



FCC 47 CFR PART 15 SUBPART C

TEST REPORT

For

Conductor-Wireless-N Digital Music Center

Model:

DMC350xxx, where x can be 0-9, A-Z, hyphen or blank

Trade Name: LINKSYS by Cisco

Issued to

Cisco-Linksys LLC
121 Theory Drive Irvine, CA 92617 (USA)

Issued by

Compliance Certification Services Inc.
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Testing Laboratory
1309

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1. TEST RESULT CERTIFICATION

Applicant: Cisco-Linksys LLC
121 Theory Drive Irvine, CA 92617 (USA)

Equipment Under Test: Conductor-Wireless-N Digital Music Center

Trade Name: LINKSYS by Cisco

Model Number: DMC350xxx, where x can be 0-9, A-Z, hyphen or blank

Date of Test: January 6 ~ April 22, 2009

APPLICABLE STANDARDS	
STANDARD	TEST RESULT
FCC 47 CFR Part 15 Subpart C	No non-compliance noted
Deviation from Applicable Standard	
None	

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:

Rex Lai
Section Manager
Compliance Certification Services Inc.

Reviewed by:

Gina Lo
Section Manager
Compliance Certification Services Inc.



2. EUT DESCRIPTION

Product	Conductor-Wireless-N Digital Music Center
Trade Name	LINKSYS by Cisco
Model Number	DMC350xxx, where x can be 0-9, A-Z, hyphen or blank
Model Discrepancy	All the specification and layout are identical except they come with different model numbers for marketing purposes.
Power Supply	Powered from host device (AC 110V / 60 Hz)
Frequency Range	IEEE 802.11a mode: 5.745~5.825 GHz IEEE 802.11b/g mode: 2.412~2.462 GHz
Transmit Power	IEEE 802.11a mode: 16.52 dBm draft 802.11n Standard-20 MHz Channel mode: 19.65 dBm draft 802.11n Wide-40 MHz Channel mode: 19.88 dBm IEEE 802.11b mode: 18.43 dBm IEEE 802.11g mode: 19.12 dBm draft 802.11n Standard-20 MHz Channel mode: 20.58 dBm draft 802.11n Wide-40 MHz Channel mode: 20.91 dBm
Modulation Technique	IEEE 802.11a: OFDM (QPSK, BPSK, 16-QAM, 64-QAM) draft 802.11n Standard-20 MHz Channel mode: OFDM (6.5, 7.2, 13, 14.4, 14.44, 19.5, 21.7, 26, 28.89, 28.9, 39, 43.3, 43.33 52, 57.78, 57.8, 58.5, 65.0, 72.2, 78, 86.67, 104, 115.56, 117, 130, 144.44 Mbps) draft 802.11n Wide-40 MHz Channel mode: OFDM (13.5, 15, 27, 30, 40.5, 45, 54, 60, 81, 90, 108, 120, 121.5, 135, 150, 162, 180, 216, 240, 243, 270, 300 Mbps) IEEE 802.11b mode: DSSS (1, 2, 5.5 and 11 Mbps) IEEE 802.11g mode: OFDM (6, 9, 12, 18, 24, 36, 48 and 54 Mbps) draft 802.11n Standard-20 MHz Channel mode: OFDM (6.5, 7.2, 13, 14.4, 14.44, 19.5, 21.7, 26, 28.89, 28.9, 39, 43.3, 43.33 52, 57.78, 57.8, 58.5, 65.0, 72.2, 78, 86.67, 104, 115.56, 117, 130, 144.44 Mbps) draft 802.11n Wide-40 MHz Channel mode: OFDM (13.5, 15, 27, 30, 40.5, 45, 54, 60, 81, 90, 108, 120, 121.5, 135, 150, 162, 180, 216, 240, 243, 270, 300 Mbps)



Number of Channels	IEEE 802.11a mode: 5 Channels draft 802.11n Standard-20 MHz Channel mode : 5 Channels draft 802.11n Wide-40 MHz Channel mode: 2 Channels IEEE 802.11b/g mode: 11 Channels draft 802.11n Standard-20 MHz Channel mode: 11 Channels draft 802.11n Wide-40 MHz Channel mode: 7 Channels
Antenna Specification	Antenna Type: PIFA Antenna Antenna Gain: IEEE 802.11a: 4.5 dBi IEEE 802.11b/g mode: 1.6 dBi

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: **Q87-DMC350** 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 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: DMC350) had been tested under operating condition.

The EUT is a 2x2 configuration spatial MIMO (2Tx & 2Rx) without beam forming function. The 2x2 configuration is implemented with two outside TX & RX chains (Chain 0 and Chain1).

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

After verification, all tests were carried out with the worst case test modes as shown below except radiated spurious emission below 1GHz and power line conducted emissions below 30MHz, which worst case was in normal link mode only.

IEEE 802.11a mode:

Channel Low(5745MHz), Channel Mid(5785MHz) and Channel High(5825MHz) with 6Mbps data rate were chosen for full testing.

draft 802.11n Standard-20 MHz Channel mode:

Channel Low(5745MHz), Channel Mid(5785MHz) and Channel High(5825MHz) with 6.5Mbps data rate were chosen for full testing.

draft 802.11n Wide-40 MHz Channel mode:

Channel Low(5755MHz) and Channel High(5795MHz) with 13.5Mbps data rate were chosen for full testing.

IEEE 802.11b mode:

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

IEEE 802.11g mode:

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

draft 802.11n Standard-20 MHz Channel mode:

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

draft 802.11n Wide-40 MHz Channel mode:

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



4. INSTRUMENT CALIBRATION

4.1 MEASURING INSTRUMENT CALIBRATION

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

4.2 MEASUREMENT EQUIPMENT USED

Equipment Used for Emissions Measurement

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

Conducted Emissions Test Site				
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
Spectrum Analyzer	Agilent	E4446A	MY43360131	03/05/2010

3M Semi Anechoic Chamber				
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
Spectrum Analyzer	Agilent	E4446A	US42510252	09/10/2009
Test Receiver	Rohde&Schwarz	ESCI	100064	11/29/2009
Switch Controller	TRC	Switch Controller	SC94050010	05/03/2009
4 Port Switch	TRC	4 Port Switch	SC94050020	05/03/2009
Loop Antenna	EMCO	6502	8905/2356	05/29/2009
Horn-Antenna	TRC	HA-0502	06	06/04/2009
Horn-Antenna	TRC	HA-0801	04	06/18/2009
Horn-Antenna	TRC	HA-1201A	01	08/11/2009
Horn-Antenna	TRC	HA-1301A	01	08/11/2009
Bilog- Antenna	Sunol Sciences	JB3	A030205	03/27/2010
Turn Table	Max-Full	MFT-120S	T120S940302	N.C.R.
Antenna Tower	Max-Full	MFA-430	A440940302	N.C.R.
Controller	Max-Full	MF-CM886	CC-C-1F-13	N.C.R.
Site NSA	CCS	N/A	FCC MRA: TW1039 IC: 2324G-1/-2	10/17/2010 11/04/2010
Test S/W	LABVIEW (V 6.1)			

Conducted Emission Room # 3				
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
EMI Test Receiver	R&S	ESCS30	847793/012	03/08/2010
LISN	R&S	ENV216	100066	05/11/2009
LISN	R&S	ENV 4200	830326/016	04/09/2010
Test S/W	LabVIEW 6.1 (CCS Conduction Test SW Version_01)			



4.3 MEASUREMENT UNCERTAINTY

PARAMETER	UNCERTAINTY
Powerline Conducted Emission	+/- 1.7806
3M Semi Anechoic Chamber / 30MHz ~ 1GHz	+/-3.7046
3M Semi Anechoic Chamber / Above 1GHz	+/-3.0958

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 FACILITIES

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

- No.199, Chunghsen Road, Hsintien City, Taipei Hsien, Taiwan, R.O.C.
Tel: 886-2-2217-0894 / Fax: 886-2-2217-1029
- No.11, Wugong 6th Rd., Wugu Industrial Park, Taipei Hsien 248, Taiwan
Tel: 886-2-2299-9720 / Fax: 886-2-2298-4045
- No.81-1, Lane 210, Bade 2nd Rd., Luchu Hsiang, Taoyuan Hsien 338, Taiwan
Tel: 886-3-324-0332 / Fax: 886-3-324-5235

Remark: The powerline conducted emission test items was tested at Compliance Certification Services Inc. (Linkou Lab.) The test equipments were listed in page 9 and the test data, please refer page 163-164.

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

5.2 EQUIPMENT

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

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

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

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

5.3 TABLE OF ACCREDITATIONS AND LISTINGS

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

Country	Agency	Scope of Accreditation	Logo
USA	FCC	3M Semi Anechoic Chamber (FCC MRA: TW1039) to perform FCC Part 15 measurements	 FCC MRA: TW1039
Taiwan	TAF	LP0002, RTTE01, FCC Method-47 CFR Part 15 Subpart C, D, E, RSS-210, RSS-310 IDA TS SRD, AS/NZS 4268, AS/NZS 4771, TS 12.1 & 12.2, ETSI EN 300 440-1, ETSI EN 300 440-2, ETSI EN 300 328, ETSI EN 300 220-1, ETSI EN 300 220-2, ETSI EN 301 893, ETSI EN 301 489-1/3/7/17 FCC OET Bulletin 65 + Supplement C, EN 50360, EN 50361, EN 50371, RSS 102, EN 50383, EN 50385, EN 50392, IEC 62209, CNS 14958-1, CNS 14959 FCC Method –47 CFR Part 15 Subpart B IEC / EN 61000-3-2, IEC / EN 61000-3-3, IEC / EN 61000-4-2/3/4/5/6/8/11	 Testing Laboratory 1309
Canada	Industry Canada	3M Semi Anechoic Chamber (IC 2324G-1 / IC 2324G-2) to perform	 IC 2324G-1 IC 2324G-2



6. SETUP OF EQUIPMENT UNDER TEST

6.1 SETUP CONFIGURATION OF EUT

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

6.2 SUPPORT EQUIPMENT

No	Equipment	Brand	Model	Series No.	FCC ID	Data Cable	Power Cord
1.	I-Pod	Apple	A1051	YM52008AS45	FCC DoC	N/A	N/A
2.	I-Pod Docking	LINKSYS by Cisco	MCCI40	N/A	FCC DoC	Shielded, 0.3m	N/A
3.	Multimedia Headset	CJC	CJC-5258MV	0507106372	FCC DoC	Unshielded, 1.8m	N/A
4.	Walkman	Panasonic	RQ-L10	HB004468	FCC DoC	Unshielded, 1.8m	N/A
5.	USB 2.0 External HDD	TeraSyS	F12-U	A0100214-43b0007	FCC DoC	Shielded, 1.8m	N/A
6.	USB 2.0 External HDD	TeraSyS	F12-U	A0100214-43b0012	FCC DoC	Shielded, 1.8m	N/A
7.	Notebook PC (Remote)	Fujitsu	S7110	DU4A00EG0944P010	FCC DoC	LAN Cable: Unshielded, 10m	AC I/P: Unshielded, 1.8m DC O/P: Unshielded, 1.8m with two core
8.	Notebook PC (Remote)	DELL	PP19L	GK102 A00	QDS-BRCM1021	N/A	AC I/P: Unshielded, 1.8m DC O/P: Unshielded, 1.8m with a core

Remark:

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

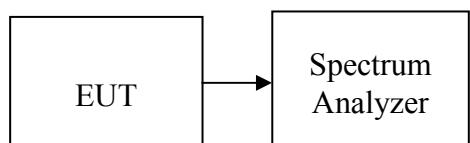
7. FCC PART 15.247 REQUIREMENTS

7.1 6DB BANDWIDTH

LIMIT

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

Test Configuration



TEST PROCEDURE

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



TEST RESULTS

No non-compliance noted

Test Data

Test mode: IEEE 802.11b mode

Channel	Frequency (MHz)	Bandwidth (MHz)	Limit (kHz)	Result
Low	2412	12.33	>500	PASS
Mid	2437	11.17		PASS
High	2462	11.42		PASS

Test mode: IEEE 802.11g mode

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

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

Channel	Frequency (MHz)	Bandwidth (kHz)	Limit (kHz)	Result
Low	2412	17.58	>500	PASS
Mid	2437	17.75		PASS
High	2462	17.75		PASS

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

Channel	Frequency (MHz)	Bandwidth (kHz)	Limit (kHz)	Result
Low	2412	17.75	>500	PASS
Mid	2437	17.75		PASS
High	2462	17.58		PASS

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

Channel	Frequency (MHz)	Bandwidth (kHz)	Limit (kHz)	Result
Low	2422	36.52	>500	PASS
Mid	2437	36.40		PASS
High	2452	36.40		PASS

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

Channel	Frequency (MHz)	Bandwidth (kHz)	Limit (kHz)	Result
Low	2422	36.40	>500	PASS
Mid	2437	36.40		PASS
High	2452	36.40		PASS

**Test mode: IEEE 802.11a mode / 5745 ~ 5825MHz**

Channel	Frequency (MHz)	Bandwidth (MHz)	Limit (kHz)	Test Result
Low	5745	16.42	>500	PASS
Mid	5785	16.58		PASS
High	5825	16.50		PASS

Test mode: draft 802.11n Standard-20 MHz Channel mode / 5745 ~ 5825MHz / Chain 0

Channel	Frequency (MHz)	Bandwidth (MHz)	Limit (kHz)	Result
Low	5745	17.58	>500	PASS
Mid	5785	17.50		PASS
High	5825	17.58		PASS

Test mode: draft 802.11n Standard-20 MHz Channel mode / 5745 ~ 5825MHz / Chain 1

Channel	Frequency (MHz)	Bandwidth (MHz)	Limit (kHz)	Result
Low	5745	17.67	>500	PASS
Mid	5785	17.58		PASS
High	5825	17.25		PASS

Test mode: draft 802.11n Wide-40 MHz Channel mode / 5755 ~ 5795MHz / Chain 0

Channel	Frequency (MHz)	Bandwidth (MHz)	Limit (kHz)	Result
Low	5755	36.28	>500	PASS
High	5795	36.40		PASS

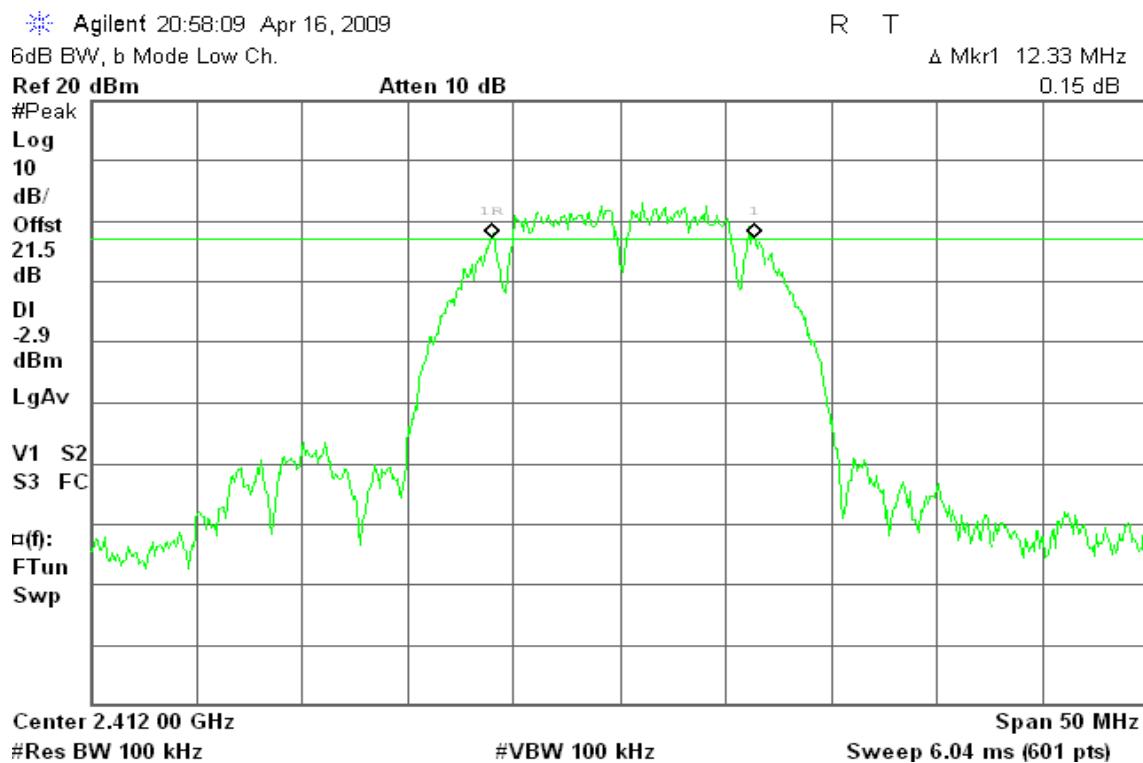
Test mode: draft 802.11n Wide-40 MHz Channel mode / 5755 ~ 5795MHz / Chain 1

Channel	Frequency (MHz)	Bandwidth (MHz)	Limit (kHz)	Result
Low	5755	35.93	>500	PASS
High	5795	36.52		PASS

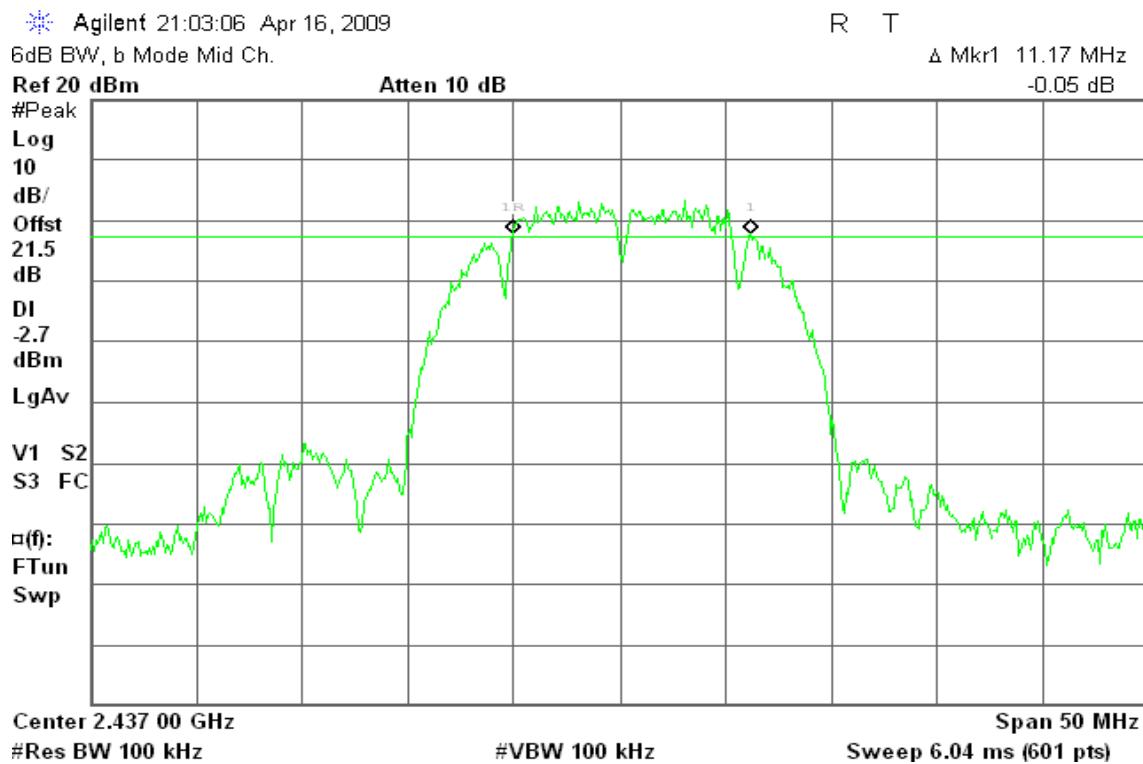
Test Plot

IEEE 802.11b mode

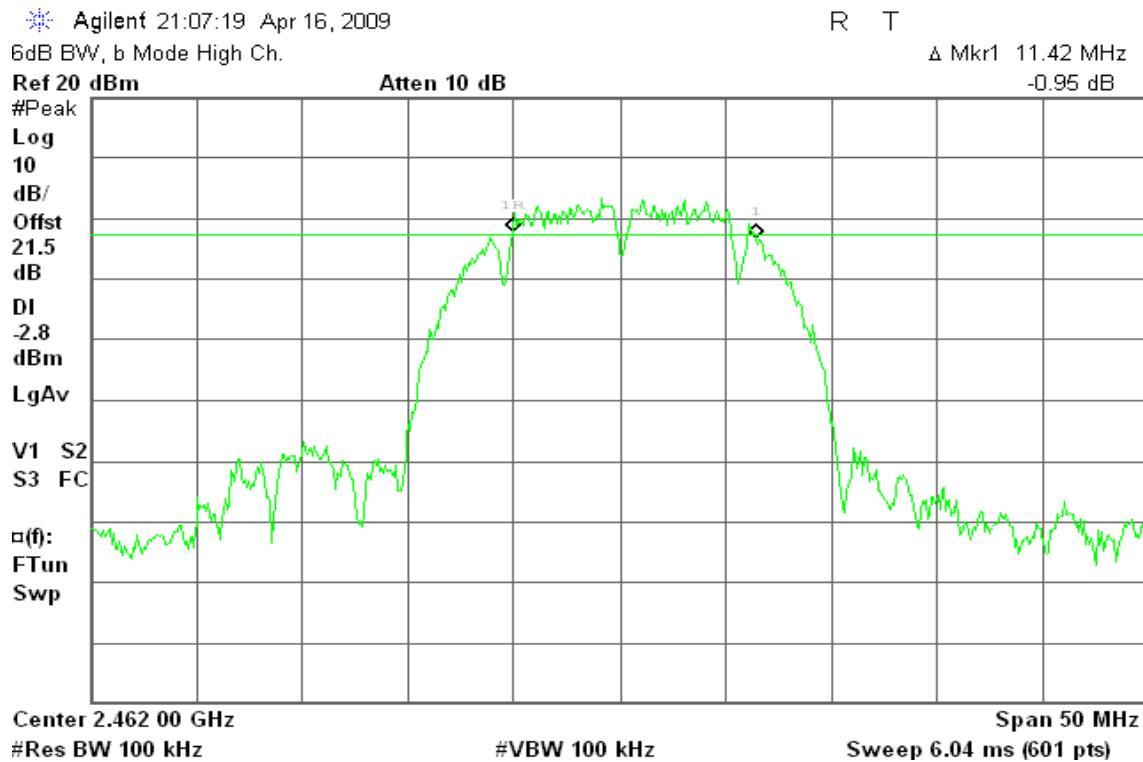
6dB Bandwidth (CH Low)



6dB Bandwidth (CH Mid)

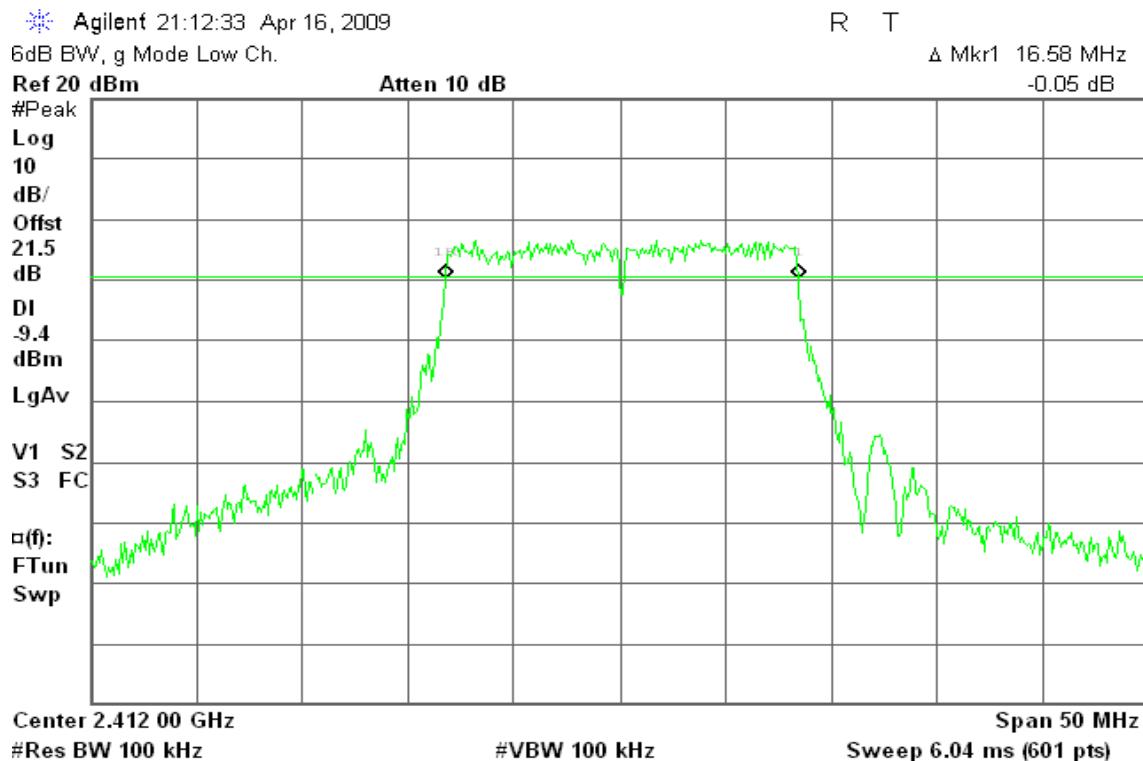


6dB Bandwidth (CH High)

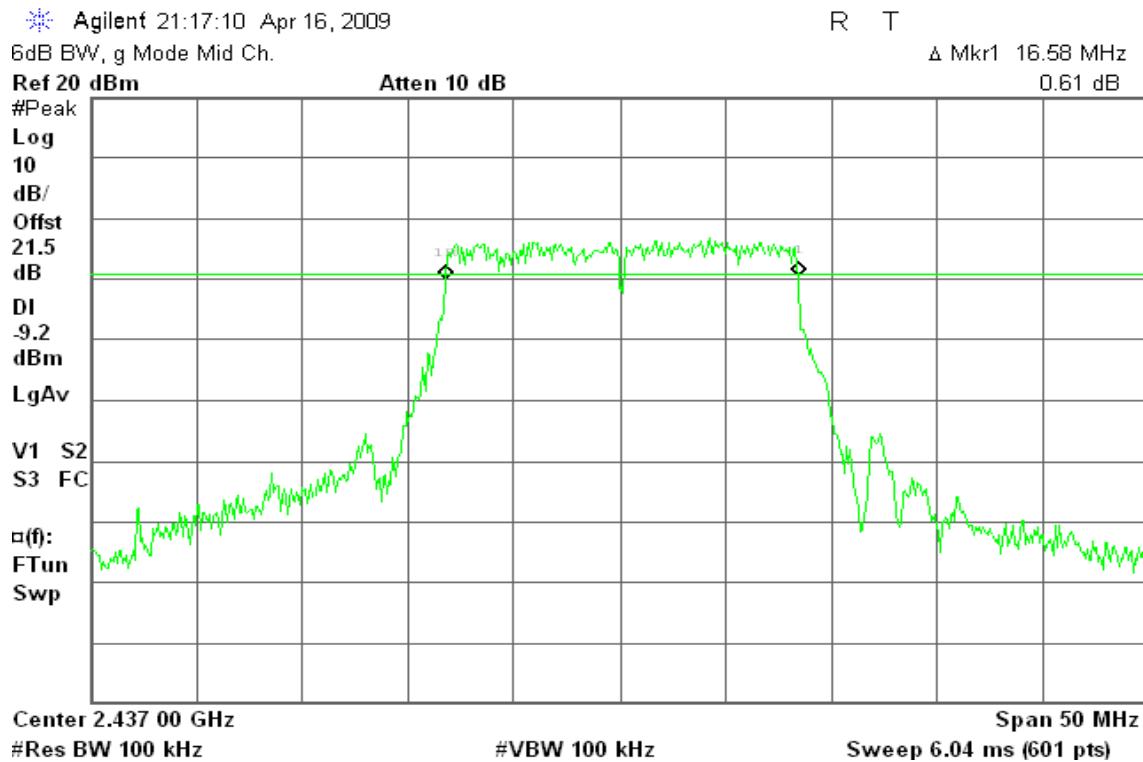


IEEE 802.11g mode

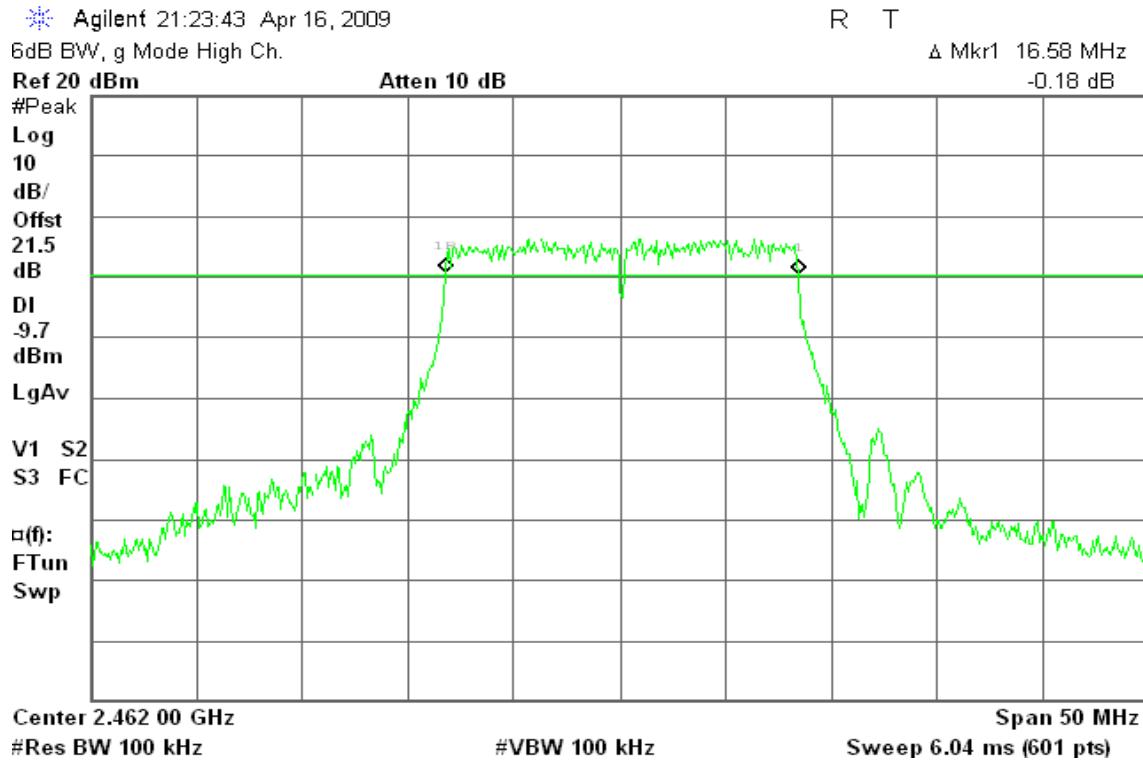
6dB Bandwidth (CH Low)

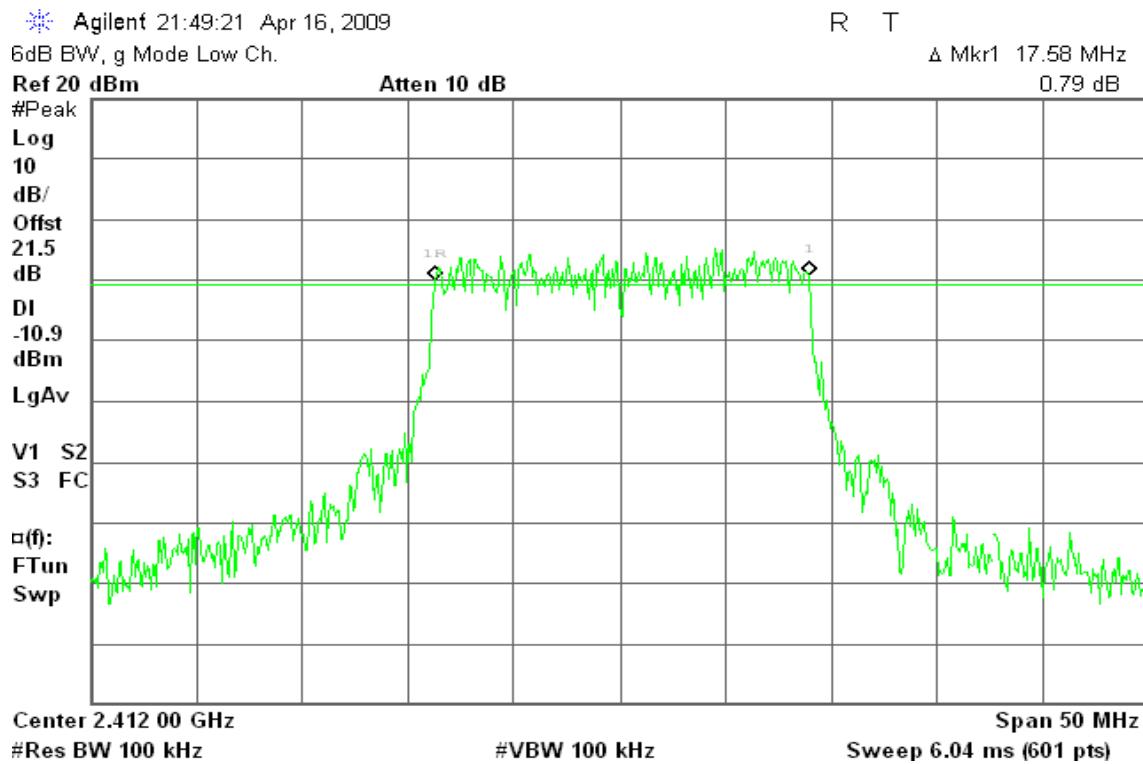
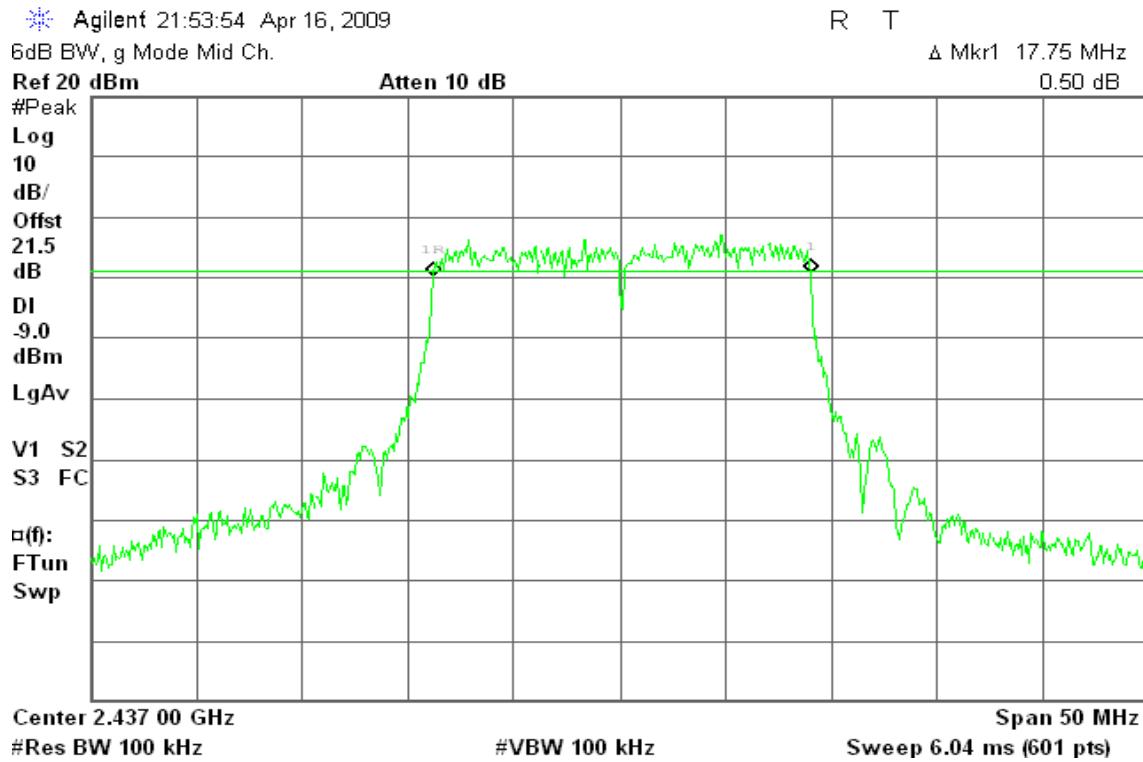


6dB Bandwidth (CH Mid)

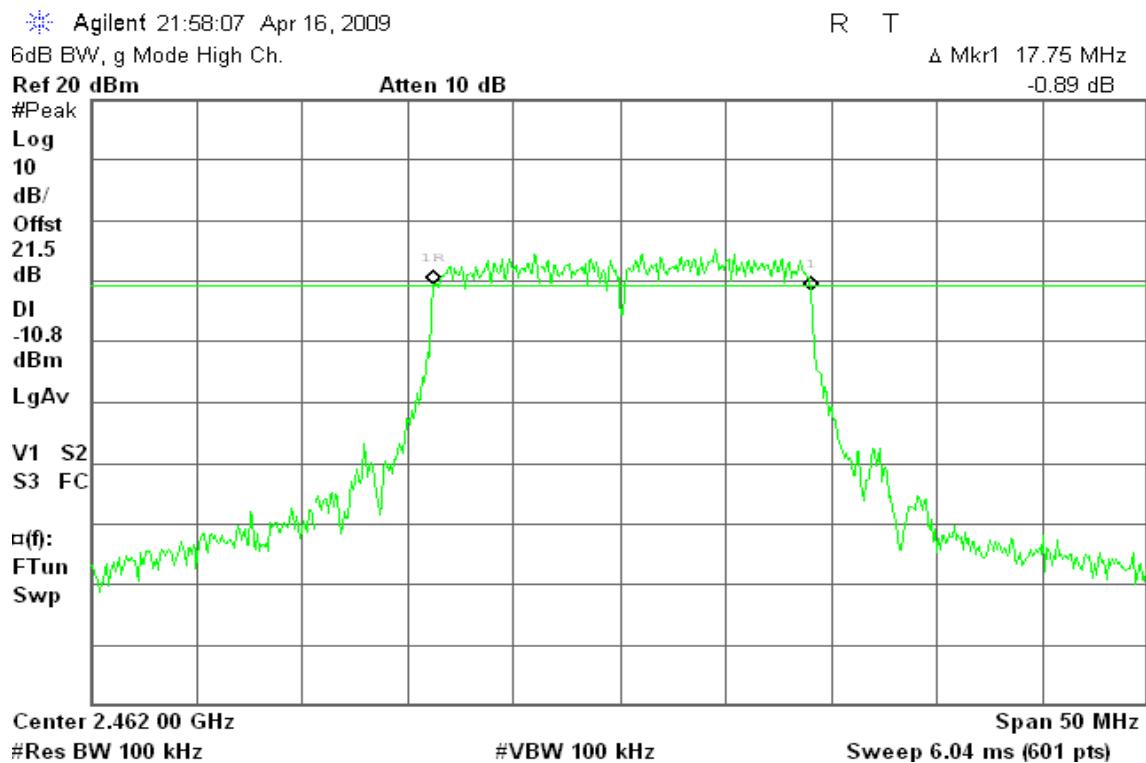


6dB Bandwidth (CH High)



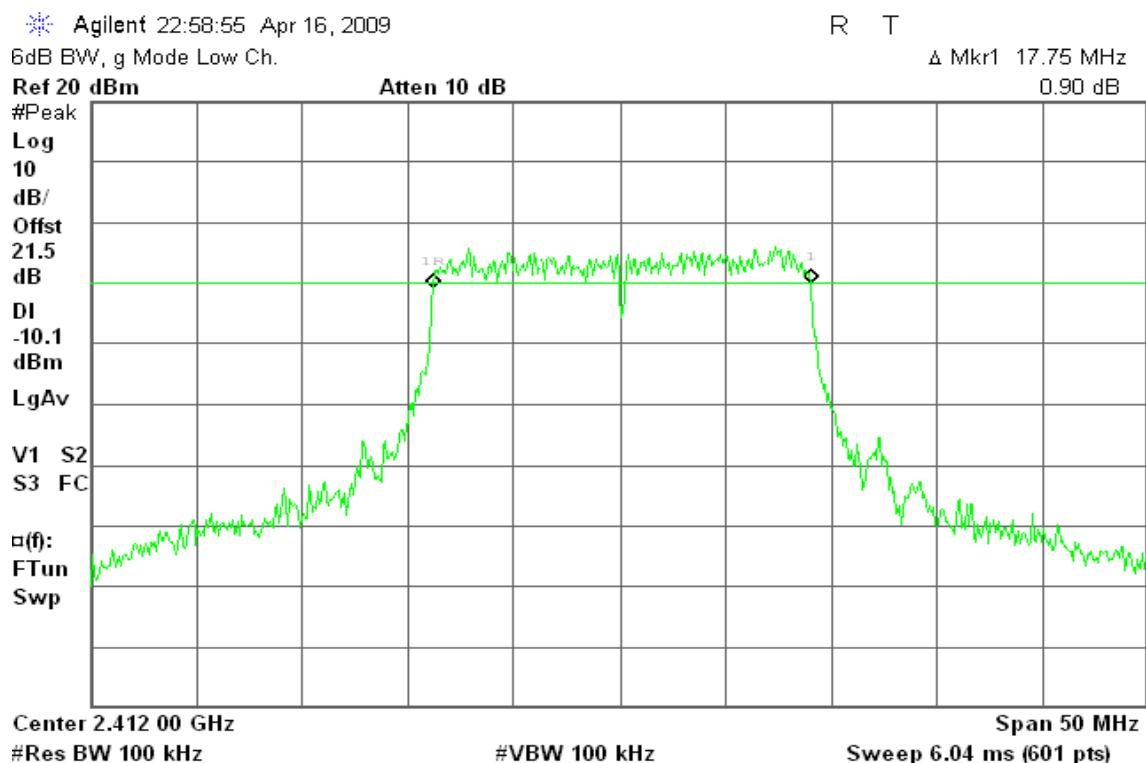
draft 802.11n Standard-20 MHz Channel mode / Chain 0**6dB Bandwidth (CH Low)****6dB Bandwidth (CH Mid)**

6dB Bandwidth (CH High)

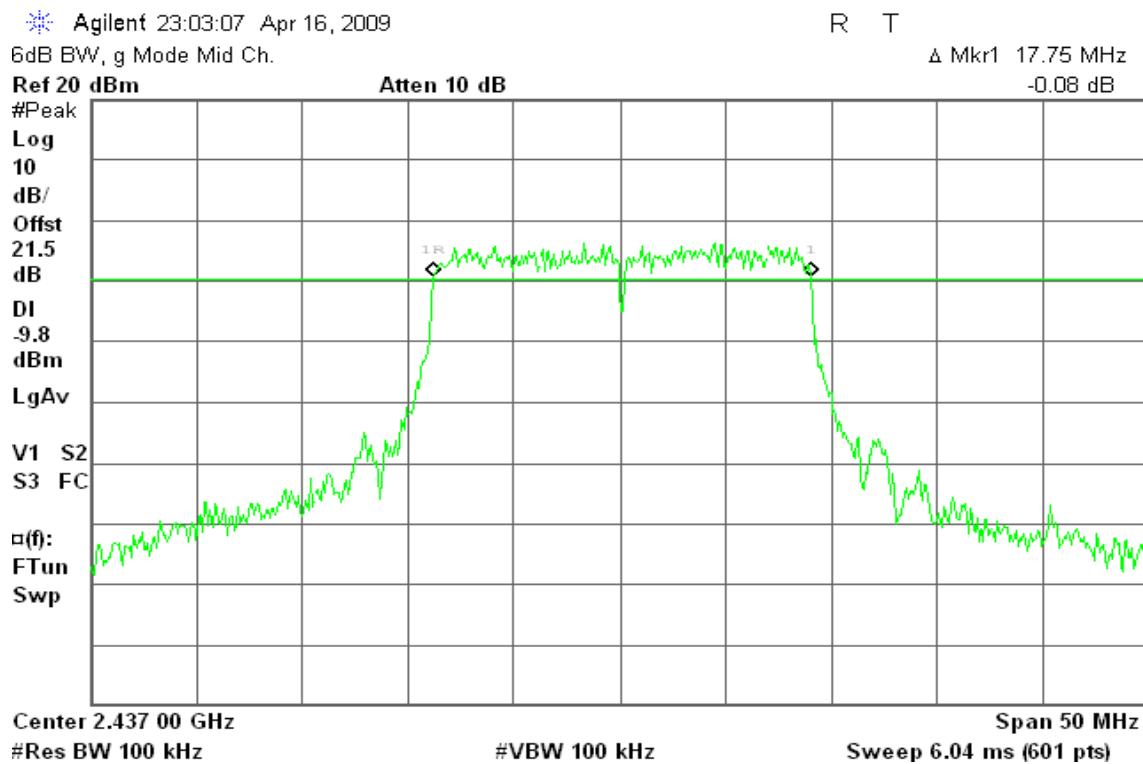


draft 802.11n Standard-20 MHz Channel mode / Chain 1

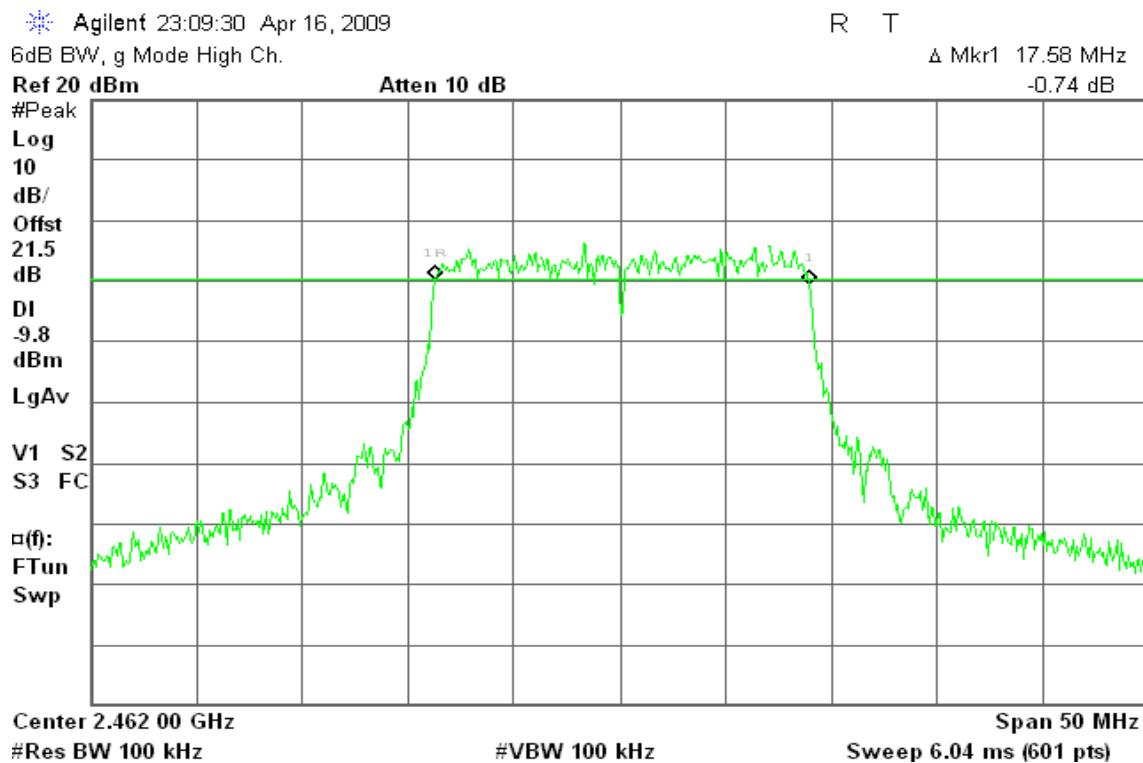
6dB Bandwidth (CH Low)

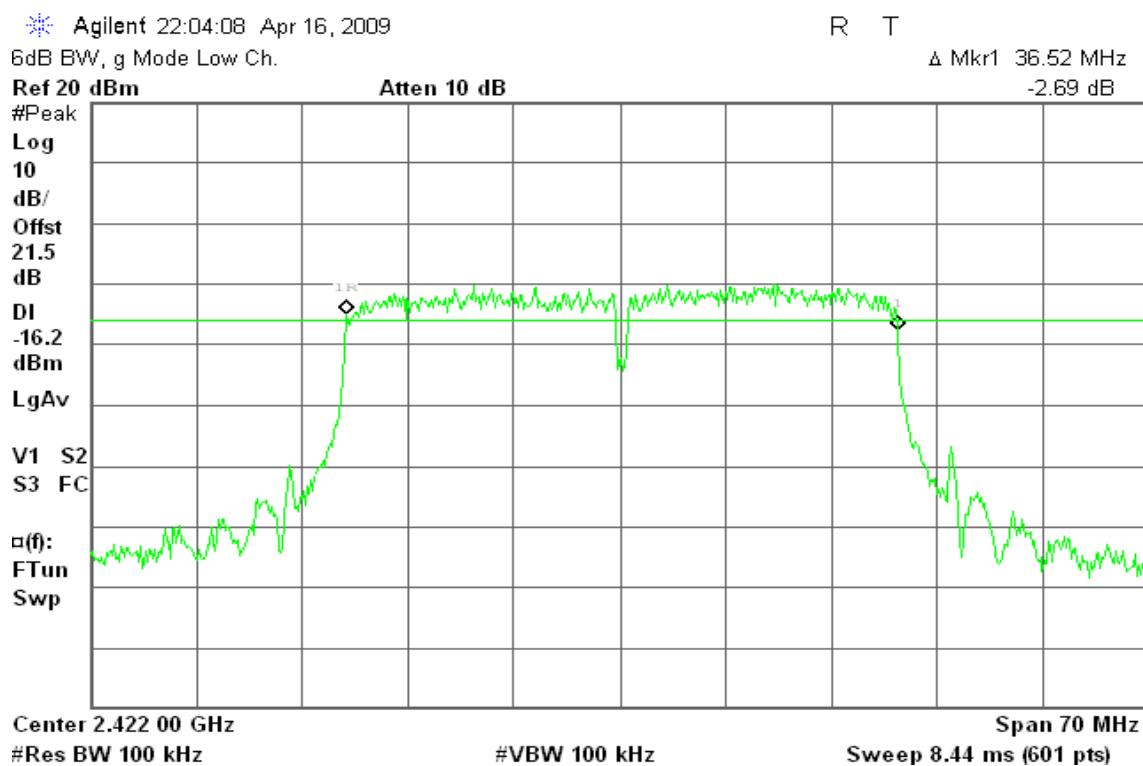
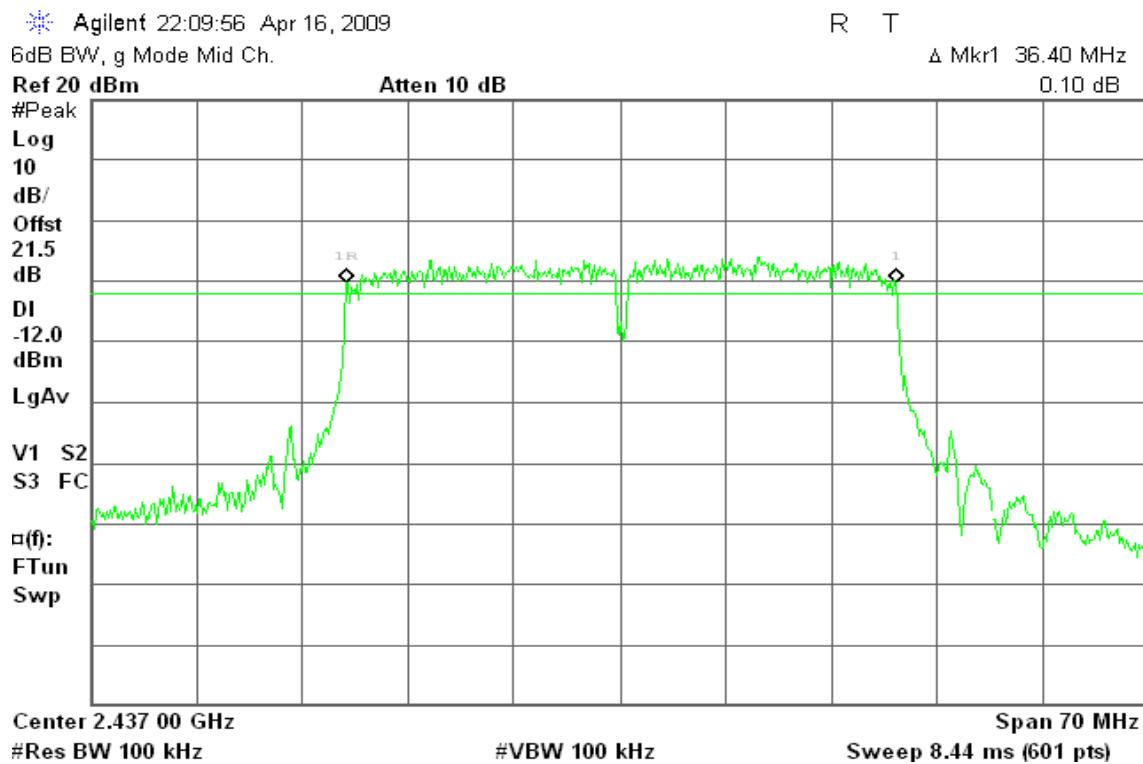


6dB Bandwidth (CH Mid)

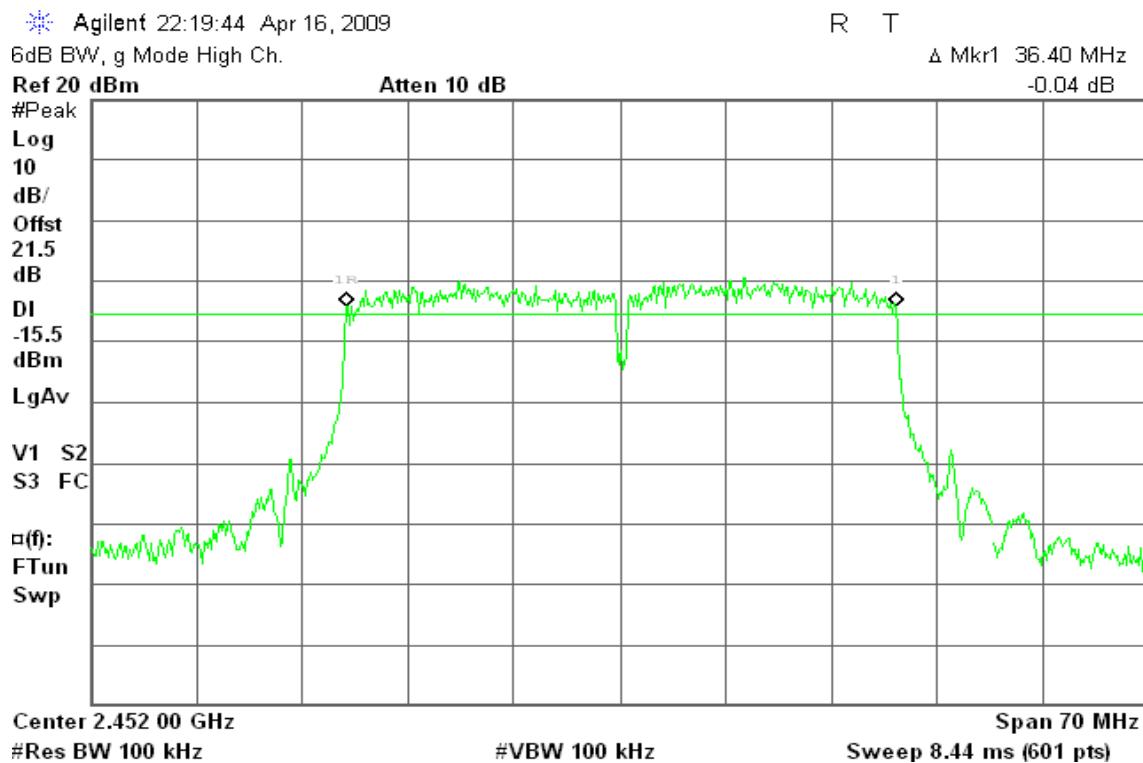


6dB Bandwidth (CH High)



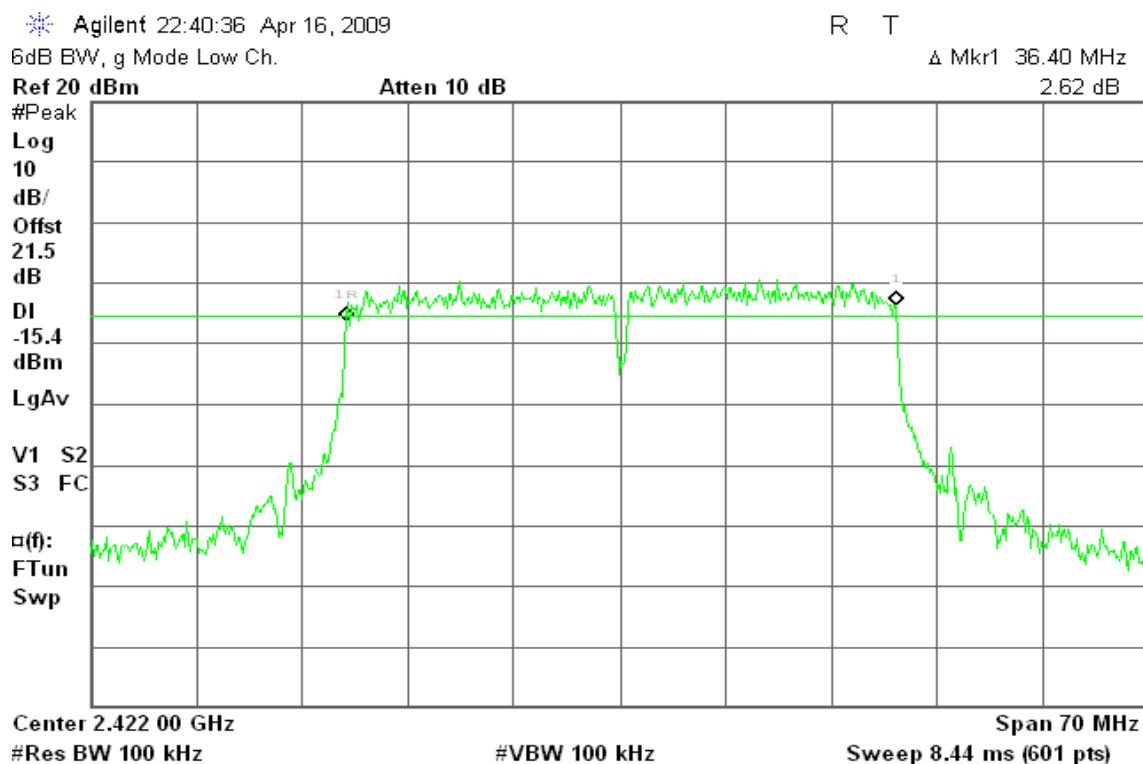
draft 802.11n Wide-40 MHz Channel mode / Chain 0**6dB Bandwidth (CH Low)****6dB Bandwidth (CH Mid)**

6dB Bandwidth (CH High)

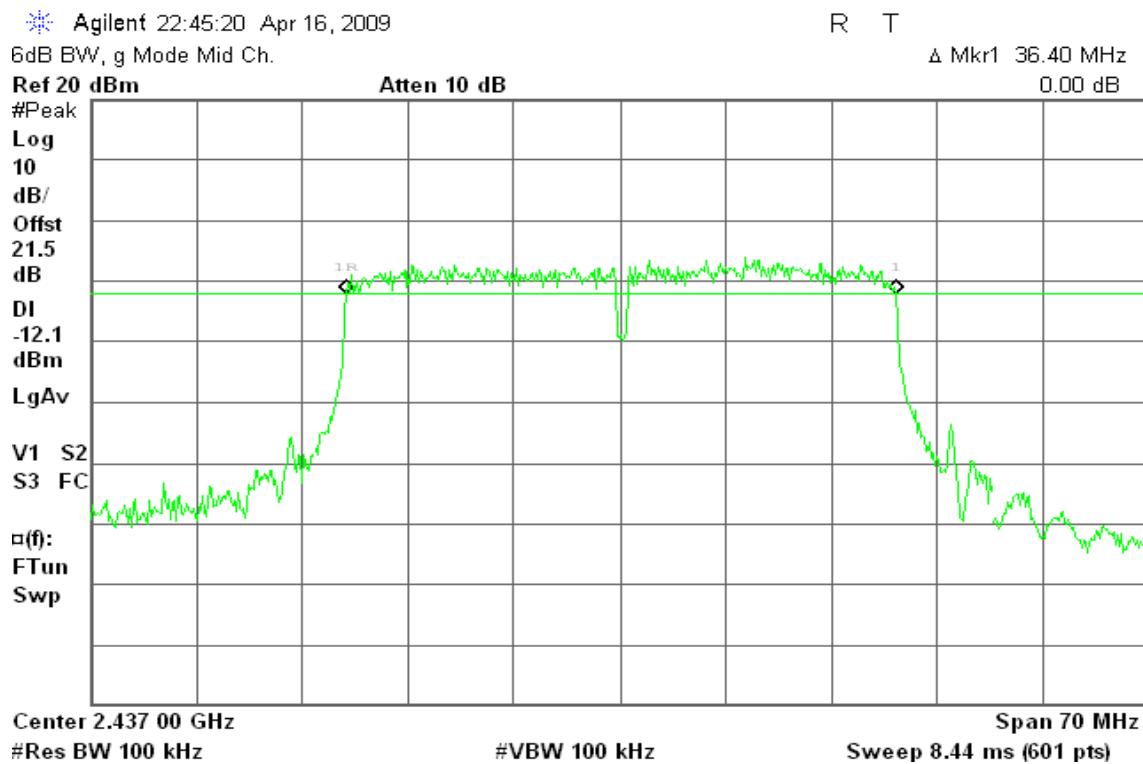


draft 802.11n Wide-40 MHz Channel mode / Chain 1

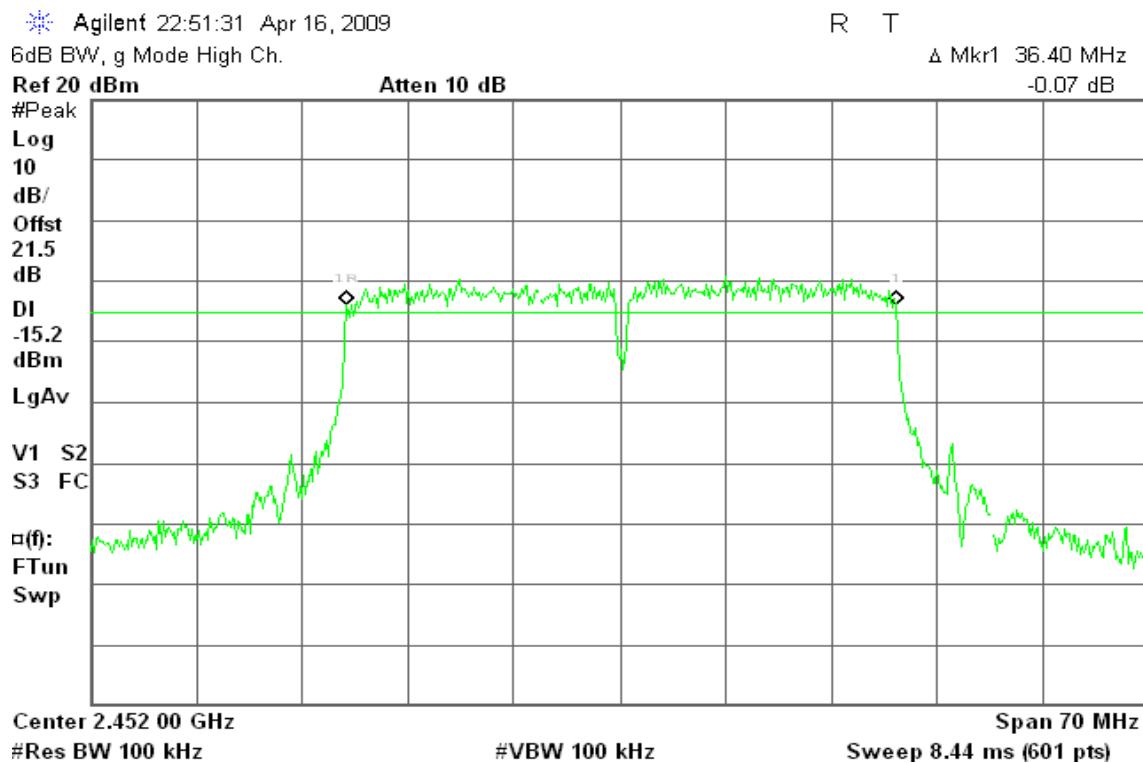
6dB Bandwidth (CH Low)

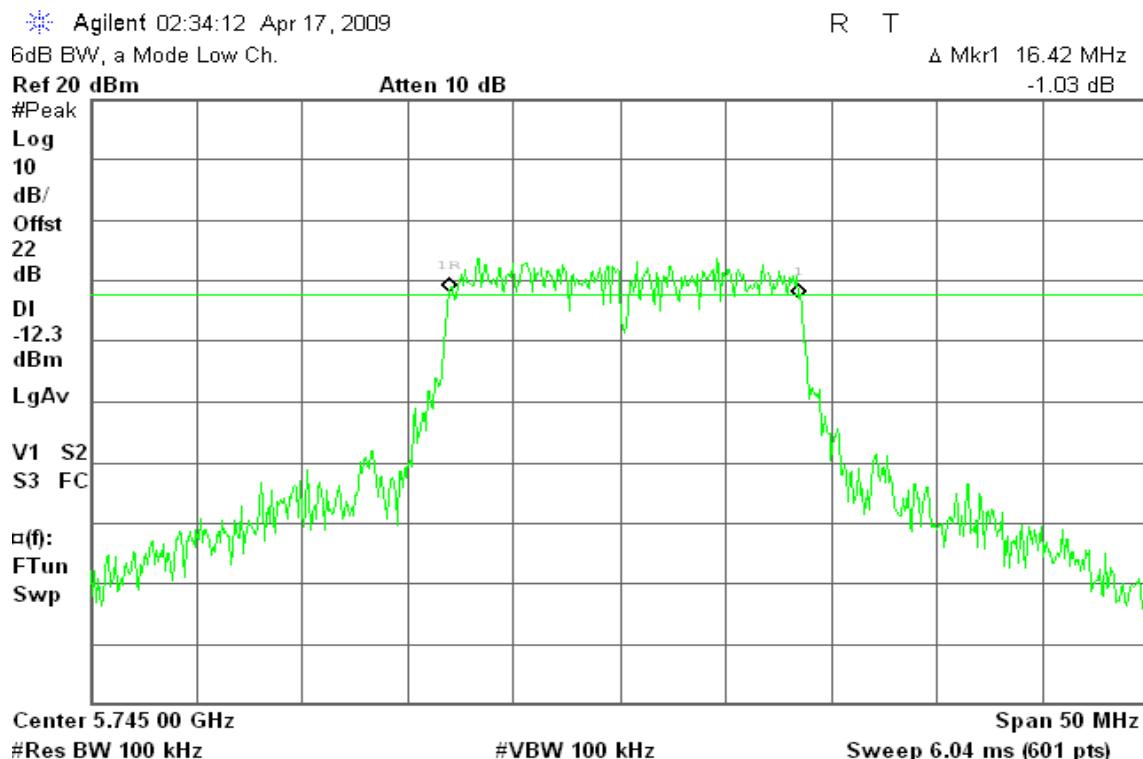
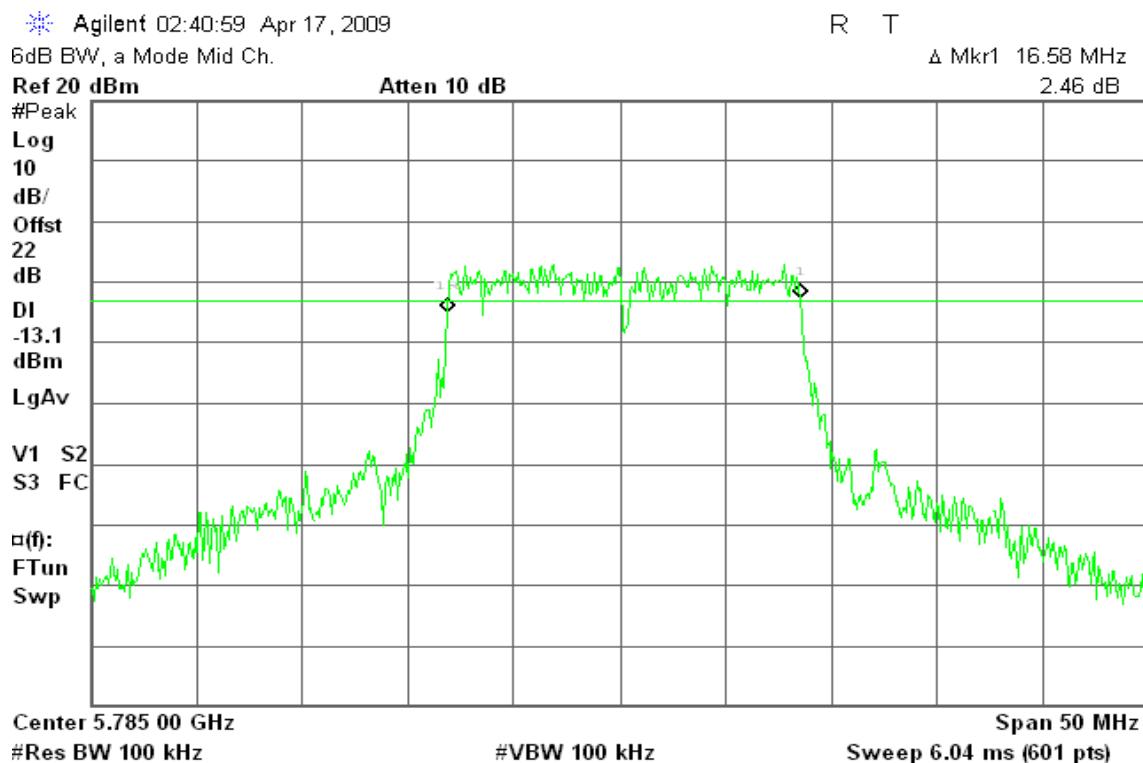


6dB Bandwidth (CH Mid)

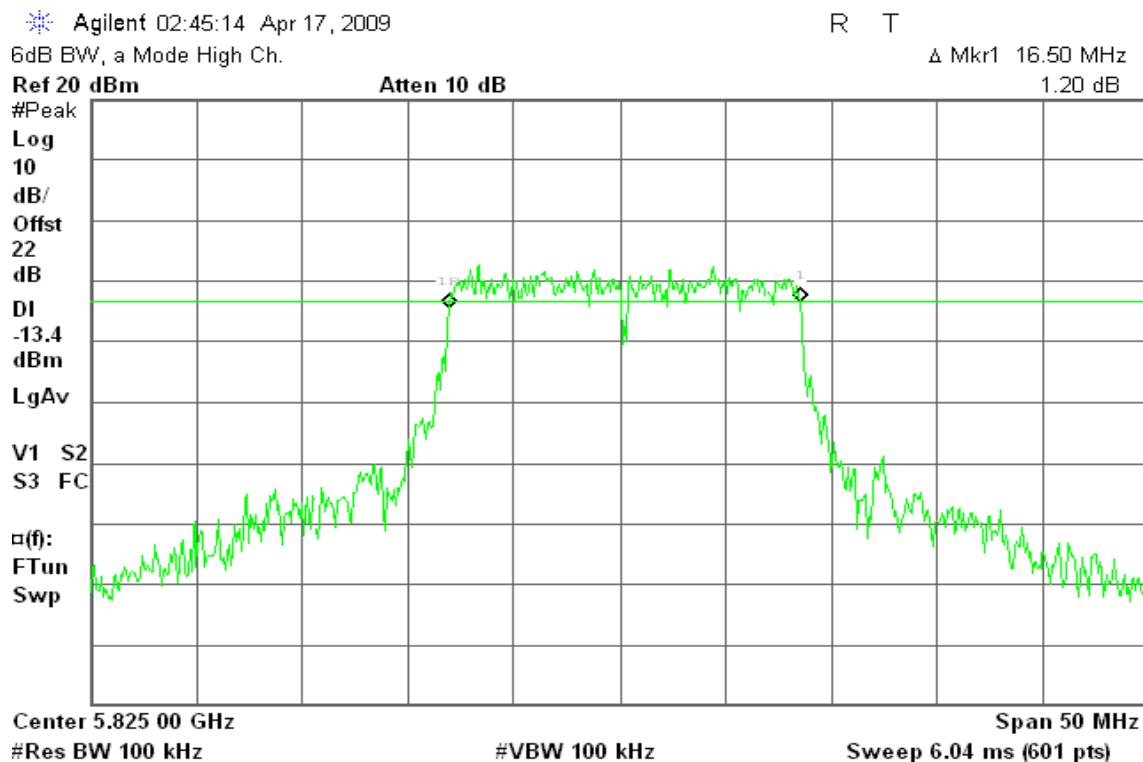


6dB Bandwidth (CH High)



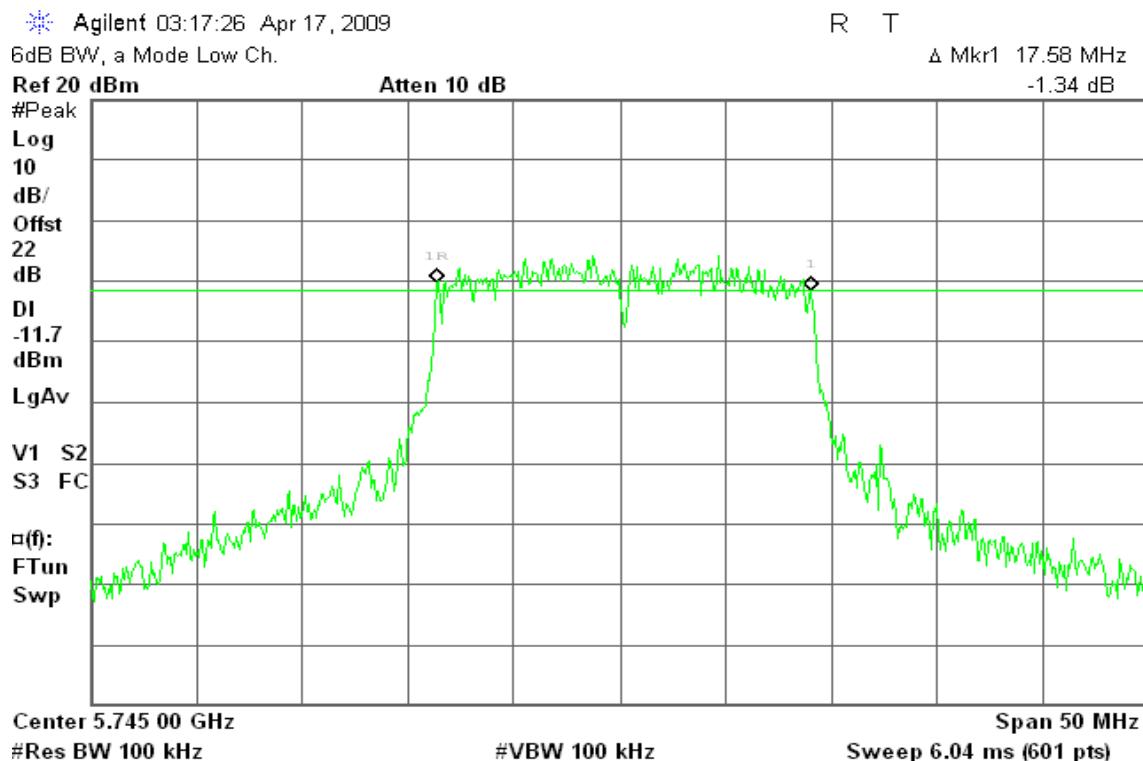
IEEE 802.11a mode / 5745 ~ 5825MHz**6dB Bandwidth (CH Low)****6dB Bandwidth (CH Mid)**

6dB Bandwidth (CH High)

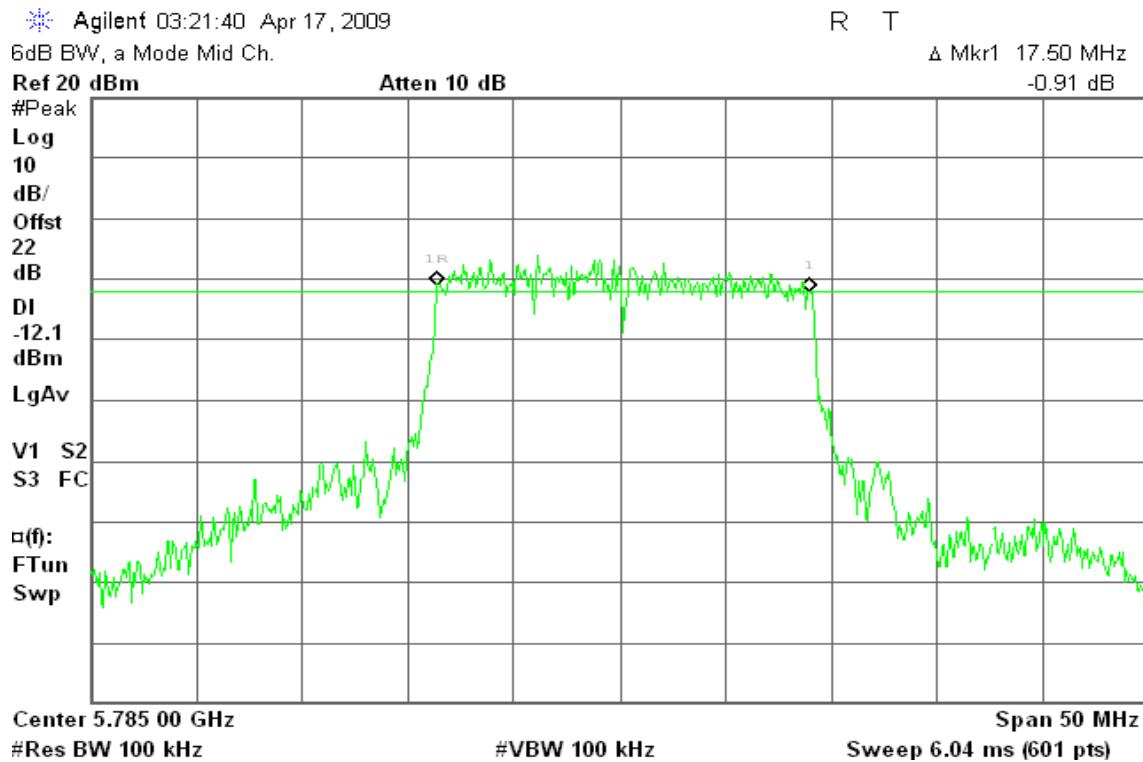


draft 802.11n Standard-20 MHz Channel mode / 5745 ~ 5825MHz / Chain 0

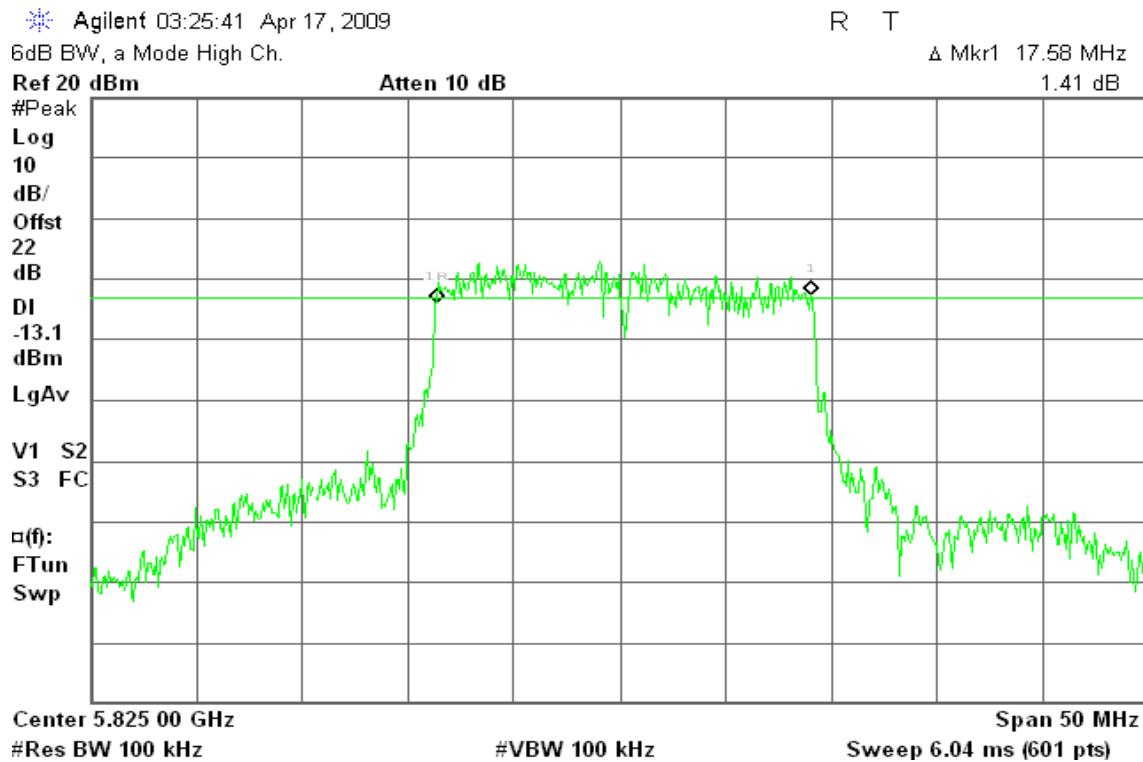
6dB Bandwidth (CH Low)

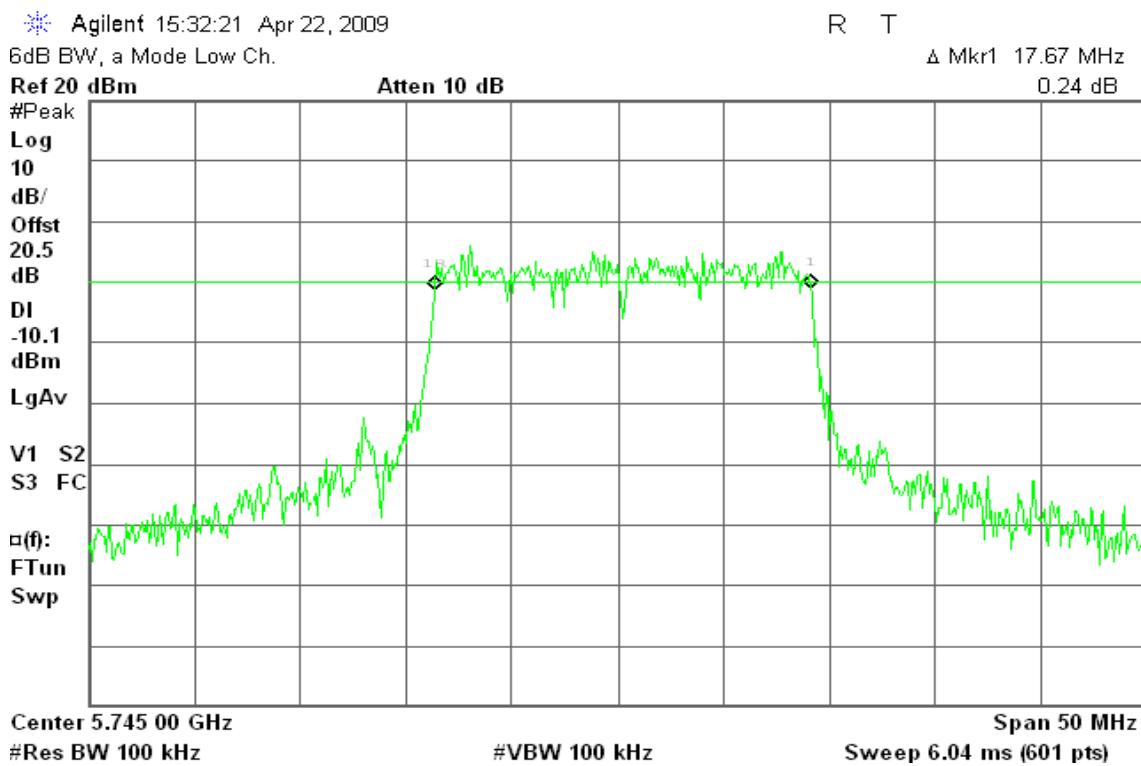
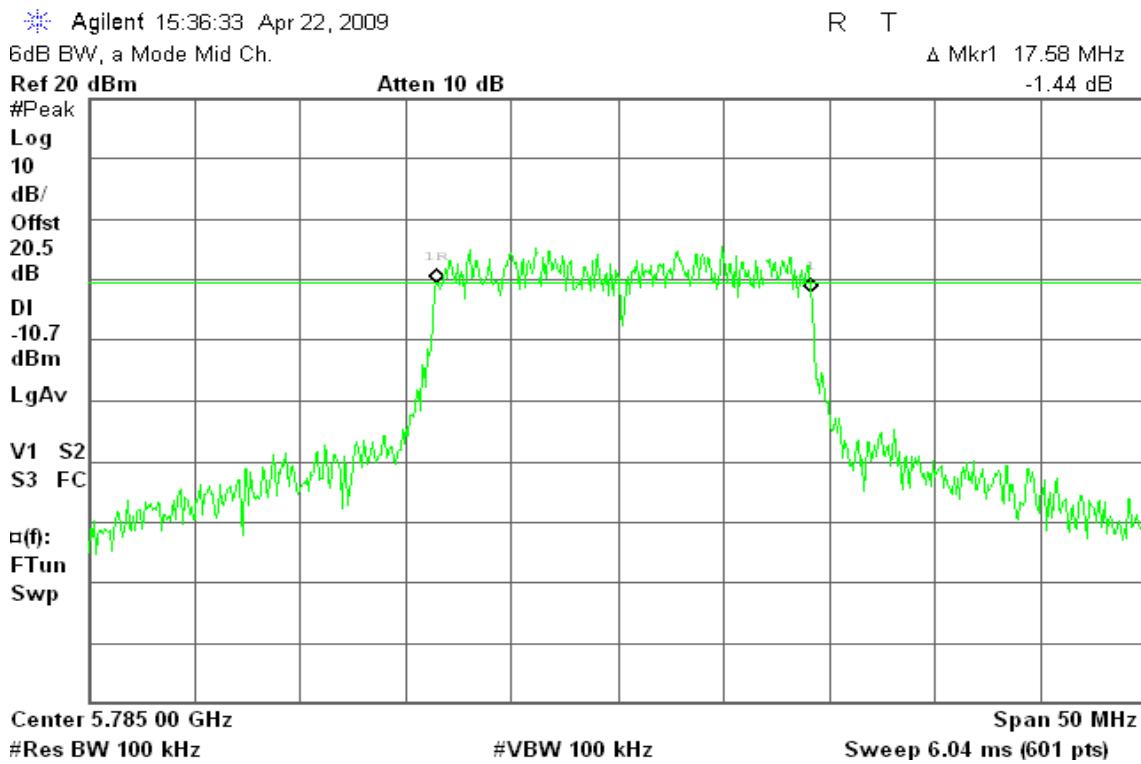


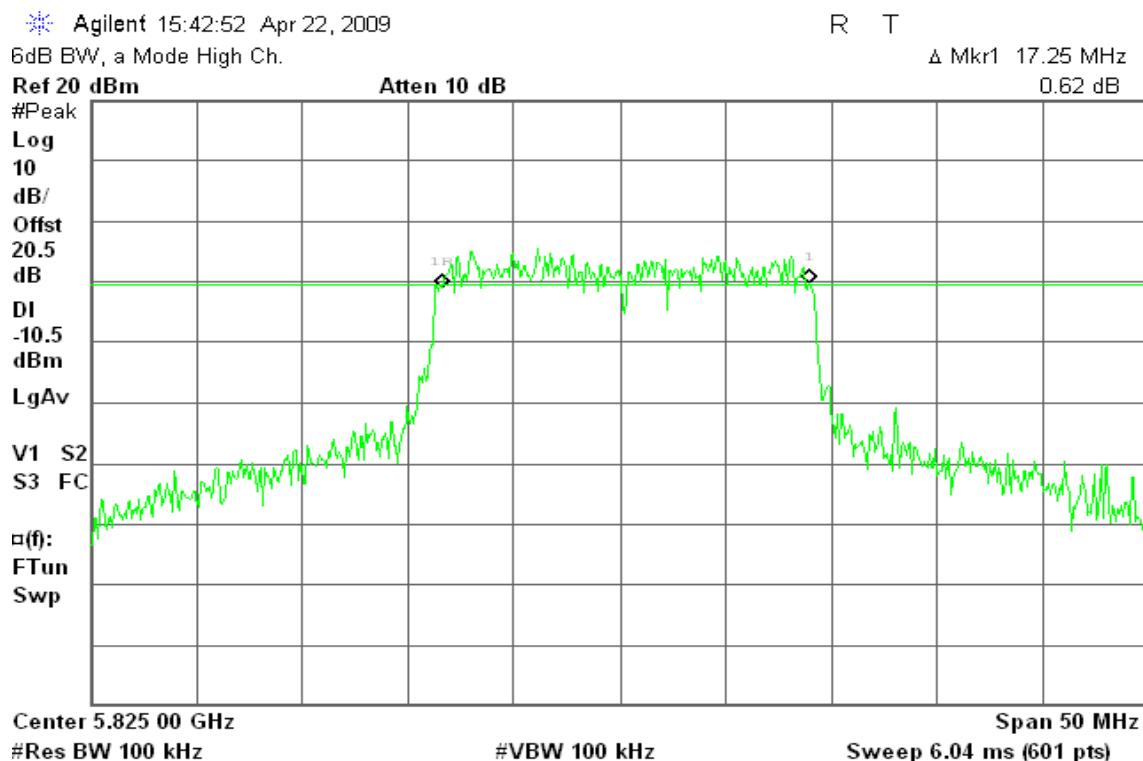
6dB Bandwidth (CH Mid)

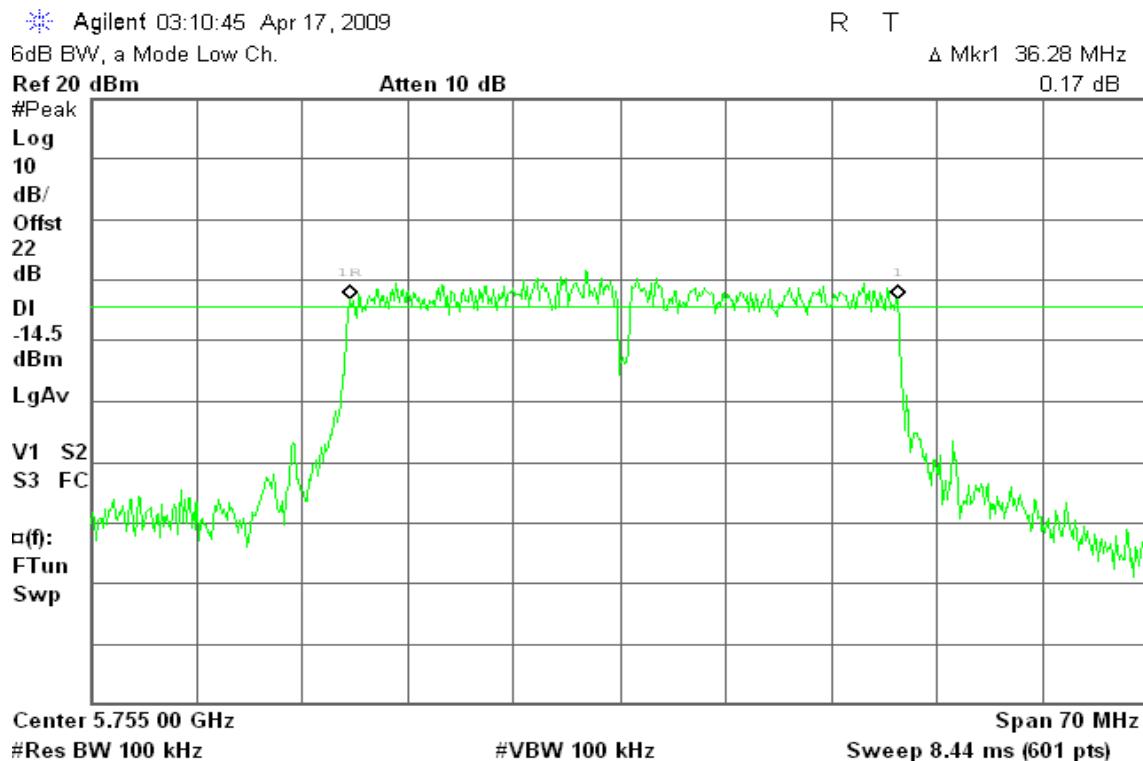
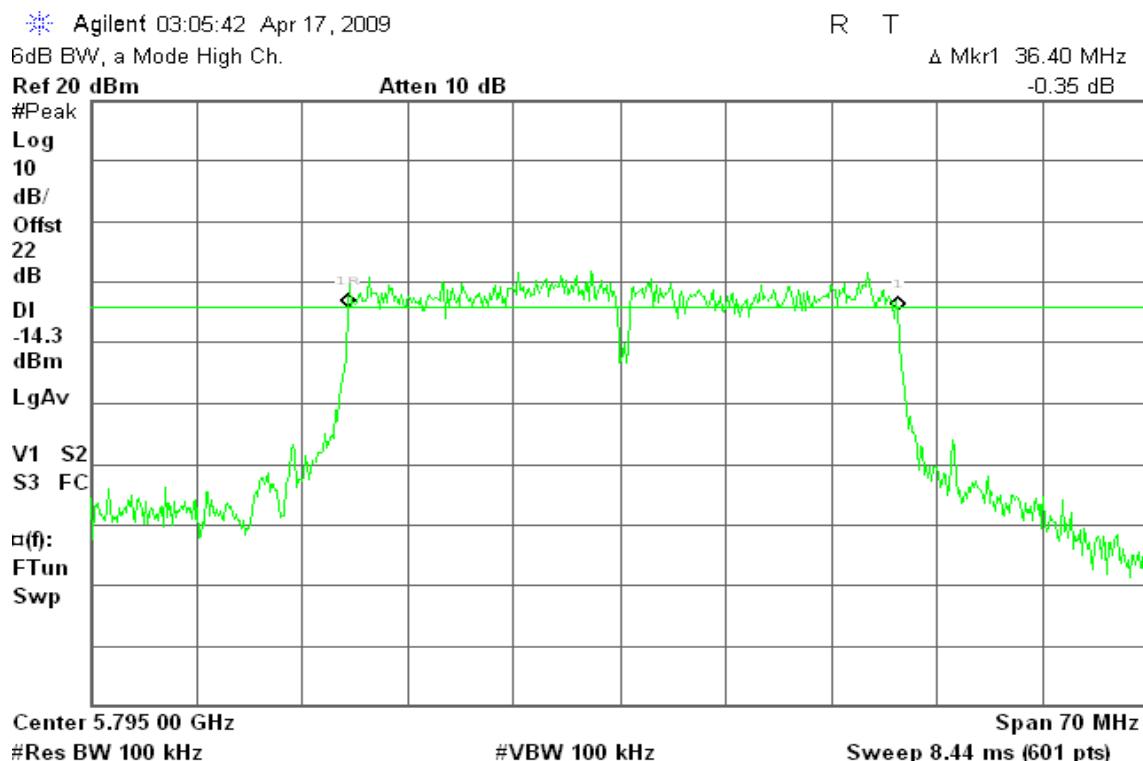


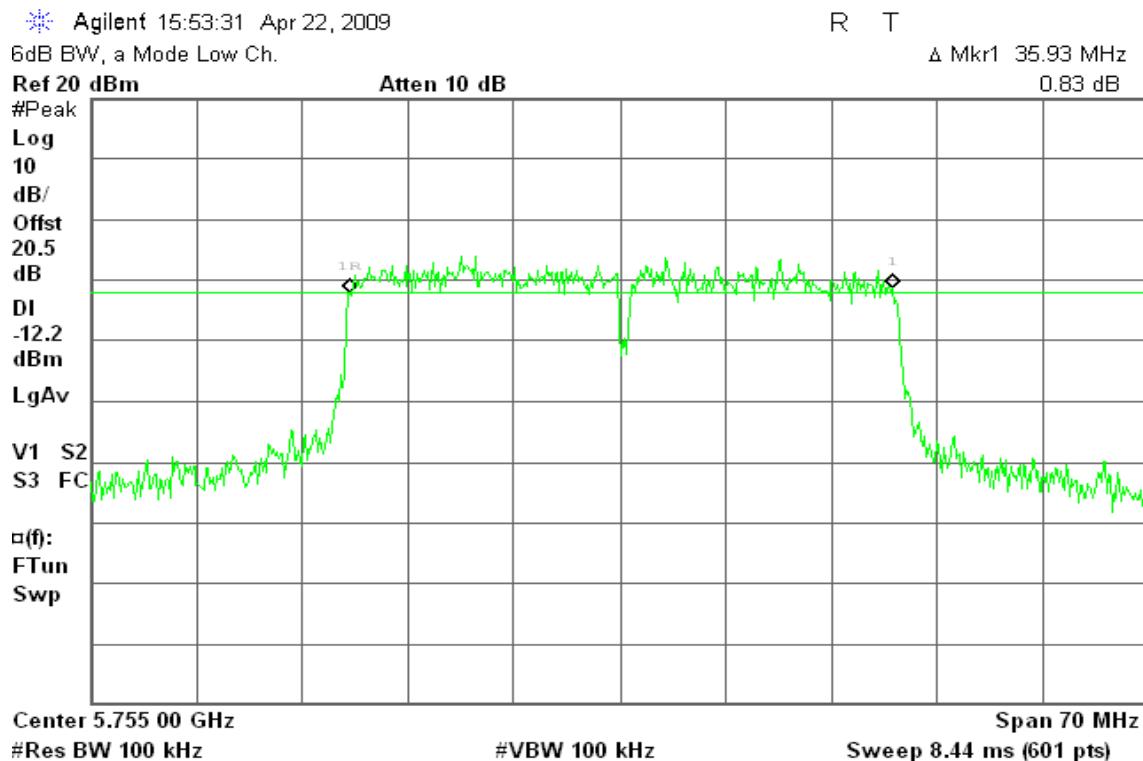
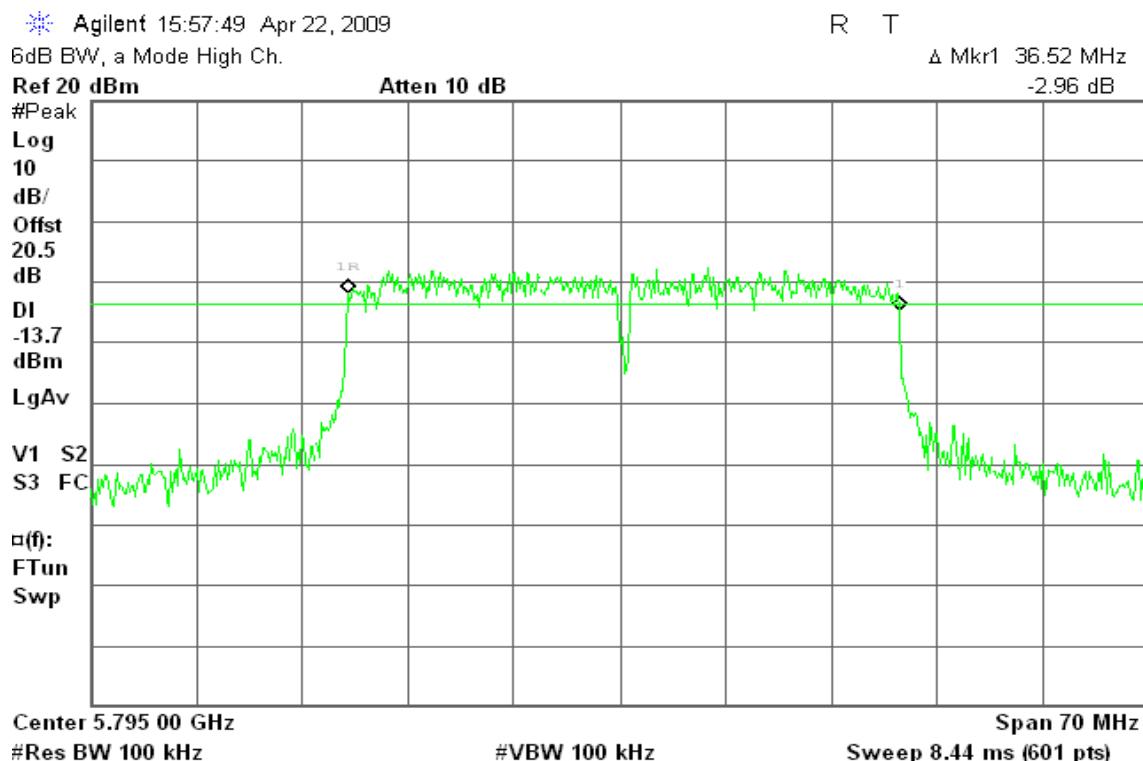
6dB Bandwidth (CH High)



draft 802.11n Standard-20 MHz Channel mode / 5745 ~ 5825MHz / Chain 1**6dB Bandwidth (CH Low)****6dB Bandwidth (CH Mid)**

6dB Bandwidth (CH High)

draft 802.11n Wide-40 MHz Channel mode / 5755 ~ 5795MHz / Chain 0**6dB Bandwidth (CH Low)****6dB Bandwidth (CH High)**

draft 802.11n Wide-40 MHz Channel mode / 5755 ~ 5795MHz / Chain 1**6dB Bandwidth (CH Low)****6dB Bandwidth (CH High)**

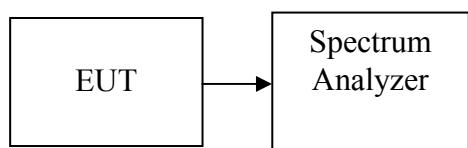
7.2 PEAK POWER

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

1. Peak power is measured using the spectrum analyzer's internal channel power integration function.
2. Power is integrated over a bandwidth greater than or equal to the 99% bandwidth.



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	18.27	0.0671	1.00	PASS
Mid	2437	18.19	0.0659		PASS
High	2462	18.43	0.0697		PASS

Test mode: IEEE 802.11g mode

Channel	Frequency (MHz)	Output Power (dBm)	Output Power (W)	Limit (W)	Result
Low	2412	19.12	0.0817	1.00	PASS
Mid	2437	18.88	0.0773		PASS
High	2462	18.82	0.0762		PASS

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

Channel	Frequency (MHz)	Chain 0 Output Power (dBm)	Chain 1 Output Power (dBm)	Total Output Power (dBm)	Output Power (W)	Limit (W)	Result
Low	2412	17.27	16.80	20.05	0.1012	1.00	PASS
Mid	2437	17.90	17.21	20.58	0.1143		PASS
High	2462	16.37	16.29	19.34	0.0859		PASS

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

Channel	Frequency (MHz)	Chain 0 Output Power (dBm)	Chain 1 Output Power (dBm)	Total Output Power (dBm)	Output Power (W)	Limit (W)	Result
Low	2422	14.31	14.34	17.34	0.0541	1.00	PASS
Mid	2437	18.11	17.68	20.91	0.1233		PASS
High	2452	14.35	14.68	17.53	0.0566		PASS

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

**Test mode: IEEE 802.11a mode / 5745 ~ 5825MHz**

Channel	Frequency (MHz)	Output Power (dBm)	Output Power (W)	Limit (W)	Result
Low	5745	16.52	0.0449	1.00	PASS
Mid	5785	16.01	0.0399		PASS
High	5825	14.79	0.0301		PASS

Test mode: draft 802.11n Standard-20 MHz Channel mode / 5745 ~ 5825MHz

Channel	Frequency (MHz)	Chain 0 Output Power (dBm)	Chain 1 Output Power (dBm)	Total Output Power (dBm)	Output Power (W)	Limit (W)	Result
Low	5745	16.01	17.19	19.65	0.0923	1.00	PASS
Mid	5785	15.37	17.01	19.28	0.0847		PASS
High	5825	14.00	16.98	18.75	0.0750		PASS

Test mode: draft 802.11n Wide-40 MHz Channel mode / 5755 ~ 5795MHz

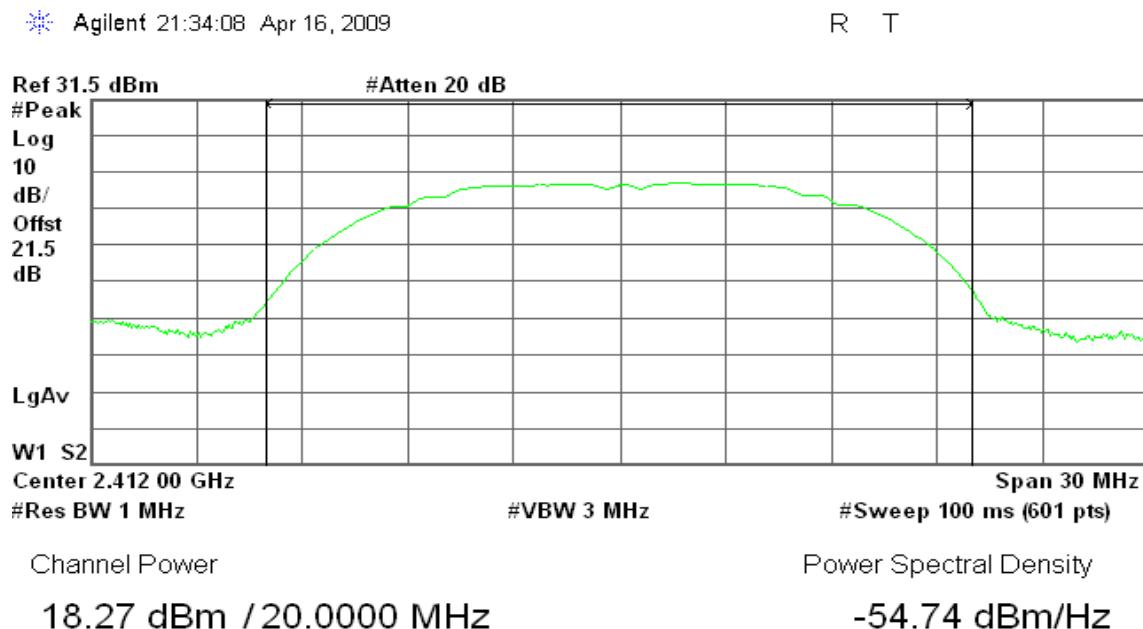
Channel	Frequency (MHz)	Chain 0 Output Power (dBm)	Chain 1 Output Power (dBm)	Total Output Power (dBm)	Output Power (W)	Limit (W)	Result
Low	5755	15.82	17.72	19.88	0.0974	1.00	PASS
Mid	5795	15.32	16.87	19.17	0.0827		PASS

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

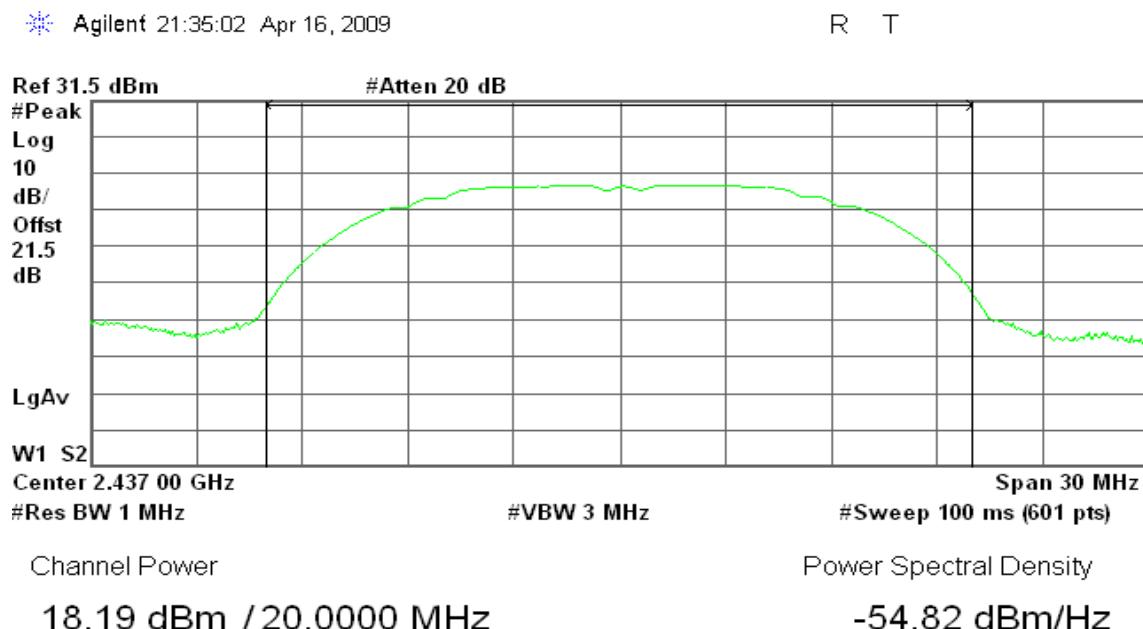
Test Plot

IEEE 802.11b mode

Peak Power (CH Low)



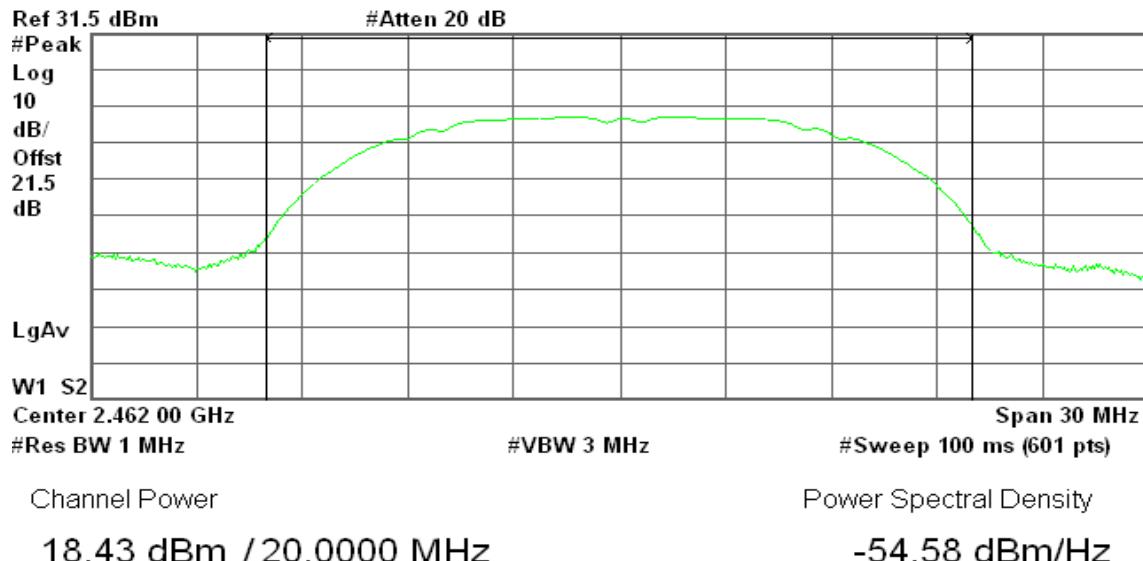
Peak Power (CH Mid)



Peak Power (CH High)

Agilent 21:36:18 Apr 16, 2009

R T

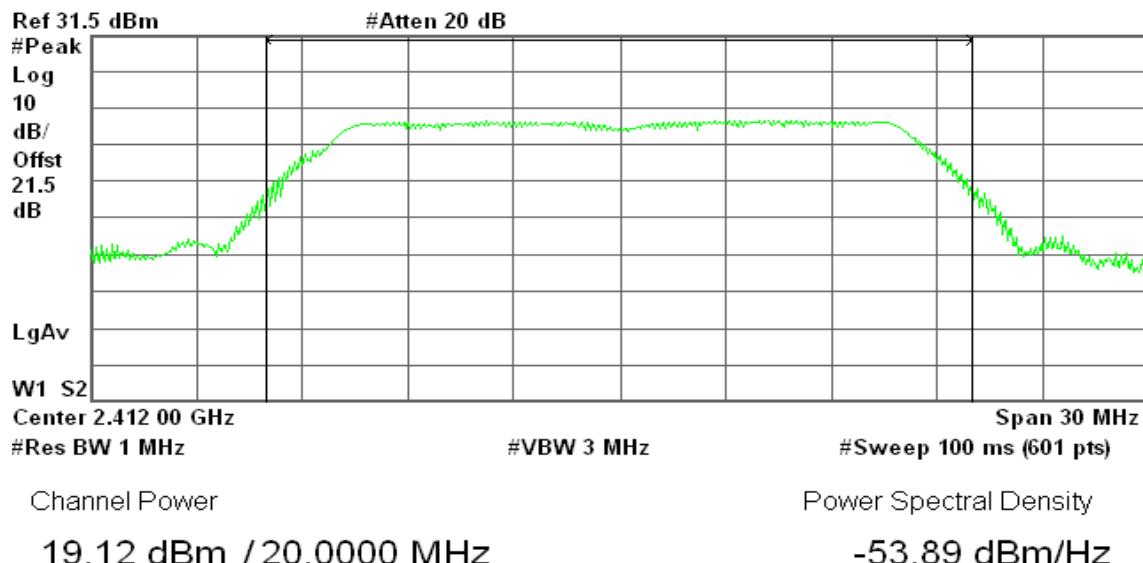


IEEE 802.11g mode

Peak Power (CH Low)

Agilent 21:32:58 Apr 16, 2009

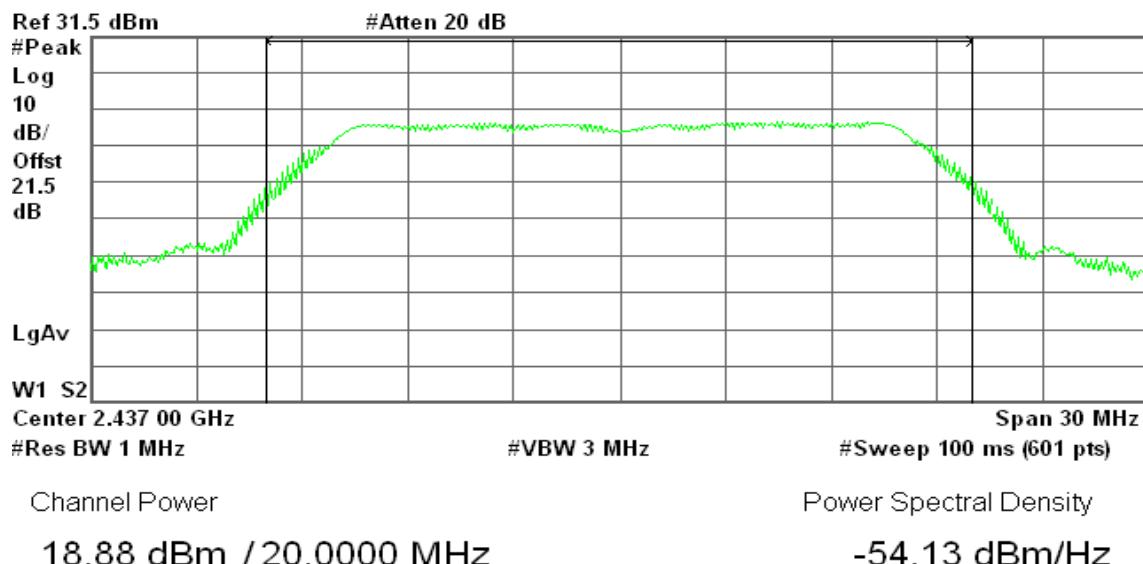
R T



Peak Power (CH Mid)

Agilent 21:32:24 Apr 16, 2009

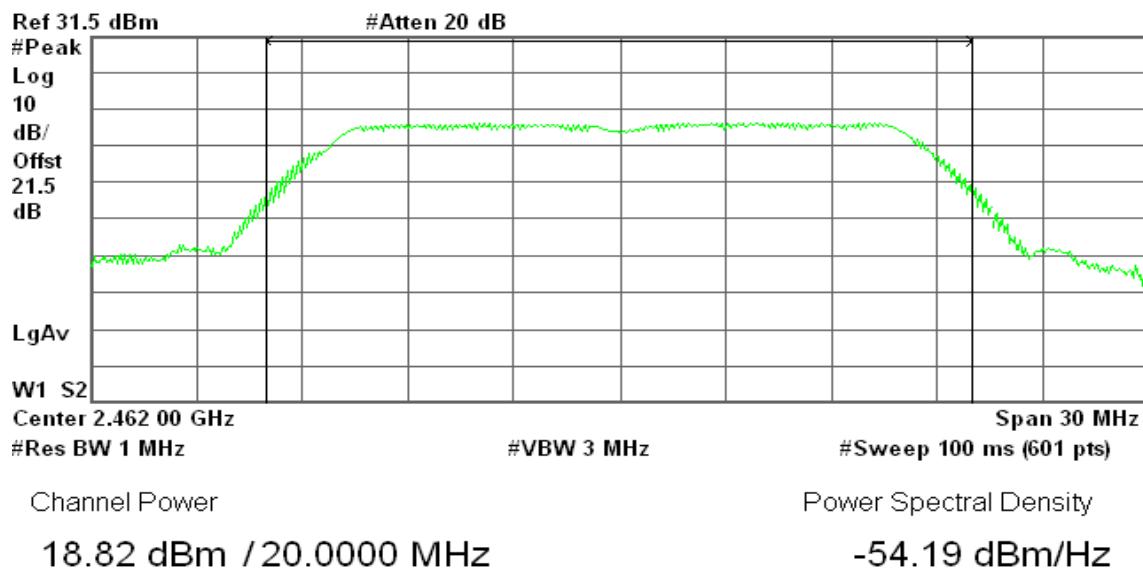
R T



Peak Power (CH High)

Agilent 21:31:09 Apr 16, 2009

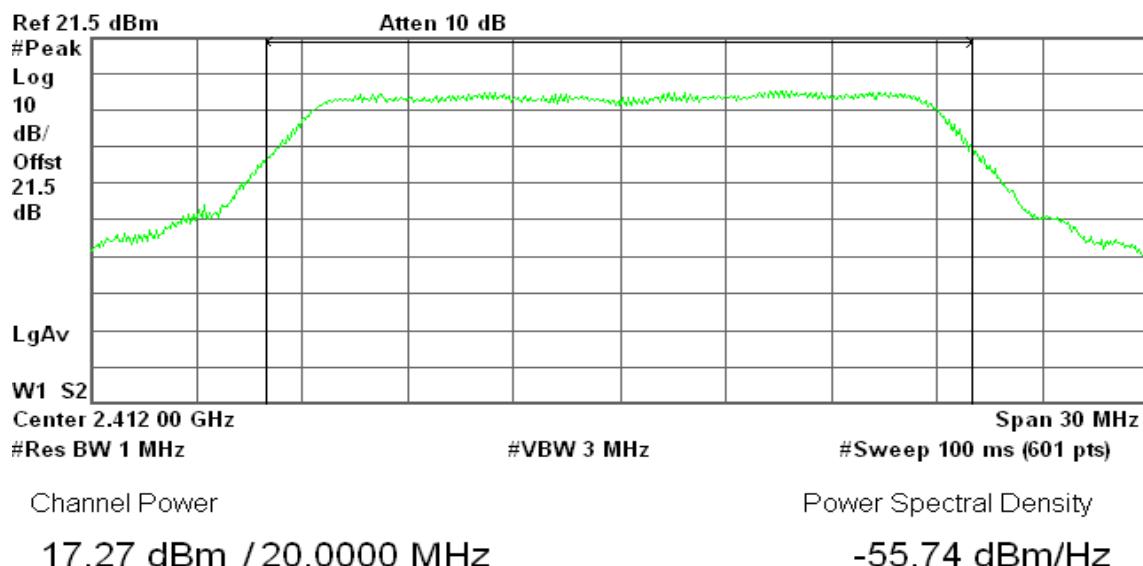
R T



draft 802.11n Standard-20 MHz Channel mode / Chain 0**Peak Power (CH Low)**

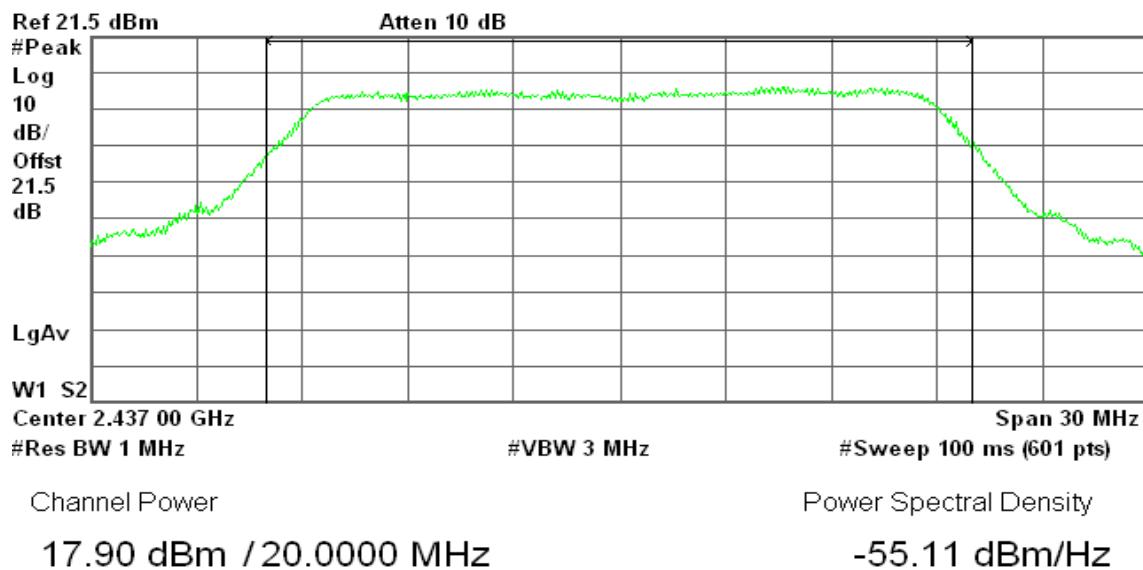
Agilent 22:29:33 Apr 16, 2009

R T

**Peak Power (CH Mid)**

Agilent 22:30:00 Apr 16, 2009

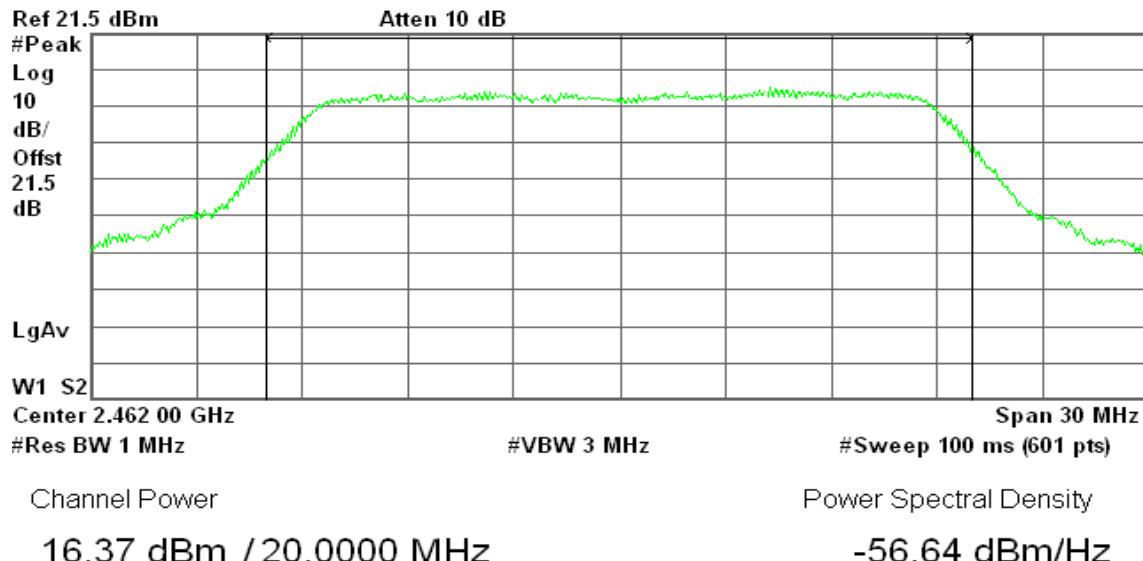
R T



Peak Power (CH High)

Agilent 22:31:23 Apr 16, 2009

R T

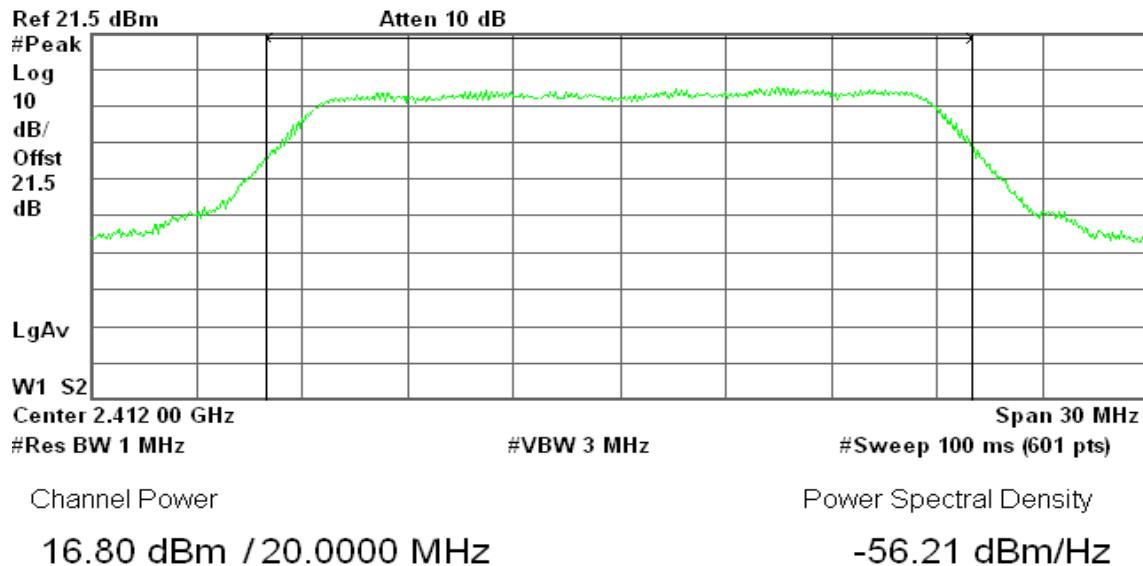


draft 802.11n Standard-20 MHz Channel mode / Chain 1

Peak Power (CH Low)

Agilent 22:35:25 Apr 16, 2009

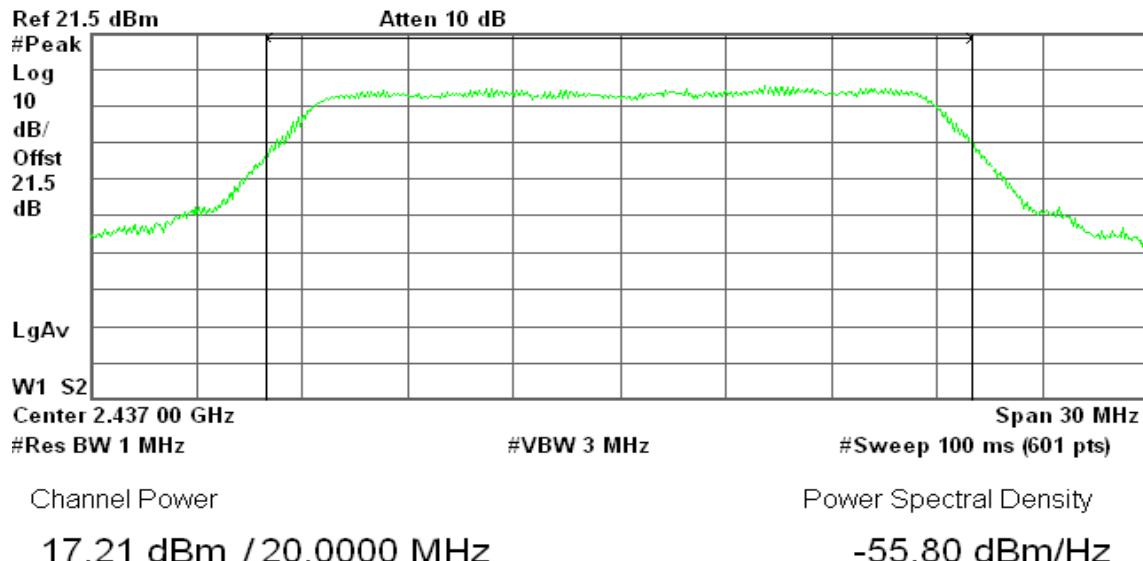
R T



Peak Power (CH Mid)

Agilent 22:34:57 Apr 16, 2009

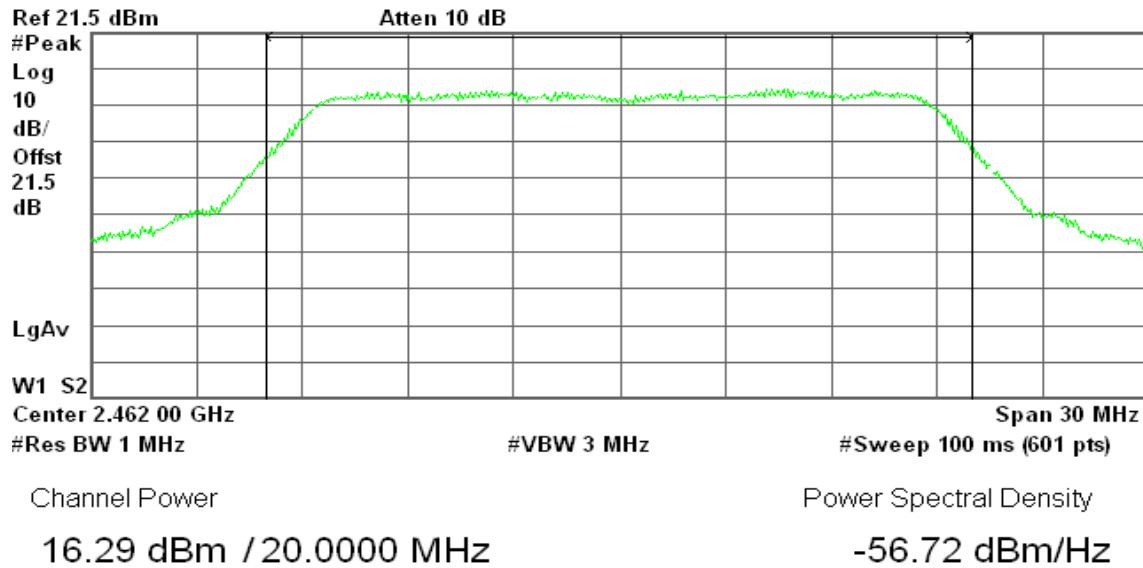
R T



Peak Power (CH High)

Agilent 22:33:00 Apr 16, 2009

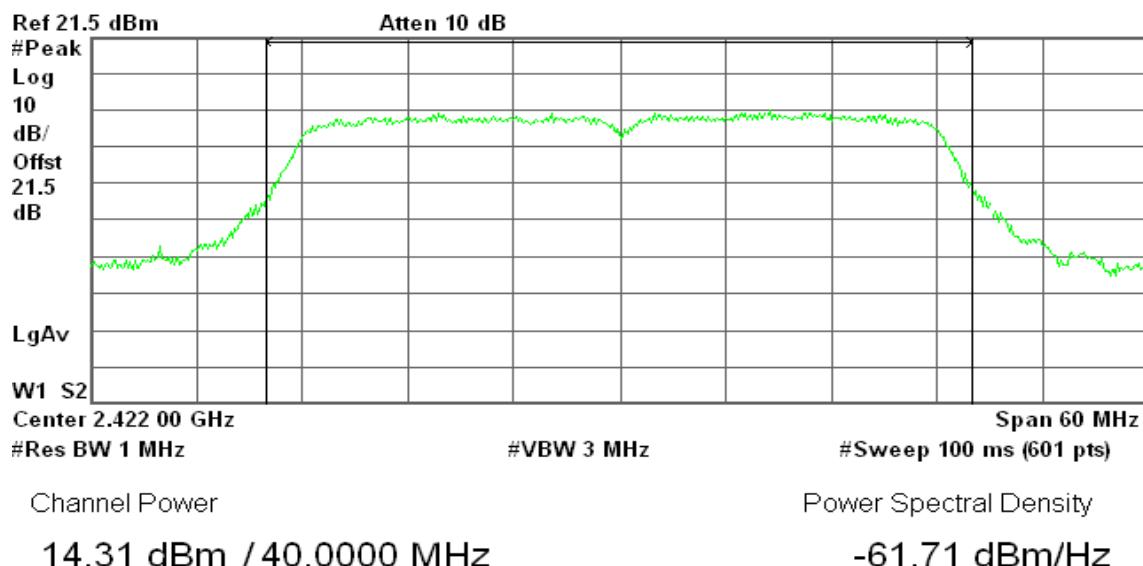
R T



draft 802.11n Wide-40 MHz Channel mode / Chain 0**Peak Power (CH Low)**

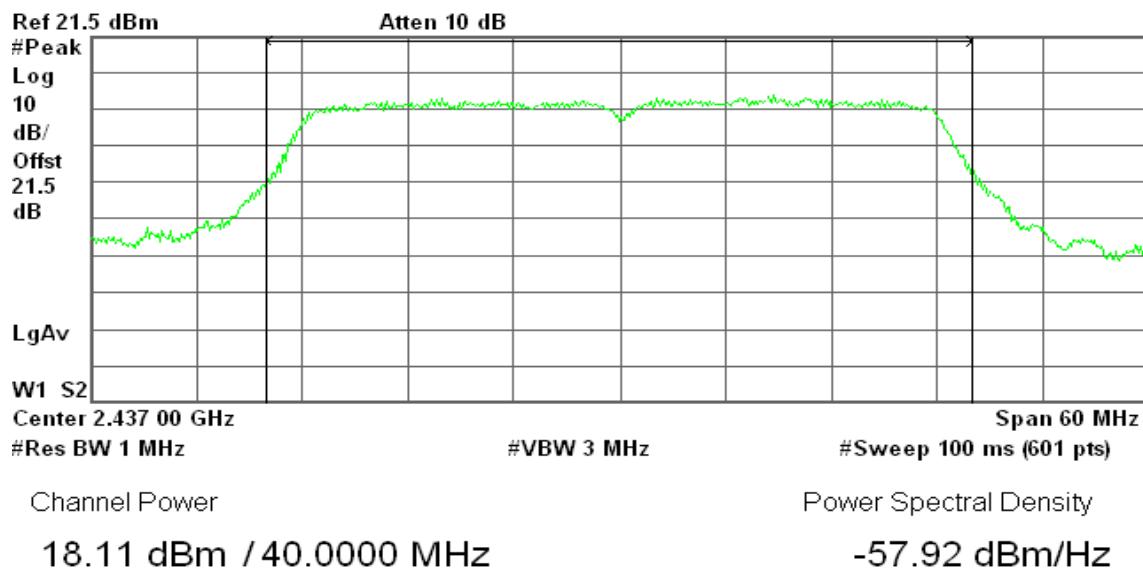
Agilent 22:27:39 Apr 16, 2009

R T

**Peak Power (CH Mid)**

Agilent 22:27:05 Apr 16, 2009

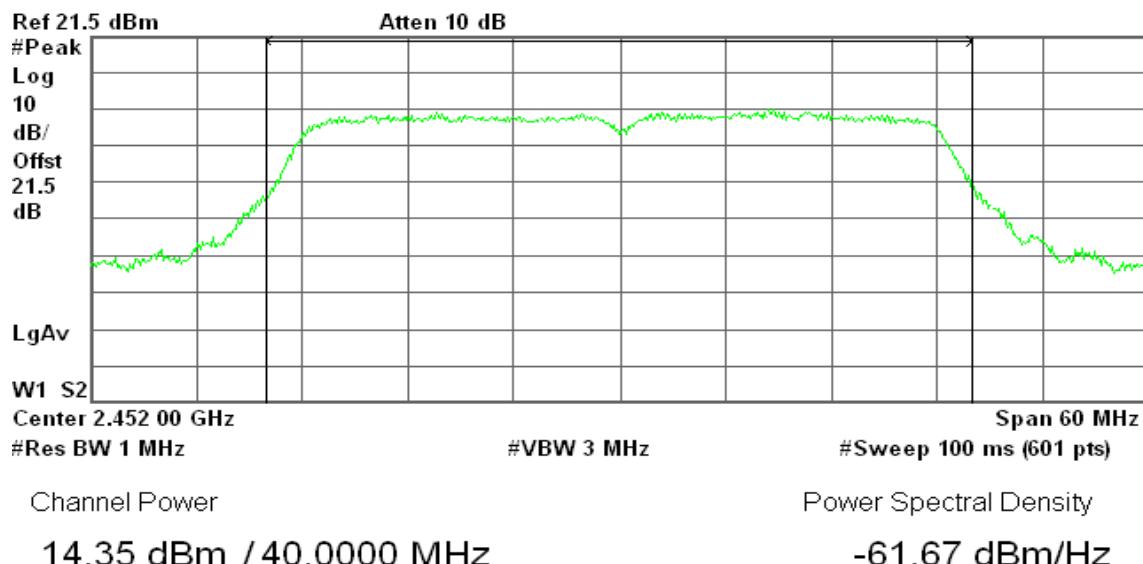
R T



Peak Power (CH High)

Agilent 22:25:37 Apr 16, 2009

R T

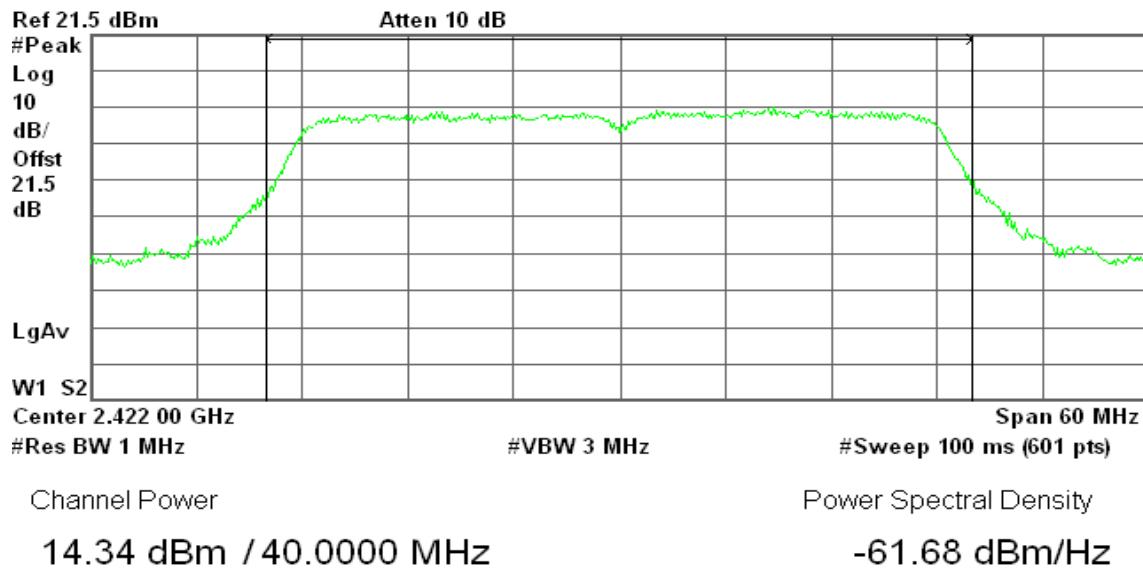


draft 802.11n Wide-40 MHz Channel mode / Chain 1

Peak Power (CH Low)

Agilent 22:38:04 Apr 16, 2009

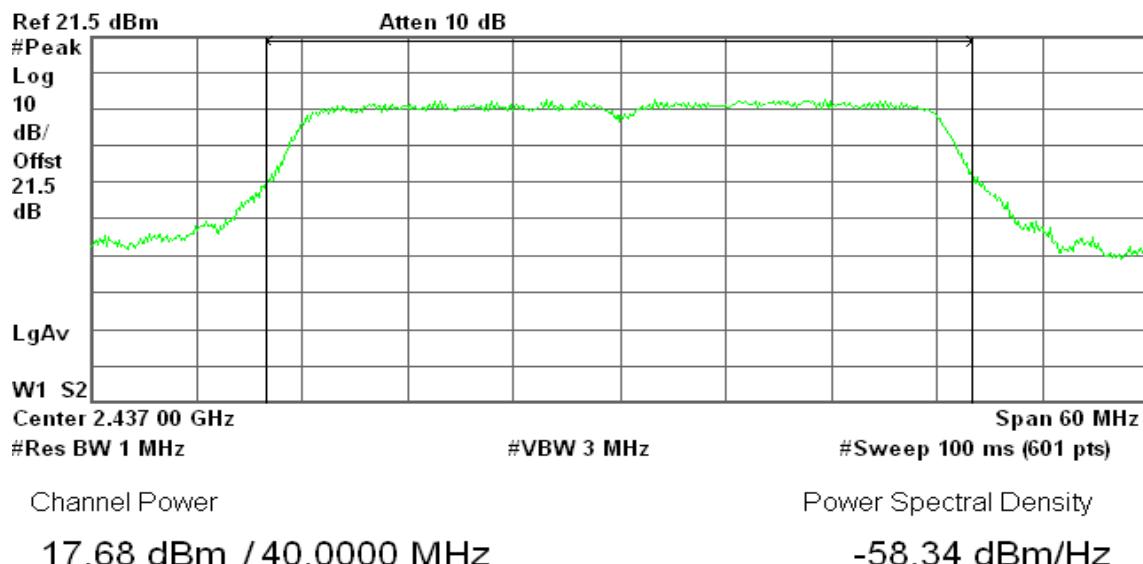
R T



Peak Power (CH Mid)

Agilent 22:38:39 Apr 16, 2009

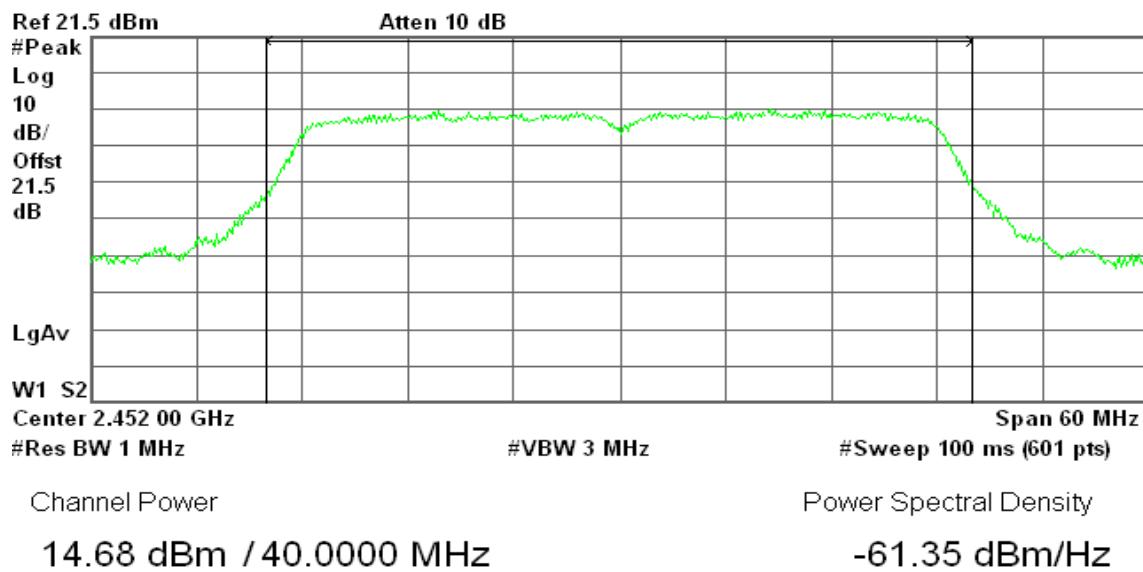
R T



Peak Power (CH High)

Agilent 22:39:43 Apr 16, 2009

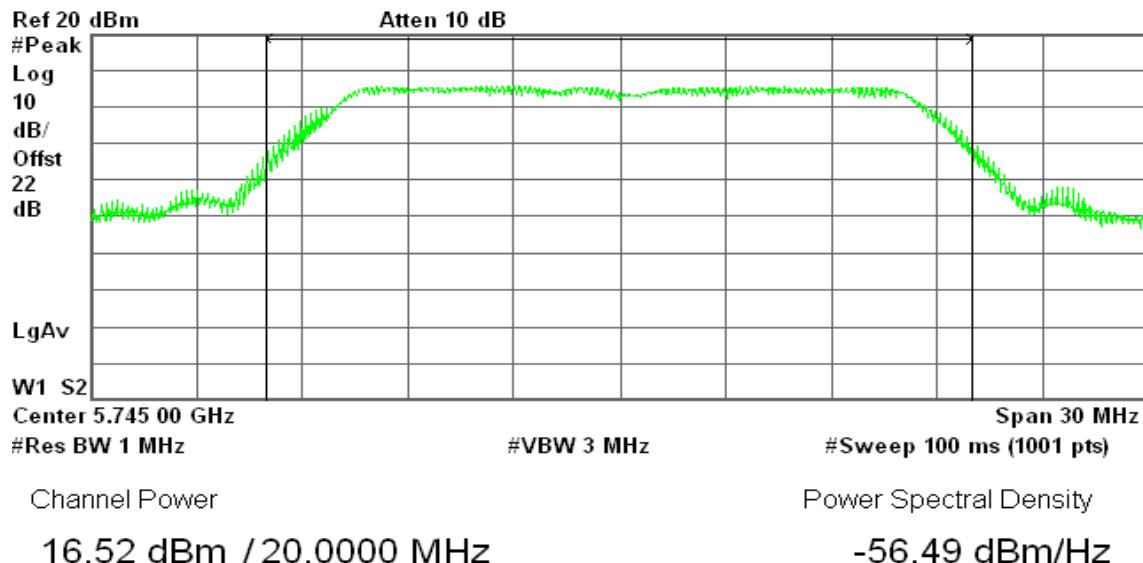
R T



IEEE 802.11a mode / 5745 ~ 5825MHz**Peak Power (CH Low)**

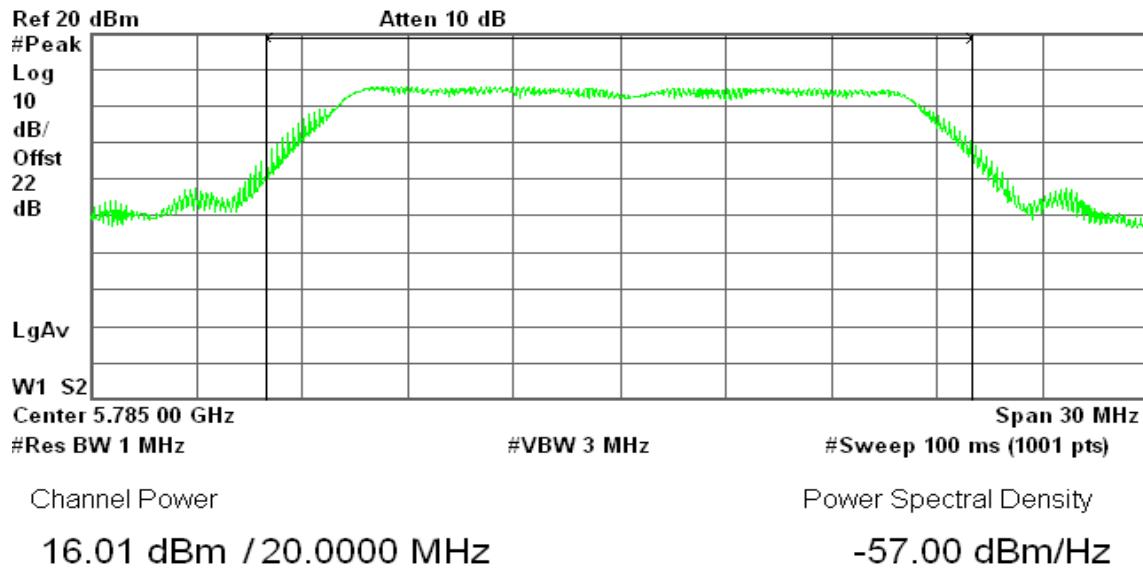
Agilent 02:58:24 Apr 17, 2009

R T

**Peak Power (CH Mid)**

Agilent 02:57:54 Apr 17, 2009

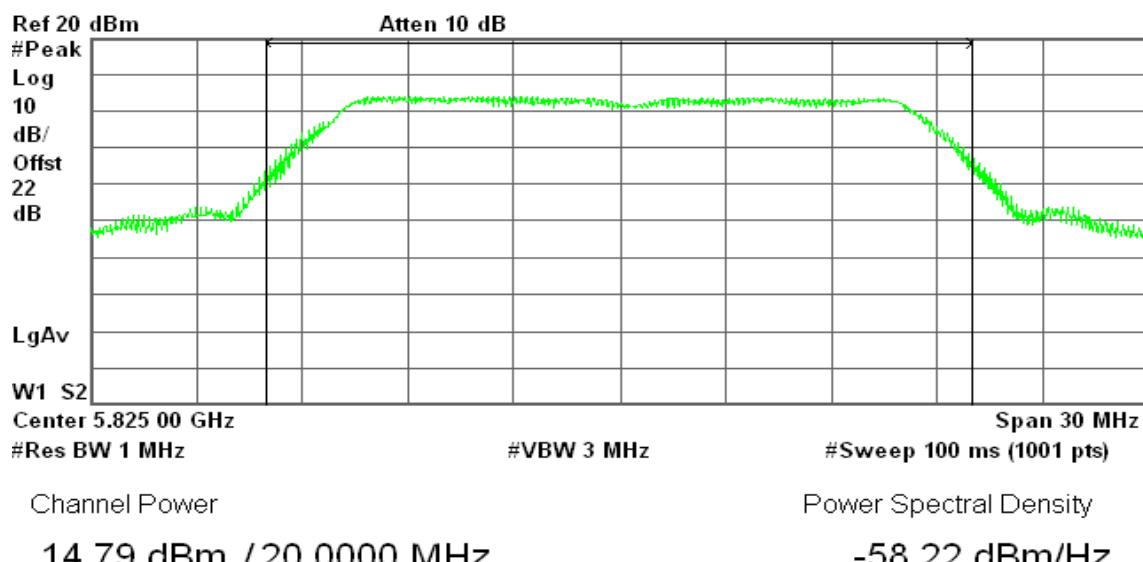
R L



Peak Power (CH High)

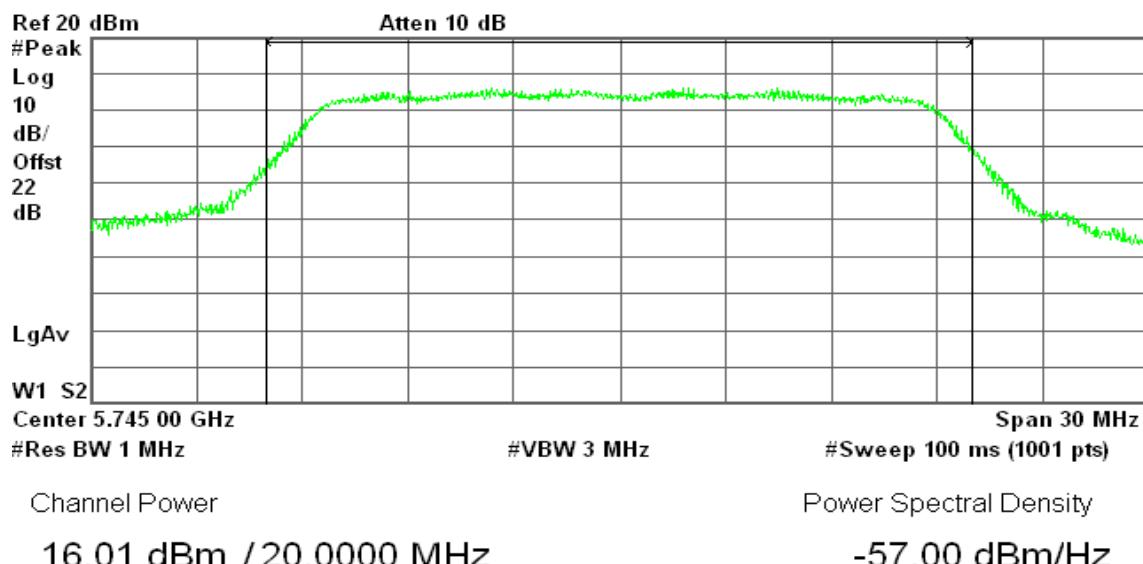
Agilent 02:56:47 Apr 17, 2009

R T

**draft 802.11n Standard-20 MHz Channel mode / 5745 ~ 5825MHz / Chain 0****Peak Power (CH Low)**

Agilent 03:01:03 Apr 17, 2009

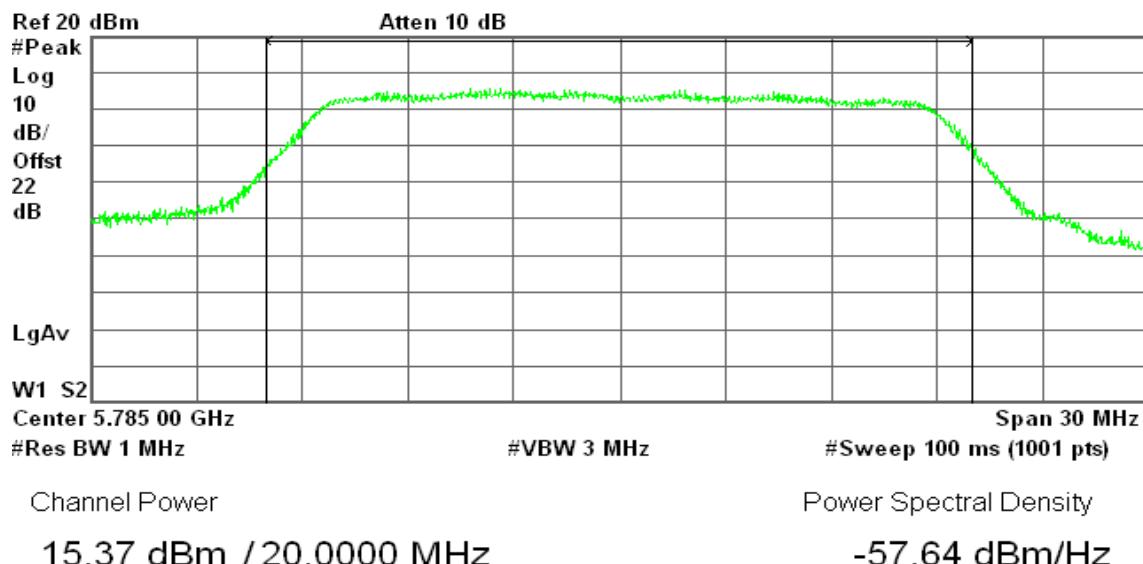
R T



Peak Power (CH Mid)

Agilent 03:01:38 Apr 17, 2009

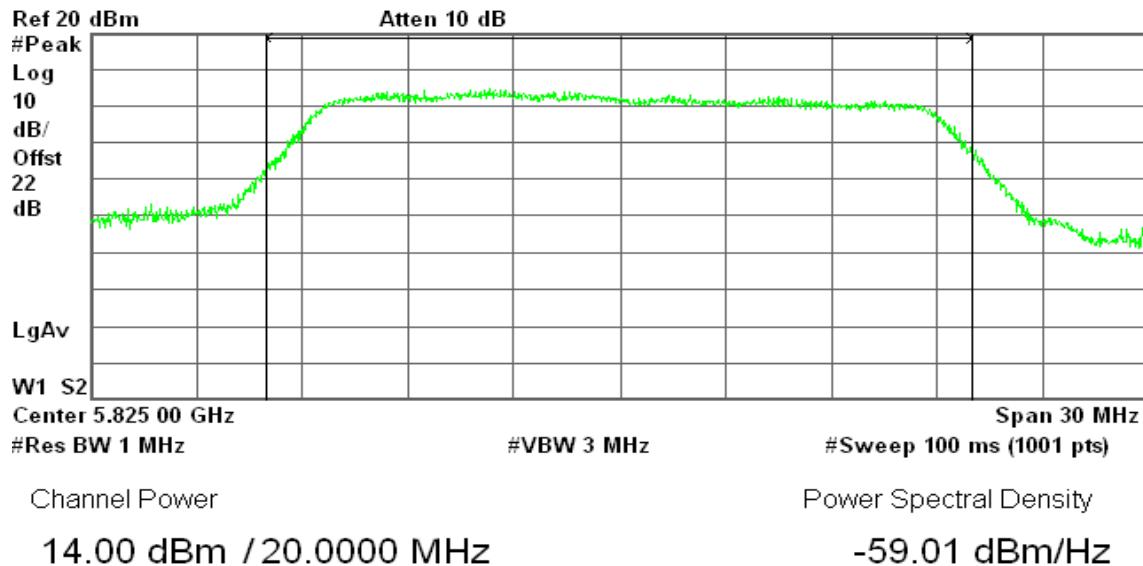
R T



Peak Power (CH High)

Agilent 03:02:39 Apr 17, 2009

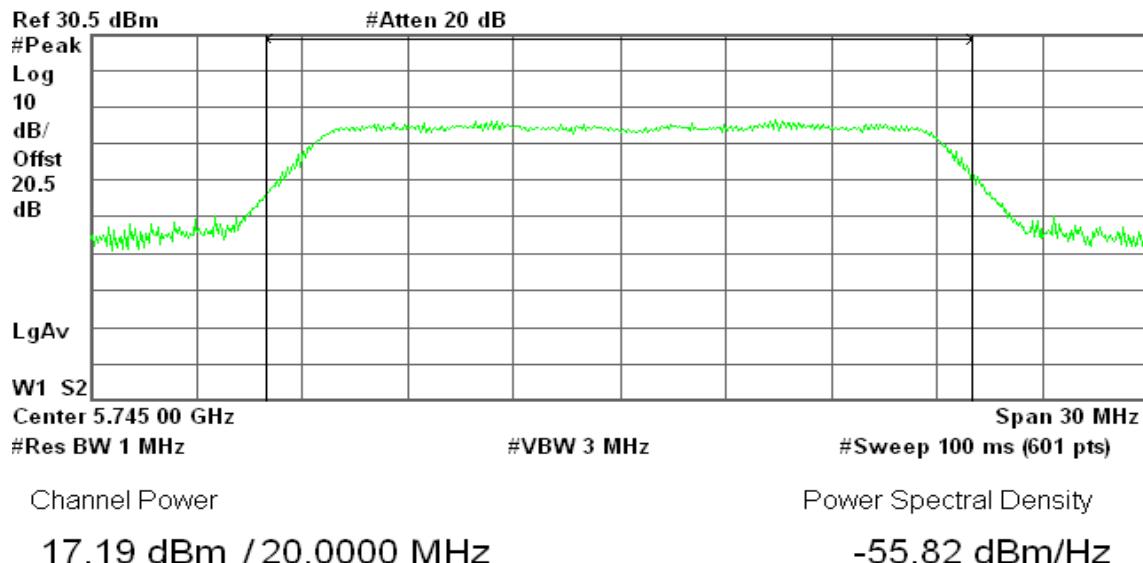
R T



draft 802.11n Standard-20 MHz Channel mode / 5745 ~ 5825MHz / Chain 1**Peak Power (CH Low)**

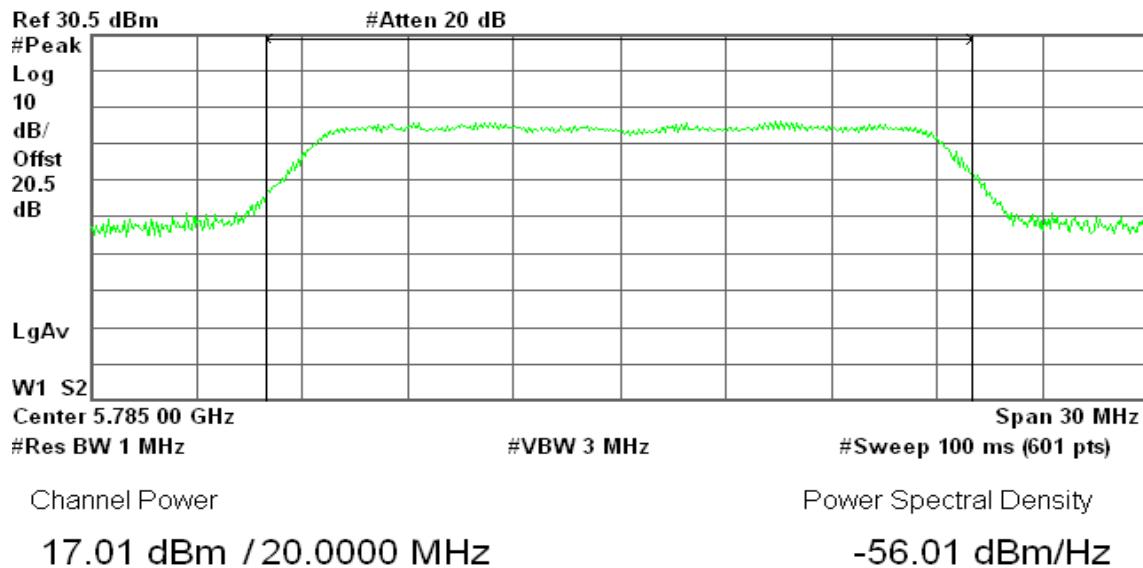
Agilent 16:06:17 Apr 22, 2009

R T

**Peak Power (CH Mid)**

Agilent 16:06:57 Apr 22, 2009

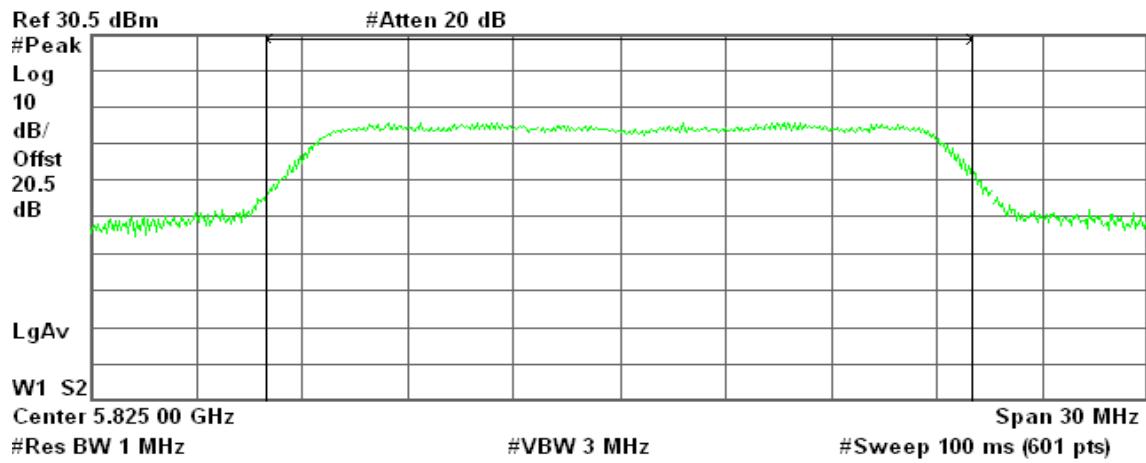
R T



Peak Power (CH High)

* Agilent 16:07:56 Apr 22, 2009

R T



Channel Power

16.98 dBm / 20.0000 MHz

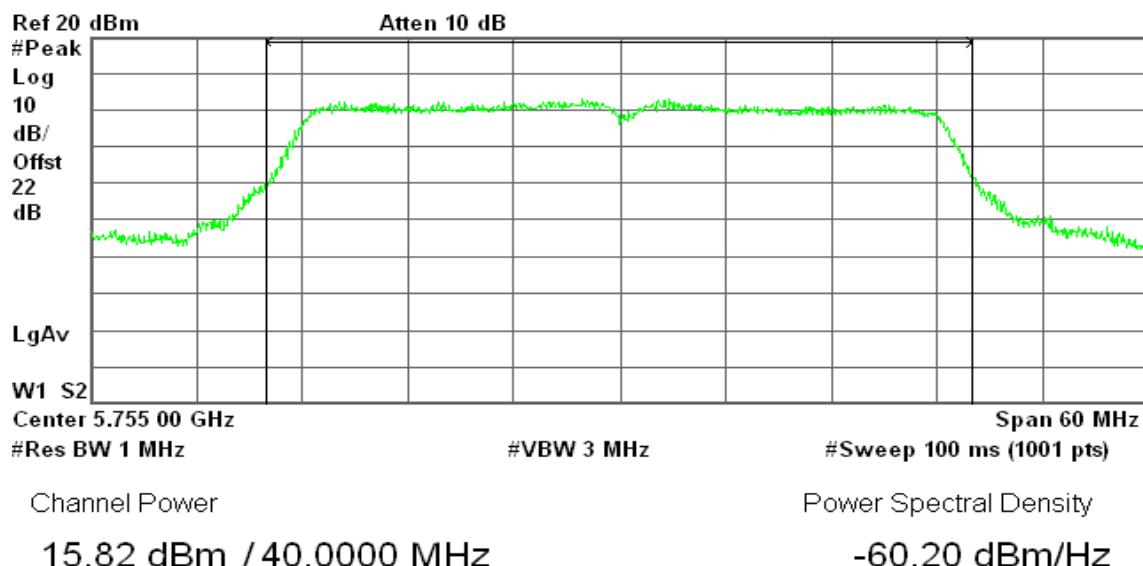
Power Spectral Density

-56.03 dBm/Hz

draft 802.11n Wide-40 MHz Channel mode / 5755 ~ 5795MHz / Chain 0**Peak Power (CH Low)**

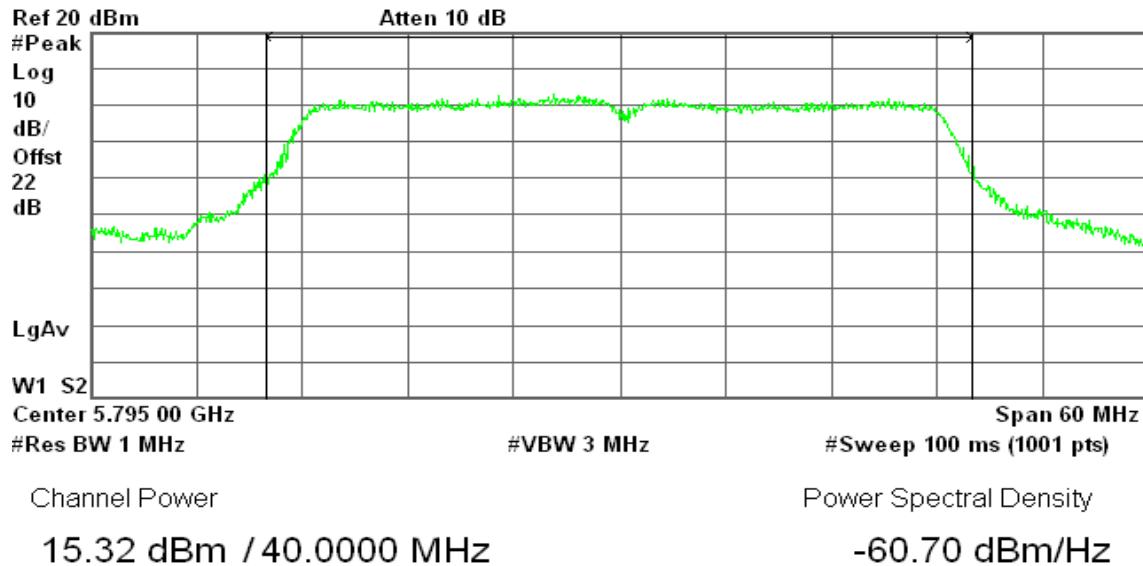
Agilent 03:03:48 Apr 17, 2009

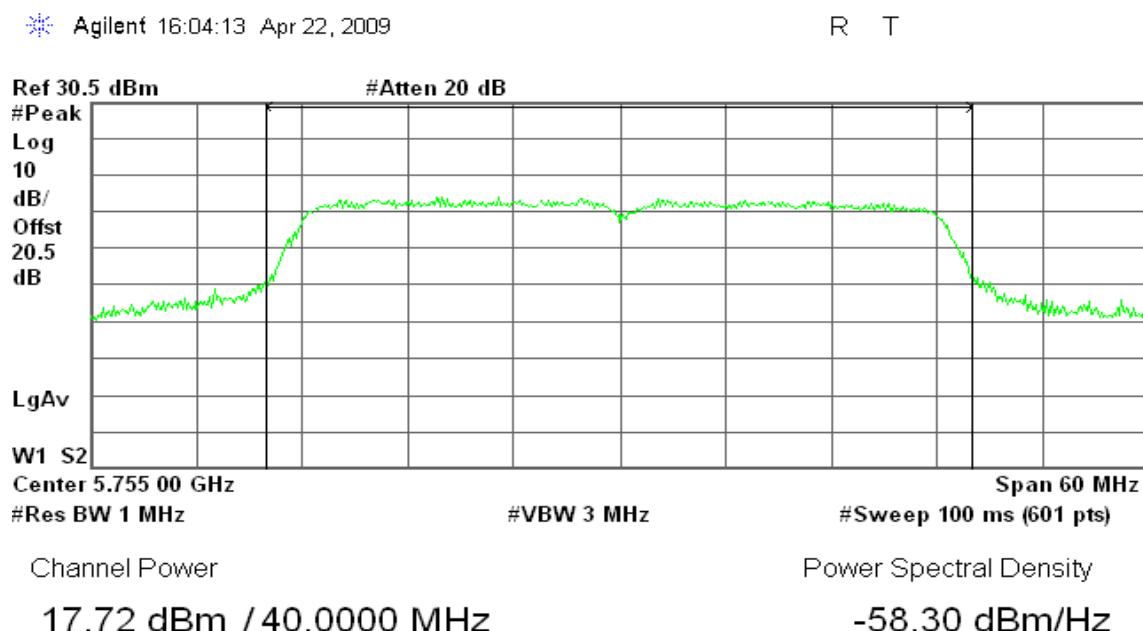
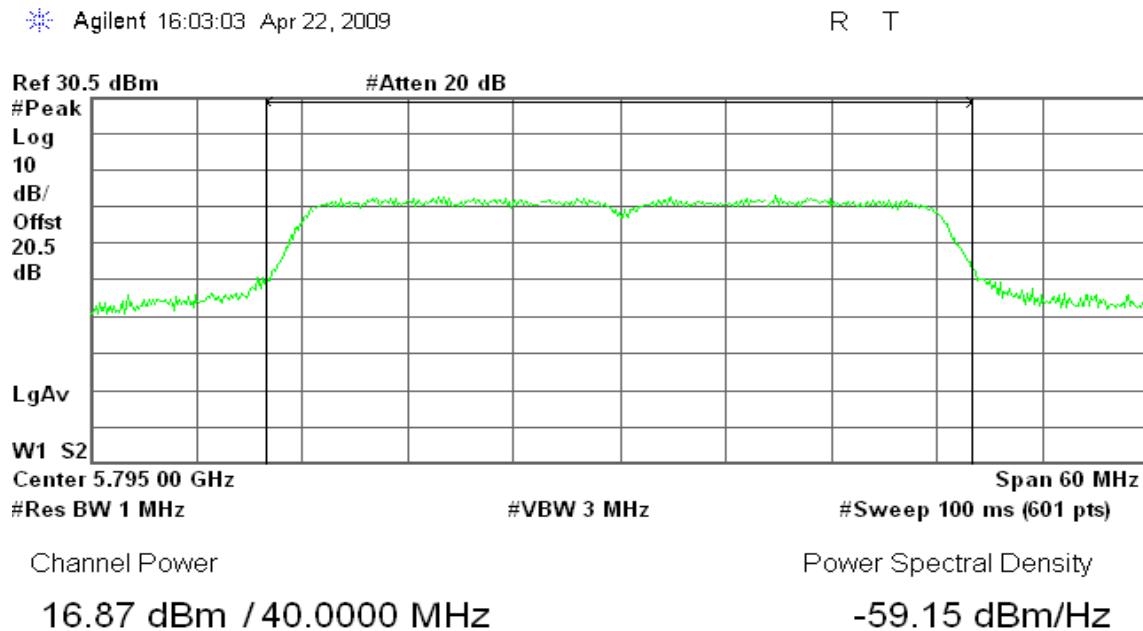
R L

**Peak Power (CH High)**

Agilent 03:04:55 Apr 17, 2009

R T



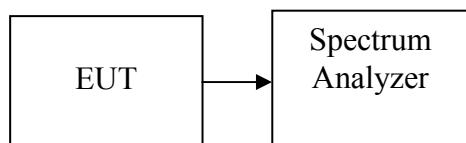
draft 802.11n Wide-40 MHz Channel mode / 5755 ~ 5795MHz / Chain 1**Peak Power (CH Low)****Peak Power (CH High)**

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

Test mode: IEEE 802.11b mode

Channel	Frequency (MHz)	Output Power (dBm)
Low	2412	15.40
Mid	2437	15.34
High	2462	15.44

Test mode: IEEE 802.11g mode

Channel	Frequency (MHz)	Output Power (dBm)
Low	2412	11.93
Mid	2437	11.69
High	2462	11.57

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

Channel	Frequency (MHz)	Chain 0 Output Power (dBm)	Chain 1 Output Power (dBm)	Total Output Power (dBm)
Low	2412	9.79	9.31	12.57
Mid	2437	10.35	10.02	13.20
High	2462	9.00	8.81	11.92

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

Channel	Frequency (MHz)	Chain 0 Output Power (dBm)	Chain 1 Output Power (dBm)	Total Output Power (dBm)
Low	2422	6.96	6.71	9.85
Mid	2437	10.98	9.76	13.42
High	2452	7.09	7.42	10.27

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

**Test mode: IEEE 802.11a mode / 5745 ~ 5825MHz**

Channel	Frequency (MHz)	Output Power (dBm)
Low	5745	9.59
Mid	5785	8.71
High	5825	7.72

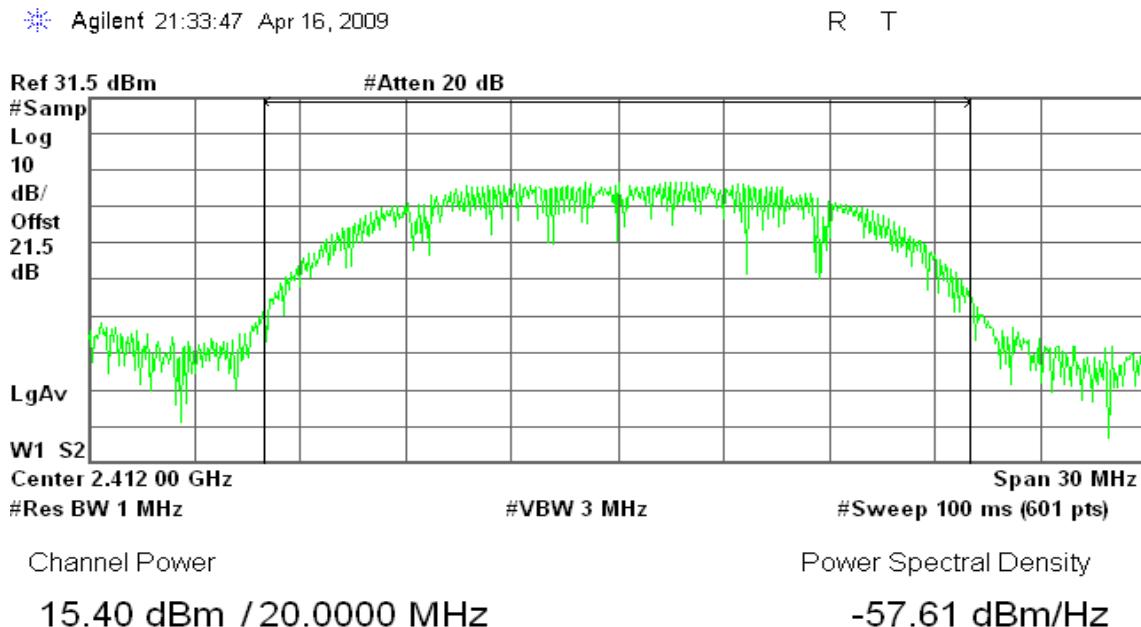
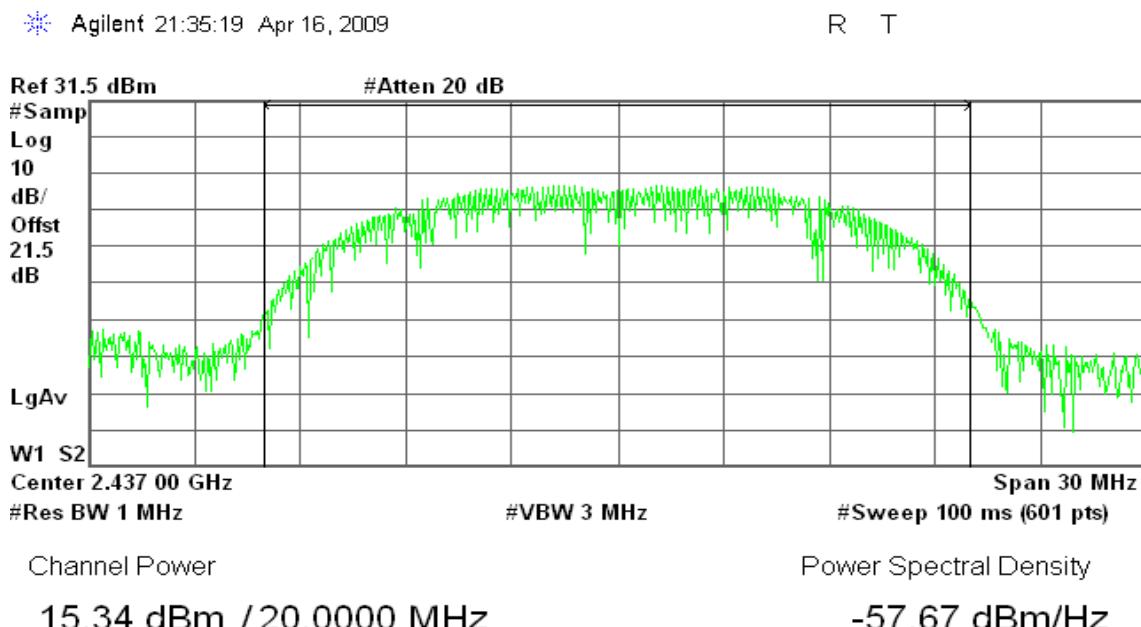
Test mode: draft 802.11n Standard-20 MHz Channel mode / 5745 ~ 5825MHz

Channel	Frequency (MHz)	Chain 0 Output Power (dBm)	Chain 1 Output Power (dBm)	Total Output Power (dBm)
Low	5745	9.03	9.77	12.43
Mid	5785	7.98	9.39	11.75
High	5825	6.75	9.06	11.07

Test mode: draft 802.11n Wide-40 MHz Channel mode / 5755 ~ 5795MHz

Channel	Frequency (MHz)	Chain 0 Output Power (dBm)	Chain 1 Output Power (dBm)	Total Output Power (dBm)
Low	5755	8.70	9.83	12.31
Mid	5795	7.77	9.53	11.75

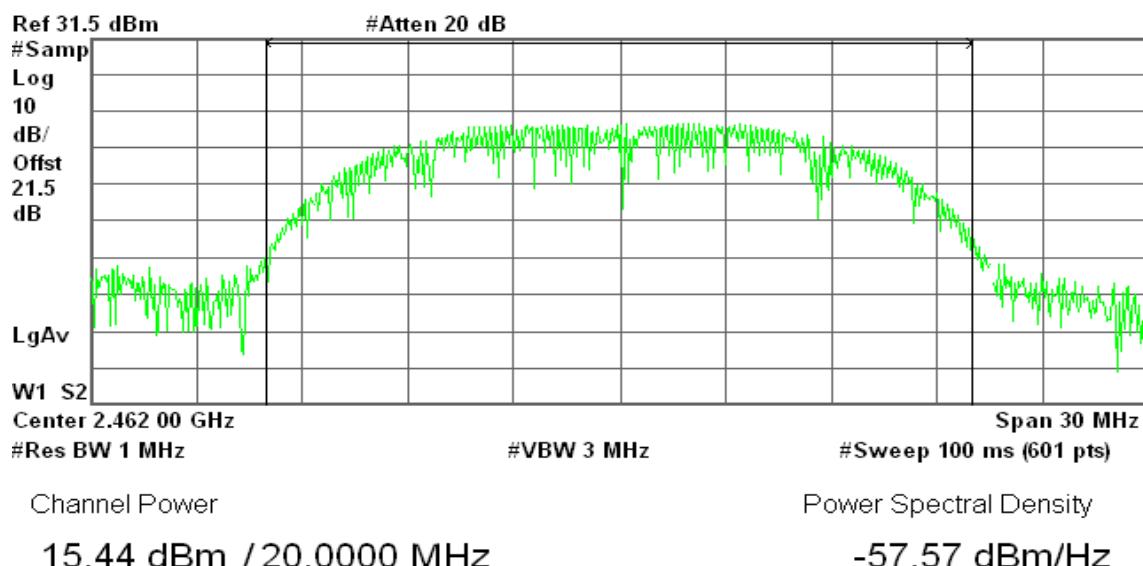
Remark: Total Output Power (w) = Chain 0 (10^(Output Power /10)/1000) + Chain 1 (10^(Output Power /10)/1000)

Test Plot**IEEE 802.11b mode****Average Power (CH Low)****Average Power (CH Mid)**

Average Power (CH High)

Agilent 21:36:01 Apr 16, 2009

R T

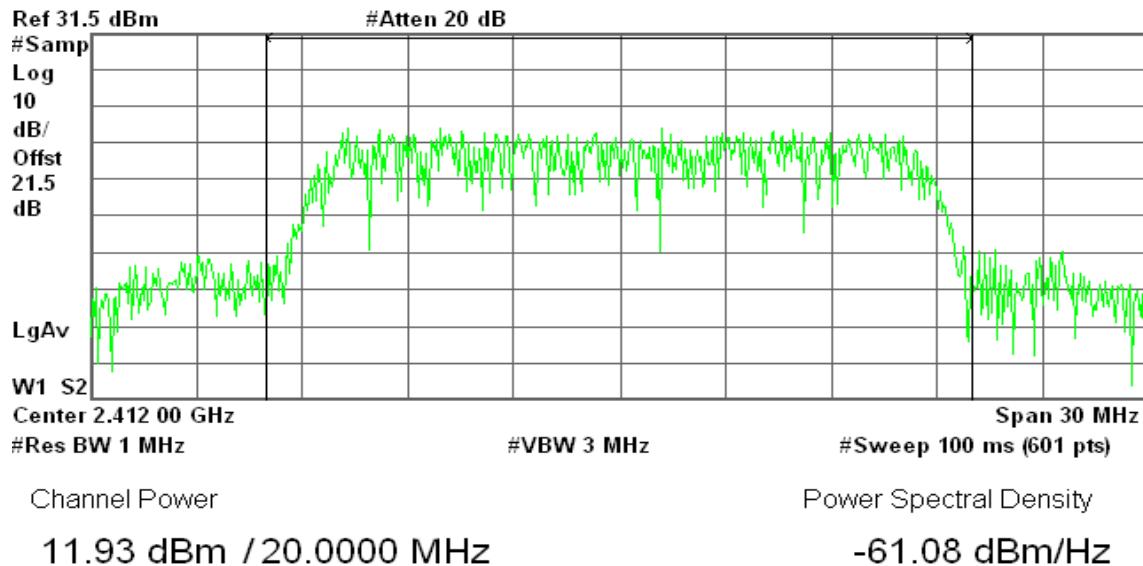


IEEE 802.11g mode

Average Power (CH Low)

Agilent 21:33:12 Apr 16, 2009

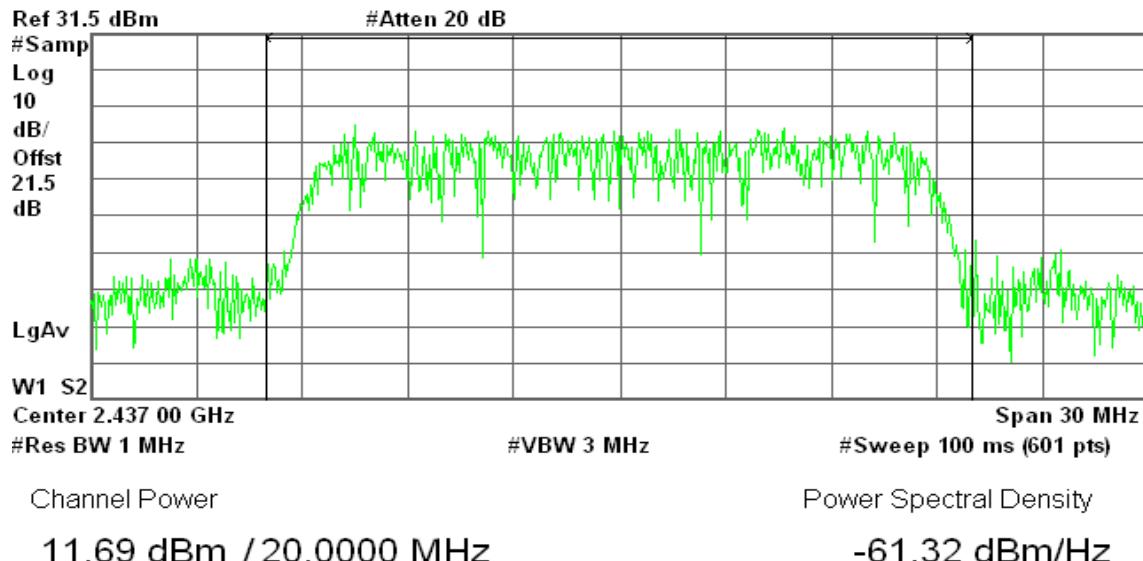
R T



Average Power (CH Mid)

Agilent 21:32:07 Apr 16, 2009

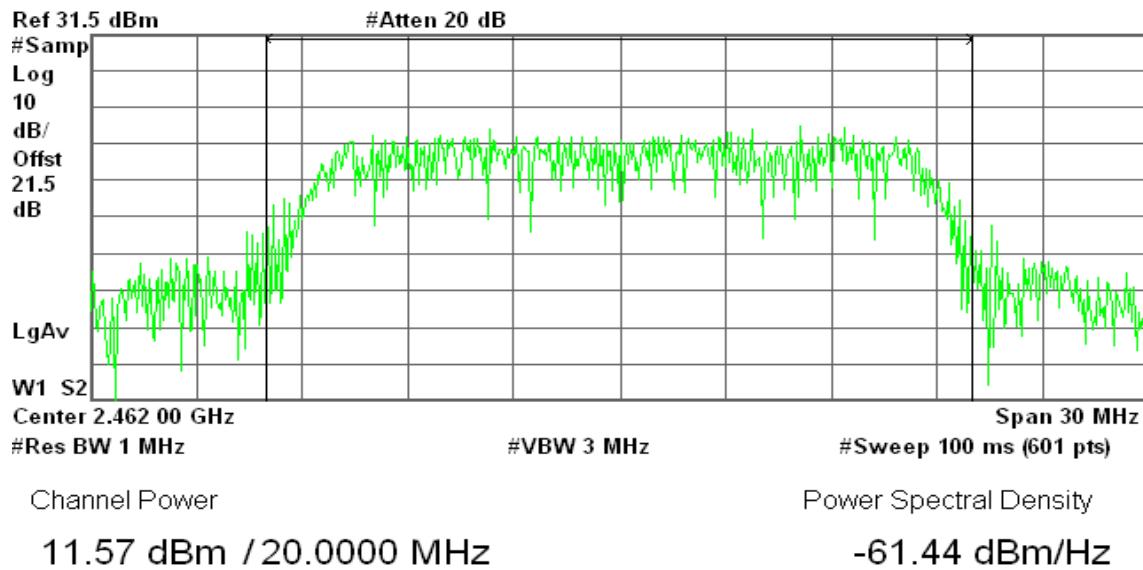
R T



Average Power (CH High)

Agilent 21:31:29 Apr 16, 2009

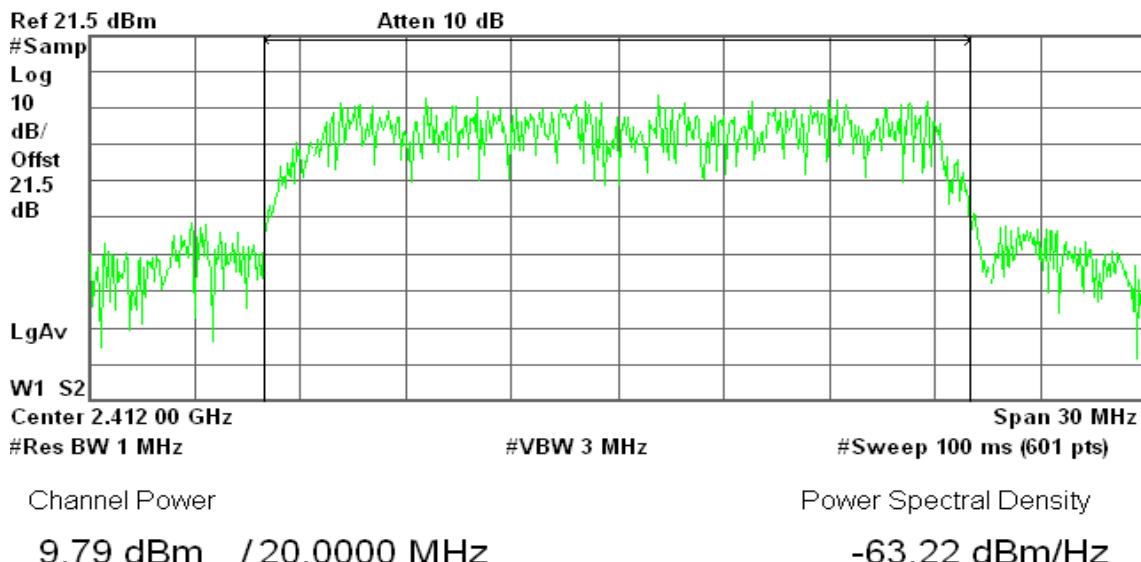
R T



draft 802.11n Standard-20 MHz Channel mode / Chain 0**Average Power (CH Low)**

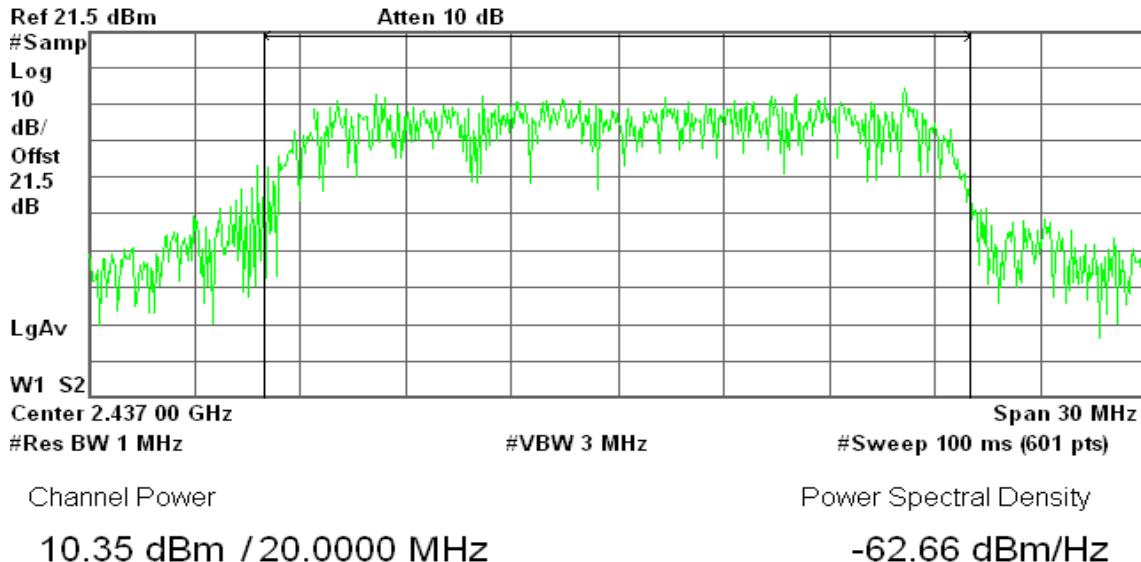
Agilent 22:29:18 Apr 16, 2009

R T

**Average Power (CH Mid)**

Agilent 22:30:27 Apr 16, 2009

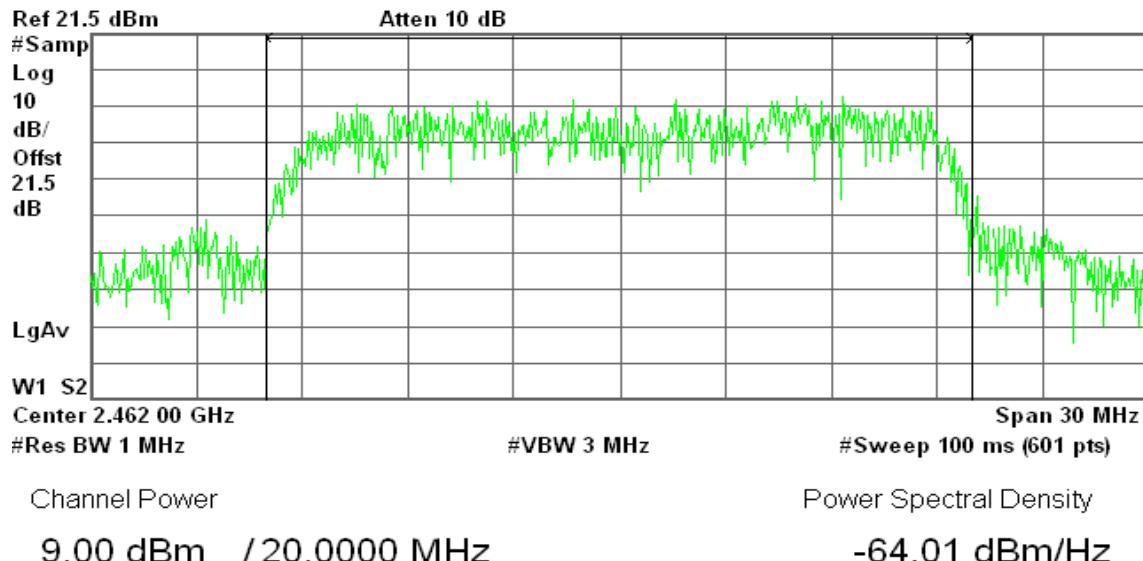
R T



Average Power (CH High)

Agilent 22:31:07 Apr 16, 2009

R T

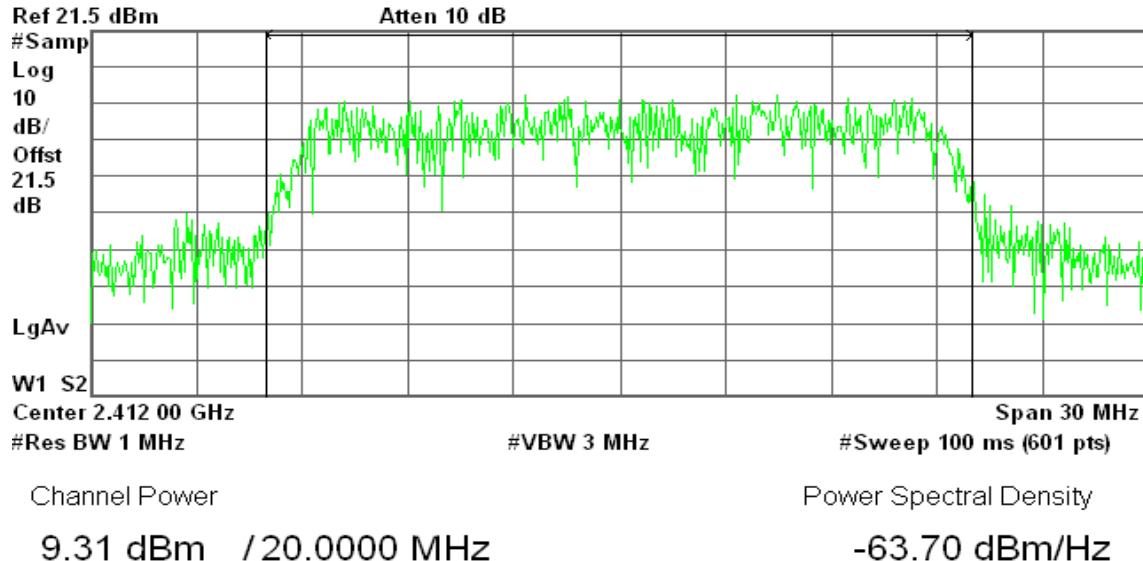


draft 802.11n Standard-20 MHz Channel mode / Chain 1

Average Power (CH Low)

Agilent 22:35:41 Apr 16, 2009

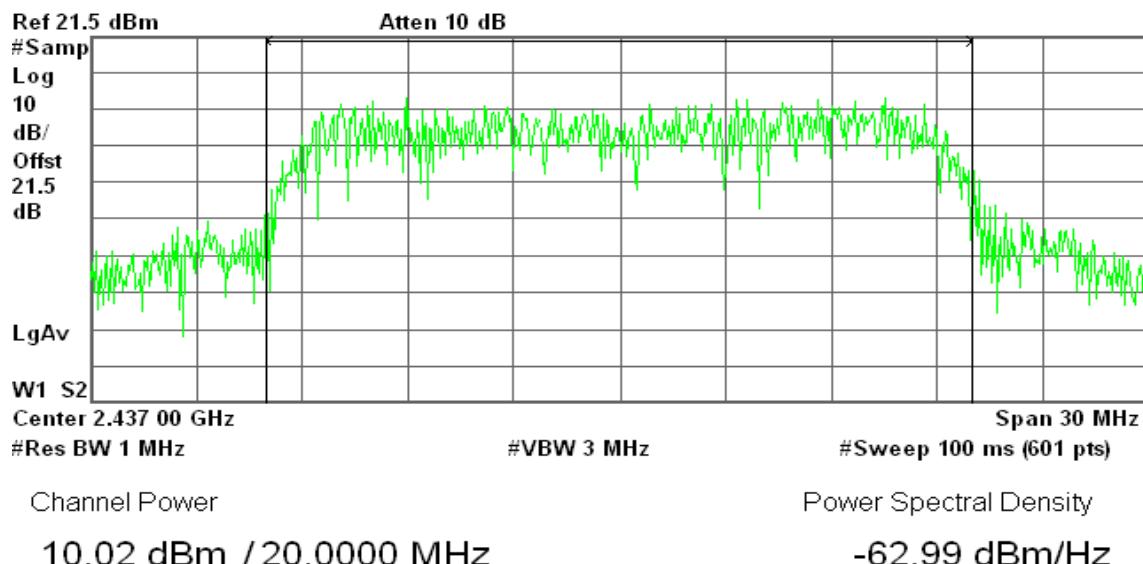
R T



Average Power (CH Mid)

Agilent 22:34:41 Apr 16, 2009

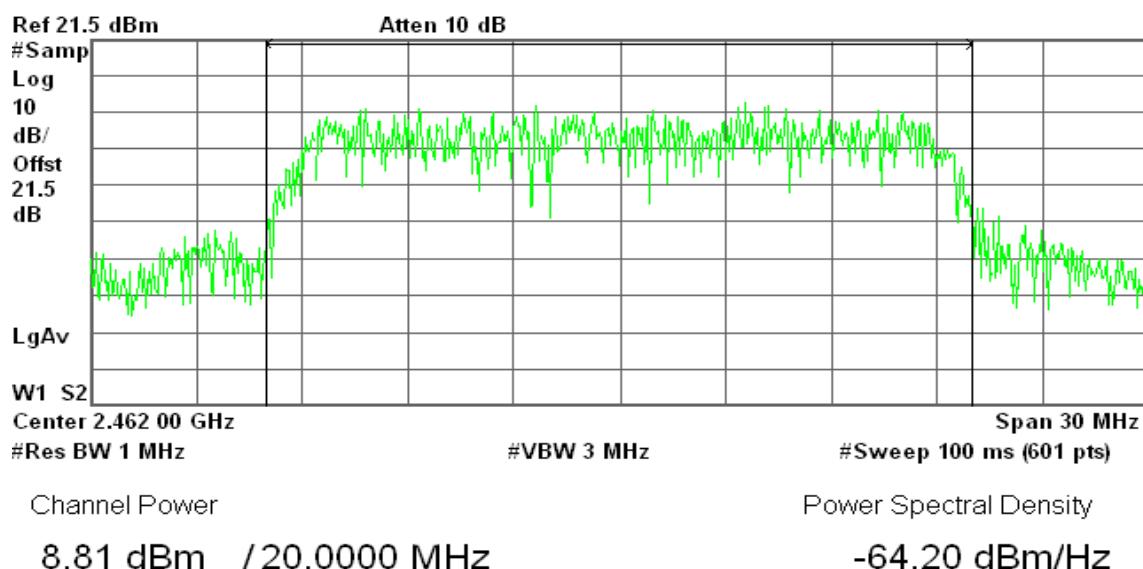
R T



Average Power (CH High)

Agilent 22:33:29 Apr 16, 2009

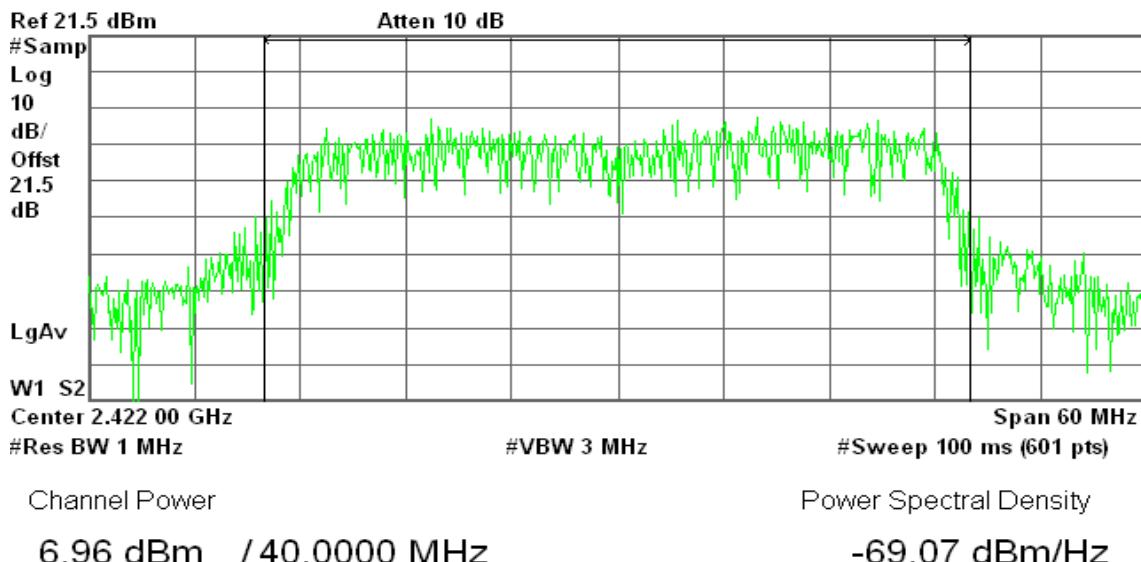
R T



draft 802.11n Wide-40 MHz Channel mode / Chain 0**Average Power (CH Low)**

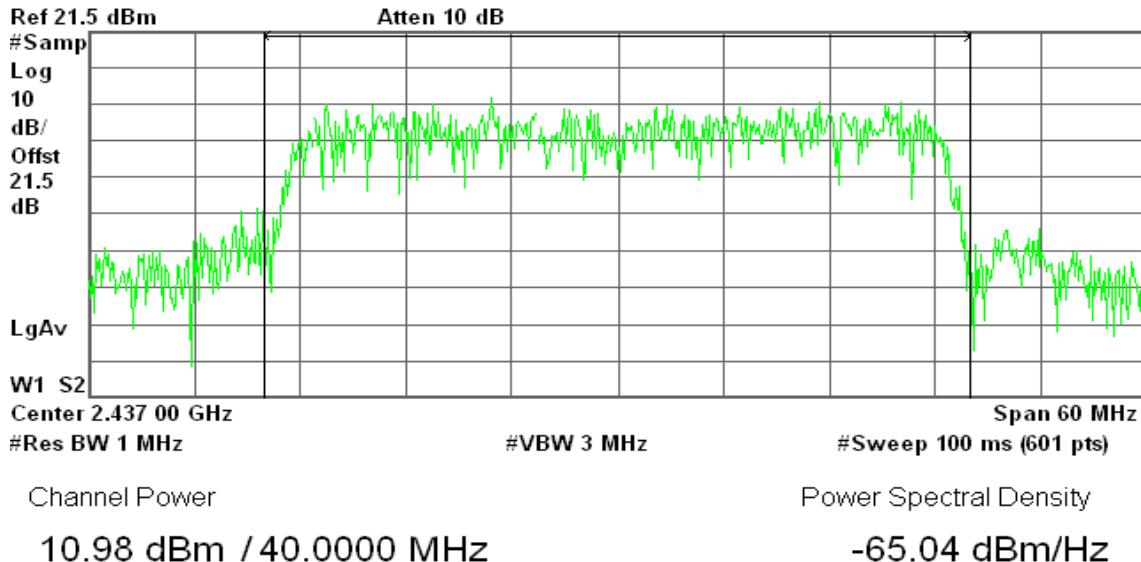
Agilent 22:27:54 Apr 16, 2009

R T

**Average Power (CH Mid)**

Agilent 22:26:49 Apr 16, 2009

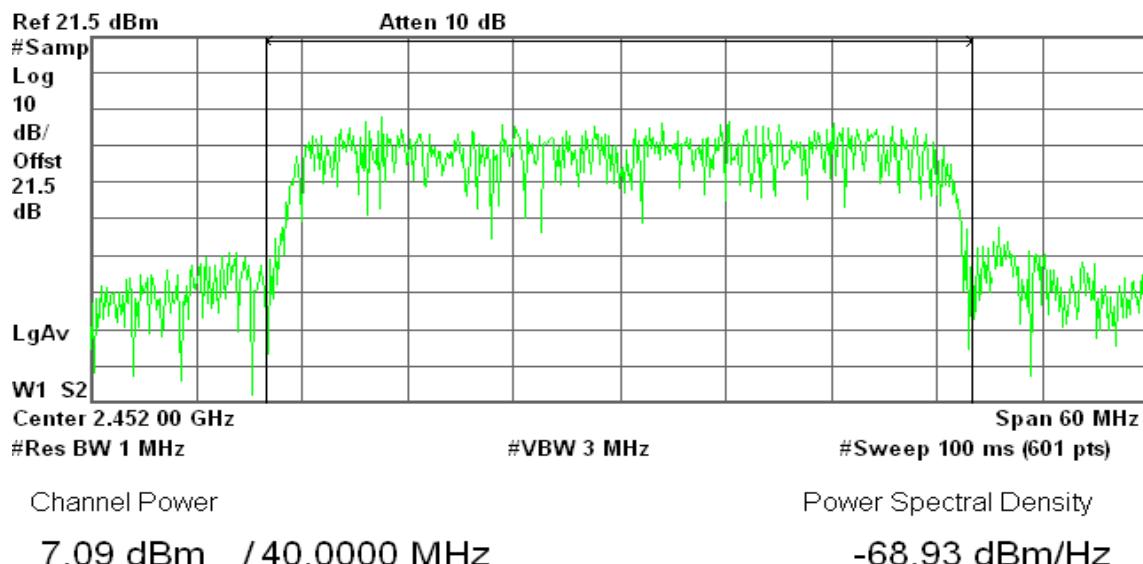
R T



Average Power (CH High)

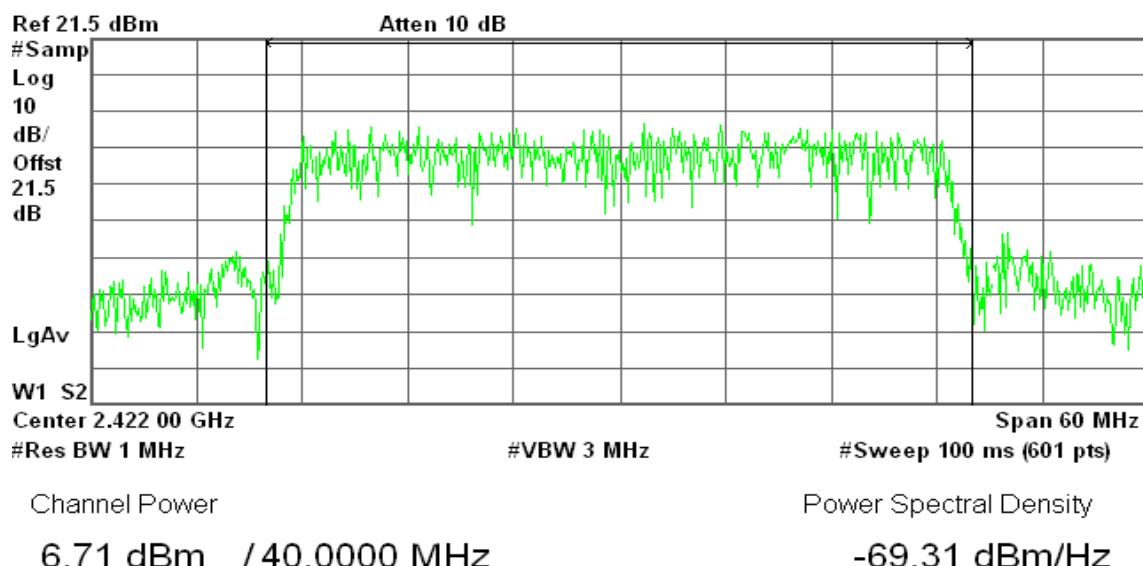
Agilent 22:26:02 Apr 16, 2009

R T

**draft 802.11n Wide-40 MHz Channel mode / Chain 1****Average Power (CH Low)**

Agilent 22:37:43 Apr 16, 2009

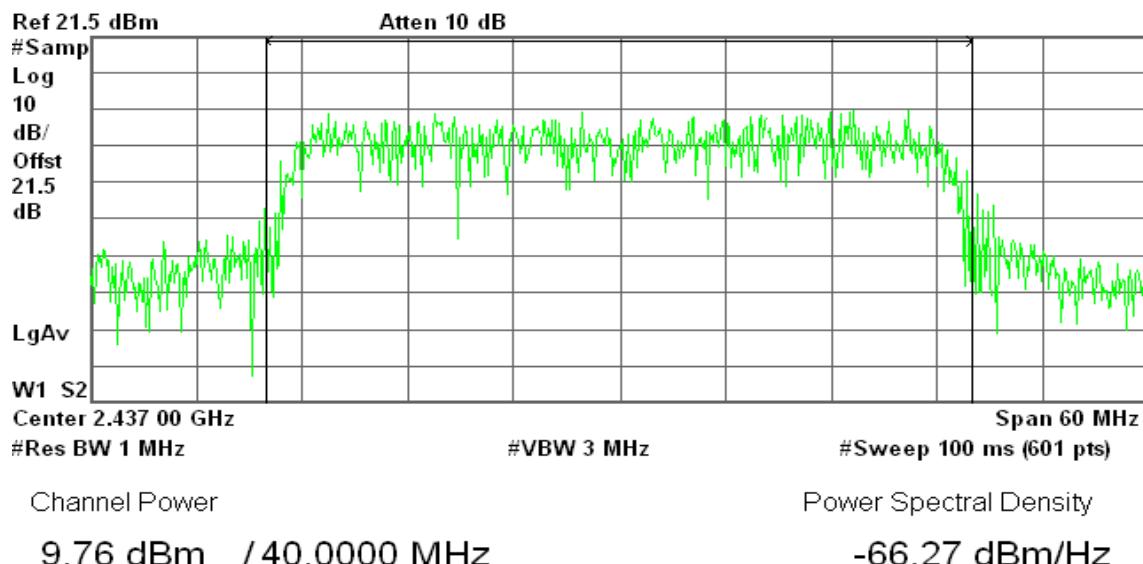
R T



Average Power (CH Mid)

Agilent 22:38:54 Apr 16, 2009

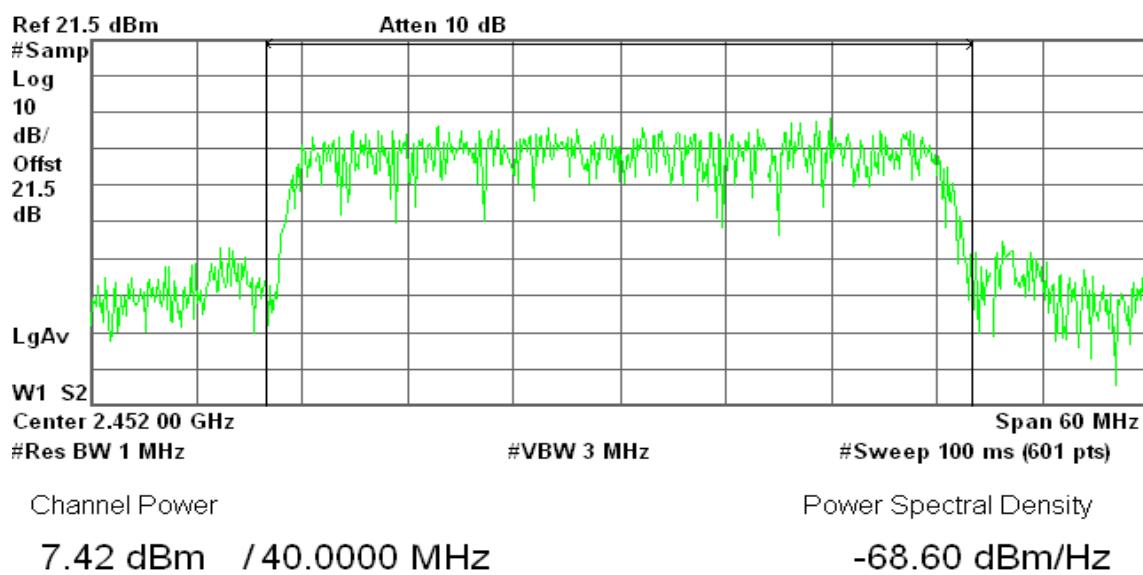
R T

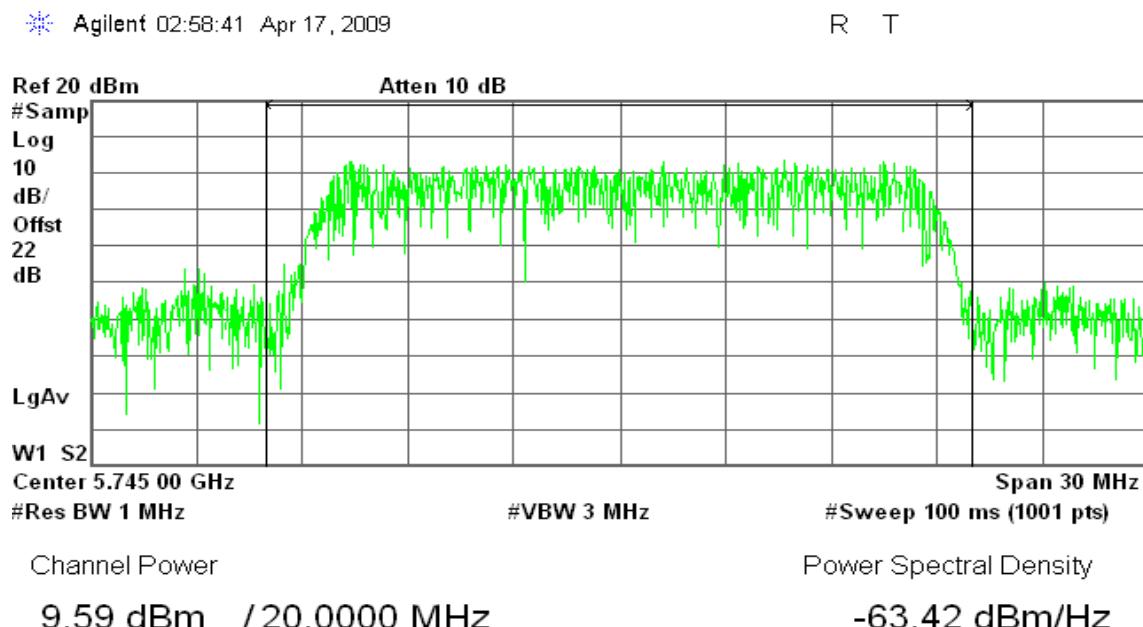
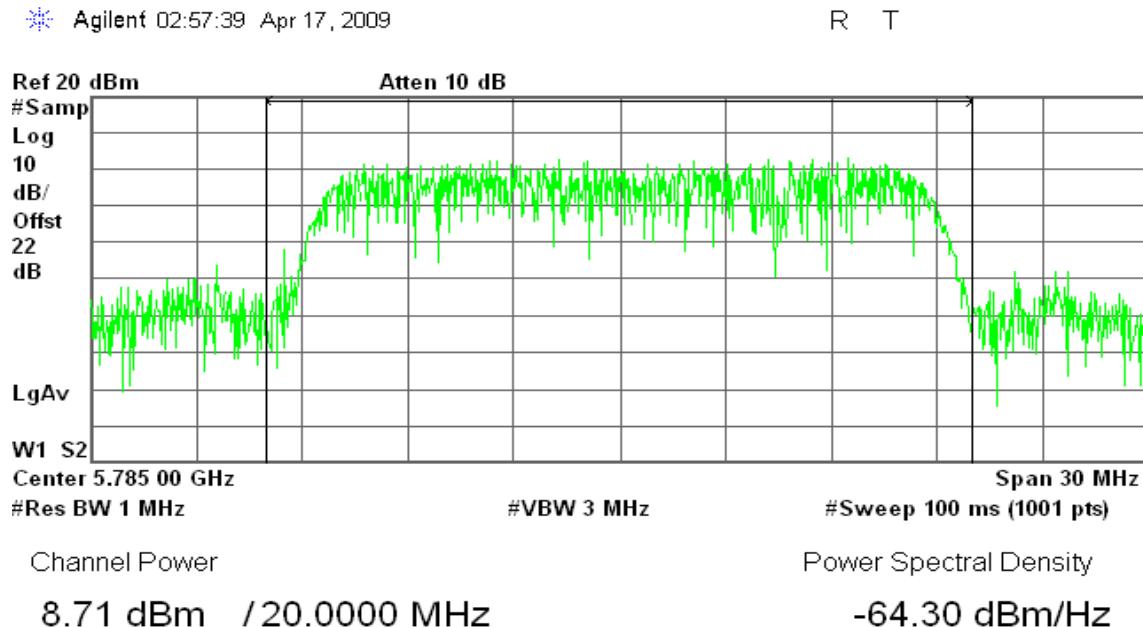


Average Power (CH High)

Agilent 22:39:28 Apr 16, 2009

R T

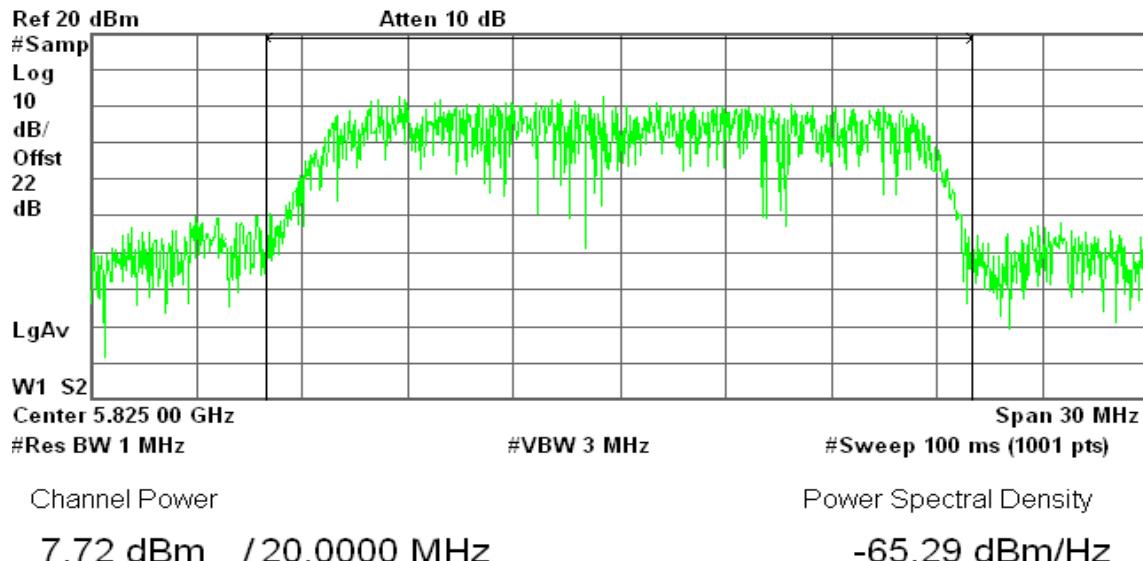


IEEE 802.11a mode / 5745 ~ 5825MHz**Average Power (CH Low)****Average Power (CH Mid)**

Average Power (CH High)

Agilent 02:57:09 Apr 17, 2009

R T

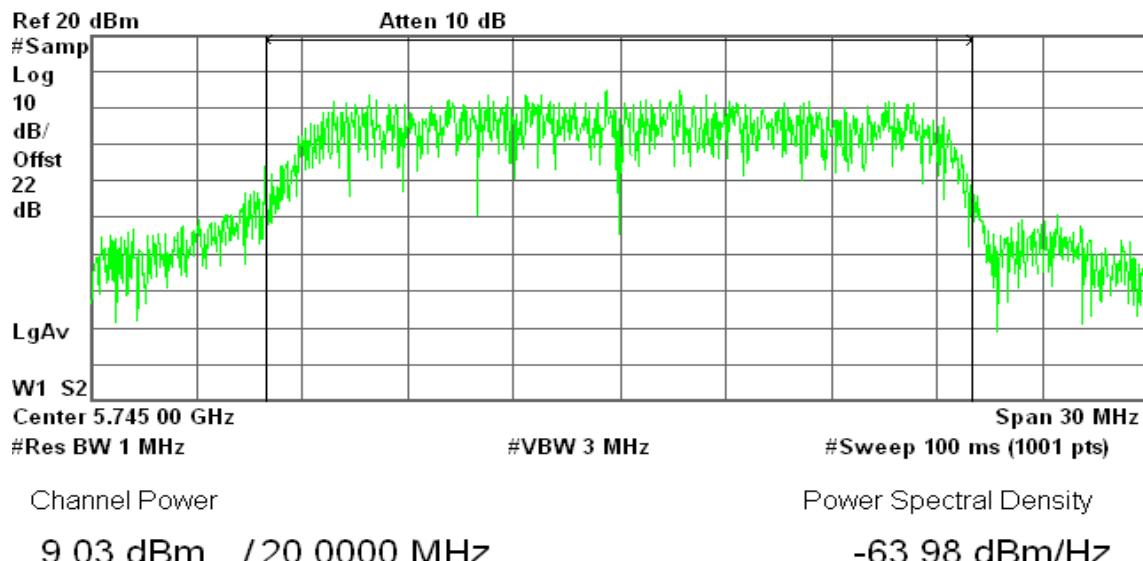


draft 802.11n Standard-20 MHz Channel mode / 5745 ~ 5825MHz / Chain 0

Average Power (CH Low)

Agilent 03:00:43 Apr 17, 2009

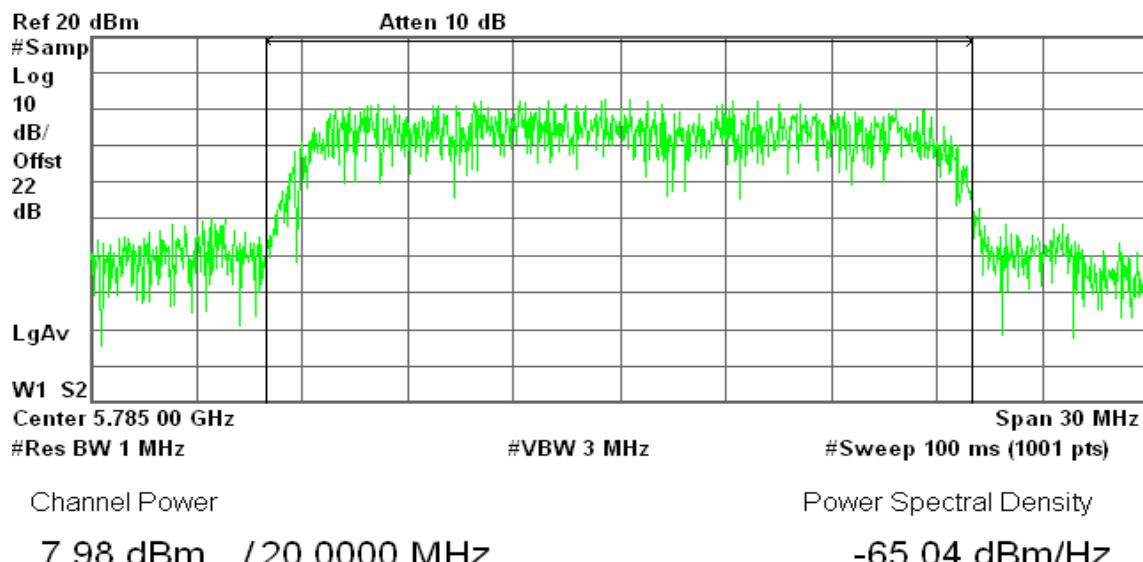
R T



Average Power (CH Mid)

Agilent 03:01:52 Apr 17, 2009

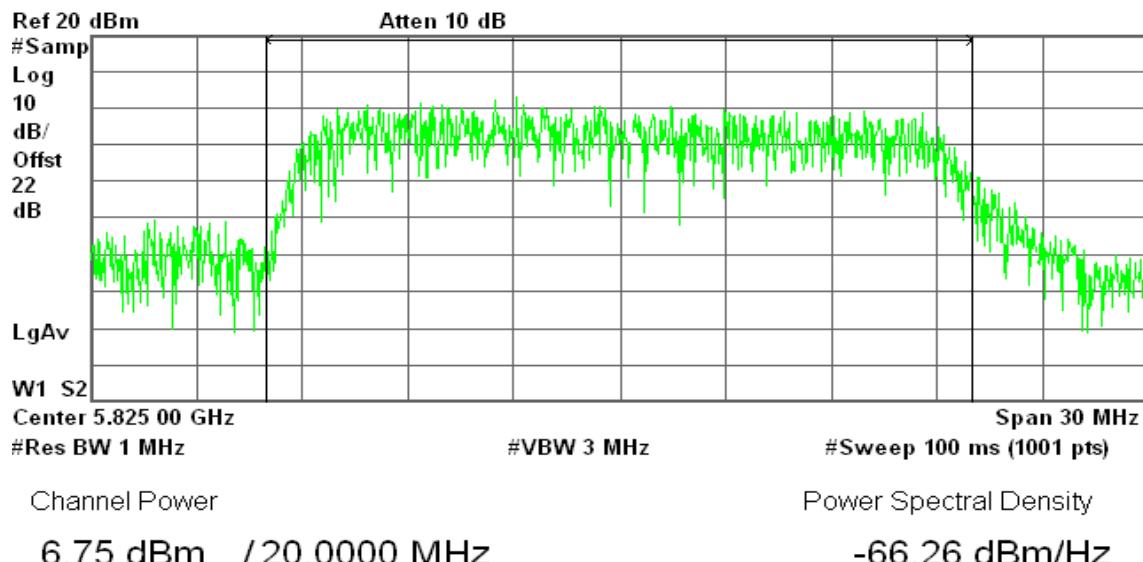
R T



Average Power (CH High)

Agilent 03:02:26 Apr 17, 2009

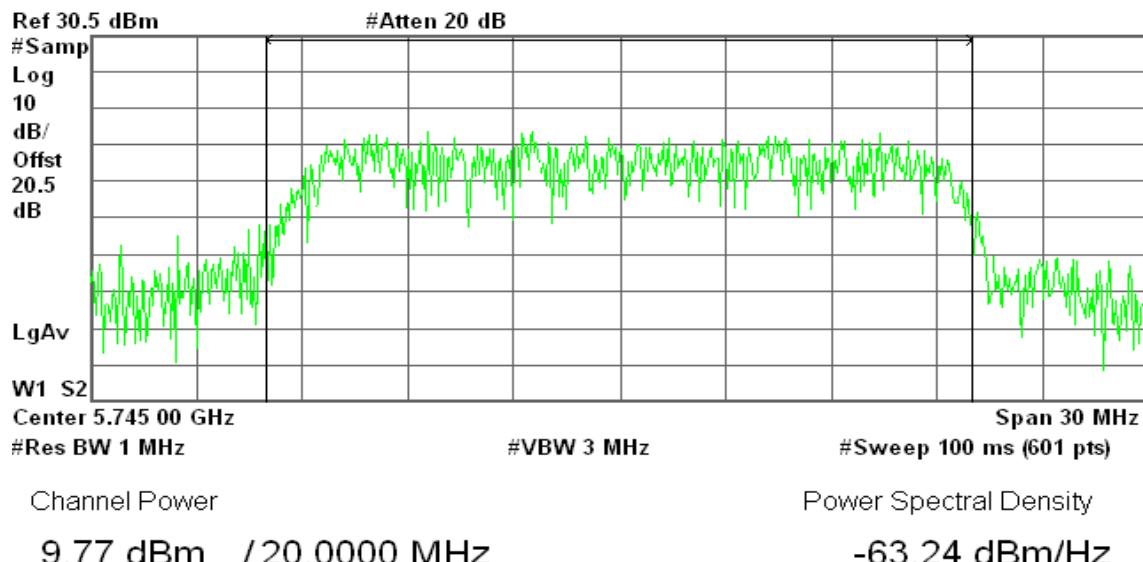
R T



draft 802.11n Standard-20 MHz Channel mode / 5745 ~ 5825MHz / Chain 1**Average Power (CH Low)**

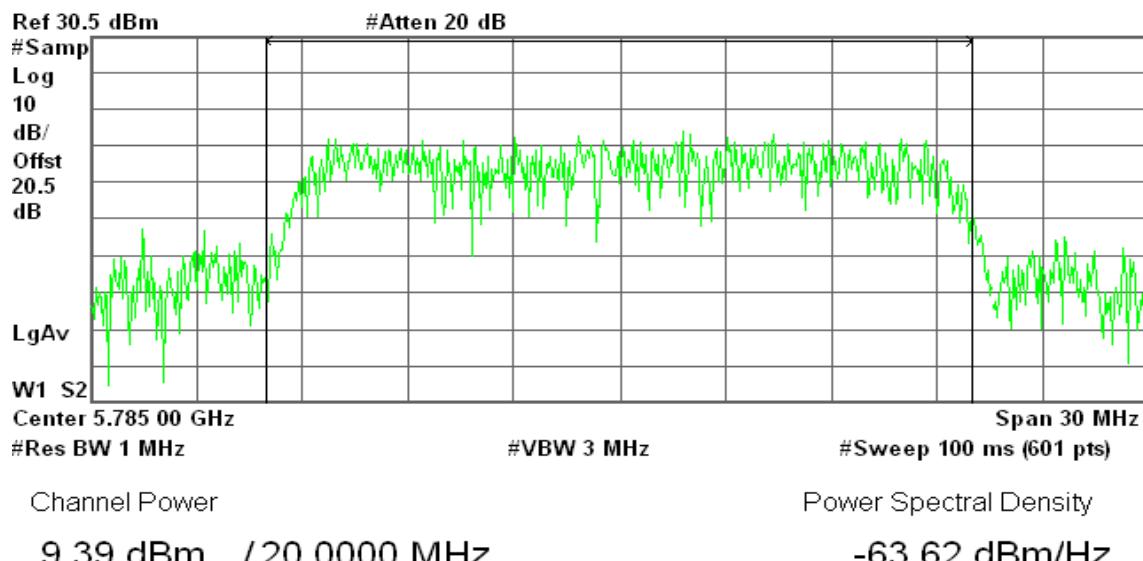
Agilent 16:06:00 Apr 22, 2009

R T

**Average Power (CH Mid)**

Agilent 16:07:10 Apr 22, 2009

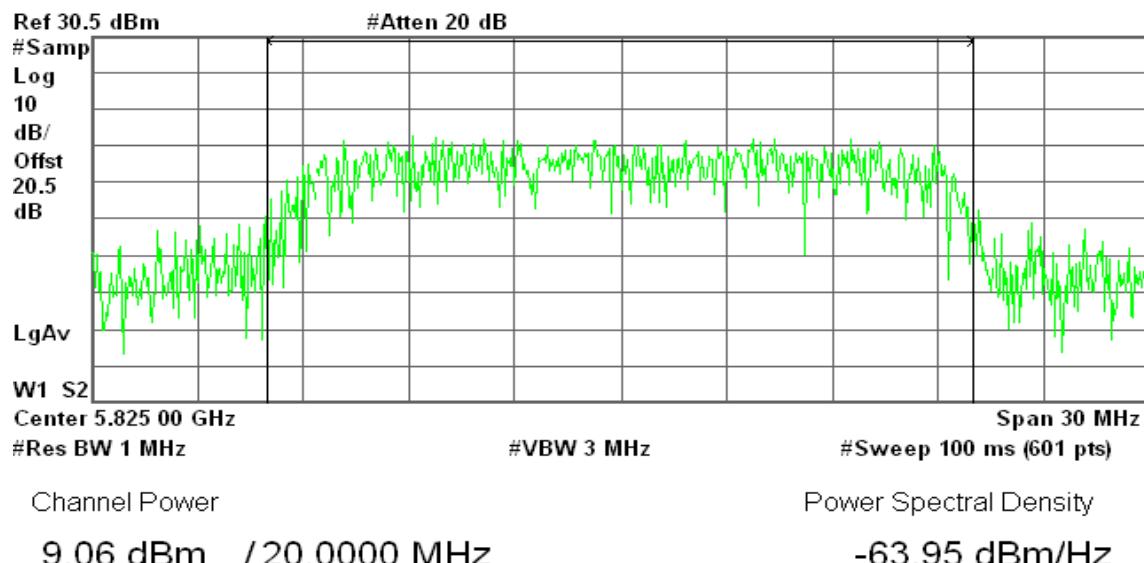
R T



Average Power (CH High)

Agilent 16:07:39 Apr 22, 2009

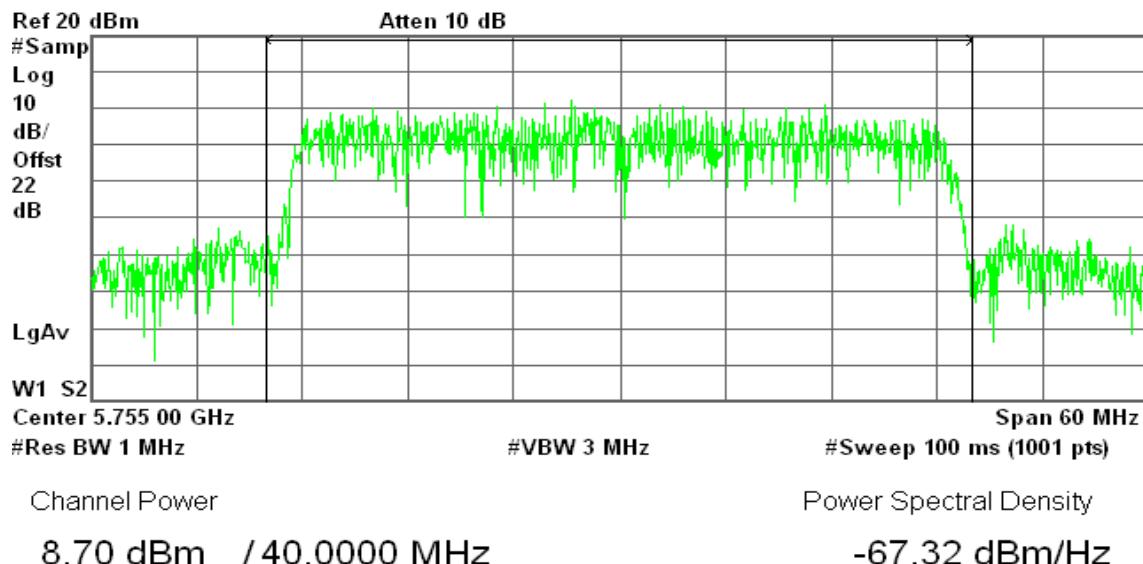
R T



draft 802.11n Wide-40 MHz Channel mode / 5755 ~ 5795MHz / Chain 0**Average Power (CH Low)**

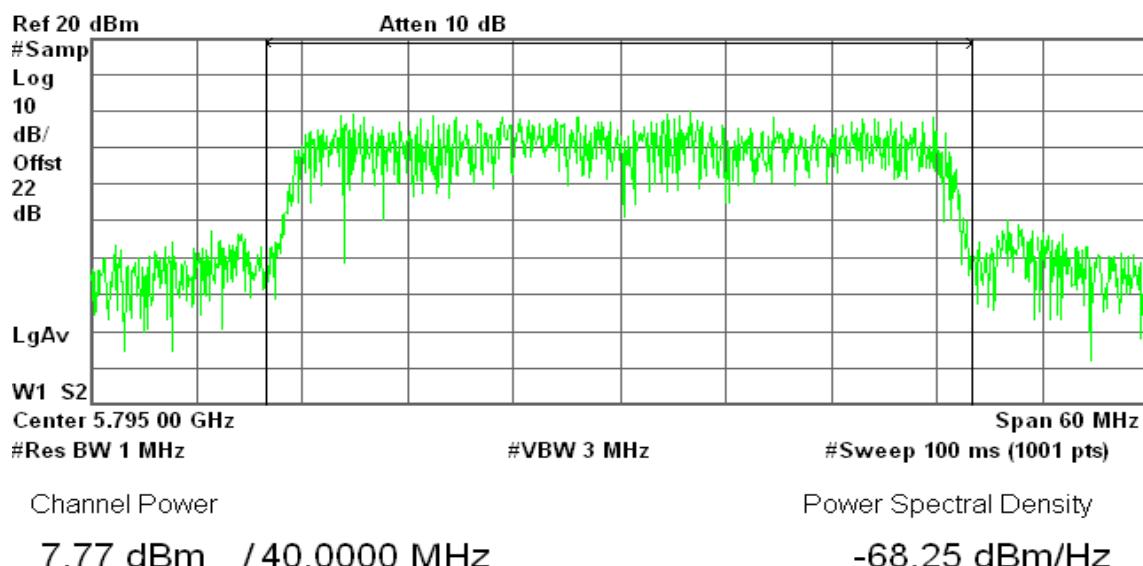
Agilent 03:04:07 Apr 17, 2009

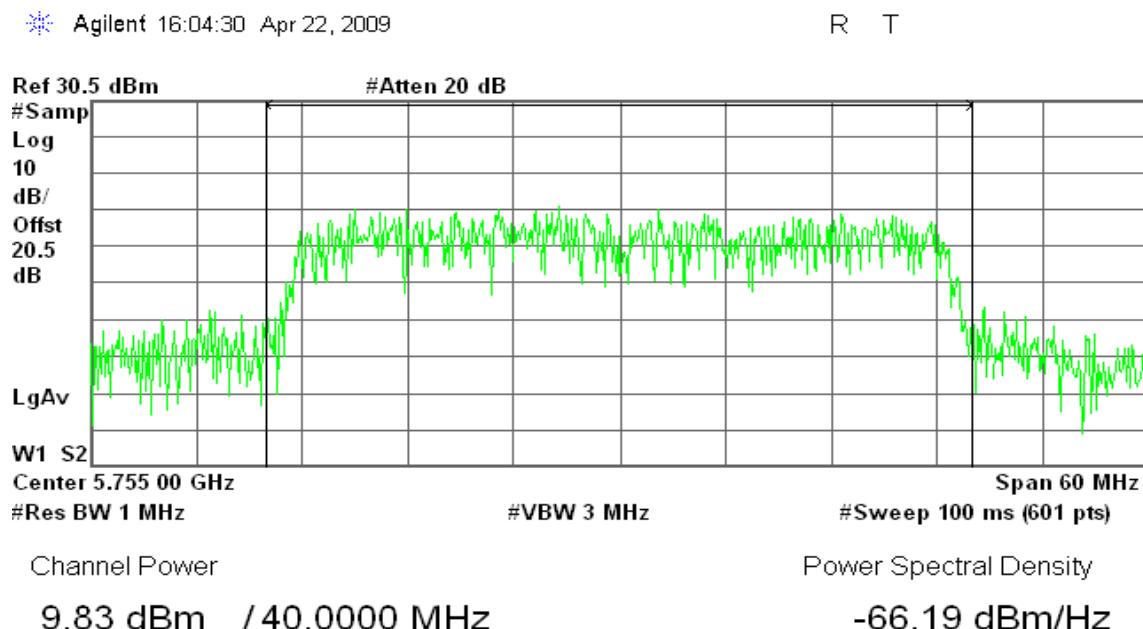
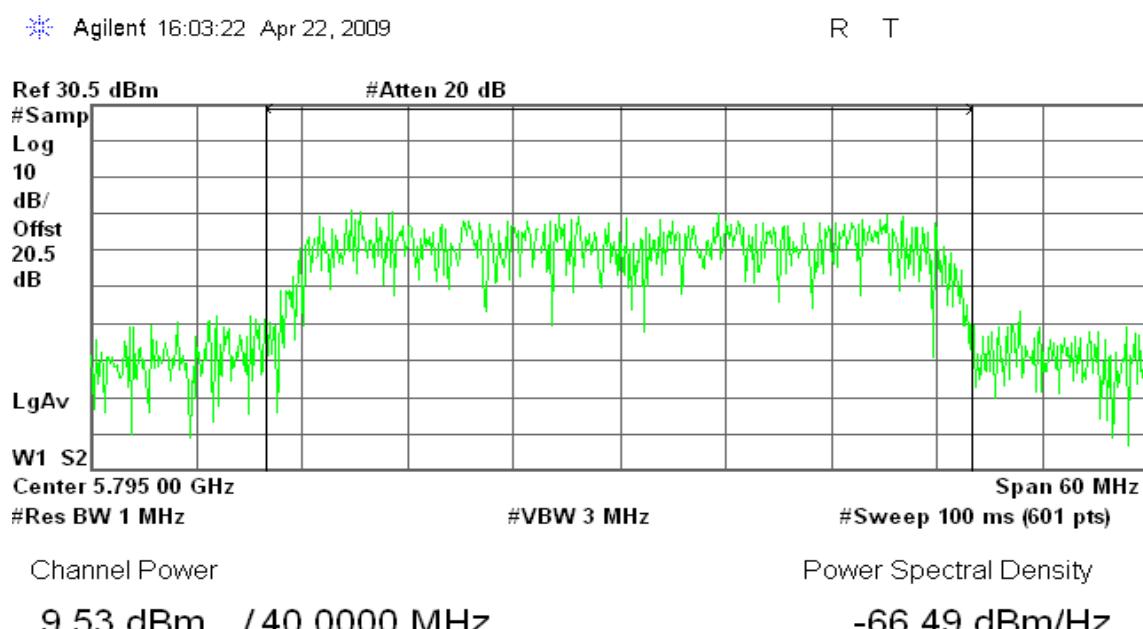
R T

**Average Power (CH High)**

Agilent 03:04:42 Apr 17, 2009

R T



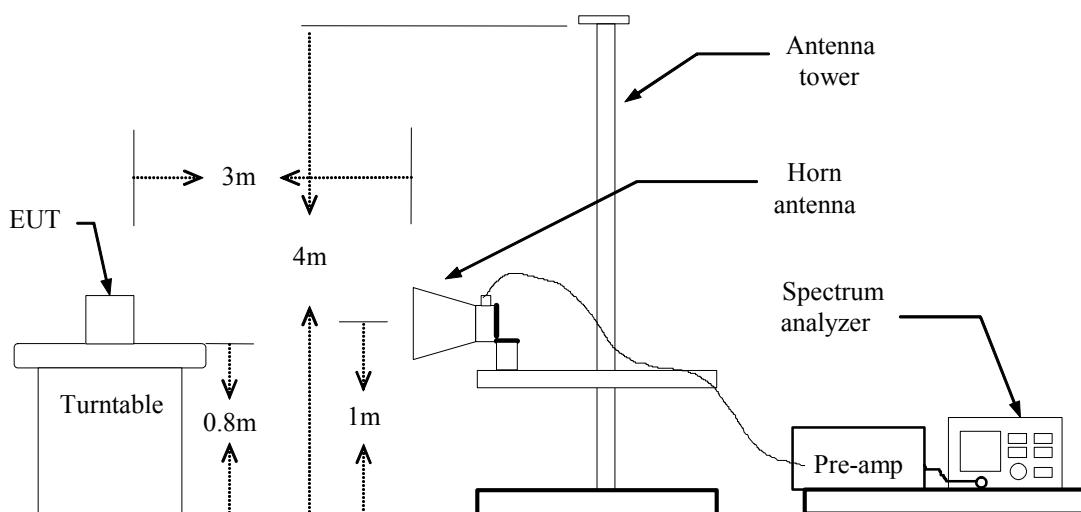
draft 802.11n Wide-40 MHz Channel mode / 5755 ~ 5795MHz / Chain 1**Average Power (CH Low)****Average Power (CH High)**

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

Test Configuration



TEST PROCEDURE

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

TEST RESULTS

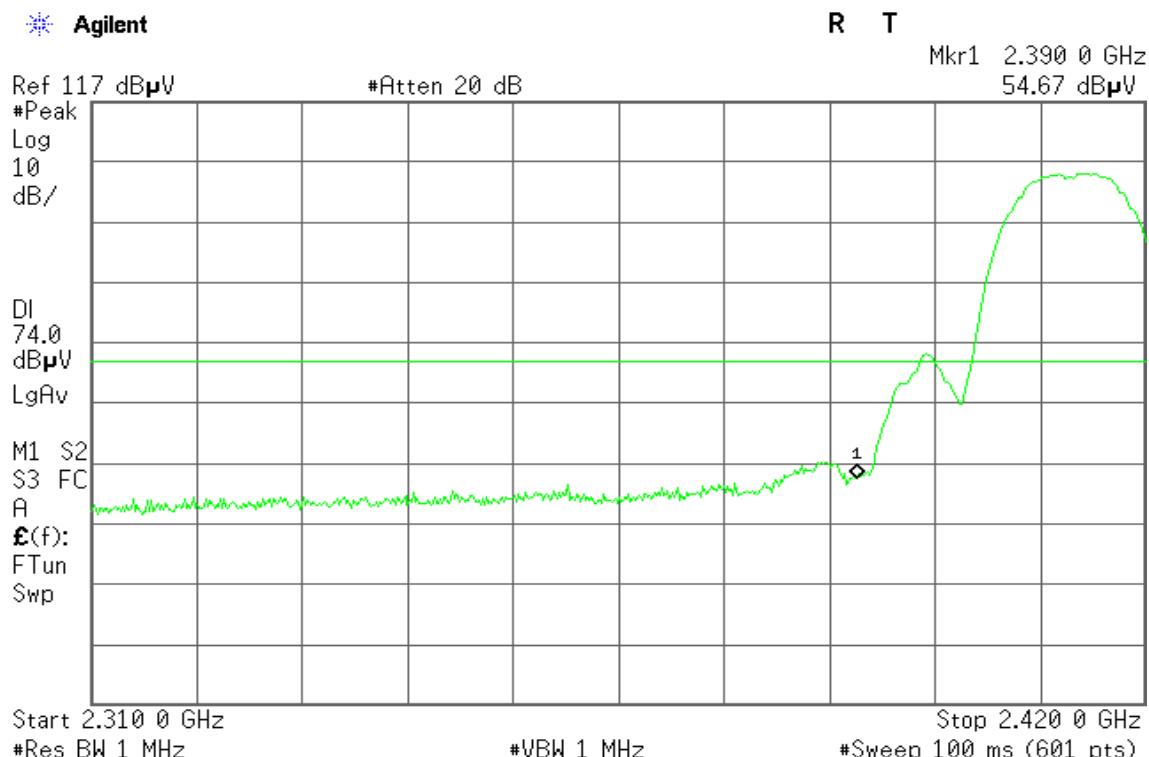
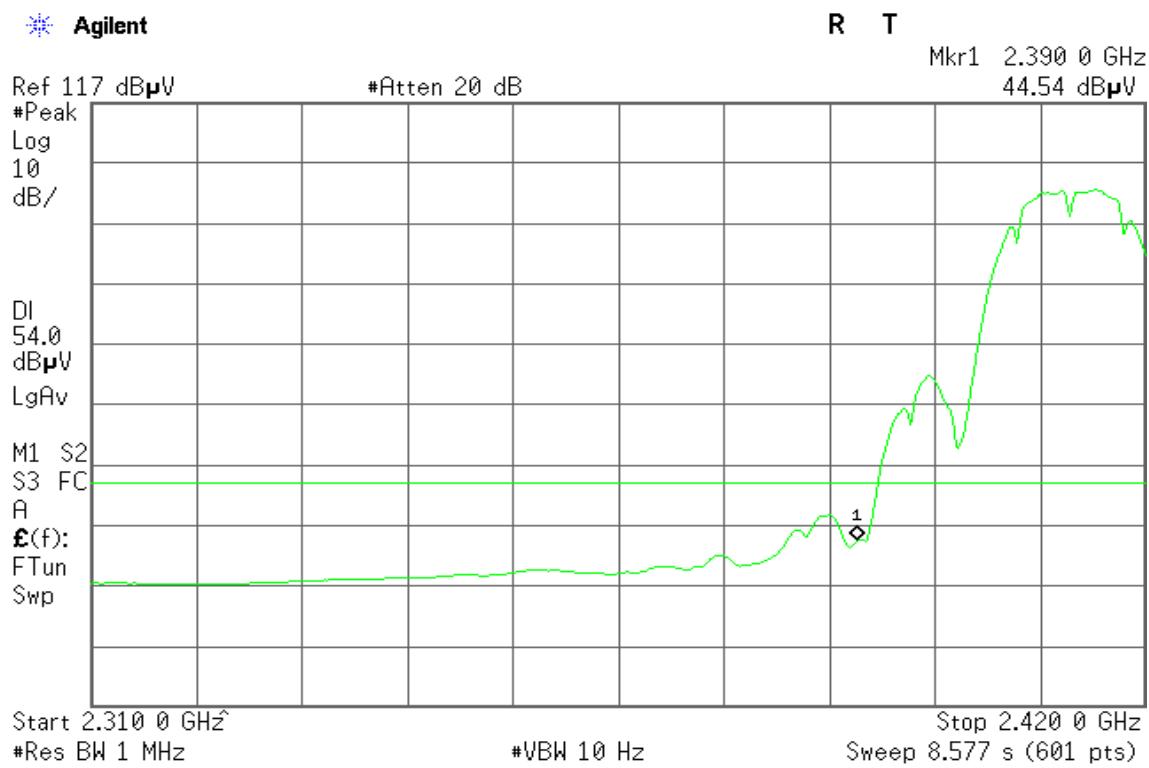
Refer to attach spectrum analyzer data chart.

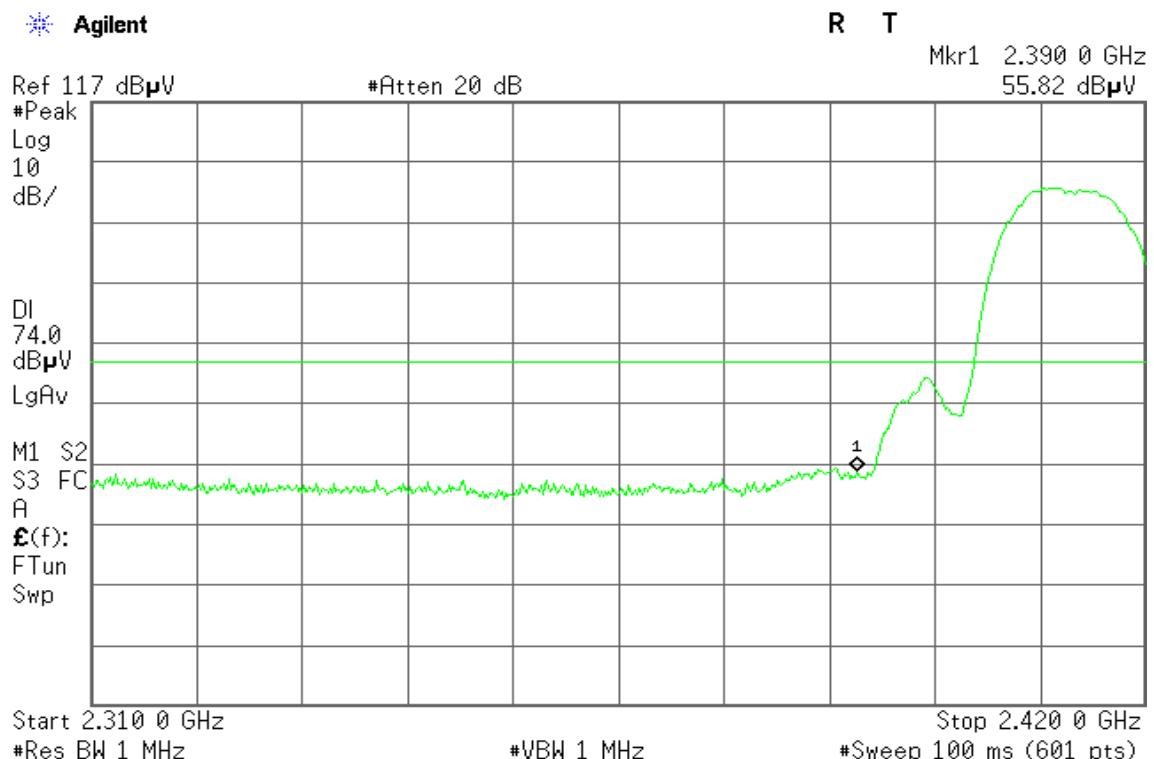
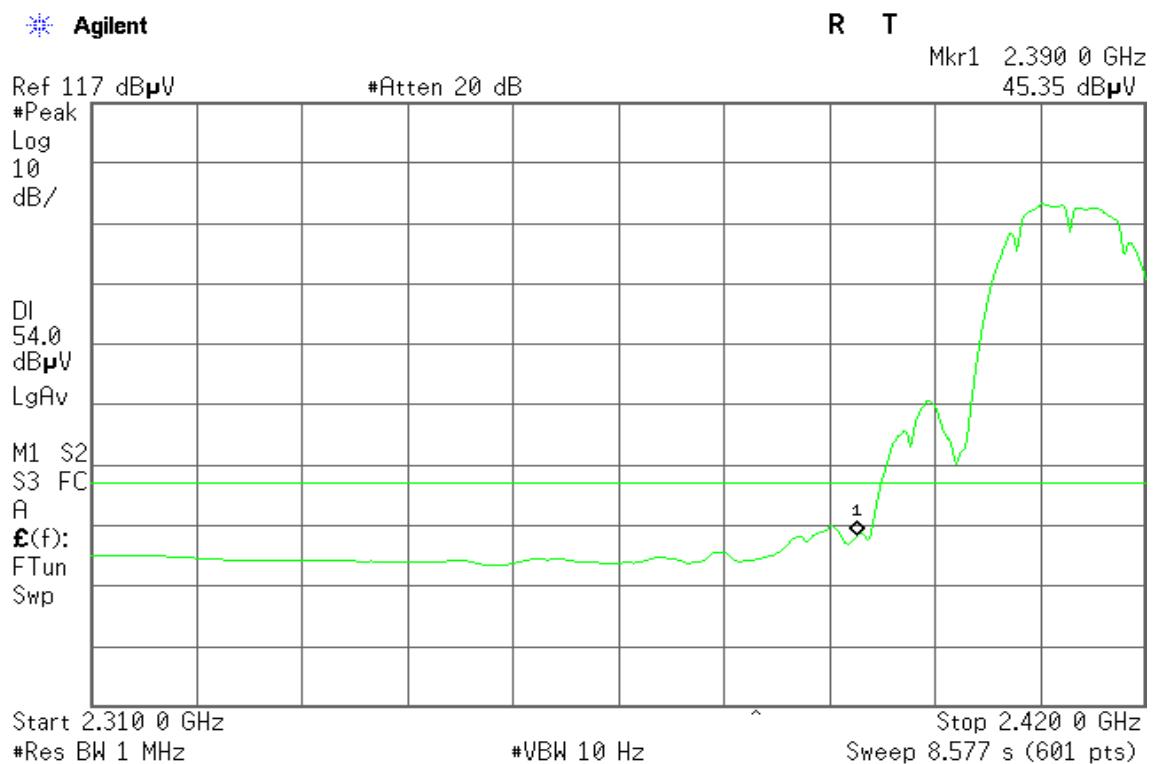


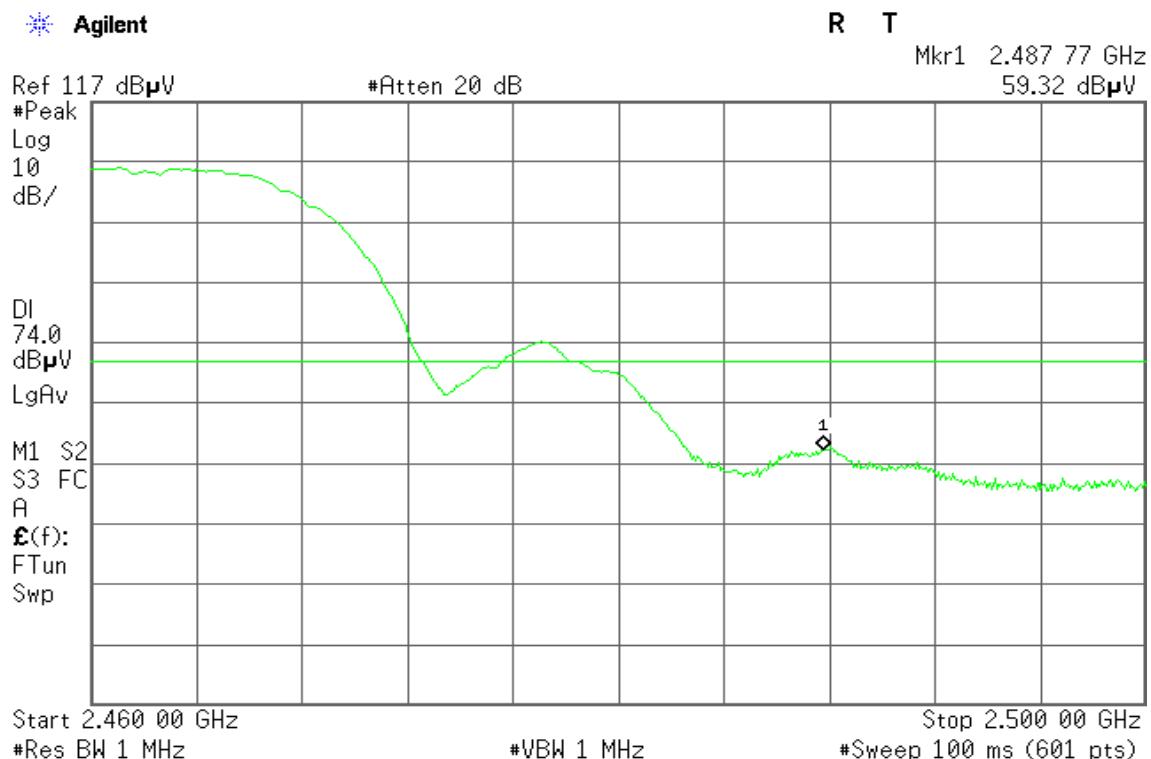
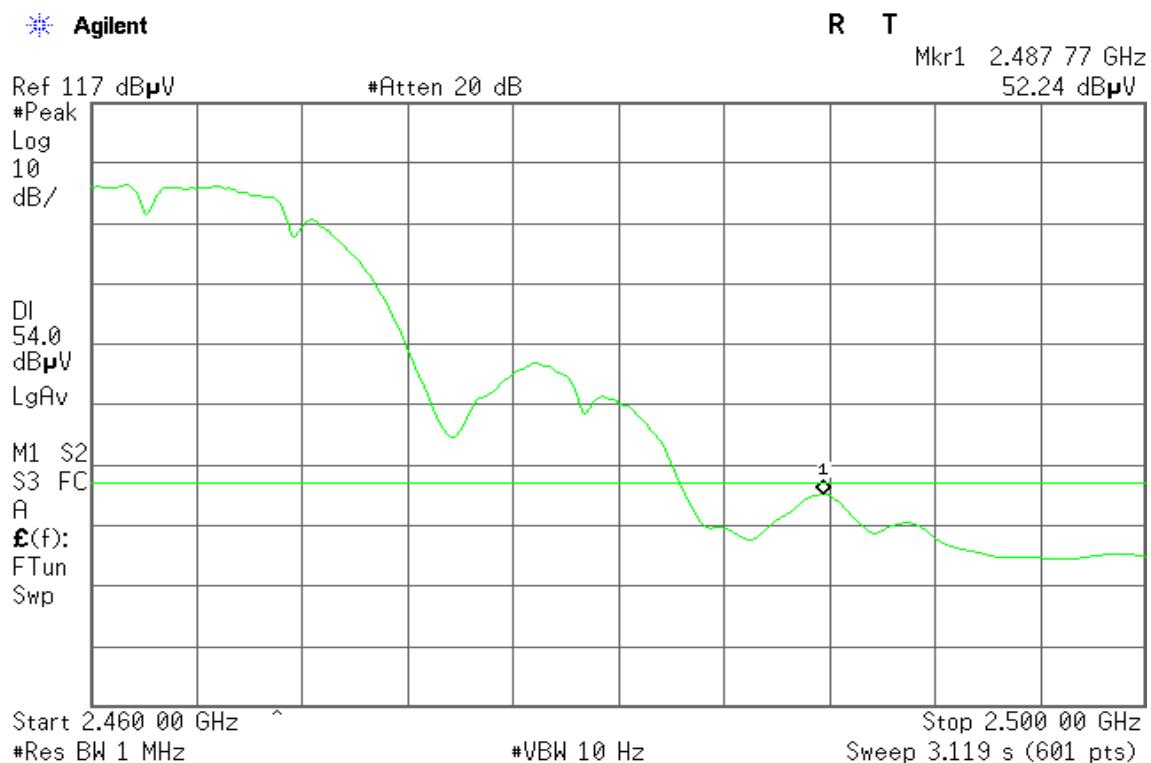
802.11a Mode

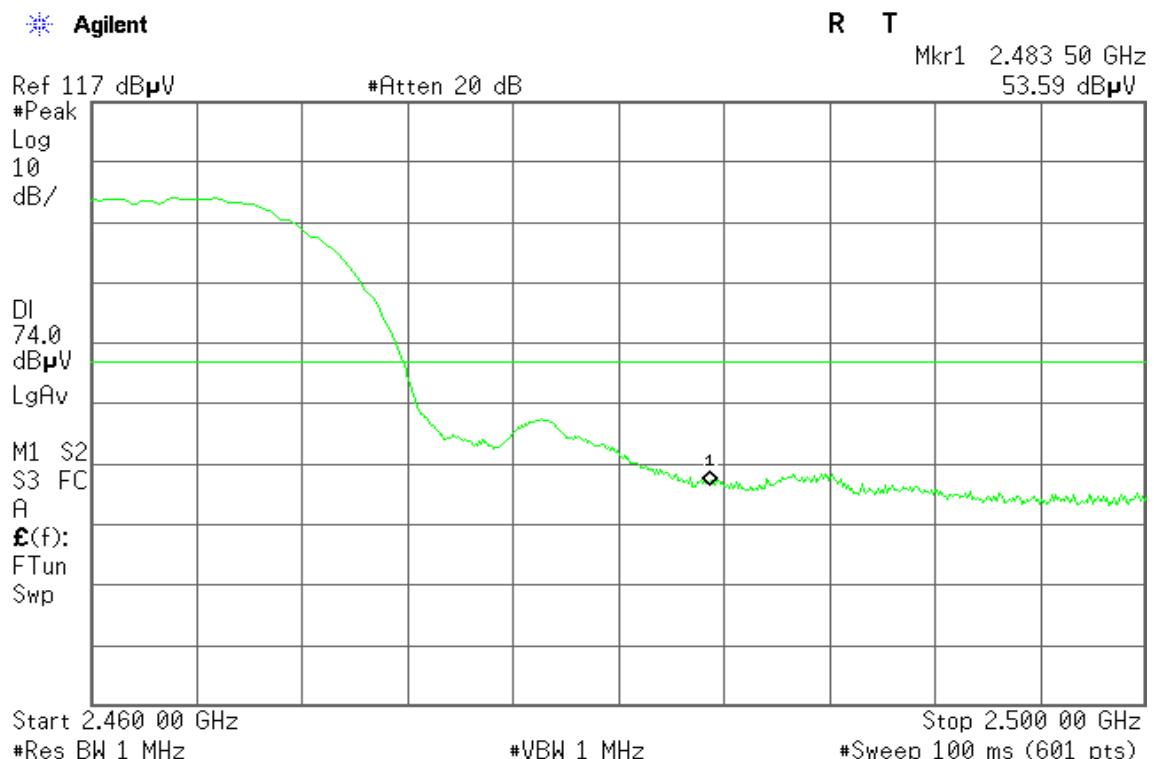
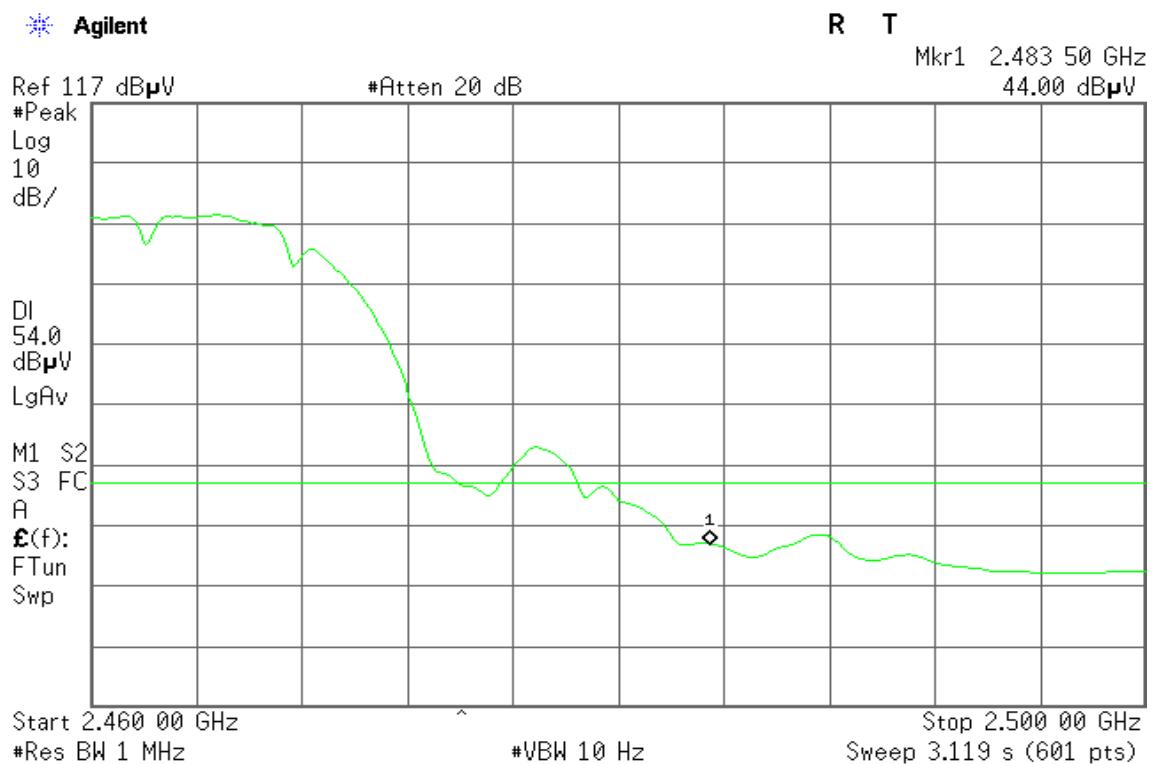
1. Operating Frequency: 5725-5875MHz
2. CH Low: 5745MHz, CH High: 5825MHz
3. 6dB bandwidth: CH Low: 16.42MHz, CH High: 16.50MHz

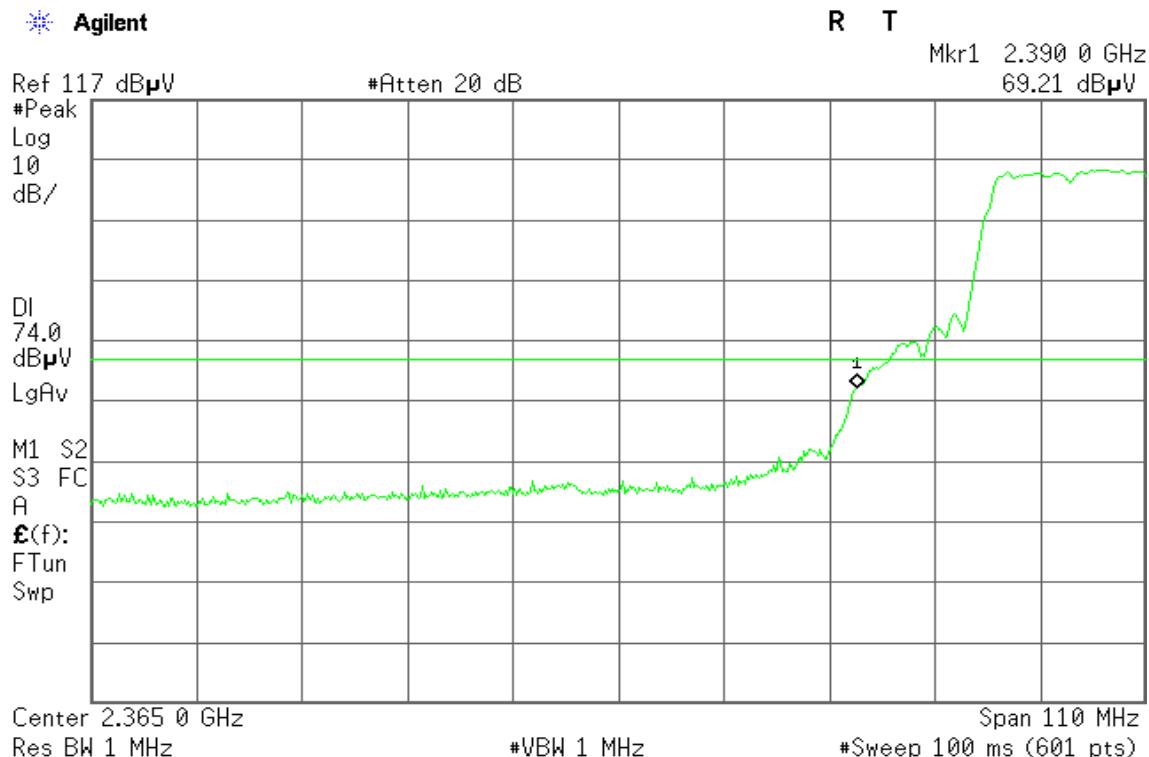
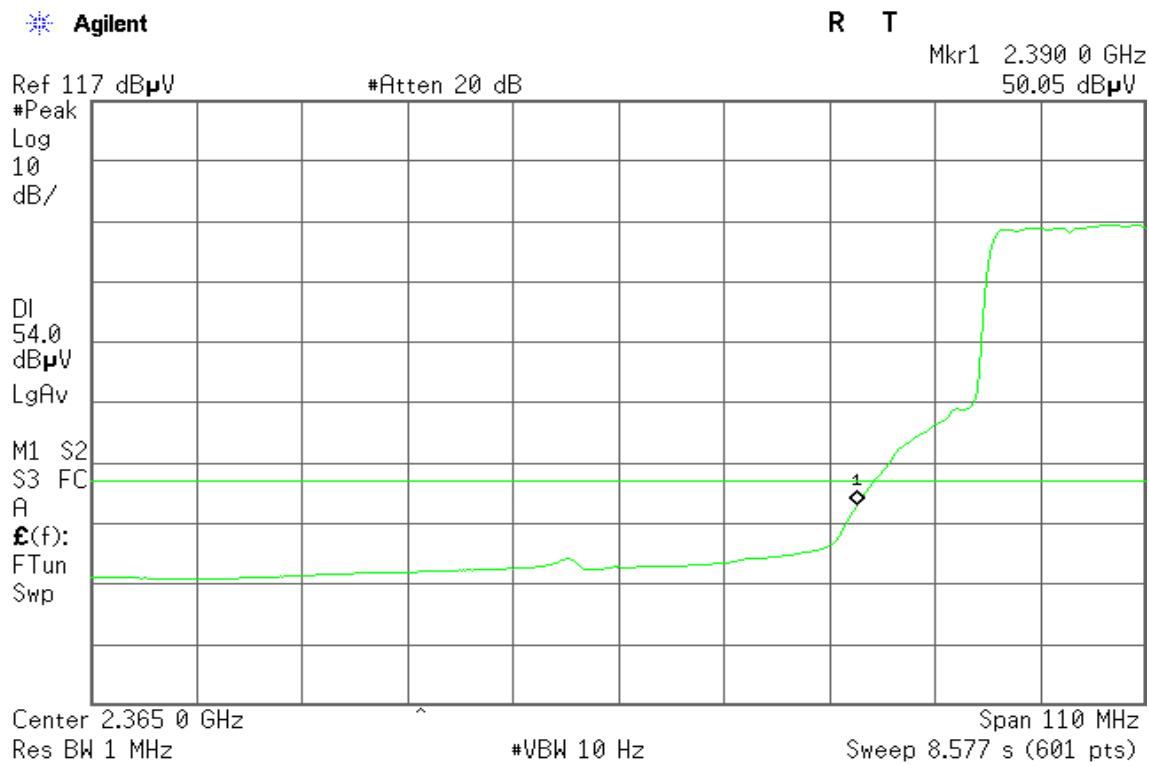
Because the mentioned conditions, the test is not applicable.

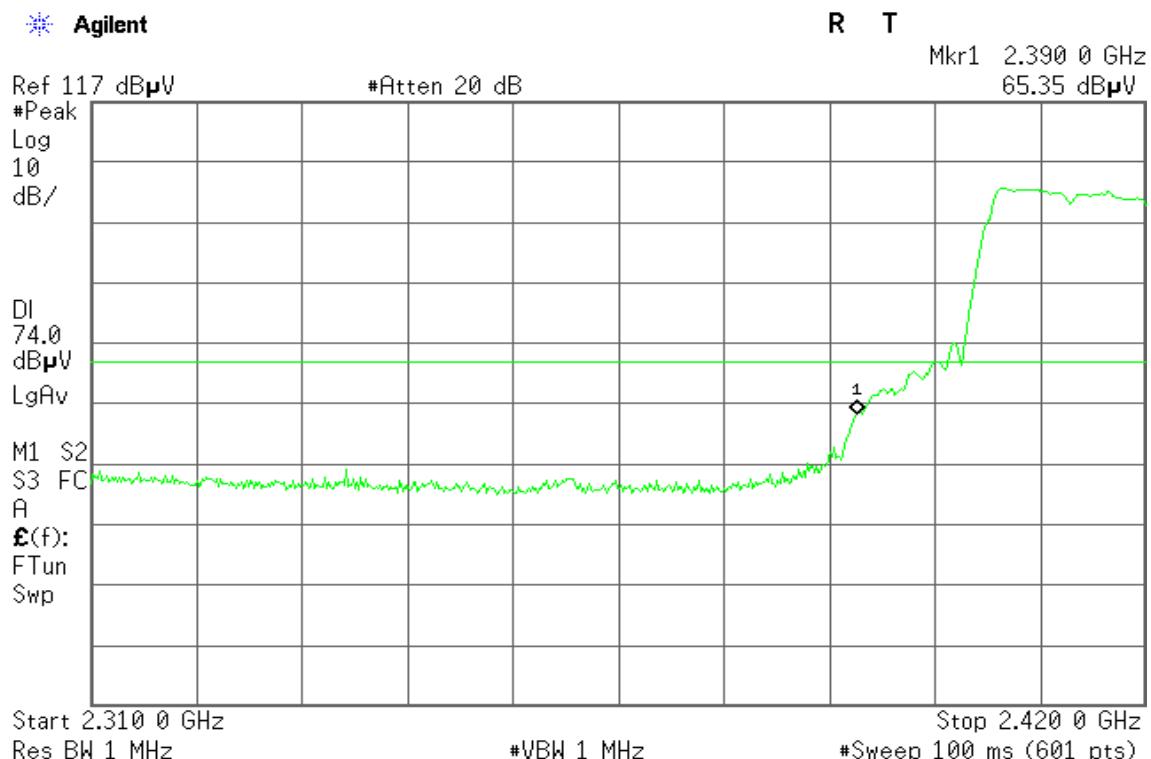
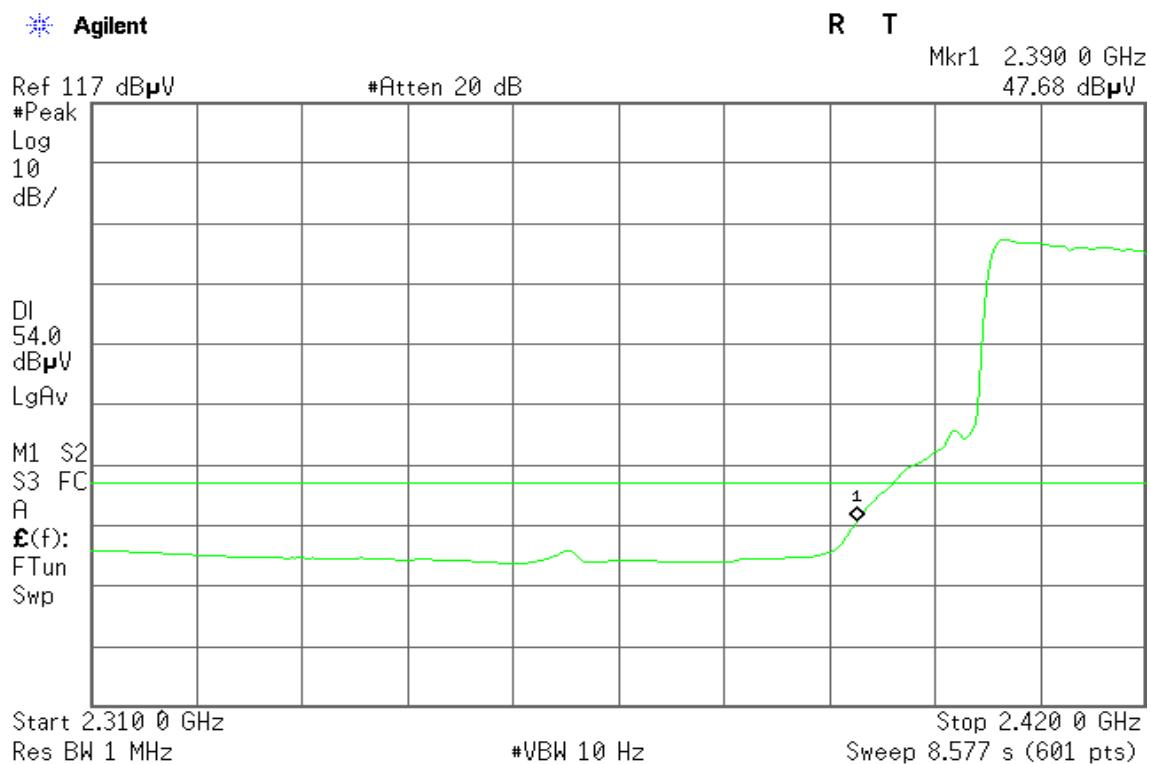
Band Edges (IEEE 802.11b mode / CH Low)**Detector mode: Peak****Polarity: Vertical****Detector mode: Average****Polarity: Vertical**

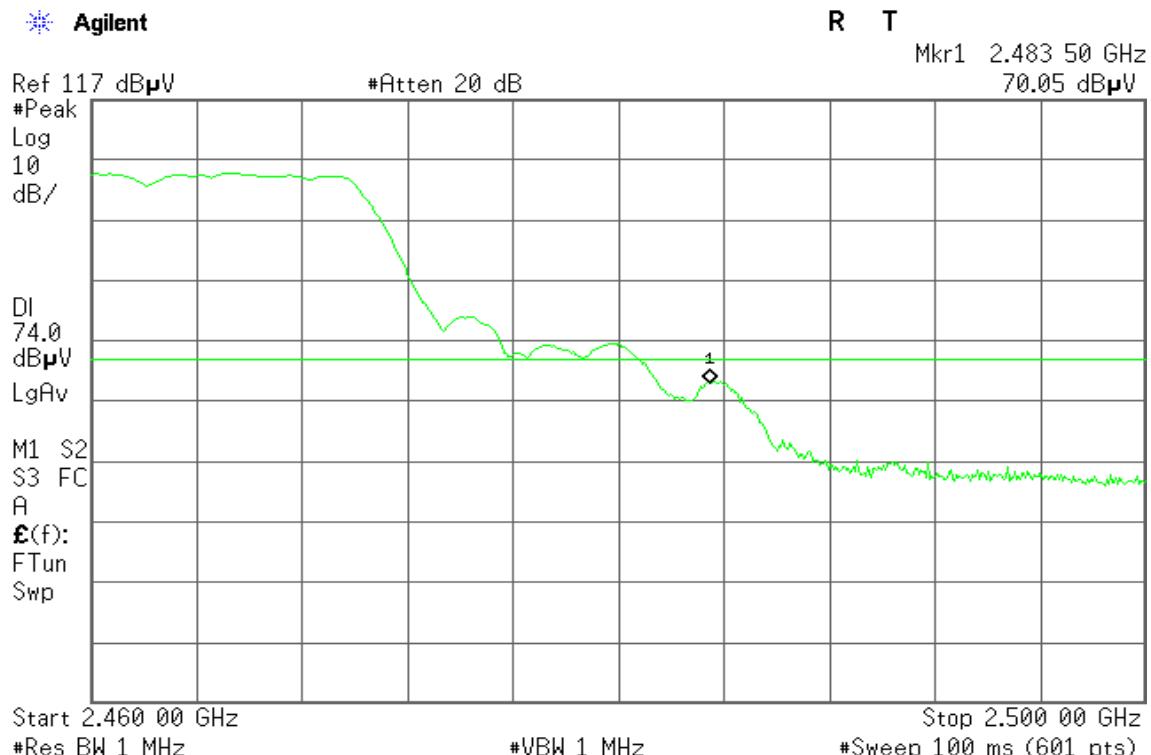
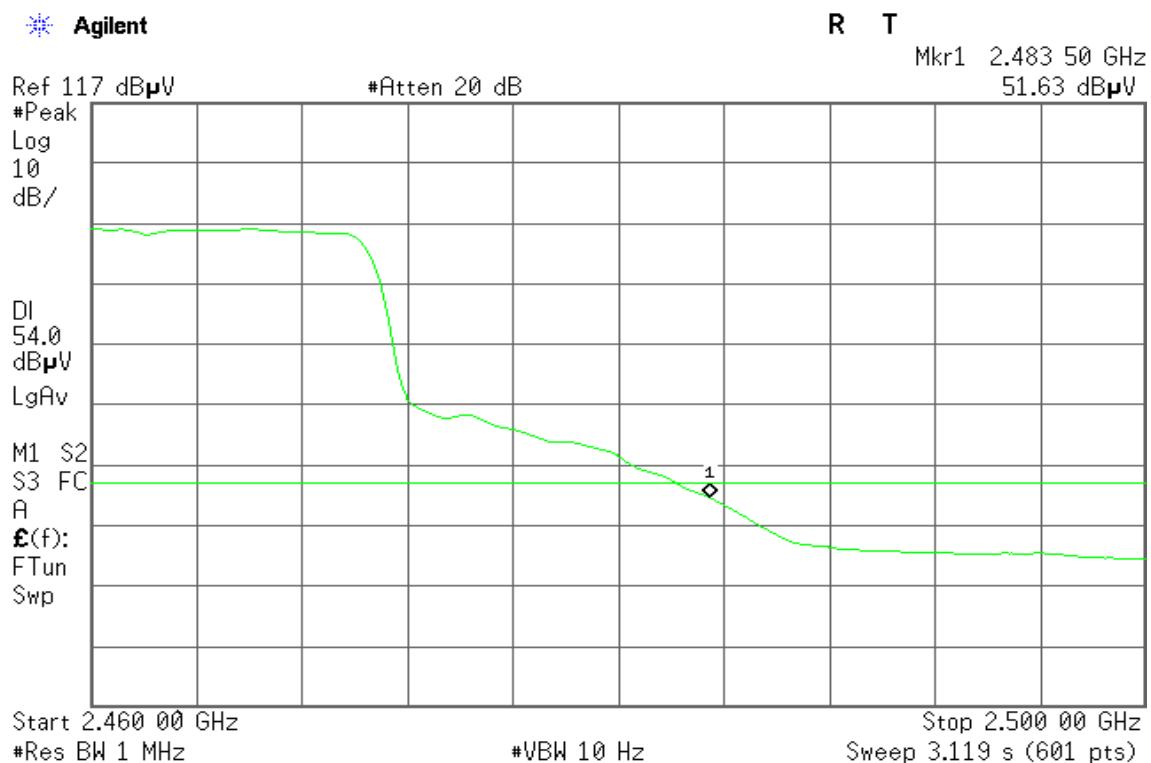
Detector mode: Peak**Polarity: Horizontal****Detector mode: Average****Polarity: Horizontal**

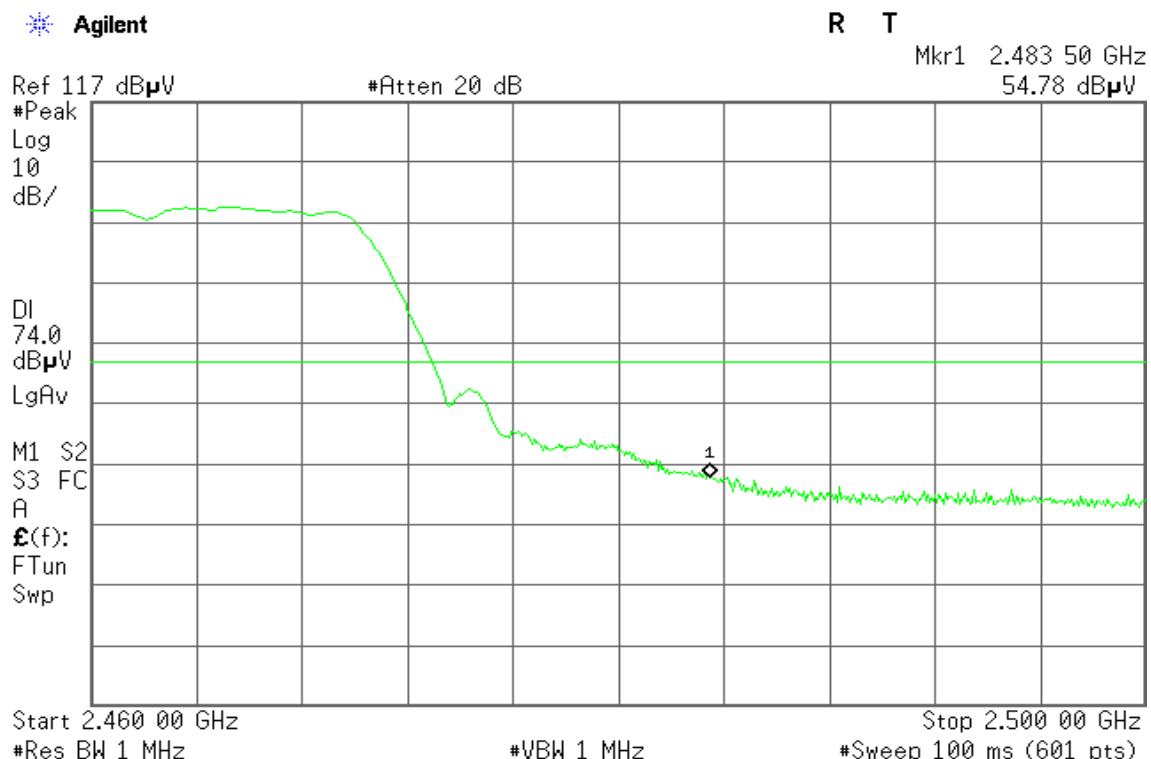
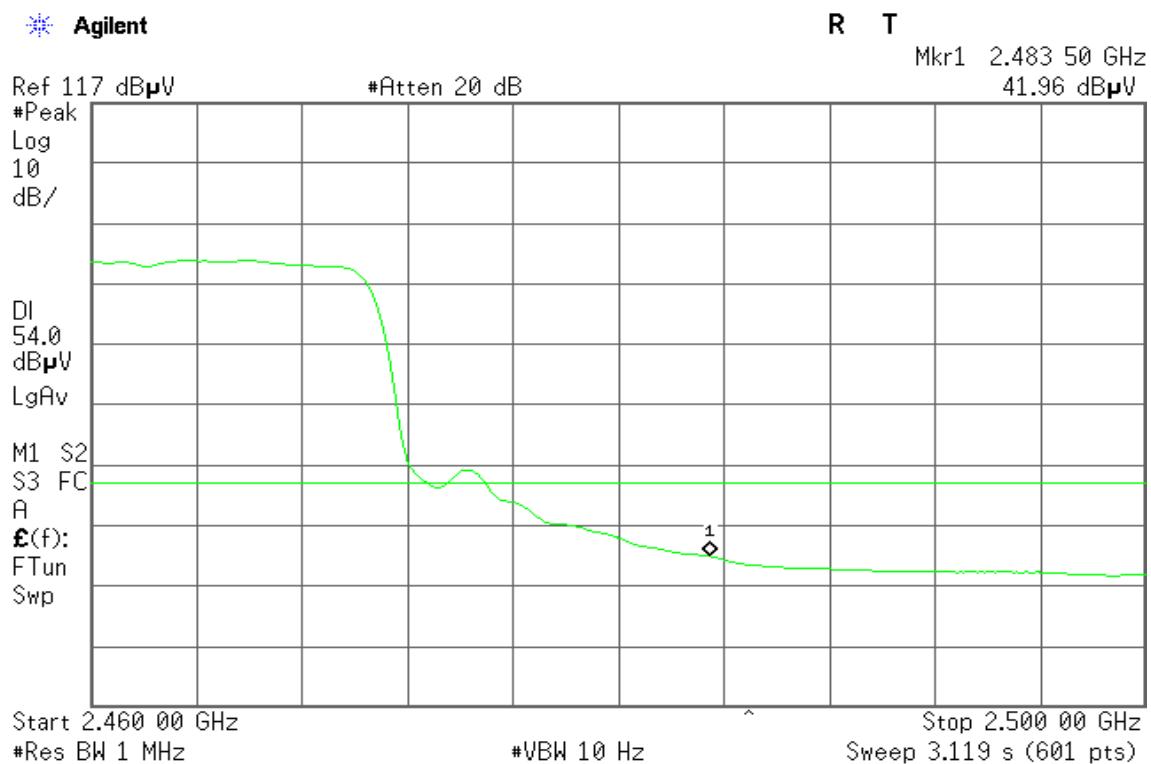
Band Edges (IEEE 802.11b mode / CH High)**Detector mode: Peak****Polarity: Vertical****Detector mode: Average****Polarity: Vertical**

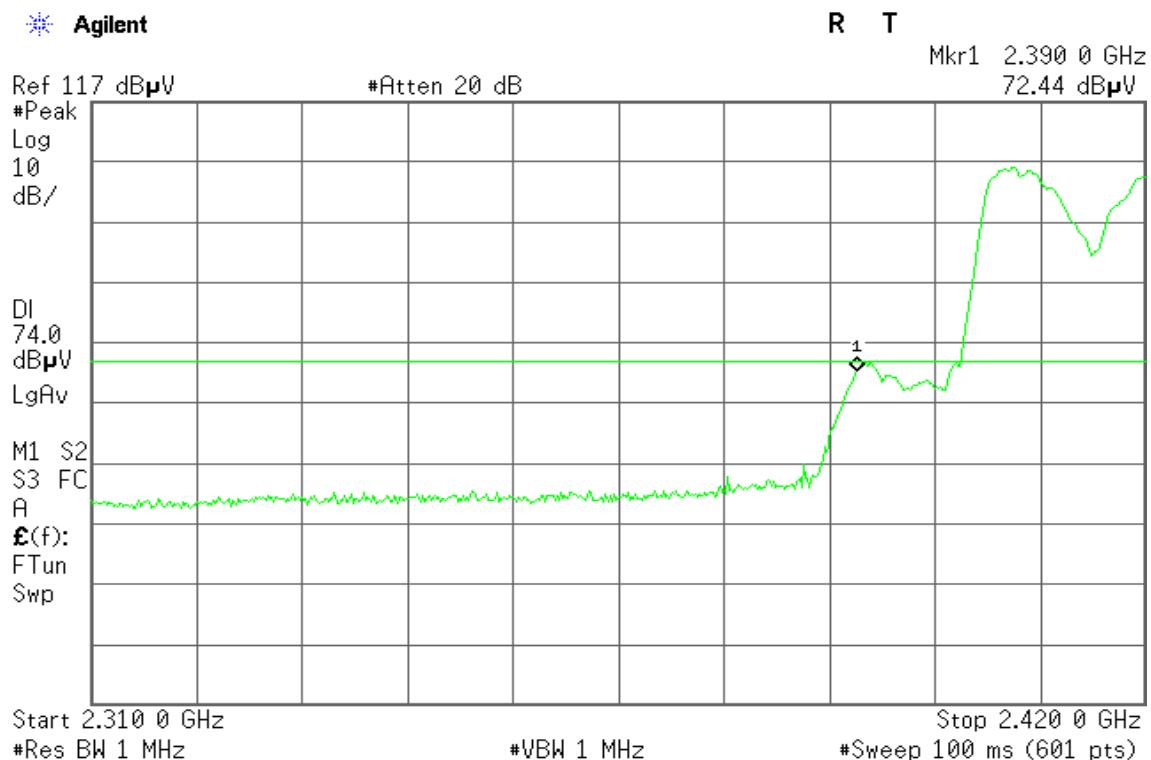
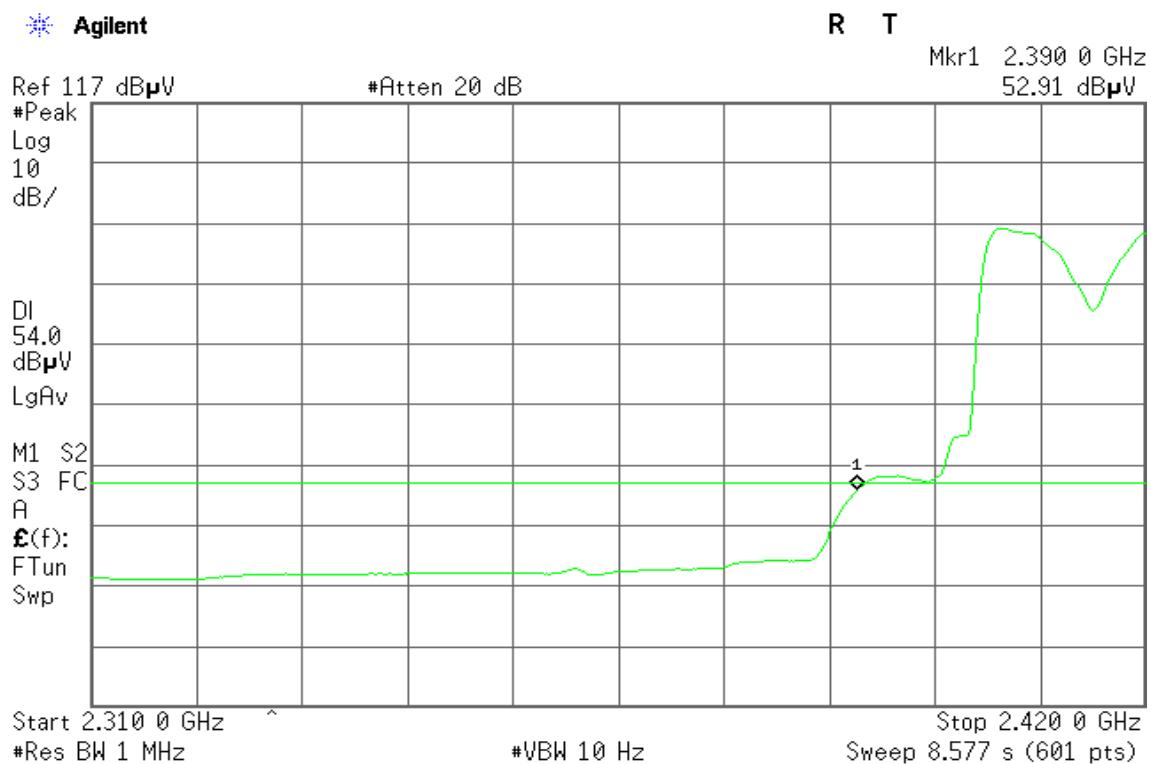
Detector mode: Peak**Polarity: Horizontal****Detector mode: Average****Polarity: Horizontal**

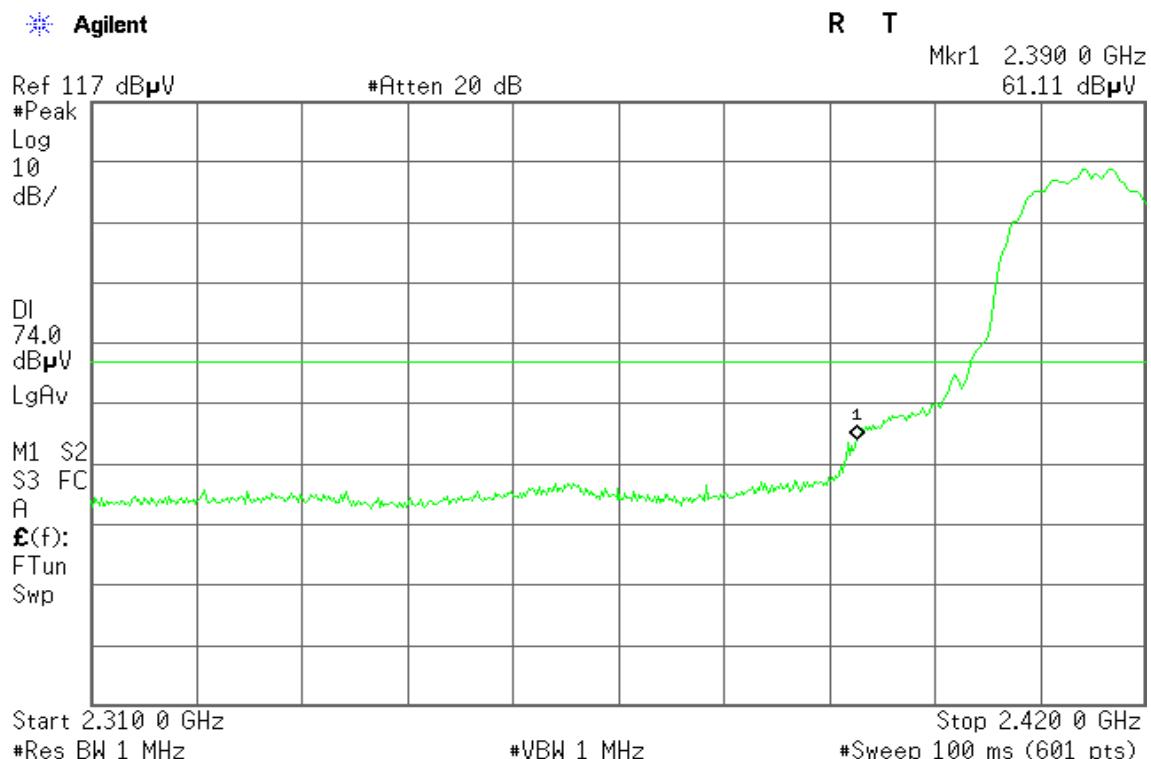
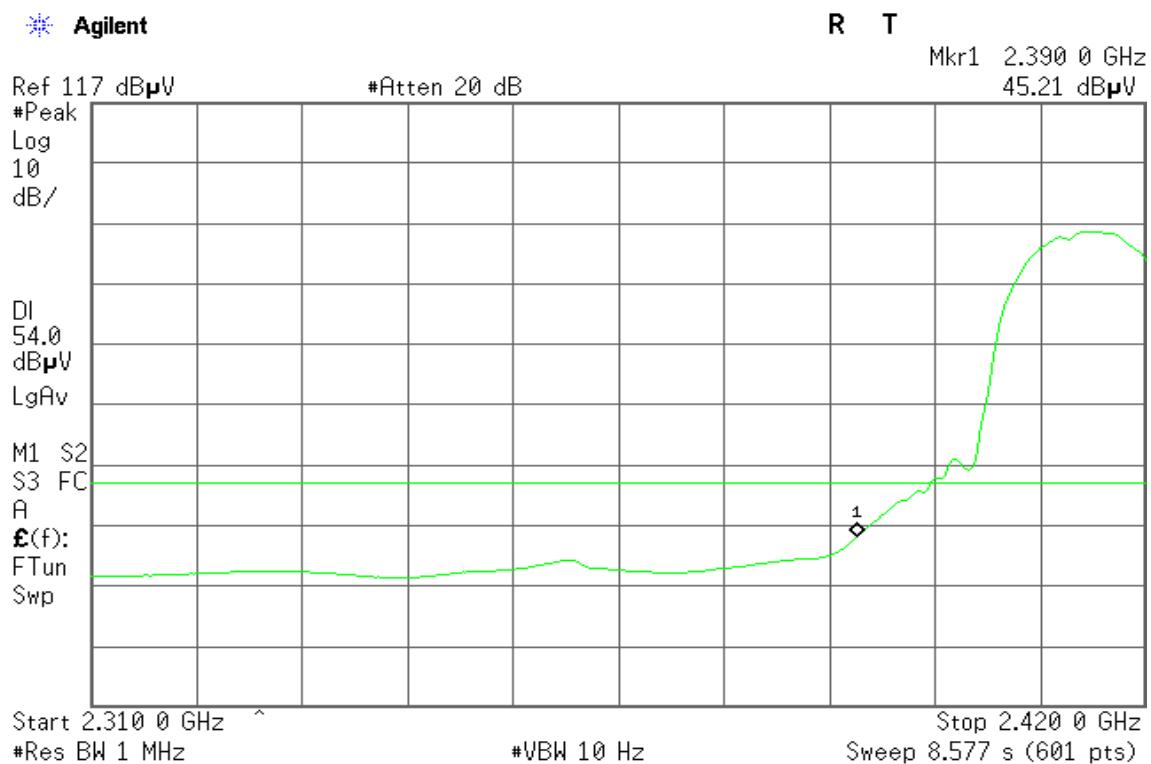
Band Edges (IEEE 802.11g mode / CH Low)**Detector mode: Peak****Polarity: Vertical****Detector mode: Average****Polarity: Vertical**

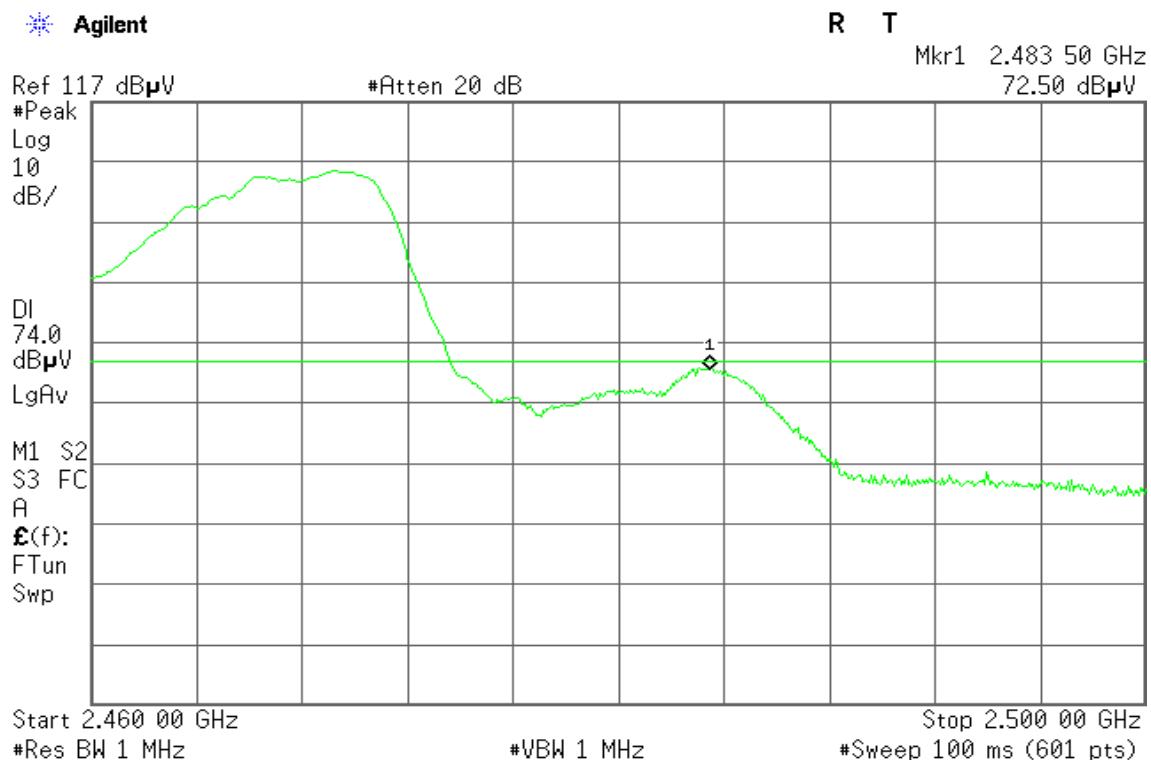
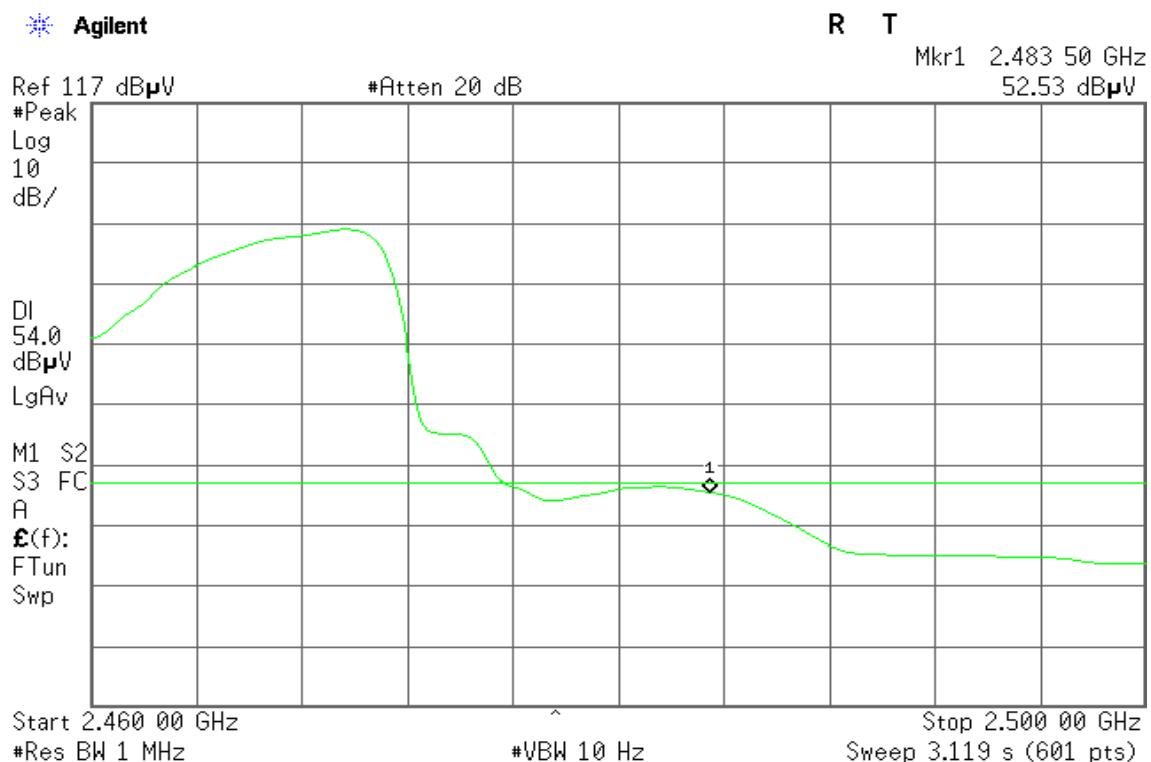
Detector mode: Peak**Polarity: Horizontal****Detector mode: Average****Polarity: Horizontal**

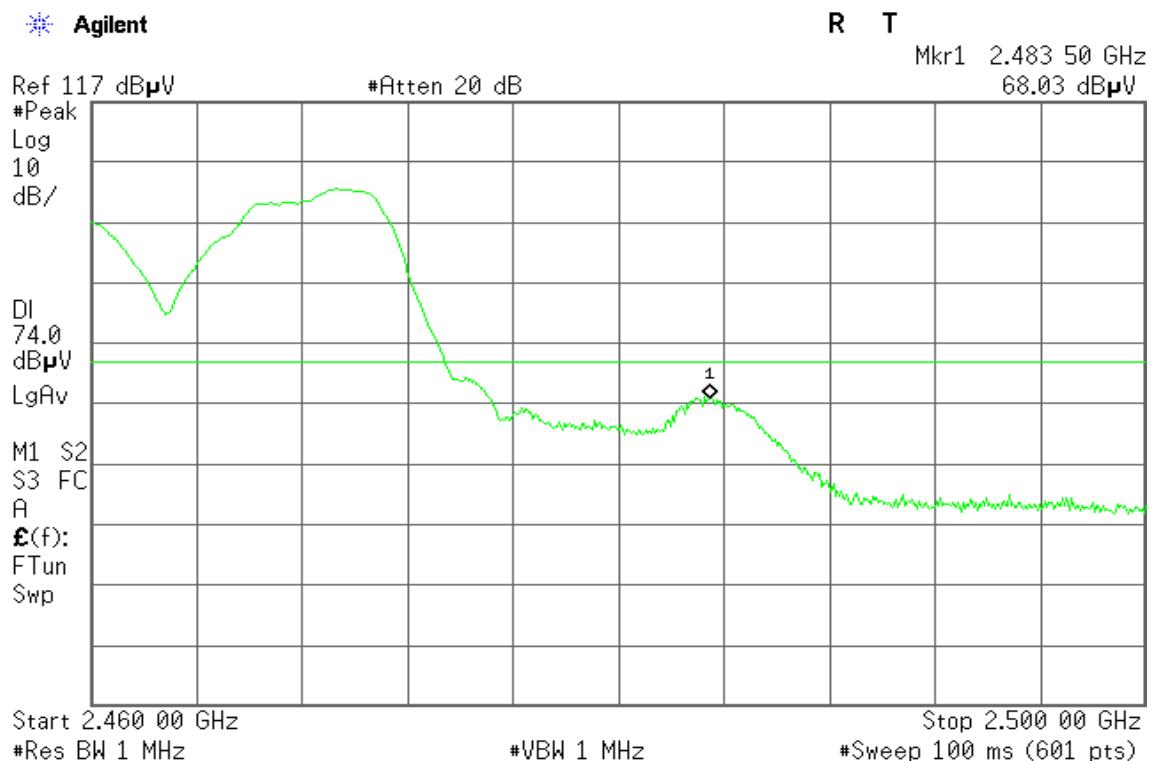
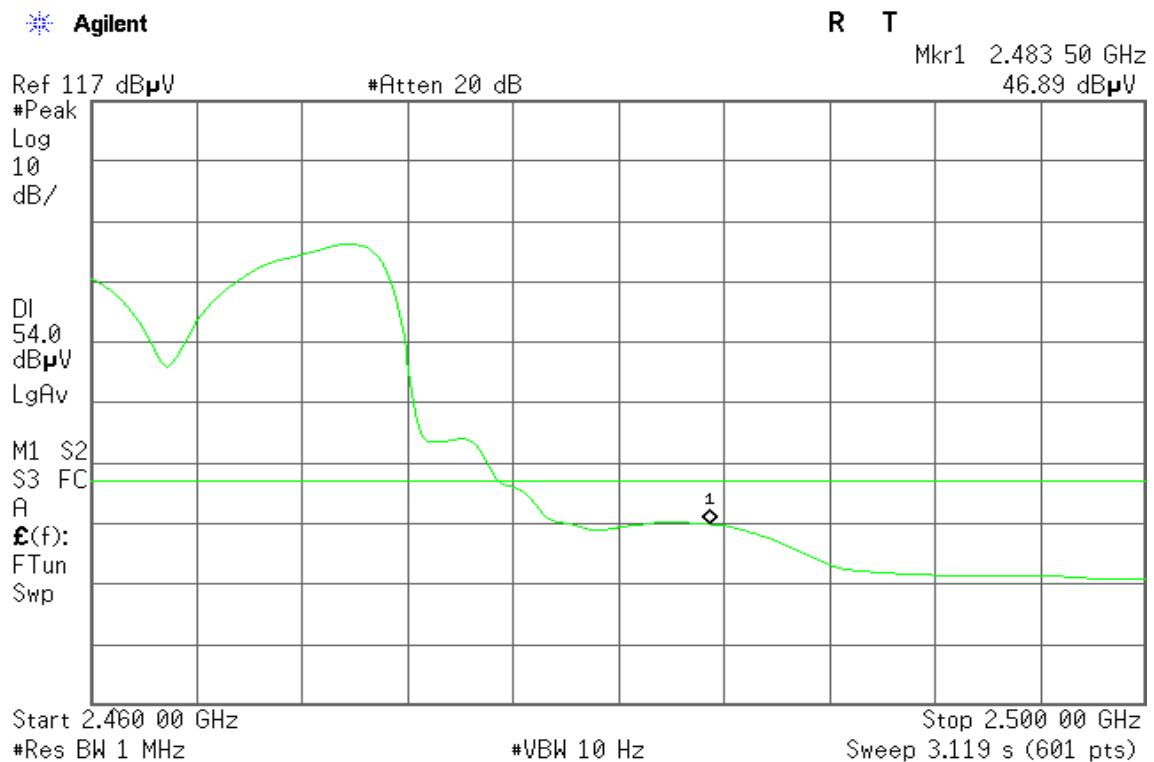
Band Edges (IEEE 802.11g mode / CH High)**Detector mode: Peak****Polarity: Vertical****Detector mode: Average****Polarity: Vertical**

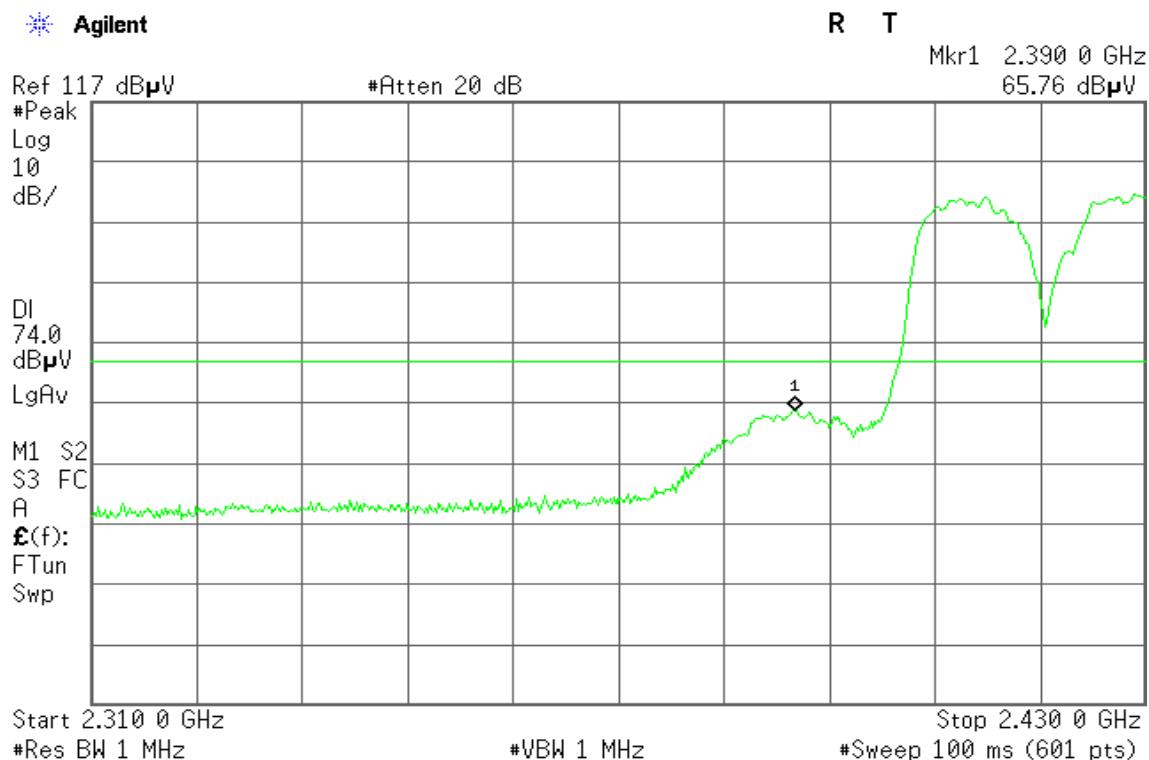
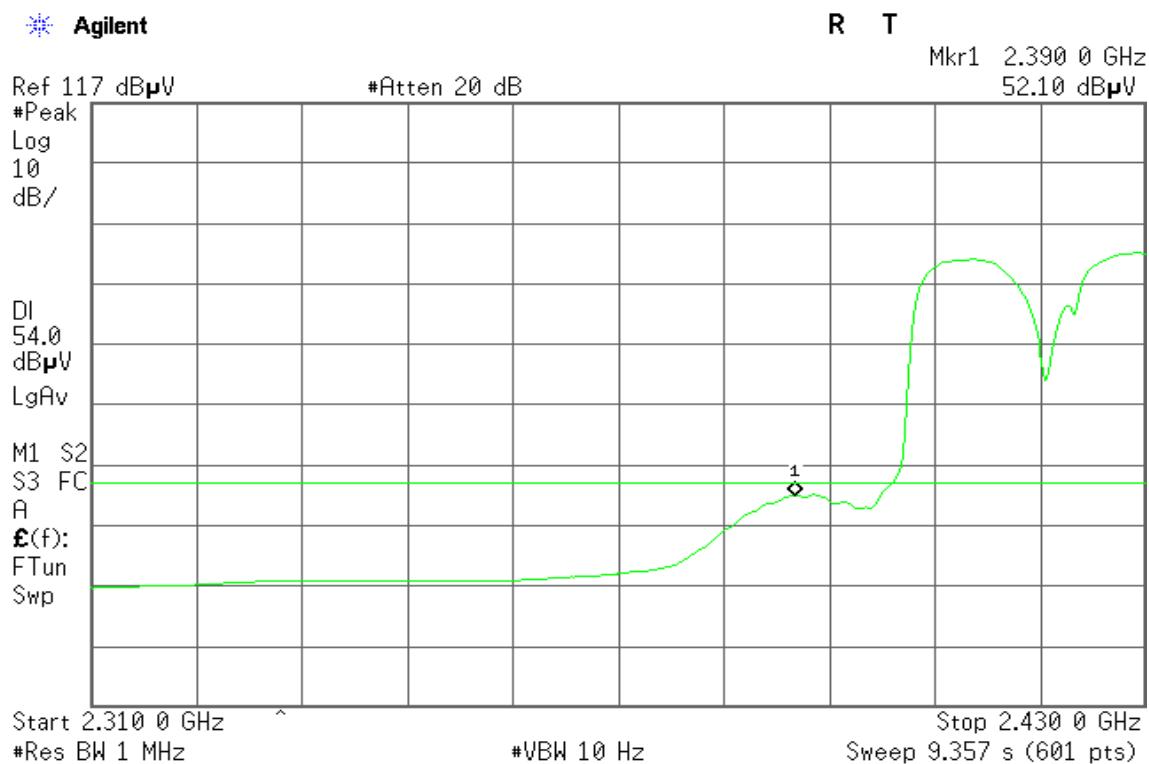
Detector mode: Peak**Polarity: Horizontal****Detector mode: Average****Polarity: Horizontal**

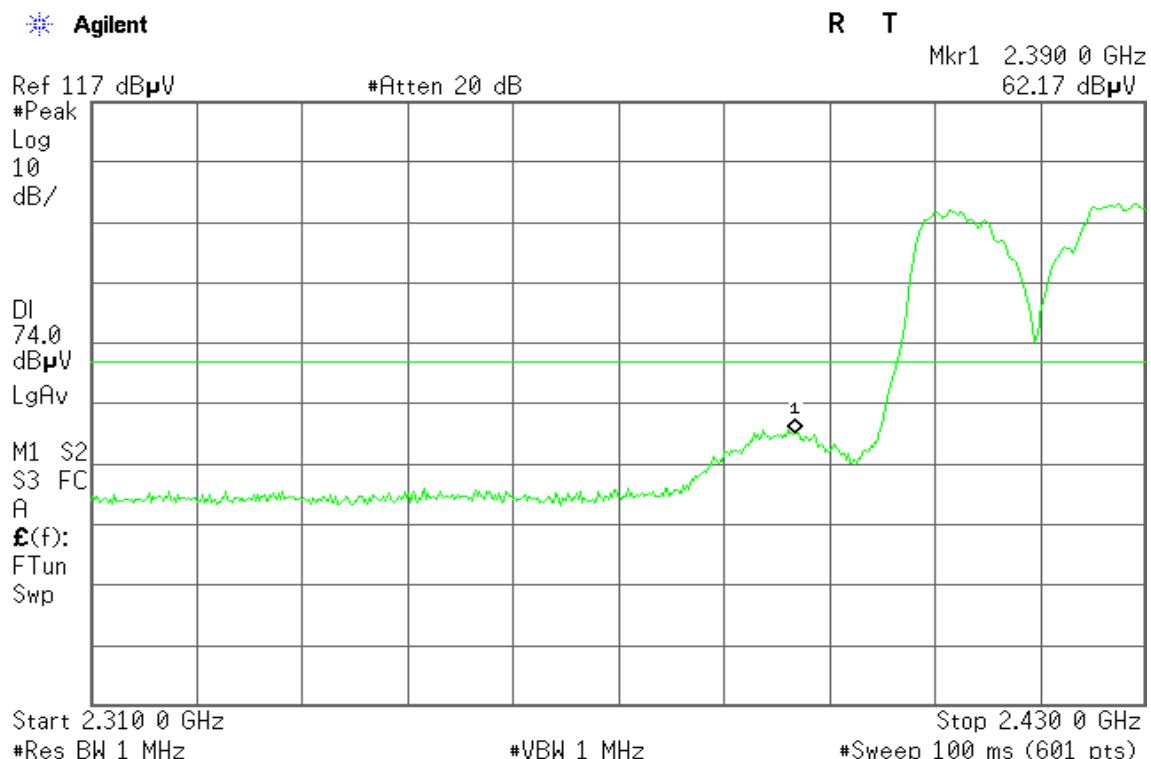
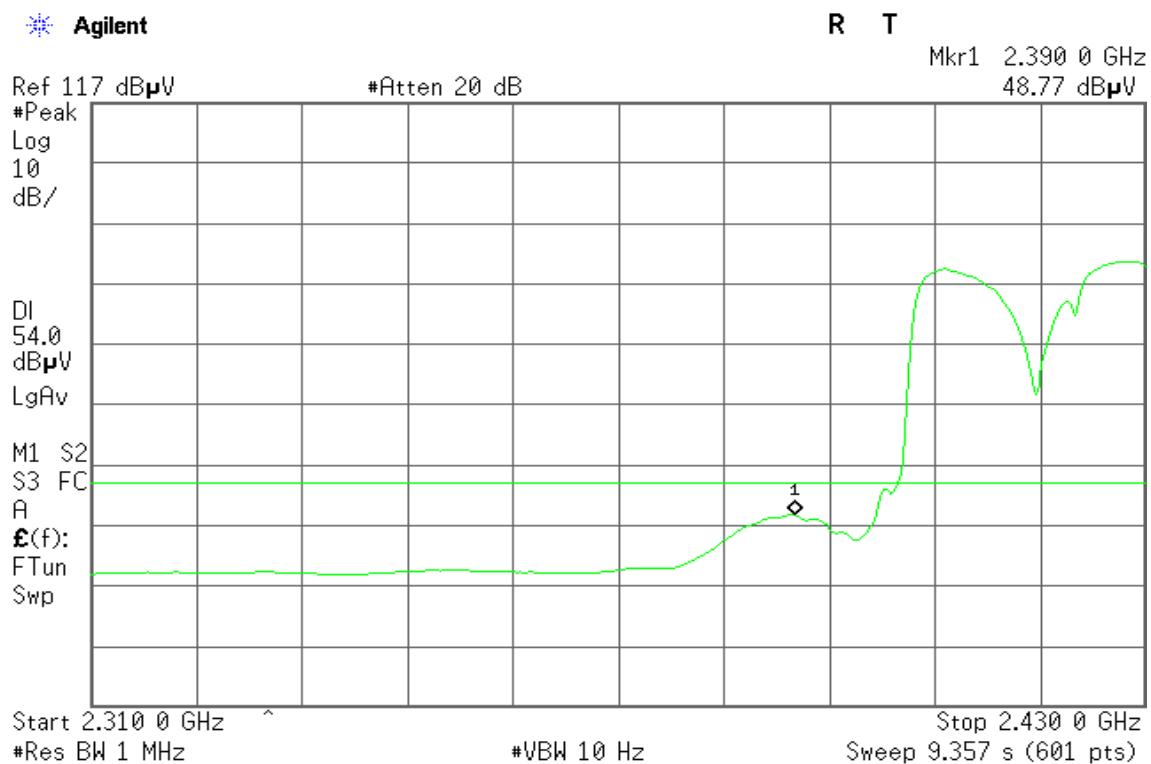
Band Edges (draft 802.11n Standard-20 MHz Channel mode / CH Low)**Detector mode: Peak****Polarity: Vertical****Detector mode: Average****Polarity: Vertical**

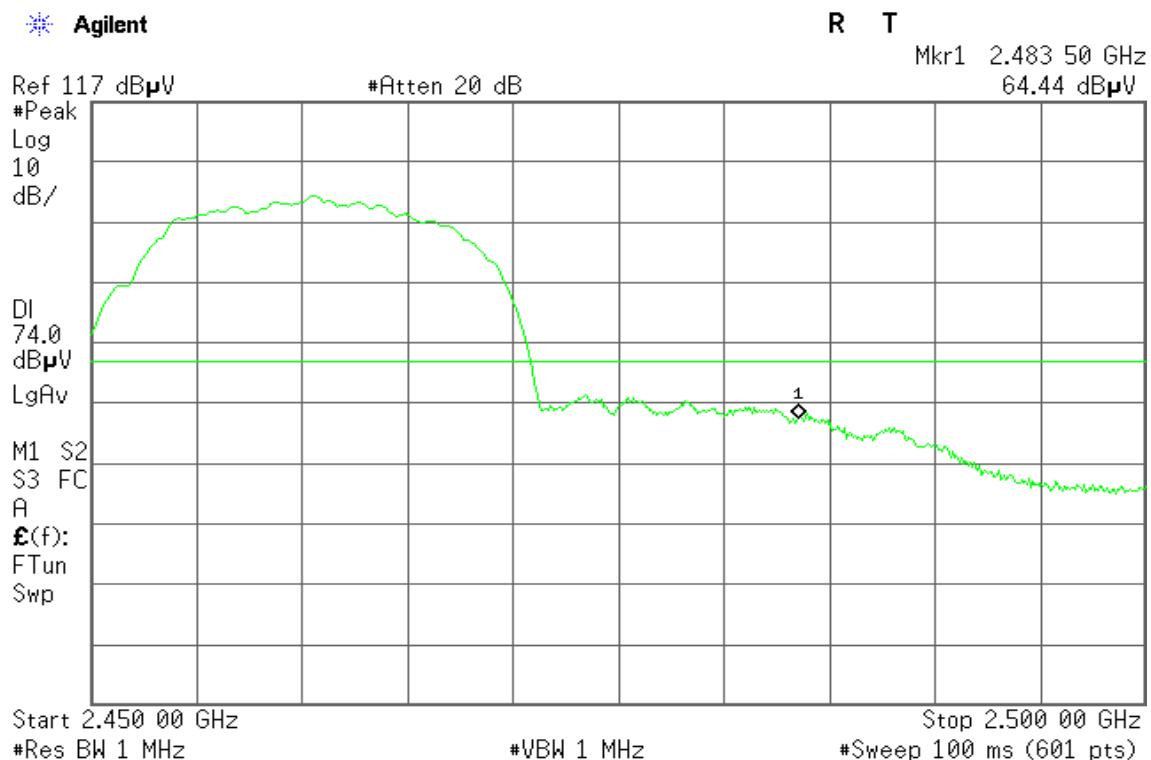
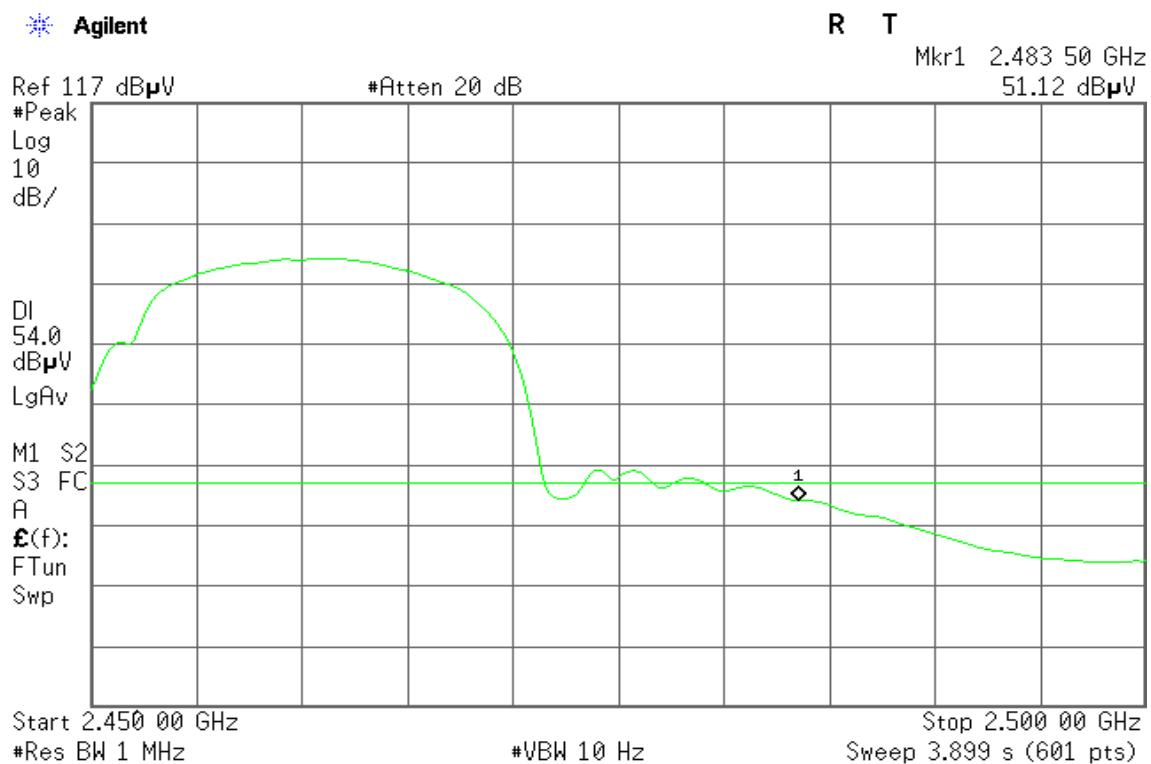
Detector mode: Peak**Polarity: Horizontal****Detector mode: Average****Polarity: Horizontal**

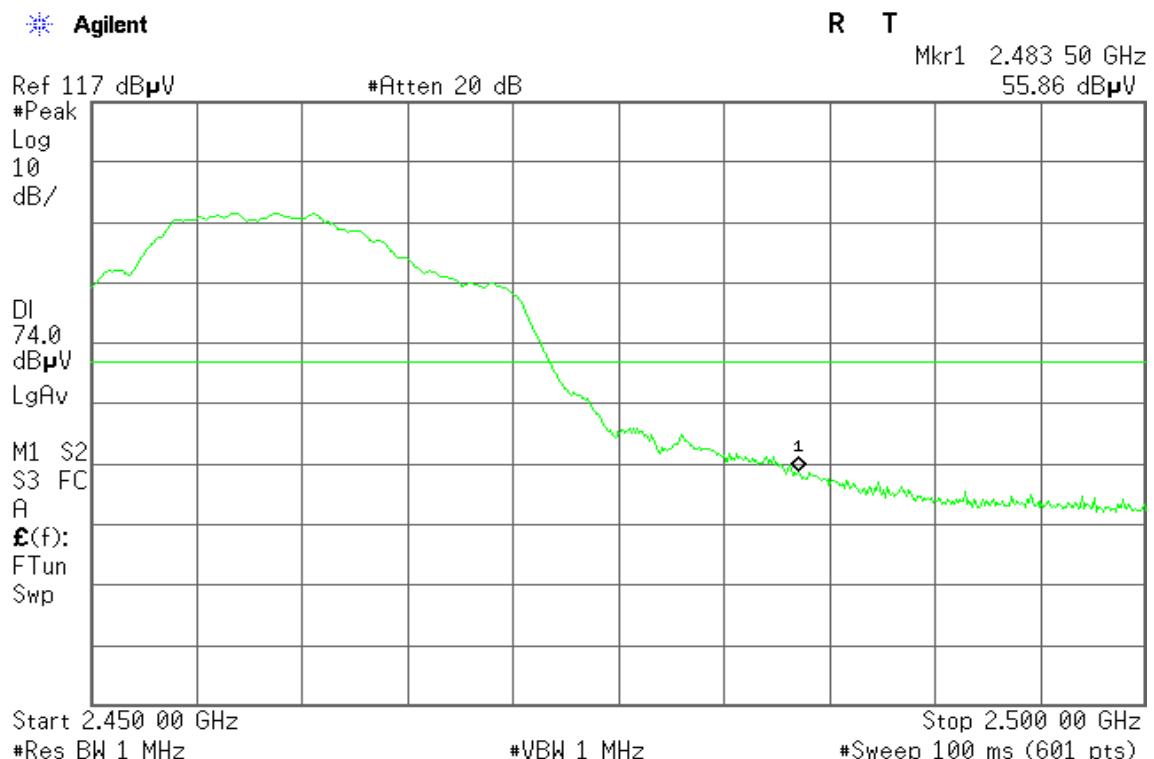
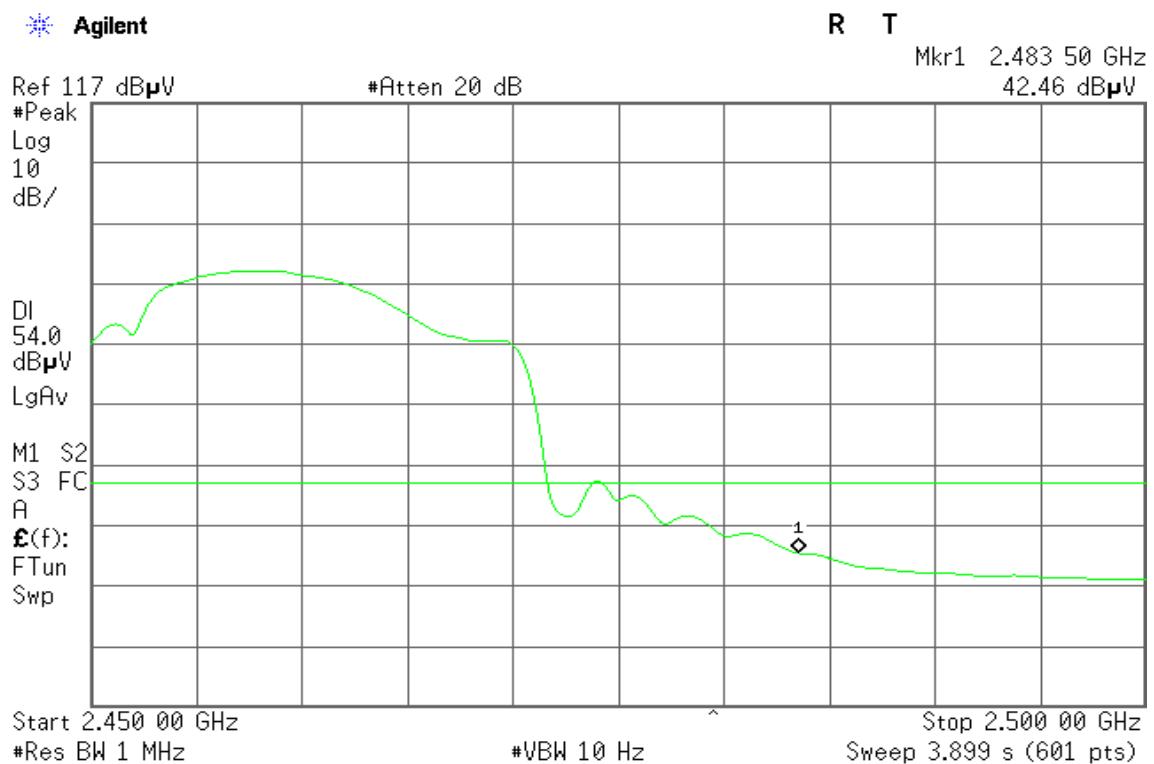
Band Edges (draft 802.11n Standard-20 MHz Channel mode / CH High)**Detector mode: Peak****Polarity: Vertical****Detector mode: Average****Polarity: Vertical**

Detector mode: Peak**Polarity: Horizontal****Detector mode: Average****Polarity: Horizontal**

Band Edges (draft 802.11n Wide-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 Wide-40 MHz Channel mode / CH High)**Detector mode: Peak****Polarity: Vertical****Detector mode: Average****Polarity: Vertical**

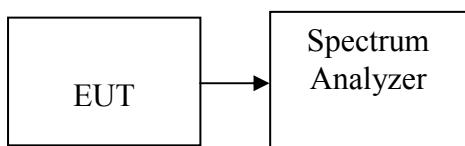
Detector mode: Peak**Polarity: Horizontal****Detector mode: Average****Polarity: Horizontal**

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 = 3 kHz, VBW = 10 kHz, Span = 300 kHz, Sweep time = 100 s
3. Record the max reading.
4. Repeat the above procedure until the measurements for all frequencies are completed.

TEST RESULTS

No non-compliance noted

**Test Data****Test mode: IEEE 802.11b**

Channel	Frequency (MHz)	PPSD (dBm)	Limit (dBm)	Result
Low	2412	-15.08	8.00	PASS
Mid	2437	-14.82		PASS
High	2462	-14.73		PASS

Test mode: IEEE 802.11g

Channel	Frequency (MHz)	PPSD (dBm)	Limit (dBm)	Result
Low	2412	-17.61	8.00	PASS
Mid	2437	-17.95		PASS
High	2462	-17.80		PASS

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

Channel	Frequency (MHz)	Chain 0 PPSD (dBm)	Chain 1 PPSD (dBm)	PPSD (dBm)	Limit (dBm)	Result
Low	2412	-17.54	-17.06	-14.28	8.00	PASS
Mid	2437	-16.63	-16.41	-13.51		PASS
High	2462	-18.01	-17.66	-14.82		PASS

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

Channel	Frequency (MHz)	Chain 0 PPSD (dBm)	Chain 1 PPSD (dBm)	PPSD (dBm)	Limit (dBm)	Result
Low	2422	-21.07	-22.04	-18.52	8.00	PASS
Mid	2437	-18.52	-19.21	-15.84		PASS
High	2452	-21.28	-21.71	-18.48		PASS

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

**Test mode: IEEE 802.11a mode / 5745 ~ 5825MHz**

Channel	Frequency (MHz)	PPSD (dBm)	Limit (dBm)	Result
Low	5745	-20.46	8	PASS
Mid	5785	-20.80		PASS
High	5825	-21.53		PASS

Test mode: draft 802.11n Standard-20 MHz Channel mode / 5745 ~ 5825MHz

Channel	Frequency (MHz)	Chain 0 PPSD (dBm)	Chain 1 PPSD (dBm)	PPSD (dBm)	Limit (dBm)	Result
Low	5745	-18.29	-17.15	-14.67	8	PASS
Mid	5785	-18.32	-18.49	-15.39		PASS
High	5825	-19.25	-17.53	-15.30		PASS

Test mode: draft 802.11n Wide-40 MHz Channel mode / 5755 ~ 5795MHz

Channel	Frequency (MHz)	Chain 0 PPSD (dBm)	Chain 1 PPSD (dBm)	PPSD (dBm)	Limit (dBm)	Result
Low	5755	-20.90	-18.91	-16.78	8	PASS
High	5795	-21.48	-19.87	-17.59		PASS

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

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

Channel	Frequency (MHz)	PPSD (dBm)	Limit (dBm)	Result
Low	2412	-12.01	8	PASS
Mid	2437	-12.24		PASS
High	2462	-13.26		PASS

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

Channel	Frequency (MHz)	PPSD (dBm)	Limit (dBm)	Result
Low	2422	-17.51	8	PASS
Mid	2437	-13.74		PASS
High	2452	-16.93		PASS

Test mode: draft 802.11n Standard-20 MHz Channel / 5745 ~ 5825MHz / mode with combiner

Channel	Frequency (MHz)	PPSD (dBm)	Limit (dBm)	Result
Low	5745	-15.54	8	PASS
Mid	5785	-14.63		PASS
High	5825	-14.35		PASS

Test mode: draft 802.11n Wide-40 MHz Channel mode / 5755 ~ 5795MHz with combiner

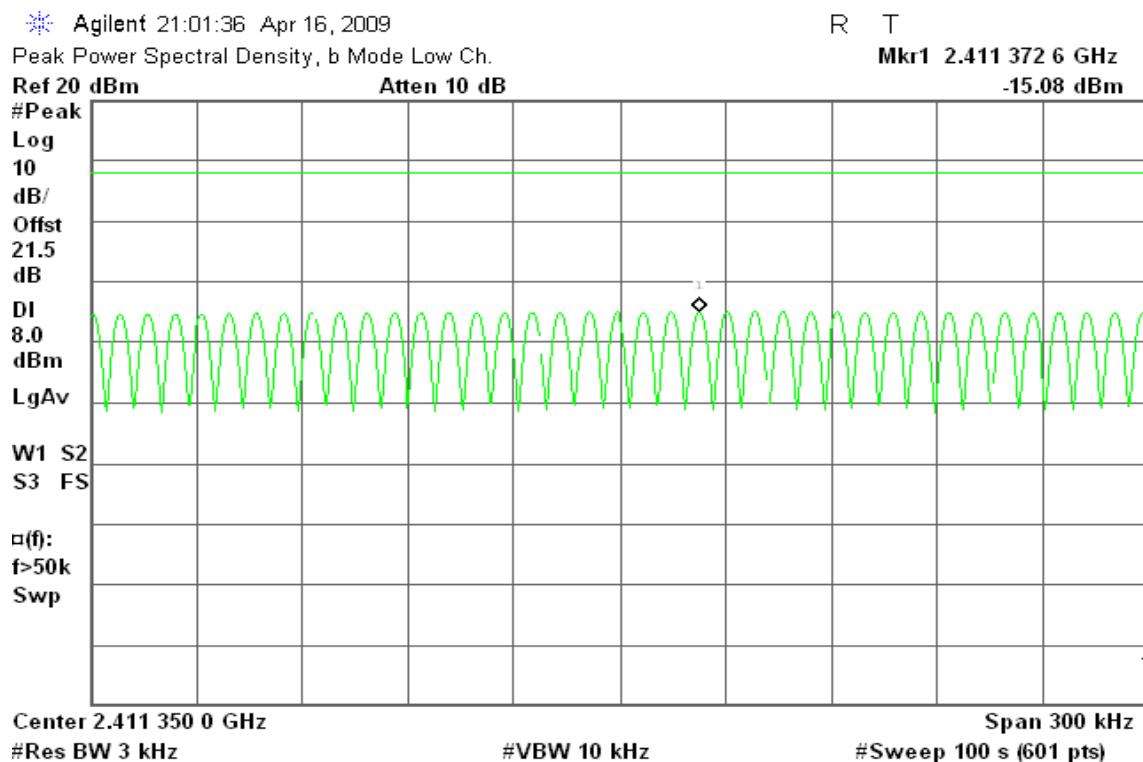
Channel	Frequency (MHz)	PPSD (dBm)	Limit (dBm)	Result
Low	5755	-16.78	8	PASS
High	5795	-17.07		PASS

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

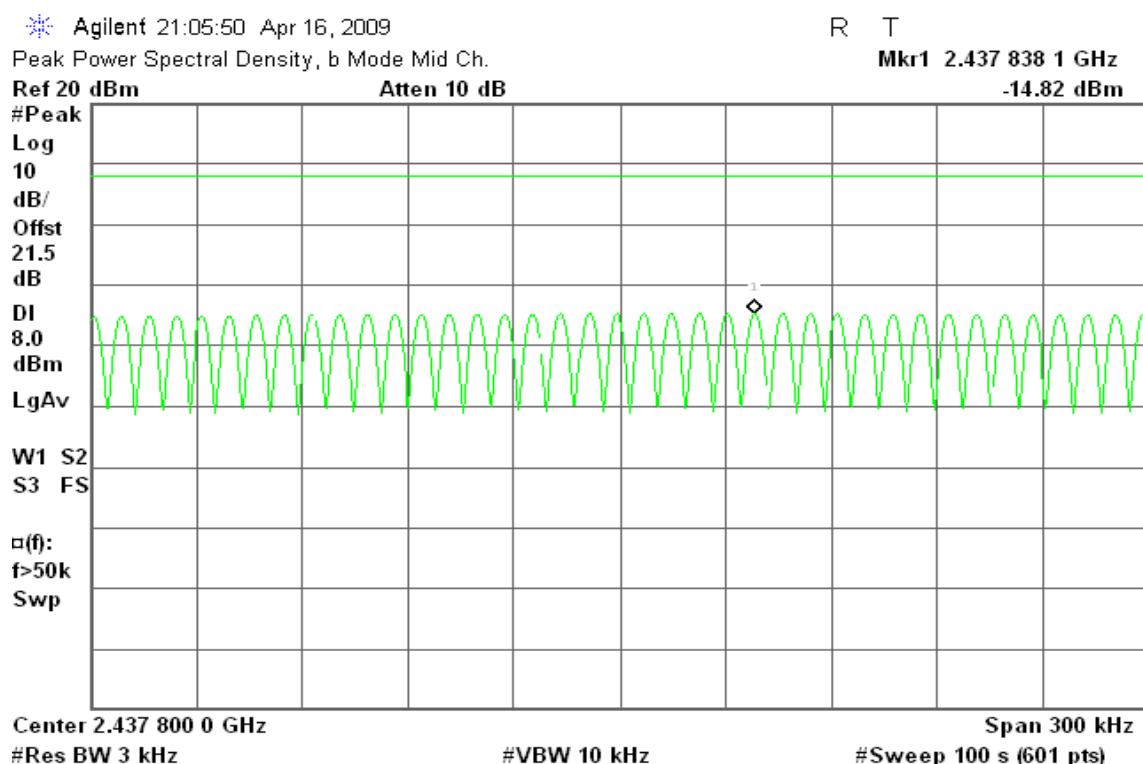
Test Plot

IEEE 802.11b mode

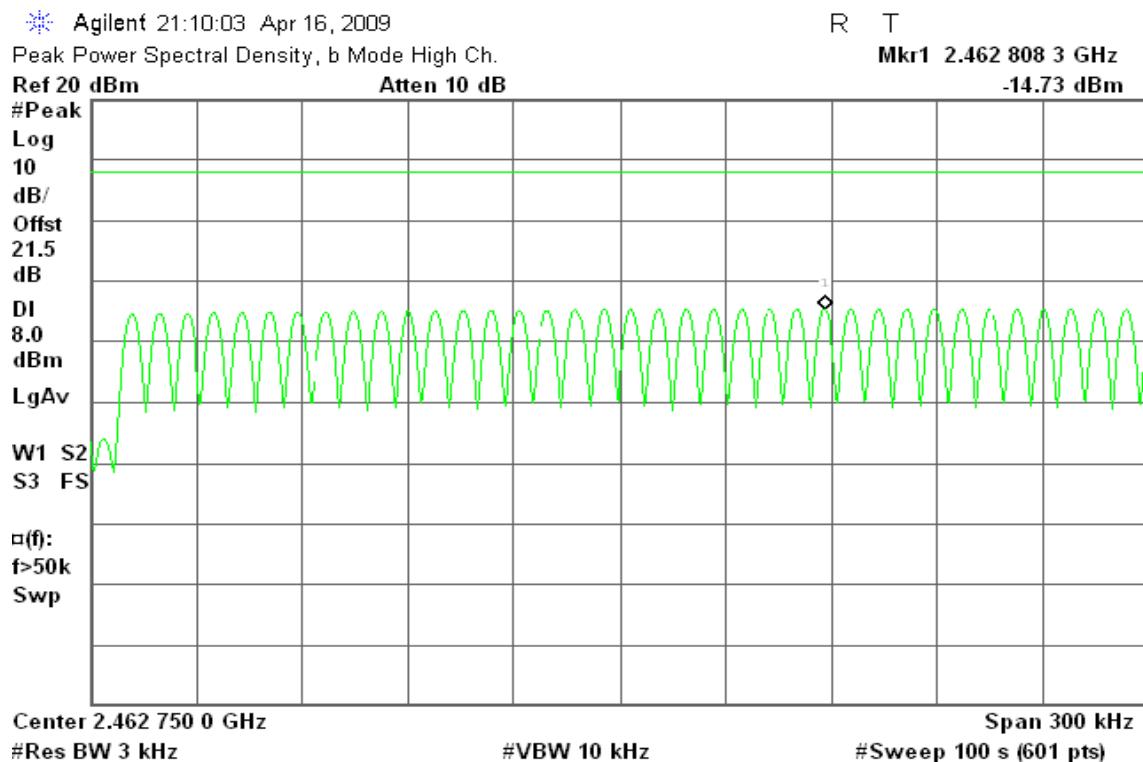
PPSD (CH Low)



PPSD (CH Mid)

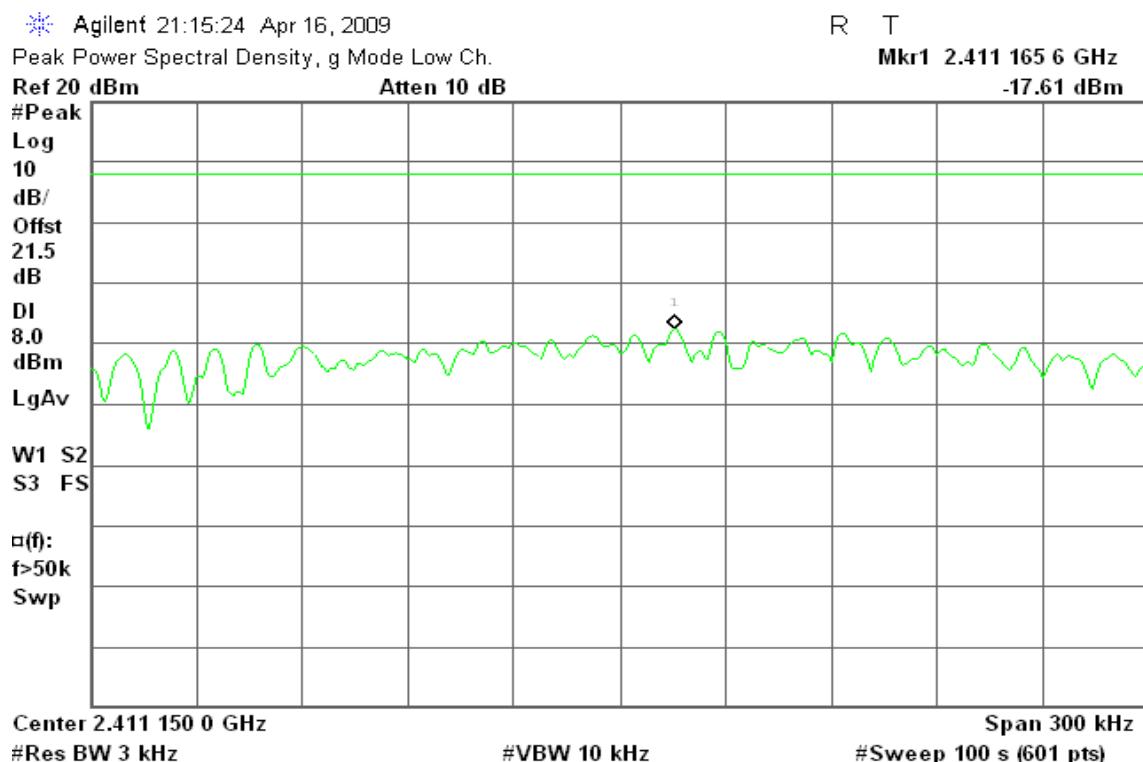


PPSD (CH High)

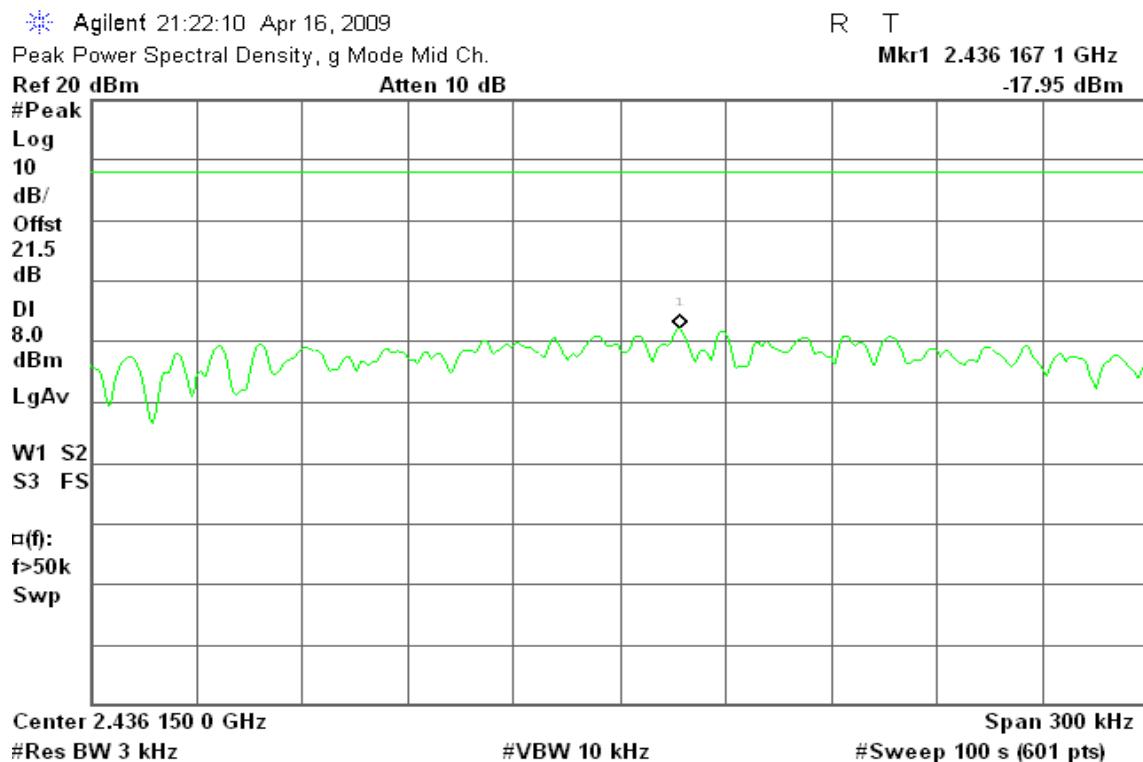


IEEE 802.11g mode

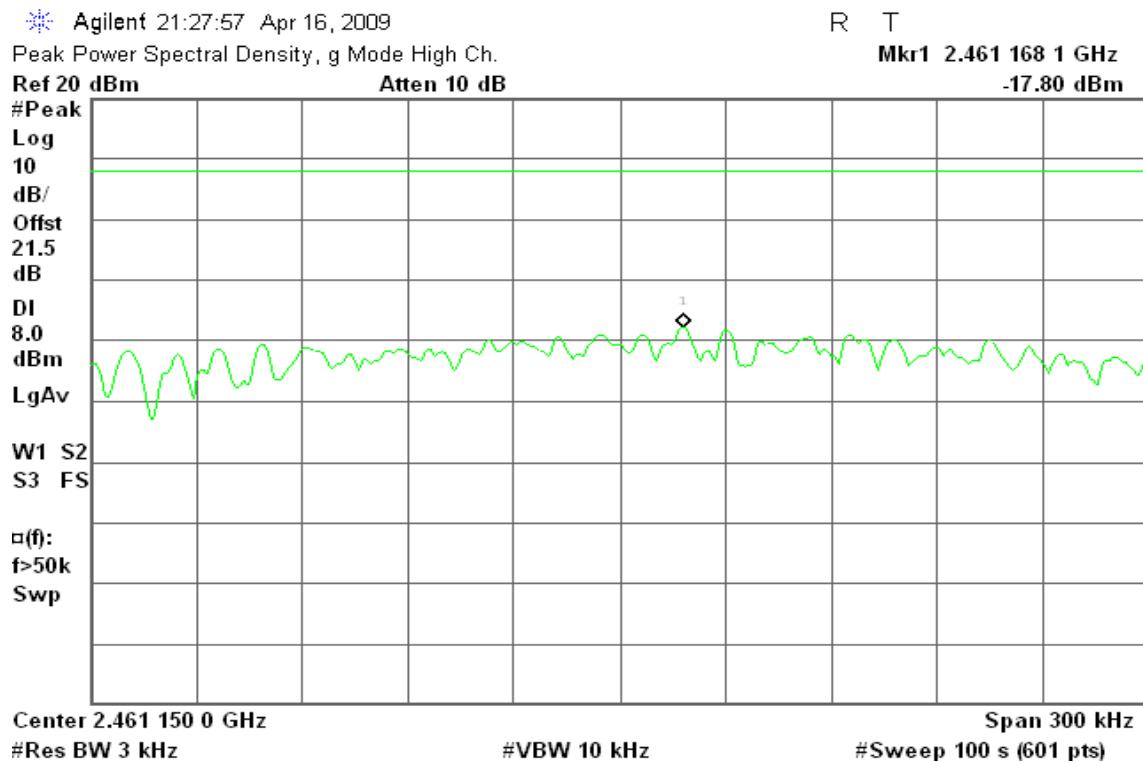
PPSD (CH Low)

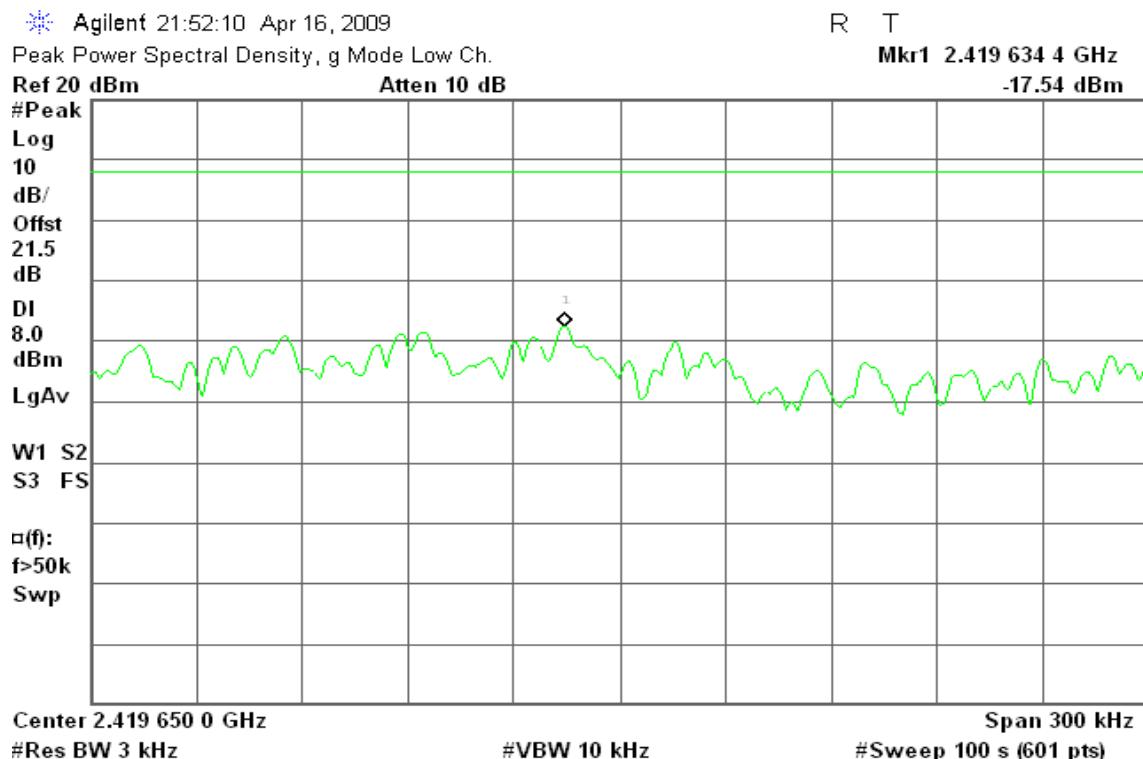
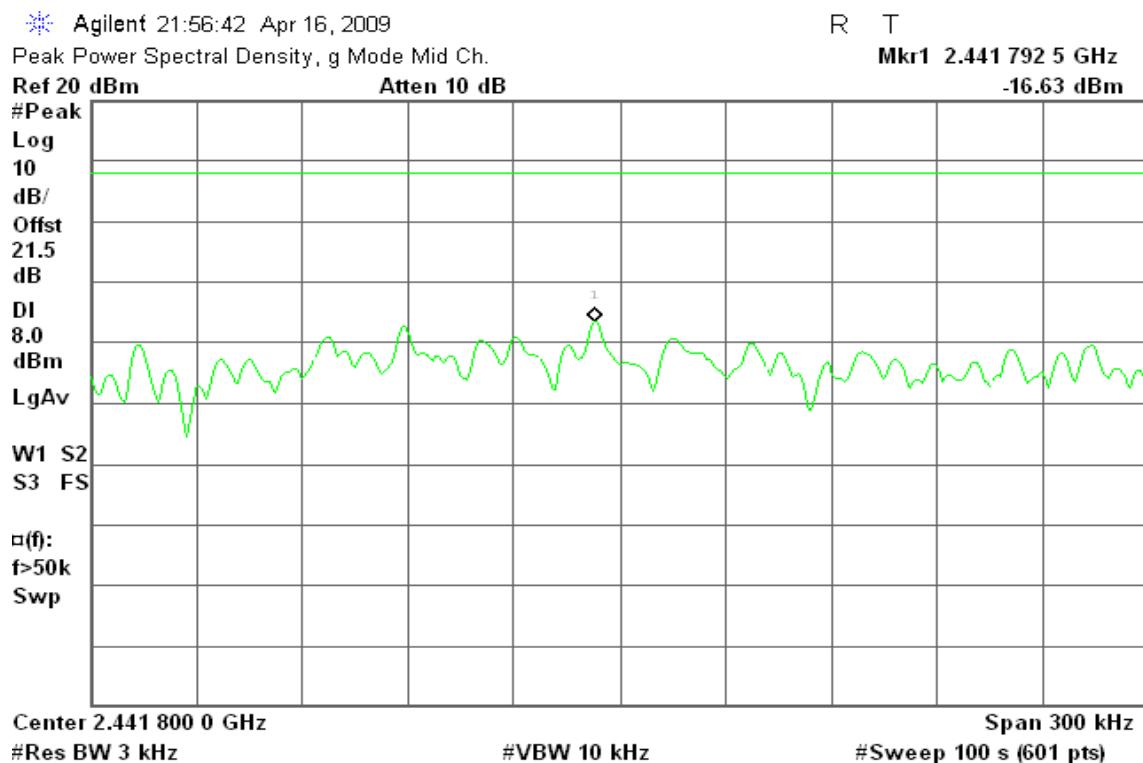


PPSD (CH Mid)

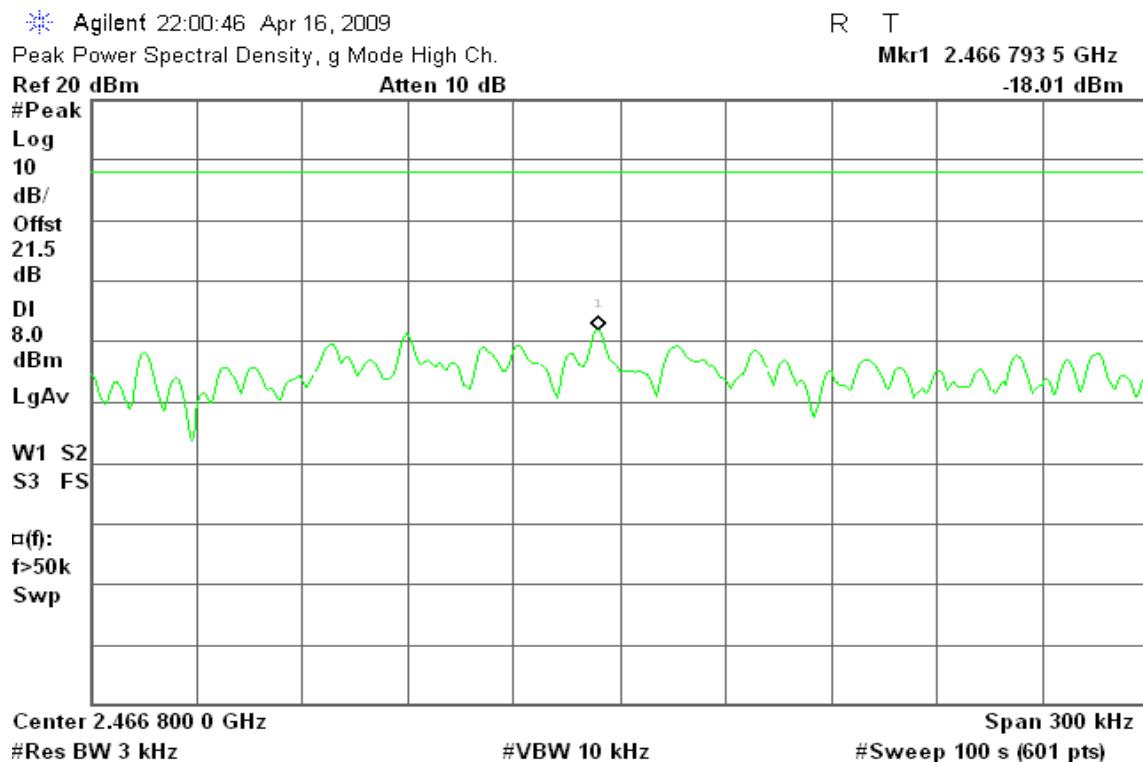


PPSD (CH High)



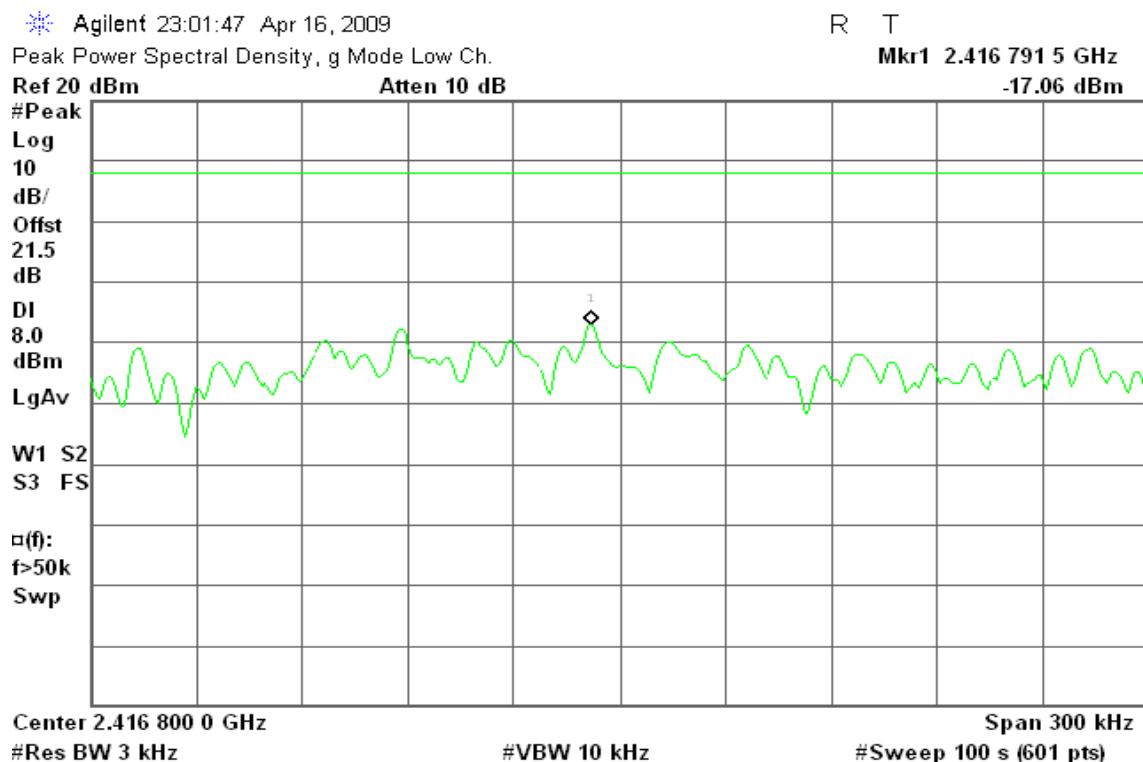
draft 802.11n Standard-20 MHz Channel mode / Chain 0**PPSD (CH Low)****PPSD (CH Mid)**

PPSD (CH High)

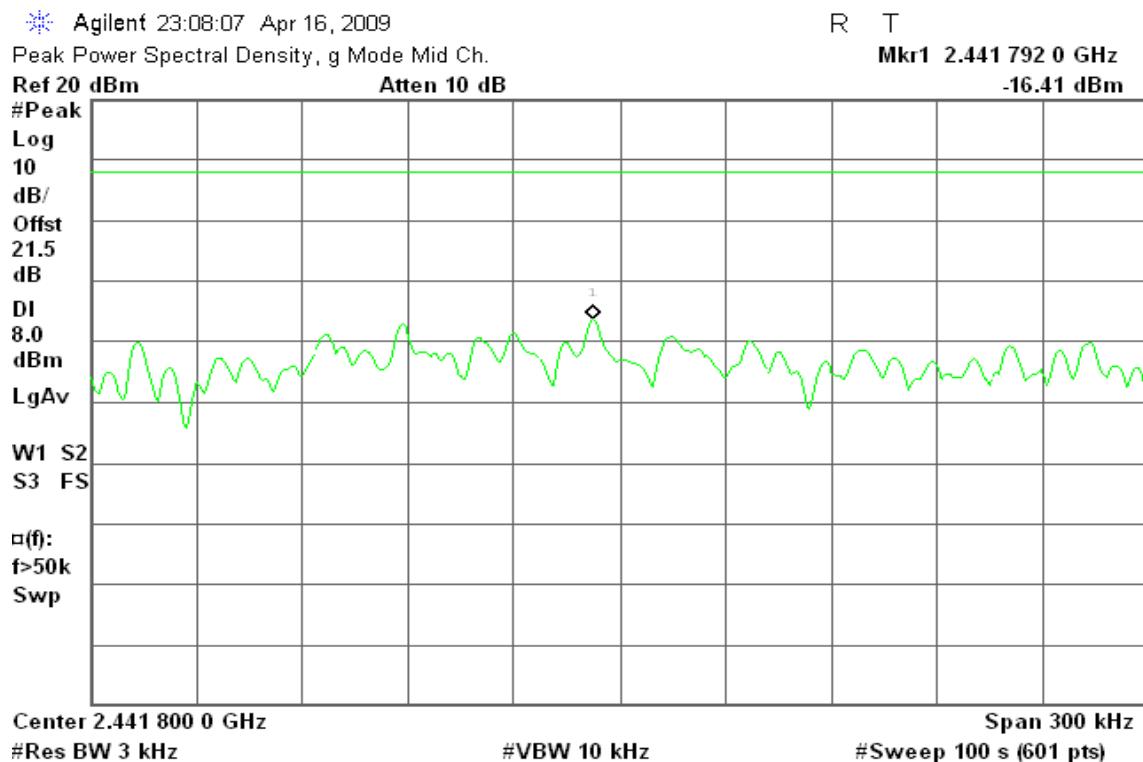


draft 802.11n Standard-20 MHz Channel mode / Chain 1

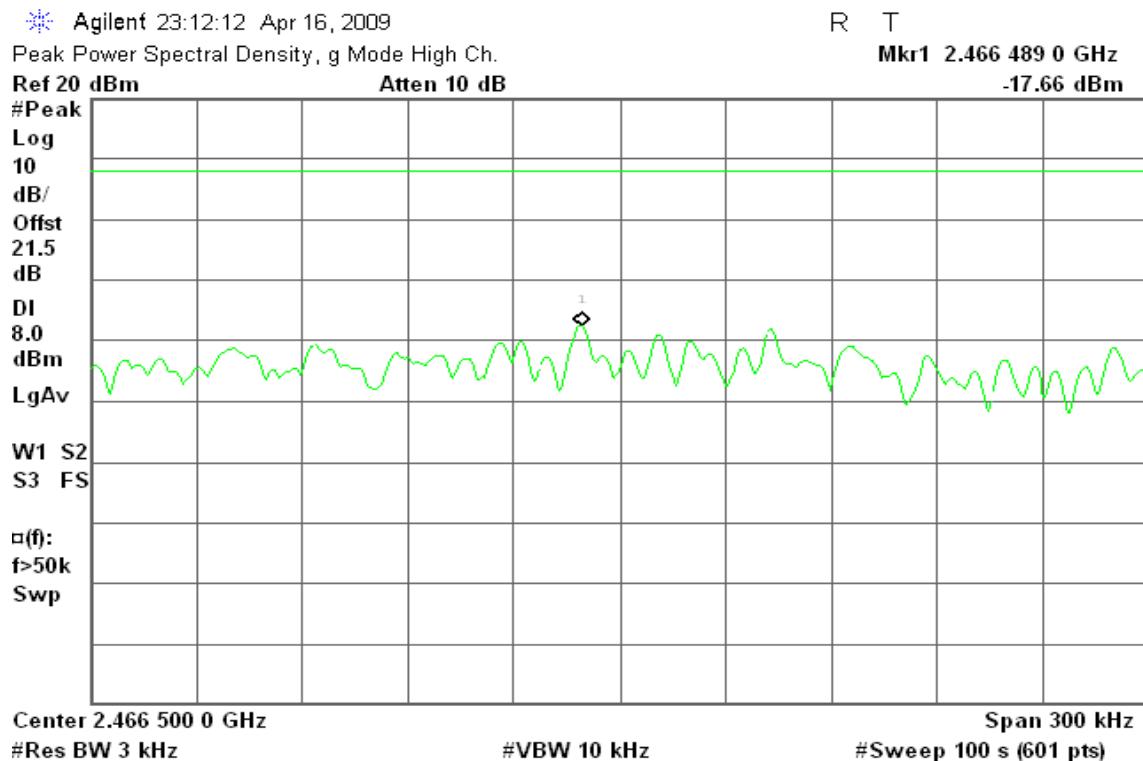
PPSD (CH Low)

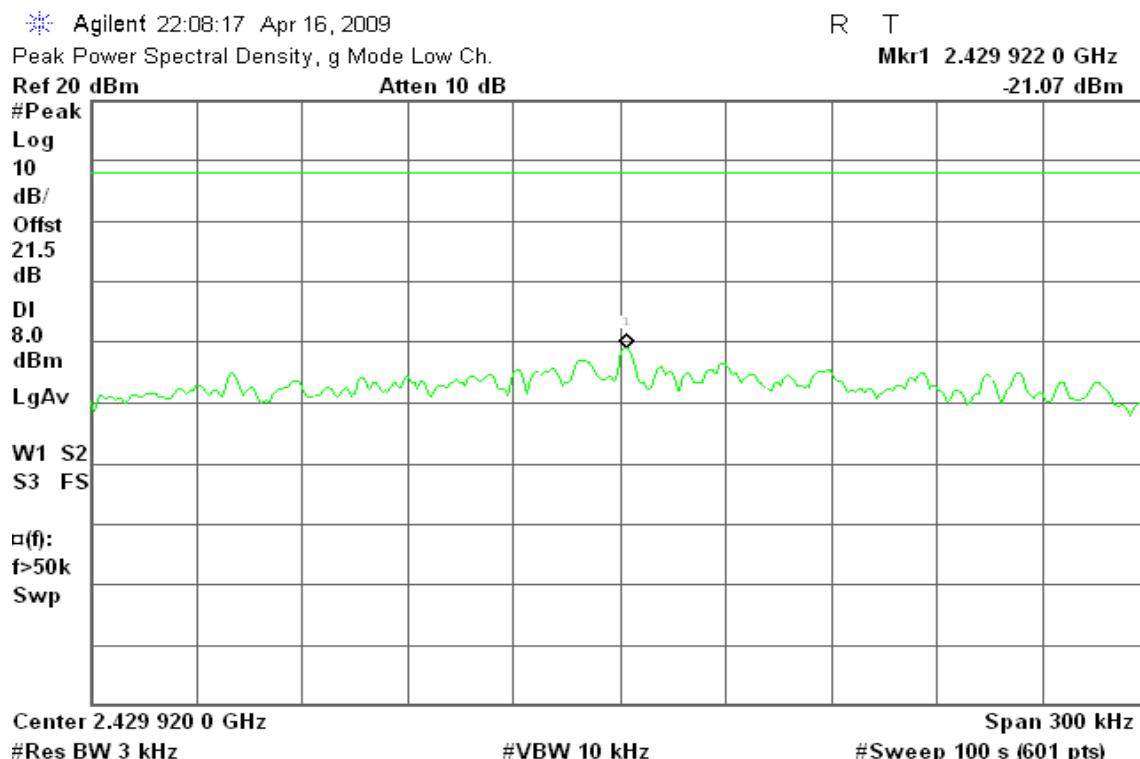
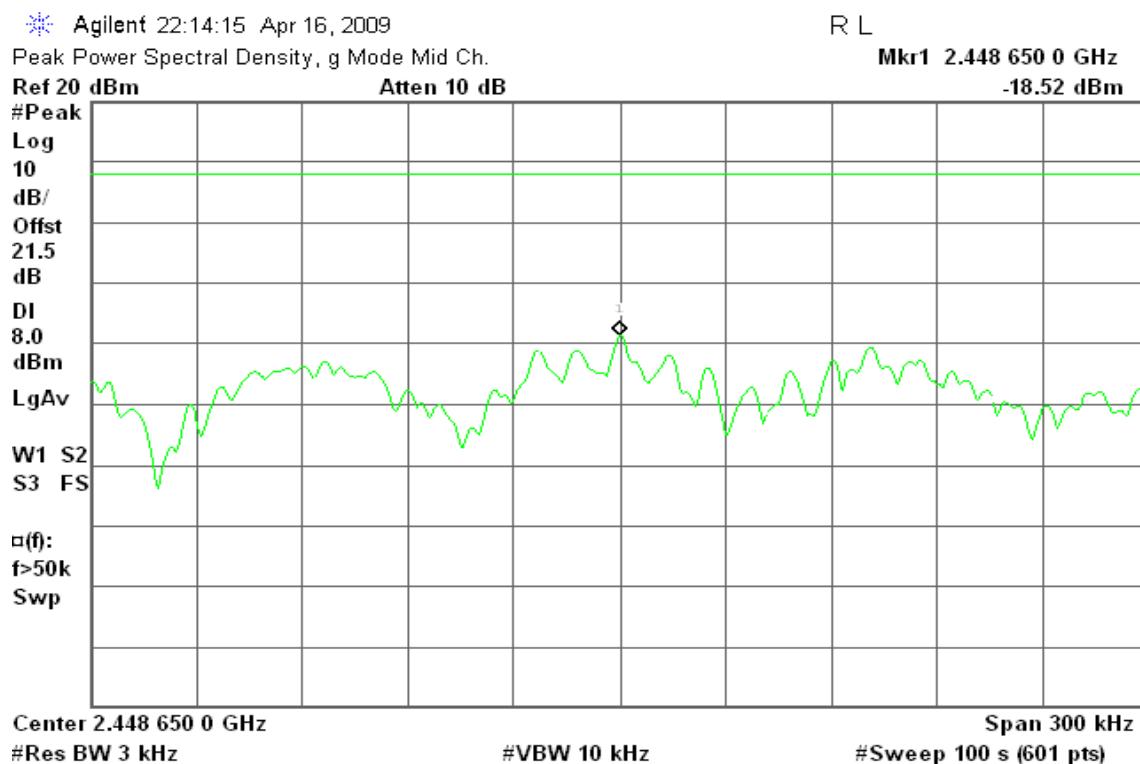


PPSD (CH Mid)

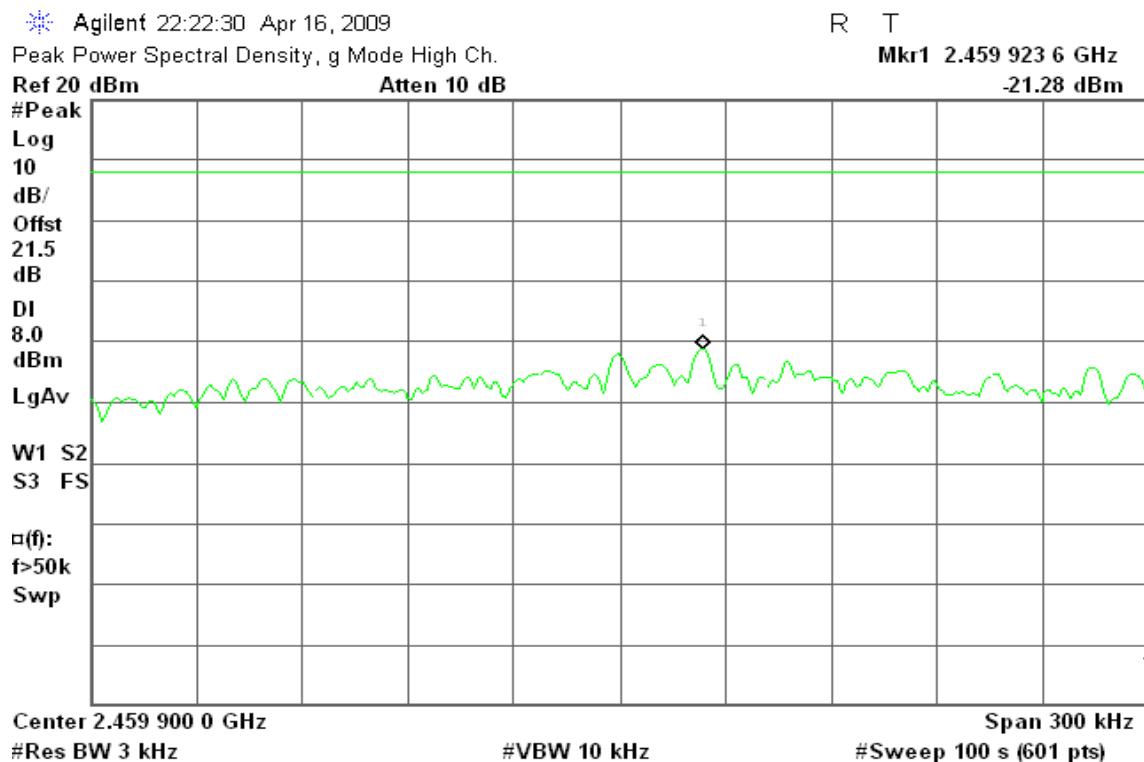


PPSD (CH High)



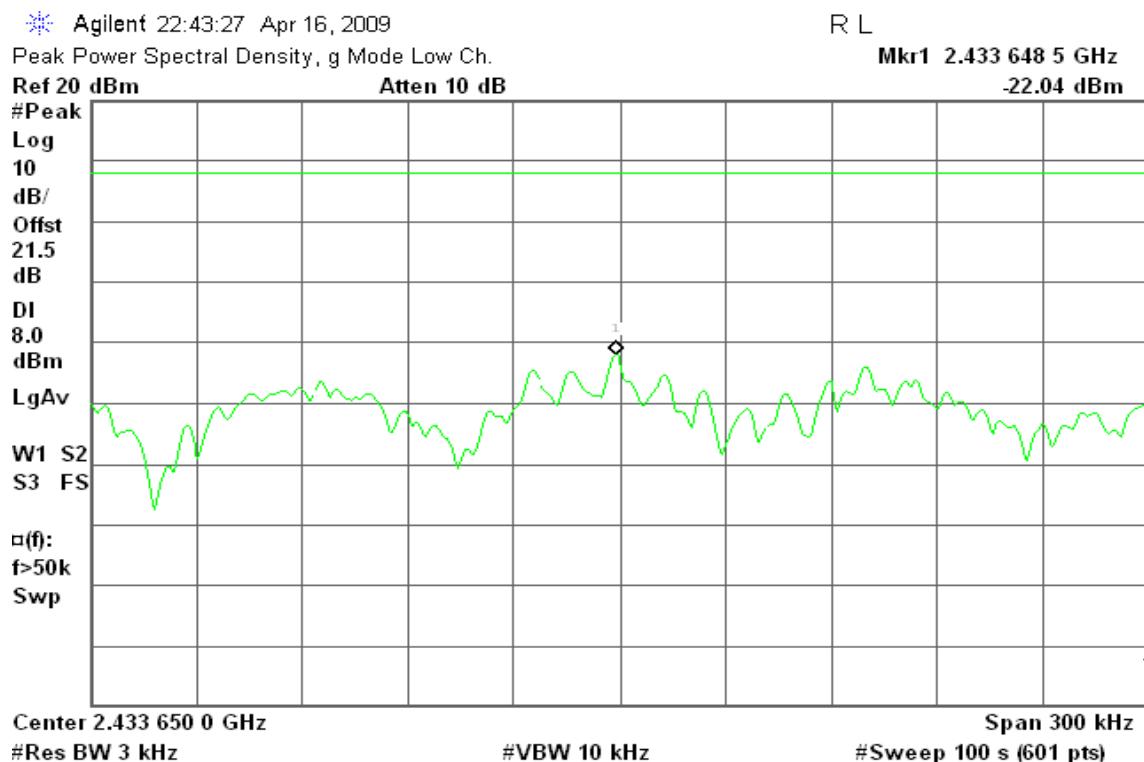
draft 802.11n Wide-40 MHz Channel mode / Chain 0**PPSD (CH Low)****PPSD (CH Mid)**

PPSD (CH High)

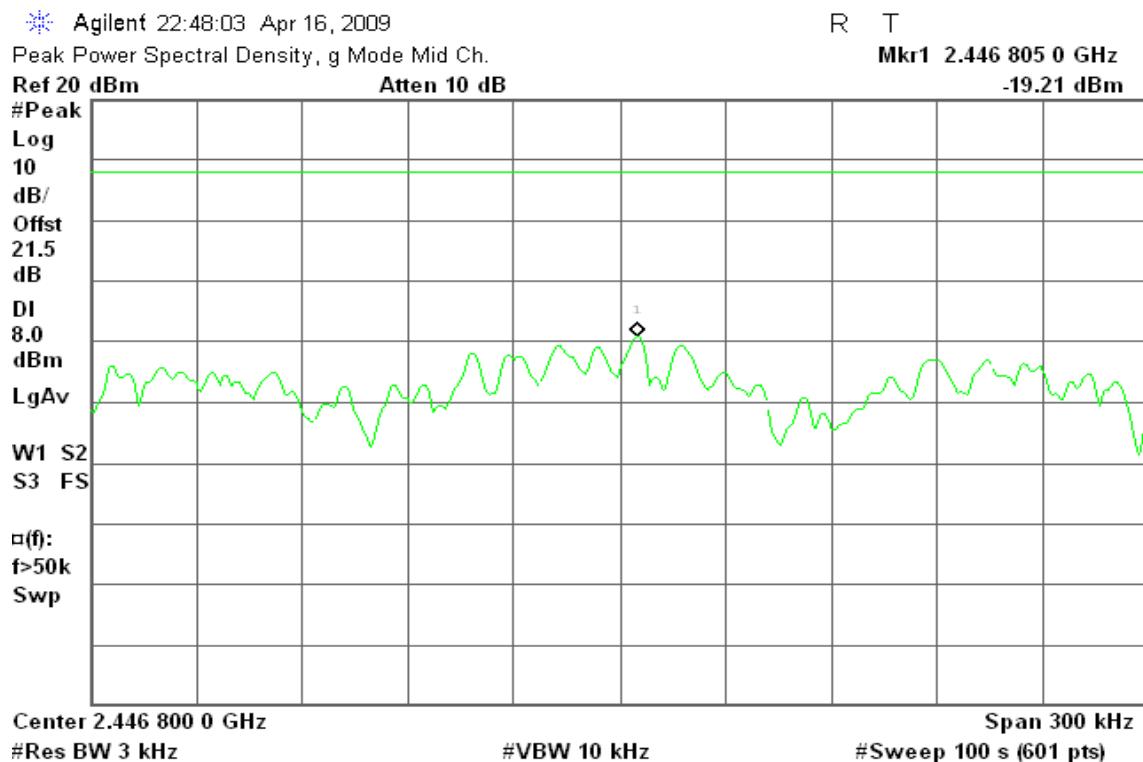


draft 802.11n Wide-40 MHz Channel mode / Chain 1

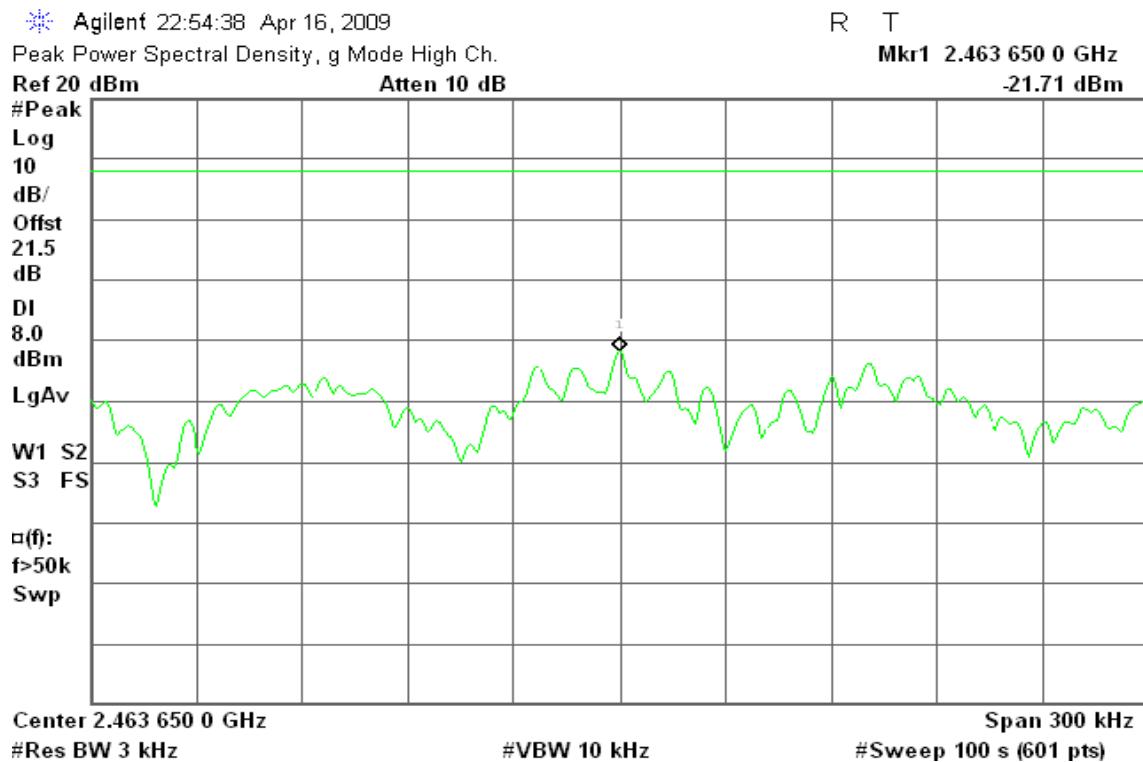
PPSD (CH Low)

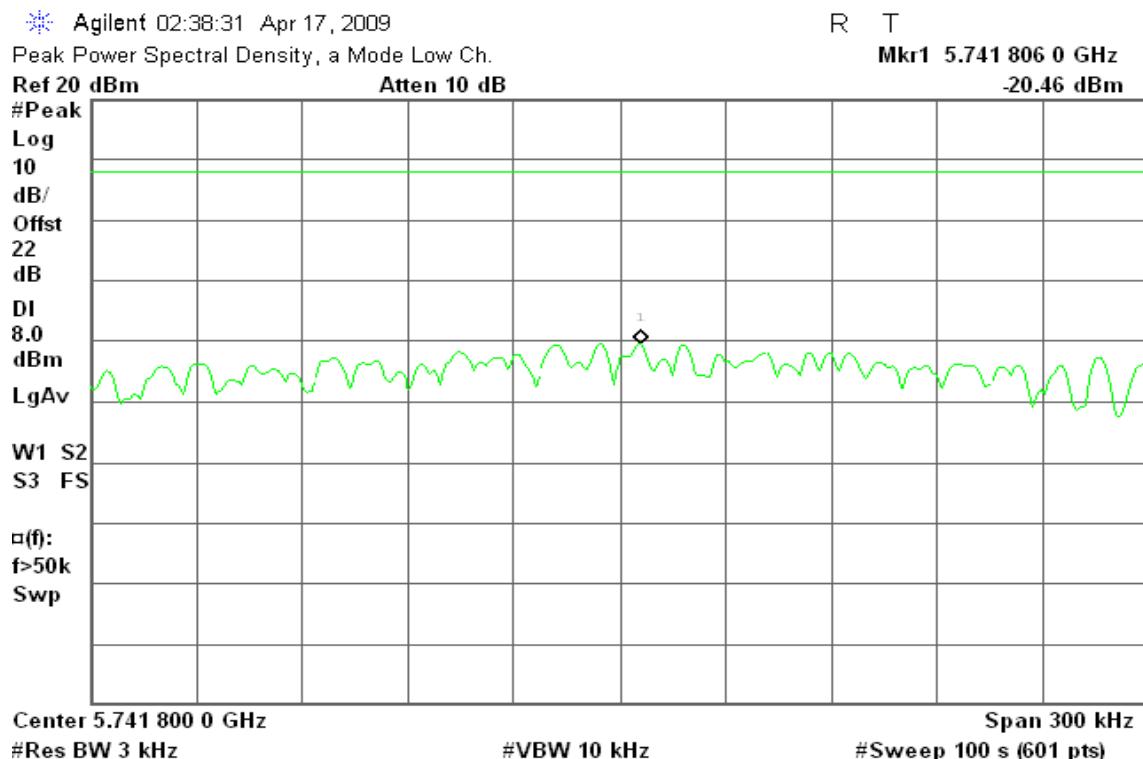
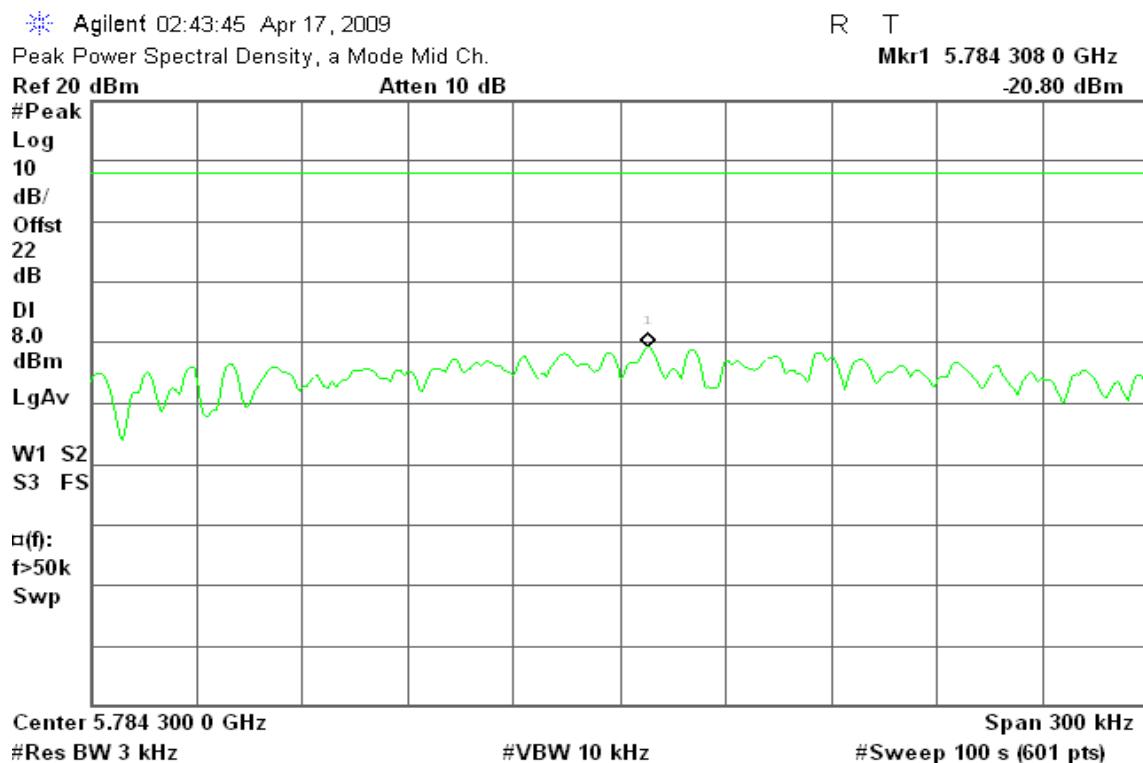


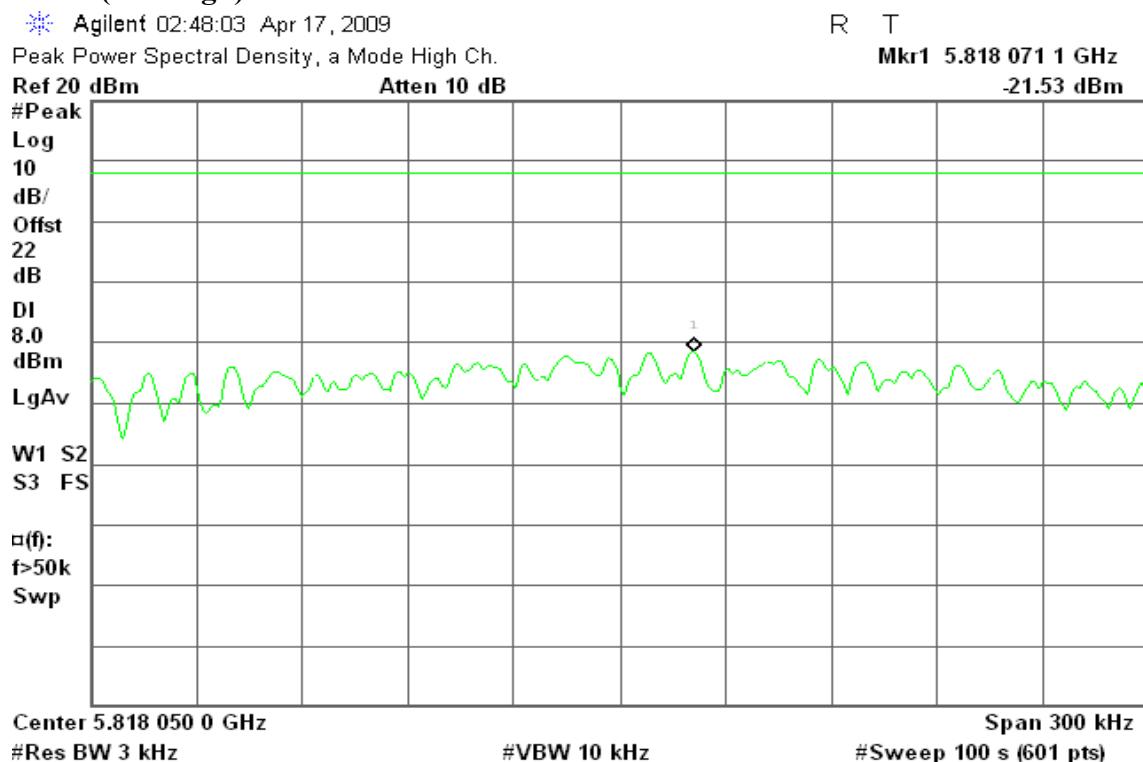
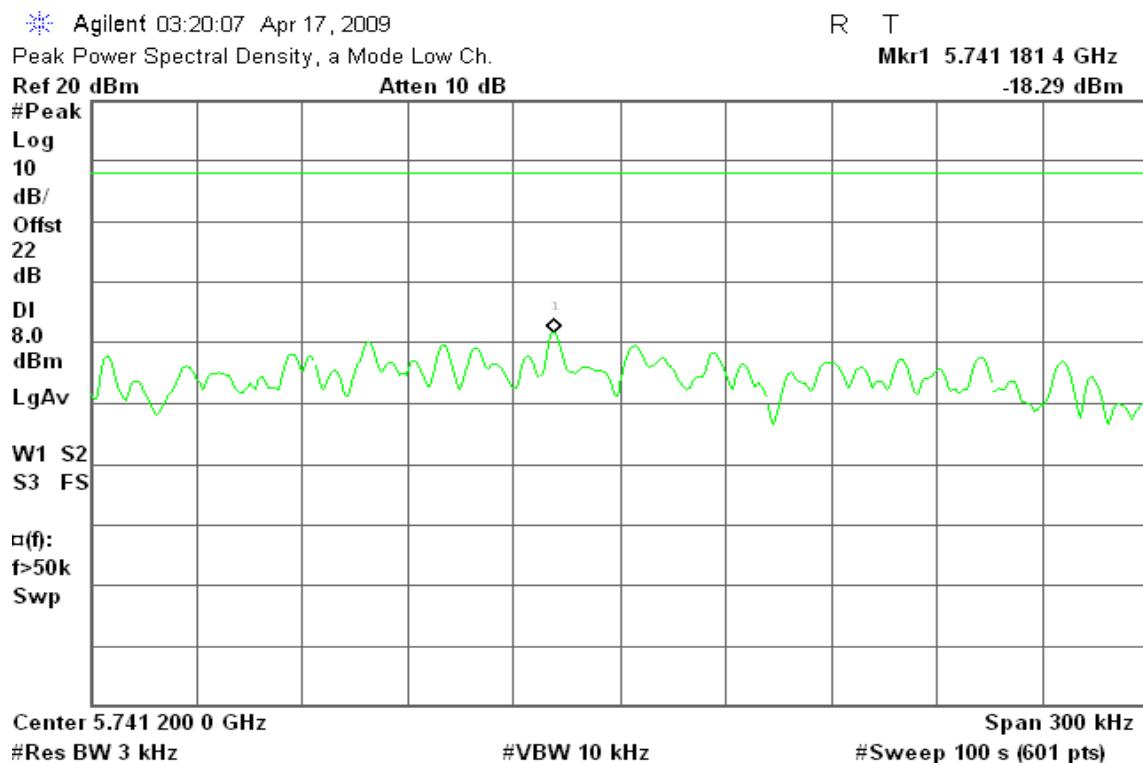
PPSD (CH Mid)

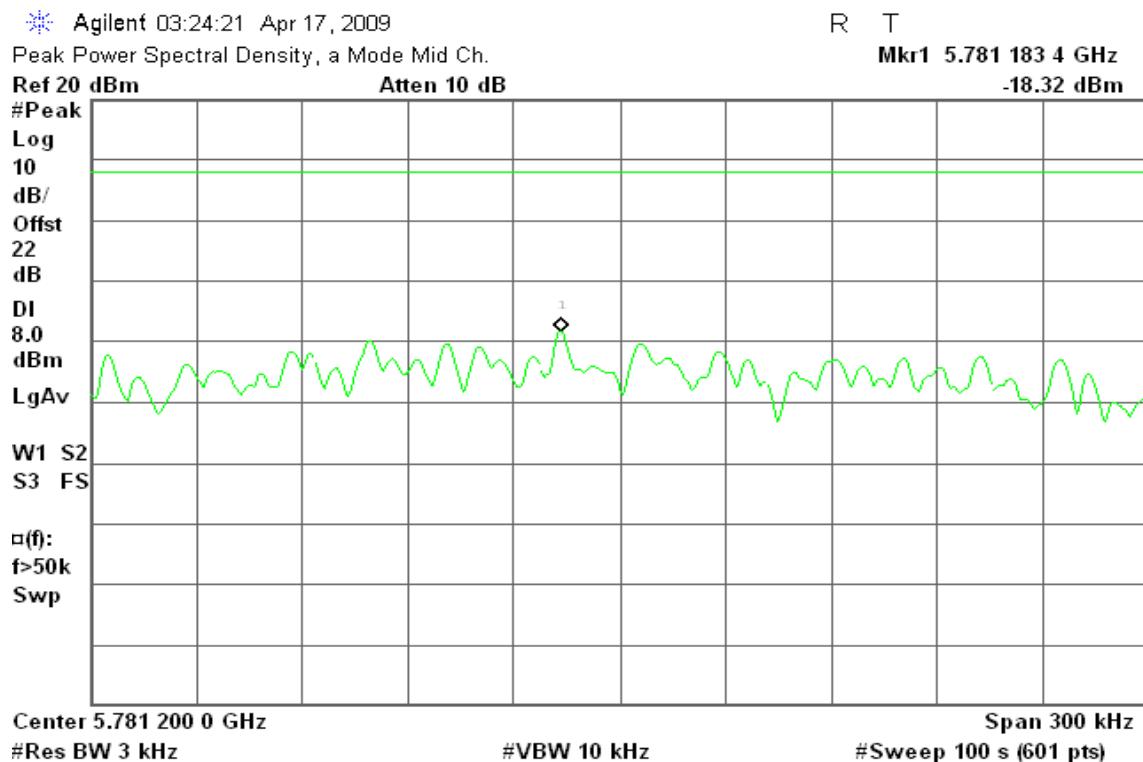
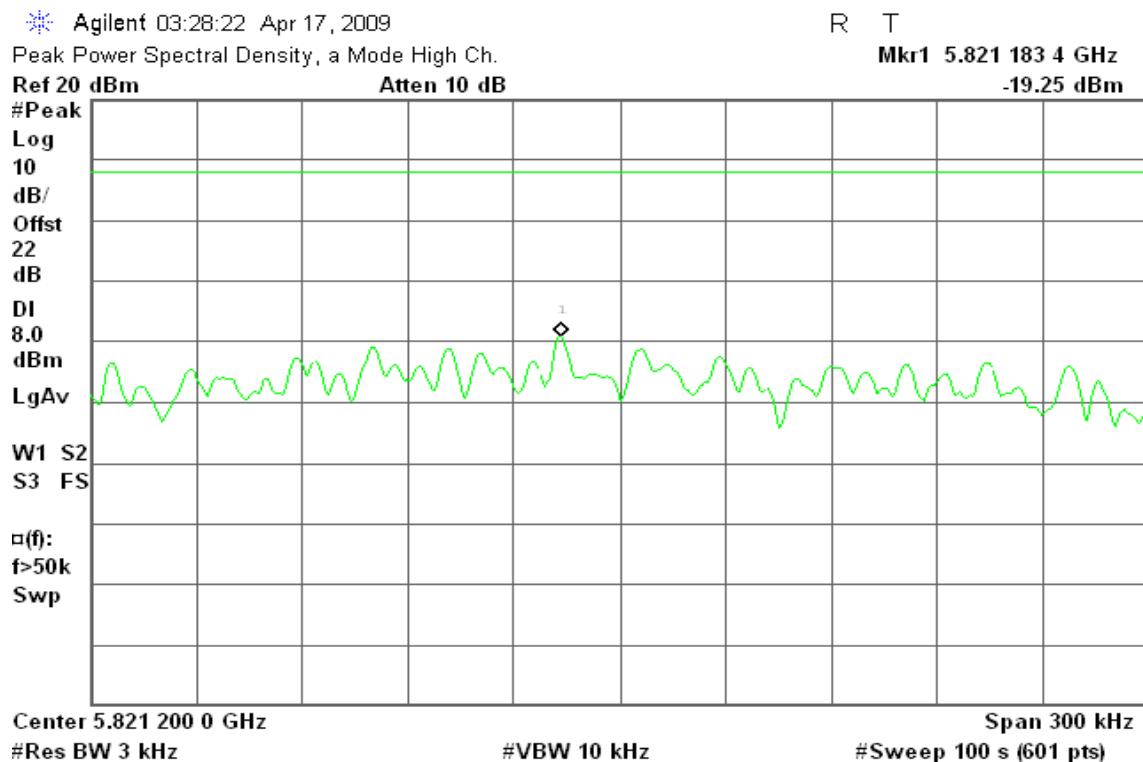


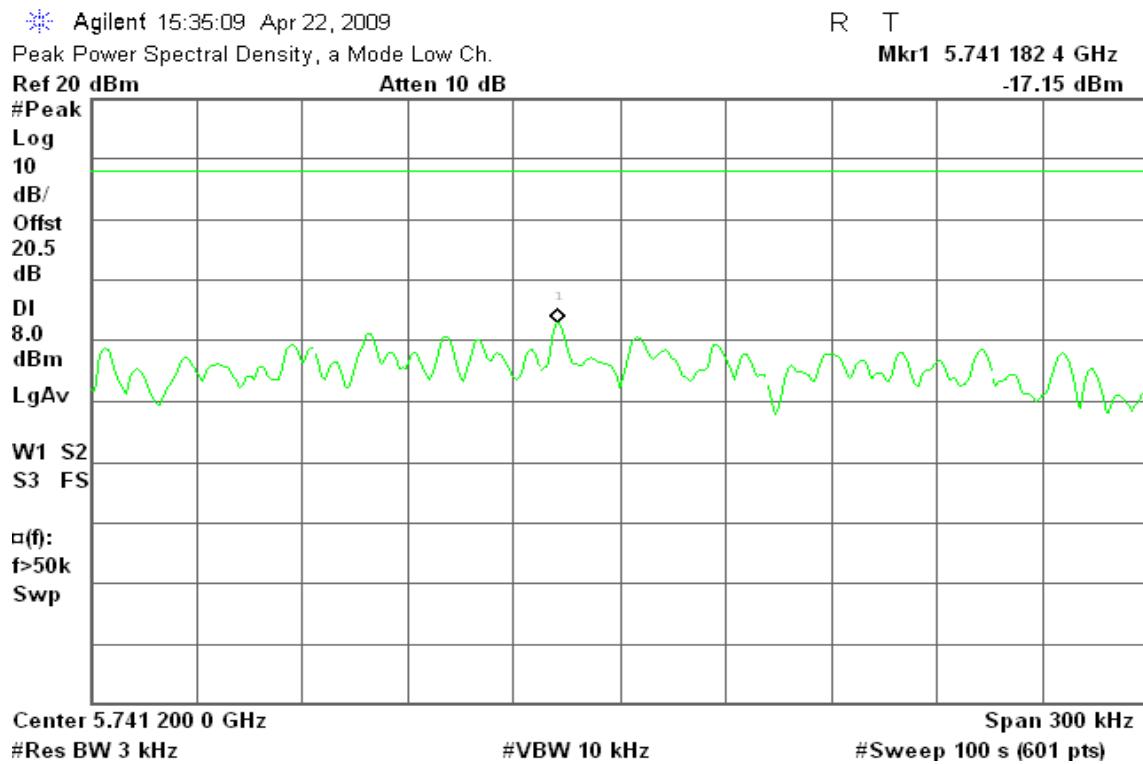
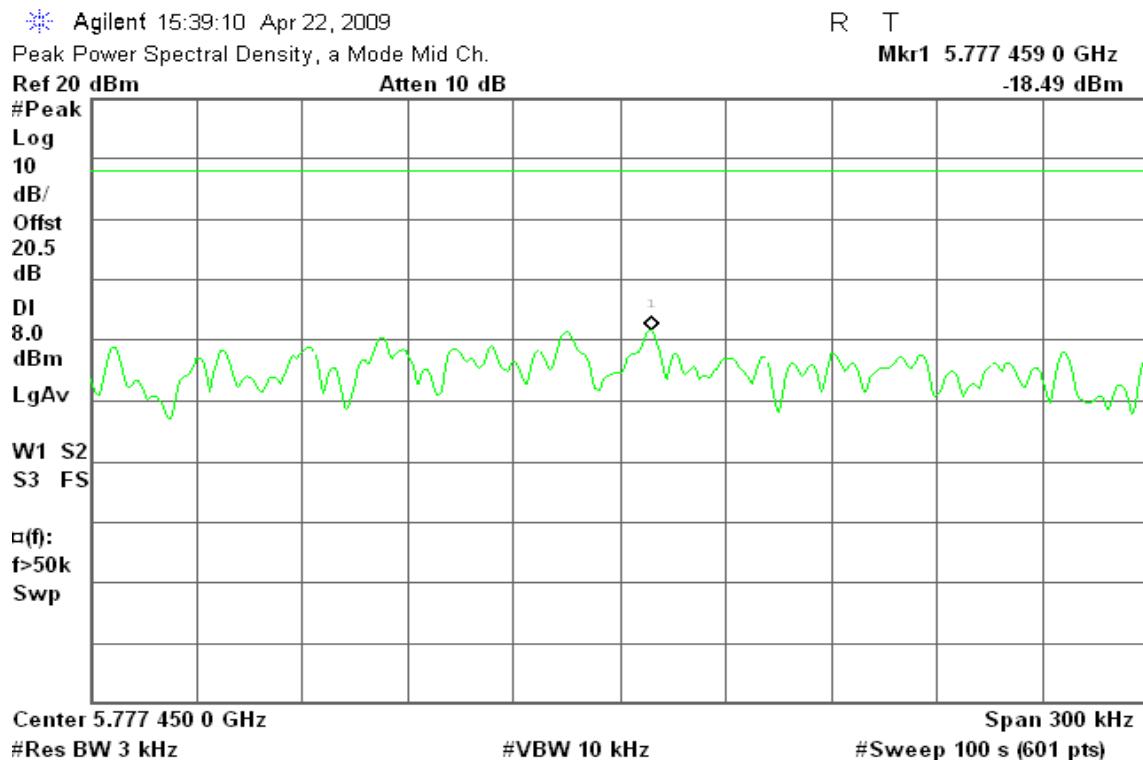
PPSD (CH High)

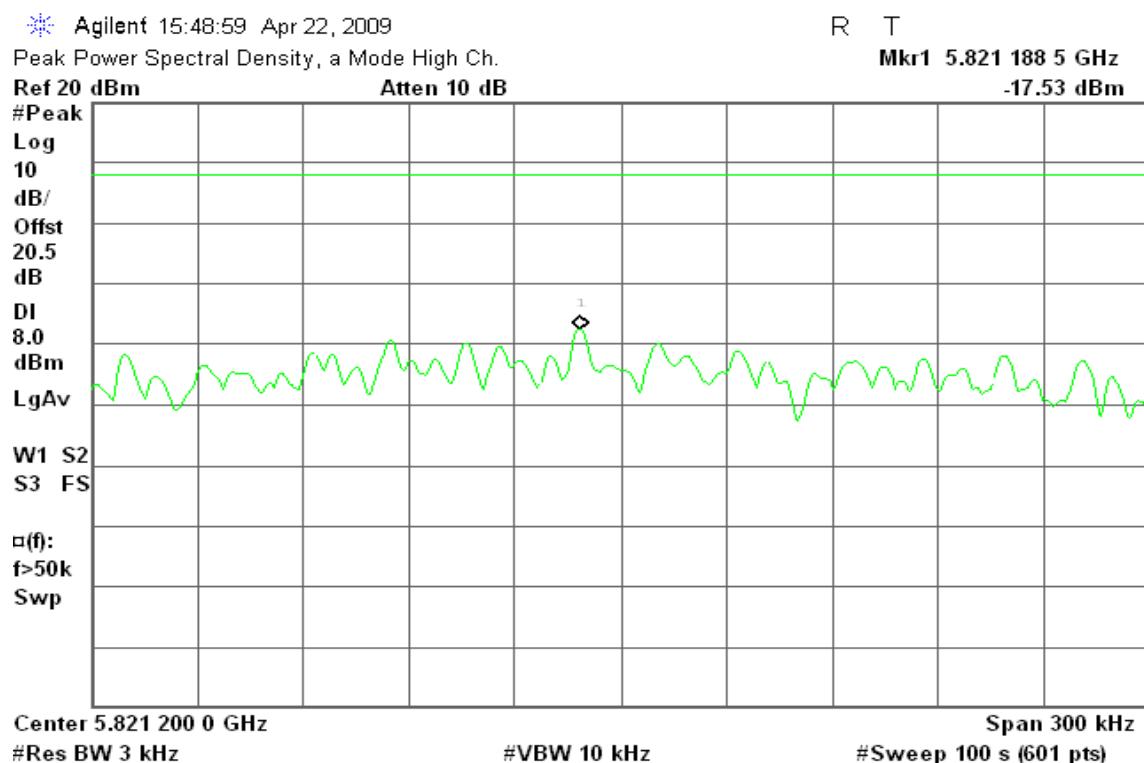


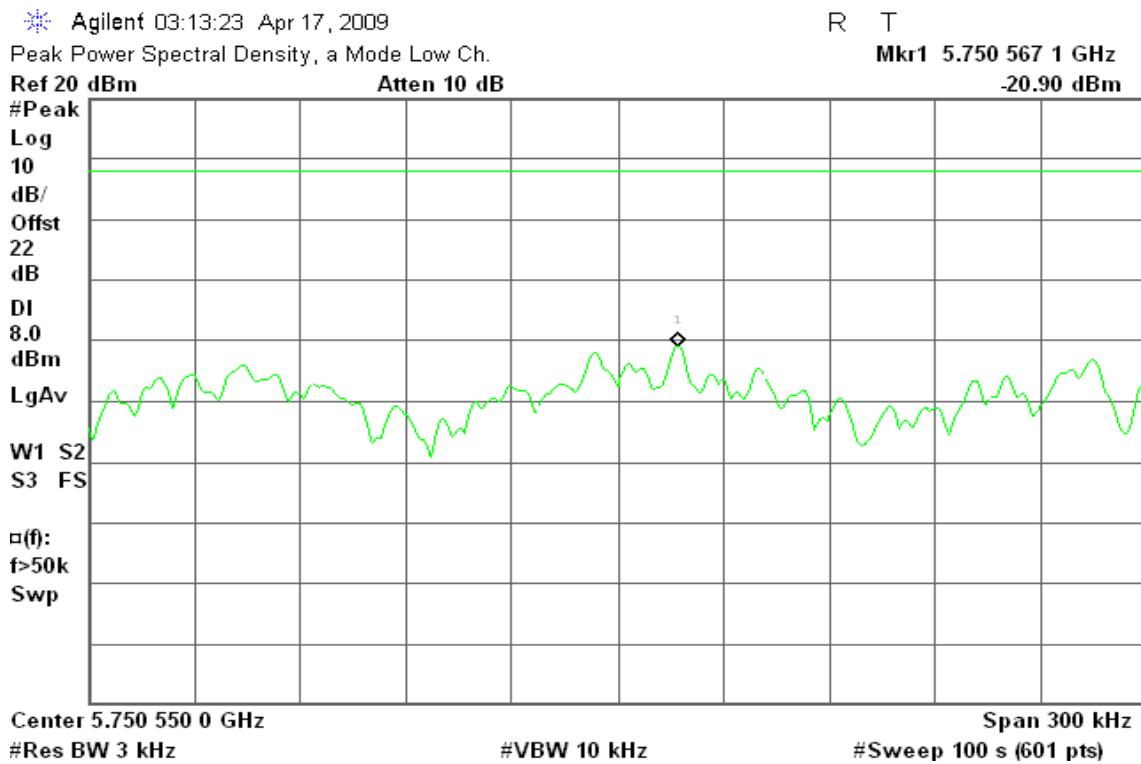
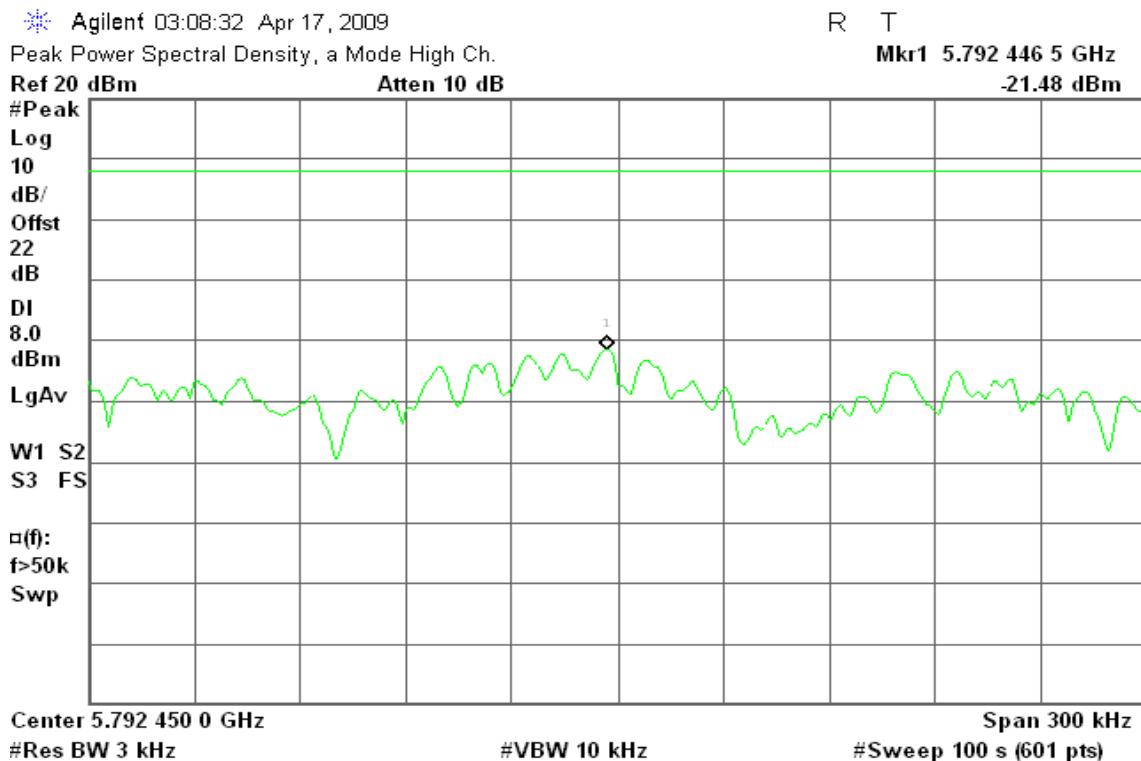
Test mode: IEEE 802.11a mode / 5745 ~ 5825MHz**PPSD (CH Low)****PPSD (CH Mid)**

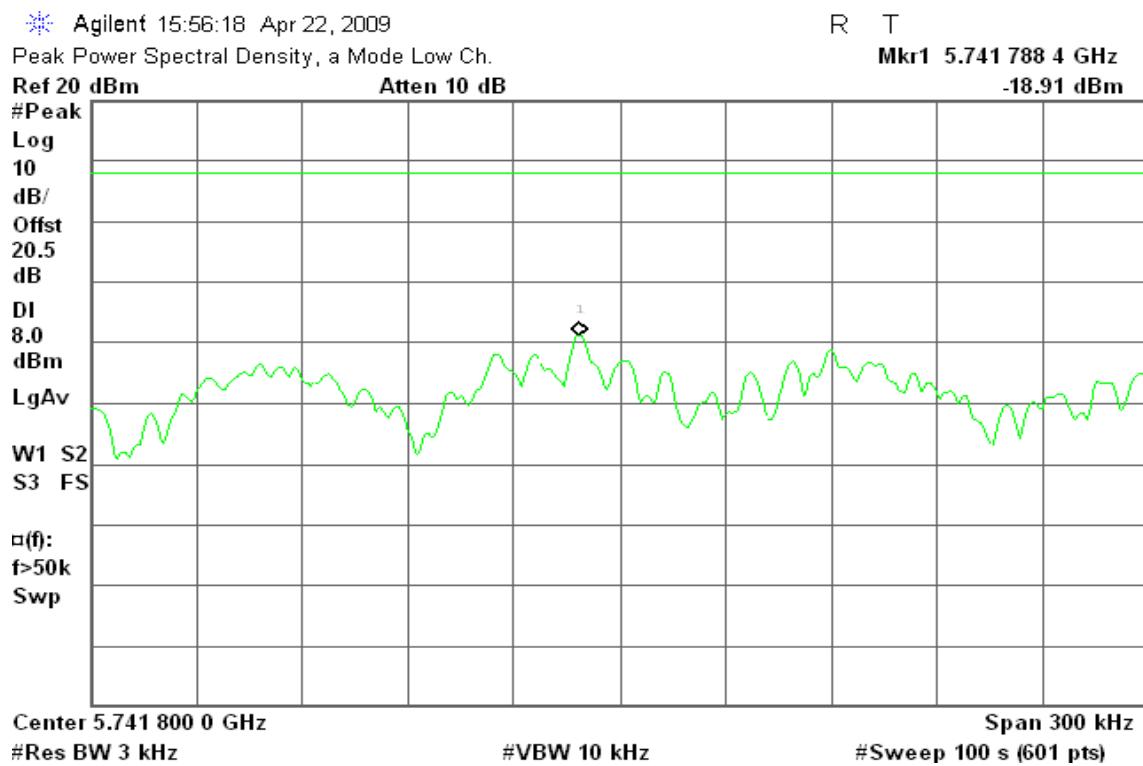
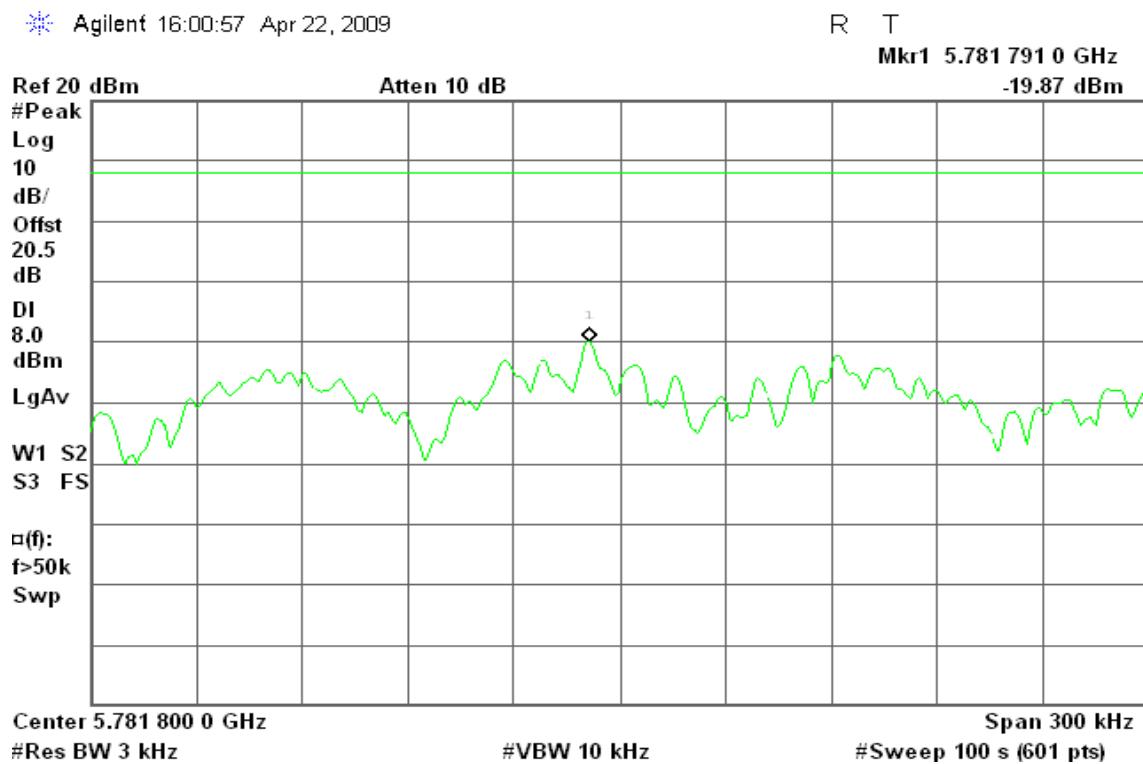
PPSD (CH High)**draft 802.11n Standard-20 MHz Channel mode / 5745 ~ 5825MHz / Chain 0****PPSD (CH Low)**

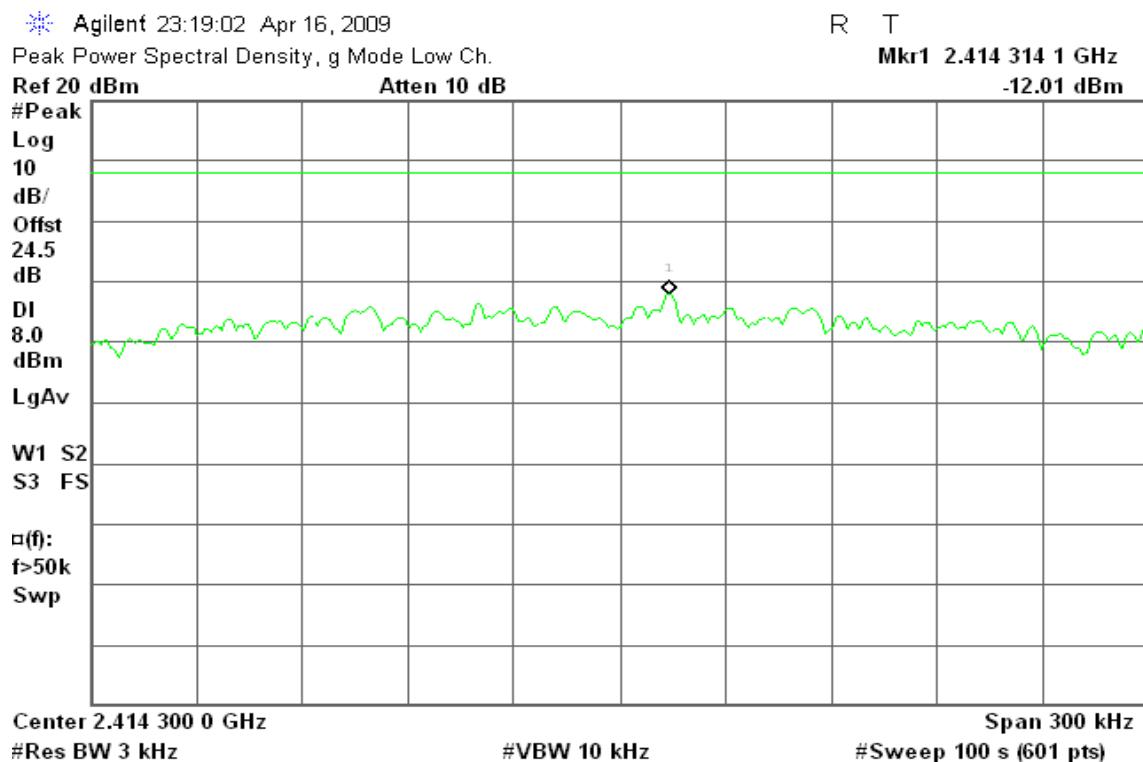
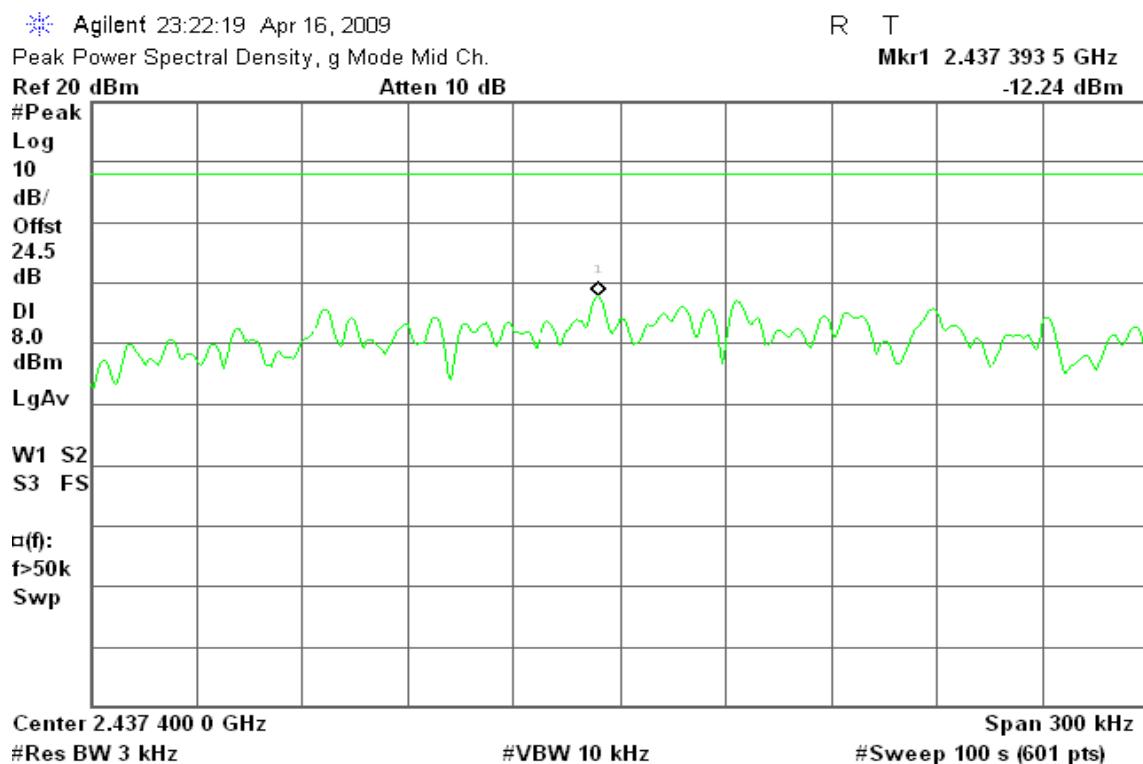
PPSD (CH Mid)**PPSD (CH High)**

draft 802.11n Standard-20 MHz Channel mode / 5745 ~ 5825MHz / Chain 1**PPSD (CH Low)****PPSD (CH Mid)**

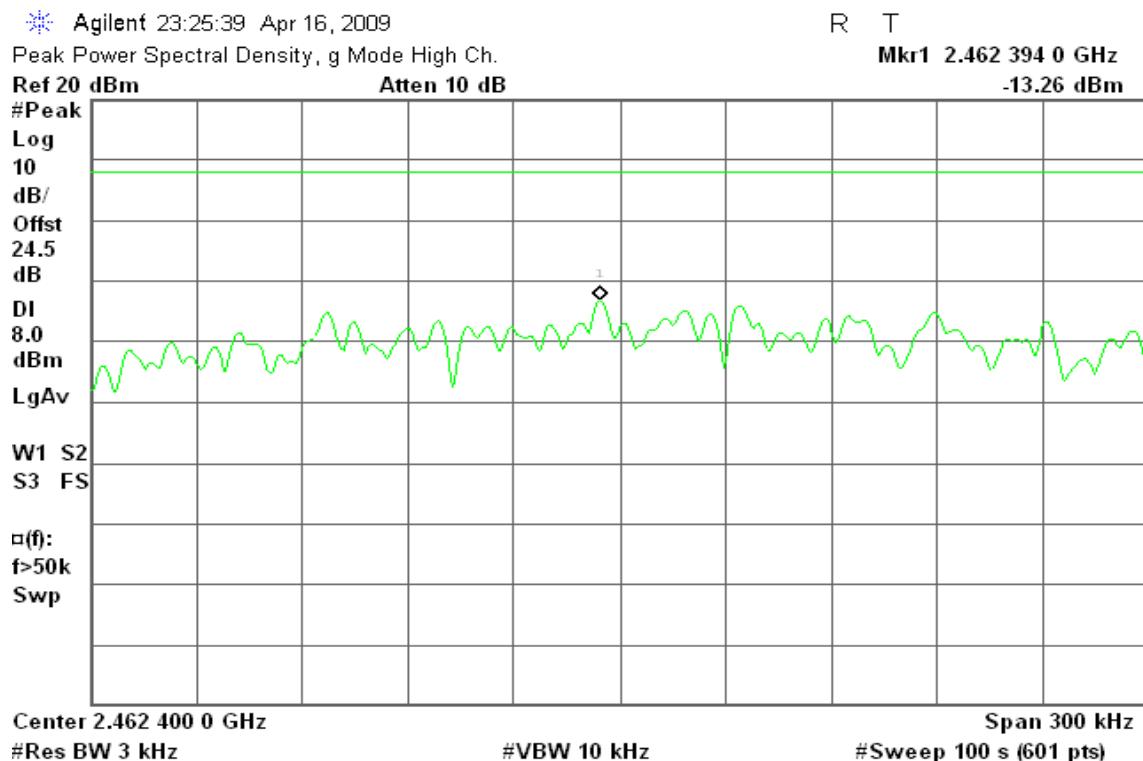
PPSD (CH High)

draft 802.11n Wide-40 MHz Channel mode / 5755 ~ 5795MHz / Chain 0**PPSD (CH Low)****PPSD (CH High)**

draft 802.11n Wide-40 MHz Channel mode / 5755 ~ 5795MHz / Chain 1**PPSD (CH Low)****PPSD (CH High)**

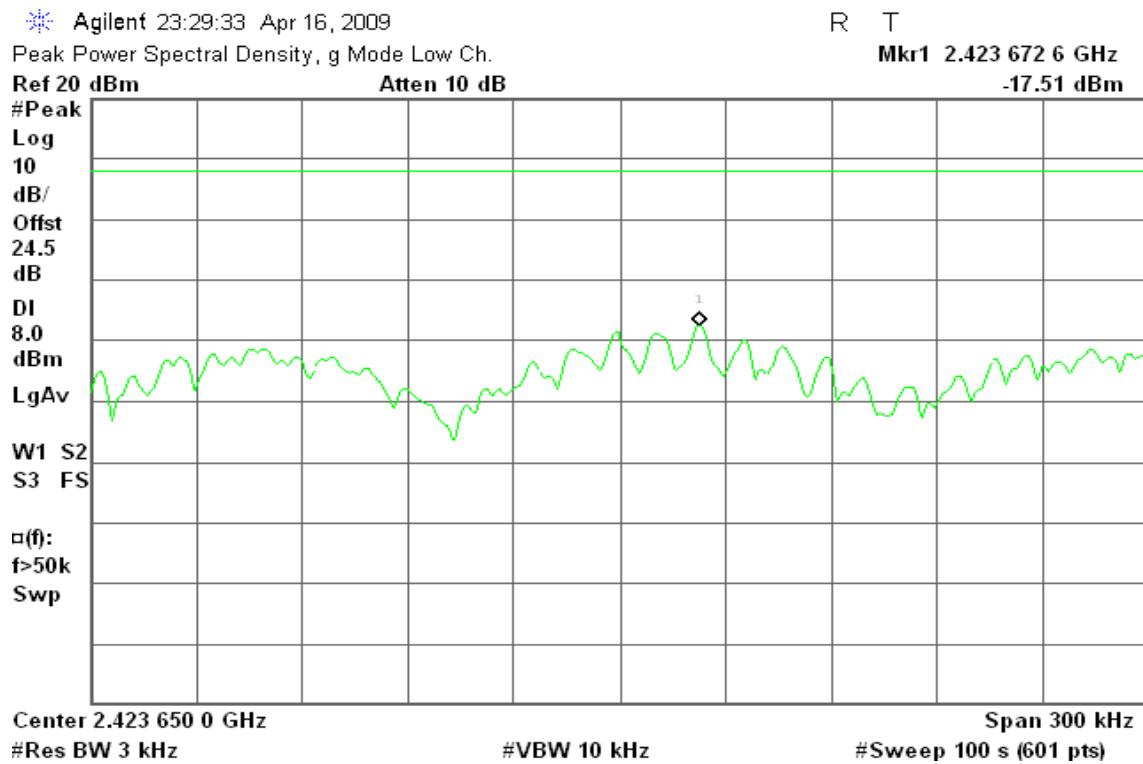
draft 802.11n Standard-20 MHz Channel mode with combiner**PPSD (CH Low)****PPSD (CH Mid)**

PPSD (CH High)

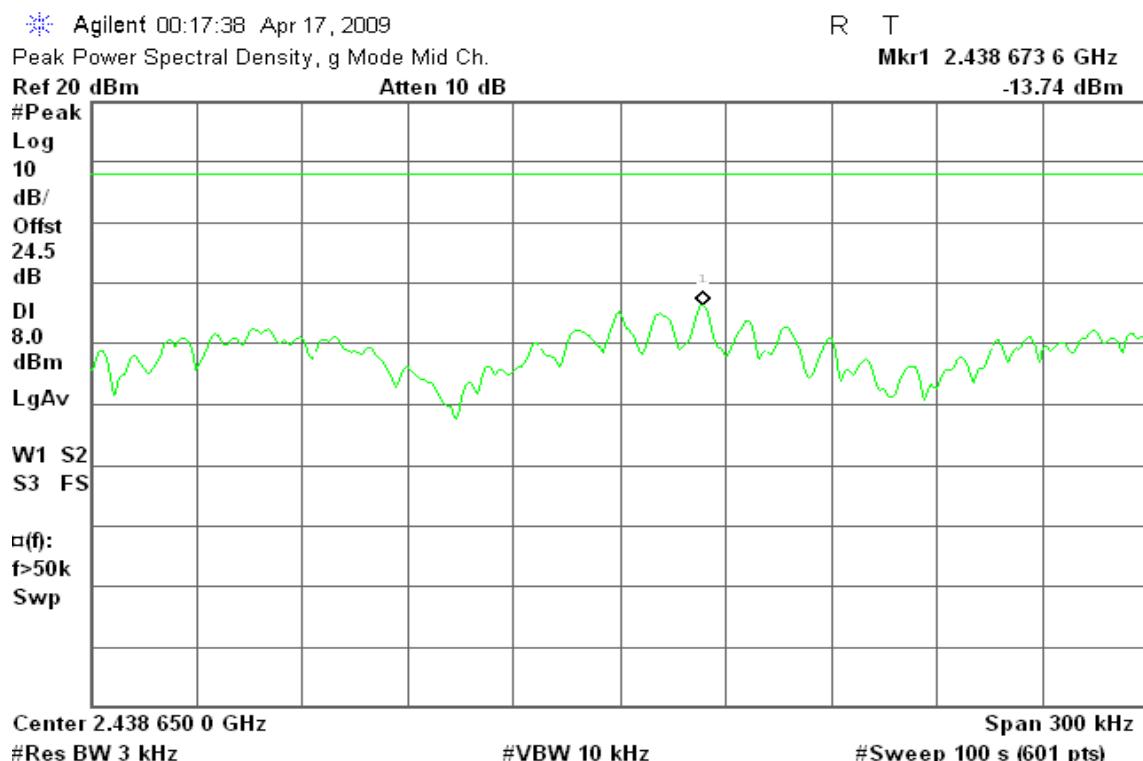


draft 802.11n Wide-40 MHz Channel mode with combiner

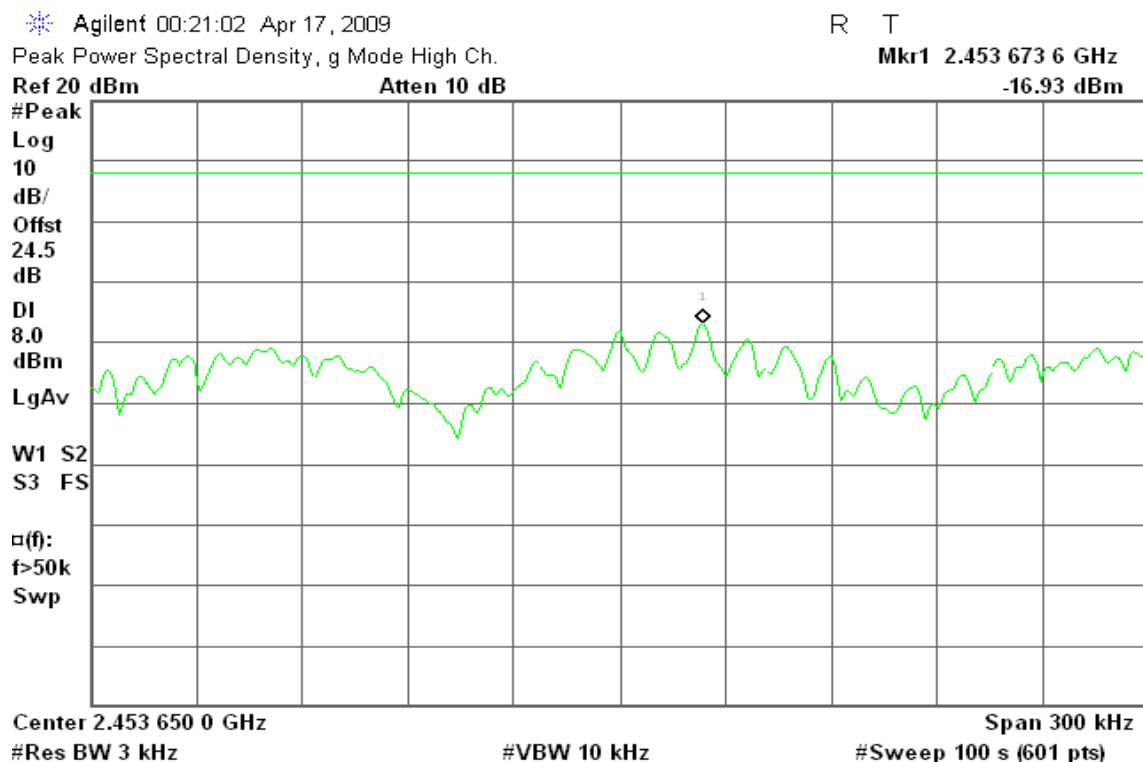
PPSD (CH Low)

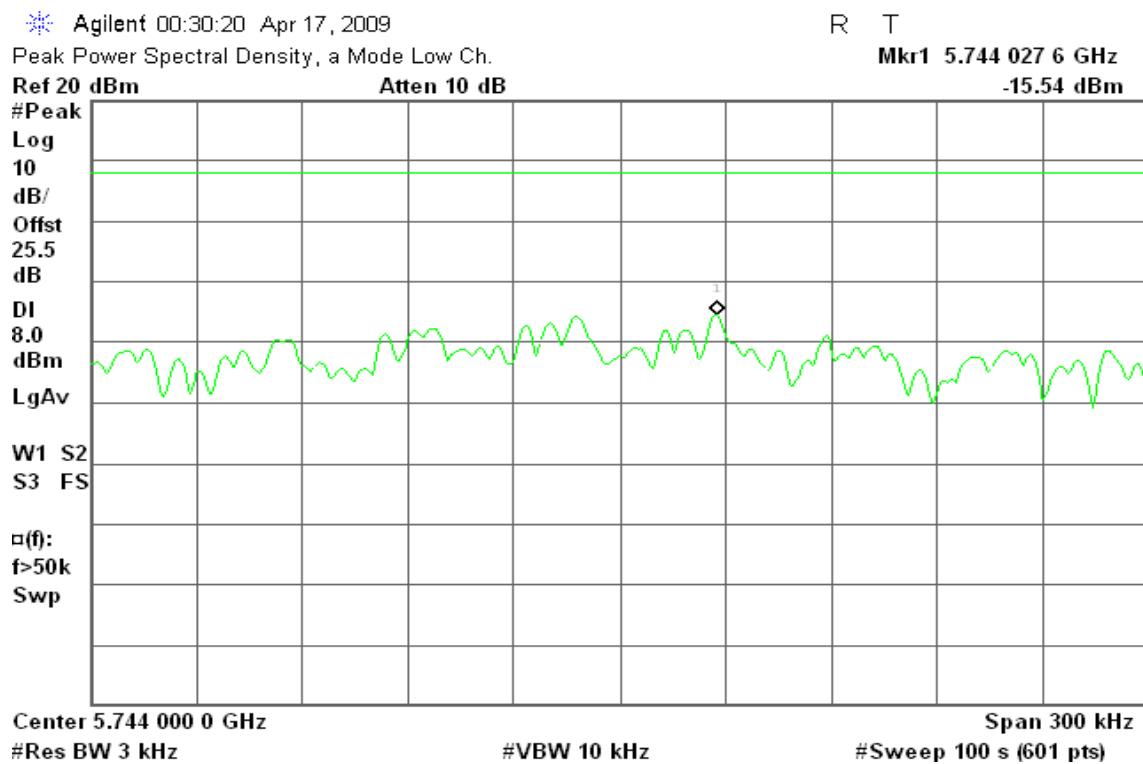
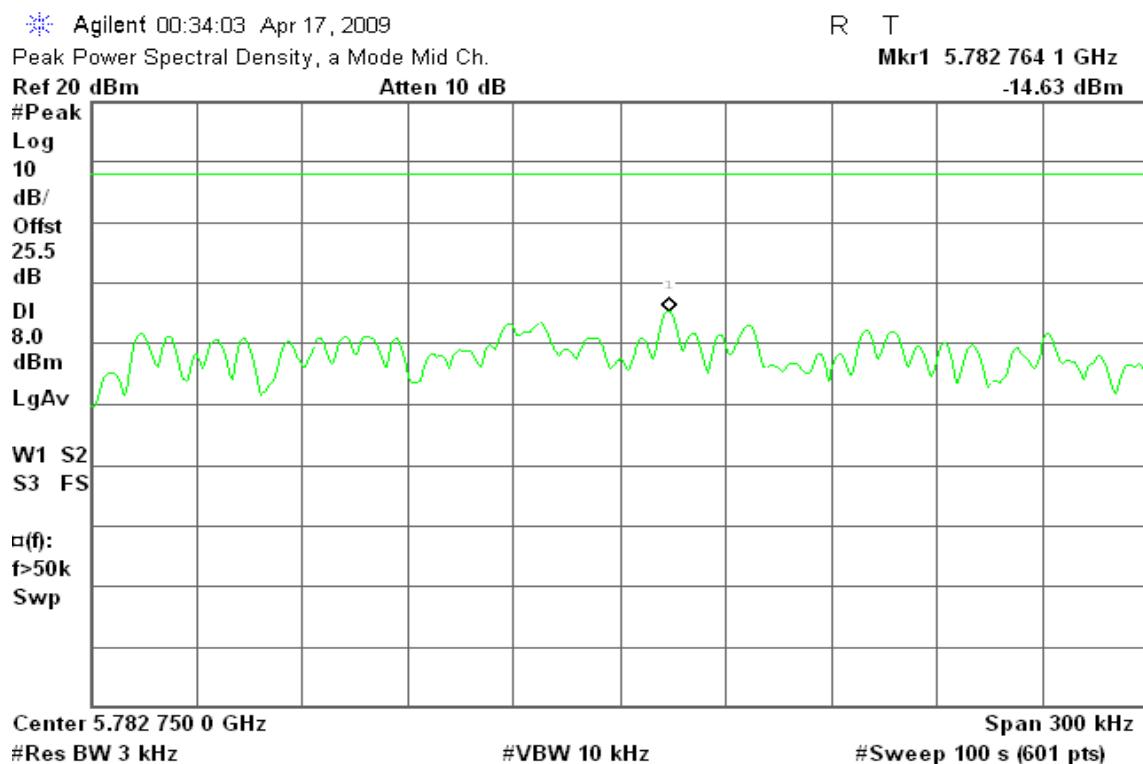


PPSD (CH Mid)

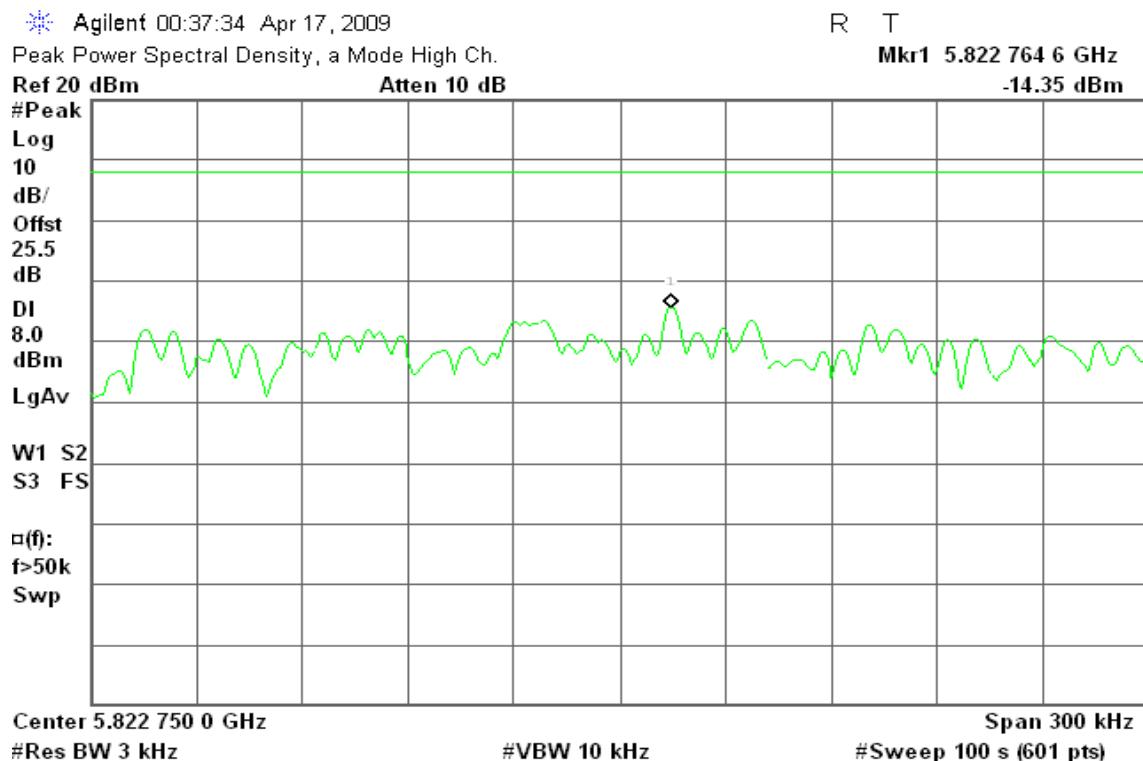


PPSD (CH High)



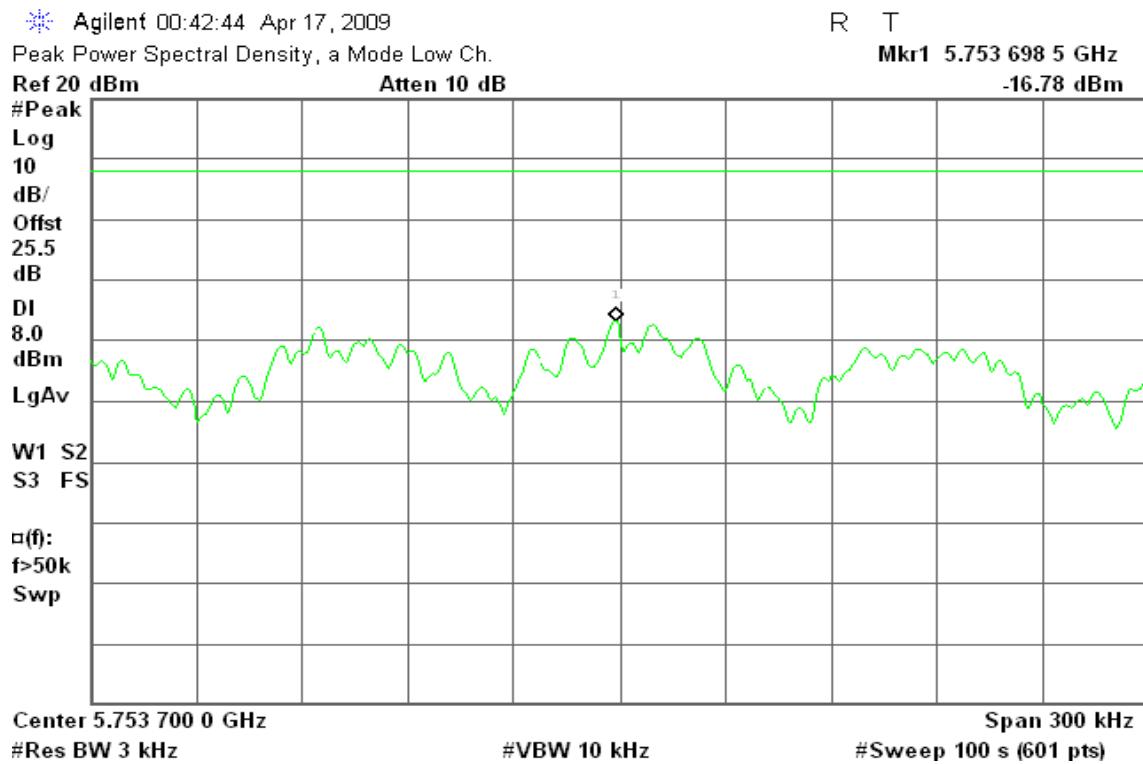
draft 802.11n Standard-20 MHz Channel mode / 5745 ~ 5825MHz with combiner**PPSD (CH Low)****PPSD (CH Mid)**

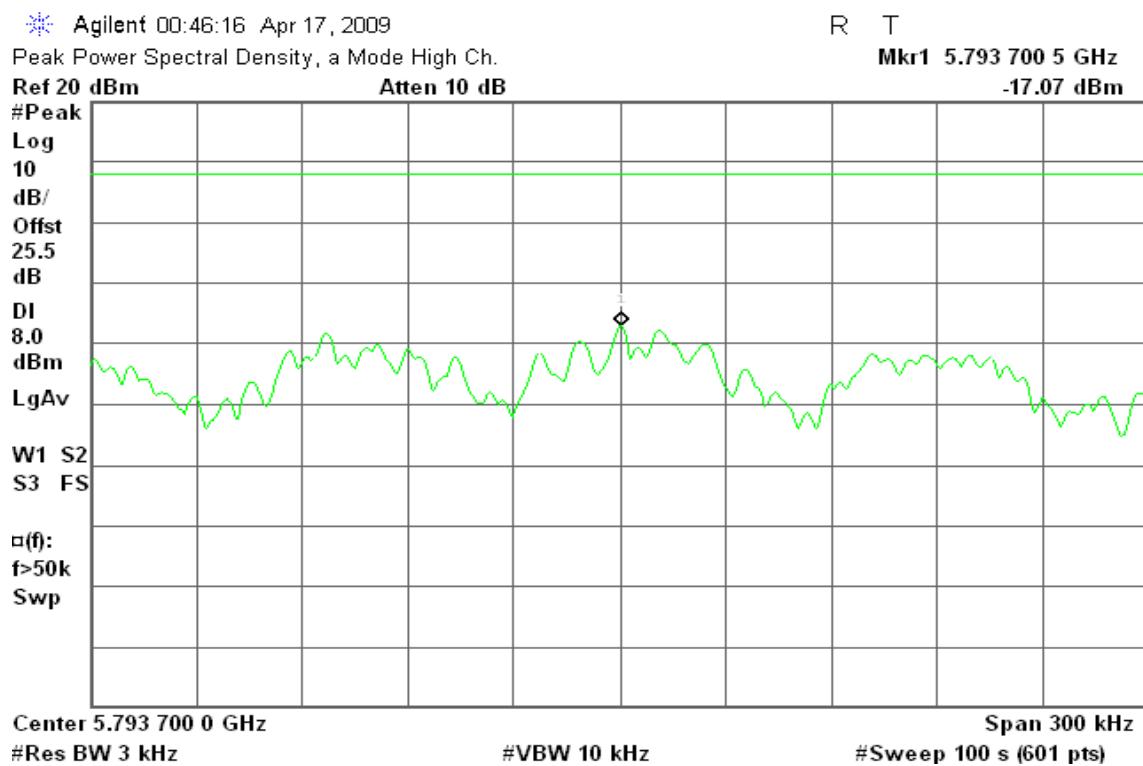
PPSD (CH High)



draft 802.11n Wide-40 MHz Channel mode with combiner

PPSD (CH Low)



PPSD (CH High)

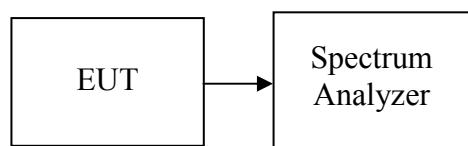
7.6 SPURIOUS EMISSIONS

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

Test Configuration



TEST PROCEDURE

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

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

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

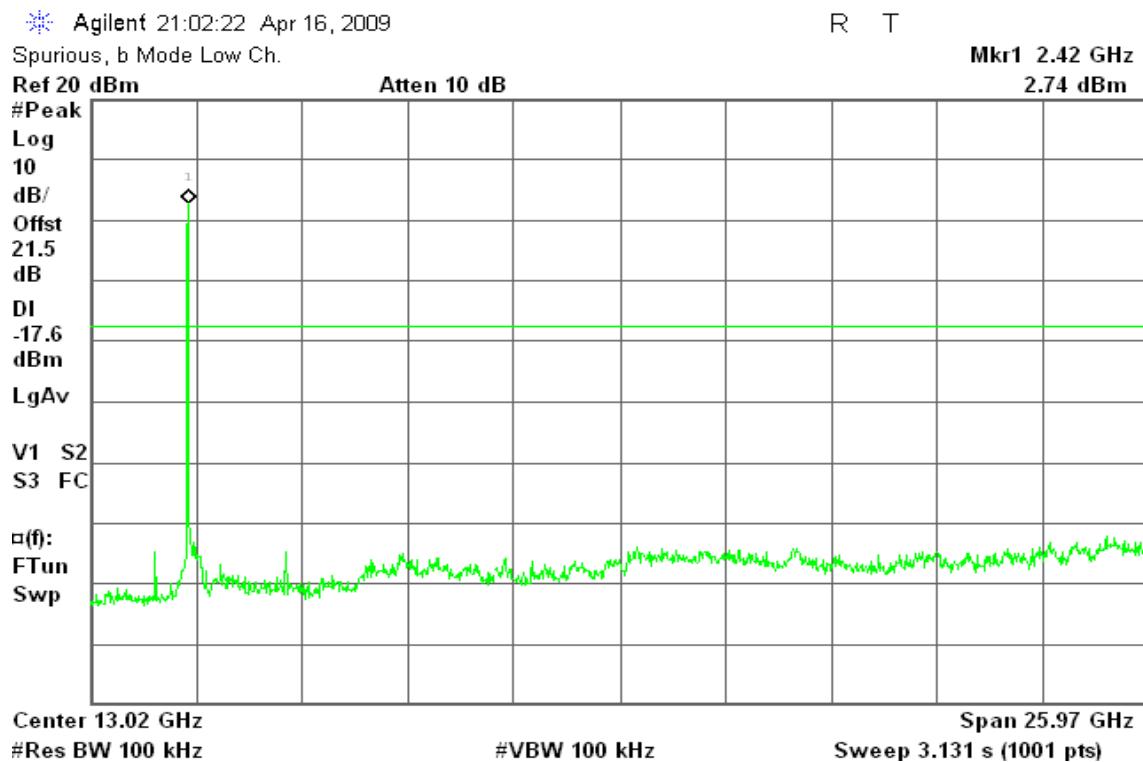
TEST RESULTS

No non-compliance noted

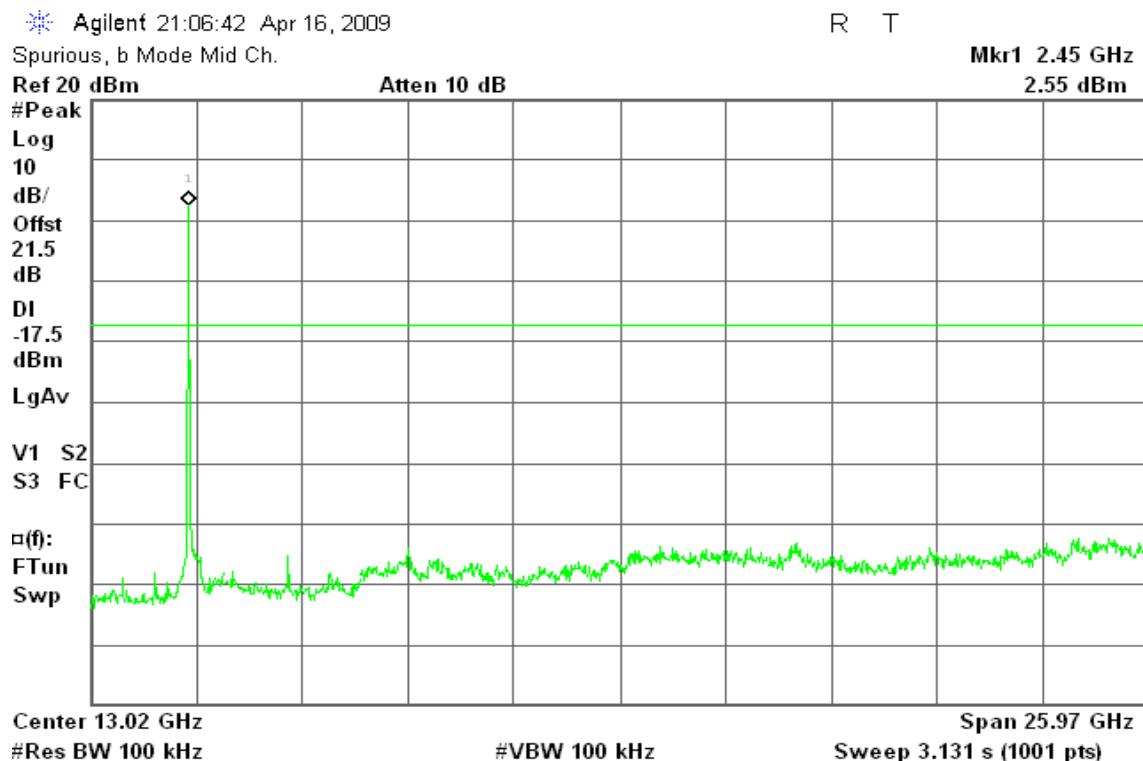
Test Plot

IEEE 802.11b mode

CH Low



CH Mid



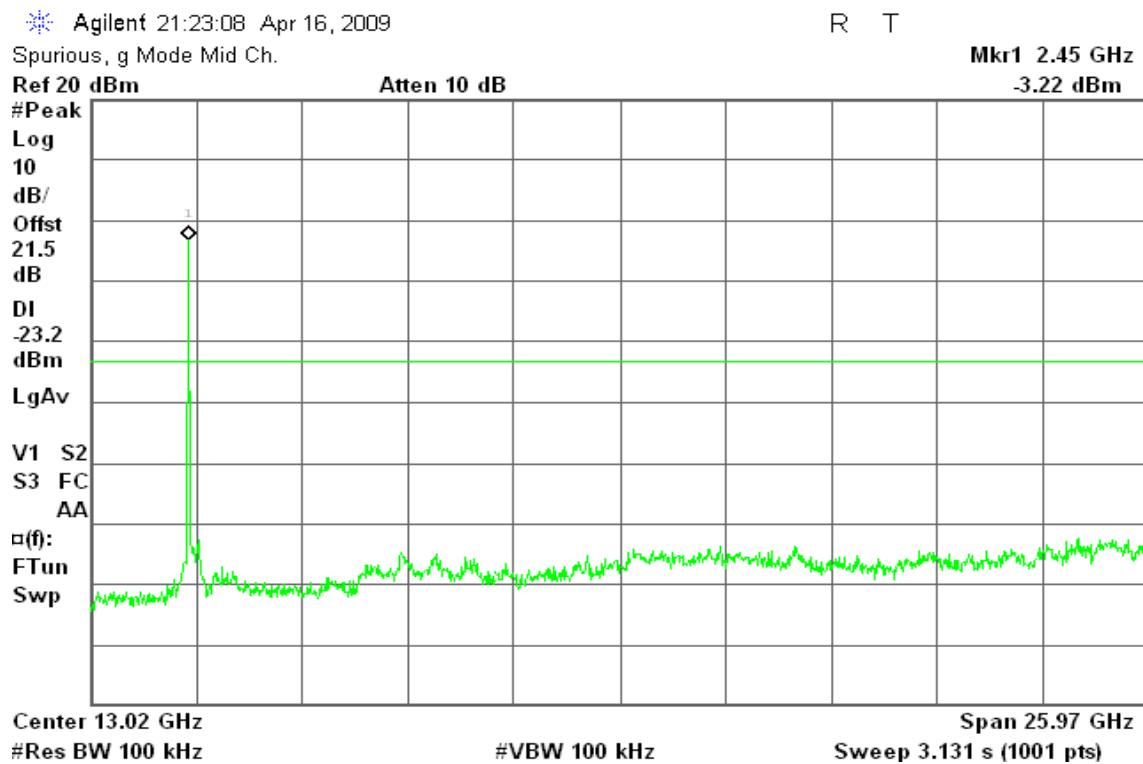
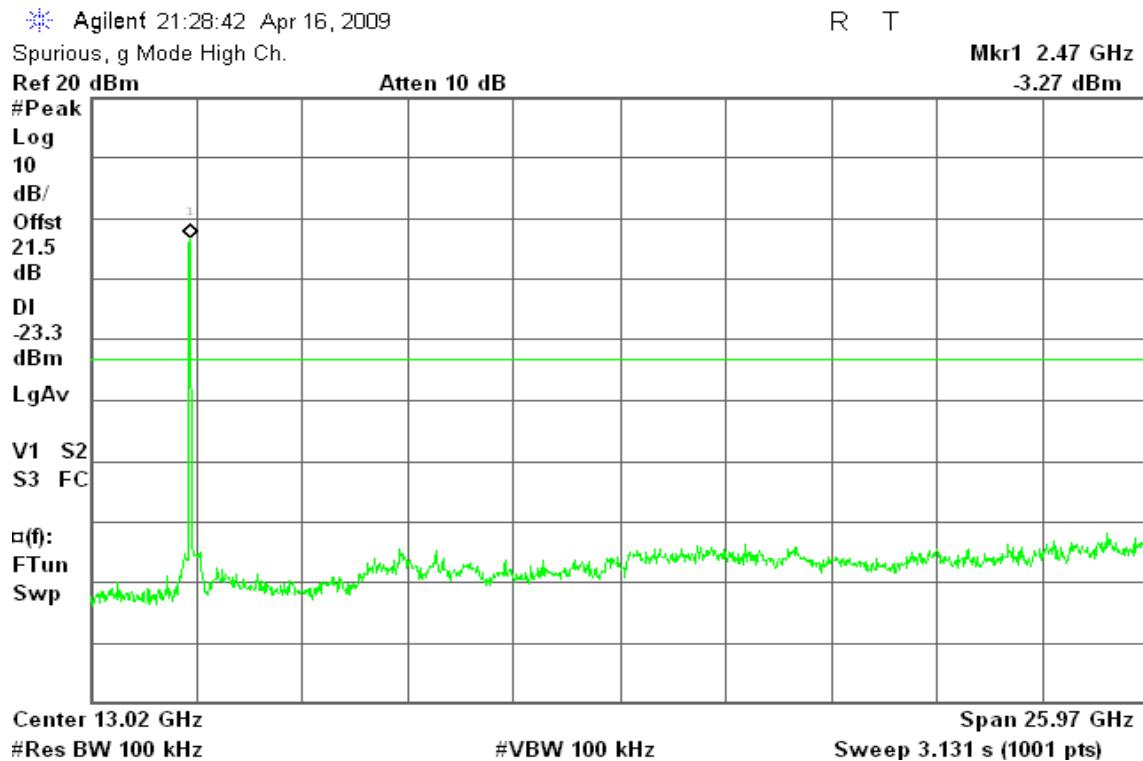
CH High

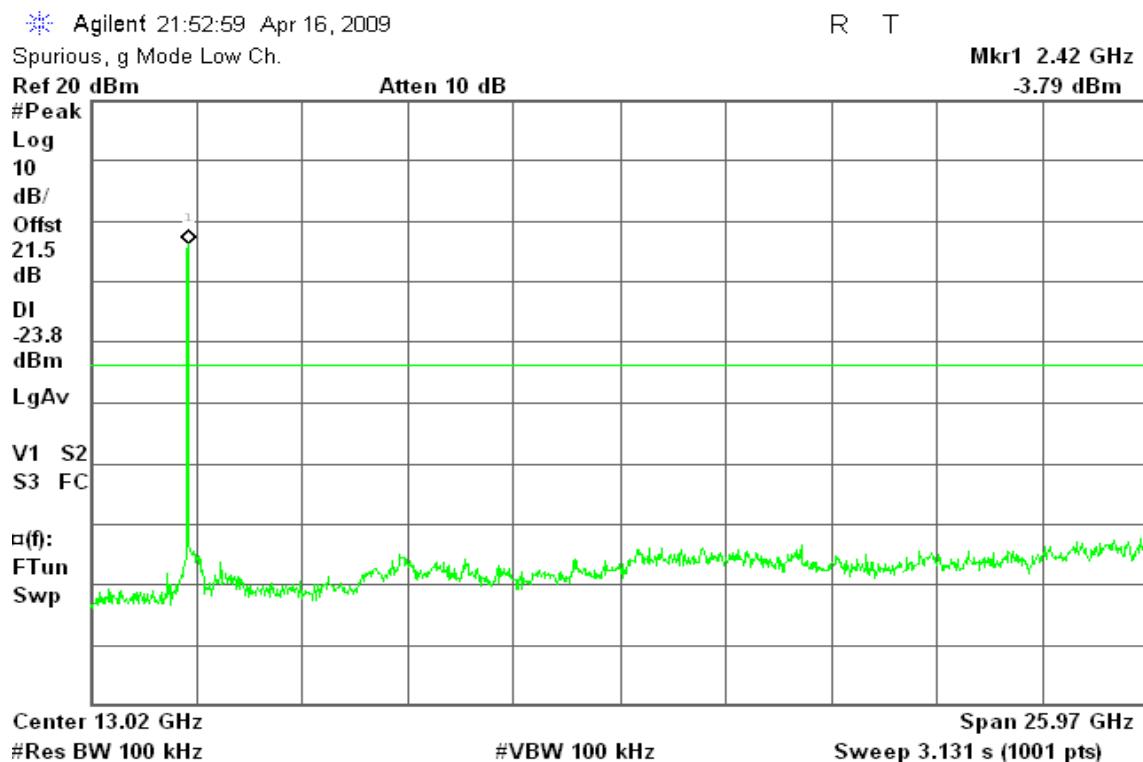
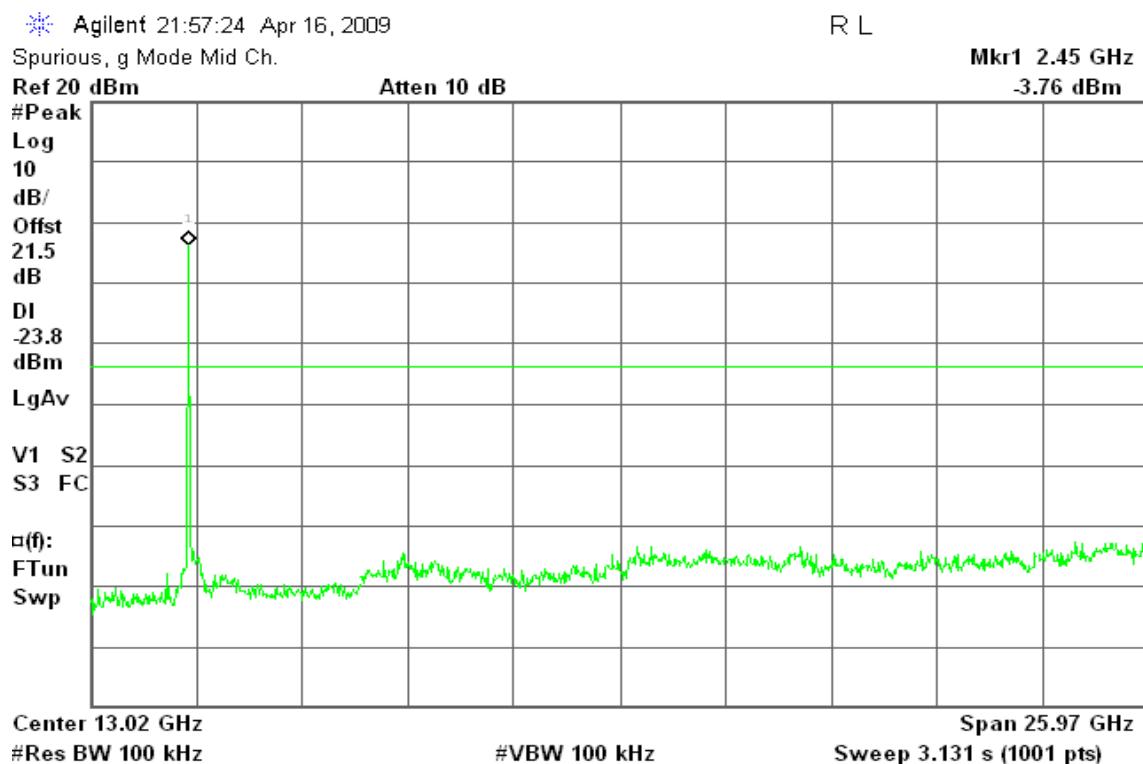


IEEE 802.11g mode

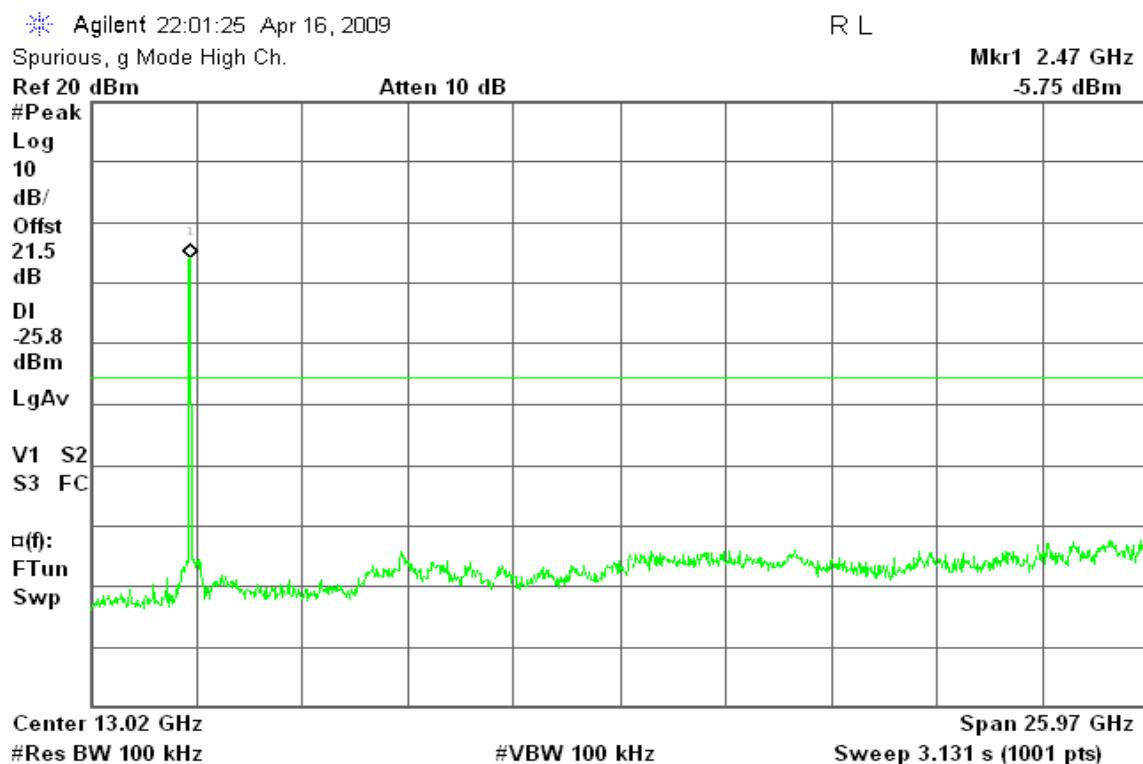
CH Low



CH Mid**CH High**

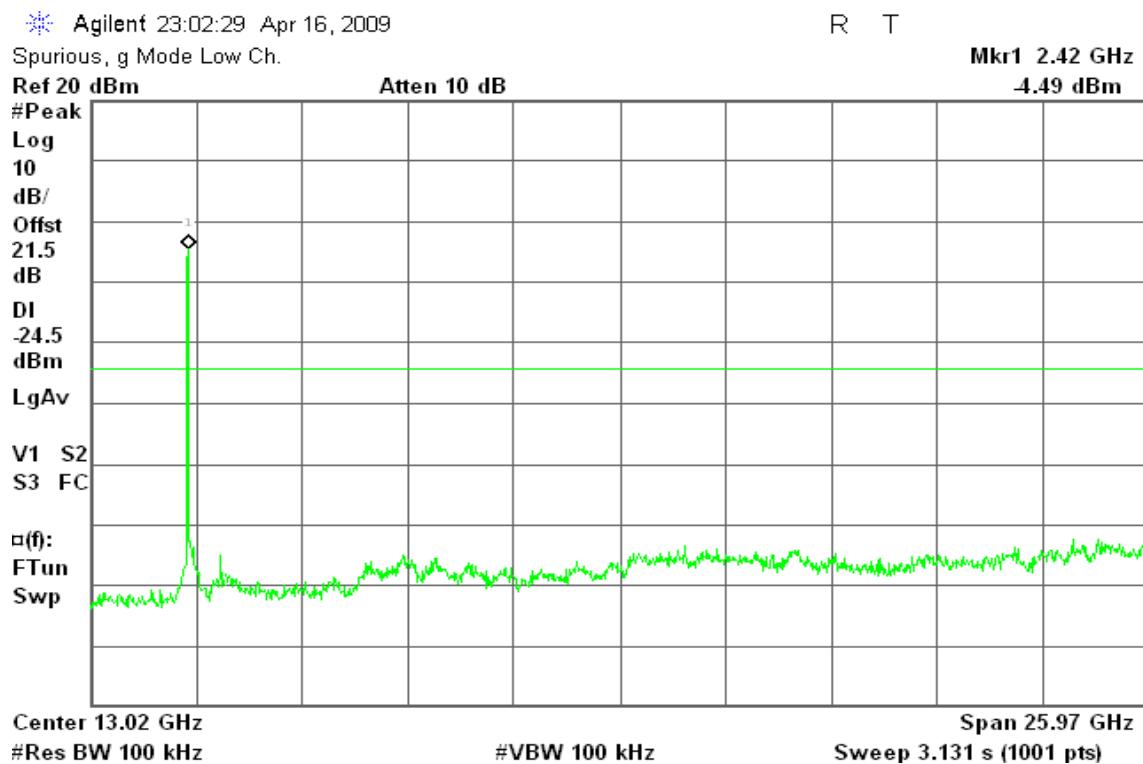
draft 802.11n Standard-20 MHz Channel mode / Chain 0**CH Low****CH Mid**

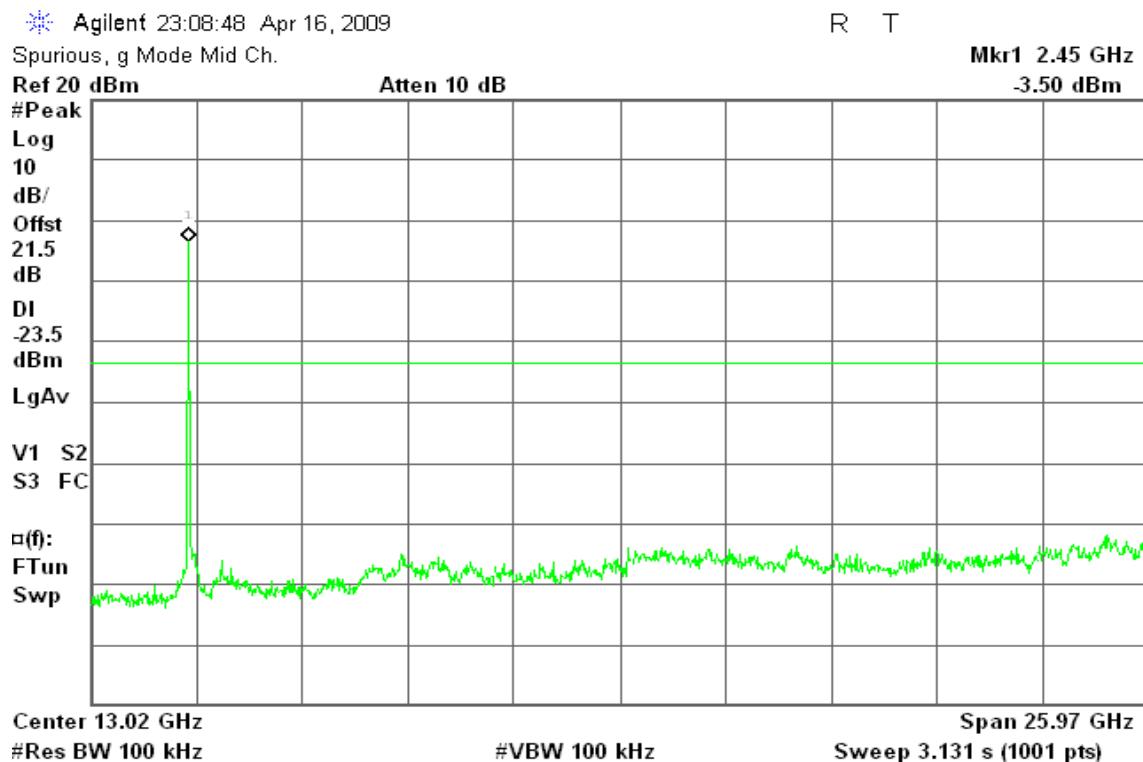
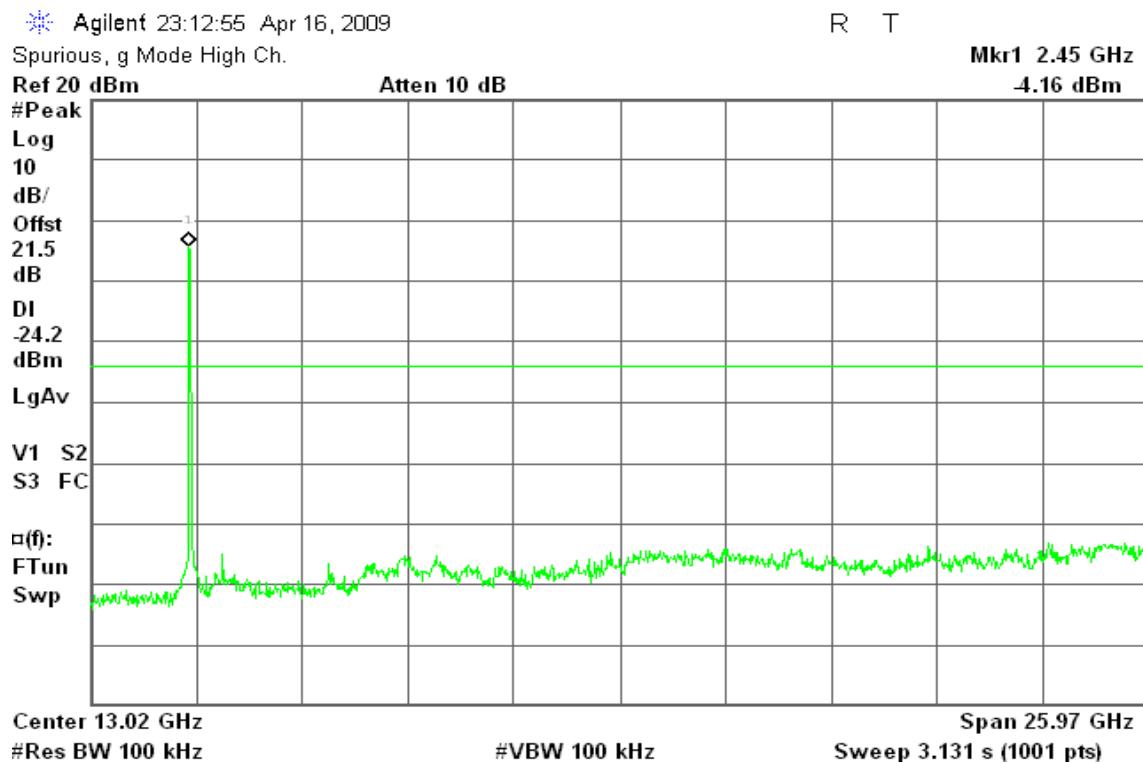
CH High

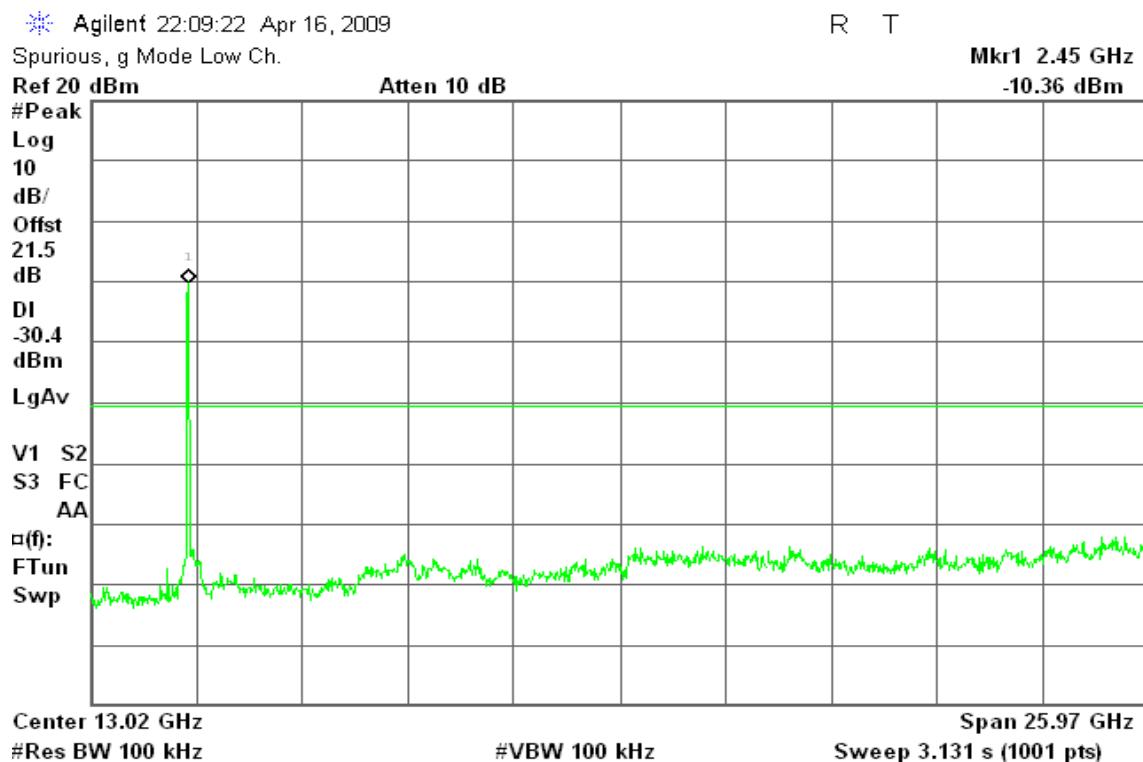
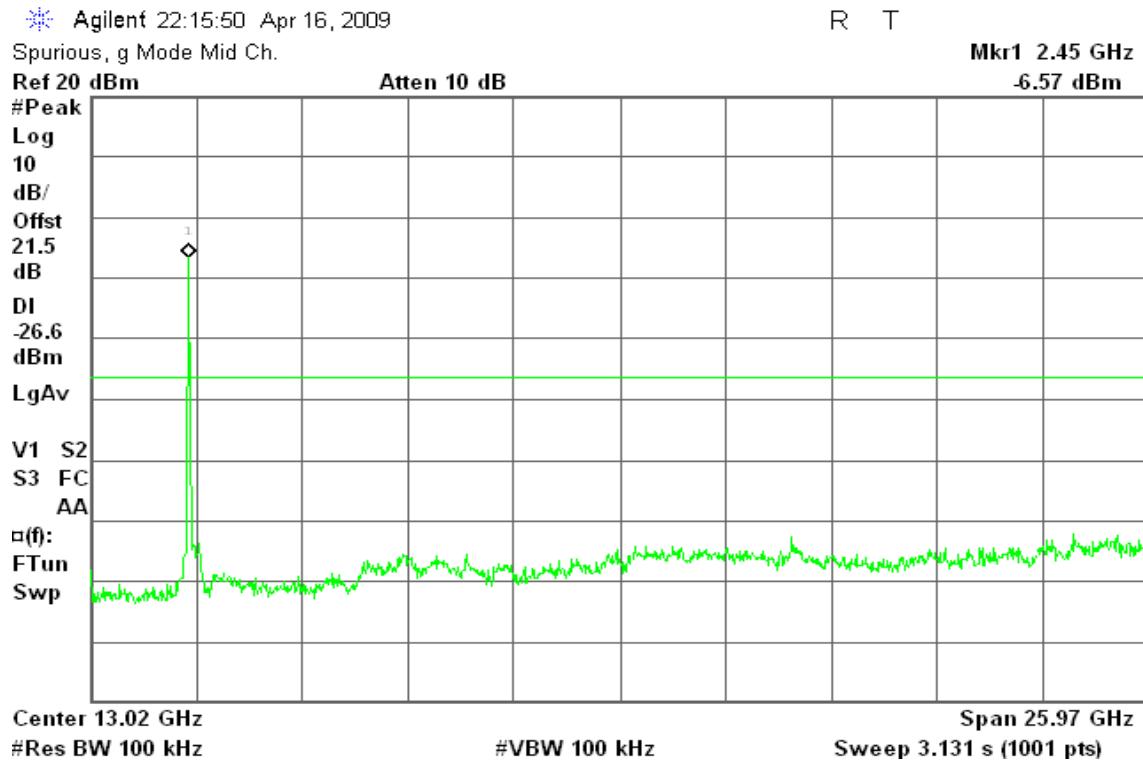


draft 802.11n Standard-20 MHz Channel mode / Chain 1

CH Low



CH Mid**CH High**

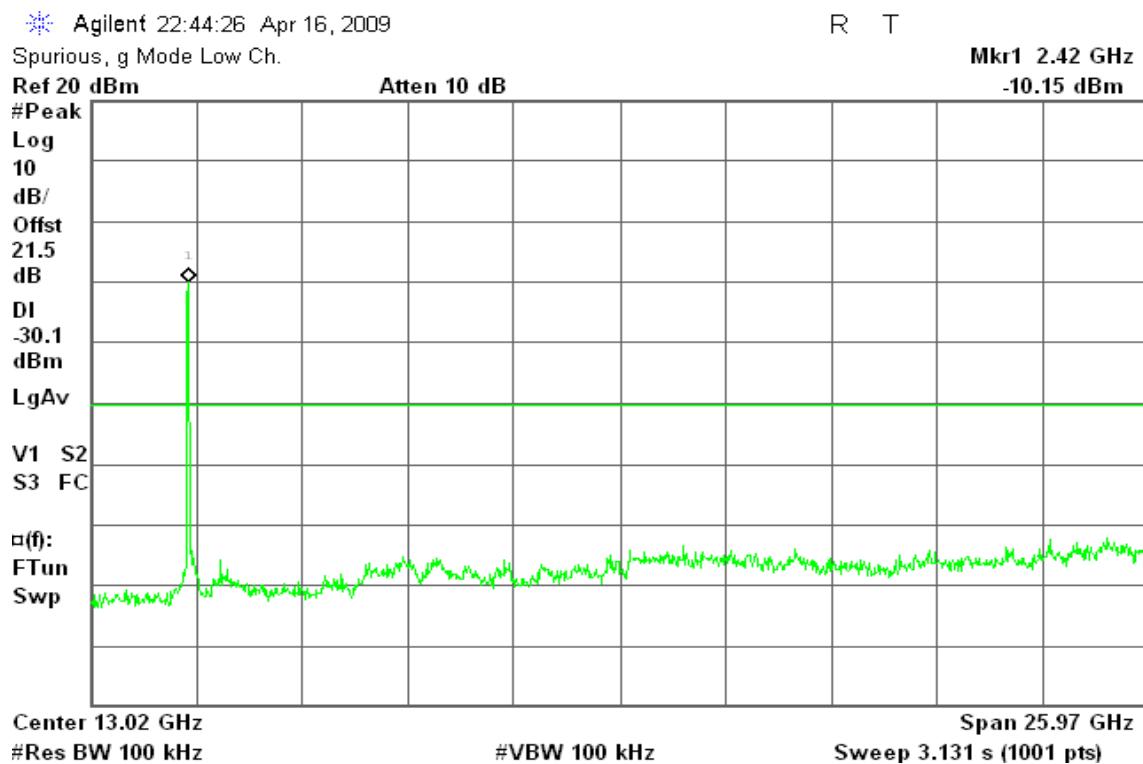
draft 802.11n Wide-40 MHz Channel mode / Chain 0**CH Low****CH Mid**

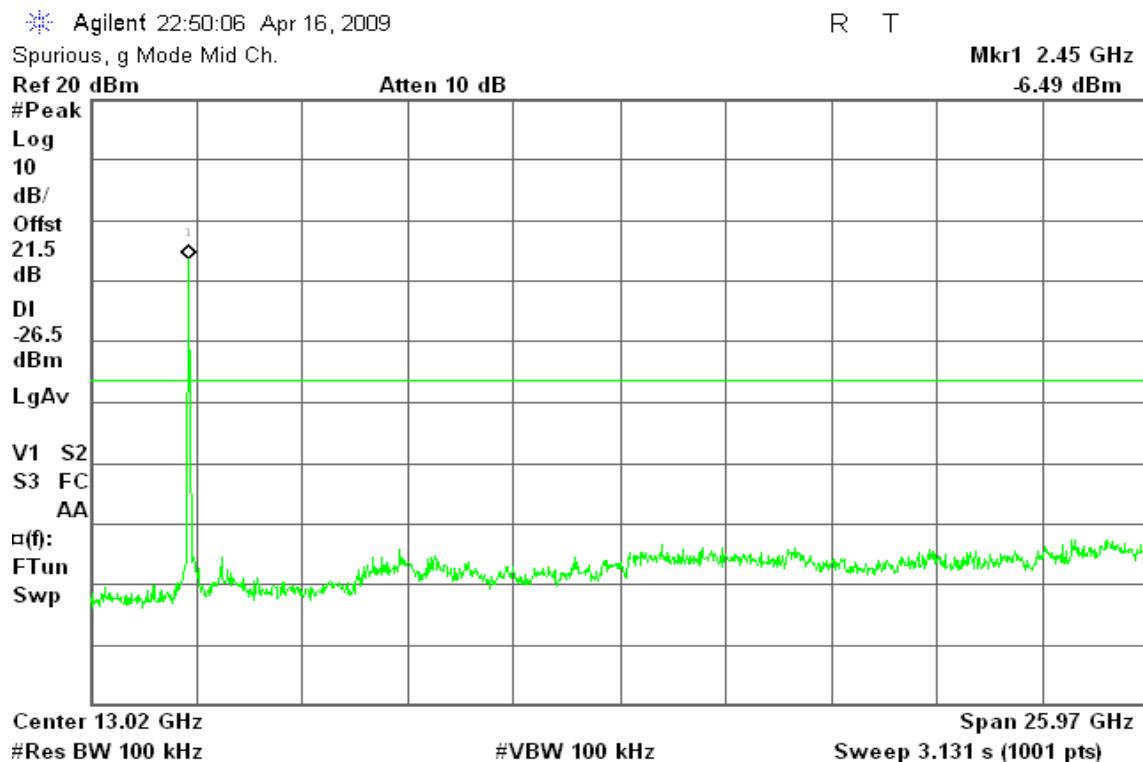
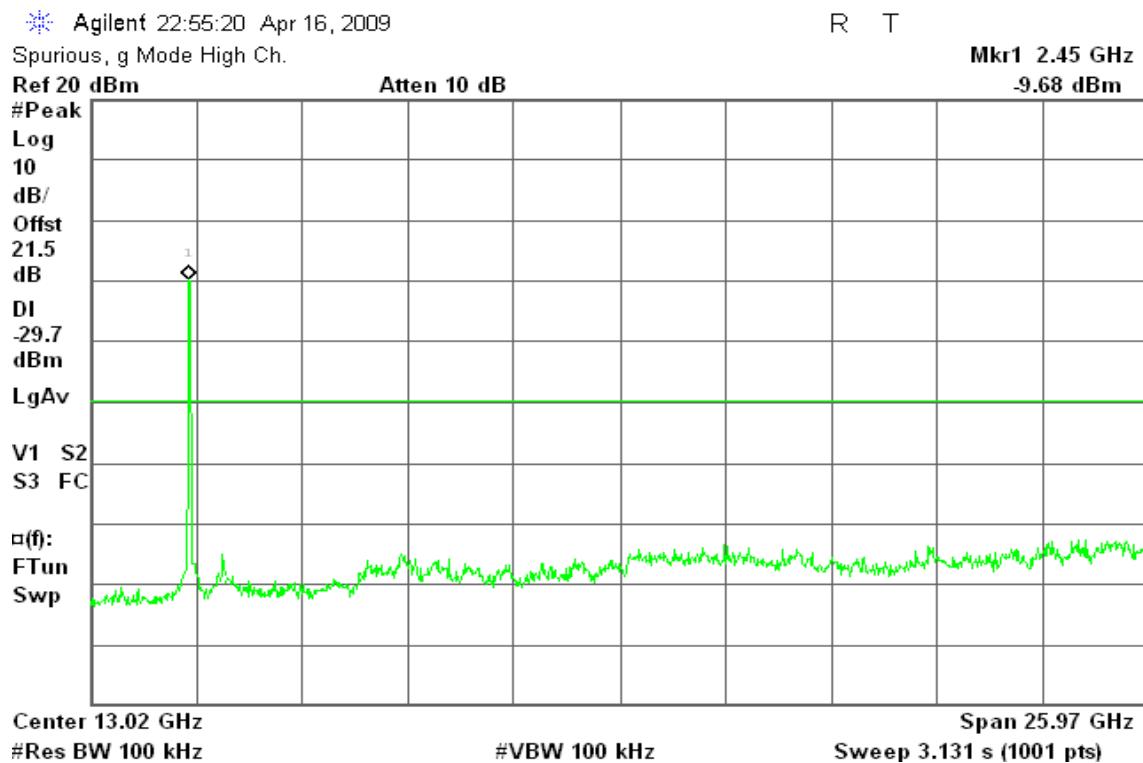
CH High

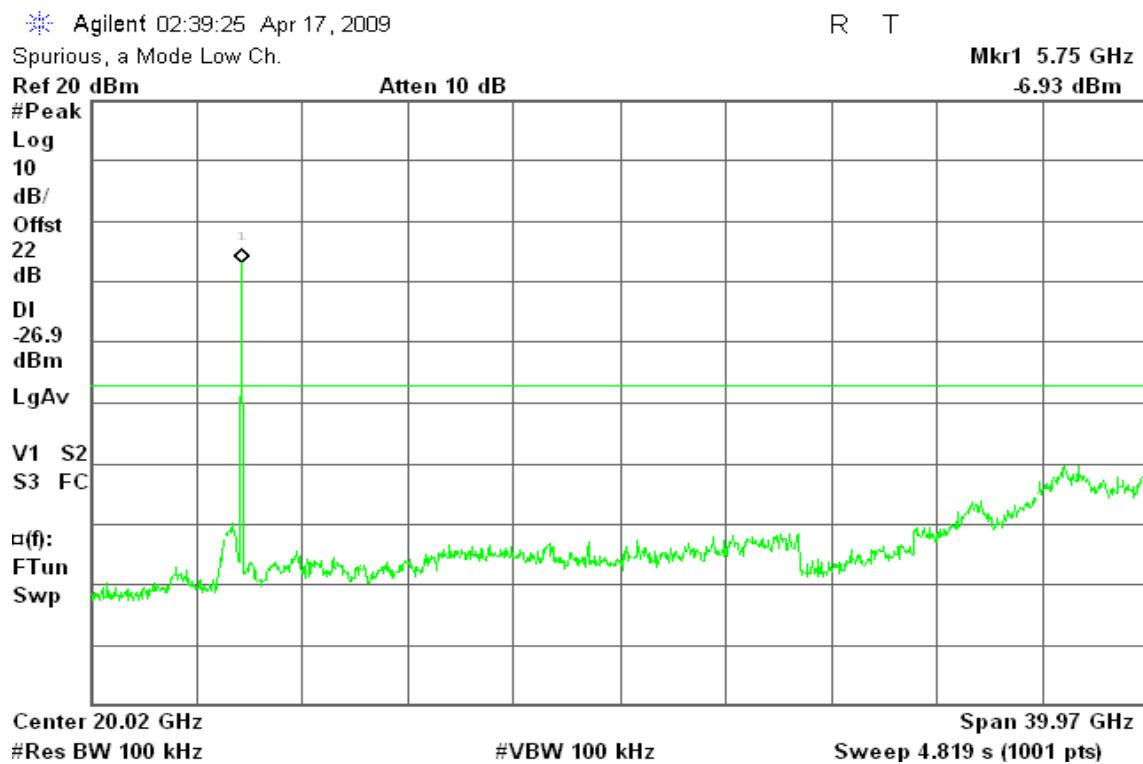
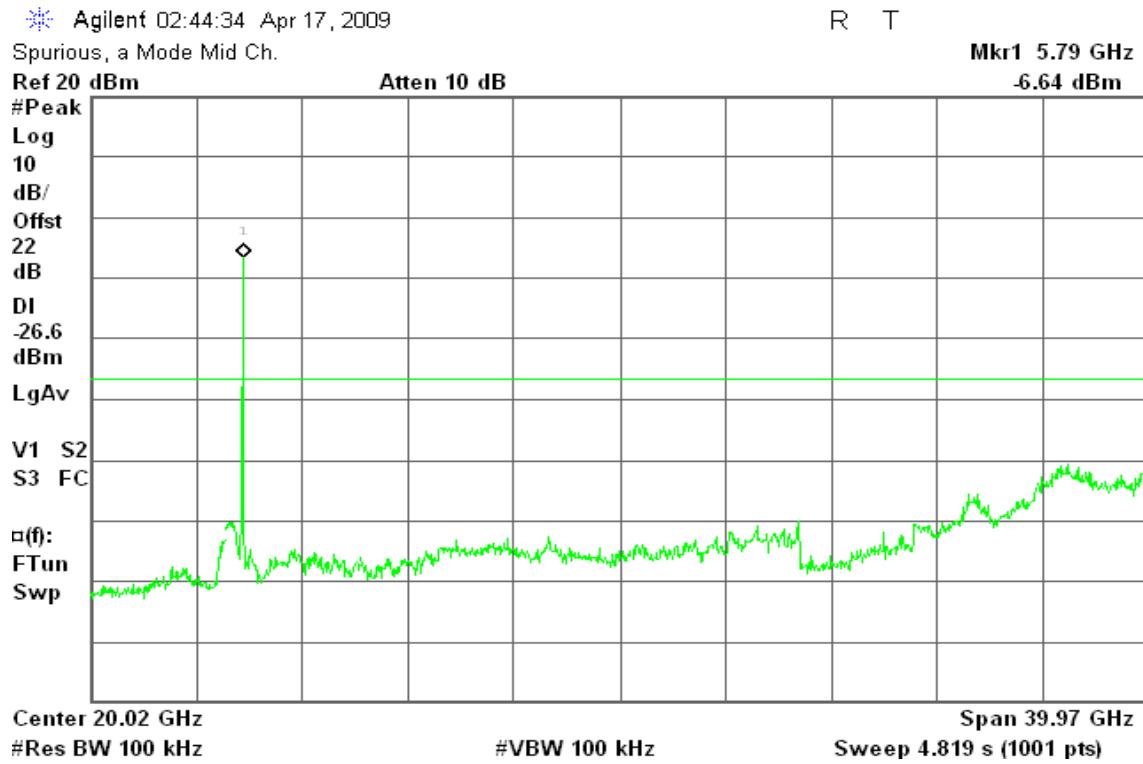


draft 802.11n Wide-40 MHz Channel mode / Chain 1

CH Low



CH Mid**CH High**

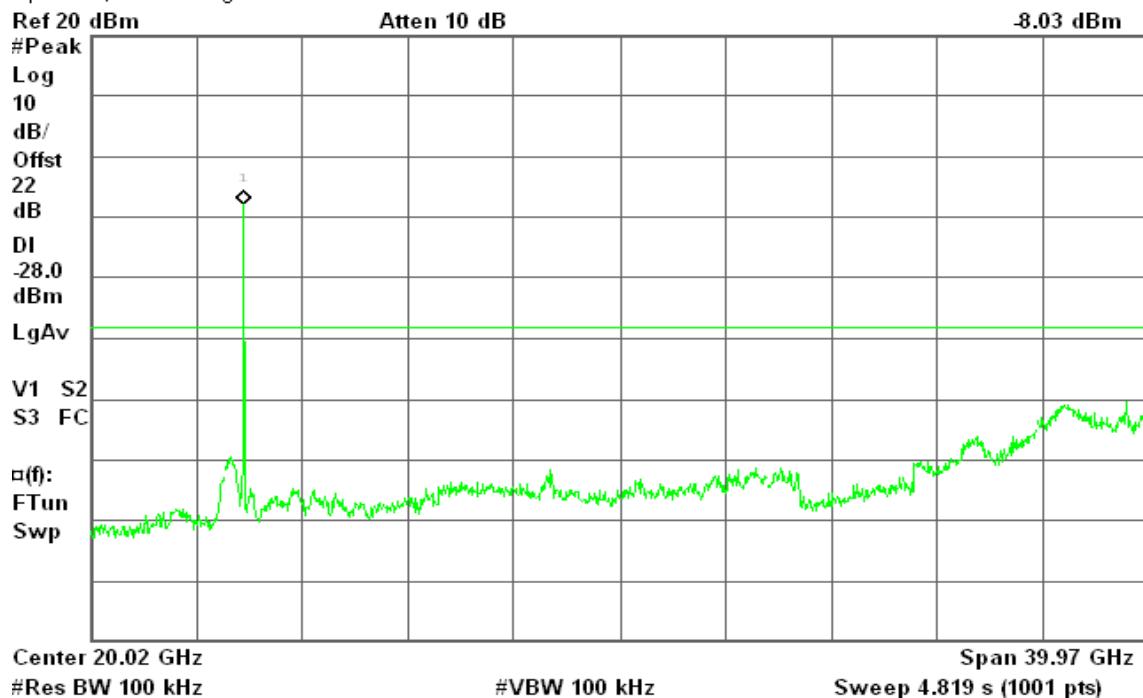
IEEE 802.11a mode / 5745 ~ 5825MHz**CH Low****CH Mid**

CH High

Agilent 02:54:53 Apr 17, 2009

Spurious, a Mode High Ch.

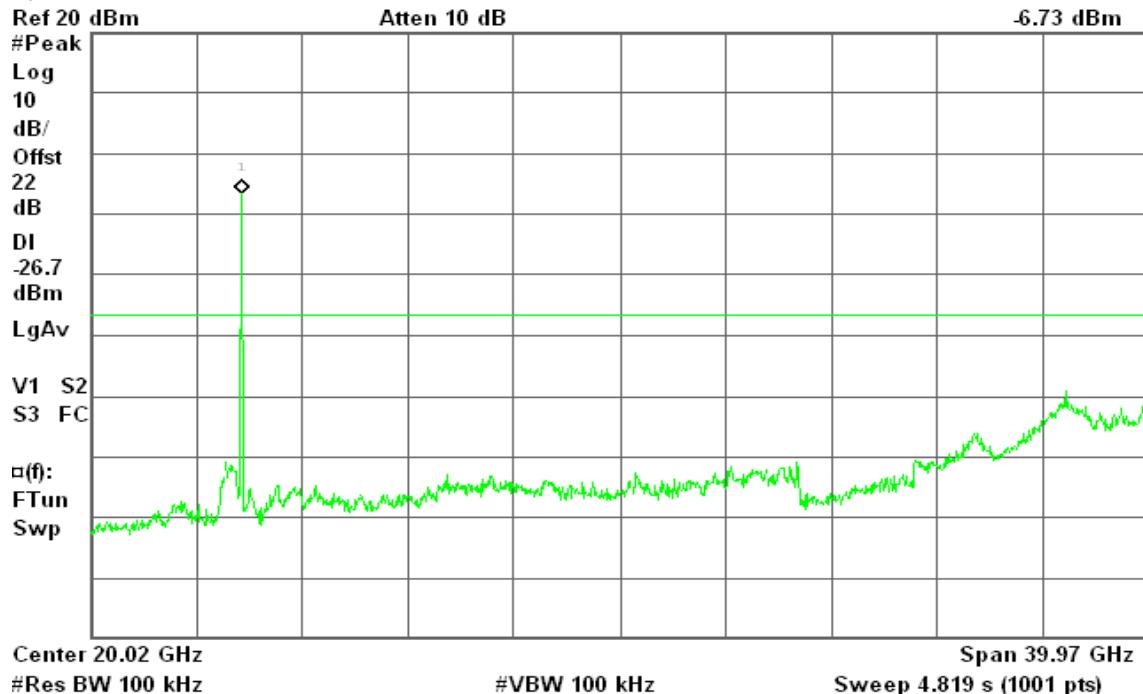
R T

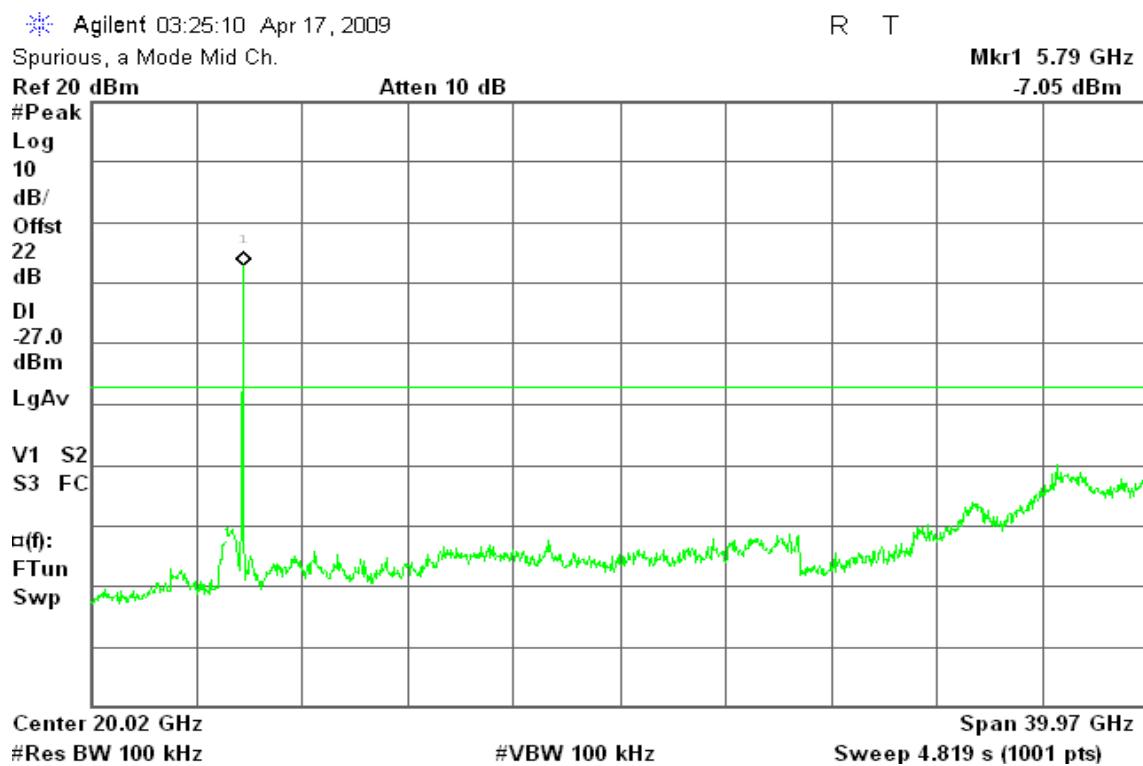
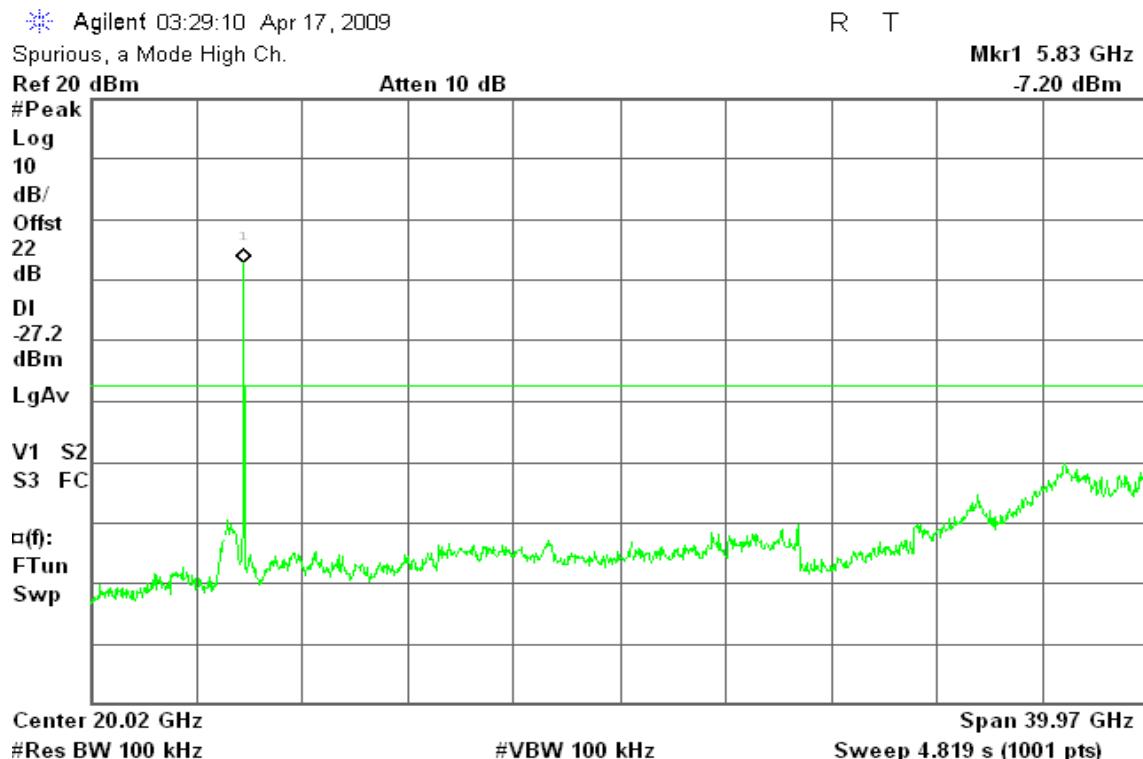
Mkr1 5.83 GHz
-8.03 dBm**draft 802.11n Standard-20 MHz Channel mode / 5745 ~ 5825MHz / Chain 0****CH Low**

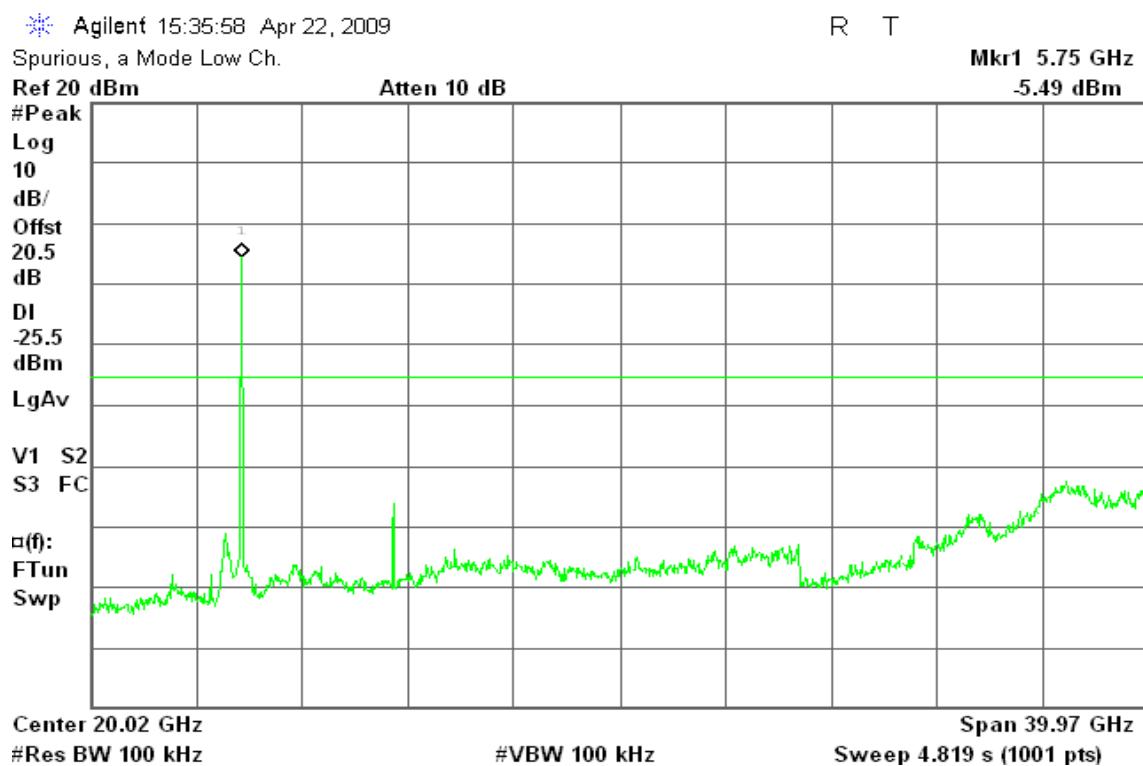
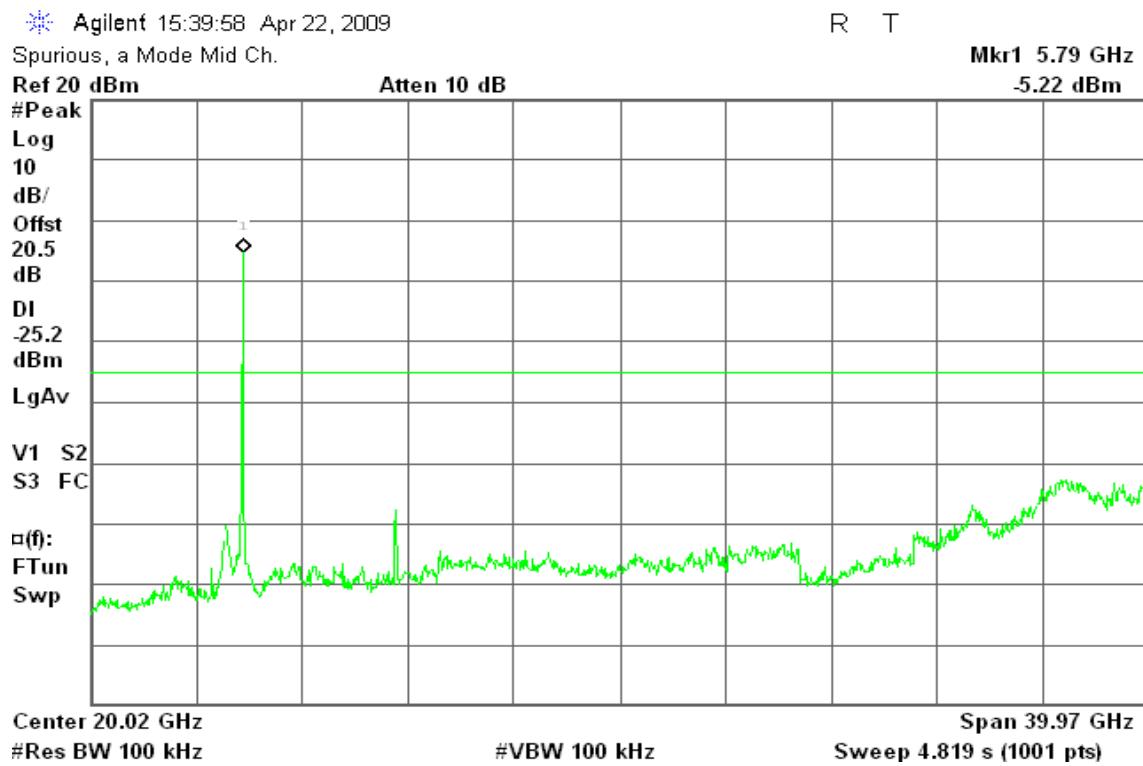
Agilent 03:20:57 Apr 17, 2009

Spurious, a Mode Low Ch.

R T

Mkr1 5.75 GHz
-6.73 dBm

CH Mid**CH High**

draft 802.11n Standard-20 MHz Channel mode / 5745 ~ 5825MHz / Chain 1**CH Low****CH Mid**

CH High

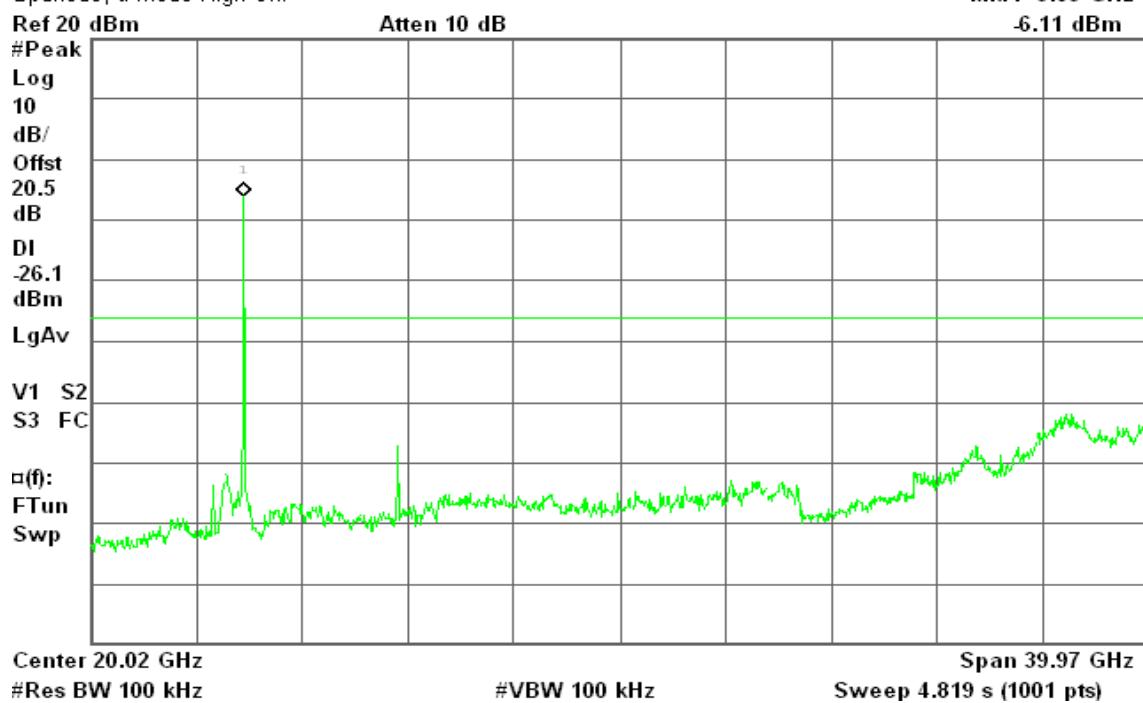
Agilent 15:49:58 Apr 22, 2009

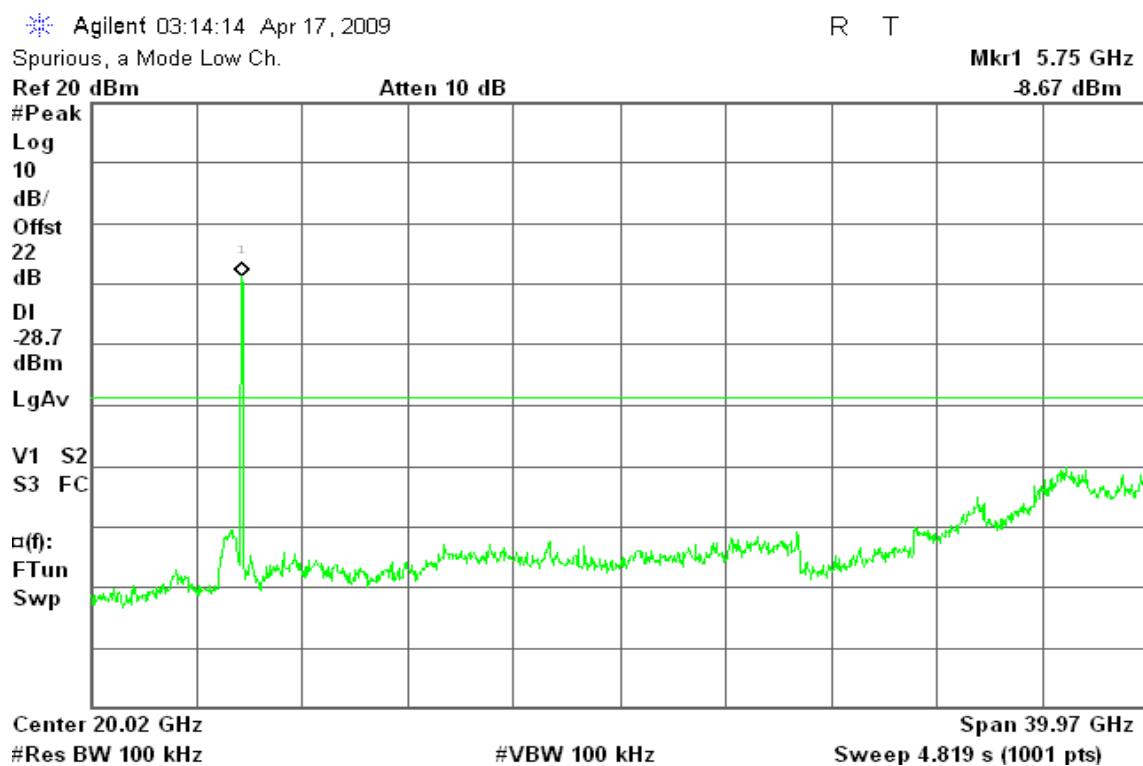
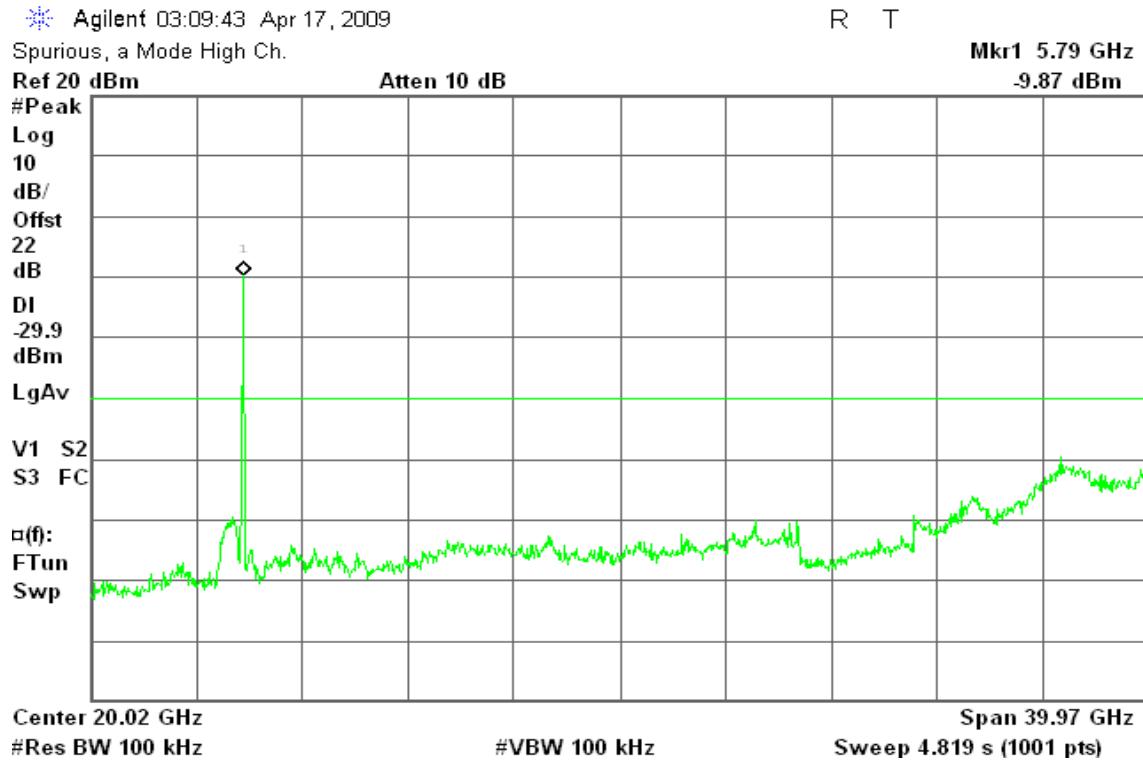
Spurious, a Mode High Ch.

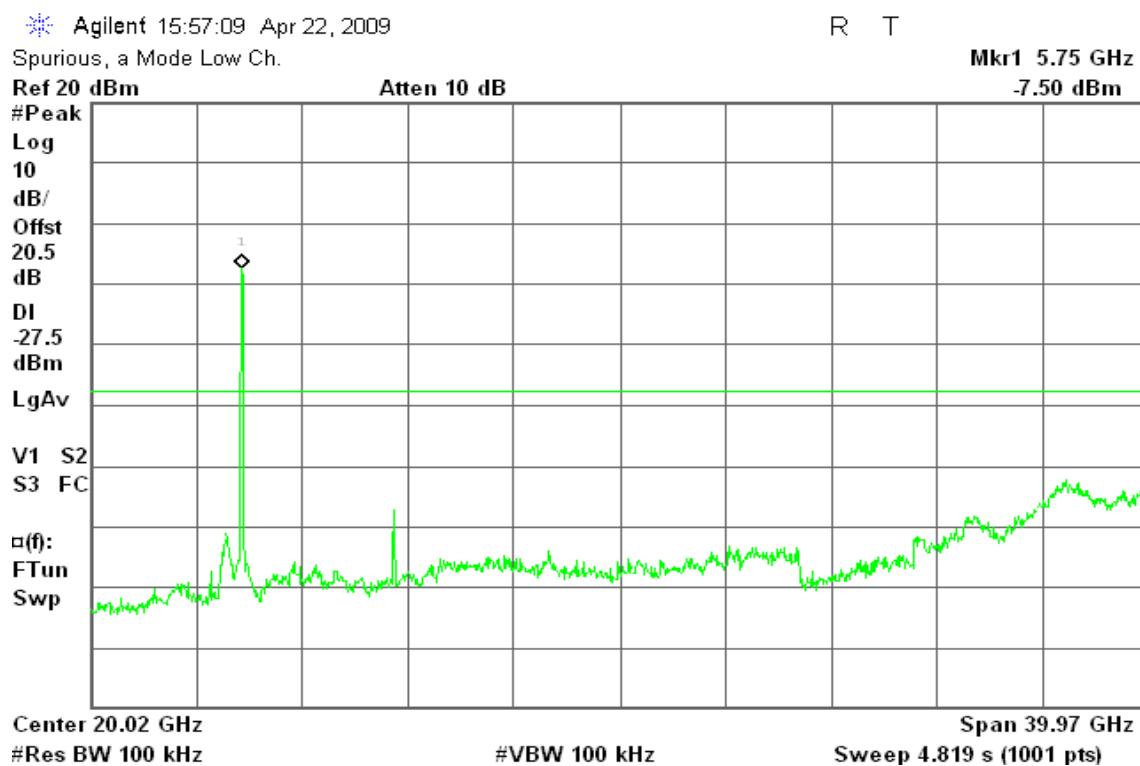
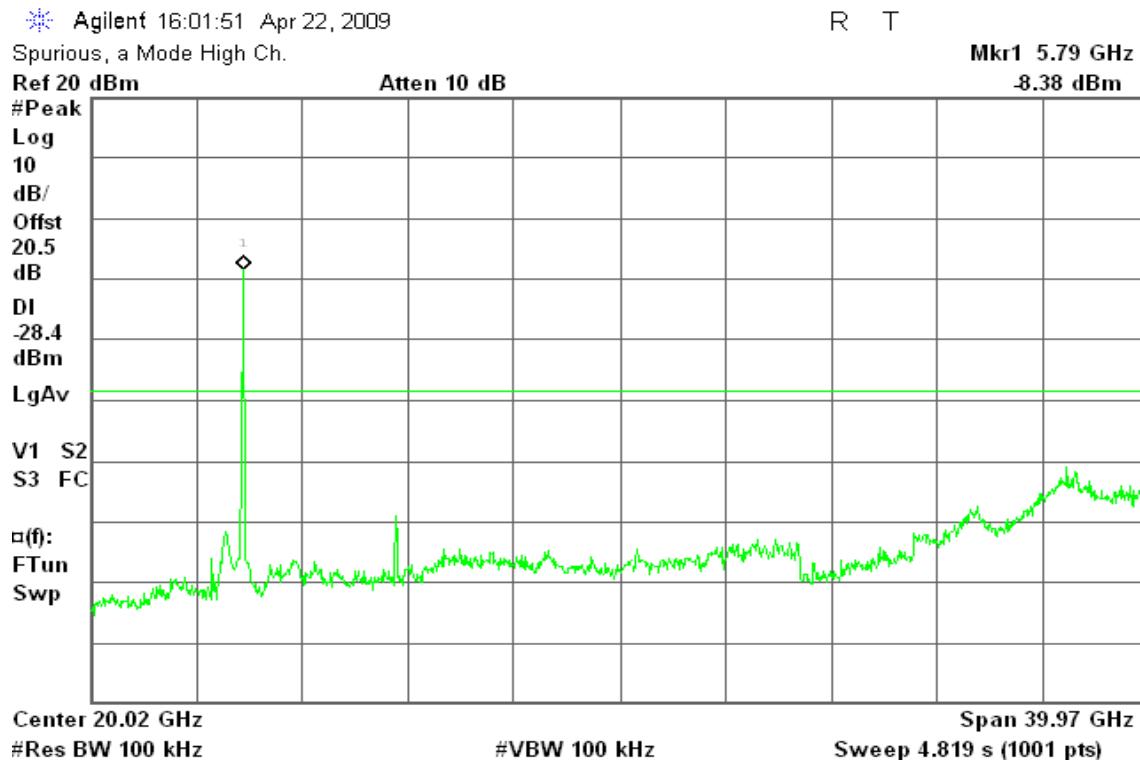
R T

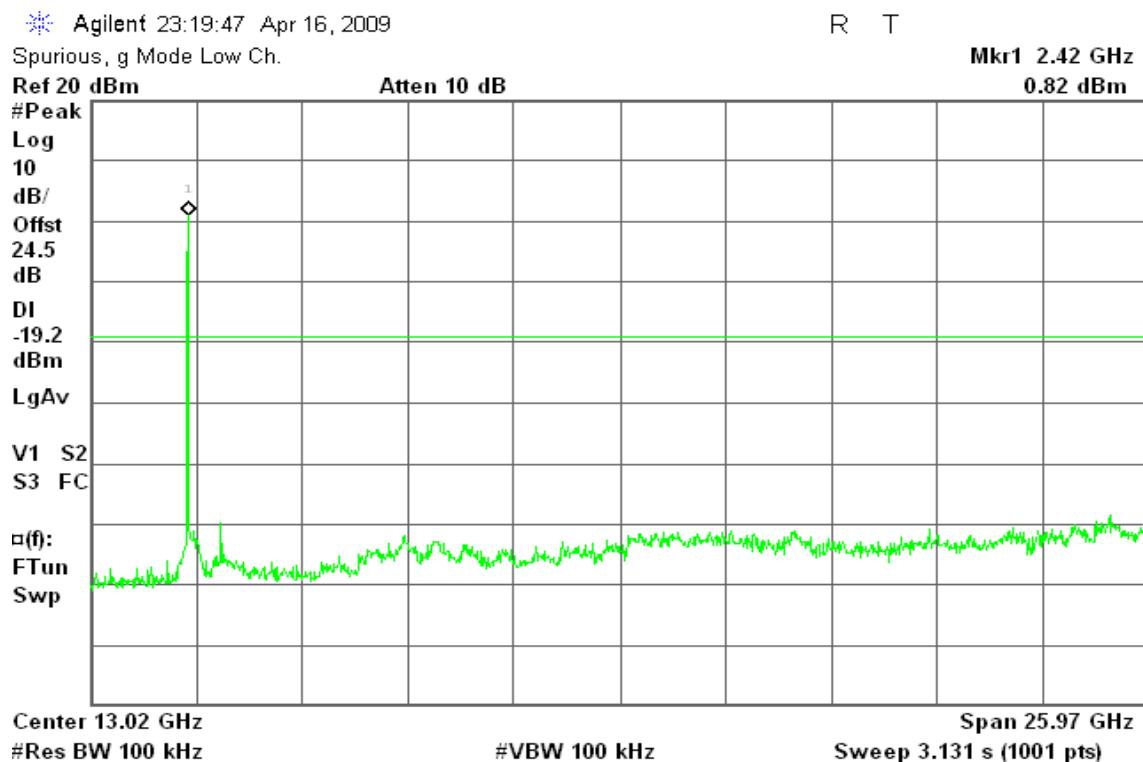
Mkr1 5.83 GHz

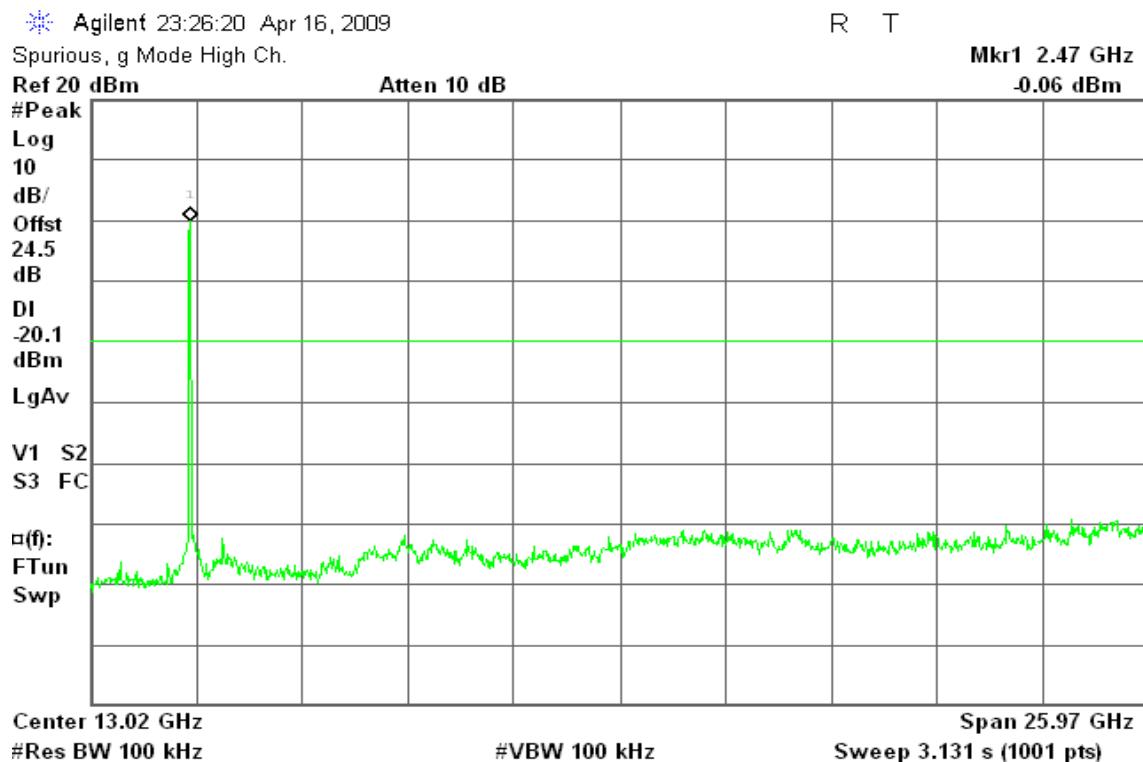
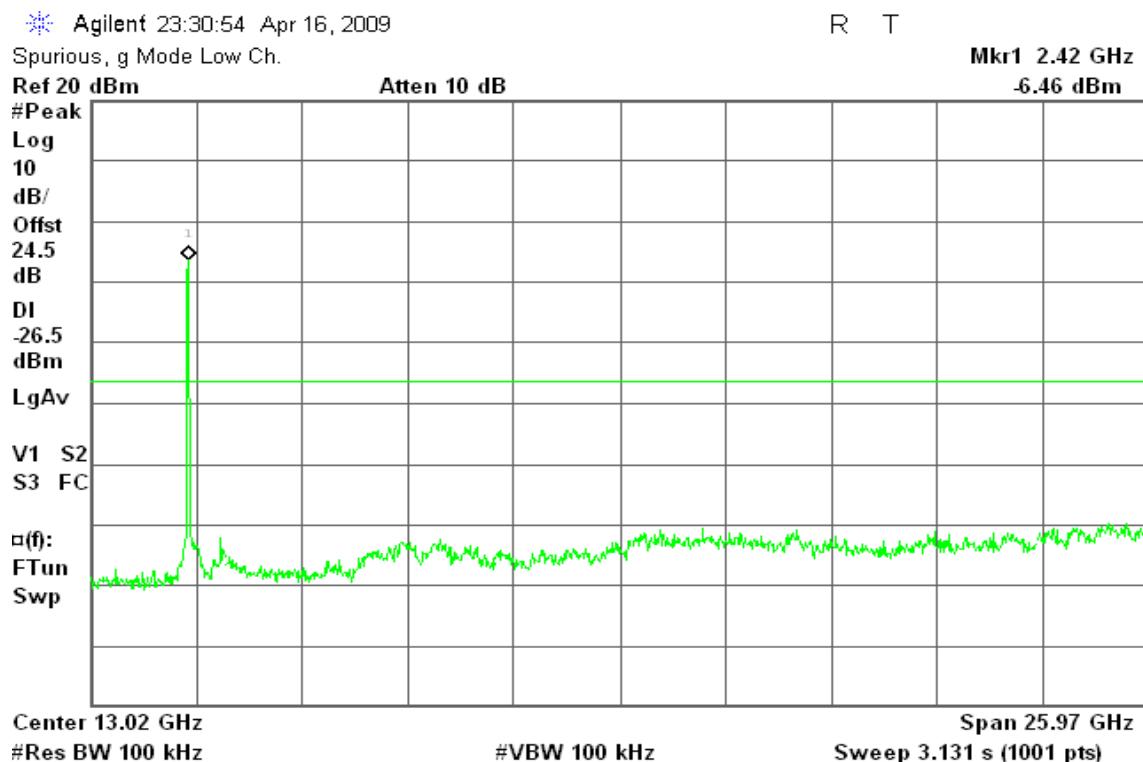
-6.11 dBm

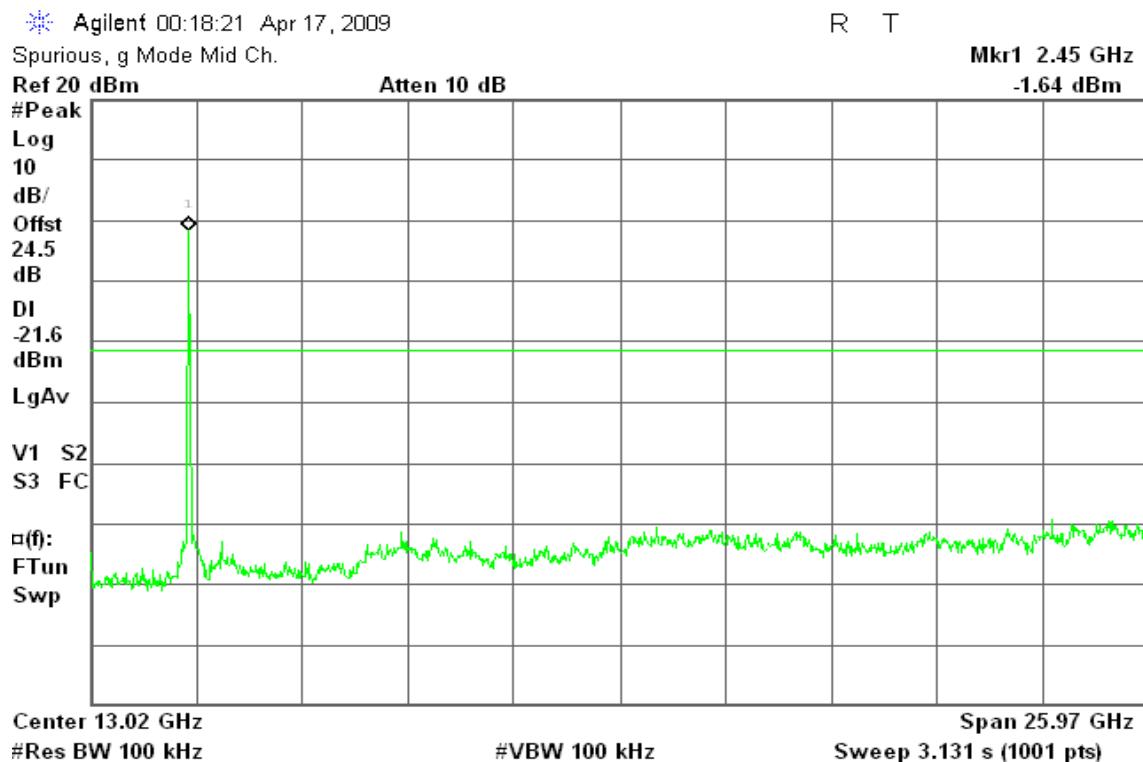
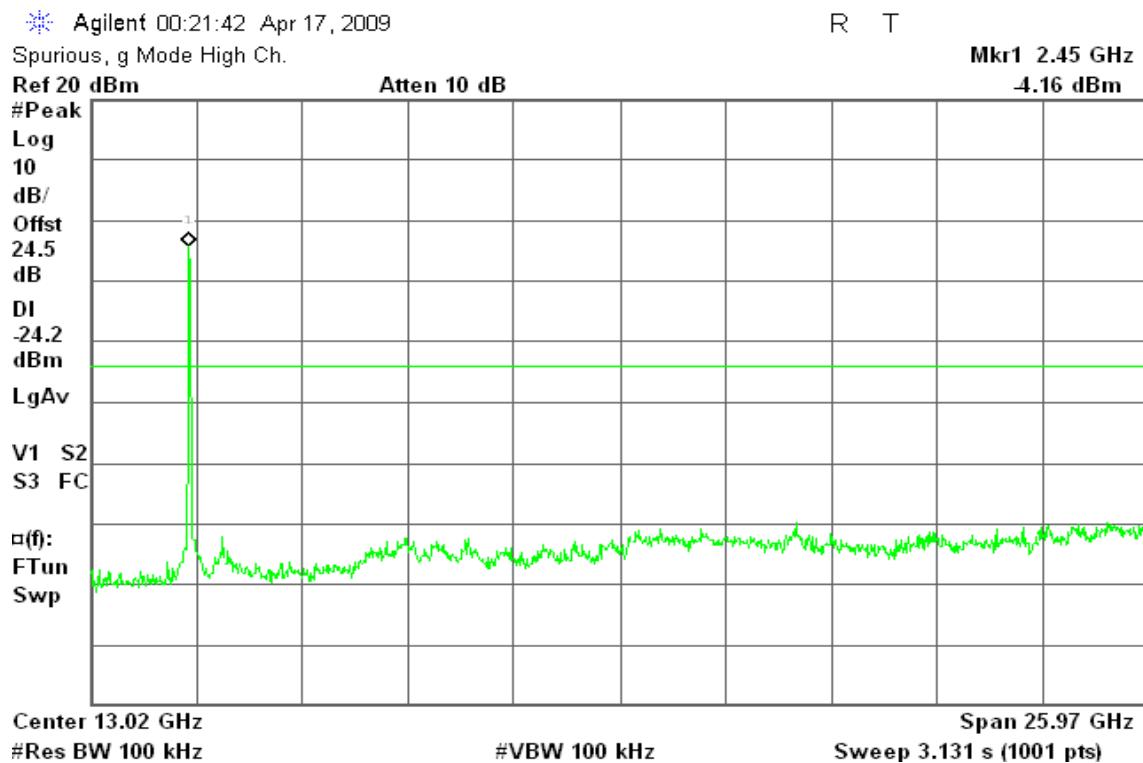


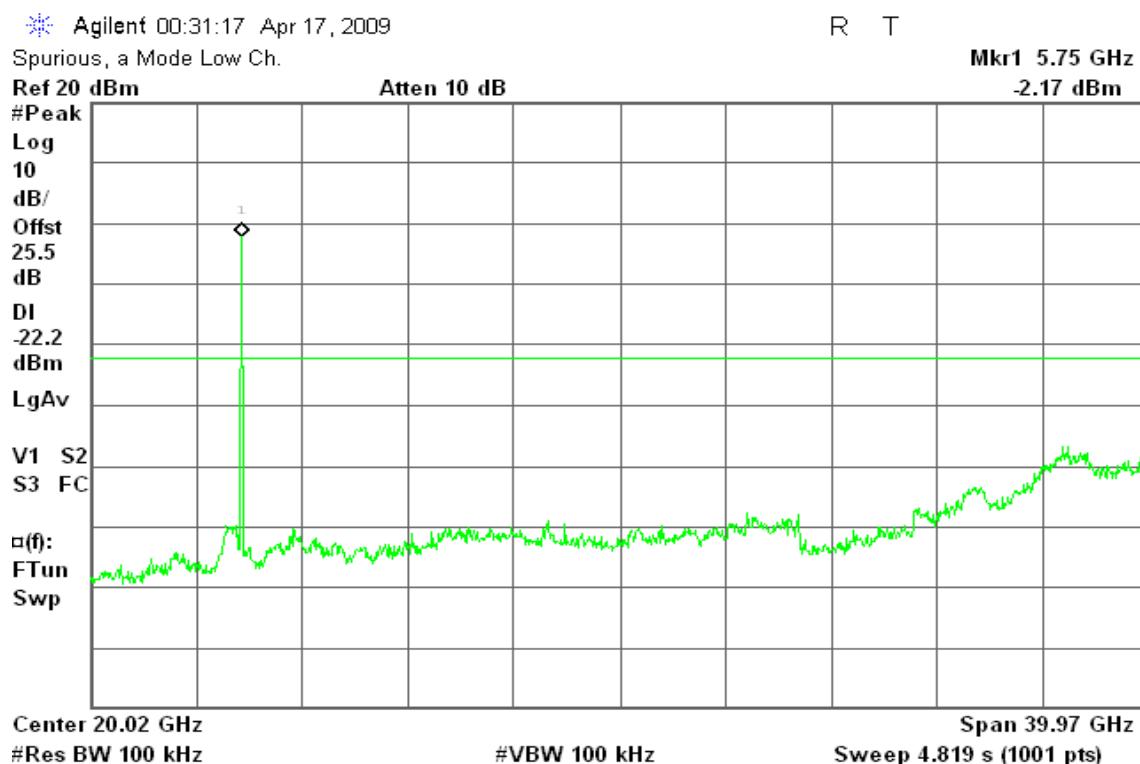
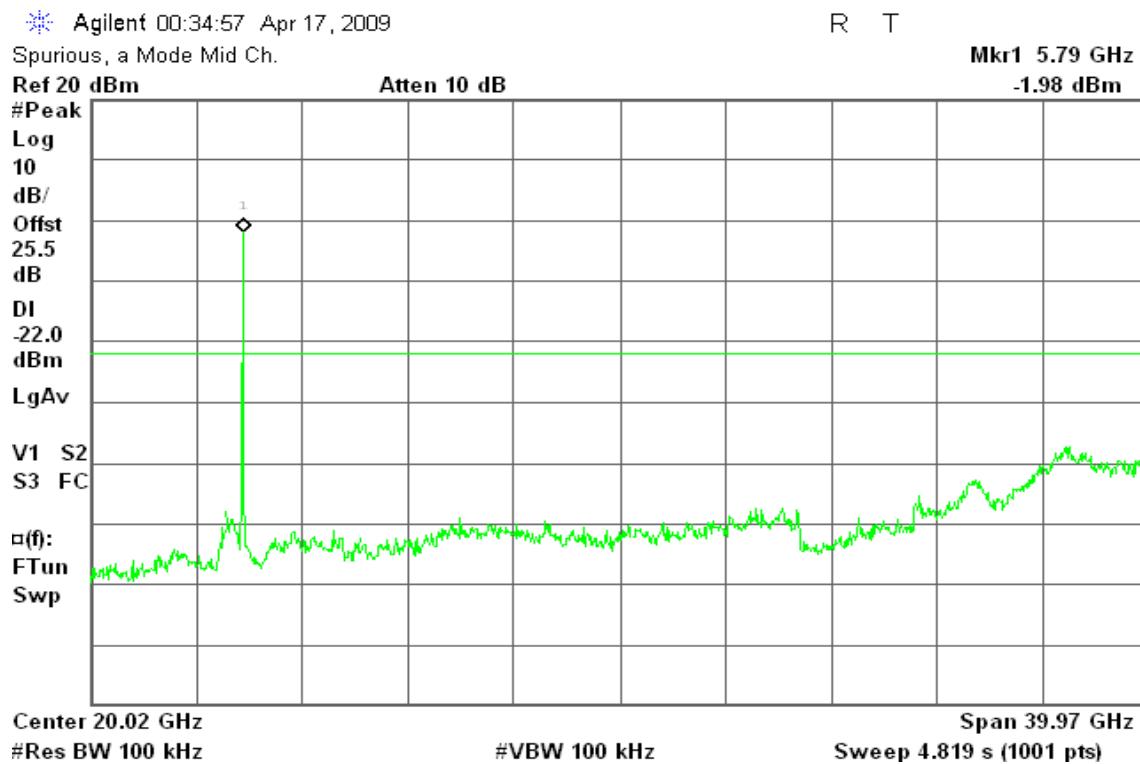
draft 802.11n Wide-40 MHz Channel mode / 5755 ~ 5795MHz / Chain 0**CH Low****CH High**

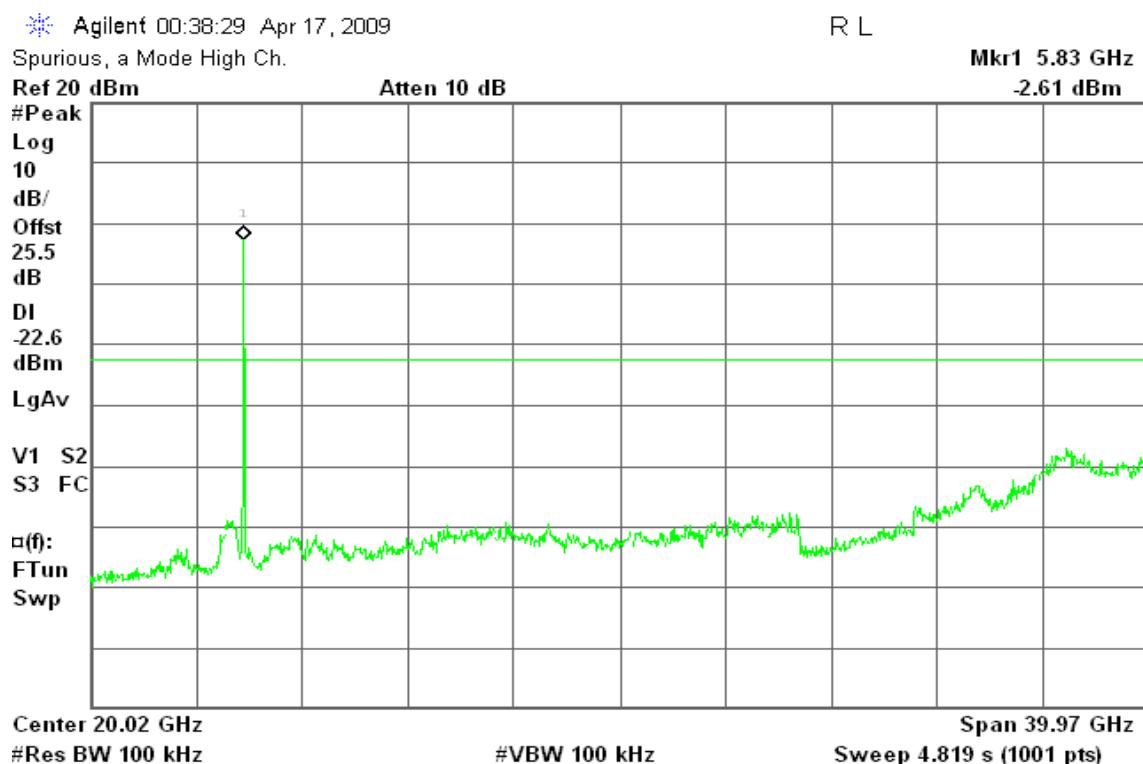
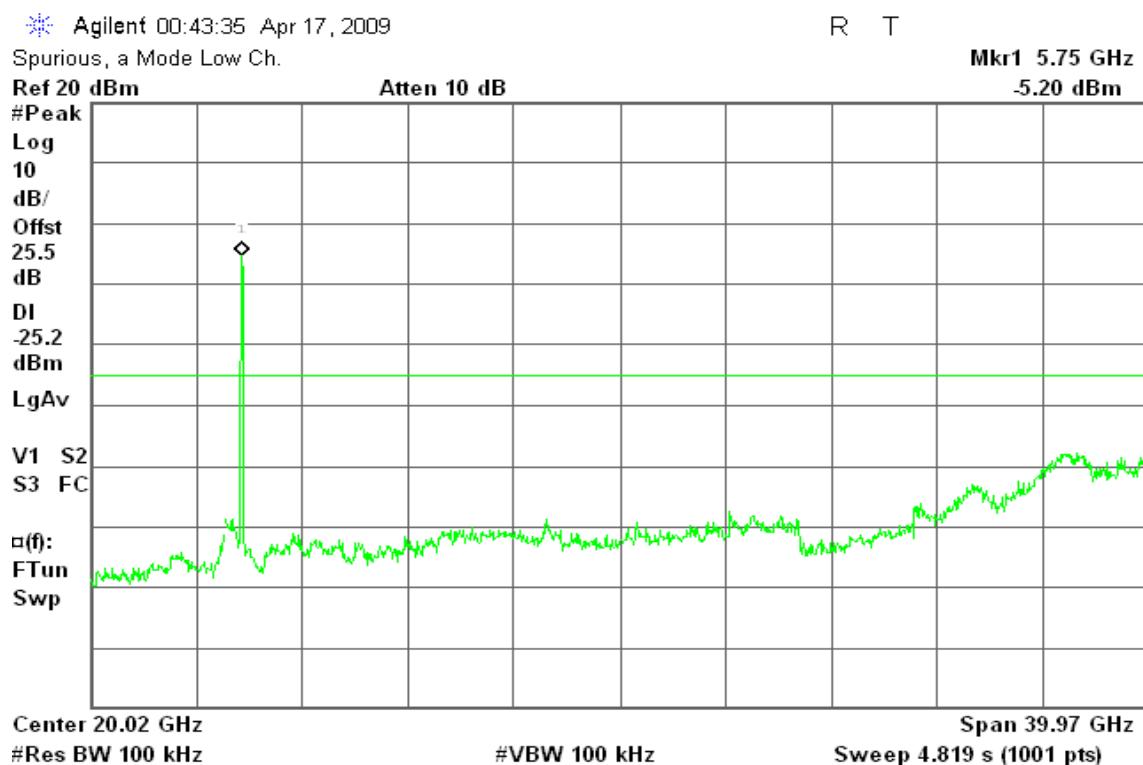
draft 802.11n Wide-40 MHz Channel mode / 5755 ~ 5795MHz / Chain 1**CH Low****CH High**

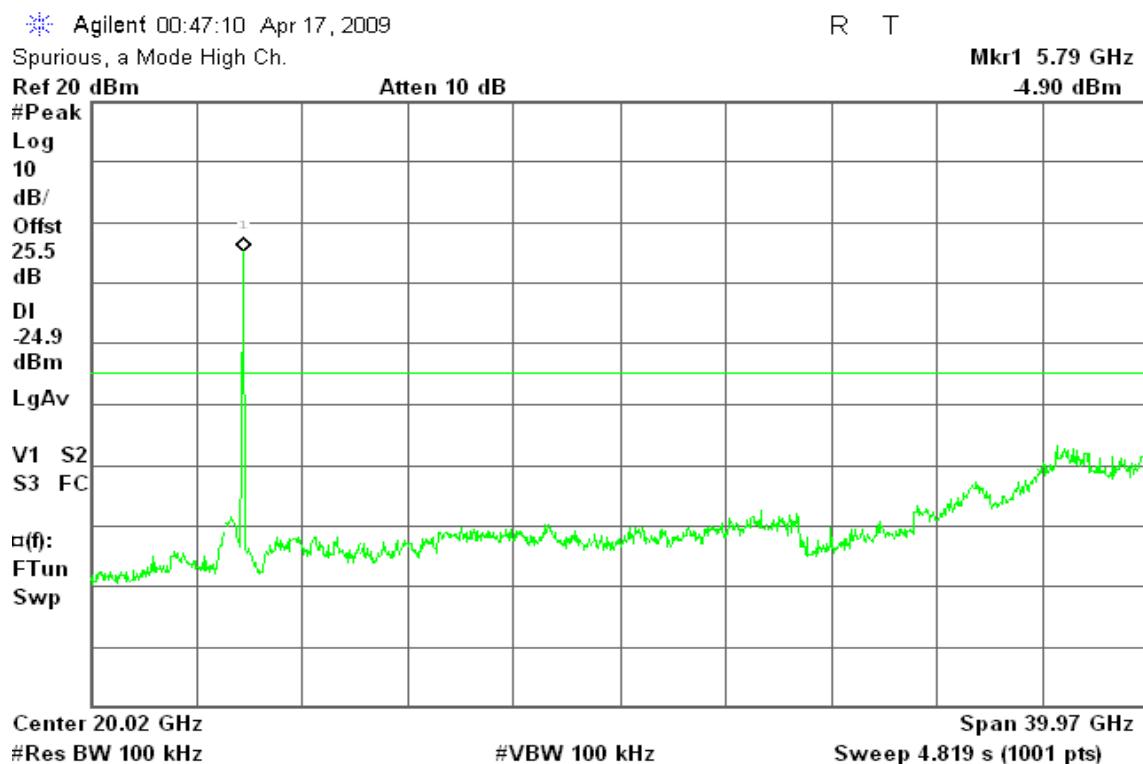
draft 802.11n Standard-20 MHz Channel mode with combiner**CH Low****CH Mid**

CH High**draft 802.11n Wide-40 MHz Channel mode with combiner****CH Low**

CH Mid**CH High**

draft 802.11n Standard-20 MHz Channel mode with combiner / 5745 ~ 5825MHz**CH Low****CH Mid**

CH High**draft 802.11n Wide-40 MHz Channel mode with combiner / 5755 ~ 5795MHz****CH Low**

CH High

7.7 RADIATED EMISSIONS

LIMIT

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

Frequency (MHz)	Field Strength (μ V/m)	Measurement Distance (m)
30-88	100*	3
88-216	150*	3
216-960	200*	3
Above 960	500	3

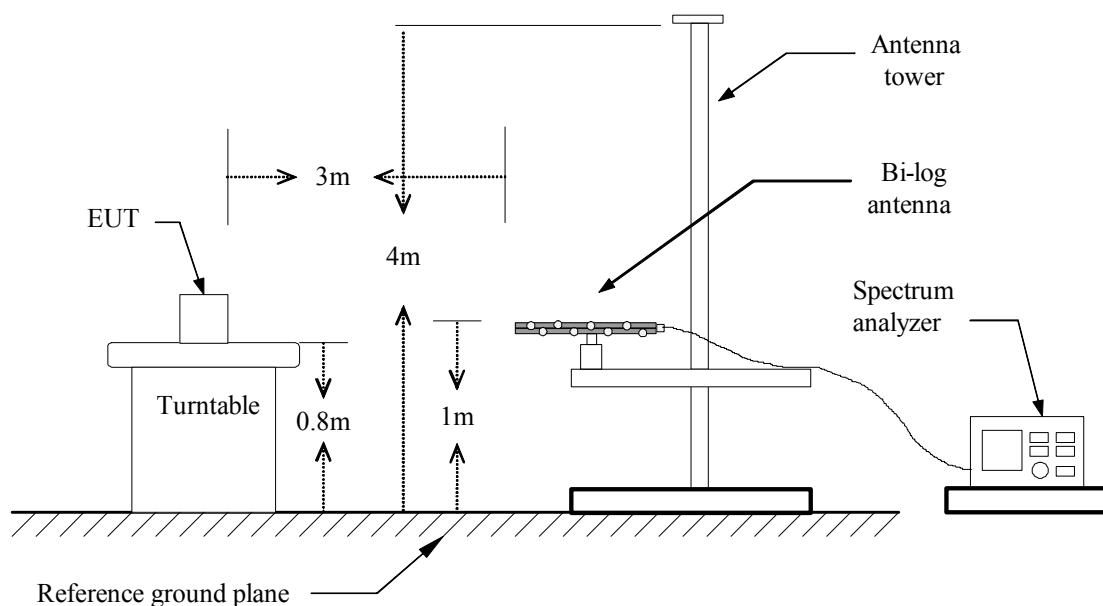
Remark: Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this Section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of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

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

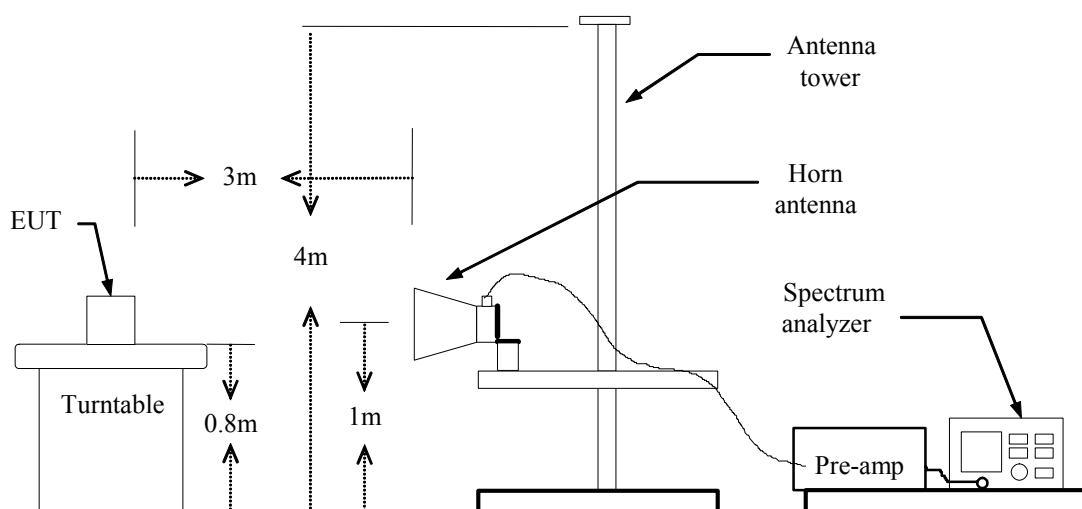
Frequency (MHz)	Field Strength (μ V/m at 3-meter)	Field Strength (dB μ V/m at 3-meter)
30-88	100	40
88-216	150	43.5
216-960	200	46
Above 960	500	54

Test Configuration

Below 1 GHz



Above 1 GHz





TEST PROCEDURE

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

Below 1GHz:

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

Above 1GHz:

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

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

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

**Below 1GHz****Operation Mode:** Normal Link**Test Date:** March 19, 2009**Temperature:** 23°C**Tested by:** Nan Tsai**Humidity:** 53 % 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
47.78	V	44.91	-12.48	32.43	40.00	-7.57	QP
214.30	V	46.92	-9.85	37.07	43.50	-6.43	Peak
463.27	V	43.22	-5.26	37.96	46.00	-8.04	Peak
671.82	V	37.70	-2.18	35.52	46.00	-10.48	Peak
746.18	V	38.62	-0.44	38.18	46.00	-7.82	Peak
773.67	V	37.63	-0.06	37.57	46.00	-8.43	Peak
143.17	H	45.60	-9.28	36.32	43.50	-7.18	Peak
214.30	H	45.36	-9.85	35.51	43.50	-7.99	Peak
463.27	H	42.75	-5.26	37.49	46.00	-8.51	Peak
671.82	H	39.43	-2.18	37.25	46.00	-8.75	Peak
746.18	H	39.13	-0.44	38.69	46.00	-7.31	QP
773.67	H	40.71	-0.06	40.65	46.00	-5.35	Peak

Remark:

1. *No emission found between lowest internal used/generated frequency to 30MHz (9kHz~30MHz).*
2. *Radiated emissions measured were made with an instrument using peak/quasi-peak detector mode.*
3. *Quasi-peak test would be performed if the peak result were greater than the quasi-peak limit or as required by the applicant.*
4. *Measurements above show only up to 6 maximum emissions noted, or would be lesser, with “N/A” remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.*
5. *Margin (dB) = Remark result (dBuV/m) – Quasi-peak limit (dBuV/m).*

**Above 1 GHz****Operation Mode:** TX / IEEE 802.11b / CH Low**Test Date:** April 14, 2009**Temperature:** 23°C**Tested by:** Nan Tsai**Humidity:** 53 % 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
1496.67	V	55.79	---	-7.04	48.76	---	74.00	54.00	-5.24	Peak
4825.00	V	50.30	---	1.04	51.34	---	74.00	54.00	-2.66	Peak
6433.33	V	51.62	48.54	2.77	54.39	51.31	74.00	54.00	-2.69	AVG
N/A										
1496.67	H	60.19	55.69	-7.04	53.15	48.65	74.00	54.00	-5.35	AVG
2243.33	H	54.37	40.32	-1.85	52.52	38.47	74.00	54.00	-15.53	AVG
4825.00	H	53.10	47.84	1.04	54.13	48.88	74.00	54.00	-5.12	AVG
6133.33	H	49.21	---	2.41	51.62	---	74.00	54.00	-2.38	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 Mid**Test Date:** April 14, 2009**Temperature:** 23°C**Tested by:** Nan Tsai**Humidity:** 53 % 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	54.68	---	-7.84	46.84	---	74.00	54.00	-7.16	Peak
1496.67	V	55.31	---	-7.04	48.27	---	74.00	54.00	-5.73	Peak
2243.33	V	53.20	---	-1.85	51.35	---	74.00	54.00	-2.65	Peak
4875.00	V	50.68	---	1.02	51.70	---	74.00	54.00	-2.30	Peak
6500.00	V	51.56	50.24	2.85	54.41	53.09	74.00	54.00	-0.91	AVG
N/A										
1500.00	H	60.43	55.66	-7.03	53.40	48.63	74.00	54.00	-5.37	AVG
2246.67	H	54.31	40.31	-1.84	52.47	38.47	74.00	54.00	-15.53	AVG
4875.00	H	53.07	47.89	1.02	54.09	48.91	74.00	54.00	-5.09	AVG
N/A										

Remark:

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

**Operation Mode:** TX / IEEE 802.11b / CH High**Test Date:** April 14, 2009**Temperature:** 23°C**Tested by:** Nan Tsai**Humidity:** 53% 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
1500.00	V	55.51	---	-7.03	48.48	---	74.00	54.00	-5.52	Peak
2243.33	V	52.45	---	-1.85	50.60	---	74.00	54.00	-3.40	Peak
4925.00	V	51.85	49.66	1.01	52.86	50.67	74.00	54.00	-3.33	AVG
6566.67	V	50.93	44.85	3.03	53.96	47.88	74.00	54.00	-6.12	AVG
N/A										
1496.67	H	60.10	55.69	-7.04	53.06	48.65	74.00	54.00	-5.35	AVG
2243.33	H	54.49	40.33	-1.85	52.64	38.48	74.00	54.00	-15.52	AVG
4925.00	H	51.91	50.28	1.01	52.92	51.29	74.00	54.00	-2.71	AVG
N/A										

Remark:

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

**Operation Mode:** TX / IEEE 802.11g / CH Low**Test Date:** April 14, 2009**Temperature:** 23°C**Tested by:** Nan Tsai**Humidity:** 53 % 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	55.21	---	-7.84	47.37	---	74.00	54.00	-6.63	Peak
1496.67	V	55.21	---	-7.04	48.17	---	74.00	54.00	-5.83	Peak
2246.67	V	52.79	---	-1.84	50.95	---	74.00	54.00	-3.05	Peak
6433.33	V	51.87	48.52	2.77	54.64	51.29	74.00	54.00	-2.71	AVG
N/A										
1493.33	H	59.60	55.71	-7.04	52.55	48.67	74.00	54.00	-5.33	AVG
2240.00	H	54.12	40.35	-1.85	52.27	38.50	74.00	54.00	-15.50	AVG
4825.00	H	48.20	---	1.04	49.24	---	74.00	54.00	-4.76	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 802.11g / CH Mid**Test Date:** April 14, 2009**Temperature:** 23°C**Tested by:** Nan Tsai**Humidity:** 53 % 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
1060.00	V	54.97	---	-7.85	47.12	---	74.00	54.00	-6.88	Peak
1496.67	V	55.47	---	-7.04	48.44	---	74.00	54.00	-5.56	Peak
2243.33	V	52.35	---	-1.85	50.51	---	74.00	54.00	-3.49	Peak
6500.00	V	52.06	49.90	2.85	54.91	52.75	74.00	54.00	-1.25	AVG
N/A										
1500.00	H	60.02	55.67	-7.03	52.99	48.64	74.00	54.00	-5.36	AVG
2240.00	H	54.35	40.34	-1.85	52.50	38.49	74.00	54.00	-15.51	AVG
4875.00	H	47.92	---	1.02	48.95	---	74.00	54.00	-5.05	Peak
N/A										

Remark:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.
3. Average test would be performed if the peak result were greater than the average limit 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 14, 2009**Temperature:** 23°C**Tested by:** Nan Tsai**Humidity:** 53 % 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	55.05	---	-7.84	47.21	---	74.00	54.00	-6.79	Peak
1496.67	V	55.44	---	-7.04	48.40	---	74.00	54.00	-5.60	Peak
4816.67	V	48.83	---	1.04	49.87	---	74.00	54.00	-4.13	Peak
N/A										
1496.67	H	60.21	55.65	-7.04	53.17	48.61	74.00	54.00	-5.39	AVG
2240.00	H	54.19	40.35	-1.85	52.33	38.50	74.00	54.00	-15.50	AVG
4816.67	H	49.02	---	1.04	50.06	---	74.00	54.00	-3.94	Peak
N/A										

Remark:

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



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

Test Date: April 14, 2009

Temperature: 23°C

Tested by: Nan Tsai

Humidity: 53 % 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
1493.33	V	55.34	---	-7.04	48.30	---	74.00	54.00	-5.70	Peak
2243.33	V	54.18	41.14	-1.85	52.33	39.29	74.00	54.00	-14.71	AVG
4491.67	V	49.08	---	1.11	50.19	---	74.00	54.00	-3.81	Peak
5575.00	V	50.34	36.04	1.67	52.01	37.71	74.00	54.00	-16.29	AVG
N/A										
1496.67	H	60.57	54.24	-7.04	53.54	47.20	74.00	54.00	-6.80	AVG
2243.33	H	54.62	41.15	-1.85	52.78	39.30	74.00	54.00	-14.70	AVG
4833.33	H	49.26	---	1.03	50.30	---	74.00	54.00	-3.70	Peak
5783.33	H	49.57	---	1.96	51.52	---	74.00	54.00	-2.48	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 Standard-20 MHz Channel mode / CH Mid

Test Date: April 14, 2009

Temperature: 23°C

Tested by: Nan Tsai

Humidity: 53 % 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
1496.67	V	55.93	---	-7.04	48.89	---	74.00	54.00	-5.11	Peak
1913.33	V	52.03	---	-3.08	48.95	---	74.00	54.00	-5.05	Peak
4883.33	V	50.57	---	1.02	51.59	---	74.00	54.00	-2.41	Peak
N/A										
1496.67	H	60.50	54.31	-7.04	53.46	47.27	74.00	54.00	-6.73	AVG
2240.00	H	54.98	41.21	-1.85	53.13	39.36	74.00	54.00	-14.64	AVG
4866.67	H	49.77	---	1.02	50.80	---	74.00	54.00	-3.20	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 Standard-20 MHz Channel mode / CH High

Test Date: April 14, 2009

Temperature: 23°C

Tested by: Nan Tsai

Humidity: 53 % 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	55.04	---	-7.84	47.20	---	74.00	54.00	-6.80	Peak
1496.67	V	55.91	---	-7.04	48.88	---	74.00	54.00	-5.12	Peak
2243.33	V	53.65	---	-1.85	51.80	---	74.00	54.00	-2.20	Peak
5650.00	V	48.59	---	1.77	50.37	---	74.00	54.00	-3.63	Peak
N/A										
1496.67	H	60.71	54.23	-7.04	53.67	47.19	74.00	54.00	-6.81	AVG
2246.67	H	55.58	41.14	-1.84	53.74	39.30	74.00	54.00	-14.70	AVG
3883.33	H	47.94	---	0.43	48.37	---	74.00	54.00	-5.63	Peak
N/A										

Remark:

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



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

Test Date: April 14, 2009

Temperature: 23°C

Tested by: Mimic Yang

Humidity: 53 % 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
1493.33	V	58.90	---	-7.04	51.86	---	74.00	54.00	-2.14	Peak
N/A										
1500.00	H	61.30	56.00	-7.03	54.27	48.97	74.00	54.00	-5.03	AVG
2240.00	H	56.48	42.85	-1.85	54.63	41.00	74.00	54.00	-13.00	AVG
N/A										

Remark:

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



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

Test Date: April 14, 2009

Temperature: 23°C

Tested by: Mimic Yang

Humidity: 53 % 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
1493.33	V	58.33	---	-7.04	51.29	---	74.00	54.00	-2.71	Peak
N/A										
1496.67	H	61.66	55.87	-7.04	54.62	48.83	74.00	54.00	-5.17	AVG
2243.33	H	57.58	43.72	-1.85	55.73	41.87	74.00	54.00	-12.13	AVG
N/A										

Remark:

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



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

Test Date: April 14, 2009

Temperature: 23°C

Tested by: Mimic Yang

Humidity: 53 % 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
1493.33	V	57.08	---	-7.04	50.04	---	74.00	54.00	-3.96	Peak
N/A										
1493.33	H	61.06	55.94	-7.04	54.02	48.90	74.00	54.00	-5.10	AVG
2240.00	H	57.13	43.15	-1.85	55.28	41.30	74.00	54.00	-12.70	AVG
N/A										

Remark:

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



Operation Mode: Tx / IEEE 802.11a mode / 5745 ~ 5825MHz / CH Low **Test Date:** April 14, 2009

Temperature: 25°C

Tested by: Nan Tsai

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
1060.00	V	55.32	---	-7.85	47.48	---	74.00	54.00	-6.52	Peak
1493.33	V	55.93	---	-7.04	48.89	---	74.00	54.00	-5.11	Peak
1833.33	V	54.86	---	-3.84	51.02	---	74.00	54.00	-2.98	Peak
11500.00	V	45.40	33.40	14.06	59.46	47.46	74.00	54.00	-6.54	AVG
N/A										
1500.00	H	58.54	---	-7.03	51.51	---	74.00	54.00	-2.49	Peak
1830.00	H	54.72	---	-3.88	50.85	---	74.00	54.00	-3.15	Peak
2240.00	H	51.03	---	-1.85	49.18	---	74.00	54.00	-4.82	Peak
5116.67	H	57.72	44.00	1.13	58.85	45.13	74.00	54.00	-8.87	AVG
11483.33	H	44.45	35.19	14.07	58.52	49.26	74.00	54.00	-4.74	AVG
N/A										

Remark:

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



Operation Mode: Tx / IEEE 802.11a mode / 5745 ~ 5825MHz / **Test Date:** April 14, 2009
CH Mid

Temperature: 25°C

Tested by: Nan Tsai

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
1500.00	V	55.20	---	-7.03	48.17	---	74.00	54.00	-5.83	Peak
1833.33	V	55.18	---	-3.84	51.34	---	74.00	54.00	-2.66	Peak
5183.33	V	57.55	45.92	1.20	58.75	47.12	74.00	54.00	-6.88	AVG
N/A										
1496.67	H	58.57	---	-7.04	51.53	---	74.00	54.00	-2.47	Peak
1836.67	H	54.07	---	-3.81	50.26	---	74.00	54.00	-3.74	Peak
5083.33	H	57.07	45.92	1.09	58.16	47.01	74.00	54.00	-6.99	AVG
5541.67	H	56.81	46.12	1.63	58.43	47.75	74.00	54.00	-6.25	AVG
N/A										

Remark:

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



Operation Mode: Tx / IEEE 802.11a mode / 5745 ~ 5825MHz / **Test Date:** April 14, 2009
CH High

Temperature: 25°C

Tested by: Nan Tsai

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
1496.67	V	55.05	---	-7.04	48.01	---	74.00	54.00	-5.99	Peak
1836.67	V	54.74	---	-3.81	50.93	---	74.00	54.00	-3.07	Peak
5041.67	V	57.51	44.99	1.04	58.55	46.03	74.00	54.00	-7.97	AVG
5450.00	V	57.85	45.10	1.51	59.36	46.61	74.00	54.00	-7.39	AVG
N/A										
1496.67	H	58.42	---	-7.04	51.39	---	74.00	54.00	-2.61	Peak
1836.67	H	54.54	---	-3.81	50.73	---	74.00	54.00	-3.27	Peak
5175.00	H	57.68	46.49	1.19	58.87	47.68	74.00	54.00	-6.32	AVG
N/A										

Remark:

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



Operation Mode: Tx / draft 802.11n Standard-20 MHz Channel mode / 5745 ~ 5825MHz / CH Low **Test Date:** April 14, 2009

Temperature: 25°C

Tested by: Nan Tsai

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
1496.67	V	56.10	---	-7.04	49.07	---	74.00	54.00	-4.93	Peak
1836.67	V	55.03	---	-3.81	51.22	---	74.00	54.00	-2.78	Peak
N/A										
1496.67	H	58.56	---	-7.04	51.52	---	74.00	54.00	-2.48	Peak
1830.00	H	54.45	---	-3.88	50.58	---	74.00	54.00	-3.42	Peak
5150.00	H	58.90	47.25	1.16	60.06	48.41	74.00	54.00	-5.59	AVG
N/A										

Remark:

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



Operation Mode: Tx / draft 802.11n Standard-20 MHz Channel mode / 5745 ~ 5825MHz / CH Mid **Test Date:** April 14, 2009

Temperature: 25°C

Tested by: Nan Tsai

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
1060.00	V	54.51	---	-7.85	46.66	---	74.00	54.00	-7.34	Peak
1496.67	V	55.22	---	-7.04	48.18	---	74.00	54.00	-5.82	Peak
1836.67	V	54.88	---	-3.81	51.07	---	74.00	54.00	-2.93	Peak
5508.33	V	58.76	45.37	1.58	60.34	46.95	74.00	54.00	-7.05	AVG
N/A										
1496.67	H	59.07	53.73	-7.04	52.03	46.69	74.00	54.00	-7.31	AVG
1830.00	H	54.04	---	-3.88	50.17	---	74.00	54.00	-3.83	Peak
5108.33	H	57.43	47.35	1.12	58.55	48.47	74.00	54.00	-5.53	AVG
N/A										

Remark:

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



Operation Mode: Tx / draft 802.11n Standard-20 MHz Channel mode / 5745 ~ 5825MHz / CH High **Test Date:** April 14, 2009

Temperature: 25°C

Tested by: Nan Tsai

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
1500.00	V	55.38	---	-7.03	48.35	---	74.00	54.00	-5.65	Peak
1833.33	V	54.16	---	-3.84	50.31	---	74.00	54.00	-3.69	Peak
5500.00	V	57.47	45.70	1.57	59.04	47.27	74.00	54.00	-6.73	AVG
11650.00	V	46.49	35.18	14.35	60.84	49.53	74.00	54.00	-4.47	AVG
N/A										
1493.33	H	58.51	---	-7.04	51.47	---	74.00	54.00	-2.53	Peak
1830.00	H	54.42	---	-3.88	50.55	---	74.00	54.00	-3.45	Peak
5100.00	H	58.32	45.68	1.11	59.43	46.79	74.00	54.00	-7.21	AVG
N/A										

Remark:

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



Operation Mode: Tx / draft 802.11n Wide-40 MHz Channel mode / 5755 ~ 5795MHz / CH Low

Test Date: April 14, 2009

Temperature: 25°C

Tested by: Nan Tsai

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
1496.67	V	55.82	---	-7.04	48.78	---	74.00	54.00	-5.22	Peak
1836.67	V	54.64	---	-3.81	50.83	---	74.00	54.00	-3.17	Peak
5566.67	V	57.95	46.23	1.66	59.62	47.89	74.00	54.00	-6.11	AVG
11500.00	V	45.34	32.89	14.06	59.40	46.95	74.00	54.00	-7.05	AVG
N/A										
1496.67	H	58.67	---	-7.04	51.63	---	74.00	54.00	-2.37	Peak
1830.00	H	54.54	---	-3.88	50.67	---	74.00	54.00	-3.33	Peak
5158.33	H	57.59	44.13	1.17	58.76	45.30	74.00	54.00	-8.70	AVG
5558.33	H	57.37	46.37	1.65	59.02	48.02	74.00	54.00	-5.98	AVG
N/A										

Remark:

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



Operation Mode: Tx / draft 802.11n Wide-40 MHz Channel mode / 5755 ~ 5795MHz / CH High

Test Date: April 14, 2009

Temperature: 23°C

Tested by: Mimic Yang

Humidity: 53% 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
1496.67	V	55.66	---	-7.04	48.62	---	74.00	54.00	-5.38	Peak
1833.33	V	54.70	---	-3.84	50.86	---	74.00	54.00	-3.14	Peak
5575.00	V	57.91	46.03	1.67	59.58	47.70	74.00	54.00	-6.30	AVG
N/A										
1500.00	H	58.68	---	-7.03	51.65	---	74.00	54.00	-2.35	Peak
1836.67	H	54.93	---	-3.81	51.12	---	74.00	54.00	-2.88	Peak
5058.33	H	57.04	45.46	1.06	58.10	46.52	74.00	54.00	-7.48	AVG
5575.00	H	57.23	47.74	1.67	58.90	49.41	74.00	54.00	-4.59	AVG
N/A										

Remark:

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



7.8 POWERLINE CONDUCTED EMISSIONS

LIMIT

According to §15.207(a), except as shown in paragraphs (b) and (c) of this section, for an intentional radiator that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits in the following table, as measured using a 50 μ H/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 (dB μ V)	
	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:** January 6, 2009
Temperature: 20°C **Tested by:** Harry Wang
Humidity: 58% RH

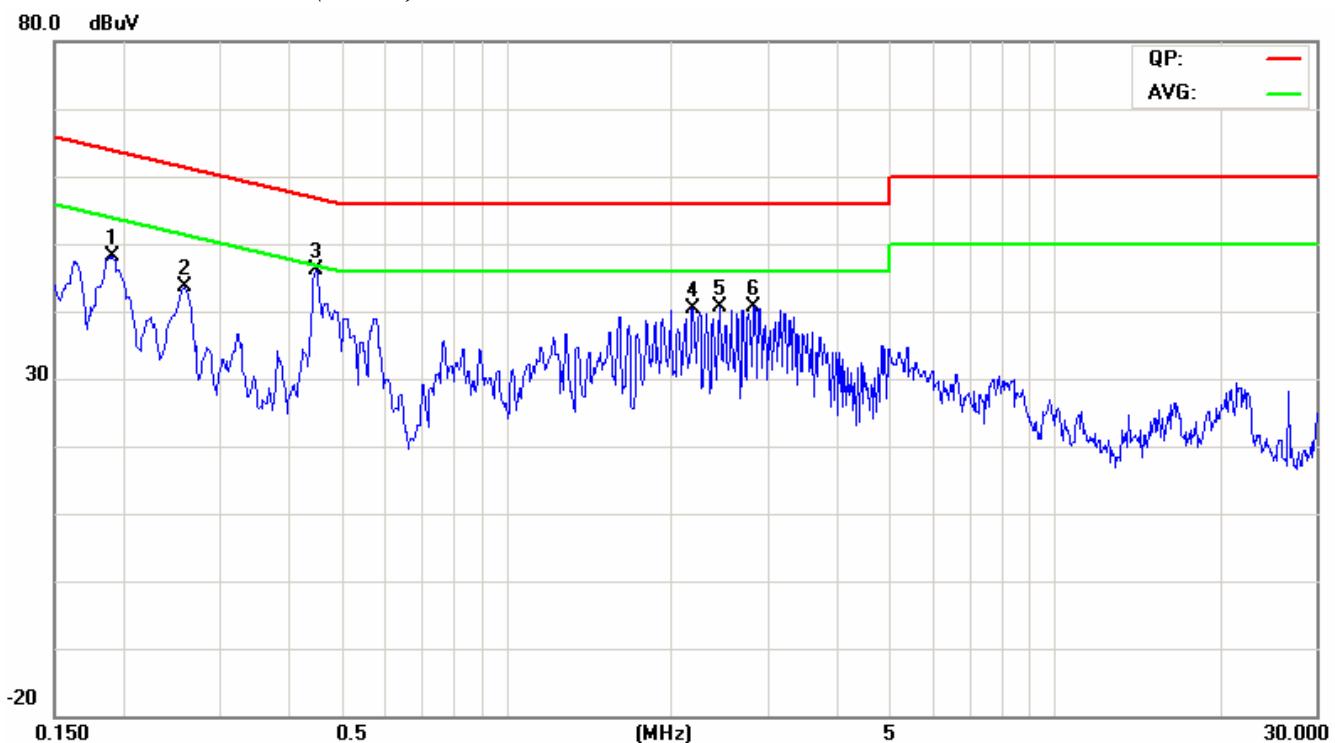
Freq. (MHz)	QP Reading (dBuV)	AV Reading (dBuV)	Corr. factor (dB/m)	QP Result (dBuV/m)	AV Result (dBuV/m)	QP Limit (dBuV)	AV Limit (dBuV)	QP Margin (dB)	AV Margin (dB)	Note
0.1908	34.75	32.80	9.61	44.36	42.41	64.00	54.00	-19.64	-11.59	L1
0.2588	29.93	28.16	9.60	39.53	37.76	61.47	51.47	-21.94	-13.71	L1
0.4492	35.22	30.93	9.56	44.78	40.49	56.89	46.89	-12.11	-6.40	L1
2.1812	27.35	25.68	9.70	37.05	35.38	56.00	46.00	-18.95	-10.62	L1
2.4379	29.00	25.64	9.70	38.70	35.34	56.00	46.00	-17.30	-10.66	L1
2.8223	29.07	25.32	9.70	38.77	35.02	56.00	46.00	-17.23	-10.98	L1
0.1878	29.18	23.23	9.61	38.79	32.84	64.13	54.13	-25.34	-21.29	L2
0.4493	33.89	29.90	9.56	43.45	39.46	56.89	46.89	-13.44	-7.43	L2
1.2183	30.69	28.47	9.62	40.31	38.09	56.00	46.00	-15.69	-7.91	L2
1.5412	28.92	27.25	9.65	38.57	36.90	56.00	46.00	-17.43	-9.10	L2
1.8600	28.69	27.75	9.69	38.38	37.44	56.00	46.00	-17.62	-8.56	L2
2.4987	29.35	25.37	9.70	39.05	35.07	56.00	46.00	-16.95	-10.93	L2

Remark:

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

Test Plots

Conducted emissions (Line 1)



Conducted emissions (Line 2)

