

**Operation Mode:** TX / IEEE 802.11n HT20 MHz/ CH High**Test Date:** May 7, 2013**Temperature:** 24°C **Humidity:** 52% RH **Polarity:** Ver. / Hor. **Tested by:** Leevin Li

Frequency (MHz)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Pole (V/H)	Remark
1283.3333	59.06	-8.36	50.70	74.00	-23.30	V	Peak
1906.6666	59.94	-10.43	49.51	74.00	-24.49	V	Peak
2105.0000	57.68	-9.55	48.13	74.00	-25.87	V	Peak
3011.6667	50.61	-4.23	46.38	74.00	-27.62	V	Peak
5533.3333	44.79	1.79	46.58	74.00	-27.42	V	Peak
7403.3333	43.48	7.58	51.06	74.00	-22.94	V	Peak
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1000.0000	60.44	-10.33	50.11	74.00	-23.89	H	Peak
1906.6667	58.73	-10.43	48.30	74.00	-25.70	H	Peak
3011.6667	48.03	-4.23	43.80	74.00	-30.20	H	Peak
4881.6667	46.22	0.78	47.00	74.00	-27.00	H	Peak
5335.0000	45.97	1.53	47.50	74.00	-26.50	H	Peak
6270.0000	45.80	3.89	49.69	74.00	-24.31	H	Peak

REMARKS:

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 802.11n HT40 MHz / CH Low**Test Date:** May 7, 2013**Temperature:** 24°C **Humidity:** 52% RH **Polarity:** Ver. / Hor. **Tested by:** Leevin Li

Frequency (MHz)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Pole (V/H)	Remark
1311.6666	59.15	-8.23	50.92	74.00	-23.08	V	Peak
1906.6666	59.75	-10.43	49.32	74.00	-24.68	V	Peak
2076.6667	60.44	-10.02	50.42	74.00	-23.58	V	Peak
3011.6667	49.15	-4.23	44.92	74.00	-29.08	V	Peak
3691.6667	49.19	-2.77	46.42	74.00	-27.58	V	Peak
6411.6666	44.48	4.29	48.77	74.00	-25.23	V	Peak
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1198.3333	56.84	-8.74	48.10	74.00	-25.90	H	Peak
1906.6667	54.93	-10.43	44.50	74.00	-29.50	H	Peak
3011.6667	48.54	-4.23	44.31	74.00	-29.69	H	Peak
3748.3333	46.21	-2.62	43.59	74.00	-30.41	H	Peak
5193.3333	44.94	1.54	46.48	74.00	-27.52	H	Peak
6355.0000	43.91	4.13	48.04	74.00	-25.96	H	Peak

REMARKS:

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 802.11n HT40 MHz / CH Mid**Test Date:** May 7, 2013**Temperature:** 24°C **Humidity:** 52% RH **Polarity:** Ver. / Hor. **Tested by:** Leevin Li

Frequency (MHz)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Pole (V/H)	Remark
1000.0000	59.64	-10.33	49.31	74.00	-24.69	V	Peak
1311.6666	60.19	-8.23	51.96	74.00	-22.04	V	Peak
1793.3333	58.55	-9.41	49.14	74.00	-24.86	V	Peak
2076.6667	60.94	-10.02	50.92	74.00	-23.08	V	Peak
3011.6667	49.48	-4.23	45.25	74.00	-28.75	V	Peak
4995.0000	44.64	1.30	45.94	74.00	-28.06	V	Peak
1000.0000	58.66	-10.33	48.33	74.00	-25.67	H	Peak
1396.6667	56.48	-7.84	48.64	74.00	-25.36	H	Peak
1906.6667	55.58	-10.43	45.15	74.00	-28.85	H	Peak
3011.6667	48.55	-4.23	44.32	74.00	-29.68	H	Peak
4173.3333	45.84	-1.71	44.13	74.00	-29.87	H	Peak
4938.3333	45.29	1.04	46.33	74.00	-27.67	H	Peak

REMARKS:

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 802.11n HT40 MHz / CH High**Test Date:** May 7, 2013**Temperature:** 24°C **Humidity:** 52% RH **Polarity:** Ver. / Hor. **Tested by:** Leevin Li

Frequency (MHz)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Pole (V/H)	Remark
1000.0000	60.08	-10.33	49.75	74.00	-24.25	V	Peak
1283.3333	59.44	-8.36	51.08	74.00	-22.92	V	Peak
1793.3333	58.95	-9.41	49.54	74.00	-24.46	V	Peak
2105.0000	59.10	-9.55	49.55	74.00	-24.45	V	Peak
3011.6667	51.13	-4.23	46.90	74.00	-27.10	V	Peak
3691.6667	49.92	-2.77	47.15	74.00	-26.85	V	Peak
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1000.0000	58.09	-10.33	47.76	74.00	-26.24	H	Peak
1396.6667	55.64	-7.84	47.80	74.00	-26.20	H	Peak
1906.6667	55.98	-10.43	45.55	74.00	-28.45	H	Peak
3011.6667	50.32	-4.23	46.09	74.00	-27.91	H	Peak
4400.0000	45.84	-0.82	45.02	74.00	-28.98	H	Peak
5930.0000	45.03	2.98	48.01	74.00	-25.99	H	Peak

REMARKS:

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).



7.3. 6dB BANDWIDTH MEASUREMENT

7.3.1. LIMITS

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

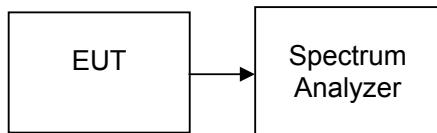
7.3.2. TEST INSTRUMENTS

Name of Equipment	Manufacturer	Model	Serial Number	Last Calibration	Calibration Due
Spectrum Analyzer	Agilent	E4446A	US44300399	03/09/2013	03/08/2014

7.3.3. TEST PROCEDURES (please refer to measurement standard)

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 = 1-5 % of the emission bandwidth (EBW), VBW = $\geq 3 \times$ RBW, Sweep = auto.
4. Mark the peak frequency and -6dB (upper and lower) frequency.
5. Repeat until all the rest channels are investigated.

7.3.4. TEST SETUP





7.3.5. TEST RESULTS

No non-compliance noted

Test Data

Test mode: IEEE 802.11b

Channel	Frequency (MHz)	Bandwidth (kHz)	Limit (kHz)	Test Result
Low	2412	12059	>500	PASS
Mid	2437	11147		PASS
High	2462	11144		PASS

Test mode: IEEE 802.11g

Channel	Frequency (MHz)	Bandwidth (kHz)	Limit (kHz)	Test Result
Low	2412	16435	>500	PASS
Mid	2437	16440		PASS
High	2462	16442		PASS

Test mode: IEEE 802.11n HT20 MHz

Channel	Frequency (MHz)	Bandwidth (kHz)	Limit (kHz)	Test Result
Low	2412	17056	>500	PASS
Mid	2437	16977		PASS
High	2462	17603		PASS

Test mode: IEEE 802.11n HT40 MHz

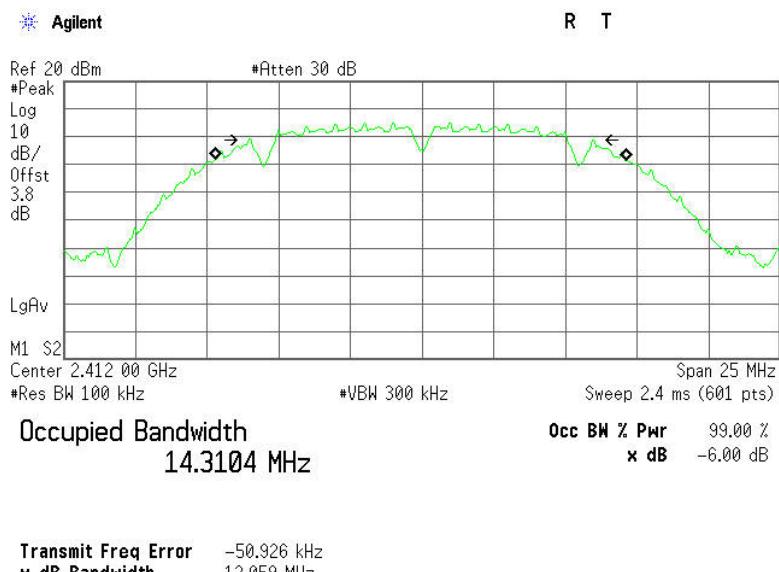
Channel	Frequency (MHz)	Bandwidth (kHz)	Limit (kHz)	Test Result
Low	2422	35066	>500	PASS
Mid	2437	35062		PASS
High	2452	35075		PASS



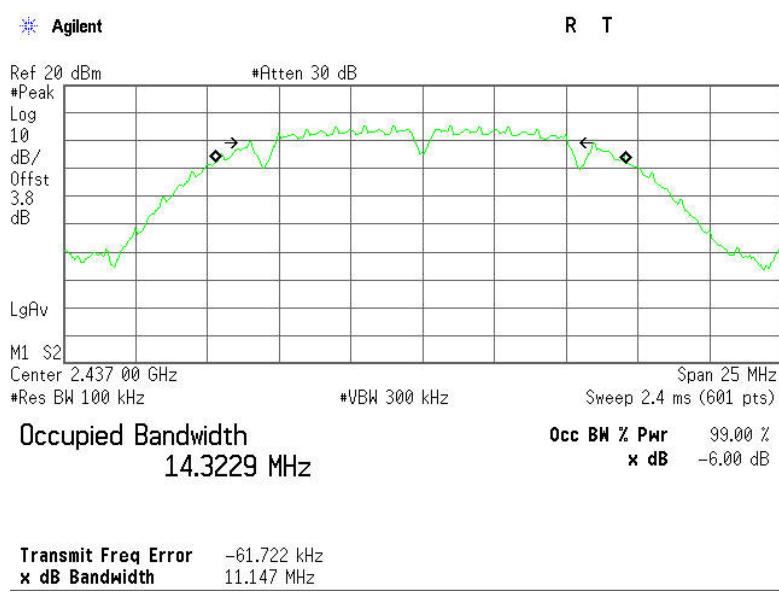
Test Plot

IEEE 802.11b mode

6dB Bandwidth (CH Low)



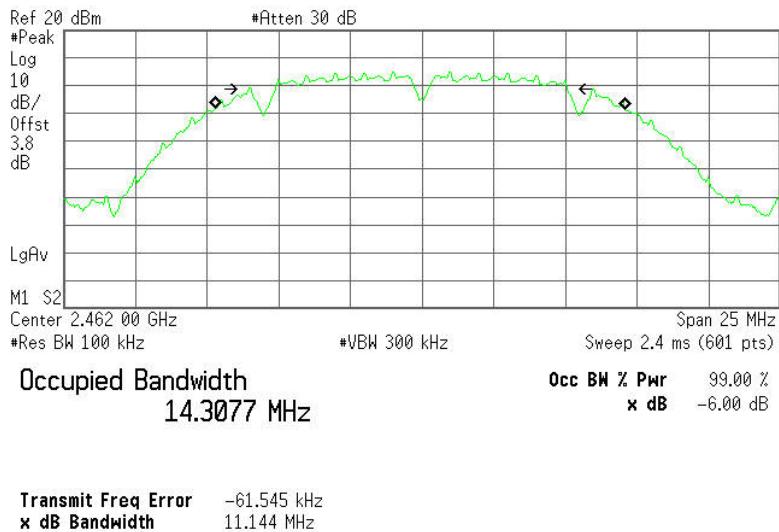
6dB Bandwidth (CH Mid)



**6dB Bandwidth (CH High)**

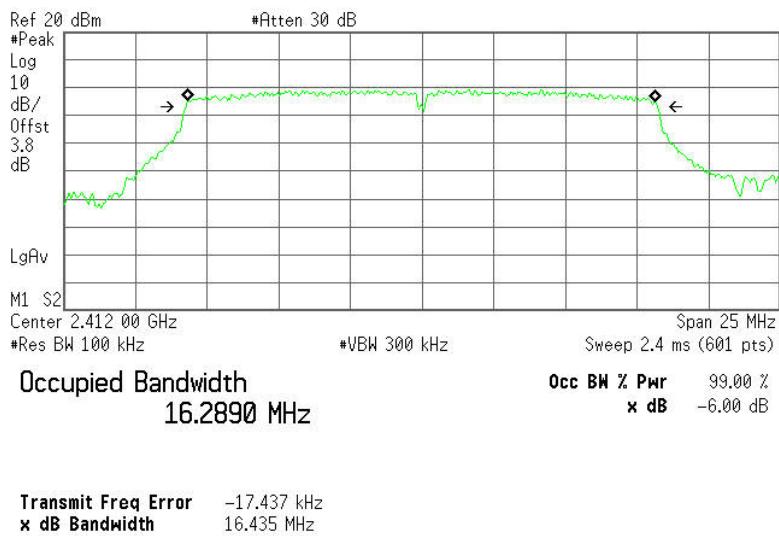
Agilent

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**IEEE 802.11g mode****6dB Bandwidth (CH Low)**

Agilent

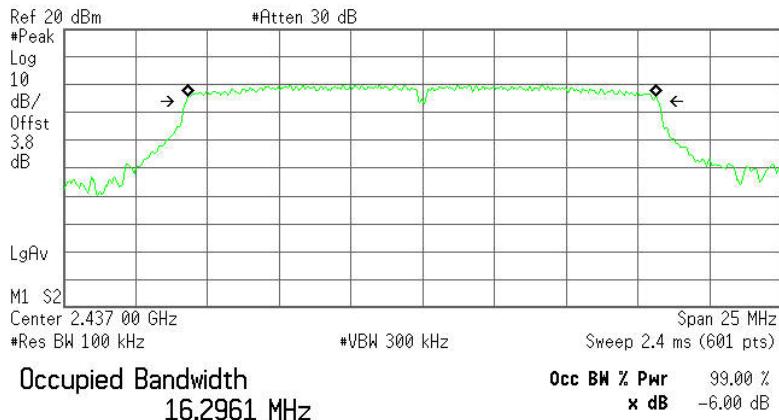
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**6dB Bandwidth (CH Mid)**

Agilent

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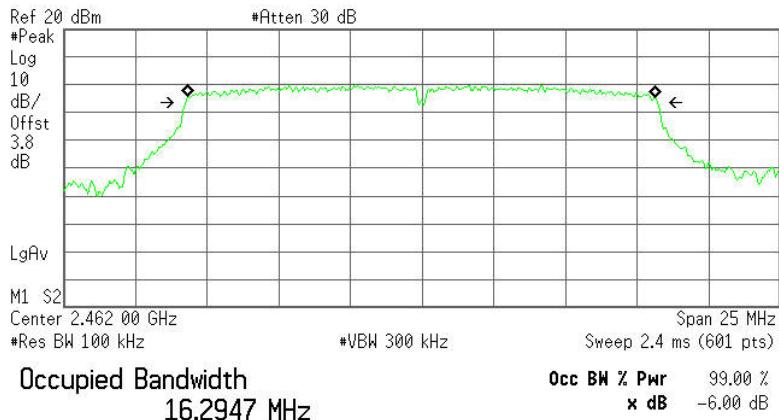


Transmit Freq Error -19.006 kHz
x dB Bandwidth 16.440 MHz

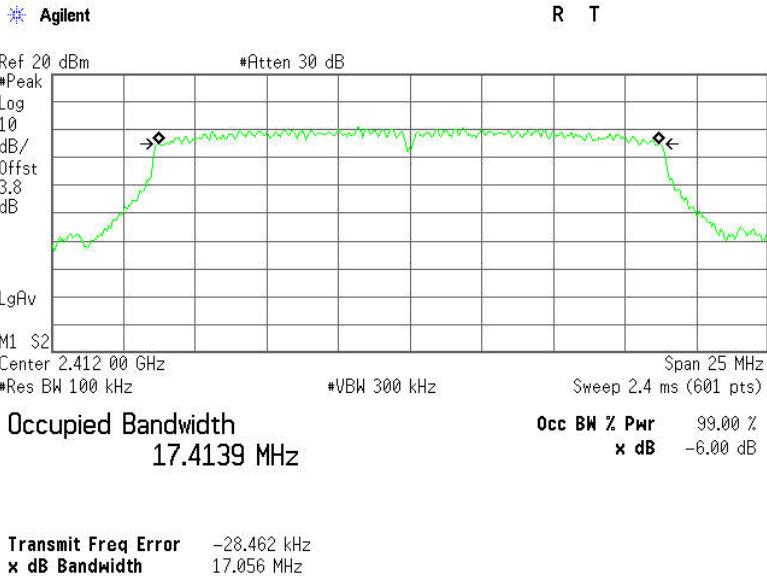
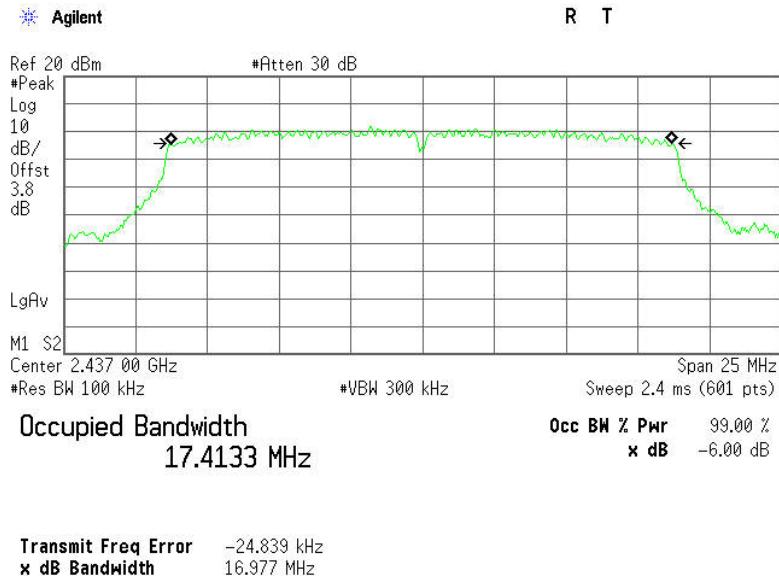
6dB Bandwidth (CH High)

Agilent

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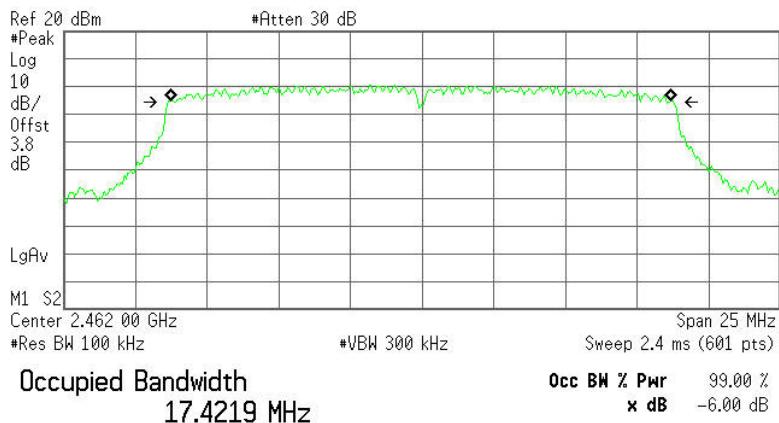
Transmit Freq Error -20.416 kHz
x dB Bandwidth 16.442 MHz

**IEEE IEEE 802.11n HT20 MHz mode****6dB Bandwidth (CH Low)****6dB Bandwidth (CH Mid)**

**6dB Bandwidth (CH High)**

Agilent

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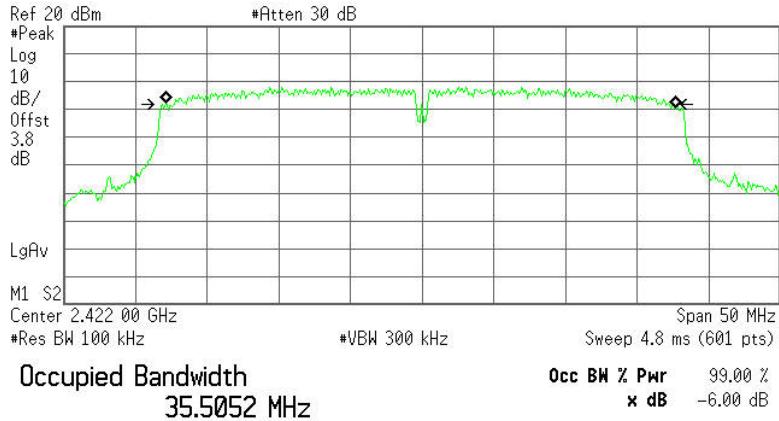


Transmit Freq Error -30.119 kHz
x dB Bandwidth 17.603 MHz

IEEE 802.11n HT40 MHz mode**6dB Bandwidth (CH Low)**

Agilent

R T

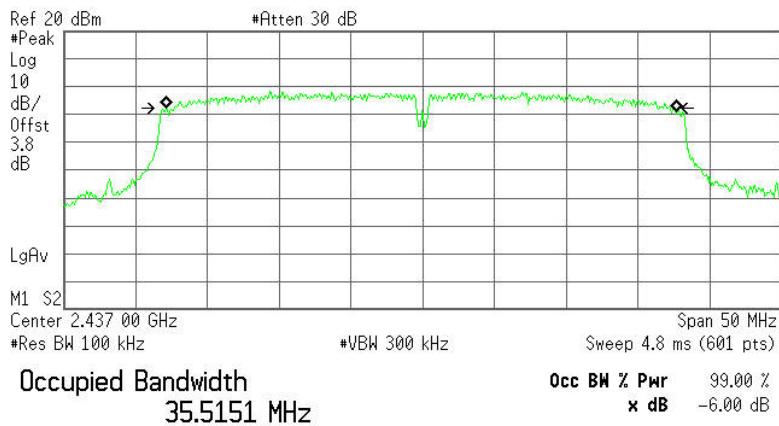


Transmit Freq Error -52.755 kHz
x dB Bandwidth 35.066 MHz

**6dB Bandwidth (CH Mid)**

Agilent

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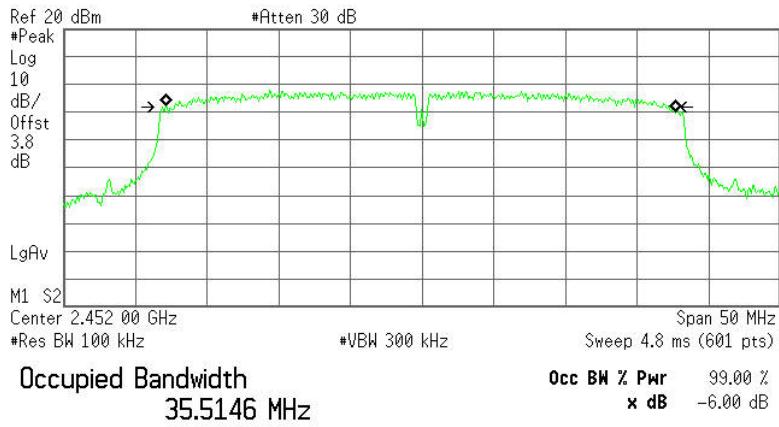


Transmit Freq Error -55.354 kHz
x dB Bandwidth 35.062 MHz

6dB Bandwidth (CH High)

Agilent

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Transmit Freq Error -65.136 kHz
x dB Bandwidth 35.075 MHz



7.4. PEAK OUTPUT POWER

7.4.1. LIMITS

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.

7.4.2. TEST INSTRUMENTS

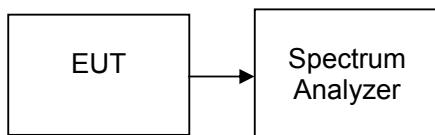
Name of Equipment	Manufacturer	Model	Serial Number	Last Calibration	Calibration Due
Spectrum Analyzer	Agilent	E4446A	US44300399	03/09/2013	03/08/2014

7.4.3. TEST PROCEDURES (please refer to measurement standard)

1. This procedure provides an integrated measurement alternative when the maximum available RBW < EBW.
2. Set the RBW = 1 MHz.
3. Set the VBW = 3 MHz.
4. Set the span to a value that is 5-30 % greater than the EBW.
5. Detector = peak.
6. Sweep time = auto couple.
7. Trace mode = max hold.
8. Allow trace to fully stabilize.
9. Use the spectrum analyzer's integrated band power measurement function with band limits set equal to the EBW band edges(for some analyzers, this may require a manual override to ensure use of peak detector). If the spectrum analyzer does not have a band power function, sum the spectrum levels (in linear power units) at 1 MHz intervals extending across the EBW of the spectrum.



7.4.4. TEST SETUP



7.4.5. TEST RESULTS

No non-compliance noted

Test Data

Test mode: IEEE 802.11b

Channel	Frequency (MHz)	Output Power (dBm)	Output Power (W)	Limit (W)	Result
Low	2412	17.27	0.05333	1	PASS
Mid	2437	17.91	0.06180		PASS
High	2462	17.27	0.05333		PASS

Test mode: IEEE 802.11g

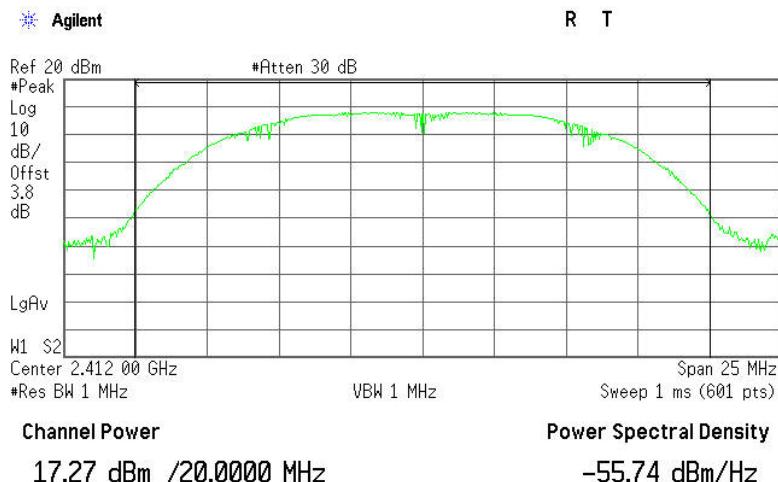
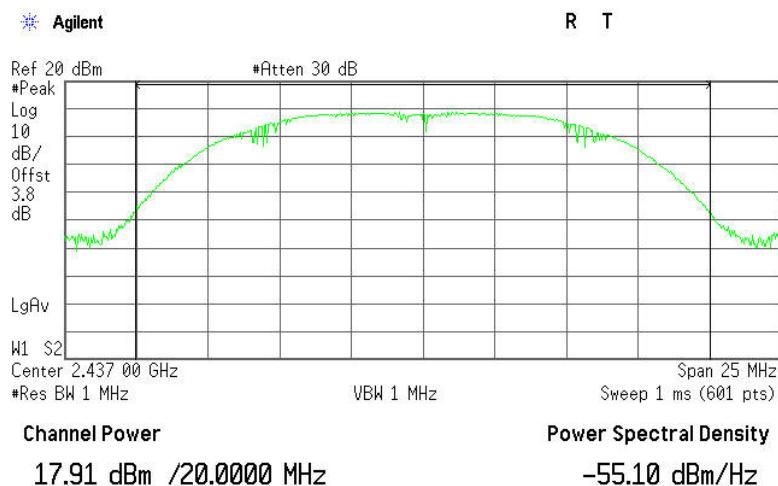
Channel	Frequency (MHz)	Output Power (dBm)	Output Power (W)	Limit (W)	Result
Low	2412	15.58	0.03614	1	PASS
Mid	2437	16.38	0.04345		PASS
High	2462	16.02	0.03999		PASS

Test mode: IEEE 802.11n HT20 MHz

Channel	Frequency (MHz)	Output Power (dBm)	Output Power (W)	Limit (W)	Result
Low	2412	15.65	0.03673	1	PASS
Mid	2437	16.20	0.04169		PASS
High	2462	15.82	0.03819		PASS

Test mode: IEEE 802.11n HT40 MHz

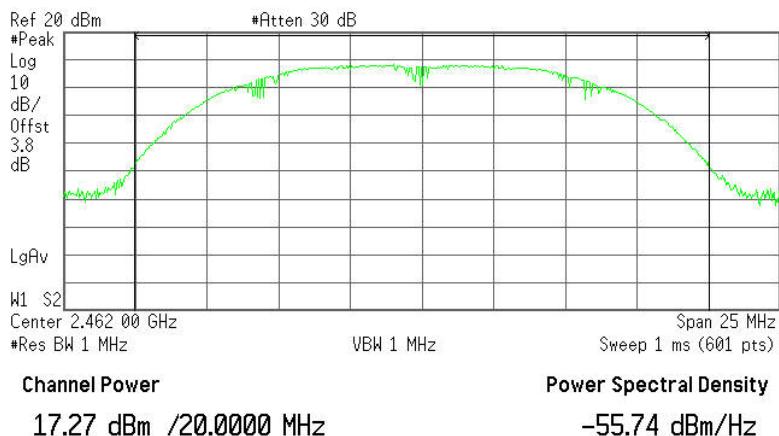
Channel	Frequency (MHz)	Output Power (dBm)	Output Power (W)	Limit (W)	Result
Low	2422	16.08	0.04055	1	PASS
Mid	2437	16.14	0.04111		PASS
High	2452	15.62	0.03648		PASS

**Test Plot****IEEE 802.11b mode****Peak power (CH Low)****Peak power (CH Mid)**

**Peak power (CH High)**

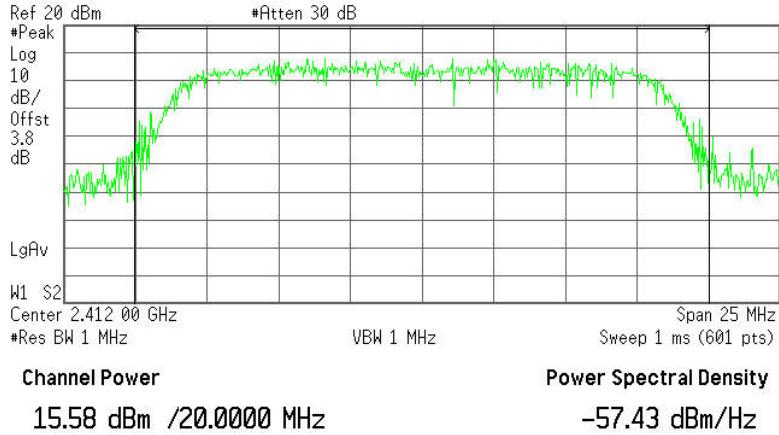
Agilent

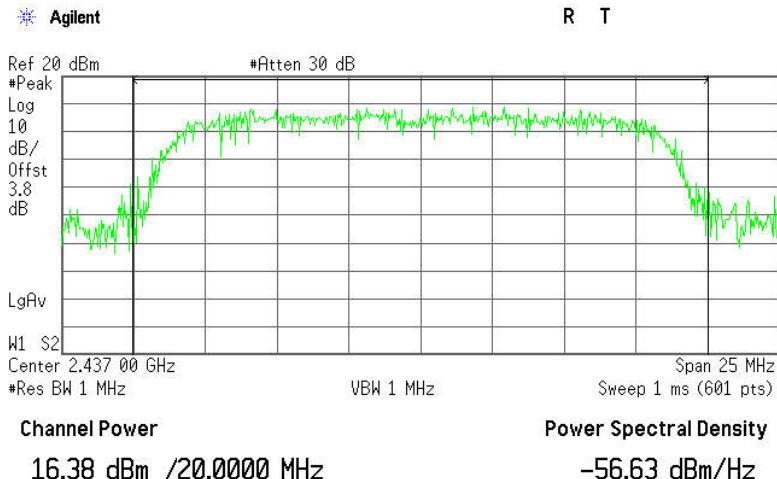
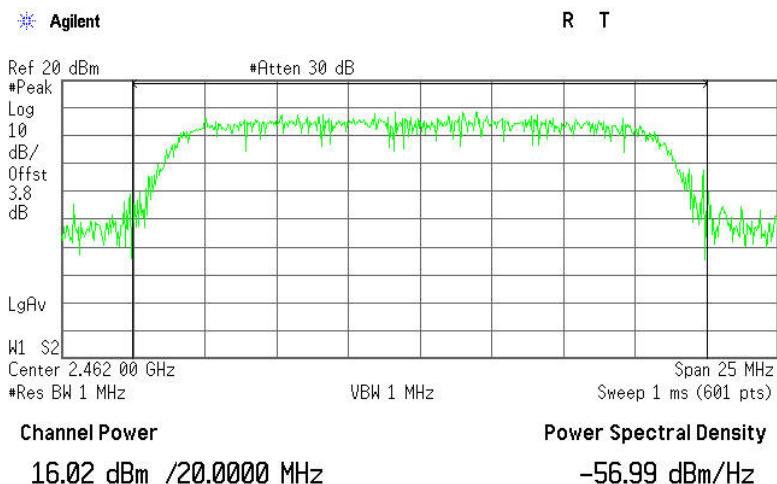
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**IEEE 802.11g mode****Peak power (CH Low)**

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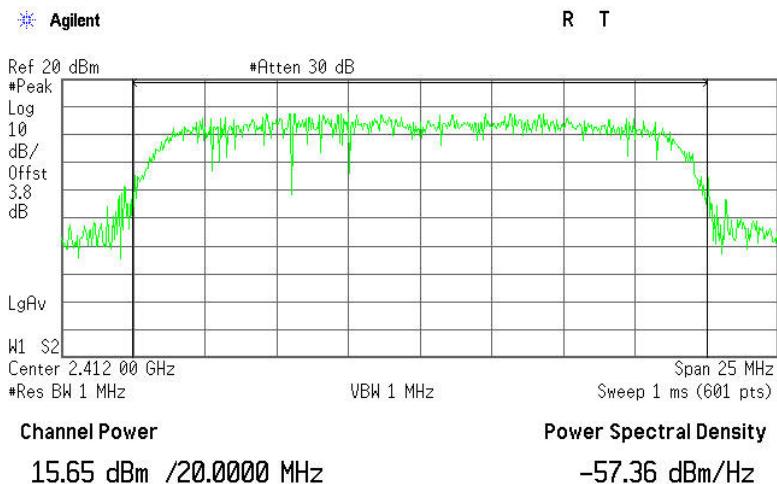


**Peak power (CH Mid)****Peak power (CH High)**

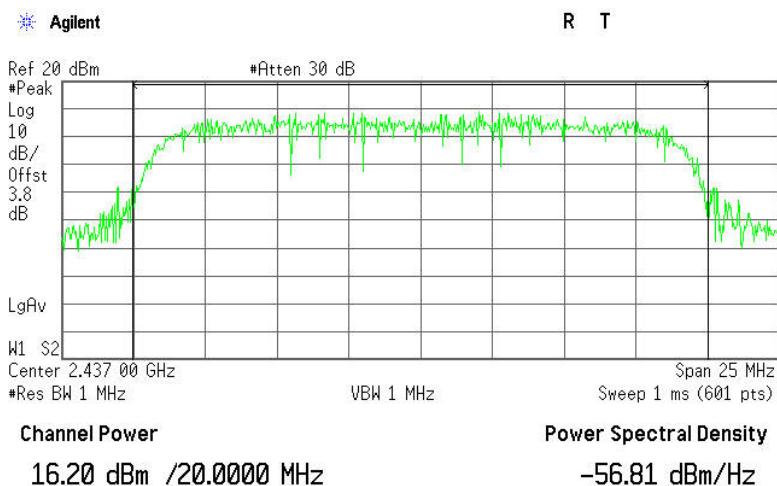


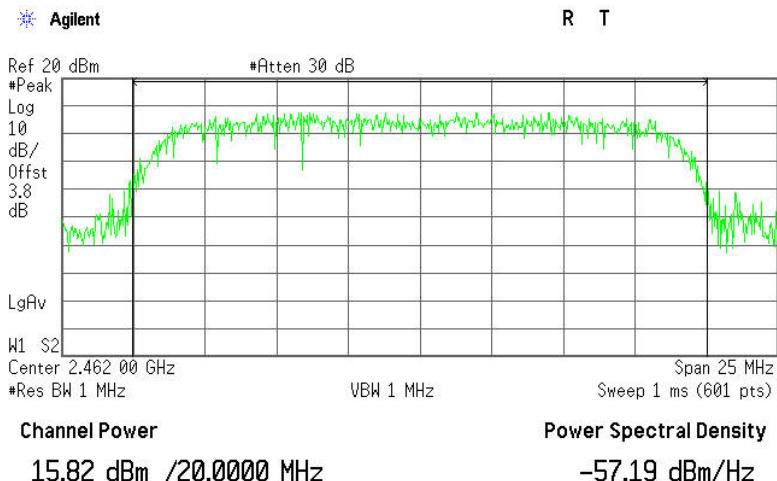
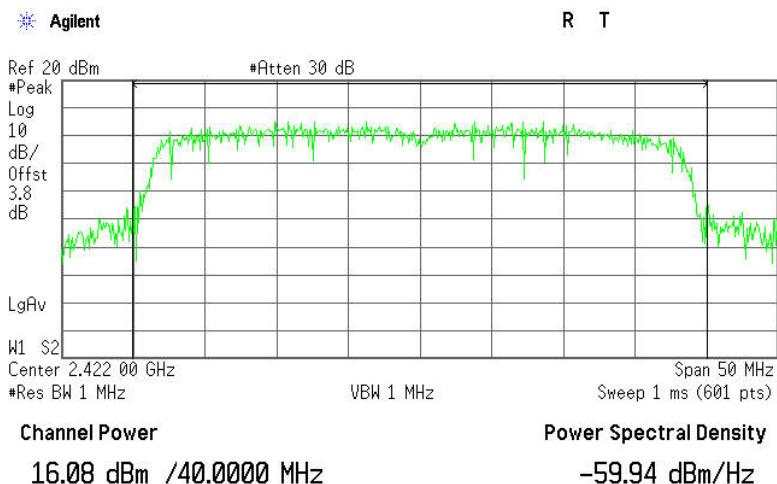
IEEE 802.11n HT20 MHz mode

Peak power (CH Low)



Peak power (CH Mid)

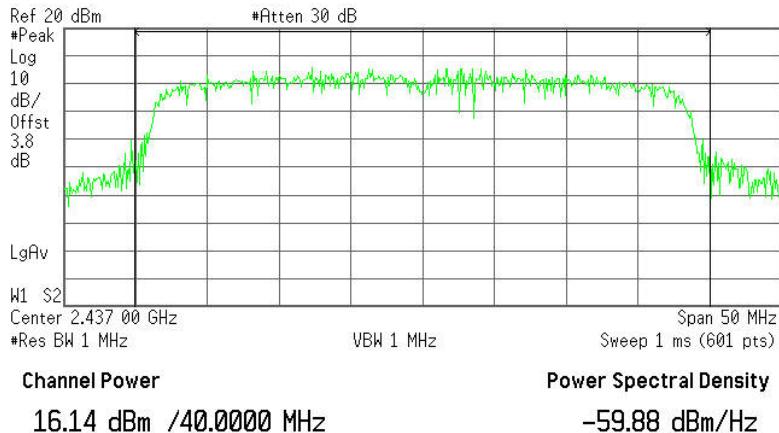


**Peak power (CH High)****IEEE 802.11n HT40 MHz mode****Peak power (CH Low)**

**Peak power (CH Mid)**

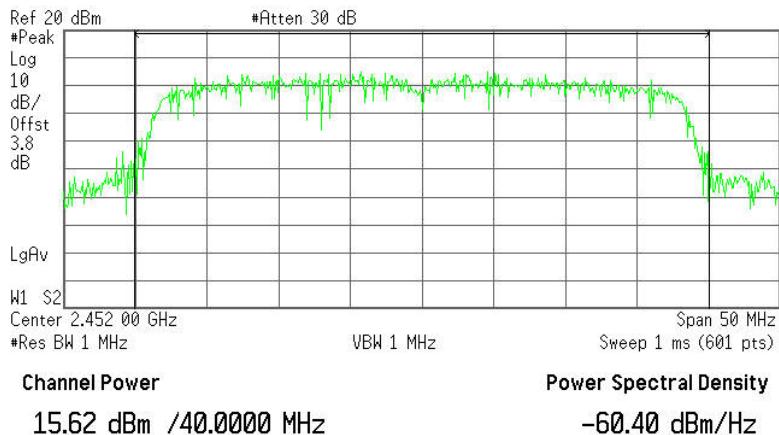
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**Peak power (CH High)**

Agilent

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7.5. BAND EDGES MEASUREMENT

7.5.1. LIMITS

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)).

7.5.2. TEST INSTRUMENTS

Radiated Emission Test Site 966 (2)					
Name of Equipment	Manufacturer	Model Number	Serial Number	Last Calibration	Due Calibration
PSA Series Spectrum Analyzer	Agilent	E4446A	US44300399	03/09/2013	03/08/2014
ESCI EMI TEST RECEIVER.ESCI	ROHDE&SCHWARZ	ESCI	100783	03/09/2013	03/08/2014
Amplifier	MITEQ	AM-1604-3000	1123808	03/18/2013	03/18/2014
High Noise Amplifier	Agilent	8449B	3008A01838	03/18/2013	03/18/2014
Board-Band Horn Antenna	Schwarzbeck	BBHA 9170	9170-497	06/21/2012	06/21/2013
Bilog Antenna	SCHAFFNER	CBL6143	5082	03/02/2013	03/01/2014
Horn Antenna	SCHWARZBECK	BBHA9120	D286	03/02/2013	03/01/2014
Loop Antenna	A. R. A	PLA-1030/B	1029	03/23/2013	03/23/2014
Turn Table	N/A	N/A	N/A	N.C.R	N.C.R
Controller	Sunol Sciences	SC104V	022310-1	N.C.R	N.C.R
Controller	CT	N/A	N/A	N.C.R	N.C.R
Temp. / Humidity Meter	Anymetre	JR913	N/A	03/04/2013	03/03/2014
Antenna Tower	SUNOL	TLT2	N/A	N.C.R	N.C.R
Test S/W	FARAD	LZ-RF / CCS-SZ-3A2			

NOTE: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

2. The FCC Site Registration number is 101879.

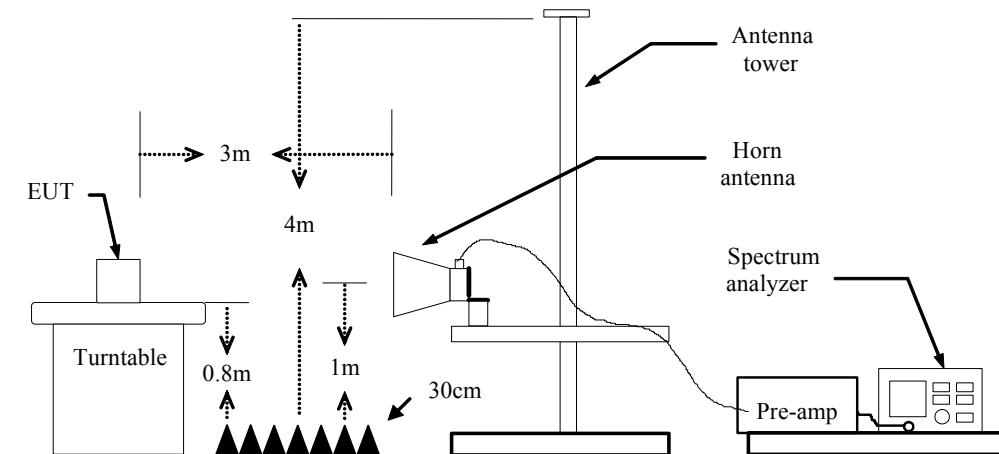
3. N.C.R = No Calibration Required.



7.5.3. TEST PROCEDURES (please refer to measurement standard)

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

7.5.4. TEST SETUP





7.5.5. TEST RESULTS

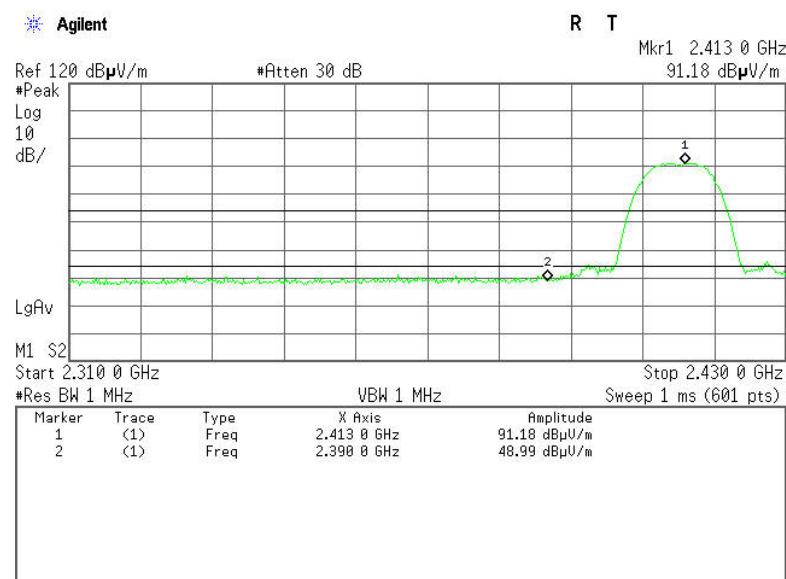
Test Plot

IEEE 802.11b mode

Band Edges (CH Low)

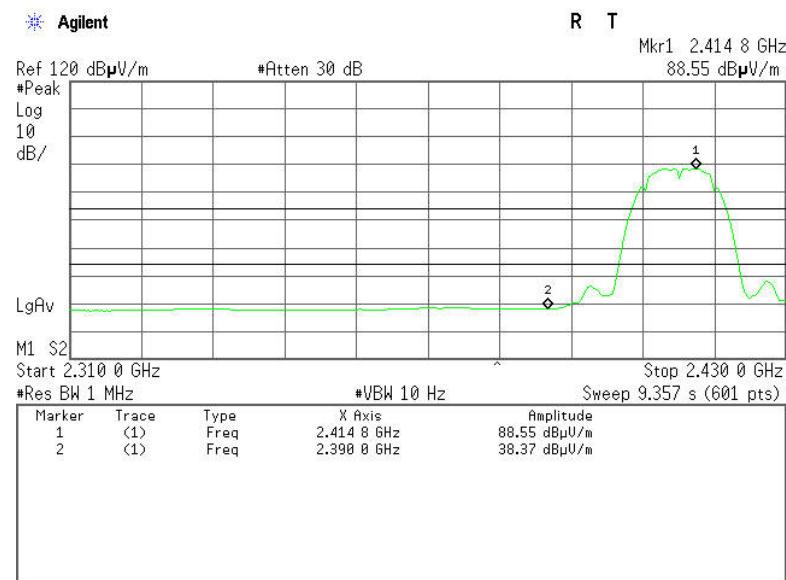
Detector mode: Peak

Polarity: Vertical



Detector mode: Average

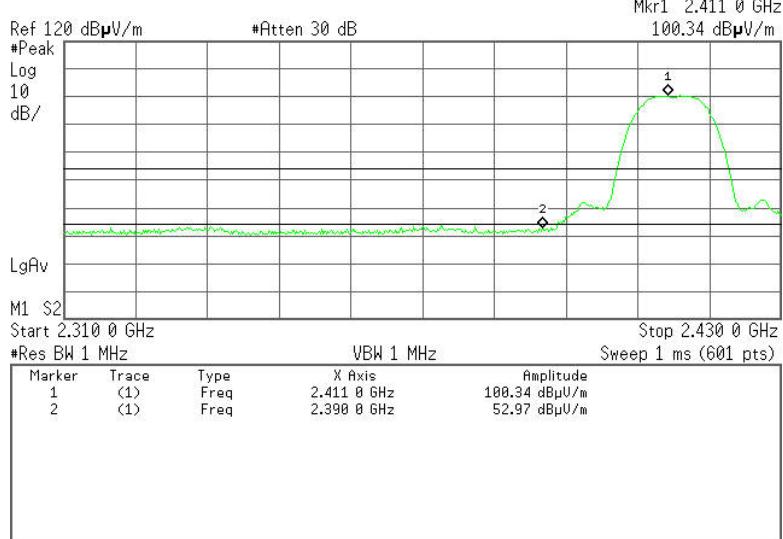
Polarity: Vertical



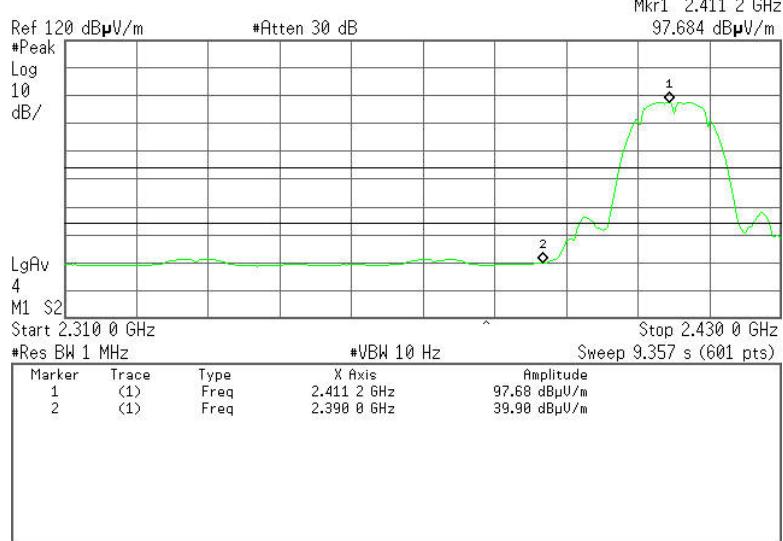
No.	Frequency (MHz)	Reading (dB μ V)	Corrected (dB)	Result (dB μ V)	Limit (dB μ V)	Margin (dB)	Detector	Antenna Pole
1	2390.0000	42.39	-6.60	48.99	74.00	-25.01	Peak	Vertical
2	2390.0000	31.77	-6.60	38.37	54.00	-15.63	Average	Vertical

**Detector mode: Peak**

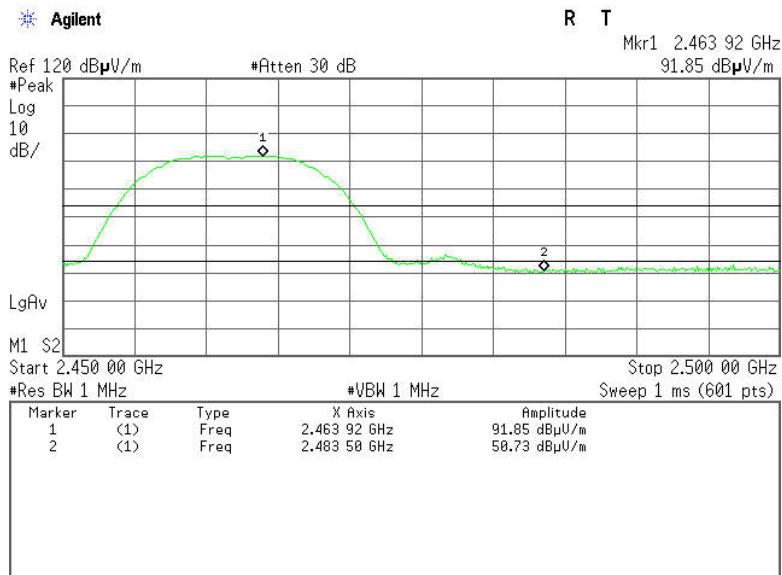
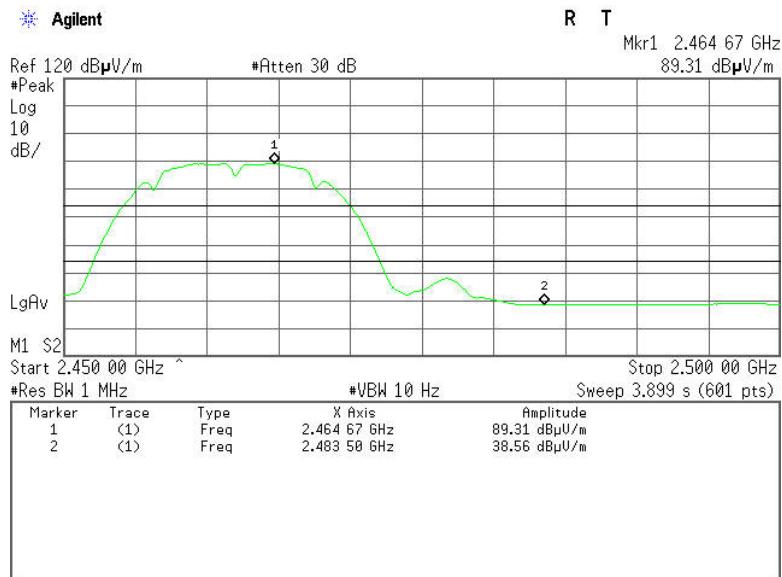
* Agilent

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

* Agilent

**Polarity: Horizontal**

No.	Frequency (MHz)	Reading (dB μ V)	Corrected (dB)	Result (dB μ V)	Limit (dB μ V)	Margin (dB)	Detector	Antenna Pole
1	2390.0000	46.37	-6.60	52.97	74.00	-21.03	Peak	Horizontal
2	2390.0000	33.30	-6.60	39.90	54.00	-14.10	Average	Horizontal

**Band Edges (CH High)****Detector mode: Peak****Polarity: Vertical****Detector mode: Average****Polarity: Vertical**

No.	Frequency (MHz)	Reading (dB μ V)	Corrected (dB)	Result (dB μ V)	Limit (dB μ V)	Margin (dB)	Detector	Antenna Pole
1	2483.5000	44.49	-6.24	50.73	74.00	-23.27	Peak	Vertical
2	2483.5000	32.32	-6.24	38.56	54.00	-15.44	AVG	Vertical



Detector mode: Peak

Agilent

Ref 120 dB μ V/m

#Atten 30 dB

Polarity: Horizontal

R T

Mkr1 2.461 00 GHz
100.62 dB μ V/m

#Peak

Log

10

dB/

LgAv

M1 S2

Start 2.450 00 GHz

#Res BW 1 MHz

VBW 1 MHz

Stop 2.500 00 GHz

Sweep 1 ms (601 pts)

Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	2.461 00 GHz	100.62 dB μ V/m
2	(1)	Freq	2.483 50 GHz	51.98 dB μ V/m

Detector mode: Average

Agilent

Ref 120 dB μ V/m

#Atten 30 dB

Polarity: Horizontal

R T

Mkr1 2.459 17 GHz
97.90 dB μ V/m

#Peak

Log

10

dB/

LgAv

M1 S2

Start 2.450 00 GHz

#Res BW 1 MHz

VBW 10 Hz

Stop 2.500 00 GHz

Sweep 3.899 s (601 pts)

Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	2.459 17 GHz	97.90 dB μ V/m
2	(1)	Freq	2.483 50 GHz	39.97 dB μ V/m

No.	Frequency (MHz)	Reading (dB μ V)	Corrected (dB)	Result (dB μ V)	Limit (dB μ V)	Margin (dB)	Detector	Antenna Pole
1	2483.5000	48.74	-6.24	54.98	74.00	-19.02	Peak	Horizontal
2	2483.5000	33.73	-6.24	39.97	54.00	-14.03	Avg	Horizontal

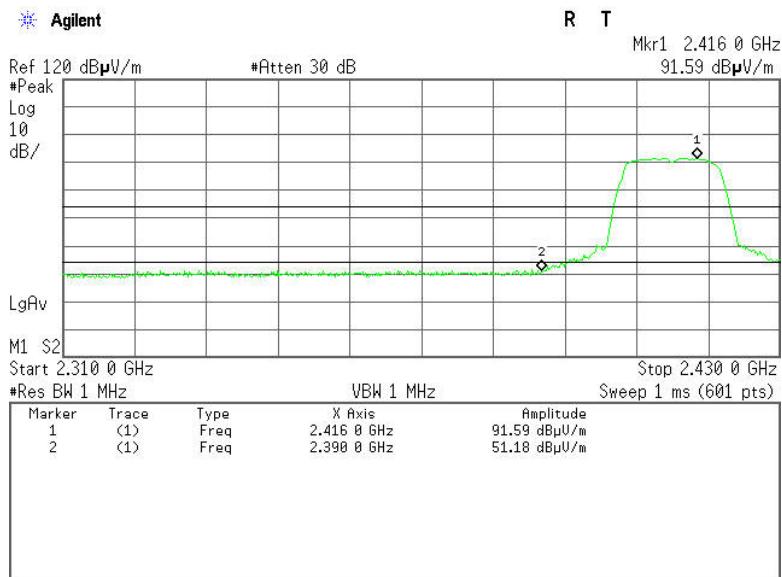


IEEE 802.11g mode

Band Edges (CH Low)

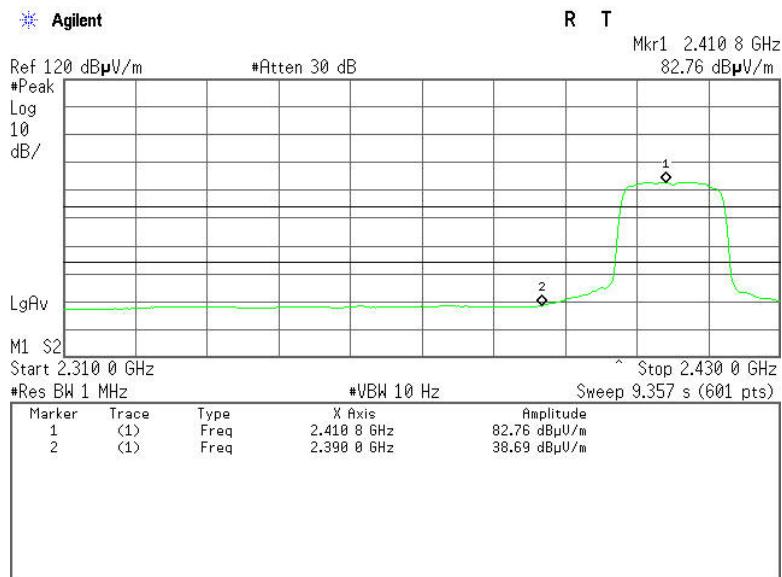
Detector mode: Peak

Polarity: Vertical

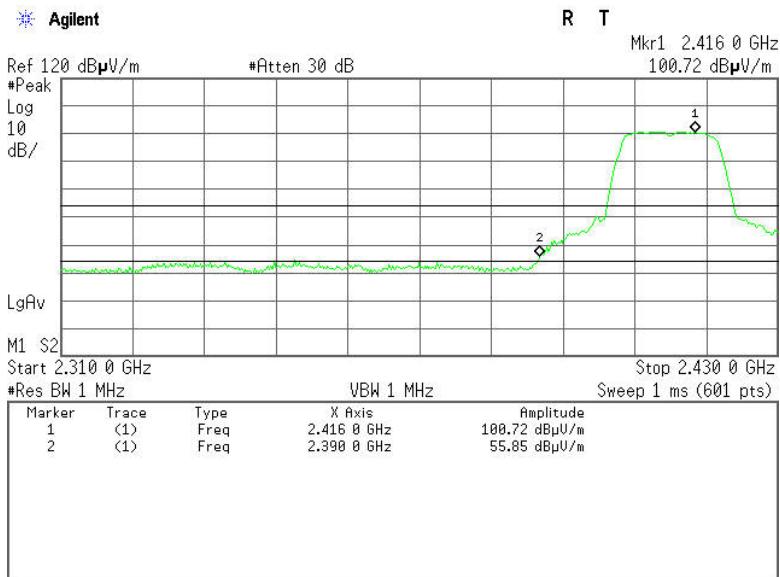
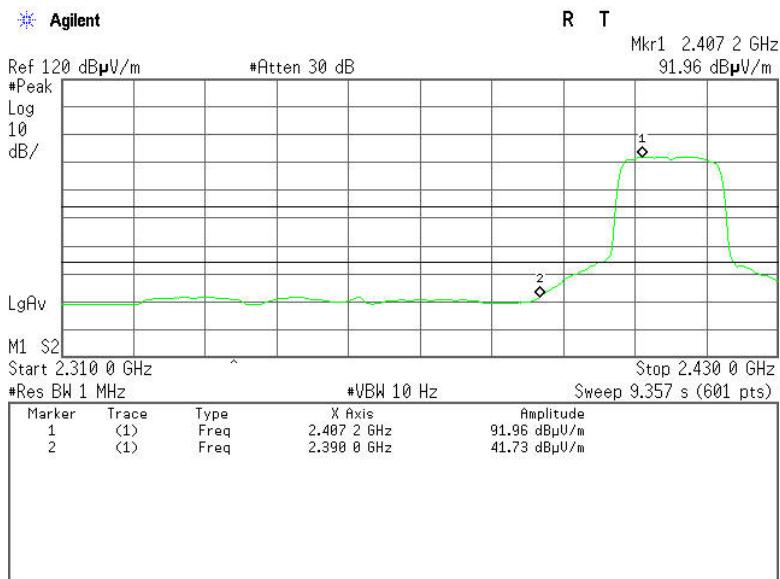


Detector mode: Average

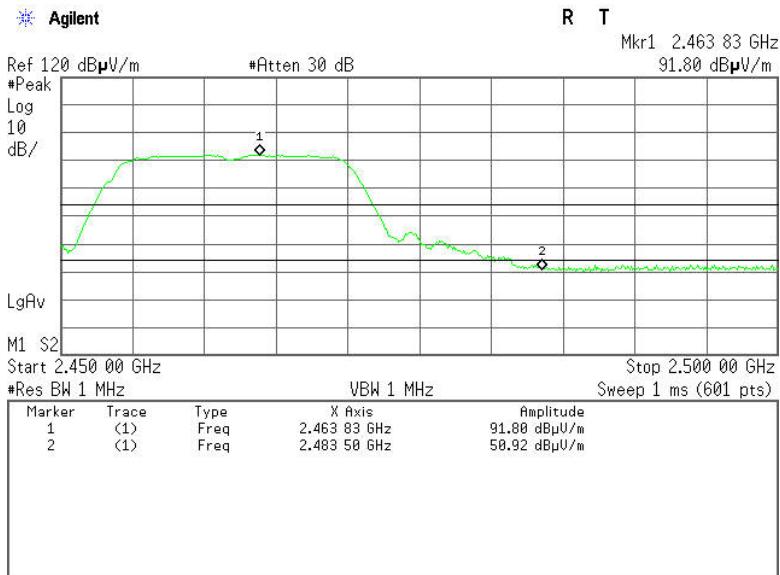
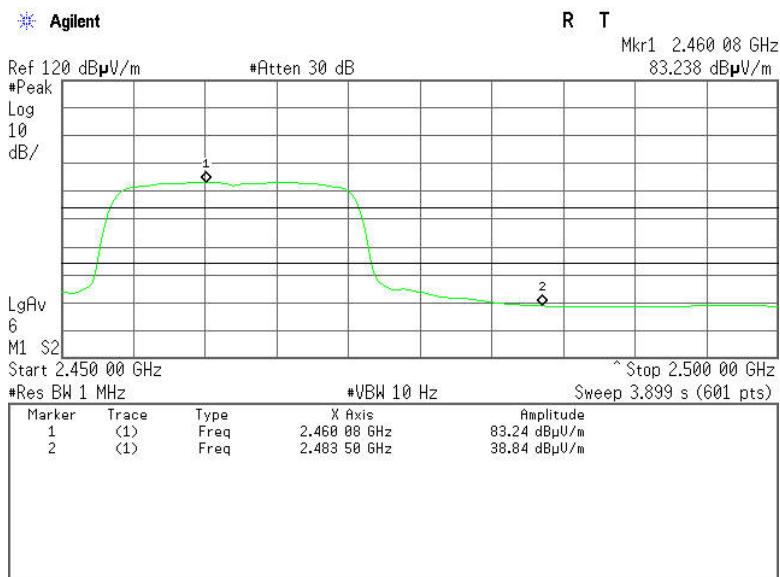
Polarity: Vertical



No.	Frequency (MHz)	Reading (dB μ V)	Corrected (dB)	Result (dB μ V)	Limit (dB μ V)	Margin (dB)	Detector	Antenna Pole
1	2390.0000	44.58	-6.60	51.18	74.00	-22.82	Peak	Vertical
2	2390.0000	32.09	-6.60	38.69	54.00	-15.31	Average	Vertical

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

No.	Frequency (MHz)	Reading (dB μ V)	Corrected (dB)	Result (dB μ V)	Limit (dB μ V)	Margin (dB)	Detector	Antenna Pole
1	2390.0000	49.25	-6.60	55.85	74.00	-18.15	Peak	Horizontal
2	2390.0000	35.13	-6.60	41.73	54.00	-12.27	Average	Horizontal

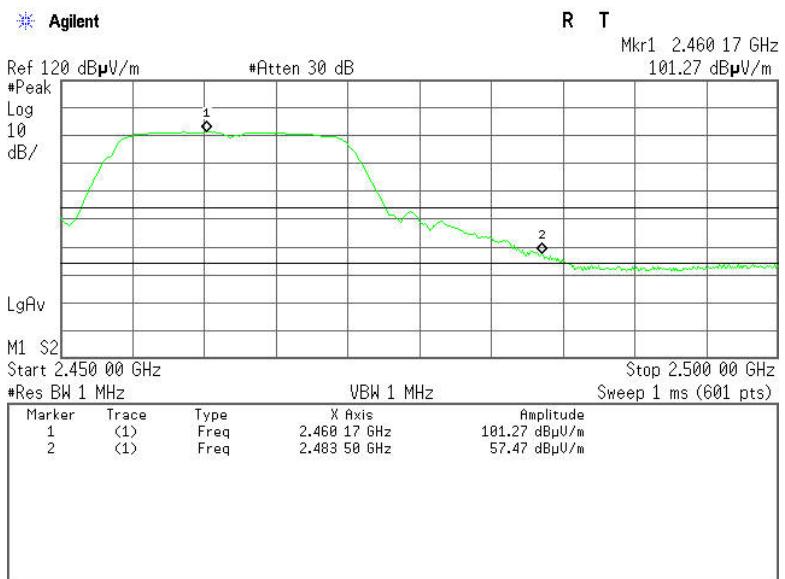
**Band Edges (CH High)****Detector mode: Peak****Polarity: Vertical****Detector mode: Average****Polarity: Vertical**

No.	Frequency (MHz)	Reading (dB μ V)	Corrected (dB)	Result (dB μ V)	Limit (dB μ V)	Margin (dB)	Detector	Antenna Pole
1	2483.5000	44.68	-6.24	50.92	74.00	-23.08	Peak	Vertical
2	2483.5000	32.60	-6.24	38.84	54.00	-15.16	AVG	Vertical



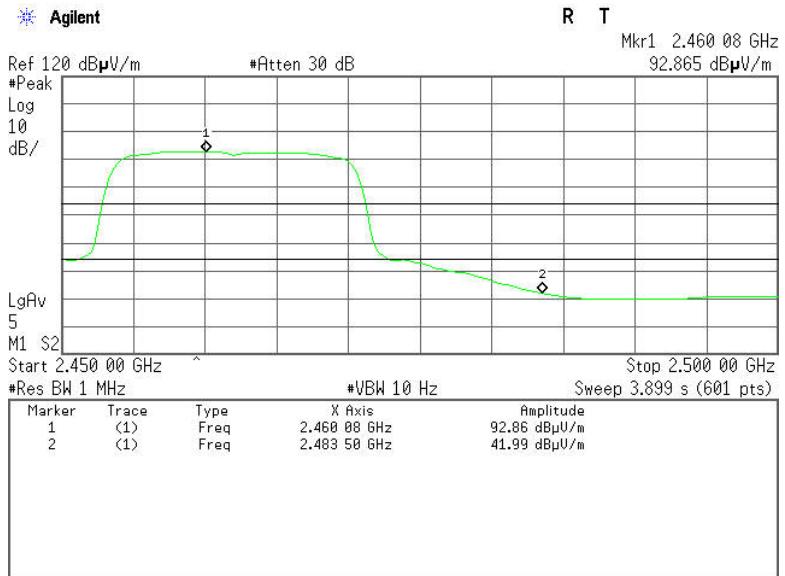
Detector mode: Peak

Polarity: Horizontal

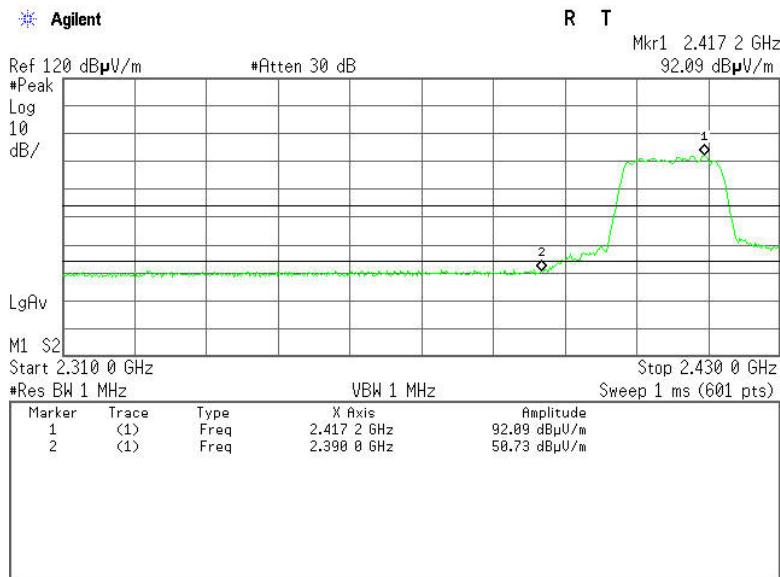
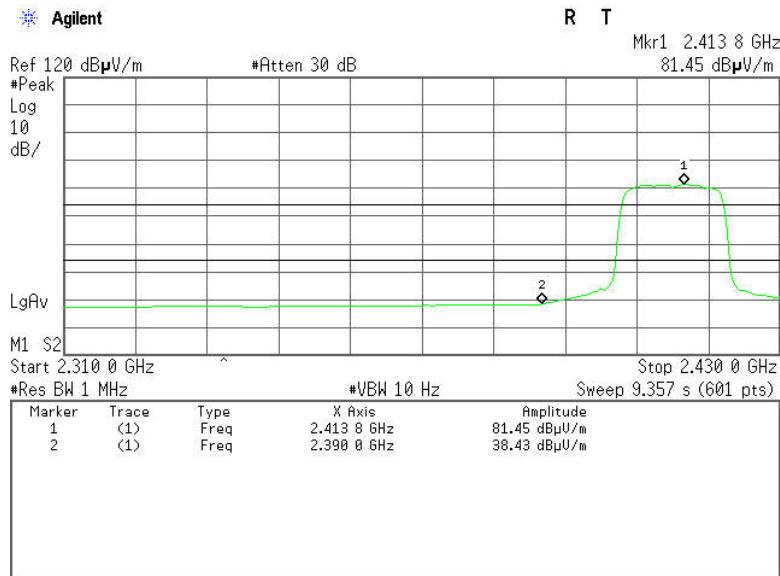


Detector mode: Average

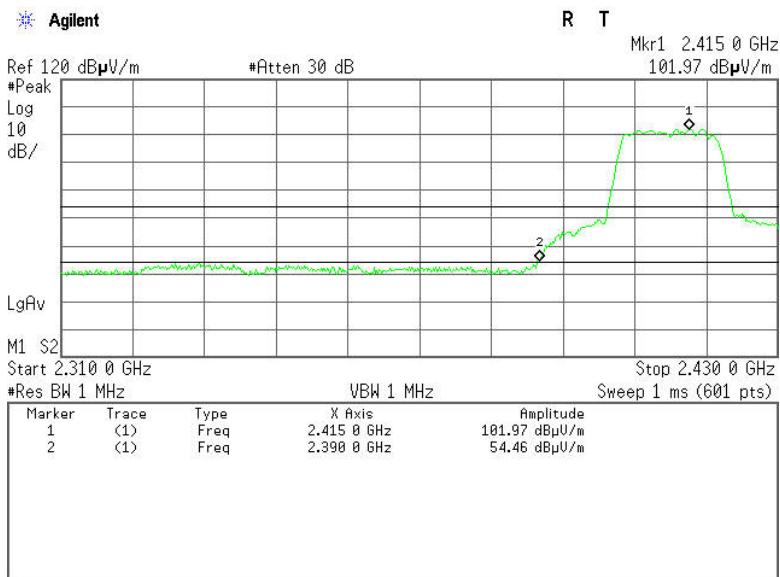
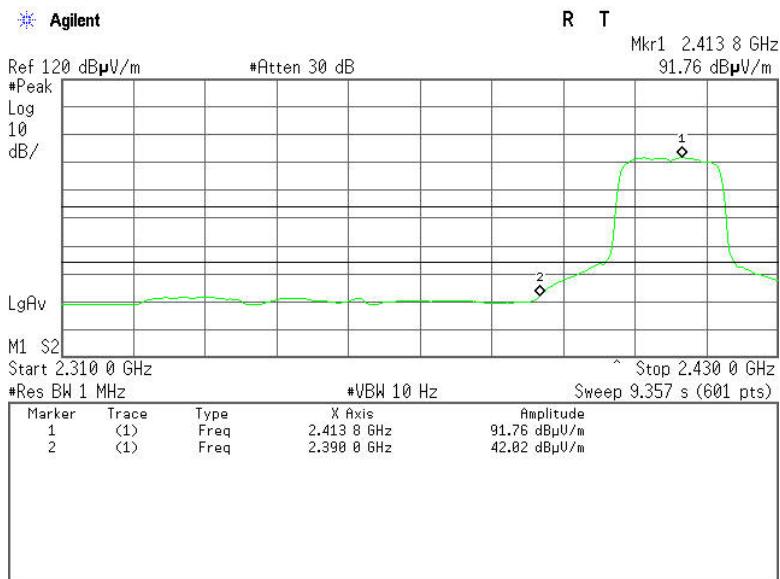
Polarity: Horizontal



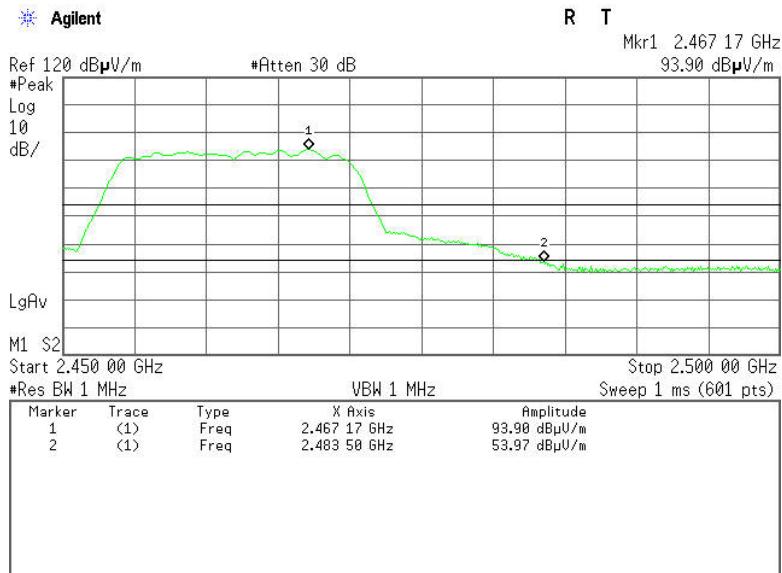
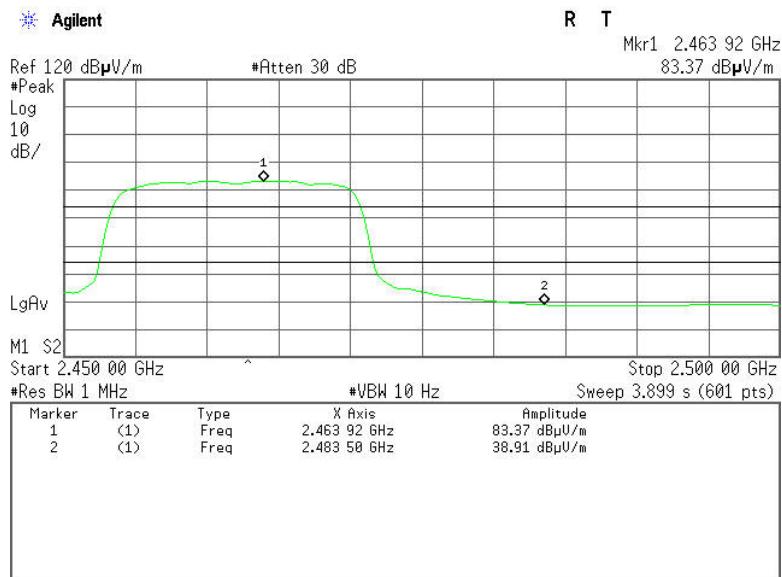
No.	Frequency (MHz)	Reading (dB μ V)	Corrected (dB)	Result (dB μ V)	Limit (dB μ V)	Margin (dB)	Detector	Antenna Pole
1	2483.5000	51.23	-6.24	57.47	74.00	-16.53	Peak	Horizontal
2	2483.5000	35.75	-6.24	41.99	54.00	-12.01	AVG	Horizontal

**IEEE 802.11n HT20 MHz mode****Band Edges (CH Low)****Detector mode: Peak****Polarity: Vertical****Detector mode: Average****Polarity: Vertical**

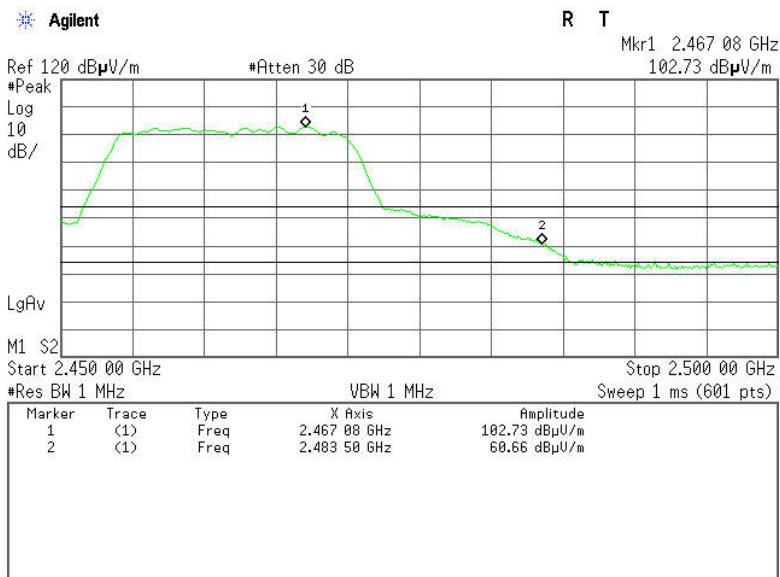
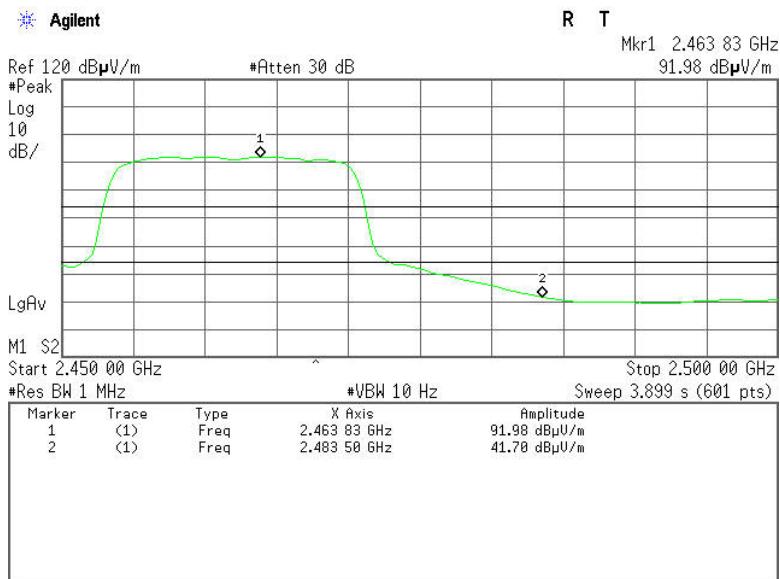
No.	Frequency (MHz)	Reading (dB μ V)	Corrected (dB)	Result (dB μ V)	Limit (dB μ V)	Margin (dB)	Detector	Antenna Pole
1	2390.0000	44.13	-6.60	50.73	74.00	-23.27	Peak	Vertical
2	2390.0000	31.83	-6.60	38.43	54.00	-15.57	Average	Vertical

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

No.	Frequency (MHz)	Reading (dB μ V)	Corrected (dB)	Result (dB μ V)	Limit (dB μ V)	Margin (dB)	Detector	Antenna Pole
1	2390.0000	47.86	-6.60	54.46	74.00	-19.54	Peak	Horizontal
2	2390.0000	35.42	-6.60	42.02	54.00	-11.98	Average	Horizontal

**Band Edges (CH High)****Detector mode: Peak****Polarity: Vertical****Detector mode: Average****Polarity: Vertical**

No.	Frequency (MHz)	Reading (dB μ V)	Corrected (dB)	Result (dB μ V)	Limit (dB μ V)	Margin (dB)	Detector	Antenna Pole
1	2483.5000	47.73	-6.24	53.97	74.00	-20.03	Peak	Vertical
2	2483.5000	32.67	-6.24	38.91	54.00	-15.09	AVG	Vertical

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

No.	Frequency (MHz)	Reading (dB μ V)	Corrected (dB)	Result (dB μ V)	Limit (dB μ V)	Margin (dB)	Detector	Antenna Pole
1	2483.5000	54.42	-6.24	60.66	74.00	-13.34	Peak	Horizontal
2	2483.5000	35.46	-6.24	41.70	54.00	-12.30	AVG	Horizontal

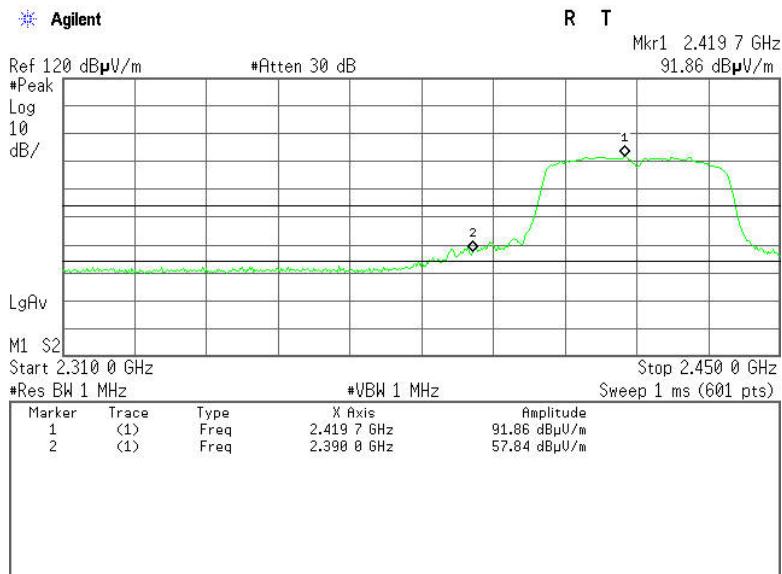


IEEE 802.11n HT40 MHz mode

Band Edges (CH Low)

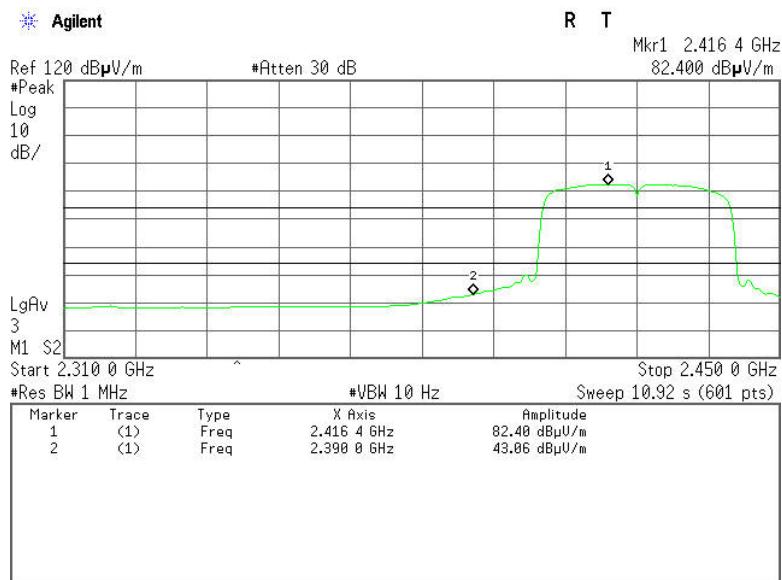
Detector mode: Peak

Polarity: Vertical

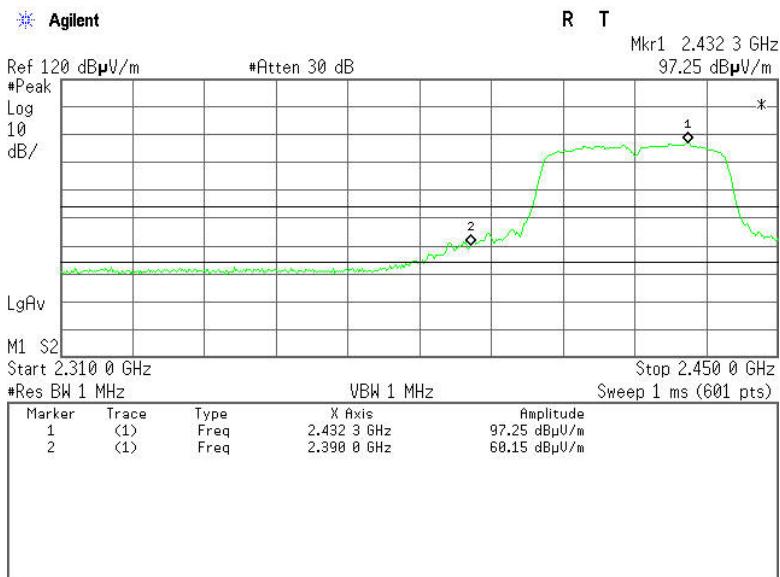
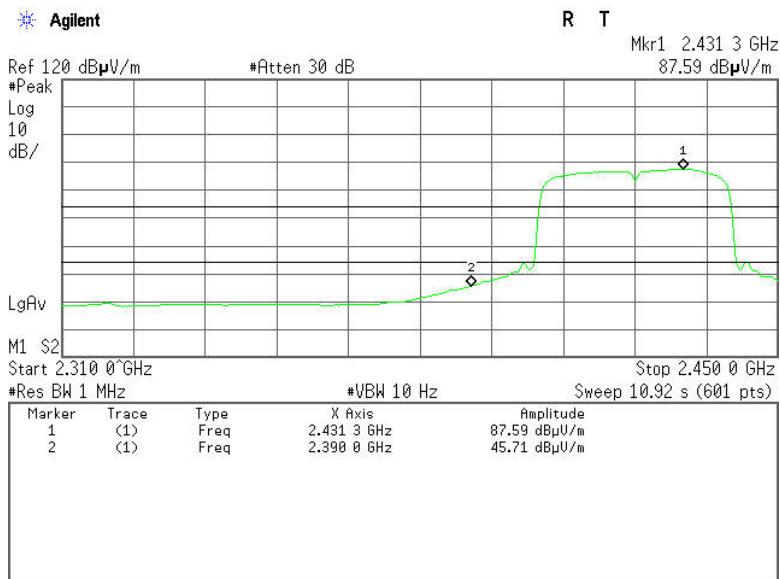


Detector mode: Average

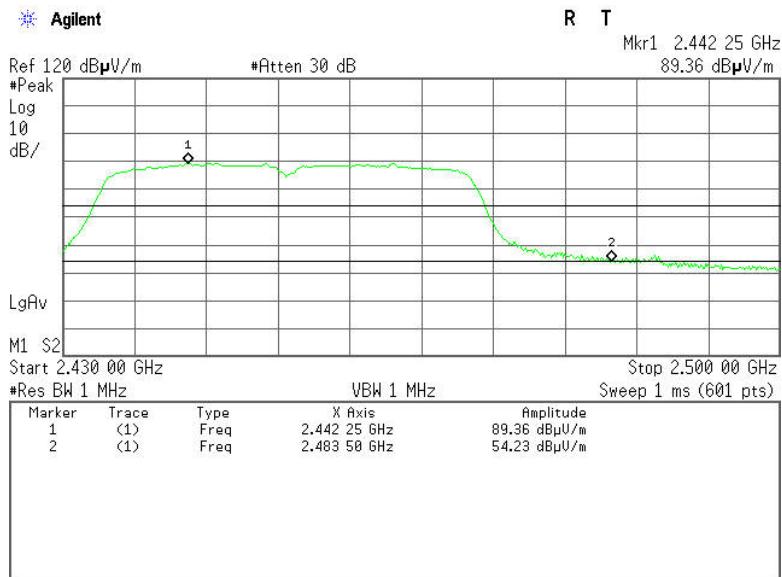
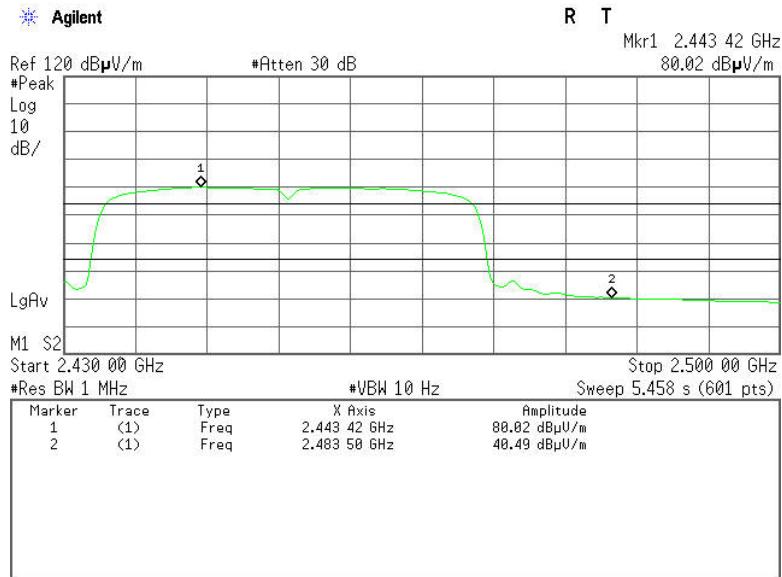
Polarity: Vertical



No.	Frequency (MHz)	Reading (dB μ V)	Corrected (dB)	Result (dB μ V)	Limit (dB μ V)	Margin (dB)	Detector	Antenna Pole
1	2390.0000	51.24	-6.60	57.84	74.00	-16.16	Peak	Vertical
2	2390.0000	36.46	-6.60	43.06	54.00	-10.94	Average	Vertical

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

No.	Frequency (MHz)	Reading (dB μ V)	Corrected (dB)	Result (dB μ V)	Limit (dB μ V)	Margin (dB)	Detector	Antenna Pole
1	2390.0000	53.55	-6.60	60.15	74.00	-13.85	Peak	Horizontal
2	2390.0000	39.11	-6.60	45.71	54.00	-8.29	Average	Horizontal

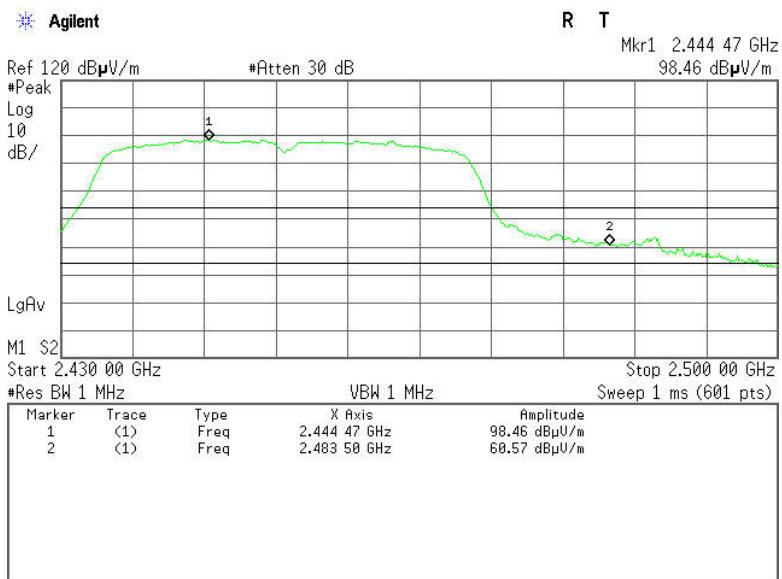
**Band Edges (CH High)****Detector mode: Peak****Polarity: Vertical****Detector mode: Average****Polarity: Vertical**

No.	Frequency (MHz)	Reading (dB μ V)	Corrected (dB)	Result (dB μ V)	Limit (dB μ V)	Margin (dB)	Detector	Antenna Pole
1	2483.5000	47.99	-6.24	54.23	74.00	-19.77	Peak	Vertical
2	2483.5000	34.25	-6.24	40.49	54.00	-13.51	AVG	Vertical



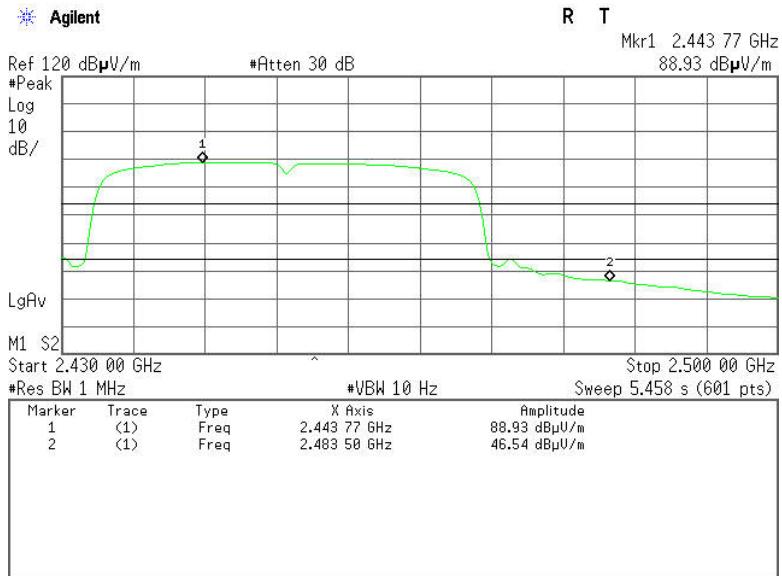
Detector mode: Peak

Polarity: Horizontal



Detector mode: Average

Polarity: Horizontal



No.	Frequency (MHz)	Reading (dB μ V)	Corrected (dB)	Result (dB μ V)	Limit (dB μ V)	Margin (dB)	Detector	Antenna Pole
1	2483.5000	54.33	-6.24	60.57	74.00	-13.43	Peak	Horizontal
2	2483.5000	40.30	-6.24	46.54	54.00	-7.46	AVG	Horizontal



7.6. PEAK POWER SPECTRAL DENSITY MEASUREMENT

7.6.1. LIMITS

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.

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.

7.6.2. TEST INSTRUMENTS

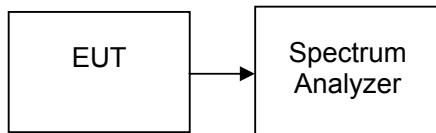
Name of Equipment	Manufacturer	Model	Serial Number	Last Calibration	Calibration Due
Spectrum Analyzer	Agilent	E4446A	US44300399	03/09/2013	03/08/2014

7.6.3. TEST PROCEDURES (please refer to measurement standard)

§15.247(e) specifies a conducted power spectral density (PSD) limit of 8 dBm in any 3 kHz band segment within the fundamental EBW during any time interval of continuous transmission. The same method as used to determine the conducted output power shall be used to determine the power spectral density (i.e., if peak-detected fundamental power was measured then use the peak PSD procedure and if average fundamental power was measured then use the average PSD procedure).

1. Use this procedure when the maximum peak conducted output power in the fundamental emission is used to demonstrate compliance.
2. Set the RBW = 100 kHz.
3. Set the VBW \geq 300 kHz.
4. Set the span to 5-30 % greater than the EBW.
5. Detector = peak.
6. Sweep time = auto couple.
7. Trace mode = max hold.
8. Allow trace to fully stabilize.
9. Use the peak marker function to determine the maximum power level in any 100 kHz band segment within the fundamental EBW.
10. Scale the observed power level to an equivalent value in 3 kHz by adjusting (reducing) the measured power by a bandwidth correction factor (BWCF) where $BWCF = 10\log(3 \text{ kHz}/100 \text{ kHz}) = -15.2 \text{ dB}$.
11. The resulting peak PSD level must be $\leq 8 \text{ dBm}$.

7.6.4. TEST SETUP





7.6.5. TEST RESULTS

No non-compliance noted

Test Data

Test mode: IEEE 802.11b

Channel	Frequency (MHz)	PPSD (dBm)	Limit (dBm)	Test Result
Low	2412	-13.87	8	PASS
Mid	2437	-13.45		PASS
High	2462	-13.93		PASS

Test mode: IEEE 802.11g

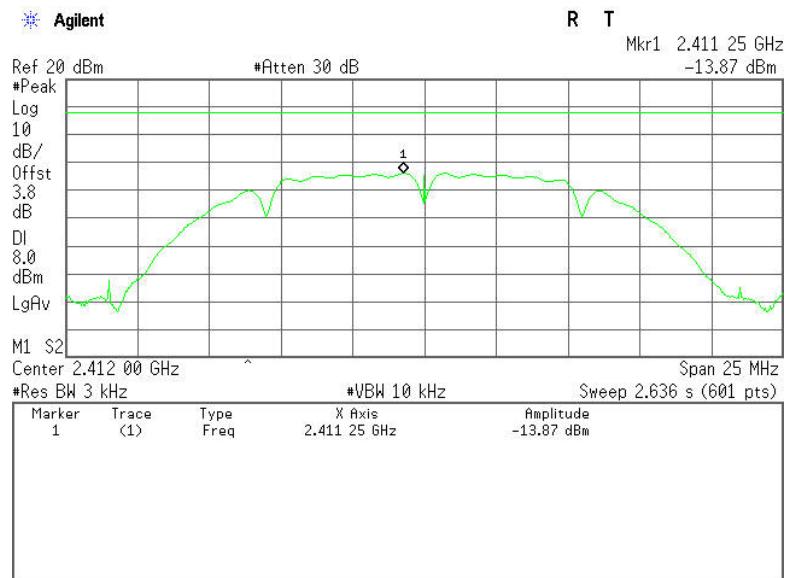
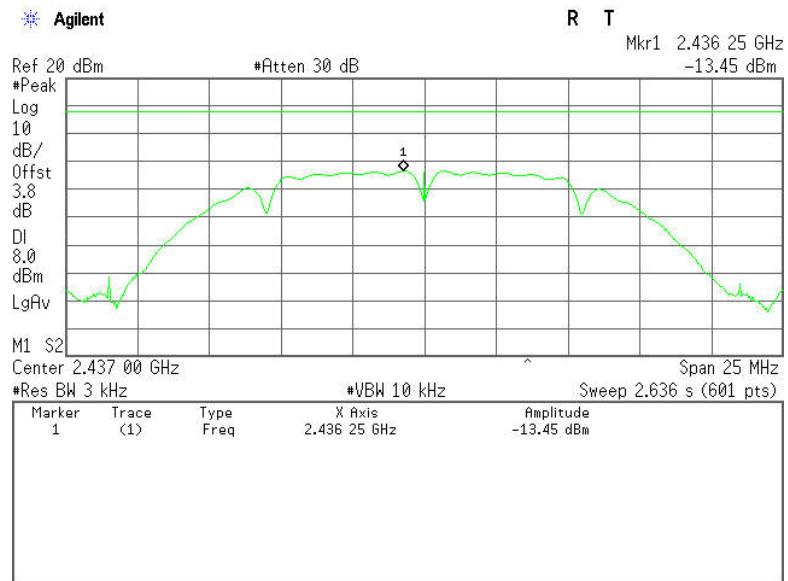
Channel	Frequency (MHz)	PPSD (dBm)	Limit (dBm)	Test Result
Low	2412	-13.90	8	PASS
Mid	2437	-12.20		PASS
High	2462	-12.89		PASS

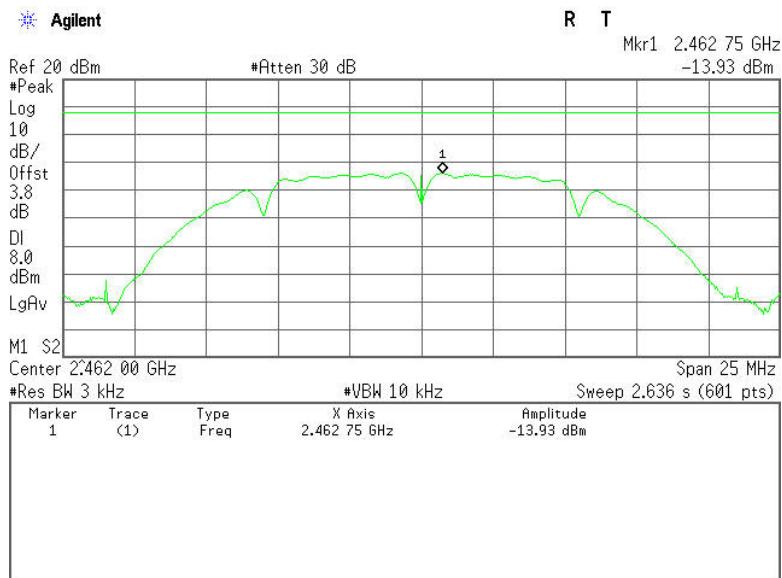
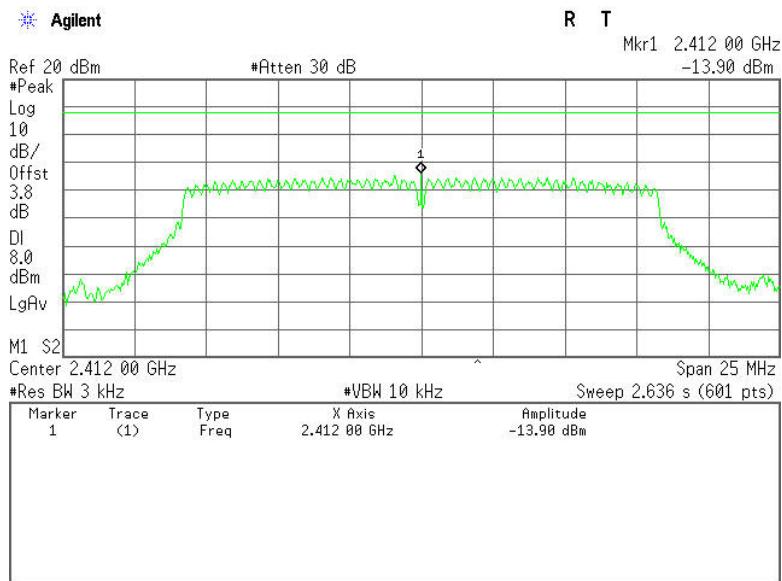
Test mode: IEEE 802.11n HT20 MHz

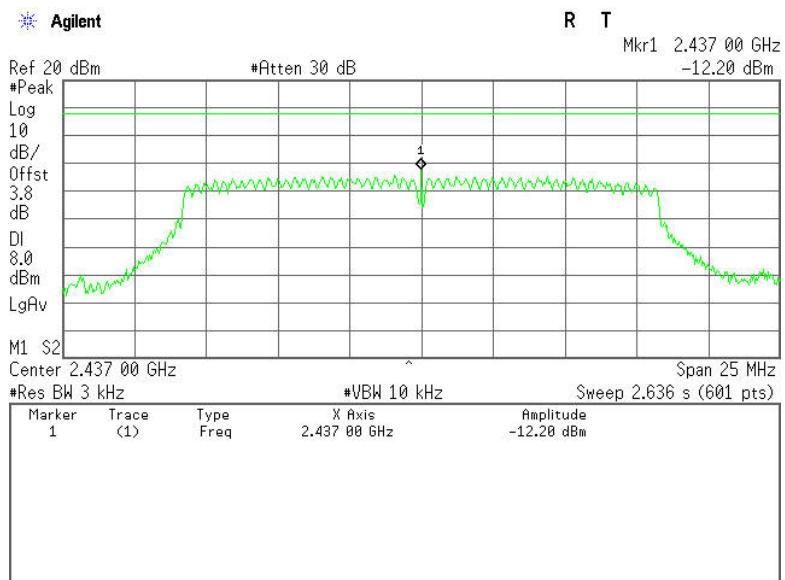
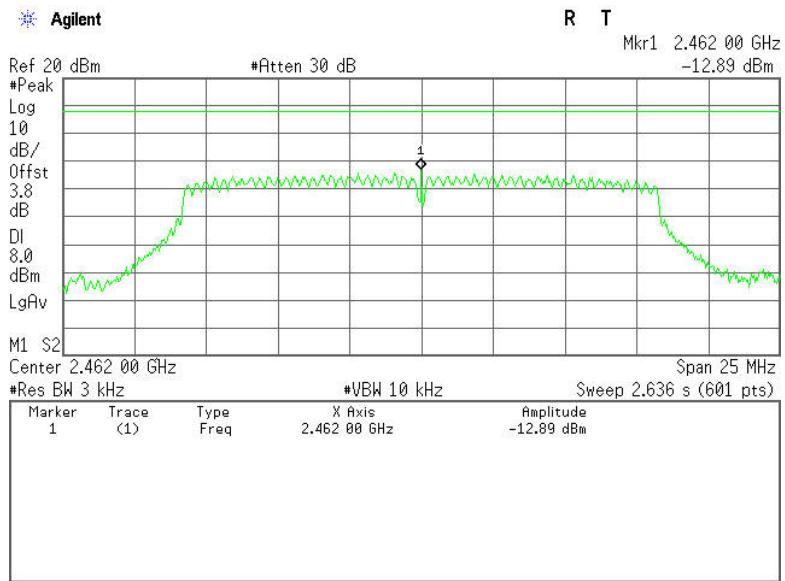
Channel	Frequency (MHz)	PPSD (dBm)	Limit (dBm)	Test Result
Low	2412	-13.36	8	PASS
Mid	2437	-11.59		PASS
High	2462	-12.73		PASS

Test mode: IEEE 802.11n HT40 MHz

Channel	Frequency (MHz)	PPSD (dBm)	Limit (dBm)	Test Result
Low	2422	-12.30	8	PASS
Mid	2437	-12.79		PASS
High	2452	-13.11		PASS

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

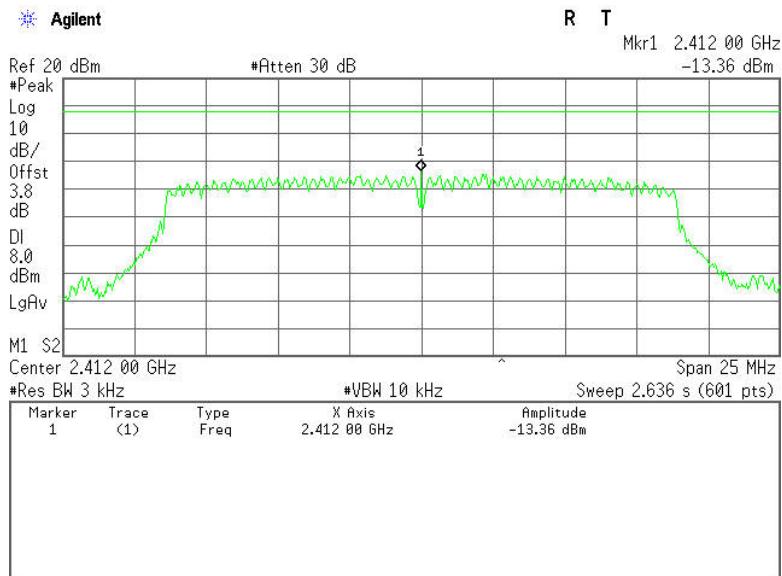
**PPSD (CH High)****IEEE 802.11g mode****PPSD (CH Low)**

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

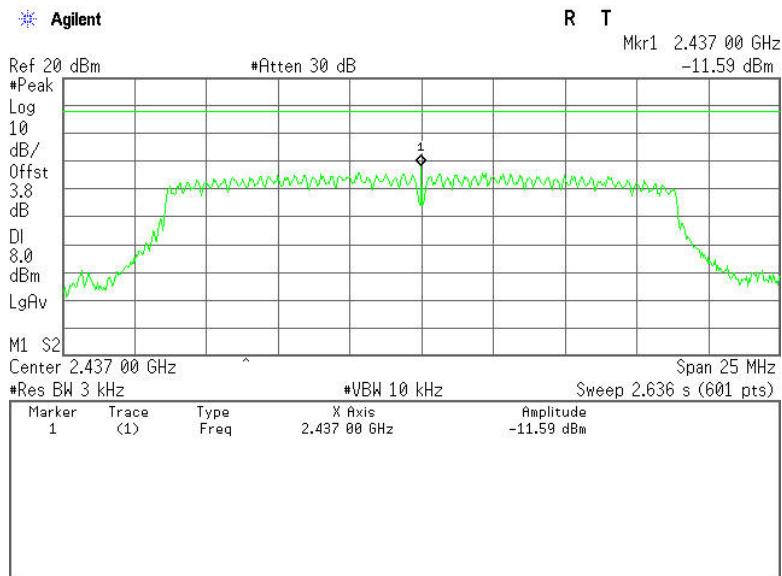


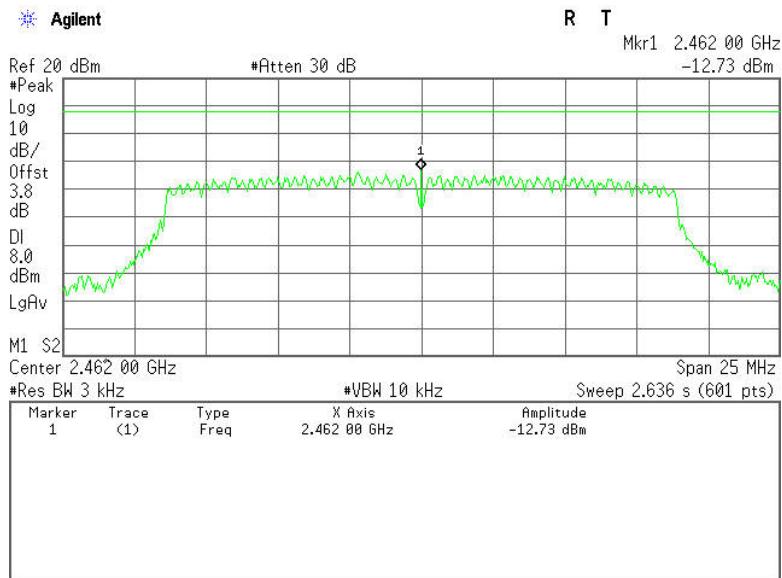
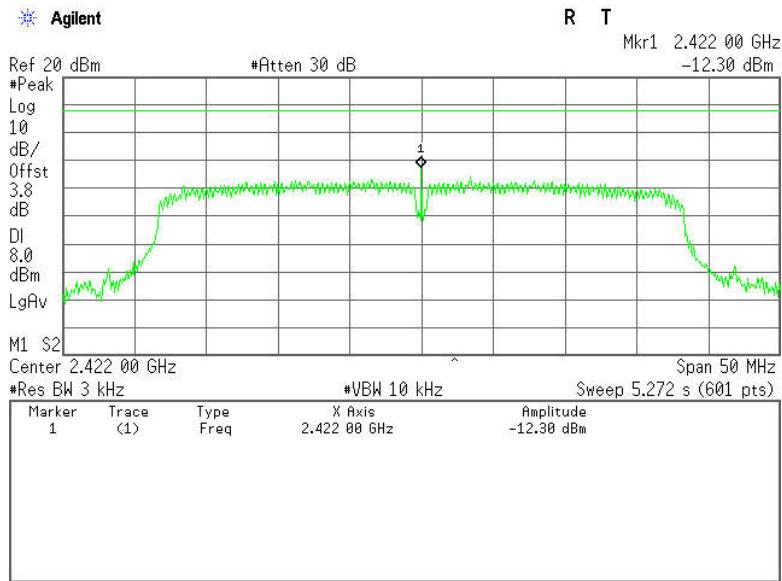
IEEE 802.11n HT20 MHz mode

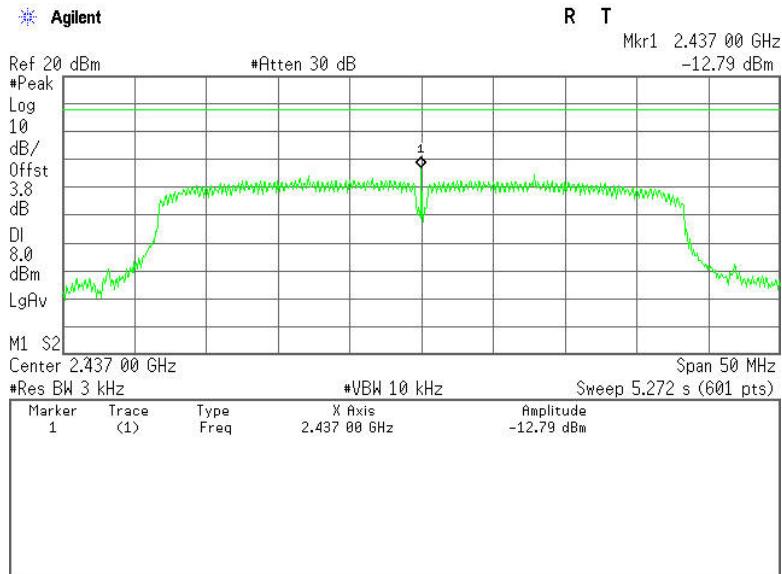
PPSD (CH Low)



PPSD (CH Mid)



**PPSD (CH High)****IEEE 802.11n HT40 MHz mode****PPSD (CH Low)**

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