



## FCC 47 CFR PART 15 SUBPART C

### TEST REPORT

For

### Wireless-N Touchscreen Controller

**Model:**

**DMRW1000xxx, 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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## 1. TEST RESULT CERTIFICATION

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

**Equipment Under Test:** Wireless-N Touchscreen Controller

**Trade Name:** LINKSYS by Cisco

**Model:** DMRW1000xxx, where x can be 0-9, A-Z, hyphen or blank

**Date of Test:** July 24 ~ October 29, 2008

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

### We hereby certify that:

The above equipment was tested by Compliance Certification Services Inc. The test data, data evaluation, test procedures, and equipment configurations shown in this report were made in accordance with the procedures given in ANSI C63.4: 2003 and the energy emitted by the sample EUT tested as described in this report is in compliance with the requirements of FCC Rules Part 15.207, 15.209, 15.247.

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

*Approved by:*

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Rex Lai  
Section Manager  
Compliance Certification Services Inc.

*Reviewed by:*

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Amanda Wu  
Section Manager  
Compliance Certification Services Inc.



## 2. EUT DESCRIPTION

<b>Product</b>	Wireless-N Touchscreen Controller
<b>Trade Name</b>	LINKSYS by Cisco
<b>Model Number</b>	DMRW1000xxx, where x can be 0-9, A-Z, hyphen or blank
<b>Model Discrepancy</b>	The means of all x (x= 0-9, A-Z, hyphen or blank) on model number is just for marketing purpose only.
<b>Power Adapter</b>	1. GARMIN / PSAA05A-050 I/P: 100-240V~200mA, 50-60Hz, 13-20VA; O/P: 5VDC, 1A 2. MUSTEK / MT-A005-00101 I/P: 100-240V~250mA, 50-60Hz; O/P: 5VDC, 1A 3. ENG / 3A-055WU05 I/P: 100-240V~, 50-60Hz, 0.3A O/P: 5V, 1A
<b>Frequency Range</b>	IEEE 802.11a/ draft 802.11n Standard-20 MHz: 5.725~5.850 GHz IEEE 802.11b/g/ draft 802.11n Standard-20 MHz: 2.412~2.462 GHz draft 802.11n Wide-40 MHz: 2.422~2.452 GHz
<b>Transmit Power</b>	IEEE 802.11a mode: 14.03 dBm draft 802.11n Standard-20 MHz Channel mode: 17.71 dBm draft 802.11n Wide-40 MHz Channel mode: 17.45 dBm IEEE 802.11b mode: 17.70 dBm IEEE 802.11g mode: 16.98 dBm draft 802.11n Standard-20 MHz Channel mode: 18.06 dBm draft 802.11n Wide-40 MHz Channel mode: 17.97 dBm
<b>Modulation Technique &amp; Transmit Data Rate</b>	IEEE 802.11a: OFDM (54, 48, 36, 24, 18, 12, 9, 6 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) IEEE 802.11b mode: DSSS (1, 2, 5.5 and 11 Mpbs) IEEE 802.11g mode: OFDM (6, 9, 12, 18, 24, 36, 48 and 54 Mpbs) draft 802.11n 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)
<b>Number of Channels</b>	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
<b>Enclosure Material Type</b>	Plastic
<b>Antenna Specification</b>	Antenna Type: PIFA Antenna Antenna Gain: IEEE 802.11a: 5.94 dBi IEEE 802.11b/g mode: 3.04 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-DMRW1000** filing to comply with Section 15.207, 15.209 and 15.247 of the FCC Part 15, Subpart C Rules.



### **3. TEST METHODOLOGY**

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

#### **3.1 EUT CONFIGURATION**

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

#### **3.2 EUT EXERCISE**

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

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

#### **3.3 GENERAL TEST PROCEDURES**

##### **Conducted Emissions**

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

##### **Radiated Emissions**

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



### 3.4 FCC PART 15.205 RESTRICTED BANDS OF OPERATIONS

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

MHz	MHz	MHz	GHz
0.090 - 0.110	16.42 - 16.423	399.9 - 410	4.5 - 5.15
<sup>1</sup> 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 - 156.52525	2483.5 - 2500	17.7 - 21.4
8.37625 - 8.38675	156.7 - 156.9	2655 - 2900	22.01 - 23.12
8.41425 - 8.41475	162.0125 - 167.17	3260 - 3267	23.6 - 24.0
12.29 - 12.293	167.72 - 173.2	3332 - 3339	31.2 - 31.8
12.51975 - 12.52025	240 - 285	3345.8 - 3358	36.43 - 36.5
12.57675 - 12.57725	322 - 335.4	3600 - 4400	( <sup>2</sup> )
13.36 - 13.41			

<sup>1</sup> Until February 1, 1999, this restricted band shall be 0.490-0.510 MHz.

<sup>2</sup> 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: DMRW1000) comes with three types of power adapter (PSAA05A-050& MT-A005-00101 & 3A-055WU05) for sale. After the preliminary test, the EUT with power adapter (Model: 3A-055WU05) was found to emit the worst emissions and therefore had been tested under operating condition.

The EUT is a 2x2 configuration spatial MIMO (2Tx & 2Rx) without beam forming function that operate in dual TX chains and dual RX chains. The 2x2 configuration is implemented with two outside TX & RX chains (Chain 1 and Chain 0).

Software used to control the EUT for staying in continuous transmitting mode was programmed. The worst case data rate is determined as the data rate with highest output power.

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

**IEEE 802.11b mode:**

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

**IEEE 802.11g mode:**

Channel Low (2412MHz), Channel Mid (2437MHz) and Channel High (2462MHz) with 6Mbps data rate 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.

**IEEE 802.11a mode:**

Channel Low (5745MHz), Channel Mid (5785MHz) and Channel High (5825MHz) with 6Mbps data rate and cyclic delay diversity 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.



## 4. INSTRUMENT CALIBRATION

### 4.1 MEASURING INSTRUMENT CALIBRATION

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

### 4.2 MEASUREMENT EQUIPMENT USED

#### Equipment Used for Emissions Measurement

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

Conducted Emissions Test Site				
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
Spectrum Analyzer	Agilent	E4446A	MY43360131	01/24/2009

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	11/30/2008
Switch Controller	TRC	Switch Controller	SC94050010	05/03/2009
4 Port Switch	TRC	4 Port Switch	SC94050020	05/03/2009
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	03/28/2009
Turn Table	Max-Full	MFT-120S	T120S940302	N.C.R.
Antenna Tower	Max-Full	MFA-430	A440940302	N.C.R.
Controller	Max-Full	MF-CM886	CC-C-1F-13	N.C.R.
Site NSA	CCS	N/A	FCC: 965860 IC: IC 6106	09/25/2009
Test S/W	LABVIEW (V 6.1)			

*Remark: The measurement uncertainty is less than +/- 3.7046dB (30MHz ~ 1GHz), +/- 3.0958dB (Above 1GHz) which is evaluated as per the NAMAS NIS 81 and CISPR/A/291/CDV.*

Powerline Conducted Emissions Test Site				
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
EMI Test Receiver 9kHz-30MHz	Rohde & Schwarz	ESHS30	828144/003	11/19/2008
TWO-Line V-Network 9kHz-30MHz	Schaffner	NNB41	03/10013	06/11/2009
LISN 10kHz-100MHz	EMCO	3825/2	9106-1809	04/09/2009
Test S/W	LABVIEW (V 6.1)			

*Remark: The measurement uncertainty is less than +/- 2.81dB, which is evaluated as per the NAMAS NIS 81 and CISPR/A/291/CDV.*



## **5. FACILITIES AND ACCREDITATIONS**

### **5.1 FACILITIES**

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

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

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

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

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

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

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

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

### **5.2 EQUIPMENT**

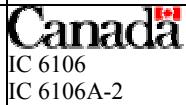
Radiated emissions are measured with one or more of the following types of linearly polarized antennas: tuned dipole, biconical, log periodic, bi-log, and/or ridged waveguide, horn. Spectrum analyzers with pre-selectors and quasi-peak detectors are used to perform radiated measurements.

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

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

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

### 5.3 TABLE OF ACCREDITATIONS AND LISTINGS

Country	Agency	Scope of Accreditation	Logo
USA	A2LA	EN 55011, EN 55014-1/2, CISPR 11, CISPR 14-1/2, EN 55022, EN 55015, CISPR 22, CISPR 15, AS/NZS 3548, VCCI V3 (2001), CFR 47, FCC Part 15/18, CNS 13783-1, CNS 13439, CNS 13438, CNS 13803, CNS 14115, EN 55024, IEC 801-2, IEC 801-3, IEC 801-4, IEC/EN 61000-3-2, IEC/EN 61000-3-3, IEC/EN 61000-4-2/3/4/5/6/8/11, EN 50081-1/ EN 61000-6-3, EN 50081-2/EN 61000-6-4, EN 50081-2/EN 61000-6-1: 2001	 ACCREDITED TESTING CERT #0824.01
USA	FCC	3M Semi Anechoic Chamber (965860 and 898658) to perform FCC Part 15/18 measurements	 965860, 898658
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 6106 & IC 6106A-2) to perform RSS 212 Issue 1	 IC 6106 IC 6106A-2

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



## 6. SETUP OF EQUIPMENT UNDER TEST

### 6.1 SETUP CONFIGURATION OF EUT

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

### 6.2 SUPPORT EQUIPMENT

No.	Device Type	Brand	Model	Series No.	FCC ID	Data Cable	Power Cord
1.	Notebook PC	DELL	PP05L	7T390 A03	E2K5HCKT	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.*

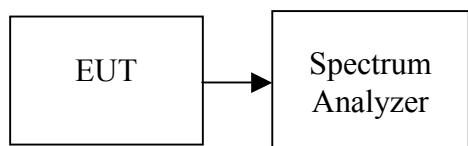
## 7. FCC PART 15.247 REQUIREMENTS

### 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 = 100kHz, VBW = RBW, Span = Base mode, 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)	6dB Bandwidth (MHz)	Limit (kHz)	Result
Low	2412	12.25	>500	PASS
Mid	2437	11.33		PASS
High	2462	11.25		PASS

**Test mode: IEEE 802.11g mode**

Channel	Frequency (MHz)	6dB Bandwidth (MHz)	Limit (kHz)	Result
Low	2412	16.50	>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)	6dB Bandwidth (MHz)	Limit (kHz)	Result
Low	2412	17.75	>500	PASS
Mid	2437	17.83		PASS
High	2462	17.75		PASS

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

Channel	Frequency (MHz)	6dB Bandwidth (MHz)	Limit (kHz)	Result
Low	2412	17.75	>500	PASS
Mid	2437	17.67		PASS
High	2462	17.75		PASS

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

Channel	Frequency (MHz)	6dB Bandwidth (MHz)	Limit (kHz)	Result
Low	2422	36.42	>500	PASS
Mid	2437	36.42		PASS
High	2452	36.33		PASS

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

Channel	Frequency (MHz)	6dB Bandwidth (MHz)	Limit (kHz)	Result
Low	2422	36.50	>500	PASS
Mid	2437	36.33		PASS
High	2452	36.50		PASS

**Test mode: IEEE 802.11a mode**

Channel	Frequency (MHz)	6dB Bandwidth (MHz)	Limit (kHz)	Result
Low	5745	16.58	>500	PASS
Mid	5785	16.58		PASS
High	5825	16.58		PASS

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

Channel	Frequency (MHz)	6dB Bandwidth (MHz)	Limit (kHz)	Result
Low	5745	17.75	>500	PASS
Mid	5785	17.65		PASS
High	5825	17.75		PASS

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

Channel	Frequency (MHz)	6dB Bandwidth (MHz)	Limit (kHz)	Result
Low	5745	17.67	>500	PASS
Mid	5785	17.58		PASS
High	5825	17.75		PASS

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

Channel	Frequency (MHz)	6dB Bandwidth (MHz)	Limit (kHz)	Result
Low	5755	36.42	>500	PASS
High	5795	36.42		PASS

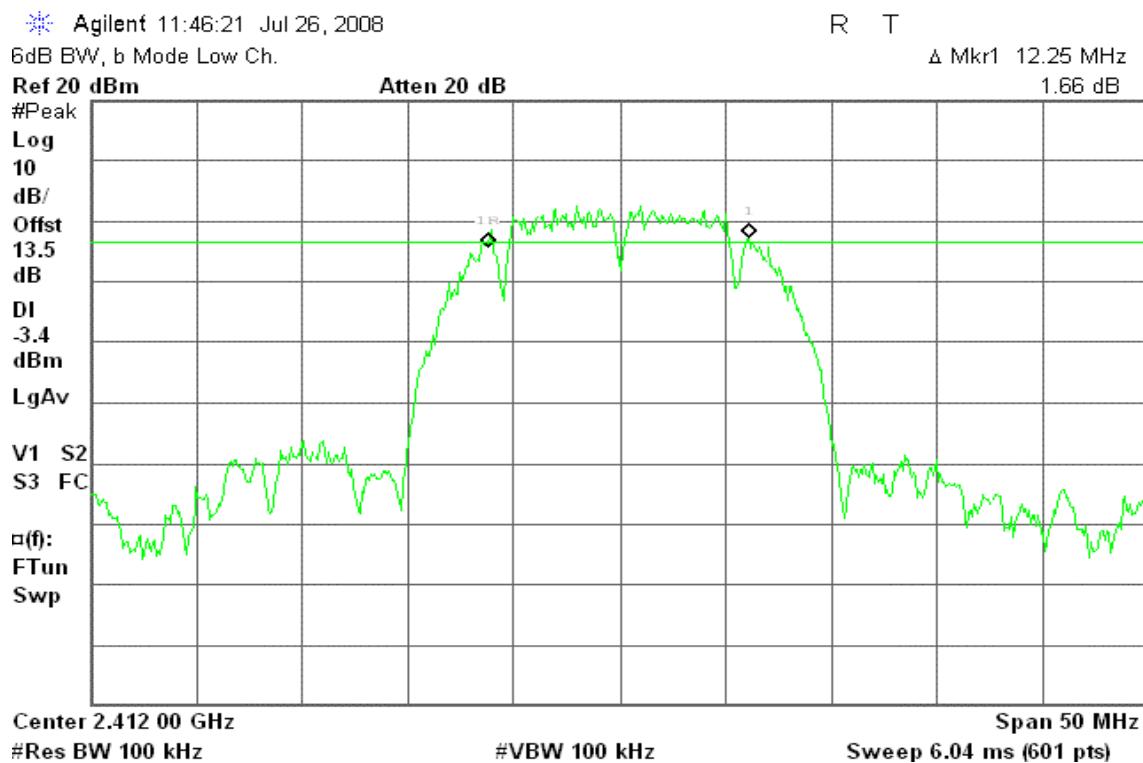
**Test mode: draft 802.11n Wide-40 MHz Channel mode / Chain 1**

Channel	Frequency (MHz)	6dB Bandwidth (MHz)	Limit (kHz)	Result
Low	5755	36.00	>500	PASS
High	5795	35.33		PASS

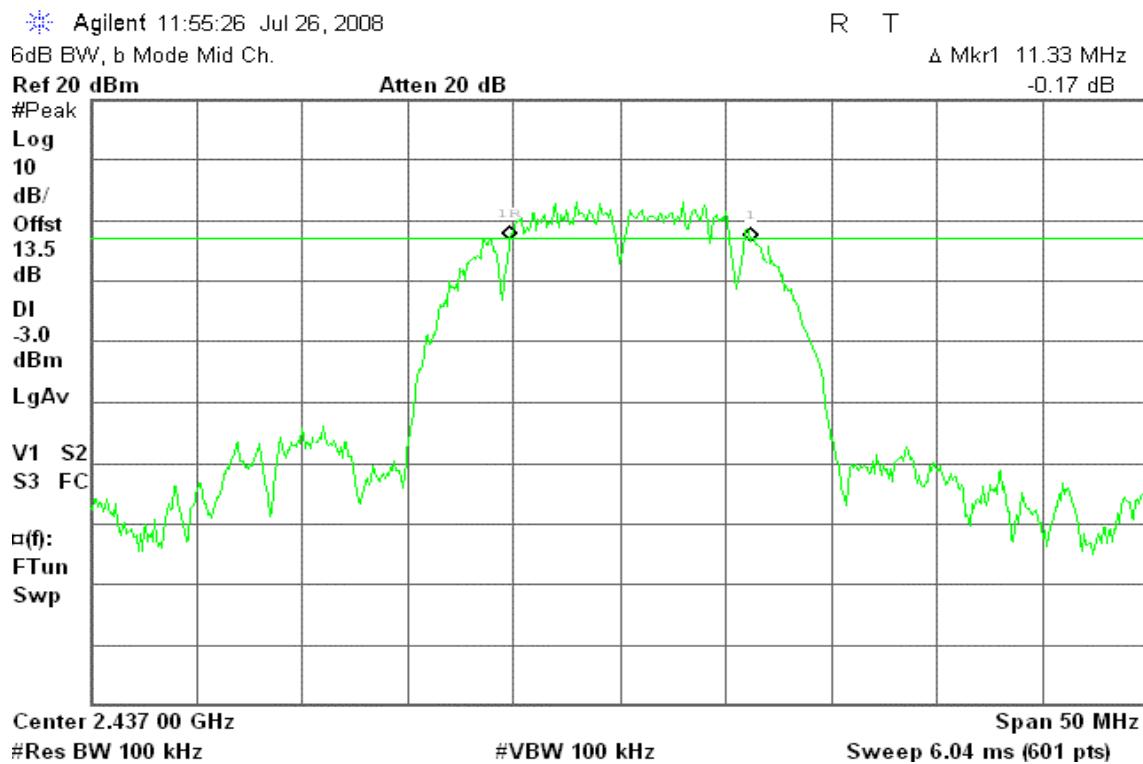
## Test Plot

IEEE 802.11b mode

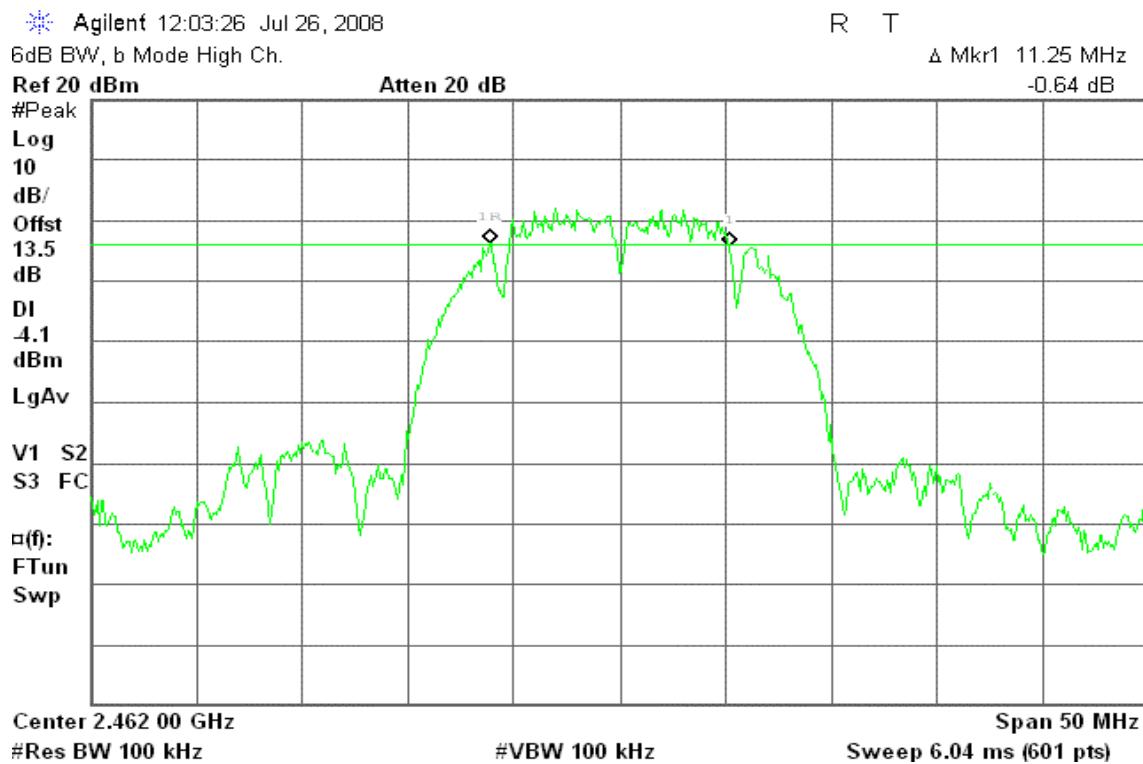
### 6dB Bandwidth (CH Low)



### 6dB Bandwidth (CH Mid)

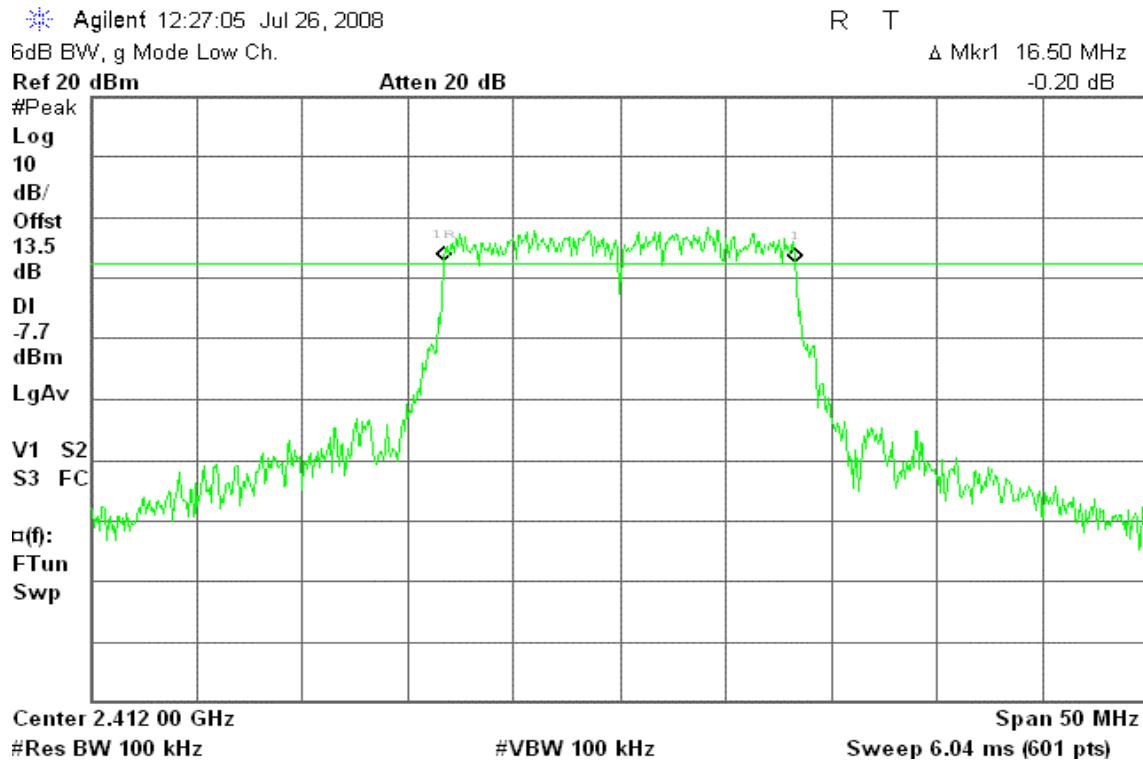


### 6dB Bandwidth (CH High)

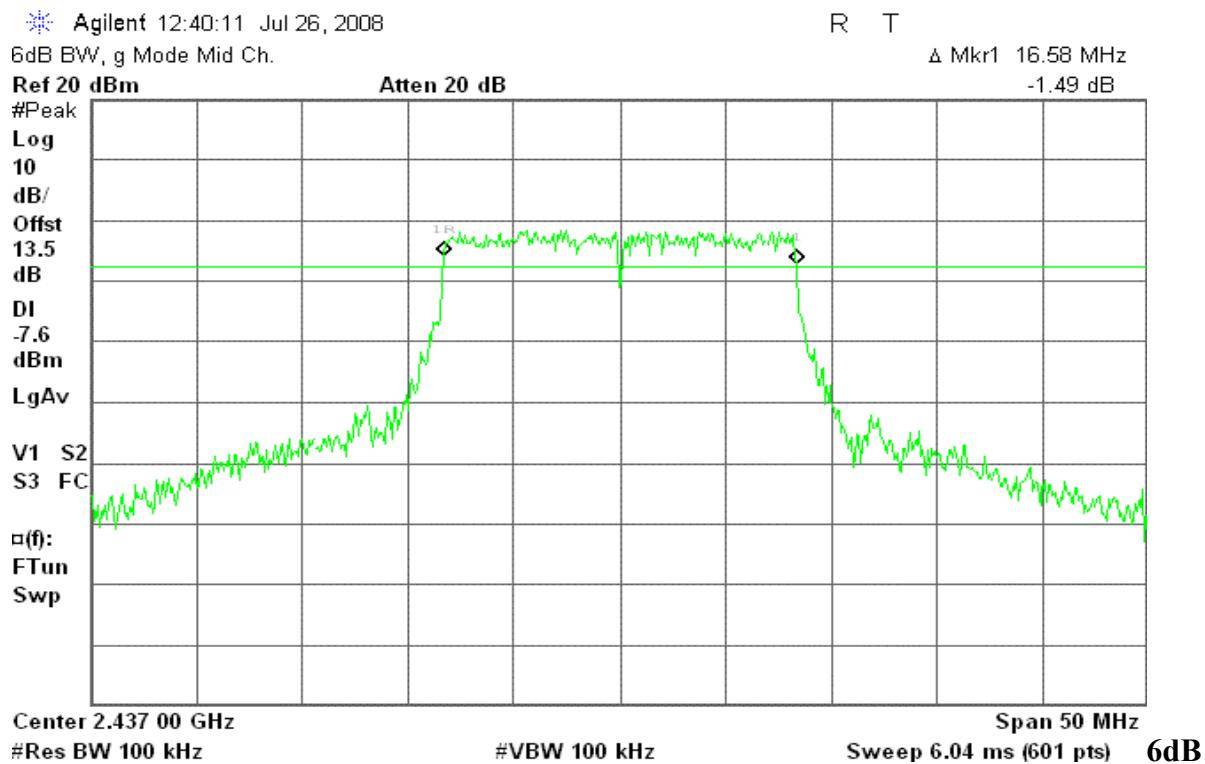


### IEEE 802.11g mode

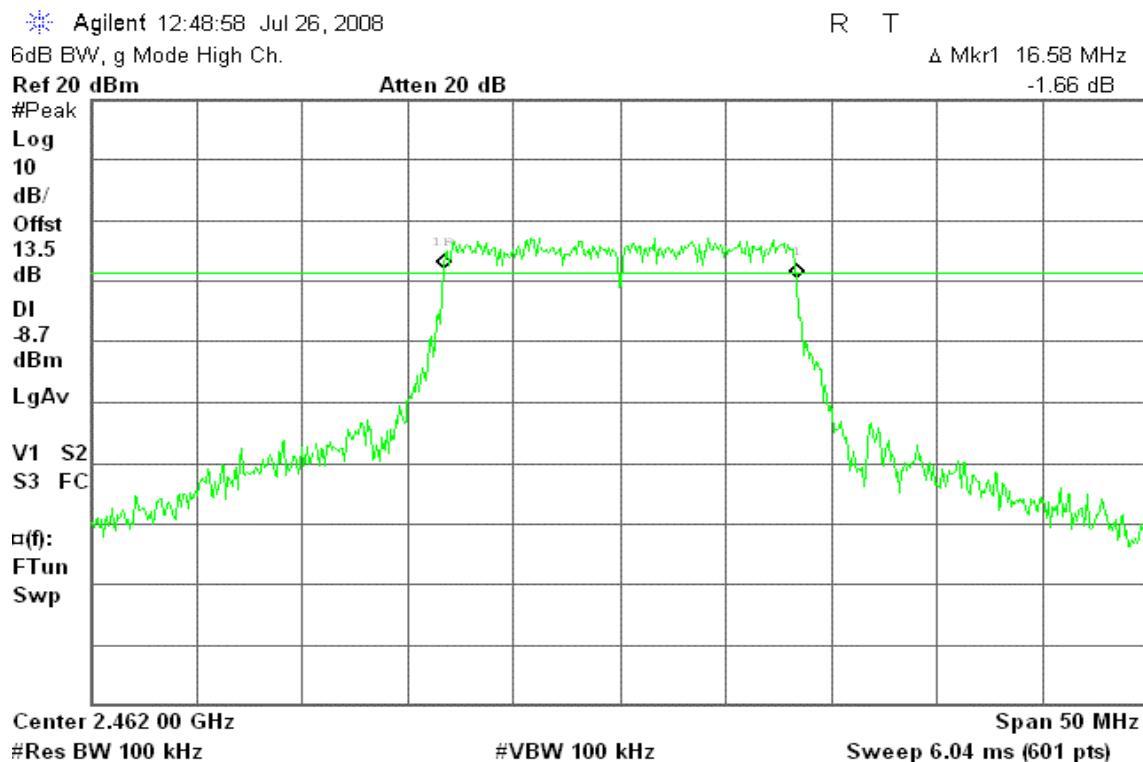
### 6dB Bandwidth (CH Low)

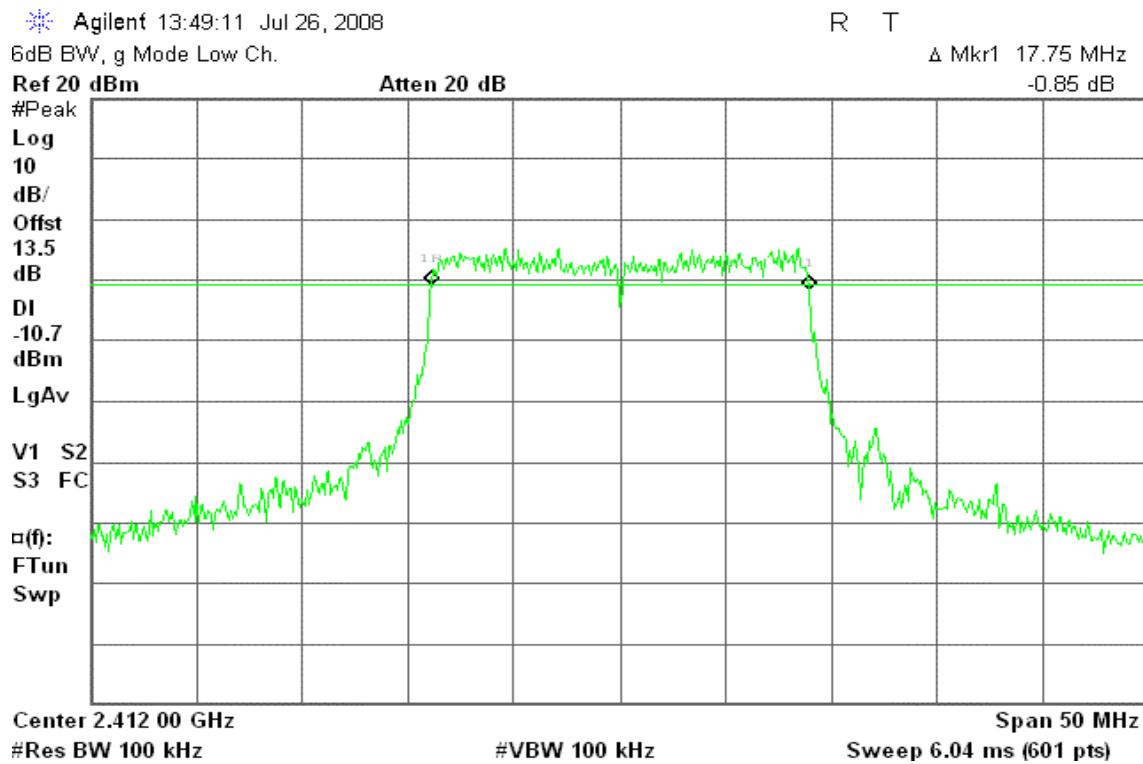
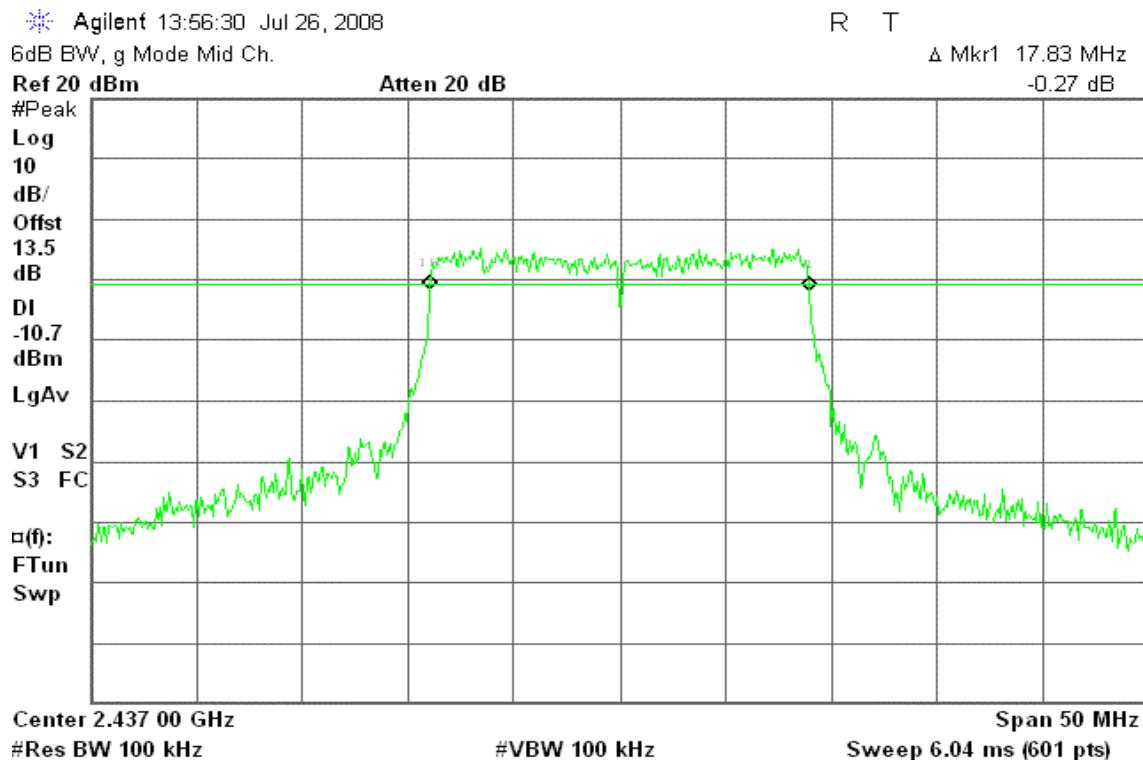


### 6dB Bandwidth (CH Mid)

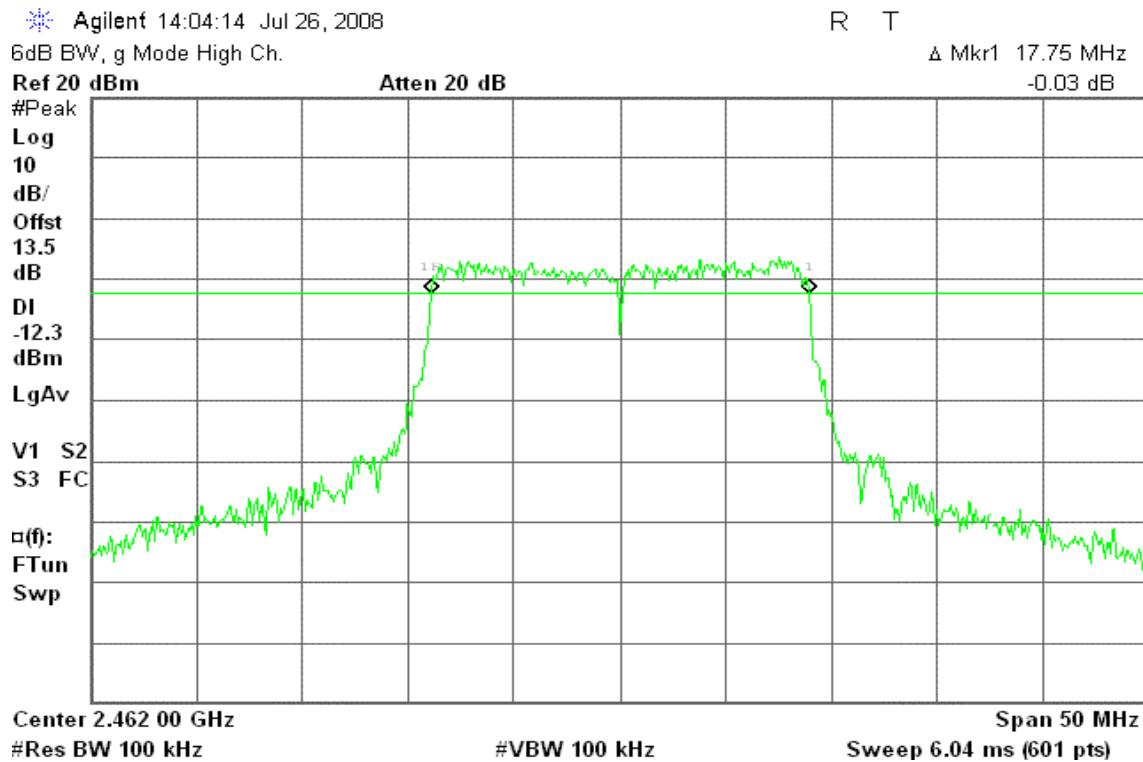


### 6dB Bandwidth (CH High)



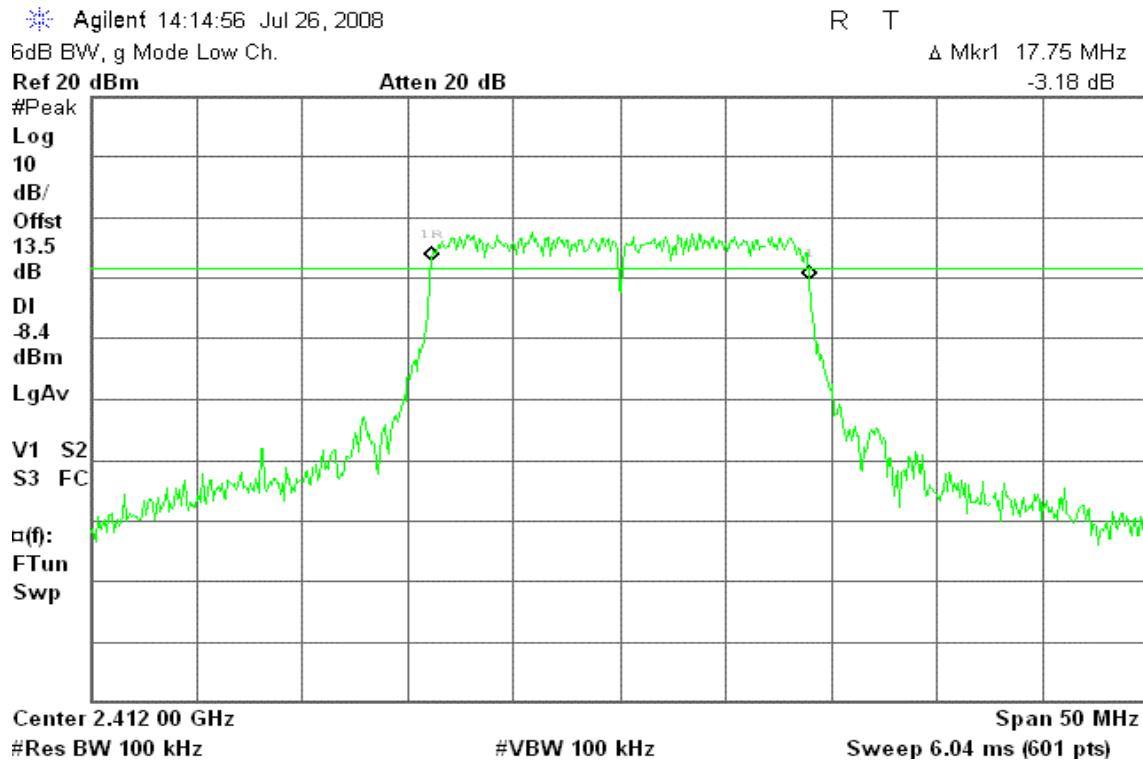
**draft 802.11n Standard-20 MHz Channel mode / Chain 0****6dB Bandwidth (CH Low)****6dB Bandwidth (CH Mid)**

### 6dB Bandwidth (CH High)

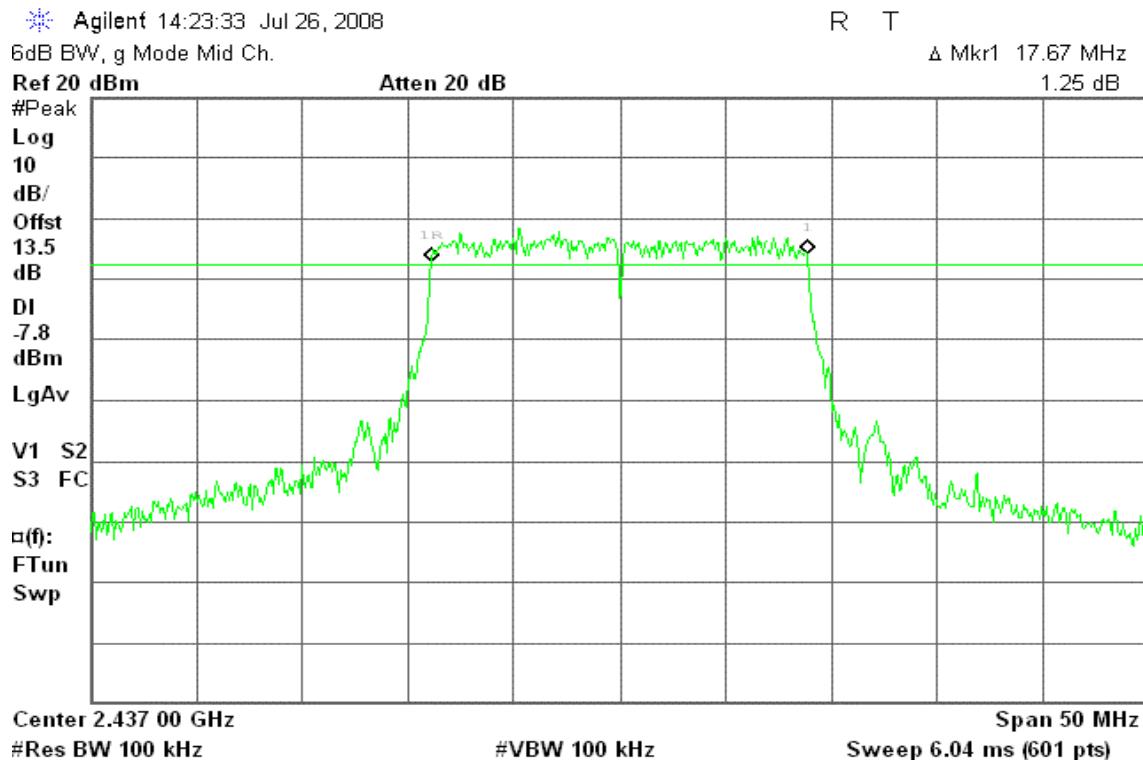


### draft 802.11n Standard-20 MHz Channel mode / Chain 1

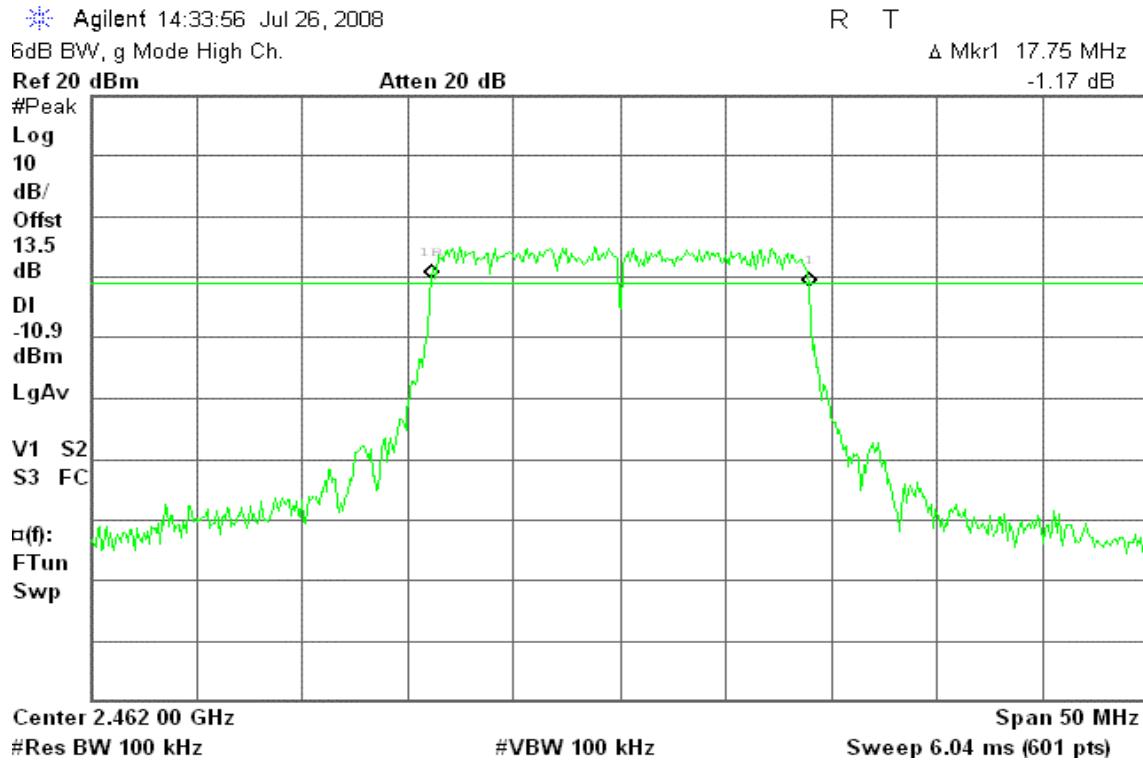
### 6dB Bandwidth (CH Low)

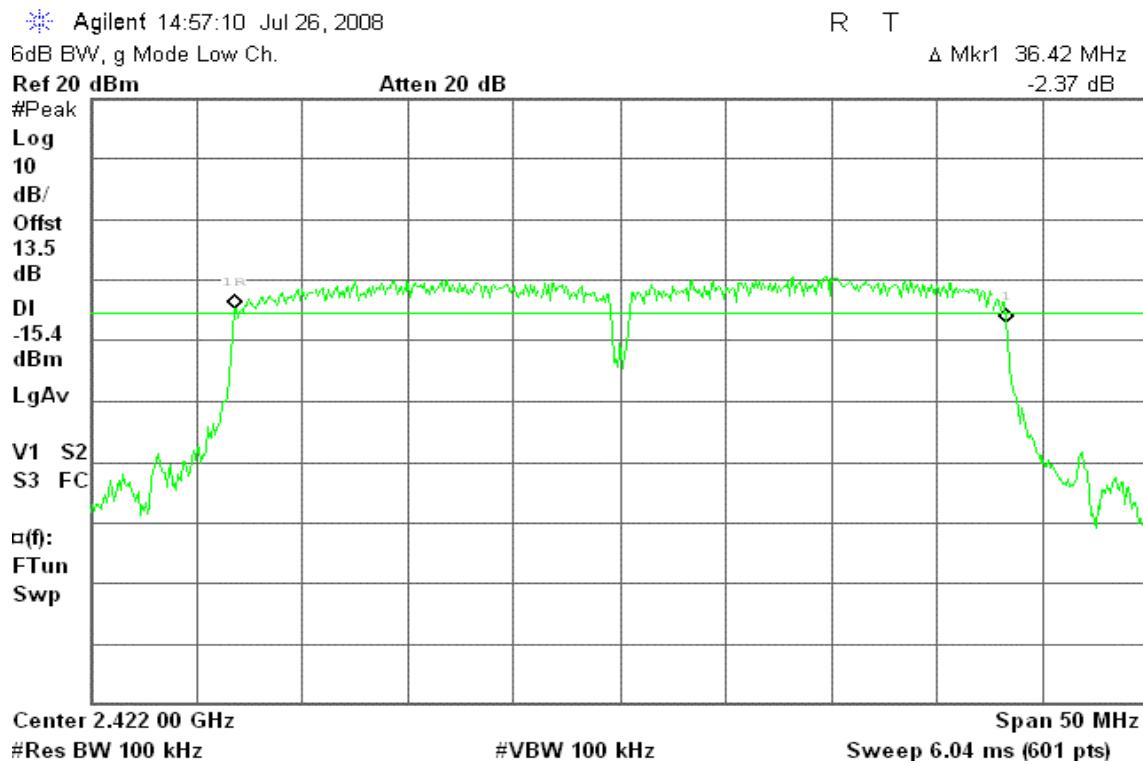
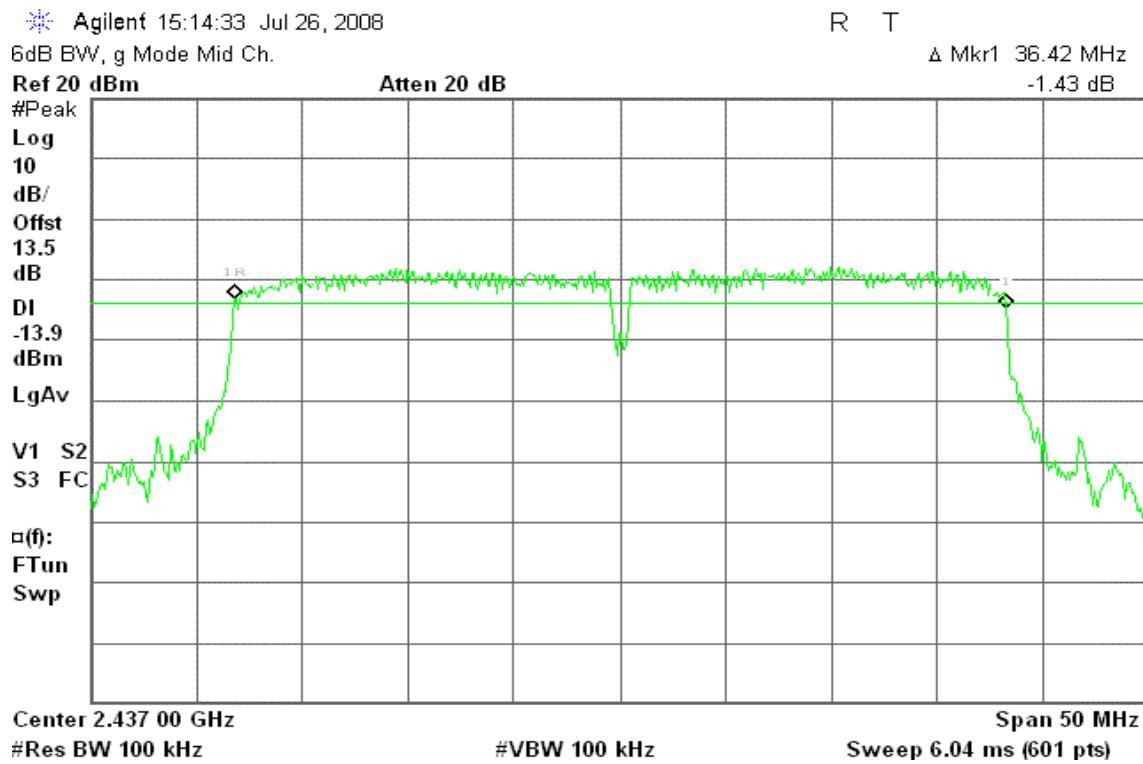


## 6dB Bandwidth (CH Mid)

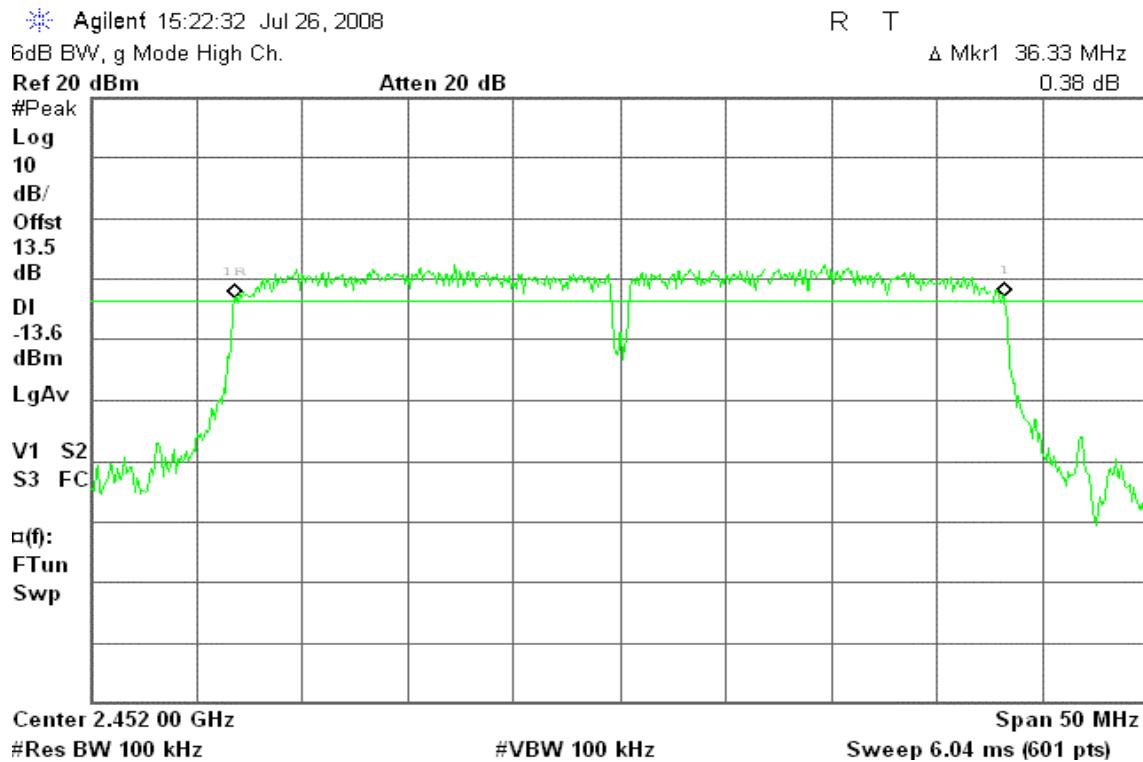


## 6dB Bandwidth (CH High)



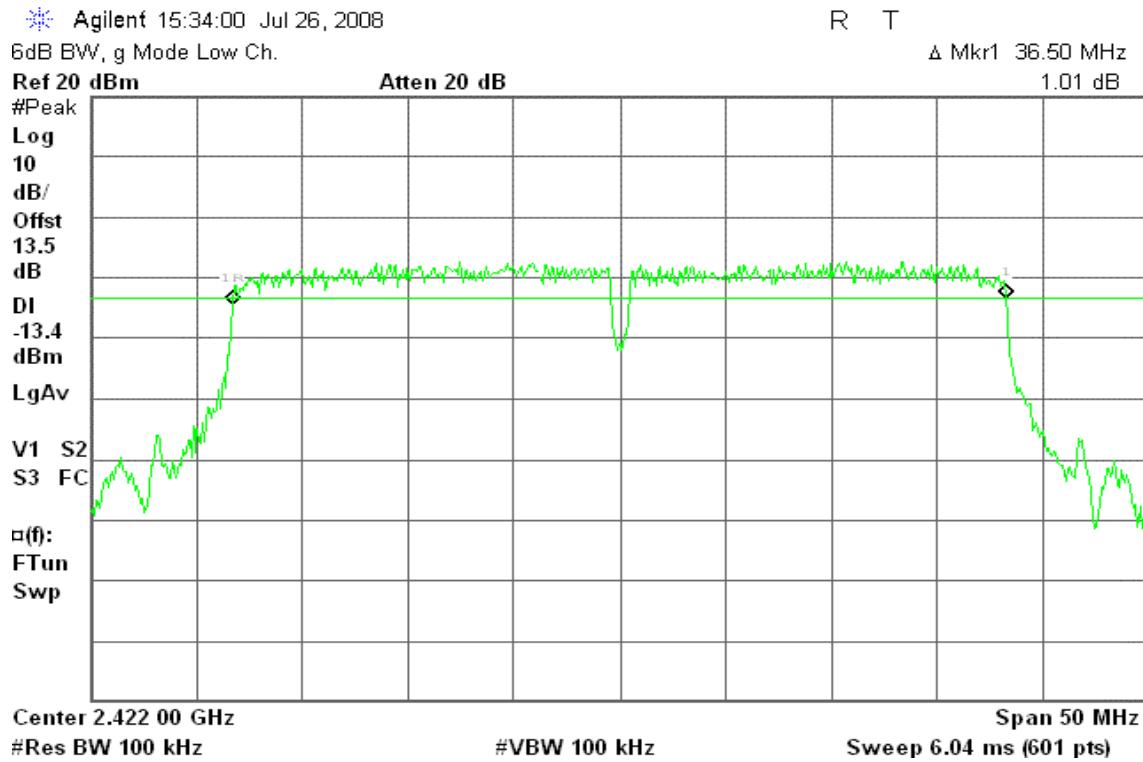
**draft 802.11n Wide-40 MHz Channel mode / Chain 0****6dB Bandwidth (CH Low)****6dB Bandwidth (CH Mid)**

### 6dB Bandwidth (CH High)

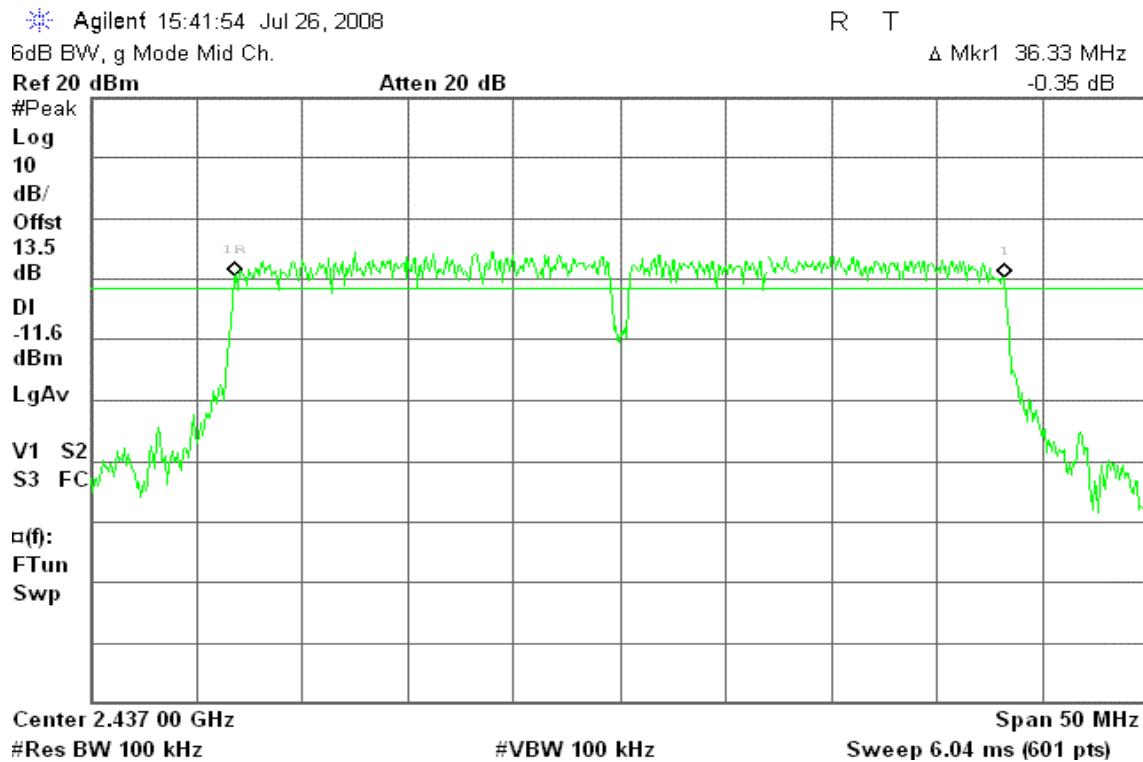


### draft 802.11n Wide-40 MHz Channel mode / Chain 1

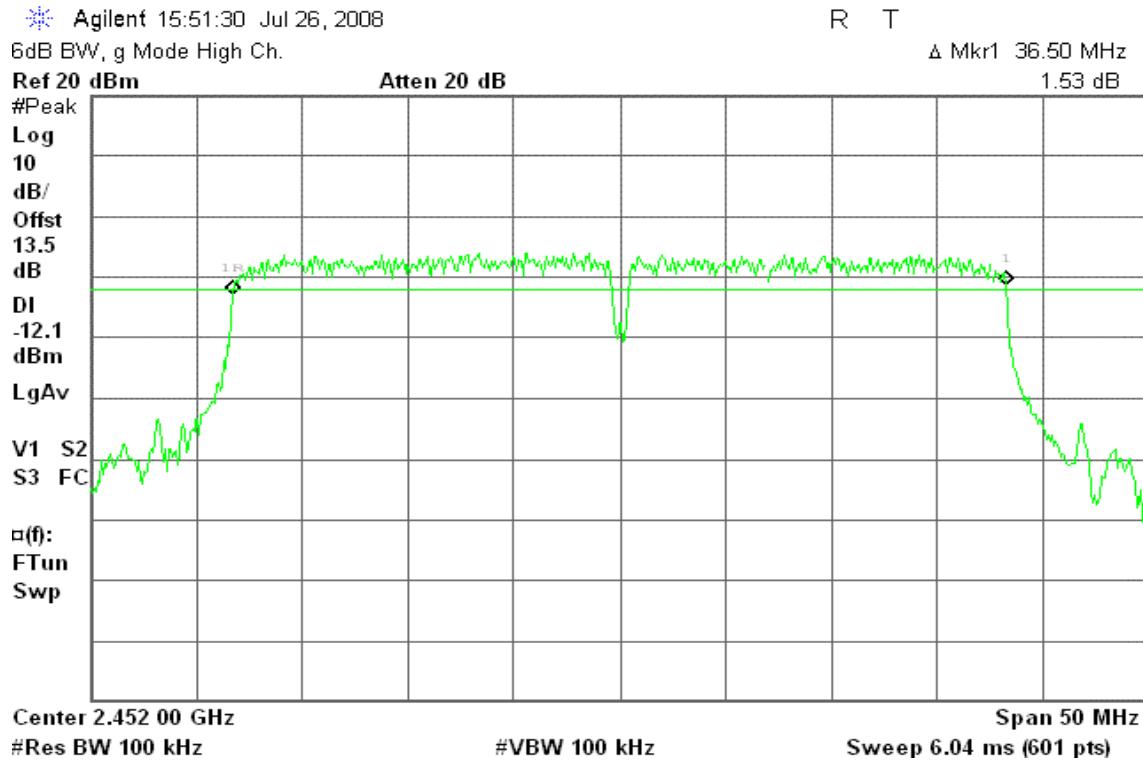
### 6dB Bandwidth (CH Low)



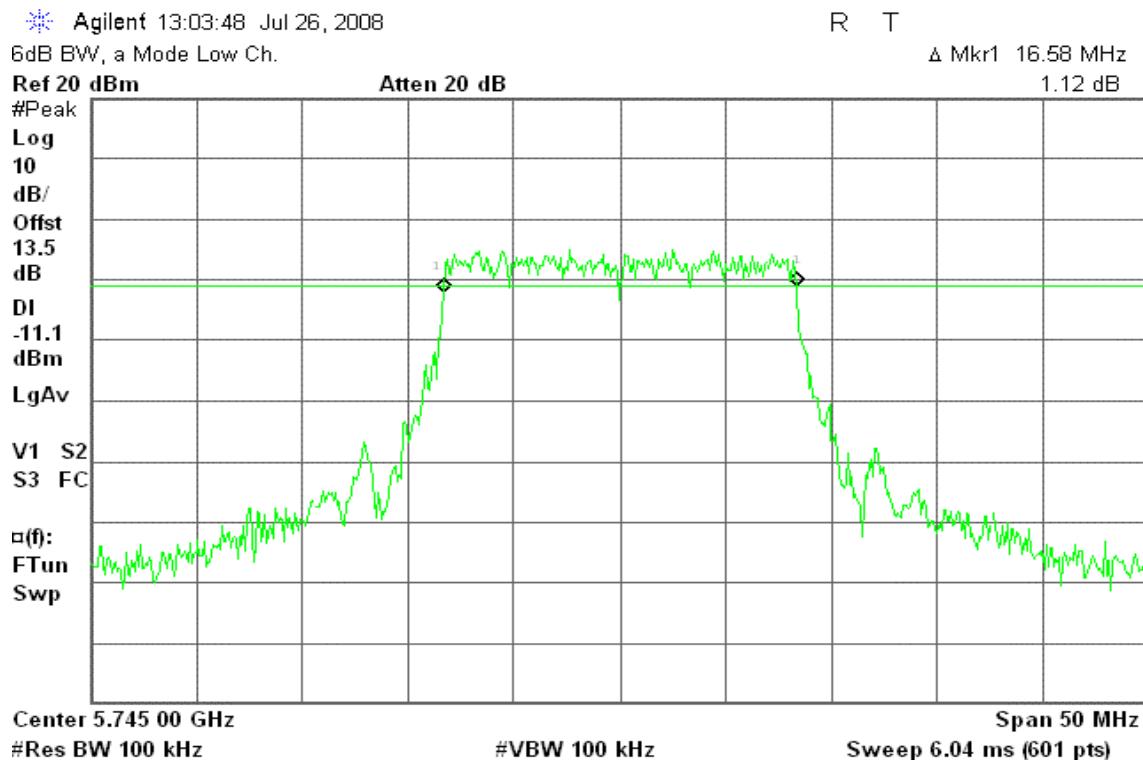
### 6dB Bandwidth (CH Mid)



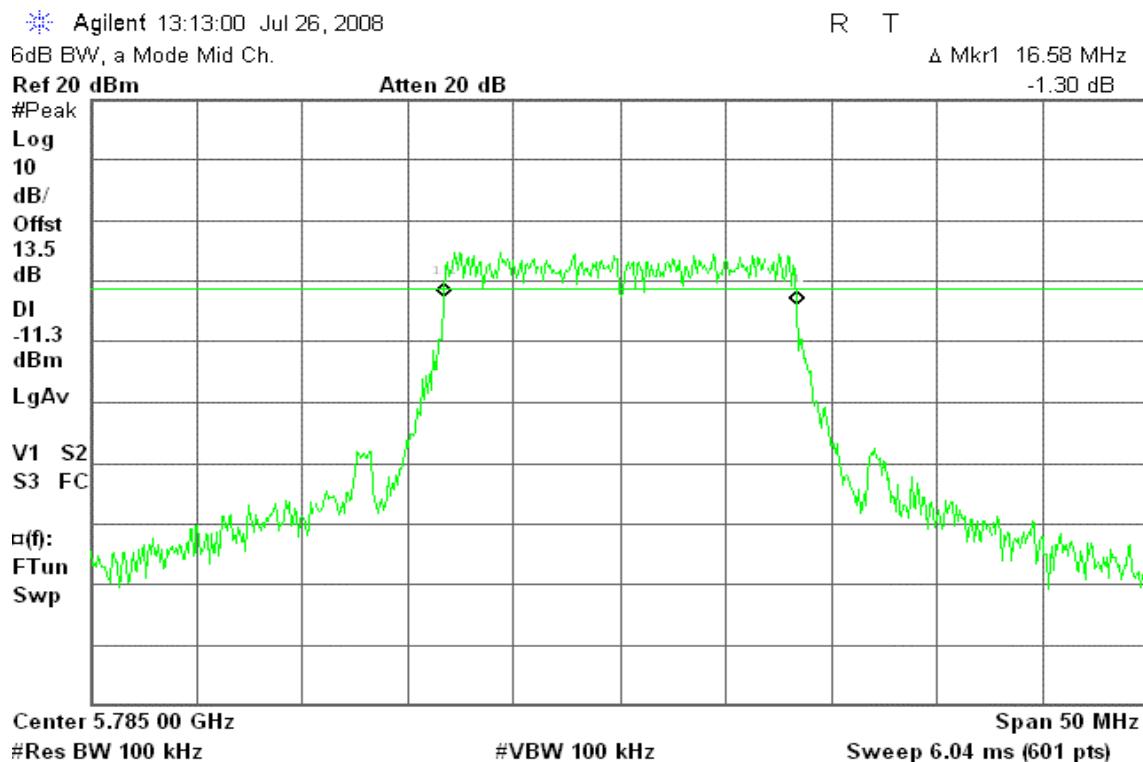
### 6dB Bandwidth (CH High)

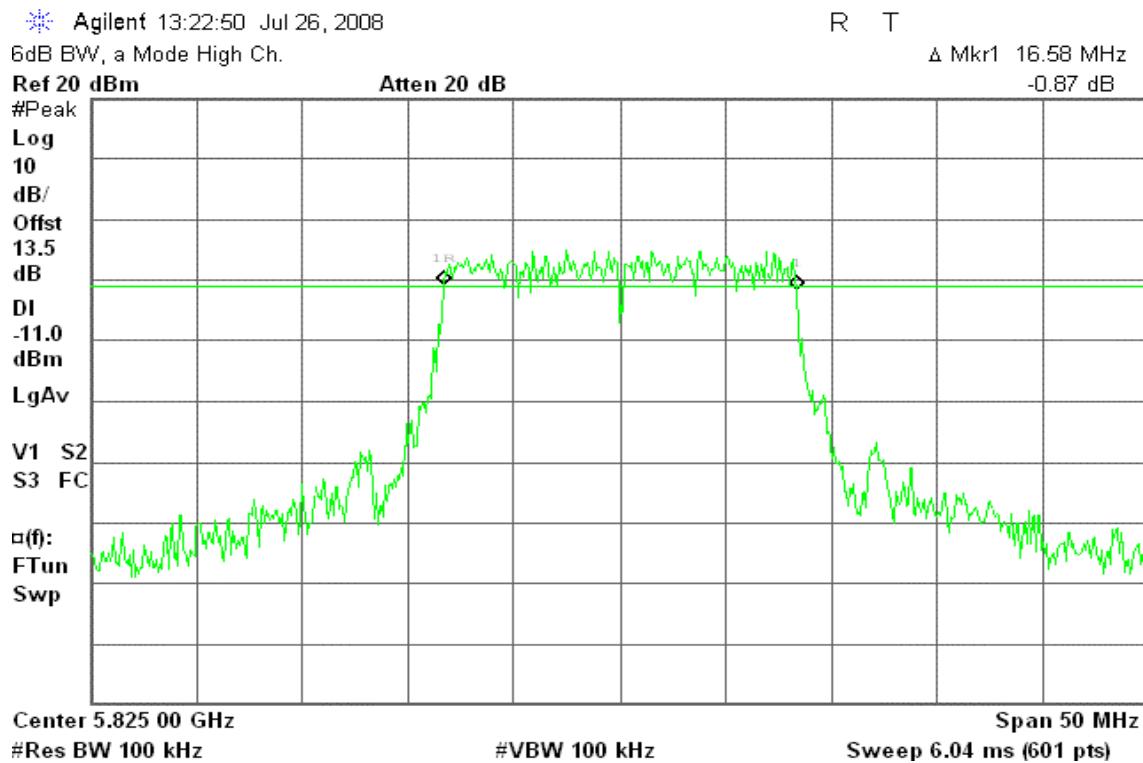
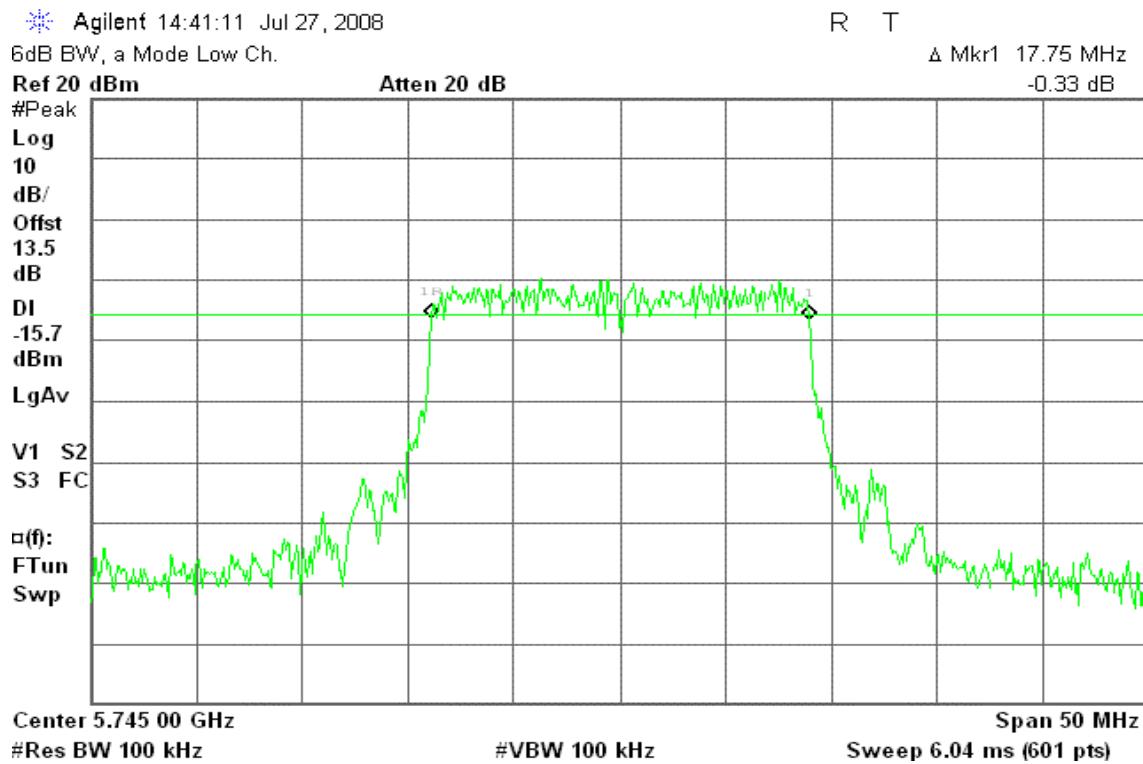


### IEEE 802.11a mode 6dB Bandwidth (CH Low)

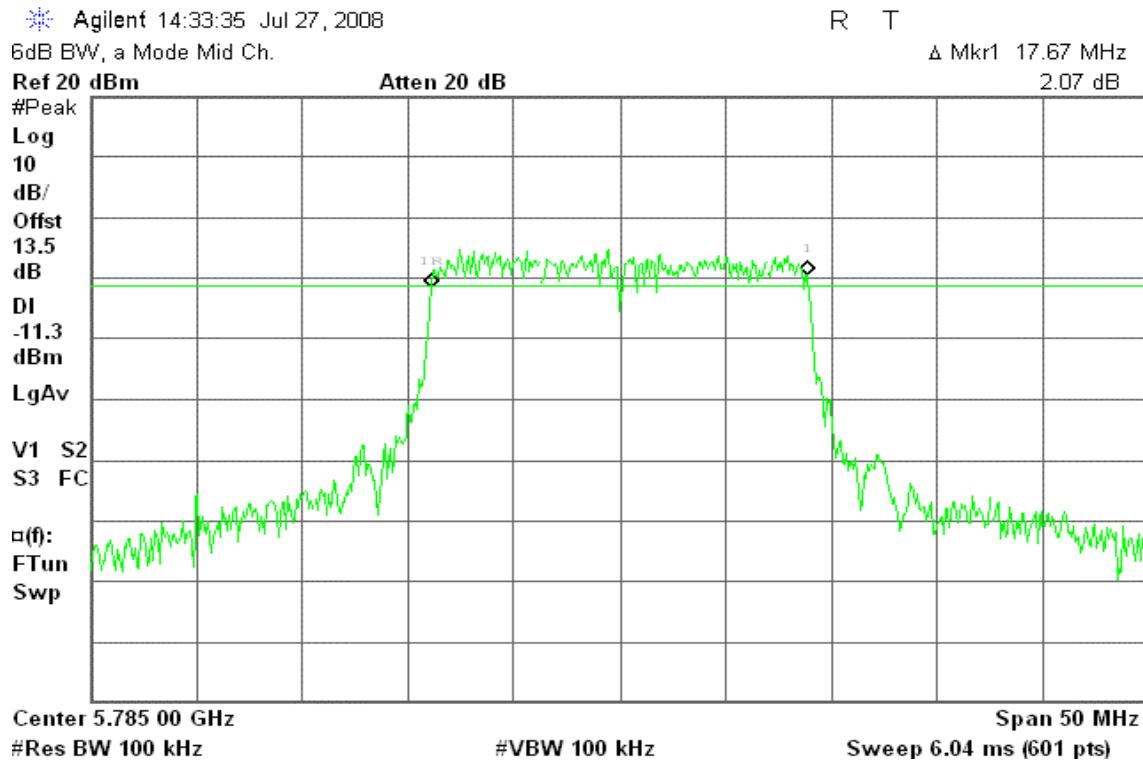


### 6dB Bandwidth (CH Mid)

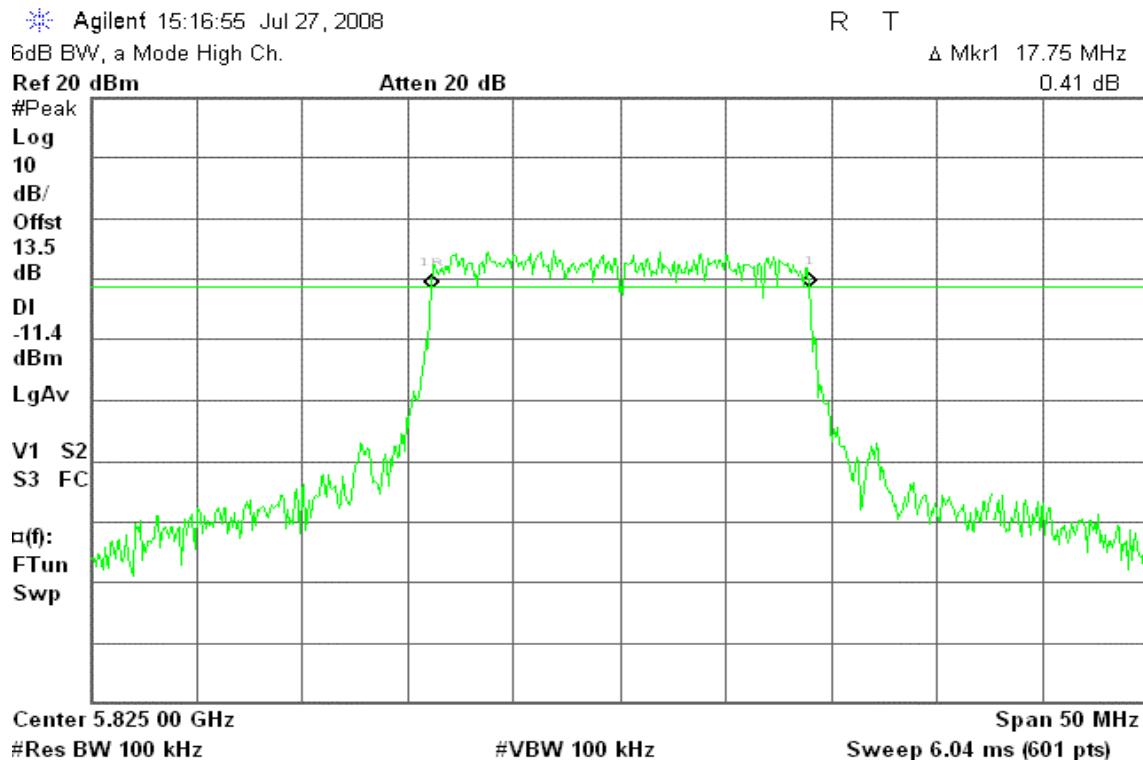


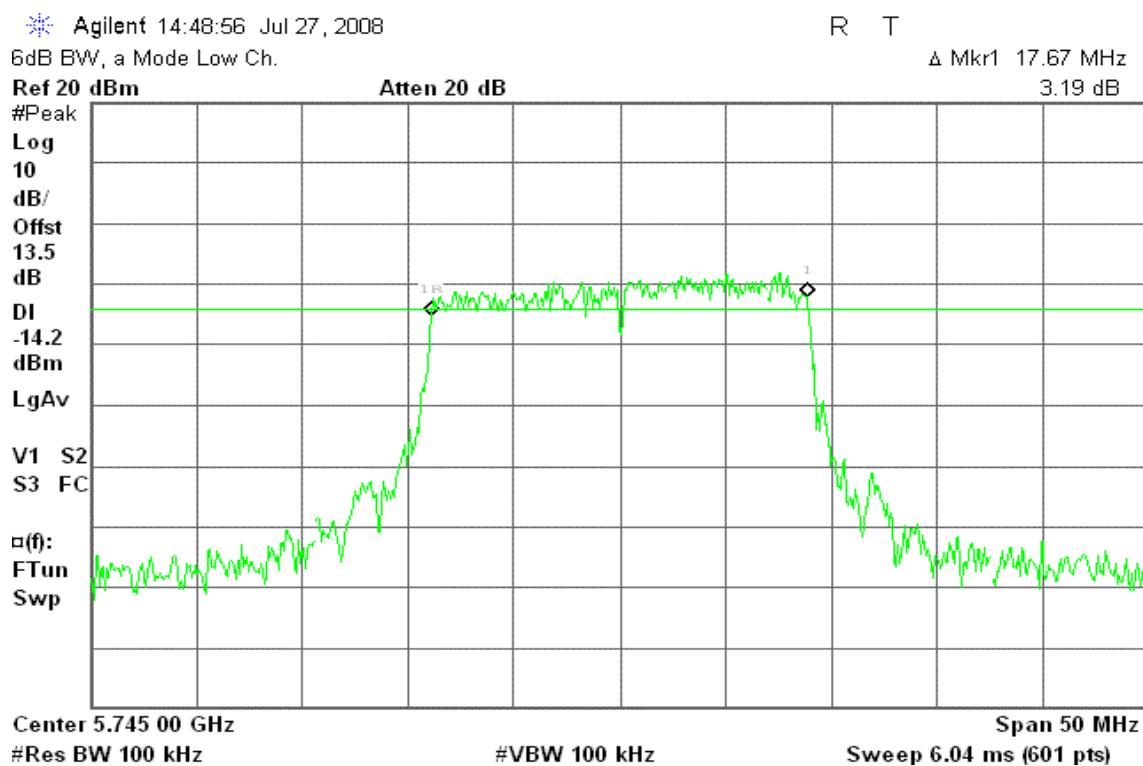
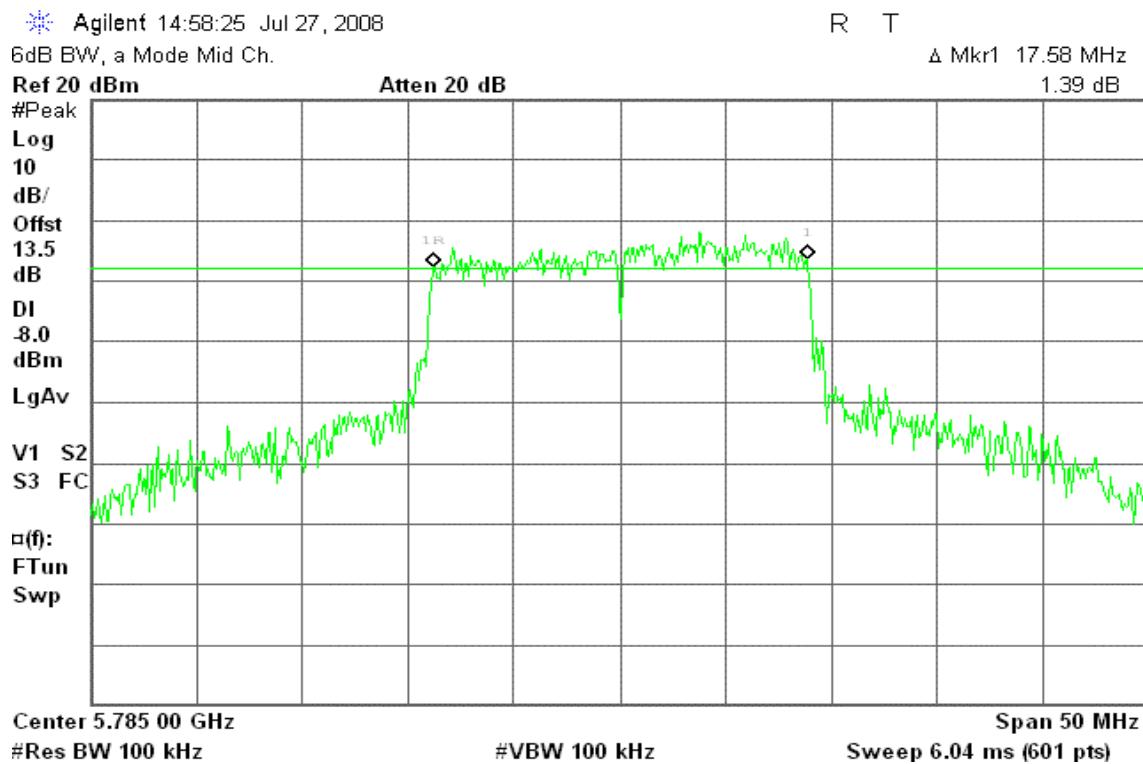
**6dB Bandwidth (CH High)****draft 802.11n Standard-20 MHz Channel mode / Chain 0****6dB Bandwidth (CH Low)**

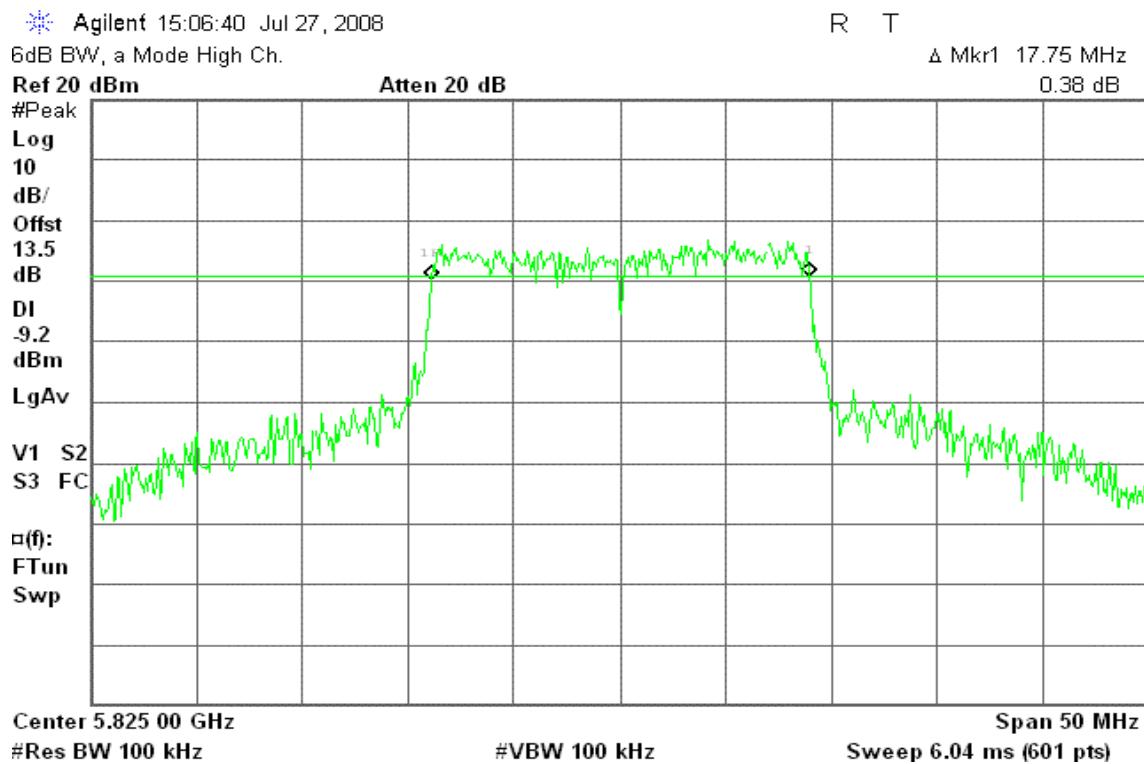
### 6dB Bandwidth (CH Mid)

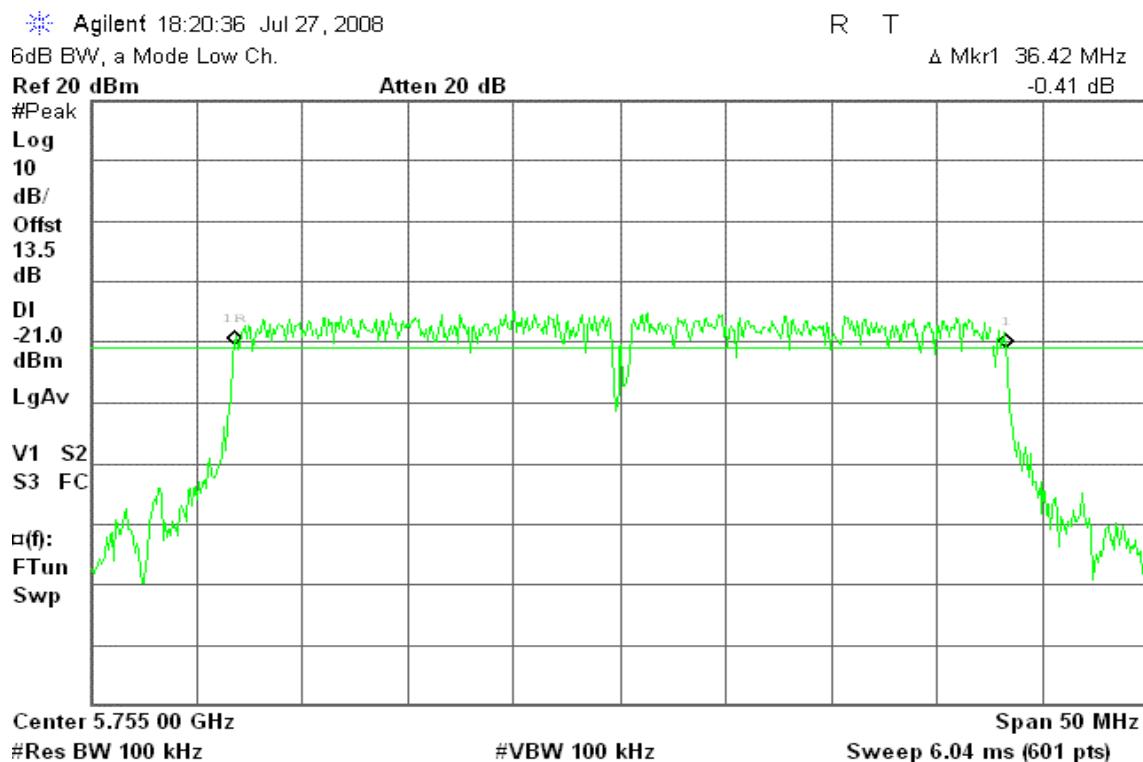
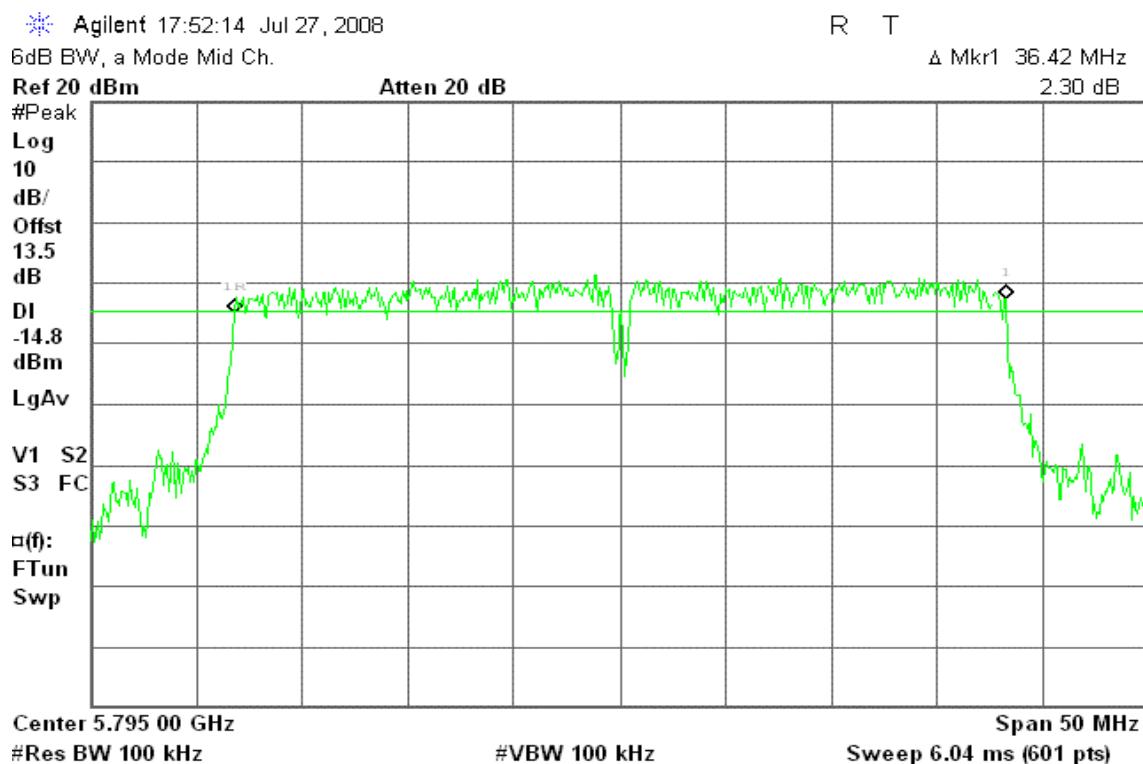


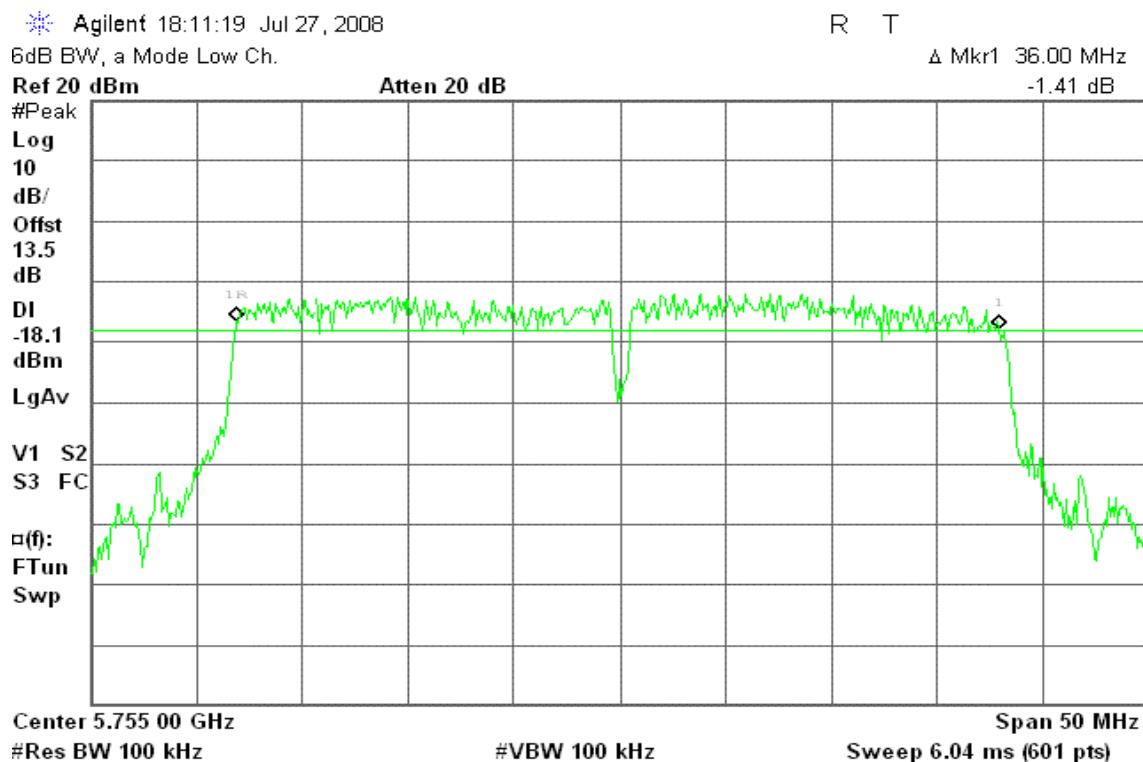
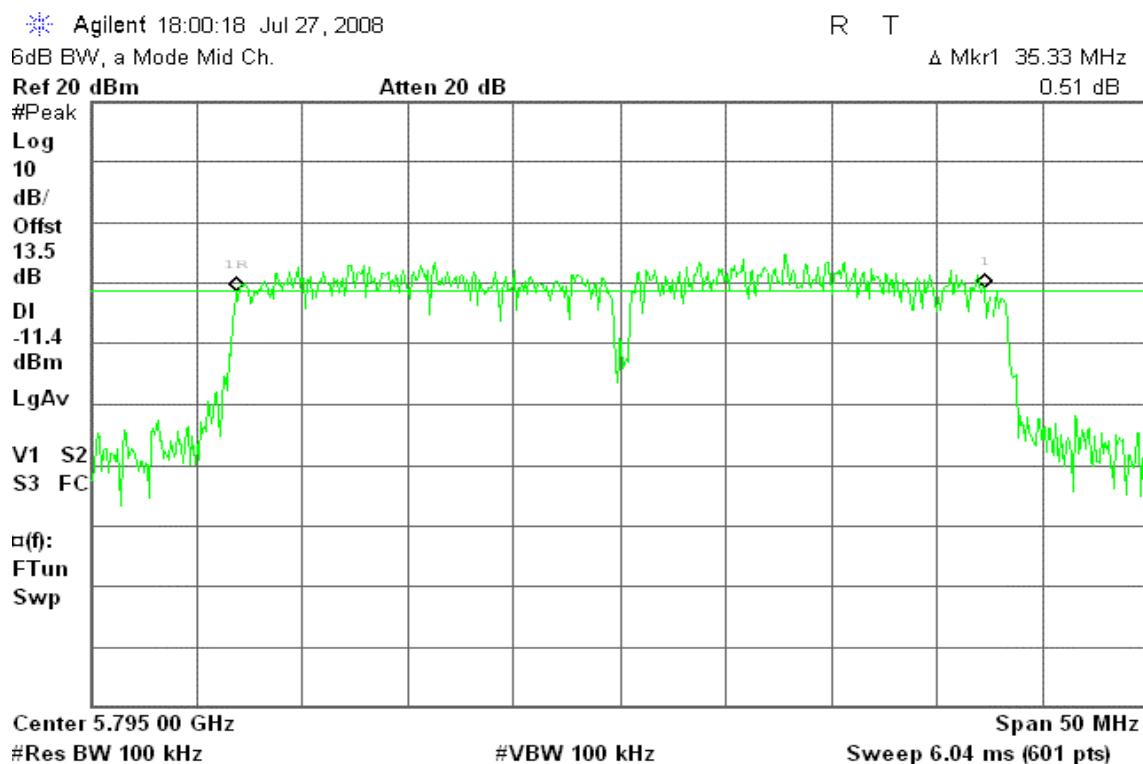
### 6dB Bandwidth (CH High)



**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 High)**

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

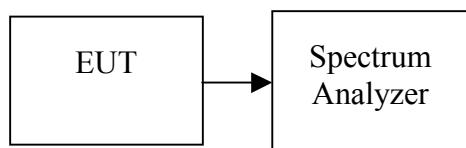
## 7.2 PEAK POWER

### 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	17.45	0.05559	1.00	PASS
Mid	2437	17.70	0.05888		PASS
High	2462	16.68	0.04656		PASS

### Test mode: IEEE 802.11g mode

Channel	Frequency (MHz)	Output Power (dBm)	Output Power (W)	Limit (W)	Result
Low	2412	16.66	0.04634	1.00	PASS
Mid	2437	16.98	0.04989		PASS
High	2462	15.56	0.03597		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	13.39	16.20	18.03	0.0635	1.00	PASS
Mid	2437	13.49	16.20	18.06	0.0640		PASS
High	2462	11.70	13.84	15.91	0.0390		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	11.54	14.04	15.98	0.0396	1.00	PASS
Mid	2437	13.58	16.01	17.97	0.0627		PASS
High	2452	13.52	15.78	17.81	0.0603		PASS

**Test mode: IEEE 802.11a mode**

Channel	Frequency (MHz)	Output Power (dBm)	Output Power (W)	Limit (W)	Result
Low	5745	13.91	0.02460	1.00	PASS
Mid	5785	13.58	0.02280		PASS
High	5825	14.03	0.02529		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	5745	9.01	10.77	12.99	0.0199	1.00	PASS
Mid	5785	13.46	15.01	17.31	0.0539		PASS
High	5825	13.80	15.45	17.71	0.0591		PASS

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

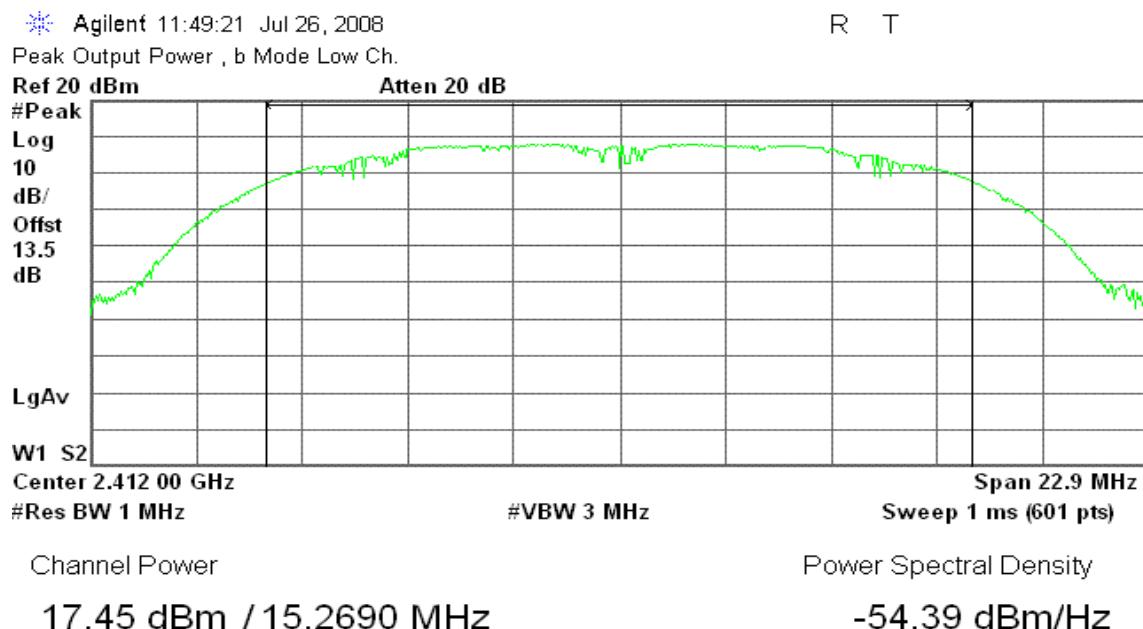
Channel	Frequency (MHz)	Chain 0 Output Power (dBm)	Chain 1 Output Power (dBm)	Total Output Power (dBm)	Output Power (W)	Limit (W)	Result
Low	5755	7.70	9.72	11.84	0.0153	1.00	PASS
High	5795	13.43	15.26	17.45	0.0556		PASS

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

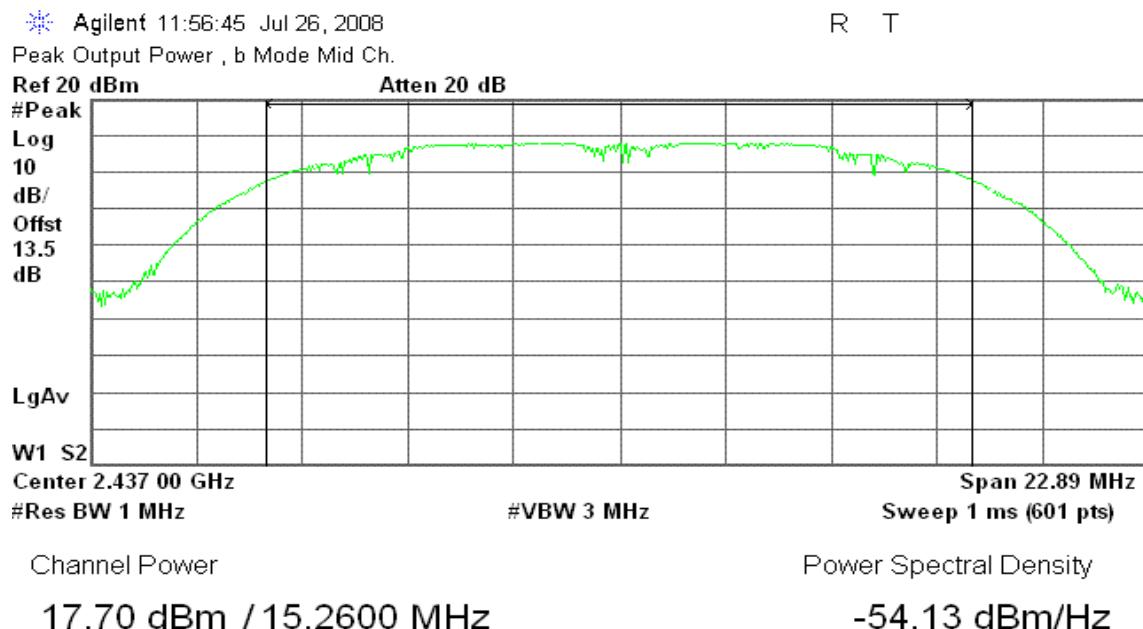
## Test Plot

IEEE 802.11b mode

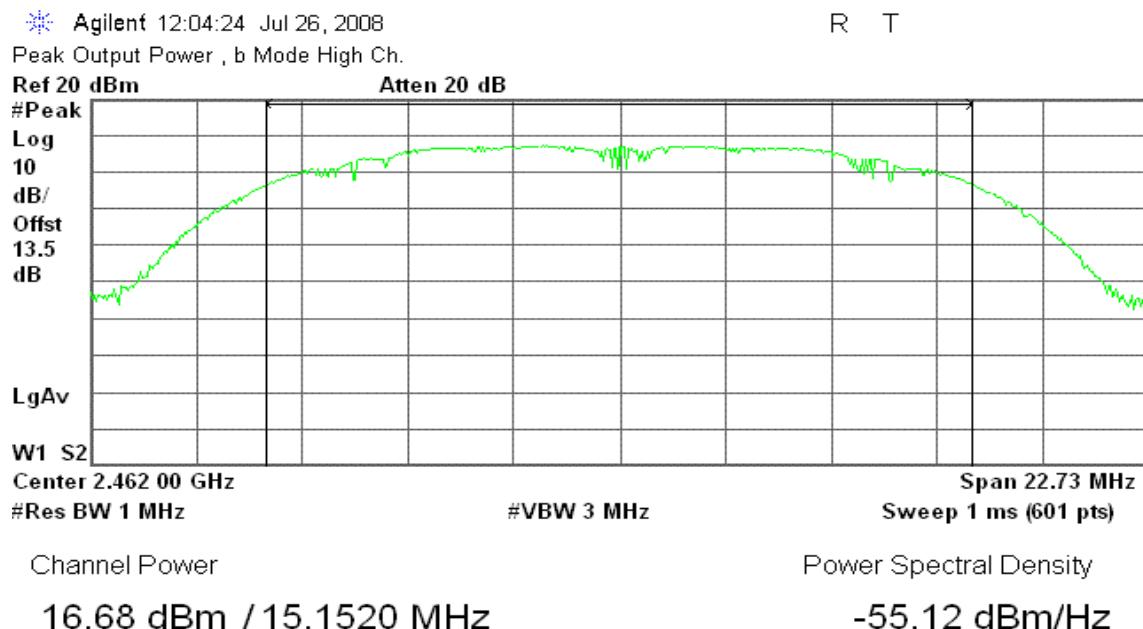
### Peak Power (CH Low)



### Peak Power (CH Mid)

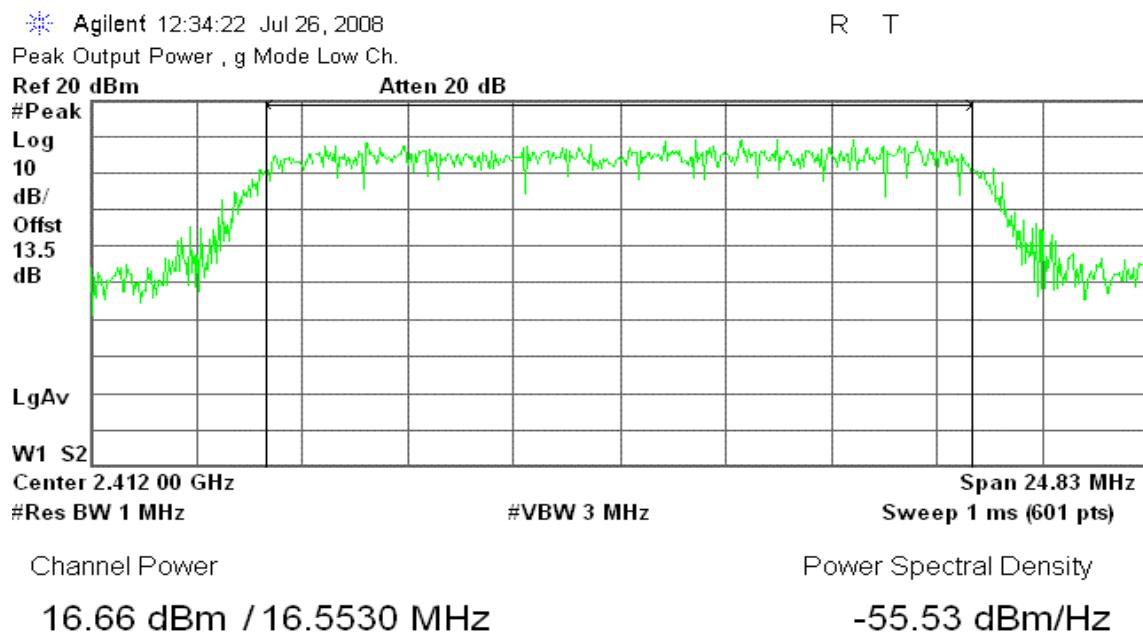


### Peak Power (CH High)

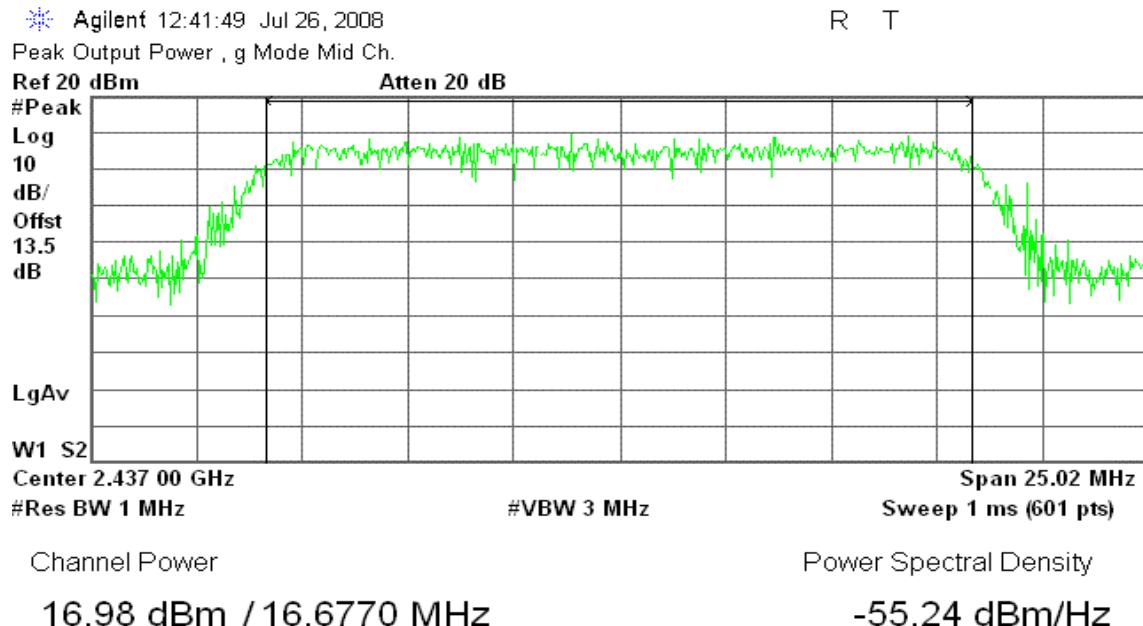


### IEEE 802.11g mode

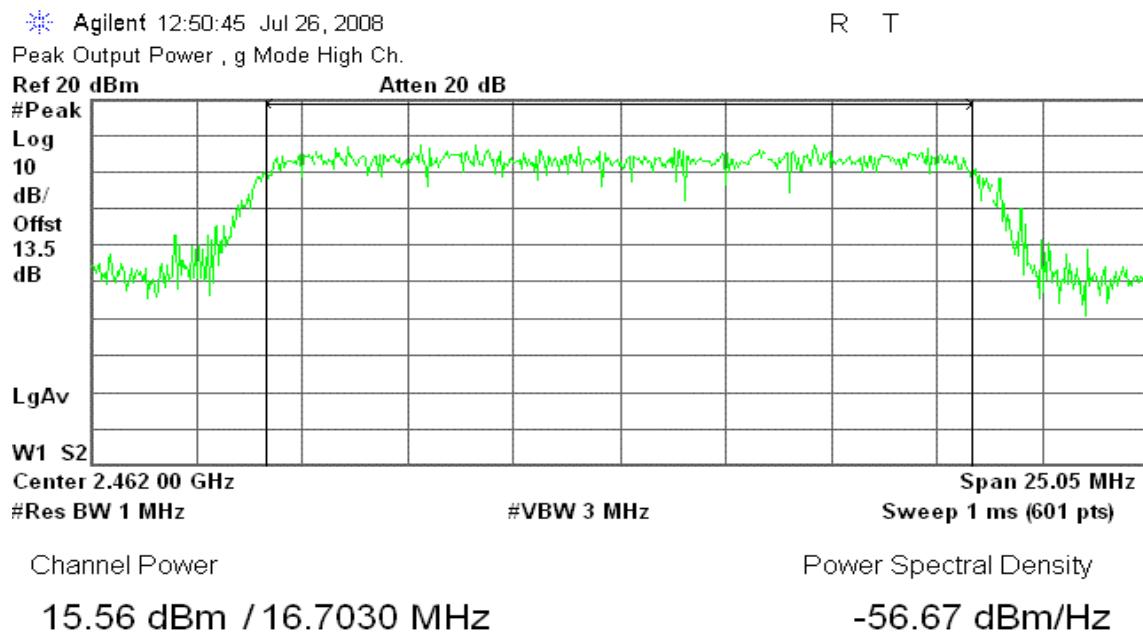
### Peak Power (CH Low)

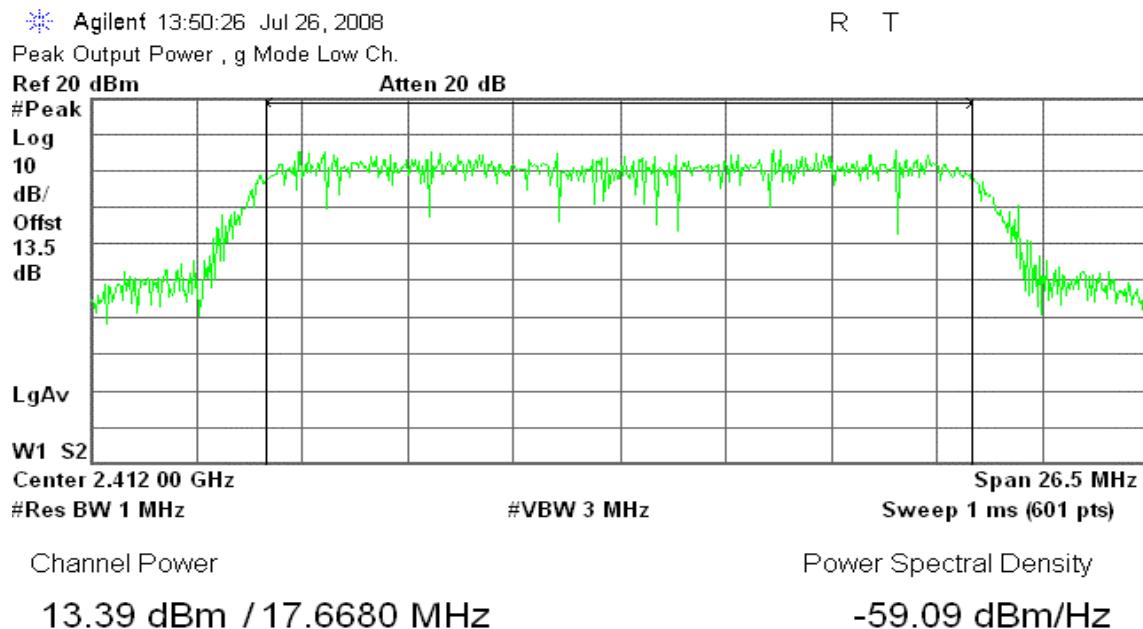
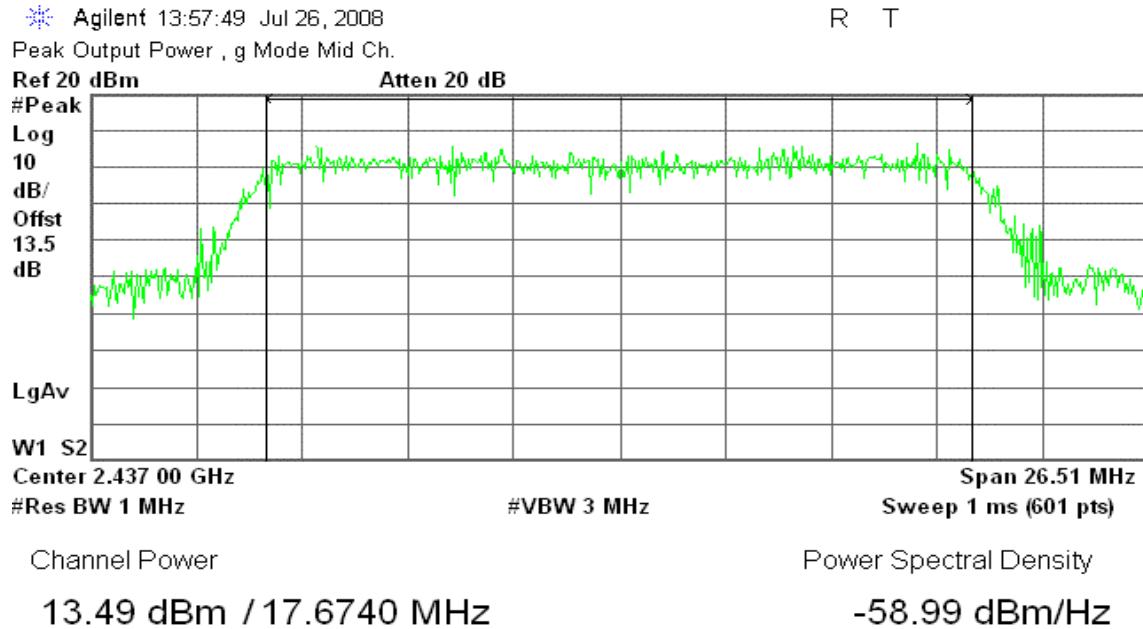


### Peak Power (CH Mid)

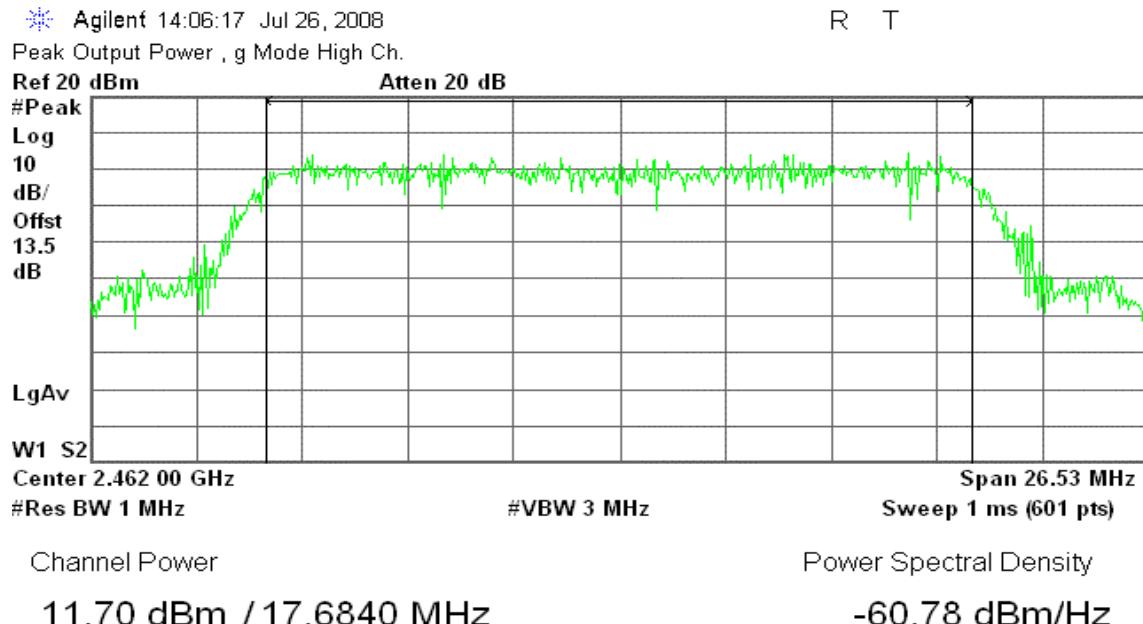


### Peak Power (CH High)



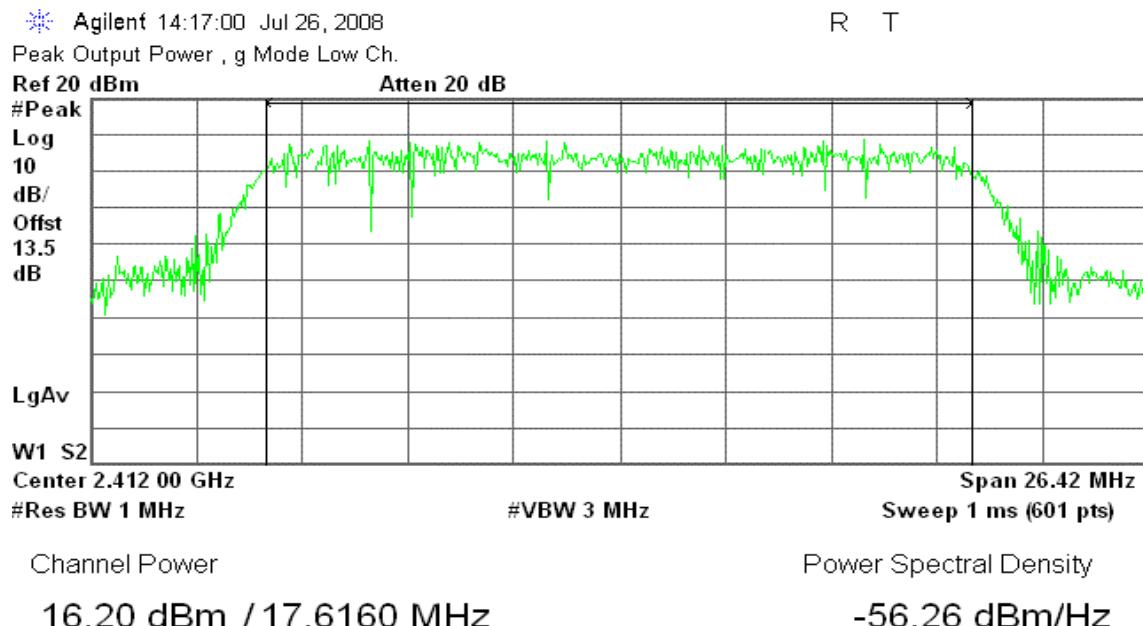
**draft 802.11n Standard-20 MHz Channel mode / Chain 0****Peak Power (CH Low)****Peak Power (CH Mid)**

### Peak Power (CH High)

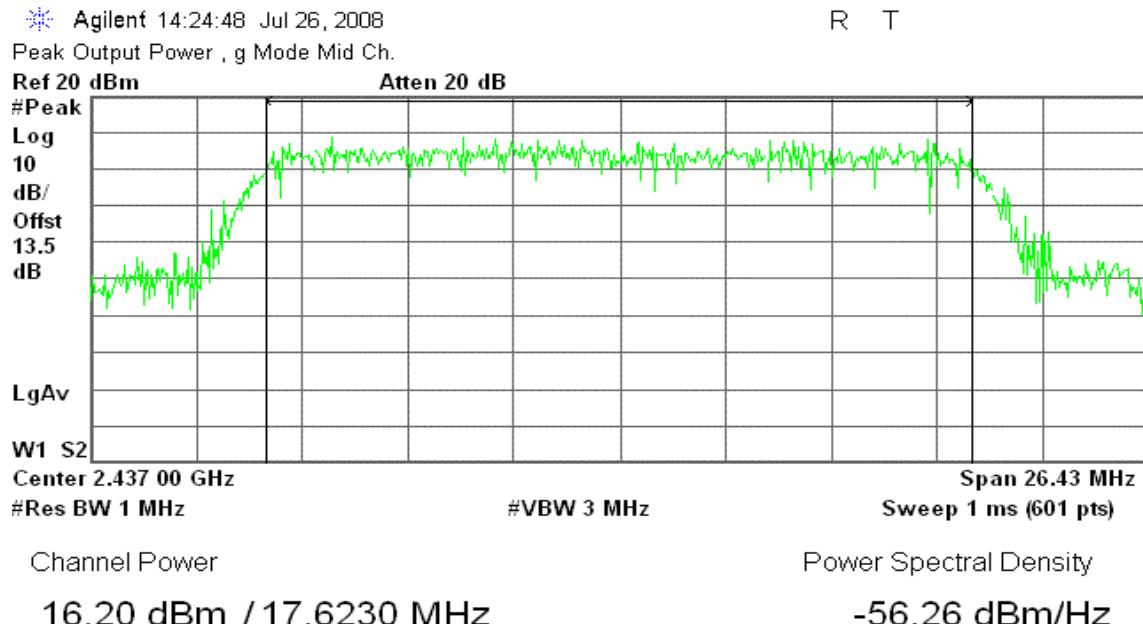


### draft 802.11n Standard-20 MHz Channel mode / Chain 1

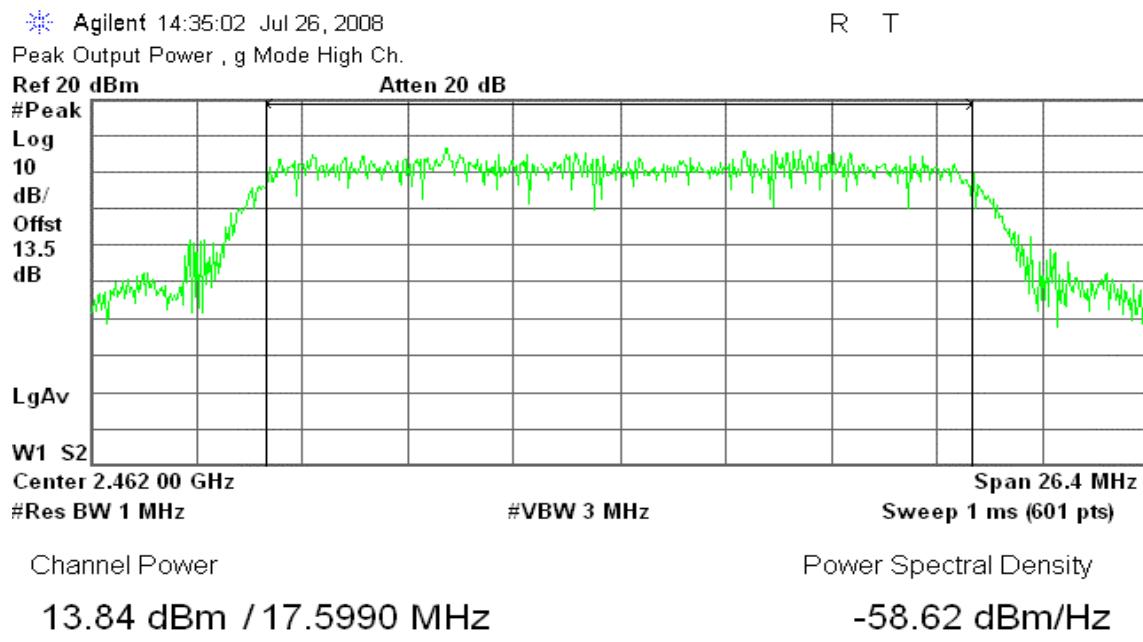
#### Peak Power (CH Low)

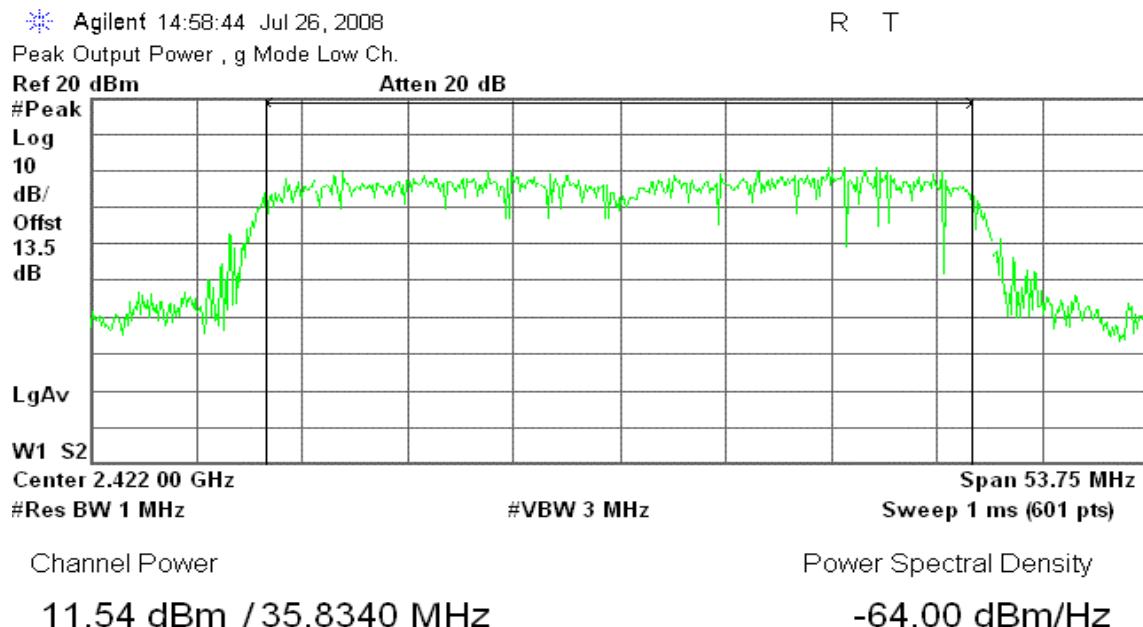
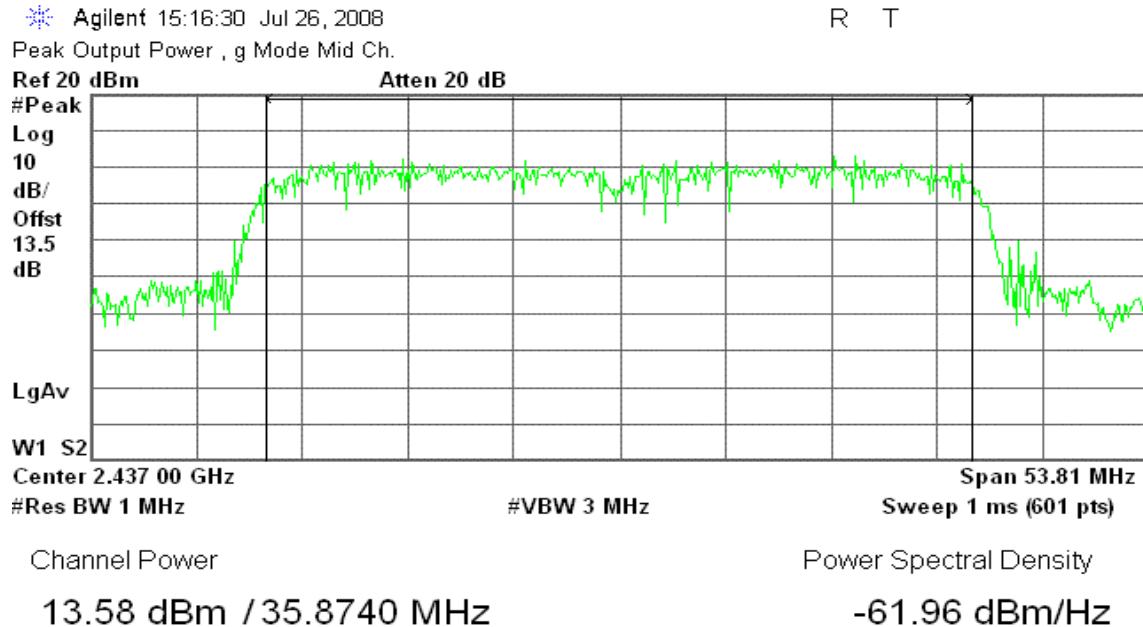


### Peak Power (CH Mid)

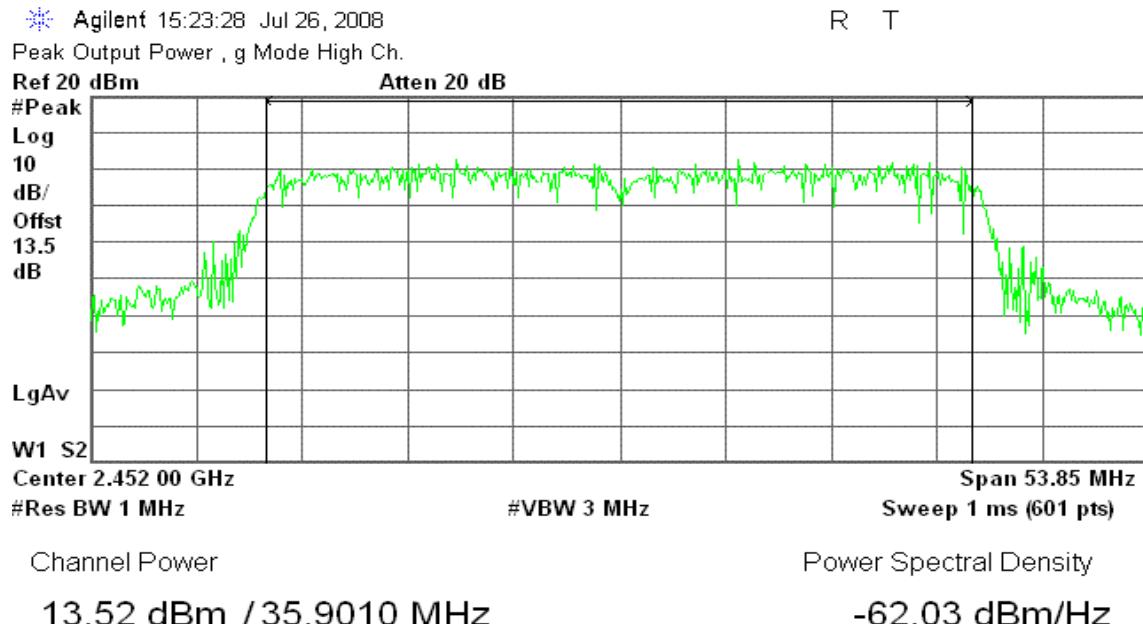


### Peak Power (CH High)



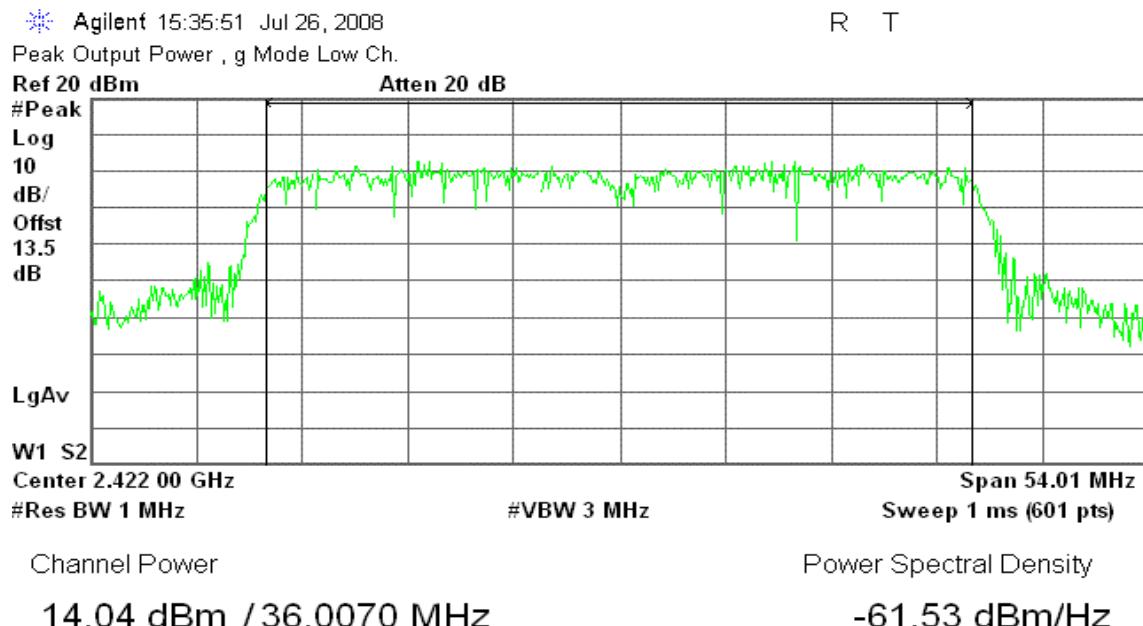
**draft 802.11n Wide-40 MHz Channel mode / Chain 0****Peak Power (CH Low)****Peak Power (CH Mid)**

### Peak Power (CH High)

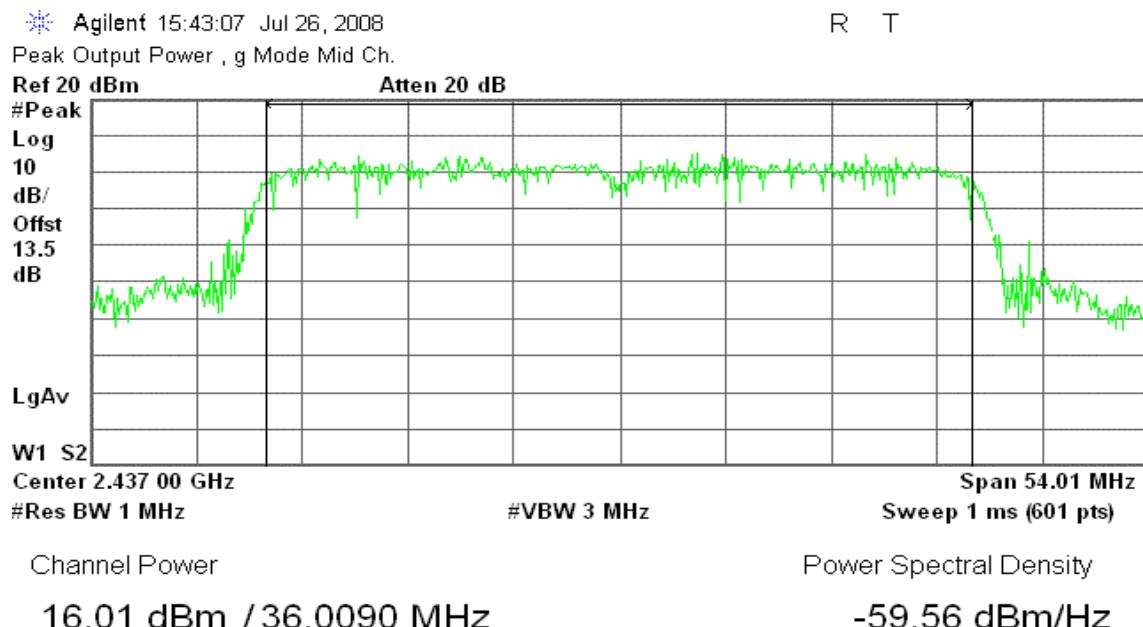


### draft 802.11n Wide-40 MHz Channel mode / Chain 1

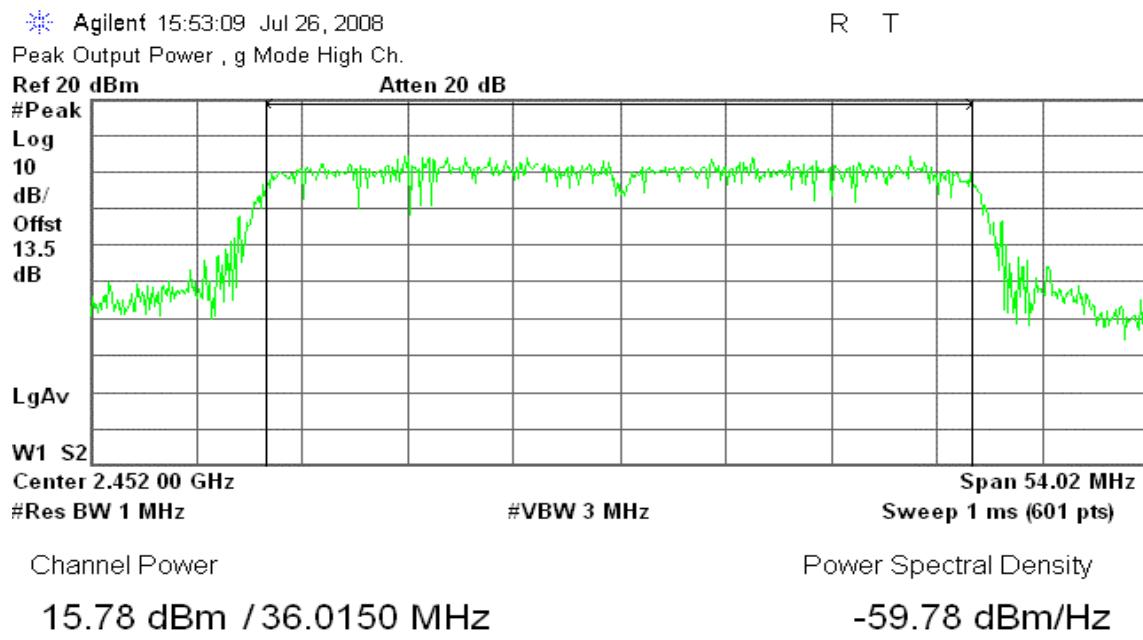
#### Peak Power (CH Low)

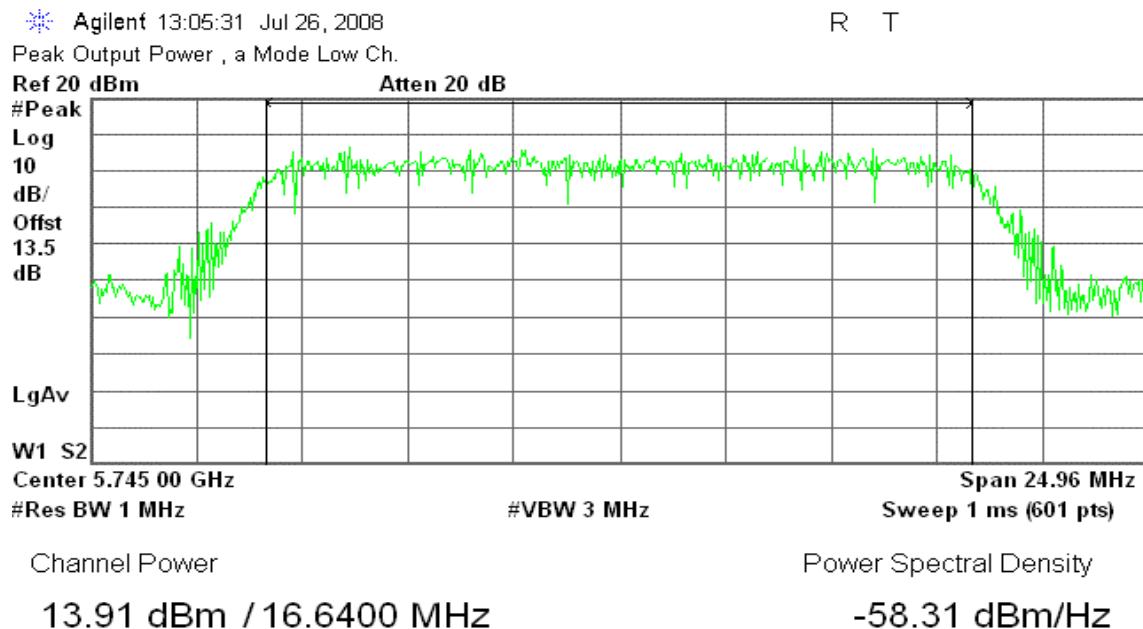
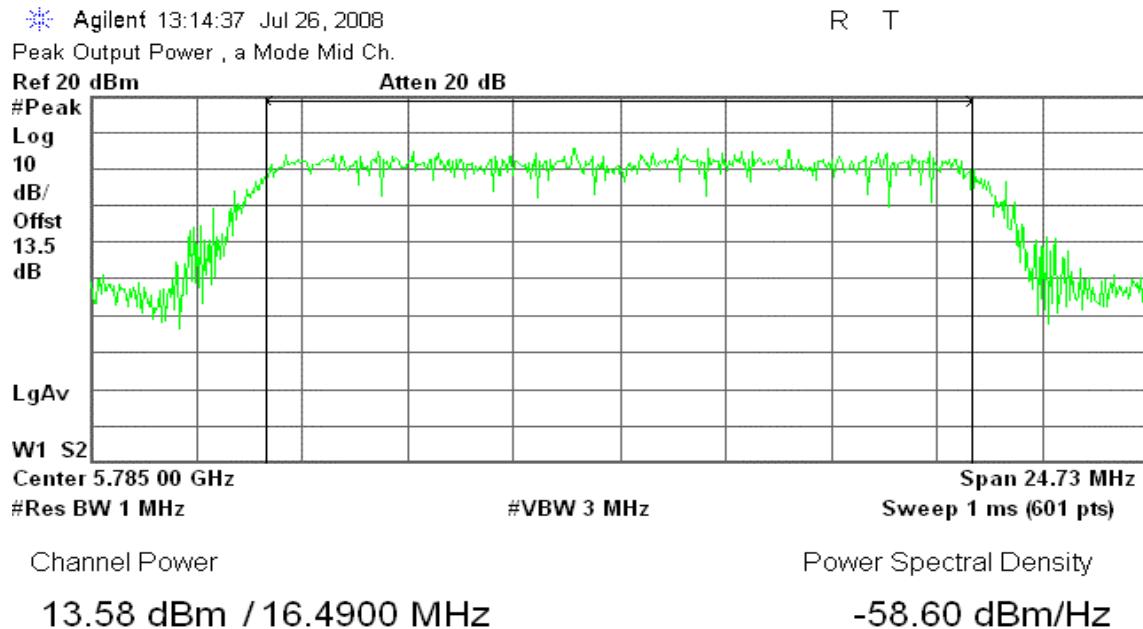


### Peak Power (CH Mid)

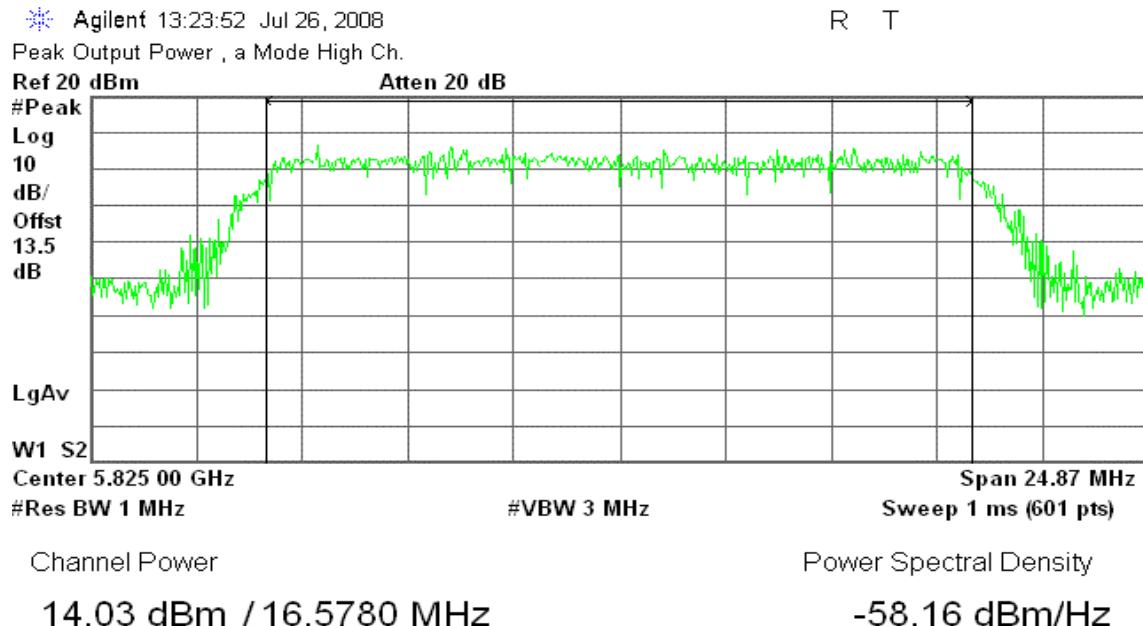


### Peak Power (CH High)



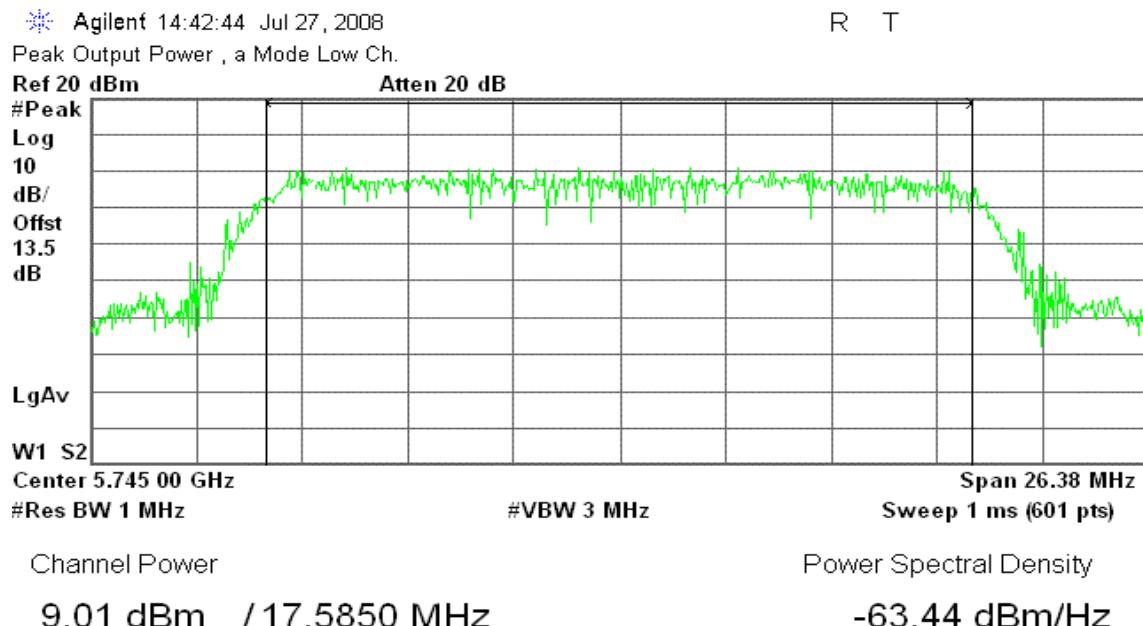
**IEEE 802.11a mode****Peak Power (CH Low)****Peak Power (CH Mid)**

### Peak Power (CH High)

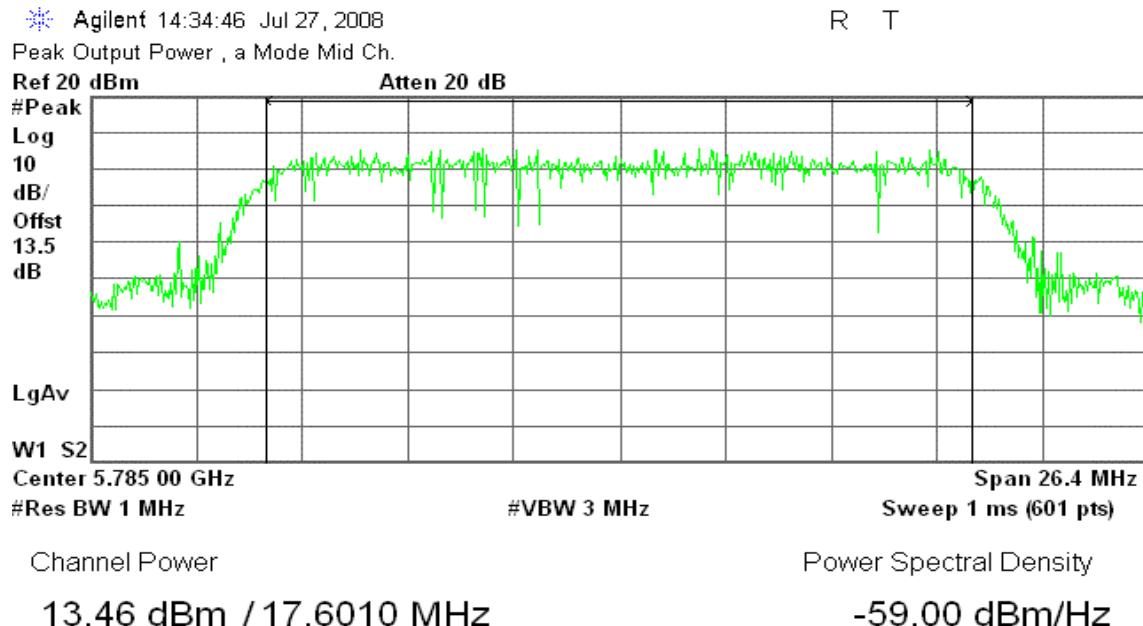


### draft 802.11n Standard-20 MHz Channel mode / Chain 0

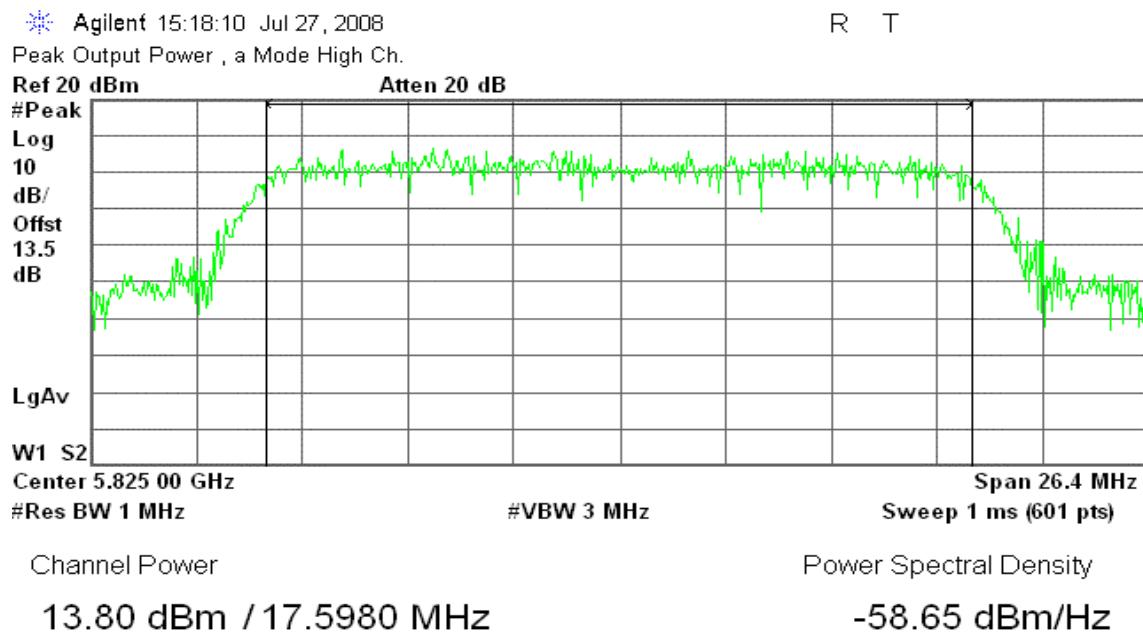
#### Peak Power (CH Low)

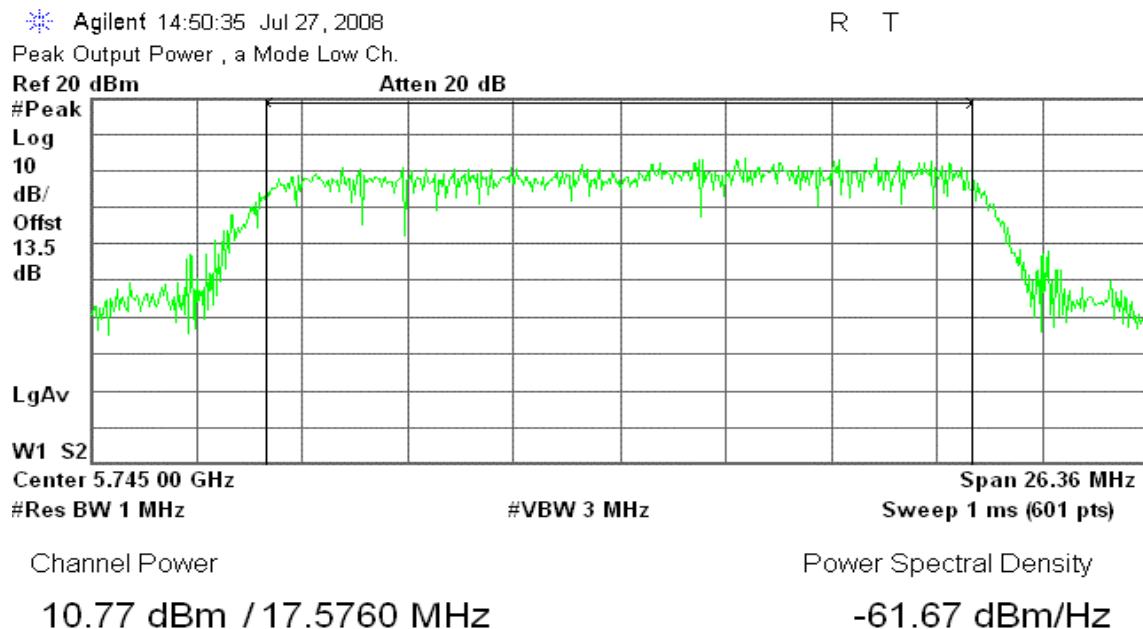
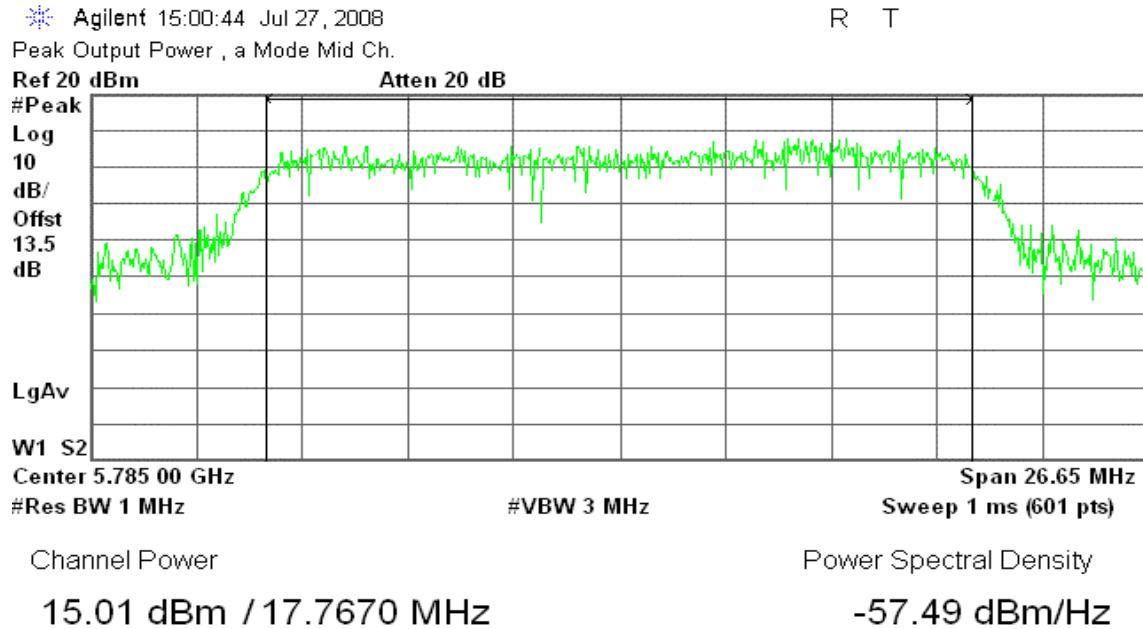


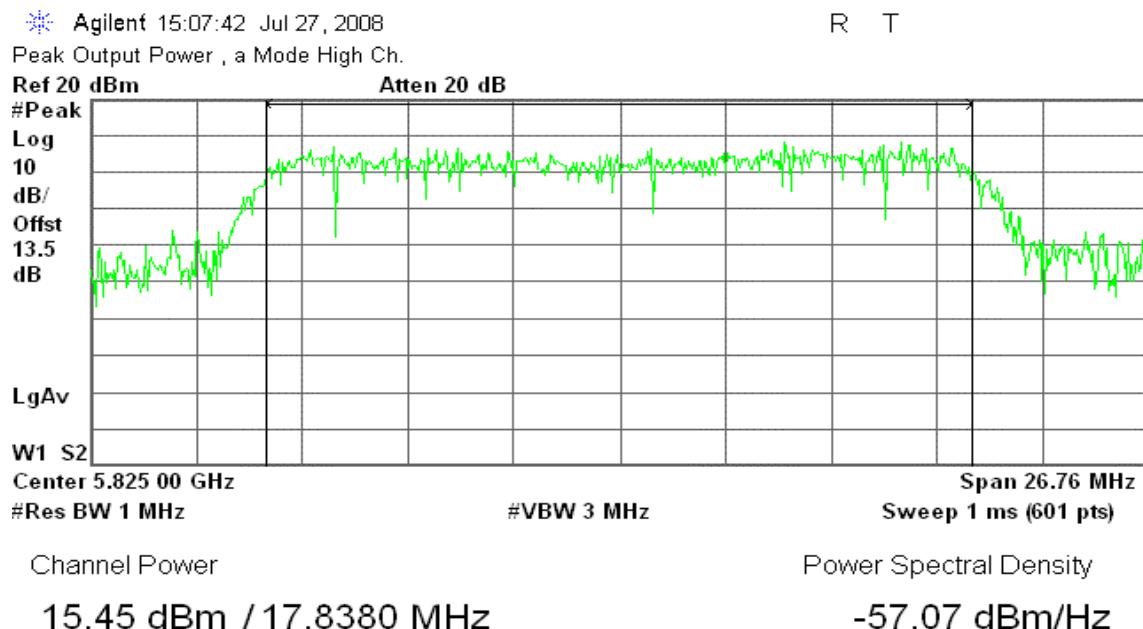
### Peak Power (CH Mid)

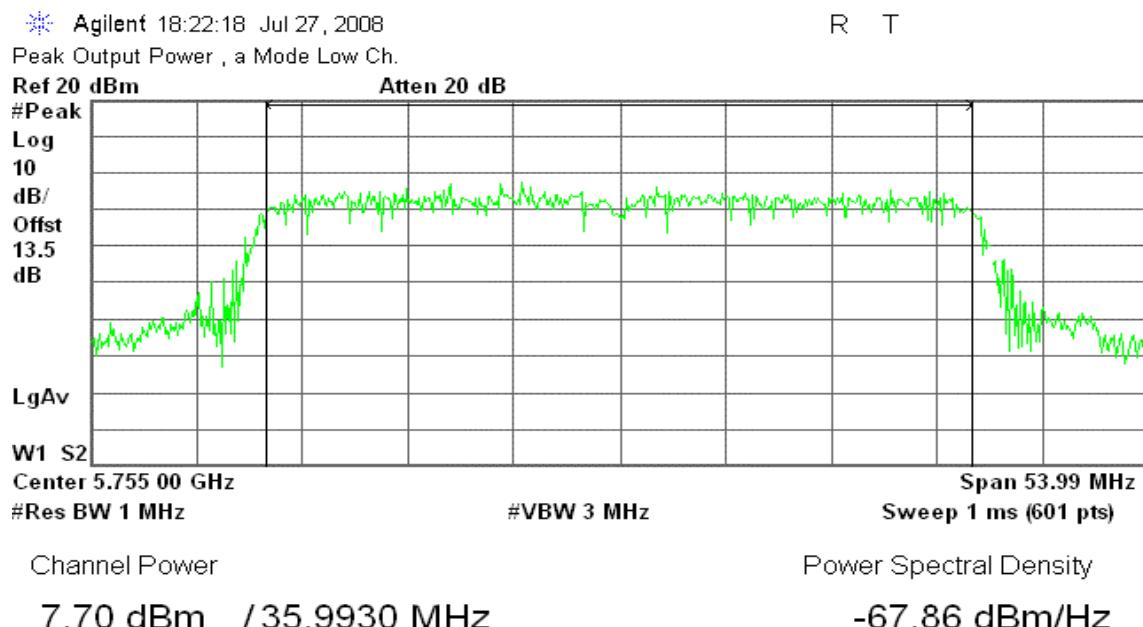
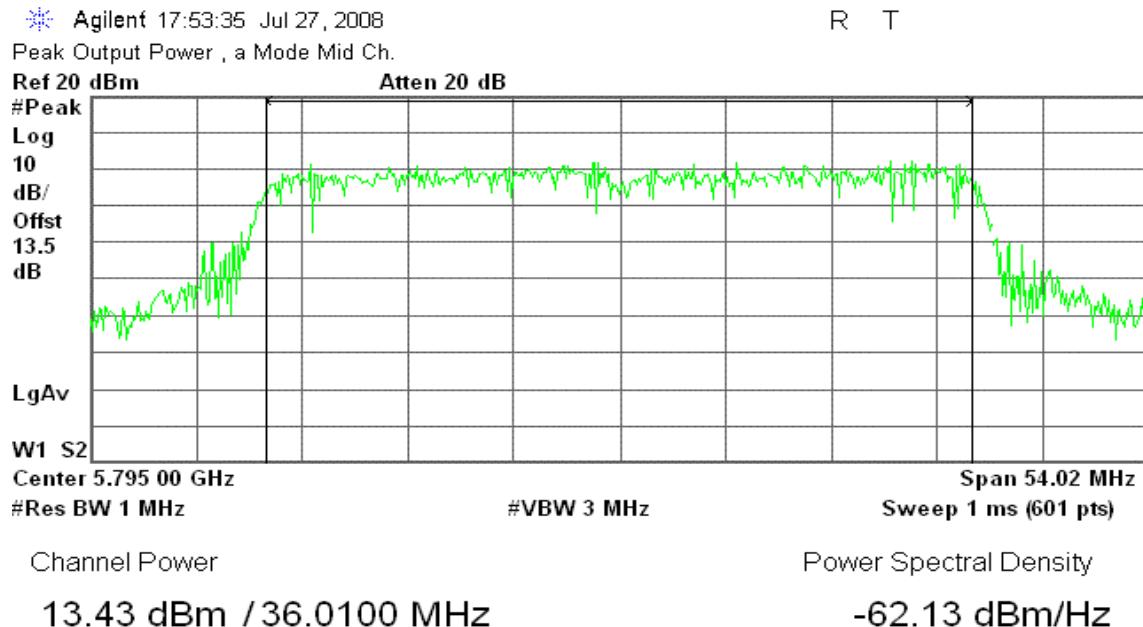


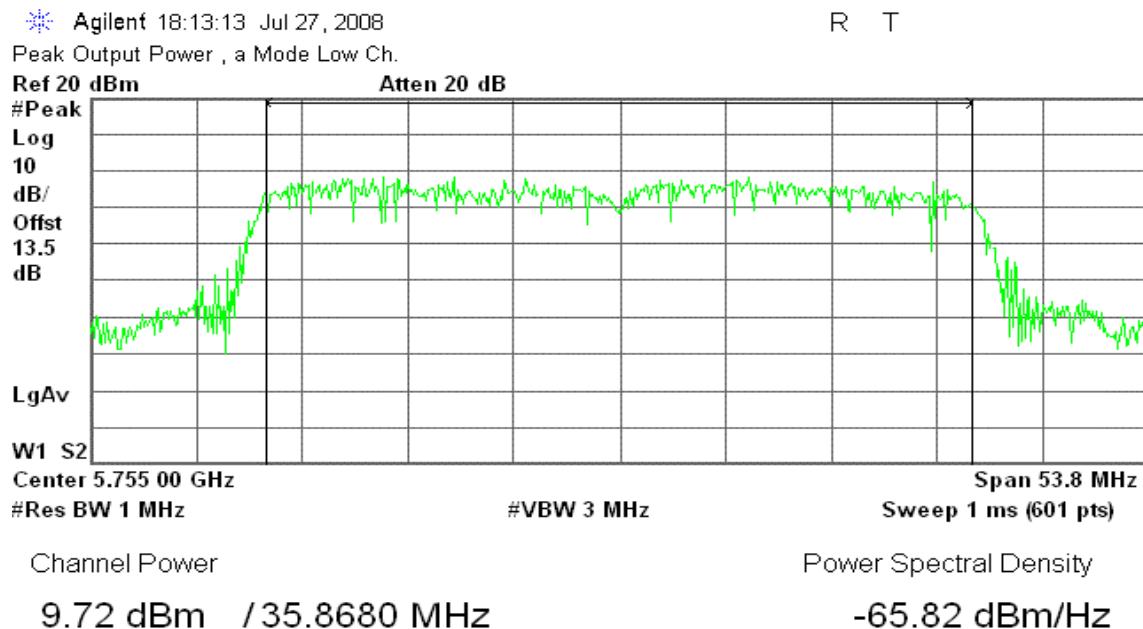
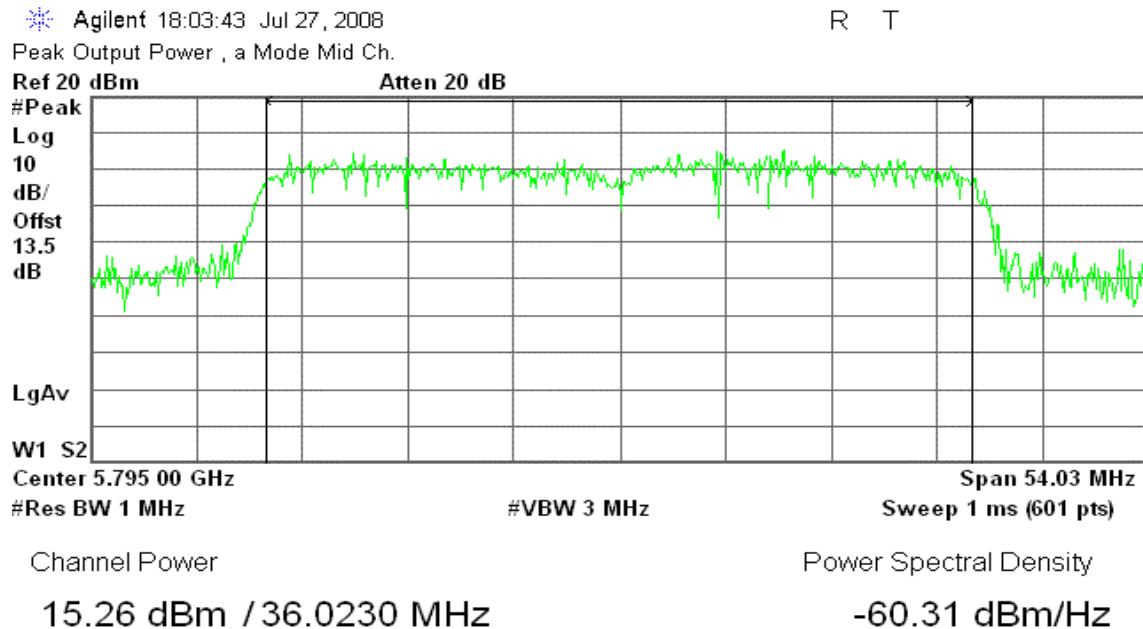
### Peak Power (CH High)



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

**Peak Power (CH High)**

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

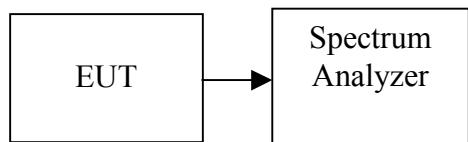
**draft 802.11n Wide-40 MHz Channel mode / Chain 1****Peak Power (CH Low)****Peak Power (CH High)**

## 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)	Output Power (W)
Low	2412	14.92	0.03105
Mid	2437	15.01	0.03170
High	2462	14.02	0.02523

### Test mode: IEEE 802.11g mode

Channel	Frequency (MHz)	Output Power (dBm)	Output Power (W)
Low	2412	13.38	0.02178
Mid	2437	13.46	0.02218
High	2462	12.03	0.01596

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

Channel	Frequency (MHz)	Chain 0 Output Power (dBm)	Chain 1 Output Power (dBm)	Output Power (dBm)	Output Power (W)
Low	2412	10.03	13.01	14.78	0.0301
Mid	2437	10.24	12.80	14.72	0.0296
High	2462	8.20	10.32	12.40	0.0174

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

Channel	Frequency (MHz)	Chain 0 Output Power (dBm)	Chain 1 Output Power (dBm)	Output Power (dBm)	Output Power (W)
Low	2422	8.00	10.68	12.55	0.0180
Mid	2437	10.16	12.60	14.56	0.0286
High	2452	10.06	12.37	14.38	0.0274

**Test mode: IEEE 802.11a mode**

Channel	Frequency (MHz)	Output Power (dBm)	Output Power (W)
Low	5745	10.53	0.01130
Mid	5785	10.09	0.01021
High	5825	10.59	0.01146

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

Channel	Frequency (MHz)	Chain 0 Output Power (dBm)	Chain 1 Output Power (dBm)	Output Power (dBm)	Output Power (W)
Low	5745	5.35	8.19	10.01	0.0100
Mid	5785	9.94	11.38	13.73	0.0236
High	5825	10.19	11.84	14.10	0.0257

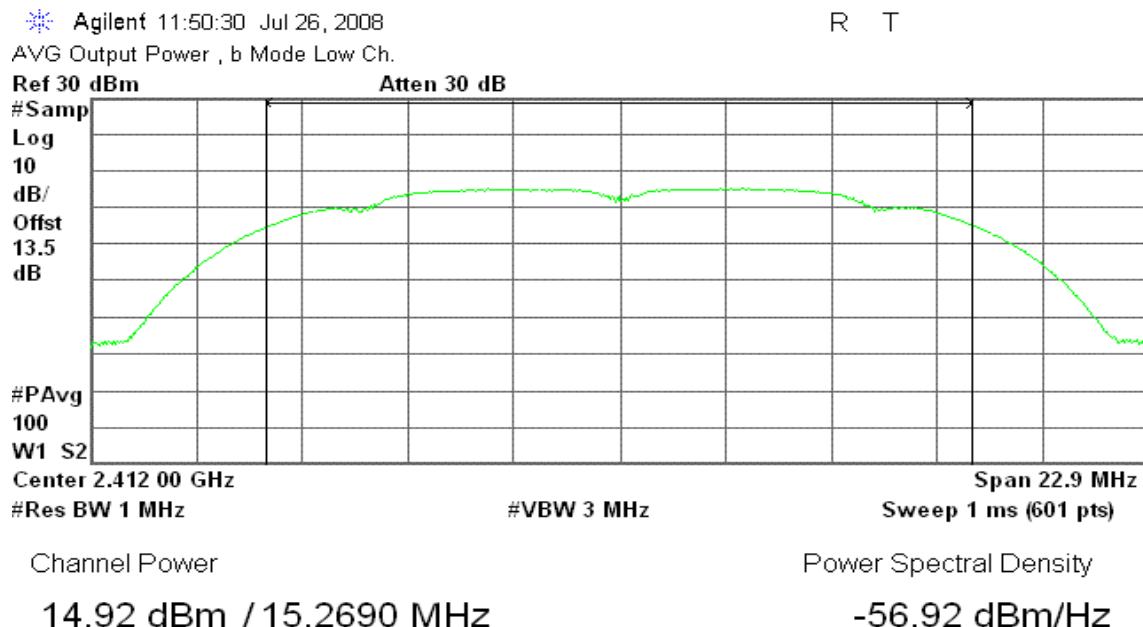
**Test mode: draft 802.11n Wide-40 MHz Channel mode**

Channel	Frequency (MHz)	Chain 0 Output Power (dBm)	Chain 1 Output Power (dBm)	Output Power (dBm)	Output Power (W)
Low	5755	4.38	6.29	8.45	0.0070
High	5795	9.91	11.93	14.05	0.0254

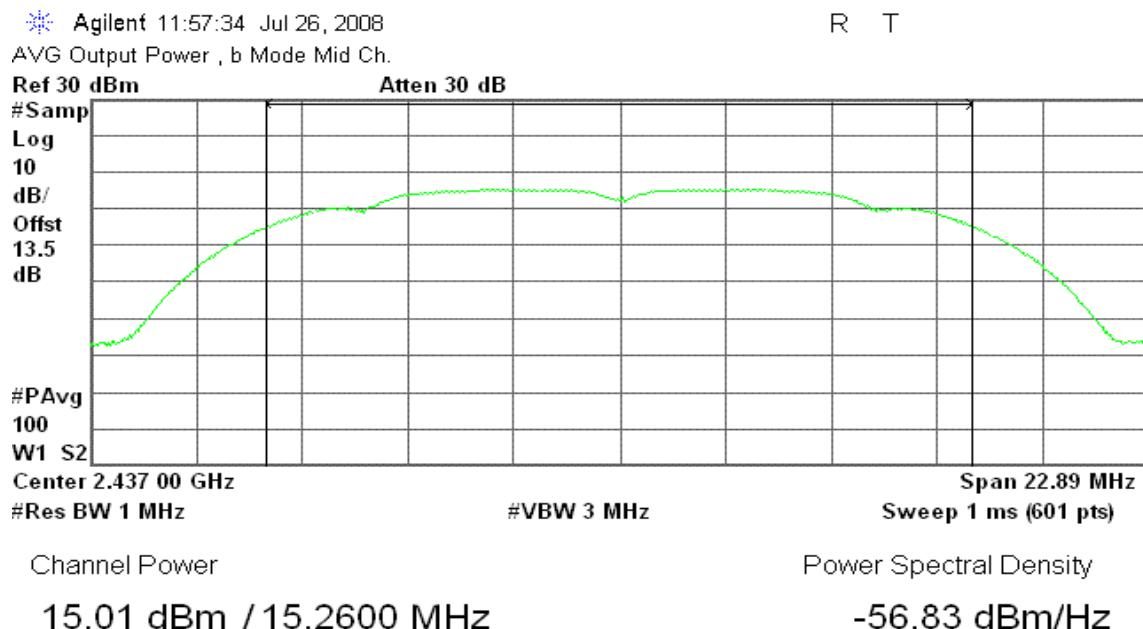
## Test Plot

IEEE 802.11b mode

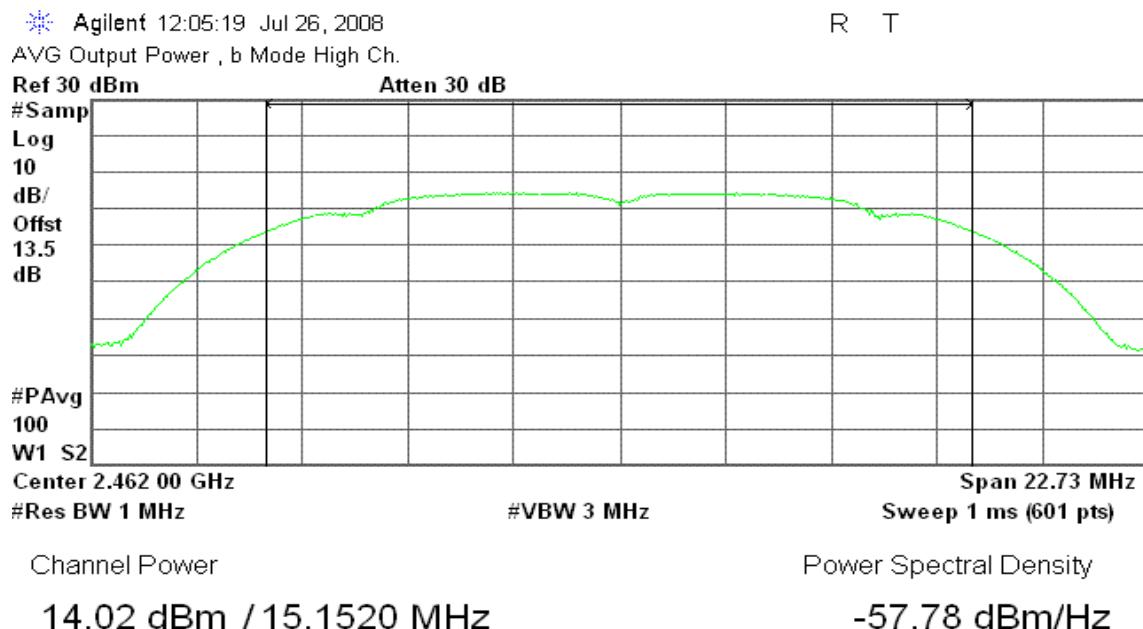
### Average Power (CH Low)



### Average Power (CH Mid)

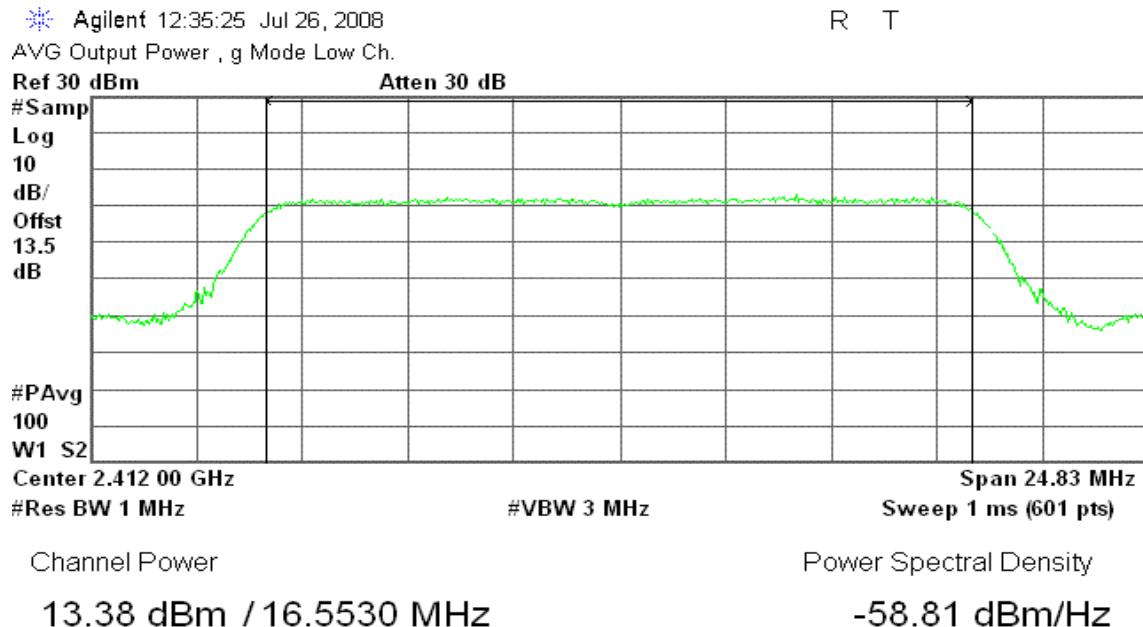


### Average Power (CH High)

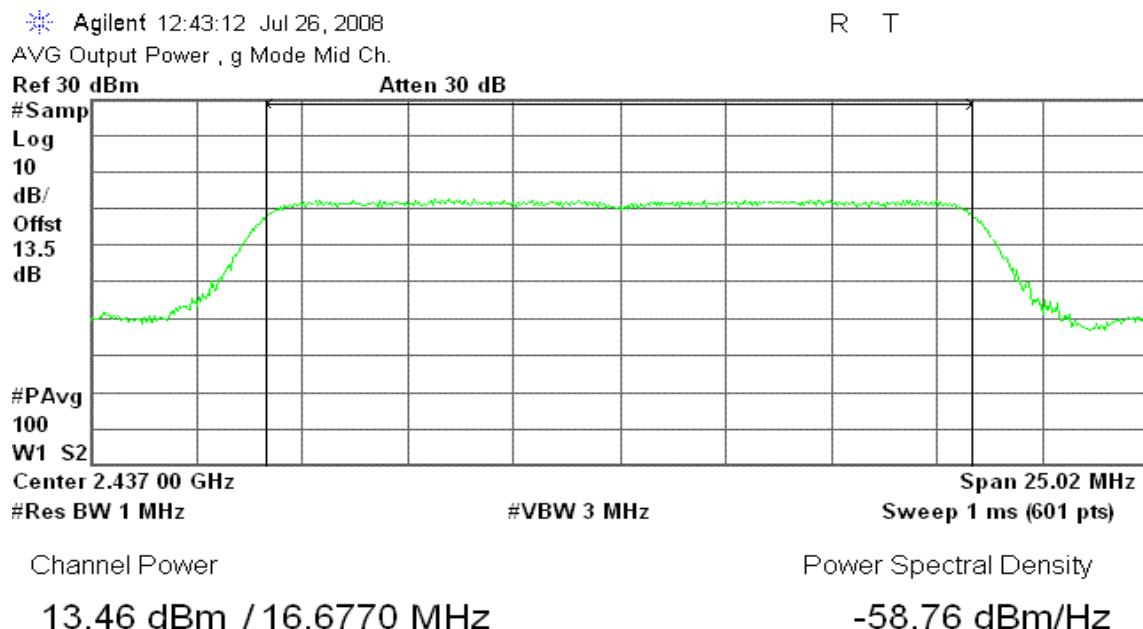


### IEEE 802.11g mode

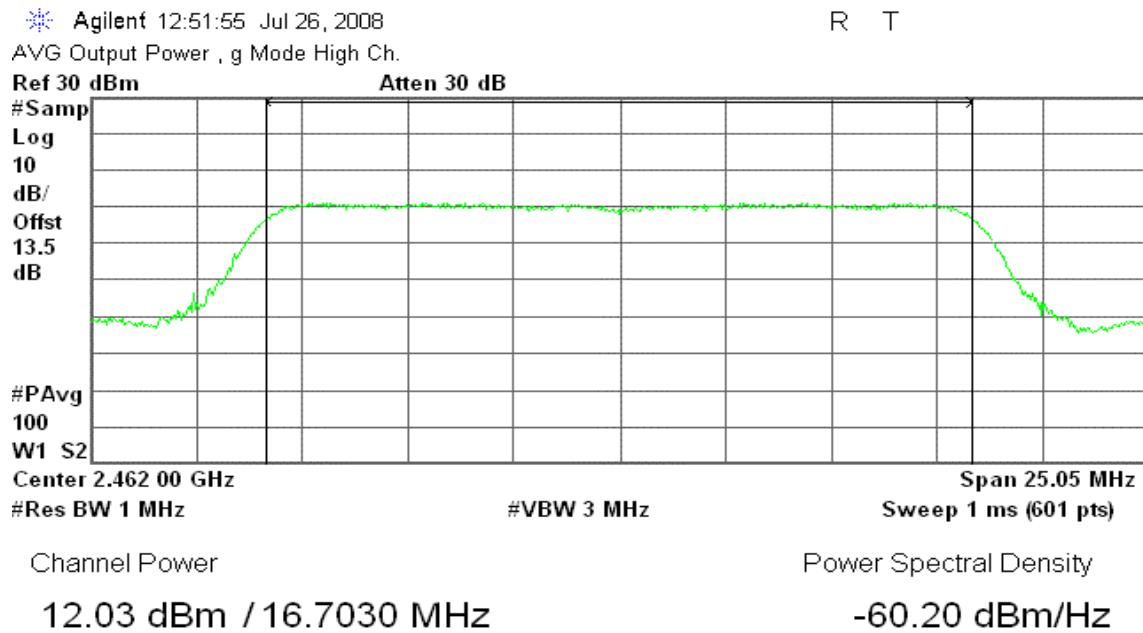
#### Average Power (CH Low)

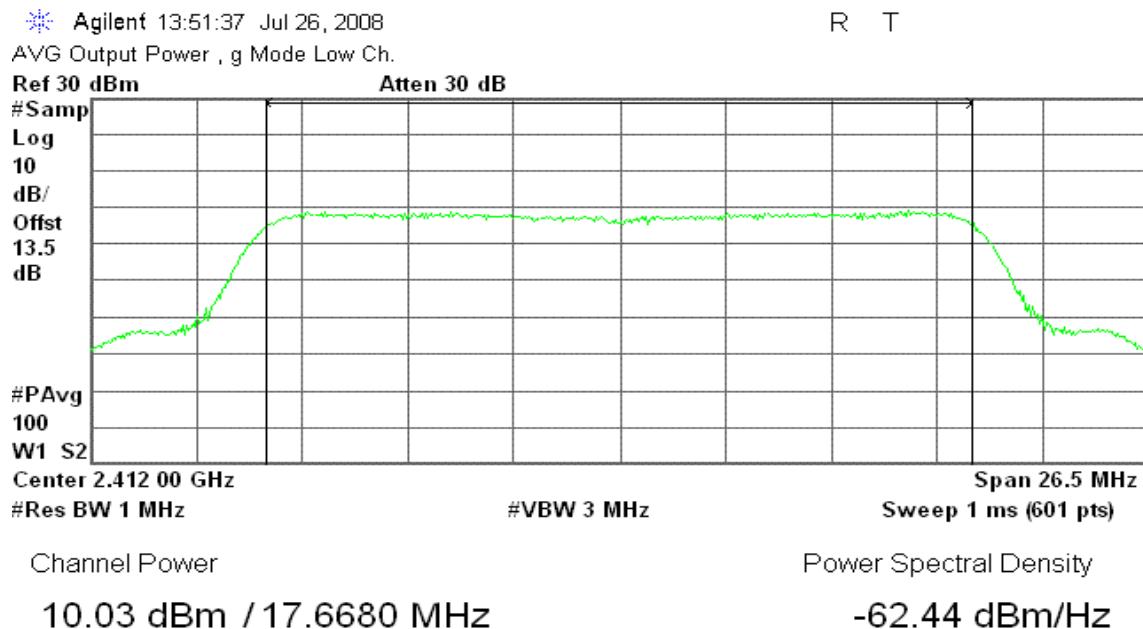
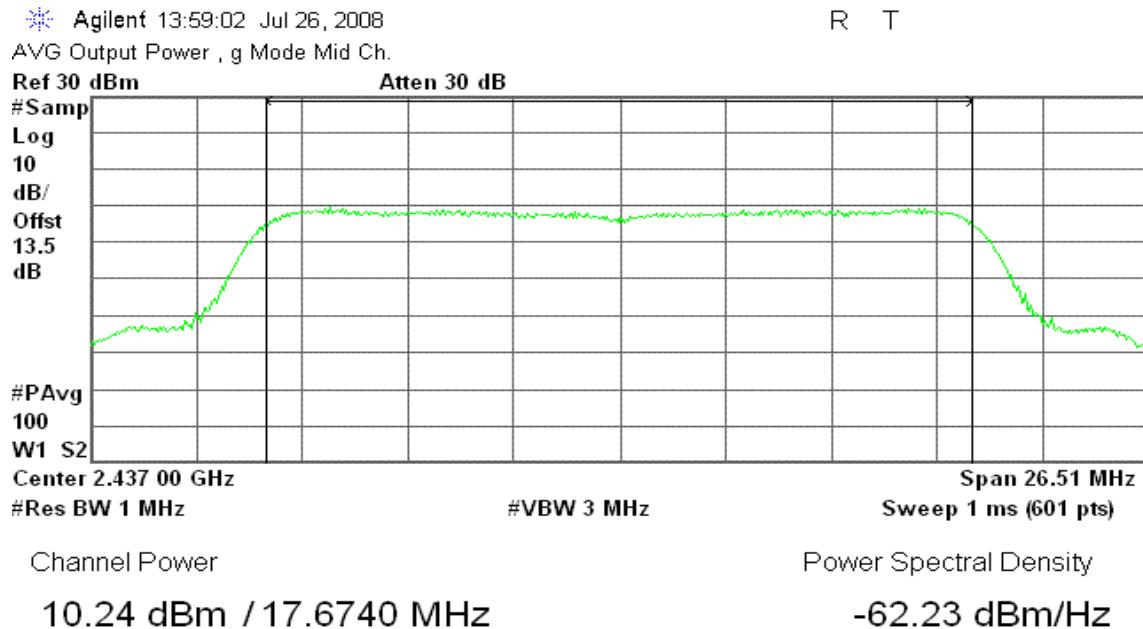


### Average Power (CH Mid)

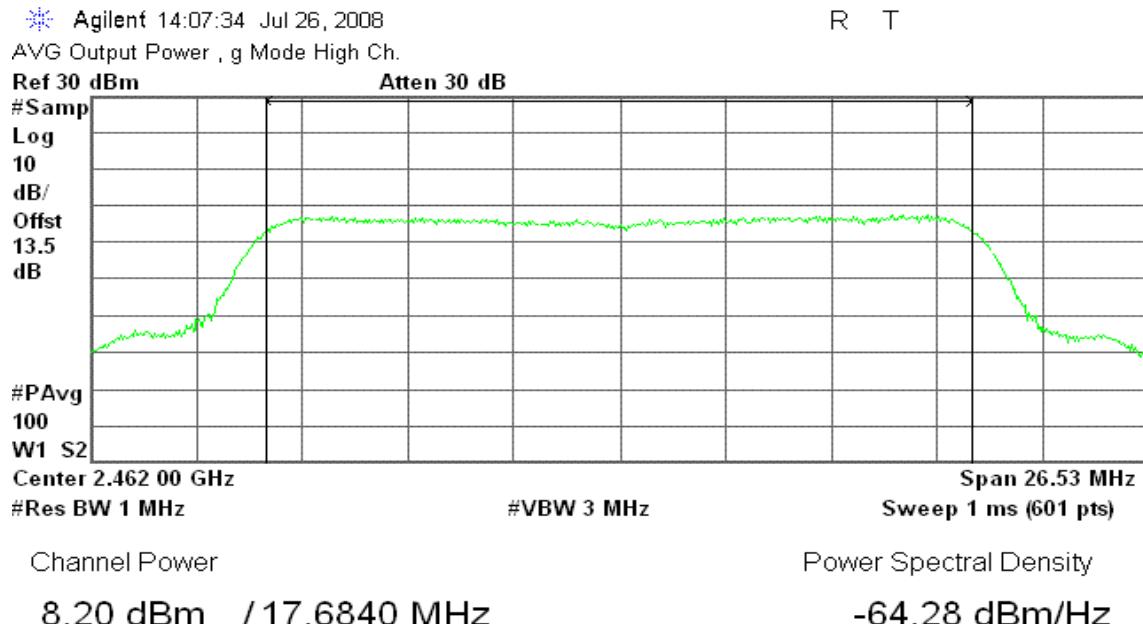


### Average Power (CH High)



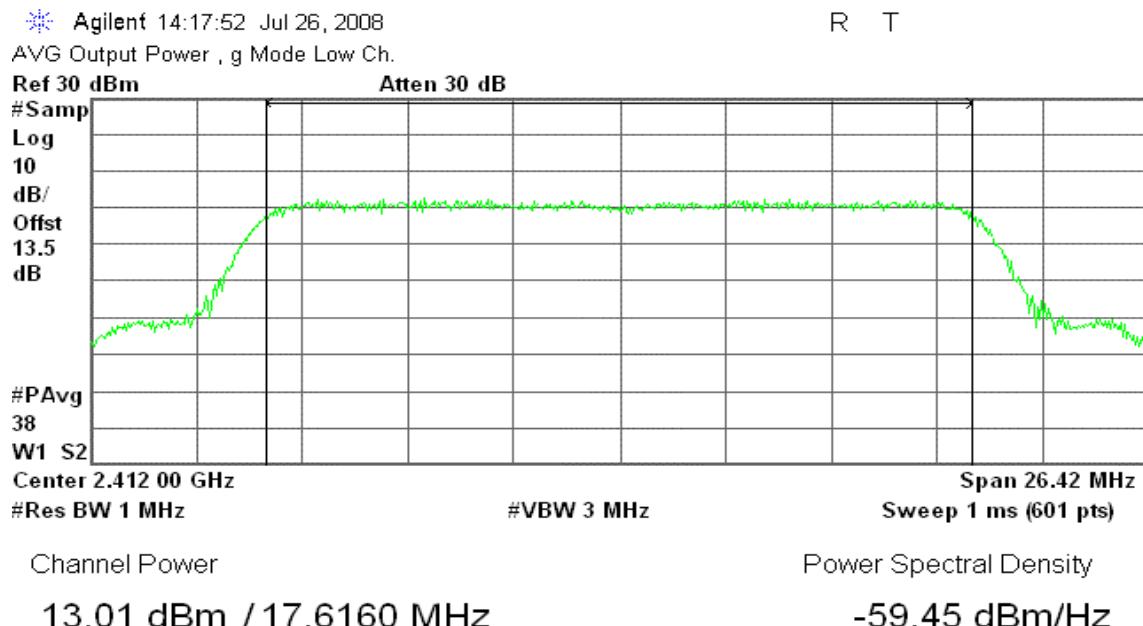
**draft 802.11n Standard-20 MHz Channel mode / Chain 0****Average Power (CH Low)****Average Power (CH Mid)**

### Average Power (CH High)

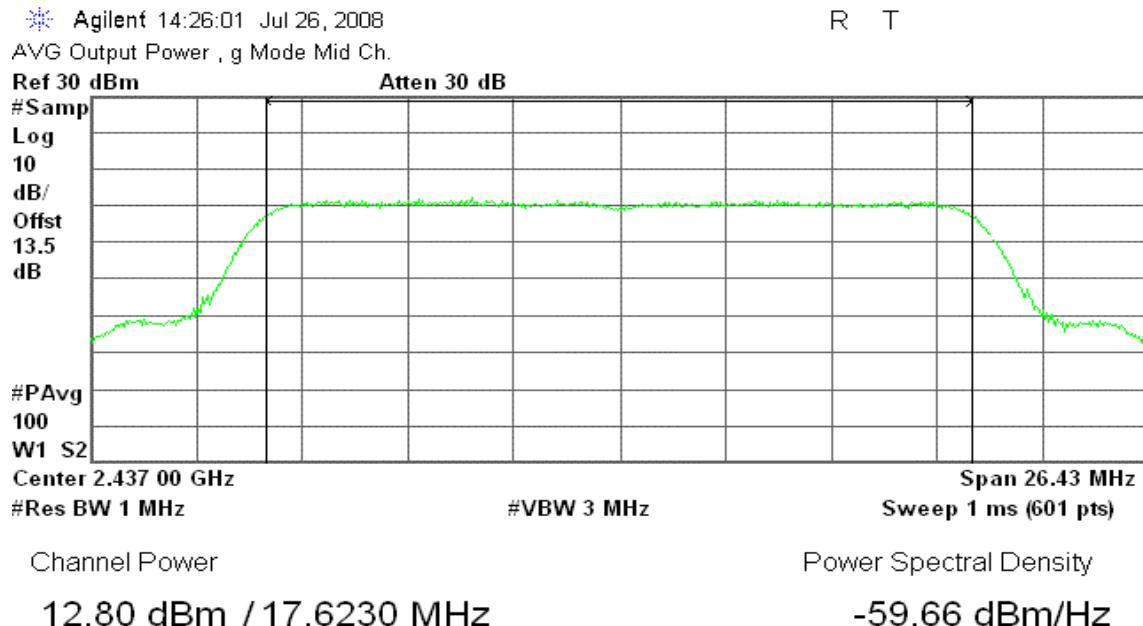


### draft 802.11n Standard-20 MHz Channel mode / Chain 1

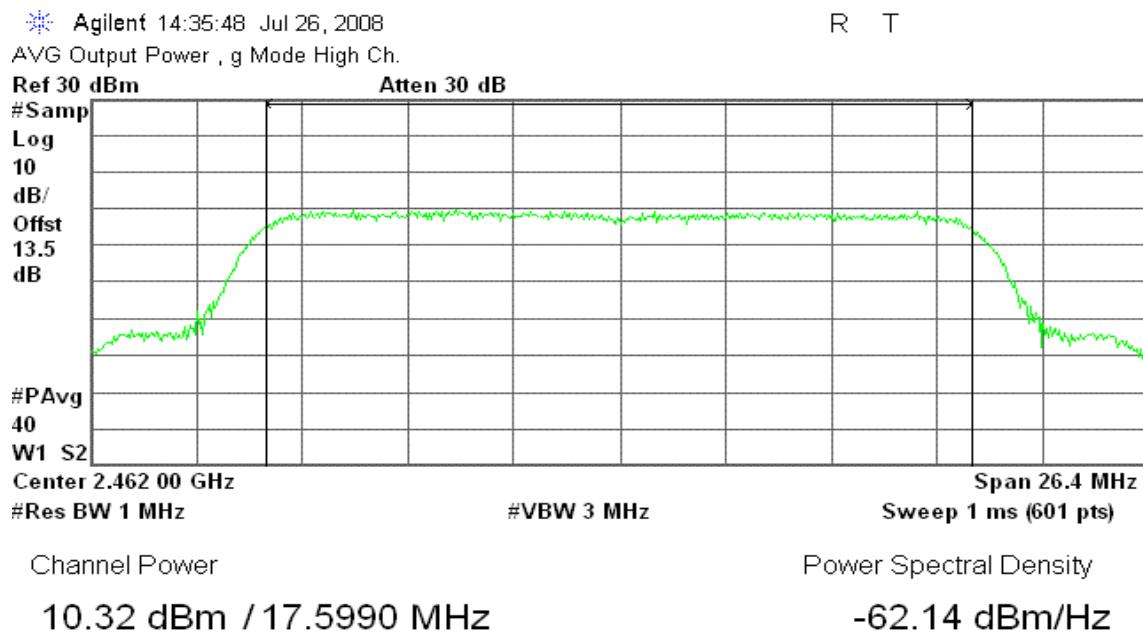
#### Average Power (CH Low)

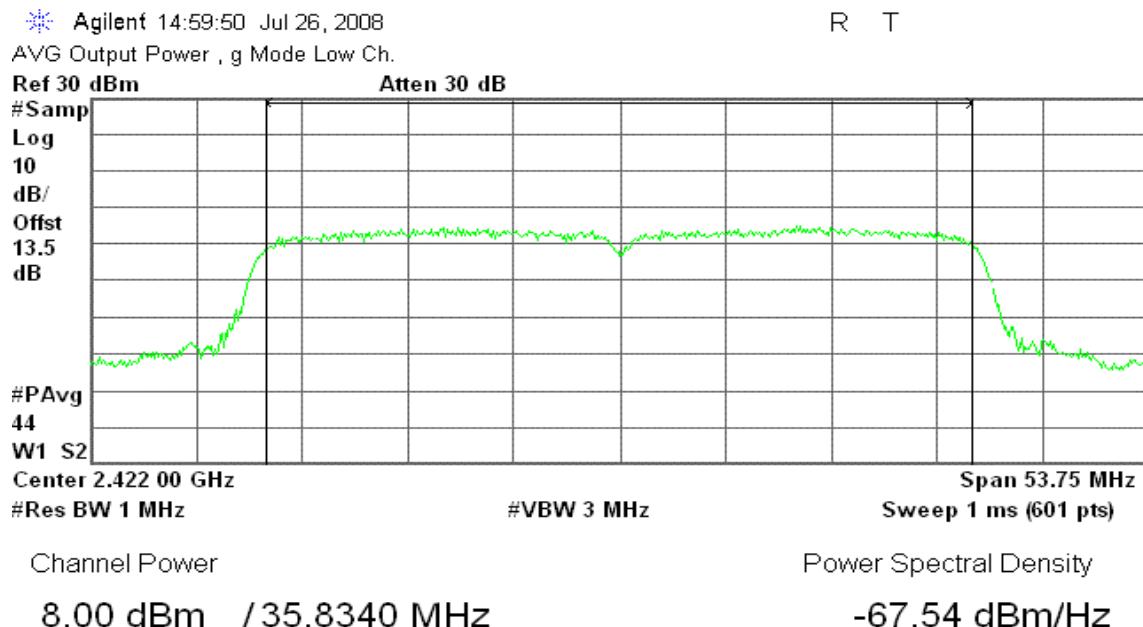
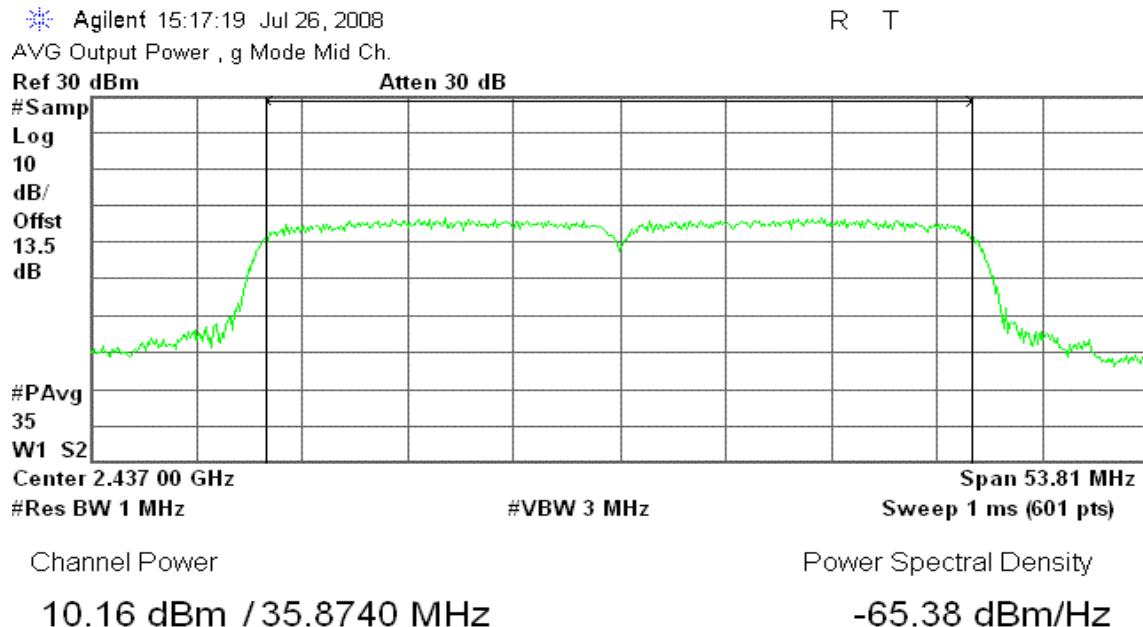


### Average Power (CH Mid)

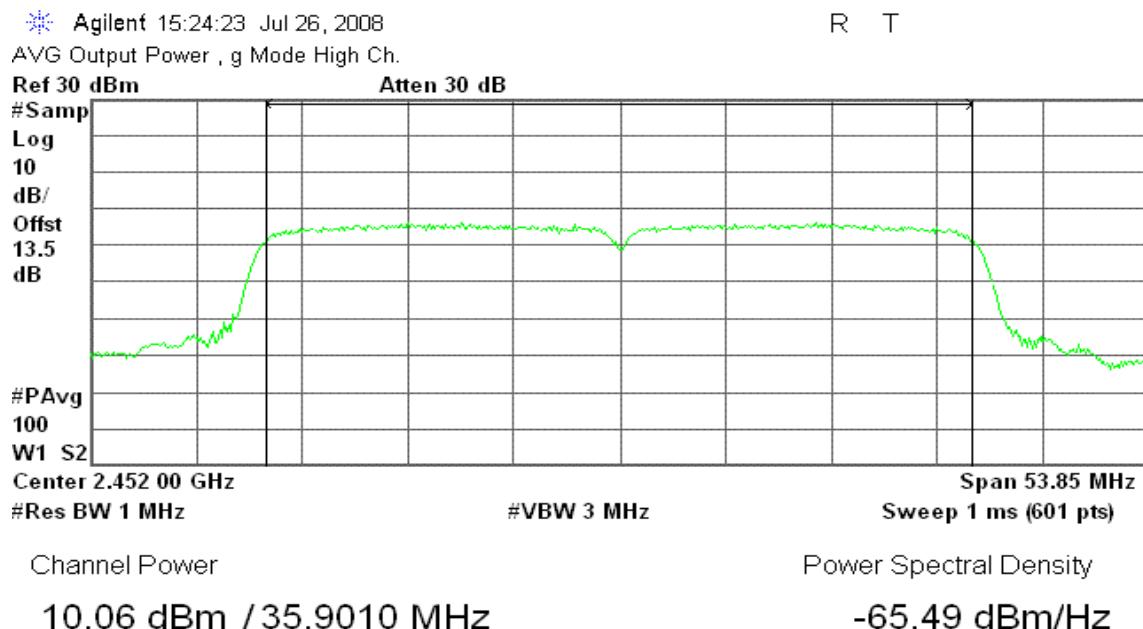


### Average Power (CH High)



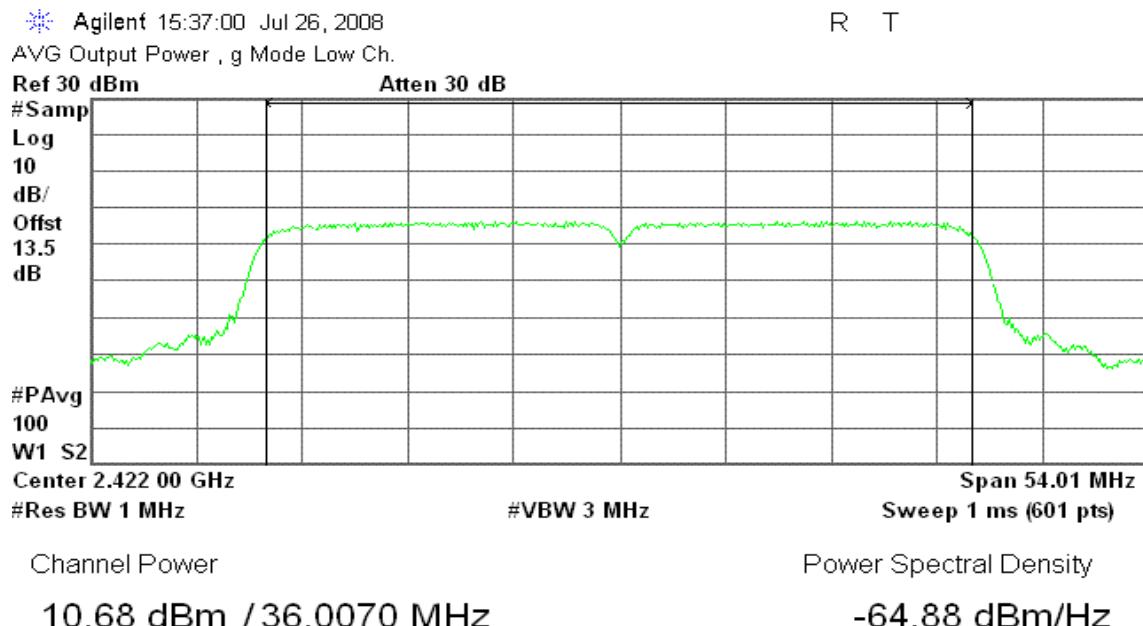
**draft 802.11n Wide-40 MHz Channel mode / Chain 0****Average Power (CH Low)****Average Power (CH Mid)**

### Average Power (CH High)

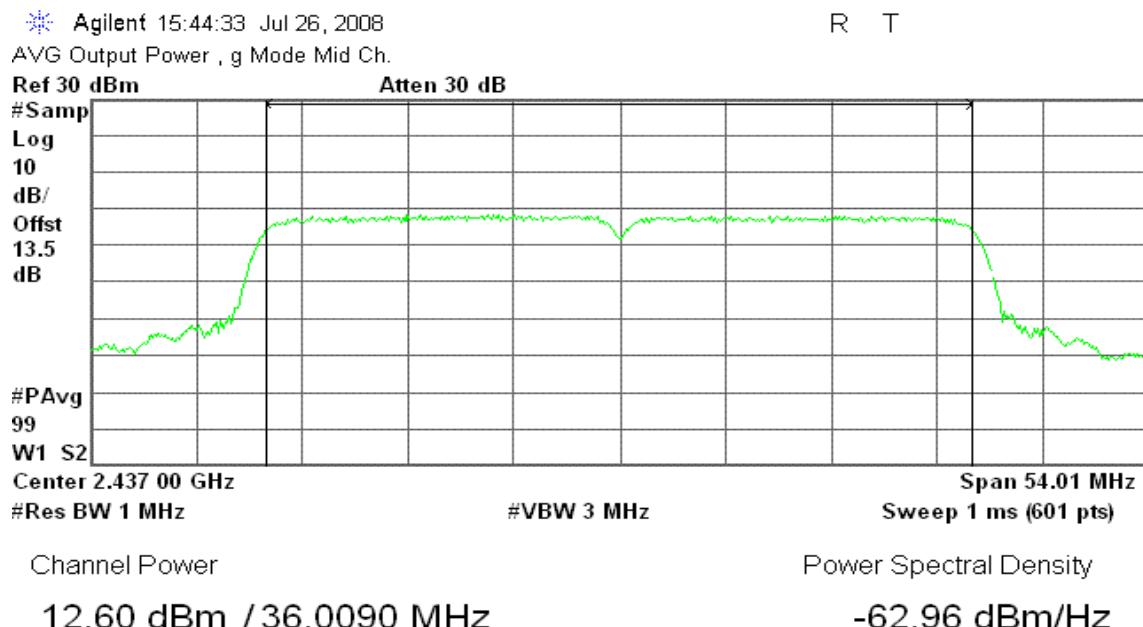


### draft 802.11n Wide-40 MHz Channel mode / Chain 1

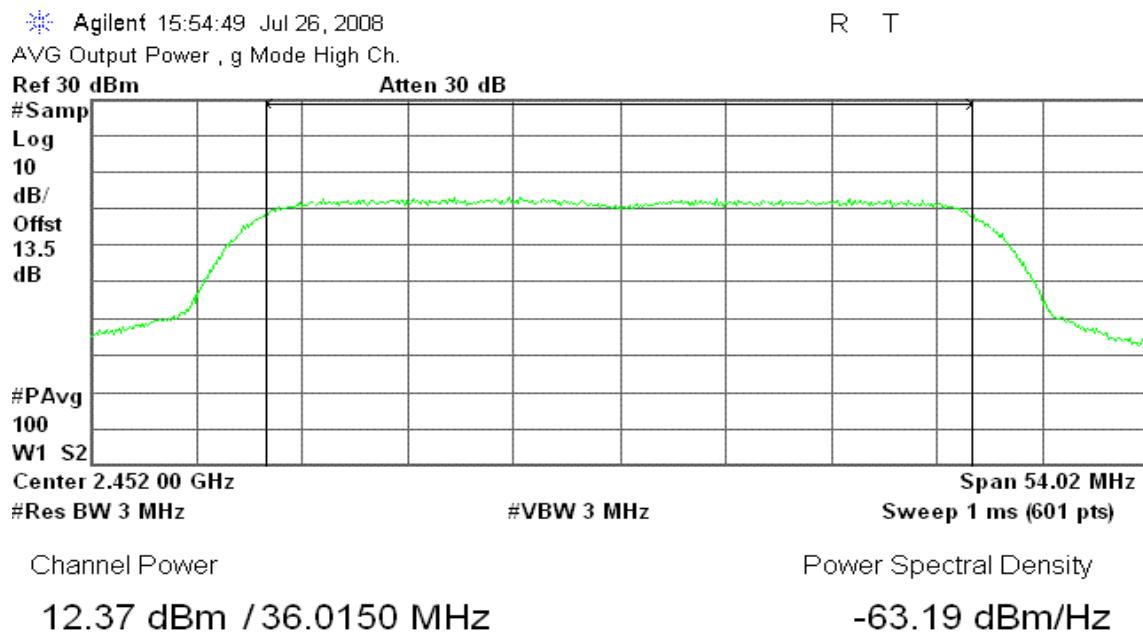
#### Average Power (CH Low)

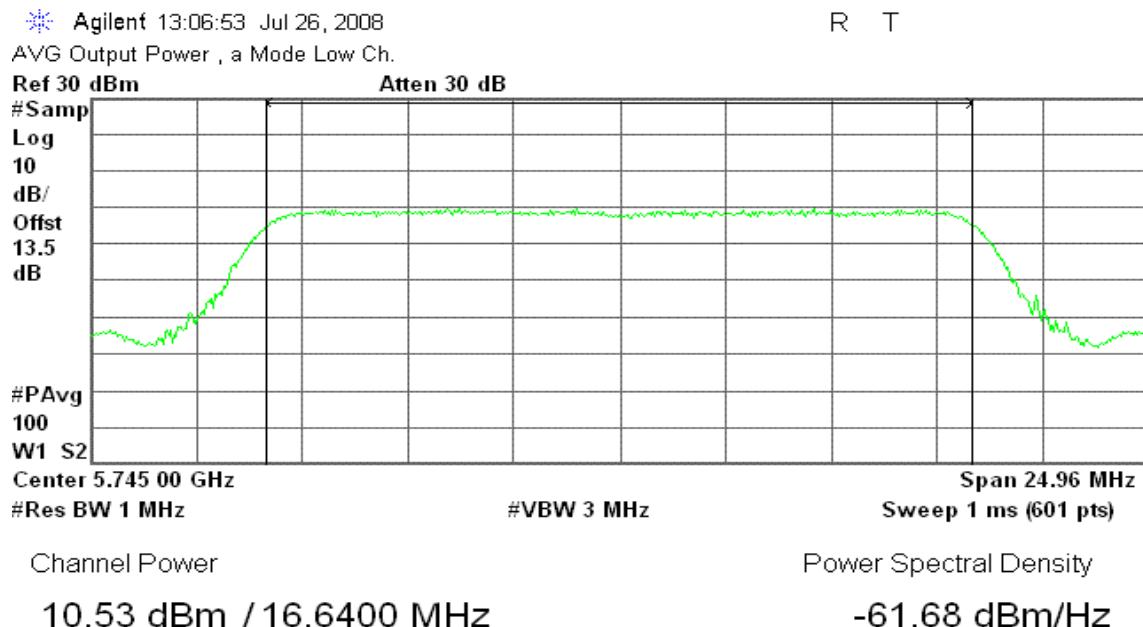
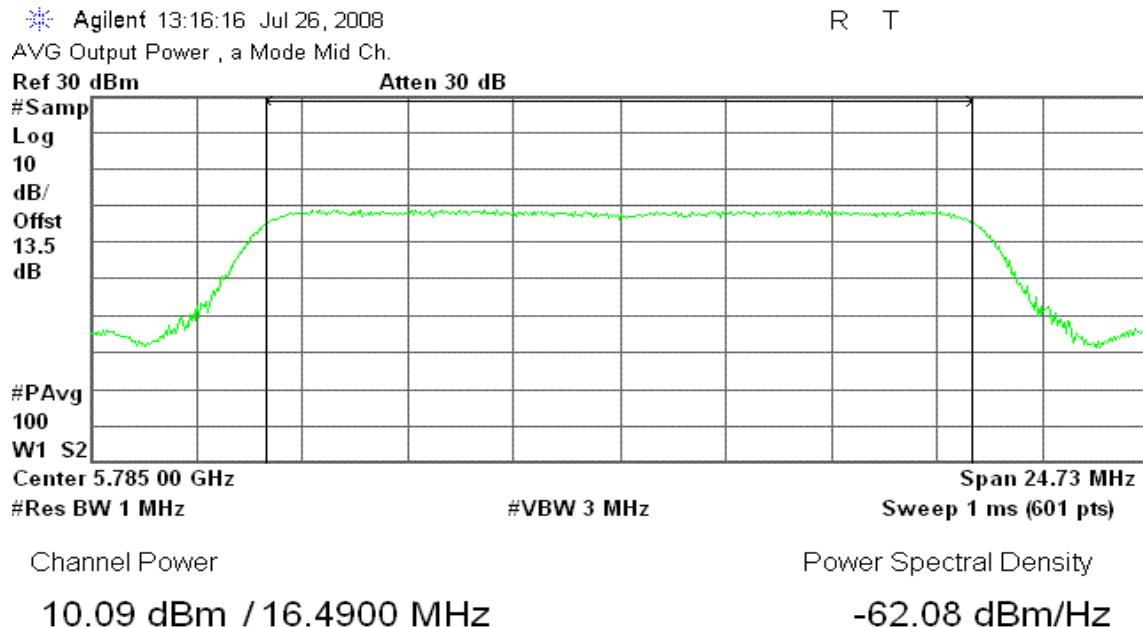


### Average Power (CH Mid)



### Average Power (CH High)

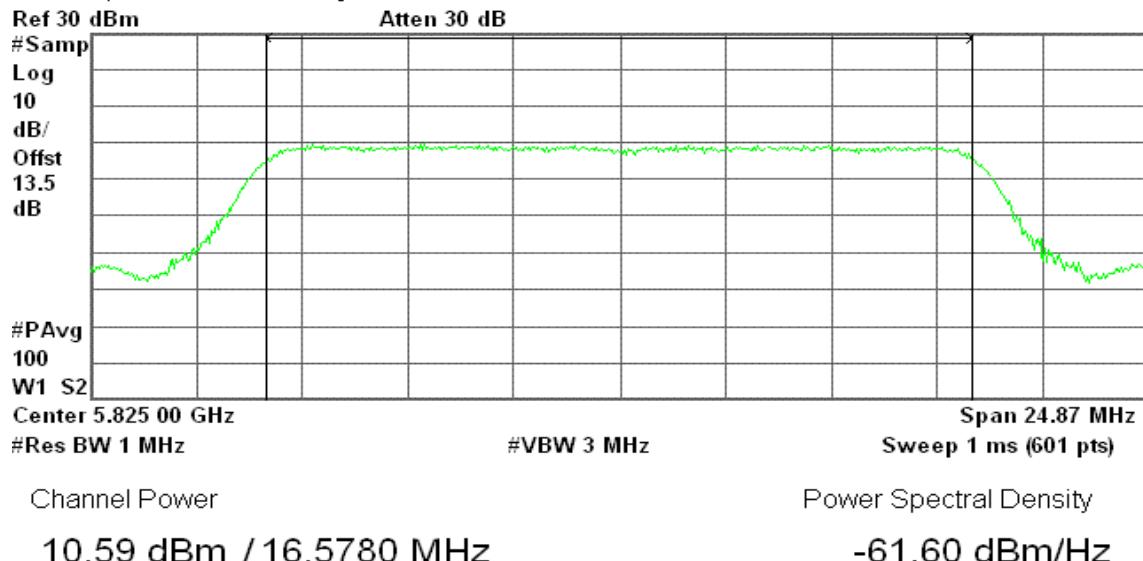


**IEEE 802.11a mode****Average Power (CH Low)****Average Power (CH Mid)**

**Average Power (CH High)**

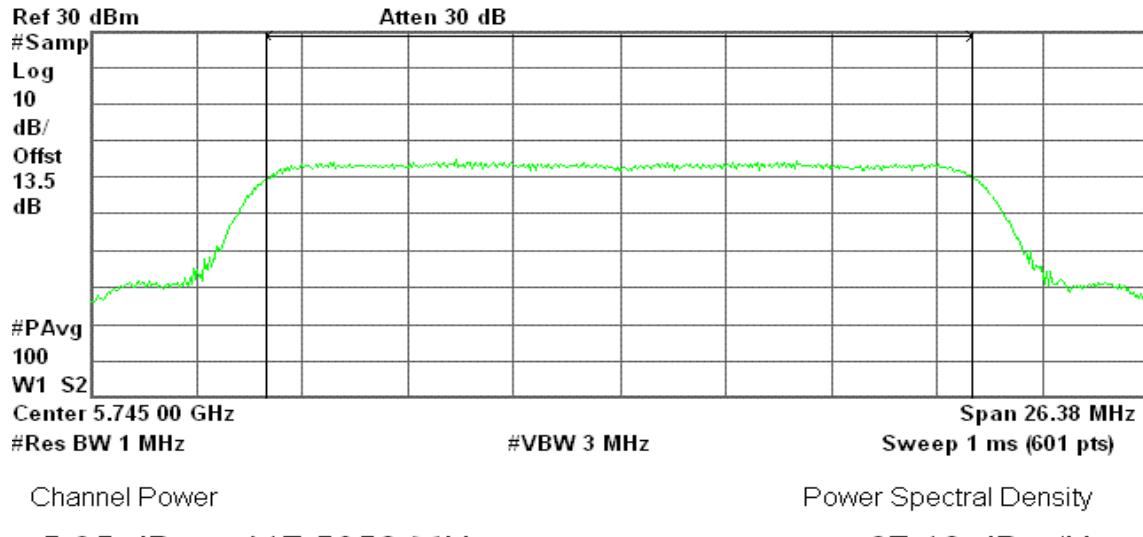
Agilent 13:25:51 Jul 26, 2008

AVG Output Power , a Mode High Ch.

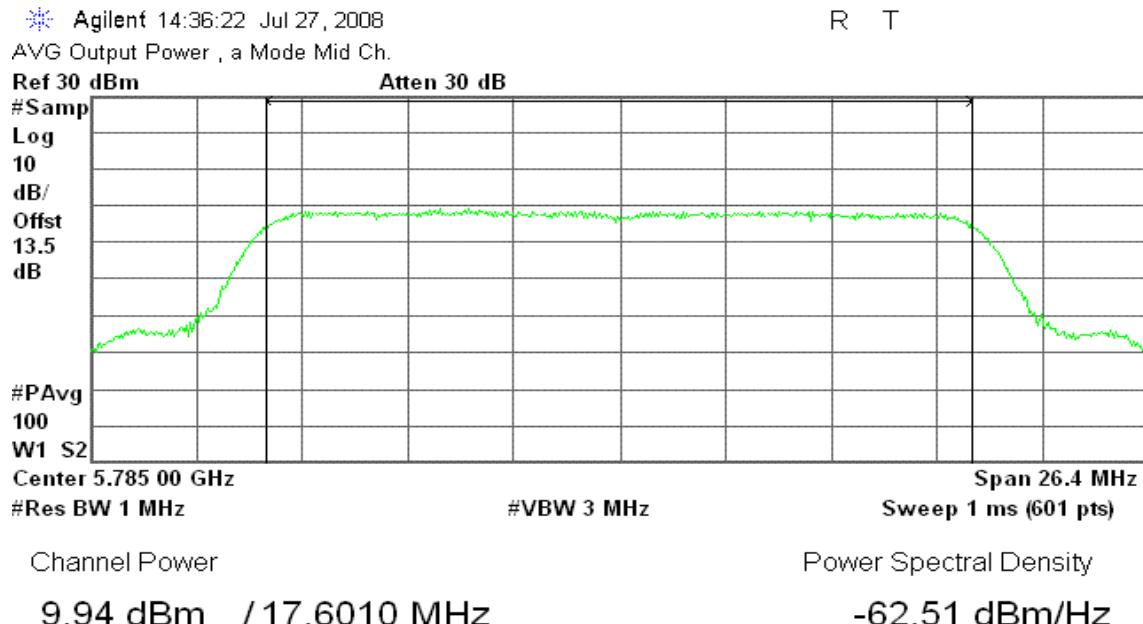
**draft 802.11n Standard-20 MHz Channel mode / Chain 0****Average Power (CH Low)**

Agilent 14:43:58 Jul 27, 2008

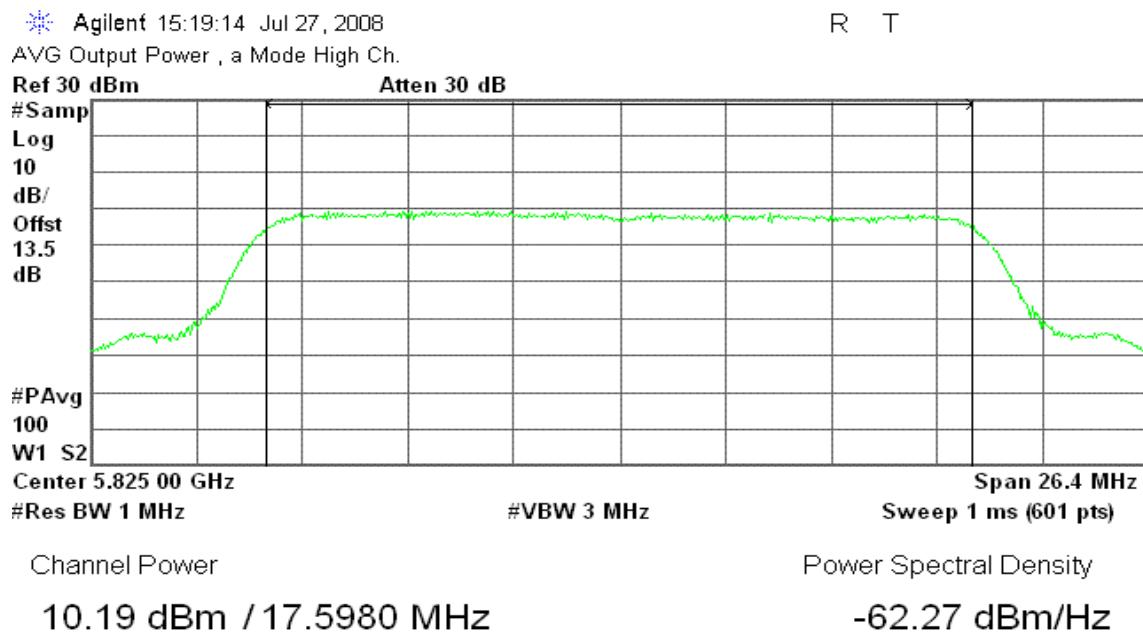
AVG Output Power , a Mode Low Ch.

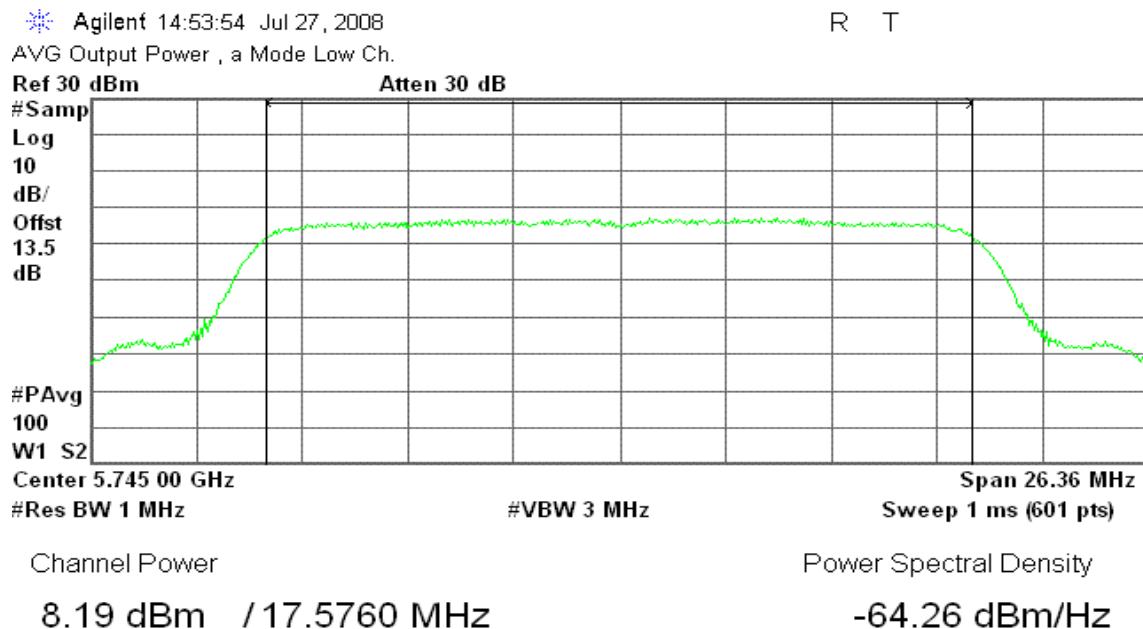
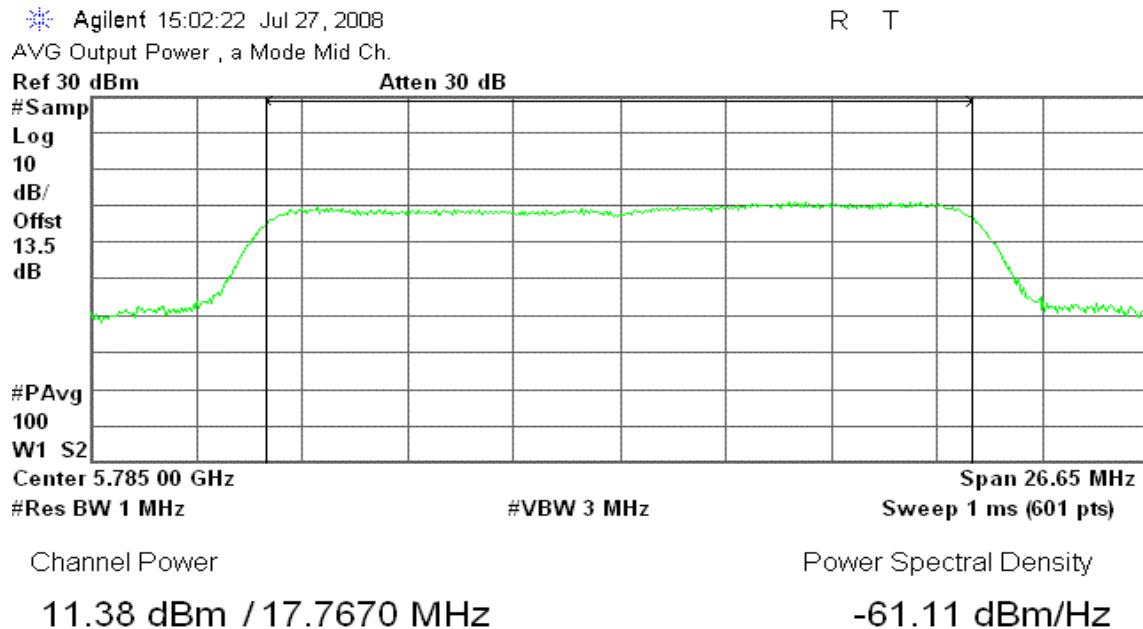


### Average Power (CH Mid)



### Average Power (CH High)

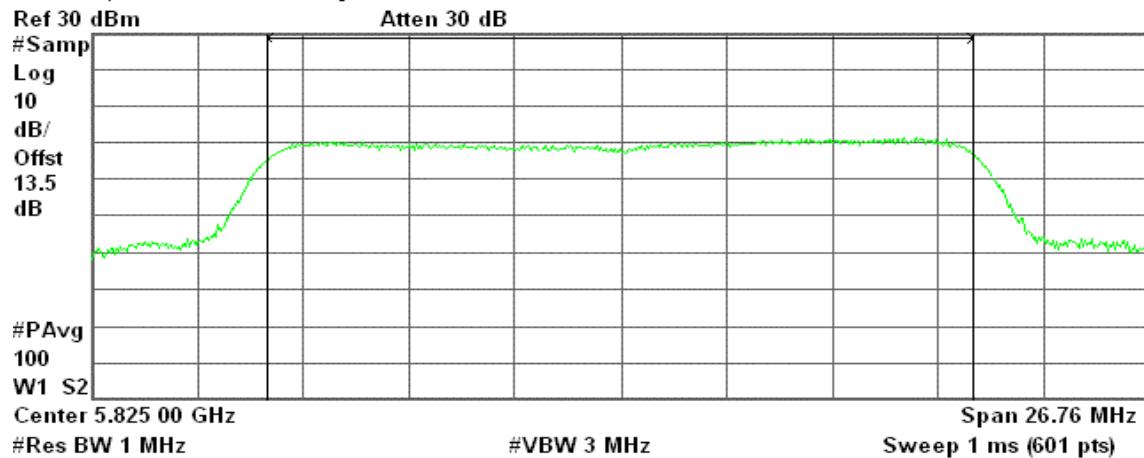


**draft 802.11n Standard-20 MHz Channel mode / Chain 1****Average Power (CH Low)****Average Power (CH Mid)**

### Average Power (CH High)

\* Agilent 15:09:05 Jul 27, 2008  
AVG Output Power , a Mode High Ch.

R T

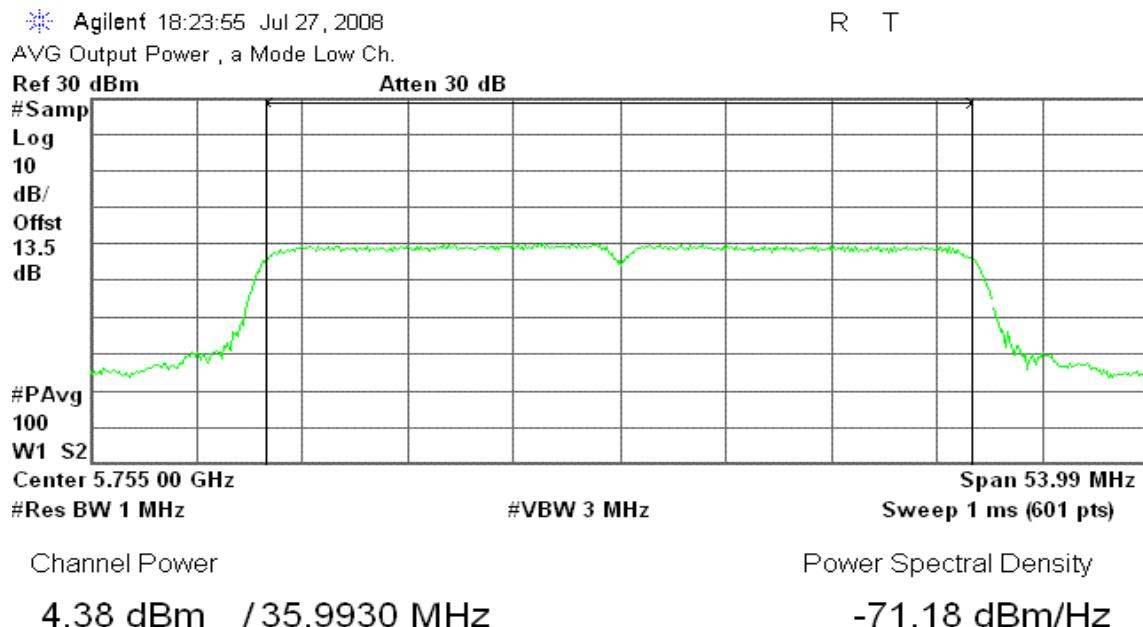
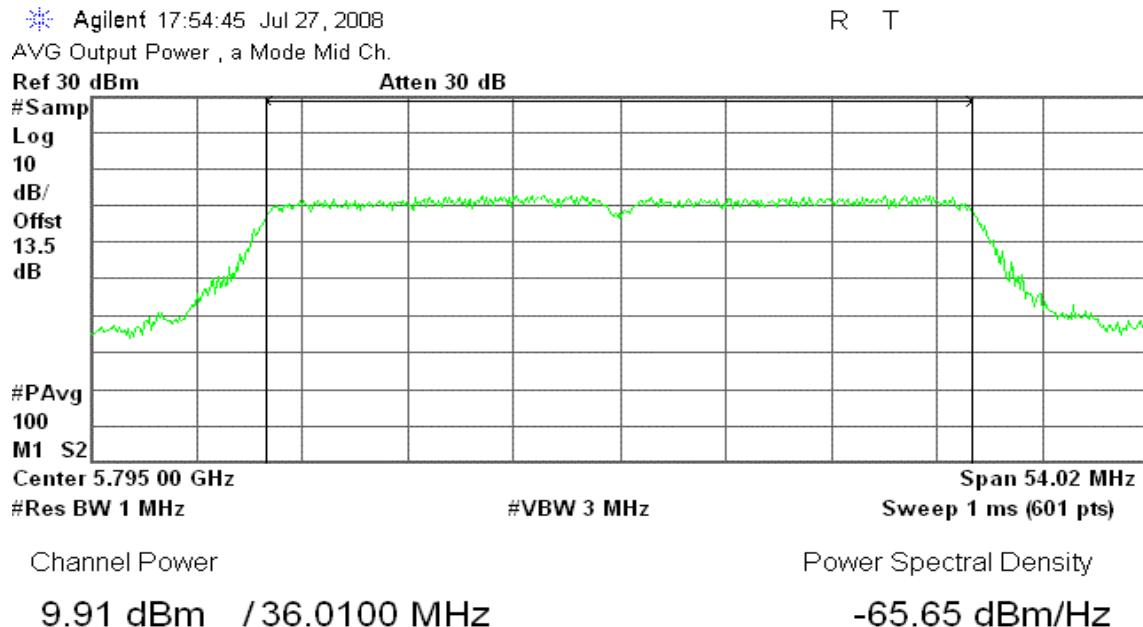


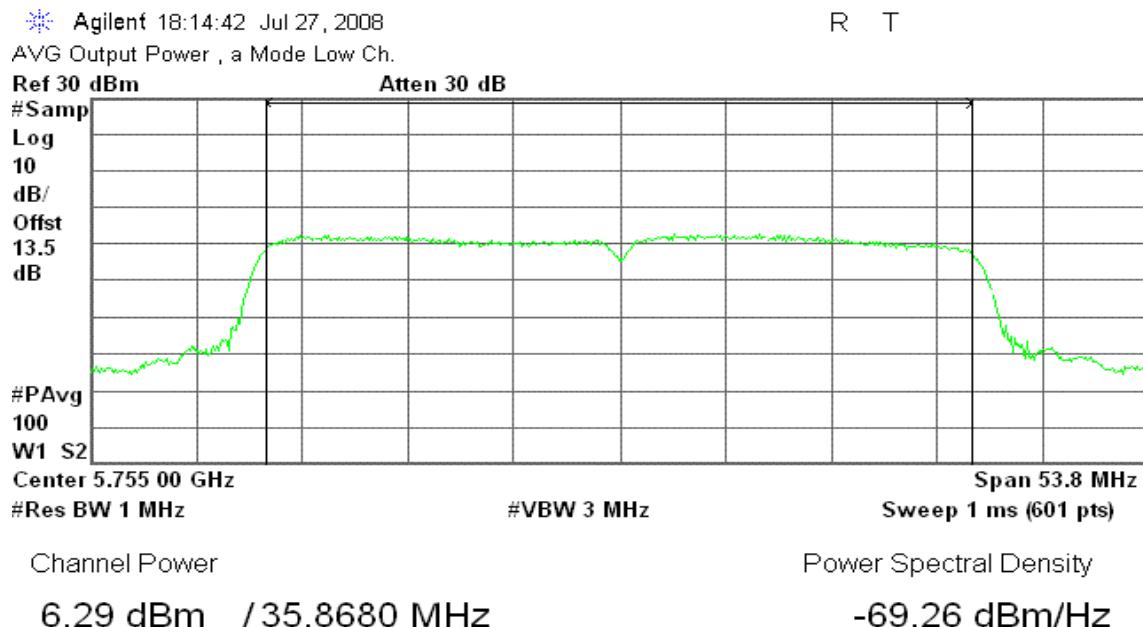
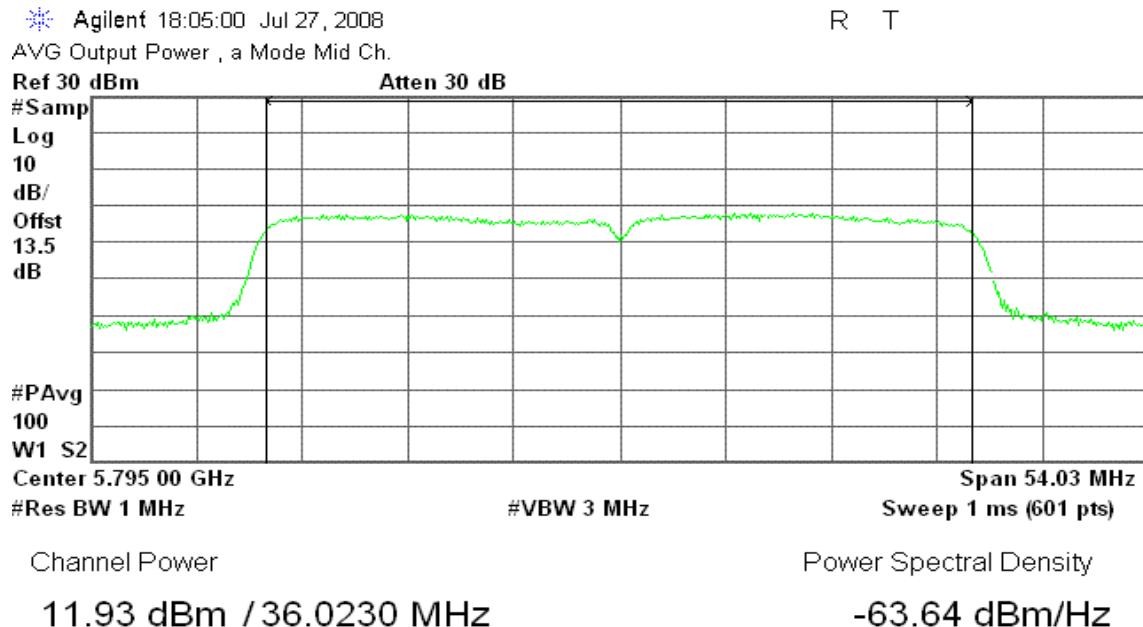
### Channel Power

11.84 dBm / 17.8380 MHz

### Power Spectral Density

### Sweep 1 ms (601 pts)

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

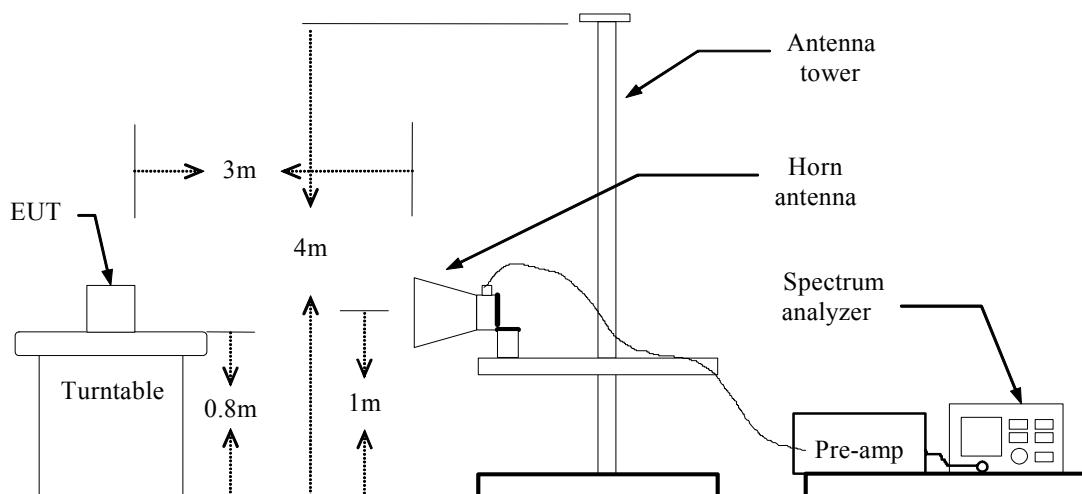
**draft 802.11n Wide-40 MHz Channel mode / Chain 1****Average Power (CH Low)****Average Power (CH High)**

## 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

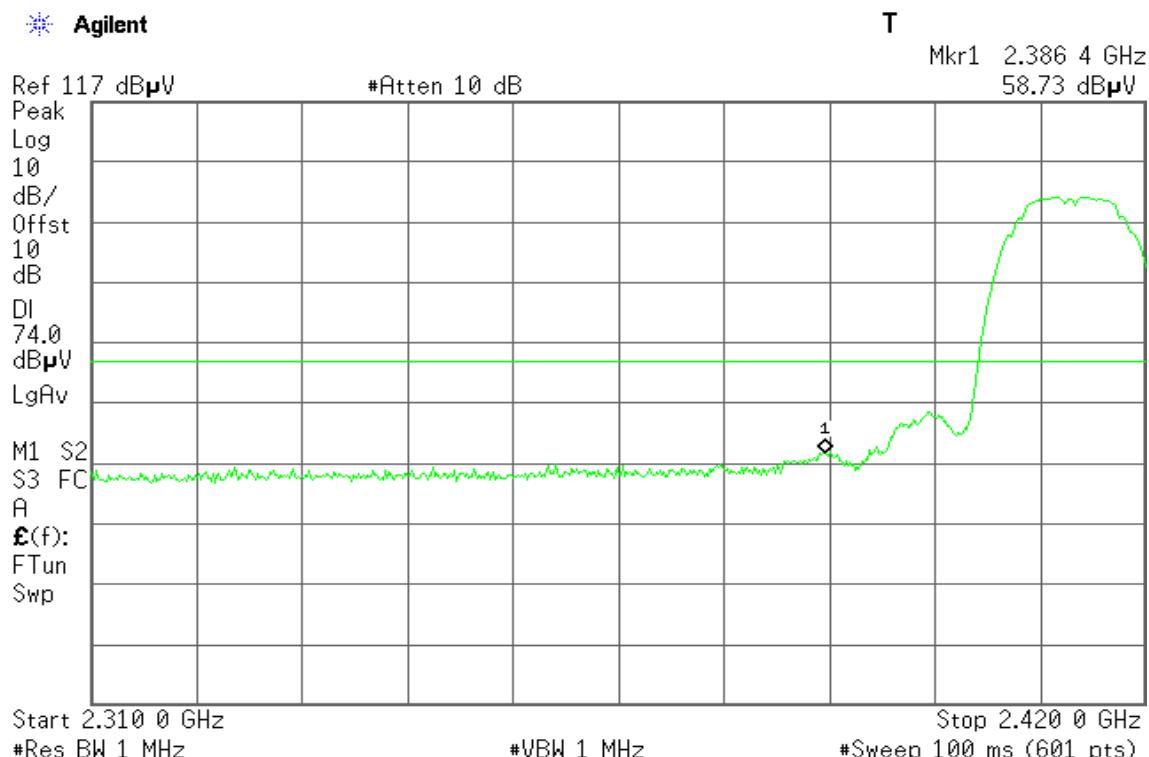
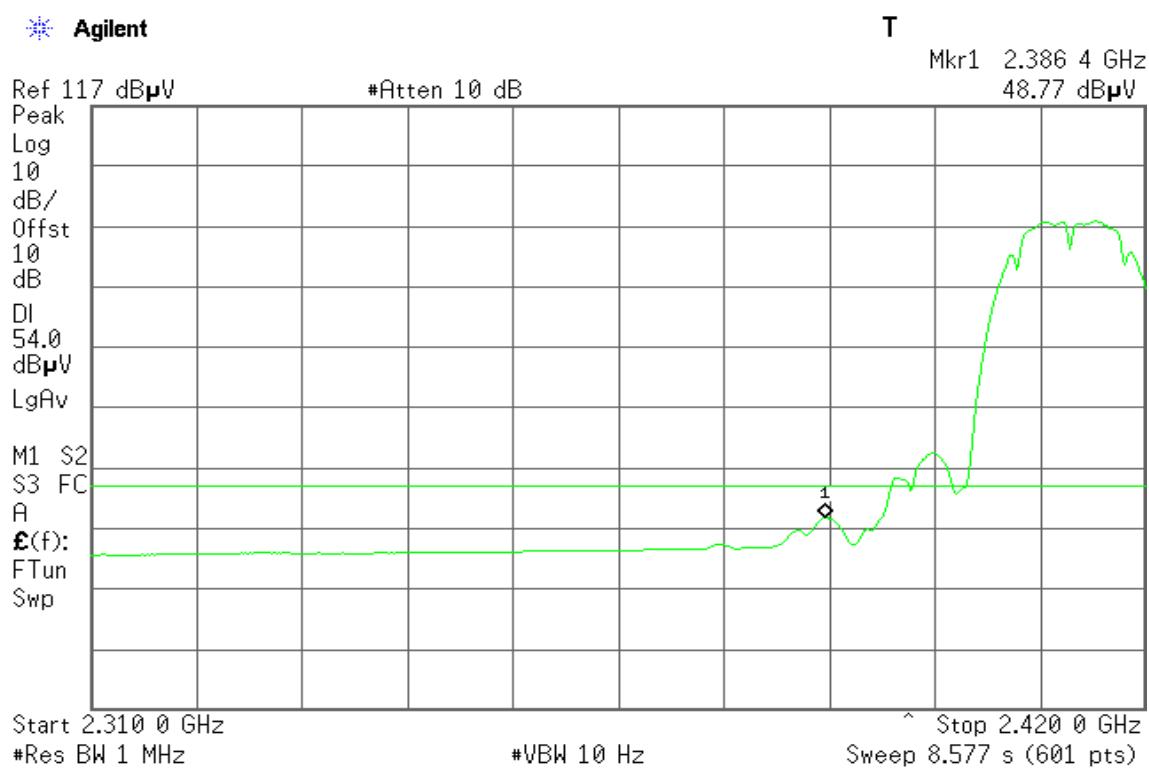


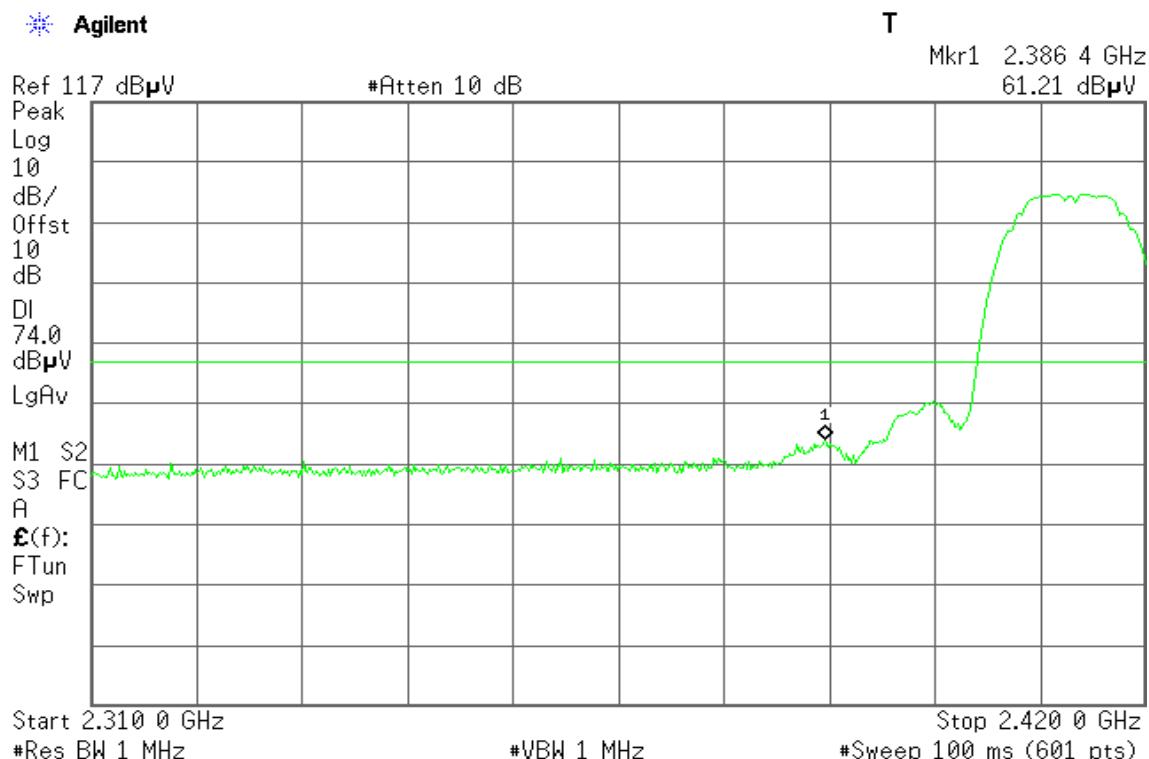
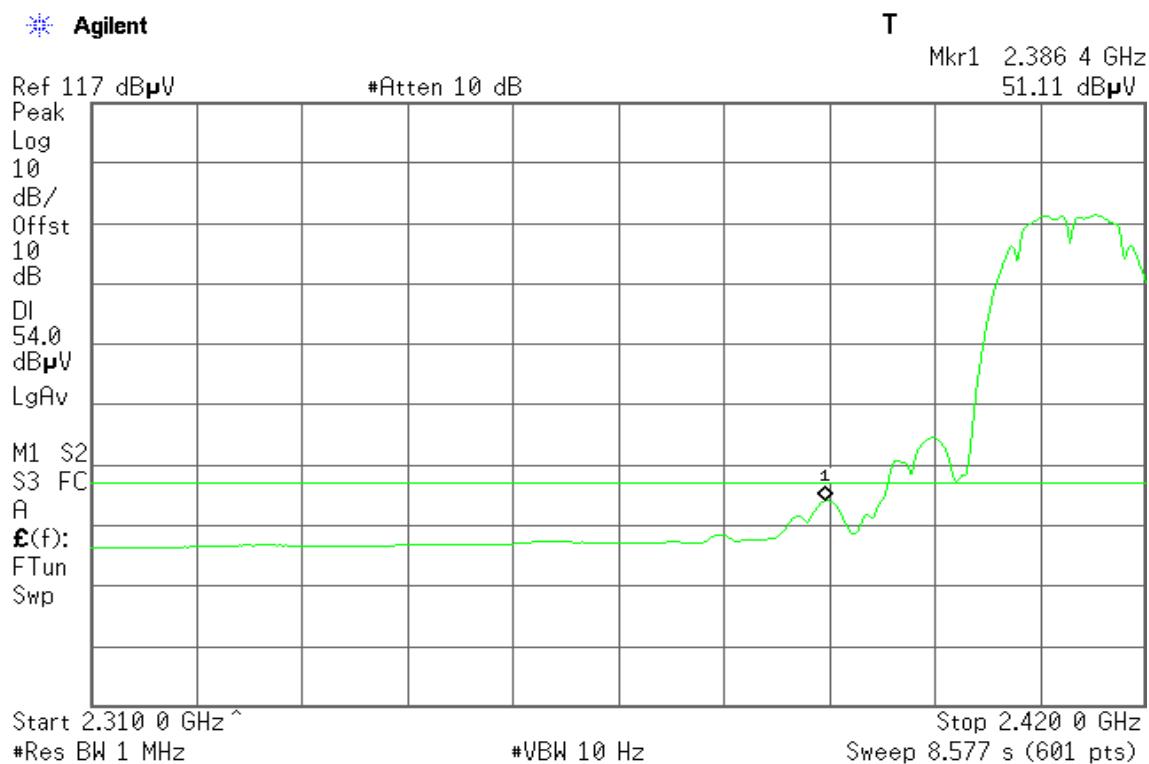
### TEST PROCEDURE

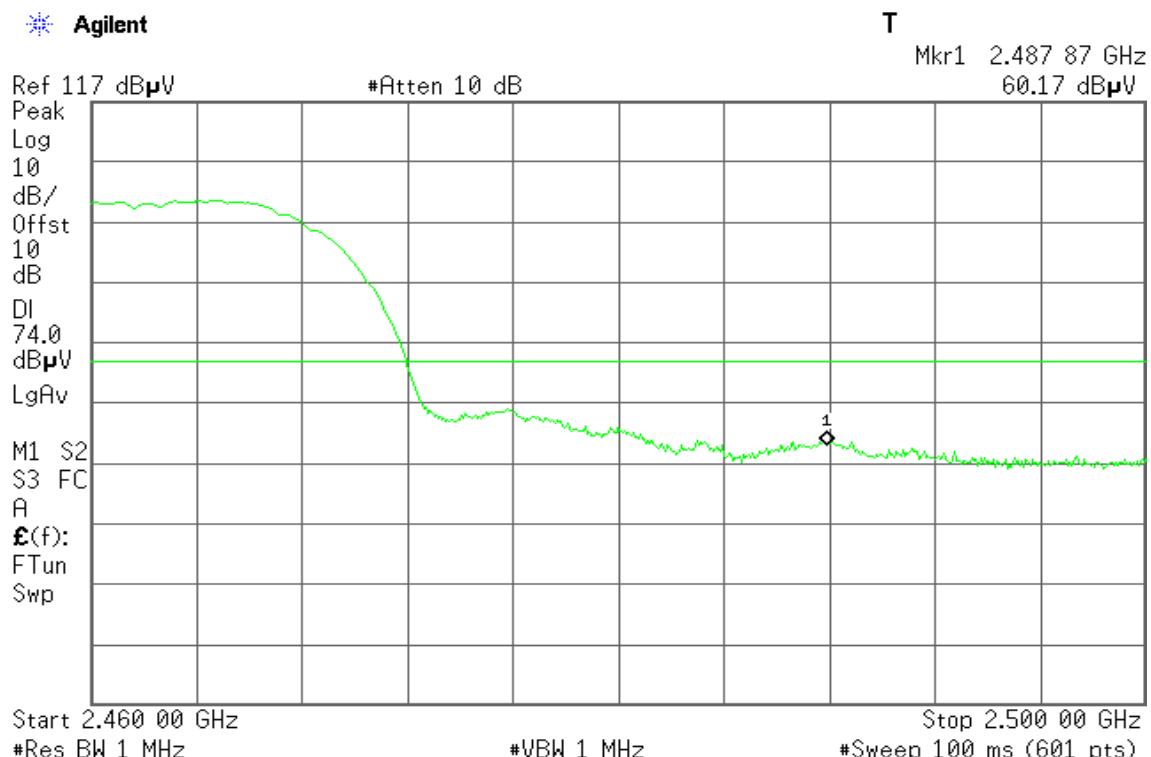
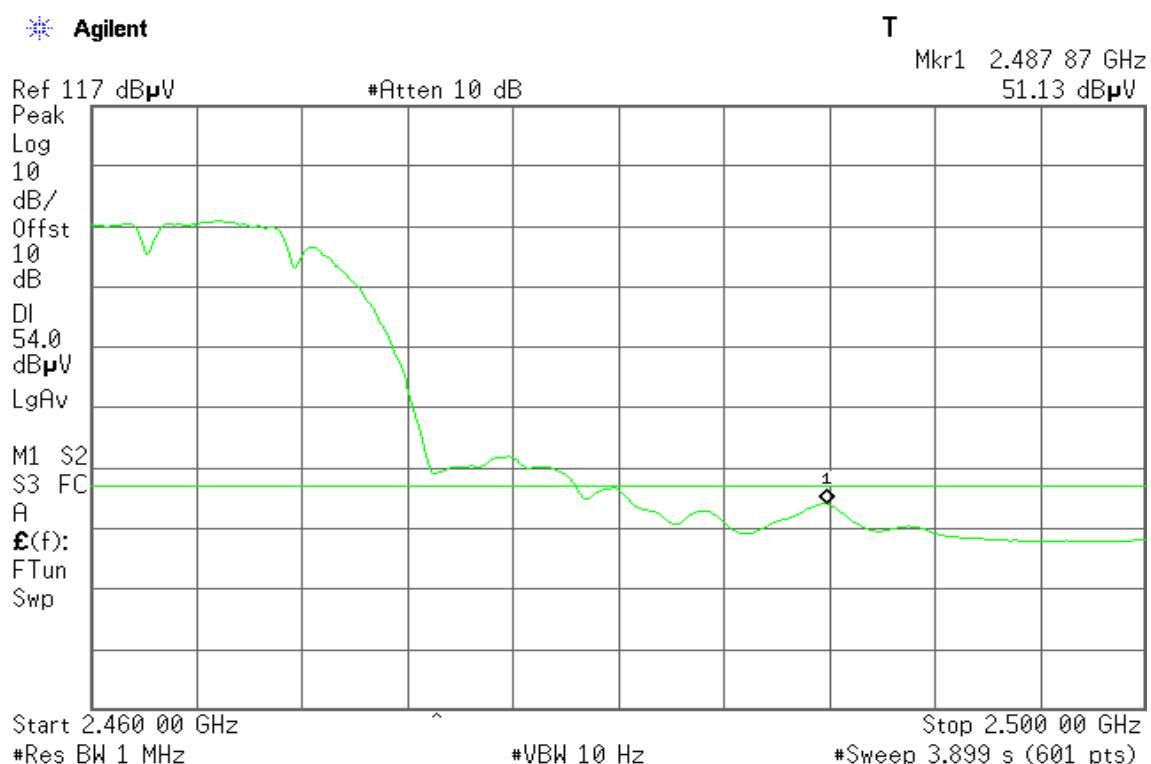
1. The EUT is placed on a turntable, which is 0.8m above the ground plane.
2. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.
3. EUT is set 3m away from the receiving antenna, which is varied from 1m to 4m to find out the highest emission.
4. Set the 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.

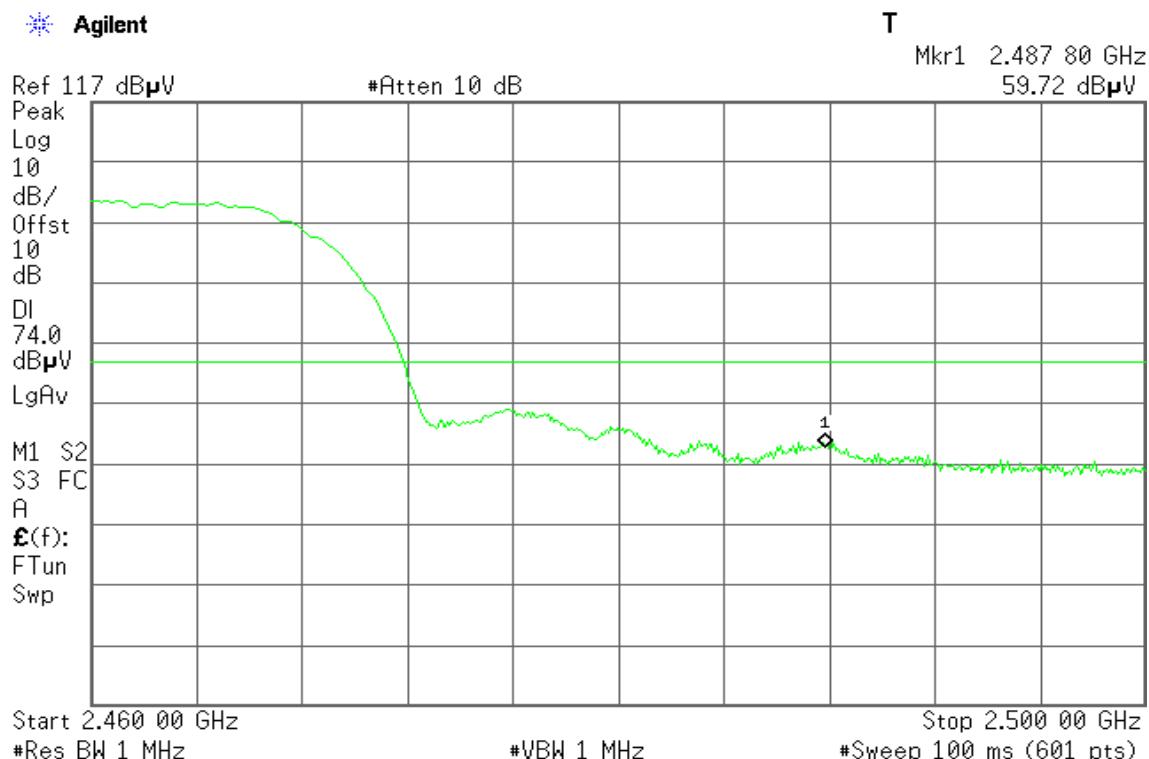
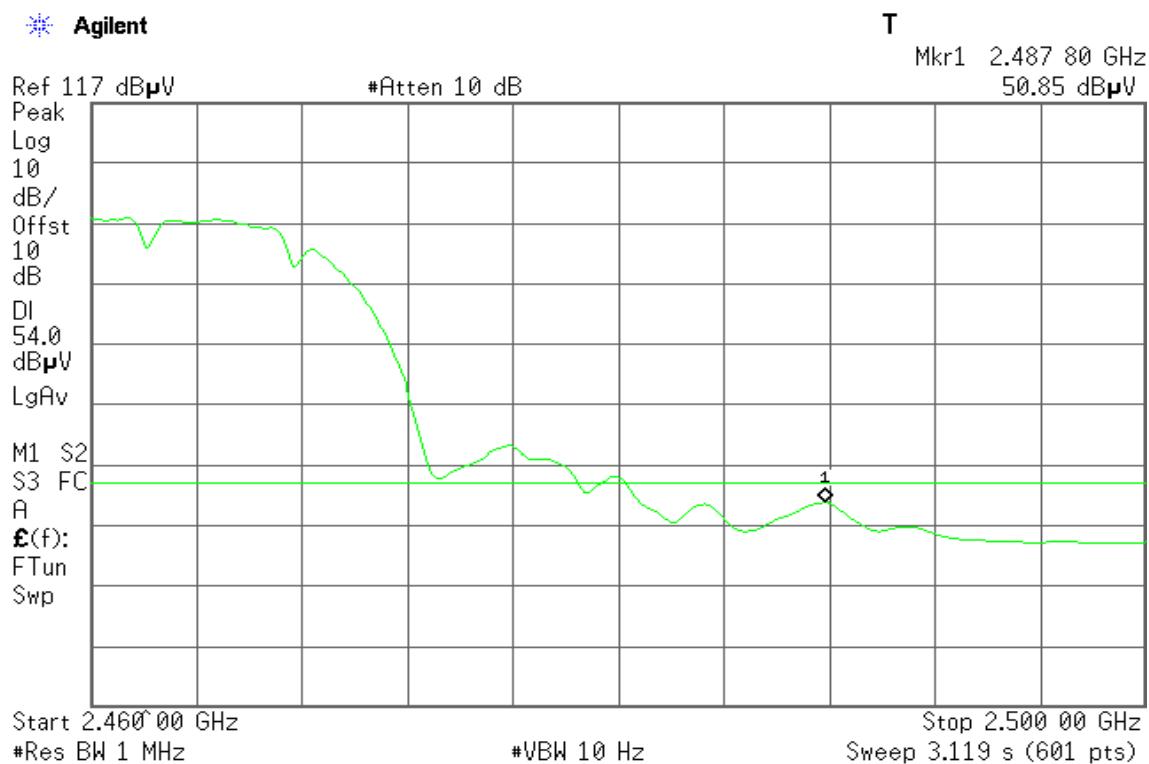
### TEST RESULTS

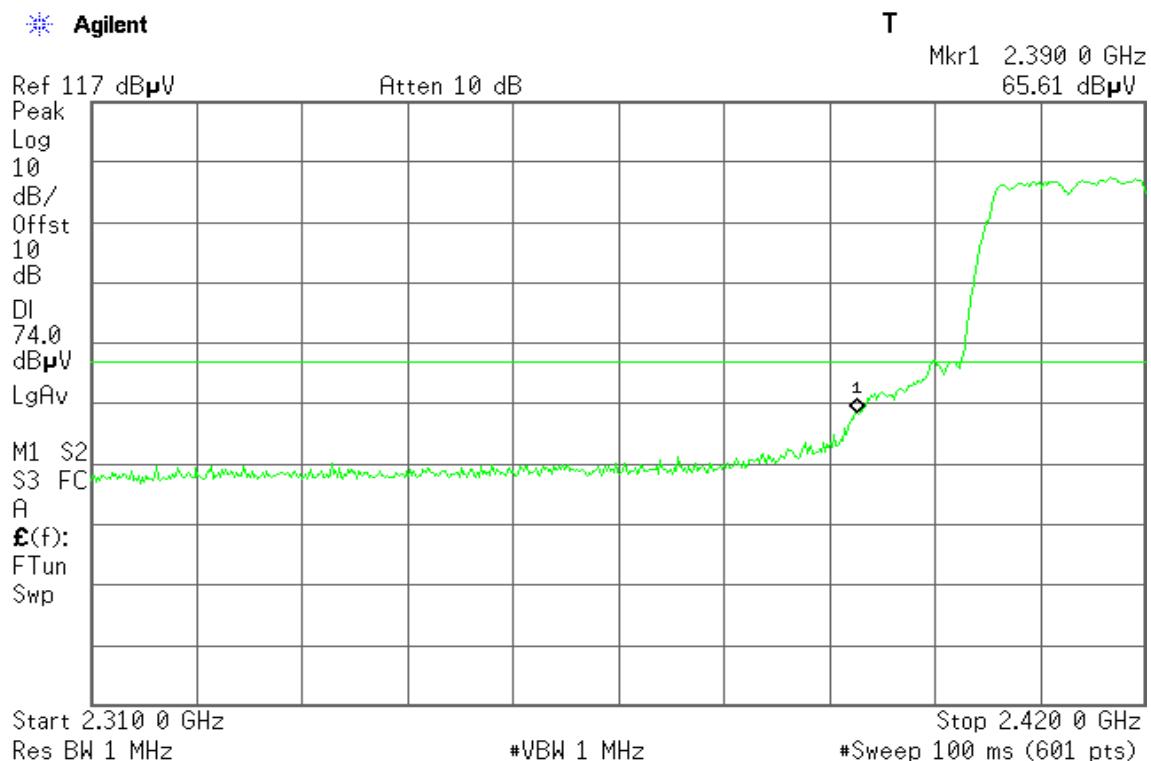
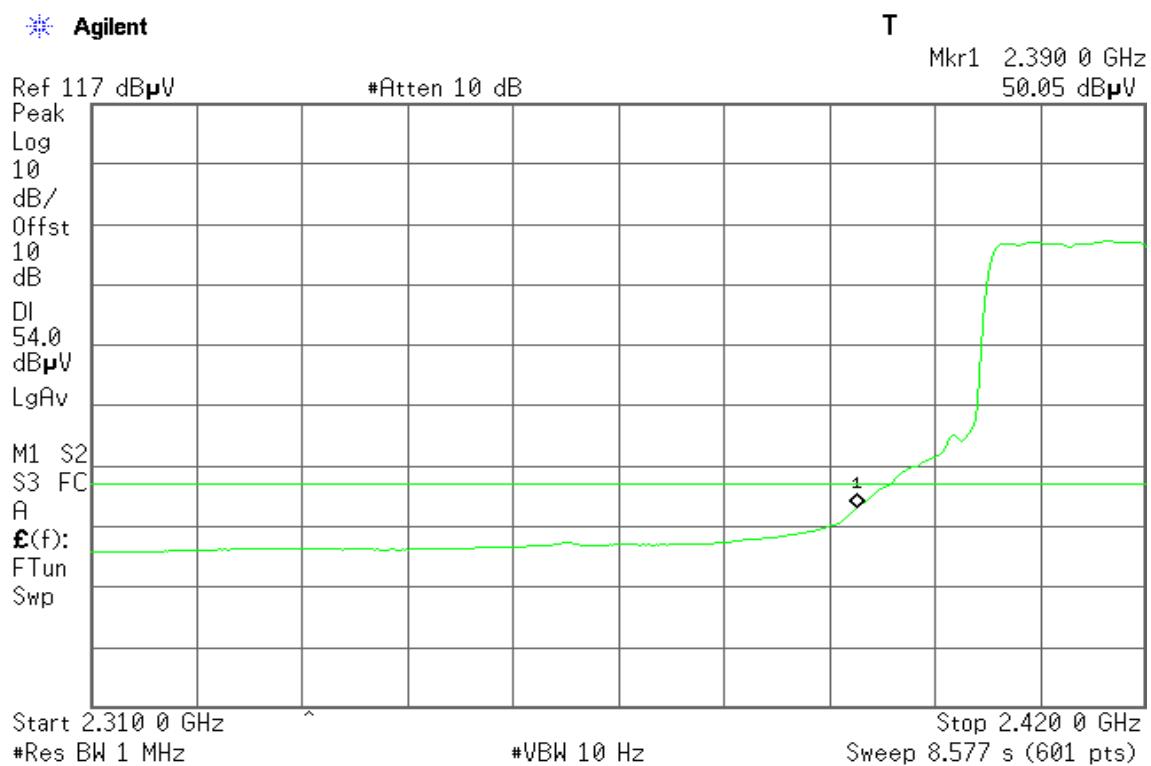
Refer to attach spectrum analyzer data chart.

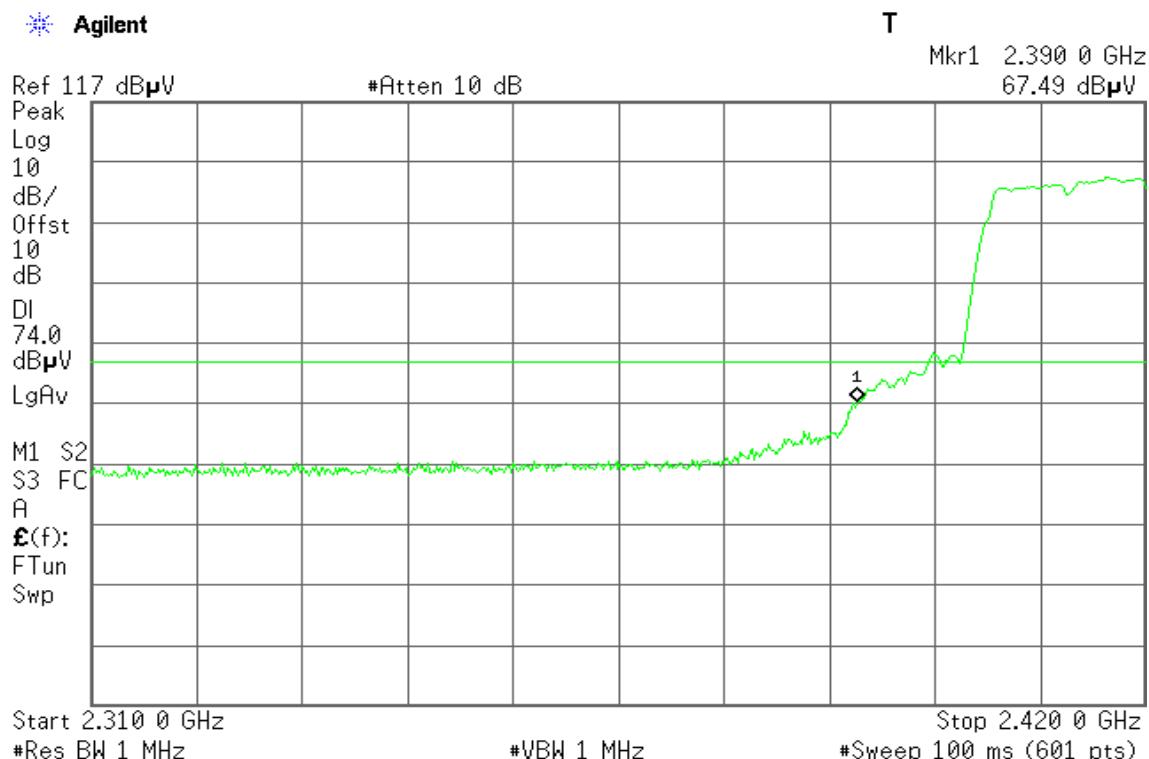
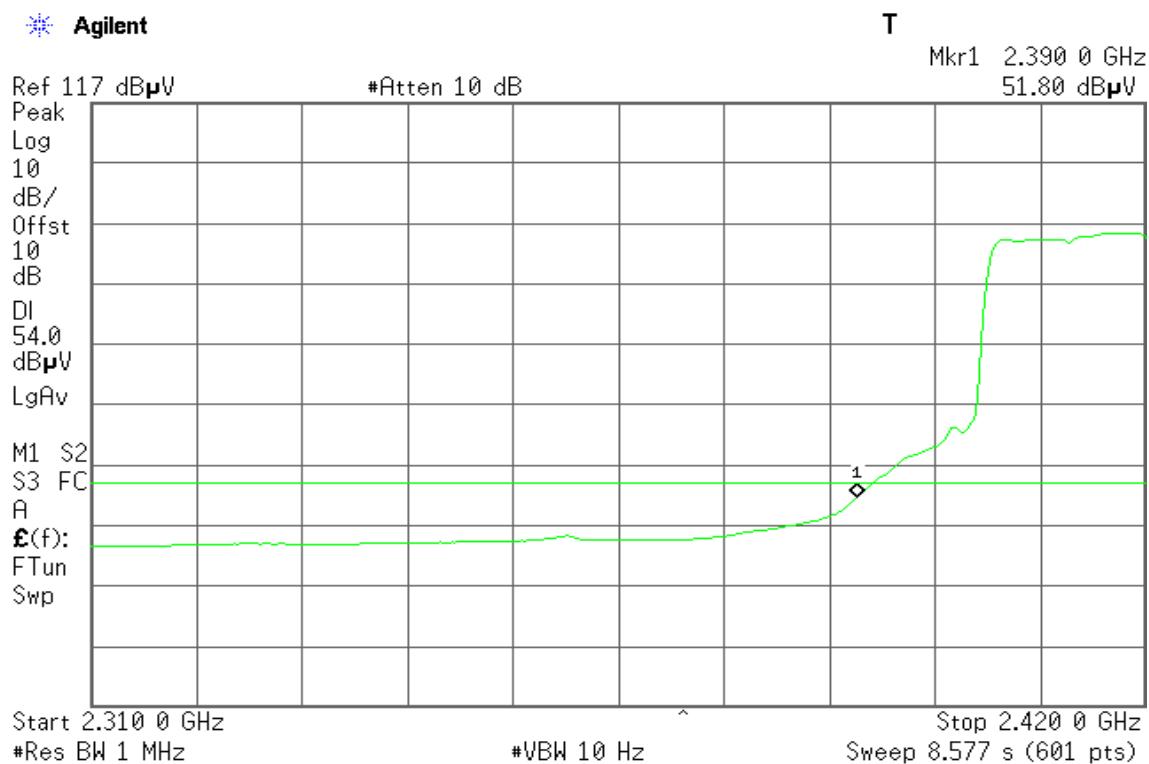
**Band Edges (IEEE 802.11b mode / CH Low)****Detector mode: Peak****Polarity: Vertical****Detector mode: Average****Polarity: Vertical**

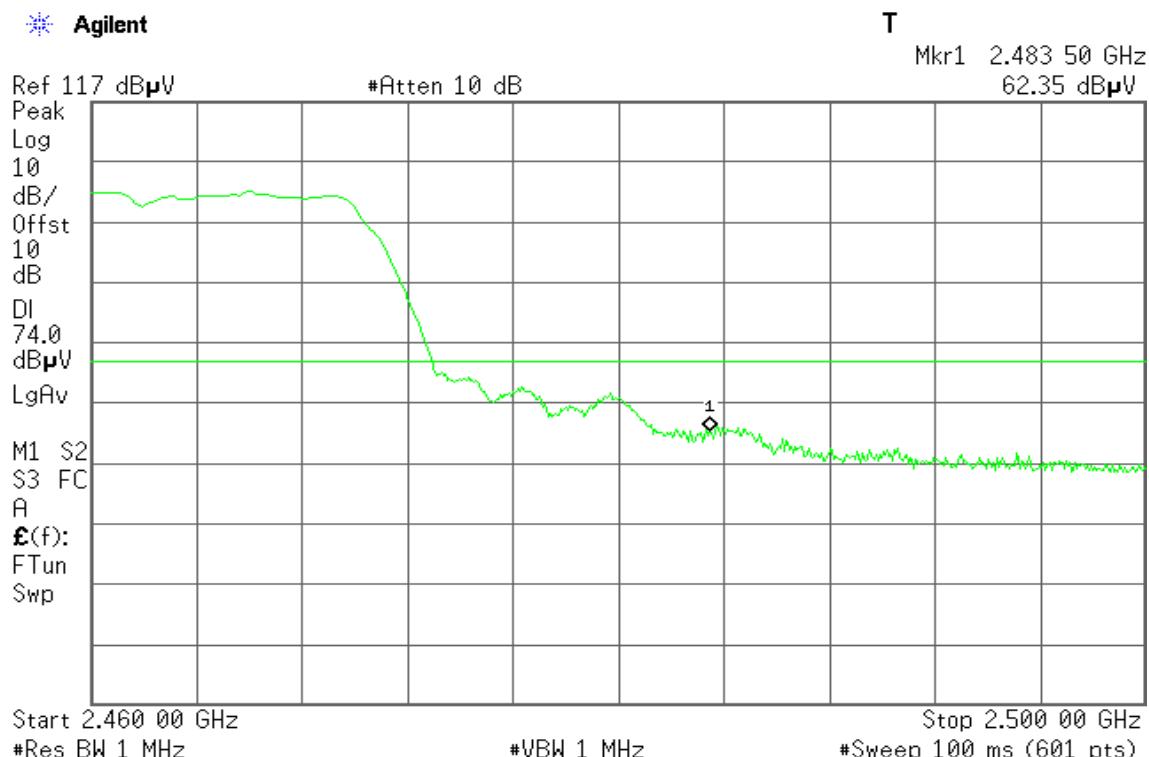
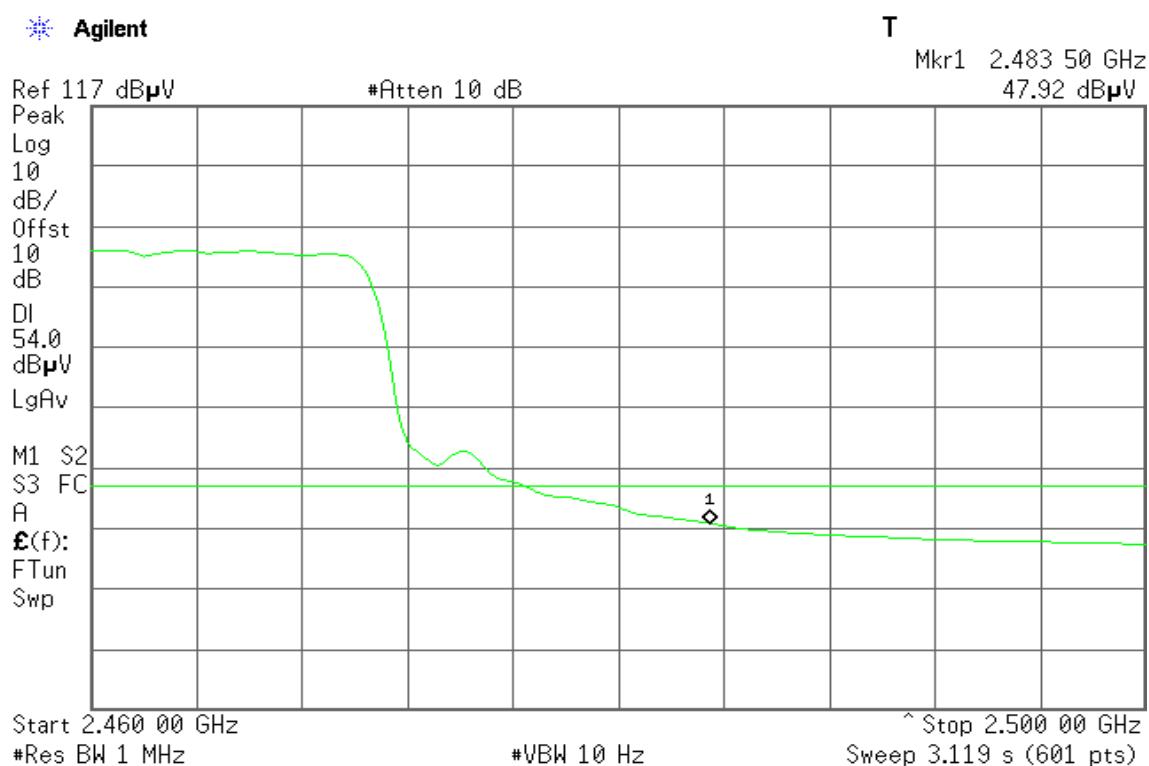
**Detector mode: Peak****Polarity: Horizontal****Detector mode: Average****Polarity: Horizontal**

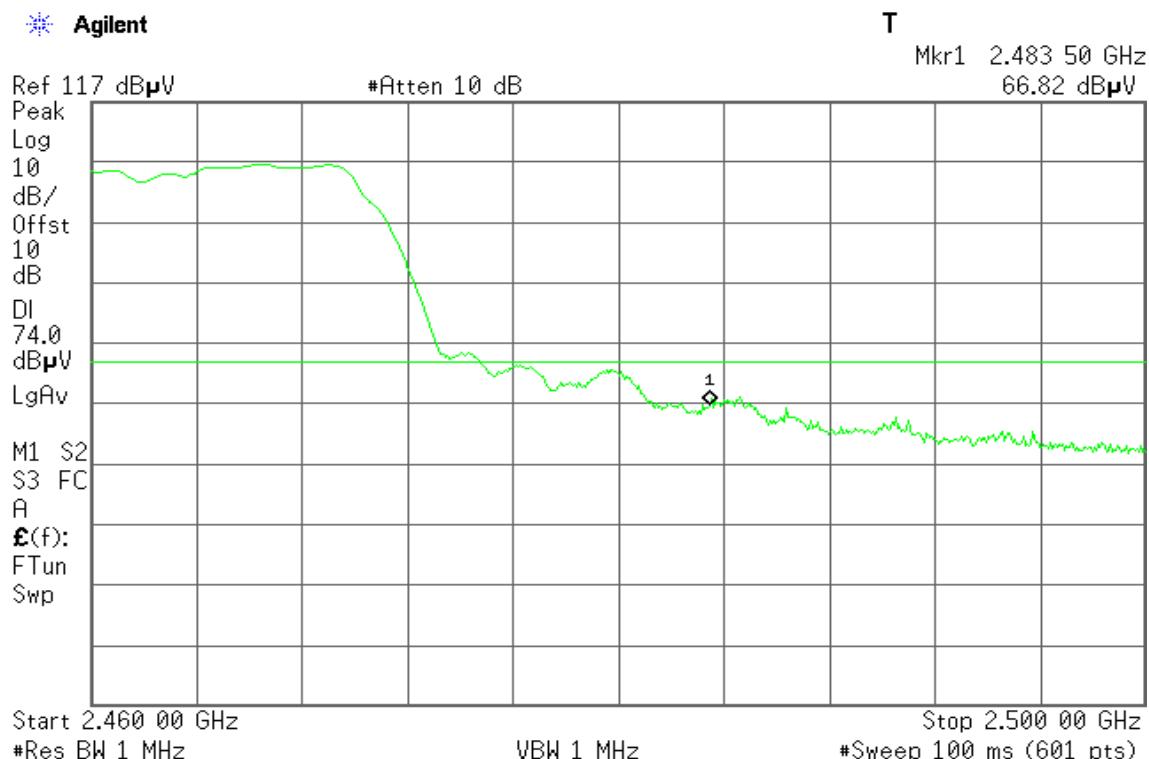
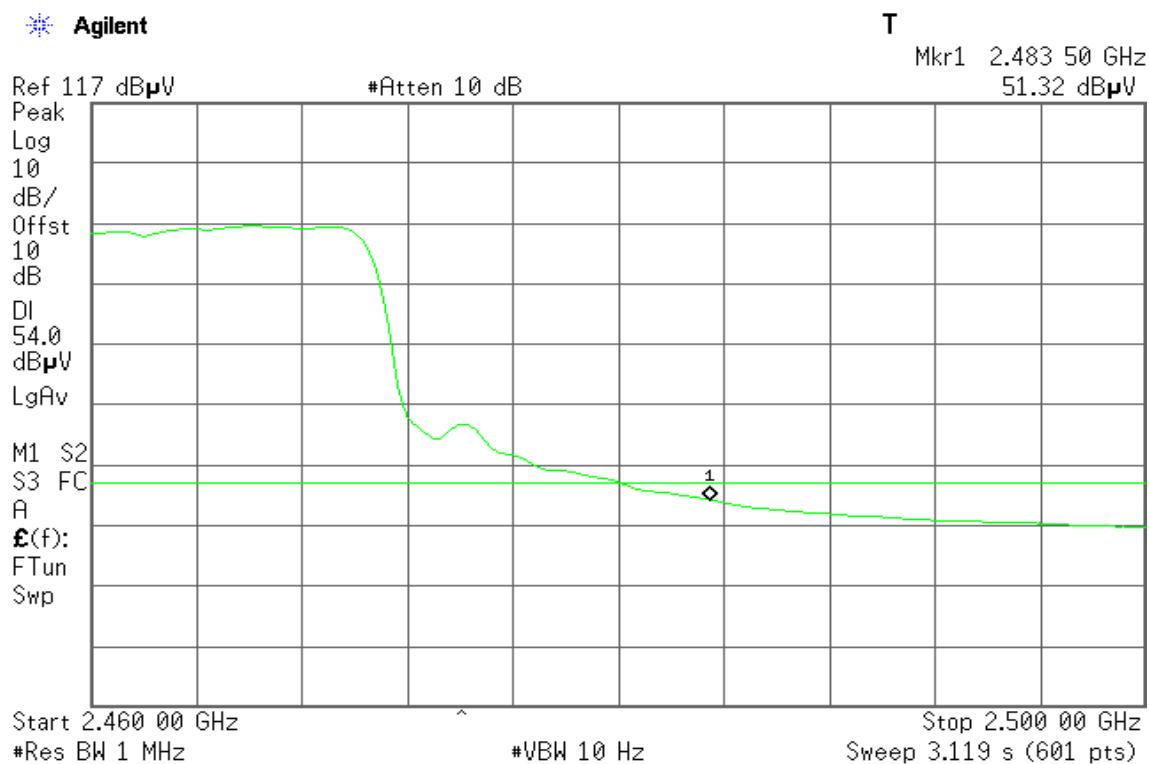
**Band Edges (IEEE 802.11b mode / CH High)****Detector mode: Peak****Polarity: Vertical****Detector mode: Average****Polarity: Vertical**

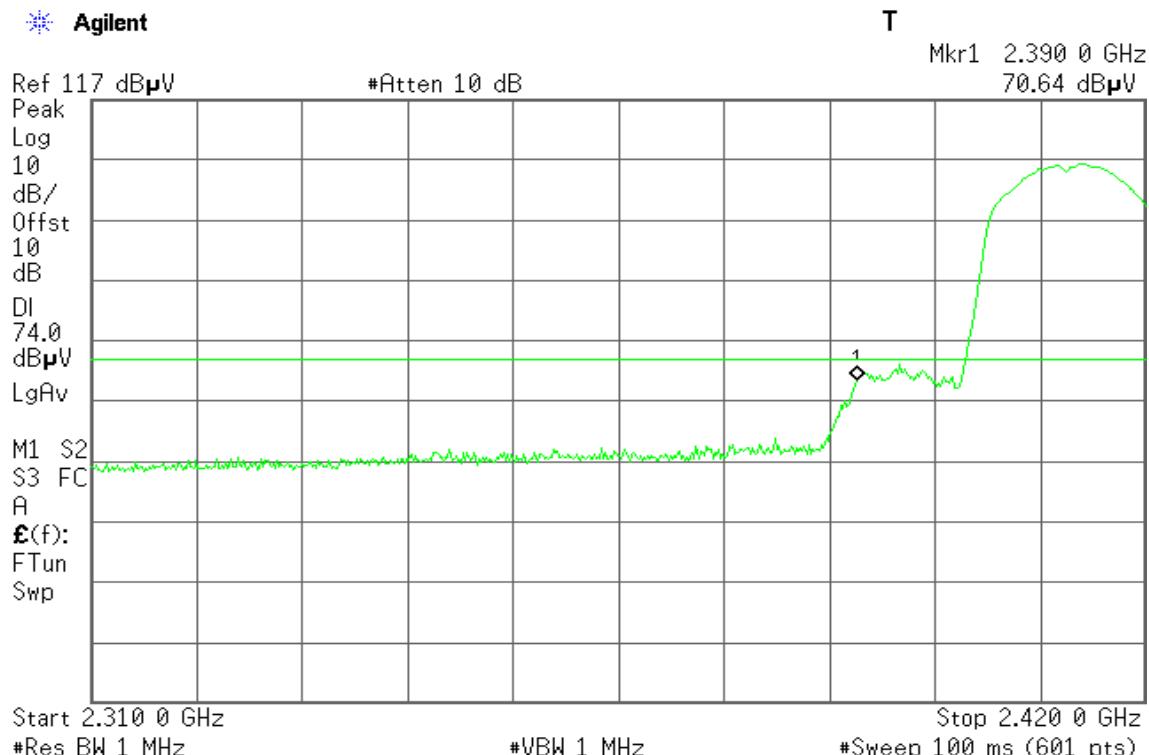
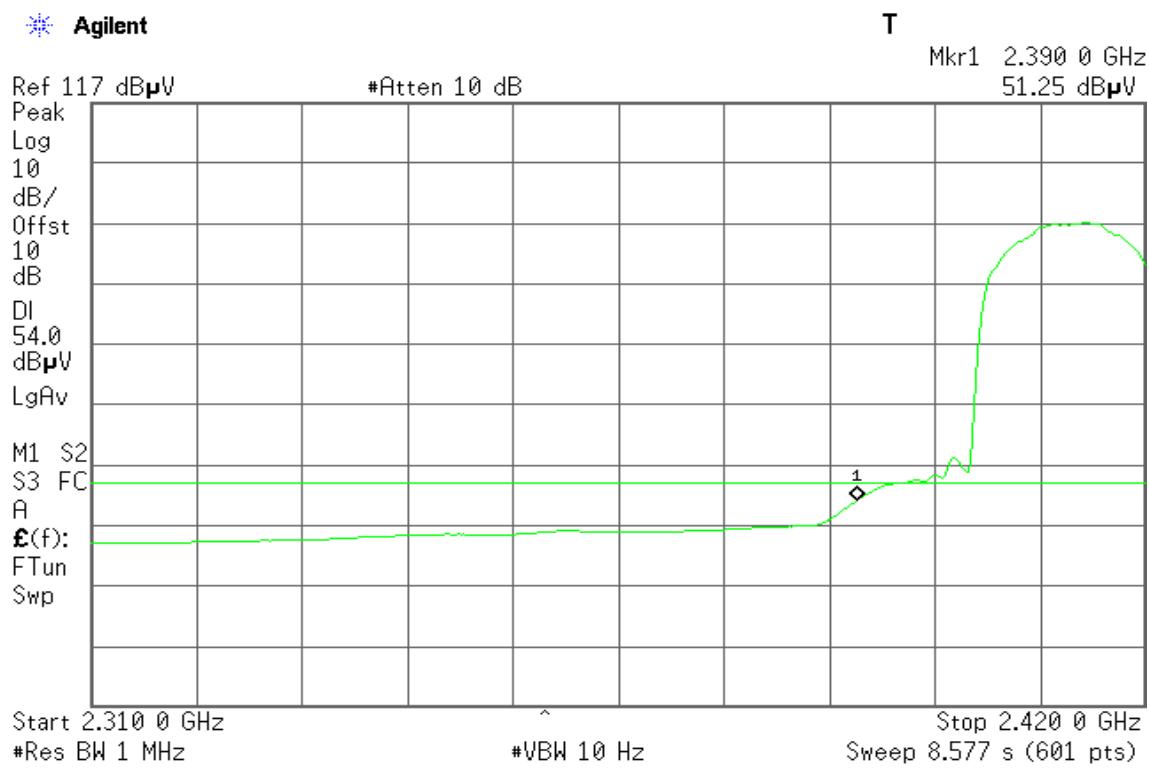
**Detector mode: Peak****Polarity: Horizontal****Detector mode: Average****Polarity: Horizontal**

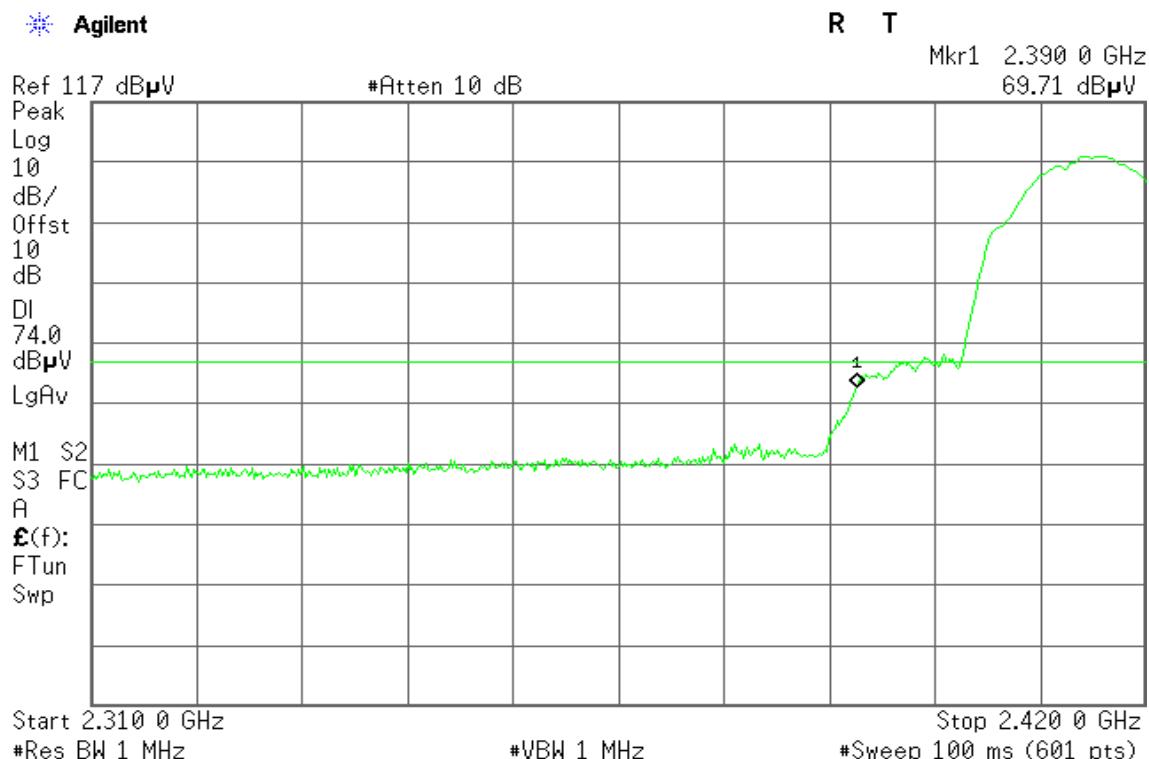
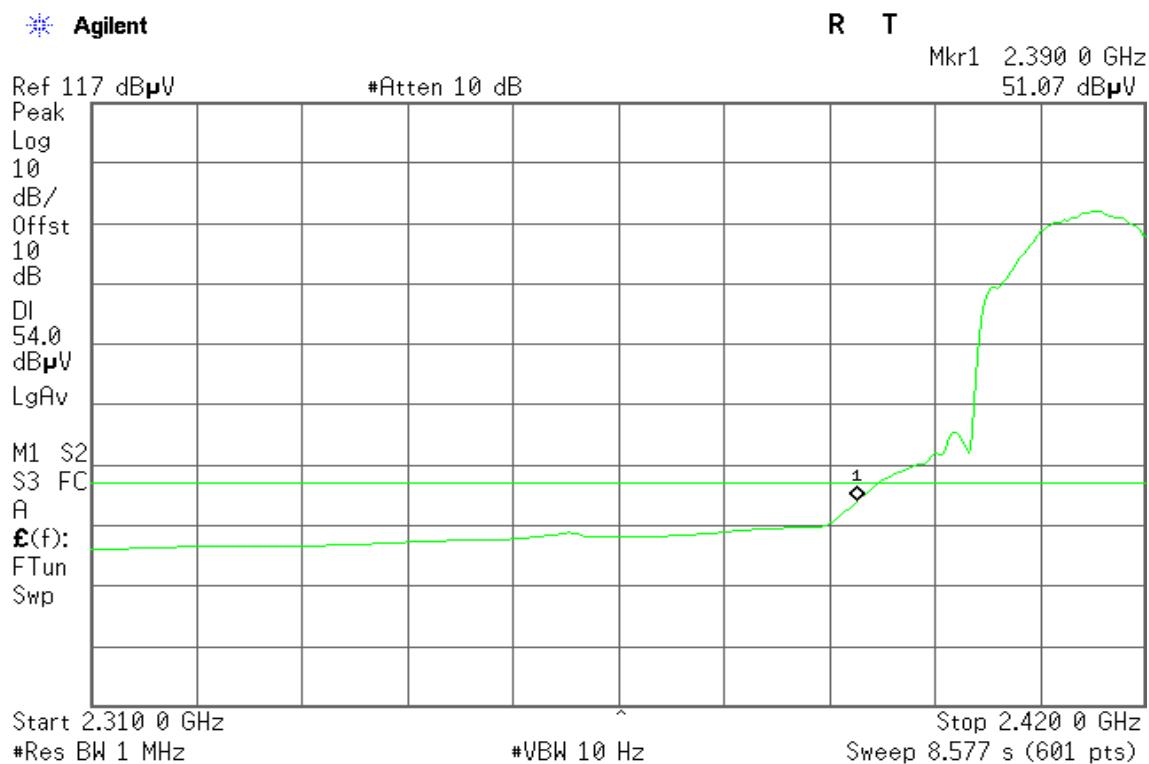
**Band Edges (IEEE 802.11g mode / CH Low)****Detector mode: Peak****Polarity: Vertical****Detector mode: Average****Polarity: Vertical**

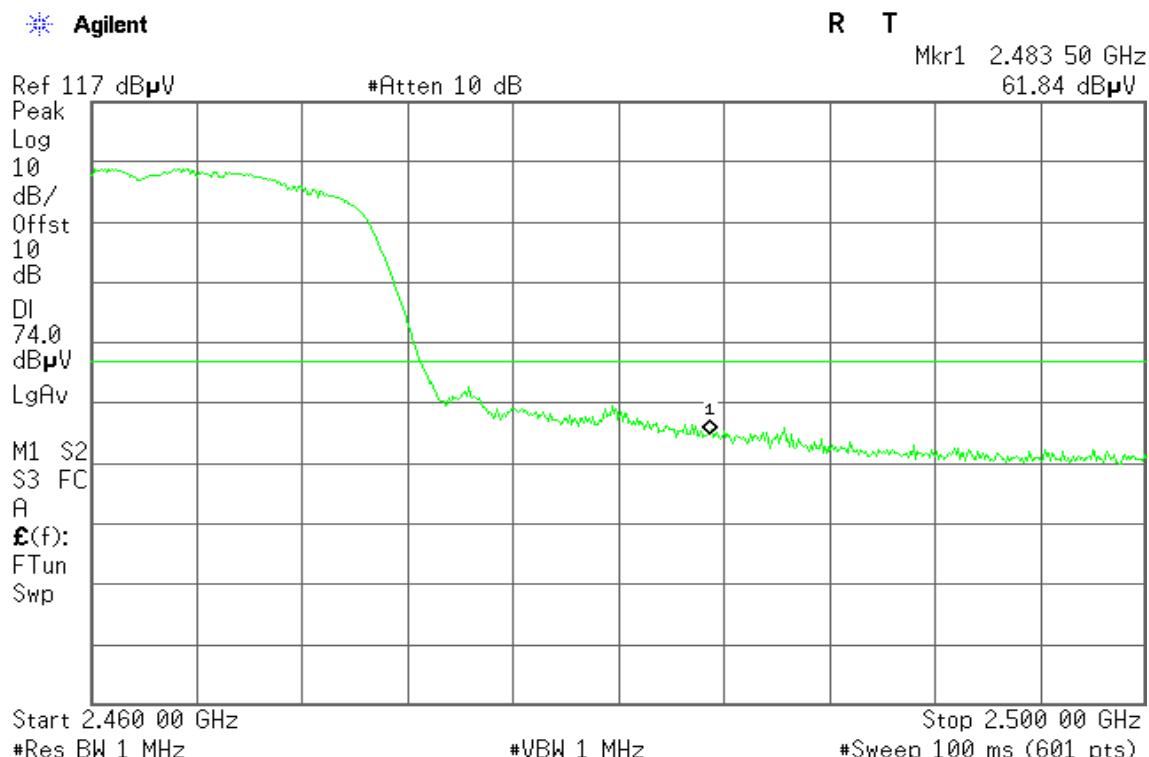
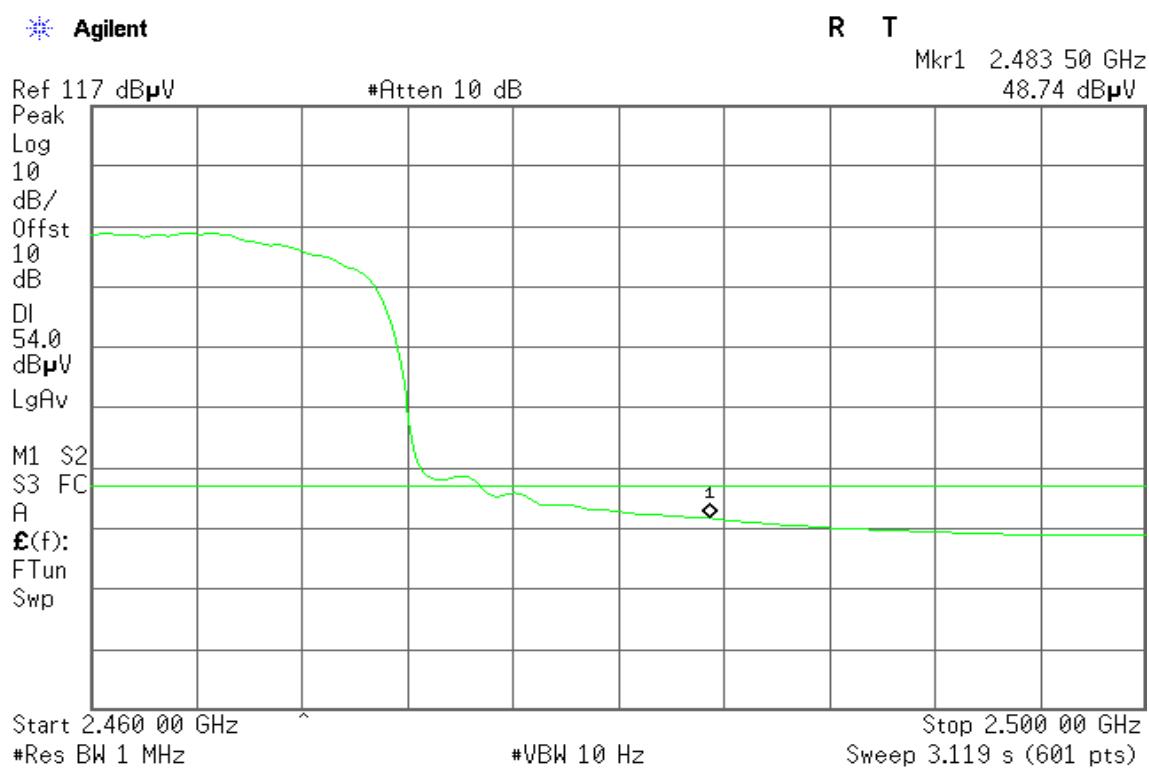
**Detector mode: Peak****Polarity: Horizontal****Detector mode: Average****Polarity: Horizontal**

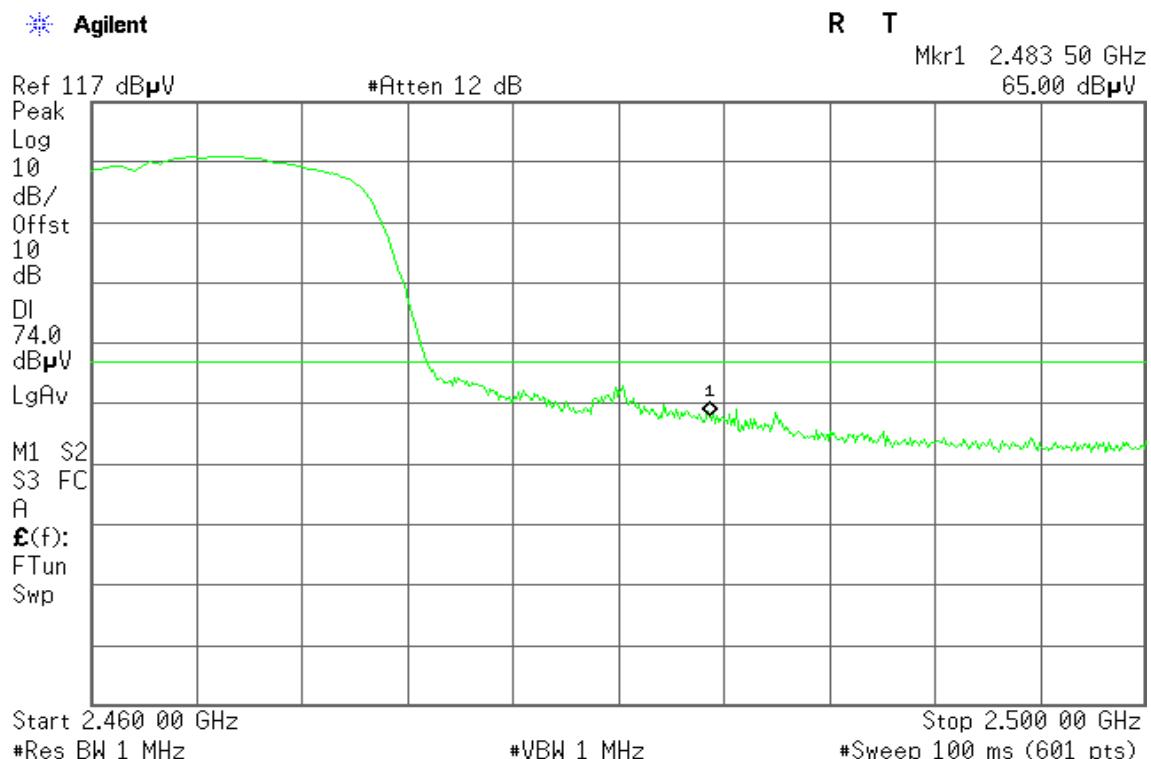
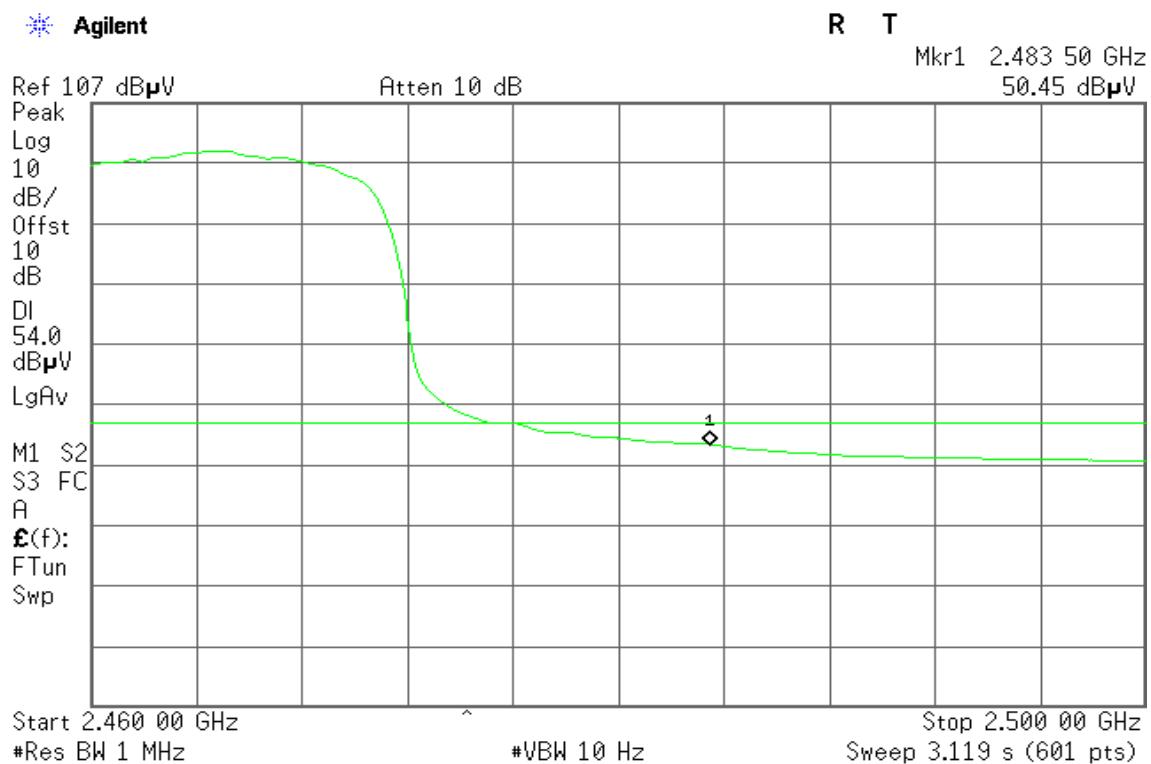
**Band Edges (IEEE 802.11g mode / CH High)****Detector mode: Peak****Polarity: Vertical****Detector mode: Average****Polarity: Vertical**

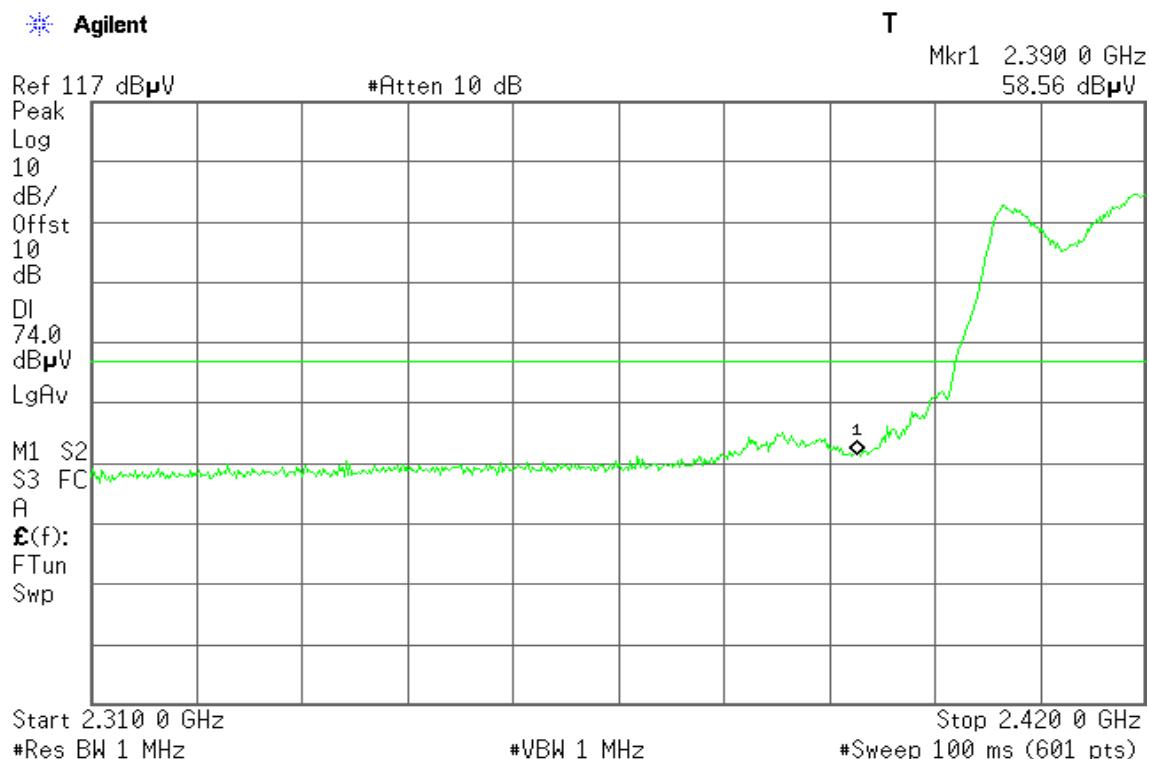
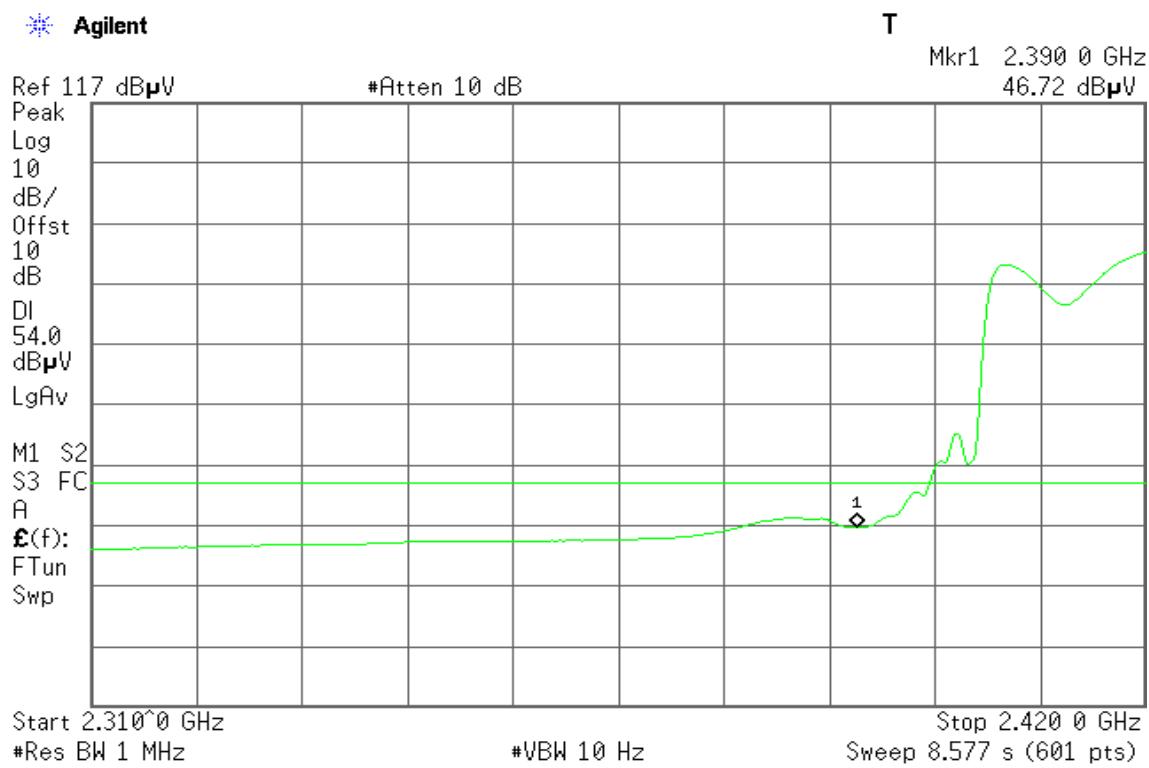
**Detector mode: Peak****Polarity: Horizontal****Detector mode: Average****Polarity: Horizontal**

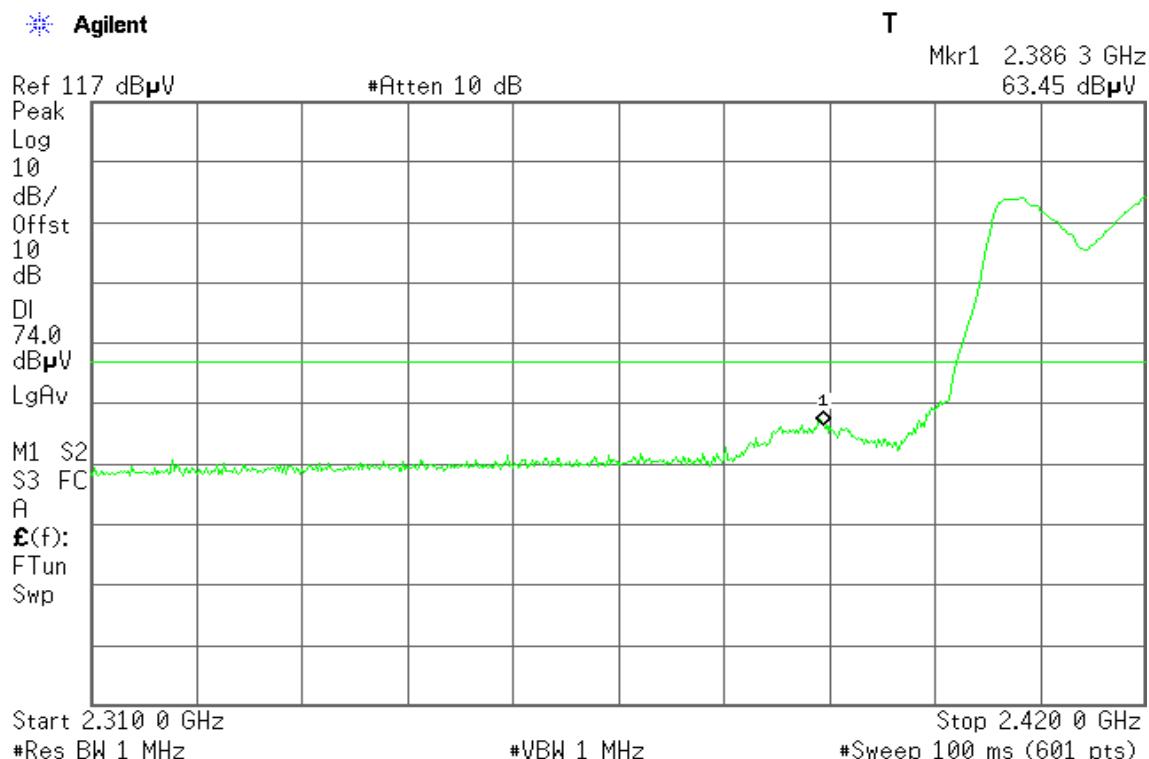
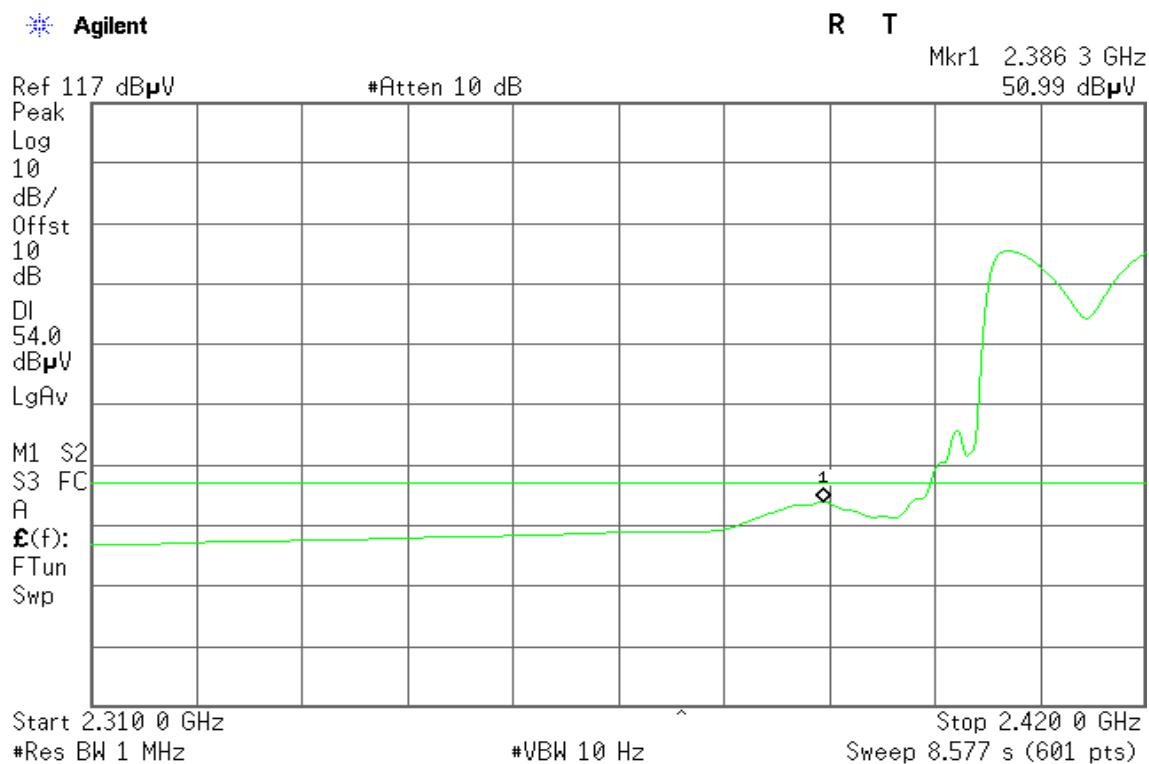
**Band Edges (draft 802.11n Standard-20 MHz Channel mode / CH Low)****Detector mode: Peak****Polarity: Vertical****Detector mode: Average****Polarity: Vertical**

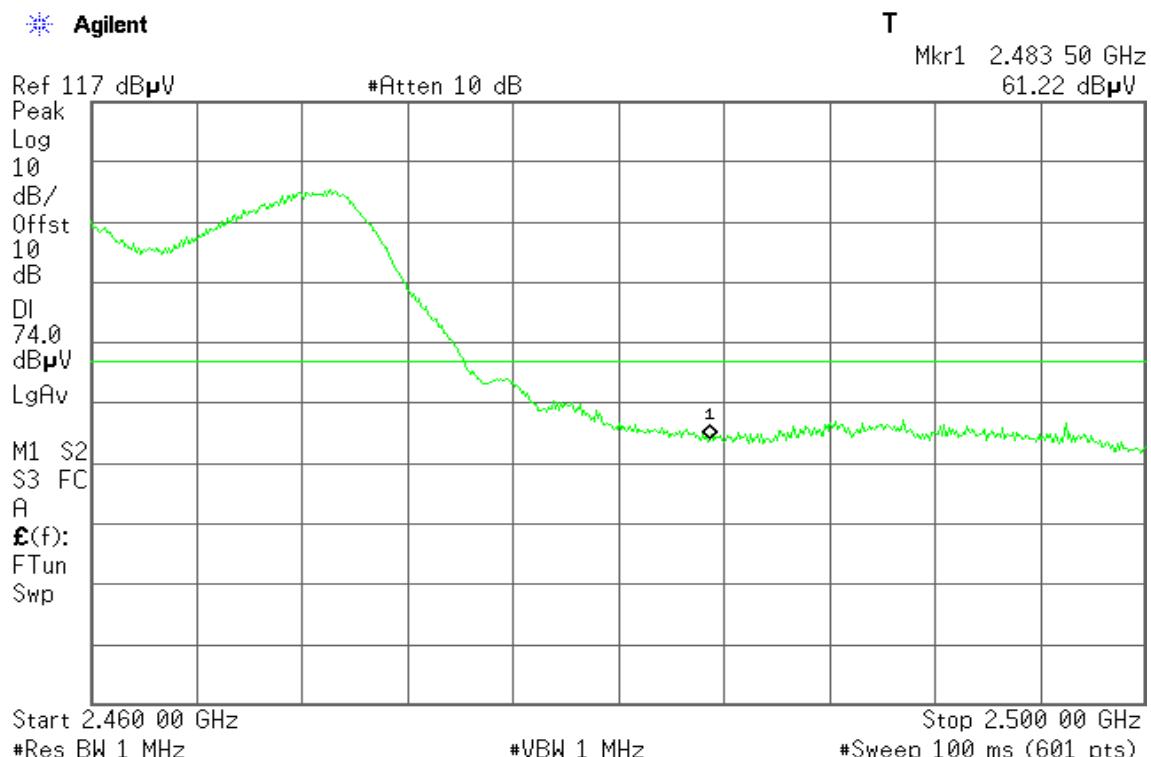
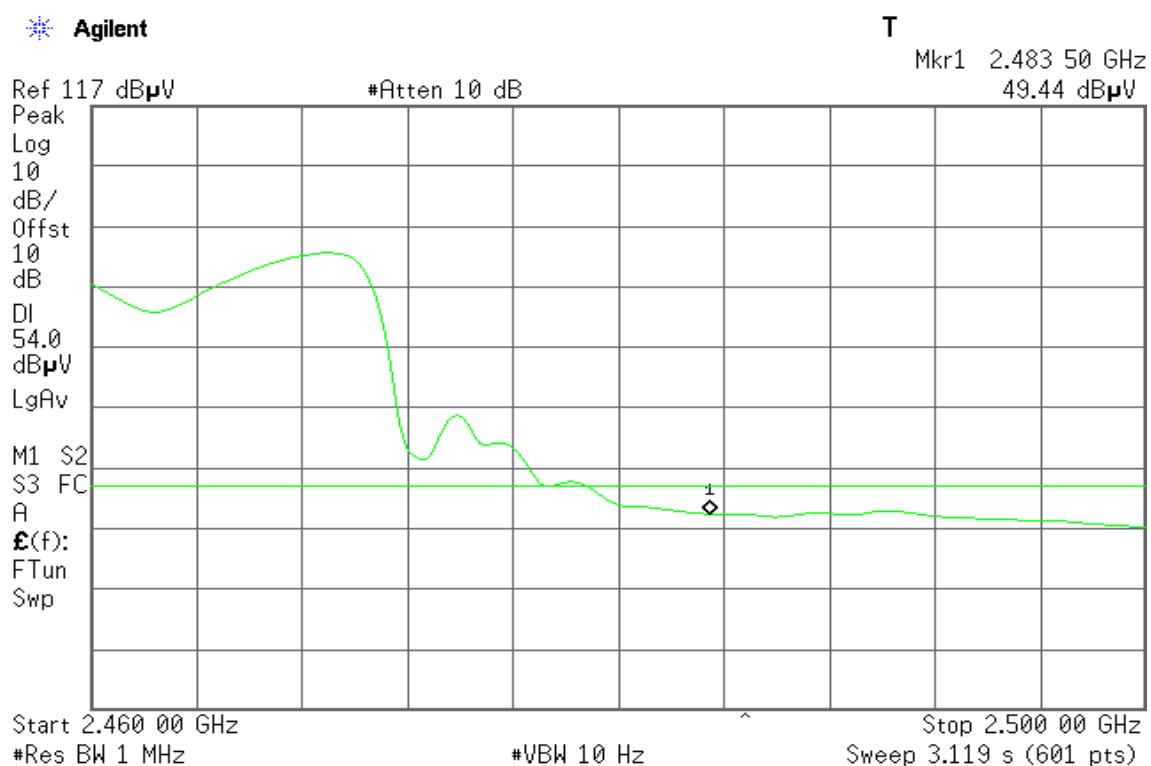
**Detector mode: Peak****Polarity: Horizontal****Detector mode: Average****Polarity: Horizontal**

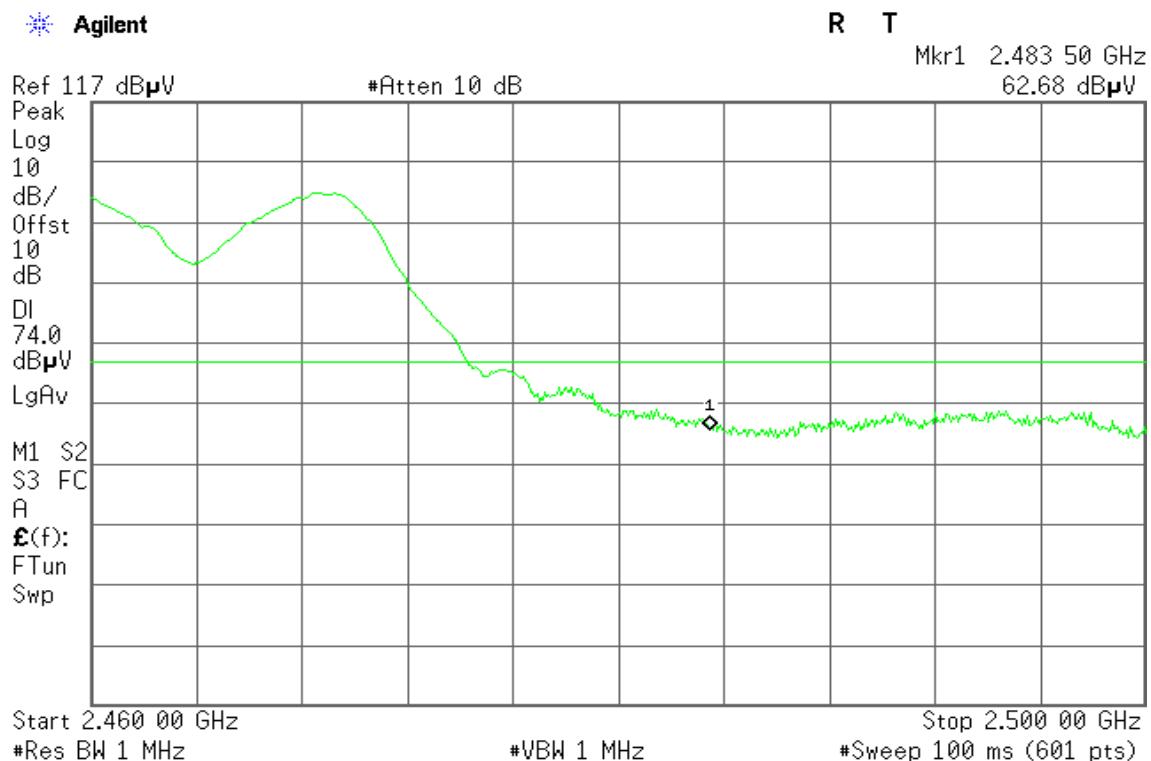
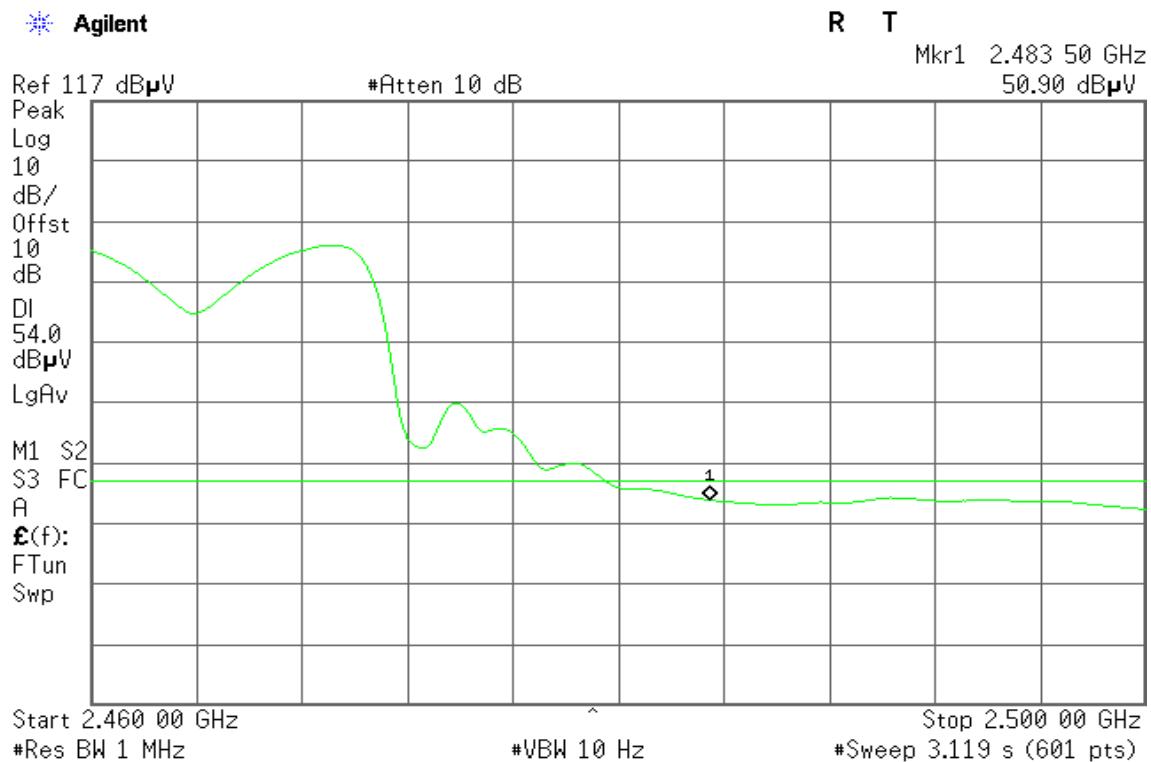
**Band Edges (draft 802.11n Standard-20 MHz Channel mode / CH High)****Detector mode: Peak****Polarity: Vertical****Detector mode: Average****Polarity: Vertical**

**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**

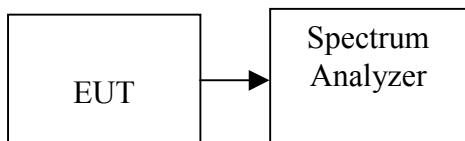
**Detector mode: Peak****Polarity: Horizontal****Detector mode: Average****Polarity: Horizontal**

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

### TEST RESULTS

*No non-compliance noted*

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

Channel	Frequency (MHz)	PPSD (dBm)	Limit (dBm)	Result
Low	2412	-15.43	8.00	PASS
Mid	2437	-15.14		PASS
High	2462	-16.00		PASS

**Test mode: IEEE 802.11g mode**

Channel	Frequency (MHz)	PPSD (dBm)	Limit (dBm)	Result
Low	2412	-16.10	8.00	PASS
Mid	2437	-15.89		PASS
High	2462	-16.82		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	-18.13	-14.92	-13.22	8.00	PASS
Mid	2437	-17.48	-15.74	-13.51		PASS
High	2462	-19.33	-18.09	-15.66		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	-21.83	-18.49	-16.84	8.00	PASS
Mid	2437	-18.80	-16.86	-14.71		PASS
High	2452	-20.02	-18.58	-16.23		PASS

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

Channel	Frequency (MHz)	PPSD (dBm)	Limit (dBm)	Result
Low	2412	-9.67	8.00	PASS
Mid	2437	-9.60		PASS
High	2462	-13.48		PASS

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

Channel	Frequency (MHz)	PPSD (dBm)	Limit (dBm)	Result
Low	2422	-13.46	8.00	PASS
Mid	2437	-12.87		PASS
High	2452	-12.60		PASS

**Test mode: IEEE 802.11a mode**

Channel	Frequency (MHz)	PPSD (dBm)	Limit (dBm)	Result
Low	5745	-16.89	8.00	PASS
Mid	5785	-16.52		PASS
High	5825	-15.84		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	5745	-20.78	-21.59	-18.16	8.00	PASS
Mid	5785	-16.26	-15.59	-12.90		PASS
High	5825	-15.80	-16.25	-13.01		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	5755	-23.25	-24.02	-20.61	8.00	PASS
High	5795	-16.96	-18.00	-14.44		PASS

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

Channel	Frequency (MHz)	PPSD (dBm)	Limit (dBm)	Result
Low	5745	-20.17	8.00	PASS
Mid	5785	-13.47		PASS
High	5825	-12.80		PASS

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

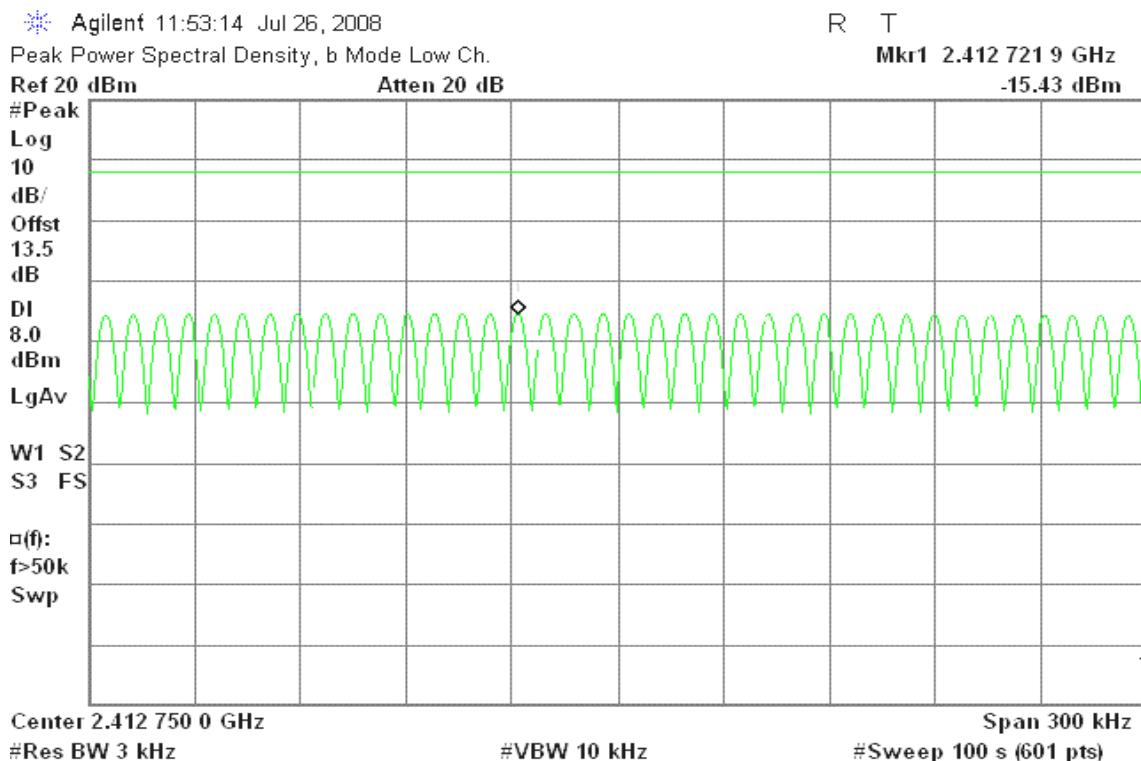
Channel	Frequency (MHz)	PPSD (dBm)	Limit (dBm)	Result
Low	5755	-21.32	8.00	PASS
High	5795	-15.14		PASS

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

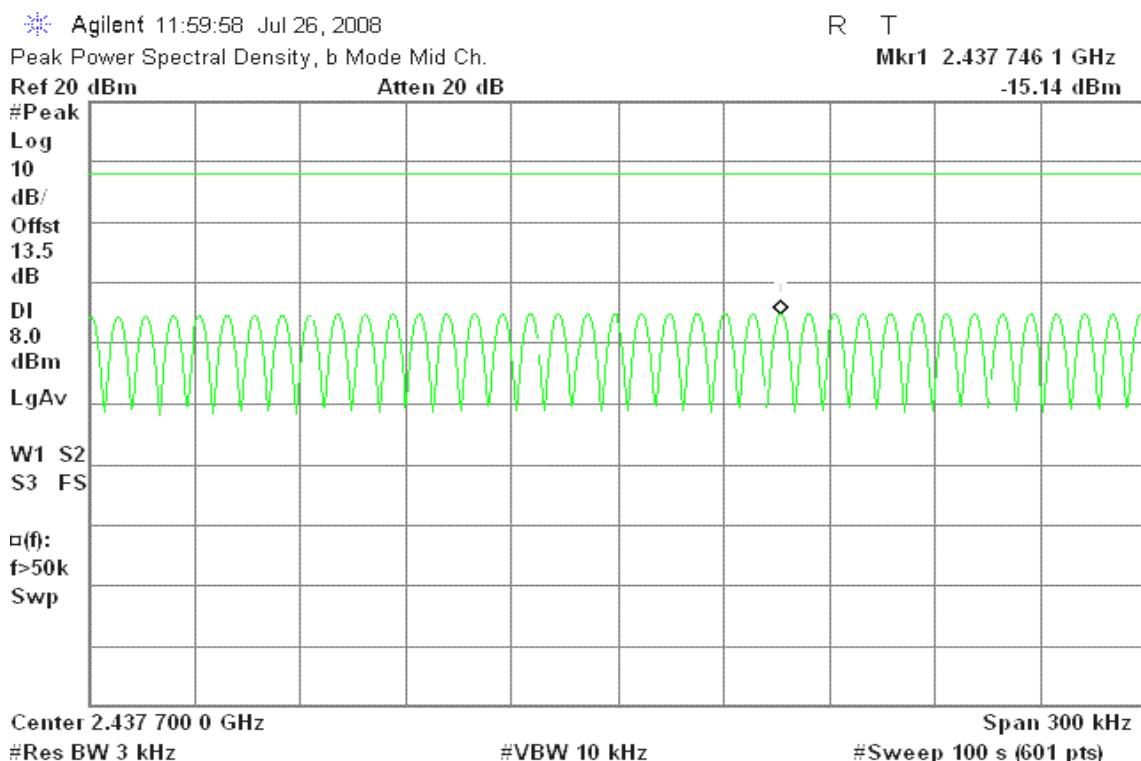
## Test Plot

### IEEE 802.11b mode

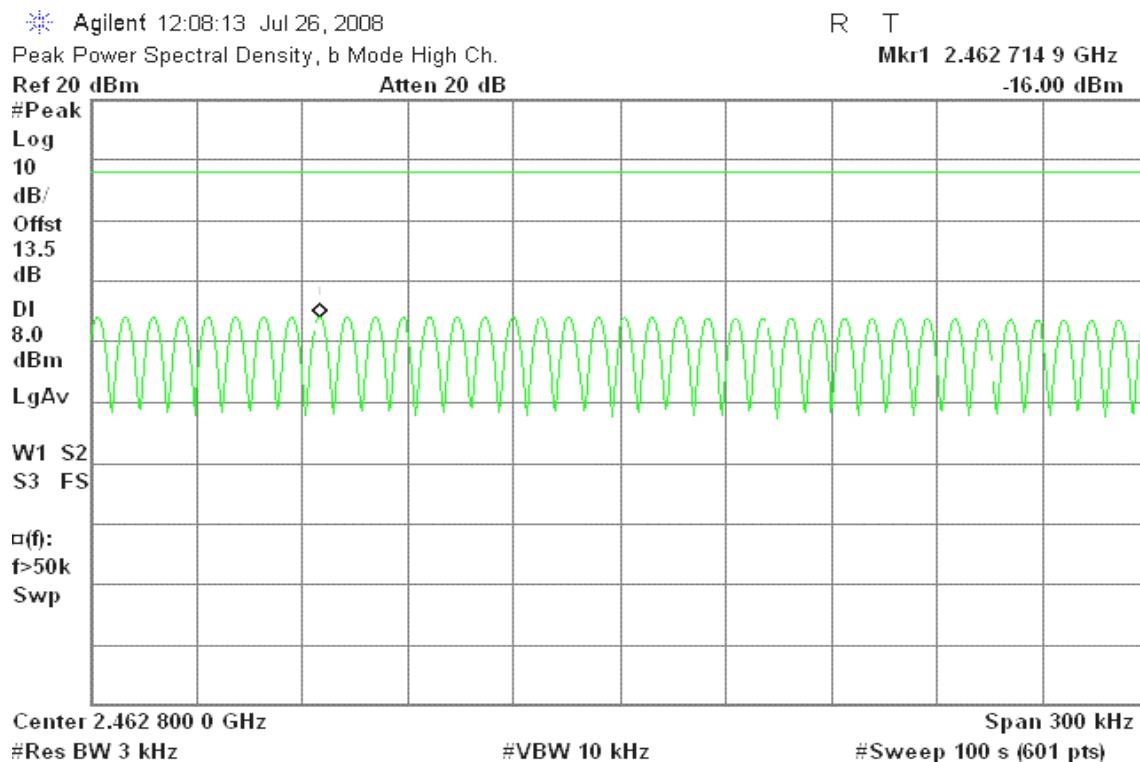
#### PPSD (CH Low)



#### PPSD (CH Mid)

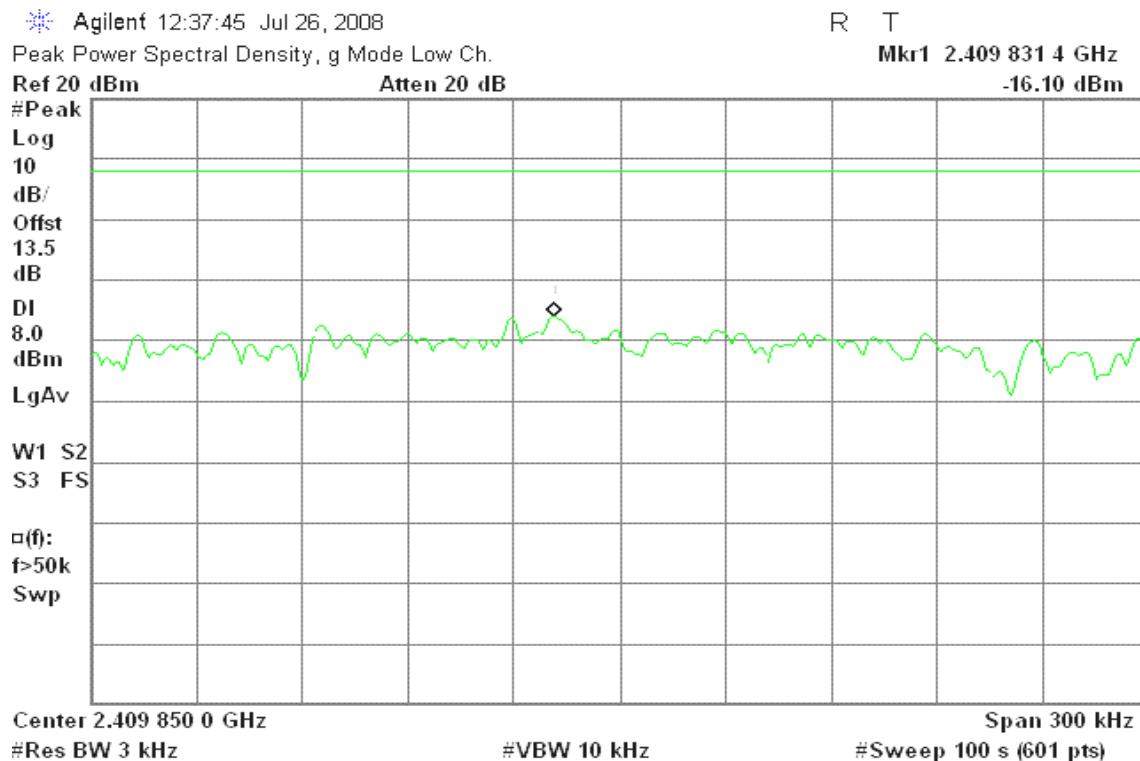


### PPSD (CH High)

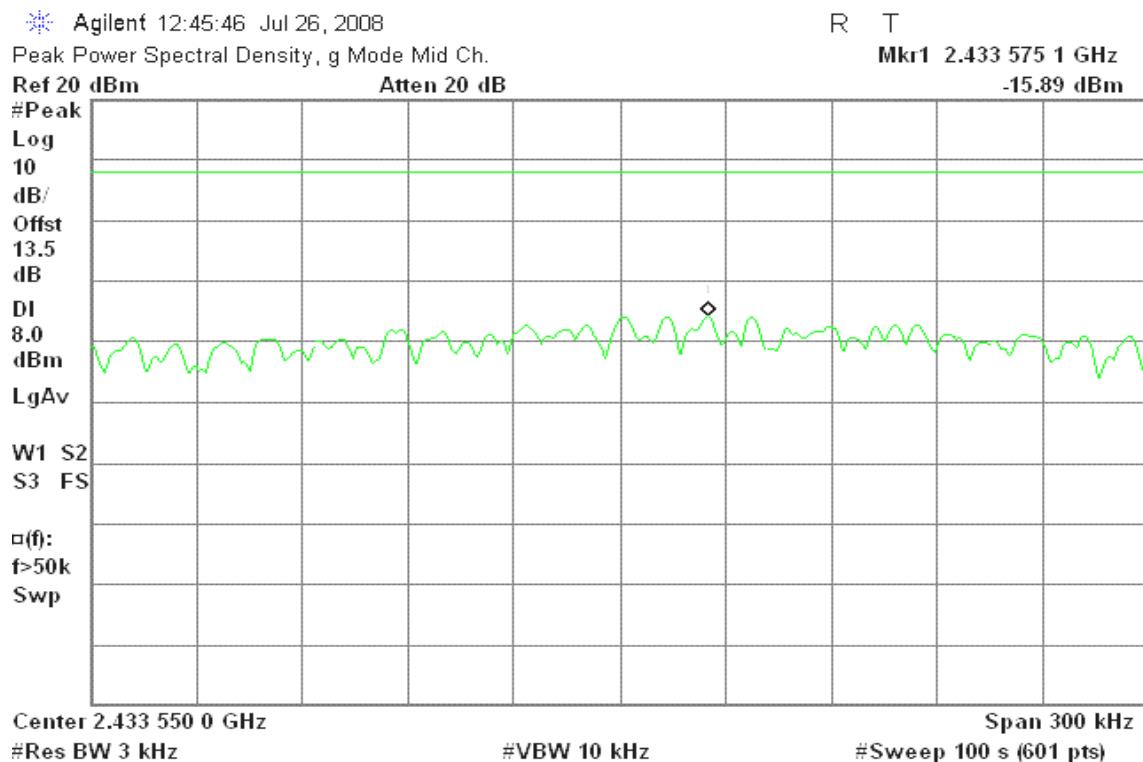


### IEEE 802.11g mode

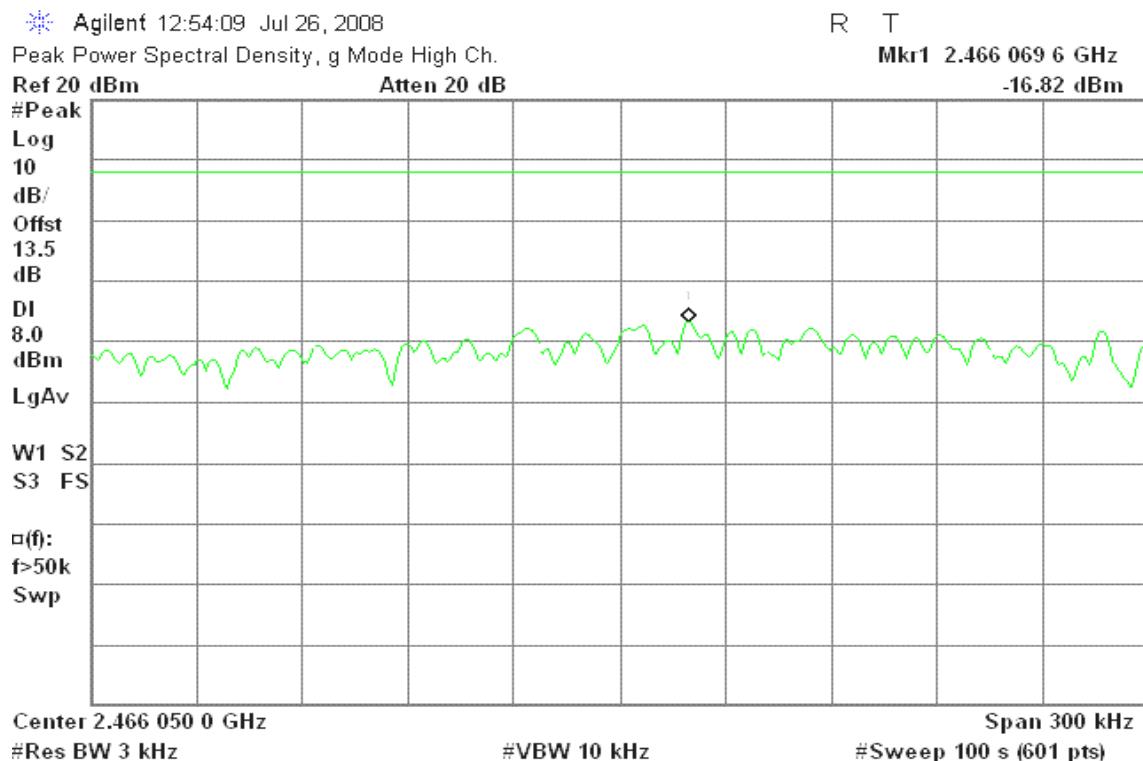
### PPSD (CH Low)

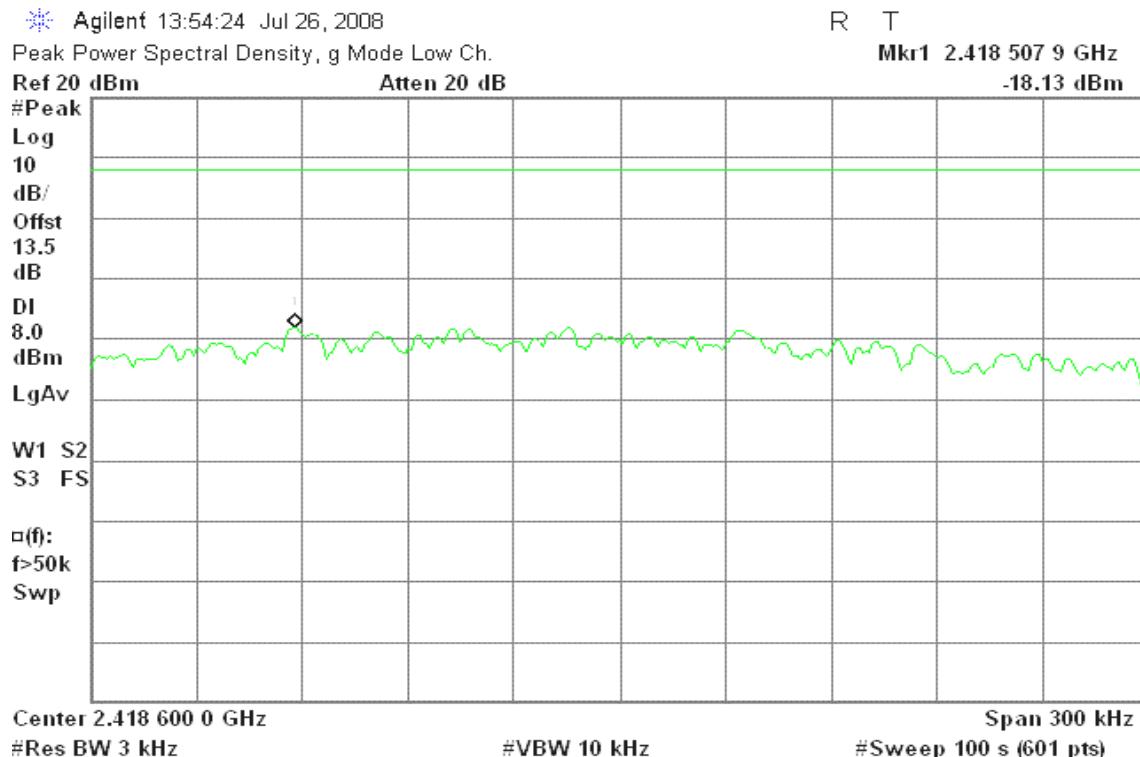
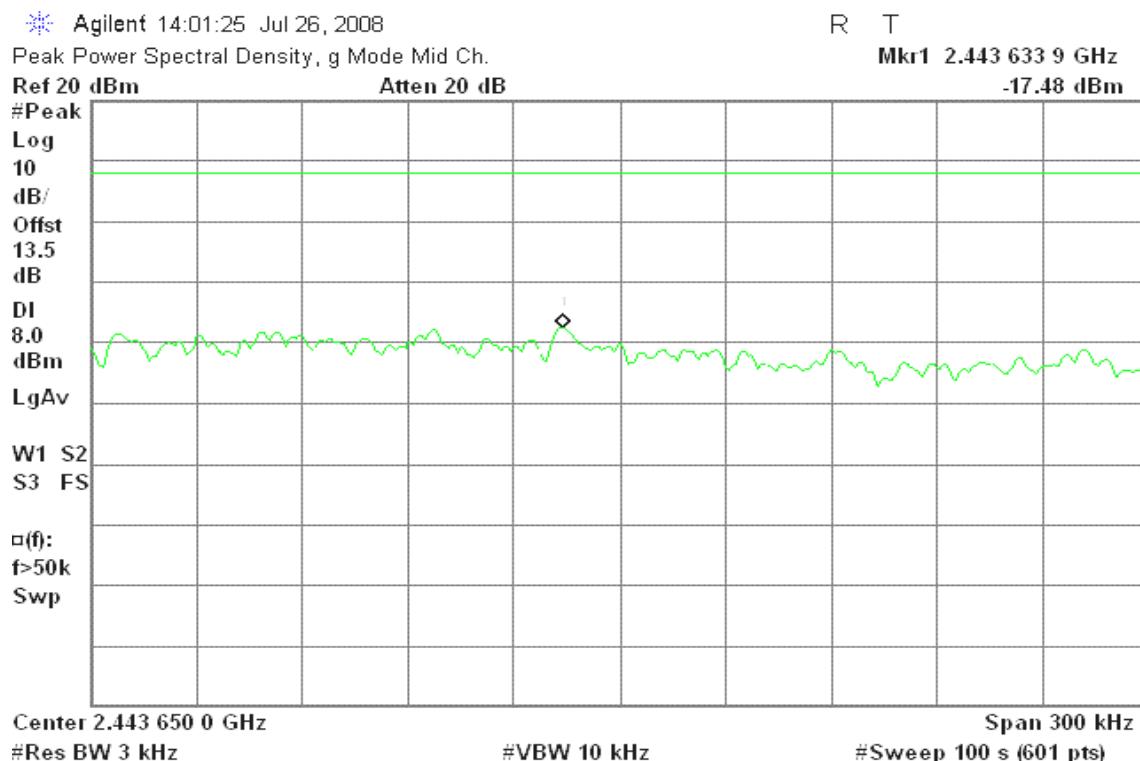


### PPSD (CH Mid)

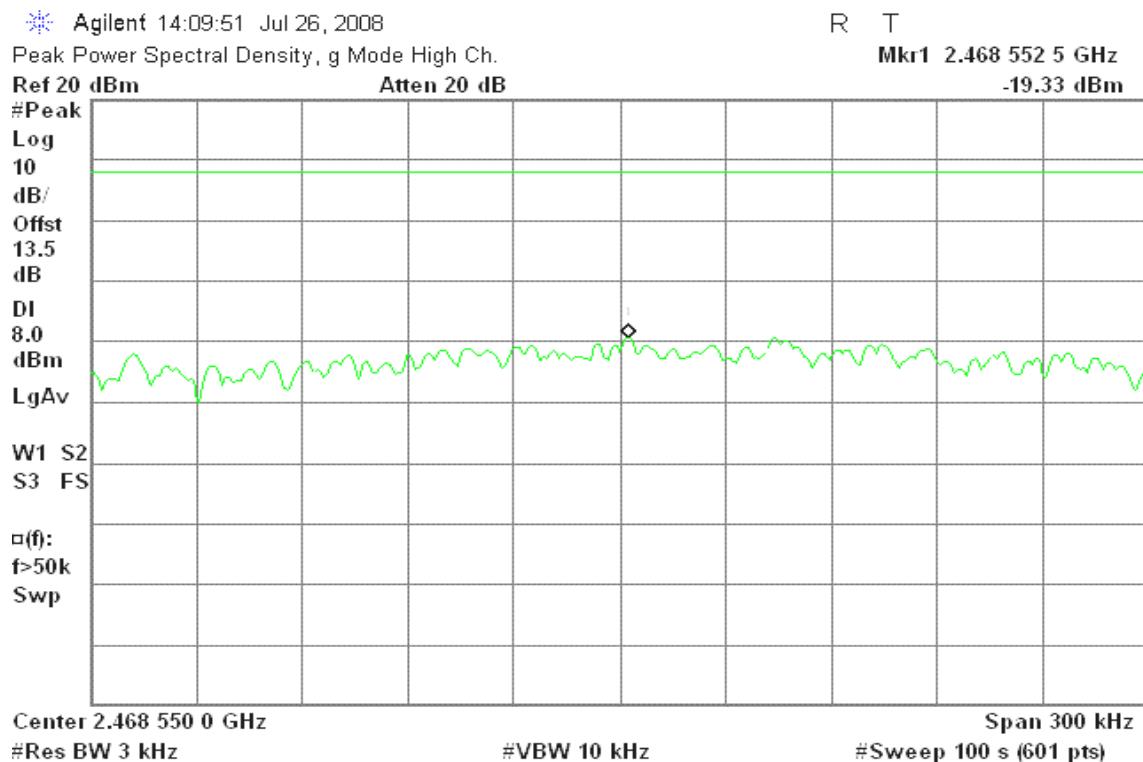


### PPSD (CH High)



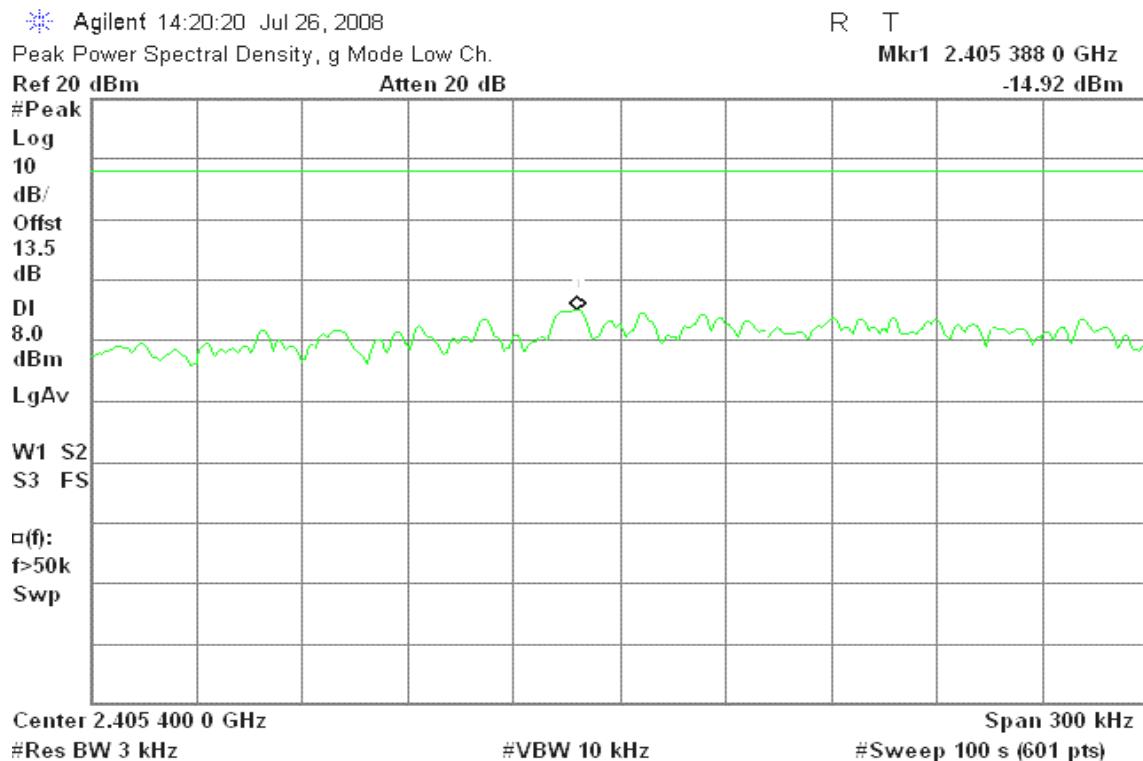
**draft 802.11n Standard-20 MHz Channel mode / Chain 0****PPSD (CH Low)****PPSD (CH Mid)**

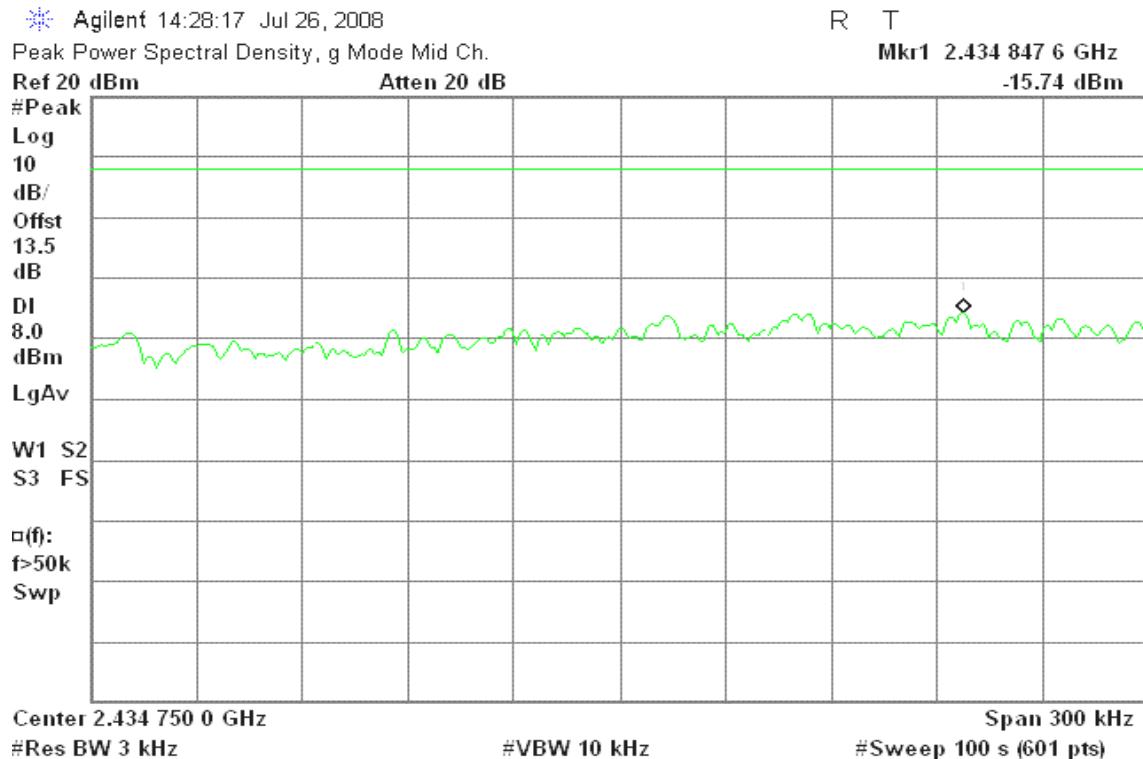
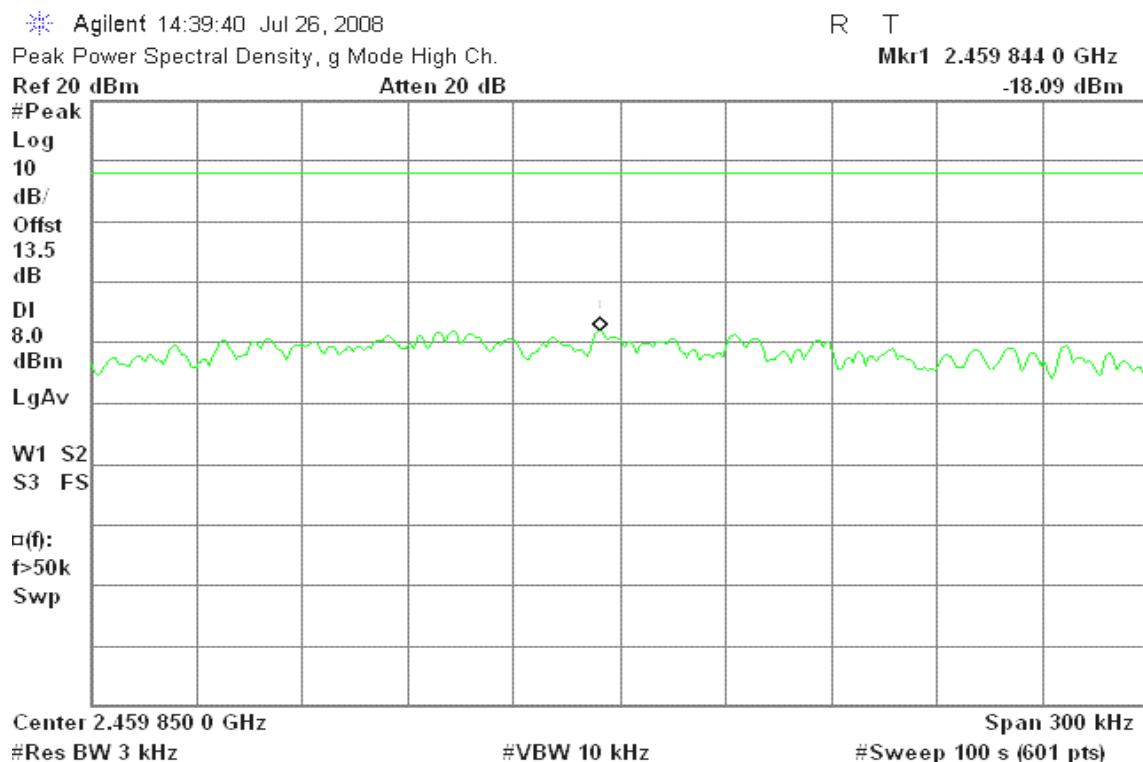
### PPSD (CH High)

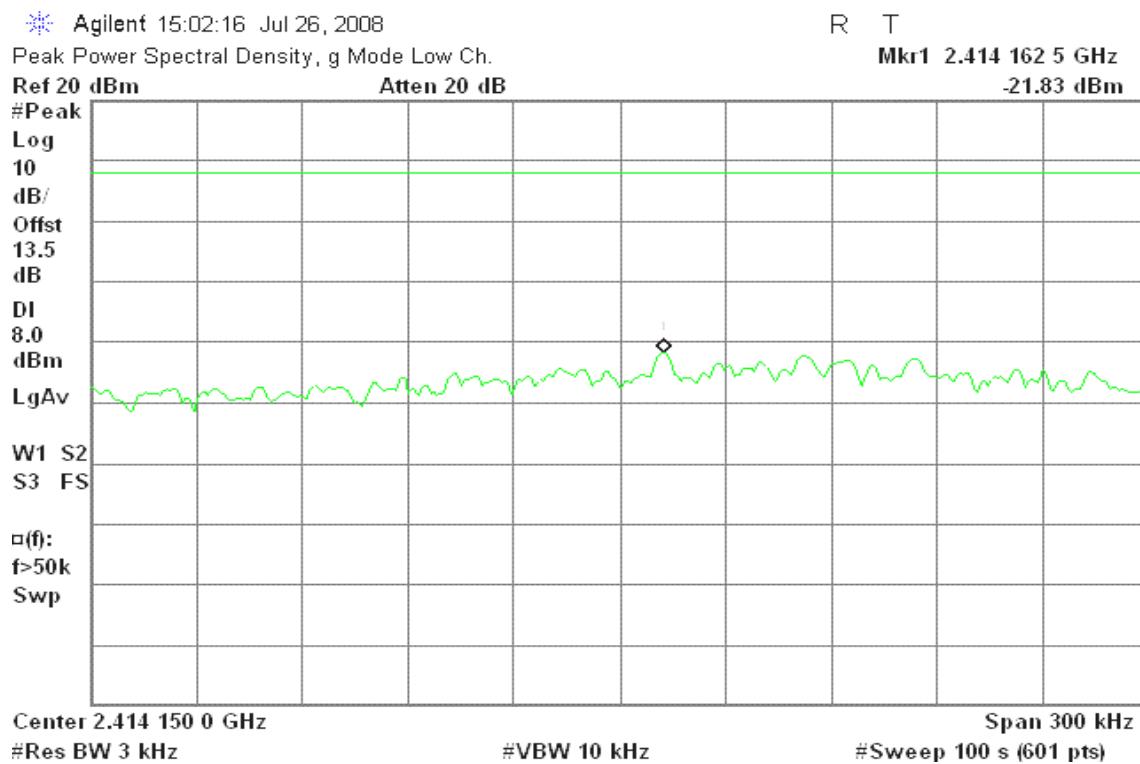
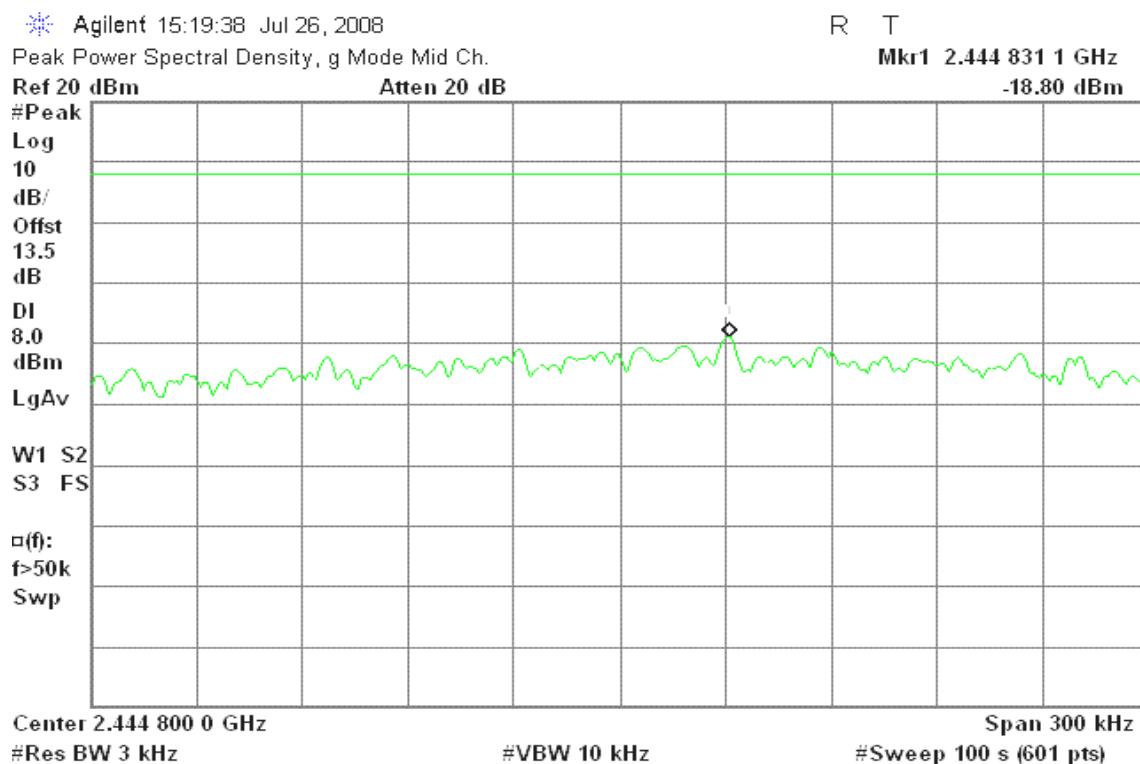


### draft 802.11n Standard-20 MHz Channel mode / Chain 1

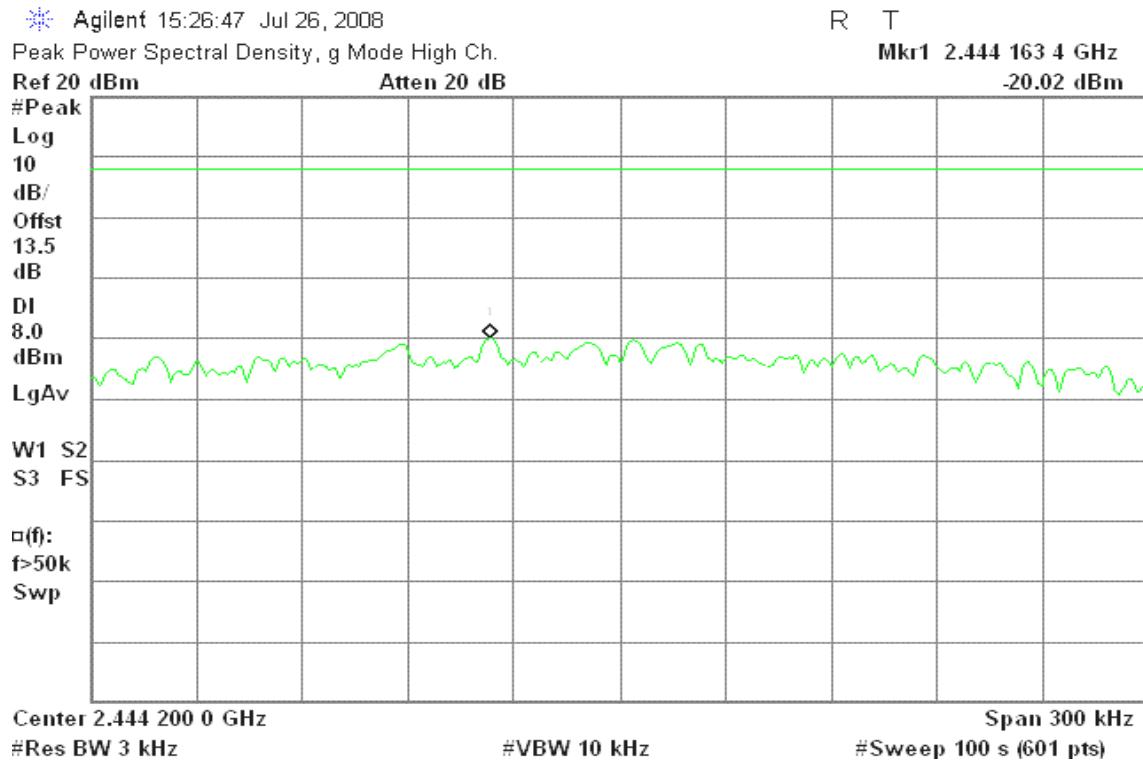
### PPSD (CH Low)



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

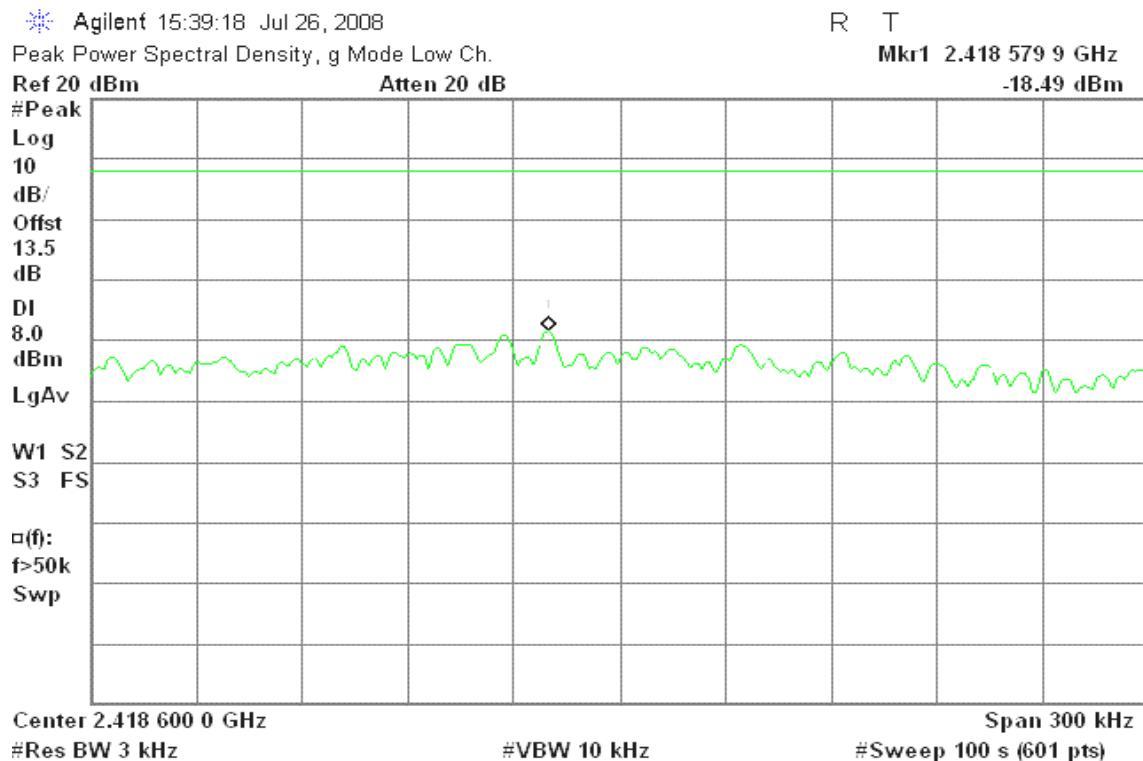
**draft 802.11n Wide-40 MHz Channel mode / Chain 0****PPSD (CH Low)****PPSD (CH Mid)**

### PPSD (CH High)

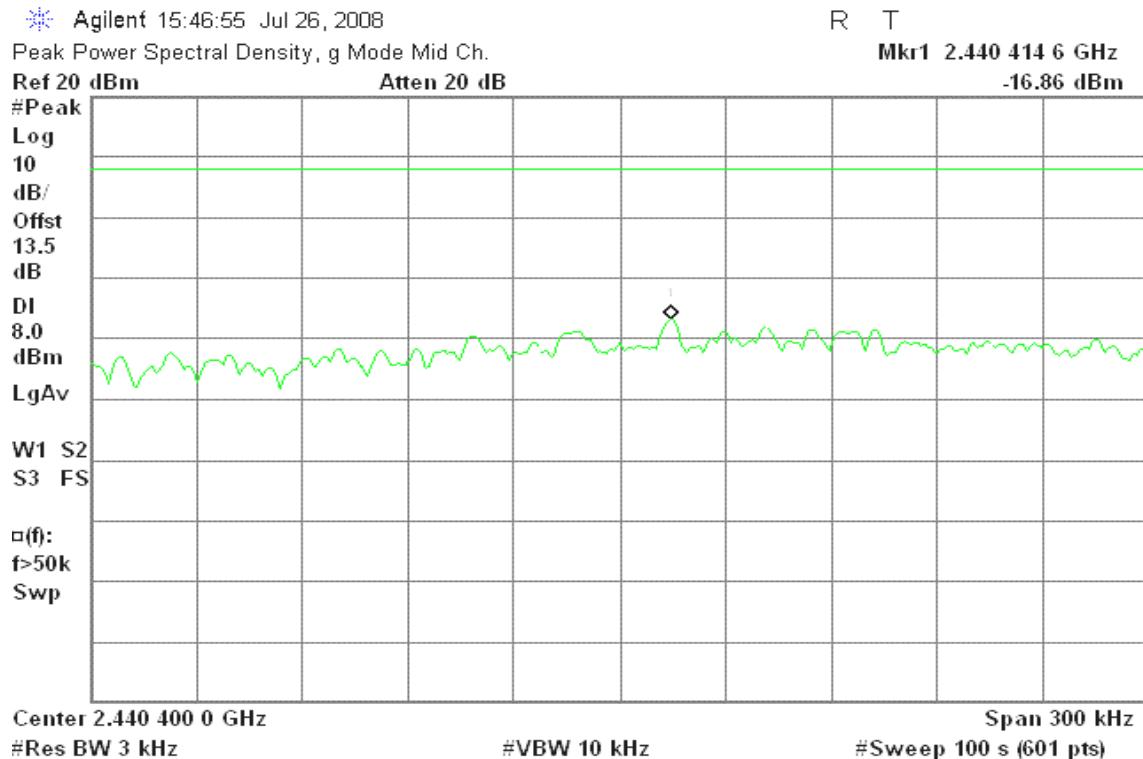


### draft 802.11n Wide-40 MHz Channel mode / Chain 1

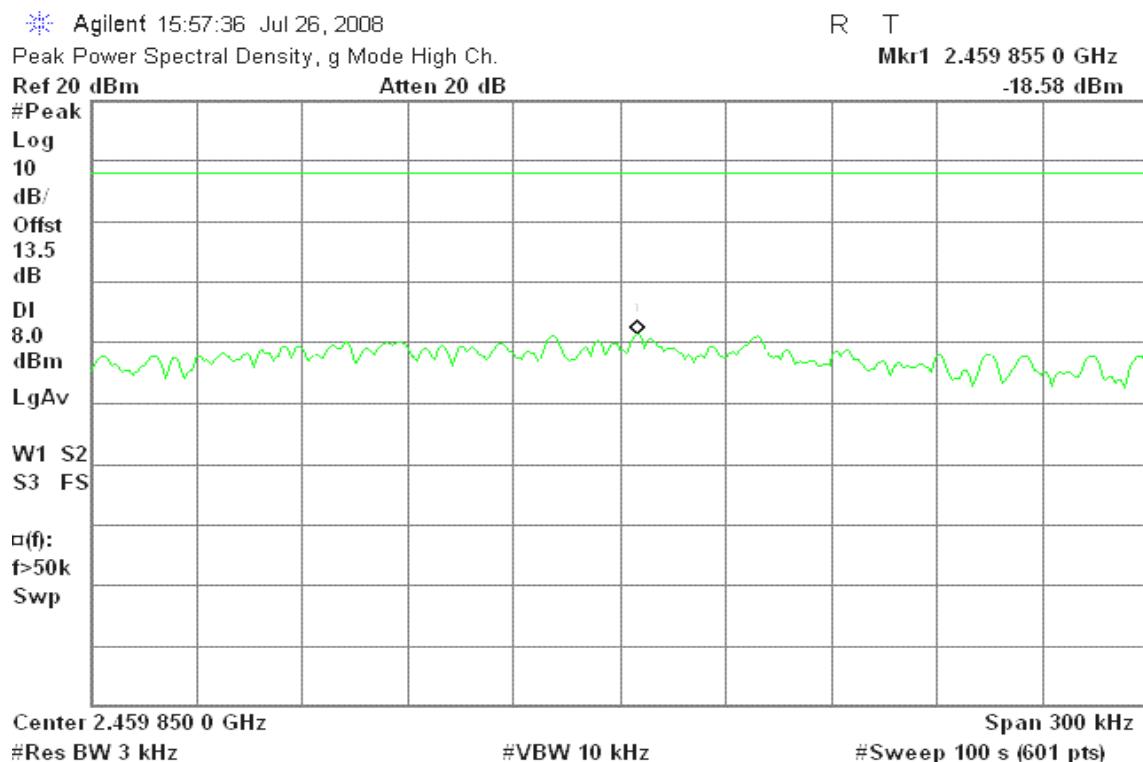
### PPSD (CH Low)

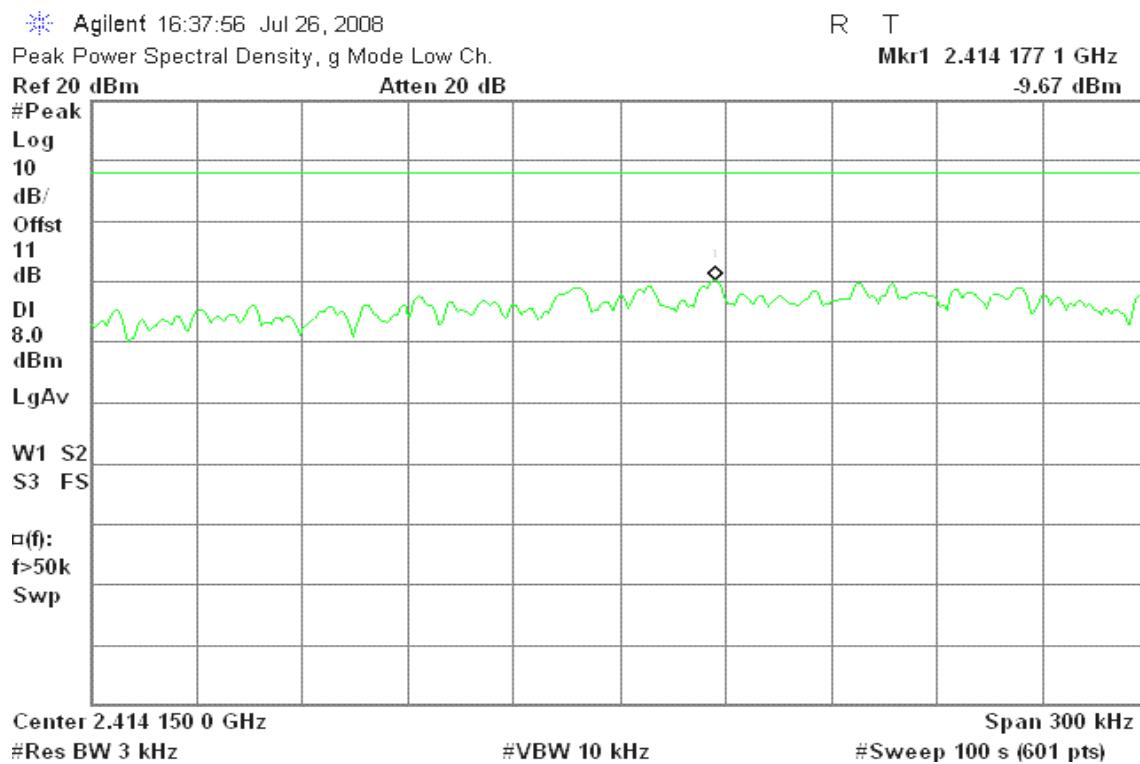
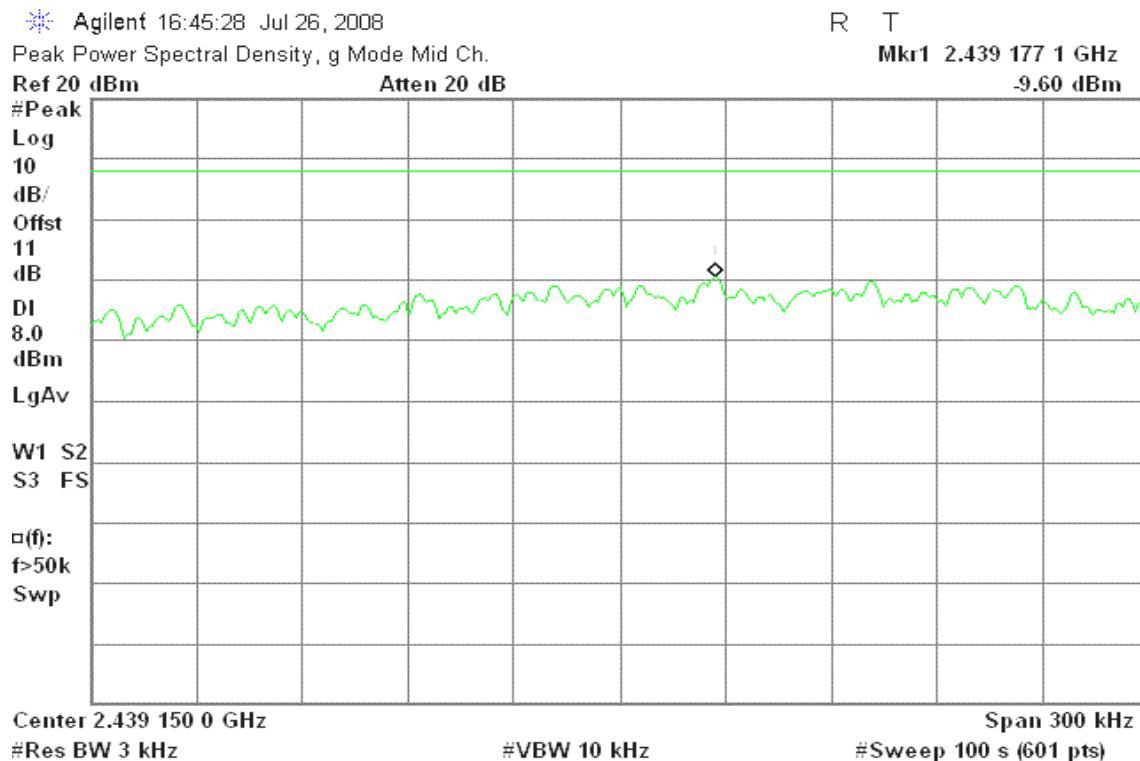


### PPSD (CH Mid)

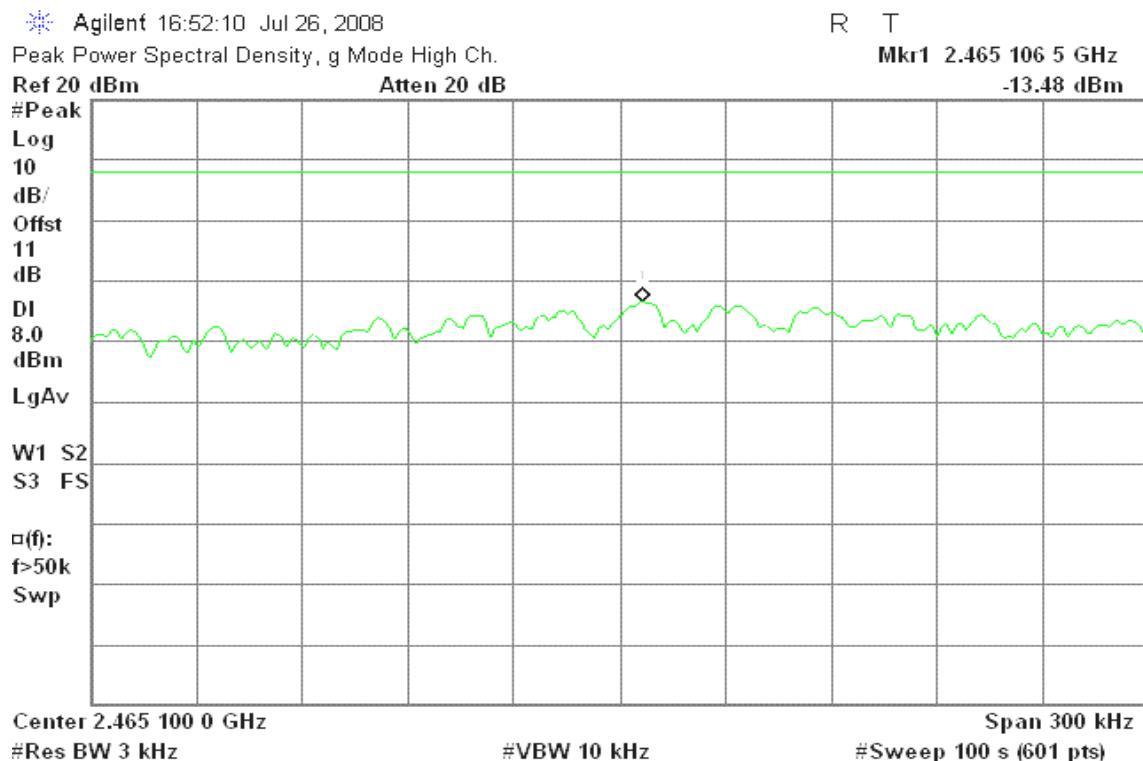


### PPSD (CH High)



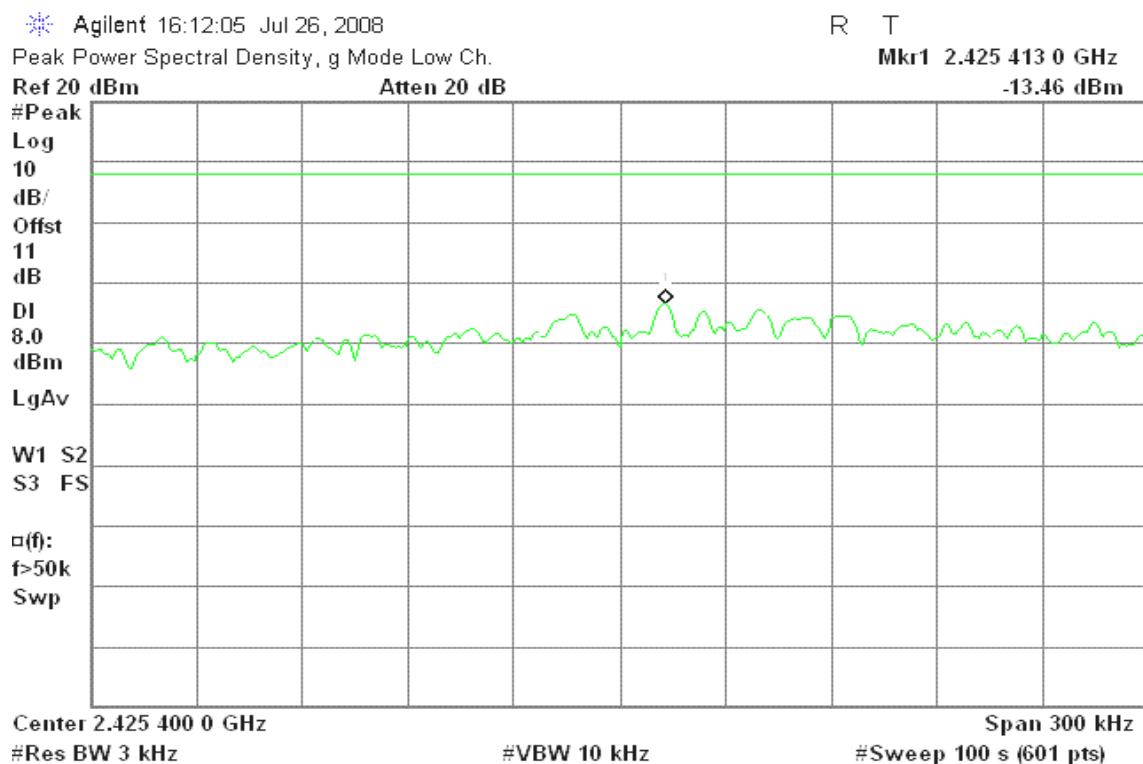
**draft 802.11n Standard-20 MHz Channel mode with combiner****PPSD (CH Low)****PPSD (CH Mid)**

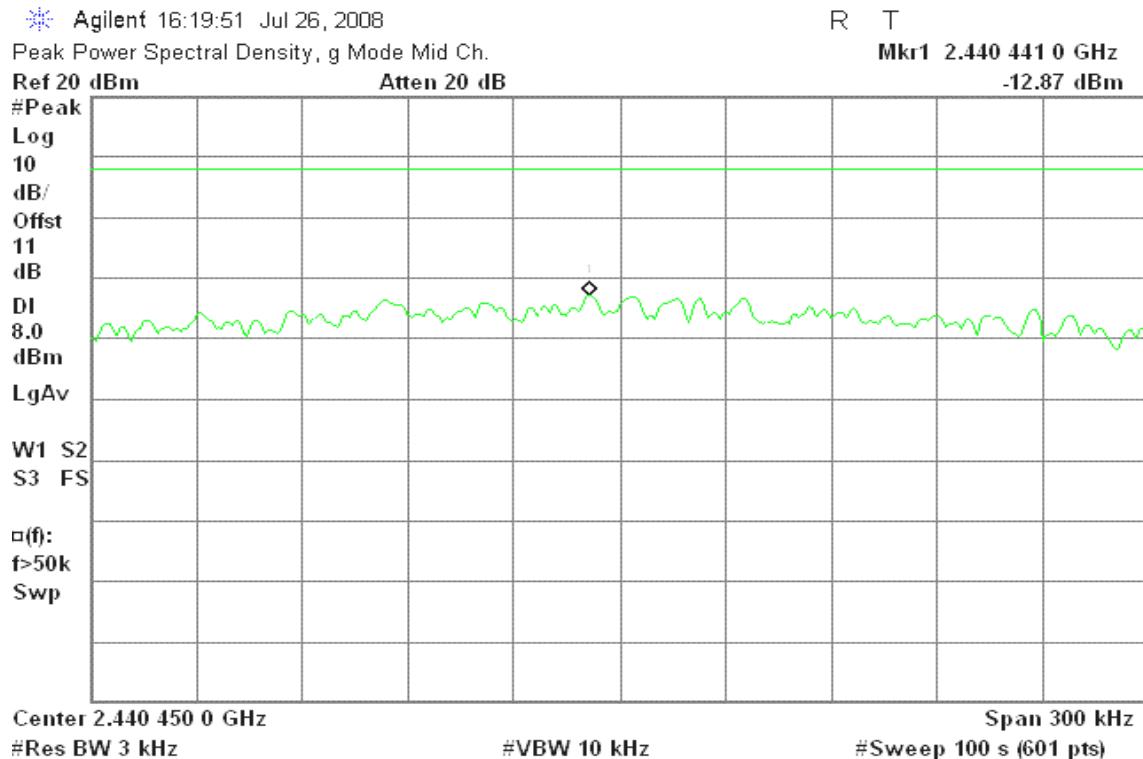
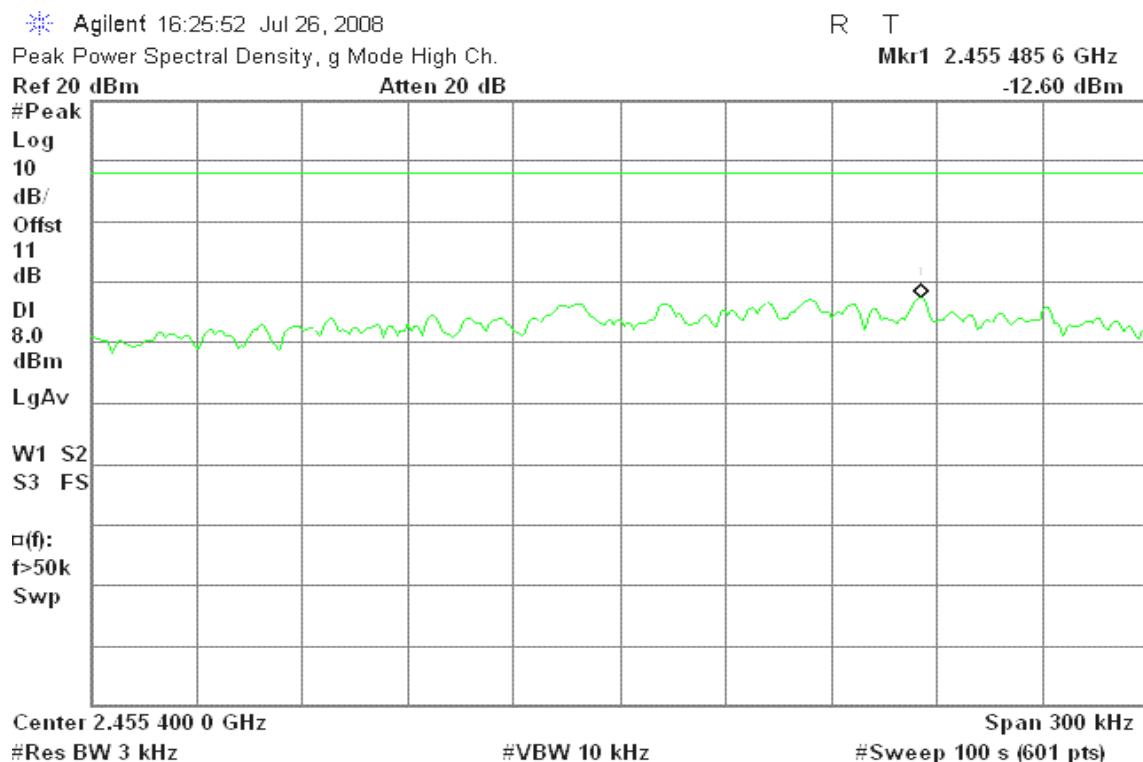
### PPSD (CH High)

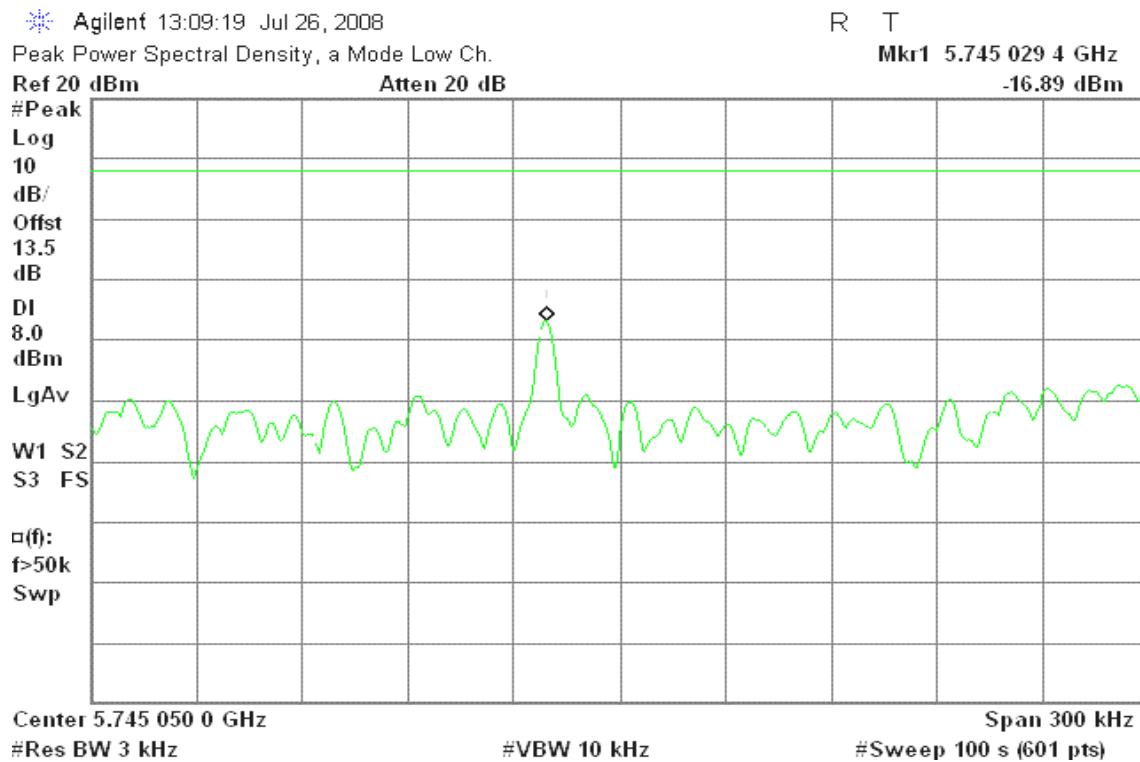
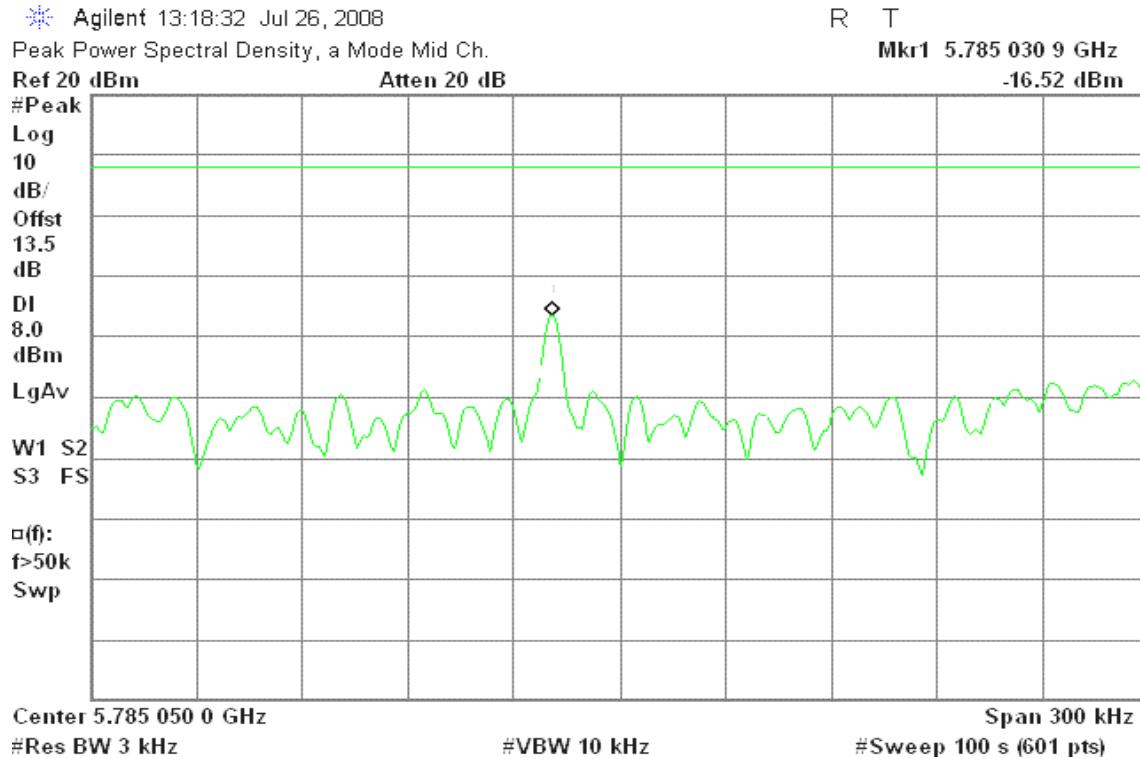


### draft 802.11n Wide-40 MHz Channel mode with combiner

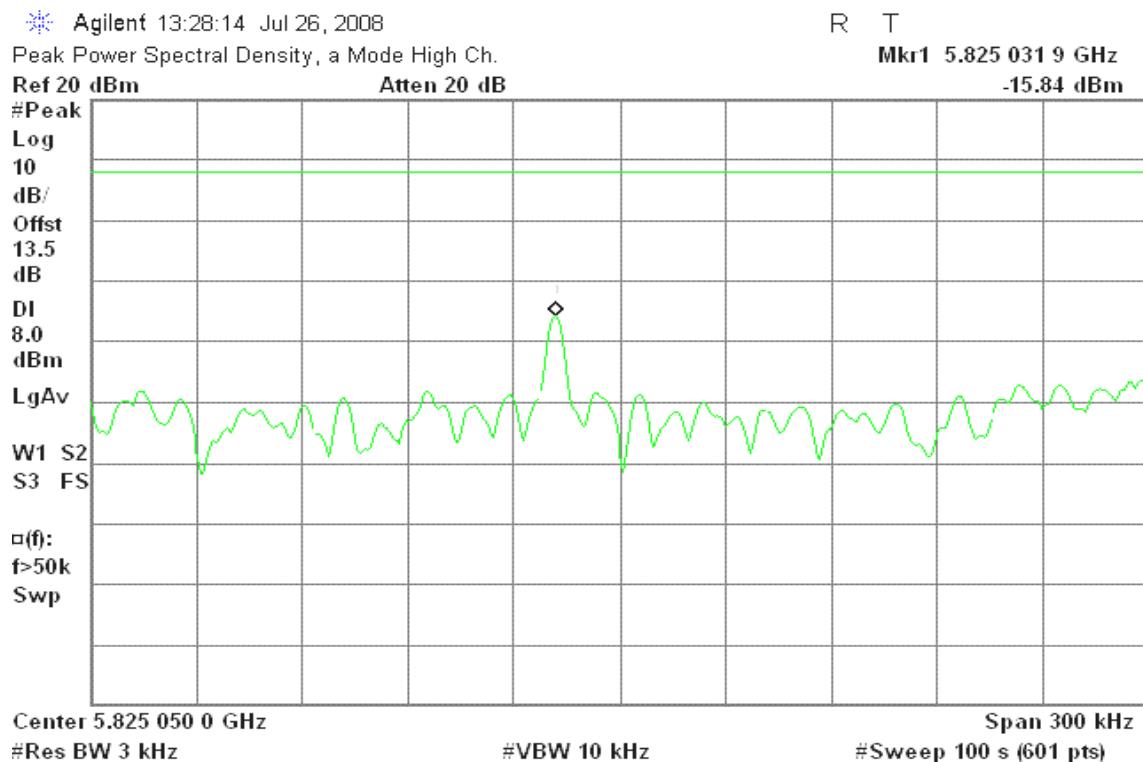
### PPSD (CH Low)



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

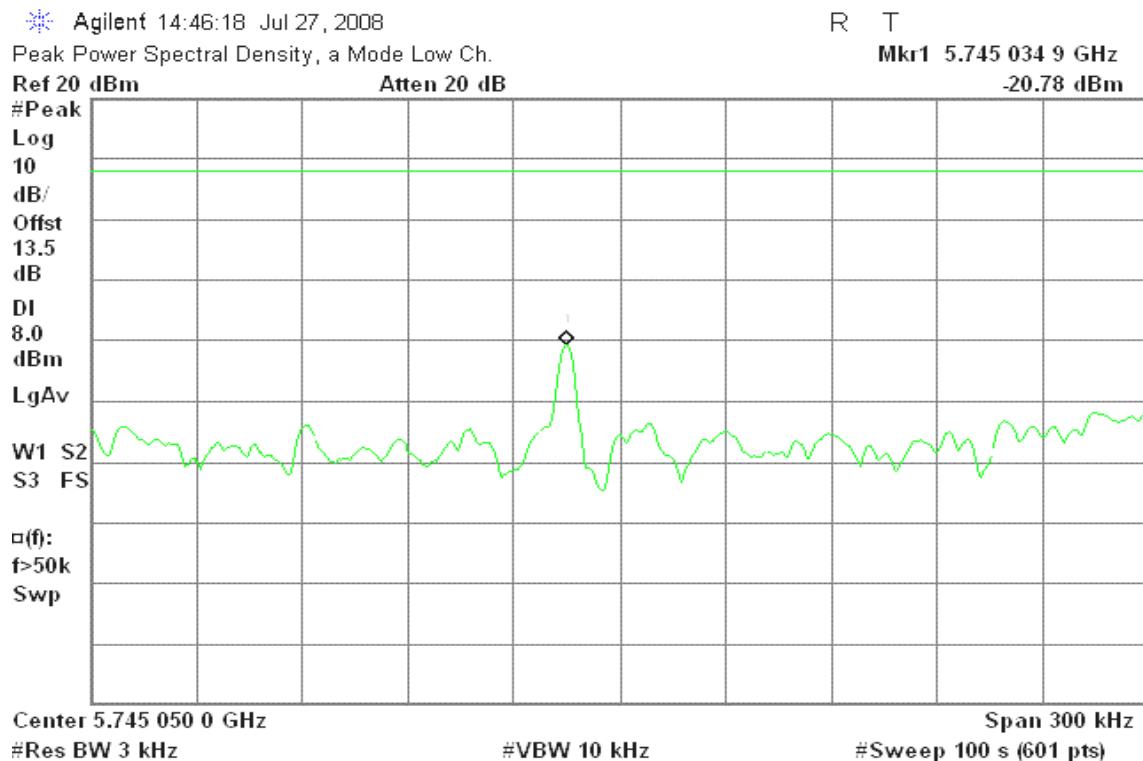
**IEEE 802.11a mode****PPSD (CH Low)****PPSD (CH Mid)**

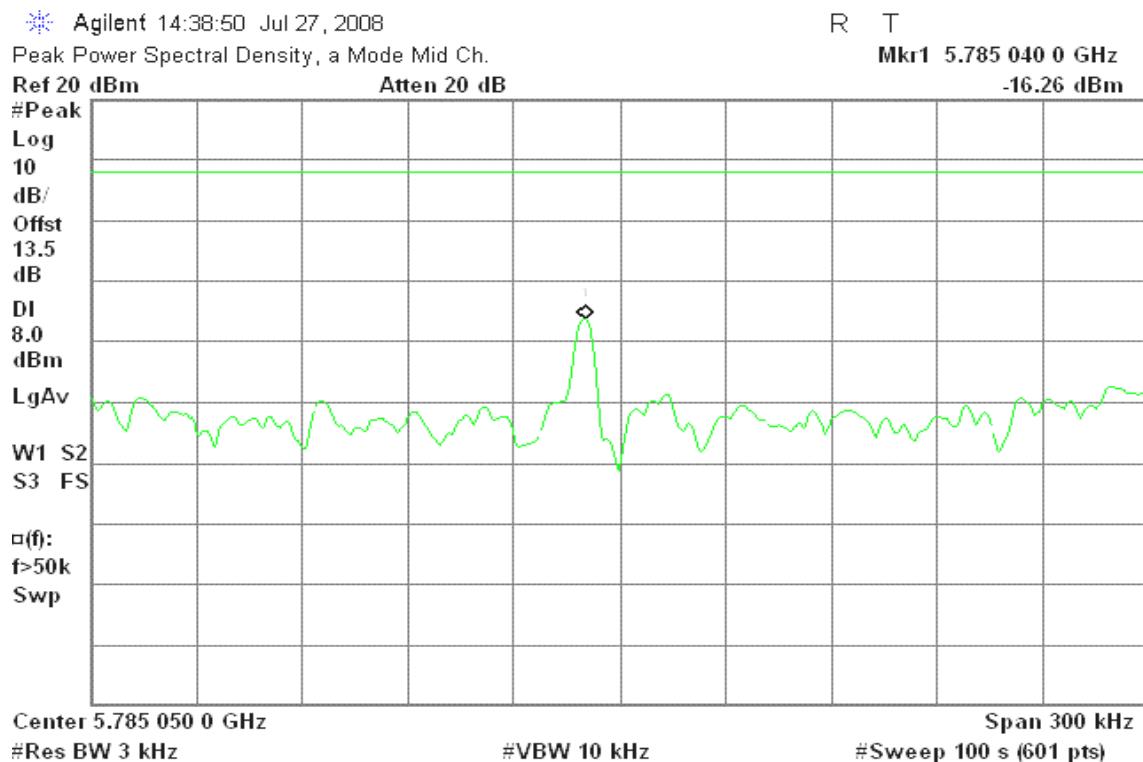
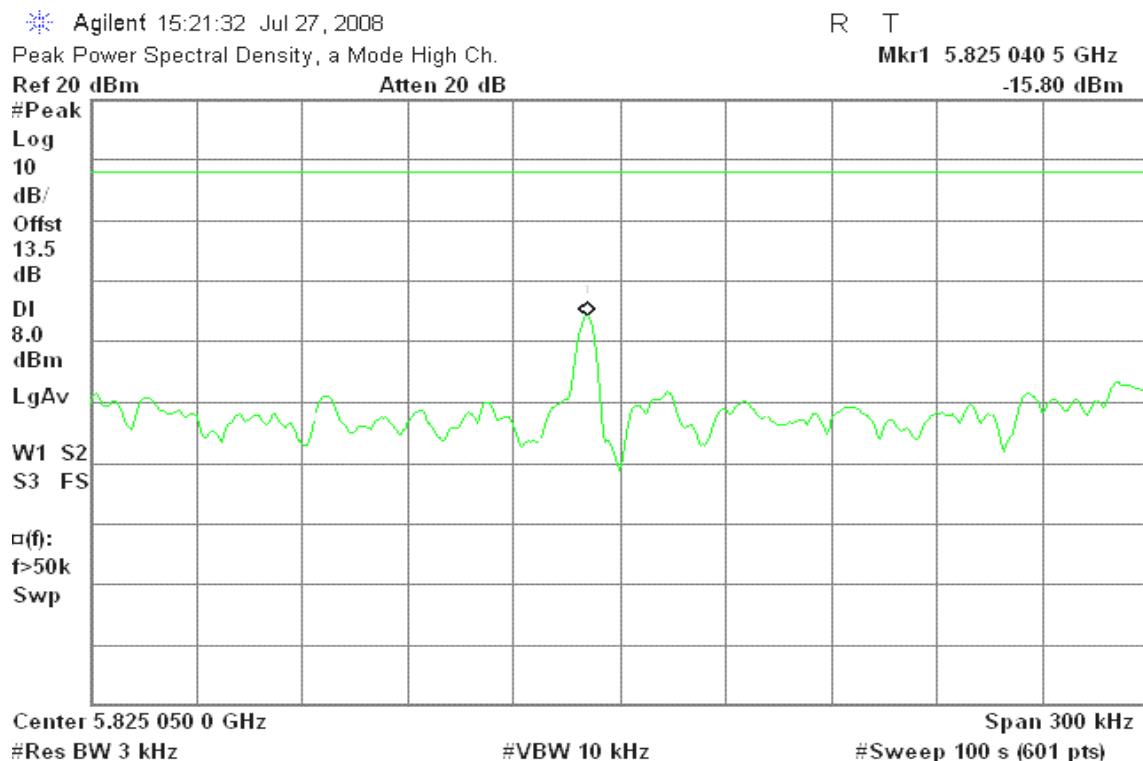
### PPSD (CH High)

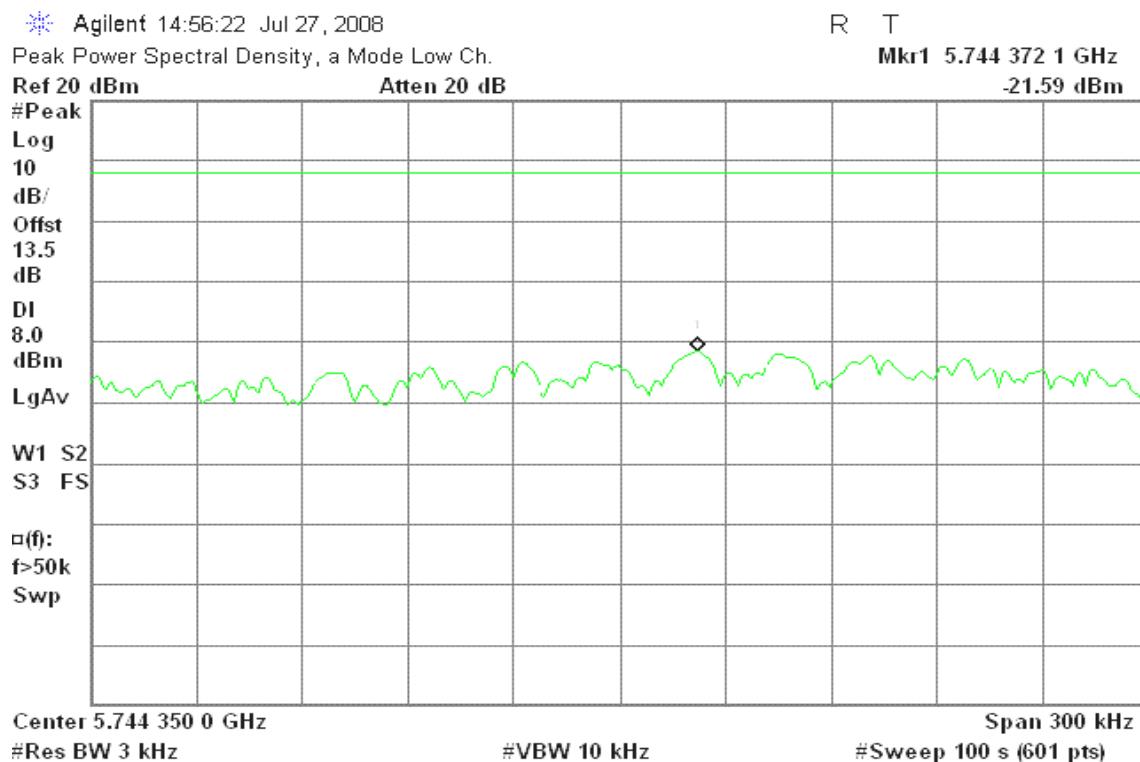
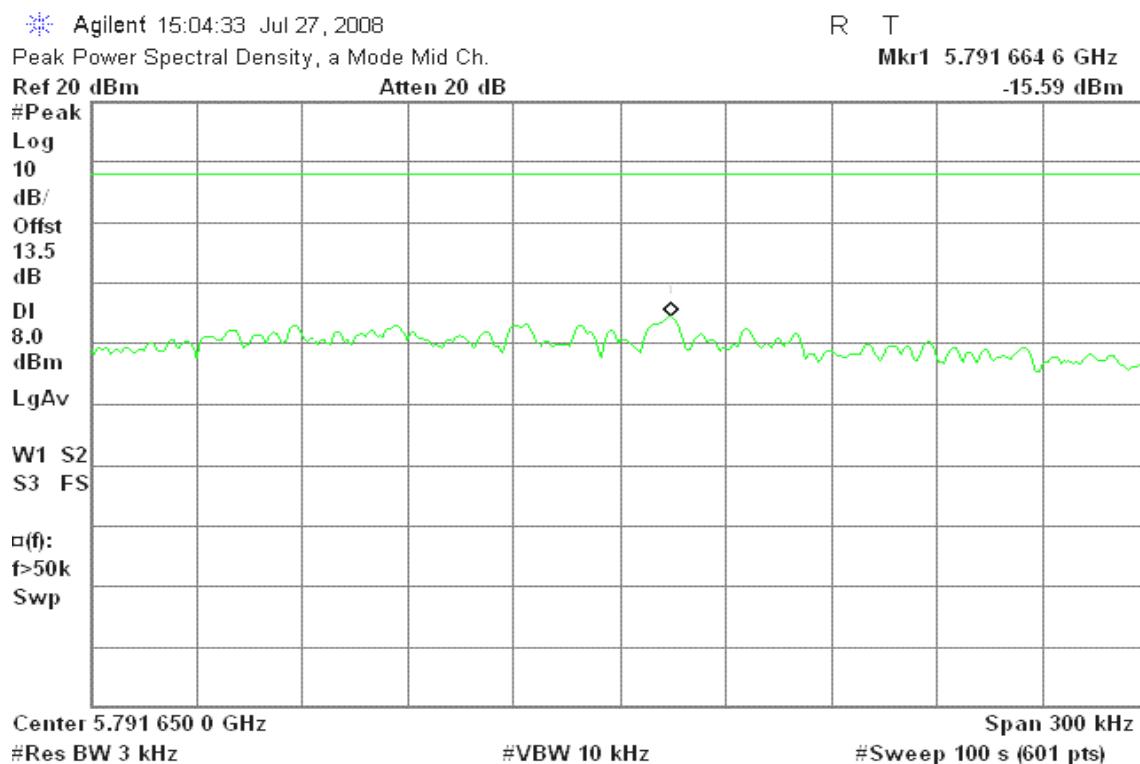


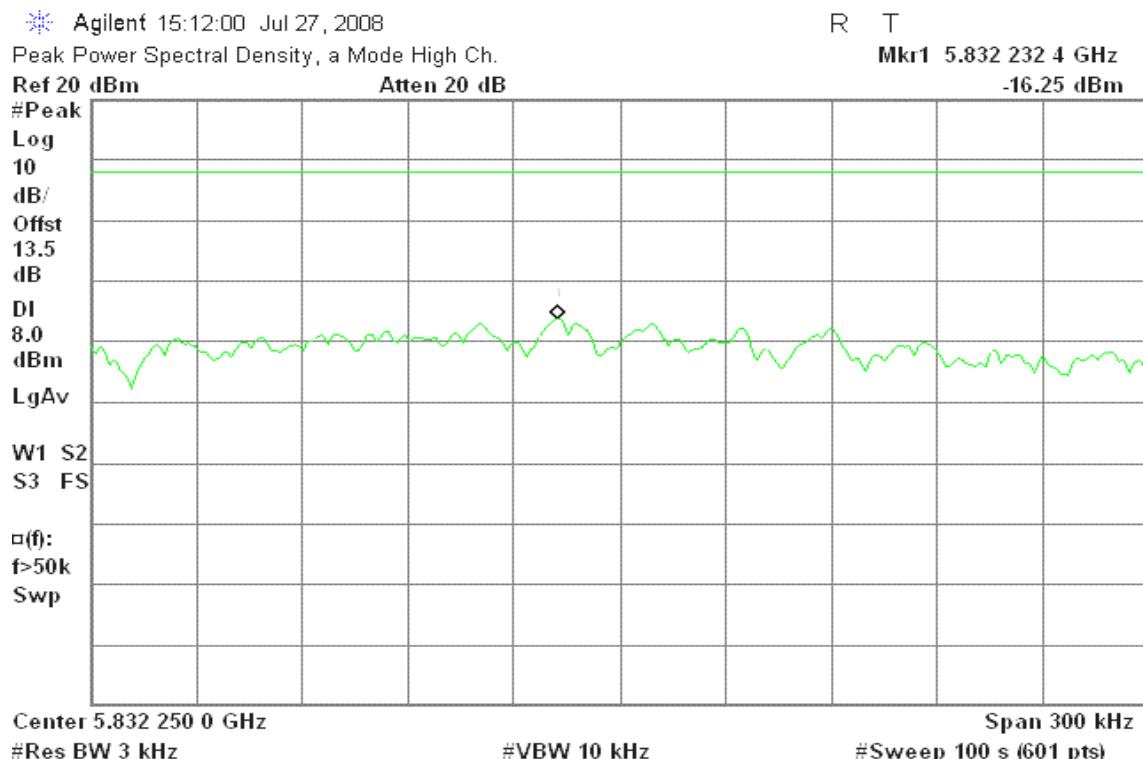
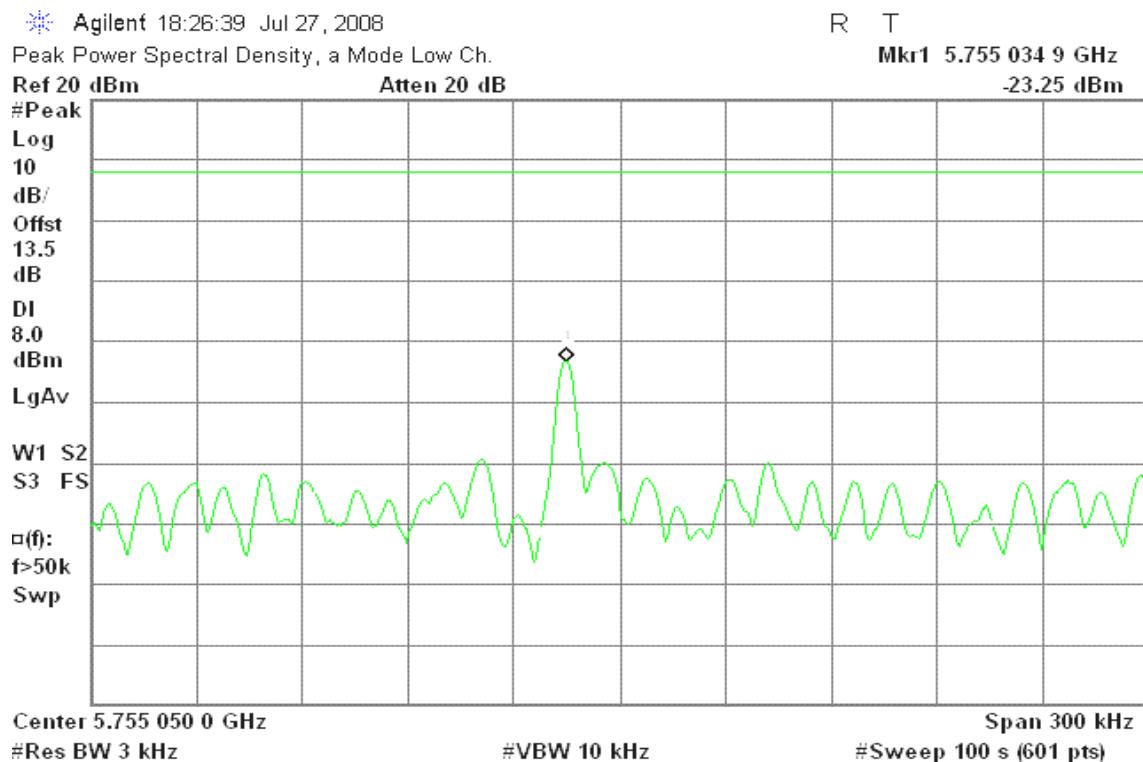
### draft 802.11n Standard-20 MHz Channel mode / Chain 0

### PPSD (CH Low)

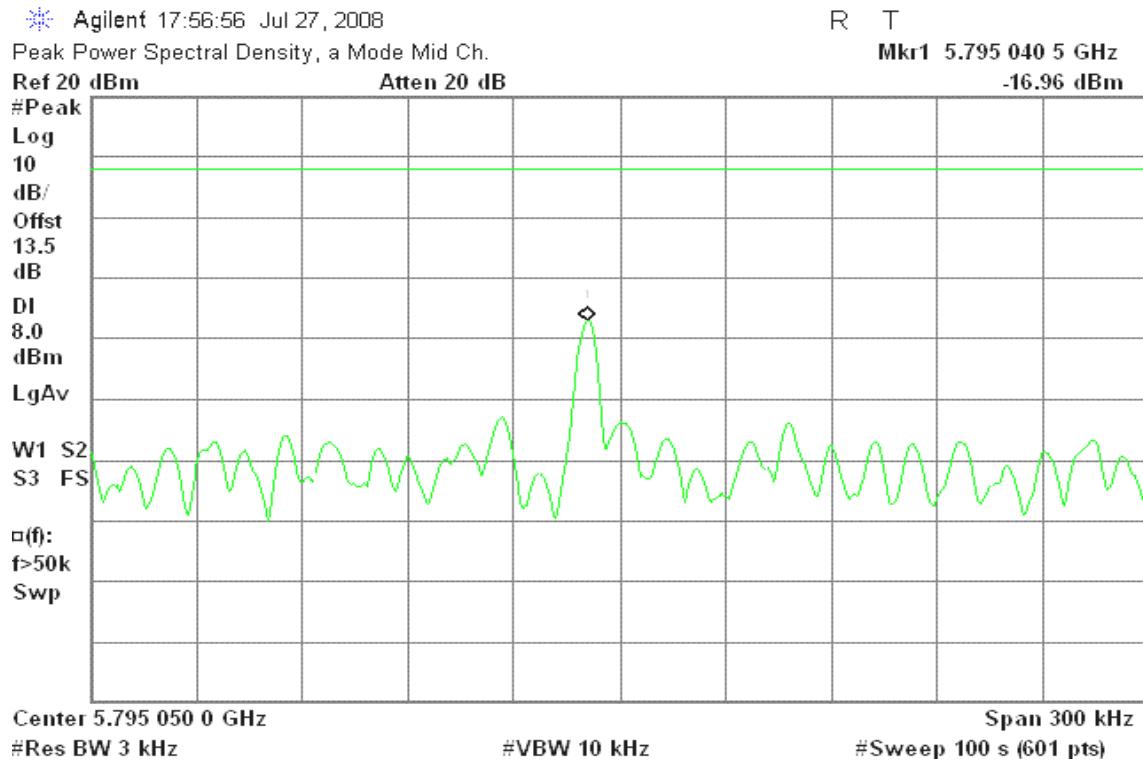


**PPSD (CH Mid)****PPSD (CH High)**

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

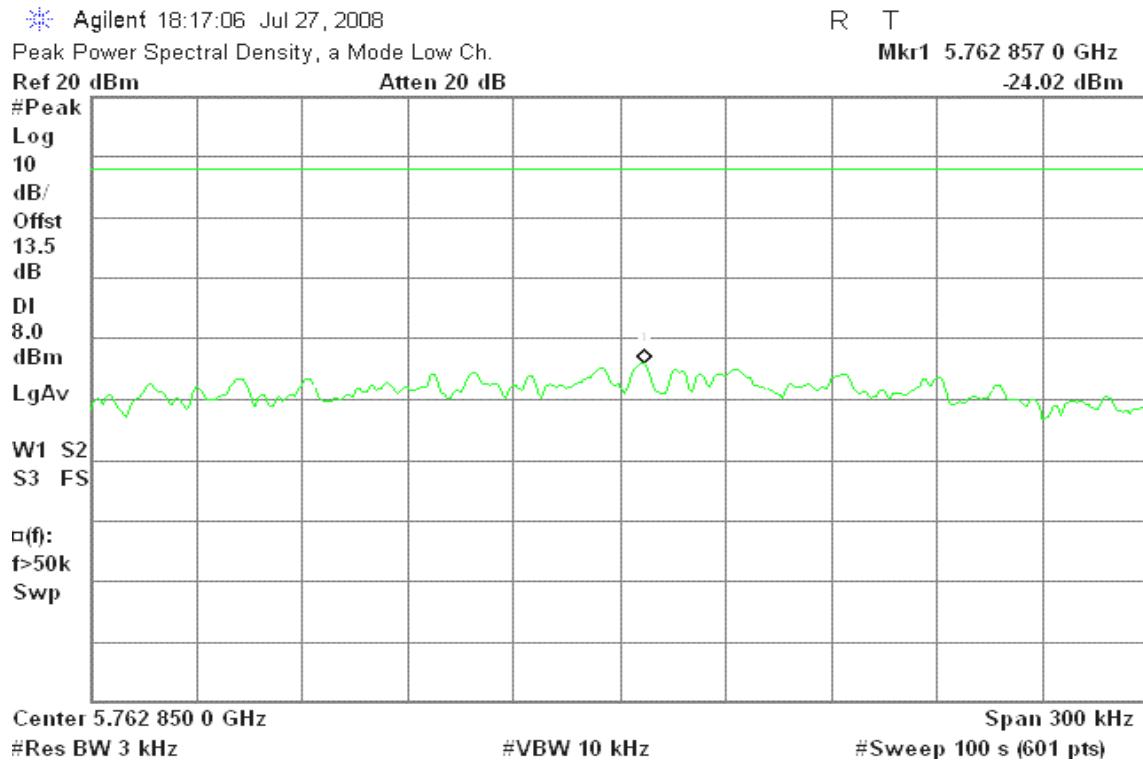
**PPSD (CH High)****draft 802.11n Wide-40 MHz Channel mode / Chain 0****PPSD (CH Low)**

### PPSD (CH High)

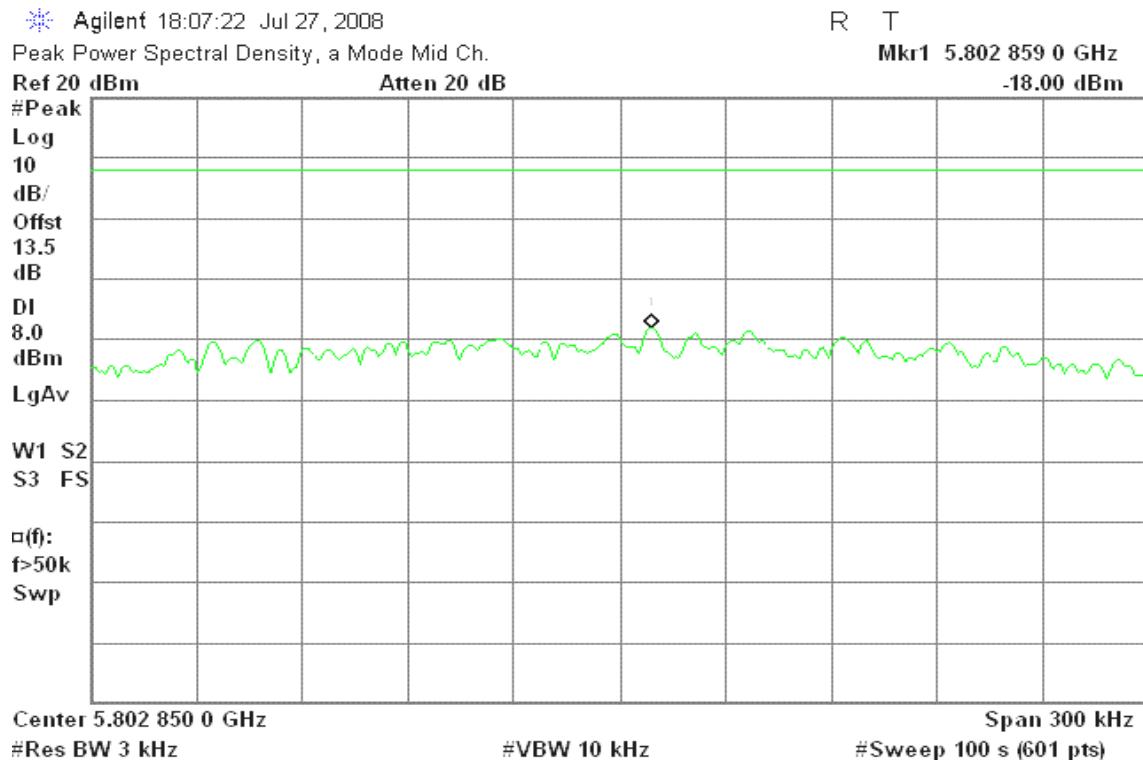


### draft 802.11n Wide-40 MHz Channel mode / Chain 1

### PPSD (CH Low)

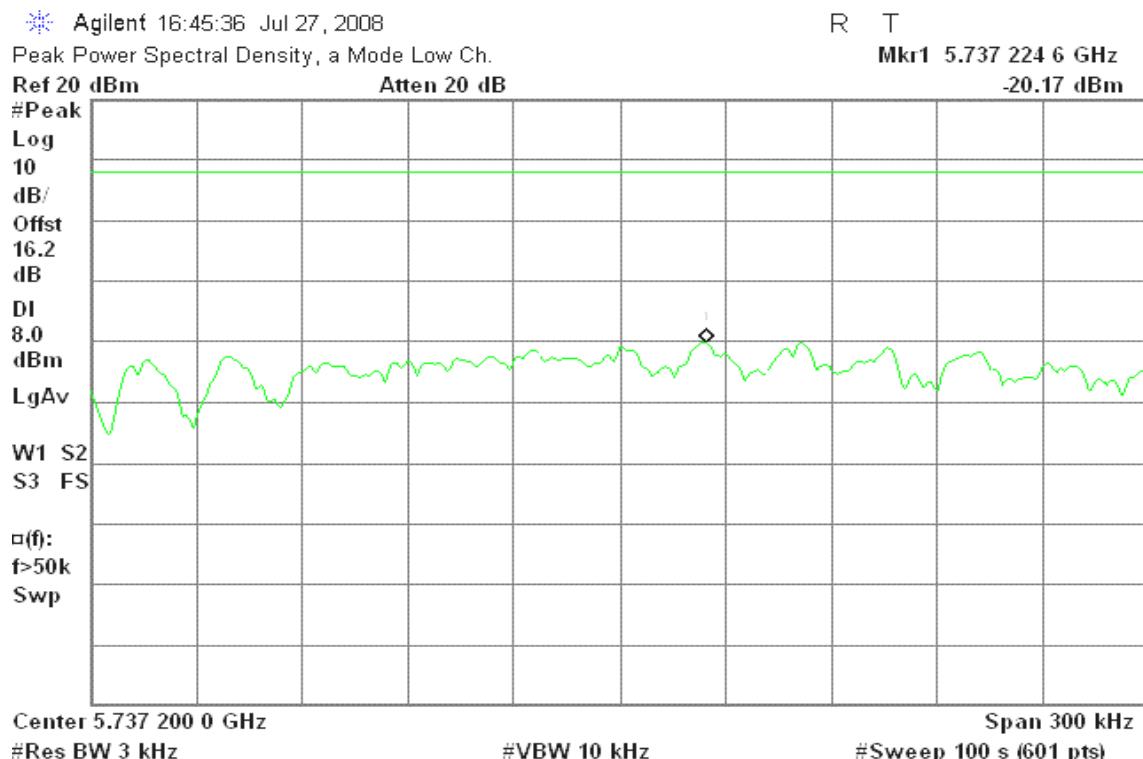


### PPSD (CH High)

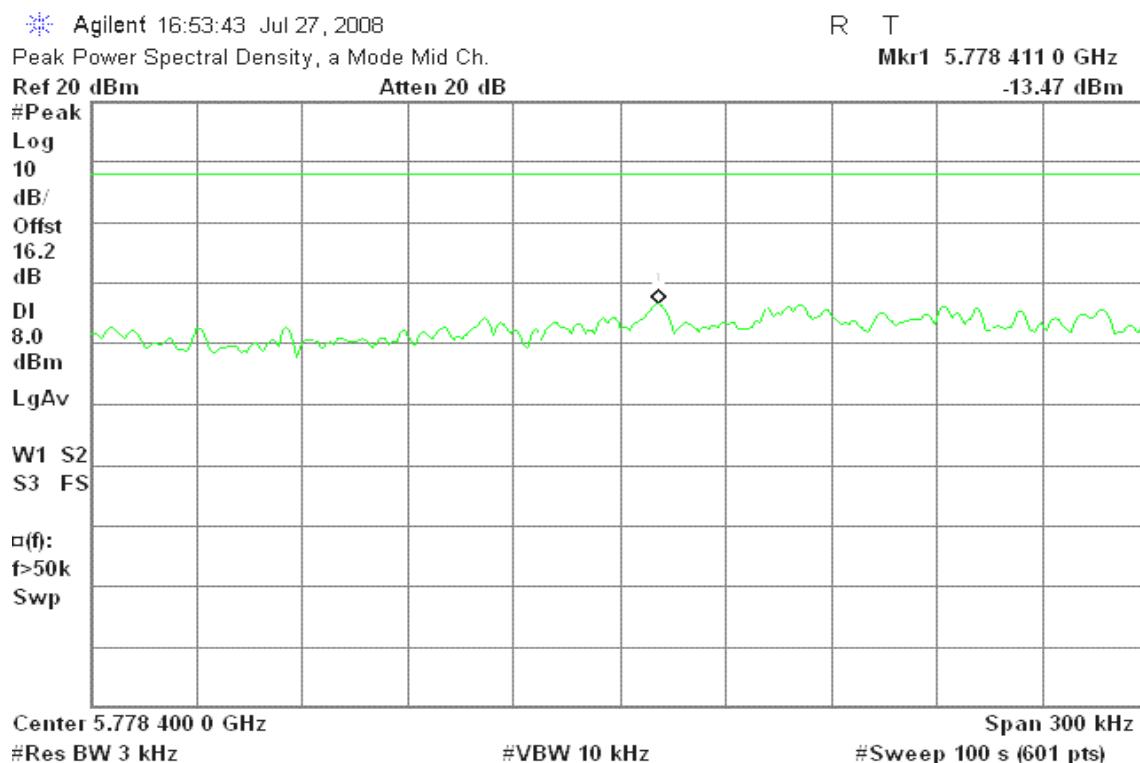


### draft 802.11n Standard-20 MHz Channel mode with combiner

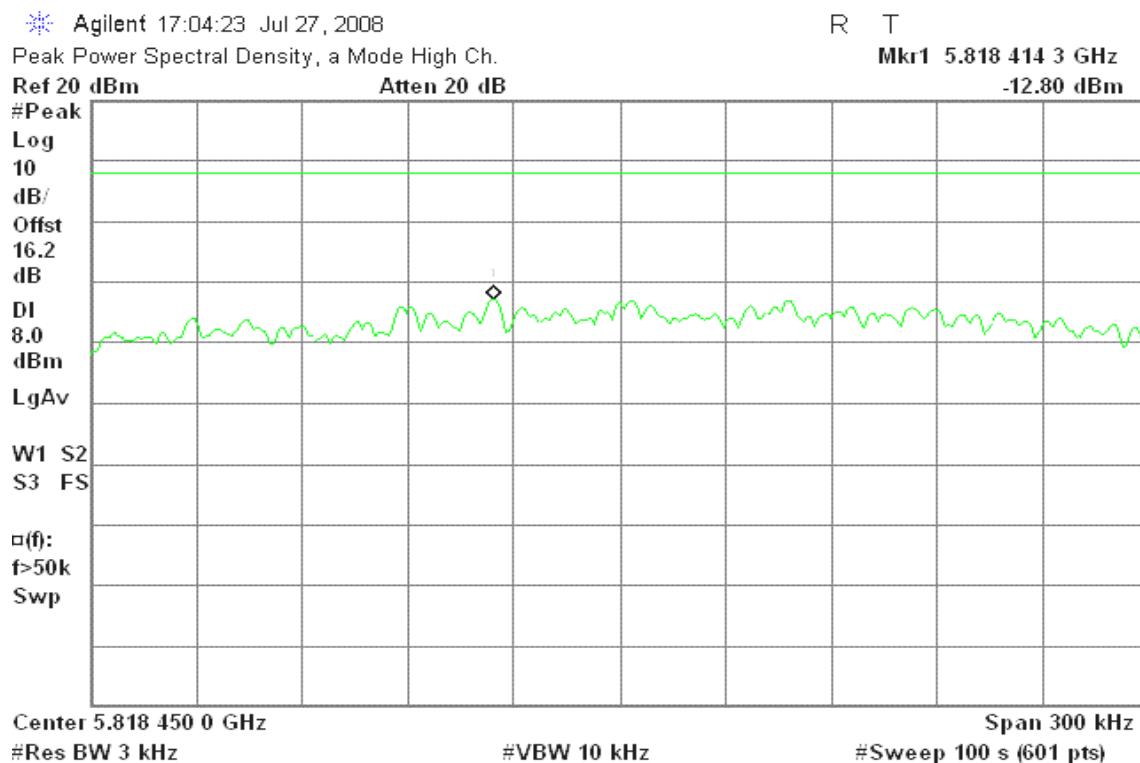
### PPSD (CH Low)

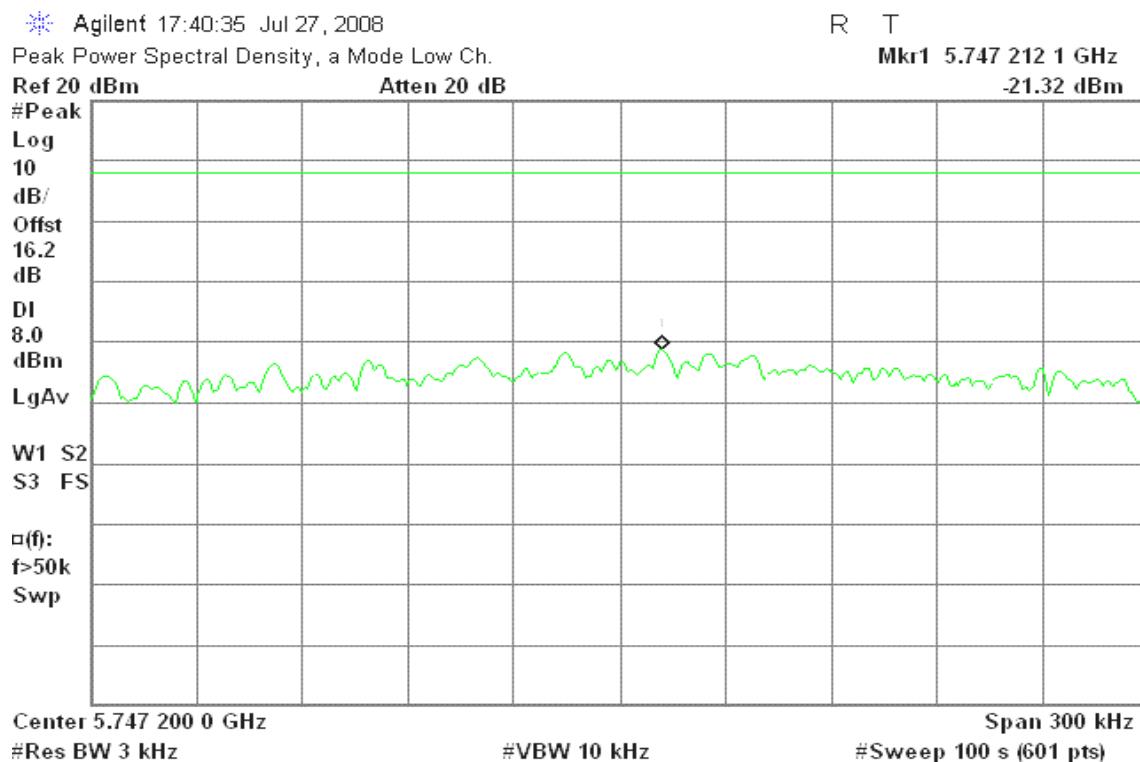
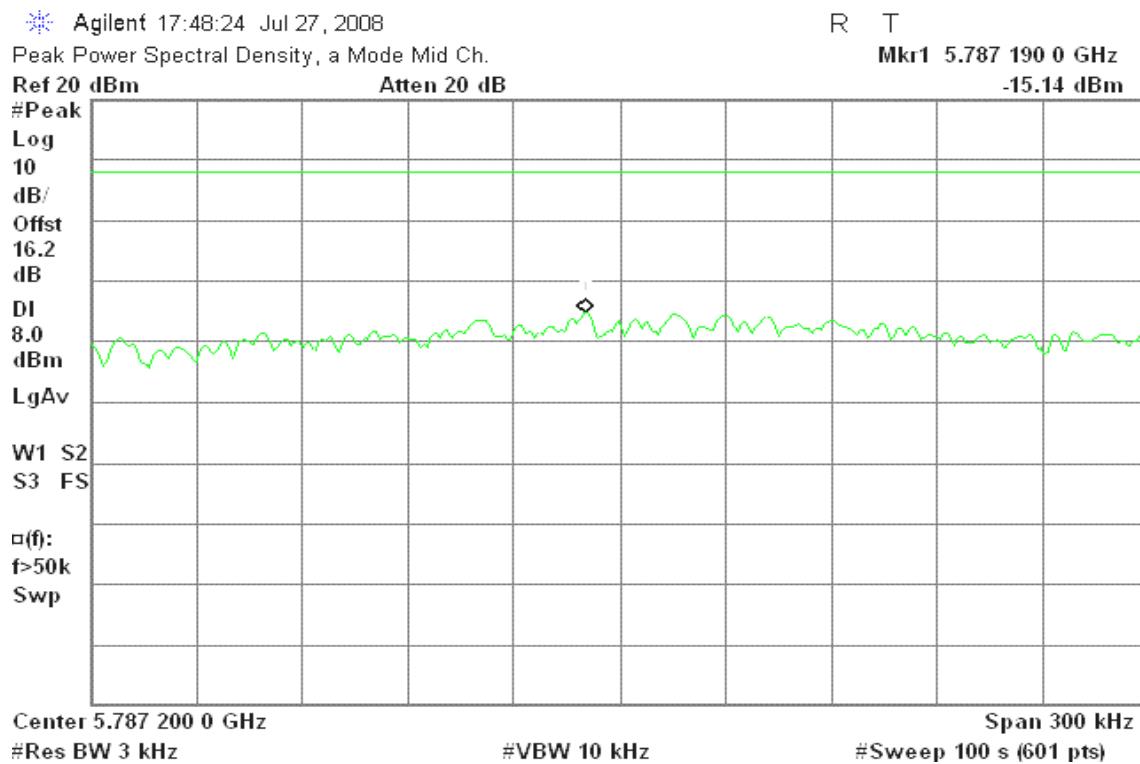


### PPSD (CH Mid)



### PPSD (CH High)



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

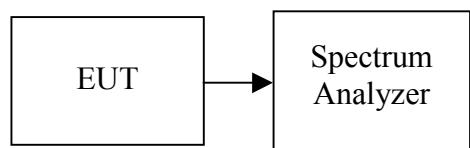
## 7.6 SPURIOUS EMISSIONS

### 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 13GHz to 26GHz range for IEEE 802.11b/g, 20GHz to 40GHz range for IEEE 802.11a with the transmitter set to the lowest, middle, and highest channels.

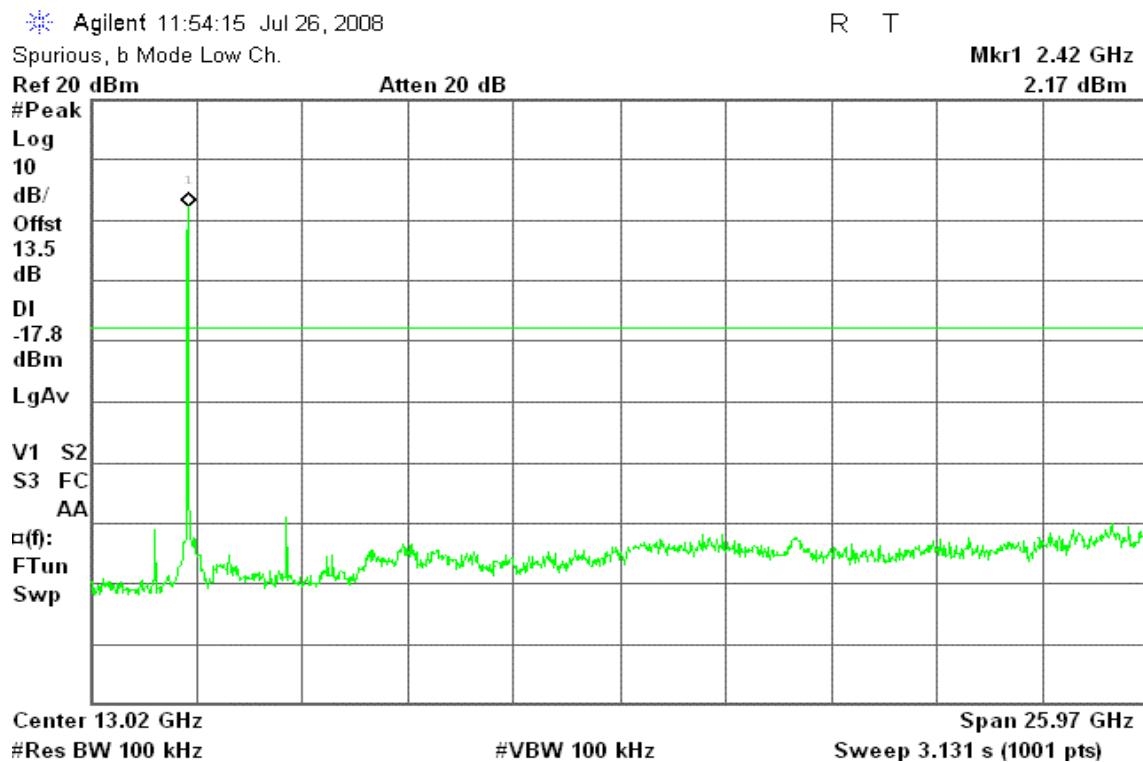
#### TEST RESULTS

*No non-compliance noted.*

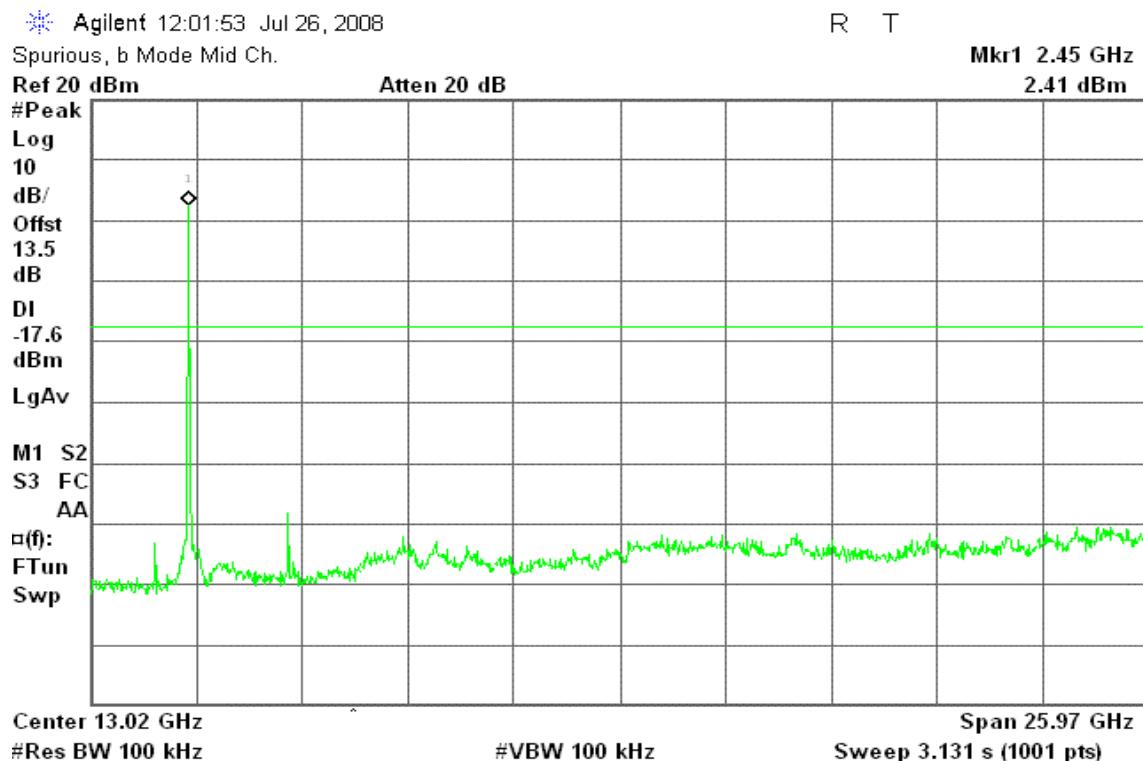
## Test Plot

### IEEE 802.11b mode

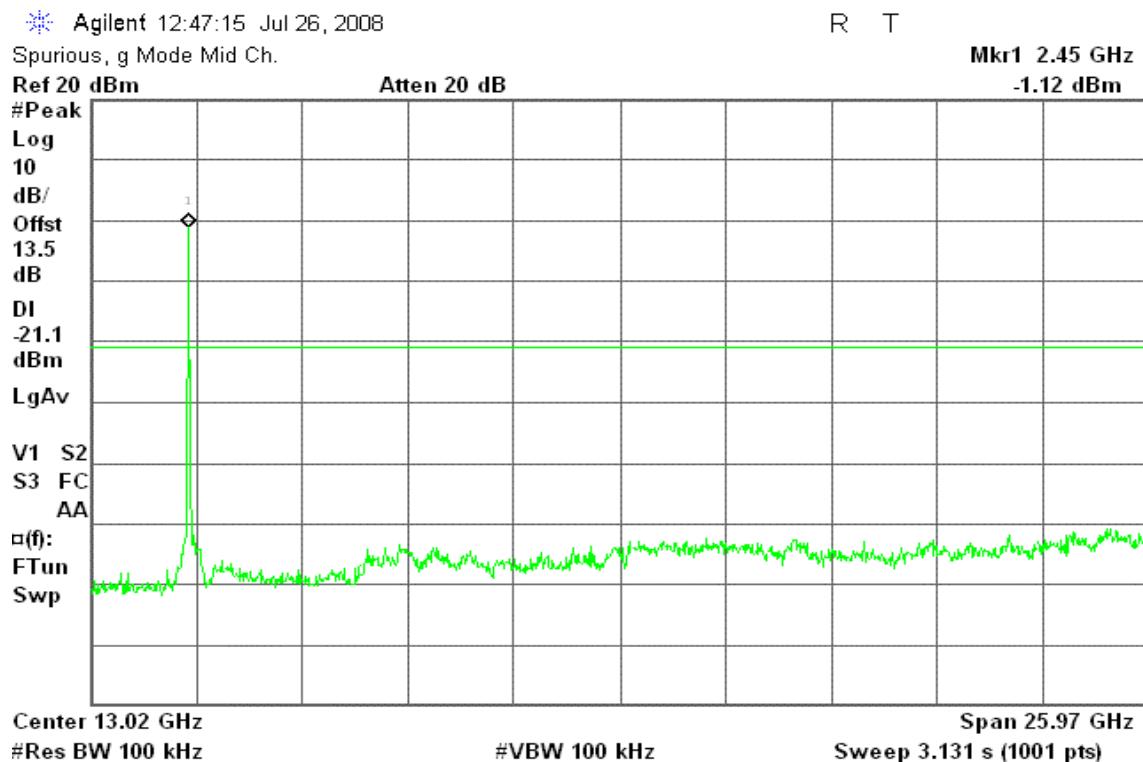
#### CH Low

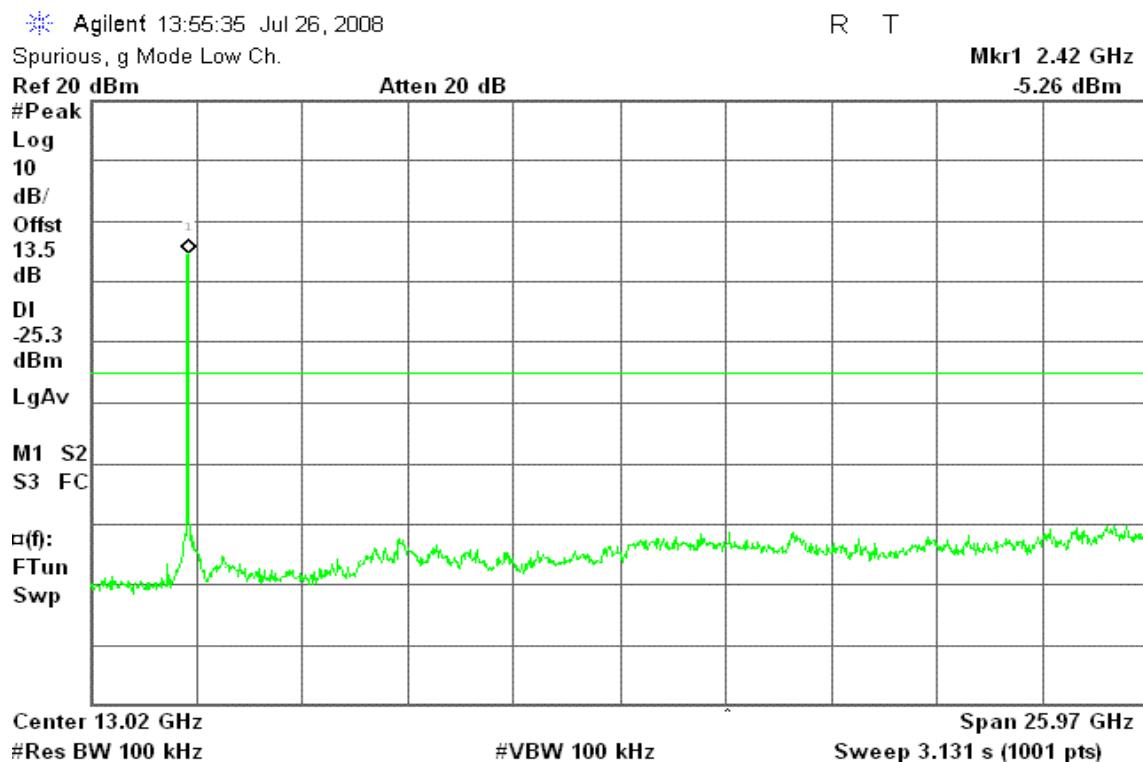


#### CH Mid



**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**

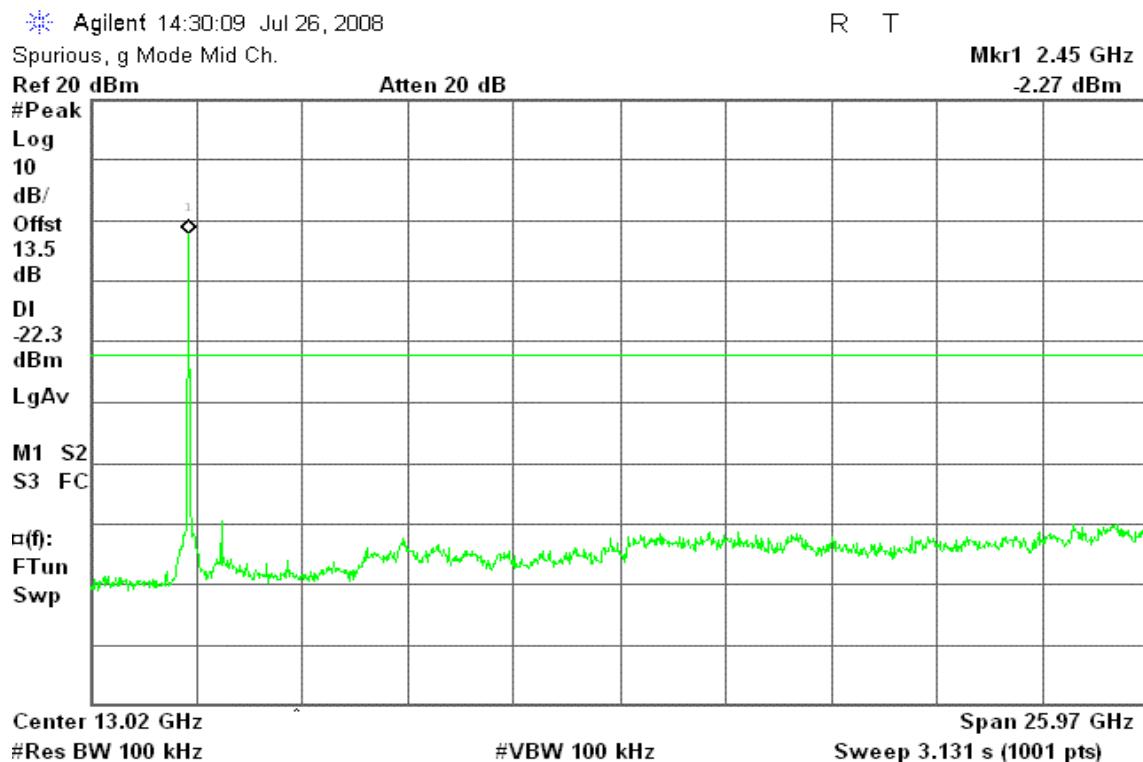
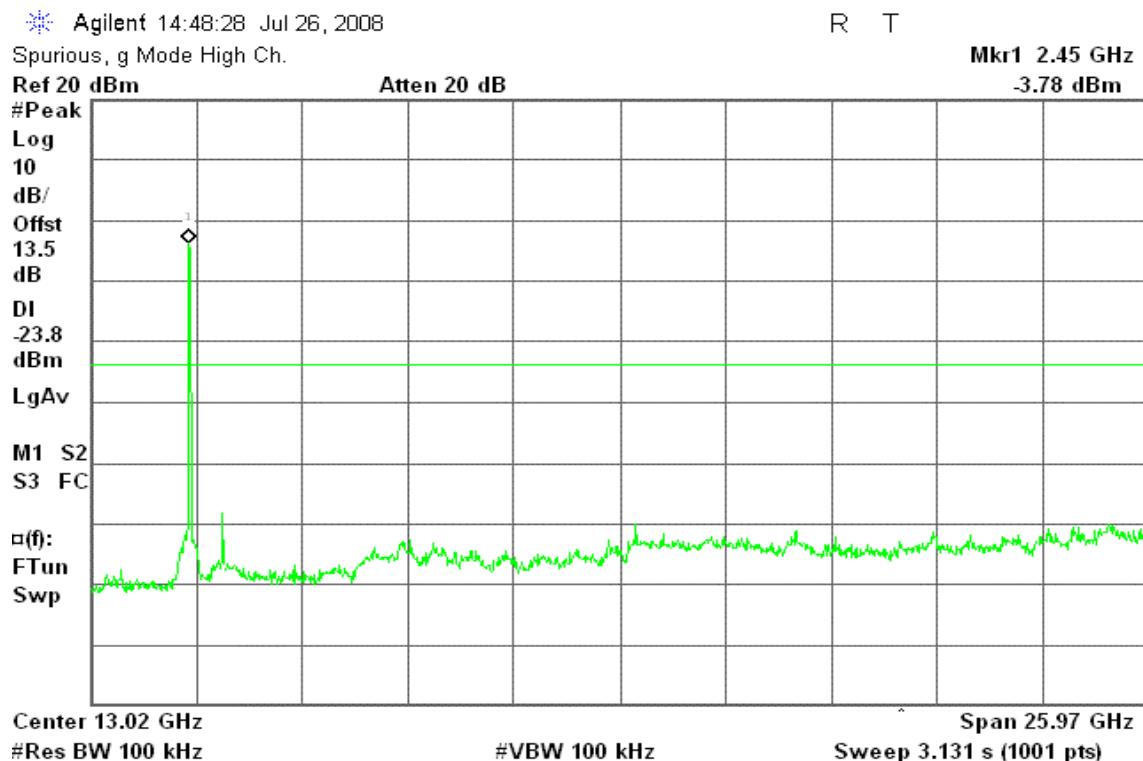
## CH High

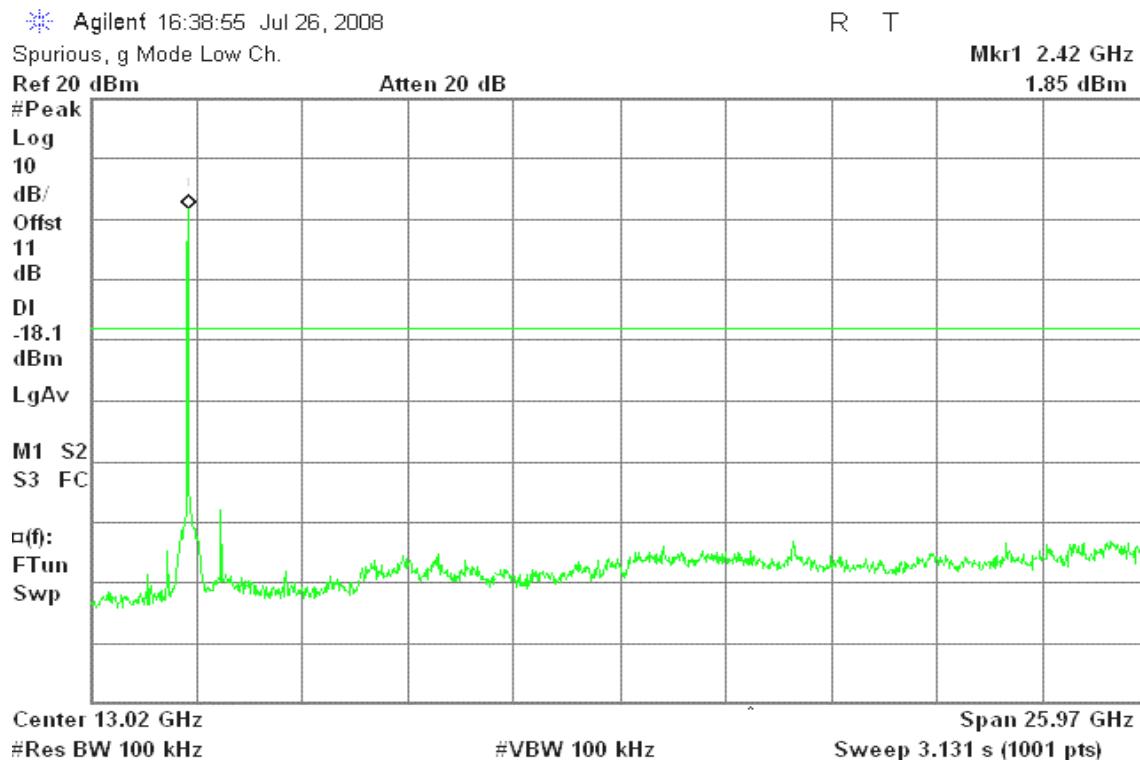
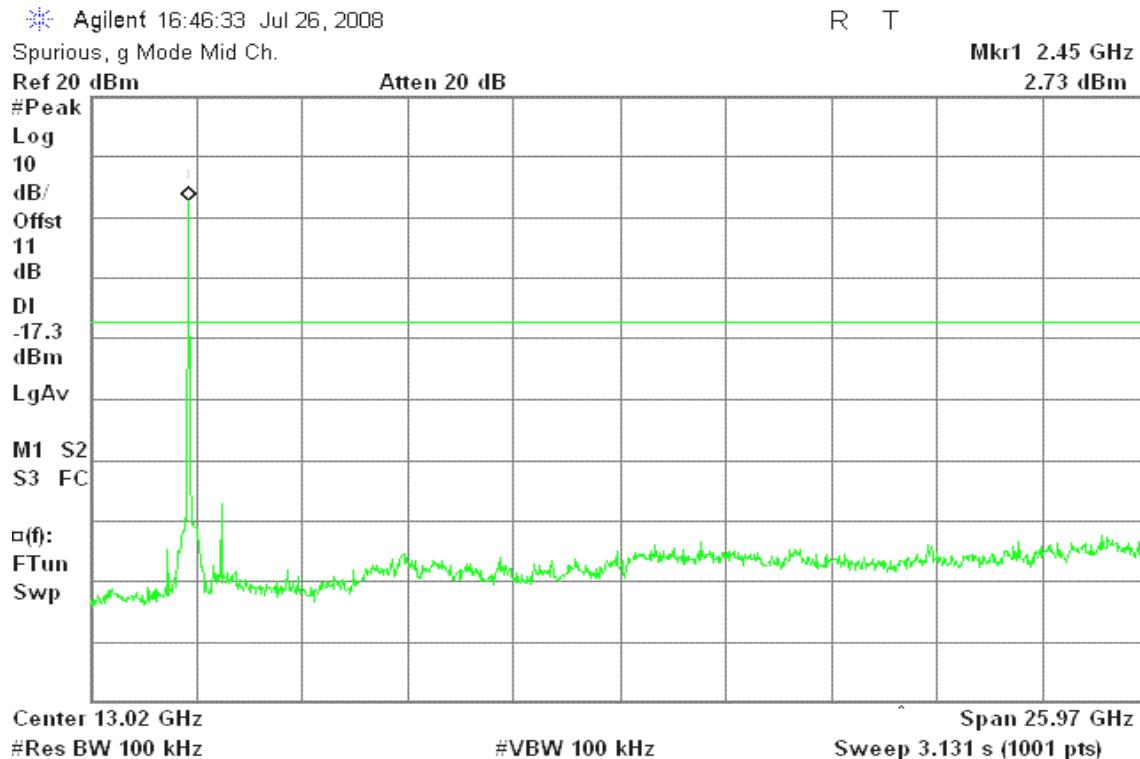


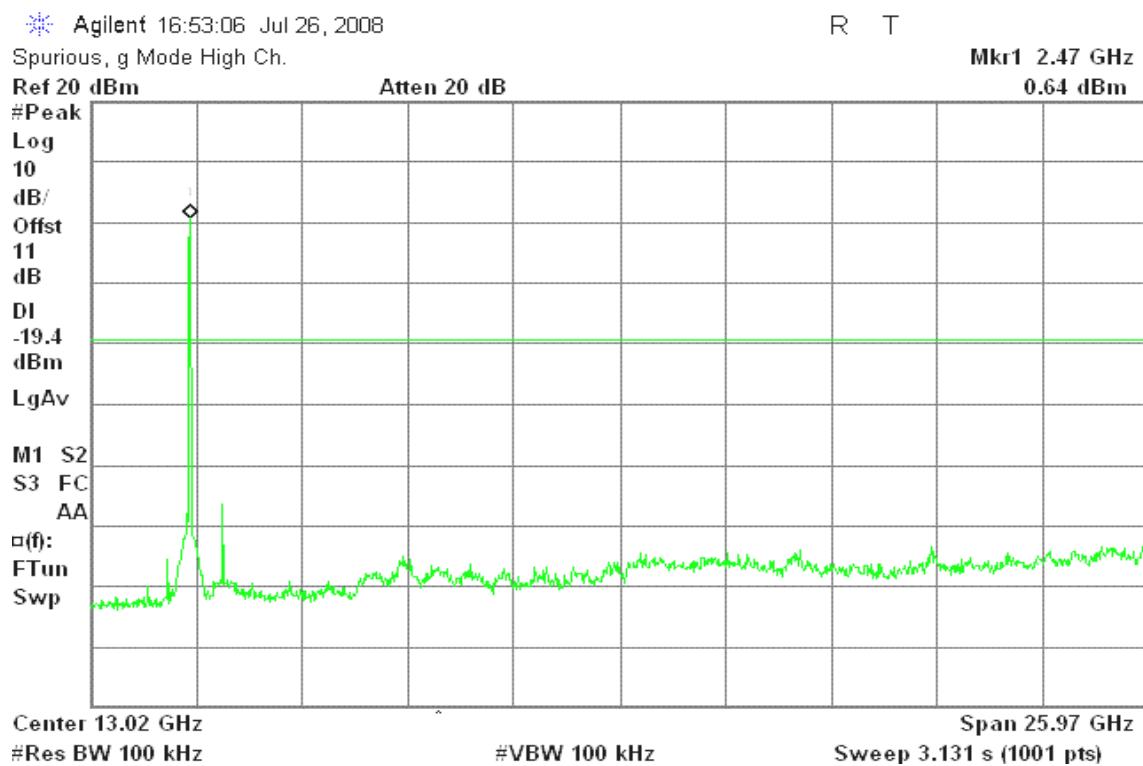
## draft 802.11n Standard-20 MHz Channel mode / Chain 1

## CH Low

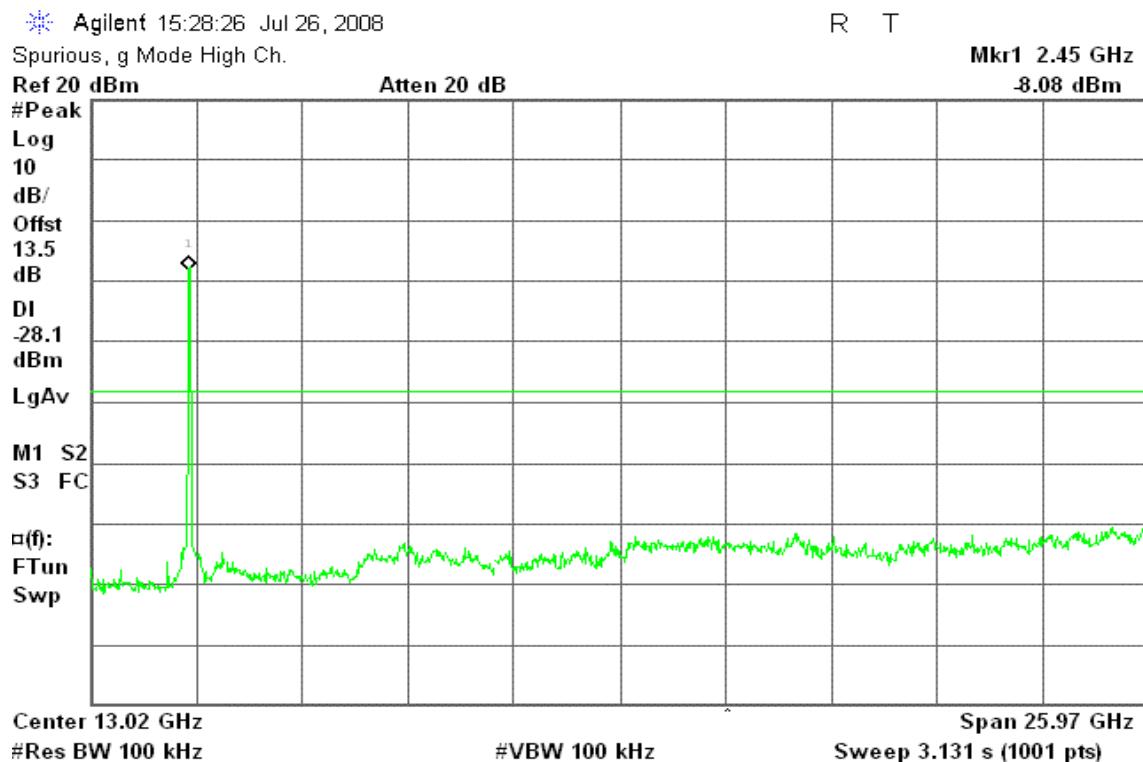


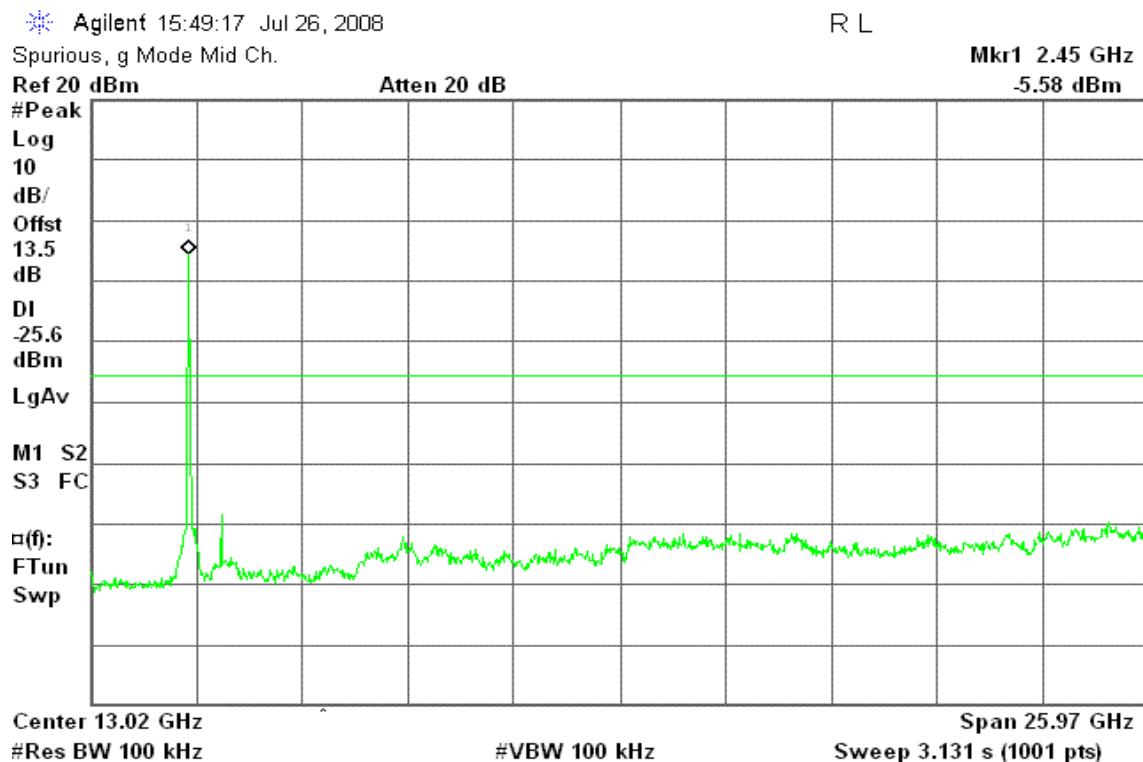
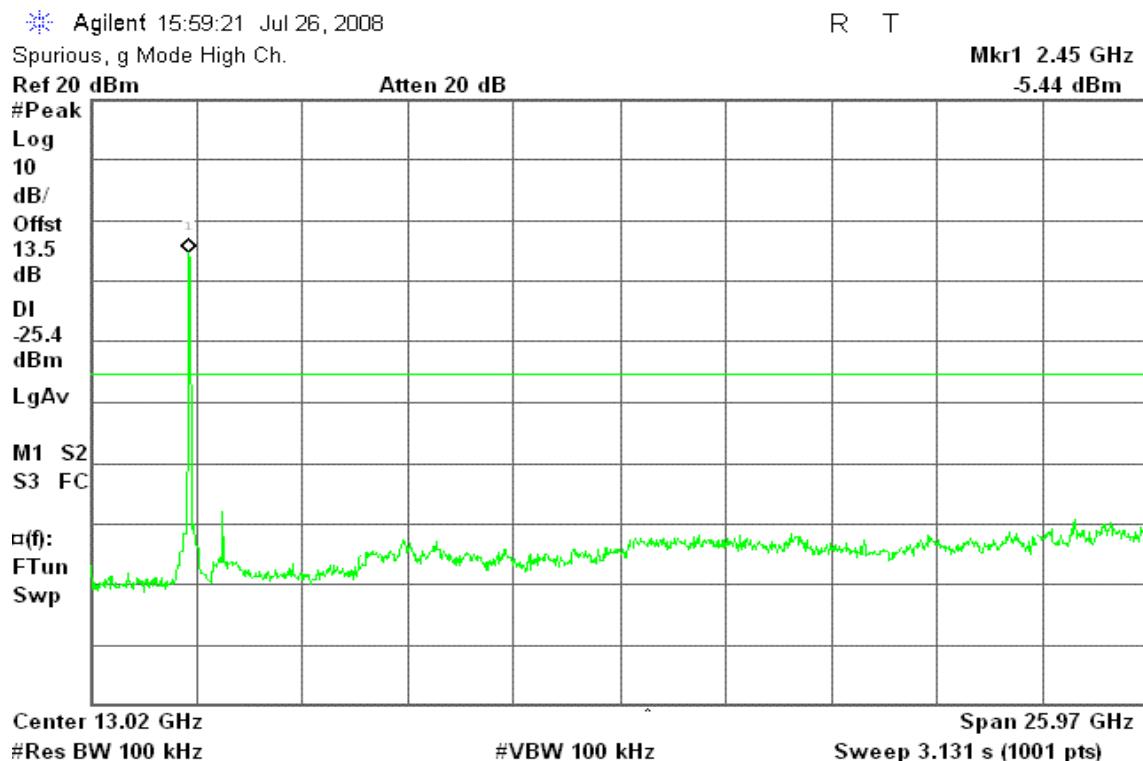
**CH Mid****CH High**

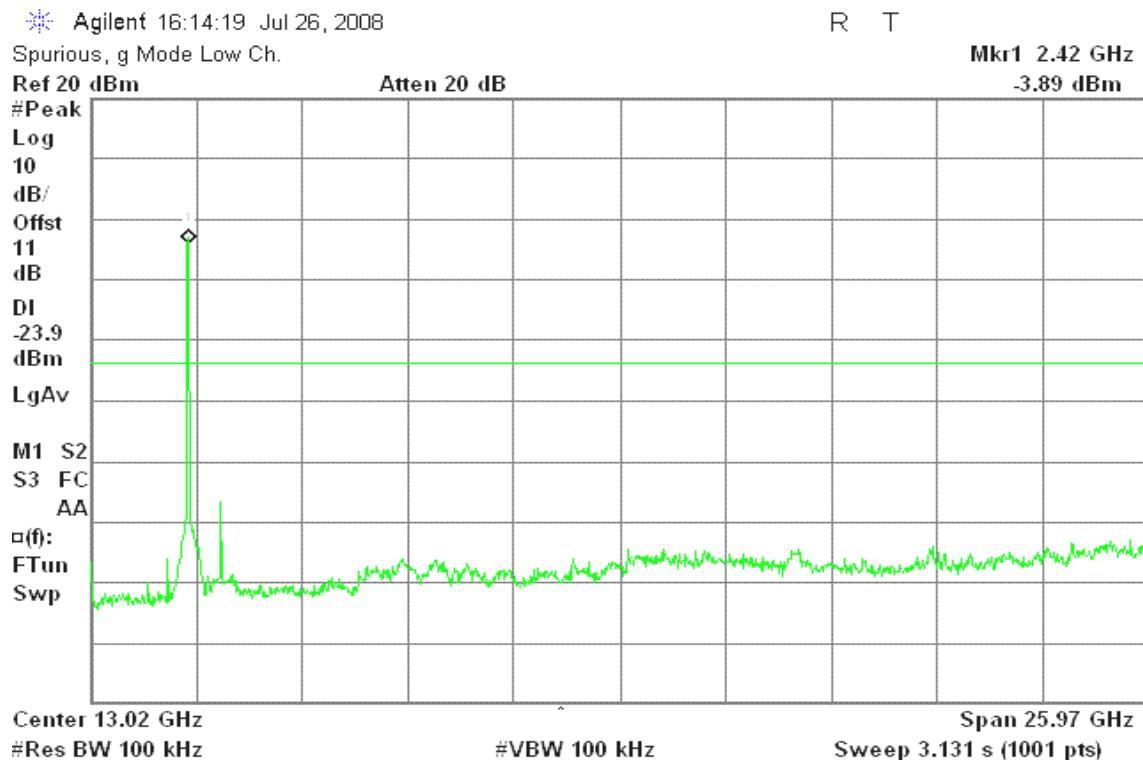
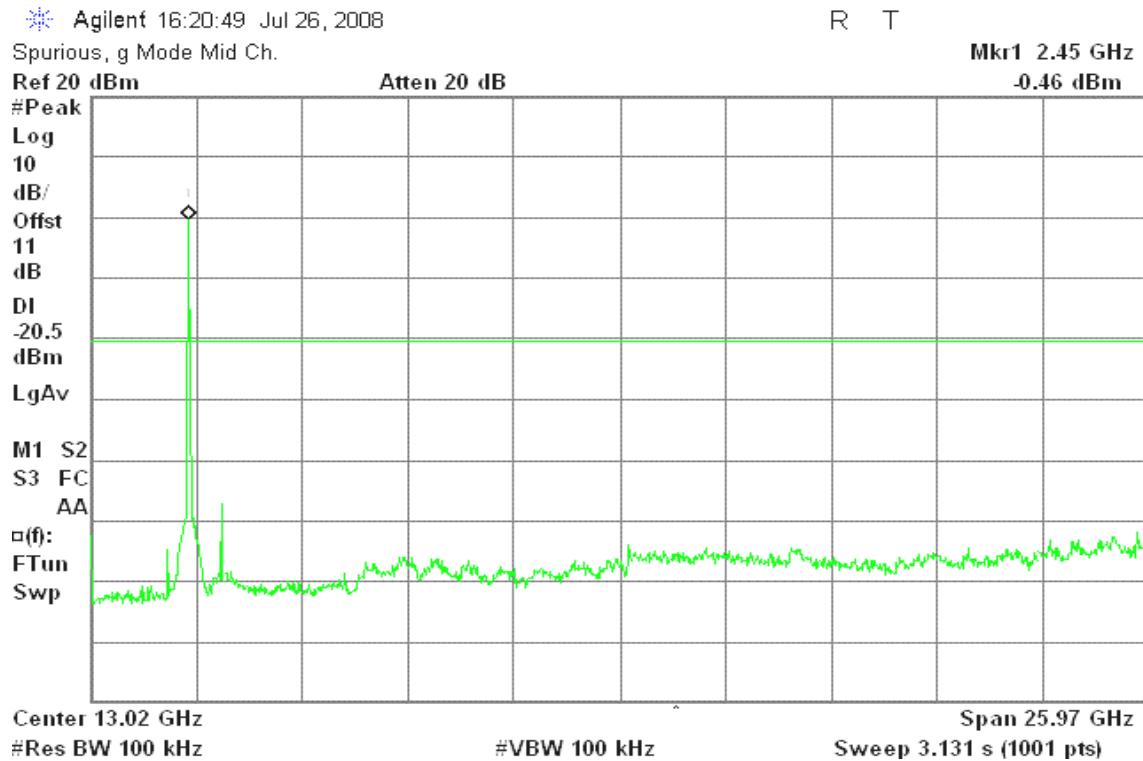
**draft 802.11n Wide-20 MHz Channel mode with combiner****CH Low****CH Mid**

**CH High**

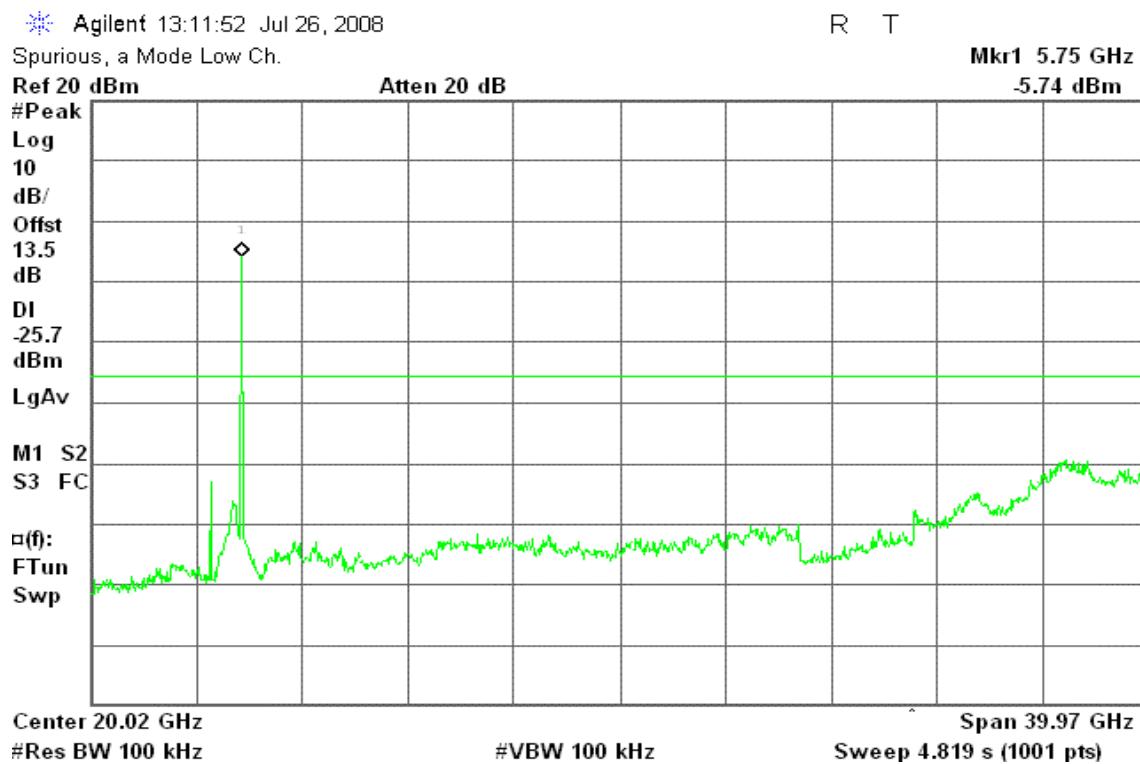
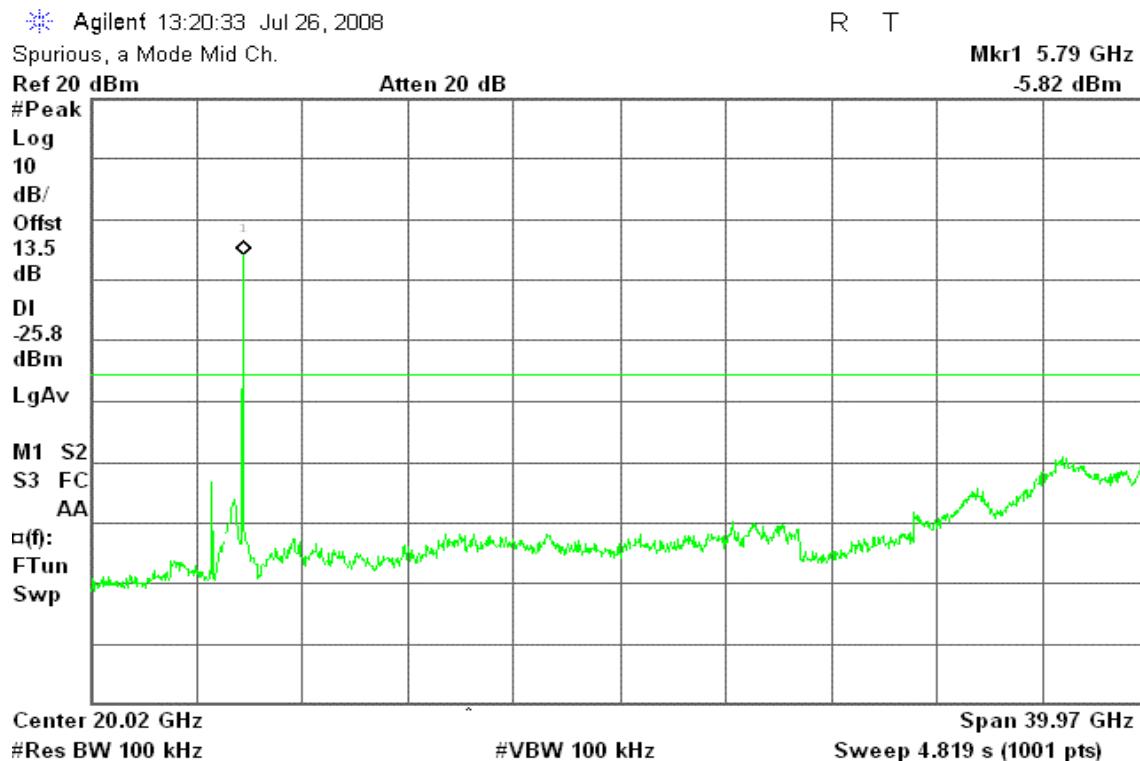
**draft 802.11n Wide-40 MHz Channel mode / Chain 0****CH Low****CH Mid**

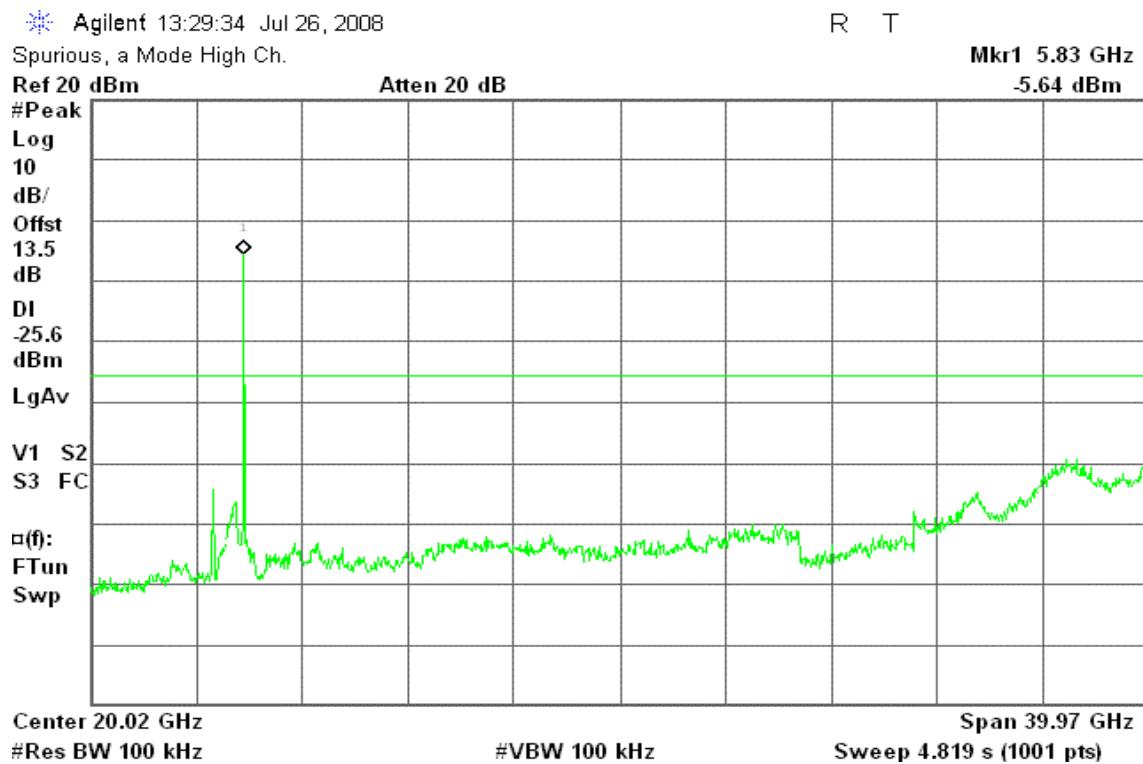
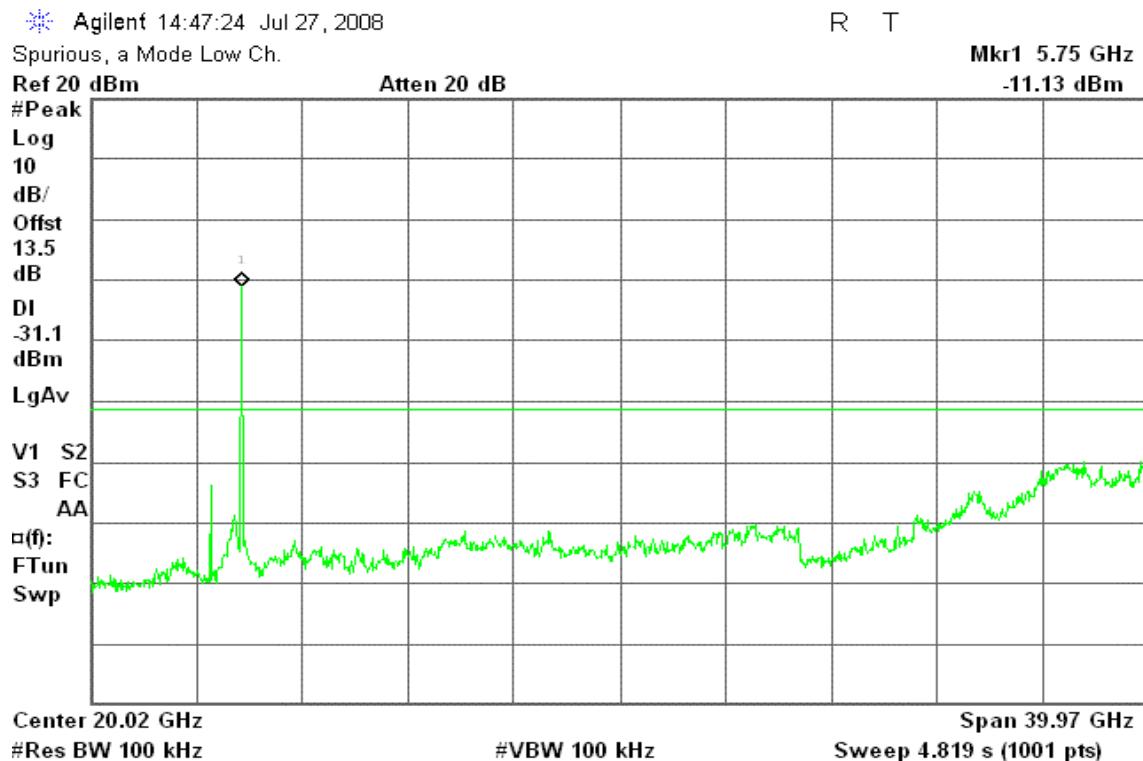
**CH High****draft 802.11n Wide-40 MHz Channel mode / Chain 1****CH Low**

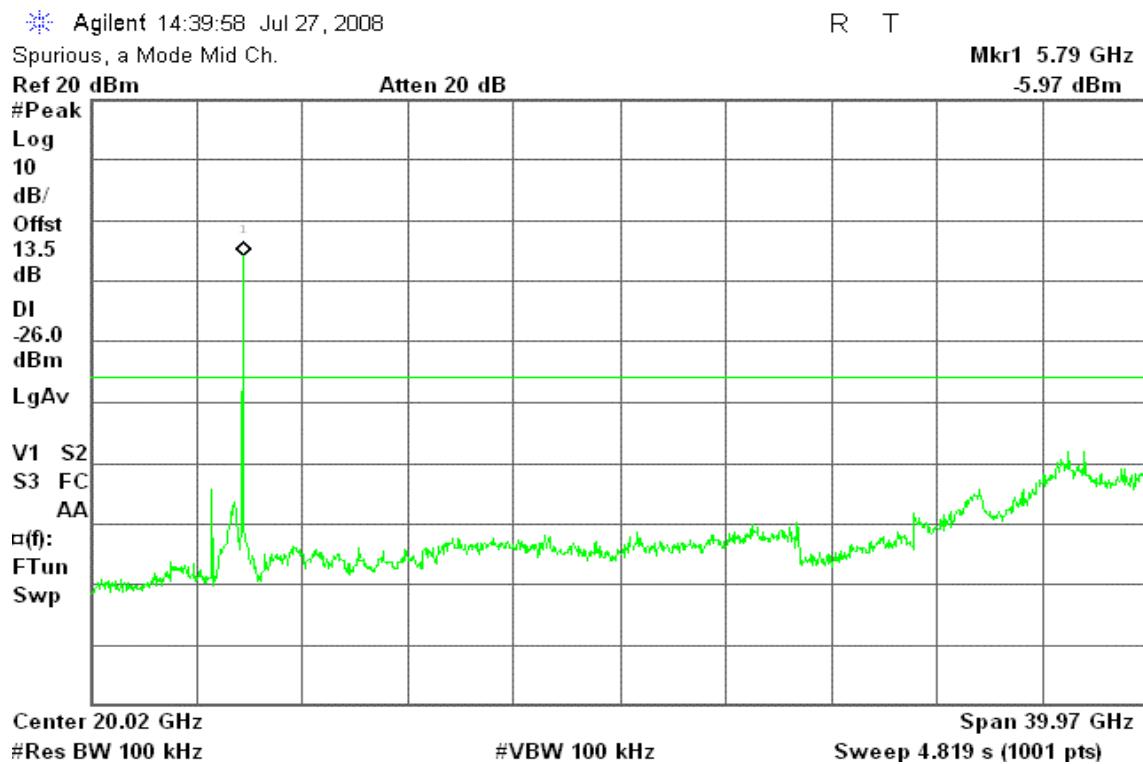
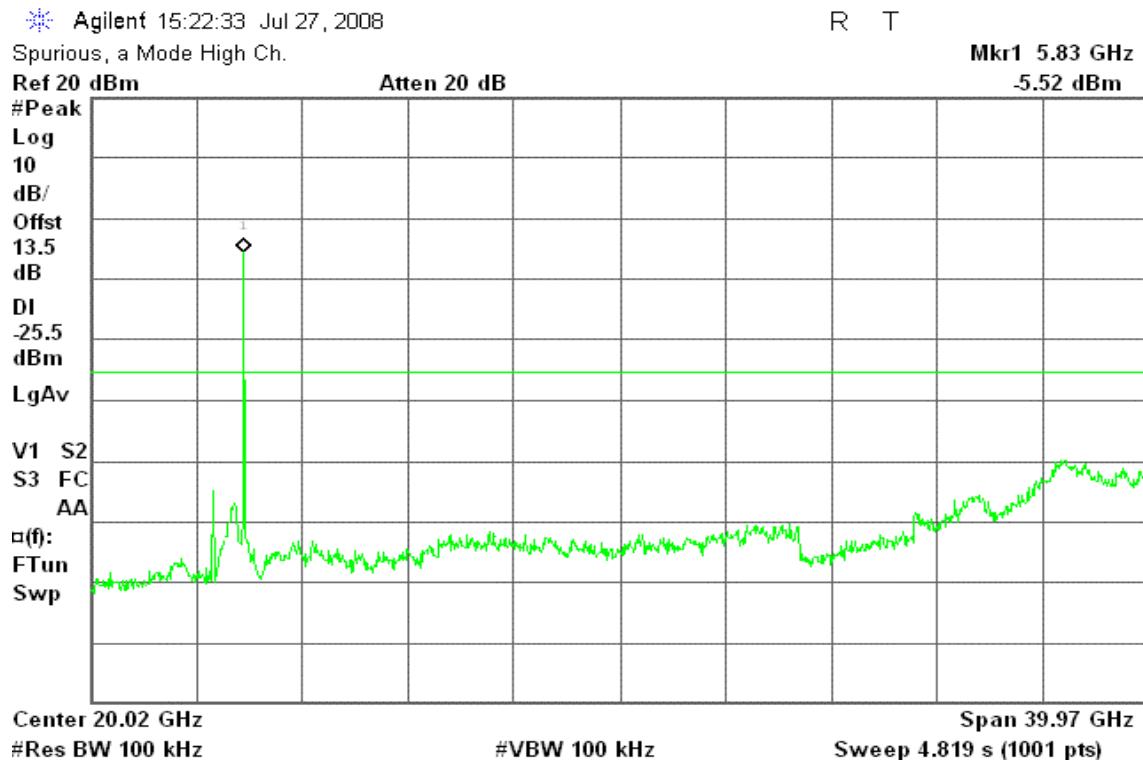
**CH Mid****CH High**

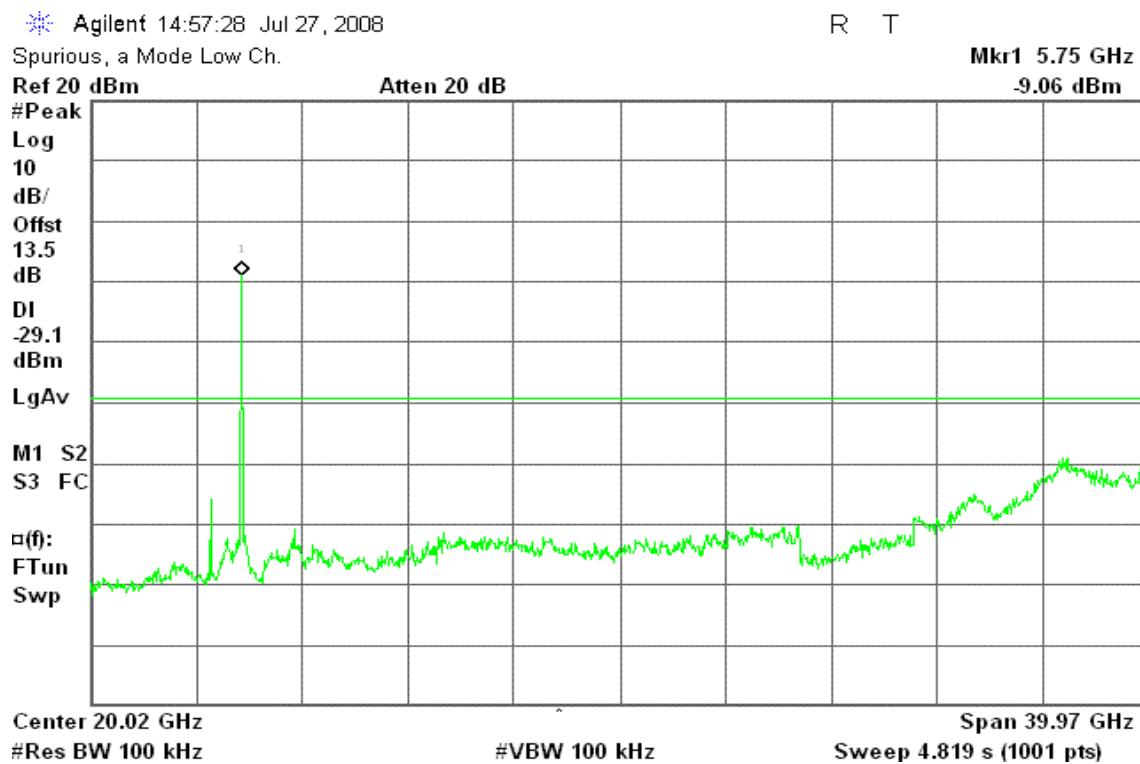
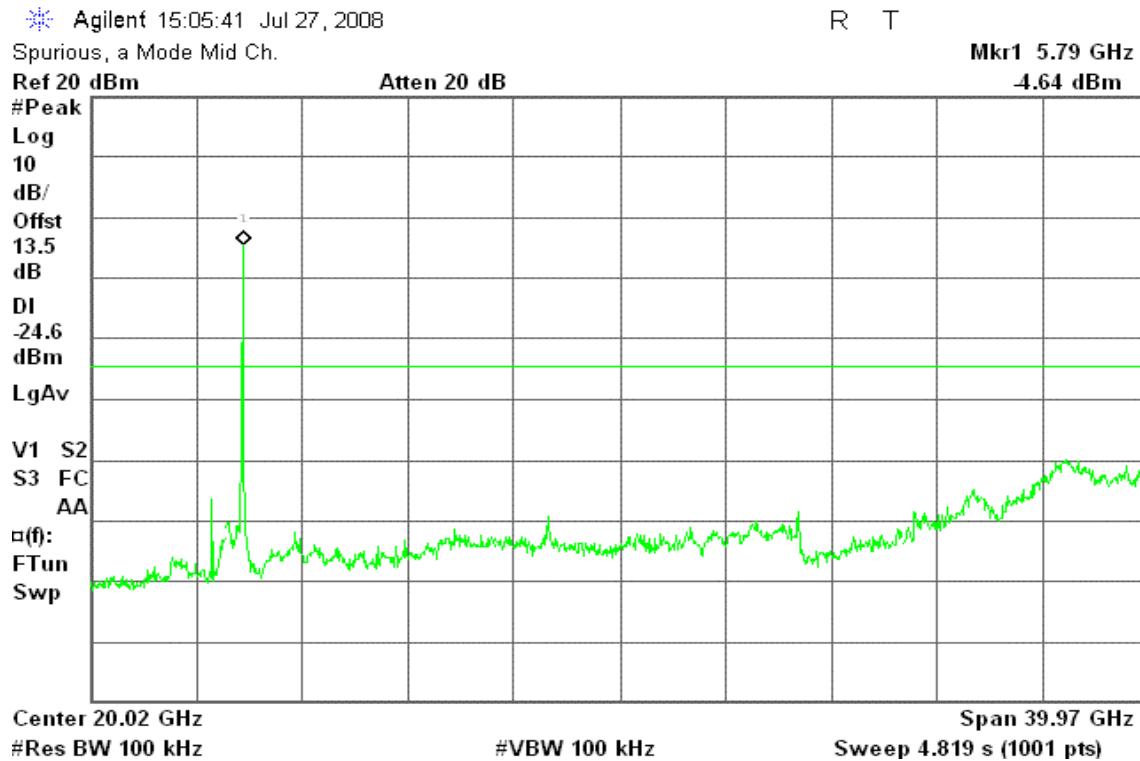
**draft 802.11n Wide-40 MHz Channel mode with combiner****CH Low****CH Mid**

**CH High**

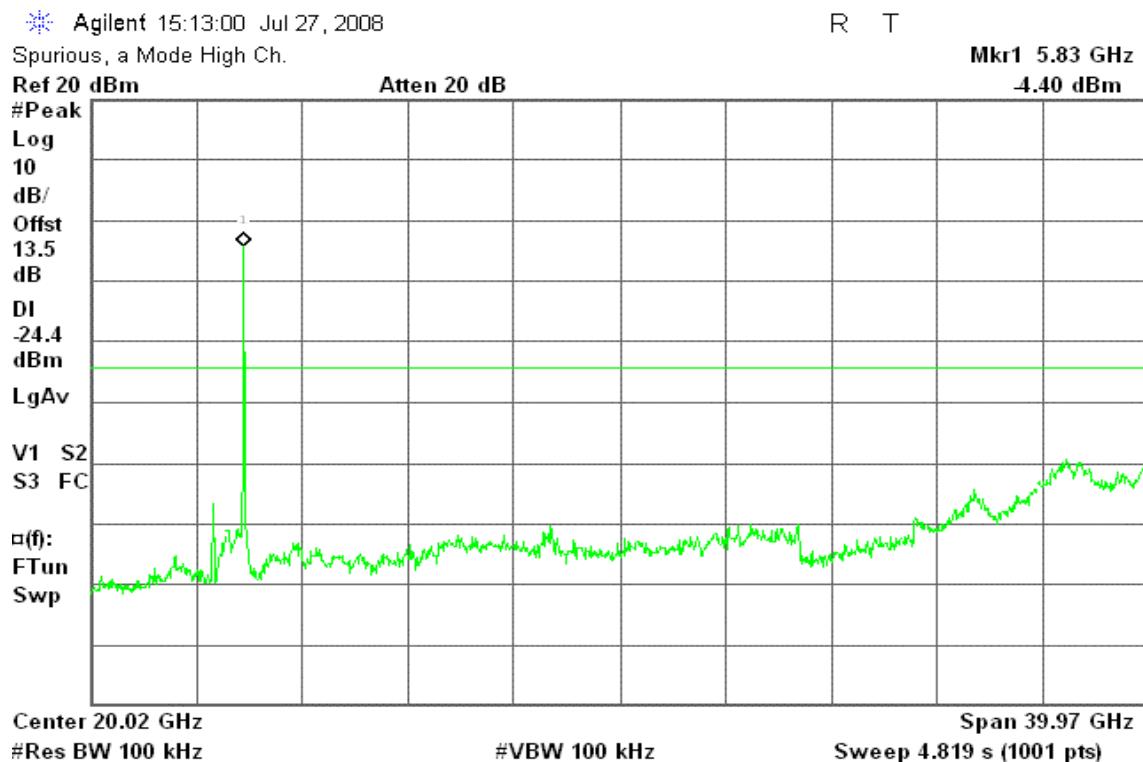
**IEEE 802.11a mode****CH Low****CH Mid**

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

**CH Mid****CH High**

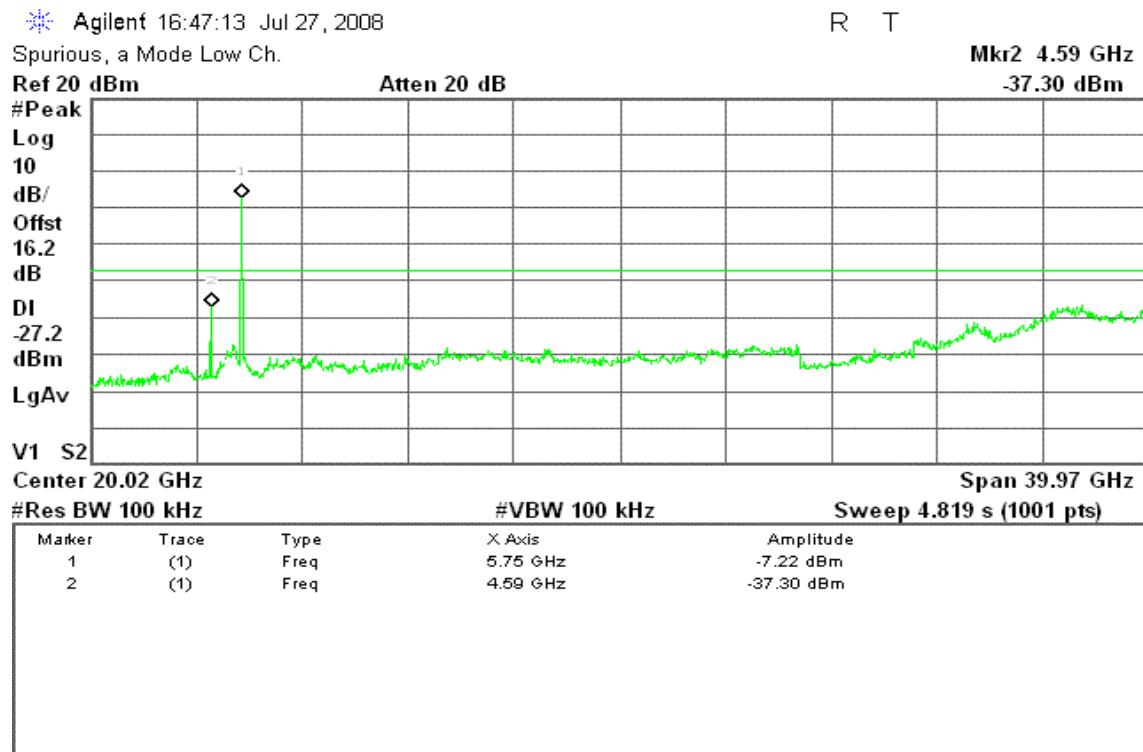
**draft 802.11n Standard-20 MHz Channel mode / Chain 1****CH Low****CH Mid**

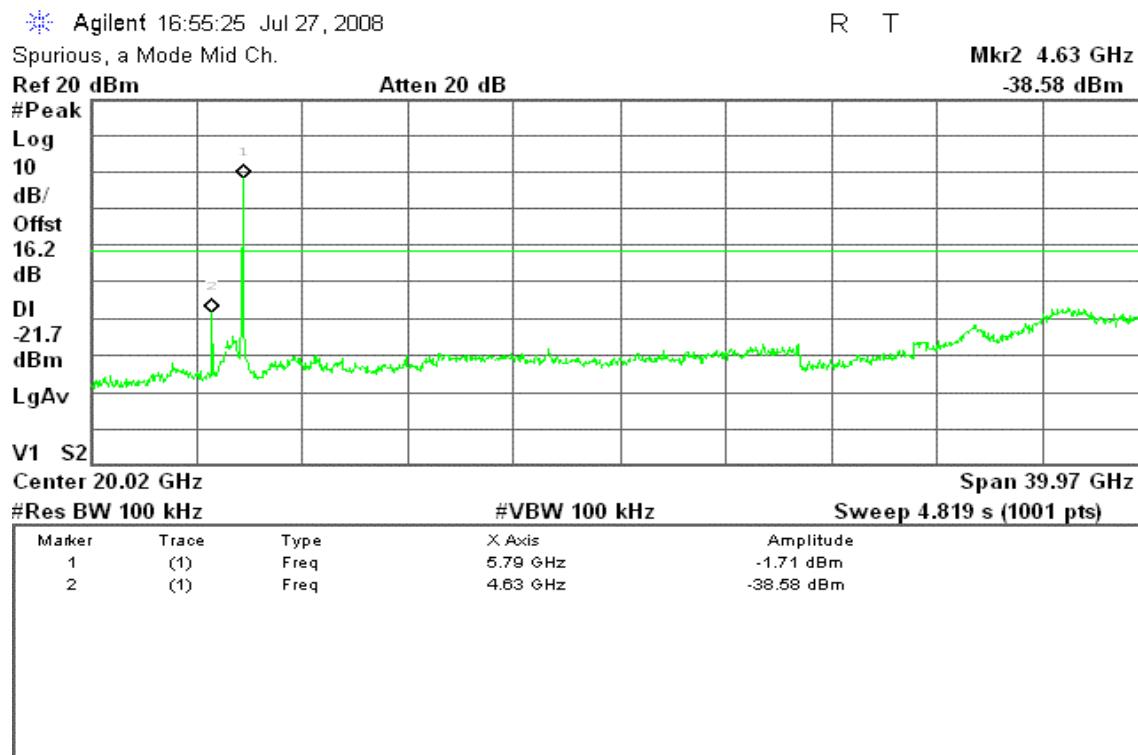
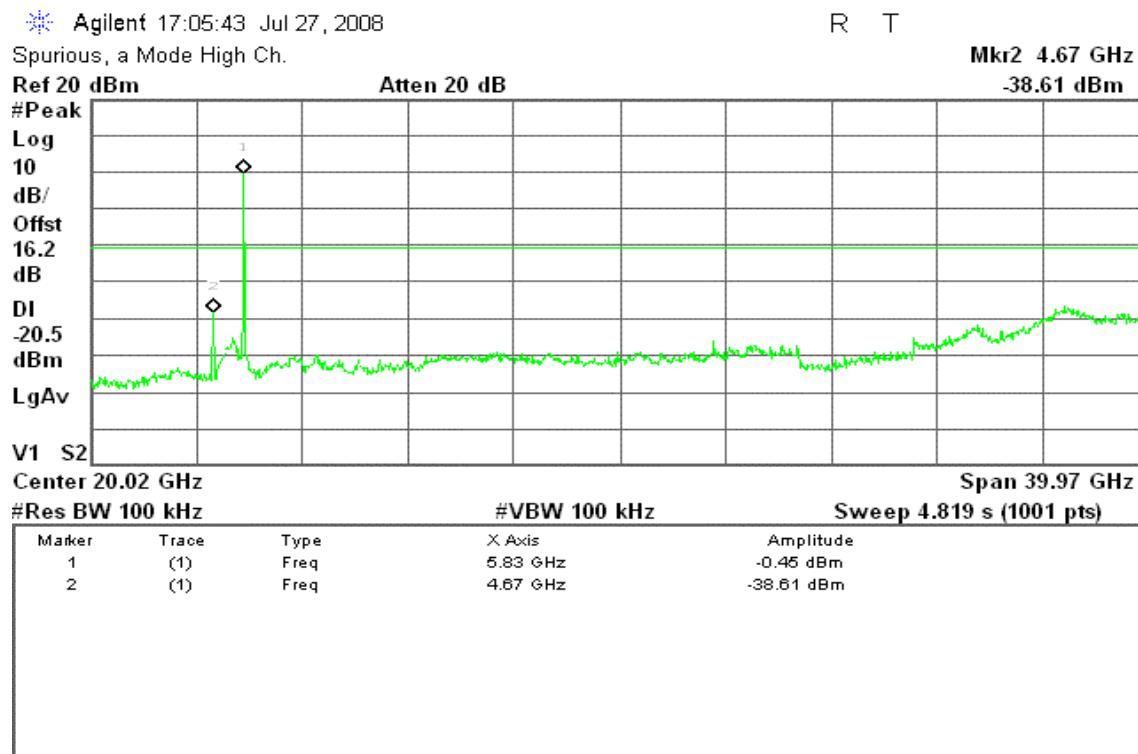
## CH High

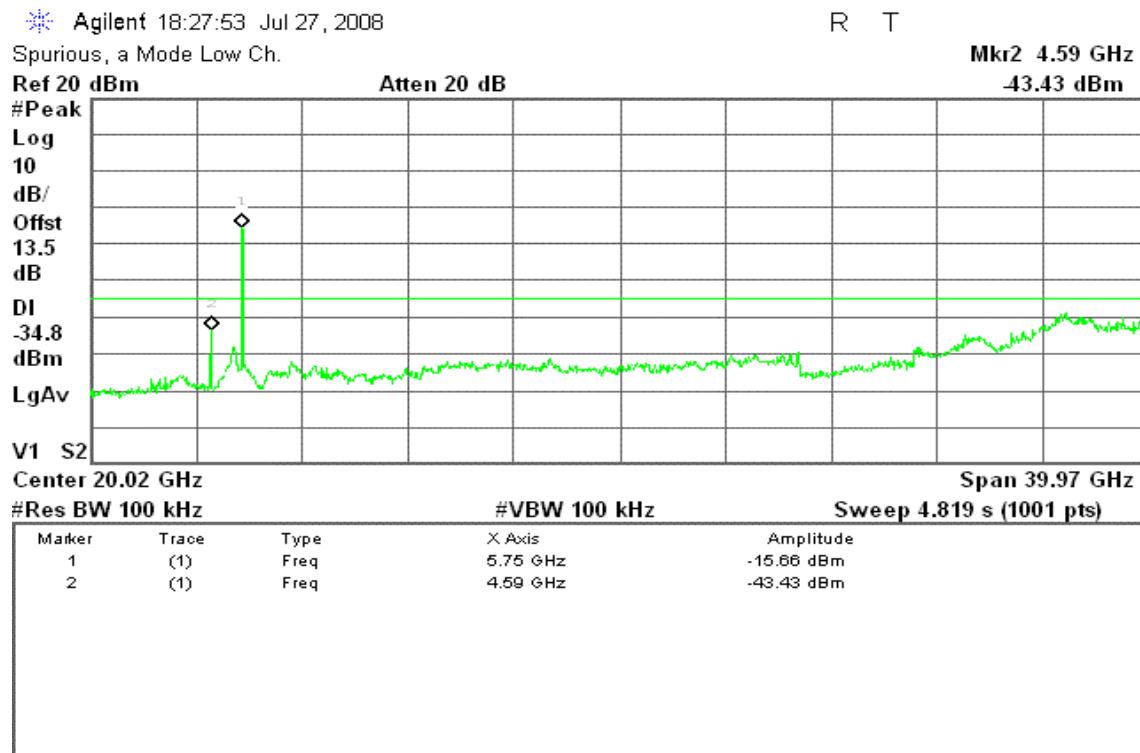
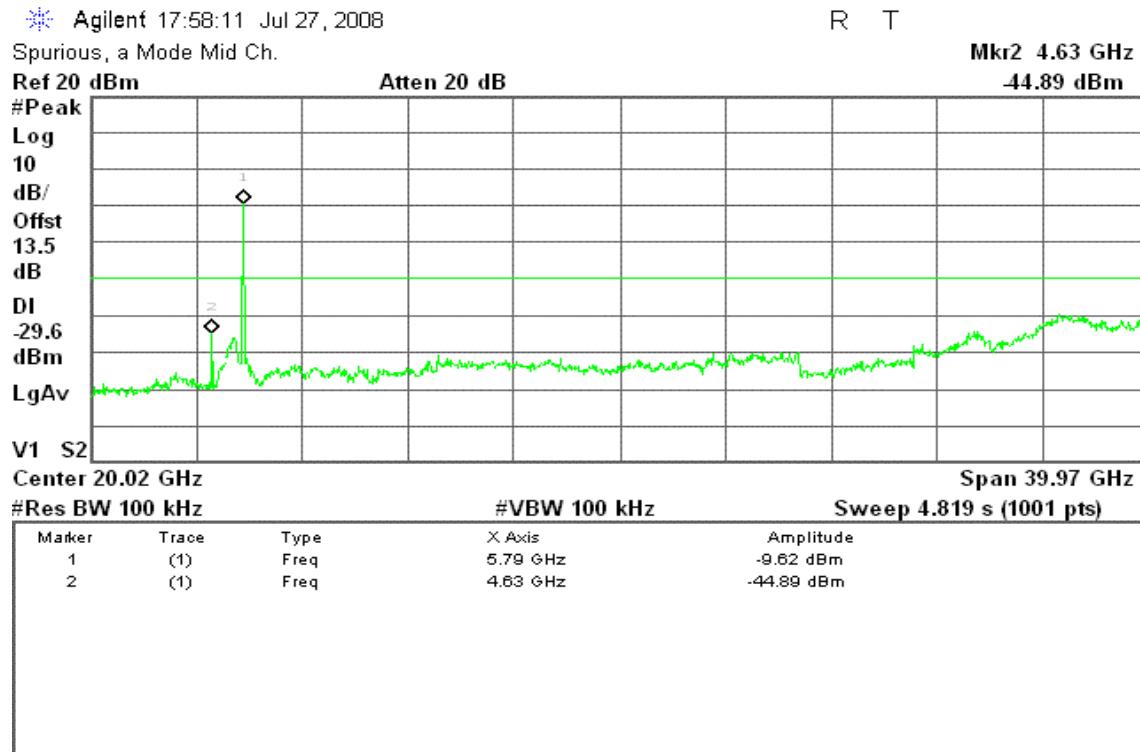


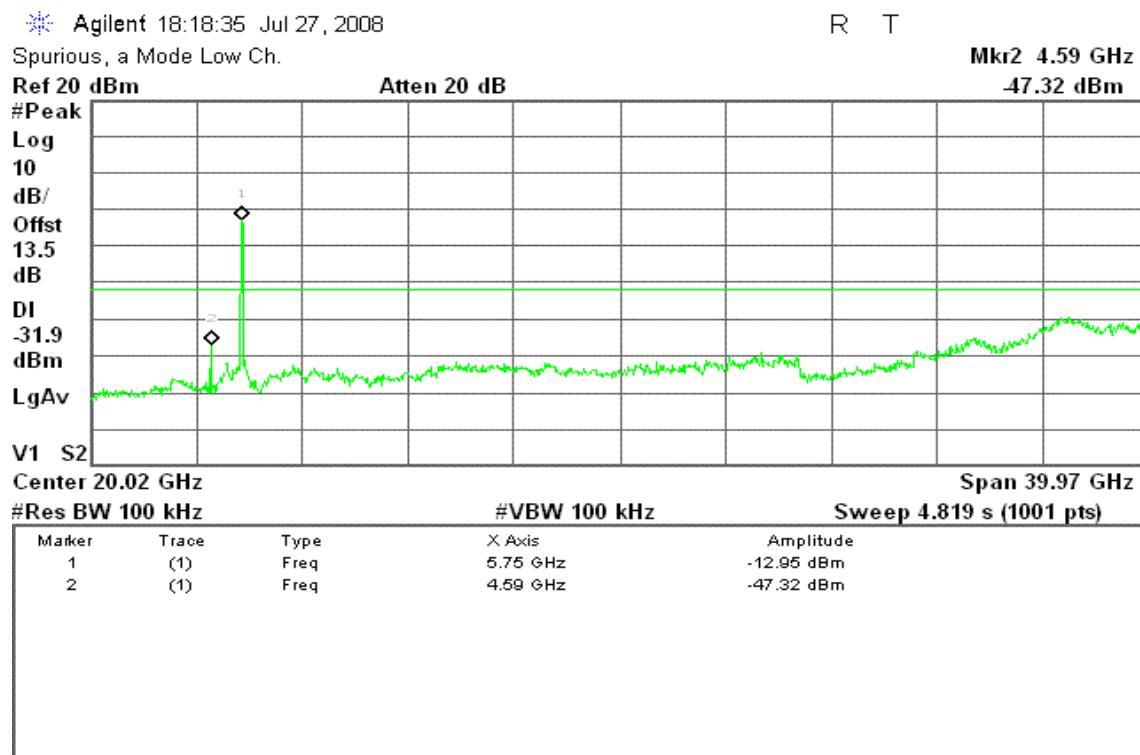
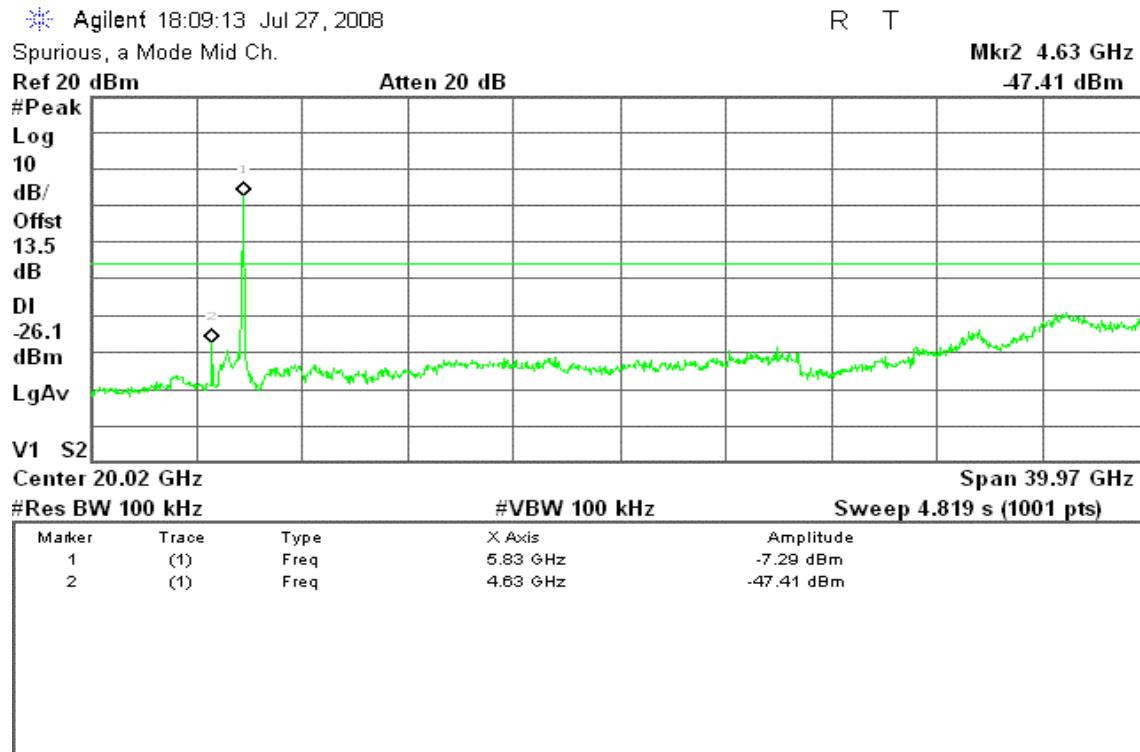
## draft 802.11n Standard-20 MHz Channel mode with combiner

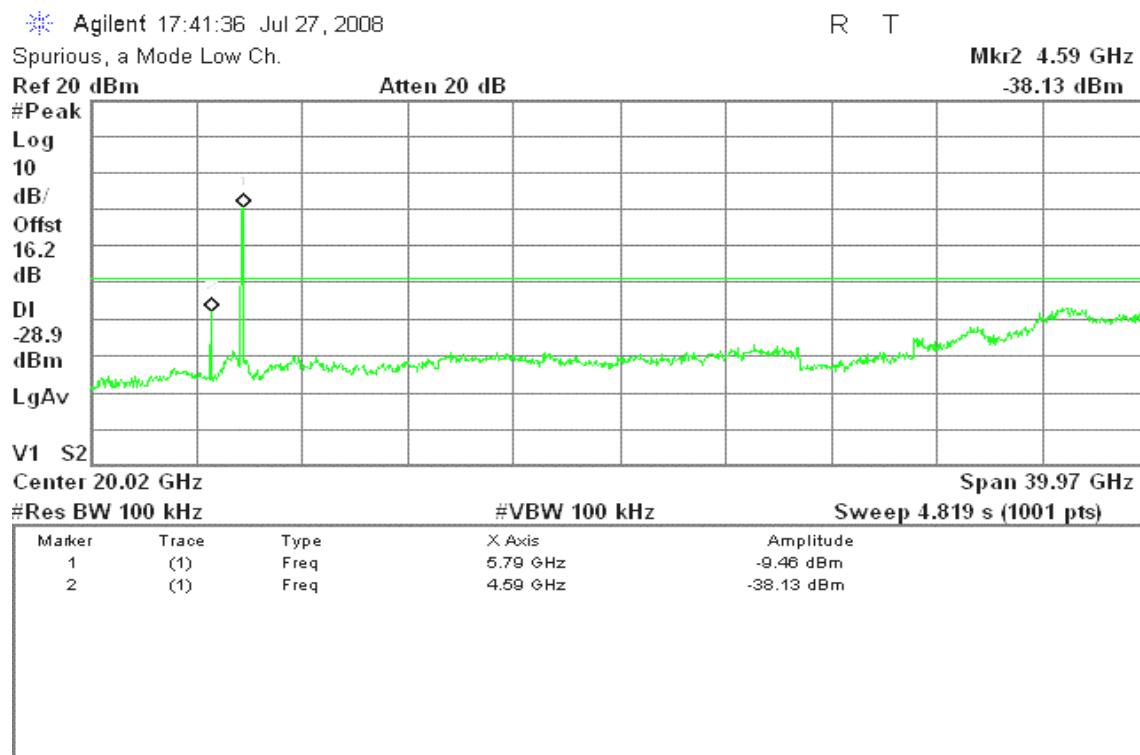
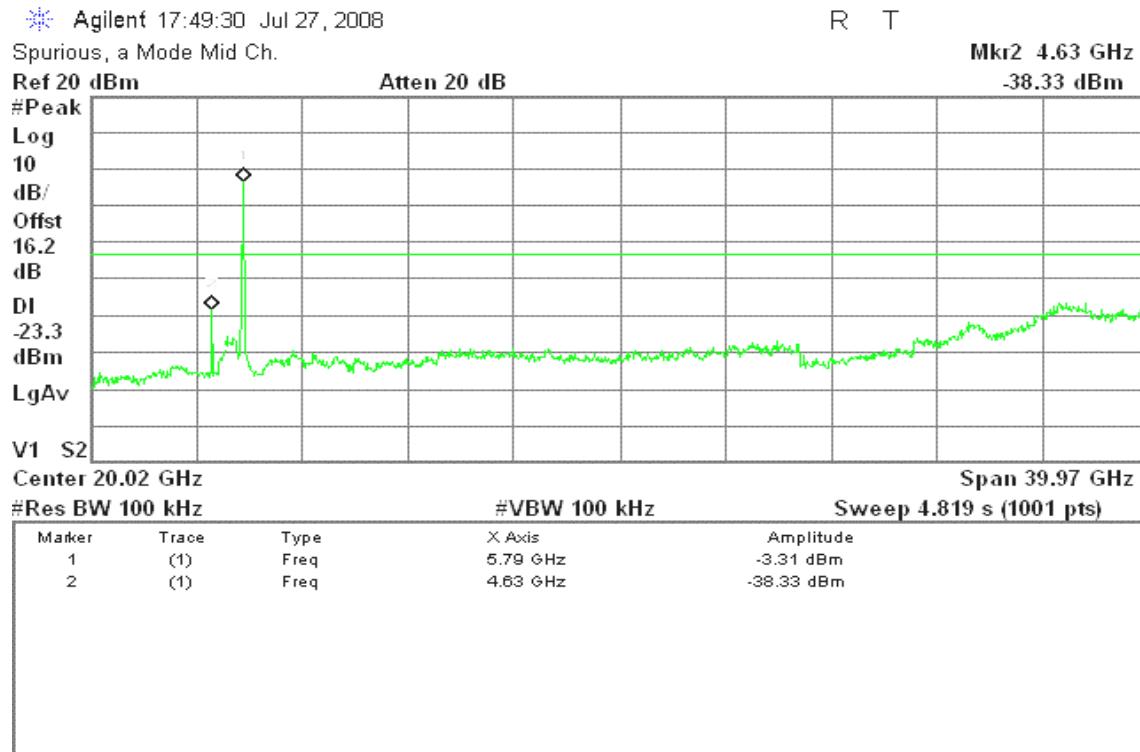
### CH Low



**CH Mid****CH High**

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

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

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



## 7.6.2 Radiated Emissions

### LIMIT

1. Except as provided elsewhere in this Subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table:

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

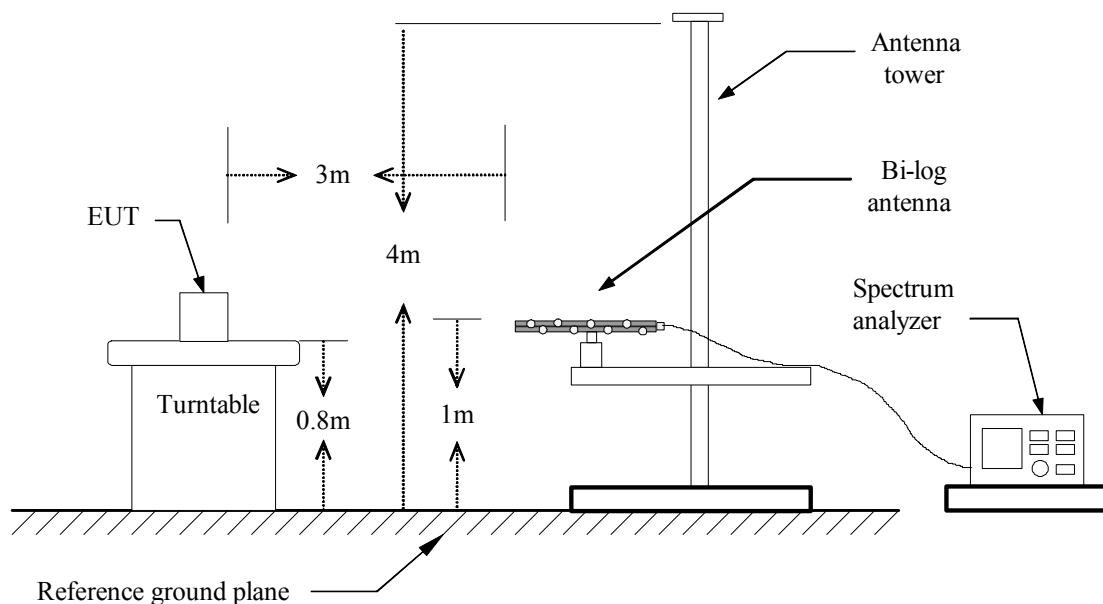
*Remark: Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this Section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of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

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

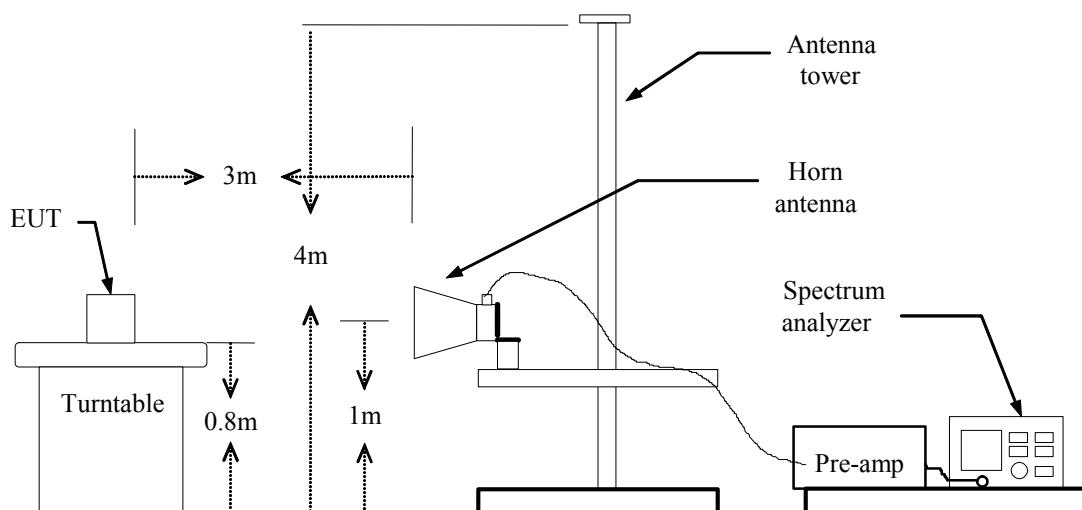
Frequency (MHz)	Field Strength ( $\mu$ V/m at 3-meter)	Field Strength (dB $\mu$ V/m at 3-meter)
30-88	100	40
88-216	150	43.5
216-960	200	46
Above 960	500	54

## 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 1 GHz****Operation Mode:** Normal Link**Test Date:** October 29, 2008**Temperature:** 25°C**Tested by:** Mimic Yang**Humidity:** 45% 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
42.93	V	46.89	-11.44	35.45	40.00	-4.55	Peak
52.63	V	49.16	-15.70	33.46	40.00	-6.54	Peak
83.35	V	52.93	-17.55	35.39	40.00	-4.61	Peak
416.38	V	34.66	-7.88	26.79	46.00	-19.21	Peak
754.27	V	29.74	-1.94	27.80	46.00	-18.20	Peak
959.58	V	28.59	0.39	28.98	46.00	-17.02	Peak
159.33	H	37.98	-12.19	25.79	43.50	-17.71	Peak
359.80	H	39.12	-9.35	29.76	46.00	-16.24	Peak
416.38	H	32.45	-7.88	24.57	46.00	-21.43	Peak
720.32	H	32.36	-3.04	29.32	46.00	-16.68	Peak
754.27	H	30.19	-1.94	28.25	46.00	-17.75	Peak
959.58	H	34.79	0.39	35.18	46.00	-10.82	Peak

**Remark:**

1. Measuring frequencies from 30 MHz to the 1GHz.
2. Radiated emissions measured in frequency range from 30 MHz to 1000MHz were made with an instrument using peak/quasi-peak detector mode.
3. Quasi-peak test would be performed if the peak result were greater than the quasi-peak limit or as required by the applicant.
4. 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) – Quasi-peak limit (dBuV/m).

**Above 1 GHz****Operation Mode:** Tx / IEEE 802.11b mode / CH Low**Test Date:** July 24, 2008**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
2412.00	V	105.55	102.05	-2.91	102.64	99.14				Fundamental
1456.67	V	58.96	---	-8.46	50.50	---	74.00	54.00	-3.50	Peak
4825.00	V	54.92	49.36	0.35	55.27	49.71	74.00	54.00	-4.29	AVG
6433.33	V	58.33	55.61	1.67	60.00	57.28	82.64	79.14	-21.86	20dBc AVG Fundamental
N/A										
1380.00	H	58.69	---	-8.64	50.05	---	74.00	54.00	-3.95	Peak
4825.00	H	51.39	---	0.35	51.74	---	74.00	54.00	-2.26	Peak
6433.33	H	53.10	45.48	1.67	54.77	47.15	74.00	54.00	-6.85	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. In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated 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. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB.

**Operation Mode:** Tx / IEEE 802.11b mode / CH Mid**Test Date:** July 24, 2008**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
2436.67	V	104.31	101.10	-2.83	101.48	98.27				Fundamental
1383.33	V	59.34	---	-8.64	50.70	---	74.00	54.00	-3.30	Peak
4875.00	V	50.48	---	0.24	50.72	---	74.00	54.00	-3.28	Peak
6500.00	V	57.23	54.13	1.75	58.98	55.88	81.48	78.27	-22.39	20dBc AVG Fundamental
N/A										
1353.33	H	59.01	---	-8.71	50.30	---	74.00	54.00	-3.70	Peak
4875.00	H	55.28	50.82	0.24	55.52	51.06	74.00	54.00	-2.94	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. In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated 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. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB.

**Operation Mode:** Tx / IEEE 802.11b mode / CH High**Test Date:** July 24, 2008**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
2460.00	V	104.49	101.78	-2.75	101.74	99.03				Fundamental
1400.00	V	58.93	---	-8.60	50.33	---	74.00	54.00	-3.67	Peak
6566.67	V	55.72	51.88	1.92	57.64	53.80	81.74	79.03	-25.23	20dBc AVG Fundamental
N/A										
1266.67	H	59.60	---	-8.91	50.69	---	74.00	54.00	-3.31	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).
7. In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated 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. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB.

**Operation Mode:** Tx / IEEE 802.11g mode / CH Low**Test Date:** July 24, 2008**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
2412.00	V	104.77	95.49	-2.88	101.89	92.61				Fundamental
1366.67	V	58.25	---	-8.67	49.57	---	74.00	54.00	-4.43	Peak
6433.33	V	58.28	55.82	1.67	59.95	57.49	82.66	73.57	-16.08	20dBc AVG Fundamental
N/A										
1313.33	H	59.80	---	-8.80	51.00	---	74.00	54.00	-3.00	Peak
6433.33	H	53.76	45.00	1.67	55.43	46.67	74.00	54.00	-7.33	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. In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated 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. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB.

**Operation Mode:** Tx / IEEE 802.11g mode/ CH Mid**Test Date:** July 24, 2008**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
2437.33	V	106.11	97.38	-2.81	103.30	94.57				Fundamental
1376.67	V	59.47	---	-8.65	50.82	---	74.00	54.00	-3.18	Peak
6500.00	V	57.53	54.21	1.75	59.28	55.96	83.30	74.57	-18.61	20dBc AVG Fundamental
N/A										
1360.00	H	59.03	---	-8.69	50.34	---	74.00	54.00	-3.66	Peak
N/A										

**Remark:**

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.
3. Average test would be performed if the peak result were greater than the average limit 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. In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated 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. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB.

**Operation Mode:** Tx / IEEE 802.11g mode/ CH High**Test Date:** July 24, 2008**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
1380.00	V	59.00	---	-8.64	50.35	---	74.00	54.00	-3.65	Peak
6566.67	V	54.97	50.64	1.92	56.89	52.56	74.00	54.00	-1.44	AVG
N/A										
1396.67	H	58.51	---	-8.60	49.90	---	74.00	54.00	-4.10	Peak
6566.67	H	50.04	---	1.92	51.96	---	74.00	54.00	-2.04	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:** July 24, 2008

**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
1373.33	V	59.13	---	-8.66	50.47	---	74.00	54.00	-3.53	Peak
4825.00	V	58.13	43.71	0.35	58.48	44.06	74.00	54.00	-9.94	AVG
6433.33	V	54.50	50.29	1.67	56.17	51.96	74.00	54.00	-2.04	AVG
N/A										
1360.00	H	59.19	---	-8.69	50.50	---	74.00	54.00	-3.50	Peak
4825.00	H	55.30	41.04	0.35	55.65	41.39	74.00	54.00	-12.61	AVG
6433.33	H	53.52	47.02	1.67	55.19	48.69	74.00	54.00	-5.31	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 / CH Mid

**Test Date:** July 24, 2008

**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
1243.33	V	59.74	---	-8.97	50.77	---	74.00	54.00	-3.23	Peak
4875.00	V	58.05	42.12	0.24	58.29	42.36	74.00	54.00	-11.64	AVG
6500.00	V	53.87	48.82	1.75	55.62	50.57	74.00	54.00	-3.43	AVG
N/A										
1433.33	H	59.78	---	-8.52	51.26	---	74.00	54.00	-2.74	Peak
4875.00	H	51.50	---	0.24	51.74	---	74.00	54.00	-2.26	Peak
6500.00	H	52.33	46.66	1.75	54.08	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 / CH High

**Test Date:** July 24, 2008

**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
1386.67	V	59.39	---	-8.63	50.77	---	74.00	54.00	-3.23	Peak
6566.67	V	52.48	44.83	1.92	54.40	46.75	74.00	54.00	-7.25	AVG
N/A										
1346.67	H	60.43	---	-8.72	51.71	---	74.00	54.00	-2.29	Peak
6566.67	H	49.84	---	1.92	51.76	---	74.00	54.00	-2.24	Peak
N/A										

**Remark:**

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



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

**Test Date:** July 24, 2008

**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
1336.67	V	59.15	---	-8.75	50.41	---	74.00	54.00	-3.59	Peak
4825.00	V	50.73	---	0.35	51.08	---	74.00	54.00	-2.92	Peak
6458.33	V	54.58	46.67	1.70	56.28	48.37	74.00	54.00	-5.63	AVG
N/A										
1300.00	H	58.96	---	-8.83	50.13	---	74.00	54.00	-3.87	Peak
6458.33	H	53.95	47.55	1.70	55.65	49.25	74.00	54.00	-4.75	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:** July 24, 2008

**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
1330.00	V	59.97	---	-8.76	51.21	---	74.00	54.00	-2.79	Peak
4866.67	V	50.56	---	0.26	50.81	---	74.00	54.00	-3.19	Peak
6500.00	V	52.95	48.47	1.75	54.70	50.22	74.00	54.00	-3.78	AVG
N/A										
1323.33	H	58.79	---	-8.78	50.01	---	74.00	54.00	-3.99	Peak
6500.00	H	52.74	47.30	1.75	54.49	49.05	74.00	54.00	-4.95	AVG
N/A										

**Remark:**

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



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

**Test Date:** July 24, 2008

**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
1343.33	V	59.59	---	-8.73	50.86	---	74.00	54.00	-3.14	Peak
6541.67	V	52.83	45.05	1.85	54.68	46.90	74.00	54.00	-7.10	AVG
N/A										
1353.33	H	59.85	---	-8.71	51.15	---	74.00	54.00	-2.85	Peak
3266.67	H	50.78	---	-0.81	49.97	---	74.00	54.00	-4.03	Peak
6541.67	H	52.16	44.01	1.85	54.01	45.86	74.00	54.00	-8.14	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/ CH Low**Test Date:** July 25, 2008**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
N/A										
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/ CH Mid**Test Date:** July 25, 2008**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
N/A										
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/ CH High**Test Date:** July 25, 2008**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
N/A										
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:** July 25, 2008

**Temperature:** 23°C

Tested by: Mimic Yang

**Humidity:** 53% RH

**Polarity:** Ver. / Hor.

**Remark:**

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



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

**Test Date:** July 25, 2008

Temperature: 23°C

Tested by: Mimic Yang

**Humidity:** 53% RH

**Polarity:** Ver. / Hor.

**Remark:**

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

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

**Test Date:** July 25, 2008

**Temperature:** 23°C

Tested by: Mimic Yang

Humidity: 53% RH

**Polarity:** Ver. / Hor.

**Remark:**

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

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

**Test Date:** July 25, 2008

**Temperature:** 23°C

Tested by: Mimic Yang

Humidity: 53% RH

**Polarity:** Ver. / Hor.

**Remark:**

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

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

**Test Date:** July 25, 2008

**Temperature:** 23°C

Tested by: Mimic Yang

Humidity: 53% RH

**Polarity:** Ver. / Hor.

**Remark:**

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



## 7.7 POWERLINE CONDUCTED EMISSIONS

### LIMIT

According to §15.207(a), except as shown in paragraphs (b) and (c) of this section, for an intentional radiator that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits in the following table, as measured using a 50  $\mu$ 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 $\mu$ 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 1 for the actual connections between EUT and support equipment.

### TEST PROCEDURE

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



## TEST RESULTS

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

### Test Data

**Operation Mode:** Normal Link      **Test Date:** October 29, 2008  
**Temperature:** 22°C      **Tested by:** Eddy Cheng  
**Humidity:** 45% RH

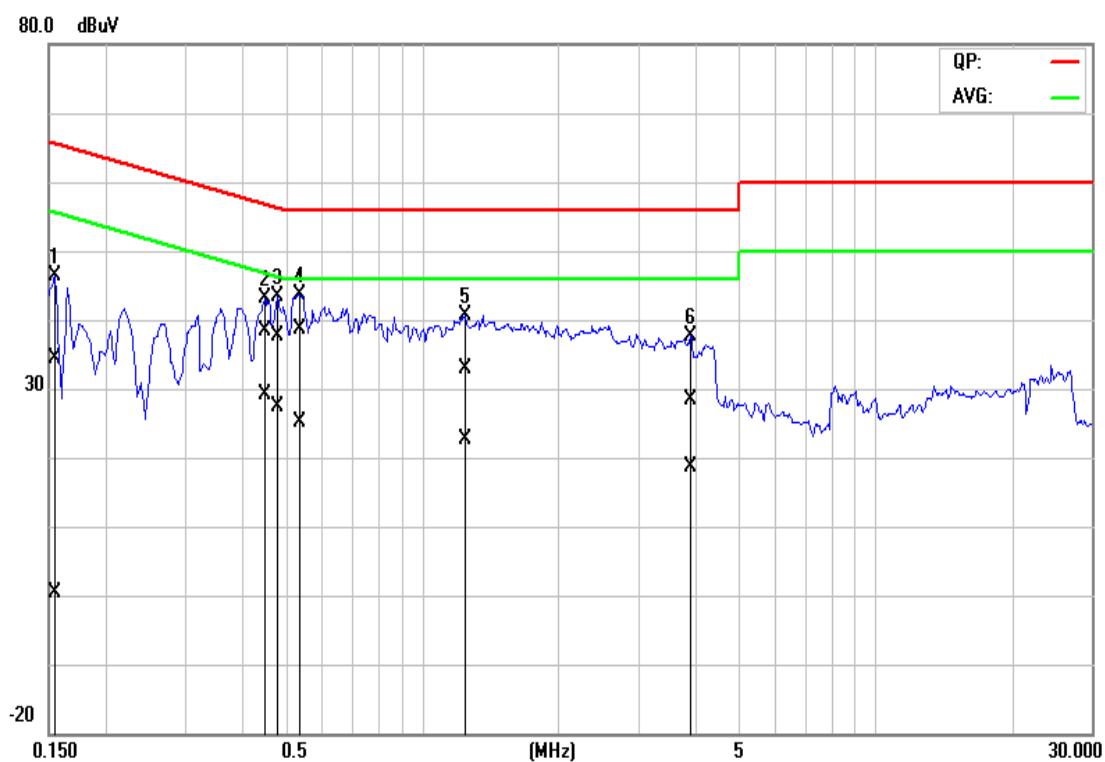
Freq. (MHz)	QP Reading (dBuV)	AV Reading (dBuV)	Corr. factor (dB)	QP Result (dBuV)	AV Result (dBuV)	QP Limit (dBuV)	AV Limit (dBuV)	QP Margin (dB)	AV Margin (dB)	Note
0.1550	34.30	0.30	0.20	34.50	0.50	65.73	55.73	-31.23	-55.23	L1
0.4500	38.25	29.05	0.05	38.30	29.10	56.88	46.88	-18.58	-17.78	L1
0.4800	37.66	27.36	0.04	37.70	27.40	56.34	46.34	-18.64	-18.94	L1
0.5350	38.57	25.17	0.03	38.60	25.20	56.00	46.00	-17.40	-20.80	L1
1.2450	32.97	22.57	0.03	33.00	22.60	56.00	46.00	-23.00	-23.40	L1
3.9200	28.24	18.54	0.16	28.40	18.70	56.00	46.00	-27.60	-27.30	L1
0.1600	33.11	6.01	0.19	33.30	6.20	65.46	55.46	-32.16	-49.26	L2
0.2200	32.26	22.76	0.14	32.40	22.90	62.82	52.82	-30.42	-29.92	L2
0.4500	36.05	27.05	0.05	36.10	27.10	56.88	46.88	-20.78	-19.78	L2
0.4800	34.76	24.06	0.04	34.80	24.10	56.34	46.34	-21.54	-22.24	L2
0.8500	31.47	22.27	0.03	31.50	22.30	56.00	46.00	-24.50	-23.70	L2
2.8000	30.41	21.71	0.09	30.50	21.80	56.00	46.00	-25.50	-24.20	L2

### ***Remark:***

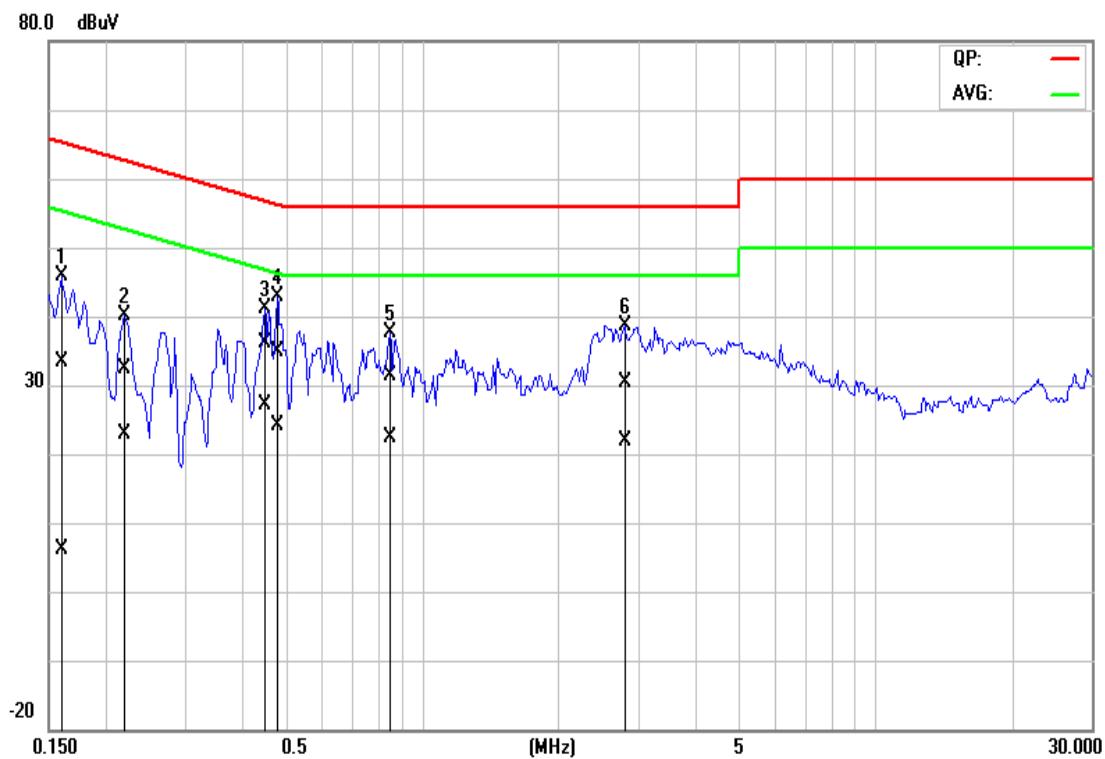
1. Measuring frequencies from 0.15 MHz to 30MHz.
2. The emissions measured in frequency range from 0.15 MHz to 30MHz were made with an instrument using Quasi-peak detector and average detector.
3. The IF bandwidth of SPA between 0.15MHz to 30MHz was 10kHz; the IF bandwidth of Test Receiver between 0.15MHz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

## Test Plots

### *Conducted emissions (Line 1)*



### *Conducted emissions (Line 2)*





## APPENDIX I

## RADIO FREQUENCY EXPOSURE

### LIMIT

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

### EUT Specification

<b>EUT</b>	Wireless-N Touchscreen Controller
<b>Frequency band (Operating)</b>	<input checked="" type="checkbox"/> WLAN: 2.412GHz ~ 2.462GHz <input type="checkbox"/> WLAN: 5.745GHz ~ 5.825GHz <input type="checkbox"/> Others: Bluetooth: 2.402GHz ~ 2.480GHz
<b>Device category</b>	<input checked="" type="checkbox"/> Portable (<20cm separation) <input type="checkbox"/> Mobile (>20cm separation) <input type="checkbox"/> Others
<b>Exposure classification</b>	<input type="checkbox"/> Occupational/Controlled exposure (S = 5mW/cm <sup>2</sup> ) <input checked="" type="checkbox"/> General Population/Uncontrolled exposure (S=1mW/cm <sup>2</sup> )
<b>Antenna diversity</b>	<input checked="" type="checkbox"/> Single antenna <input type="checkbox"/> Multiple antennas <input type="checkbox"/> Tx diversity <input type="checkbox"/> Rx diversity <input type="checkbox"/> Tx/Rx diversity
<b>Max. output power</b>	IEEE 802.11b mode: 17.70 dBm (58.88mW) IEEE 802.11g mode: 16.98 dBm (49.88mW) draft 802.11n Standard-20 MHz Channel mode: 18.06 dBm (63.97mW) draft 802.11n Wide-40 MHz Channel mode: 17.97 dBm (62.66mW)
<b>Antenna gain (Max)</b>	3.04 dBi (Numeric gain: 2.01)
<b>Evaluation applied</b>	<input type="checkbox"/> MPE Evaluation <input checked="" type="checkbox"/> SAR Evaluation* <input type="checkbox"/> N/A

#### **Remark:**

1. The maximum output power is 18.06dBm (63.97mW) at 2437MHz (with 2.01 numeric antenna gain.)
2. DTS device is not subject to routine RF evaluation; MPE estimate is used to justify the compliance.

## TEST RESULTS

No non-compliance noted.

Remark: Please refer to the separated SAR report.



<b>EUT</b>	Wireless-N Touchscreen Controller
<b>Frequency band (Operating)</b>	<input type="checkbox"/> WLAN: 2.412GHz ~ 2.462GHz <input checked="" type="checkbox"/> WLAN: 5.725GHz ~ 5.850GHz <input type="checkbox"/> Others: <u>Bluetooth: 2.402GHz ~ 2.480GHz</u>
<b>Device category</b>	<input checked="" type="checkbox"/> Portable (<20cm separation) <input type="checkbox"/> Mobile (>20cm separation) <input type="checkbox"/> Others
<b>Exposure classification</b>	<input type="checkbox"/> Occupational/Controlled exposure (S = 5mW/cm <sup>2</sup> ) <input checked="" type="checkbox"/> General Population/Uncontrolled exposure (S=1mW/cm <sup>2</sup> )
<b>Antenna diversity</b>	<input checked="" type="checkbox"/> Single antenna <input type="checkbox"/> Multiple antennas <input type="checkbox"/> Tx diversity <input type="checkbox"/> Rx diversity <input type="checkbox"/> Tx/Rx diversity
<b>Max. output power</b>	IEEE 802.11a mode: 14.03 dBm (25.29mW) draft 802.11n Standard-20 MHz Channel mode: 17.71 dBm (59.02mW) draft 802.11n Wide-40 MHz Channel mode: 17.45 dBm (55.59mW)
<b>Antenna gain (Max)</b>	5.94 dBi (Numeric gain: 3.93)
<b>Evaluation applied</b>	<input type="checkbox"/> MPE Evaluation <input checked="" type="checkbox"/> SAR Evaluation* <input type="checkbox"/> N/A
<b>Remark:</b>	
1. The maximum output power is <u>17.71dBm (59.02mW)</u> at <u>5825MHz</u> (with <u>3.93 numeric antenna gain</u> .)	
2. DTS device is not subject to routine RF evaluation; MPE estimate is used to justify the compliance.	

## **TEST RESULTS**

No non-compliance noted.

Remark: Please refer to the separated SAR report.