



FCC 47 CFR PART 15 SUBPART C

TEST REPORT

For

N1 Vision Wireless Router

Model: F5D8232-4

Trade Name: Belkin

Issued to

**Belkin International, Inc.
501 West Walnut Street,
Compton CA 90220, USA**

Issued by

**Compliance Certification Services Inc.
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1. TEST RESULT CERTIFICATION

Applicant: Belkin International, Inc.
 501 West Walnut Street,
 Compton CA 90220, USA

Equipment Under Test: N1 Vision Wireless Router

Trade Name: Belkin

Model: F5D8232-4

Date of Test: June 26 ~ July 11, 2007

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

We hereby certify that:

The above equipment was tested by Compliance Certification Services Inc. 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 the requirements of FCC Rules Part 15.207, 15.209, 15.247.

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

Approved by:

Reviewed by:

Johnny Liu
 Section Manager
 Compliance Certification Services Inc.

Amanda Wu
 Section Manager
 Compliance Certification Services Inc.



2. EUT DESCRIPTION

Product	N1 Vision Wireless Router
Trade Name	Belkin
Model Number	F5D8232-4
Model Discrepancy	N/A
Power Adapter	DVE / DSA-15P-12 US 120150 I/P: 100-240V, 50/60Hz, 0.5A O/P: 12V, 1.25A
Frequency Range	2412 ~ 2462 MHz
Transmit Power	IEEE 802.11b mode: 17.54 dBm IEEE 802.11g mode: 19.77 dBm draft 802.11n Standard-20 MHz Channel mode: 20.24 dBm draft 802.11n Wide-40 MHz Channel mode: 19.33 dBm
Modulation Technique	IEEE 802.11b mode: DSSS (1, 2, 5.5 and 11 Mbps) IEEE 802.11g mode: OFDM (6, 9, 12, 18, 24, 36, 48 and 54 Mbps) draft 802.11n Standard-20 MHz Channel mode: OFDM (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: 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, 300 Mbps)
Number of Channels	IEEE 802.11b/g mode: 11 Channels draft 802.11n Standard-20 MHz Channel mode: 11 Channels draft 802.11n Wide-40 MHz Channel mode: 7 Channels
Antenna Specification	Dipole Antenna / Gain: 1.2dBi (including cable loss)

Remark:

1. The sample selected for test was engineering sample that approximated to production product and was provided by manufacturer.
2. This submittal(s) (test report) is intended for FCC ID: **K7SF5D8232-4** filing to comply with Section 15.207, 15.209 and 15.247 of the FCC Part 15, Subpart C Rules.



3. TEST METHODOLOGY

The tests documented in this report were performed in accordance with ANSI C63.4 and FCC CFR 47 2.1046, 2.1047, 2.1049, 2.1051, 2.1053, 2.1055, 2.1057, 15.207, 15.209 and 15.247.

3.1 EUT CONFIGURATION

The EUT configuration for testing is installed on RF field strength measurement to meet the Commissions requirement and operating in a manner that intends to maximize its emission characteristics in a continuous normal application.

3.2 EUT EXERCISE

The EUT was operated in the engineering mode to fix the TX frequency that was for the purpose of the measurements.

According to its specifications, the EUT must comply with the requirements of the Section 15.207, 15.209 and 15.247 under the FCC Rules Part 15 Subpart C.

3.3 GENERAL TEST PROCEDURES

Conducted Emissions

The EUT is placed on the turntable, which is 0.8 m above ground plane. According to the requirements in Section 13.1.4.1 of ANSI C63.4 Conducted emissions from the EUT measured in the frequency range between 0.15 MHz and 30MHz using CISPR Quasi-peak and average detector modes.

Radiated Emissions

The EUT is placed on a turn table, which is 0.8 m above ground plane. The turntable shall rotate 360 degrees to determine the position of maximum emission level. EUT is set 3m away from the receiving antenna, which varied from 1m to 4m to find out the highest emission. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical. 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.



3.4 FCC 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: F5D8232-4) had been tested under operating condition.

The EUT is a 2x3 configuration spatial MIMO (2Tx & 3Rx) without beam forming function but with cyclic delay diversity function that operate in double TX chains and triple RX chains. The 2x3 configuration is implemented with two outside TX & RX chains (Chain 1 and the middle RX chain (chain 0)).

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

The worst case data rate is determined as the data rate with highest output power.

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 802.11b mode:

Channel Low (2412MHz), Channel Mid (2437MHz) and Channel High (2462MHz) with 1Mbps data rate and cyclic delay diversity were chosen for full testing.

IEEE 802.11g mode:

Channel Low (2412MHz), Channel Mid (2437MHz) and Channel High (2462MHz) with 6Mbps data rate and cyclic delay diversity were chosen for full testing.

draft 802.11n Standard-20 MHz Channel mode:

Channel Low (2412MHz), Channel Mid (2437MHz) and Channel High (2462MHz) with 6.5Mbps data rate were chosen for full testing.

draft 802.11n Wide-40 MHz Channel mode:

Channel Low (2422MHz), Channel Mid (2437MHz) and Channel High (2452MHz) with 13.5Mbps data rate were chosen for full 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.

Conducted Emissions Test Site				
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
Spectrum Analyzer	Agilent	E4446A	MY43360131	01/30/2008

3M Semi Anechoic Chamber				
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
Spectrum Analyzer	Agilent	E4446A	US42510252	07/25/2007
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	06/01/2008
Horn-Antenna	TRC	HA-0801	04	05/04/2008
Horn-Antenna	TRC	HA-1201A	01	07/03/2008
Horn-Antenna	TRC	HA-1301A	01	07/03/2008
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	09/26/2008
Test S/W	LABVIEW (V 6.1)			

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

Powerline Conducted Emissions Test Site				
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
EMI Test Receiver 9kHz-30MHz	Rohde & Schwarz	ESHS30	828144/003	09/26/2007
TWO-Line V-Network 9kHz-30MHz	Schaffner	NNB41	03/10013	06/12/2008
LISN 10kHz-100MHz	EMCO	3825/2	9106-1809	04/01/2008
Test S/W	LABVIEW (V 6.1)			

Remark: The measurement uncertainty is less than +/- 2.81dB, 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	 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) to perform RSS 212 Issue 1	 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 II for the actual connections between EUT and support equipment.

6.2 SUPPORT EQUIPMENT

No	Equipment	Brand	Model	Series No.	FCC ID	Data Cable	Power Cord
1.	Notebook PC (Remote)	Sony	VGN-S44TP	28198080 8100339	WLAN: ETC094LPD0155 Bluetooth: ETC094LPD0156	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.

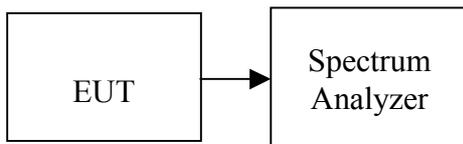
7. FCC PART 15.247 REQUIREMENTS

7.1 6DB BANDWIDTH

LIMIT

According to §15.247(a)(2), systems using digital modulation techniques may operate in the 902 - 928 MHz, 2400 - 2483.5 MHz, and 5725 - 5850 MHz bands. The minimum 6dB bandwidth shall be at least 500 kHz.

Test Configuration



TEST PROCEDURE

1. Place the EUT on the table and set it in the transmitting mode.
2. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer.
3. Set the spectrum analyzer as RBW = 100 kHz, VBW = RBW, Span = 50 MHz, Sweep = auto.
4. Mark the peak frequency and -6dB (upper and lower) frequency.
5. Repeat until all the rest channels are investigated.

**TEST RESULTS***No non-compliance noted***Test Data****Test mode: IEEE 802.11b mode**

Channel	Frequency (MHz)	Bandwidth (MHz)	Limit (kHz)	Result
Low	2412	10.17	>500	PASS
Mid	2437	10.25		PASS
High	2462	9.42		PASS

Test mode: IEEE 802.11g mode

Channel	Frequency (MHz)	Bandwidth (MHz)	Limit (kHz)	Result
Low	2412	16.42	>500	PASS
Mid	2437	16.50		PASS
High	2462	16.58		PASS

Test mode: draft 802.11n Standard-20 MHz Channel mode / Chain 0

Channel	Frequency (MHz)	Bandwidth (MHz)	Limit (kHz)	Result
Low	2412	17.67	>500	PASS
Mid	2437	17.58		PASS
High	2462	17.58		PASS

Test mode: draft 802.11n Standard-20 MHz Channel mode / Chain 1

Channel	Frequency (MHz)	Bandwidth (MHz)	Limit (kHz)	Result
Low	2412	17.83	>500	PASS
Mid	2437	17.67		PASS
High	2462	17.67		PASS

Test mode: draft 802.11n Wide-40 MHz Channel mode / Chain 0

Channel	Frequency (MHz)	Bandwidth (MHz)	Limit (kHz)	Result
Low	2422	35.75	>500	PASS
Mid	2437	36.00		PASS
High	2452	36.33		PASS

Test mode: draft 802.11n Wide-40 MHz Channel mode / Chain 1

Channel	Frequency (MHz)	Bandwidth (MHz)	Limit (kHz)	Result
Low	2422	36.08	>500	PASS
Mid	2437	36.08		PASS
High	2452	36.50		PASS



Test Plot

IEEE 802.11b mode

6dB Bandwidth (CH Low)

Agilent 17:20:00 Jul 5, 2007

R T

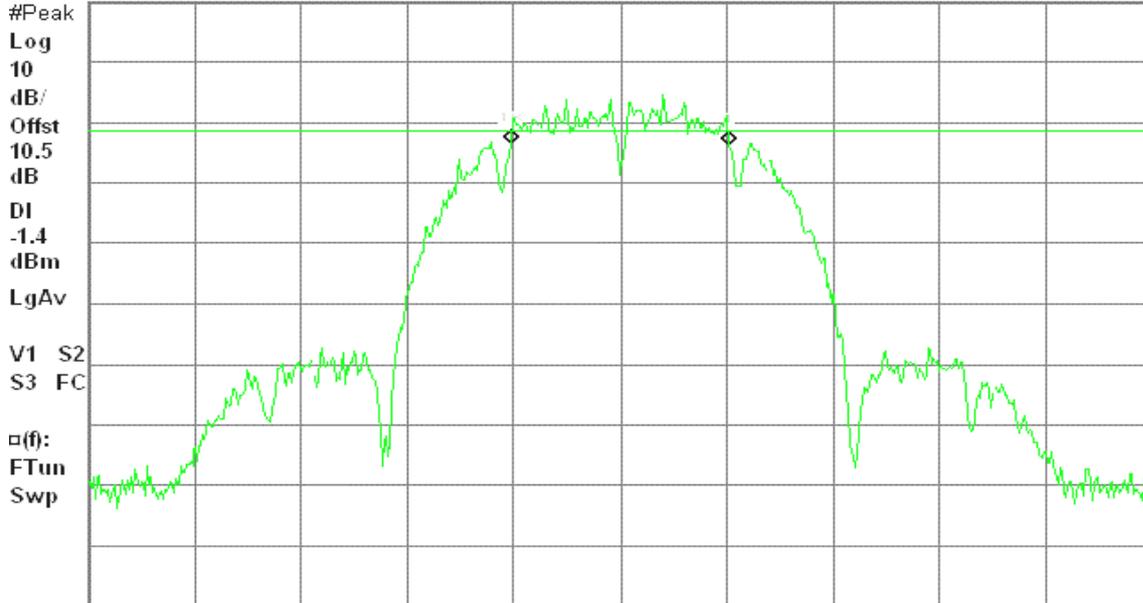
6dB BW, b Mode Low Ch.

Δ Mkr1 10.17 MHz

Ref 20 dBm

Atten 20 dB

-0.38 dB



Center 2.412 00 GHz

Span 50 MHz

#Res BW 100 kHz

#VBW 100 kHz

Sweep 4.68 ms (601 pts)

6dB Bandwidth (CH Mid)

Agilent 17:27:03 Jul 5, 2007

R T

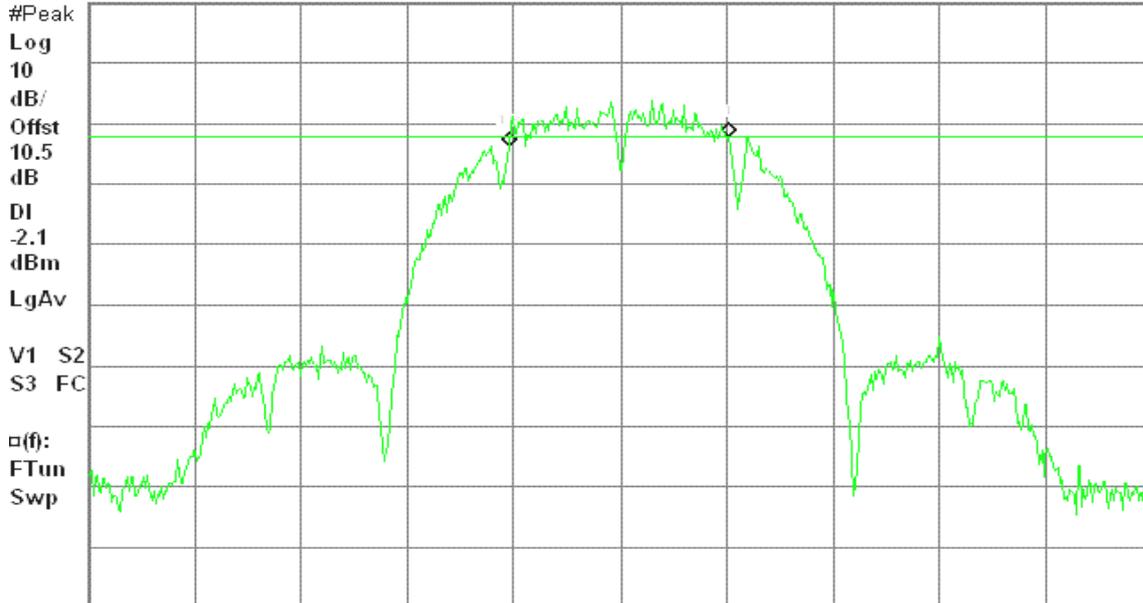
6dB BW, b Mode Mid Ch.

Δ Mkr1 10.25 MHz

Ref 20 dBm

Atten 20 dB

1.55 dB



Center 2.437 00 GHz

Span 50 MHz

#Res BW 100 kHz

#VBW 100 kHz

Sweep 4.68 ms (601 pts)



6dB Bandwidth (CH High)

Agilent 17:38:13 Jul 5, 2007

R T

6dB BW, b Mode High Ch.

Δ Mkr1 9.42 MHz

Ref 20 dBm

Atten 20 dB

-1.93 dB

#Peak

Log

10

dB/

Offst

10.5

dB

DI

-1.8

dBm

LgAv

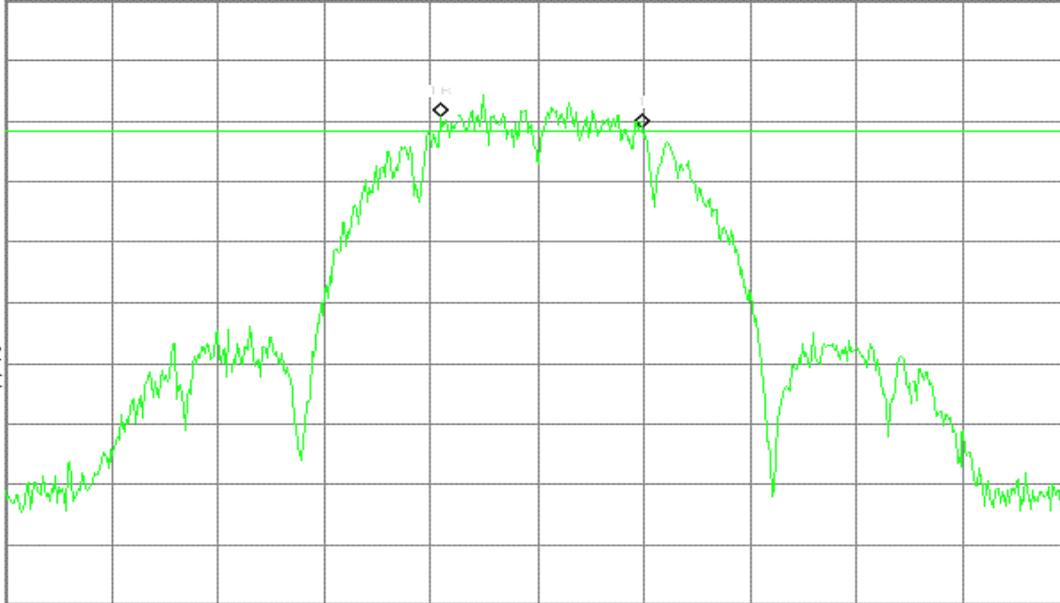
V1 S2

S3 FC

□(f):

FTun

Swp



Center 2.462 00 GHz

Span 50 MHz

#Res BW 100 kHz

#VBW 100 kHz

Sweep 4.68 ms (601 pts)

IEEE 802.11g mode

6dB Bandwidth (CH Low)

Agilent 16:35:14 Jul 5, 2007

R T

6dB BW, g Mode Low Ch.

Δ Mkr1 16.42 MHz

Ref 20 dBm

Atten 20 dB

2.19 dB

#Peak

Log

10

dB/

Offst

10.5

dB

DI

-5.4

dBm

LgAv

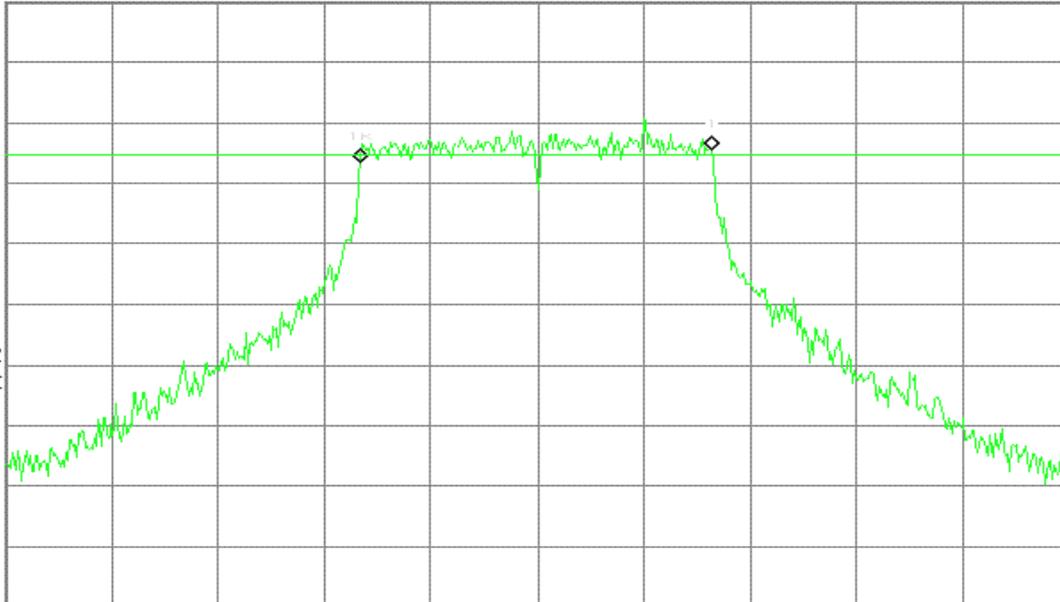
V1 S2

S3 FC

□(f):

FTun

Swp



Center 2.412 00 GHz

Span 50 MHz

#Res BW 100 kHz

#VBW 100 kHz

Sweep 4.68 ms (601 pts)



6dB Bandwidth (CH Mid)

Agilent 16:46:52 Jul 5, 2007

R T

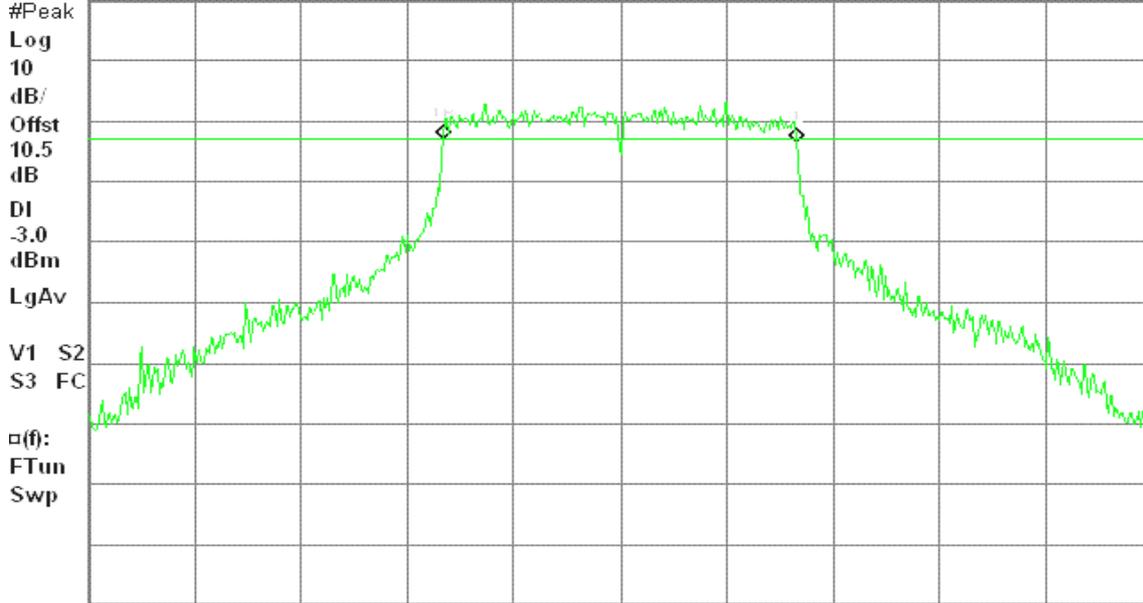
6dB BW, g Mode Mid Ch.

Δ Mkr1 16.50 MHz

Ref 20 dBm

Atten 20 dB

-0.46 dB



Center 2.437 00 GHz

Span 50 MHz

#Res BW 100 kHz

#VBW 100 kHz

Sweep 4.68 ms (601 pts)

6dB Bandwidth (CH High)

Agilent 17:09:51 Jul 5, 2007

R T

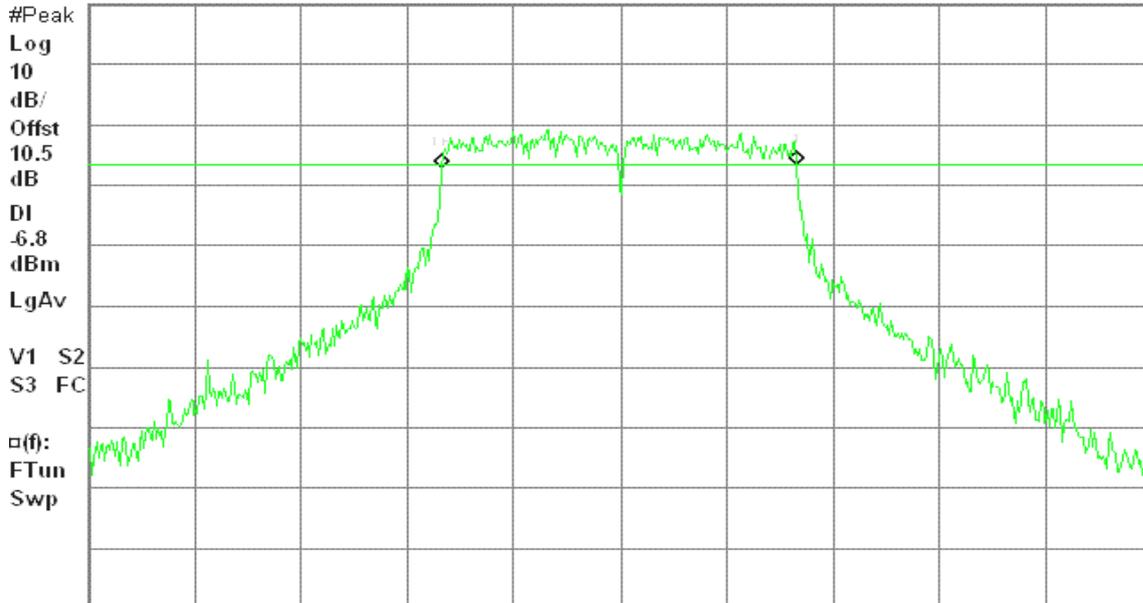
6dB BW, g Mode High Ch.

Δ Mkr1 16.58 MHz

Ref 20 dBm

Atten 20 dB

0.50 dB



Center 2.462 00 GHz

Span 50 MHz

#Res BW 100 kHz

#VBW 100 kHz

Sweep 4.68 ms (601 pts)



draft 802.11n Standard-20 MHz Channel mode / Chain 0

6dB Bandwidth (CH Low)

Agilent 20:28:38 Jul 10, 2007

R T

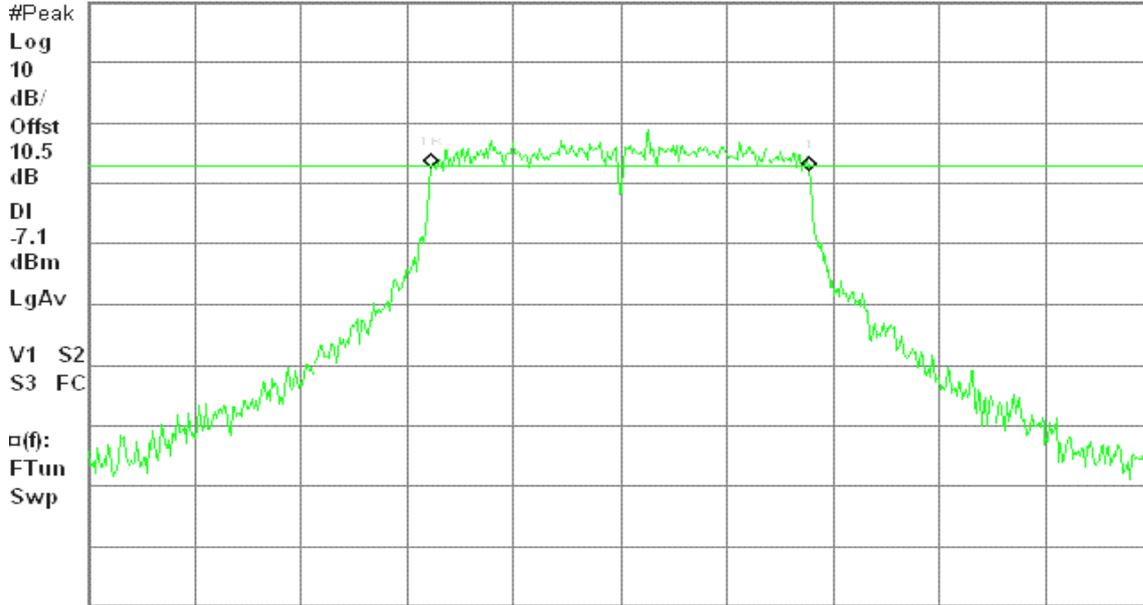
6dB BW, 20 Mode Low Ch.

Δ Mkr1 17.67 MHz

Ref 20 dBm

Atten 20 dB

-0.40 dB



Center 2.412 00 GHz

Span 50 MHz

#Res BW 100 kHz

#VBW 100 kHz

Sweep 4.68 ms (601 pts)

6dB Bandwidth (CH Mid)

Agilent 20:37:36 Jul 10, 2007

R T

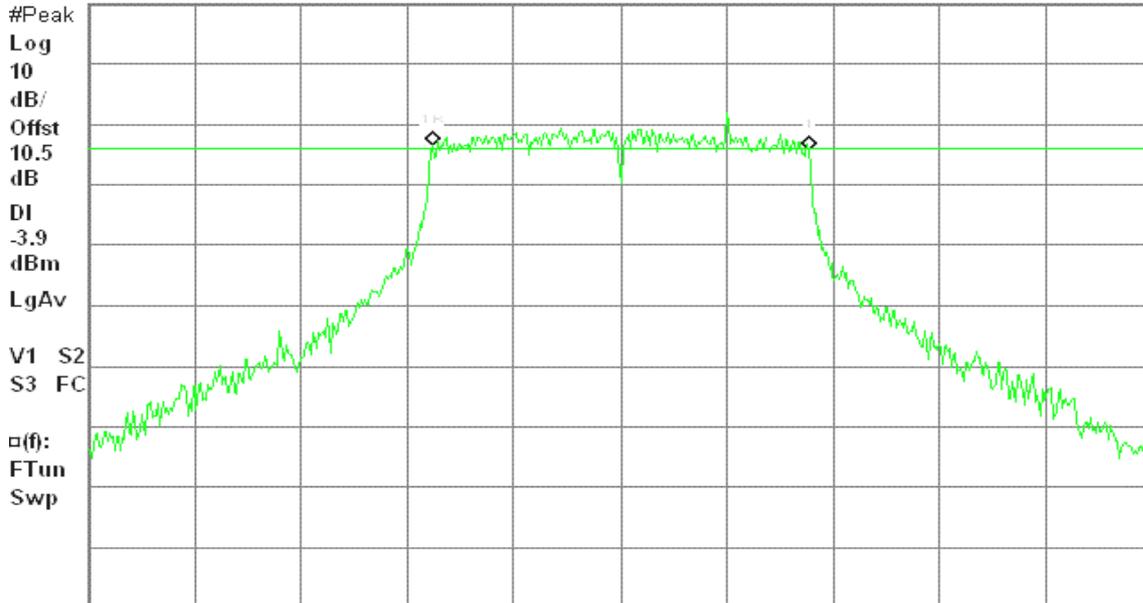
6dB BW, 20 Mode Mid Ch.

Δ Mkr1 17.58 MHz

Ref 20 dBm

Atten 20 dB

-0.79 dB



Center 2.437 00 GHz

Span 50 MHz

#Res BW 100 kHz

#VBW 100 kHz

Sweep 4.68 ms (601 pts)



6dB Bandwidth (CH High)

Agilent 20:44:42 Jul 10, 2007

R T

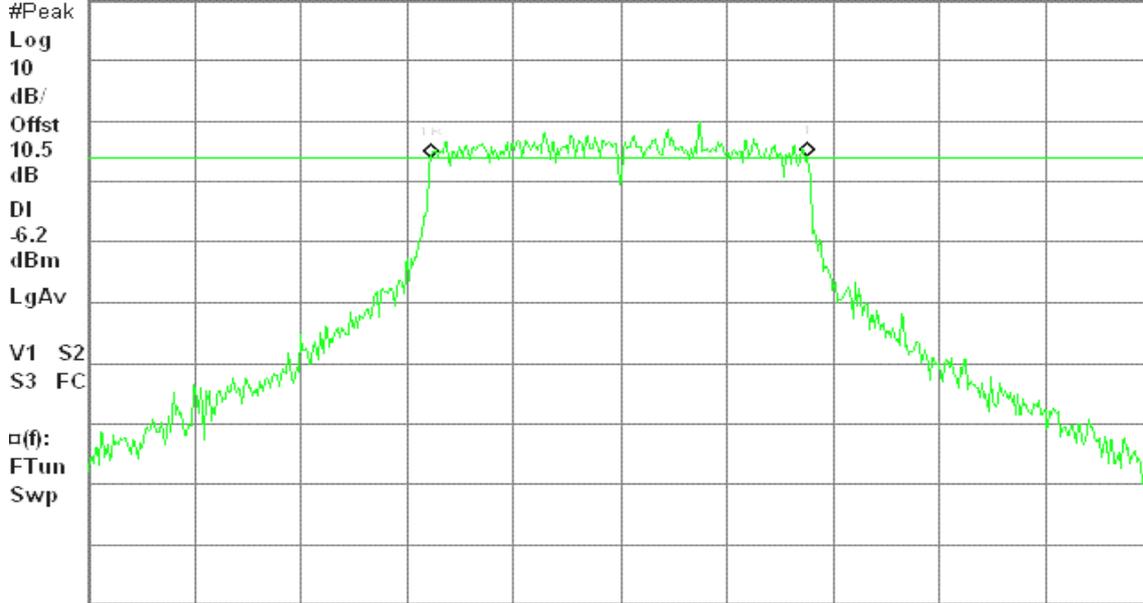
6dB BW, 20 Mode High Ch.

Δ Mkr1 17.58 MHz

Ref 20 dBm

Atten 20 dB

0.34 dB



Center 2.462 00 GHz

Span 50 MHz

#Res BW 100 kHz

#VBW 100 kHz

Sweep 4.68 ms (601 pts)

draft 802.11n Standard-20 MHz Channel mode / Chain 1

6dB Bandwidth (CH Low)

Agilent 20:56:00 Jul 10, 2007

R T

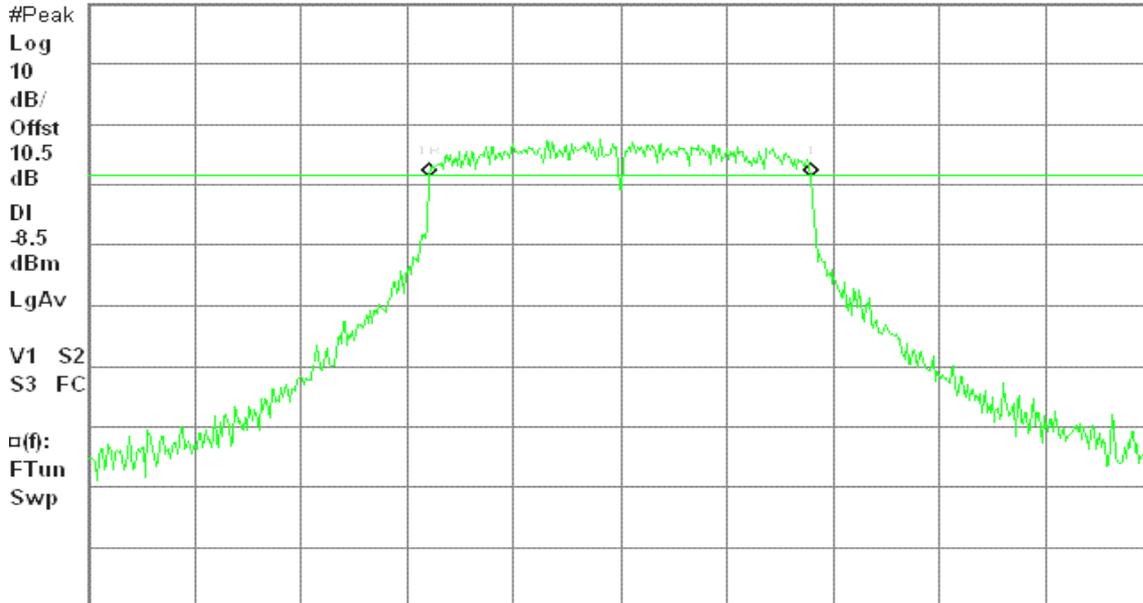
6dB BW, 20 Mode Low Ch.

Δ Mkr1 17.83 MHz

Ref 20 dBm

Atten 20 dB

-0.14 dB



Center 2.412 00 GHz

Span 50 MHz

#Res BW 100 kHz

#VBW 100 kHz

Sweep 4.68 ms (601 pts)



6dB Bandwidth (CH Mid)

Agilent 21:03:06 Jul 10, 2007

R T

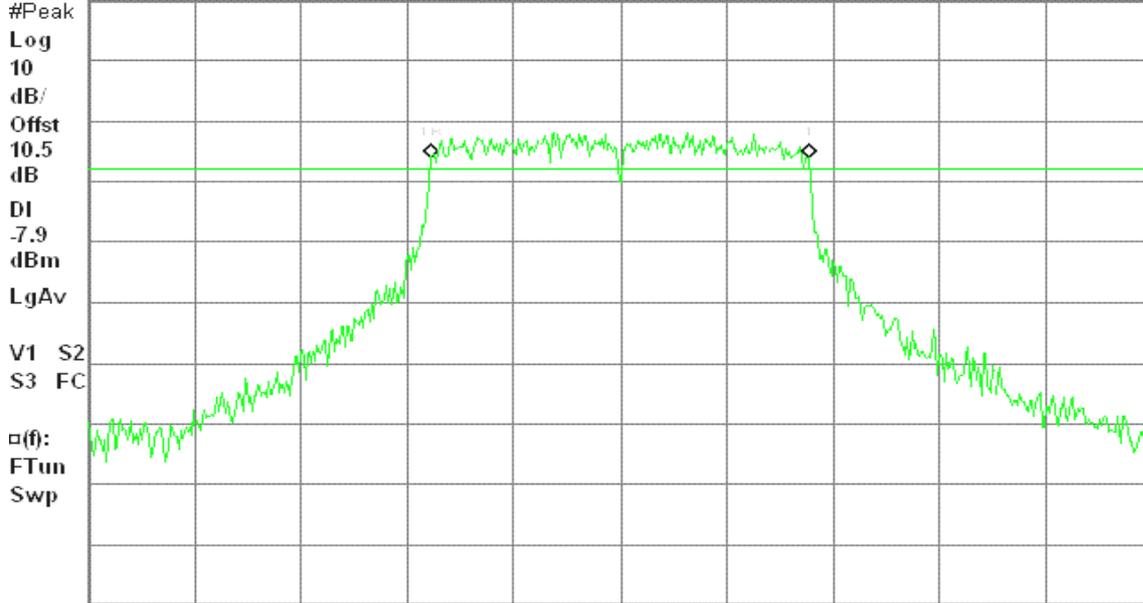
6dB BW, 20 Mode Mid Ch.

Δ Mkr1 17.67 MHz

Ref 20 dBm

Atten 20 dB

-0.04 dB



Center 2.437 00 GHz

Span 50 MHz

#Res BW 100 kHz

#VBW 100 kHz

Sweep 4.68 ms (601 pts)

6dB Bandwidth (CH High)

Agilent 21:09:48 Jul 10, 2007

R T

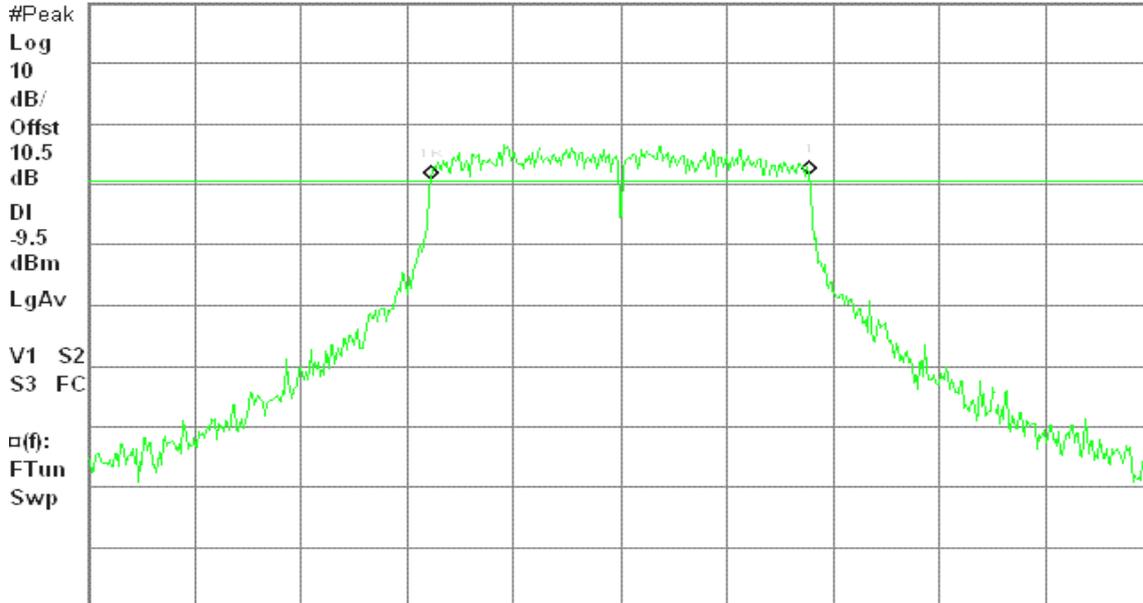
6dB BW, 20 Mode High Ch.

Δ Mkr1 17.67 MHz

Ref 20 dBm

Atten 20 dB

0.97 dB



Center 2.462 00 GHz

Span 50 MHz

#Res BW 100 kHz

#VBW 100 kHz

Sweep 4.68 ms (601 pts)



draft 802.11n Wide-40 MHz Channel mode / Chain 0

6dB Bandwidth (CH Low)

Agilent 20:06:06 Jul 5, 2007

R T

6dB BW, HT40 Mode Low Ch.

Δ Mkr1 35.75 MHz

Ref 20 dBm

Atten 20 dB

-0.81 dB

#Peak

Log

10

dB/

Offst

14.2

dB

DI

-5.8

dBm

LgAv

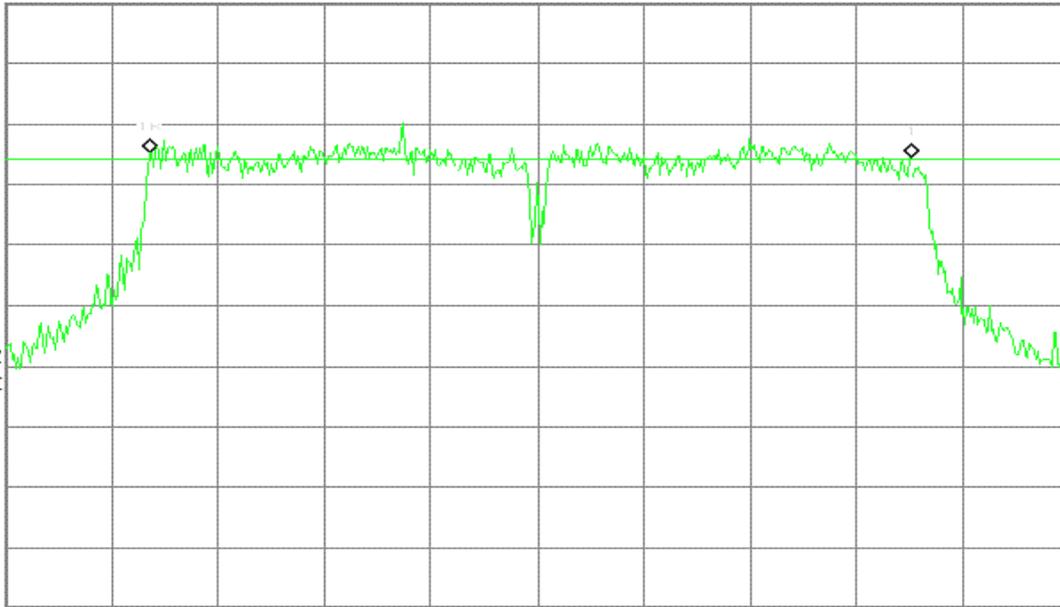
V1 S2

S3 FC

□(f):

FTun

Swp



Center 2.422 00 GHz

Span 50 MHz

#Res BW 100 kHz

#VBW 100 kHz

Sweep 4.68 ms (601 pts)

6dB Bandwidth (CH Mid)

Agilent 22:02:14 Jul 10, 2007

R T

6dB BW, 40 Mode Mid Ch.

Δ Mkr1 36.00 MHz

Ref 20 dBm

Atten 20 dB

-1.25 dB

#Peak

Log

10

dB/

Offst

10.5

dB

DI

-6.8

dBm

LgAv

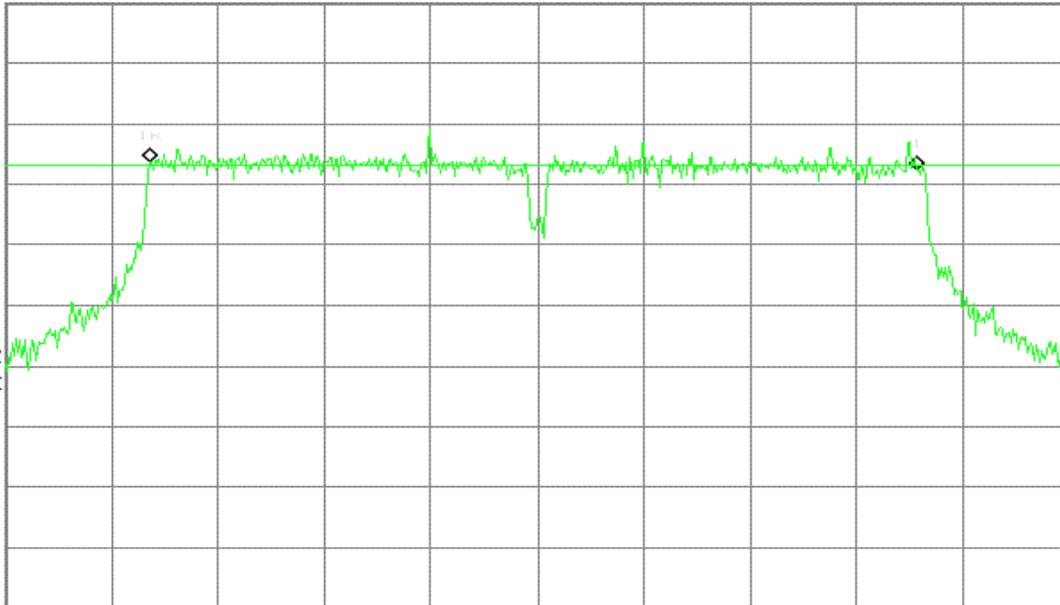
V1 S2

S3 FC

□(f):

FTun

Swp



Center 2.437 00 GHz

Span 50 MHz

#Res BW 100 kHz

#VBW 100 kHz

Sweep 4.68 ms (601 pts)



6dB Bandwidth (CH High)

Agilent 15:48:18 Jul 11, 2007

R T

6dB BW, 40 Mode High Ch.

Δ Mkr1 36.33 MHz

Ref 20 dBm

Atten 20 dB

-1.03 dB

#Peak

Log

10

dB/

Offst

10.5

dB

DI

-10.1

dBm

LgAv

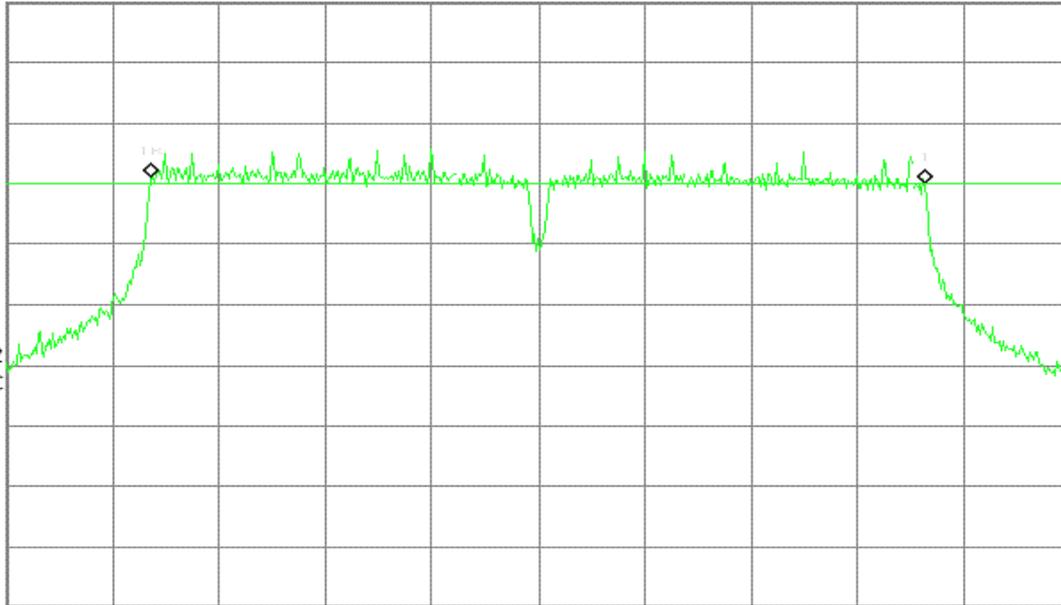
V1 S2

S3 FC

□(f):

FTun

Swp



Center 2.452 00 GHz

Span 50 MHz

#Res BW 100 kHz

#VBW 100 kHz

Sweep 20 ms (601 pts)

draft 802.11n Wide-40 MHz Channel mode / Chain 1

6dB Bandwidth (CH Low)

Agilent 21:21:08 Jul 10, 2007

R T

6dB BW, 40 Mode Low Ch.

Δ Mkr1 36.08 MHz

Ref 20 dBm

Atten 20 dB

0.38 dB

#Peak

Log

10

dB/

Offst

10.5

dB

DI

-11.3

dBm

LgAv

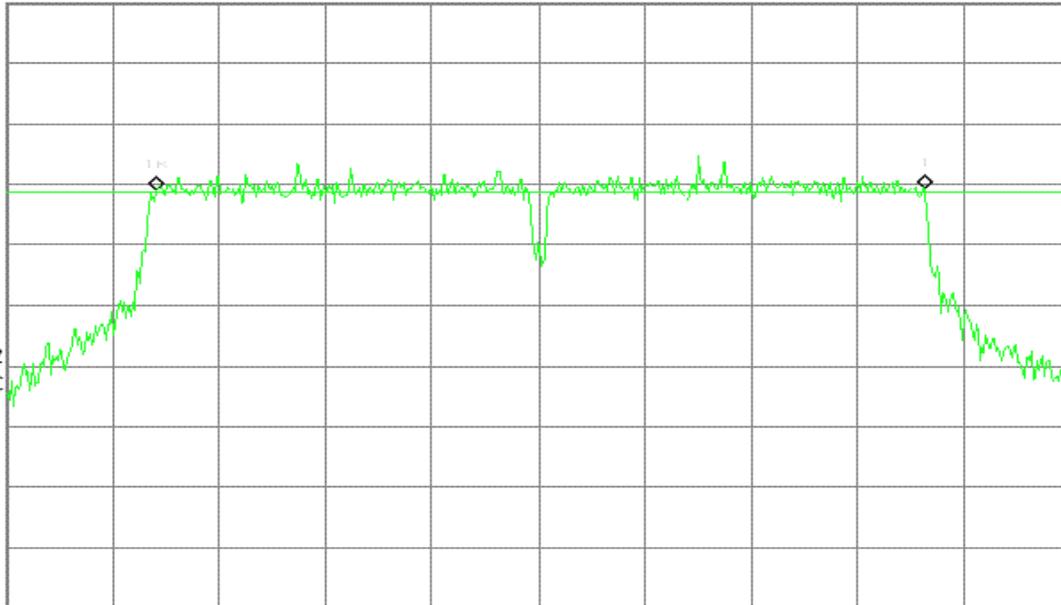
V1 S2

S3 FC

□(f):

FTun

Swp



Center 2.422 00 GHz

Span 50 MHz

#Res BW 100 kHz

#VBW 100 kHz

Sweep 4.68 ms (601 pts)



6dB Bandwidth (CH Mid)

Agilent 21:28:31 Jul 10, 2007

R T

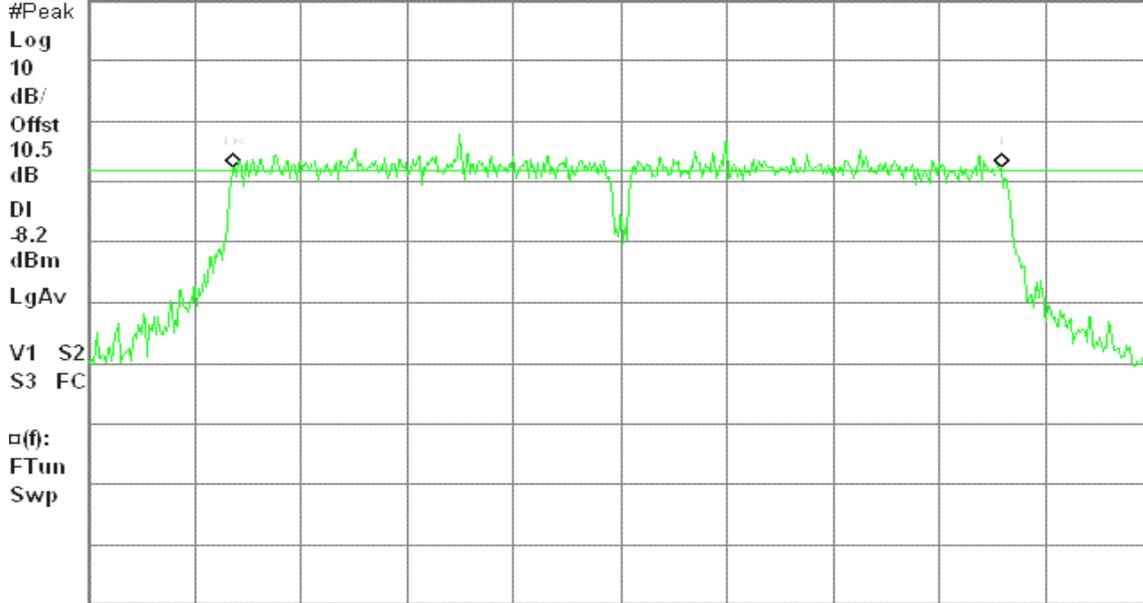
6dB BW, 40 Mode Mid Ch.

Δ Mkr1 36.08 MHz

Ref 20 dBm

Atten 20 dB

-0.06 dB



Center 2.437 00 GHz

Span 50 MHz

#Res BW 100 kHz

#VBW 100 kHz

Sweep 4.68 ms (601 pts)

6dB Bandwidth (CH High)

Agilent 21:36:09 Jul 10, 2007

R T

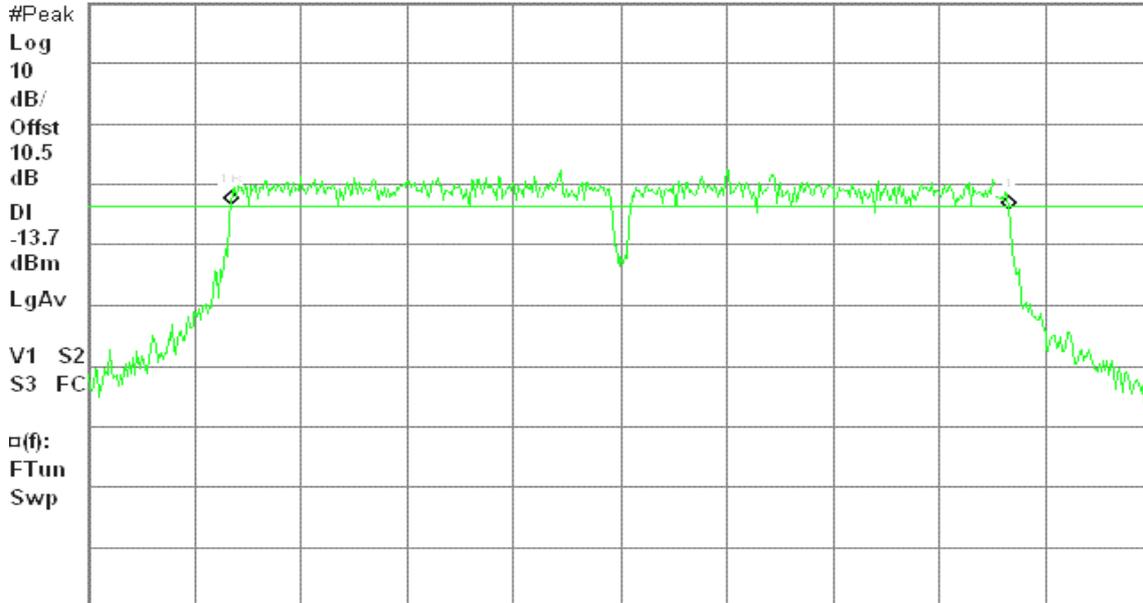
6dB BW, 40 Mode High Ch.

Δ Mkr1 36.50 MHz

Ref 20 dBm

Atten 20 dB

-0.74 dB



Center 2.452 00 GHz

Span 50 MHz

#Res BW 100 kHz

#VBW 100 kHz

Sweep 4.68 ms (601 pts)

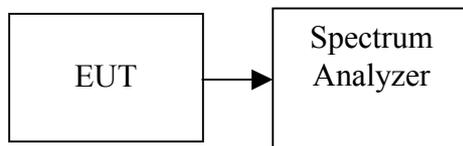
7.2 PEAK POWER

LIMIT

The maximum peak output power of the intentional radiator shall not exceed the following:

1. According to §15.247(b)(3), for systems using digital modulation in the bands of 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz: 1 Watt.
2. According to §15.247(b)(4), the conducted output power limit specified in paragraph (b) of this section is based on the use of antennas with directional gains that do not exceed 6 dBi. Except as shown in paragraph (c) of this section, if transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values in paragraphs (b)(1), (b)(2), and (b)(3) of this section, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

Test Configuration



TEST PROCEDURE

1. Place the EUT on the table and set it in transmitting mode.
2. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer.
3. Set the spectrum analyzer as RBW = 1 MHz, VBW \geq 3 MHz. in “Channel Power” measurement.
4. Record the max reading.
5. Repeat the above procedure until the measurements for all frequencies are completed.

**TEST RESULTS***No non-compliance noted***Test Data****Test mode: IEEE 802.11b mode**

Channel	Frequency (MHz)	Output Power (dBm)	Output Power (W)	Limit (W)	Result
Low	2412	17.20	0.0525	1.00	PASS
Mid	2437	17.13	0.0516		PASS
High	2462	17.54	0.0568		PASS

Test mode: IEEE 802.11g mode

Channel	Frequency (MHz)	Output Power (dBm)	Output Power (W)	Limit (W)	Result
Low	2412	16.48	0.0445	1.00	PASS
Mid	2437	19.77	0.0948		PASS
High	2462	16.97	0.0498		PASS

Test mode: draft 802.11n Standard-20 MHz Channel mode

Channel	Frequency (MHz)	Chain 0 Output Power (dBm)	Chain 1 Output Power (dBm)	Total Output Power (dBm)	Output Power (W)	Limit (W)	Result
Low	2412	15.29	15.40	18.36	0.0685	1.00	PASS
Mid	2437	17.71	16.70	20.24	0.1057		PASS
High	2462	15.58	14.26	17.98	0.0628		PASS

Test mode: draft 802.11n Wide-40 MHz Channel mode

Channel	Frequency (MHz)	Chain 0 Output Power (dBm)	Chain 1 Output Power (dBm)	Total Output Power (dBm)	Output Power (W)	Limit (W)	Result
Low	2422	13.58	12.94	16.28	0.0425	1.00	PASS
Mid	2437	16.74	15.86	19.33	0.0857		PASS
High	2452	13.71	12.65	16.22	0.0419		PASS

Remark: Total Output Power (w) = Chain 1 (10^(Output Power /10)/1000)+ Chain 0 (10^(Output Power /10)/1000)



Test Plot

IEEE 802.11b mode

Peak Power (CH Low)

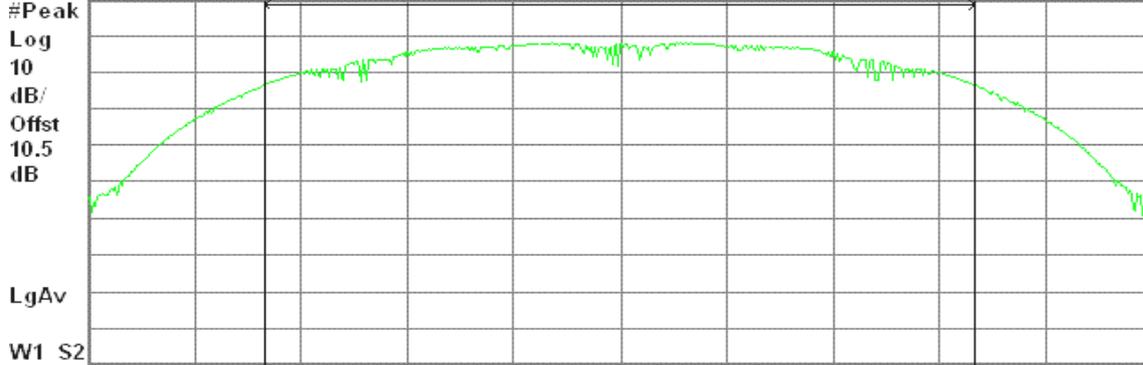
Agilent 17:21:02 Jul 5, 2007

R T

Peak Output Power, b Mode Low Ch.

Ref 20 dBm

Atten 20 dB



Center 2.412 00 GHz

Span 22.96 MHz

#Res BW 1 MHz

#VBW 3 MHz

Sweep 1 ms (601 pts)

Channel Power

Power Spectral Density

17.20 dBm / 15.3060 MHz

-54.65 dBm/Hz

Peak Power (CH Mid)

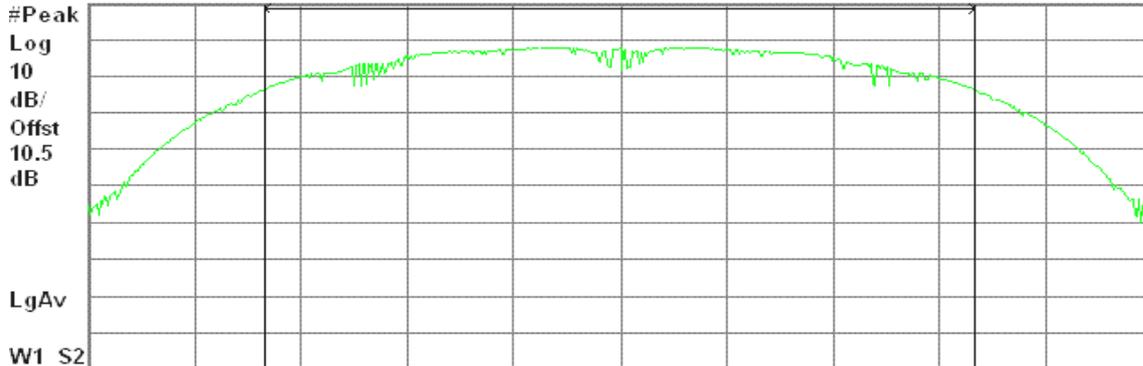
Agilent 17:27:52 Jul 5, 2007

R T

Peak Output Power, b Mode Mid Ch.

Ref 20 dBm

Atten 20 dB



Center 2.437 00 GHz

Span 22.98 MHz

#Res BW 1 MHz

#VBW 3 MHz

Sweep 1 ms (601 pts)

Channel Power

Power Spectral Density

17.13 dBm / 15.3220 MHz

-54.73 dBm/Hz



Peak Power (CH High)

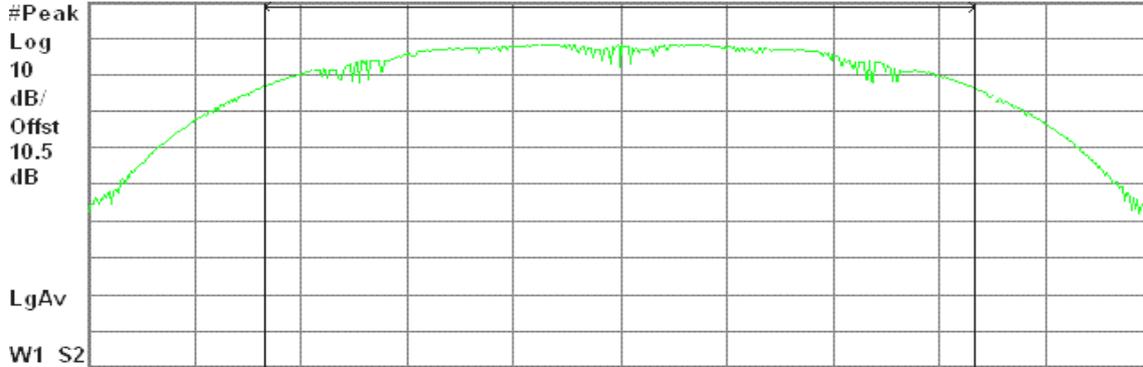
Agilent 17:39:01 Jul 5, 2007

R T

Peak Output Power, b Mode High Ch.

Ref 20 dBm

Atten 20 dB



Center 2.462 00 GHz

Span 23.11 MHz

#Res BW 1 MHz

#VBW 3 MHz

Sweep 1 ms (601 pts)

Channel Power

Power Spectral Density

17.54 dBm / 15.4100 MHz

-54.34 dBm/Hz

IEEE 802.11g mode

Peak Power (CH Low)

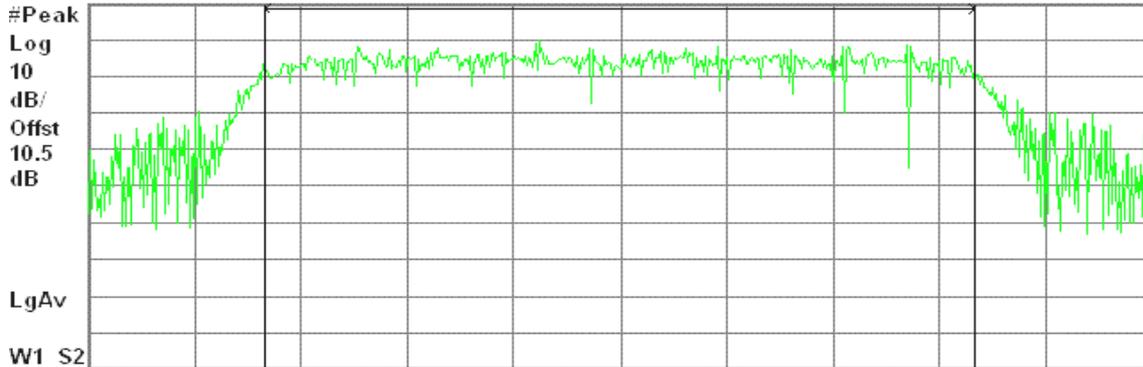
Agilent 16:39:21 Jul 5, 2007

R T

Peak Output Power, g Mode Low Ch.

Ref 20 dBm

Atten 20 dB



Center 2.412 00 GHz

Span 24.86 MHz

#Res BW 1 MHz

#VBW 3 MHz

Sweep 1 ms (601 pts)

Channel Power

Power Spectral Density

16.48 dBm / 16.5740 MHz

-55.72 dBm/Hz



Peak Power (CH Mid)

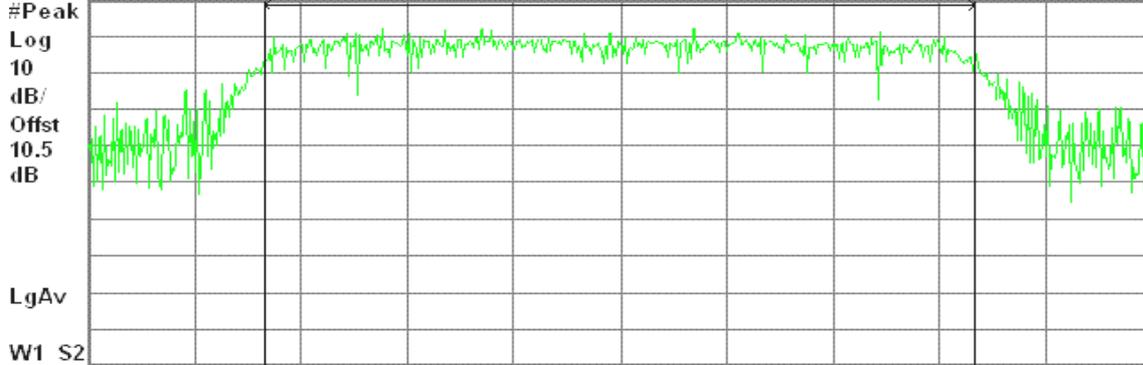
Agilent 16:47:53 Jul 5, 2007

R T

Peak Output Power, g Mode Mid Ch.

Ref 20 dBm

Atten 20 dB



Center 2.437 00 GHz

Span 24.99 MHz

#Res BW 1 MHz

#VBW 3 MHz

Sweep 1 ms (601 pts)

Channel Power

Power Spectral Density

19.77 dBm / 16.6570 MHz

-52.45 dBm/Hz

Peak Power (CH High)

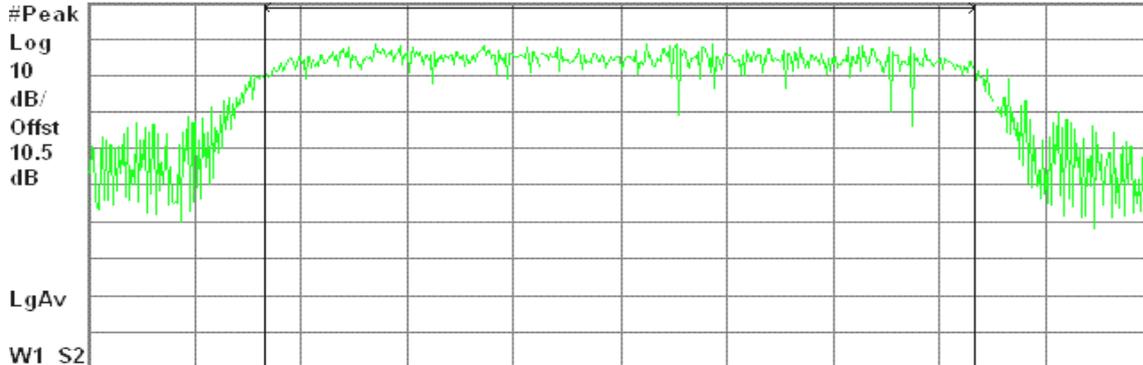
Agilent 17:10:40 Jul 5, 2007

R T

Peak Output Power, g Mode High Ch.

Ref 20 dBm

Atten 20 dB



Center 2.462 00 GHz

Span 24.93 MHz

#Res BW 1 MHz

#VBW 3 MHz

Sweep 1 ms (601 pts)

Channel Power

Power Spectral Density

16.97 dBm / 16.6180 MHz

-55.24 dBm/Hz



draft 802.11n Standard-20 MHz Channel mode / Chain 0

Peak Power (CH Low)

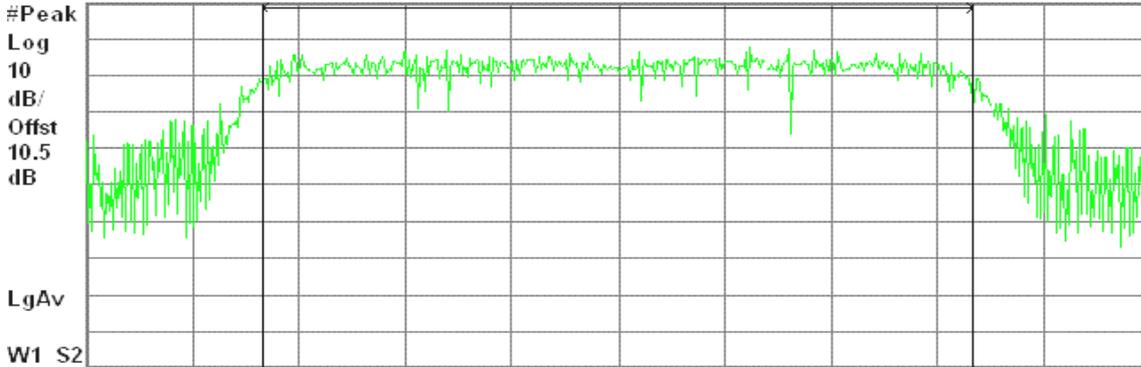
Agilent 20:29:49 Jul 10, 2007

R T

Peak Output Power , 20 Mode Low Ch.

Ref 20 dBm

Atten 20 dB



Center 2.412 00 GHz

Span 26.71 MHz

#Res BW 1 MHz

#VBW 3 MHz

Sweep 1 ms (601 pts)

Channel Power

Power Spectral Density

15.29 dBm / 17.8040 MHz

-57.21 dBm/Hz

Peak Power (CH Mid)

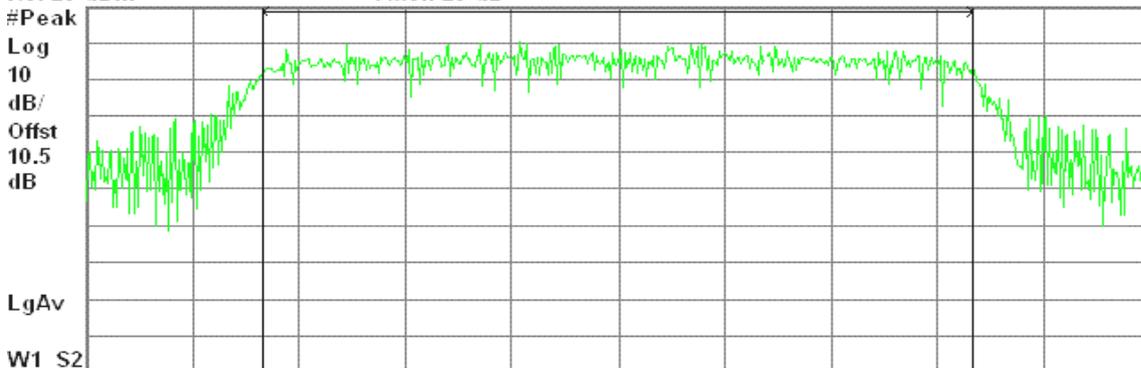
Agilent 20:38:38 Jul 10, 2007

R T

Peak Output Power , 20 Mode Mid Ch.

Ref 20 dBm

Atten 20 dB



Center 2.437 00 GHz

Span 26.64 MHz

#Res BW 1 MHz

#VBW 3 MHz

Sweep 1 ms (601 pts)

Channel Power

Power Spectral Density

17.71 dBm / 17.7570 MHz

-54.78 dBm/Hz



Peak Power (CH High)

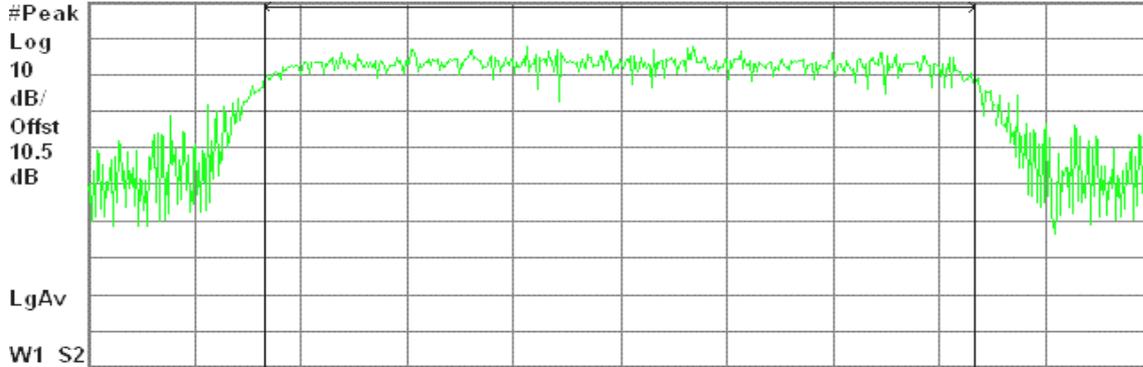
Agilent 20:45:41 Jul 10, 2007

R T

Peak Output Power, 20 Mode High Ch.

Ref 20 dBm

Atten 20 dB



Channel Power

15.58 dBm / 17.8210 MHz

Power Spectral Density

-56.93 dBm/Hz

draft 802.11n Standard-20 MHz Channel mode / Chain 1

Peak Power (CH Low)

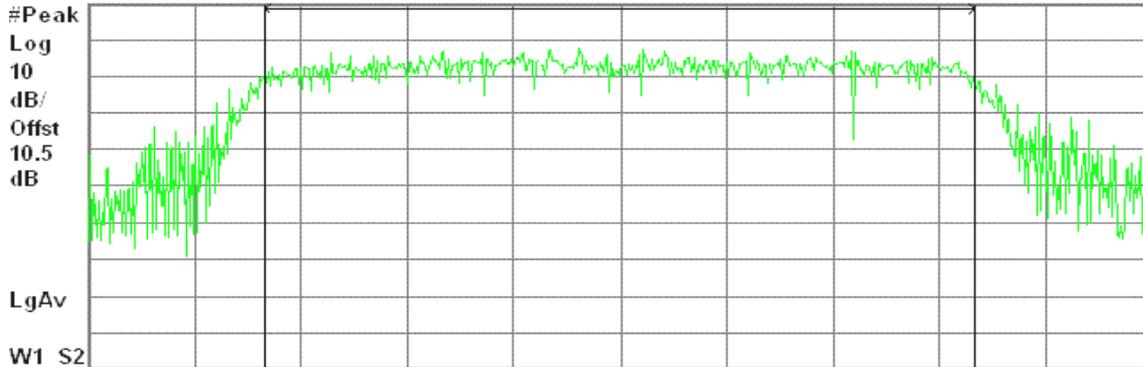
Agilent 20:57:22 Jul 10, 2007

R T

Peak Output Power, 20 Mode Low Ch.

Ref 20 dBm

Atten 20 dB



Channel Power

15.40 dBm / 17.7870 MHz

Power Spectral Density

-57.10 dBm/Hz



Peak Power (CH Mid)

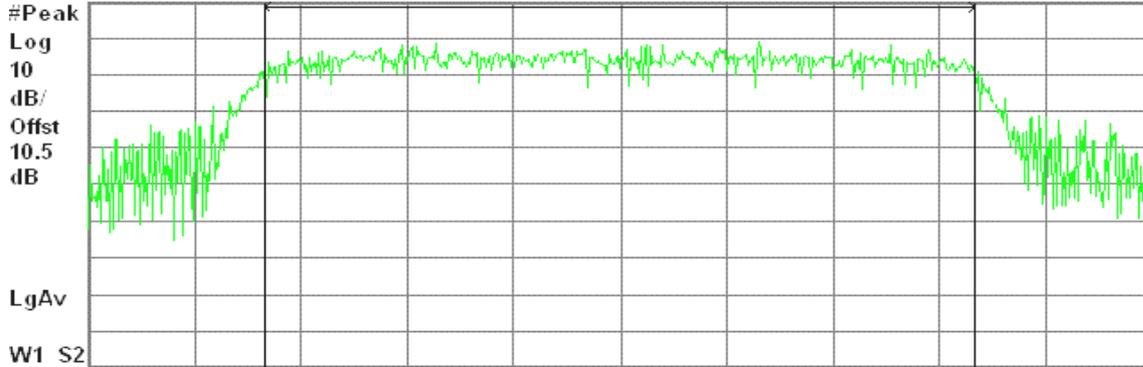
Agilent 21:04:04 Jul 10, 2007

R T

Peak Output Power, 20 Mode Mid Ch.

Ref 20 dBm

Atten 20 dB



Center 2.437 00 GHz

Span 26.69 MHz

#Res BW 1 MHz

#VBW 3 MHz

Sweep 1 ms (601 pts)

Channel Power

Power Spectral Density

16.70 dBm / 17.7950 MHz

-55.80 dBm/Hz

Peak Power (CH High)

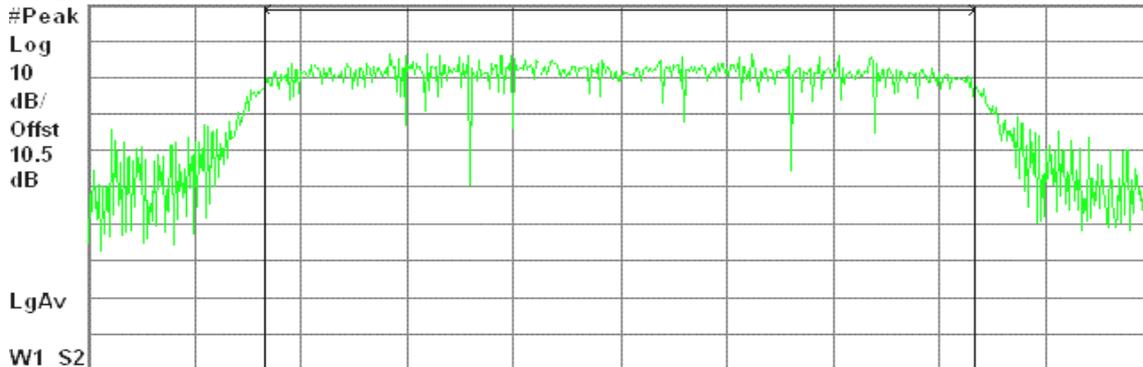
Agilent 21:11:03 Jul 10, 2007

R T

Peak Output Power, 20 Mode High Ch.

Ref 20 dBm

Atten 20 dB



Center 2.462 00 GHz

Span 26.7 MHz

#Res BW 1 MHz

#VBW 3 MHz

Sweep 1 ms (601 pts)

Channel Power

Power Spectral Density

14.26 dBm / 17.8030 MHz

-58.25 dBm/Hz



draft 802.11n Wide-40 MHz Channel mode / Chain 0

Peak Power (CH Low)

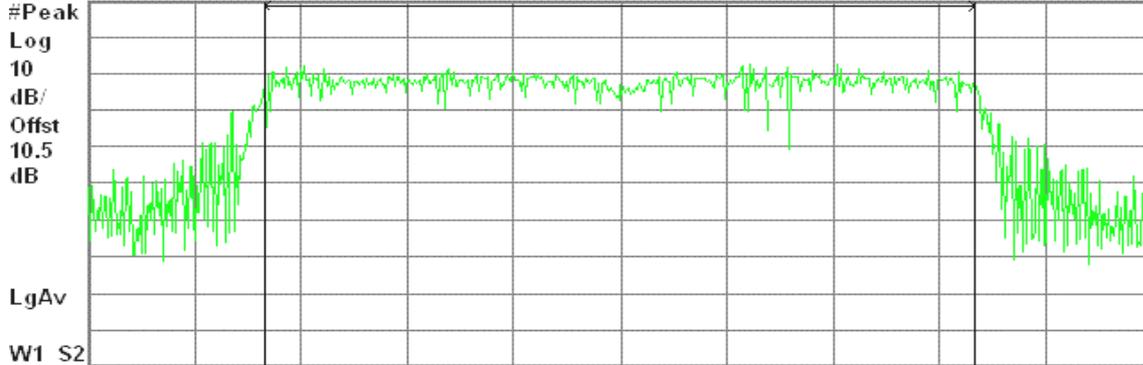
Agilent 22:16:23 Jul 10, 2007

R T

Peak Output Power, 40 Mode Low Ch.

Ref 20 dBm

Atten 20 dB



Center 2.422 00 GHz

Span 54.7 MHz

#Res BW 1 MHz

#VBW 3 MHz

Sweep 1 ms (601 pts)

Channel Power

Power Spectral Density

13.58 dBm / 36.4660 MHz

-62.04 dBm/Hz

Peak Power (CH Mid)

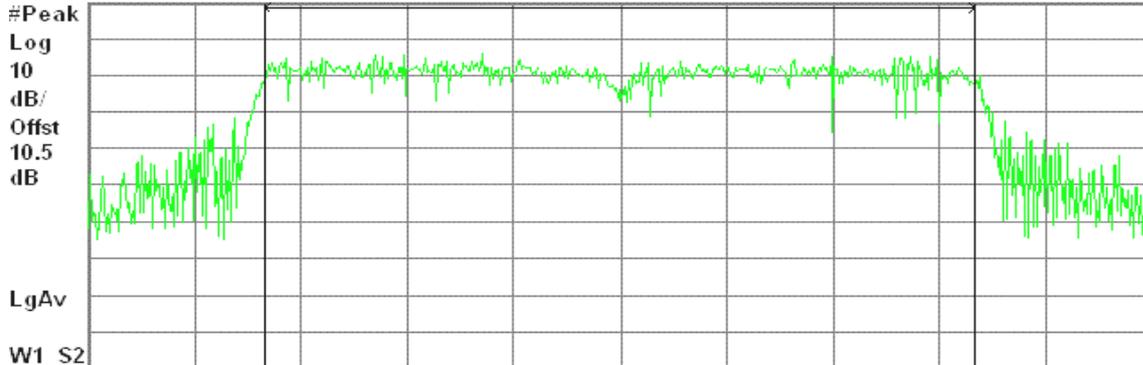
Agilent 22:05:01 Jul 10, 2007

R T

Peak Output Power, 40 Mode Mid Ch.

Ref 20 dBm

Atten 20 dB



Center 2.437 00 GHz

Span 54.75 MHz

#Res BW 1 MHz

#VBW 3 MHz

Sweep 1 ms (601 pts)

Channel Power

Power Spectral Density

16.74 dBm / 36.4990 MHz

-58.88 dBm/Hz



Peak Power (CH High)

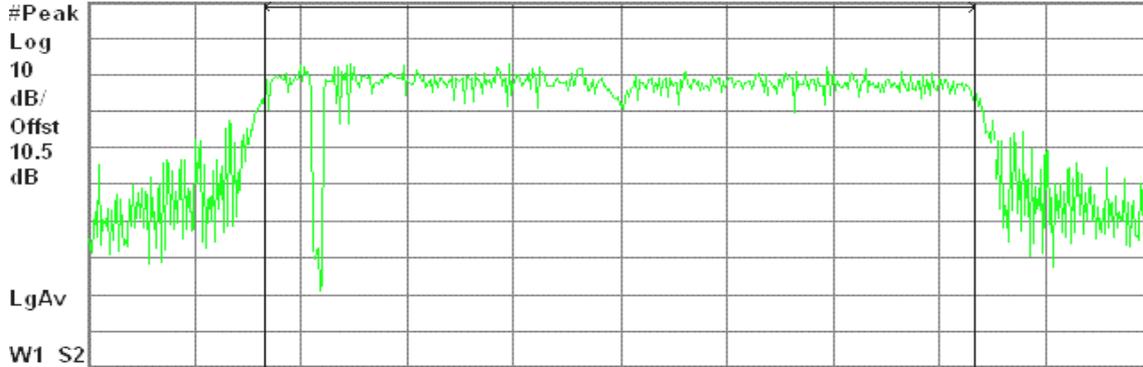
Agilent 21:47:48 Jul 10, 2007

R T

Peak Output Power, 40 Mode High Ch.

Ref 20 dBm

Atten 20 dB



Center 2.452 00 GHz

Span 54.79 MHz

#Res BW 1 MHz

#VBW 3 MHz

Sweep 1 ms (601 pts)

Channel Power

Power Spectral Density

13.71 dBm / 36.5270 MHz

-61.92 dBm/Hz

draft 802.11n Wide-40 MHz Channel mode / Chain 1

Peak Power (CH Low)

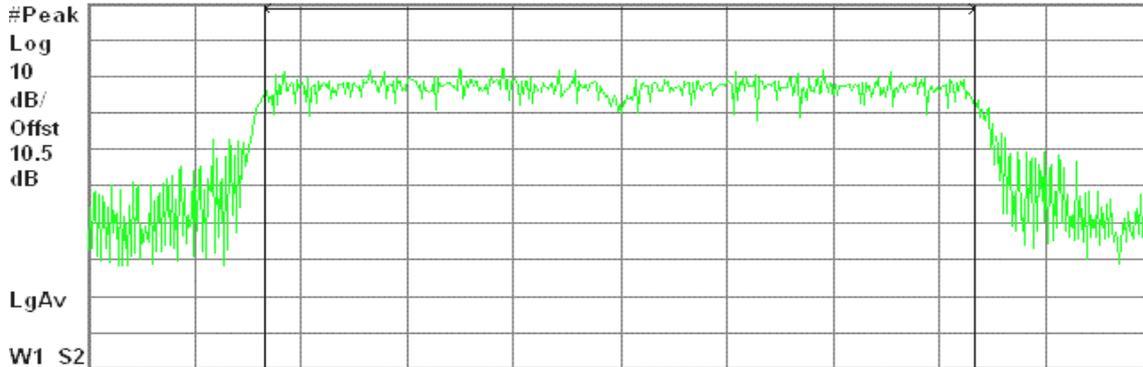
Agilent 21:22:16 Jul 10, 2007

R T

Peak Output Power, 40 Mode Low Ch.

Ref 20 dBm

Atten 20 dB



Center 2.422 00 GHz

Span 54.72 MHz

#Res BW 1 MHz

#VBW 3 MHz

Sweep 1 ms (601 pts)

Channel Power

Power Spectral Density

12.94 dBm / 36.4830 MHz

-62.68 dBm/Hz



Peak Power (CH Mid)

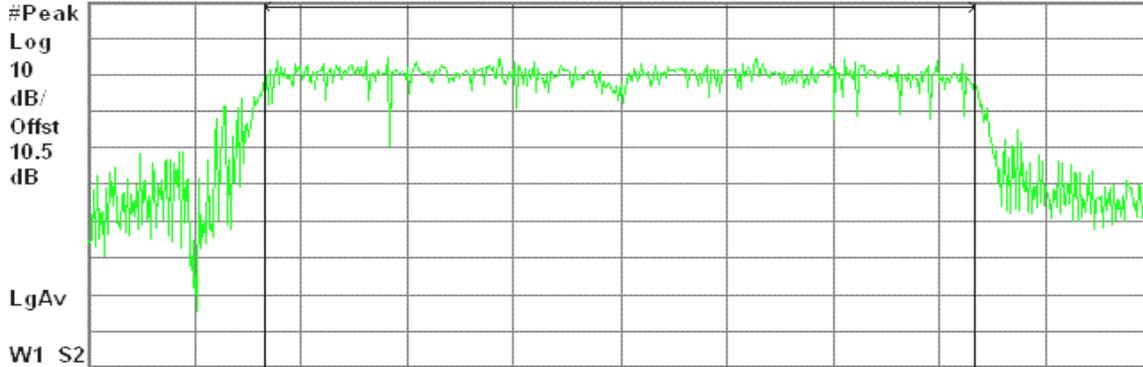
Agilent 21:29:42 Jul 10, 2007

R T

Peak Output Power, 40 Mode Mid Ch.

Ref 20 dBm

Atten 20 dB



Center 2.437 00 GHz

Span 54.75 MHz

#Res BW 1 MHz

#VBW 3 MHz

Sweep 1 ms (601 pts)

Channel Power

Power Spectral Density

15.86 dBm / 36.4990 MHz

-59.76 dBm/Hz

Peak Power (CH High)

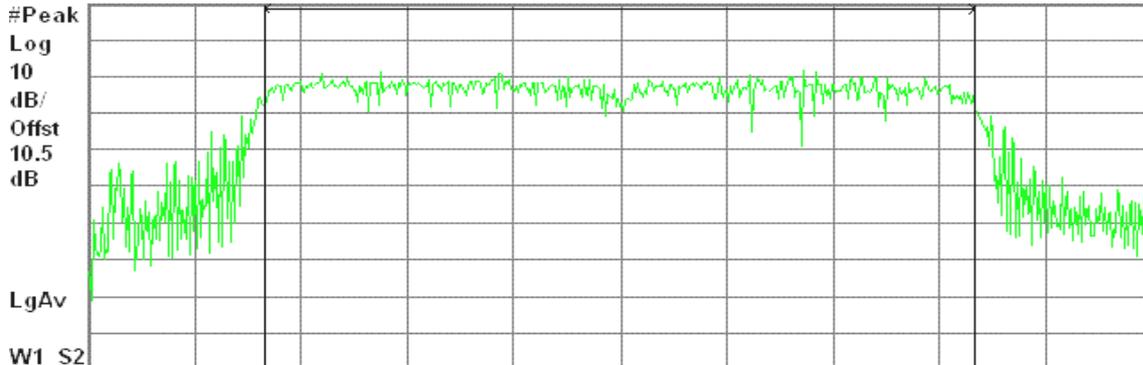
Agilent 21:37:49 Jul 10, 2007

R T

Peak Output Power, 40 Mode High Ch.

Ref 20 dBm

Atten 20 dB



Center 2.452 00 GHz

Span 54.84 MHz

#Res BW 1 MHz

#VBW 3 MHz

Sweep 1 ms (601 pts)

Channel Power

Power Spectral Density

12.65 dBm / 36.5610 MHz

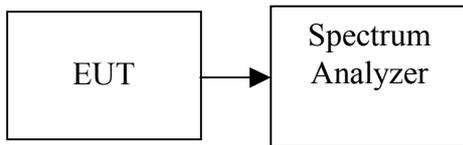
-62.98 dBm/Hz

7.3 AVERAGE POWER

LIMIT

None; for reporting purposes only.

Test Configuration



TEST PROCEDURE

The transmitter output is connected to the Spectrum analyzer. The Spectrum analyzer is set to the average power detection.

**TEST RESULTS***No non-compliance noted***Test Data****Test mode: IEEE 802.11b mode**

Channel	Frequency (MHz)	Output Power (dBm)	Output Power (W)	Result
Low	2412	14.74	0.0298	PASS
Mid	2437	14.58	0.0287	PASS
High	2462	15.39	0.0346	PASS

Test mode: IEEE 802.11g mode

Channel	Frequency (MHz)	Output Power (dBm)	Output Power (W)	Result
Low	2412	13.37	0.0217	PASS
Mid	2437	16.22	0.0419	PASS
High	2462	12.91	0.0195	PASS

Test mode: draft 802.11n Standard-20 MHz Channel mode

Channel	Frequency (MHz)	Chain 0 Output Power (dBm)	Chain 1 Output Power (dBm)	Output Power (dBm)	Output Power (W)	Result
Low	2412	12.10	12.31	15.22	0.0333	PASS
Mid	2437	13.82	13.16	16.51	0.0448	PASS
High	2462	12.05	10.61	14.40	0.0275	PASS

Test mode: draft 802.11n Wide-40 MHz Channel mode

Channel	Frequency (MHz)	Chain 0 Output Power (dBm)	Chain 1 Output Power (dBm)	Output Power (dBm)	Output Power (W)	Result
Low	2422	9.55	9.49	12.53	0.0179	PASS
Mid	2437	12.90	12.04	15.50	0.0355	PASS
High	2452	9.84	8.81	12.37	0.0173	PASS



Test Plot

IEEE 802.11b mode

Average Power (CH Low)

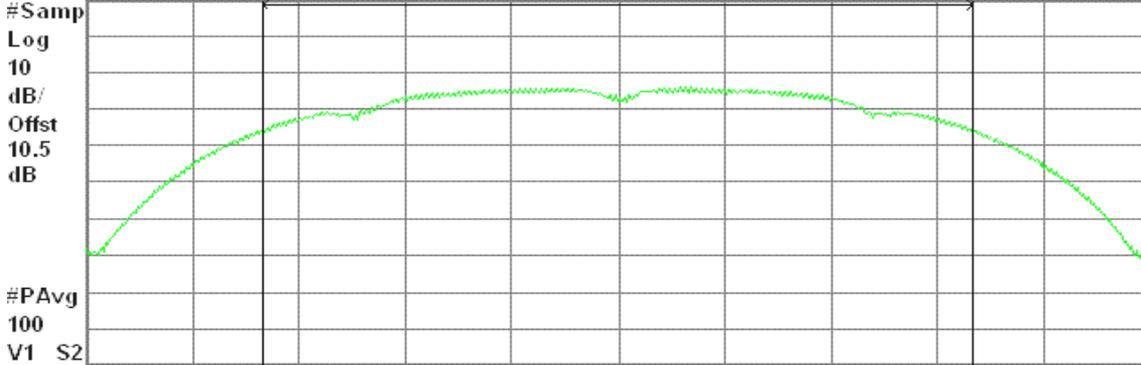
Agilent 17:21:43 Jul 5, 2007

R T

Average Output Power, b Mode Low Ch.

Ref 30 dBm

Atten 30 dB



Center 2.412 00 GHz

Span 22.96 MHz

#Res BW 1 MHz

#VBW 3 MHz

Sweep 1 ms (601 pts)

Channel Power

Power Spectral Density

14.74 dBm / 15.3060 MHz

-57.11 dBm/Hz

Average Power (CH Mid)

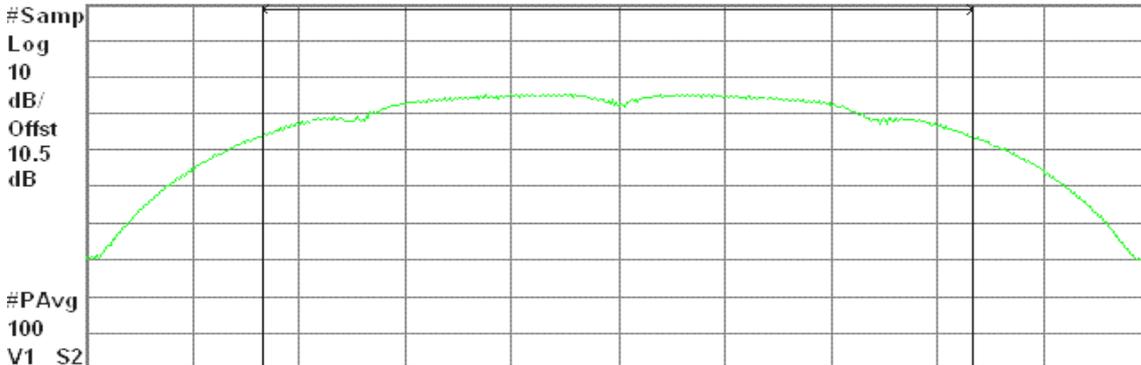
Agilent 17:28:29 Jul 5, 2007

R T

Average Output Power, b Mode Mid Ch.

Ref 30 dBm

Atten 30 dB



Center 2.437 00 GHz

Span 22.98 MHz

#Res BW 1 MHz

#VBW 3 MHz

Sweep 1 ms (601 pts)

Channel Power

Power Spectral Density

14.58 dBm / 15.3220 MHz

-57.28 dBm/Hz



Average Power (CH High)

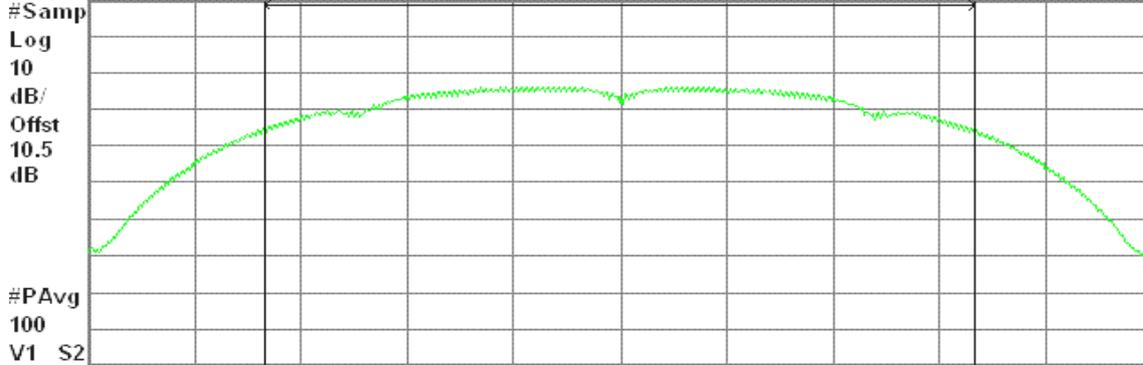
Agilent 17:39:44 Jul 5, 2007

R T

Average Output Power, b Mode High Ch.

Ref 30 dBm

Atten 30 dB



Center 2.462 00 GHz

Span 23.11 MHz

#Res BW 1 MHz

#VBW 3 MHz

Sweep 1 ms (601 pts)

Channel Power

Power Spectral Density

15.39 dBm / 15.4100 MHz

-56.49 dBm/Hz

IEEE 802.11g mode

Average Power (CH Low)

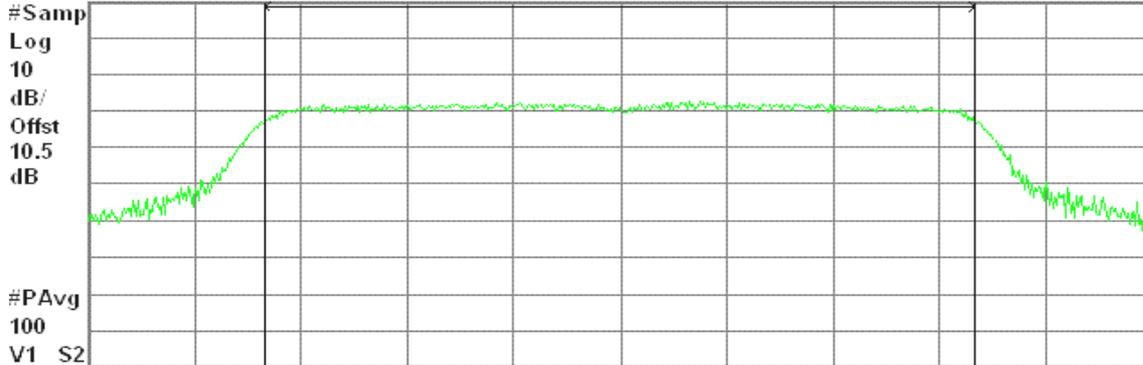
Agilent 16:40:06 Jul 5, 2007

R T

Average Output Power, g Mode Low Ch.

Ref 30 dBm

Atten 30 dB



Center 2.412 00 GHz

Span 24.86 MHz

#Res BW 1 MHz

#VBW 3 MHz

Sweep 1 ms (601 pts)

Channel Power

Power Spectral Density

13.37 dBm / 16.5740 MHz

-58.83 dBm/Hz



Average Power (CH Mid)

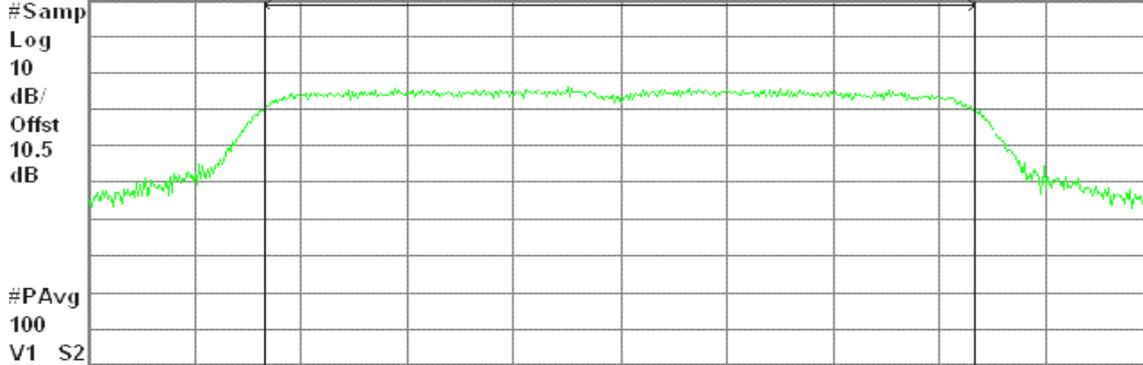
Agilent 16:49:01 Jul 5, 2007

R T

Average Output Power, g Mode Mid Ch.

Ref 30 dBm

Atten 30 dB



Center 2.437 00 GHz

Span 24.99 MHz

#Res BW 1 MHz

#VBW 3 MHz

Sweep 1 ms (601 pts)

Channel Power

Power Spectral Density

16.22 dBm / 16.6570 MHz

-55.99 dBm/Hz

Average Power (CH High)

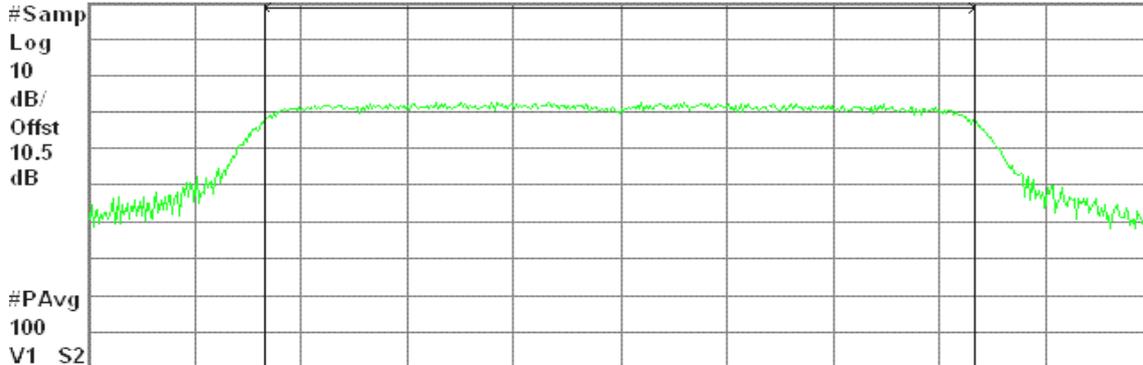
Agilent 17:11:21 Jul 5, 2007

R T

Average Output Power, g Mode High Ch.

Ref 30 dBm

Atten 30 dB



Center 2.462 00 GHz

Span 24.93 MHz

#Res BW 1 MHz

#VBW 3 MHz

Sweep 1 ms (601 pts)

Channel Power

Power Spectral Density

12.91 dBm / 16.6180 MHz

-59.30 dBm/Hz



draft 802.11n Standard-20 MHz Channel mode / Chain 0

Average Power (CH Low)

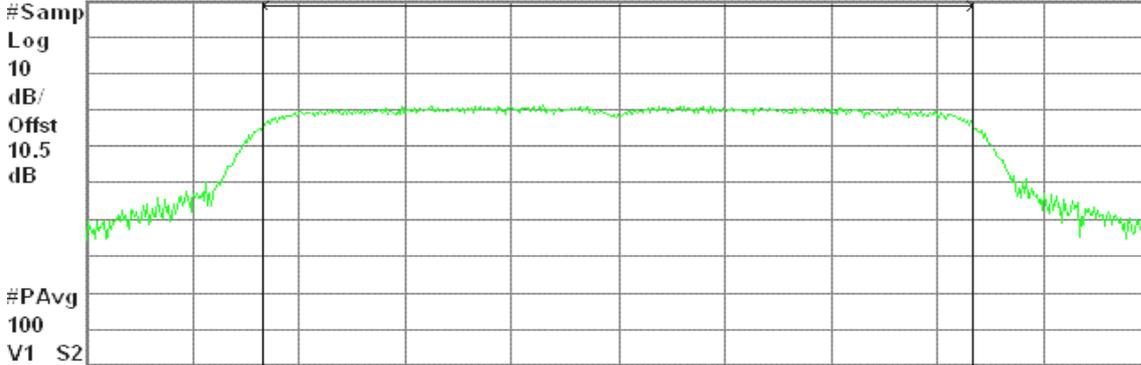
Agilent 20:30:59 Jul 10, 2007

R T

Average Output Power, 20 Mode Low Ch.

Ref 30 dBm

Atten 30 dB



Center 2.412 00 GHz

Span 26.71 MHz

#Res BW 1 MHz

#VBW 3 MHz

Sweep 1 ms (601 pts)

Channel Power

Power Spectral Density

12.10 dBm / 17.8040 MHz

-60.40 dBm/Hz

Average Power (CH Mid)

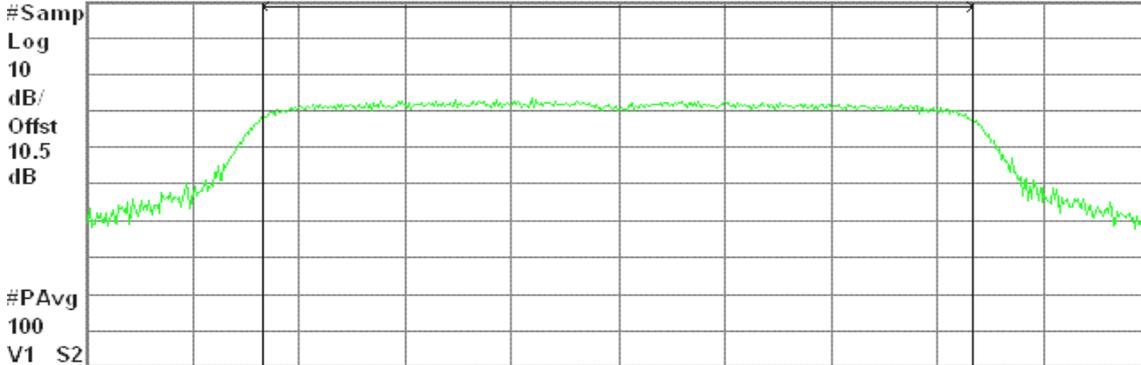
Agilent 20:39:23 Jul 10, 2007

R T

Average Output Power, 20 Mode Mid Ch.

Ref 30 dBm

Atten 30 dB



Center 2.437 00 GHz

Span 26.64 MHz

#Res BW 1 MHz

#VBW 3 MHz

Sweep 1 ms (601 pts)

Channel Power

Power Spectral Density

13.82 dBm / 17.7570 MHz

-58.67 dBm/Hz



Average Power (CH High)

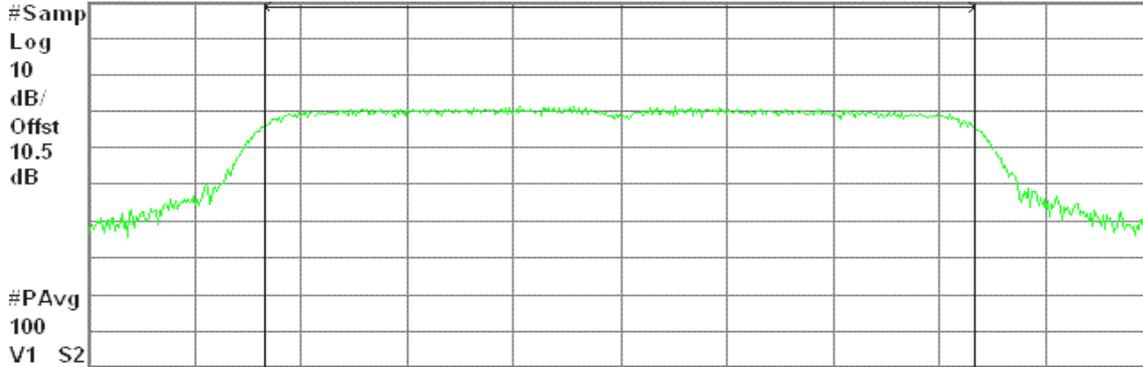
Agilent 20:46:35 Jul 10, 2007

R T

Average Output Power, 20 Mode High Ch.

Ref 30 dBm

Atten 30 dB



Center 2.462 00 GHz

Span 26.73 MHz

#Res BW 1 MHz

#VBW 3 MHz

Sweep 1 ms (601 pts)

Channel Power

Power Spectral Density

12.05 dBm / 17.8210 MHz

-60.46 dBm/Hz

draft 802.11n Standard-20 MHz Channel mode / Chain 1

Average Power (CH Low)

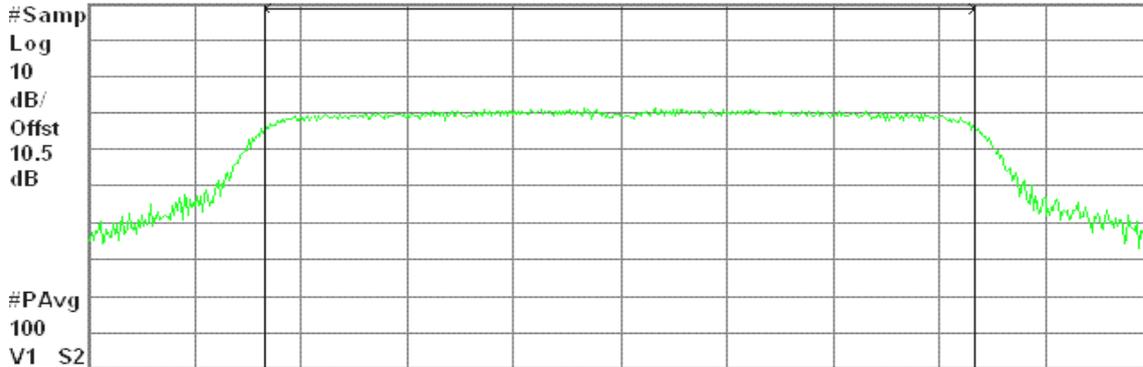
Agilent 20:58:07 Jul 10, 2007

R T

Average Output Power, 20 Mode Low Ch.

Ref 30 dBm

Atten 30 dB



Center 2.412 00 GHz

Span 26.68 MHz

#Res BW 1 MHz

#VBW 3 MHz

Sweep 1 ms (601 pts)

Channel Power

Power Spectral Density

12.31 dBm / 17.7870 MHz

-60.19 dBm/Hz



Average Power (CH Mid)

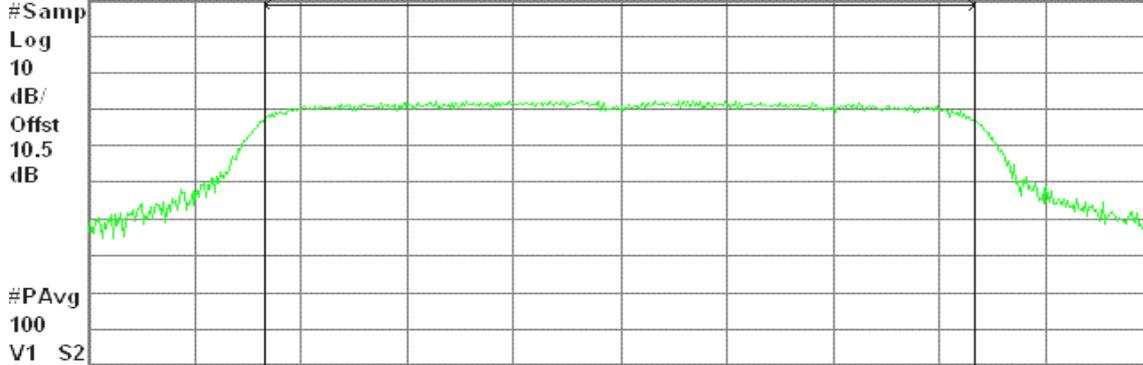
Agilent 21:04:46 Jul 10, 2007

R T

Average Output Power, 20 Mode Mid Ch.

Ref 30 dBm

Atten 30 dB



Center 2.437 00 GHz

Span 26.69 MHz

#Res BW 1 MHz

#VBW 3 MHz

Sweep 1 ms (601 pts)

Channel Power

Power Spectral Density

13.16 dBm / 17.7950 MHz

-59.35 dBm/Hz

Average Power (CH High)

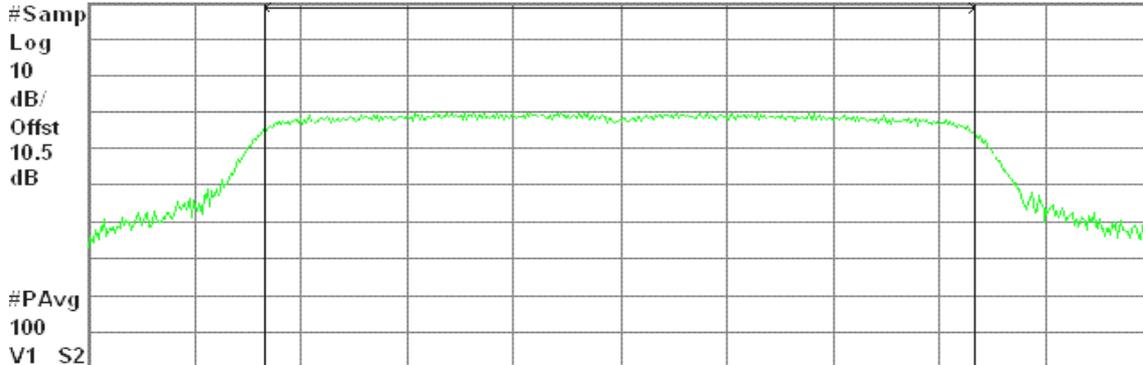
Agilent 21:11:55 Jul 10, 2007

R T

Average Output Power, 20 Mode High Ch.

Ref 30 dBm

Atten 30 dB



Center 2.462 00 GHz

Span 26.7 MHz

#Res BW 1 MHz

#VBW 3 MHz

Sweep 1 ms (601 pts)

Channel Power

Power Spectral Density

10.61 dBm / 17.8030 MHz

-61.89 dBm/Hz



draft 802.11n Wide-40 MHz Channel mode / Chain 0

Average Power (CH Low)

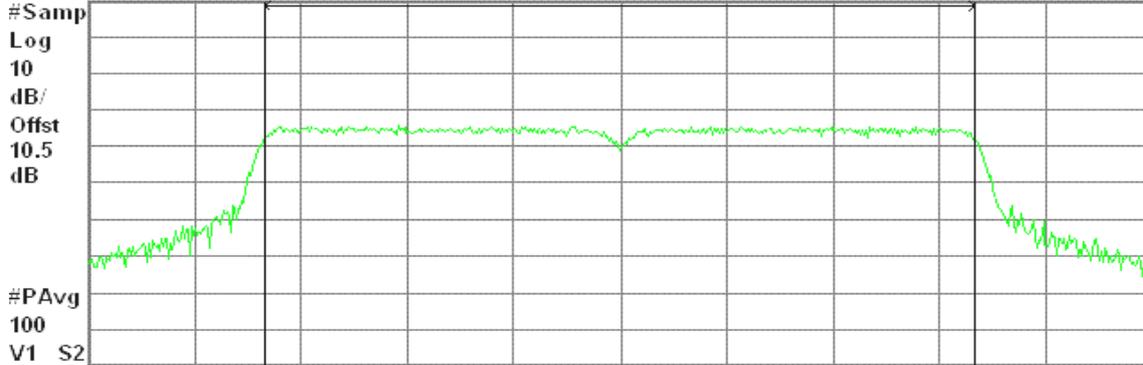
Agilent 22:17:12 Jul 10, 2007

R T

Average Output Power, 40 Mode Low Ch.

Ref 30 dBm

Atten 30 dB



Center 2.422 00 GHz

Span 54.7 MHz

#Res BW 1 MHz

#VBW 3 MHz

Sweep 1 ms (601 pts)

Channel Power

Power Spectral Density

9.55 dBm / 36.4660 MHz

-66.06 dBm/Hz

Average Power (CH Mid)

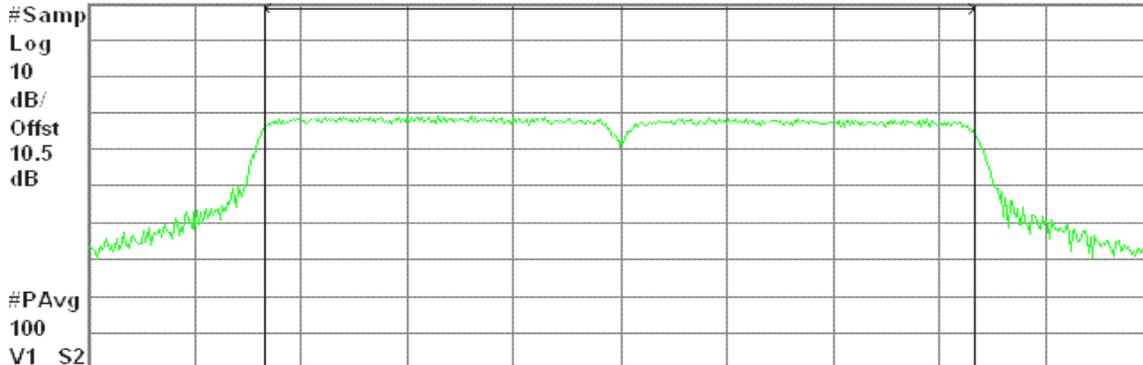
Agilent 22:05:39 Jul 10, 2007

R T

Average Output Power, 40 Mode Mid Ch.

Ref 30 dBm

Atten 30 dB



Center 2.437 00 GHz

Span 54.75 MHz

#Res BW 1 MHz

#VBW 3 MHz

Sweep 1 ms (601 pts)

Channel Power

Power Spectral Density

12.90 dBm / 36.4990 MHz

-62.72 dBm/Hz



Average Power (CH High)

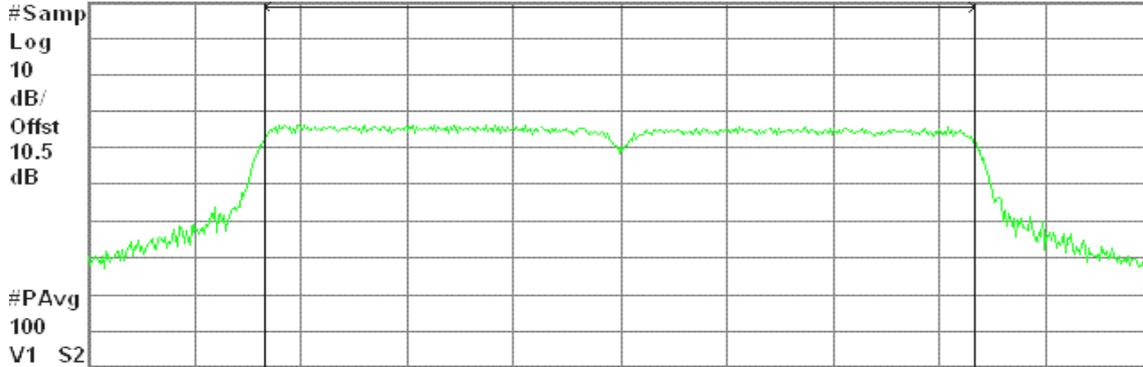
Agilent 21:51:49 Jul 10, 2007

R T

Average Output Power, 40 Mode High Ch.

Ref 30 dBm

Atten 30 dB



Center 2.452 00 GHz

Span 54.79 MHz

#Res BW 1 MHz

#VBW 3 MHz

Sweep 1 ms (601 pts)

Channel Power

Power Spectral Density

9.84 dBm / 36.5270 MHz

-65.78 dBm/Hz

draft 802.11n Wide-40 MHz Channel mode / Chain 1

Average Power (CH Low)

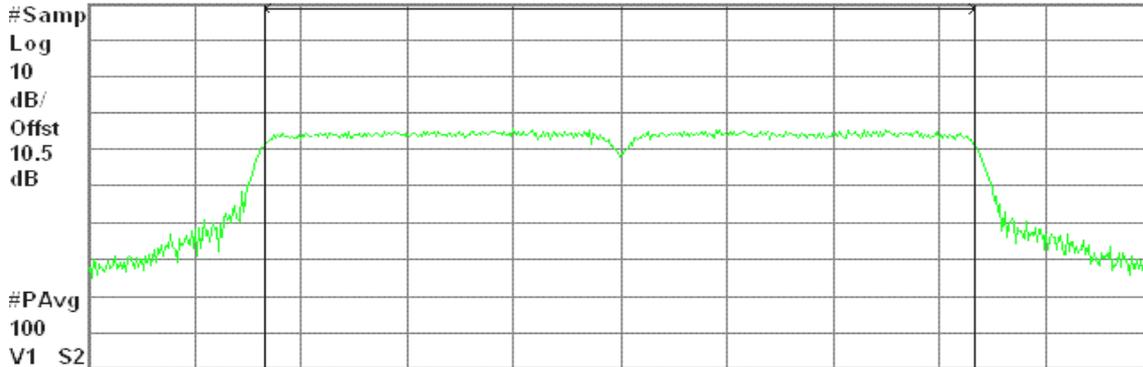
Agilent 21:22:51 Jul 10, 2007

R T

Average Output Power, 40 Mode Low Ch.

Ref 30 dBm

Atten 30 dB



Center 2.422 00 GHz

Span 54.72 MHz

#Res BW 1 MHz

#VBW 3 MHz

Sweep 1 ms (601 pts)

Channel Power

Power Spectral Density

9.49 dBm / 36.4830 MHz

-66.13 dBm/Hz



Average Power (CH Mid)

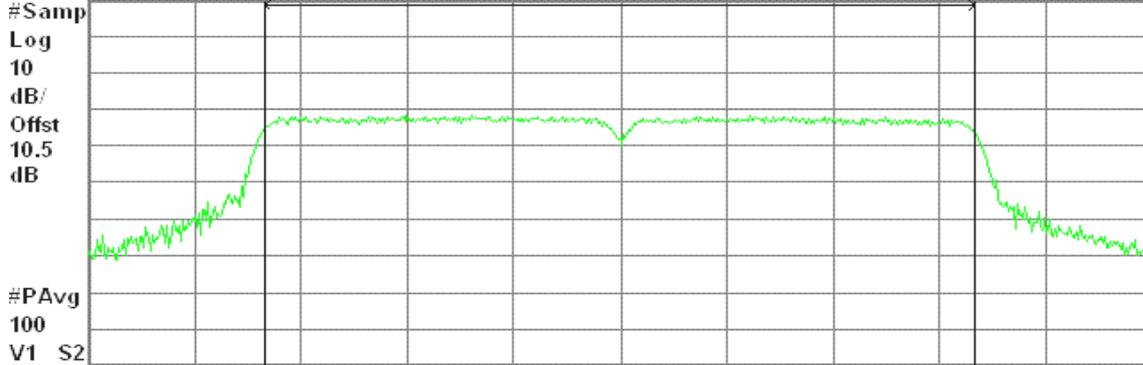
Agilent 21:30:24 Jul 10, 2007

R T

Average Output Power, 40 Mode Mid Ch.

Ref 30 dBm

Atten 30 dB



Center 2.437 00 GHz

Span 54.75 MHz

#Res BW 1 MHz

#VBW 3 MHz

Sweep 1 ms (601 pts)

Channel Power

Power Spectral Density

12.04 dBm / 36.4990 MHz

-63.58 dBm/Hz

Average Power (CH High)

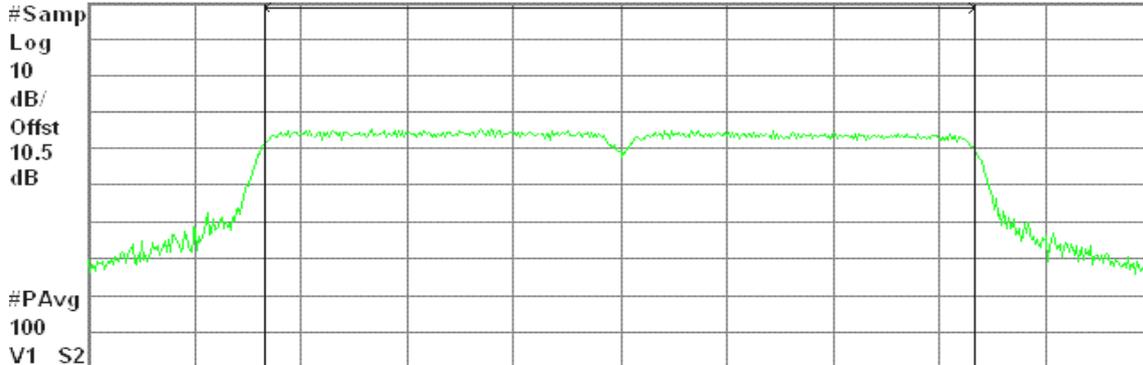
Agilent 21:38:40 Jul 10, 2007

R T

Average Output Power, 40 Mode High Ch.

Ref 30 dBm

Atten 30 dB



Center 2.452 00 GHz

Span 54.84 MHz

#Res BW 1 MHz

#VBW 3 MHz

Sweep 1 ms (601 pts)

Channel Power

Power Spectral Density

8.81 dBm / 36.5610 MHz

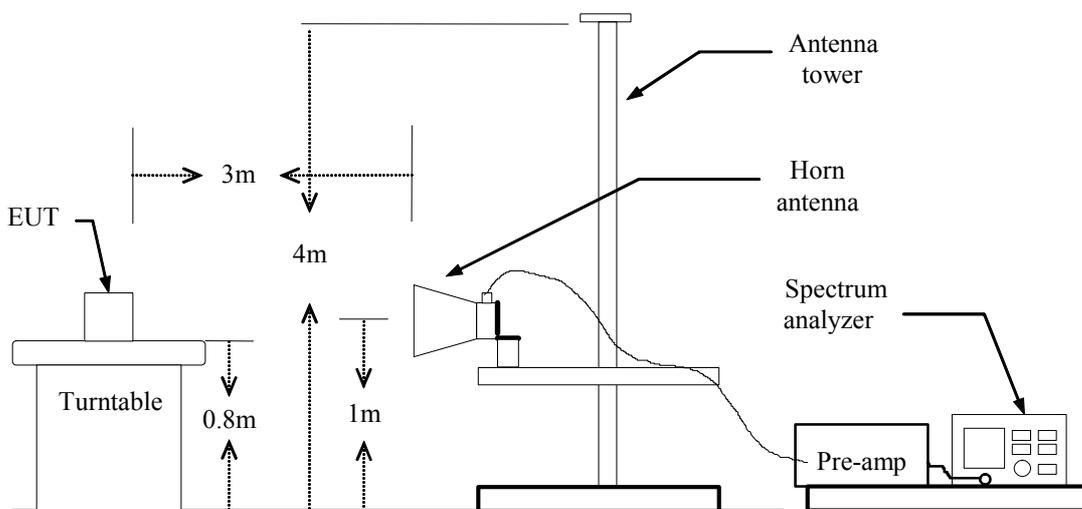
-66.82 dBm/Hz

7.4 BAND EDGES MEASUREMENT

LIMIT

According to §15.247(d), in any 100 kHz bandwidth outside the frequency bands in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in 15.209(a) (see Section 15.205(c)).

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 (IEEE 802.11b mode / CH Low)

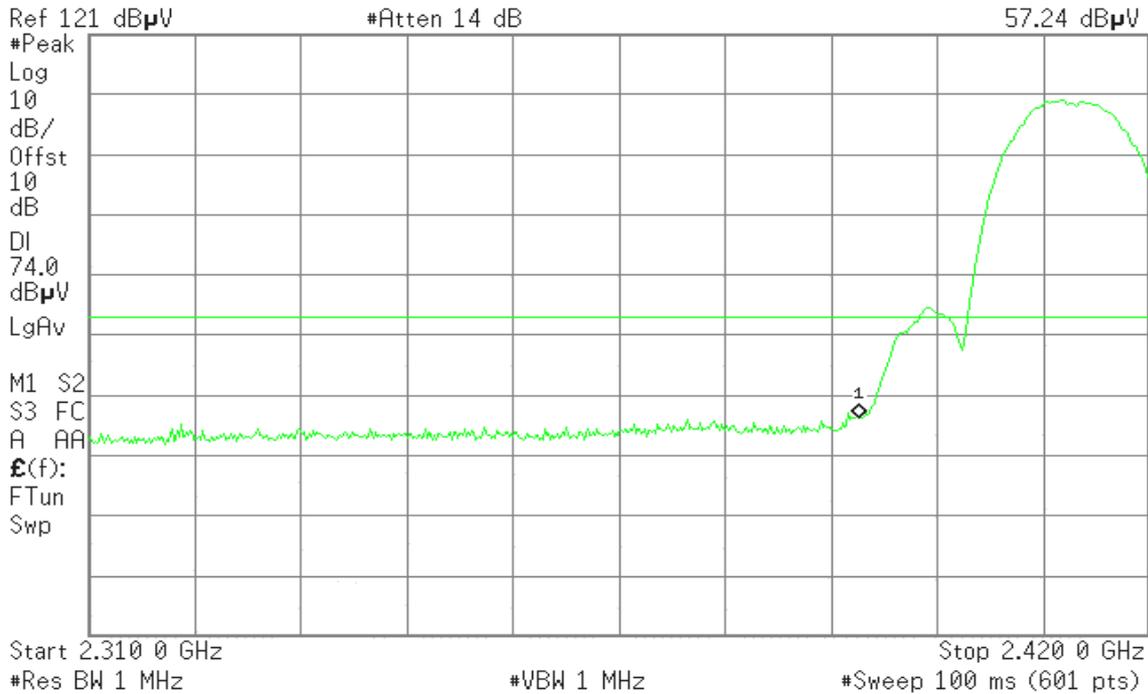
Detector mode: Peak

Polarity: Vertical

Agilent 20:52:40 Jul 4, 2007

R T

Mkr1 2.390 0 GHz
57.24 dBμV



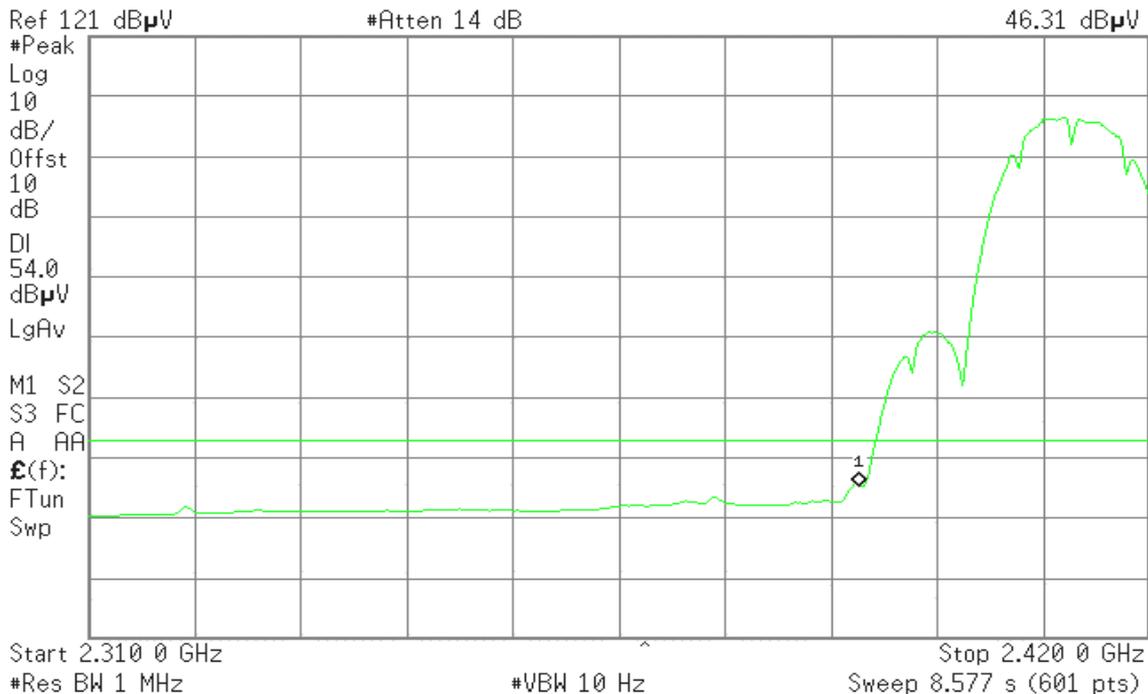
Detector mode: Average

Polarity: Vertical

Agilent 20:51:46 Jul 4, 2007

R T

Mkr1 2.390 0 GHz
46.31 dBμV





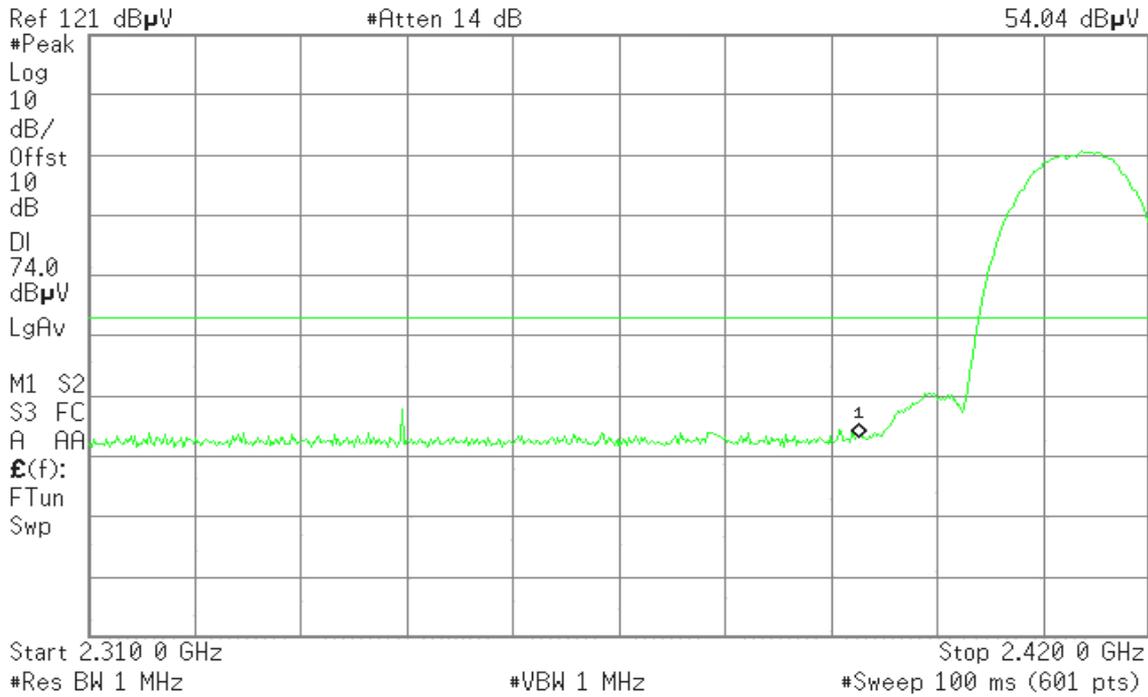
Detector mode: Peak

Polarity: Horizontal

Agilent 20:56:48 Jul 4, 2007

R T

Mkr1 2.390 0 GHz
54.04 dB μ V



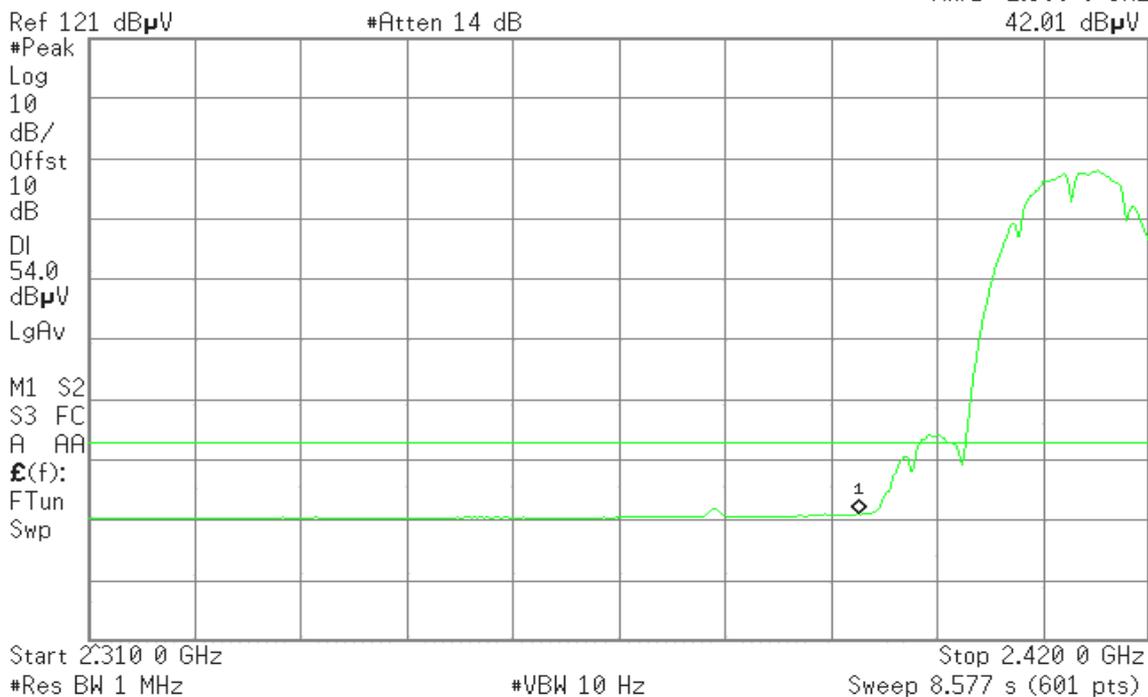
Detector mode: Average

Polarity: Horizontal

Agilent 20:57:28 Jul 4, 2007

R T

Mkr1 2.390 0 GHz
42.01 dB μ V





Band Edges (IEEE 802.11b mode / CH High)

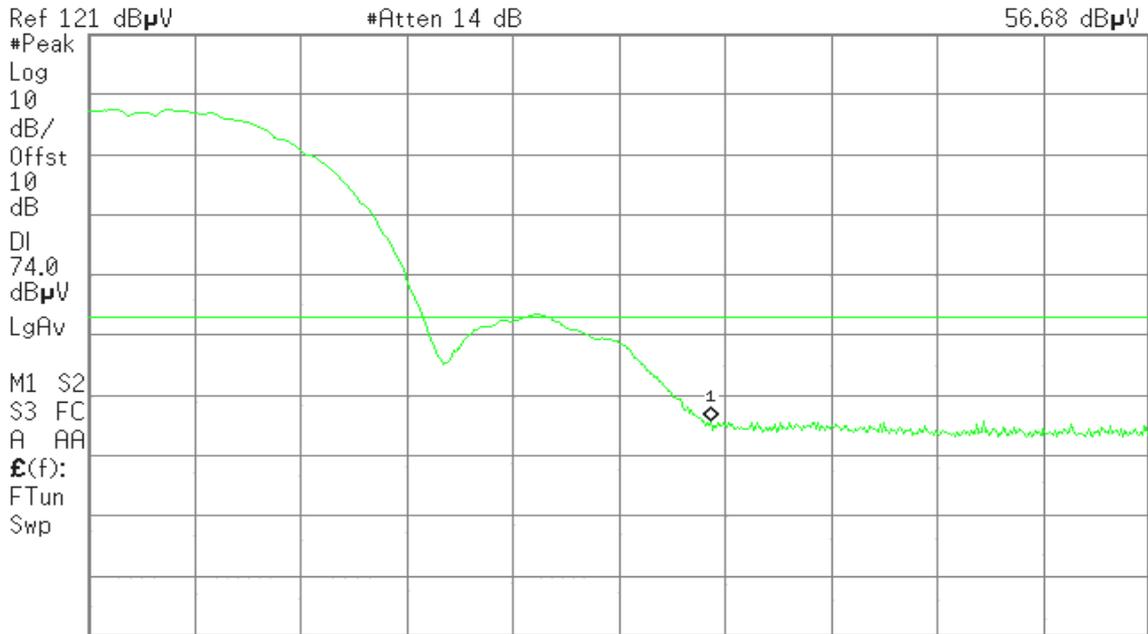
Detector mode: Peak

Polarity: Vertical

Agilent 21:09:25 Jul 4, 2007

R T

Mkr1 2.483 50 GHz
56.68 dB μ V



Start 2.460 00 GHz

Stop 2.500 00 GHz

#Res BW 1 MHz

#VBW 1 MHz

#Sweep 100 ms (601 pts)

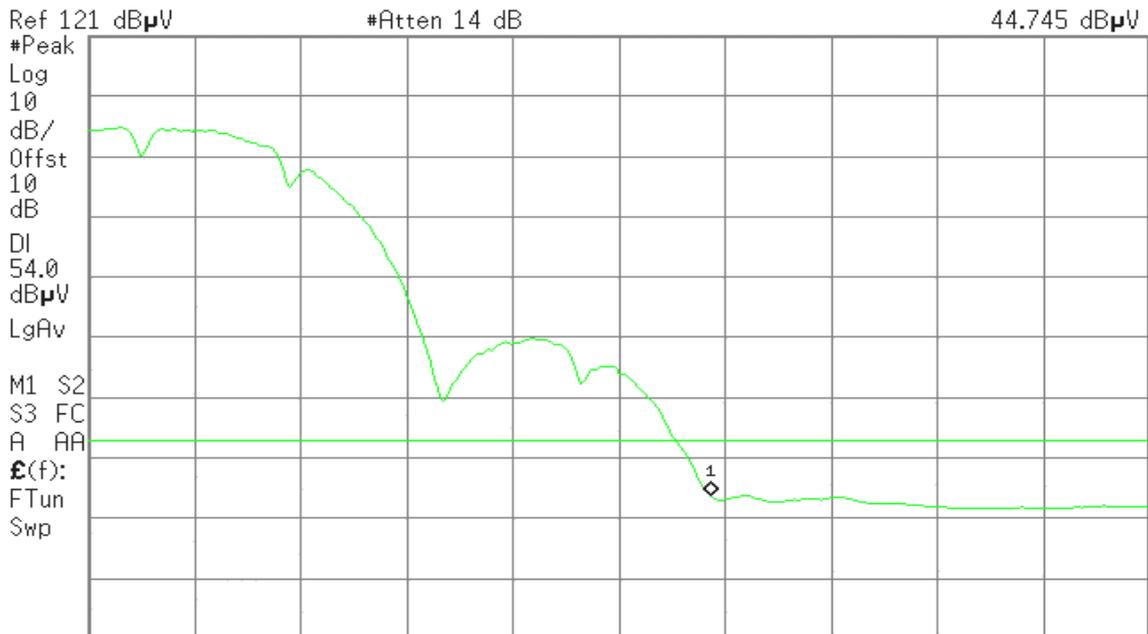
Detector mode: Average

Polarity: Vertical

Agilent 21:10:08 Jul 4, 2007

R T

Mkr1 2.483 50 GHz
44.745 dB μ V



Start 2.460 00 GHz

Stop 2.500 00 GHz

#Res BW 1 MHz

#VBW 10 Hz

Sweep 3.119 s (601 pts)



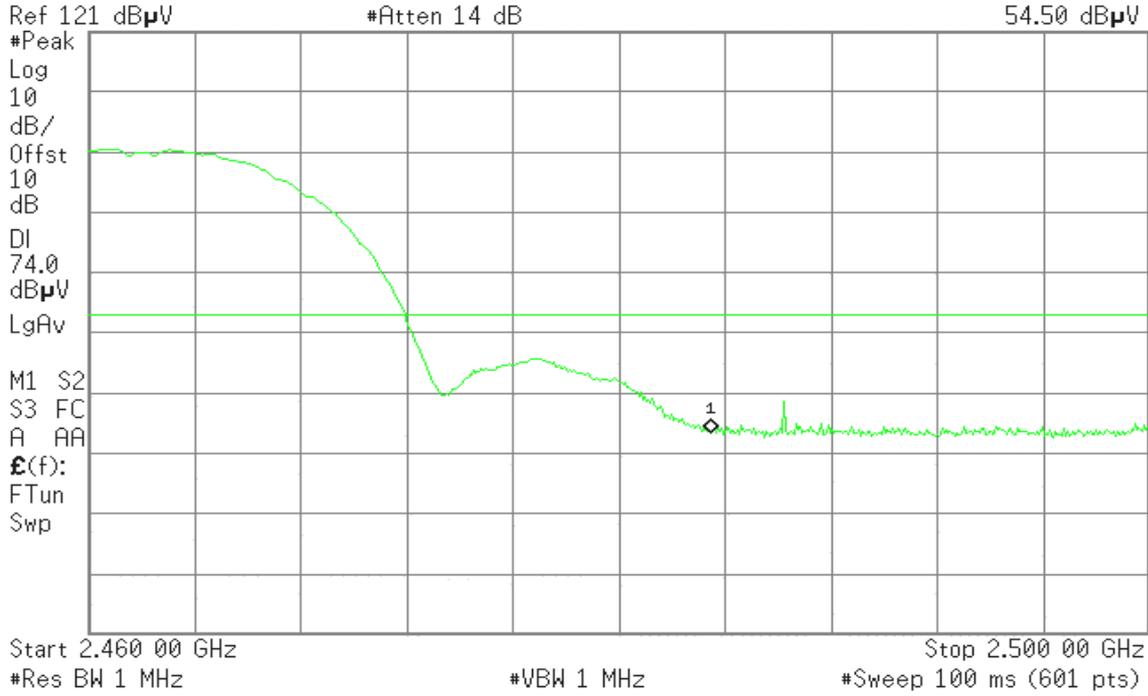
Detector mode: Peak

Polarity: Horizontal

Agilent 21:03:49 Jul 4, 2007

R T

Mkr1 2.483 50 GHz
54.50 dBμV



Detector mode: Average

Polarity: Horizontal

Agilent 21:04:49 Jul 4, 2007

R T

Mkr1 2.483 50 GHz
42.434 dBμV





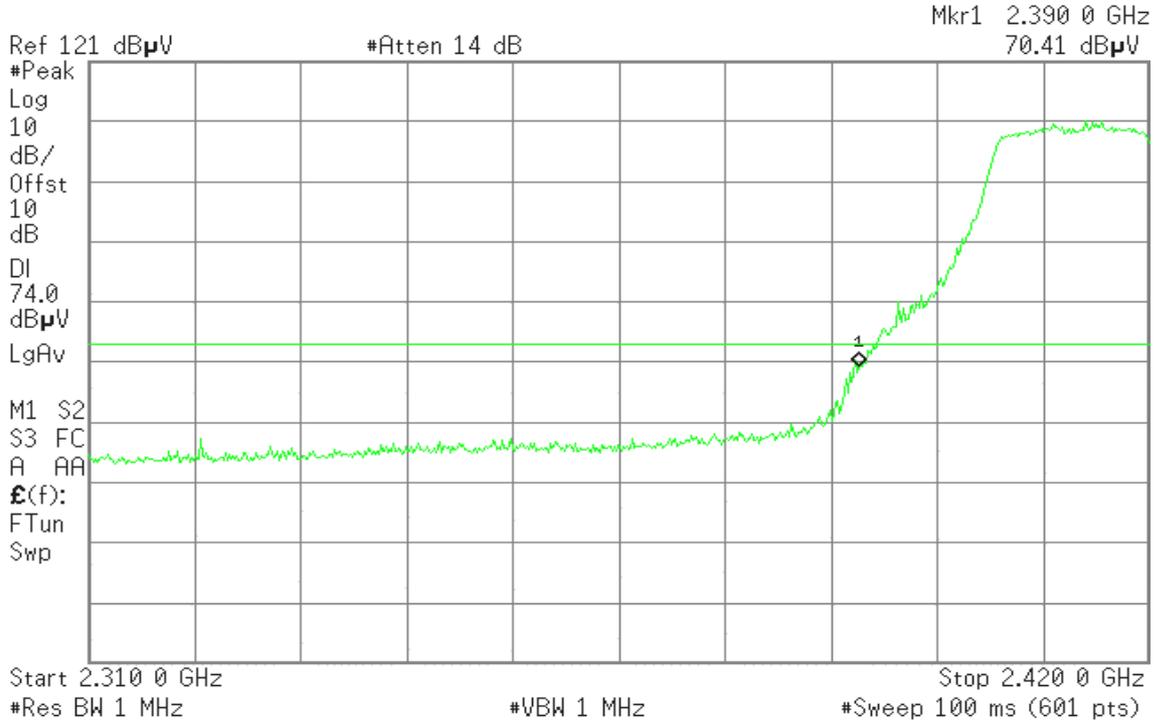
Band Edges (IEEE 802.11g mode / CH Low)

Detector mode: Peak

Polarity: Vertical

Agilent 19:15:48 Jun 26, 2007

R T

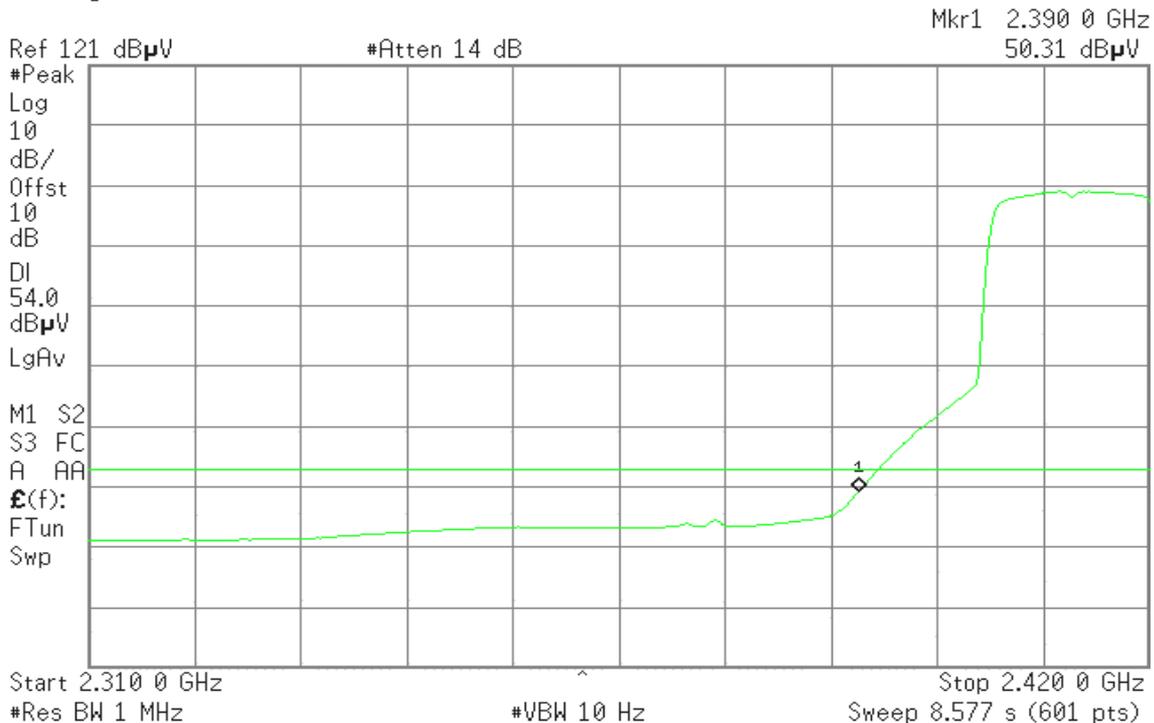


Detector mode: Average

Polarity: Vertical

Agilent 19:16:41 Jun 26, 2007

R T





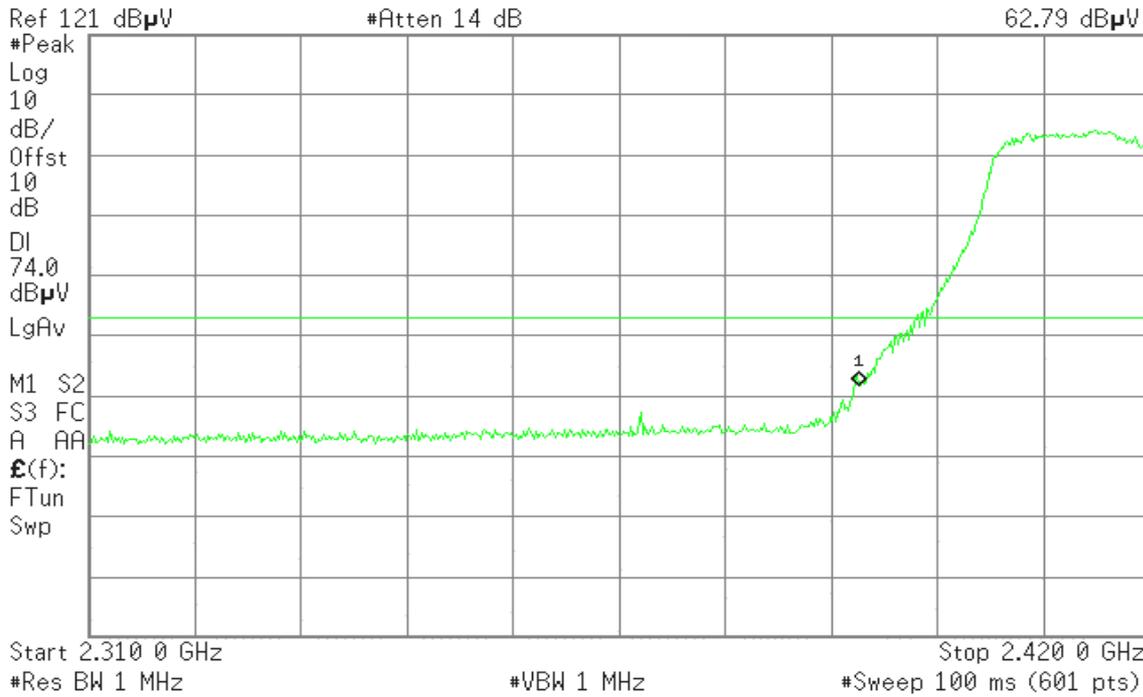
Detector mode: Peak

Polarity: Horizontal

Agilent 19:21:22 Jun 26, 2007

R T

Mkr1 2.390 0 GHz
62.79 dBμV



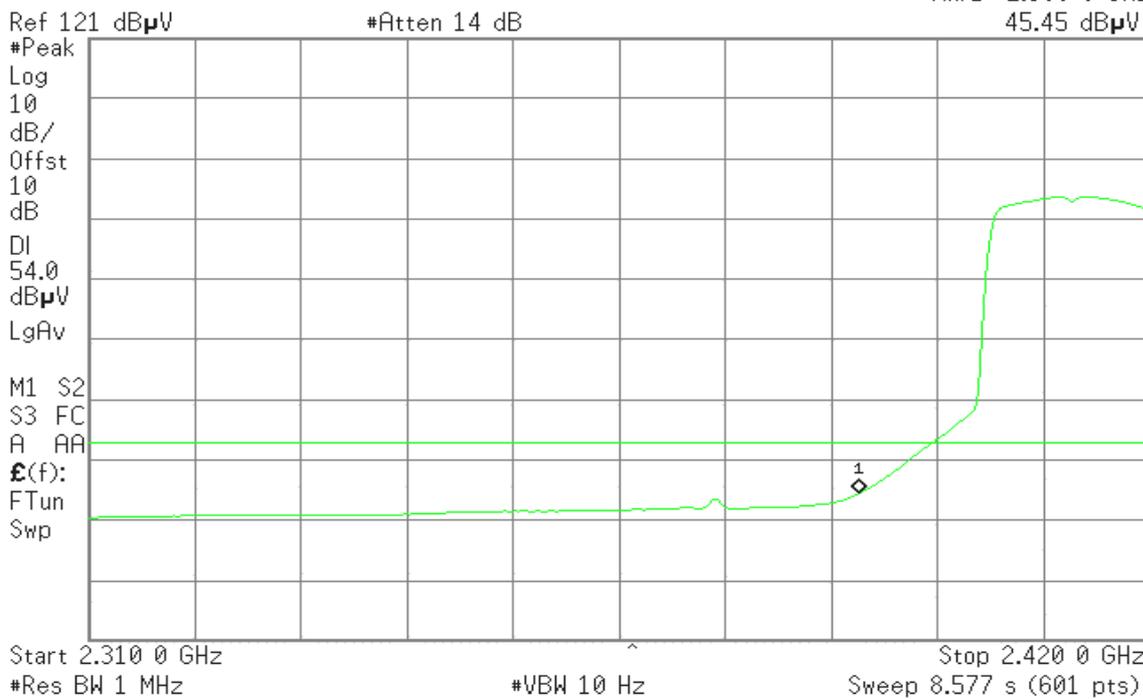
Detector mode: Average

Polarity: Horizontal

Agilent 19:22:00 Jun 26, 2007

R T

Mkr1 2.390 0 GHz
45.45 dBμV





Band Edges (IEEE 802.11g mode / CH High)

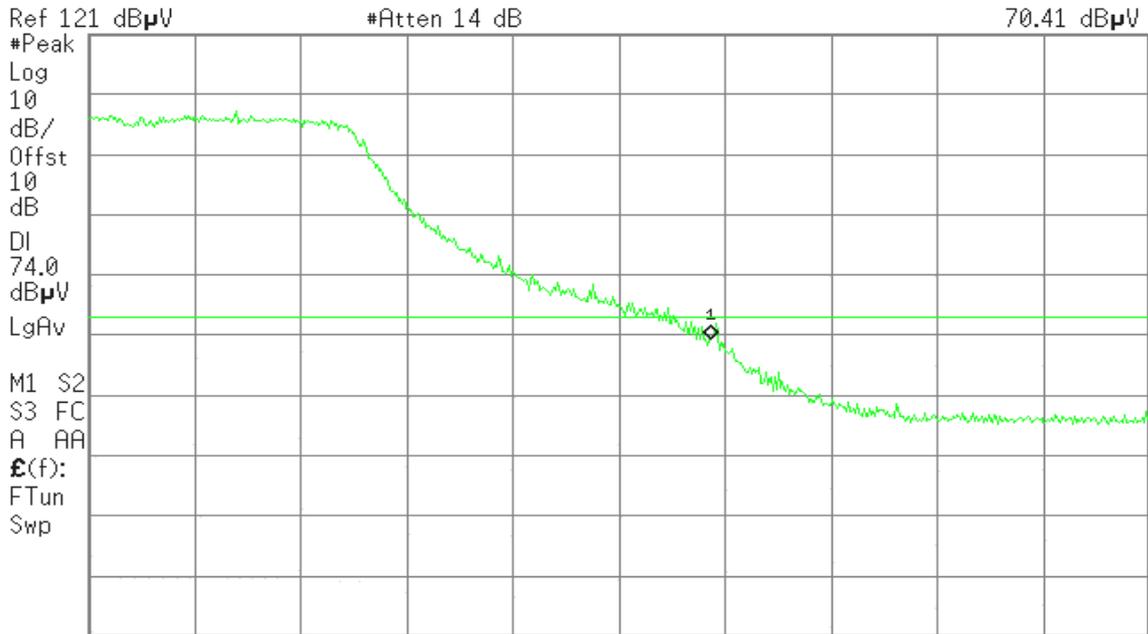
Detector mode: Peak

Polarity: Vertical

Agilent 19:29:27 Jun 26, 2007

R T

Mkr1 2.483 50 GHz
70.41 dB μ V



Start 2.460 00 GHz

Stop 2.500 00 GHz

#Res BW 1 MHz

#VBW 1 MHz

#Sweep 100 ms (601 pts)

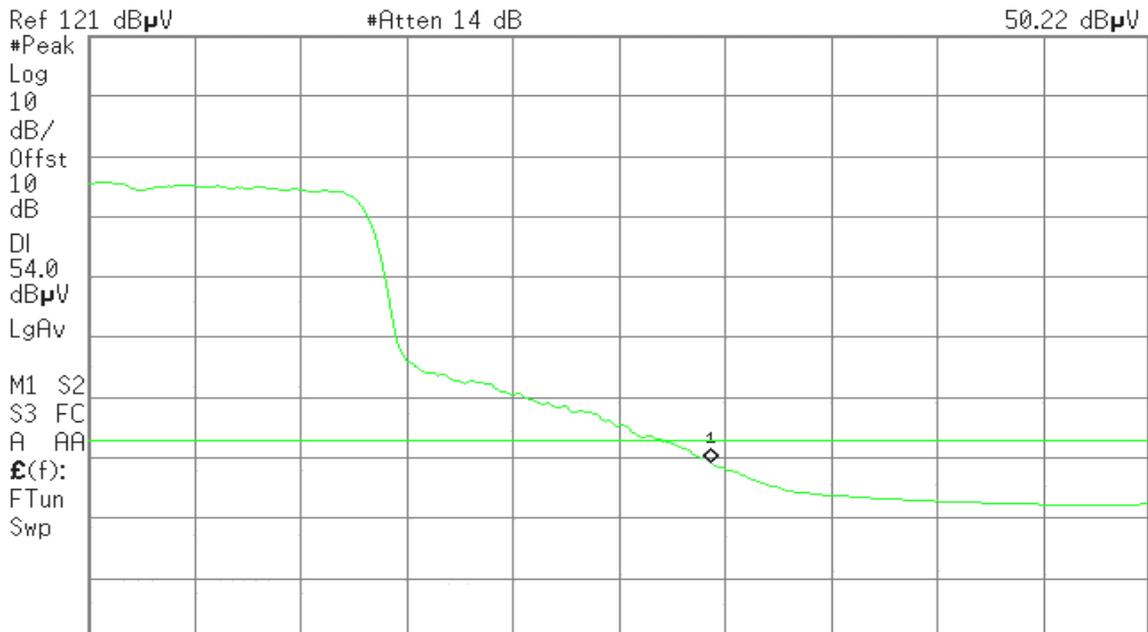
Detector mode: Average

Polarity: Vertical

Agilent 19:30:27 Jun 26, 2007

R T

Mkr1 2.483 50 GHz
50.22 dB μ V



Start 2.460 00 GHz

Stop 2.500 00 GHz

#Res BW 1 MHz

#VBW 10 Hz

Sweep 3.119 s (601 pts)



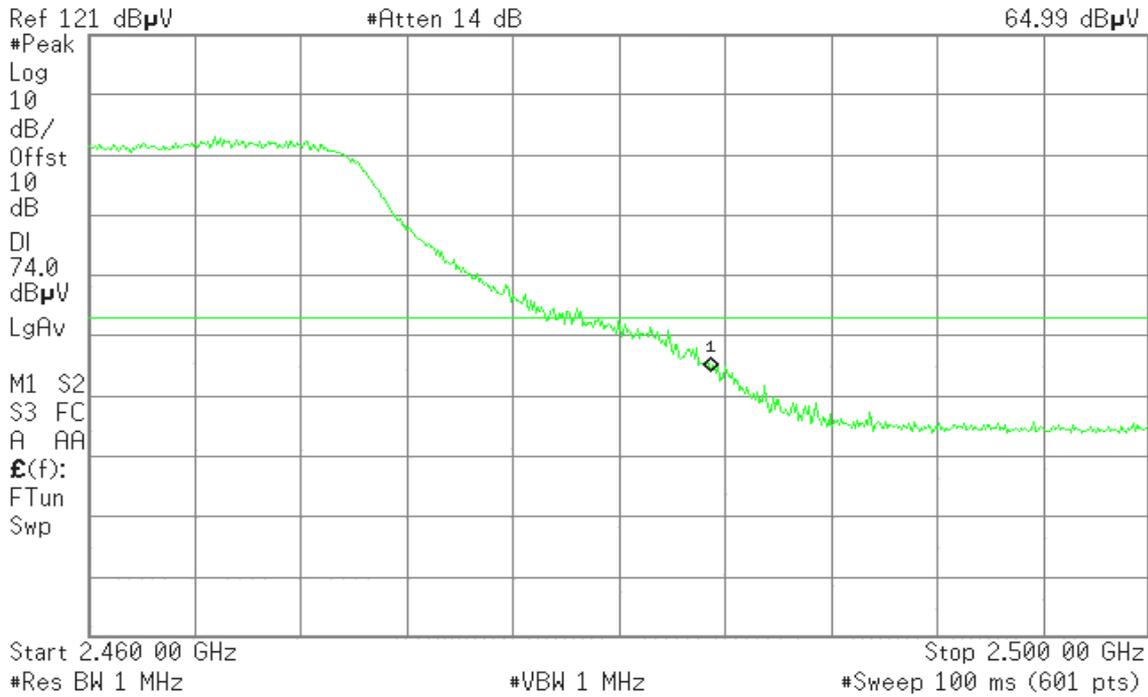
Detector mode: Peak

Polarity: Horizontal

Agilent 19:34:48 Jun 26, 2007

R T

Mkr1 2.483 50 GHz
64.99 dB μ V



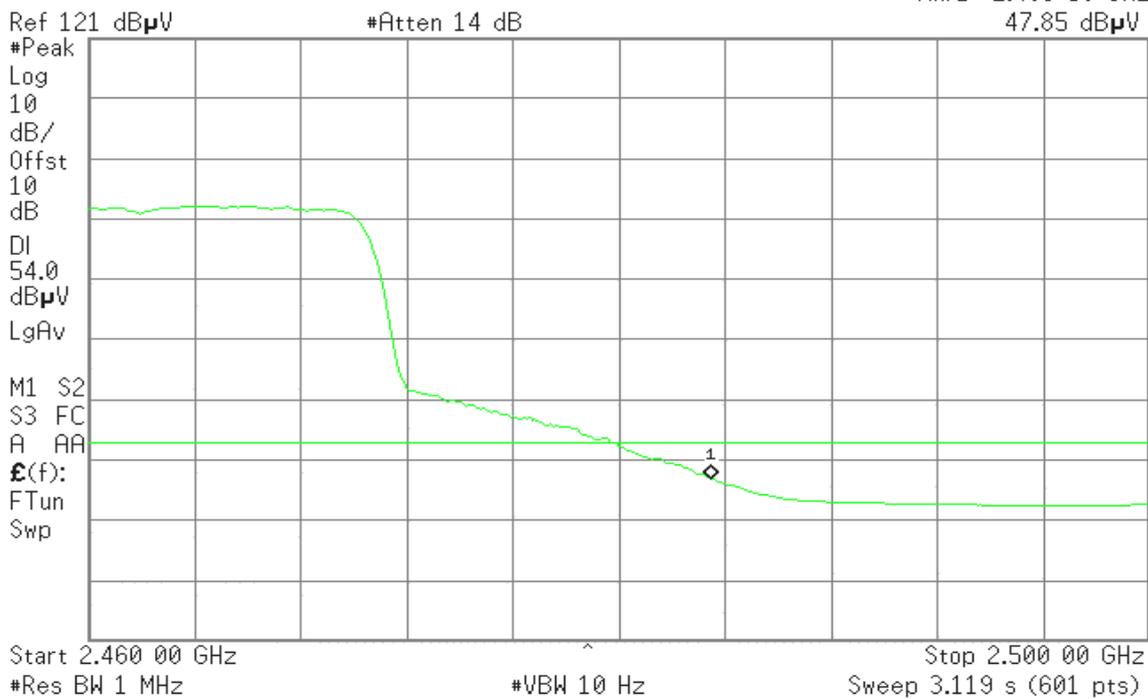
Detector mode: Average

Polarity: Horizontal

Agilent 19:35:41 Jun 26, 2007

R T

Mkr1 2.483 50 GHz
47.85 dB μ V





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

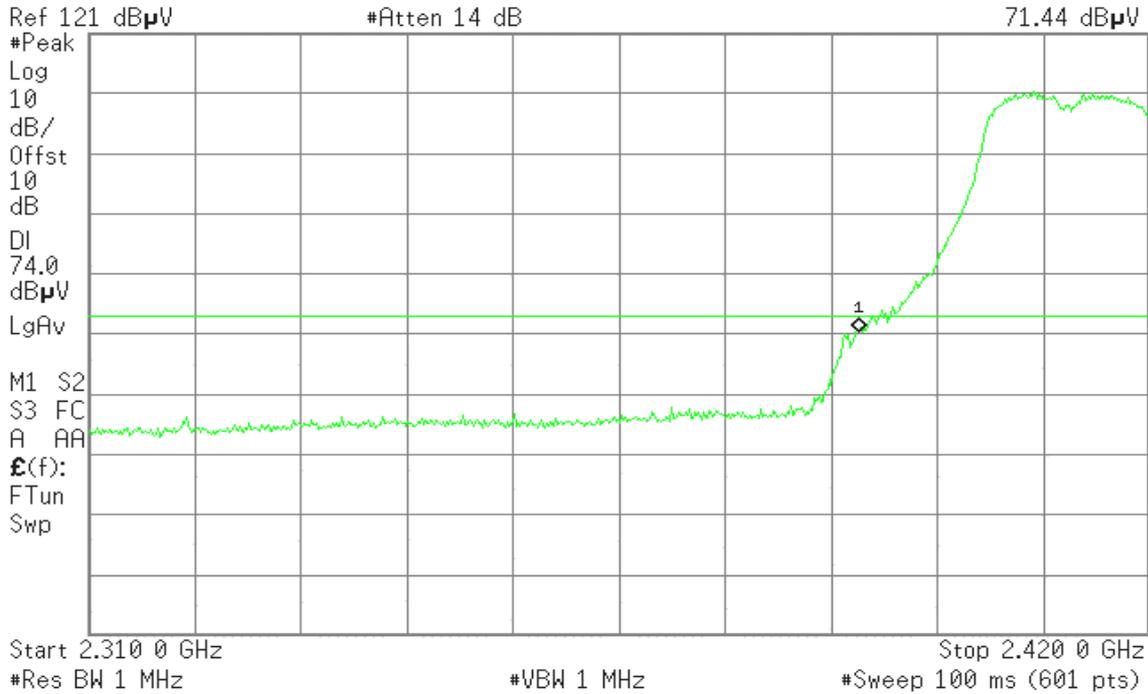
Detector mode: Peak

Polarity: Vertical

Agilent 15:51:01 Jul 3, 2007

R T

Mkr1 2.390 0 GHz
71.44 dB μ V



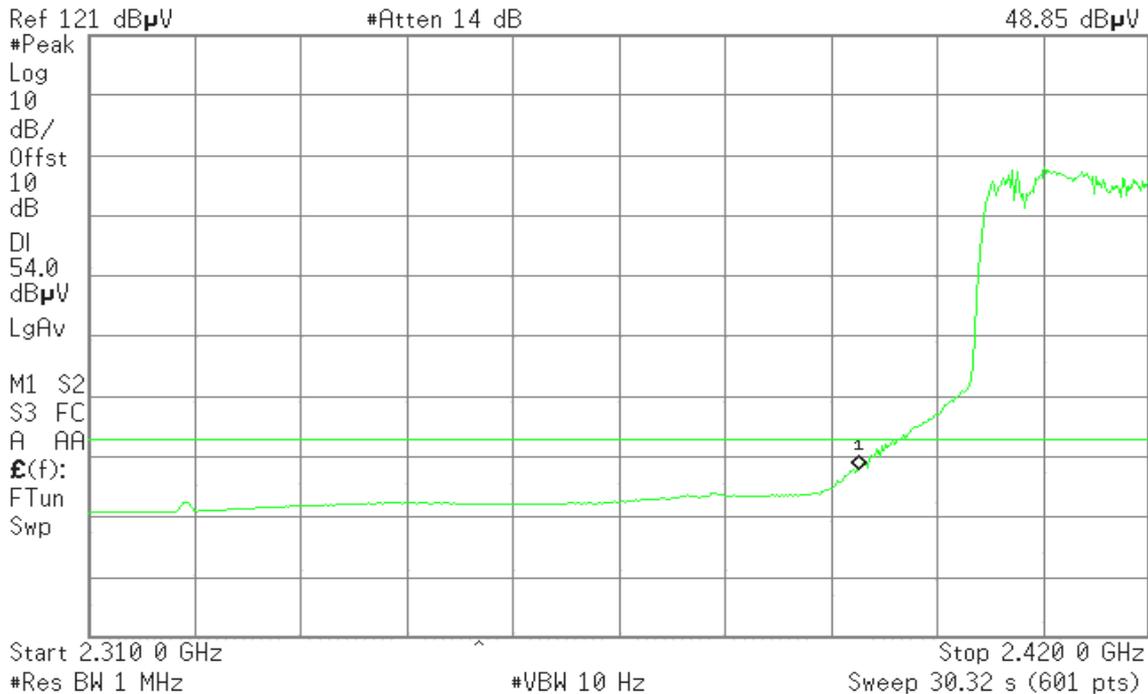
Detector mode: Average

Polarity: Vertical

Agilent 15:52:09 Jul 3, 2007

R T

Mkr1 2.390 0 GHz
48.85 dB μ V





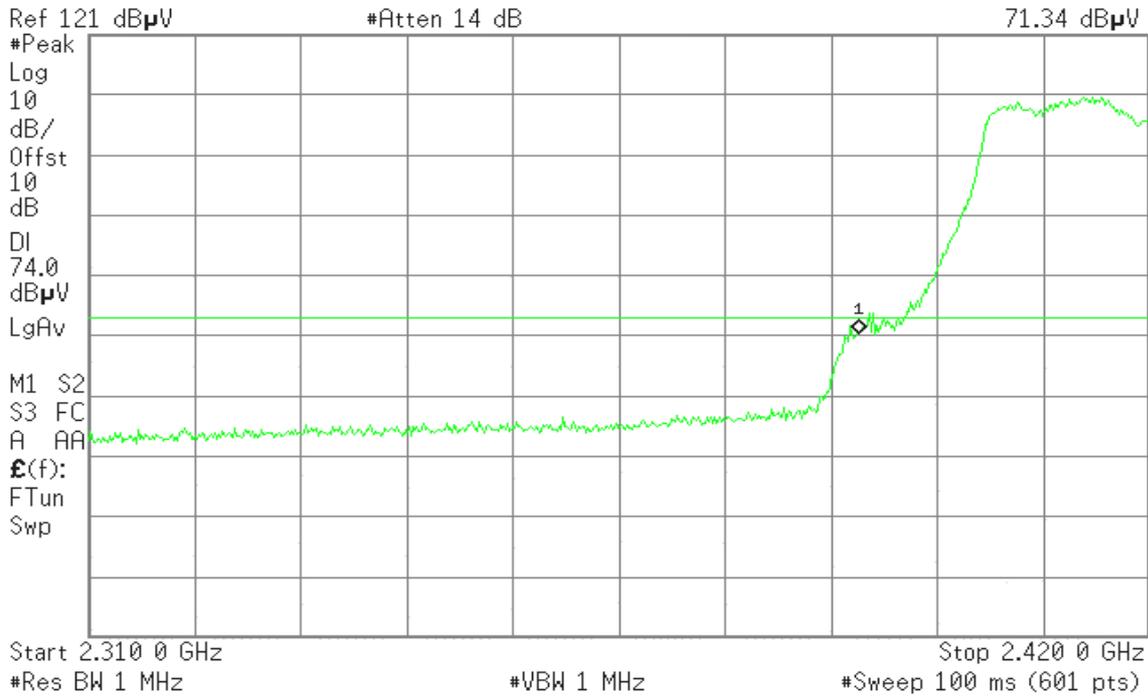
Detector mode: Peak

Polarity: Horizontal

Agilent 15:57:51 Jul 3, 2007

R T

Mkr1 2.390 0 GHz
71.34 dBμV



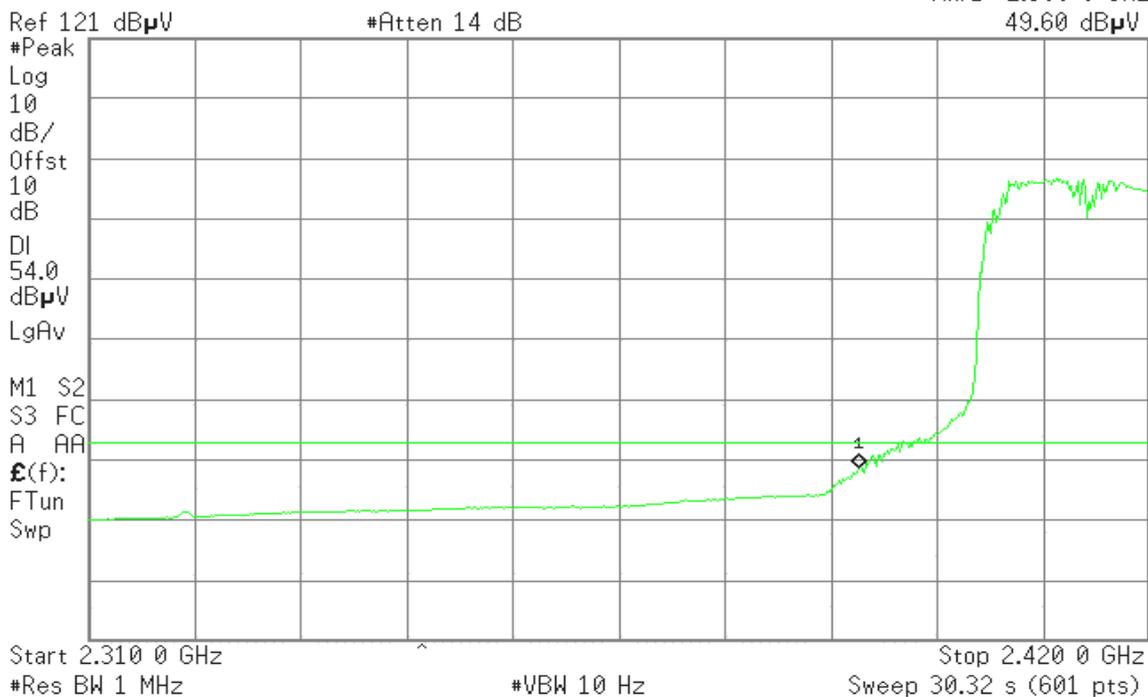
Detector mode: Average

Polarity: Horizontal

Agilent 15:59:00 Jul 3, 2007

R T

Mkr1 2.390 0 GHz
49.60 dBμV





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

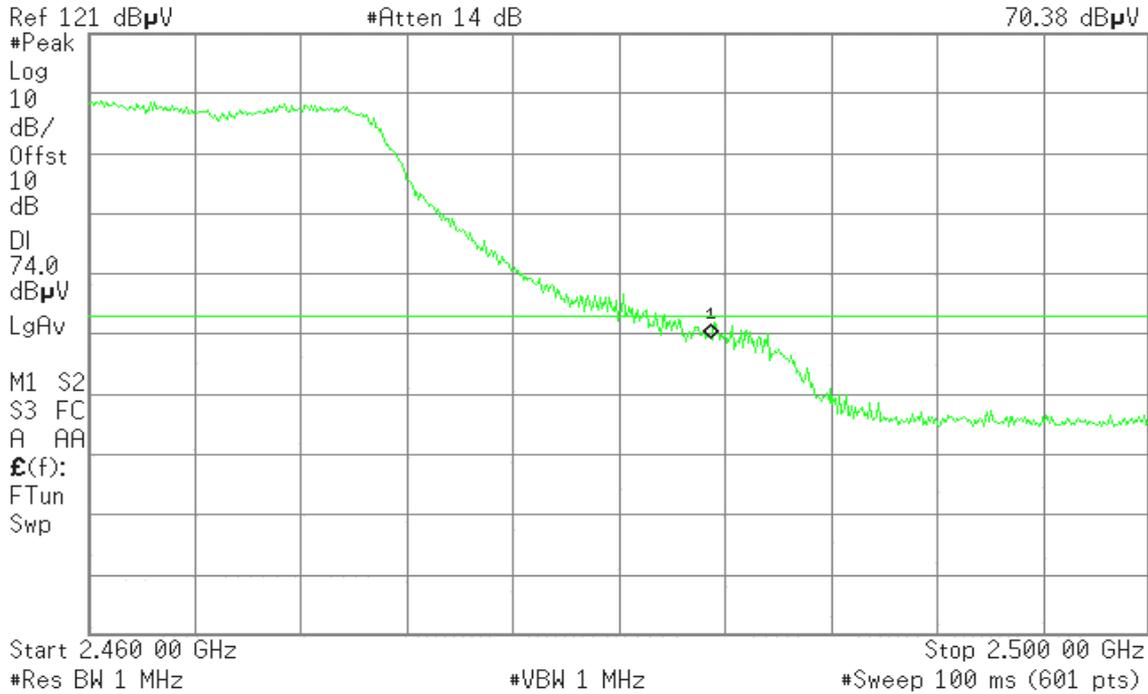
Detector mode: Peak

Polarity: Vertical

Agilent 16:08:41 Jul 3, 2007

R T

Mkr1 2.483 50 GHz
70.38 dB μ V



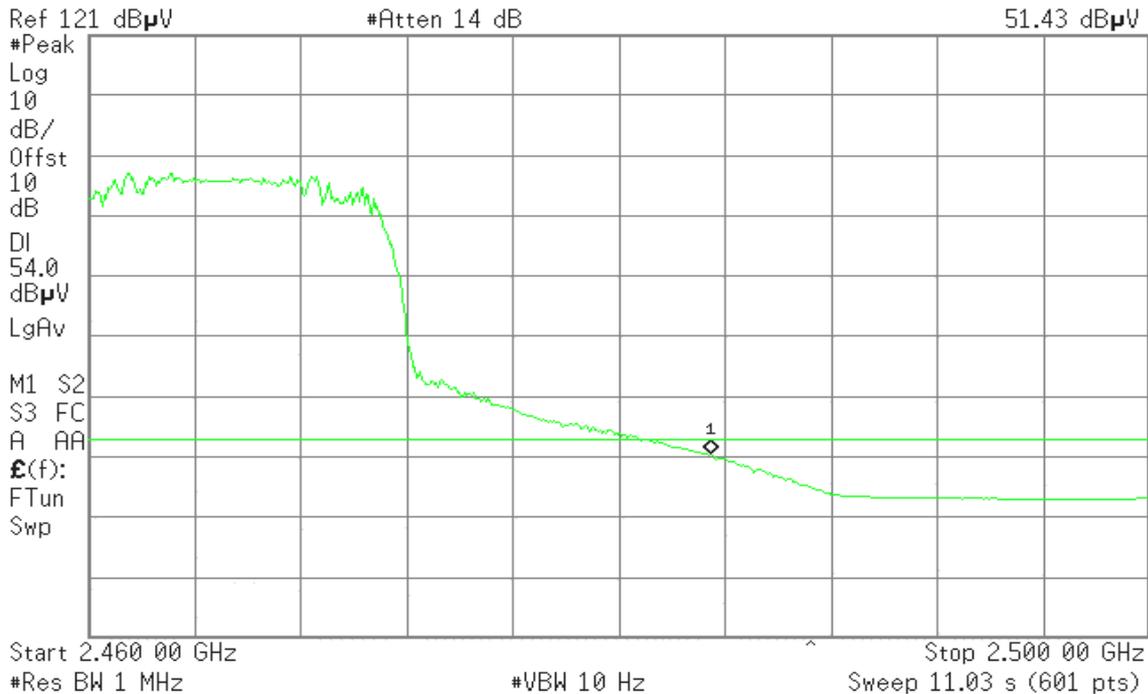
Detector mode: Average

Polarity: Vertical

Agilent 16:09:37 Jul 3, 2007

R T

Mkr1 2.483 50 GHz
51.43 dB μ V





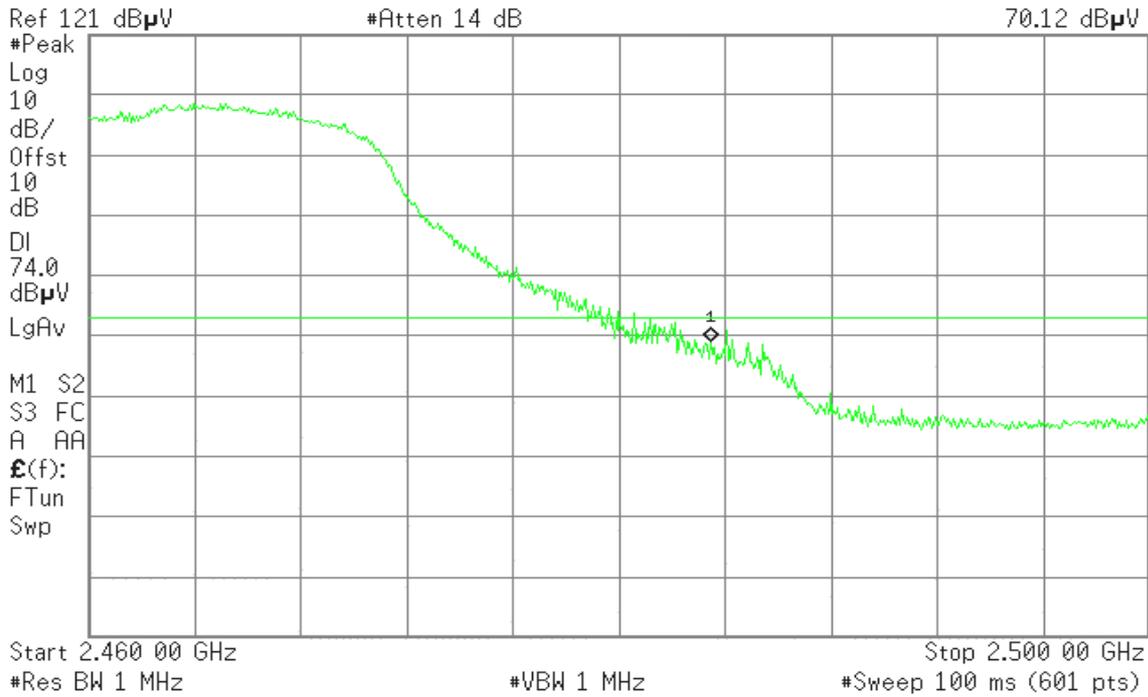
Detector mode: Peak

Polarity: Horizontal

Agilent 16:14:56 Jul 3, 2007

R T

Mkr1 2.483 50 GHz
70.12 dB μ V



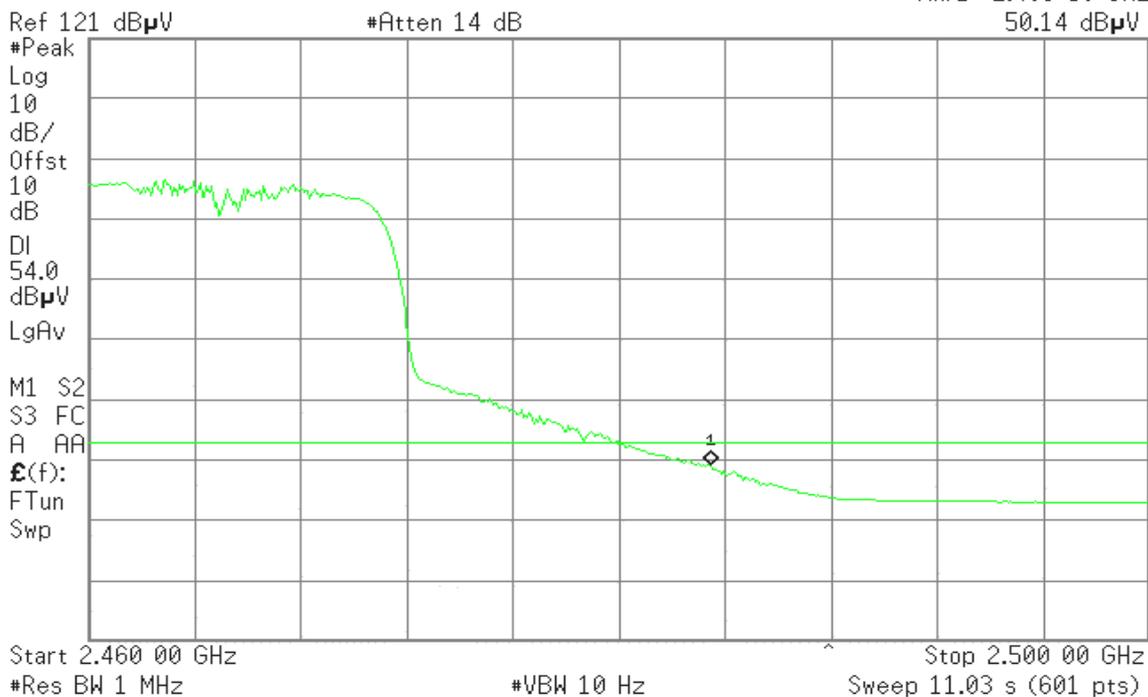
Detector mode: Average

Polarity: Horizontal

Agilent 16:15:33 Jul 3, 2007

R T

Mkr1 2.483 50 GHz
50.14 dB μ V





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

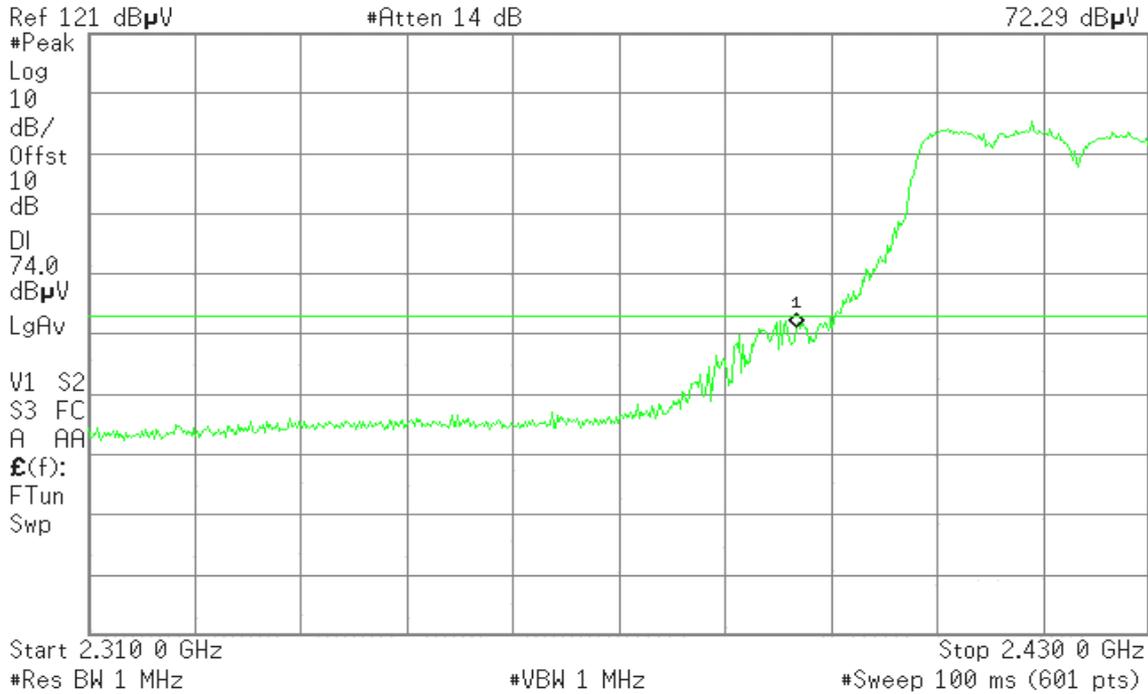
Detector mode: Peak

Polarity: Vertical

Agilent 16:24:25 Jul 3, 2007

R T

Mkr1 2.390 0 GHz
72.29 dB μ V



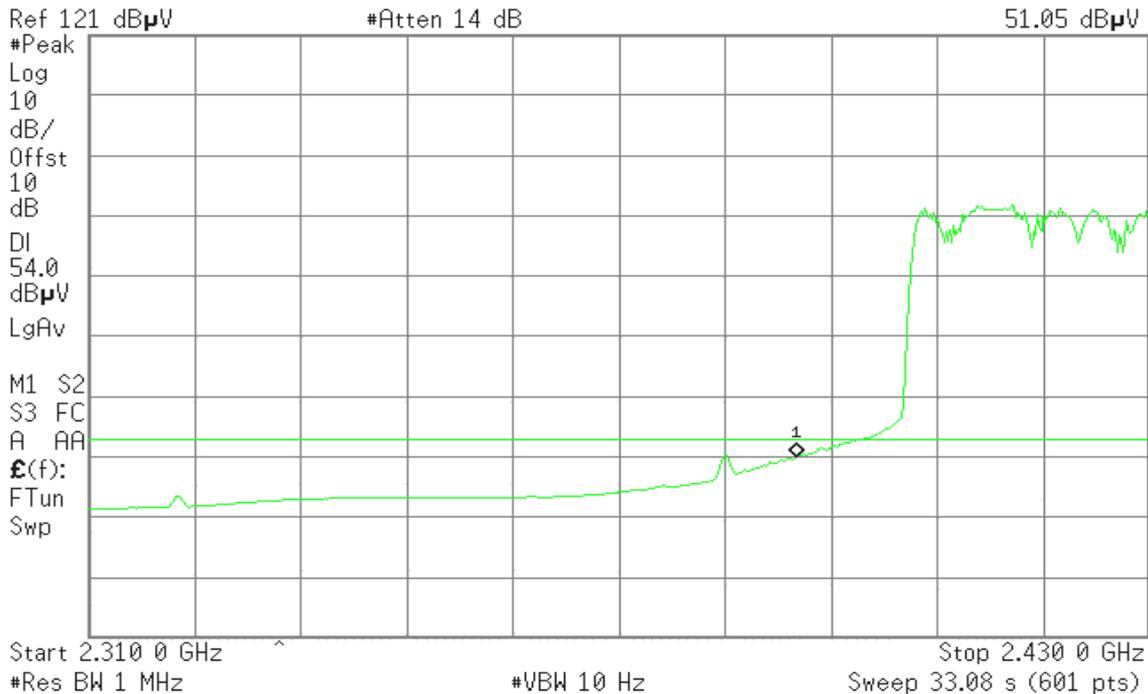
Detector mode: Average

Polarity: Vertical

Agilent 16:25:27 Jul 3, 2007

R T

Mkr1 2.390 0 GHz
51.05 dB μ V





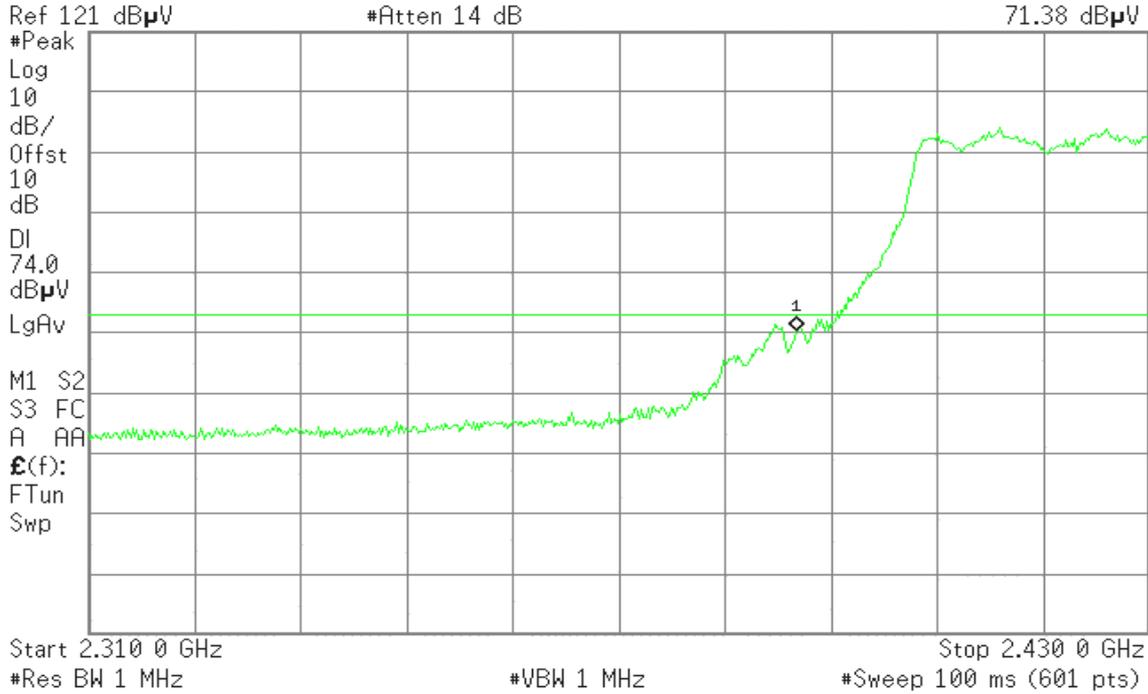
Detector mode: Peak

Polarity: Horizontal

Agilent 16:50:10 Jul 3, 2007

R T

Mkr1 2.390 0 GHz
71.38 dBμV



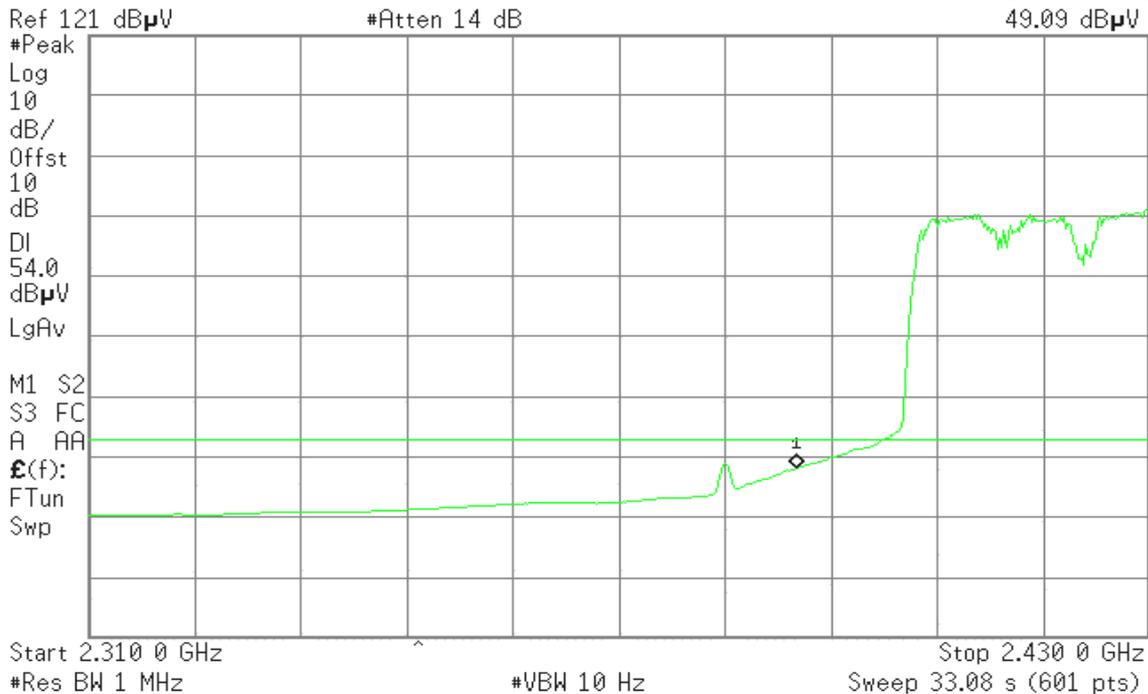
Detector mode: Average

Polarity: Horizontal

Agilent 16:51:19 Jul 3, 2007

R T

Mkr1 2.390 0 GHz
49.09 dBμV





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

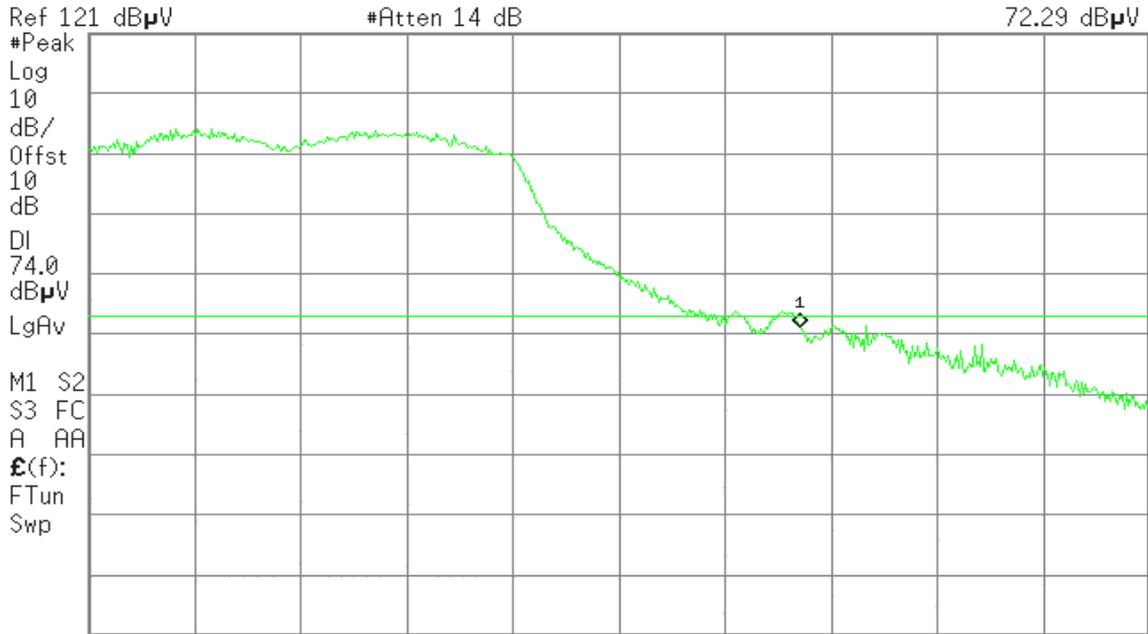
Detector mode: Peak

Polarity: Vertical

Agilent 16:57:34 Jul 3, 2007

R T

Mkr1 2.483 50 GHz
72.29 dB μ V



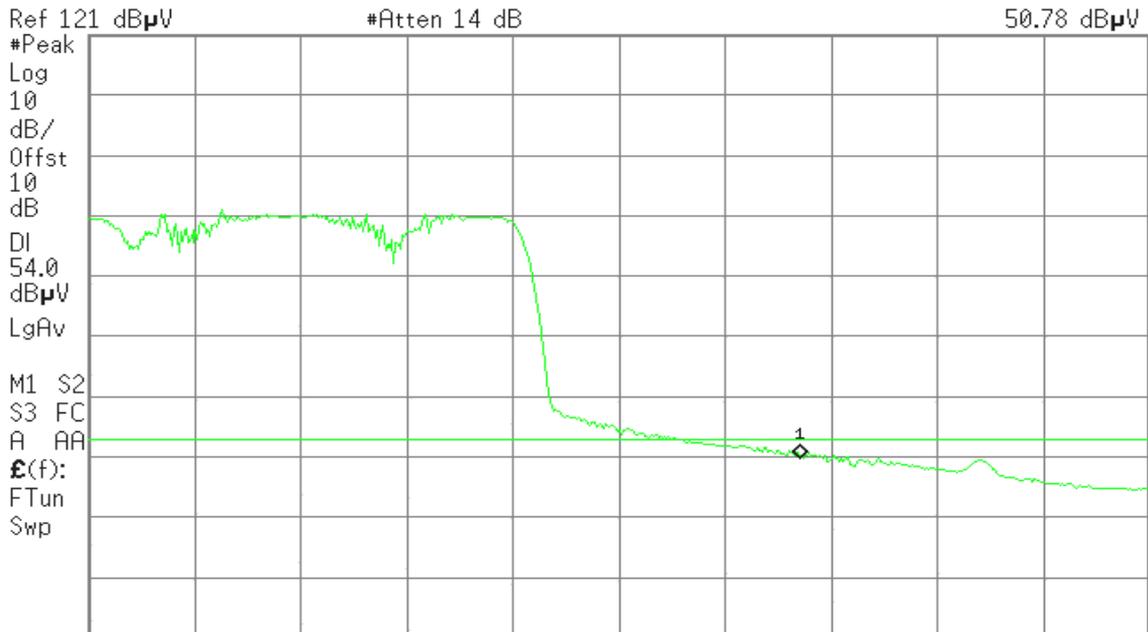
Detector mode: Average

Polarity: Vertical

Agilent 16:58:27 Jul 3, 2007

R T

Mkr1 2.483 50 GHz
50.78 dB μ V





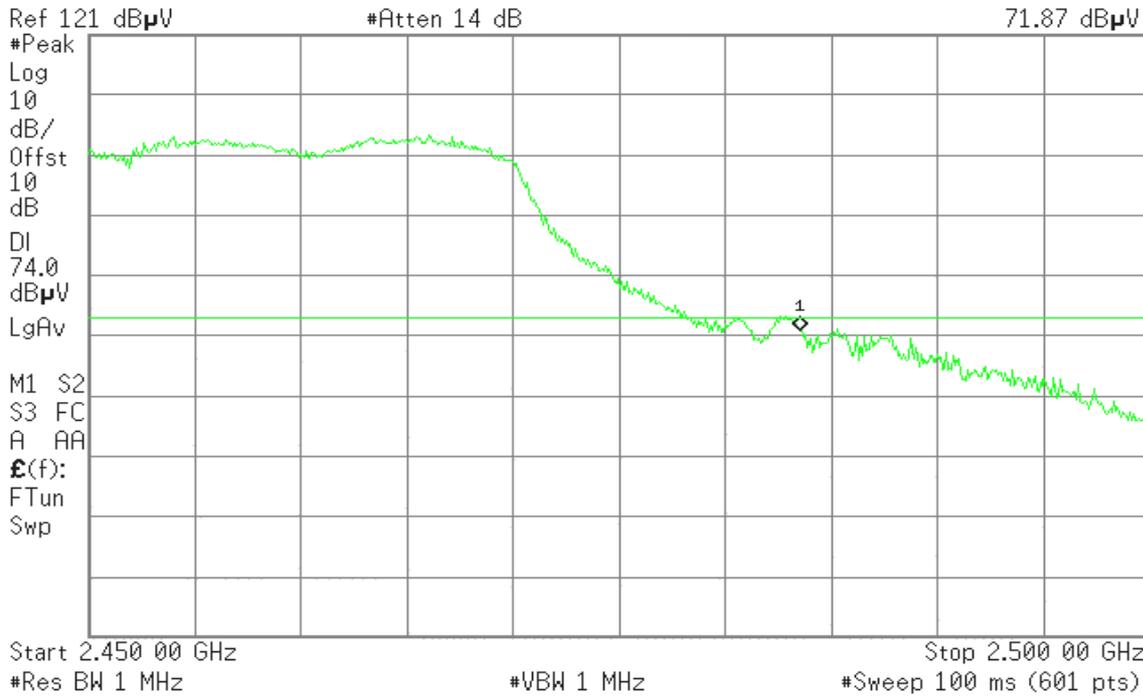
Detector mode: Peak

Polarity: Horizontal

Agilent 17:04:21 Jul 3, 2007

R T

Mkr1 2.483 50 GHz
71.87 dBμV



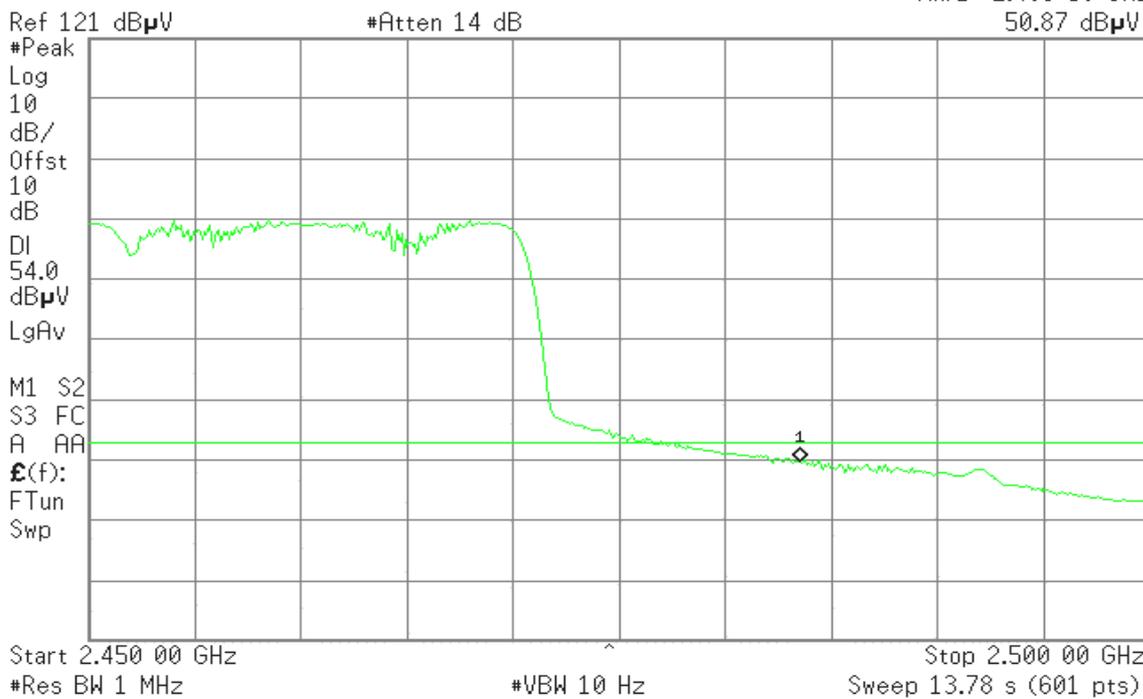
Detector mode: Average

Polarity: Horizontal

Agilent 17:05:17 Jul 3, 2007

R T

Mkr1 2.483 50 GHz
50.87 dBμV

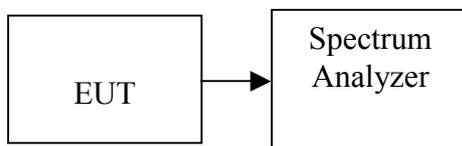


7.5 PEAK POWER SPECTRAL DENSITY

LIMIT

1. According to §15.247(e), 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.
2. According to §15.247(f), the digital modulation operation of the hybrid system, with the frequency hopping turned off, shall comply with the power density requirements of paragraph (d) of this section.

Test Configuration



TEST PROCEDURE

1. Place the EUT on the table and set it in transmitting mode.
Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer.
2. Set the spectrum analyzer as RBW = 3 kHz, VBW = 10 kHz, Span = 300 kHz, Sweep time = 100 s
3. Record the max reading.
4. Repeat the above procedure until the measurements for all frequencies are completed.

**TEST RESULTS***No non-compliance noted***Test Data****Test mode: IEEE 802.11b mode**

Channel	Frequency (MHz)	PPSD (dBm)	Limit (dBm)	Result
Low	2412	-9.37	8.00	PASS
Mid	2437	-9.40		PASS
High	2462	-7.67		PASS

Test mode: IEEE 802.11g mode

Channel	Frequency (MHz)	PPSD (dBm)	Limit (dBm)	Result
Low	2412	-11.39	8.00	PASS
Mid	2437	-8.36		PASS
High	2462	-11.09		PASS

Test mode: draft 802.11n Standard-20 MHz Channel mode

Channel	Frequency (MHz)	Chain 0 PPSD (dBm)	Chain 1 PPSD (dBm)	PPSD (dBm)	Limit (dBm)	Result
Low	2412	-13.74	-12.20	-9.89	8.00	PASS
Mid	2437	-11.11	-10.81	-7.95		PASS
High	2462	-12.32	-13.68	-9.94		PASS

Test mode: draft 802.11n Wide-40 MHz Channel mode

Channel	Frequency (MHz)	Chain 0 PPSD (dBm)	Chain 1 PPSD (dBm)	PPSD (dBm)	Limit (dBm)	Result
Low	2422	-17.65	-18.74	-15.15	8.00	PASS
Mid	2437	-12.79	-14.95	-10.73		PASS
High	2452	-17.08	-17.38	-14.22		PASS

Remark: Total PPSD (dBm) = $10 * \text{LOG}(10^{(\text{Chain 1 PPSD} / 10)} + 10^{(\text{Chain 0 PPSD} / 10)})$



Test mode: draft 802.11n Standard-20 MHz Channel mode with combiner

Channel	Frequency (MHz)	PPSD (dBm)	Limit (dBm)	Result
Low	2412	-8.33	8.00	PASS
Mid	2437	-6.87		PASS
High	2462	-7.23		PASS

Test mode: draft 802.11n Wide-40 MHz Channel mode with combiner

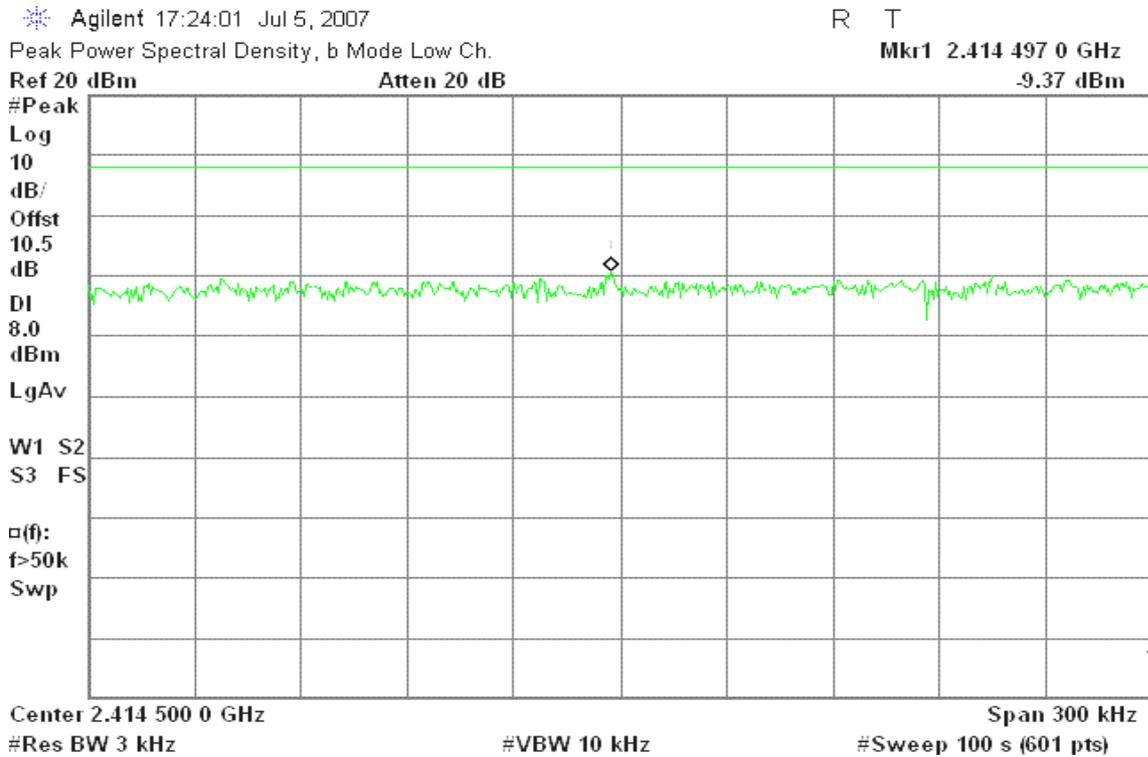
Channel	Frequency (MHz)	PPSD (dBm)	Limit (dBm)	Result
Low	2422	-12.10	8.00	PASS
Mid	2437	-10.06		PASS
High	2452	-12.47		PASS



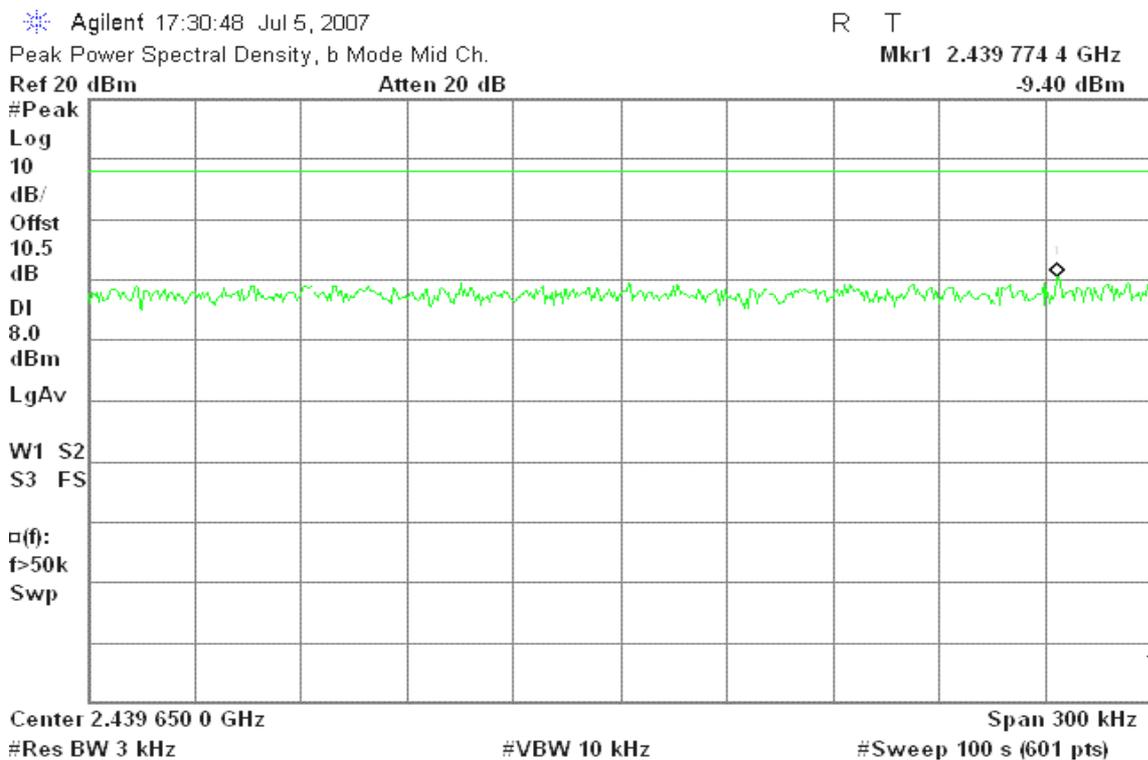
Test Plot

IEEE 802.11b mode

PPSD (CH Low)



PPSD (CH Mid)





PPSD (CH High)

Agilent 17:43:26 Jul 5, 2007

R T

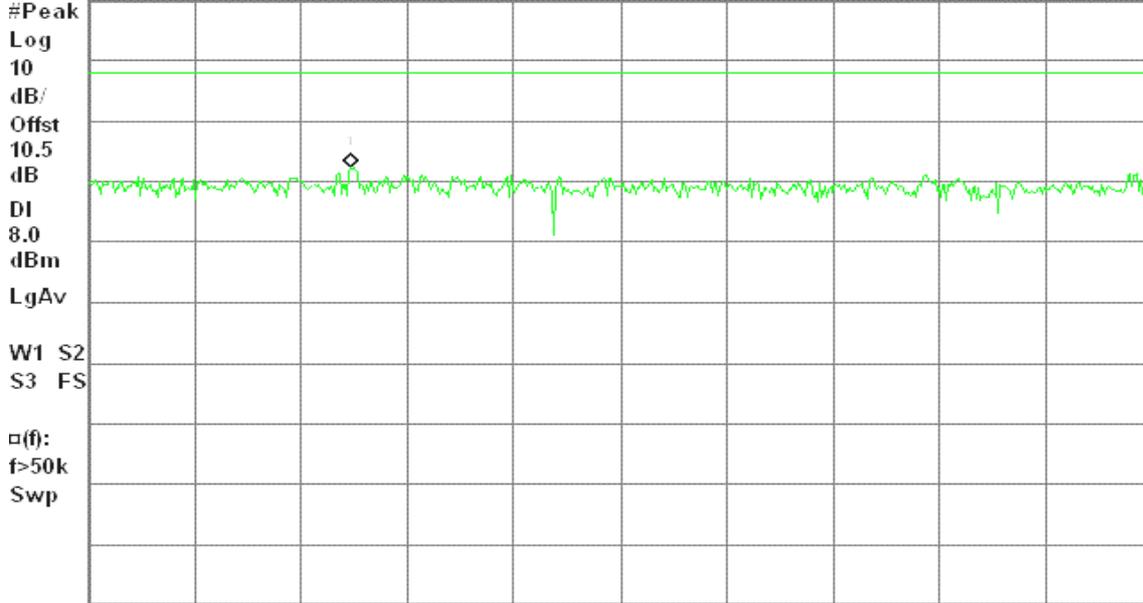
Peak Power Spectral Density, b Mode High Ch.

Mkr1 2.462 773 8 GHz

Ref 20 dBm

Atten 20 dB

-7.67 dBm



Center 2.462 850 0 GHz

Span 300 kHz

#Res BW 3 kHz

#VBW 10 kHz

#Sweep 100 s (601 pts)

IEEE 802.11g mode

PPSD (CH Low)

Agilent 16:42:37 Jul 5, 2007

R T

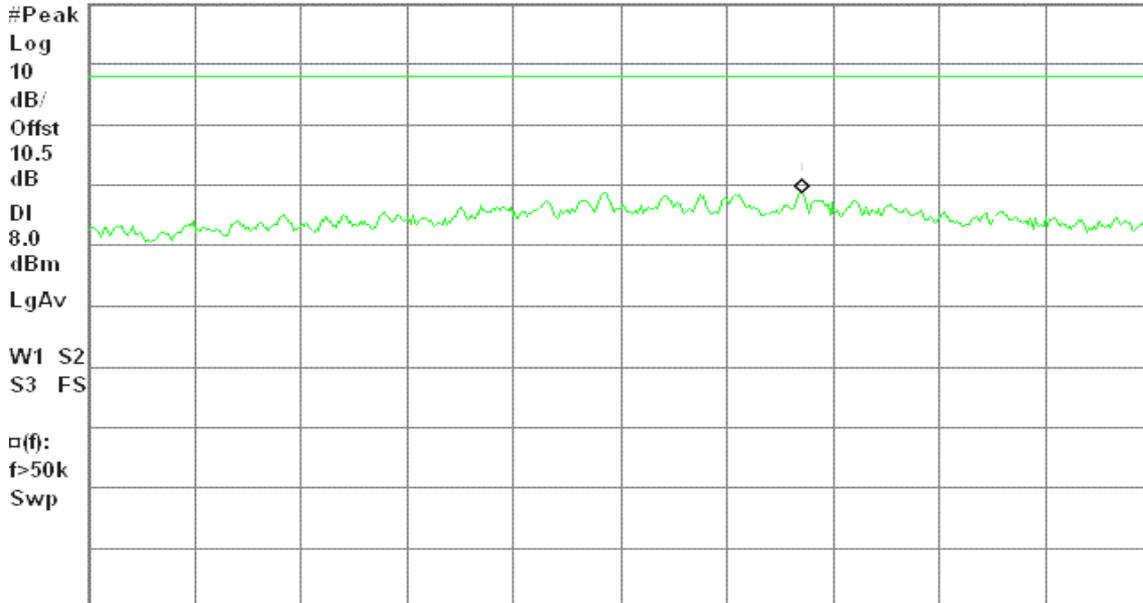
Peak Power Spectral Density, g Mode Low Ch.

Mkr1 2.412 651 1 GHz

Ref 20 dBm

Atten 20 dB

-11.39 dBm



Center 2.412 600 0 GHz

Span 300 kHz

#Res BW 3 kHz

#VBW 10 kHz

#Sweep 100 s (601 pts)



PPSD (CH Mid)

Agilent 16:51:27 Jul 5, 2007

R T

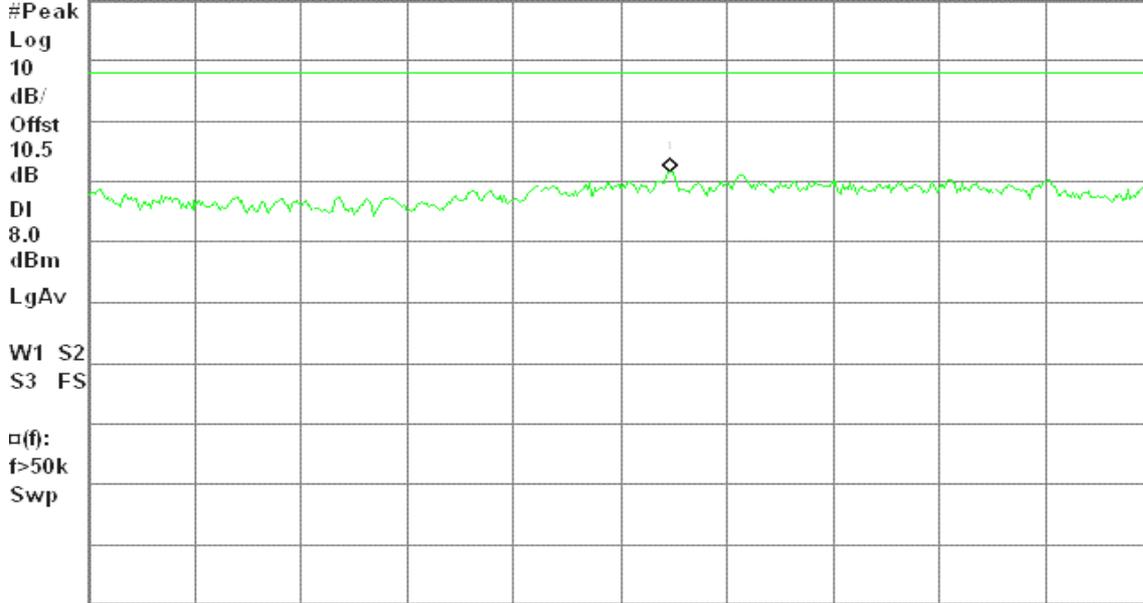
Peak Power Spectral Density, g Mode Mid Ch.

Mkr1 2.439 764 1 GHz

Ref 20 dBm

Atten 20 dB

-8.36 dBm



Center 2.439 750 0 GHz

Span 300 kHz

#Res BW 3 kHz

#VBW 10 kHz

#Sweep 100 s (601 pts)

PPSD (CH High)

Agilent 17:13:49 Jul 5, 2007

R T

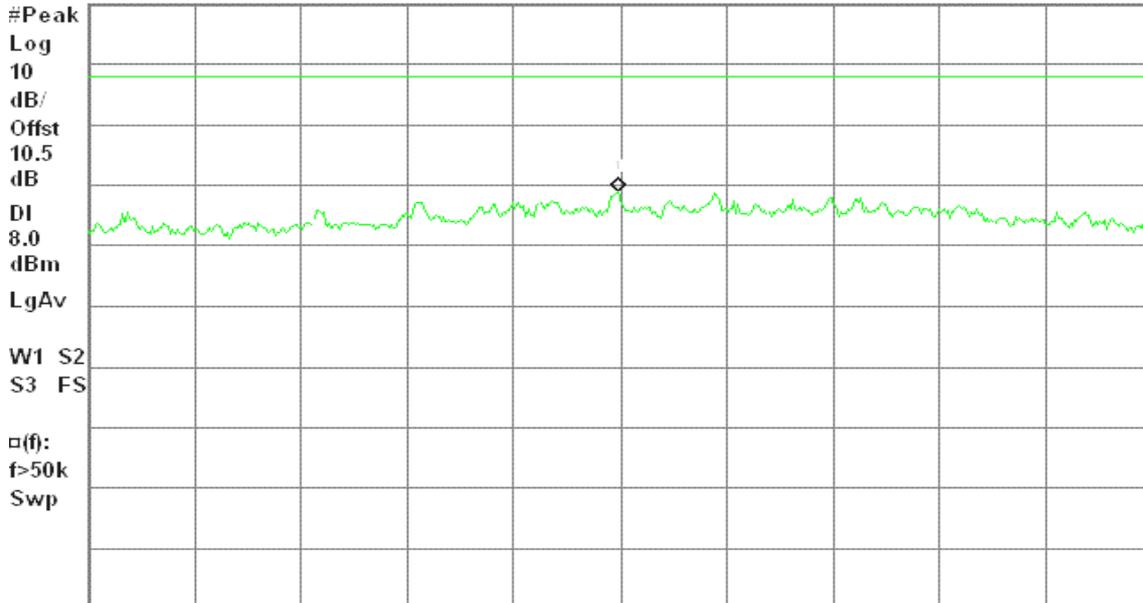
Peak Power Spectral Density, g Mode High Ch.

Mkr1 2.465 399 0 GHz

Ref 20 dBm

Atten 20 dB

-11.09 dBm



Center 2.465 400 0 GHz

Span 300 kHz

#Res BW 3 kHz

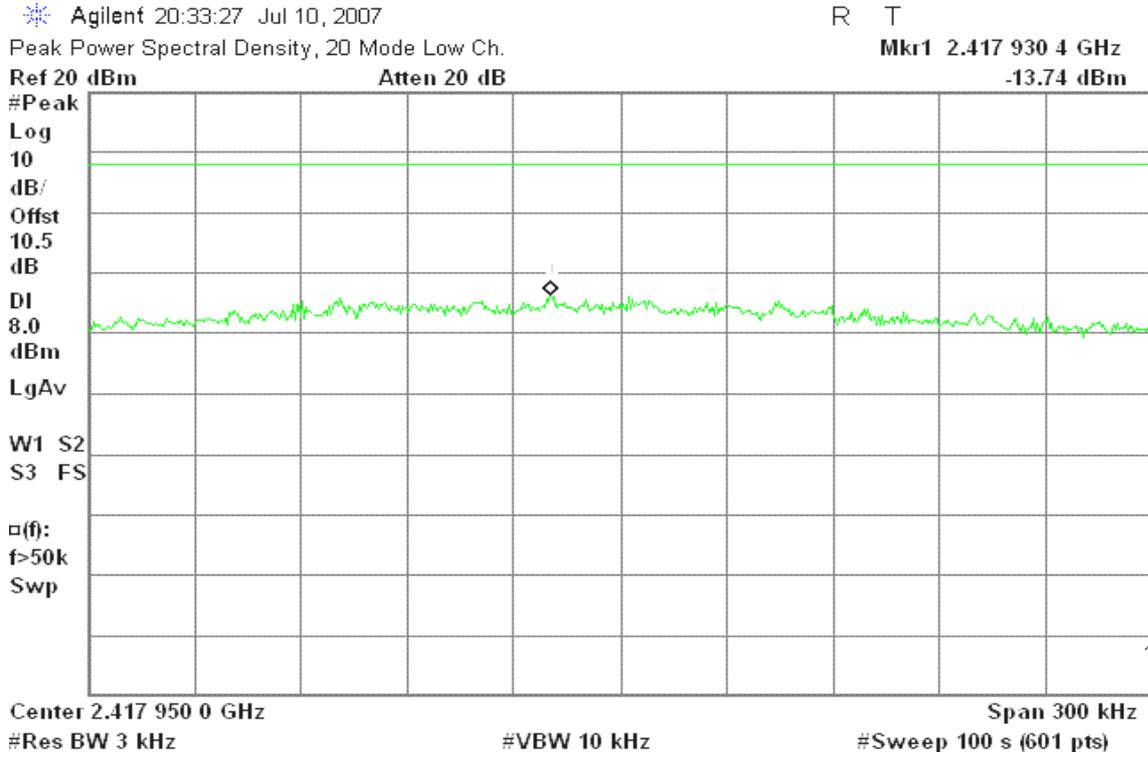
#VBW 10 kHz

#Sweep 100 s (601 pts)

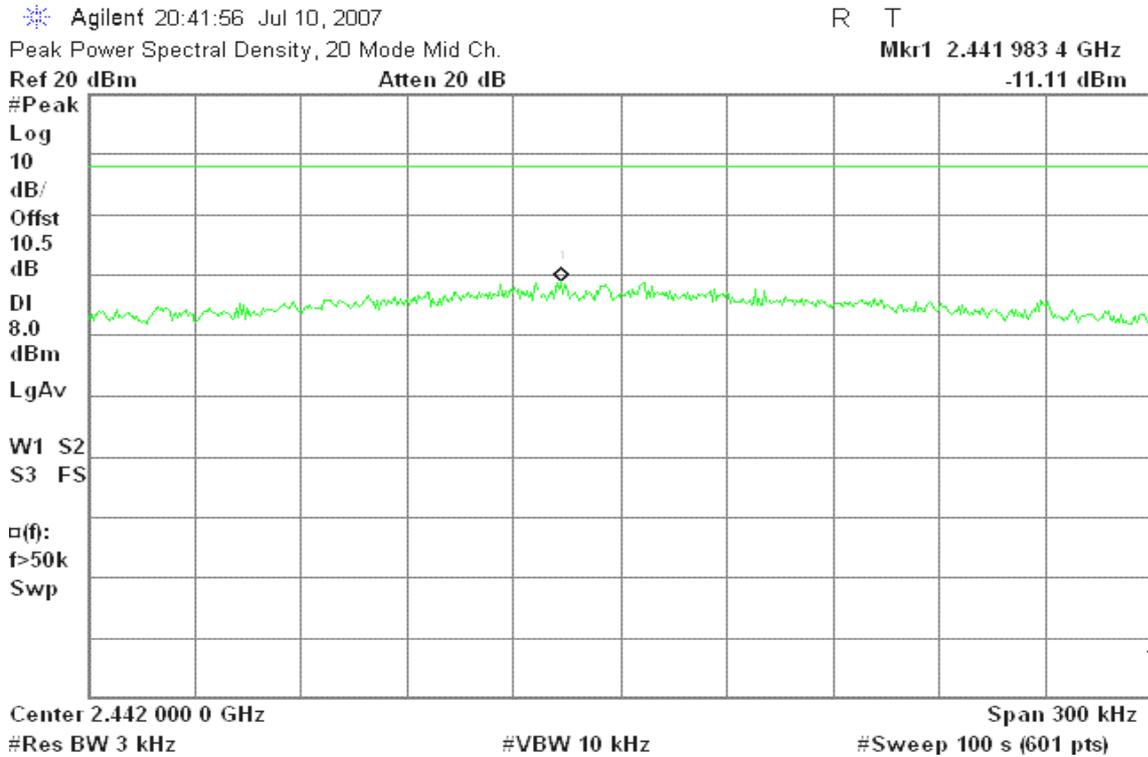


draft 802.11n Standard-20 MHz Channel mode / Chain 0

PPSD (CH Low)



PPSD (CH Mid)





PPSD (CH High)

Agilent 20:49:05 Jul 10, 2007

R T

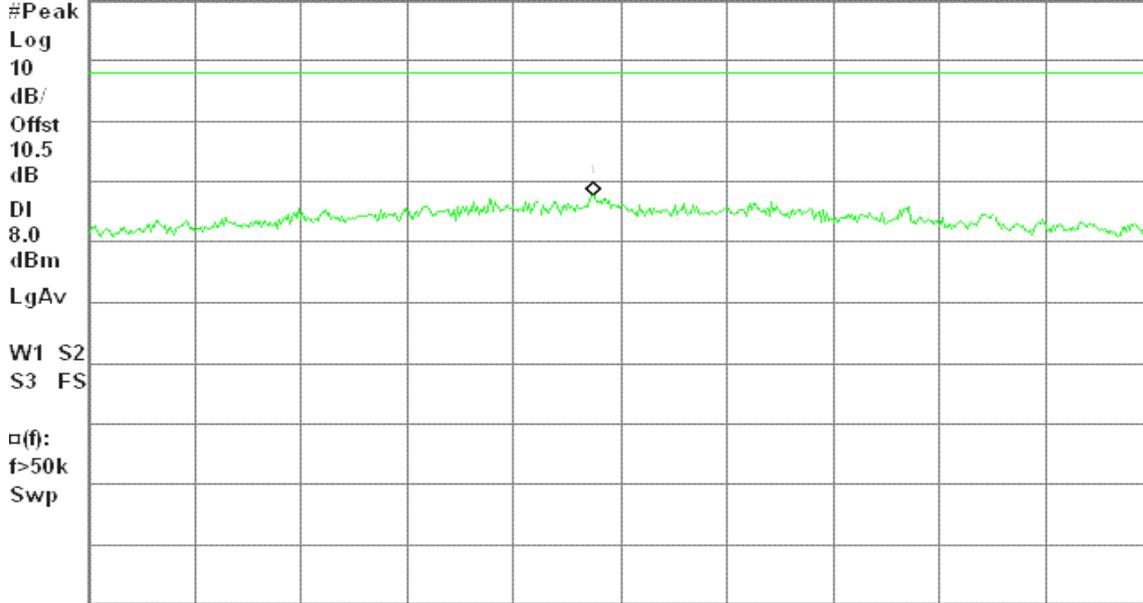
Peak Power Spectral Density, 20 Mode High Ch

Mkr1 2.460 742 0 GHz

Ref 20 dBm

Atten 20 dB

-12.32 dBm



Center 2.460 750 0 GHz

Span 300 kHz

#Res BW 3 kHz

#VBW 10 kHz

#Sweep 100 s (601 pts)

draft 802.11n Standard-20 MHz Channel mode / Chain 1

PPSD (CH Low)

Agilent 21:00:32 Jul 10, 2007

R T

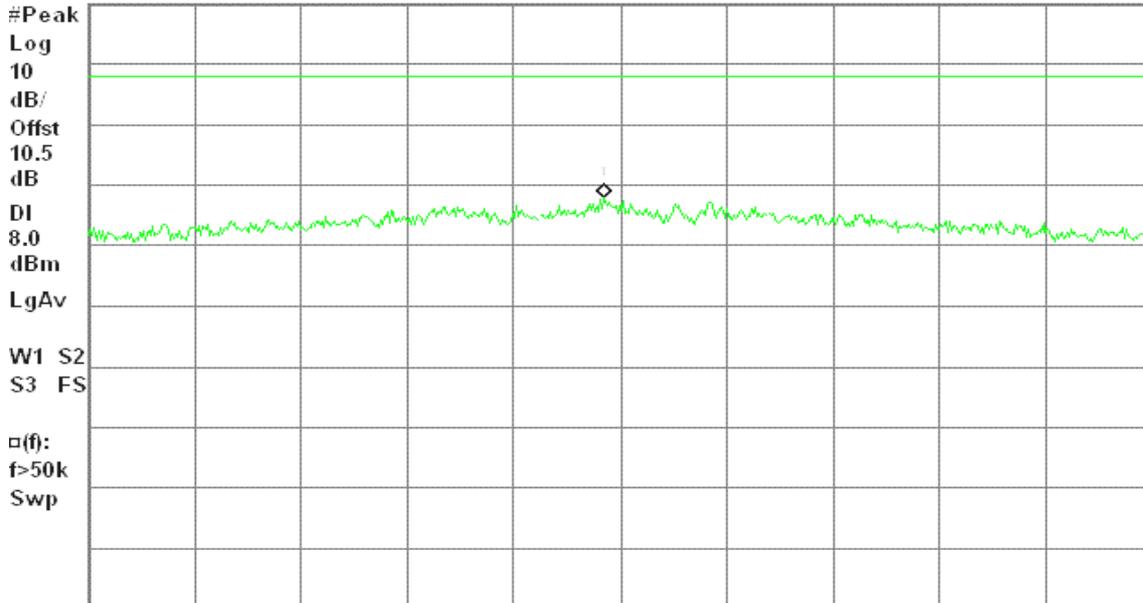
Peak Power Spectral Density, 20 Mode Low Ch.

Mkr1 2.414 495 0 GHz

Ref 20 dBm

Atten 20 dB

-12.20 dBm



Center 2.414 500 0 GHz

Span 300 kHz

#Res BW 3 kHz

#VBW 10 kHz

#Sweep 100 s (601 pts)



PPSD (CH Mid)

Agilent 21:07:08 Jul 10, 2007

R T

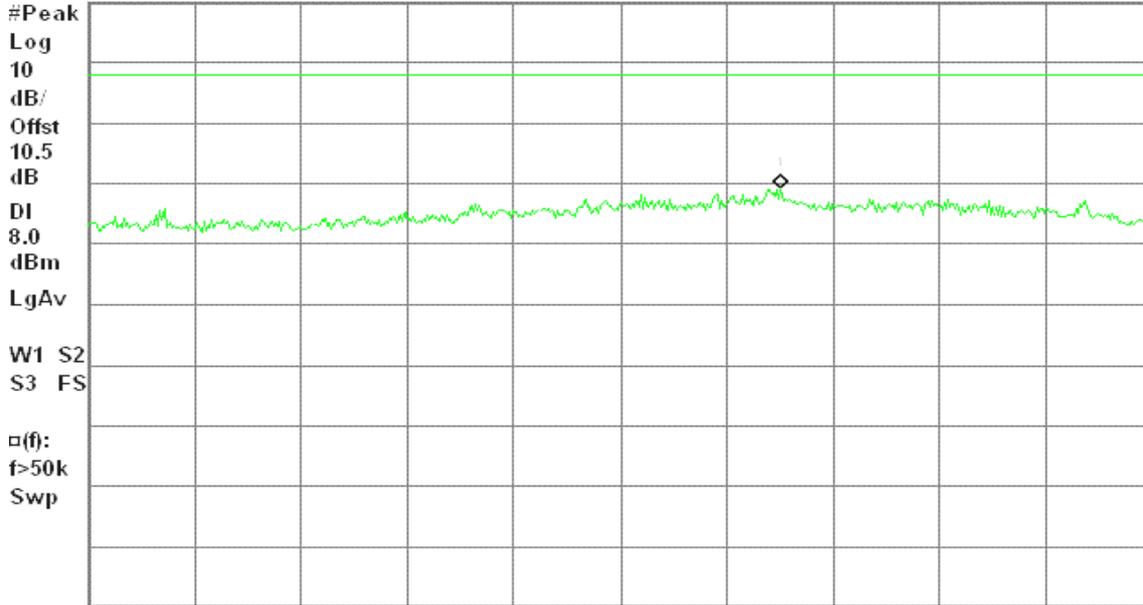
Peak Power Spectral Density, 20 Mode Mid Ch.

Mkr1 2.435 745 1 GHz

Ref 20 dBm

Atten 20 dB

-10.81 dBm



Center 2.435 700 0 GHz

Span 300 kHz

#Res BW 3 kHz

#VBW 10 kHz

#Sweep 100 s (601 pts)

PPSD (CH High)

Agilent 21:14:27 Jul 10, 2007

R T

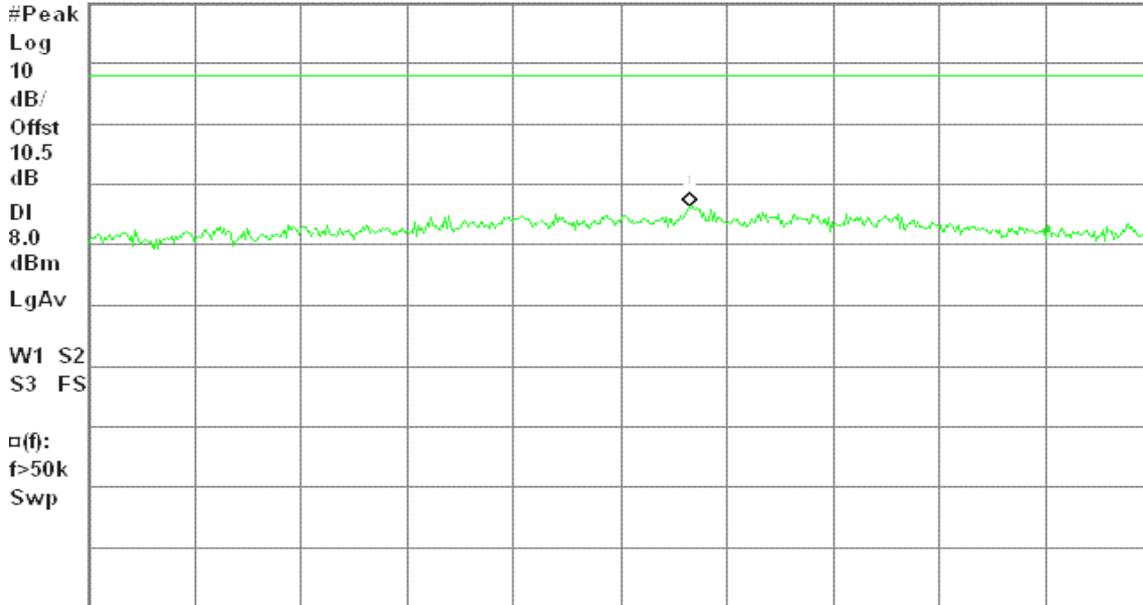
Peak Power Spectral Density, 20 Mode High Ch

Mkr1 2.461 369 6 GHz

Ref 20 dBm

Atten 20 dB

-13.68 dBm



Center 2.461 350 0 GHz

Span 300 kHz

#Res BW 3 kHz

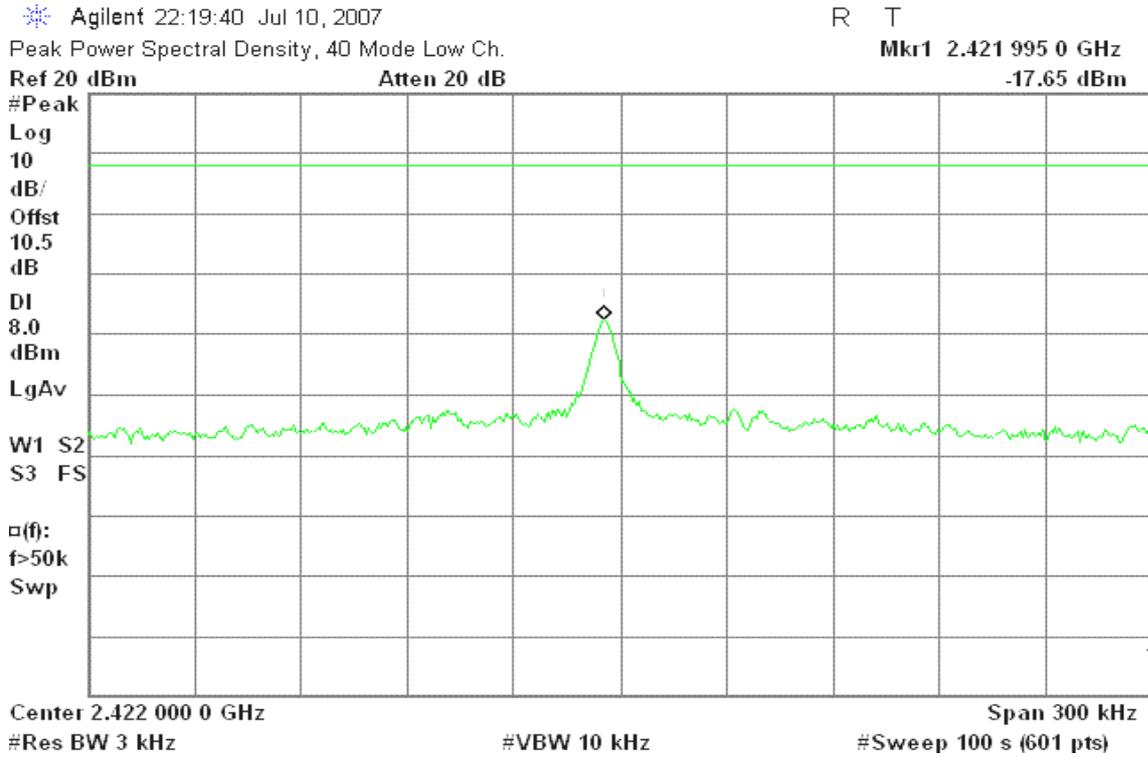
#VBW 10 kHz

#Sweep 100 s (601 pts)

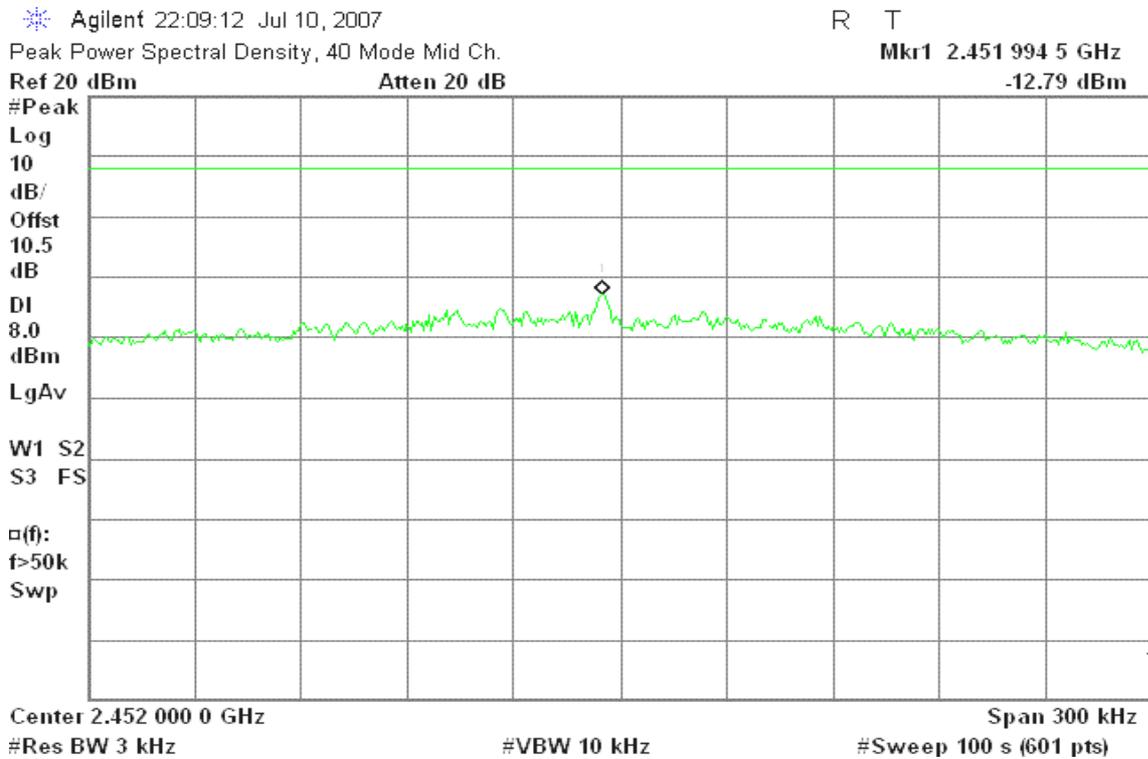


draft 802.11n Wide-40 MHz Channel mode Chain 0

PPSD (CH Low)



PPSD (CH Mid)





PPSD (CH High)

Agilent 21:55:23 Jul 10, 2007

R T

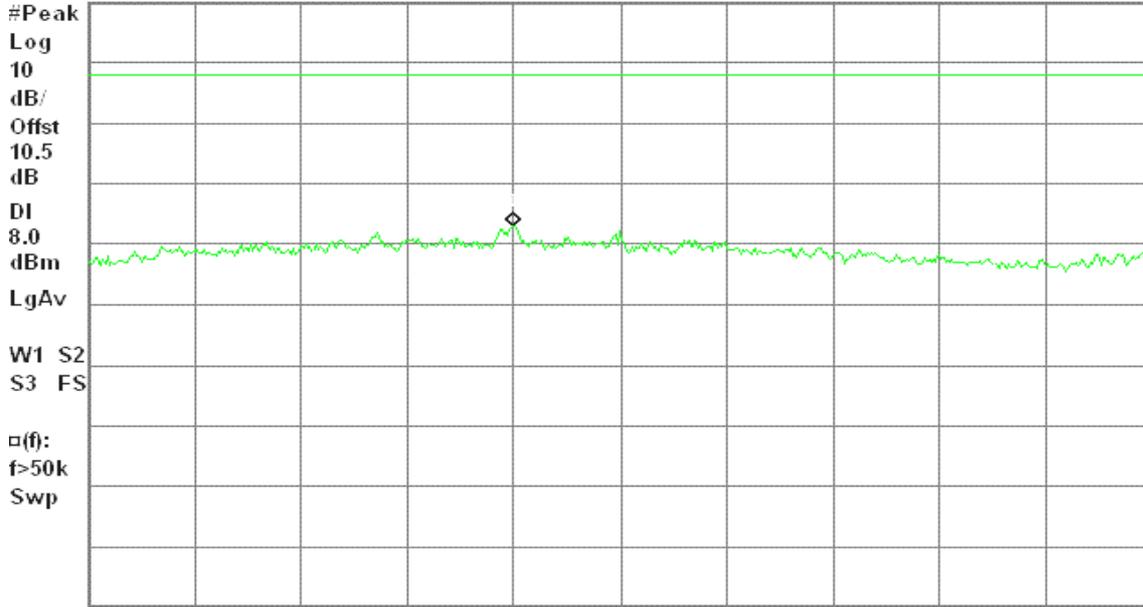
Peak Power Spectral Density, 40 Mode High Ch

Mkr1 2.445 119 9 GHz

Ref 20 dBm

Atten 20 dB

-17.08 dBm



Center 2.445 150 0 GHz

Span 300 kHz

#Res BW 3 kHz

#VBW 10 kHz

#Sweep 100 s (601 pts)

draft 802.11n Wide-40 MHz Channel mode Chain 1

PPSD (CH Low)

Agilent 21:25:19 Jul 10, 2007

R T

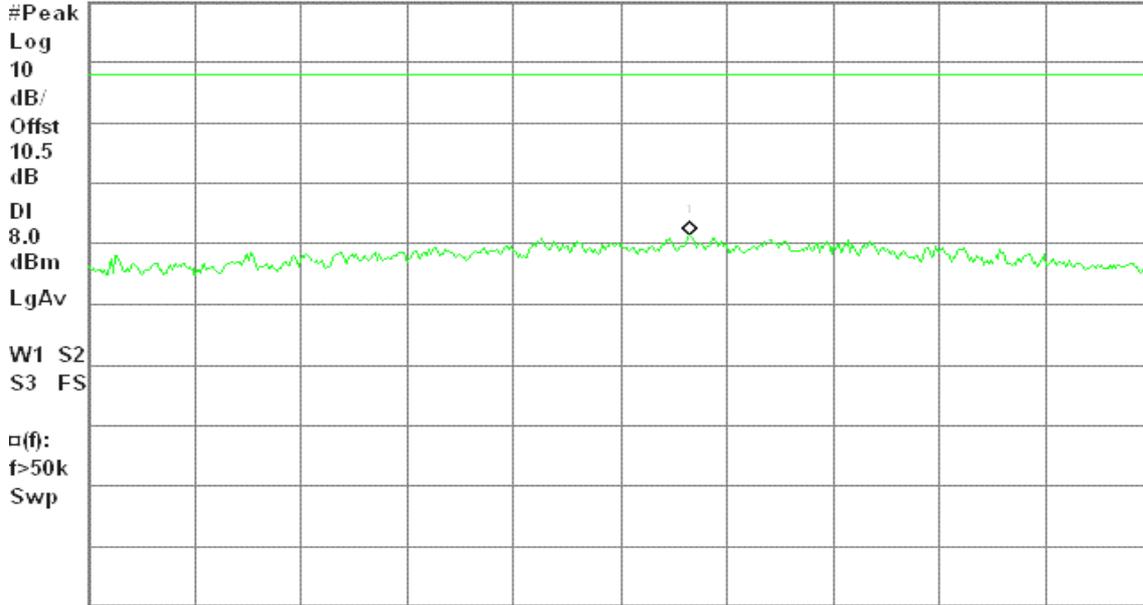
Peak Power Spectral Density, 40 Mode Low Ch.

Mkr1 2.425 119 6 GHz

Ref 20 dBm

Atten 20 dB

-18.74 dBm



Center 2.425 100 0 GHz

Span 300 kHz

#Res BW 3 kHz

#VBW 10 kHz

#Sweep 100 s (601 pts)



PPSD (CH Mid)

Agilent 21:33:04 Jul 10, 2007

R T

Peak Power Spectral Density, 40 Mode Mid Ch.

Mkr1 2.443 494 5 GHz

Ref 20 dBm

Atten 20 dB

-14.95 dBm

#Peak

Log

10

dB/

Offst

10.5

dB

DI

8.0

dBm

LgAv

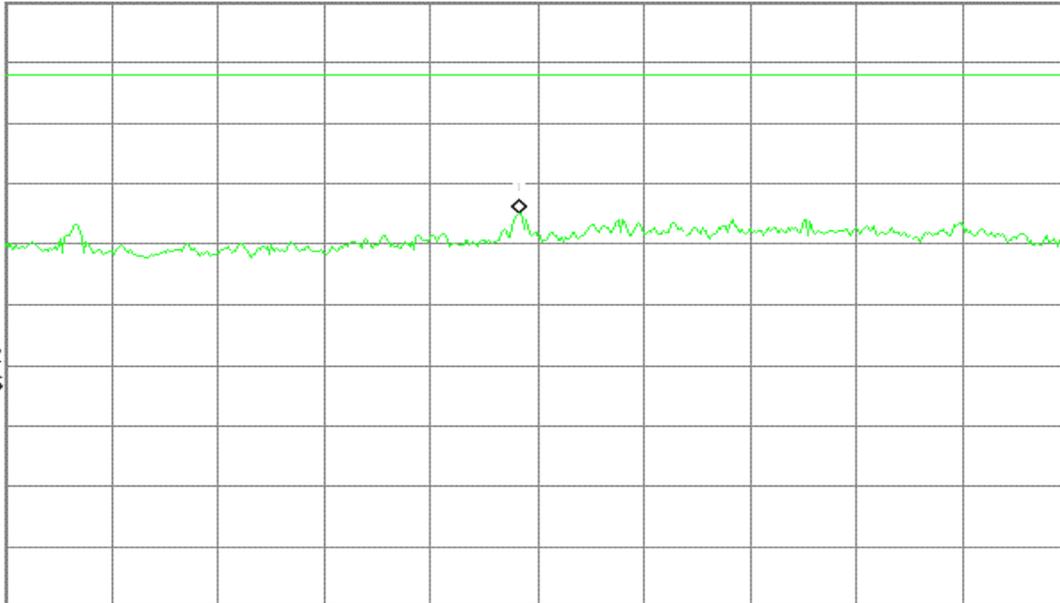
W1 S2

S3 FS

□(f):

f>50k

Swp



Center 2.443 500 0 GHz

Span 300 kHz

#Res BW 3 kHz

#VBW 10 kHz

#Sweep 100 s (601 pts)

PPSD (CH High)

Agilent 21:41:29 Jul 10, 2007

R T

Peak Power Spectral Density, 40 Mode High Ch

Mkr1 2.445 119 6 GHz

Ref 20 dBm

Atten 20 dB

-17.38 dBm

#Peak

Log

10

dB/

Offst

10.5

dB

DI

8.0

dBm

LgAv

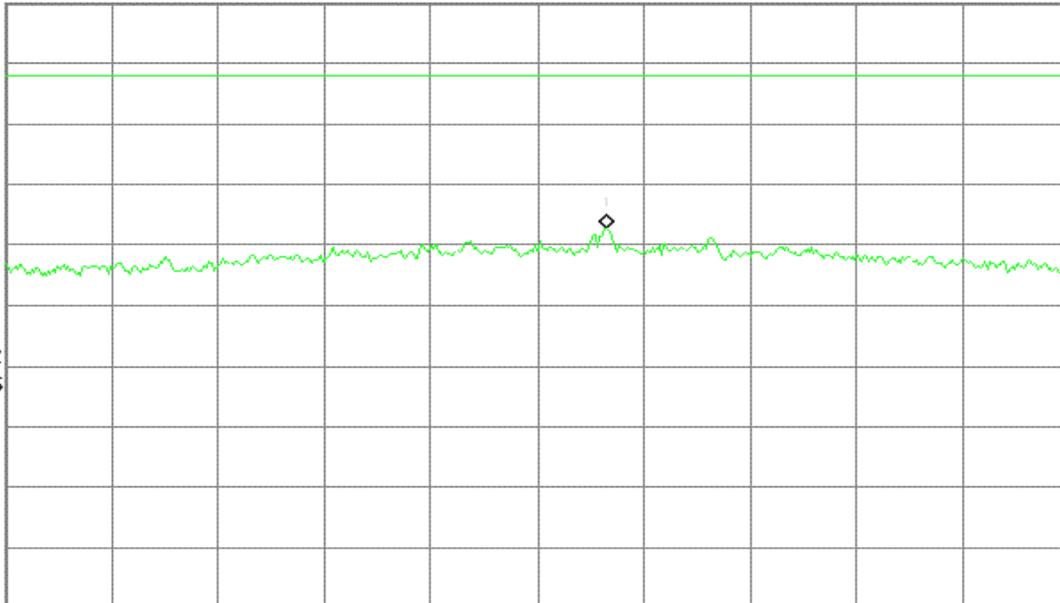
W1 S2

S3 FS

□(f):

f>50k

Swp



Center 2.445 100 0 GHz

Span 300 kHz

#Res BW 3 kHz

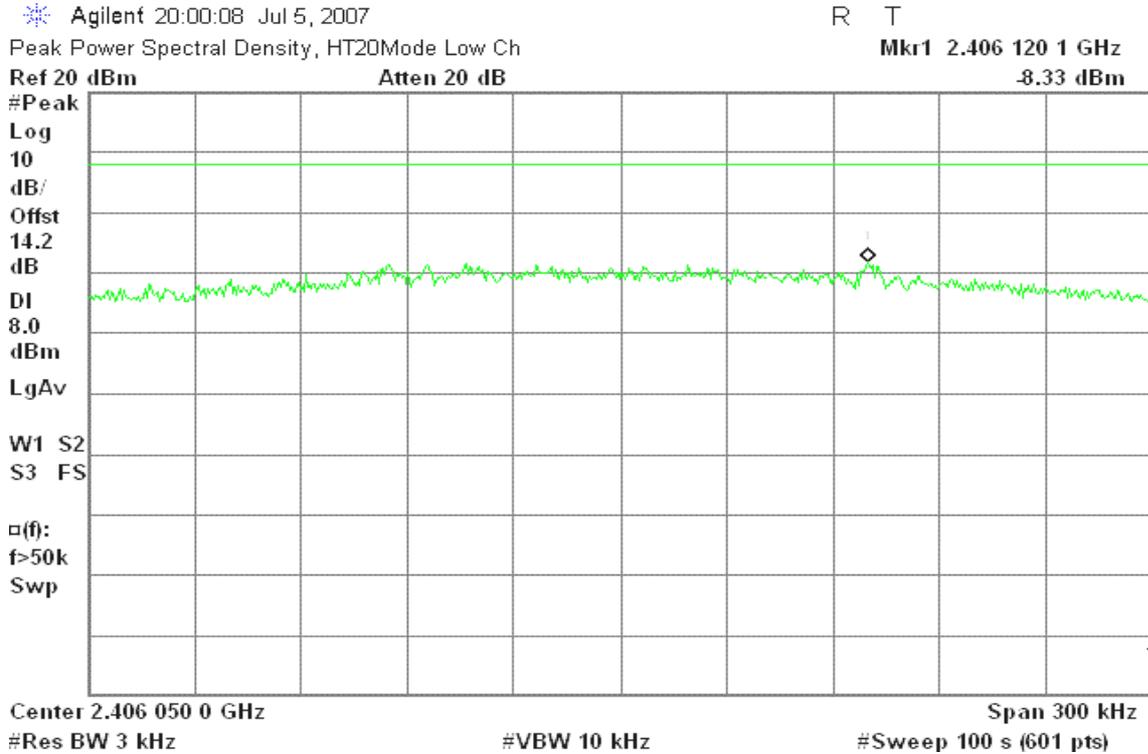
#VBW 10 kHz

#Sweep 100 s (601 pts)

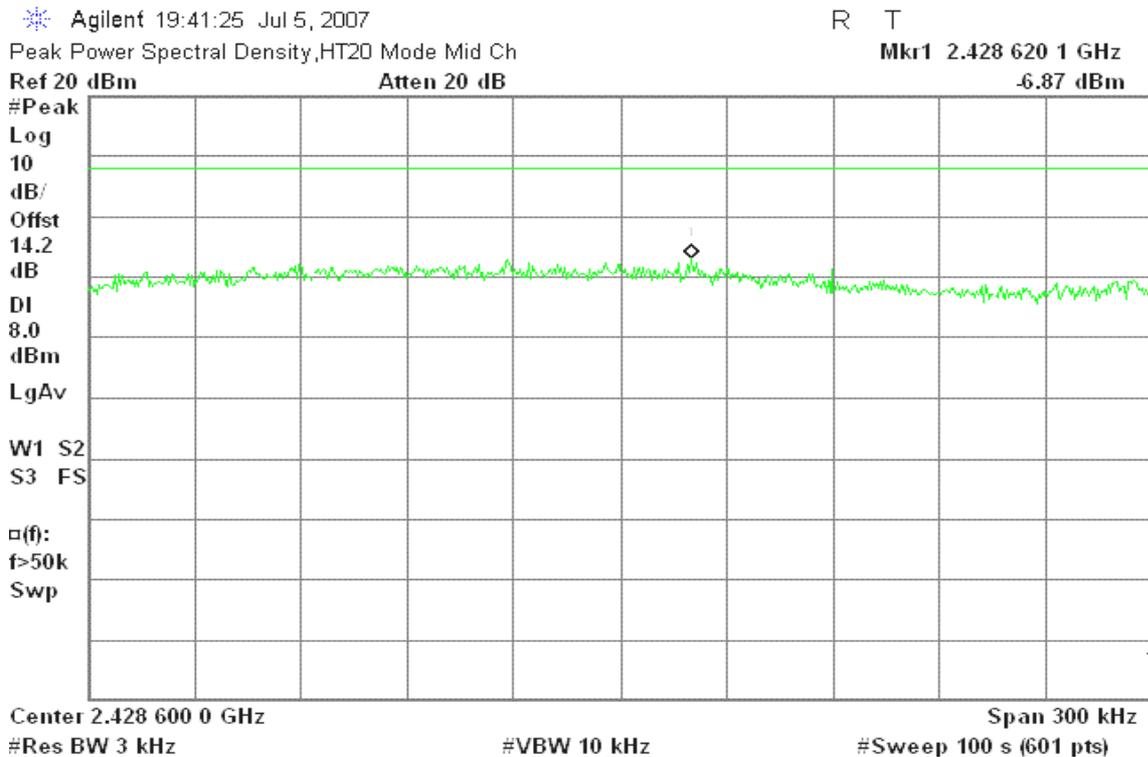


draft 802.11n Standard-20 MHz Channel mode with combiner

PPSD (CH Low)

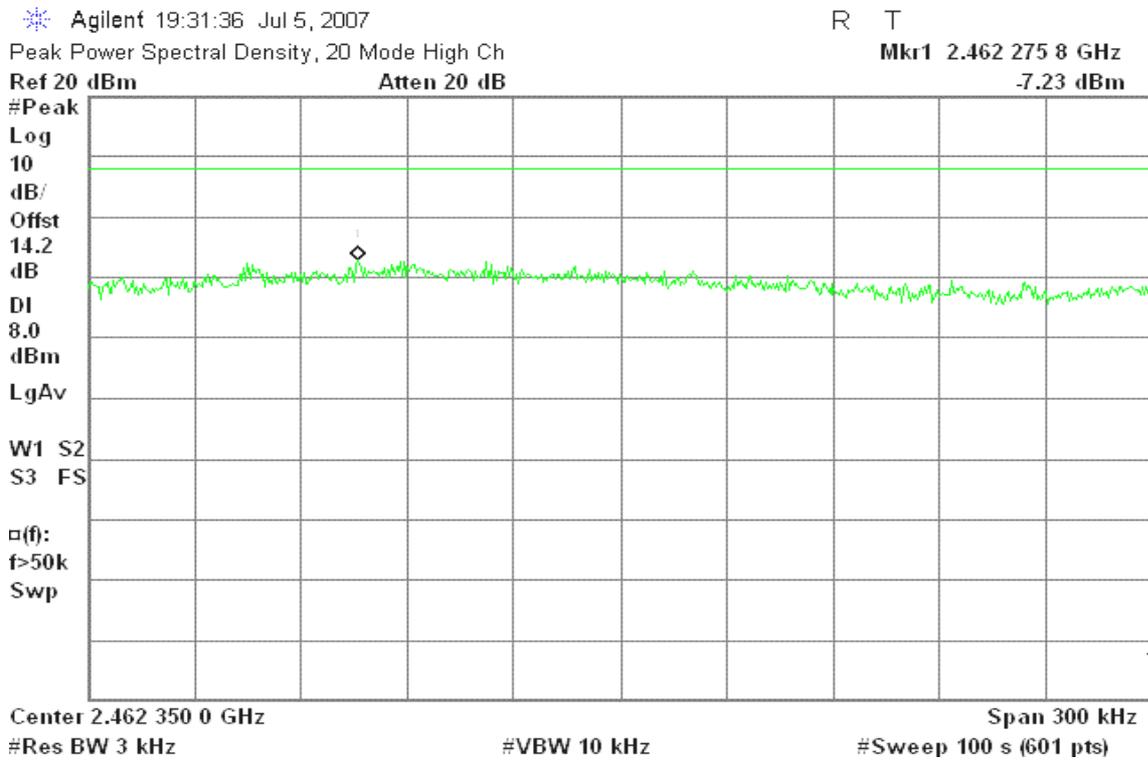


PPSD (CH Mid)



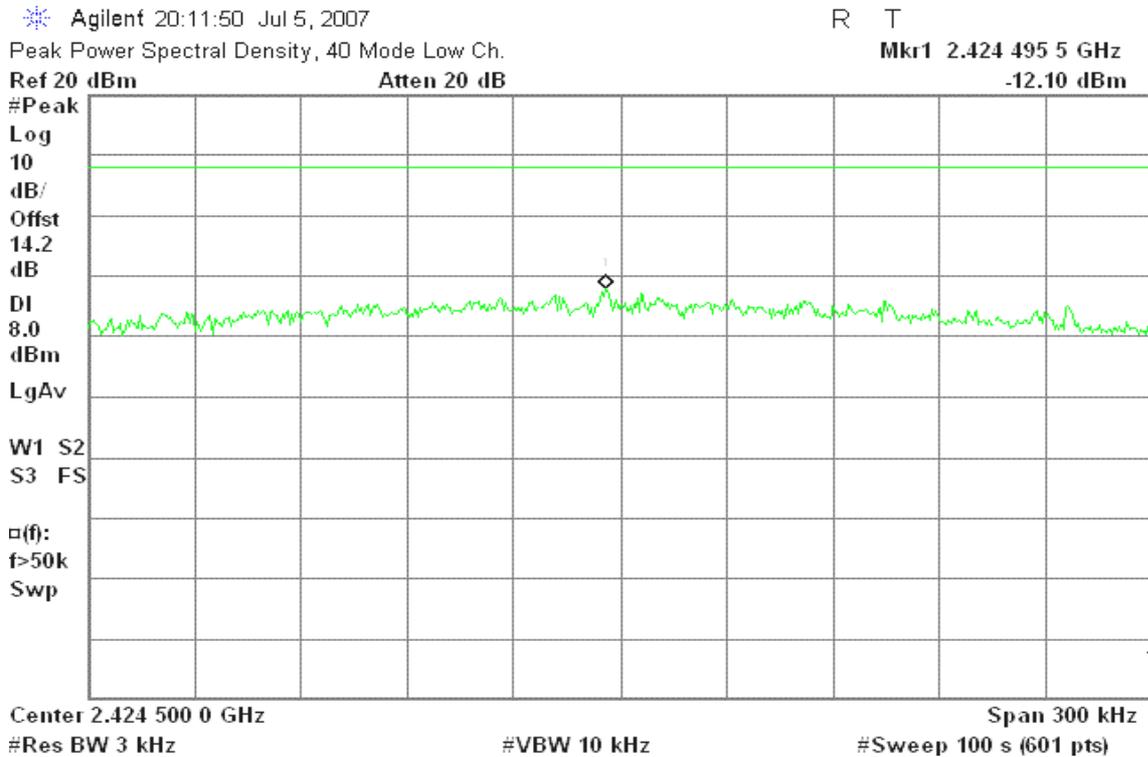


PPSD (CH High)



draft 802.11n Wide-40 MHz Channel mode with combiner

PPSD (CH Low)





PPSD (CH Mid)

Agilent 20:18:43 Jul 5, 2007

R T

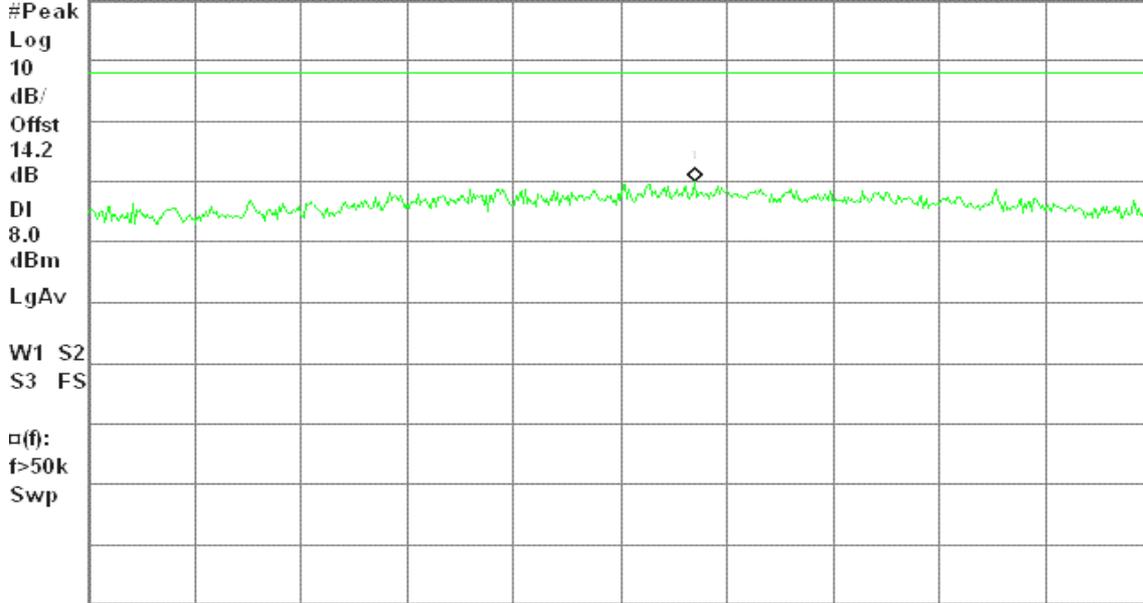
Peak Power Spectral Density, 40 Mode Mid Ch.

Mkr1 2.450 121 1 GHz

Ref 20 dBm

Atten 20 dB

-10.06 dBm



Center 2.450 100 0 GHz

Span 300 kHz

#Res BW 3 kHz

#VBW 10 kHz

#Sweep 100 s (601 pts)

PPSD (CH High)

Agilent 20:28:11 Jul 5, 2007

R T

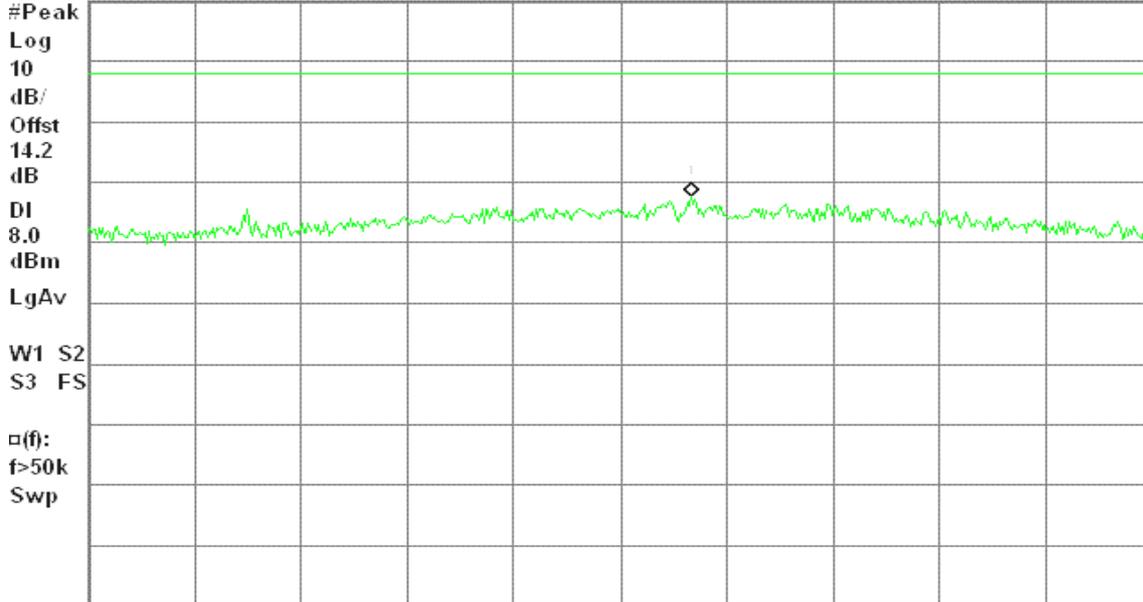
Peak Power Spectral Density, 40 Mode High Ch

Mkr1 2.463 870 1 GHz

Ref 20 dBm

Atten 20 dB

-12.47 dBm



Center 2.463 850 0 GHz

Span 300 kHz

#Res BW 3 kHz

#VBW 10 kHz

#Sweep 100 s (601 pts)

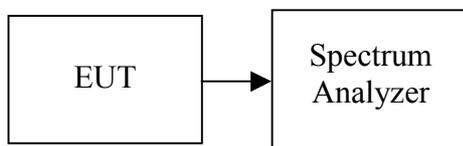
7.6 SPURIOUS EMISSIONS

7.6.1 Conducted Measurement

LIMIT

According to §15.247(d), in any 100 kHz bandwidth outside the frequency bands in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in 15.209(a) (see Section 15.205(c)).

Test Configuration



TEST PROCEDURE

Conducted RF measurements of the transmitter output were made to confirm that the EUT antenna port conducted emissions meet the specified limit and to identify any spurious signals that require further investigation or measurements on the radiated emissions site.

The transmitter output is connected to the spectrum analyzer. The resolution bandwidth is set to 100 kHz. The video bandwidth is set to 100 kHz.

Measurements are made over the 30MHz to 26GHz range with the transmitter set to the lowest, middle, and highest channels.

TEST RESULTS

No non-compliance noted



Test Plot

IEEE 802.11b mode

CH Low

Agilent 17:25:50 Jul 5, 2007

R T

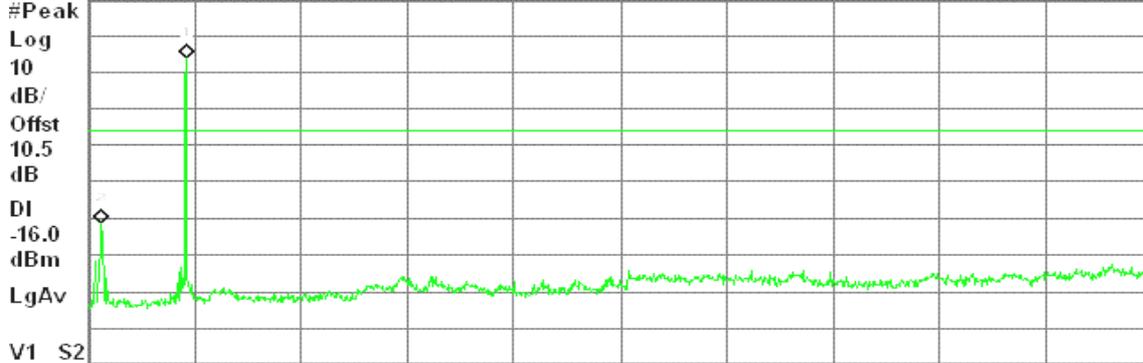
Spurious, b Mode Low Ch.

Mkr2 340 MHz

Ref 20 dBm

Atten 20 dB

-41.64 dBm



Center 13.02 GHz

Span 25.97 GHz

#Res BW 100 kHz

#VBW 100 kHz

Sweep 3.131 s (1001 pts)

Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	2.42 GHz	4.03 dBm
2	(1)	Freq	340 MHz	-41.64 dBm

CH Mid

Agilent 17:34:57 Jul 5, 2007

R T

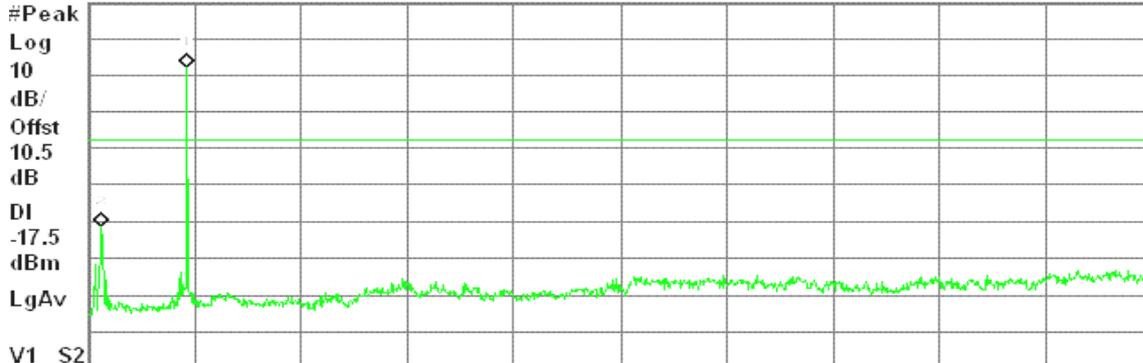
Spurious, b Mode Mid Ch.

Mkr2 340 MHz

Ref 20 dBm

Atten 20 dB

-41.60 dBm



Center 13.02 GHz

Span 25.97 GHz

#Res BW 100 kHz

#VBW 100 kHz

Sweep 3.131 s (1001 pts)

Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	2.46 GHz	2.46 dBm
2	(1)	Freq	340 MHz	-41.60 dBm



CH High

Agilent 17:45:40 Jul 5, 2007

R T

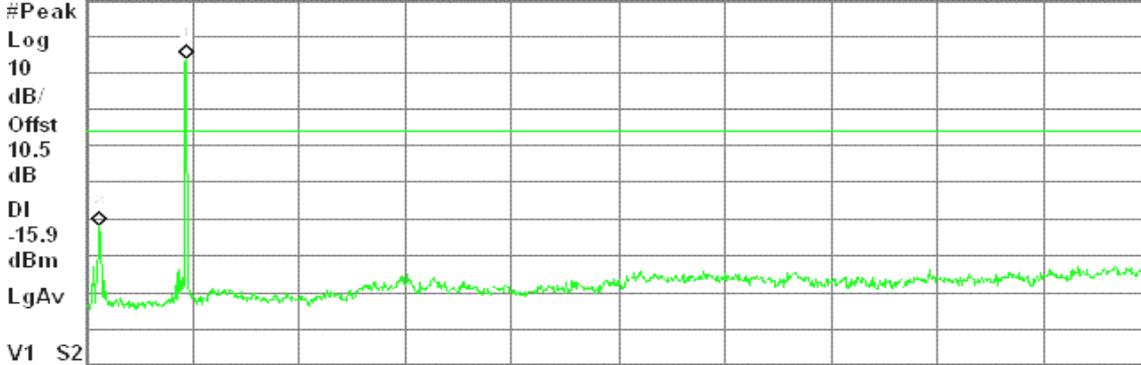
Spurious, b Mode High Ch.

Mkr2 340 MHz

Ref 20 dBm

Atten 20 dB

-42.11 dBm



Center 13.02 GHz

Span 25.97 GHz

#Res BW 100 kHz

#VBW 100 kHz

Sweep 3.131 s (1001 pts)

Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	2.47 GHz	4.09 dBm
2	(1)	Freq	340 MHz	-42.11 dBm

IEEE 802.11g mode

CH Low

Agilent 16:44:59 Jul 5, 2007

R T

Spurious, g Mode Low Ch.

Mkr2 340 MHz

Ref 20 dBm

Atten 20 dB

-41.54 dBm



Center 13.02 GHz

Span 25.97 GHz

#Res BW 100 kHz

#VBW 100 kHz

Sweep 3.131 s (1001 pts)

Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	2.42 GHz	-2.09 dBm
2	(1)	Freq	340 MHz	-41.54 dBm



CH Mid

Agilent 16:57:46 Jul 5, 2007

R T

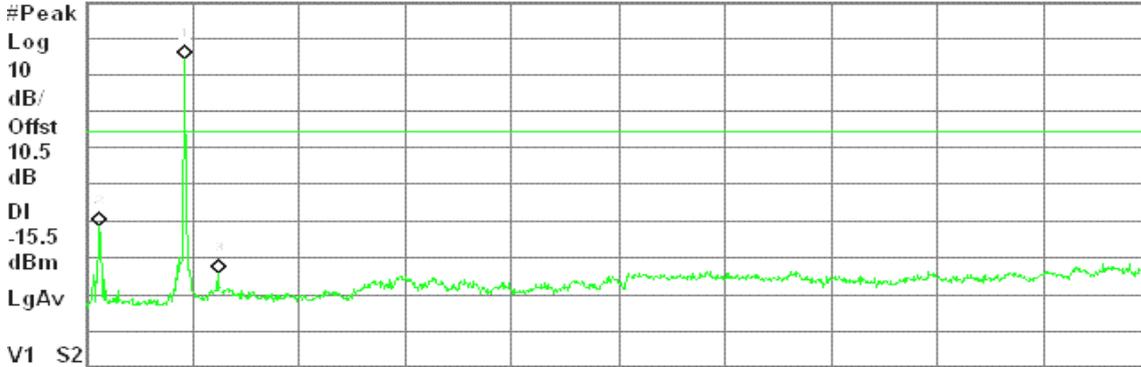
Spurious, g Mode Mid Ch.

Mkr3 3.25 GHz

Ref 20 dBm

Atten 20 dB

-54.41 dBm



Center 13.02 GHz

Span 25.97 GHz

#Res BW 100 kHz

#VBW 100 kHz

Sweep 3.131 s (1001 pts)

Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	2.46 GHz	4.46 dBm
2	(1)	Freq	340 MHz	-41.44 dBm
3	(1)	Freq	3.25 GHz	-54.41 dBm

CH High

Agilent 17:17:25 Jul 5, 2007

R T

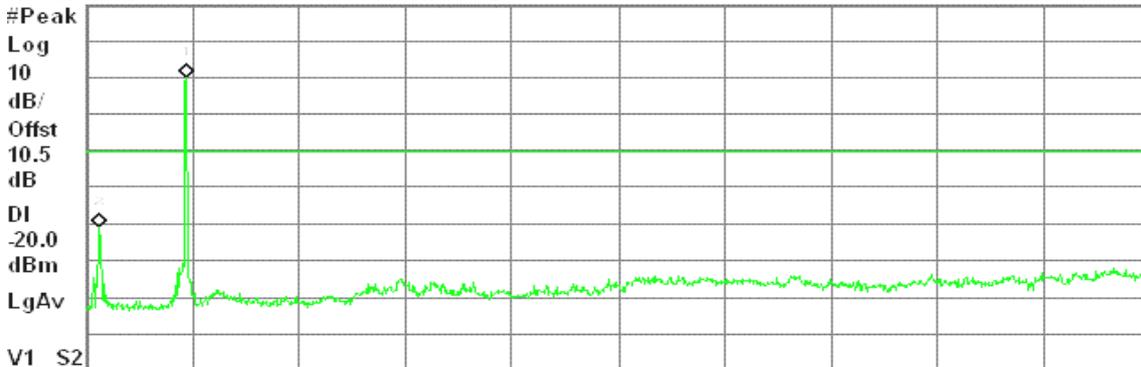
Spurious, g Mode High Ch.

Mkr2 340 MHz

Ref 20 dBm

Atten 20 dB

-41.15 dBm



Center 13.02 GHz

Span 25.97 GHz

#Res BW 100 kHz

#VBW 100 kHz

Sweep 3.131 s (1001 pts)

Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	2.47 GHz	-0.05 dBm
2	(1)	Freq	340 MHz	-41.15 dBm



draft 802.11n Standard-20 MHz Channel mode / Chain 0

CH Low

Agilent 20:35:38 Jul 10, 2007

R T

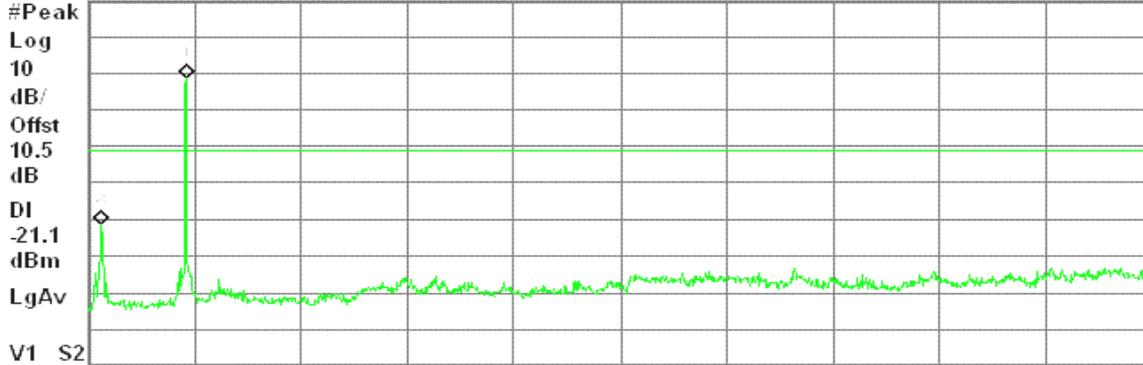
Spurious, 20 Mode Low Ch.

Mkr2 340 MHz

Ref 20 dBm

Atten 20 dB

-41.48 dBm



Center 13.02 GHz

Span 25.97 GHz

#Res BW 100 kHz

#VBW 100 kHz

Sweep 3.131 s (1001 pts)

Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	2.42 GHz	-1.14 dBm
2	(1)	Freq	340 MHz	-41.48 dBm

CH Mid

Agilent 20:43:56 Jul 10, 2007

R T

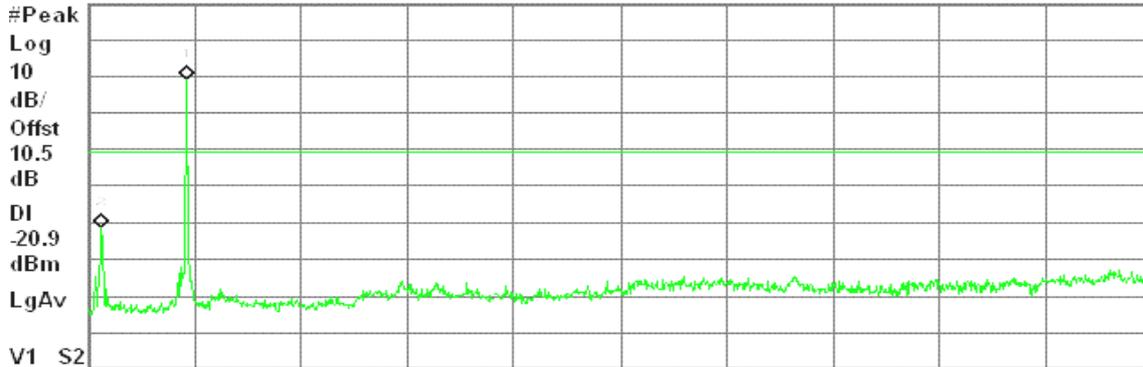
Spurious, 20 Mode Mid Ch.

Mkr2 340 MHz

Ref 20 dBm

Atten 20 dB

-41.47 dBm



Center 13.02 GHz

Span 25.97 GHz

#Res BW 100 kHz

#VBW 100 kHz

Sweep 3.131 s (1001 pts)

Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	2.45 GHz	-0.88 dBm
2	(1)	Freq	340 MHz	-41.47 dBm



CH High

Agilent 20:50:56 Jul 10, 2007

R T

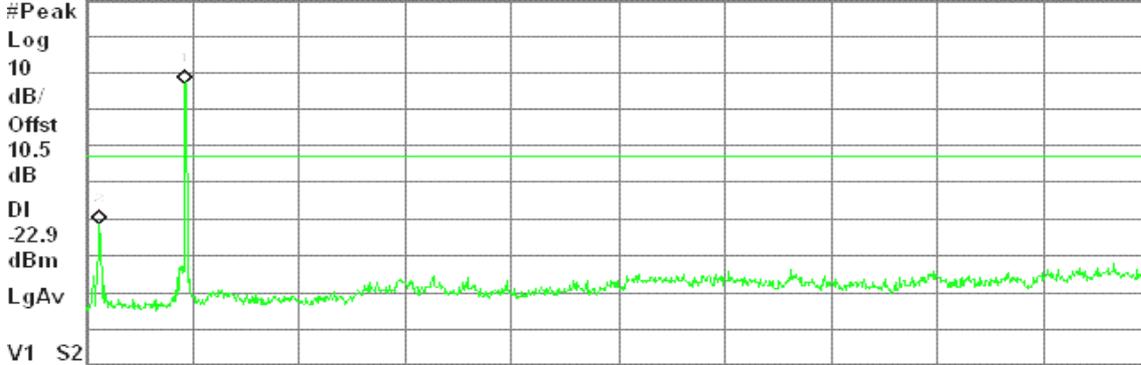
Spurious, 20 Mode High Ch.

Mkr2 340 MHz

Ref 20 dBm

Atten 20 dB

-41.46 dBm



Center 13.02 GHz

Span 25.97 GHz

#Res BW 100 kHz

#VBW 100 kHz

Sweep 3.131 s (1001 pts)

Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	2.46 GHz	-2.94 dBm
2	(1)	Freq	340 MHz	-41.46 dBm

draft 802.11n Standard-20 MHz Channel mode / Chain 1

CH Low

Agilent 21:02:16 Jul 10, 2007

R T

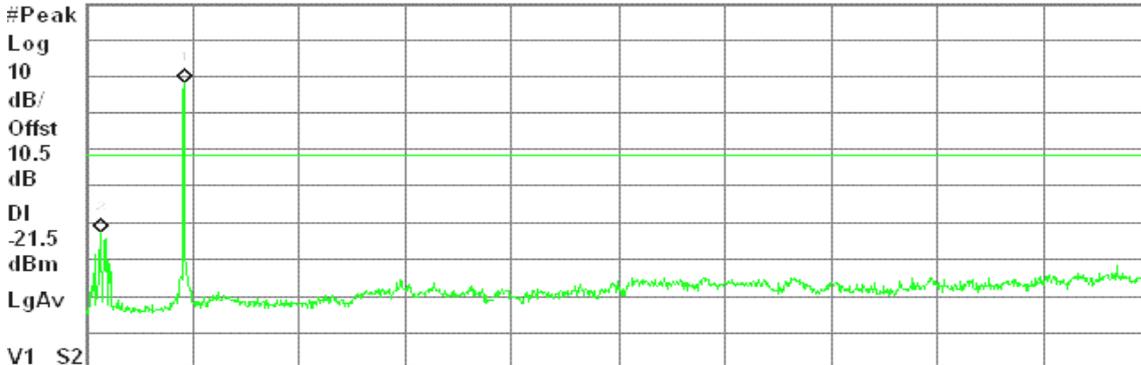
Spurious, 20 Mode Low Ch.

Mkr2 370 MHz

Ref 20 dBm

Atten 20 dB

-42.56 dBm



Center 13.02 GHz

Span 25.97 GHz

#Res BW 100 kHz

#VBW 100 kHz

Sweep 3.131 s (1001 pts)

Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	2.42 GHz	-1.49 dBm
2	(1)	Freq	370 MHz	-42.56 dBm



CH Mid

Agilent 21:08:33 Jul 10, 2007

R T

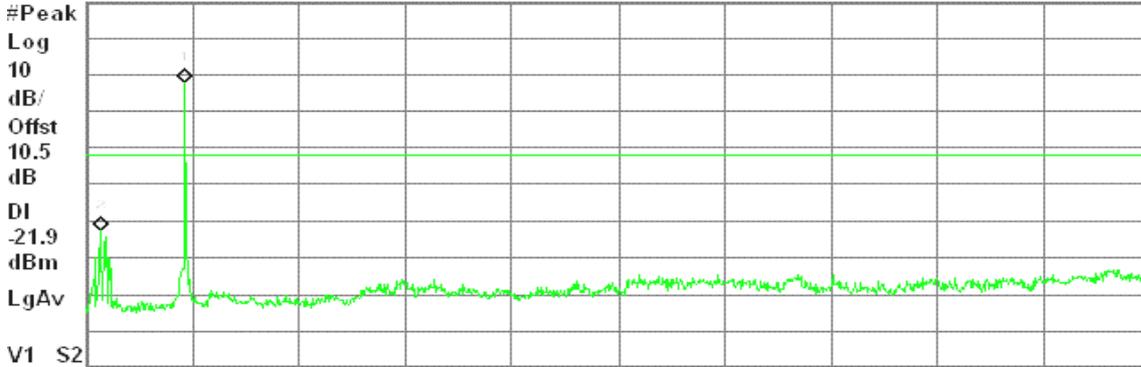
Spurious, 20 Mode Mid Ch.

Mkr2 370 MHz

Ref 20 dBm

Atten 20 dB

-42.65 dBm



Center 13.02 GHz

Span 25.97 GHz

#Res BW 100 kHz

#VBW 100 kHz

Sweep 3.131 s (1001 pts)

Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	2.45 GHz	-1.86 dBm
2	(1)	Freq	370 MHz	-42.65 dBm

CH High

Agilent 21:16:33 Jul 10, 2007

R T

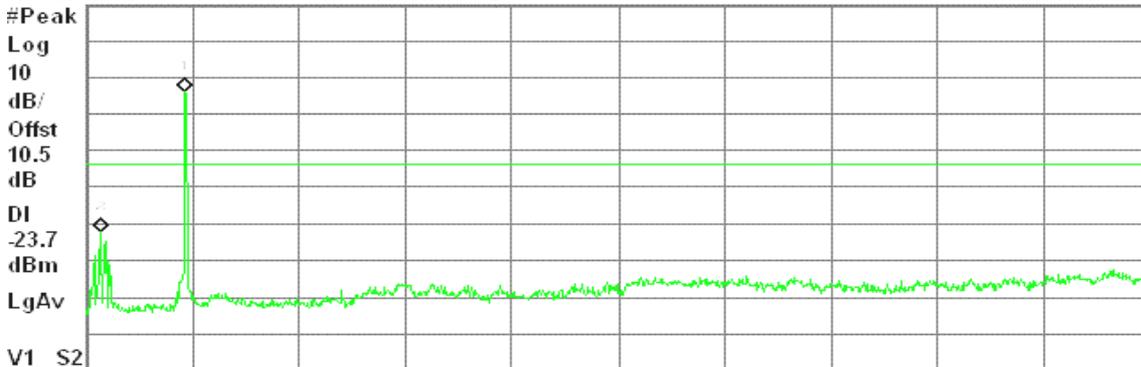
Spurious, 20 Mode High Ch.

Mkr2 370 MHz

Ref 20 dBm

Atten 20 dB

-42.30 dBm



Center 13.02 GHz

Span 25.97 GHz

#Res BW 100 kHz

#VBW 100 kHz

Sweep 3.131 s (1001 pts)

Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	2.45 GHz	-3.66 dBm
2	(1)	Freq	370 MHz	-42.30 dBm



draft 802.11n Wide-40 MHz Channel mode / Chain 0

CH Low

Agilent 22:23:14 Jul 10, 2007

R T

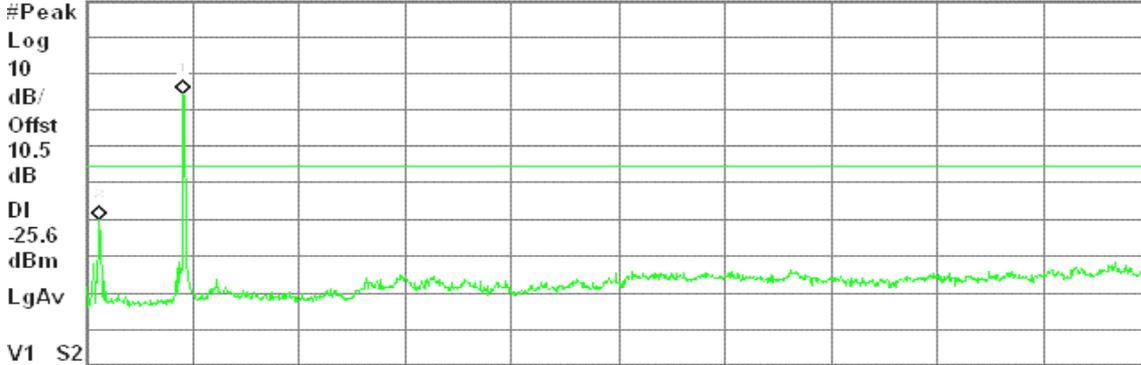
Spurious, 40 Mode Low Ch.

Mkr2 340 MHz

Ref 20 dBm

Atten 20 dB

-40.38 dBm



Center 13.02 GHz

Span 25.97 GHz

#Res BW 100 kHz

#VBW 100 kHz

Sweep 3.131 s (1001 pts)

Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	2.39 GHz	-5.65 dBm
2	(1)	Freq	340 MHz	-40.38 dBm

CH Mid

Agilent 22:12:36 Jul 10, 2007

R T

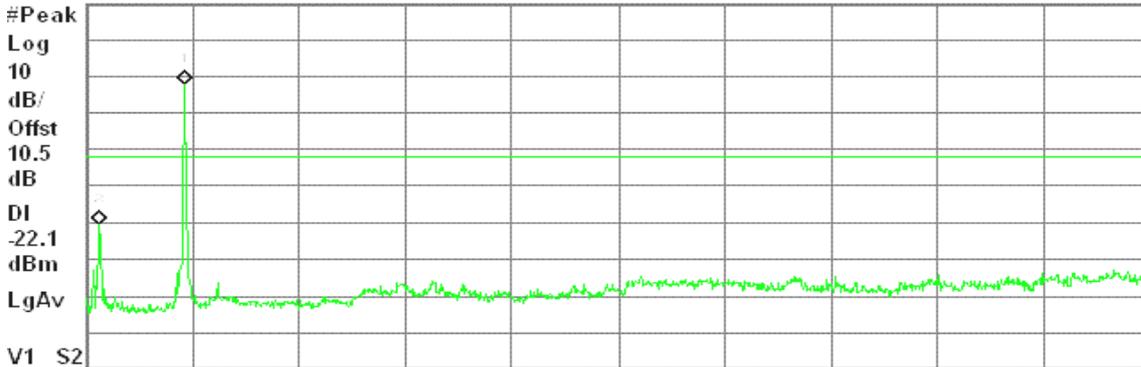
Spurious, 40 Mode Mid Ch.

Mkr2 340 MHz

Ref 20 dBm

Atten 20 dB

-40.68 dBm



Center 13.02 GHz

Span 25.97 GHz

#Res BW 100 kHz

#VBW 100 kHz

Sweep 3.131 s (1001 pts)

Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	2.42 GHz	-2.14 dBm
2	(1)	Freq	340 MHz	-40.68 dBm



CH High

Agilent 22:00:13 Jul 10, 2007

R T

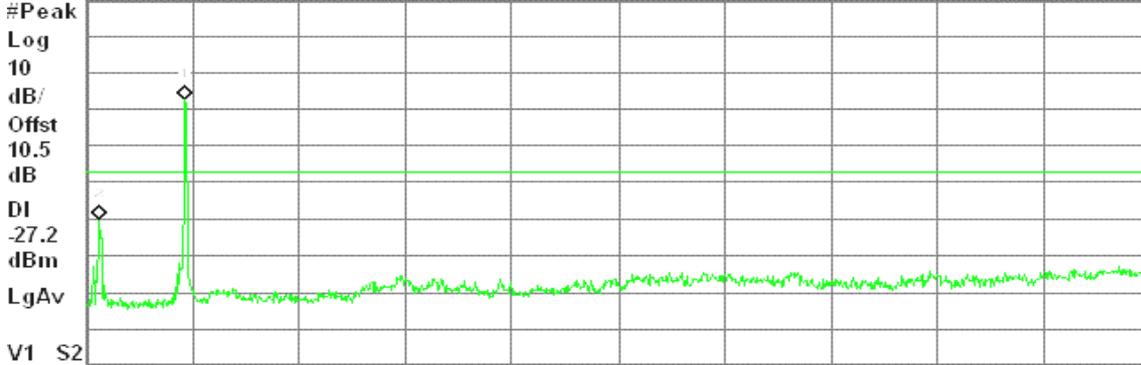
Spurious, 40 Mode High Ch.

Mkr2 340 MHz

Ref 20 dBm

Atten 20 dB

-40.39 dBm



Center 13.02 GHz

Span 25.97 GHz

#Res BW 100 kHz

#VBW 620 kHz

Sweep 2.411 s (1001 pts)

Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	2.46 GHz	-7.16 dBm
2	(1)	Freq	340 MHz	-40.39 dBm

draft 802.11n Wide-40 MHz Channel mode / Chain 1

CH Low

Agilent 21:27:49 Jul 10, 2007

R T

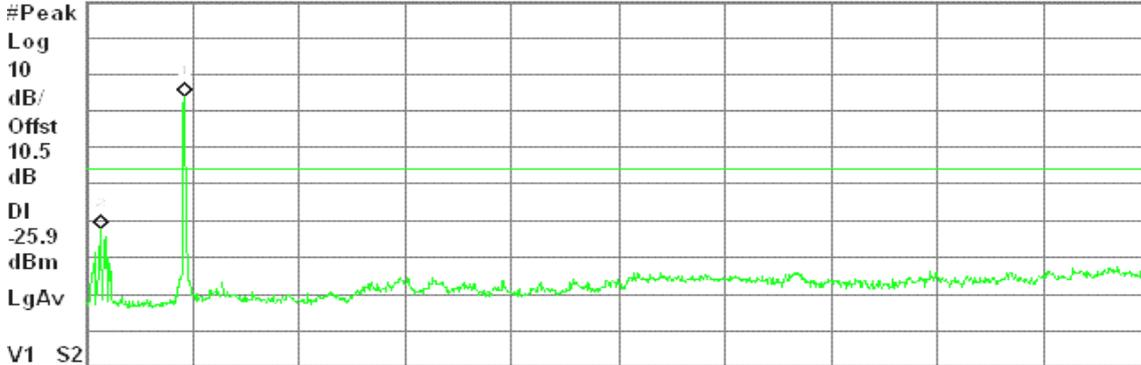
Spurious, 40 Mode Low Ch.

Mkr2 370 MHz

Ref 20 dBm

Atten 20 dB

-42.49 dBm



Center 13.02 GHz

Span 25.97 GHz

#Res BW 100 kHz

#VBW 100 kHz

Sweep 3.131 s (1001 pts)

Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	2.42 GHz	-5.94 dBm
2	(1)	Freq	370 MHz	-42.49 dBm



CH Mid

Agilent 21:35:05 Jul 10, 2007

R T

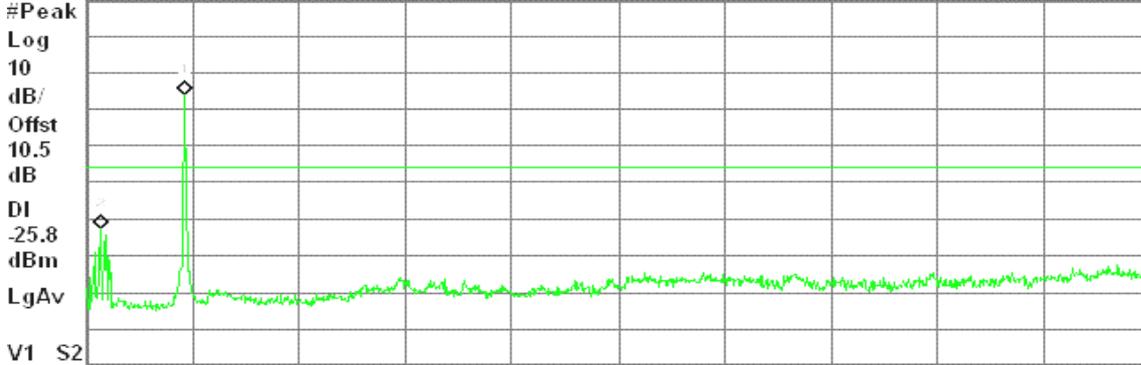
Spurious, 40 Mode Mid Ch.

Mkr2 370 MHz

Ref 20 dBm

Atten 20 dB

-42.95 dBm



Center 13.02 GHz

Span 25.97 GHz

#Res BW 100 kHz

#VBW 100 kHz

Sweep 3.131 s (1001 pts)

Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	2.42 GHz	-5.84 dBm
2	(1)	Freq	370 MHz	-42.95 dBm

CH High

Agilent 21:43:10 Jul 10, 2007

R T

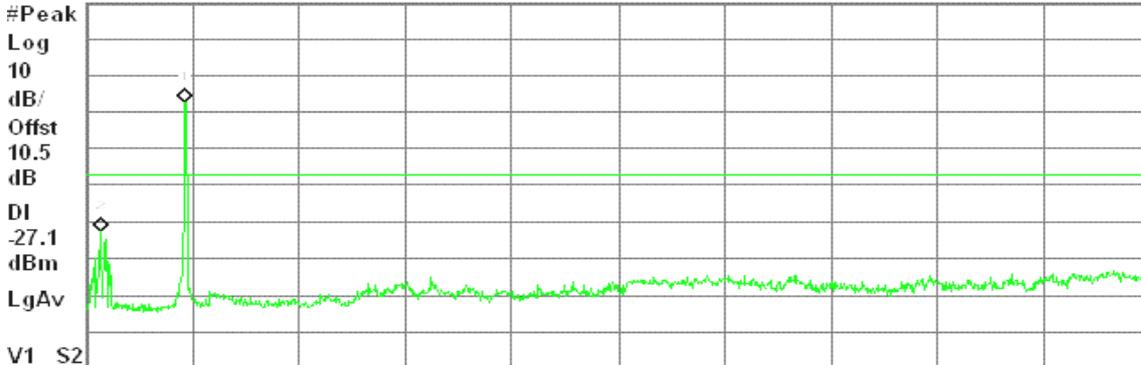
Spurious, 40 Mode High Ch.

Mkr2 370 MHz

Ref 20 dBm

Atten 20 dB

-42.74 dBm



Center 13.02 GHz

Span 25.97 GHz

#Res BW 100 kHz

#VBW 100 kHz

Sweep 3.131 s (1001 pts)

Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	2.45 GHz	-7.13 dBm
2	(1)	Freq	370 MHz	-42.74 dBm



draft 802.11n Standard-20 MHz Channel mode with combiner

CH Low

Agilent 20:03:40 Jul 5, 2007

R T

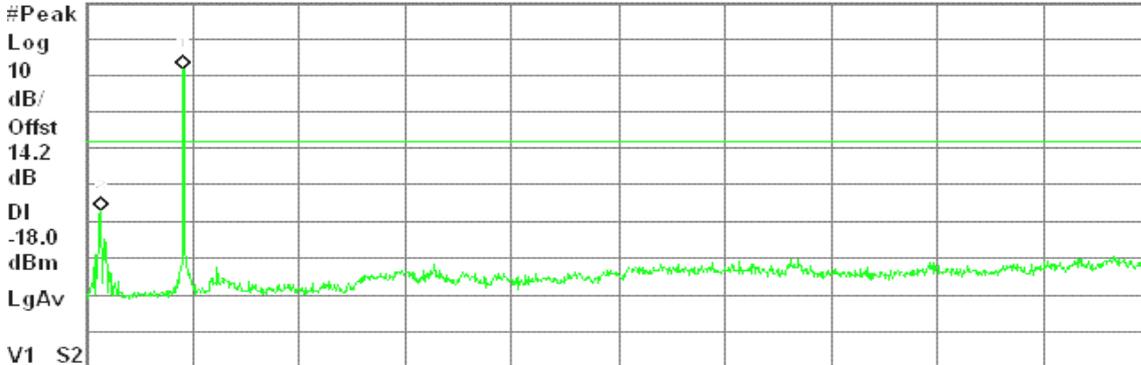
Spurious, HT20 Mode Low Ch.

Mkr2 390 MHz

Ref 20 dBm

Atten 20 dB

-37.34 dBm



Center 13.02 GHz

Span 25.97 GHz

#Res BW 100 kHz

#VBW 100 kHz

Sweep 3.131 s (1001 pts)

Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	2.39 GHz	1.99 dBm
2	(1)	Freq	390 MHz	-37.34 dBm

CH Mid

Agilent 19:49:07 Jul 5, 2007

R T

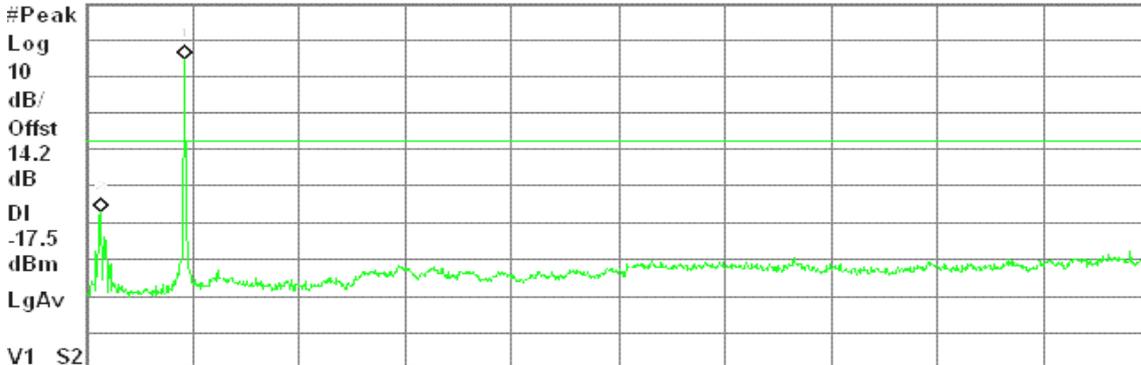
Spurious, HT20 Mode Mid Ch.

Mkr2 390 MHz

Ref 20 dBm

Atten 20 dB

-36.97 dBm



Center 13.02 GHz

Span 25.97 GHz

#Res BW 100 kHz

#VBW 100 kHz

Sweep 3.131 s (1001 pts)

Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	2.46 GHz	4.95 dBm
2	(1)	Freq	390 MHz	-36.97 dBm



CH High

Agilent 19:35:17 Jul 5, 2007

R T

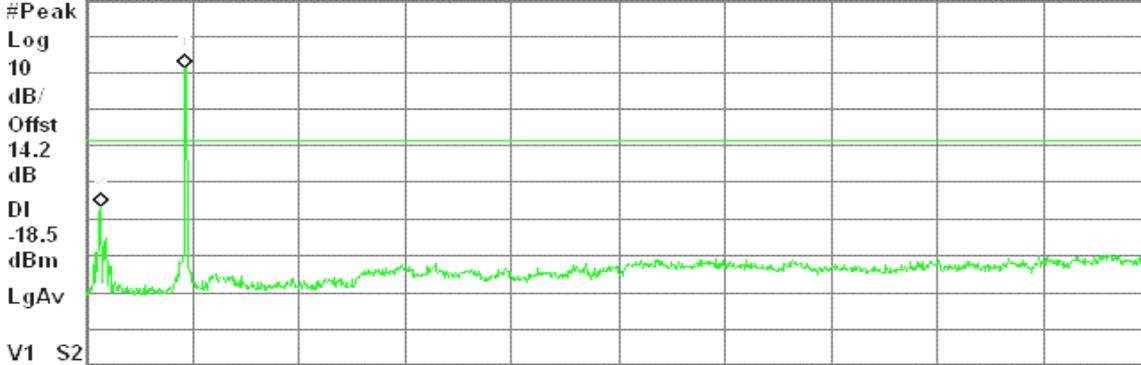
Spurious, HT20 Mode High Ch.

Mkr2 390 MHz

Ref 20 dBm

Atten 20 dB

-36.87 dBm



Center 13.02 GHz

Span 25.97 GHz

#Res BW 100 kHz

#VBW 100 kHz

Sweep 3.131 s (1001 pts)

Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	2.46 GHz	1.51 dBm
2	(1)	Freq	390 MHz	-36.87 dBm

draft 802.11n Wide-40 MHz Channel mode with combiner

CH Low

Agilent 20:13:47 Jul 5, 2007

R T

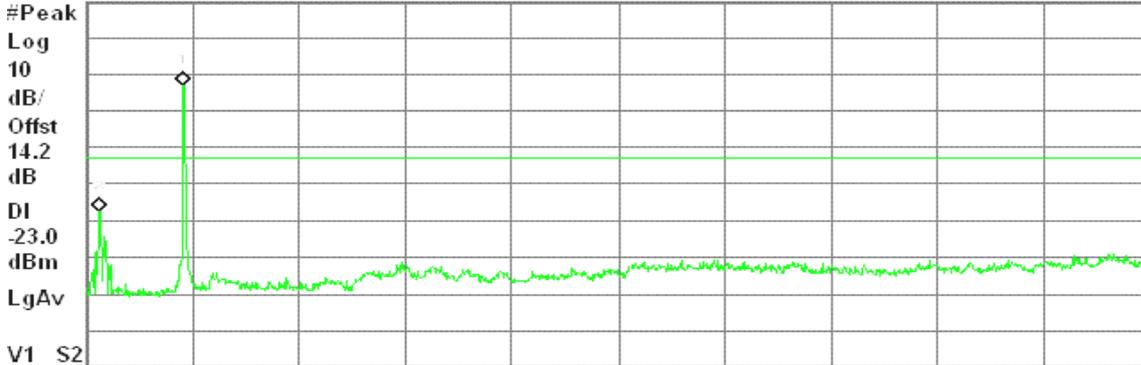
Spurious, HT40 Mode Low Ch.

Mkr2 340 MHz

Ref 20 dBm

Atten 20 dB

-37.42 dBm



Center 13.02 GHz

Span 25.97 GHz

#Res BW 100 kHz

#VBW 100 kHz

Sweep 3.131 s (1001 pts)

Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	2.39 GHz	-3.01 dBm
2	(1)	Freq	340 MHz	-37.42 dBm



CH Mid

Agilent 20:20:13 Jul 5, 2007

R T

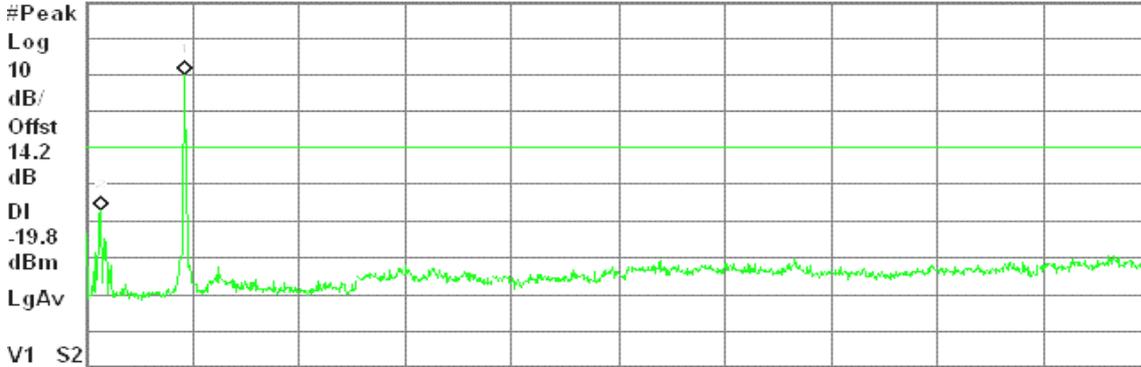
Spurious, HT40 Mode Mid Ch.

Mkr2 390 MHz

Ref 20 dBm

Atten 20 dB

-37.31 dBm



Center 13.02 GHz

Span 25.97 GHz

#Res BW 100 kHz

#VBW 100 kHz

Sweep 3.131 s (1001 pts)

Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	2.42 GHz	0.19 dBm
2	(1)	Freq	390 MHz	-37.31 dBm

CH High

Agilent 20:29:47 Jul 5, 2007

R T

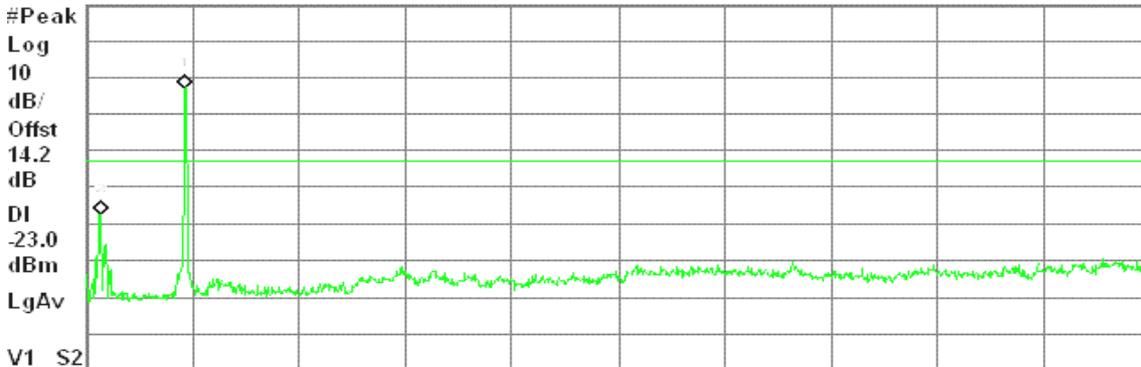
Spurious, HT40 Mode High Ch.

Mkr2 390 MHz

Ref 20 dBm

Atten 20 dB

-37.48 dBm



Center 13.02 GHz

Span 25.97 GHz

#Res BW 100 kHz

#VBW 100 kHz

Sweep 3.131 s (1001 pts)

Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	2.45 GHz	-3.04 dBm
2	(1)	Freq	390 MHz	-37.48 dBm



7.7 RADIATED EMISSIONS

LIMIT

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

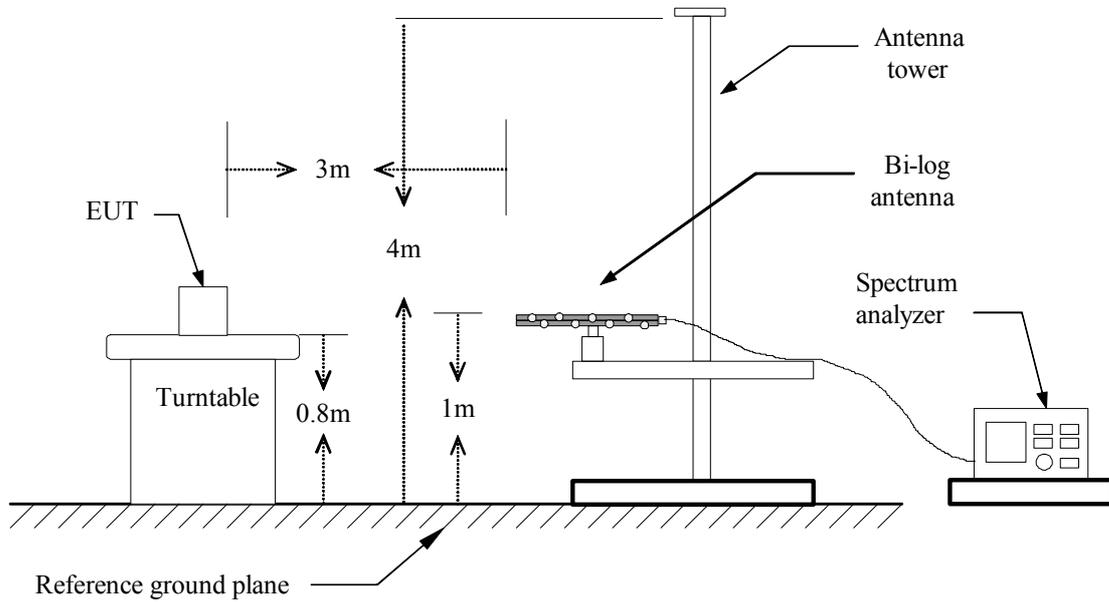
Remark: Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this Section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of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

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

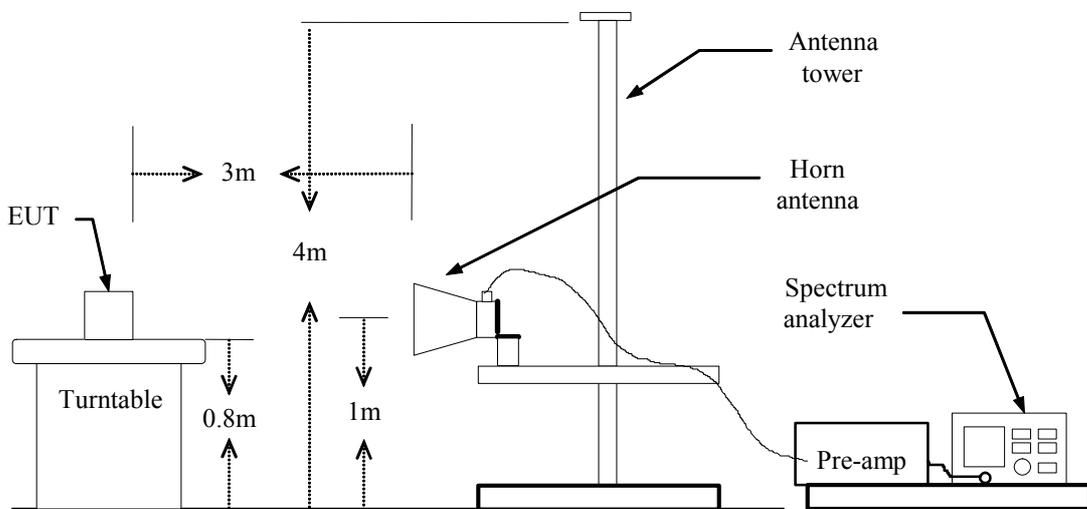
Frequency (MHz)	Field Strength ($\mu\text{V}/\text{m}$ at 3-meter)	Field Strength (dB $\mu\text{V}/\text{m}$ at 3-meter)
30-88	100	40
88-216	150	43.5
216-960	200	46
Above 960	500	54

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****Below 1GHz****Operation Mode:** Normal Link**Test Date:** July 3, 2007**Temperature:** 25°C**Tested by:** Wolf Huang**Humidity:** 50% 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
51.02	V	58.53	-18.54	39.98	40.00	-0.02	Peak
249.87	V	53.20	-14.56	38.64	46.00	-7.36	Peak
374.35	V	56.18	-10.20	45.98	46.00	-0.02	Peak
400.22	V	53.80	-10.00	43.80	46.00	-2.20	QP
440.63	V	53.14	-8.86	44.28	46.00	-1.72	Peak
500.45	V	52.64	-7.86	44.78	46.00	-1.22	QP
374.35	H	49.19	-10.20	38.98	46.00	-7.02	Peak
400.22	H	50.22	-10.00	40.22	46.00	-5.78	Peak
440.63	H	50.67	-8.86	41.80	46.00	-4.20	Peak
500.45	H	46.32	-7.86	38.46	46.00	-7.54	Peak
749.42	H	43.76	-4.15	39.61	46.00	-6.39	Peak
799.53	H	44.00	-3.16	40.84	46.00	-5.16	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. 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.
4. Margin (dB) = Result (dBuV/m) – Limit (dBuV/m).

**Above 1 GHz****Operation Mode:** TX / IEEE 802.11b / CH Low**Test Date:** July 4, 2007**Temperature:** 25°C**Tested by:** Wolf Huang**Humidity:** 50 % 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
1128.33	V	59.00	---	-10.58	48.42	---	74.00	54.00	-5.58	Peak
1373.33	V	57.55	---	-10.18	47.37	---	74.00	54.00	-6.63	Peak
1630.00	V	56.00	---	-8.68	47.32	---	74.00	54.00	-6.68	Peak
1875.00	V	54.37	---	-6.25	48.13	---	74.00	54.00	-5.87	Peak
4826.67	V	56.21	53.13	0.56	56.77	53.69	74.00	54.00	-0.31	AVG
7230.00	V	48.28	---	3.56	51.84	---	74.00	54.00	-2.16	Peak
1245.00	H	55.12	---	-10.39	44.73	---	74.00	54.00	-9.27	Peak
1373.33	H	54.25	---	-10.18	44.07	---	74.00	54.00	-9.93	Peak
1630.00	H	52.82	---	-8.68	44.14	---	74.00	54.00	-9.86	Peak
1875.00	H	51.58	---	-6.25	45.33	---	74.00	54.00	-8.67	Peak
4826.67	H	56.84	53.12	0.56	57.40	53.68	74.00	54.00	-0.32	AVG
7241.67	H	49.59	---	3.54	53.12	---	74.00	54.00	-0.88	Peak

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 or as required by the applicant.
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 802.11b / CH Mid**Test Date:** July 4, 2007**Temperature:** 25°C**Tested by:** Wolf Huang**Humidity:** 50 % 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
1128.33	V	58.89	---	-10.58	48.30	---	74.00	54.00	-5.70	Peak
1373.33	V	57.58	---	-10.18	47.40	---	74.00	54.00	-6.60	Peak
1630.00	V	56.11	---	-8.68	47.43	---	74.00	54.00	-6.57	Peak
1875.00	V	54.90	---	-6.25	48.65	---	74.00	54.00	-5.35	Peak
4873.33	V	52.22	---	0.60	52.82	---	74.00	54.00	-1.18	Peak
7311.67	V	46.00	---	3.40	49.41	---	74.00	54.00	-4.59	Peak
1128.33	H	55.48	---	-10.58	44.90	---	74.00	54.00	-9.10	Peak
1245.00	H	55.41	---	-10.39	45.02	---	74.00	54.00	-8.98	Peak
1373.33	H	54.09	---	-10.18	43.91	---	74.00	54.00	-10.09	Peak
2120.00	H	50.02	---	-4.70	45.32	---	74.00	54.00	-8.68	Peak
4873.33	H	52.77	---	0.60	53.37	---	74.00	54.00	-0.63	Peak
7311.67	H	47.51	---	3.40	50.92	---	74.00	54.00	-3.08	Peak

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 or as required by the applicant.
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 802.11b / CH High**Test Date:** July 4, 2007**Temperature:** 25°C**Tested by:** Wolf Huang**Humidity:** 50 % 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
1128.33	V	58.74	---	-10.58	48.16	---	74.00	54.00	-5.84	Peak
1373.33	V	56.66	---	-10.18	46.48	---	74.00	54.00	-7.52	Peak
1630.00	V	54.86	---	-8.68	46.18	---	74.00	54.00	-7.82	Peak
1875.00	V	54.79	---	-6.25	48.55	---	74.00	54.00	-5.45	Peak
4920.00	V	56.51	52.84	0.65	57.16	53.49	74.00	54.00	-0.51	AVG
7393.33	V	47.33	---	3.25	50.58	---	74.00	54.00	-3.42	Peak
1000.00	H	56.47	---	-10.79	45.68	---	74.00	54.00	-8.32	Peak
1245.00	H	54.53	---	-10.39	44.14	---	74.00	54.00	-9.86	Peak
1875.00	H	51.09	---	-6.25	44.84	---	74.00	54.00	-9.16	Peak
2120.00	H	50.28	---	-4.70	45.58	---	74.00	54.00	-8.42	Peak
4920.00	H	53.16	---	0.65	53.81	---	74.00	54.00	-0.19	Peak
7381.67	H	48.53	---	3.27	51.80	---	74.00	54.00	-2.20	Peak

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 or as required by the applicant.
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 802.11g / CH Low**Test Date:** June 26, 2007**Temperature:** 25°C**Tested by:** Wolf Huang**Humidity:** 50 % 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
1128.33	V	58.17	---	-10.58	47.59	---	74.00	54.00	-6.41	Peak
1373.33	V	57.35	---	-10.18	47.17	---	74.00	54.00	-6.83	Peak
1630.00	V	55.50	---	-8.68	46.82	---	74.00	54.00	-7.18	Peak
1875.00	V	55.09	---	-6.25	48.85	---	74.00	54.00	-5.15	Peak
4826.67	V	48.71	---	0.56	49.27	---	74.00	54.00	-4.73	Peak
7241.67	V	46.18	---	3.54	49.72	---	74.00	54.00	-4.28	Peak
1198.33	H	54.30	---	-10.47	43.83	---	74.00	54.00	-10.17	Peak
1630.00	H	53.81	---	-8.68	45.13	---	74.00	54.00	-8.87	Peak
2120.00	H	51.53	---	-4.70	46.83	---	74.00	54.00	-7.17	Peak
2878.33	H	47.11	---	-2.76	44.35	---	74.00	54.00	-9.65	Peak
4826.67	H	51.59	---	0.56	52.15	---	74.00	54.00	-1.85	Peak
7241.67	H	47.12	---	3.54	50.66	---	74.00	54.00	-3.34	Peak

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 or as required by the applicant.
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 802.11g / CH Mid**Test Date:** July 4, 2007**Temperature:** 25°C**Tested by:** Wolf Huang**Humidity:** 50 % 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
1128.33	V	58.53	---	-10.58	47.95	---	74.00	54.00	-6.05	Peak
1373.33	V	56.60	---	-10.18	46.41	---	74.00	54.00	-7.59	Peak
1630.00	V	56.06	---	-8.68	47.38	---	74.00	54.00	-6.62	Peak
1875.00	V	55.02	---	-6.25	48.78	---	74.00	54.00	-5.22	Peak
4873.33	V	51.86	---	0.60	52.46	---	74.00	54.00	-1.54	Peak
7311.67	V	62.37	46.32	3.40	65.77	49.72	74.00	54.00	-4.28	AVG
1128.33	H	54.80	---	-10.58	44.21	---	74.00	54.00	-9.79	Peak
1245.00	H	55.47	---	-10.39	45.07	---	74.00	54.00	-8.93	Peak
1875.00	H	50.51	---	-6.25	44.27	---	74.00	54.00	-9.73	Peak
2120.00	H	49.95	---	-4.70	45.24	---	74.00	54.00	-8.76	Peak
4873.33	H	52.64	---	0.60	53.25	---	74.00	54.00	-0.75	Peak
7300.00	H	61.90	46.23	3.43	65.33	49.65	74.00	54.00	-4.35	AVG

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 or as required by the applicant.
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 802.11g / CH High**Test Date:** June 26, 2007**Temperature:** 25°C**Tested by:** Wolf Huang**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
1128.33	V	58.13	---	-10.58	47.55	---	74.00	54.00	-6.45	Peak
1373.33	V	56.66	---	-10.18	46.48	---	74.00	54.00	-7.52	Peak
1630.00	V	55.62	---	-8.68	46.94	---	74.00	54.00	-7.06	Peak
1875.00	V	54.74	---	-6.25	48.49	---	74.00	54.00	-5.51	Peak
4920.00	V	50.89	---	0.65	51.54	---	74.00	54.00	-2.46	Peak
7381.67	V	44.70	---	3.27	47.97	---	74.00	54.00	-6.03	Peak
1000.00	H	55.69	---	-10.79	44.90	---	74.00	54.00	-9.10	Peak
1630.00	H	54.31	---	-8.68	45.63	---	74.00	54.00	-8.37	Peak
2120.00	H	51.61	---	-4.70	46.90	---	74.00	54.00	-7.10	Peak
2878.33	H	46.57	---	-2.76	43.81	---	74.00	54.00	-10.19	Peak
4920.00	H	50.63	---	0.65	51.27	---	74.00	54.00	-2.73	Peak
7393.33	H	45.23	---	3.25	48.48	---	74.00	54.00	-5.52	Peak

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 or as required by the applicant.
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:** July 4, 2007**Temperature:** 25°C**Tested by:** Wolf Huang**Humidity:** 50 % 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
1128.33	V	58.75	---	-10.58	48.16	---	74.00	54.00	-5.84	Peak
1630.00	V	56.21	---	-8.68	47.53	---	74.00	54.00	-6.47	Peak
1875.00	V	54.27	---	-6.25	48.02	---	74.00	54.00	-5.98	Peak
3216.67	V	48.50	---	-2.17	46.32	---	74.00	54.00	-7.68	Peak
4826.67	V	46.68	---	0.56	47.23	---	74.00	54.00	-6.77	Peak
7230.00	V	46.45	---	3.56	50.01	---	74.00	54.00	-3.99	Peak
1245.00	H	56.10	---	-10.39	45.71	---	74.00	54.00	-8.29	Peak
1875.00	H	51.76	---	-6.25	45.51	---	74.00	54.00	-8.49	Peak
2120.00	H	50.69	---	-4.70	45.99	---	74.00	54.00	-8.01	Peak
3216.67	H	46.48	---	-2.17	44.31	---	74.00	54.00	-9.69	Peak
4815.00	H	46.61	---	0.54	47.15	---	74.00	54.00	-6.85	Peak
7230.00	H	47.47	---	3.56	51.03	---	74.00	54.00	-2.97	Peak

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 or as required by the applicant.
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:** July 4, 2007**Temperature:** 25°C**Tested by:** Wolf Huang**Humidity:** 50 % 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
1128.33	V	58.26	---	-10.58	47.68	---	74.00	54.00	-6.32	Peak
1630.00	V	55.75	---	-8.68	47.06	---	74.00	54.00	-6.94	Peak
1875.00	V	53.50	---	-6.25	47.25	---	74.00	54.00	-6.75	Peak
3251.67	V	49.08	---	-2.13	46.95	---	74.00	54.00	-7.05	Peak
4873.33	V	47.61	---	0.60	48.21	---	74.00	54.00	-5.79	Peak
7311.67	V	47.18	---	3.40	50.59	---	74.00	54.00	-3.41	Peak
1245.00	H	55.14	---	-10.39	44.75	---	74.00	54.00	-9.25	Peak
1875.00	H	50.72	---	-6.25	44.48	---	74.00	54.00	-9.52	Peak
2120.00	H	49.86	---	-4.70	45.16	---	74.00	54.00	-8.84	Peak
3251.67	H	47.57	---	-2.13	45.44	---	74.00	54.00	-8.56	Peak
4885.00	H	47.45	---	0.61	48.06	---	74.00	54.00	-5.94	Peak
7311.67	H	48.86	---	3.40	52.26	---	74.00	54.00	-1.74	Peak

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 or as required by the applicant.
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: July 4, 2007

Temperature: 25°C

Tested by: Wolf Huang

Humidity: 50 % 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
1128.33	V	58.04	---	-10.58	47.46	---	74.00	54.00	-6.54	Peak
1373.33	V	56.53	---	-10.18	46.35	---	74.00	54.00	-7.65	Peak
1630.00	V	55.76	---	-8.68	47.08	---	74.00	54.00	-6.92	Peak
1875.00	V	53.79	---	-6.25	47.55	---	74.00	54.00	-6.45	Peak
2120.00	V	49.22	---	-4.70	44.51	---	74.00	54.00	-9.49	Peak
3286.67	V	46.13	---	-2.09	44.04	---	74.00	54.00	-9.96	Peak
1000.00	H	57.22	---	-10.79	46.43	---	74.00	54.00	-7.57	Peak
1245.00	H	55.87	---	-10.39	45.48	---	74.00	54.00	-8.52	Peak
1875.00	H	51.35	---	-6.25	45.10	---	74.00	54.00	-8.90	Peak
2120.00	H	50.03	---	-4.70	45.32	---	74.00	54.00	-8.68	Peak
7381.67	H	45.14	---	3.27	48.41	---	74.00	54.00	-5.59	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 or as required by the applicant.
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:** July 4, 2007
Temperature: 25°C **Tested by:** Wolf Huang
Humidity: 50 % 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
1128.33	V	58.54	---	-10.58	47.96	---	74.00	54.00	-6.04	Peak
1630.00	V	56.25	---	-8.68	47.57	---	74.00	54.00	-6.43	Peak
1875.00	V	54.30	---	-6.25	48.05	---	74.00	54.00	-5.95	Peak
3228.33	V	49.99	---	-2.16	47.83	---	74.00	54.00	-6.17	Peak
4838.33	V	49.91	---	0.57	50.47	---	74.00	54.00	-3.53	Peak
7253.33	V	55.32	39.59	3.51	58.83	43.10	74.00	54.00	-10.90	AVG
1198.33	H	55.75	---	-10.47	45.28	---	74.00	54.00	-8.72	Peak
1875.00	H	50.79	---	-6.25	44.54	---	74.00	54.00	-9.46	Peak
2120.00	H	49.86	---	-4.70	45.15	---	74.00	54.00	-8.85	Peak
3228.33	H	48.59	---	-2.16	46.43	---	74.00	54.00	-7.57	Peak
4850.00	H	47.94	---	0.58	48.52	---	74.00	54.00	-5.48	Peak
7265.00	H	49.61	---	3.49	53.10	---	74.00	54.00	-0.90	Peak

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 or as required by the applicant.
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:** July 4, 2007
Temperature: 25°C **Tested by:** Wolf Huang
Humidity: 50 % 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
1128.33	V	58.58	---	-10.58	48.00	---	74.00	54.00	-6.00	Peak
1373.33	V	57.51	---	-10.18	47.33	---	74.00	54.00	-6.67	Peak
1630.00	V	56.11	---	-8.68	47.43	---	74.00	54.00	-6.57	Peak
1875.00	V	54.64	---	-6.25	48.39	---	74.00	54.00	-5.61	Peak
4873.33	V	65.78	46.01	0.60	66.38	46.61	74.00	54.00	-7.39	AVG
7300.00	V	64.96	44.42	3.43	68.39	47.85	74.00	54.00	-6.15	AVG
1245.00	H	55.37	---	-10.39	44.98	---	74.00	54.00	-9.02	Peak
1875.00	H	51.42	---	-6.25	45.18	---	74.00	54.00	-8.82	Peak
2120.00	H	49.80	---	-4.70	45.10	---	74.00	54.00	-8.90	Peak
4873.33	H	64.10	43.62	0.60	64.70	44.22	74.00	54.00	-9.78	AVG
7323.33	H	63.75	43.81	3.38	67.13	47.19	74.00	54.00	-6.81	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 or as required by the applicant.
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:** July 4, 2007
Temperature: 25°C **Tested by:** Wolf Huang
Humidity: 50 % 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
1128.33	V	58.81	---	-10.58	48.23	---	74.00	54.00	-5.77	Peak
1630.00	V	56.04	---	-8.68	47.35	---	74.00	54.00	-6.65	Peak
1875.00	V	54.19	---	-6.25	47.94	---	74.00	54.00	-6.06	Peak
3275.00	V	48.04	---	-2.10	45.94	---	74.00	54.00	-8.06	Peak
4885.00	V	50.50	---	0.61	51.11	---	74.00	54.00	-2.89	Peak
7346.67	V	60.45	39.15	3.34	63.79	42.49	74.00	54.00	-11.51	AVG
1245.00	H	56.43	---	-10.39	46.04	---	74.00	54.00	-7.96	Peak
1875.00	H	51.51	---	-6.25	45.26	---	74.00	54.00	-8.74	Peak
2120.00	H	49.76	---	-4.70	45.06	---	74.00	54.00	-8.94	Peak
3275.00	H	46.91	---	-2.10	44.81	---	74.00	54.00	-9.19	Peak
4896.67	H	47.62	---	0.62	48.24	---	74.00	54.00	-5.76	Peak
7346.67	H	54.66	37.97	3.34	58.00	41.31	74.00	54.00	-12.69	AVG

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 or as required by the applicant.
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).



7.8 POWERLINE CONDUCTED EMISSIONS

LIMIT

According to §15.207(a), except as shown in paragraphs (b) and (c) of this section, for an intentional radiator that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits in the following table, as measured using a 50 μH/50 ohms line impedance stabilization network (LISN). Compliance with the provisions of this paragraph shall be based on the measurement of the radio frequency voltage between each power line and ground at the power terminal. The lower limit applies at the boundary between the frequency ranges.

Frequency Range (MHz)	Limits (dBμV)	
	Quasi-peak	Average
0.15 to 0.50	66 to 56*	56 to 46*
0.50 to 5	56	46
5 to 30	60	50

* Decreases with the logarithm of the frequency.

Test Configuration

See test photographs attached in Appendix 1 for the actual connections between EUT and support equipment.

TEST PROCEDURE

1. The EUT was placed on a table, which is 0.8m above ground plane.
2. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
3. Repeat above procedures until all frequency measured were complete.



TEST RESULTS

The initial step in collecting conducted data is a spectrum analyzer peak scan of the measurement range. Significant peaks are then marked as shown on the following data page, and these signals are then quasi-peaked.

Test Data

Operation Mode: Normal Link **Test Date:** July 11, 2007
Temperature: 25°C **Tested by:** Ivan Tsai
Humidity: 55% RH

Freq. (MHz)	QP Reading (dBuV)	AV Reading (dBuV)	Corr. factor (dB/m)	QP Result (dBuV/m)	AV Result (dBuV/m)	QP Limit (dBuV)	AV Limit (dBuV)	QP Margin (dB)	AV Margin (dB)	Note
0.273	50.510	48.630	0.100	50.610	48.730	61.026	51.026	-10.416	-2.296	L1
0.325	48.450	45.750	0.100	48.550	45.850	59.578	49.578	-11.028	-3.728	L1
0.488	41.260	37.570	0.100	41.360	37.670	56.202	46.202	-14.842	-8.532	L1
0.709	37.730	34.350	0.100	37.830	34.450	56.000	46.000	-18.170	-11.550	L1
1.419	34.870	30.970	0.100	34.970	31.070	56.000	46.000	-21.030	-14.930	L1
5.969	31.130	26.960	0.297	31.427	27.257	60.000	50.000	-28.573	-22.743	L1
0.273	48.510	45.360	0.100	48.610	45.460	61.026	51.026	-12.416	-5.566	L2
0.328	44.780	41.780	0.100	44.880	41.880	59.502	49.502	-14.622	-7.622	L2
0.600	33.740	31.160	0.100	33.840	31.260	56.000	46.000	-22.160	-14.740	L2
0.655	35.200	32.140	0.100	35.300	32.240	56.000	46.000	-20.700	-13.760	L2
0.819	32.270	29.260	0.100	32.370	29.360	56.000	46.000	-23.630	-16.640	L2
2.463	30.800	29.160	0.100	30.900	29.260	56.000	46.000	-25.100	-16.740	L2

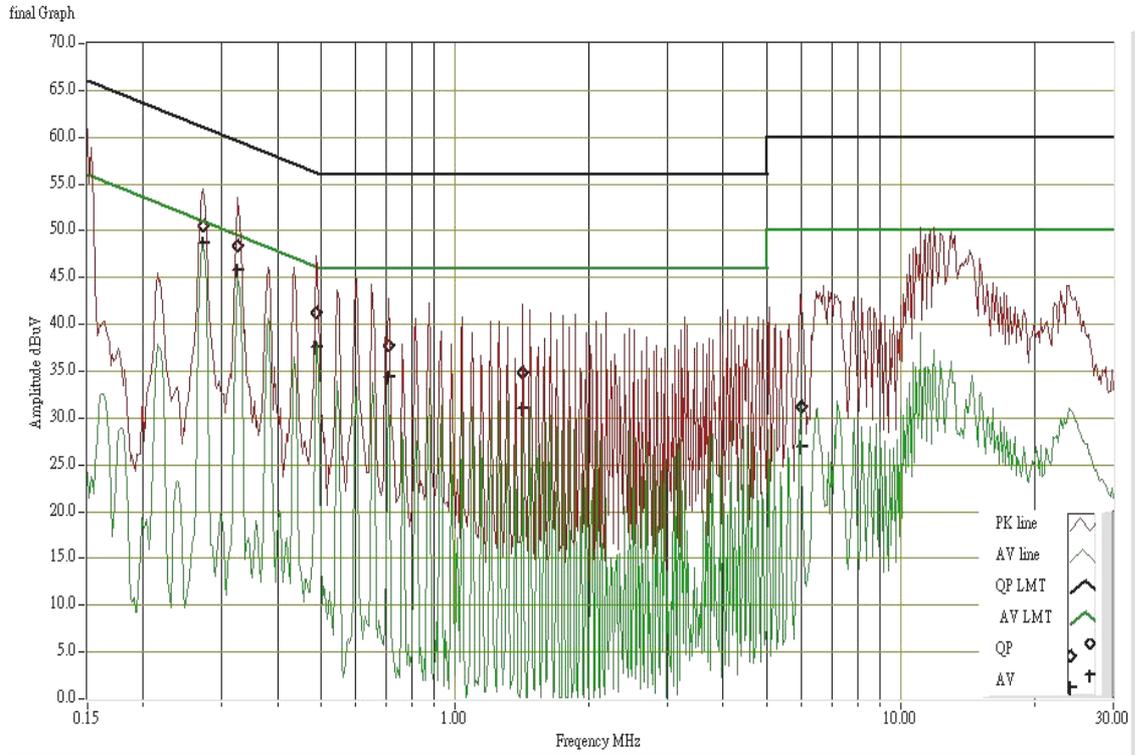
Remark:

1. Measuring frequencies from 0.15 MHz to 30MHz.
2. The emissions measured in frequency range from 0.15 MHz to 30MHz were made with an instrument using Quasi-peak detector and average detector.
3. The IF bandwidth of SPA between 0.15MHz and 30MHz was 10 kHz; the IF bandwidth of Test Receiver between 0.15MHz and 30MHz was 9 kHz;
4. L1 = Line One (Live Line) / L2 = Line Two (Neutral Line)

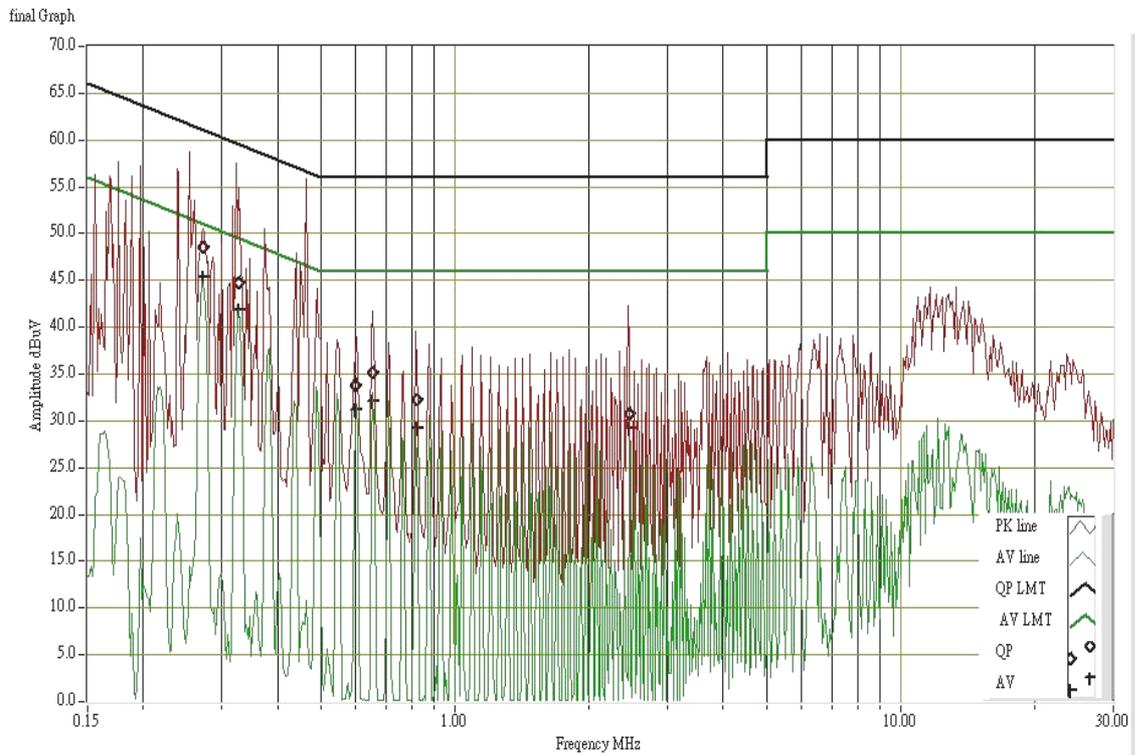


Test Plots

Conducted emissions (Line 1)



Conducted emissions (Line 2)





APPENDIX I RADIO FREQUENCY EXPOSURE

LIMIT

According to §15.247(i), systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy levels in excess of the Commission's guidelines. See § 1.1307(b)(1) of this chapter.

EUT Specification

EUT	N1 Vision Wireless Router
Frequency band (Operating)	<input checked="" type="checkbox"/> WLAN: 2.412GHz ~ 2.462GHz <input type="checkbox"/> WLAN: 5.18GHz ~ 5.32GHz / 5.50GHz ~ 5.70GHz <input type="checkbox"/> WLAN: 5.745GHz ~ 5.825GHz <input type="checkbox"/> Others
Device category	<input type="checkbox"/> Portable (<20cm separation) <input checked="" type="checkbox"/> Mobile (>20cm separation) <input type="checkbox"/> Others
Exposure classification	<input type="checkbox"/> Occupational/Controlled exposure (S = 5mW/cm ²) <input checked="" type="checkbox"/> General Population/Uncontrolled exposure (S=1mW/cm ²)
Antenna diversity	<input type="checkbox"/> Single antenna <input checked="" type="checkbox"/> Multiple antennas <input type="checkbox"/> Tx diversity <input type="checkbox"/> Rx diversity <input checked="" type="checkbox"/> Tx/Rx diversity
Max. output power	IEEE 802.11b mode: 17.54 dBm (56.75 mW) IEEE 802.11g mode: 19.77dBm (94.84 mW) draft 802.11n Standard-20 MHz Channel mode: 20.24 dBm (105.68 mW) draft 802.11n Wide-40 MHz Channel mode: 19.33 dBm (85.70 mW)
Antenna gain (Max)	1.2dBi (including cable loss) (Numeric gain: 1.32)
Evaluation applied	<input checked="" type="checkbox"/> MPE Evaluation* <input type="checkbox"/> SAR Evaluation <input type="checkbox"/> N/A

Remark:

1. The maximum output power is 20.24dBm (105.68mW) at 2437MHz (with 1.32 numeric antenna gain.)
2. DTS device is not subject to routine RF evaluation; MPE estimate is used to justify the compliance.
3. For mobile or fixed location transmitters, no SAR consideration applied. The maximum power density is 1.0 mW/cm² even if the calculation indicates that the power density would be larger.

TEST RESULTS

No non-compliance noted.

**Calculation**

$$\text{Given } E = \frac{\sqrt{30 \times P \times G}}{d} \quad \& \quad S = \frac{E^2}{3770}$$

Where E = Field strength in Volts / meter

P = Power in Watts

G = Numeric antenna gain

d = Distance in meters

S = Power density in milliwatts / square centimeter

Combining equations and re-arranging the terms to express the distance as a function of the remaining variables yields:

$$S = \frac{30 \times P \times G}{3770d^2}$$

Changing to units of mW and cm, using:

$$P (mW) = P (W) / 1000 \text{ and}$$

$$d (cm) = d(m) / 100$$

Yields

$$S = \frac{30 \times (P/1000) \times G}{3770 \times (d/100)^2} = 0.0796 \times \frac{P \times G}{d^2} \quad \text{Equation 1}$$

Where d = Distance in cm

P = Power in mW

G = Numeric antenna gain

S = Power density in mW / cm²

Maximum Permissible Exposure

Substituting the MPE safe distance using $d = 20$ cm into Equation 1:

Yields

$$S = 0.000199 \times P \times G$$

Where P = Power in mW

G = Numeric antenna gain

S = Power density in mW / cm²



IEEE 802.11b mode:

EUT output power = 56.75mW

Numeric Antenna gain = 1.32

→ Power density = 0.0149 mW / cm²

IEEE 802.11g mode:

EUT output power = 94.84 mW

Numeric Antenna gain = 1.32

→ Power density = 0.0249 mW / cm²

draft 802.11n Standard-20 MHz Channel mode:

EUT output power =105.68 mW

Numeric Antenna gain = 1.32

→ Power density = 0.0278 mW / cm²

draft 802.11n Wide-40 MHz Channel mode:

EUT output power = 85.70mW

Numeric Antenna gain = 1.32

→ Power density = 0.0225 mW / cm²

(For mobile or fixed location transmitters, the maximum power density is 1.0 mW/cm² even if the calculation indicates that the power density would be larger.)