

# 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: V7TW268R**

<b>Report Concerns:</b> Original Report	<b>Equipment Type:</b> Wireless-N Broadband Router
<b>Model:</b>	<u>W268R</u>
<b>Report No.:</b>	<u>STR09088015I</u>
<b>Test/Witness Engineer:</b>	<u>Susan Su</u>
<b>Test Date:</b>	<u>2009-08-05 to 2009-08-10</u>
<b>Issue Date:</b>	<u>2009-08-13</u>
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<b>Approved &amp; Authorized By:</b>	 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.:	W268R
Rated Voltage:	AC 9V adapter
Max. Output Power	18dBm
Antenna Gain:	1dBi
Frequency range:	2412MHz~2462MHz / 2422~2452MHz
Number of channels:	11 / 9
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
IBM	Notebook	T22	LV14893
TP-Link	Router	TM-EC5658V	KT99CTQC-508
Lenovo	Printer	3110	OD65133711480

### 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  $\pm 0.5$  dB.

#### 3.2 Test Equipment List and Details

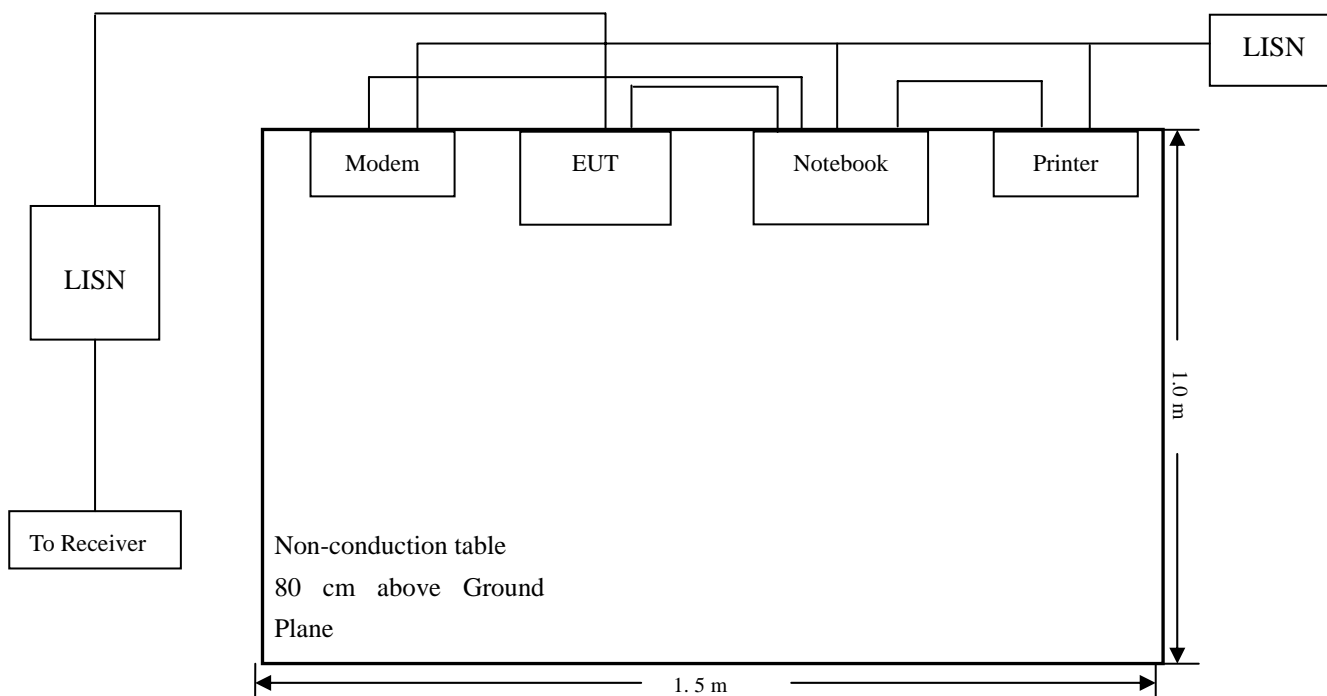
Description	Manufacturer	Model	Serial Number	Cal. Date	Due. Date
EMI Test Receiver	Rohde & Schwarz	ESPI	101611	2009-07-08	2010-07-07
Puls Limiter	Rohde & Schwarz	ESH3-Z2	100911	2009-07-08	2010-07-07
L.I.S.N.	SCHWARZBECK	NSLK8126	8126-224	2009-07-08	2010-07-07
L.I.S.N.	EMCO	3825/2	11967C	2009-07-08	2010-07-07

**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:

**-15.69 dB $\mu$ V at 0.358 MHz in the Neutral, Peak detector, 0.15-30MHz**

### 3.7 Conducted Emissions Test Data

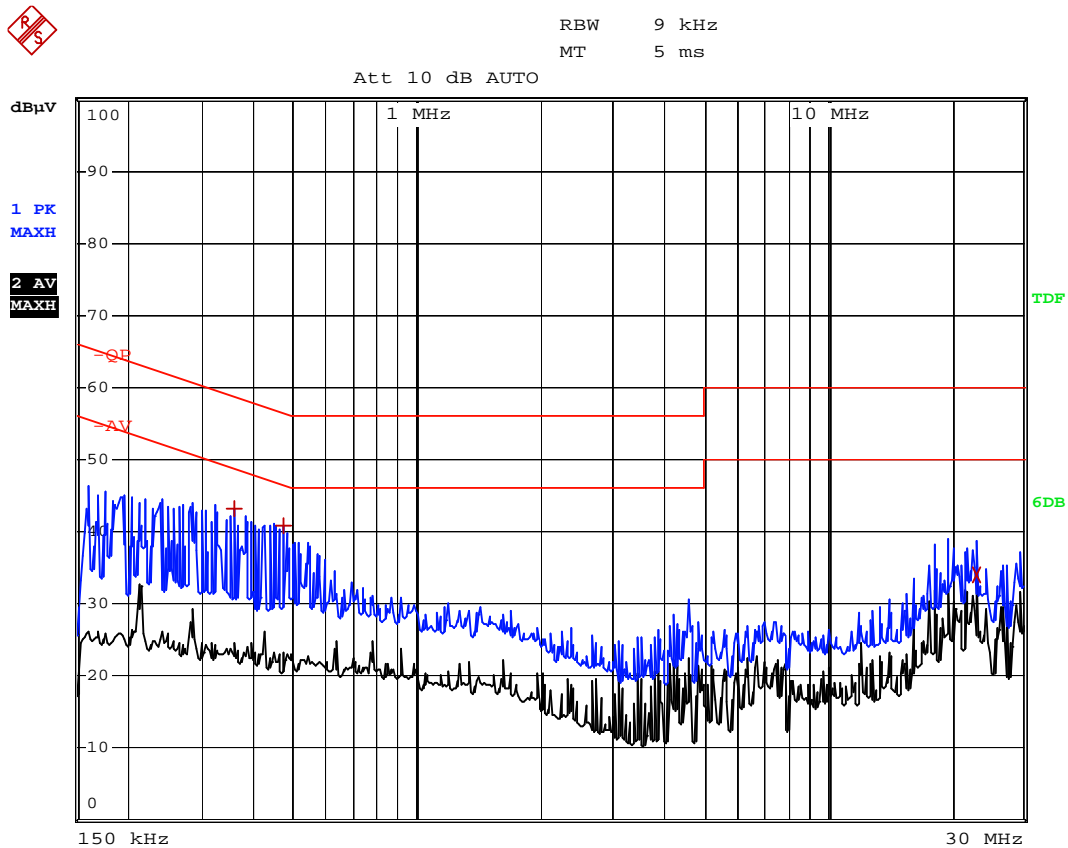
LINE CONDUCTED EMISSIONS				FCC 15.207	
Frequency	Amplitude	Detector	Phase	Limit	Margin
MHz	dB $\mu$ V	QP/Ave/Pk	Line/Neutral	dB $\mu$ V	dB
0.358	43.08	Pk	Neutral	58.77	-15.69
0.470	40.75	Pk	Neutral	56.51	-15.76
23.13	34.04	Ave	Neutral	49.99	-15.95
0.422	41.28	Pk	Line	57.40	-16.12
21.662	33.83	Ave	Line	49.99	-16.16
0.346	40.88	Pk	Line	59.05	-18.17

*Emission attenuated more than 20dB of the limit is not reported.*



Plot of Conducted Emissions Test Data

Conducted Disturbance  
EUT: Wireless-N Broadband Router  
M/N: W268R  
Operating Condition: Operating  
Test Specification: N  
Comment: 120V/60Hz; AC9V adapter



### *Plot of Conducted Emissions Test Data*

### Conducted Disturbance

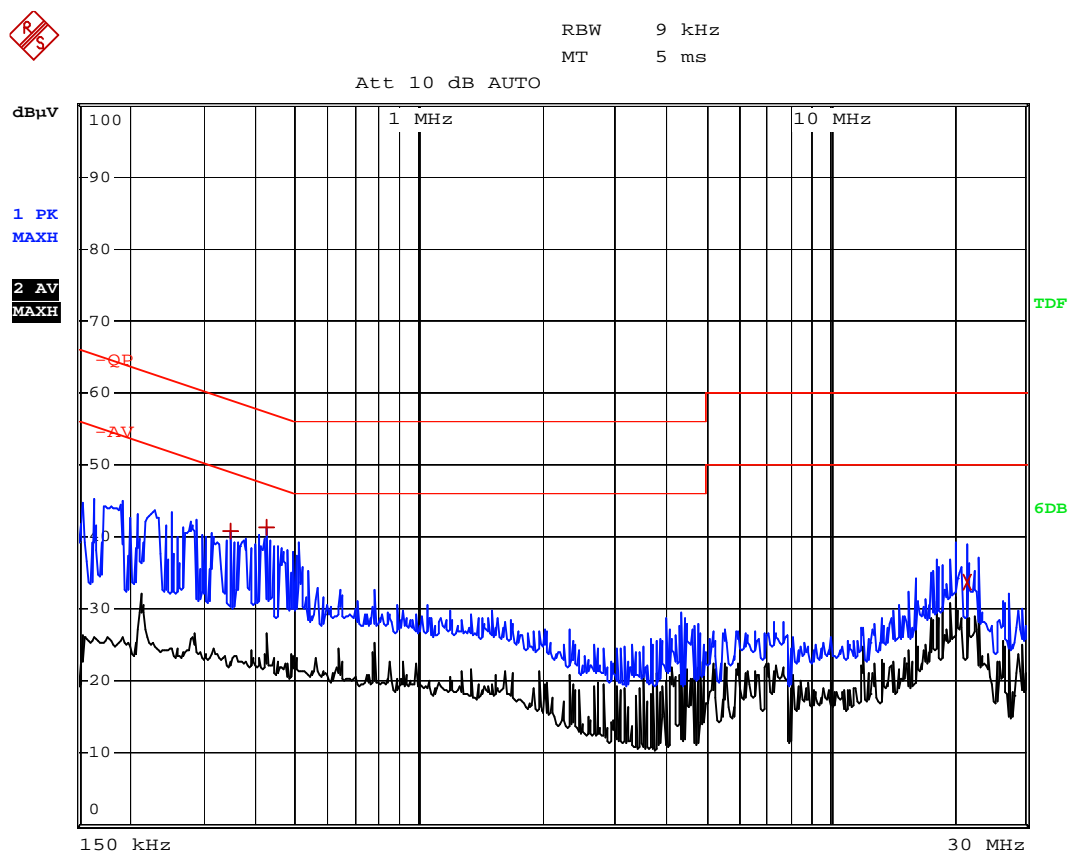
*EUT: Wireless-N Broadband Router*

*M/N: W268R*

*Operating Condition: Operating*

*Test Specification: L*

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



## **4. §15.203 - ANTENNA REQUIREMENT**

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### **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 <sup>2</sup> )	Averaging Times   E   <sup>2</sup> ,   H   <sup>2</sup> 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 <sup>2</sup> )	Averaging Times   E   <sup>2</sup> ,   H   <sup>2</sup> 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

$$S = (P \cdot G) / (4 \cdot \pi \cdot R^2)$$

S = power density (in appropriate units, e.g., mW/cm<sup>2</sup>)

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: 17.57(dBm)

Maximum peak output power at antenna input terminal: 57.14786(mW)

Prediction distance: 20 (cm)

Prediction frequency: 2437 (MHz)

Antenna gain (typical): 1 (dBi)

Antenna gain (numeric): 1.2589254 (numeric)

The worst case is power density at prediction frequency at 20cm: 0.01431298(mw/cm<sup>2</sup>)

MPE limit for general population exposure at prediction frequency: 1 (mw/cm<sup>2</sup>)

$0.01431298 \text{ (mw/cm}^2\text{)} < 1 \text{ (mw/cm}^2\text{)}$

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	2009-07-08	2010-07-07
RF Limiter	Agilent	11867A	MY42241685	2009-07-08	2010-07-07
RMS/PEAK Voltmeter	Rohde & Schwarz	URE3	826135/008	2009-07-08	2010-07-07

**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, VBW=3KHz, Span = 20MHz.
4. Repeat above procedures until all frequency measured was complete.

### 6.4 Environmental Conditions

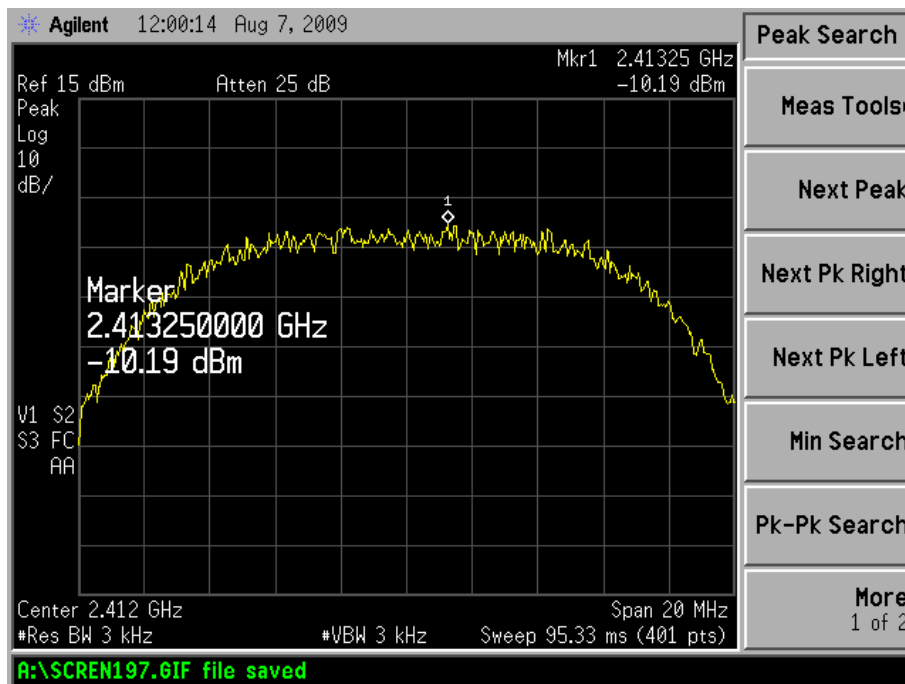
Temperature:	25 °C
Relative Humidity:	52%
ATM Pressure:	1011 mbar

## 6.5 Summary of Test Results/Plots

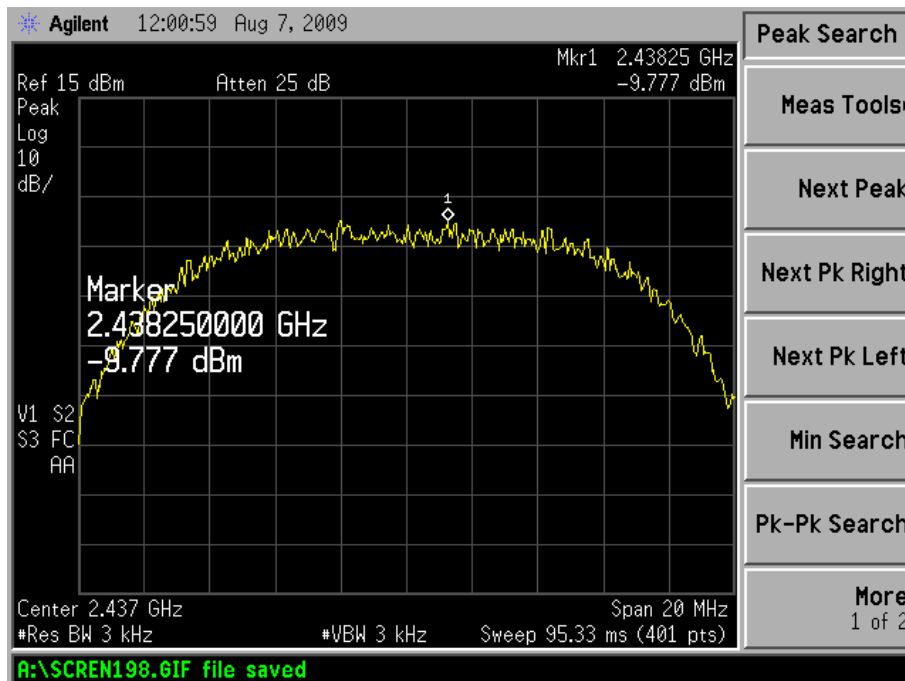
Test mode	Test channel	Reading dBm/3kHz	Limit dBm/3kHz
802.11b	Low channel (2412MHz)	-10.19	8
	Middle channel (2437MHz)	-9.777	8
	High channel (2462MHz)	-11.36	8
802.11g	Low channel (2412MHz)	-14.98	8
	Middle channel (2437MHz)	-14.81	8
	High channel (2462MHz)	-16.72	8
802.11n/HT20	Low channel (2412MHz)	-15.92	8
	Middle channel (2437MHz)	-14.99	8
	High channel (2462MHz)	-15.80	8
802.11n/HT40	Low channel (2422MHz)	-17.25	8
	Middle channel (2437MHz)	-16.65	8
	High channel (2452MHz)	-18.41	8

**For 802.11b**

Low Channel:

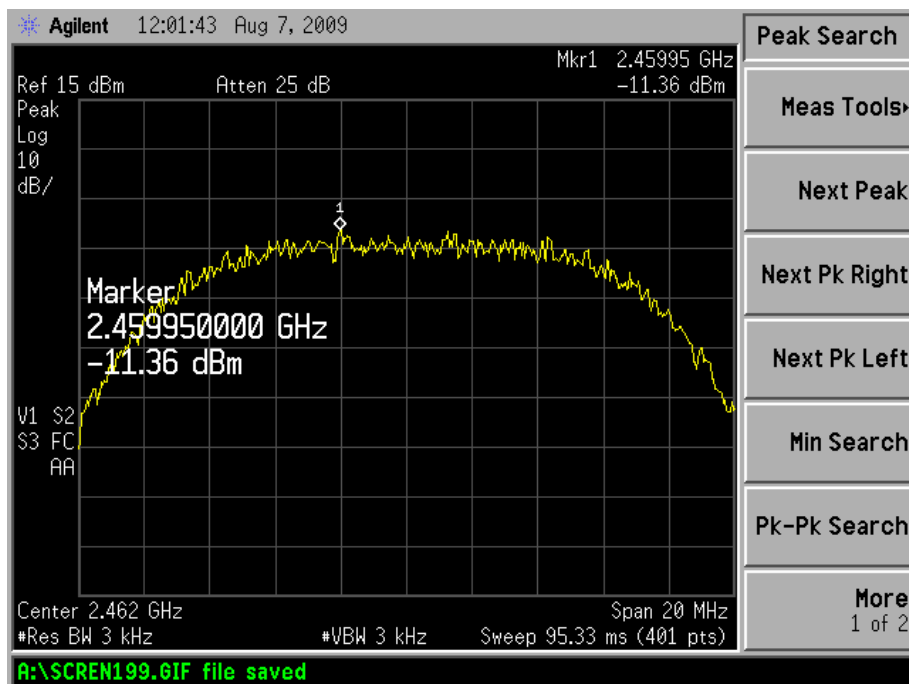


Middle Channel:



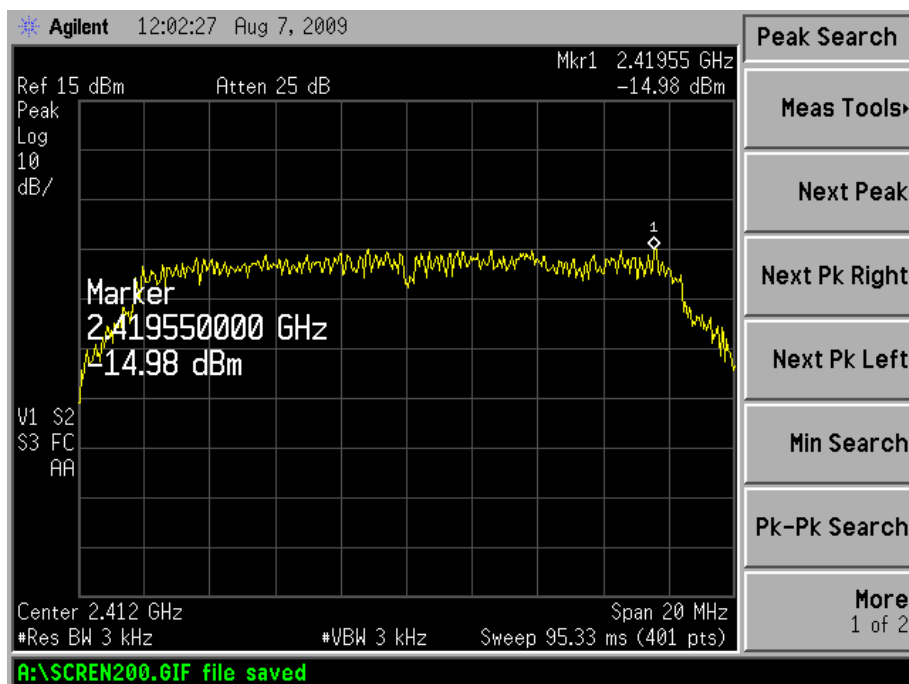


High Channel:

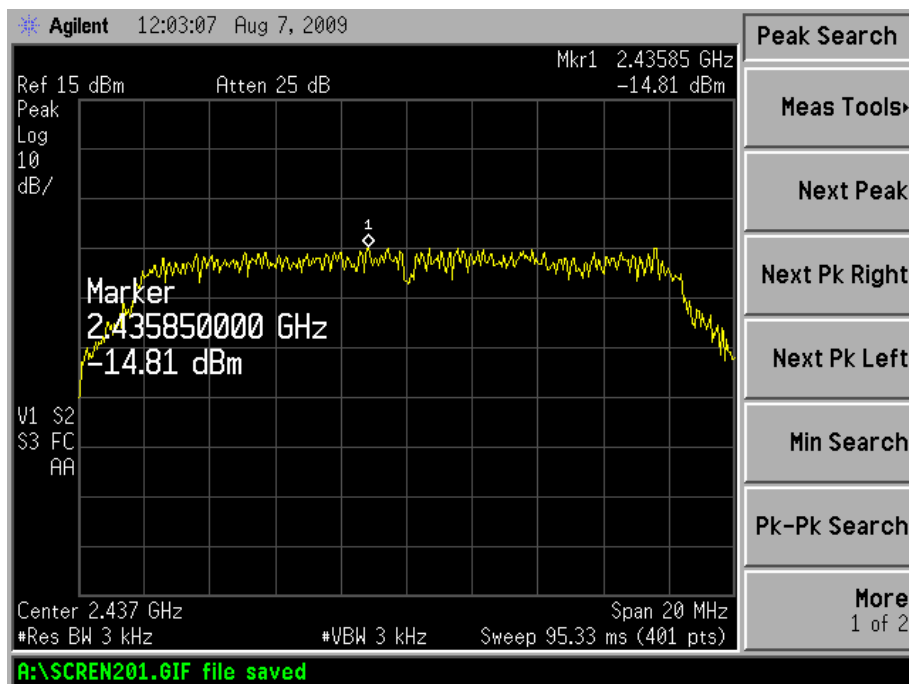


For 802.11g

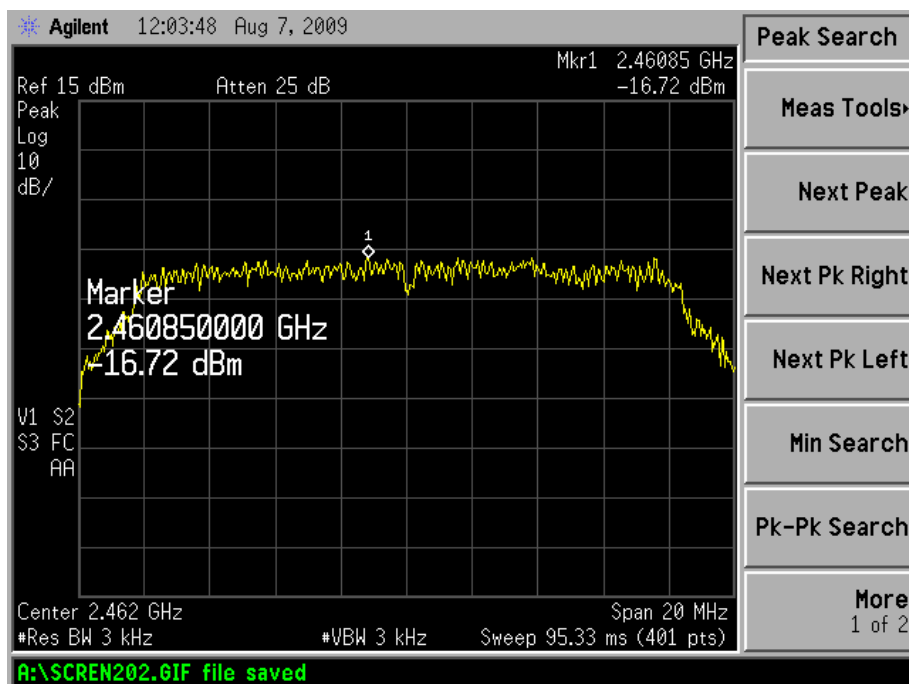
Low Channel:



Middle Channel:

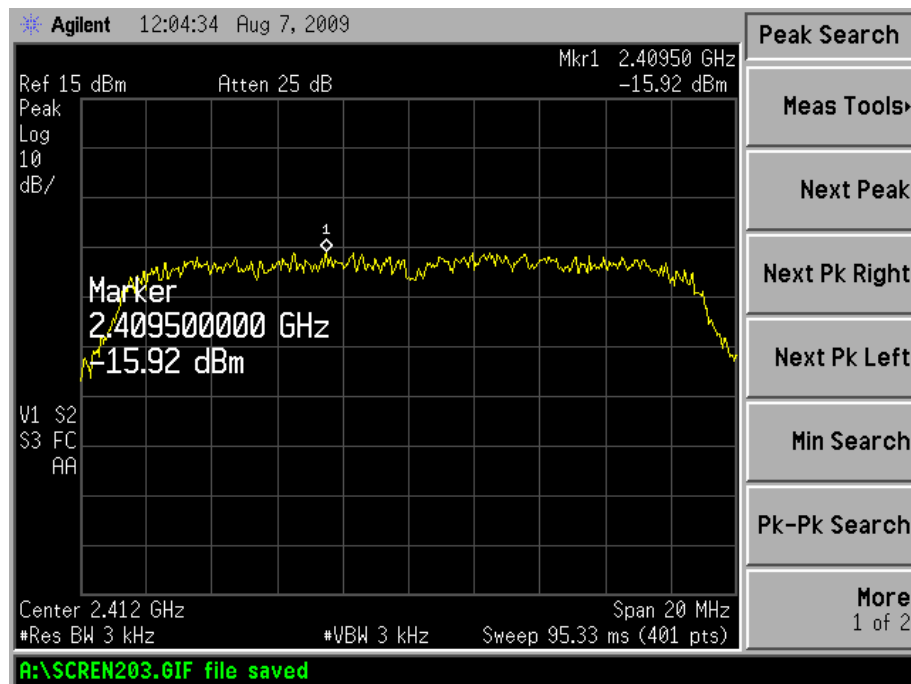


High Channel:

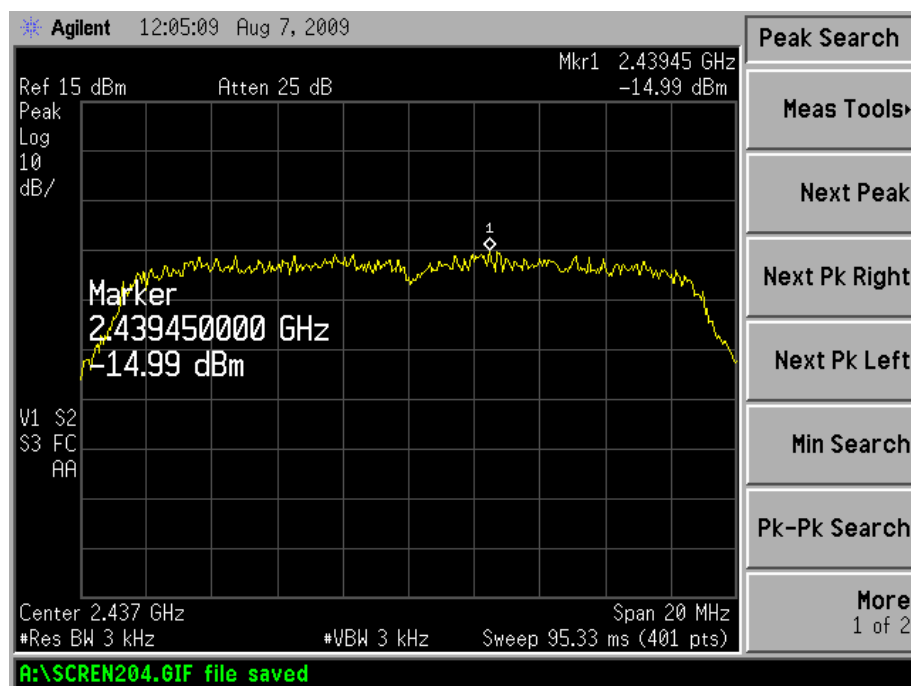


**For 802.11n/HT20**

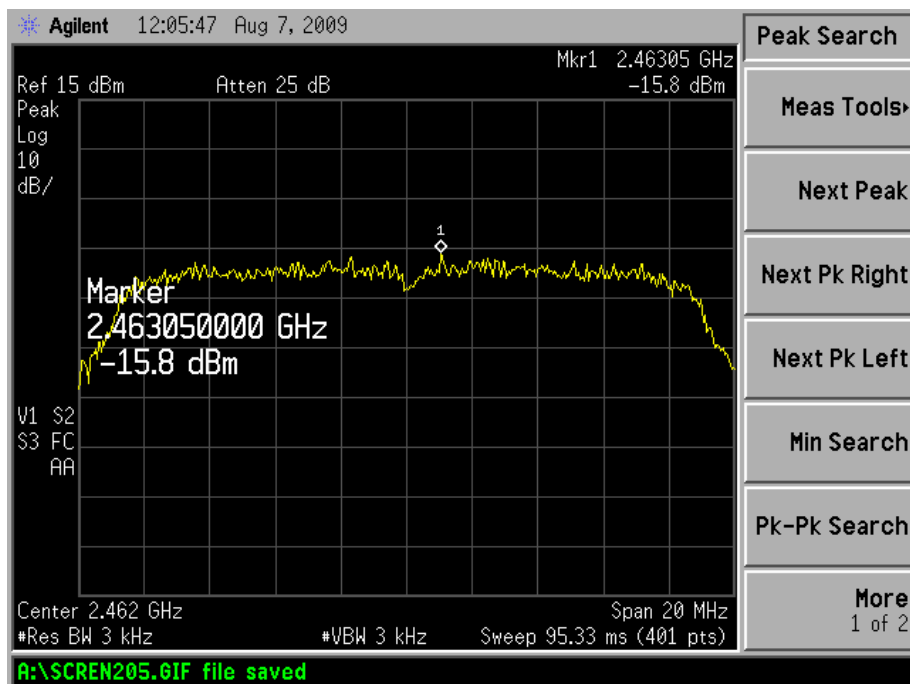
Low Channel:



Middle Channel:

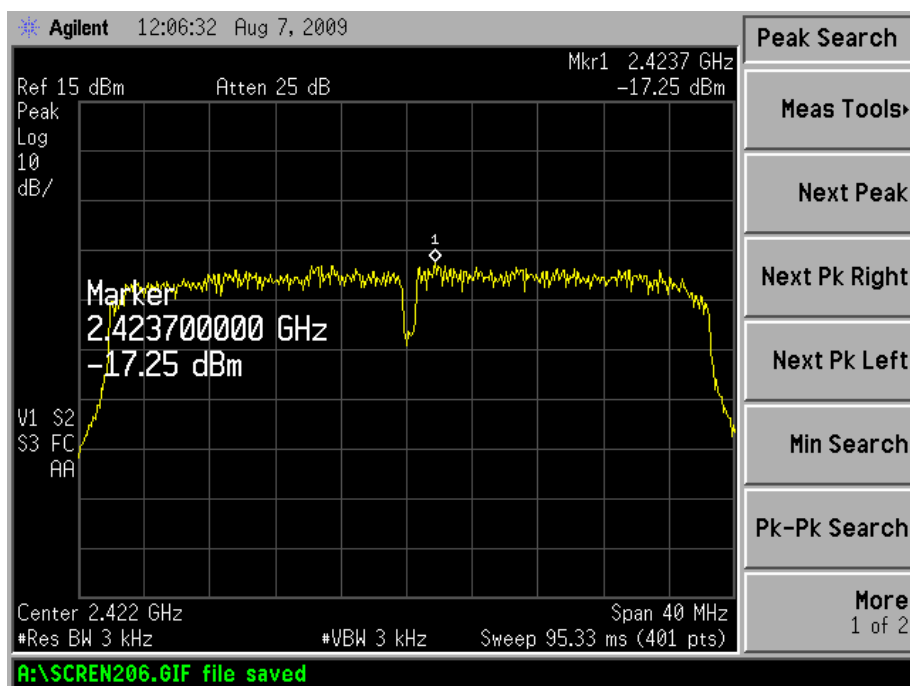


High Channel:

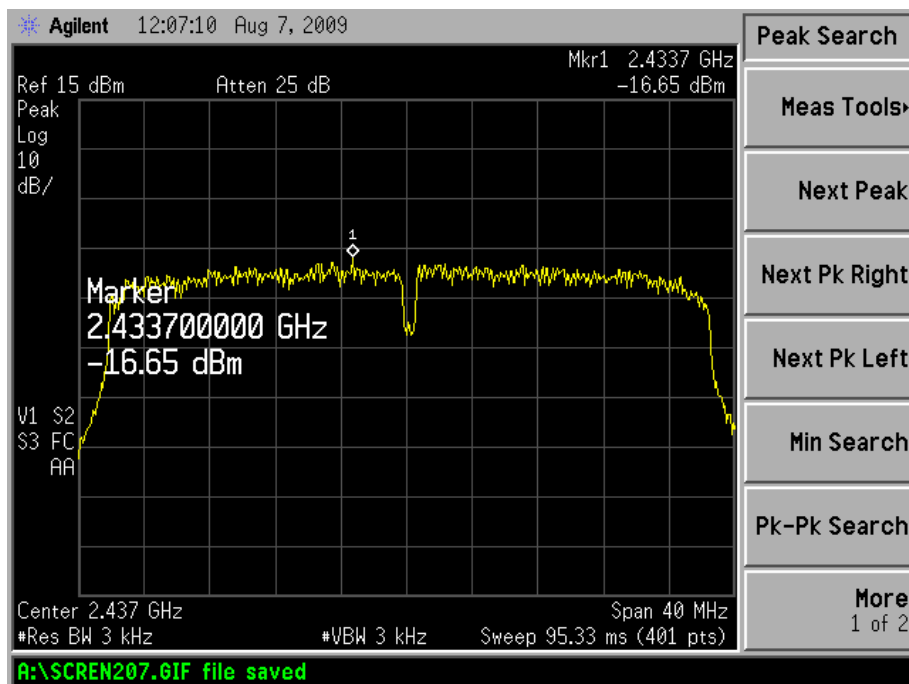


For 802.11n/HT40

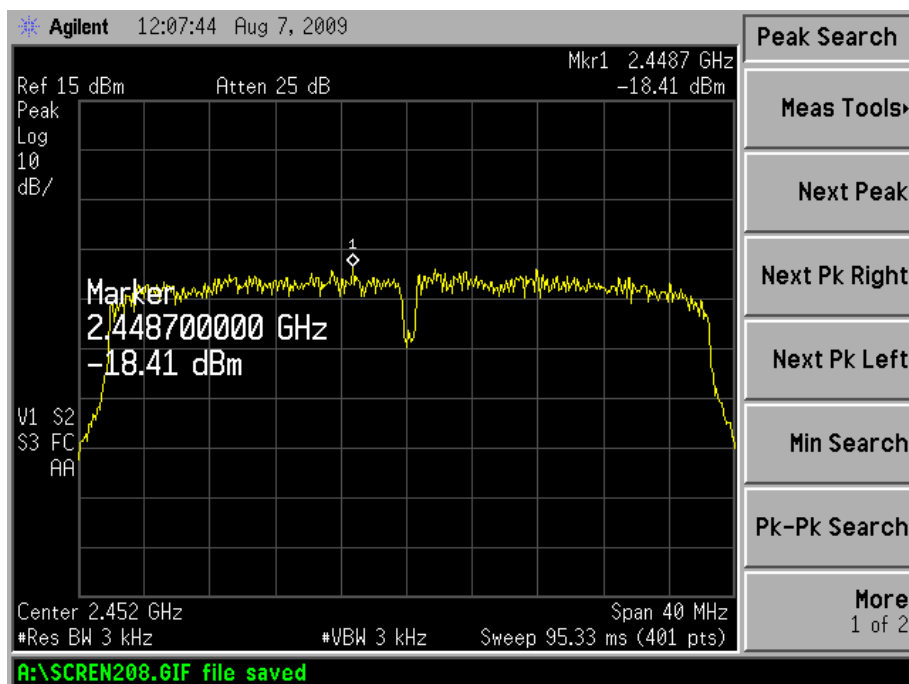
Low Channel



Middle Channel:



High Channel:



## 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	2009-07-08	2010-07-07
RF Limiter	Agilent	11867A	MY42241685	2009-07-08	2010-07-07

**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=300KHz (1 % of Bandwidth.), Sweep=auto
4. Mark the peak frequency and –6dB (upper and lower) frequency.

### 7.4 Environmental Conditions

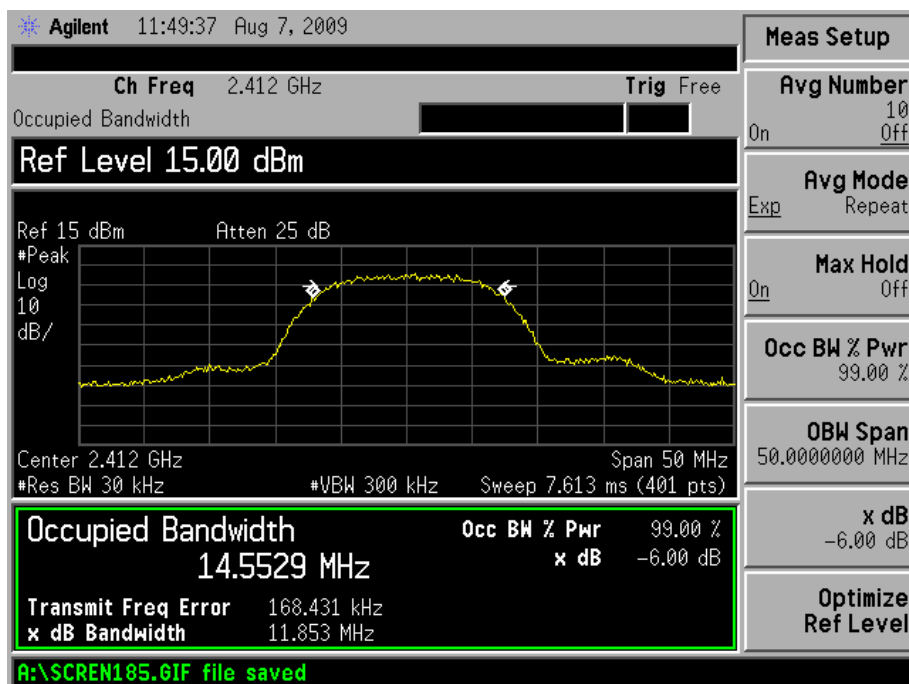
Temperature:	24° C
Relative Humidity:	49 %
ATM Pressure:	1015 mbar

## 7.5 Summary of Test Results/Plots

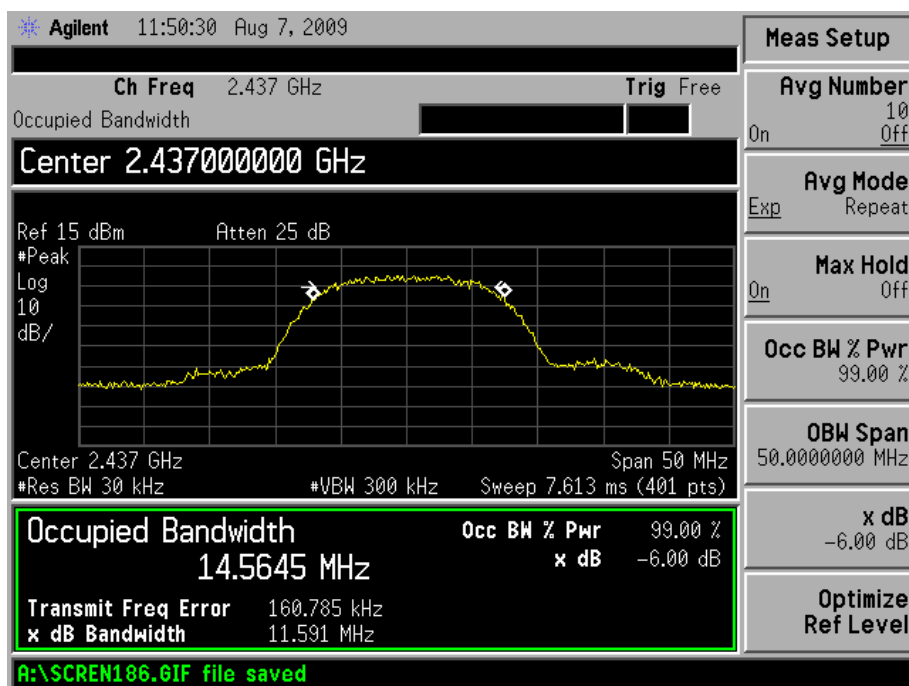
Test mode	Frequency MHz	6 dB Bandwidth kHz	Limit kHz
802.11b	2412	11853	500
	2437	11591	500
	2462	11181	500
802.11g	2412	16250	500
	2437	16141	500
	2462	16213	500
802.11n/HT20	2412	16475	500
	2437	16650	500
	2462	16801	500
802.11n/HT40	2422	35184	500
	2437	35255	500
	2452	34885	500

## For 802.11b

Low Channel:

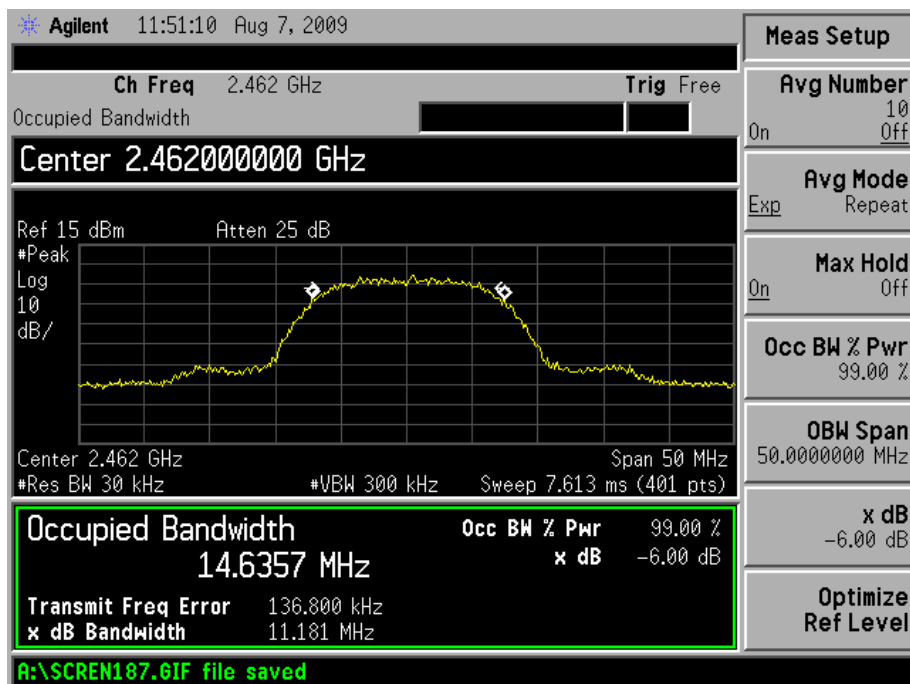


Mid Channel:



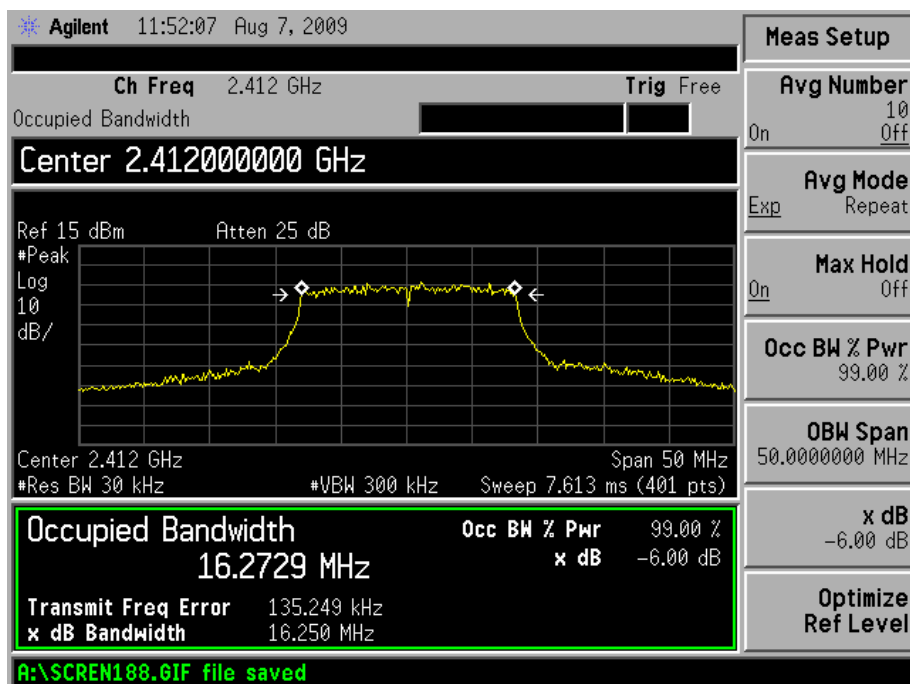


High Channel:

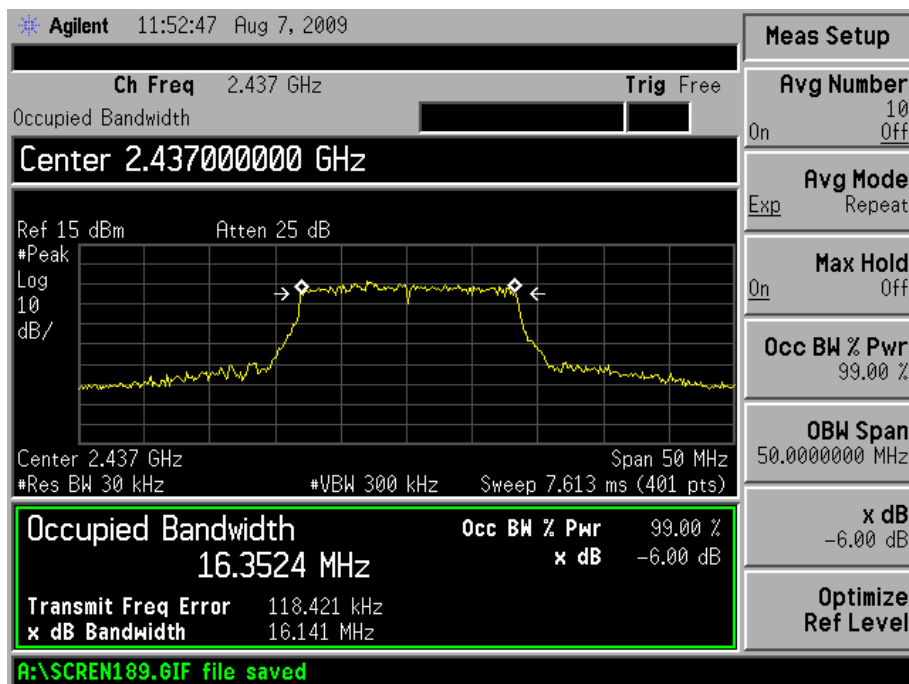


For 802.11g

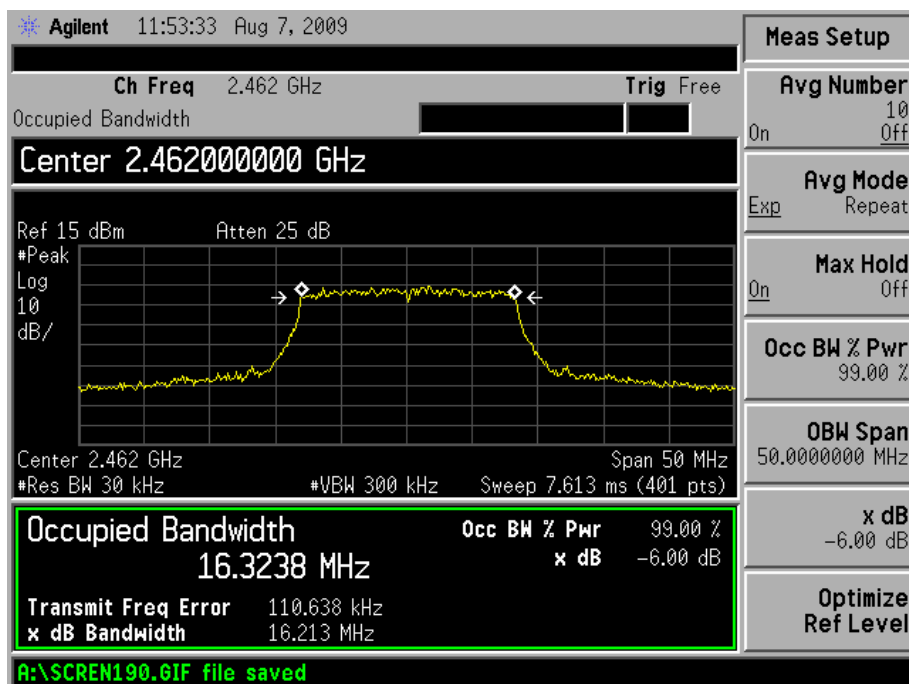
Low Channel:



Mid Channel:

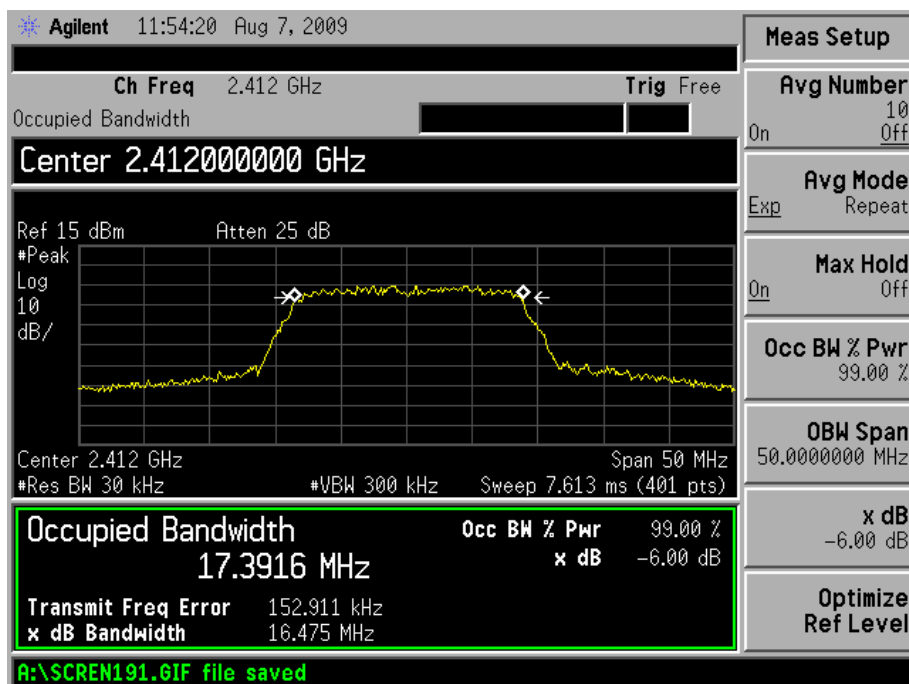


High Channel:

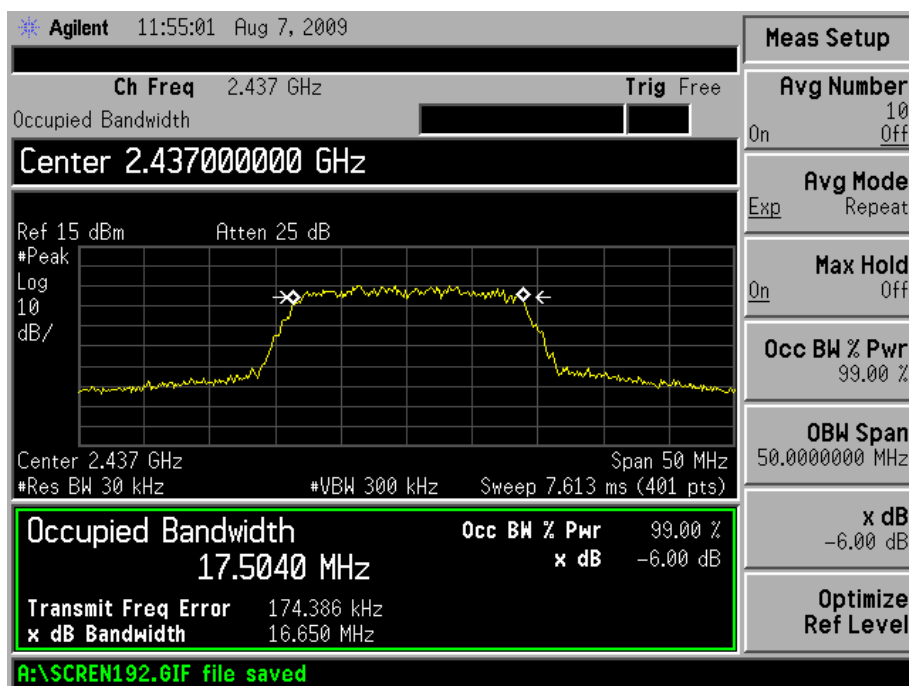


### For 802.11n/HT20

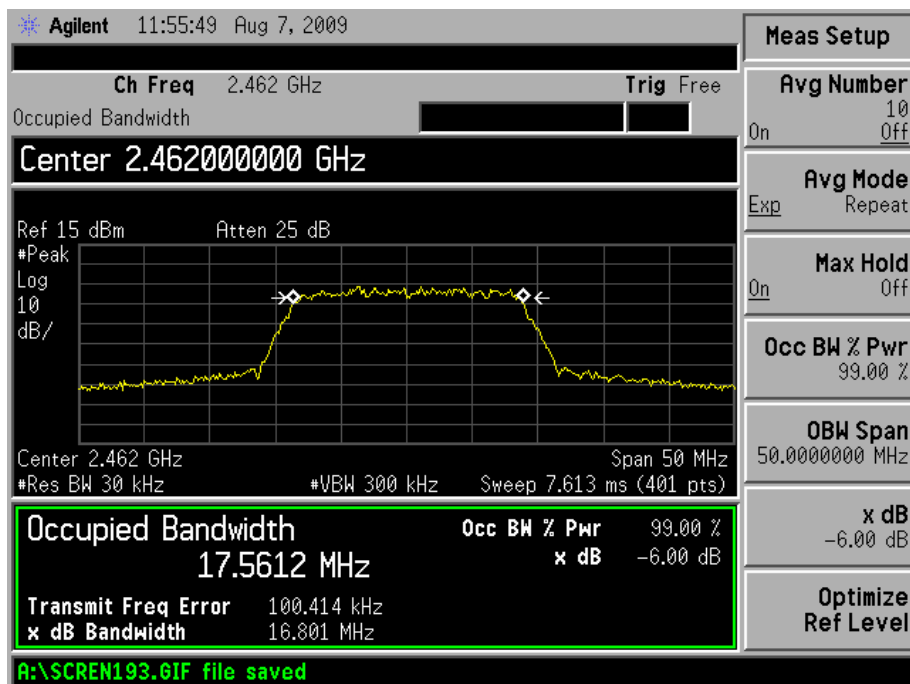
Low Channel:



**Middle Channel:**

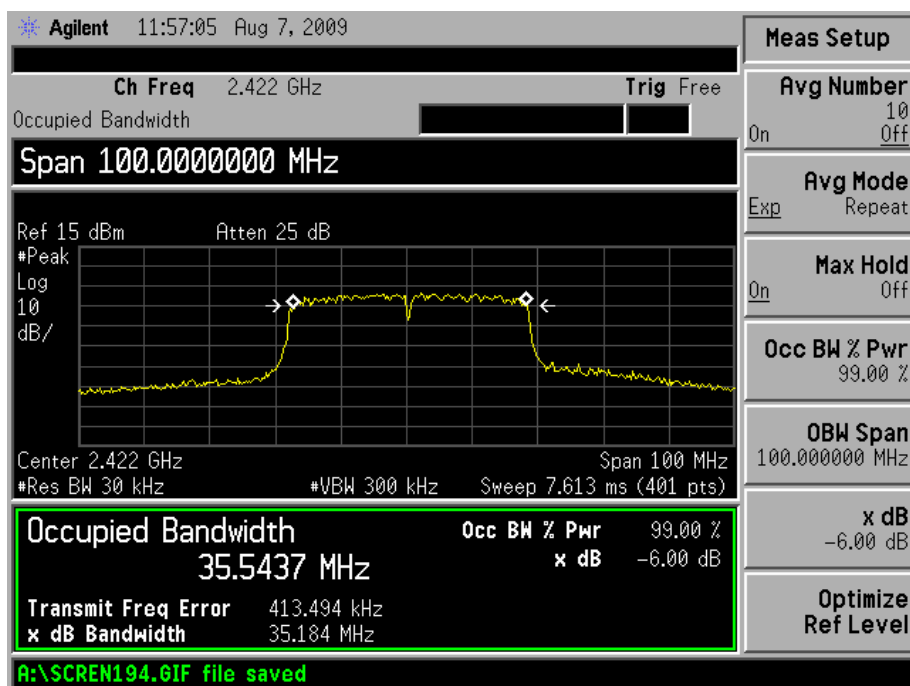


High Channel:

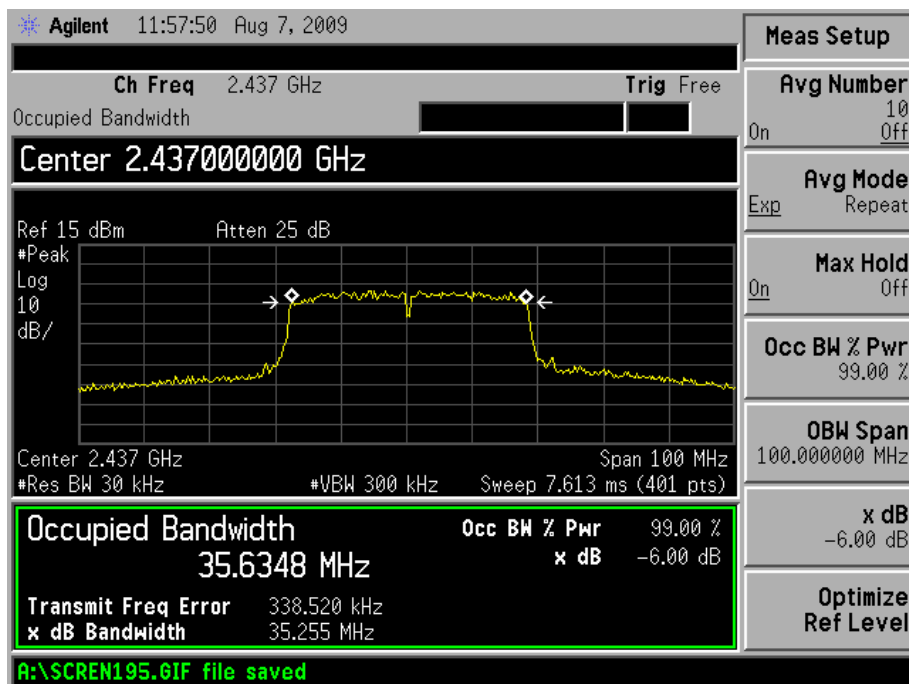


For 802.11n/HT40

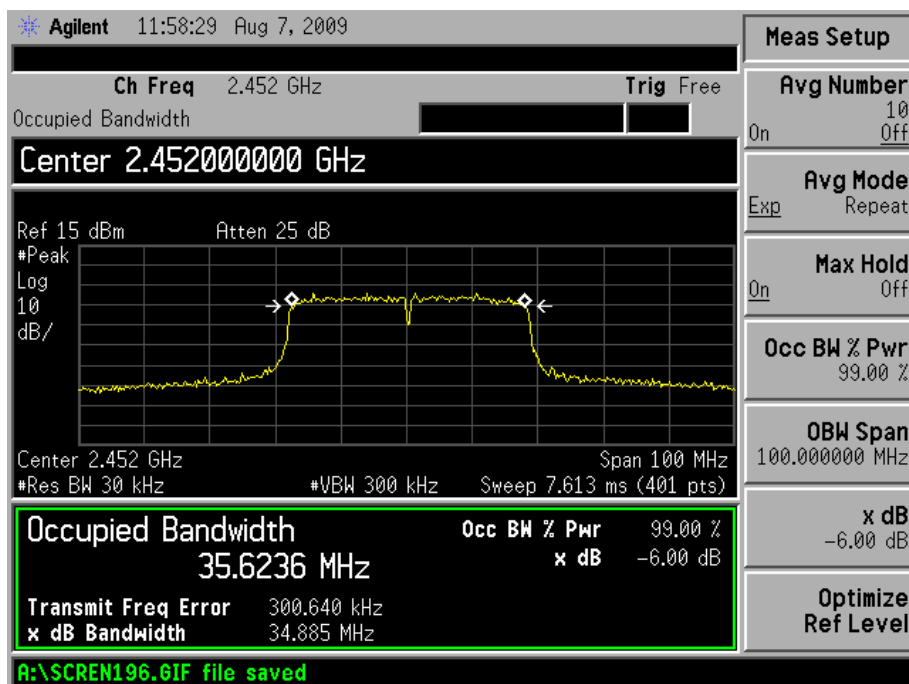
Low Channel:



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	2009-07-08	2010-07-07
RF Limiter	Agilent	11867A	MY42241685	2009-07-08	2010-07-07

**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

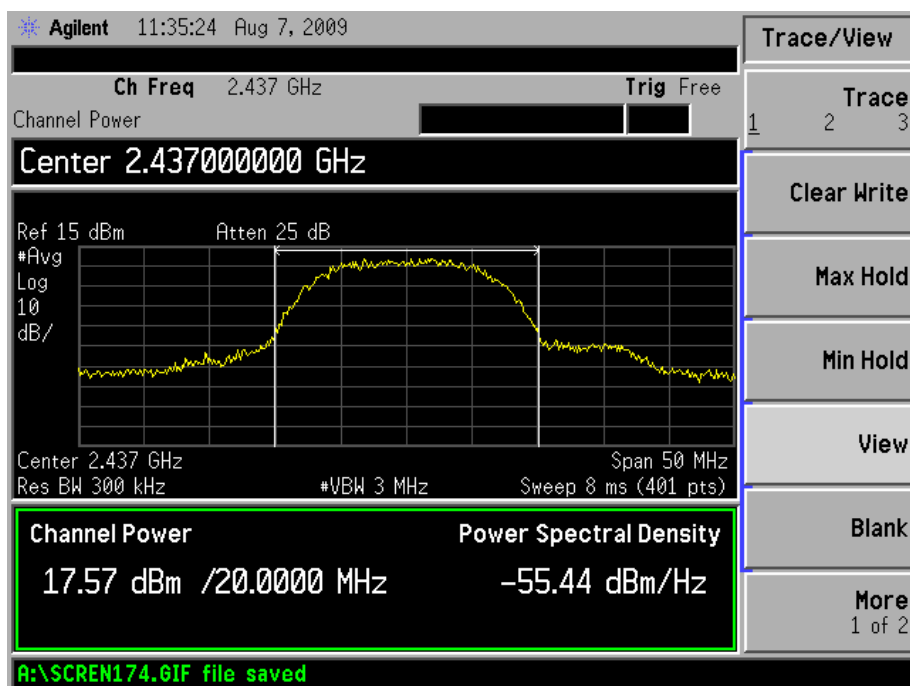
Test mode	Frequency MHz	Reading dBm	Output power W	Limit W
802.11b	2412	16.93	0.049317	1
	2437	17.57	0.057148	1
	2462	15.24	0.033420	1
802.11g	2412	13.16	0.020701	1
	2437	13.90	0.024547	1
	2462	11.75	0.014962	1
802.11n/HT20	2412	13.28	0.021281	1
	2437	13.16	0.020701	1
	2462	11.34	0.013614	1
802.11n/HT40	2422	12.24	0.016749	1
	2437	12.07	0.016106	1
	2452	10.51	0.011246	1

**For 802.11b**

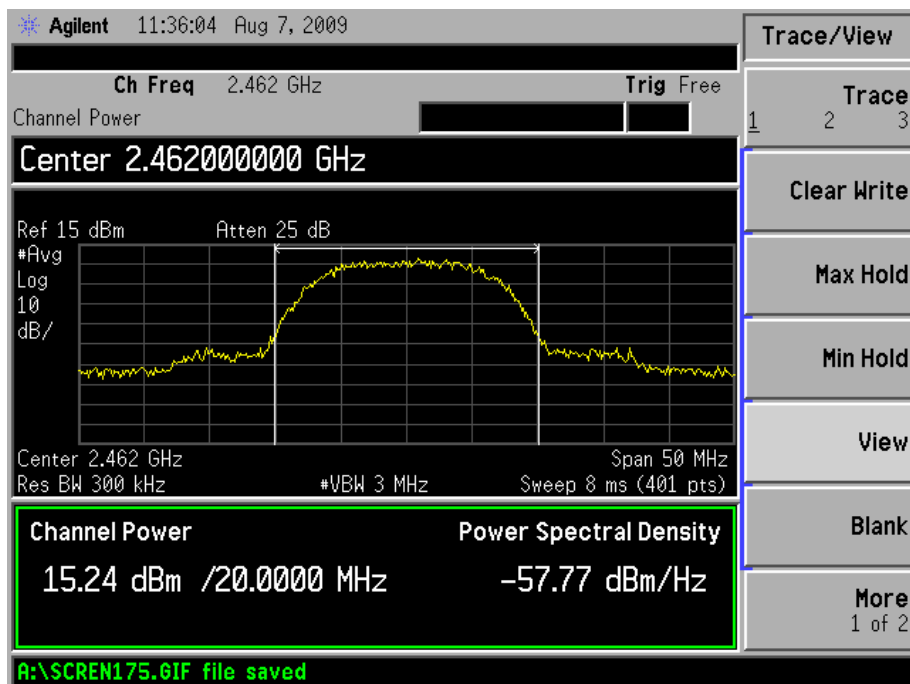
Low Channel:



Middle Channel:

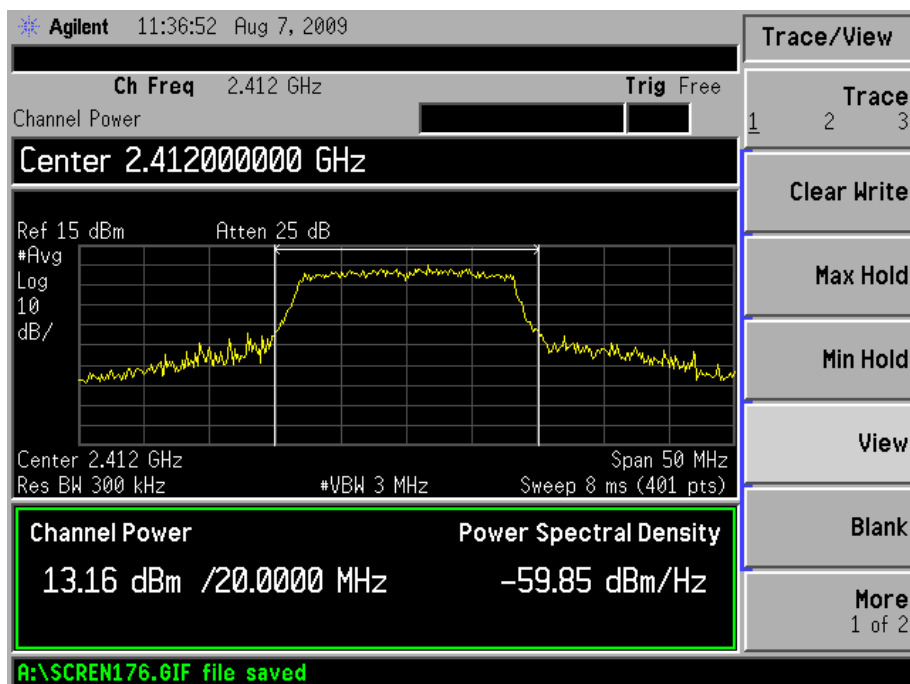


High Channel:



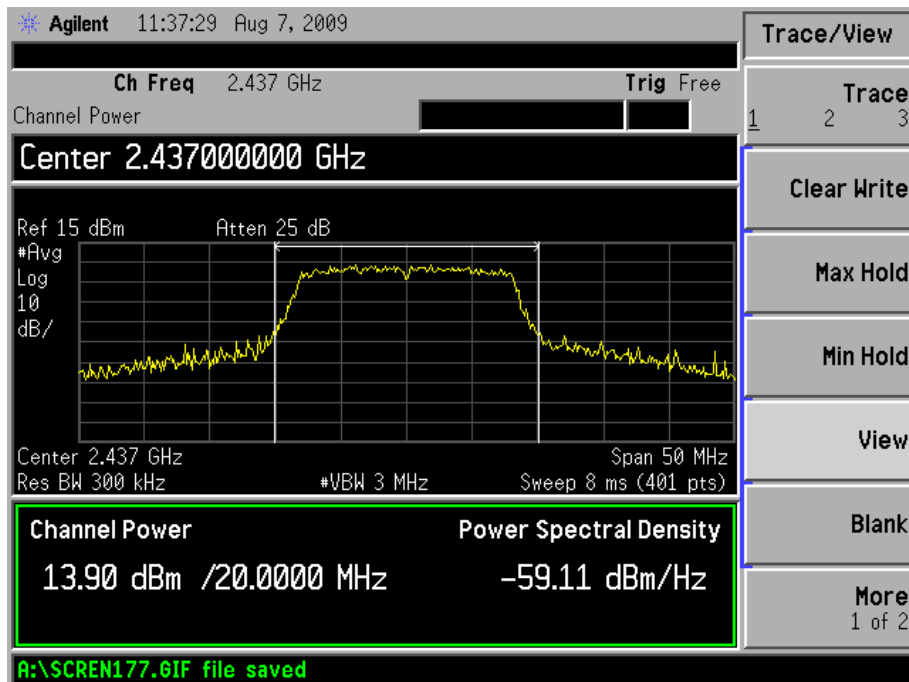
For 802.11g

Low Channel:

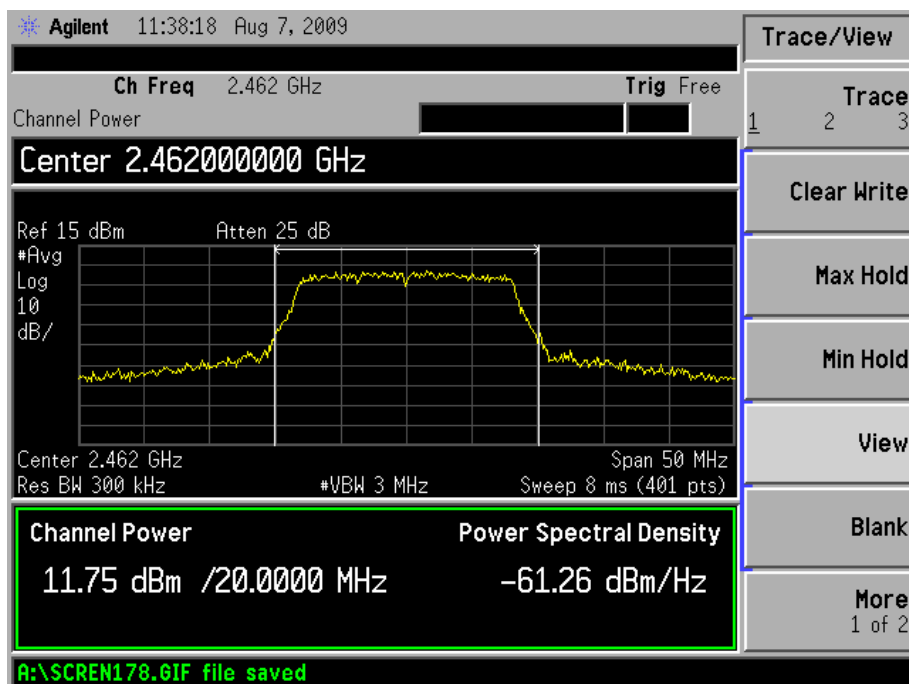




Middle Channel:

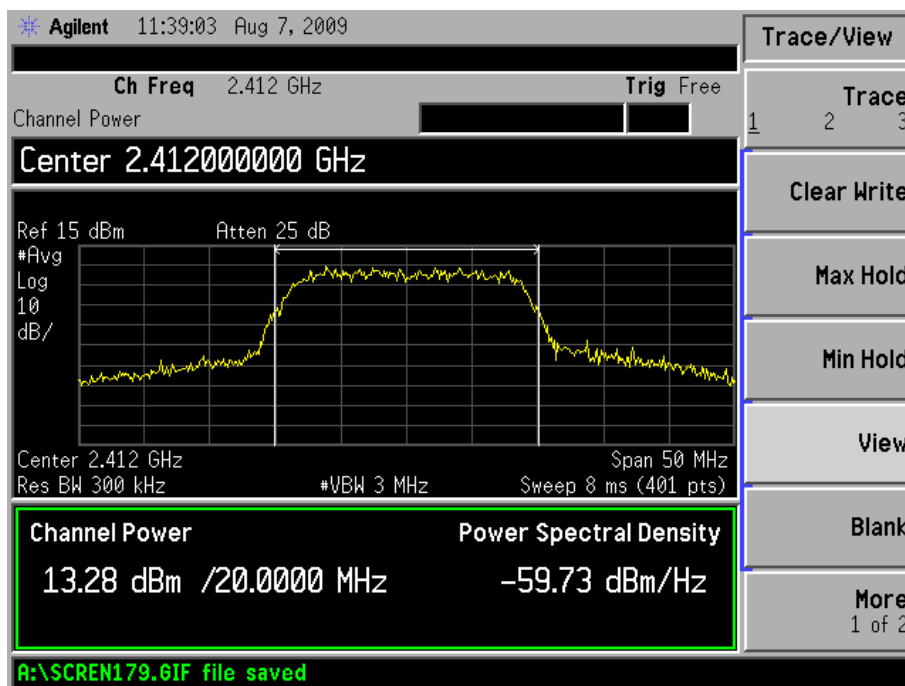


High Channel:

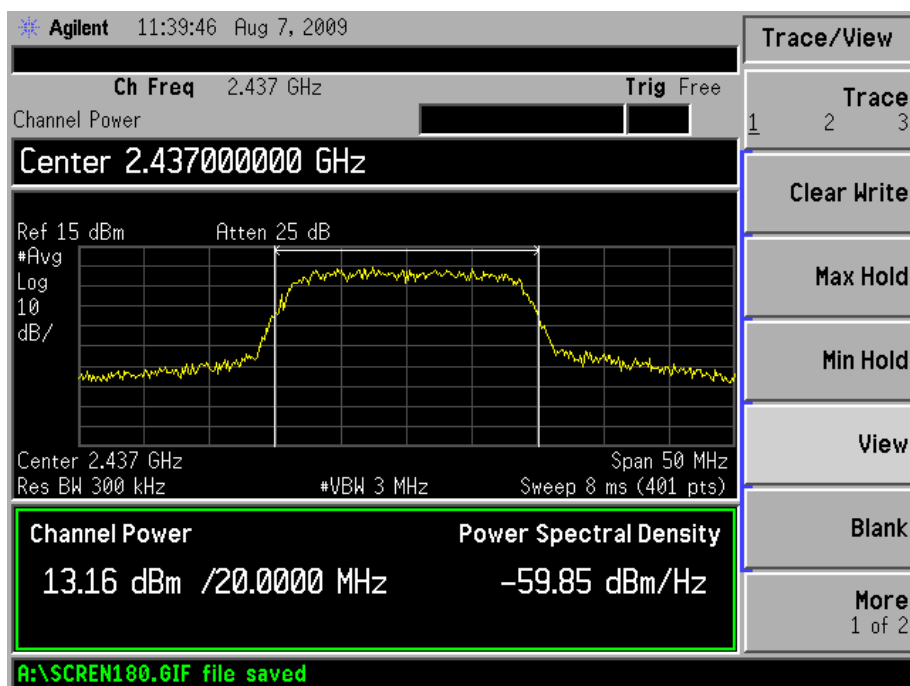


**For 802.11n/HT20**

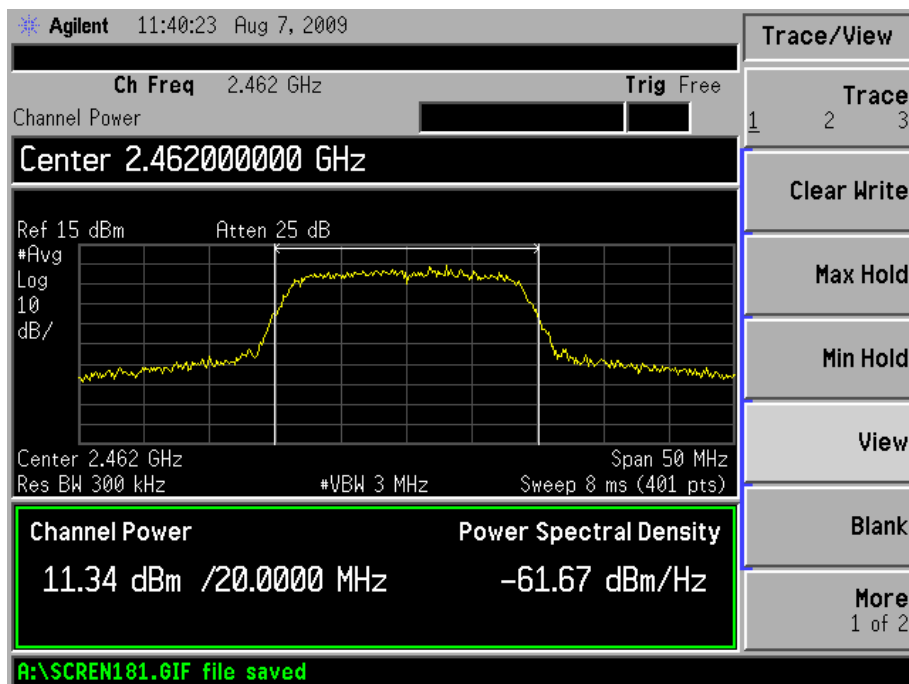
Low Channel:



Middle Channel:

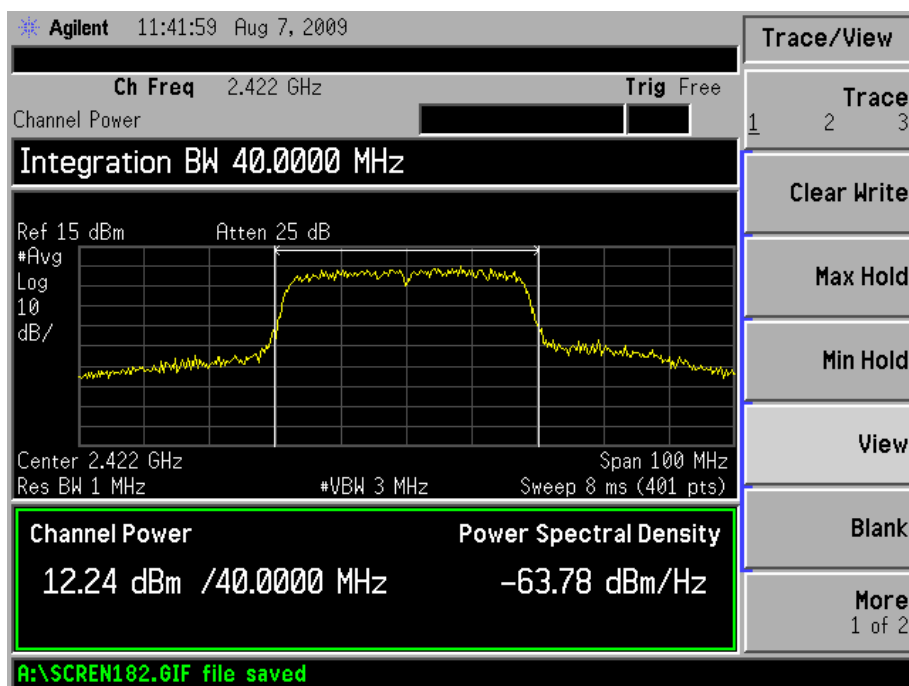


High Channel:

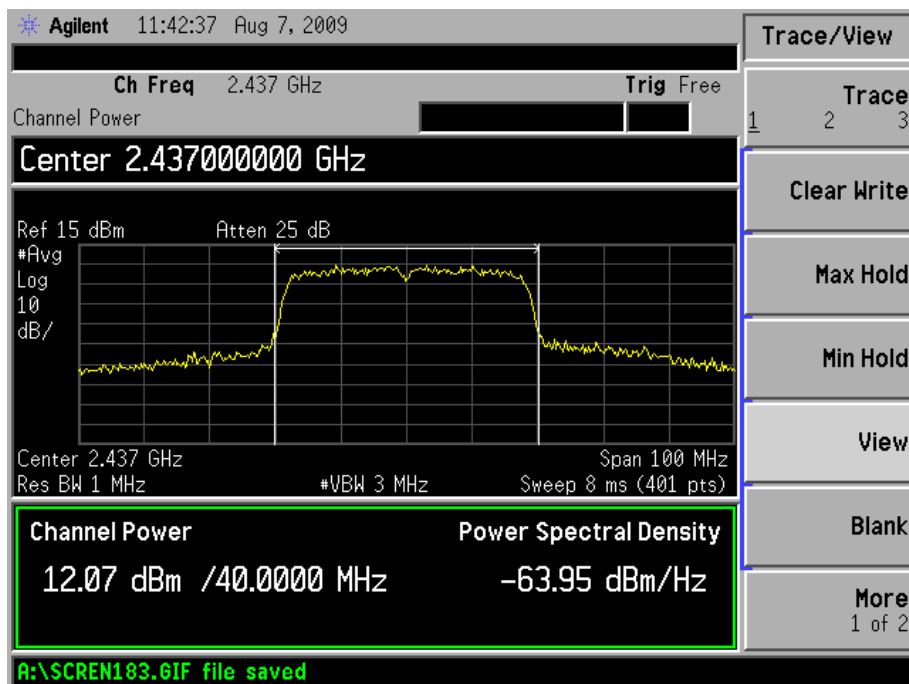


For 802.11n/HT40

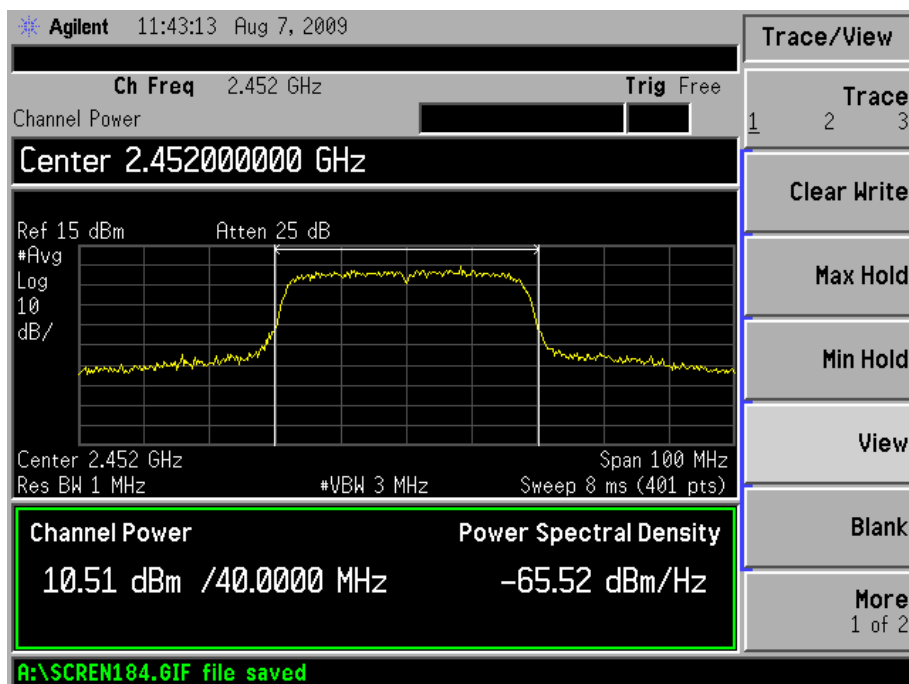
Low Channel:



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  $\pm 3.0$  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

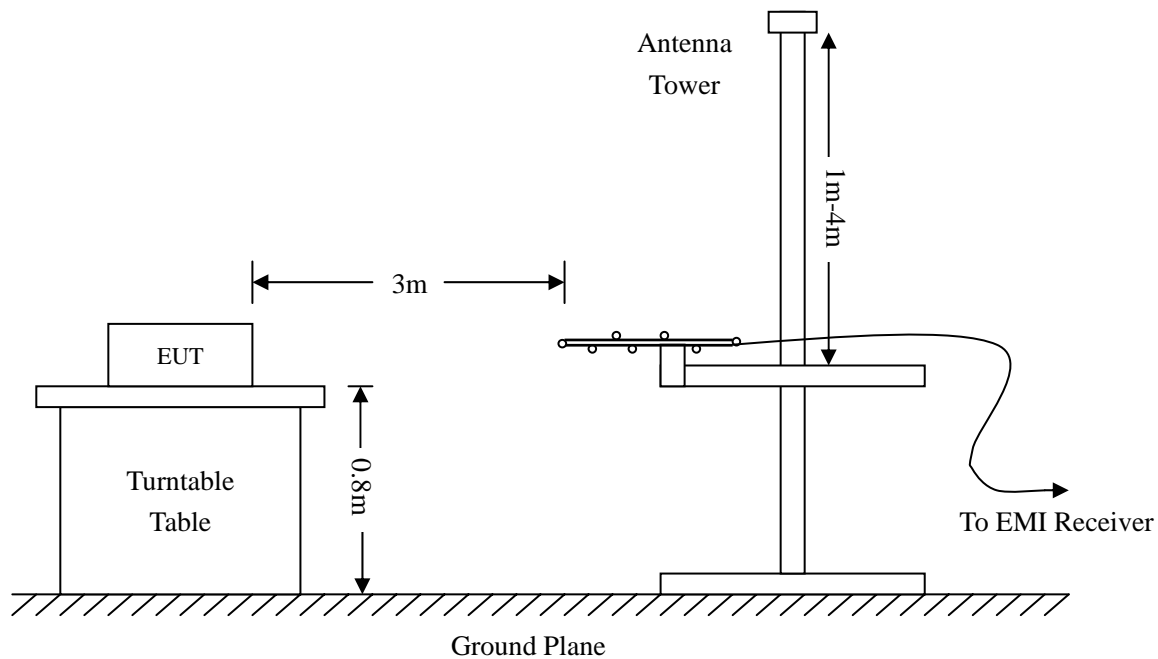
Manufacturer	Description	Model	Serial Number	Cal. Date	Due. Date
Spectrum Analyzer	ROHDE&SCHWARZ	FSEA20	DE25181	2009-07-08	2010-07-07
Positioning Controller	C&C	CC-C-1F	N/A	2009-07-08	2010-07-07
Trilog Broadband Antenna	SCHWARZBECK	VULB9163	9163-333	2009-07-08	2010-07-07
Horn Antenna	SCHWARZBECK	BBHX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

### 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:

$$\text{Corr. Ampl.} = \text{Indicated Reading} + \text{Ant. Factor} + \text{Cable Loss} - \text{Ampl. Gain}$$

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:

$$\text{Margin} = \text{Corr. Ampl.} - \text{FCC Part 15 Limit}$$

## 9.6 Environmental Conditions

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

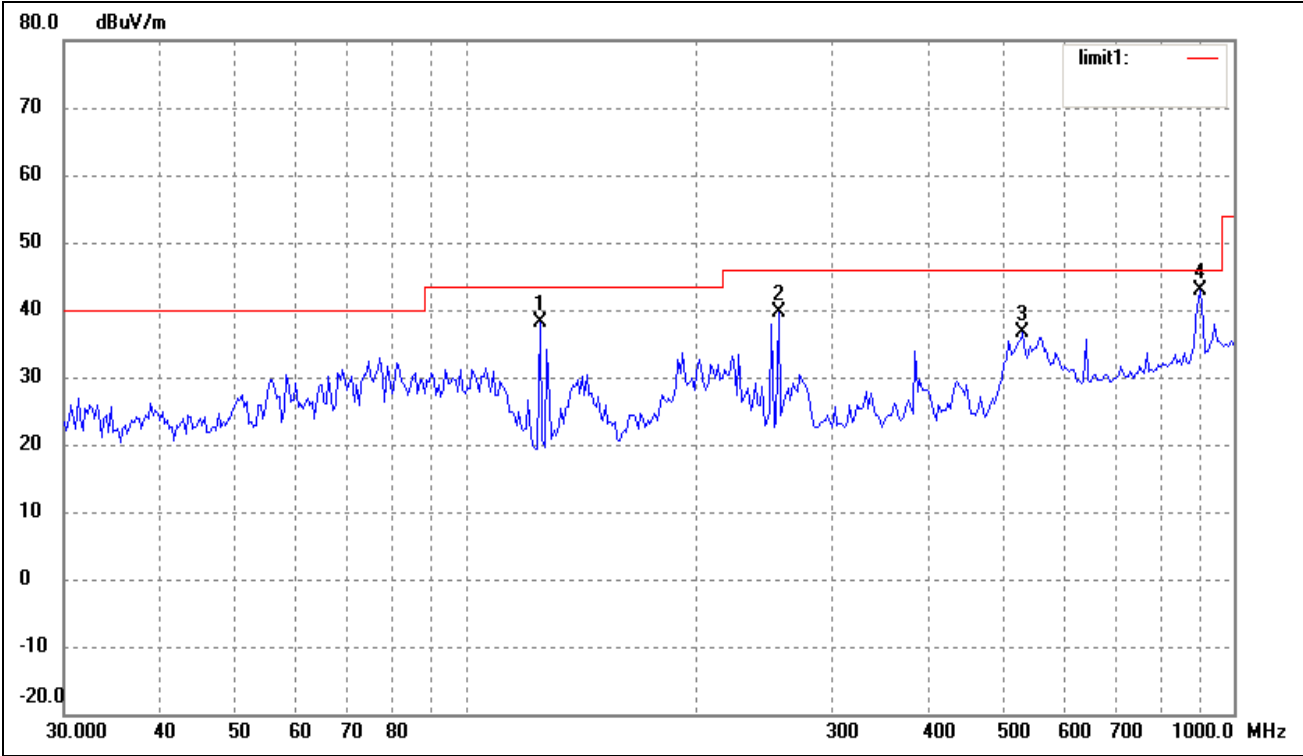
## 9.7 Summary of Test Results/Plots

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

**-1.09 dBμV at 30.6392 MHz in the Vertical polarization, Transmitting 802.11n/HT20 test mode, 30 MHz to 25 GHz, 3Meters**

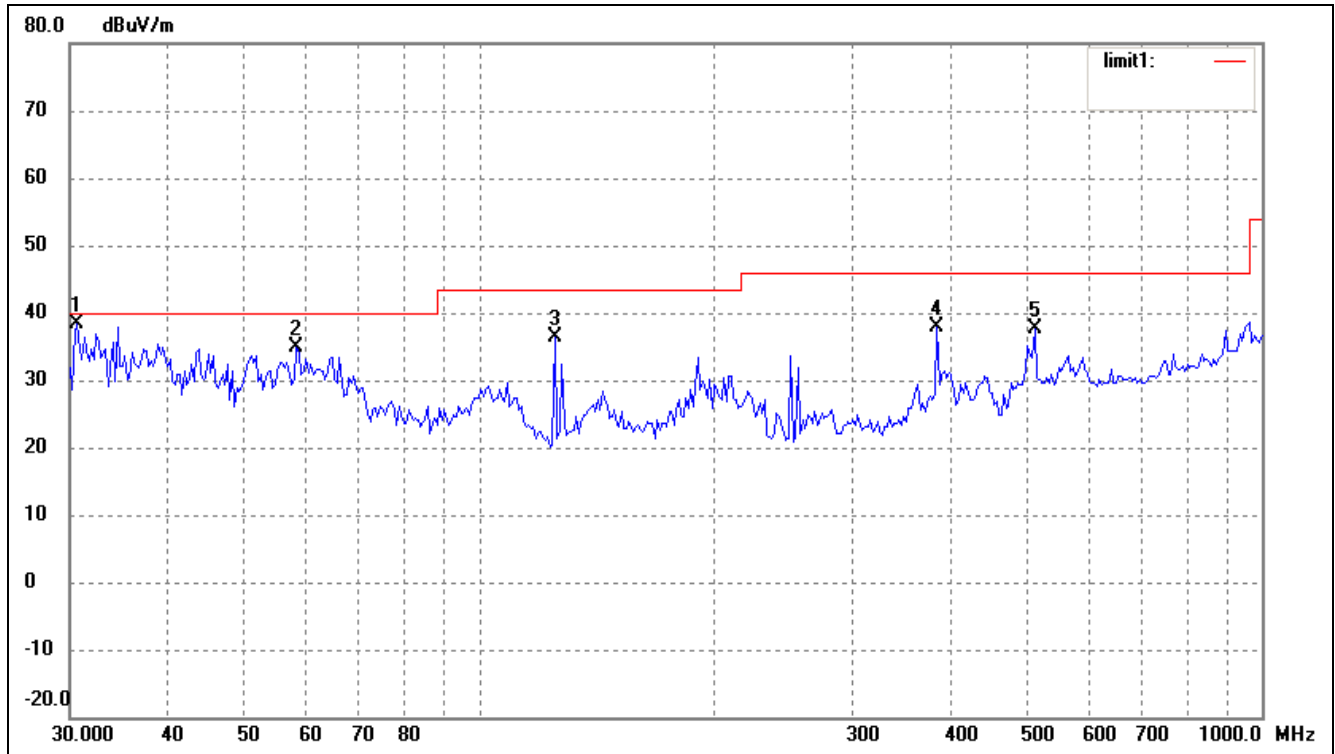
Test Result/Plots:  
Spurious Emission From 30 MHz to 1 GHz  
Test mode: Transmitting (802.11b Low Channel)

Horizontal



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	Factor(dB)	(dBuV/m)	(dBuV/m)	(dB)	( °)	(cm)	
1	124.9249	33.57	4.57	38.14	43.50	-5.36	120	100	QP
2	255.8226	31.73	7.82	39.55	46.00	-6.45	356	100	peak
3	531.2910	22.93	13.59	36.52	46.00	-9.48	5	100	peak
4	906.3041	24.09	18.90	42.99	46.00	-3.01	359	100	QP

Vertical



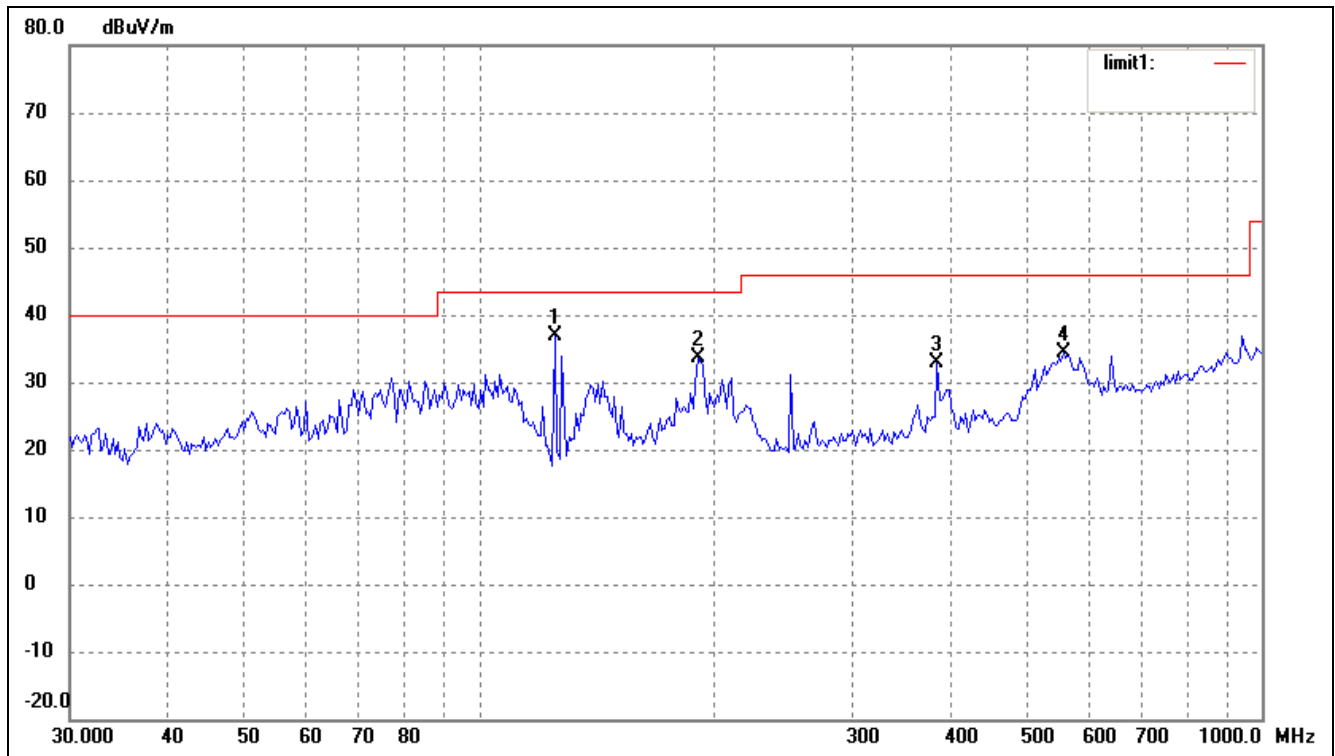
No.	Frequency (MHz)	Reading (dBuV/m)	Correct Factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree ( ° )	Height (cm)	Remark
1	30.6392	31.76	6.63	38.39	40.00	-1.61	10	100	QP
2	58.4855	27.57	7.27	34.84	40.00	-5.16	28	100	QP
3	124.9249	31.77	4.57	36.34	43.50	-7.16	45	100	peak
4	384.5447	27.94	9.96	37.90	46.00	-8.10	200	100	peak
5	512.9478	24.46	13.20	37.66	46.00	-8.34	355	100	peak



Spurious Emission From 30 MHz to 1 GHz

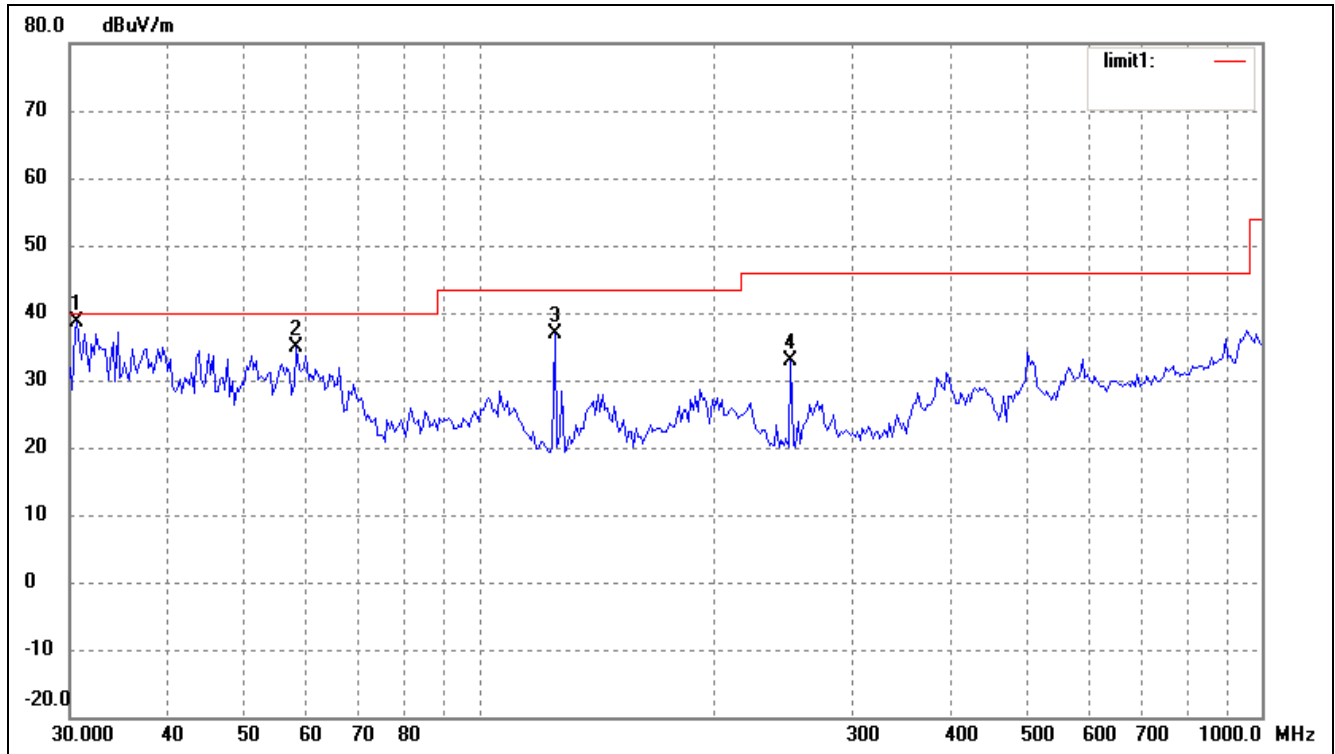
Test mode: Transmitting (802.11b Middel Channel)

Horizontal



No.	Frequency (MHz)	Reading (dBuV/m)	Correct Factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree ( ° )	Height (cm)	Remark
1	124.9249	32.42	4.57	36.99	43.50	-6.51	273	100	peak
2	190.4411	27.99	5.66	33.65	43.50	-9.85	32	100	peak
3	384.5447	22.91	9.96	32.87	46.00	-13.13	342	100	peak
4	558.0788	20.11	14.15	34.26	46.00	-11.74	179	100	peak

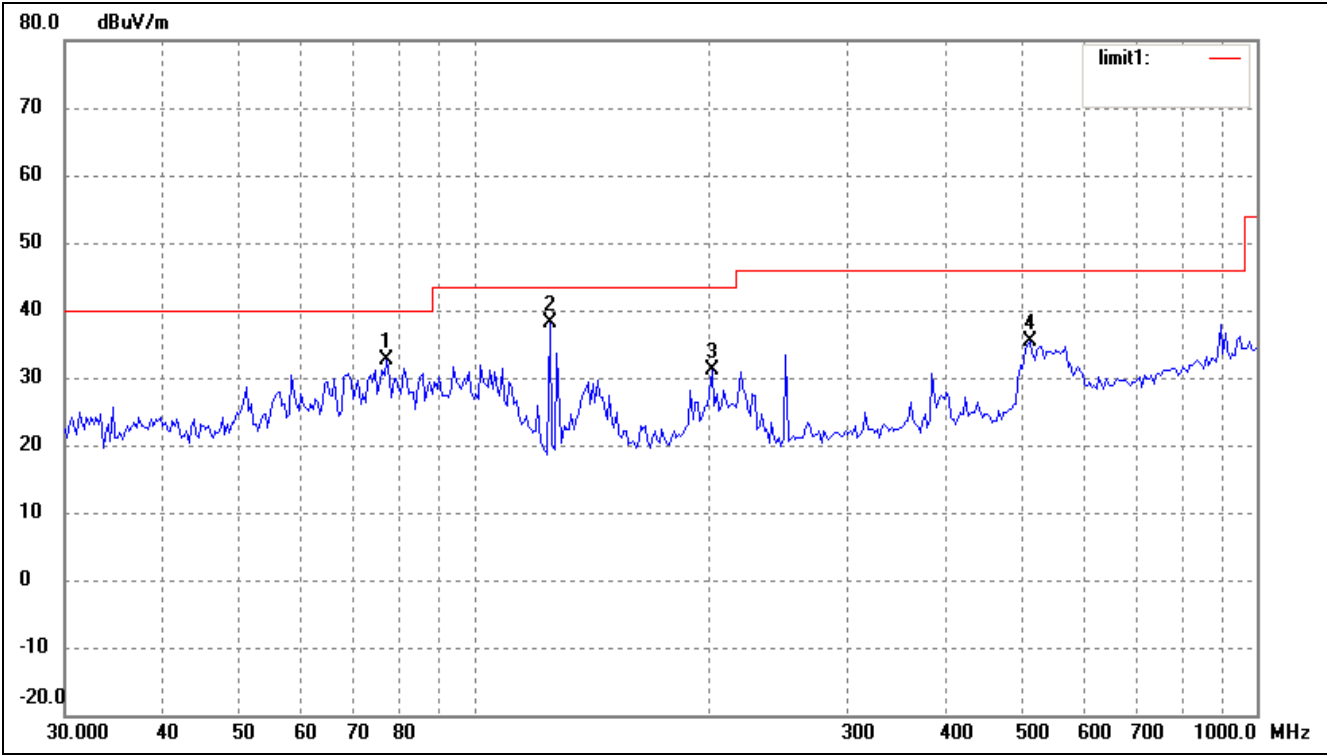
Vertical



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	Factor(dB)	(dBuV/m)	(dBuV/m)	(dB)	( ° )	(cm)	
1	30.6392	32.01	6.63	38.64	40.00	-1.36	360	100	QP
2	58.4855	27.69	7.27	34.96	40.00	-5.04	5	100	QP
3	124.9249	32.29	4.57	36.86	43.50	-6.64	356	100	peak
4	250.4859	25.12	7.69	32.81	46.00	-13.19	350	100	peak

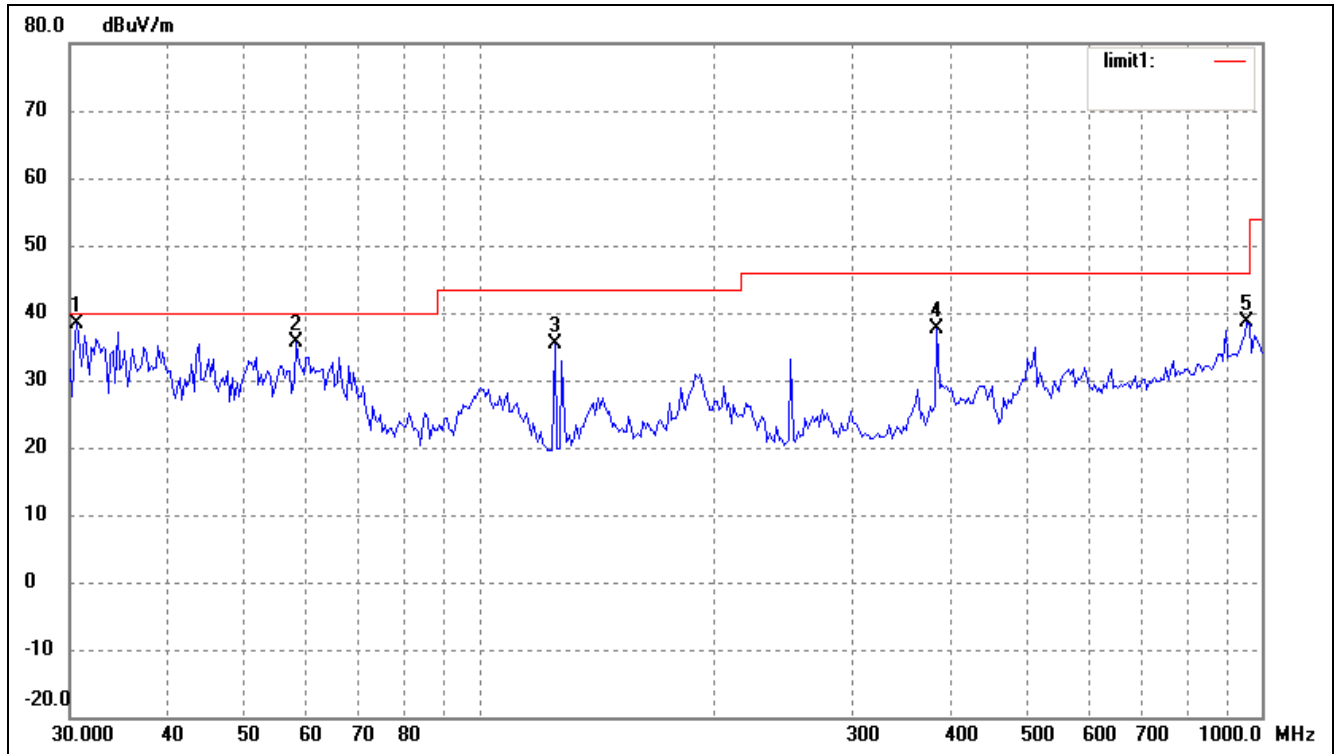
Spurious Emission From 30 MHz to 1 GHz  
Test mode: Transmitting (802.11b High Channel)

Horizontal



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	Factor(dB)	(dBuV/m)	(dBuV/m)	(dB)	( °)	(cm)	
1	77.4680	29.89	2.77	32.66	40.00	-7.34	100	100	peak
2	124.9249	33.51	4.57	38.08	43.50	-5.42	15	100	QP
3	201.4539	25.32	5.73	31.05	43.50	-12.45	222	100	peak
4	512.9478	22.10	13.20	35.30	46.00	-10.70	358	100	peak

Vertical

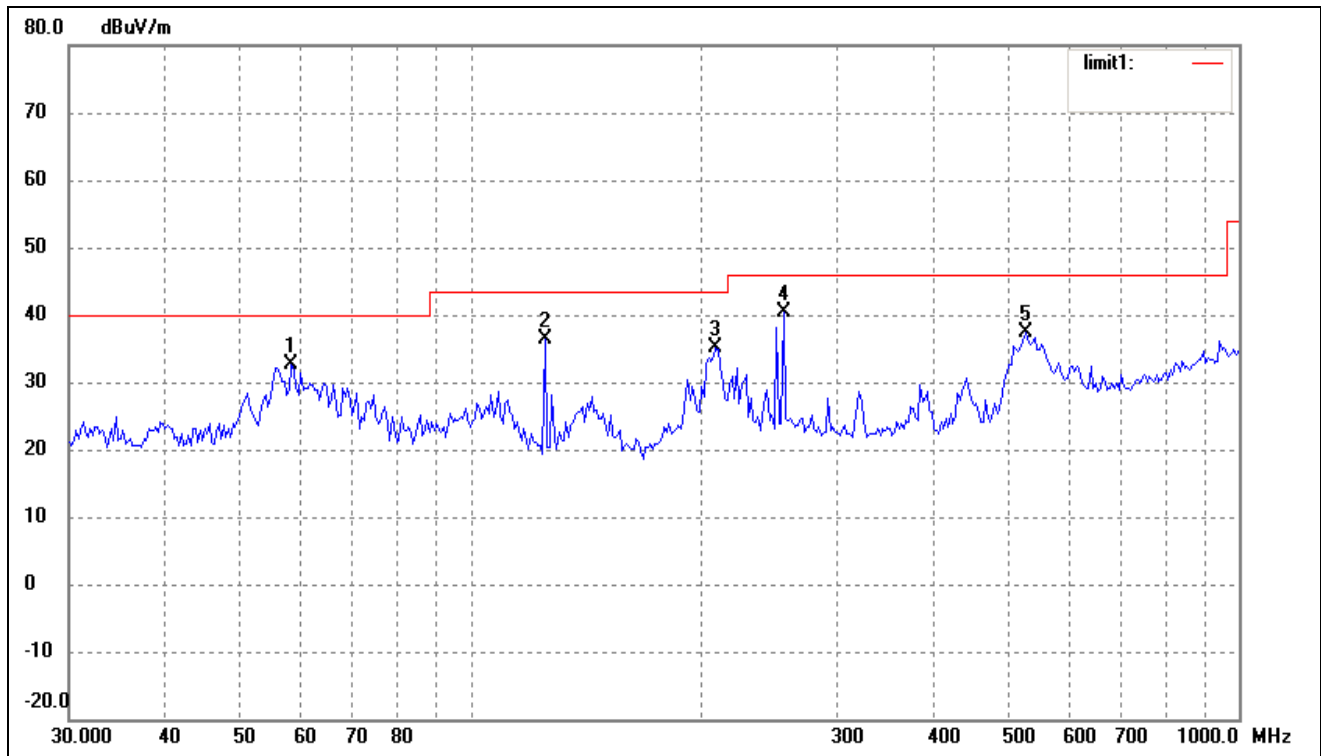


No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	Factor(dB)	(dBuV/m)	(dBuV/m)	(dB)	( ° )	(cm)	
1	30.6392	31.83	6.63	38.46	40.00	-1.54	358	100	QP
2	58.4855	28.28	7.27	35.55	40.00	-4.45	180	100	QP
3	124.9249	30.70	4.57	35.27	43.50	-8.23	245	100	peak
4	384.5447	27.67	9.96	37.63	46.00	-8.37	87	100	peak
5	958.7135	18.95	19.80	38.75	46.00	-7.25	334	100	peak

Spurious Emission From 30 MHz to 1 GHz

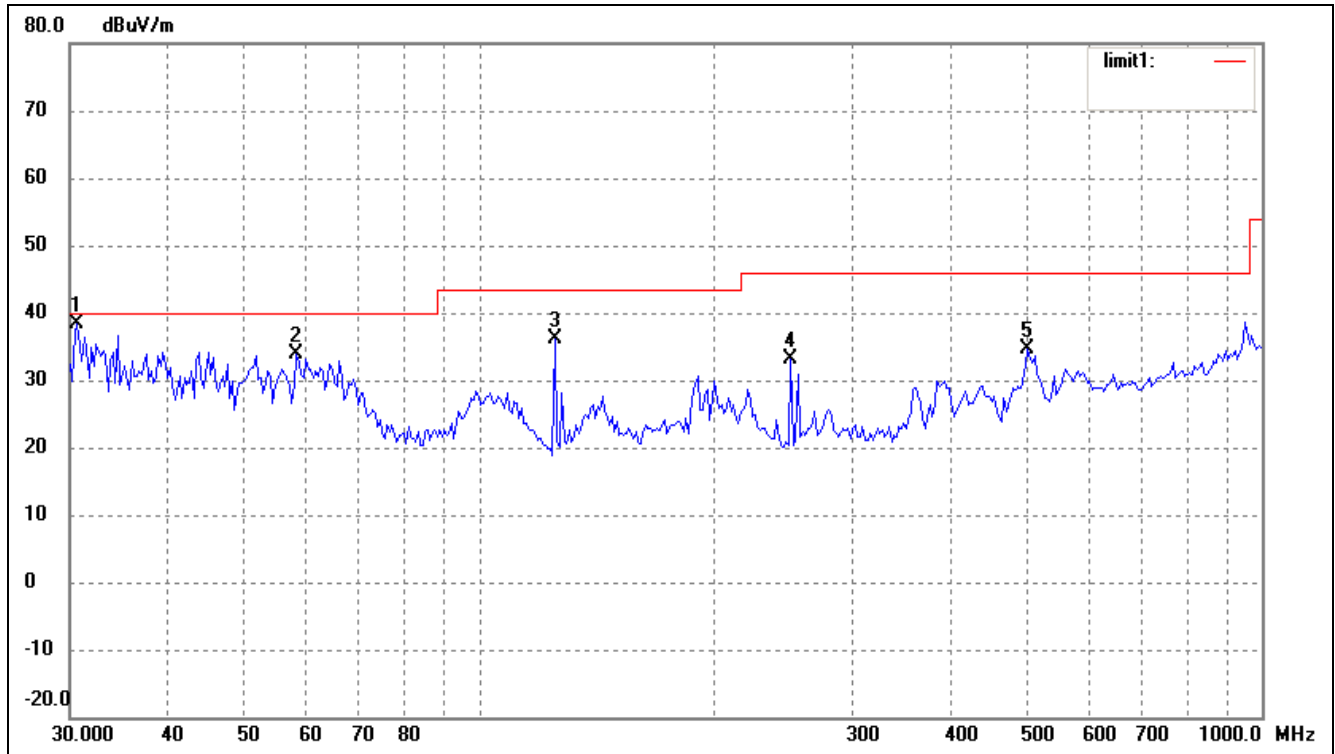
Test mode: Transmitting (802.11g Low Channel)

Horizontal



No.	Frequency (MHz)	Reading (dBuV/m)	Correct Factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree ( ° )	Height (cm)	Remark
1	58.4855	25.43	7.27	32.70	40.00	-7.30	55	200	peak
2	124.9249	31.85	4.57	36.42	43.50	-7.08	64	100	peak
3	208.6580	29.15	5.97	35.12	43.50	-8.38	120	100	peak
4	255.8226	32.47	7.82	40.29	46.00	-5.71	26	100	QP
5	527.5707	23.96	13.51	37.47	46.00	-8.53	18	100	peak

Vertical

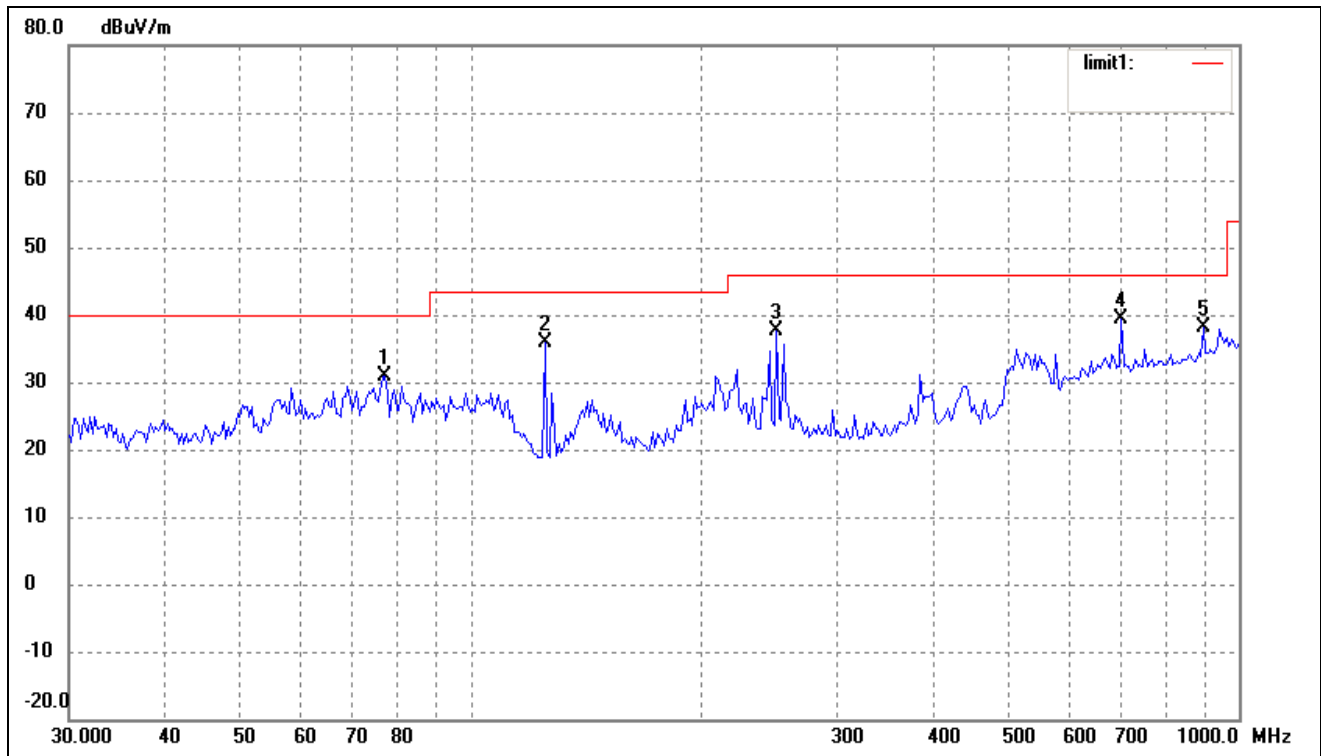


No.	Frequency (MHz)	Reading (dBuV/m)	Correct Factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree ( ° )	Height (cm)	Remark
1	30.6392	31.84	6.63	38.47	40.00	-1.53	65	100	QP
2	58.4855	26.63	7.27	33.90	40.00	-6.10	99	100	peak
3	124.9249	31.53	4.57	36.10	43.50	-7.40	84	100	peak
4	250.4859	25.35	7.69	33.04	46.00	-12.96	129	100	peak
5	502.2473	21.75	12.97	34.72	46.00	-11.28	310	100	peak

Spurious Emission From 30 MHz to 1 GHz

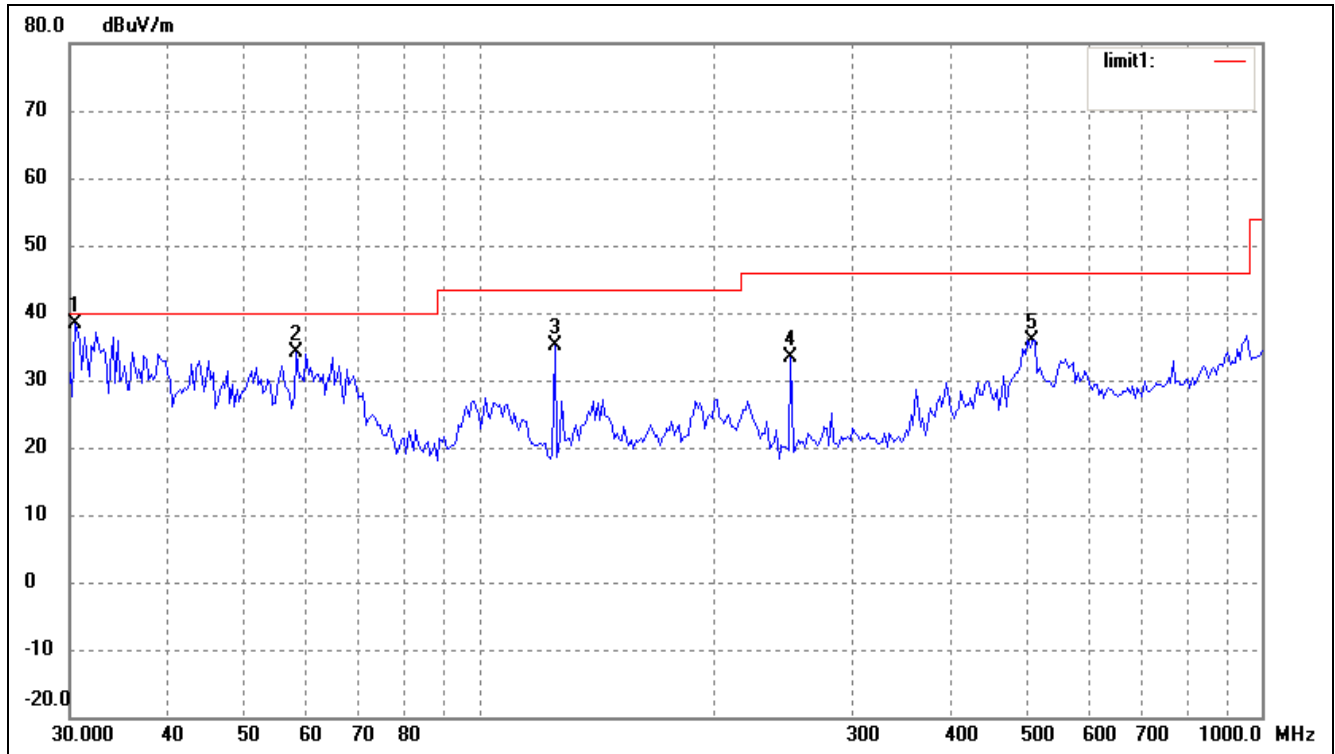
Test mode: Transmitting (802.11g Middle Channel)

Horizontal



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	Factor(dB)	(dBuV/m)	(dBuV/m)	(dB)	( ° )	(cm)	
1	77.4680	28.17	2.77	30.94	40.00	-9.06	146	100	peak
2	124.9249	31.43	4.57	36.00	43.50	-7.50	235	100	peak
3	250.4859	29.99	7.69	37.68	46.00	-8.32	74	100	peak
4	703.7314	23.69	15.76	39.45	46.00	-6.55	136	200	peak
5	899.9577	19.42	18.80	38.22	46.00	-7.78	120	100	peak

Vertical



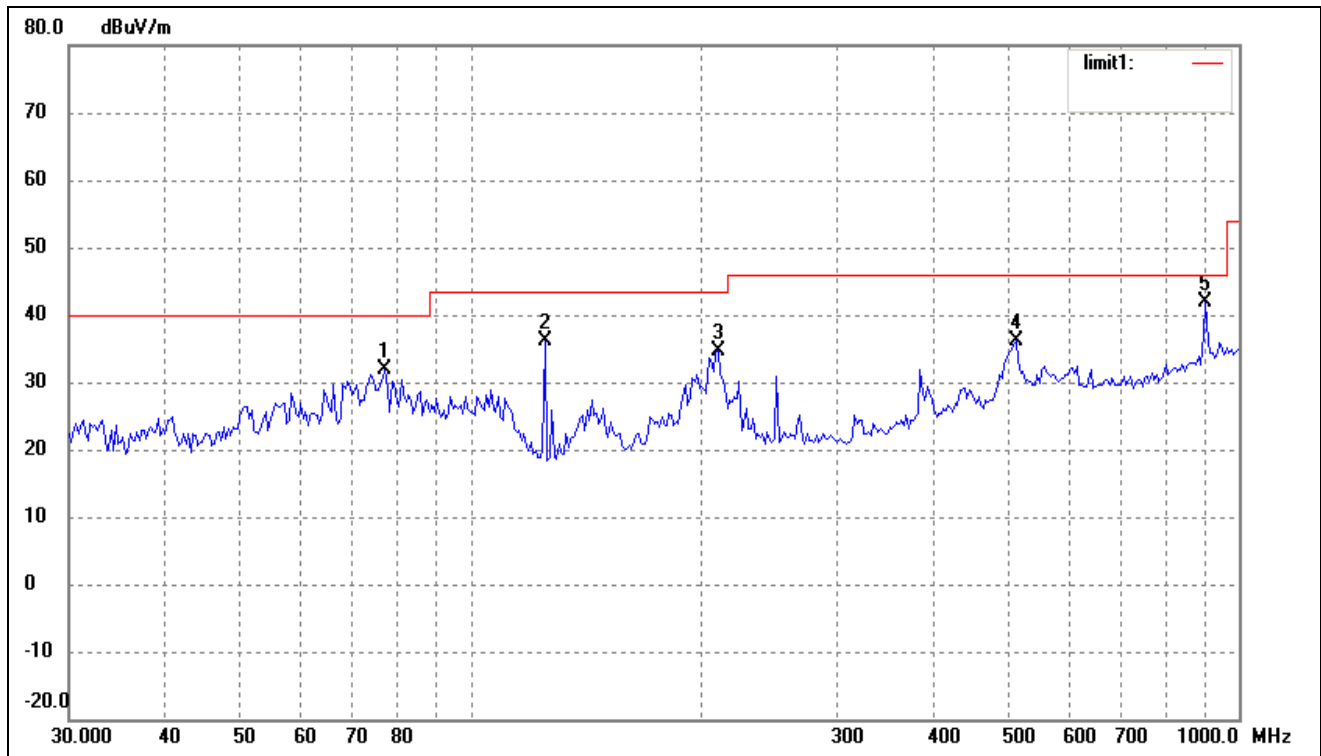
No.	Frequency (MHz)	Reading (dBuV/m)	Correct Factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree ( ° )	Height (cm)	Remark
1	30.4246	31.82	6.63	38.45	40.00	-1.55	175	100	QP
2	58.4855	26.82	7.27	34.09	40.00	-5.91	266	100	QP
3	124.9249	30.47	4.57	35.04	43.50	-8.46	34	100	peak
4	250.4859	25.62	7.69	33.31	46.00	-12.69	158	100	peak
5	509.3559	22.81	13.12	35.93	46.00	-10.07	102	100	peak



Spurious Emission From 30 MHz to 1 GHz

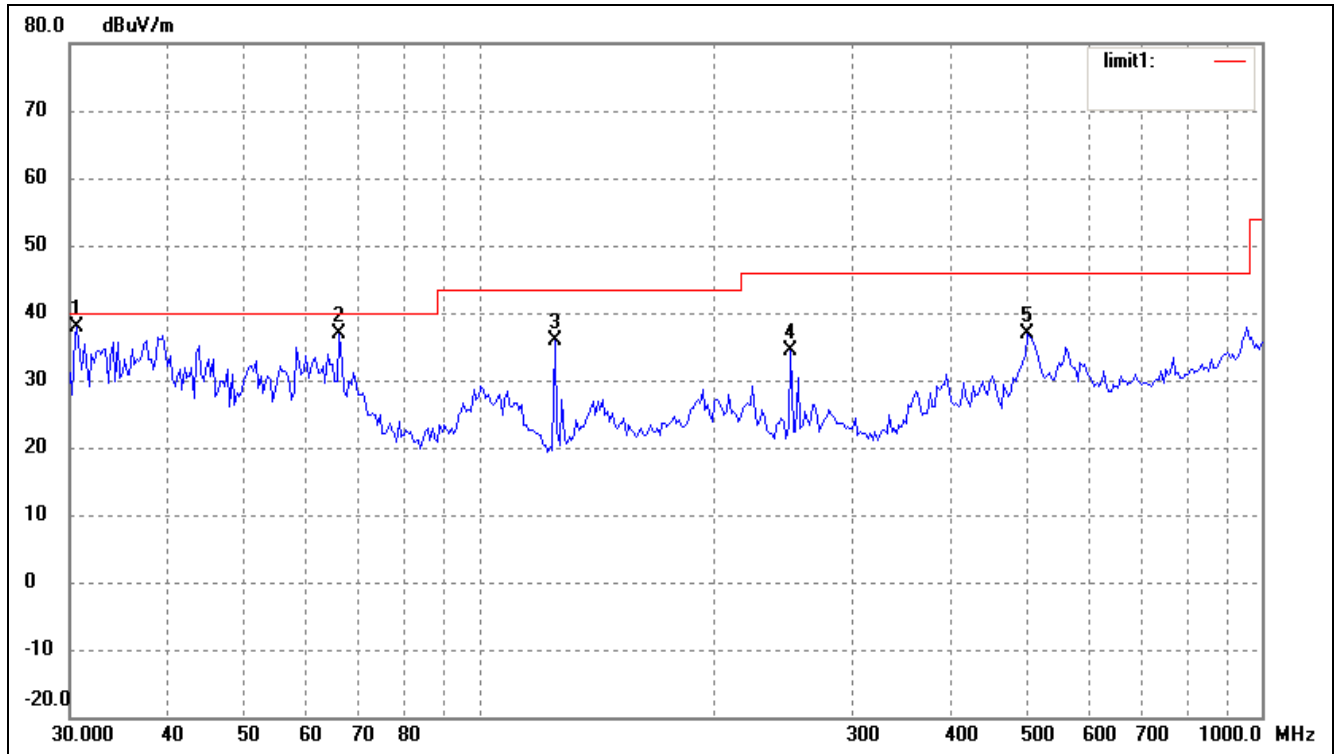
Test mode: Transmitting (802.11g High Channel)

Horizontal



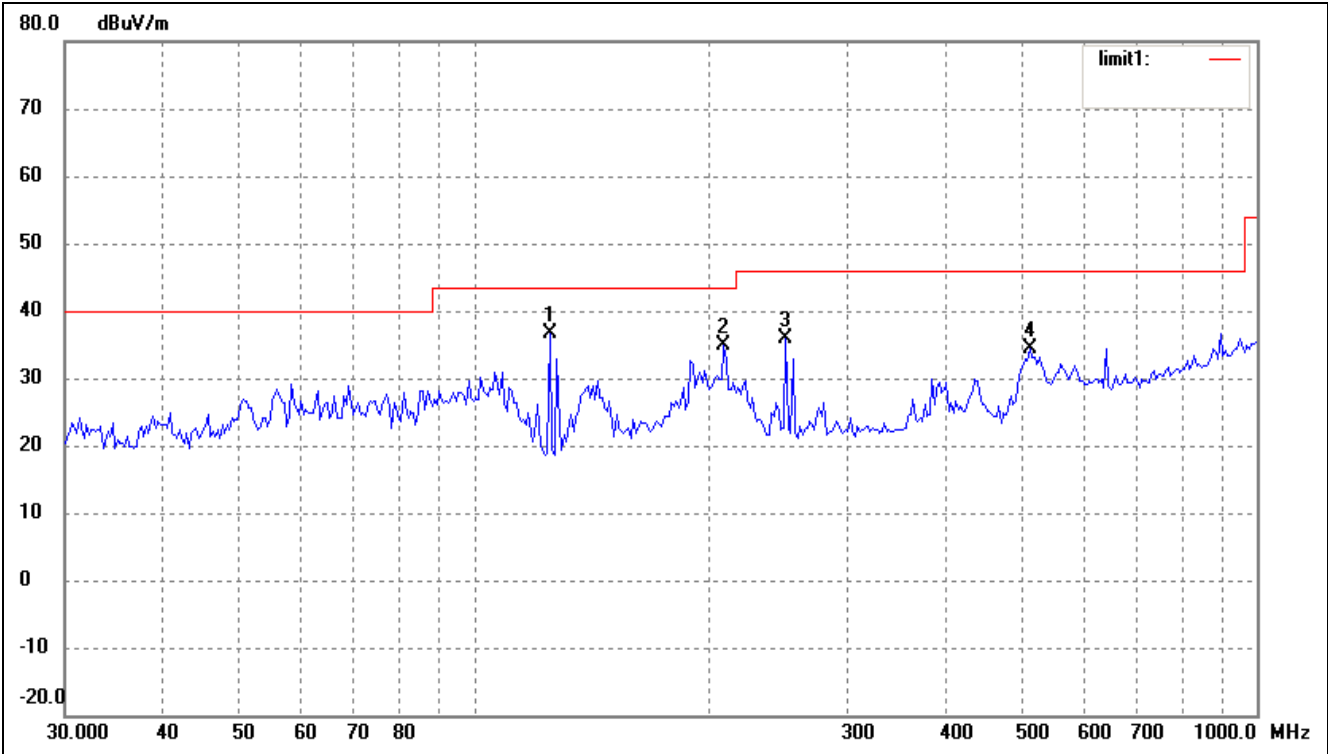
No.	Frequency (MHz)	Reading (dBuV/m)	Correct Factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree ( ° )	Height (cm)	Remark
1	77.4680	29.11	2.77	31.88	40.00	-8.12	54	100	peak
2	124.9249	31.48	4.57	36.05	43.50	-7.45	155	100	peak
3	210.1294	28.65	6.01	34.66	43.50	-8.84	124	200	peak
4	512.9478	22.98	13.20	36.18	46.00	-9.82	125	200	peak
5	906.3041	22.87	18.90	41.77	46.00	-4.23	64	100	QP

Vertical



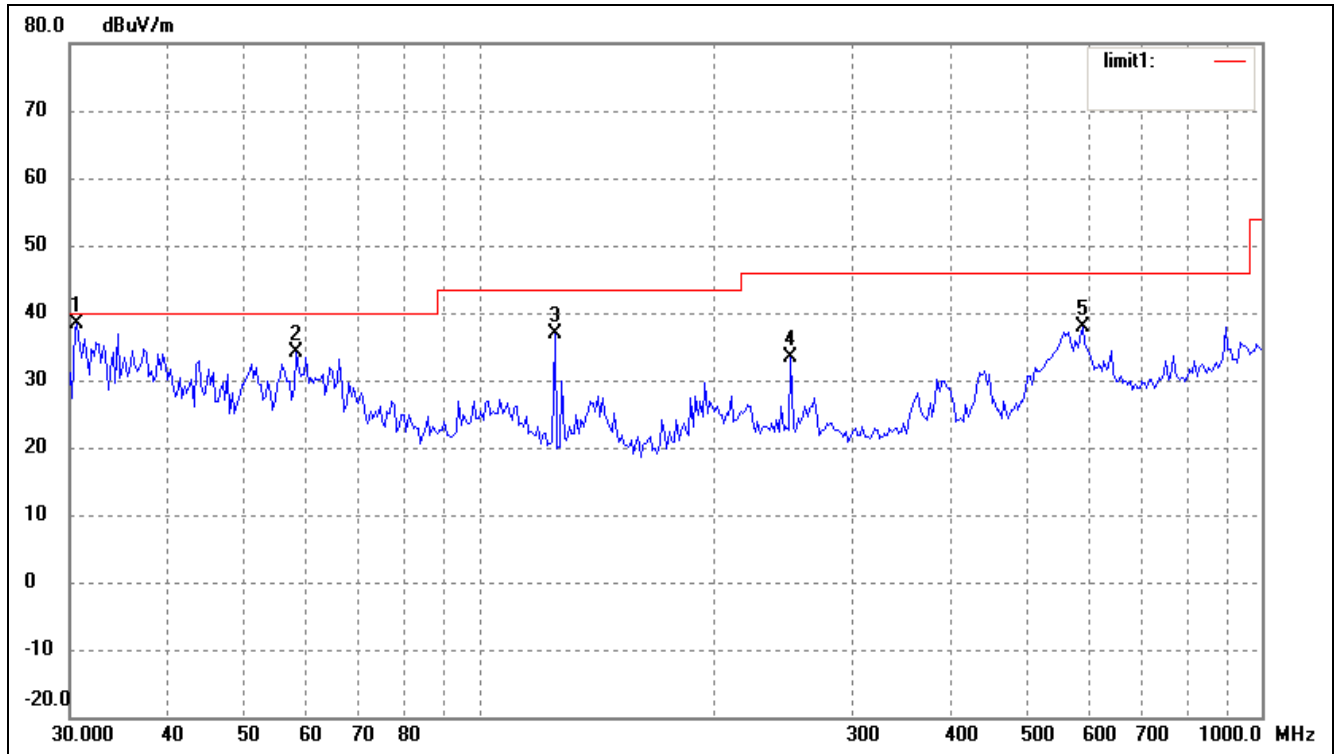
No.	Frequency (MHz)	Reading (dBuV/m)	Correct Factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree ( ° )	Height (cm)	Remark
1	30.6392	31.24	6.63	37.87	40.00	-2.13	155	200	QP
2	66.3715	32.35	4.65	37.00	40.00	-3.00	165	100	QP
3	124.9249	31.42	4.57	35.99	43.50	-7.51	120	100	peak
4	250.4859	26.58	7.69	34.27	46.00	-11.73	106	100	peak
5	502.2473	23.91	12.97	36.88	46.00	-9.12	35	100	peak

Spurious Emission From 30 MHz to 1 GHz  
Test mode: Transmitting (802.11n/HT20 Low Channel)  
Horizontal



No.	Frequency (MHz)	Reading (dBuV/m)	Correct Factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree ( ° )	Height (cm)	Remark
1	124.9249	32.13	4.57	36.70	43.50	-6.80	56	200	peak
2	208.6580	28.99	5.97	34.96	43.50	-8.54	16	100	peak
3	250.4859	28.22	7.69	35.91	46.00	-10.09	26	100	peak
4	512.9478	21.19	13.20	34.39	46.00	-11.61	20	100	peak

Vertical

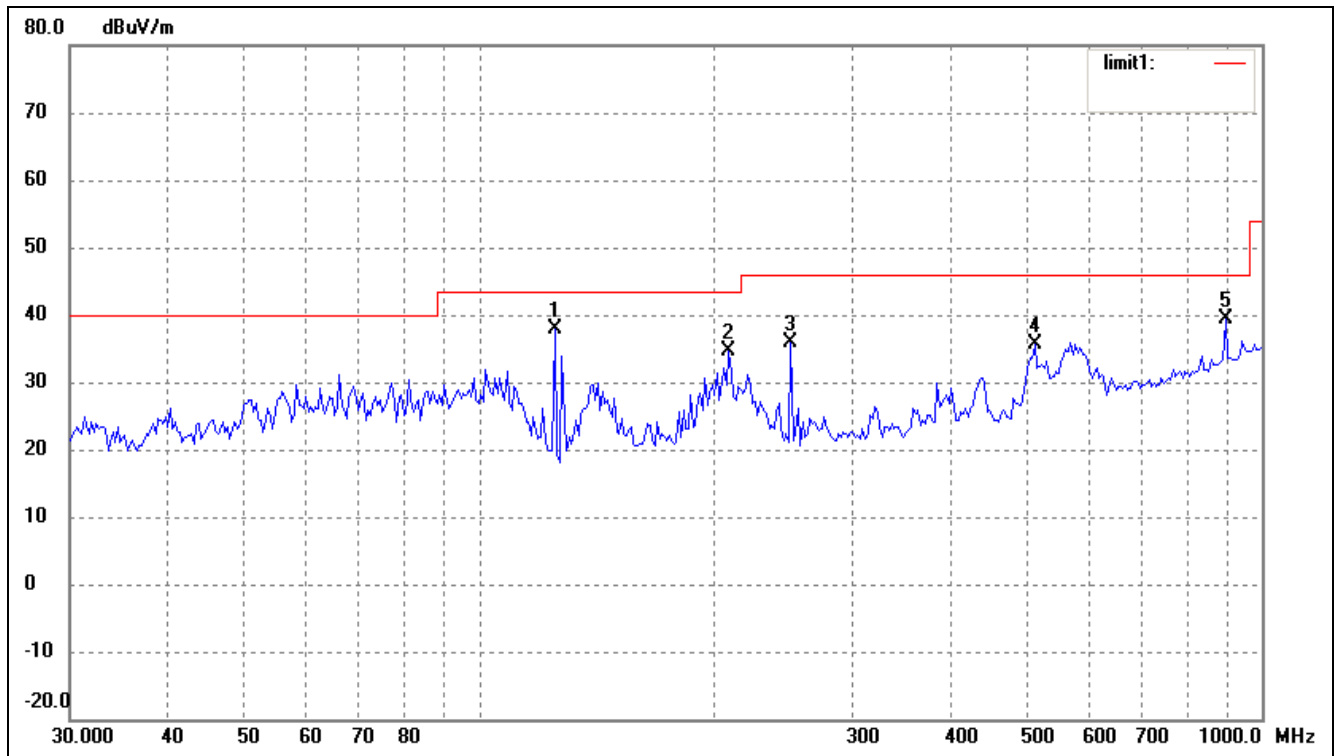


No.	Frequency (MHz)	Reading (dBuV/m)	Correct Factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree ( ° )	Height (cm)	Remark
1	30.6392	31.76	6.63	38.39	40.00	-1.61	12	100	QP
2	58.4855	26.88	7.27	34.15	40.00	-5.85	212	100	QP
3	124.9249	32.41	4.57	36.98	43.50	-6.52	15	200	peak
4	250.4859	25.69	7.69	33.38	46.00	-12.62	65	100	peak
5	590.3511	23.05	14.82	37.87	46.00	-8.13	48	100	peak

Spurious Emission From 30 MHz to 1 GHz

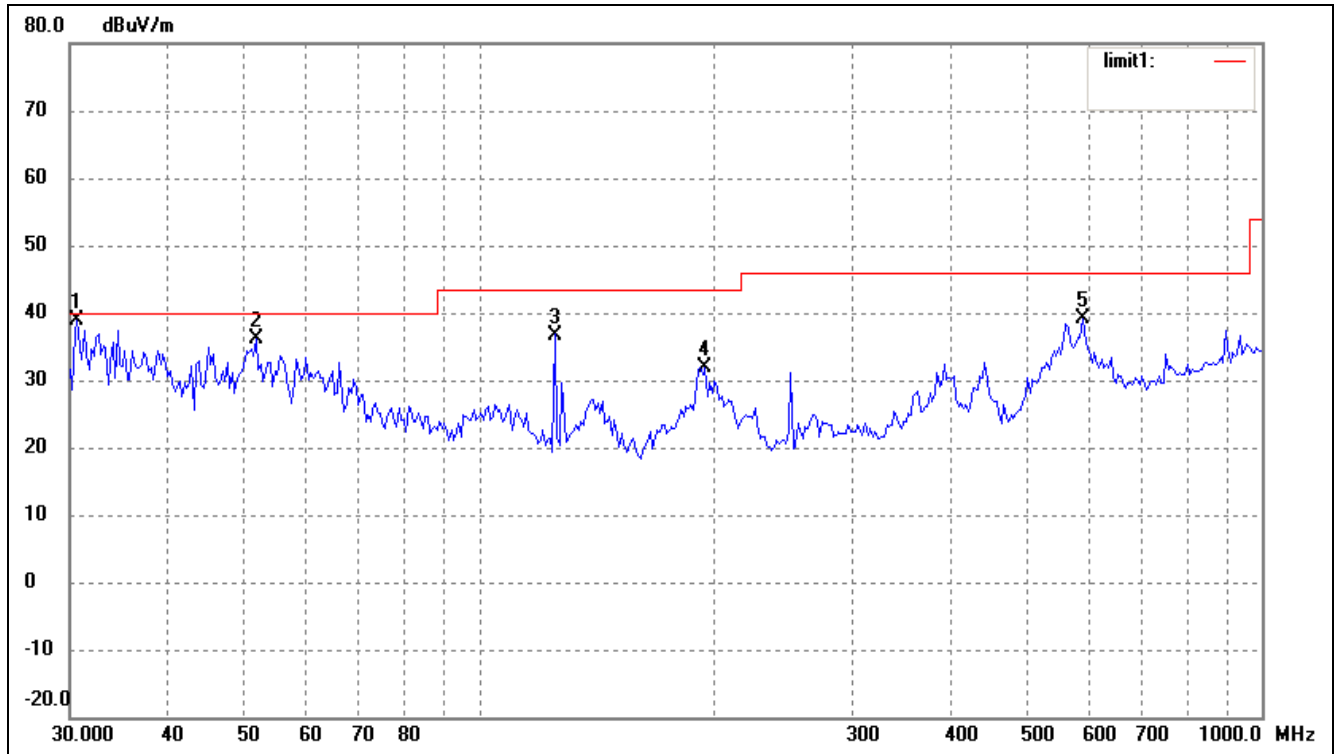
Test mode: Transmitting (802.11n/HT20 Middle Channel)

Horizontal



No.	Frequency (MHz)	Reading (dBuV/m)	Correct Factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree ( ° )	Height (cm)	Remark
1	124.9249	33.38	4.57	37.95	43.50	-5.55	65	200	QP
2	208.6580	28.67	5.97	34.64	43.50	-8.86	105	100	peak
3	250.4859	28.30	7.69	35.99	46.00	-10.01	132	100	peak
4	512.9478	22.44	13.20	35.64	46.00	-10.36	65	100	peak
5	899.9577	20.61	18.80	39.41	46.00	-6.59	12	200	peak

Vertical

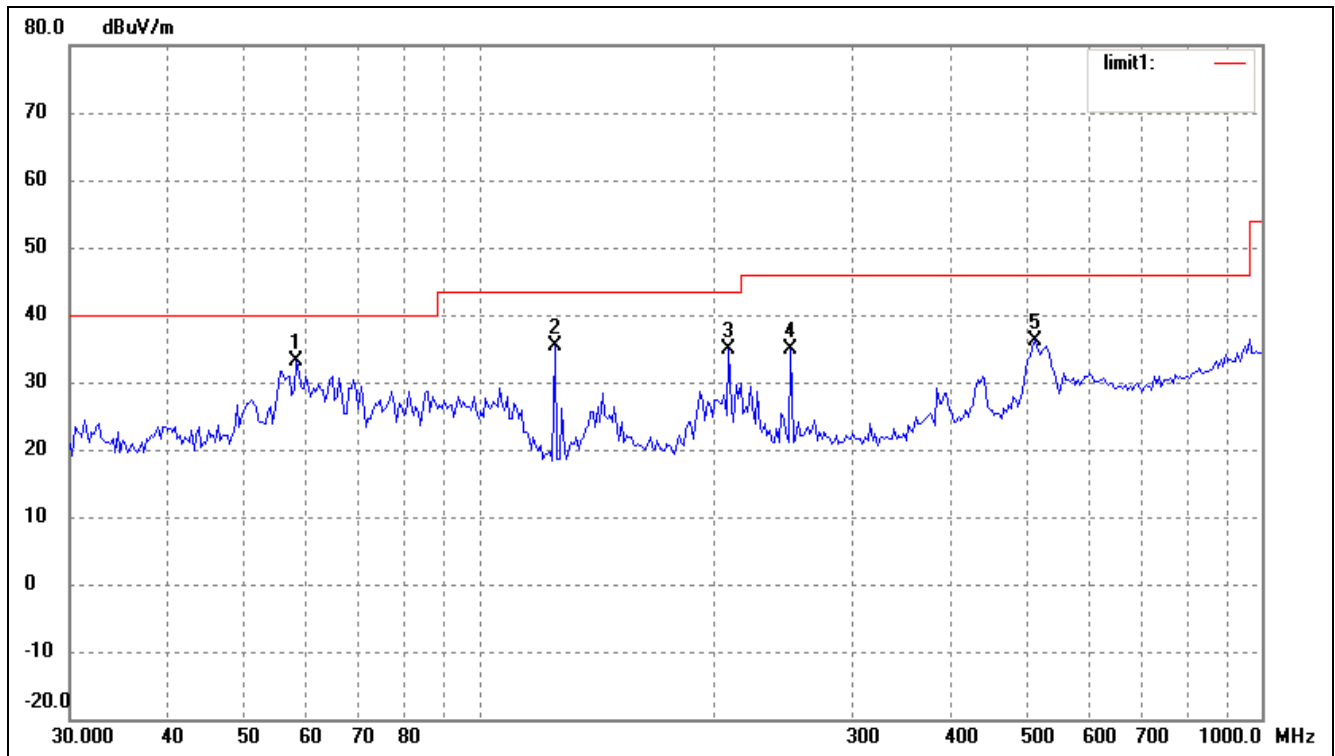


No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	Factor(dB)	(dBuV/m)	(dBuV/m)	(dB)	( ° )	(cm)	
1	30.6392	32.28	6.63	38.91	40.00	-1.09	56	100	QP
2	51.8999	28.50	7.60	36.10	40.00	-3.90	54	100	QP
3	124.9249	32.18	4.57	36.75	43.50	-6.75	121	100	peak
4	194.4985	26.17	5.67	31.84	43.50	-11.66	117	100	peak
5	590.3511	24.43	14.82	39.25	46.00	-6.75	21	100	peak

Spurious Emission From 30 MHz to 1 GHz

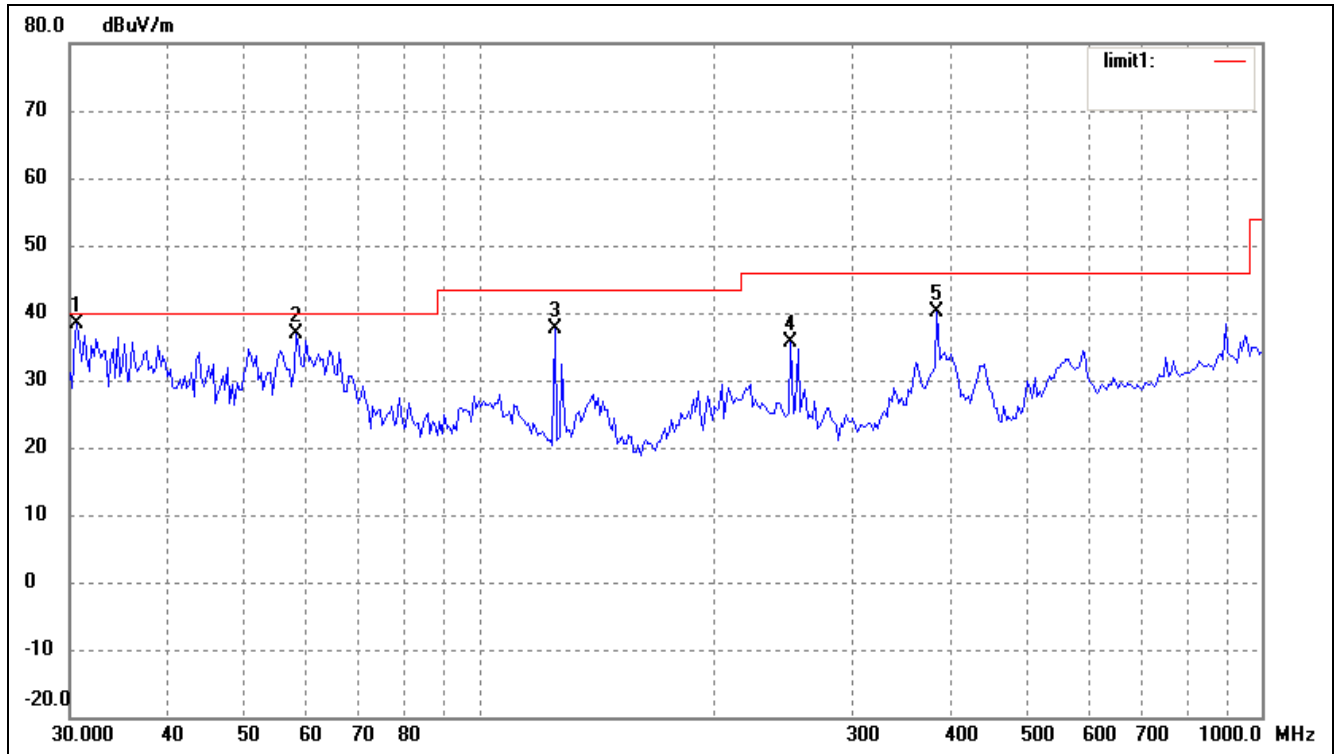
Test mode: Transmitting (802.11n/HT20 High Channel)

Horizontal



No.	Frequency (MHz)	Reading (dBuV/m)	Correct Factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree ( ° )	Height (cm)	Remark
1	58.4855	25.85	7.27	33.12	40.00	-6.88	5	100	peak
2	124.9249	30.76	4.57	35.33	43.50	-8.17	267	100	peak
3	208.6580	28.97	5.97	34.94	43.50	-8.56	115	100	peak
4	250.4859	27.30	7.69	34.99	46.00	-11.01	360	200	peak
5	512.9478	23.05	13.20	36.25	46.00	-9.75	145	100	peak

Vertical



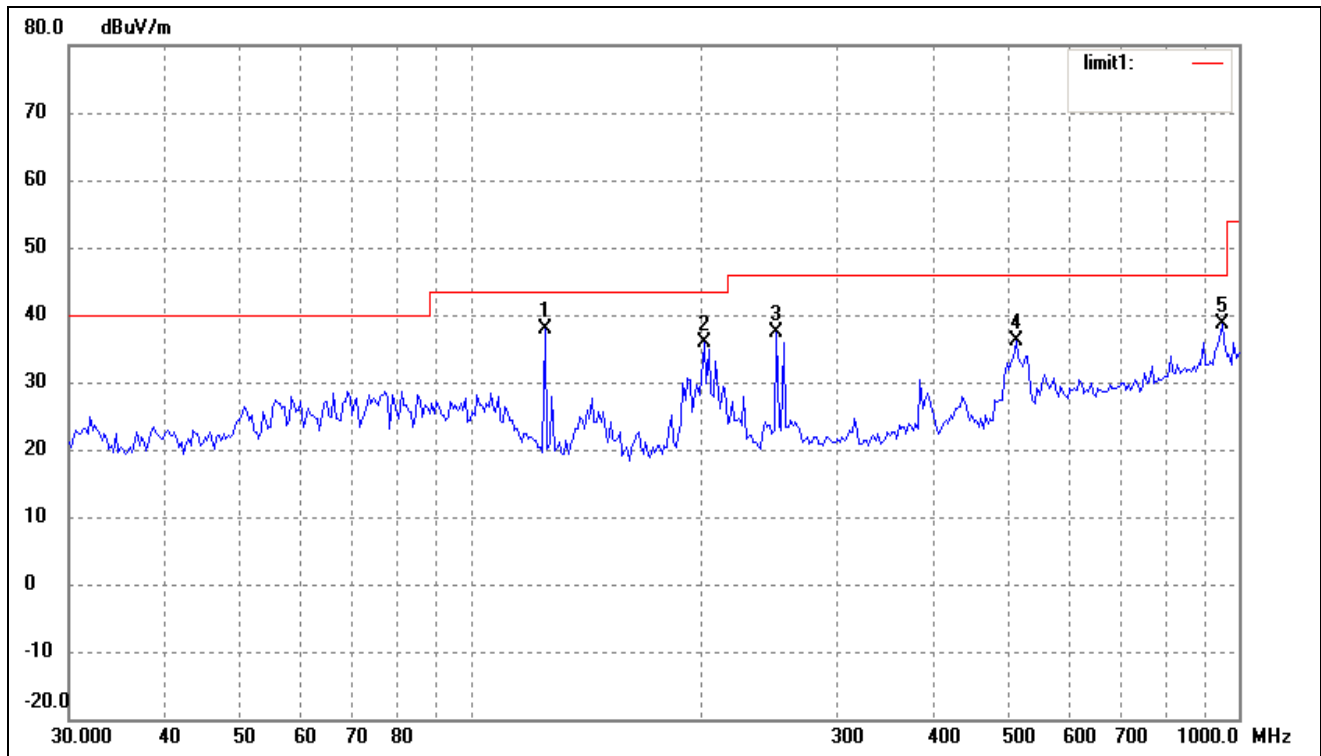
No.	Frequency (MHz)	Reading (dBuV/m)	Correct Factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree ( ° )	Height (cm)	Remark
1	30.6392	31.71	6.63	38.34	40.00	-1.66	61	200	QP
2	58.4855	29.64	7.27	36.91	40.00	-3.09	111	100	QP
3	124.9249	32.98	4.57	37.55	43.50	-5.95	145	100	QP
4	250.4859	28.04	7.69	35.73	46.00	-10.27	21	100	peak
5	384.5447	30.17	9.96	40.13	46.00	-5.87	55	100	QP



Spurious Emission From 30 MHz to 1 GHz

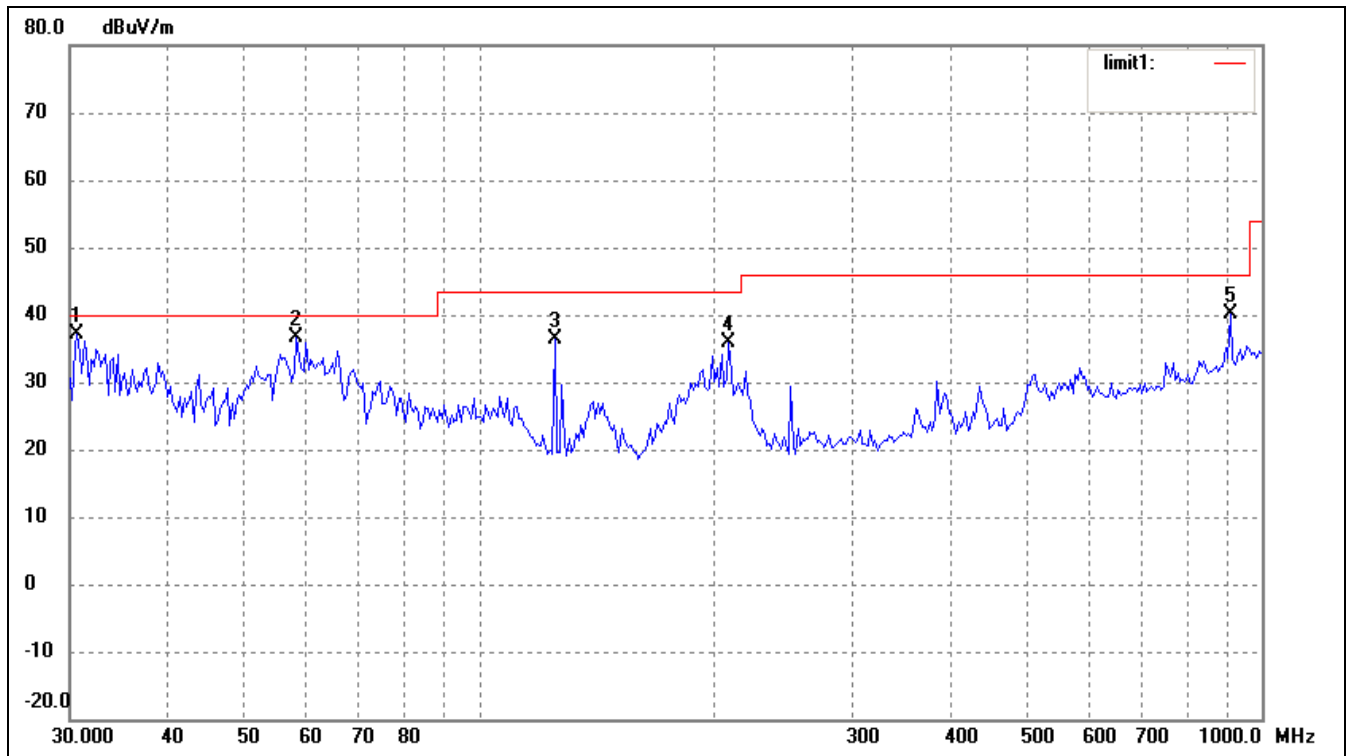
Test mode: Transmitting (802.11n/HT40 Low Channel)

Horizontal



No.	Frequency (MHz)	Reading (dBuV/m)	Correct Factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree ( ° )	Height (cm)	Remark
1	124.9249	33.27	4.57	37.84	43.50	-5.66	94	200	QP
2	201.4539	30.12	5.73	35.85	43.50	-7.65	334	100	peak
3	250.4859	29.68	7.69	37.37	46.00	-8.63	115	100	peak
4	512.9478	22.93	13.20	36.13	46.00	-9.87	124	100	peak
5	952.0001	19.00	19.69	38.69	46.00	-7.31	62	100	peak

Vertical

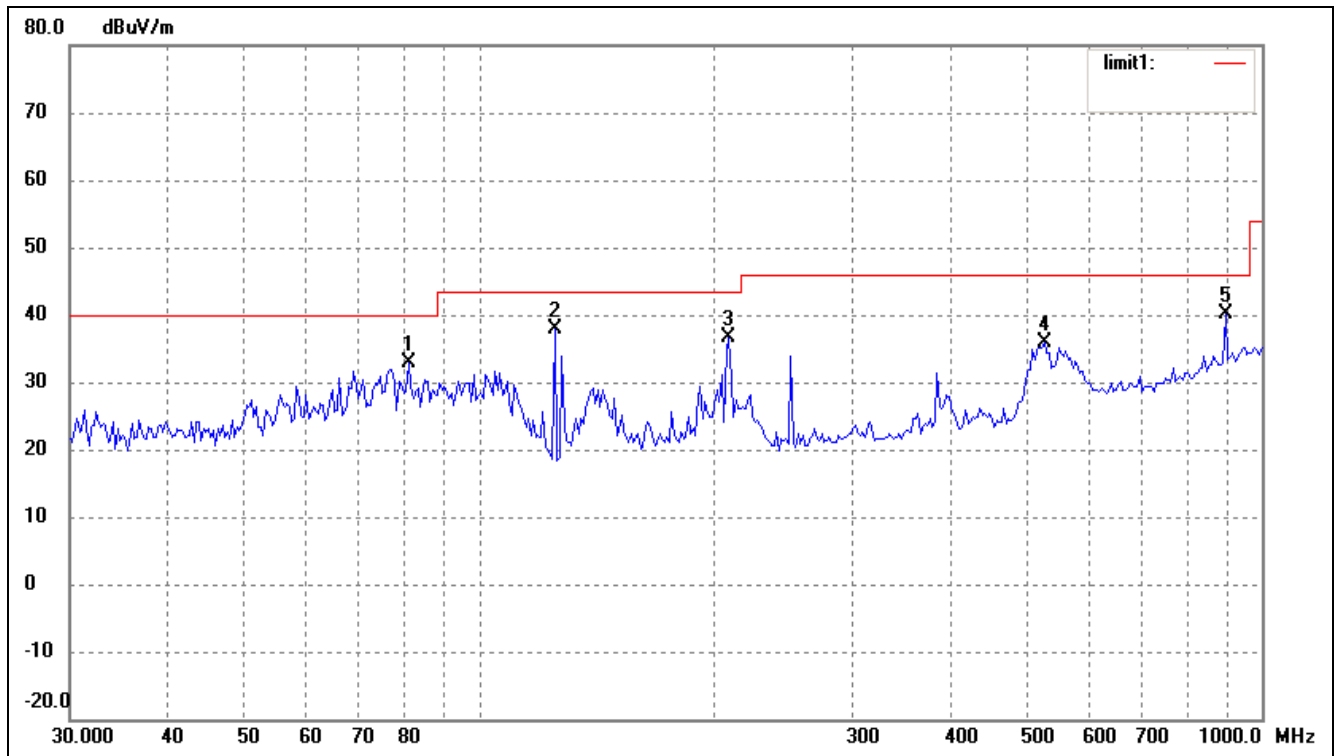


No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	Factor(dB)	(dBuV/m)	(dBuV/m)	(dB)	( ° )	(cm)	
1	30.6392	30.44	6.63	37.07	40.00	-2.93	64	100	QP
2	58.4855	29.43	7.27	36.70	40.00	-3.30	15	100	QP
3	124.9249	31.85	4.57	36.42	43.50	-7.08	14	200	peak
4	208.6580	29.81	5.97	35.78	43.50	-7.72	87	200	peak
5	912.6953	21.21	19.02	40.23	46.00	-5.77	150	100	QP

Spurious Emission From 30 MHz to 1 GHz

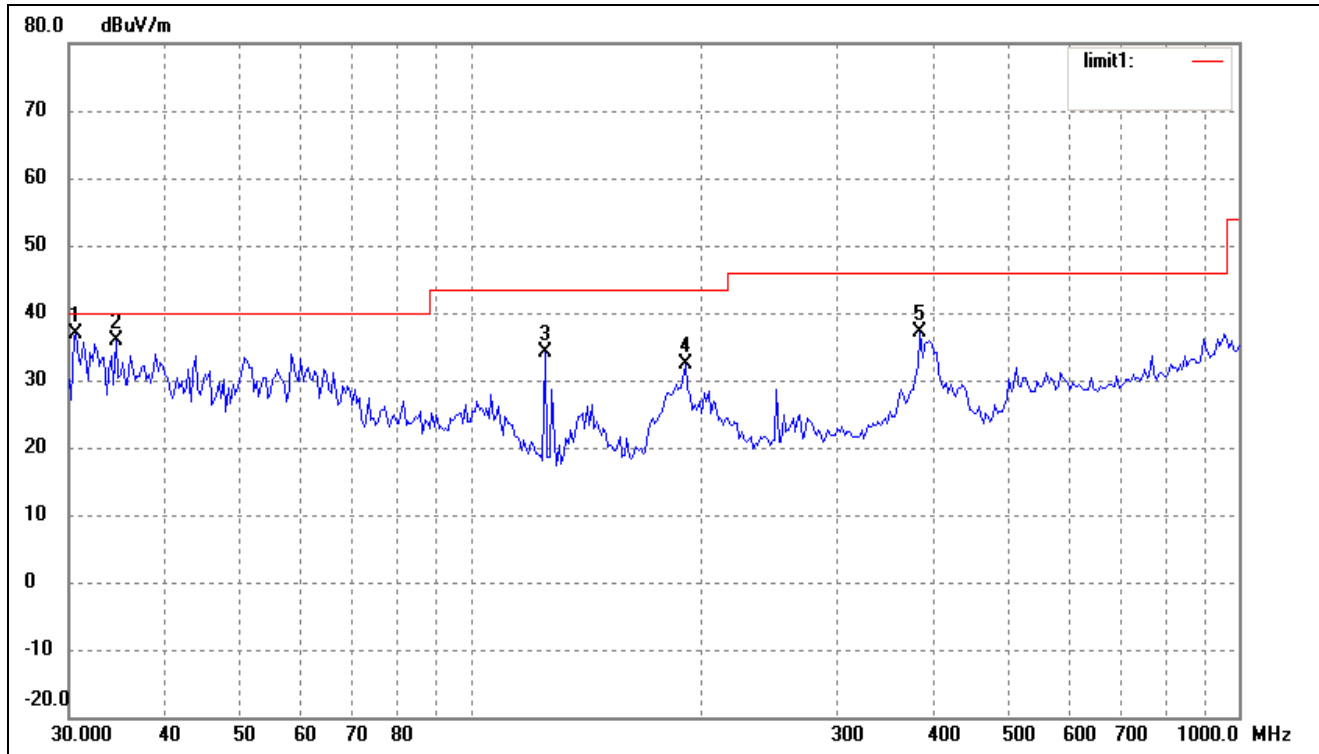
Test mode: Transmitting (802.11n/HT40 Middle Channel)

Horizontal



No.	Frequency (MHz)	Reading (dBuV/m)	Correct Factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree ( ° )	Height (cm)	Remark
1	81.3740	29.29	3.63	32.92	40.00	-7.08	56	100	peak
2	124.9249	33.34	4.57	37.91	43.50	-5.59	147	200	QP
3	208.6580	30.57	5.97	36.54	43.50	-6.96	96	200	peak
4	527.5707	22.29	13.51	35.80	46.00	-10.20	258	100	peak
5	899.9577	21.35	18.80	40.15	46.00	-5.85	62	100	QP

Vertical

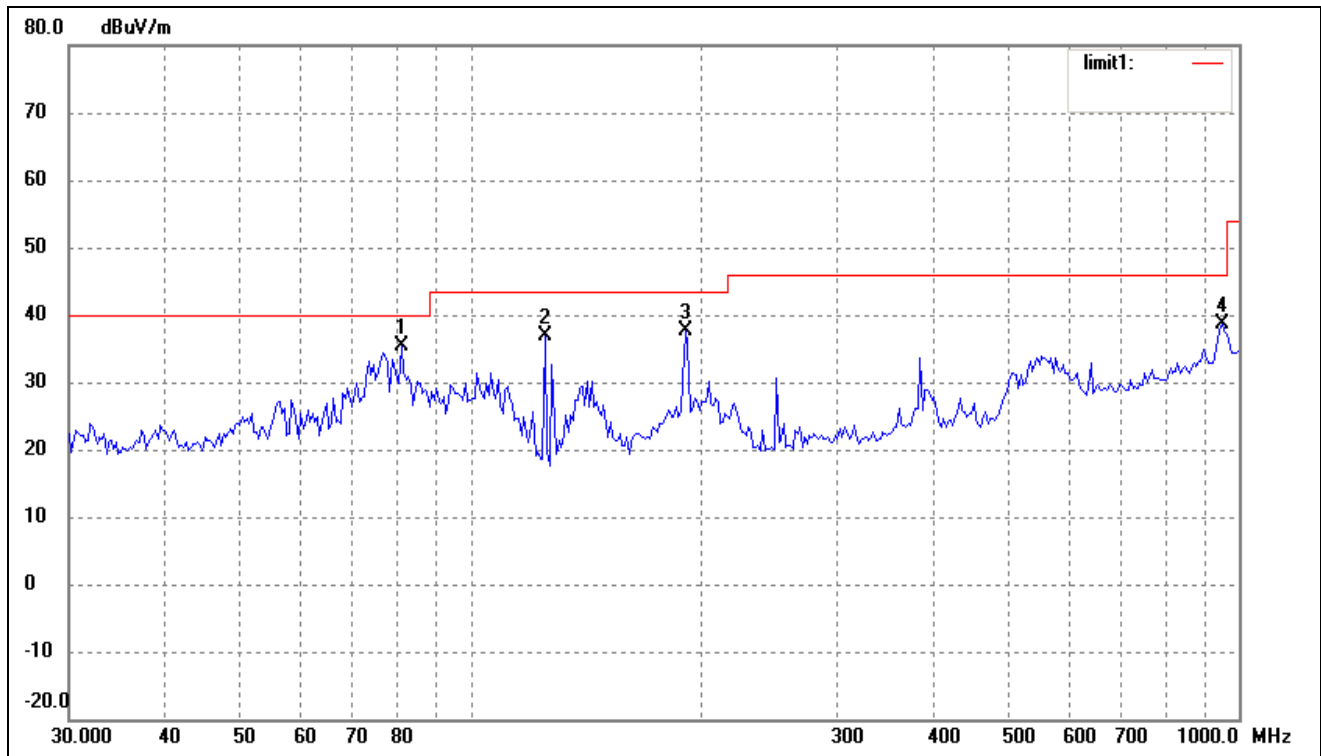


No.	Frequency (MHz)	Reading (dBuV/m)	Correct Factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree ( ° )	Height (cm)	Remark
1	30.6392	30.30	6.63	36.93	40.00	-3.07	31	100	QP
2	34.5270	29.39	6.60	35.99	40.00	-4.01	115	100	QP
3	124.9249	29.65	4.57	34.22	43.50	-9.28	102	100	peak
4	190.4411	26.67	5.66	32.33	43.50	-11.17	164	100	peak
5	384.5447	27.07	9.96	37.03	46.00	-8.97	167	100	peak

Spurious Emission From 30 MHz to 1 GHz

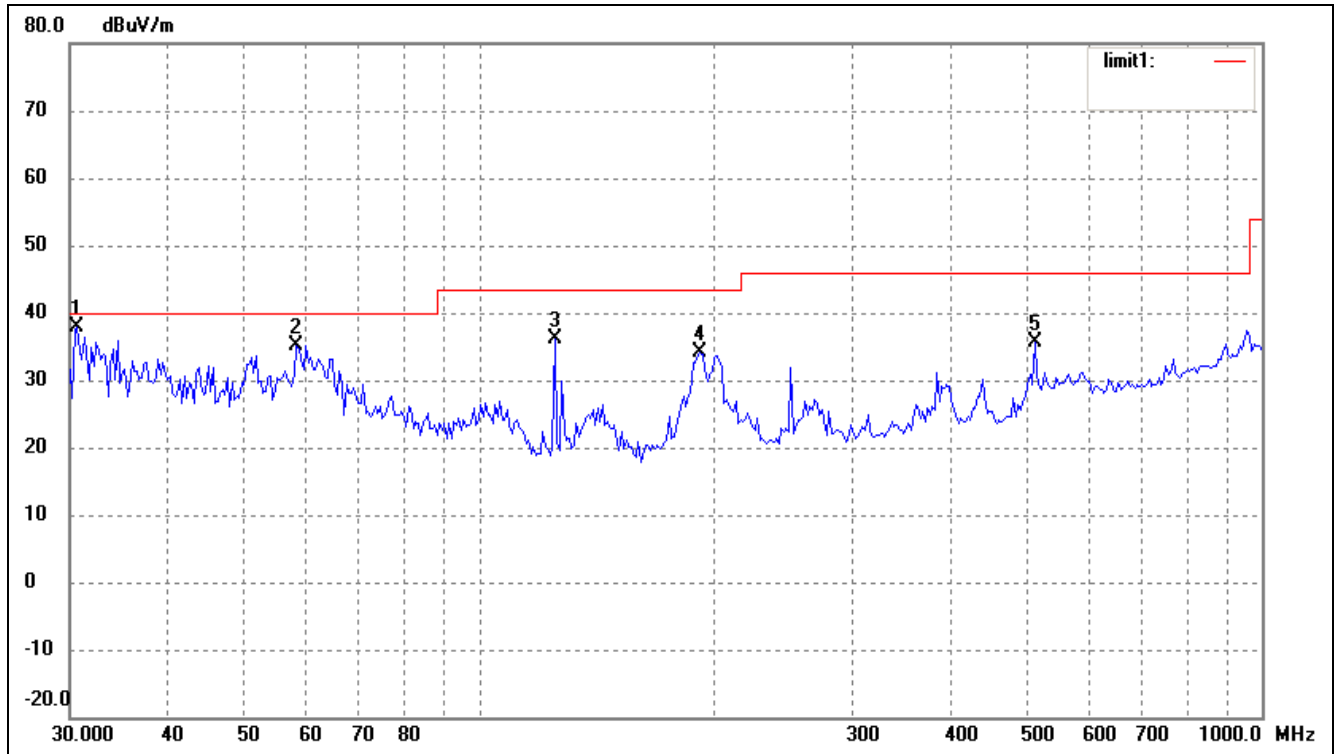
Test mode: Transmitting (802.11n/HT40 High Channel)

Horizontal



No.	Frequency (MHz)	Reading (dBuV/m)	Correct Factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree ( ° )	Height (cm)	Remark
1	81.3740	31.82	3.63	35.45	40.00	-4.55	54	200	QP
2	124.9249	32.22	4.57	36.79	43.50	-6.71	161	100	peak
3	190.4411	32.09	5.66	37.75	43.50	-5.75	168	100	QP
4	952.0001	18.91	19.69	38.60	46.00	-7.40	48	100	peak

Vertical



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	Factor(dB)	(dBuV/m)	(dBuV/m)	(dB)	( ° )	(cm)	
1	30.6392	31.31	6.63	37.94	40.00	-2.06	34	100	QP
2	58.4855	27.98	7.27	35.25	40.00	-4.75	19	100	QP
3	124.9249	31.50	4.57	36.07	43.50	-7.43	48	200	peak
4	191.7841	28.48	5.66	34.14	43.50	-9.36	199	100	peak
5	512.9478	22.39	13.20	35.59	46.00	-10.41	56	100	peak

*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	53.9	90	V	34.1	5.2	33.0	60.2	74	-13.8
7236.0	PK	51.2	270	V	37.4	6.1	33.5	61.2	74	-12.8
7236.0	PK	52.5	180	H	37.4	6.1	33.5	62.5	74	-11.5
4824.0	PK	55.4	45	H	34.1	5.2	33.0	61.7	74	-12.3
4824.0	AV	46.3	270	V	34.1	5.2	33.0	52.6	54	-1.4
7236.0	AV	41.4	90	V	37.4	6.1	33.5	51.4	54	-2.6
7236.0	AV	42.2	45	H	37.4	6.1	33.5	52.2	54	-1.8
4824.0	AV	45.8	60	H	34.1	5.2	33.0	52.1	54	-1.9
Middle Channel (1G to 25GHz)										
7311.0	PK	54.5	45	V	37.4	6.1	33.5	60.8	74	-13.2
4874.0	PK	49.7	270	V	34.1	5.2	33.0	59.7	74	-14.3
7311.0	PK	52.3	45	H	37.4	6.1	33.5	62.3	74	-11.7
4874.0	PK	54.9	180	H	34.1	5.2	33.0	61.2	74	-12.8
7311.0	AV	45.3	270	V	37.4	6.1	33.5	51.6	54	-2.4
4874.0	AV	41.8	90	V	34.1	5.2	33.0	51.8	54	-2.2
7311.0	AV	42.4	60	H	37.4	6.1	33.5	52.4	54	-1.6
4874.0	AV	46.2	45	H	34.1	5.2	33.0	52.5	54	-1.5
High Channel (1G to 25GHz)										
4924.0	PK	54.4	270	V	34.1	5.2	33.0	60.7	74	-13.3
7386.0	PK	50.5	45	V	37.4	6.1	33.5	60.5	74	-13.5
4924.0	PK	51.4	180	H	34.1	5.2	33.0	61.4	74	-12.6
7386.0	PK	55.4	45	H	37.4	6.1	33.5	61.7	74	-12.3
4924.0	AV	46.3	90	V	34.1	5.2	33.0	52.6	54	-1.4
7386.0	AV	42.8	270	V	37.4	6.1	33.5	52.8	54	-1.2
4924.0	AV	42.7	60	H	34.1	5.2	33.0	52.7	54	-1.3
7386.0	AV	46.4	60	H	37.4	6.1	33.5	52.7	54	-1.3

*Note: Testing is carried out with frequency rang 30MHz to the tenth harmonics, which above 5<sup>th</sup> 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	53.4	90	V	34.1	5.2	33.0	59.7	74	-14.3
7236.0	PK	48.8	270	V	37.4	6.1	33.5	58.8	74	-15.2
7236.0	PK	49.9	180	H	37.4	6.1	33.5	59.9	74	-14.1
4824.0	PK	54.5	45	H	34.1	5.2	33.0	60.8	74	-13.2
4824.0	AV	45.3	270	V	34.1	5.2	33.0	51.6	54	-2.4
7236.0	AV	40.8	90	V	37.4	6.1	33.5	50.8	54	-3.2
7236.0	AV	41.9	45	H	37.4	6.1	33.5	51.9	54	-2.1
4824.0	AV	46.1	60	H	34.1	5.2	33.0	52.4	54	-1.6
Middle Channel (1G to 25GHz)										
7311.0	PK	54.3	45	V	37.4	6.1	33.5	60.6	74	-13.4
4874.0	PK	50.5	270	V	34.1	5.2	33.0	60.5	74	-13.5
7311.0	PK	51.5	45	H	37.4	6.1	33.5	61.5	74	-12.5
4874.0	PK	55.5	180	H	34.1	5.2	33.0	61.8	74	-12.2
7311.0	AV	46.1	270	V	37.4	6.1	33.5	52.4	54	-1.6
4874.0	AV	41.9	90	V	34.1	5.2	33.0	51.9	54	-2.1
7311.0	AV	44.7	60	H	37.4	6.1	33.5	52.7	54	-1.3
4874.0	AV	46.3	45	H	34.1	5.2	33.0	52.6	54	-1.4
High Channel (1G to 25GHz)										
4924.0	PK	52.6	270	V	34.1	5.2	33.0	58.9	74	-15.1
7386.0	PK	50.6	45	V	37.4	6.1	33.5	60.6	74	-13.4
4924.0	PK	50.1	180	H	34.1	5.2	33.0	60.1	74	-13.9
7386.0	PK	55.2	45	H	37.4	6.1	33.5	61.5	74	-12.5
4924.0	AV	44.0	90	V	34.1	5.2	33.0	50.3	54	-3.7
7386.0	AV	42.4	270	V	37.4	6.1	33.5	52.4	54	-1.6
4924.0	AV	41.4	60	H	34.1	5.2	33.0	51.4	54	-2.6
7386.0	AV	46.2	60	H	37.4	6.1	33.5	52.5	54	-1.5

*Note: Testing is carried out with frequency rang 30MHz to the tenth harmonics, which above 5<sup>th</sup> 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	52.3	221	V	34.1	5.2	33.0	58.6	74	-15.4
7236.0	PK	49.4	54	V	37.4	6.1	33.5	59.4	74	-14.6
7236.0	PK	50.5	35	H	37.4	6.1	33.5	60.5	74	-13.5
4824.0	PK	53.2	156	H	34.1	5.2	33.0	59.5	74	-14.5
4824.0	AV	44.1	90	V	34.1	5.2	33.0	50.4	54	-3.6
7236.0	AV	41.2	54	V	37.4	6.1	33.5	51.2	54	-2.8
7236.0	AV	41.9	161	H	37.4	6.1	33.5	51.9	54	-2.1
4824.0	AV	46.1	15	H	34.1	5.2	33.0	52.4	54	-1.6
Middle Channel (1G to 25GHz)										
7311.0	PK	52.3	65	V	37.4	6.1	33.5	58.6	74	-15.4
4874.0	PK	47.8	44	V	34.1	5.2	33.0	57.8	74	-16.2
7311.0	PK	49.5	46	H	37.4	6.1	33.5	59.5	74	-14.5
4874.0	PK	52.4	158	H	34.1	5.2	33.0	58.7	74	-15.3
7311.0	AV	44.1	11	V	37.4	6.1	33.5	50.4	54	-3.6
4874.0	AV	39.8	48	V	34.1	5.2	33.0	49.8	54	-4.2
7311.0	AV	41.7	160	H	37.4	6.1	33.5	51.7	54	-2.3
4874.0	AV	43.5	26	H	34.1	5.2	33.0	49.8	54	-4.2
High Channel (1G to 25GHz)										
4924.0	PK	52.2	9	V	34.1	5.2	33.0	58.5	74	-15.5
7386.0	PK	46.7	59	V	37.4	6.1	33.5	56.7	74	-17.3
4924.0	PK	49.8	51	H	34.1	5.2	33.0	59.8	74	-14.2
7386.0	PK	51.6	65	H	37.4	6.1	33.5	57.9	74	-16.1
4924.0	AV	44.0	90	V	34.1	5.2	33.0	50.3	54	-3.7
7386.0	AV	38.4	44	V	37.4	6.1	33.5	48.4	54	-5.6
4924.0	AV	41.2	164	H	34.1	5.2	33.0	51.2	54	-2.8
7386.0	AV	43.0	166	H	37.4	6.1	33.5	49.3	54	-4.7

*Note: Testing is carried out with frequency rang 30MHz to the tenth harmonics, which above 5<sup>th</sup> 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	52.5	65	V	34.1	5.2	33.0	58.8	74	-15.2
7266.0	PK	50.1	235	V	37.4	6.1	33.5	60.1	74	-13.9
7266.0	PK	51.2	165	H	37.4	6.1	33.5	61.2	74	-12.8
4844.0	PK	53.3	33	H	34.1	5.2	33.0	59.6	74	-14.4
4844.0	AV	44.4	22	V	34.1	5.2	33.0	50.7	54	-3.3
7266.0	AV	41.6	30	V	37.4	6.1	33.5	51.6	54	-2.4
7266.0	AV	42.0	15	H	37.4	6.1	33.5	52.0	54	-2.0
4844.0	AV	45.0	154	H	34.1	5.2	33.0	51.3	54	-2.7
Middle Channel (1G to 25GHz)										
7311.0	PK	51.3	61	V	37.4	6.1	33.5	57.6	74	-16.4
4874.0	PK	47.9	64	V	34.1	5.2	33.0	57.9	74	-16.1
7311.0	PK	48.8	54	H	37.4	6.1	33.5	58.8	74	-15.2
4874.0	PK	52.6	11	H	34.1	5.2	33.0	58.9	74	-15.1
7311.0	AV	43.1	102	V	37.4	6.1	33.5	49.4	54	-4.6
4874.0	AV	39.6	132	V	34.1	5.2	33.0	49.6	54	-4.4
7311.0	AV	41.3	102	H	37.4	6.1	33.5	51.3	54	-2.7
4874.0	AV	44.8	55	H	34.1	5.2	33.0	51.1	54	-2.9
High Channel (1G to 25GHz)										
4904.0	PK	51.7	312	V	34.1	5.2	33.0	58.0	74	-16.0
7356.0	PK	46.8	48	V	37.4	6.1	33.5	56.8	74	-17.2
4904.0	PK	49.6	69	H	34.1	5.2	33.0	59.6	74	-14.4
7356.0	PK	51.4	75	H	37.4	6.1	33.5	57.7	74	-16.3
4904.0	AV	43.5	84	V	34.1	5.2	33.0	49.8	54	-4.2
7356.0	AV	38.5	110	V	37.4	6.1	33.5	48.5	54	-5.5
4904.0	AV	41.7	57	H	34.1	5.2	33.0	51.7	54	-2.3
7356.0	AV	43.5	57	H	37.4	6.1	33.5	49.8	54	-4.2

*Note: Testing is carried out with frequency rang 30MHz to the tenth harmonics, which above 5<sup>th</sup> 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	2009-07-08	2010-07-07
Spectrum Analyzer	ROHDE&SCHWARZ	FSEA20	DE25181	2009-07-08	2010-07-07
Positioning Controller	C&C	CC-C-1F	N/A	2009-07-08	2010-07-07
Trilog Broadband Antenna	SCHWARZBECK	VULB9163	9163-333	2009-07-08	2010-07-07
Horn Antenna	SCHWARZBECK	BBHX 9120	9120-426	2009-07-08	2010-07-07
RF Switch	EM	EMSW18	SW060023	2009-07-08	2010-07-07
Amplifier	Agilent	8447F	3113A06717	2009-07-08	2010-07-07
Coaxial Cable	SCHWARZBECK	AK9513	9513-10	2009-07-08	2010-07-07
EMI Test Receiver	ROHDE&SCHWARZ	ESPI	25498514	2009-07-08	2010-07-07

### 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.

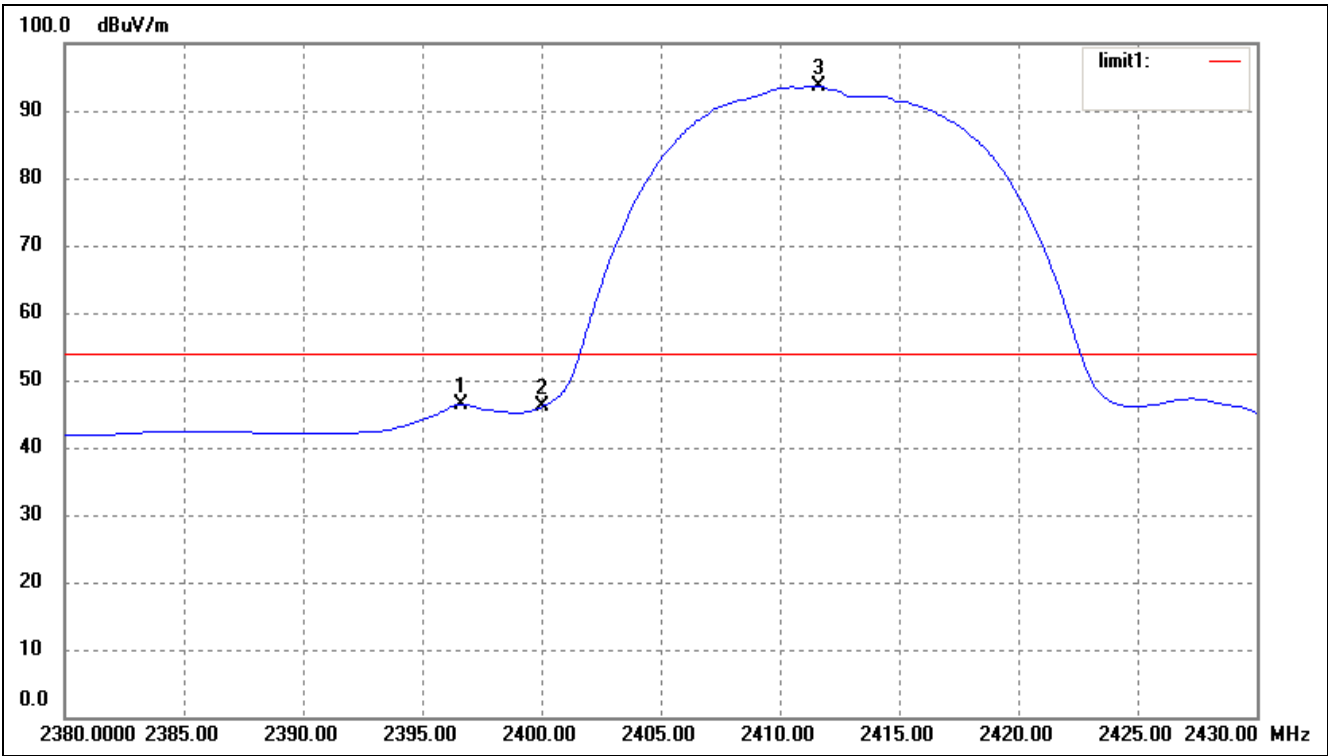
### 10.4 Environmental Conditions

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

**10.5 Summary of Test Results/Plots**

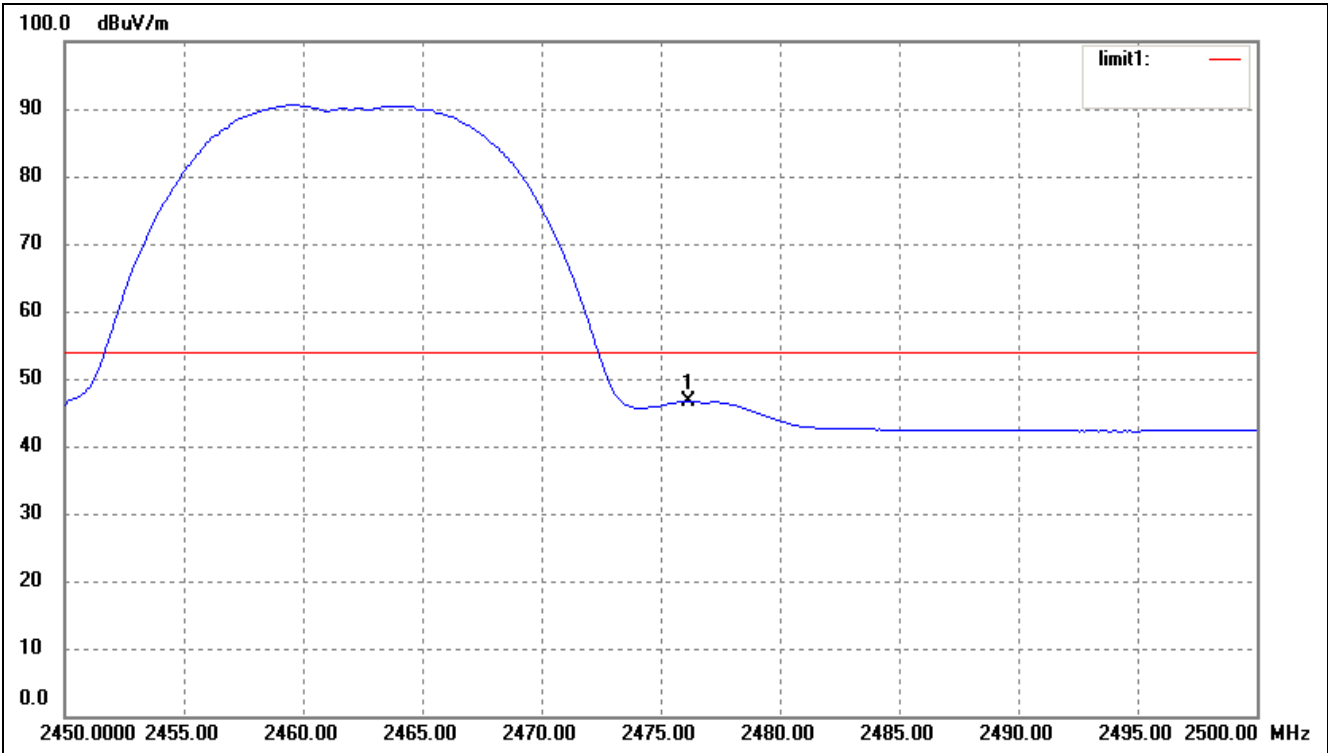
Test mode	Frequency MHz	Limit dBuV /dB	Result
802.11b	2396.633	<54dBuV	Pass
	2400.000	>20dB	Pass
	2476.152	<54dBuV	Pass
802.11g	2390.000	<54dBuV	Pass
	2400.000	>20dB	Pass
	2483.500	<54dBuV	Pass
802.11n/HT20	2390.000	<54dBuV	Pass
	2400.000	>20dB	Pass
	2483.500	<54dBuV	Pass
802.11n/HT40	2390.000	<54dBuV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

For 802.11b  
Lowest Bandedge



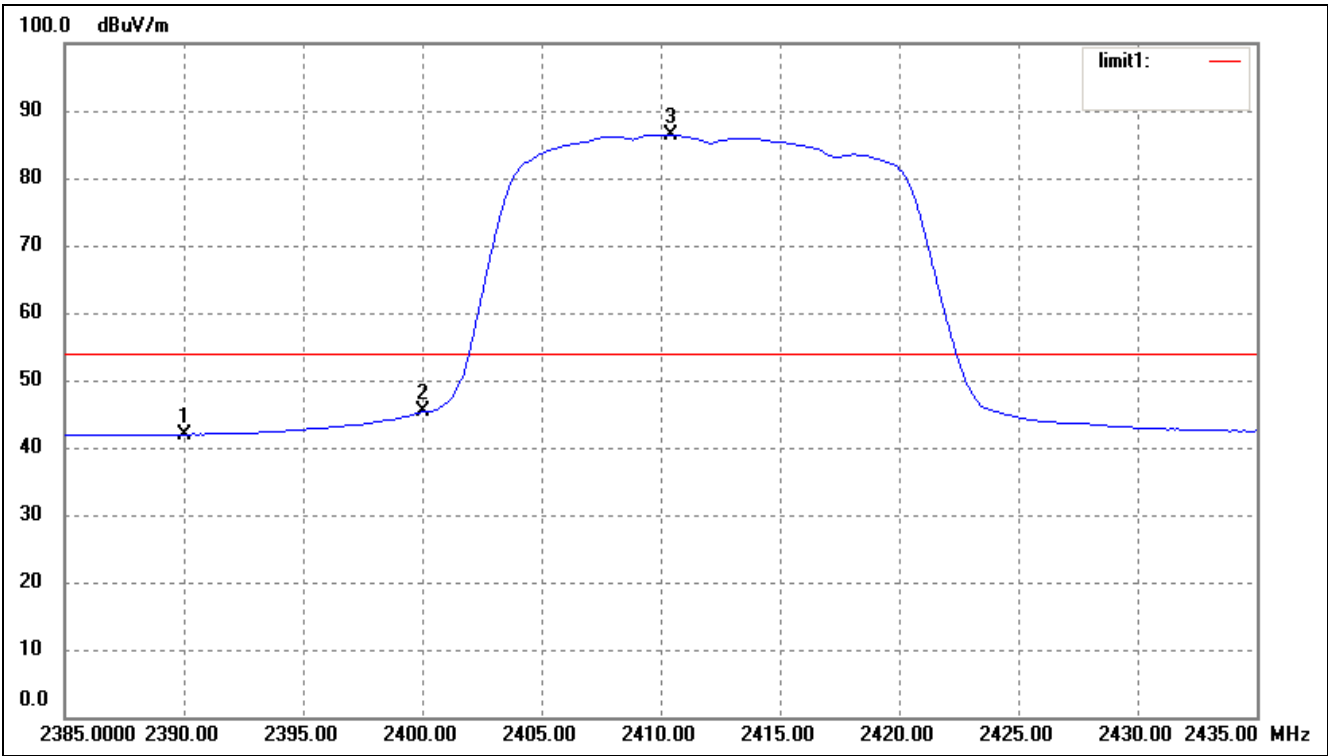
No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	Factor(dB)	(dBuV/m)	(dBuV/m)	(dB)	( ° )	(cm)	
1	2396.633	10.74	35.65	46.39	54.00	-7.61	114	100	peak
	2396.633	20.62	35.65	56.27	74.00	-17.73	114	100	Ave
2	2400.000	10.46	35.68	46.14	54.00	-7.86	55	100	Ave
3	2411.663	58.02	35.72	93.74	54.00	39.74	55	100	peak

Highest Bandedge



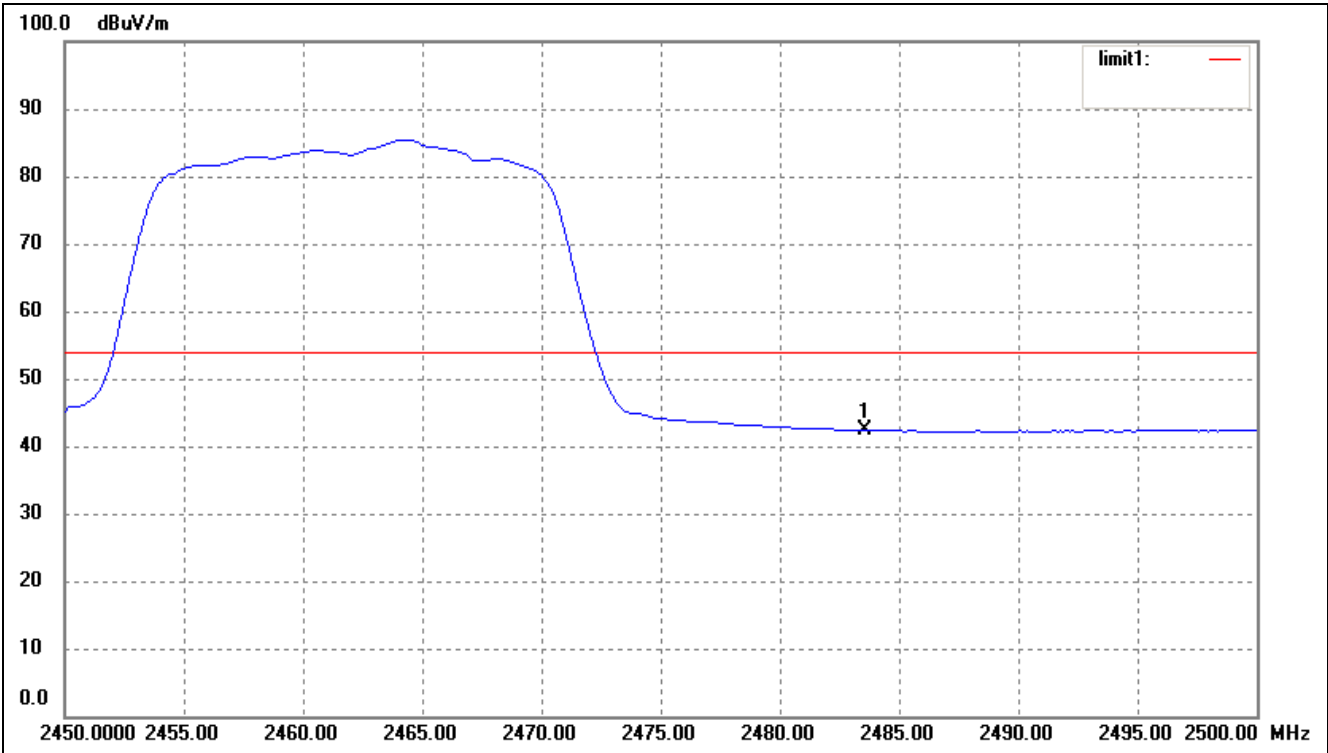
No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	Factor(dB)	(dBuV/m)	(dBuV/m)	(dB)	( °)	(cm)	
1	2476.152	10.67	35.95	46.62	54.00	-7.38	123	100	peak
	2476.152	19.89	35.95	55.84	74.00	-18.16	123	100	Ave

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	6.41	35.59	42.00	54.00	-12.00	254	100	peak
	2390.000	15.48	35.59	51.16	74.00	-22.84	254	100	Ave
2	2400.000	9.60	35.68	45.28	54.00	-8.72	11	100	Ave
3	2410.351	50.69	35.72	86.41	54.00	32.41	36	100	peak

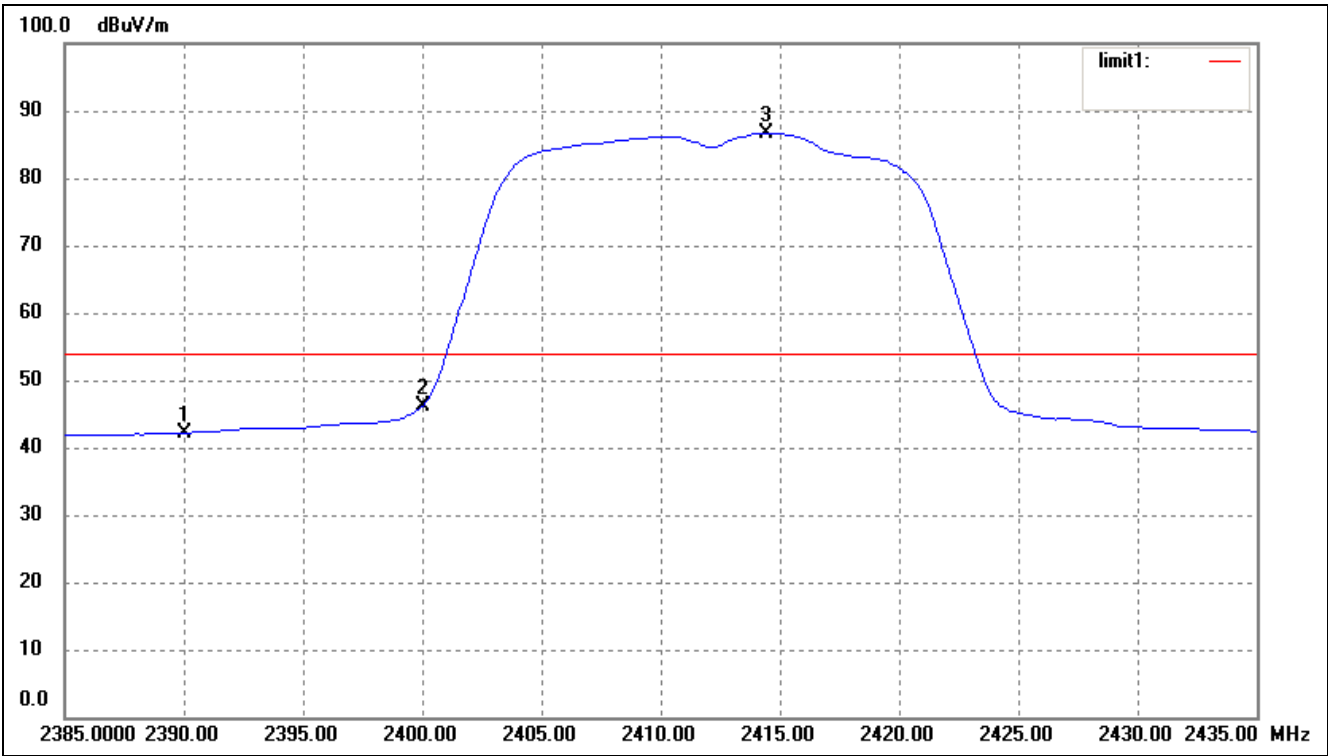
Highest Bandedge



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	Factor(dB)	(dBuV/m)	(dBuV/m)	(dB)	( ° )	(cm)	
1	2483.500	6.40	35.97	42.37	54.00	-11.63	225	100	peak
	2483.500	16.06	35.97	52.03	74.00	-21.97	225	100	Ave

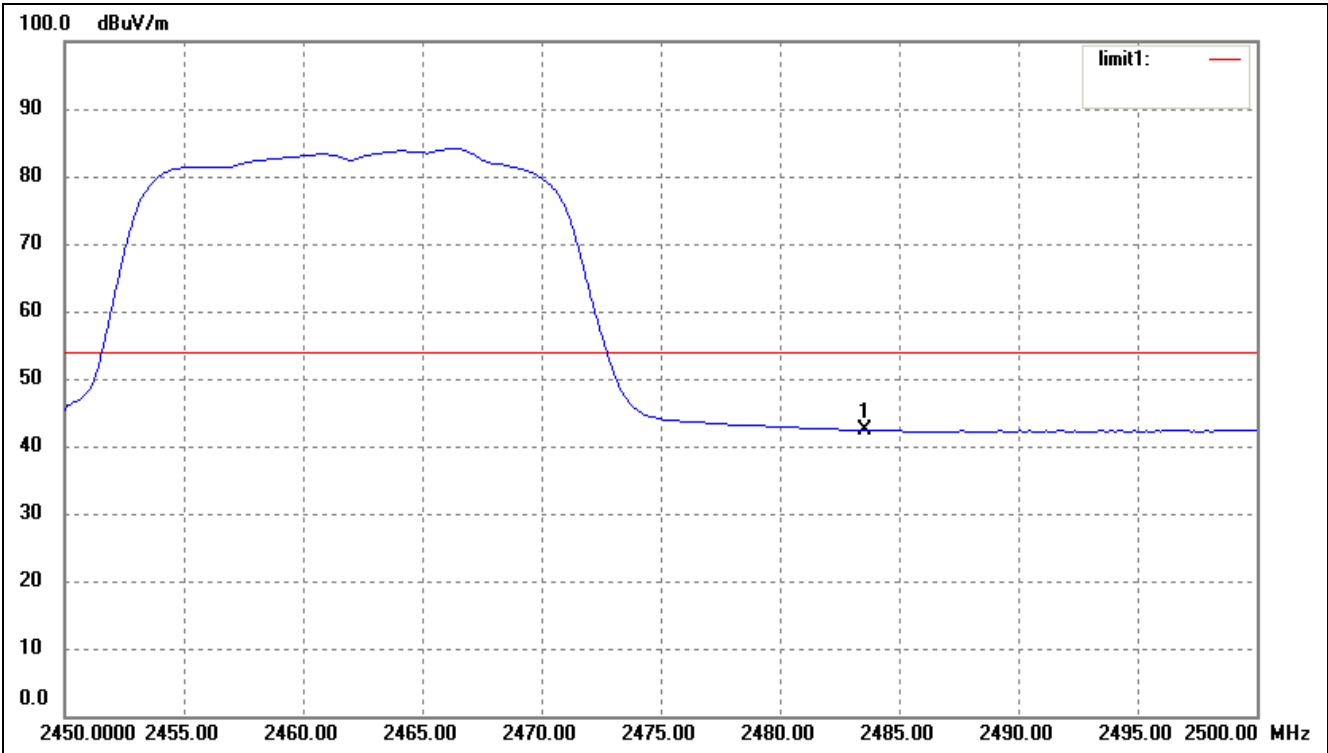


For 802.11n/HT20  
Lowest Bandedge



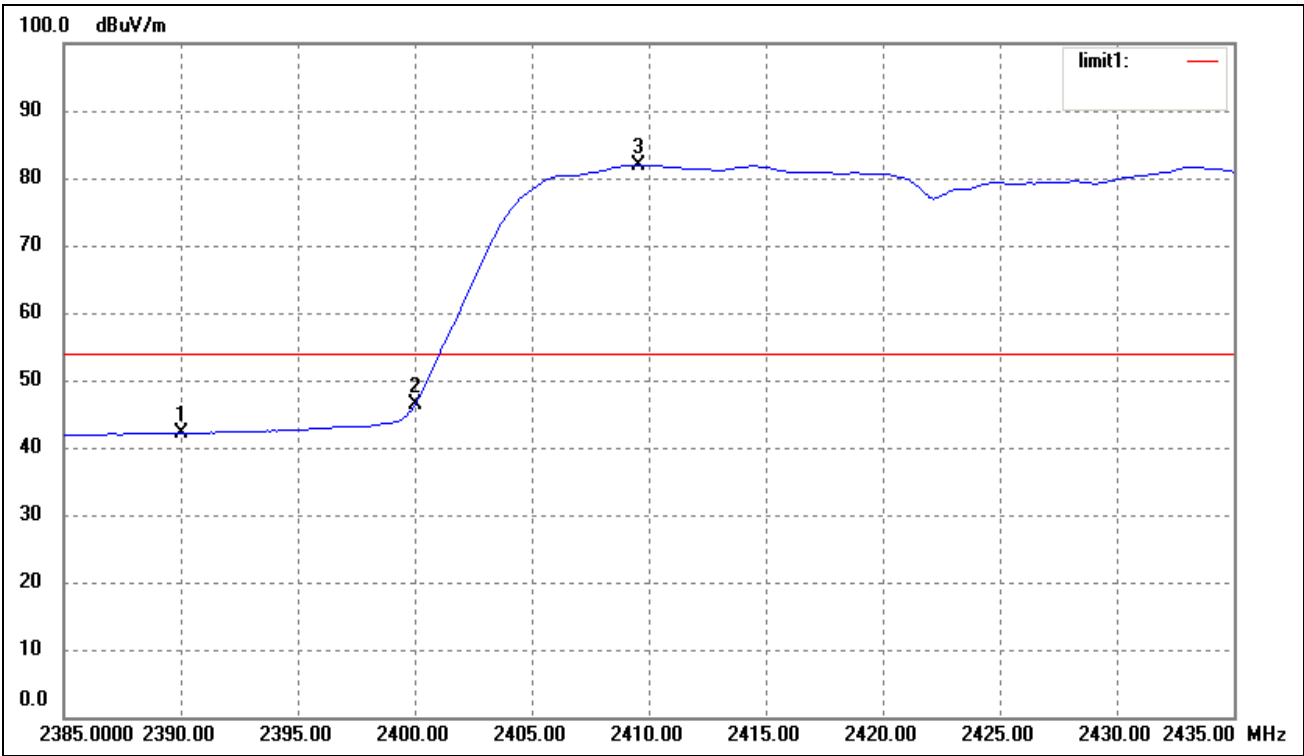
No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	Factor(dB)	(dBuV/m)	(dBuV/m)	(dB)	( ° )	(cm)	
1	2390.000	6.57	35.59	42.16	54.00	-11.84	33	100	peak
	2390.000	15.51	35.59	51.10	74.00	-22.90	33	100	Ave
2	2400.000	10.49	35.68	46.17	54.00	-7.83	15	100	Ave
3	2414.359	50.97	35.73	86.70	54.00	32.70	105	100	peak

Highest Bandedge



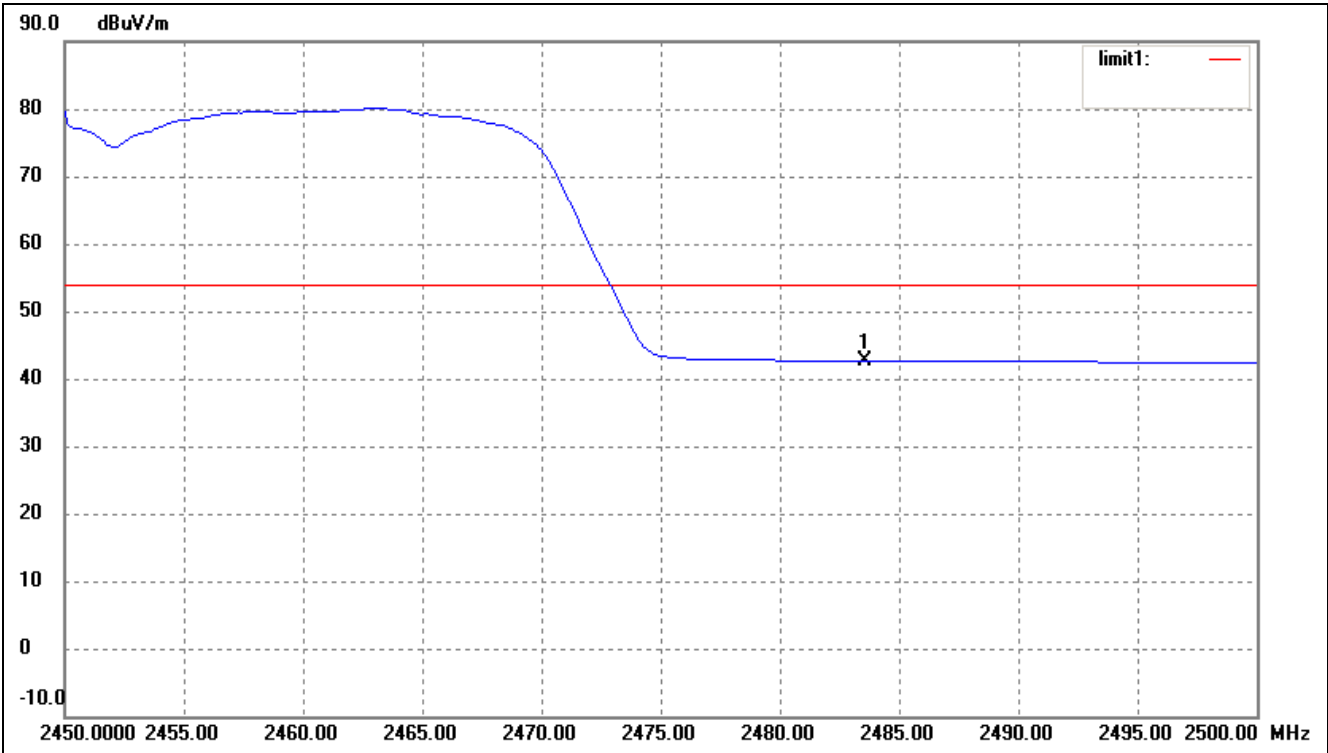
No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	Factor(dB)	(dBuV/m)	(dBuV/m)	(dB)	( °)	(cm)	
1	2483.500	6.41	35.97	42.38	54.00	-11.62	223	100	peak
	2483.500	15.71	35.97	51.68	74.00	-22.32	223	100	Ave

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	6.56	35.59	42.15	54.00	-11.85	112	100	peak
	2390.000	15.87	35.59	51.46	74.00	-22.54	112	100	Ave
2	2400.000	10.76	35.68	46.44	54.00	-7.56	64	100	Ave
3	2409.449	46.19	35.71	81.90	54.00	27.90	157	100	peak

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	6.64	35.97	42.61	54.00	-11.39	55	100	peak
	2483.500	16.04	35.97	52.01	74.00	-21.99	134	100	Ave