FCC 47 CFR PART 15 SUBPART C

TEST REPORT

For

Personal Computer

Model: PCG-4T1L; PCG-4V1L

Trade Name: Sony

Issued to

Sony Corporation
1-7-1 Konan Minato-ku, Tokyo, 108-0075, Japan

Issued by

Compliance Certification Services Inc.
No. 81-1, Lane 210, Pa-De 2nd Rd., Luchu Hsiang,
Taoyuan Shien, (338) Taiwan, R.O.C.
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Revision History

Rev.		Issue Date		Revisions	Effect Page	Revised By
00		June 16, 2009		Initial Issue	ALL	Jill Shiau

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1 TEST RESULT CERTIFICATION

Applicant:	**Sony Corporation** 1-7-1 Konan Minato-ku, Tokyo, 108-0075, Japan
Manufacturer:	**Quanta Computer Inc.** No. 188, Wen Hwa 2nd RD., Kuei Shan Hsiang, Taoyuan Hsien, Taiwan, R.O.C.
Equipment Under Test:	Personal Computer
Trade Name:	Sony
Model:	PCG-4T1L; PCG-4V1L
Date of Test:	June 3 ~ 5, 2009

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:***

David Wang
Director

Ethan Huang
Section Manager

2 EUT DESCRIPTION

Product	PERSONAL COMPUTER		
Trade Name	SONY		
Model Number	PCG-4T1L; PCG-4V1L		
Model/Type reference	1. PCG-4T1L and PCG-4V1L share the same transmitter configuration (Notebook PC with WLAN FCC ID: PPDAR5B95 & BT: QDSBRCM1026) 2. PCG-4T1L is the representative case for final testing.		
EUT Power Rating	19V, 2A		
Power Adapter	SONY	**Model**	VGP-AC19V39
Power Adapter Power Rating	I/P: 100-240V, 50-60HZ, 1A O/P: 19V, 2A		
RF Module	Atheros	**Model**	AR5B95
Operating Frequency Range	2412 ~ 2462 MHz		
Transmit Power	IEEE 802.11b mode: 20.37 dBm IEEE 802.11g mode: 20.27 dBm draft 802.11n 20 MHz Channel mode: 19.28 dBm draft 802.11n 40 MHz Channel mode: 14.43 dBm		
Modulation Technique	IEEE 802.11b mode: DSSS (1, 2, 5.5 and 11 Mpbs) IEEE 802.11g mode: OFDM (6, 9, 12, 18, 24, 36, 48 and 54 Mpbs) draft 802.11n 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 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 20 MHz Channel mode: 11 Channels draft 802.11n 40 MHz Channel mode: 7 Channels		
Antenna Specification	PIFA Antenna / Gain: 4.06dBi		

Remark:

1. The sample selected for test was production product and was provided by manufacturer.

*2. This submittal(s) (test report) is intended for FCC ID: **AK8PCG4T1L** 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 (2003) and FCC CFR 47 Part 2, 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 (2003) 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 (2003).

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: PCG-4T1L) had been tested under operating condition.

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 was chosen for full testing.

IEEE 802.11g mode:

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

draft 802.11n 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	Agilnet	E4446A	MY48250064	10/28/2009
Spectrum Analyzer	R&S	FSEB	825829/011	10/29/2009

3M Chamber Test Site				
Name of Equipment	**Manufacturer**	**Model**	**Serial Number**	**Calibration Due**
Spectrum Analyzer	Agilnet	E4446A	MY48250064	10/28/2009
Spectrum Analyzer	R&S	FSEB	825829/011	10/29/2009
Pre-Amplifier	HP	8447D	2944A06530	12/31/2009
Pre-Amplifier	HP	8449B	3008A01738	04/17/2010
EMI Test Receiver	SCHAFFNER	SCR 3501	436	01/21/2010
Loop Antenna	EMCO	6502	2356	05/28/2010
Bilog Antenna	SCHWAZBECK	VULB9160	3084	09/08/2009
Horn Antenna	EMCO	3115	00022250	05/08/2010
Turn Table	CCS	CC-T-1F	N/A	N.C.R
Antenna Tower	CCS	CC-A-1F	N/A	N.C.R
Controller	CCS	CC-C-1F	N/A	N.C.R
Test S/W	LabVIEW 6.1 (Wugu Chamber EMI Teat V1_4.5.3)			

Remark: *The measurement uncertainty is less than +/-4.0235dB (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	R&S	ESCS30	845552/030	05/18/2010
LISN	R&S	ENV216	100074	12/09/2009
LISN	FCC	FCC-LISN-50/ 250-16-2-07	06013	10/12/2009
Test S/W	CCS-3A1-CE-Luchu			

Remark: *The measurement uncertainty is less than +/- 1.7806dB, which is evaluated as per the NAMAS NIS 81 and CISPR/A/291/CDV.*

5 FACILITIES AND ACCREDITATIONS

5.1 FACILTIES

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, Pa-De 2nd Rd., Luchu Hsiang, Taoyuan Shien, (338) Taiwan, R.O.C.
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 (2003) 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	CFR 47, FCC Part15/18, CISPR 22, EN 55022, ICES-003, AS/NZS CISPR 22, VCCI V-3, EN 55011, CISPR 11, IEC/EN 61000-4-2/3/4/5/6/8/11, EN 61000-6-1/2/3/4, EN 55024, CISPR 24, AS/NZS CISPR 24, AS/NZS 61000.6.2, EN 55014-1/-2, ETSI EN 300 386 v1.3.2/v1.3.3, IEC/EN 61000-3-2, AS/NZS 61000.3.2, IEC/EN 61000-3-3, AS/NZS 61000.3.3	ACCREDITED No. 0824-01
USA	FCC MRA	3/10 meter Open Area Test Sites to perform FCC Part 15/18 measurements	TW1026
Japan	VCCI	3/10 meter Open Area Test Sites and conducted test sites to perform radiated/conducted measurements	VCCI R-2882/2541/2798/725/1868 C-402/747/912 T-321/325
Taiwan	TAF	EN 55014-1, CISPR 14, CNS 13781-1, EN 55013, CISPR 13, CNS 13439, EN 55011, CISPR 11, CNS 13803, PLMN09, IS2045-0, LP0002 FCC Part 27/90, Part 15B/C/D/E, RSS-192/193/210/310 ETSI EN 300 328/ 300 220-1/ 300 220-2/ 301 893/ 301 489-01/ 301 489-03/ 301 489-07 / 301 489-17/ 300 440-1/ 300 440-2 AS/NZS 4268, AS/NZS 4771 CISPR 22, EN 55022, CNS 13438, AS/NZS CISPR 22, VCCI, IEC/EN 61000-4-2/3/4/5/6/8/11, CNS 14676-2/3/4/5/6/8, CNS 14934-2/3, CNS 13783-1, CNS 13439, CNS 13803	ilac-MRA TAF 0363
Taiwan	BSMI	CNS 13438, CNS 13783-1, CNS 13439, CNS 14115	SL2-IS-E-0014 / IN-E-0014 /A1-E-0014 /R1-E-0014 /R2-E-0014 /L1-E-0014
Canada	Industry Canada	RSS212, Issue 1	Canada IC 2324C-3 IC 2324C-5

Note: *No part of this report may be used to claim or imply product endorsement by A2LA, TAF or other government agency.*

6 SETUP OF EQUIPMENT UNDER TEST

6.1. SETUP CONFIGURATION OF EUT

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

6.2. SUPPORT EQUIPMENT

For Conducted Measurement & Radiated

No.	Device Type	Brand	Model	Series No.	FCC ID	Data Cable	Power Cord
	N/A						

****No any support equipment during the test.**

For Powerline Measurement

No.	Equipment	Model No.	Serial No.	FCC ID	Trade Name	Data Cable	Power Cord
1	LCD Monitor	2408WFB	CN-0NN792-74261-849-15JS	FCC DoC	DELL	D-SUB Cable: Shielded, 1.8m	Unshielded, 1.8m
2	USB Mouse	MO19UCA	020509272	FCC DoC	HP	Unshielded, 1.8m	N/A
3	Multimedia Headset	CJC-5258MV	0507106322	FCC DoC	CJC	Unshielded, 1.8m	N/A
4	USB 2.0 Flash Drive	U172P	N/A	FCC DoC	PQI	Unshielded, 1.8m	N/A

Remark: *Grounding was established in accordance with the manufacturer's requirements and conditions for the intended use.*

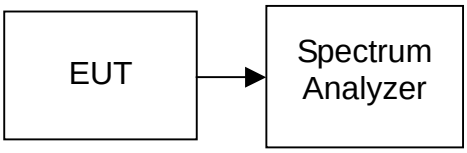
7 FCC PART 15.247 REQUIREMENTS

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 6 dB 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 = 100kHz, VBW = 300kHz, Span = 20MHz, 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	12.601	>500	PASS
Mid	2437	12.595		PASS
High	2462	13.022		PASS

Test mode: IEEE 802.11g mode

Channel	Frequency (MHz)	Bandwidth (MHz)	Limit (kHz)	Result
Low	2412	16.419	>500	PASS
Mid	2437	16.437		PASS
High	2462	16.437		PASS

Test mode: draft 802.11n 20 MHz Channel mode

Channel	Frequency (MHz)	Bandwidth (MHz)	Limit (kHz)	Result
Low	2412	17.699	>500	PASS
Mid	2437	17.802		PASS
High	2462	17.741		PASS

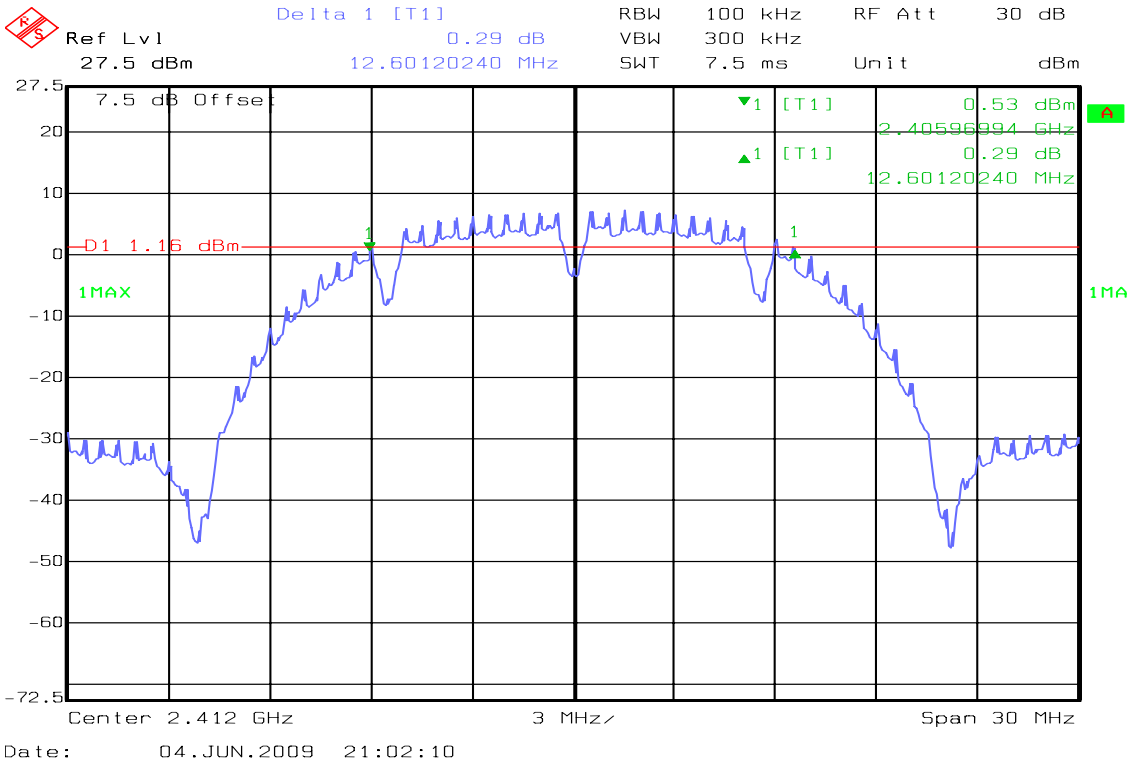
Test mode: draft 802.11n 40 MHz Channel mode

Channel	Frequency (MHz)	Bandwidth (MHz)	Limit (kHz)	Result
Low	2422	36.503	>500	PASS
Mid	2437	36.593		PASS
High	2452	36.483		PASS

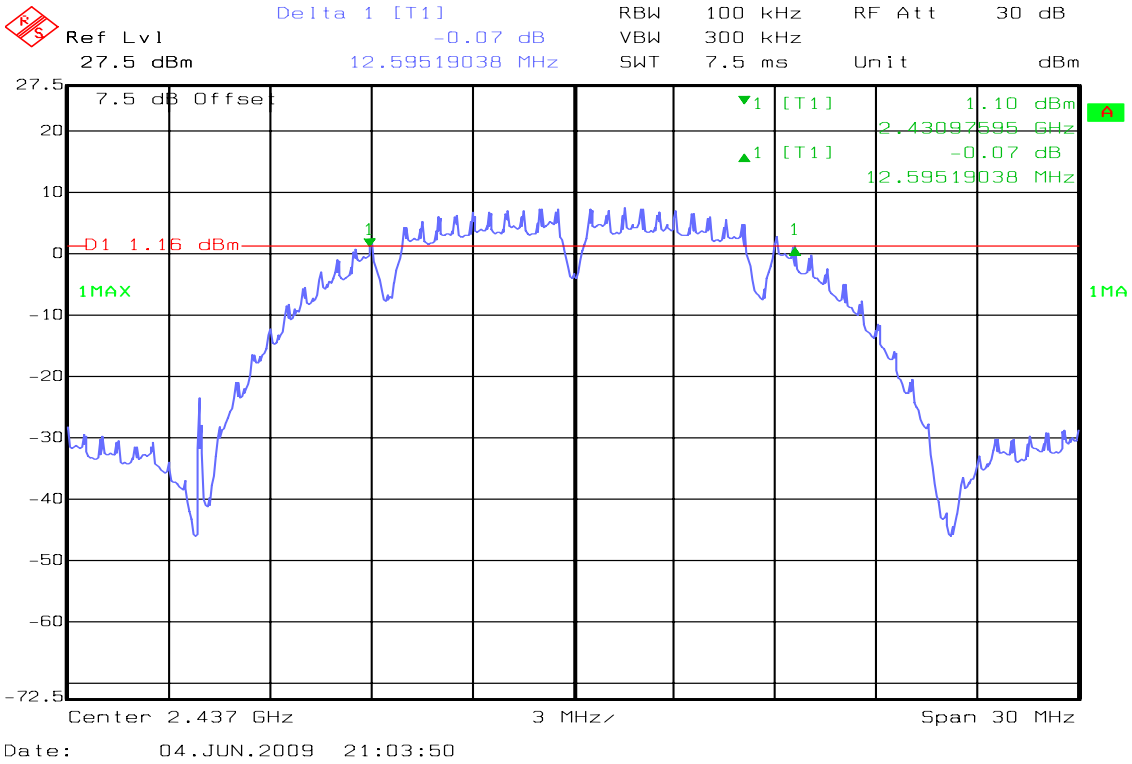
Test Plot

IEEE 802.11b mode

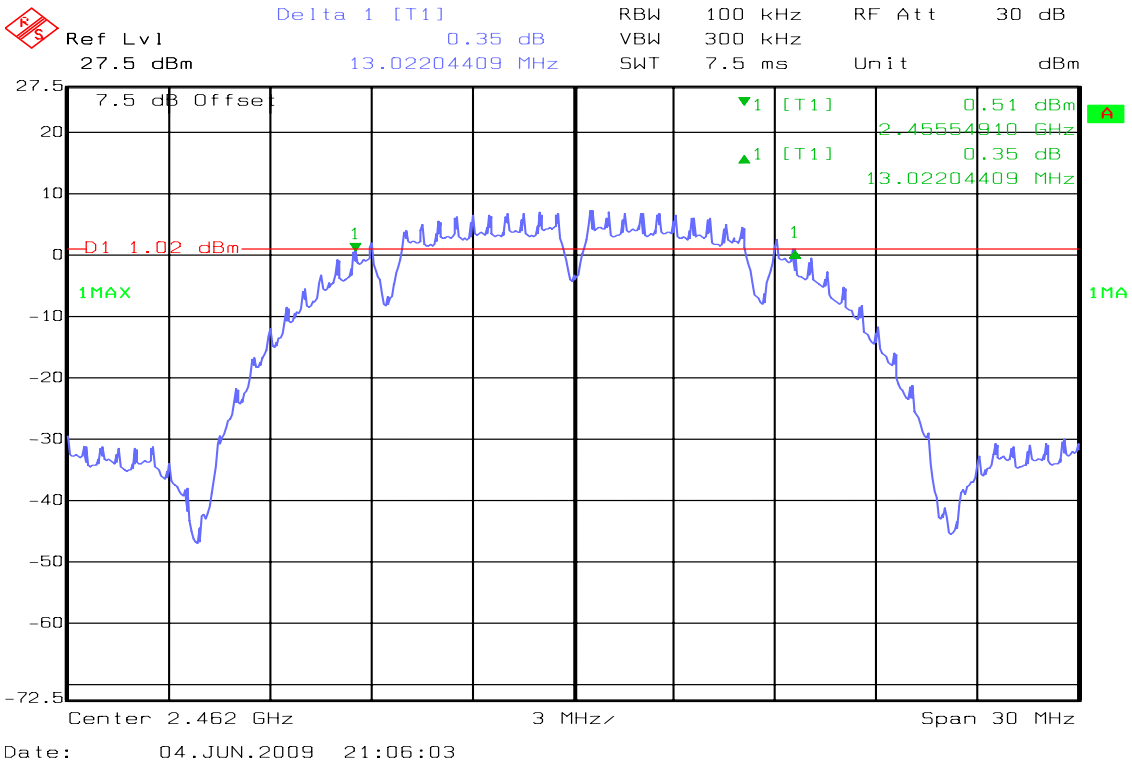
6dB Bandwidth (CH Low)



6dB Bandwidth (CH Mid)

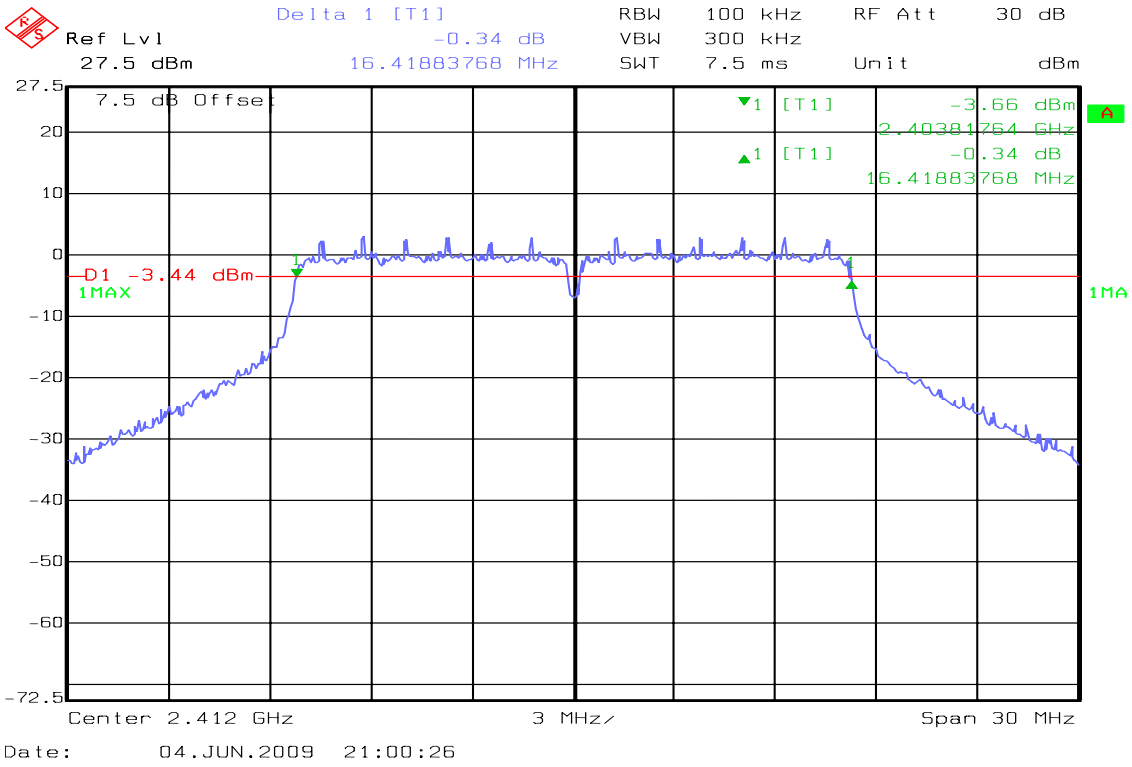


6dB Bandwidth (CH High)

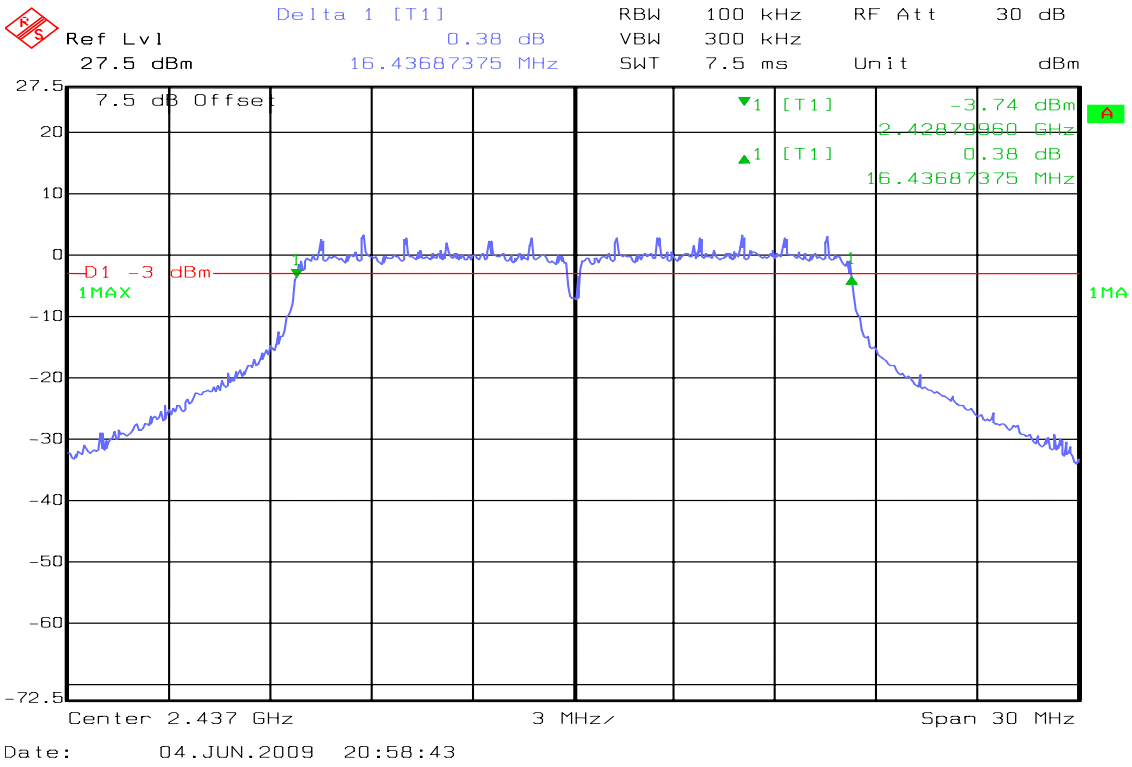


IEEE 802.11g mode

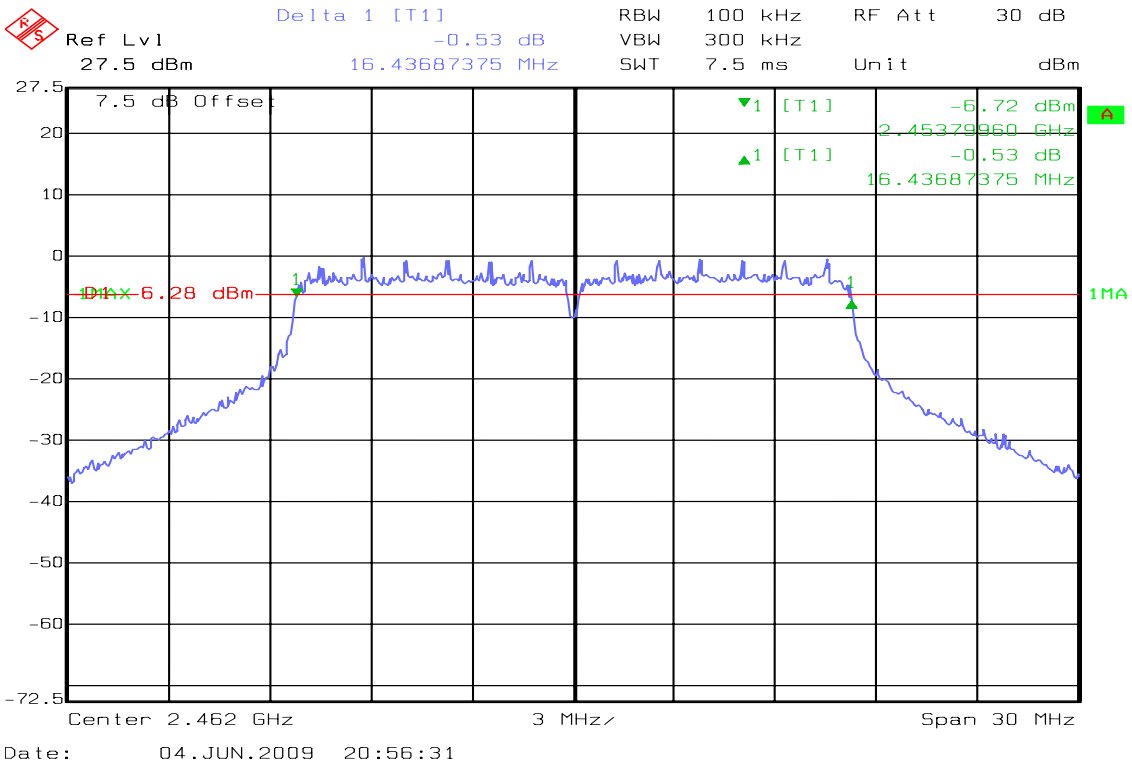
6dB Bandwidth (CH Low)



6dB Bandwidth (CH Mid)

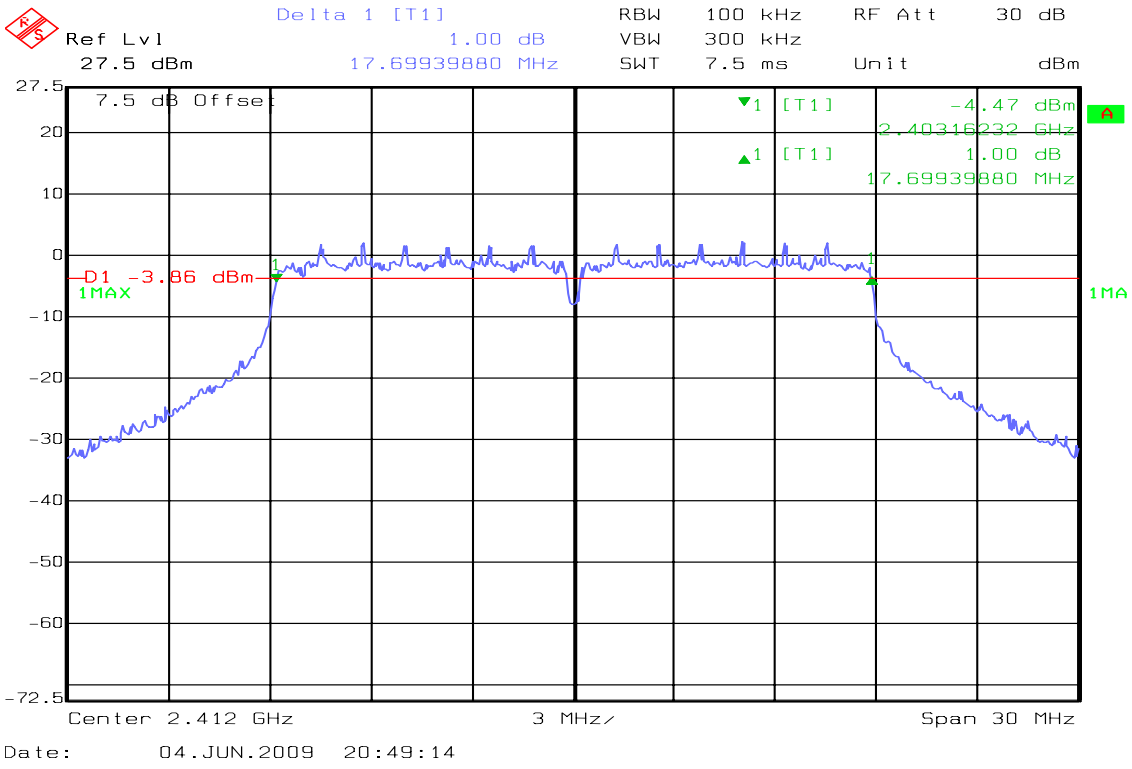


6dB Bandwidth (CH High)

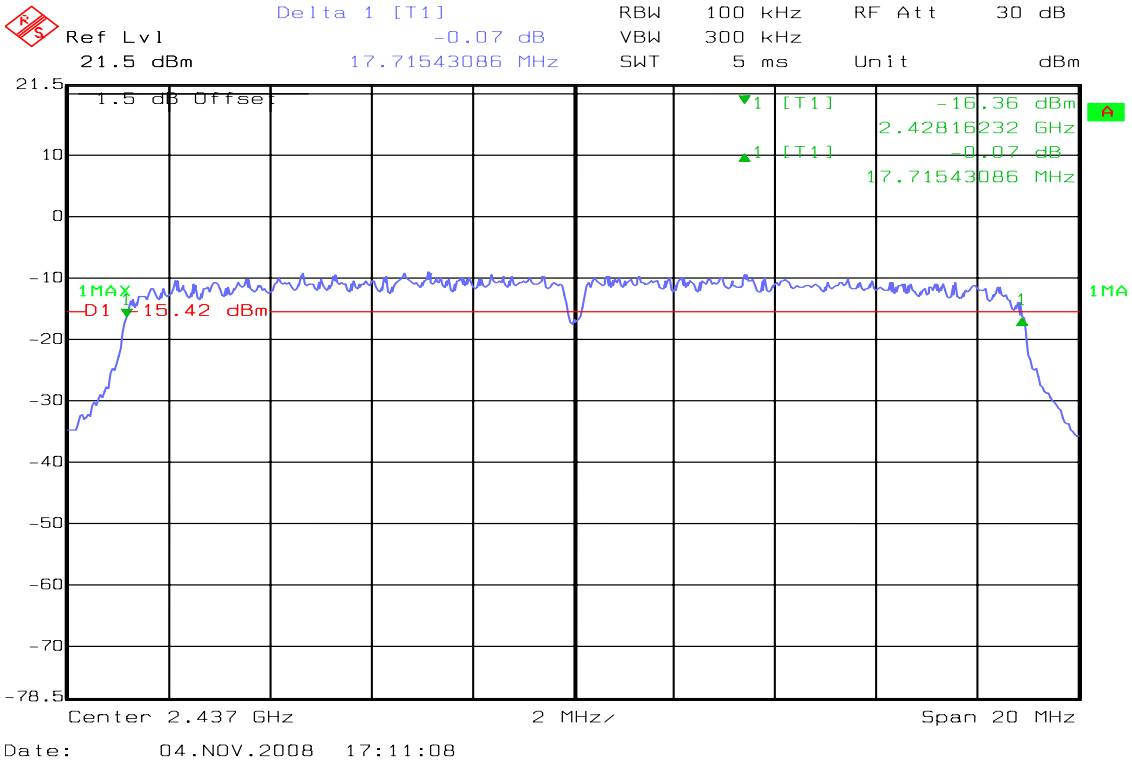


draft 802.11n 20 MHz Channel mode

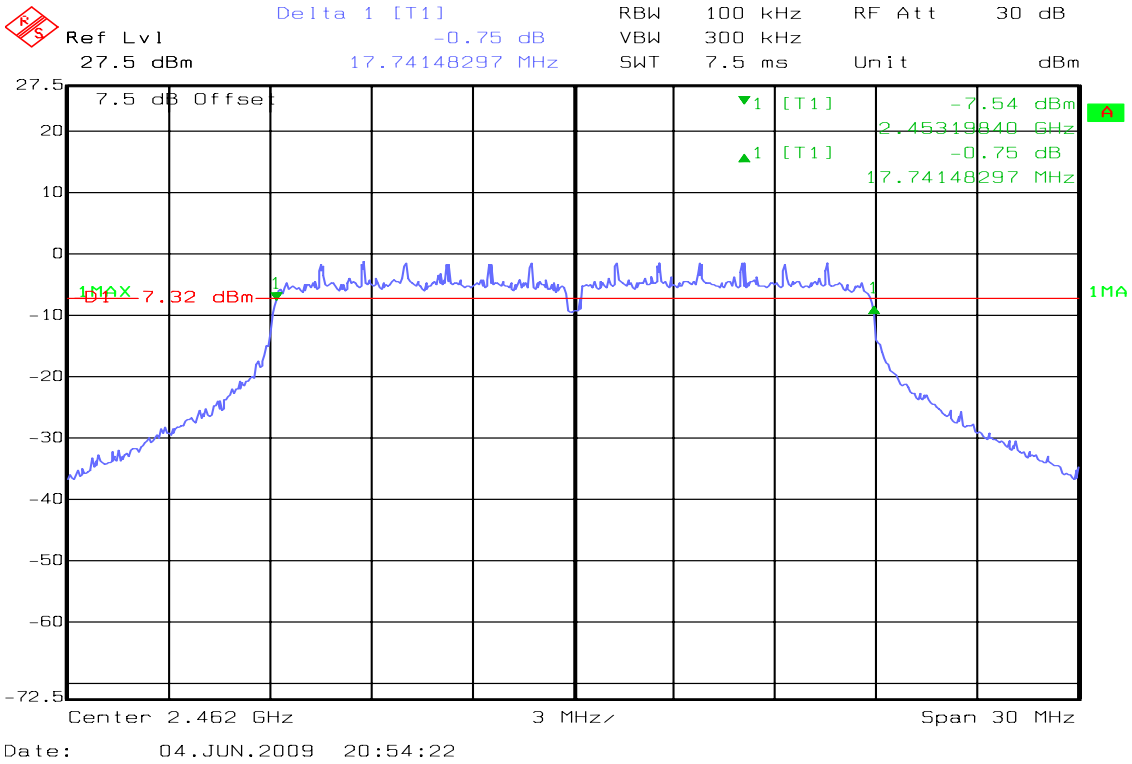
6dB Bandwidth (CH Low)



6dB Bandwidth (CH Mid)

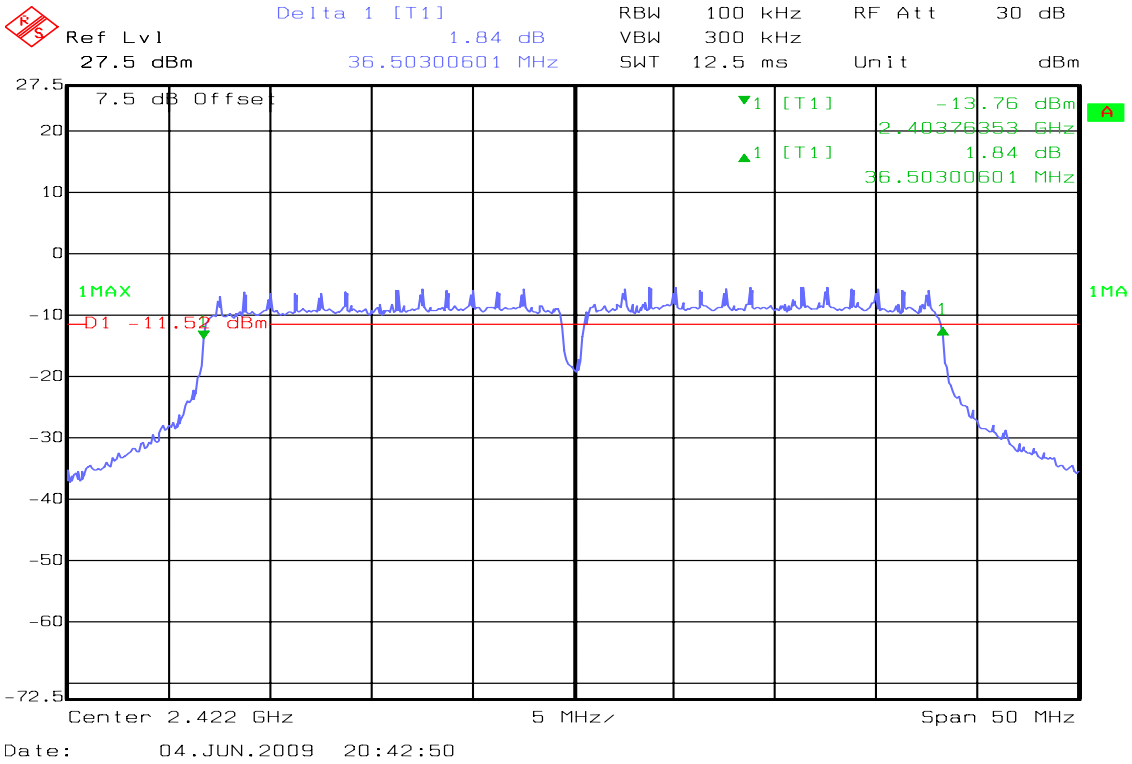


6dB Bandwidth (CH High)

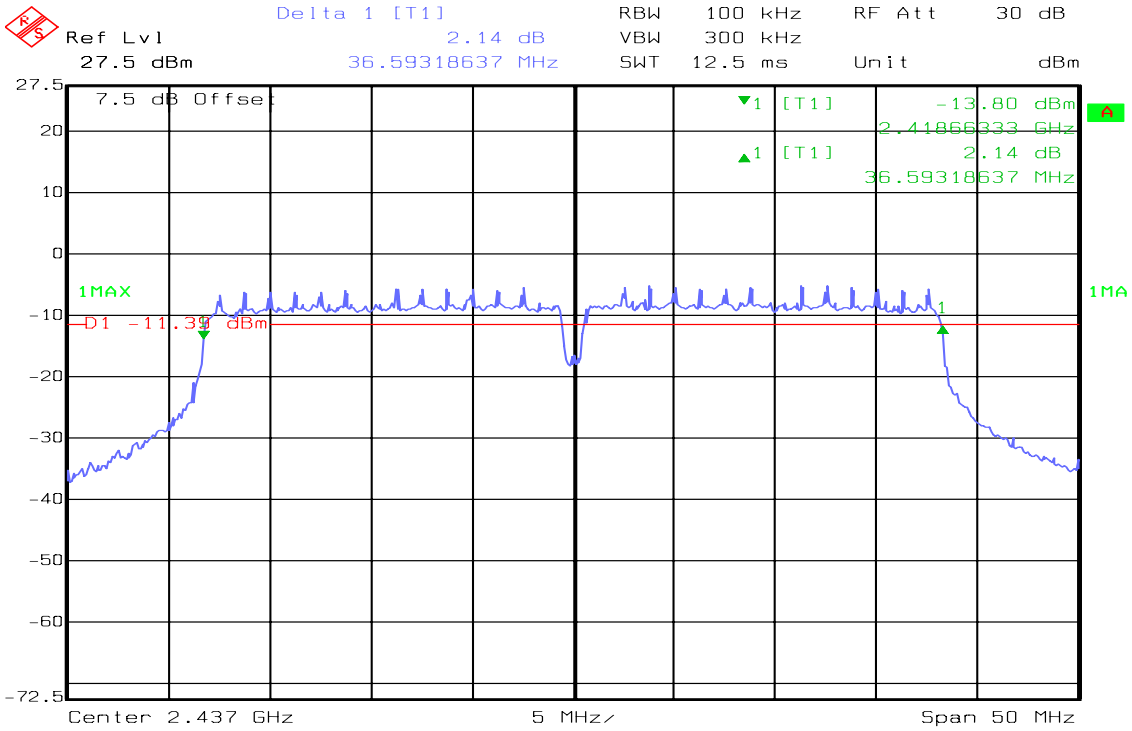


draft 802.11n 40 MHz Channel mode

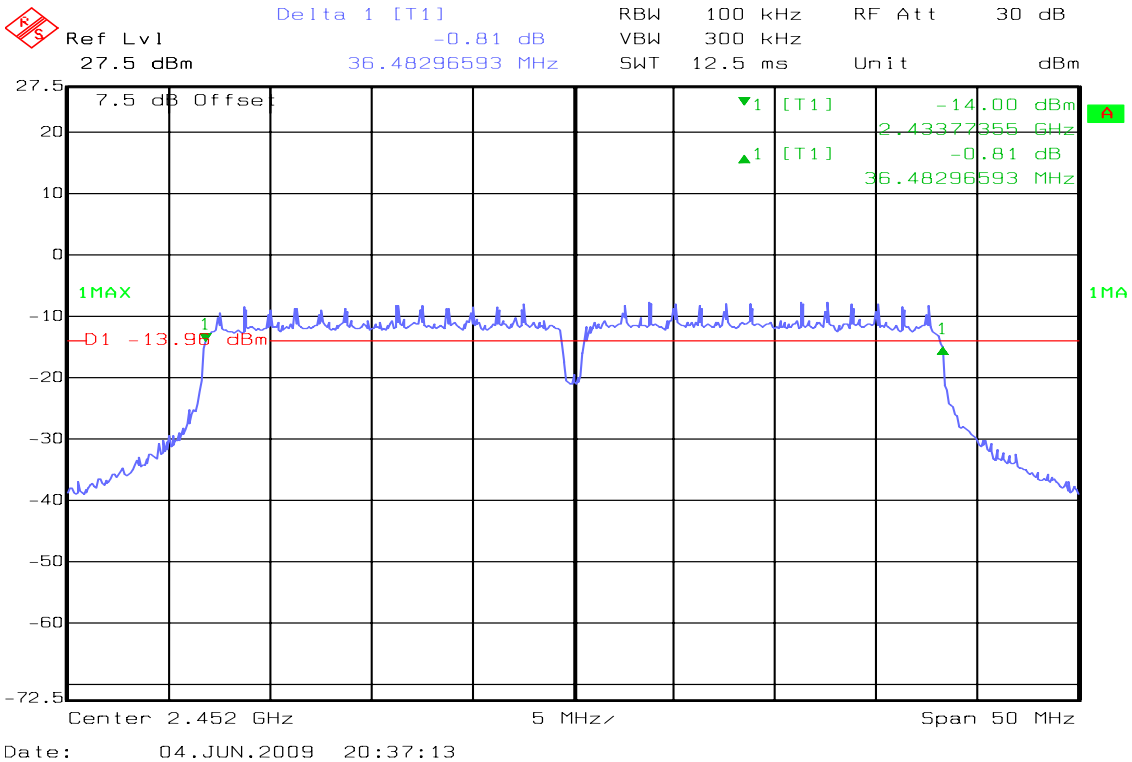
6dB Bandwidth (CH Low)



6dB Bandwidth (CH Mid)



6dB Bandwidth (CH High)



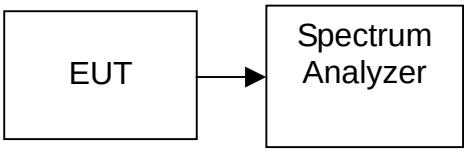
7.2. PEAK POWER

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

The transmitter output is connected to the Spectrum analyzer. The Spectrum analyzer is set to the peak 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)	Limit (W)	Result
Low	2412	20.02	0.10046	1.00	PASS
Mid	2437	20.37	0.10889		PASS
High	2462	20.31	0.10740		PASS

Test mode: IEEE 802.11g mode

Channel	Frequency (MHz)	Output Power (dBm)	Output Power (W)	Limit (W)	Result
Low	2412	20.01	0.10023	1.00	PASS
Mid	2437	20.27	0.10641		PASS
High	2462	16.53	0.04498		PASS

Test mode: draft 802.11n 20 MHz Channel mode

Channel	Frequency (MHz)	Output Power (dBm)	Output Power (W)	Limit (W)	Result
Low	2412	19.28	0.08472	1.00	PASS
Mid	2437	19.02	0.07980		PASS
High	2462	15.21	0.03319		PASS

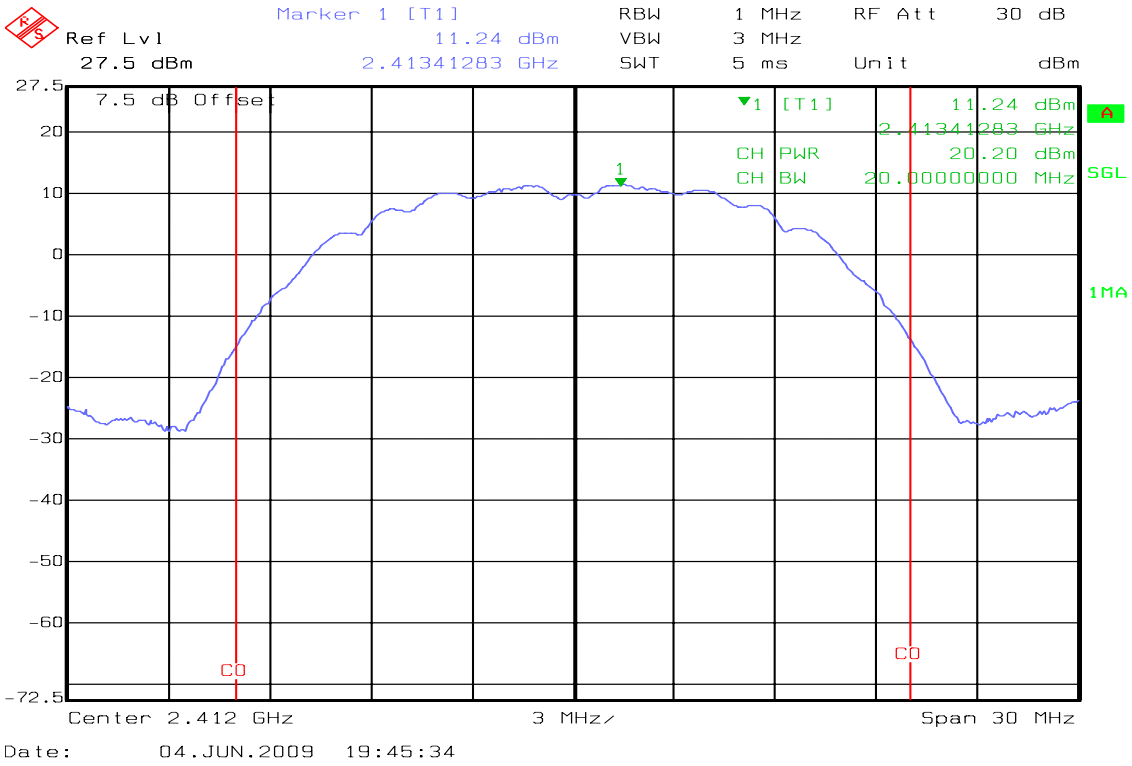
Test mode: draft 802.11n 40 MHz Channel mode

Channel	Frequency (MHz)	Output Power (dBm)	Output Power (W)	Limit (W)	Result
Low	2422	14.22	0.02642	1.00	PASS
Mid	2437	14.43	0.02773		PASS
High	2452	11.62	0.01452		PASS

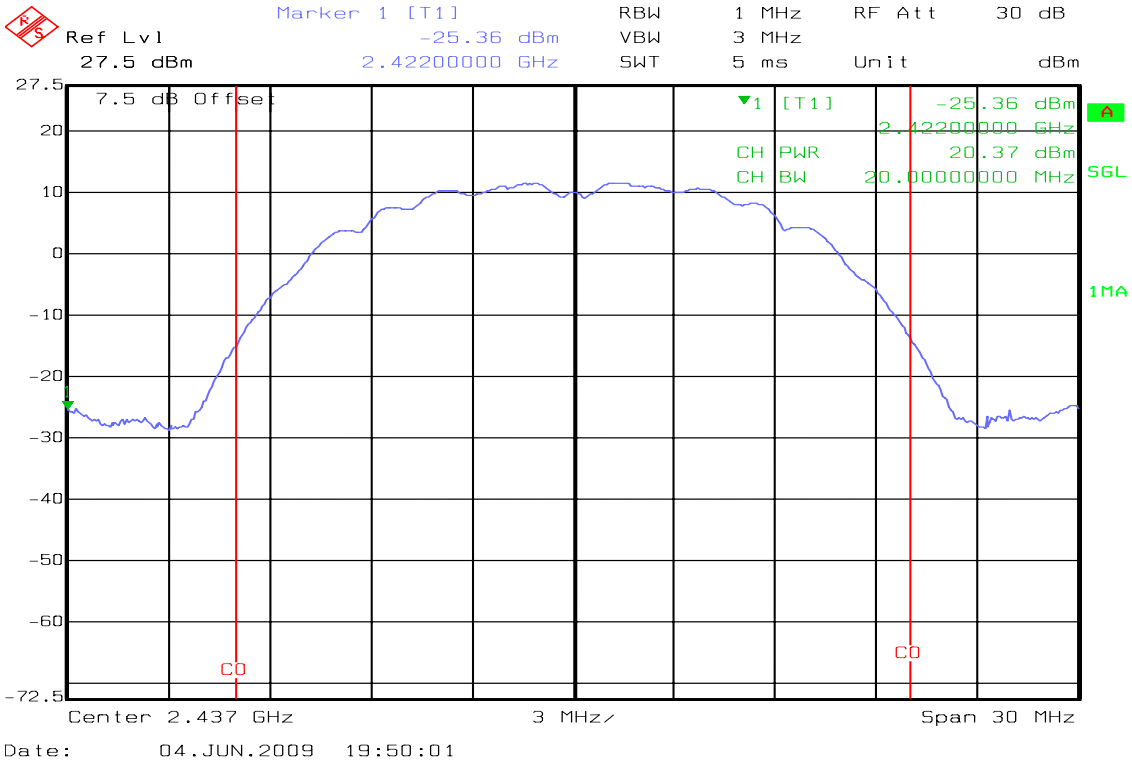
Test Plot

IEEE 802.11b mode

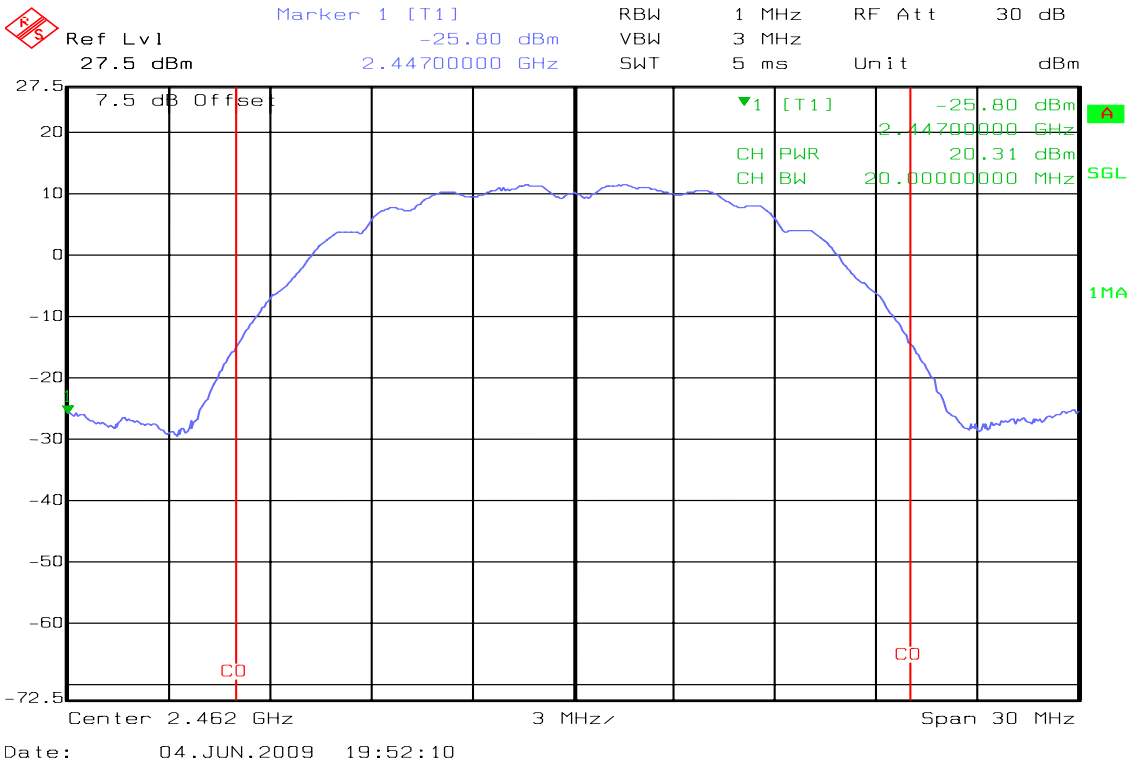
Peak Power (CH Low)



Peak Power (CH Mid)

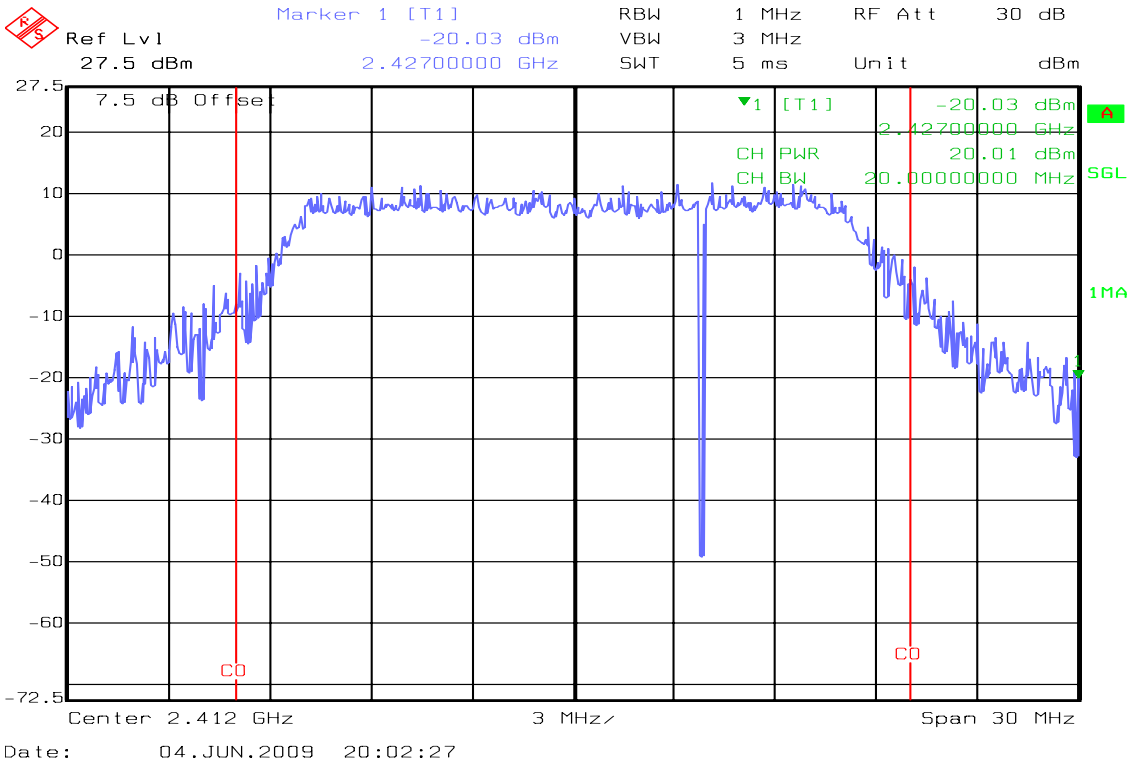


Peak Power (CH High)

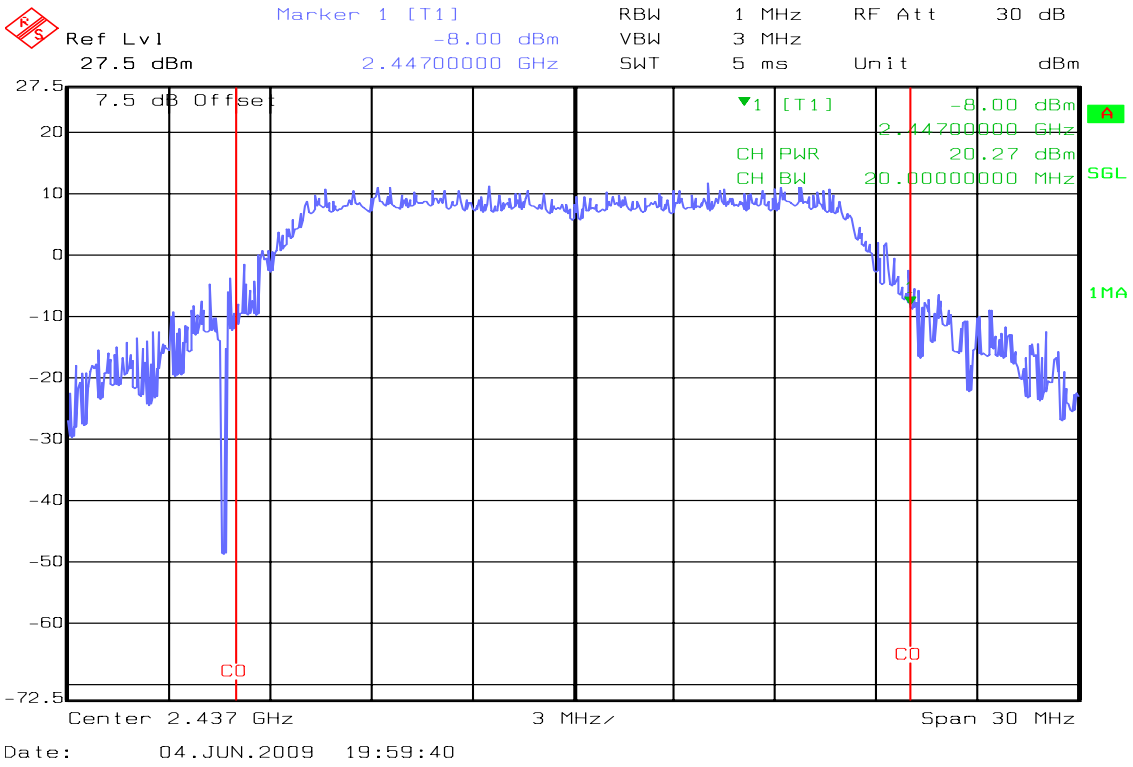


IEEE 802.11g mode

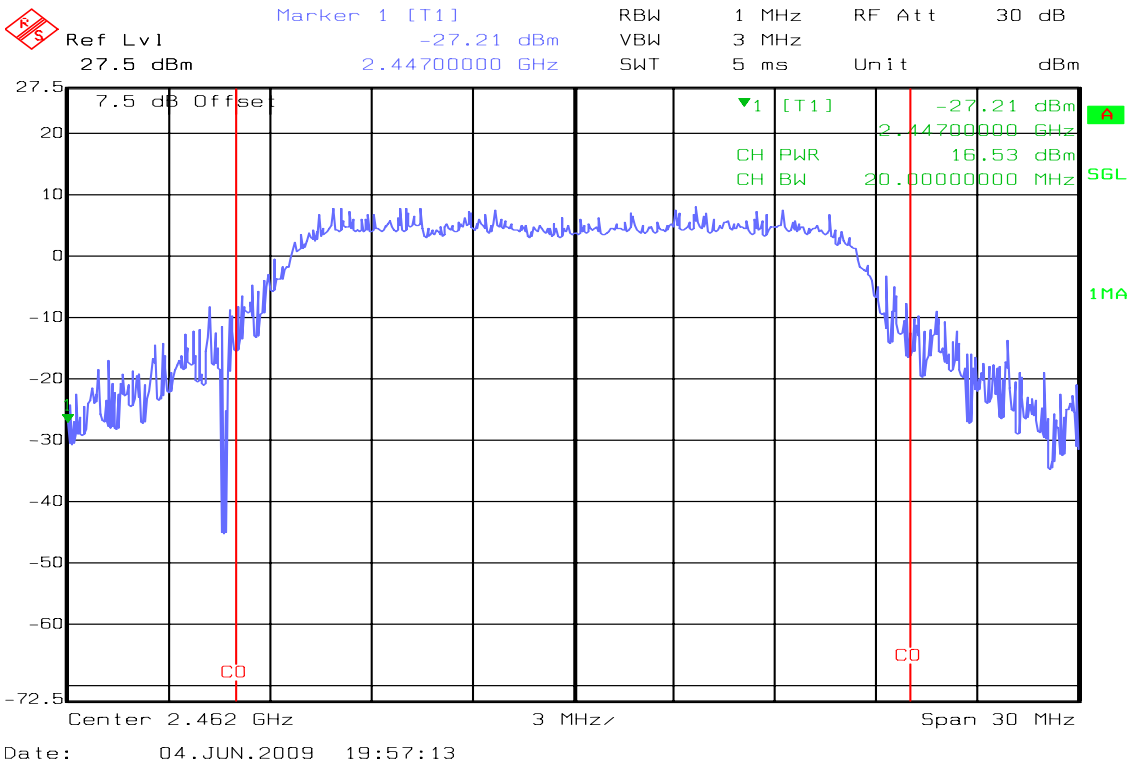
Peak Power (CH Low)



Peak Power (CH Mid)

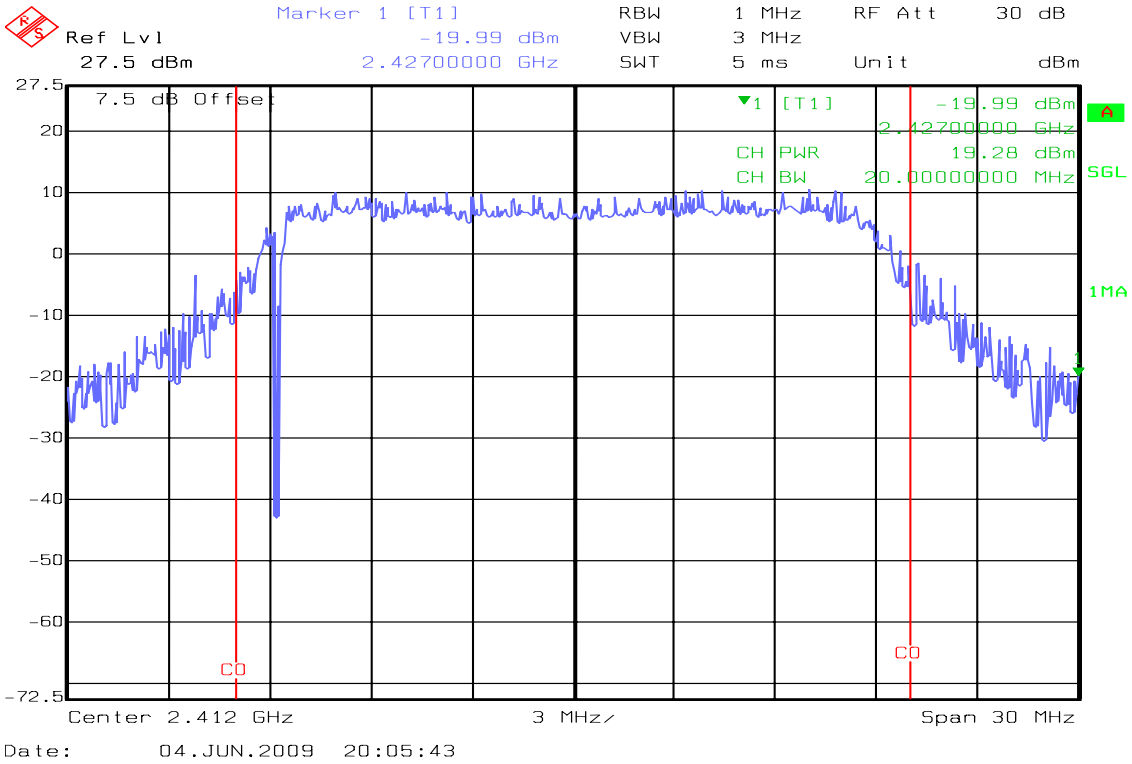


Peak Power (CH High)

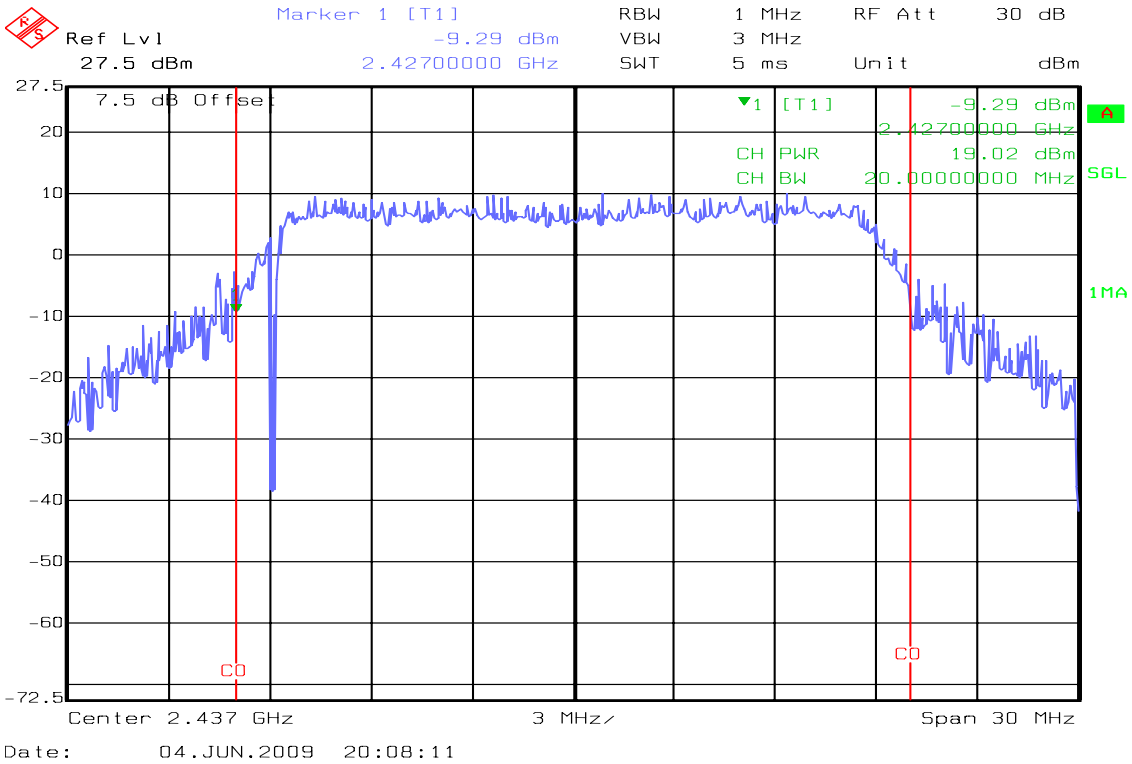


draft 802.11n 20 MHz Channel mode

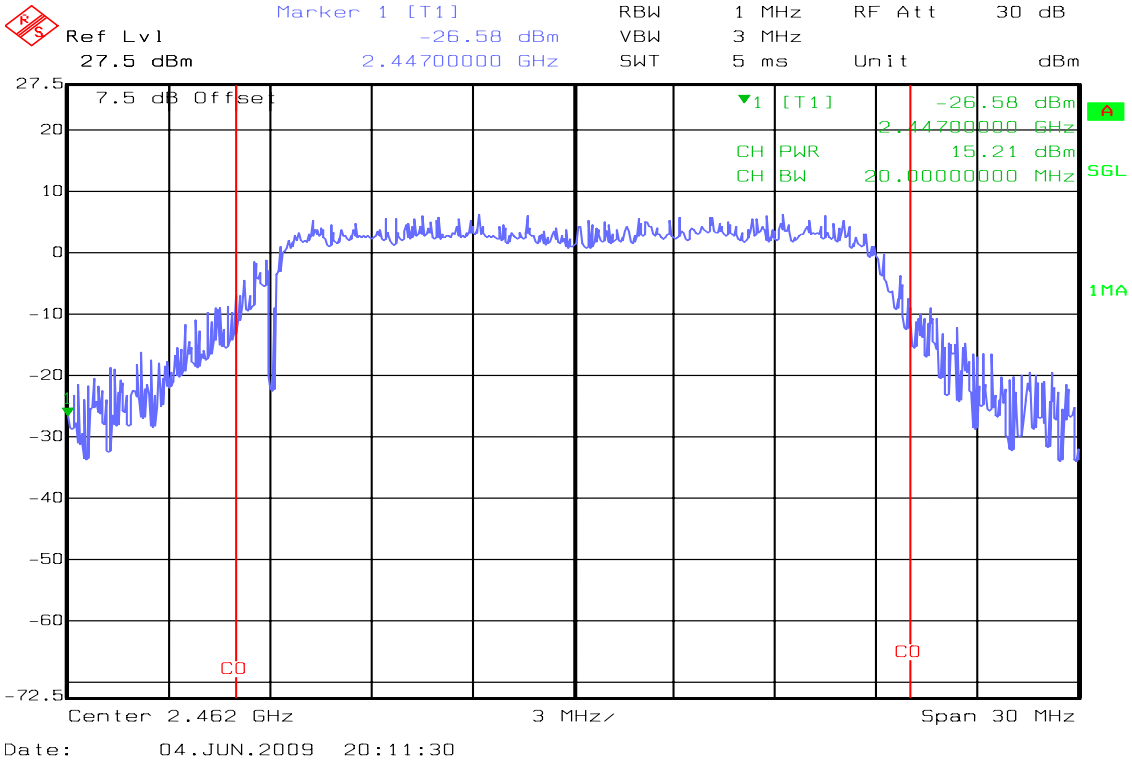
Peak Power (CH Low)



Peak Power (CH Mid)

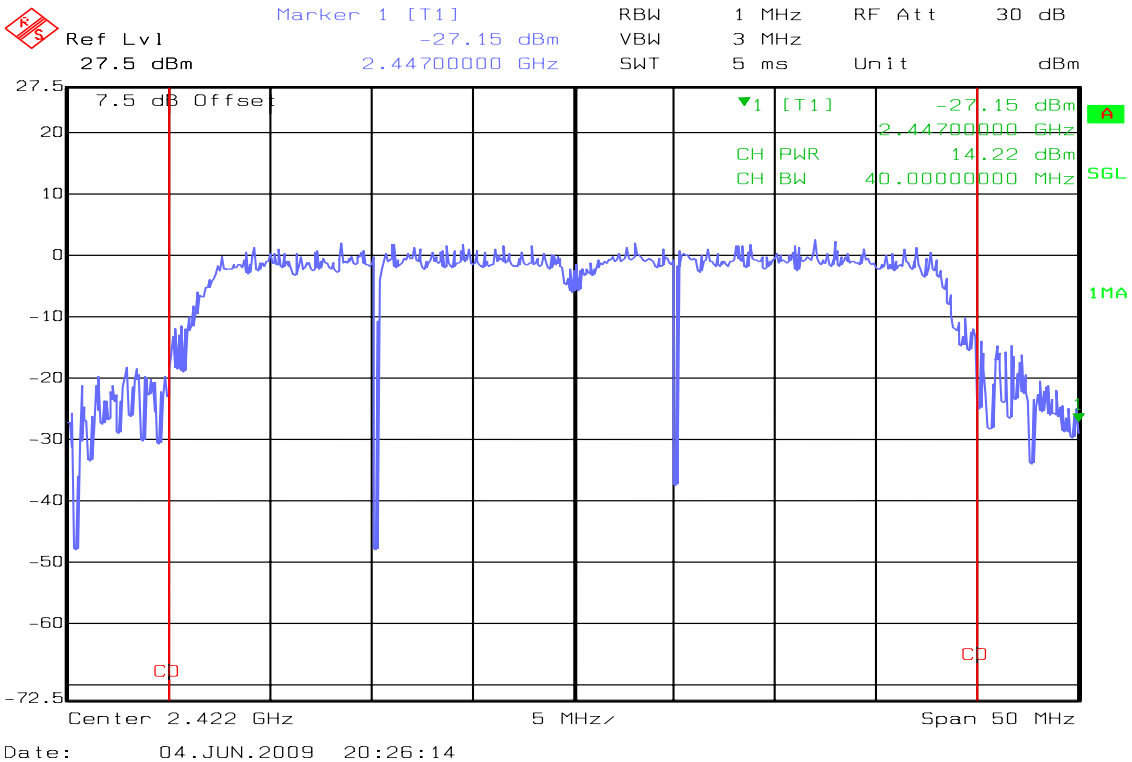


Peak Power (CH High)

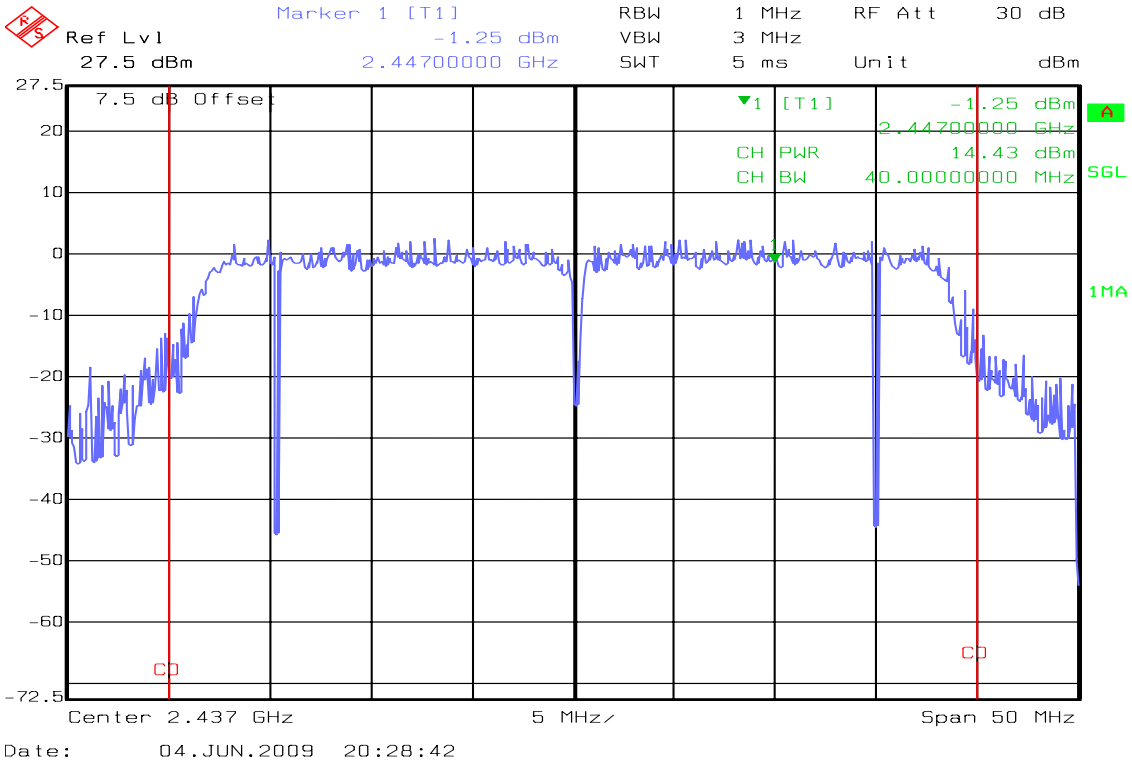


draft 802.11n 40 MHz Channel mode

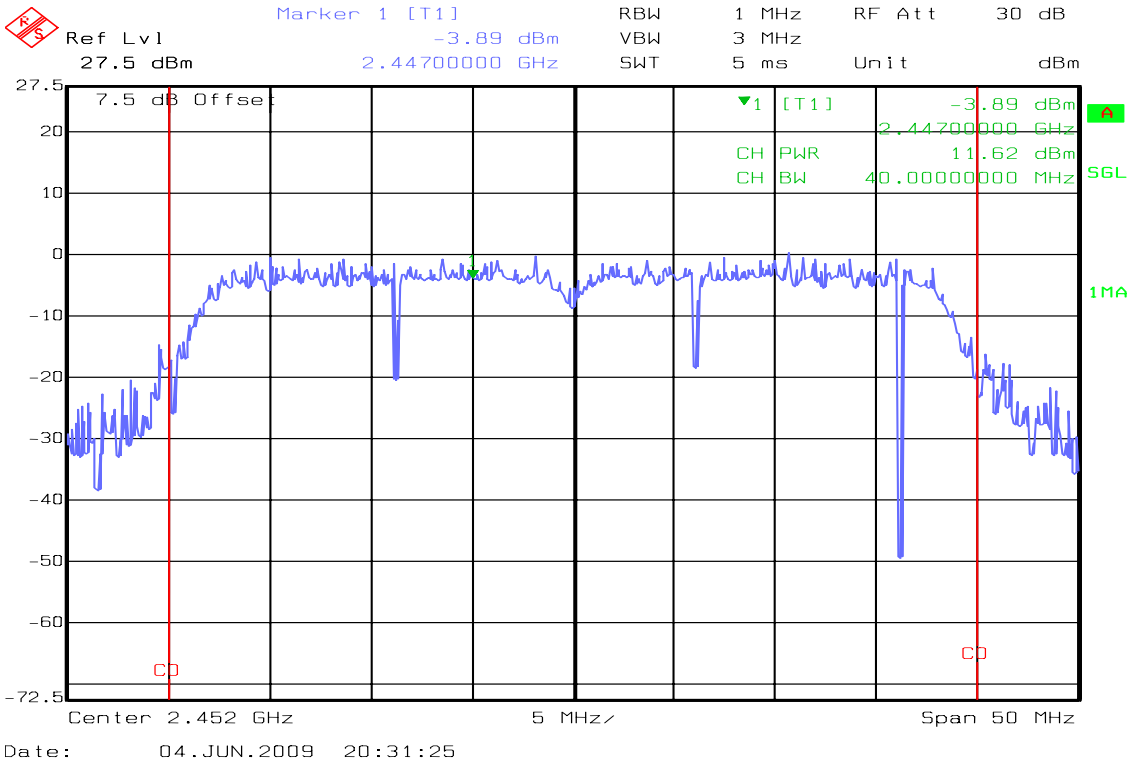
Peak Power (CH Low)



Peak Power (CH Mid)



Peak Power (CH High)

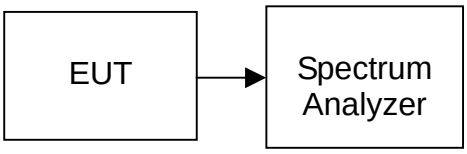


7.3. AVERAGE POWER

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

IEEE 802.11b

Channel	Frequency (MHz)	Output Power (dBm)	Output Power (W)
Low	2412	17.02	0.05035
Mid	2437	17.00	0.05012
High	2462	17.05	0.05070

IEEE 802.11g

Channel	Frequency (MHz)	Output Power (dBm)	Output Power (W)
Low	2412	14.03	0.02529
Mid	2437	14.01	0.02518
High	2462	11.08	0.01282

draft 802.11n 20 MHz

Channel	Frequency (MHz)	Output Power (dBm)	Output Power (W)
Low	2412	13.24	0.02109
Mid	2437	13.38	0.02178
High	2462	10.07	0.01016

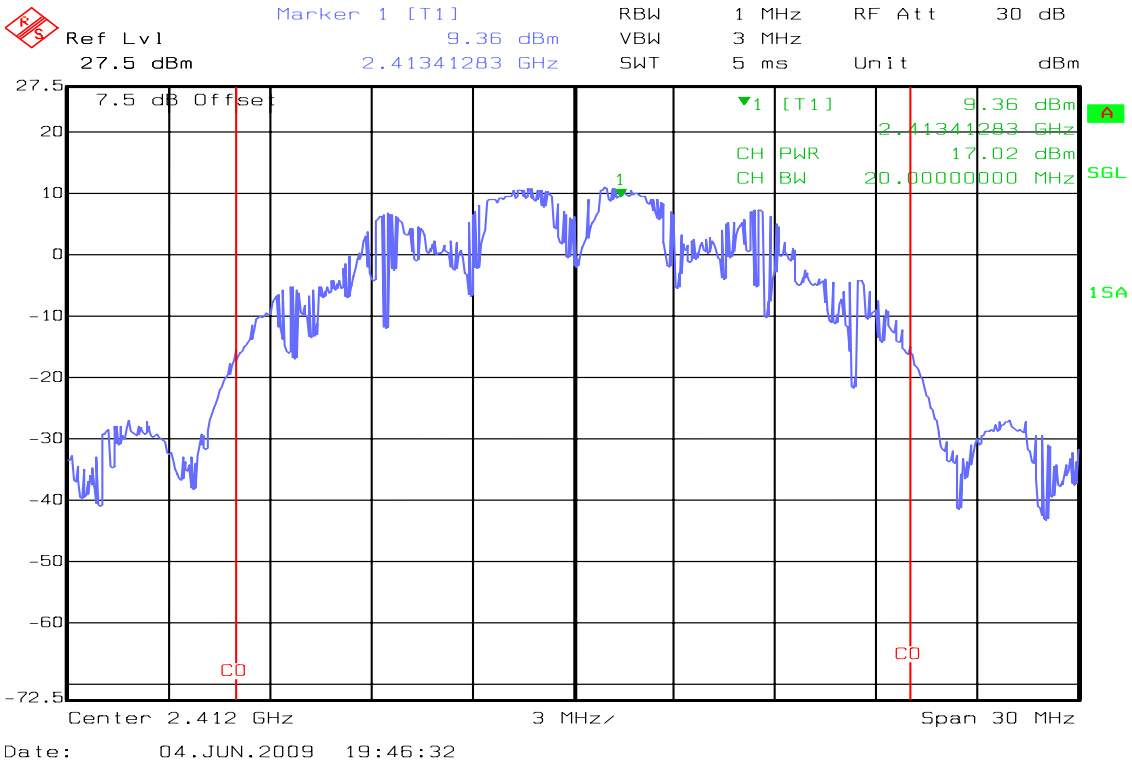
draft 802.11n 40 MHz

Channel	Frequency (MHz)	Output Power (dBm)	Output Power (W)
Low	2422	8.70	0.00741
Mid	2437	9.01	0.00796
High	2452	6.03	0.00401

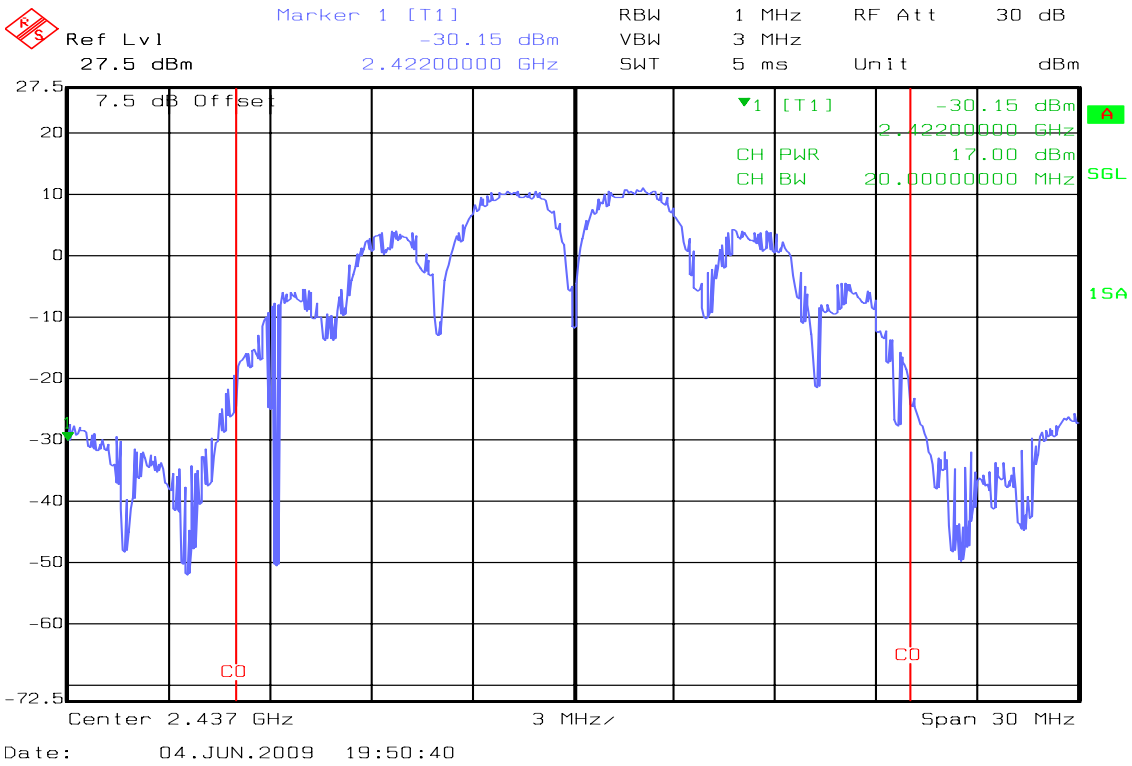
Test Plot

IEEE 802.11b mode

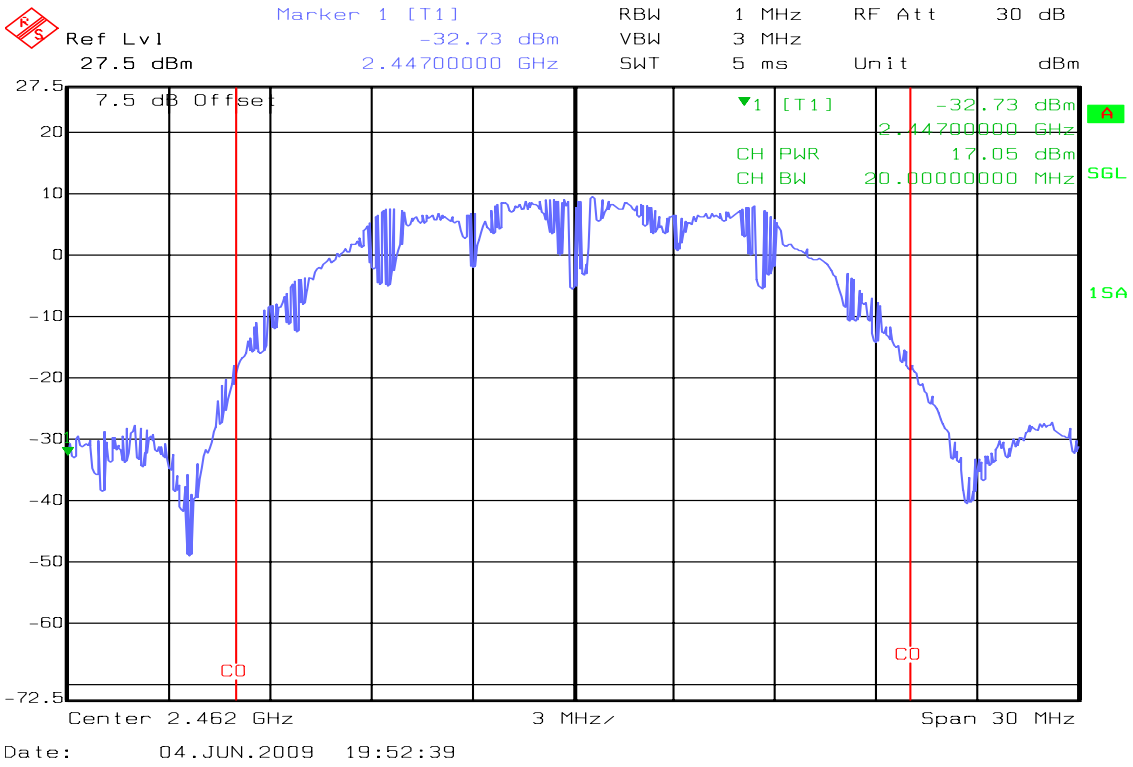
Average power (CH Low)



Average power (CH Mid)

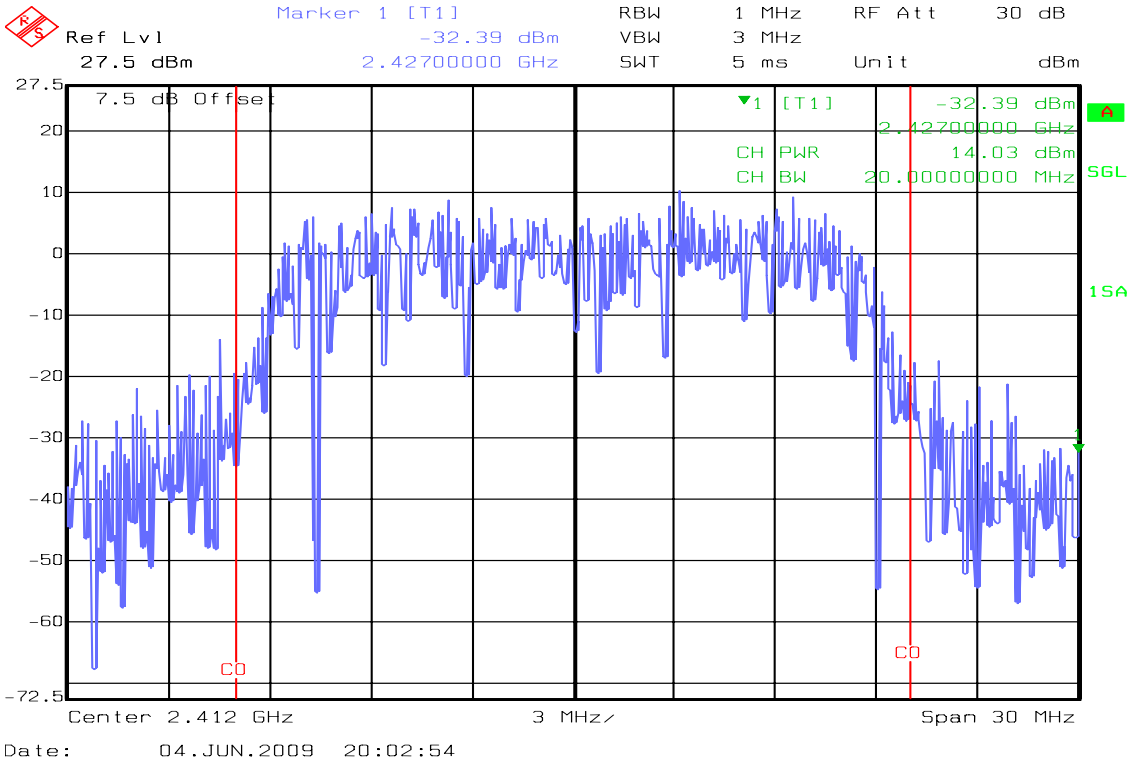


Average power (CH High)

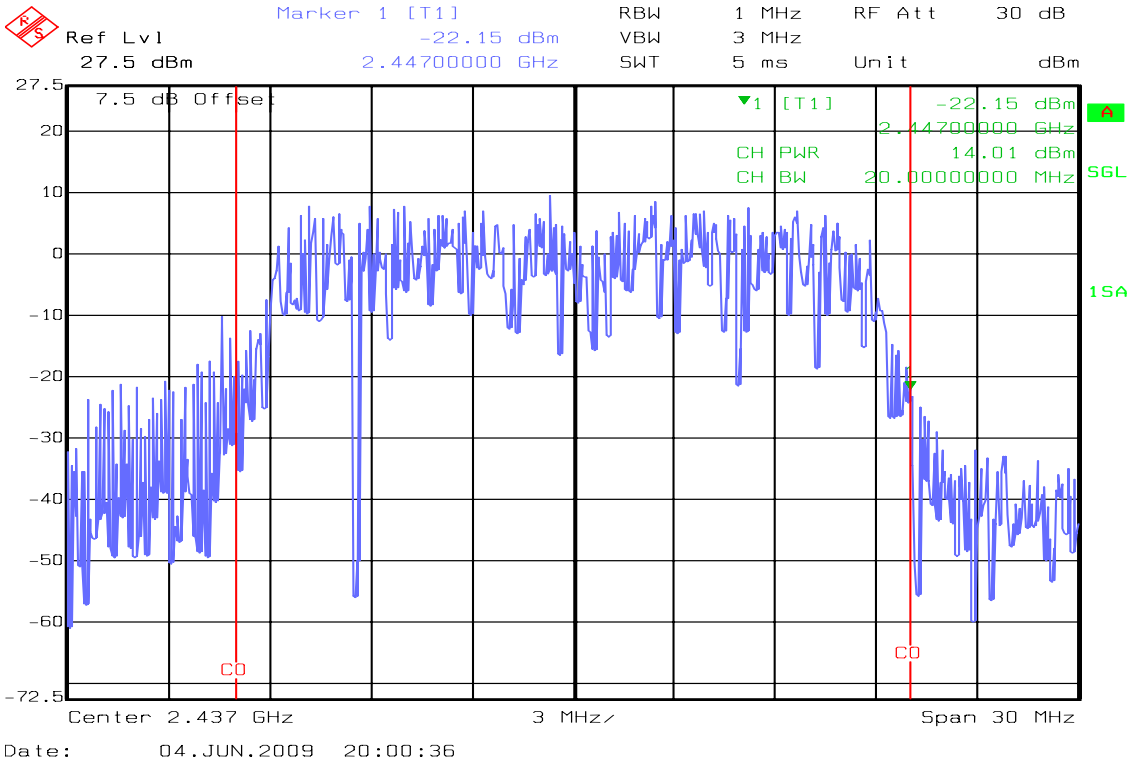


IEEE 802.11g mode

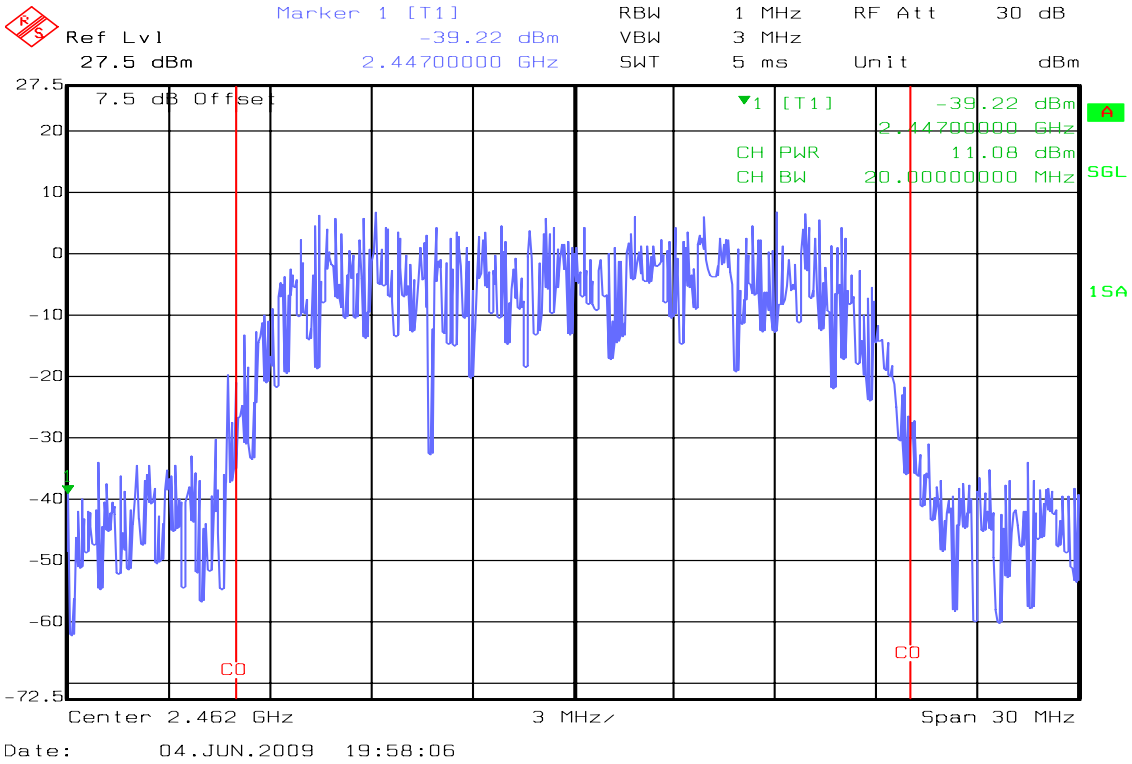
Average power (CH Low)



Average power (CH Mid)

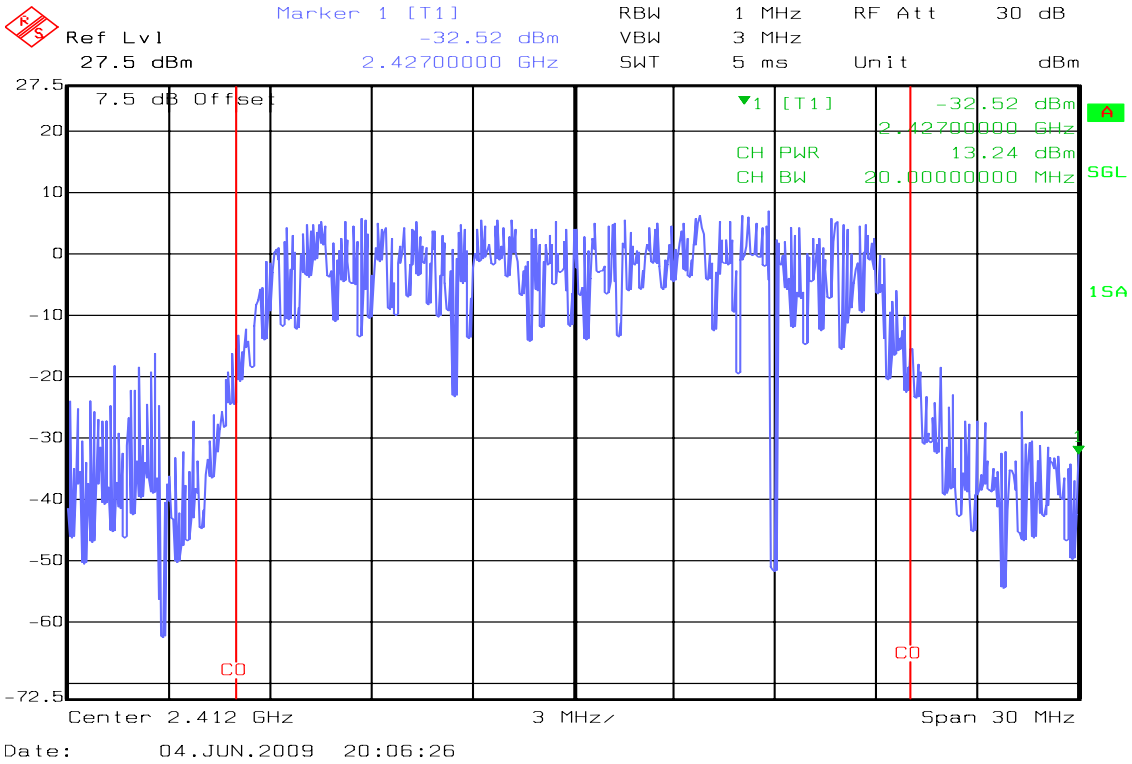


Average power (CH High)

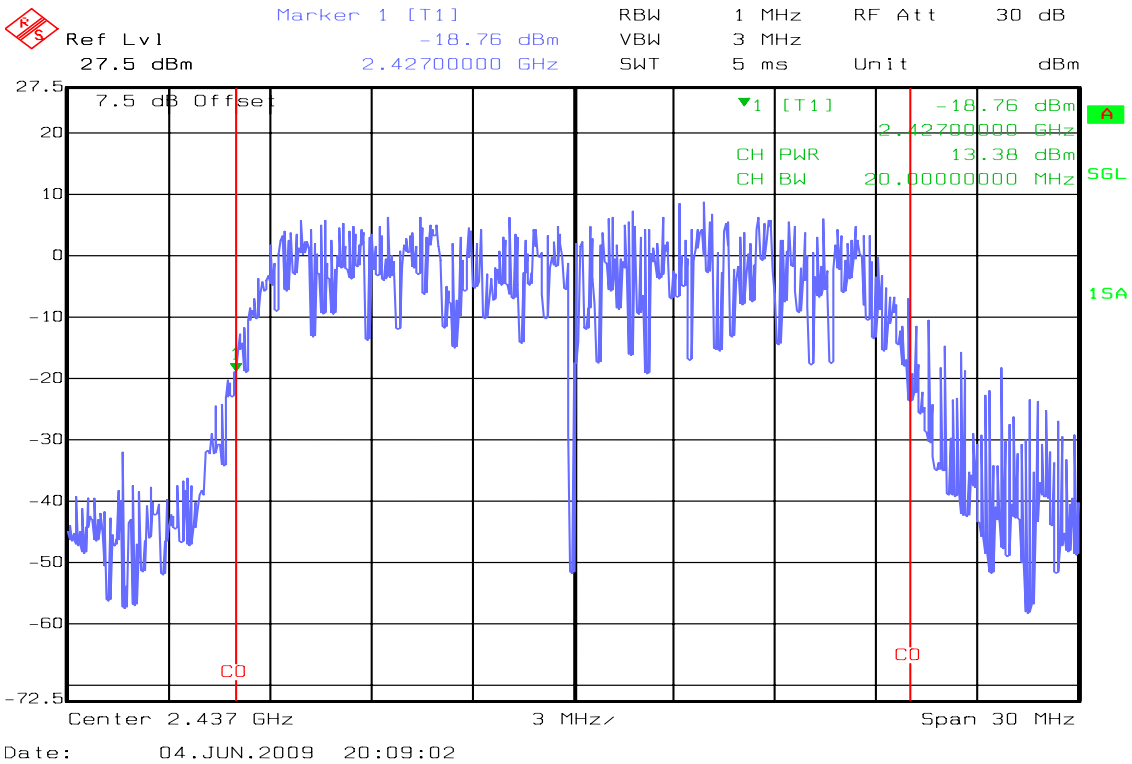


draft 802.11n 20 MHz Channel mode

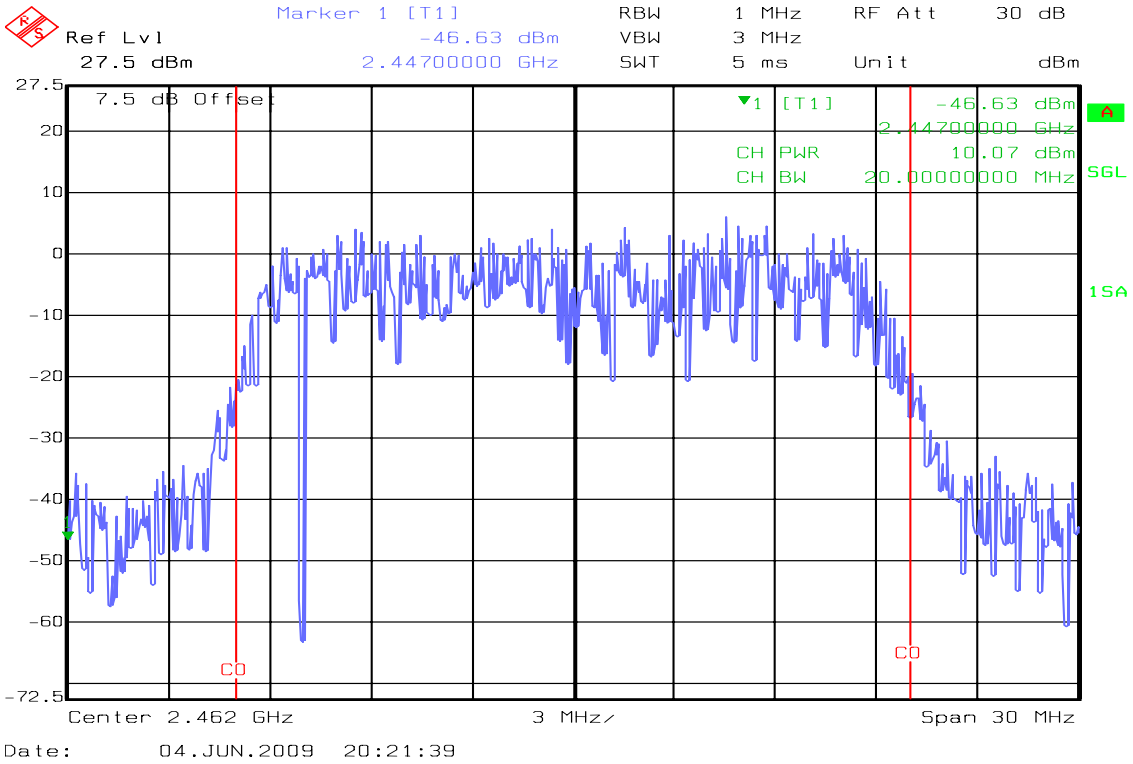
Average power (CH Low)



Average power (CH Mid)

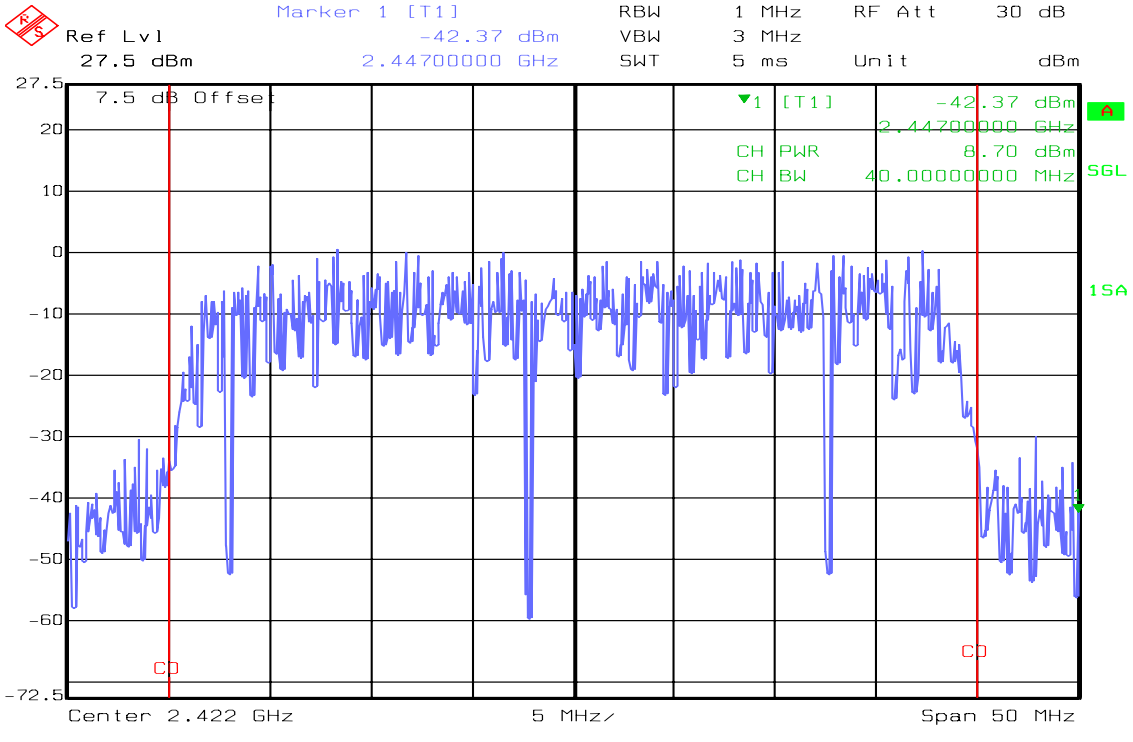


Average power (CH High)

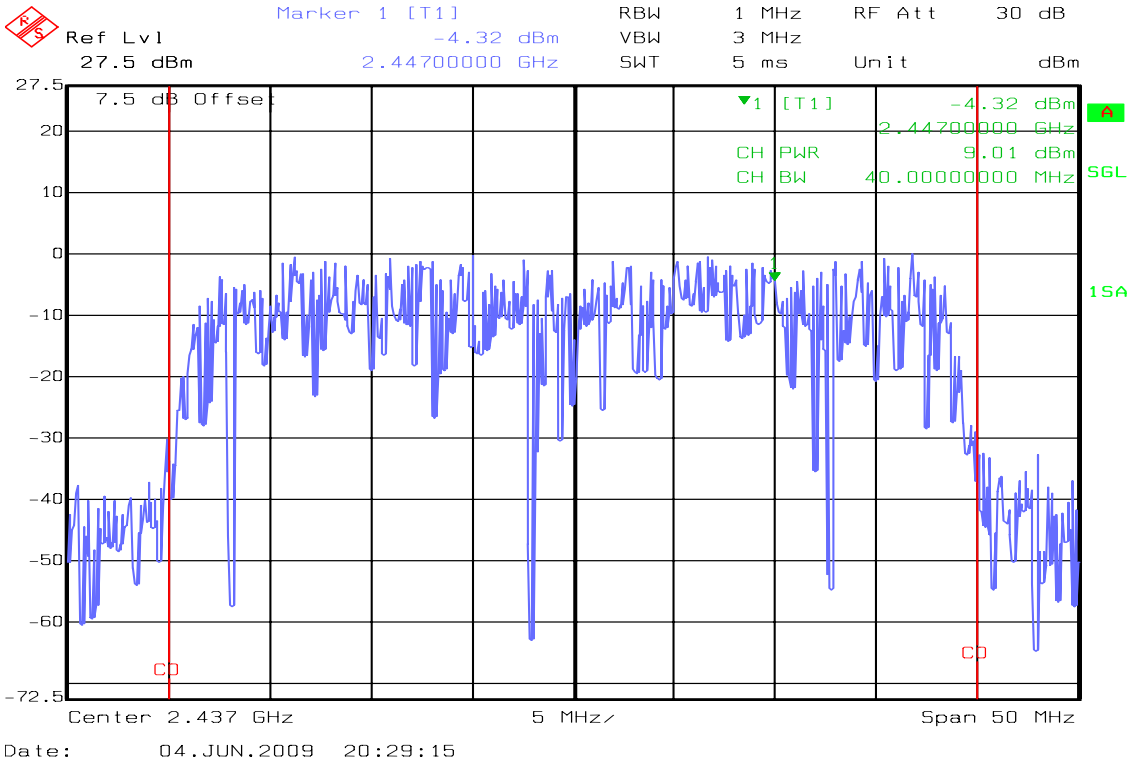


draft 802.11n 40 MHz Channel mode

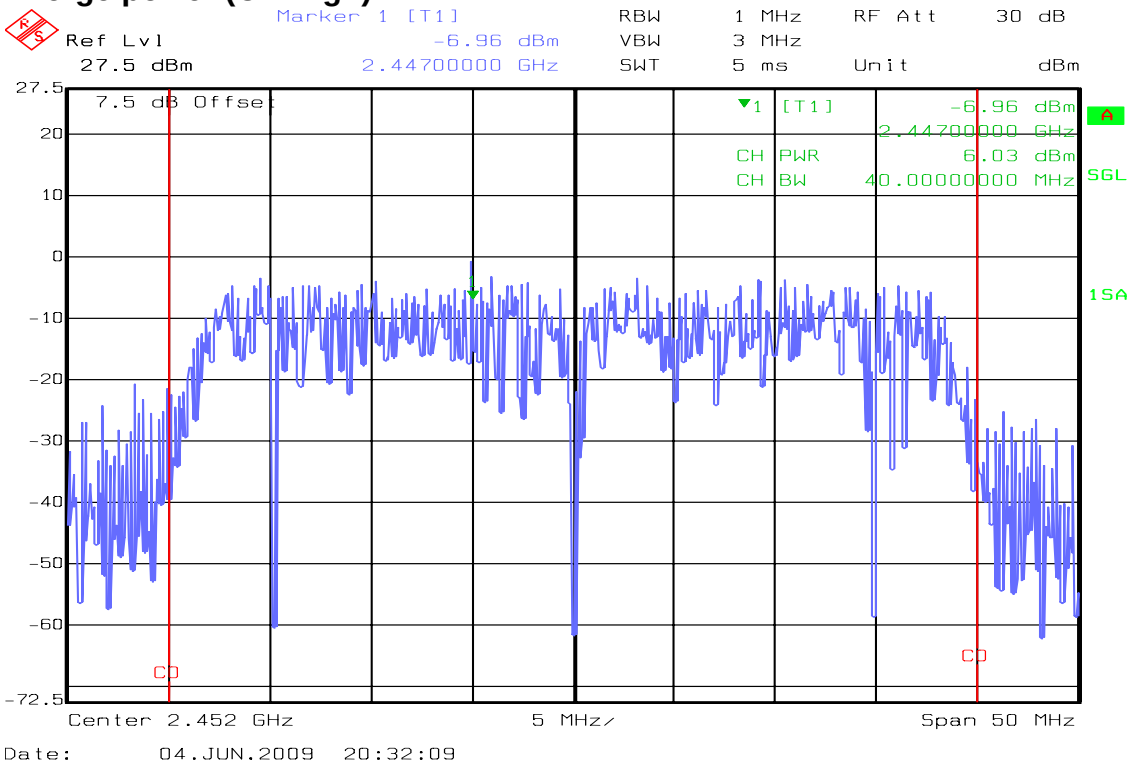
Average power (CH Low)



Average power (CH Mid)



Averge power (CH High)

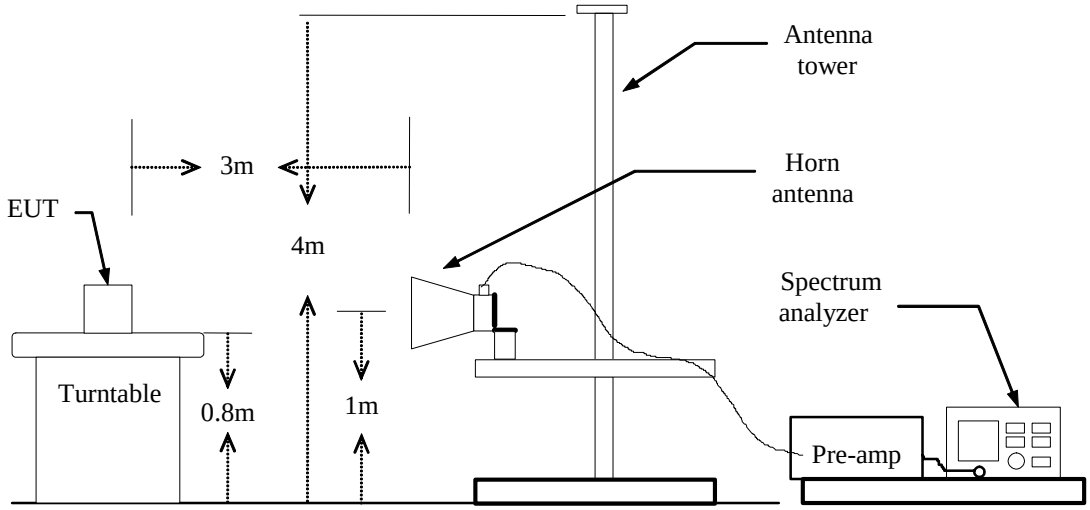


7.4. BAND EDGES MEASUREMENT

LIMIT

According to §15.247(d), in any 100 kHz bandwidth outside the frequency bands in which the spread spectrum intentional radiator in 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=1MHz / Sweep=AUTO
5. Repeat the procedures until all the PEAK and AVERAGE versus POLARIZATION are measured.

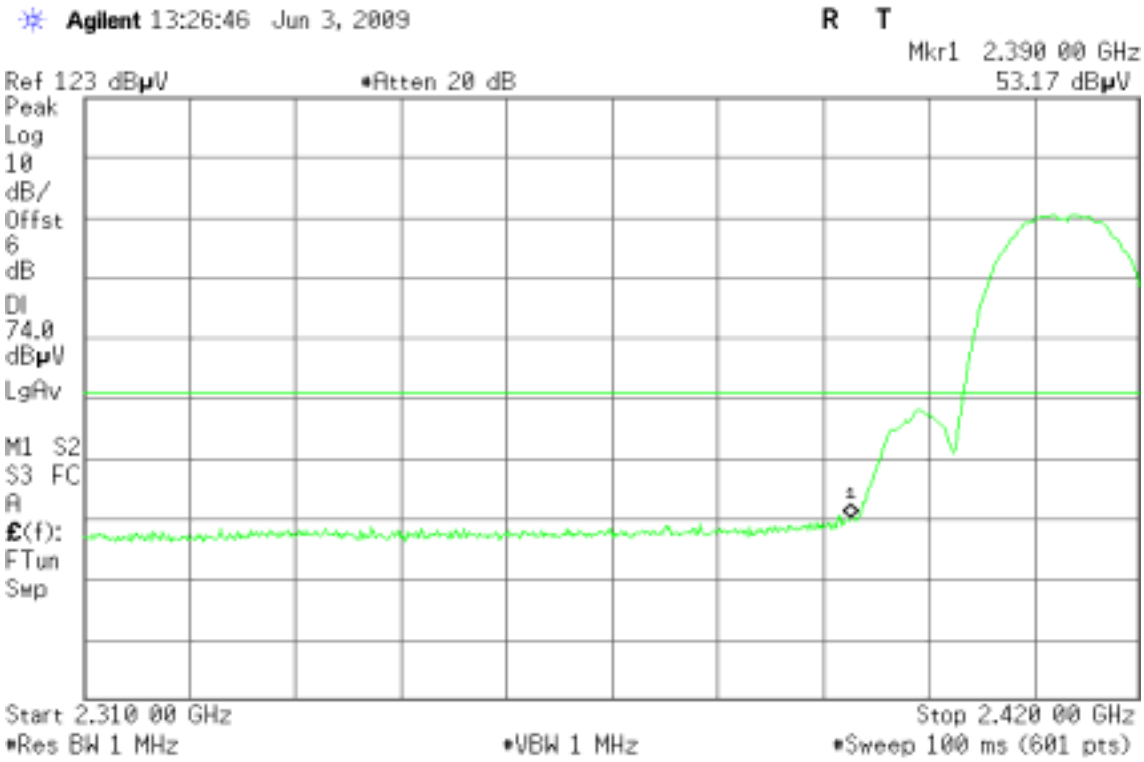
TEST RESULTS

Refer to attach spectrum analyzer data chart.

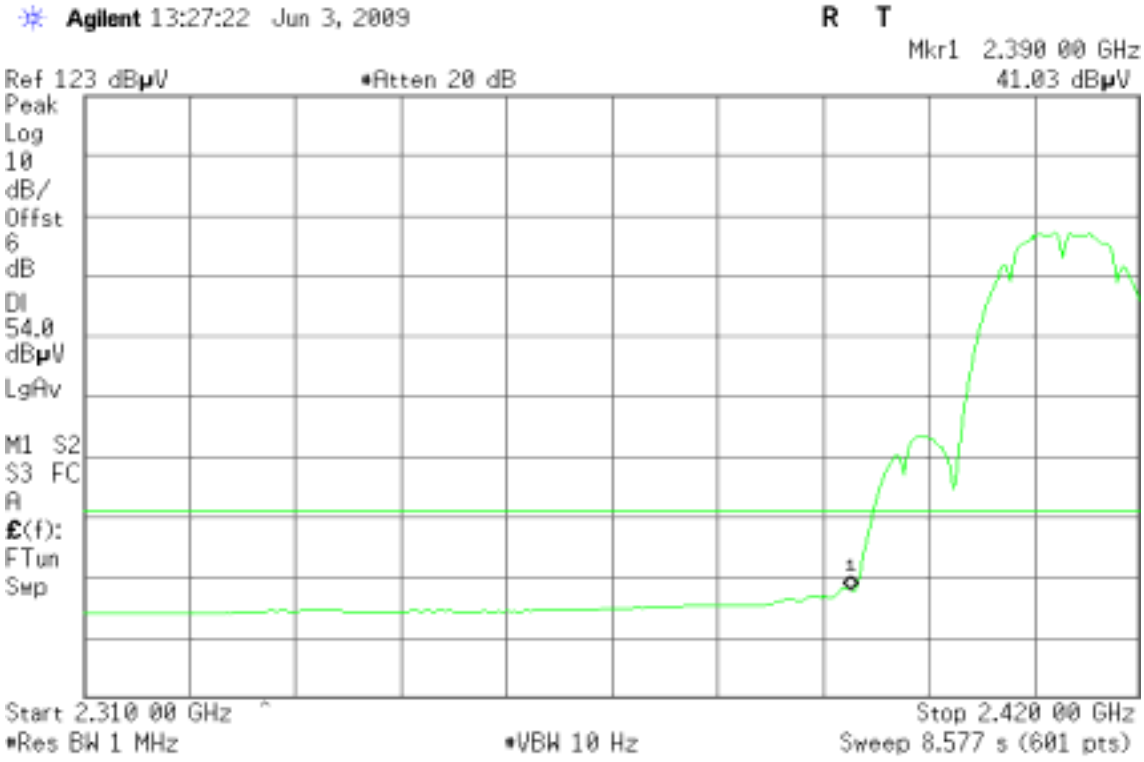
Test Plot

Band Edges (IEEE 802.11b mode / CH Low)

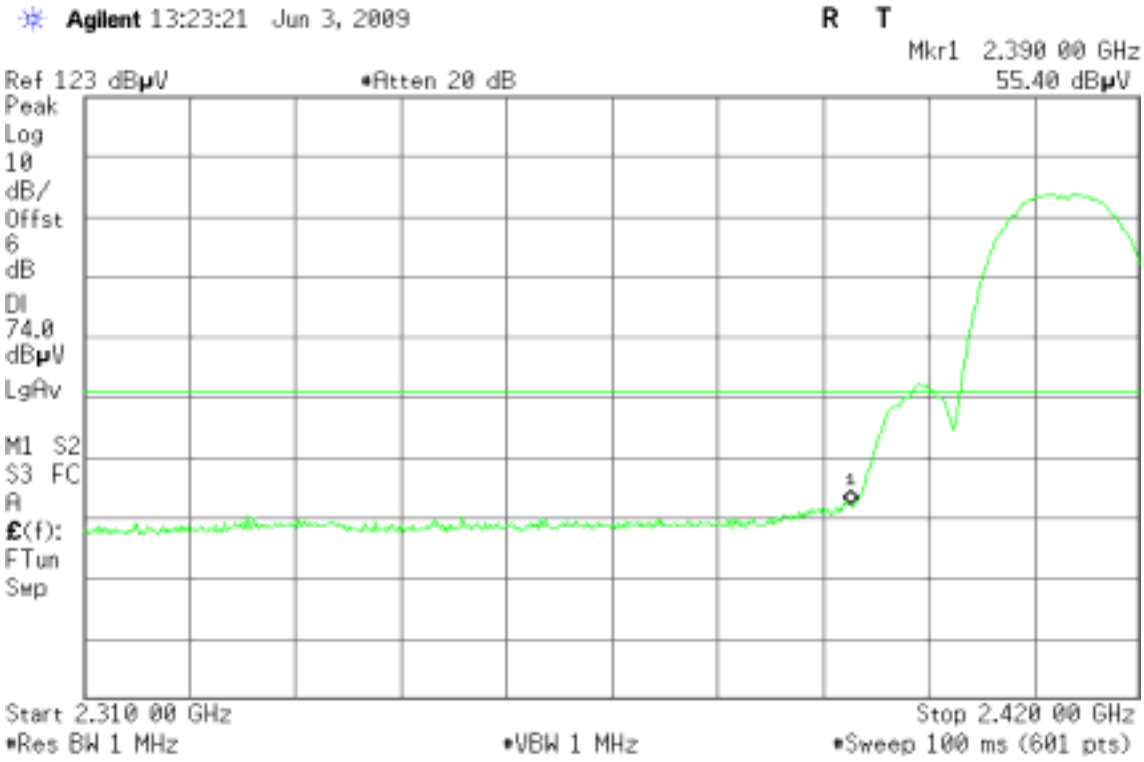
Detector mode: Peak **Polarity: Vertical**



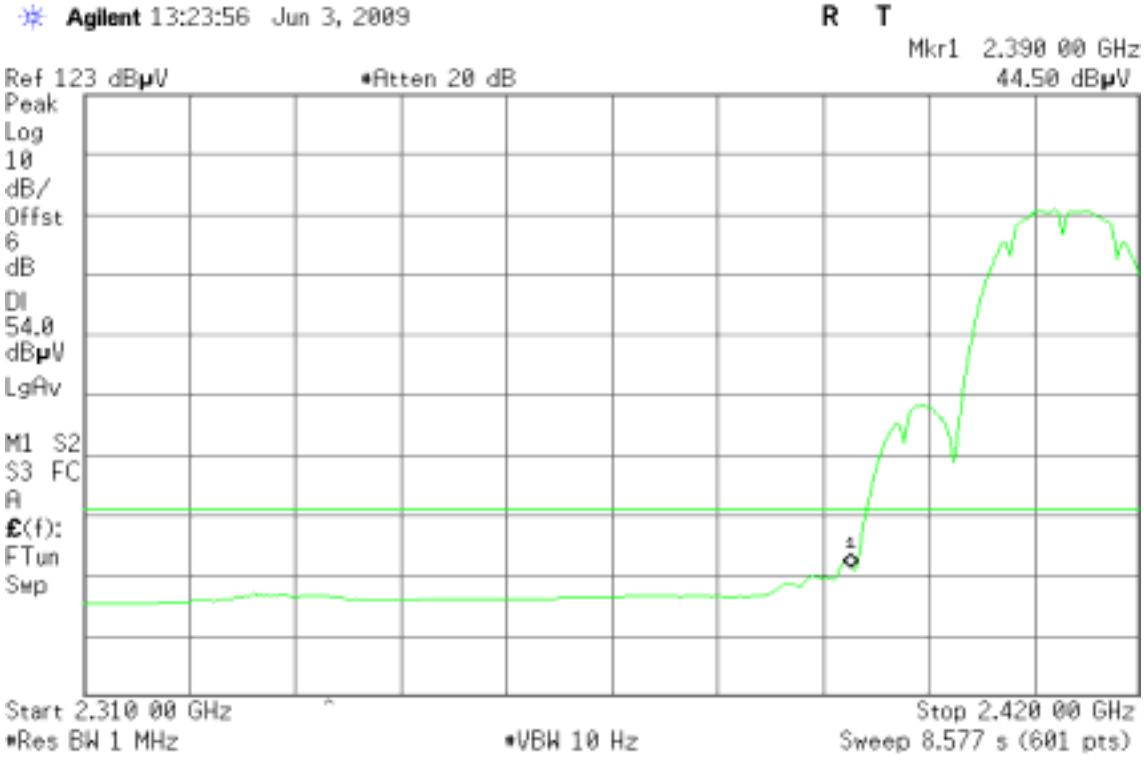
Detector mode: Average **Polarity: Vertical**



Detector mode: Peak **Polarity: Horizontal**

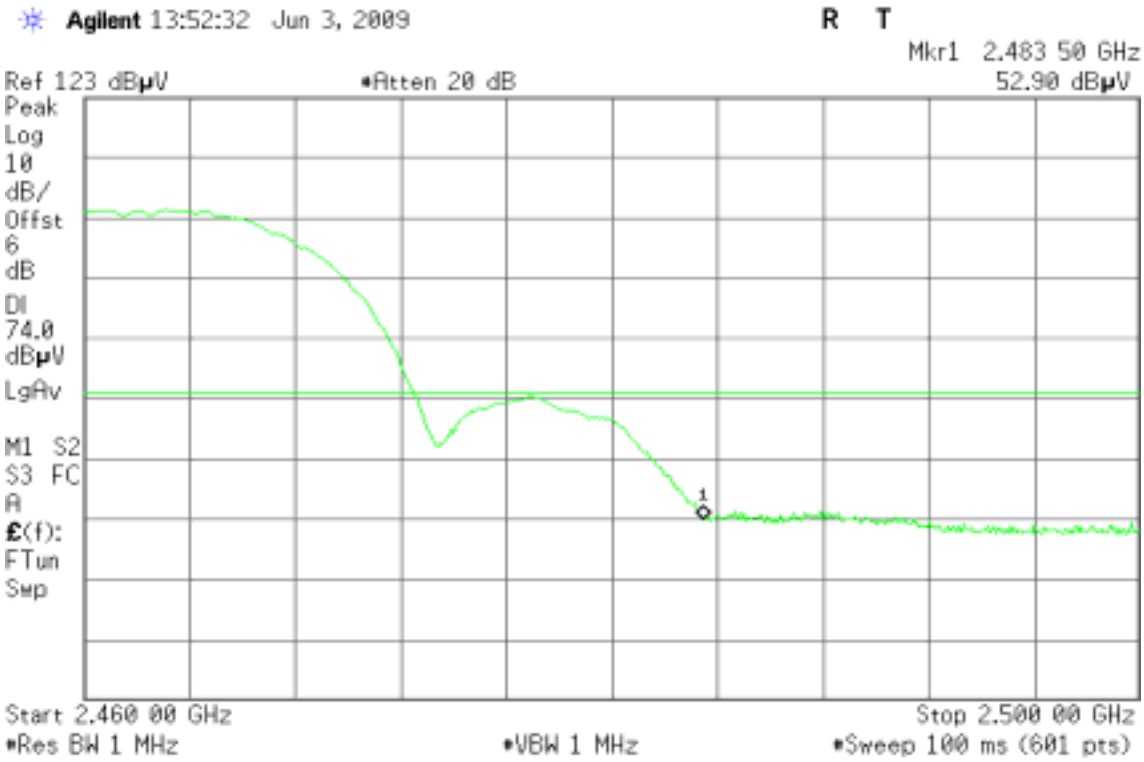


Detector mode: Average **Polarity: Horizontal**

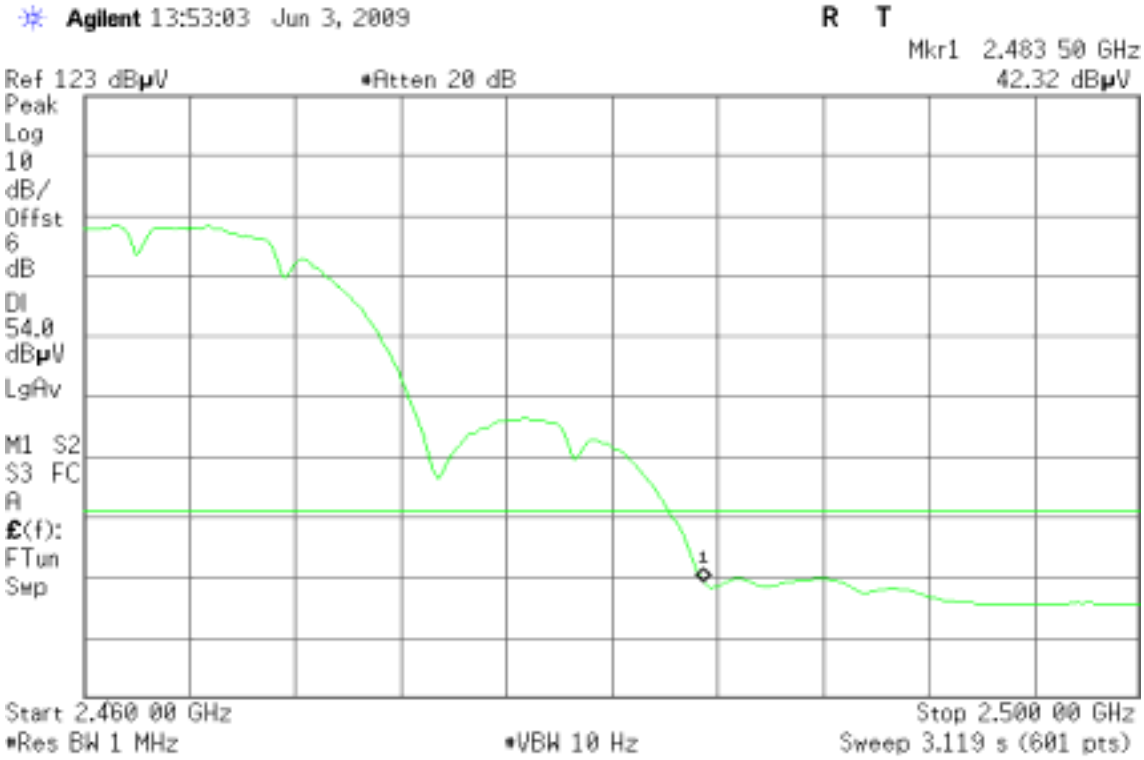


Band Edges (IEEE 802.11b mode / CH High)

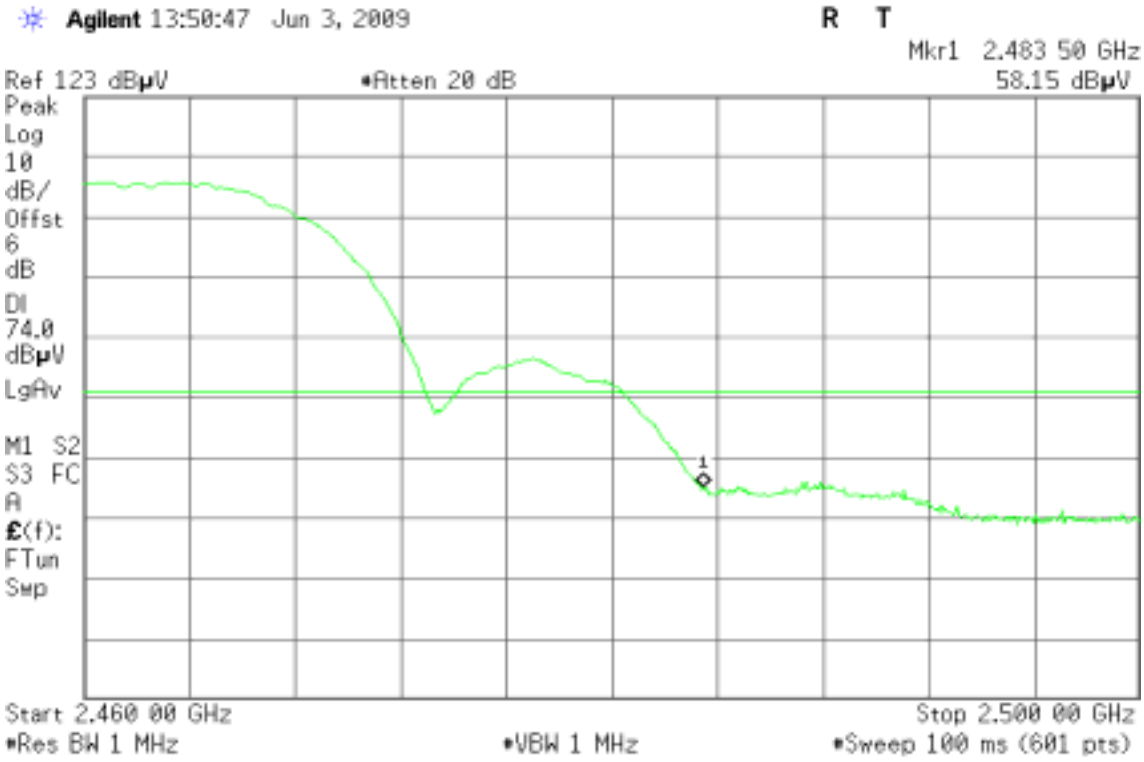
Detector mode: Peak **Polarity: Vertical**



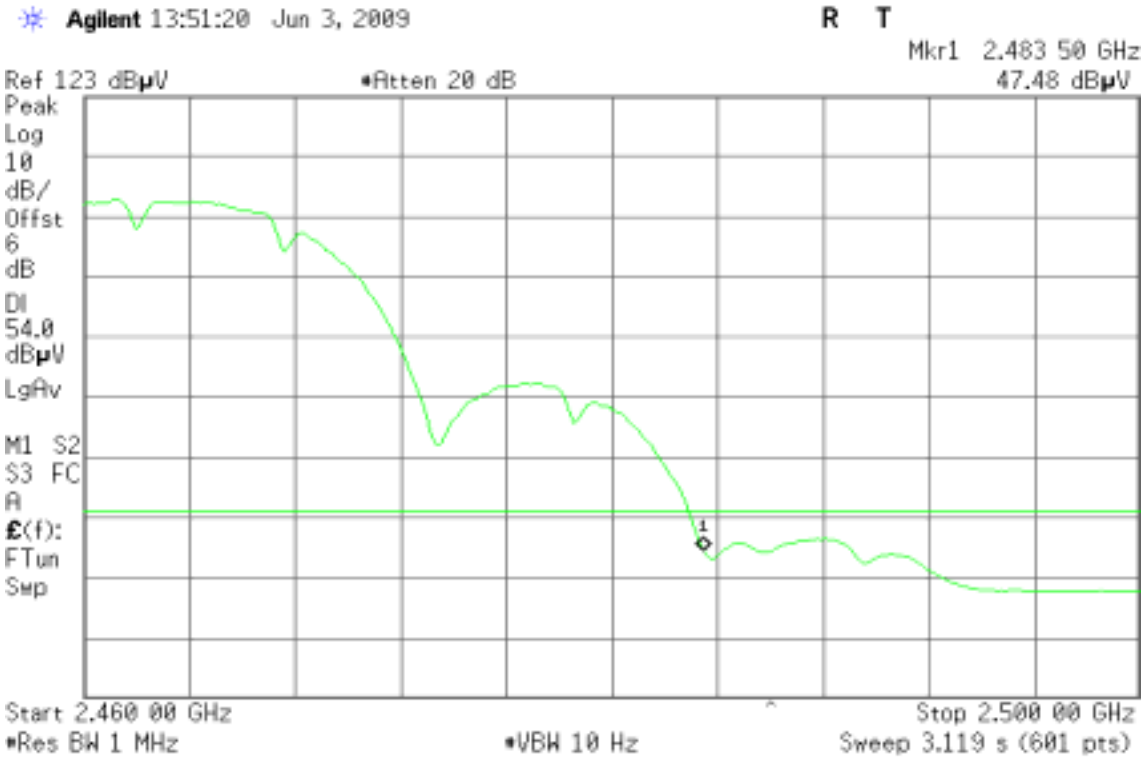
Detector mode: Average **Polarity: Vertical**



Detector mode: Peak **Polarity: Horizontal**

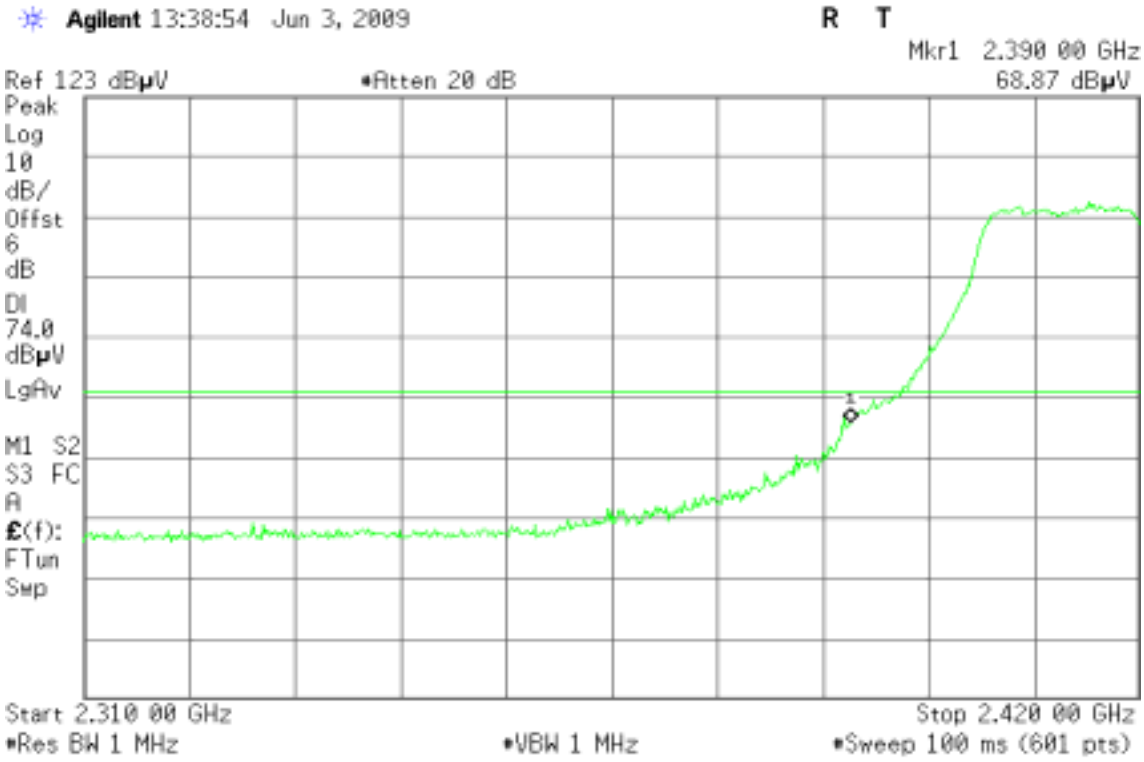


Detector mode: Average **Polarity: Horizontal**

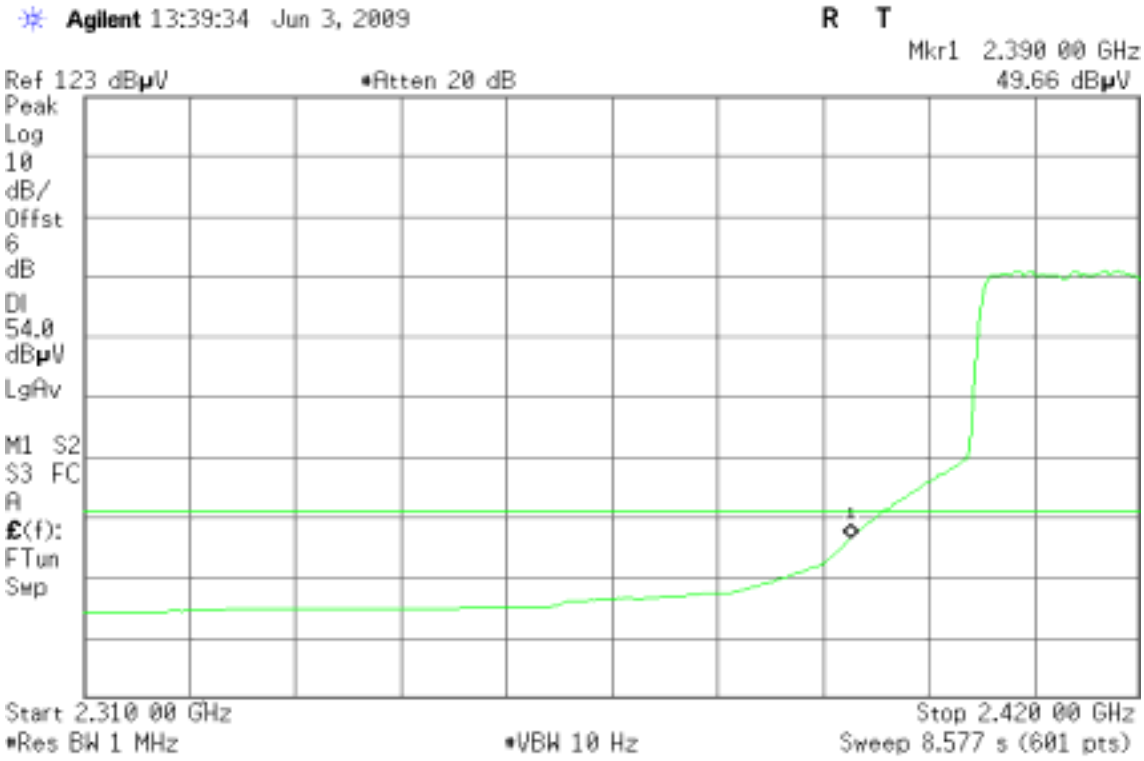


Band Edges (IEEE 802.11g mode / CH Low)

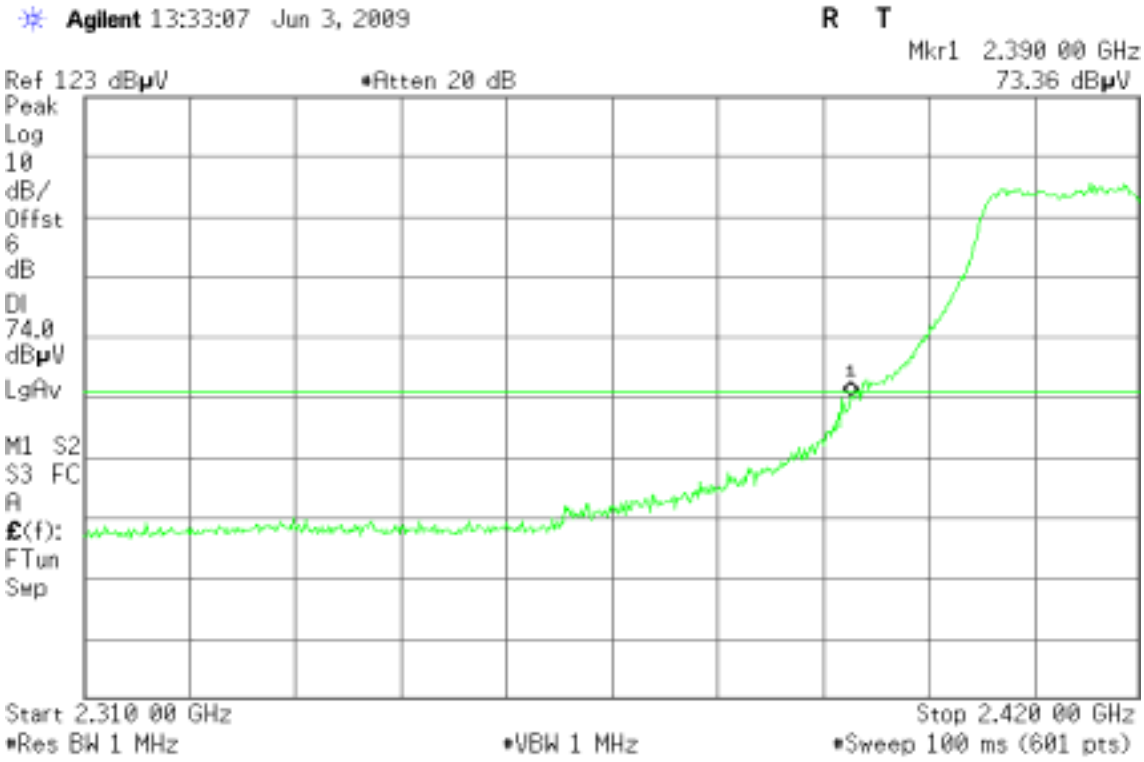
Detector mode: Peak Polarity: Vertical



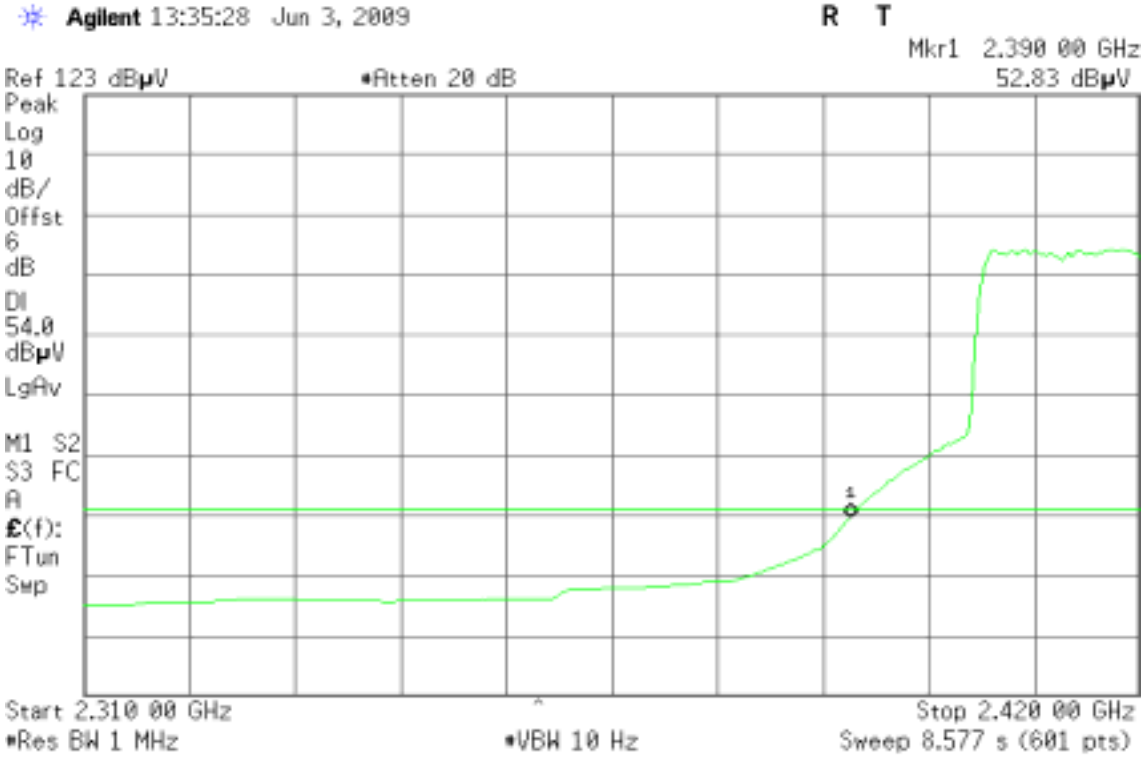
Detector mode: Average Polarity: Vertical



Detector mode: Peak **Polarity: Horizontal**

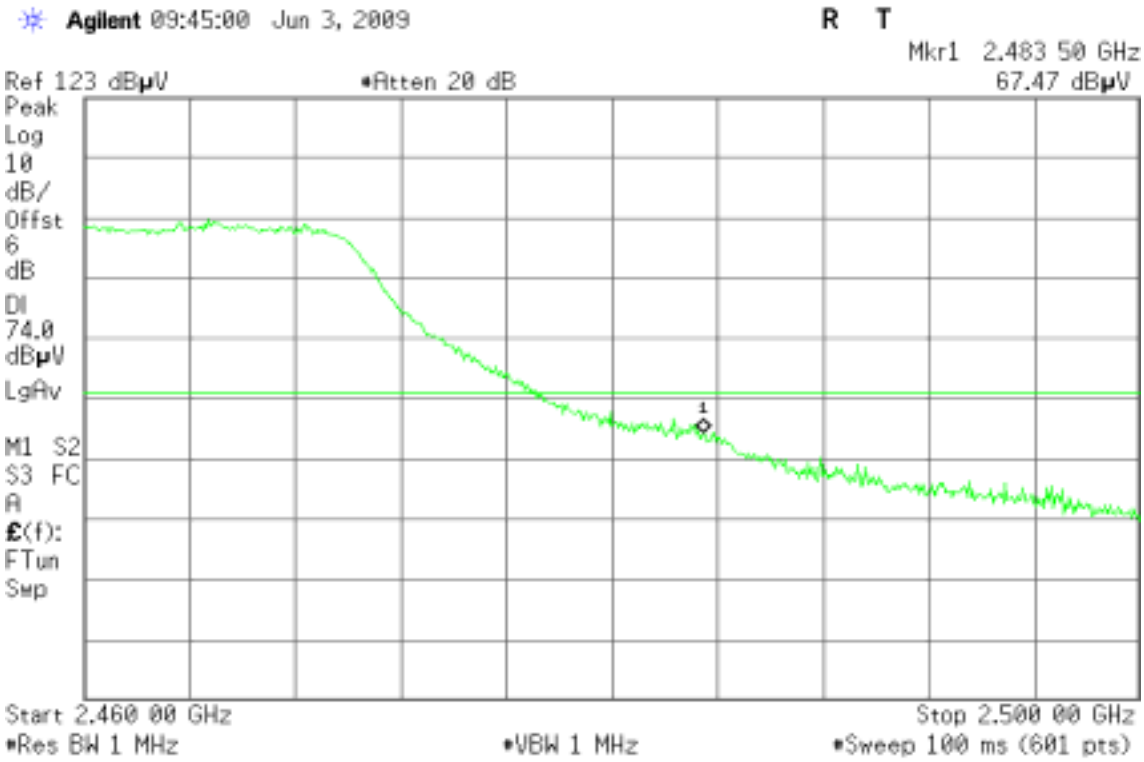


Detector mode: Average **Polarity: Horizontal**

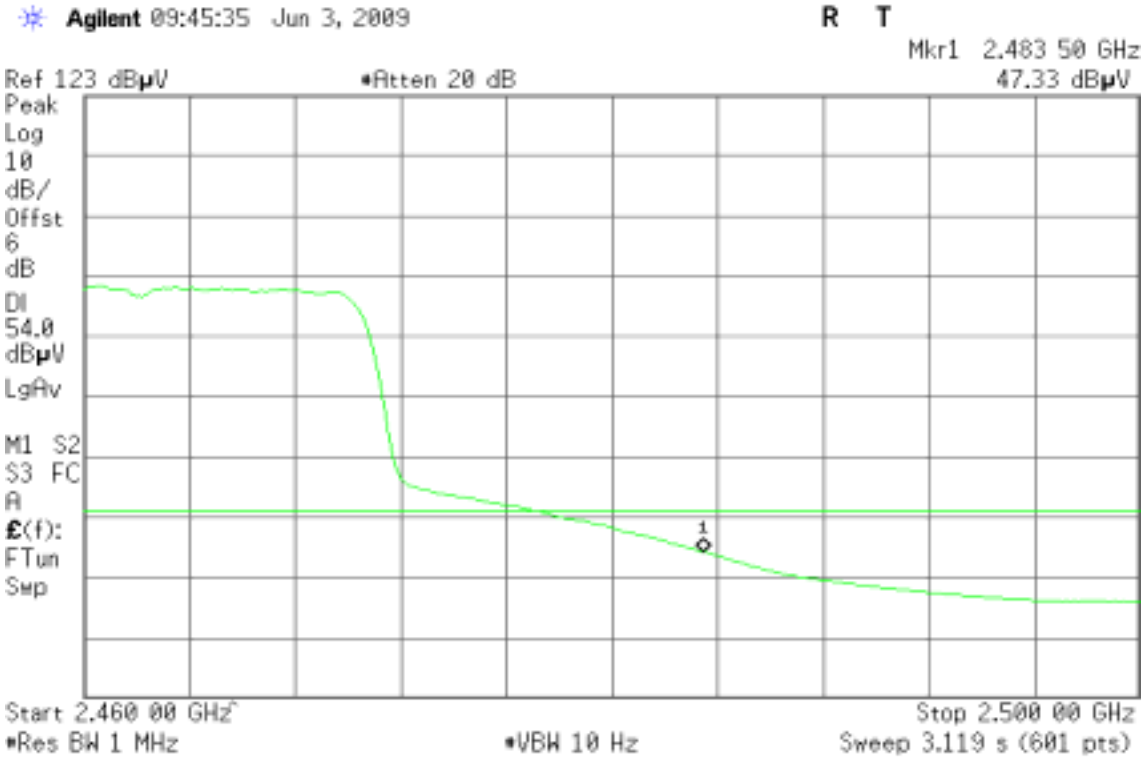


Band Edges (IEEE 802.11g mode / CH High)

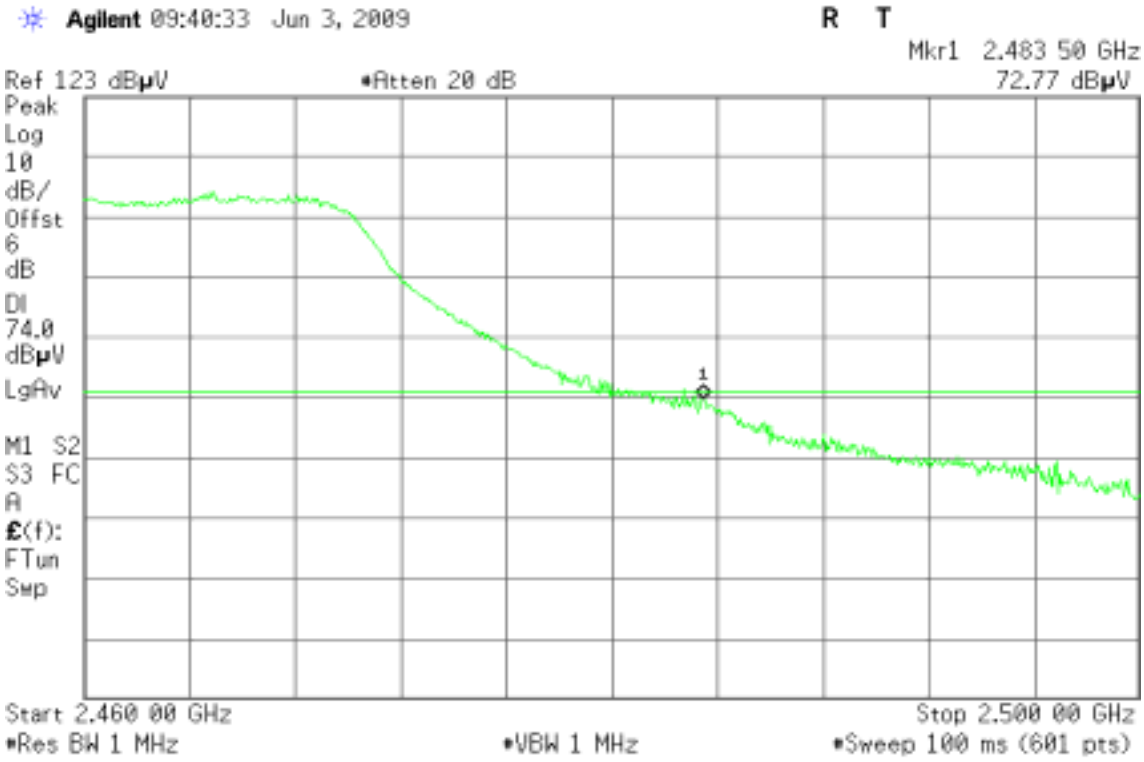
Detector mode: Peak **Polarity: Vertical**



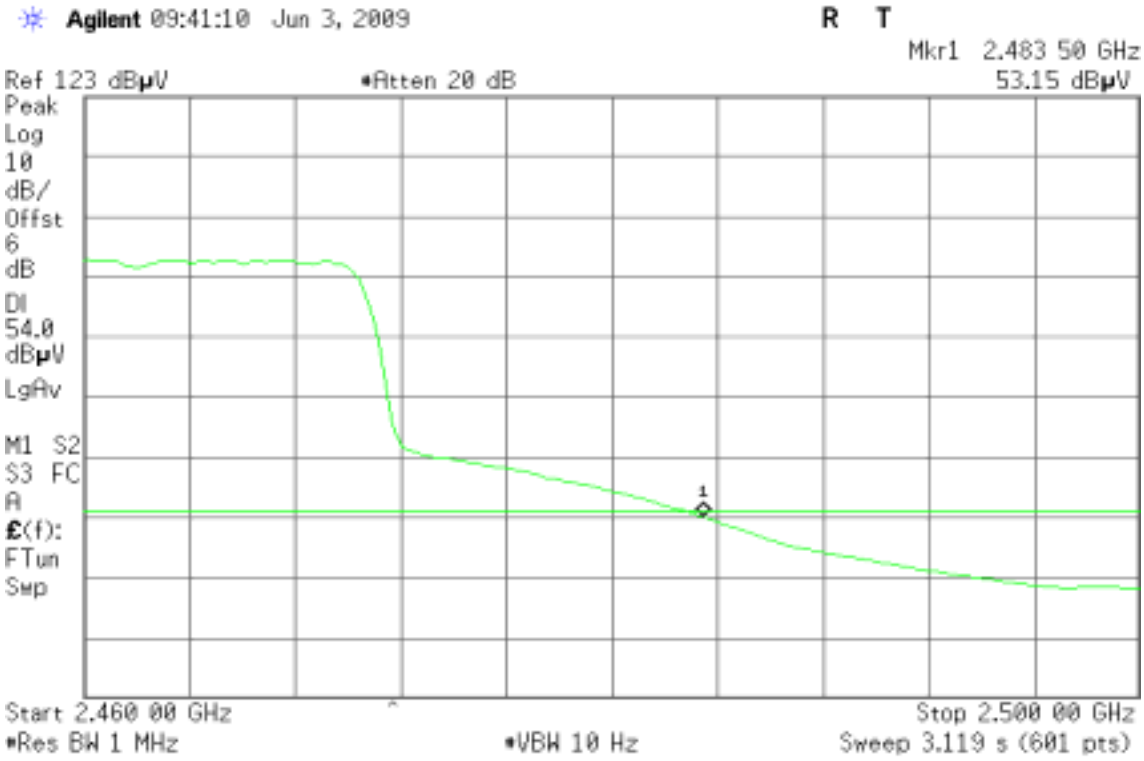
Detector mode: Average **Polarity: Vertical**



Detector mode: Peak **Polarity: Horizontal**

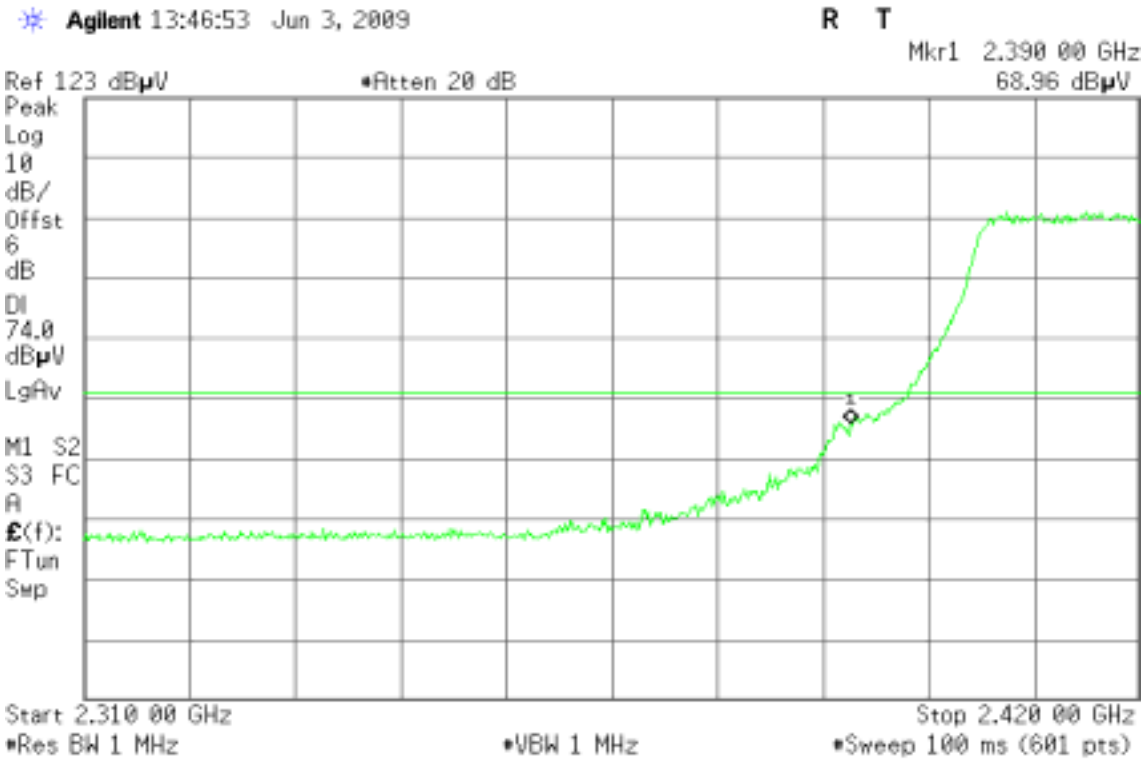


Detector mode: Average **Polarity: Horizontal**

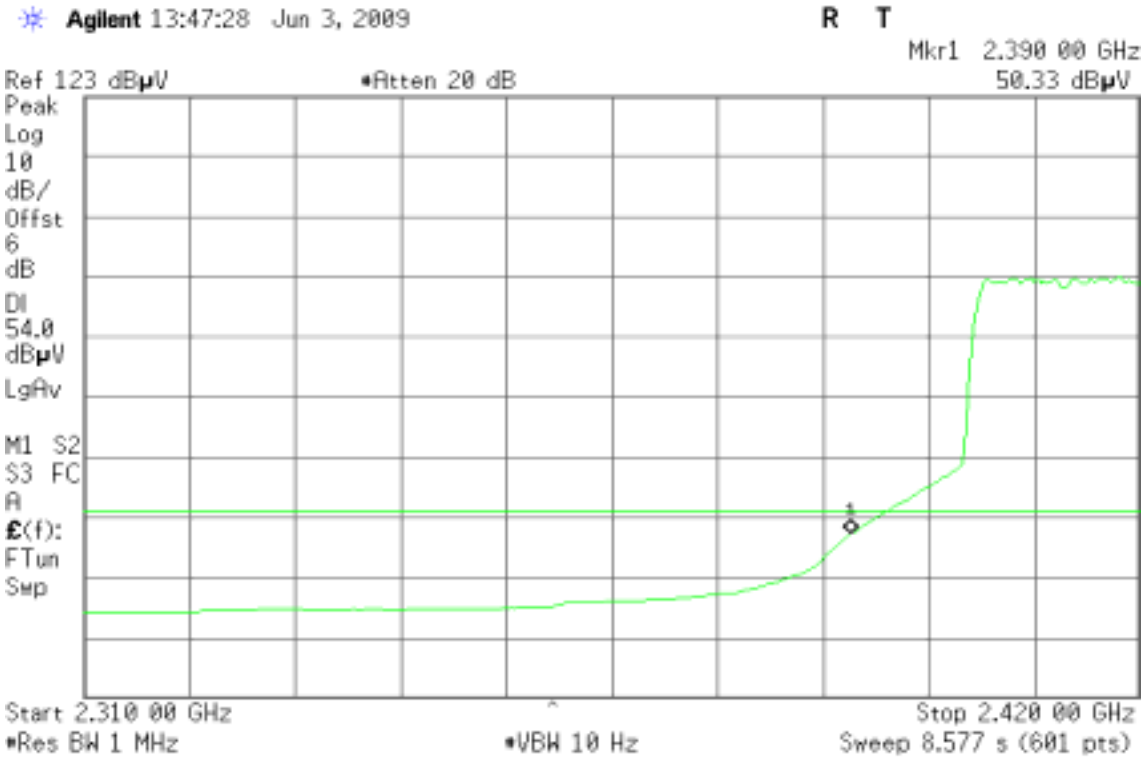


Band Edges (draft 802.11n 20 MHz Channel mode / CH Low)

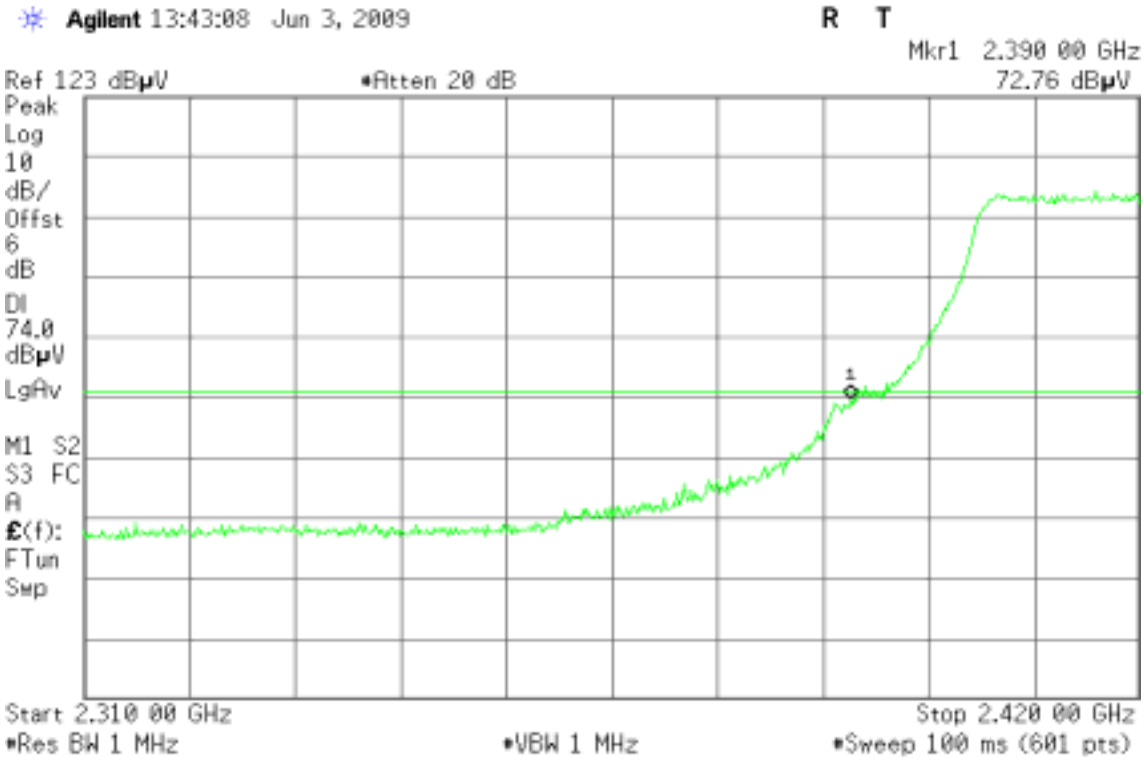
Detector mode: Peak **Polarity: Vertical**



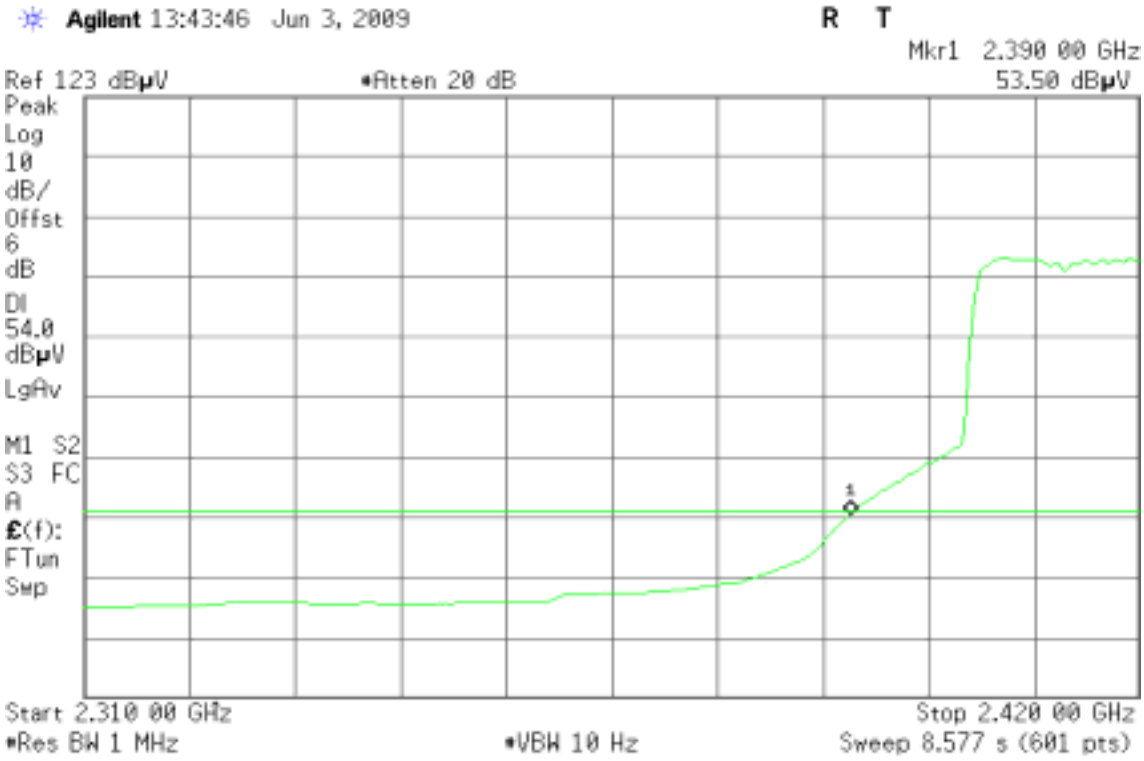
Detector mode: Average **Polarity: Vertical**



Detector mode: Peak **Polarity: Horizontal**

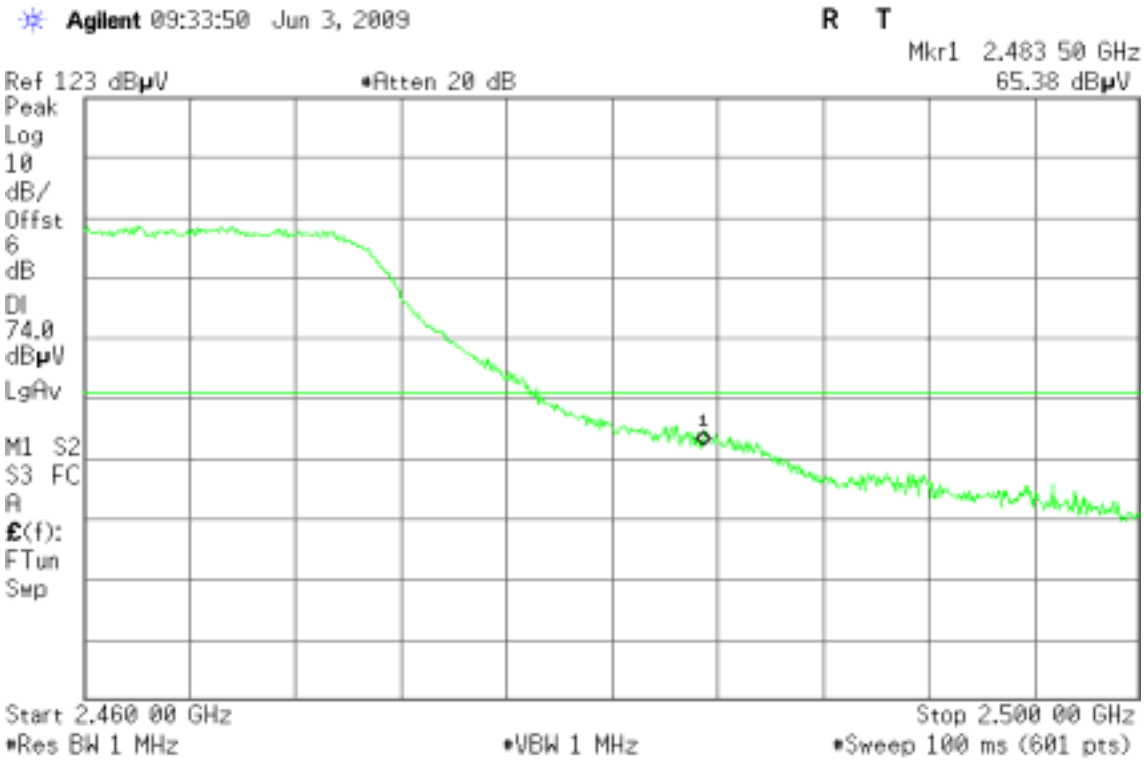


Detector mode: Average **Polarity: Horizontal**

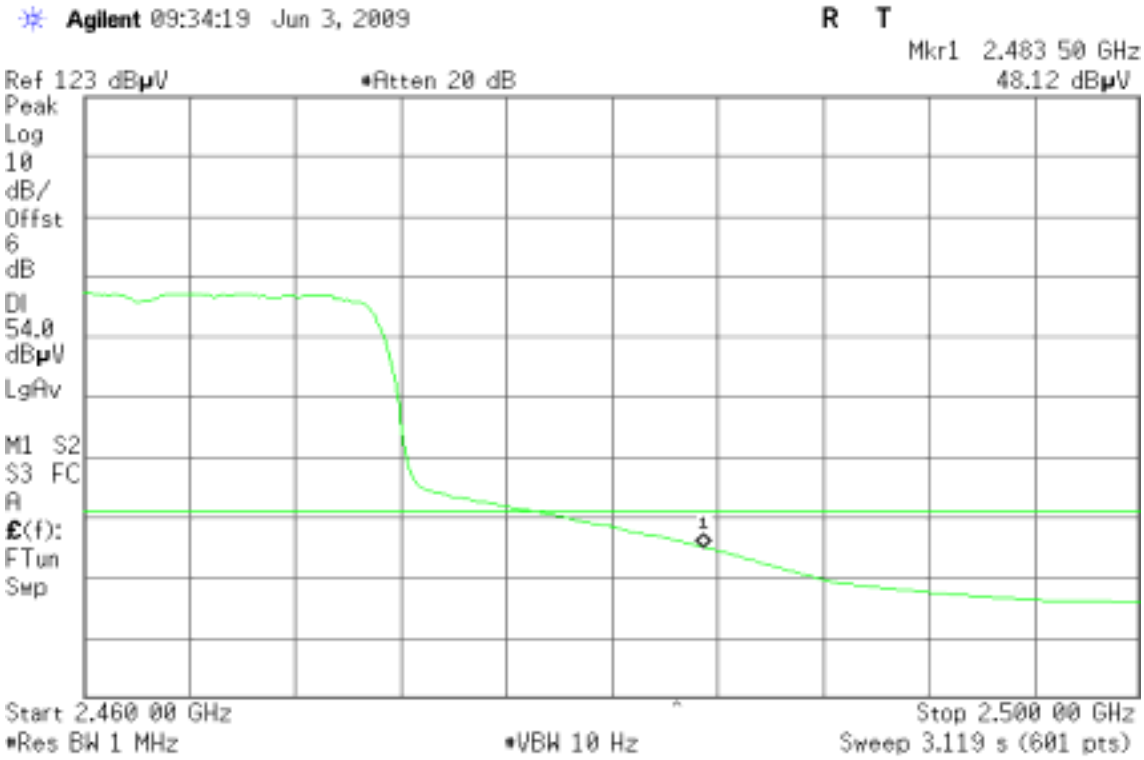


Band Edges (draft 802.11n 20 MHz Channel mode / CH High)

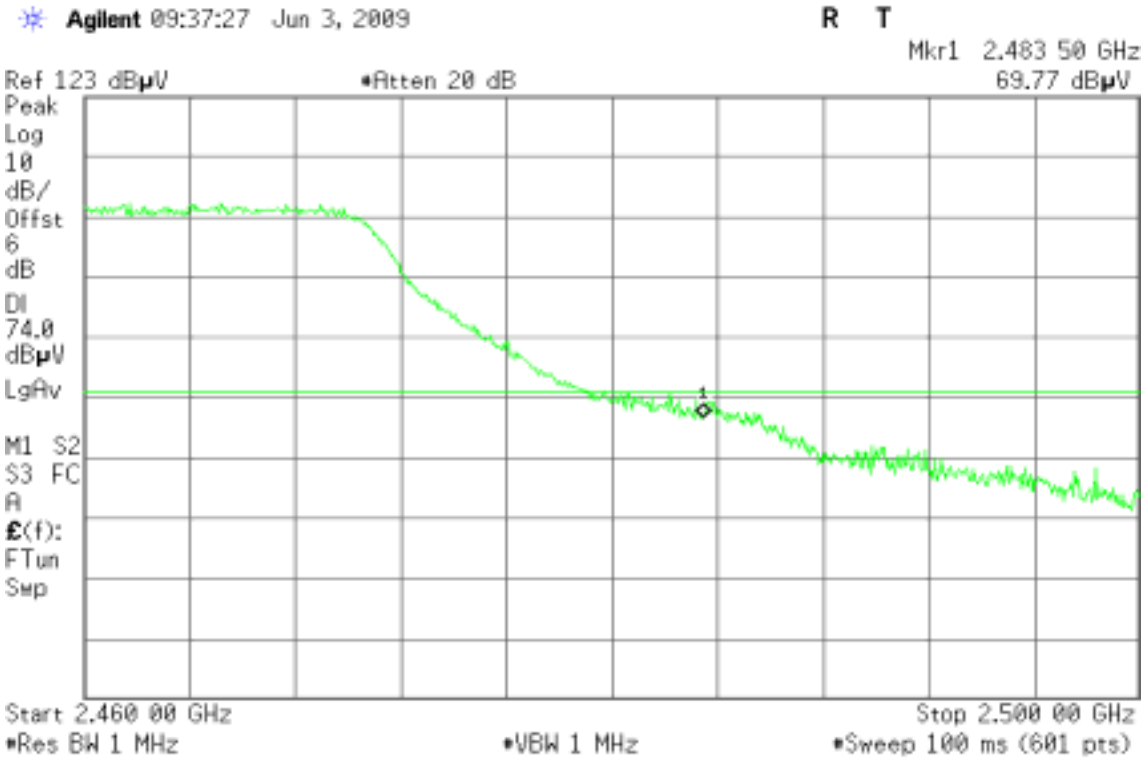
Detector mode: Peak **Polarity: Vertical**



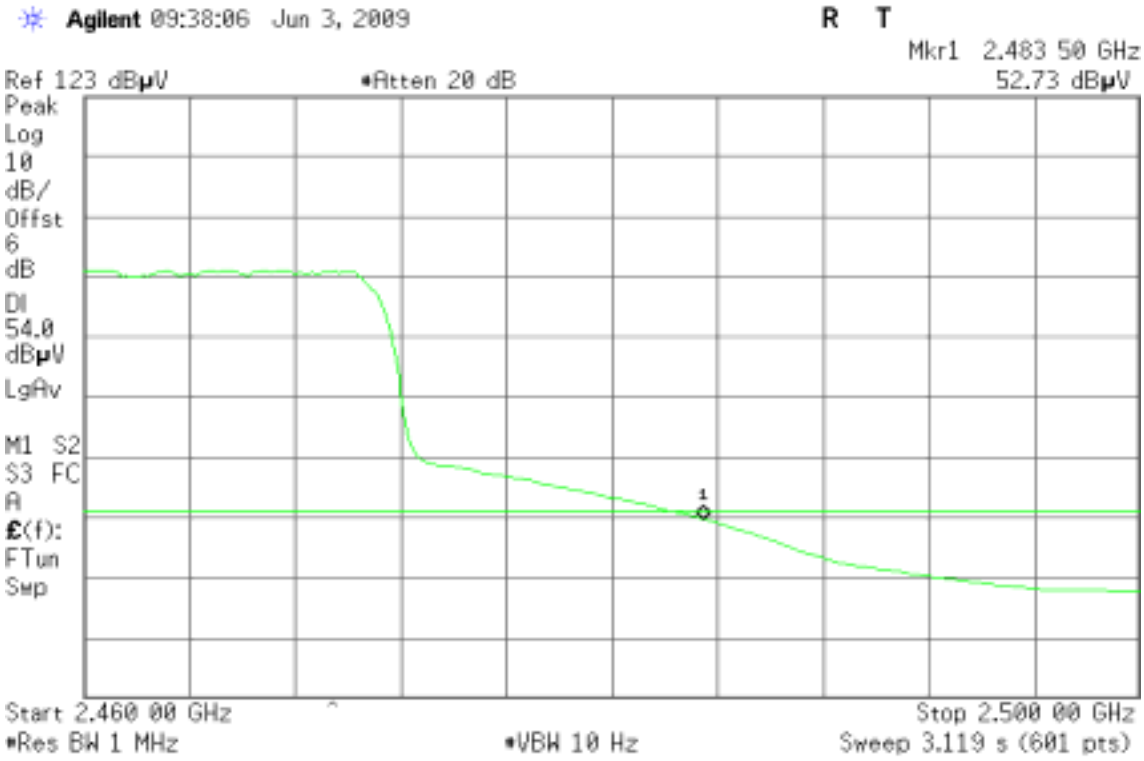
Detector mode: Average **Polarity: Vertical**



Detector mode: Peak **Polarity: Horizontal**

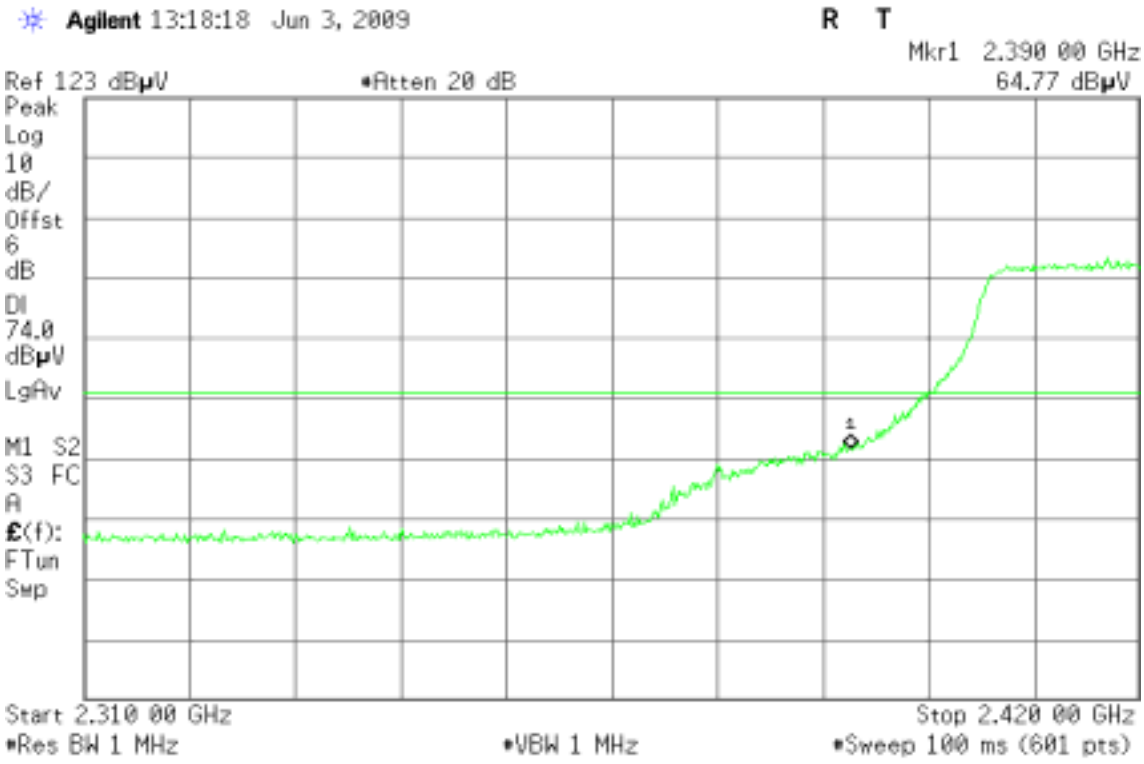


Detector mode: Average **Polarity: Horizontal**

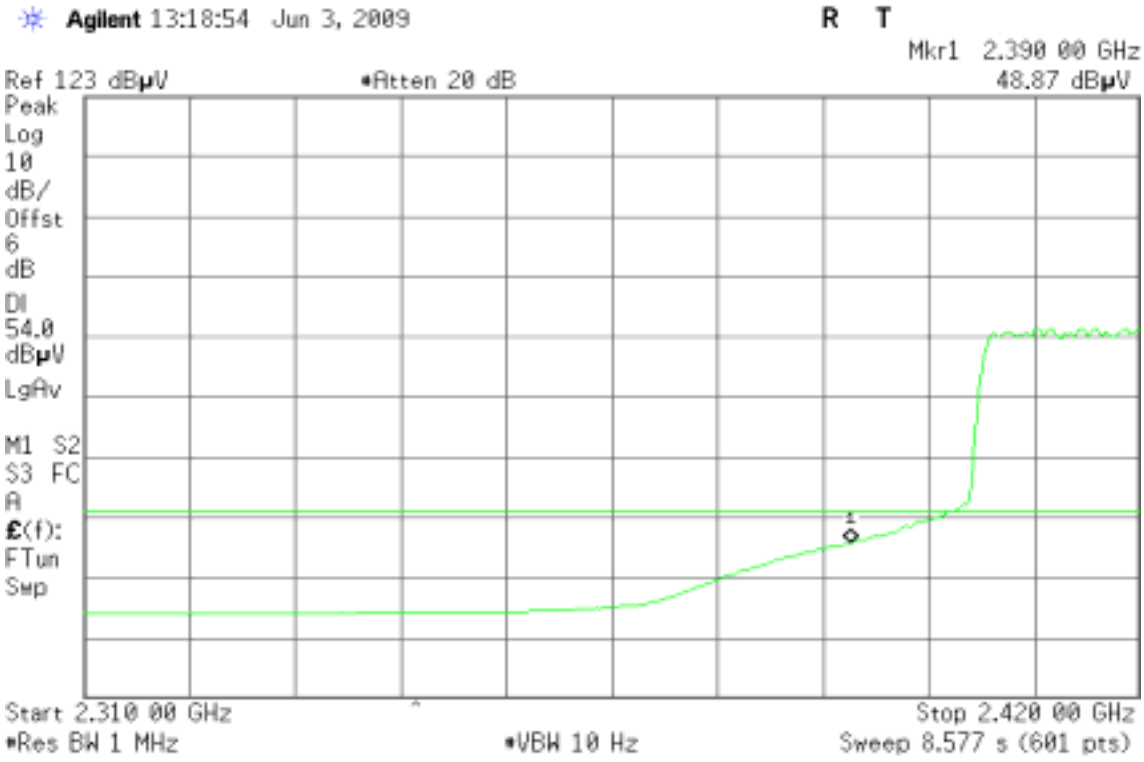


Band Edges (draft 802.11n 40 MHz Channel mode / CH Low)

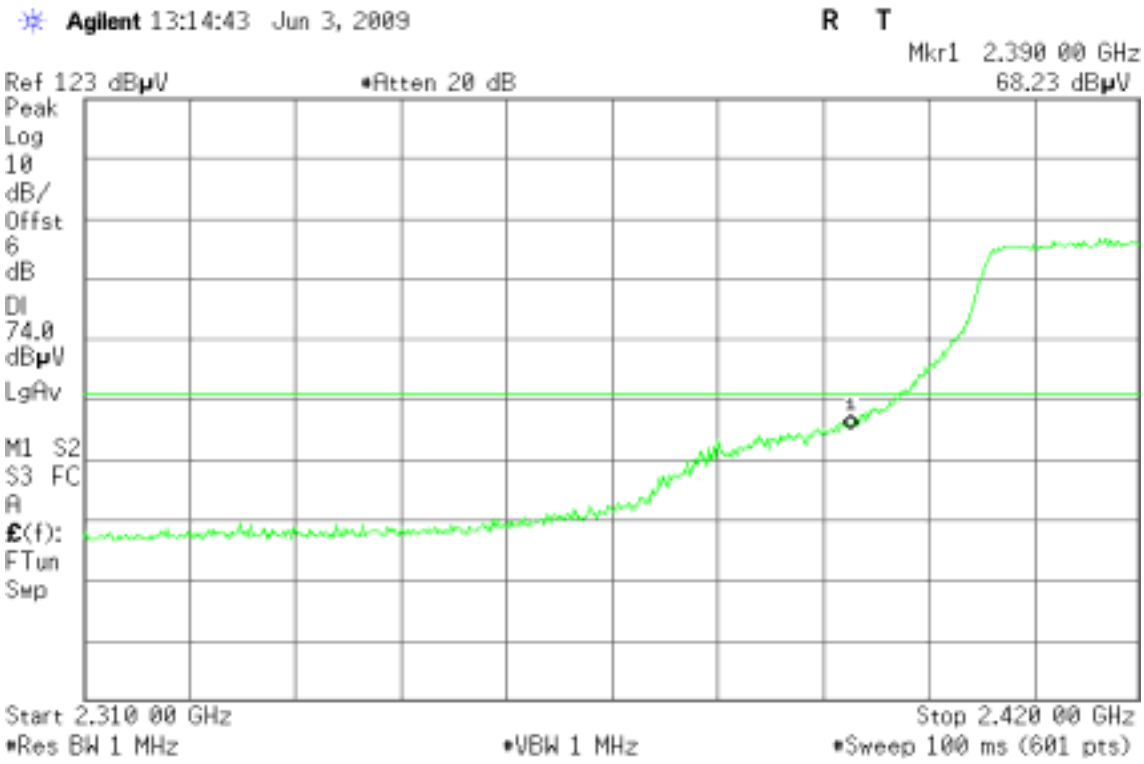
Detector mode: Peak **Polarity: Vertical**



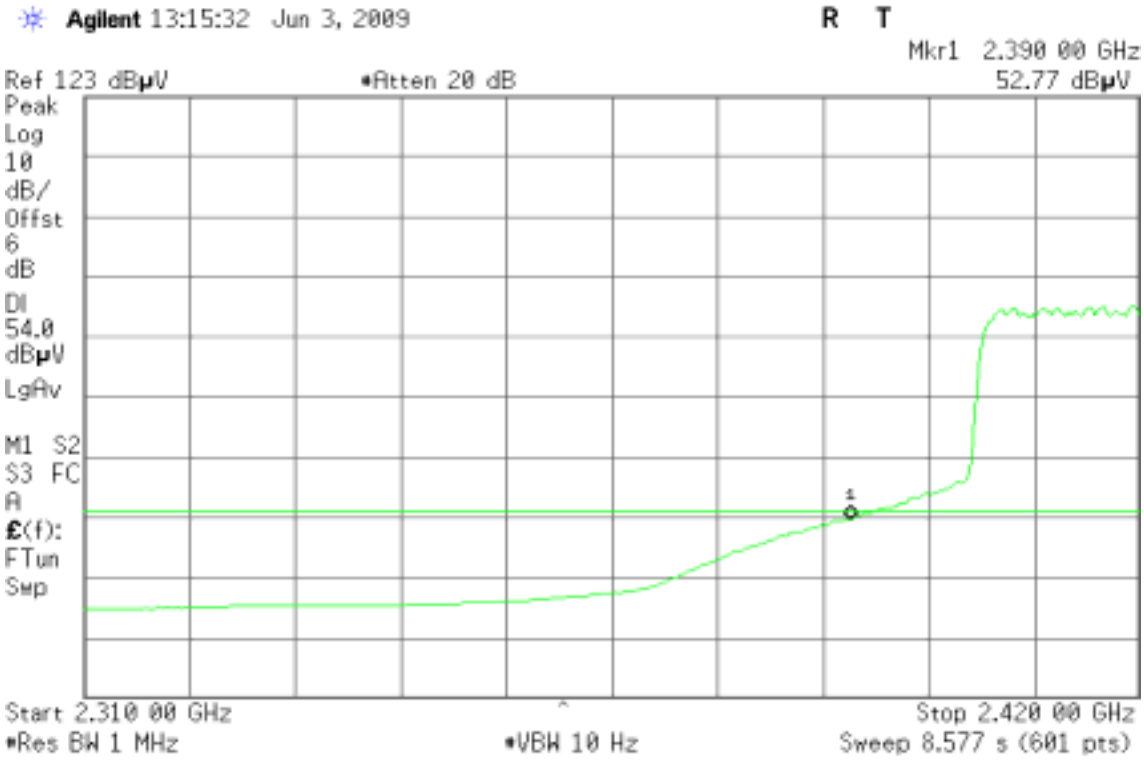
Detector mode: Average **Polarity: Vertical**



Detector mode: Peak **Polarity: Horizontal**

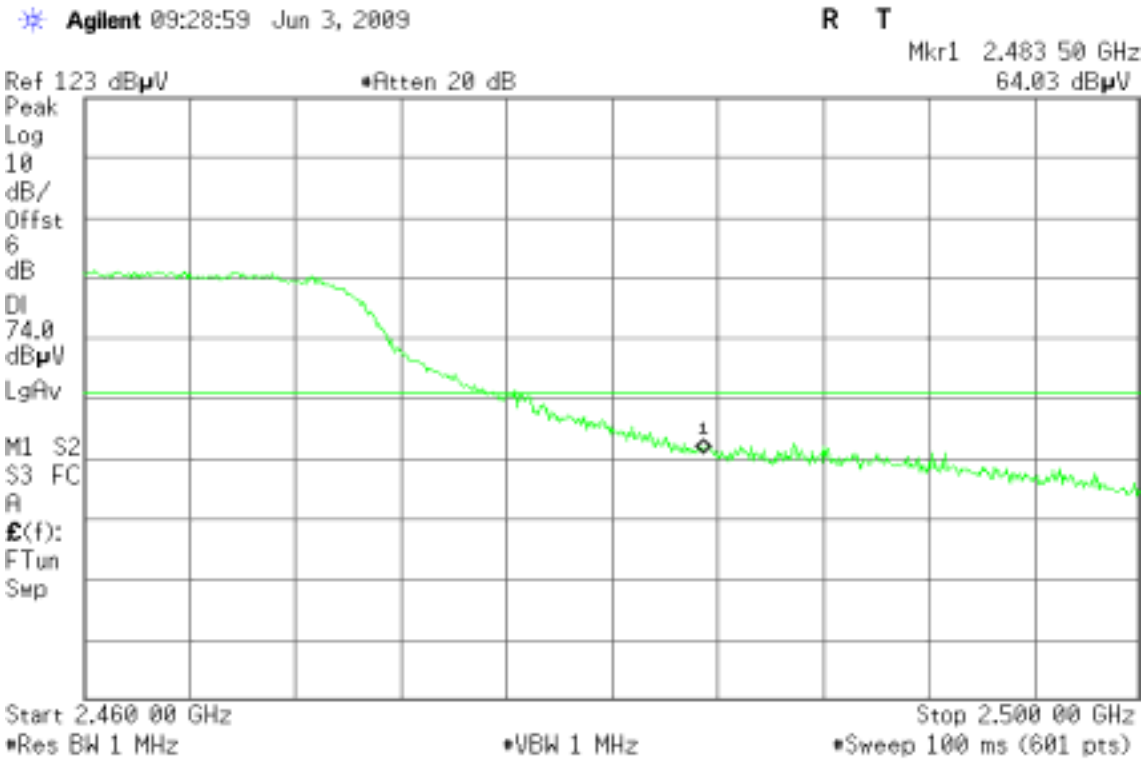


Detector mode: Average **Polarity: Horizontal**

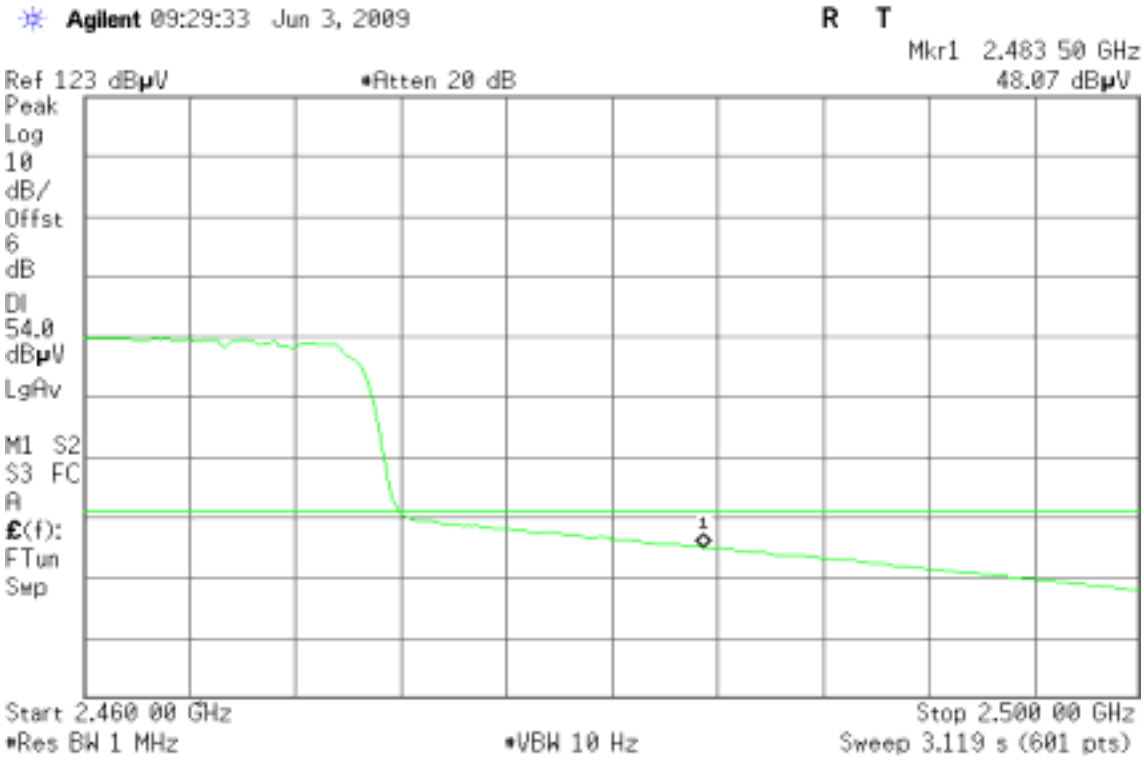


Band Edges (draft 802.11n 40 MHz Channel mode / CH High)

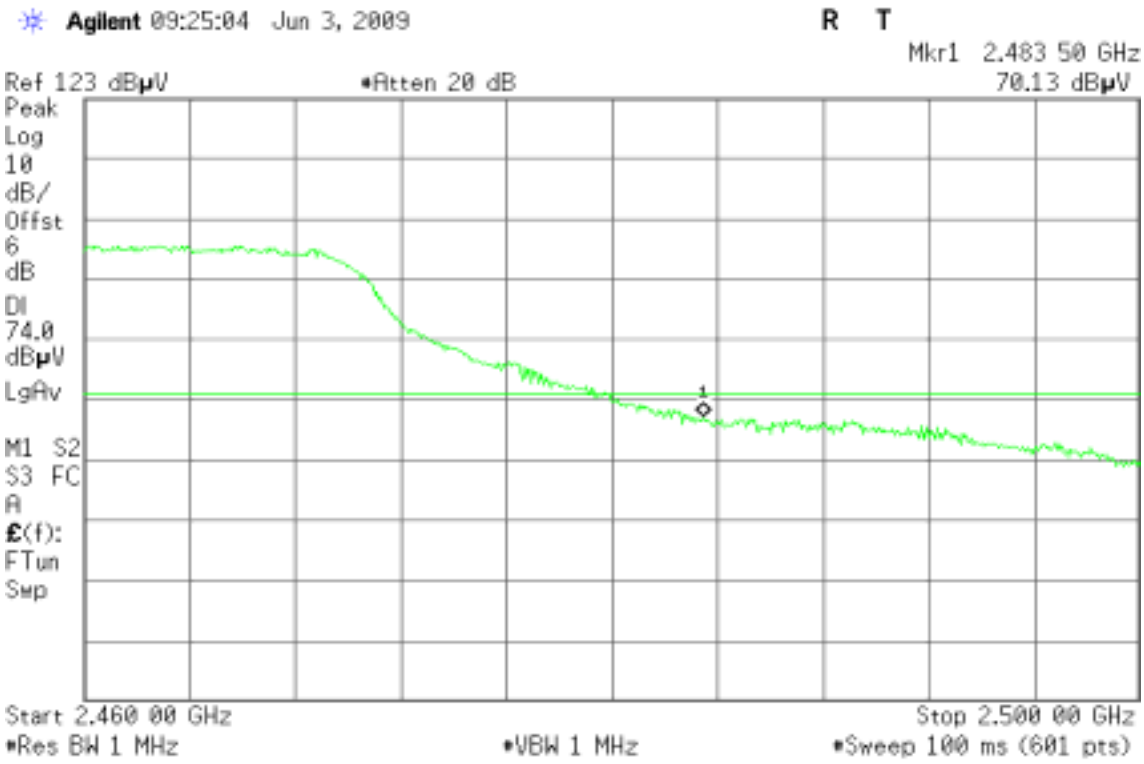
Detector mode: Peak **Polarity: Vertical**



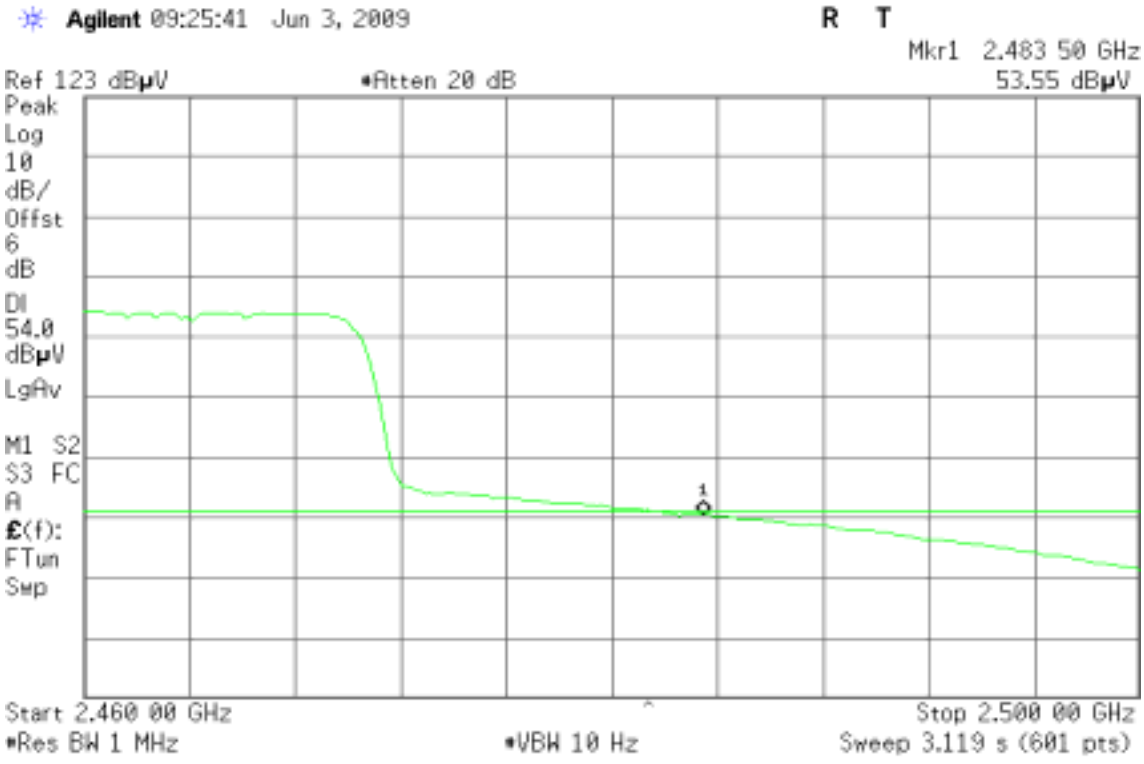
Detector mode: Average **Polarity: Vertical**



Detector mode: Peak **Polarity: Horizontal**



Detector mode: Average **Polarity: Horizontal**

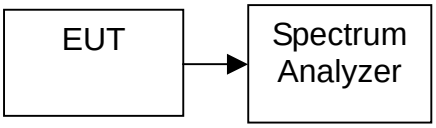


7.5. PEAK POWER SPECTRAL DENSITY

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 = 3kHz, VBW = 10kHz, Span = 300kHz, Sweep=100s
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	-6.42	8.00	PASS
Mid	2437	-5.88		PASS
High	2462	-6.61		PASS

Test mode: IEEE 802.11g mode

Channel	Frequency (MHz)	PPSD (dBm)	Limit (dBm)	Result
Low	2412	-10.57	8.00	PASS
Mid	2437	-11.06		PASS
High	2462	-13.37		PASS

Test mode: draft 802.11n 20 MHz Channel mode

Channel	Frequency (MHz)	PPSD (dBm)	Limit (dBm)	Result
Low	2412	-11.95	8.00	PASS
Mid	2437	-12.25		PASS
High	2462	-15.18		PASS

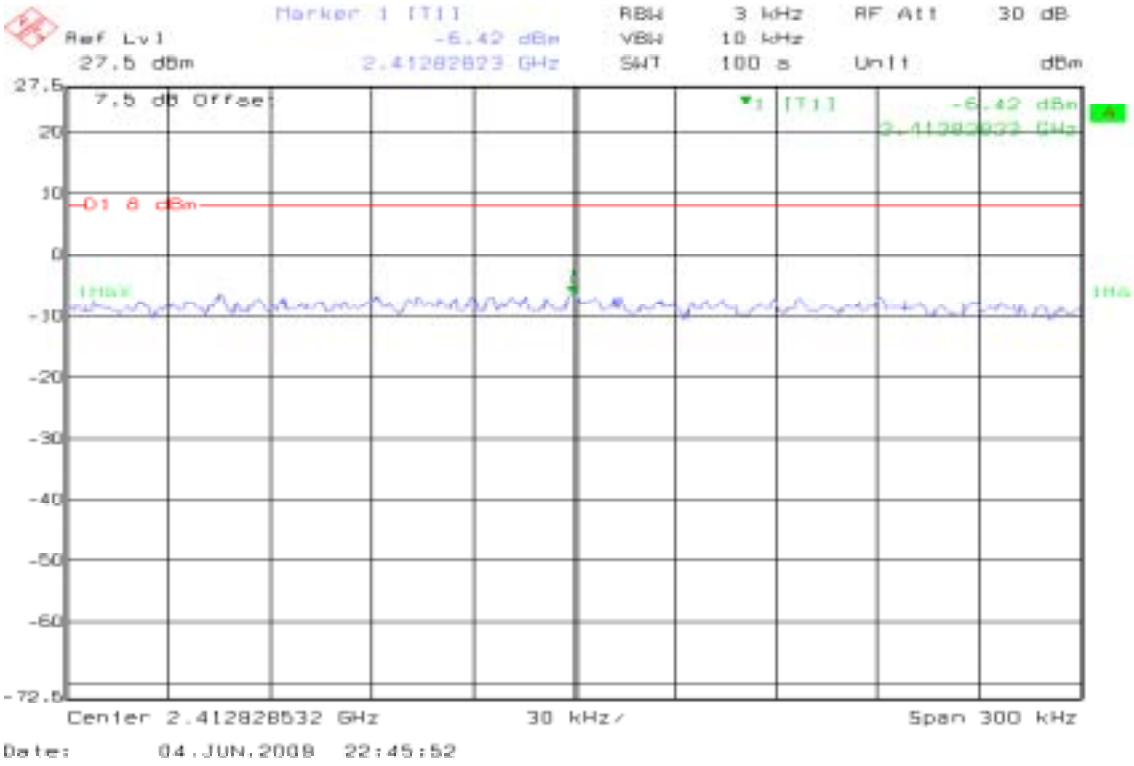
Test mode: draft 802.11n 40 MHz Channel mode

Channel	Frequency (MHz)	PPSD (dBm)	Limit (dBm)	Result
Low	2422	-17.96	8.00	PASS
Mid	2437	-17.32		PASS
High	2452	-22.92		PASS

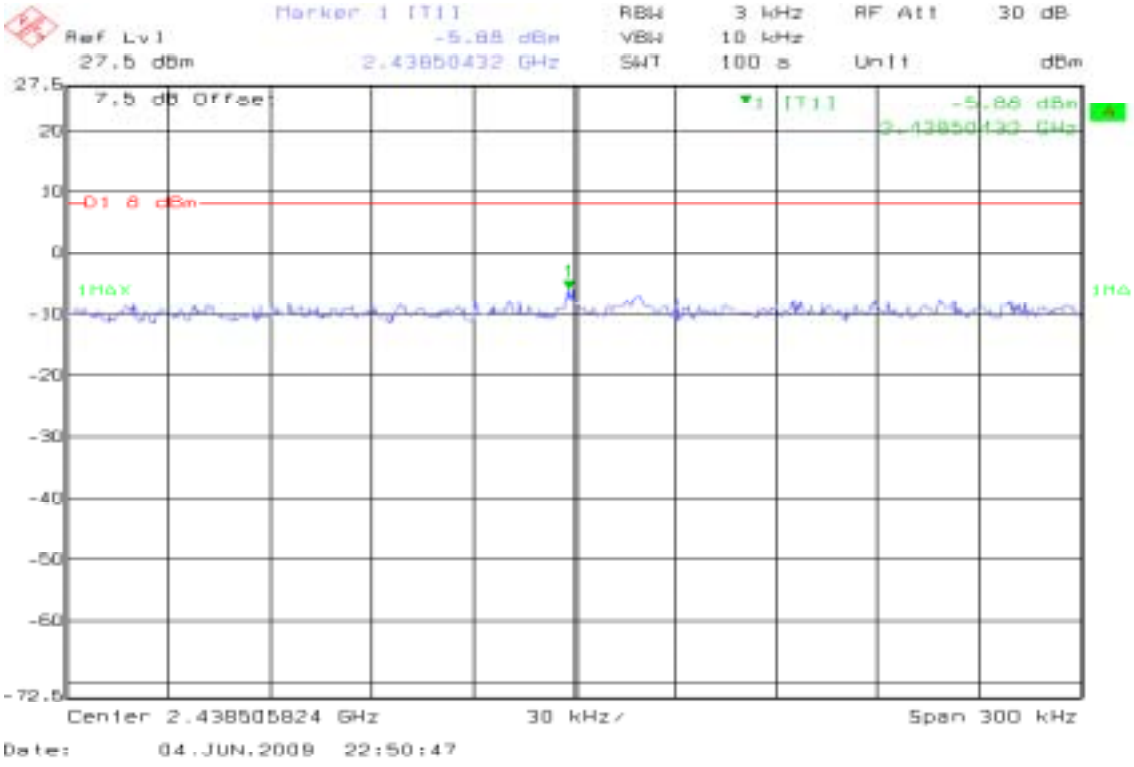
Test Plot

IEEE 802.11b mode

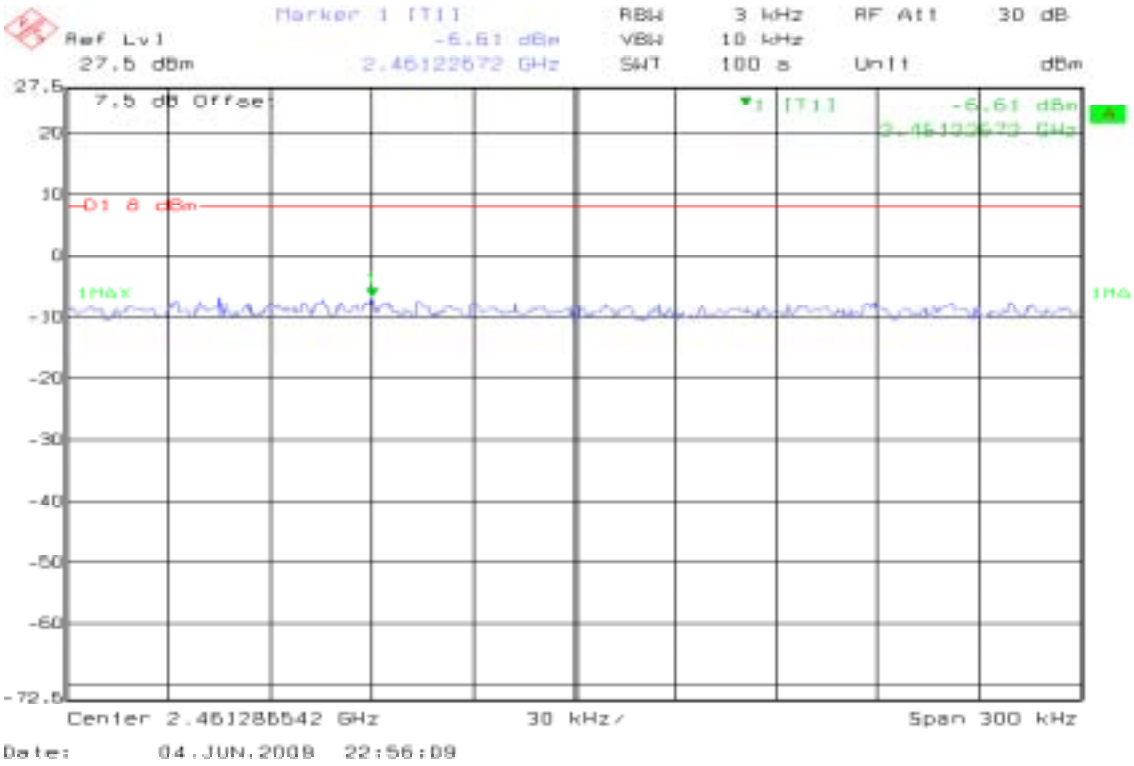
PPSD (CH Low)



PPSD (CH Mid)

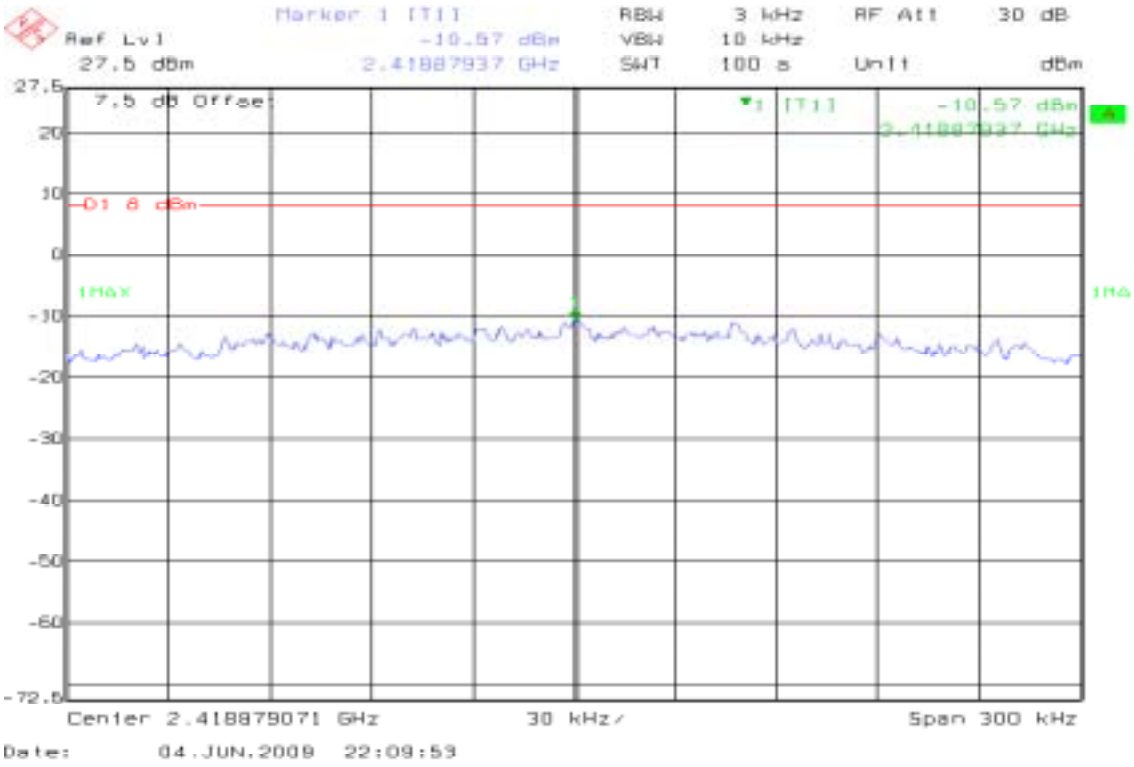


PPSD (CH High)

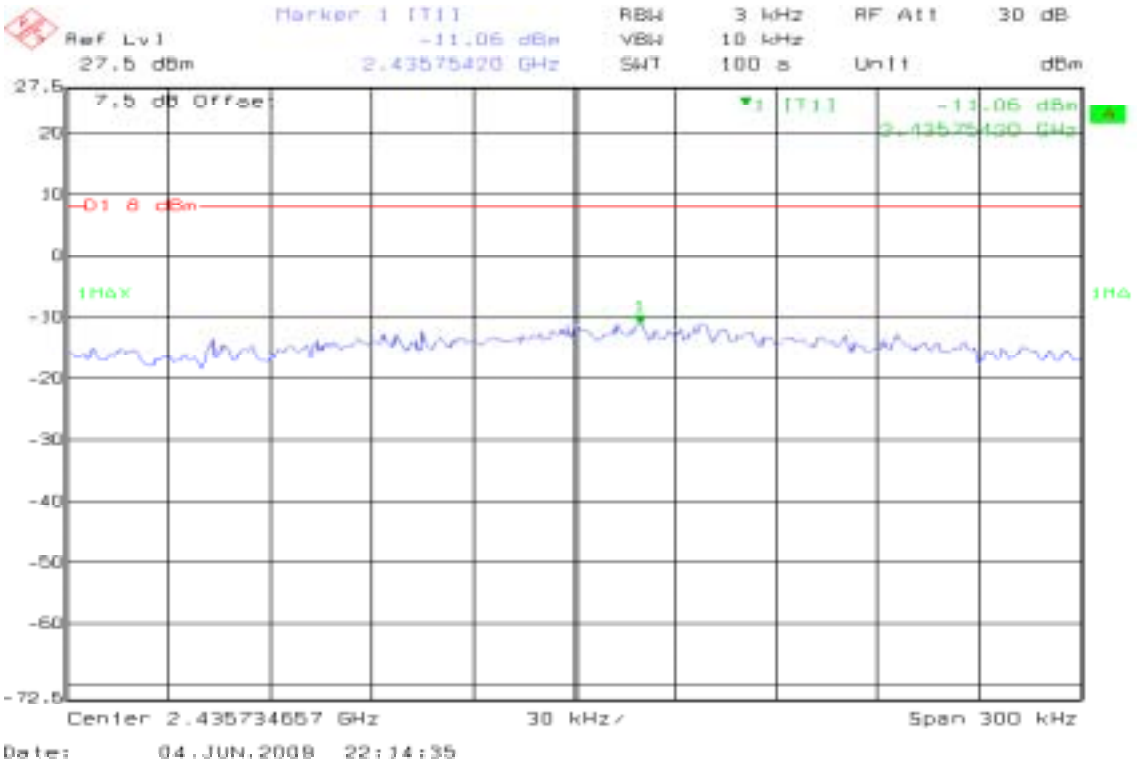


IEEE 802.11g mode

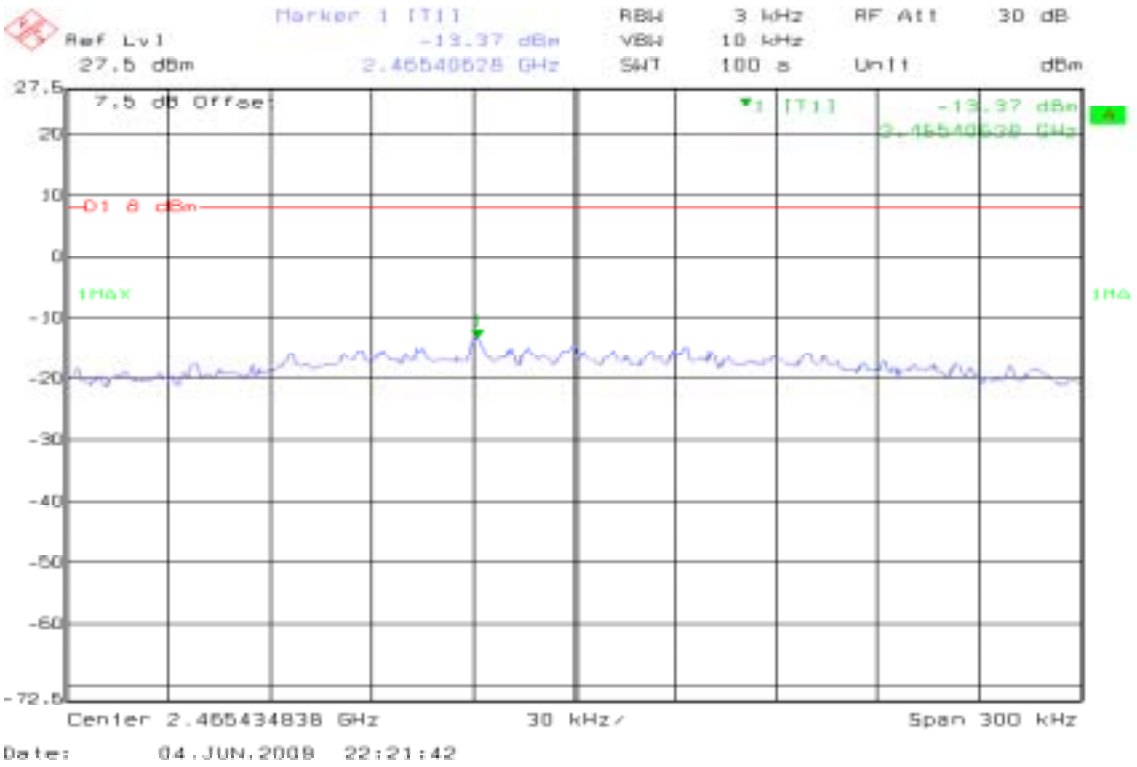
PPSD (CH Low)



PPSD (CH Mid)

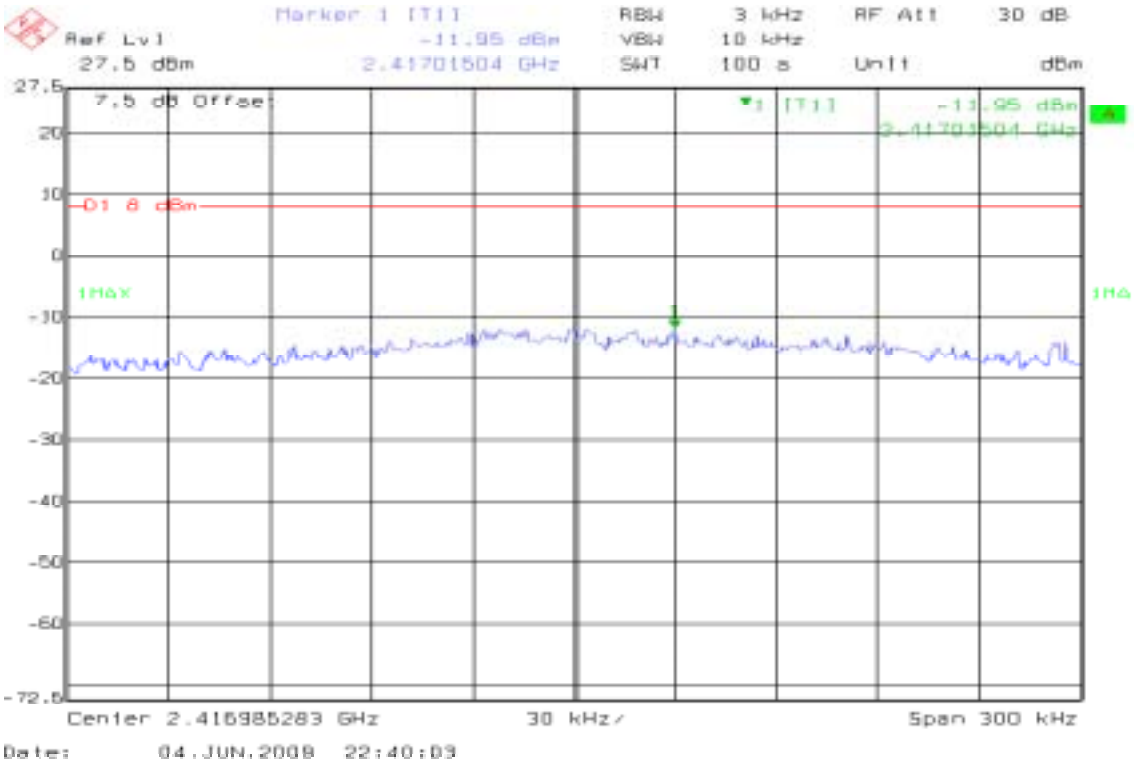


PPSD (CH High)

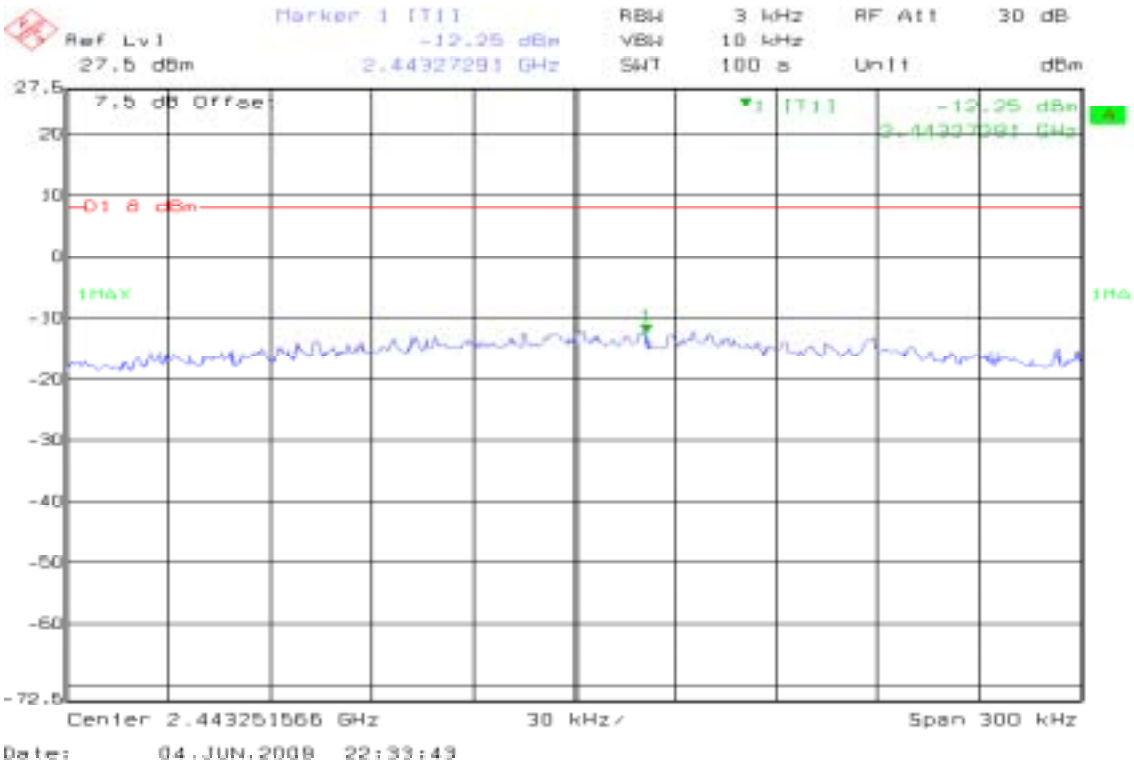


draft 802.11n 20 MHz Channel mode

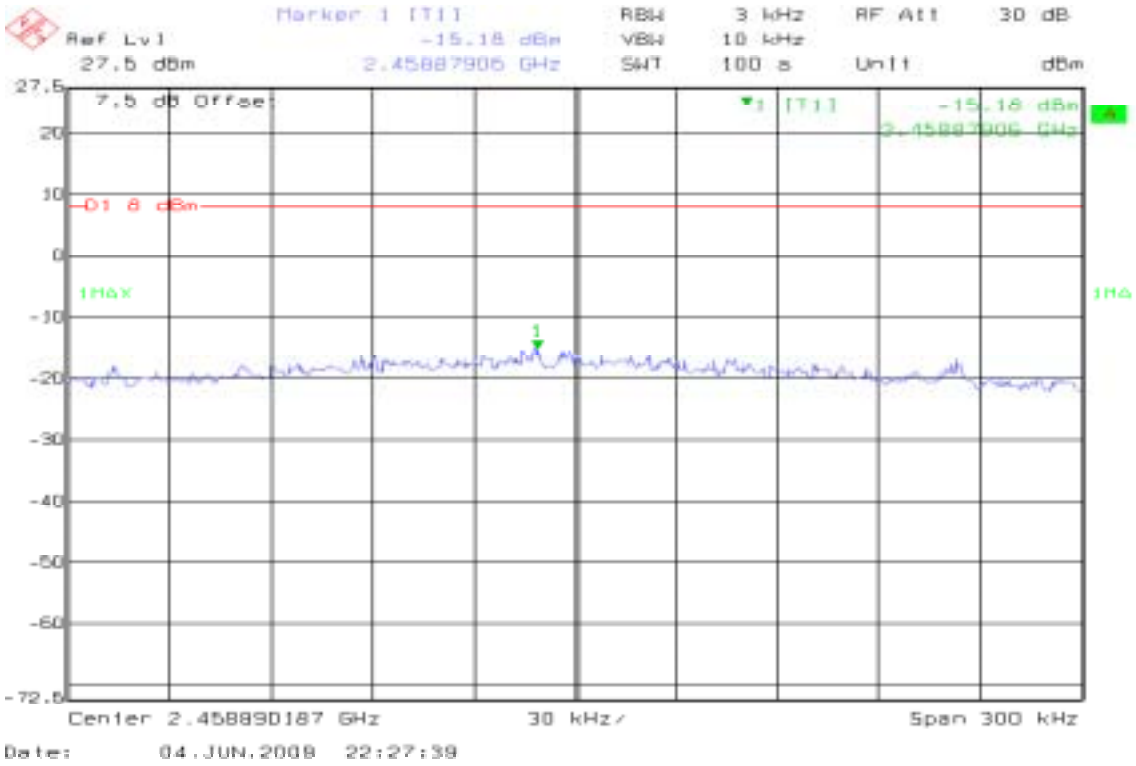
PPSD (CH Low)



PPSD (CH Mid)

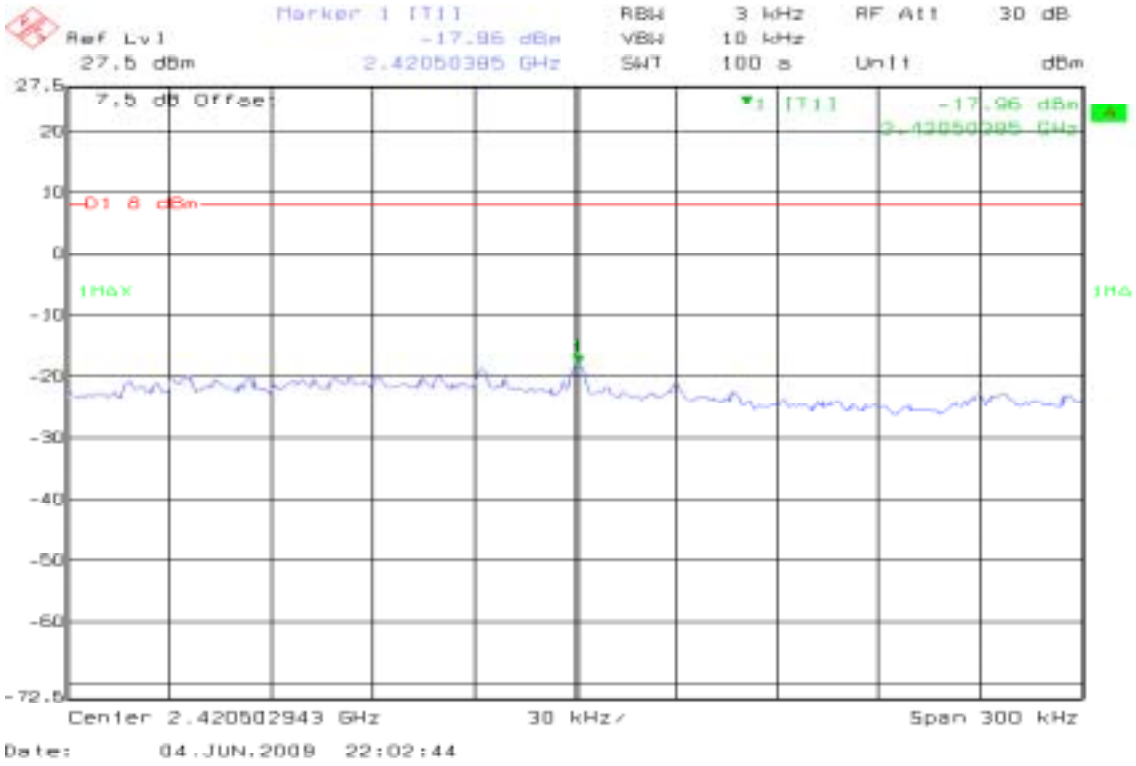


PPSD (CH High)

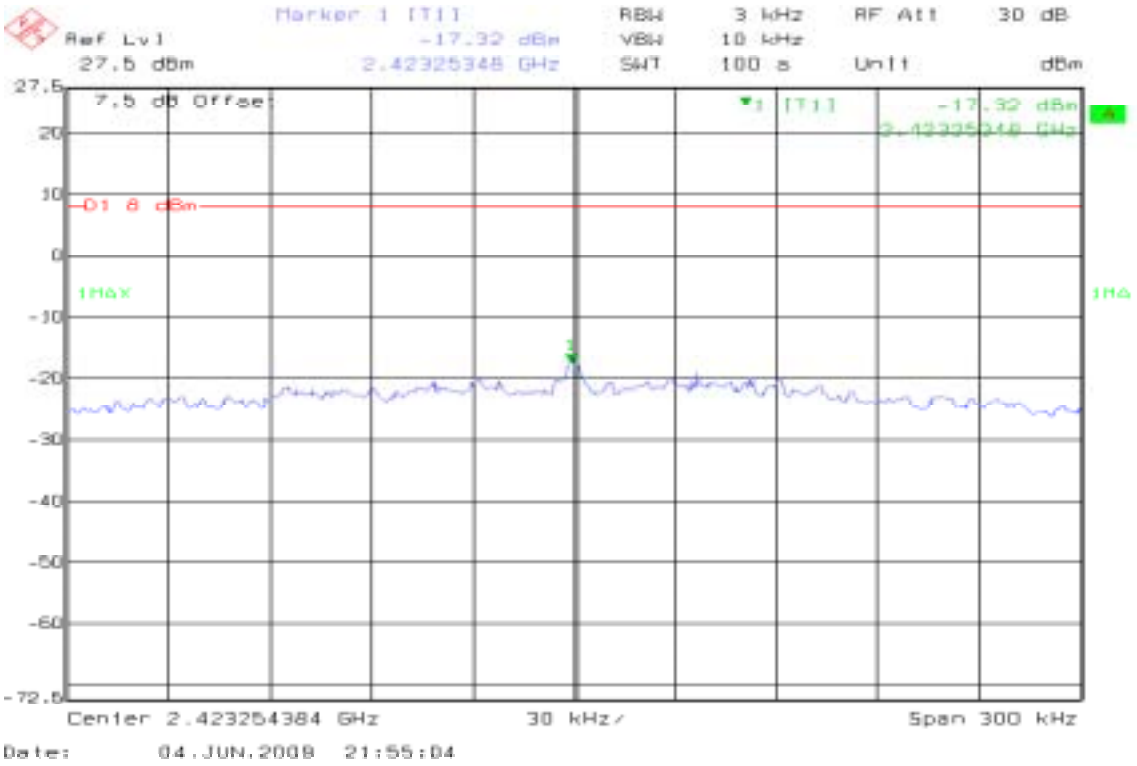


draft 802.11n 40 MHz Channel mode

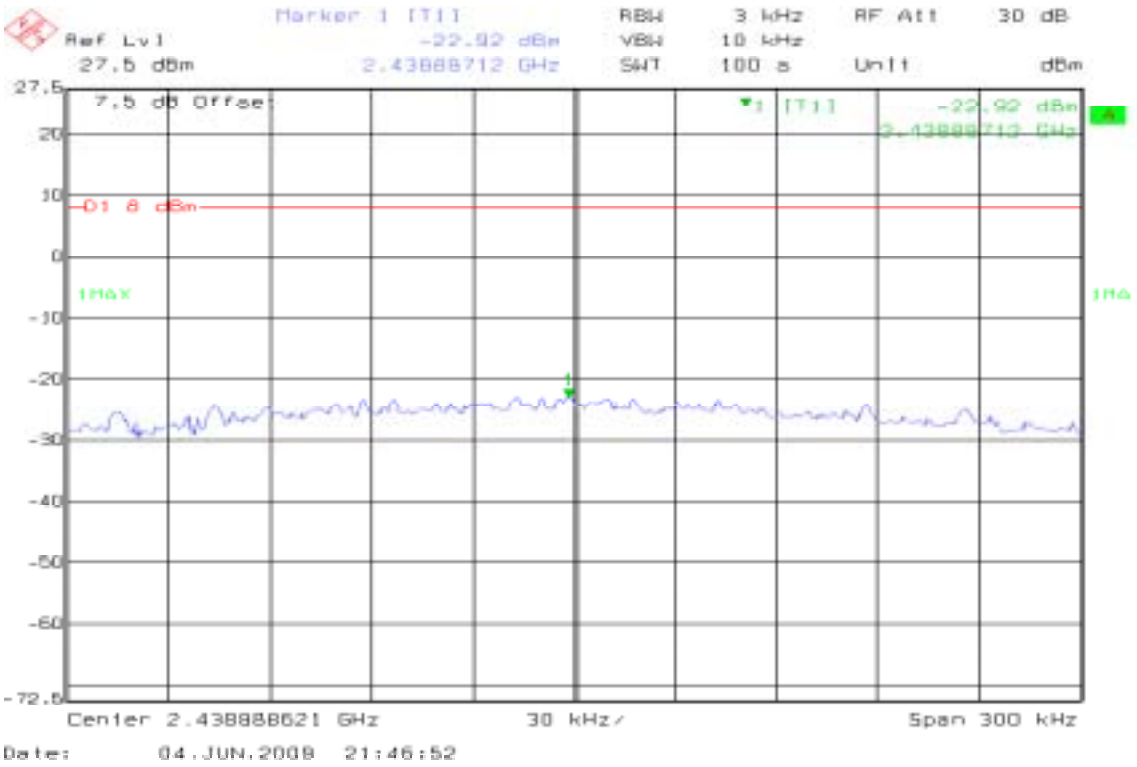
PPSD (CH Low)



PPSD (CH Mid)



PPSD (CH High)



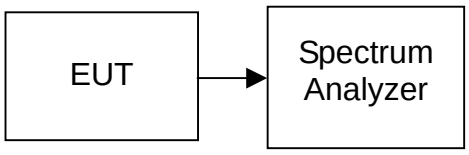
7.6. SPURIOUS EMISSIONS

CONDUCTED MEASUREMENT

LIMIT

According to §15.247(d), in any 100 kHz bandwidth outside the frequency bands in which the spread spectrum intentional radiator in 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.

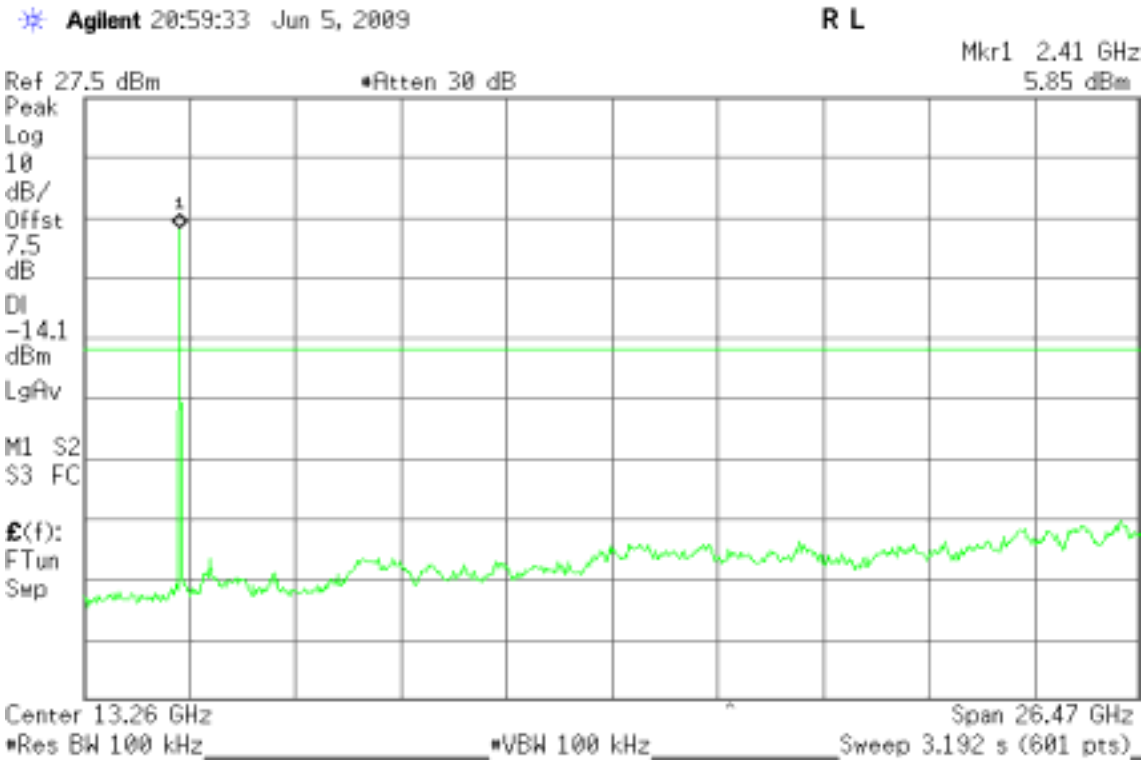
TEST RESULTS

No non-compliance noted.

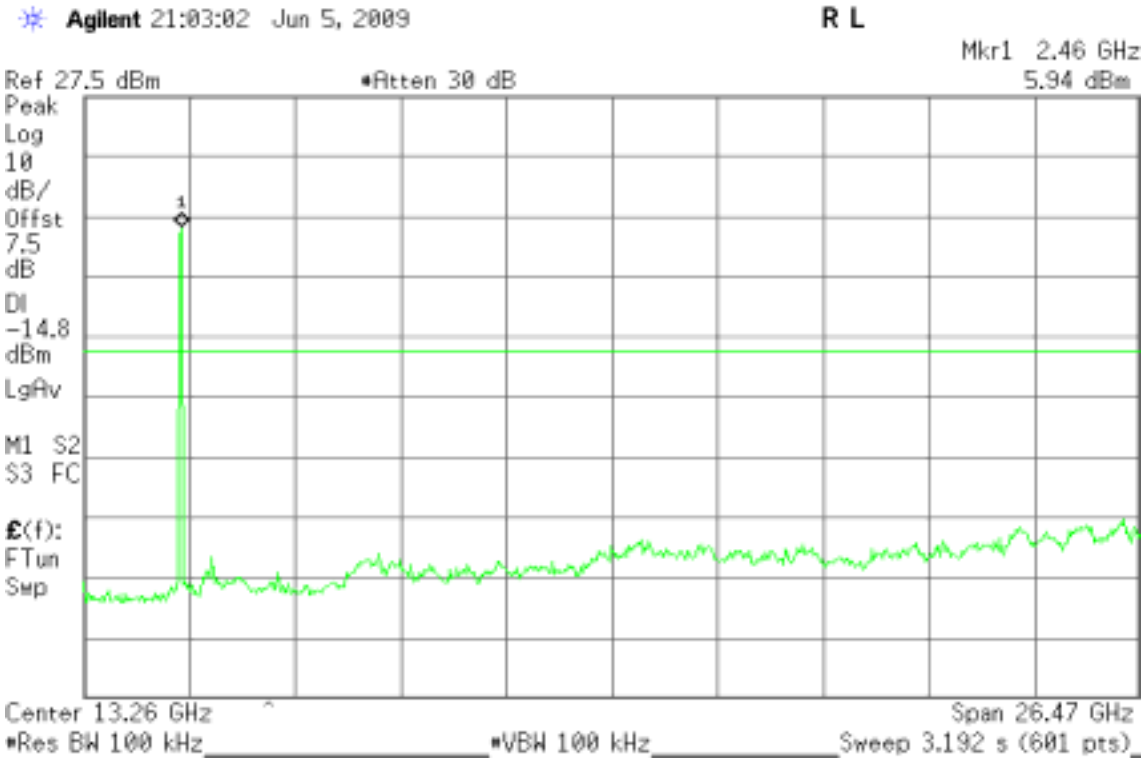
Test Plot

IEEE 802.11b mode

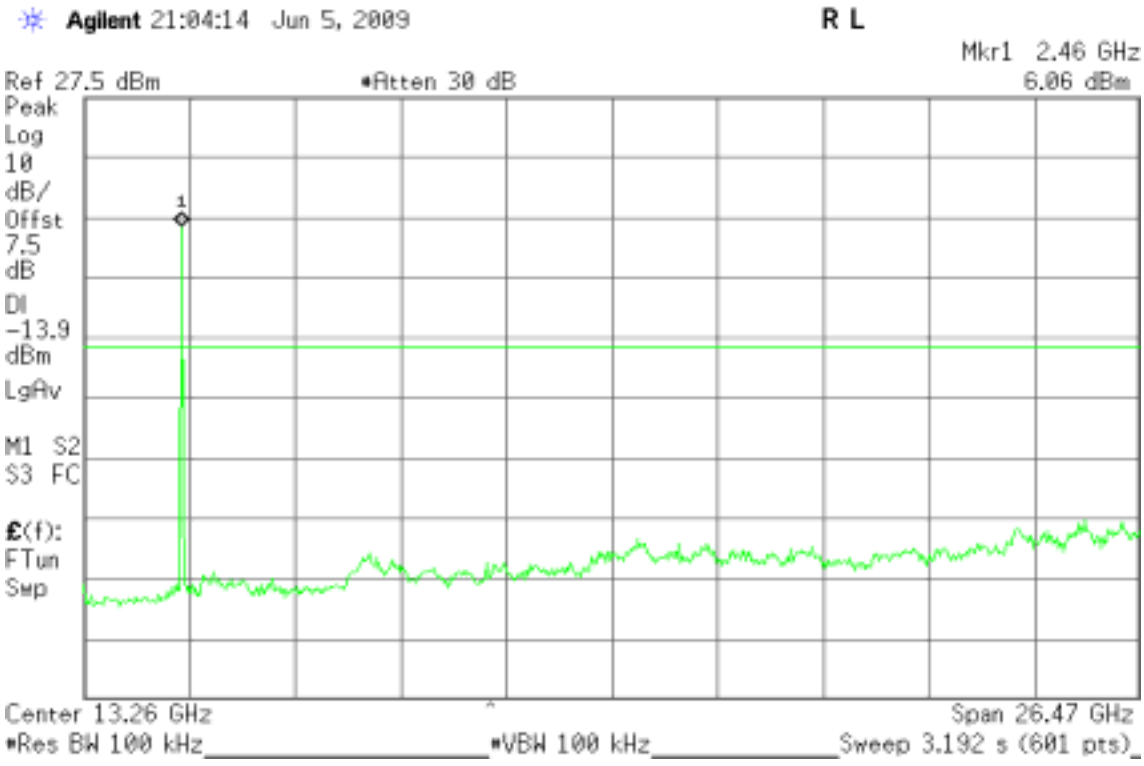
CH Low



CH Mid

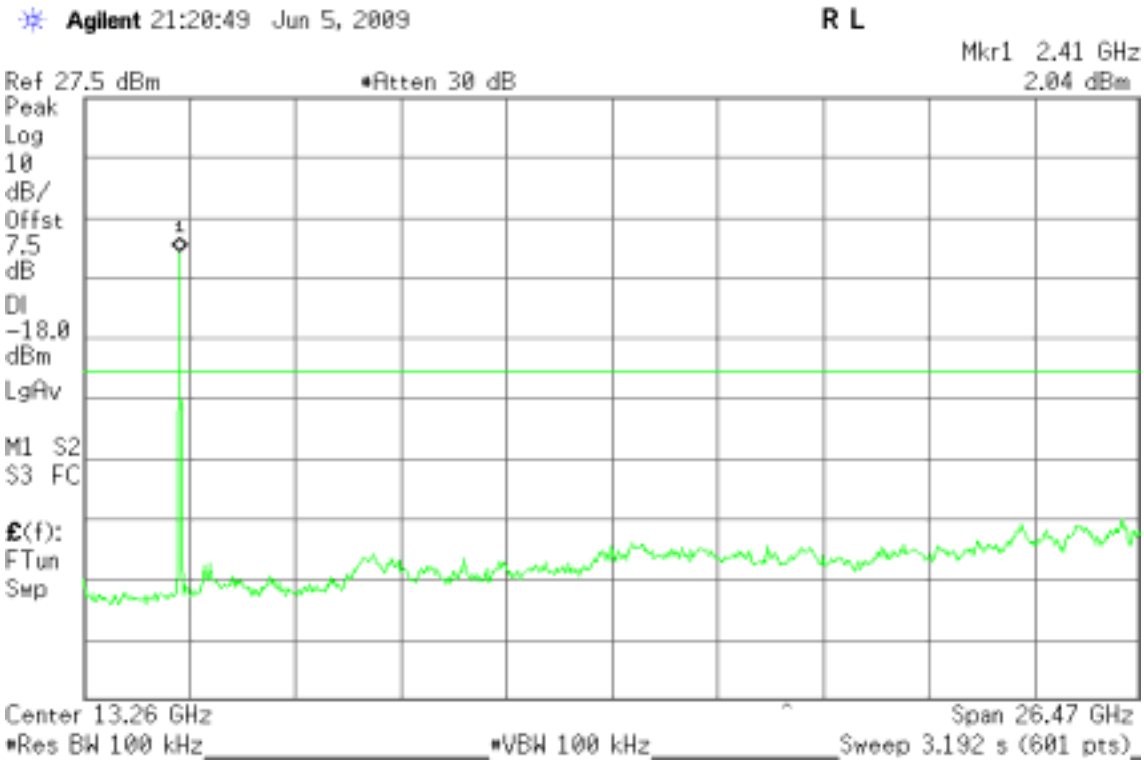


CH High

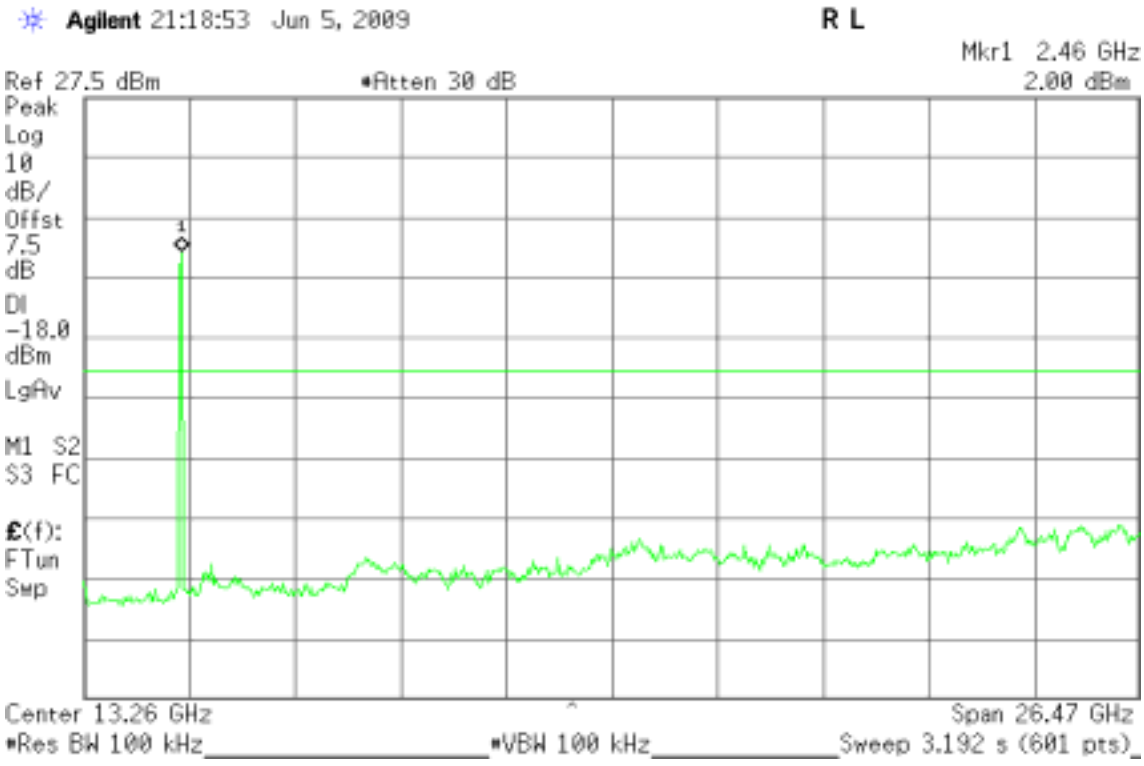


IEEE 802.11g mode

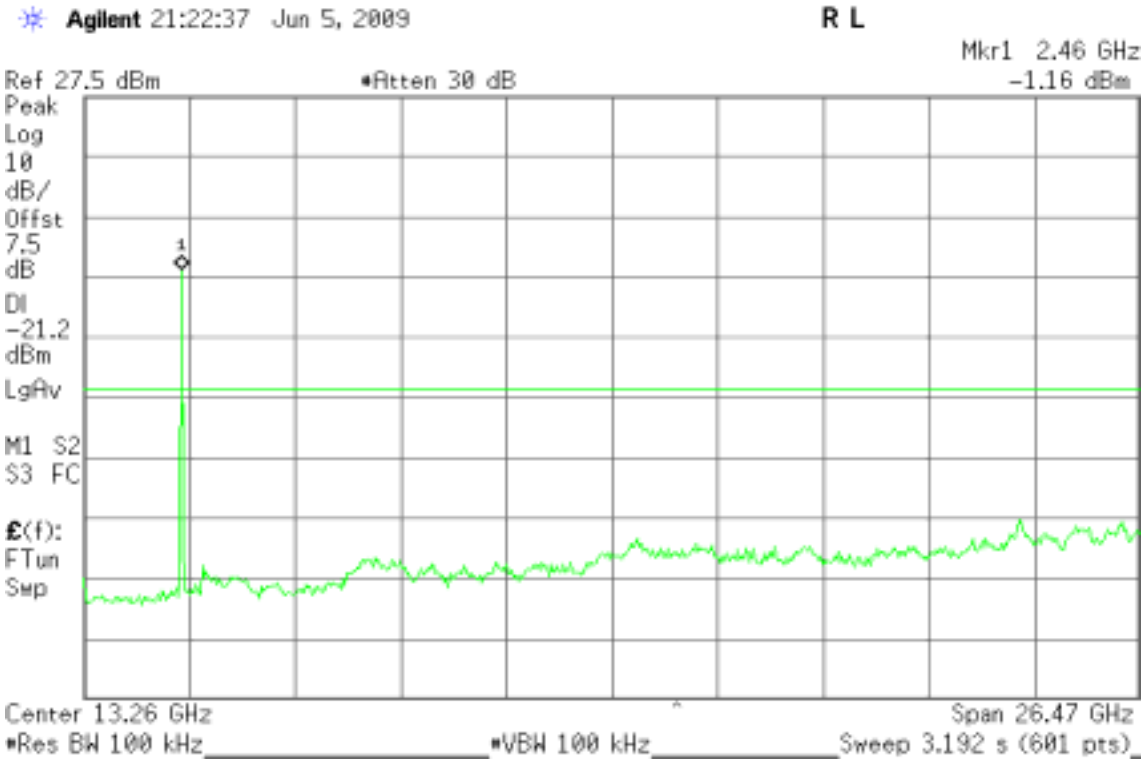
CH Low



CH Mid

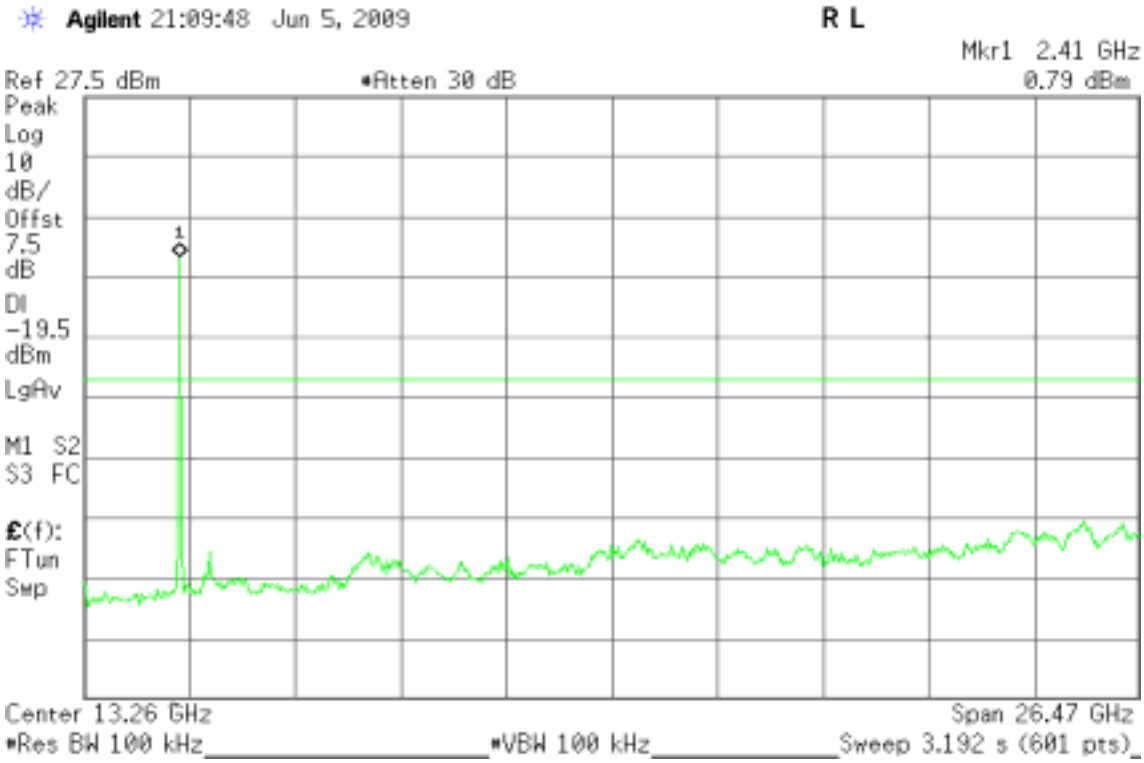


CH High

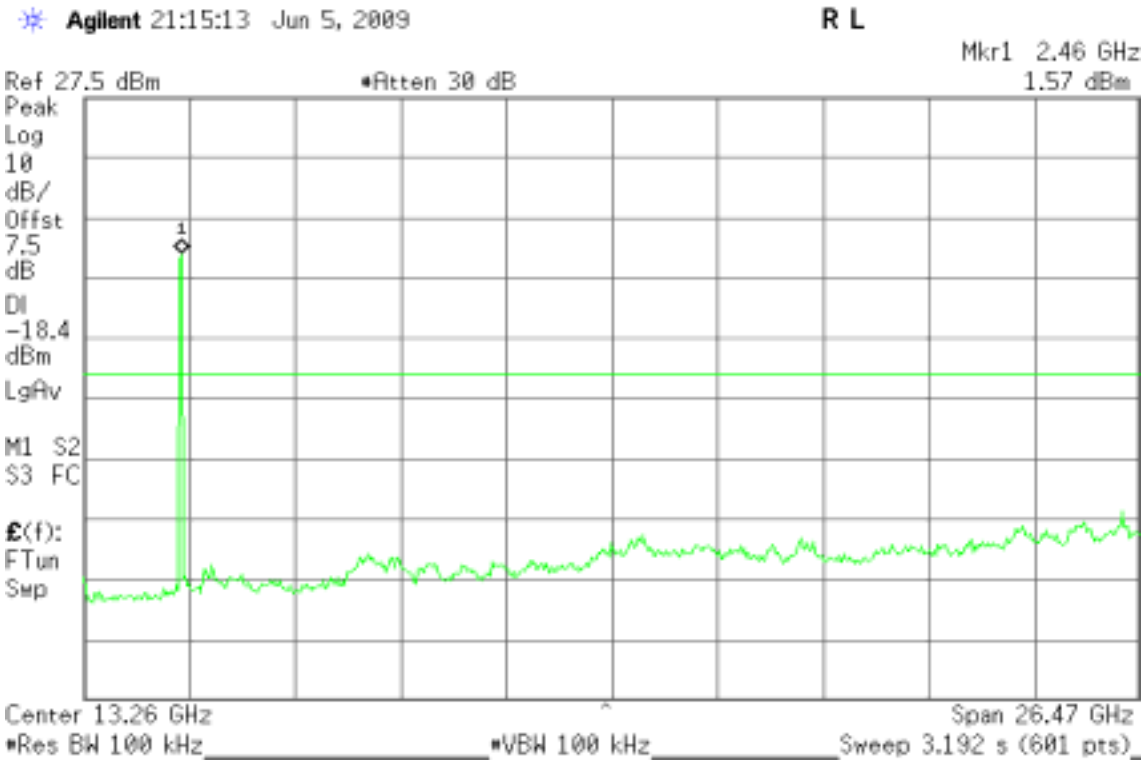


draft 802.11n 20 MHz Channel mode

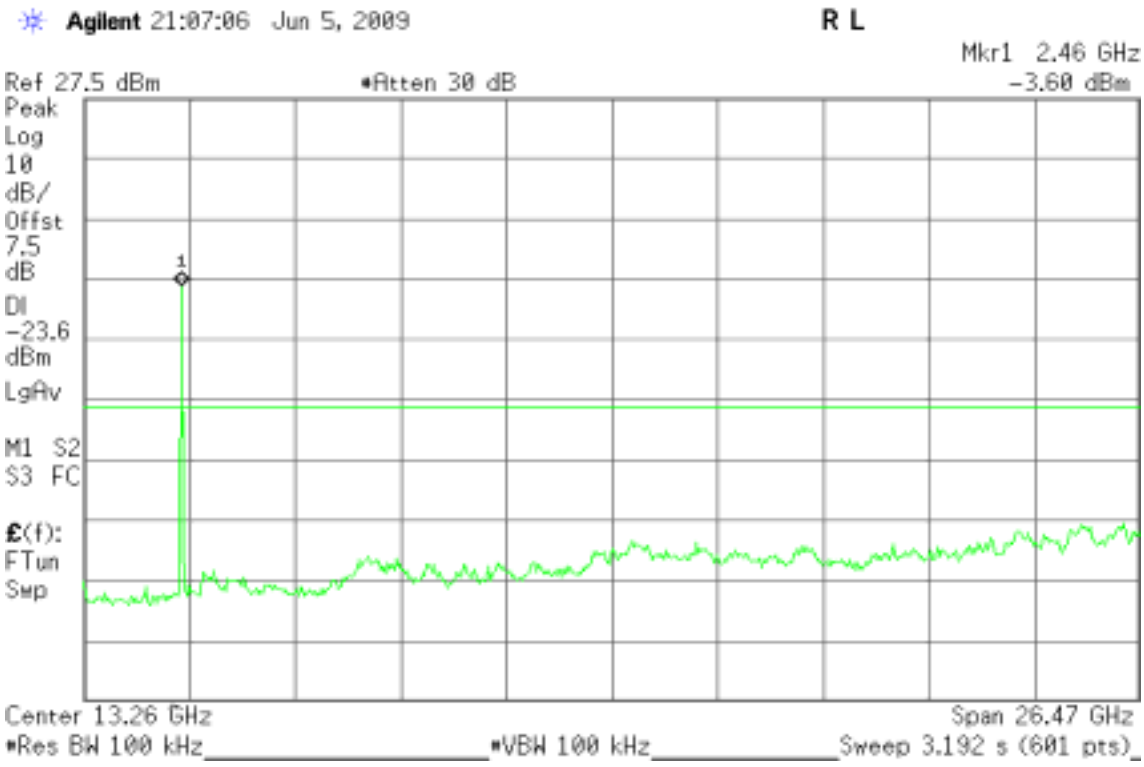
CH Low



CH Mid

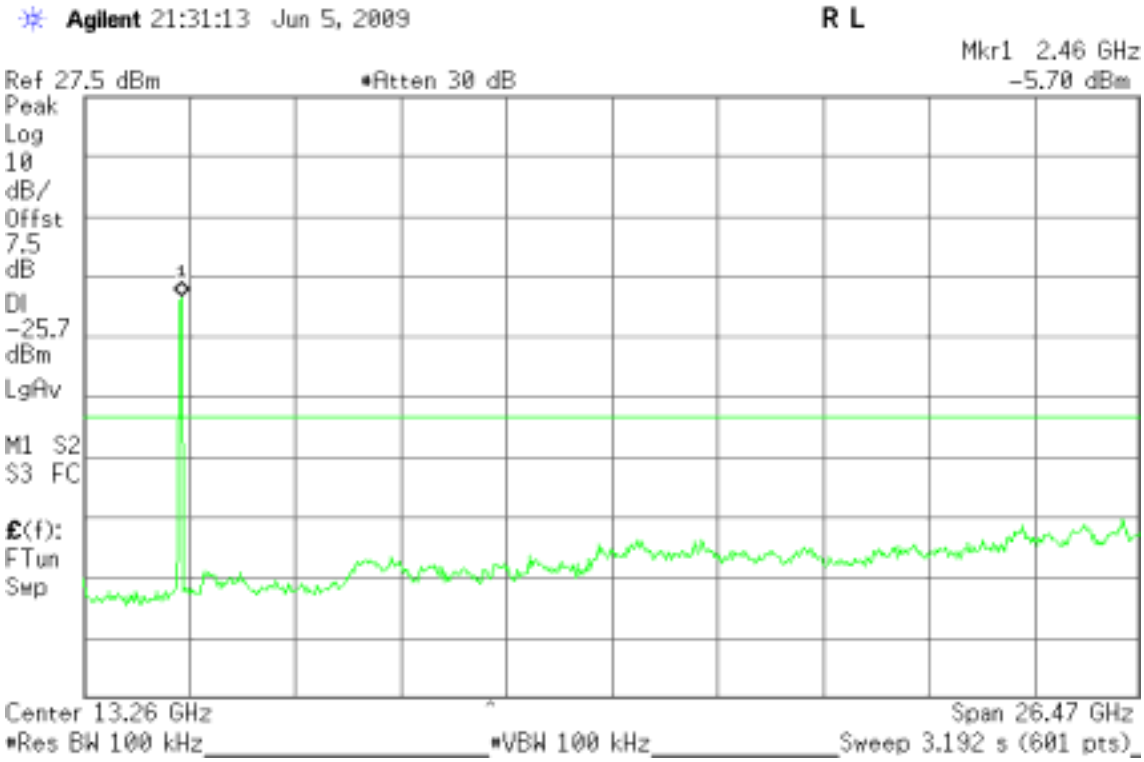


CH High

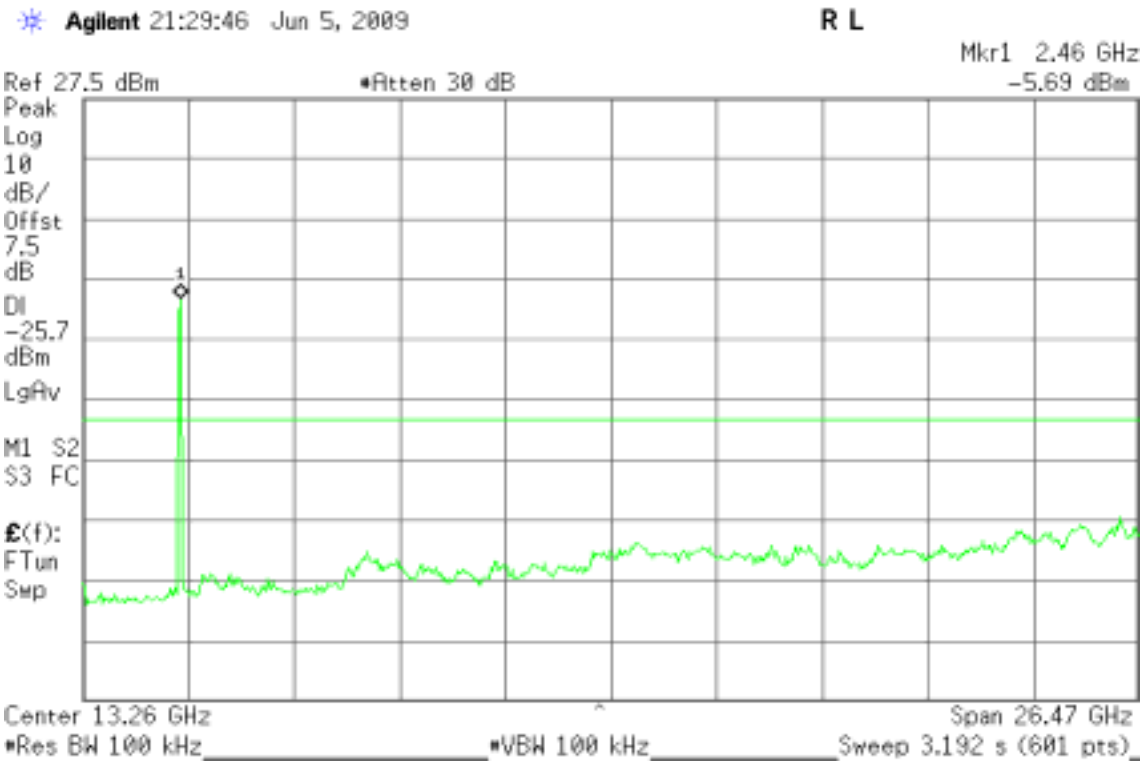


draft 802.11n 40 MHz Channel mode

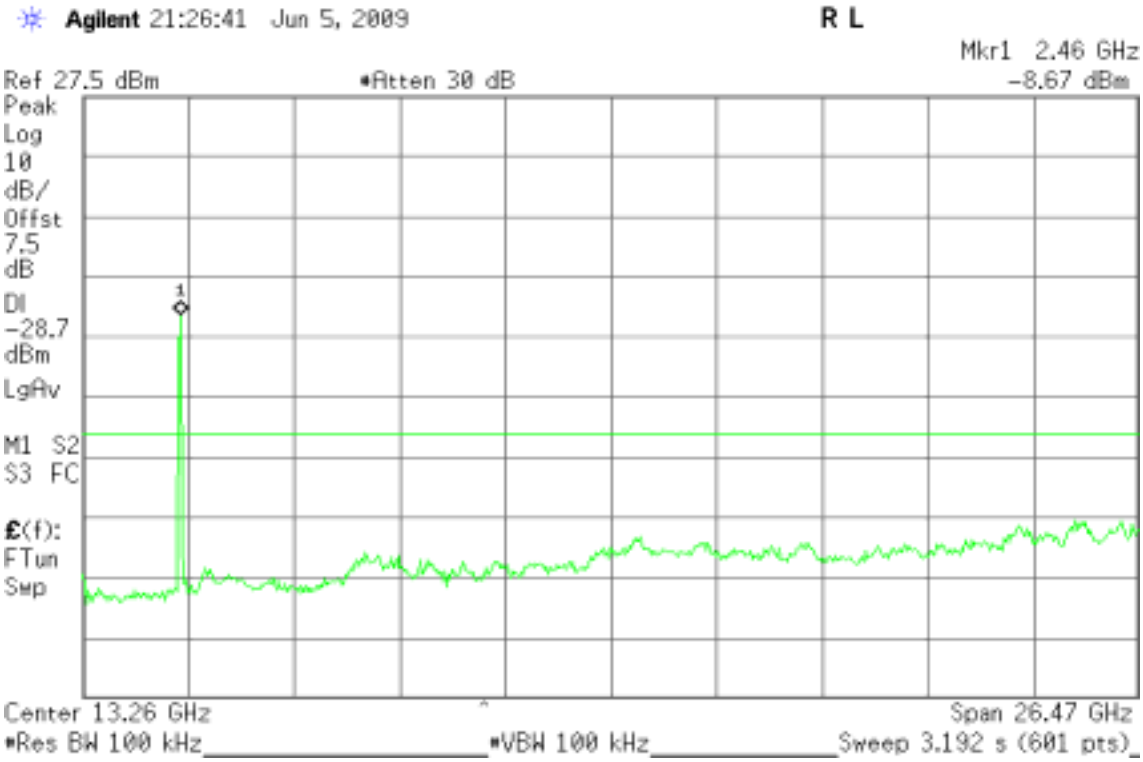
CH Low



CH Mid



CH High



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 (µV/m)	Measurement Distance (m)
30-88	100*	3
88-216	150*	3
216-960	200*	3
Above 960	500	3

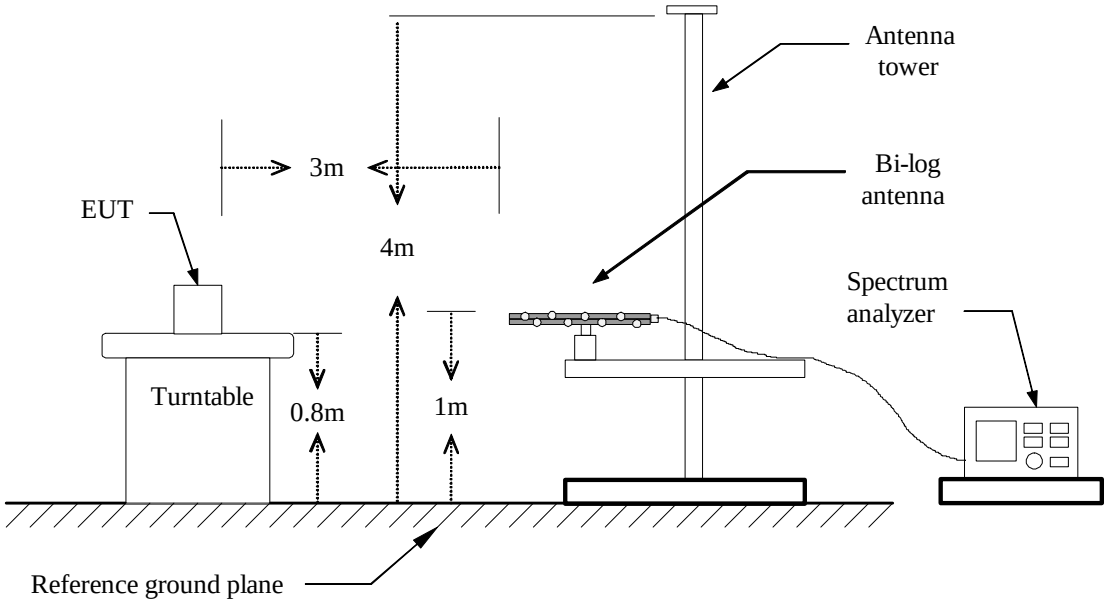
Remark: *Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this Section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of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

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

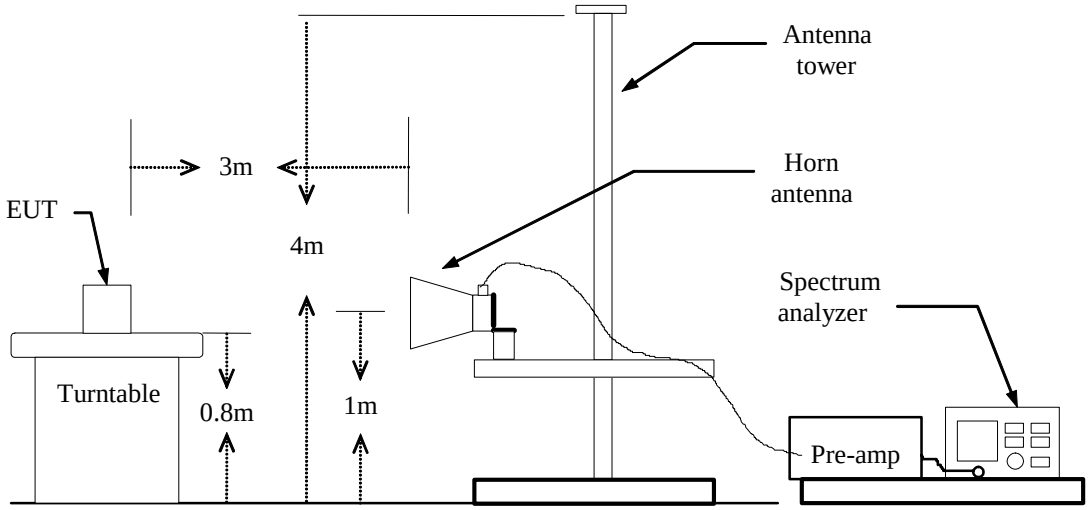
Frequency (MHz)	Field Strength (µV/m at 3-meter)	Field Strength (dBµV/m at 3-meter)
30-88	100	40
88-216	150	43.5
216-960	200	46
Above 960	500	54

TEST CONFIGURATION

Below 1 GHz



Above 1 GHz



TEST PROCEDURE

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

   Below 1GHz:

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

   Above 1GHz:

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

   (b) AVERAGE: RBW=1MHz / VBW=10Hz / Sweep=AUTO
7. Repeat above procedures until the measurements for all frequencies are complete.

TEST RESULTS

No non-compliance noted.

TEST DATA

Below 1GHz

Operation Mode: Normal Link **Test Date:** June 4, 2009

Temperature: 18°C **Tested by:** Stan Lin

Humidity: 60% 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
37.2750	V	50.30	-15.07	35.23	40.00	-4.77	Peak
42.1250	V	50.08	-14.76	35.32	40.00	-4.68	Peak
76.0750	V	53.85	-17.43	36.42	40.00	-3.58	Peak
129.4250	V	48.69	-13.56	35.13	43.50	-8.37	Peak
151.2500	V	52.55	-12.94	39.61	43.50	-3.89	Peak
321.0000	V	53.40	-12.35	41.05	46.00	-4.95	Peak
376.7750	V	48.83	-11.45	37.38	46.00	-8.62	Peak
505.3000	V	43.72	-8.83	34.89	46.00	-11.11	Peak
866.6250	V	38.77	-1.53	37.24	46.00	-8.76	Peak
76.0750	H	46.68	-17.43	29.25	40.00	-10.75	Peak
100.3250	H	49.32	-17.12	32.20	43.50	-11.30	Peak
149.2239	H	51.58	-13.09	38.49	43.50	-5.01	Peak
289.4750	H	46.60	-12.10	34.50	46.00	-11.50	Peak
321.0000	H	53.45	-12.35	41.10	46.00	-4.90	Peak
376.7750	H	49.84	-11.45	38.39	46.00	-7.61	Peak
750.2250	H	39.52	-3.08	36.44	46.00	-9.56	Peak

Remark:

1. *No emission found between lowest internal used / generated frequency to 30 MHz. (9kHz ~ 30MHz)*
2. *Measuring frequencies from 30 MHz to the 1GHz.*
3. *Radiated emissions measured in frequency range from 30 MHz to 1000MHz were made with an instrument using peak/quasi-peak detector mode.*
4. *Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.*
5. *Margin (dB) = Result (dBuV/m) – Limit (dBuV/m).*

Above 1 GHz

Operation Mode: TX / IEEE 802.11b / CH Low **Test Date:** June 3, 2009

Temperature: 17°C **Tested by:** Alonso Lu

Humidity: 51 % 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
1063.33	V	58.84	---	-6.96	51.88	---	74.00	54.00	-2.12	Peak
1196.67	V	51.70	---	-6.06	45.63	---	74.00	54.00	-8.37	Peak
1333.33	V	54.78	---	-6.05	48.73	---	74.00	54.00	-5.27	Peak
2200.00	V	47.15	---	0.59	47.74	---	74.00	54.00	-6.26	Peak
2496.67	V	49.63	---	1.20	50.82	---	74.00	54.00	-3.18	Peak
3216.67	V	45.86	---	1.48	47.33	---	74.00	54.00	-6.67	Peak
4825.00	V	42.72	---	7.72	50.44	---	74.00	54.00	-3.56	Peak
4991.67	V	44.02	---	7.45	51.47	---	74.00	54.00	-2.53	Peak
8683.33	V	40.65	---	8.09	48.74	---	74.00	54.00	-5.26	Peak
10450.00	V	39.71	---	9.29	49.01	---	74.00	54.00	-4.99	Peak
1063.33	H	56.55	---	-6.90	49.65	---	74.00	54.00	-4.35	Peak
1333.33	H	50.25	---	-7.47	42.79	---	74.00	54.00	-11.21	Peak
1966.67	H	48.46	---	-3.29	45.17	---	74.00	54.00	-8.83	Peak
2330.00	H	51.82	---	-1.45	50.37	---	74.00	54.00	-3.63	Peak
2506.67	H	51.58	---	-0.56	51.02	---	74.00	54.00	-2.98	Peak
3216.67	H	48.09	---	2.74	50.83	---	74.00	54.00	-3.17	Peak
4675.00	H	40.91	---	7.77	48.68	---	74.00	54.00	-5.32	Peak
4983.33	H	41.37	---	8.05	49.42	---	74.00	54.00	-4.58	Peak
11850.00	H	39.88	---	10.71	50.59	---	74.00	54.00	-3.41	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:** June 3, 2009

Temperature: 17°C **Tested by:** Alonso Lu

Humidity: 51 % 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
1020.00	V	58.08	---	-7.57	50.51	---	74.00	54.00	-3.49	Peak
1063.33	V	58.69	---	-6.96	51.74	---	74.00	54.00	-2.26	Peak
1110.00	V	58.27	---	-6.40	51.87	---	74.00	54.00	-2.13	Peak
1243.33	V	54.08	---	-6.21	47.87	---	74.00	54.00	-6.13	Peak
1330.00	V	53.77	---	-6.09	47.68	---	74.00	54.00	-6.32	Peak
2346.67	V	50.55	---	-0.27	50.28	---	74.00	54.00	-3.72	Peak
2516.67	V	50.79	---	0.91	51.70	---	74.00	54.00	-2.30	Peak
3250.00	V	44.62	---	1.62	46.23	---	74.00	54.00	-7.77	Peak
4875.00	V	47.21	42.70	7.95	55.16	50.65	74.00	54.00	-3.35	AVG
4983.33	V	44.47	---	7.50	51.97	---	74.00	54.00	-2.03	Peak
11066.67	V	39.47	---	10.25	49.73	---	74.00	54.00	-4.27	Peak
1063.33	H	54.52	---	-6.90	47.62	---	74.00	54.00	-6.38	Peak
1330.00	H	50.81	---	-7.41	43.40	---	74.00	54.00	-10.60	Peak
2353.33	H	53.03	---	-1.35	51.68	---	74.00	54.00	-2.32	Peak
2513.33	H	53.18	43.75	-0.53	52.65	43.22	74.00	54.00	-10.78	AVG
3250.00	H	45.79	---	3.02	48.80	---	74.00	54.00	-5.20	Peak
4875.00	H	43.16	---	7.35	50.50	---	74.00	54.00	-3.50	Peak
4991.67	H	42.05	---	8.10	50.15	---	74.00	54.00	-3.85	Peak
7316.67	H	41.52	---	9.74	51.26	---	74.00	54.00	-2.74	Peak
9350.00	H	40.81	---	7.88	48.69	---	74.00	54.00	-5.31	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:** June 3, 2009

Temperature: 17°C **Tested by:** Alonso Lu

Humidity: 51 % 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
1020.00	V	57.11	---	-7.57	49.54	---	74.00	54.00	-4.46	Peak
1063.33	V	56.79	---	-6.96	49.84	---	74.00	54.00	-4.16	Peak
1110.00	V	54.27	---	-6.40	47.87	---	74.00	54.00	-6.13	Peak
1330.00	V	54.79	---	-6.09	48.70	---	74.00	54.00	-5.30	Peak
2333.33	V	51.21	---	-0.25	50.96	---	74.00	54.00	-3.04	Peak
2540.00	V	51.35	---	0.44	51.79	---	74.00	54.00	-2.21	Peak
4925.00	V	45.83	43.59	7.90	53.73	51.49	74.00	54.00	-2.51	AVG
4991.67	V	44.04	---	7.45	51.49	---	74.00	54.00	-2.51	Peak
10183.33	V	40.24	---	8.67	48.91	---	74.00	54.00	-5.09	Peak
11066.67	V	39.40	---	10.25	49.65	---	74.00	54.00	-4.35	Peak
1063.33	H	55.75	---	-6.90	48.86	---	74.00	54.00	-5.14	Peak
1106.67	H	51.37	---	-6.64	44.73	---	74.00	54.00	-9.27	Peak
1330.00	H	52.07	---	-7.41	44.65	---	74.00	54.00	-9.35	Peak
2360.00	H	51.83	---	-1.32	50.51	---	74.00	54.00	-3.49	Peak
2543.33	H	53.78	43.38	-0.42	53.35	42.96	74.00	54.00	-11.04	AVG
3283.33	H	43.36	---	3.29	46.65	---	74.00	54.00	-7.35	Peak
4925.00	H	42.17	---	7.71	49.87	---	74.00	54.00	-4.13	Peak
4991.67	H	41.47	---	8.10	49.57	---	74.00	54.00	-4.43	Peak
7200.00	H	39.96	---	11.03	50.99	---	74.00	54.00	-3.01	Peak
11216.67	H	40.02	---	10.37	50.40	---	74.00	54.00	-3.60	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 3, 2009

Temperature: 17°C **Tested by:** Alonso Lu

Humidity: 51 % 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
1016.67	V	55.67	---	-7.61	48.05	---	74.00	54.00	-5.95	Peak
1066.67	V	59.74	42.28	-6.91	52.83	35.37	74.00	54.00	-18.63	AVG
1240.00	V	53.73	---	-6.19	47.54	---	74.00	54.00	-6.46	Peak
1376.67	V	55.97	---	-5.59	50.38	---	74.00	54.00	-3.62	Peak
1506.67	V	52.63	---	-5.68	46.95	---	74.00	54.00	-7.05	Peak
2500.00	V	49.79	---	1.25	51.04	---	74.00	54.00	-2.96	Peak
2543.33	V	50.86	---	0.37	51.24	---	74.00	54.00	-2.76	Peak
3216.67	V	46.45	---	1.48	47.93	---	74.00	54.00	-6.07	Peak
4100.00	V	39.78	---	5.95	45.73	---	74.00	54.00	-8.27	Peak
4825.00	V	41.72	---	7.72	49.45	---	74.00	54.00	-4.55	Peak
4991.67	V	44.45	---	7.45	51.90	---	74.00	54.00	-2.10	Peak
10266.67	V	39.96	---	8.86	48.82	---	74.00	54.00	-5.18	Peak
1063.33	H	57.65	---	-6.90	50.75	---	74.00	54.00	-3.25	Peak
1333.33	H	51.52	---	-7.47	44.06	---	74.00	54.00	-9.94	Peak
2330.00	H	52.41	---	-1.45	50.96	---	74.00	54.00	-3.04	Peak
2543.33	H	50.58	---	-0.42	50.16	---	74.00	54.00	-3.84	Peak
2716.67	H	49.12	---	0.00	49.13	---	74.00	54.00	-4.87	Peak
3216.67	H	48.37	---	2.74	51.11	---	74.00	54.00	-2.89	Peak
4208.33	H	40.75	---	8.09	48.83	---	74.00	54.00	-5.17	Peak
4983.33	H	41.58	---	8.05	49.63	---	74.00	54.00	-4.37	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:** June 3, 2009

Temperature: 17°C **Tested by:** Alonso Lu

Humidity: 51 % 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
1020.00	V	57.14	---	-7.57	49.58	---	74.00	54.00	-4.42	Peak
1063.33	V	56.56	---	-6.96	49.60	---	74.00	54.00	-4.40	Peak
1326.67	V	55.13	---	-6.12	49.00	---	74.00	54.00	-5.00	Peak
1376.67	V	54.85	---	-5.59	49.26	---	74.00	54.00	-4.74	Peak
2530.00	V	50.99	---	0.64	51.63	---	74.00	54.00	-2.37	Peak
3250.00	V	44.14	---	1.62	45.76	---	74.00	54.00	-8.24	Peak
4875.00	V	44.04	---	7.95	52.00	---	74.00	54.00	-2.00	Peak
4983.33	V	43.93	---	7.50	51.43	---	74.00	54.00	-2.57	Peak
11800.00	V	40.02	---	10.70	50.72	---	74.00	54.00	-3.28	Peak
1016.67	H	55.36	---	-7.34	48.02	---	74.00	54.00	-5.98	Peak
1063.33	H	56.76	---	-6.90	49.86	---	74.00	54.00	-4.14	Peak
1326.67	H	53.07	---	-7.36	45.71	---	74.00	54.00	-8.29	Peak
2316.67	H	53.00	---	-1.51	51.49	---	74.00	54.00	-2.51	Peak
2570.00	H	51.45	---	-0.33	51.12	---	74.00	54.00	-2.88	Peak
3250.00	H	46.36	---	3.02	49.38	---	74.00	54.00	-4.62	Peak
4100.00	H	40.13	---	8.27	48.40	---	74.00	54.00	-5.60	Peak
4991.67	H	40.92	---	8.10	49.02	---	74.00	54.00	-4.98	Peak
10350.00	H	39.76	---	9.06	48.82	---	74.00	54.00	-5.18	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 High **Test Date:** June 3, 2009

Temperature: 17°C **Tested by:** Alonso Lu

Humidity: 51 % 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
1066.67	V	58.54	---	-6.91	51.63	---	74.00	54.00	-2.37	Peak
1106.67	V	58.21	---	-6.41	51.79	---	74.00	54.00	-2.21	Peak
1153.33	V	53.48	---	-6.23	47.25	---	74.00	54.00	-6.75	Peak
1333.33	V	55.32	---	-6.05	49.27	---	74.00	54.00	-4.73	Peak
2330.00	V	49.13	---	-0.25	48.89	---	74.00	54.00	-5.11	Peak
4983.33	V	44.33	---	7.50	51.83	---	74.00	54.00	-2.17	Peak
6550.00	V	39.98	---	10.15	50.14	---	74.00	54.00	-3.86	Peak
10233.33	V	40.87	---	8.79	49.66	---	74.00	54.00	-4.34	Peak
11016.67	V	39.82	---	10.21	50.03	---	74.00	54.00	-3.97	Peak
1066.67	H	54.74	---	-6.87	47.88	---	74.00	54.00	-6.12	Peak
1326.67	H	53.14	---	-7.36	45.79	---	74.00	54.00	-8.21	Peak
2333.33	H	50.72	---	-1.44	49.29	---	74.00	54.00	-4.71	Peak
2536.67	H	50.76	---	-0.45	50.32	---	74.00	54.00	-3.68	Peak
3283.33	H	43.98	---	3.29	47.27	---	74.00	54.00	-6.73	Peak
4983.33	H	42.58	---	8.05	50.63	---	74.00	54.00	-3.37	Peak
6883.33	H	39.92	---	10.28	50.20	---	74.00	54.00	-3.80	Peak
9383.33	H	41.54	---	7.82	49.36	---	74.00	54.00	-4.64	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 20 MHz Channel mode / CH Low **Test Date:** June 3, 2009

Temperature: 17°C **Tested by:** Alonso Lu

Humidity: 51 % 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
1063.33	V	59.63	38.76	-6.96	52.67	31.80	74.00	54.00	-22.20	AVG
1106.67	V	54.38	---	-6.41	47.97	---	74.00	54.00	-6.03	Peak
1330.00	V	55.26	---	-6.09	49.17	---	74.00	54.00	-4.83	Peak
1636.67	V	49.98	---	-3.29	46.69	---	74.00	54.00	-7.31	Peak
1993.33	V	49.53	---	-1.88	47.65	---	74.00	54.00	-6.35	Peak
2520.00	V	50.04	---	0.85	50.88	---	74.00	54.00	-3.12	Peak
3216.67	V	46.10	---	1.48	47.58	---	74.00	54.00	-6.42	Peak
4825.00	V	41.55	---	7.72	49.27	---	74.00	54.00	-4.73	Peak
4983.33	V	43.78	---	7.50	51.28	---	74.00	54.00	-2.72	Peak
12050.00	V	40.51	---	10.79	51.30	---	74.00	54.00	-2.70	Peak
1063.33	H	51.90	---	-6.90	45.00	---	74.00	54.00	-9.00	Peak
1330.00	H	52.33	---	-7.41	44.92	---	74.00	54.00	-9.08	Peak
1373.33	H	55.84	---	-8.12	47.71	---	74.00	54.00	-6.29	Peak
2323.33	H	51.17	---	-1.48	49.69	---	74.00	54.00	-4.31	Peak
2543.33	H	50.27	---	-0.42	49.84	---	74.00	54.00	-4.16	Peak
3216.67	H	49.38	---	2.74	52.12	---	74.00	54.00	-1.88	Peak
4150.00	H	40.64	---	8.20	48.85	---	74.00	54.00	-5.15	Peak
4991.67	H	41.87	---	8.10	49.98	---	74.00	54.00	-4.02	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 20 MHz Channel mode / CH Mid **Test Date:** June 3, 2009

Temperature: 17°C **Tested by:** Alonso Lu

Humidity: 51 % 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
1020.00	V	57.94	---	-7.57	50.37	---	74.00	54.00	-3.63	Peak
1063.33	V	58.30	---	-6.96	51.34	---	74.00	54.00	-2.66	Peak
1106.67	V	59.20	38.04	-6.41	52.79	31.63	74.00	54.00	-22.37	AVG
1333.33	V	54.71	---	-6.05	48.66	---	74.00	54.00	-5.34	Peak
1510.00	V	52.96	---	-5.62	47.35	---	74.00	54.00	-6.65	Peak
2556.67	V	50.32	---	0.11	50.42	---	74.00	54.00	-3.58	Peak
3250.00	V	44.25	---	1.62	45.86	---	74.00	54.00	-8.14	Peak
4875.00	V	44.71	31.57	7.95	52.67	39.52	74.00	54.00	-14.48	AVG
5000.00	V	44.11	---	7.39	51.50	---	74.00	54.00	-2.50	Peak
11083.33	V	39.64	---	10.27	49.91	---	74.00	54.00	-4.09	Peak
1063.33	H	54.99	---	-6.90	48.09	---	74.00	54.00	-5.91	Peak
1330.00	H	51.56	---	-7.41	44.15	---	74.00	54.00	-9.85	Peak
1373.33	H	52.49	---	-8.12	44.36	---	74.00	54.00	-9.64	Peak
2343.33	H	51.71	---	-1.39	50.32	---	74.00	54.00	-3.68	Peak
2563.33	H	51.49	---	-0.35	51.13	---	74.00	54.00	-2.87	Peak
3250.00	H	45.60	---	3.02	48.62	---	74.00	54.00	-5.38	Peak
4058.33	H	40.81	---	8.15	48.96	---	74.00	54.00	-5.04	Peak
5158.33	H	40.85	---	8.66	49.52	---	74.00	54.00	-4.48	Peak
5500.00	H	40.89	---	8.80	49.69	---	74.00	54.00	-4.31	Peak
10133.33	H	40.98	---	8.55	49.53	---	74.00	54.00	-4.47	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 20 MHz Channel mode / CH High **Test Date:** June 3, 2009

Temperature: 17°C **Tested by:** Alonso Lu

Humidity: 51 % 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
1020.00	V	59.17	---	-7.57	51.60	---	74.00	54.00	-2.40	Peak
1063.33	V	57.40	---	-6.96	50.44	---	74.00	54.00	-3.56	Peak
1110.00	V	55.25	---	-6.40	48.85	---	74.00	54.00	-5.15	Peak
1333.33	V	53.60	---	-6.05	47.55	---	74.00	54.00	-6.45	Peak
1373.33	V	54.11	---	-5.63	48.49	---	74.00	54.00	-5.51	Peak
2350.00	V	49.51	---	-0.28	49.23	---	74.00	54.00	-4.77	Peak
4083.33	V	40.32	---	5.68	46.00	---	74.00	54.00	-8.00	Peak
4991.67	V	44.39	---	7.45	51.84	---	74.00	54.00	-2.16	Peak
6591.67	V	39.16	---	11.18	50.34	---	74.00	54.00	-3.66	Peak
11016.67	V	39.97	---	10.21	50.19	---	74.00	54.00	-3.81	Peak
1063.33	H	54.68	---	-6.90	47.78	---	74.00	54.00	-6.22	Peak
1330.00	H	53.55	---	-7.41	46.14	---	74.00	54.00	-7.86	Peak
2330.00	H	50.76	---	-1.45	49.31	---	74.00	54.00	-4.69	Peak
2536.67	H	50.61	---	-0.45	50.16	---	74.00	54.00	-3.84	Peak
3725.00	H	42.29	---	5.49	47.78	---	74.00	54.00	-6.22	Peak
4075.00	H	40.37	---	8.20	48.56	---	74.00	54.00	-5.44	Peak
4991.67	H	42.69	---	8.10	50.79	---	74.00	54.00	-3.21	Peak
6900.00	H	40.38	---	10.67	51.05	---	74.00	54.00	-2.95	Peak
10316.67	H	39.99	---	8.98	48.97	---	74.00	54.00	-5.03	Peak
11033.33	H	39.83	---	10.23	50.06	---	74.00	54.00	-3.94	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 40 MHz Channel mode / CH Low **Test Date:** June 3, 2009

Temperature: 17°C **Tested by:** Alonso Lu

Humidity: 51 % 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
1066.67	V	58.51	---	-6.91	51.60	---	74.00	54.00	-2.40	Peak
1106.67	V	54.26	---	-6.41	47.85	---	74.00	54.00	-6.15	Peak
1330.00	V	54.47	---	-6.09	48.38	---	74.00	54.00	-5.62	Peak
1376.67	V	53.63	---	-5.59	48.04	---	74.00	54.00	-5.96	Peak
1643.33	V	48.96	---	-3.16	45.80	---	74.00	54.00	-8.20	Peak
2523.33	V	49.17	---	0.78	49.95	---	74.00	54.00	-4.05	Peak
3225.00	V	44.26	---	1.51	45.78	---	74.00	54.00	-8.22	Peak
4991.67	V	44.53	---	7.45	51.98	---	74.00	54.00	-2.02	Peak
10300.00	V	39.09	---	8.94	48.03	---	74.00	54.00	-5.97	Peak
1020.00	H	52.16	---	-7.31	44.85	---	74.00	54.00	-9.15	Peak
1063.33	H	54.96	---	-6.90	48.06	---	74.00	54.00	-5.94	Peak
1110.00	H	52.91	---	-6.68	46.23	---	74.00	54.00	-7.77	Peak
1330.00	H	53.02	---	-7.41	45.61	---	74.00	54.00	-8.39	Peak
2583.33	H	48.77	---	-0.28	48.49	---	74.00	54.00	-5.51	Peak
3225.00	H	46.12	---	2.81	48.92	---	74.00	54.00	-5.08	Peak
4983.33	H	41.25	---	8.05	49.30	---	74.00	54.00	-4.70	Peak
5883.33	H	40.40	---	7.87	48.27	---	74.00	54.00	-5.73	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 40 MHz Channel mode / CH Mid **Test Date:** June 3, 2009

Temperature: 17°C **Tested by:** Alonso Lu

Humidity: 51 % 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
1063.33	V	57.57	---	-6.96	50.62	---	74.00	54.00	-3.38	Peak
1106.67	V	55.44	---	-6.41	49.02	---	74.00	54.00	-4.98	Peak
1330.00	V	54.59	---	-6.09	48.50	---	74.00	54.00	-5.50	Peak
1420.00	V	52.83	---	-5.43	47.40	---	74.00	54.00	-6.60	Peak
2313.33	V	49.43	---	-0.22	49.21	---	74.00	54.00	-4.79	Peak
3250.00	V	44.89	---	1.62	46.50	---	74.00	54.00	-7.50	Peak
4983.33	V	44.17	---	7.50	51.67	---	74.00	54.00	-2.33	Peak
9708.33	V	40.02	---	7.89	47.91	---	74.00	54.00	-6.09	Peak
1066.67	H	55.50	---	-6.87	48.63	---	74.00	54.00	-5.37	Peak
1330.00	H	53.73	---	-7.41	46.32	---	74.00	54.00	-7.68	Peak
2056.67	H	47.48	---	-1.95	45.53	---	74.00	54.00	-8.47	Peak
2576.67	H	49.37	---	-0.30	49.06	---	74.00	54.00	-4.94	Peak
1066.67	H	55.50	---	-6.87	48.63	---	74.00	54.00	-5.37	Peak
3250.00	H	45.23	---	3.02	48.24	---	74.00	54.00	-5.76	Peak
5000.00	H	41.11	---	8.15	49.26	---	74.00	54.00	-4.74	Peak
5166.67	H	40.99	---	8.63	49.63	---	74.00	54.00	-4.37	Peak
10950.00	H	39.10	---	10.12	49.22	---	74.00	54.00	-4.78	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 40 MHz Channel mode / CH High **Test Date:** June 3, 2009

Temperature: 17°C **Tested by:** Alonso Lu

Humidity: 51 % 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
1016.67	V	56.44	---	-7.61	48.83	---	74.00	54.00	-5.17	Peak
1063.33	V	57.07	---	-6.96	50.11	---	74.00	54.00	-3.89	Peak
1330.00	V	53.13	---	-6.09	47.04	---	74.00	54.00	-6.96	Peak
1460.00	V	52.12	---	-5.62	46.51	---	74.00	54.00	-7.49	Peak
2220.00	V	47.18	---	0.43	47.61	---	74.00	54.00	-6.39	Peak
4075.00	V	40.67	---	5.54	46.22	---	74.00	54.00	-7.78	Peak
4991.67	V	44.39	---	7.45	51.84	---	74.00	54.00	-2.16	Peak
6566.67	V	39.93	---	10.56	50.49	---	74.00	54.00	-3.51	Peak
11816.67	V	40.14	---	10.70	50.84	---	74.00	54.00	-3.16	Peak
1020.00	H	56.58	---	-7.31	49.27	---	74.00	54.00	-4.73	Peak
1066.67	H	54.79	---	-6.87	47.92	---	74.00	54.00	-6.08	Peak
1326.67	H	51.88	---	-7.36	44.52	---	74.00	54.00	-9.48	Peak
2236.67	H	48.30	---	-2.54	45.76	---	74.00	54.00	-8.24	Peak
2546.67	H	50.36	---	-0.41	49.95	---	74.00	54.00	-4.05	Peak
4266.67	H	41.15	---	7.71	48.86	---	74.00	54.00	-5.14	Peak
4991.67	H	42.22	---	8.10	50.32	---	74.00	54.00	-3.68	Peak
11766.67	H	39.63	---	10.69	50.31	---	74.00	54.00	-3.69	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).*

7.7. 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 II 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:**	June 3, 2009
Temperature:	25°C	**Tested by:**	Stan Lin
Humidity:	57% RH		

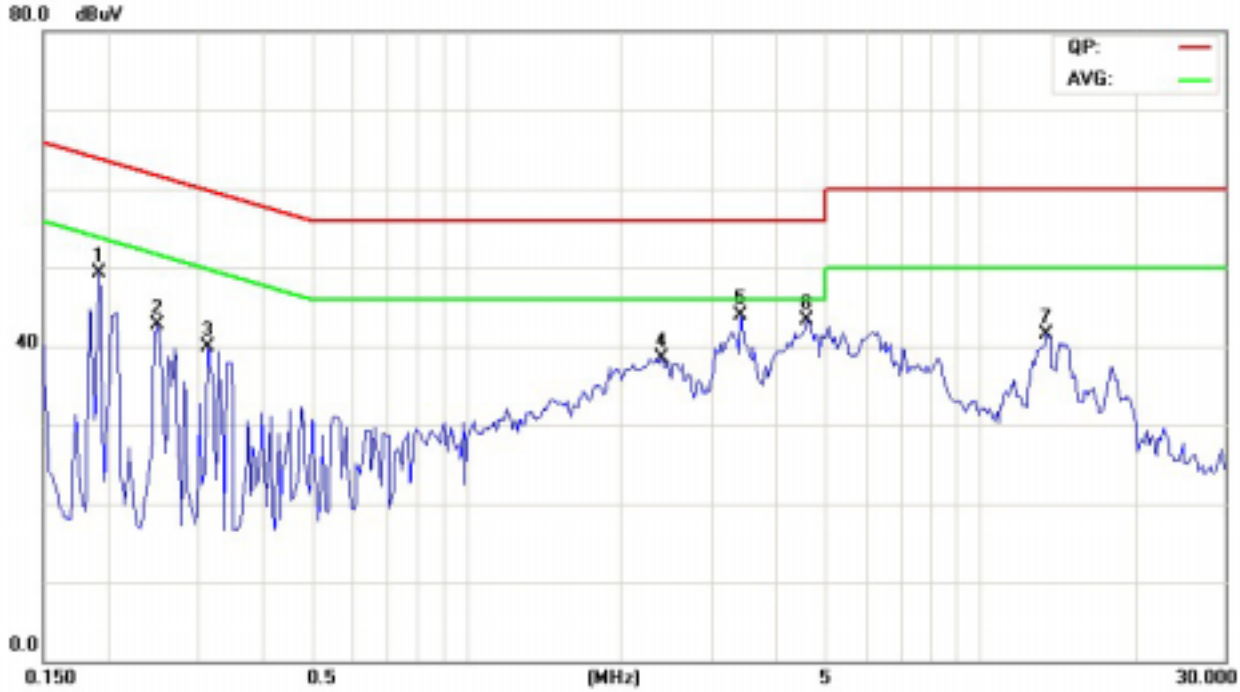
Freq. (MHz)	QP Reading (dBuV)	AV Reading (dBuV)	Corr. factor (dB)	QP Result (dBuV)	AV Result (dBuV)	QP Limit (dBuV)	AV Limit (dBuV)	QP Margin (dB)	AV Margin (dB)	Note
0.1930	36.52	19.62	9.68	46.20	29.30	63.91	53.91	-17.71	-24.61	L1
0.2516	29.52	13.32	9.68	39.20	23.00	61.70	51.70	-22.50	-28.70	L1
0.3141	27.32	7.52	9.68	37.00	17.20	59.86	49.86	-22.86	-32.66	L1
2.4000	26.20	14.00	9.70	35.90	23.70	56.00	46.00	-20.10	-22.30	L1
3.4273	27.99	14.39	9.71	37.70	24.10	56.00	46.00	-18.30	-21.90	L1
4.6223	26.22	15.52	9.78	36.00	25.30	56.00	46.00	-20.00	-20.70	L1
13.5133	25.46	15.86	10.24	35.70	26.10	60.00	50.00	-24.30	-23.90	L1
0.1891	37.61	21.01	9.69	47.30	30.70	64.08	54.08	-16.78	-23.38	L2
2.5094	25.49	14.49	9.71	35.20	24.20	56.00	46.00	-20.80	-21.80	L2
3.4352	25.39	12.09	9.71	35.10	21.80	56.00	46.00	-20.90	-24.20	L2
4.5602	27.71	16.31	9.79	37.50	26.10	56.00	46.00	-18.50	-19.90	L2
5.2008	28.36	18.66	9.84	38.20	28.50	60.00	50.00	-21.80	-21.50	L2
13.3453	25.19	15.89	10.31	35.50	26.20	60.00	50.00	-24.50	-23.80	L2

Remark:

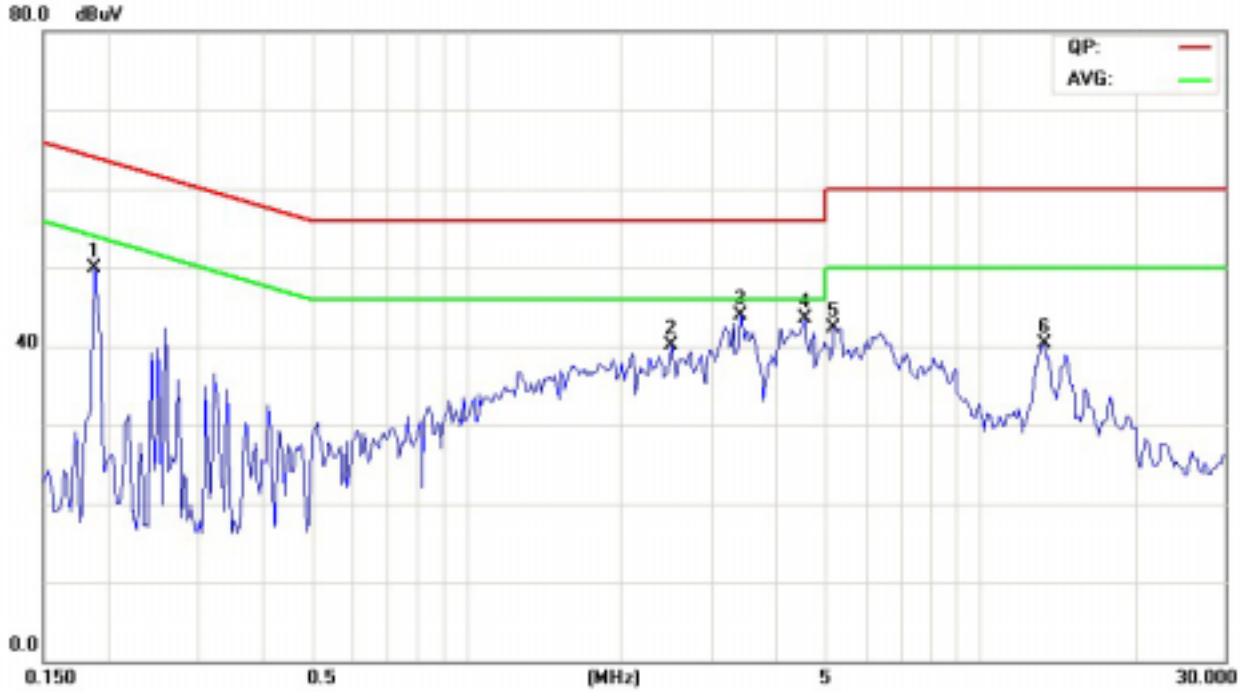
1. *The measuring frequencies range between 0.15 MHz and 30 MHz.*
2. *The emissions measured in the frequency range between 0.15 MHz and 30MHz were made with an instrument using Quasi-peak detector and Average detector.*
3. *The IF bandwidth of SPA between 0.15MHz and 30MHz was 10kHz. The IF bandwidth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

Test Plot

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	Personal Computer
Frequency band (Operating)	☒ WLAN: 2.412GHz ~ 2.462GHz ☐ WLAN: 5.18GHz ~ 5.32GHz / 5.50GHz ~ 5.70GHz ☐ WLAN: 5.745GHz ~ 5.825GHz ☐ Others
Device category	☒ Portable (<20cm separation) ☐ Mobile (>20cm separation) ☐ Others
Exposure classification	☐ Occupational/Controlled exposure (S = 5mW/cm^2) ☒ General Population/Uncontrolled exposure (S=1mW/cm^2)
Antenna diversity	☐ Single antenna ☒ Multiple antennas ☐ Tx diversity ☐ Rx diversity ☒ Tx/Rx diversity
Max. output power	IEEE 802.11b mode: 20.37 dBm (0.10889W) IEEE 802.11g mode: 20.27dBm (0.10641 W) draft 802.11n 20 MHz Channel mode: 19.28 dBm (0.08472W) draft 802.11n 40 MHz Channel mode: 14.43 dBm (0.02773W)
Antenna gain (Max)	4.06dBi (including cable loss) (Numeric gain: 2.55)
Evaluation applied	☐ MPE Evaluation* ☒ SAR Evaluation ☐ N/A

Remark:

1. *The maximum output power is 20.37dBm (108.89mW) at 2437MHz (with 2.55numeric 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/cm^2 even if the calculation indicates that the power density would be larger.*

TEST RESULTS

No non-compliance noted.

Remark: Please refer to the separated SAR report.