FCC Part 15C

Measurement and Test Report

For

SHENZHEN TENDA TECHNOLOGY CO., LTD.

3F, MOSO INDUSTRIAL BUILDING, NO. 1031, LIMING ROAD XILI TOWN,

NANSHAN DISTRICT, SHENZHEN, CHINA

FCC ID: V7TW368R

Report Concerns: Original Report	**Equipment Type:** Wireless-N Broadband Router

Model:	W368R
Report No.:	STR10038003I
Test/Witness Engineer:	
Test Date:	2010-03-02 to 2010-03-12
Issue Date:	2010-03-15
Prepared By:	**SEM.Test Compliance Service Co., Ltd** 3/F, Jinbao Commerce Building, Xin'an Fanshen Road, Bao'an District, Shenzhen, P.R.C.（518101）
Approved & Authorized By:	 Jandy So / PSQ Manager

Note: This test report is limited to the above client company and the product model only. It may not be duplicated without prior permitted by SEM.Test Compliance Service Co., Ltd.

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1. GENERAL INFORMATION

1.1 Product Description for Equipment Under Test (EUT)

Client Information

Applicant:	SHENZHEN TENDA TECHNOLOGY CO., LTD.
Address of applicant:	3F, MOSO INDUSTRIAL BUILDING, NO. 1031, LIMING ROAD XILI TOWN, NANSHAN DISTRICT, SHENZHEN, CHINA
Manufacturer:	SHENZHEN TENDA TECHNOLOGY CO., LTD.
Address of manufacturer:	3F, MOSO INDUSTRIAL BUILDING, NO. 1031, LIMING ROAD XILI TOWN, NANSHAN DISTRICT, SHENZHEN, CHINA

General Description of E.U.T

Items	Description
EUT Description:	Wireless-N Broadband Router
Trade Name:	Tenda
Model No.:	W368R
Rated Voltage:	AC 9V adapter
Max. Output Power	Max. 37.24mW
Antenna Gain:	1dBi
Frequency range:	2412~2462MHz / 2422~2452MHz
Number of channels:	11 / 7
Channel Separation:	5MHz
Type of Antenna:	Integral Antenna
Size:	17.0x11.5x3.0 cm

Note: The test data gathered are from a production sample provided by the manufacturer.

1.2 Test Standards

The following report is prepared on behalf of the SHENZHEN TENDA TECHNOLOGY CO., LTD. in accordance with FCC Part 15, Subpart C, and section 15.203, 15.205, 15.207, 15.209 and 15.247 of the Federal Communication Commissions rules.

The objective is to determine compliance with FCC Part 15, Subpart C, and section 15.203, 15.205, 15.207, 15.209 and 15.247 of the Federal Communication Commissions rules.

Maintenance of compliance is the responsibility of the manufacturer. Any modification of the product, which result in lowering the emission, should be checked to ensure compliance has been maintained.

1.3 Related Submittal(s)/Grant(s)

No Related Submittal(s).

1.4 Test Methodology

All measurements contained in this report were conducted with ANSI C63.4-2003, American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the range of 9 kHz to 40 GHz.

The equipment under test (EUT) was configured to measure its highest possible emission level. The test modes were adapted with Low Channel, Middle Channel and High Channel, accordingly in reference to the Operating Instructions.

1.5 Test Facility

- **FCC – Registration No.: 994117**
  SEM.Test Compliance Services Co., Ltd. EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files and the Registration is 994117.

- **Industry Canada (IC) Registration No.: 7673A**
  The 3m Semi-anechoic chamber of SEM.Test Compliance Services Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 7673A.

1.6 EUT Exercise Software

The EUT exercise program used during the testing was designed to exercise the system components.

1.7 Accessories Equipment List and Details

Manufacturer	Description	Model	Serial Number
ASUS	Notebook	X50R	/
/	/	/	/
/	/	/	/

1.8 EUT Cable List and Details

Cable Description	Length (M)	Shielded/Unshielded	With Core/Without Core
DC Power Cable	1.8	Unshielded	Without Core

2. SUMMARY OF TEST RESULTS

FCC RULES	DESCRIPTION OF TEST	RESULT
§ 15.203; § 15.247(c)(1)(i)	Antenna Requirement	Compliant
§ 1.1307(b)	Maximum Permissible Exposure	Compliant
§ 15.207	Conducted Emission	Compliant
§ 15.247(e)	Power Spectral Density	Compliant
§ 15.247(a)(2)	6 dB Bandwidth	Compliant
§ 15.247(b)(3)	Power Output	Compliant
§ 15.209(a)(d)	Radiated Emission	Compliant
§ 15.247(d)	Band edge	Compliant

3. CONDUCTED EMISSIONS

3.1 Measurement Uncertainty

Base on NIS 81, The Treatment of Uncertainty in EMC Measurements, the best estimate of the uncertainty of any conducted emissions measurement is ± 0.5 dB.

3.2 Test Equipment List and Details

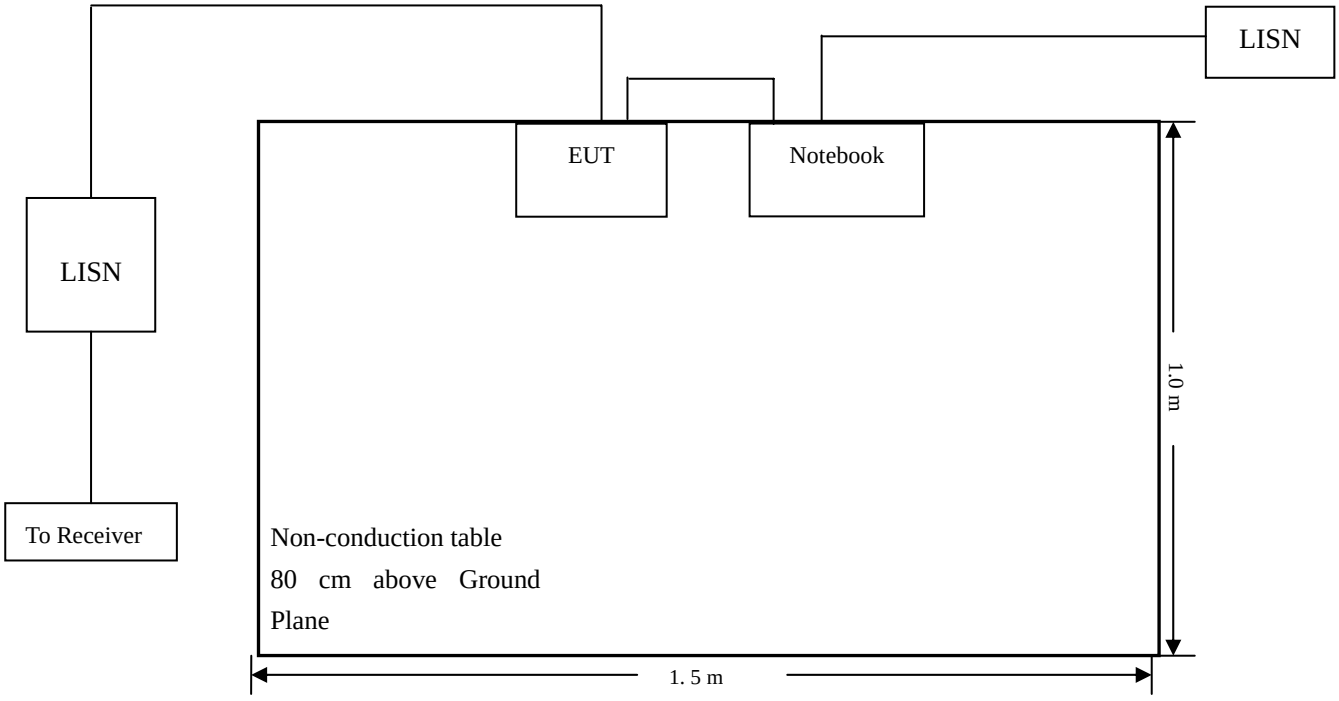
Description	Manufacturer	Model	Serial Number	Cal. Date	Due. Date
EMI Test Receiver	Rohde & Schwarz	ESPI	101611	2009-08-12	2010-08-11
Puls Limiter	Rohde & Schwarz	ESH3-Z2	100911	2009-08-12	2010-08-11
L.I.S.N.	SCHWARZBECK	NSLK8126	8126-224	2009-08-12	2010-08-11
L.I.S.N.	EMCO	3825/2	11967C	2009-08-12	2010-08-11

Statement of Traceability: All calibrations have been performed per the NVLAP requirements traceable to the NIST.

3.3 Test Procedure

Test is conducting under the description of ANSI C63.4-2003, American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the range of 9 kHz to 40 GHz.

3.4 Basic Test Setup Block Diagram



3.5 Environmental Conditions

Temperature:	25 °C
Relative Humidity:	52%
ATM Pressure:	1011 mbar

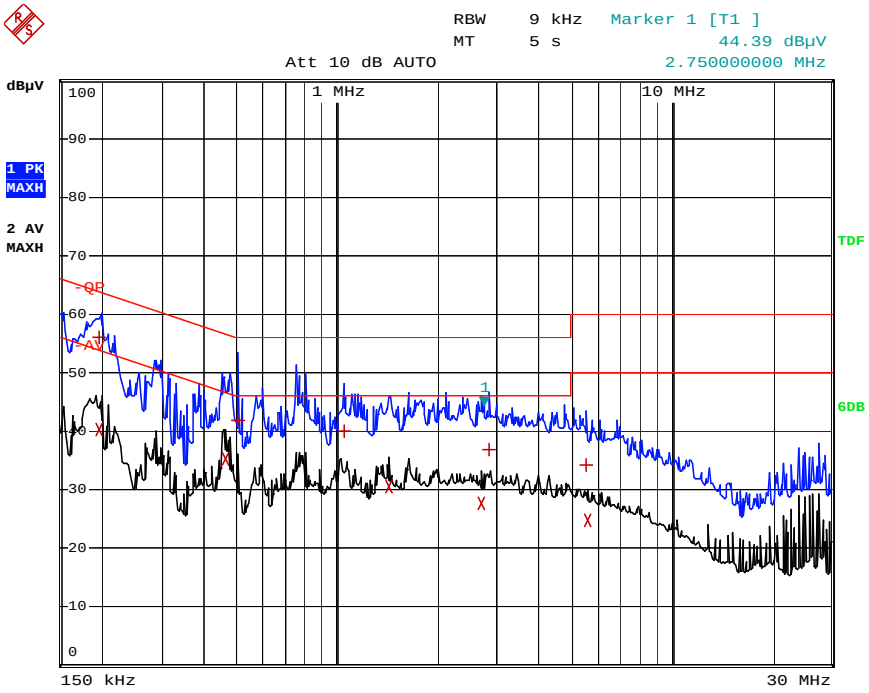
3.6 Summary of Test Results/Plots

According to the data in section 3.7, the EUT complied with the FCC 15.207 Conducted margin for a Class B device, with the *worst* margin reading of:

-7.58 dBµV at **0.198 MHz** in the **Line**, **QP** detector, 0.15-30MHz

3.7 Conducted Emissions Test Data/Plots

Operating Condition: Operating
Test Specification: N
Comment: 120V/60Hz; AC9V adapter



Date: 9.MAR.2010 09:52:53

EDIT PEAK LIST (Final Measurement Results)

Trace1: -QP
Trace2: -AV
Trace3: ---

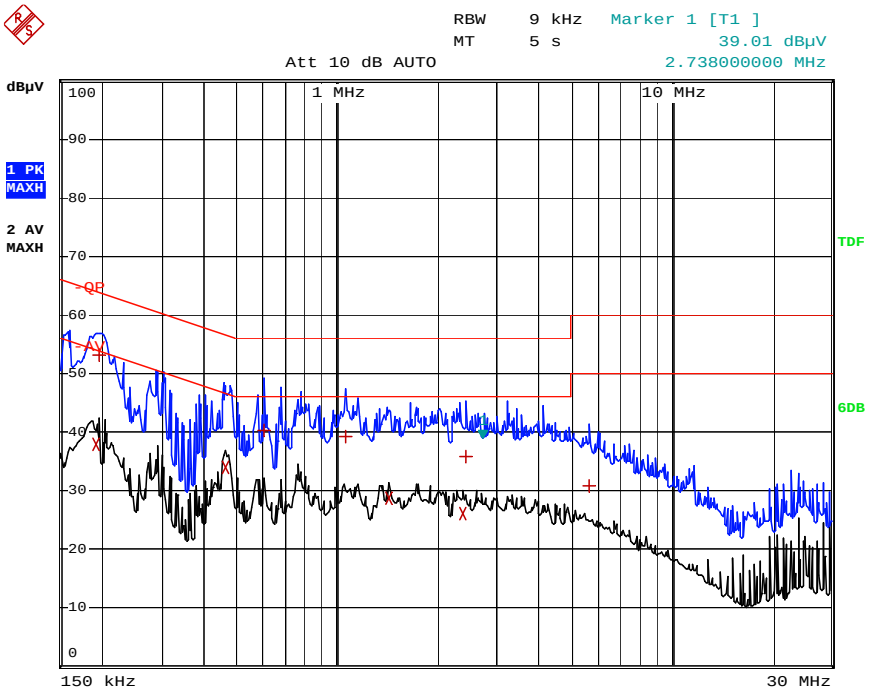
TRACE		FREQUENCY	LEVEL dBµV	DELTA LIMIT dB
1	Quasi Peak	198 kHz	56.11	-7.58
2	Average	198 kHz	40.40	-13.29
2	Average	462 kHz	35.38	-11.26
1	Quasi Peak	502 kHz	41.88	-14.11
1	Quasi Peak	1.046 MHz	40.14	-15.85
2	Average	1.43 MHz	30.59	-15.40
2	Average	2.714 MHz	27.78	-18.21
1	Quasi Peak	2.842 MHz	36.76	-19.23
1	Quasi Peak	5.578 MHz	34.23	-25.76
2	Average	5.61 MHz	24.74	-25.25

Date: 9.MAR.2010 09:52:40

Operating Condition: Operating

Test Specification: L

Comment: 120V/60Hz; AC 9V adapter



Date: 9.MAR.2010 09:55:28

EDIT PEAK LIST (Final Measurement Results)

Trace1: -QP
Trace2: -AV
Trace3: ---

TRACE		FREQUENCY	LEVEL dBµV	DELTA LIMIT dB
2	Average	194 kHz	37.83	-16.02
1	Quasi Peak	198 kHz	53.11	-10.58
2	Average	462 kHz	33.87	-12.78
1	Quasi Peak	602 kHz	40.28	-15.71
1	Quasi Peak	1.062 MHz	39.14	-16.85
2	Average	1.43 MHz	28.82	-17.17
2	Average	2.374 MHz	25.99	-20.00
1	Quasi Peak	2.418 MHz	35.95	-20.04
1	Quasi Peak	5.69 MHz	30.89	-29.10

Date: 9.MAR.2010 09:55:03

4. §15.203 - ANTENNA REQUIREMENT

4.1 Standard Applicable

According to FCC 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section.

4.2 Test Result

This product has a unique and integral antenna, fulfill the requirement of this section.

5. MAXIMUM PERMISSIBLE EXPOSURE (MPE)

5.1 Standard Applicable

According to § 1.1307(b)(1), system operating under the provisions of this section shall be operating in a manner that the public is not exposed to radio frequency energy level in excess limit for maximum permissible exposure.

(a) Limits for Occupational / Controlled Exposure

Frequency range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/cm^2)	Averaging Times $\|E\|^2$, $\|H\|^2$ or S (minutes)
0.3-3.0	614	1.63	(100)*	6
3.0-30	1842/f	4.89/f	(900/f)*	6
30-300	61.4	0.163	1.0	6
300-1500			F/300	6
1500-100000			5	6

(b) Limits for General Population / Uncontrolled Exposure

Frequency range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/cm^2)	Averaging Times $\|E\|^2$, $\|H\|^2$ or S (minutes)
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	(180/f)*	30
30-300	27.5	0.073	0.2	30
300-1500			F/1500	30
1500-100000			1	30

Note: f = frequency in MHz: * = Plane-wave equivalents power density

5.2 MPE Calculation Method

$S = (P*G) / (4*\Pi*R^2)$

S = power density (in appropriate units, e.g., mw/cm^2)

P = power input to the antenna (in appropriate units, e.g., mw)

G = power gain of the antenna in the direction of interest relative to an isotropic radiator, the power gain factor is normally numeric gain.

R = distance to the center of radiation of the antenna (in appropriate units, e.g., cm)

5.3 MPE Calculation Result

Maximum peak output power at antenna input terminal: 37.24(mW)
Prediction distance: 20 (cm)
Prediction frequency: 2412 (MHz)
Antenna gain (typical): 1 (dBi)
Antenna gain (numeric): 1.2589254 (numeric)
The worst case is power density at prediction frequency at 20cm: 0.009327 (mw/cm^2)
MPE limit for general population exposure at prediction frequency: 1 (mw/cm^2)

0.009327 (mw/cm^2) < 1 (mw/cm^2)

Result: Pass

6. POWER SPECTRAL DENSITY

6.1 Standard Applicable

According to 15.247(a)(1)(iii), 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.

6.2 Test Equipment List and Details

Description	Manufacturer	Model	Serial Number	Cal. Date	Due. Date
Spectrum Analyzer	Agilent	E4402B	US41192821	2009-08-12	2010-08-11
RF Limiter	Agilent	11867A	MY42241685	2009-08-12	2010-08-11
RMS/PEAK Voltmeter	Rohde & Schwarz	URE3	826135/008	2009-08-12	2010-08-11

Statement of Traceability: All calibrations have been performed per the NVLAP requirements traceable to the NIST.

6.3 Test Procedure

1. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer.
2. Set center frequency of spectrum analyzer = operating frequency.
3. Set the spectrum analyzer as RBW=3kHz, VBW≧RBW , Span =300kHz.
4. Repeat above procedures until all frequency measured was complete.

6.4 Environmental Conditions

Temperature:	25 °C
Relative Humidity:	52%
ATM Pressure:	1011 mbar

6.5 Summary of Test Results/Plots

For Chain 0

Test mode	Test channel	Reading dBm/3kHz	Limit dBm/3kHz
802.11b	Low channel (2412MHz)	-27.04	8
	Middle channel (2437MHz)	-22.52	8
	High channel (2462MHz)	-22.01	8
802.11g	Low channel (2412MHz)	-22.51	8
	Middle channel (2437MHz)	-22.44	8
	High channel (2462MHz)	-23.65	8
802.11n/HT20	Low channel (2412MHz)	-21.83	8
	Middle channel (2437MHz)	-20.88	8
	High channel (2462MHz)	-21.58	8
802.11n/HT40	Low channel (2422MHz)	-22.93	8
	Middle channel (2437MHz)	-23.60	8
	High channel (2452MHz)	-22.26	8

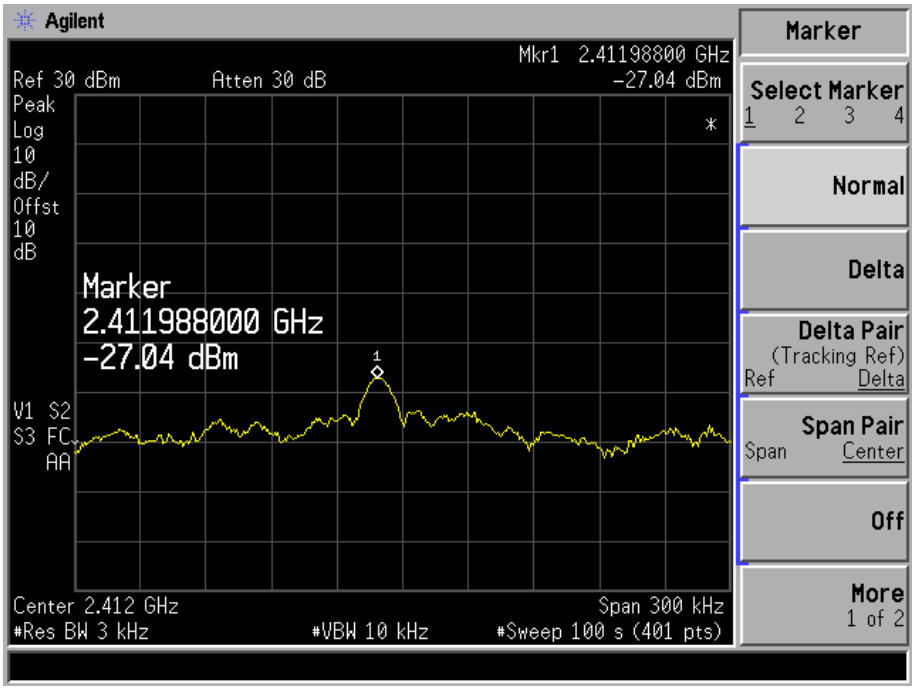
For Chain 1

Test mode	Test channel	Reading dBm/3kHz	Limit dBm/3kHz
802.11b	Low channel (2412MHz)	-27.44	8
	Middle channel (2437MHz)	-22.58	8
	High channel (2462MHz)	-22.14	8
802.11g	Low channel (2412MHz)	-21.65	8
	Middle channel (2437MHz)	-22.02	8
	High channel (2462MHz)	-23.57	8
802.11n/HT20	Low channel (2412MHz)	-21.87	8
	Middle channel (2437MHz)	-21.25	8
	High channel (2462MHz)	-21.71	8
802.11n/HT40	Low channel (2422MHz)	-23.15	8
	Middle channel (2437MHz)	-23..01	8
	High channel (2452MHz)	-22.39	8

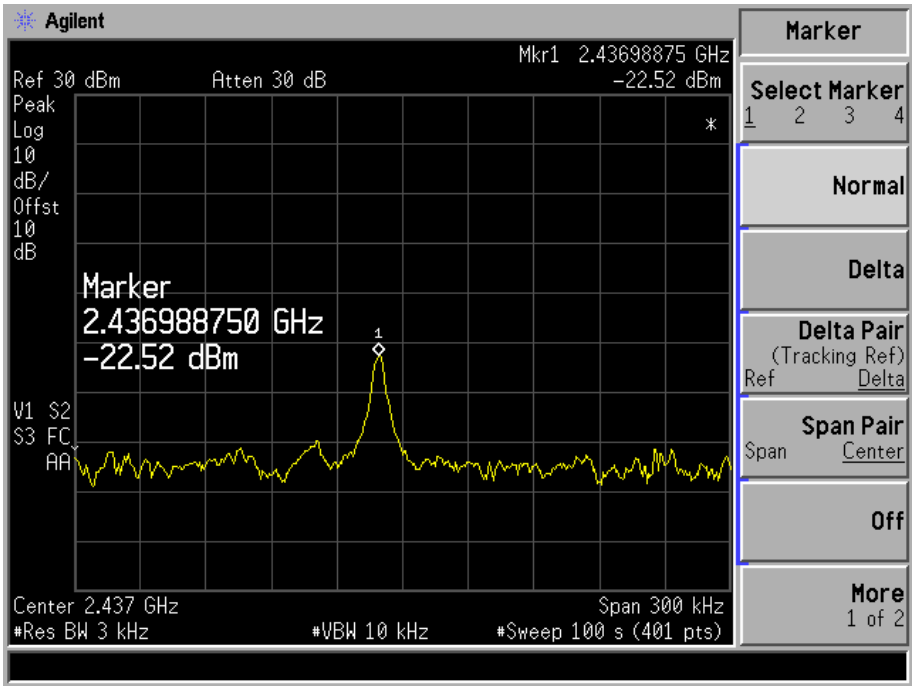
For Chain 0

For 802.11b

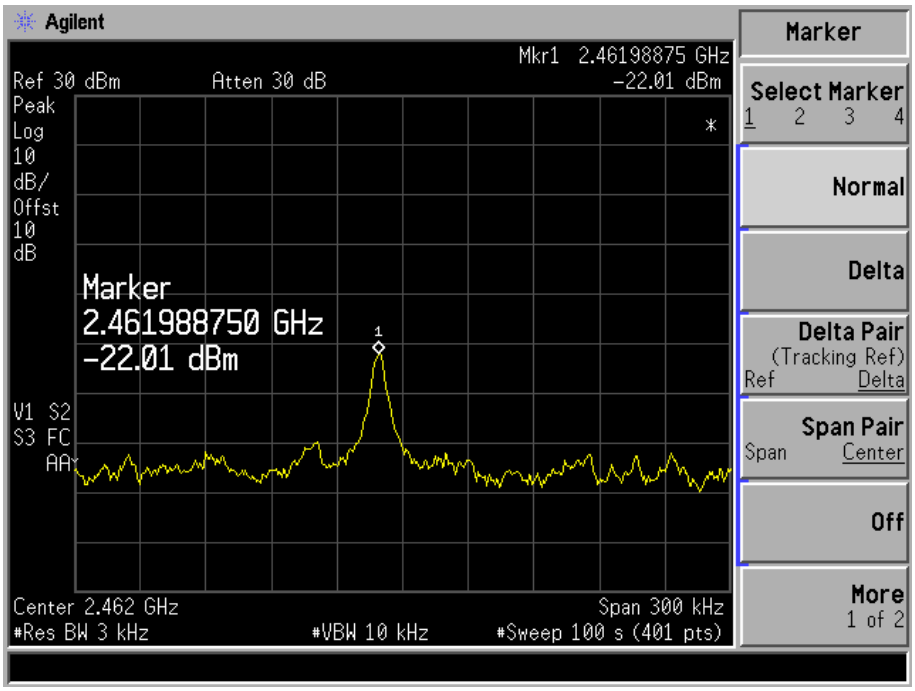
Low Channel:



Middle Channel:

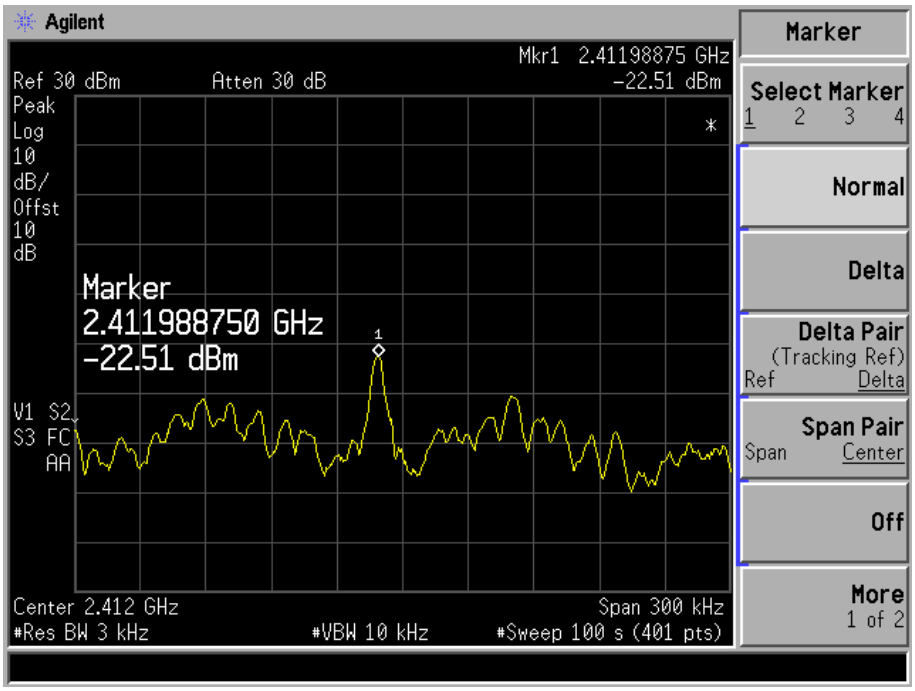


High Channel:

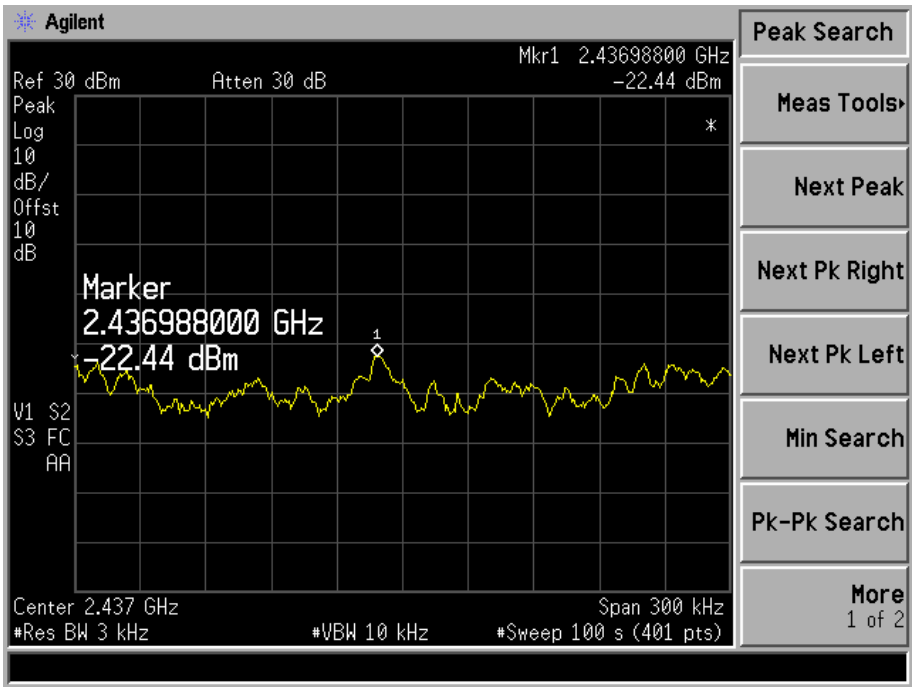


For 802.11g

Low Channel:



Middle Channel:



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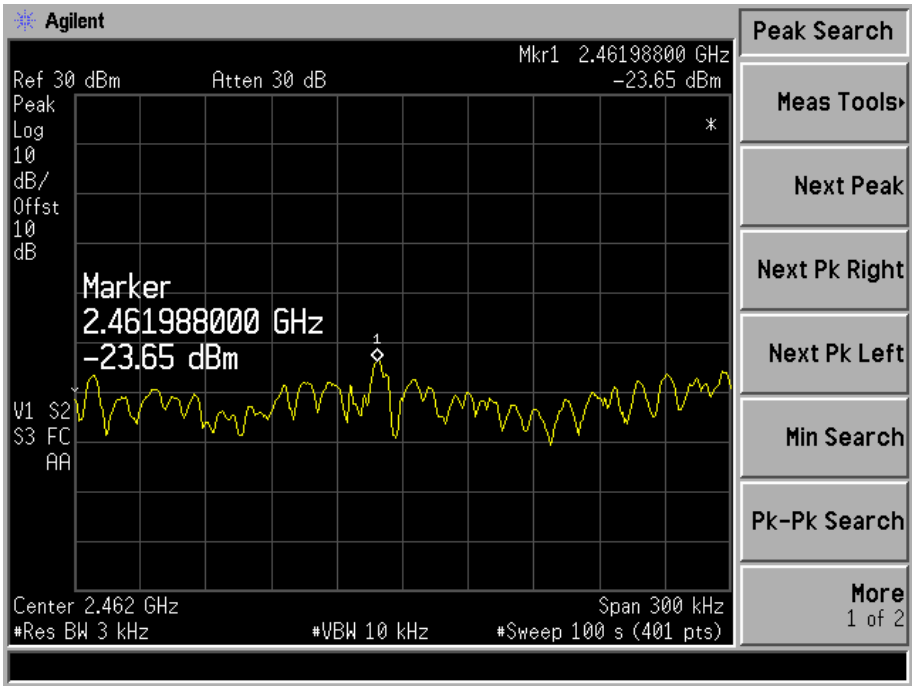
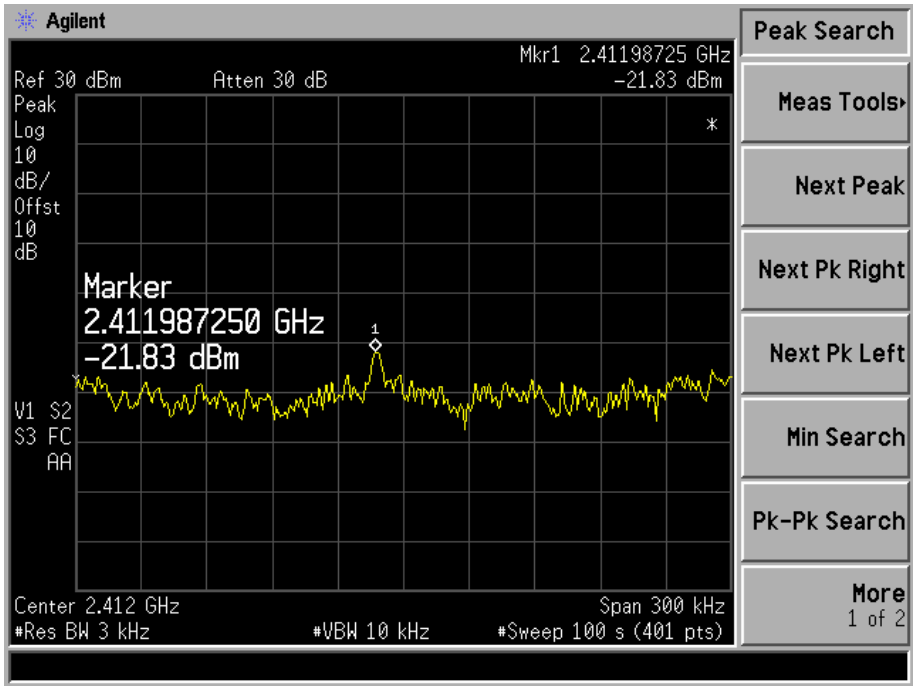
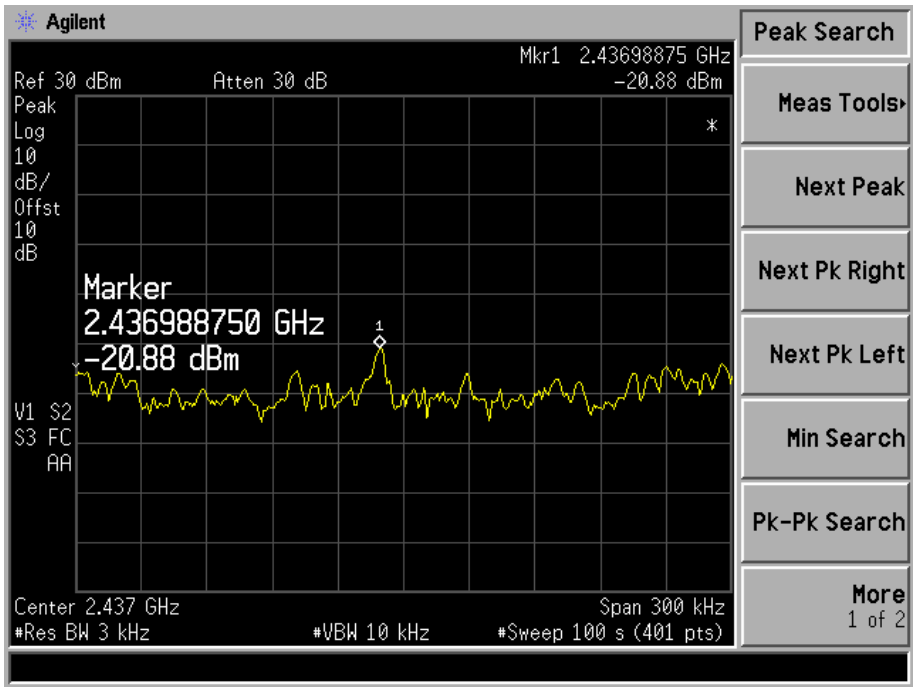


For 802.11n/HT20

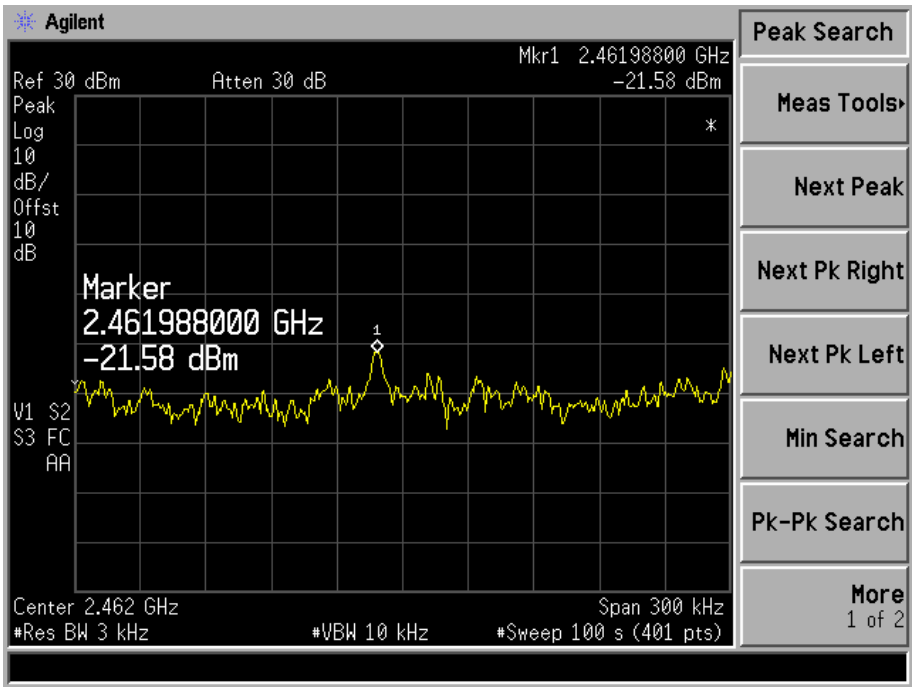
Low Channel:



Middle Channel:

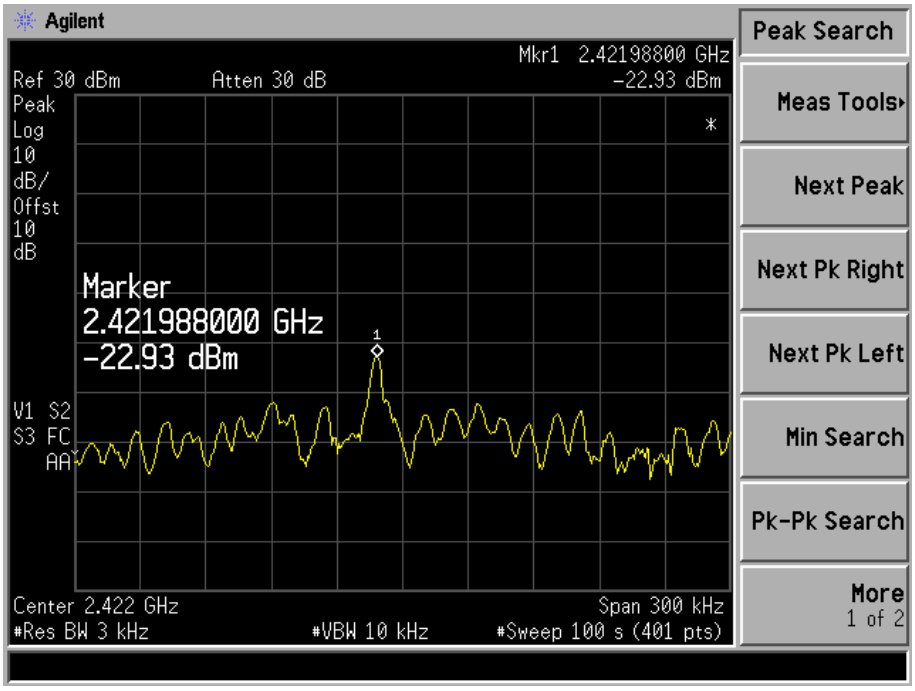


High Channel:

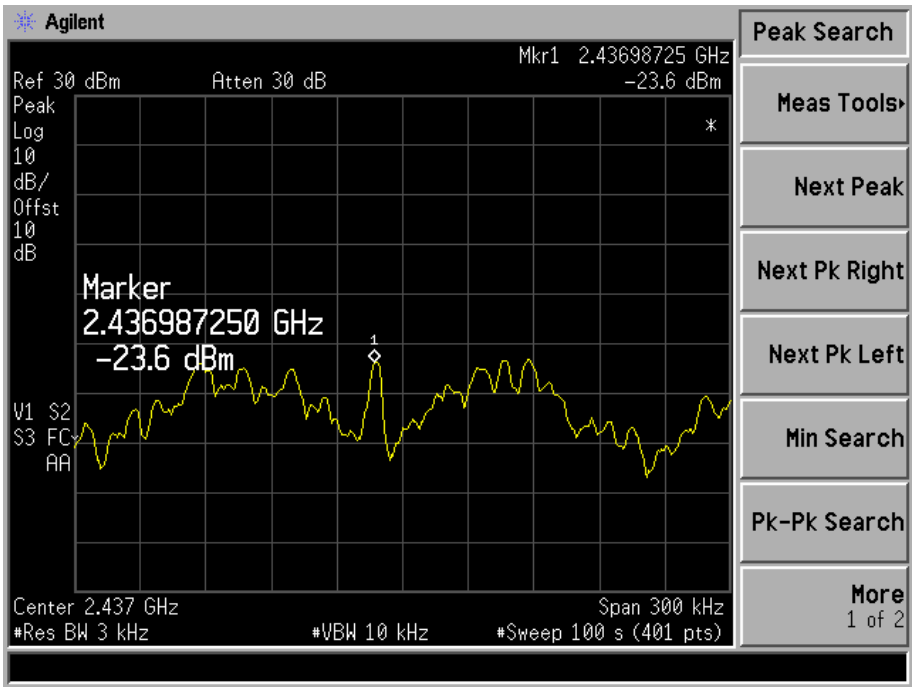


For 802.11n/HT40

Low Channel



Middle Channel:



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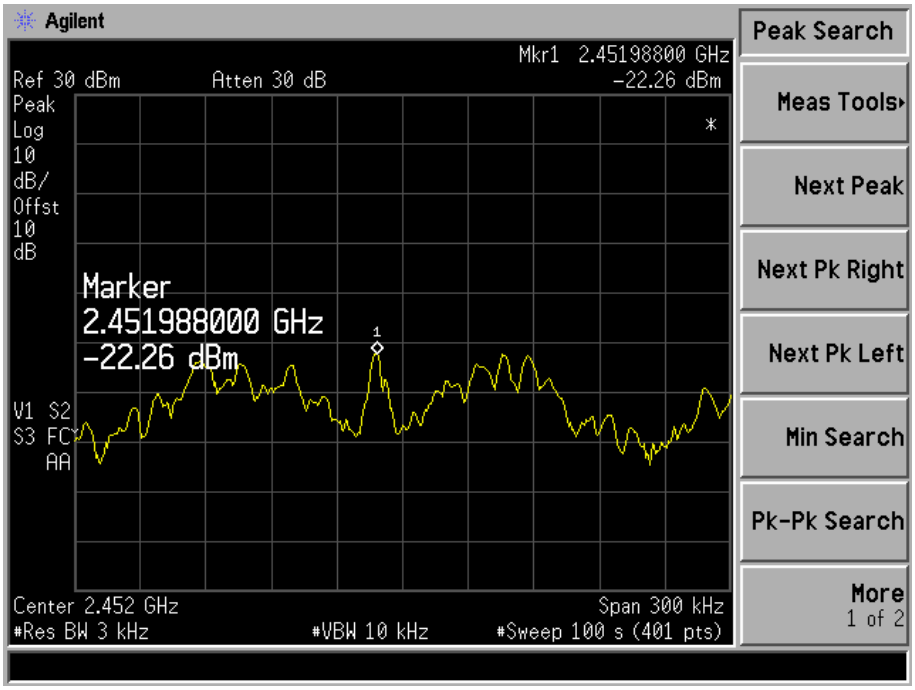
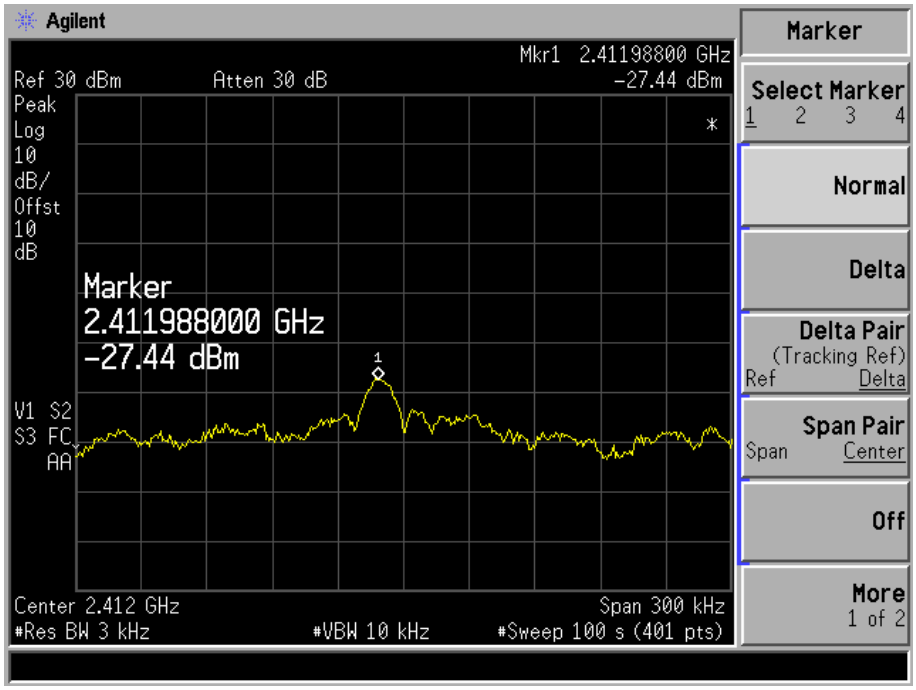


For Chain 1

For 802.11b

Low Channel:



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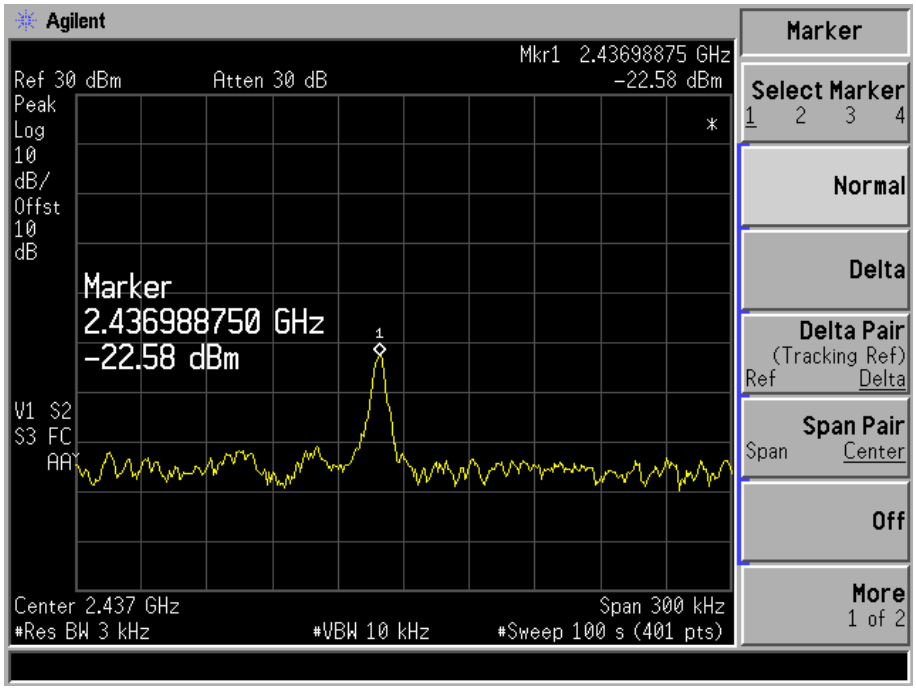

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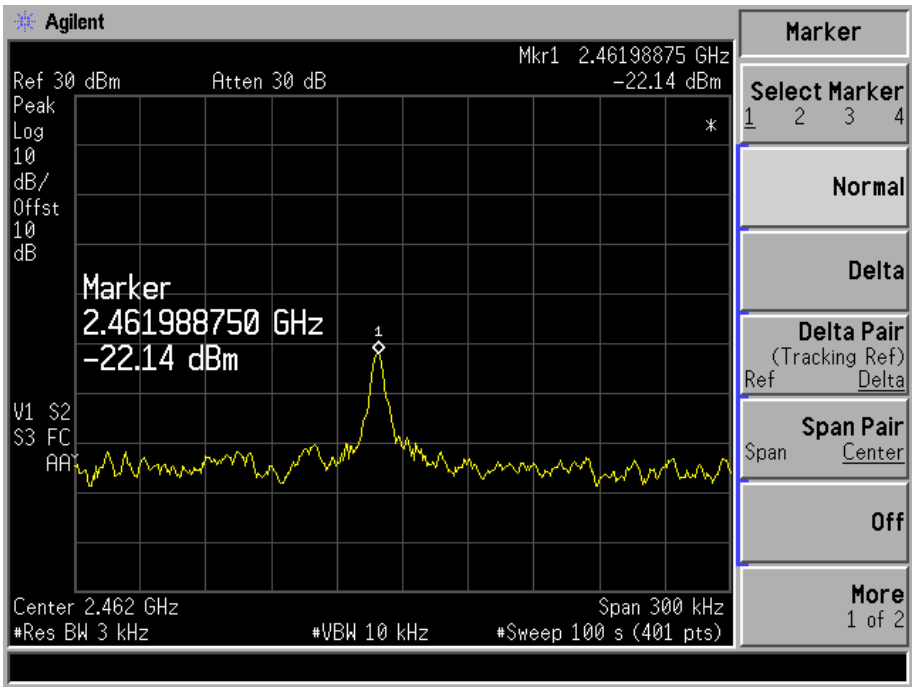
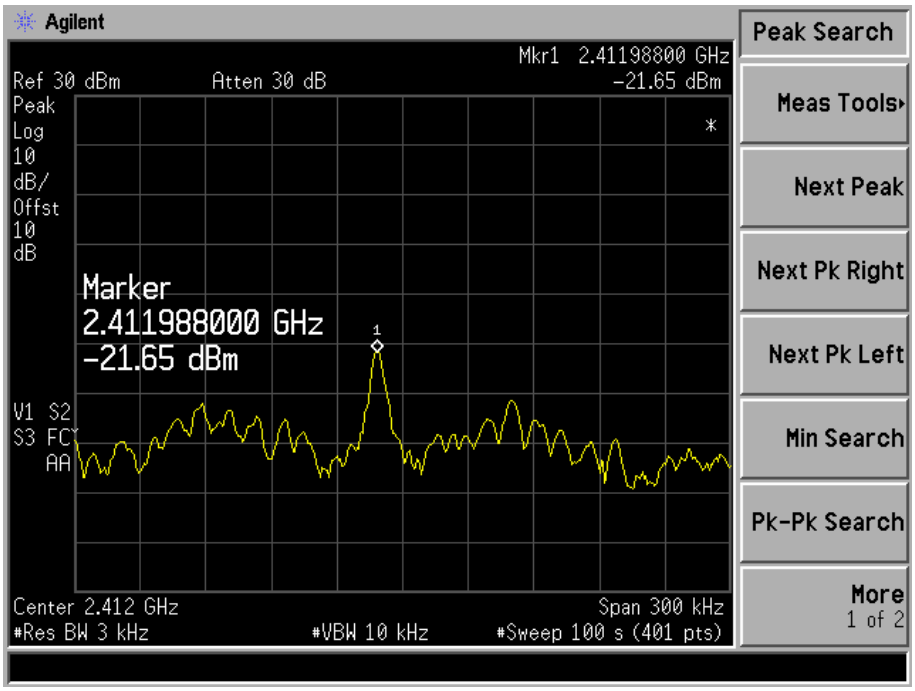


For 802.11g

Low Channel:



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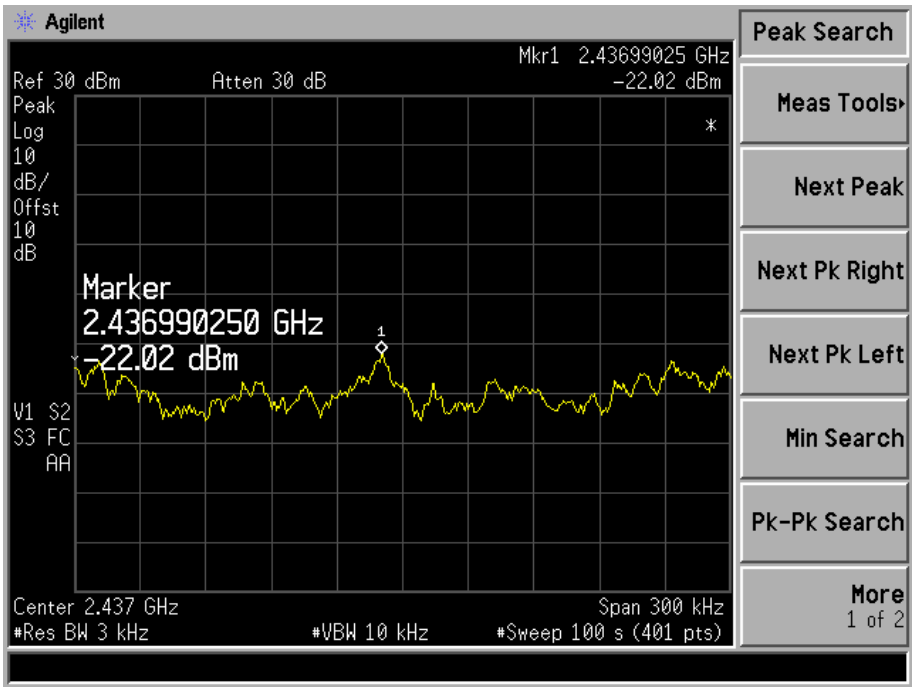

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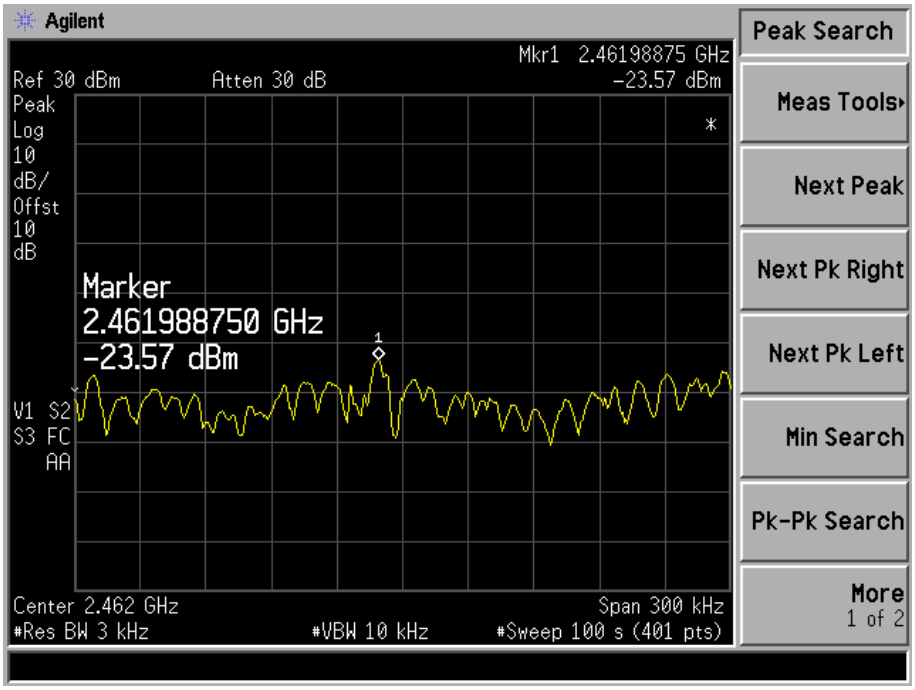

For 802.11n/HT20

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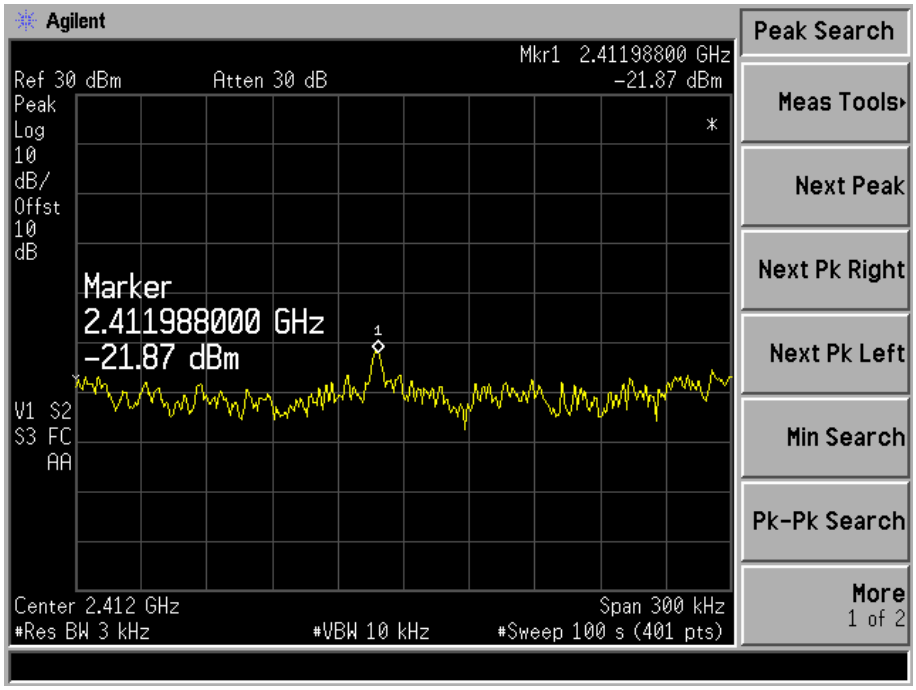
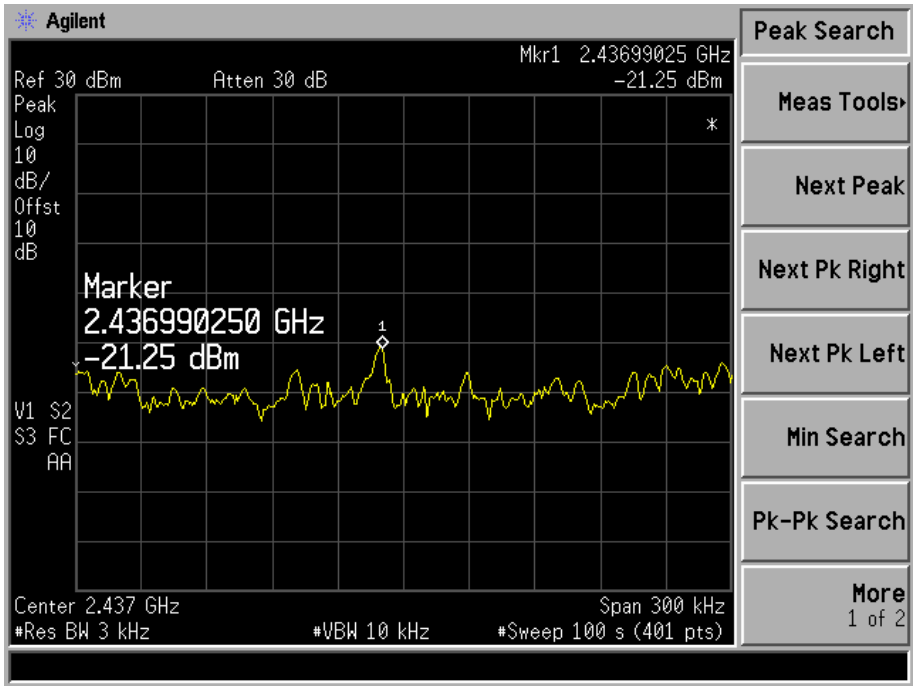


Middle Channel:



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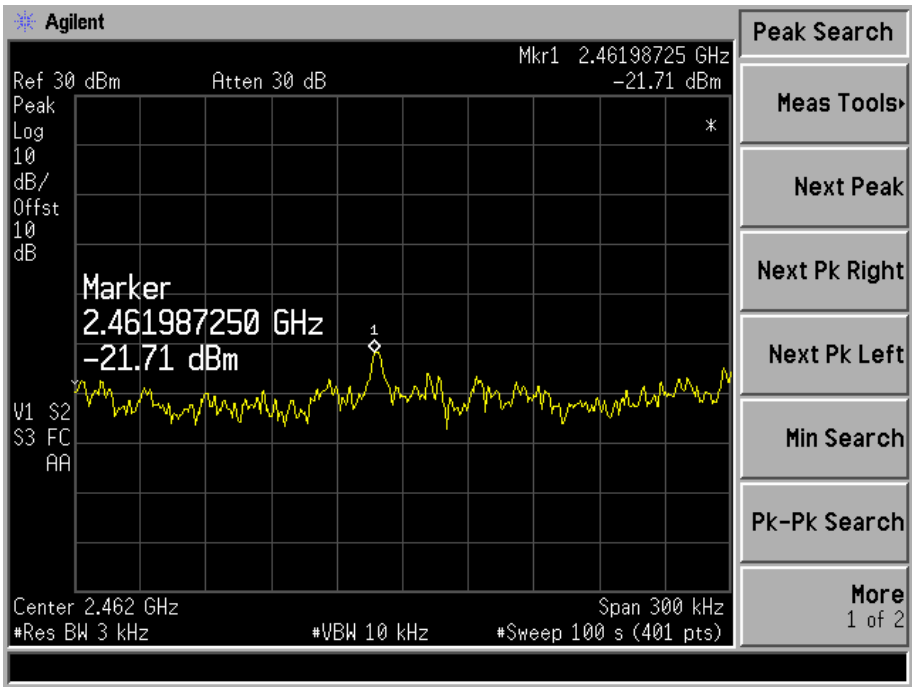
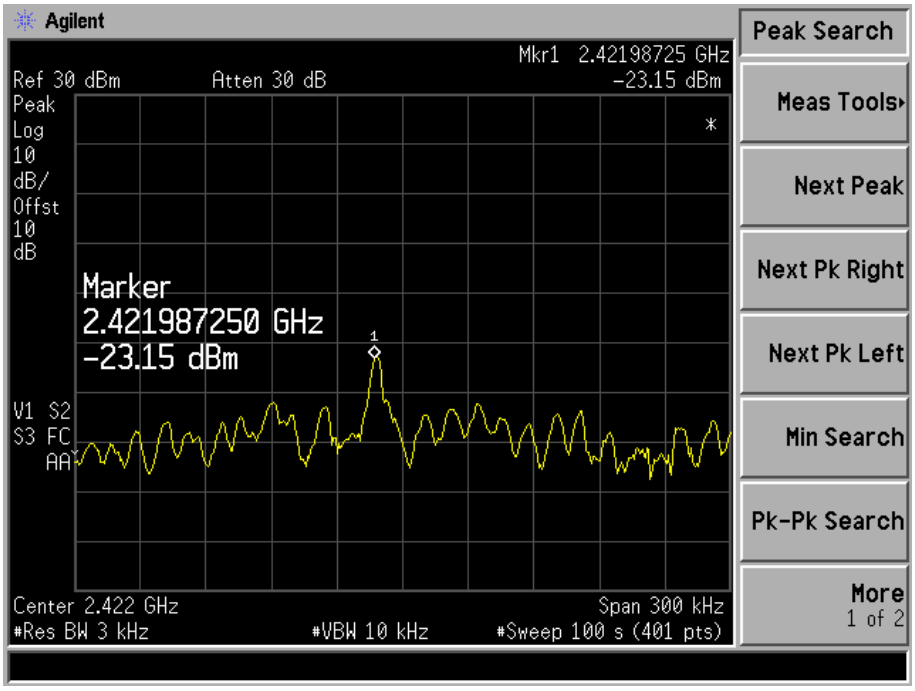


For 802.11n/HT40

Low Channel



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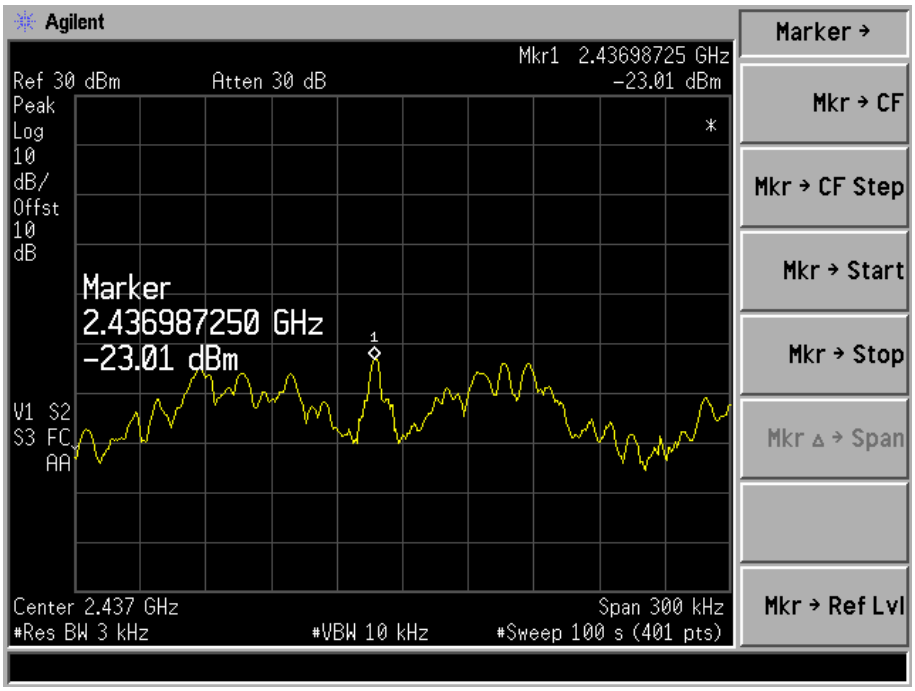

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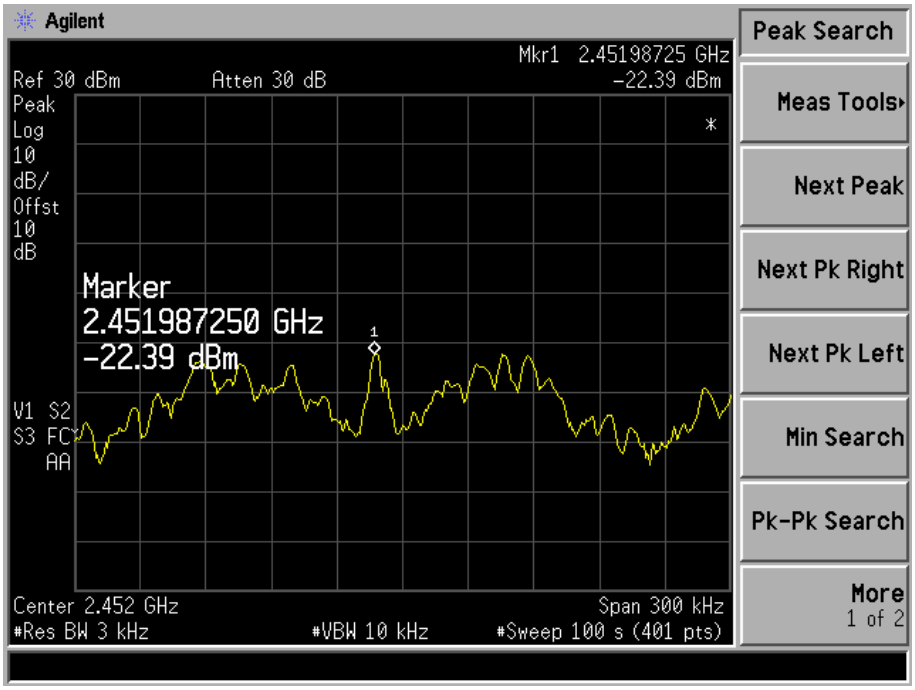


7. 6-dB BANDWIDTH

7.1 Standard Applicable

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.

7.2 Test Equipment List and Details

Description	Manufacturer	Model	Serial Number	Cal. Date	Due. Date
Spectrum Analyzer	Agilent	E4402B	US41192821	2009-08-12	2010-08-11
RF Limiter	Agilent	11867A	MY42241685	2009-08-12	2010-08-11

Statement of Traceability: All calibrations have been performed per the NVLAP requirements traceable to the NIST.

7.3 Test Procedure

1. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer.
2. Set center frequency of spectrum analyzer = operating frequency.
3. The spectrum analyzer as RBW=100KHz VBW≧RBW, Sweep=auto
4. Mark the peak frequency and –6dB (upper and lower) frequency.

7.4 Environmental Conditions

Temperature:	24° C
Relative Humidity:	49 %
ATM Pressure:	1015 mbar

7.5 Summary of Test Results/Plots

For Chain 0

Test mode	Frequency MHz	6 dB Bandwidth kHz	Limit kHz
802.11b	2412	11240	500
	2437	10331	500
	2462	11753	500
802.11g	2412	15759	500
	2437	15641	500
	2462	15536	500
802.11n/HT20	2412	15700	500
	2437	15869	500
	2462	16135	500
802.11n/HT40	2422	32755	500
	2437	31530	500
	2452	35131	500

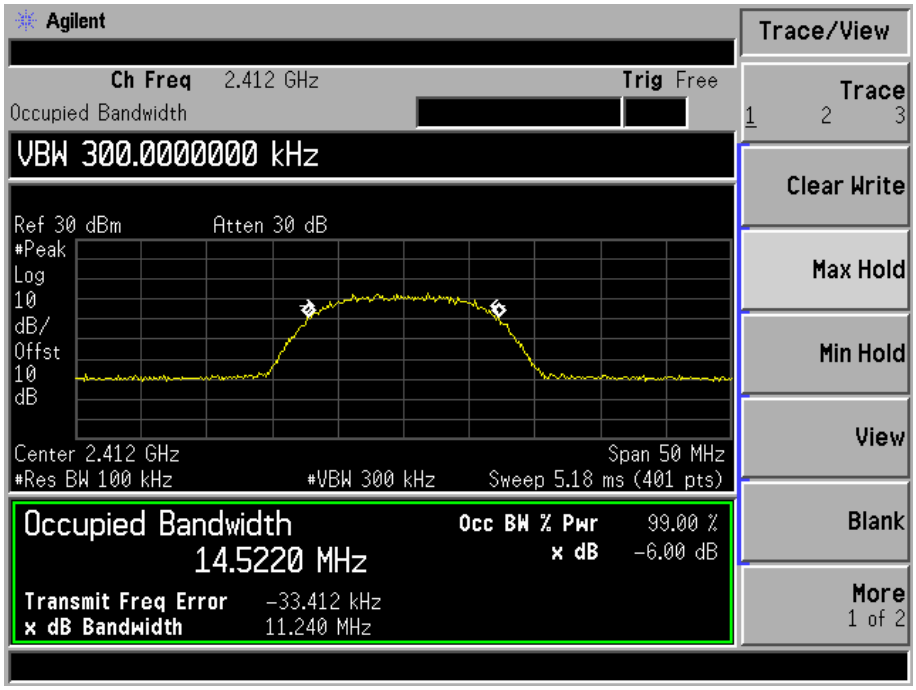
For Chain 1

Test mode	Frequency MHz	6 dB Bandwidth kHz	Limit kHz
802.11b	2412	11205	500
	2437	11230	500
	2462	11753	500
802.11g	2412	16315	500
	2437	15942	500
	2462	15536	500
802.11n/HT20	2412	15432	500
	2437	15633	500
	2462	15419	500
802.11n/HT40	2422	33906	500
	2437	33077	500
	2452	35149	500

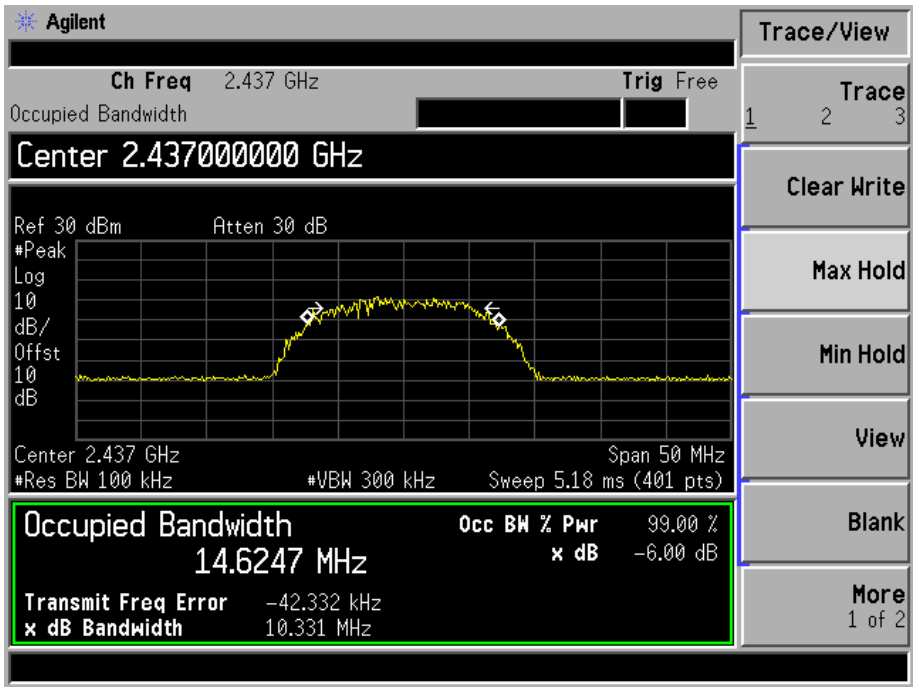
For Chain 0

For 802.11b

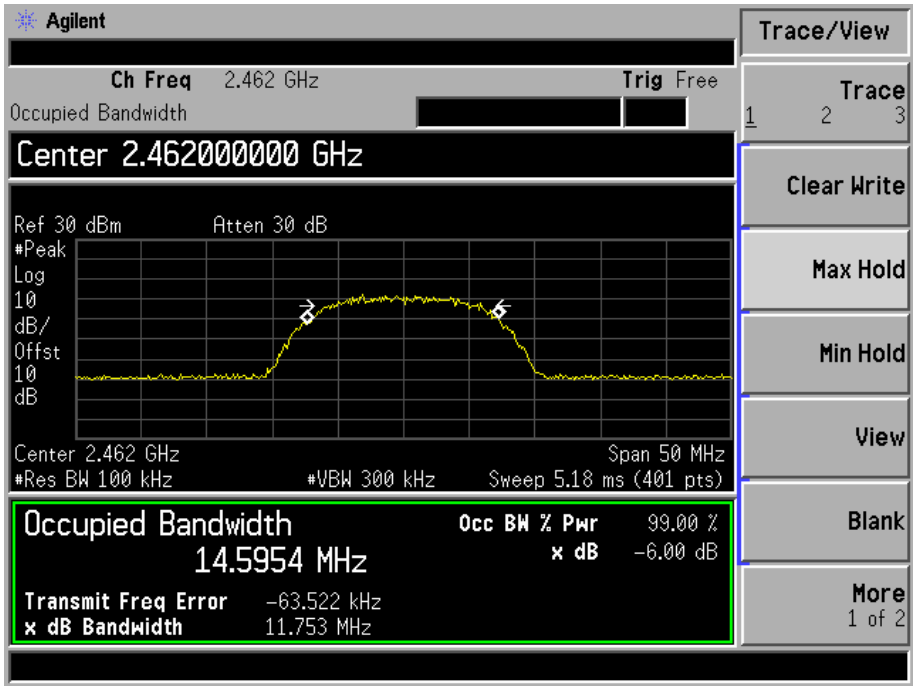
Low Channel:



Mid Channel:

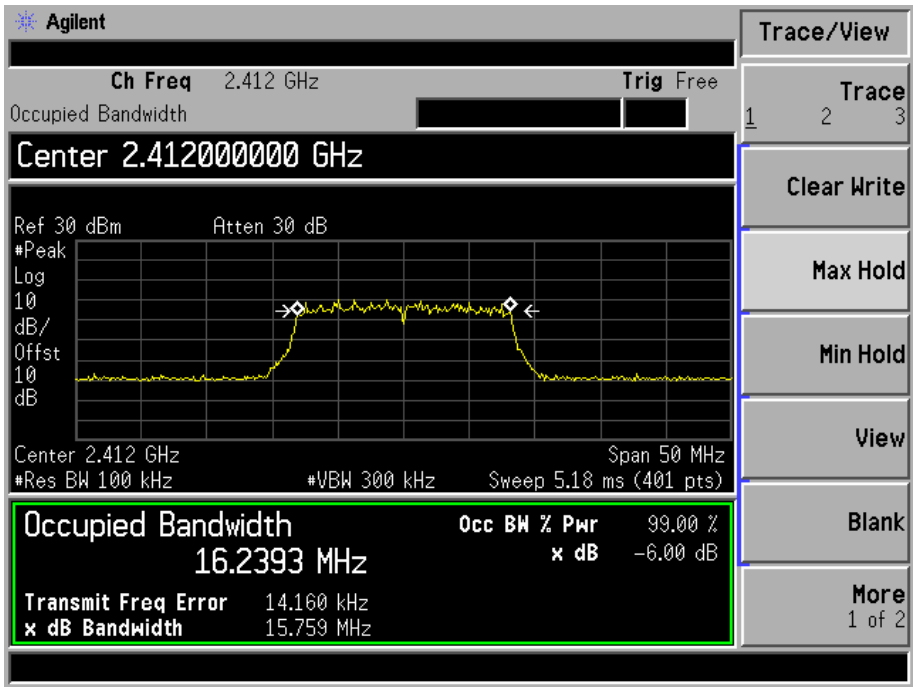


High Channel:

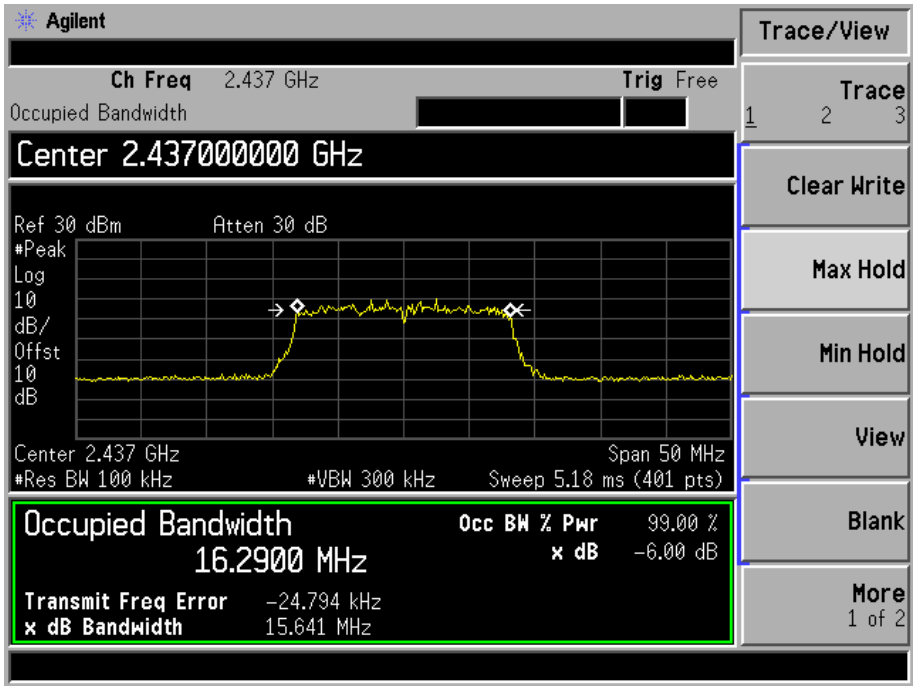


For 802.11g

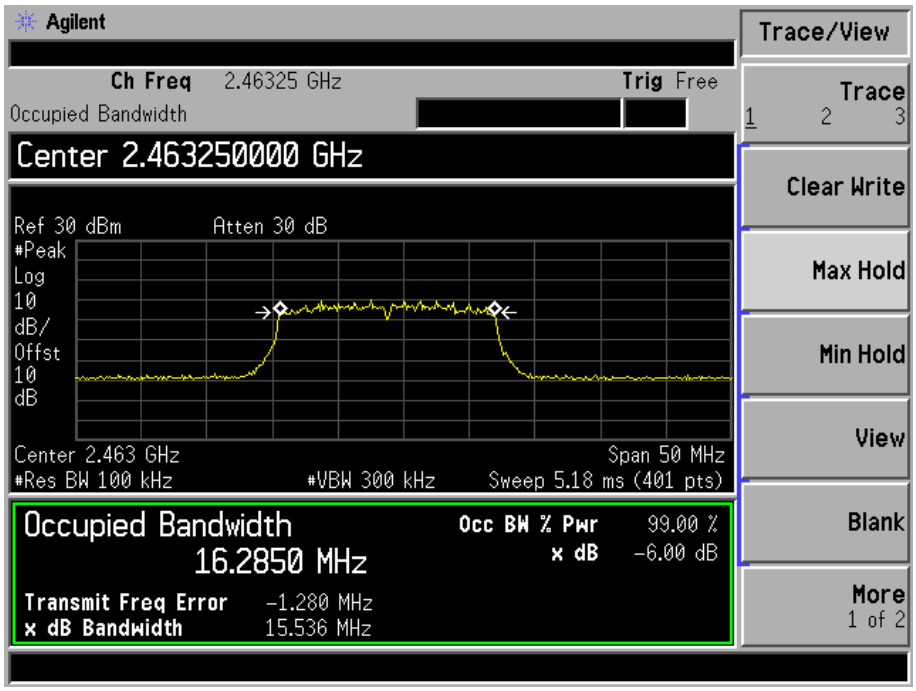
Low Channel:



Mid Channel:

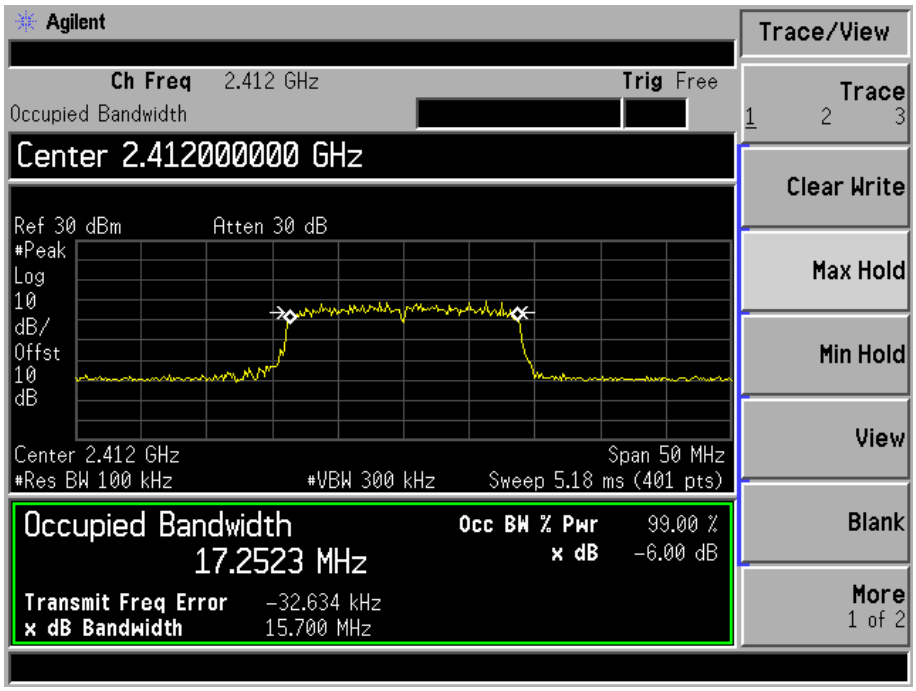


High Channel:

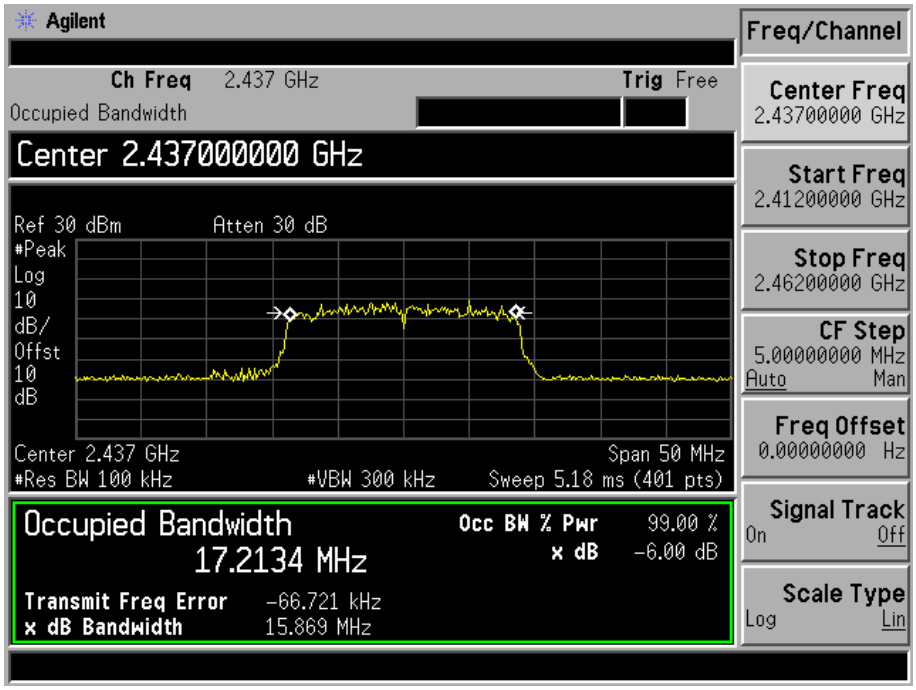


For 802.11n/HT20

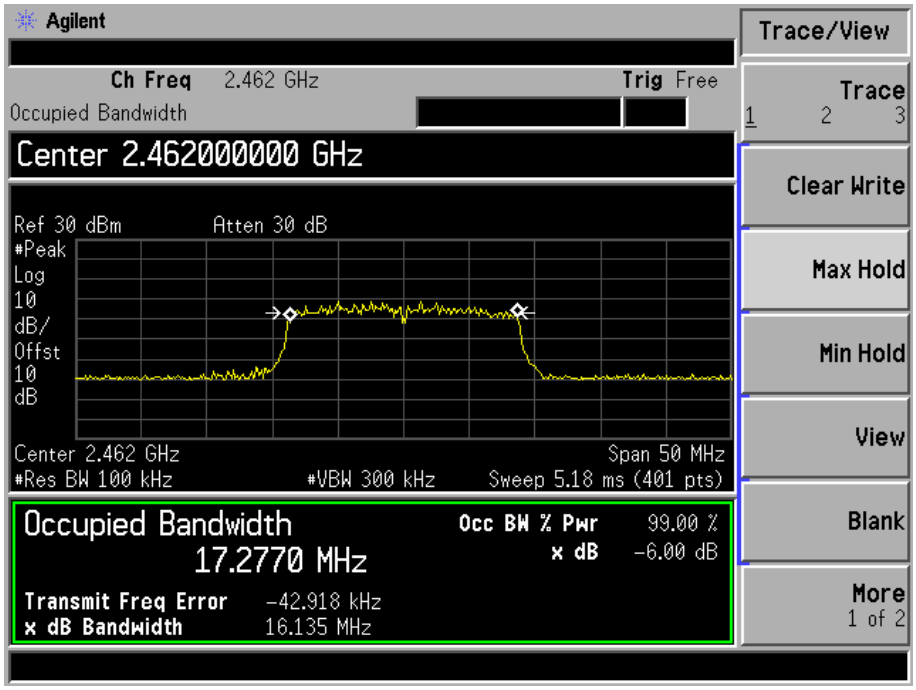
Low Channel:



Middle Channel:

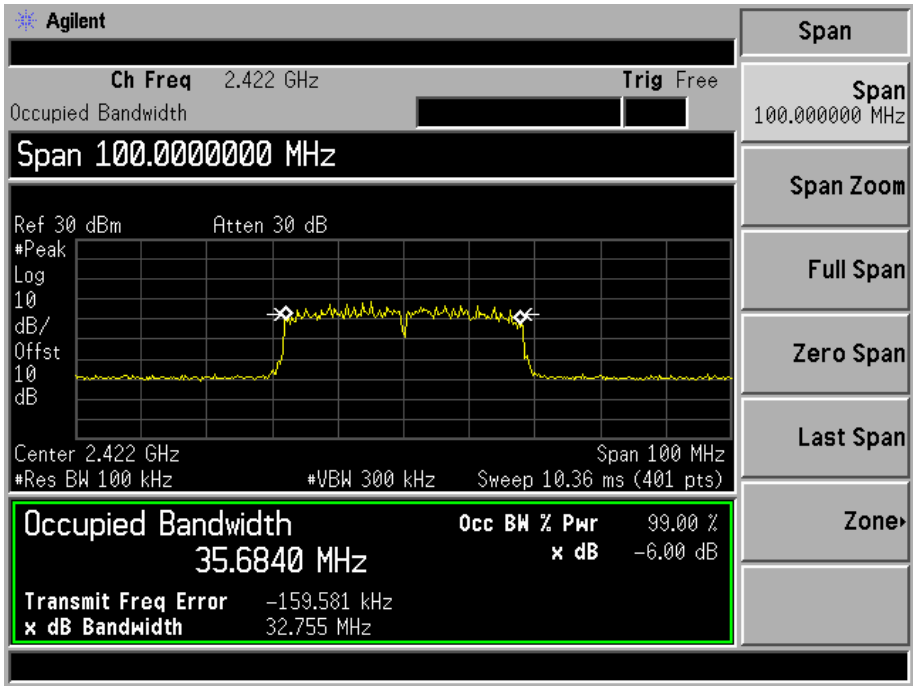


High Channel:

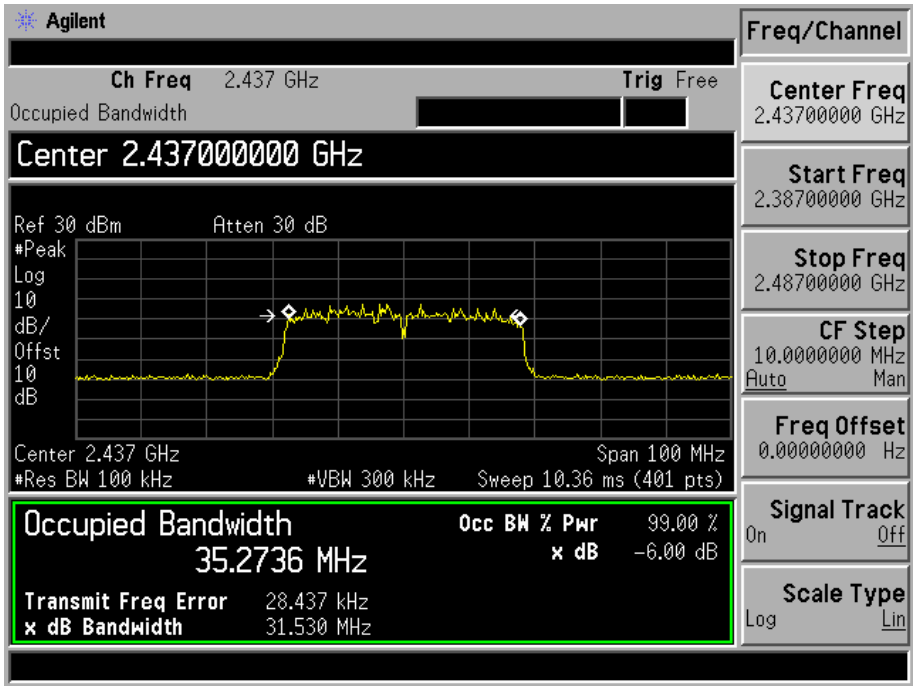


For 802.11n/HT40

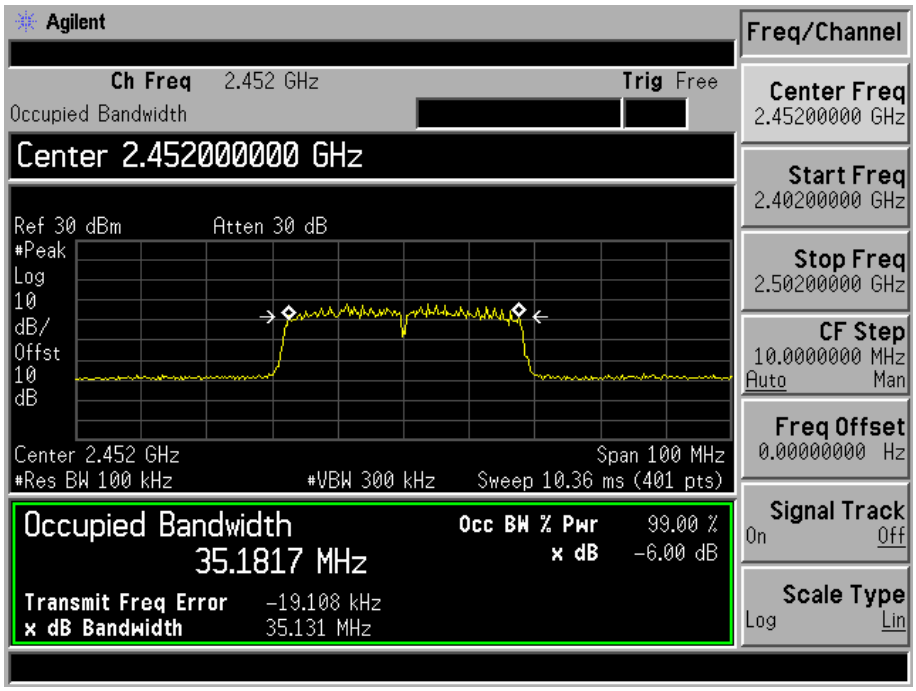
Low Channel:



Middle Channel:



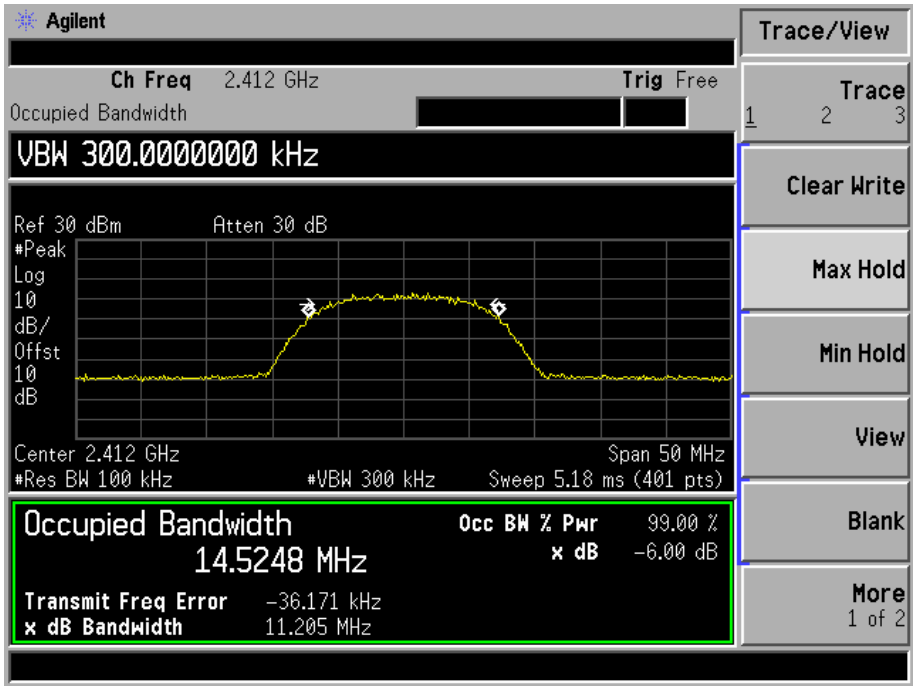
High Channel:



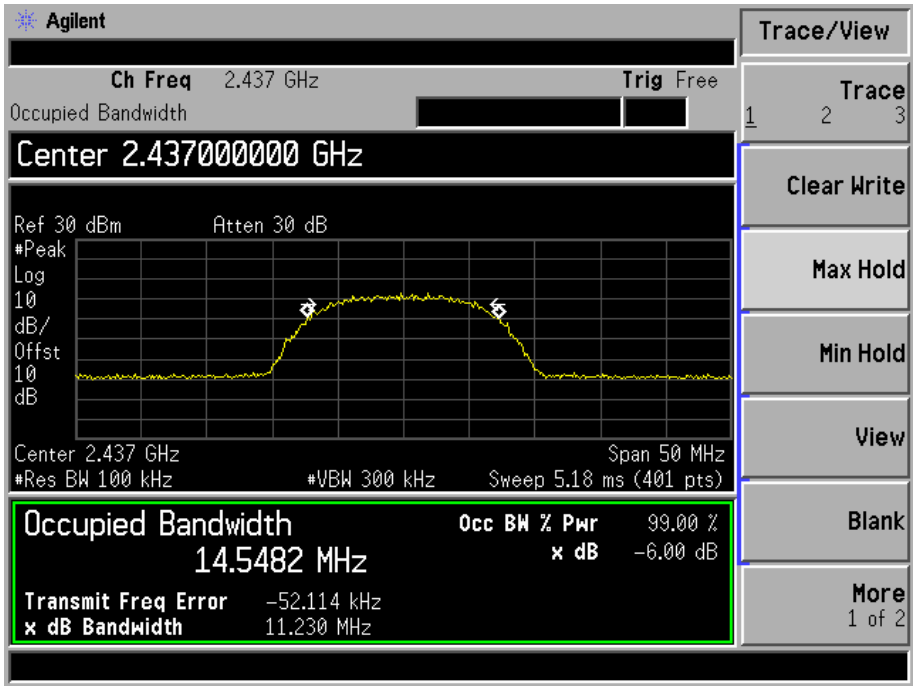
For Chain 1

For 802.11b

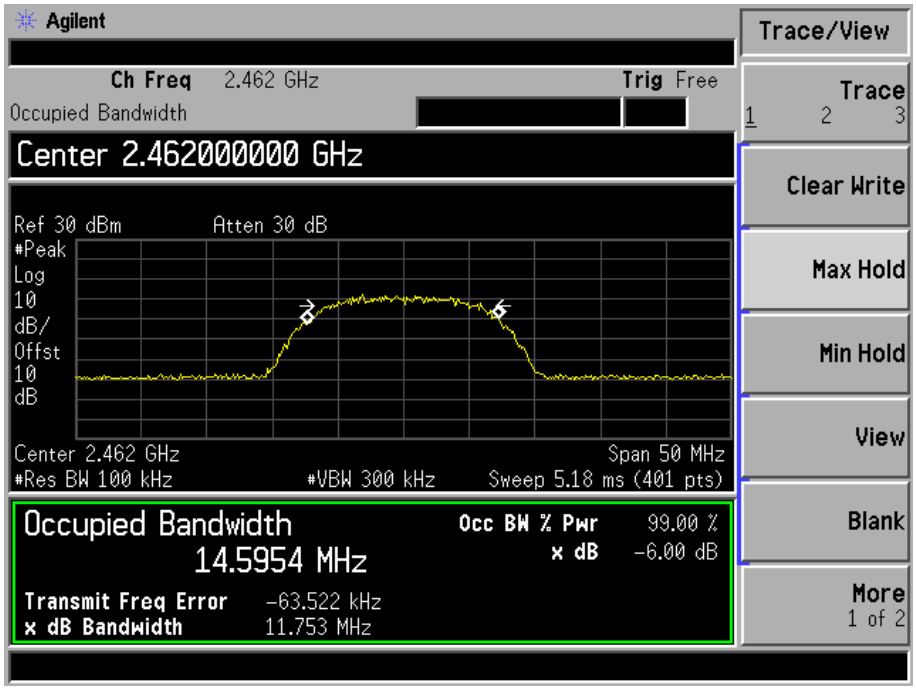
Low Channel:



Mid Channel:

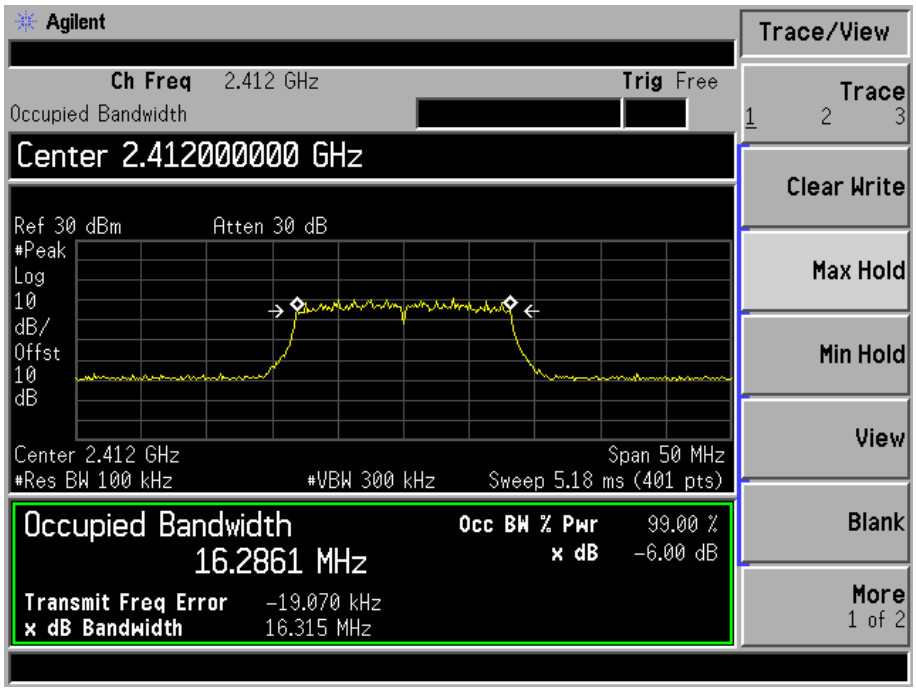


High Channel:

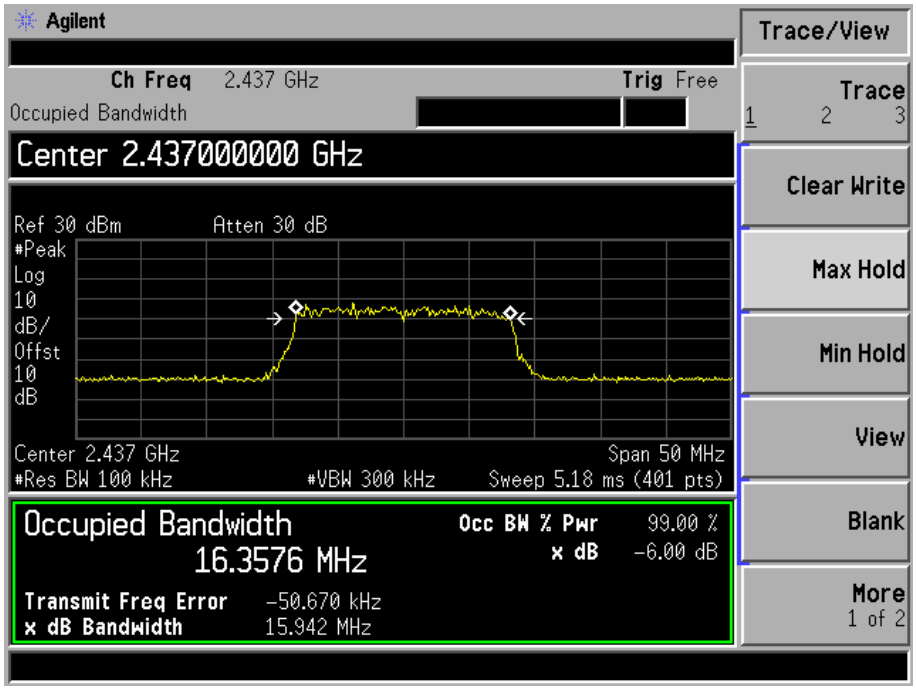


For 802.11g

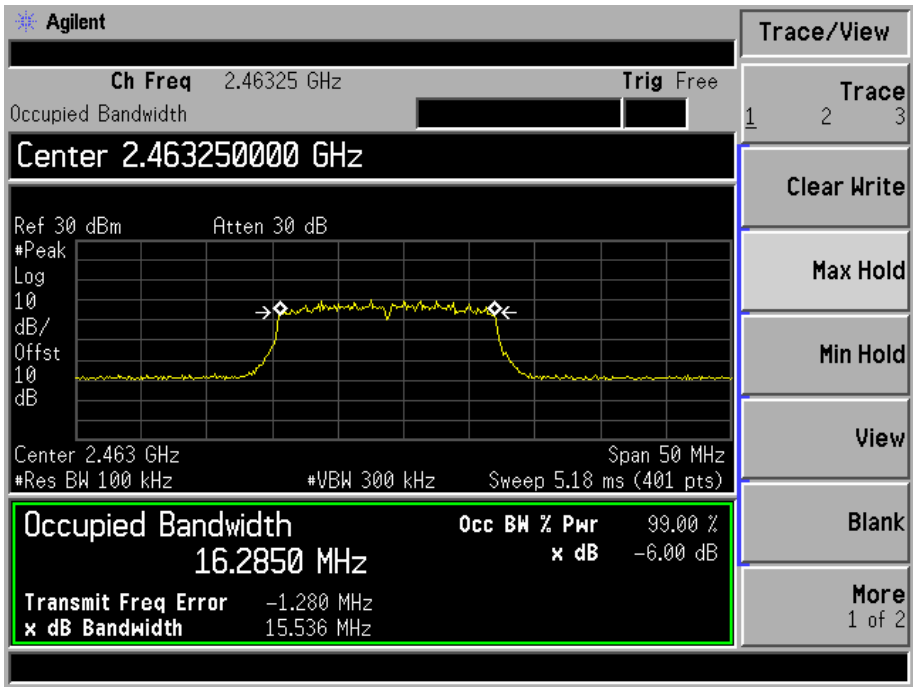
Low Channel:



Mid Channel:

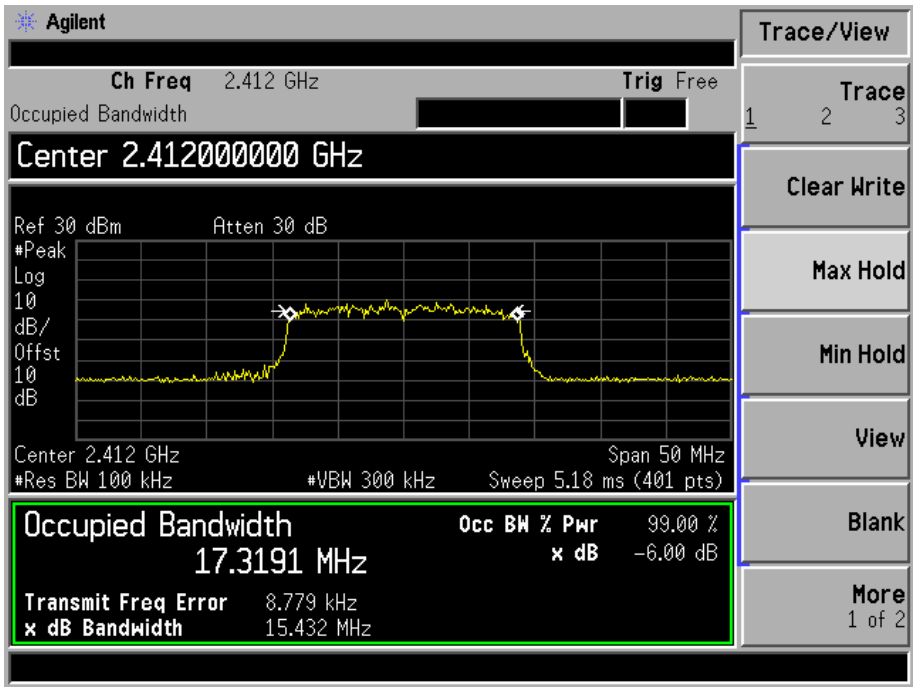


High Channel:

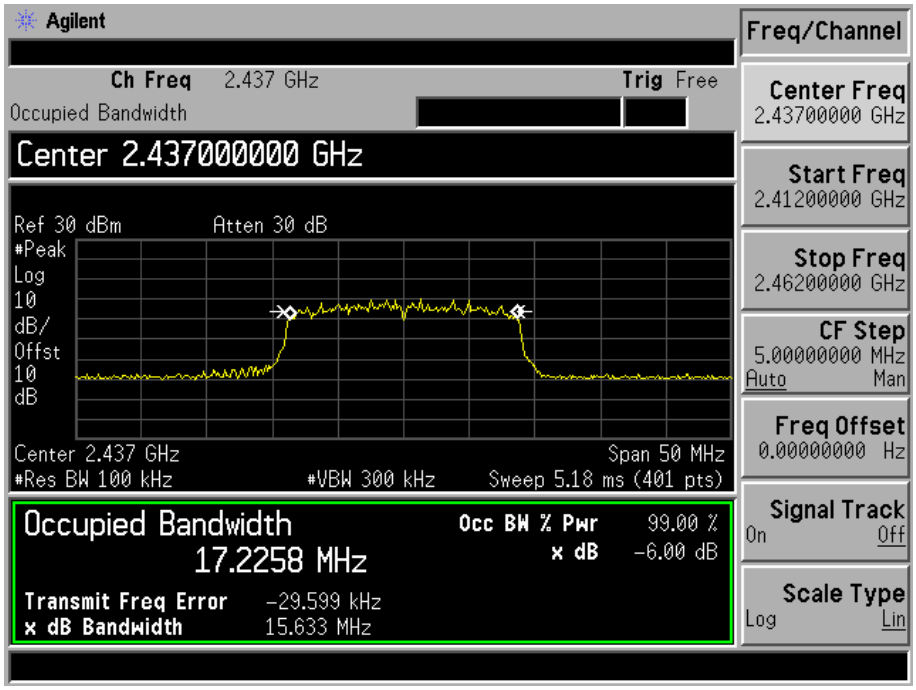


For 802.11n/HT20

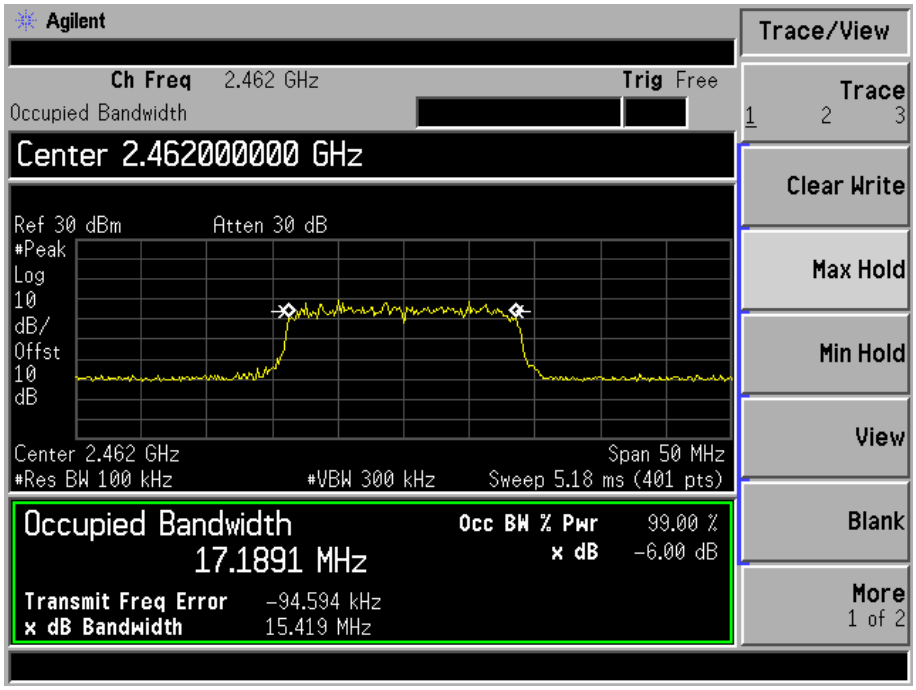
Low Channel:



Middle Channel:

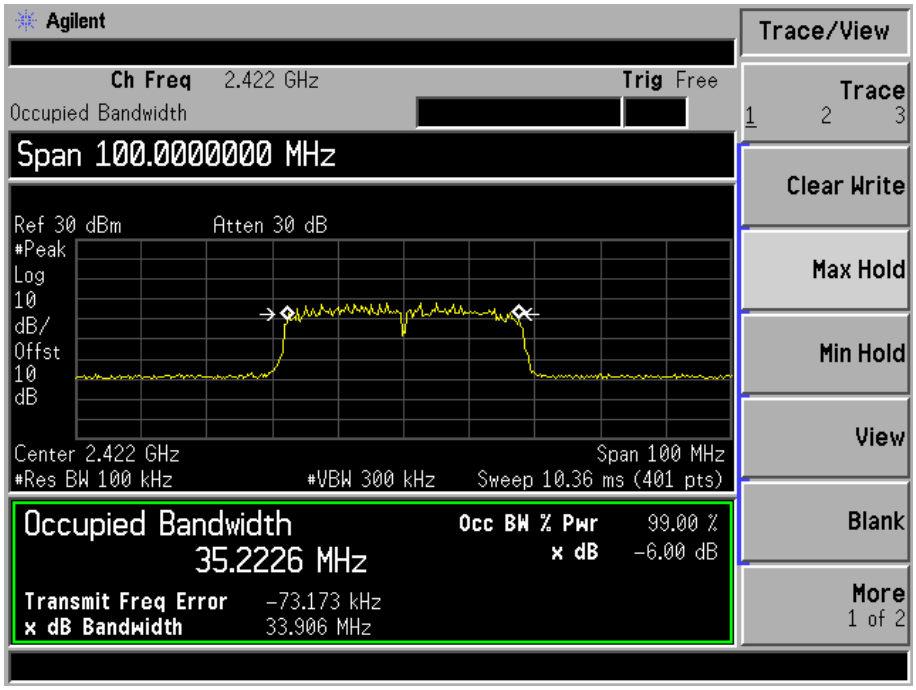


High Channel:

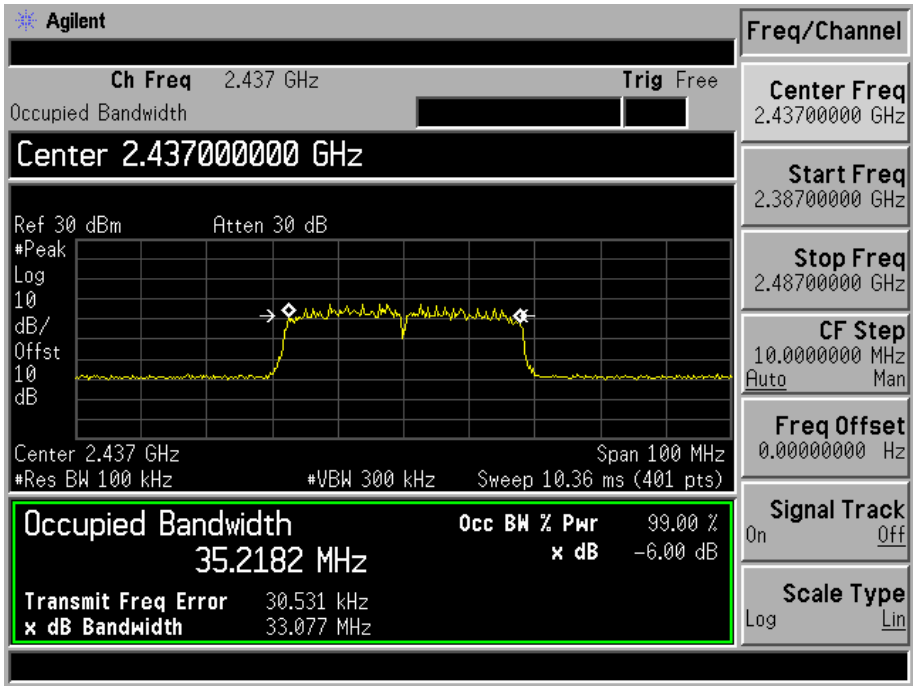


For 802.11n/HT40

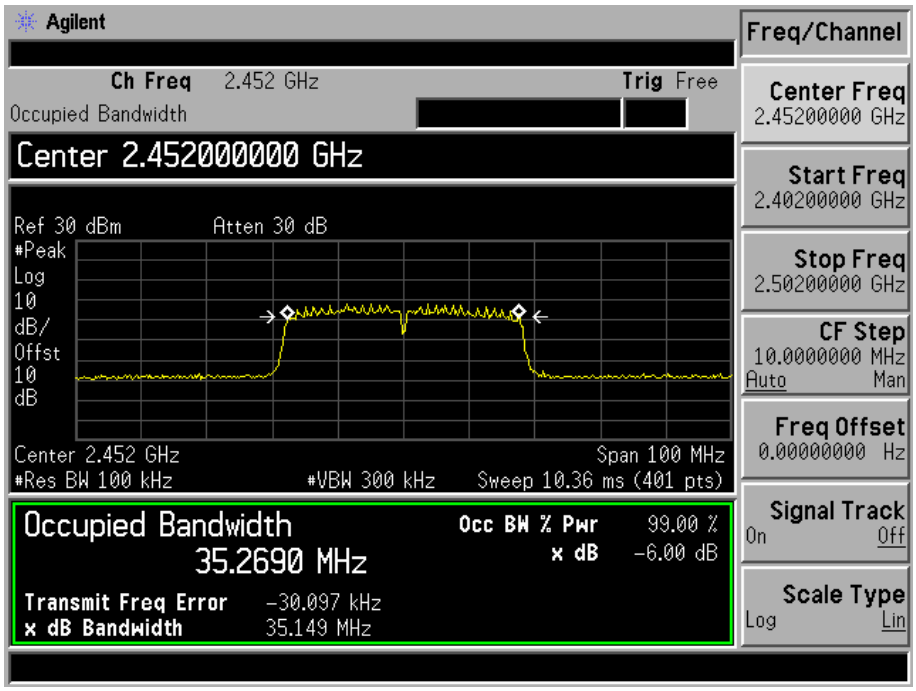
Low Channel:



Middle Channel:



High Channel:



8. POWER OUTPUT

8.1 Standard Applicable

According to 15.247(b)(3). For systems using digital modulation in the 902–928 MHz, 2400–2483.5 MHz, and 5725–5850 MHz bands: 1 Watt.

8.2 Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Cal. Date	Due. Date
Spectrum Analyzer	Agilent	E4402B	US41192821	2009-08-12	2010-08-11
RF Limiter	Agilent	11867A	MY42241685	2009-08-12	2010-08-11

Statement of Traceability: All calibrations have been performed per the NVLAP requirements traceable to the NIST.

8.3 Test Procedure

The device under test has an integral antenna and the power was measured on a radiated basis.

8.4 Environmental Conditions

Temperature:	26 °C
Relative Humidity:	50 %
ATM Pressure:	1013 mbar

8.5 Summary of Test Results/Plots

RF Output Power:

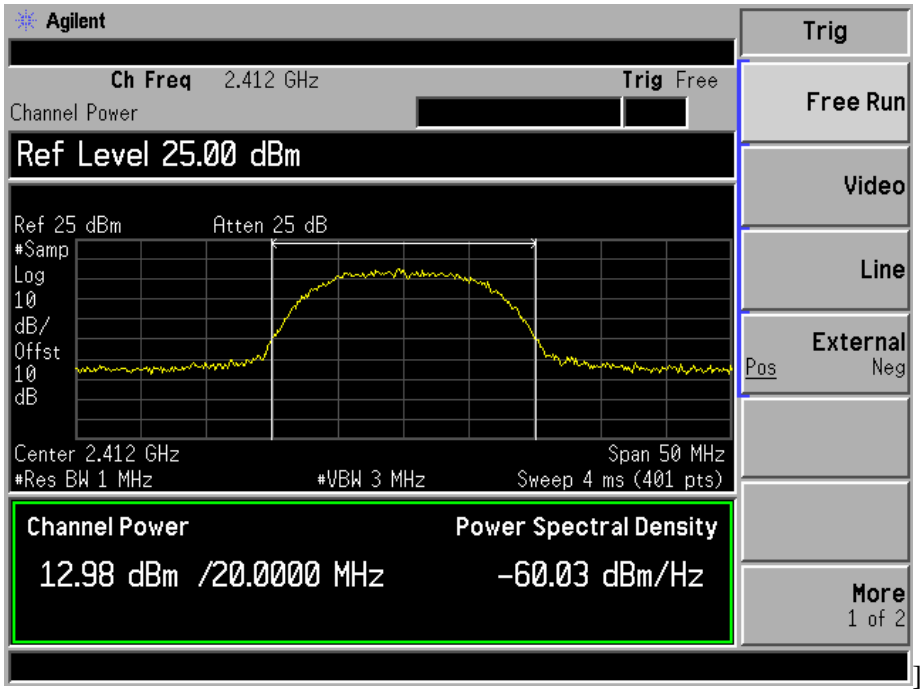
Test mode	Frequency MHz	Chain 0 Output Power dBm	Chain 1 Output Power dBm	Outpput Power mW	Limit mW
802.11b	2412	12.98	12.40	37.24	1000
	2437	12.17	11.97	32.22	1000
	2462	12.85	12.42	36.73	1000
802.11g	2412	6.71	5.71	8.41	1000
	2437	8.31	8.13	13.28	1000
	2462	8.00	8.00	12.62	1000
802.11n/HT20	2412	8.44	9.24	15.38	1000
	2437	8.37	7.38	12.34	1000
	2462	7.54	7.87	11.80	1000
802.11n/HT40	2422	8.62	8.24	13.95	1000
	2437	7.71	7.47	11.49	1000
	2452	8.04	8.44	13.35	1000

Note: Output Power(mW) = $10^{\text{Chain 0 Power}/10} + 10^{\text{Chain 1 Power}/10}$

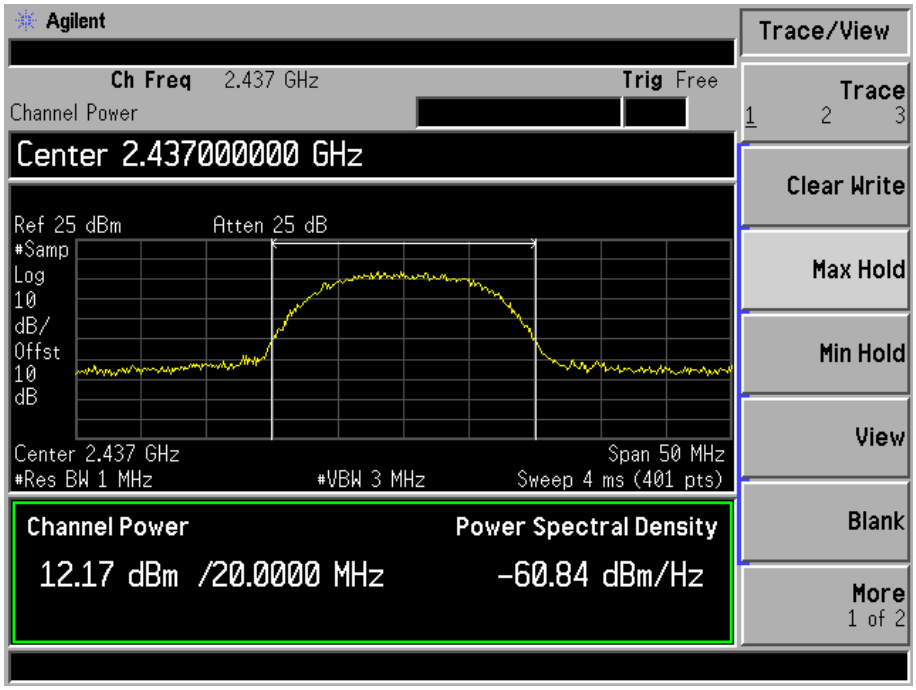
For Chain 0

For 802.11b

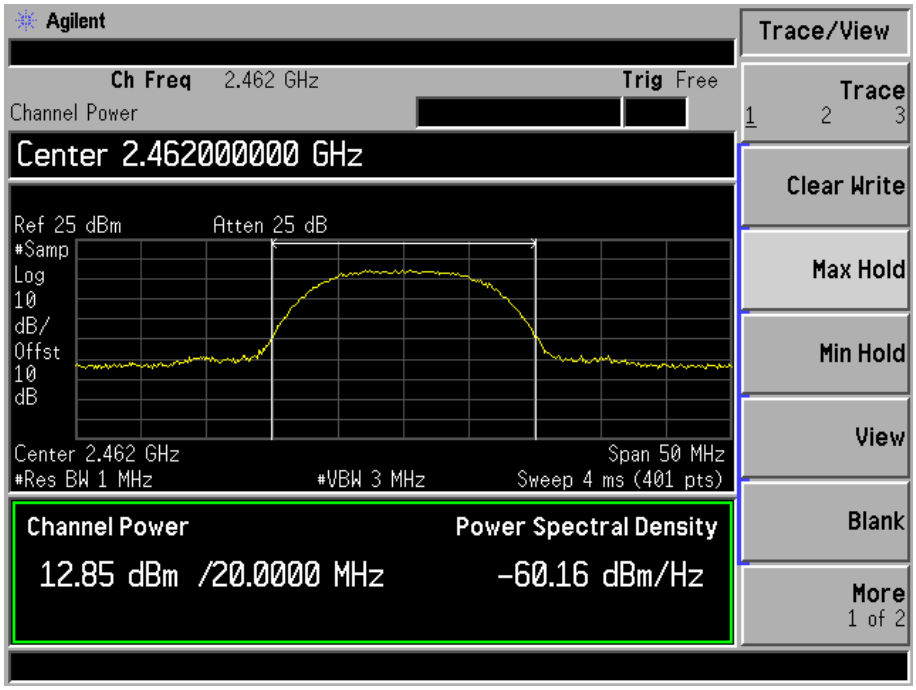
Low Channel:



Middle Channel:

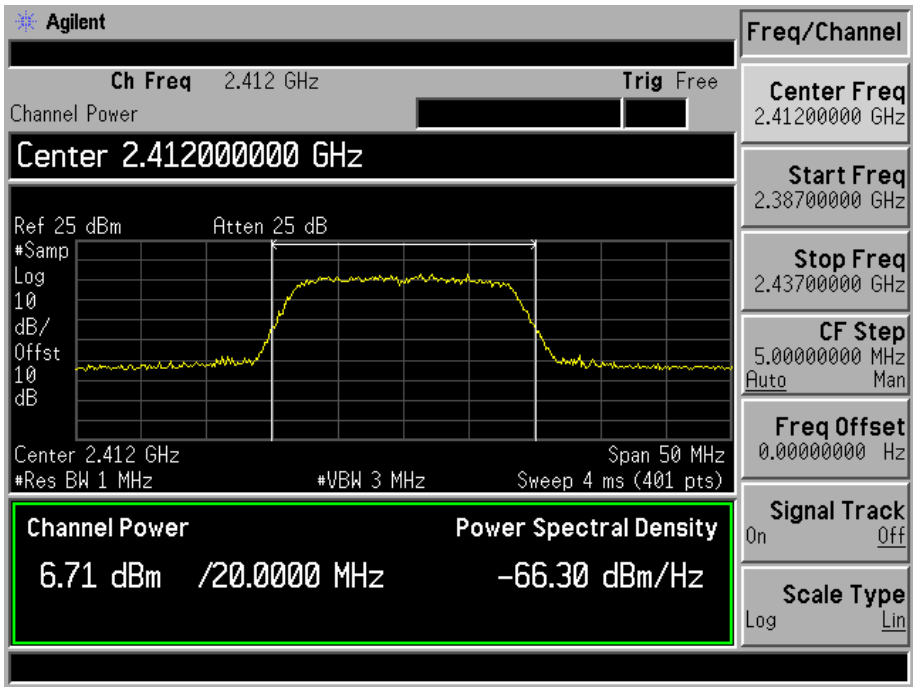


High Channel:

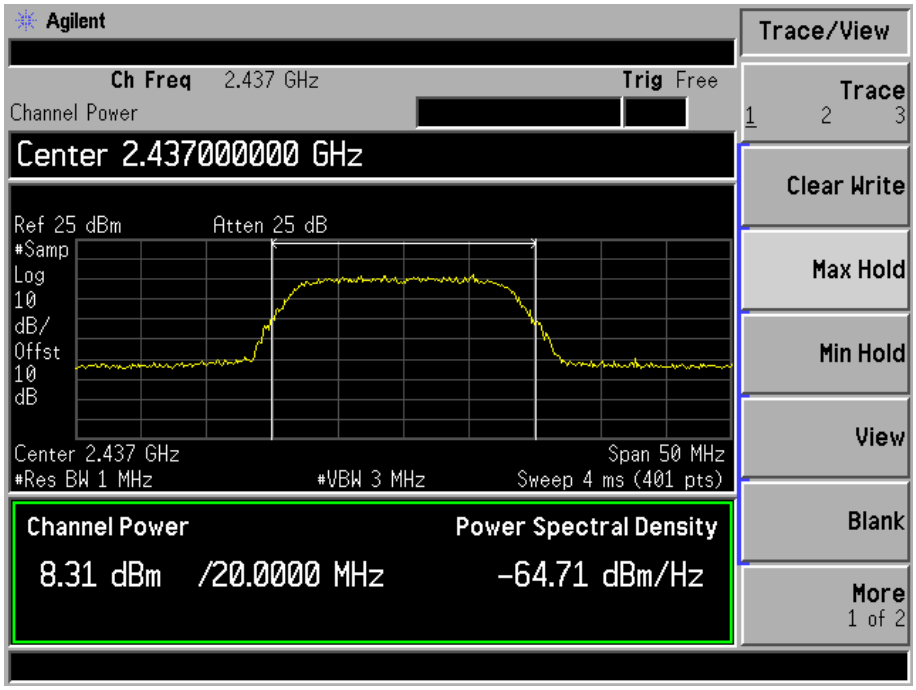


For 802.11g

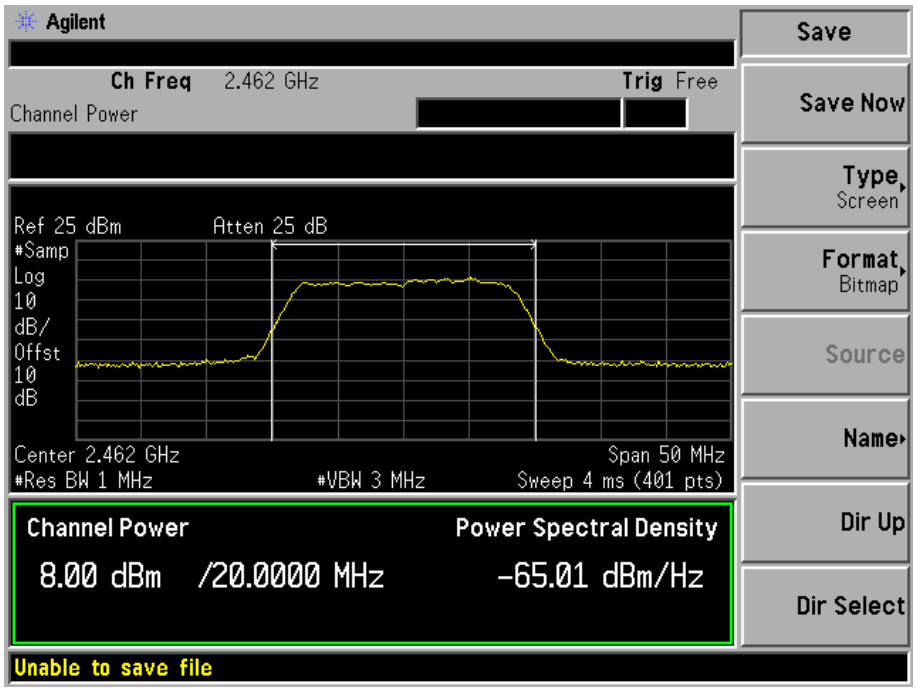
Low Channel:



Middle Channel:

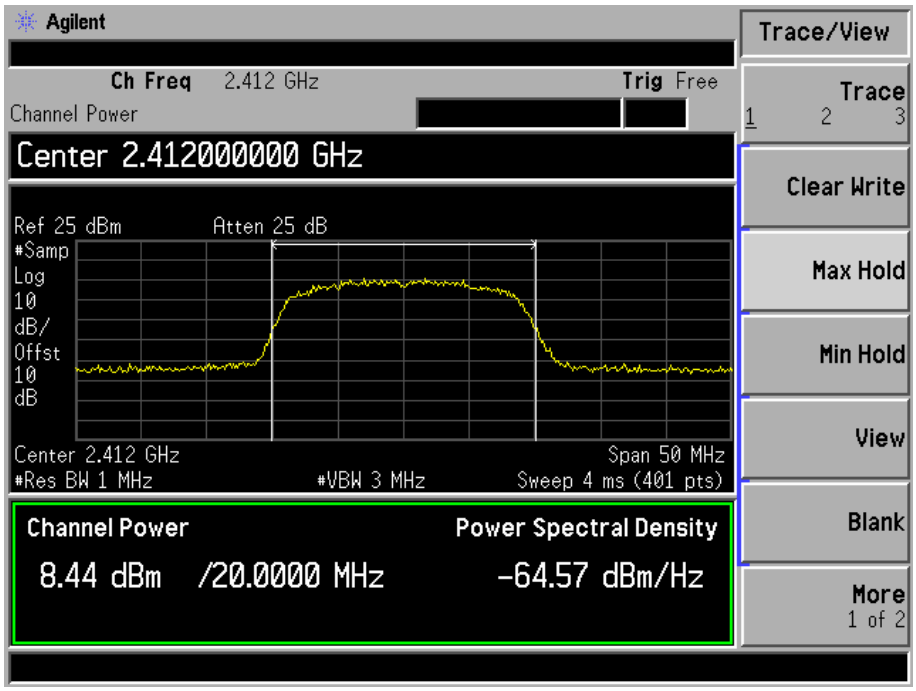


High Channel:

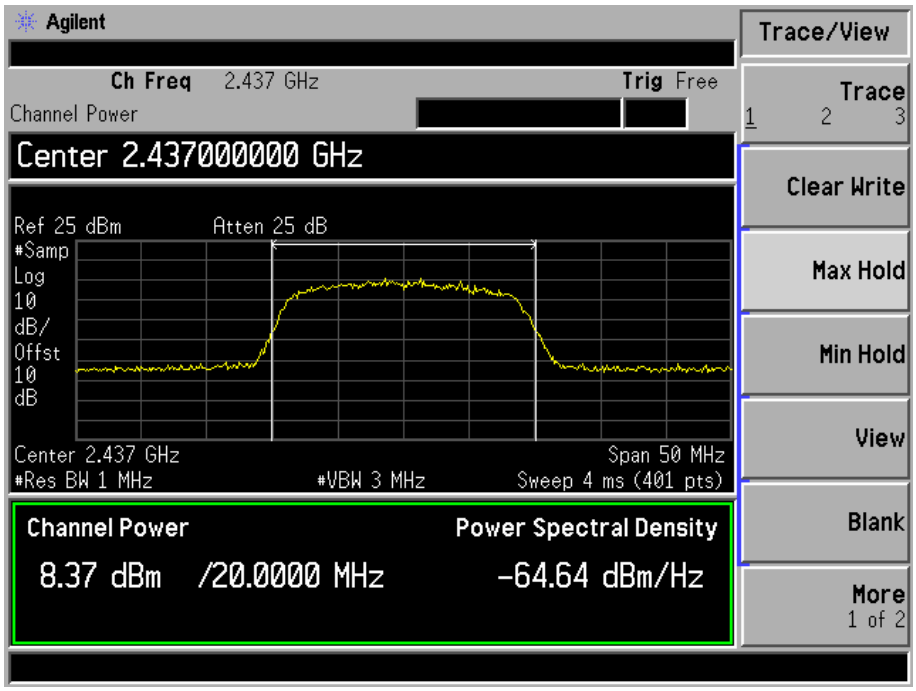


For 802.11n/HT20

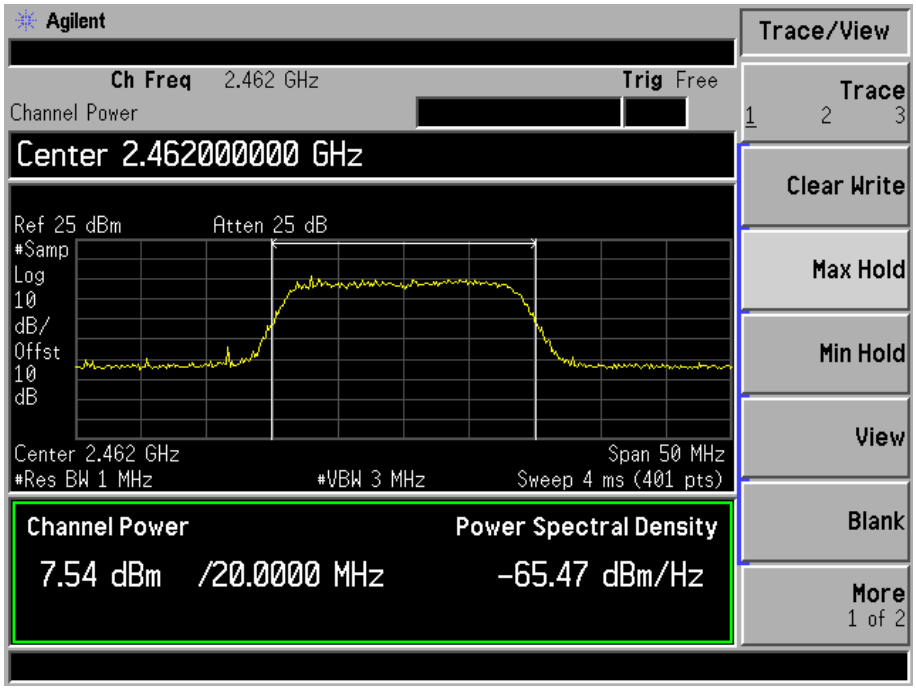
Low Channel:



Middle Channel:

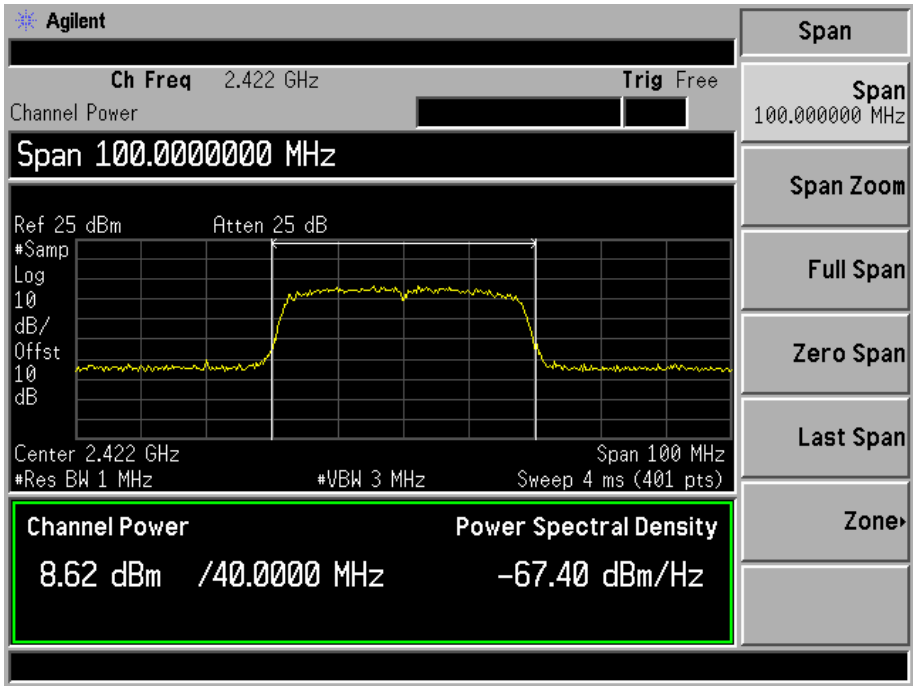


High Channel:

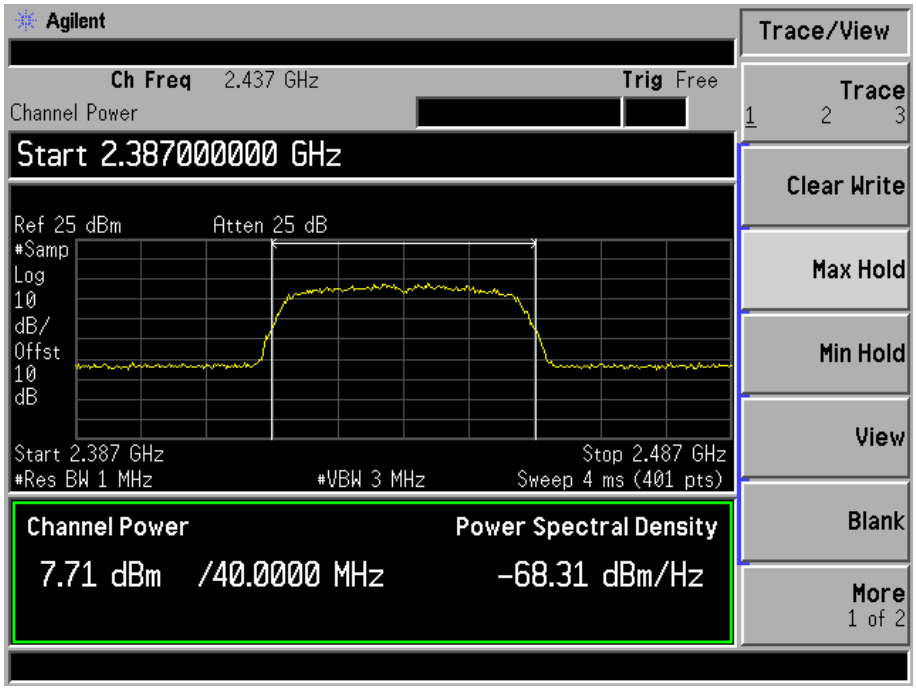


For 802.11n/HT40

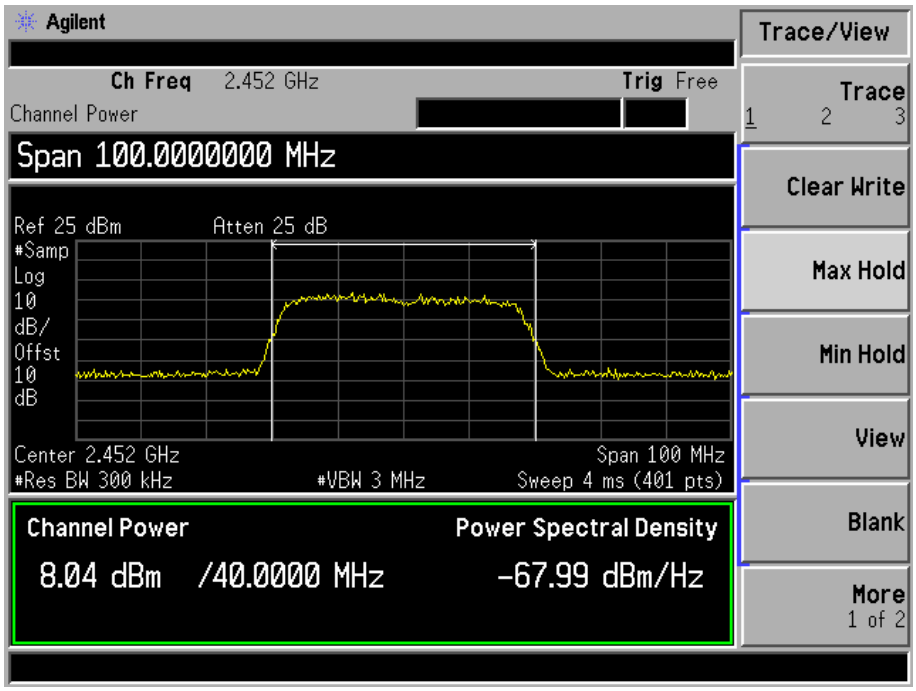
Low Channel:



Middle Channel:



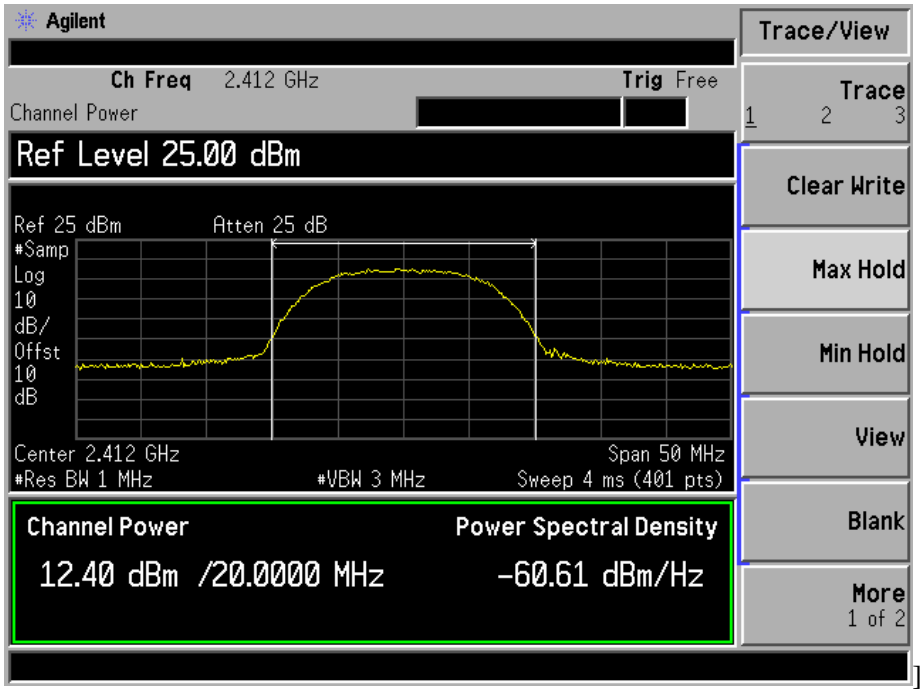
High Channel:



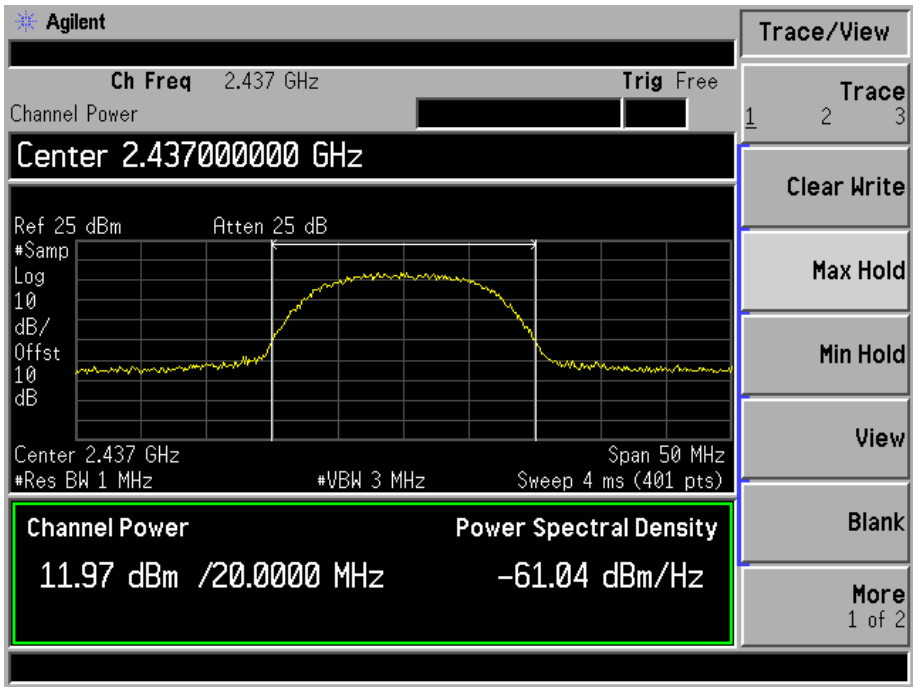
For Chain 1

For 802.11b

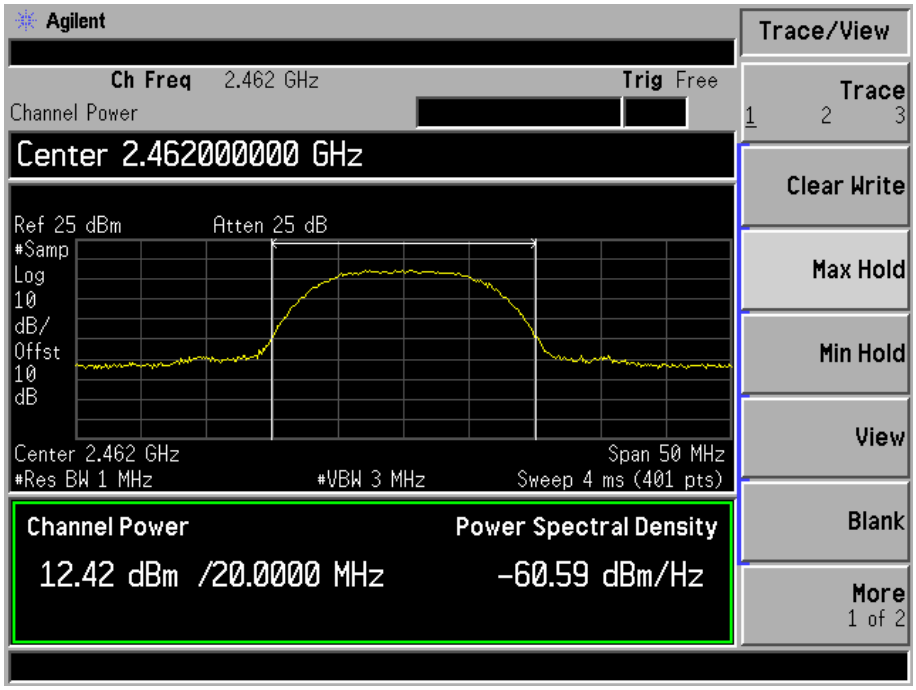
Low Channel:



Middle Channel:

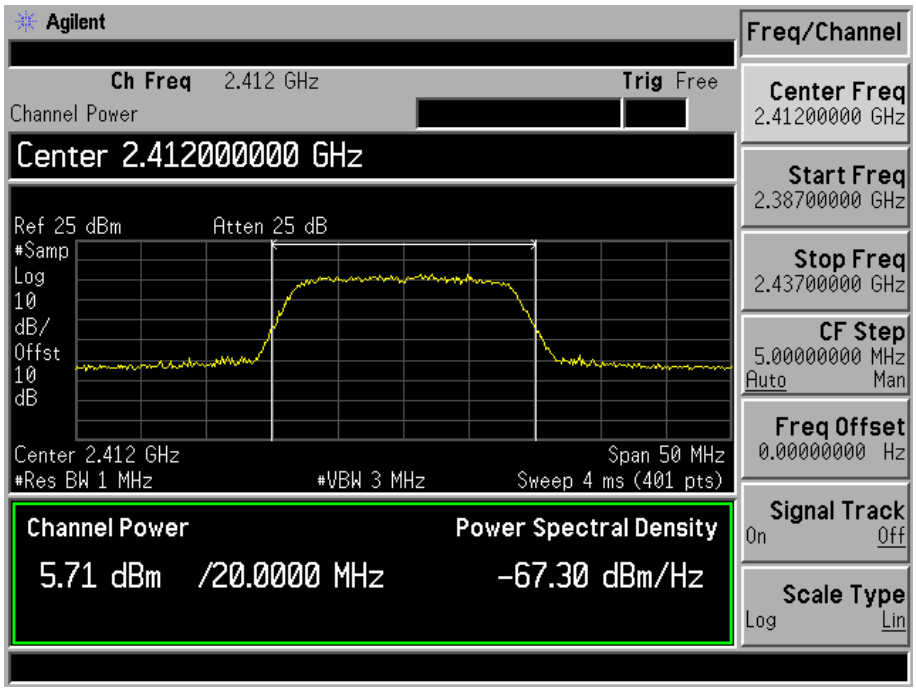


High Channel:

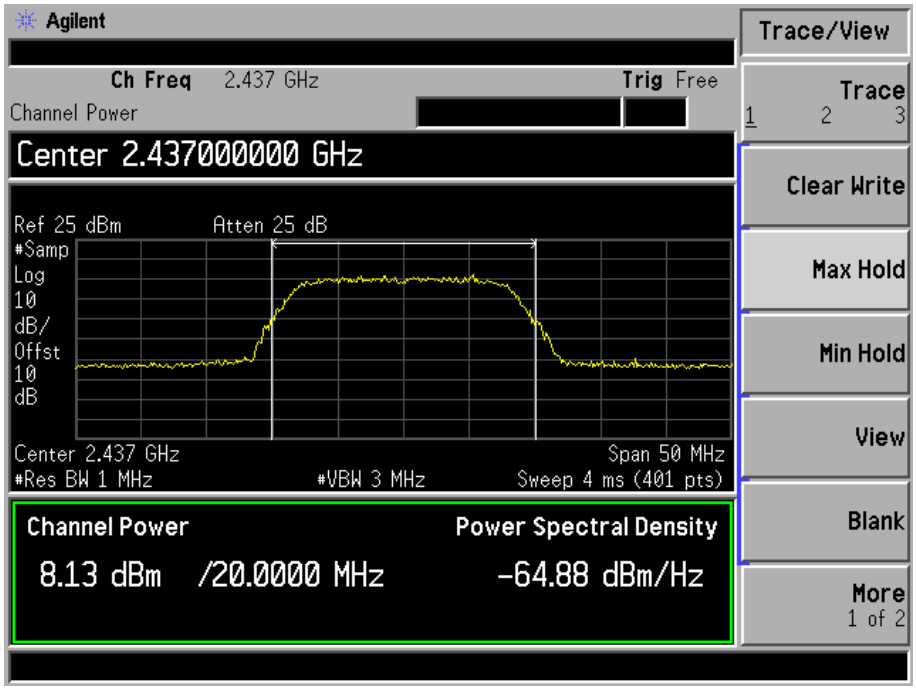


For 802.11g

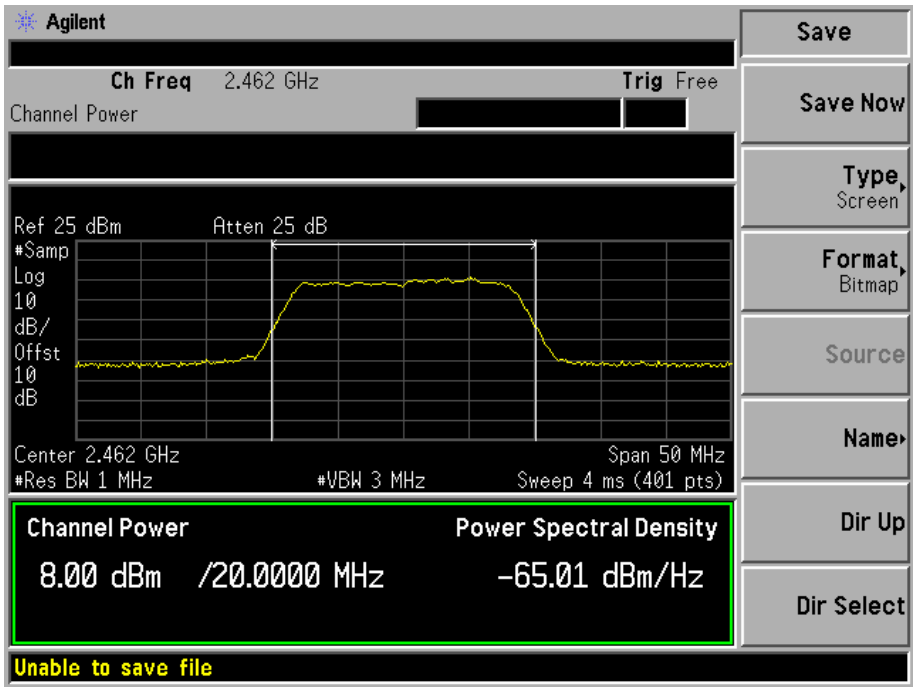
Low Channel:



Middle Channel:

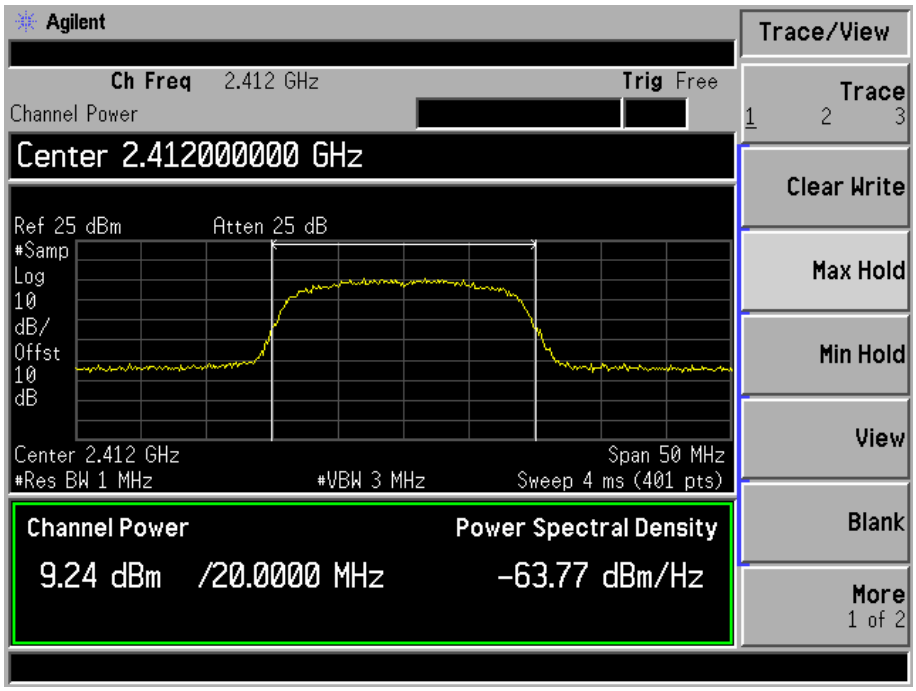


High Channel:

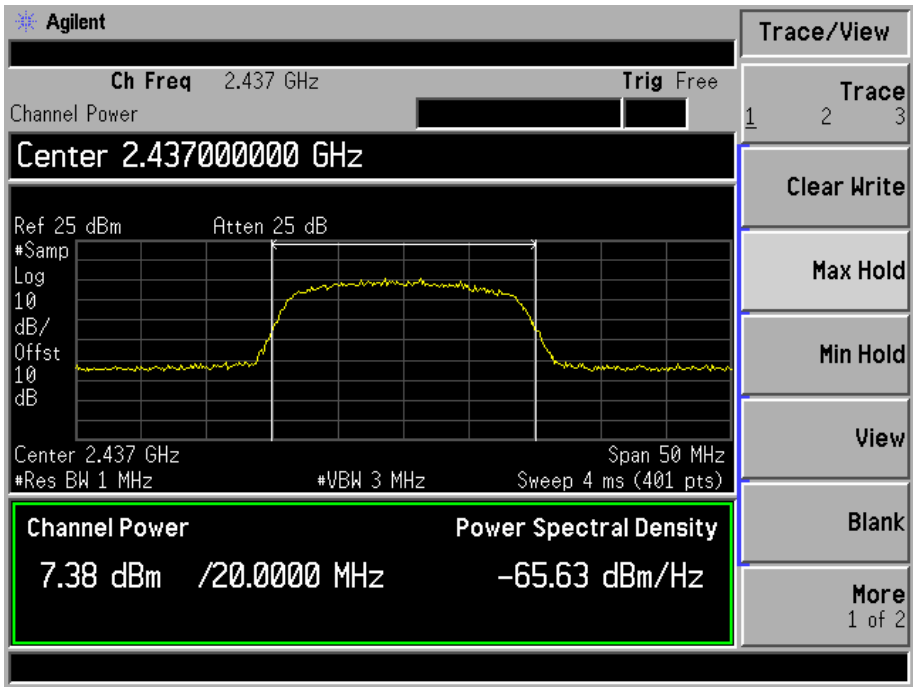


For 802.11n/HT20

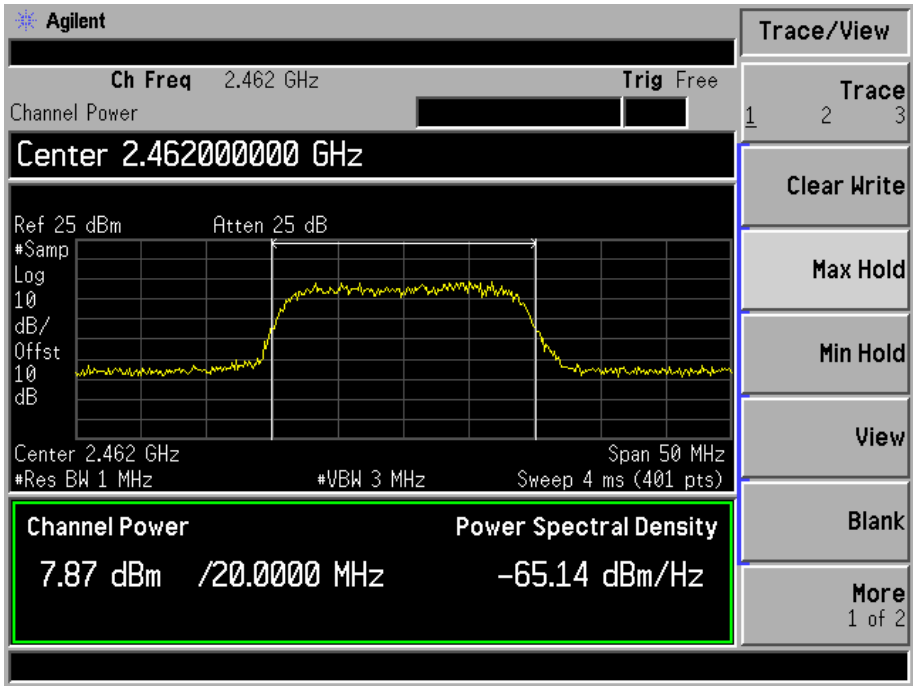
Low Channel:



Middle Channel:

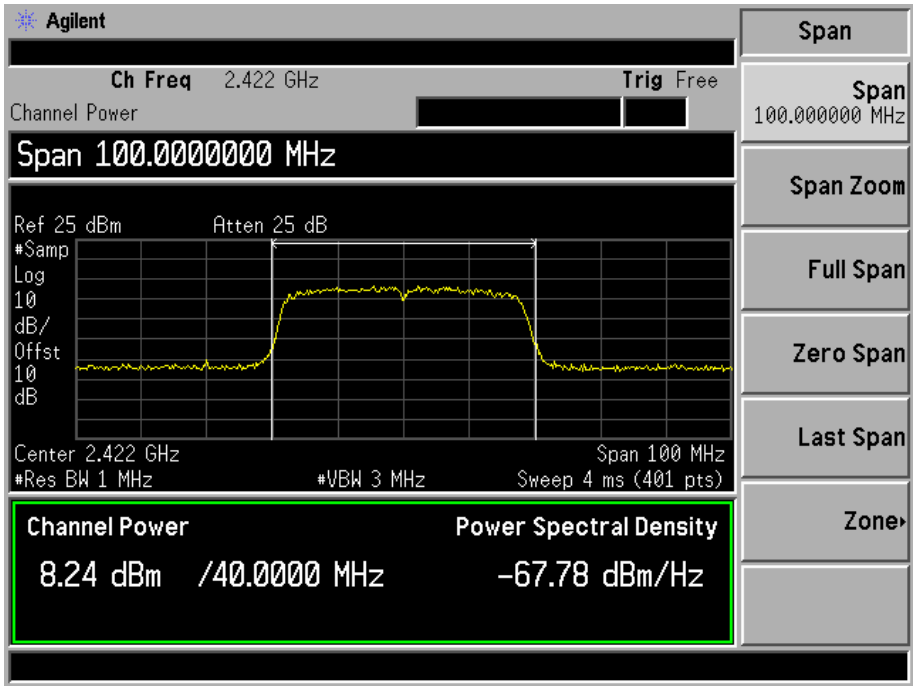


High Channel:

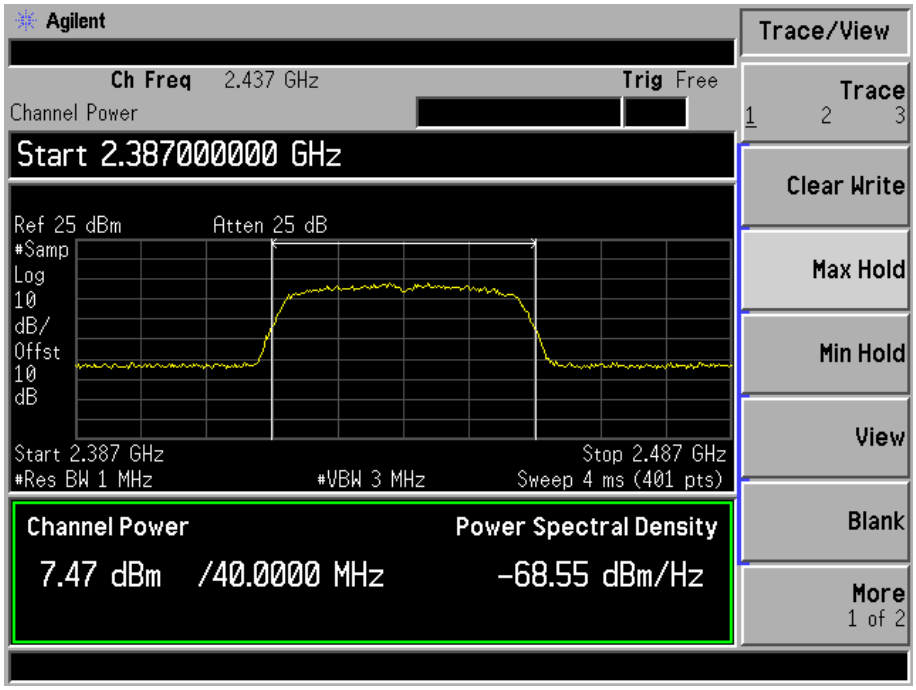


For 802.11n/HT40

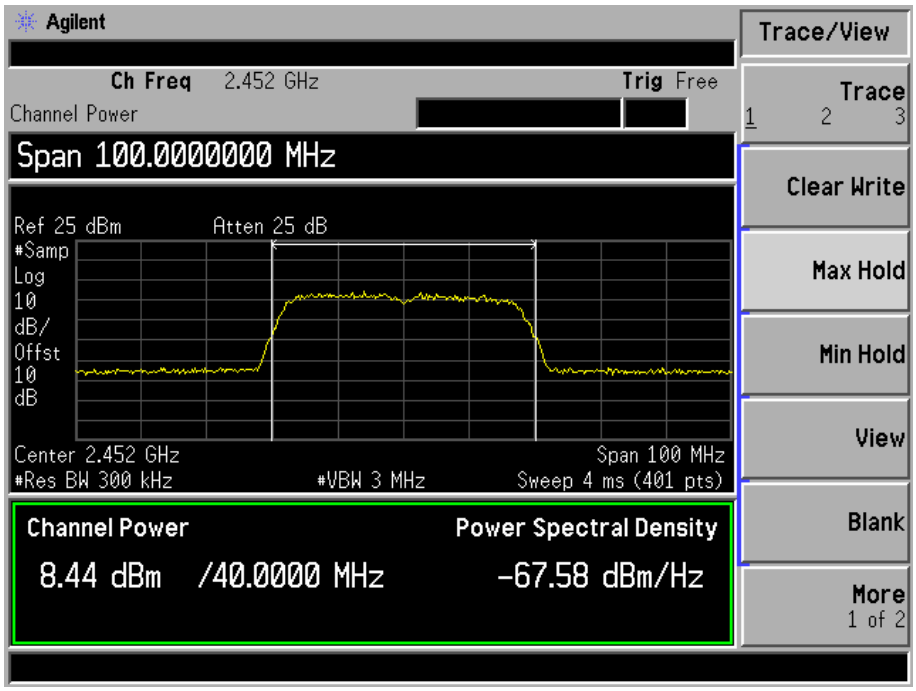
Low Channel:



Middle Channel:



High Channel:



9. FIELD STRENGTH OF SPURIOUS EMISSIONS

9.1 Measurement Uncertainty

Based on NIS 81, The Treatment of Uncertainty in EMC Measurements, the best estimate of the uncertainty of a radiation emissions measurement is ±3.0 dB.

9.2 Standard Applicable

According to §15.247(c), 15.205 15.209(b) &15.35 (b), the field strength of emissions from intentional radiators operated within these frequency bands shall comply with the following:

Section 15.209:
30 - 88 MHz 40 dBuV/m @3M
88 -216 MHz 43.5 dBuV/m @3M
216 -960 MHz 46 dBuV/m @3M
Above 960 MHz 54dBuV/m @3M

The emission limit in this paragraph is based on measurement instrumentation employing an average detector. The provisions in §15.35 for limiting peak emissions apply.

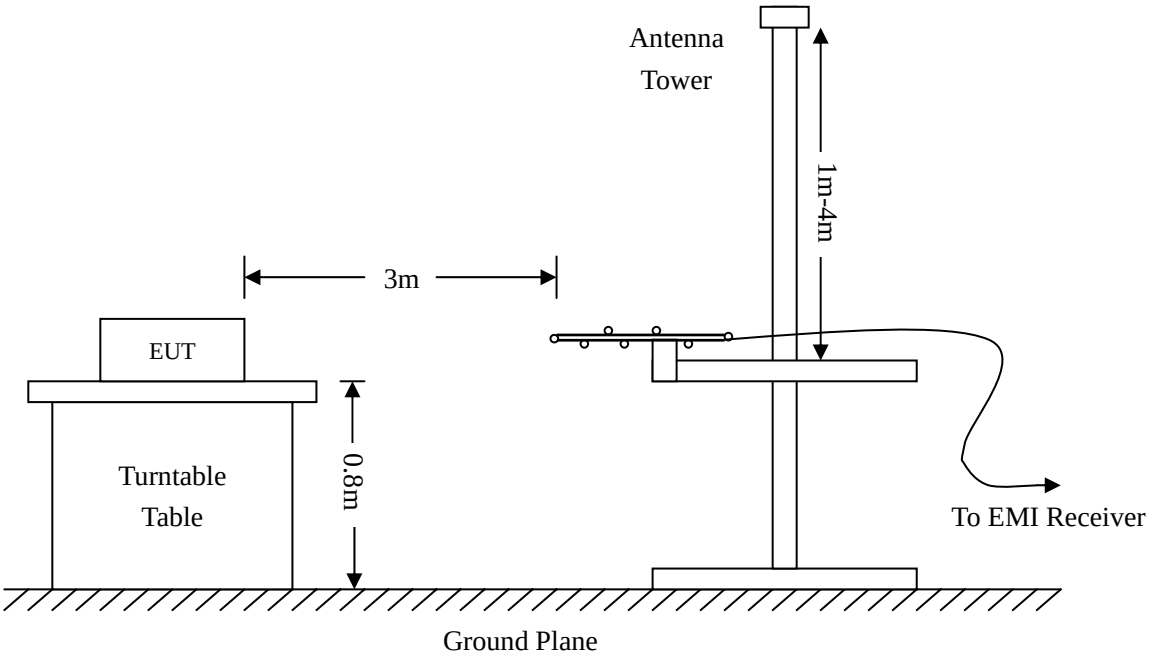
Emissions that fall in the restricted bands (15.205) must be less than 54dBuV/m otherwise the spurious and harmonics must be attenuated by at least 20dB.

9.3 Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Cal. Date	Due. Date
Spectrum Analyzer	ROHDE&SCHWARZ	FSEA20	DE25181	2009-08-12	2010-08-11
Positioning Controller	C&C	CC-C-1F	N/A	2009-08-12	2010-08-11
Trilog Broadband Antenna	SCHWARZBECK	VULB9163	9163-333	2009-07-21	2010-07-20
Horn Antenna	SCHWARZBECK	BBHX 9120	9120-426	2009-07-21	2010-07-20
RF Switch	EM	EMSW18	SW060023	2009-08-12	2010-08-11
Amplifier	Agilent	8447F	3113A06717	2009-08-12	2010-08-11
Coaxial Cable	SCHWARZBECK	AK9513	9513-10	2009-08-12	2010-08-11
EMI Test Receiver	ROHDE&SCHWARZ	ESPI	25498514	2009-08-12	2010-08-11

9.4 Test Procedure

The setup of EUT is according with per ANSI C63.4-2003 measurement procedure. The specification used was with the FCC Part 15.205 15.247(a) and FCC Part 15.209 Limit.
The external I/O cables were draped along the test table and formed a bundle 30 to 40 cm long in the middle.
The spacing between the peripherals was 10 cm.



9.5 Corrected Amplitude & Margin Calculation

The Corrected Amplitude is calculated adding the Antenna Factor and the Cable Factor, and subtracting the Amplifier Gain from the Amplitude reading. The basic equation is as follows:

Corr. Ampl. = Indicated Reading + Ant. Factor + Cable Loss – Ampl. Gain

The "**Margin**" column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of -6dBμV means the emission is 6dBμV below the maximum limit for Class B. The equation for margin calculation is as follows:

Margin = Corr. Ampl. – FCC Part 15 Limit

9.6 Environmental Conditions

Temperature:	26°C
Relative Humidity:	47 %
ATM Pressure:	1012 mbar

9.7 Summary of Test Results/Plots

According to the data below, the FCC Part 15.205, 15.209 and 15.247 standards, and had the worst margin of:

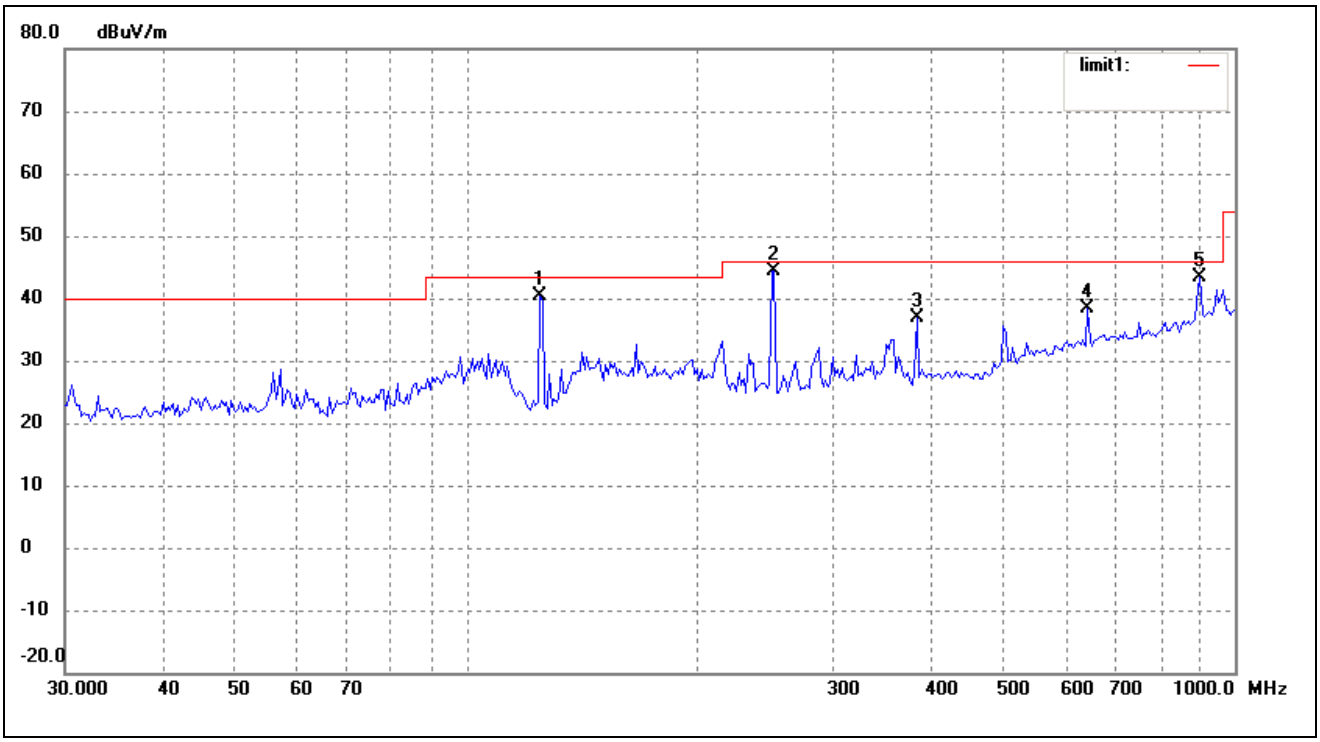
-1.33 dBμV at **919.2866 MHz** in the **Vertical** polarization, **Transmitting 802.11n/HT40** test mode, **30 MHz to 25 GHz, 3Meters**

Test Result/Plots:

Spurious Emission From 30 MHz to 1 GHz

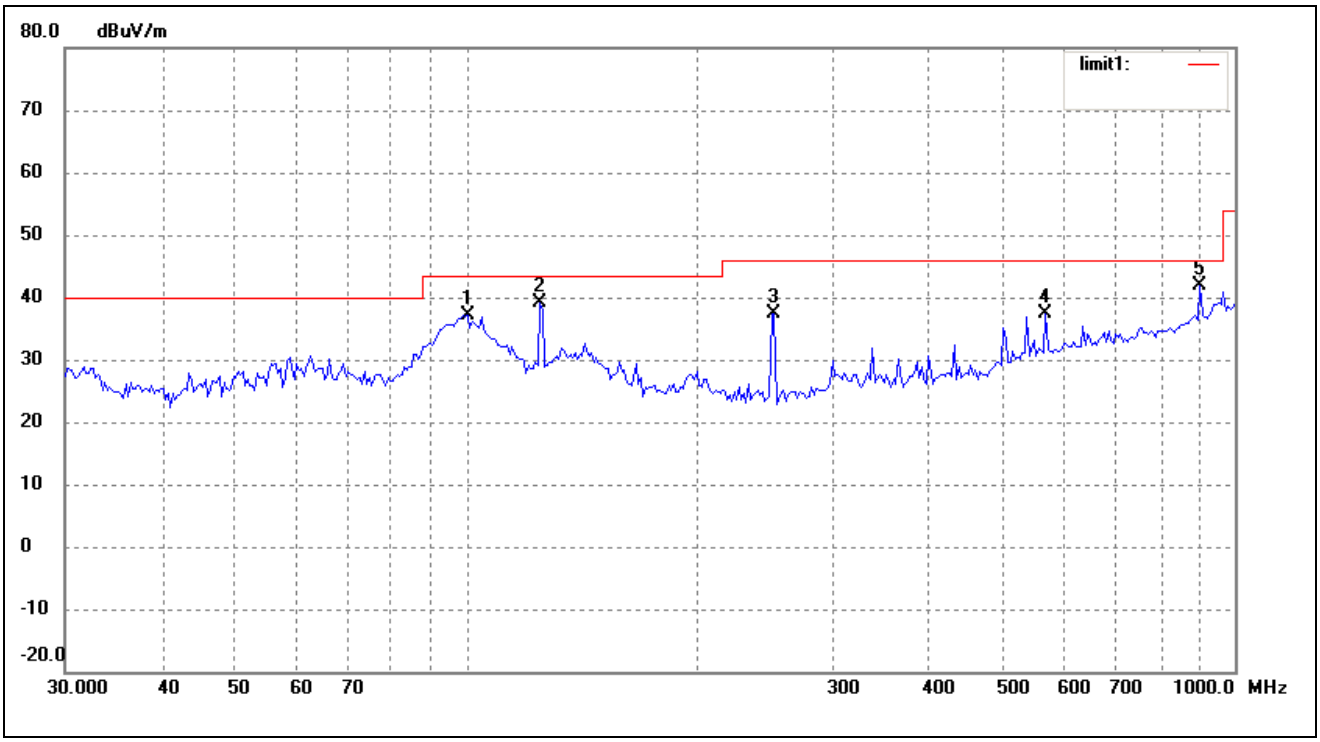
Test mode: Transmitting (802.11b Low Channel)

Horizontal



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	Factor(dB)	(dBuV/m)	(dBuV/m)	(dB)	(°)	(cm)	
1	124.5690	35.03	5.32	40.35	43.50	-3.15	120	100	QP
2	251.1804	35.60	8.72	44.32	46.00	-1.68	3	100	QP
3	385.2805	25.60	11.25	36.85	46.00	-9.15	25	100	peak
4	642.8613	21.30	17.02	38.32	46.00	-7.68	359	100	QP
5	900.1474	22.57	20.90	43.47	46.00	-2.53	142	100	QP

Vertical

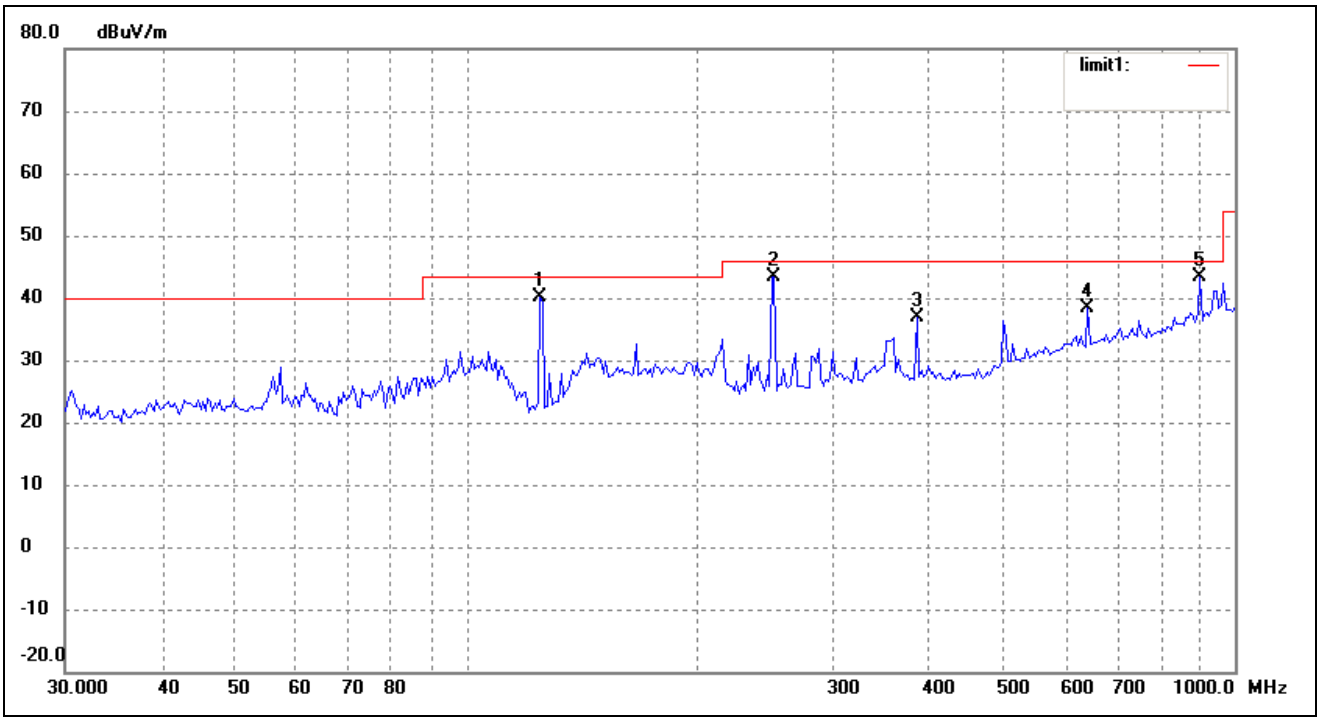


No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	Factor(dB)	(dBuV/m)	(dBuV/m)	(dB)	(°)	(cm)	
1	100.2286	28.67	8.41	37.08	43.50	-6.42	10	100	QP
2	124.5690	33.90	5.32	39.22	43.50	-4.28	28	100	QP
3	251.1804	28.76	8.72	37.48	46.00	-8.52	45	100	peak
4	566.6223	21.46	15.91	37.37	46.00	-8.63	200	100	peak
5	900.1474	20.97	20.90	41.87	46.00	-4.13	355	100	QP

Spurious Emission From 30 MHz to 1 GHz

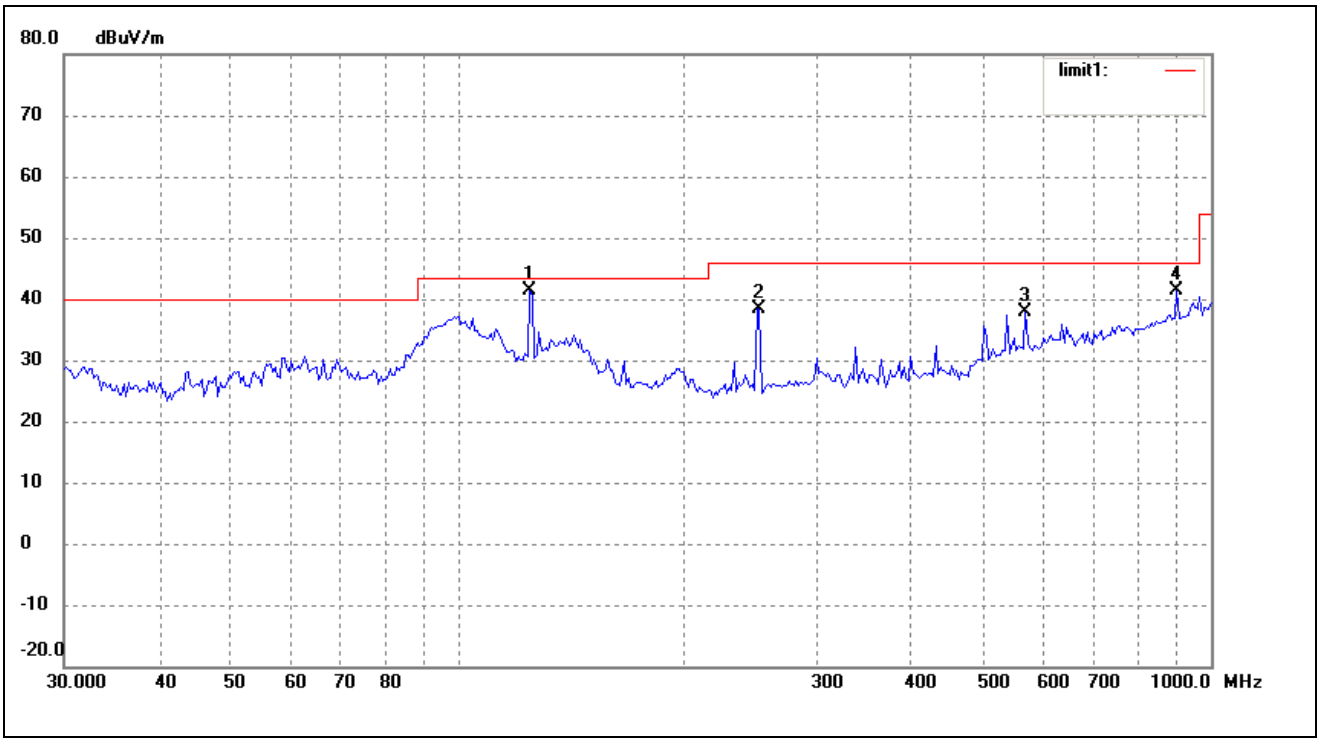
Test mode: Transmitting (802.11b Middel Channel)

Horizontal



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	Factor(dB)	(dBuV/m)	(dBuV/m)	(dB)	(°)	(cm)	
1	124.5690	34.84	5.32	40.16	43.50	-3.34	273	100	QP
2	251.1804	34.69	8.72	43.41	46.00	-2.59	32	100	QP
3	385.2805	25.62	11.25	36.87	46.00	-9.13	342	100	peak
4	642.8613	21.27	17.02	38.29	46.00	-7.71	179	100	peak
5	900.1474	22.46	20.90	43.36	46.00	-2.64	100	200	QP

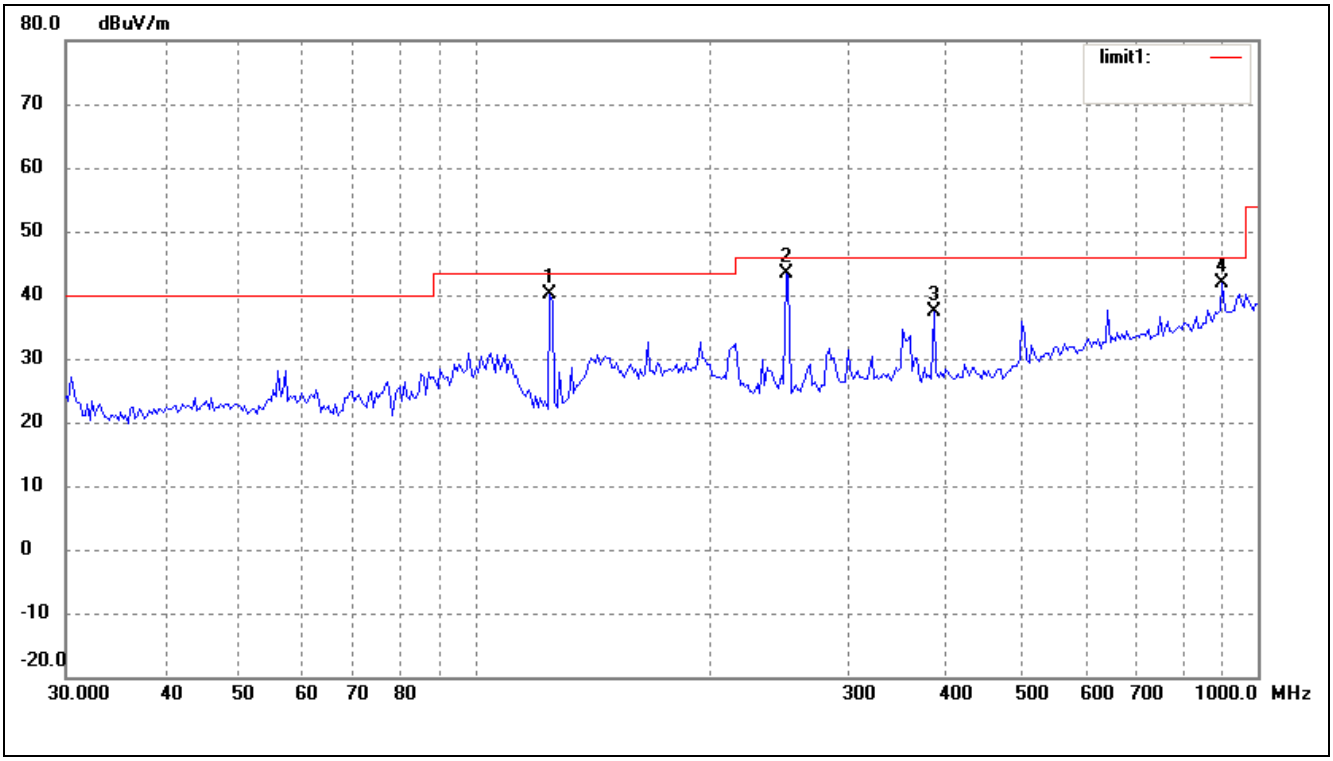
Vertical



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	Factor(dB)	(dBuV/m)	(dBuV/m)	(dB)	(°)	(cm)	
1	124.5690	36.15	5.32	41.47	43.50	-2.03	360	100	QP
2	251.1804	29.76	8.72	38.48	46.00	-7.52	5	100	QP
3	566.6223	21.96	15.91	37.87	46.00	-8.13	356	100	peak
4	900.1474	20.47	20.90	41.37	46.00	-4.63	350	100	QP

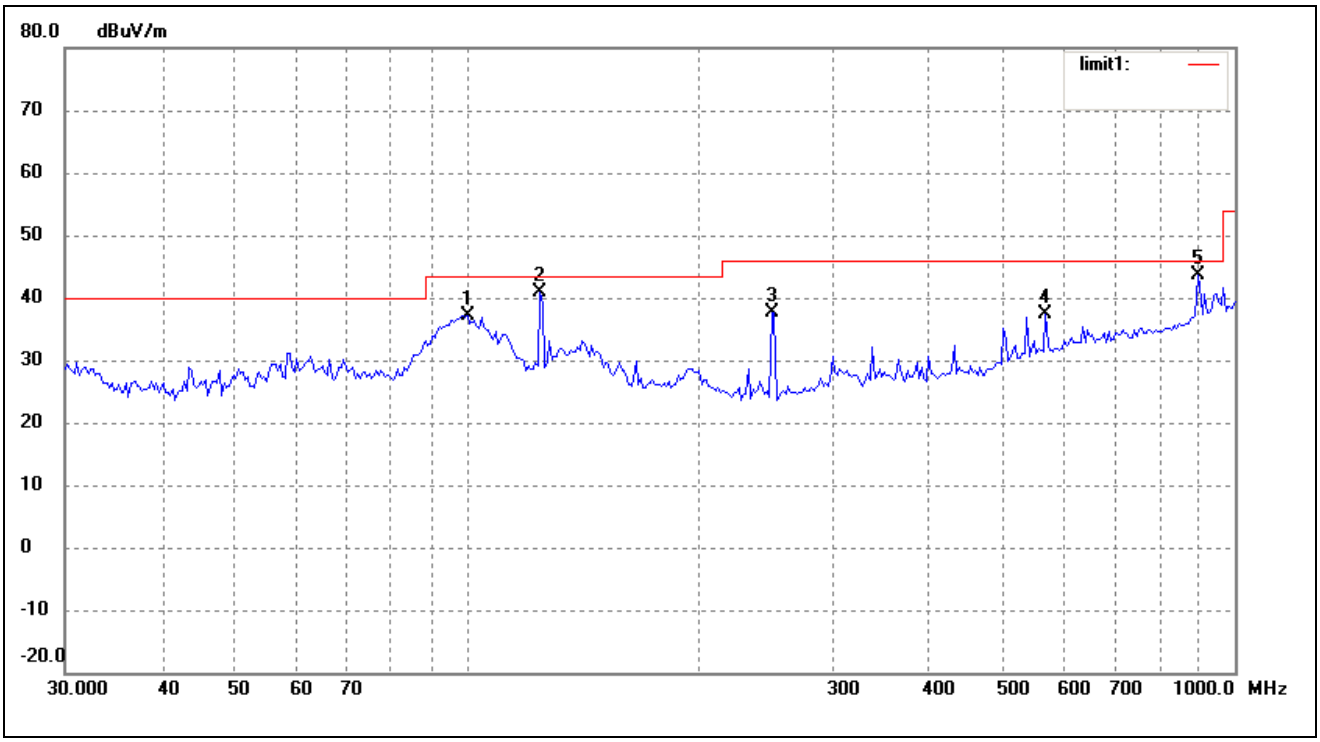
Spurious Emission From 30 MHz to 1 GHz
Test mode: Transmitting (802.11b High Channel)

Horizontal



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	Factor(dB)	(dBuV/m)	(dBuV/m)	(dB)	(°)	(cm)	
1	124.5690	34.86	5.32	40.18	43.50	-3.32	100	100	QP
2	249.4250	34.61	8.68	43.29	46.00	-2.71	15	100	QP
3	385.2805	26.01	11.25	37.26	46.00	-8.74	222	100	peak
4	900.1474	20.95	20.90	41.85	46.00	-4.15	358	100	QP

Vertical

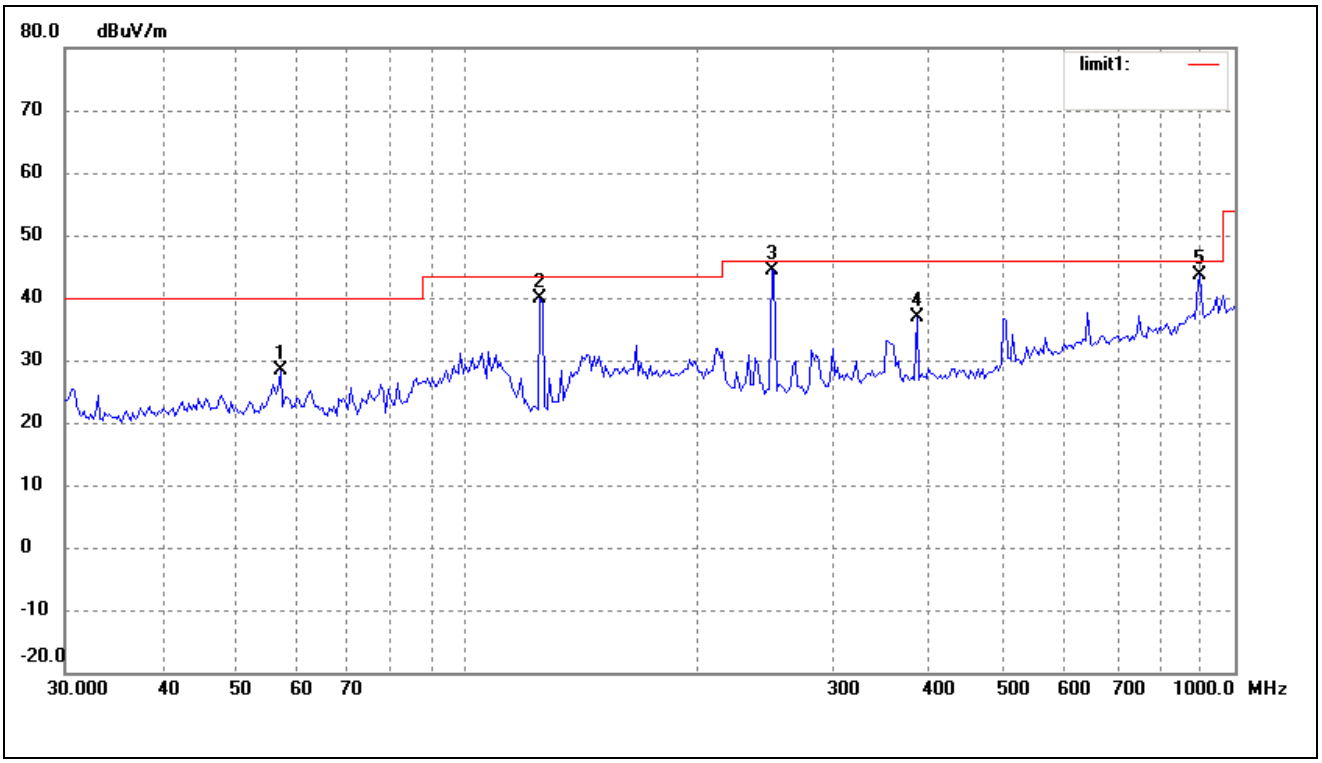


No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	Factor(dB)	(dBuV/m)	(dBuV/m)	(dB)	(°)	(cm)	
1	100.2286	28.67	8.41	37.08	43.50	-6.42	358	100	QP
2	124.5690	35.65	5.32	40.97	43.50	-2.53	180	100	QP
3	249.4250	29.04	8.68	37.72	46.00	-8.28	245	100	peak
4	566.6223	21.46	15.91	37.37	46.00	-8.63	87	100	peak
5	893.8567	22.97	20.78	43.75	46.00	-2.25	334	100	QP

Spurious Emission From 30 MHz to 1 GHz

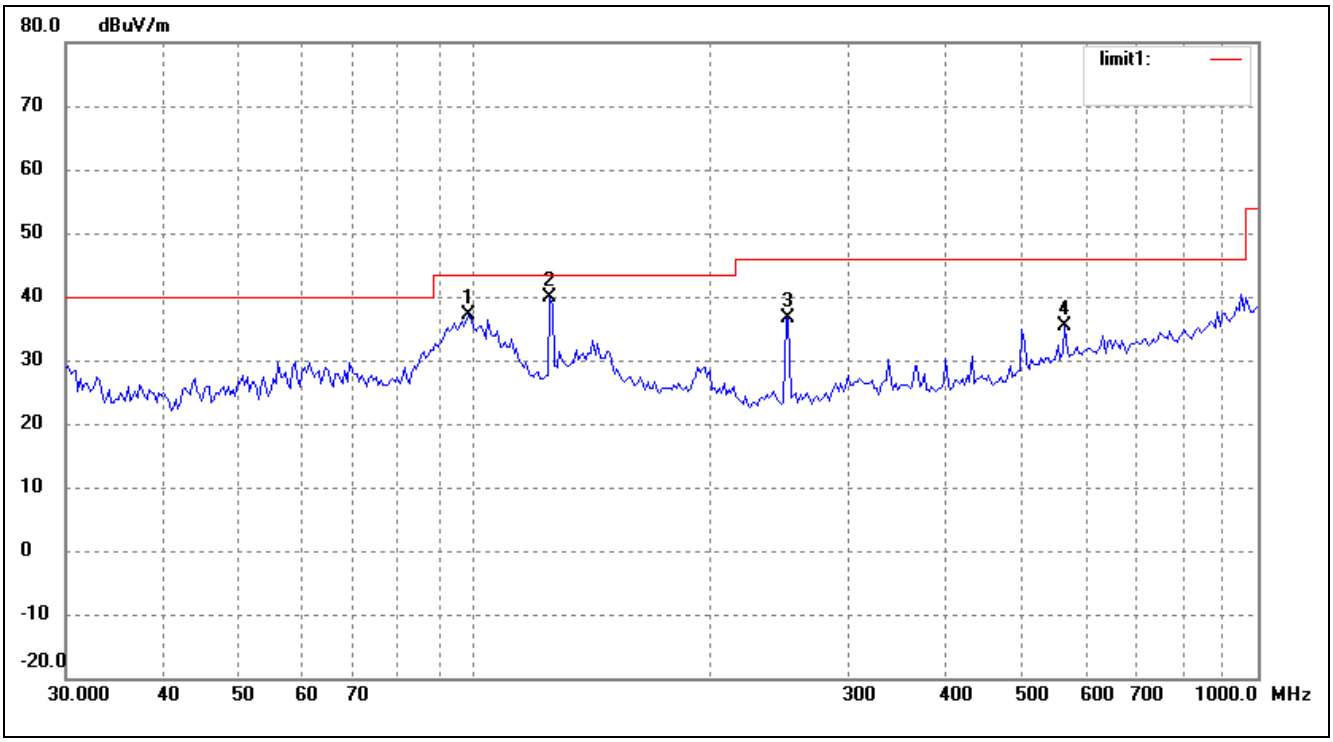
Test mode: Transmitting (802.11g Low Channel)

Horizontal



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	Factor(dB)	(dBuV/m)	(dBuV/m)	(dB)	(°)	(cm)	
1	57.1914	20.73	7.66	28.39	40.00	-11.61	155	200	peak
2	124.5690	34.65	5.32	39.97	43.50	-3.53	264	100	QP
3	249.4250	35.69	8.68	44.37	46.00	-1.63	320	100	QP
4	385.2805	25.64	11.25	36.89	46.00	-9.11	226	100	peak
5	900.1474	22.76	20.90	43.66	46.00	-2.34	178	100	QP

Vertical

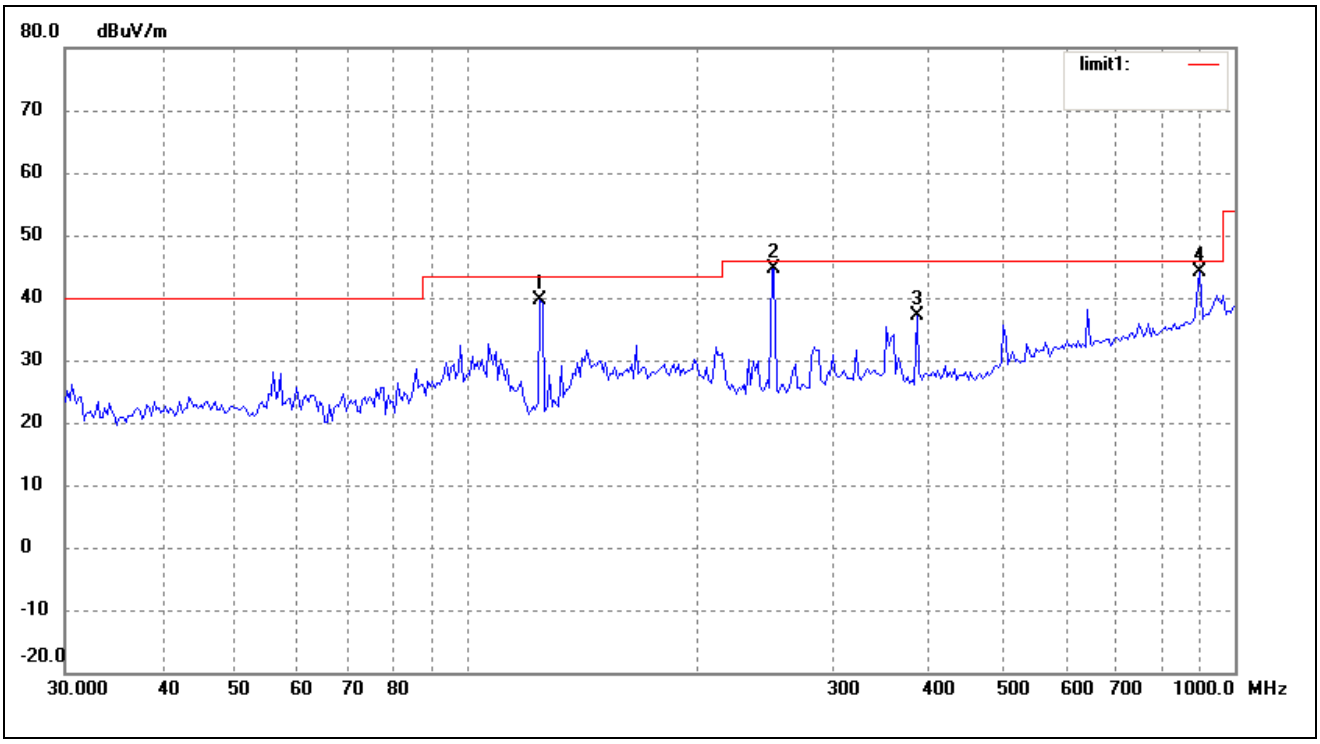


No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	Factor(dB)	(dBuV/m)	(dBuV/m)	(dB)	(°)	(cm)	
1	98.1419	28.85	8.30	37.15	43.50	-6.35	165	100	QP
2	124.5690	34.65	5.32	39.97	43.50	-3.53	199	100	QP
3	251.1804	28.00	8.72	36.72	46.00	-9.28	184	100	peak
4	566.6223	19.49	15.91	35.40	46.00	-10.60	29	100	peak

Spurious Emission From 30 MHz to 1 GHz

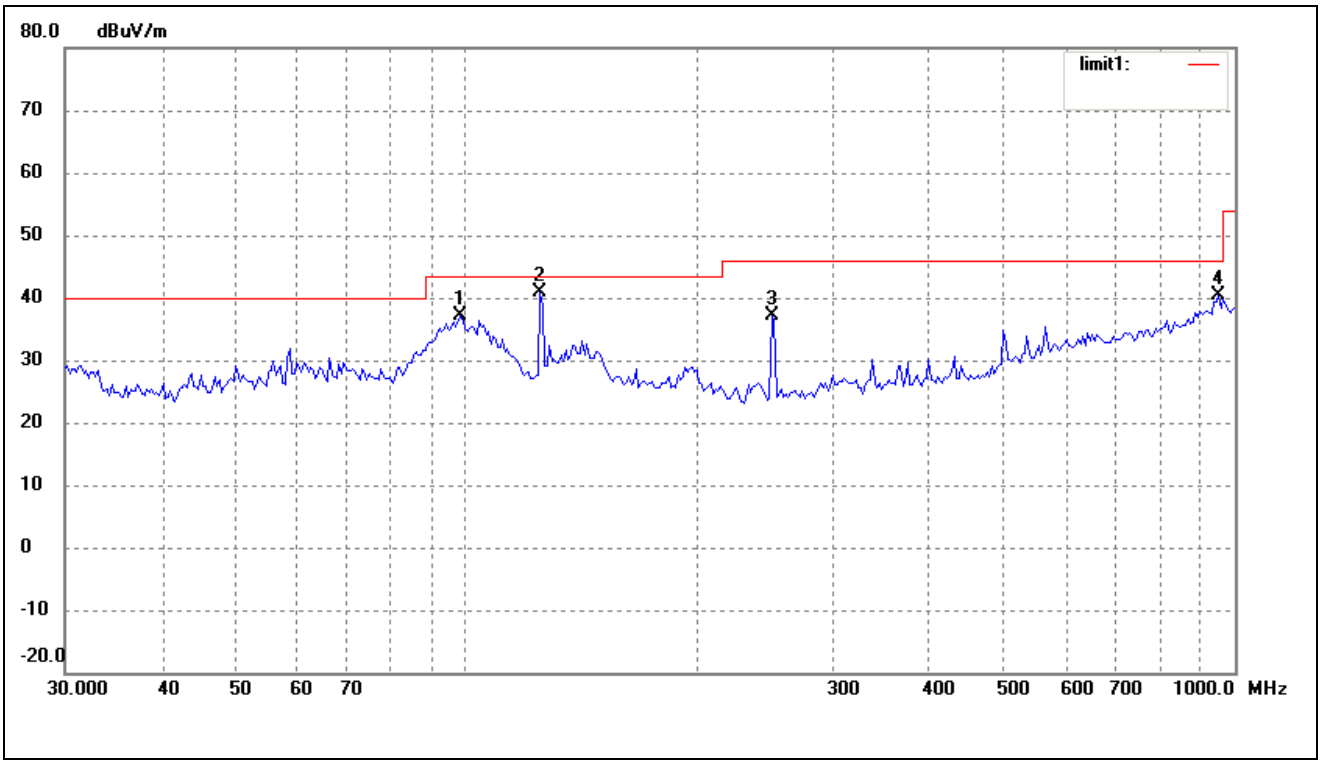
Test mode: Transmitting (802.11g Middle Channel)

Horizontal



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	Factor(dB)	(dBuV/m)	(dBuV/m)	(dB)	(°)	(cm)	
1	124.5690	34.37	5.32	39.69	43.50	-3.81	146	100	QP
2	251.1804	35.86	8.72	44.58	46.00	-1.42	235	100	QP
3	385.2805	25.89	11.25	37.14	46.00	-8.86	74	100	peak
4	900.1474	23.35	20.90	44.25	46.00	-1.75	136	200	QP

Vertical

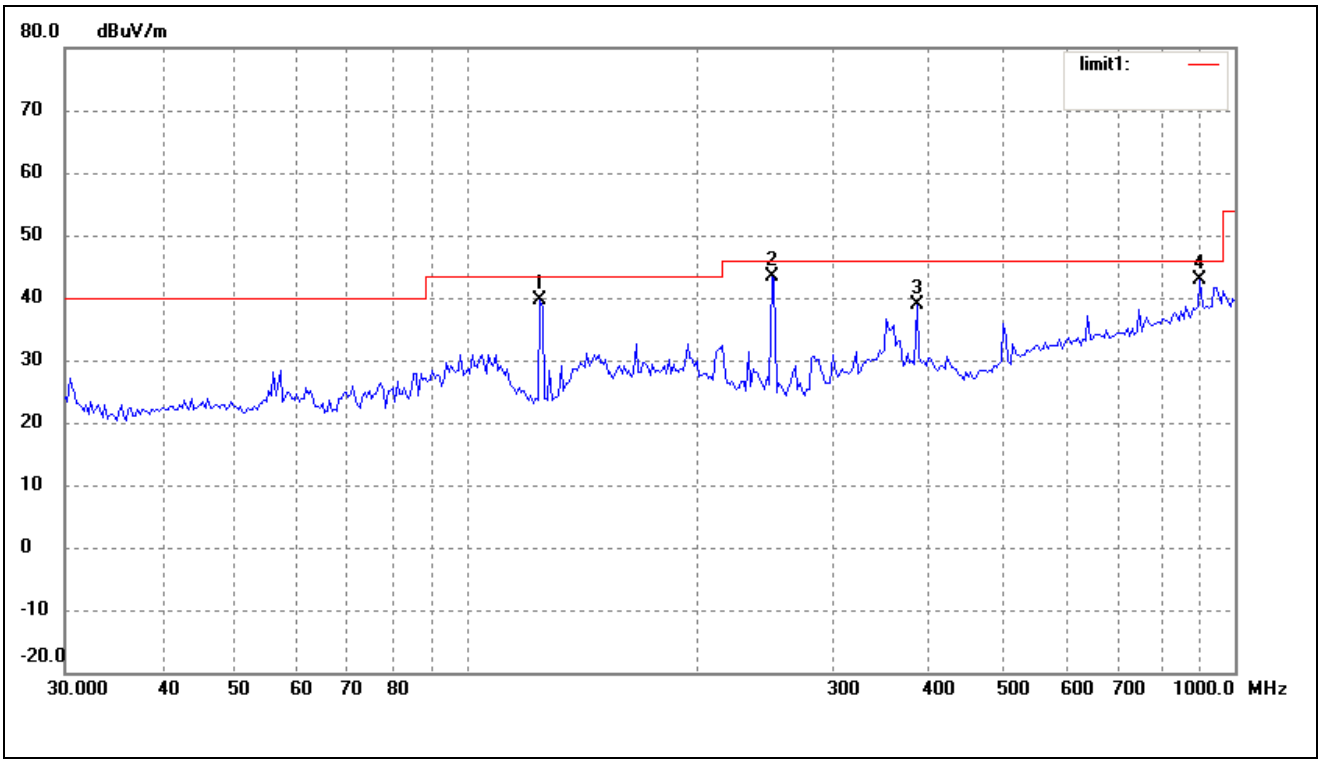


No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	Factor(dB)	(dBuV/m)	(dBuV/m)	(dB)	(°)	(cm)	
1	98.1419	28.85	8.30	37.15	43.50	-6.35	175	100	QP
2	124.5690	35.61	5.32	40.93	43.50	-2.57	266	100	QP
3	249.4250	28.45	8.68	37.13	46.00	-8.87	34	100	peak
4	952.0937	18.55	21.86	40.41	46.00	-5.59	158	100	QP

Spurious Emission From 30 MHz to 1 GHz

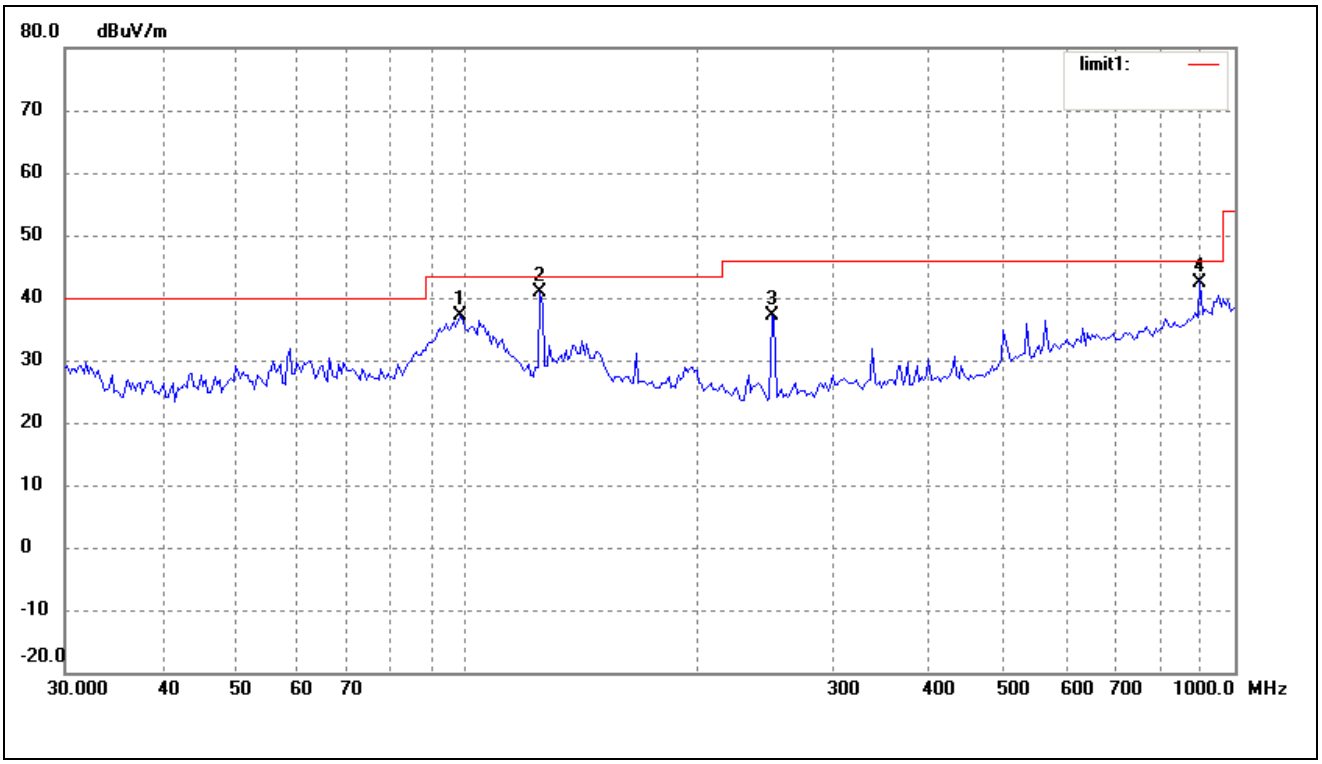
Test mode: Transmitting (802.11g High Channel)

Horizontal



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	Factor(dB)	(dBuV/m)	(dBuV/m)	(dB)	(°)	(cm)	
1	124.5690	34.36	5.32	39.68	43.50	-3.82	54	100	QP
2	249.4250	34.61	8.68	43.29	46.00	-2.71	155	100	QP
3	385.2805	27.51	11.25	38.76	46.00	-7.24	124	200	peak
4	900.1474	21.95	20.90	42.85	46.00	-3.15	125	200	QP

Vertical

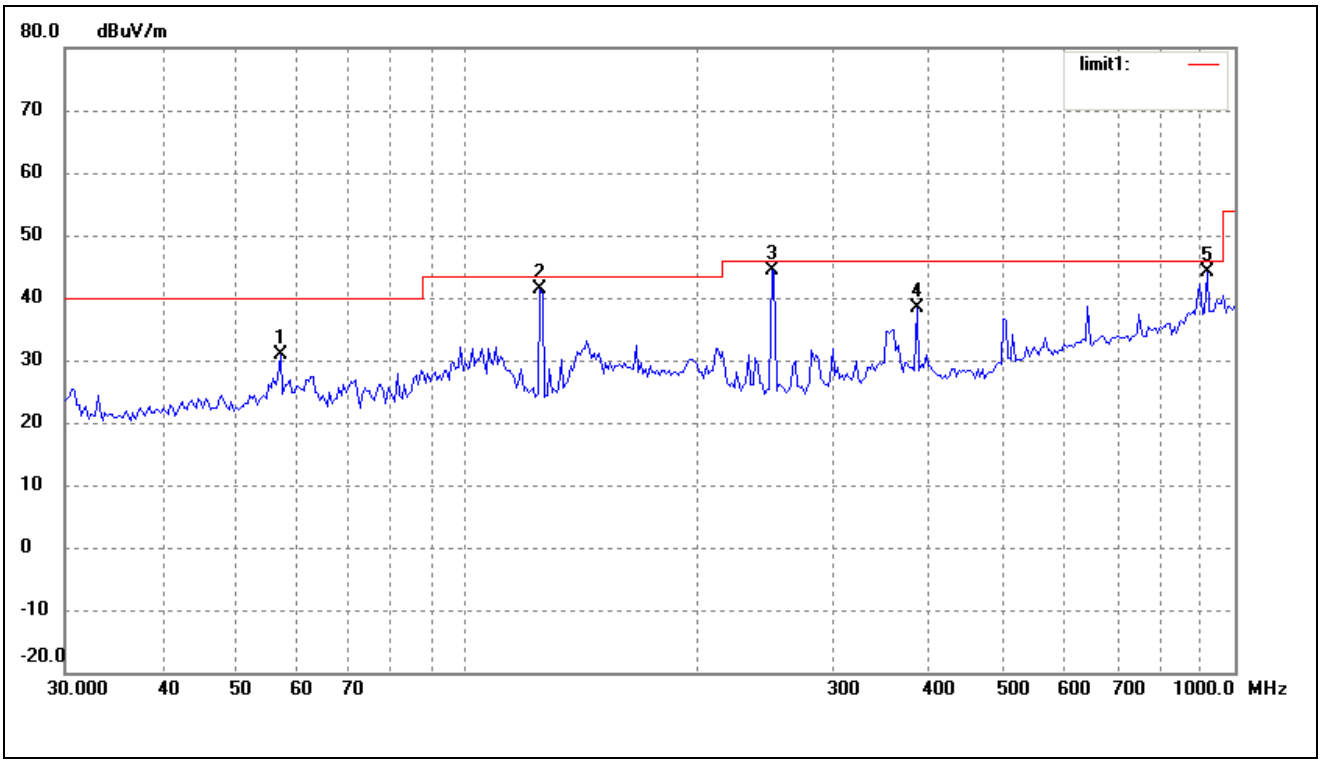


No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	Factor(dB)	(dBuV/m)	(dBuV/m)	(dB)	(°)	(cm)	
1	98.1419	28.85	8.30	37.15	43.50	-6.35	177	200	QP
2	124.5690	35.61	5.32	40.93	43.50	-2.57	15	100	QP
3	249.4250	28.45	8.68	37.13	46.00	-8.87	10	100	peak
4	900.1474	21.60	20.90	42.50	46.00	-3.50	116	100	QP

Spurious Emission From 30 MHz to 1 GHz

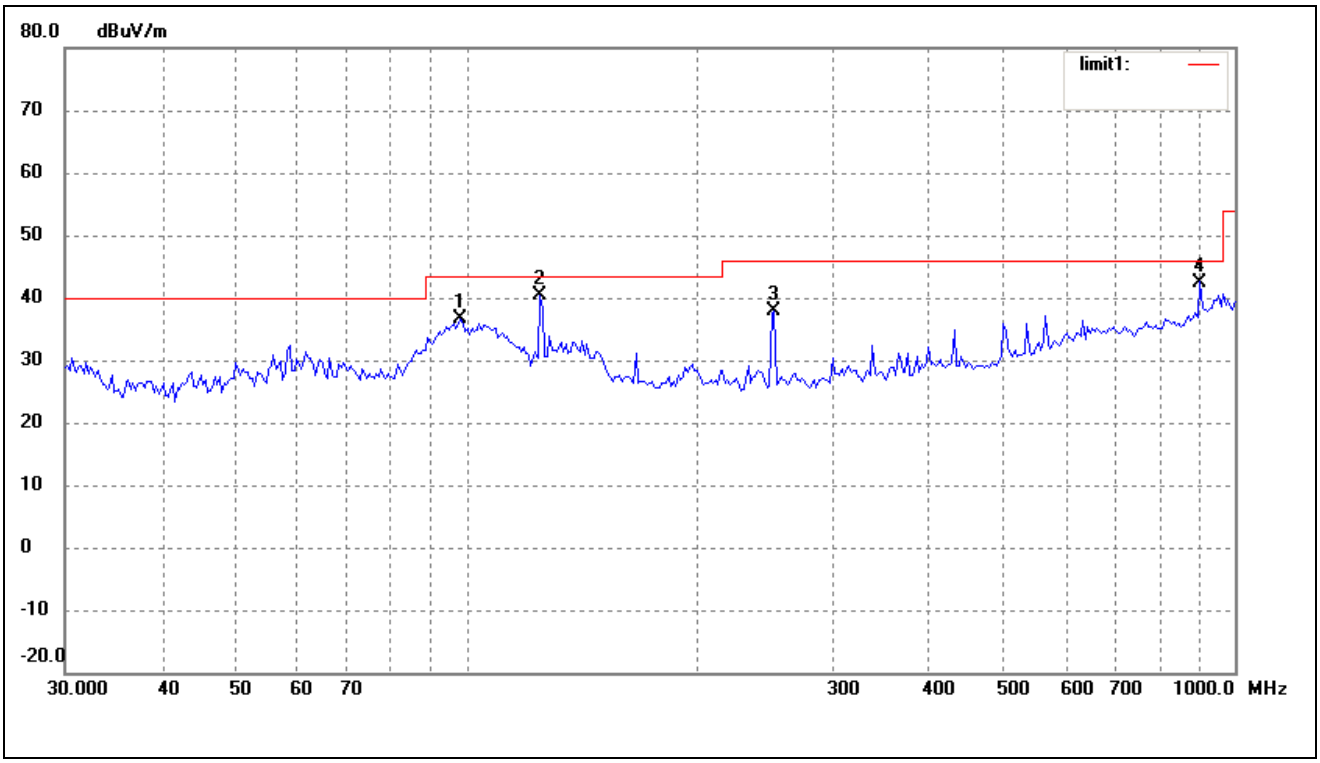
Test mode: Transmitting (802.11n/HT20 Low Channel)

Horizontal



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	Factor(dB)	(dBuV/m)	(dBuV/m)	(dB)	(°)	(cm)	
1	57.1914	23.12	7.66	30.78	40.00	-9.22	256	200	peak
2	124.5690	36.17	5.32	41.49	43.50	-2.01	160	100	QP
3	249.4250	35.69	8.68	44.37	46.00	-1.63	216	100	QP
4	385.2805	27.14	11.25	38.39	46.00	-7.61	210	100	peak
5	919.2866	22.91	21.26	44.17	46.00	-1.83	126	200	QP

Vertical

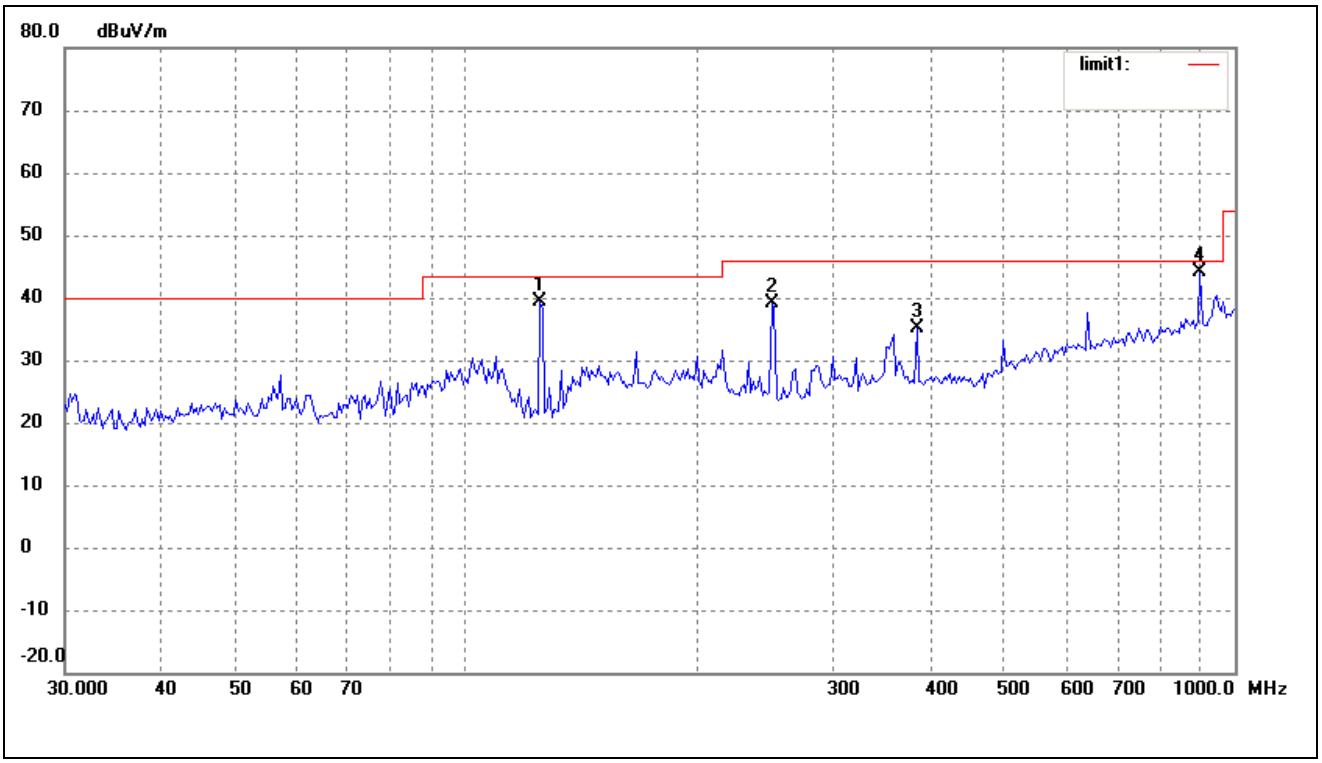


No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	Factor(dB)	(dBuV/m)	(dBuV/m)	(dB)	(°)	(cm)	
1	98.1419	28.35	8.30	36.65	43.50	-6.85	12	100	QP
2	124.5690	35.11	5.32	40.43	43.50	-3.07	212	100	QP
3	251.1804	29.12	8.72	37.84	46.00	-8.16	15	200	peak
4	900.1474	21.60	20.90	42.50	46.00	-3.50	65	100	QP

Spurious Emission From 30 MHz to 1 GHz

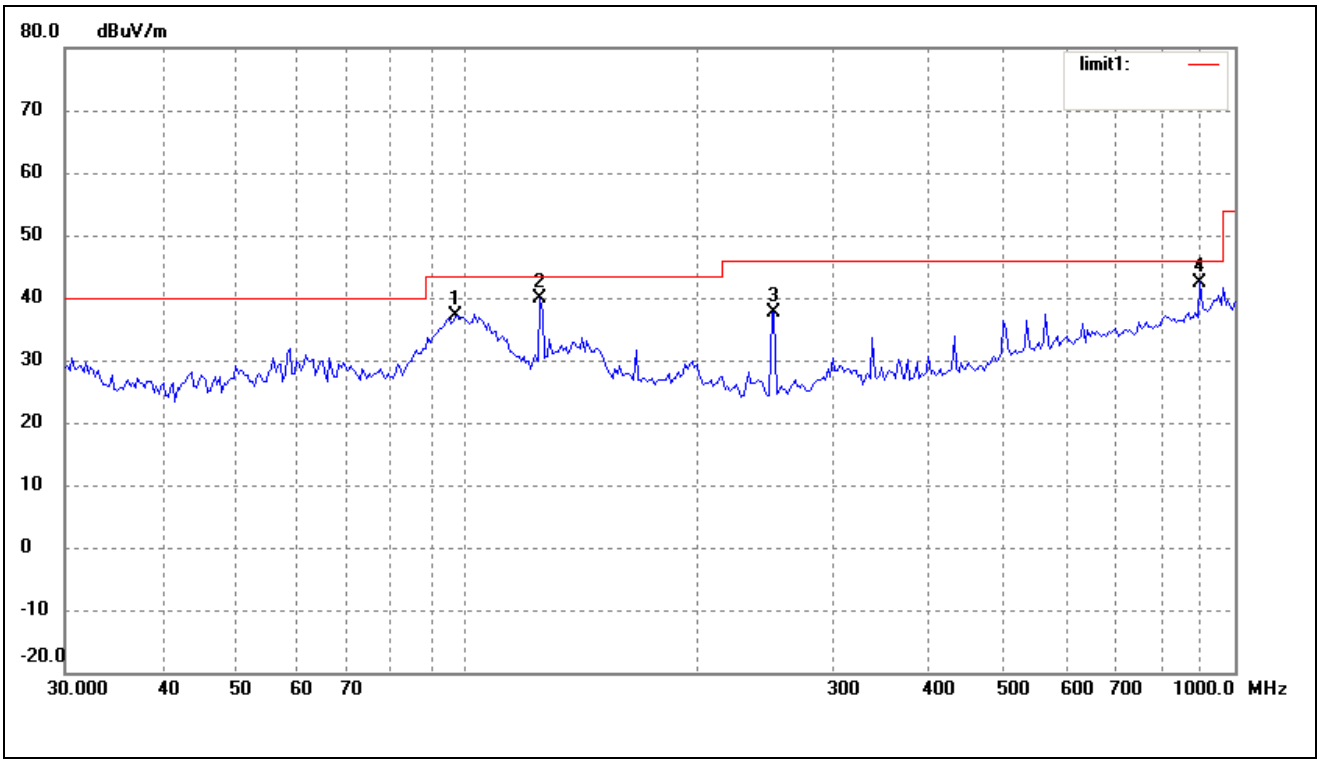
Test mode: Transmitting (802.11n/HT20 Middle Channel)

Horizontal



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	Factor(dB)	(dBuV/m)	(dBuV/m)	(dB)	(°)	(cm)	
1	124.5690	34.06	5.32	39.38	43.50	-4.12	65	200	QP
2	249.4250	30.40	8.68	39.08	46.00	-6.92	105	100	peak
3	385.2805	23.99	11.25	35.24	46.00	-10.76	132	100	peak
4	900.1474	23.15	20.90	44.05	46.00	-1.95	65	100	QP

Vertical

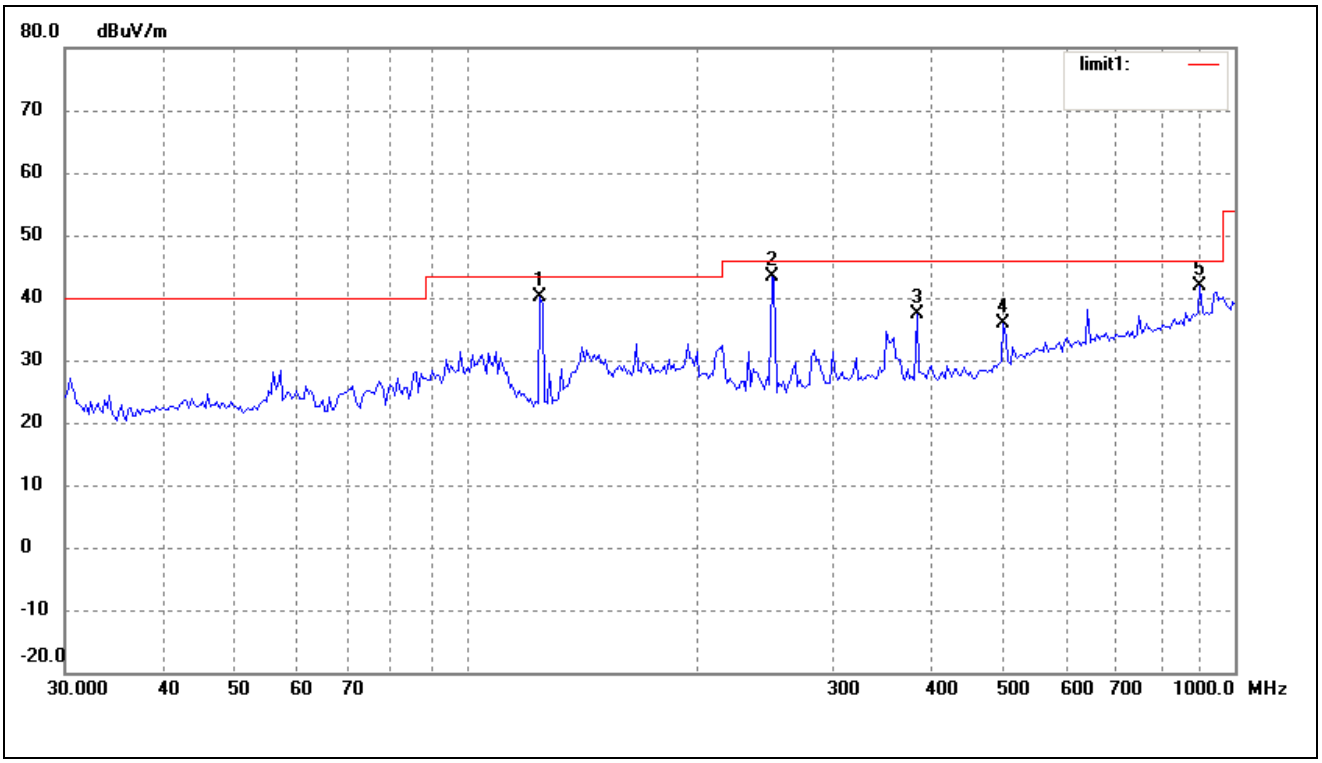


No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	Factor(dB)	(dBuV/m)	(dBuV/m)	(dB)	(°)	(cm)	
1	96.7749	29.03	8.19	37.22	43.50	-6.28	56	100	QP
2	124.5690	34.61	5.32	39.93	43.50	-3.57	54	100	QP
3	251.1804	28.91	8.72	37.63	46.00	-8.37	121	100	peak
4	900.1474	21.60	20.90	42.50	46.00	-3.50	117	100	QP

Spurious Emission From 30 MHz to 1 GHz

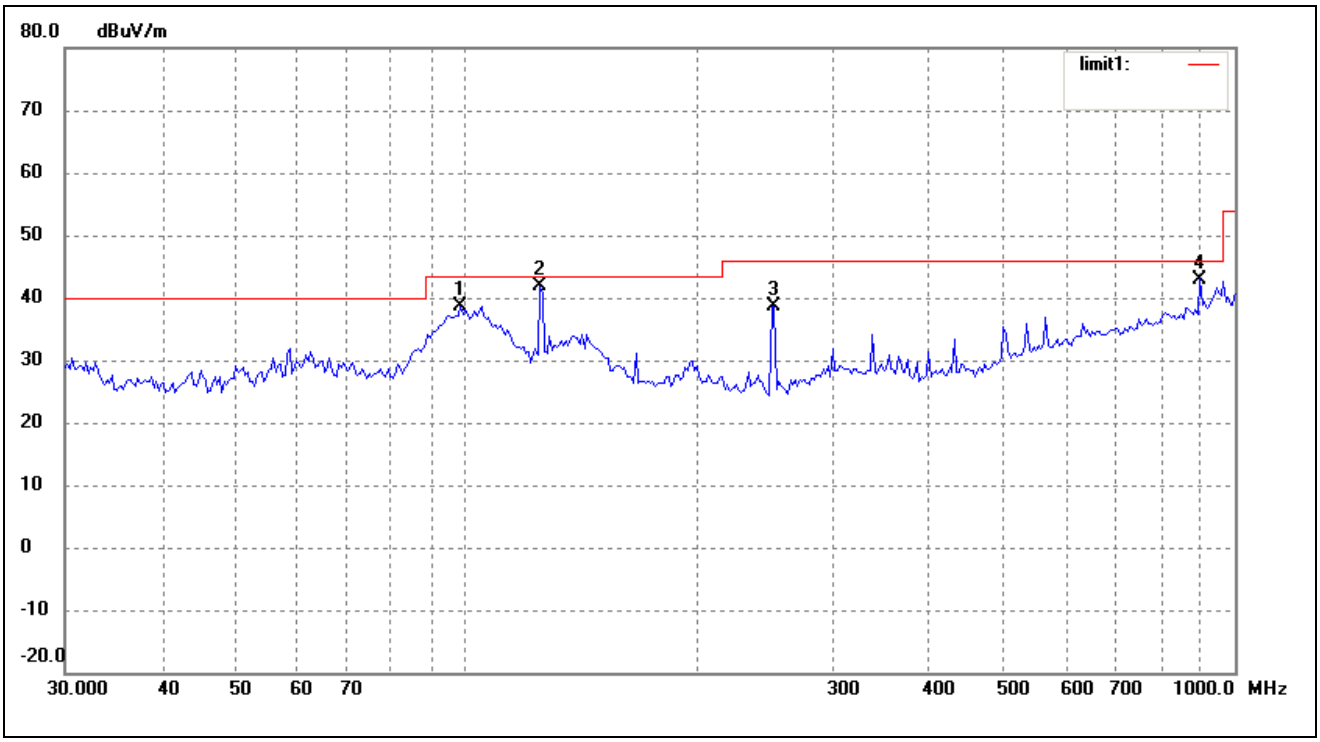
Test mode: Transmitting (802.11n/HT20 High Channel)

Horizontal



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	Factor(dB)	(dBuV/m)	(dBuV/m)	(dB)	(°)	(cm)	
1	124.5690	34.86	5.32	40.18	43.50	-3.32	15	100	QP
2	249.4250	34.61	8.68	43.29	46.00	-2.71	267	100	QP
3	385.2805	26.01	11.25	37.26	46.00	-8.74	115	100	peak
4	499.4247	21.57	14.36	35.93	46.00	-10.07	360	200	peak
5	900.1474	20.95	20.90	41.85	46.00	-4.15	145	100	QP

Vertical

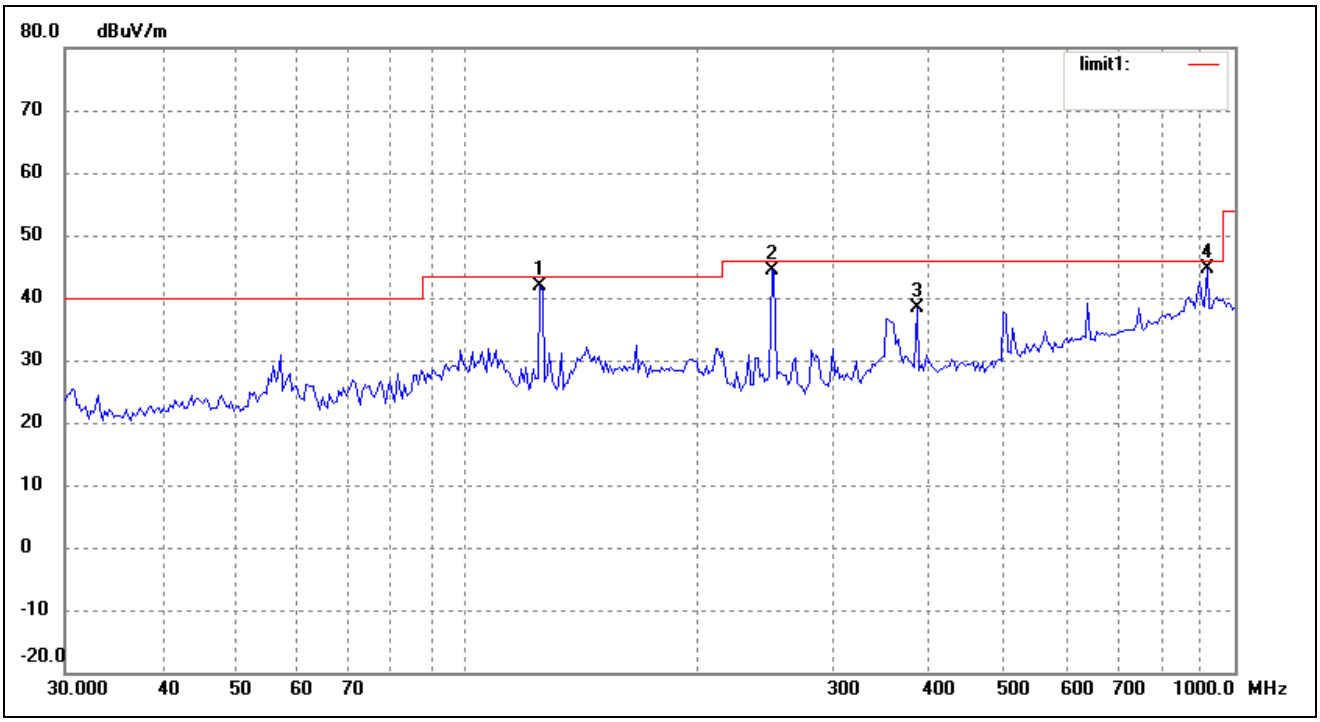


No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	Factor(dB)	(dBuV/m)	(dBuV/m)	(dB)	(°)	(cm)	
1	98.1419	30.32	8.30	38.62	43.50	-4.88	61	200	QP
2	124.5690	36.61	5.32	41.93	43.50	-1.57	111	100	QP
3	251.1804	30.02	8.72	38.74	46.00	-7.26	145	100	peak
4	900.1474	22.10	20.90	43.00	46.00	-3.00	21	100	QP

Spurious Emission From 30 MHz to 1 GHz

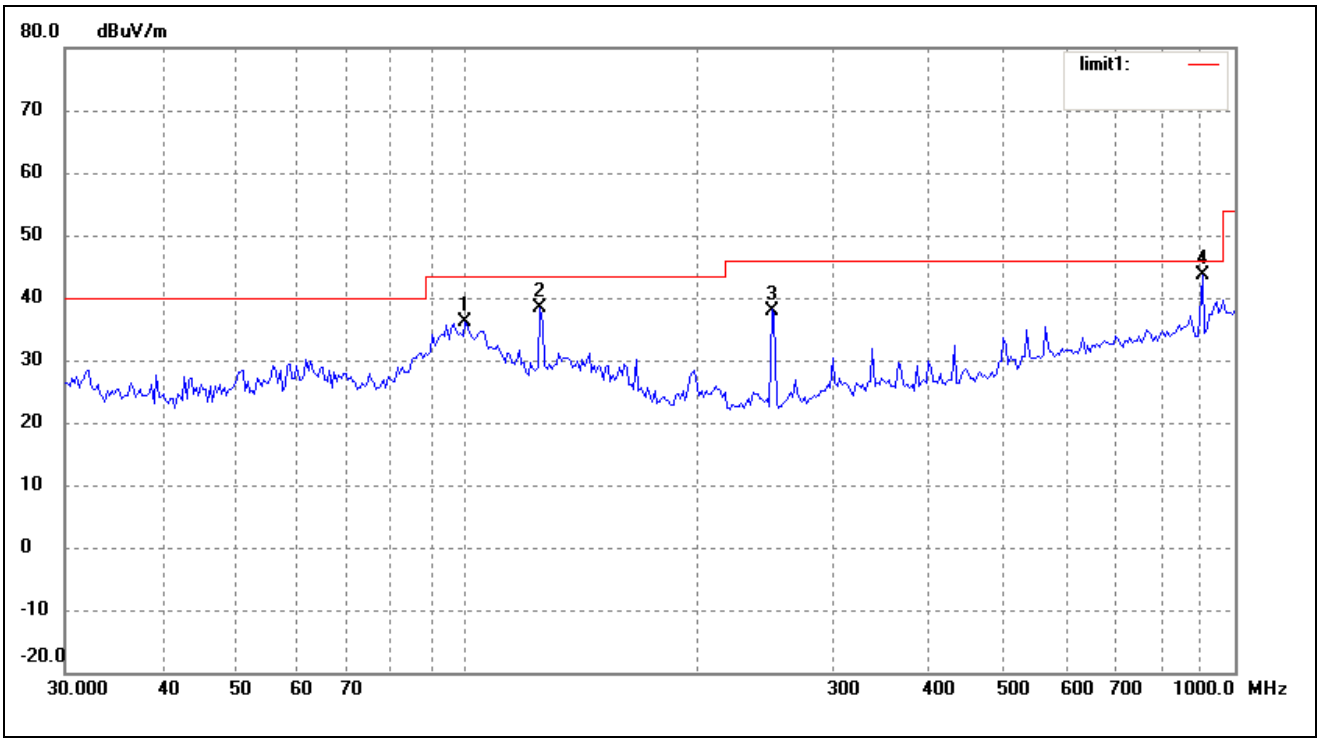
Test mode: Transmitting (802.11n/HT40 Low Channel)

Horizontal



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	Factor(dB)	(dBuV/m)	(dBuV/m)	(dB)	(°)	(cm)	
1	124.5690	36.67	5.32	41.99	43.50	-1.51	94	200	QP
2	249.4250	35.69	8.68	44.37	46.00	-1.63	334	100	QP
3	385.2805	27.14	11.25	38.39	46.00	-7.61	115	100	peak
4	919.2866	23.41	21.26	44.67	46.00	-1.33	124	100	QP

Vertical

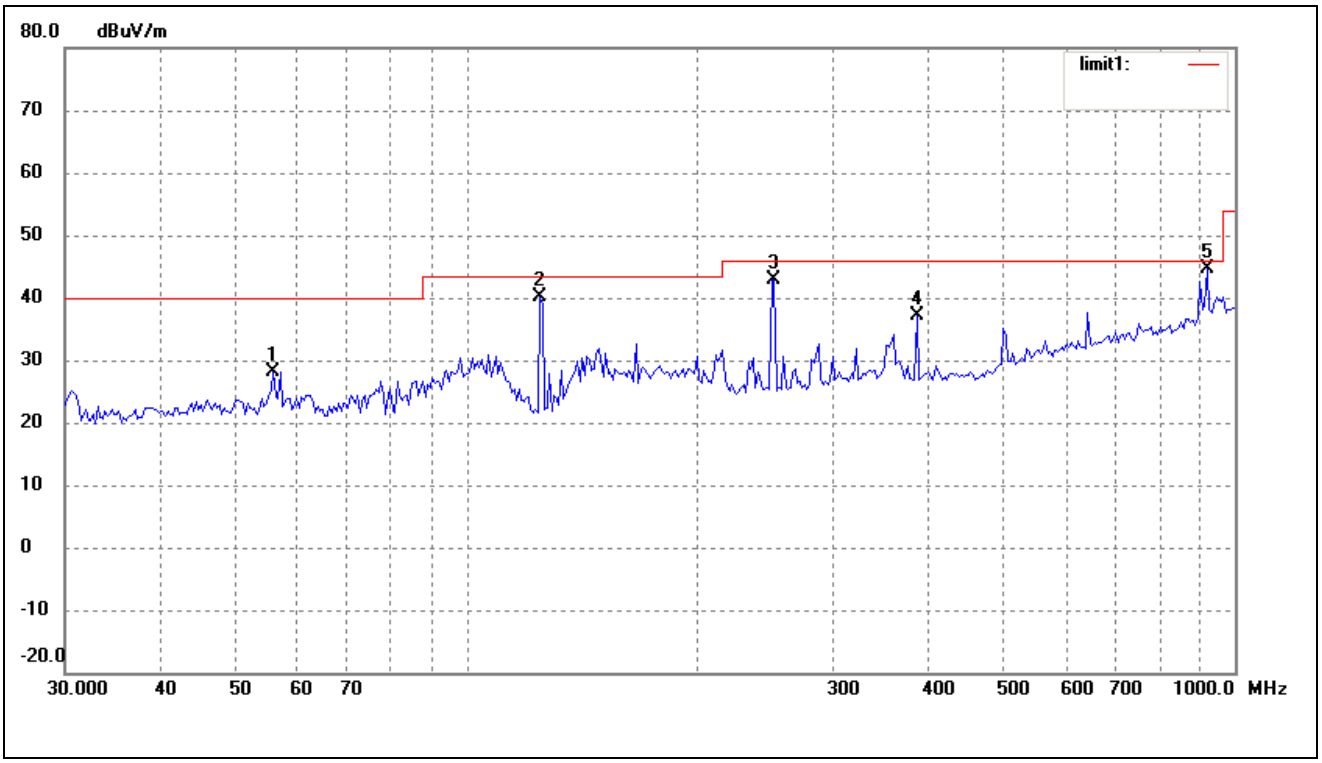


No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	Factor(dB)	(dBuV/m)	(dBuV/m)	(dB)	(°)	(cm)	
1	99.5281	27.64	8.40	36.04	43.50	-7.46	64	100	QP
2	124.5690	32.94	5.32	38.26	43.50	-5.24	15	100	QP
3	249.4250	29.32	8.68	38.00	46.00	-8.00	14	200	peak
4	906.4824	22.53	21.02	43.55	46.00	-2.45	87	200	QP

Spurious Emission From 30 MHz to 1 GHz

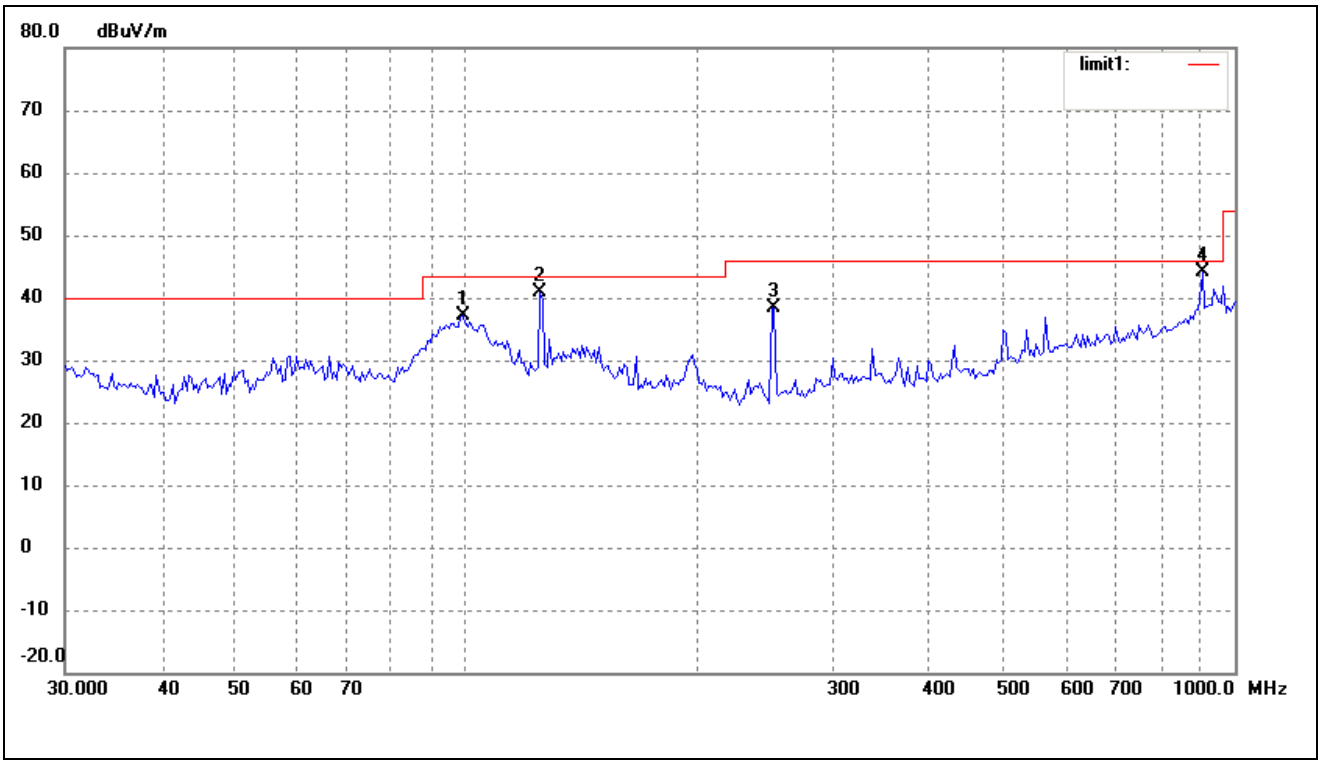
Test mode: Transmitting (802.11n/HT40 Middle Channel)

Horizontal



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	Factor(dB)	(dBuV/m)	(dBuV/m)	(dB)	(°)	(cm)	
1	56.0007	20.34	7.73	28.07	40.00	-11.93	56	100	peak
2	124.5690	34.79	5.32	40.11	43.50	-3.39	147	200	QP
3	251.1804	34.08	8.72	42.80	46.00	-3.20	96	200	QP
4	385.2805	25.76	11.25	37.01	46.00	-8.99	258	100	peak
5	919.2866	23.27	21.26	44.53	46.00	-1.47	62	100	QP

Vertical

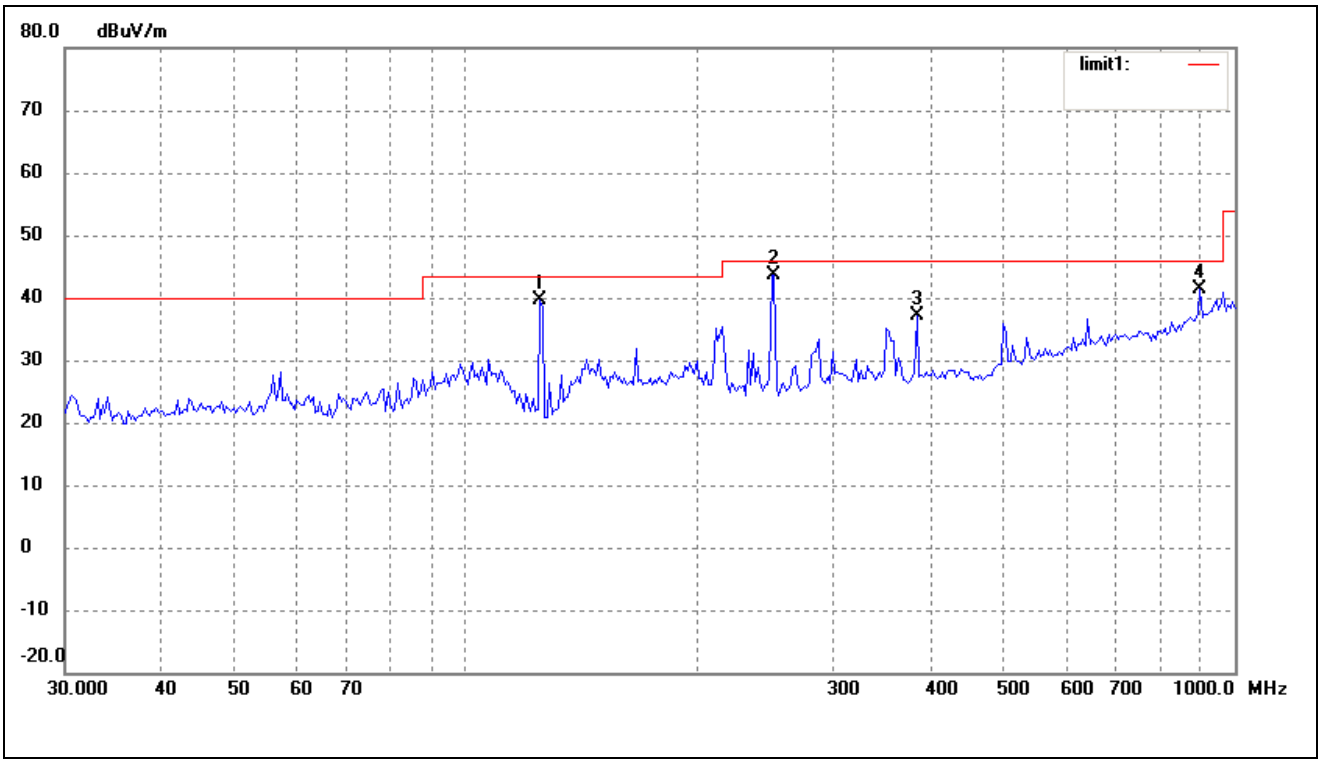


No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	Factor(dB)	(dBuV/m)	(dBuV/m)	(dB)	(°)	(cm)	
1	98.8326	28.69	8.34	37.03	43.50	-6.47	31	100	QP
2	124.5690	35.59	5.32	40.91	43.50	-2.59	115	100	QP
3	251.1804	29.59	8.72	38.31	46.00	-7.69	102	100	peak
4	906.4824	23.03	21.02	44.05	46.00	-1.95	164	100	QP

Spurious Emission From 30 MHz to 1 GHz

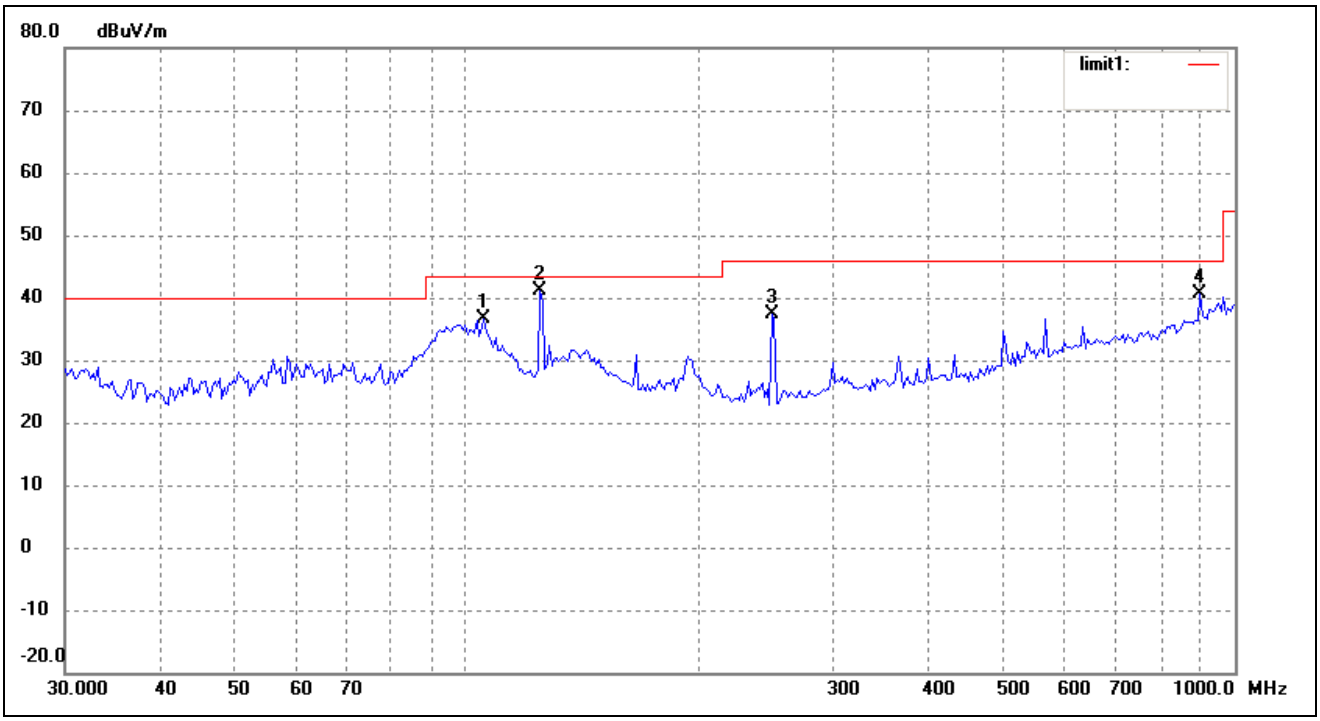
Test mode: Transmitting (802.11n/HT40 High Channel)

Horizontal



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	Factor(dB)	(dBuV/m)	(dBuV/m)	(dB)	(°)	(cm)	
1	124.5690	34.20	5.32	39.52	43.50	-3.98	54	200	QP
2	251.1804	34.98	8.72	43.70	46.00	-2.30	161	100	QP
3	385.2805	25.98	11.25	37.23	46.00	-8.77	168	100	peak
4	900.1474	20.54	20.90	41.44	46.00	-4.56	48	100	QP

Vertical



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	Factor(dB)	(dBuV/m)	(dBuV/m)	(dB)	(°)	(cm)	
1	105.2718	28.74	7.99	36.73	43.50	-6.77	34	100	QP
2	124.5690	35.77	5.32	41.09	43.50	-2.41	19	100	QP
3	249.4250	28.69	8.68	37.37	46.00	-8.63	48	200	peak
4	900.1474	19.83	20.90	40.73	46.00	-5.27	199	100	QP

Spurious Emission Above 1GHz

Test Mode: Transmitting (802.11b)

Frequency MHz	Detector	Meter Reading dBuV	Direction Degree	Polar H / V	Antenna Loss dB	Cable loss dB	Amplifier dB	Correction Amplitude dBuV/m	Limit dBuV/m	Margin dB
Low Channel (1G to 25GHz)										
4824.0	PK	51.6	190	V	34.1	5.2	33.0	60.1	74	-13.9
7236.0	PK	49.0	170	V	37.4	6.1	33.5	61.2	74	-12.8
7236.0	PK	50.3	280	H	37.4	6.1	33.5	62.5	74	-11.5
4824.0	PK	53.2	245	H	34.1	5.2	33.0	61.7	74	-12.3
4824.0	AV	42.1	250	V	34.1	5.2	33.0	50.6	54	-3.4
7236.0	AV	38.2	290	V	37.4	6.1	33.5	50.4	54	-3.6
7236.0	AV	39.0	245	H	37.4	6.1	33.5	51.2	54	-2.8
4824.0	AV	42.6	260	H	34.1	5.2	33.0	51.1	54	-2.9
Middle Channel (1G to 25GHz)										
7311.0	PK	52.3	245	V	37.4	6.1	33.5	64.5	74	-9.5
4874.0	PK	47.5	270	V	34.1	5.2	33.0	56.0	74	-18.0
7311.0	PK	50.1	45	H	37.4	6.1	33.5	62.3	74	-11.7
4874.0	PK	52.7	280	H	34.1	5.2	33.0	61.2	74	-12.8
7311.0	AV	39.1	270	V	37.4	6.1	33.5	51.3	54	-2.7
4874.0	AV	39.6	90	V	34.1	5.2	33.0	48.1	54	-5.9
7311.0	AV	38.2	60	H	37.4	6.1	33.5	50.4	54	-3.6
4874.0	AV	42.0	45	H	34.1	5.2	33.0	50.5	54	-3.5
High Channel (1G to 25GHz)										
4924.0	PK	52.2	270	V	34.1	5.2	33.0	60.7	74	-13.3
7386.0	PK	48.3	45	V	37.4	6.1	33.5	60.5	74	-13.5
4924.0	PK	49.2	180	H	34.1	5.2	33.0	57.7	74	-16.3
7386.0	PK	53.2	45	H	37.4	6.1	33.5	65.4	74	-8.6
4924.0	AV	42.1	90	V	34.1	5.2	33.0	50.6	54	-3.4
7386.0	AV	38.6	270	V	37.4	6.1	33.5	50.8	54	-3.2
4924.0	AV	41.0	60	H	34.1	5.2	33.0	49.5	54	-4.5
7386.0	AV	39.2	60	H	37.4	6.1	33.5	51.4	54	-2.6

Note: Testing is carried out with frequency rang 30MHz to the tenth harmonics, which above 5th Harmonics is close to the noise base even antenna close up to 1meter distance according the measurement of ANSI C63.4.

Spurious Emission Above 1GHz

Test Mode: Transmitting (802.11g)

Frequency MHz	Detector	Meter Reading dBuV	Direction Degree	Polar H / V	Antenna Loss dB	Cable loss dB	Amplifier dB	Correction Amplitude dBuV/m	Limit dBuV/m	Margin dB
Low Channel (1G to 25GHz)										
4824.0	PK	51.2	90	V	34.1	5.2	33.0	59.7	74	-14.3
7236.0	PK	46.6	270	V	37.4	6.1	33.5	58.8	74	-15.2
7236.0	PK	47.7	180	H	37.4	6.1	33.5	59.9	74	-14.1
4824.0	PK	52.3	45	H	34.1	5.2	33.0	60.8	74	-13.2
4824.0	AV	43.1	270	V	34.1	5.2	33.0	51.6	54	-2.4
7236.0	AV	38.6	90	V	37.4	6.1	33.5	50.8	54	-3.2
7236.0	AV	38.7	45	H	37.4	6.1	33.5	50.9	54	-3.1
4824.0	AV	42.9	60	H	34.1	5.2	33.0	51.4	54	-2.6
Middle Channel (1G to 25GHz)										
7311.0	PK	52.1	45	V	37.4	6.1	33.5	64.3	74	-9.7
4874.0	PK	48.3	270	V	34.1	5.2	33.0	56.8	74	-17.2
7311.0	PK	49.3	45	H	37.4	6.1	33.5	61.5	74	-12.5
4874.0	PK	53.3	180	H	34.1	5.2	33.0	61.8	74	-12.2
7311.0	AV	39.0	270	V	37.4	6.1	33.5	51.2	54	-2.8
4874.0	AV	39.7	90	V	34.1	5.2	33.0	48.2	54	-5.8
7311.0	AV	39.5	60	H	37.4	6.1	33.5	51.7	54	-2.3
4874.0	AV	41.1	45	H	34.1	5.2	33.0	49.6	54	-4.4
High Channel (1G to 25GHz)										
4924.0	PK	50.4	270	V	34.1	5.2	33.0	58.9	74	-15.1
7386.0	PK	48.4	45	V	37.4	6.1	33.5	60.6	74	-13.4
4924.0	PK	47.9	180	H	34.1	5.2	33.0	56.4	74	-17.6
7386.0	PK	53.0	45	H	37.4	6.1	33.5	65.2	74	-8.8
4924.0	AV	41.8	90	V	34.1	5.2	33.0	50.3	54	-3.7
7386.0	AV	39.2	270	V	37.4	6.1	33.5	51.4	54	-2.6
4924.0	AV	39.2	60	H	34.1	5.2	33.0	47.7	54	-6.3
7386.0	AV	39.0	60	H	37.4	6.1	33.5	51.2	54	-2.8

Note: Testing is carried out with frequency rang 30MHz to the tenth harmonics, which above 5th Harmonics is close to the noise base even antenna close up to 1meter distance according the measurement of ANSI C63.4.

Spurious Emission Above 1GHz

Test Mode: Transmitting (802.11n/HT20)

Frequency MHz	Detector	Meter Reading dBuV	Direction Degree	Polar H / V	Antenna Loss dB	Cable loss dB	Amplifier dB	Correction Amplitude dBuV/m	Limit dBuV/m	Margin dB
Low Channel (1G to 25GHz)										
4824.0	PK	50.1	221	V	34.1	5.2	33.0	58.6	74	-15.4
7236.0	PK	47.2	54	V	37.4	6.1	33.5	59.4	74	-14.6
7236.0	PK	48.3	35	H	37.4	6.1	33.5	60.5	74	-13.5
4824.0	PK	51.0	156	H	34.1	5.2	33.0	59.5	74	-14.5
4824.0	AV	41.9	90	V	34.1	5.2	33.0	50.4	54	-3.6
7236.0	AV	38.0	54	V	37.4	6.1	33.5	50.2	54	-3.8
7236.0	AV	39.7	161	H	37.4	6.1	33.5	51.9	54	-2.1
4824.0	AV	41.9	15	H	34.1	5.2	33.0	50.4	54	-3.6
Middle Channel (1G to 25GHz)										
7311.0	PK	50.1	65	V	37.4	6.1	33.5	62.3	74	-11.7
4874.0	PK	45.6	44	V	34.1	5.2	33.0	54.1	74	-19.9
7311.0	PK	47.3	46	H	37.4	6.1	33.5	59.5	74	-14.5
4874.0	PK	50.2	158	H	34.1	5.2	33.0	58.7	74	-15.3
7311.0	AV	38.9	11	V	37.4	6.1	33.5	51.1	54	-2.9
4874.0	AV	37.6	48	V	34.1	5.2	33.0	46.1	54	-7.9
7311.0	AV	38.5	160	H	37.4	6.1	33.5	50.7	54	-3.3
4874.0	AV	41.3	26	H	34.1	5.2	33.0	49.8	54	-4.2
High Channel (1G to 25GHz)										
4924.0	PK	50.0	9	V	34.1	5.2	33.0	58.5	74	-15.5
7386.0	PK	44.5	59	V	37.4	6.1	33.5	56.7	74	-17.3
4924.0	PK	47.6	51	H	34.1	5.2	33.0	56.1	74	-17.9
7386.0	PK	49.4	65	H	37.4	6.1	33.5	61.6	74	-12.4
4924.0	AV	41.8	90	V	34.1	5.2	33.0	50.3	54	-3.7
7386.0	AV	36.2	44	V	37.4	6.1	33.5	48.4	54	-5.6
4924.0	AV	39.0	164	H	34.1	5.2	33.0	47.5	54	-6.5
7386.0	AV	38.8	166	H	37.4	6.1	33.5	51.0	54	-3.0

Note: Testing is carried out with frequency rang 30MHz to the tenth harmonics, which above 5th Harmonics is close to the noise base even antenna close up to 1meter distance according the measurement of ANSI C63.4.

Spurious Emission Above 1GHz

Test Mode: Transmitting (802.11n/HT40)

Frequency MHz	Detector	Meter Reading dBuV	Direction Degree	Polar H / V	Antenna Loss dB	Cable loss dB	Amplifier dB	Correction Amplitude dBuV/m	Limit dBuV/m	Margin dB
Low Channel (1G to 25GHz)										
4844.0	PK	50.3	65	V	34.1	5.2	33.0	58.8	74	-15.2
7266.0	PK	47.9	235	V	37.4	6.1	33.5	60.1	74	-13.9
7266.0	PK	49.0	165	H	37.4	6.1	33.5	61.2	74	-12.8
4844.0	PK	51.1	33	H	34.1	5.2	33.0	59.6	74	-14.4
4844.0	AV	42.2	22	V	34.1	5.2	33.0	50.7	54	-3.3
7266.0	AV	38.8	30	V	37.4	6.1	33.5	51.0	54	-3.0
7266.0	AV	38.8	15	H	37.4	6.1	33.5	51.0	54	-3.0
4844.0	AV	40.8	154	H	34.1	5.2	33.0	49.3	54	-4.7
Middle Channel (1G to 25GHz)										
7311.0	PK	49.1	61	V	37.4	6.1	33.5	61.3	74	-12.7
4874.0	PK	45.7	64	V	34.1	5.2	33.0	54.2	74	-19.8
7311.0	PK	46.6	54	H	37.4	6.1	33.5	58.8	74	-15.2
4874.0	PK	50.4	11	H	34.1	5.2	33.0	58.9	74	-15.1
7311.0	AV	38.9	102	V	37.4	6.1	33.5	51.1	54	-2.9
4874.0	AV	37.4	132	V	34.1	5.2	33.0	45.9	54	-8.1
7311.0	AV	39.1	102	H	37.4	6.1	33.5	51.3	54	-2.7
4874.0	AV	41.6	55	H	34.1	5.2	33.0	50.1	54	-3.9
High Channel (1G to 25GHz)										
4904.0	PK	49.5	312	V	34.1	5.2	33.0	58.0	74	-16.0
7356.0	PK	44.6	48	V	37.4	6.1	33.5	56.8	74	-17.2
4904.0	PK	47.4	69	H	34.1	5.2	33.0	55.9	74	-18.1
7356.0	PK	49.2	75	H	37.4	6.1	33.5	61.4	74	-12.6
4904.0	AV	41.3	84	V	34.1	5.2	33.0	49.8	54	-4.2
7356.0	AV	36.3	110	V	37.4	6.1	33.5	48.5	54	-5.5
4904.0	AV	39.5	57	H	34.1	5.2	33.0	48.0	54	-6.0
7356.0	AV	39.3	57	H	37.4	6.1	33.5	51.5	54	-2.5

Note: Testing is carried out with frequency rang 30MHz to the tenth harmonics, which above 5th Harmonics is close to the noise base even antenna close up to 1meter distance according the measurement of ANSI C63.4.

10. OUT OF BAND EMISSIONS

10.1 Standard Applicable

According to §15.247 (d) 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.

10.2 Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Cal. Date	Due. Date
Agilent	Spectrum Analyzer	E4402B	US41192821	2009-08-12	2010-08-11
Spectrum Analyzer	ROHDE&SCHWARZ	FSEA20	DE25181	2009-08-12	2010-08-11
Positioning Controller	C&C	CC-C-1F	N/A	2009-07-21	2010-07-20
Trilog Broadband Antenna	SCHWARZBECK	VULB9163	9163-333	2009-07-21	2010-07-20
Horn Antenna	SCHWARZBECK	BBHX 9120	9120-426	2009-08-12	2010-08-11
RF Switch	EM	EMSW18	SW060023	2009-08-12	2010-08-11
Amplifier	Agilent	8447F	3113A06717	2009-08-12	2010-08-11
Coaxial Cable	SCHWARZBECK	AK9513	9513-10	2009-08-12	2010-08-11
EMI Test Receiver	ROHDE&SCHWARZ	ESPI	25498514	2009-08-12	2010-08-11

10.3 Test Procedure

1. 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, VBW=100KHz, Span=50MHz, Sweep = auto
3. Set the Lowest and Highest Transmitting Channel, observed the outside band of 2400MHz to 2438.5MHz, then mark the higher-level emission for comparing with the FCC rules.

10.4 Environmental Conditions

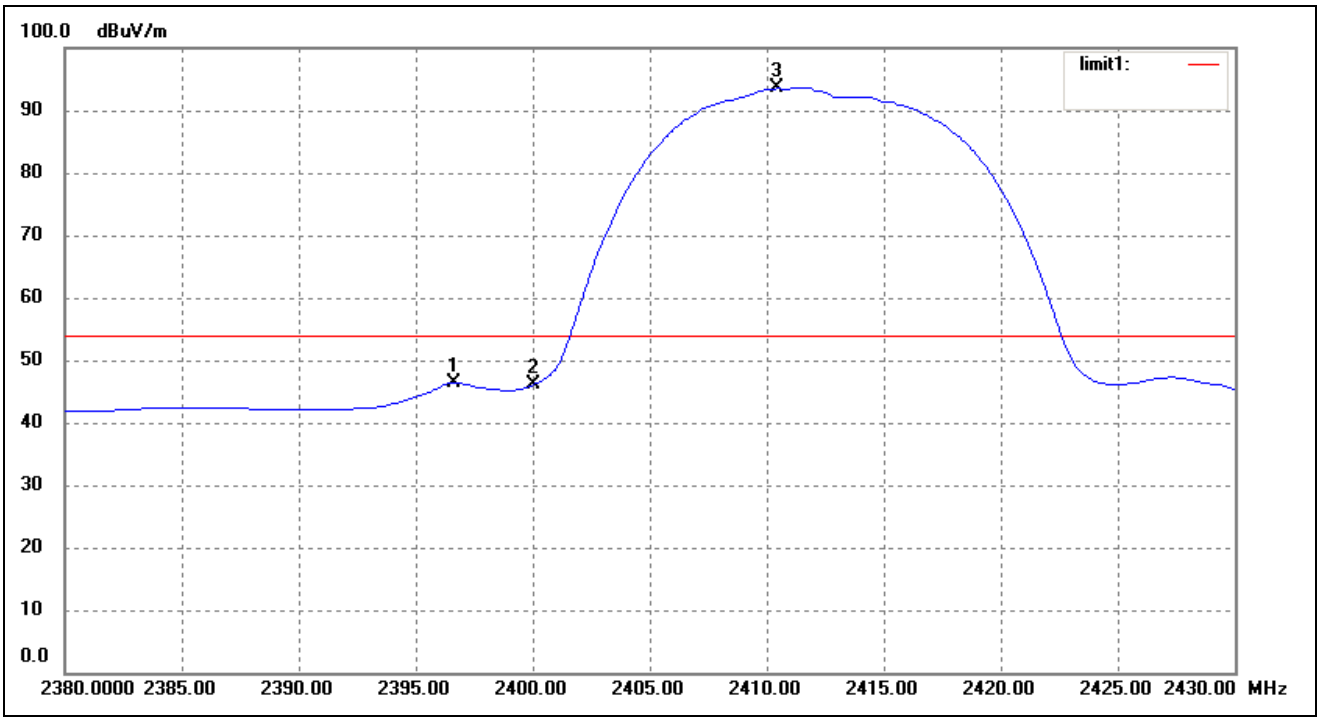
Temperature:	25°C
Relative Humidity:	54 %
ATM Pressure:	1015 mbar

10.5 Summary of Test Results/Plots

Test mode	Frequency MHz	Limit dBuV /dB	Result
802.11b	2396.633	<54dBuv	Pass
	2400.000	>20dB	Pass
	2476.152	<54dBuv	Pass
802.11g	2390.000	<54dBuv	Pass
	2400.000	>20dB	Pass
	2483.500	<54dBuv	Pass
802.11n/HT20	2390.000	<54dBuv	Pass
	2400.000	>20dB	Pass
	2483.500	<54dBuv	Pass
802.11n/HT40	2390.000	<54dBuv	Pass
	2400.000	>20dB	Pass
	2483.500	<54dBuv	Pass

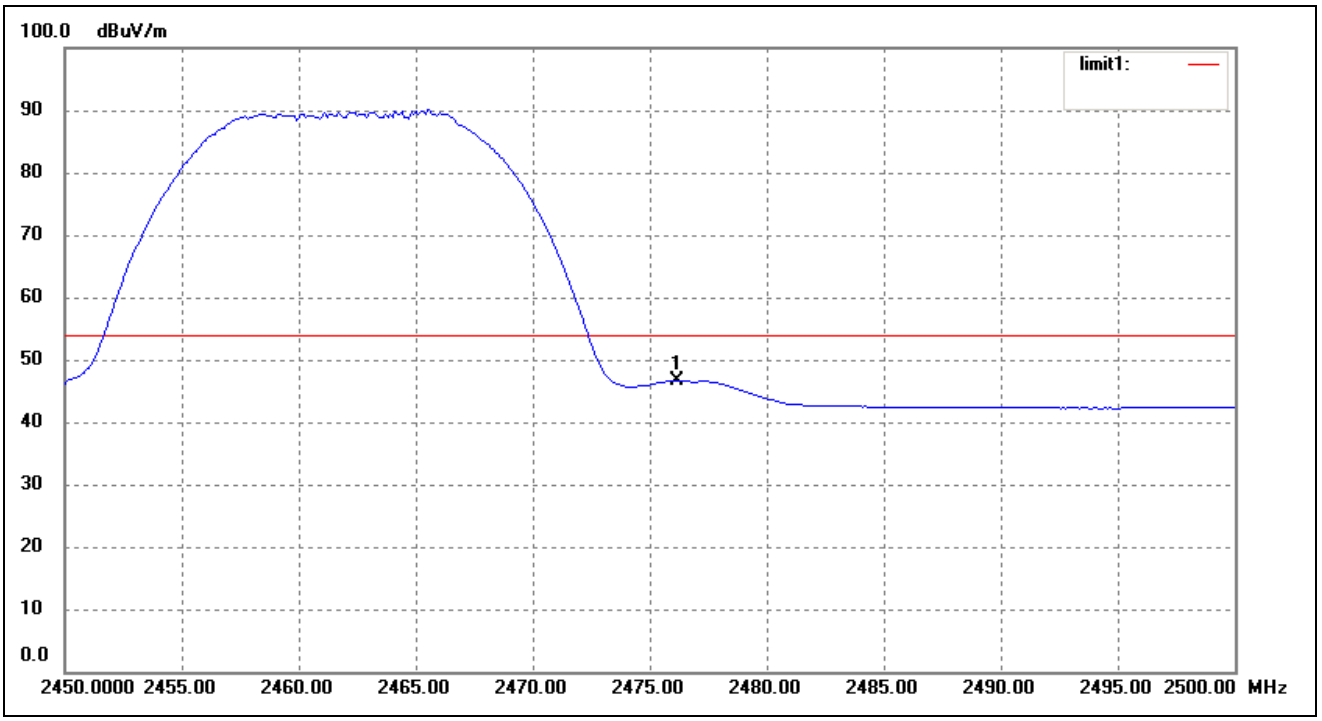
For 802.11b

Lowest Bandedge



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	Factor(dB)	(dBuV/m)	(dBuV/m)	(dB)	(°)	(cm)	
1	2396.633	10.74	35.65	46.39	54.00	-7.61	4	100	Ave
	2396.633	20.62	35.65	56.27	74.00	-17.73	11	100	Peak
2	2400.000	10.46	35.68	46.14	54.00	-7.86	141	100	Ave
3	2410.461	57.80	35.72	93.52	54.00	39.52	25	100	Ave

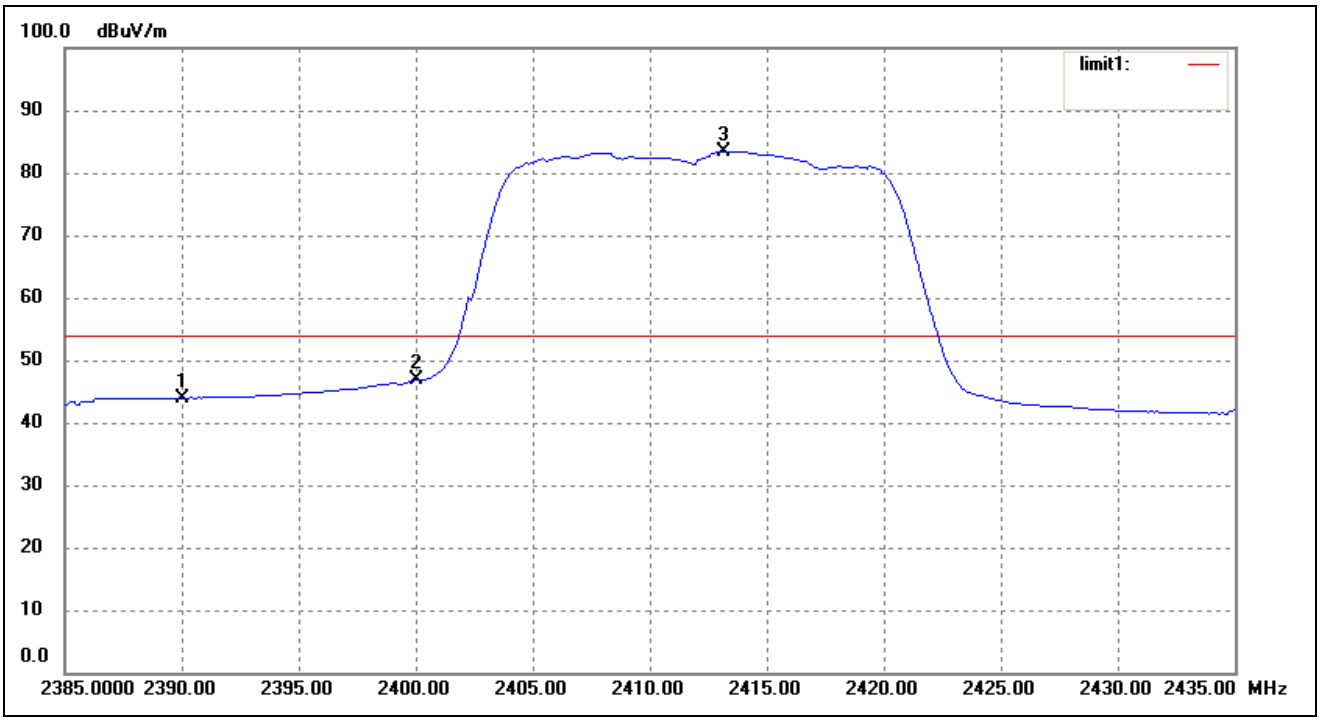
Highest Bandedge



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	Factor(dB)	(dBuV/m)	(dBuV/m)	(dB)	(°)	(cm)	
1	2476.152	10.67	35.95	46.62	54.00	-7.38	156	100	Ave
	2476.152	21.89	35.95	57.84	74.00	-16.16	123	100	peak

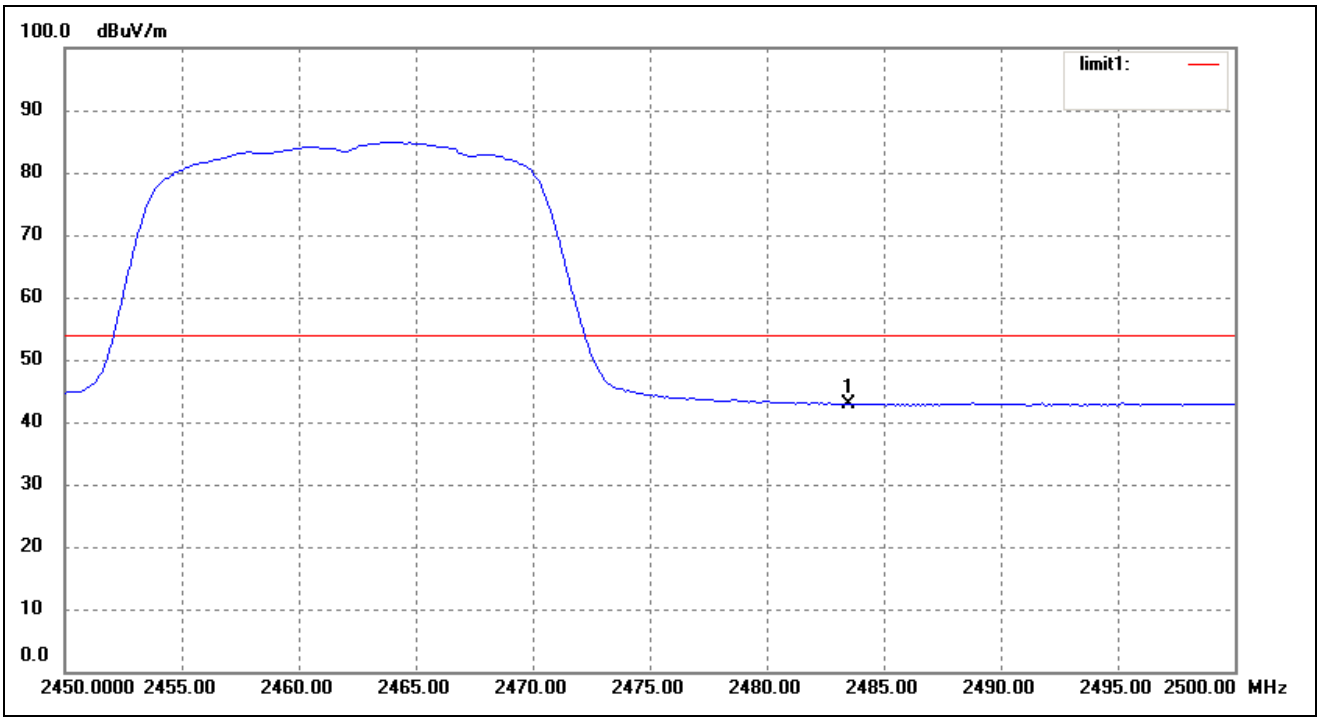
For 802.11g

Lowest Bandedge



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	Factor(dB)	(dBuV/m)	(dBuV/m)	(dB)	(°)	(cm)	
1	2390.000	8.41	35.59	44.00	54.00	-10.00	254	100	Ave
	2390.000	18.41	35.59	54.00	74.000	-20.00	254	100	Peak
2	2400.000	7.69	35.68	43.29	54.00	-10.71	11	100	Ave
3	2413.156	47.58	35.73	83.31	54.00	29.31	36	100	Ave

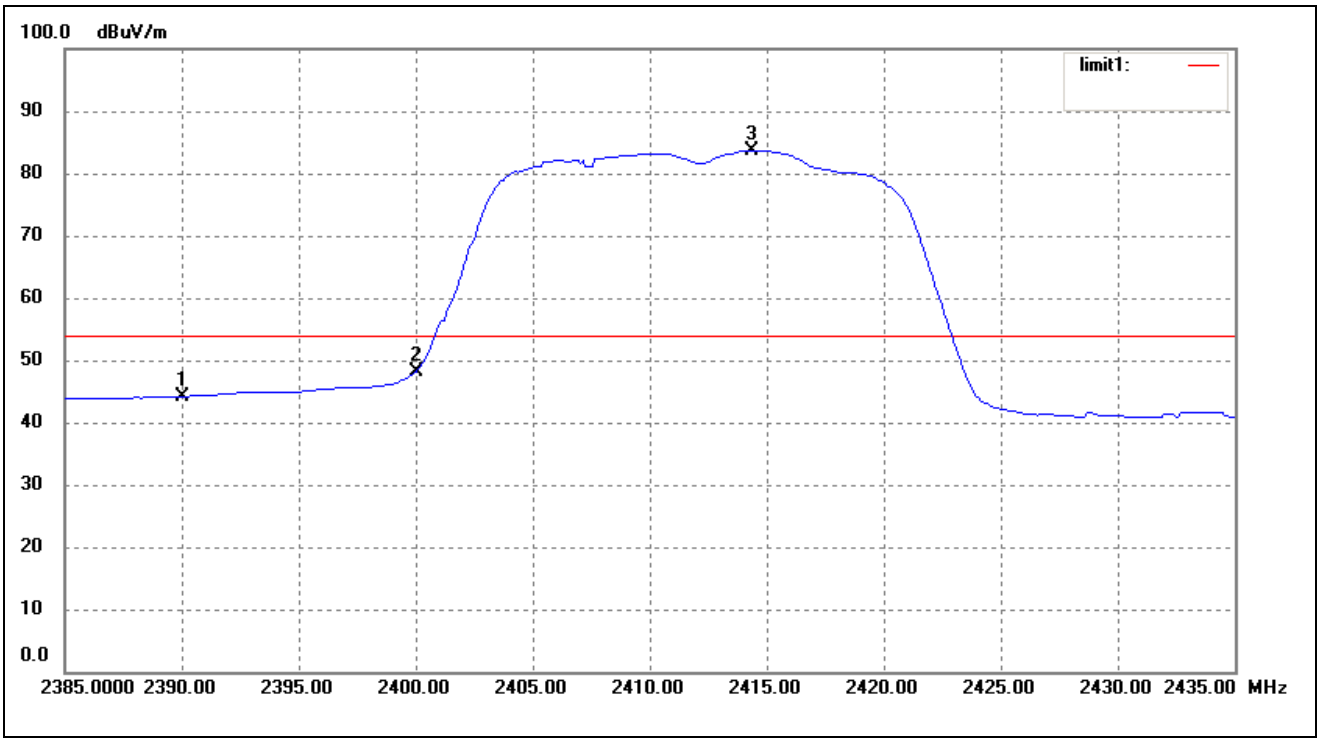
Highest Bandedge



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	Factor(dB)	(dBuV/m)	(dBuV/m)	(dB)	(°)	(cm)	
1	2483.500	6.79	35.97	42.76	54.00	-11.24	5	100	Ave
	2483.500	13.05	35.97	49.02	74.00	-24.98	25	100	Peak

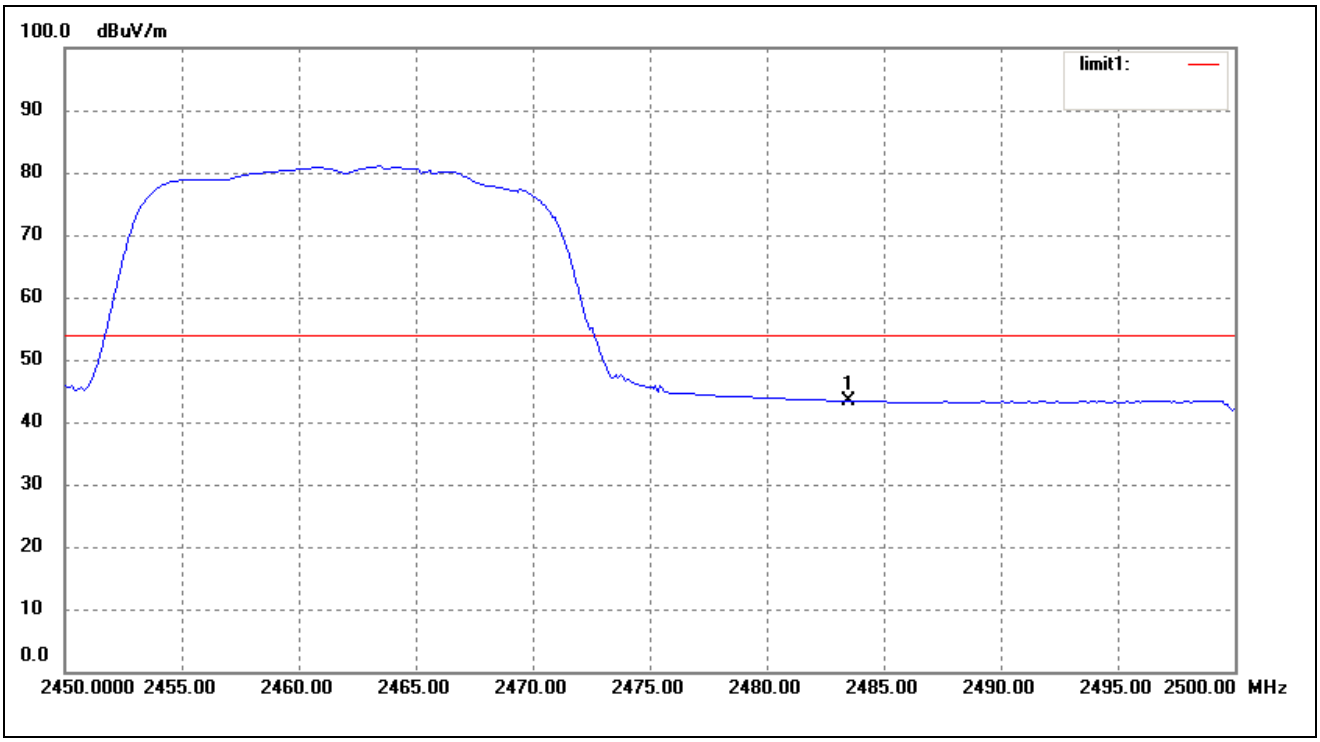
For 802.11n/HT20

Lowest Bandedge



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	Factor(dB)	(dBuV/m)	(dBuV/m)	(dB)	(°)	(cm)	
1	2390.000	8.57	35.59	44.16	54.00	-9.84	90	100	Ave
	2390.000	14.51	35.59	50.10	74.00	-23.90	56	100	Peak
2	2400.000	12.49	35.68	48.17	54.00	-5.83	115	100	Ave
3	2414.359	47.97	35.73	83.70	54.00	29.70	105	100	Ave

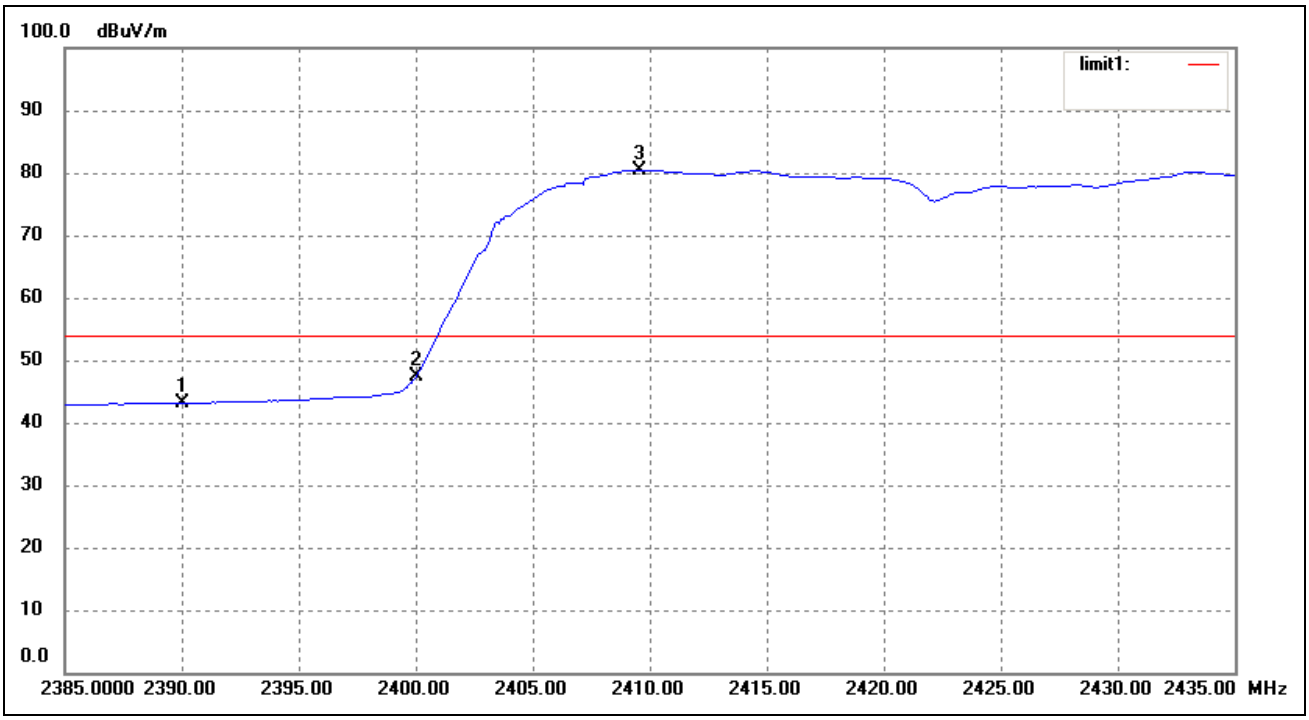
Highest Bandedge



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	Factor(dB)	(dBuV/m)	(dBuV/m)	(dB)	(°)	(cm)	
1	2483.500	7.41	35.97	43.38	54.00	-10.62	360	100	Ave
	2483.500	14.70	35.97	50.67	74.00	-23.33	1	100	peak

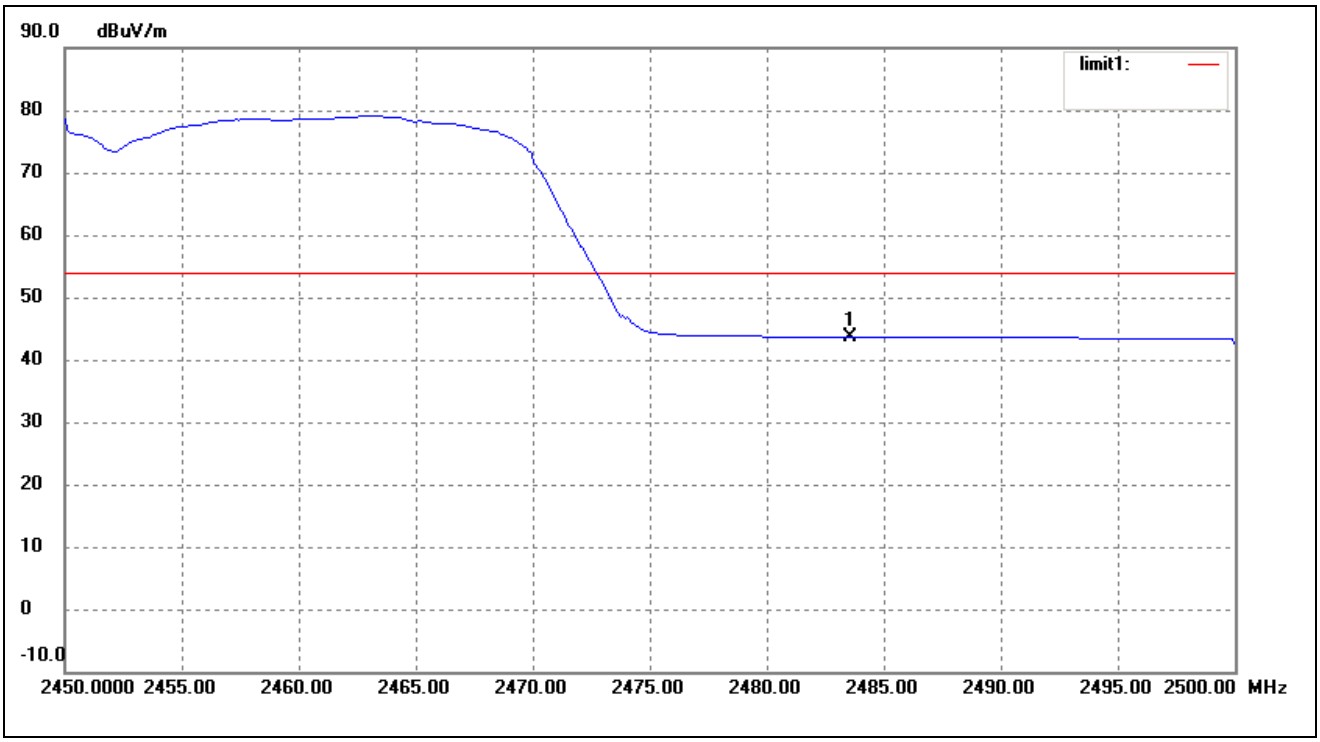
For 802.11n/HT40

Lowest Bandedge



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	Factor(dB)	(dBuV/m)	(dBuV/m)	(dB)	(°)	(cm)	
1	2390.000	7.56	35.59	43.15	54.00	-10.85	0	100	Ave
	2390.000	13.41	35.59	49.00	74.00	-25.00	0	100	Peak
2	2400.000	10.76	35.68	46.44	54.00	-7.56	23	100	Ave
3	2409.449	46.19	35.71	81.90	54.00	27.90	15	100	Ave

Highest Bandedge



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	Factor(dB)	(dBuV/m)	(dBuV/m)	(dB)	(°)	(cm)	
1	2483.500	7.64	35.97	43.61	54.00	-10.39	34	100	Ave
	2483.500	15.13	35.97	51.10	74.00	-22.90	34	100	Peak