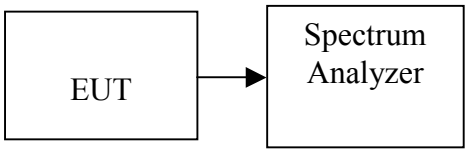
7.5 PEAK POWER SPECTRAL DENSITY

LIMIT

1. According to §15.247(e), for digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.
2. According to §15.247(f), the digital modulation operation of the hybrid system, with the frequency hopping turned off, shall comply with the power density requirements of paragraph (d) of this section.

Test Configuration



TEST PROCEDURE

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

TEST RESULTS

No non-compliance noted.

Test Data

Test mode: IEEE 802.11b mode

Channel	Frequency (MHz)	Chain 0 PPSD (dBm)	Chain 1 PPSD (dBm)	PPSD (dBm)	Limit (dBm)	Result
Low	2412	-4.62	-5.76	-2.14	8.00	PASS
Mid	2437	-6.74	-5.82	-3.25		PASS
High	2462	-5.51	-5.83	-2.66		PASS

Test mode: IEEE 802.11g mode

Channel	Frequency (MHz)	Chain 0 PPSD (dBm)	Chain 1 PPSD (dBm)	PPSD (dBm)	Limit (dBm)	Result
Low	2412	-8.82	-8.84	-5.82	8.00	PASS
Mid	2437	-8.87	-8.66	-5.75		PASS
High	2462	-7.77	-5.75	-3.63		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	-11.13	-11.78	-8.43	8.00	PASS
Mid	2437	-9.12	-9.32	-6.21		PASS
High	2462	-9.60	-9.06	-6.31		PASS

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

Channel	Frequency (MHz)	Chain 0 PPSD (dBm)	Chain 1 PPSD (dBm)	PPSD (dBm)	Limit (dBm)	Result
Low	2422	-17.08	-17.81	-14.42	8.00	PASS
Mid	2437	-15.94	-9.19	-8.36		PASS
High	2452	-14.87	-9.84	-8.65		PASS

Remark: *Total PPSD (dBm) = 10*LOG(10^(Chain 0 PPSD / 10)+10^(Chain 2 PPSD /10))*

Test mode: IEEE 802.11b mode with combiner

Channel	Frequency (MHz)	PPSD (dBm)	Limit (dBm)	Result
Low	2412	0.79	8.00	PASS
Mid	2437	0.87		PASS
High	2462	0.07		PASS

Test mode: IEEE 802.11g mode with combiner

Channel	Frequency (MHz)	PPSD (dBm)	Limit (dBm)	Result
Low	2412	-2.19	8.00	PASS
Mid	2437	-1.77		PASS
High	2462	-2.72		PASS

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

Channel	Frequency (MHz)	PPSD (dBm)	Limit (dBm)	Result
Low	2412	-6.88	8.00	PASS
Mid	2437	-4.02		PASS
High	2462	-3.74		PASS

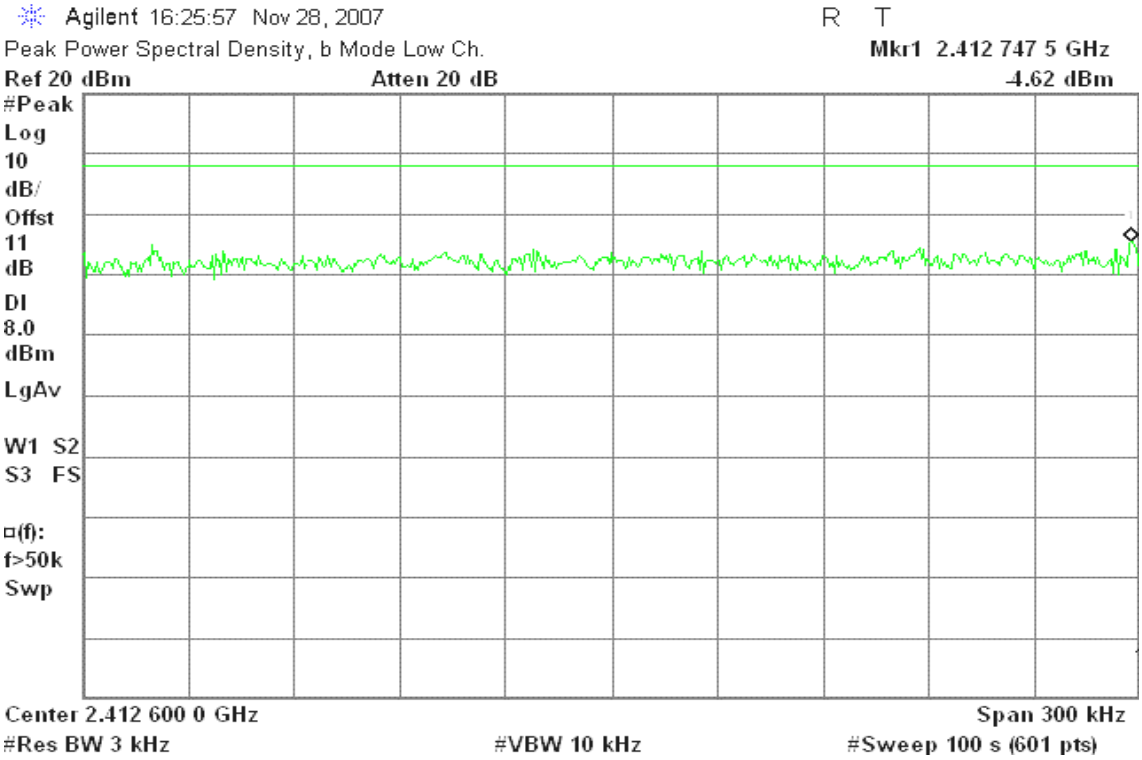
Test mode: draft 802.11n Wide-40 MHz Channel mode with combiner

Channel	Frequency (MHz)	PPSD (dBm)	Limit (dBm)	Result
Low	2422	-11.82	8.00	PASS
Mid	2437	-9.19		PASS
High	2452	-9.84		PASS

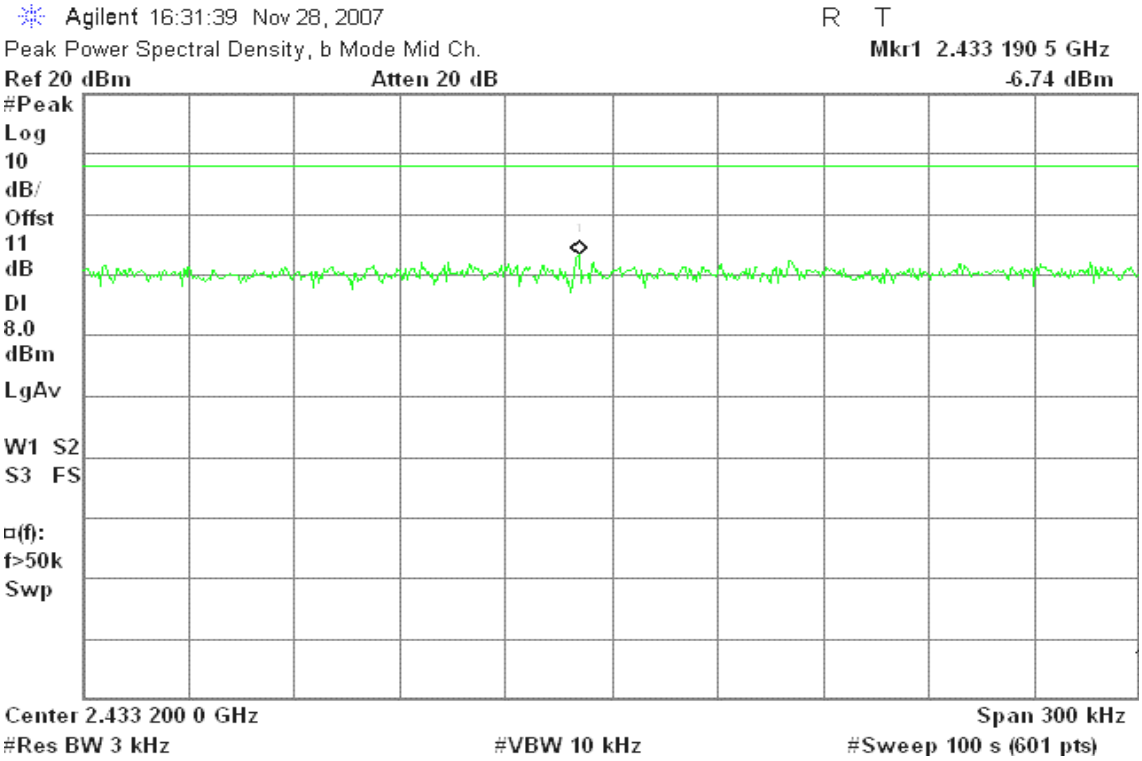
Test Plot

IEEE 802.11b mode / Chain 0

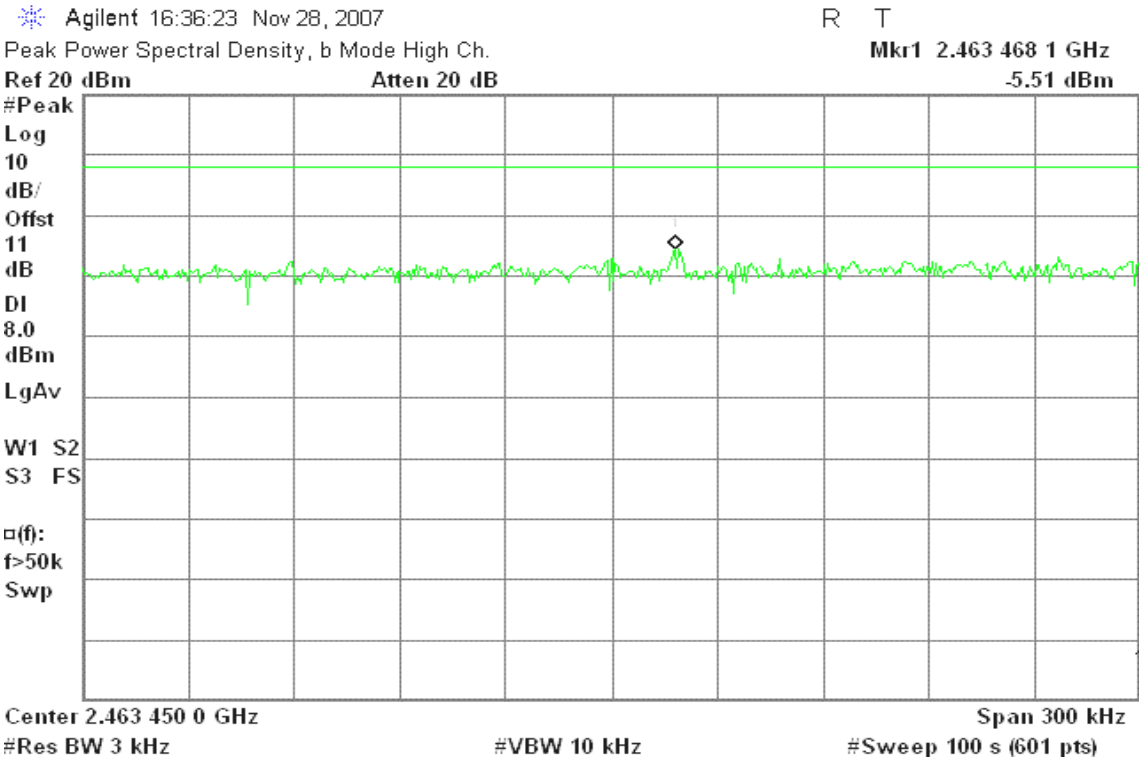
PPSD (CH Low)



PPSD (CH Mid)

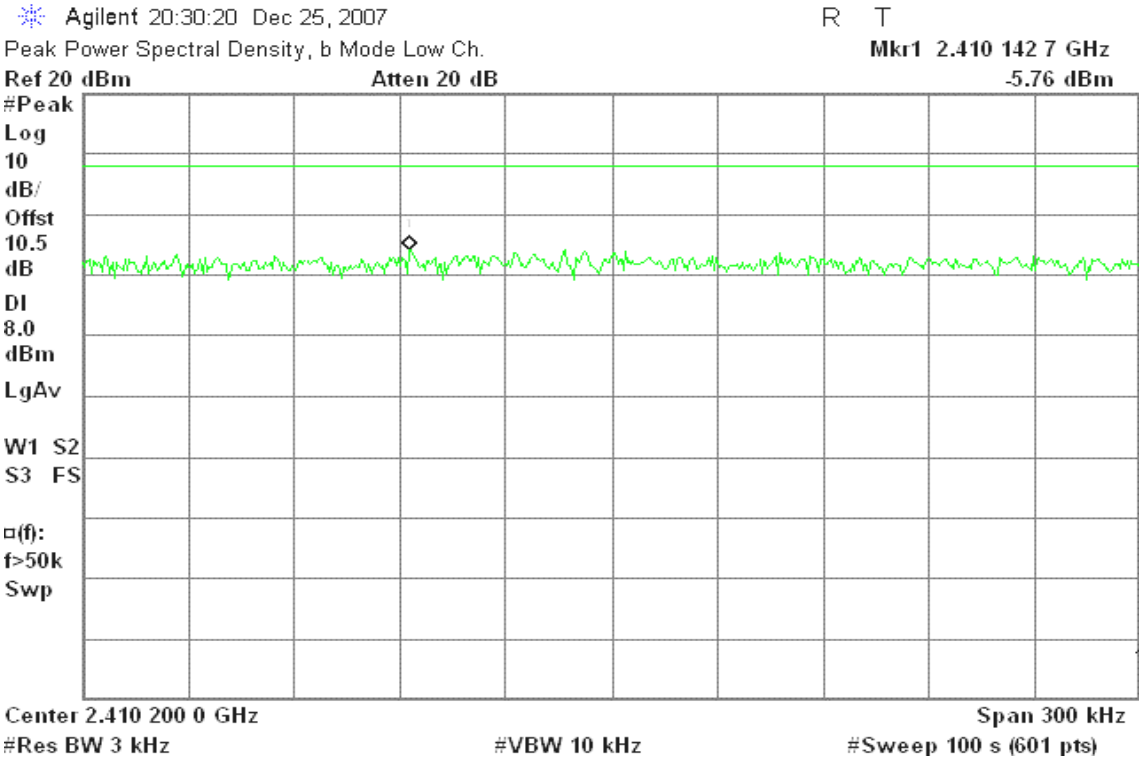


PPSD (CH High)

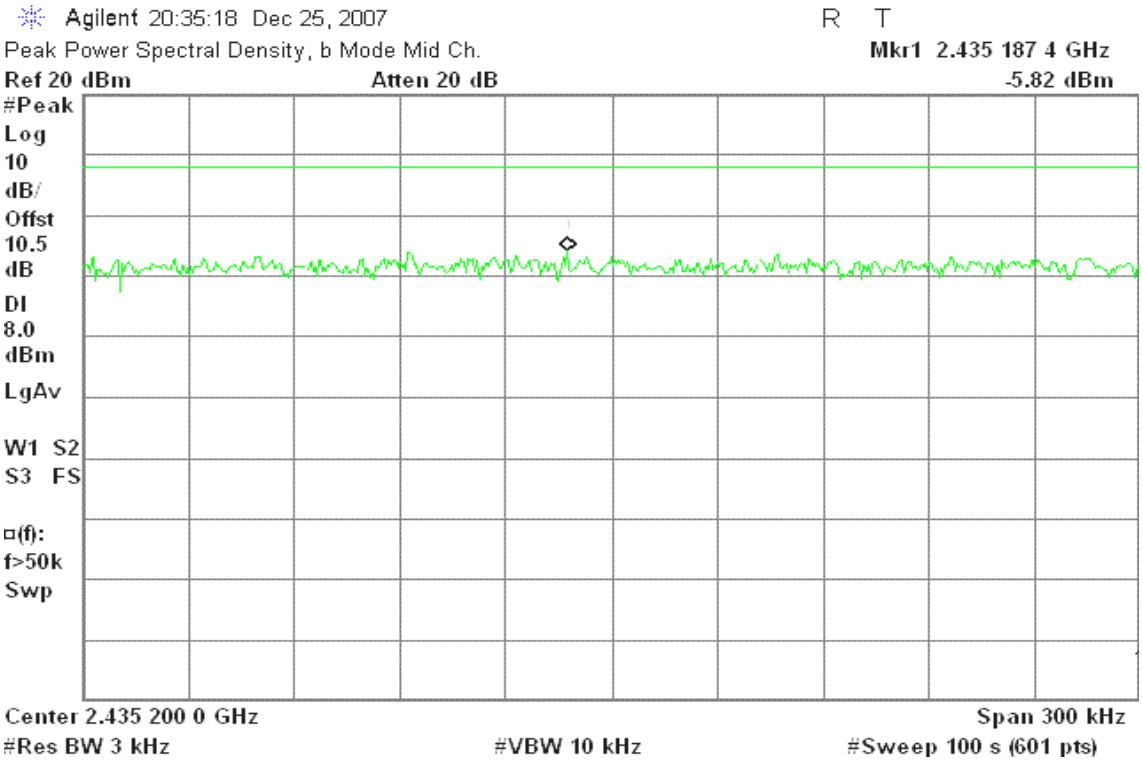


IEEE 802.11b mode / Chain 1

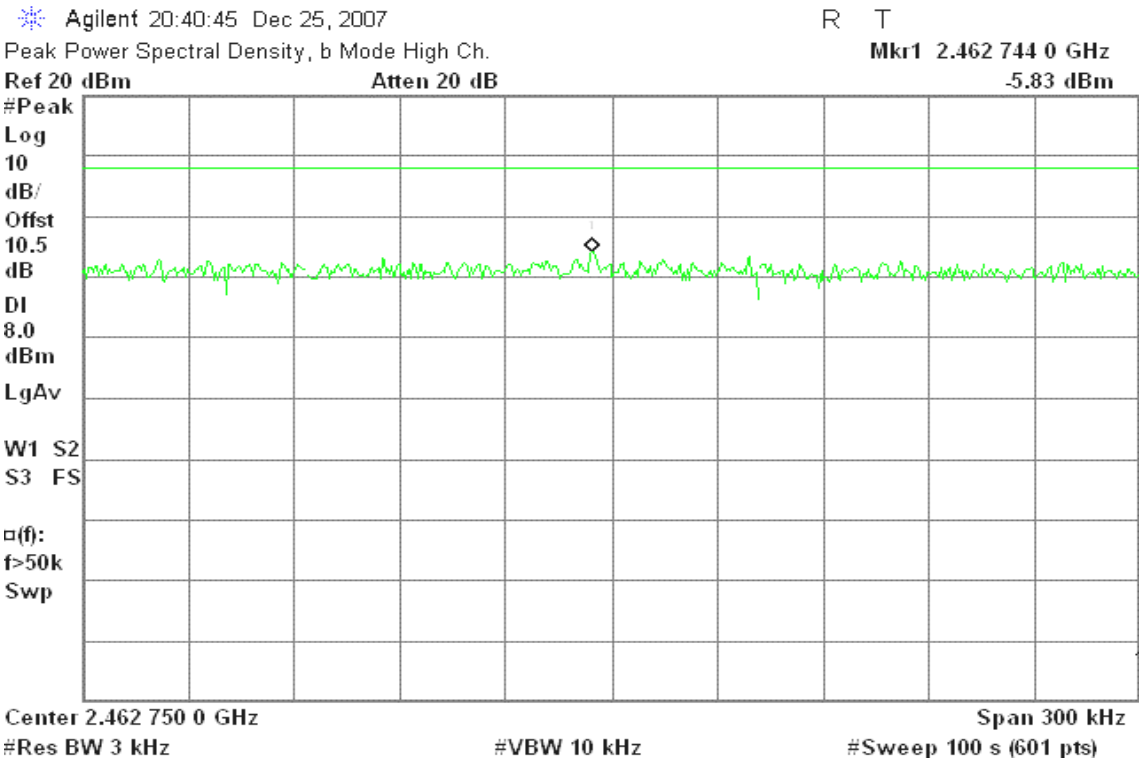
PPSD (CH Low)



PPSD (CH Mid)

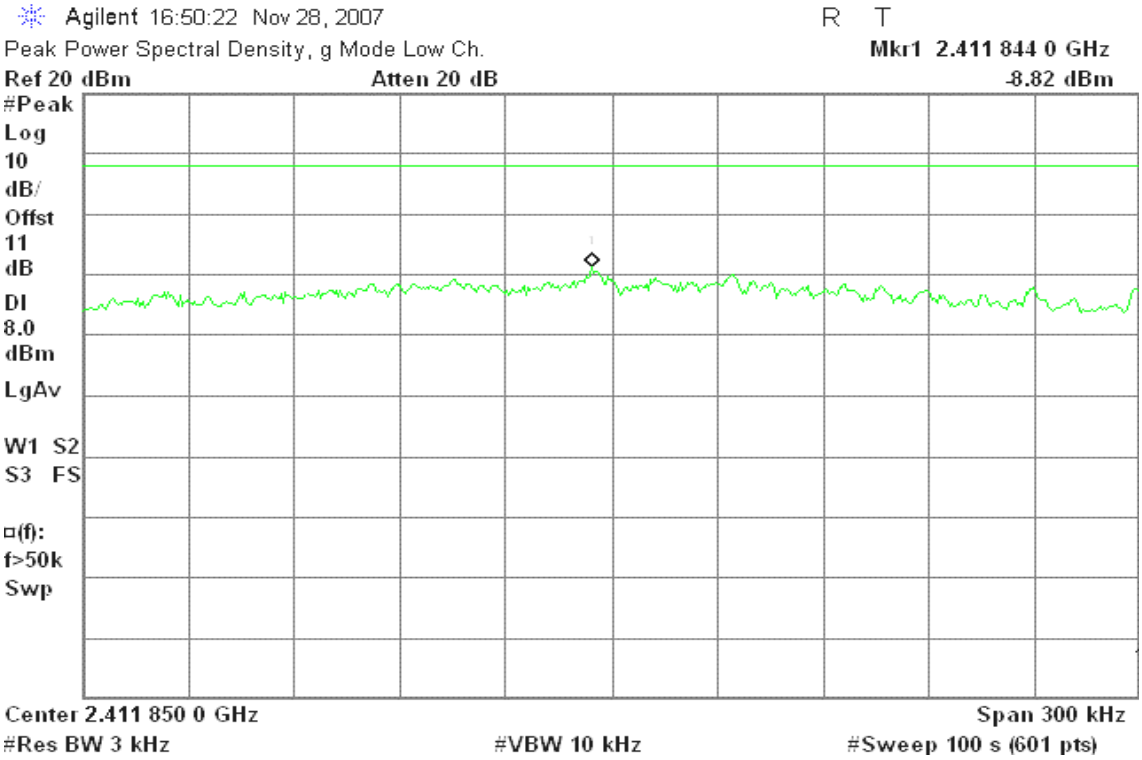


PPSD (CH High)

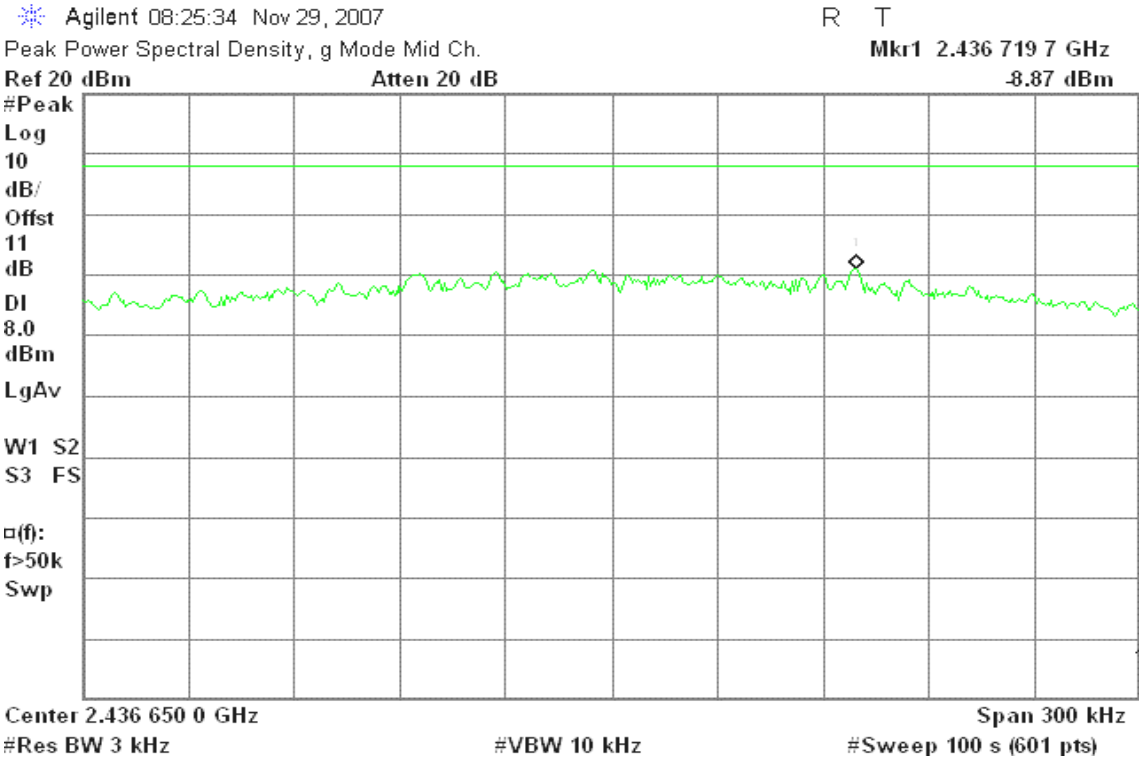


IEEE 802.11g mode / Chain 0

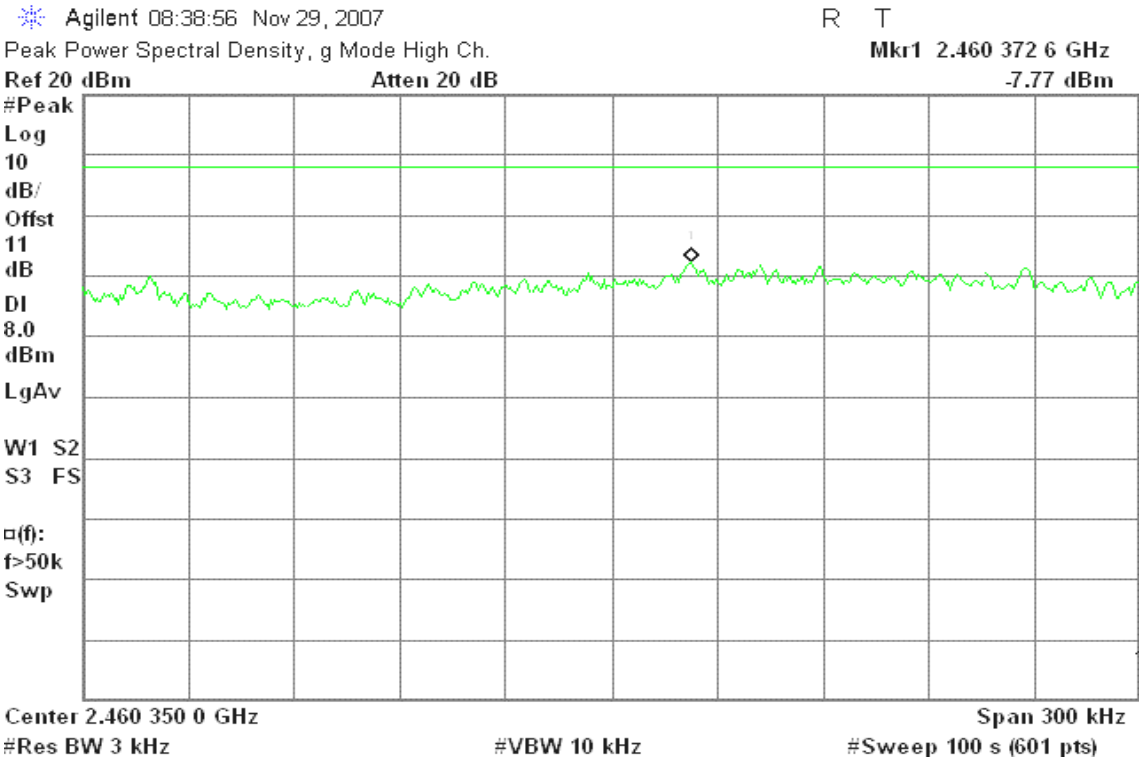
PPSD (CH Low)



PPSD (CH Mid)

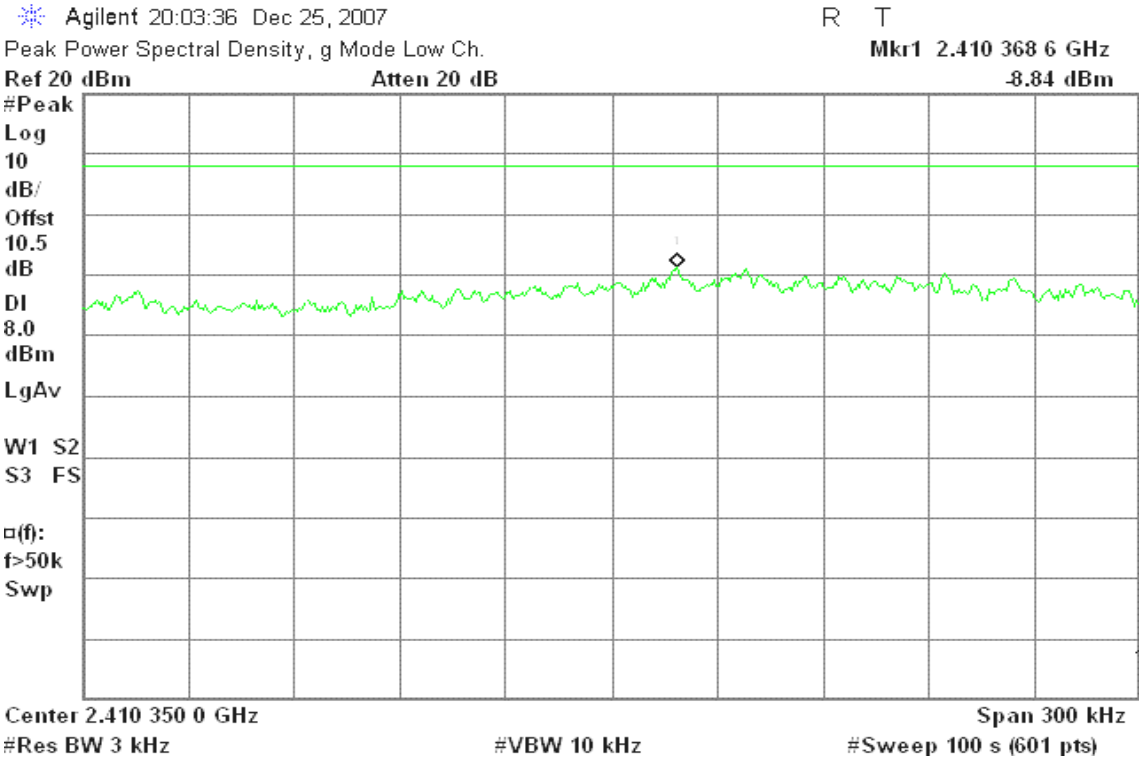


PPSD (CH High)

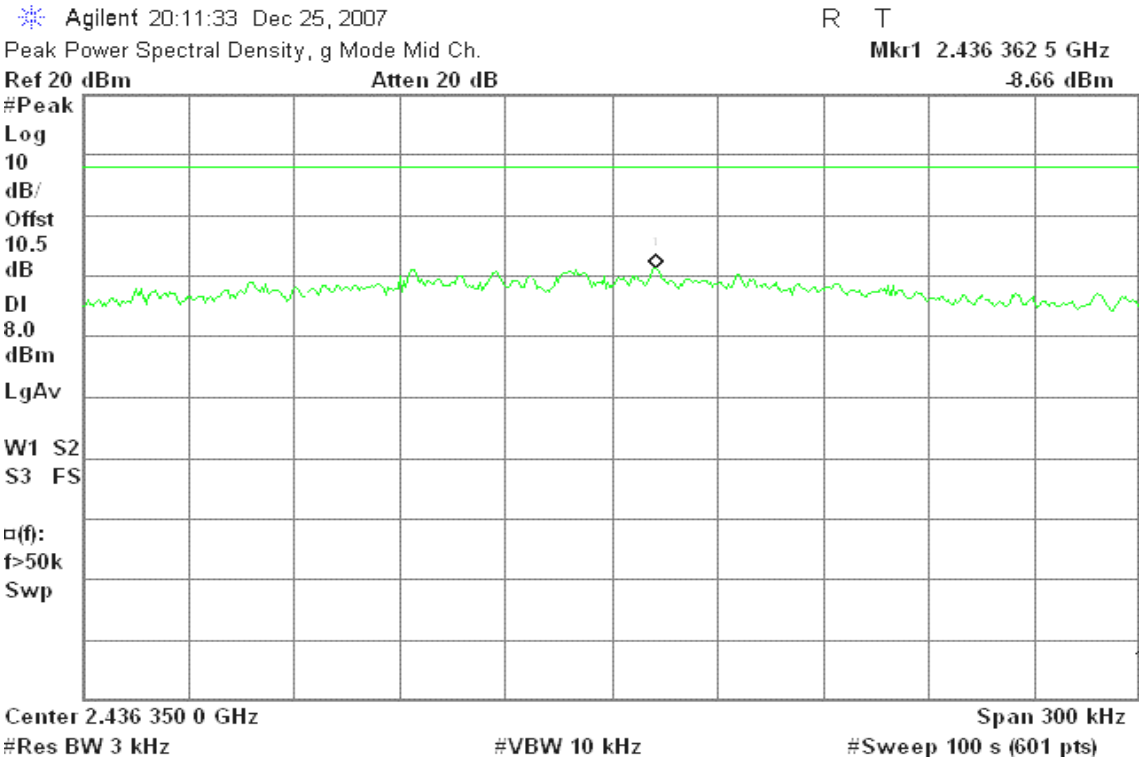


IEEE 802.11g mode / Chain 1

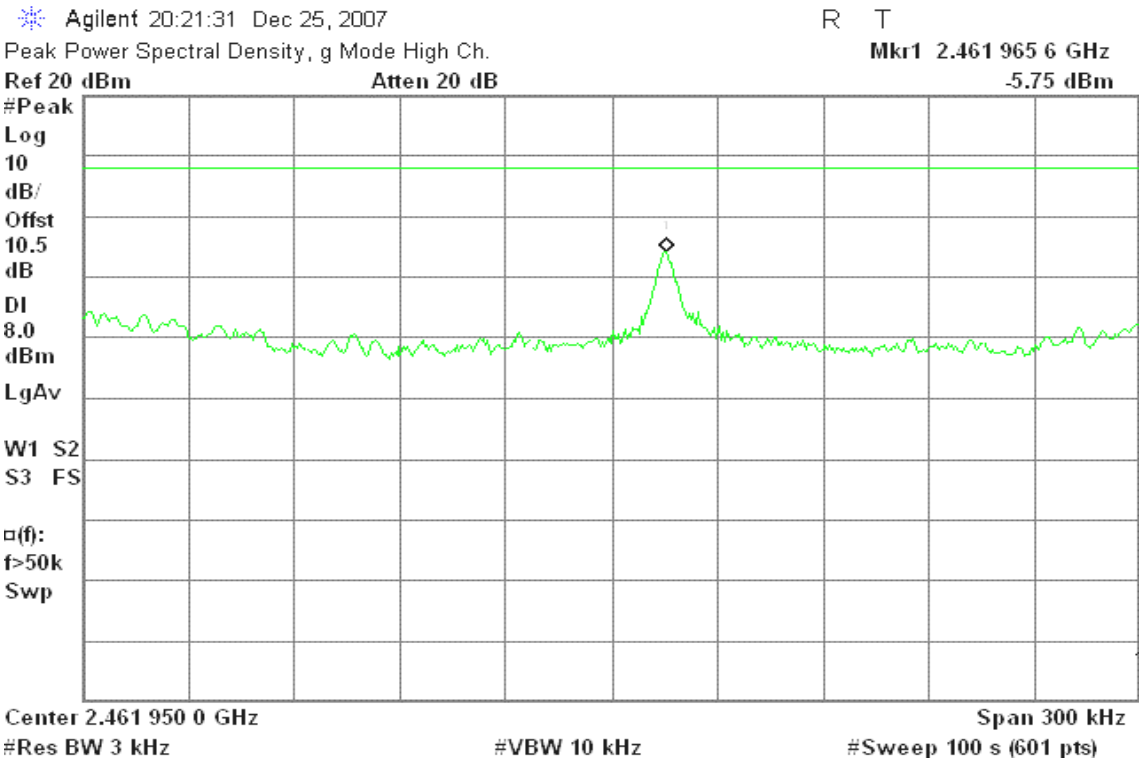
PPSD (CH Low)



PPSD (CH Mid)

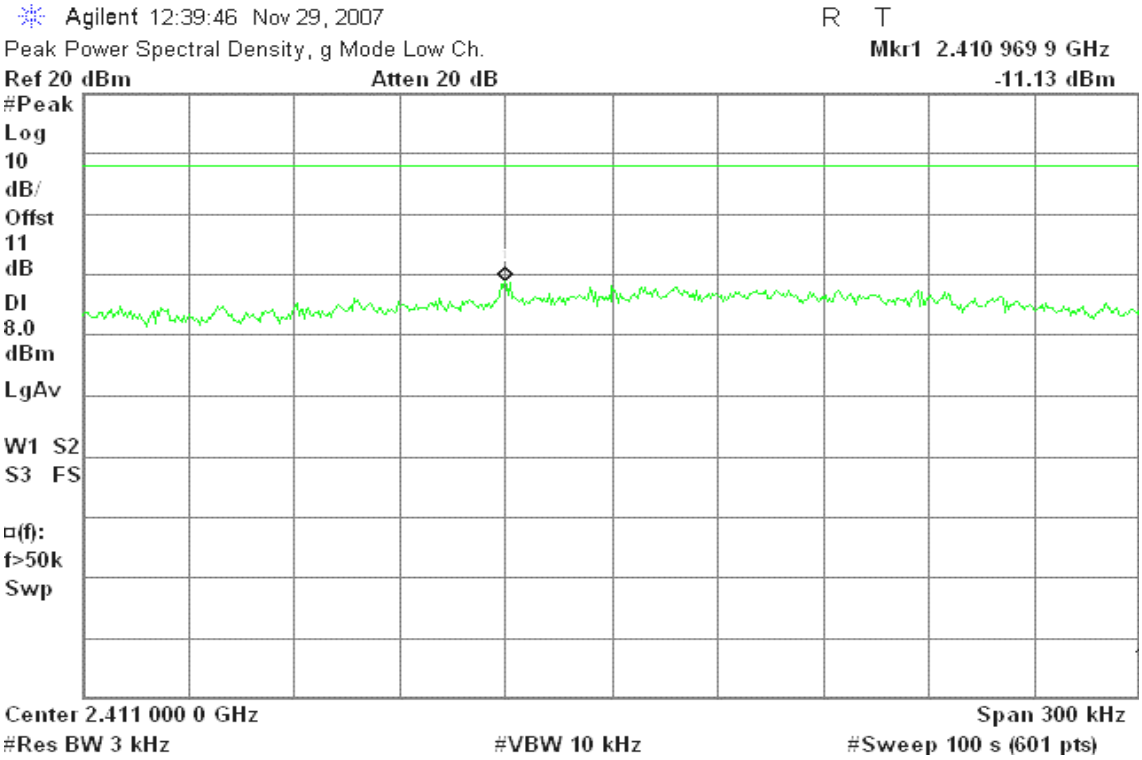


PPSD (CH High)

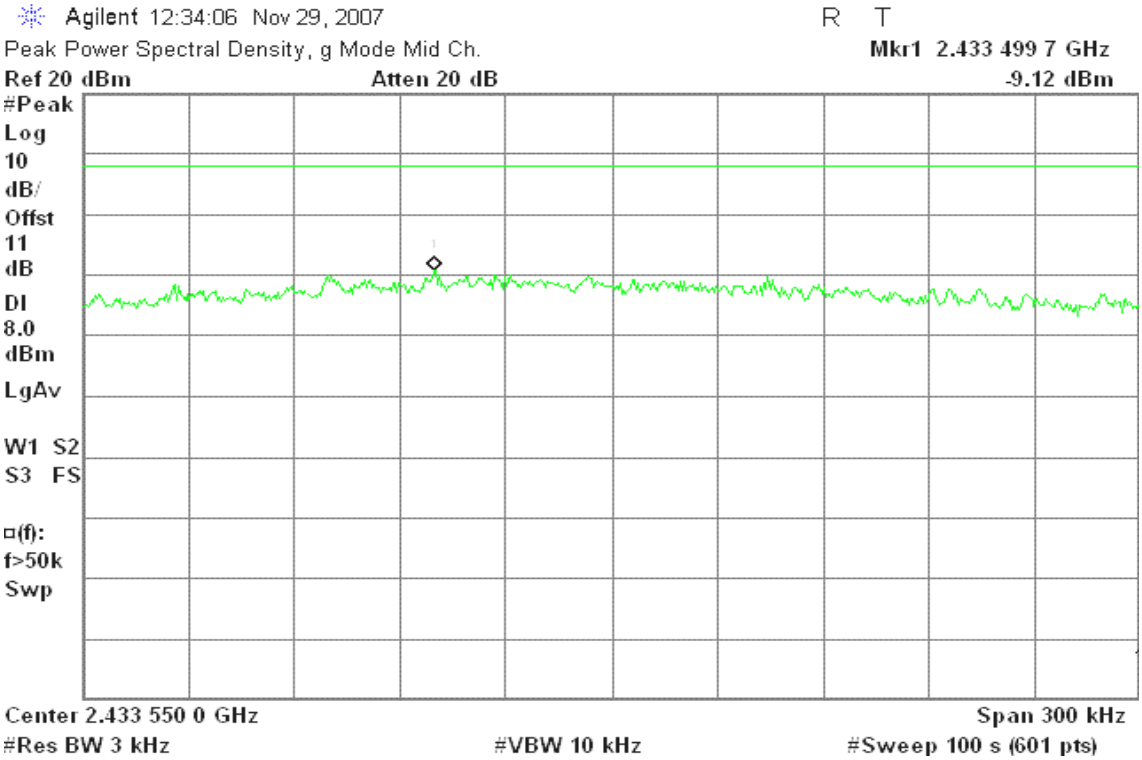


draft 802.11n Standard-20 MHz Channel mode / Chain 0

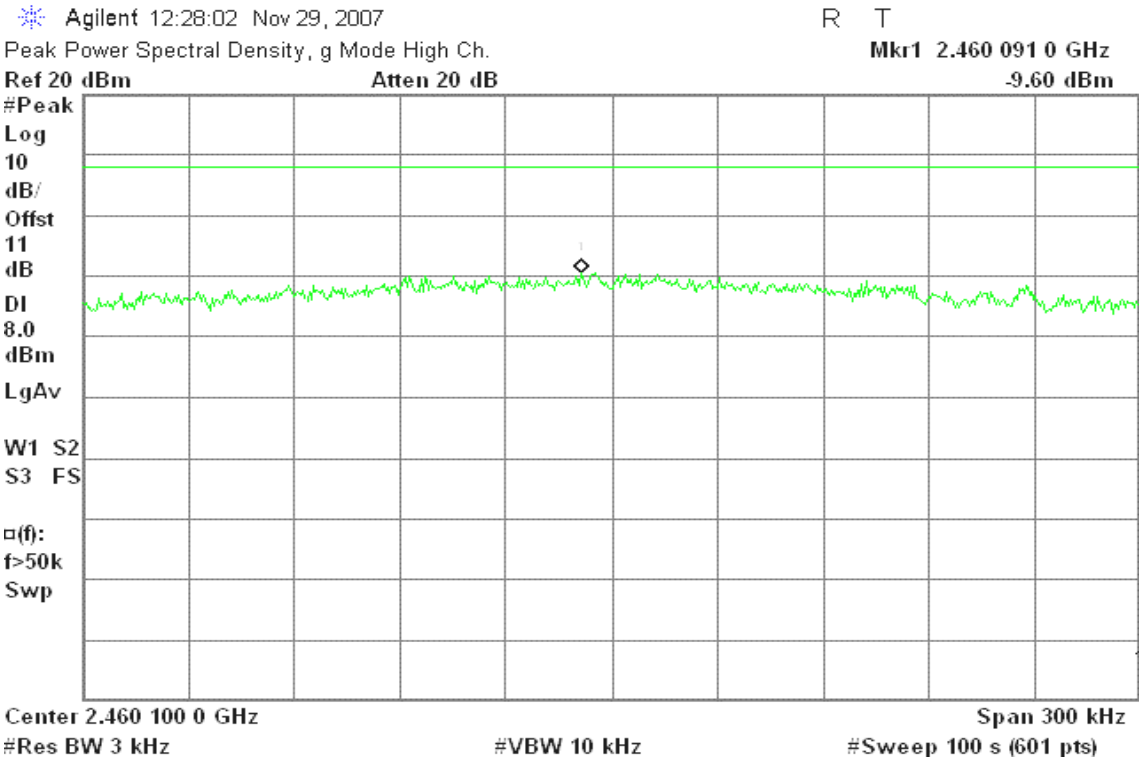
PPSD (CH Low)



PPSD (CH Mid)

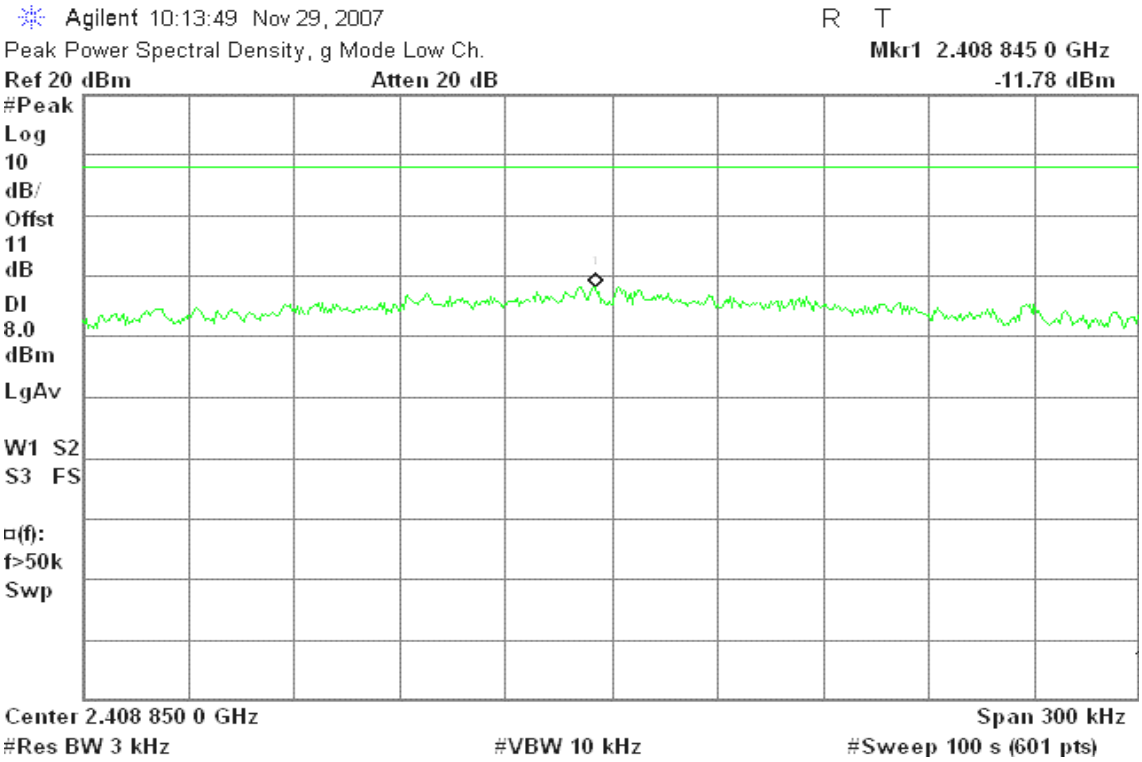


PPSD (CH High)

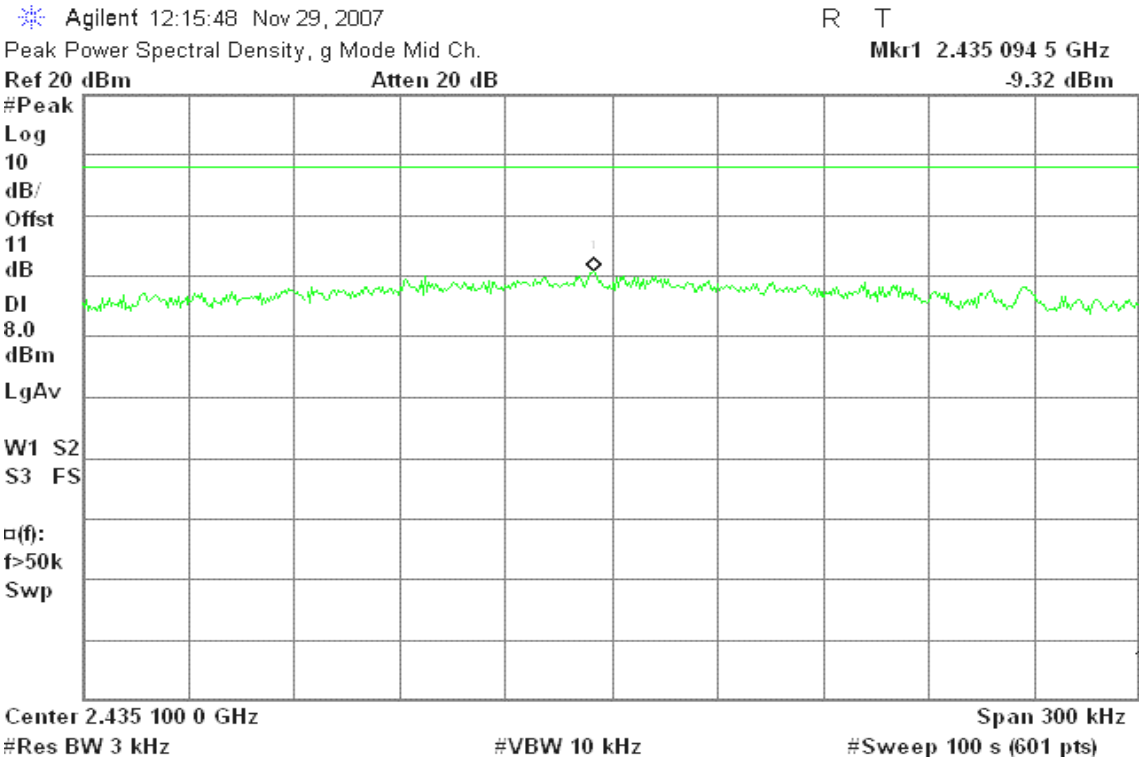


draft 802.11n Standard-20 MHz Channel mode / Chain 1

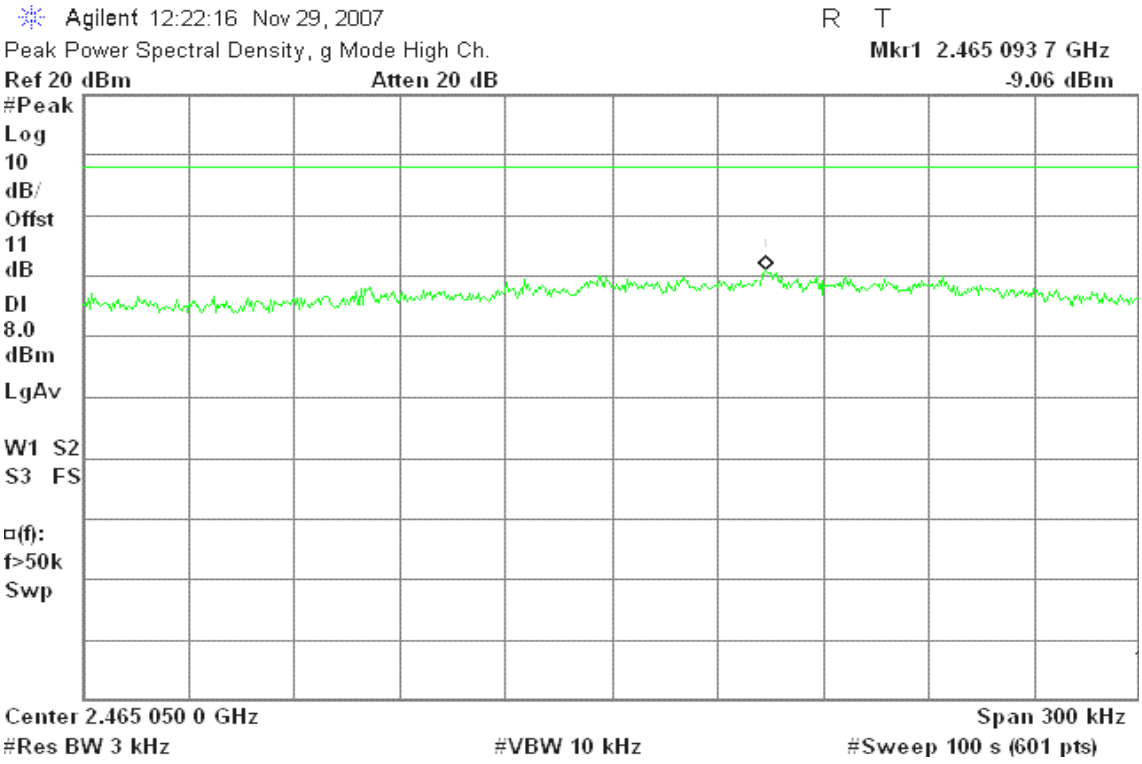
PPSD (CH Low)



PPSD (CH Mid)

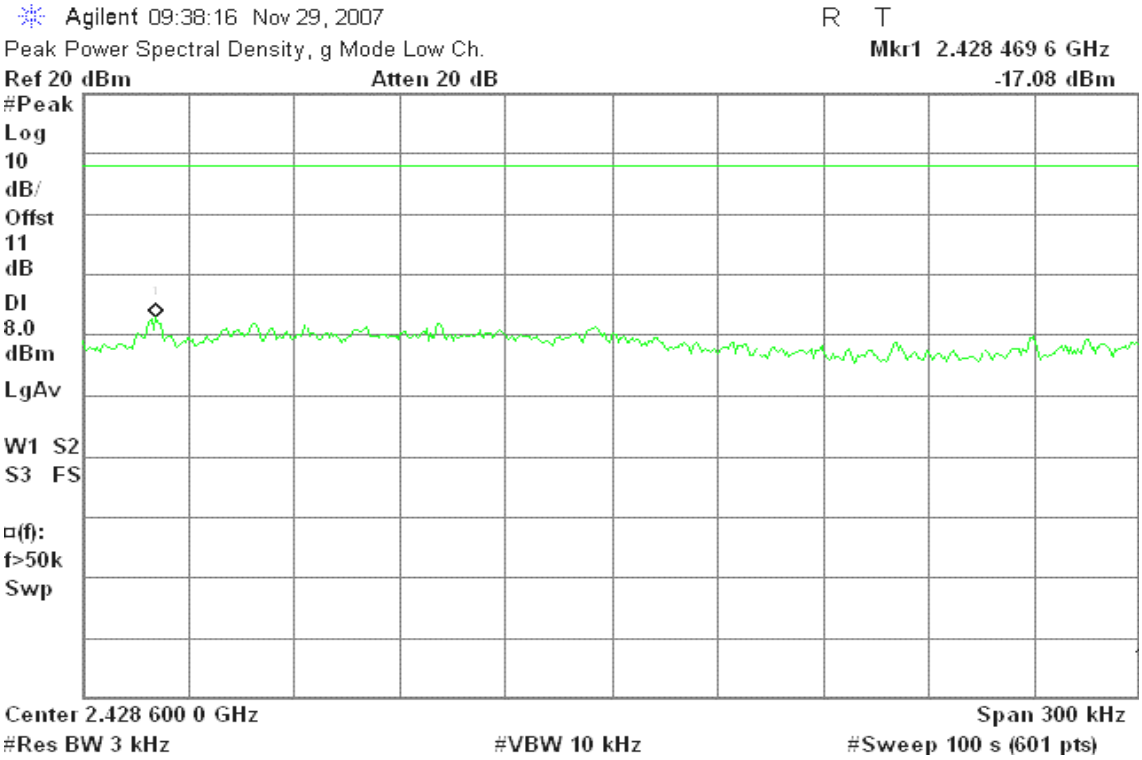


PPSD (CH High)

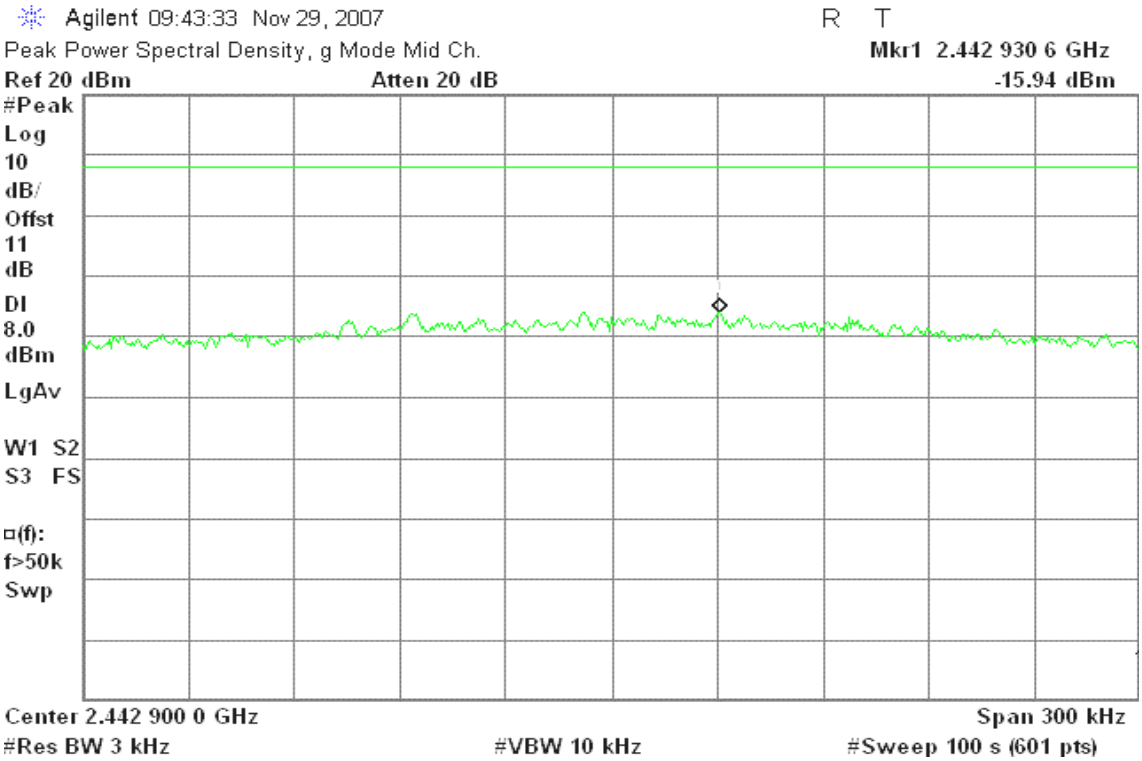


draft 802.11n Wide-40 MHz Channel mode / Chain 0

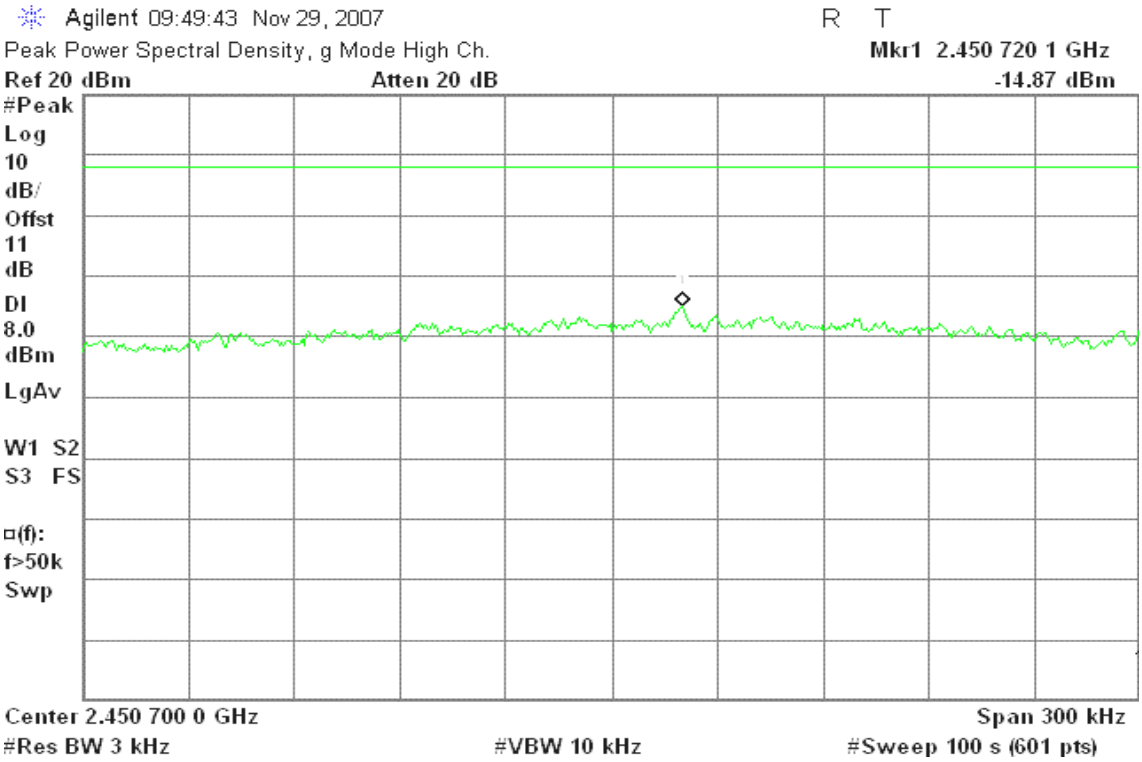
PPSD (CH Low)



PPSD (CH Mid)

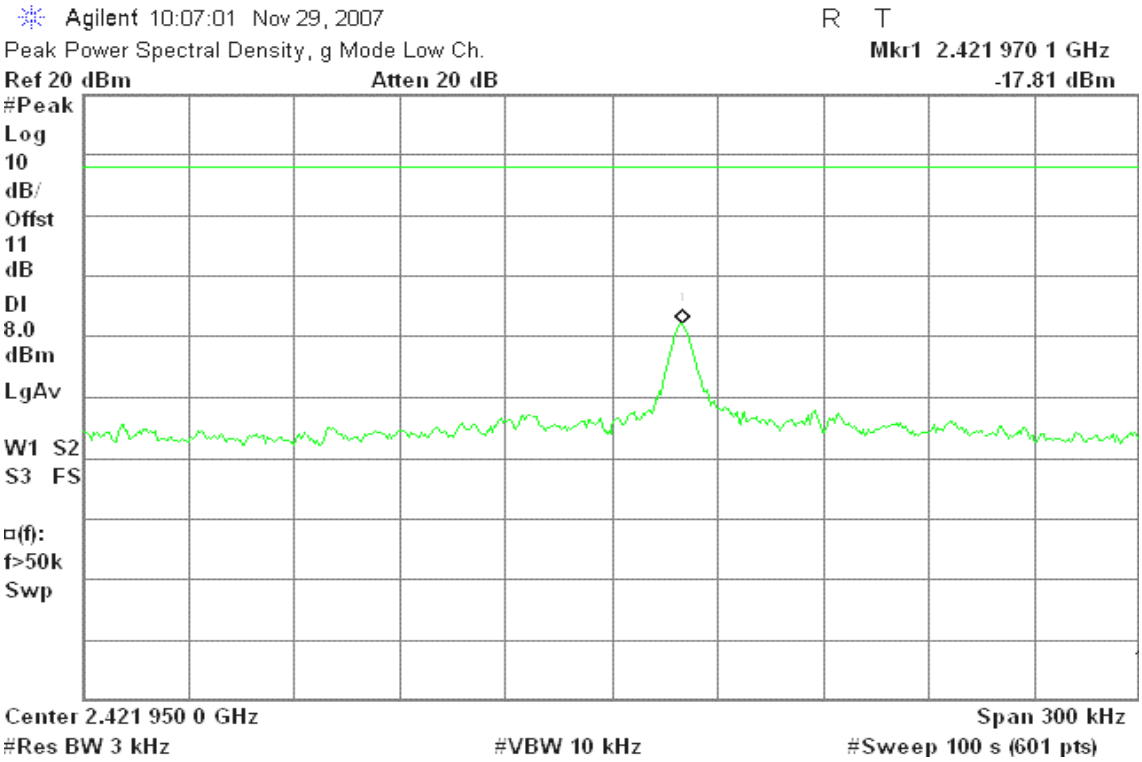


PPSD (CH High)

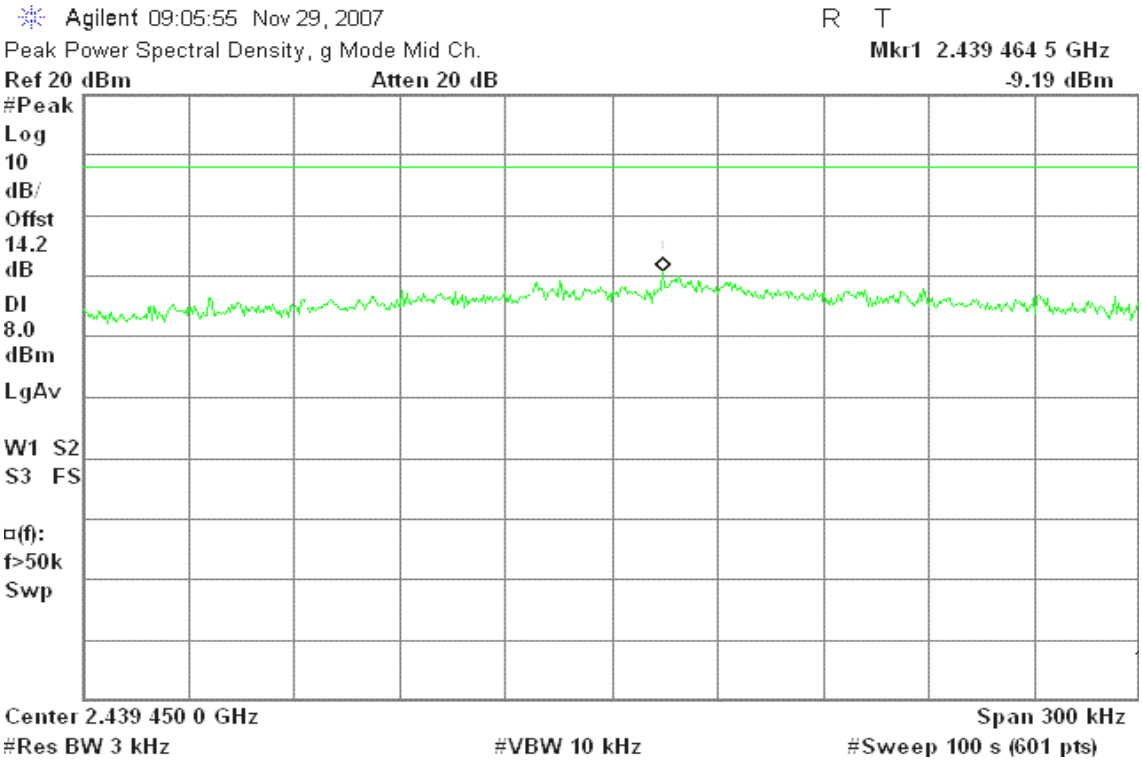


draft 802.11n Wide-40 MHz Channel mode / Chain 1

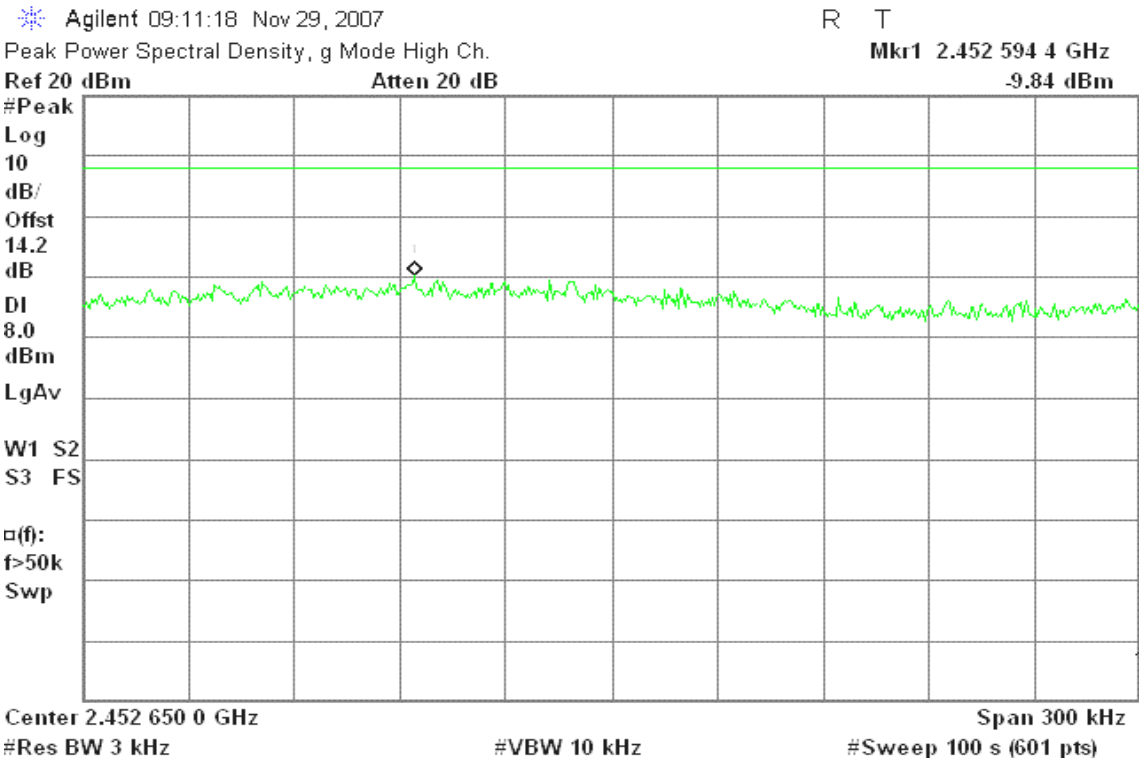
PPSD (CH Low)



PPSD (CH Mid)

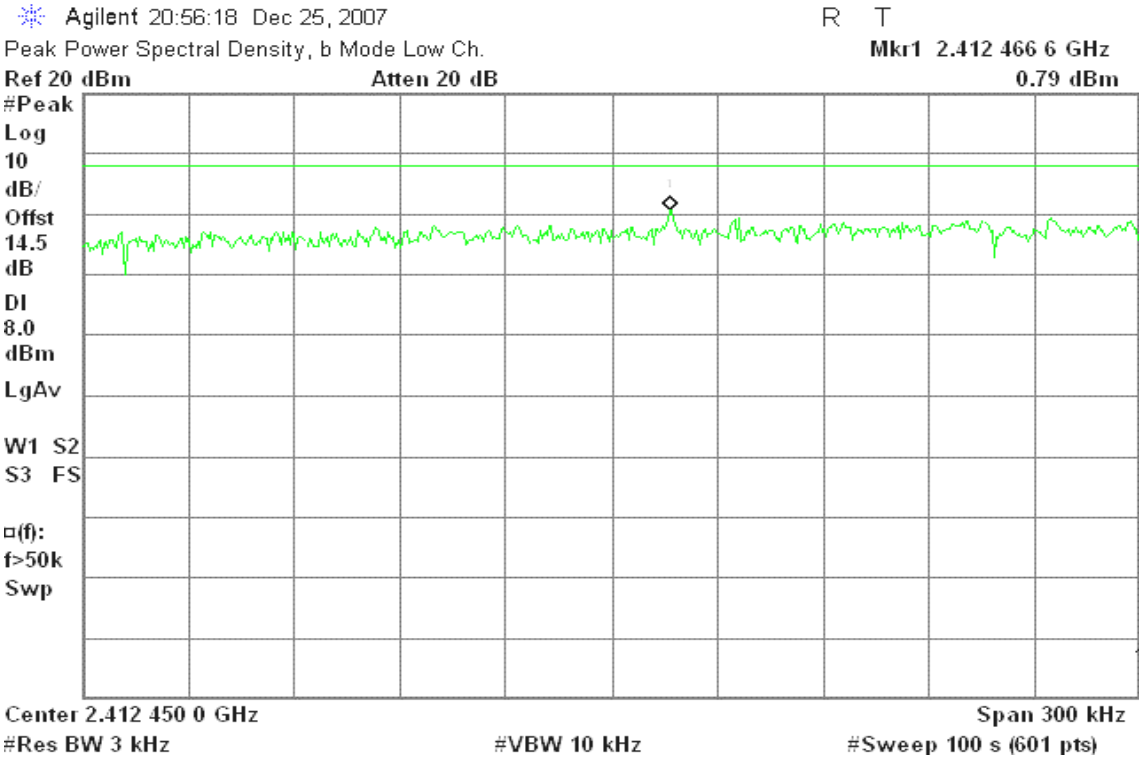


PPSD (CH High)

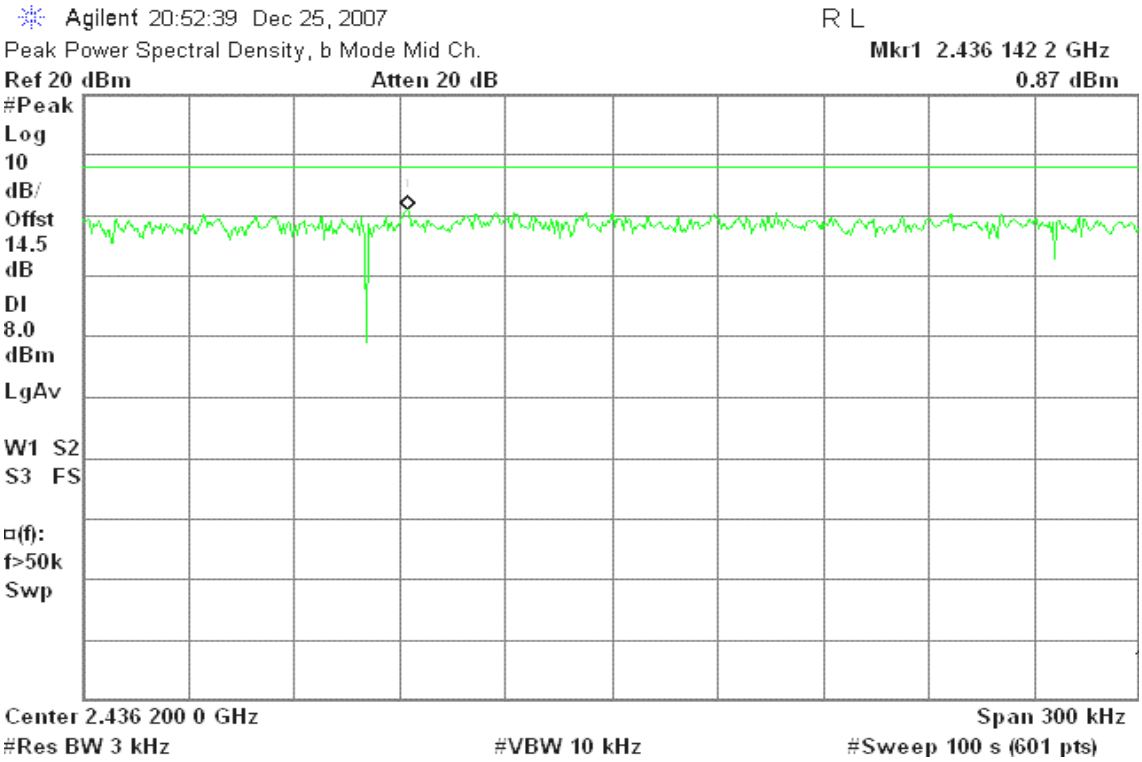


IEEE 802.11b mode with combiner

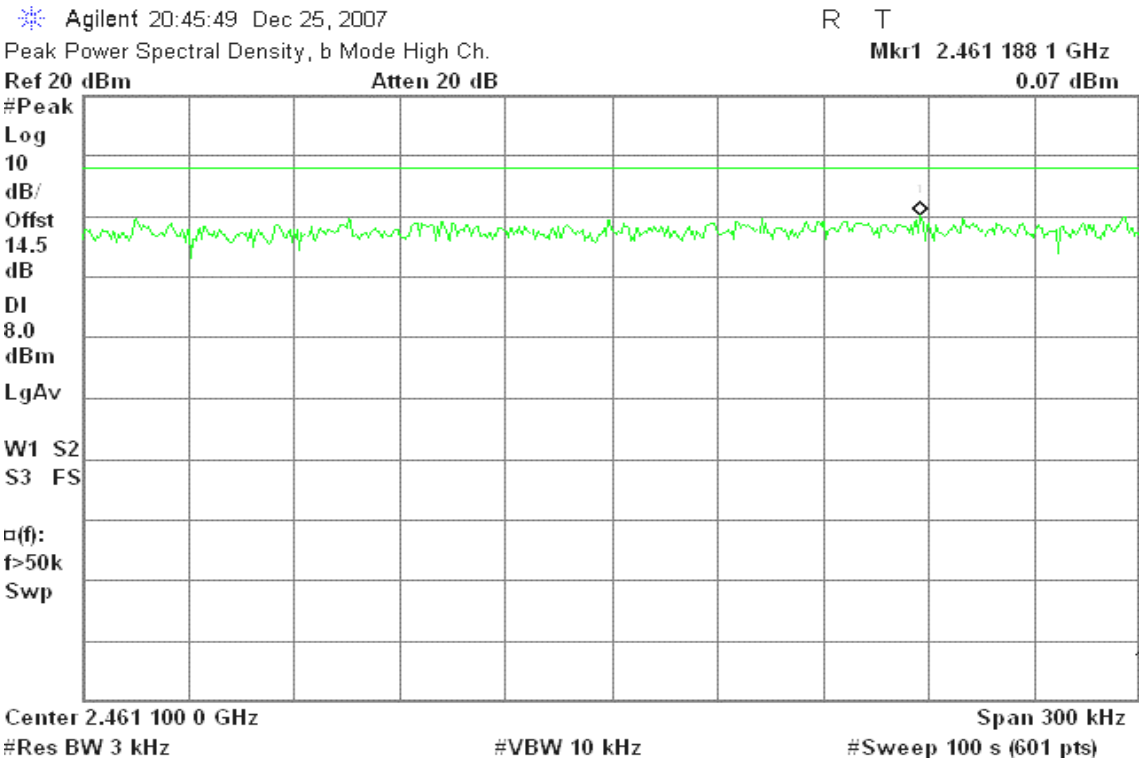
PPSD (CH Low)



PPSD (CH Mid)

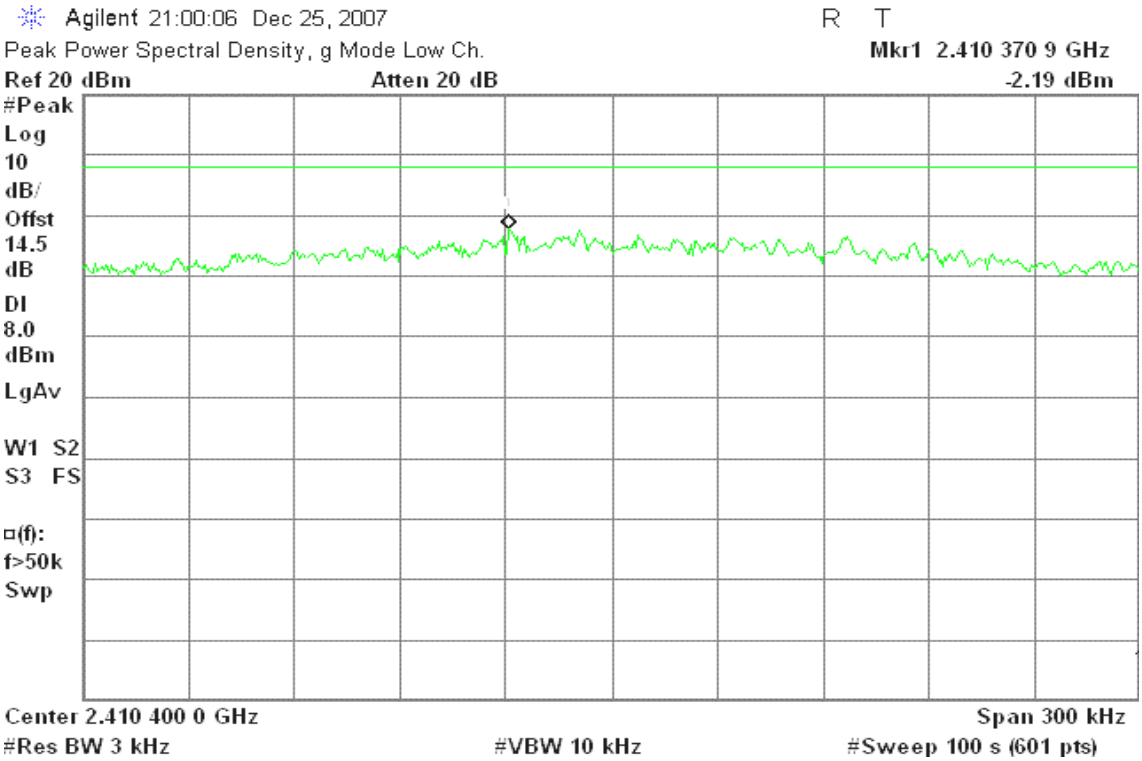


PPSD (CH High)

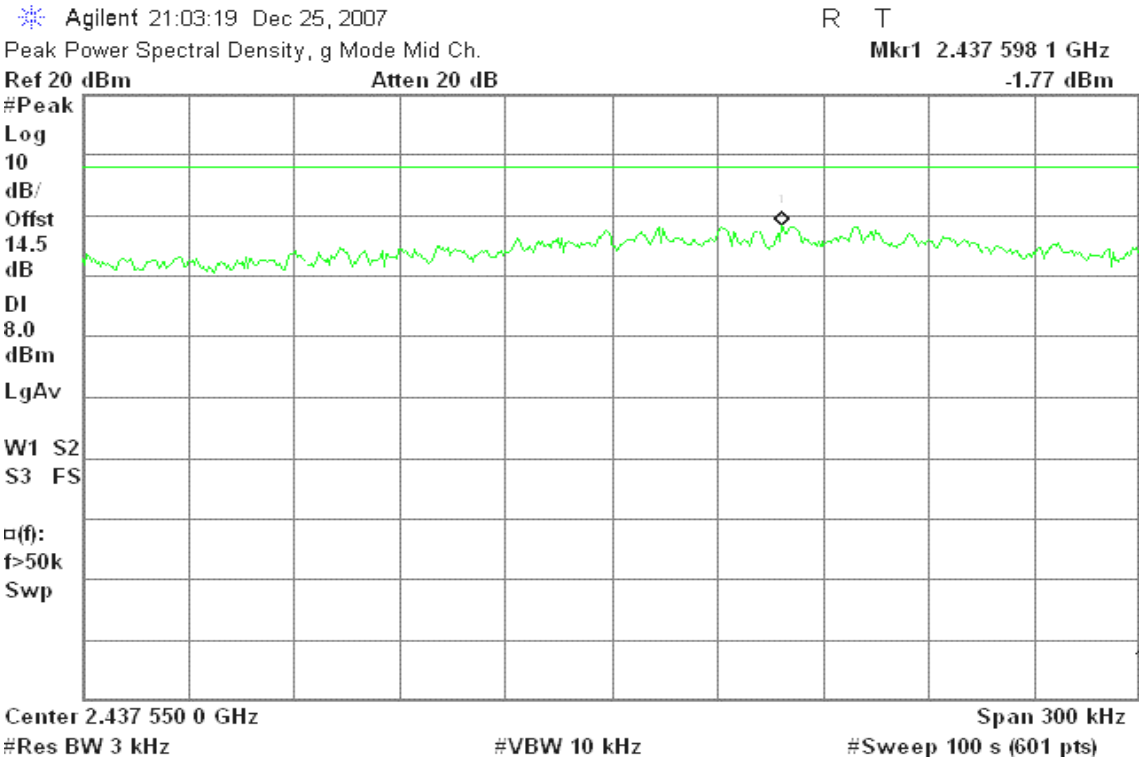


IEEE 802.11g mode with combiner

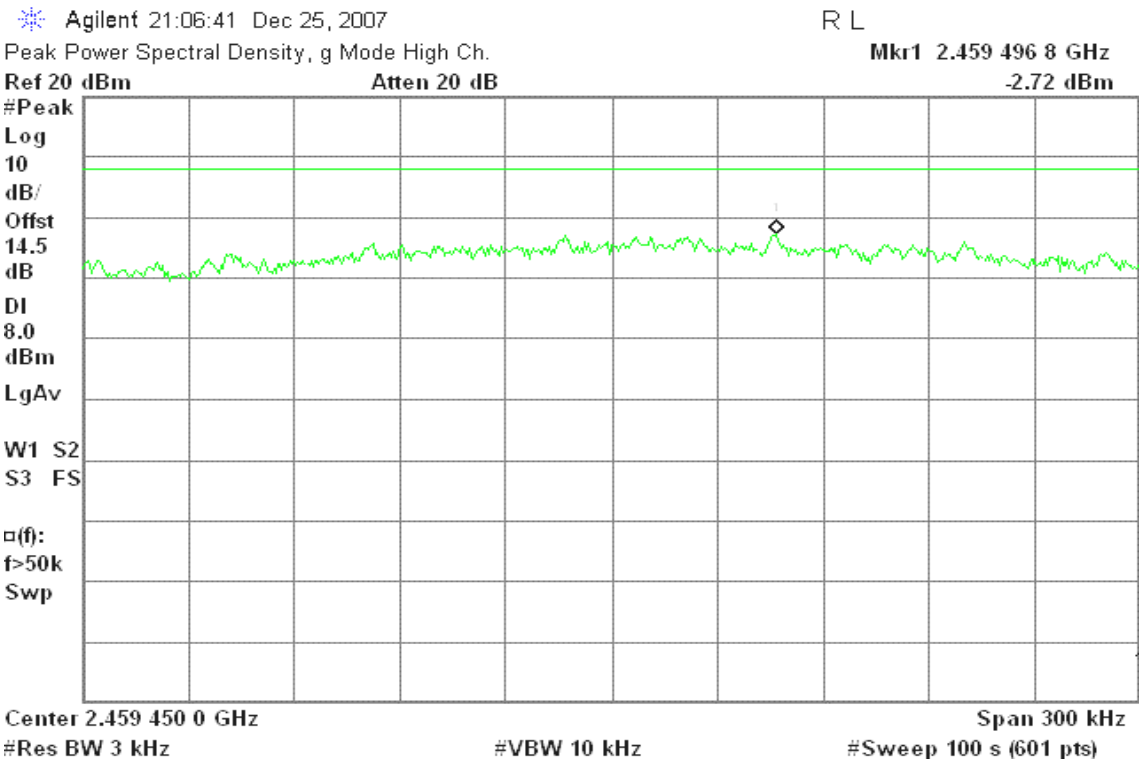
PPSD (CH Low)



PPSD (CH Mid)

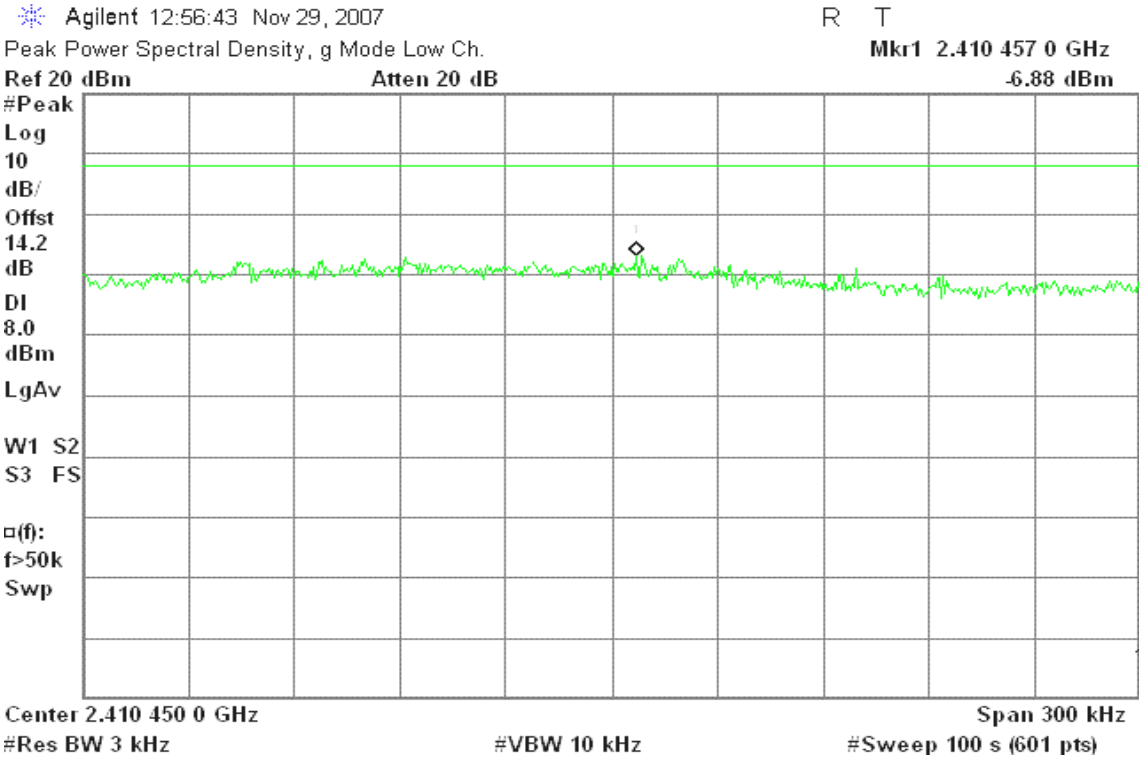


PPSD (CH High)

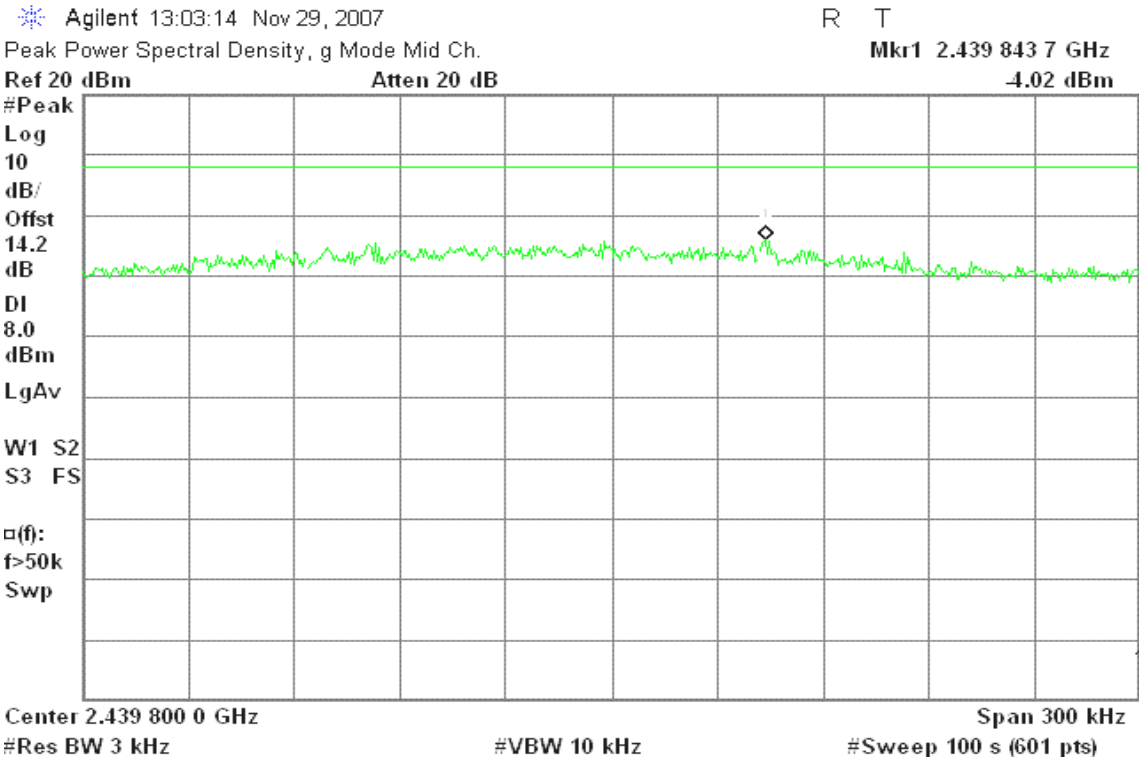


draft 802.11n Standard-20 MHz Channel mode with combiner

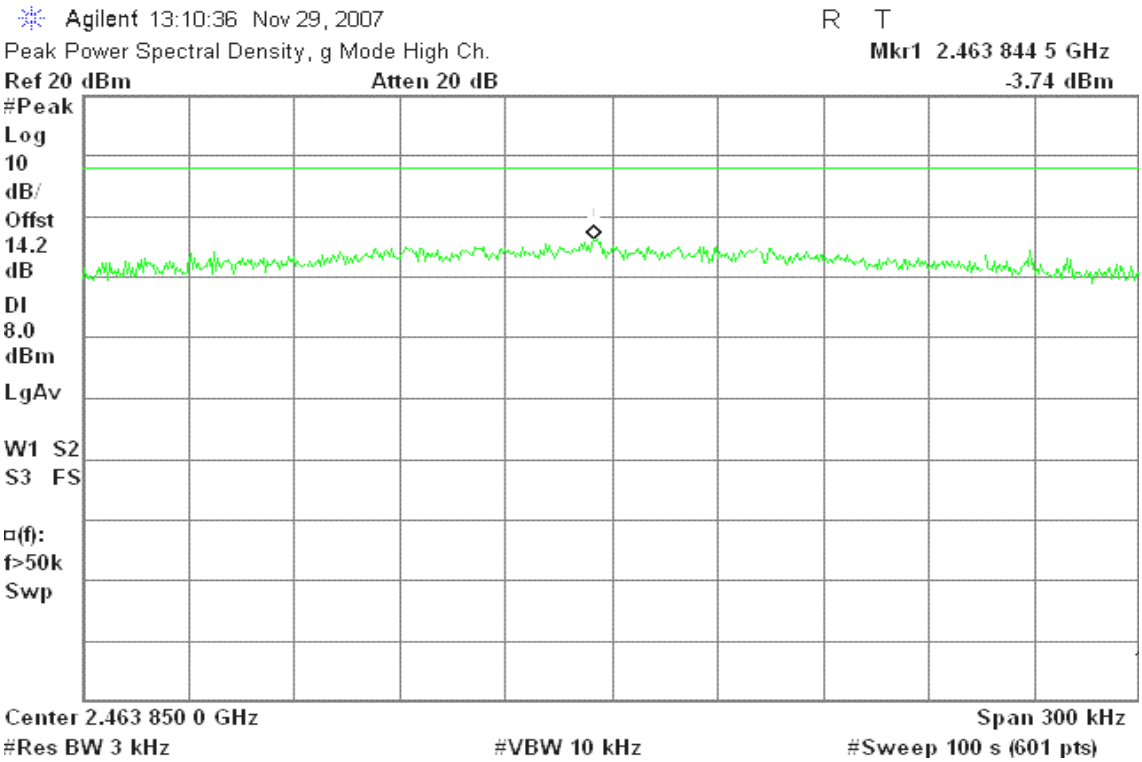
PPSD (CH Low)



PPSD (CH Mid)

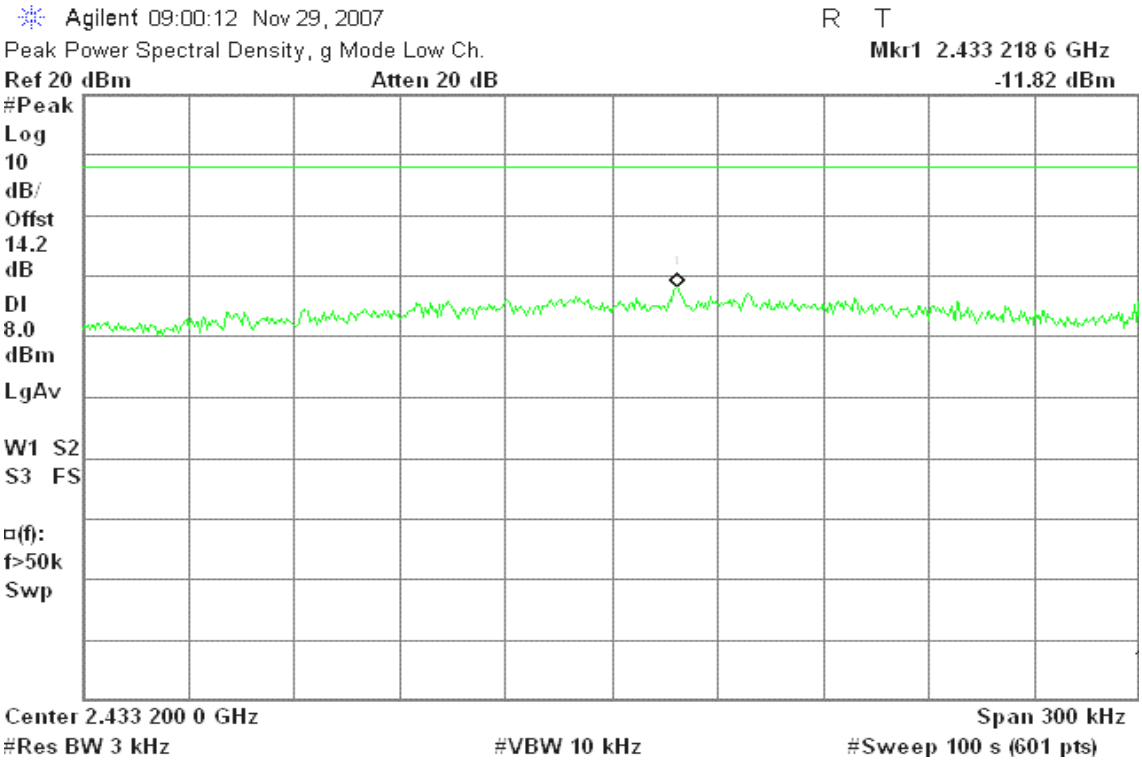


PPSD (CH High)

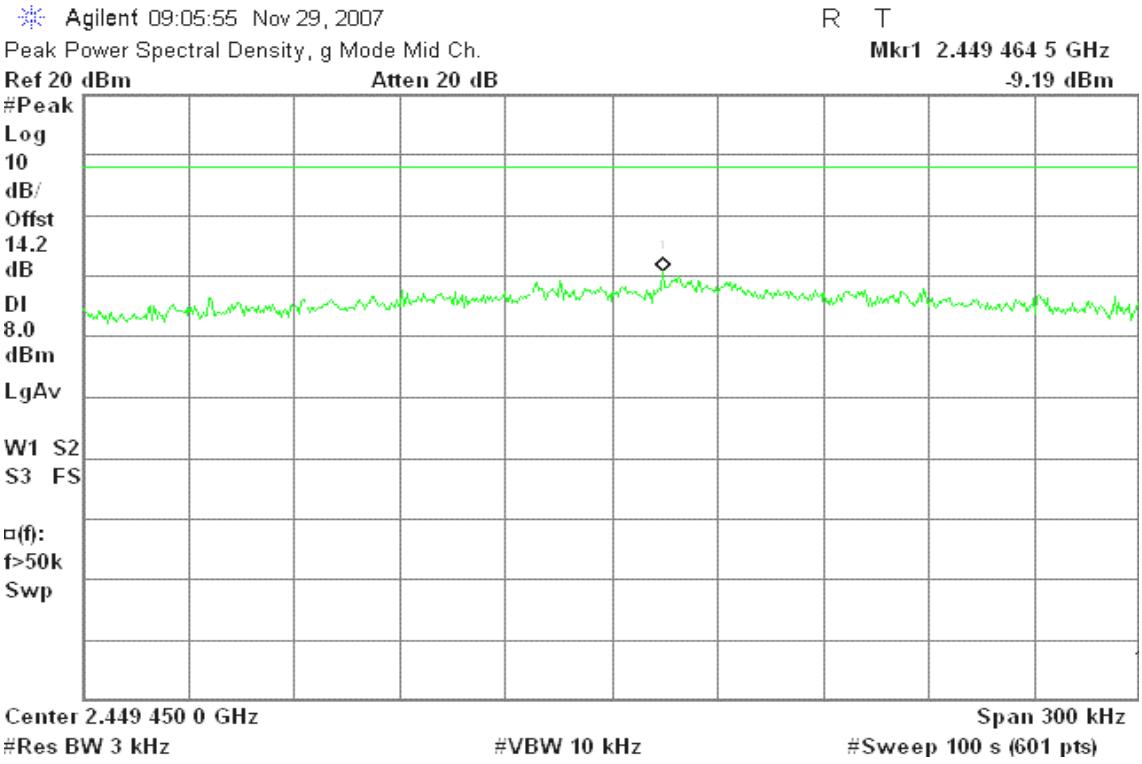


draft 802.11n Wide-40 MHz Channel mode with combiner

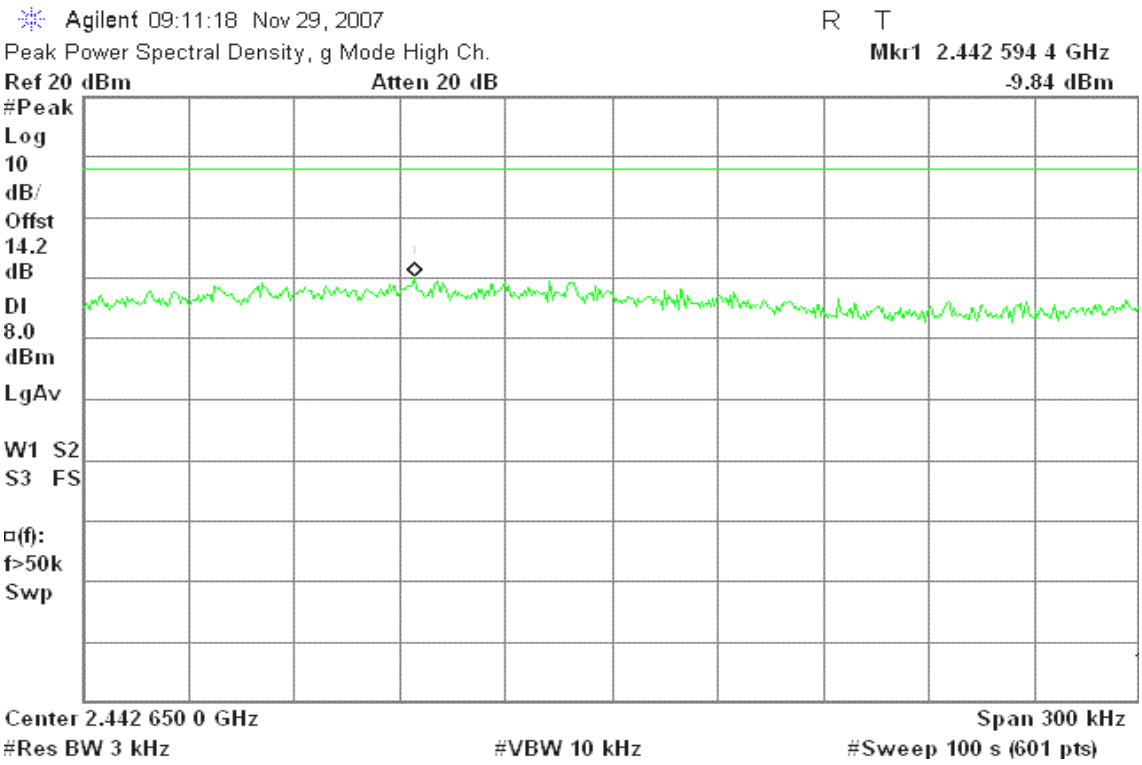
PPSD (CH Low)



PPSD (CH Mid)



PPSD (CH High)



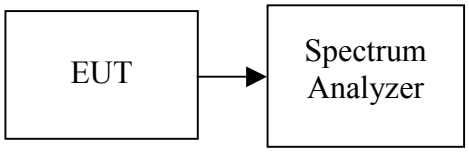
7.6 SPURIOUS EMISSIONS

7.6.1 Conducted Measurement

LIMIT

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

Test Configuration



TEST PROCEDURE

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

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

Measurements are made over the 13GHz to 26GHz range with the transmitter set to the lowest, middle, and highest channels.

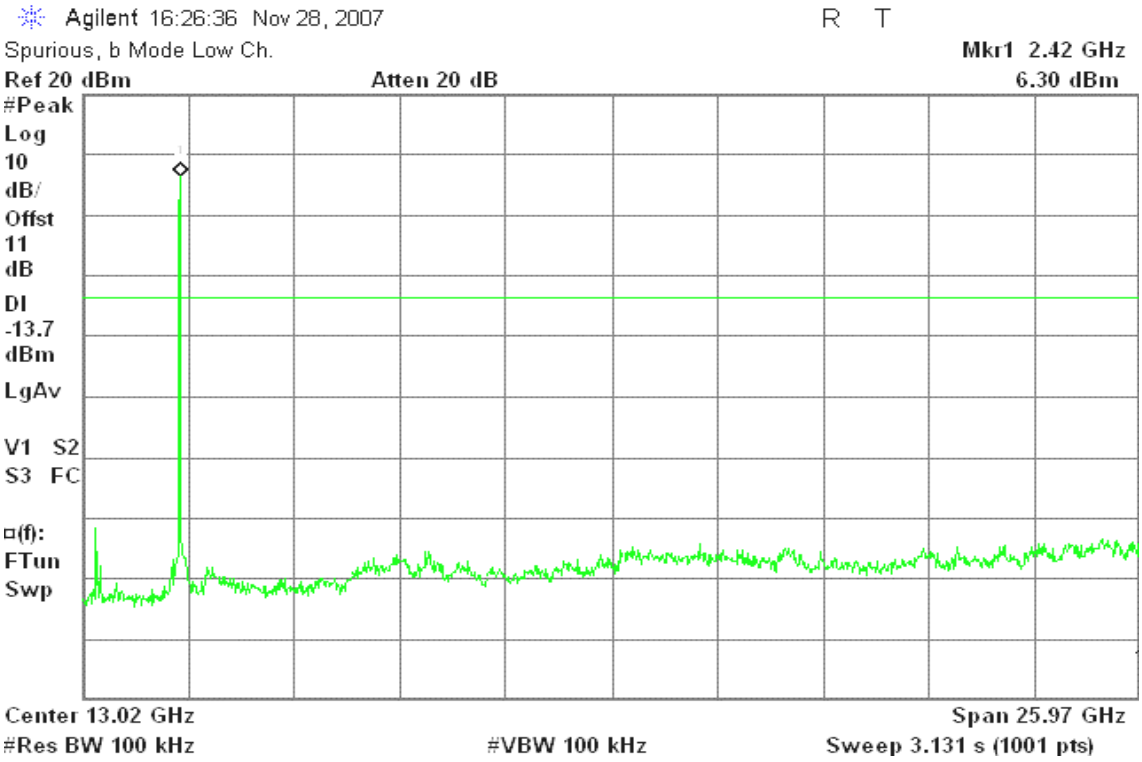
TEST RESULTS

No non-compliance noted.

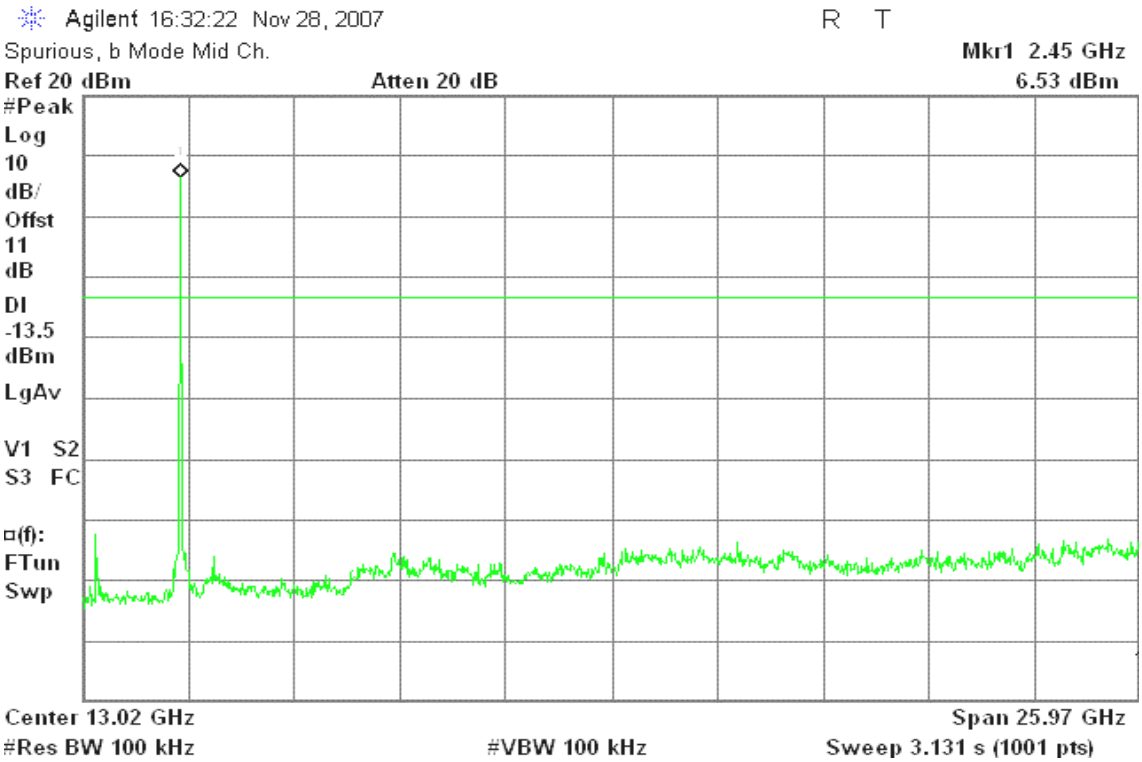
Test Plot

IEEE 802.11b mode / Chain 0

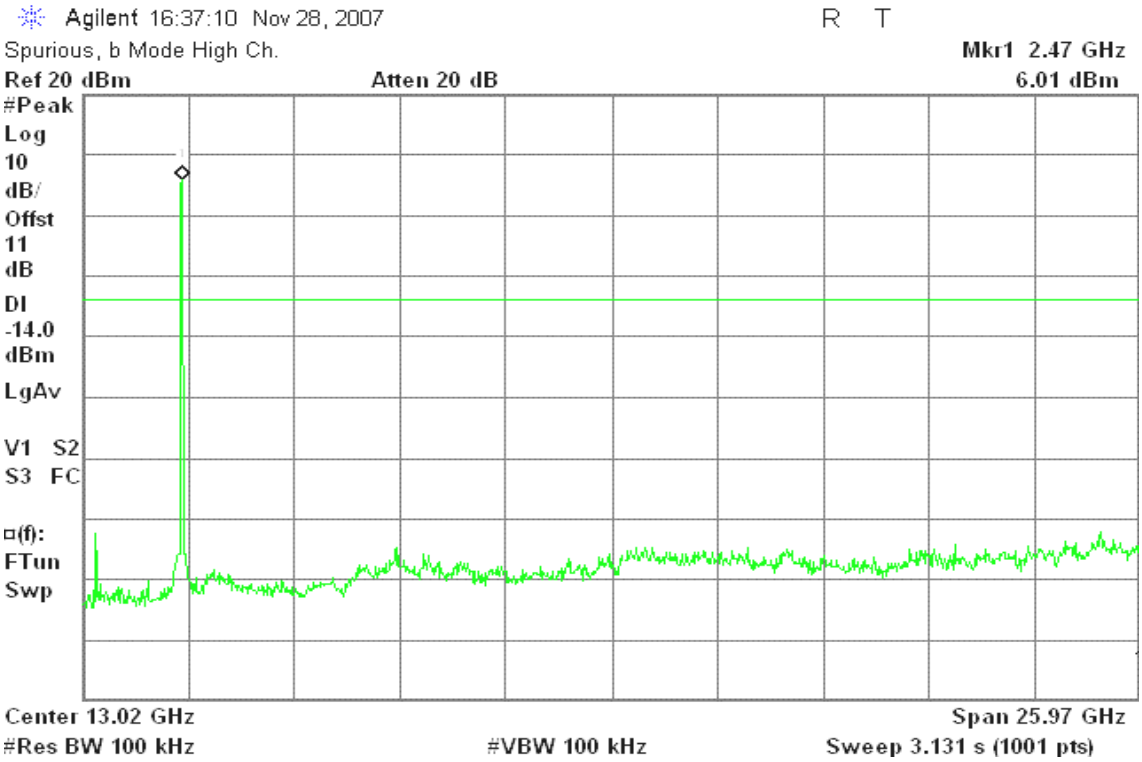
CH Low



CH Mid

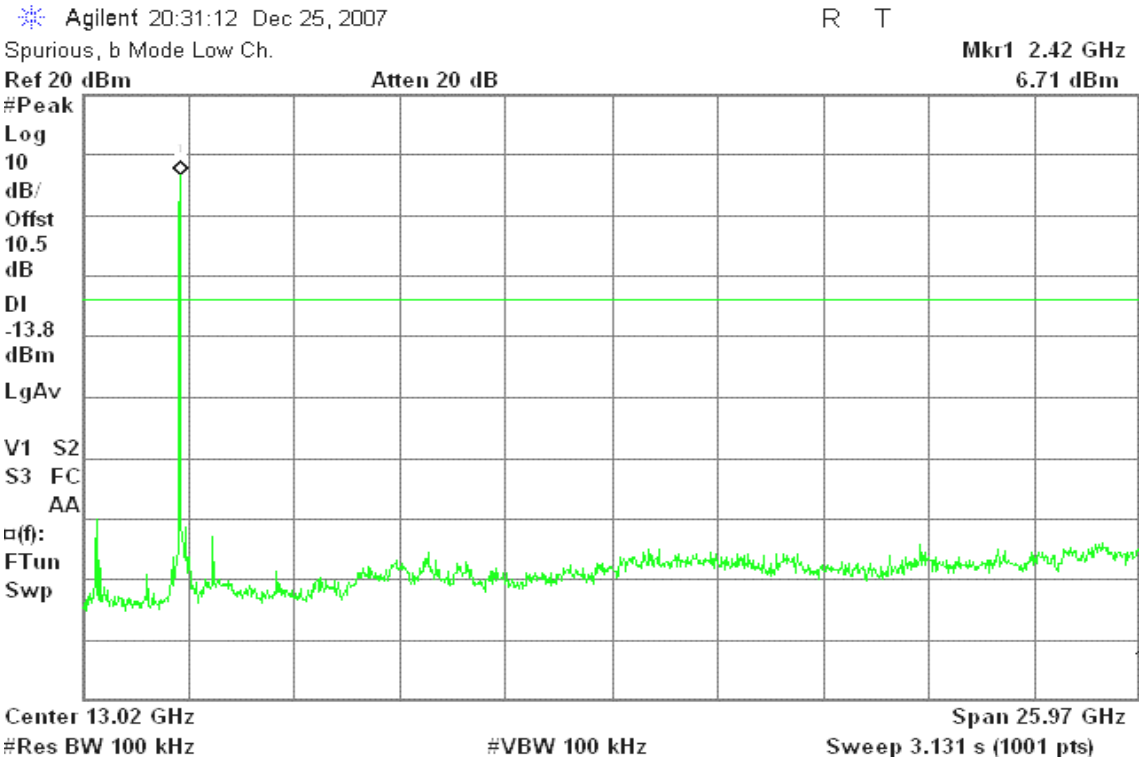


CH High

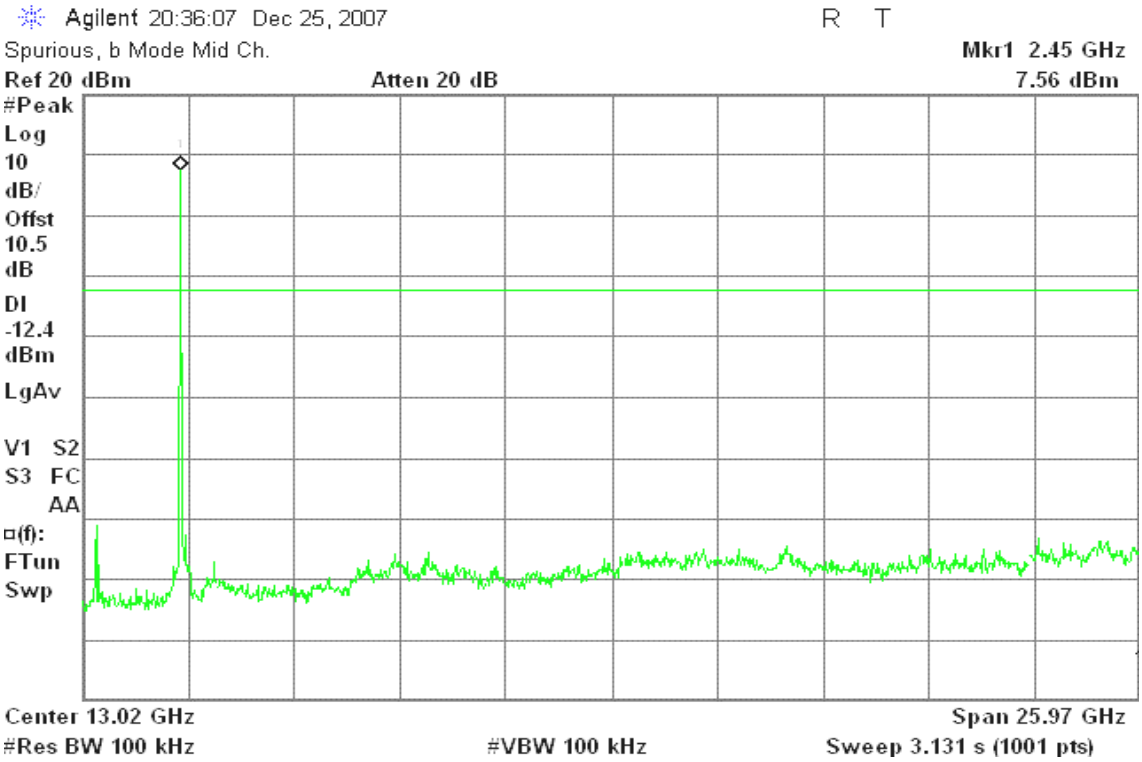


IEEE 802.11b mode / Chain 1

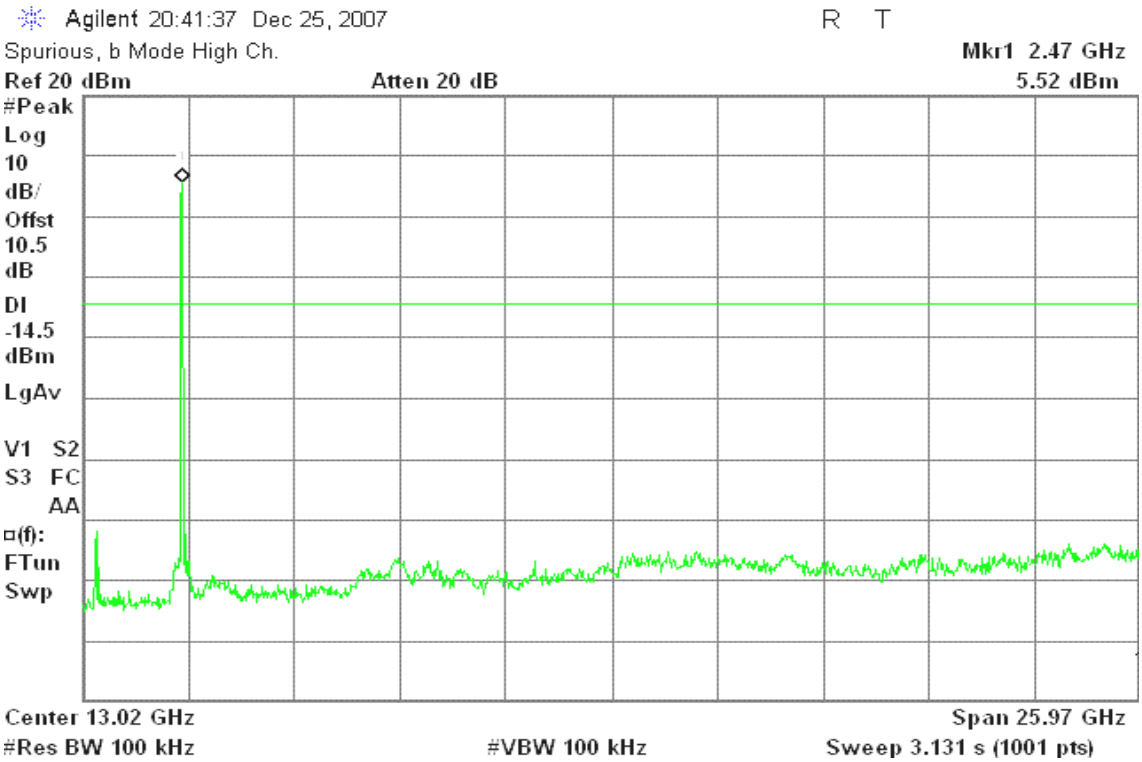
CH Low



CH Mid

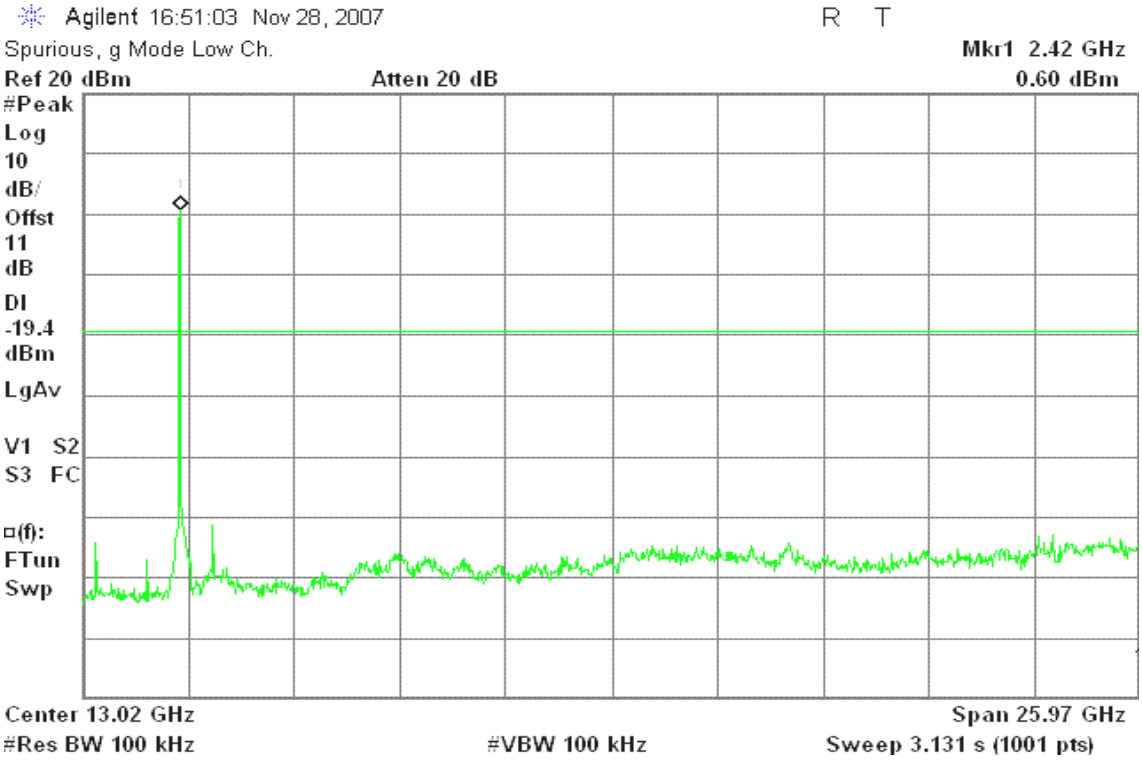


CH High

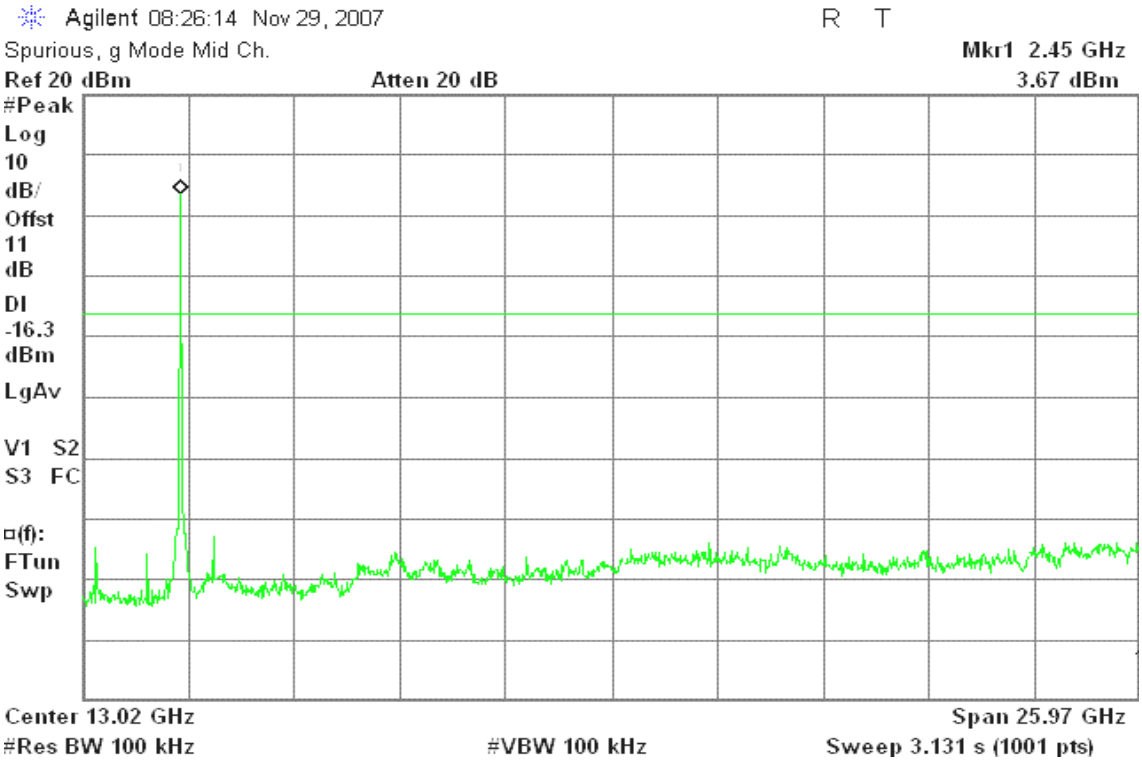


IEEE 802.11g mode / Chain 0

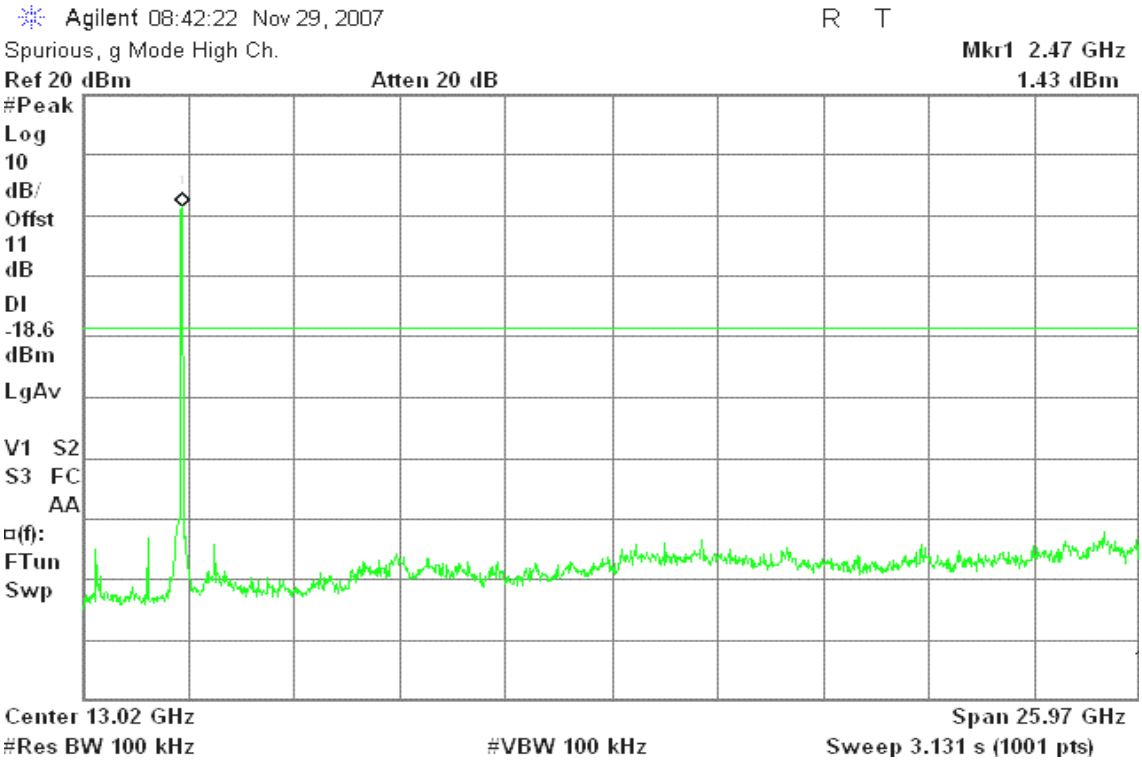
CH Low



CH Mid

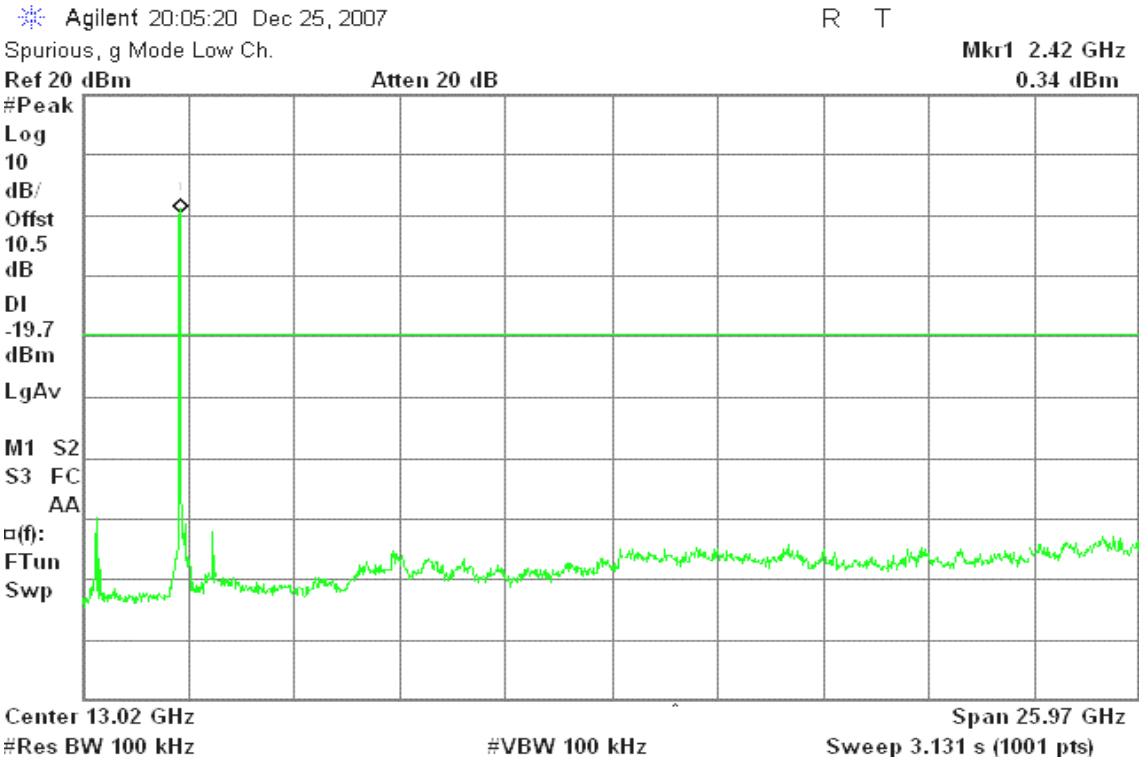


CH High

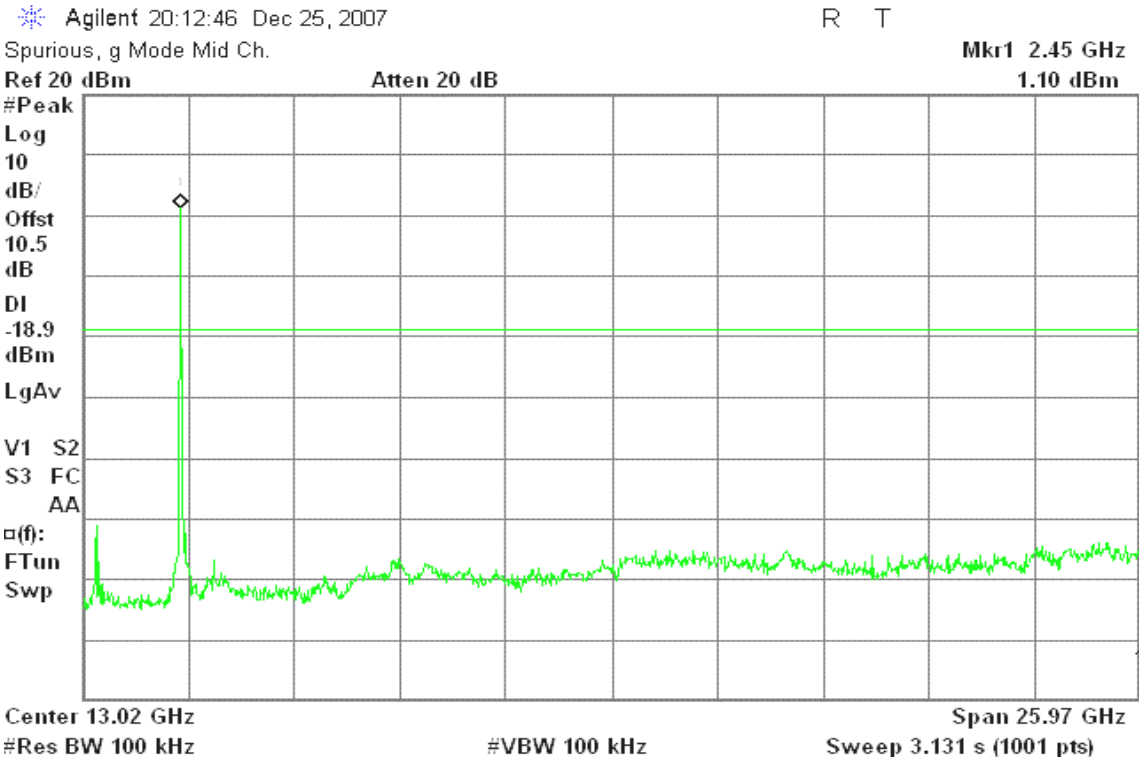


IEEE 802.11g mode / Chain 1

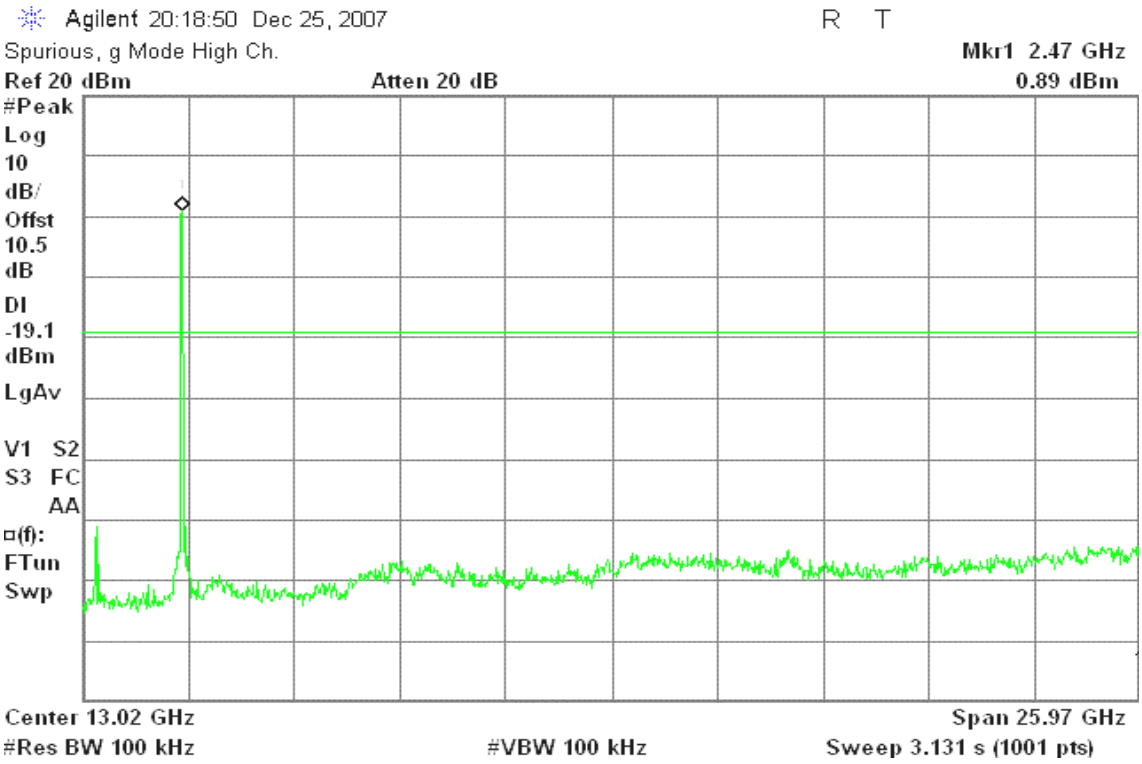
CH Low



CH Mid

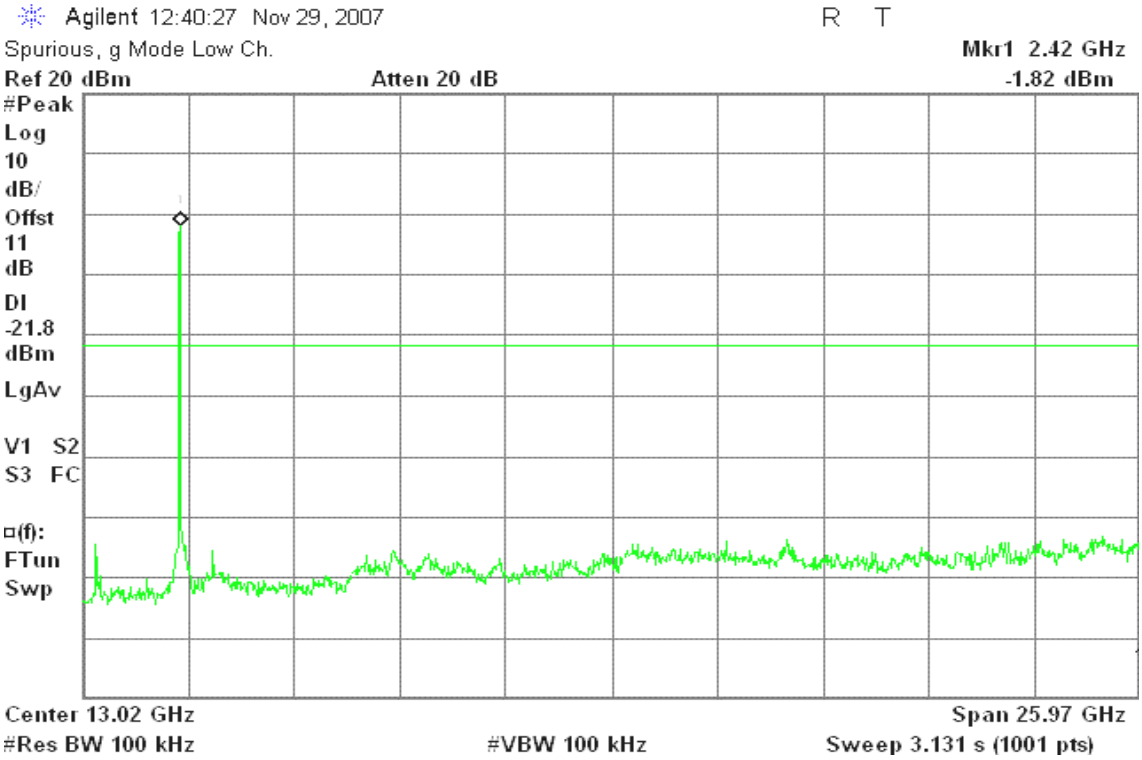


CH High

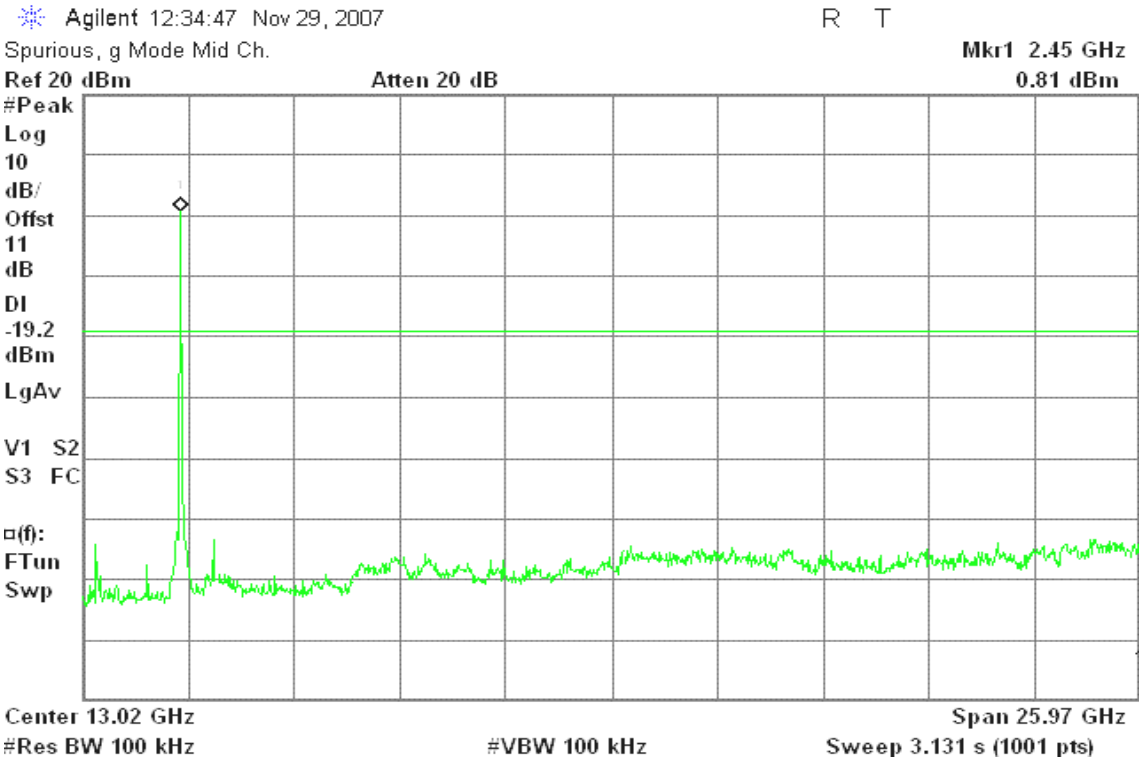


draft 802.11n Standard-20 MHz Channel mode / Chain 0

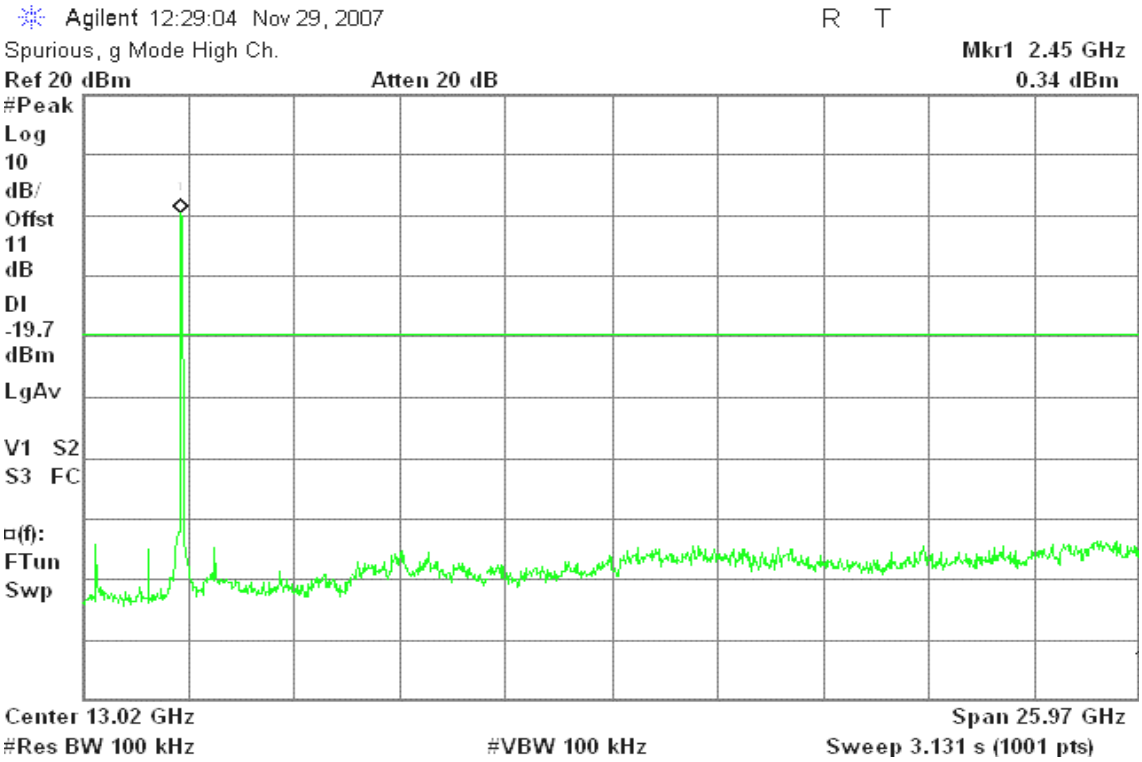
CH Low



CH Mid

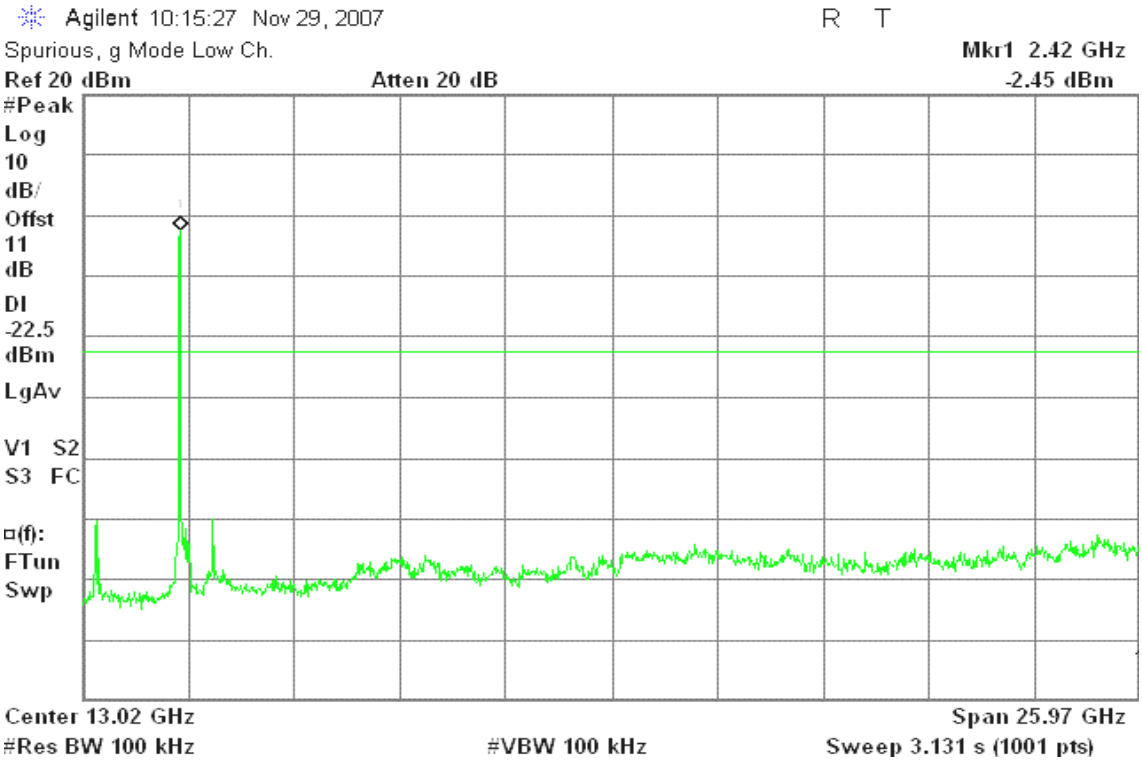


CH High



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

CH Low



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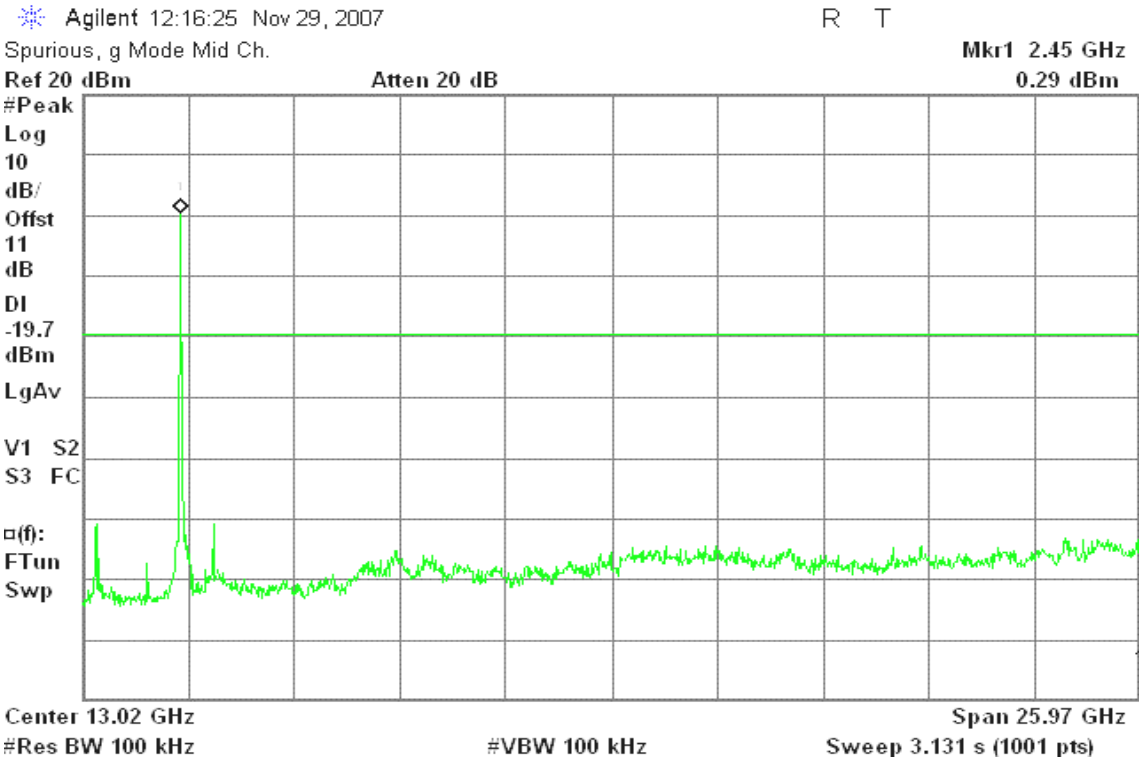
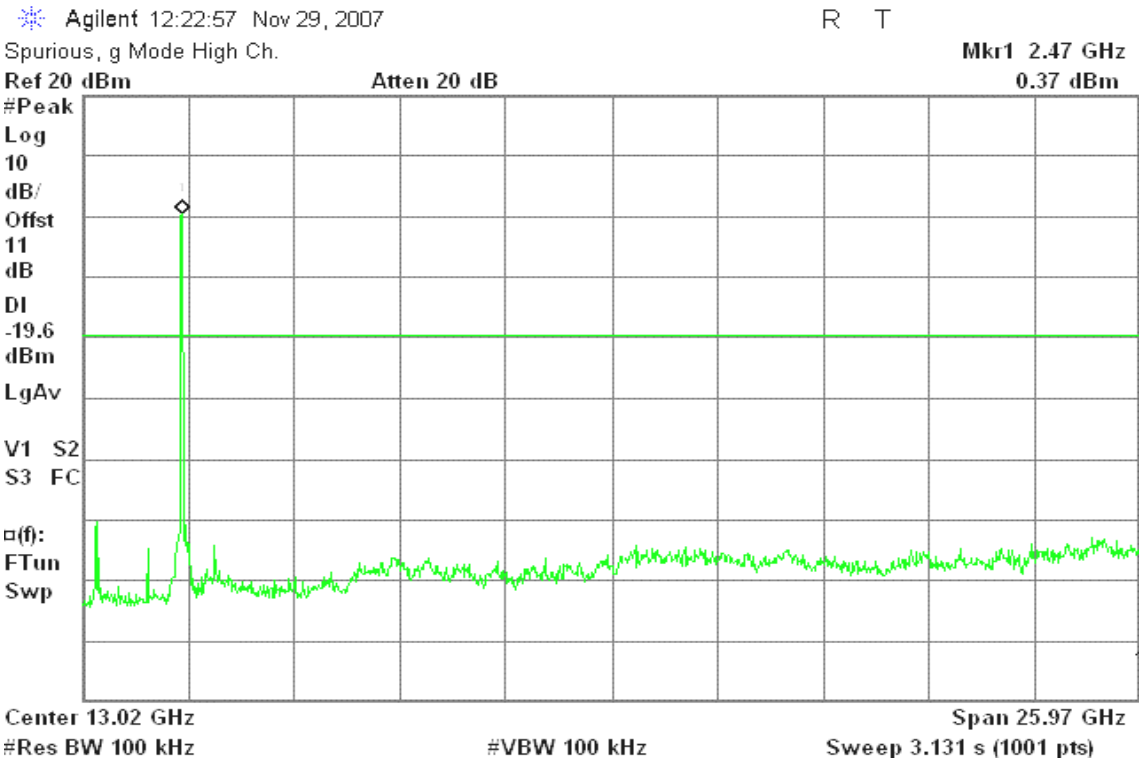
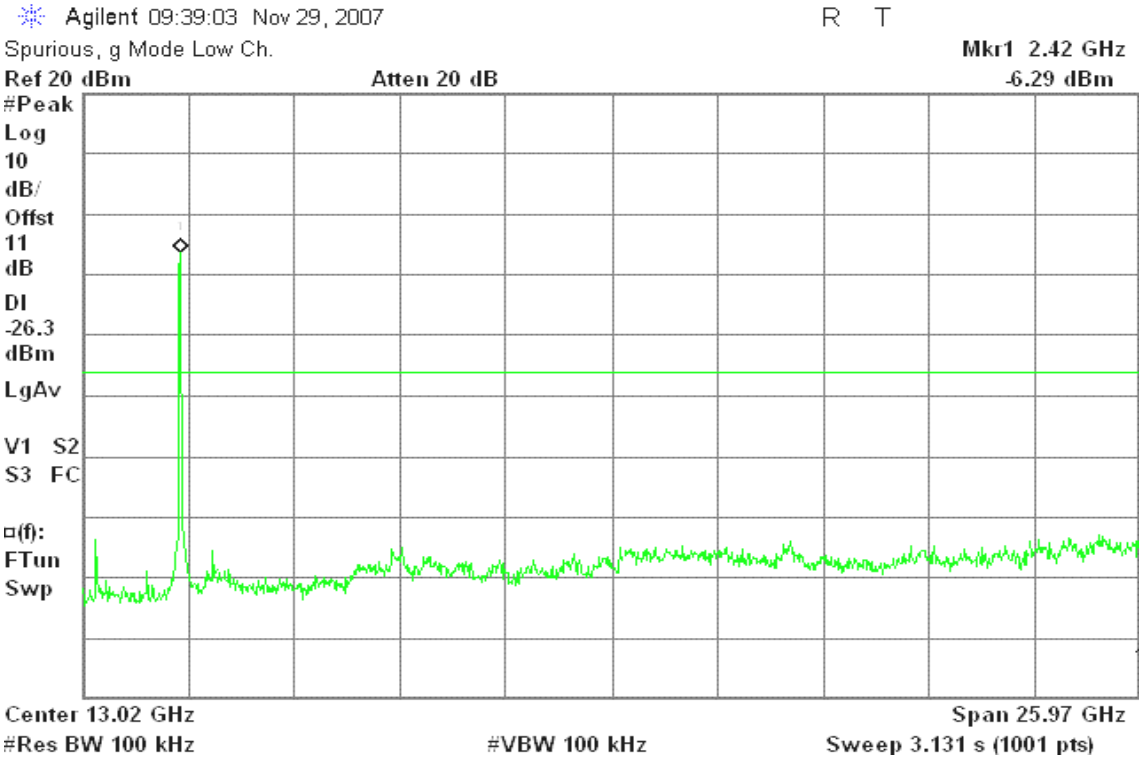


CH High

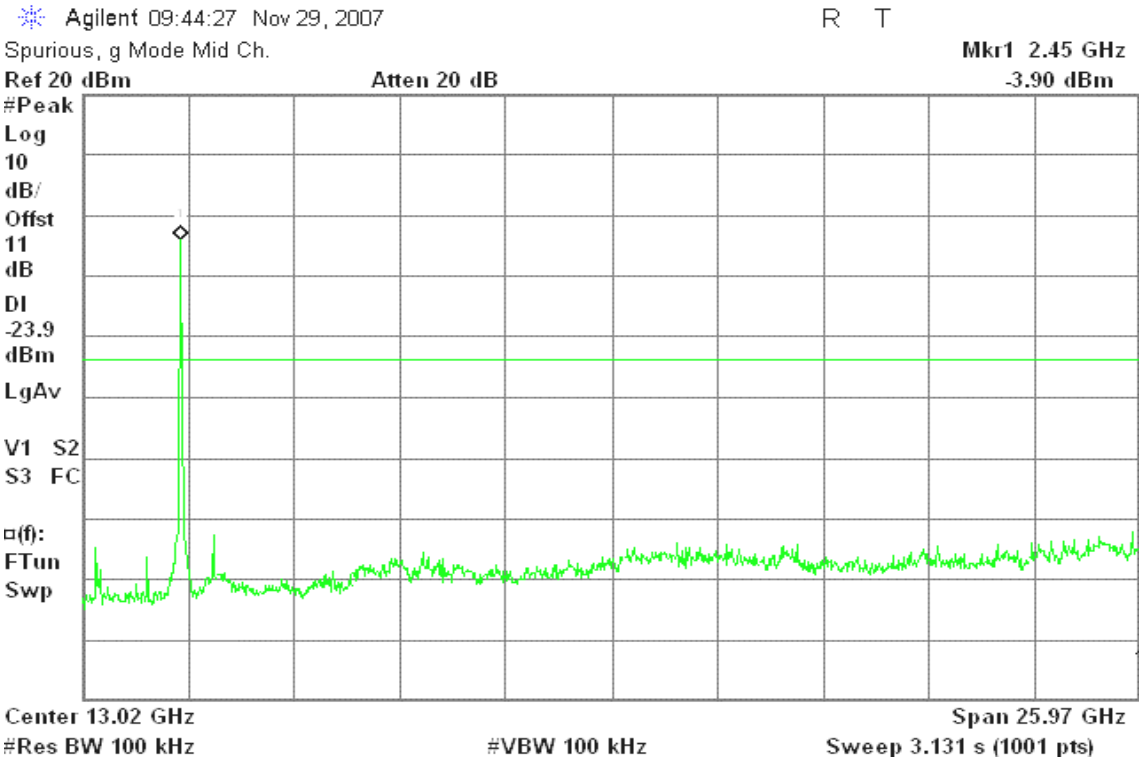


draft 802.11n Wide-40 MHz Channel mode / Chain 0

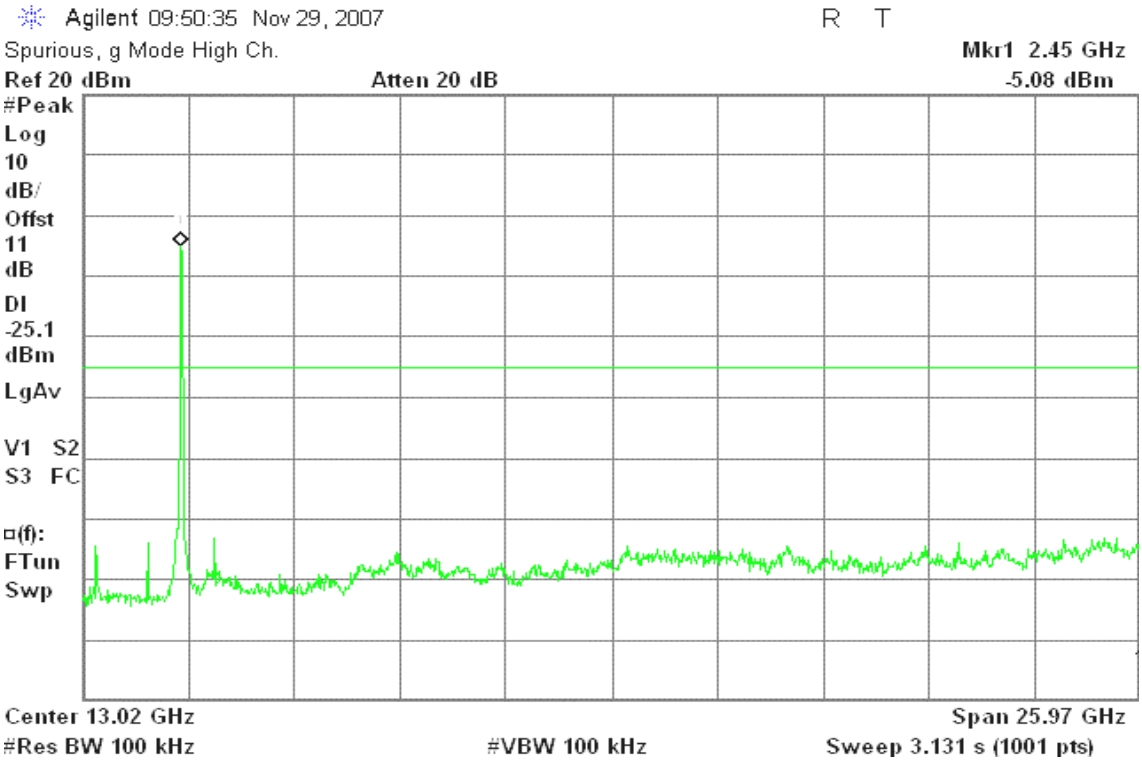
CH Low



CH Mid

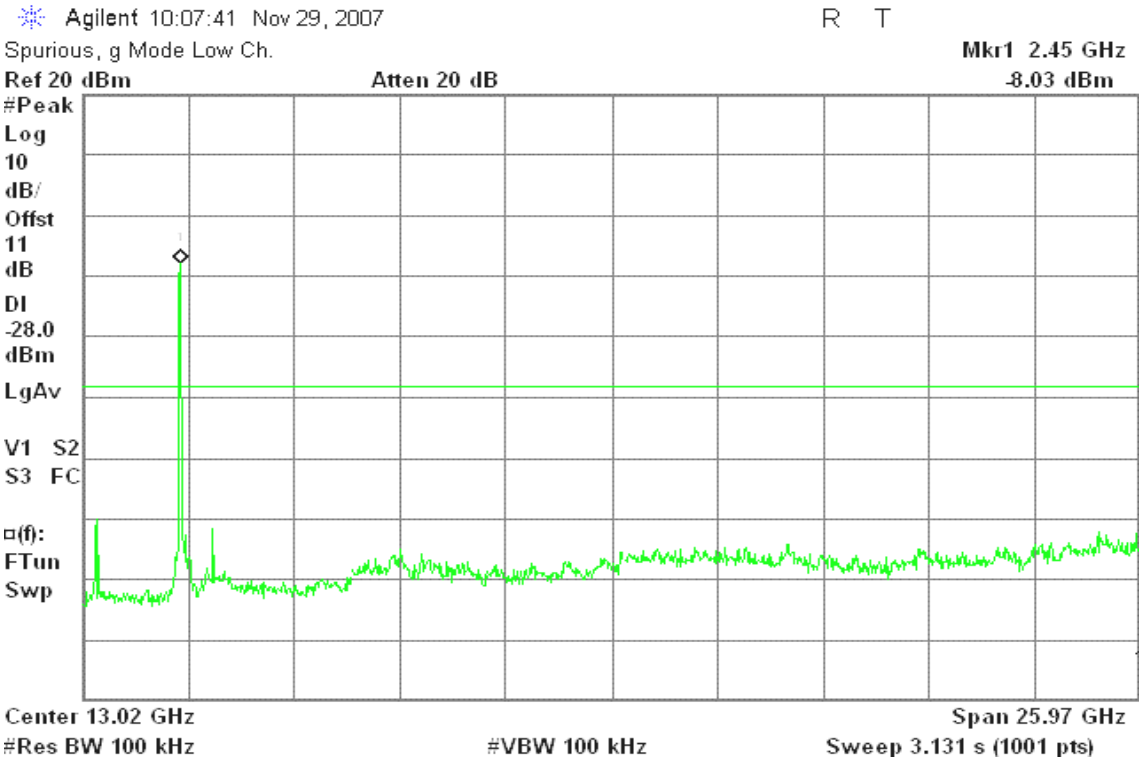


CH High

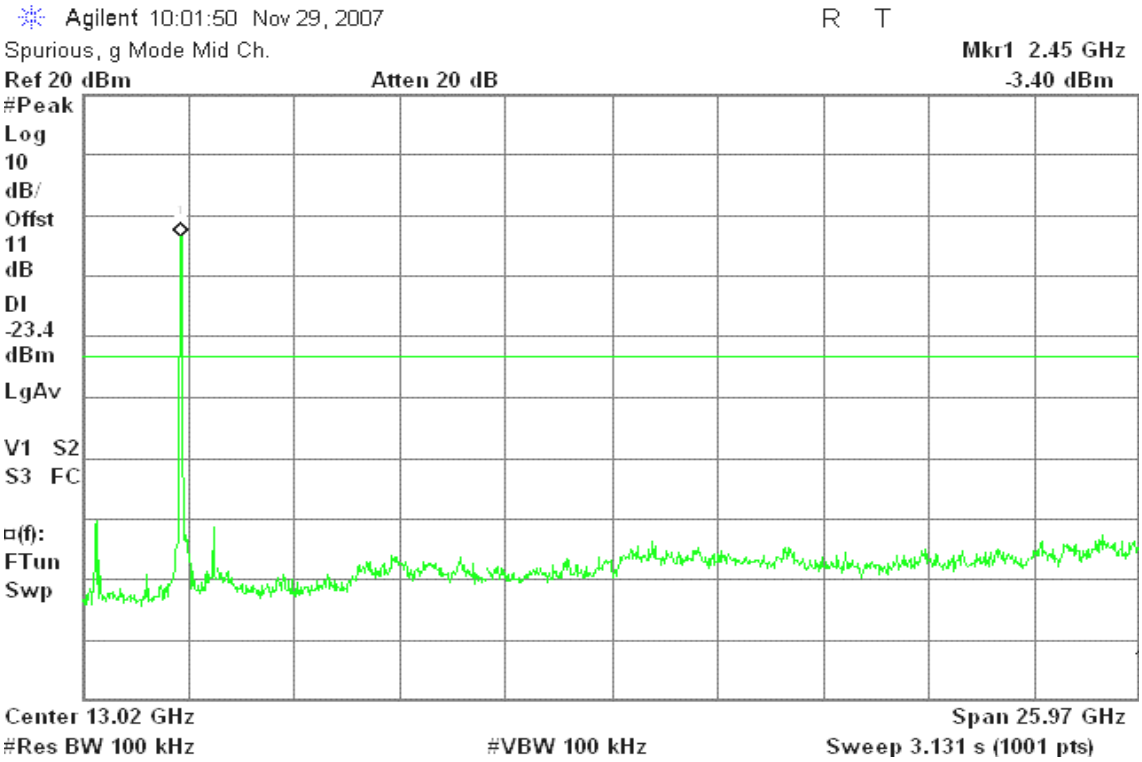


draft 802.11n Wide-40 MHz Channel mode / Chain 1

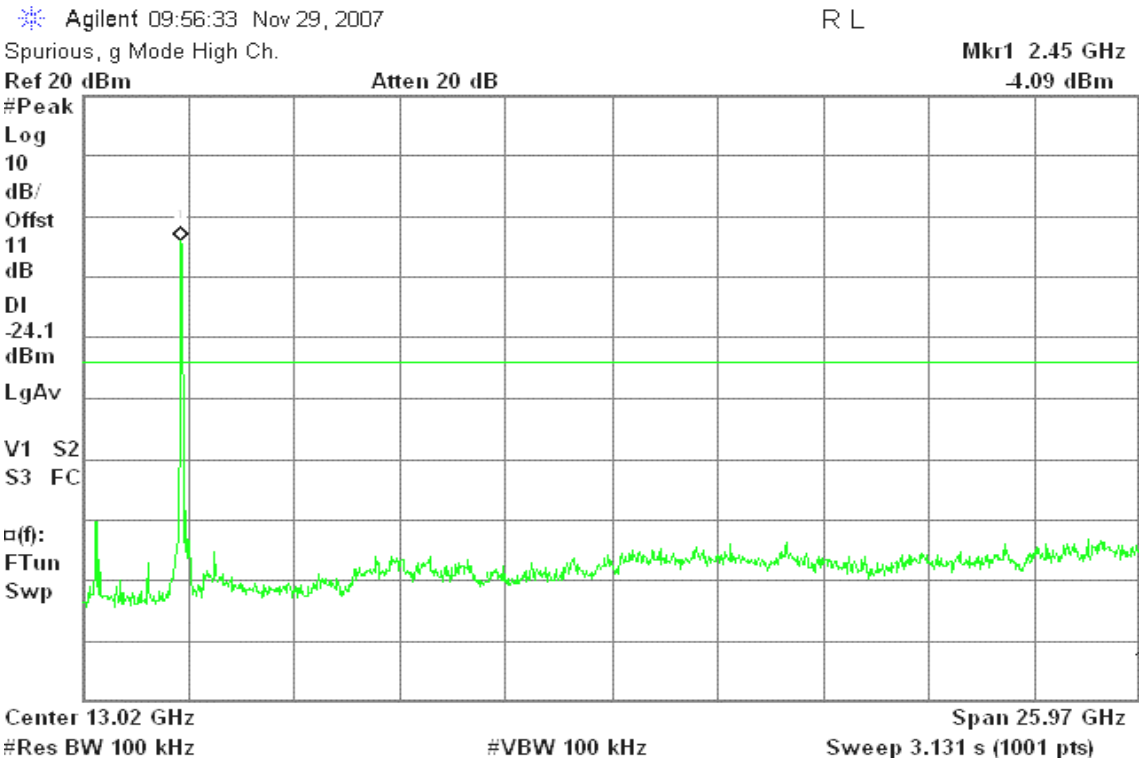
CH Low



CH Mid

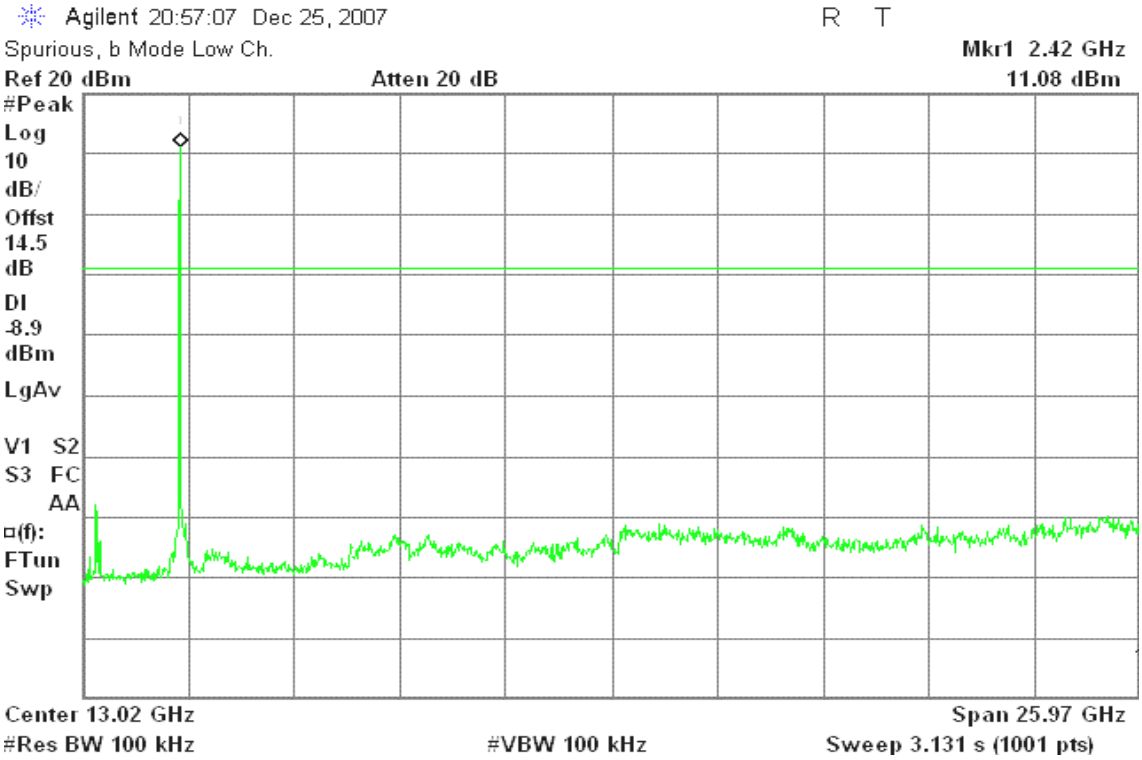


CH High

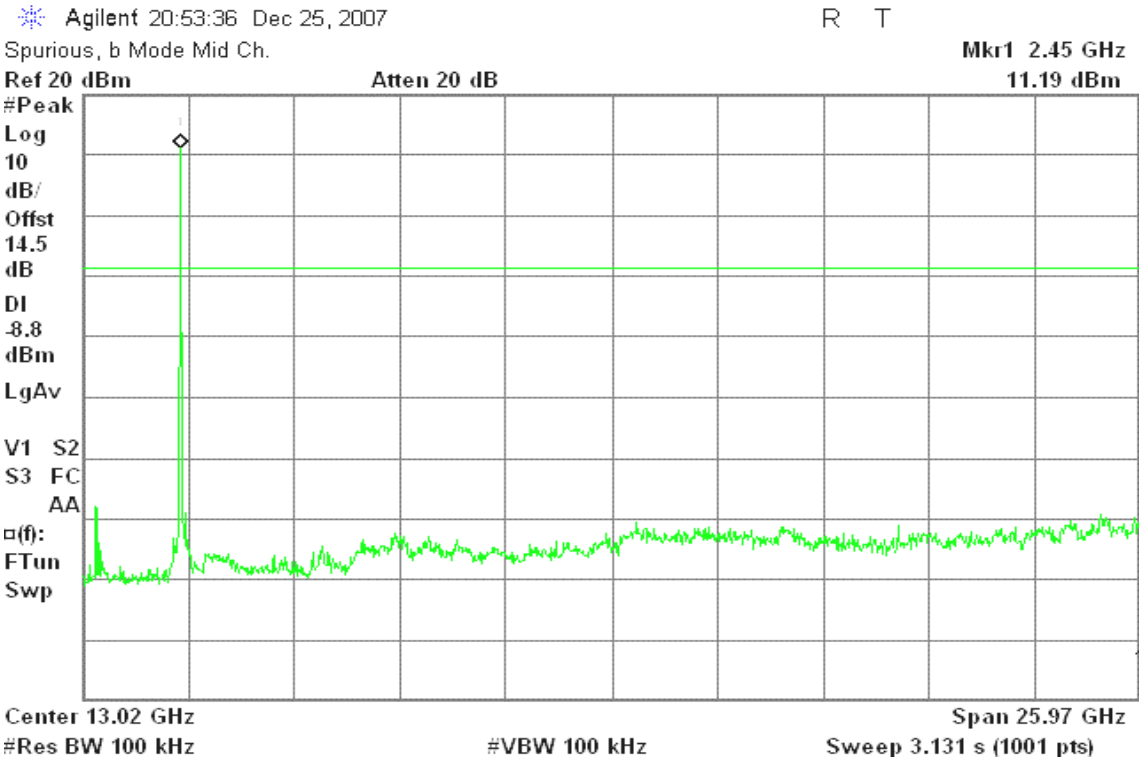


IEEE 802.11b mode with combiner

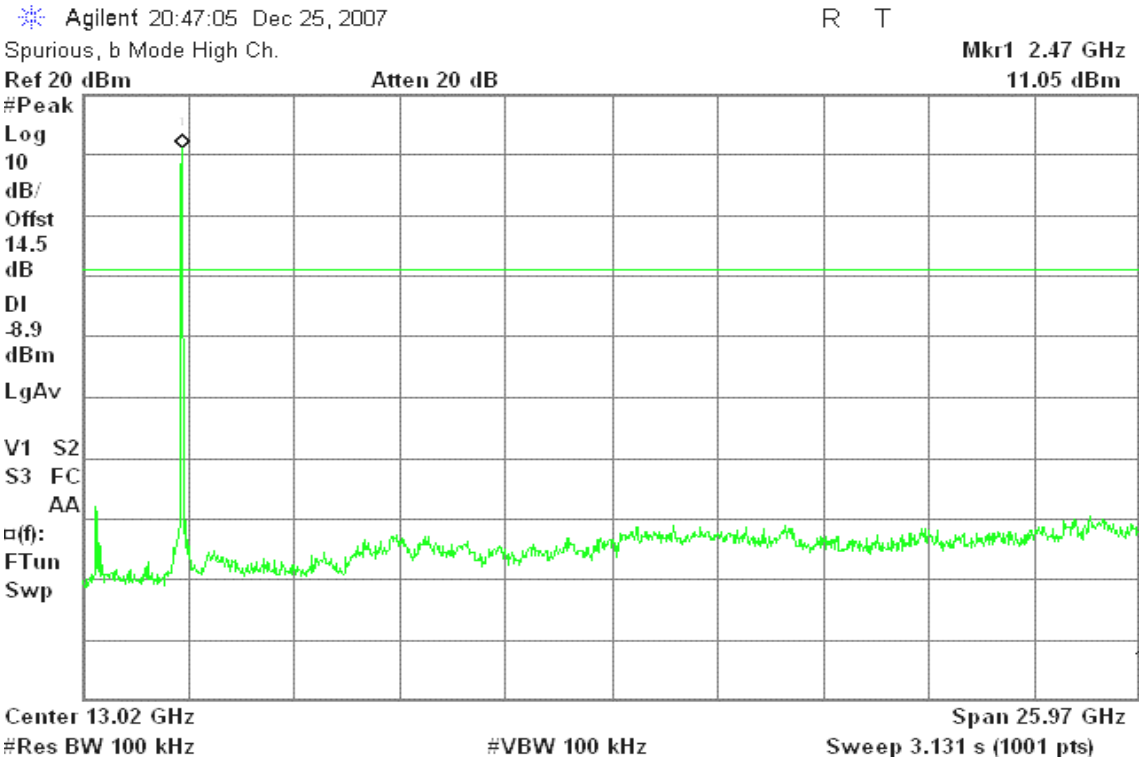
CH Low



CH Mid



CH High



IEEE 802.11g mode with combiner

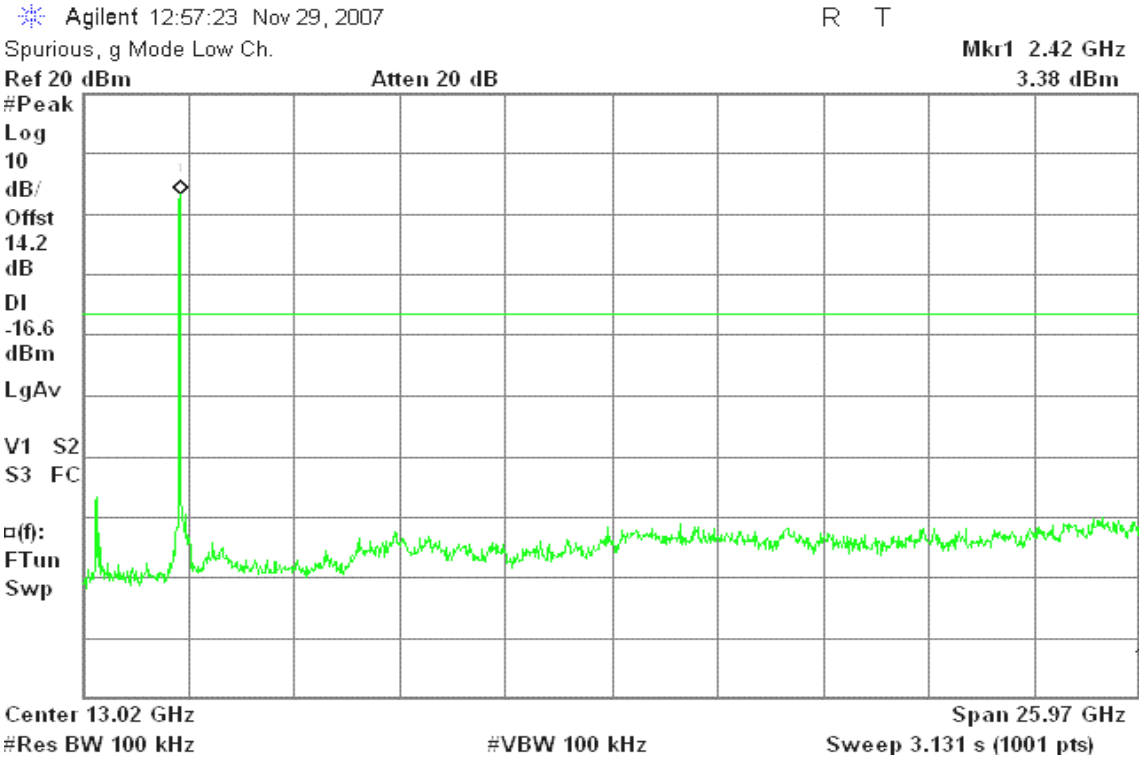
CH Low

CH Mid

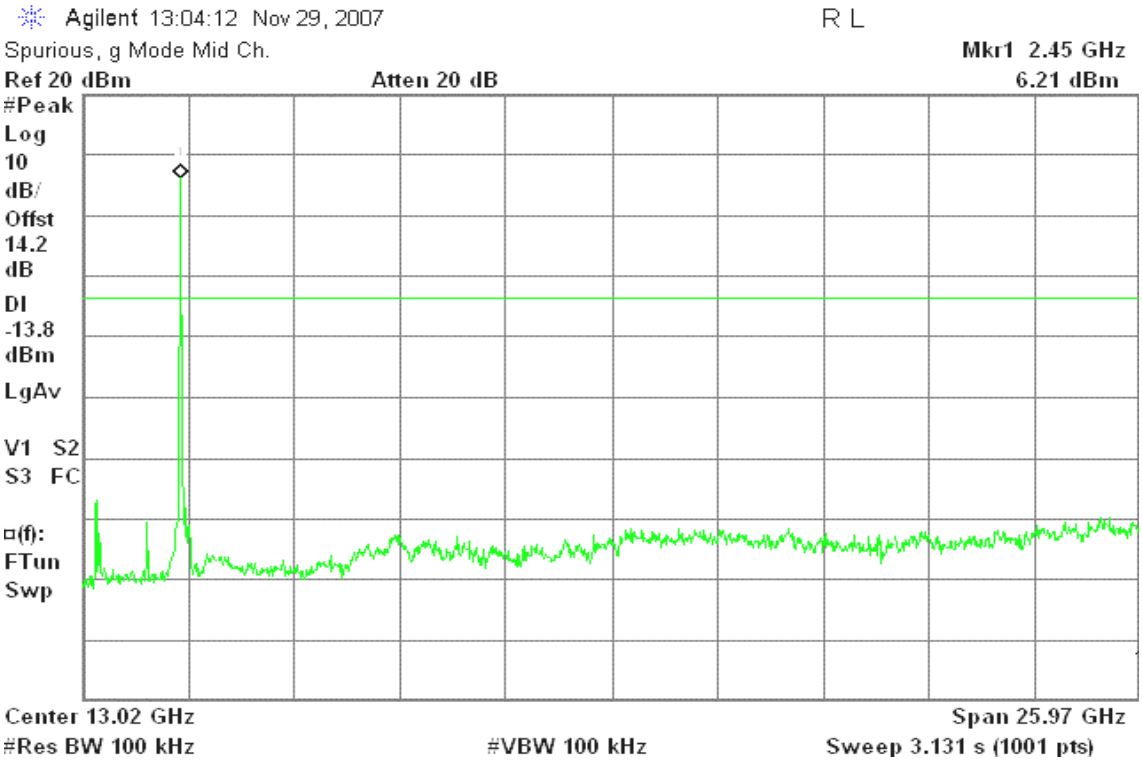
CH High

draft 802.11n Standard-20 MHz Channel mode with combiner

CH Low



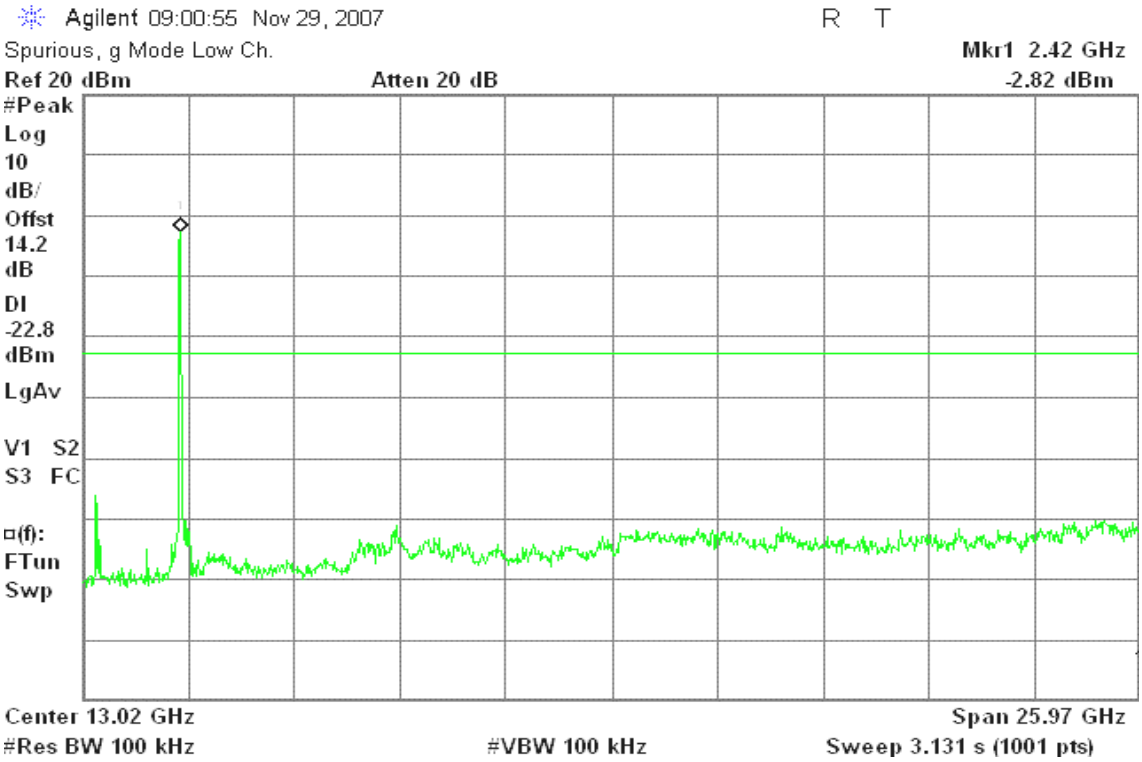
CH Mid



CH High

draft 802.11n Wide-40 MHz Channel mode with combiner

CH Low



CH Mid

CH High

7.7 RADIATED EMISSIONS

LIMIT

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

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

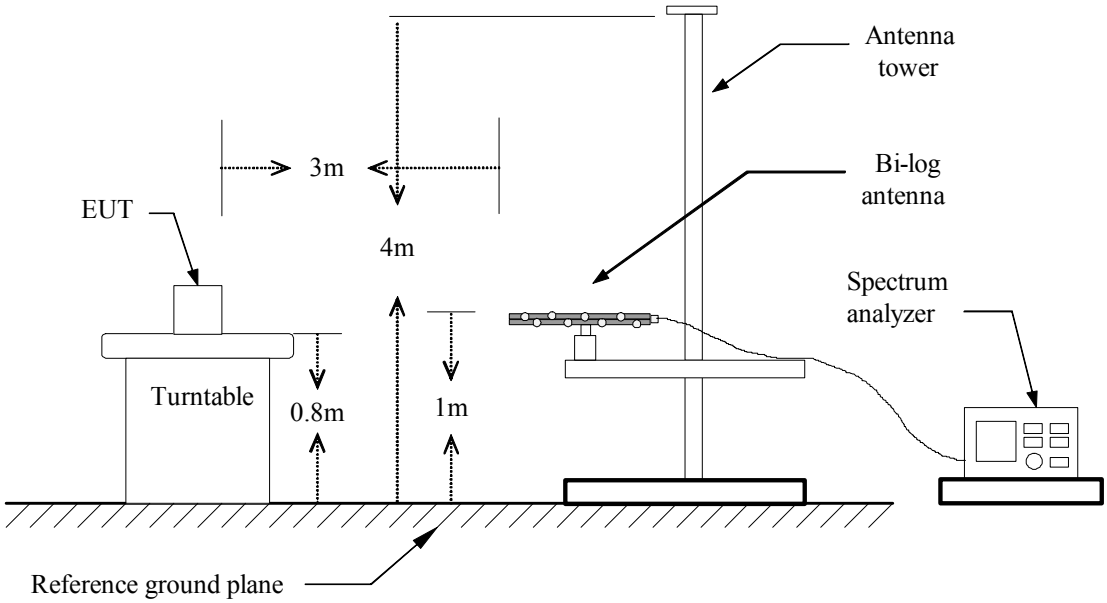
Remark: *Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this Section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of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

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

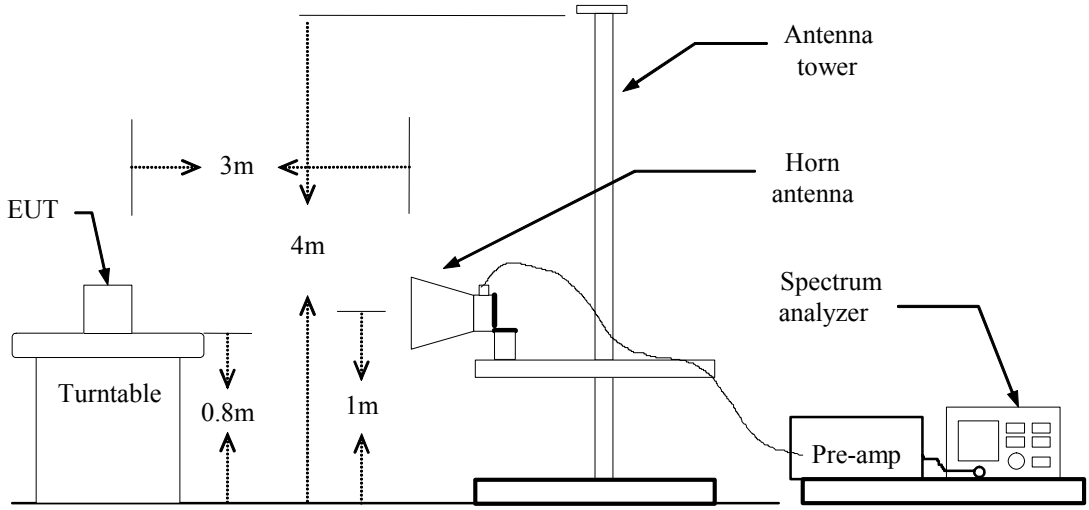
Frequency (MHz)	Field Strength (µV/m at 3-meter)	Field Strength (dBµV/m at 3-meter)
30-88	100	40
88-216	150	43.5
216-960	200	46
Above 960	500	54

Test Configuration

Below 1 GHz



Above 1 GHz



TEST PROCEDURE

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

   Below 1GHz:

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

   Above 1GHz:

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

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

TEST RESULTS

No non-compliance noted.

Below 1GHz

Operation Mode: Normal Link **Test Date:** November 28, 2007

Temperature: 25°C **Tested by:** Steven Young

Humidity: 55% RH **Polarity:** Ver. / Hor.

Frequency (MHz)	Ant. Pol. (H/V)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
51.02	V	54.95	-18.54	36.40	40.00	-3.60	Peak
59.10	V	56.47	-19.60	36.87	40.00	-3.13	Peak
249.87	V	51.33	-14.56	36.77	46.00	-9.23	Peak
299.98	V	55.24	-12.43	42.81	46.00	-3.19	Peak
400.22	V	47.24	-10.00	37.24	46.00	-8.76	Peak
500.45	V	45.09	-7.86	37.23	46.00	-8.77	Peak
301.60	H	55.25	-12.34	42.91	46.00	-3.09	Peak
374.35	H	46.50	-10.20	36.30	46.00	-9.70	Peak
400.22	H	48.09	-10.00	38.09	46.00	-7.91	Peak
500.45	H	45.70	-7.86	37.84	46.00	-8.16	Peak
749.42	H	38.51	-4.15	34.36	46.00	-11.64	Peak
919.17	H	36.62	-1.62	35.00	46.00	-11.00	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. *Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.*
4. *Margin (dB) = Result (dBuV/m) – Limit (dBuV/m).*

Above 1 GHz

Operation Mode: TX / IEEE 802.11b / CH Low **Test Date:** November 27, 2007

Temperature: 25°C **Tested by:** Steven Young

Humidity: 55 % RH **Polarity:** Ver. / Hor.

Frequency (MHz)	Ant. Pol. (H/V)	Reading (Peak) (dBuV)	Reading (Average) (dBuV)	Correction Factor (dB/m)	Result (Peak) (dBuV/m)	Result (Average) (dBuV/m)	Limit (Peak) (dBuV/m)	Limit (Average) (dBuV/m)	Margin (dB)	Remark
1566.67	V	59.64	---	-9.31	50.33	---	74.00	54.00	-3.67	Peak
4825.00	V	54.24	50.40	0.55	54.79	50.95	74.00	54.00	-3.05	AVG
N/A										
1633.33	H	59.47	---	-8.65	50.82	---	74.00	54.00	-3.18	Peak
4825.00	H	44.82	---	0.55	45.37	---	74.00	54.00	-8.63	Peak
N/A										

Remark:

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

Operation Mode: TX / IEEE 802.11b / CH Mid **Test Date:** November 27, 2007

Temperature: 25°C **Tested by:** Steven Young

Humidity: 55 % RH **Polarity:** Ver. / Hor.

Frequency (MHz)	Ant. Pol. (H/V)	Reading (Peak) (dBuV)	Reading (Average) (dBuV)	Correction Factor (dB/m)	Result (Peak) (dBuV/m)	(Average) (dBuV/m)	Limit (Peak) (dBuV/m)	Limit (Average) (dBuV/m)	Margin (dB)	Remark
1600.00	V	59.06	---	-8.98	50.08	---	74.00	54.00	-3.92	Peak
4875.00	V	55.66	51.96	0.60	56.26	52.56	74.00	54.00	-1.44	AVG
N/A										
1540.00	H	59.82	---	-9.58	50.24	---	74.00	54.00	-3.76	Peak
4875.00	H	46.36	---	0.60	46.96	---	74.00	54.00	-7.04	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 / IEEE 802.11b / CH High **Test Date:** November 27, 2007

Temperature: 25°C **Tested by:** Steven Young

Humidity: 55 % RH **Polarity:** Ver. / Hor.

Frequency (MHz)	Ant. Pol. (H/V)	Reading (Peak) (dBuV)	Reading (Average) (dBuV)	Correction Factor (dB/m)	Result (Peak) (dBuV/m)	Result (Average) (dBuV/m)	Limit (Peak) (dBuV/m)	Limit (Average) (dBuV/m)	Margin (dB)	Remark
1676.67	V	59.48	---	-8.22	51.26	---	74.00	54.00	-2.74	Peak
4925.00	V	54.05	52.57	0.65	54.70	53.22	74.00	54.00	-0.78	AVG
N/A										
1630.00	H	59.83	---	-8.68	51.14	---	74.00	54.00	-2.86	Peak
4925.00	H	47.76	---	0.65	48.41	---	74.00	54.00	-5.59	Peak
N/A										

Remark:

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

Operation Mode: TX / IEEE 802.11g / CH Low **Test Date:** November 27, 2007

Temperature: 25°C **Tested by:** Steven Young

Humidity: 55 % RH **Polarity:** Ver. / Hor.

Frequency (MHz)	Ant. Pol. (H/V)	Reading (Peak) (dBuV)	Reading (Average) (dBuV)	Correction Factor (dB/m)	Result (Peak) (dBuV/m)	Result (Average) (dBuV/m)	Limit (Peak) (dBuV/m)	Limit (Average) (dBuV/m)	Margin (dB)	Remark
1503.33	V	59.70	---	-9.94	49.76	---	74.00	54.00	-4.24	Peak
4833.33	V	45.81	---	0.56	46.37	---	74.00	54.00	-7.63	Peak
N/A										
1676.67	H	60.03	---	-8.22	51.81	---	74.00	54.00	-2.19	Peak
N/A										

Remark:

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

Operation Mode: TX / IEEE 802.11g / CH Mid **Test Date:** November 27, 2007

Temperature: 25°C **Tested by:** Steven Young

Humidity: 55 % RH **Polarity:** Ver. / Hor.

Frequency (MHz)	Ant. Pol. (H/V)	Reading (Peak) (dBuV)	Reading (Average) (dBuV)	Correction Factor (dB/m)	Result (Peak) (dBuV/m)	Result (Average) (dBuV/m)	Limit (Peak) (dBuV/m)	Limit (Average) (dBuV/m)	Margin (dB)	Remark
1643.33	V	59.73	---	-8.55	51.18	---	74.00	54.00	-2.82	Peak
4875.00	V	46.49	---	0.60	47.09	---	74.00	54.00	-6.91	Peak
N/A										
1686.67	H	58.85	---	-8.12	50.73	---	74.00	54.00	-3.27	Peak
N/A										

Remark:

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

Operation Mode: TX / IEEE 802.11g / CH High **Test Date:** November 27, 2007

Temperature: 25°C **Tested by:** Steven Young

Humidity: 55 % RH **Polarity:** Ver. / Hor.

Frequency (MHz)	Ant. Pol. (H/V)	Reading (Peak) (dBuV)	Reading (Average) (dBuV)	Correction Factor (dB/m)	Result (Peak) (dBuV/m)	Result (Average) (dBuV/m)	Limit (Peak) (dBuV/m)	Limit (Average) (dBuV/m)	Margin (dB)	Remark
1636.67	V	60.04	---	-8.62	51.43	---	74.00	54.00	-2.57	Peak
4925.00	V	47.39	---	0.65	48.04	---	74.00	54.00	-5.96	Peak
N/A										
1290.00	H	60.67	---	-10.32	50.35	---	74.00	54.00	-3.65	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:**	November 27, 2007
Temperature:	25°C	**Tested by:**	Steven Young
Humidity:	55 % RH	**Polarity:**	Ver. / Hor.

Frequency (MHz)	Ant. Pol. (H/V)	Reading (Peak) (dBuV)	Reading (Average) (dBuV)	Correction Factor (dB/m)	Result (Peak) (dBuV/m)	Result (Average) (dBuV/m)	Limit (Peak) (dBuV/m)	Limit (Average) (dBuV/m)	Margin (dB)	Remark
1673.33	V	59.58	---	-8.25	51.33	---	74.00	54.00	-2.67	Peak
3216.67	V	47.41	---	-2.17	45.24	---	74.00	54.00	-8.76	Peak
4825.00	V	46.75	---	0.55	47.31	---	74.00	54.00	-6.69	Peak
N/A										
1606.67	H	59.90	---	-8.91	50.99	---	74.00	54.00	-3.01	Peak
N/A										

Remark:

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

Operation Mode:	TX / draft 802.11n Standard-20 MHz Channel mode / CH Mid	**Test Date:**	November 27, 2007
Temperature:	25°C	**Tested by:**	Steven Young
Humidity:	55 % RH	**Polarity:**	Ver. / Hor.

Frequency (MHz)	Ant. Pol. (H/V)	Reading (Peak) (dBuV)	Reading (Average) (dBuV)	Correction Factor (dB/m)	Result (Peak) (dBuV/m)	Result (Average) (dBuV/m)	Limit (Peak) (dBuV/m)	Limit (Average) (dBuV/m)	Margin (dB)	Remark
1600.00	V	60.40	---	-8.98	51.42	---	74.00	54.00	-2.58	Peak
3250.00	V	46.18	---	-2.13	44.05	---	74.00	54.00	-9.95	Peak
4883.33	V	49.10	---	0.61	49.71	---	74.00	54.00	-4.29	Peak
7308.33	V	45.24	---	3.41	48.65	---	74.00	54.00	-5.35	Peak
N/A										
1660.00	H	59.74	---	-8.38	51.36	---	74.00	54.00	-2.64	Peak
N/A										

Remark:

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

Operation Mode:	TX / draft 802.11n Standard-20 MHz Channel mode / CH High	**Test Date:**	November 27, 2007
Temperature:	25°C	**Tested by:**	Steven Young
Humidity:	55 % RH	**Polarity:**	Ver. / Hor.

Frequency (MHz)	Ant. Pol. (H/V)	Reading (Peak) (dBuV)	Reading (Average) (dBuV)	Correction Factor (dB/m)	Result (Peak) (dBuV/m)	Result (Average) (dBuV/m)	Limit (Peak) (dBuV/m)	Limit (Average) (dBuV/m)	Margin (dB)	Remark
1630.00	V	60.50	---	-8.68	51.82	---	74.00	54.00	-2.18	Peak
4916.67	V	49.52	---	0.64	50.16	---	74.00	54.00	-3.84	Peak
N/A										
1646.67	H	60.36	---	-8.52	51.84	---	74.00	54.00	-2.16	Peak
7383.33	H	45.73	---	3.27	49.00	---	74.00	54.00	-5.00	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:**	November 27, 2007
Temperature:	25°C	**Tested by:**	Steven Young
Humidity:	55 % RH	**Polarity:**	Ver. / Hor.

Frequency (MHz)	Ant. Pol. (H/V)	Reading (Peak) (dBuV)	Reading (Average) (dBuV)	Correction Factor (dB/m)	Result (Peak) (dBuV/m)	Result (Average) (dBuV/m)	Limit (Peak) (dBuV/m)	Limit (Average) (dBuV/m)	Margin (dB)	Remark
1580.00	V	59.86	---	-9.18	50.68	---	74.00	54.00	-3.32	Peak
3233.33	V	47.10	---	-2.15	44.94	---	74.00	54.00	-9.06	Peak
4841.67	V	47.93	---	0.57	48.50	---	74.00	54.00	-5.50	Peak
N/A										
1586.67	H	59.53	---	-9.11	50.41	---	74.00	54.00	-3.59	Peak
N/A										

Remark:

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

Operation Mode:	TX / draft 802.11n Wide-40 MHz Channel mode / CH Mid	**Test Date:**	November 27, 2007
Temperature:	25°C	**Tested by:**	Steven Young
Humidity:	55 % RH	**Polarity:**	Ver. / Hor.

Frequency (MHz)	Ant. Pol. (H/V)	Reading (Peak) (dBuV)	Reading (Average) (dBuV)	Correction Factor (dB/m)	Result (Peak) (dBuV/m)	Result (Average) (dBuV/m)	Limit (Peak) (dBuV/m)	Limit (Average) (dBuV/m)	Margin (dB)	Remark
1566.67	V	59.62	---	-9.31	50.31	---	74.00	54.00	-3.69	Peak
3250.00	V	46.24	---	-2.13	44.11	---	74.00	54.00	-9.89	Peak
4875.00	V	46.27	---	0.60	46.88	---	74.00	54.00	-7.12	Peak
N/A										
1643.33	H	59.26	---	-8.55	50.71	---	74.00	54.00	-3.29	Peak
N/A										

Remark:

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

Operation Mode:	TX / draft 802.11n Wide-40 MHz Channel mode / CH High	**Test Date:**	November 27, 2007
Temperature:	25°C	**Tested by:**	Steven Young
Humidity:	55 % RH	**Polarity:**	Ver. / Hor.

Frequency (MHz)	Ant. Pol. (H/V)	Reading (Peak) (dBuV)	Reading (Average) (dBuV)	Correction Factor (dB/m)	Result (Peak) (dBuV/m)	Result (Average) (dBuV/m)	Limit (Peak) (dBuV/m)	Limit (Average) (dBuV/m)	Margin (dB)	Remark
1680.00	V	59.90	---	-8.19	51.72	---	74.00	54.00	-2.28	Peak
3266.67	V	45.26	---	-2.11	43.15	---	74.00	54.00	-10.85	Peak
4116.67	V	45.34	---	-0.42	44.93	---	74.00	54.00	-9.07	Peak
4900.00	V	46.03	---	0.63	46.66	---	74.00	54.00	-7.34	Peak
N/A										
1580.00	H	59.18	---	-9.18	50.00	---	74.00	54.00	-4.00	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).*

7.8 POWERLINE CONDUCTED EMISSIONS

LIMIT

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

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

** Decreases with the logarithm of the frequency.*

Test Configuration

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

TEST PROCEDURE

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

TEST RESULTS

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

Test Data

Operation Mode:	Normal Link	**Test Date:**	December 5, 2007
Temperature:	26°C	**Tested by:**	Wolf Huang
Humidity:	45% RH		

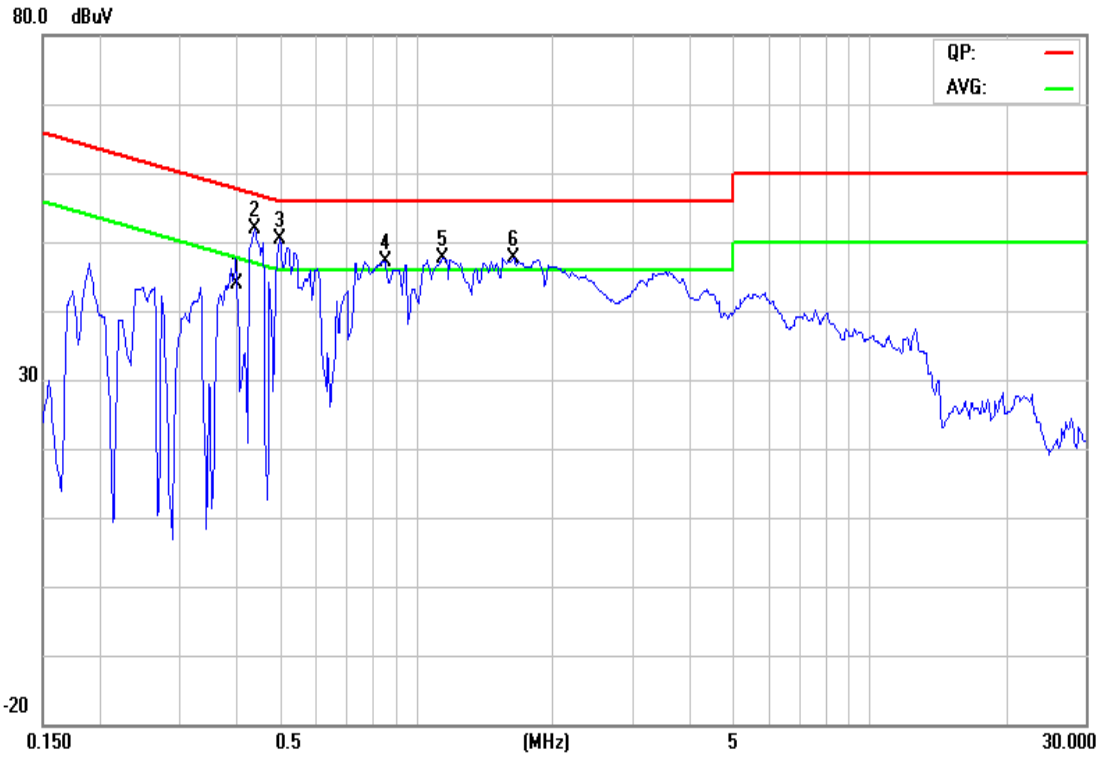
Freq. (MHz)	QP Reading (dBuV)	AV Reading (dBuV)	Corr. factor (dB/m)	QP Result (dBuV/m)	AV Result (dBuV/m)	QP Limit (dBuV)	AV Limit (dBuV)	QP Margin (dB)	AV Margin (dB)	Note
0.4043	46.96	33.16	0.04	47.00	33.20	57.76	47.76	-10.76	-14.56	L1
0.4400	49.98	36.78	0.02	50.00	36.80	57.06	47.06	-7.06	-10.26	L1
0.5000	46.10	32.10	0.00	46.10	32.10	56.00	46.00	-9.90	-13.90	L1
0.8550	43.50	29.50	0.00	43.50	29.50	56.00	46.00	-12.50	-16.50	L1
1.1450	43.60	29.90	0.00	43.60	29.90	56.00	46.00	-12.40	-16.10	L1
1.6400	43.19	29.59	0.01	43.20	29.60	56.00	46.00	-12.80	-16.40	L1
0.4350	49.98	36.98	0.02	50.00	37.00	57.16	47.16	-7.16	-10.16	L2
0.5100	46.30	32.00	0.00	46.30	32.00	56.00	46.00	-9.70	-14.00	L2
0.7700	43.60	27.10	0.00	43.60	27.10	56.00	46.00	-12.40	-18.90	L2
1.1800	43.30	27.60	0.00	43.30	27.60	56.00	46.00	-12.70	-18.40	L2
1.8450	43.09	30.09	0.01	43.10	30.10	56.00	46.00	-12.90	-15.90	L2
3.3500	41.85	31.85	0.05	41.90	31.90	56.00	46.00	-14.10	-14.10	L2

Remark:

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

Test Plots

Conducted emissions (Line 1)



Conducted emissions (Line 2)