FCC 47 CFR PART 15 SUBPART C

TEST REPORT

For

Wireless USB Dongle

Model: WU81RS1

Trade Name: PRO-NETS; Speed Com+; Jet Com

Issued to

PRO-NETS TECHNOLOGY CORPORATION
7F, No. 95, Li-De St., Chung Ho City 235, Taipei, Taiwan R.O.C.

Issued by

Compliance Certification Services Inc.
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Revision History

Rev.		Issue Date		Revisions	Effect Page	Revised By
00		April 22, 2009		Initial Issue	ALL	Celine Chou

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1. TEST RESULT CERTIFICATION

Applicant:	**PRO-NETS TECHNOLOGY CORPORATION** 7F, No. 95, Li-De St., Chung Ho City 235, Taipei, Taiwan R.O.C.
Equipment Under Test:	Wireless USB Dongle
Trade Name:	PRO-NETS; Speed Com+; Jet Com
Model:	WU81RS1
Date of Test:	April 9 ~ 18, 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:

Ethan Huang
Section Manager
Compliance Certification Services Inc.

Reviewed by:

Julia Wei
Senior Specialist
Compliance Certification Services Inc.

2. EUT DESCRIPTION

Product	Wireless USB Dongle
Trade Name	PRO-NETS; Speed Com+; Jet Com
Model Number	WU81RS1
Model Discrepancy	N/A
EUT Power Rating	5VDC
Operating Frequency Range	2412 ~ 2462 MHz
Transmit Power	IEEE 802.11b mode: 16.40 dBm IEEE 802.11g mode: 19.11 dBm draft 802.11n 20 MHz Channel mode: 18.76 dBm draft 802.11n 40 MHz Channel mode: 19.13 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	PCB Antenna / Gain: 3.4dBi

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: **RXZ-WU81RS1** 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, Part 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: WU81RS1) had been tested under operating condition.

Install EUT into the PC.

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 20 MHz Channel mode:

Channel Low (2412MHz), Channel Mid (2437MHz) and Channel High (2462MHz) with 13.5Mbps data rate were 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**
EMI Test Receiver	R&S	ESCI	100782	06/01/2009
LISN	R&S	ENV216	100066	05/11/2009
LISN	R&S	ENV 4200	830326/016	04/10/2010
Test S/W	LabVIEW 6.1 (CCS Conduction Test SW Version_01)			

3M Semi Anechoic Chamber				
Name of Equipment	**Manufacturer**	**Model**	**Serial Number**	**Calibration Due**
Spectrum Analyzer	R&S	FSP30	100112	10/16/2009
Spectrum Analyzer	R&S	FSEB	825829/011	10/29/2009
Loop Antenna	EMCO	6502	2356	05/28/2010
Pre-Amplifier	Anritsu	MH648A	M89145	07/25/2009
Pre-Amplifier	Agilent	8449B	3008A01738	03/28/2010
Bilog Antenna	FRANKONIA	BTA-M	030003M	04/03/2010
Horn Antenna	EMCO	3115	00022250	05/08/2009
Antenna Tower	HD	AS620E	N/A	N.C.R
Controller	HD	HD100	N/A	N.C.R
Turn Table	HD	DT-K312	N/A	N.C.R
Test S/W	LabVIEW 6.1 (Wugu Chamber EMI Teat V1_4.5.3)			

Powerline Conducted Emissions Test Site				
Name of Equipment	**Manufacturer**	**Model**	**Serial Number**	**Calibration Due**
EMI Test Receiver	R&S	ESCI	100782	06/01/2009
LISN	R&S	ENV216	100066	05/11/2009
LISN	R&S	ENV 4200	830326/016	04/10/2010
Test S/W	LabVIEW 6.1 (CCS Conduction Test SW Version_01)			

4.3 MEASUREMENT UNCERTAINTY

Parameter	Uncertainty
Powerline Conducted Emission	±1.7983
3M Semi Anechoic Chamber / 30MHz ~ 1GHz	±3.8856
3M Semi Anechoic Chamber / Above 1GHz	±3.8721

Remark: *This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.*

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 Testing Laboratory 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 Radiated and Conducted Measurement							
No.	**Device Type**	**Brand**	**Model**	**Series No.**	**FCC ID**	**Data Cable**	**Power Cord**
1.	Notebook PC	HP	COMPAQ NC 4010	CNU441F8LV	FCC DOC	N/A	AC I/P: Unshielded, 1.8m DC O/P: Unshielded, 1.8m with a core

For Powerline Measurement							
No.	**Device Type**	**Brand**	**Model**	**Series No.**	**FCC ID**	**Data Cable**	**Power Cord**
1.	Notebook PC	HP	COMPAQ NC 4010	CNU441F8LV	FCC DOC	N/A	AC I/P: Unshielded, 1.8m DC O/P: Unshielded, 1.8m with a core
2.	LCD Monitor	DELL	2407WFPb	CN-0FC255-46633 -675-24TKS	FCC DoC	D-SUB Cable; Shielded, 1.8m with two cores	Unshielded, 1.8m
3.	USB Mouse	HP	MO19UCA	020440986	FCC DoC	Unshielded, 1.8m	N/A

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

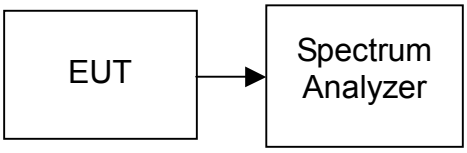
7. FCC PART 15.247 REQUIREMENTS

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 = 30MHz, 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	10.16	>500	PASS
Mid	2437	10.16		PASS
High	2462	10.16		PASS

Test mode: IEEE 802.11g mode

Channel	Frequency (MHz)	Bandwidth (MHz)	Limit (kHz)	Result
Low	2412	16.65	>500	PASS
Mid	2437	16.65		PASS
High	2462	16.65		PASS

Test mode: draft 802.11n 20 MHz Channel mode

Channel	Frequency (MHz)	Bandwidth (MHz)	Limit (kHz)	Result
Low	2412	17.86	>500	PASS
Mid	2437	17.86		PASS
High	2462	17.86		PASS

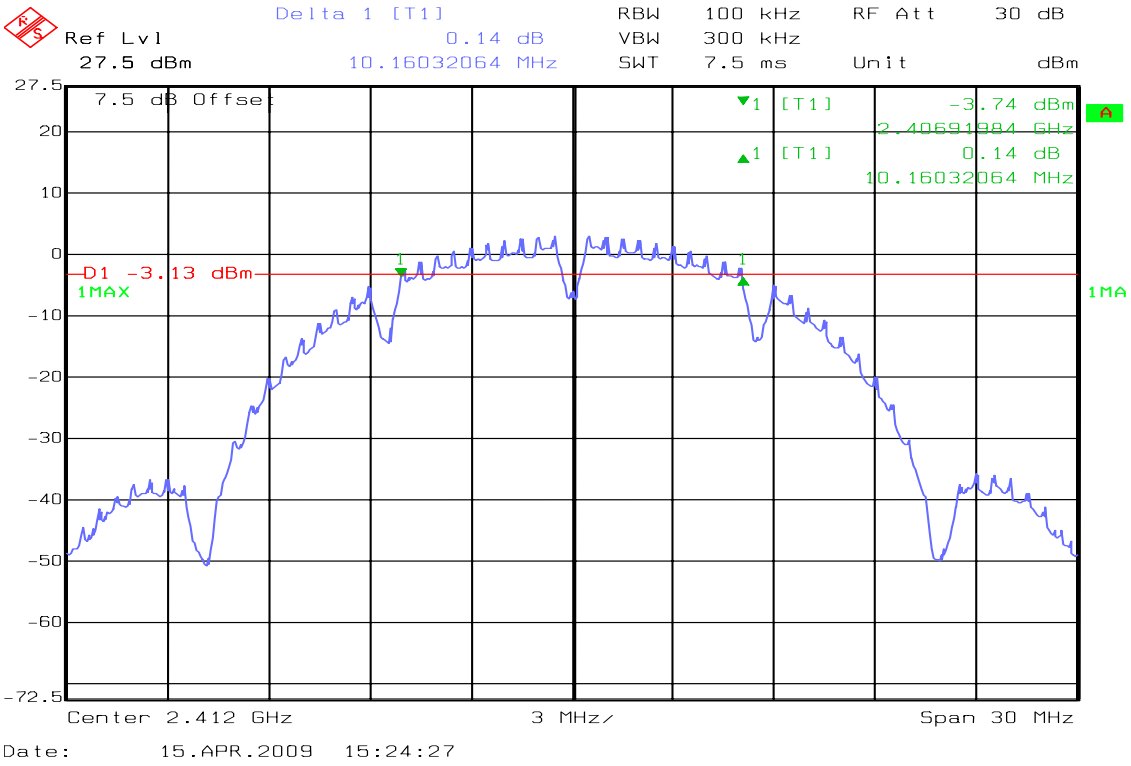
Test mode: draft 802.11n 40 MHz Channel mode

Channel	Frequency (MHz)	Bandwidth (MHz)	Limit (kHz)	Result
Low	2422	36.57	>500	PASS
Mid	2437	36.57		PASS
High	2452	36.57		PASS

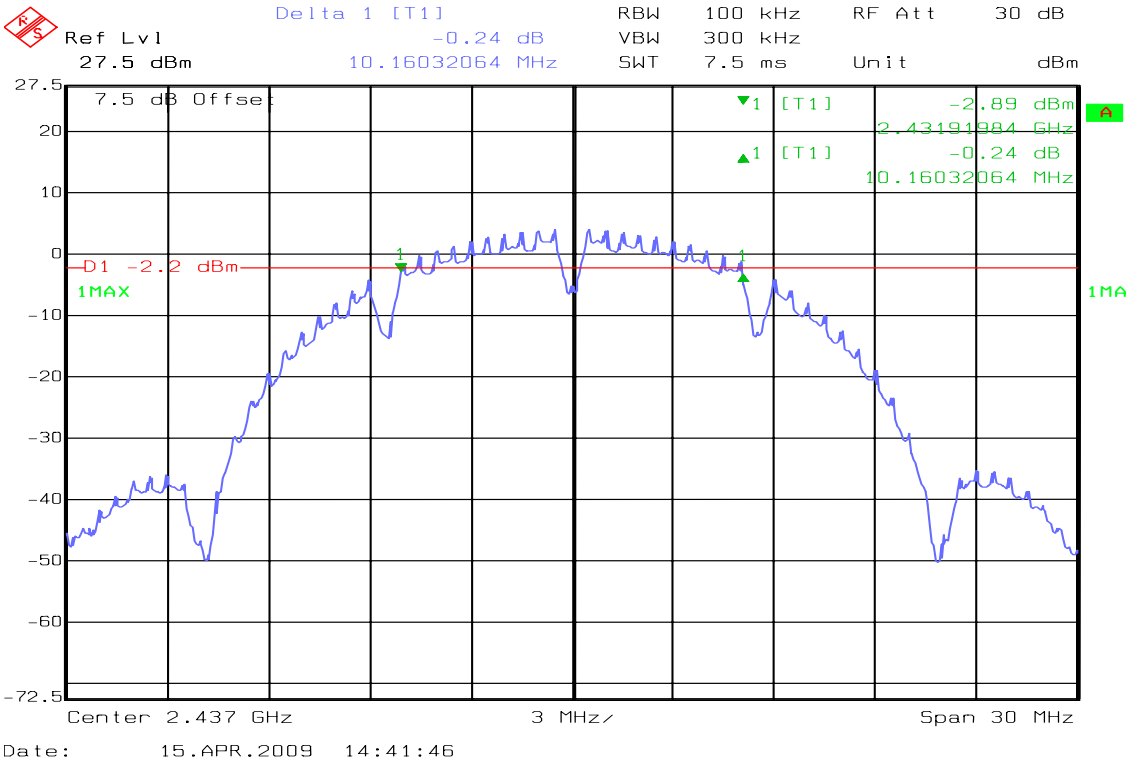
Test Plot

IEEE 802.11b mode

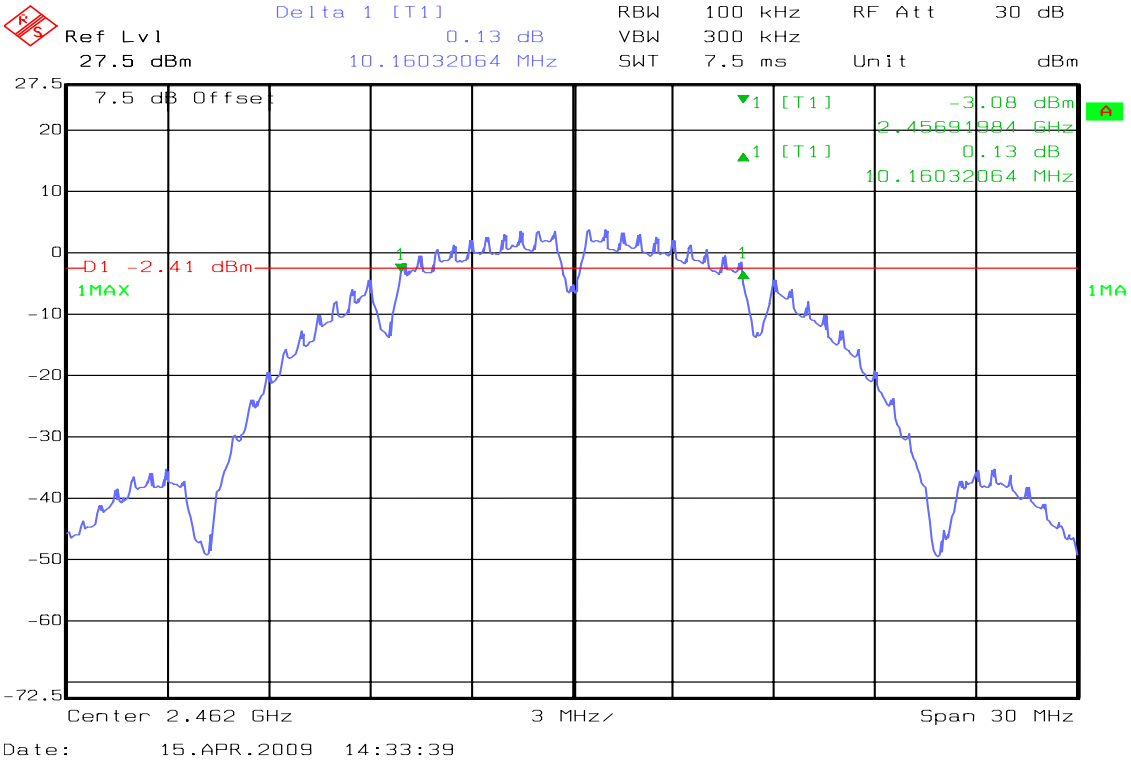
6dB Bandwidth (CH Low)



6dB Bandwidth (CH Mid)

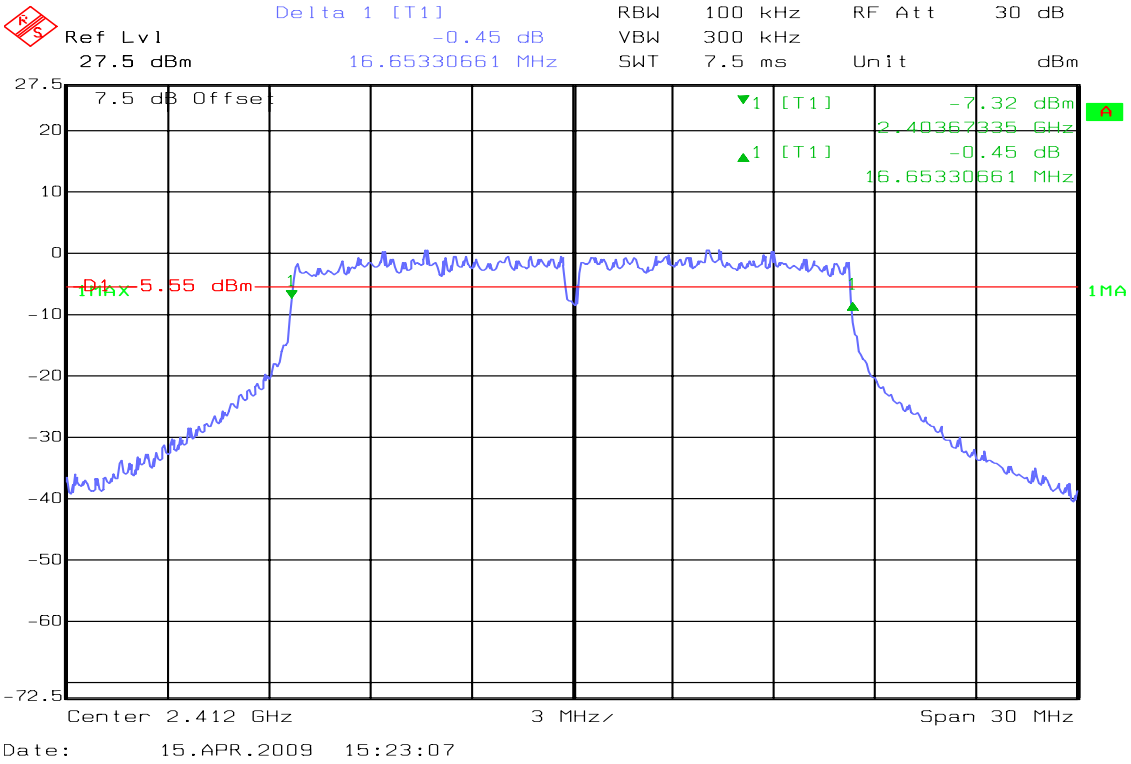


6dB Bandwidth (CH High)

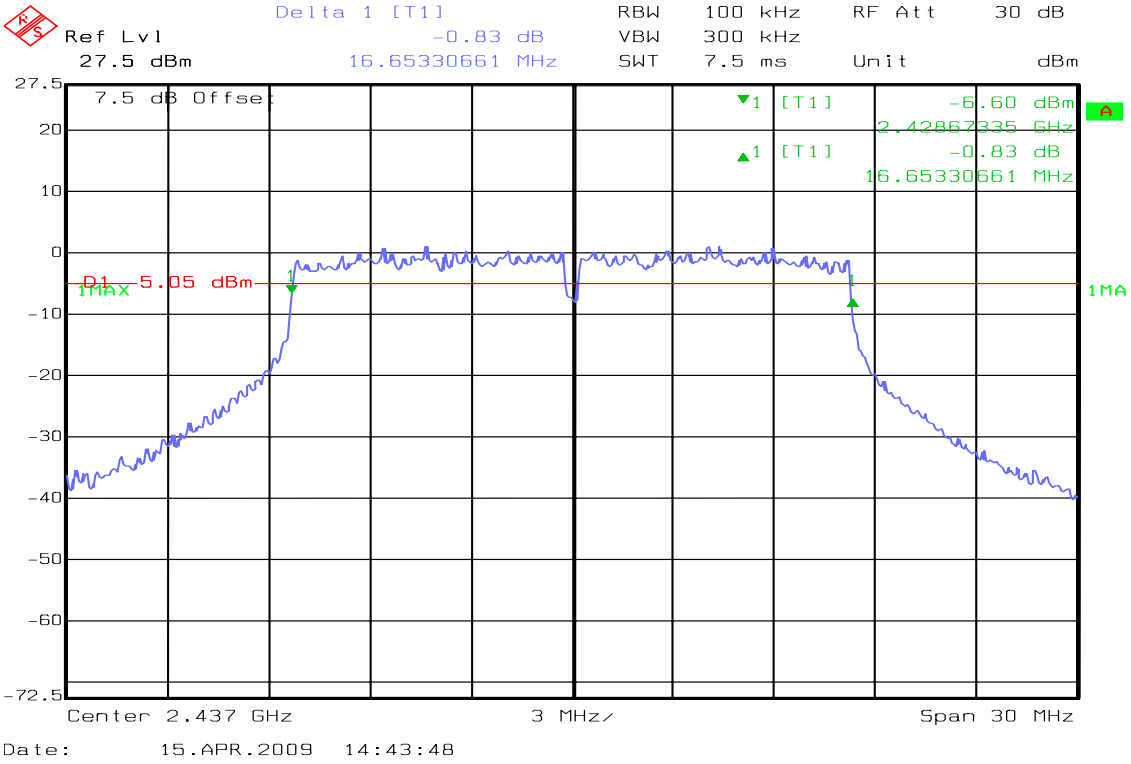


IEEE 802.11g mode

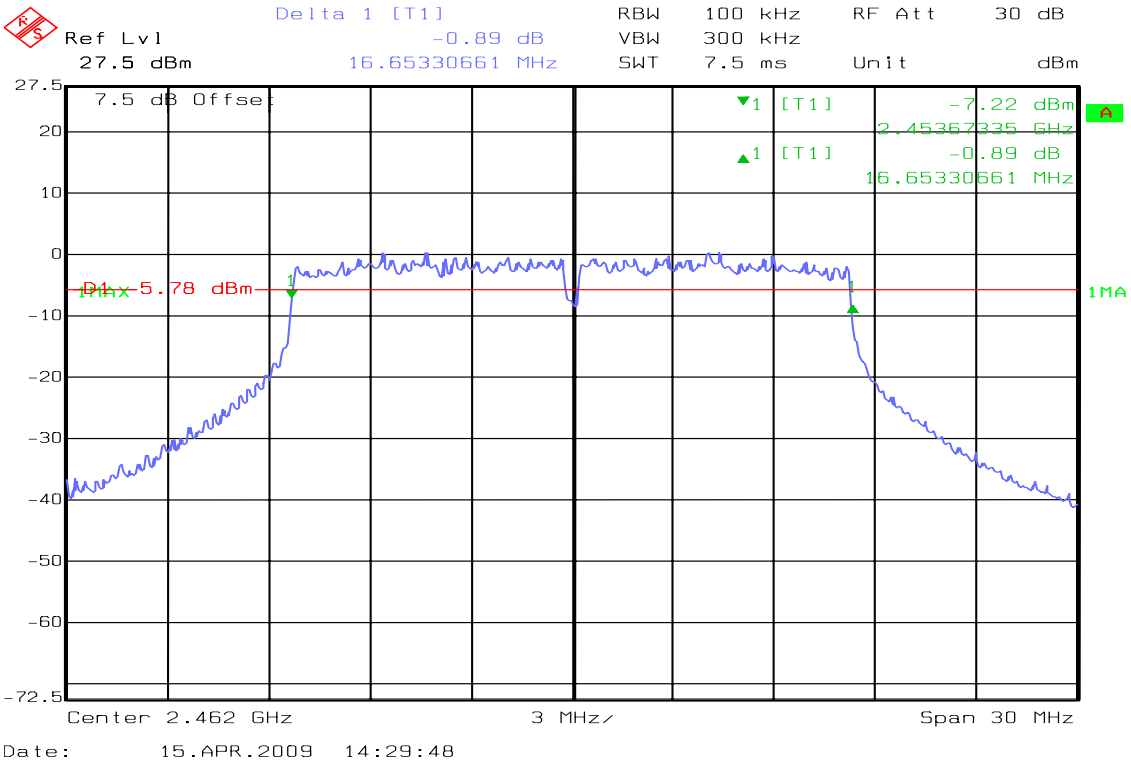
6dB Bandwidth (CH Low)



6dB Bandwidth (CH Mid)

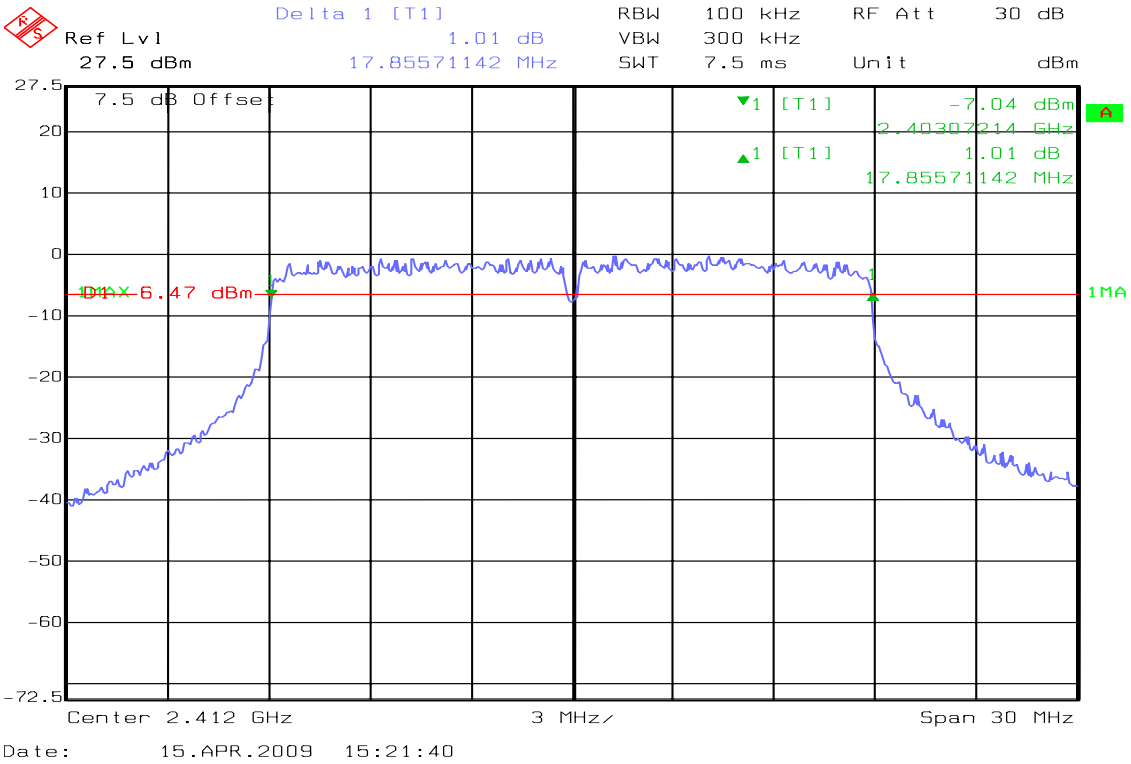


6dB Bandwidth (CH High)

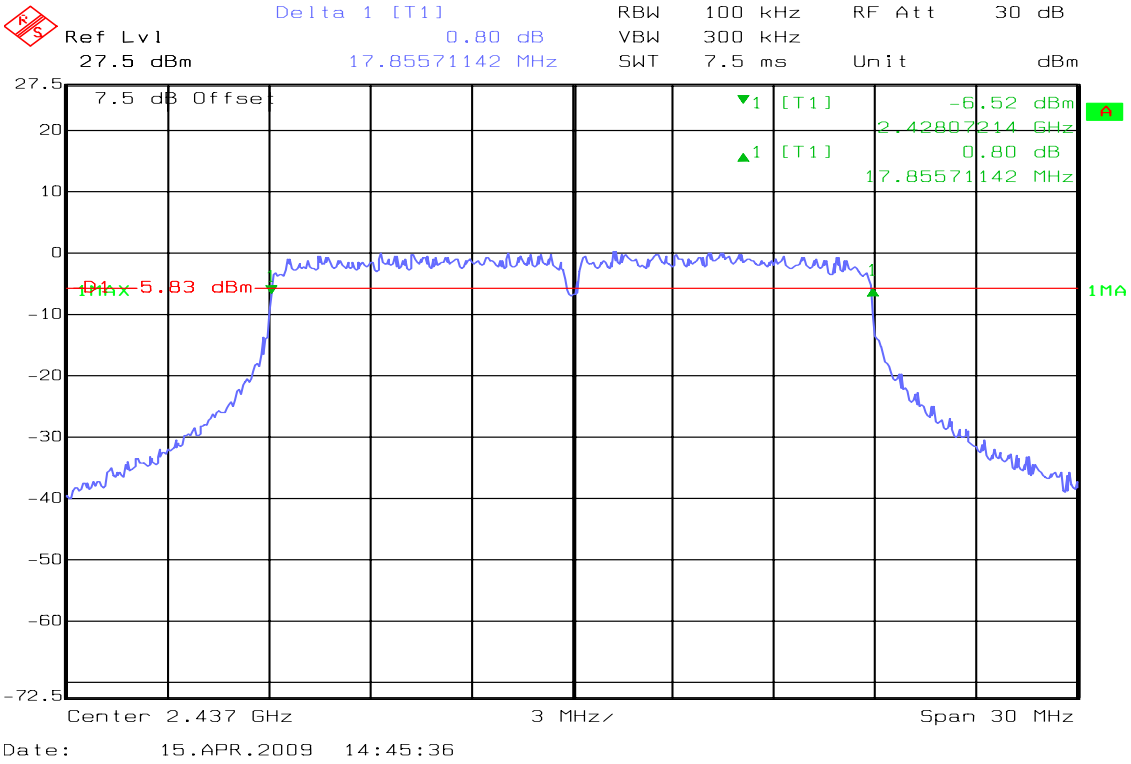


draft 802.11n 20 MHz Channel mode

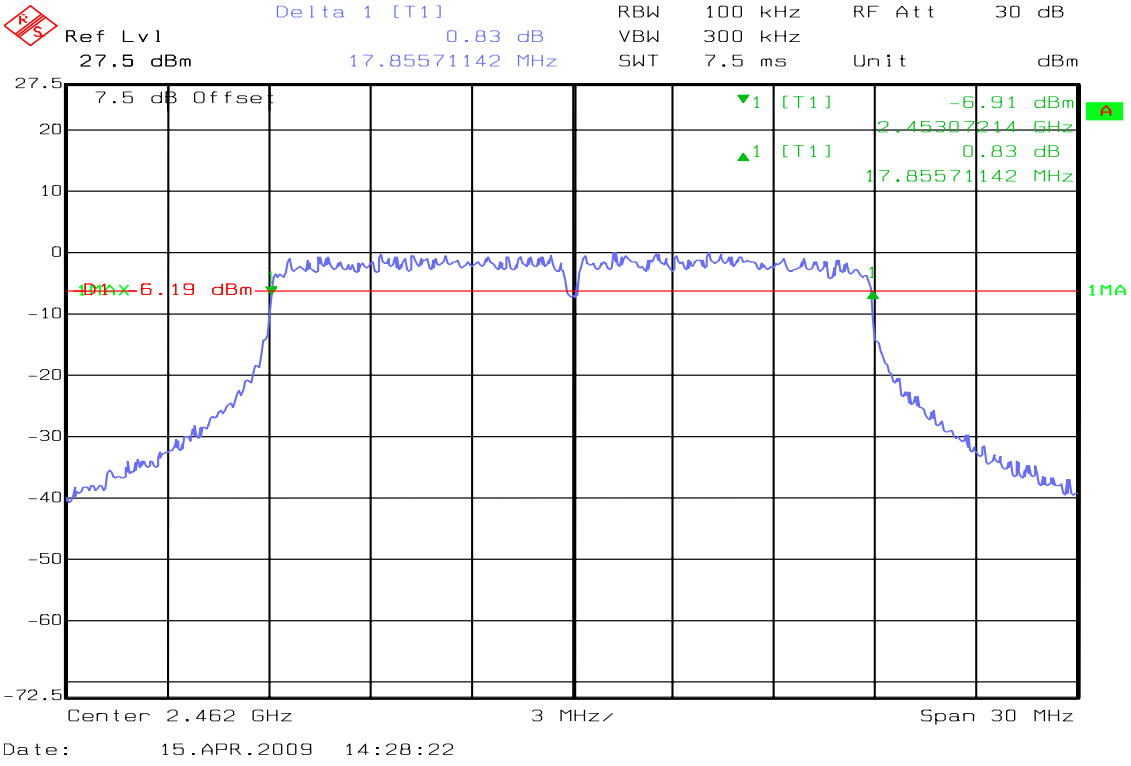
6dB Bandwidth (CH Low)



6dB Bandwidth (CH Mid)

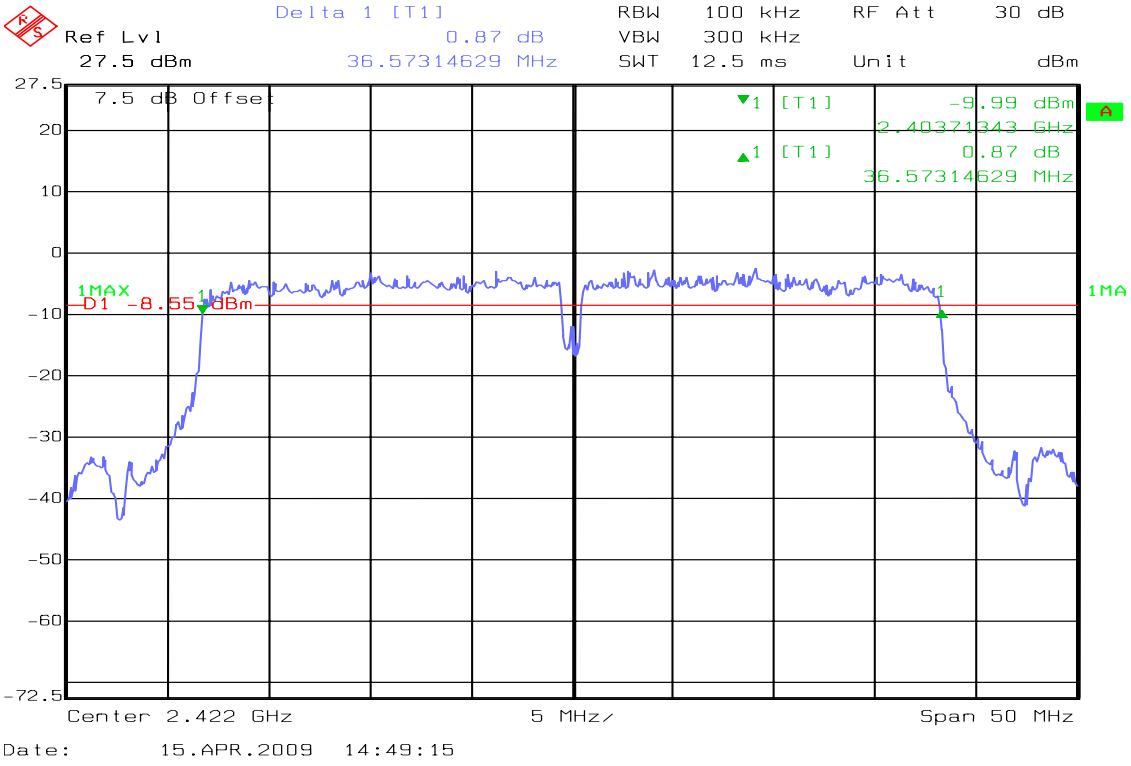


6dB Bandwidth (CH High)

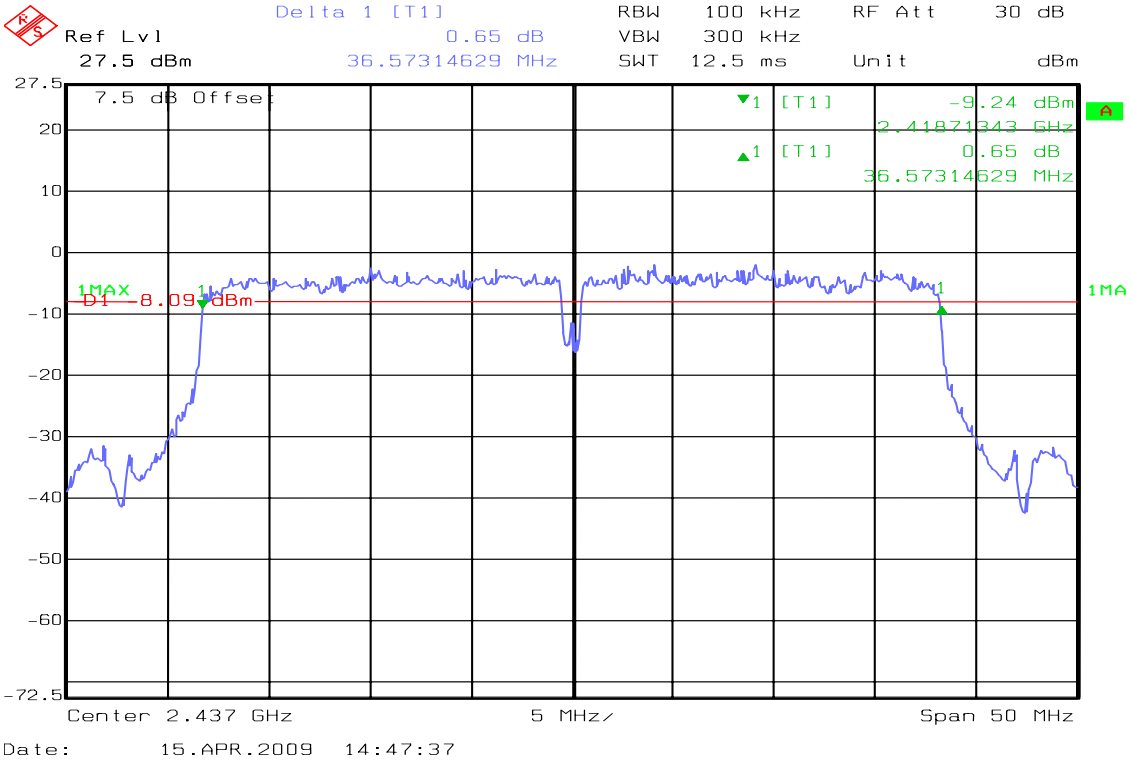


draft 802.11n 40 MHz Channel mode

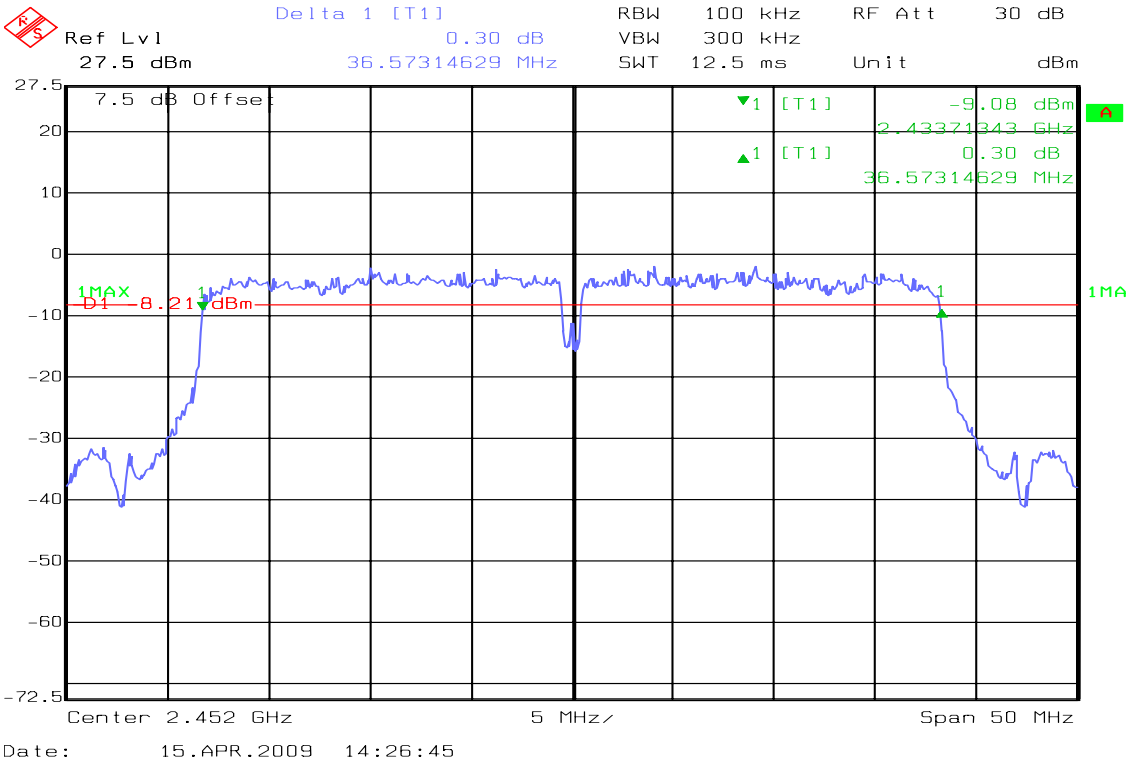
6dB Bandwidth (CH Low)



6dB Bandwidth (CH Mid)



6dB Bandwidth (CH High)



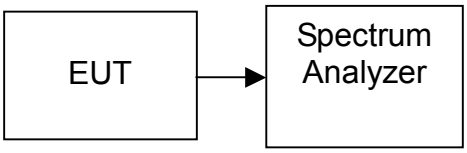
7.2 PEAK POWER

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	16.29	0.04256	1.00	PASS
Mid	2437	16.01	0.03990		PASS
High	2462	16.40	0.04365		PASS

Test mode: IEEE 802.11g mode

Channel	Frequency (MHz)	Output Power (dBm)	Output Power (W)	Limit (W)	Result
Low	2412	19.11	0.08147	1.00	PASS
Mid	2437	19.01	0.07962		PASS
High	2462	18.30	0.06761		PASS

Test mode: draft 802.11n 20 MHz Channel mode

Channel	Frequency (MHz)	Output Power (dBm)	Output Power (W)	Limit (W)	Result
Low	2412	18.76	0.07516	1.00	PASS
Mid	2437	18.75	0.07499		PASS
High	2462	18.68	0.07379		PASS

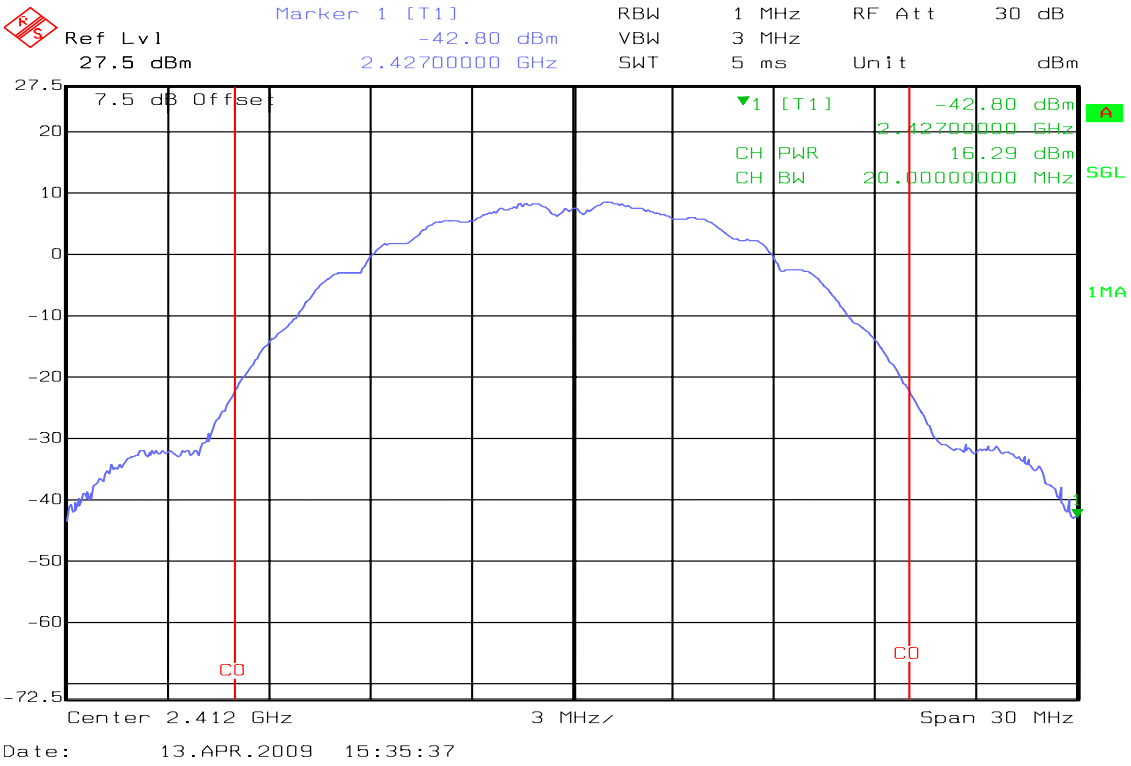
Test mode: draft 802.11n 40 MHz Channel mode

Channel	Frequency (MHz)	Output Power (dBm)	Output Power (W)	Limit (W)	Result
Low	2422	18.82	0.07621	1.00	PASS
Mid	2437	19.13	0.08185		PASS
High	2452	18.84	0.07656		PASS

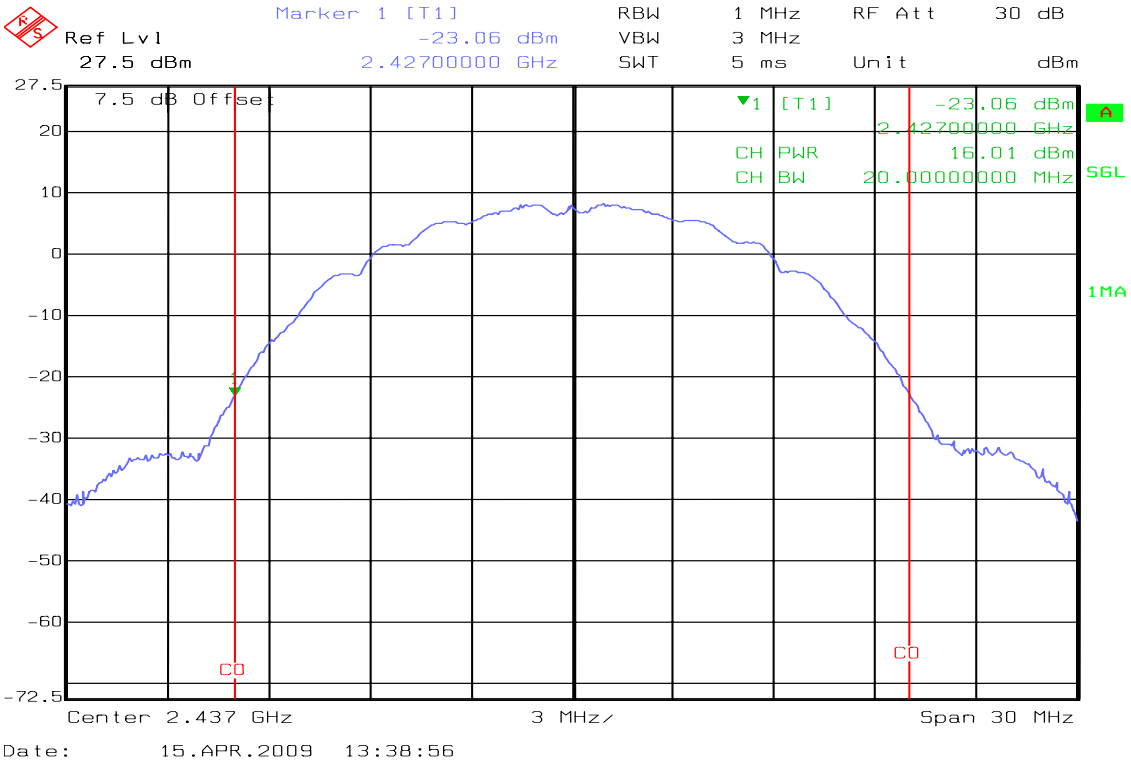
Test Plot

IEEE 802.11b mode

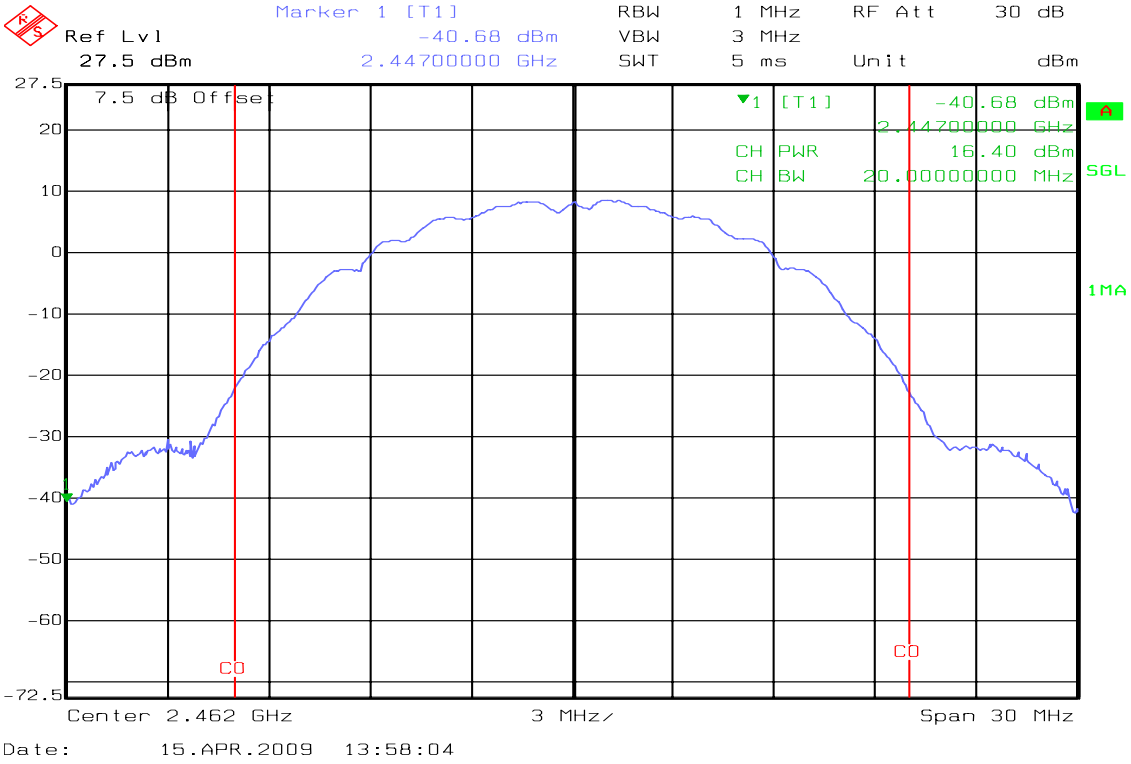
Peak Power (CH Low)



Peak Power (CH Mid)

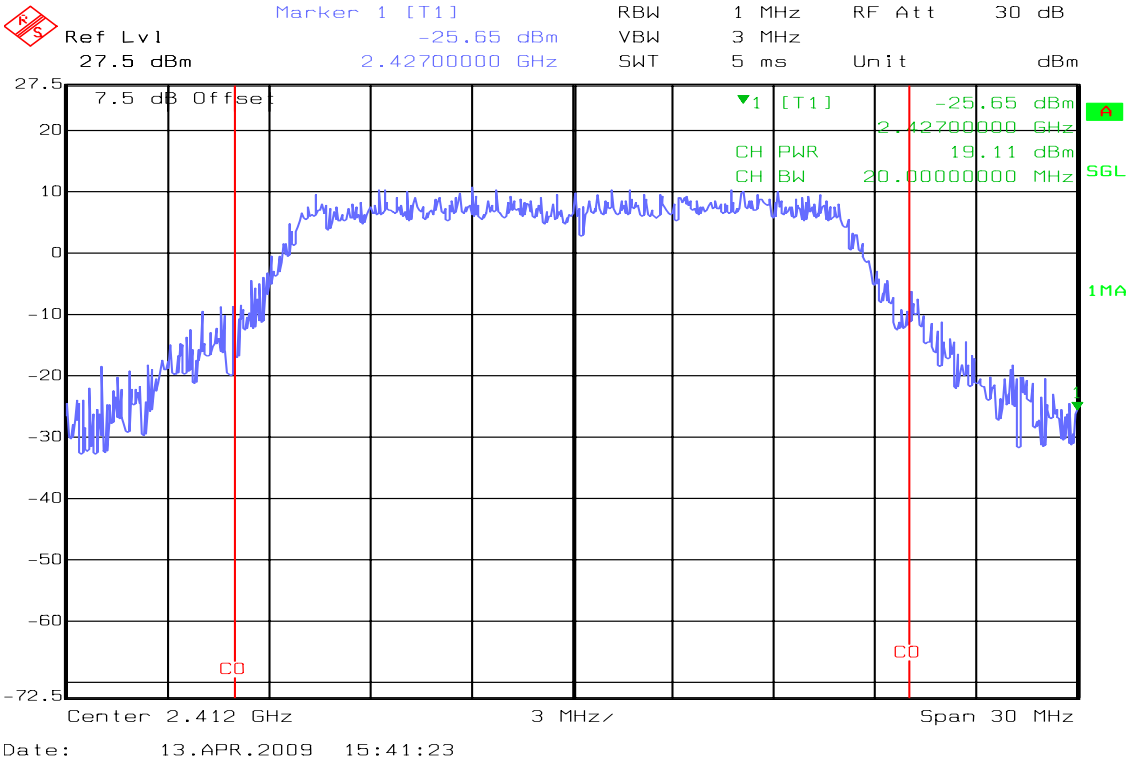


Peak Power (CH High)

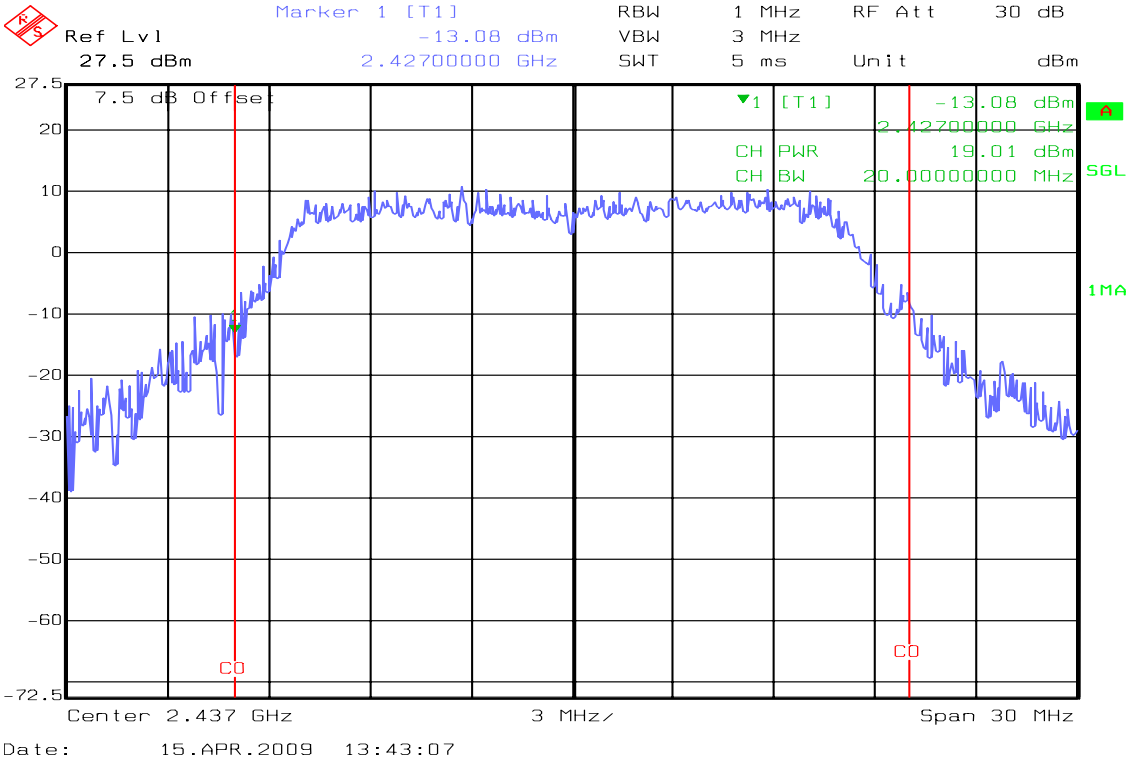


IEEE 802.11g mode

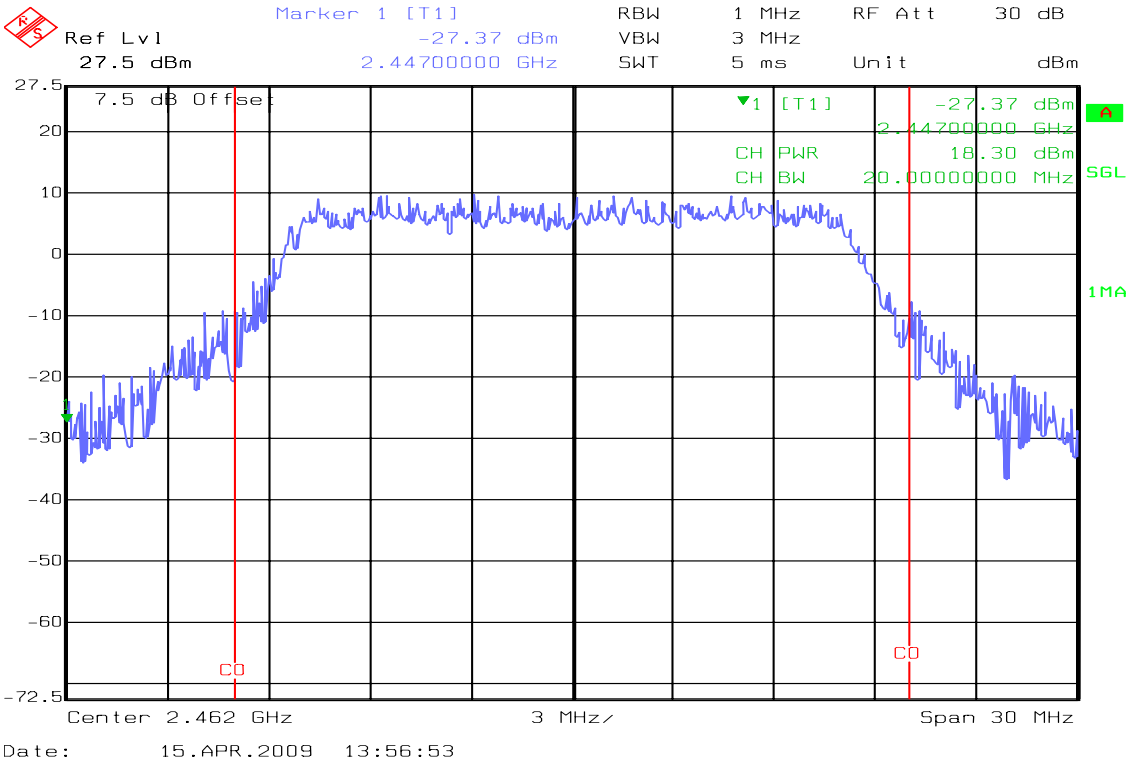
Peak Power (CH Low)



Peak Power (CH Mid)

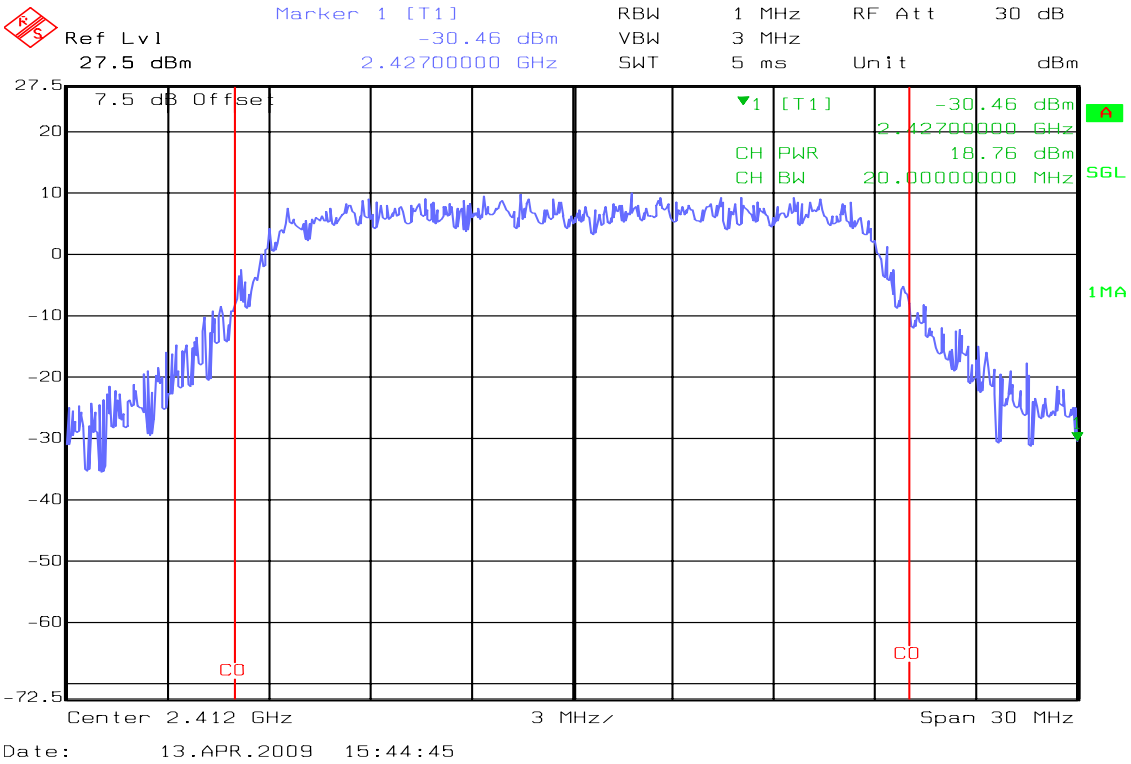


Peak Power (CH High)

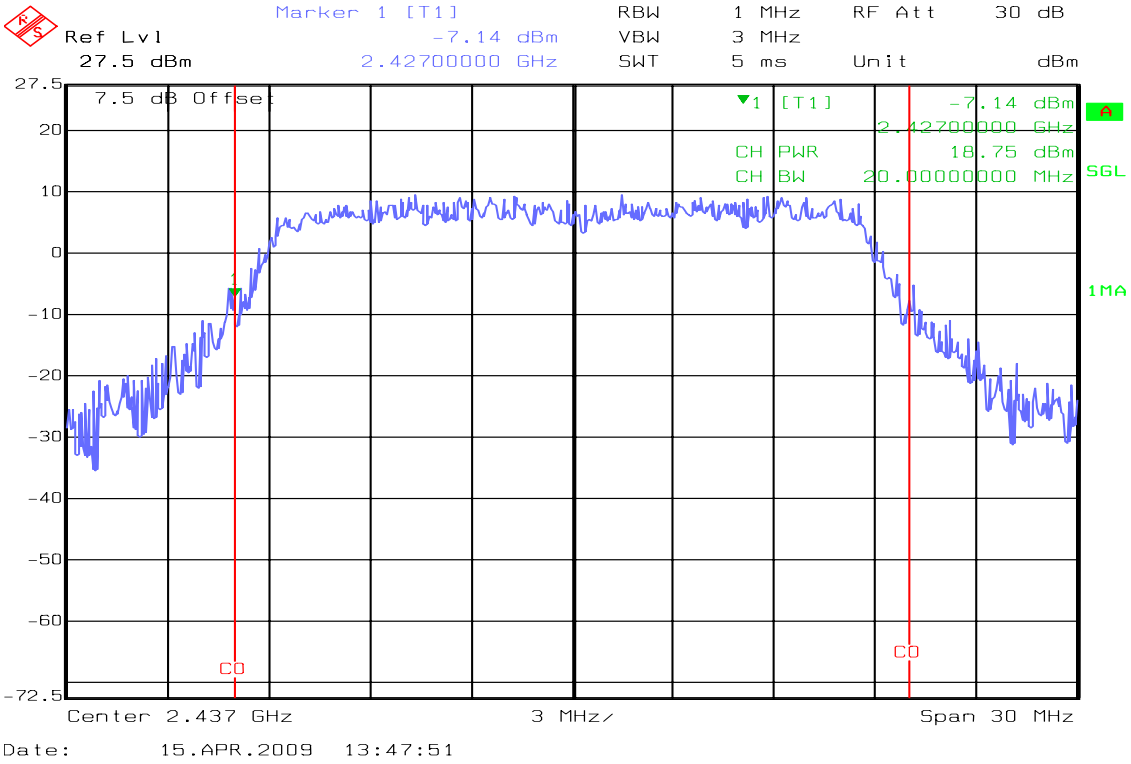


draft 802.11n 20 MHz Channel mode

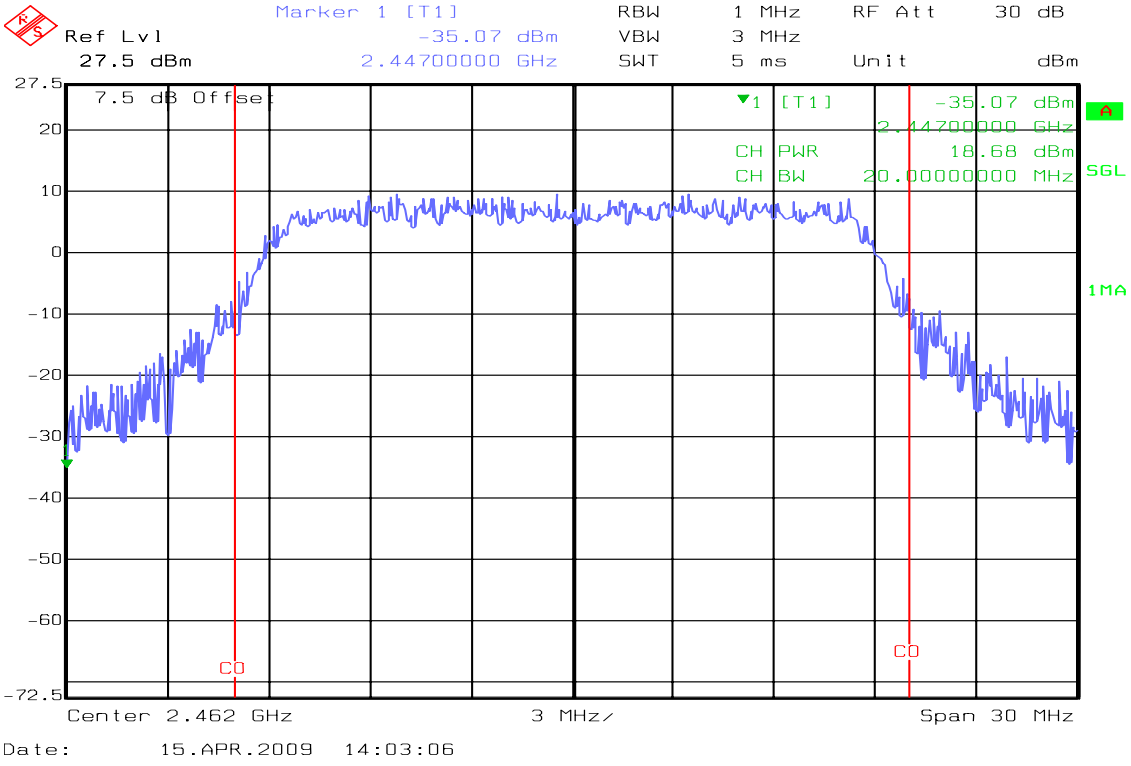
Peak Power (CH Low)



Peak Power (CH Mid)

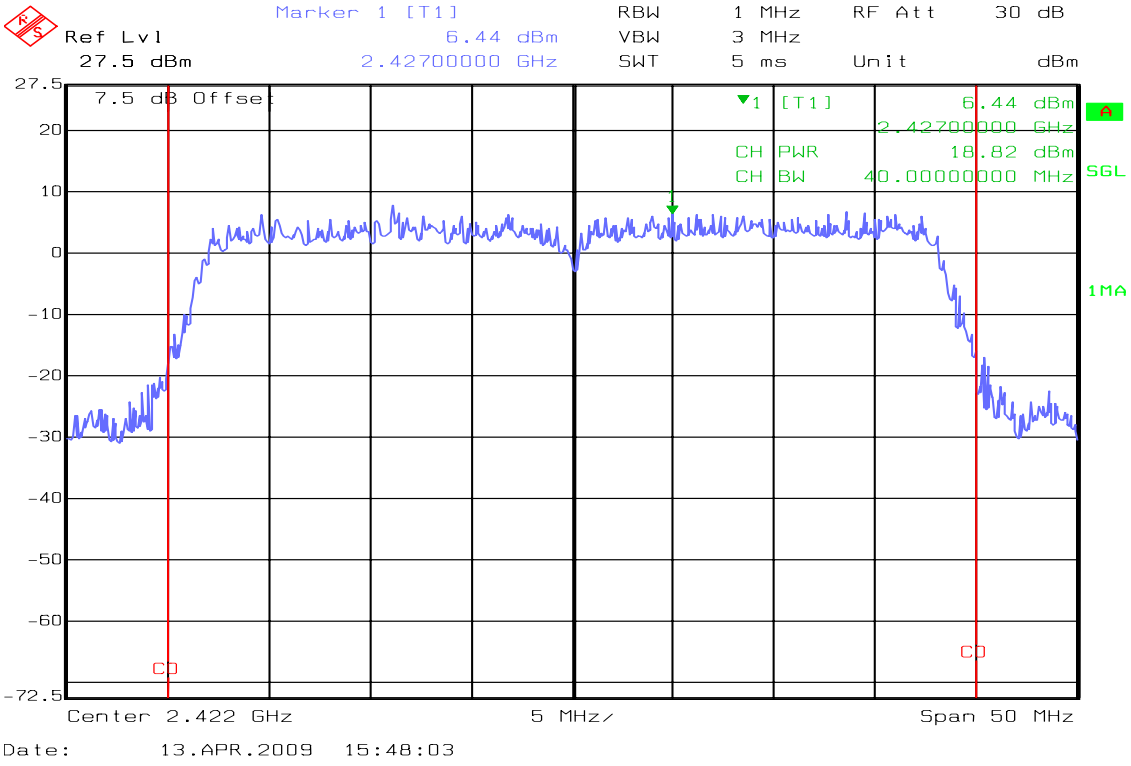


Peak Power (CH High)

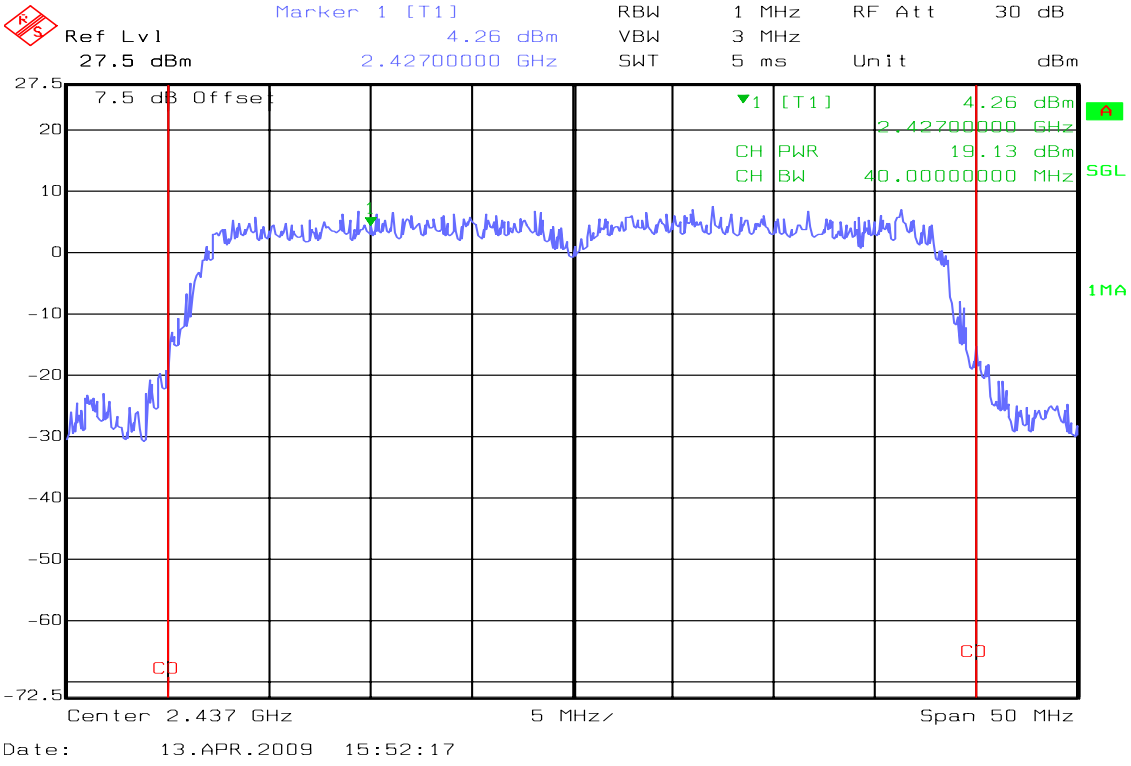


draft 802.11n 40 MHz Channel mode

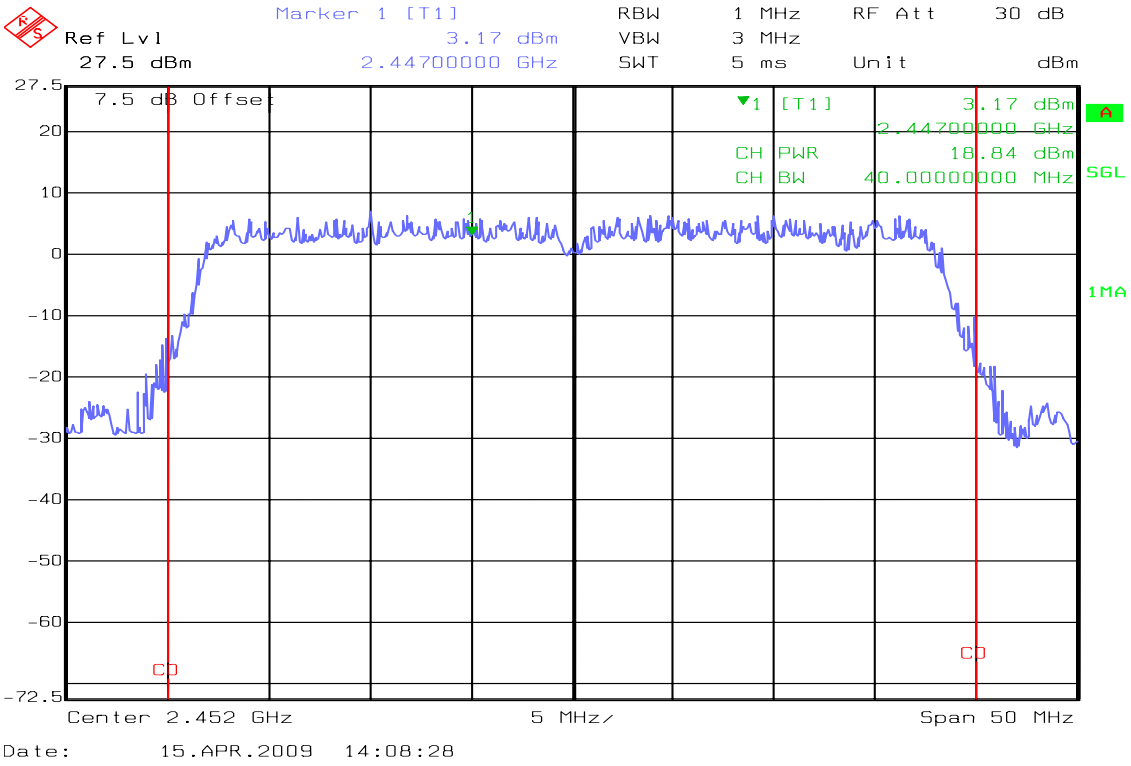
Peak Power (CH Low)



Peak Power (CH Mid)



Peak Power (CH High)

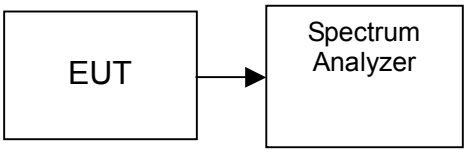


7.3 AVERAGE POWER

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	13.22	0.02099
Mid	2437	13.41	0.02193
High	2462	13.31	0.02143

IEEE 802.11g

Channel	Frequency (MHz)	Output Power (dBm)	Output Power (W)
Low	2412	13.70	0.02344
Mid	2437	13.57	0.02275
High	2462	13.00	0.01995

draft 802.11n 20 MHz

Channel	Frequency (MHz)	Output Power (dBm)	Output Power (W)
Low	2412	13.33	0.02153
Mid	2437	13.12	0.02051
High	2462	13.45	0.02213

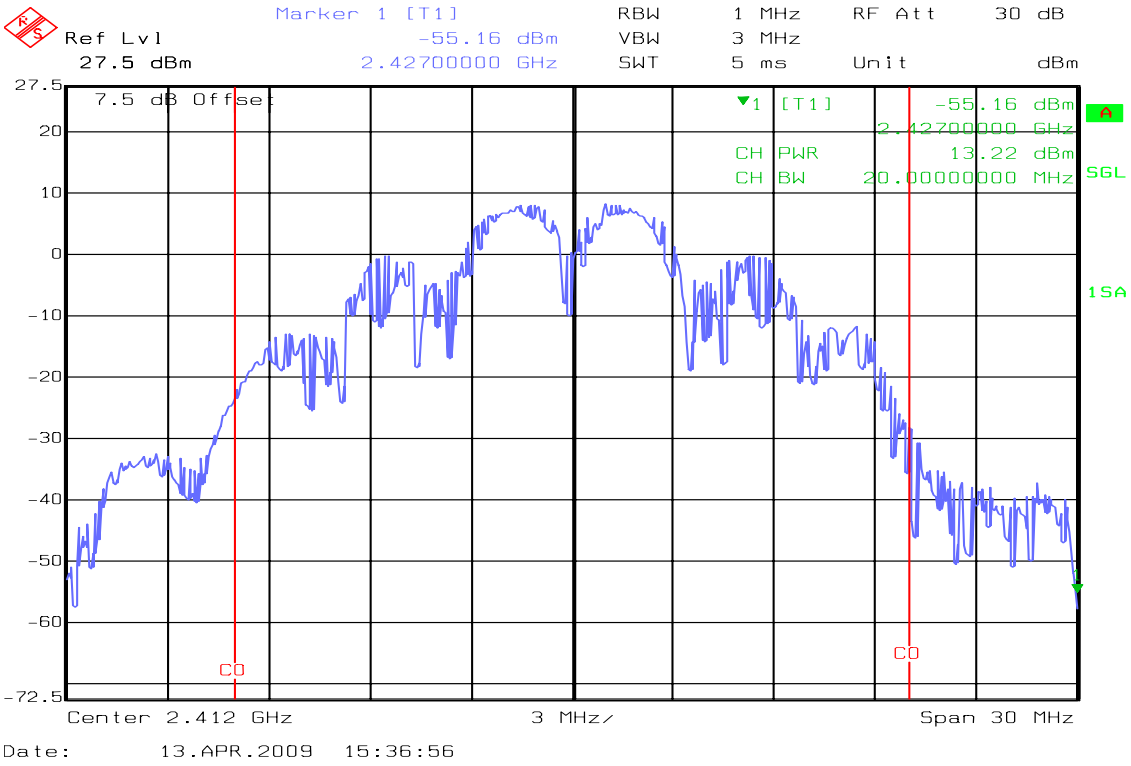
draft 802.11n 40 MHz

Channel	Frequency (MHz)	Output Power (dBm)	Output Power (W)
Low	2422	13.43	0.02203
Mid	2437	13.36	0.02168
High	2452	13.16	0.02070

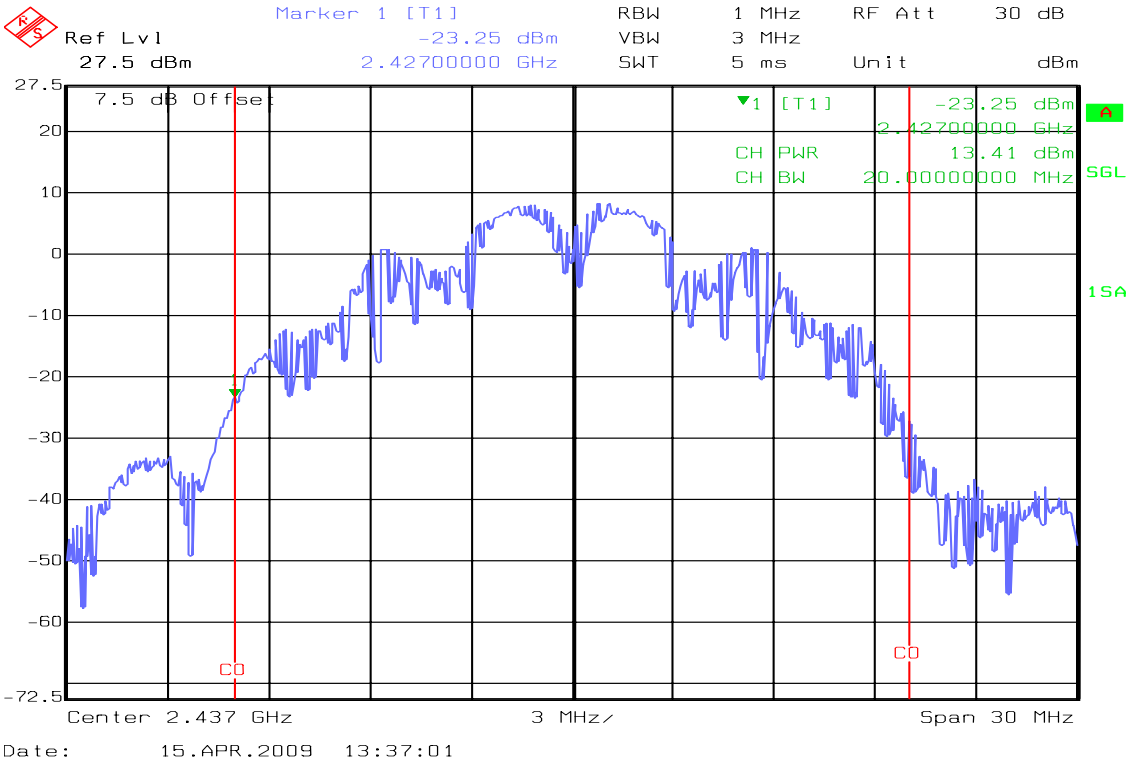
Test Plot

IEEE 802.11b mode

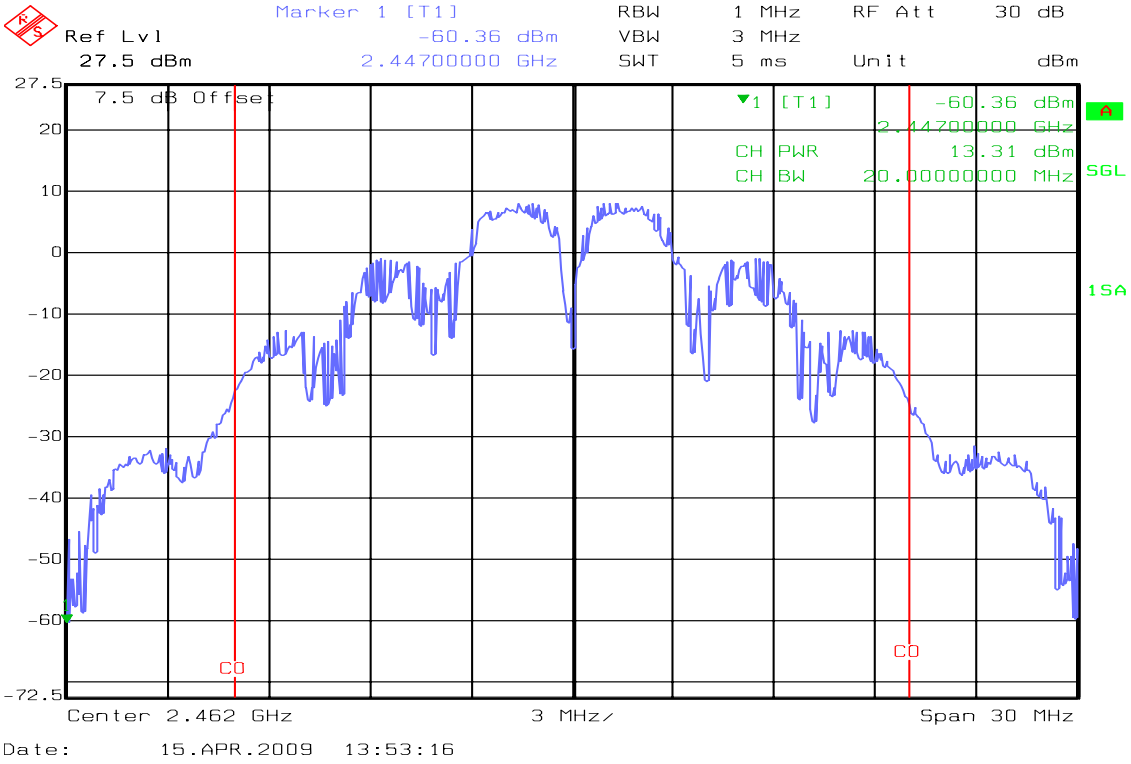
Averge power (CH Low)



Averge power (CH Mid)

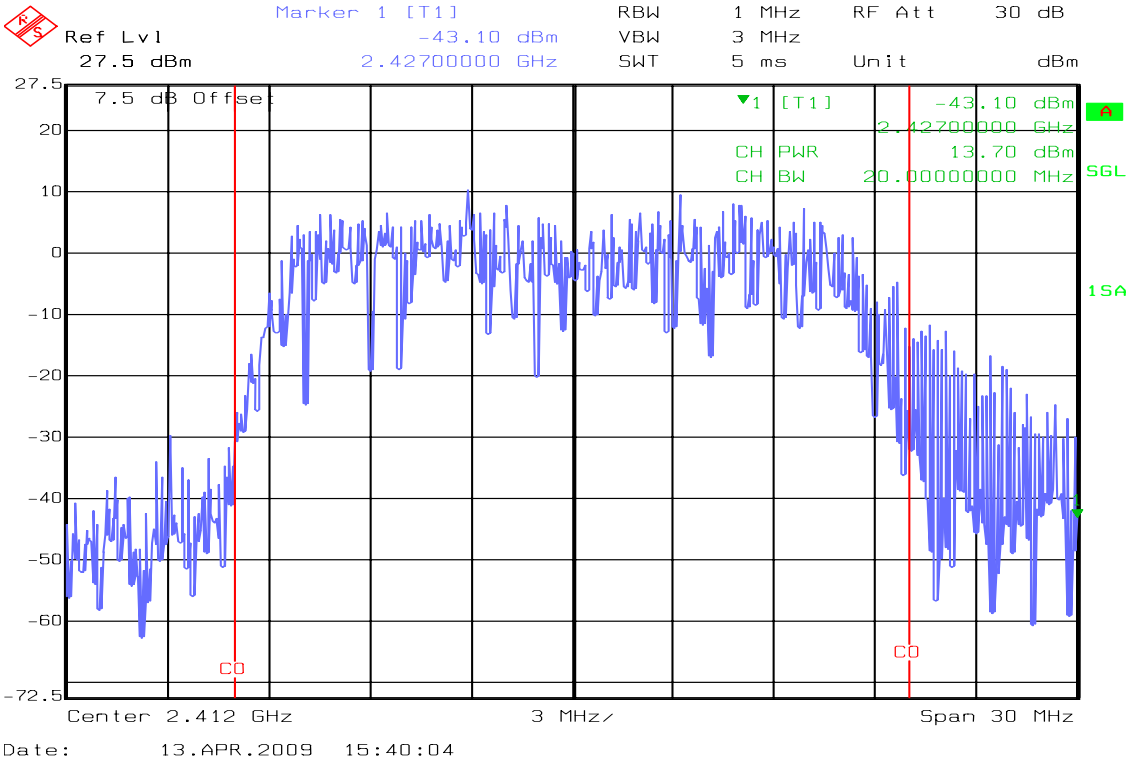


Averge power (CH High)

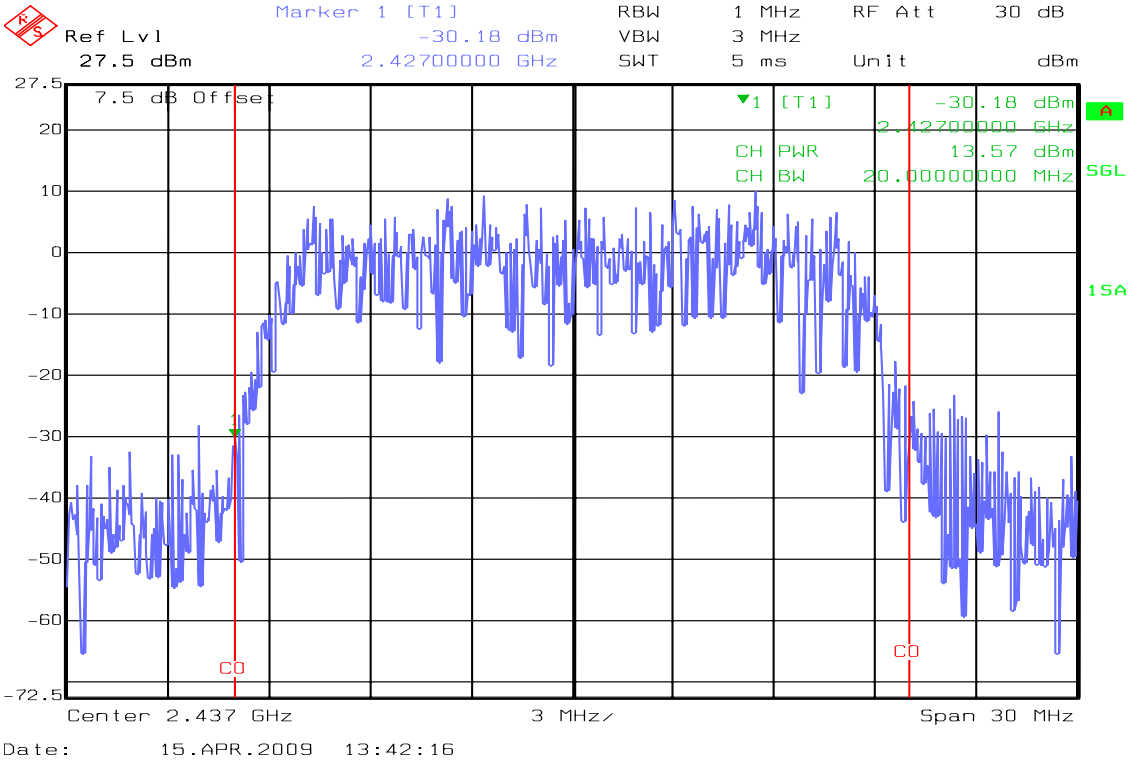


IEEE 802.11g mode

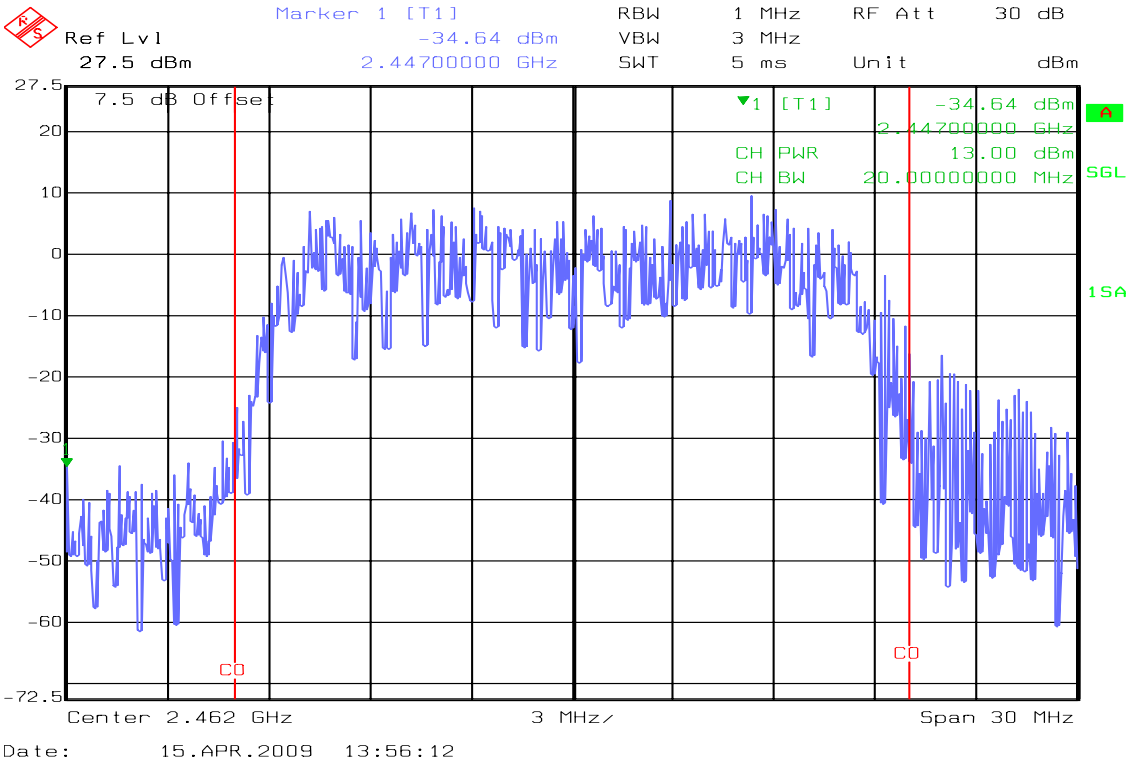
Averge power (CH Low)



Averge power (CH Mid)

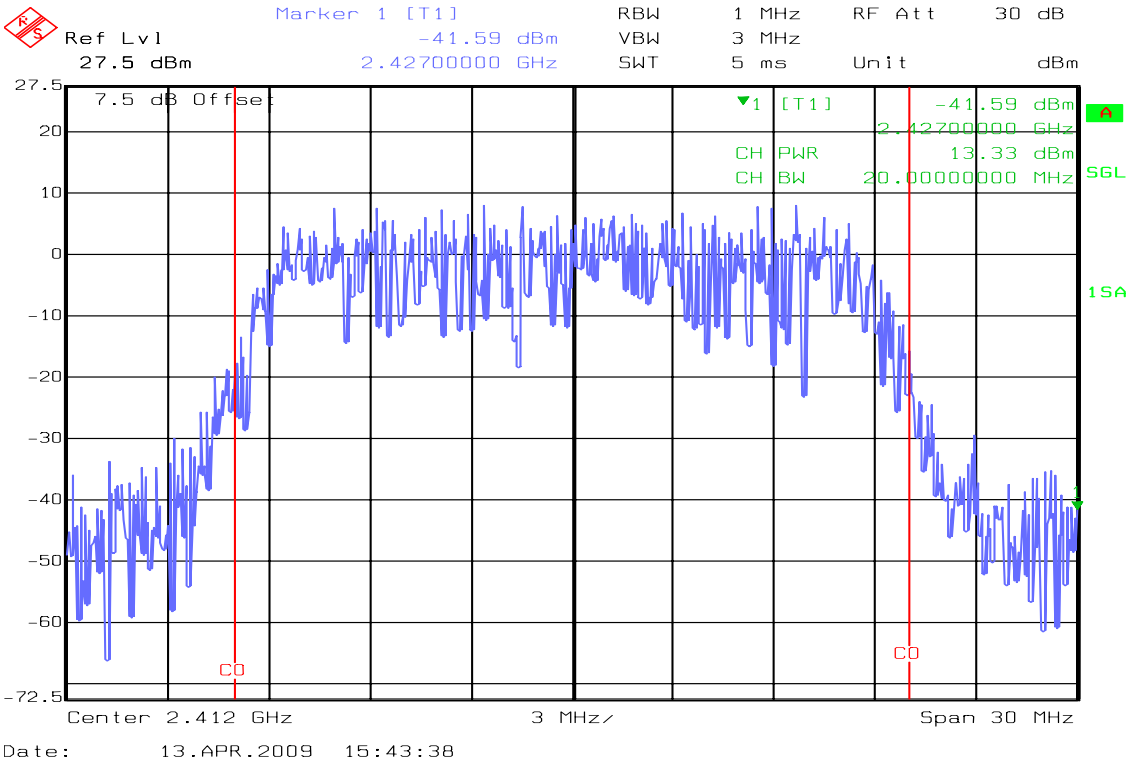


Averge power (CH High)

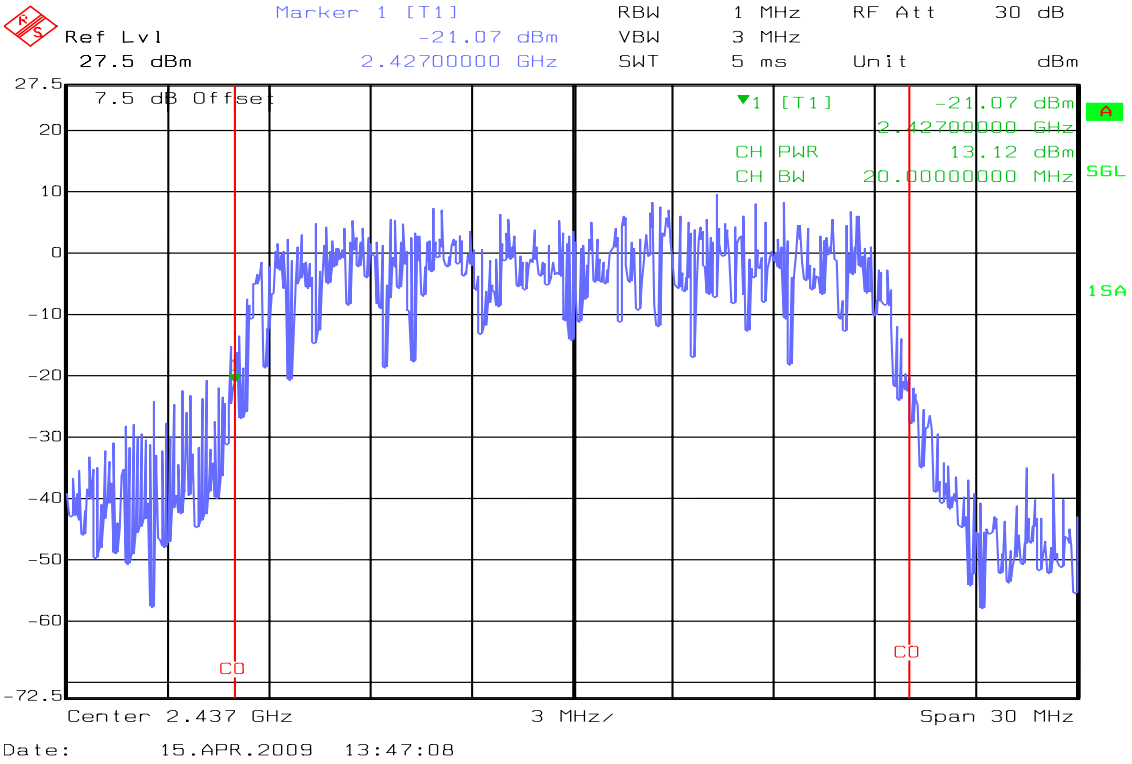


draft 802.11n 20 MHz Channel mode

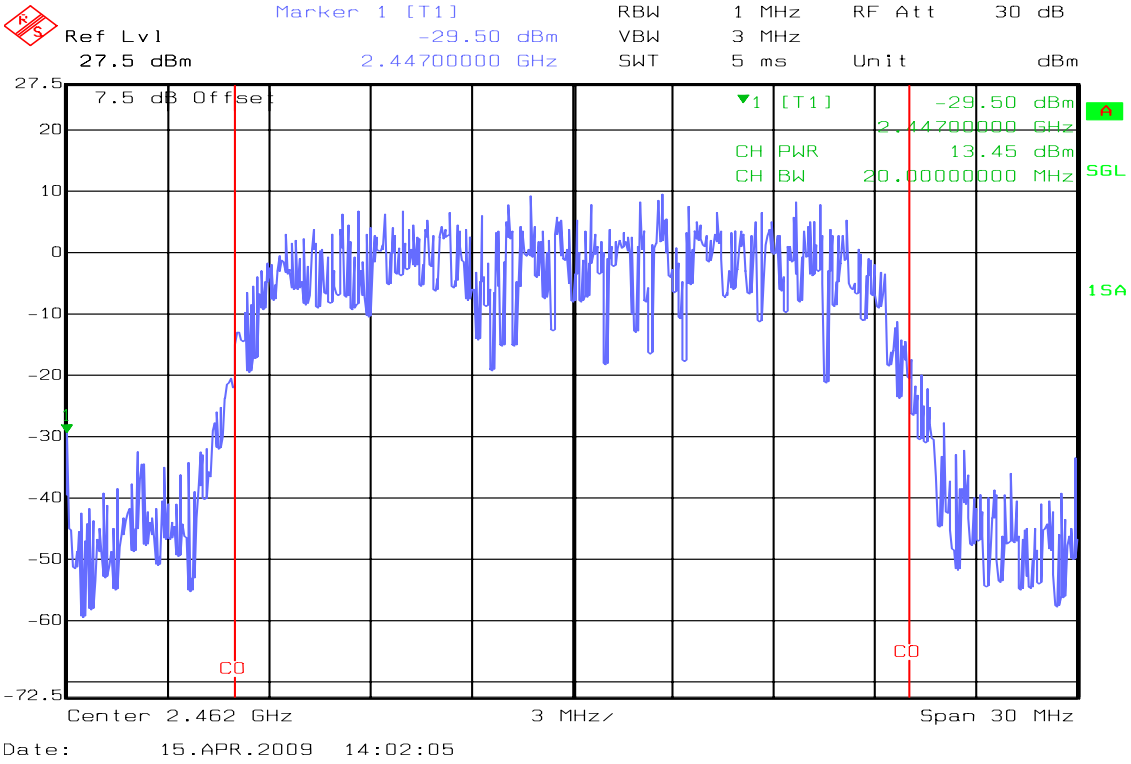
Averge power (CH Low)



Averge power (CH Mid)

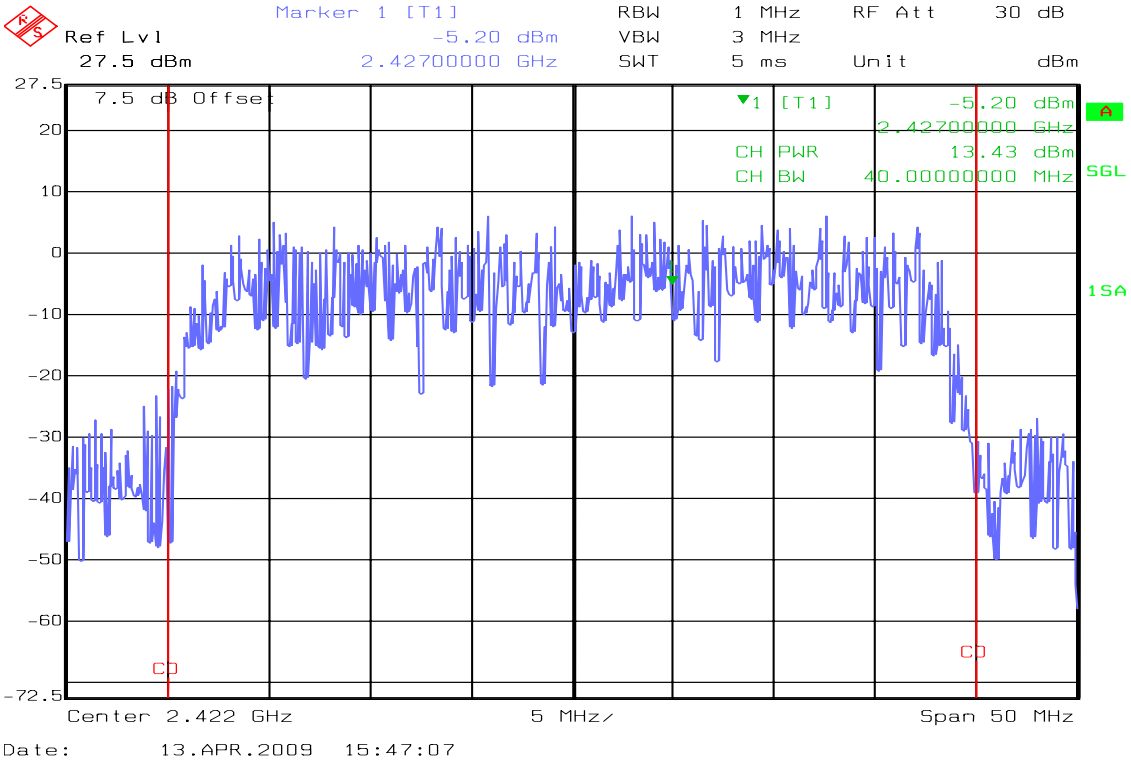


Averge power (CH High)

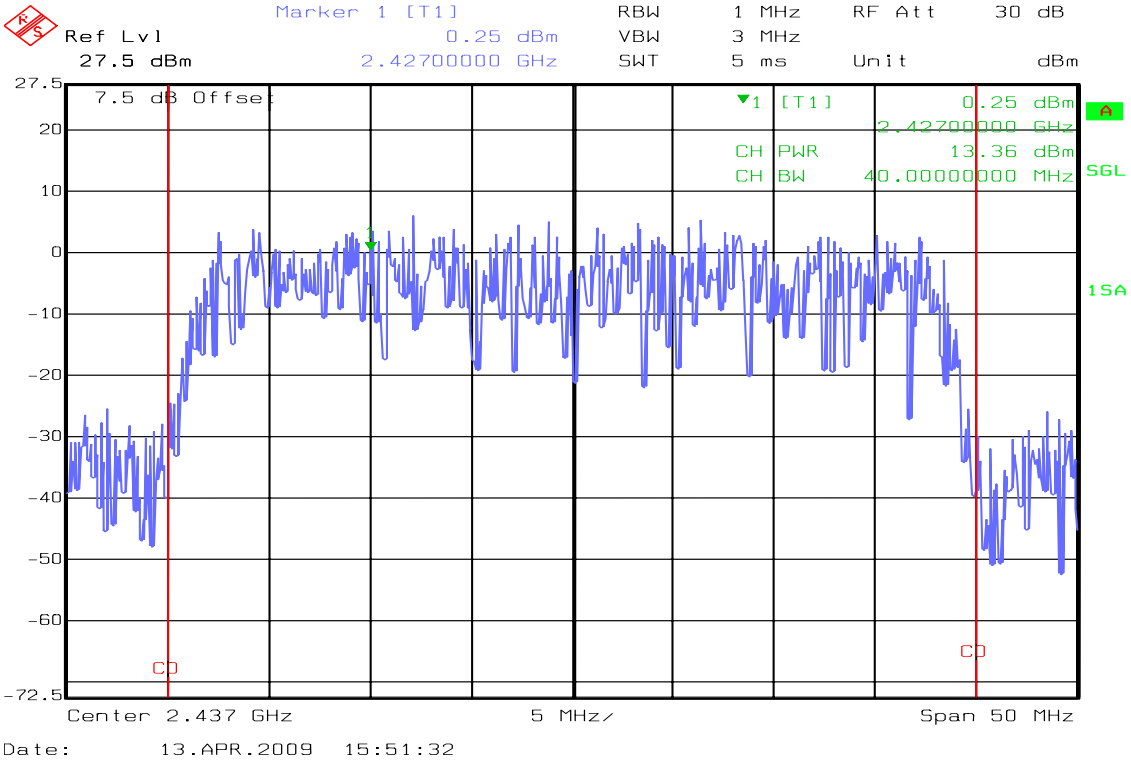


draft 802.11n 40 MHz Channel mode

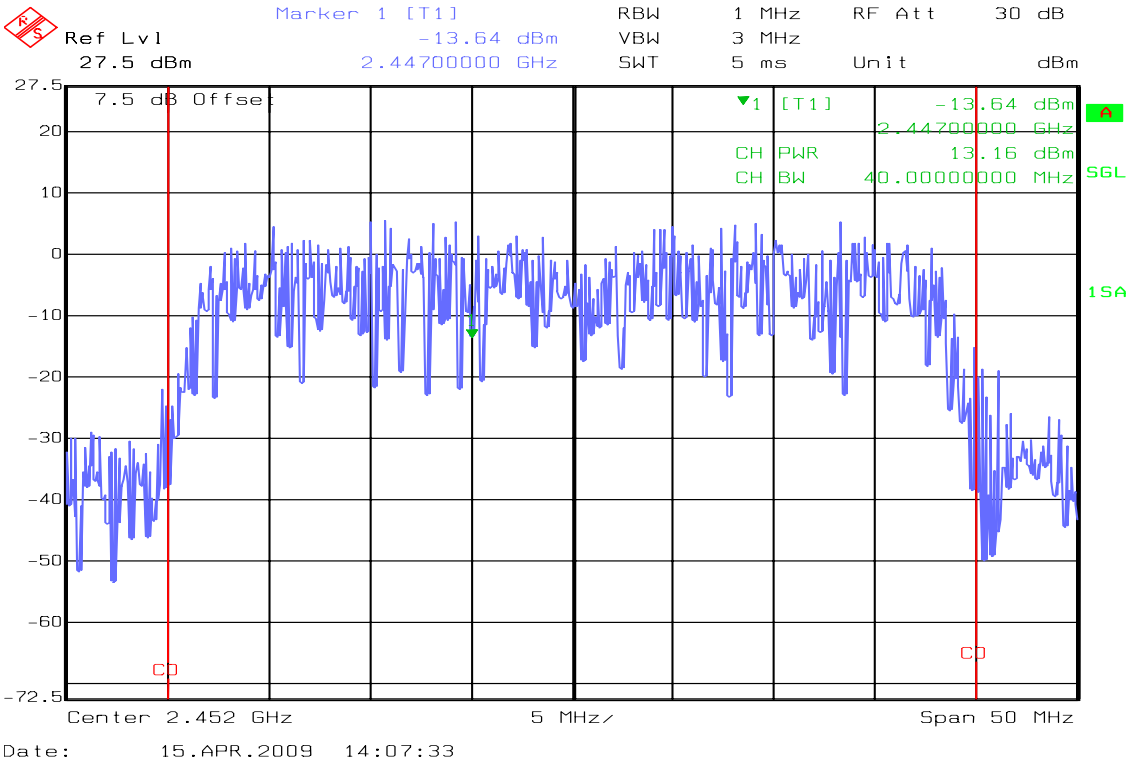
Averge power (CH Low)



Averge power (CH Mid)



Averge power (CH High)

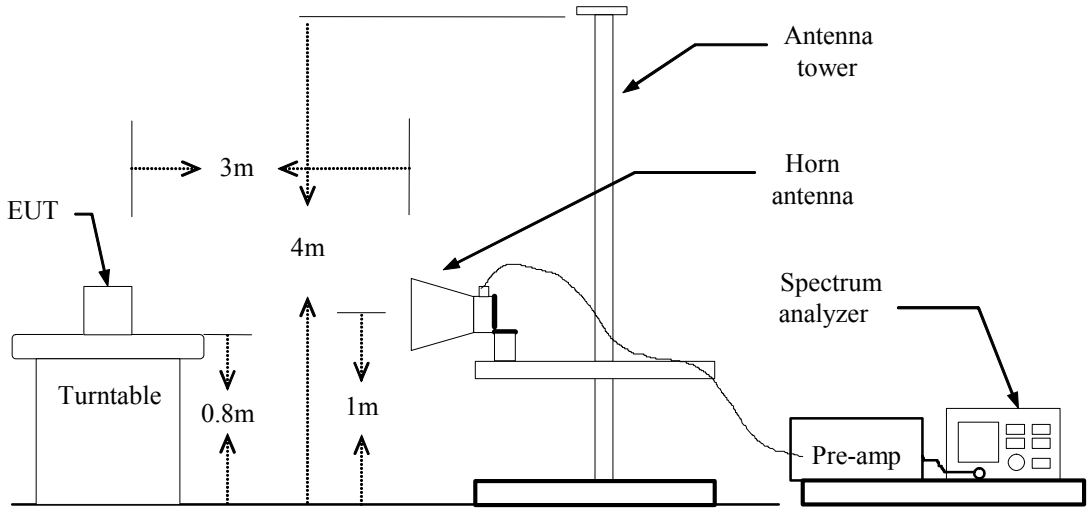


7.4 BAND EDGES MEASUREMENT

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=10Hz / Sweep=AUTO
5. Repeat the procedures until all the PEAK and AVERAGE versus POLARIZATION are measured.

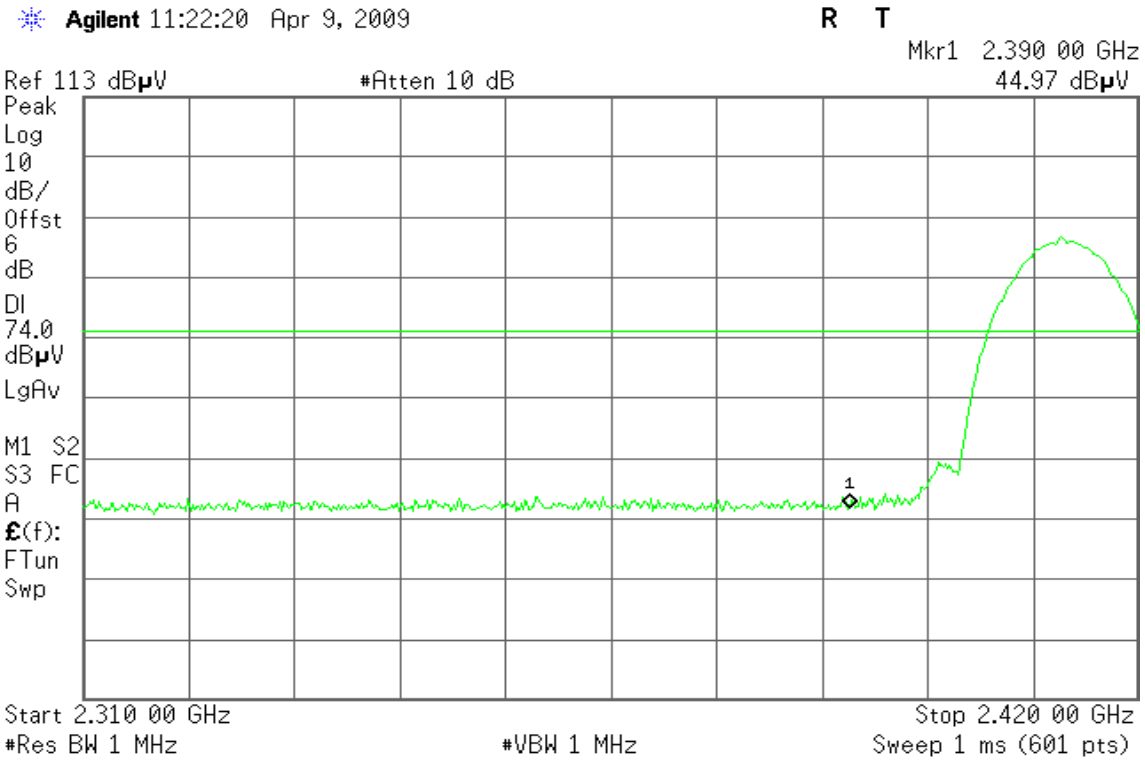
TEST RESULTS

Refer to attach spectrum analyzer data chart.

Test Plot

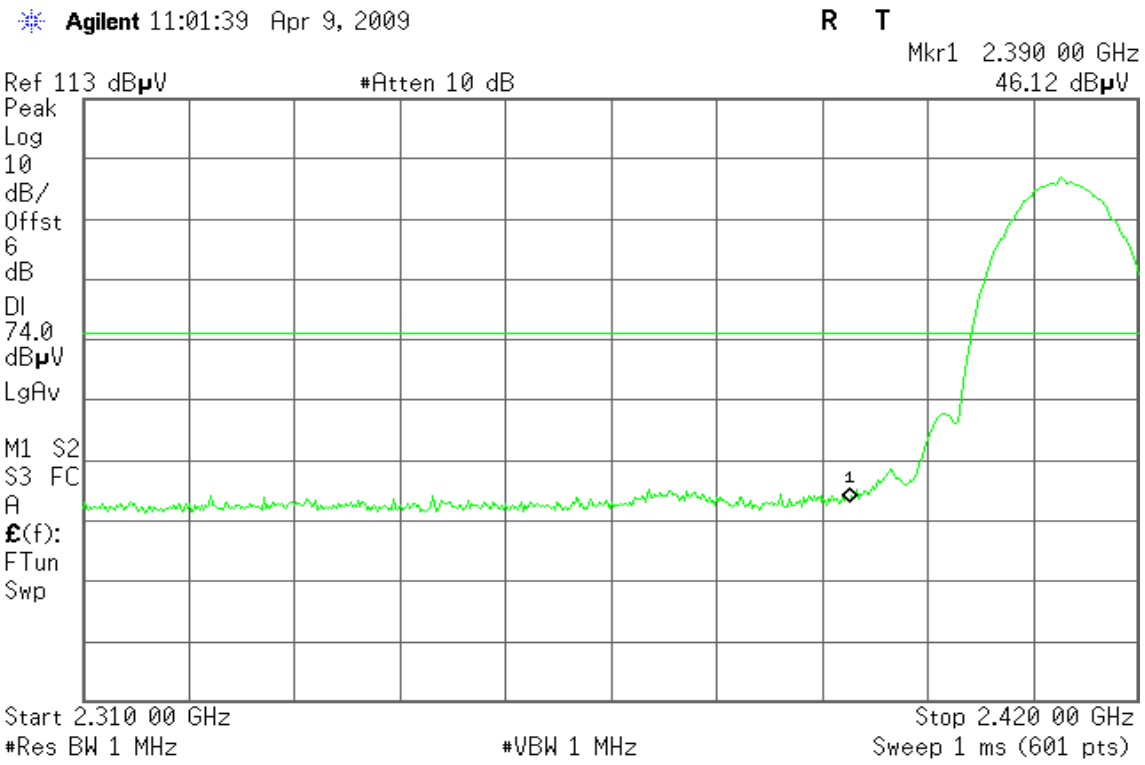
Band Edges (IEEE 802.11b mode / CH Low)

Detector mode: Peak **Polarity: Vertical**

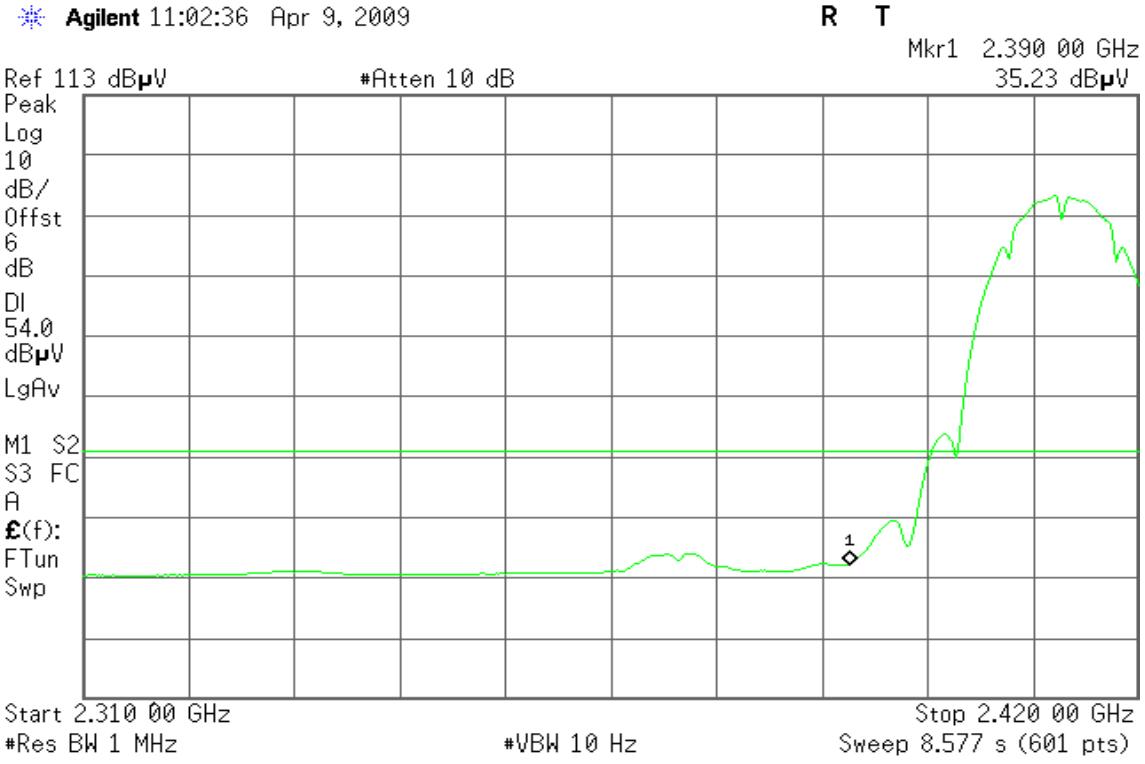


Detector mode: Average **Polarity: Vertical**

Detector mode: Peak **Polarity: Horizontal**

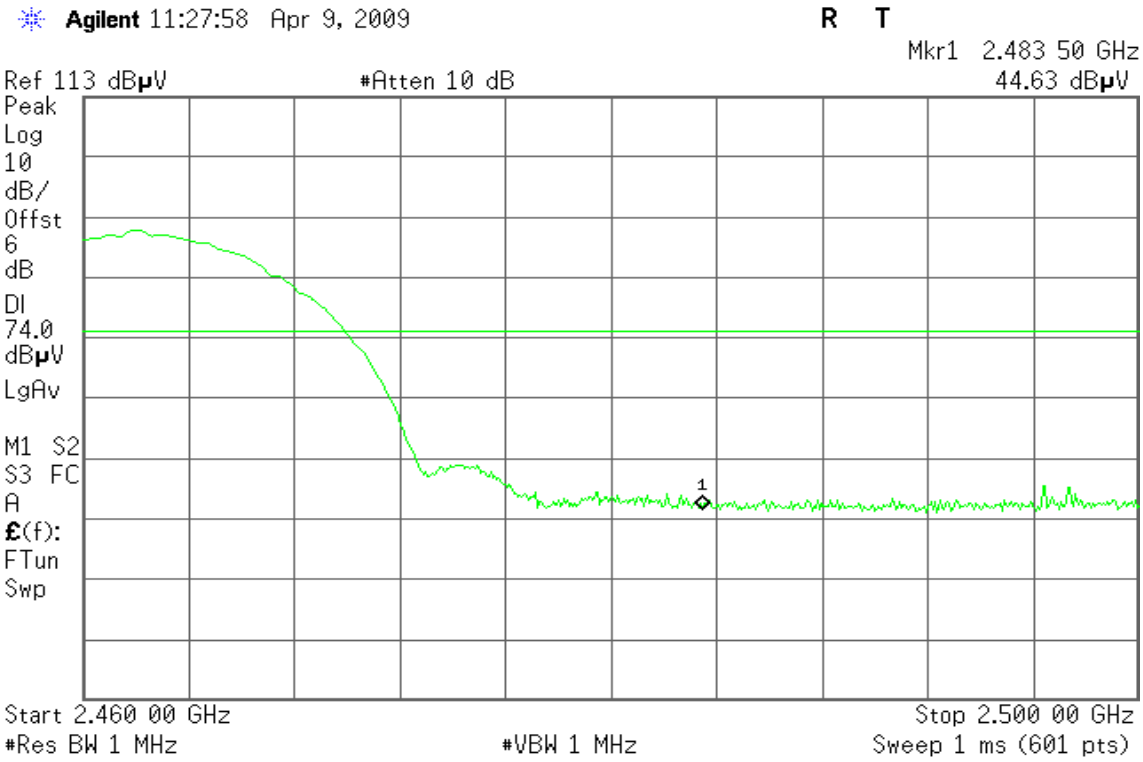


Detector mode: Average **Polarity: Horizontal**

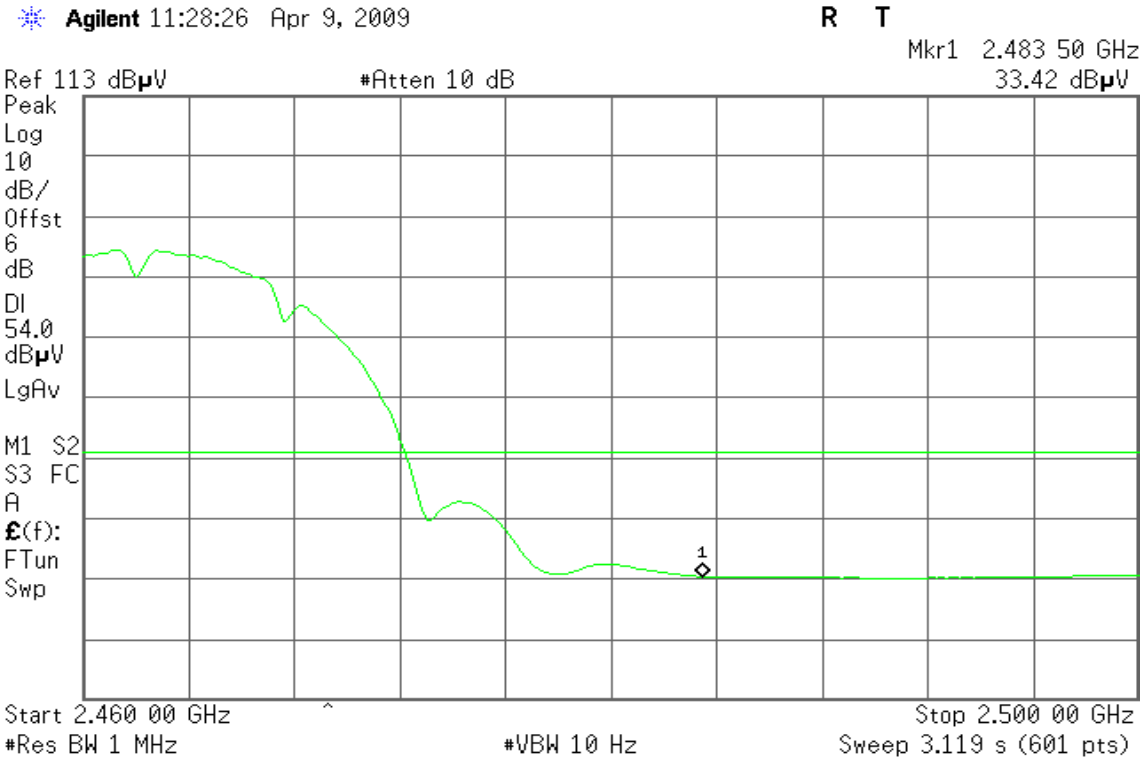


Band Edges (IEEE 802.11b mode / CH High)

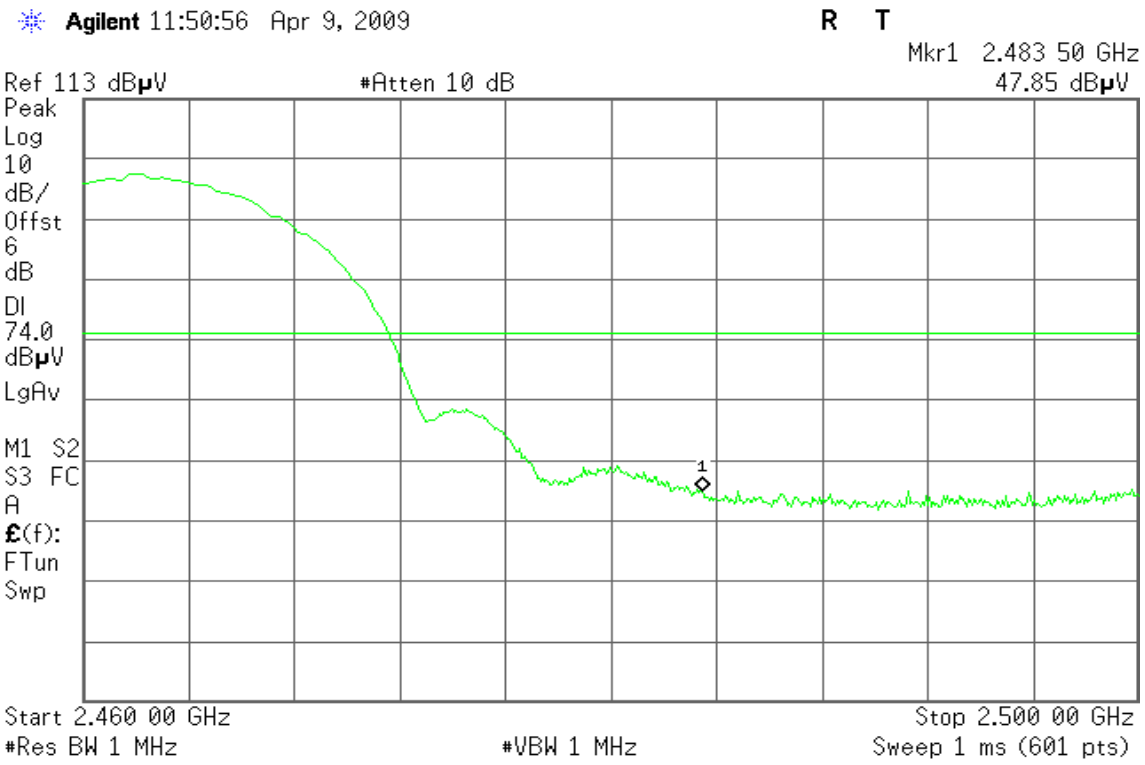
Detector mode: Peak Polarity: Vertical



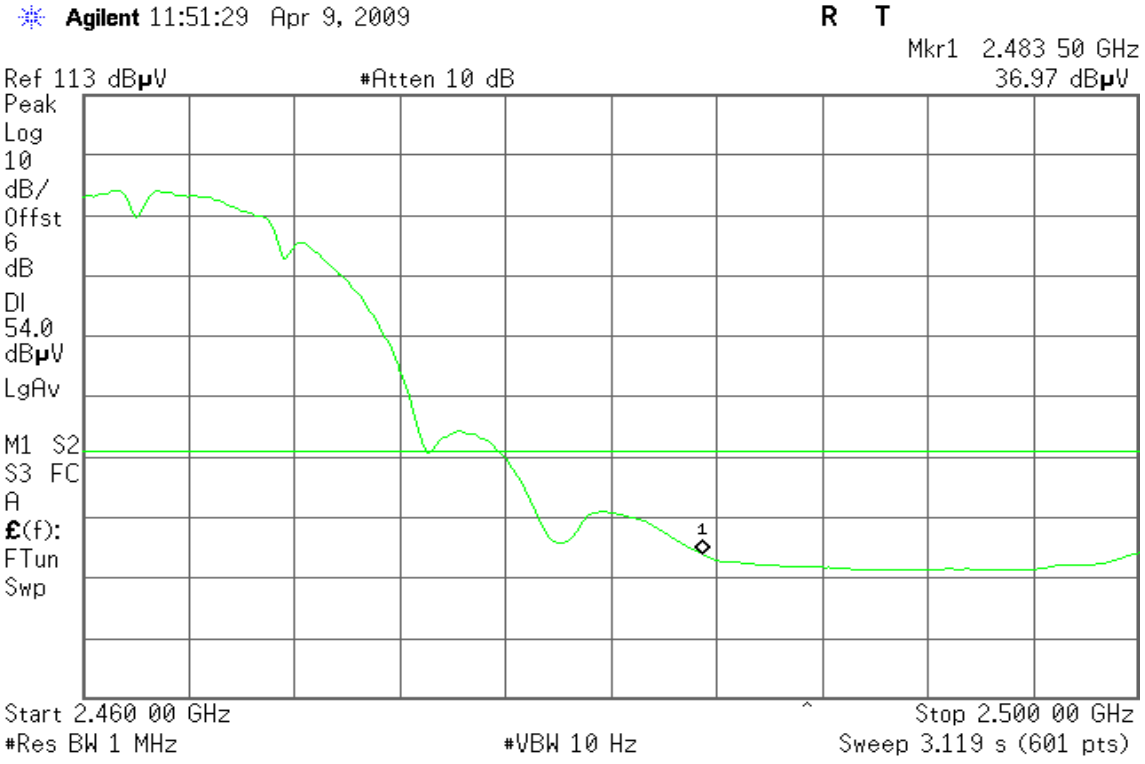
Detector mode: Average Polarity: Vertical



Detector mode: Peak **Polarity: Horizontal**

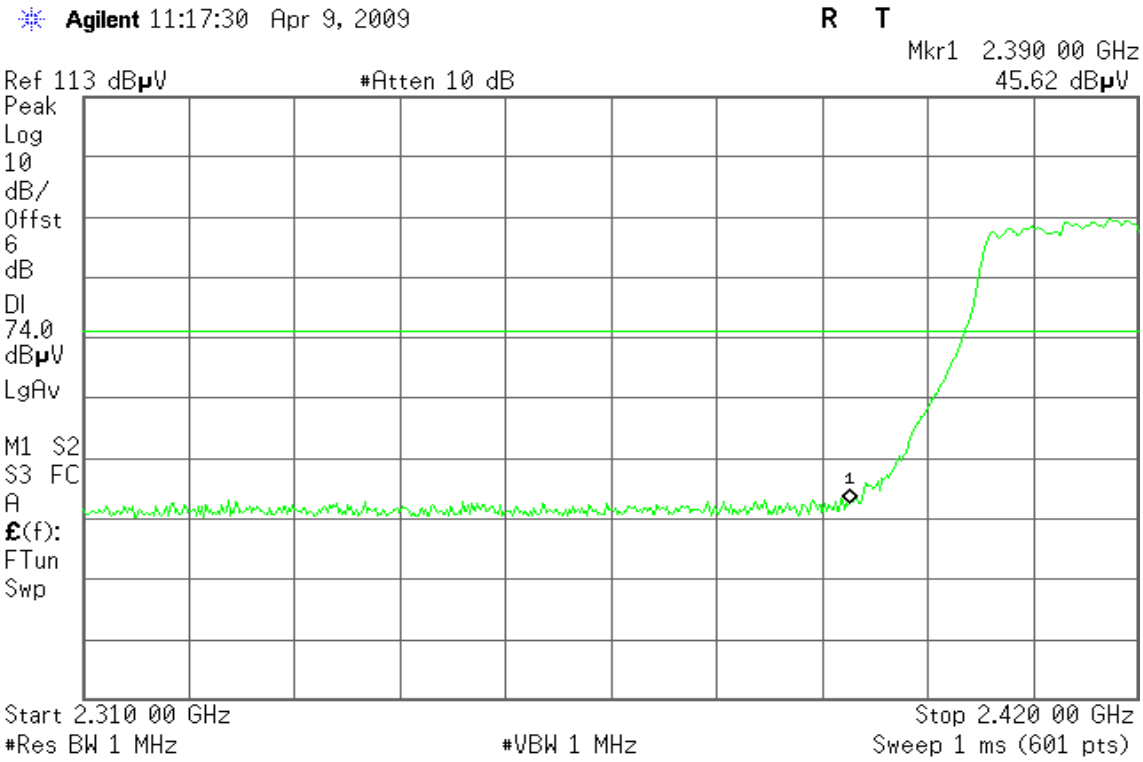


Detector mode: Average **Polarity: Horizontal**



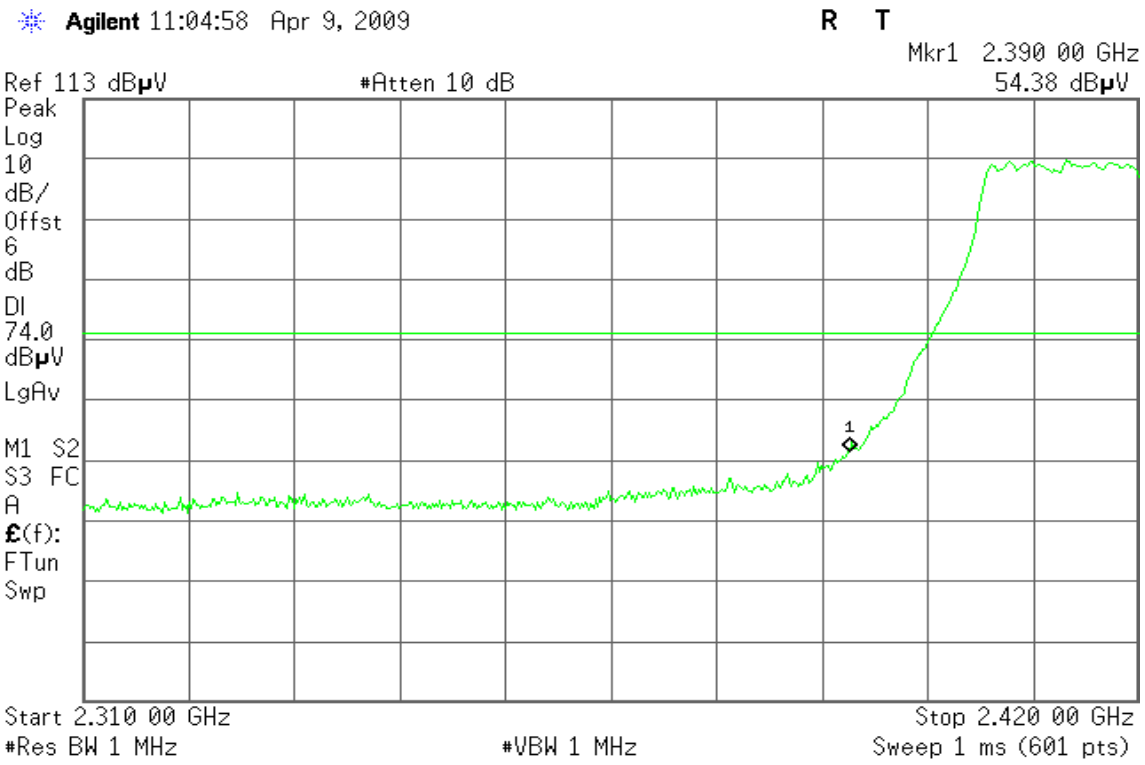
Band Edges (IEEE 802.11g mode / CH Low)

Detector mode: Peak Polarity: Vertical

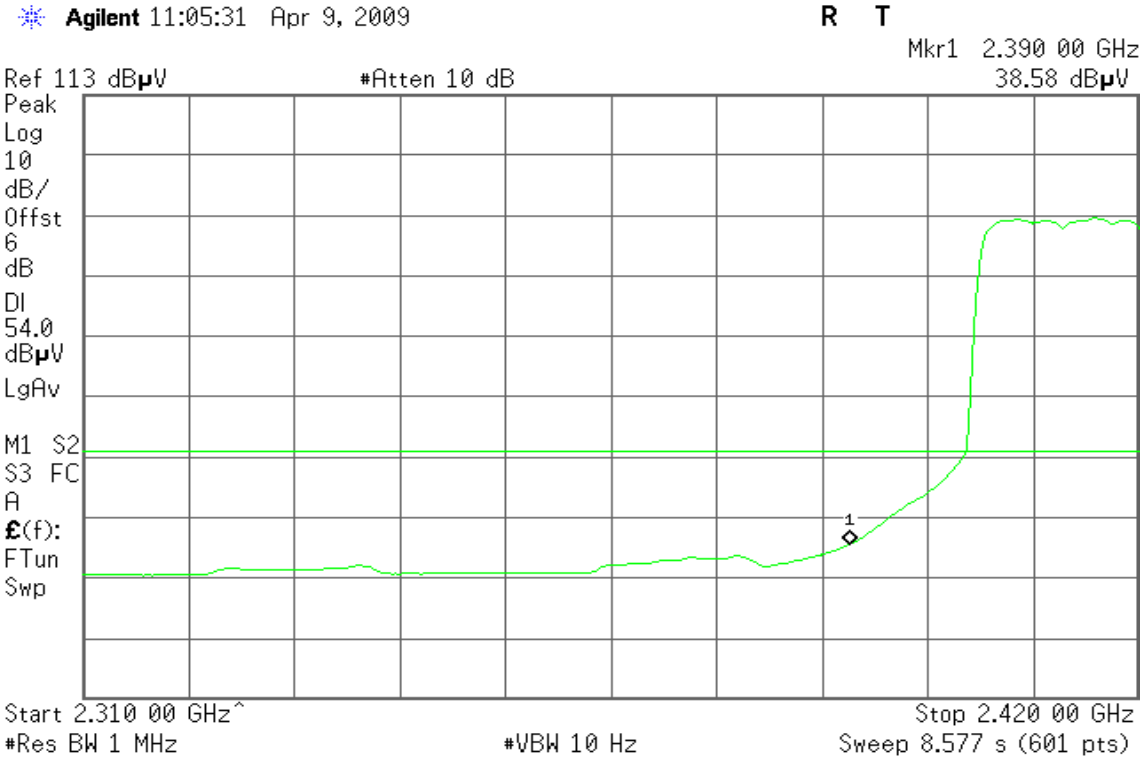


Detector mode: Average Polarity: Vertical

Detector mode: Peak **Polarity: Horizontal**

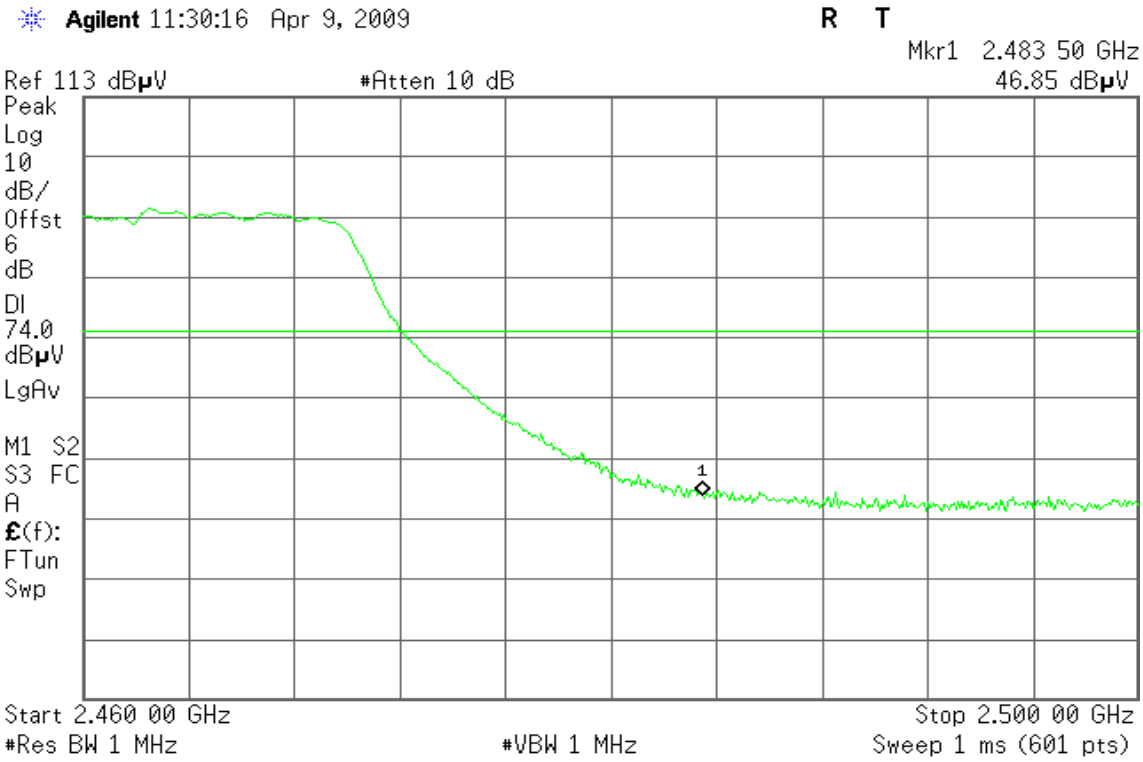


Detector mode: Average **Polarity: Horizontal**

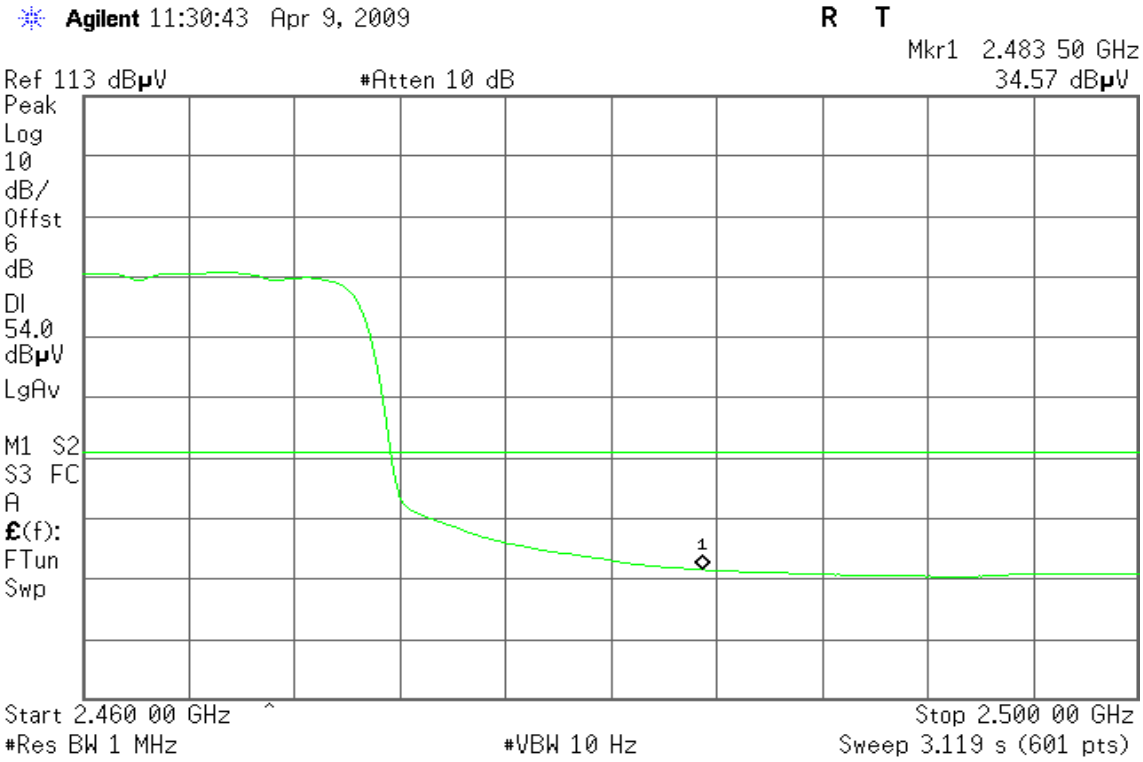


Band Edges (IEEE 802.11g mode / CH High)

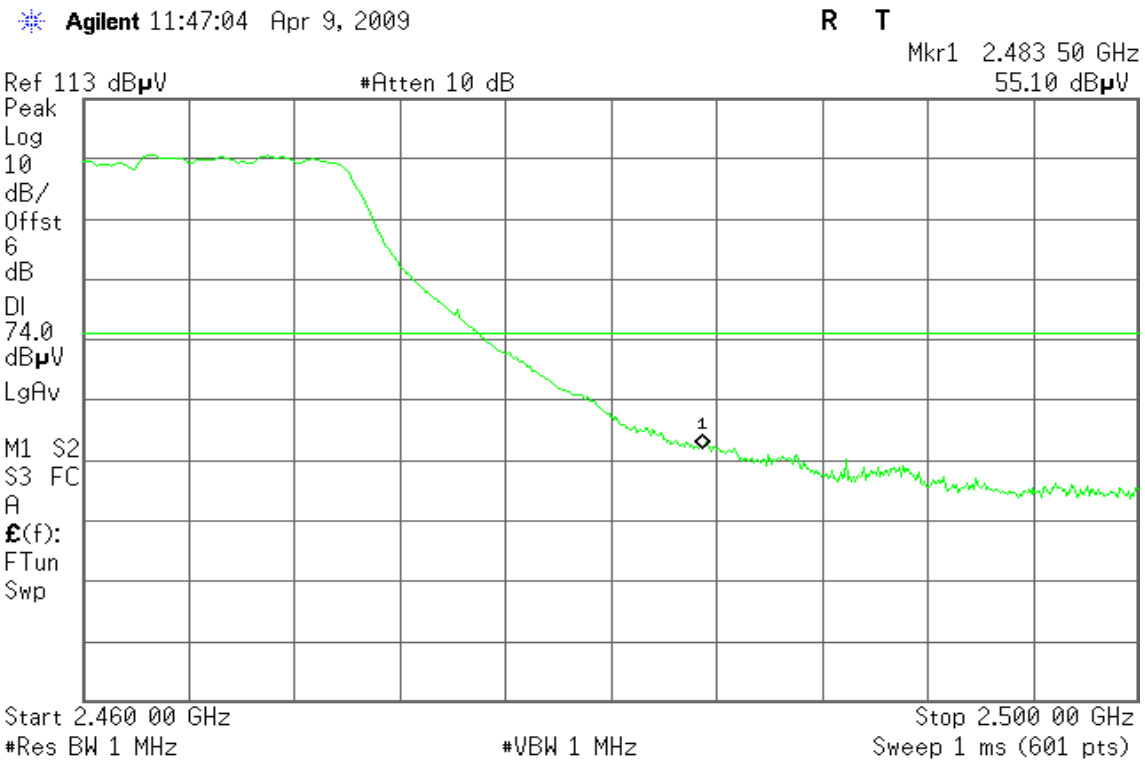
Detector mode: Peak Polarity: Vertical



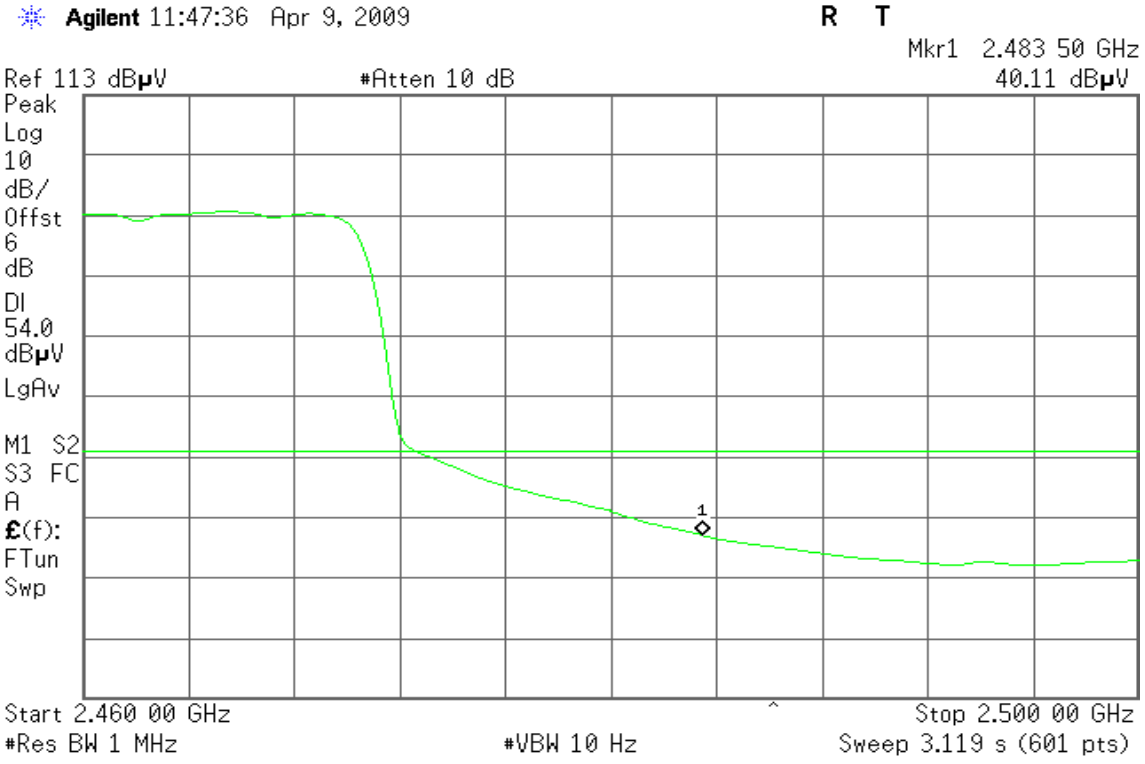
Detector mode: Average Polarity: Vertical



Detector mode: Peak **Polarity: Horizontal**

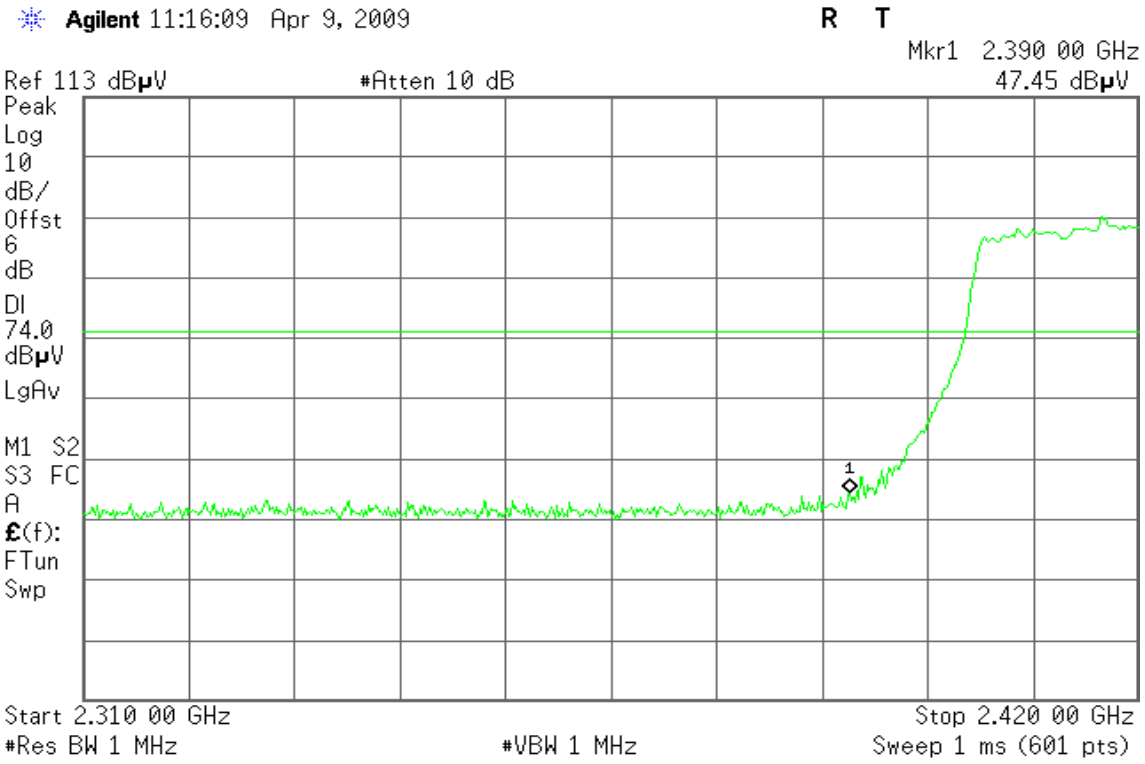


Detector mode: Average **Polarity: Horizontal**

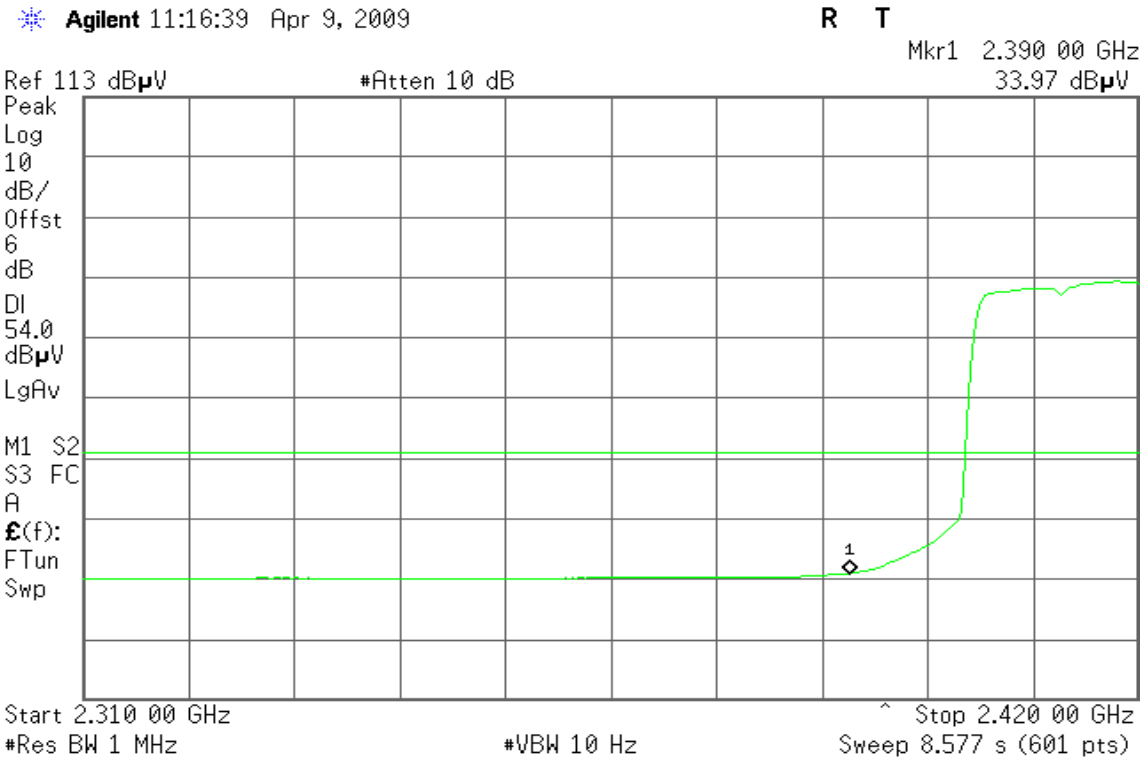


Band Edges (draft 802.11n 20 MHz Channel mode / CH Low)

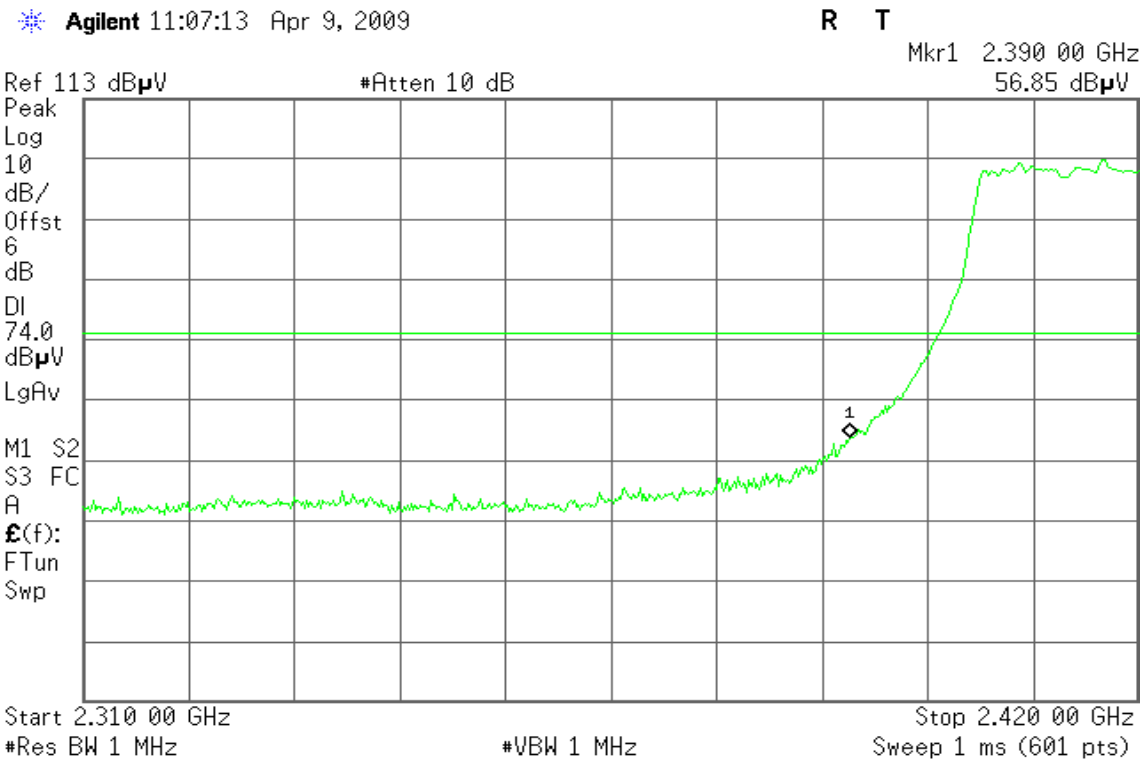
Detector mode: Peak **Polarity: Vertical**



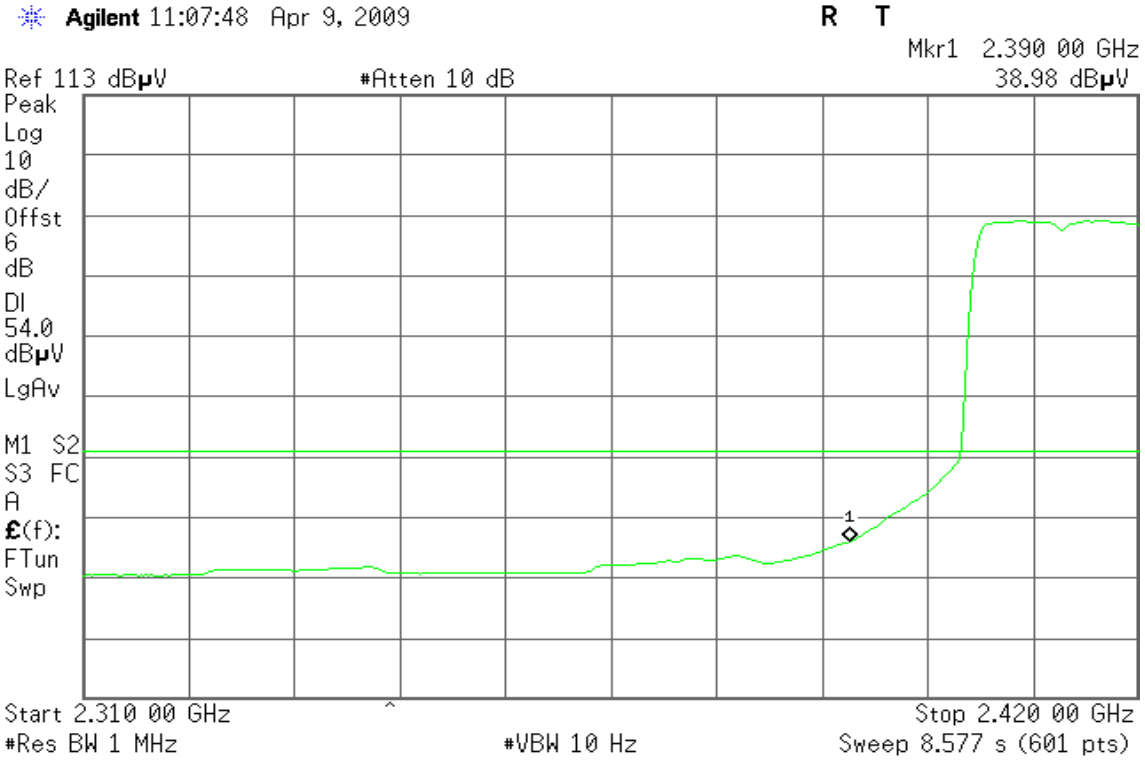
Detector mode: Average **Polarity: Vertical**



Detector mode: Peak **Polarity: Horizontal**

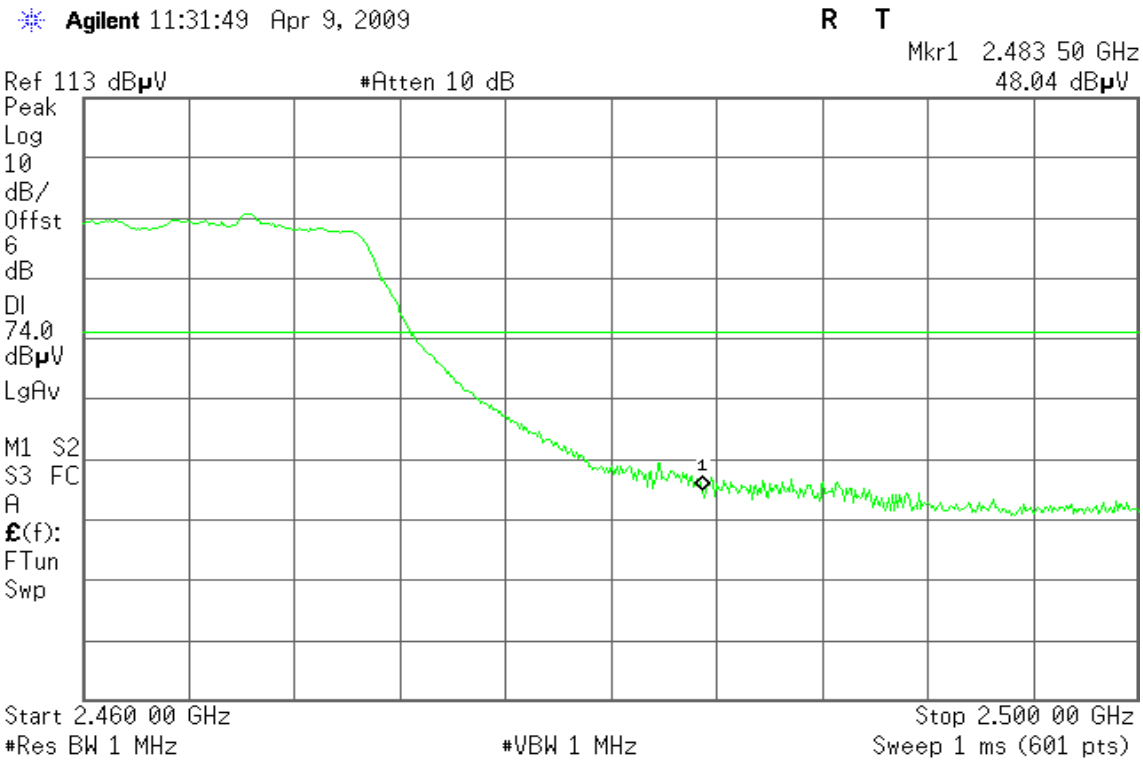


Detector mode: Average **Polarity: Horizontal**

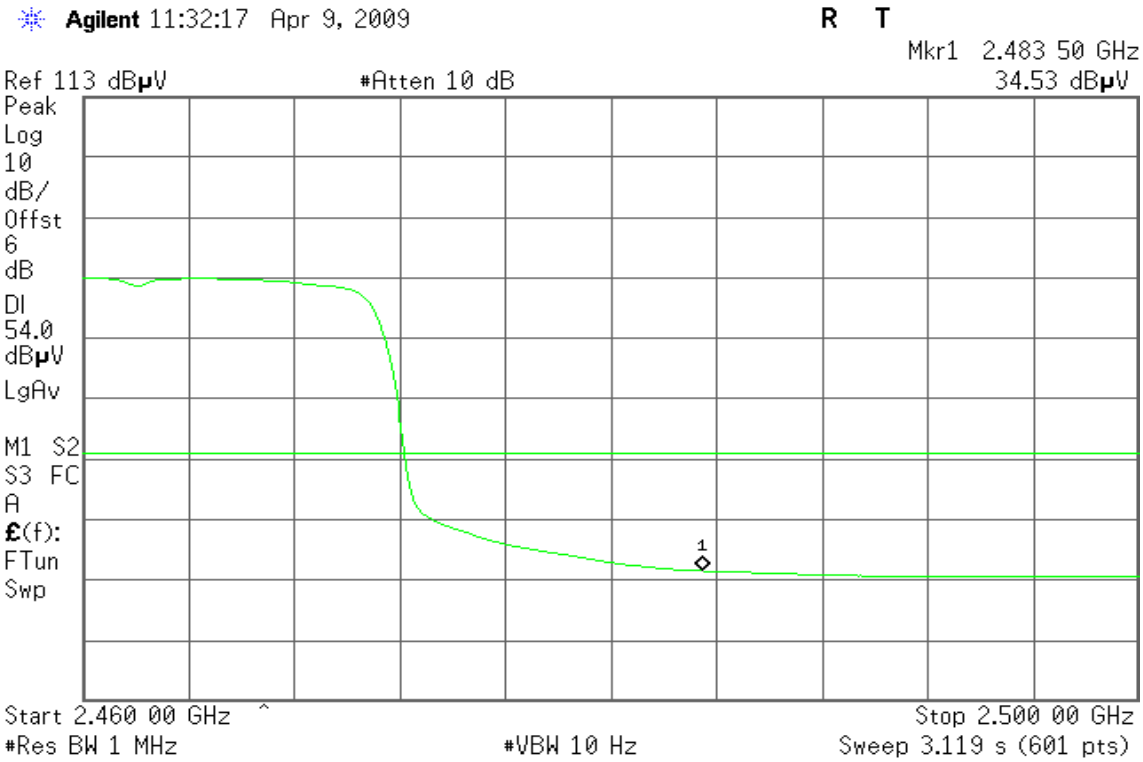


Band Edges (draft 802.11n 20 MHz Channel mode / CH High)

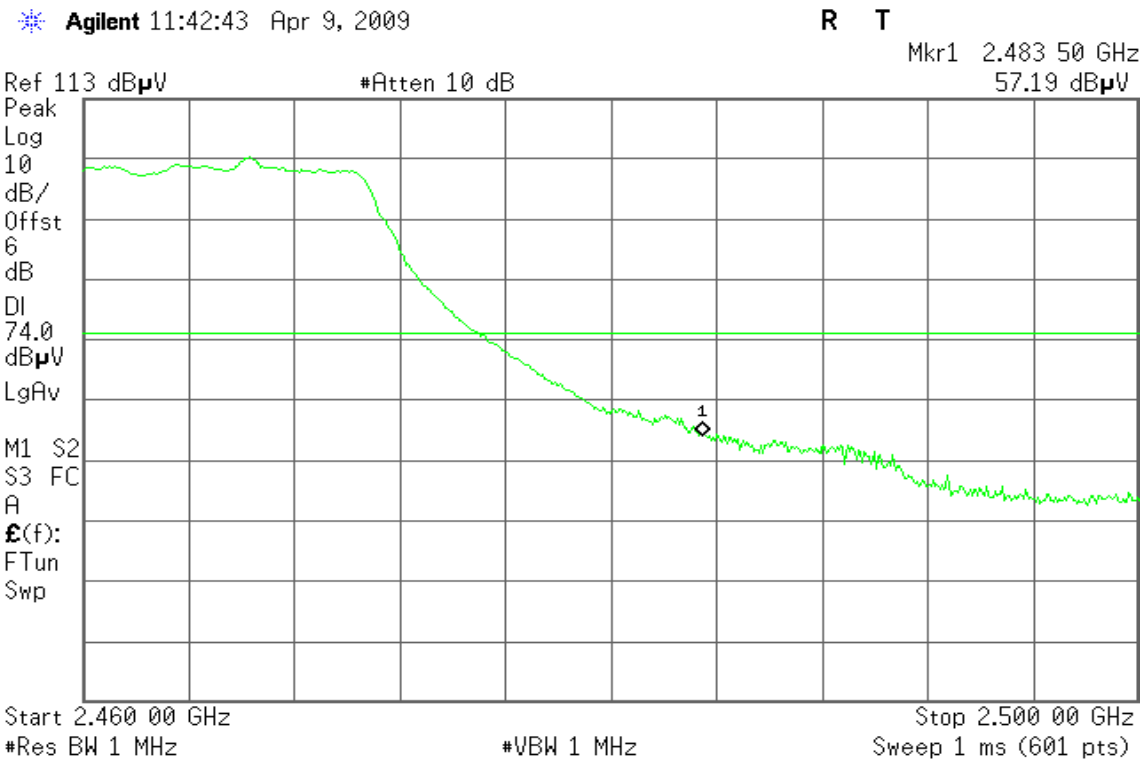
Detector mode: Peak **Polarity: Vertical**



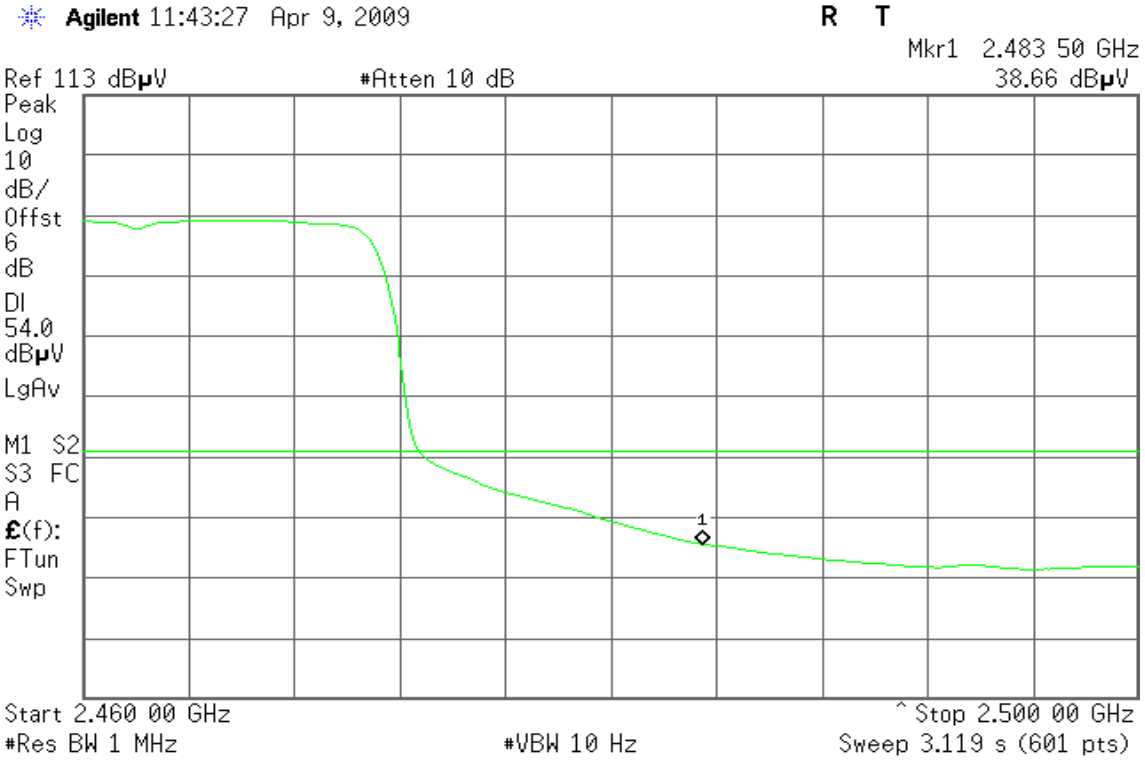
Detector mode: Average **Polarity: Vertical**



Detector mode: Peak **Polarity: Horizontal**

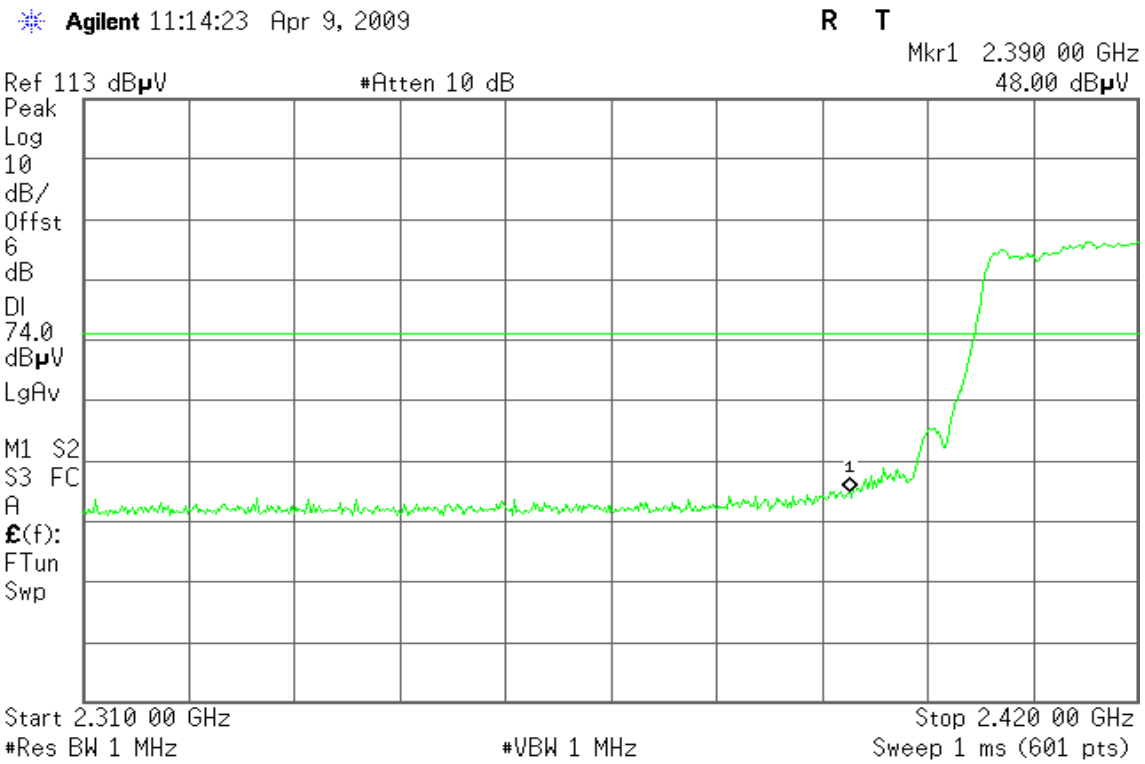


Detector mode: Average **Polarity: Horizontal**

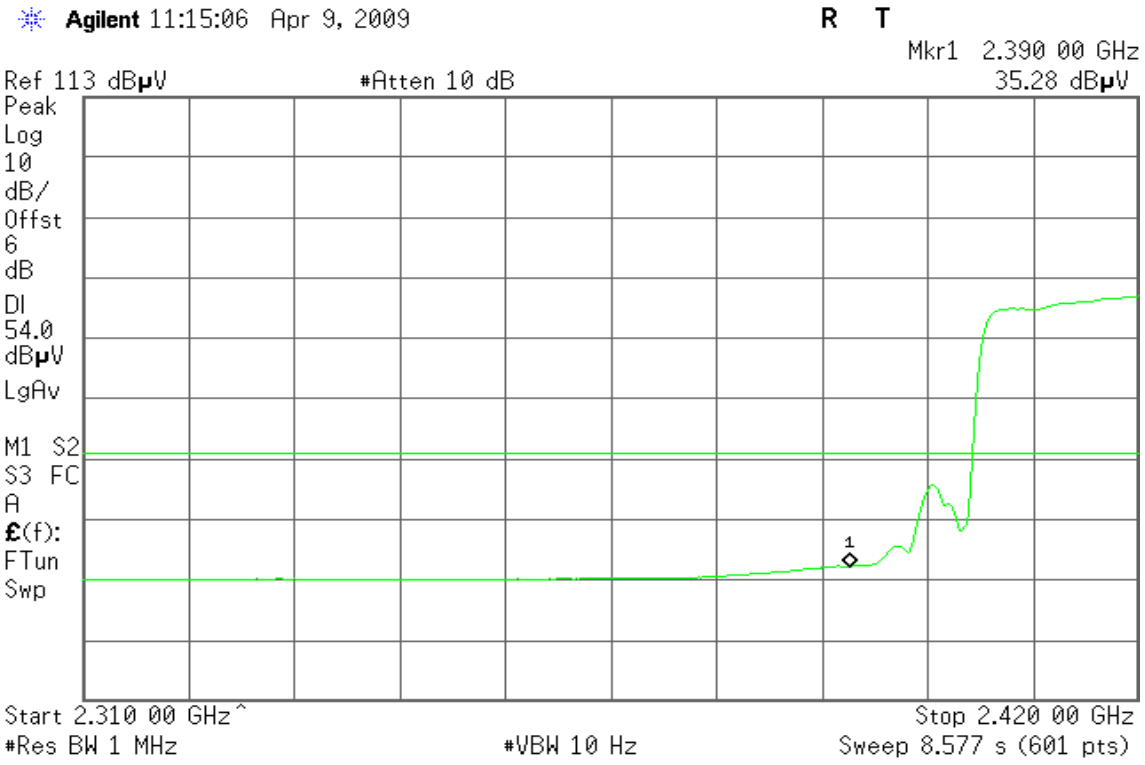


Band Edges (draft 802.11n 40 MHz Channel mode / CH Low)

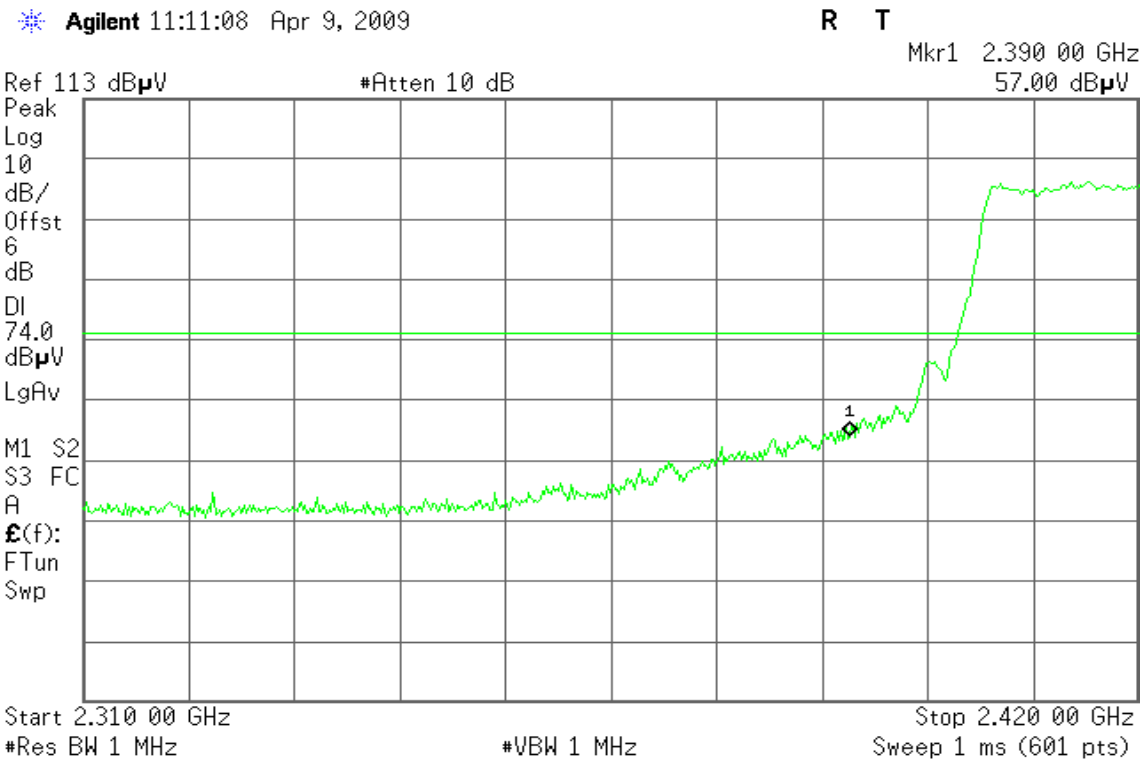
Detector mode: Peak **Polarity: Vertical**



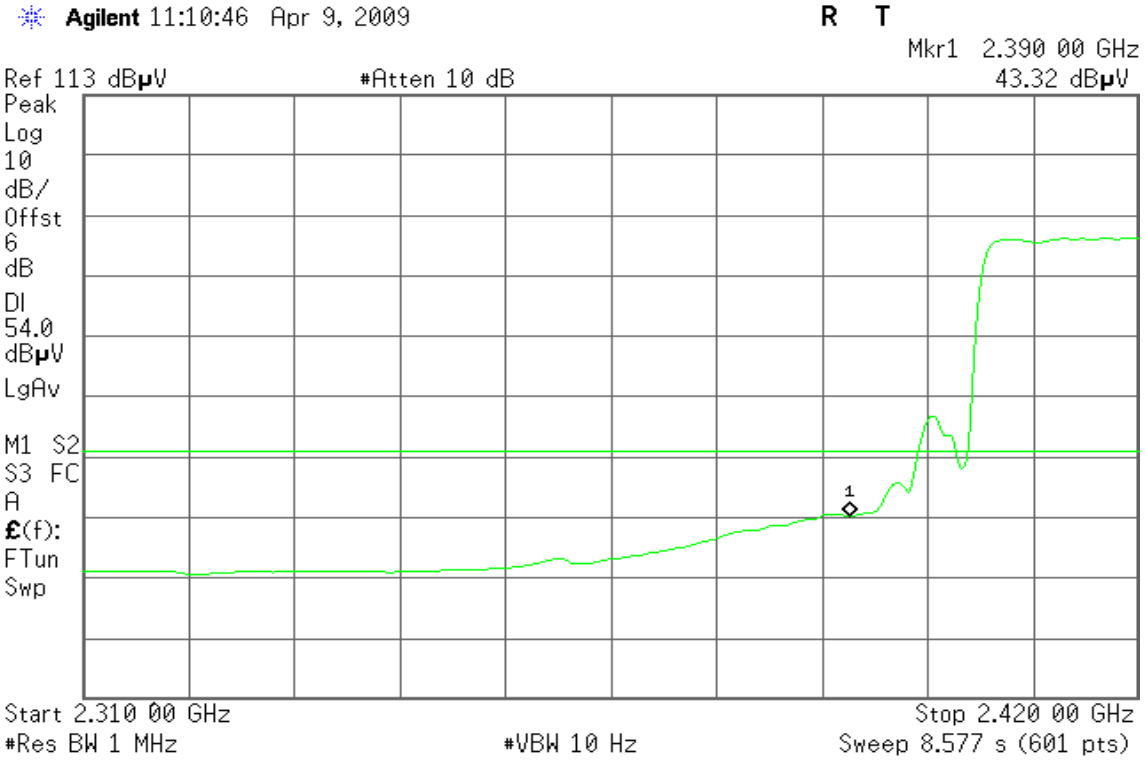
Detector mode: Average **Polarity: Vertical**



Detector mode: Peak **Polarity: Horizontal**

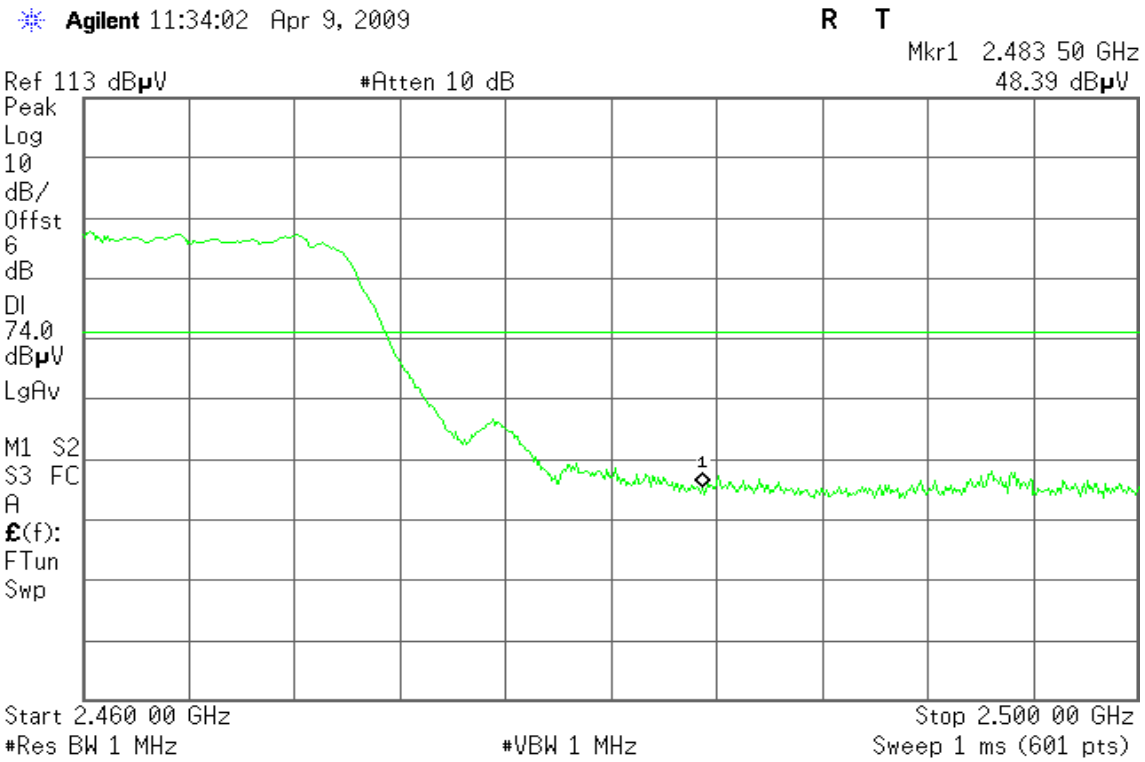


Detector mode: Average **Polarity: Horizontal**

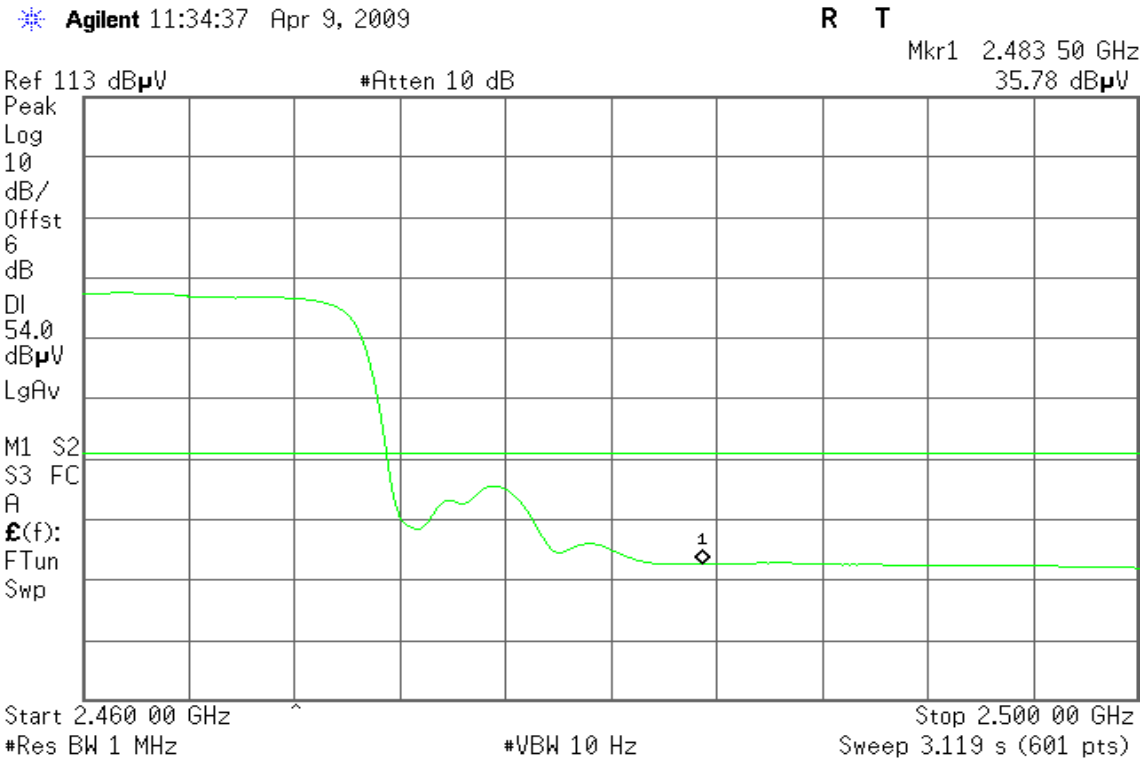


Band Edges (draft 802.11n 40 MHz Channel mode / CH High)

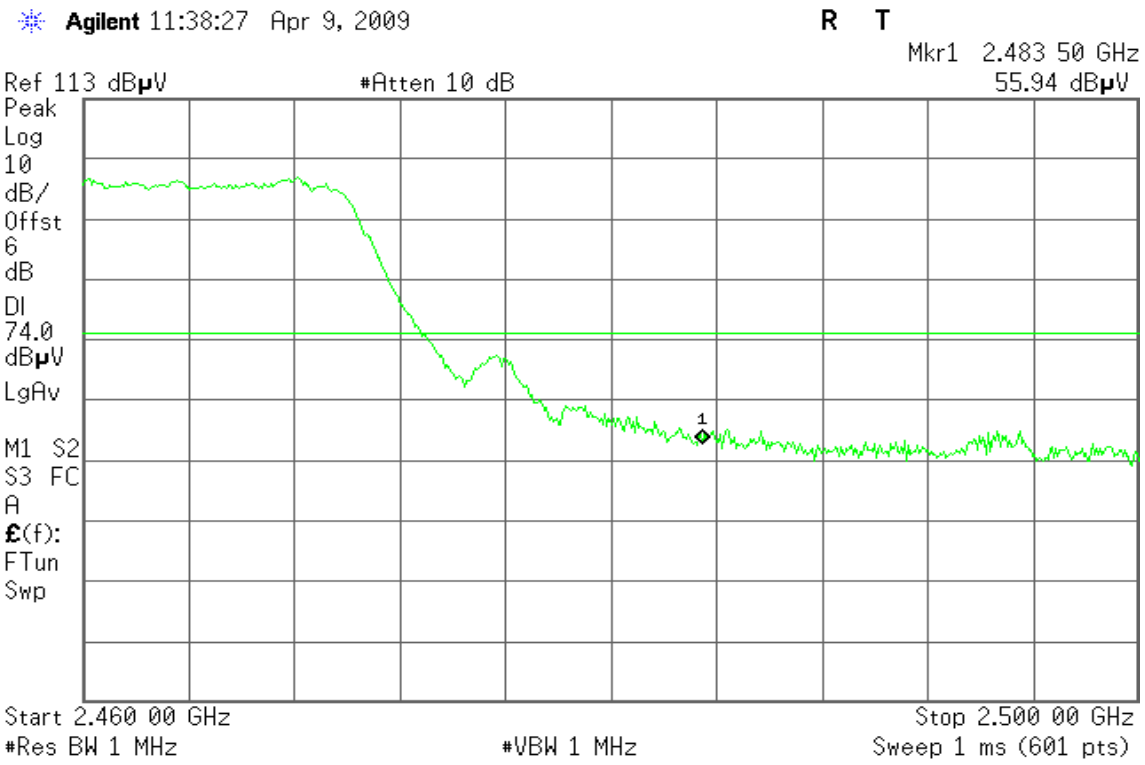
Detector mode: Peak **Polarity: Vertical**



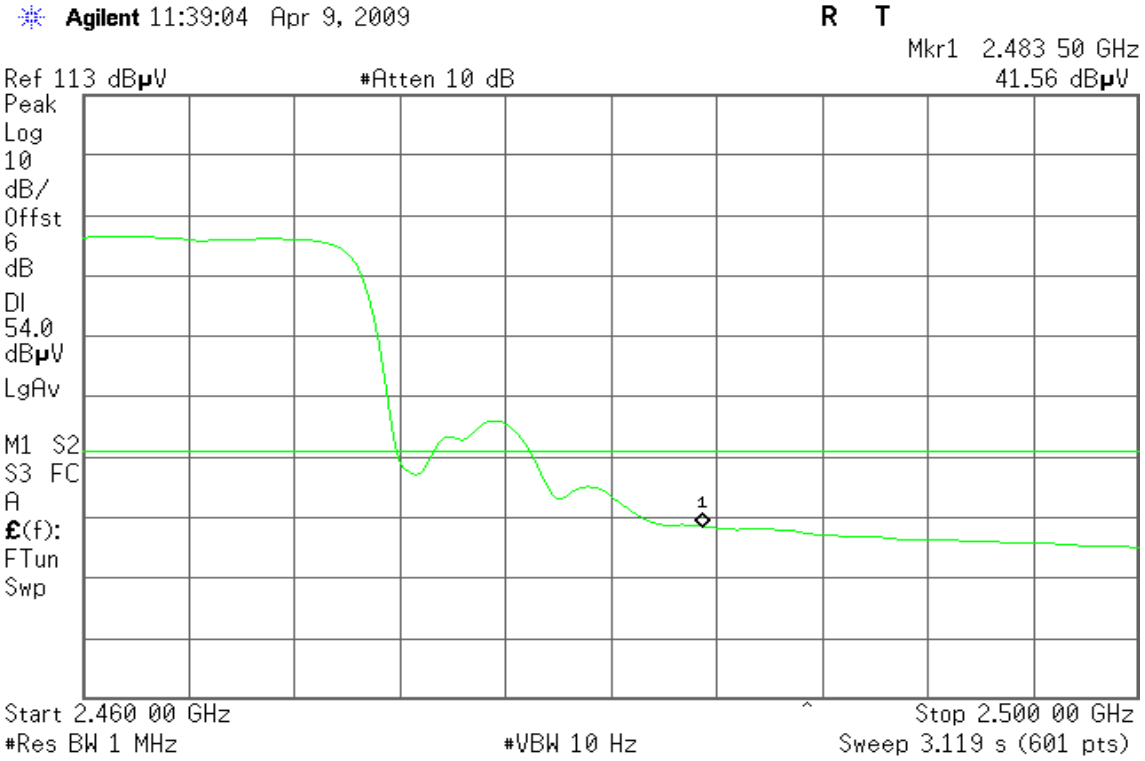
Detector mode: Average **Polarity: Vertical**



Detector mode: Peak **Polarity: Horizontal**



Detector mode: Average **Polarity: Horizontal**

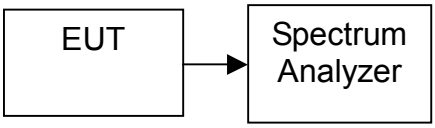


7.5 PEAK POWER SPECTRAL DENSITY

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	-15.49	8.00	PASS
Mid	2437	-14.91		PASS
High	2462	-14.95		PASS

Test mode: IEEE 802.11g mode

Channel	Frequency (MHz)	PPSD (dBm)	Limit (dBm)	Result
Low	2412	-14.10	8.00	PASS
Mid	2437	-13.62		PASS
High	2462	-14.40		PASS

Test mode: draft 802.11n 20 MHz Channel mode

Channel	Frequency (MHz)	PPSD (dBm)	Limit (dBm)	Result
Low	2412	-14.47	8.00	PASS
Mid	2437	-13.96		PASS
High	2462	-14.63		PASS

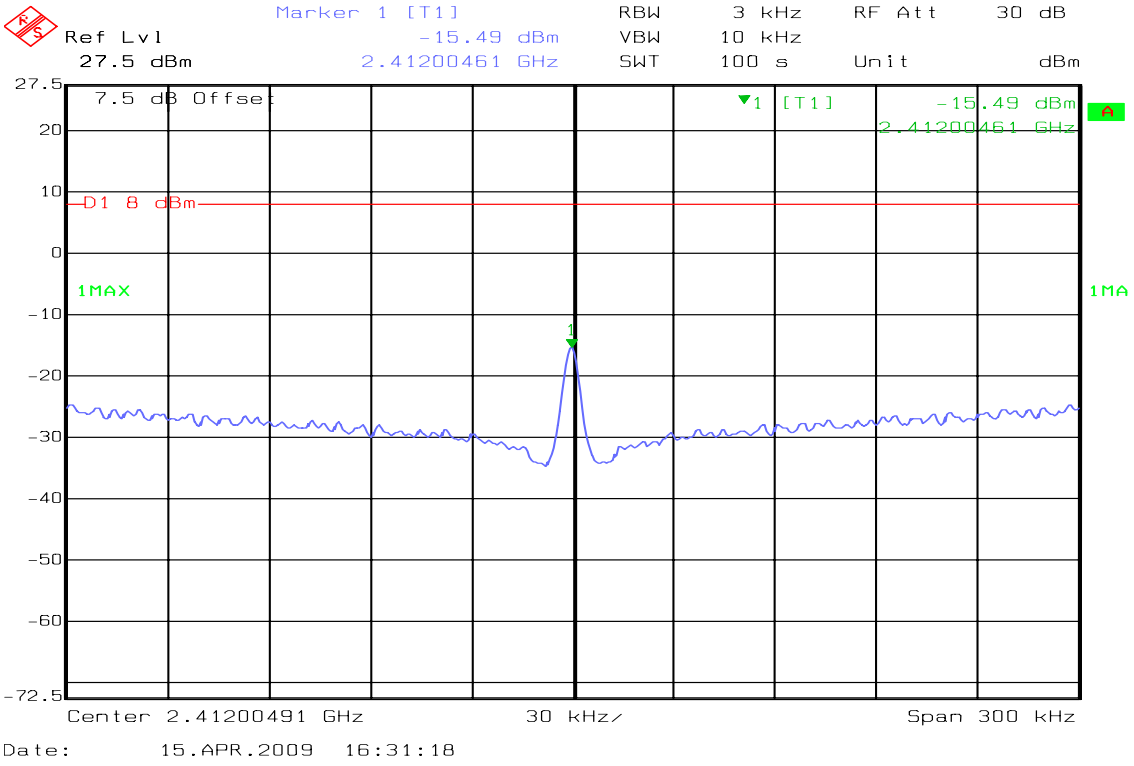
Test mode: draft 802.11n 40 MHz Channel mode

Channel	Frequency (MHz)	PPSD (dBm)	Limit (dBm)	Result
Low	2422	-15.43	8.00	PASS
Mid	2437	-15.19		PASS
High	2452	-15.03		PASS

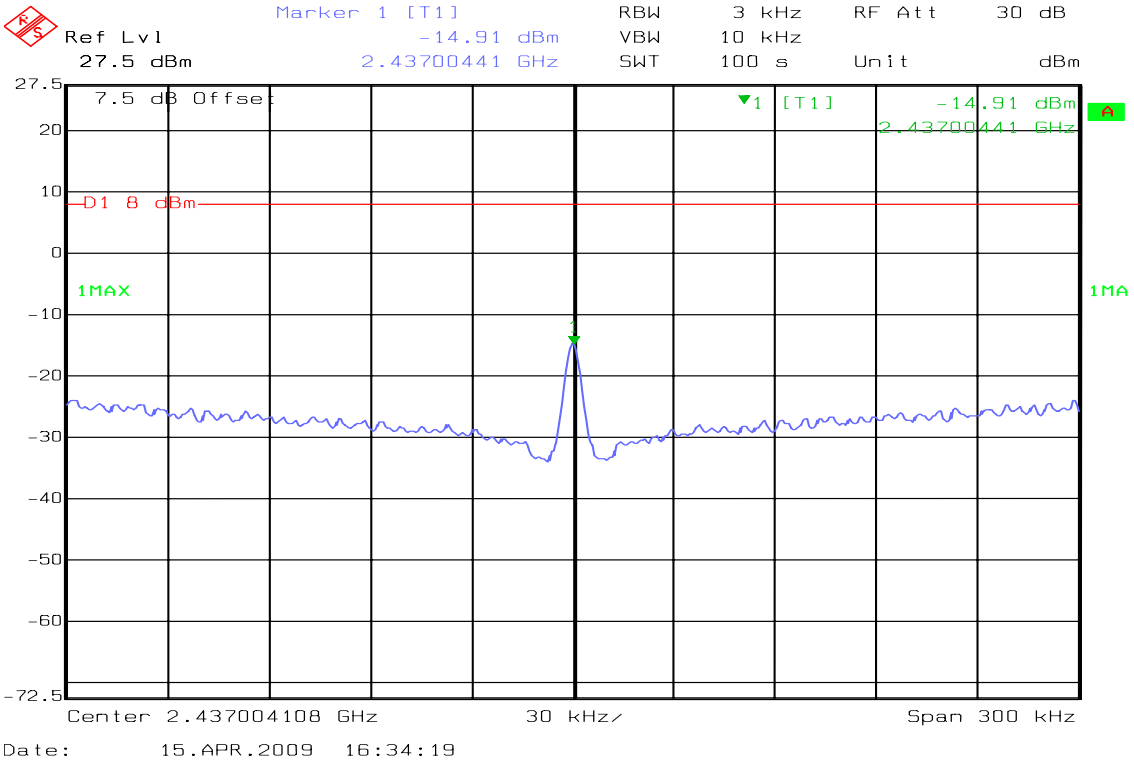
Test Plot

IEEE 802.11b mode

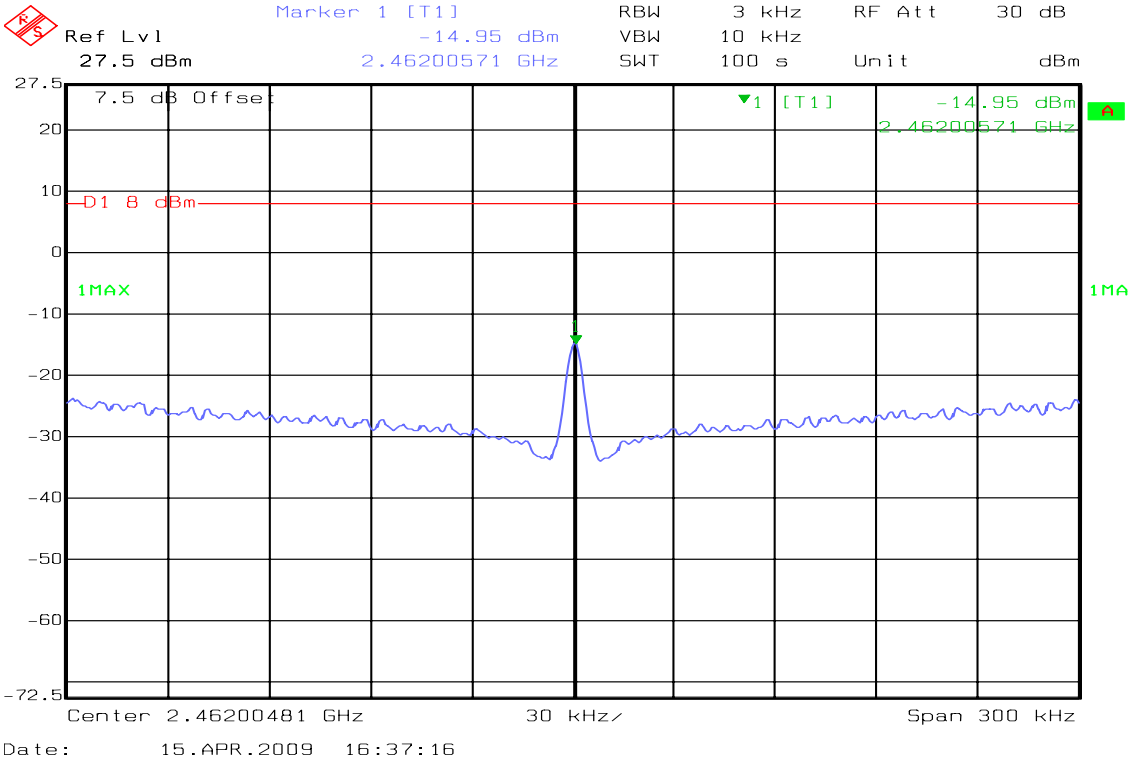
PPSD (CH Low)



PPSD (CH Mid)

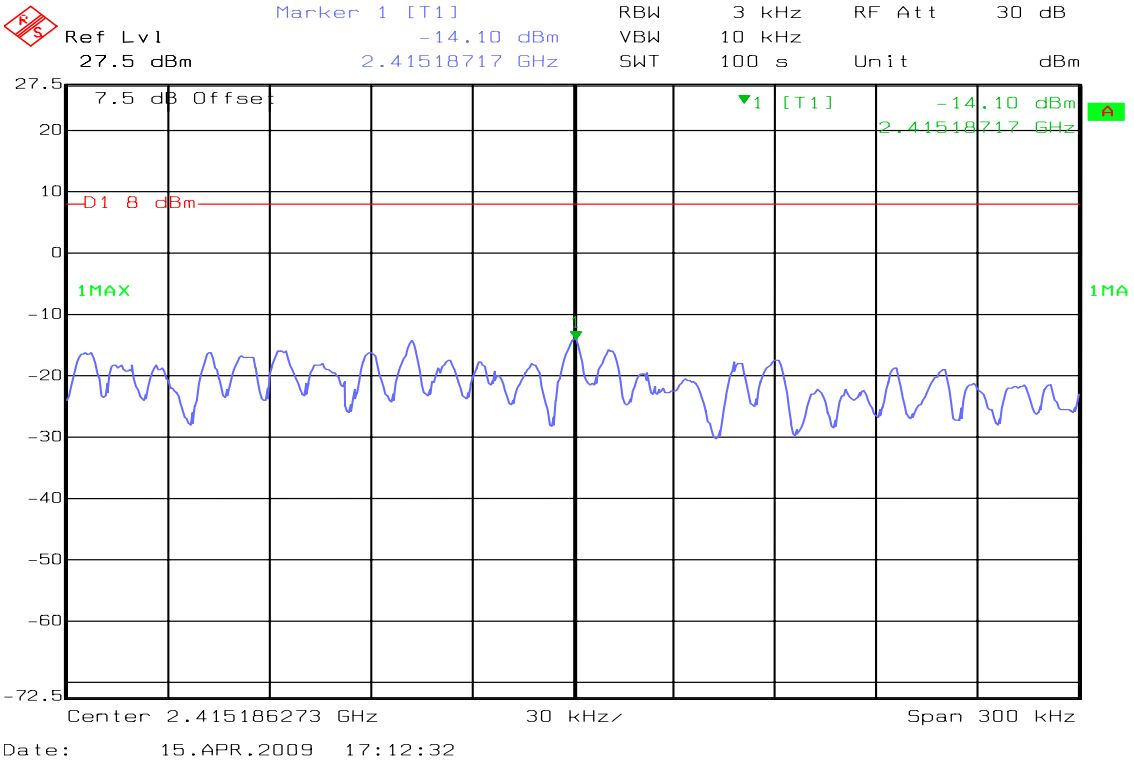


PPSD (CH High)

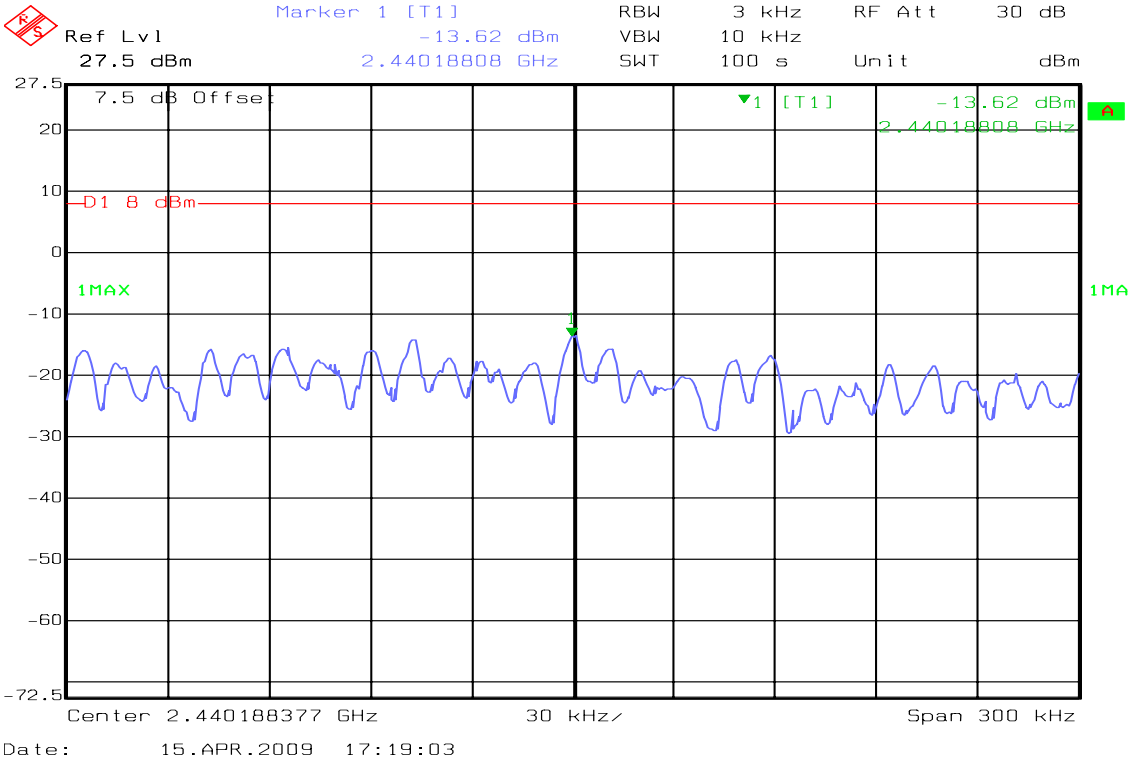


IEEE 802.11g mode

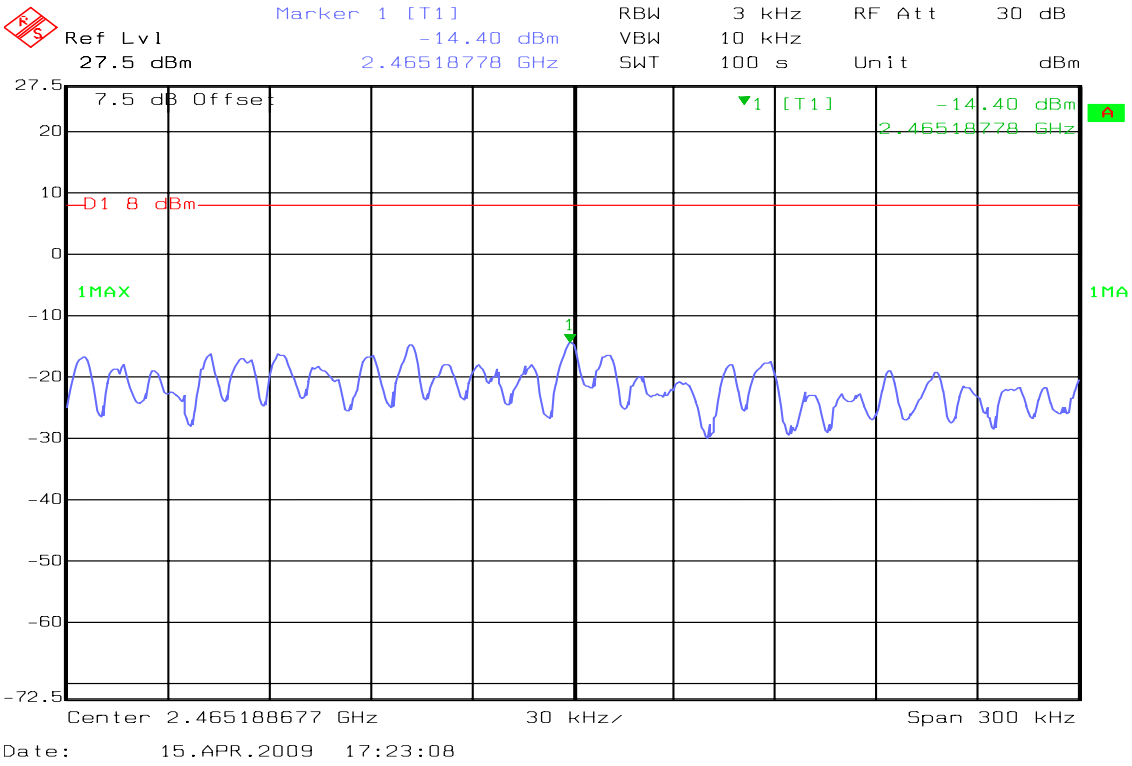
PPSD (CH Low)



PPSD (CH Mid)

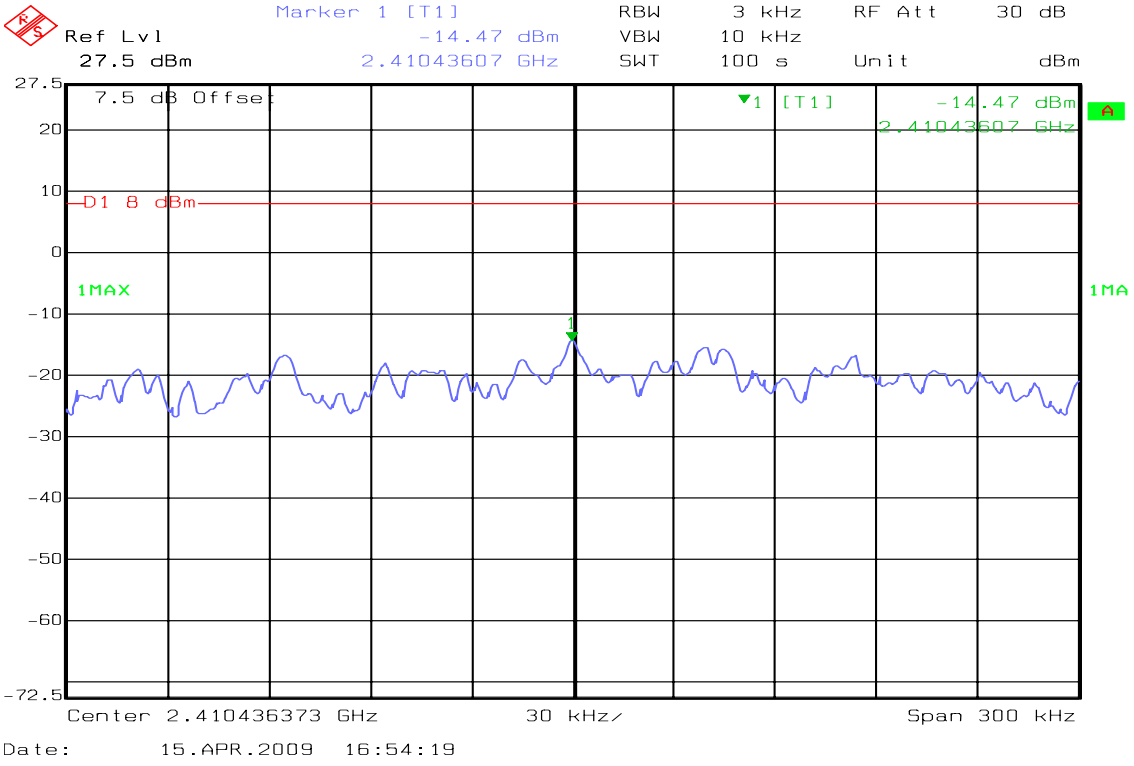


PPSD (CH High)

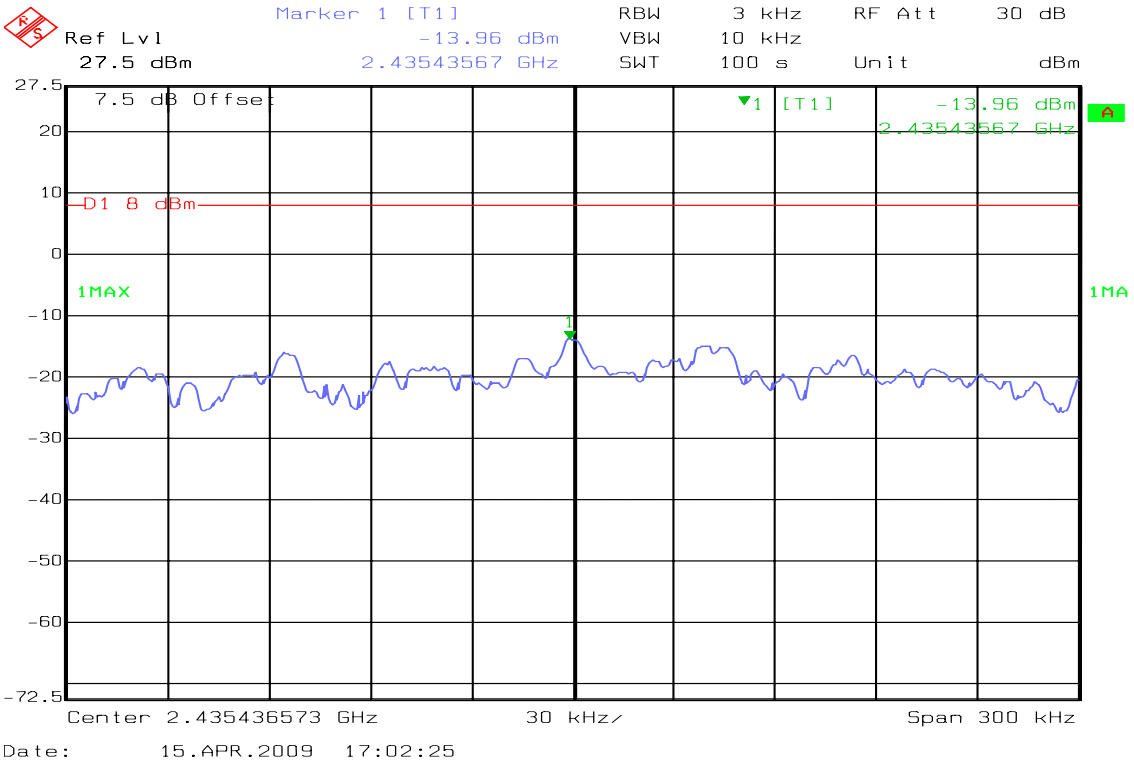


draft 802.11n 20 MHz Channel mode

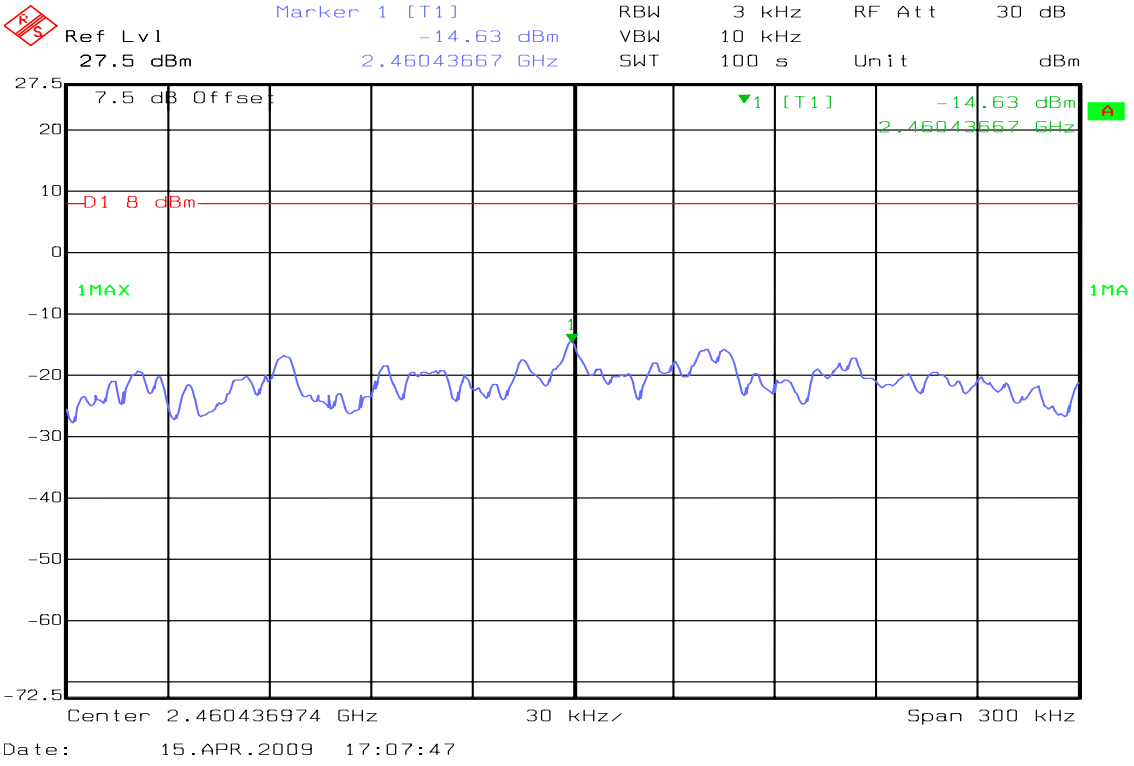
PPSD (CH Low)



PPSD (CH Mid)

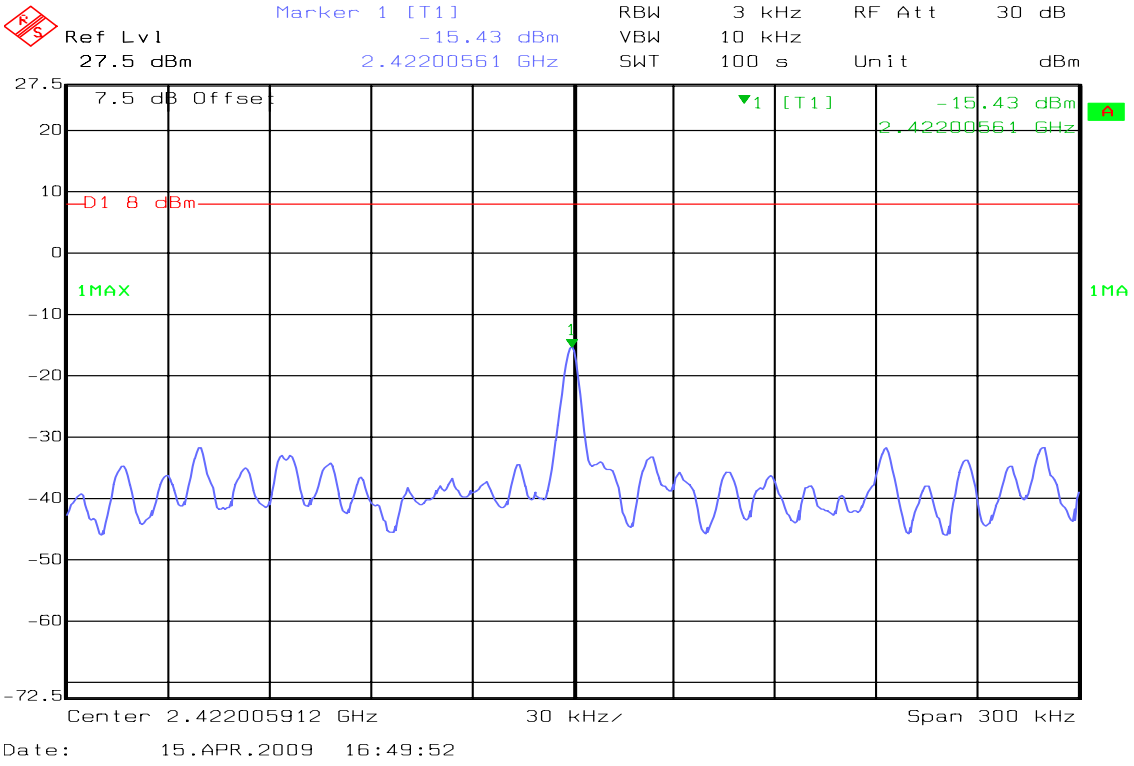


PPSD (CH High)

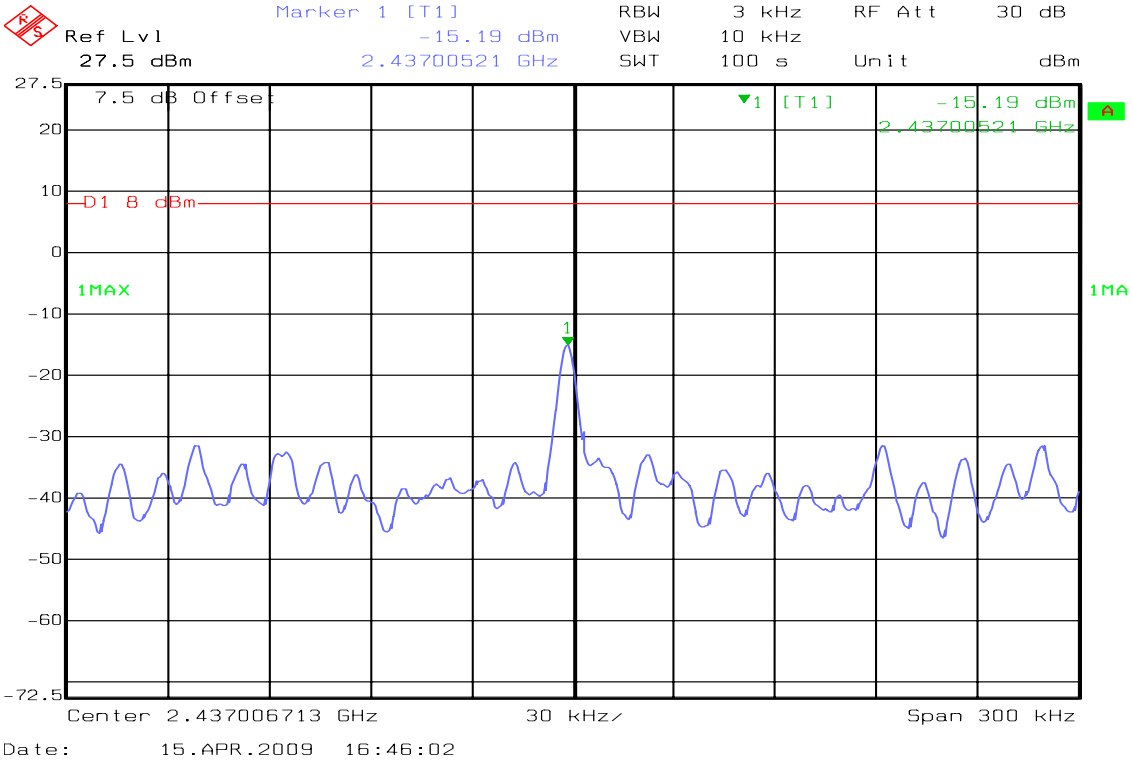


draft 802.11n 40 MHz Channel mode

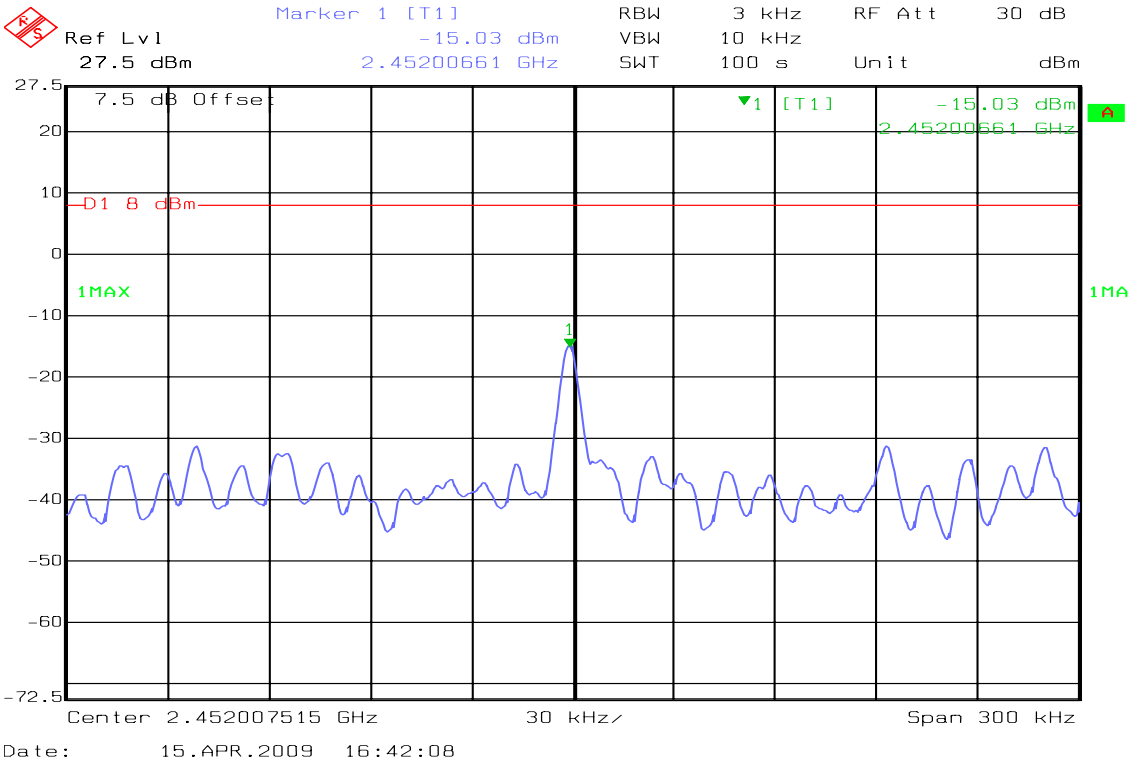
PPSD (CH Low)



PPSD (CH Mid)



PPSD (CH High)



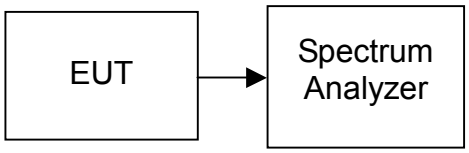
7.6 SPURIOUS EMISSIONS

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 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.

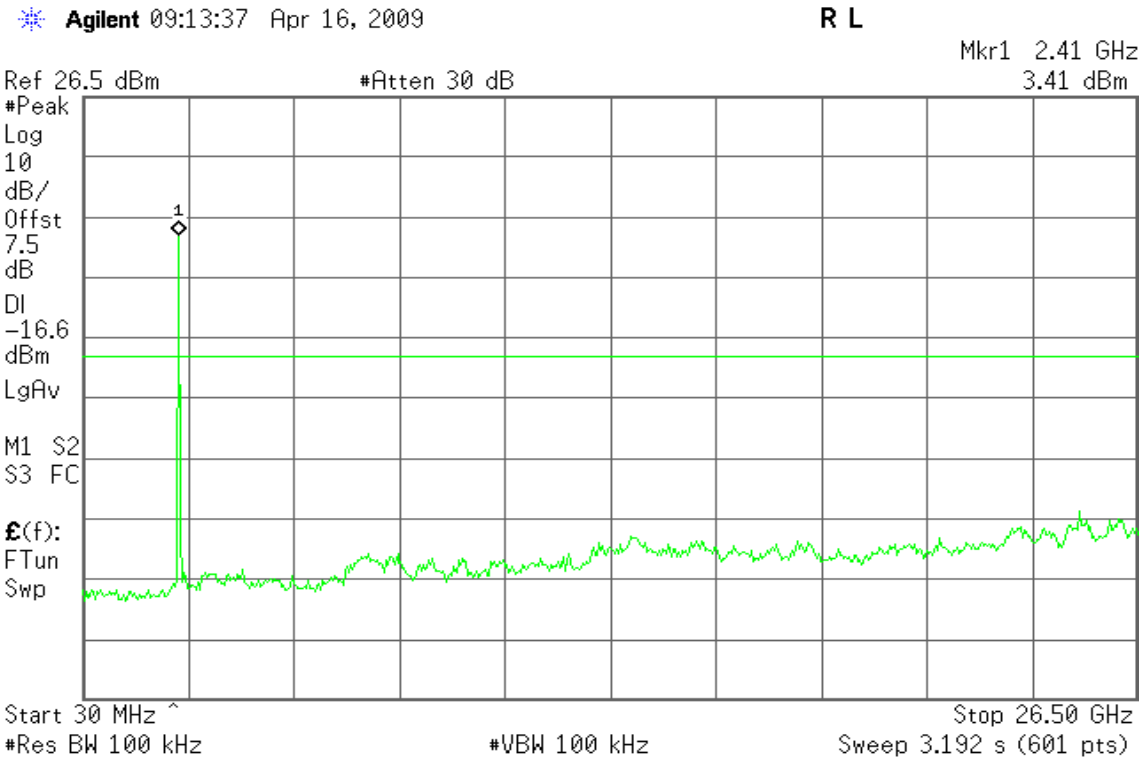
TEST RESULTS

No non-compliance noted.

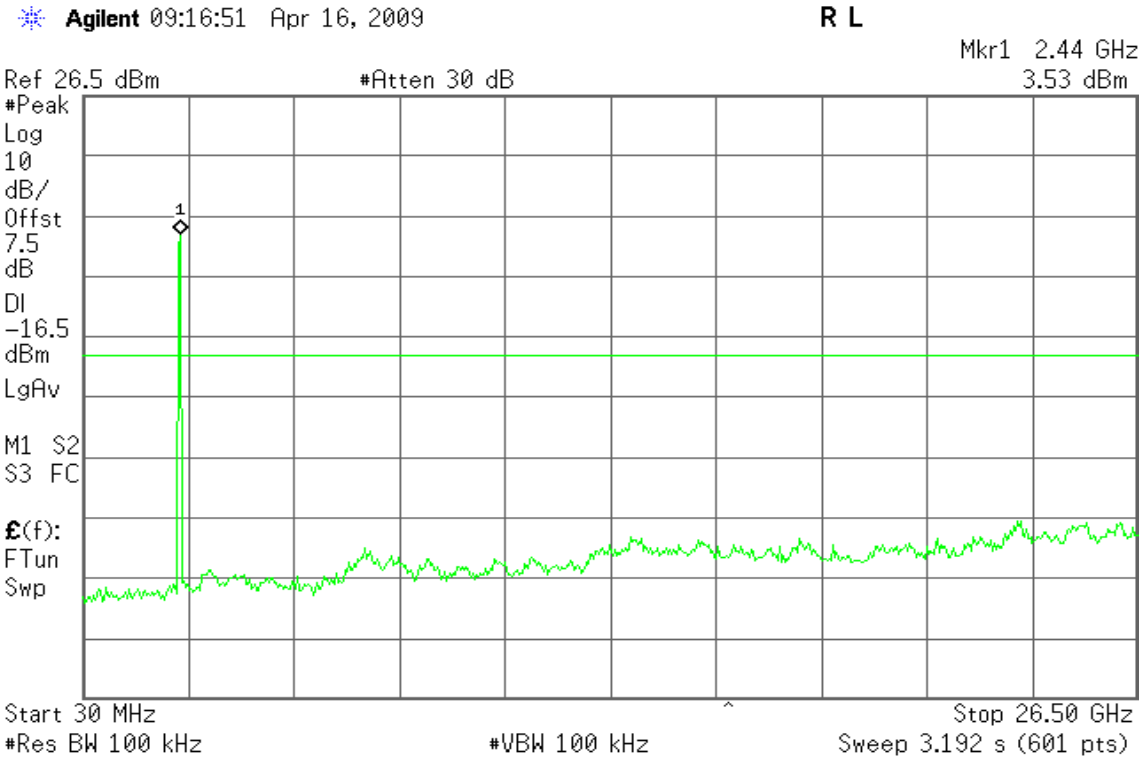
Test Plot

IEEE 802.11b mode

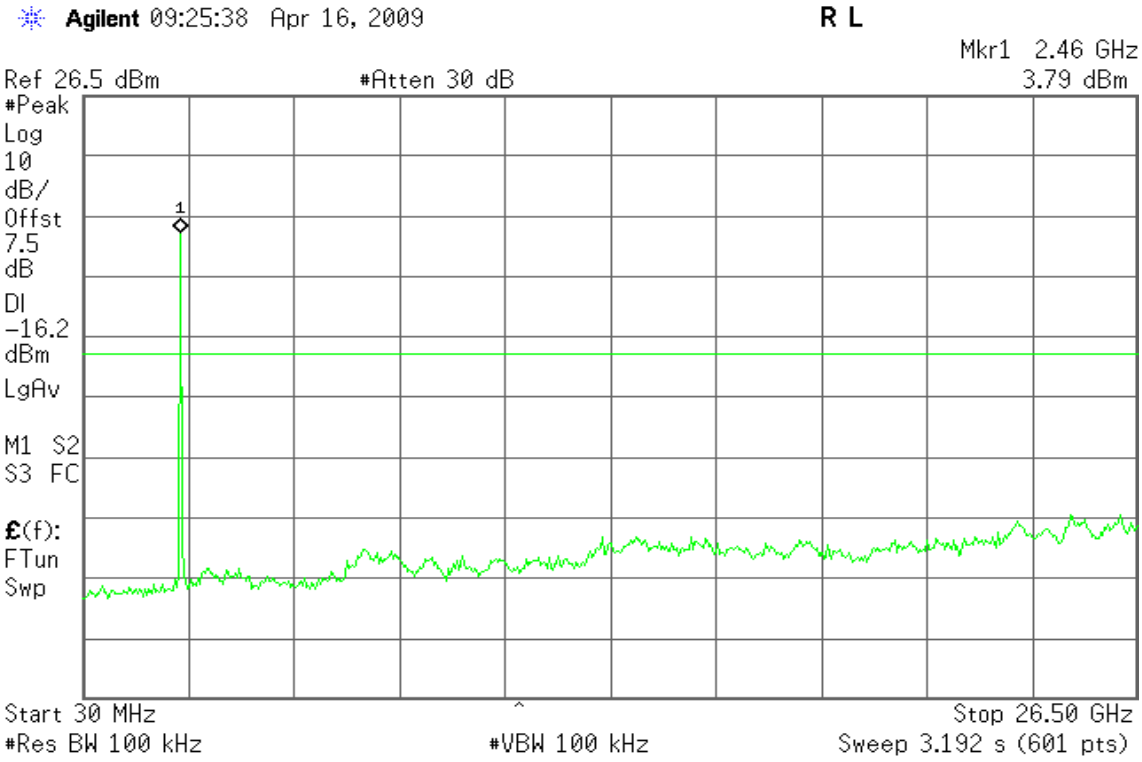
CH Low



CH Mid

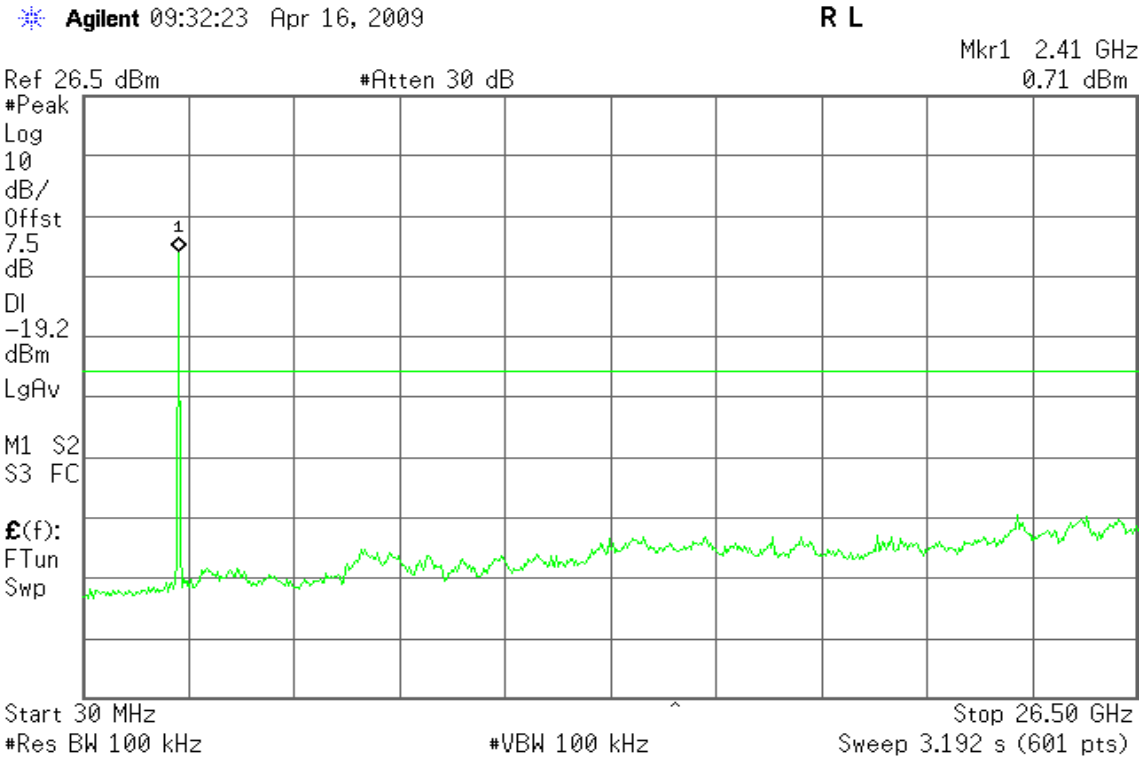


CH High

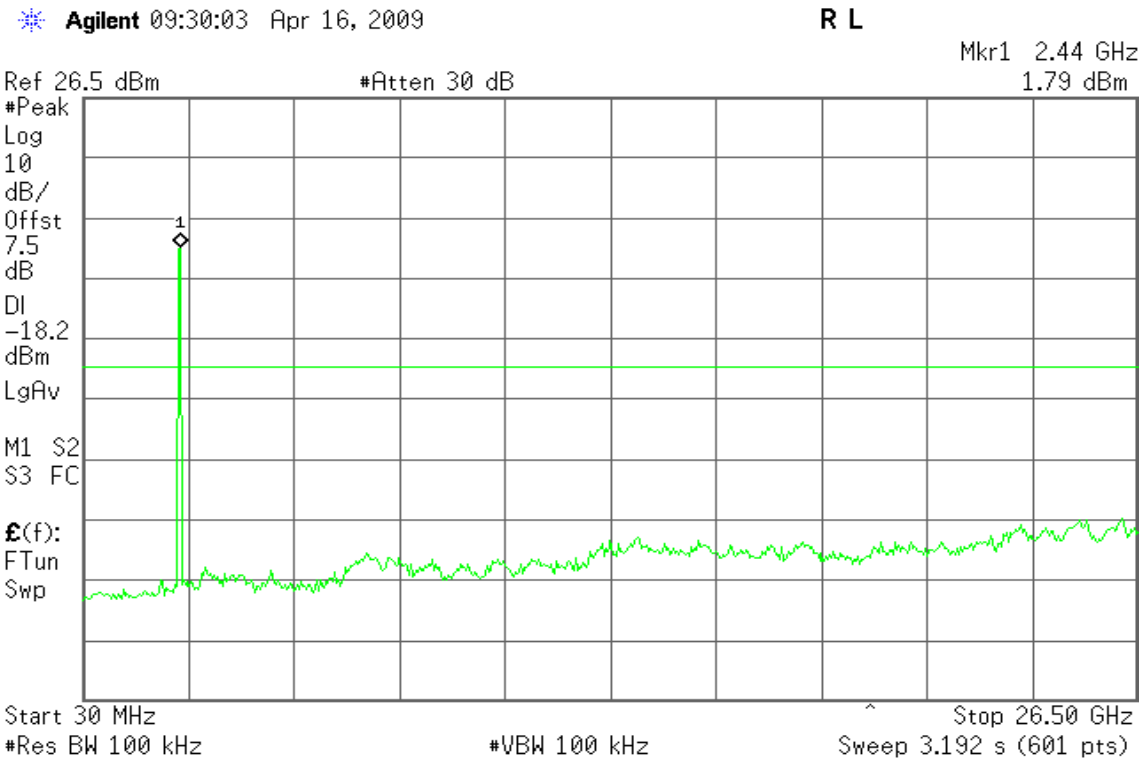


IEEE 802.11g mode

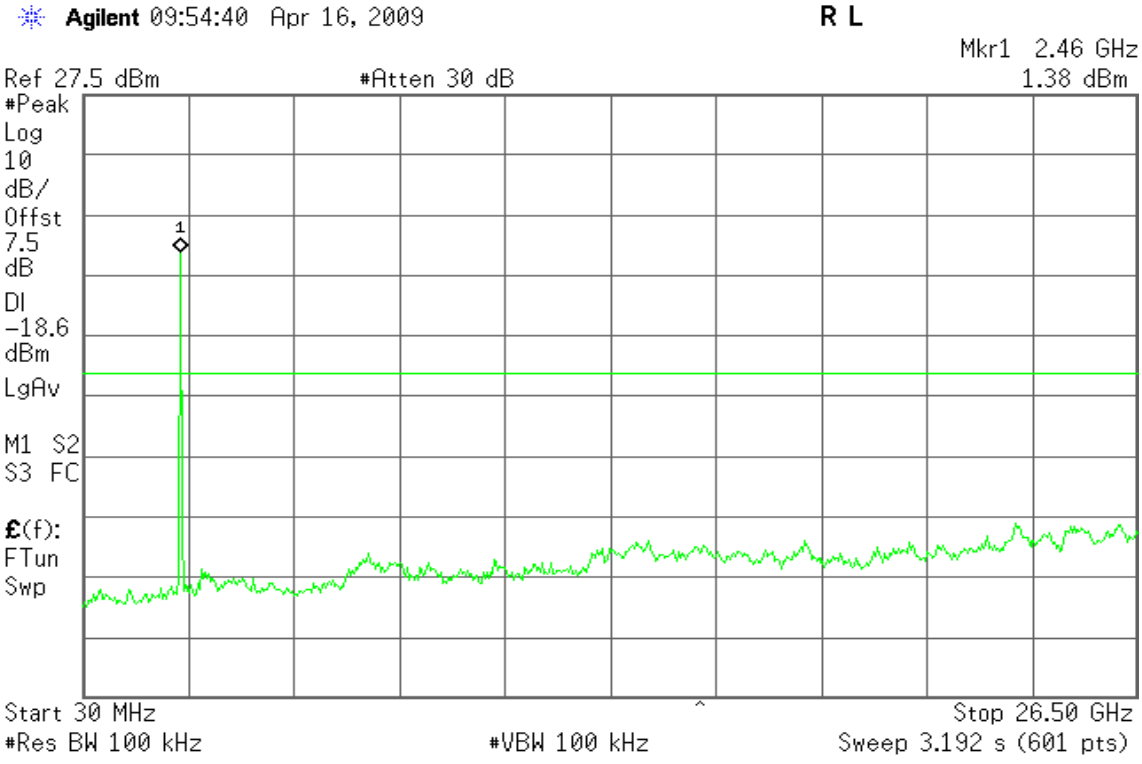
CH Low



CH Mid

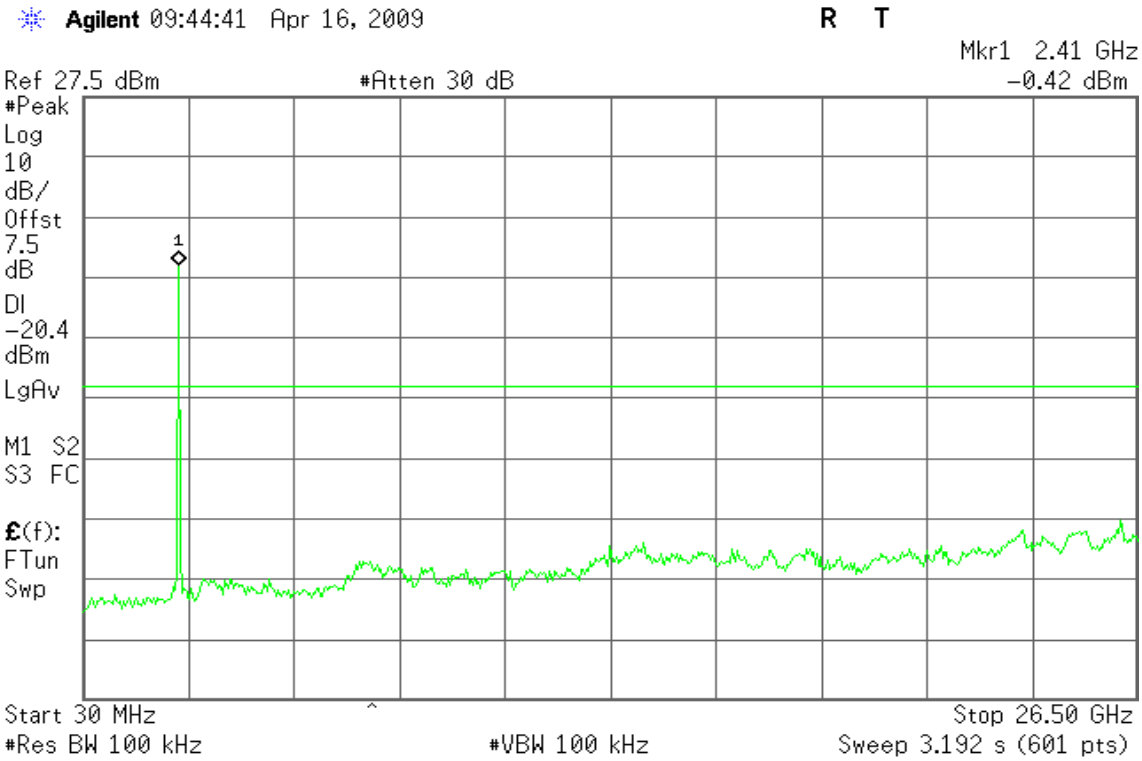


CH High

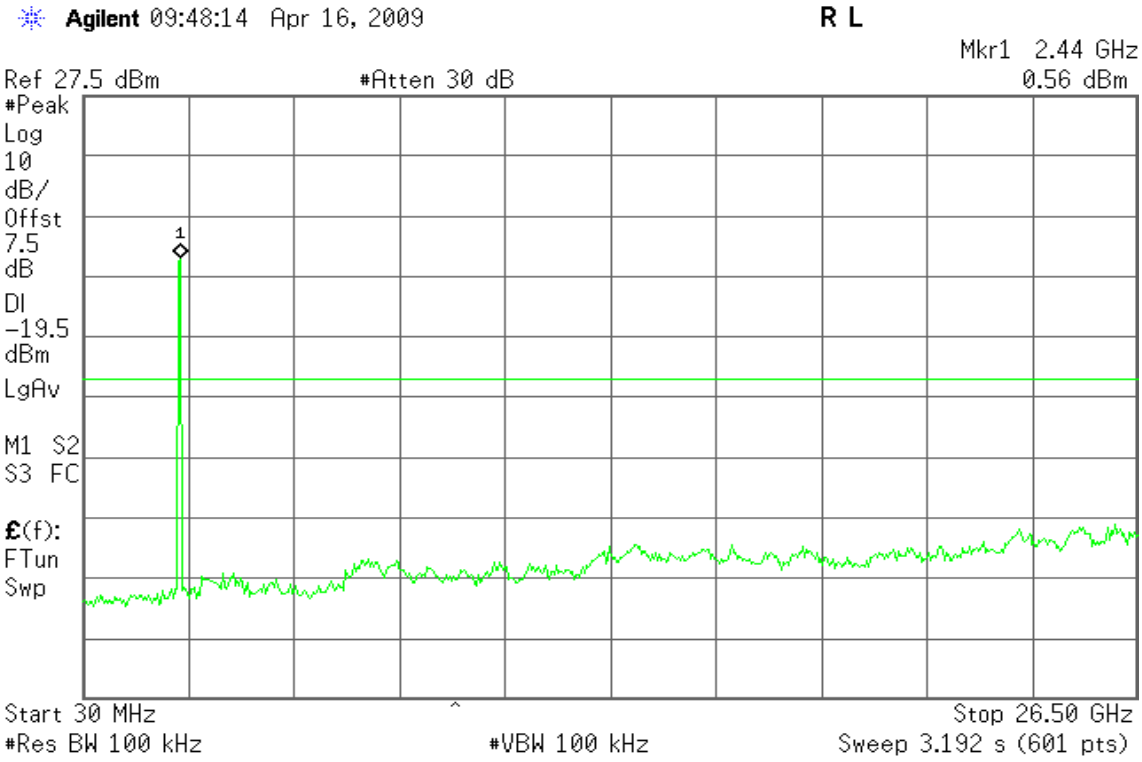


draft 802.11n 20 MHz Channel mode

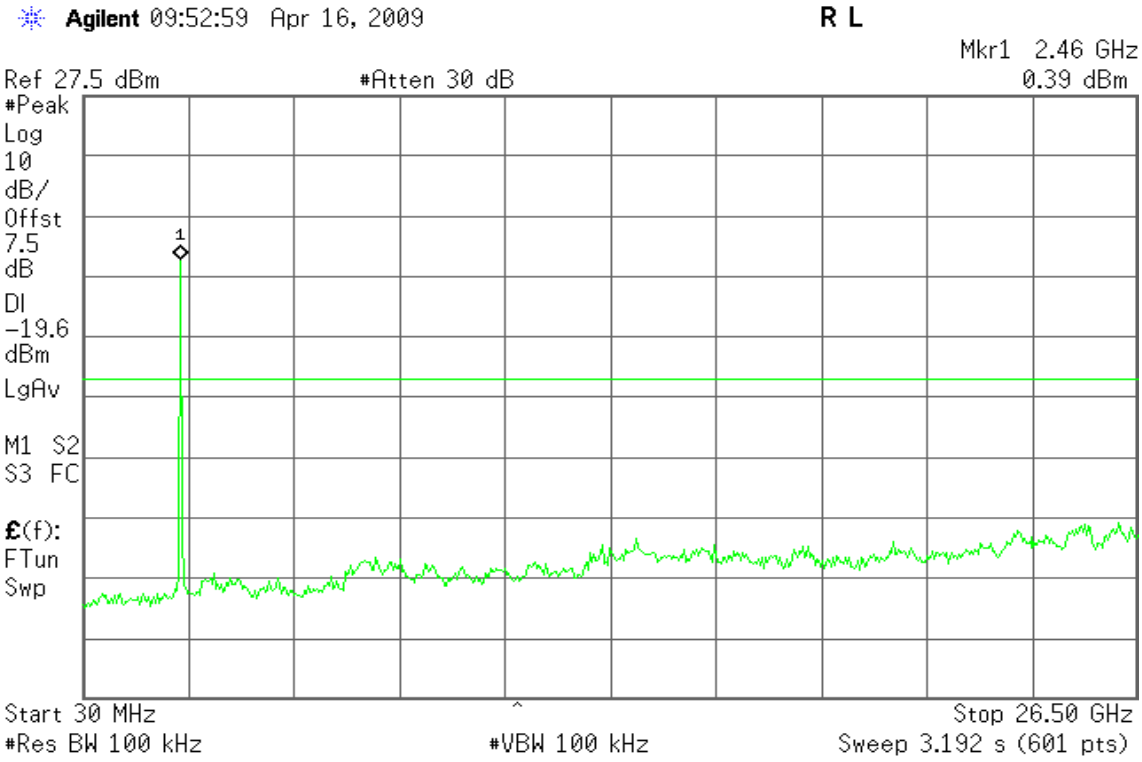
CH Low



CH Mid

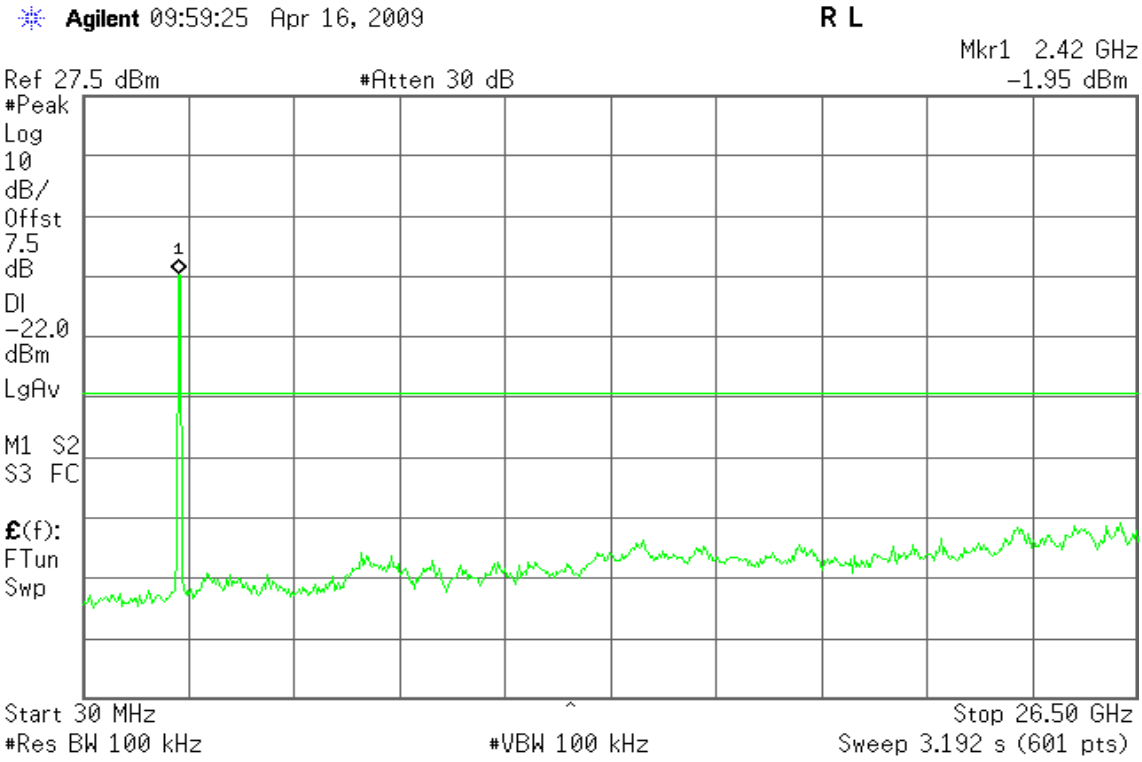


CH High

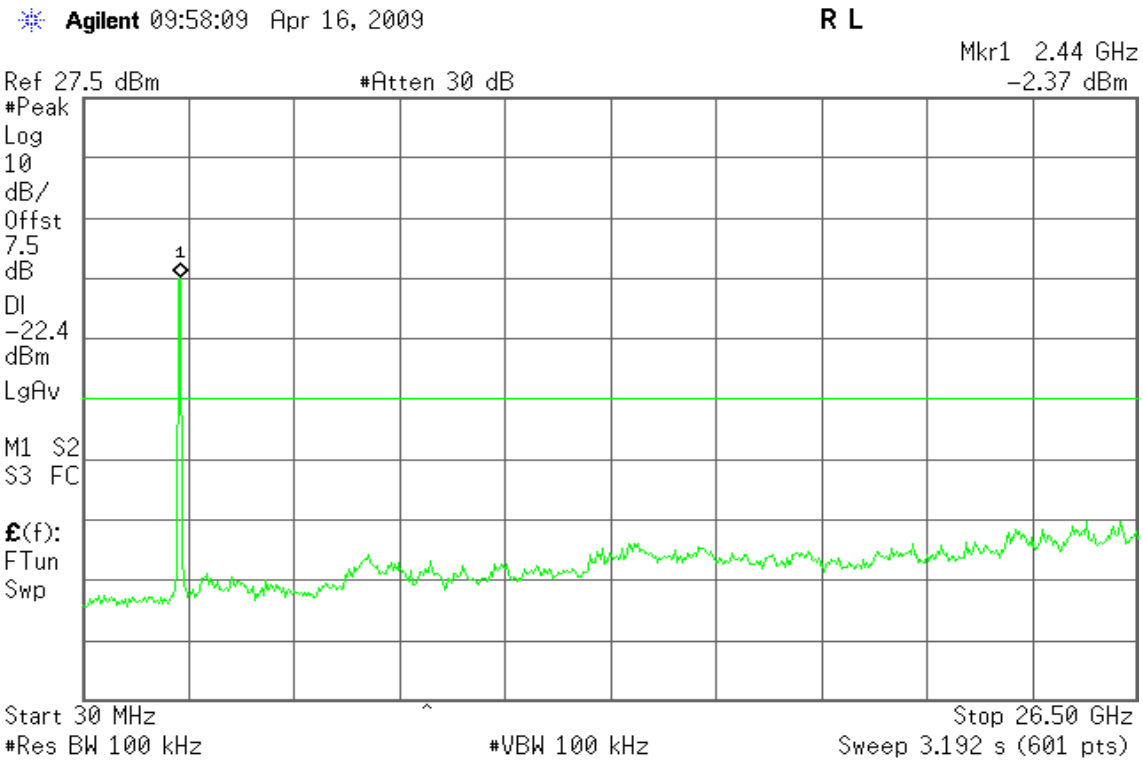


draft 802.11n 40 MHz Channel mode

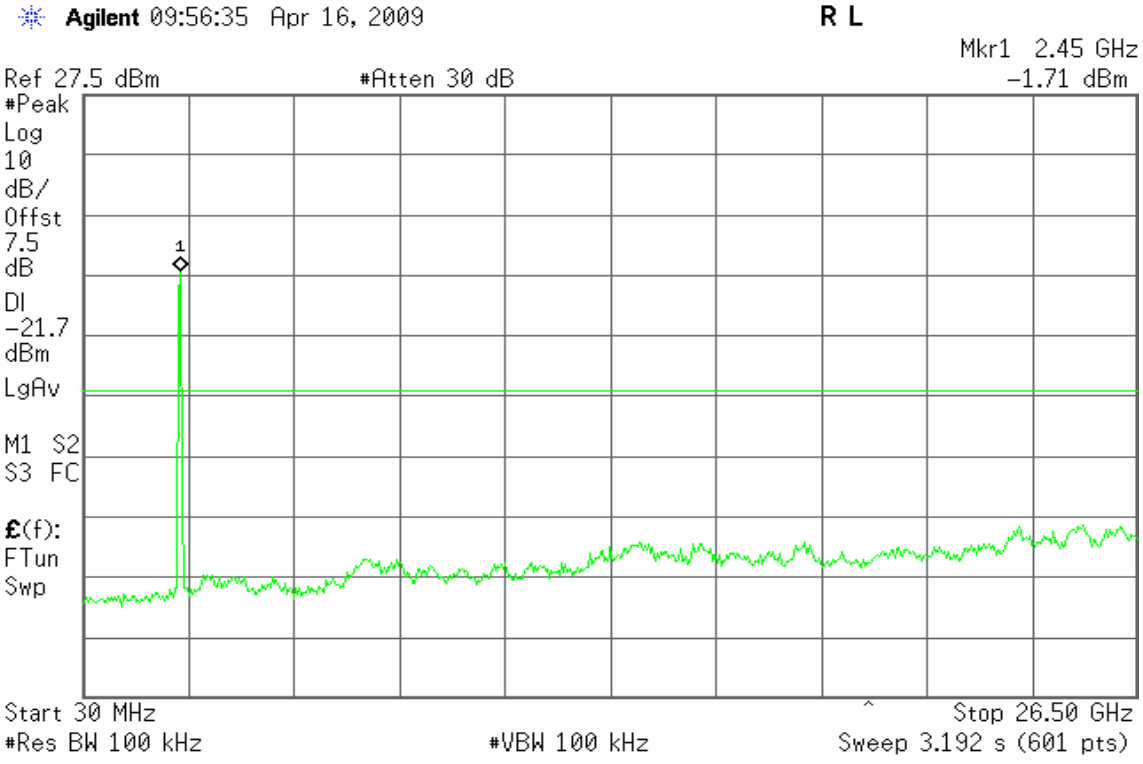
CH Low



CH Mid



CH High



7.6.2 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

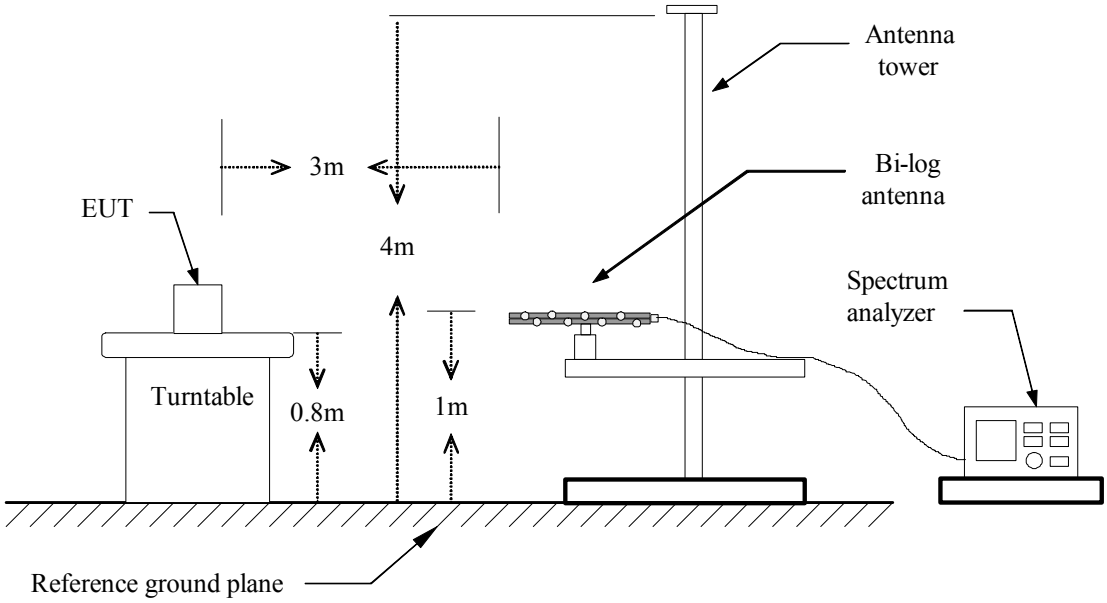
Remark: *Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this Section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of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

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

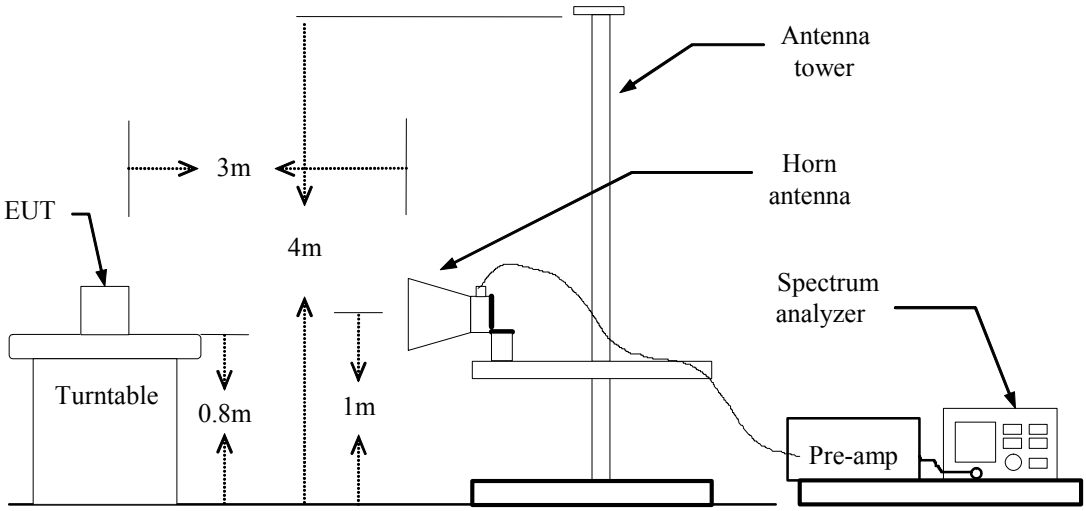
Frequency (MHz)	Field Strength (μV/m at 3-meter)	Field Strength (dBμV/m at 3-meter)
30-88	100	40
88-216	150	43.5
216-960	200	46
Above 960	500	54

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:** April 20, 2009

Temperature: 18°C **Tested by:** Tony Tsai

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
39.7000	V	44.69	-14.47	30.22	40.00	-9.78	Peak
110.0250	V	48.91	-14.72	34.19	43.50	-9.31	Peak
134.2750	V	49.85	-13.07	36.78	43.50	-6.72	Peak
163.3750	V	51.50	-11.99	39.51	43.50	-3.99	Peak
173.0750	V	52.05	-12.88	39.17	43.50	-4.33	Peak
226.4250	V	51.93	-13.47	38.46	46.00	-7.54	Peak
401.0250	V	53.53	-10.03	43.50	46.00	-2.50	Peak
704.1500	V	44.36	-3.66	40.70	46.00	-5.30	Peak
110.7627	H	48.23	-14.58	33.65	43.50	-9.85	Peak
173.0750	H	53.45	-12.88	40.57	43.50	-2.93	Peak
226.4250	H	56.31	-13.47	42.84	46.00	-3.16	Peak
359.8000	H	48.84	-11.29	37.55	46.00	-8.45	Peak
398.6000	H	51.99	-10.12	41.87	46.00	-4.13	Peak
439.8250	H	51.51	-8.21	43.30	46.00	-2.70	Peak
665.3500	H	45.73	-4.61	41.12	46.00	-4.88	Peak
706.5750	H	43.10	-3.59	39.51	46.00	-6.49	QP

Remark:

1. *No emission found between lowest internal used / generated frequency to 30 MHz. (9kHz ~ 30MHz)*
2. *Measuring frequencies from 9 kHz to the 1GHz.*
3. *Radiated emissions measured in the measured frequency range were made with an instrument using peak detector or quasi-peak detector mode.*
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. *The IF bandwidth of SPA between 30MHz to 1GHz was 100kHz.*

Above 1 GHz

Operation Mode: TX / IEEE 802.11b / CH Low **Test Date:** April 9, 2009

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

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
1266.67	V	51.64	---	-9.47	42.17	---	74.00	54.00	-11.83	Peak
1403.33	V	51.98	---	-8.84	43.14	---	74.00	54.00	-10.86	Peak
1863.33	V	51.98	---	-6.31	45.67	---	74.00	54.00	-8.33	Peak
2463.33	V	50.22	---	-4.48	45.73	---	74.00	54.00	-8.27	Peak
4091.67	V	43.83	---	1.18	45.00	---	74.00	54.00	-9.00	Peak
6150.00	V	42.03	---	4.28	46.30	---	74.00	54.00	-7.70	Peak
7641.67	V	42.22	---	7.10	49.33	---	74.00	54.00	-4.67	Peak
1306.67	H	51.20	---	-9.28	41.92	---	74.00	54.00	-12.08	Peak
1590.00	H	50.62	---	-7.88	42.74	---	74.00	54.00	-11.26	Peak
2290.00	H	51.49	---	-4.87	46.61	---	74.00	54.00	-7.39	Peak
2573.33	H	50.46	---	-4.06	46.40	---	74.00	54.00	-7.60	Peak
4850.00	H	42.00	---	1.96	43.96	---	74.00	54.00	-10.04	Peak
7558.33	H	41.72	---	7.12	48.84	---	74.00	54.00	-5.16	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:** April 9, 2009

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

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
1266.67	V	51.81	---	-9.47	42.34	---	74.00	54.00	-11.66	Peak
1476.67	V	51.79	---	-8.50	43.29	---	74.00	54.00	-10.71	Peak
1856.67	V	51.95	---	-6.35	45.60	---	74.00	54.00	-8.40	Peak
2773.33	V	49.31	---	-3.14	46.17	---	74.00	54.00	-7.83	Peak
5616.67	V	41.98	---	3.57	45.56	---	74.00	54.00	-8.44	Peak
6233.33	V	41.84	---	4.30	46.13	---	74.00	54.00	-7.87	Peak
7708.33	V	42.31	---	7.09	49.40	---	74.00	54.00	-4.60	Peak
1566.67	H	51.07	---	-8.01	43.06	---	74.00	54.00	-10.94	Peak
2316.67	H	50.85	---	-4.81	46.03	---	74.00	54.00	-7.97	Peak
2583.33	H	49.86	---	-4.02	45.84	---	74.00	54.00	-8.16	Peak
6133.33	H	44.19	---	4.27	48.46	---	74.00	54.00	-5.54	Peak
6841.67	H	42.37	---	5.34	47.71	---	74.00	54.00	-6.29	Peak
N/A										

Remark:

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.*
3. *Average test would be performed if the peak result were greater than the average limit 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:** April 9, 2009

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

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
1893.33	V	50.54	---	-6.14	44.40	---	74.00	54.00	-9.60	Peak
2203.33	V	49.44	---	-5.07	44.37	---	74.00	54.00	-9.63	Peak
2740.00	V	48.64	---	-3.30	45.35	---	74.00	54.00	-8.65	Peak
4933.33	V	41.85	---	2.20	44.05	---	74.00	54.00	-9.95	Peak
6141.67	V	41.42	---	4.27	45.69	---	74.00	54.00	-8.31	Peak
7658.33	V	41.82	---	7.10	48.92	---	74.00	54.00	-5.08	Peak
1146.67	H	51.89	---	-10.02	41.86	---	74.00	54.00	-12.14	Peak
1933.33	H	50.01	---	-5.91	44.10	---	74.00	54.00	-9.90	Peak
2340.00	H	51.00	---	-4.76	46.24	---	74.00	54.00	-7.76	Peak
2853.33	H	49.45	---	-2.77	46.68	---	74.00	54.00	-7.32	Peak
5650.00	H	41.77	---	3.63	45.40	---	74.00	54.00	-8.60	Peak
6541.67	H	41.94	---	4.48	46.42	---	74.00	54.00	-7.58	Peak
7791.67	H	41.44	---	7.07	48.51	---	74.00	54.00	-5.49	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:** April 9, 2009

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

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
1396.67	V	53.97	---	-8.87	45.10	---	74.00	54.00	-8.90	Peak
1526.67	V	51.57	---	-8.24	43.33	---	74.00	54.00	-10.67	Peak
2036.67	V	50.22	---	-5.45	44.78	---	74.00	54.00	-9.22	Peak
2123.33	V	50.26	---	-5.25	45.01	---	74.00	54.00	-8.99	Peak
2610.00	V	50.04	---	-3.89	46.15	---	74.00	54.00	-7.85	Peak
4225.00	V	43.43	---	1.10	44.53	---	74.00	54.00	-9.47	Peak
5633.33	V	41.87	---	3.60	45.48	---	74.00	54.00	-8.52	Peak
7458.33	V	42.29	---	7.02	49.31	---	74.00	54.00	-4.69	Peak
1860.00	H	50.34	---	-6.33	44.01	---	74.00	54.00	-9.99	Peak
2163.33	H	50.42	---	-5.16	45.26	---	74.00	54.00	-8.74	Peak
2780.00	H	49.17	---	-3.11	46.06	---	74.00	54.00	-7.94	Peak
4983.33	H	41.78	---	2.35	44.13	---	74.00	54.00	-9.87	Peak
5908.33	H	41.20	---	4.08	45.28	---	74.00	54.00	-8.72	Peak
7158.33	H	41.50	---	6.21	47.72	---	74.00	54.00	-6.28	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:** April 9, 2009

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

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
1533.33	V	52.67	---	-8.20	44.47	---	74.00	54.00	-9.53	Peak
1860.00	V	51.87	---	-6.33	45.54	---	74.00	54.00	-8.46	Peak
1983.33	V	50.01	---	-5.63	44.38	---	74.00	54.00	-9.62	Peak
2736.67	V	49.67	---	-3.31	46.36	---	74.00	54.00	-7.64	Peak
5741.67	V	41.44	---	3.79	45.23	---	74.00	54.00	-8.77	Peak
7075.00	V	40.72	---	5.99	46.71	---	74.00	54.00	-7.29	Peak
7691.67	V	42.79	---	7.09	49.88	---	74.00	54.00	-4.12	Peak
1823.33	H	50.17	---	-6.54	43.63	---	74.00	54.00	-10.37	Peak
2243.33	H	50.29	---	-4.98	45.31	---	74.00	54.00	-8.69	Peak
2316.67	H	50.32	---	-4.81	45.50	---	74.00	54.00	-8.50	Peak
5483.33	H	41.00	---	3.34	44.34	---	74.00	54.00	-9.66	Peak
6941.67	H	41.40	---	5.62	47.02	---	74.00	54.00	-6.98	Peak
7716.67	H	41.99	---	7.09	49.08	---	74.00	54.00	-4.92	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:** April 9, 2009

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

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
1396.67	V	52.36	---	-8.87	43.49	---	74.00	54.00	-10.51	Peak
1636.67	V	52.06	---	-7.61	44.45	---	74.00	54.00	-9.55	Peak
1863.33	V	52.57	---	-6.31	46.26	---	74.00	54.00	-7.74	Peak
2840.00	V	49.91	---	-2.84	47.08	---	74.00	54.00	-6.92	Peak
5466.67	V	42.19	---	3.31	45.50	---	74.00	54.00	-8.50	Peak
6216.67	V	41.90	---	4.29	46.19	---	74.00	54.00	-7.81	Peak
7008.33	V	41.96	---	5.81	47.78	---	74.00	54.00	-6.22	Peak
1540.00	H	51.04	---	-8.16	42.88	---	74.00	54.00	-11.12	Peak
1723.33	H	50.39	---	-7.11	43.28	---	74.00	54.00	-10.72	Peak
2326.67	H	50.96	---	-4.79	46.17	---	74.00	54.00	-7.83	Peak
2853.33	H	49.00	---	-2.77	46.22	---	74.00	54.00	-7.78	Peak
4791.67	H	43.56	---	1.79	45.35	---	74.00	54.00	-8.65	Peak
5441.67	H	42.06	---	3.26	45.31	---	74.00	54.00	-8.69	Peak
6908.33	H	42.48	---	5.53	48.00	---	74.00	54.00	-6.00	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:**	April 9, 2009
Temperature:	17°C	**Tested by:**	Alonso Lu
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
1263.33	V	52.15	---	-9.48	42.67	---	74.00	54.00	-11.33	Peak
1870.00	V	50.61	---	-6.27	44.34	---	74.00	54.00	-9.66	Peak
1930.00	V	50.43	---	-5.93	44.50	---	74.00	54.00	-9.50	Peak
2630.00	V	50.53	---	-3.80	46.73	---	74.00	54.00	-7.27	Peak
4825.00	V	42.99	---	1.89	44.88	---	74.00	54.00	-9.12	Peak
5866.67	V	41.80	---	4.01	45.81	---	74.00	54.00	-8.19	Peak
6175.00	V	41.86	---	4.28	46.14	---	74.00	54.00	-7.86	Peak
7450.00	V	41.45	---	7.00	48.44	---	74.00	54.00	-5.56	Peak
1210.00	H	51.42	---	-9.73	41.69	---	74.00	54.00	-12.31	Peak
2163.33	H	50.05	---	-5.16	44.89	---	74.00	54.00	-9.11	Peak
2570.00	H	50.45	---	-4.08	46.37	---	74.00	54.00	-7.63	Peak
5333.33	H	41.54	---	3.05	44.58	---	74.00	54.00	-9.42	Peak
6166.67	H	41.57	---	4.28	45.85	---	74.00	54.00	-8.15	Peak
7733.33	H	42.28	---	7.08	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 Mid	**Test Date:**	April 9, 2009
Temperature:	17°C	**Tested by:**	Alonso Lu
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
1396.67	V	52.55	---	-8.87	43.68	---	74.00	54.00	-10.32	Peak
1860.00	V	50.67	---	-6.33	44.34	---	74.00	54.00	-9.66	Peak
2163.33	V	50.05	---	-5.16	44.89	---	74.00	54.00	-9.11	Peak
2660.00	V	49.97	---	-3.66	46.31	---	74.00	54.00	-7.69	Peak
3950.00	V	42.42	---	1.04	43.46	---	74.00	54.00	-10.54	Peak
5191.67	V	42.08	---	2.77	44.86	---	74.00	54.00	-9.14	Peak
7291.67	V	41.35	---	6.57	47.93	---	74.00	54.00	-6.07	Peak
1293.33	H	51.16	---	-9.34	41.81	---	74.00	54.00	-12.19	Peak
2153.33	H	49.65	---	-5.18	44.47	---	74.00	54.00	-9.53	Peak
2686.67	H	49.35	---	-3.54	45.81	---	74.00	54.00	-8.19	Peak
5075.00	H	41.94	---	2.55	44.48	---	74.00	54.00	-9.52	Peak
6533.33	H	41.63	---	4.46	46.09	---	74.00	54.00	-7.91	Peak
7266.67	H	41.07	---	6.50	47.57	---	74.00	54.00	-6.43	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:**	April 9, 2009
Temperature:	17°C	**Tested by:**	Alonso Lu
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
1126.67	V	54.43	---	-10.11	44.32	---	74.00	54.00	-9.68	Peak
1386.67	V	51.02	---	-8.91	42.11	---	74.00	54.00	-11.89	Peak
1990.00	V	51.02	---	-5.59	45.43	---	74.00	54.00	-8.57	Peak
2696.67	V	49.62	---	-3.50	46.13	---	74.00	54.00	-7.87	Peak
3983.33	V	42.17	---	1.17	43.34	---	74.00	54.00	-10.66	Peak
5258.33	V	41.57	---	2.90	44.47	---	74.00	54.00	-9.53	Peak
6875.00	V	40.74	---	5.43	46.18	---	74.00	54.00	-7.82	Peak
1123.33	H	51.41	---	-10.13	41.28	---	74.00	54.00	-12.72	Peak
1436.67	H	51.27	---	-8.68	42.59	---	74.00	54.00	-11.41	Peak
1996.67	H	49.92	---	-5.55	44.37	---	74.00	54.00	-9.63	Peak
2896.67	H	49.16	---	-2.58	46.59	---	74.00	54.00	-7.41	Peak
N/A										

Remark:

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.*
3. *Average test would be performed if the peak result were greater than the average limit 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:**	April 9, 2009
Temperature:	17°C	**Tested by:**	Alonso Lu
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
1396.67	V	53.90	---	-8.87	45.03	---	74.00	54.00	-8.97	Peak
1860.00	V	53.57	---	-6.33	47.24	---	74.00	54.00	-6.76	Peak
2886.67	V	49.82	---	-2.62	47.20	---	74.00	54.00	-6.80	Peak
3541.67	V	43.67	---	-0.47	43.20	---	74.00	54.00	-10.80	Peak
5116.67	V	42.68	---	2.63	45.30	---	74.00	54.00	-8.70	Peak
N/A										
1750.00	H	54.73	---	-6.96	47.77	---	74.00	54.00	-6.23	Peak
2170.00	H	50.02	---	-5.15	44.88	---	74.00	54.00	-9.12	Peak
2776.67	H	49.00	---	-3.13	45.88	---	74.00	54.00	-8.12	Peak
4975.00	H	41.57	---	2.33	43.90	---	74.00	54.00	-10.10	Peak
7425.00	H	41.30	---	6.93	48.23	---	74.00	54.00	-5.77	Peak
N/A										

Remark:

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.*
3. *Average test would be performed if the peak result were greater than the average limit 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:**	April 9, 2009
Temperature:	17°C	**Tested by:**	Alonso Lu
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
1126.67	V	53.14	---	-10.11	43.03	---	74.00	54.00	-10.97	Peak
1530.00	V	51.26	---	-8.22	43.04	---	74.00	54.00	-10.96	Peak
1866.67	V	52.08	---	-6.29	45.78	---	74.00	54.00	-8.22	Peak
2123.33	V	52.97	---	-5.25	47.72	---	74.00	54.00	-6.28	Peak
2746.67	V	49.12	---	-3.27	45.85	---	74.00	54.00	-8.15	Peak
3716.67	V	43.97	---	0.18	44.15	---	74.00	54.00	-9.85	Peak
5683.33	V	41.39	---	3.69	45.08	---	74.00	54.00	-8.92	Peak
7033.33	V	41.78	---	5.88	47.66	---	74.00	54.00	-6.34	Peak
1746.67	H	50.03	---	-6.98	43.05	---	74.00	54.00	-10.95	Peak
2246.67	H	49.50	---	-4.97	44.53	---	74.00	54.00	-9.47	Peak
2683.33	H	49.65	---	-3.56	46.10	---	74.00	54.00	-7.90	Peak
2943.33	H	48.92	---	-2.36	46.56	---	74.00	54.00	-7.44	Peak
5866.67	H	41.82	---	4.01	45.83	---	74.00	54.00	-8.17	Peak
7408.33	H	41.29	---	6.88	48.17	---	74.00	54.00	-5.83	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:**	April 9, 2009
Temperature:	17°C	**Tested by:**	Alonso Lu
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
1740.00	V	50.97	---	-7.02	43.95	---	74.00	54.00	-10.05	Peak
1873.33	V	51.87	---	-6.25	45.62	---	74.00	54.00	-8.38	Peak
2240.00	V	50.70	---	-4.99	45.72	---	74.00	54.00	-8.28	Peak
2743.33	V	49.05	---	-3.28	45.77	---	74.00	54.00	-8.23	Peak
3808.33	V	42.52	---	0.52	43.04	---	74.00	54.00	-10.96	Peak
7158.33	V	41.58	---	6.21	47.79	---	74.00	54.00	-6.21	Peak
2006.67	H	49.58	---	-5.51	44.07	---	74.00	54.00	-9.93	Peak
2196.67	H	49.88	---	-5.09	44.80	---	74.00	54.00	-9.20	Peak
2780.00	H	49.49	---	-3.11	46.38	---	74.00	54.00	-7.62	Peak
4191.67	H	41.89	---	1.12	43.01	---	74.00	54.00	-10.99	Peak
5441.67	H	41.55	---	3.26	44.81	---	74.00	54.00	-9.19	Peak
6841.67	H	42.26	---	5.34	47.60	---	74.00	54.00	-6.40	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:**	April 18, 2009
Temperature:	20°C	**Tested by:**	Alonso Lu
Humidity:	58% RH		

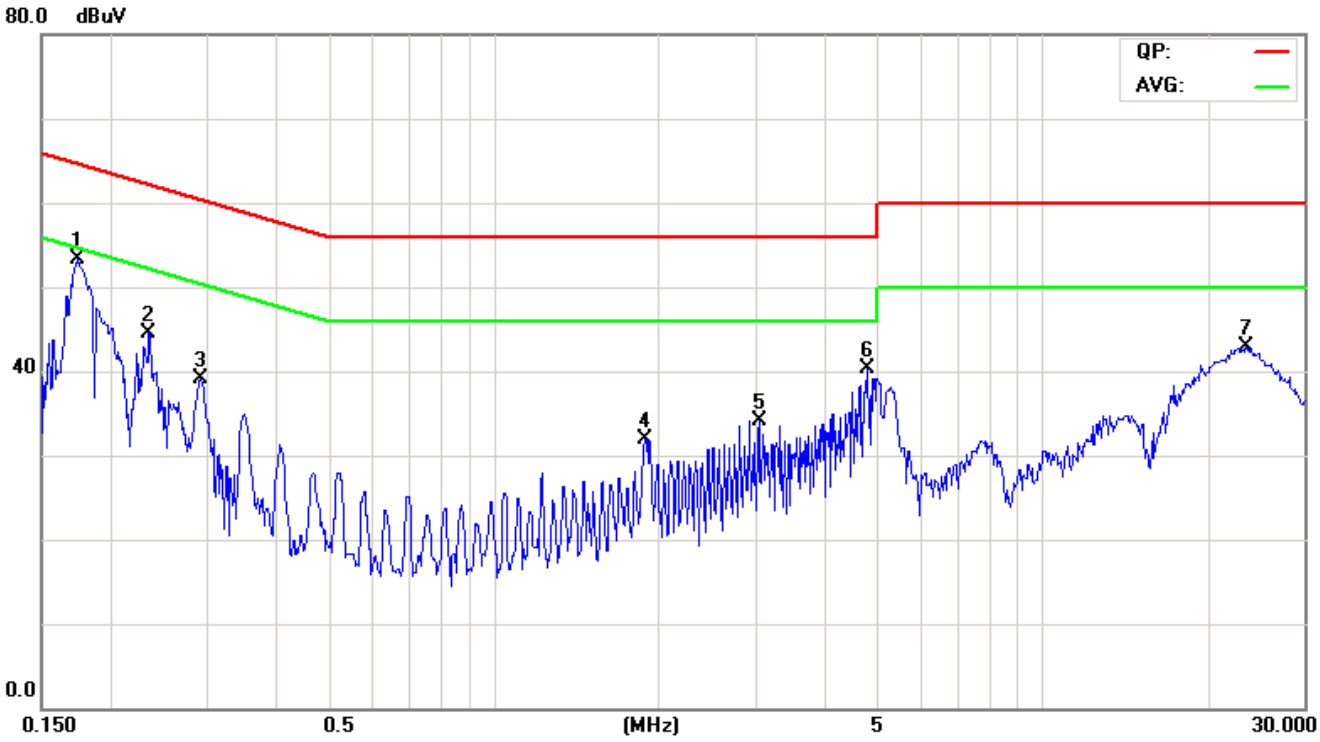
Freq. (MHz)	QP Reading (dBuV)	AV Reading (dBuV)	Corr. factor (dB)	QP Result (dBuV)	AV Result (dBuV)	QP Limit (dBuV)	AV Limit (dBuV)	QP Margin (dB)	AV Margin (dB)	Note
0.1762	40.76	30.56	9.62	50.38	40.18	64.66	54.66	-14.28	-14.48	L1
0.2326	33.79	23.11	9.60	43.39	32.71	62.36	52.36	-18.97	-19.65	L1
0.2916	26.40	16.91	9.60	36.00	26.51	60.48	50.48	-24.48	-23.97	L1
1.8659	15.70	11.84	9.69	25.39	21.53	56.00	46.00	-30.61	-24.47	L1
3.0318	19.99	15.16	9.70	29.69	24.86	56.00	46.00	-26.31	-21.14	L1
4.7783	26.97	16.77	9.78	36.75	26.55	56.00	46.00	-19.25	-19.45	L1
23.4885	29.68	24.44	10.51	40.19	34.95	60.00	50.00	-19.81	-15.05	L1
0.1764	39.36	29.96	9.62	48.98	39.58	64.65	54.65	-15.67	-15.07	L2
0.2335	32.25	23.22	9.60	41.85	32.82	62.32	52.32	-20.47	-19.50	L2
3.3778	22.75	8.66	9.70	32.45	18.36	56.00	46.00	-23.55	-27.64	L2
4.0208	29.54	17.19	9.70	39.24	26.89	56.00	46.00	-16.76	-19.11	L2
4.6611	22.62	14.15	9.77	32.39	23.92	56.00	46.00	-23.61	-22.08	L2
22.8516	29.83	25.57	10.57	40.40	36.14	60.00	50.00	-19.60	-13.86	L2
23.7860	29.53	24.62	10.63	40.16	35.25	60.00	50.00	-19.84	-14.75	L2

Remark:

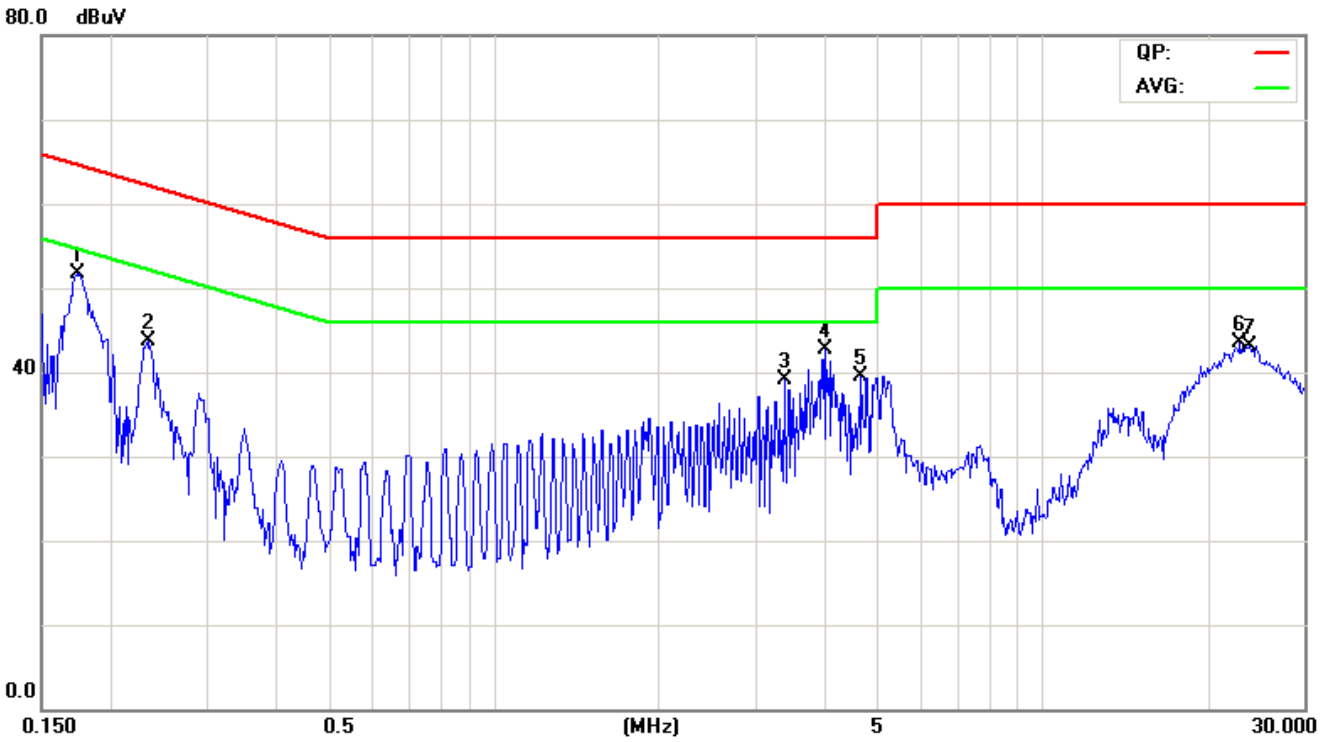
1. *The measuring frequencies range between 0.15 MHz and 30 MHz.*
2. *The emissions measured in the frequency range between 0.15 MHz and 30MHz were made with an instrument using Quasi-peak detector and Average detector.*
3. *The IF bandwidth of SPA between 0.15MHz and 30MHz was 10kHz. The IF bandwidth 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	Wireless USB Dongle
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 (1 for TX/RX function; 1 for RX only) ☐ Tx diversity ☒ Rx diversity ☒ Tx/Rx diversity
Max. output power	IEEE 802.11b mode: 16.40 dBm (43.65 mW) IEEE 802.11g mode: 19.11dBm (81.47 mW) draft 802.11n 20 MHz Channel mode: 18.76 dBm (75.16mW) draft 802.11n 40 MHz Channel mode: 19.13 dBm (81.85mW)
Antenna gain (Max)	3.4dBi (including cable loss) (Numeric gain: 2.19)
Evaluation applied	☐ MPE Evaluation* ☐ SAR Evaluation ☒ N/A
Remark: *1. The maximum output power is 19.13dBm (81.85mW) at 2437MHz (with 2.19numeric antenna gain.)*	

TEST RESULTS

No non-compliance noted.

*(According to **RF Exposure Procedures and Equipment Authorization Policies**, SAR evaluation is not required for the PORTABLE device while its maximum average output power is lower than 60/f $_{(GHz)}$=60/2.441=24.58mW)*

Remark:
802.11b maximum average power is 13.41dBm = 21.93mW <(60/f); Individual SAR is not required.
802.11g maximum average power is 13.70dBm = 23.44mW <(60/f); Individual SAR is not required.