL2+ WLAN Router	Distance:	3m		
M/N:	Vigor2710ne				
Mode:	1				
Note:					

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1		30.8100	36.54	-13.30	23.24	40.00	-16.76	QP			
2		56.1900	38.45	-12.29	26.16	40.00	-13.84	QP			
3		96.9600	40.25	-11.93	28.32	43.50	-15.18	QP			
4		102.6300	41.69	-11.93	29.76	43.50	-13.74	QP			
5		200.1000	43.97	-13.18	30.79	43.50	-12.71	QP			
6	*	250.0500	47.57	-10.82	36.75	46.00	-9.25	QP			

*:Maximum data   x:Over limit   !:over margin

File :Vigor2710nE(Nomal Operat Data :#2 Date: 2009/12/18 Time: 下午 08:42:07



Site: : 966 Chamber

Limit: FCC Class B 3M Radiation

EUT: ADSL2+ WLAN Router

M/N: Vigor2710ne

Mode: 1

Note:

Polarization: *Vertical*

Power:

Distance: 3m

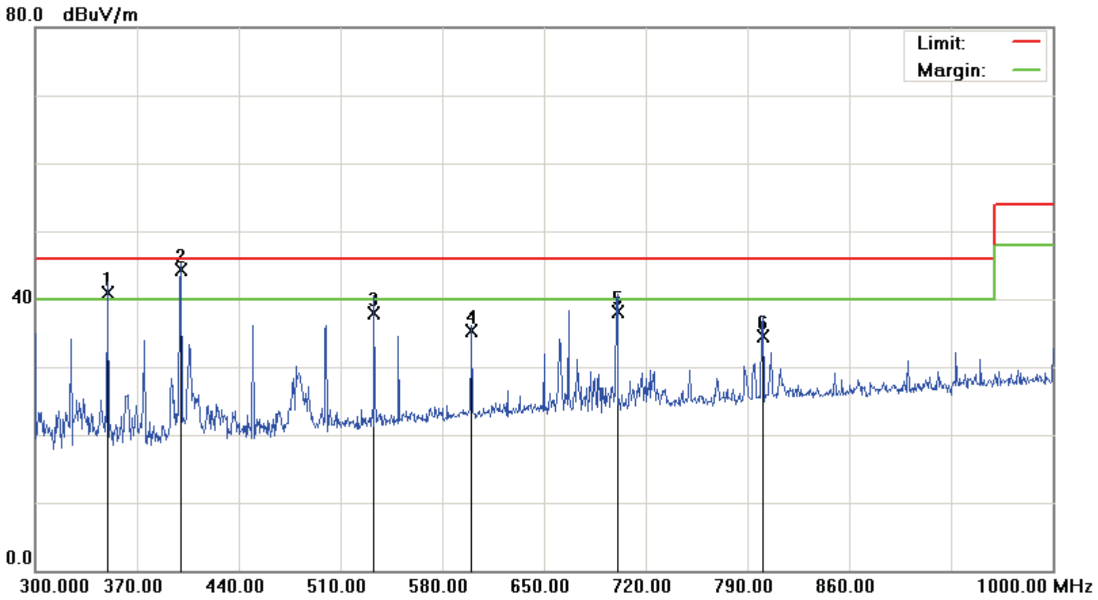
Temperature: 22 ℃

Humidity: 60 %

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1		349.7000	44.25	-8.95	35.30	46.00	-10.70	QP			
2	*	400.1000	52.31	-8.33	43.98	46.00	-2.02	QP			
3		500.2000	43.58	-7.17	36.41	46.00	-9.59	QP			
4	!	533.1000	48.59	-6.36	42.23	46.00	-3.77	QP			
5		600.3000	43.56	-4.89	38.67	46.00	-7.33	QP			
6		800.5000	37.59	-2.29	35.30	46.00	-10.70	QP			

*:Maximum data x:Over limit !:over margin

File :Vigor2710nE(Nomal Operat　　Data :#4　　Date: 2009/12/18　　Time: 下午 08:49:26

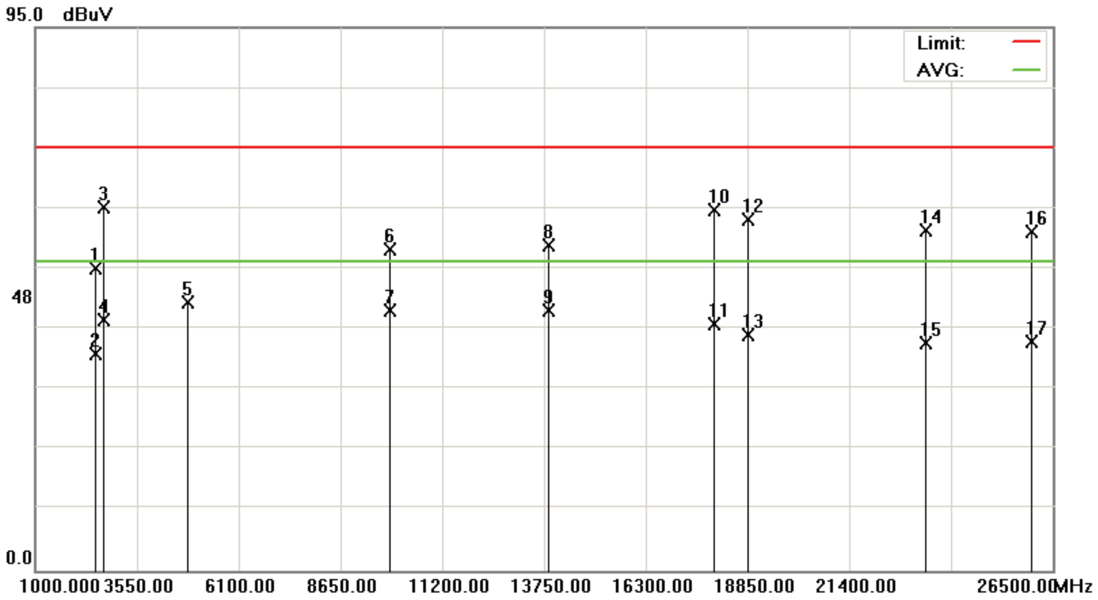


Site: : 966 Chamber　　Polarization: ***Horizontal***　　Temperature: 22 ℃
Limit: FCC Class B 3M Radiation　　Power:　　Humidity: 60 %
EUT: ADSL2+ WLAN Router　　Distance: 3m
M/N: Vigor2710ne
Mode: 1
Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1	!	349.7000	49.85	-8.95	40.90	46.00	-5.10	QP			
2	*	400.1000	52.58	-8.33	44.25	46.00	-1.75	QP			
3		533.1000	44.24	-6.36	37.88	46.00	-8.12	QP			
4		600.3000	40.25	-4.89	35.36	46.00	-10.64	QP			
5		700.4000	41.98	-3.88	38.10	46.00	-7.90	QP			
6		800.5000	36.78	-2.29	34.49	46.00	-11.51	QP			

*:Maximum data　　x:Over limit　　!:over margin

File :Vigor2710nE(2412MHZ) Data :#17 Date: 2010/01/18 Time: 下午 05:14:00



Site: : 966 Chamber
Limit: FCC part 15 (PK)
EUT: ADSL2+ WLAN Router
M/N: Vigor2710ne
Mode: 2
Note: CH01(2412MHz)

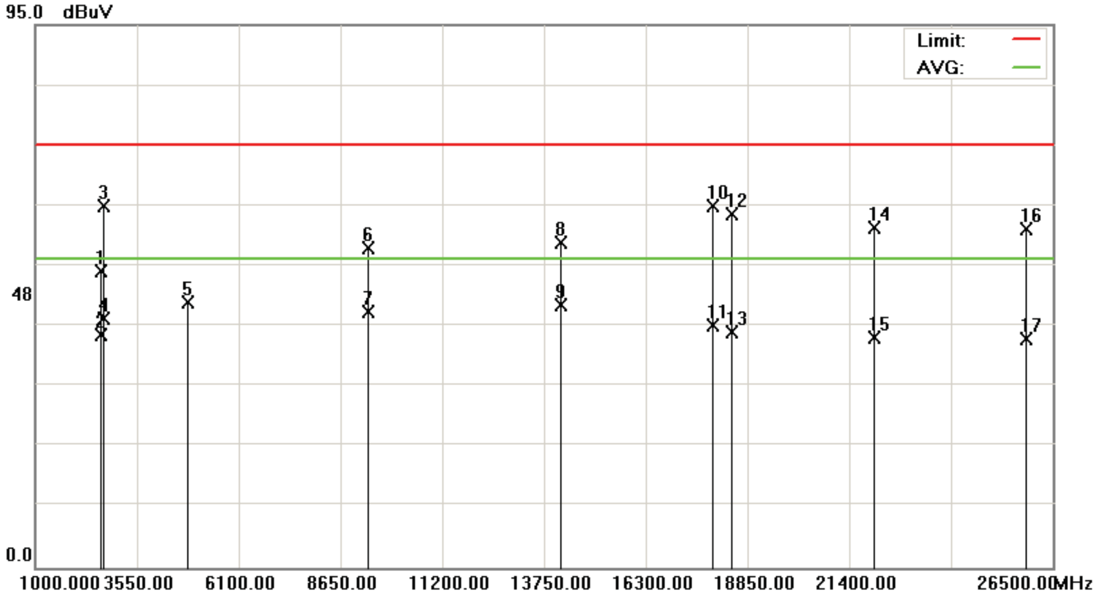
Polarization: *Vertical*
Power:
Distance: 3m

Temperature: 22 ℃
Humidity: 60 %
RBW: 1000 KHz VBW: 1000 KHz

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	Detector	Antenna Height	Table Degree	Comment
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	cm	degree	Comment
1		2490.900	52.64	0.26	52.90	74.00	-21.10	peak			
2		2490.900	37.52	0.26	37.78	54.00	-16.22	AVG			
3		2700.000	40.93	22.58	63.51	74.00	-10.49	peak			
4		2700.000	21.29	22.58	43.87	54.00	-10.13	AVG			
5		4824.000	39.39	7.48	46.87	74.00	-27.13	peak			
6		9854.000	38.33	17.89	56.22	74.00	-17.78	peak			
7		9854.000	27.52	17.89	45.41	54.00	-8.59	AVG			
8		13860.000	38.58	18.23	56.81	74.00	-17.19	peak			
9	*	13860.000	27.28	18.23	45.51	54.00	-8.49	AVG			
10		18000.000	37.51	25.57	63.08	74.00	-10.92	peak			
11		18000.000	17.43	25.57	43.00	54.00	-11.00	AVG			
12		18850.000	38.28	23.15	61.43	74.00	-12.57	peak			
13		18850.000	18.06	23.15	41.21	54.00	-12.79	AVG			
14		23312.500	38.68	20.75	59.43	74.00	-14.57	peak			
15		23312.500	19.13	20.75	39.88	54.00	-14.12	AVG			
16		25947.500	40.56	18.60	59.16	74.00	-14.84	peak			
17		25947.500	21.52	18.60	40.12	54.00	-13.88	AVG			

*:Maximum data x:Over limit !:over margin

File :Vigor2710nE(2412MHZ) Data :#18 Date: 2010/01/18 Time: 下午 05:15:37

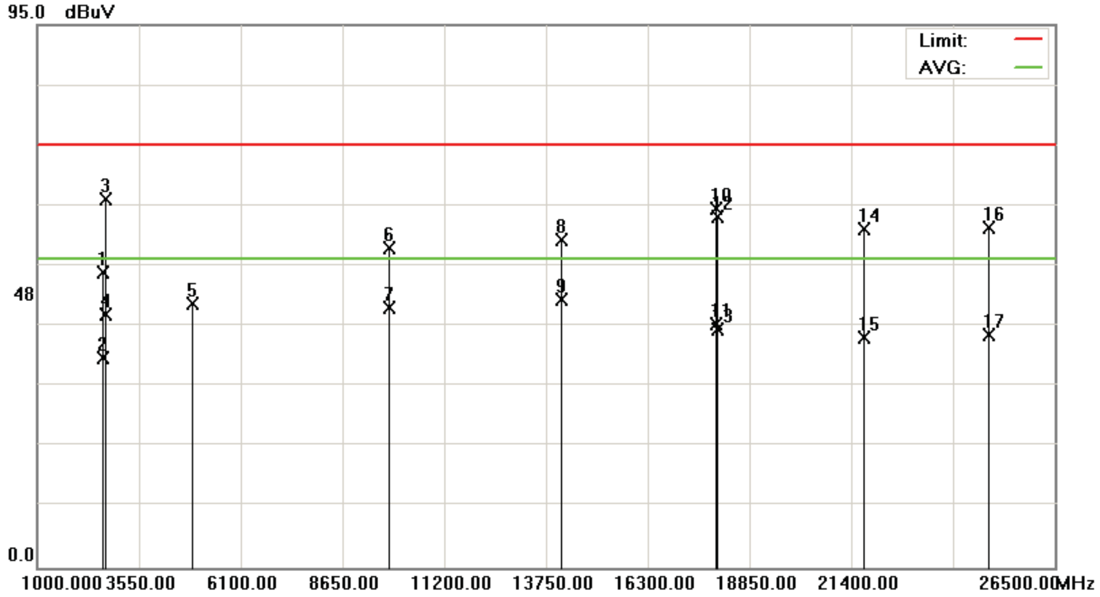


Site: : 966 Chamber Polarization: ***Horizontal*** Temperature: 22 ℃
Limit: FCC part 15 (PK) Power: Humidity: 60 %
EUT: ADSL2+ WLAN Router Distance: 3m RBW: 1000 KHz VBW: 1000 KHz
M/N: Vigor2710ne
Mode: 2
Note: CH01(2412MHz)

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	cm	degree	Comment
1		2625.200	50.98	0.84	51.82	74.00	-22.18	peak			
2		2625.200	39.83	0.84	40.67	54.00	-13.33	AVG			
3		2700.000	40.75	22.58	63.33	74.00	-10.67	peak			
4		2700.000	21.12	22.58	43.70	54.00	-10.30	AVG			
5		4824.000	38.93	7.48	46.41	74.00	-27.59	peak			
6		9324.750	39.12	16.91	56.03	74.00	-17.97	peak			
7		9324.750	27.92	16.91	44.83	54.00	-9.17	AVG			
8		14140.000	38.09	18.84	56.93	74.00	-17.07	peak			
9	*	14140.000	27.21	18.84	46.05	54.00	-7.95	AVG			
10		17980.000	38.03	25.21	63.24	74.00	-10.76	peak			
11		17980.000	17.18	25.21	42.39	54.00	-11.61	AVG			
12		18446.250	38.69	23.13	61.82	74.00	-12.18	peak			
13		18446.250	18.15	23.13	41.28	54.00	-12.72	AVG			
14		21995.000	38.27	21.12	59.39	74.00	-14.61	peak			
15		21995.000	19.09	21.12	40.21	54.00	-13.79	AVG			
16		25820.000	40.52	18.71	59.23	74.00	-14.77	peak			
17		25820.000	21.41	18.71	40.12	54.00	-13.88	AVG			

*:Maximum data x:Over limit !:over margin

File :Vigor2710nE(2437MHZ) Data :#17 Date: 2010/01/18 Time: 下午 06:17:57



Site: : 966 Chamber
Limit: FCC part 15 (PK)
EUT: ADSL2+ WLAN Router
M/N: Vigor2710ne
Mode: 2
Note: CH06(2437MHz)

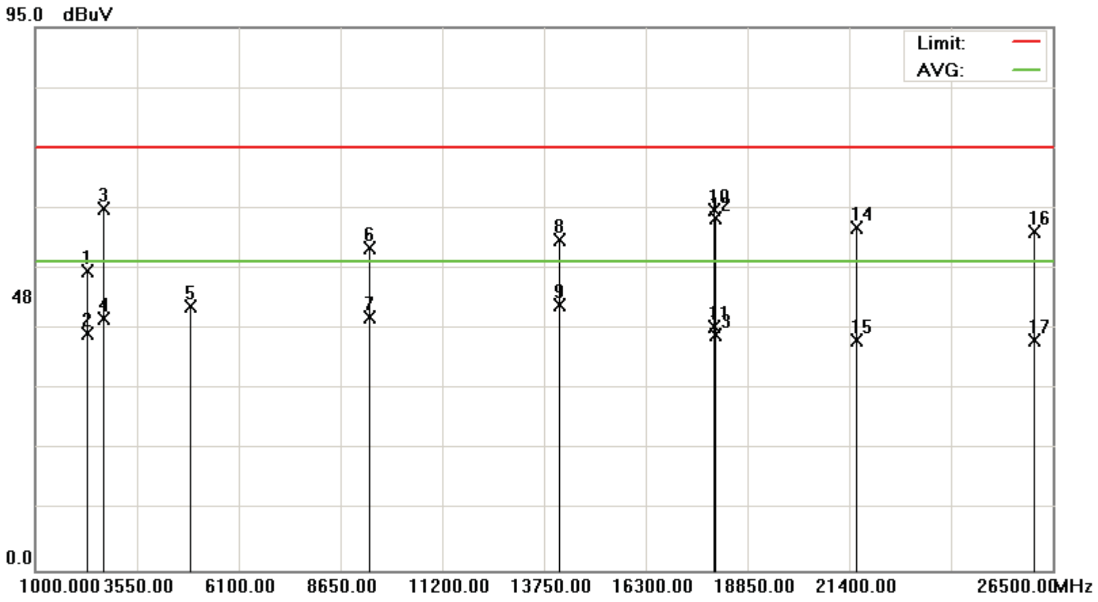
Polarization: *Vertical*
Power:
Distance: 3m

Temperature: 22 ℃
Humidity: 60 %
RBW: 1000 KHz VBW: 1000 KHz

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	cm	degree	Comment
1		2621.800	50.93	0.79	51.72	74.00	-22.28	peak			
2		2621.800	36.01	0.79	36.80	54.00	-17.20	AVG			
3		2700.000	42.01	22.58	64.59	74.00	-9.41	peak			
4		2700.000	21.62	22.58	44.20	54.00	-9.80	AVG			
5		4874.000	38.40	7.72	46.12	74.00	-27.88	peak			
6		9817.500	38.21	17.75	55.96	74.00	-18.04	peak			
7		9817.500	27.77	17.75	45.52	54.00	-8.48	AVG			
8		14120.000	38.53	18.87	57.40	74.00	-16.60	peak			
9	*	14120.000	27.98	18.87	46.85	54.00	-7.15	AVG			
10		18000.000	37.23	25.57	62.80	74.00	-11.20	peak			
11		18000.000	17.01	25.57	42.58	54.00	-11.42	AVG			
12		18042.500	38.22	23.27	61.49	74.00	-12.51	peak			
13		18042.500	18.39	23.27	41.66	54.00	-12.34	AVG			
14		21718.750	38.12	21.23	59.35	74.00	-14.65	peak			
15		21718.750	19.08	21.23	40.31	54.00	-13.69	AVG			
16		24821.250	40.02	19.53	59.55	74.00	-14.45	peak			
17		24821.250	21.19	19.53	40.72	54.00	-13.28	AVG			

*:Maximum data x:Over limit !:over margin

File :Vigor2710nE(2437MHZ)   Data :#18   Date: 2010/01/18   Time: 下午 06:19:34

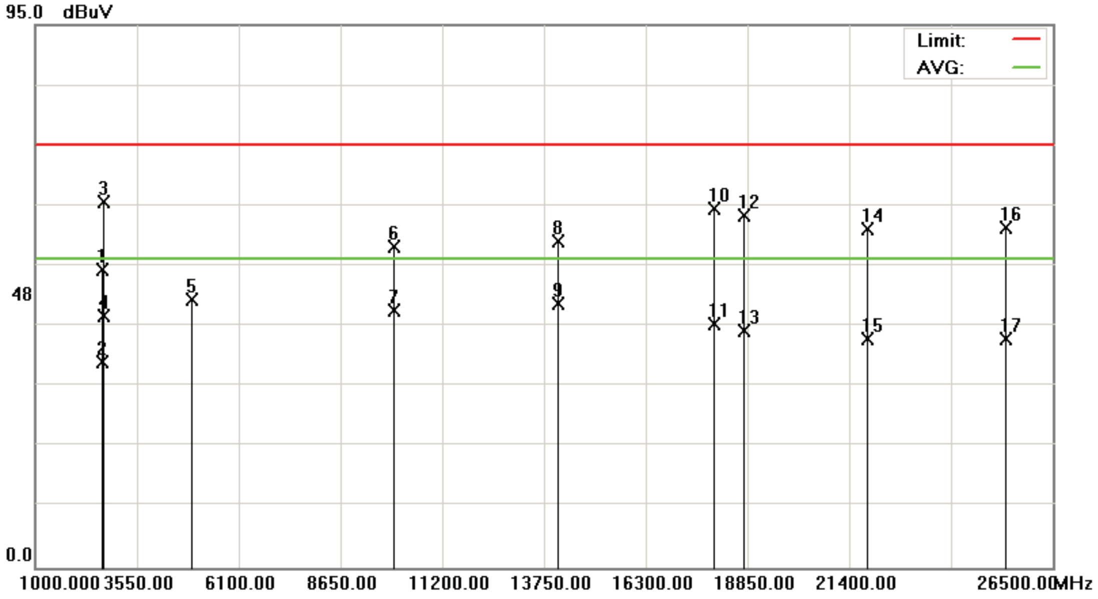


Site: : 966 Chamber   Polarization: ***Horizontal***   Temperature: 22 ℃
Limit: FCC part 15 (PK)   Power: Humidity: 60 %
EUT: ADSL2+ WLAN Router   Distance: 3m   RBW: 1000 KHz VBW: 1000 KHz
M/N: Vigor2710ne
Mode: 2
Note: CH06(2437MHz)

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	cm	degree	Comment
1		2280.100	52.00	0.46	52.46	74.00	-21.54	peak			
2		2280.100	40.97	0.46	41.43	54.00	-12.57	AVG			
3		2700.000	40.78	22.58	63.36	74.00	-10.64	peak			
4		2700.000	21.37	22.58	43.95	54.00	-10.05	AVG			
5		4874.000	38.39	7.72	46.11	74.00	-27.89	peak			
6		9361.250	39.36	16.98	56.34	74.00	-17.66	peak			
7		9361.250	27.34	16.98	44.32	54.00	-9.68	AVG			
8		14120.000	38.85	18.87	57.72	74.00	-16.28	peak			
9	*	14120.000	27.57	18.87	46.44	54.00	-7.56	AVG			
10		18000.000	37.51	25.57	63.08	74.00	-10.92	peak			
11		18000.000	17.14	25.57	42.71	54.00	-11.29	AVG			
12		18021.250	38.42	23.28	61.70	74.00	-12.30	peak			
13		18021.250	17.97	23.28	41.25	54.00	-12.75	AVG			
14		21570.000	38.64	21.31	59.95	74.00	-14.05	peak			
15		21570.000	18.92	21.31	40.23	54.00	-13.77	AVG			
16		26032.500	40.73	18.54	59.27	74.00	-14.73	peak			
17		26032.500	21.61	18.54	40.15	54.00	-13.85	AVG			

*:Maximum data   x:Over limit   !:over margin

File :Vigor2710nE(2462MHZ) Data :#17 Date: 2010/01/18 Time: 下午 09:07:51



Site: : 966 Chamber
Limit: FCC part 15 (PK)
EUT: ADSL2+ WLAN Router
M/N: Vigor2710ne
Mode: 2
Note: CH11(2462MHz)

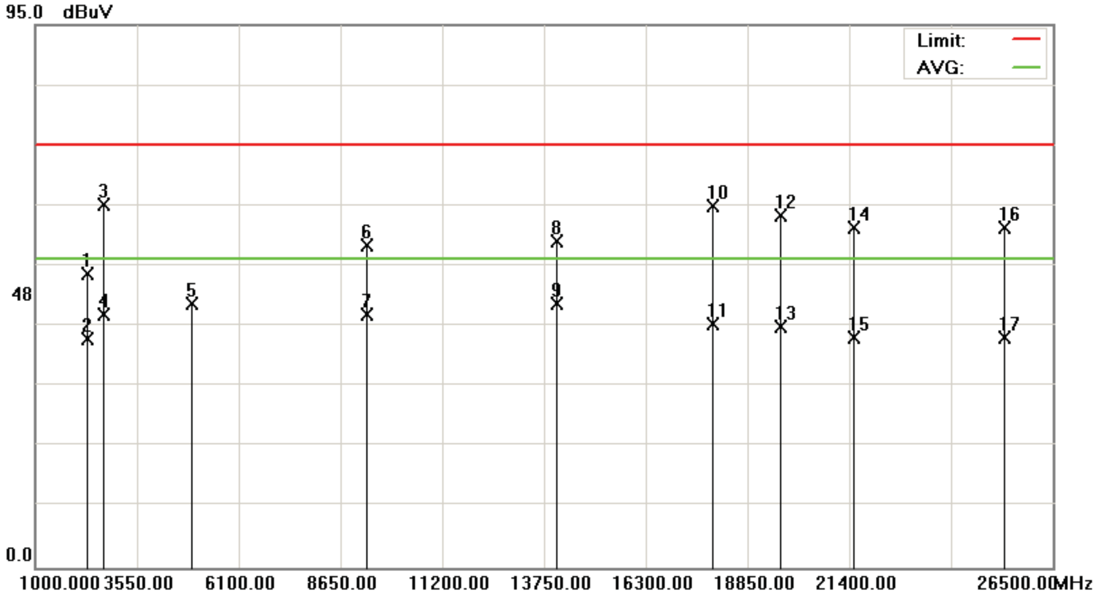
Polarization: *Vertical*
Power:
Distance: 3m

Temperature: 22 ℃
Humidity: 60 %
RBW: 1000 KHz VBW: 1000 KHz

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	cm	degree	Comment
1		2662.600	51.18	0.95	52.13	74.00	-21.87	peak			
2		2662.600	35.01	0.95	35.96	54.00	-18.04	AVG			
3		2700.000	41.37	22.58	63.95	74.00	-10.05	peak			
4		2700.000	21.38	22.58	43.96	54.00	-10.04	AVG			
5		4924.000	39.18	7.65	46.83	74.00	-27.17	peak			
6		10000.000	38.21	17.94	56.15	74.00	-17.85	peak			
7		10000.000	27.18	17.94	45.12	54.00	-8.88	AVG			
8		14100.000	38.19	18.90	57.09	74.00	-16.91	peak			
9	*	14100.000	27.39	18.90	46.29	54.00	-7.71	AVG			
10		18000.000	37.26	25.57	62.83	74.00	-11.17	peak			
11		18000.000	17.02	25.57	42.59	54.00	-11.41	AVG			
12		18743.750	38.46	23.13	61.59	74.00	-12.41	peak			
13		18743.750	18.23	23.13	41.36	54.00	-12.64	AVG			
14		21846.250	38.03	21.20	59.23	74.00	-14.77	peak			
15		21846.250	18.90	21.20	40.10	54.00	-13.90	AVG			
16		25310.000	40.30	19.10	59.40	74.00	-14.60	peak			
17		25310.000	20.86	19.10	39.96	54.00	-14.04	AVG			

*:Maximum data x:Over limit !:over margin

File :Vigor2710nE(2462MHZ) Data :#18 Date: 2010/01/18 Time: 下午 09:09:53



Site: : 966 Chamber
Limit: FCC part 15 (PK)
EUT: ADSL2+ WLAN Router
M/N: Vigor2710ne
Mode: 2
Note: CH11(2462MHz)

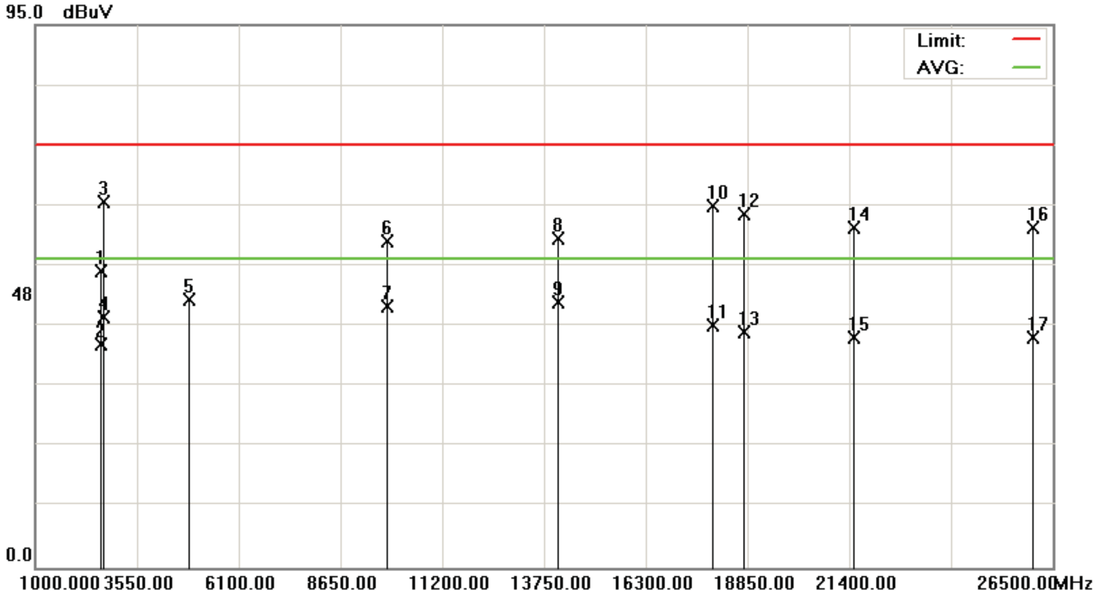
Polarization: *Horizontal*
Power:
Distance: 3m

Temperature: 22 ℃
Humidity: 60 %
RBW: 1000 KHz VBW: 1000 KHz

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	cm	degree	Comment
1		2298.800	50.84	0.53	51.37	74.00	-22.63	peak			
2		2298.800	39.44	0.53	39.97	54.00	-14.03	AVG			
3		2700.000	40.90	22.58	63.48	74.00	-10.52	peak			
4		2700.000	21.68	22.58	44.26	54.00	-9.74	AVG			
5		4924.000	38.46	7.65	46.11	74.00	-27.89	peak			
6		9306.500	39.40	16.89	56.29	74.00	-17.71	peak			
7		9306.500	27.31	16.89	44.20	54.00	-9.80	AVG			
8		14040.000	38.46	18.66	57.12	74.00	-16.88	peak			
9	*	14040.000	27.64	18.66	46.30	54.00	-7.70	AVG			
10		17980.000	38.03	25.21	63.24	74.00	-10.76	peak			
11		17980.000	17.38	25.21	42.59	54.00	-11.41	AVG			
12		19657.500	39.12	22.55	61.67	74.00	-12.33	peak			
13		19657.500	19.56	22.55	42.11	54.00	-11.89	AVG			
14		21527.500	38.22	21.35	59.57	74.00	-14.43	peak			
15		21527.500	18.90	21.35	40.25	54.00	-13.75	AVG			
16		25288.750	40.36	19.11	59.47	74.00	-14.53	peak			
17		25288.750	21.20	19.11	40.31	54.00	-13.69	AVG			

*:Maximum data x:Over limit !:over margin

File :Vigor2710nE(2412MHZ) Data :#17 Date: 2010/01/18 Time: 下午 11:02:04

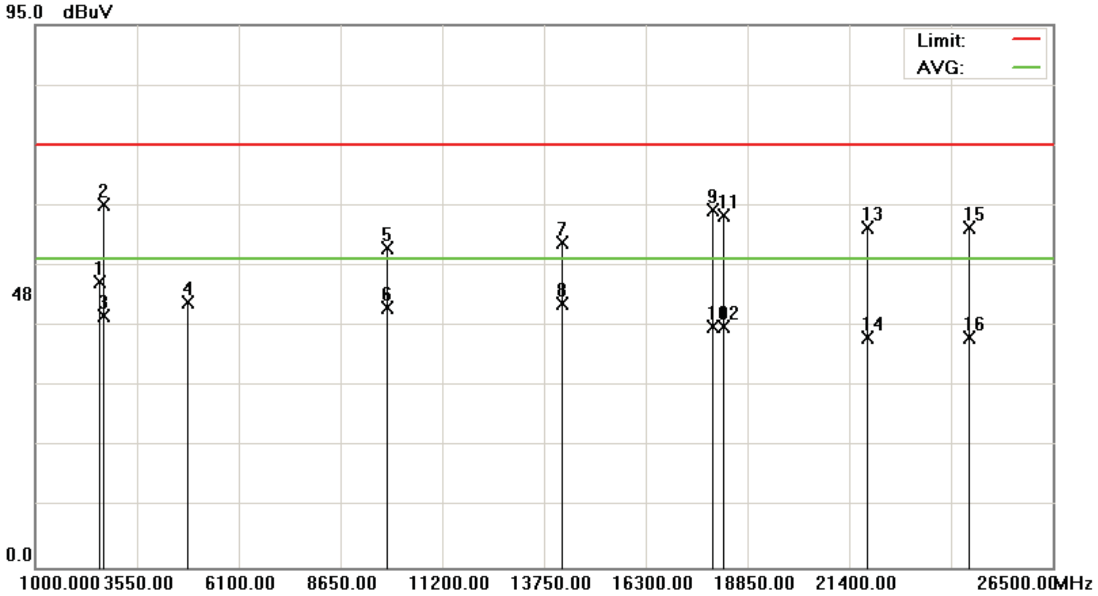


Site: : 966 Chamber
Polarization: *Vertical*
Temperature: 22 ℃
Limit: FCC part 15 (PK)
Power:
Humidity: 60 %
EUT: ADSL2+ WLAN Router
Distance: 3m
RBW: 1000 KHz VBW: 1000 KHz
M/N: Vigor2710ne
Mode: 3
Note: CH01(2412MHz)

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	cm	degree	Comment
1		2635.400	50.85	0.95	51.80	74.00	-22.20	peak			
2		2635.400	38.15	0.95	39.10	54.00	-14.90	AVG			
3		2700.000	41.52	22.58	64.10	74.00	-9.90	peak			
4		2700.000	21.25	22.58	43.83	54.00	-10.17	AVG			
5		4842.000	39.23	7.67	46.90	74.00	-27.10	peak			
6		9817.500	39.38	17.75	57.13	74.00	-16.87	peak			
7		9817.500	27.89	17.75	45.64	54.00	-8.36	AVG			
8		14100.000	38.73	18.90	57.63	74.00	-16.37	peak			
9	*	14100.000	27.59	18.90	46.49	54.00	-7.51	AVG			
10		17980.000	37.99	25.21	63.20	74.00	-10.80	peak			
11		17980.000	17.08	25.21	42.29	54.00	-11.71	AVG			
12		18765.000	38.69	23.13	61.82	74.00	-12.18	peak			
13		18765.000	18.12	23.13	41.25	54.00	-12.75	AVG			
14		21527.500	38.25	21.35	59.60	74.00	-14.40	peak			
15		21527.500	18.96	21.35	40.31	54.00	-13.69	AVG			
16		25990.000	40.88	18.56	59.44	74.00	-14.56	peak			
17		25990.000	21.66	18.56	40.22	54.00	-13.78	AVG			

*:Maximum data x:Over limit !:over margin

File :Vigor2710nE(2412MHZ) Data :#18 Date: 2010/01/18 Time: 下午 11:03:42



Site: : 966 Chamber
Limit: FCC part 15 (PK)
EUT: ADSL2+ WLAN Router
M/N: Vigor2710ne
Mode: 3
Note: CH01(2412MHz)

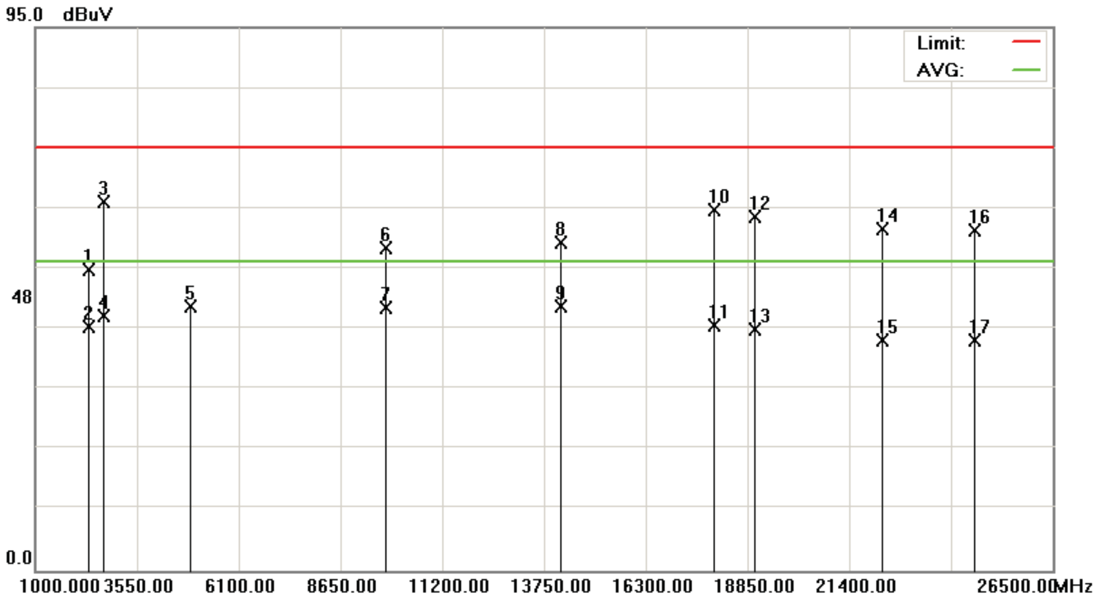
Polarization: *Horizontal*
Power:
Distance: 3m

Temperature: 22 ℃
Humidity: 60 %
RBW: 1000 KHz VBW: 1000 KHz

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	cm	degree	Comment
1		2594.600	49.59	0.52	50.11	74.00	-23.89	peak			
2		2700.000	40.85	22.58	63.43	74.00	-10.57	peak			
3		2700.000	21.48	22.58	44.06	54.00	-9.94	AVG			
4		4824.000	39.03	7.48	46.51	74.00	-27.49	peak			
5		9799.250	38.34	17.67	56.01	74.00	-17.99	peak			
6		9799.250	27.92	17.67	45.59	54.00	-8.41	AVG			
7		14200.000	38.12	18.86	56.98	74.00	-17.02	peak			
8	*	14200.000	27.34	18.86	46.20	54.00	-7.80	AVG			
9		17980.000	37.44	25.21	62.65	74.00	-11.35	peak			
10		17980.000	17.01	25.21	42.22	54.00	-11.78	AVG			
11		18255.000	38.44	23.20	61.64	74.00	-12.36	peak			
12		18255.000	18.95	23.20	42.15	54.00	-11.85	AVG			
13		21846.250	38.35	21.20	59.55	74.00	-14.45	peak			
14		21846.250	18.95	21.20	40.15	54.00	-13.85	AVG			
15		24396.250	39.85	19.72	59.57	74.00	-14.43	peak			
16		24396.250	20.58	19.72	40.30	54.00	-13.70	AVG			

*:Maximum data x:Over limit !:over margin

File :Vigor2710nE(2437MHZ) Data :#17 Date: 2010/01/18 Time: 下午 11:06:09



Site: : 966 Chamber
Limit: FCC part 15 (PK)
EUT: ADSL2+ WLAN Router
M/N: Vigor2710ne
Mode: 3
Note: CH06(2437MHz)

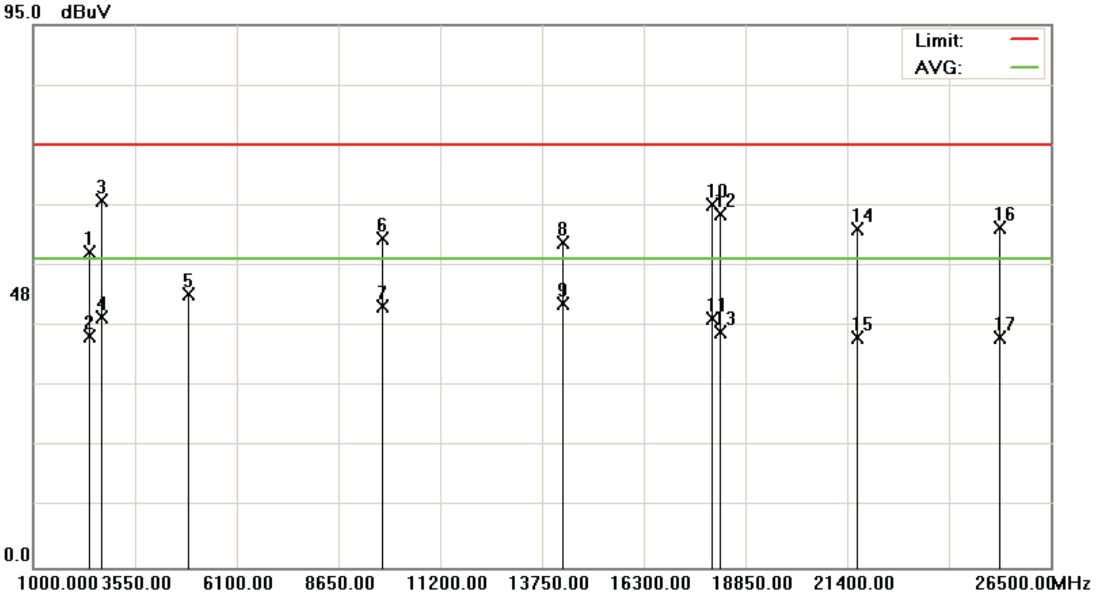
Polarization: ***Vertical***
Power:
Distance: 3m

Temperature: 22 ℃
Humidity: 60 %
RBW: 1000 KHz VBW: 1000 KHz

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure-ment dBuV	Limit dBuV	Over dB	Detector	Antenna Height cm	Table Degree degree	Comment
1		2320.900	52.28	0.26	52.54	74.00	-21.46	peak			
2		2320.900	42.37	0.26	42.63	54.00	-11.37	AVG			
3		2700.000	42.00	22.58	64.58	74.00	-9.42	peak			
4		2700.000	21.98	22.58	44.56	54.00	-9.44	AVG			
5		4874.000	38.59	7.72	46.31	74.00	-27.69	peak			
6		9762.750	38.65	17.70	56.35	74.00	-17.65	peak			
7		9762.750	28.37	17.70	46.07	54.00	-7.93	AVG			
8		14160.000	38.51	18.83	57.34	74.00	-16.66	peak			
9	*	14160.000	27.35	18.83	46.18	54.00	-7.82	AVG			
10		18000.000	37.51	25.57	63.08	74.00	-10.92	peak			
11		18000.000	17.35	25.57	42.92	54.00	-11.08	AVG			
12		19020.000	38.76	23.07	61.83	74.00	-12.17	peak			
13		19020.000	19.08	23.07	42.15	54.00	-11.85	AVG			
14		22207.500	38.76	21.02	59.78	74.00	-14.22	peak			
15		22207.500	19.28	21.02	40.30	54.00	-13.70	AVG			
16		24523.750	39.95	19.65	59.60	74.00	-14.40	peak			
17		24523.750	20.50	19.65	40.15	54.00	-13.85	AVG			

*:Maximum data x:Over limit !:over margin

File :Vigor2710nE(2437MHZ) Data :#18 Date: 2010/01/18 Time: 下午 11:07:46

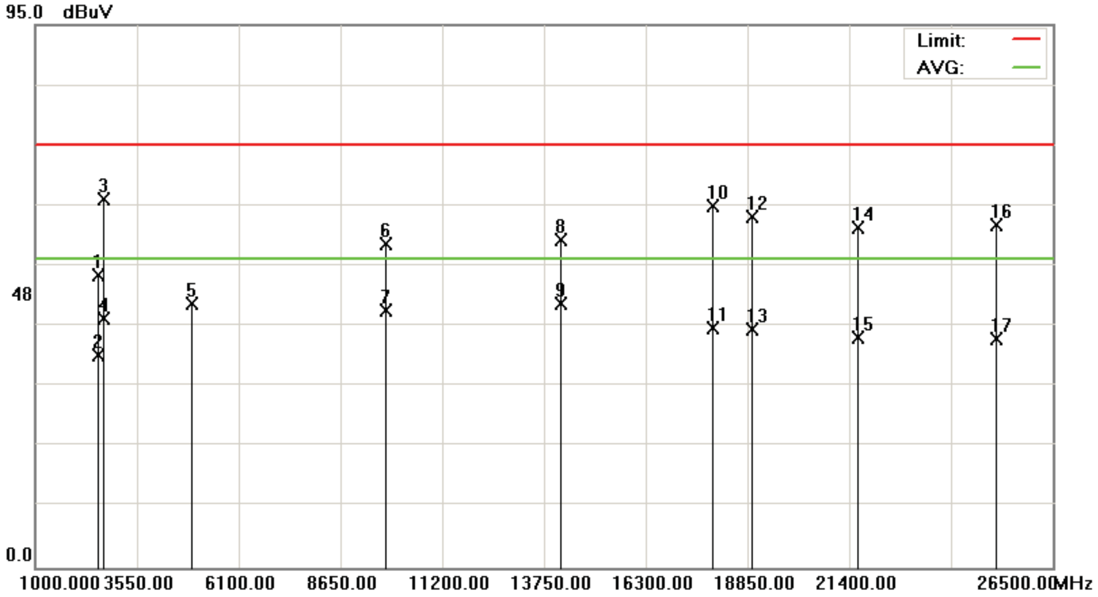


Site: : 966 Chamber Polarization: *Horizontal* Temperature: 22 ℃
Limit: FCC part 15 (PK) Power: Humidity: 60 %
EUT: ADSL2+ WLAN Router Distance: 3m RBW: 1000 KHz VBW: 1000 KHz
M/N: Vigor2710ne
Mode: 4
Note: CH06(2437MHz)

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	cm	degree	Comment
1		2385.500	55.04	0.15	55.19	74.00	-18.81	peak			
2		2385.500	40.38	0.15	40.53	54.00	-13.47	AVG			
3		2700.000	41.68	22.58	64.26	74.00	-9.74	peak			
4		2700.000	21.24	22.58	43.82	54.00	-10.18	AVG			
5		4874.000	40.11	7.72	47.83	74.00	-26.17	peak			
6		9744.500	39.86	17.69	57.55	74.00	-16.45	peak			
7		9744.500	27.98	17.69	45.67	54.00	-8.33	AVG			
8		14240.000	38.16	18.71	56.87	74.00	-17.13	peak			
9	*	14240.000	27.41	18.71	46.12	54.00	-7.88	AVG			
10		18000.000	37.96	25.57	63.53	74.00	-10.47	peak			
11		18000.000	17.95	25.57	43.52	54.00	-10.48	AVG			
12		18191.250	38.65	23.22	61.87	74.00	-12.13	peak			
13		18191.250	18.03	23.22	41.25	54.00	-12.75	AVG			
14		21655.000	37.87	21.27	59.14	74.00	-14.86	peak			
15		21655.000	19.10	21.27	40.37	54.00	-13.63	AVG			
16		25203.750	40.36	19.18	59.54	74.00	-14.46	peak			
17		25203.750	21.03	19.18	40.21	54.00	-13.79	AVG			

*:Maximum data x:Over limit !:over margin

File :Vigor2710nE(2462MHZ) Data :#17 Date: 2010/01/18 Time: 下午 11:09:50



Site: : 966 Chamber
Limit: FCC part 15 (PK)
EUT: ADSL2+ WLAN Router
M/N: Vigor2710ne
Mode: 4
Note: CH11(2462MHz)

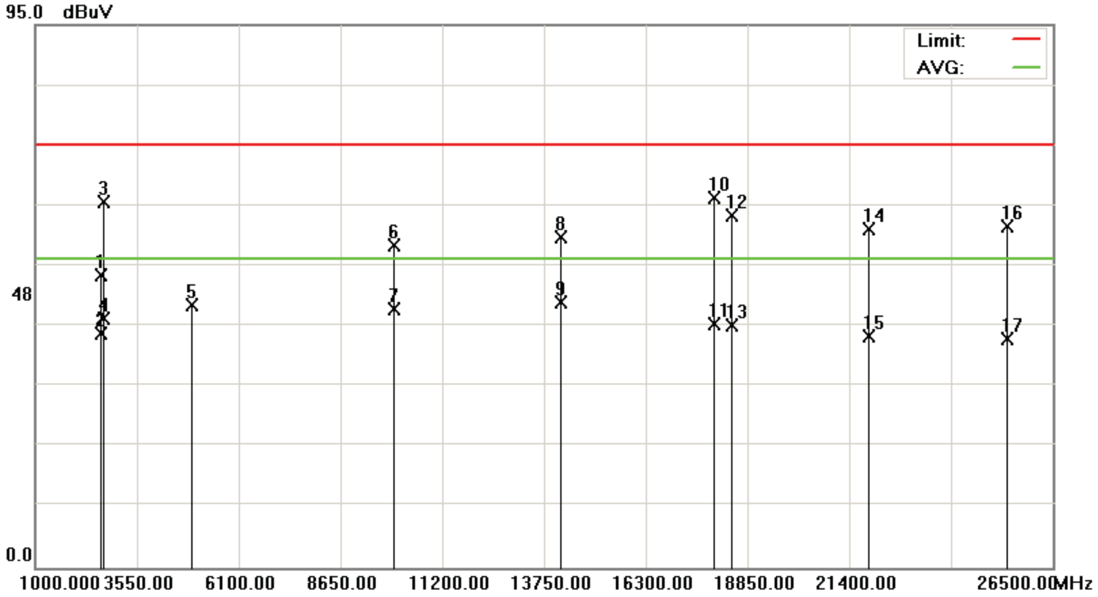
Polarization: ***Vertical***
Power:
Distance: 3m

Temperature: 22 ℃
Humidity: 60 %
RBW: 1000 KHz VBW: 1000 KHz

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	cm	degree	Comment
1		2560.600	50.62	0.45	51.07	74.00	-22.93	peak			
2		2560.600	36.73	0.45	37.18	54.00	-16.82	AVG			
3		2700.000	41.93	22.58	64.51	74.00	-9.49	peak			
4		2700.000	21.10	22.58	43.68	54.00	-10.32	AVG			
5		4924.000	38.48	7.65	46.13	74.00	-27.87	peak			
6		9781.000	38.88	17.69	56.57	74.00	-17.43	peak			
7		9781.000	27.34	17.69	45.03	54.00	-8.97	AVG			
8		14180.000	38.45	18.85	57.30	74.00	-16.70	peak			
9	*	14180.000	27.38	18.85	46.23	54.00	-7.77	AVG			
10		17960.000	38.36	24.84	63.20	74.00	-10.80	peak			
11		17960.000	17.12	24.84	41.96	54.00	-12.04	AVG			
12		18956.250	38.26	23.11	61.37	74.00	-12.63	peak			
13		18956.250	18.50	23.11	41.61	54.00	-12.39	AVG			
14		21612.500	38.22	21.28	59.50	74.00	-14.50	peak			
15		21612.500	19.05	21.28	40.33	54.00	-13.67	AVG			
16		25076.250	40.63	19.31	59.94	74.00	-14.06	peak			
17		25076.250	20.75	19.31	40.06	54.00	-13.94	AVG			

*:Maximum data x:Over limit !:over margin

File :Vigor2710nE(2462MHZ) Data :#18 Date: 2010/01/18 Time: 下午 11:11:27



Site: : 966 Chamber
Limit: FCC part 15 (PK)
EUT: ADSL2+ WLAN Router
M/N: Vigor2710ne
Mode: 3
Note: CH11(2462MHz)

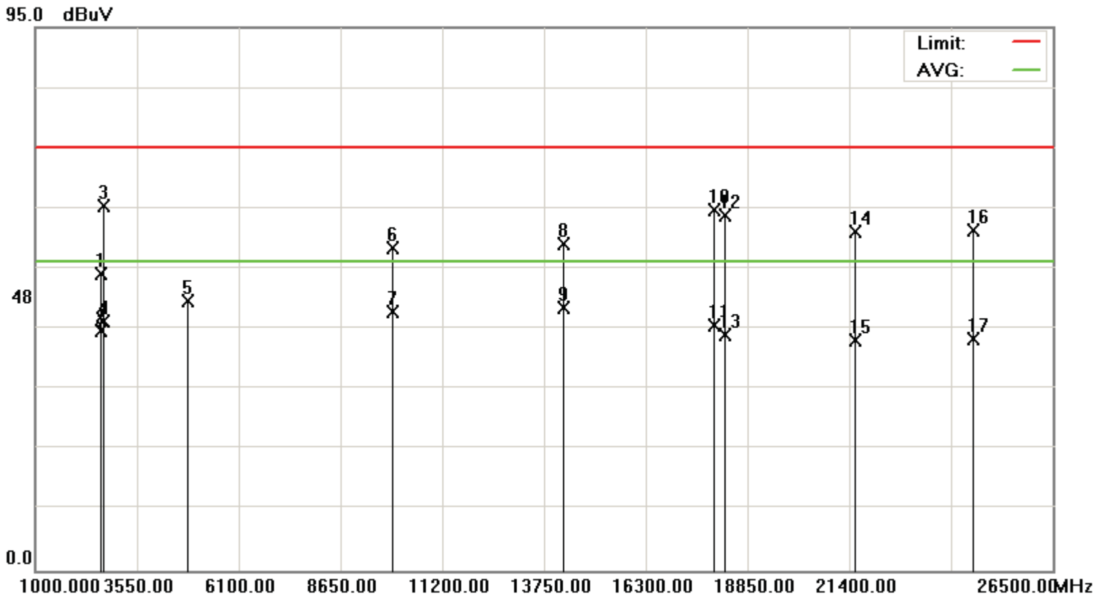
Polarization: *Horizontal*
Power:
Distance: 3m

Temperature: 22 ℃
Humidity: 60 %
RBW: 1000 KHz VBW: 1000 KHz

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	cm	degree	Comment
1		2616.700	50.39	0.74	51.13	74.00	-22.87	peak			
2		2616.700	40.25	0.74	40.99	54.00	-13.01	AVG			
3		2700.000	41.36	22.58	63.94	74.00	-10.06	peak			
4		2700.000	21.06	22.58	43.64	54.00	-10.36	AVG			
5		4924.000	38.27	7.65	45.92	74.00	-28.08	peak			
6		9981.750	38.56	17.88	56.44	74.00	-17.56	peak			
7		9981.750	27.48	17.88	45.36	54.00	-8.64	AVG			
8		14140.000	38.89	18.84	57.73	74.00	-16.27	peak			
9	*	14140.000	27.54	18.84	46.38	54.00	-7.62	AVG			
10		18000.000	39.11	25.57	64.68	74.00	-9.32	peak			
11		18000.000	17.15	25.57	42.72	54.00	-11.28	AVG			
12		18467.500	38.50	23.12	61.62	74.00	-12.38	peak			
13		18467.500	19.19	23.12	42.31	54.00	-11.69	AVG			
14		21867.500	37.97	21.19	59.16	74.00	-14.84	peak			
15		21867.500	19.32	21.19	40.51	54.00	-13.49	AVG			
16		25352.500	40.63	19.07	59.70	74.00	-14.30	peak			
17		25352.500	20.96	19.07	40.03	54.00	-13.97	AVG			

*:Maximum data x:Over limit !:over margin

File :Vigor2710nE(2412MHZ) Data :#17 Date: 2010/01/18 Time: 下午 10:47:27



Site: : 966 Chamber
Limit: FCC part 15 (PK)
EUT: ADSL2+ WLAN Router
M/N: Vigor2710ne
Mode: 4
Note: CH01(2412MHz)

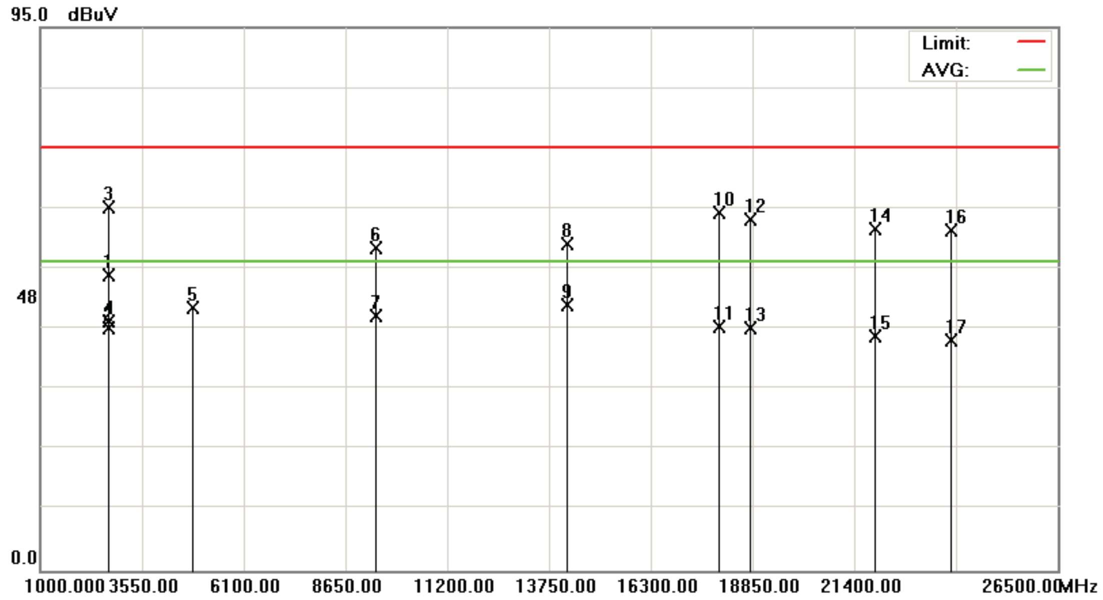
Polarization: *Vertical*
Power:
Distance: 3m

Temperature: 22 ℃
Humidity: 60 %
RBW: 1000 KHz VBW: 1000 KHz

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	cm	degree	Comment
1		2626.900	51.11	0.87	51.98	74.00	-22.02	peak			
2		2626.900	41.14	0.87	42.01	54.00	-11.99	AVG			
3		2700.000	41.11	22.58	63.69	74.00	-10.31	peak			
4		2700.000	21.06	22.58	43.64	54.00	-10.36	AVG			
5		4824.000	39.68	7.48	47.16	74.00	-26.84	peak			
6		9945.250	38.55	17.78	56.33	74.00	-17.67	peak			
7		9945.250	27.46	17.78	45.24	54.00	-8.76	AVG			
8		14220.000	38.23	18.78	57.01	74.00	-16.99	peak			
9	*	14220.000	27.25	18.78	46.03	54.00	-7.97	AVG			
10		18000.000	37.45	25.57	63.02	74.00	-10.98	peak			
11		18000.000	17.26	25.57	42.83	54.00	-11.17	AVG			
12		18276.250	38.78	23.21	61.99	74.00	-12.01	peak			
13		18276.250	18.00	23.21	41.21	54.00	-12.79	AVG			
14		21548.750	37.92	21.33	59.25	74.00	-14.75	peak			
15		21548.750	18.82	21.33	40.15	54.00	-13.85	AVG			
16		24502.500	39.76	19.66	59.42	74.00	-14.58	peak			
17		24502.500	20.72	19.66	40.38	54.00	-13.62	AVG			

*:Maximum data x:Over limit !:over margin

File :Vigor2710nE(2412MHZ) Data :#18 Date: 2010/01/18 Time: 下午 10:49:03



Site: : 966 Chamber
Limit: FCC part 15 (PK)
EUT: ADSL2+ WLAN Router
M/N: Vigor2710ne
Mode: 4
Note: CH01(2412MHz)

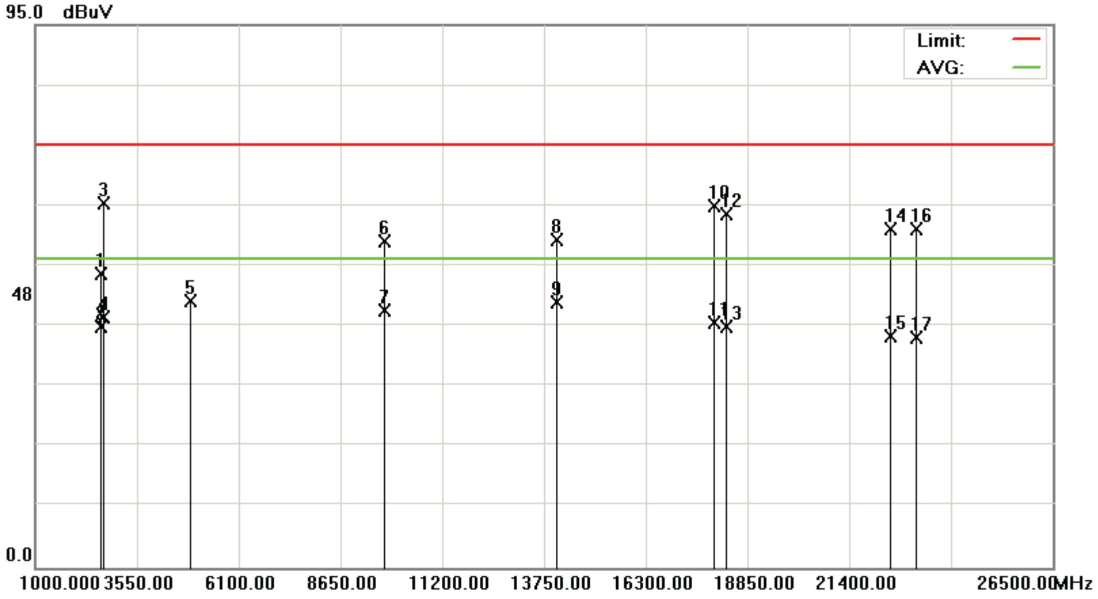
Polarization: *Horizontal*
Power:
Distance: 3m

Temperature: 22 ℃
Humidity: 60 %
RBW: 1000 KHz VBW: 1000 KHz

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	cm	degree	Comment
1		2686.400	50.70	1.02	51.72	74.00	-22.28	peak			
2		2686.400	41.38	1.02	42.40	54.00	-11.60	AVG			
3		2700.000	40.91	22.58	63.49	74.00	-10.51	peak			
4		2700.000	21.05	22.58	43.63	54.00	-10.37	AVG			
5		4824.000	38.45	7.48	45.93	74.00	-28.07	peak			
6		9397.750	39.43	17.07	56.50	74.00	-17.50	peak			
7		9397.750	27.38	17.07	44.45	54.00	-9.55	AVG			
8		14200.000	38.34	18.86	57.20	74.00	-16.80	peak			
9	*	14200.000	27.68	18.86	46.54	54.00	-7.46	AVG			
10		18000.000	37.10	25.57	62.67	74.00	-11.33	peak			
11		18000.000	17.08	25.57	42.65	54.00	-11.35	AVG			
12		18786.250	38.14	23.14	61.28	74.00	-12.72	peak			
13		18786.250	19.17	23.14	42.31	54.00	-11.69	AVG			
14		21910.000	38.55	21.16	59.71	74.00	-14.29	peak			
15		21910.000	19.89	21.16	41.05	54.00	-12.95	AVG			
16		23801.250	39.36	20.25	59.61	74.00	-14.39	peak			
17		23801.250	20.06	20.25	40.31	54.00	-13.69	AVG			

*:Maximum data x:Over limit !:over margin

File :Vigor2710nE(2437MHZ) Data :#17 Date: 2010/01/18 Time: 下午 10:53:57

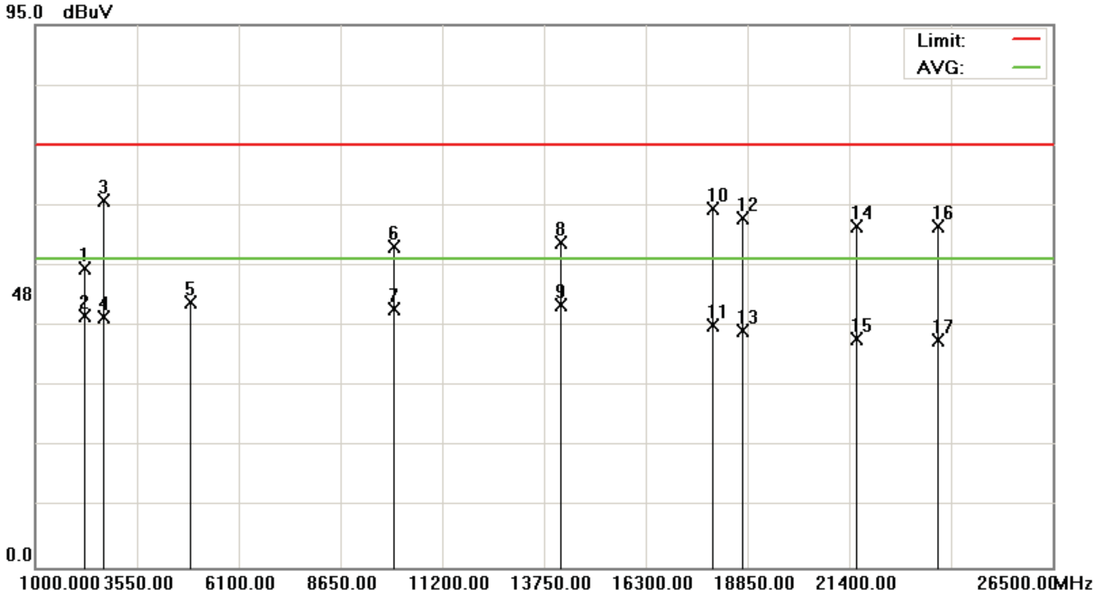


Site: : 966 Chamber
Polarization: *Vertical*
Temperature: 22 ℃
Limit: FCC part 15 (PK)
Power:
Humidity: 60 %
EUT: ADSL2+ WLAN Router
Distance: 3m
RBW: 1000 KHz VBW: 1000 KHz
M/N: Vigor2710ne
Mode: 4
Note: CH06(2437MHz)

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	cm	degree	Comment
1		2642.200	50.55	0.97	51.52	74.00	-22.48	peak			
2		2642.200	41.21	0.97	42.18	54.00	-11.82	AVG			
3		2700.000	41.11	22.58	63.69	74.00	-10.31	peak			
4		2700.000	21.31	22.58	43.89	54.00	-10.11	AVG			
5		4874.000	38.91	7.72	46.63	74.00	-27.37	peak			
6		9726.250	39.45	17.60	57.05	74.00	-16.95	peak			
7		9726.250	27.32	17.60	44.92	54.00	-9.08	AVG			
8		14060.000	38.63	18.72	57.35	74.00	-16.65	peak			
9	*	14060.000	27.66	18.72	46.38	54.00	-7.62	AVG			
10		18000.000	37.68	25.57	63.25	74.00	-10.75	peak			
11		18000.000	17.32	25.57	42.89	54.00	-11.11	AVG			
12		18297.500	38.68	23.20	61.88	74.00	-12.12	peak			
13		18297.500	19.01	23.20	42.21	54.00	-11.79	AVG			
14		22398.750	38.26	20.93	59.19	74.00	-14.81	peak			
15		22398.750	19.45	20.93	40.38	54.00	-13.62	AVG			
16		23078.750	38.45	20.84	59.29	74.00	-14.71	peak			
17		23078.750	19.34	20.84	40.18	54.00	-13.82	AVG			

*:Maximum data x:Over limit !:over margin

File :Vigor2710nE(2437MHZ) Data :#18 Date: 2010/01/18 Time: 下午 10:55:34



Site: : 966 Chamber
Limit: FCC part 15 (PK)
EUT: ADSL2+ WLAN Router
M/N: Vigor2710ne
Mode: 4
Note: CH06(2437MHz)

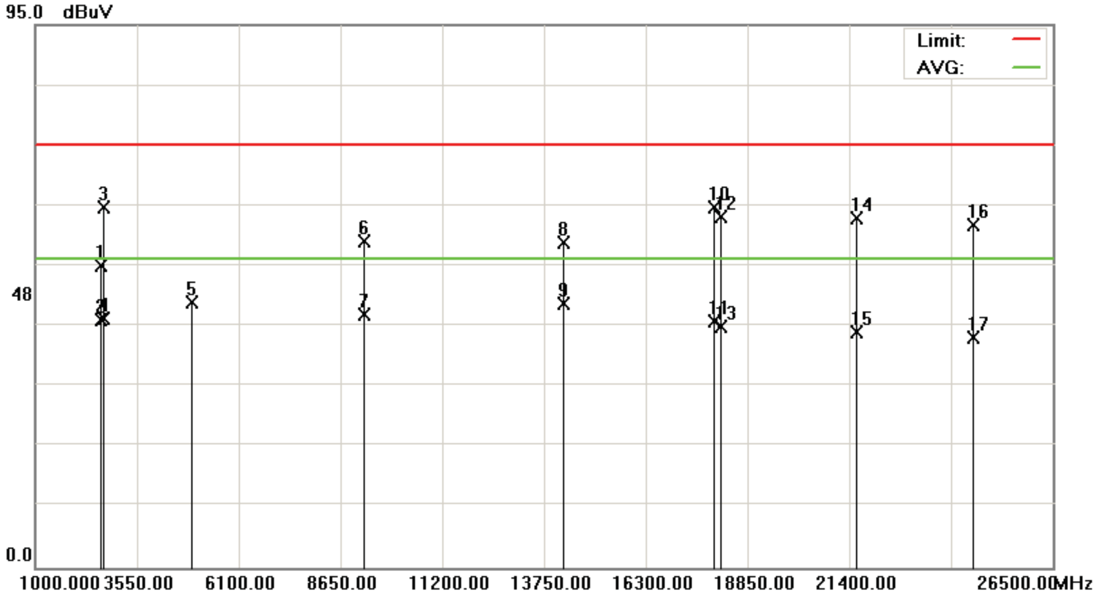
Polarization: ***Horizontal***
Power:
Distance: 3m

Temperature: 22 ℃
Humidity: 60 %
RBW: 1000 KHz VBW: 1000 KHz

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	cm	degree	Comment
1		2241.000	51.92	0.44	52.36	74.00	-21.64	peak			
2		2241.000	43.64	0.44	44.08	54.00	-9.92	AVG			
3		2700.000	41.64	22.58	64.22	74.00	-9.78	peak			
4		2700.000	21.15	22.58	43.73	54.00	-10.27	AVG			
5		4874.000	38.64	7.72	46.36	74.00	-27.64	peak			
6		10000.000	38.30	17.94	56.24	74.00	-17.76	peak			
7		10000.000	27.39	17.94	45.33	54.00	-8.67	AVG			
8		14180.000	38.05	18.85	56.90	74.00	-17.10	peak			
9	*	14180.000	27.18	18.85	46.03	54.00	-7.97	AVG			
10		17980.000	37.71	25.21	62.92	74.00	-11.08	peak			
11		17980.000	17.25	25.21	42.46	54.00	-11.54	AVG			
12		18701.250	38.15	23.11	61.26	74.00	-12.74	peak			
13		18701.250	18.39	23.11	41.50	54.00	-12.50	AVG			
14		21570.000	38.52	21.31	59.83	74.00	-14.17	peak			
15		21570.000	18.81	21.31	40.12	54.00	-13.88	AVG			
16		23610.000	39.20	20.44	59.64	74.00	-14.36	peak			
17		23610.000	19.45	20.44	39.89	54.00	-14.11	AVG			

*:Maximum data x:Over limit !:over margin

File :Vigor2710nE(2462MHZ) Data :#17 Date: 2010/01/18 Time: 下午 10:57:55



Site: : 966 Chamber
Limit: FCC part 15 (PK)
EUT: ADSL2+ WLAN Router
M/N: Vigor2710ne
Mode: 4
Note: CH11(2462MHz)

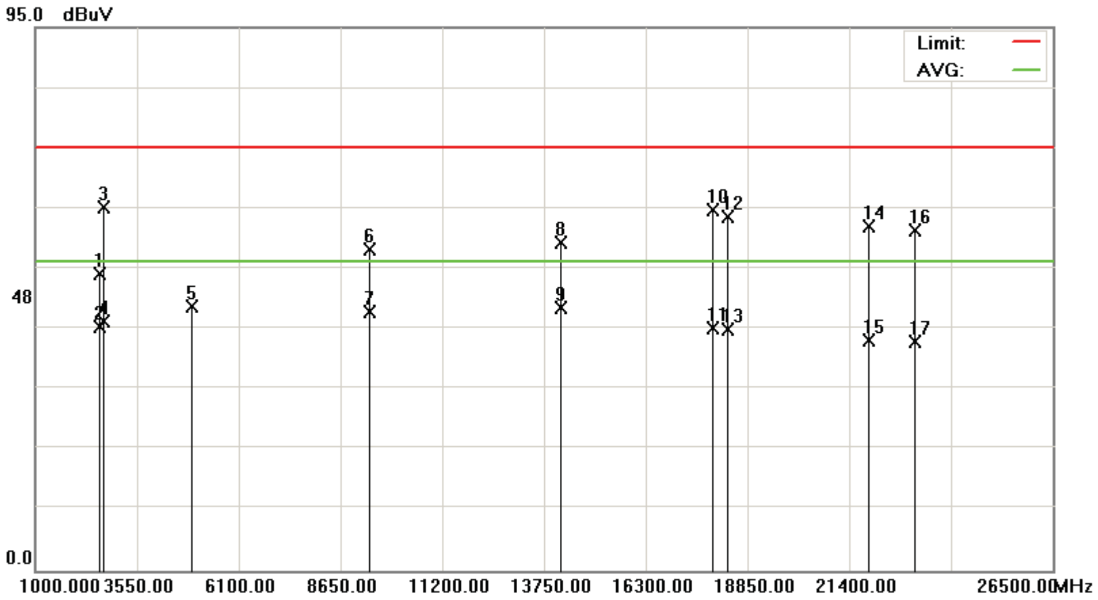
Polarization: ***Vertical***
Power:
Distance: 3m

Temperature: 22 ℃
Humidity: 60 %
RBW: 1000 KHz VBW: 1000 KHz

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	cm	degree	Comment
1		2642.200	51.85	0.97	52.82	74.00	-21.18	peak			
2		2642.200	42.48	0.97	43.45	54.00	-10.55	AVG			
3		2700.000	40.59	22.58	63.17	74.00	-10.83	peak			
4		2700.000	21.10	22.58	43.68	54.00	-10.32	AVG			
5		4924.000	38.72	7.65	46.37	74.00	-27.63	peak			
6		9233.500	40.80	16.38	57.18	74.00	-16.82	peak			
7		9233.500	27.89	16.38	44.27	54.00	-9.73	AVG			
8		14220.000	38.14	18.78	56.92	74.00	-17.08	peak			
9	*	14220.000	27.35	18.78	46.13	54.00	-7.87	AVG			
10		18000.000	37.55	25.57	63.12	74.00	-10.88	peak			
11		18000.000	17.45	25.57	43.02	54.00	-10.98	AVG			
12		18170.000	38.19	23.23	61.42	74.00	-12.58	peak			
13		18170.000	18.88	23.23	42.11	54.00	-11.89	AVG			
14		21570.000	39.88	21.31	61.19	74.00	-12.81	peak			
15		21570.000	19.81	21.31	41.12	54.00	-12.88	AVG			
16		24502.500	40.31	19.66	59.97	74.00	-14.03	peak			
17		24502.500	20.69	19.66	40.35	54.00	-13.65	AVG			

*:Maximum data x:Over limit !:over margin

File :Vigor2710nE(2462MHZ) Data :#18 Date: 2010/01/18 Time: 下午 10:59:34

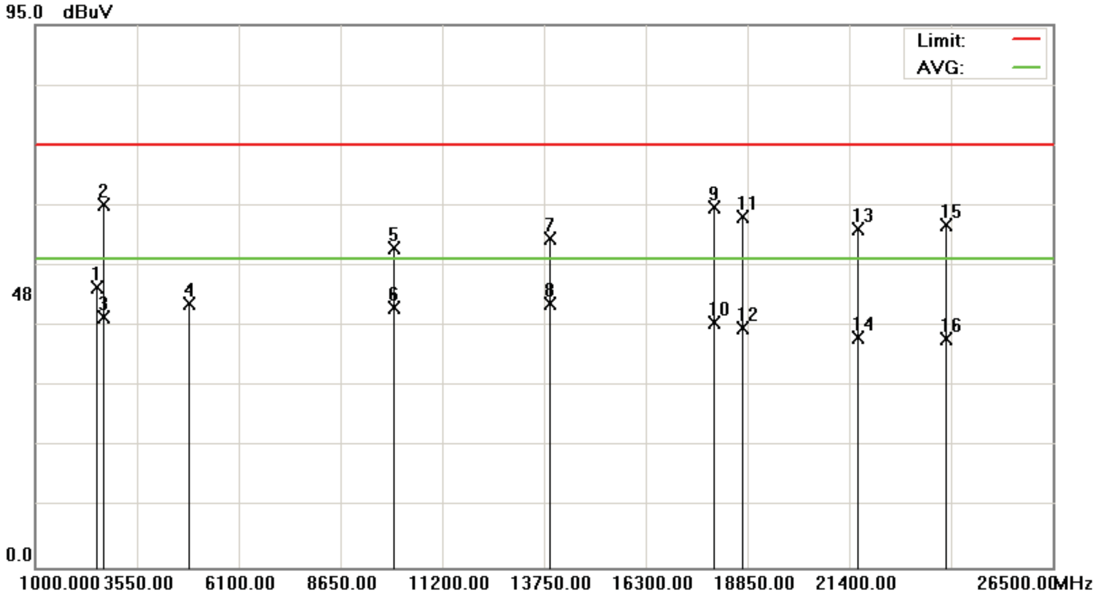


Site: : 966 Chamber
Polarization: ***Horizontal***
Temperature: 22 ℃
Limit: FCC part 15 (PK)
Power:
Humidity: 60 %
EUT: ADSL2+ WLAN Router
Distance: 3m
RBW: 1000 KHz VBW: 1000 KHz
M/N: Vigor2710ne
Mode: 4
Note: CH11(2462MHz)

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	cm	degree	Comment
1		2599.700	51.42	0.58	52.00	74.00	-22.00	peak			
2		2599.700	42.15	0.58	42.73	54.00	-11.27	AVG			
3		2700.000	40.88	22.58	63.46	74.00	-10.54	peak			
4		2700.000	21.12	22.58	43.70	54.00	-10.30	AVG			
5		4924.000	38.48	7.65	46.13	74.00	-27.87	peak			
6		9343.000	39.23	16.93	56.16	74.00	-17.84	peak			
7		9343.000	28.20	16.93	45.13	54.00	-8.87	AVG			
8		14160.000	38.54	18.83	57.37	74.00	-16.63	peak			
9	*	14160.000	27.11	18.83	45.94	54.00	-8.06	AVG			
10		17980.000	37.88	25.21	63.09	74.00	-10.91	peak			
11		17980.000	17.15	25.21	42.36	54.00	-11.64	AVG			
12		18318.750	38.59	23.19	61.78	74.00	-12.22	peak			
13		18318.750	18.93	23.19	42.12	54.00	-11.88	AVG			
14		21867.500	39.01	21.19	60.20	74.00	-13.80	peak			
15		21867.500	18.99	21.19	40.18	54.00	-13.82	AVG			
16		23057.500	38.67	20.86	59.53	74.00	-14.47	peak			
17		23057.500	19.20	20.86	40.06	54.00	-13.94	AVG			

*:Maximum data x:Over limit !:over margin

File :Vigor2710nE(2422MHZ) Data :#17 Date: 2010/01/18 Time: 下午 10:43:02



Site: : 966 Chamber
Limit: FCC part 15 (PK)
EUT: ADSL2+ WLAN Router
M/N: Vigor2710ne
Mode: 5
Note: CH03(2422MHz)

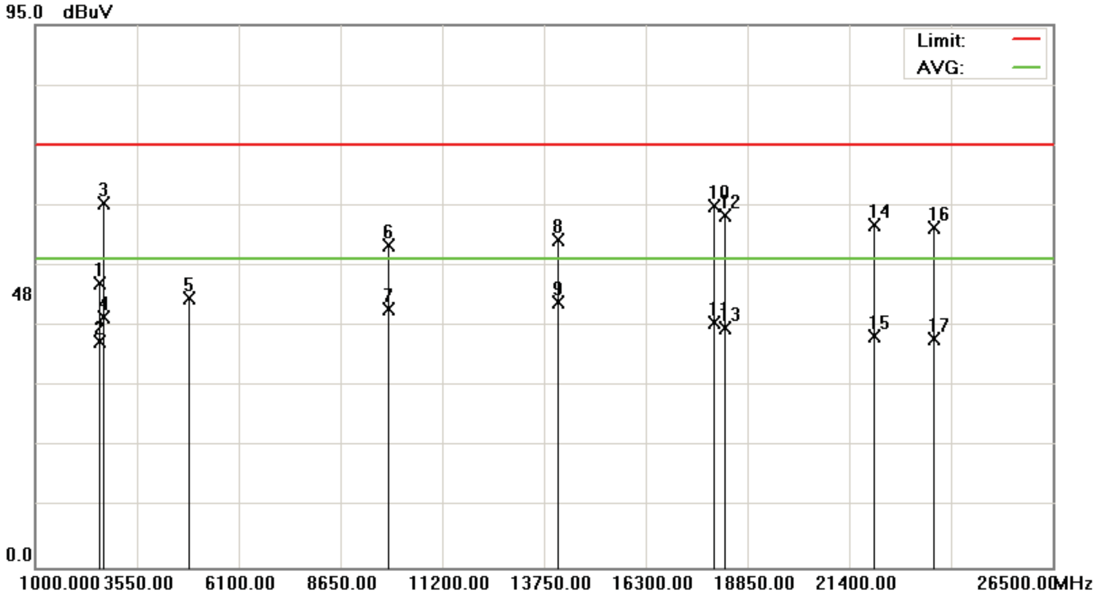
Polarization: *Vertical*
Power:
Distance: 3m

Temperature: 22 ℃
Humidity: 60 %
RBW: 1000 KHz VBW: 1000 KHz

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	cm	degree	Comment
1		2550.400	48.65	0.35	49.00	74.00	-25.00	peak			
2		2700.000	40.97	22.58	63.55	74.00	-10.45	peak			
3		2700.000	21.23	22.58	43.81	54.00	-10.19	AVG			
4		4844.000	38.53	7.67	46.20	74.00	-27.80	peak			
5		9963.500	38.16	17.82	55.98	74.00	-18.02	peak			
6		9963.500	27.58	17.82	45.40	54.00	-8.60	AVG			
7		13900.000	39.06	18.53	57.59	74.00	-16.41	peak			
8	*	13900.000	27.65	18.53	46.18	54.00	-7.82	AVG			
9		18000.000	37.46	25.57	63.03	74.00	-10.97	peak			
10		18000.000	17.32	25.57	42.89	54.00	-11.11	AVG			
11		18701.250	38.30	23.11	61.41	74.00	-12.59	peak			
12		18701.250	18.86	23.11	41.97	54.00	-12.03	AVG			
13		21591.250	37.89	21.30	59.19	74.00	-14.81	peak			
14		21591.250	18.95	21.30	40.25	54.00	-13.75	AVG			
15		23822.500	39.68	20.22	59.90	74.00	-14.10	peak			
16		23822.500	19.82	20.22	40.04	54.00	-13.96	AVG			

*:Maximum data x:Over limit !:over margin

File :Vigor2710nE(2422MHZ) Data :#18 Date: 2010/01/18 Time: 下午 10:44:39

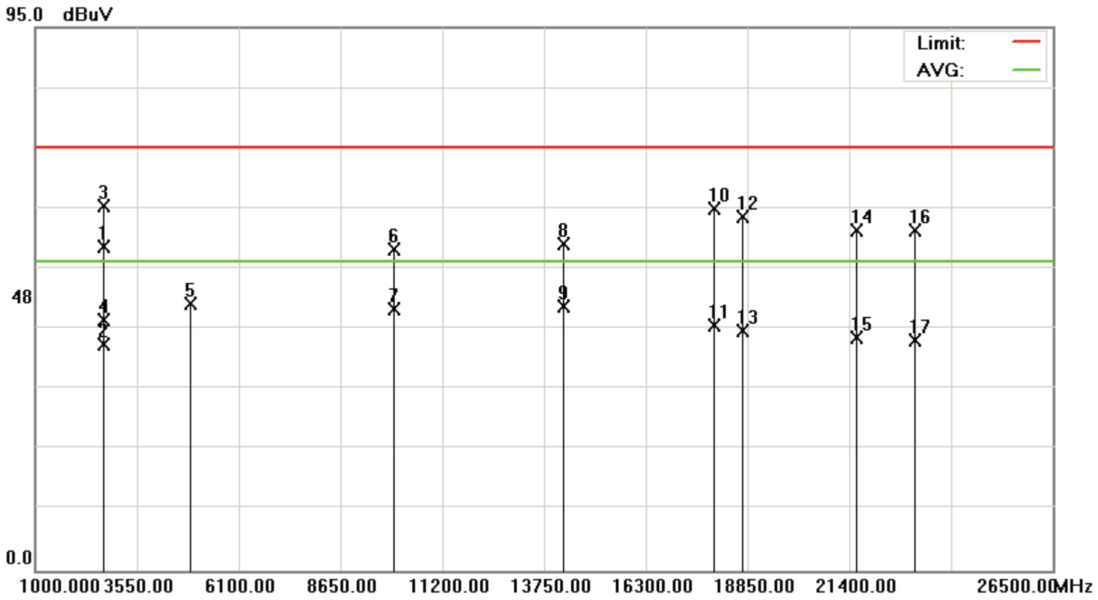


Site: : 966 Chamber Polarization: *Horizontal* Temperature: 22 ℃
Limit: FCC part 15 (PK) Power: Humidity: 60 %
EUT: ADSL2+ WLAN Router Distance: 3m RBW: 1000 KHz VBW: 1000 KHz
M/N: Vigor2710ne
Mode: 5
Note: CH03(2422MHz)

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	cm	degree	Comment
1		2594.600	49.21	0.52	49.73	74.00	-24.27	peak			
2		2594.600	38.92	0.52	39.44	54.00	-14.56	AVG			
3		2700.000	41.21	22.58	63.79	74.00	-10.21	peak			
4		2700.000	21.23	22.58	43.81	54.00	-10.19	AVG			
5		4844.000	39.51	7.67	47.18	74.00	-26.82	peak			
6		9835.750	38.66	17.83	56.49	74.00	-17.51	peak			
7		9835.750	27.38	17.83	45.21	54.00	-8.79	AVG			
8		14100.000	38.54	18.90	57.44	74.00	-16.56	peak			
9	*	14100.000	27.64	18.90	46.54	54.00	-7.46	AVG			
10		18000.000	37.65	25.57	63.22	74.00	-10.78	peak			
11		18000.000	17.24	25.57	42.81	54.00	-11.19	AVG			
12		18276.250	38.45	23.21	61.66	74.00	-12.34	peak			
13		18276.250	18.62	23.21	41.83	54.00	-12.17	AVG			
14		22037.500	38.88	21.09	59.97	74.00	-14.03	peak			
15		22037.500	19.47	21.09	40.56	54.00	-13.44	AVG			
16		23503.750	38.96	20.58	59.54	74.00	-14.46	peak			
17		23503.750	19.55	20.58	40.13	54.00	-13.87	AVG			

*:Maximum data x:Over limit !:over margin

File :Vigor2710nE(2437MHZ) Data :#17 Date: 2010/01/18 Time: 下午 10:38:00

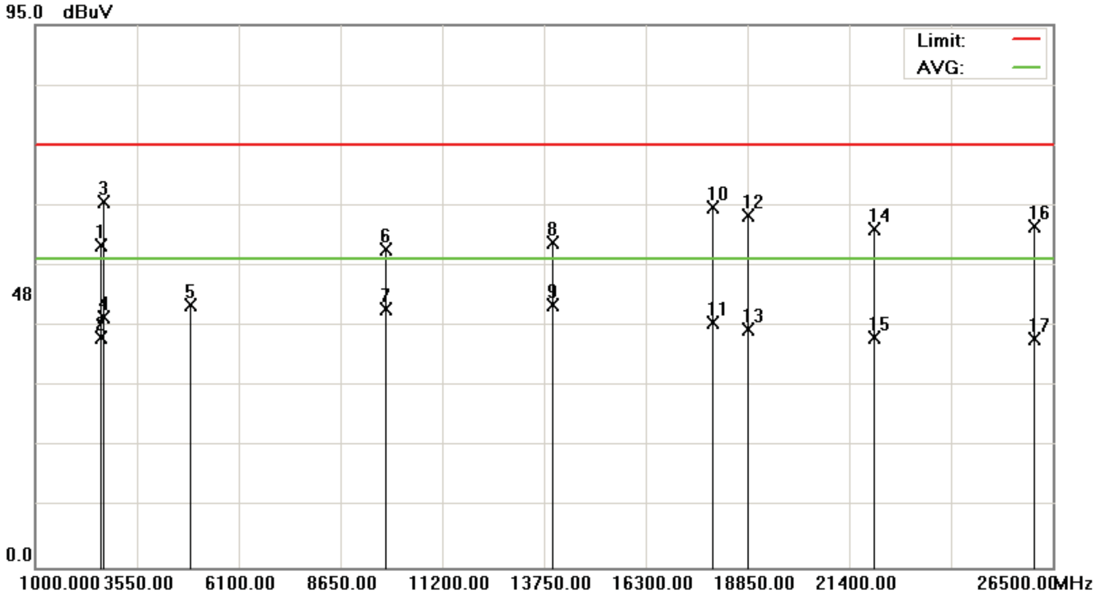


Site:	: 966 Chamber	Polarization:	*Vertical*	Temperature:	22 ℃
Limit:	FCC part 15 (PK)	Power:		Humidity:	60 %
EUT:	ADSL2+ WLAN Router	Distance:	3m	RBW: 1000 KHz VBW: 1000 KHz	
M/N:	Vigor2710ne				
Mode:	5				
Note:	CH06(2437MHz)				

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	cm	degree	Comment
1		2689.800	55.52	1.03	56.55	74.00	-17.45	peak			
2		2689.800	38.41	1.03	39.44	54.00	-14.56	AVG			
3		2700.000	41.20	22.58	63.78	74.00	-10.22	peak			
4		2700.000	21.22	22.58	43.80	54.00	-10.20	AVG			
5		4874.000	38.97	7.72	46.69	74.00	-27.31	peak			
6		9981.750	38.38	17.88	56.26	74.00	-17.74	peak			
7		9981.750	27.89	17.88	45.77	54.00	-8.23	AVG			
8		14220.000	38.26	18.78	57.04	74.00	-16.96	peak			
9	*	14220.000	27.41	18.78	46.19	54.00	-7.81	AVG			
10		18000.000	37.75	25.57	63.32	74.00	-10.68	peak			
11		18000.000	17.28	25.57	42.85	54.00	-11.15	AVG			
12		18722.500	38.65	23.12	61.77	74.00	-12.23	peak			
13		18722.500	18.74	23.12	41.86	54.00	-12.14	AVG			
14		21570.000	38.14	21.31	59.45	74.00	-14.55	peak			
15		21570.000	19.37	21.31	40.68	54.00	-13.32	AVG			
16		23015.000	38.61	20.88	59.49	74.00	-14.51	peak			
17		23015.000	19.43	20.88	40.31	54.00	-13.69	AVG			

*:Maximum data x:Over limit !:over margin

File :Vigor2710nE(2437MHZ) Data :#18 Date: 2010/01/18 Time: 下午 10:39:37

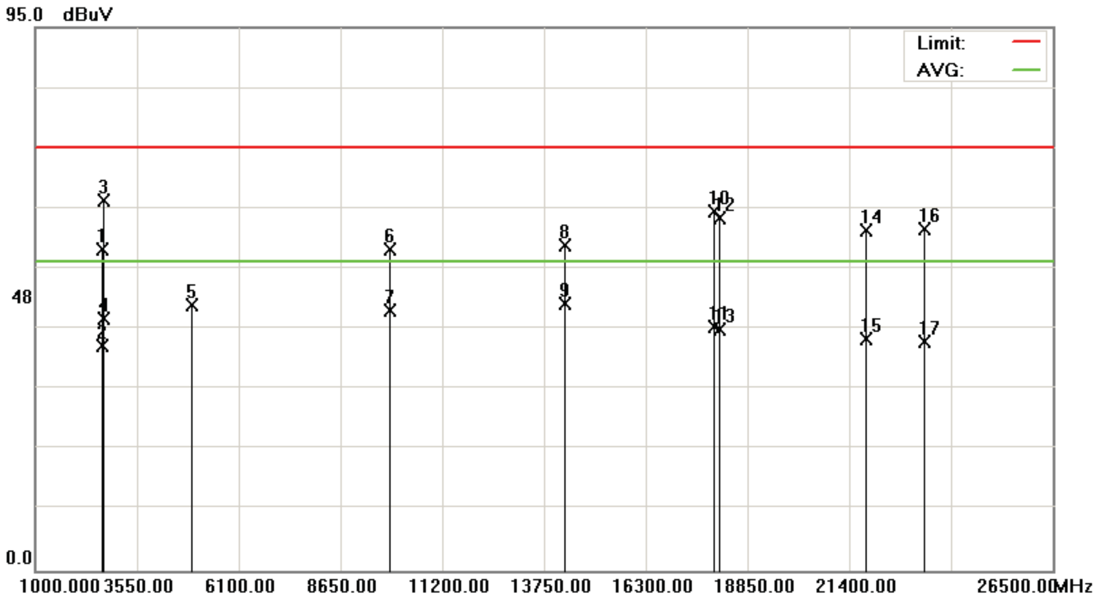


Site:	: 966 Chamber	Polarization:	***Horizontal***	Temperature:	22 ℃
Limit:	FCC part 15 (PK)	Power:		Humidity:	60 %
EUT:	ADSL2+ WLAN Router	Distance:	3m	RBW: 1000 KHz VBW: 1000 KHz	
M/N:	Vigor2710ne				
Mode:	5				
Note:	CH06(2437MHz)				

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	cm	degree	Comment
1		2632.000	55.37	0.93	56.30	74.00	-17.70	peak			
2		2632.000	39.32	0.93	40.25	54.00	-13.75	AVG			
3		2700.000	41.36	22.58	63.94	74.00	-10.06	peak			
4		2700.000	21.23	22.58	43.81	54.00	-10.19	AVG			
5		4874.000	38.28	7.72	46.00	74.00	-28.00	peak			
6		9781.000	38.11	17.69	55.80	74.00	-18.20	peak			
7		9781.000	27.58	17.69	45.27	54.00	-8.73	AVG			
8		13960.000	38.26	18.57	56.83	74.00	-17.17	peak			
9	*	13960.000	27.28	18.57	45.85	54.00	-8.15	AVG			
10		17980.000	37.73	25.21	62.94	74.00	-11.06	peak			
11		17980.000	17.65	25.21	42.86	54.00	-11.14	AVG			
12		18850.000	38.41	23.15	61.56	74.00	-12.44	peak			
13		18850.000	18.43	23.15	41.58	54.00	-12.42	AVG			
14		22037.500	38.26	21.09	59.35	74.00	-14.65	peak			
15		22037.500	19.23	21.09	40.32	54.00	-13.68	AVG			
16		26032.500	41.17	18.54	59.71	74.00	-14.29	peak			
17		26032.500	21.58	18.54	40.12	54.00	-13.88	AVG			

*:Maximum data x:Over limit !:over margin

File :Vigor2710nE(2452MHZ) Data :#17 Date: 2010/01/18 Time: 下午 10:34:17



Site: : 966 Chamber
Limit: FCC part 15 (PK)
EUT: ADSL2+ WLAN Router
M/N: Vigor2710ne
Mode: 5
Note: CH09(2462MHz)

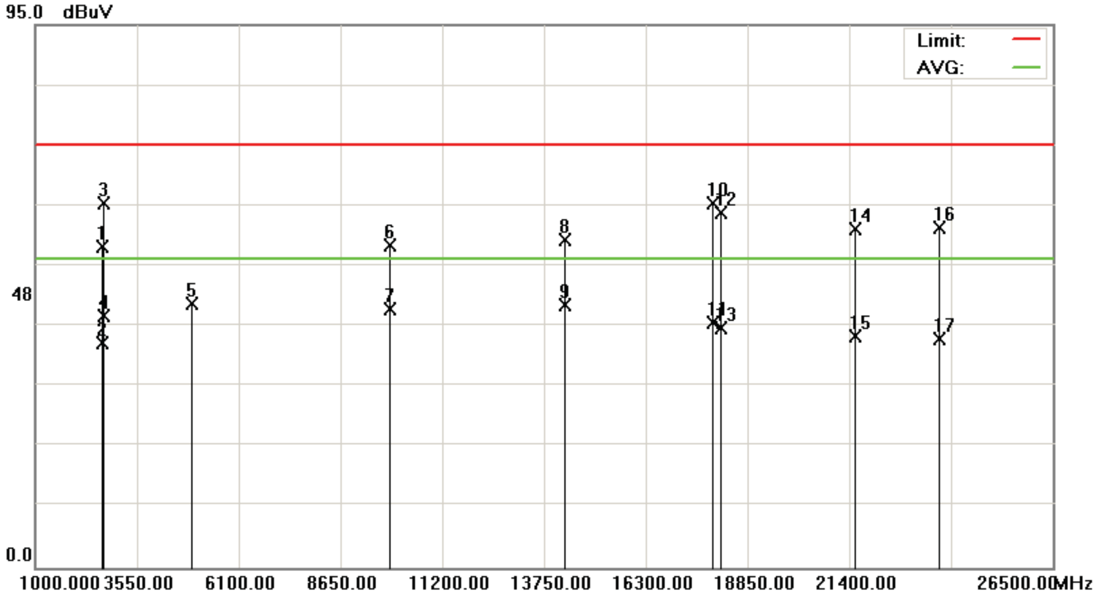
Polarization: *Vertical*
Power:
Distance: 3m

Temperature: 22 ℃
Humidity: 60 %
RBW: 1000 KHz VBW: 1000 KHz

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	cm	degree	Comment
1		2683.000	55.15	1.01	56.16	74.00	-17.84	peak			
2		2683.000	38.28	1.01	39.29	54.00	-14.71	AVG			
3		2700.000	42.08	22.58	64.66	74.00	-9.34	peak			
4		2700.000	21.38	22.58	43.96	54.00	-10.04	AVG			
5		4904.000	38.72	7.71	46.43	74.00	-27.57	peak			
6		9854.000	38.36	17.89	56.25	74.00	-17.75	peak			
7		9854.000	27.63	17.89	45.52	54.00	-8.48	AVG			
8		14260.000	38.19	18.66	56.85	74.00	-17.15	peak			
9	*	14260.000	27.92	18.66	46.58	54.00	-7.42	AVG			
10		18000.000	37.36	25.57	62.93	74.00	-11.07	peak			
11		18000.000	17.08	25.57	42.65	54.00	-11.35	AVG			
12		18127.500	38.41	23.23	61.64	74.00	-12.36	peak			
13		18127.500	18.89	23.23	42.12	54.00	-11.88	AVG			
14		21803.750	38.19	21.21	59.40	74.00	-14.60	peak			
15		21803.750	19.18	21.21	40.39	54.00	-13.61	AVG			
16		23270.000	38.87	20.77	59.64	74.00	-14.36	peak			
17		23270.000	19.25	20.77	40.02	54.00	-13.98	AVG			

*:Maximum data x:Over limit !:over margin

File :Vigor2710nE(2452MHZ) Data :#18 Date: 2010/01/18 Time: 下午 10:35:54



Site: : 966 Chamber
Limit: FCC part 15 (PK)
EUT: ADSL2+ WLAN Router
M/N: Vigor2710ne
Mode: 5
Note: CH09(2462MHz)

Polarization: ***Horizontal***
Power:
Distance: 3m

Temperature: 22 ℃
Humidity: 60 %
RBW: 1000 KHz VBW: 1000 KHz

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	cm	degree	Comment
1		2677.900	55.16	1.01	56.17	74.00	-17.83	peak			
2		2677.900	38.28	1.01	39.29	54.00	-14.71	AVG			
3		2700.000	41.17	22.58	63.75	74.00	-10.25	peak			
4		2700.000	21.38	22.58	43.96	54.00	-10.04	AVG			
5		4904.000	38.60	7.71	46.31	74.00	-27.69	peak			
6		9890.500	38.60	17.80	56.40	74.00	-17.60	peak			
7		9890.500	27.46	17.80	45.26	54.00	-8.74	AVG			
8		14240.000	38.76	18.71	57.47	74.00	-16.53	peak			
9	*	14240.000	27.15	18.71	45.86	54.00	-8.14	AVG			
10		17980.000	38.48	25.21	63.69	74.00	-10.31	peak			
11		17980.000	17.68	25.21	42.89	54.00	-11.11	AVG			
12		18170.000	38.84	23.23	62.07	74.00	-11.93	peak			
13		18170.000	18.62	23.23	41.85	54.00	-12.15	AVG			
14		21548.750	37.91	21.33	59.24	74.00	-14.76	peak			
15		21548.750	19.06	21.33	40.39	54.00	-13.61	AVG			
16		23652.500	39.06	20.39	59.45	74.00	-14.55	peak			
17		23652.500	19.72	20.39	40.11	54.00	-13.89	AVG			

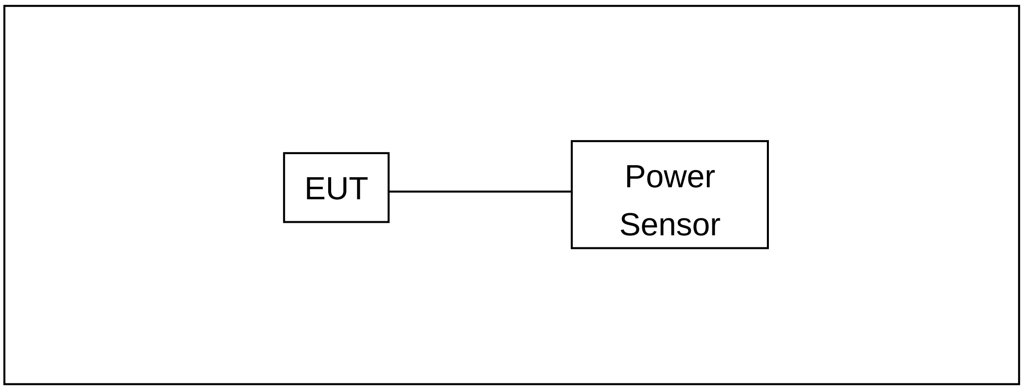
*:Maximum data x:Over limit !:over margin

6 Maximum Conducted Output Power Measurement

6.1. Limit

For systems using digital modulation in the 2400-2483.5MHz, the limit for peak output power is 30dBm.

6.2. Test Setup



6.3. Test Instruments

Equipment	Manufacturer	Model No.	Serial No.	Cal. Date	Remark
Power Sensor	R&S	NRP-Z81	100017	05/17/2009	(2)
Test Site	ATL	TE06	TE06	N.C.R.	-----

Remark: (1) Calibration period 1 year. (2) Calibration period 2 years.

NOTE: N.C.R. = No Calibration Request.

6.4. Test Procedure

The tests below are run with the EUT's transmitter set at high power in TX mode. The EUT is needed to force selection of output power level and channel number. While testing, EUT was set to transmit continuously. Remove the Subjective device's antenna and connect the RF output port to power sensor. The maximum peak output power shall not exceed 1 watt.

Use a direct connection between the antenna port of transmitter and the power sensor, for prevent the power sensor input attenuation 40-50 dB. Set the RBW Bandwidth of the emission or use a channel power meter mode.

For antennas with gains of 6 dBi or less, maximum allowed transmitter output is 1 watt (+30 dBm). For antennas with gains greater than 6 dBi, transmitter output level must be decreased by an amount equal to (GAIN - 6)/3 dBm.

The antenna port of the EUT was connected to the input of a power sensor. Power was read directly and cable loss correction was added to the reading to obtain power at the EUT antenna terminals.

6.5. Test Result

Product	ADSL2+ WLAN Router			
Test Item	Maximum Conducted Output Power			
Test Mode	Mode 2: IEEE 802.11b Link Mode			
Date of Test	01/18/2010		Test Site	TE06
Frequency (MHz)	Data Rate	Measurement Peak Power		Limit (dBm)
		(dBm)	(W)	
2412	11	20.14	0.103	< 30
2437	11	20.45	0.111	< 30
2462	11	20.31	0.107	< 30

Product	ADSL2+ WLAN Router			
Test Item	Maximum Conducted Output Power			
Test Mode	Mode 3: IEEE 802.11g Link Mode			
Date of Test	01/18/2010		Test Site	TE06
Frequency (MHz)	Data Rate	Measurement Peak Power		Limit (dBm)
		(dBm)	(W)	
2412	6	24.93	0.311	< 30
2437	6	24.63	0.290	< 30
2462	6	24.47	0.280	< 30

Product	ADSL2+ WLAN Router			
Test Item	Maximum Conducted Output Power			
Test Mode	Mode 4: draft 802.11n Standard-20MHz Link Mode			
Date of Test	01/18/2010		Test Site	TE06
Frequency (MHz)	Data Rate	Measurement Peak Power		Limit (dBm)
		(dBm)	(W)	
2412	6.5	24.61	0.289	< 30
2437	6.5	24.69	0.294	< 30
2462	6.5	24.43	0.277	< 30

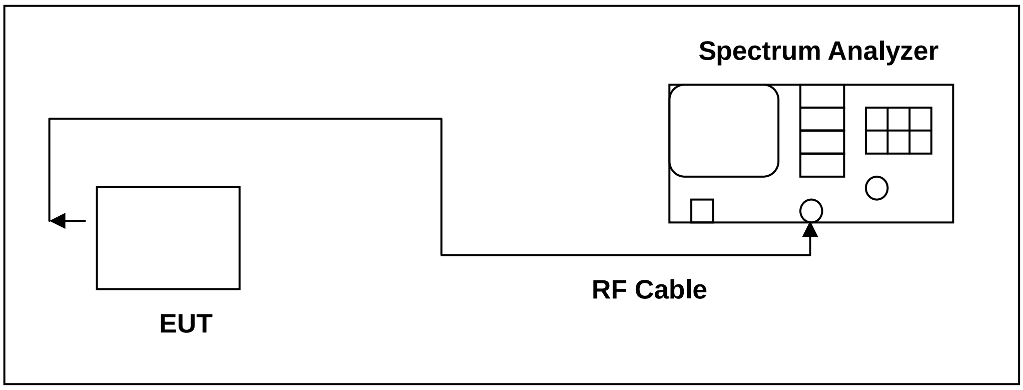
Product	ADSL2+ WLAN Router			
Test Item	Maximum Conducted Output Power			
Test Mode	Mode 5: draft 802.11n Wide-40MHz Link Mode			
Date of Test	01/18/2010		Test Site	TE06
Frequency (MHz)	Data Rate	Measurement Peak Power		Limit (dBm)
		(dBm)	(W)	
2422	13	23.22	0.210	< 30
2437	13	22.87	0.194	< 30
2452	13	22.90	0.195	< 30

7 6dB RF Bandwidth Measurement

7.1. Limit

Systems using digital modulation techniques may operate in the 2400–2483.5 MHz bands. The minimum 6 dB band-width shall be at least 500 kHz.

7.2. Test Setup



7.3. Test Instruments

Equipment	Manufacturer	Model No.	Serial No.	Cal. Date	Remark
Spectrum Analyzer	Agilent	E4445A	MY46181986	05/14/2009	(2)
Test Site	ATL	TE06	TE06	N.C.R.	-----

Remark: (1) Calibration period 1 year. (2) Calibration period 2 years.

NOTE: N.C.R. = No Calibration Request.

7.4. Test Procedure

The EUT was setup to ANSI C63.4, 2003; tested to DTS test procedure of Oct 2002 KDB558074 for compliance to FCC 47CFR 15.247 requirements.

The antenna port of the EUT was connected to the input of a spectrum analyzer. Analyzer RES BW was set to 100 kHz. For each RF output channel investigated, the spectrum analyzer center frequency was set to the channel carrier. A peak output reading was taken, a DISPLAY line was drawn 6 dB lower than peak level. The 6 dB bandwidth was determined from where the channel output spectrum intersected the display line.

The test was performed at 3 channels (Channel 1, 6, 11)

7.5. Test Result

Product	ADSL2+ WLAN Router		
Test Item	6dB RF Bandwidth		
Test Mode	Mode 2: IEEE 802.11b Link Mode		
Date of Test	01/14/2010	Test Site	TE06

Frequency (MHz)	Measurement (kHz)	Limit (kHz)
2412	10375	> 500
2437	10375	> 500
2462	10375	> 500

Product	ADSL2+ WLAN Router		
Test Item	6dB RF Bandwidth		
Test Mode	Mode 3: IEEE 802.11g Link Mode		
Date of Test	01/14/2010	Test Site	TE06

Frequency (MHz)	Measurement (kHz)	Limit (kHz)
2412	16625	> 500
2437	16625	> 500
2462	16625	> 500

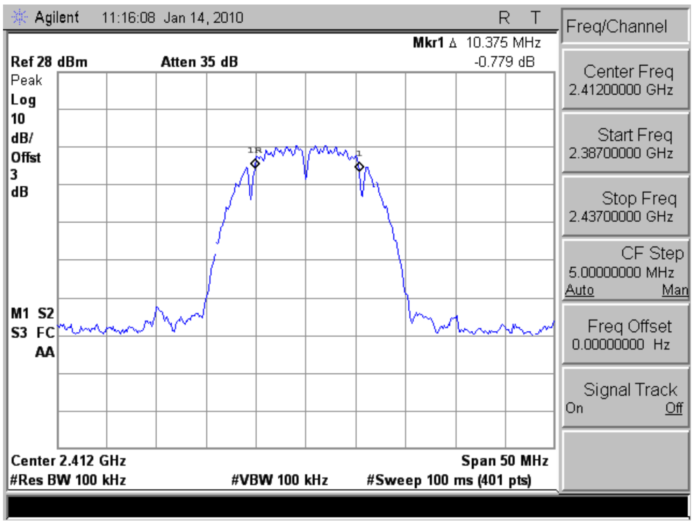
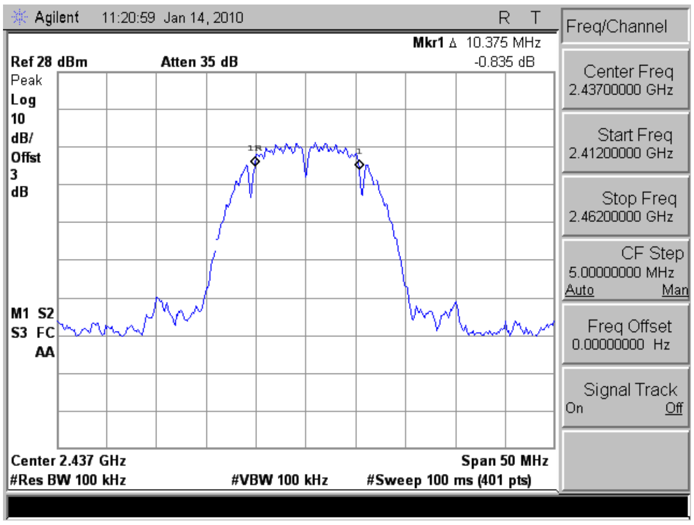
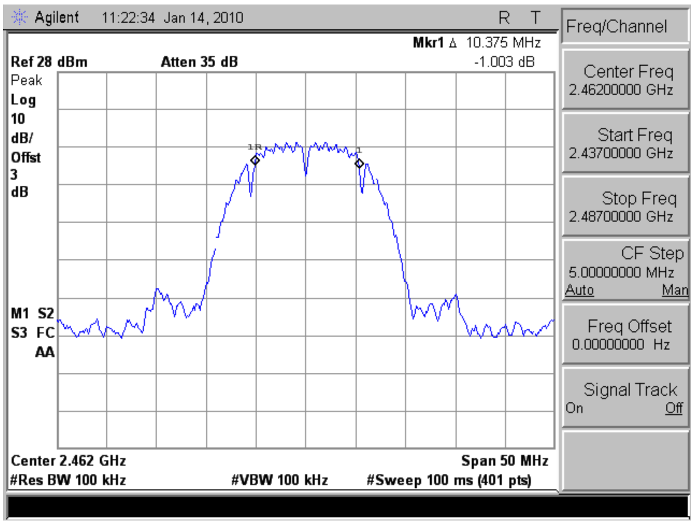
Product	ADSL2+ WLAN Router		
Test Item	6dB RF Bandwidth		
Test Mode	Mode 4: draft 802.11n Standard-20MHz Link Mode		
Date of Test	01/14/2010	Test Site	TE06

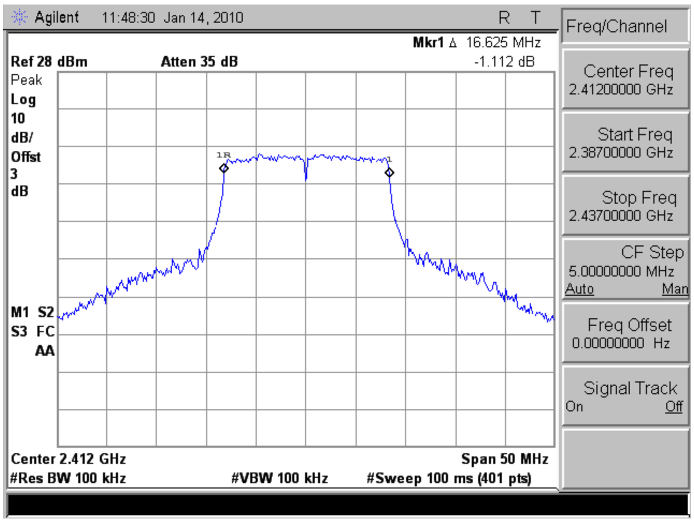
Frequency (MHz)	Measurement (kHz)	Limit (kHz)
2412	17875	> 500
2437	17875	> 500
2462	17875	> 500

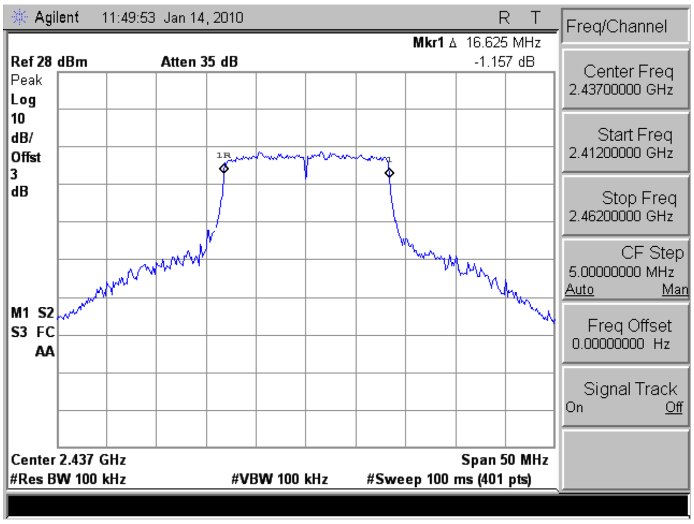
Product	ADSL2+ WLAN Router		
Test Item	6dB RF Bandwidth		
Test Mode	Mode 5: draft 802.11n Wide-40MHz Link Mode		
Date of Test	01/14/2010	Test Site	TE06

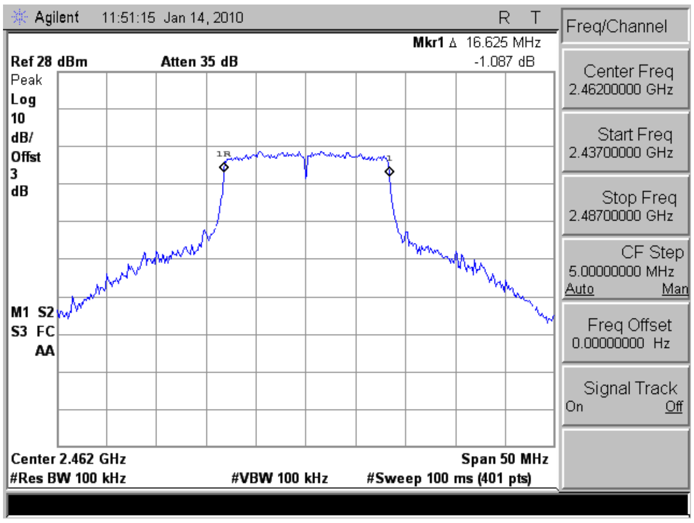
Frequency (MHz)	Measurement (kHz)	Limit (kHz)
2422	36375	> 500
2437	36125	> 500
2452	36375	> 500

7.6. Test Graphs

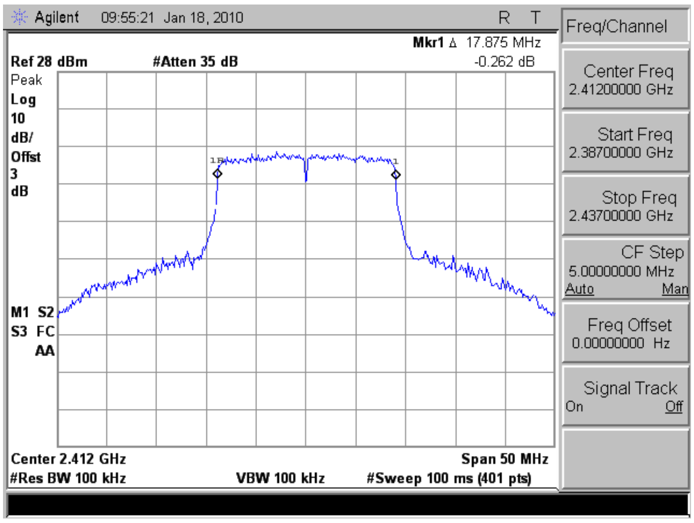
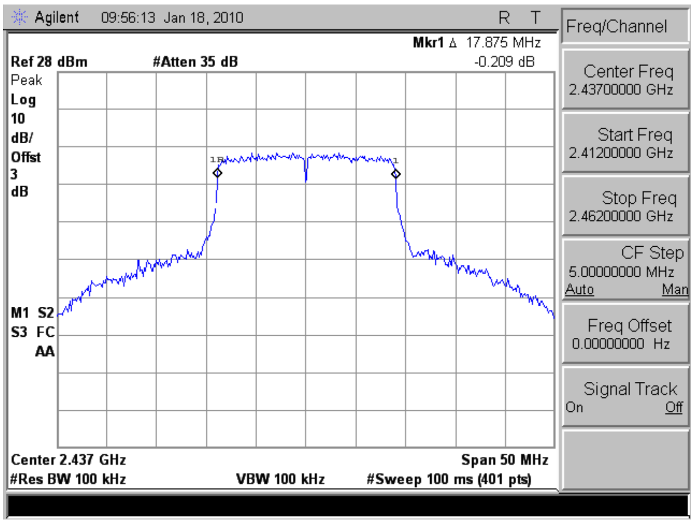
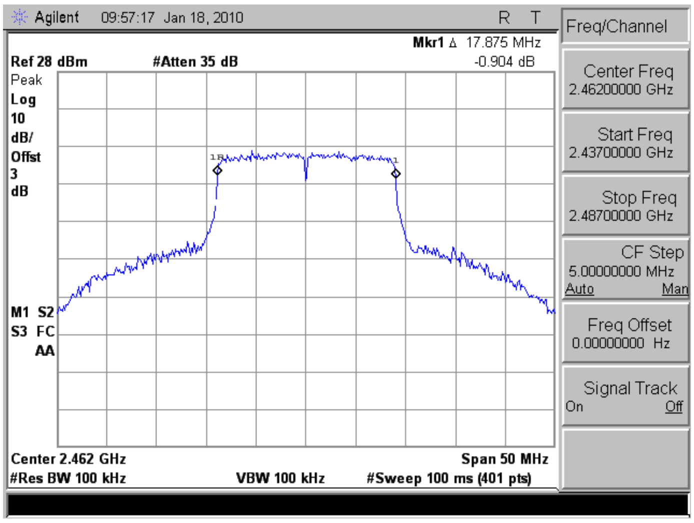
Mode 2: IEEE 802.11b Link Mode	
2412	 Agilent 11:16:08 Jan 14, 2010 R T Mkr1 Δ 10.375 MHz -0.779 dB Ref 28 dBm Atten 35 dB Peak Log 10 dB/ Offst 3 dB M1 S2 S3 FC AA Center 2.412 GHz Span 50 MHz #Res BW 100 kHz #VBW 100 kHz #Sweep 100 ms (401 pts) Freq/Channel Center Freq 2.41200000 GHz Start Freq 2.38700000 GHz Stop Freq 2.43700000 GHz CF Step 5.00000000 MHz Auto Man Freq Offset 0.00000000 Hz Signal Track On Off
2437	 Agilent 11:20:59 Jan 14, 2010 R T Mkr1 Δ 10.375 MHz -0.835 dB Ref 28 dBm Atten 35 dB Peak Log 10 dB/ Offst 3 dB M1 S2 S3 FC AA Center 2.437 GHz Span 50 MHz #Res BW 100 kHz #VBW 100 kHz #Sweep 100 ms (401 pts) Freq/Channel Center Freq 2.43700000 GHz Start Freq 2.41200000 GHz Stop Freq 2.46200000 GHz CF Step 5.00000000 MHz Auto Man Freq Offset 0.00000000 Hz Signal Track On Off
2462	 Agilent 11:22:34 Jan 14, 2010 R T Mkr1 Δ 10.375 MHz -1.003 dB Ref 28 dBm Atten 35 dB Peak Log 10 dB/ Offst 3 dB M1 S2 S3 FC AA Center 2.462 GHz Span 50 MHz #Res BW 100 kHz #VBW 100 kHz #Sweep 100 ms (401 pts) Freq/Channel Center Freq 2.46200000 GHz Start Freq 2.43700000 GHz Stop Freq 2.48700000 GHz CF Step 5.00000000 MHz Auto Man Freq Offset 0.00000000 Hz Signal Track On Off

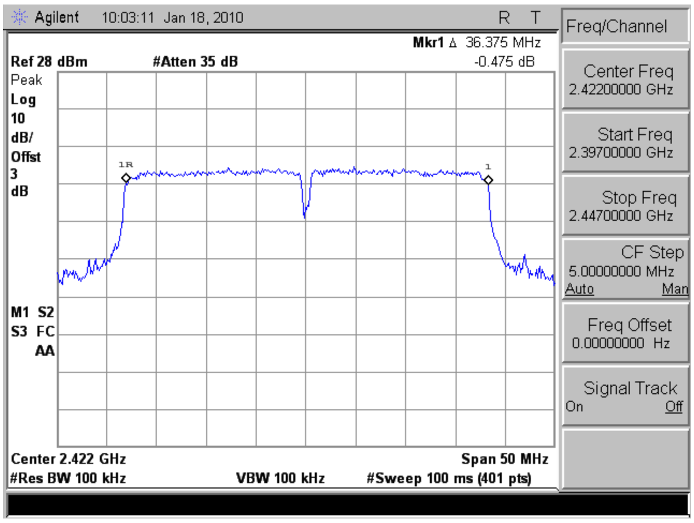
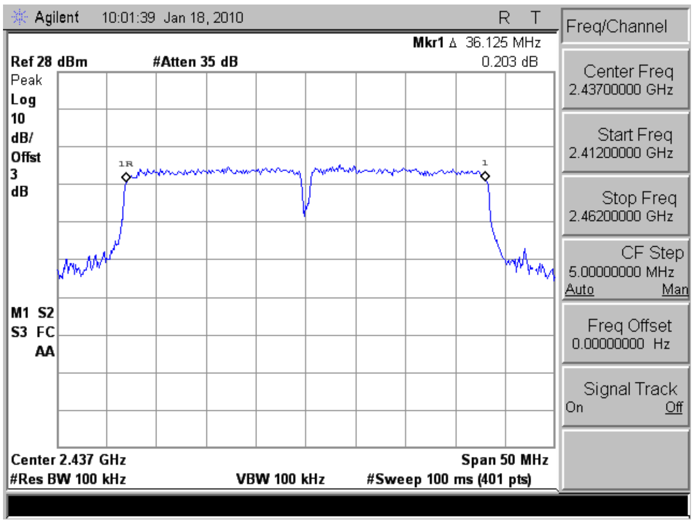
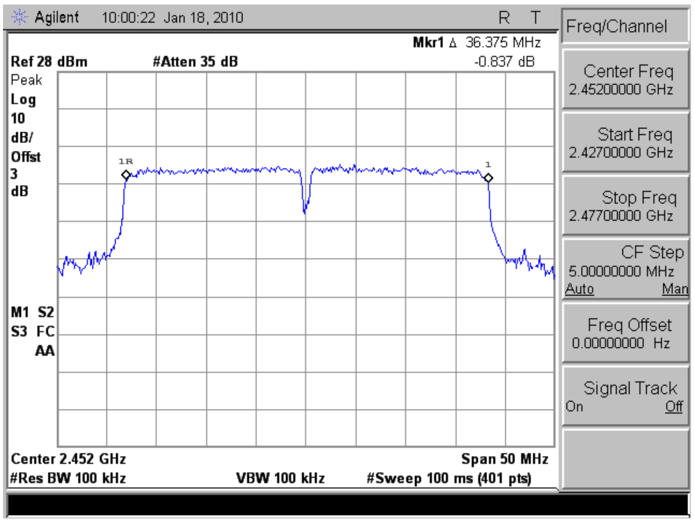
<table>
<tr><th colspan="2">Mode 3: IEEE 802.11g Link Mode</th></tr>
<tr><td>2412</td><td>
Agilent 11:48:30 Jan 14, 2010
R T
Mkr1 Δ 16.625 MHz
Ref 28 dBm Atten 35 dB -1.112 dB
Peak
Log
10
dB/
Offst
3
dB
1R
1
M1 S2
S3 FC
AA
Center 2.412 GHz Span 50 MHz
#Res BW 100 kHz #VBW 100 kHz #Sweep 100 ms (401 pts)
Freq/Channel
Center Freq 2.41200000 GHz
Start Freq 2.38700000 GHz
Stop Freq 2.43700000 GHz
CF Step 5.00000000 MHz Auto Man
Freq Offset 0.00000000 Hz
Signal Track On Off

</td></tr>
<tr><td>2437</td><td>
Agilent 11:49:53 Jan 14, 2010
R T
Mkr1 Δ 16.625 MHz
Ref 28 dBm Atten 35 dB -1.157 dB
Peak
Log
10
dB/
Offst
3
dB
1R
1
M1 S2
S3 FC
AA
Center 2.437 GHz Span 50 MHz
#Res BW 100 kHz #VBW 100 kHz #Sweep 100 ms (401 pts)
Freq/Channel
Center Freq 2.43700000 GHz
Start Freq 2.41200000 GHz
Stop Freq 2.46200000 GHz
CF Step 5.00000000 MHz Auto Man
Freq Offset 0.00000000 Hz
Signal Track On Off

</td></tr>
<tr><td>2462</td><td>
Agilent 11:51:15 Jan 14, 2010
R T
Mkr1 Δ 16.625 MHz
Ref 28 dBm Atten 35 dB -1.087 dB
Peak
Log
10
dB/
Offst
3
dB
1R
1
M1 S2
S3 FC
AA
Center 2.462 GHz Span 50 MHz
#Res BW 100 kHz #VBW 100 kHz #Sweep 100 ms (401 pts)
Freq/Channel
Center Freq 2.46200000 GHz
Start Freq 2.43700000 GHz
Stop Freq 2.48700000 GHz
CF Step 5.00000000 MHz Auto Man
Freq Offset 0.00000000 Hz
Signal Track On Off

</td></tr>
</table>

Mode 4: draft 802.11n Standard-20MHz Link Mode	
2412	 Agilent 09:55:21 Jan 18, 2010 Mkr1 Δ 17.875 MHz -0.262 dB Ref 28 dBm #Atten 35 dB Peak Log 10 dB/ Offst 3 dB Center 2.412 GHz Span 50 MHz #Res BW 100 kHz VBW 100 kHz #Sweep 100 ms (401 pts) Center Freq 2.41200000 GHz Start Freq 2.38700000 GHz Stop Freq 2.43700000 GHz CF Step 5.00000000 MHz Auto Man Freq Offset 0.00000000 Hz Signal Track On Off
2437	 Agilent 09:56:13 Jan 18, 2010 Mkr1 Δ 17.875 MHz -0.209 dB Ref 28 dBm #Atten 35 dB Peak Log 10 dB/ Offst 3 dB Center 2.437 GHz Span 50 MHz #Res BW 100 kHz VBW 100 kHz #Sweep 100 ms (401 pts) Center Freq 2.43700000 GHz Start Freq 2.41200000 GHz Stop Freq 2.46200000 GHz CF Step 5.00000000 MHz Auto Man Freq Offset 0.00000000 Hz Signal Track On Off
2462	 Agilent 09:57:17 Jan 18, 2010 Mkr1 Δ 17.875 MHz -0.904 dB Ref 28 dBm #Atten 35 dB Peak Log 10 dB/ Offst 3 dB Center 2.462 GHz Span 50 MHz #Res BW 100 kHz VBW 100 kHz #Sweep 100 ms (401 pts) Center Freq 2.46200000 GHz Start Freq 2.43700000 GHz Stop Freq 2.48700000 GHz CF Step 5.00000000 MHz Auto Man Freq Offset 0.00000000 Hz Signal Track On Off

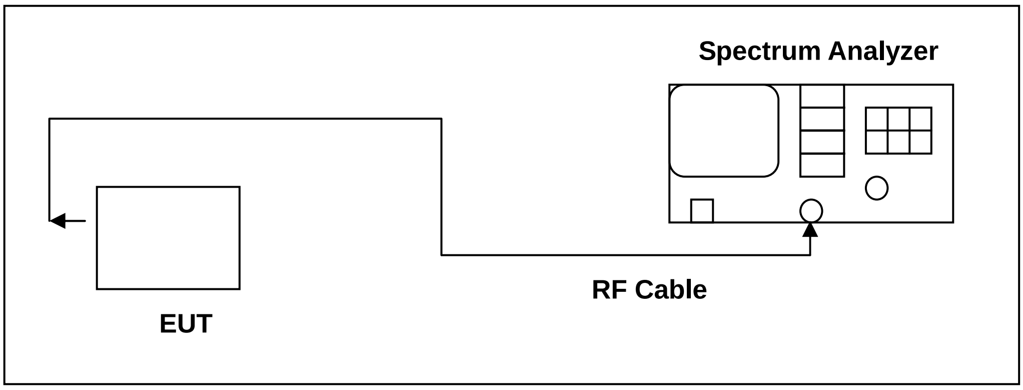
Mode 5: draft 802.11n Wide-40MHz Link Mode	
2422	 Agilent 10:03:11 Jan 18, 2010 Mkr1 Δ 36.375 MHz -0.475 dB Ref 28 dBm #Atten 35 dB Peak Log 10 dB/ Offst 3 dB Center 2.422 GHz Span 50 MHz #Res BW 100 kHz VBW 100 kHz #Sweep 100 ms (401 pts) Freq/Channel Center Freq 2.42200000 GHz Start Freq 2.39700000 GHz Stop Freq 2.44700000 GHz CF Step 5.00000000 MHz Auto Man Freq Offset 0.00000000 Hz Signal Track On Off
2437	 Agilent 10:01:39 Jan 18, 2010 Mkr1 Δ 36.125 MHz 0.203 dB Ref 28 dBm #Atten 35 dB Peak Log 10 dB/ Offst 3 dB Center 2.437 GHz Span 50 MHz #Res BW 100 kHz VBW 100 kHz #Sweep 100 ms (401 pts) Freq/Channel Center Freq 2.43700000 GHz Start Freq 2.41200000 GHz Stop Freq 2.46200000 GHz CF Step 5.00000000 MHz Auto Man Freq Offset 0.00000000 Hz Signal Track On Off
2452	 Agilent 10:00:22 Jan 18, 2010 Mkr1 Δ 36.375 MHz -0.837 dB Ref 28 dBm #Atten 35 dB Peak Log 10 dB/ Offst 3 dB Center 2.452 GHz Span 50 MHz #Res BW 100 kHz VBW 100 kHz #Sweep 100 ms (401 pts) Freq/Channel Center Freq 2.45200000 GHz Start Freq 2.42700000 GHz Stop Freq 2.47700000 GHz CF Step 5.00000000 MHz Auto Man Freq Offset 0.00000000 Hz Signal Track On Off

8 Maximum Power Density Measurement

8.1. Limit

For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

8.2. Test Setup



8.3. Test Instruments

Equipment	Manufacturer	Model No.	Serial No.	Cal. Date	Remark
Spectrum Analyzer	Agilent	E4445A	MY46181986	05/14/2009	(2)
Test Site	ATL	TE06	TE06	N.C.R.	-----

Remark: (1) Calibration period 1 year. (2) Calibration period 2 years.

NOTE: N.C.R. = No Calibration Request.

8.4. Test Procedure

The EUT was setup to ANSI C63.4, 2003; tested to DTS test procedure of Oct 2002 KDB558074 for compliance to FCC 47CFR 15.247 requirements.

The spectrum analyzer RES BW was set to 3 kHz. The START and STOP frequencies were set to the band edges of the maximum output pass band. If there is no clear maximum amplitude in any given portion of the band, it may be necessary to make measurements at a number of bands defined by several START and STOP frequency pairs. The specification calls for a 1 second interval at each 3 kHz bandwidth; total SWEEP TIME is calculated as follows:

SWEEP TIME (SEC) = (Fstop, kHz - Fstart, kHz)/3 kHz

Antenna output of the EUT was coupled directly to spectrum analyzer; if an external attenuator and/or cable was used, these losses are compensated for with the analyzer OFFSET function.

8.5. Test Result

Product	ADSL2+ WLAN Router		
Test Item	Maximum Power Density		
Test Mode	Mode 2: IEEE 802.11b Link Mode		
Date of Test	01/18/2009	Test Site	TE06

Frequency (MHz)	Measurement (dBm)	Limit (dBm)
2412	-13.23	< 8
2437	-12.64	< 8
2462	-12.18	< 8

Product	ADSL2+ WLAN Router		
Test Item	Maximum Power Density		
Test Mode	Mode 3: IEEE 802.11g Link Mode		
Date of Test	01/18/2009	Test Site	TE06

Frequency (MHz)	Measurement (dBm)	Limit (dBm)
2412	-9.437	< 8
2437	-8.847	< 8
2462	-8.551	< 8

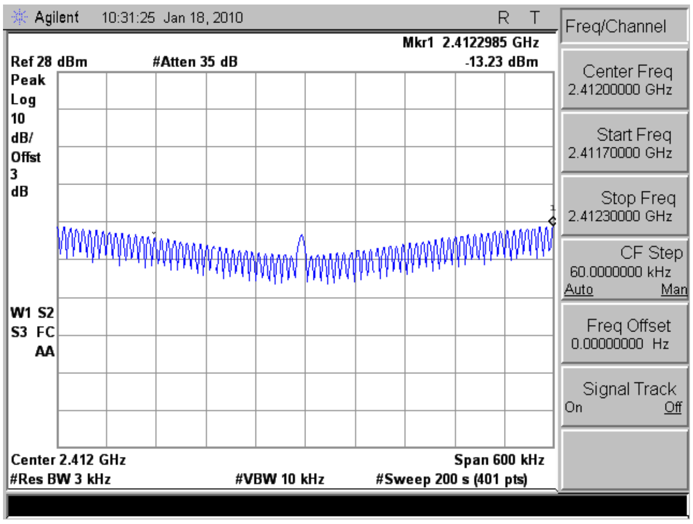
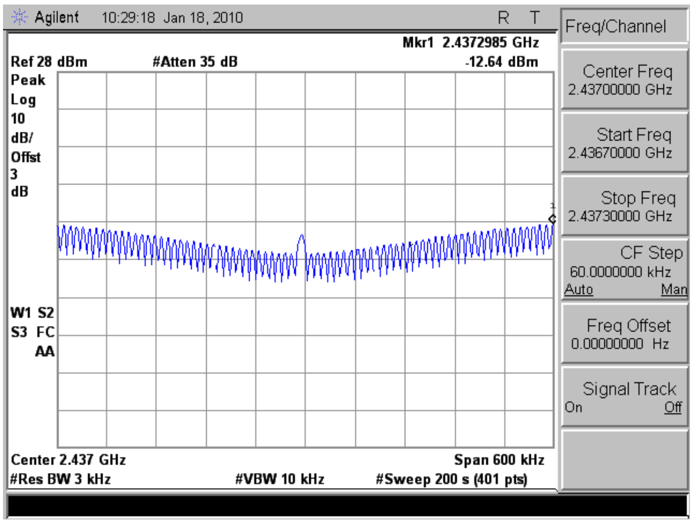
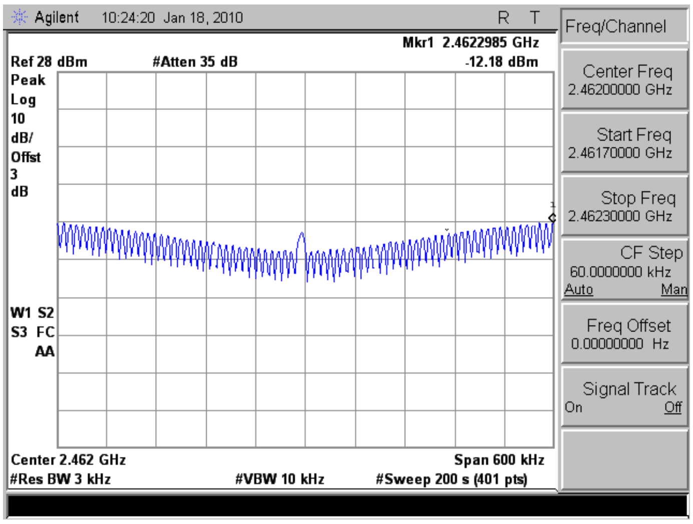
Product	ADSL2+ WLAN Router		
Test Item	Maximum Power Density		
Test Mode	Mode 4: draft 802.11n Standard-20MHz Link Mode		
Date of Test	01/18/2009	Test Site	TE06

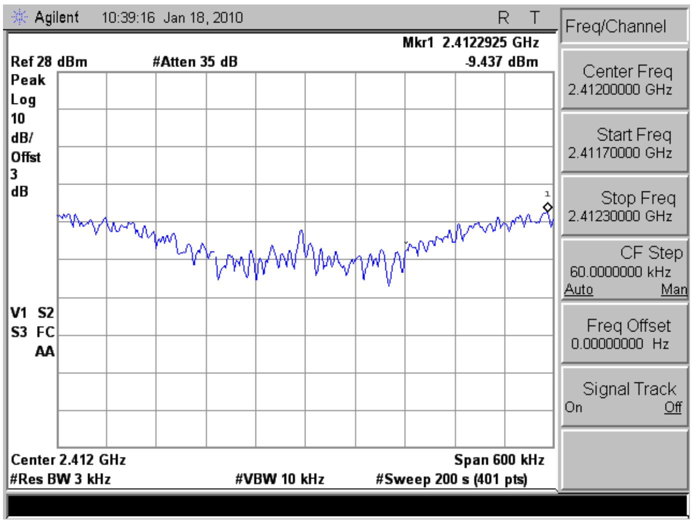
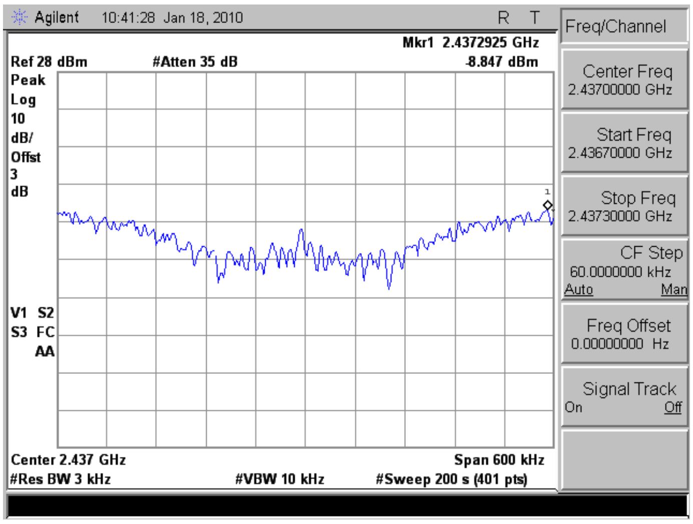
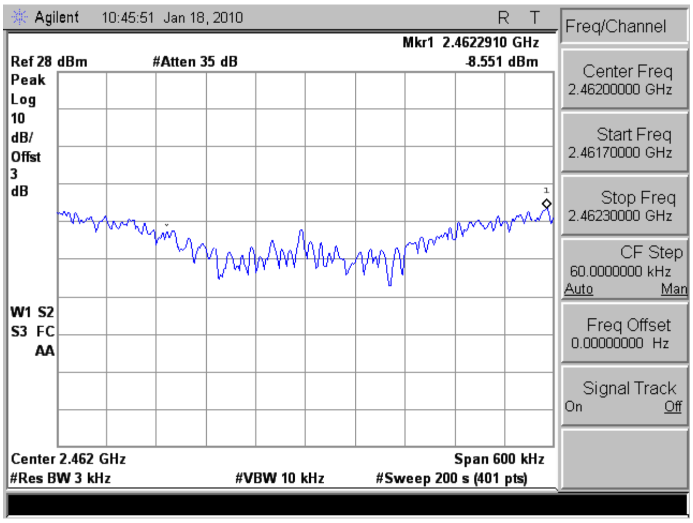
Frequency (MHz)	Measurement (dBm)	Limit (dBm)
2412	-9.232	< 8
2437	-8.693	< 8
2462	-8.521	< 8

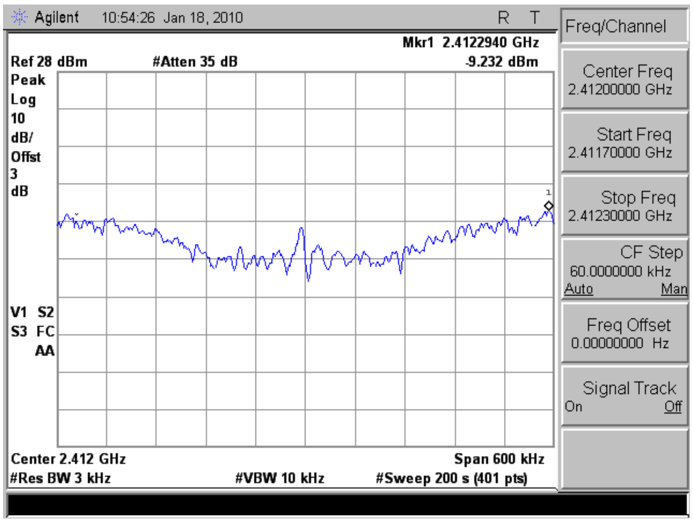
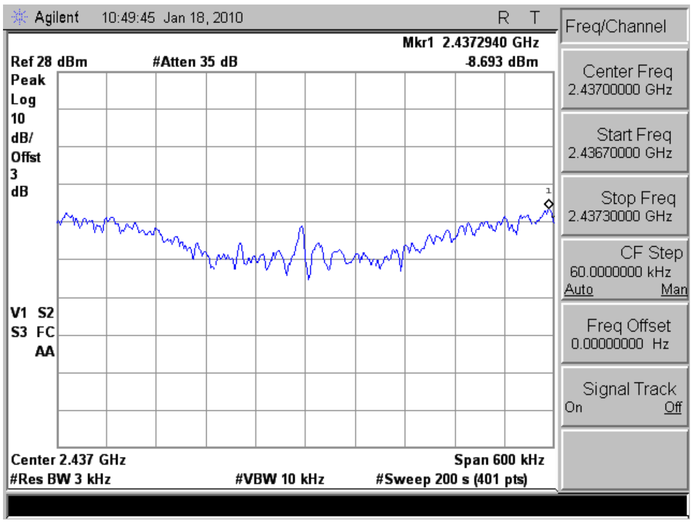
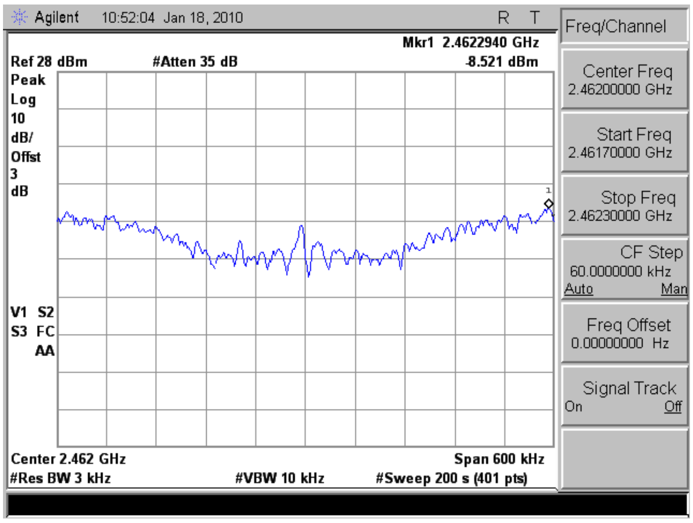
Product	ADSL2+ WLAN Router		
Test Item	Maximum Power Density		
Test Mode	Mode 5: draft 802.11n Wide-40MHz Link Mode		
Date of Test	01/18/2009	Test Site	TE06

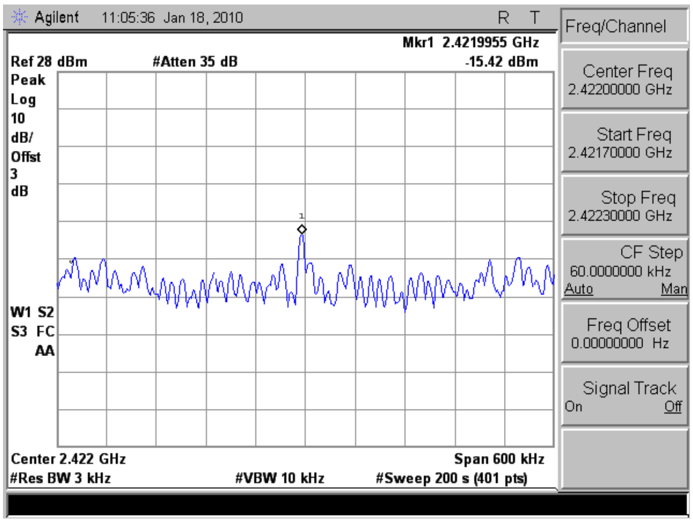
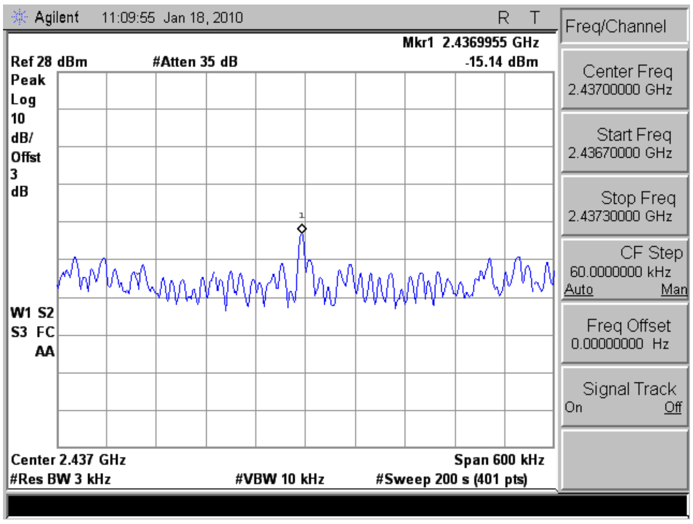
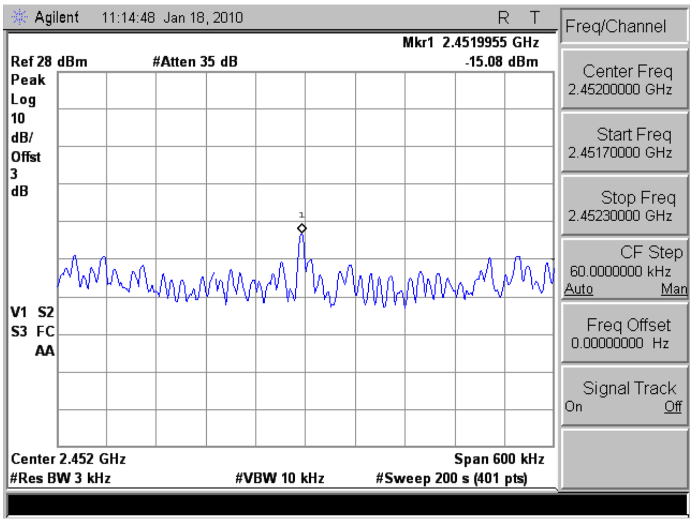
Frequency (MHz)	Measurement (dBm)	Limit (dBm)
2422	-15.42	< 8
2437	-15.14	< 8
2452	-15.08	< 8

8.6. Test Graphs

Mode 2: IEEE 802.11b Link Mode	
2412	 Agilent 10:31:25 Jan 18, 2010 R T Mkr1 2.4122985 GHz Ref 28 dBm #Atten 35 dB -13.23 dBm Peak Log 10 dB/ Offst 3 dB W1 S2 S3 FC AA Center 2.412 GHz Span 600 kHz #Res BW 3 kHz #VBW 10 kHz #Sweep 200 s (401 pts) Freq/Channel Center Freq 2.41200000 GHz Start Freq 2.41170000 GHz Stop Freq 2.41230000 GHz CF Step 60.0000000 kHz Auto Man Freq Offset 0.00000000 Hz Signal Track On Off
2437	 Agilent 10:29:18 Jan 18, 2010 R T Mkr1 2.4372985 GHz Ref 28 dBm #Atten 35 dB -12.64 dBm Peak Log 10 dB/ Offst 3 dB W1 S2 S3 FC AA Center 2.437 GHz Span 600 kHz #Res BW 3 kHz #VBW 10 kHz #Sweep 200 s (401 pts) Freq/Channel Center Freq 2.43700000 GHz Start Freq 2.43670000 GHz Stop Freq 2.43730000 GHz CF Step 60.0000000 kHz Auto Man Freq Offset 0.00000000 Hz Signal Track On Off
2462	 Agilent 10:24:20 Jan 18, 2010 R T Mkr1 2.4622985 GHz Ref 28 dBm #Atten 35 dB -12.18 dBm Peak Log 10 dB/ Offst 3 dB W1 S2 S3 FC AA Center 2.462 GHz Span 600 kHz #Res BW 3 kHz #VBW 10 kHz #Sweep 200 s (401 pts) Freq/Channel Center Freq 2.46200000 GHz Start Freq 2.46170000 GHz Stop Freq 2.46230000 GHz CF Step 60.0000000 kHz Auto Man Freq Offset 0.00000000 Hz Signal Track On Off

Mode 3: IEEE 802.11g Link Mode	
2412	 Agilent 10:39:16 Jan 18, 2010 R T Mkr1 2.4122925 GHz Ref 28 dBm #Atten 35 dB -9.437 dBm Peak Log 10 dB/ Offst 3 dB V1 S2 S3 FC AA Center 2.412 GHz Span 600 kHz #Res BW 3 kHz #VBW 10 kHz #Sweep 200 s (401 pts) Freq/Channel Center Freq 2.41200000 GHz Start Freq 2.41170000 GHz Stop Freq 2.41230000 GHz CF Step 60.0000000 kHz Auto Man Freq Offset 0.00000000 Hz Signal Track On Off
2437	 Agilent 10:41:28 Jan 18, 2010 R T Mkr1 2.4372925 GHz Ref 28 dBm #Atten 35 dB -8.847 dBm Peak Log 10 dB/ Offst 3 dB V1 S2 S3 FC AA Center 2.437 GHz Span 600 kHz #Res BW 3 kHz #VBW 10 kHz #Sweep 200 s (401 pts) Freq/Channel Center Freq 2.43700000 GHz Start Freq 2.43670000 GHz Stop Freq 2.43730000 GHz CF Step 60.0000000 kHz Auto Man Freq Offset 0.00000000 Hz Signal Track On Off
2462	 Agilent 10:45:51 Jan 18, 2010 R T Mkr1 2.4622910 GHz Ref 28 dBm #Atten 35 dB -8.551 dBm Peak Log 10 dB/ Offst 3 dB W1 S2 S3 FC AA Center 2.462 GHz Span 600 kHz #Res BW 3 kHz #VBW 10 kHz #Sweep 200 s (401 pts) Freq/Channel Center Freq 2.46200000 GHz Start Freq 2.46170000 GHz Stop Freq 2.46230000 GHz CF Step 60.0000000 kHz Auto Man Freq Offset 0.00000000 Hz Signal Track On Off

Mode 4: draft 802.11n Standard-20MHz Link Mode	
2412	 Agilent 10:54:26 Jan 18, 2010 R T Mkr1 2.4122940 GHz Ref 28 dBm #Atten 35 dB -9.232 dBm Peak Log 10 dB/ Offst 3 dB V1 S2 S3 FC AA Center 2.412 GHz Span 600 kHz #Res BW 3 kHz #VBW 10 kHz #Sweep 200 s (401 pts) Freq/Channel Center Freq 2.41200000 GHz Start Freq 2.41170000 GHz Stop Freq 2.41230000 GHz CF Step 60.0000000 kHz Auto Man Freq Offset 0.00000000 Hz Signal Track On Off
2437	 Agilent 10:49:45 Jan 18, 2010 R T Mkr1 2.4372940 GHz Ref 28 dBm #Atten 35 dB -8.693 dBm Peak Log 10 dB/ Offst 3 dB V1 S2 S3 FC AA Center 2.437 GHz Span 600 kHz #Res BW 3 kHz #VBW 10 kHz #Sweep 200 s (401 pts) Freq/Channel Center Freq 2.43700000 GHz Start Freq 2.43670000 GHz Stop Freq 2.43730000 GHz CF Step 60.0000000 kHz Auto Man Freq Offset 0.00000000 Hz Signal Track On Off
2462	 Agilent 10:52:04 Jan 18, 2010 R T Mkr1 2.4622940 GHz Ref 28 dBm #Atten 35 dB -8.521 dBm Peak Log 10 dB/ Offst 3 dB V1 S2 S3 FC AA Center 2.462 GHz Span 600 kHz #Res BW 3 kHz #VBW 10 kHz #Sweep 200 s (401 pts) Freq/Channel Center Freq 2.46200000 GHz Start Freq 2.46170000 GHz Stop Freq 2.46230000 GHz CF Step 60.0000000 kHz Auto Man Freq Offset 0.00000000 Hz Signal Track On Off

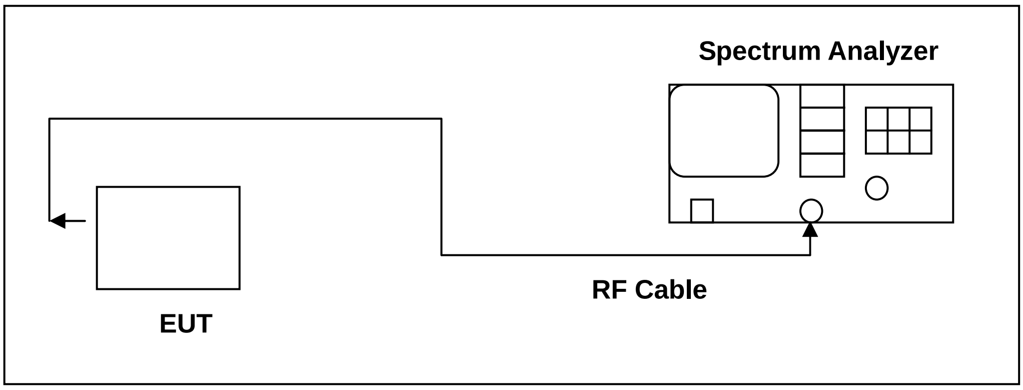
Mode 5: draft 802.11n Wide-40MHz Link Mode	
2422	 Agilent 11:05:36 Jan 18, 2010 R T Mkr1 2.4219955 GHz Ref 28 dBm #Atten 35 dB -15.42 dBm Peak Log 10 dB/ Offst 3 dB W1 S2 S3 FC AA Center 2.422 GHz Span 600 kHz #Res BW 3 kHz #VBW 10 kHz #Sweep 200 s (401 pts) Center Freq 2.42200000 GHz Start Freq 2.42170000 GHz Stop Freq 2.42230000 GHz CF Step 60.0000000 kHz Auto Man Freq Offset 0.00000000 Hz Signal Track On Off
2437	 Agilent 11:09:55 Jan 18, 2010 R T Mkr1 2.4369955 GHz Ref 28 dBm #Atten 35 dB -15.14 dBm Peak Log 10 dB/ Offst 3 dB W1 S2 S3 FC AA Center 2.437 GHz Span 600 kHz #Res BW 3 kHz #VBW 10 kHz #Sweep 200 s (401 pts) Center Freq 2.43700000 GHz Start Freq 2.43670000 GHz Stop Freq 2.43730000 GHz CF Step 60.0000000 kHz Auto Man Freq Offset 0.00000000 Hz Signal Track On Off
2452	 Agilent 11:14:48 Jan 18, 2010 R T Mkr1 2.4519955 GHz Ref 28 dBm #Atten 35 dB -15.08 dBm Peak Log 10 dB/ Offst 3 dB V1 S2 S3 FC AA Center 2.452 GHz Span 600 kHz #Res BW 3 kHz #VBW 10 kHz #Sweep 200 s (401 pts) Center Freq 2.45200000 GHz Start Freq 2.45170000 GHz Stop Freq 2.45230000 GHz CF Step 60.0000000 kHz Auto Man Freq Offset 0.00000000 Hz Signal Track On Off

9 Out of Band Conducted Emissions Measurement

9.1. Limit

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated 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

9.2. Test Setup



9.3. Test Instruments

Equipment	Manufacturer	Model No.	Serial No.	Cal. Date	Remark
Spectrum Analyzer	Agilent	E4445A	MY46181986	05/14/2009	(2)
Test Site	ATL	TE06	TE06	N.C.R.	-----

Remark: (1) Calibration period 1 year. (2) Calibration period 2 years.

NOTE: N.C.R. = No Calibration Request.

9.4. Test Procedure

In any 100 kHz bandwidth outside the EUT pass band, the RF power produced by the modulation products of the spreading sequence, the information sequence, and the carrier frequency shall be at least 20 dB below that of the maximum in-band 100 kHz emission, antenna output of the EUT was coupled directly to spectrum analyzer; if an external attenuator and/or cable was used, these losses are compensated for with the analyzer OFFSET function.

All other types of emissions from the EUT shall meet the general limits for radiated frequencies outside the pass band. The test was performed at 3 channels (Channel 1, 6, 11)

9.5. Test Result

Product	ADSL2+ WLAN Router		
Test Item	Out of Band Conducted Emissions		
Test Mode	Mode 2: IEEE 802.11b Link Mode		
Date of Test	01/18/2010	Test Site	TE06
Frequency (MHz)	Fundamental (dBm)	Limit (dBm)	Measurement (dBm)
2412	5.24	-14.76	-40.47
2437	5.67	-14.33	-39.72
2462	5.10	-14.90	-39.14

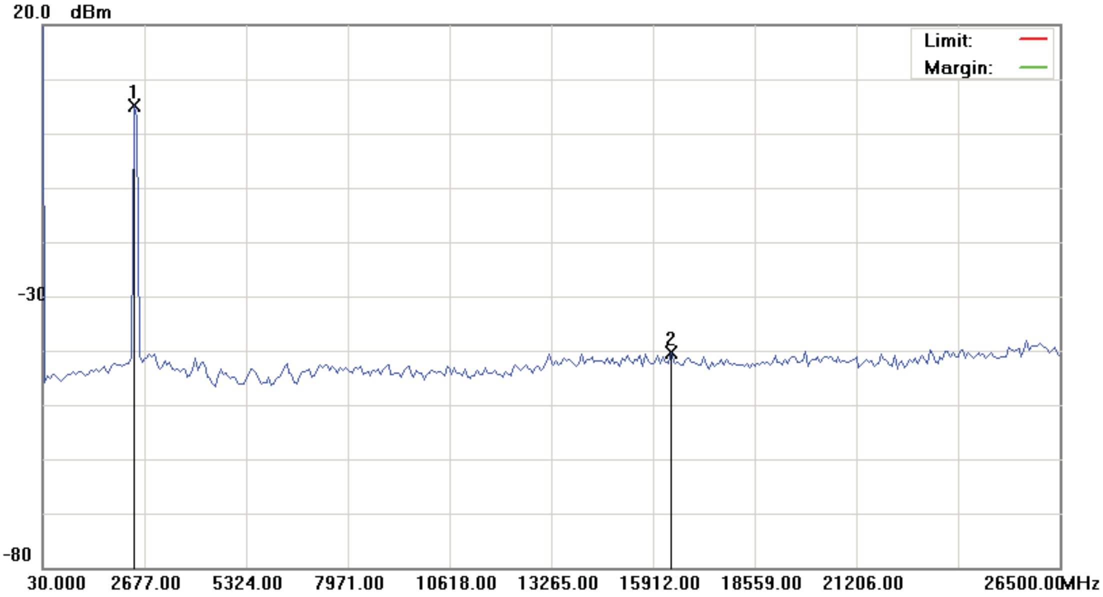
Product	ADSL2+ WLAN Router		
Test Item	Out of Band Conducted Emissions		
Test Mode	Mode 3: IEEE 802.11g Link Mode		
Date of Test	01/18/2010	Test Site	TE06
Frequency (MHz)	Fundamental (dBm)	Limit (dBm)	Measurement (dBm)
2412	5.76	-14.24	-39.48
2437	4.95	-15.05	-40.49
2462	3.70	-16.30	-42.56

Product	ADSL2+ WLAN Router		
Test Item	Out of Band Conducted Emissions		
Test Mode	Mode 4: draft 802.11n Standard-20MHz Link Mode		
Date of Test	01/18/2010	Test Site	TE06
Frequency (MHz)	Fundamental (dBm)	Limit (dBm)	Measurement (dBm)
2412	5.25	-14.75	-40.42
2437	4.25	-15.75	-39.79
2462	4.75	-15.25	-39.92

Product	ADSL2+ WLAN Router		
Test Item	Out of Band Conducted Emissions		
Test Mode	Mode 5: draft 802.11n Wide-40MHz Link Mode		
Date of Test	01/18/2010	Test Site	TE06
Frequency (MHz)	Fundamental (dBm)	Limit (dBm)	Measurement (dBm)
2422	2.18	-17.82	-40.06
2437	1.87	-18.13	-38.53
2452	1.98	-18.02	-40.00

9.6. Test Graphs

File :11b 20dB　Data :#1　Date: 2008/1/18　Time: 上午 11:43:01

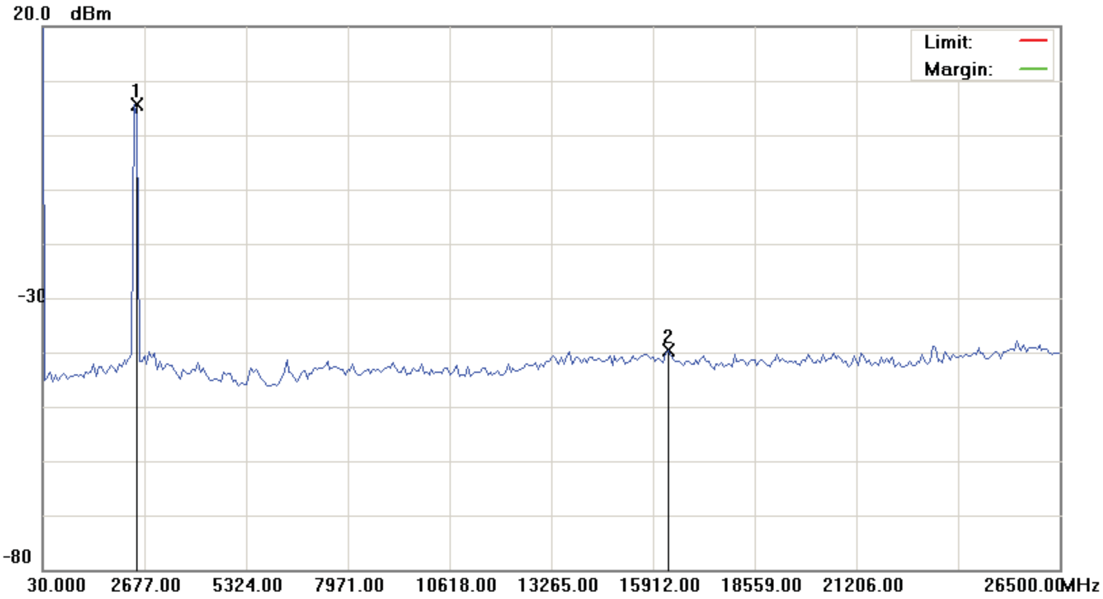


Site: : RF conducted　Polarization:　Temperature: 26 ℃
Limit:　Power:　Humidity: 55 %
EUT: ADSL2+ WLAN Router　Distance:　RBW: 100 KHz　VBW: 100 KHz
M/N: Vigor2710ne
Mode: 2
Note: 2412MHz

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	Detector	Antenna Height	Table Degree	Comment
		MHz	dBm	dB	dBm	dBm	dB		cm	degree	
1	*	2412.000	5.24	0.00	5.24			peak			Tx
2		16375.225	-40.47	0.00	-40.47			peak			

*:Maximum data　x:Over limit　!:over margin

File :11b 20dB Data :#2 Date: 2008/1/18 Time: 上午 11:43:29



Site: : RF conducted Polarization: Temperature: 26 ℃

Limit: Power: Humidity: 55 %

EUT: ADSL2+ WLAN Router Distance: RBW: 100 KHz VBW: 100 KHz

M/N: Vigor2710ne

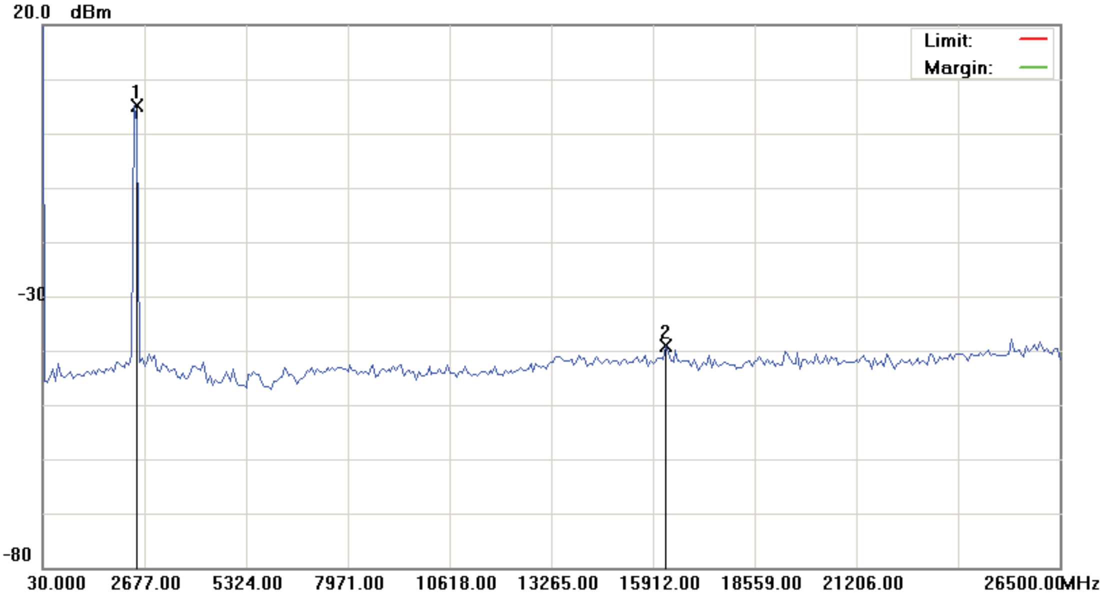
Mode: 2

Note: 2437MHz

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	Detector	Antenna Height	Table Degree	Comment
		MHz	dBm	dB	dBm	dBm	dB		cm	degree	
1	*	2437.000	5.67	0.00	5.67			peak			Tx
2		16309.050	-39.72	0.00	-39.72			peak			

*:Maximum data x:Over limit !:over margin

File :11b 20dB Data :#3 Date: 2008/1/18 Time: 上午 11:43:43

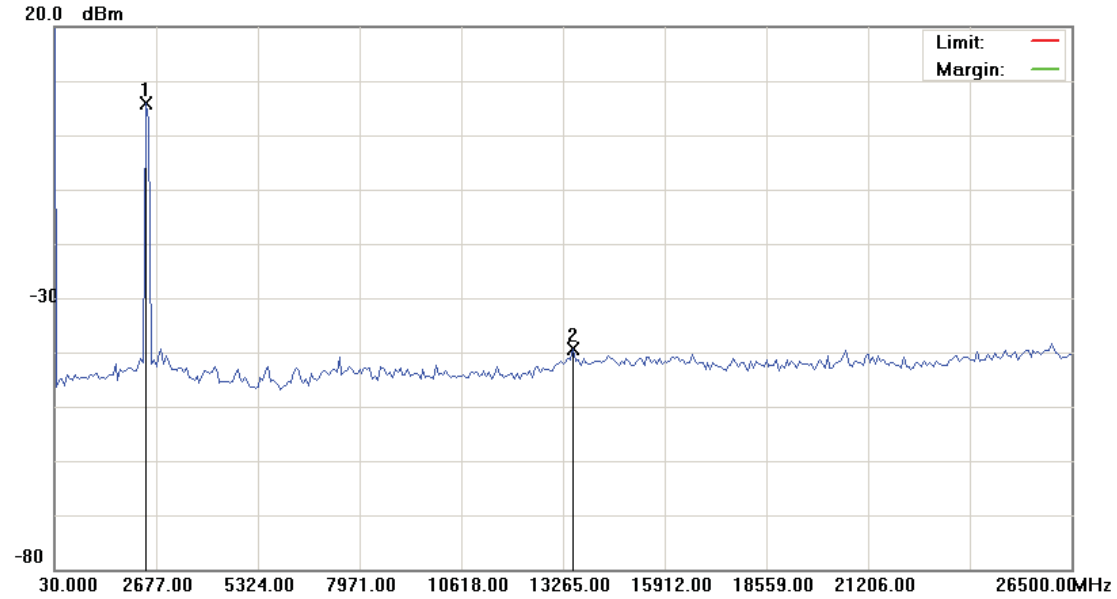


Site: : RF conducted	Polarization:	Temperature: 26 ℃
Limit:	Power:	Humidity: 55 %
EUT: ADSL2+ WLAN Router	Distance:	RBW: 100 KHz VBW: 100 KHz
M/N: Vigor2710ne		
Mode: 2		
Note: 2472MHz		

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBm	dB	dBm	dBm	dB	Detector	cm	degree	Comment
1	*	2472.000	5.10	0.00	5.10			peak			Tx
2		16242.875	-39.14	0.00	-39.14			peak			

*:Maximum data x:Over limit !:over margin

File :11g 20dB　　Data :#1　　Date: 2008/1/18　　Time: 上午 11:45:42

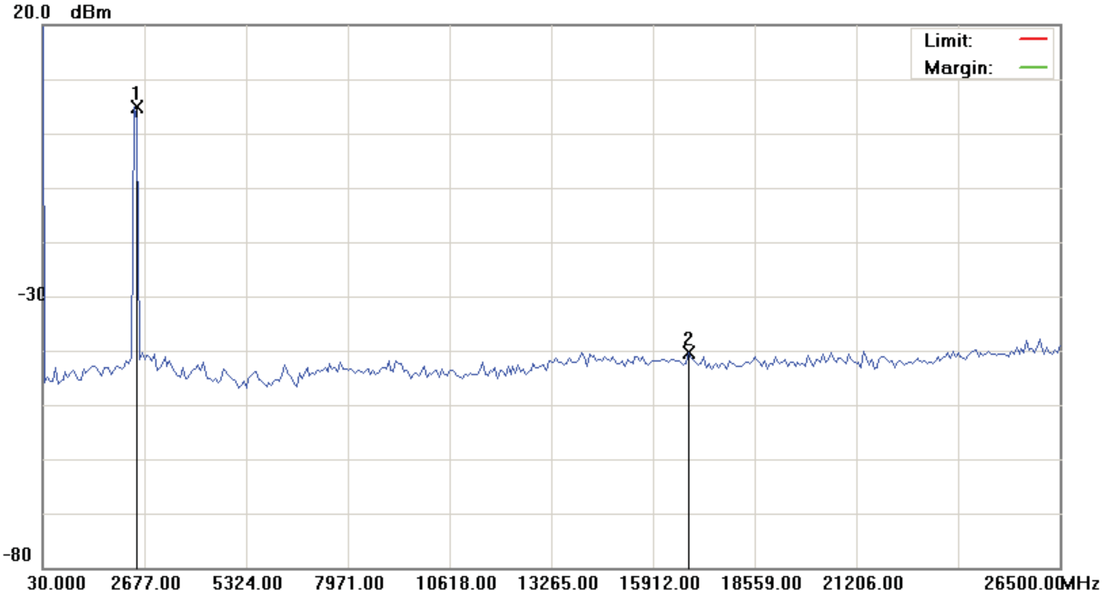


Site: : RF conducted	Polarization:	Temperature: 26 ℃
Limit:	Power:	Humidity: 55 %
EUT: ADSL2+ WLAN Router	Distance:	RBW: 100 KHz VBW: 100 KHz
M/N: Vigor2710ne		
Mode: 3		
Note: 2412MHz		

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBm	dB	dBm	dBm	dB	Detector	cm	degree	Comment
1	*	2412.000	5.76	0.00	5.76			peak			Tx
2		13529.700	-39.48	0.00	-39.48			peak			

*:Maximum data　　x:Over limit　　!:over margin

File :11g 20dB Data :#2 Date: 2008/1/18 Time: 上午 11:45:59



Site: : RF conducted
Limit:
EUT: ADSL2+ WLAN Router
M/N: Vigor2710ne
Mode: 3
Note: 2437MHz

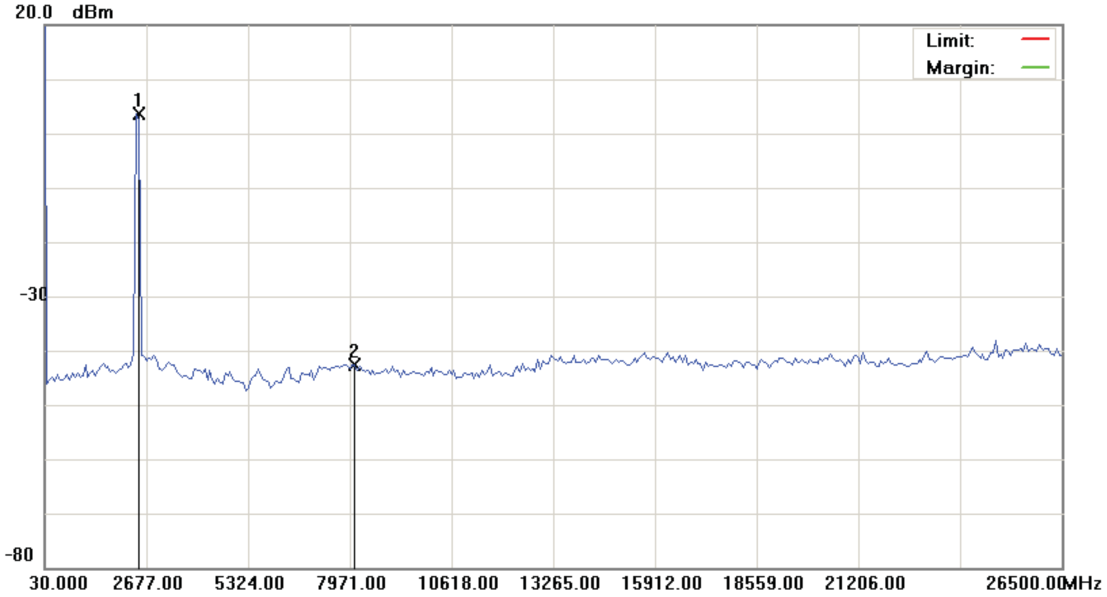
Polarization:
Power:
Distance:

Temperature: 26 ℃
Humidity: 55 %
RBW: 100 KHz VBW: 100 KHz

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	Detector	Antenna Height	Table Degree	Comment
		MHz	dBm	dB	dBm	dBm	dB		cm	degree	
1	*	2437.000	4.95	0.00	4.95			peak			Tx
2		16838.450	-40.49	0.00	-40.49			peak			

*:Maximum data x:Over limit !:over margin

File :11g 20dB Data :#3 Date: 2008/1/18 Time: 上午 11:46:13

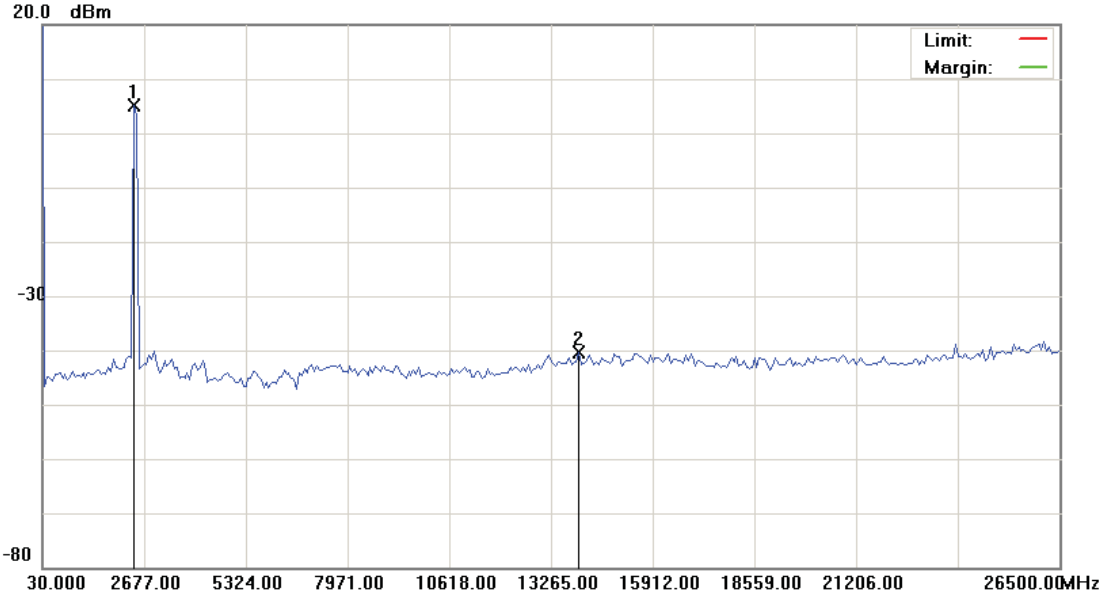


Site:	: RF conducted	Polarization:		Temperature:	26 ℃
Limit:		Power:		Humidity:	55 %
EUT:	ADSL2+ WLAN Router	Distance:		RBW: 100 KHz	VBW: 100 KHz
M/N:	Vigor2710ne				
Mode:	3				
Note:	2472MHz				

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBm	dB	dBm	dBm	dB	Detector	cm	degree	Comment
1	*	2472.000	3.70	0.00	3.70			peak			Tx
2		8103.350	-42.56	0.00	-42.56			peak			

*:Maximum data x:Over limit !:over margin

File :11n(20M) 20dB　Data :#1　Date: 2008/1/18　Time: 上午 11:41:56

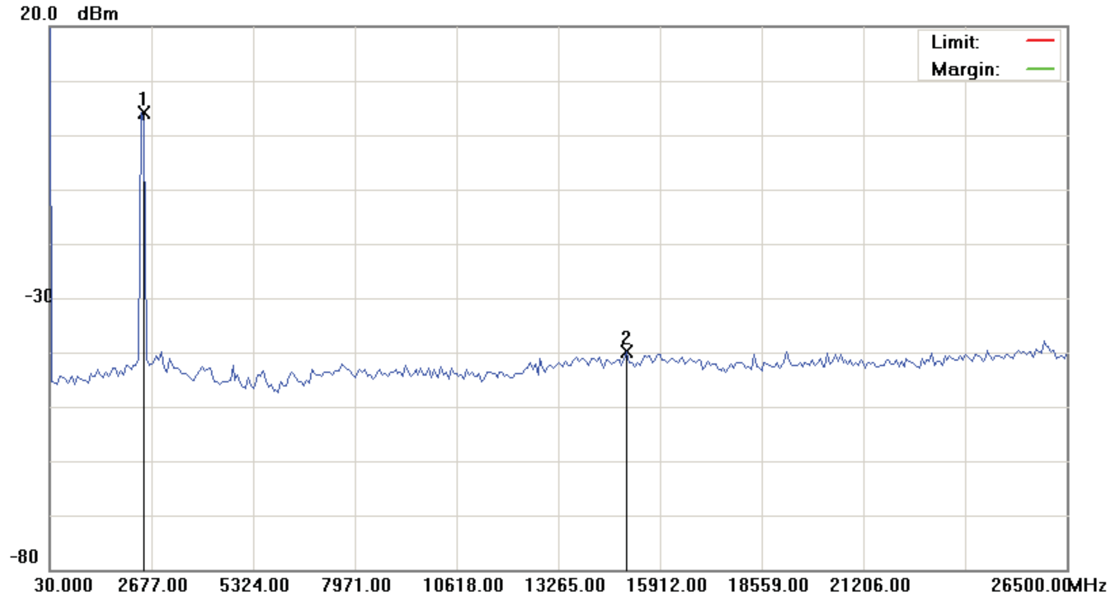


Site: : RF conducted	Polarization:	Temperature: 26 ℃
Limit:	Power:	Humidity: 55 %
EUT: ADSL2+ WLAN Router	Distance:	RBW: 100 KHz VBW: 100 KHz
M/N: Vigor2710ne		
Mode: 4		
Note: 2412MHz		

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBm	dB	dBm	dBm	dB	Detector	cm	degree	Comment
1	*	2412.000	5.25	0.00	5.25			peak			Tx
2		13992.925	-40.42	0.00	-40.42			peak			

*:Maximum data　x:Over limit　!:over margin

File :11n(20M) 20dB   Data :#2   Date: 2008/1/18   Time: 上午 11:42:10



Site: : RF conducted
Limit:
EUT: ADSL2+ WLAN Router
M/N: Vigor2710ne
Mode: 4
Note: 2437MHz

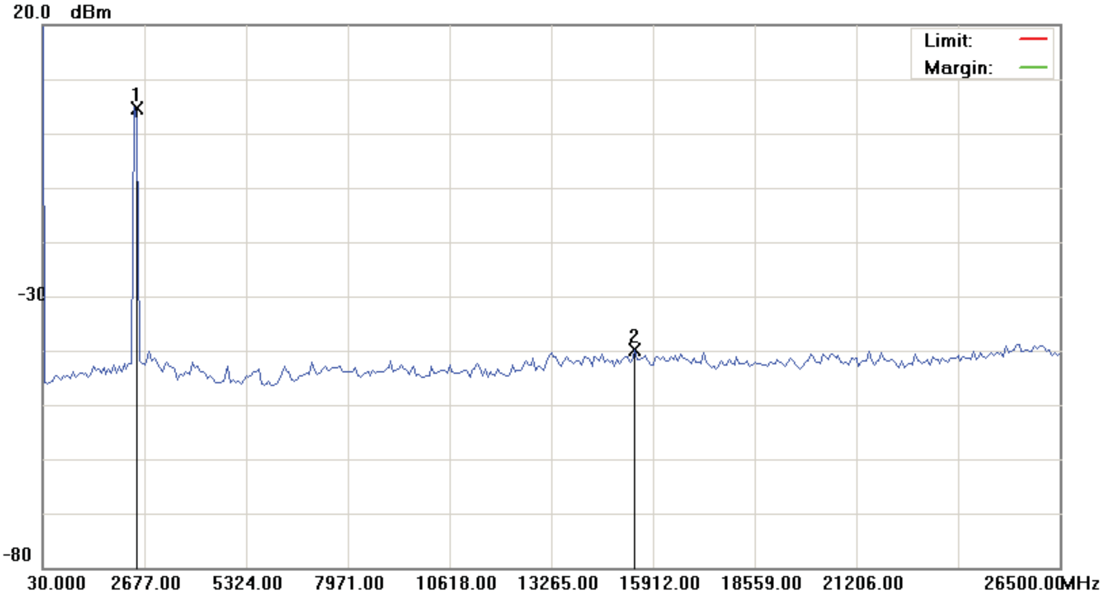
Polarization:
Power:
Distance:

Temperature: 26 ℃
Humidity: 55 %
RBW: 100 KHz VBW: 100 KHz

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBm	dB	dBm	dBm	dB	Detector	cm	degree	Comment
1	*	2437.000	4.25	0.00	4.25			peak			Tx
2		15051.725	-39.79	0.00	-39.79			peak			

*:Maximum data   x:Over limit   !:over margin

File :11n(20M) 20dB Data :#3 Date: 2008/1/18 Time: 上午 11:42:25



Site: : RF conducted
Limit:
EUT: ADSL2+ WLAN Router
M/N: Vigor2710ne
Mode: 4
Note: 2472MHz

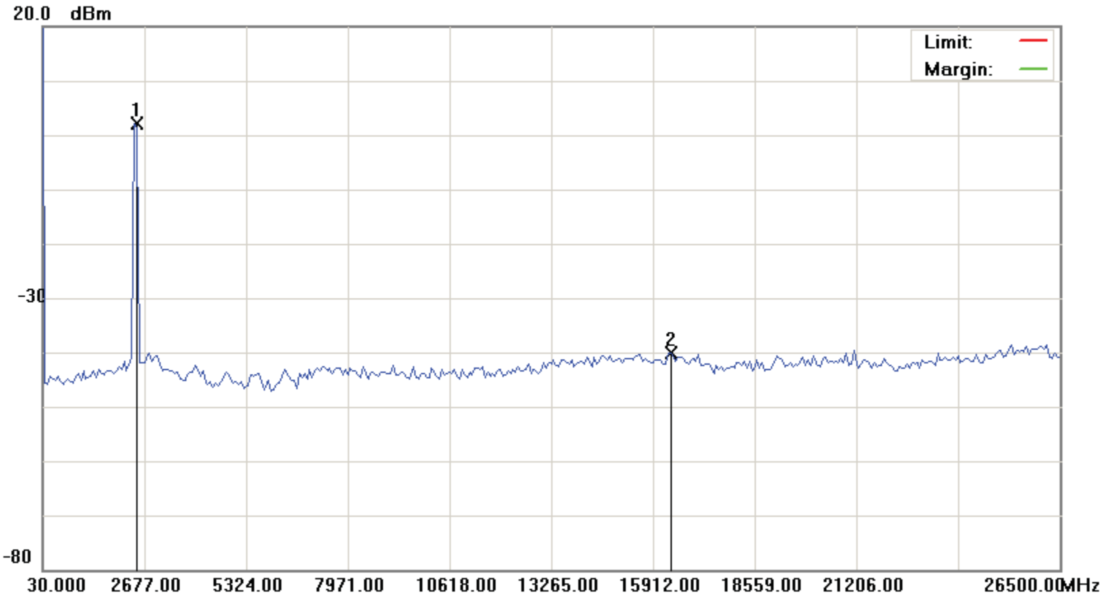
Polarization:
Power:
Distance:

Temperature: 26 ℃
Humidity: 55 %
RBW: 100 KHz VBW: 100 KHz

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Detector	Antenna Height	Table Degree	Comment
		MHz	dBm	dB	dBm	dBm	dB	Detector	cm	degree	Comment
1	*	2472.000	4.75	0.00	4.75			peak			Tx
2		15448.775	-39.92	0.00	-39.92			peak			

*:Maximum data x:Over limit !:over margin

File :11n(40M) 20dB　　Data :#1　　Date: 2008/1/18　　Time: 上午 11:40:13



Site: : RF conducted
Limit:
EUT: ADSL2+ WLAN Router
M/N: Vigor2710ne
Mode: 5
Note: 2422MHz

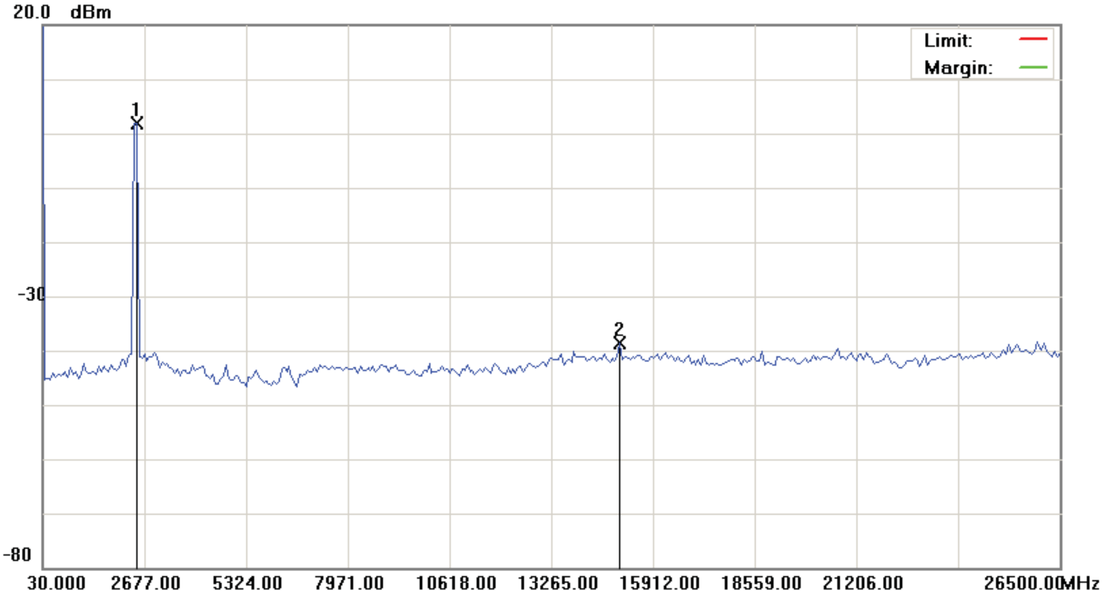
Polarization:
Power:
Distance:

Temperature: 26 ℃
Humidity: 55 %
RBW: 100 KHz VBW: 100 KHz

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	Detector	Antenna Height	Table Degree	Comment
		MHz	dBm	dB	dBm	dBm	dB		cm	degree	
1	*	2422.000	2.18	0.00	2.18			peak			Tx
2		16375.225	-40.06	0.00	-40.06			peak			

*:Maximum data　x:Over limit　!:over margin

File :11n(40M) 20dB Data :#2 Date: 2008/1/18 Time: 上午 11:40:32



Site: : RF conducted
Limit:
EUT: ADSL2+ WLAN Router
M/N: Vigor2710ne
Mode: 5
Note: 2437MHz

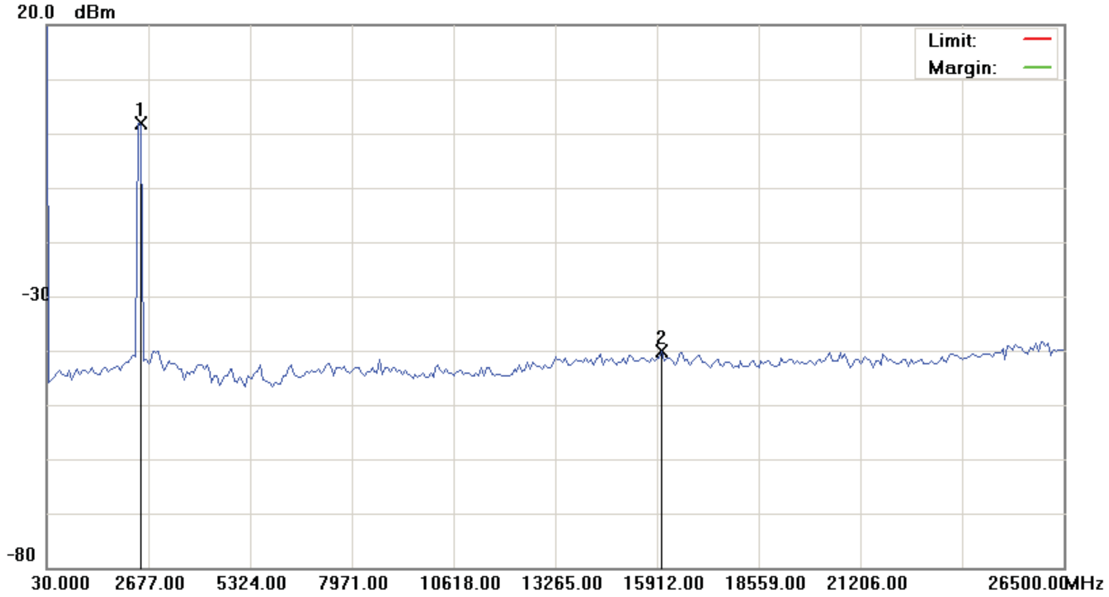
Polarization:
Power:
Distance:

Temperature: 26 ℃
Humidity: 55 %
RBW: 100 KHz VBW: 100 KHz

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	Detector	Antenna Height	Table Degree	Comment
		MHz	dBm	dB	dBm	dBm	dB		cm	degree	
1	*	2437.000	1.87	0.00	1.87			peak			Tx
2		15051.725	-38.53	0.00	-38.53			peak			

*:Maximum data x:Over limit !:over margin

File :11n(40M) 20dB Data :#3 Date: 2008/1/18 Time: 上午 11:40:46



Site: : RF conducted
Limit:
EUT: ADSL2+ WLAN Router
M/N: Vigor2710ne
Mode: 5
Note: 2462MHz

Polarization:
Power:
Distance:

Temperature: 26 ℃
Humidity: 55 %
RBW: 100 KHz VBW: 100 KHz

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	Detector	Antenna Height	Table Degree	Comment
		MHz	dBm	dB	dBm	dBm	dB		cm	degree	
1	*	2462.000	1.98	0.00	1.98			peak			Tx
2		16044.350	-40.00	0.00	-40.00			peak			

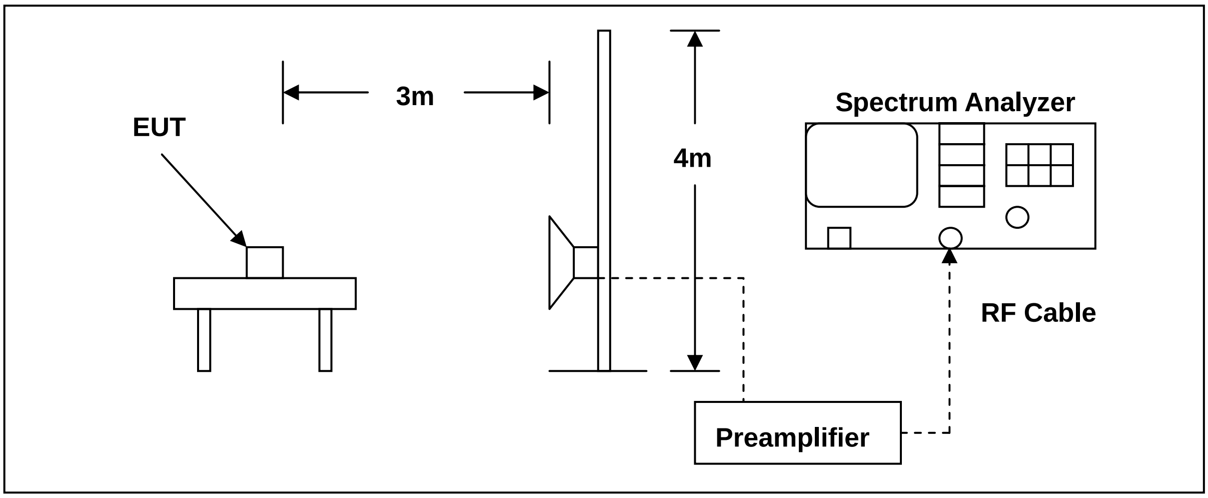
*:Maximum data x:Over limit !:over margin

10 Band Edges Measurement

10.1. Limit

In any 100 kHz bandwidth outside the intentional radiation frequency band, the radio frequency power shall be at least 20 dB below the highest level of the radiated power. In addition, radiated emissions which fall in the restricted bands must also comply with the radiated emission limits.

10.2. Test Setup



10.3. Test Instruments

Equipment	Manufacturer	Model No.	Serial No.	Cal. Date	Remark
Spectrum Analyzer	Agilent	E4408B	MY45107753	01/27/2009	(2)
Pre Amplifier	Agilent	8449B	3008A02237	01/20/2009	(1)
Horn Antenna	SCHWARZBECK MESS-ELEKTRONIK	9120D	9120D-550	07/01/2009	(2)
Test Site	ATL	TE06	TE06	N.C.R.	-----

Remark: (1) Calibration period 1 year. (2) Calibration period 2 years.

NOTE: N.C.R. = No Calibration Request.

10.4. Test Procedure

The EUT was setup to ANSI C63.4, 2003; tested to DTS test procedure of Oct 2002 KDB558074 for compliance to FCC 47CFR 15.247 requirements.

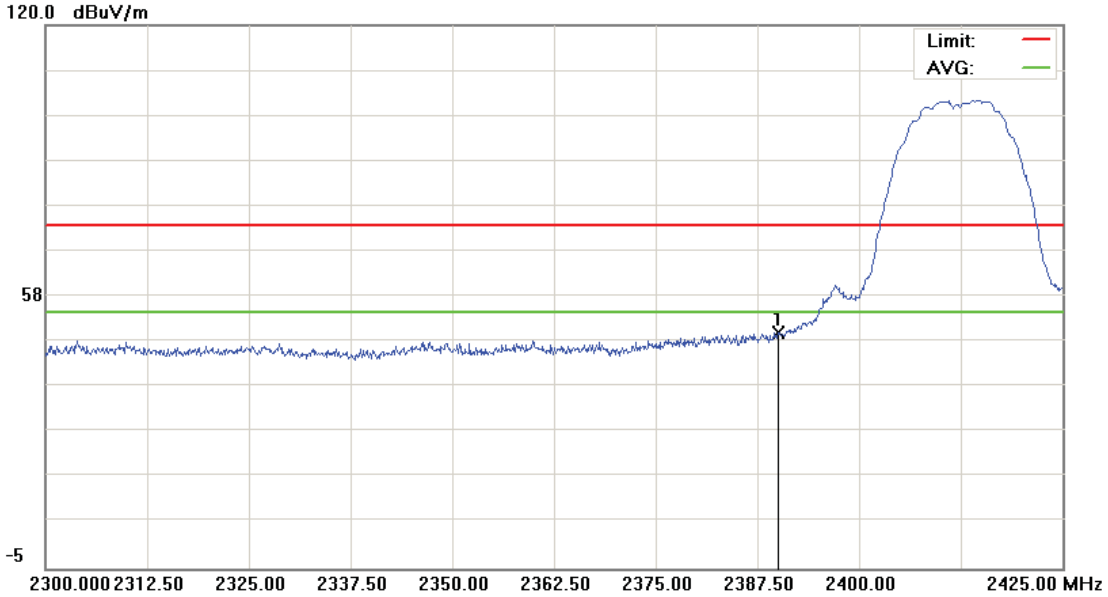
The emissions on the harmonics frequencies, the limits, and the margin of compliance are presented. These tests were made when the transmitter was in full radiated power. The additional test was performed to show compliance with the requirement at the band-edge frequency 2483.5 MHz and up to 2500 MHz and at 2390.0 MHz.

The transmitter was configured with the worst case antenna and setup to transmit at the highest channel. Then the field strength was measured at 2483.5 MHz.

The transmitter was then configured with the worst case antenna and setup to transmit at the lowest channel. Then the field strength was measured at 2390.0 MHz. These tests were performed at 4 different bit rates.

10.5. Test Graphs

File :Vigor2710nE(Band Edge) Data :#1 Date: 2010/01/18 Time: 上午 11:25:47



Site: : 966 Chamber
Limit: FCC part 15 (PK)
EUT: ADSL2+ WLAN Router
M/N: Vigor2710ne
Mode: 2
Note: 2412MHz

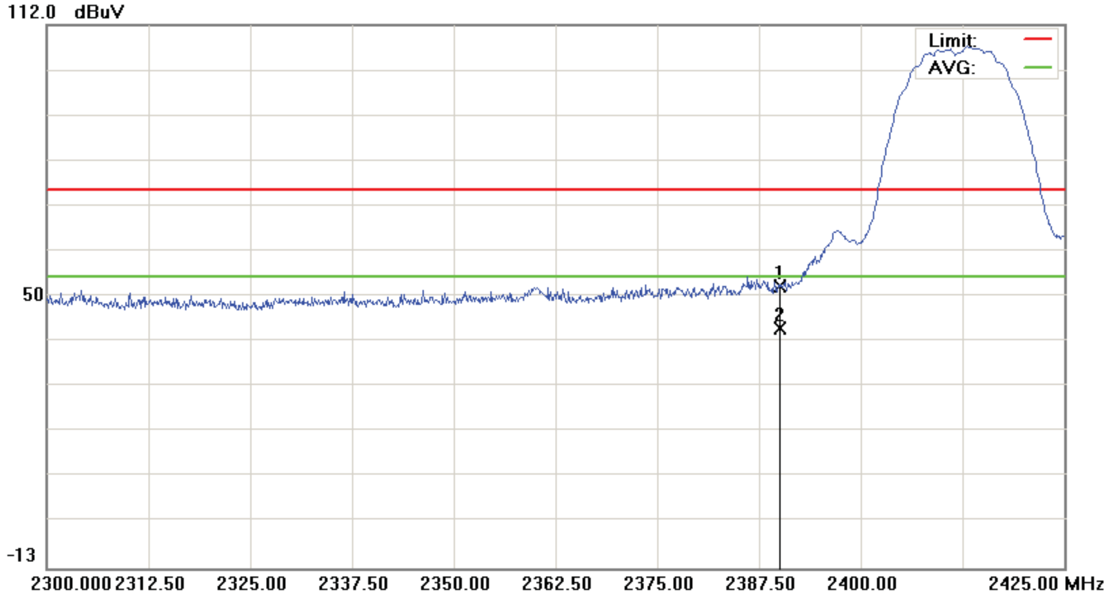
Polarization: *Vertical*
Power:
Distance: 3m

Temperature: 22 ℃
Humidity: 60 %
RBW: 1000 KHz VBW: 1000 KHz

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1	*	2390.000	48.88	0.19	49.07	74.00	-24.93	peak			

*:Maximum data x:Over limit !:over margin

File :Vigor2710nE(Band Edge) Data :#3 Date: 2010/01/18 Time: 上午 11:35:08

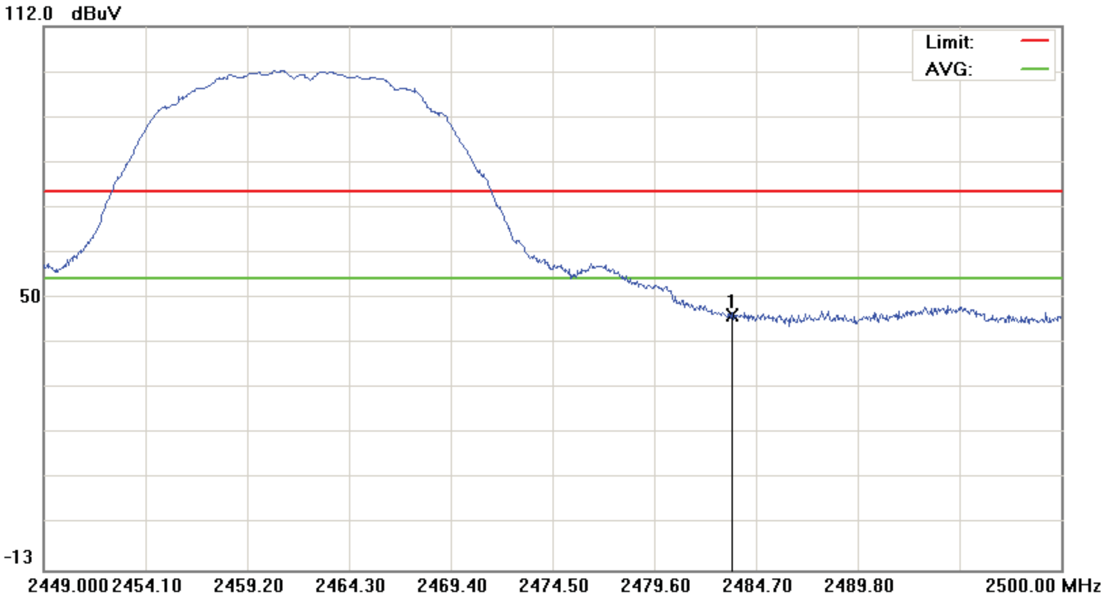


Site:	: 966 Chamber	Polarization:	***Horizontal***	Temperature:	22 ℃
Limit:	FCC part 15 (PK)	Power:		Humidity:	60 %
EUT:	ADSL2+ WLAN Router	Distance:	3m	RBW: 1000 KHz VBW: 1000 KHz	
M/N:	Vigor2710ne				
Mode:	2				
Note:	2412MHz				

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	Detector	Antenna Height	Table Degree	Comment
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB		cm	degree	
1		2390.000	51.74	0.19	51.93	74.00	-22.07	peak			
2	*	2390.000	41.92	0.19	42.11	54.00	-11.89	AVG			

*:Maximum data x:Over limit !:over margin

File :Vigor2710nE(Band Edge) Data :#5 Date: 2010/01/18 Time: 上午 11:45:06



Site: : 966 Chamber
Limit: FCC part 15 (PK)
EUT: ADSL2+ WLAN Router
M/N: Vigor2710ne
Mode: 2
Note: 2462MHz

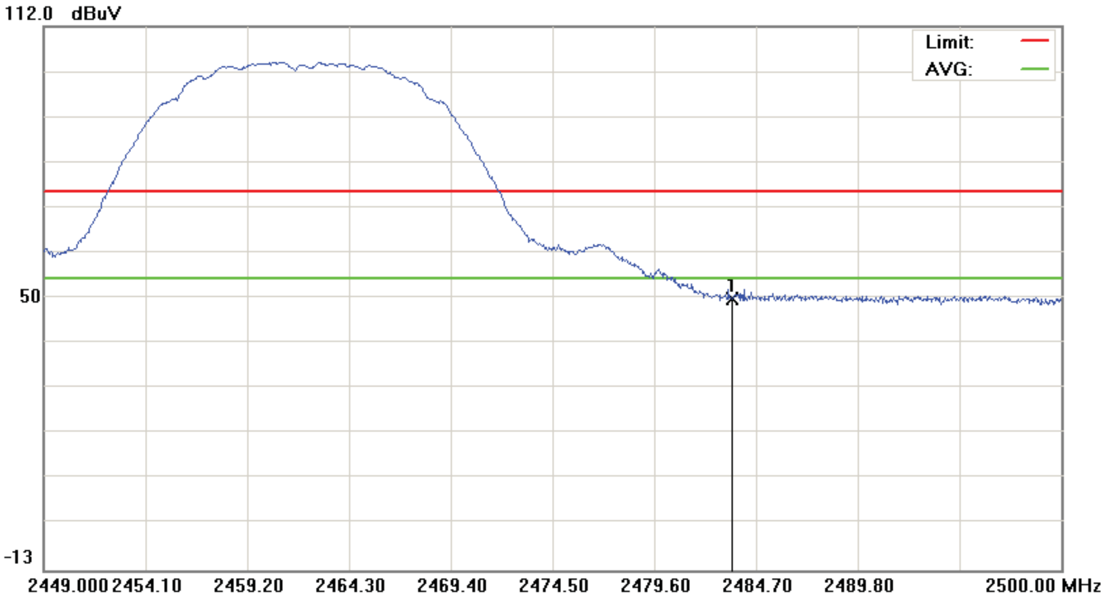
Polarization: *Vertical*
Power:
Distance: 3m

Temperature: 22 ℃
Humidity: 60 %
RBW: 1000 KHz VBW: 1000 KHz

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	Detector	Antenna Height	Table Degree	Comment
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1	*	2483.500	45.20	0.25	45.45	74.00	-28.55	peak			

*:Maximum data x:Over limit !:over margin

File :Vigor2710nE(Band Edge) Data :#7 Date: 2010/01/18 Time: 上午 11:55:26

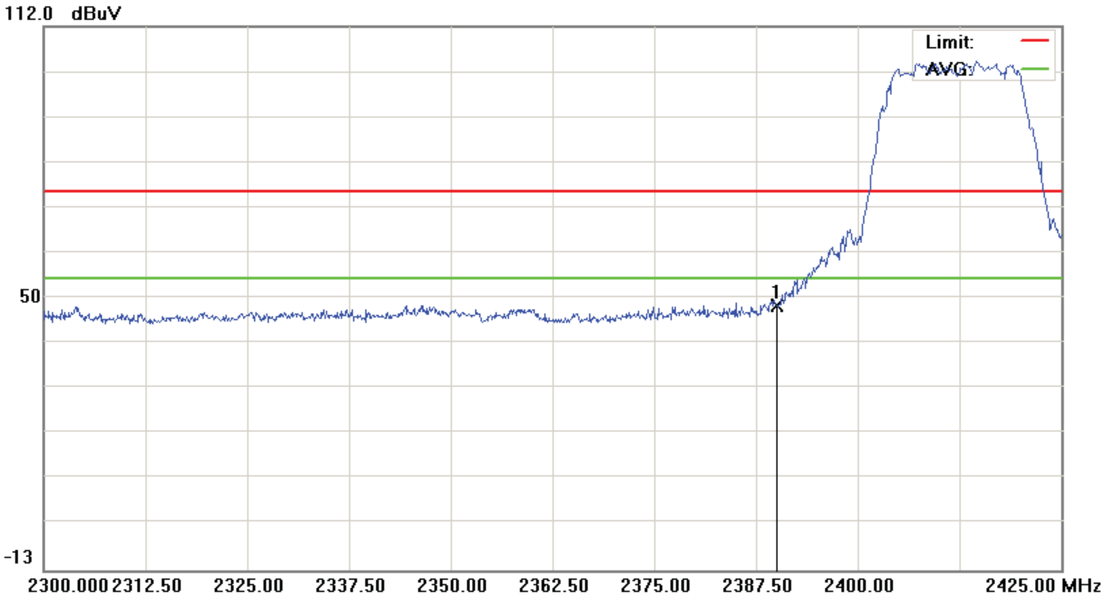


Site:	: 966 Chamber	Polarization:	*Horizontal*	Temperature:	22 ℃
Limit:	FCC part 15 (PK)	Power:		Humidity:	60 %
EUT:	ADSL2+ WLAN Router	Distance:	3m	RBW: 1000 KHz VBW: 1000 KHz	
M/N:	Vigor2710ne				
Mode:	2				
Note:	2462MHz				

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1	*	2483.500	49.19	0.25	49.44	74.00	-24.56	peak			

*:Maximum data x:Over limit !:over margin

File :Vigor2710nE(Band Edge)   Data :#1   Date: 2010/01/18   Time: 下午 01:02:43



Site: : 966 Chamber
Limit: FCC part 15 (PK)
EUT: ADSL2+ WLAN Router
M/N: Vigor2710ne
Mode: 3
Note: 2412MHz

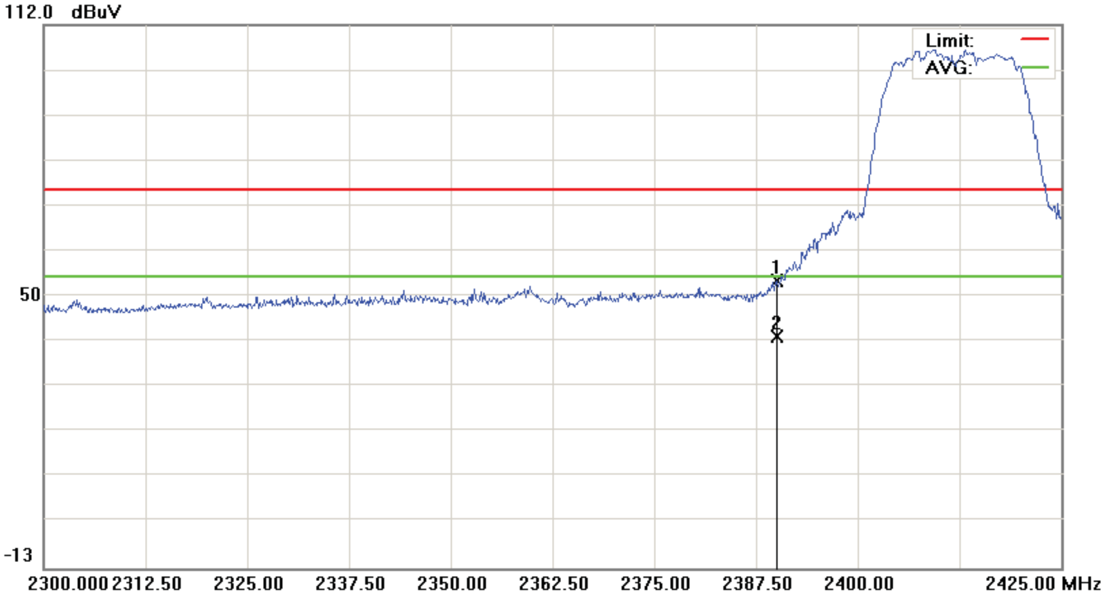
Polarization: *Vertical*
Power:
Distance: 3m

Temperature: 22 ℃
Humidity: 60 %
RBW: 1000 KHz VBW: 1000 KHz

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1	*	2390.000	47.51	0.19	47.70	74.00	-26.30	peak			

*:Maximum data   x:Over limit   !:over margin

File :Vigor2710nE(Band Edge) Data :#3 Date: 2010/01/18 Time: 下午 01:12:06

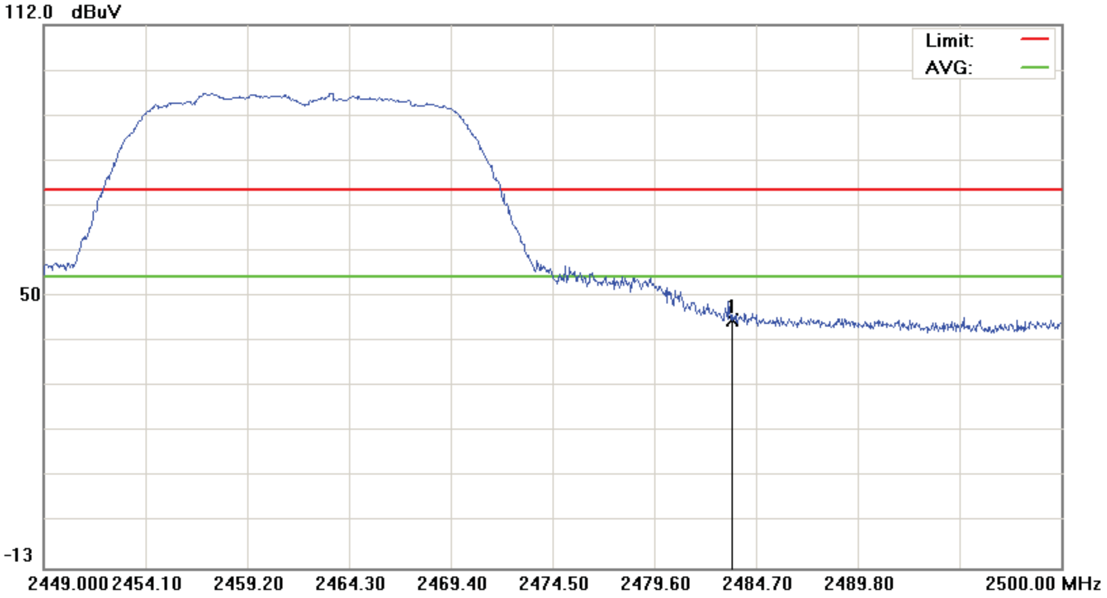


Site:	: 966 Chamber	Polarization:	***Horizontal***	Temperature:	22 ℃
Limit:	FCC part 15 (PK)	Power:		Humidity:	60 %
EUT:	ADSL2+ WLAN Router	Distance:	3m	RBW: 1000 KHz	VBW: 1000 KHz
M/N:	Vigor2710ne				
Mode:	3				
Note:	2412MHz				

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1		2390.000	52.85	0.19	53.04	74.00	-20.96	peak			
2	*	2390.000	40.11	0.19	40.30	54.00	-13.70	AVG			

*:Maximum data x:Over limit !:over margin

File :Vigor2710nE(Band Edge) Data :#5 Date: 2010/01/18 Time: 下午 01:21:23

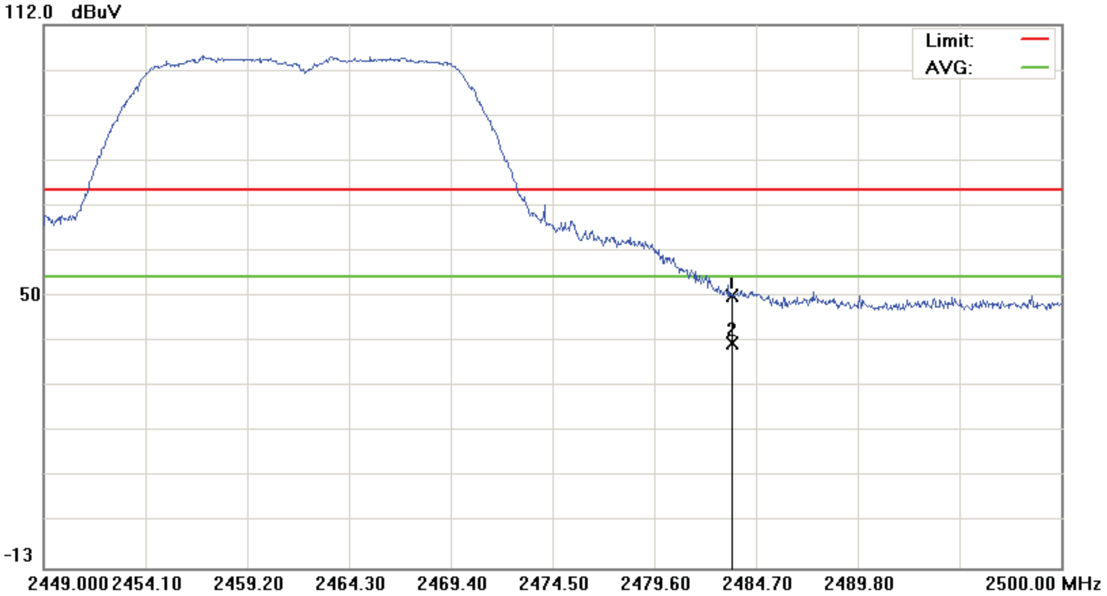


Site: : 966 Chamber Polarization: *Vertical* Temperature: 22 ℃
Limit: FCC part 15 (PK) Power: Humidity: 60 %
EUT: ADSL2+ WLAN Router Distance: 3m RBW: 1000 KHz VBW: 1000 KHz
M/N: Vigor2710ne
Mode: 3
Note: 2462MHz

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	Detector	Antenna Height	Table Degree	Comment
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB		cm	degree	
1	*	2483.500	43.64	0.25	43.89	74.00	-30.11	peak			

*:Maximum data x:Over limit !:over margin

File :Vigor2710nE(Band Edge) Data :#7 Date: 2010/01/18 Time: 下午 01:32:42



Site: : 966 Chamber
Limit: FCC part 15 (PK)
EUT: ADSL2+ WLAN Router
M/N: Vigor2710ne
Mode: 3
Note: 2462MHz

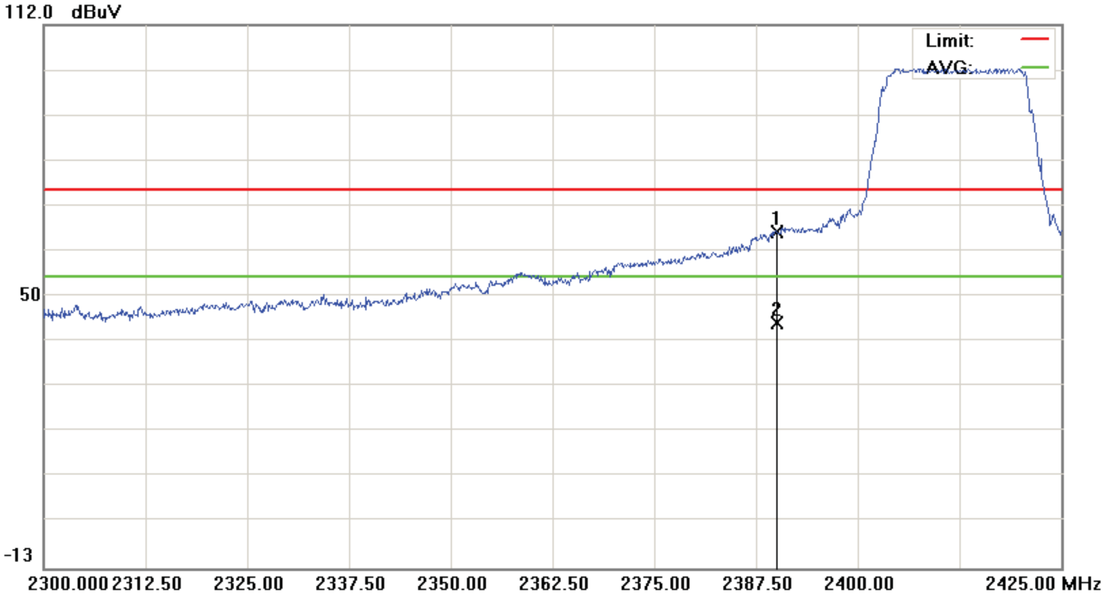
Polarization: *Horizontal*
Power:
Distance: 3m

Temperature: 22 ℃
Humidity: 60 %
RBW: 1000 KHz VBW: 1000 KHz

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	Detector	Antenna Height	Table Degree	Comment
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB		cm	degree	
1		2483.500	49.40	0.25	49.65	74.00	-24.35	peak			
2	*	2483.500	38.45	0.25	38.70	54.00	-15.30	AVG			

*:Maximum data x:Over limit !:over margin

File :Vigor2710nE(Band Edge) Data :#9 Date: 2010/01/18 Time: 下午 02:32:32

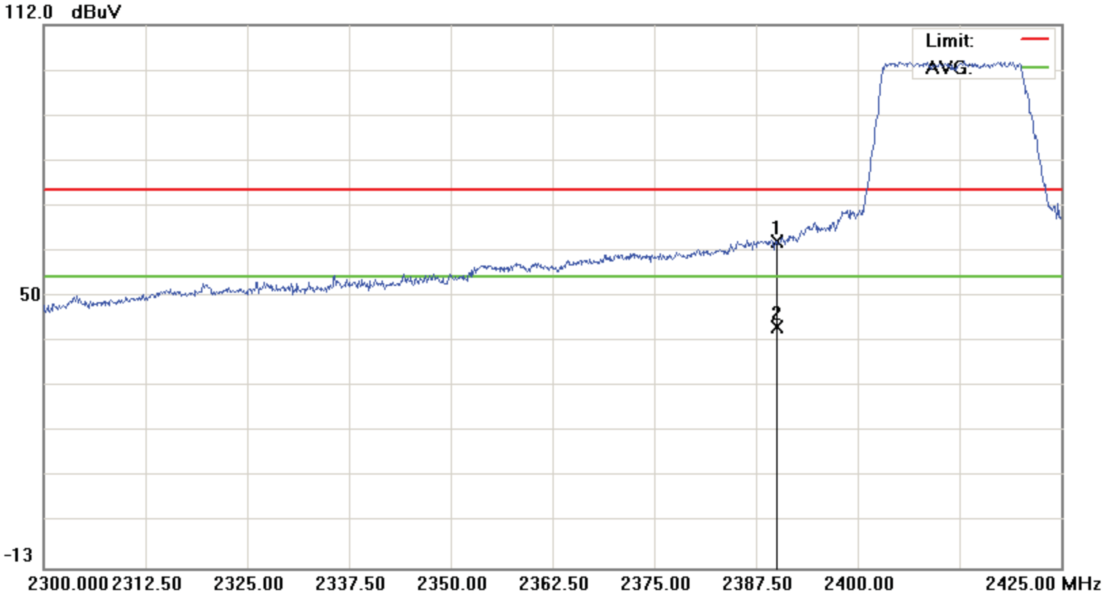


Site: : 966 Chamber
Polarization: *Vertical*
Temperature: 22 ℃
Limit: FCC part 15 (PK)
Power:
Humidity: 60 %
EUT: ADSL2+ WLAN Router
Distance: 3m
RBW: 1000 KHz VBW: 1000 KHz
M/N: Vigor2710ne
Mode: 4
Note: 2412MHz

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1	*	2390.000	64.01	0.19	64.20	74.00	-9.80	peak			
2		2390.000	43.25	0.19	43.44	54.00	-10.56	AVG			

*:Maximum data x:Over limit !:over margin

File :Vigor2710nE(Band Edge) Data :#10 Date: 2010/01/18 Time: 下午 02:31:19

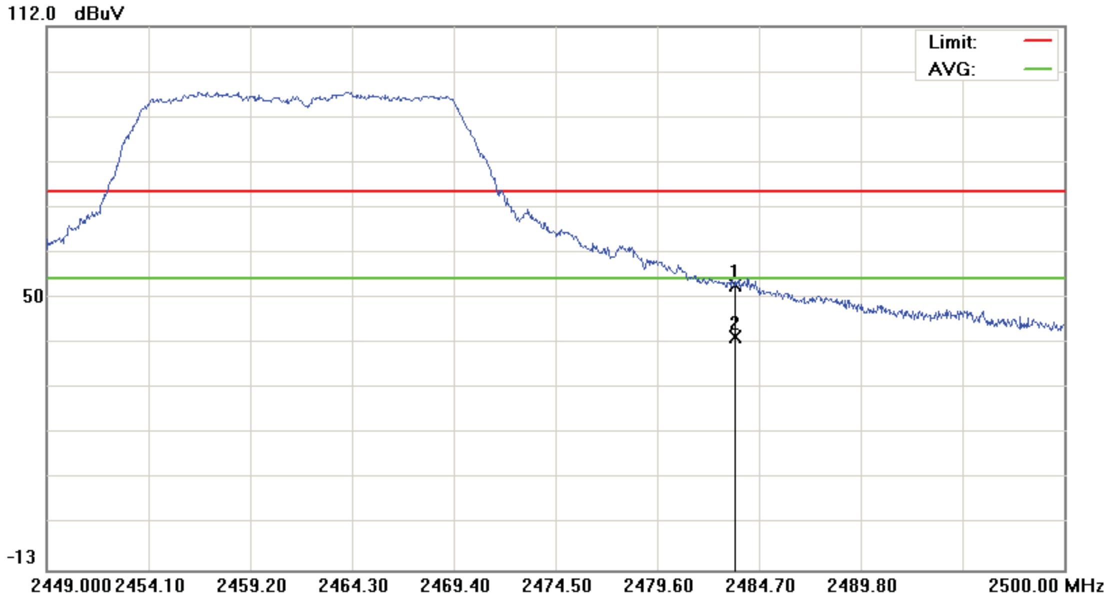


Site: : 966 Chamber
Polarization: *Horizontal*
Temperature: 22 ℃
Limit: FCC part 15 (PK)
Power:
Humidity: 60 %
EUT: ADSL2+ WLAN Router
Distance: 3m
RBW: 1000 KHz VBW: 1000 KHz
M/N: Vigor2710ne
Mode: 4
Note: 2412MHz

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1		2390.000	61.85	0.19	62.04	74.00	-11.96	peak			
2	*	2390.000	42.42	0.19	42.61	54.00	-11.39	AVG			

*:Maximum data x:Over limit !:over margin

File :Vigor2710nE(Band Edge)   Data :#11   Date: 2010/01/18   Time: 下午 02:42:42



Site: : 966 Chamber
Limit: FCC part 15 (PK)
EUT: ADSL2+ WLAN Router
M/N: Vigor2710ne
Mode: 4
Note: 2462MHz

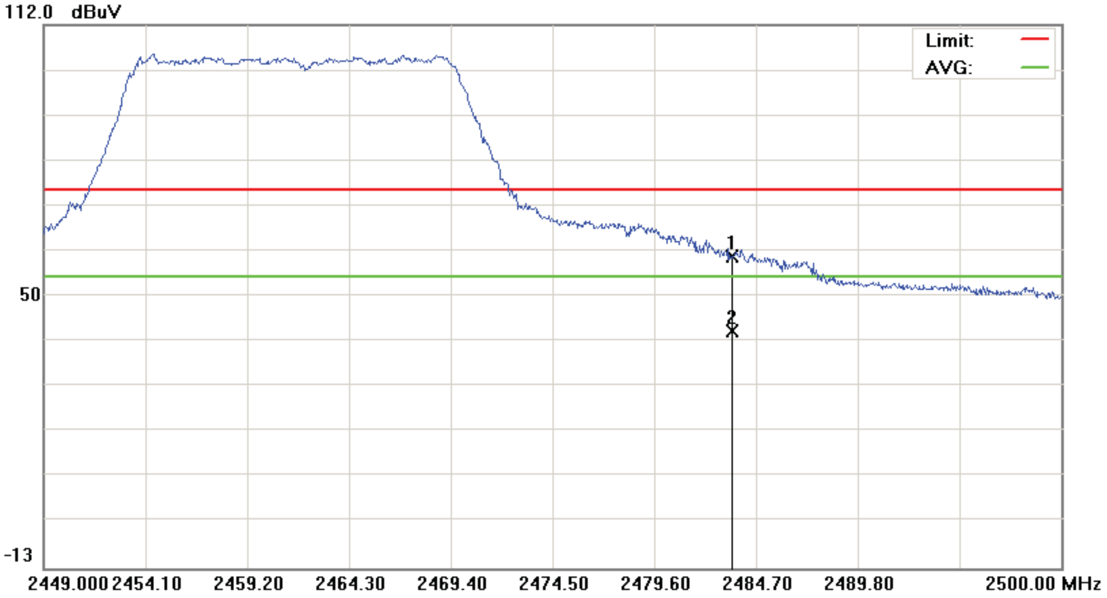
Polarization: *Vertical*
Power:
Distance: 3m

Temperature: 22 ℃
Humidity: 60 %
RBW: 1000 KHz VBW: 1000 KHz

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	Detector	Antenna Height	Table Degree	Comment
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB		cm	degree	
1		2483.500	52.14	0.25	52.39	74.00	-21.61	peak			
2	*	2483.500	40.38	0.25	40.63	54.00	-13.37	AVG			

*:Maximum data   x:Over limit   !:over margin

File :Vigor2710nE(Band Edge) Data :#12 Date: 2010/01/18 Time: 下午 02:52:31



Site: : 966 Chamber
Limit: FCC part 15 (PK)
EUT: ADSL2+ WLAN Router
M/N: Vigor2710ne
Mode: 4
Note: 2462MHz

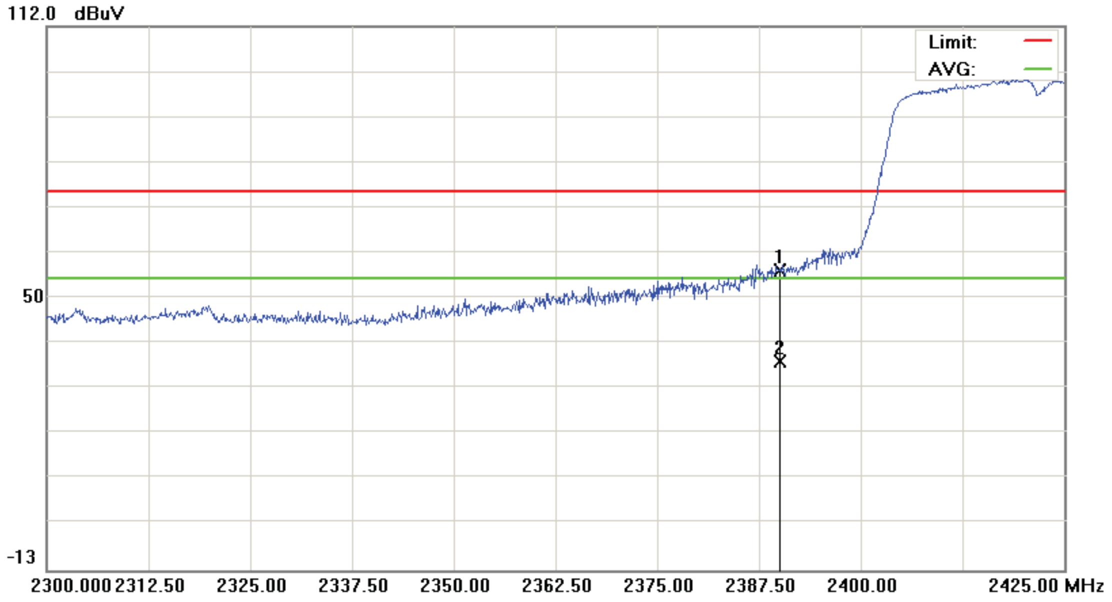
Polarization: *Horizontal*
Power:
Distance: 3m

Temperature: 22 ℃
Humidity: 60 %
RBW: 1000 KHz VBW: 1000 KHz

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1		2483.500	58.40	0.25	58.65	74.00	-15.35	peak			
2	*	2483.500	41.21	0.25	41.46	54.00	-12.54	AVG			

*:Maximum data x:Over limit !:over margin

File :Vigor2710nE(Band Edge)   Data :#1   Date: 2010/01/18   Time: 下午 03:17:36

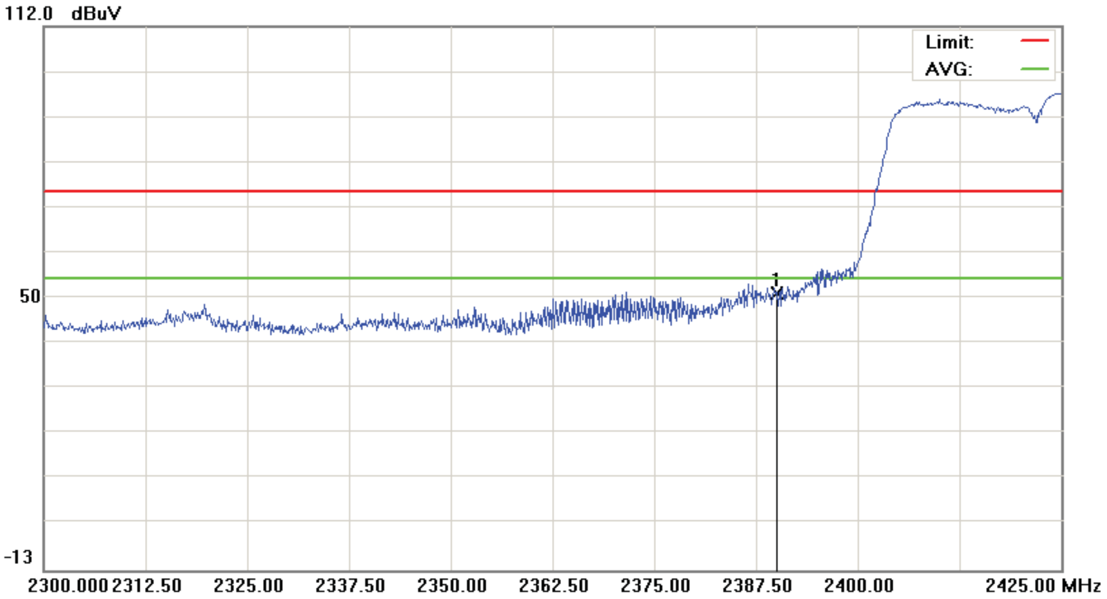


Site:	: 966 Chamber	Polarization:	***Vertical***	Temperature:	22 ℃
Limit:	FCC part 15 (PK)	Power:		Humidity:	60 %
EUT:	ADSL2+ WLAN Router	Distance:	3m	RBW: 1000 KHz VBW: 1000 KHz	
M/N:	Vigor2710ne				
Mode:	5				
Note:	2422MHz				

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1	*	2390.000	55.73	0.19	55.92	74.00	-18.08	peak			
2		2390.000	34.92	0.19	35.11	54.00	-18.89	AVG			

*:Maximum data   x:Over limit   !:over margin

File :Vigor2710nE(Band Edge) Data :#3 Date: 2010/01/18 Time: 下午 03:23:06



Site: : 966 Chamber
Limit: FCC part 15 (PK)
EUT: ADSL2+ WLAN Router
M/N: Vigor2710ne
Mode: 5
Note: 2422MHz

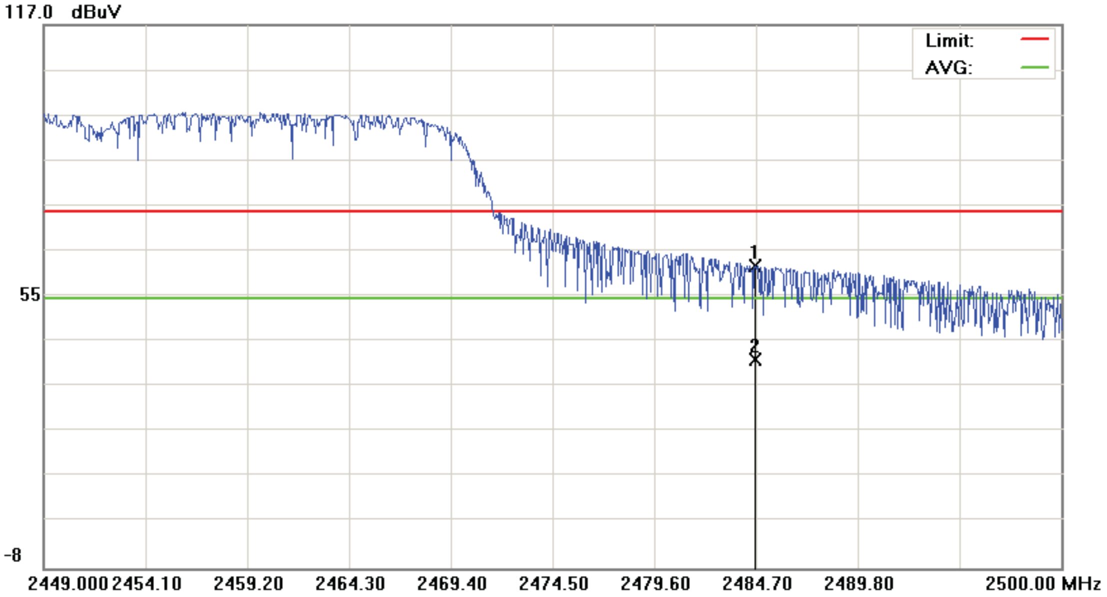
Polarization: *Horizontal*
Power:
Distance: 3m

Temperature: 22 ℃
Humidity: 60 %
RBW: 1000 KHz VBW: 1000 KHz

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1	*	2390.000	50.41	0.19	50.60	74.00	-23.40	peak			

*:Maximum data x:Over limit !:over margin

File :Vigor2710nE(Band Edge) Data :#5 Date: 2010/01/18 Time: 下午 03:34:18



Site: : 966 Chamber
Limit: FCC part 15 (PK)
EUT: ADSL2+ WLAN Router
M/N: Vigor2710ne
Mode: 5
Note: 2452MHz

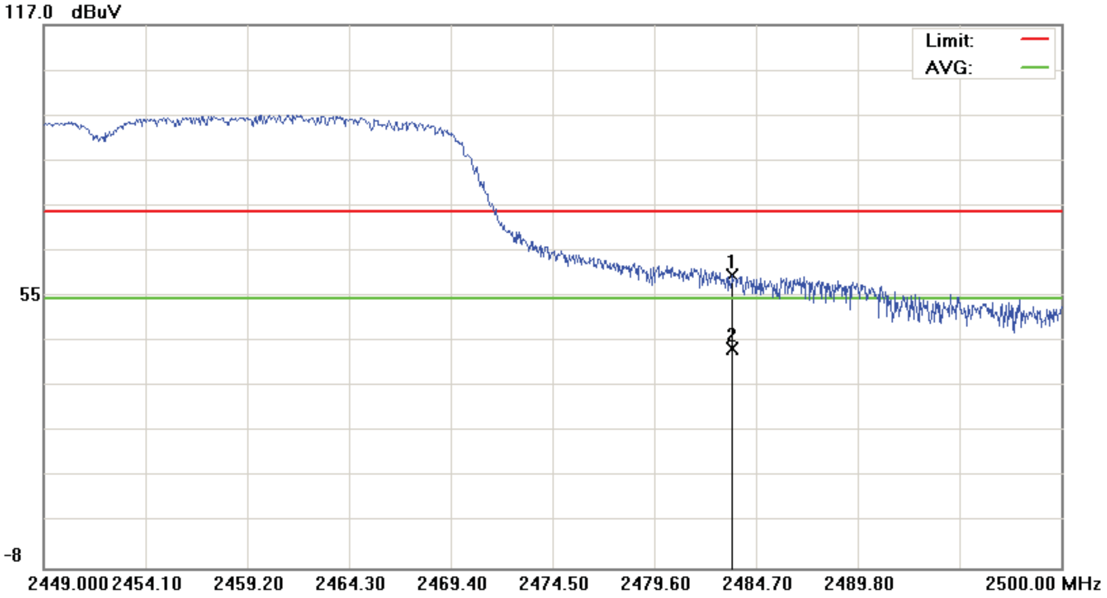
Polarization: *Vertical*
Power:
Distance: 3m

Temperature: 22 ℃
Humidity: 60 %
RBW: 1000 KHz VBW: 1000 KHz

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1	*	2484.649	61.36	0.25	61.61	74.00	-12.39	peak			
2		2484.649	39.63	0.25	39.88	54.00	-14.12	AVG			

*:Maximum data x:Over limit !:over margin

File :Vigor2710nE(Band Edge) Data :#7 Date: 2010/01/18 Time: 下午 03:45:52



Site: : 966 Chamber
Polarization: *Horizontal*
Temperature: 22 ℃
Limit: FCC part 15 (PK)
Power:
Humidity: 60 %
EUT: ADSL2+ WLAN Router
Distance: 3m
RBW: 1000 KHz VBW: 1000 KHz
M/N: Vigor2710ne
Mode: 5
Note: 2452MHz

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	Detector	Antenna Height	Table Degree	Comment
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB		cm	degree	
1		2483.500	58.98	0.25	59.23	74.00	-14.77	peak			
2	*	2483.500	42.11	0.25	42.36	54.00	-11.64	AVG			

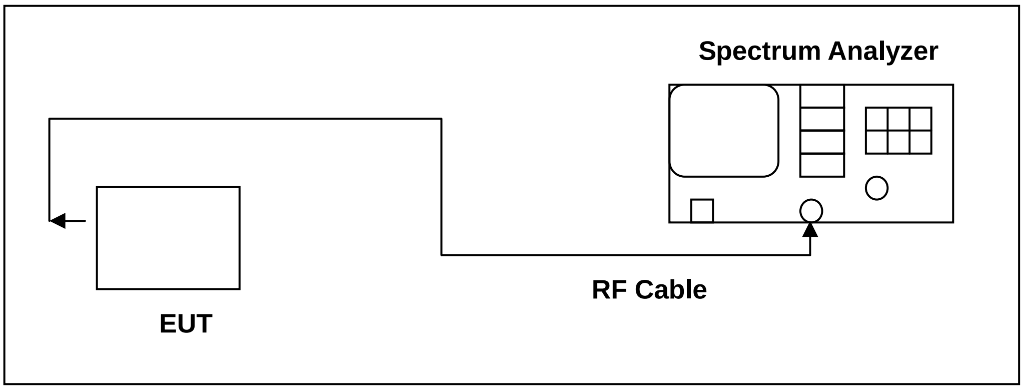
*:Maximum data x:Over limit !:over margin

11 99 % Occupied Bandwidth Measurement

11.1. Limit

N/A

11.2. Test Setup



11.3. Test Instruments

Equipment	Manufacturer	Model No.	Serial No.	Cal. Date	Remark
Spectrum Analyzer	Agilent	E4445A	MY46181986	05/14/2009	(2)
Test Site	ATL	TE06	TE06	N.C.R.	-----

Remark: (1) Calibration period 1 year. (2) Calibration period 2 years.

NOTE: N.C.R. = No Calibration Request.

11.4. Test Procedure

The transmitter output is connected to the spectrum analyzer. The RBW is set to 1% to 3% of the 99 % bandwidth. The VBW is set to 3 times the RBW. The sweep time is coupled.

11.5. Test Result

Product	ADSL2+ WLAN Router		
Test Item	99 % Occupied Bandwidth		
Test Mode	Mode 2: IEEE 802.11b Link Mode		
Date of Test	01/18/2010	Test Site	TE06

Frequency (MHz)	Measurement (kHz)
2412	13515.4
2437	13800.4
2462	14005.1

Product	ADSL2+ WLAN Router		
Test Item	99 % Occupied Bandwidth		
Test Mode	Mode 3: IEEE 802.11g Link Mode		
Date of Test	01/18/2010	Test Site	TE06

Frequency (MHz)	Measurement (kHz)
2412	16429.5
2437	16419.8
2462	16383.1

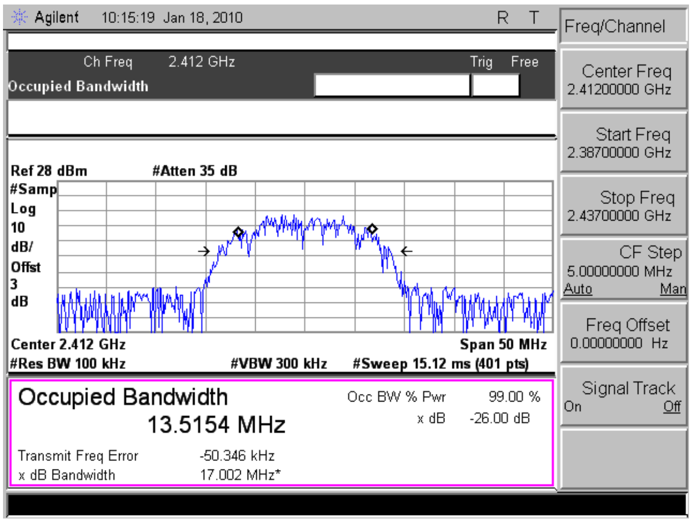
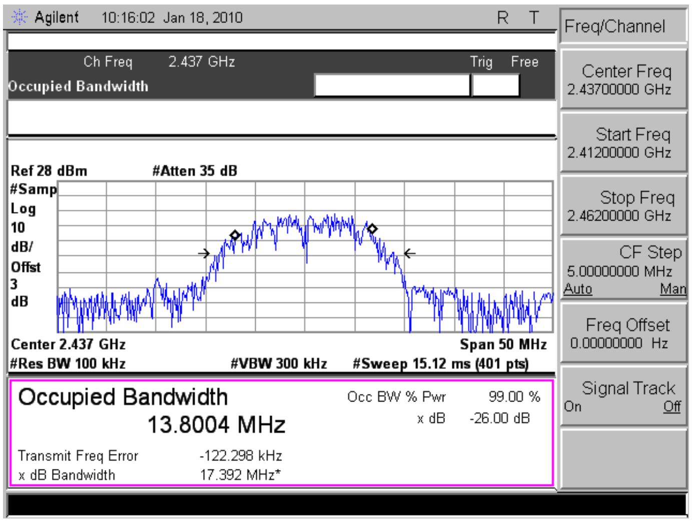
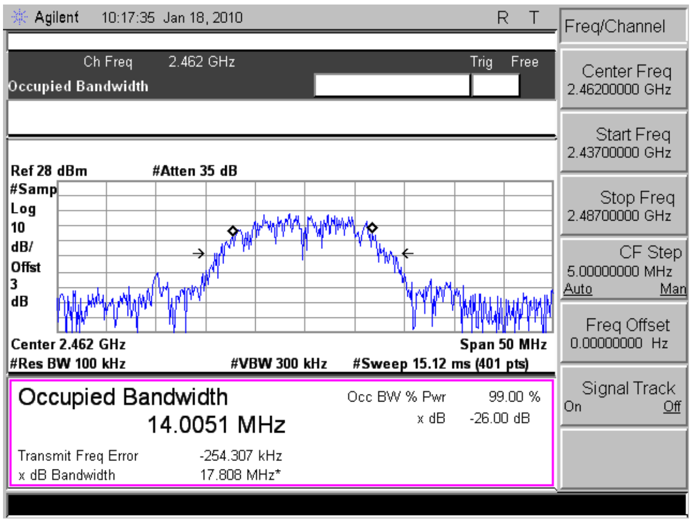
Product	ADSL2+ WLAN Router		
Test Item	99 % Occupied Bandwidth		
Test Mode	Mode 4: draft 802.11n Standard-20MHz Link Mode		
Date of Test	01/18/2010	Test Site	TE06

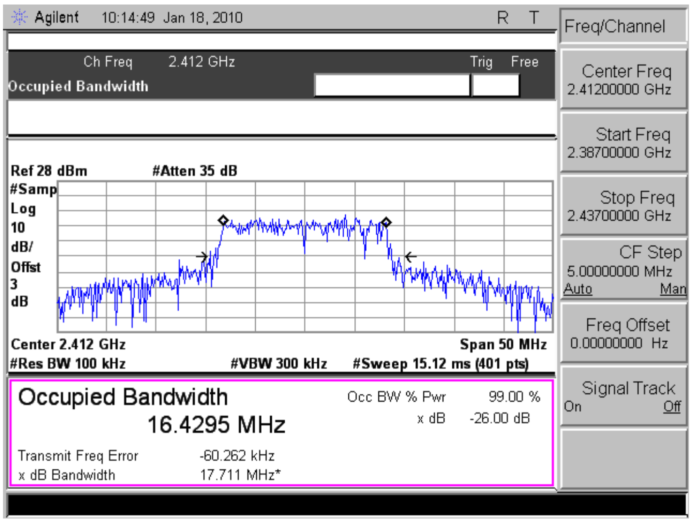
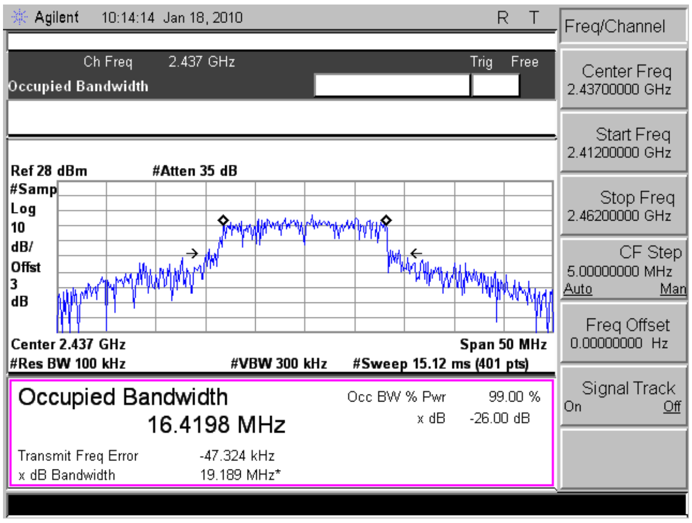
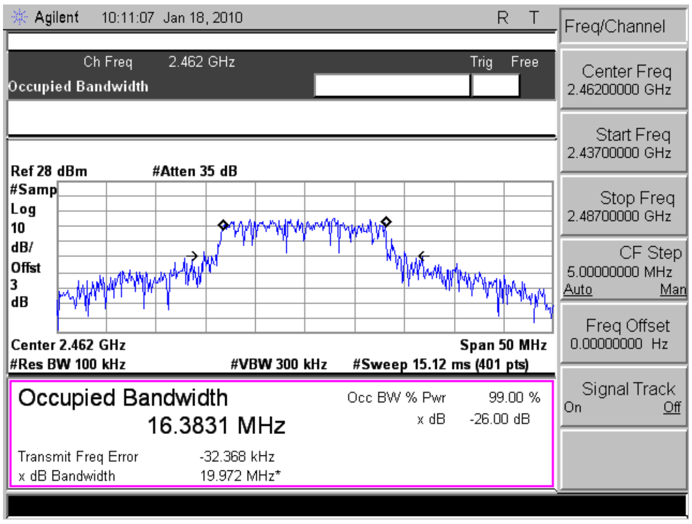
Frequency (MHz)	Measurement (kHz)
2412	17566.2
2437	17566.4
2462	17648.0

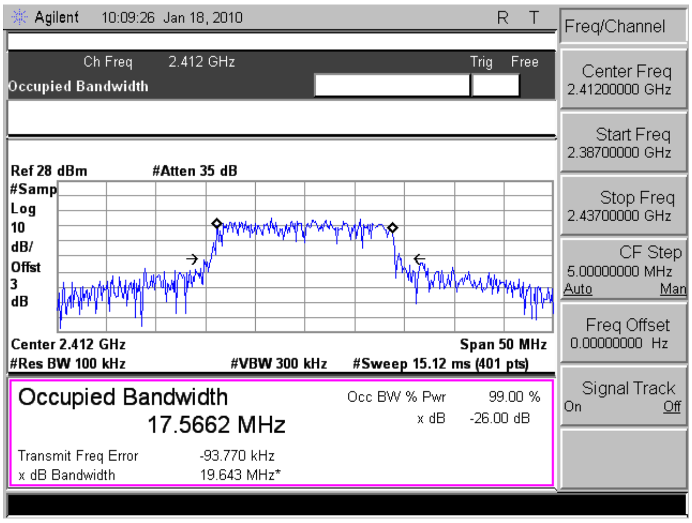
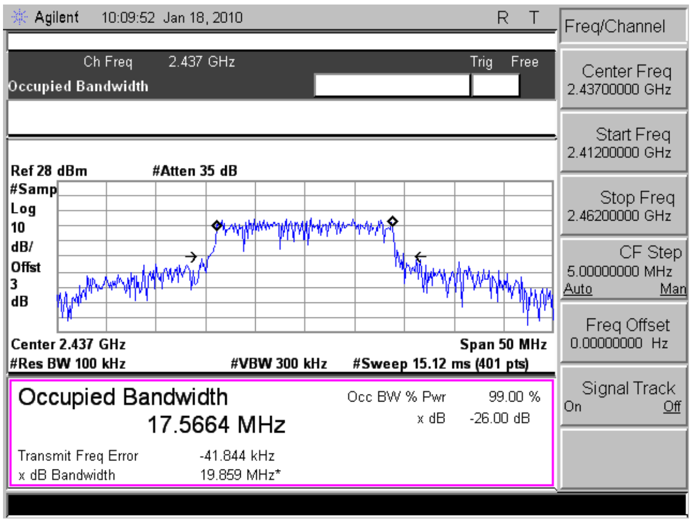
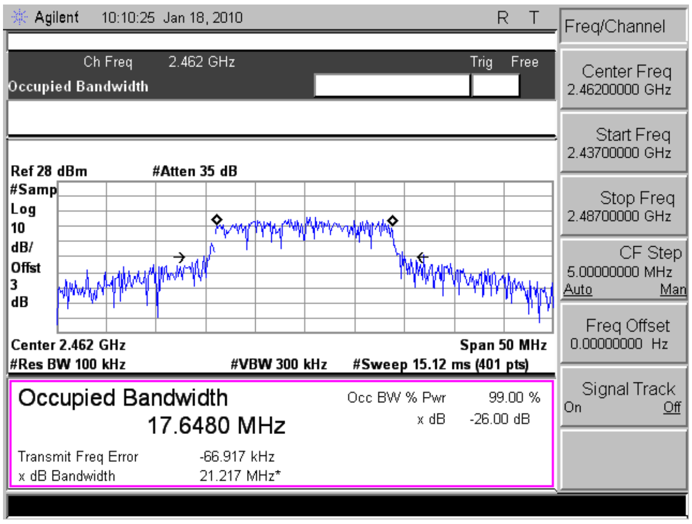
Product	ADSL2+ WLAN Router		
Test Item	99 % Occupied Bandwidth		
Test Mode	Mode 5: draft 802.11n Wide-40MHz Link Mode		
Date of Test	01/18/2010	Test Site	TE06

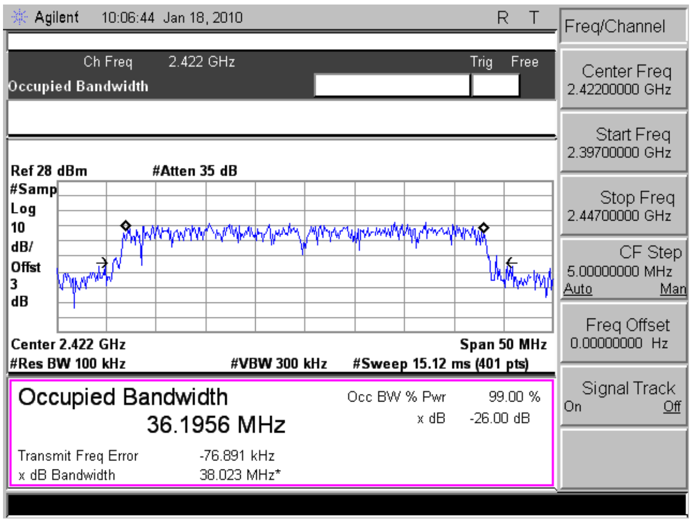
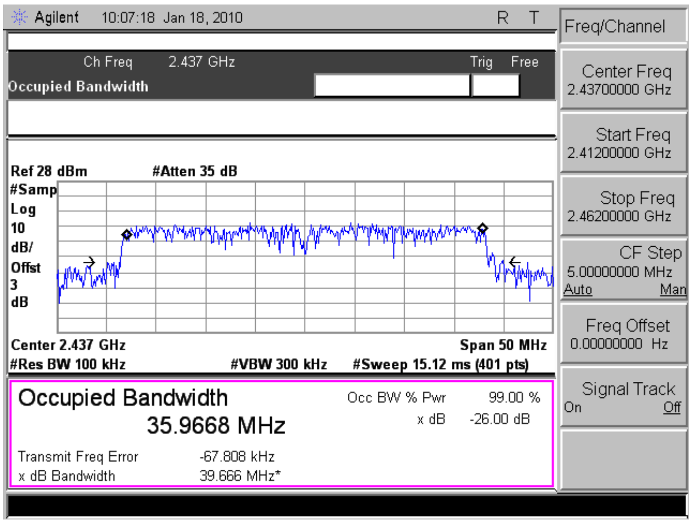
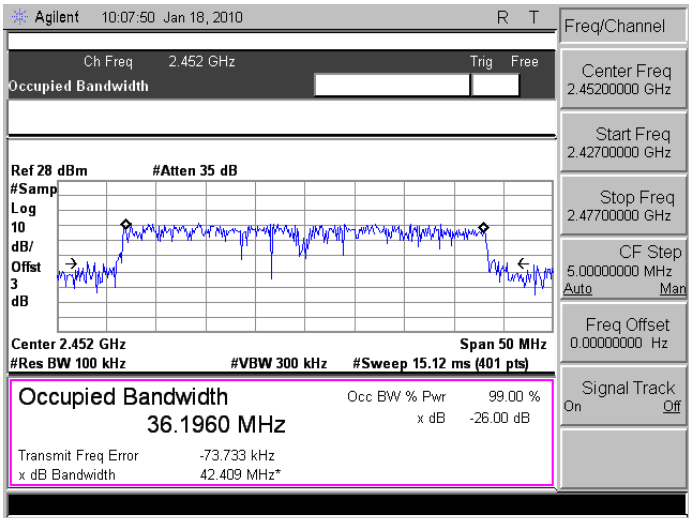
Frequency (MHz)	Measurement (kHz)
2422	36195.6
2437	35966.8
2452	36196.0

11.6. Test Graphs

Mode 2: IEEE 802.11b Link Mode	
2412	 Agilent 10:15:19 Jan 18, 2010 R T Ch Freq 2.412 GHz Trig Free Occupied Bandwidth Ref 28 dBm #Atten 35 dB #Samp Log 10 dB/ Offst 3 dB Center 2.412 GHz Span 50 MHz #Res BW 100 kHz #VBW 300 kHz #Sweep 15.12 ms (401 pts) Occupied Bandwidth 13.5154 MHz Occ BW % Pwr 99.00 % x dB -26.00 dB Transmit Freq Error -50.346 kHz x dB Bandwidth 17.002 MHz* Freq/Channel Center Freq 2.41200000 GHz Start Freq 2.38700000 GHz Stop Freq 2.43700000 GHz CF Step 5.00000000 MHz Auto Man Freq Offset 0.00000000 Hz Signal Track On Off
2437	 Agilent 10:16:02 Jan 18, 2010 R T Ch Freq 2.437 GHz Trig Free Occupied Bandwidth Ref 28 dBm #Atten 35 dB #Samp Log 10 dB/ Offst 3 dB Center 2.437 GHz Span 50 MHz #Res BW 100 kHz #VBW 300 kHz #Sweep 15.12 ms (401 pts) Occupied Bandwidth 13.8004 MHz Occ BW % Pwr 99.00 % x dB -26.00 dB Transmit Freq Error -122.298 kHz x dB Bandwidth 17.392 MHz* Freq/Channel Center Freq 2.43700000 GHz Start Freq 2.41200000 GHz Stop Freq 2.46200000 GHz CF Step 5.00000000 MHz Auto Man Freq Offset 0.00000000 Hz Signal Track On Off
2462	 Agilent 10:17:35 Jan 18, 2010 R T Ch Freq 2.462 GHz Trig Free Occupied Bandwidth Ref 28 dBm #Atten 35 dB #Samp Log 10 dB/ Offst 3 dB Center 2.462 GHz Span 50 MHz #Res BW 100 kHz #VBW 300 kHz #Sweep 15.12 ms (401 pts) Occupied Bandwidth 14.0051 MHz Occ BW % Pwr 99.00 % x dB -26.00 dB Transmit Freq Error -254.307 kHz x dB Bandwidth 17.808 MHz* Freq/Channel Center Freq 2.46200000 GHz Start Freq 2.43700000 GHz Stop Freq 2.48700000 GHz CF Step 5.00000000 MHz Auto Man Freq Offset 0.00000000 Hz Signal Track On Off

Mode 3: IEEE 802.11g Link Mode	
2412	 Agilent 10:14:49 Jan 18, 2010 R T Ch Freq 2.412 GHz Trig Free Occupied Bandwidth Ref 28 dBm #Atten 35 dB #Samp Log 10 dB/ Offst 3 dB Center 2.412 GHz Span 50 MHz #Res BW 100 kHz #VBW 300 kHz #Sweep 15.12 ms (401 pts) Occupied Bandwidth 16.4295 MHz Occ BW % Pwr 99.00 % x dB -26.00 dB Transmit Freq Error -60.262 kHz x dB Bandwidth 17.711 MHz* Freq/Channel Center Freq 2.41200000 GHz Start Freq 2.38700000 GHz Stop Freq 2.43700000 GHz CF Step 5.00000000 MHz Auto Man Freq Offset 0.00000000 Hz Signal Track On Off
2437	 Agilent 10:14:14 Jan 18, 2010 R T Ch Freq 2.437 GHz Trig Free Occupied Bandwidth Ref 28 dBm #Atten 35 dB #Samp Log 10 dB/ Offst 3 dB Center 2.437 GHz Span 50 MHz #Res BW 100 kHz #VBW 300 kHz #Sweep 15.12 ms (401 pts) Occupied Bandwidth 16.4198 MHz Occ BW % Pwr 99.00 % x dB -26.00 dB Transmit Freq Error -47.324 kHz x dB Bandwidth 19.189 MHz* Freq/Channel Center Freq 2.43700000 GHz Start Freq 2.41200000 GHz Stop Freq 2.46200000 GHz CF Step 5.00000000 MHz Auto Man Freq Offset 0.00000000 Hz Signal Track On Off
2462	 Agilent 10:11:07 Jan 18, 2010 R T Ch Freq 2.462 GHz Trig Free Occupied Bandwidth Ref 28 dBm #Atten 35 dB #Samp Log 10 dB/ Offst 3 dB Center 2.462 GHz Span 50 MHz #Res BW 100 kHz #VBW 300 kHz #Sweep 15.12 ms (401 pts) Occupied Bandwidth 16.3831 MHz Occ BW % Pwr 99.00 % x dB -26.00 dB Transmit Freq Error -32.368 kHz x dB Bandwidth 19.972 MHz* Freq/Channel Center Freq 2.46200000 GHz Start Freq 2.43700000 GHz Stop Freq 2.48700000 GHz CF Step 5.00000000 MHz Auto Man Freq Offset 0.00000000 Hz Signal Track On Off

Mode 4: draft 802.11n Standard-20MHz Link Mode	
2412	 Agilent 10:09:26 Jan 18, 2010 R T Ch Freq 2.412 GHz Trig Free Occupied Bandwidth Ref 28 dBm #Atten 35 dB #Samp Log 10 dB/ Offst 3 dB Center 2.412 GHz Span 50 MHz #Res BW 100 kHz #VBW 300 kHz #Sweep 15.12 ms (401 pts) Occupied Bandwidth 17.5662 MHz Occ BW % Pwr 99.00 % x dB -26.00 dB Transmit Freq Error -93.770 kHz x dB Bandwidth 19.643 MHz* Freq/Channel Center Freq 2.41200000 GHz Start Freq 2.38700000 GHz Stop Freq 2.43700000 GHz CF Step 5.00000000 MHz Auto Man Freq Offset 0.00000000 Hz Signal Track On Off
2437	 Agilent 10:09:52 Jan 18, 2010 R T Ch Freq 2.437 GHz Trig Free Occupied Bandwidth Ref 28 dBm #Atten 35 dB #Samp Log 10 dB/ Offst 3 dB Center 2.437 GHz Span 50 MHz #Res BW 100 kHz #VBW 300 kHz #Sweep 15.12 ms (401 pts) Occupied Bandwidth 17.5664 MHz Occ BW % Pwr 99.00 % x dB -26.00 dB Transmit Freq Error -41.844 kHz x dB Bandwidth 19.859 MHz* Freq/Channel Center Freq 2.43700000 GHz Start Freq 2.41200000 GHz Stop Freq 2.46200000 GHz CF Step 5.00000000 MHz Auto Man Freq Offset 0.00000000 Hz Signal Track On Off
2462	 Agilent 10:10:25 Jan 18, 2010 R T Ch Freq 2.462 GHz Trig Free Occupied Bandwidth Ref 28 dBm #Atten 35 dB #Samp Log 10 dB/ Offst 3 dB Center 2.462 GHz Span 50 MHz #Res BW 100 kHz #VBW 300 kHz #Sweep 15.12 ms (401 pts) Occupied Bandwidth 17.6480 MHz Occ BW % Pwr 99.00 % x dB -26.00 dB Transmit Freq Error -66.917 kHz x dB Bandwidth 21.217 MHz* Freq/Channel Center Freq 2.46200000 GHz Start Freq 2.43700000 GHz Stop Freq 2.48700000 GHz CF Step 5.00000000 MHz Auto Man Freq Offset 0.00000000 Hz Signal Track On Off

Mode 5: draft 802.11n Wide-40MHz Link Mode	
2422	 Agilent 10:06:44 Jan 18, 2010 R T Ch Freq 2.422 GHz Trig Free Occupied Bandwidth Ref 28 dBm #Atten 35 dB #Samp Log 10 dB/ Offst 3 dB Center 2.422 GHz Span 50 MHz #Res BW 100 kHz #VBW 300 kHz #Sweep 15.12 ms (401 pts) Occupied Bandwidth 36.1956 MHz Occ BW % Pwr 99.00 % x dB -26.00 dB Transmit Freq Error -76.891 kHz x dB Bandwidth 38.023 MHz* Freq/Channel Center Freq 2.42200000 GHz Start Freq 2.39700000 GHz Stop Freq 2.44700000 GHz CF Step 5.00000000 MHz Auto Man Freq Offset 0.00000000 Hz Signal Track On Off
2437	 Agilent 10:07:18 Jan 18, 2010 R T Ch Freq 2.437 GHz Trig Free Occupied Bandwidth Ref 28 dBm #Atten 35 dB #Samp Log 10 dB/ Offst 3 dB Center 2.437 GHz Span 50 MHz #Res BW 100 kHz #VBW 300 kHz #Sweep 15.12 ms (401 pts) Occupied Bandwidth 35.9668 MHz Occ BW % Pwr 99.00 % x dB -26.00 dB Transmit Freq Error -67.808 kHz x dB Bandwidth 39.666 MHz* Freq/Channel Center Freq 2.43700000 GHz Start Freq 2.41200000 GHz Stop Freq 2.46200000 GHz CF Step 5.00000000 MHz Auto Man Freq Offset 0.00000000 Hz Signal Track On Off
2452	 Agilent 10:07:50 Jan 18, 2010 R T Ch Freq 2.452 GHz Trig Free Occupied Bandwidth Ref 28 dBm #Atten 35 dB #Samp Log 10 dB/ Offst 3 dB Center 2.452 GHz Span 50 MHz #Res BW 100 kHz #VBW 300 kHz #Sweep 15.12 ms (401 pts) Occupied Bandwidth 36.1960 MHz Occ BW % Pwr 99.00 % x dB -26.00 dB Transmit Freq Error -73.733 kHz x dB Bandwidth 42.409 MHz* Freq/Channel Center Freq 2.45200000 GHz Start Freq 2.42700000 GHz Stop Freq 2.47700000 GHz CF Step 5.00000000 MHz Auto Man Freq Offset 0.00000000 Hz Signal Track On Off

12 Antenna Measurement

12.1. Limit

For intentional device, according to 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.

And According to 15.247 (b), if transmitting antennas of directional gain greater than 6 dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

12.2. Antenna Connector Construction

The antenna used in this product is **External antenna**. And the maximum Gain of this antenna is only **2 dBi**.