



**FCC 47 CFR PART 15 SUBPART E
(Class II Permissive Change)**

TEST REPORT

For

802.11a/b/g/n PCIExpress Minicard

Model: AR5BXB72

Trade Name: Atheros

Issued to

**Atheros Communications, Inc
5480 Great America Parkway, Santa Clara, CA 95054**

Issued by



**Compliance Certification Services Inc.
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Taoyuan Hsien, (338) Taiwan, R.O.C.
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1. TEST RESULT CERTIFICATION

Applicant: Atheros Communications, Inc
5480 Great America Parkway, Santa Clara, CA 95054

Equipment Under Test: 802.11a/b/g/n PCIExpress Minicard

Trade Name: Atheros

Model: AR5BXB72

Date of Test: September 29 ~ November 2, 2007

APPLICABLE STANDARDS	
STANDARD	TEST RESULT
FCC 47 CFR Part 15 Subpart E	No non-compliance noted

We hereby certify that:

Compliance Certification Services Inc. tested the above equipment. The test data, data evaluation, test procedures, and equipment configurations shown in this report were made in accordance with the procedures given in ANSI C63.4: 2003 and the energy emitted by the sample EUT tested as described in this report is in compliance with conducted and radiated emission limits of FCC Rules Part 15.407.

The test results of this report relate only to the tested sample identified in this report.

Approved by:

Rex Lai
Section Manager
Compliance Certification Services Inc.

Reviewed by:

Amanda Wu
Section Manager
Compliance Certification Services Inc.



2. EUT DESCRIPTION

Product	802.11a/b/g/n PCIExpress Minicard
Trade Name	Atheros
Model Number	AR5BXB72
Model Discrepancy	N/A
Power Supply	Powered from host device.
Frequency Range	5150 ~ 5350MHz, 5470 ~ 5725 MHz
Transmit Power	IEEE 802.11a mode 5150 ~ 5350 MHz: 17.77 dBm 5470 ~ 5725 MHz: 18.51 dBm draft 802.11n Standard-20 MHz Channel mode 5150 ~ 5350 MHz: 20.48 dBm 5470 ~ 5725 MHz: 20.68 dBm draft 802.11n Wide-40 MHz Channel mode 5150 ~ 5350 MHz: 19.83 dBm 5470 ~ 5725 MHz: 20.55 dBm
Modulation Technique	OFDM (QPSK, BPSK, 16-QAM, 64-QAM)
Transmit Data Rate	IEEE 802.11a mode: 6, 9, 12, 18, 24, 36, 48, 54 Mbps draft 802.11n Standard-20 MHz Channel mode: 6.5, 7.2, 13, 14.4, 14.44, 19.5, 21.7, 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, 144.44 Mbps draft 802.11n Wide-40 MHz Channel mode: 13.5, 15, 27, 30, 40.5, 45, 54, 60, 81, 90, 108, 120, 121.5, 135, 150, 162, 180, 216, 240, 243, 270, 300 Mbps
Number of Channels	IEEE 802.11a mode 5150 ~ 5350 MHz: 8 Channels 5470 ~ 5725 MHz: 11 Channels draft 802.11n Standard-20 MHz Channel mode 5150 ~ 5350 MHz: 5 Channels 5470 ~ 5725 MHz: 5 Channels draft 802.11n Wide-40 MHz Channel mode 5150 ~ 5350 MHz: 3 Channels 5470 ~ 5725 MHz: 3 Channels
Antenna Specification	Approved Antenna: PIFA Antenna: 5250 ~ 5350 MHz: Gain: 5.56 dBi, 5470 ~ 5725 MHz: Gain: 5.34 dBi Monopole Antenna 5250 ~ 5350 MHz: Gain: 6.20 dBi, 5470 ~ 5725 MHz: Gain: 5.30 dBi New Antenna: Dipole antenna: Gain: 2.0dBi (excluding cable loss: 2.6dB)
Class II Permissive Change	Added one set of antenna

**Operation Frequency:**

UNLICENSED NATIONAL INFORMATION INFRASTRUCTURE (U-NII)	
CHANNEL	MHz
36	5180
40	5200
44	5220
48	5240
52	5260
56	5280
60	5300
64	5320
100	5500
104	5520
108	5540
112	5560
116	5580
120	5600
124	5620
128	5640
132	5660
136	5680
140	5700

Remark:

- 1. The sample selected for test was production product and was provided by manufacturer.*
- 2. This submittal(s) (test report) is intended for FCC ID: **PPD-AR5BXB72** filing to comply with Section 15.407 of the FCC Part 15, Subpart E Rules.*



3. TEST METHODOLOGY

Both conducted and radiated testing was performed according to the procedures in ANSI C63.4. Radiated testing was performed at an antenna to EUT distance 3 meters.

3.1 EUT CONFIGURATION

The EUT configuration for testing is installed for RF field strength measurement to meet the Commissions requirement, and is operated in a manner intended to generate the maximum emission in a continuous normal application.

3.2 EUT EXERCISE

The EUT is operated in the engineering mode to fix the Tx frequency for the purposes of measurement.

According to its specifications, the EUT must comply with the requirements of Section 15.407 under the FCC Rules Part 15 Subpart E.

3.3 GENERAL TEST PROCEDURES

Conducted Emissions

The EUT is placed on the turntable, which is positioned at 0.8 m above the ground plane. According to the requirements in Section 13.1.4.1 of ANSI C63.4, the conducted emission from the EUT is measured in the frequency range between 0.15 MHz and 30MHz, using the CISPR Quasi-Peak detector mode.

Radiated Emissions

The EUT is placed on the turntable, which is 0.8 m above the ground plane. The turntable is then rotated for 360 degrees to determine the proper orientation for the maximum emission level. The EUT is set 3m away from the receiving antenna, which is varied from 1m to 4m to find out the highest emission level. And, each emission is to be maximized by changing the horizontal and vertical polarization of the receiving antenna. In order to find out the maximum emissions, exploratory radiated emission measurements were made according to the requirements in Section 13.1.4.1 of ANSI C63.4.

**3.4FCC PART 15.205 RESTRICTED BANDS OF OPERATIONS**

- (a) Except as shown in paragraph (d) of this section, only spurious emissions are permitted in any of the frequency bands listed below:

MHz	MHz	MHz	GHz
0.090 - 0.110	16.42 - 16.423	399.9 - 410	4.5 - 5.15
¹ 0.495 - 0.505	16.69475 - 16.69525	608 - 614	5.35 - 5.46
2.1735 - 2.1905	16.80425 - 16.80475	960 - 1240	7.25 - 7.75
4.125 - 4.128	25.5 - 25.67	1300 - 1427	8.025 - 8.5
4.17725 - 4.17775	37.5 - 38.25	1435 - 1626.5	9.0 - 9.2
4.20725 - 4.20775	73 - 74.6	1645.5 - 1646.5	9.3 - 9.5
6.215 - 6.218	74.8 - 75.2	1660 - 1710	10.6 - 12.7
6.26775 - 6.26825	108 - 121.94	1718.8 - 1722.2	13.25 - 13.4
6.31175 - 6.31225	123 - 138	2200 - 2300	14.47 - 14.5
8.291 - 8.294	149.9 - 150.05	2310 - 2390	15.35 - 16.2
8.362 - 8.366	156.52475 -	2483.5 - 2500	17.7 - 21.4
8.37625 - 8.38675	156.52525	2655 - 2900	22.01 - 23.12
8.41425 - 8.41475	156.7 - 156.9	3260 - 3267	23.6 - 24.0
12.29 - 12.293	162.0125 - 167.17	3332 - 3339	31.2 - 31.8
12.51975 - 12.52025	167.72 - 173.2	3345.8 - 3358	36.43 - 36.5
12.57675 - 12.57725	240 - 285	3600 - 4400	(²)
13.36 - 13.41	322 - 335.4		

¹ Until February 1, 1999, this restricted band shall be 0.490-0.510 MHz.

² Above 38.6

- (b) Except as provided in paragraphs (d) and (e), the field strength of emissions appearing within these frequency bands shall not exceed the limits shown in Section 15.209. At frequencies equal to or less than 1000 MHz, compliance with the limits in Section 15.209 shall be demonstrated using measurement instrumentation employing a CISPR quasi-peak detector. Above 1000 MHz, compliance with the emission limits in Section 15.209 shall be demonstrated based on the average value of the measured emissions. The provisions in Section 15.35 apply to these measurements.



3.5 DESCRIPTION OF TEST MODES

The EUT (model: AR5BXB72) had been tested under operating condition.

Software used to control the EUT for staying in continuous transmitting mode was programmed.

The 2x3 configuration is implemented with two outside chains (Chain 0 and 2) as Tx/Rx and the middle chain (chain 1) as Rx only.

After verification, all tests were carried out with the worst case test modes as shown below except radiated spurious emission below 1GHz, which worst case was in normal link mode only.

IEEE 802.11a mode:

5150 ~ 5350 MHz: Channel Low (5180MHz), Channel Mid (5260MHz) and Channel High (5320MHz) with 6Mbps data rate were chosen for radiation emission testing.

5470 ~ 5725 MHz: Channel Low (5500MHz), Channel Mid (5600MHz) and Channel High (5700MHz) with 6Mbps data rate were chosen for radiation emission testing.

draft 802.11n Standard-20 MHz Channel mode:

5150 ~ 5350 MHz: Channel Low (5180MHz), Channel Mid (5260MHz) and Channel High (5320MHz) with 6.5Mbps data rate were chosen for radiation emission testing.

5470 ~ 5725 MHz: Channel Low (5500MHz), Channel Mid (5600MHz) and Channel High (5700MHz) with 6.5Mbps data rate were chosen for radiation emission testing.

draft 802.11n Wide-40 MHz Channel mode:

5150 ~ 5350 MHz: Channel Low (5190MHz) Channel Mid (5260MHz) and Channel High (5310MHz) with 13.5Mbps data rate were chosen for radiation emission testing.

5470 ~ 5725 MHz: Channel Low (5510MHz), Channel Mid (5600MHz) and Channel High (5690MHz) with 6.5Mbps data rate were chosen for radiation emission testing.



4. INSTRUMENT CALIBRATION

4.1 MEASURING INSTRUMENT CALIBRATION

The measuring equipment, which was utilized in performing the tests documented herein, has been calibrated in accordance with the manufacturer's recommendations for utilizing calibration equipment, which is traceable to recognized national standards.

4.2 MEASUREMENT EQUIPMENT USED

Equipment Used for Emissions Measurement

Remark: Each piece of equipment is scheduled for calibration once a year.

3M Semi Anechoic Chamber				
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
Spectrum Analyzer	Agilent	E4446A	US42510252	08/01/2008
Test Receiver	Rohde&Schwarz	ESCI	100064	11/13/2007
Switch Controller	TRC	Switch Controller	SC94050010	05/04/2008
4 Port Switch	TRC	4 Port Switch	SC94050020	05/04/2008
Horn-Antenna	TRC	HA-0502	06	06/04/2008
Horn-Antenna	TRC	HA-0801	04	06/20/2008
Horn-Antenna	TRC	HA-1201A	01	08/12/2008
Horn-Antenna	TRC	HA-1301A	01	08/12/2008
Bilog- Antenna	Sunol Sciences	JB3	A030205	03/29/2008
Turn Table	Max-Full	MFT-120S	T120S940302	N.C.R.
Antenna Tower	Max-Full	MFA-430	A440940302	N.C.R.
Controller	Max-Full	MF-CM886	CC-C-1F-13	N.C.R.
Site NSA	CCS	N/A	FCC: 965860 IC: IC 6106	09/25/2008
Test S/W	LABVIEW (V 6.1)			

Remark: The measurement uncertainty is less than $\pm 2.0065\text{dB}$ (30MHz ~ 1GHz), $\pm 3.0958\text{dB}$ (Above 1GHz) which is evaluated as per the NAMAS NIS 81 and CISPR/A/291/CDV.



5. FACILITIES AND ACCREDITATIONS

5.1 FACILITIES

All measurement facilities used to collect the measurement data are located at

☐ No. 199, Chunghsen Road, Hsintien City, Taipei Hsien, Taiwan, R.O.C.

Tel: 886-2-2217-0894 / Fax: 886-2-2217-1029

☒ No. 11, Wugong 6th Rd., Wugu Industrial Park, Taipei Hsien 248, Taiwan

Tel: 886-2-2299-9720 / Fax: 886-2-2298-4045

☒ No.81-1, Lane 210, Bade 2nd Rd., Luchu Hsiang, Taoyuan Hsien 338, Taiwan

Tel: 886-3-324-0332 / Fax: 886-3-324-5235

The sites are constructed in conformance with the requirements of ANSI C63.7, ANSI C63.4 and CISPR Publication 22.

5.2 EQUIPMENT








Radiated emissions are measured with one or more of the following types of linearly polarized antennas: tuned dipole, biconical, log periodic, bi-log, and/or ridged waveguide, horn. Spectrum analyzers with pre-selectors and quasi-peak detectors are used to perform radiated measurements.

Conducted emissions are measured with Line Impedance Stabilization Networks and EMI Test Receivers.

Calibrated wideband preamplifiers, coaxial cables, and coaxial attenuators are also used for making measurements.

All receiving equipment conforms to CISPR Publication 16-1, "Radio Interference Measuring Apparatus and Measurement Methods."

5.3 TABLE OF ACCREDITATIONS AND LISTINGS

Country	Agency	Scope of Accreditation	Logo
USA	A2LA	EN 55011, EN 55014-1/2, CISPR 11, CISPR 14-1/2, EN 55022, EN 55015, CISPR 22, CISPR 15, AS/NZS 3548, VCCI V3 (2001), CFR 47, FCC Part 15/18, CNS 13783-1, CNS 13439, CNS 13438, CNS 13803, CNS 14115, EN 55024, IEC 801-2, IEC 801-3, IEC 801-4, IEC/EN 61000-3-2, IEC/EN 61000-3-3, IEC/EN 61000-4-2/3/4/5/6/8/11, EN 50081-1/ EN 61000-6-3, EN 50081-2/EN 61000-6-4, EN 50081-2/EN 61000-6-1: 2001	 TESTING CERT #0824.01
USA	FCC	3/10 meter Open Area Test Sites (93105, 90471) / 3M Semi Anechoic Chamber (965860) to perform FCC Part 15/18 measurements	 93105, 90471 965860
Japan	VCCI	3/10 meter Open Area Test Sites to perform conducted/radiated measurements	 R-393/1066/725/879 C-402/747/912
Norway	NEMKO	EN 50081-1/2, EN 50082-1/2, IEC 61000-6-1/2, EN 50091-2, EN 50130-4, EN 55011, EN 55013, EN 55014-1/2, EN 55015, EN 55022, EN 55024, EN 61000-3-2/3, EN 61326-1, IEC 61000-4-2/3/4/5/6/8/11, EN 60601-1-2, EN 300 328, EN 300 422-2, EN 301 419-1, EN 301 489-01/03/07/08/09/17, EN 301 419-2/3, EN 300 454-2, EN 301 357-2	 ELA 124a ELA 124b ELA 124c
Taiwan	TAF	EN 300 328, EN 300 220-1, EN 300 220-2, EN 300 220-3, 47 CFR FCC Part 15 Subpart C, EN 61000-3-2, EN 61000-3-3, CNS 13439, CNS 13783-1, CNS 14115, CNS 13438, AS/NZS CISPR 22, CNS 13022-1, IEC 61000-4-2/3/4/5/6/8/11, CNS 13022-2/3	 Testing Laboratory 0363
Taiwan	BSMI	CNS 13438, CNS 13783-1, CNS 13439, CNS 14115	 SL2-IS-E-0014 SL2-IN-E-0014 SL2-A1-E-0014 SL2-R1-E-0014 SL2-R2-E-0014 SL2-L1-E-0014
Canada	Industry Canada	3/10 meter Open Area Test Sites (IC 2324C-3, IC 2324C-5) / 3M Semi Anechoic Chamber (IC 6106)	 IC 2324C-3 IC 2324C-5 IC 6106

* No part of this report may be used to claim or imply product endorsement by A2LA or any agency of the US Government.



6. SETUP OF EQUIPMENT UNDER TEST

6.1 SETUP CONFIGURATION OF EUT

See test photographs attached in Appendix I for the actual connections between EUT and support equipment.

6.2 SUPPORT EQUIPMENT

No.	Device Type	Brand	Model	Series No.	FCC ID	Data Cable	Power Cord
1.	Notebook PC	IBM	2672 (X31)	99KPZYN	WLAN: ANO20030400LEG Bluetooth: ANO20020100MTN	N/A	AC I/P: Unshielded, 1.8m DC O/P: Unshielded, 1.8m with a core

Remark:

1. All the equipment/cables were placed in the worst-case configuration to maximize the emission during the test.
2. Grounding was established in accordance with the manufacturer's requirements and conditions for the intended use.

7. FCC PART 15 REQUIREMENTS

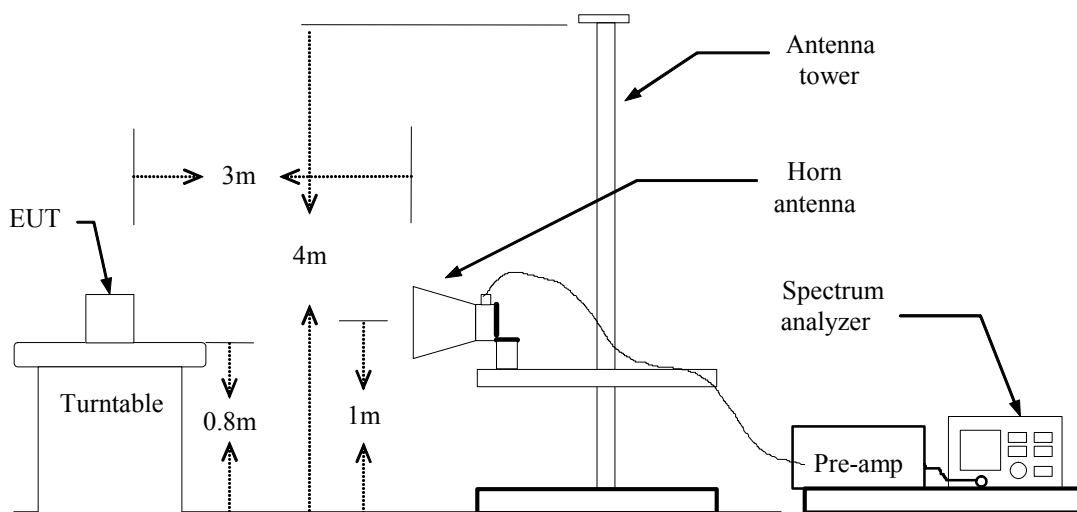
7.1 BAND EDGES MEASUREMENT

LIMIT

According to §15.407(b),

- (1) The provisions of Section 15.205 of this part apply to intentional radiators operating under this section.
- (2) When measuring the emission limits, the nominal carrier frequency shall be adjusted as close to the upper and lower frequency block edges as the design of the equipment permits.

Test Configuration



TEST PROCEDURE

1. The EUT is placed on a turntable, which is 0.8m above the ground plane.
2. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.
3. EUT is set 3m away from the receiving antenna, which is varied from 1m to 4m to find out the highest emission.
4. Set the spectrum analyzer in the following setting in order to capture the lower and upper band-edges of the emission:
 - (a) PEAK: RBW=VBW=1MHz / Sweep=AUTO
 - (b) AVERAGE: RBW=1MHz / VBW=10Hz / Sweep=AUTO
5. Repeat the procedures until all the PEAK and AVERAGE versus POLARIZATION are measured.

TEST RESULTS

Refer to attach spectrum analyzer data chart.



Band Edges

5150 ~ 5350MHz

(IEEE 802.11a mode / CH Low)

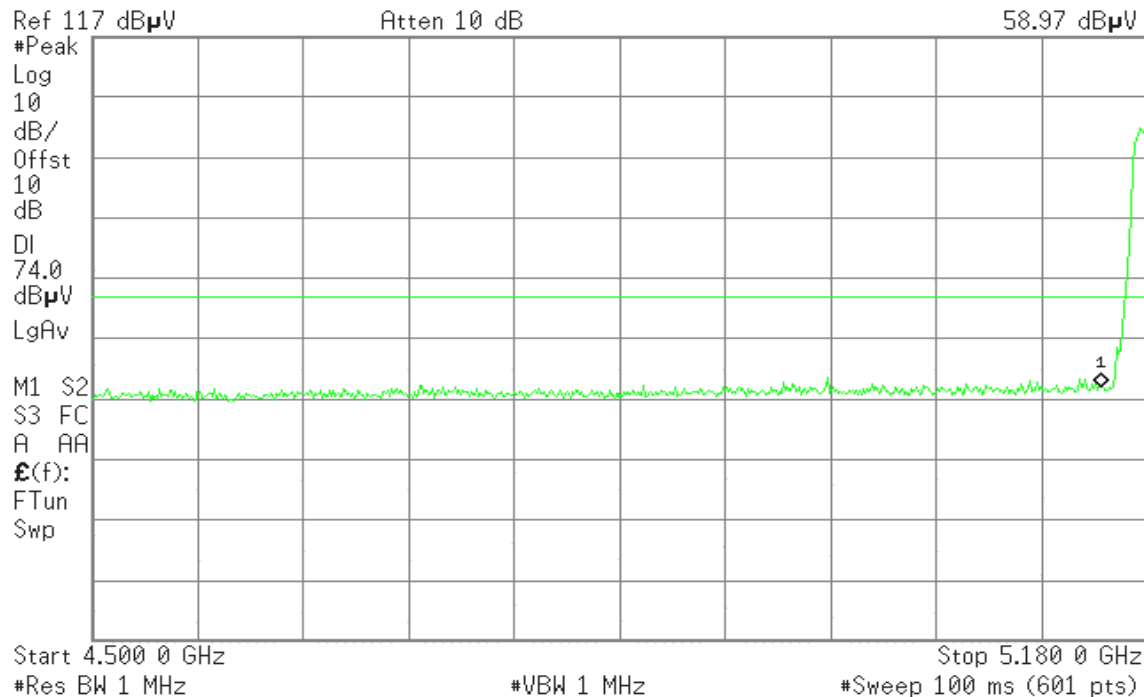
Detector mode: Peak

Polarity: Vertical

Agilent 10:23:18 Sep 29, 2007

R L

Mkr1 5.150 0 GHz
58.97 dB μ V



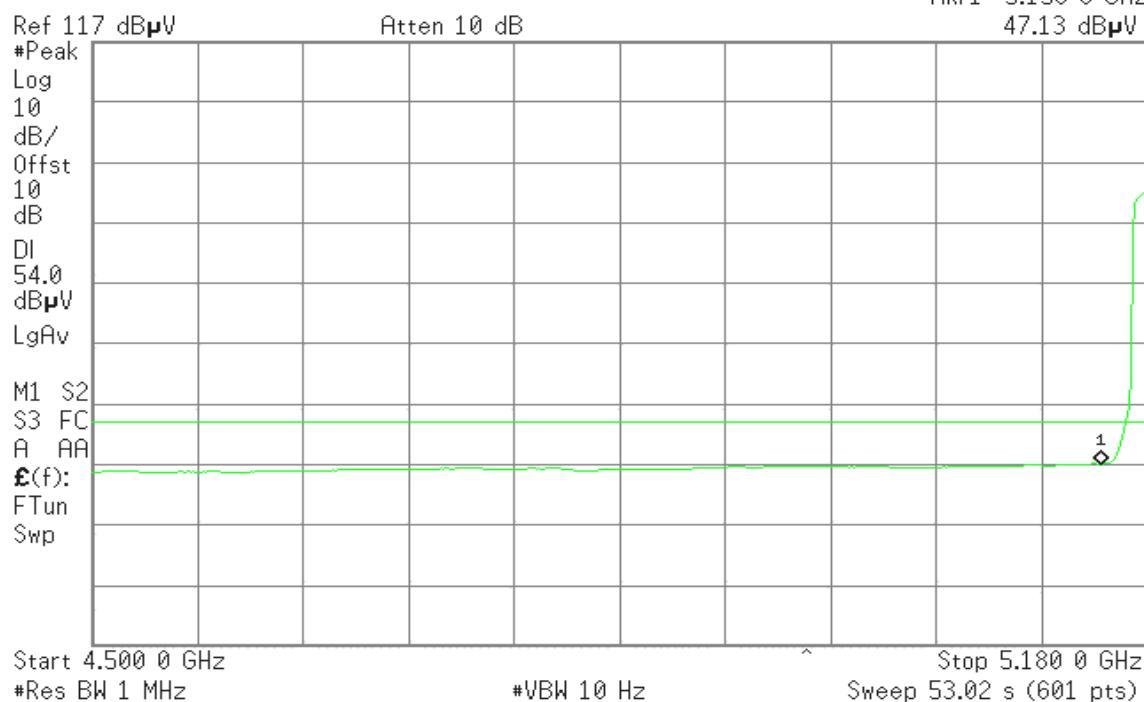
Detector mode: Average

Polarity: Vertical

Agilent 10:22:56 Sep 29, 2007

R L

Mkr1 5.150 0 GHz
47.13 dB μ V





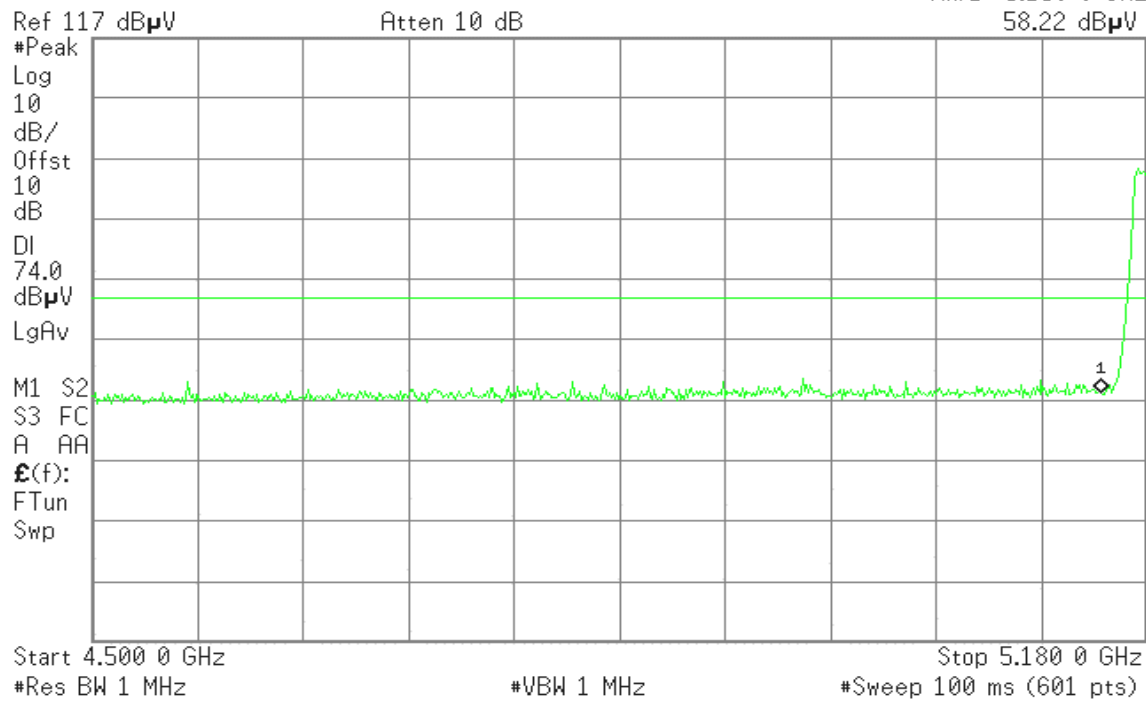
Detector mode: Peak

Polarity: Horizontal

Agilent 10:27:27 Sep 29, 2007

R L

Mkr1 5.150 0 GHz
58.22 dB μ V



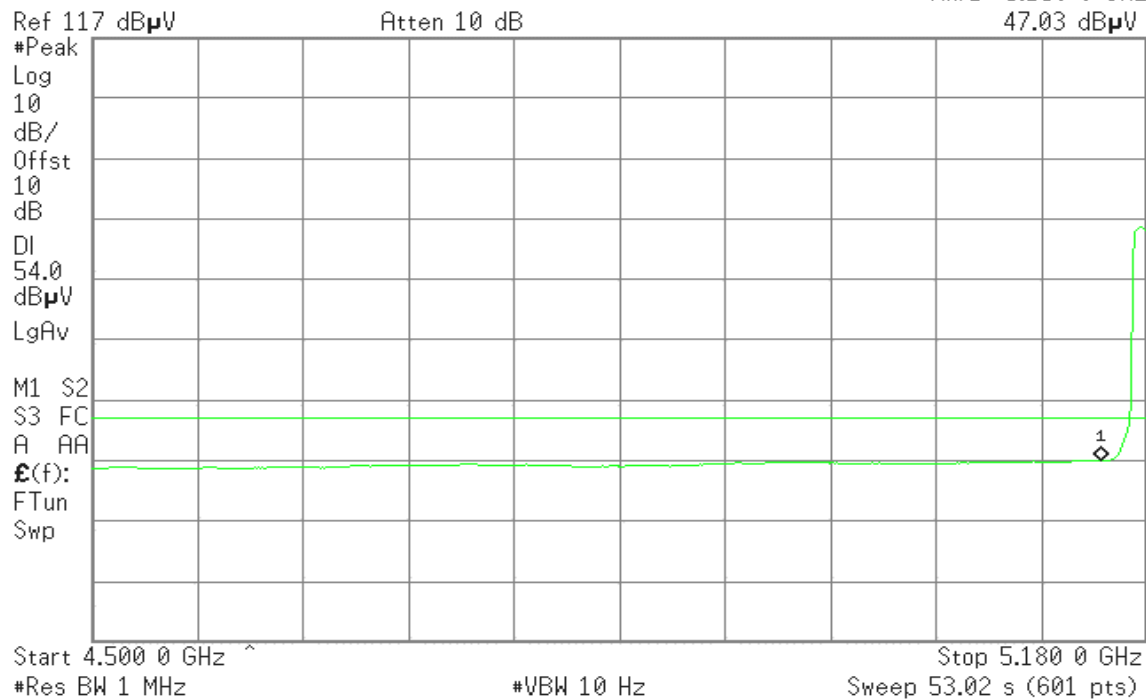
Detector mode: Average

Polarity: Horizontal

Agilent 10:27:12 Sep 29, 2007

R L

Mkr1 5.150 0 GHz
47.03 dB μ V





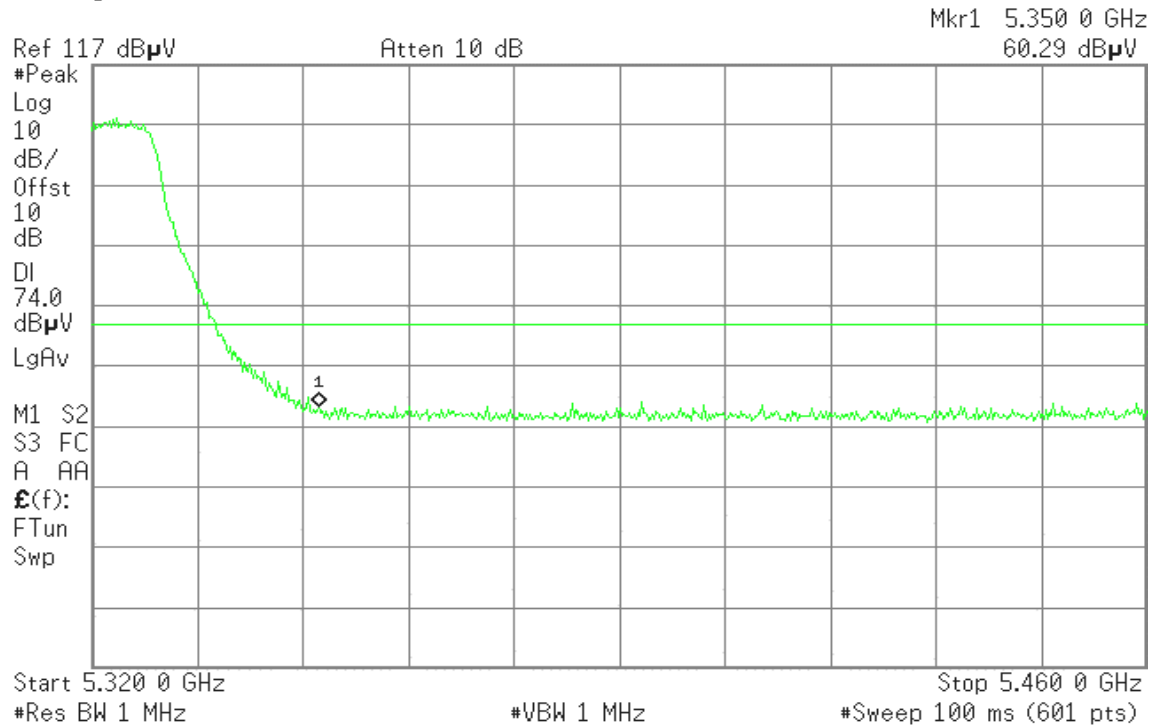
Band Edges (IEEE 802.11a mode / CH High)

Detector mode: Peak

Polarity: Vertical

Agilent 10:42:45 Sep 29, 2007

R T

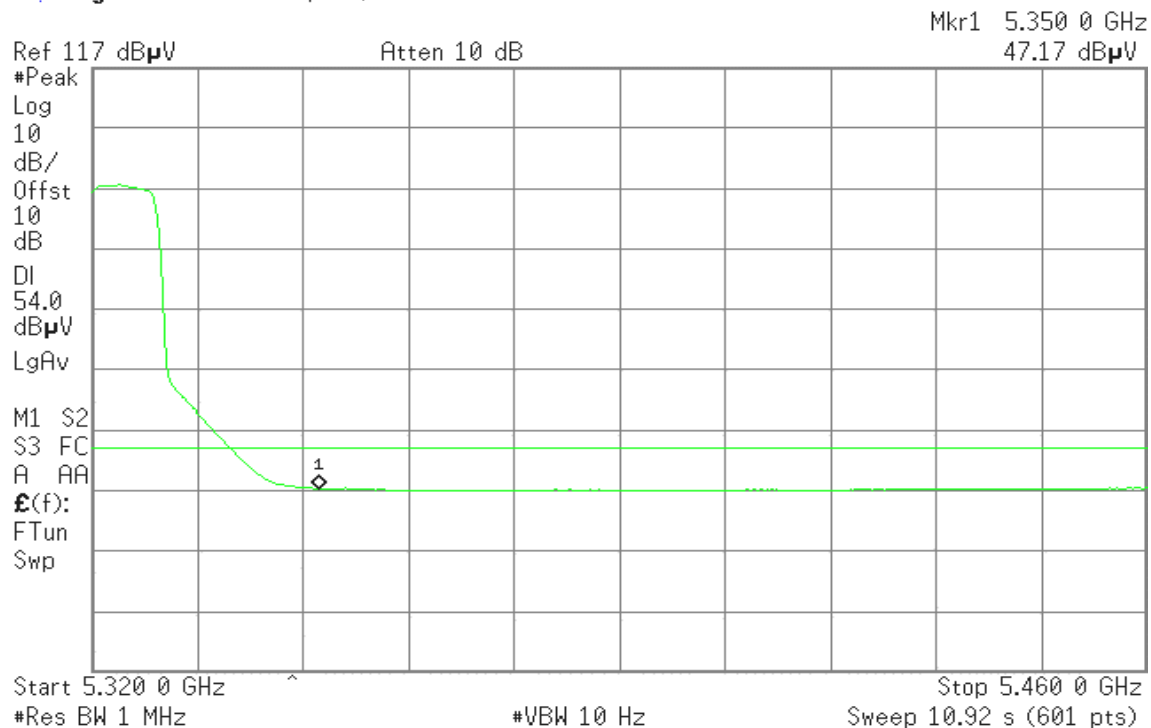


Detector mode: Average

Polarity: Vertical

Agilent 10:42:27 Sep 29, 2007

R T





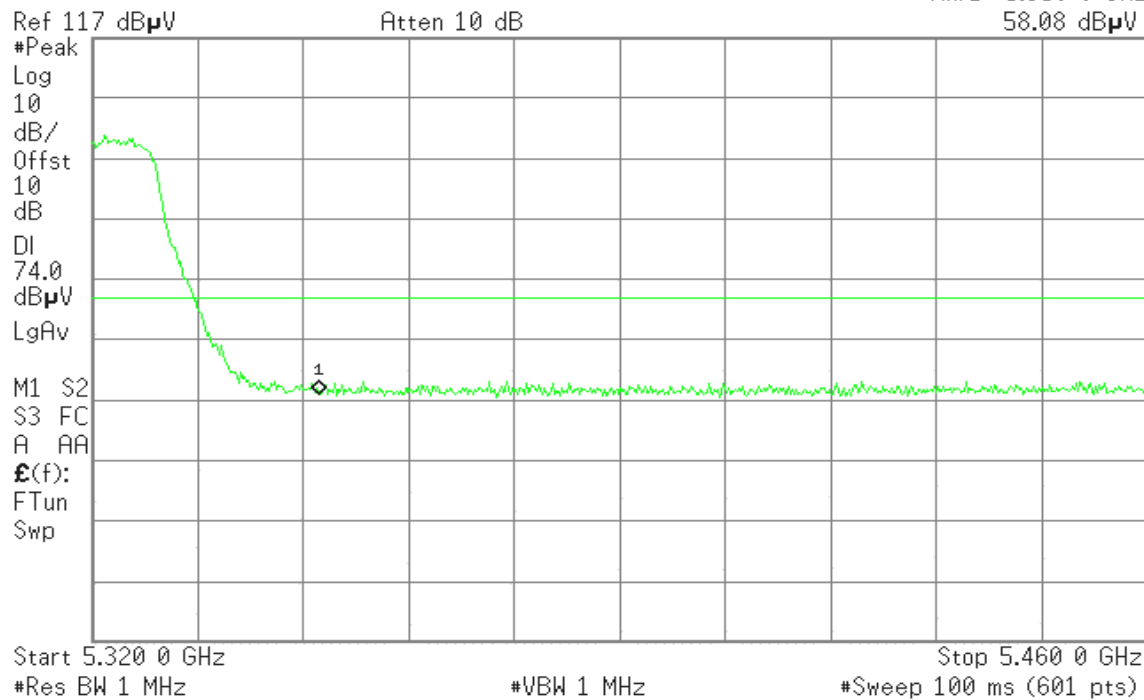
Detector mode: Peak

Polarity: Horizontal

Agilent 10:45:52 Sep 29, 2007

R T

Mkr1 5.350 0 GHz
58.08 dB μ V



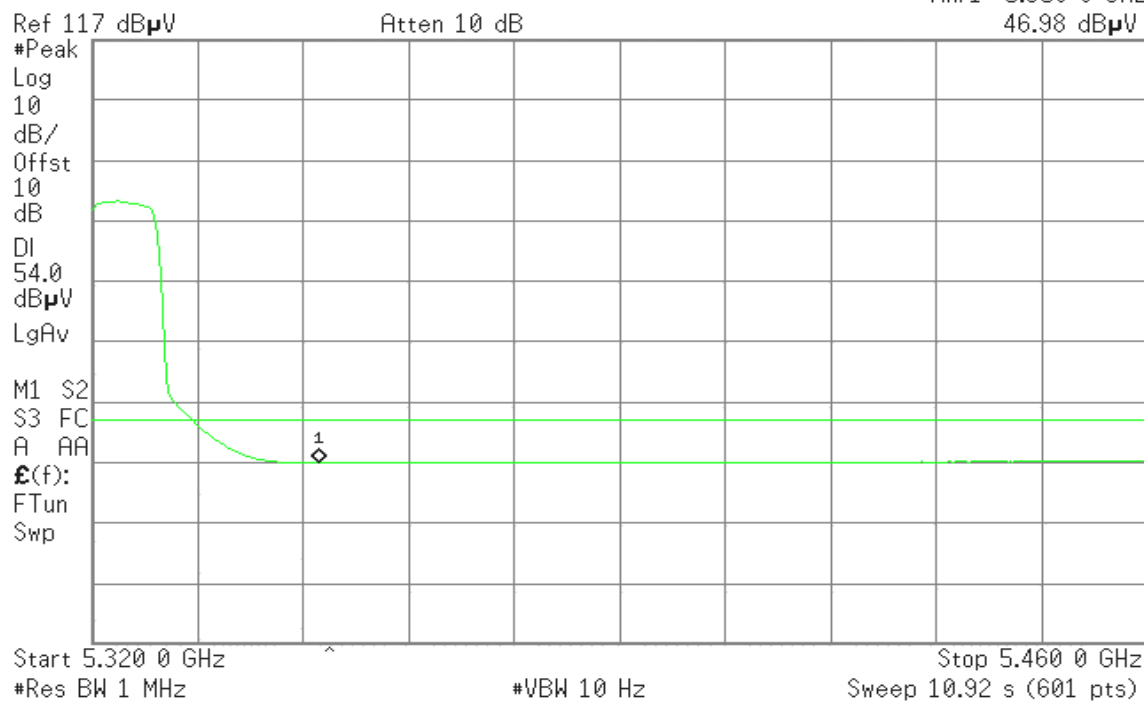
Detector mode: Average

Polarity: Horizontal

Agilent 10:45:35 Sep 29, 2007

R T

Mkr1 5.350 0 GHz
46.98 dB μ V





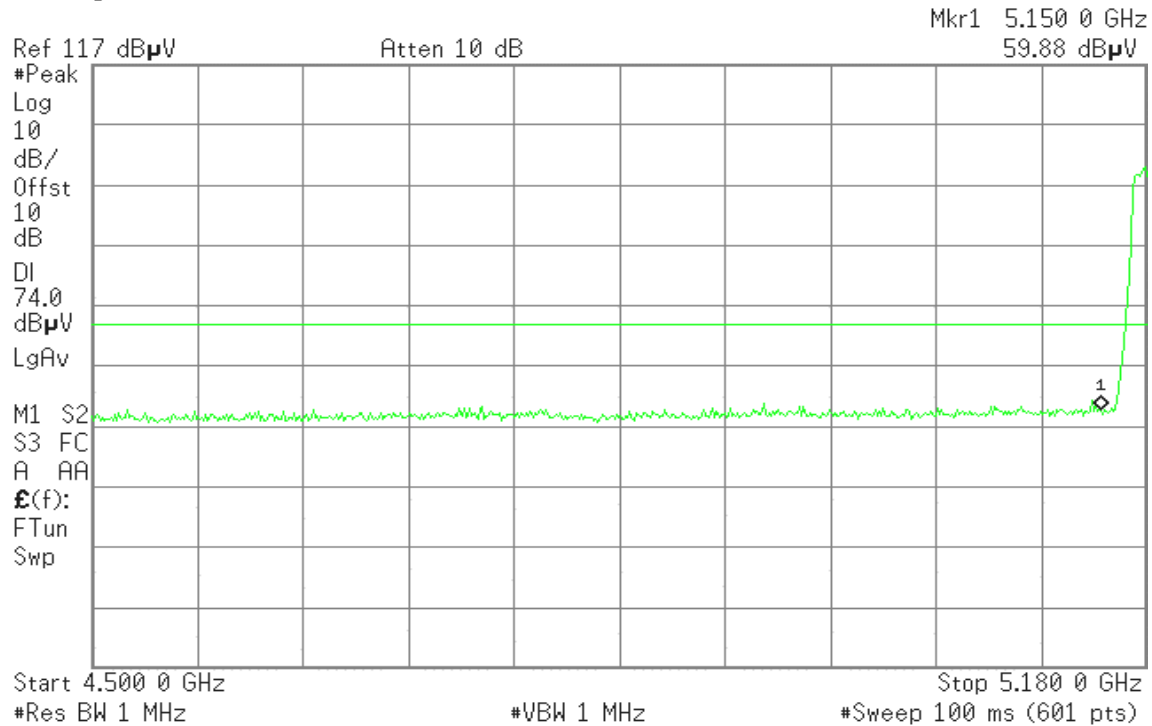
Band Edges (draft 802.11n Standard-20 MHz Channel mode / CH Low)

Detector mode: Peak

Polarity: Vertical

Agilent 10:54:21 Sep 29, 2007

R T

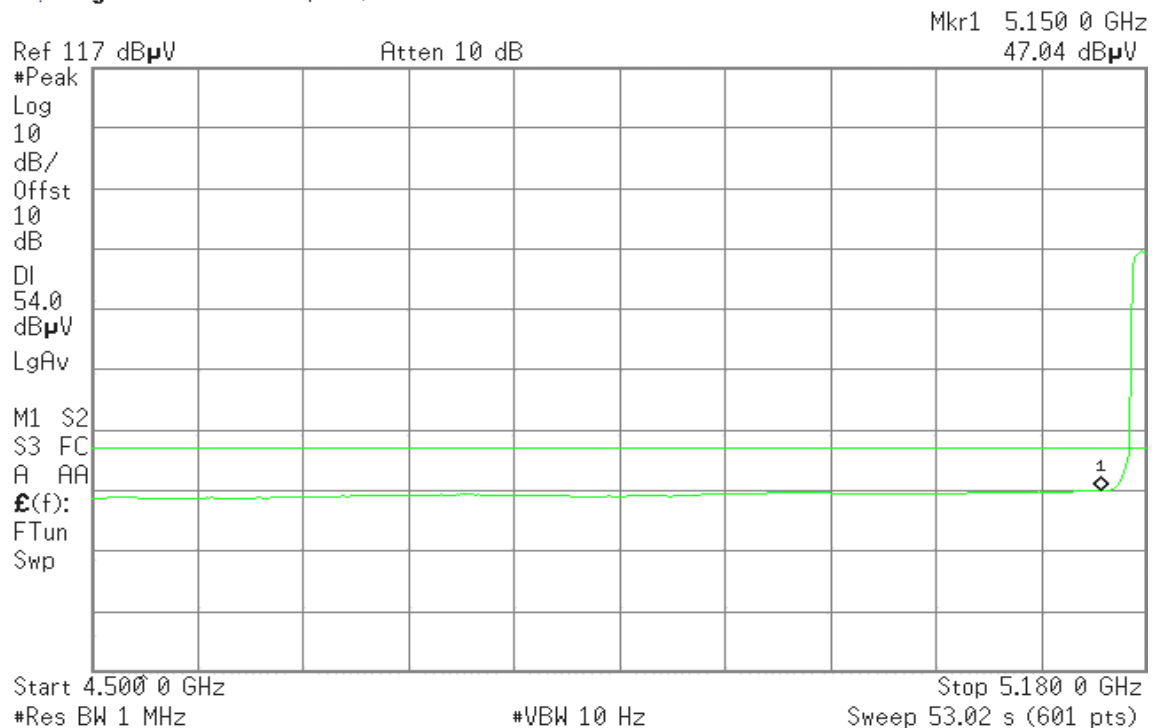


Detector mode: Average

Polarity: Vertical

Agilent 10:55:26 Sep 29, 2007

R T





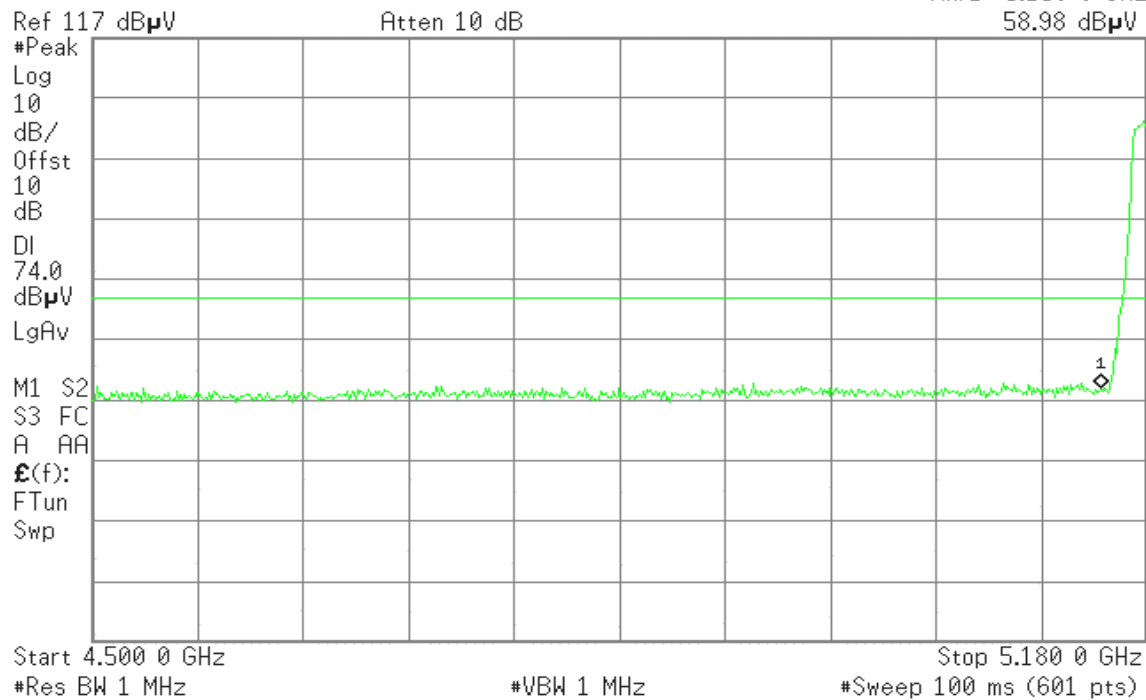
Detector mode: Peak

Polarity: Horizontal

Agilent 10:58:32 Sep 29, 2007

R T

Mkr1 5.150 0 GHz
58.98 dB μ V



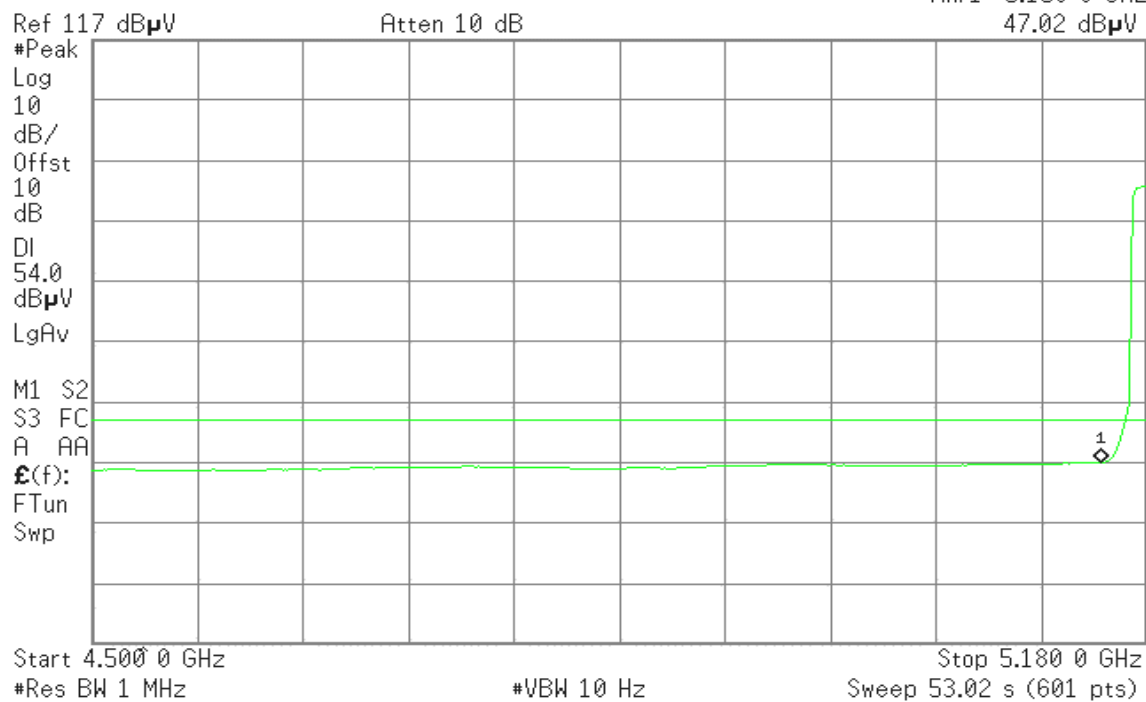
Detector mode: Average

Polarity: Horizontal

Agilent 10:59:36 Sep 29, 2007

R T

Mkr1 5.150 0 GHz
47.02 dB μ V





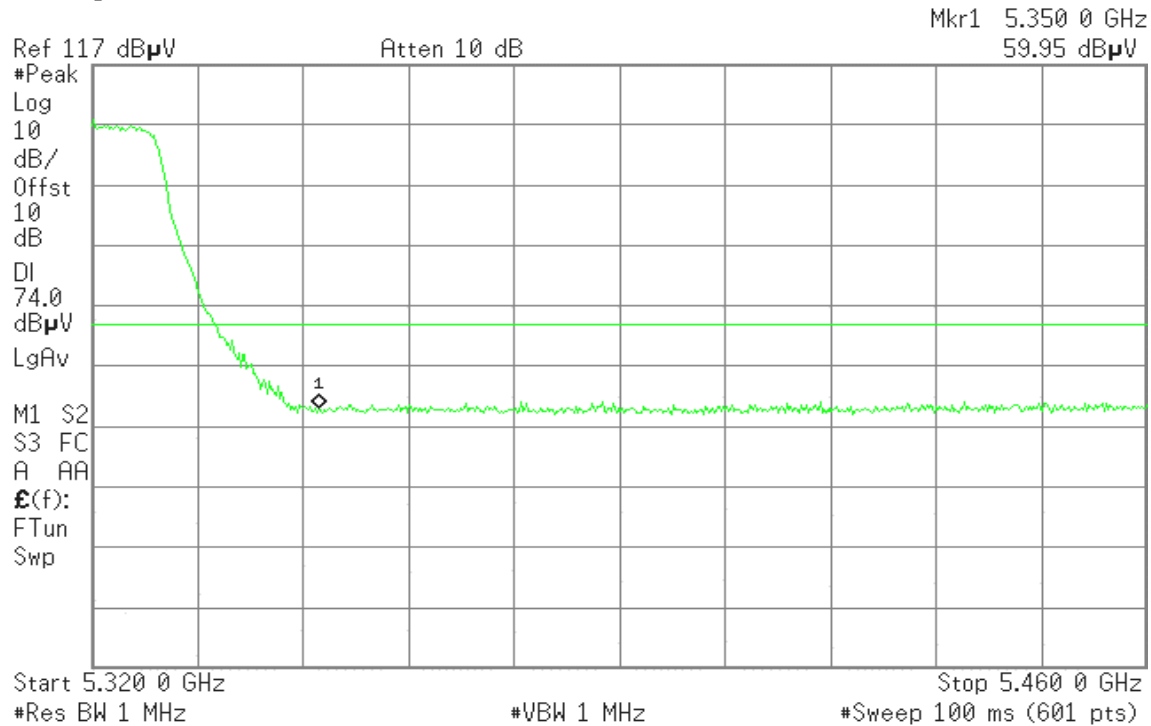
Band Edges (draft 802.11n Standard-20 MHz Channel mode / CH High)

Detector mode: Peak

Polarity: Vertical

Agilent 11:11:26 Sep 29, 2007

R T

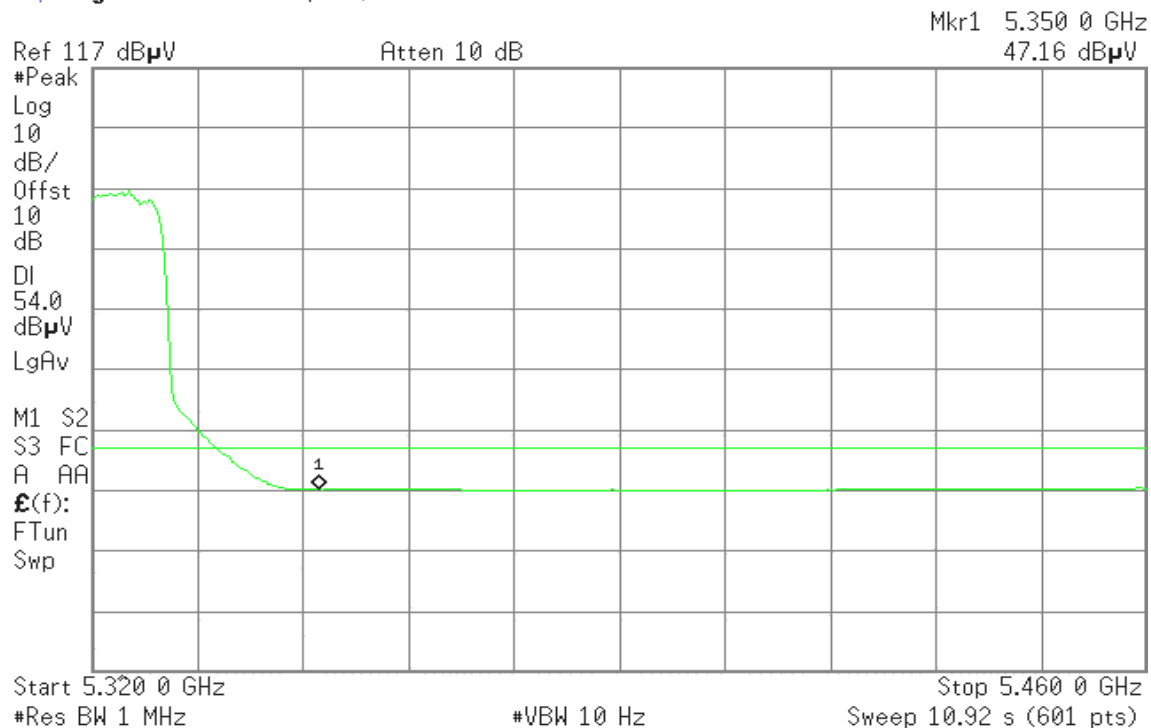


Detector mode: Average

Polarity: Vertical

Agilent 11:12:11 Sep 29, 2007

R T





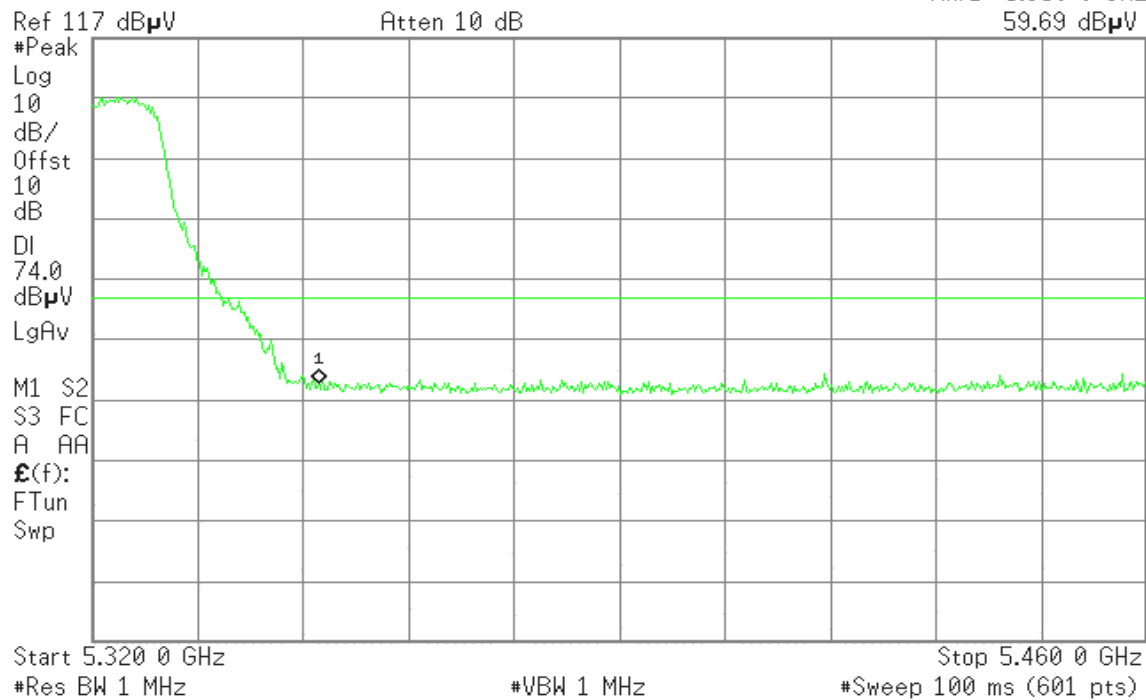
Detector mode: Peak

Polarity: Horizontal

Agilent 11:07:32 Sep 29, 2007

R T

Mkr1 5.350 0 GHz
59.69 dB μ V



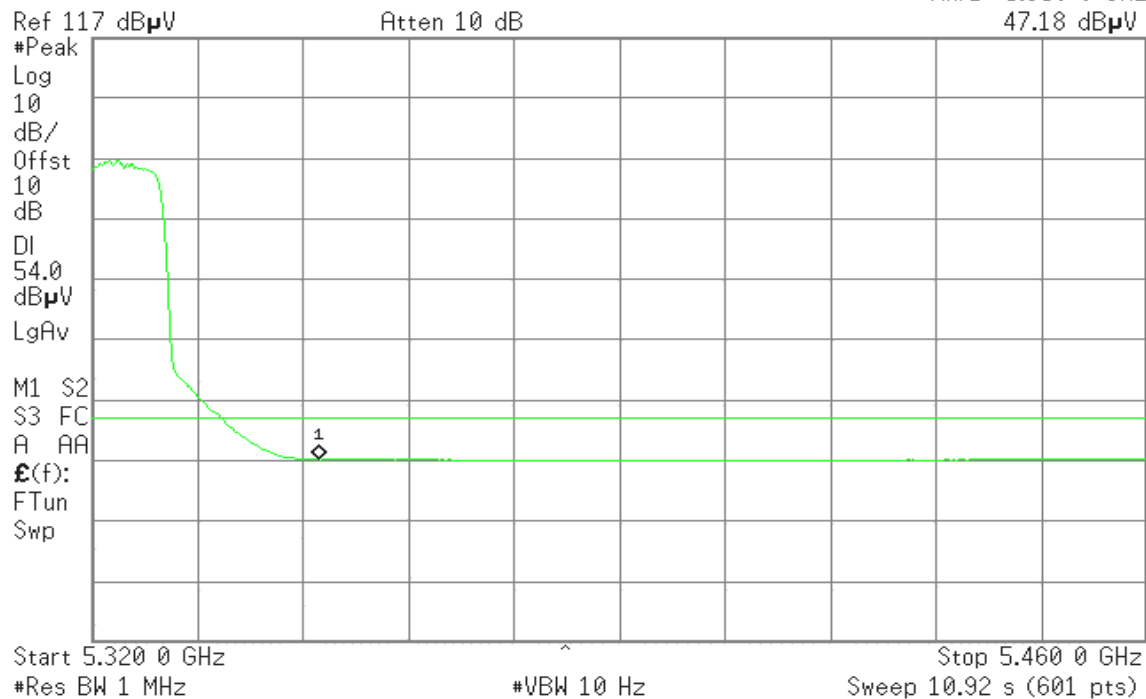
Detector mode: Average

Polarity: Horizontal

Agilent 11:07:06 Sep 29, 2007

R T

Mkr1 5.350 0 GHz
47.18 dB μ V





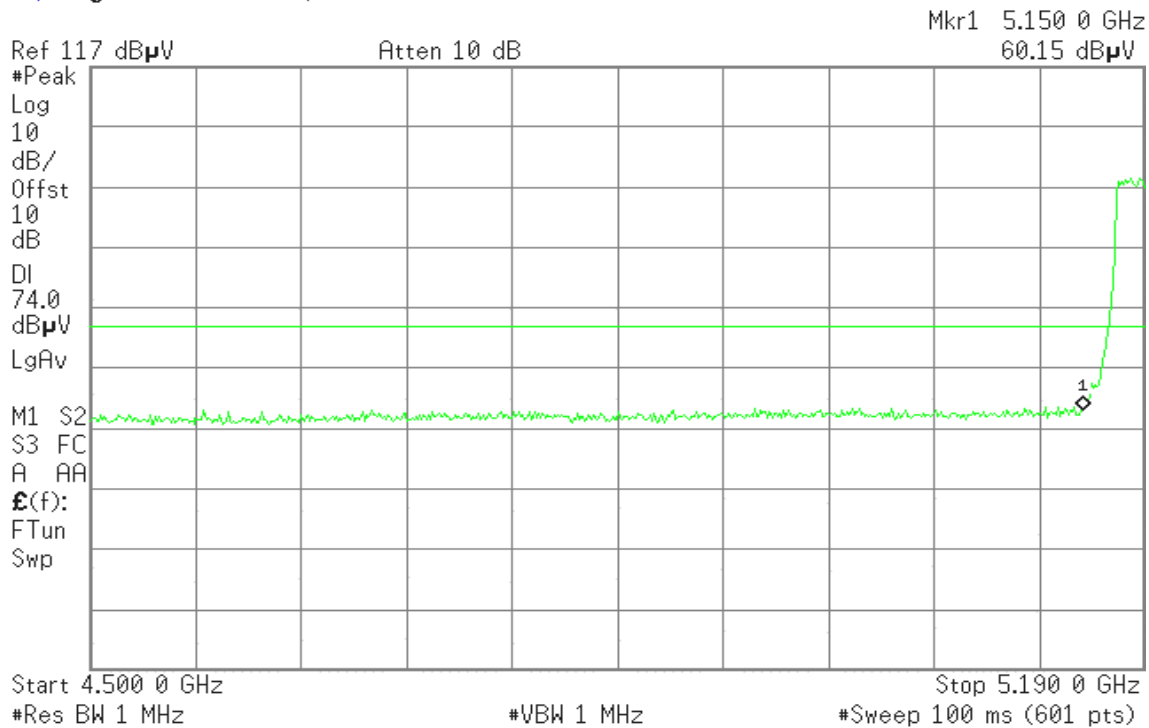
Band Edges (draft 802.11n Wide-40 MHz Channel mode / CH Low)

Detector mode: Peak

Polarity: Vertical

Agilent 11:54:21 Sep 29, 2007

R T

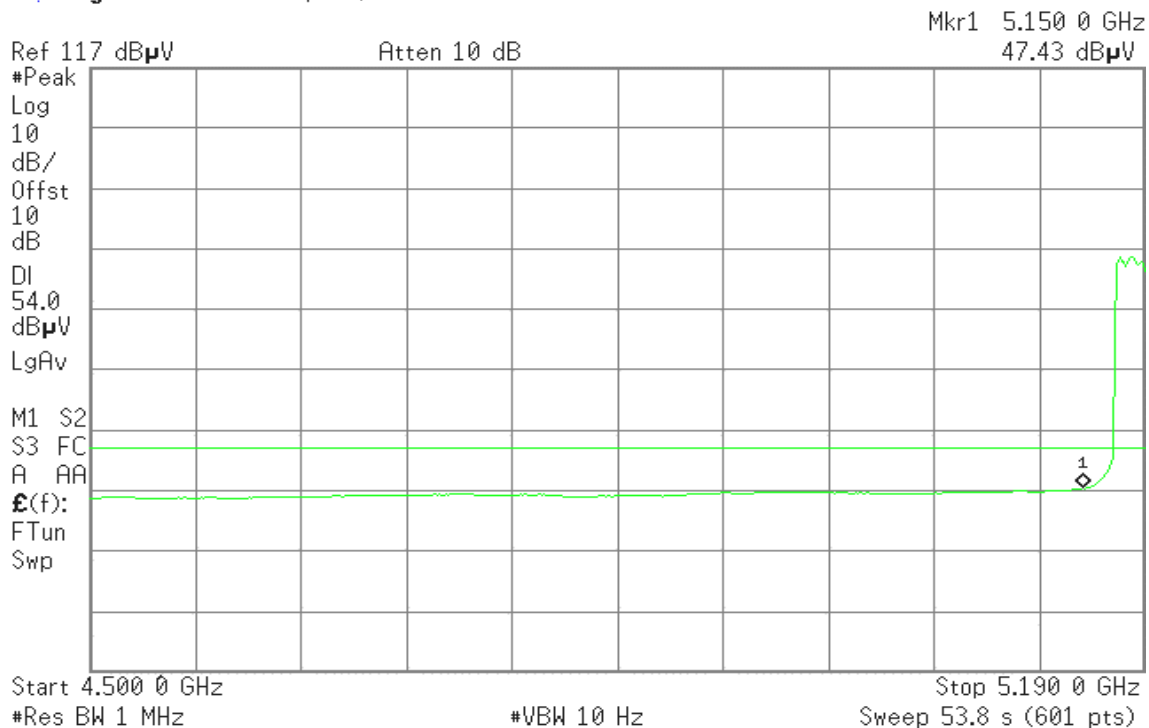


Detector mode: Average

Polarity: Vertical

Agilent 11:55:28 Sep 29, 2007

R T





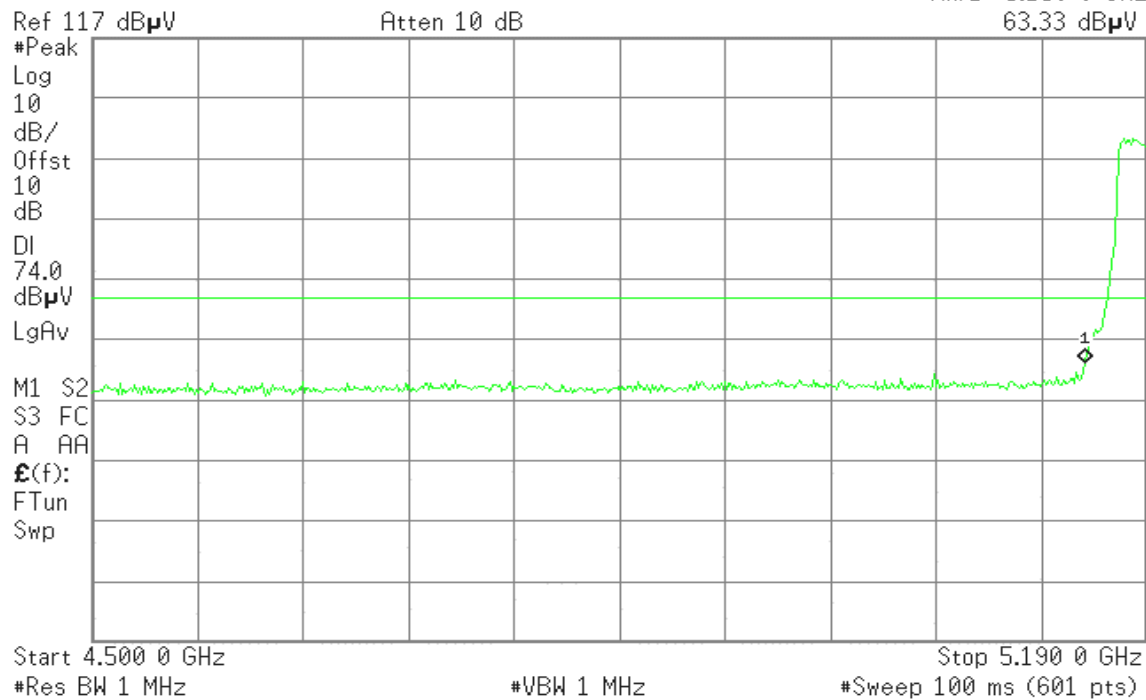
Detector mode: Peak

Polarity: Horizontal

Agilent 11:49:51 Sep 29, 2007

R T

Mkr1 5.150 0 GHz
63.33 dB μ V



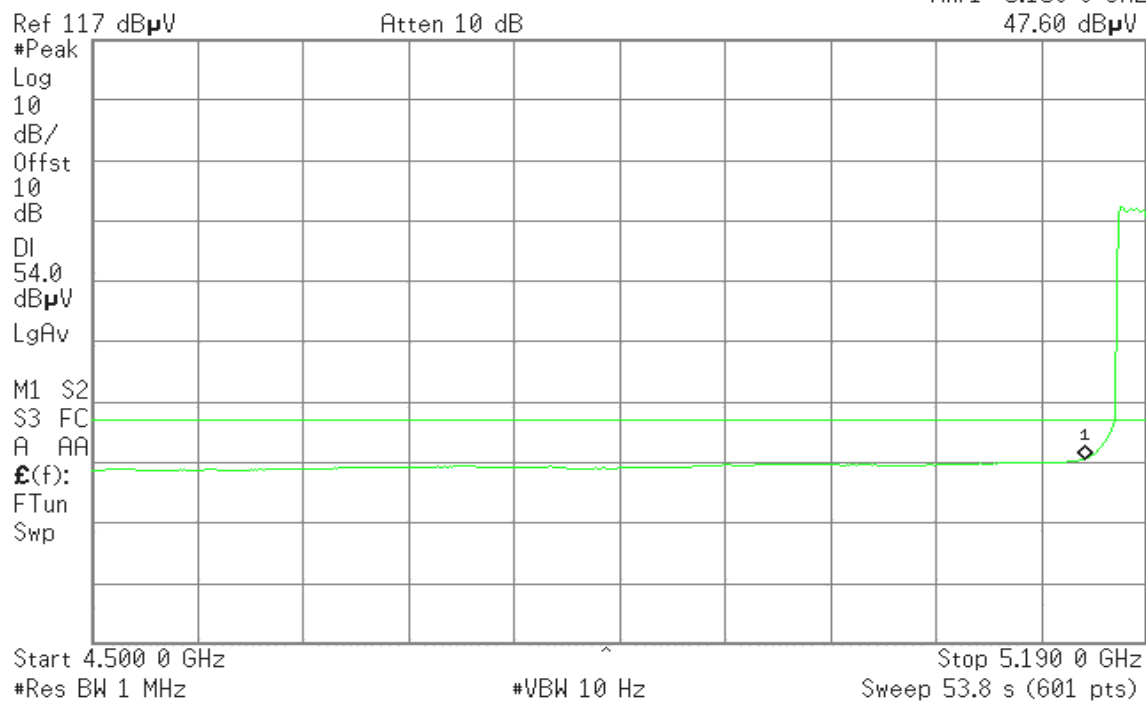
Detector mode: Average

Polarity: Horizontal

Agilent 11:51:26 Sep 29, 2007

R T

Mkr1 5.150 0 GHz
47.60 dB μ V





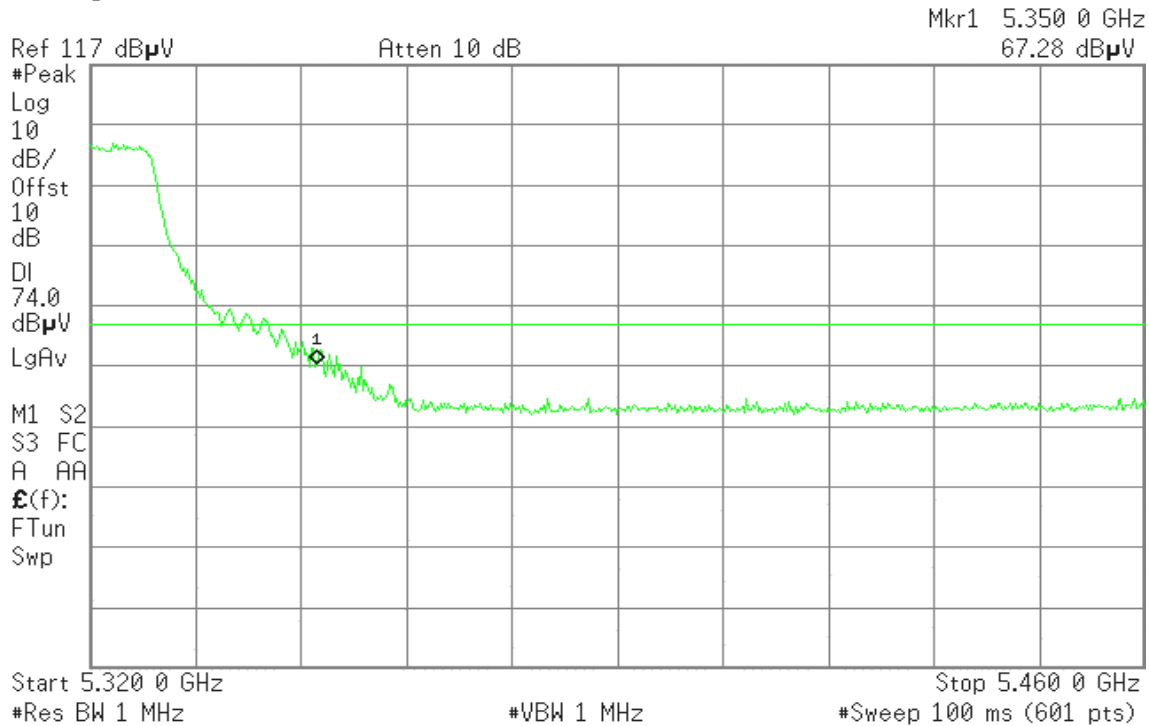
Band Edges (draft 802.11n Wide-40 MHz Channel mode / CH High)

Detector mode: Peak

Polarity: Vertical

Agilent 11:29:05 Sep 29, 2007

R T

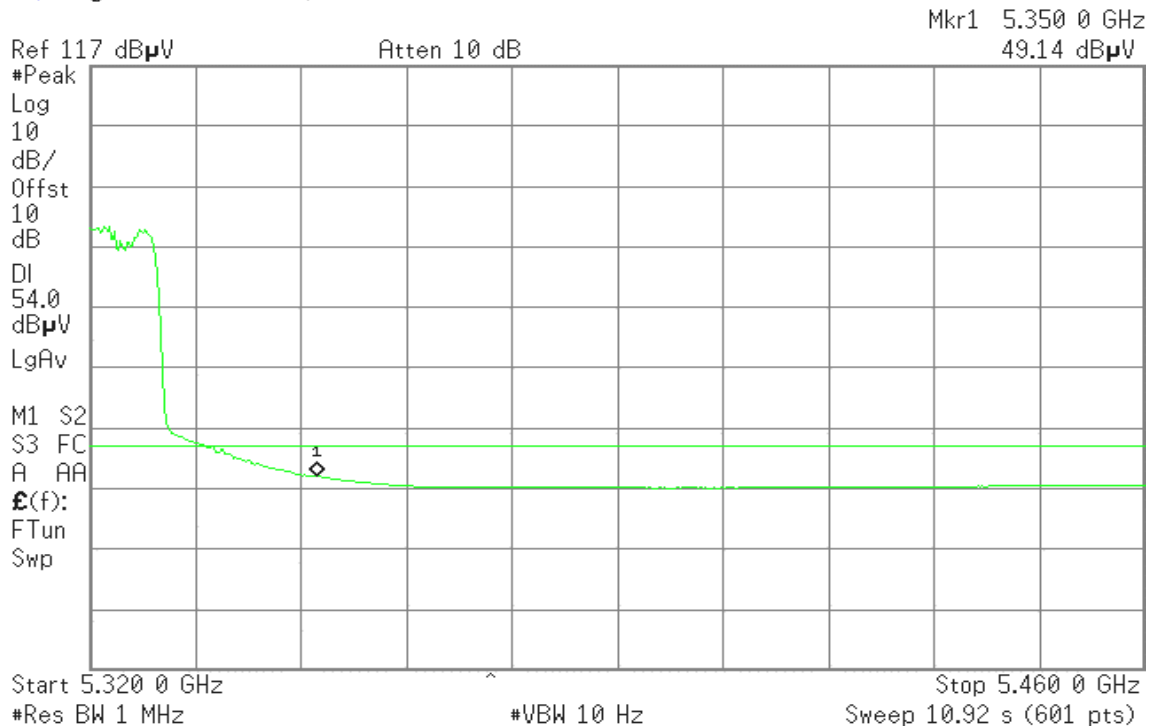


Detector mode: Average

Polarity: Vertical

Agilent 11:29:29 Sep 29, 2007

R T





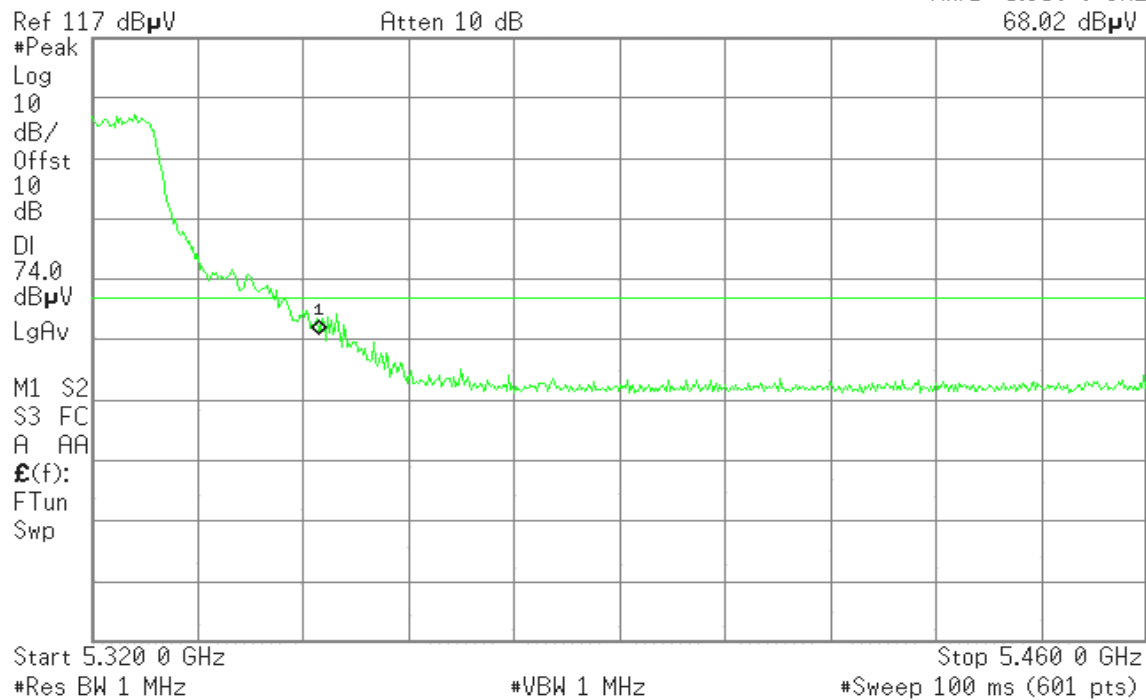
Detector mode: Peak

Polarity: Horizontal

Agilent 11:41:51 Sep 29, 2007

R T

Mkr1 5.350 0 GHz
68.02 dB μ V



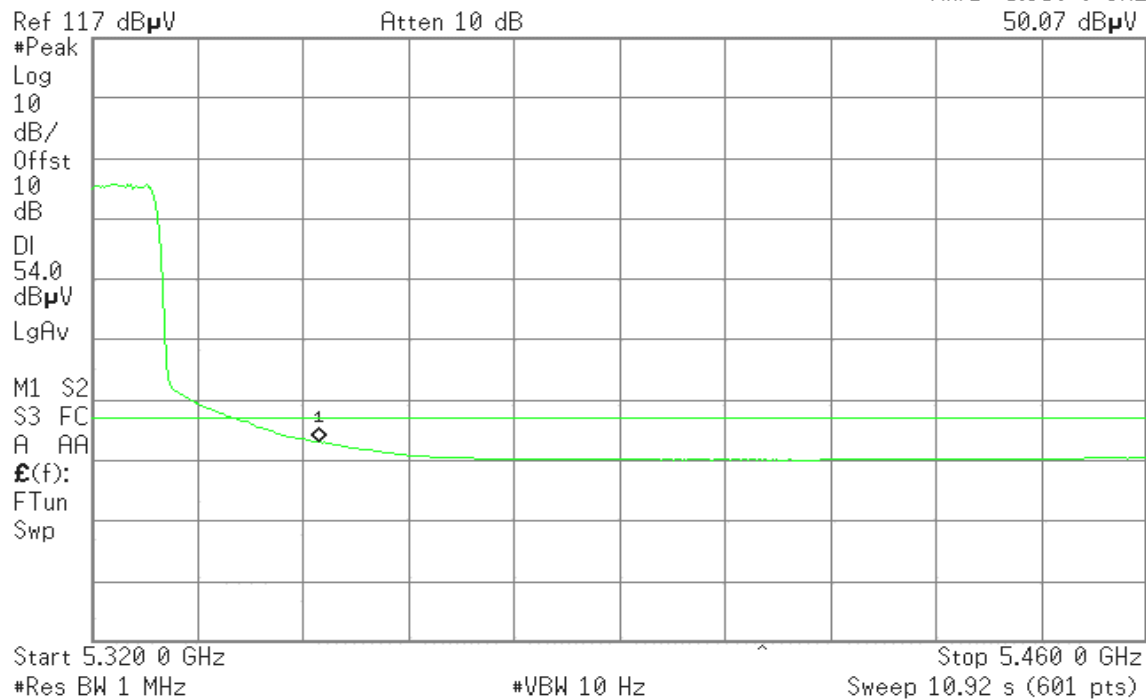
Detector mode: Average

Polarity: Horizontal

Agilent 11:41:31 Sep 29, 2007

R T

Mkr1 5.350 0 GHz
50.07 dB μ V





5470 ~ 5725MHz

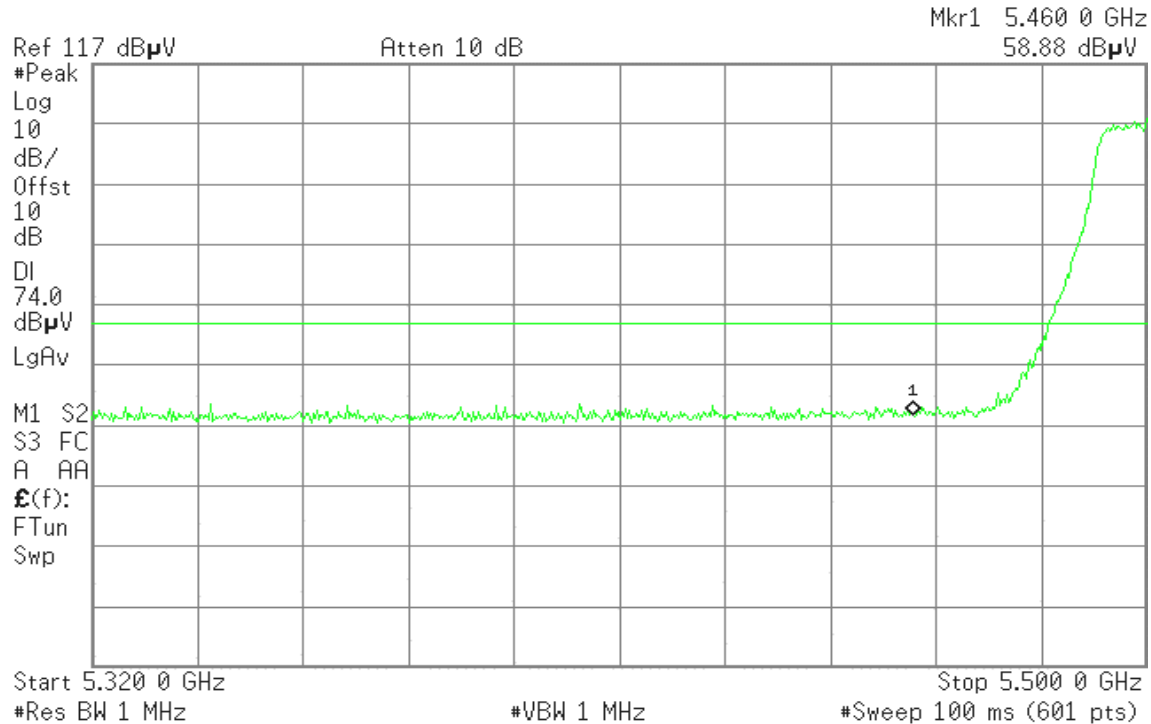
(IEEE 802.11a mode / CH Low)

Detector mode: Peak

Polarity: Vertical

Agilent 10:50:25 Sep 29, 2007

R T

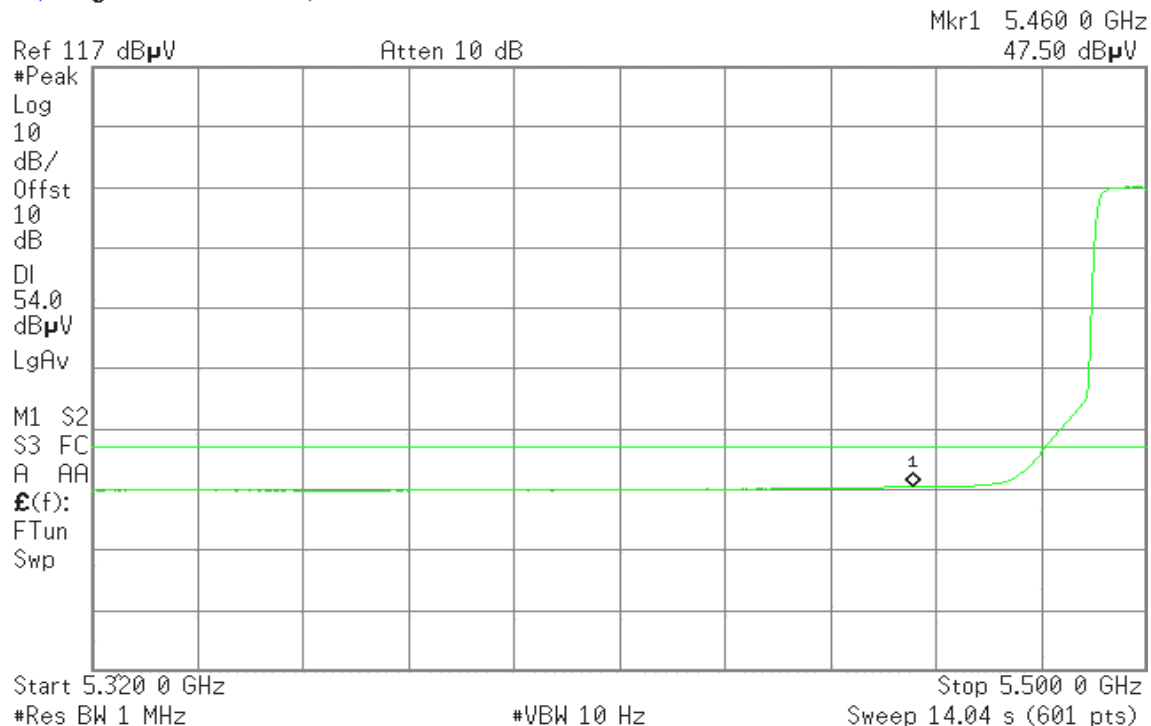


Detector mode: Average

Polarity: Vertical

Agilent 10:50:10 Sep 29, 2007

R T





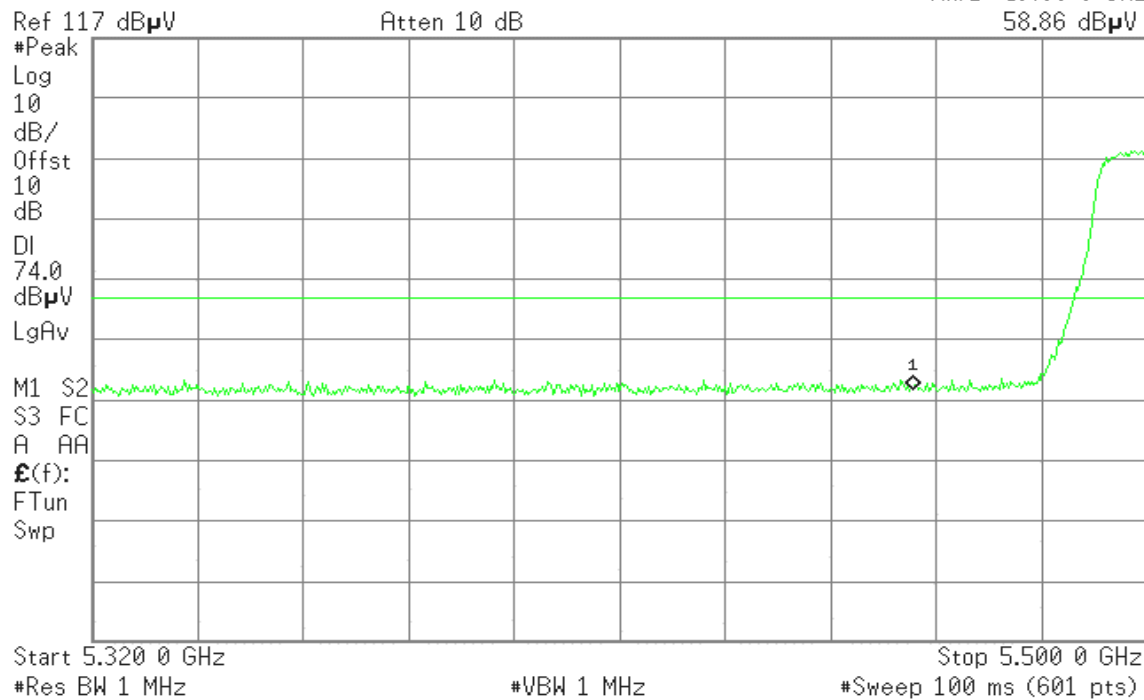
Detector mode: Peak

Polarity: Horizontal

Agilent 10:48:08 Sep 29, 2007

R T

Mkr1 5.460 0 GHz
58.86 dB μ V



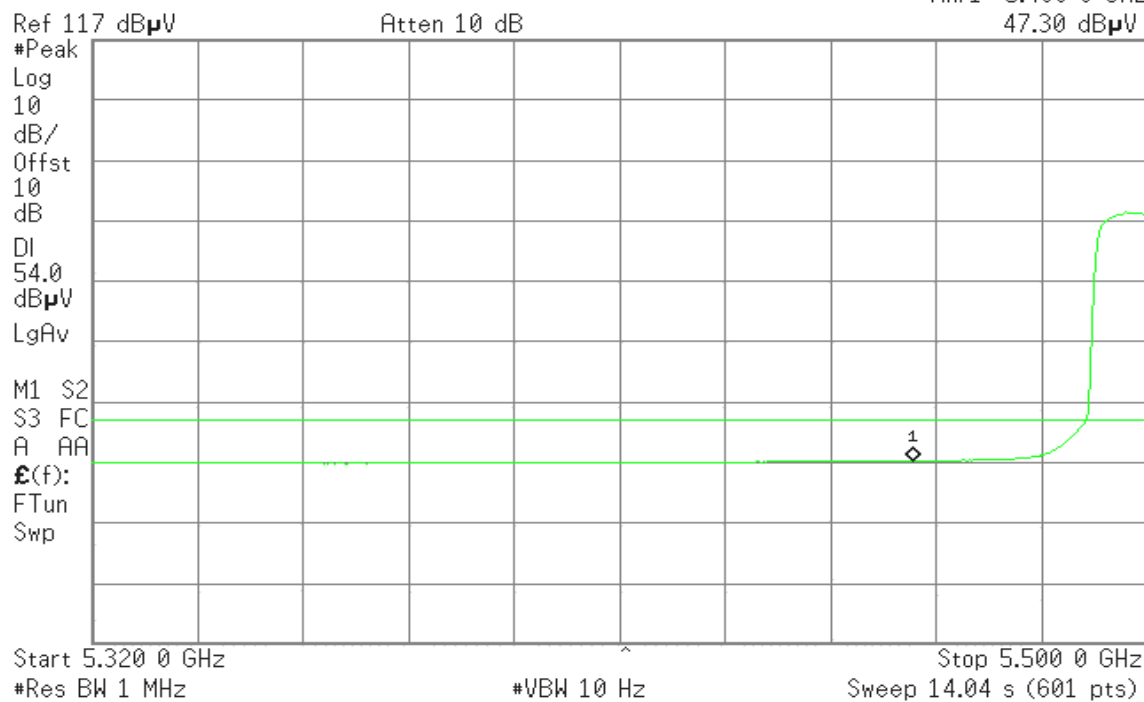
Detector mode: Average

Polarity: Horizontal

Agilent 10:47:50 Sep 29, 2007

R T

Mkr1 5.460 0 GHz
47.30 dB μ V





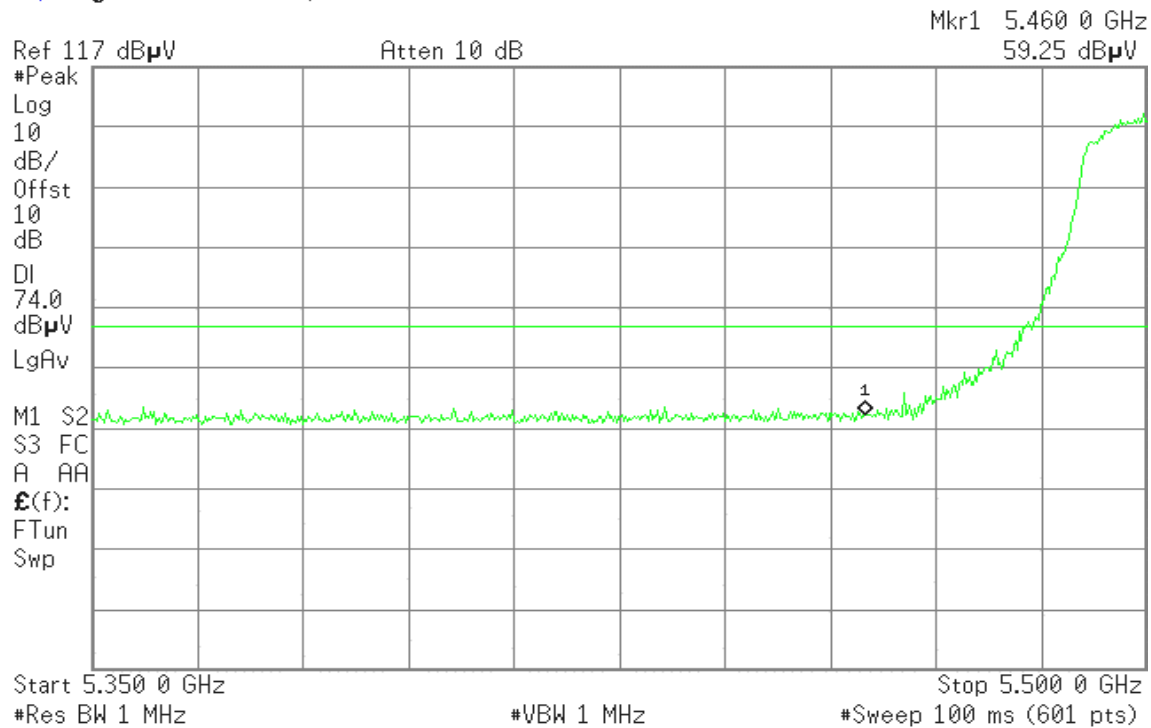
Band Edges (draft 802.11n Standard-20 MHz Channel mode / CH Low)

Detector mode: Peak

Polarity: Vertical

Agilent 11:15:36 Sep 29, 2007

R T

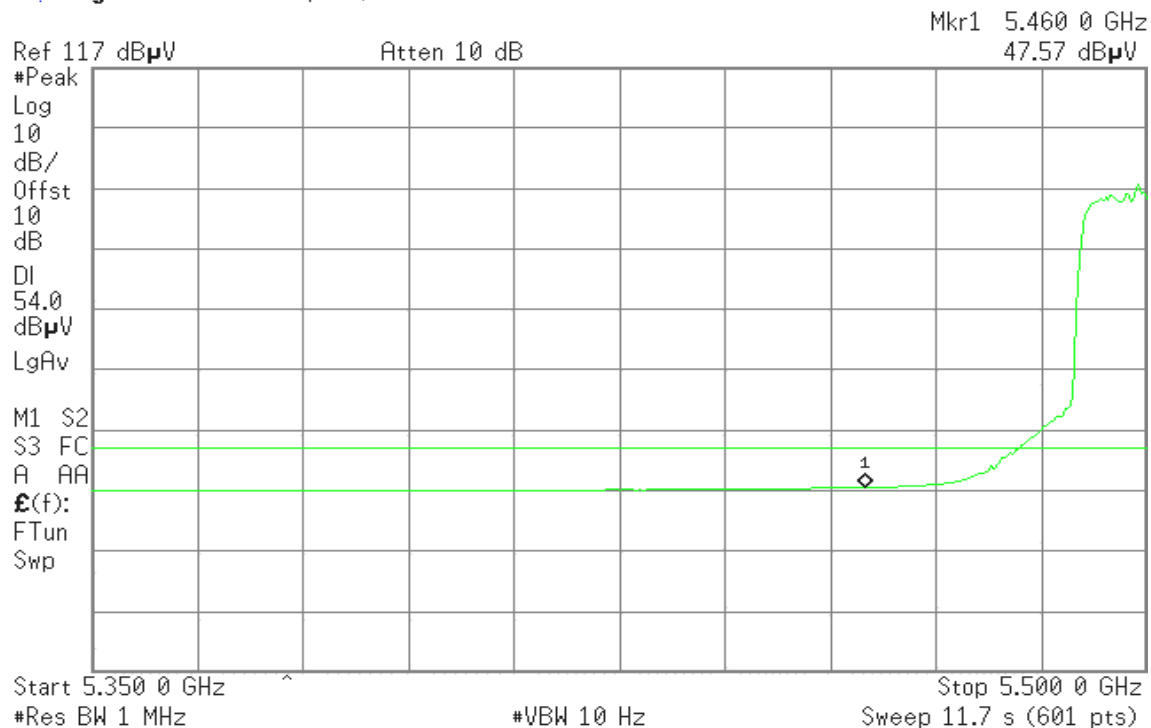


Detector mode: Average

Polarity: Vertical

Agilent 11:15:15 Sep 29, 2007

R T





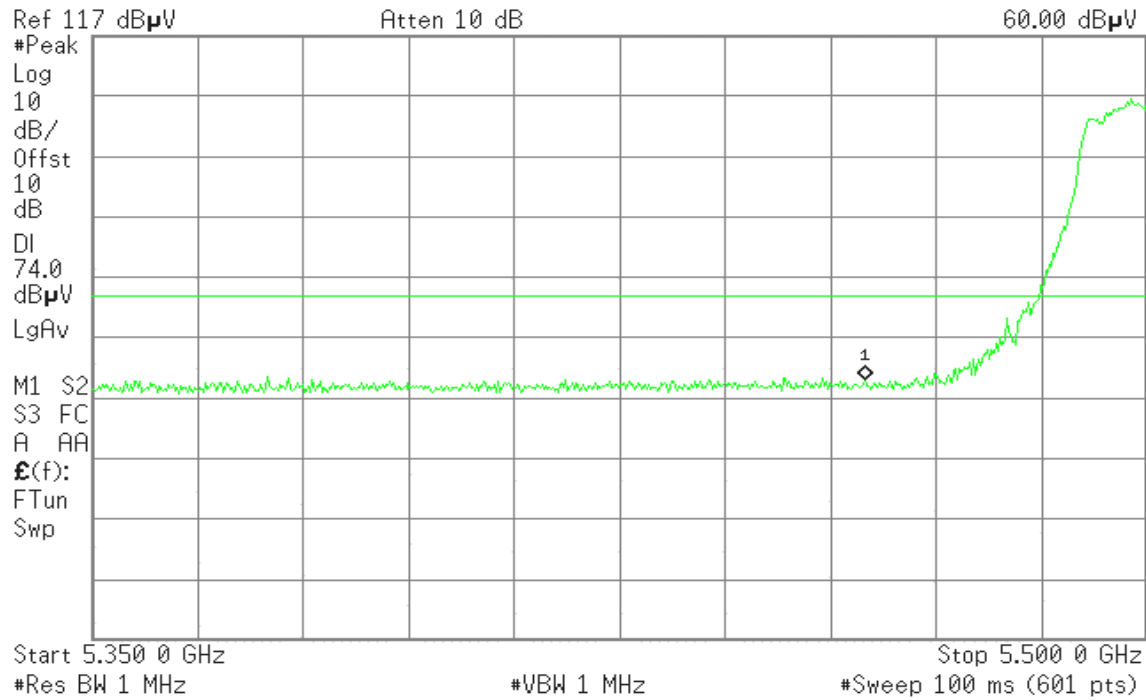
Detector mode: Peak

Polarity: Horizontal

Agilent 11:18:06 Sep 29, 2007

R T

Mkr1 5.460 0 GHz
60.00 dB μ V



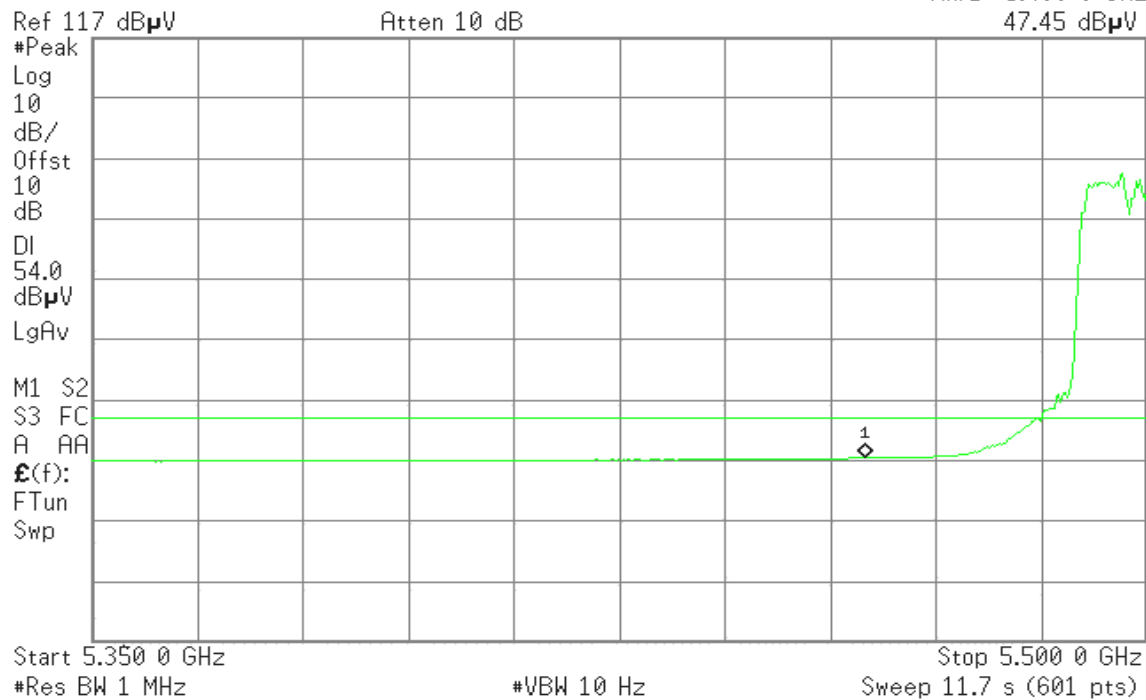
Detector mode: Average

Polarity: Horizontal

Agilent 11:17:47 Sep 29, 2007

R T

Mkr1 5.460 0 GHz
47.45 dB μ V





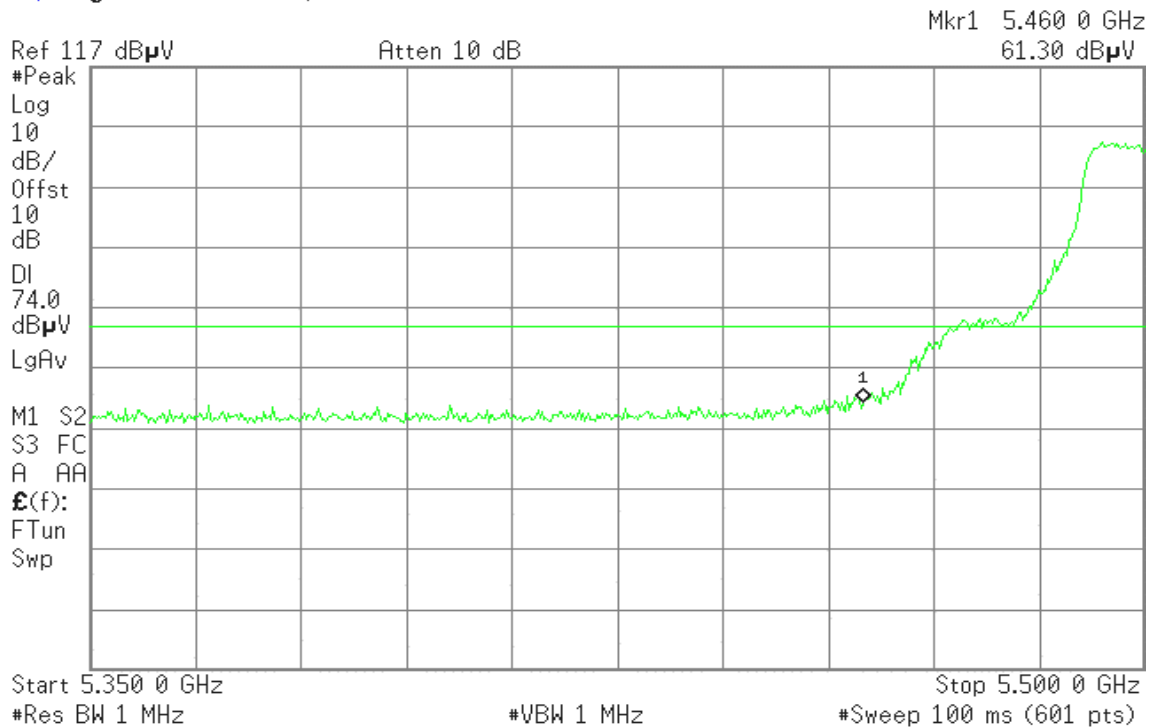
Band Edges (draft 802.11n Wide-40 MHz Channel mode / CH Low)

Detector mode: Peak

Polarity: Vertical

Agilent 11:25:13 Sep 29, 2007

R T

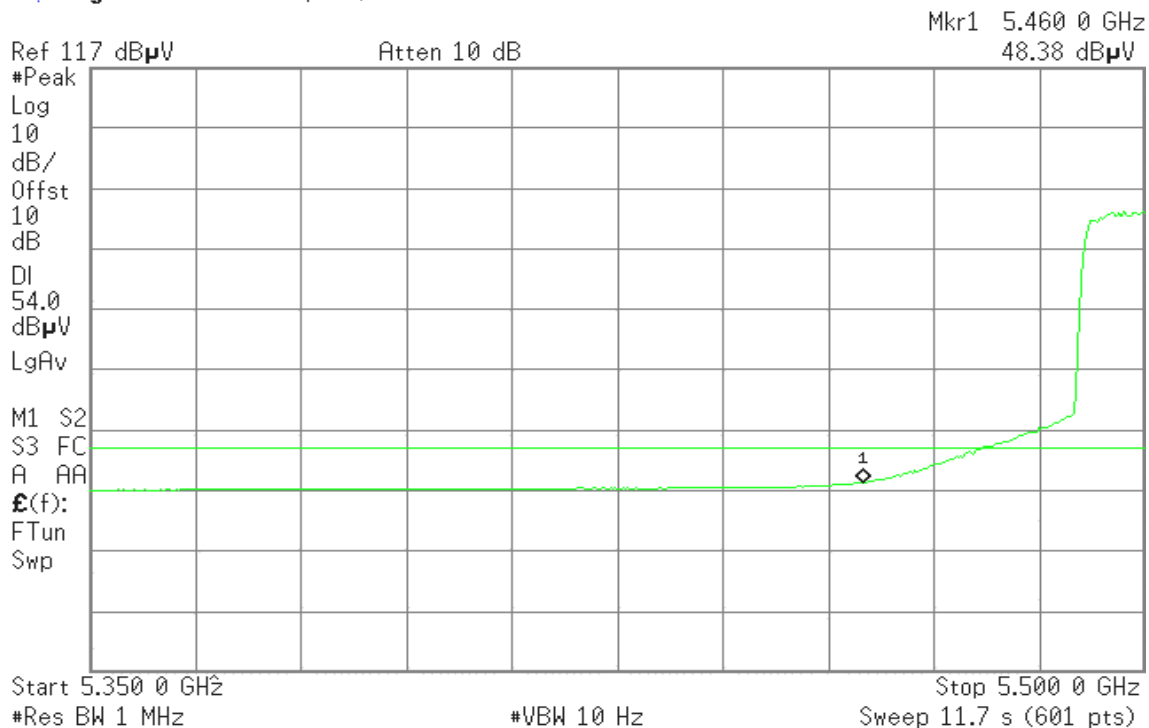


Detector mode: Average

Polarity: Vertical

Agilent 11:24:55 Sep 29, 2007

R T





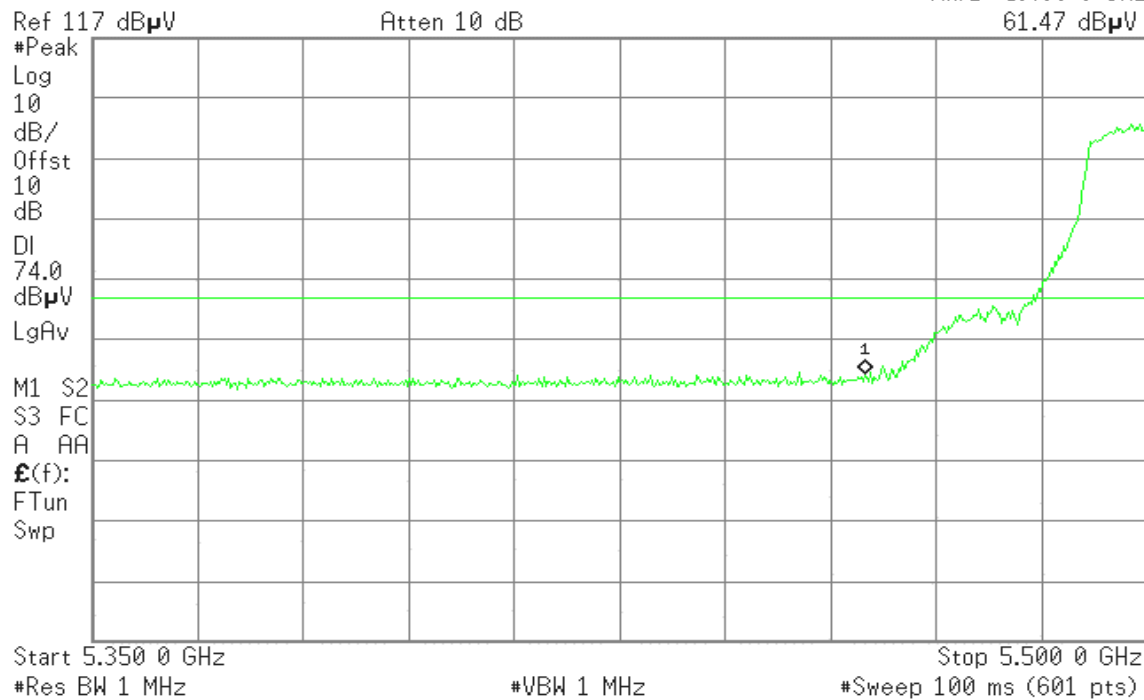
Detector mode: Peak

Polarity: Horizontal

Agilent 11:21:55 Sep 29, 2007

R T

Mkr1 5.460 0 GHz
61.47 dB μ V



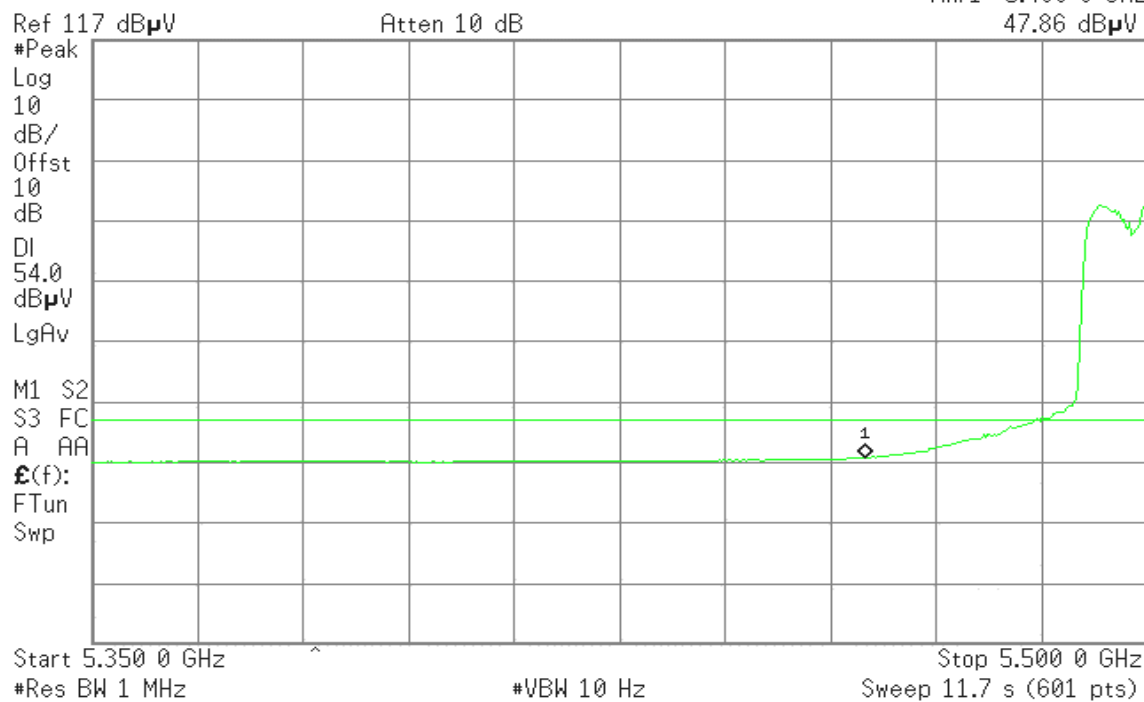
Detector mode: Average

Polarity: Horizontal

Agilent 11:22:18 Sep 29, 2007

R T

Mkr1 5.460 0 GHz
47.86 dB μ V





7.2 RADIATED UNDESIRABLE EMISSION

1. According to §15.209(a), except as provided elsewhere in this Subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table:

Frequency (MHz)	Field Strength ($\mu\text{V/m}$)	Measurement Distance (m)
30-88	100*	3
88-216	150*	3
216-960	200*	3
Above 960	500	3

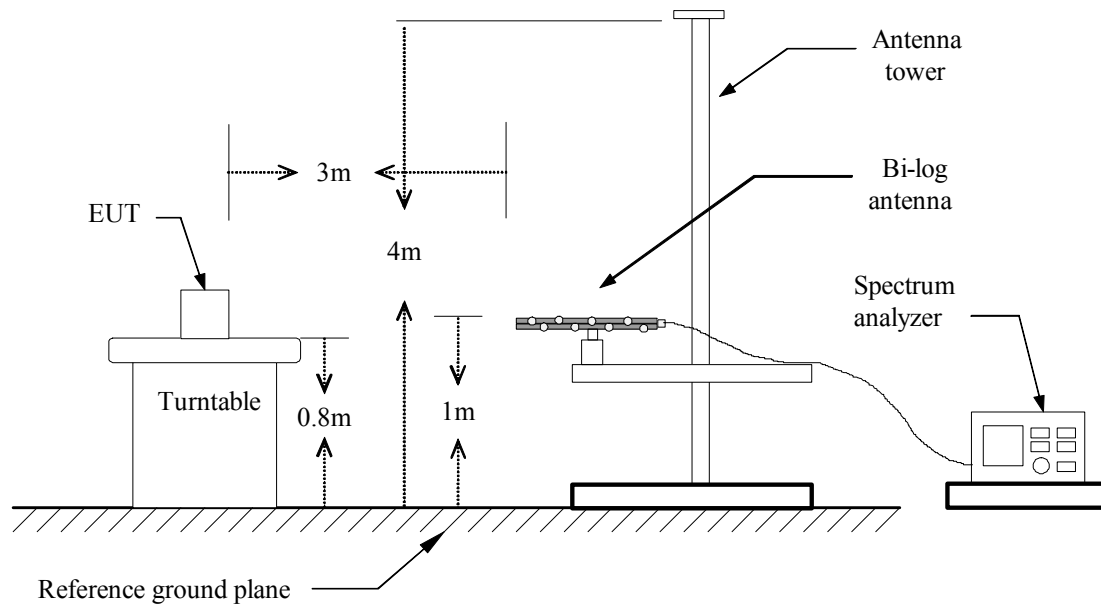
Remark: Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this Section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of this Part, e.g., Sections 15.231 and 15.241.

2. In the emission table above, the tighter limit applies at the band edges.

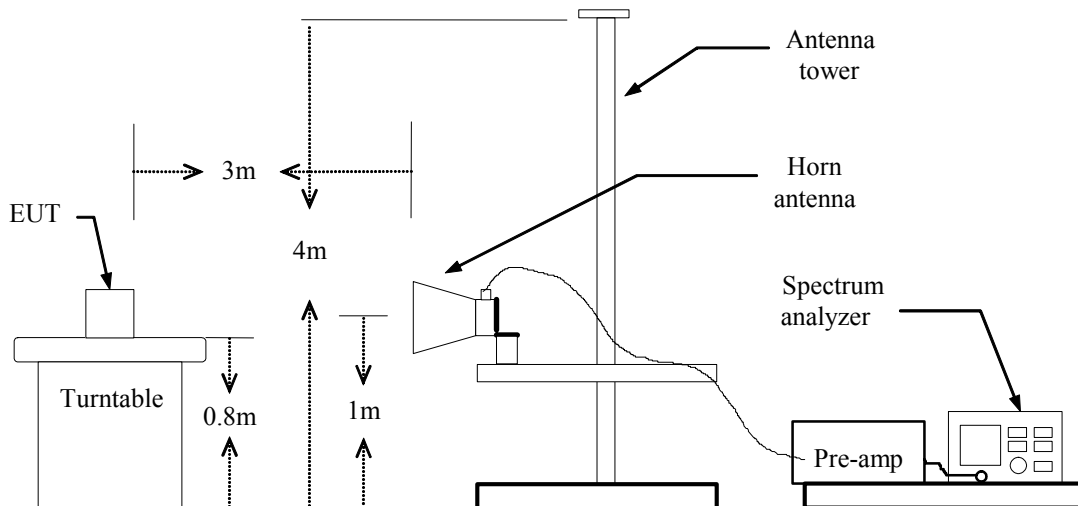
Frequency (MHz)	Field Strength ($\mu\text{V/m}$ at 3-meter)	Field Strength (dB $\mu\text{V/m}$ at 3-meter)
30-88	100	40
88-216	150	43.5
216-960	200	46
Above 960	500	54

Test Configuration

Below 1 GHz



Above 1 GHz





TEST PROCEDURE

1. The EUT is placed on a turntable, which is 0.8m above ground plane.
2. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.
3. EUT is set 3m away from the receiving antenna, which is varied from 1m to 4m to find out the highest emissions.
4. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
5. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
6. Set the spectrum analyzer in the following setting as:

Below 1GHz:

RBW=100kHz / VBW=300kHz / Sweep=AUTO

Above 1GHz:

(a) PEAK: RBW=VBW=1MHz / Sweep=AUTO

(b) AVERAGE: RBW=1MHz / VBW=10Hz / Sweep=AUTO

7. Repeat above procedures until the measurements for all frequencies are complete.

**TEST RESULTS***No non-compliance noted.***Below 1 GHz****Operation Mode:** Normal Link**Test Date:** November 2, 2007**Temperature:** 25°C**Tested by:** Ming Chen**Humidity:** 55% RH**Polarity:** Ver. / Hor.

Frequency (MHz)	Ant.Pol. (H/V)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
74.26	V	13.50	9.05	22.55	40.00	-17.45	QP
111.06	V	14.20	12.27	26.47	43.50	-17.03	QP
137.11	V	18.90	9.53	28.43	43.50	-15.07	QP
169.35	V	19.40	10.57	29.97	43.50	-13.53	QP
222.94	V	13.00	13.19	26.19	46.00	-19.81	QP
286.10	V	12.30	15.16	27.46	46.00	-18.54	QP
67.15	H	13.90	10.19	24.09	40.00	-15.91	QP
164.33	H	17.10	10.28	27.38	43.50	-16.12	QP
244.50	H	9.50	14.09	23.59	46.00	-22.41	QP
353.22	H	10.00	17.17	27.17	46.00	-18.83	QP
703.08	H	4.60	22.93	27.53	46.00	-18.47	QP
989.61	H	10.00	26.52	36.52	54.00	-17.48	QP

Remark:

- 1. Measuring frequencies from 30 MHz to the 1GHz.*
- 2. Radiated emissions measured in frequency range from 30 MHz to 1000MHz were made with an instrument using peak/quasi-peak detector mode.*
- 3. Quasi-peak test would be performed if the peak result were greater than the quasi-peak limit or as required by the applicant.*
- 4. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.*
- 5. Margin (dB) = Remark result (dBuV/m) – Quasi-peak limit (dBuV/m).*

**Above 1 GHz****5150 ~ 5350MHz****Operation Mode:** Tx / IEEE 802.11a mode / CH Low**Test Date:** September 29, 2007**Temperature:** 25°C**Tested by:** Steven Young**Humidity:** 55% RH**Polarity:** Ver. / Hor.

Frequency (MHz)	Ant.Pol. (H/V)	Reading (Peak) (dBuV)	Reading (Average) (dBuV)	Correction Factor (dB/m)	Result (Peak) (dBuV/m)	Result (Average) (dBuV/m)	Limit (Peak) (dBuV/m)	Limit (Average) (dBuV/m)	Margin (dB)	Remark
3240.00	V	52.99	---	-2.14	50.85	---	74.00	54.00	-3.15	Peak
N/A										
2575.00	H	53.62	---	-3.56	50.06	---	74.00	54.00	-3.94	Peak
N/A										

Remark:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.
3. Average test would be performed if the peak result were greater than the average limit.
4. Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
5. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.
6. Margin (dB) = Remark result (dBuV/m) – Average limit (dBuV/m).

**Operation Mode:** Tx / IEEE 802.11a mode / CH Mid**Test Date:** September 29, 2007**Temperature:** 25°C**Tested by:** Steven Young**Humidity:** 55% RH**Polarity:** Ver. / Hor.

Frequency (MHz)	Ant.Pol. (H/V)	Reading (Peak) (dBuV)	Reading (Average) (dBuV)	Correction Factor (dB/m)	Result (Peak) (dBuV/m)	Result (Average) (dBuV/m)	Limit (Peak) (dBuV/m)	Limit (Average) (dBuV/m)	Margin (dB)	Remark
3041.67	V	52.91	---	-2.39	50.52	---	74.00	54.00	-3.48	Peak
N/A										
3298.33	H	52.02	---	-2.07	49.95	---	74.00	54.00	-4.05	Peak
N/A										

Remark:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.
3. Average test would be performed if the peak result were greater than the average limit.
4. Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
5. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.
6. Margin (dB) = Remark result (dBuV/m) – Average limit (dBuV/m).

**Operation Mode:** Tx / IEEE 802.11a mode / CH High**Test Date:** September 29, 2007**Temperature:** 25°C**Tested by:** Steven Young**Humidity:** 55% RH**Polarity:** Ver. / Hor.

Frequency (MHz)	Ant.Pol. (H/V)	Reading (Peak) (dBuV)	Reading (Average) (dBuV)	Correction Factor (dB/m)	Result (Peak) (dBuV/m)	Result (Average) (dBuV/m)	Limit (Peak) (dBuV/m)	Limit (Average) (dBuV/m)	Margin (dB)	Remark
2773.33	V	53.69	---	-3.04	50.65	---	74.00	54.00	-3.35	Peak
N/A										
2890.00	H	51.82	---	-2.73	49.09	---	74.00	54.00	-4.91	Peak
N/A										

Remark:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.
3. Average test would be performed if the peak result were greater than the average limit.
4. Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
5. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.
6. Margin (dB) = Remark result (dBuV/m) – Average limit (dBuV/m).

**Operation Mode:** TX / draft 802.11n Standard-20 MHz Channel mode / CH Low**Test Date:** September 29, 2007**Temperature:** 25°C**Tested by:** Steven Young**Humidity:** 55 % RH**Polarity:** Ver. / Hor.

Frequency (MHz)	Ant.Pol. (H/V)	Reading (Peak) (dBuV)	Reading (Average) (dBuV)	Correction Factor (dB/m)	Result (Peak) (dBuV/m)	Result (Average) (dBuV/m)	Limit (Peak) (dBuV/m)	Limit (Average) (dBuV/m)	Margin (dB)	Remark
3485.00	V	53.43	---	-1.84	51.60	---	74.00	54.00	-2.40	Peak
N/A										
3426.67	H	53.80	---	-1.91	51.89	---	74.00	54.00	-2.11	Peak
N/A										

Remark:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.
3. Average test would be performed if the peak result were greater than the average limit.
4. Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
5. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.
6. Margin (dB) = Remark result (dBuV/m) – Average limit (dBuV/m).

**Operation Mode:** TX / draft 802.11n Standard-20 MHz Channel mode / CH Mid**Test Date:** September 29, 2007**Temperature:** 25°C**Tested by:** Steven Young**Humidity:** 55 % RH**Polarity:** Ver. / Hor.

Frequency (MHz)	Ant.Pol. (H/V)	Reading (Peak) (dBuV)	Reading (Average) (dBuV)	Correction Factor (dB/m)	Result (Peak) (dBuV/m)	Result (Average) (dBuV/m)	Limit (Peak) (dBuV/m)	Limit (Average) (dBuV/m)	Margin (dB)	Remark
3205.00	V	53.04	---	-2.19	50.86	---	74.00	54.00	-3.14	Peak
N/A										
3286.67	H	53.31	---	-2.09	51.23	---	74.00	54.00	-2.77	Peak
N/A										

Remark:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.
3. Average test would be performed if the peak result were greater than the average limit.
4. Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
5. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.
6. Margin (dB) = Remark result (dBuV/m) – Average limit (dBuV/m).

**Operation Mode:** TX / draft 802.11n Standard-20 MHz Channel mode / CH High**Test Date:** September 29, 2007**Temperature:** 25°C**Tested by:** Steven Young**Humidity:** 55 % RH**Polarity:** Ver. / Hor.

Frequency (MHz)	Ant.Pol. (H/V)	Reading (Peak) (dBuV)	Reading (Average) (dBuV)	Correction Factor (dB/m)	Result (Peak) (dBuV/m)	Result (Average) (dBuV/m)	Limit (Peak) (dBuV/m)	Limit (Average) (dBuV/m)	Margin (dB)	Remark
3403.33	V	52.70	---	-1.94	50.76	---	74.00	54.00	-3.24	Peak
N/A										
3321.67	H	52.79	---	-2.04	50.75	---	74.00	54.00	-3.25	Peak
N/A										

Remark:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.
3. Average test would be performed if the peak result were greater than the average limit.
4. Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
5. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.
6. Margin (dB) = Remark result (dBuV/m) – Average limit (dBuV/m).

**Operation Mode:** TX / draft 802.11n Wide-40 MHz Channel mode
/ CH Low**Test Date:** September 29, 2007**Temperature:** 25°C**Tested by:** Steven Young**Humidity:** 55 % RH**Polarity:** Ver. / Hor.

Frequency (MHz)	Ant.Pol. (H/V)	Reading (Peak) (dBuV)	Reading (Average) (dBuV)	Correction Factor (dB/m)	Result (Peak) (dBuV/m)	Result (Average) (dBuV/m)	Limit (Peak) (dBuV/m)	Limit (Average) (dBuV/m)	Margin (dB)	Remark
2015.00	V	55.33	---	-4.97	50.36	---	74.00	54.00	-3.64	Peak
N/A										
3228.33	H	53.02	---	-2.16	50.86	---	74.00	54.00	-3.14	Peak
N/A										

Remark:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.
3. Average test would be performed if the peak result were greater than the average limit.
4. Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
5. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.
6. Margin (dB) = Remark result (dBuV/m) – Average limit (dBuV/m).



Operation Mode: TX / draft 802.11n Wide-40 MHz Channel mode
/ CH Mid

Test Date: September 29, 2007

Temperature: 25°C

Tested by: Steven Young

Humidity: 55 % RH

Polarity: Ver. / Hor.

Frequency (MHz)	Ant.Pol. (H/V)	Reading (Peak) (dBuV)	Reading (Average) (dBuV)	Correction Factor (dB/m)	Result (Peak) (dBuV/m)	Result (Average) (dBuV/m)	Limit (Peak) (dBuV/m)	Limit (Average) (dBuV/m)	Margin (dB)	Remark
3123.33	V	52.69	---	-2.29	50.40	---	74.00	54.00	-3.60	Peak
N/A										
3041.67	H	53.24	---	-2.39	50.85	---	74.00	54.00	-3.15	Peak
N/A										

Remark:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.
3. Average test would be performed if the peak result were greater than the average limit.
4. Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
5. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin > 20dB from the applicable limit) and considered that's already beyond the background noise floor.
6. Margin (dB) = Remark result (dBuV/m) – Average limit (dBuV/m).

**Operation Mode:** TX / draft 802.11n Wide-40 MHz Channel mode
/ CH High**Test Date:** September 29, 2007**Temperature:** 25°C**Tested by:** Steven Young**Humidity:** 55 % RH**Polarity:** Ver. / Hor.

Frequency (MHz)	Ant.Pol. (H/V)	Reading (Peak) (dBuV)	Reading (Average) (dBuV)	Correction Factor (dB/m)	Result (Peak) (dBuV/m)	Result (Average) (dBuV/m)	Limit (Peak) (dBuV/m)	Limit (Average) (dBuV/m)	Margin (dB)	Remark
3146.67	V	53.45	---	-2.26	51.19	---	74.00	54.00	-2.81	Peak
N/A										
2528.33	H	54.35	---	-3.68	50.67	---	74.00	54.00	-3.33	Peak
N/A										

Remark:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.
3. Average test would be performed if the peak result were greater than the average limit.
4. Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
5. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.
6. Margin (dB) = Remark result (dBuV/m) – Average limit (dBuV/m).

**5470 ~ 5725MHz****Operation Mode:** Tx / IEEE 802.11a mode / CH Low**Test Date:** September 29, 2007**Temperature:** 25°C**Tested by:** Steven Young**Humidity:** 55% RH**Polarity:** Ver. / Hor.

Frequency (MHz)	Ant.Pol. (H/V)	Reading (Peak) (dBuV)	Reading (Average) (dBuV)	Correction Factor (dB/m)	Result (Peak) (dBuV/m)	Result (Average) (dBuV/m)	Limit (Peak) (dBuV/m)	Limit (Average) (dBuV/m)	Margin (dB)	Remark
3380.00	V	53.12	---	-1.97	51.15	---	74.00	54.00	-2.85	Peak
N/A										
3263.33	H	54.09	---	-2.11	51.98	---	74.00	54.00	-2.02	Peak
N/A										

Remark:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.
3. Average test would be performed if the peak result were greater than the average limit.
4. Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
5. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin > 20dB from the applicable limit) and considered that's already beyond the background noise floor.
6. Margin (dB) = Remark result (dBuV/m) – Average limit (dBuV/m).

**Operation Mode:** Tx / IEEE 802.11a mode / CH Mid**Test Date:** September 29, 2007**Temperature:** 25°C**Tested by:** Steven Young**Humidity:** 55% RH**Polarity:** Ver. / Hor.

Frequency (MHz)	Ant.Pol. (H/V)	Reading (Peak) (dBuV)	Reading (Average) (dBuV)	Correction Factor (dB/m)	Result (Peak) (dBuV/m)	Result (Average) (dBuV/m)	Limit (Peak) (dBuV/m)	Limit (Average) (dBuV/m)	Margin (dB)	Remark
3520.00	V	52.90	---	-1.77	51.13	---	74.00	54.00	-2.87	Peak
N/A										
3391.67	H	53.66	---	-1.95	51.71	---	74.00	54.00	-2.29	Peak
N/A										

Remark:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.
3. Average test would be performed if the peak result were greater than the average limit.
4. Data of measurement within this frequency range shown “ --- ” in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
5. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with “ N/A ” remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.
6. $\text{Margin (dB)} = \text{Remark result (dBuV/m)} - \text{Average limit (dBuV/m)}$.

**Operation Mode:** Tx / IEEE 802.11a mode / CH High**Test Date:** September 29, 2007**Temperature:** 25°C**Tested by:** Steven Young**Humidity:** 55% RH**Polarity:** Ver. / Hor.

Frequency (MHz)	Ant.Pol. (H/V)	Reading (Peak) (dBuV)	Reading (Average) (dBuV)	Correction Factor (dB/m)	Result (Peak) (dBuV/m)	Result (Average) (dBuV/m)	Limit (Peak) (dBuV/m)	Limit (Average) (dBuV/m)	Margin (dB)	Remark
3333.33	V	53.17	---	-2.03	51.14	---	74.00	54.00	-2.86	Peak
N/A										
3006.67	H	53.03	---	-2.44	50.59	---	74.00	54.00	-3.41	Peak
N/A										

Remark:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.
3. Average test would be performed if the peak result were greater than the average limit.
4. Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
5. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.
6. Margin (dB) = Remark result (dBuV/m) – Average limit (dBuV/m).



Operation Mode: TX / draft 802.11n Standard-20 MHz Channel mode / CH Low

Test Date: September 29, 2007

Temperature: 25°C

Tested by: Steven Young

Humidity: 55 % RH

Polarity: Ver. / Hor.

Frequency (MHz)	Ant.Pol. (H/V)	Reading (Peak) (dBuV)	Reading (Average) (dBuV)	Correction Factor (dB/m)	Result (Peak) (dBuV/m)	Result (Average) (dBuV/m)	Limit (Peak) (dBuV/m)	Limit (Average) (dBuV/m)	Margin (dB)	Remark
3321.67	V	53.39	---	-2.04	51.35	---	74.00	54.00	-2.65	Peak
N/A										
3123.33	H	53.10	---	-2.29	50.81	---	74.00	54.00	-3.19	Peak
N/A										

Remark:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.
3. Average test would be performed if the peak result were greater than the average limit.
4. Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
5. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin > 20dB from the applicable limit) and considered that's already beyond the background noise floor
6. Margin (dB) = Remark result (dBuV/m) – Average limit (dBuV/m).

**Operation Mode:** TX / draft 802.11n Standard-20 MHz Channel mode / CH Mid**Test Date:** September 29, 2007**Temperature:** 25°C**Tested by:** Steven Young**Humidity:** 55 % RH**Polarity:** Ver. / Hor.

Frequency (MHz)	Ant.Pol. (H/V)	Reading (Peak) (dBuV)	Reading (Average) (dBuV)	Correction Factor (dB/m)	Result (Peak) (dBuV/m)	Result (Average) (dBuV/m)	Limit (Peak) (dBuV/m)	Limit (Average) (dBuV/m)	Margin (dB)	Remark
3111.67	V	53.65	---	-2.31	51.34	---	74.00	54.00	-2.66	Peak
N/A										
3461.67	H	53.21	---	-1.87	51.34	---	74.00	54.00	-2.66	Peak
N/A										

Remark:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.
3. Average test would be performed if the peak result were greater than the average limit.
4. Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
5. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.
6. Margin (dB) = Remark result (dBuV/m) – Average limit (dBuV/m).

**Operation Mode:** TX / draft 802.11n Standard-20 MHz Channel mode / CH High**Test Date:** September 29, 2007**Temperature:** 25°C**Tested by:** Steven Young**Humidity:** 55 % RH**Polarity:** Ver. / Hor.

Frequency (MHz)	Ant.Pol. (H/V)	Reading (Peak) (dBuV)	Reading (Average) (dBuV)	Correction Factor (dB/m)	Result (Peak) (dBuV/m)	Result (Average) (dBuV/m)	Limit (Peak) (dBuV/m)	Limit (Average) (dBuV/m)	Margin (dB)	Remark
3473.33	V	53.59	---	-1.85	51.74	---	74.00	54.00	-2.26	Peak
N/A										
3170.00	H	52.98	---	-2.23	50.74	---	74.00	54.00	-3.26	Peak
N/A										

Remark:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.
3. Average test would be performed if the peak result were greater than the average limit.
4. Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
5. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.
6. Margin (dB) = Remark result (dBuV/m) – Average limit (dBuV/m).



Operation Mode: TX / draft 802.11n Wide-40 MHz Channel mode
/ CH Low

Test Date: September 29, 2007

Temperature: 25°C

Tested by: Steven Young

Humidity: 55 % RH

Polarity: Ver. / Hor.

Frequency (MHz)	Ant.Pol. (H/V)	Reading (Peak) (dBuV)	Reading (Average) (dBuV)	Correction Factor (dB/m)	Result (Peak) (dBuV/m)	Result (Average) (dBuV/m)	Limit (Peak) (dBuV/m)	Limit (Average) (dBuV/m)	Margin (dB)	Remark
2796.67	V	53.54	---	-2.98	50.57	---	74.00	54.00	-3.43	Peak
N/A										
7346.67	H	57.94	50.11	3.34	61.28	53.45	74.00	54.00	-0.55	AVG
N/A										

Remark:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.
3. Average test would be performed if the peak result were greater than the average limit.
4. Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
5. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin > 20dB from the applicable limit) and considered that's already beyond the background noise floor.
6. Margin (dB) = Remark result (dBuV/m) – Average limit (dBuV/m).

**Operation Mode:** TX / draft 802.11n Wide-40 MHz Channel mode
/ CH Mid**Test Date:** September 29, 2007**Temperature:** 25°C**Tested by:** Steven Young**Humidity:** 55 % RH**Polarity:** Ver. / Hor.

Frequency (MHz)	Ant.Pol. (H/V)	Reading (Peak) (dBuV)	Reading (Average) (dBuV)	Correction Factor (dB/m)	Result (Peak) (dBuV/m)	Result (Average) (dBuV/m)	Limit (Peak) (dBuV/m)	Limit (Average) (dBuV/m)	Margin (dB)	Remark
2936.67	V	53.38	---	-2.61	50.76	---	74.00	54.00	-3.24	Peak
N/A										
3298.33	H	53.22	---	-2.07	51.15	---	74.00	54.00	-2.85	Peak
N/A										

Remark:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.
3. Average test would be performed if the peak result were greater than the average limit.
4. Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
5. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin > 20dB from the applicable limit) and considered that's already beyond the background noise floor.
6. Margin (dB) = Remark result (dBuV/m) – Average limit (dBuV/m).

**Operation Mode:** TX / draft 802.11n Wide-40 MHz Channel mode
/ CH High**Test Date:** September 29, 2007**Temperature:** 25°C**Tested by:** Steven Young**Humidity:** 55 % RH**Polarity:** Ver. / Hor.

Frequency (MHz)	Ant.Pol. (H/V)	Reading (Peak) (dBuV)	Reading (Average) (dBuV)	Correction Factor (dB/m)	Result (Peak) (dBuV/m)	Result (Average) (dBuV/m)	Limit (Peak) (dBuV/m)	Limit (Average) (dBuV/m)	Margin (dB)	Remark
3648.33	V	53.37	---	-1.46	51.91	---	74.00	54.00	-2.09	Peak
N/A										
3298.33	H	53.28	---	-2.07	51.21	---	74.00	54.00	-2.79	Peak
N/A										

Remark:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.
3. Average test would be performed if the peak result were greater than the average limit.
4. Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
5. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.
6. Margin (dB) = Remark result (dBuV/m) – Average limit (dBuV/m).