

# FCC Part 15C


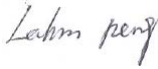

## Measurement and Test Report

For

### Amelia World Corporation

11601 Biscayne Blvd.unit 200A, Miami Florida, 33181, USA

**FCC ID: ZNY0610LSYT**

<b>Report Concerns:</b> Original Report	<b>Equipment Type:</b> MID
<b>Model:</b>	<u>X-10HD</u>
<b>Report No.:</b>	<u>STR11068106I-1</u>
<b>Test Date:</b>	<u>2011-06-11 to 2011-06-25</u>
<b>Issue Date:</b>	<u>2011-06-28</u>
<b>Tested By:</b>	<u>Jason Chen / Engineer</u> 
<b>Reviewed By:</b>	<u>Lahm Peng / EMC Manager</u> 
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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: Amelia World Corporation  
Address of applicant: 11601 Biscayne Blvd.unit 200A, Miami, Florida, 33181, USA

Manufacturer: Shenzhen StarWorth Manufacturing Co., Ltd  
Address of manufacturer: Building No.27, ChenTian Industrial Estate, XiXiang, Bao'an, Shenzhen, China

#### General Description of E.U.T

Items	Description
EUT Description:	MID
Trade Name:	X-10HD
Model No.:	LINSAY
Rated Voltage:	Battery 7.4V, DC 9V adapter
RF Output Power	Max. 13.65dBm (Conducted)
Frequency range:	2412-2472MHz for 11b/g/n(HT20) 2422-2462MHz for 11n(HT40)
Number of channels:	13 for 11b/g/n(HT20), 9 for 11n(HT40)
Channel Separation:	5MHz
Antenna Gain:	Max. 0 dBi
Type of Antenna:	Integral Antenna

*Note: The test data is gathered from a production sample, provided by the manufacture.*

### 1.2 Test Standards

The following report is prepared on behalf of the Amelia World Corporation 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 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.

#### 1.4 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.

- **CNAS Registration No.: L4062**

Shenzhen SEM.Test Electronics Service Co., Ltd. is a testing organization accredited by China National Accreditation Service for Conformity Assessment (CNAS) according to ISO/IEC 17025. The accreditation certificate number is L4062. All measurement facilities used to collect the measurement data are located at 3/F, Jinbao Commerce Building, Xin'an Fanshen Road, Bao'an District, Shenzhen, P.R.C (518101)

#### 1.5 EUT Exercise Software

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

#### 1.6 Accessories Equipment List and Details

Description	Manufacturer	Model	Serial Number
/	/	/	/
/	/	/	/

#### 1.7 EUT Cable List and Details

Cable Description	Length (M)	Shielded/Unshielded	With Core/Without Core
Power Cable	1	Unshielded	Without Core
/	/	/	/

## 2. SUMMARY OF TEST RESULTS

FCC RULES	DESCRIPTION OF TEST	RESULT
§ 15.203; § 15.247(c)(1)(i)	Antenna Requirement	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  $\pm 2.88$  dB.

#### 3.2 Test Equipment List and Details

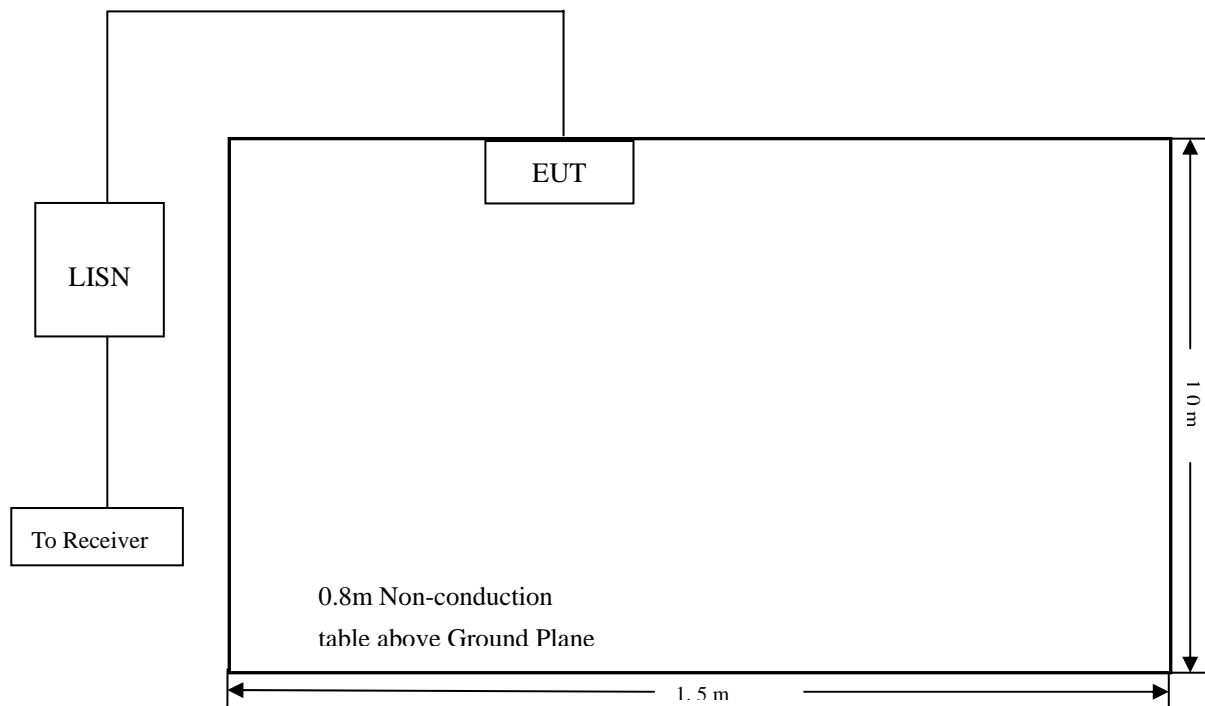
Description	Manufacturer	Model	Serial Number	Cal. Date	Due. Date
EMI Test Receiver	Rohde & Schwarz	ESPI	101611	2010-12-20	2011-12-19
L.I.S.N	Schwarz beck	NSLK8126	8126-224	2010-12-20	2011-12-19
Pulse Limiter	Rohde & Schwarz	ESH3-Z2	100911	2010-12-20	2011-12-19

**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:	20° 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:

**-6.65 dB $\mu$ V at 23.986 MHz in the Neutral Ave Detector, 0.15-30MHz**

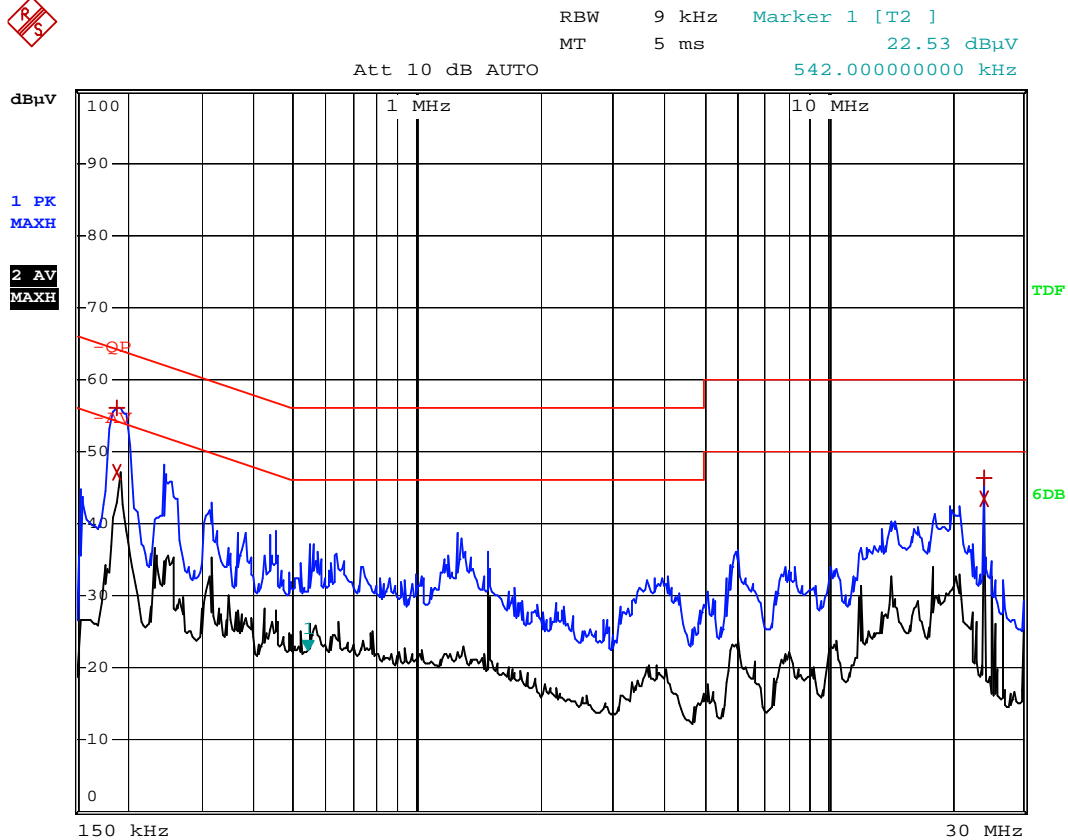
### 3.7 Conducted Emissions Test Data

LINE CONDUCTED EMISSIONS				FCC PART 15.207	
Frequency	Amplitude	Detector	Phase	Limit	Margin
MHz	dB $\mu$ V	QP/Ave/Pk	Line/Neutral	dB $\mu$ V	dB
23.986	43.34	AV	Neutral	49.99	-6.65
0.19	47.06	AV	Neutral	54.03	-6.97
0.182	57.01	Pk	Line	64.38	-7.37
0.19	56.04	Pk	Neutral	64.03	-7.99
23.986	41.9	AV	Line	50.8	-8.9
0.186	45.04	AV	Line	54.23	-9.19
23.986	46.24	Pk	Neutral	59.99	-13.75
23.986	43.54	Pk	Line	59.99	-16.45

*Comment: AC 120V/60Hz/Adapter 9V*

Date: 23.JUN.2011 16:40:42



**Plot of Conducted Emissions Test Data***Conducted Disturbance**EUT: MID**M/N: X-10HD**Operating Condition: Transmitting**Test Specification: N**Comment: AC 120V/60Hz/Adapter 9V*

Date: 23.JUN.2011 16:39:27

## **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 integral antenna, fulfill the requirement of this section.

## 5. POWER SPECTRAL DENSITY

### 5.1 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.

### 5.2 Test Equipment List and Details

Description	Manufacturer	Model	Serial Number	Cal. Date	Due. Date
Spectrum Analyzer	Agilent	E4402B	US41192821	2010-12-20	2011-12-19
Attenuator	ATTEN	ATS100-4-20	/	2010-12-20	2011-12-19

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

### 5.3 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.

### 5.4 Environmental Conditions

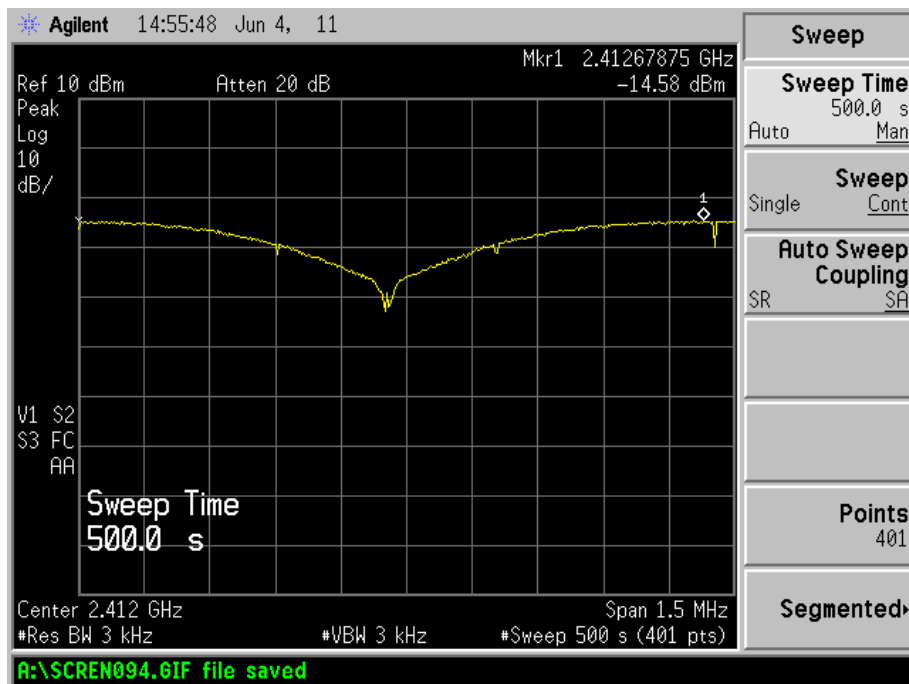
Temperature:	20° C
Relative Humidity:	54%
ATM Pressure:	1011 mbar

## 5.5 Summary of Test Results/Plots

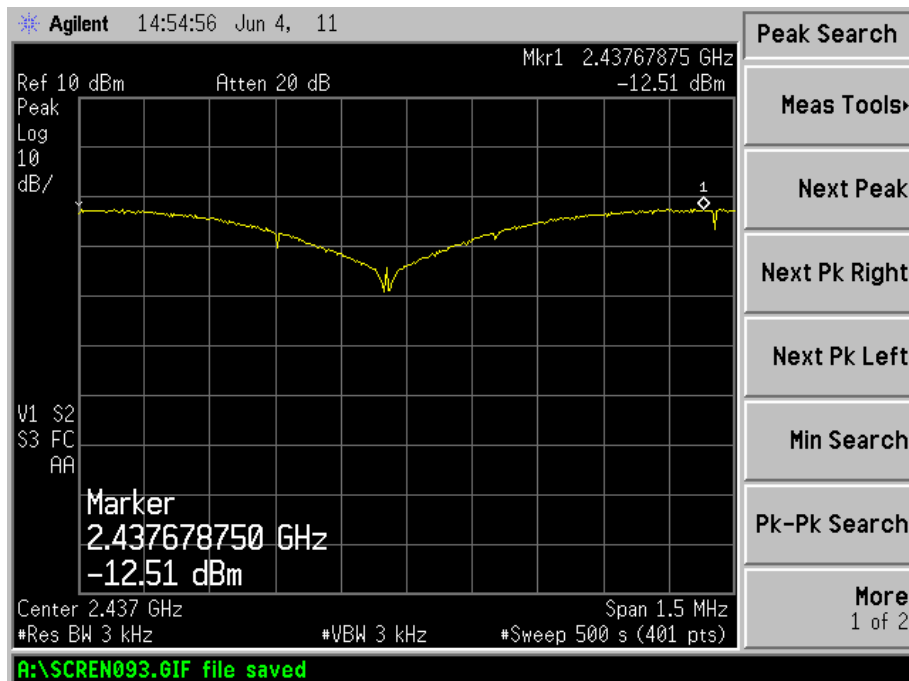
Test mode	Test channel	Reading dBm/3kHz	Limit dBm/3kHz
802.11b	Low channel (2412MHz)	-14.58	8
	Middle channel (2437MHz)	-12.51	8
	High channel (2462MHz)	-13.29	8
802.11g	Low channel (2412MHz)	-16.62	8
	Middle channel (2437MHz)	-16.71	8
	High channel (2462MHz)	-17.32	8
802.11n HT20	Low channel (2412MHz)	-16.29	8
	Middle channel (2437MHz)	-16.40	8
	High channel (2462MHz)	-16.92	8
802.11n HT40	Low channel (2422MHz)	-20.04	8
	Middle channel (2437MHz)	-20.29	8
	High channel (2452MHz)	-20.64	8

**For 802.11b**

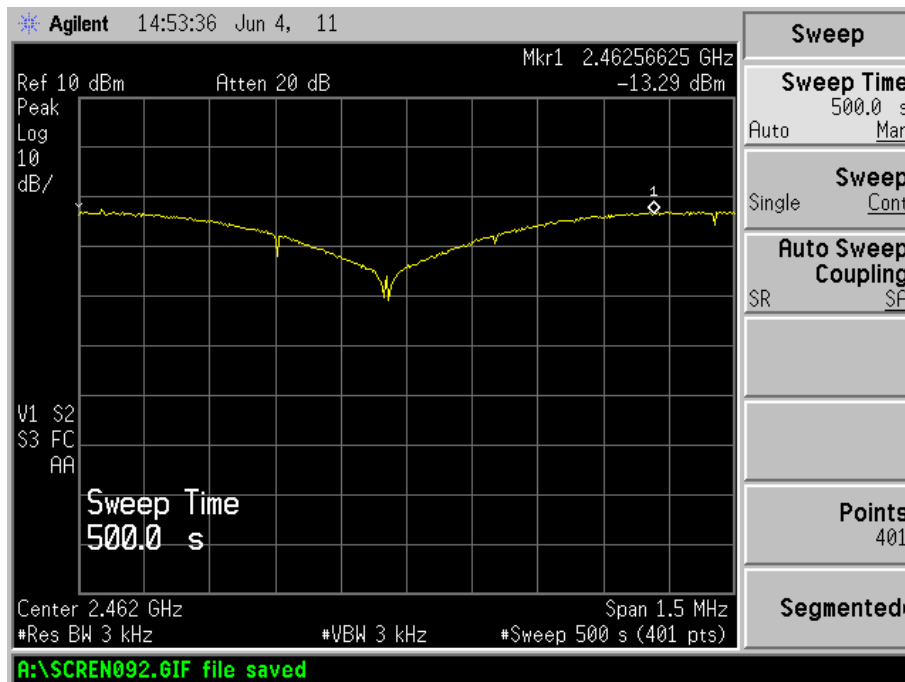
Low Channel:



Middle Channel:

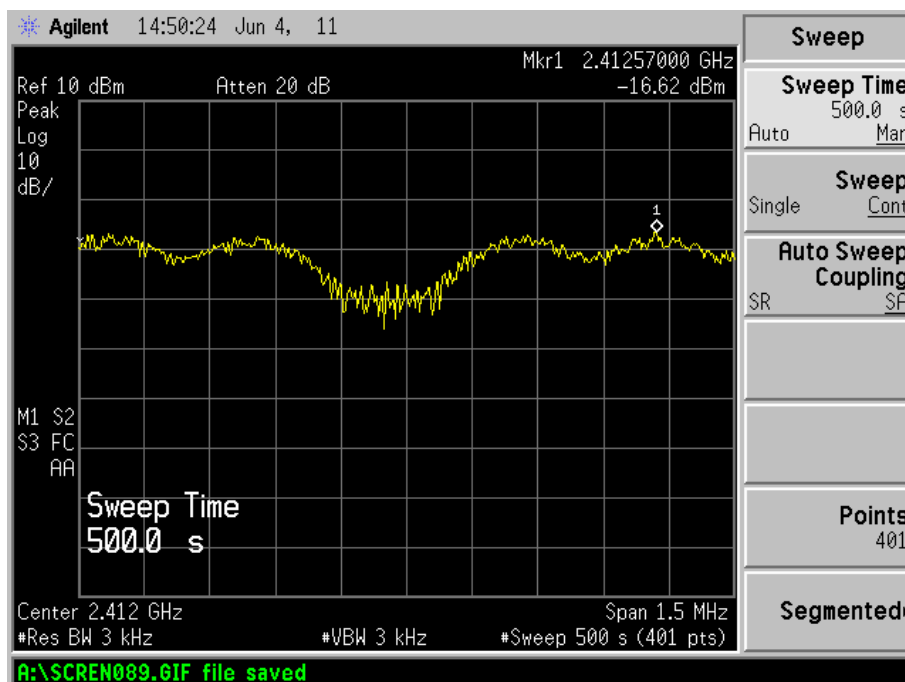


High Channel:

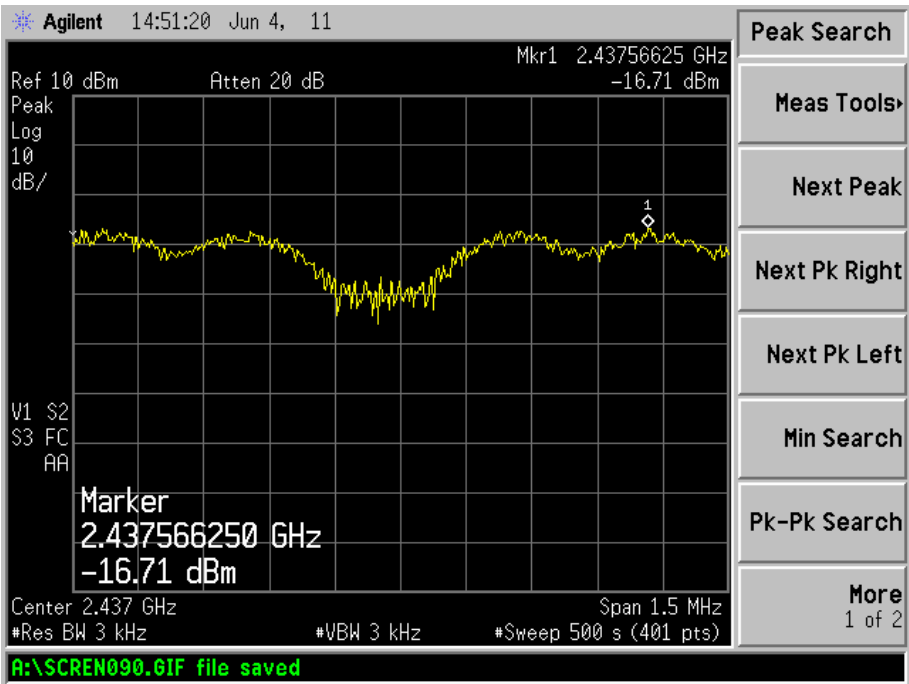


For 802.11g

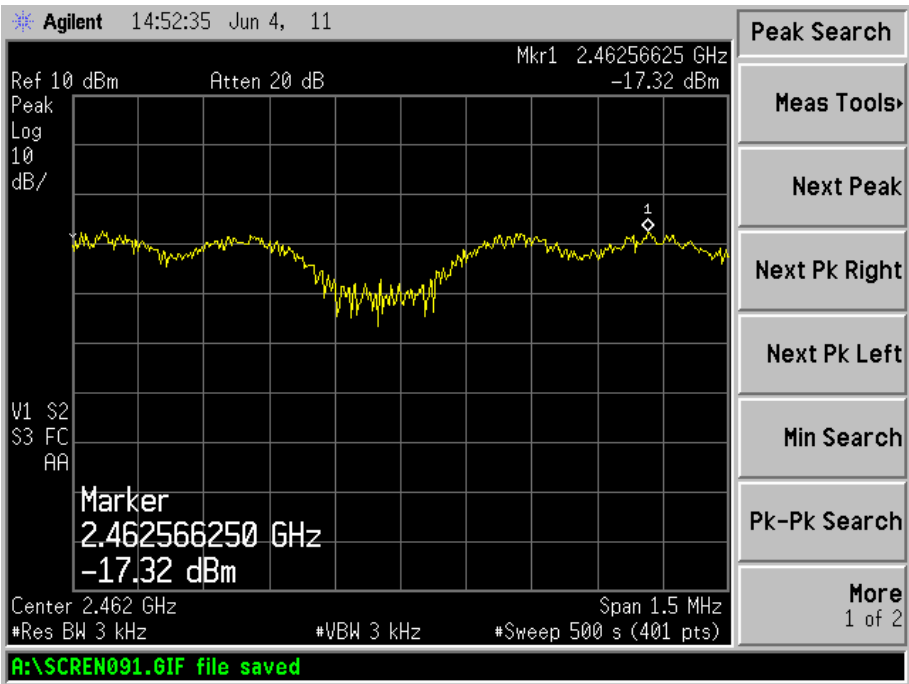
Low Channel:



Middle Channel:

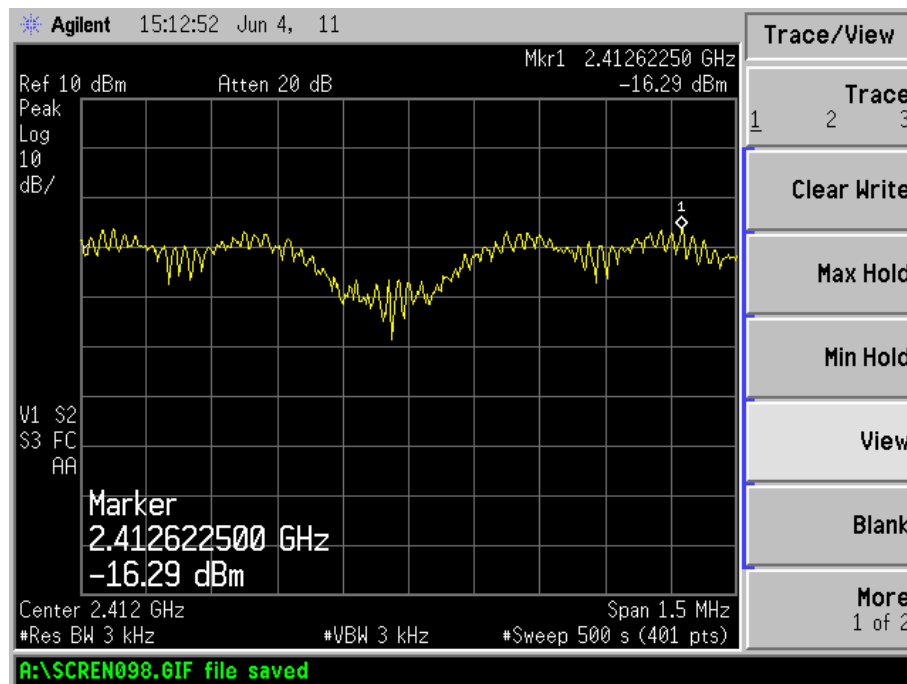


High Channel:

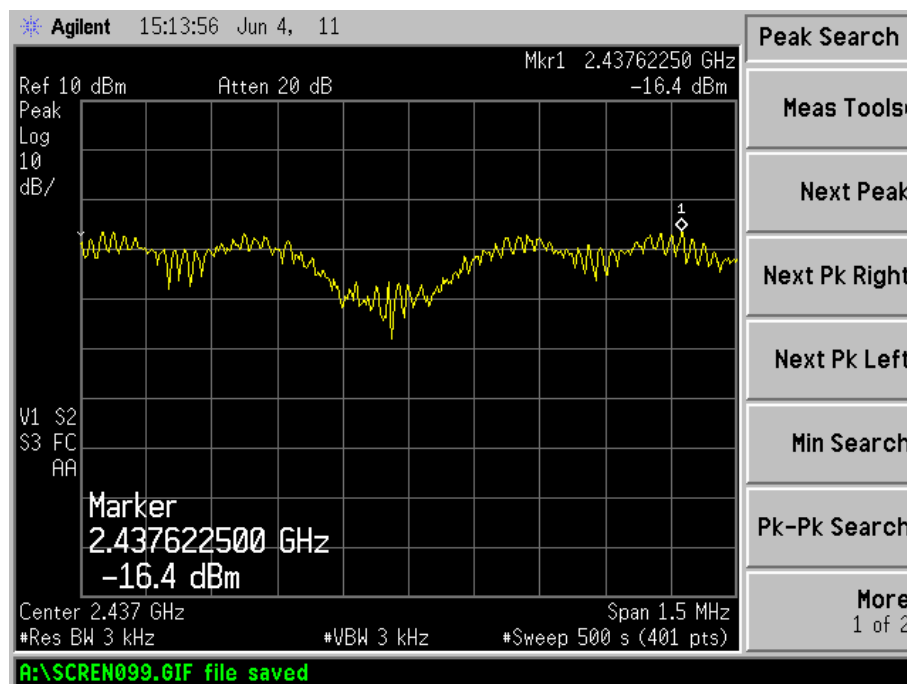


**For 802.11n HT20**

Low Channel:

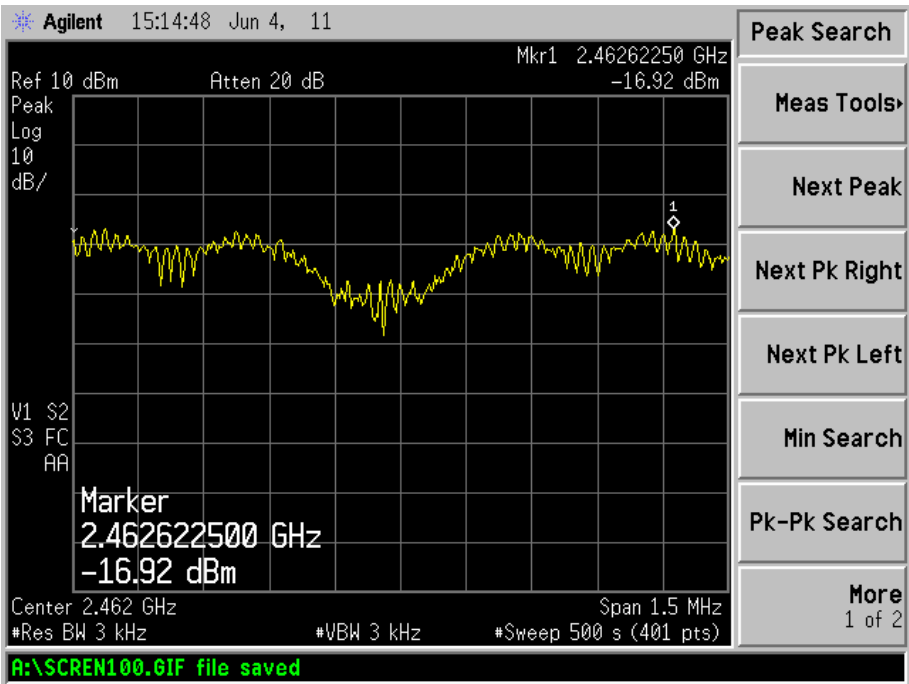


Middle Channel:



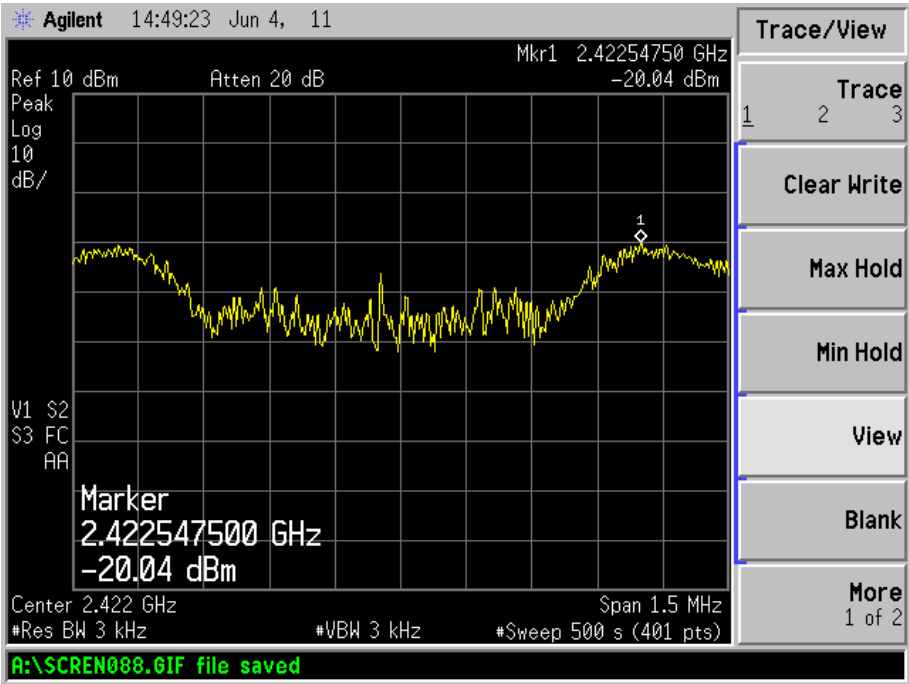


High Channel:

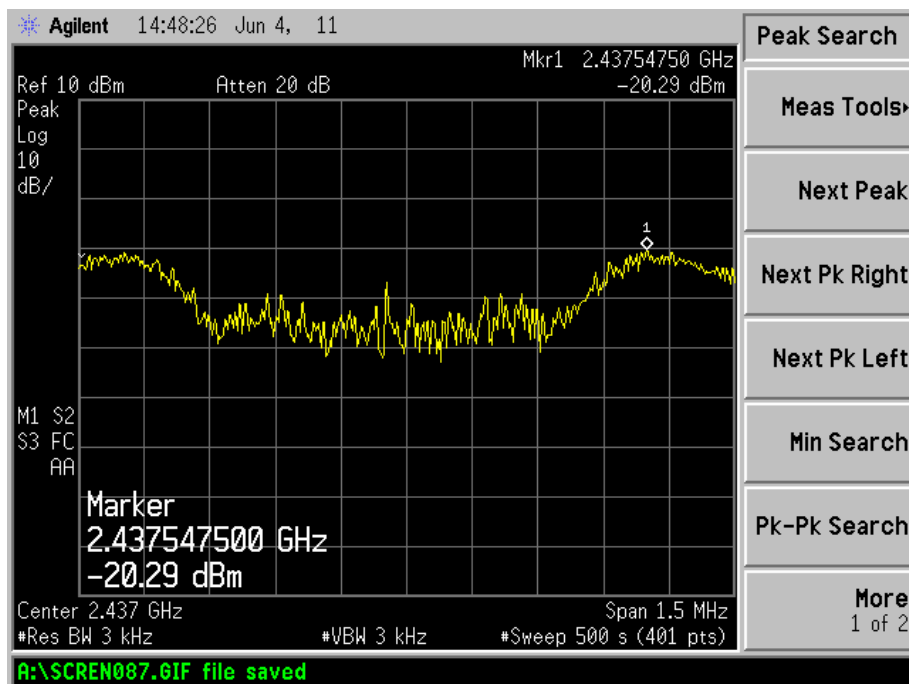


For 802.11n HT40

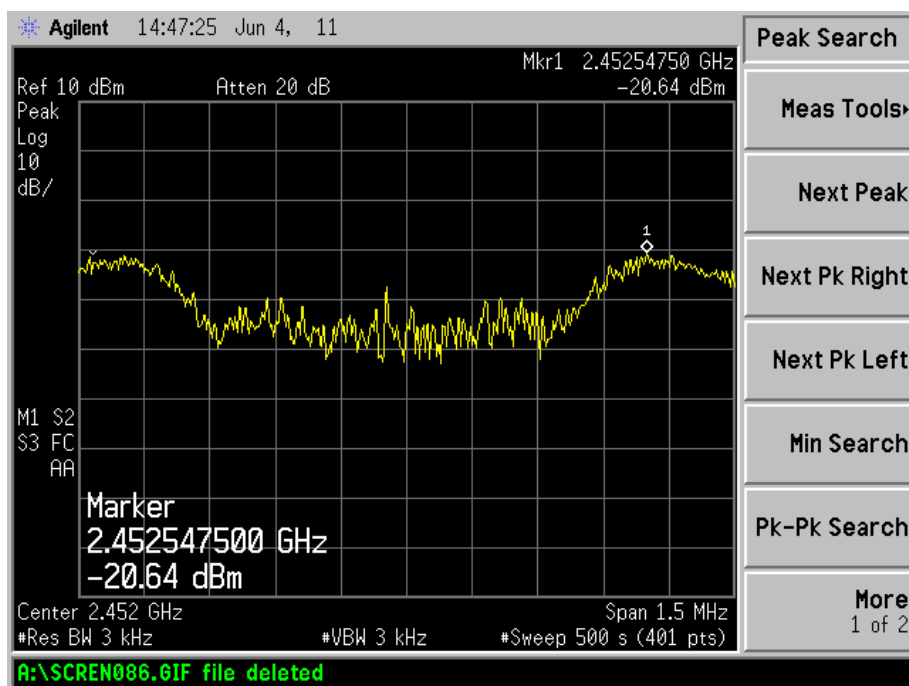
Low Channel:



Middle Channel:



High Channel:



## 6. 6-dB BANDWIDTH

### 6.1 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.

### 6.2 Test Equipment List and Details

Description	Manufacturer	Model	Serial Number	Cal. Date	Due. Date
Spectrum Analyzer	Agilent	E4402B	US41192821	2010-12-20	2011-12-19
Attenuator	ATTEN	ATS100-4-20	/	2010-12-20	2011-12-19

**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. The spectrum analyzer as RBW=100KHz (1 % of Bandwidth.), Sweep=auto
4. Mark the peak frequency and –6dB (upper and lower) frequency.

### 6.4 Environmental Conditions

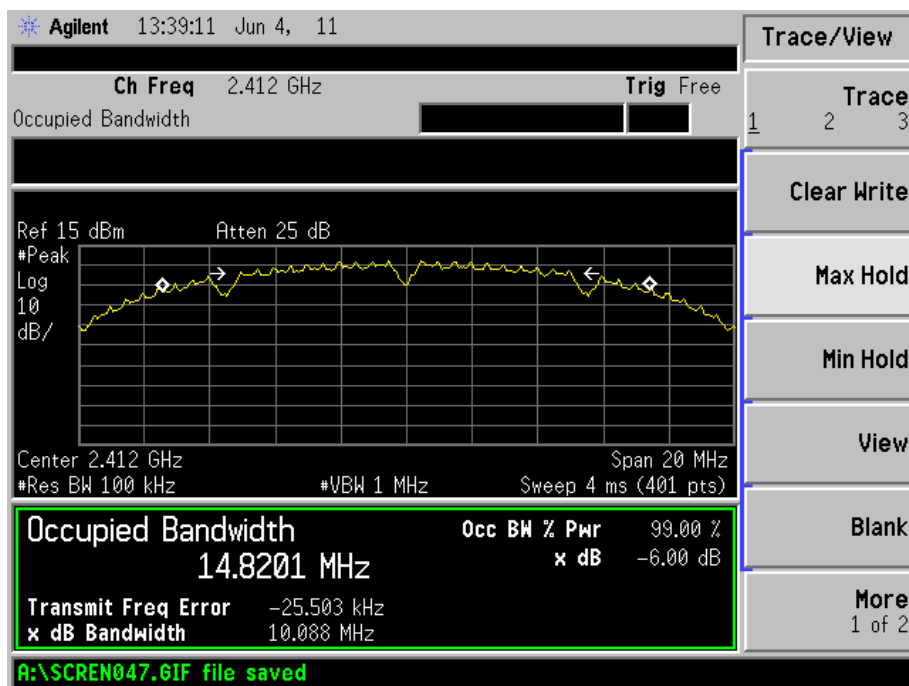
Temperature:	24° C
Relative Humidity:	53%
ATM Pressure:	1018 mbar

### 6.5 Summary of Test Results/Plots

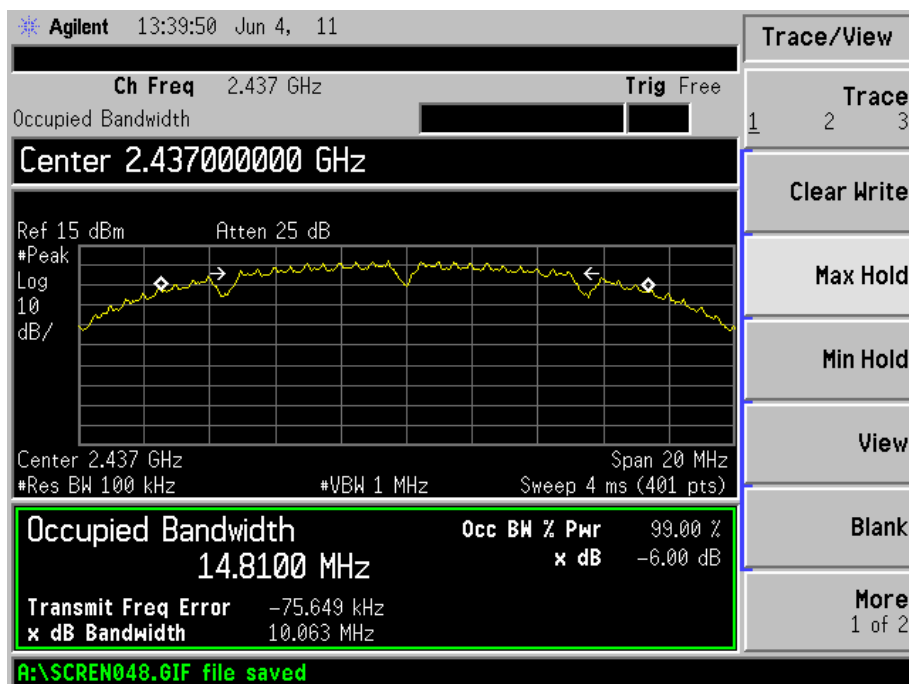
Test mode	Frequency MHz	6 dB Bandwidth kHz	Limit kHz
802.11b	2412	10088	500
	2437	10063	500
	2462	10106	500
802.11g	2412	16485	500
	2437	16486	500
	2462	16465	500
802.11n HT20	2412	17680	500
	2437	17675	500
	2462	17678	500
802.11n HT40	2422	36126	500
	2437	36258	500
	2452	36280	500

**For 802.11b**

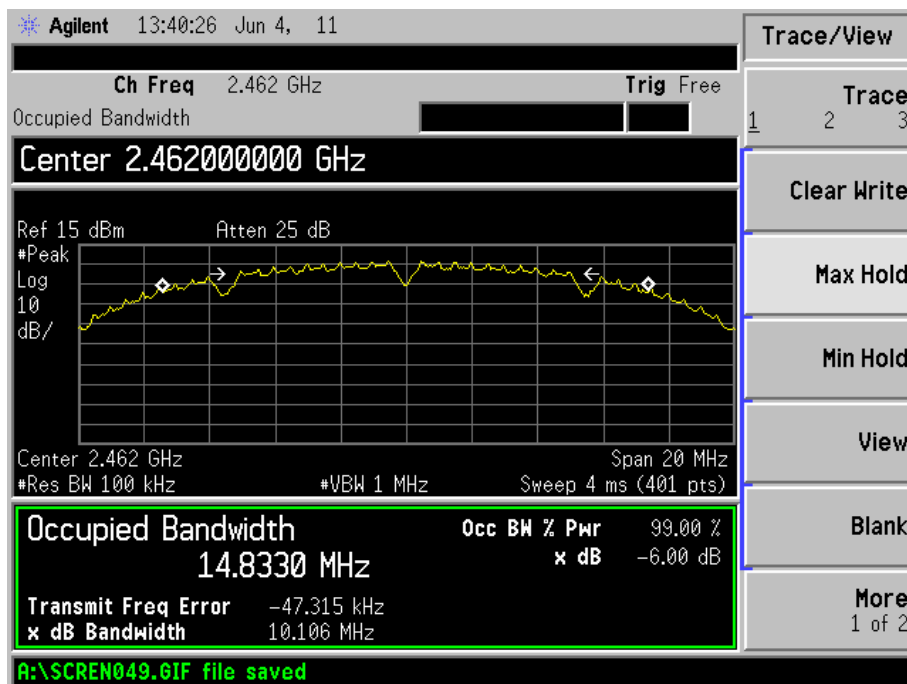
Low Channel:



Mid Channel:

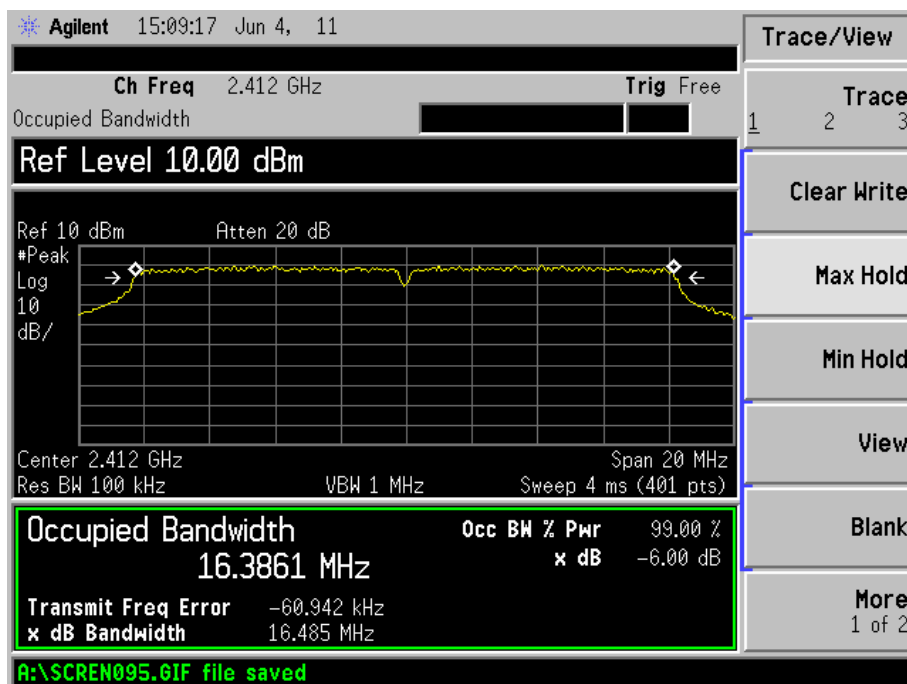


High Channel:

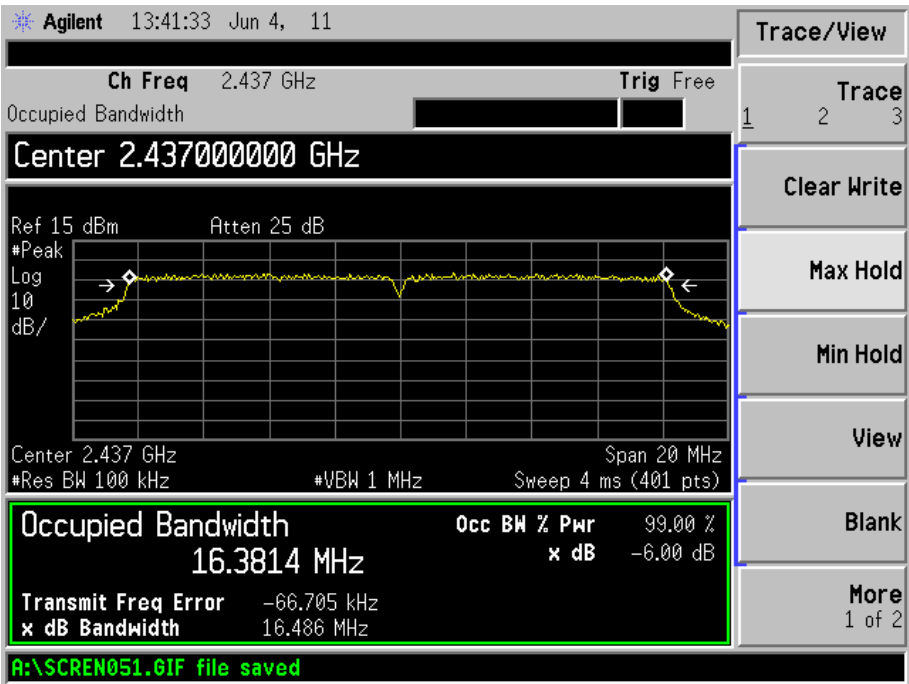


For 802.11g

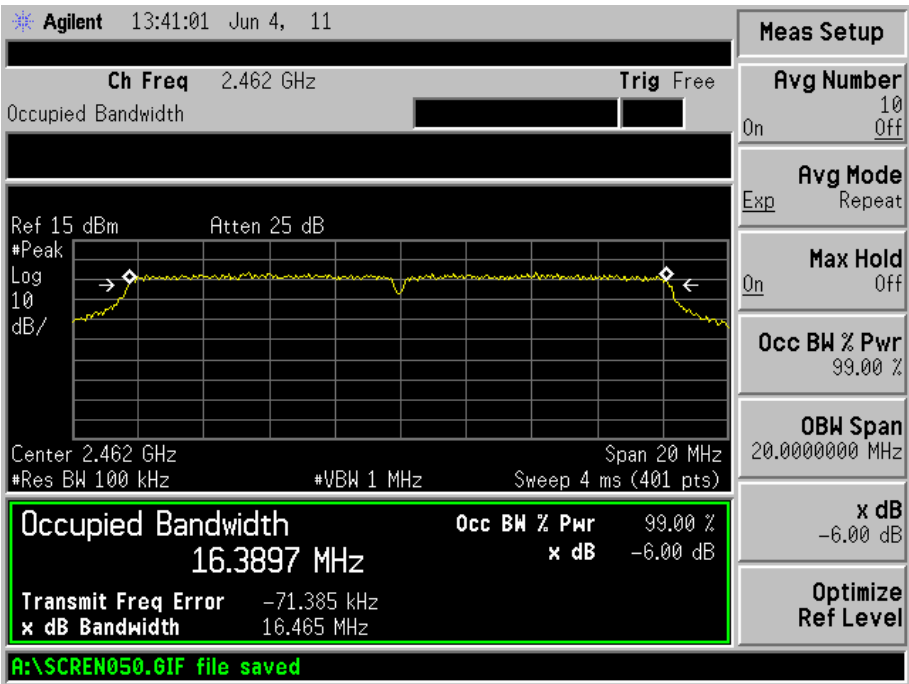
Low Channel:



Mid Channel:

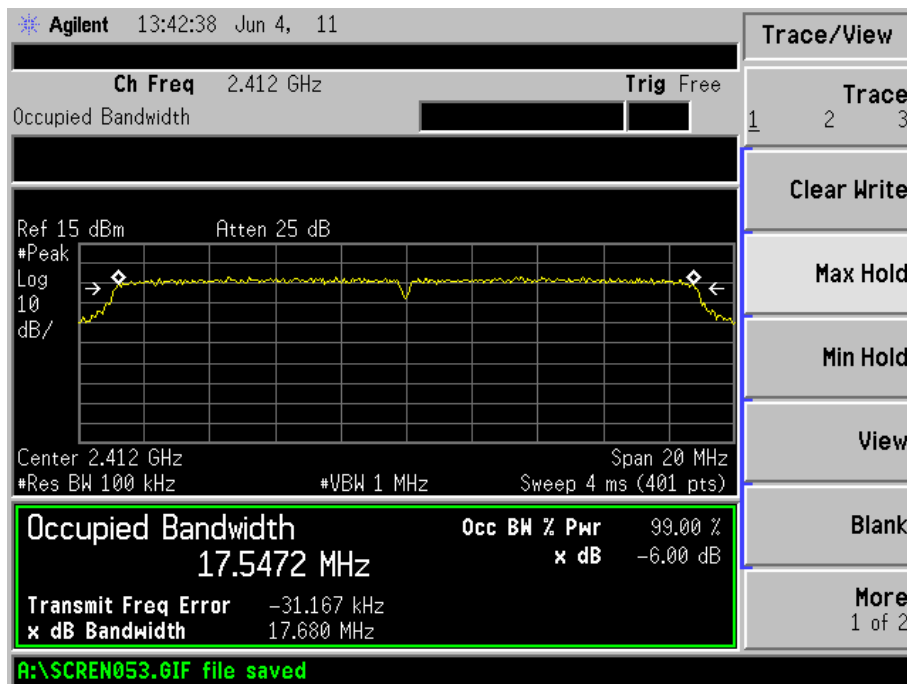


High Channel:

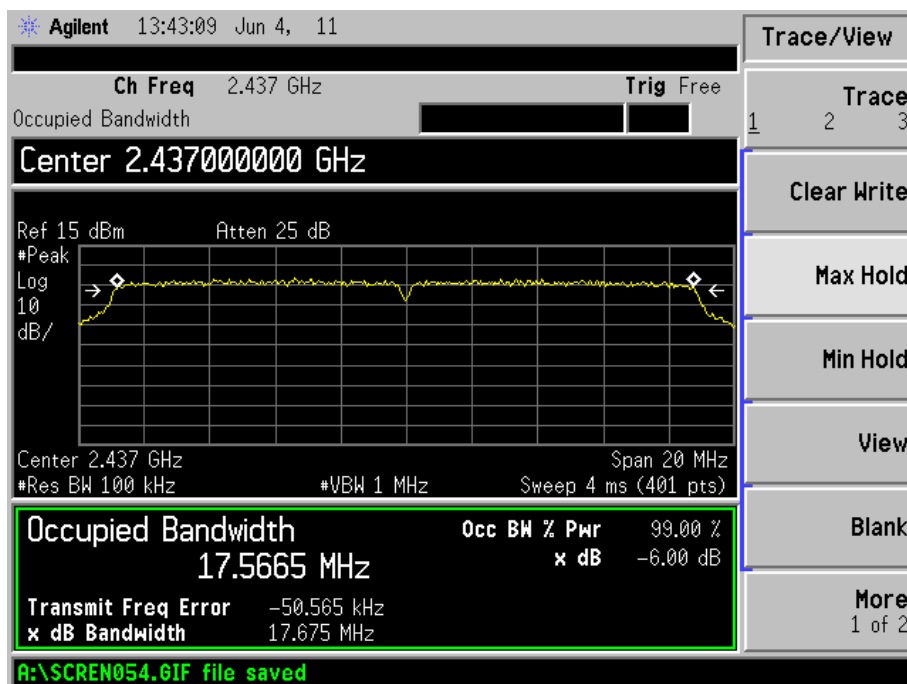


**For 802.11n HT20**

Low Channel:

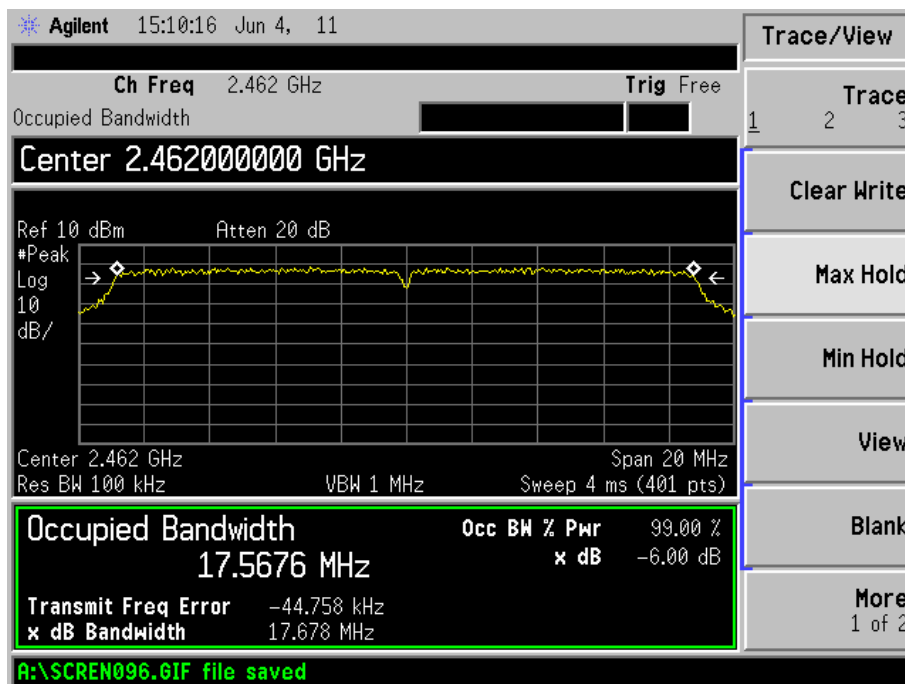


Middle Channel:



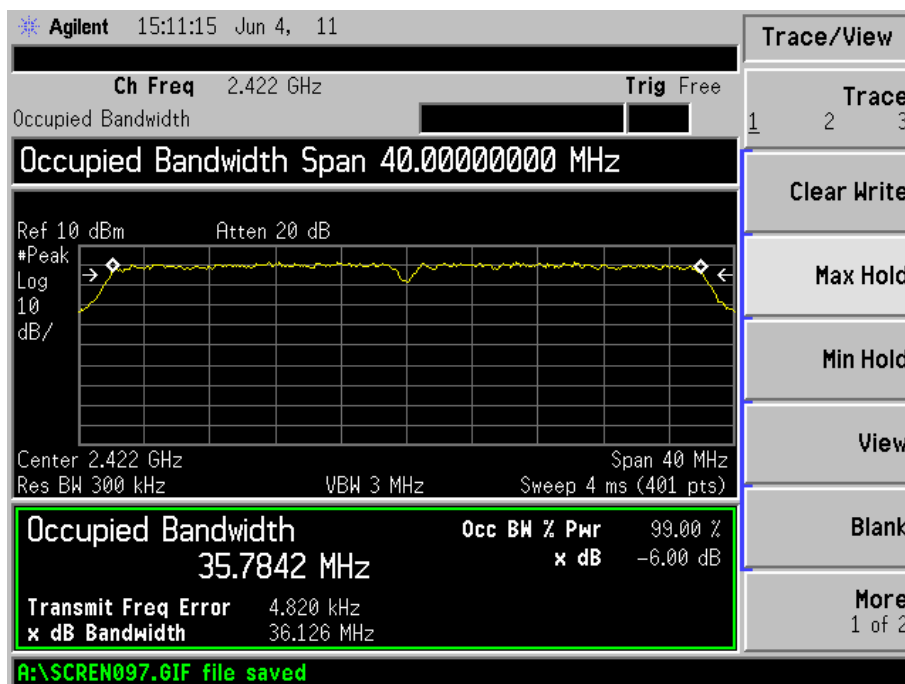


High Channel:

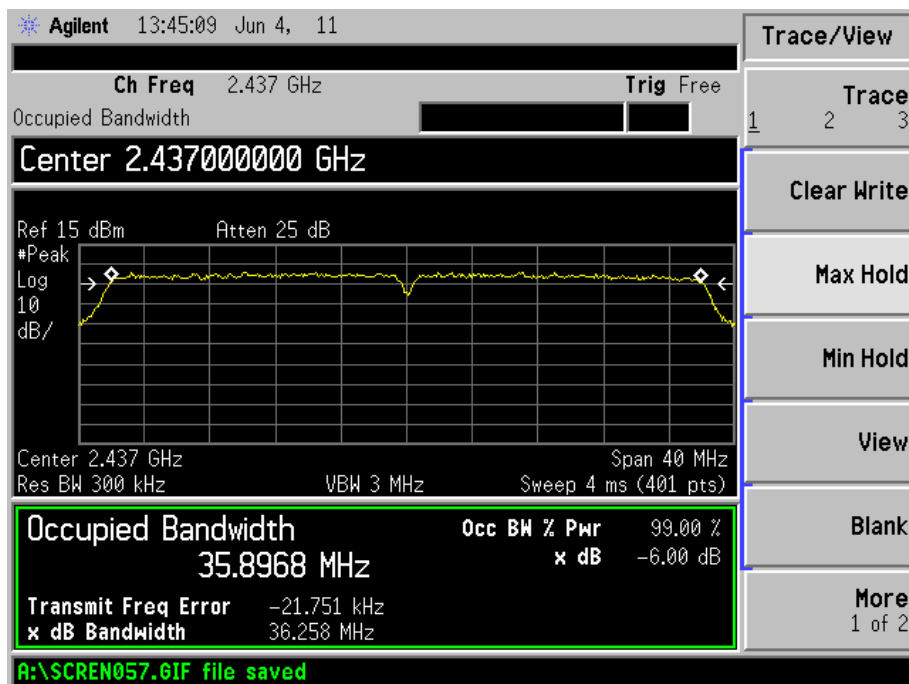


For 802.11n HT40

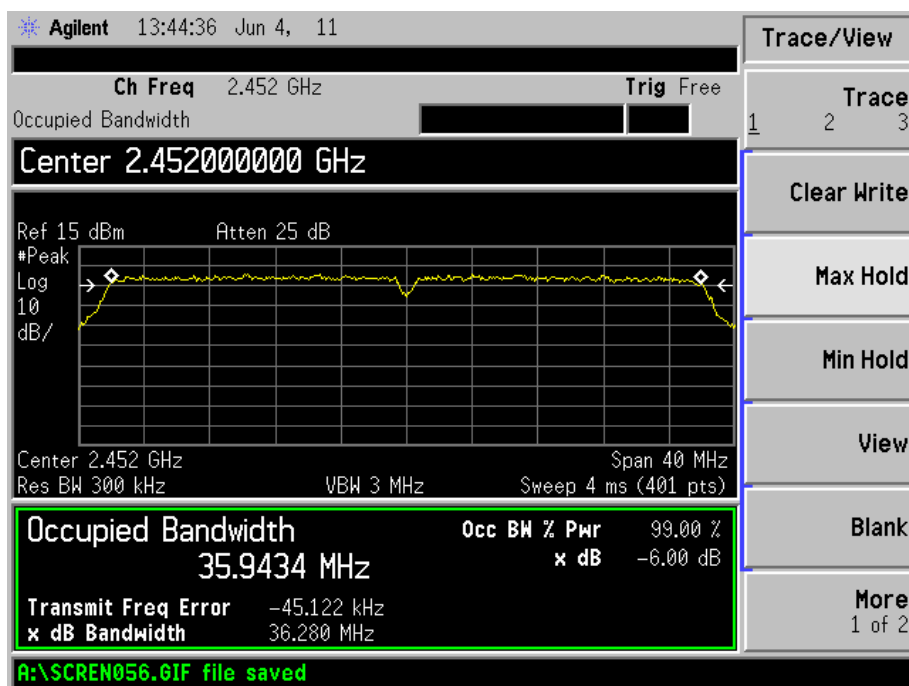
Low Channel:



Middle Channel:



High Channel:



## 7. POWER OUTPUT

### 7.1 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.

### 7.2 Test Equipment List and Details

Description	Manufacturer	Model	Serial Number	Cal. Date	Due. Date
Spectrum Analyzer	Agilent	E4402B	US41192821	2010-12-20	2011-12-19
Attenuator	ATTEN	ATS100-4-20	/	2010-12-20	2011-12-19

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

### 7.3 Test Procedure

According to section 15.247(b)-power output of the KDB-558074 (2005), the method #1 of the power output option2 was used, the following is the measurement procedure.

1. Set span to encompass the entire emission bandwidth (EBW) of the signal.
2. Set RBW = 1 MHz, Set VBW  $\geq$  3 MHz.
4. Use sample detector mode if bin width (i.e., span/number of points in spectrum display)  $<$  0.5 RBW. Otherwise use peak detector mode.
5. Use a video trigger with the trigger level set to enable triggering only on full power pulses. Transmitter must operate at full control power for entire sweep of every sweep. If the device transmits continuously, with no off intervals or reduced power intervals, the trigger may be set to “free run”.
6. Trace average 100 traces in power averaging mode.
7. Compute power by integrating the spectrum across the 26 dB EBW of the signal. The integration can be performed using the spectrum analyzer’s band power measurement function with band limits set equal to the EBW band edges.

### 7.4 Environmental Conditions

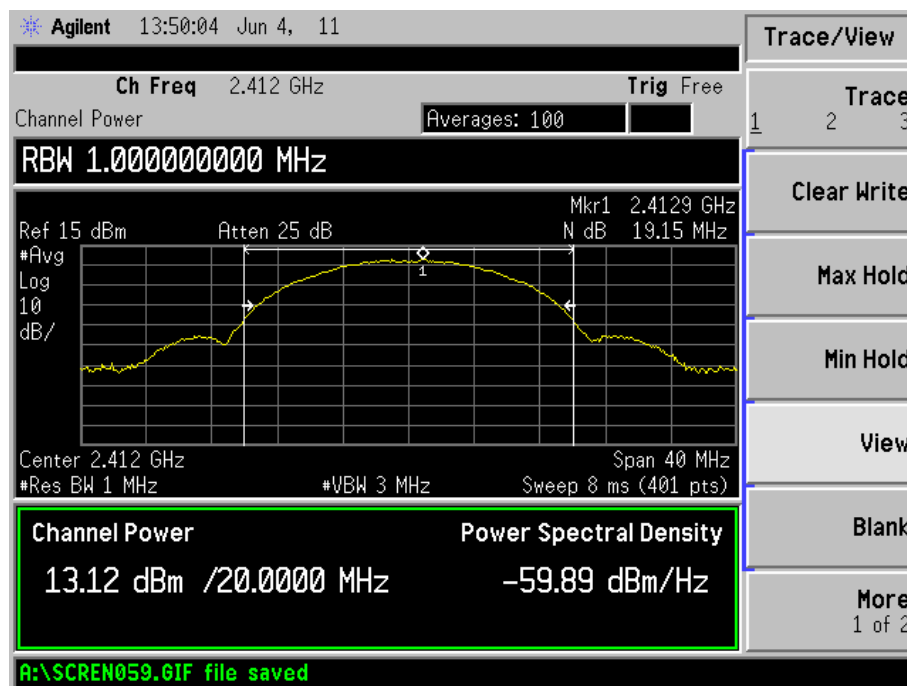
Temperature:	21° C
Relative Humidity:	55%
ATM Pressure:	1011 mbar

## 7.5 Summary of Test Results/Plots

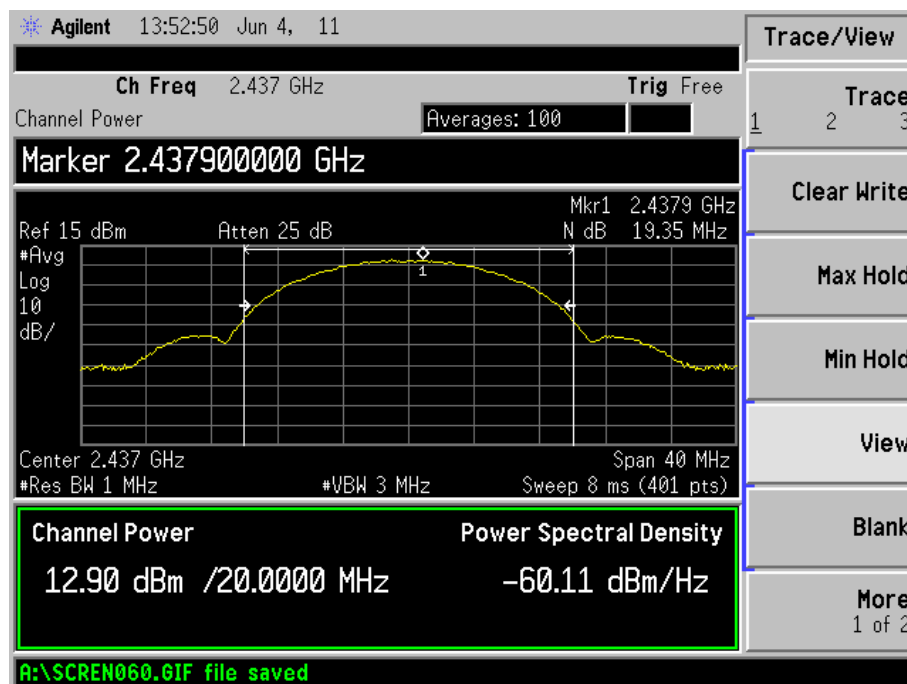
Test mode	Frequency MHz	Reading dBm	Output power W	Limit W
802.11b (1M)	2412	13.12	0.0205116	1
	2437	12.90	0.0169498	1
	2462	12.68	0.0185351	1
802.11b (11M)	2412	13.65	0.0231739	1
	2437	13.09	0.0203704	1
	2462	12.98	0.0198609	1
802.11g (6M)	2412	12.96	0.0197697	1
	2437	12.64	0.0183653	1
	2462	12.23	0.0167109	1
802.11g (54M)	2412	12.04	0.0159955	1
	2437	12.54	0.0179473	1
	2462	11.70	0.0147910	1
802.11n HT20 (MCS 01)	2412	12.65	0.0184077	1
	2437	13.00	0.0199526	1
	2462	12.55	0.0179887	1
802.11n HT20 (MCS 07)	2412	13.47	0.0222330	1
	2437	13.29	0.0213304	1
	2462	12.21	0.0166341	1
802.11n HT40 (MCS 01)	2422	12.46	0.0176197	1
	2437	12.57	0.0180717	1
	2452	12.92	0.0195884	1
802.11n HT40 (MCS 07)	2422	12.08	0.0161435	1
	2437	12.04	0.0159955	1
	2452	11.54	0.0142560	1

**For 802.11b\_1M rate**

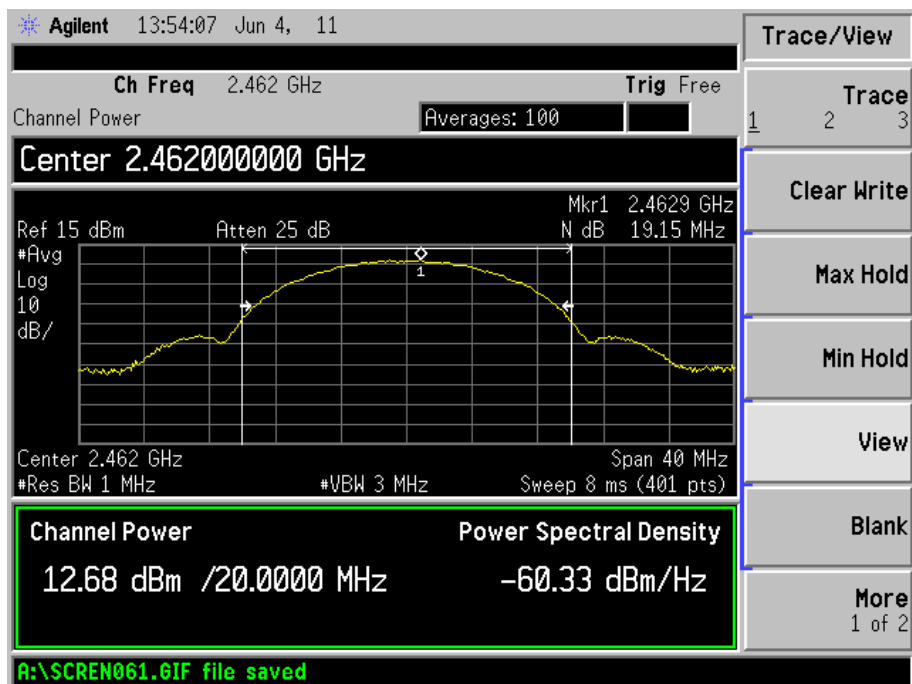
Low Channel:



Middle Channel:

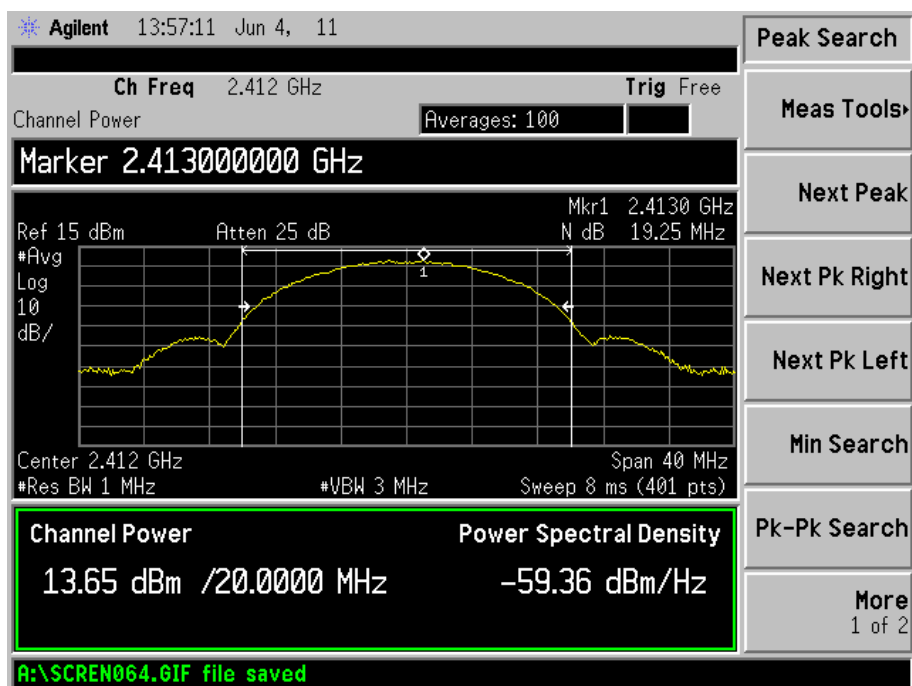


High Channel:

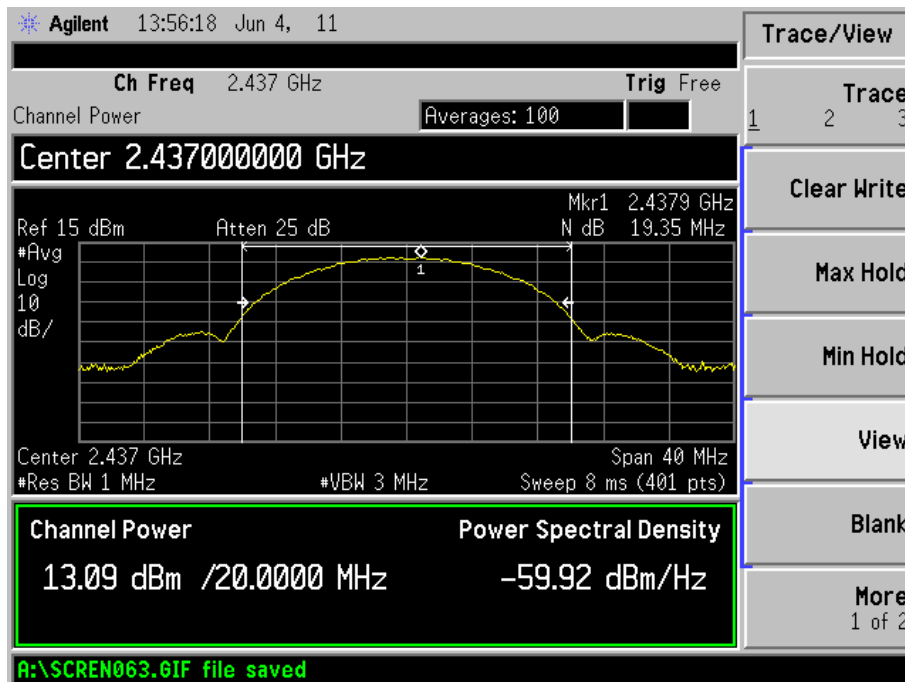


For 802.11b\_11M rate

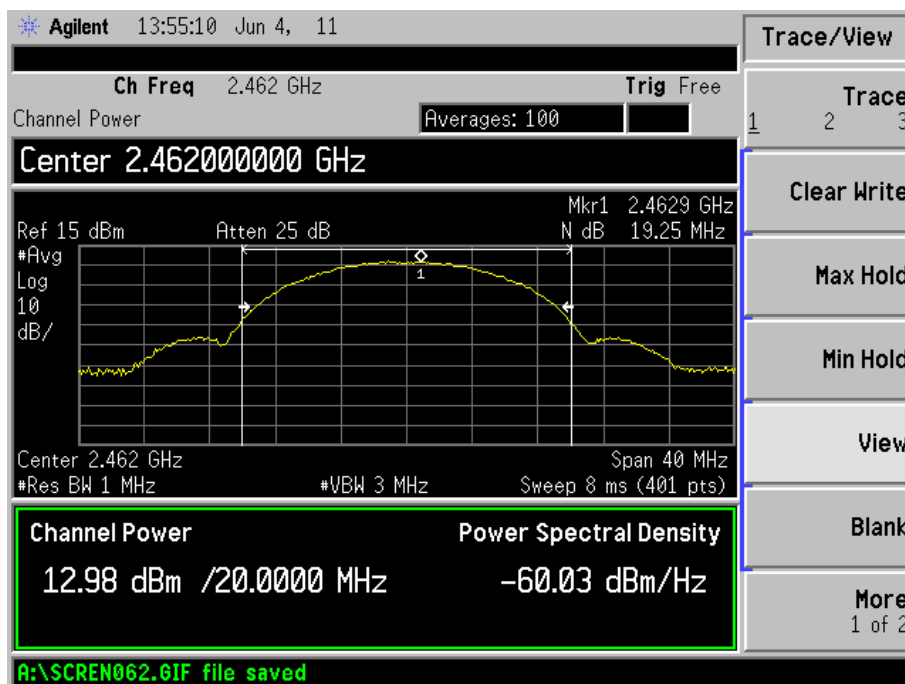
Low Channel:



Middle Channel:

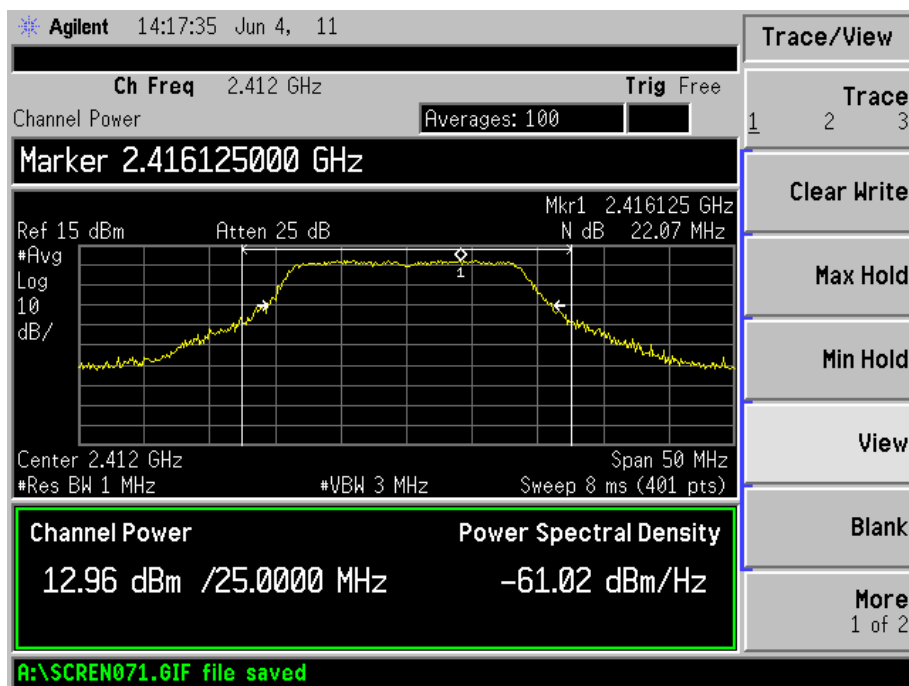


High Channel:

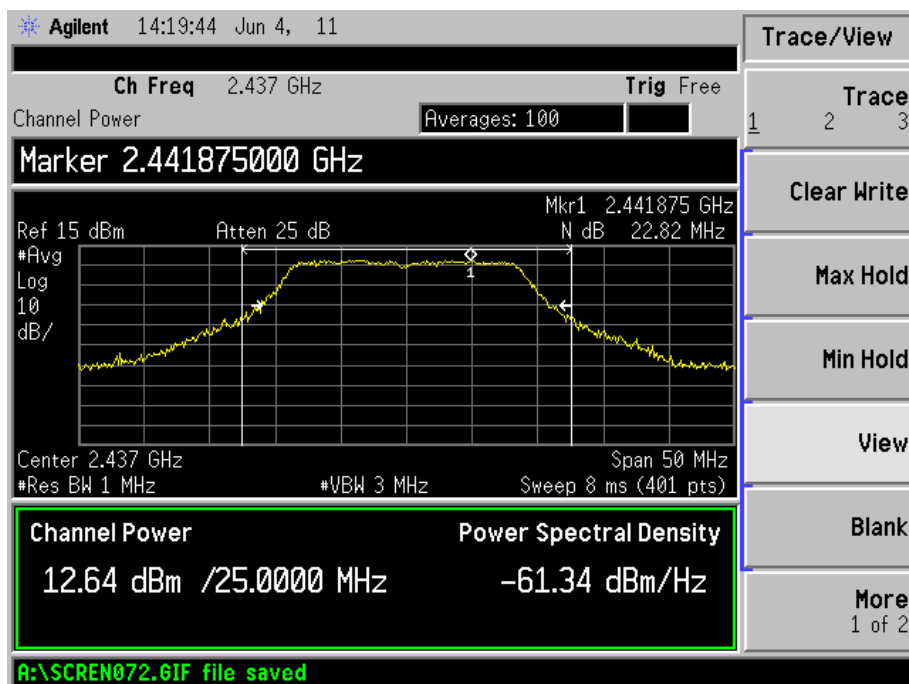


**For 802.11g\_6M rate**

Low Channel:

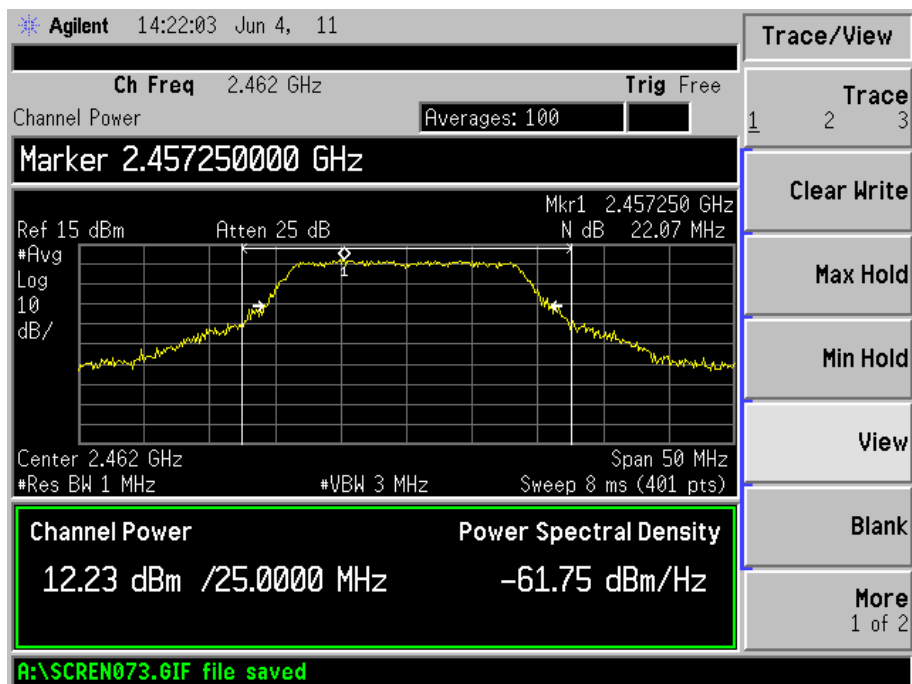


Middle Channel:



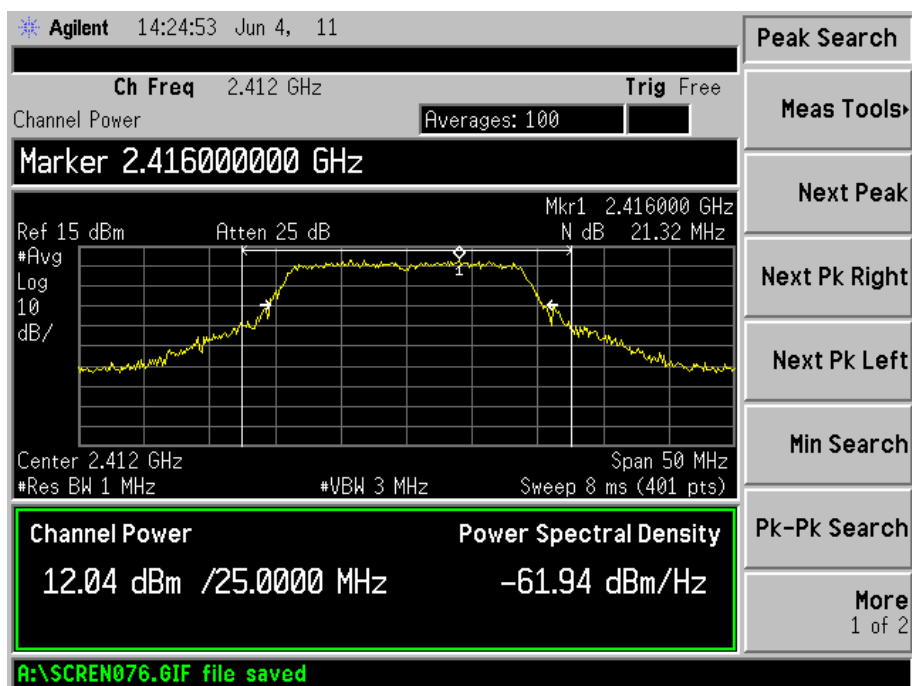


High Channel:

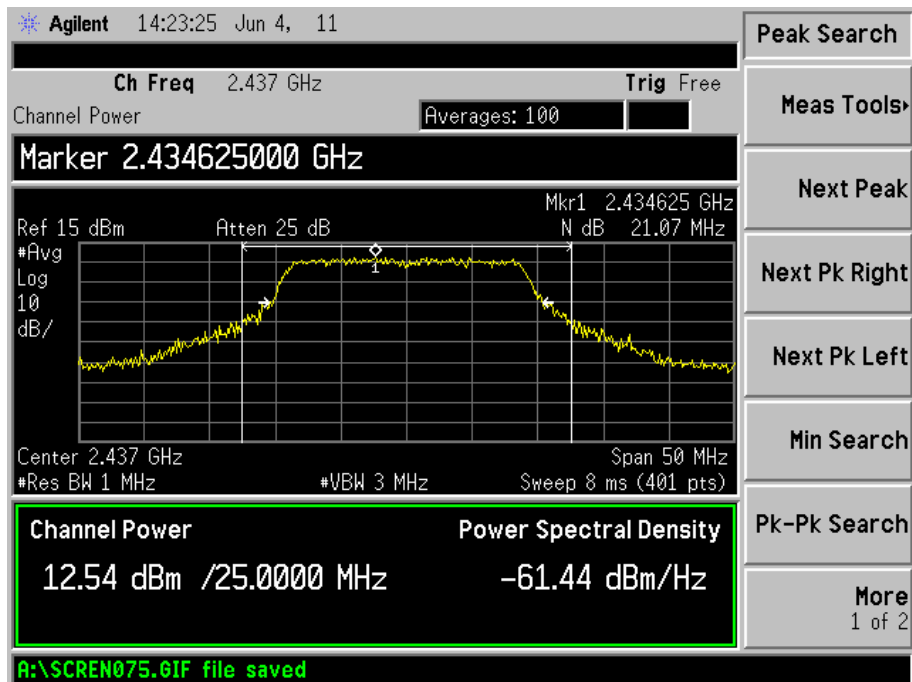


For 802.11g\_54M rate

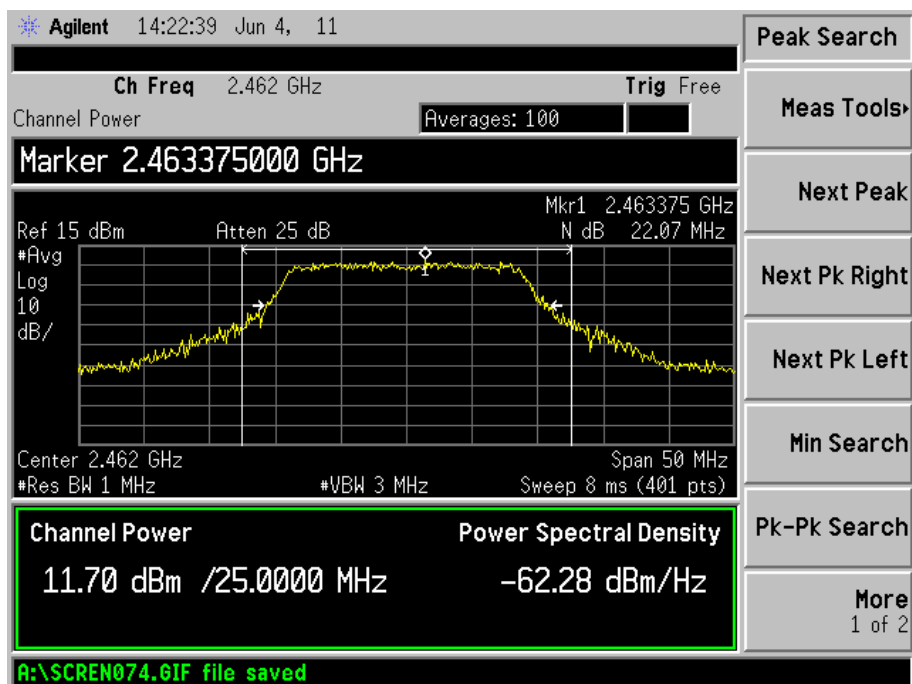
Low Channel:



Middle Channel:

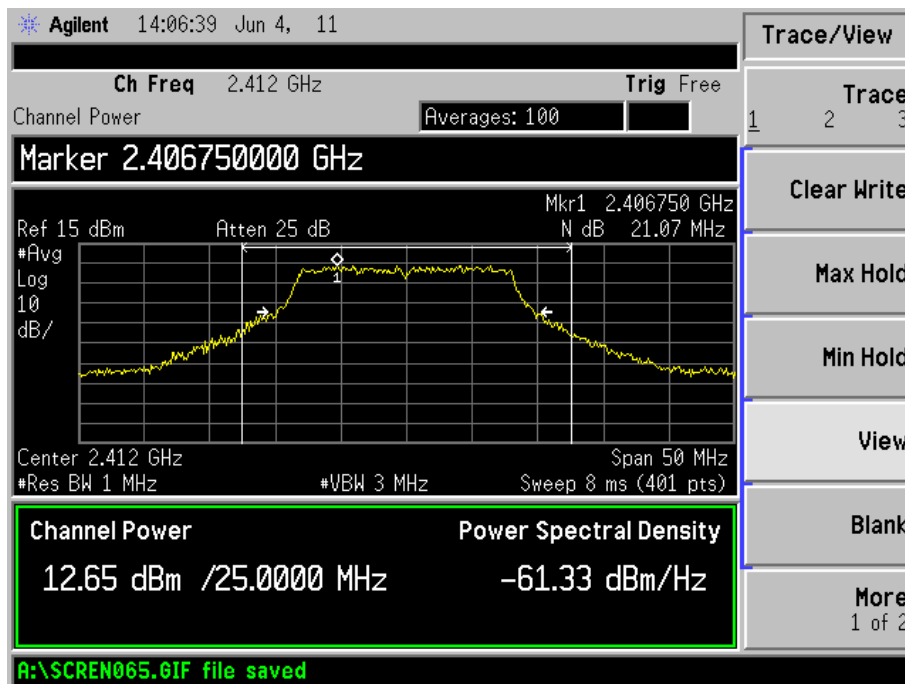


High Channel:

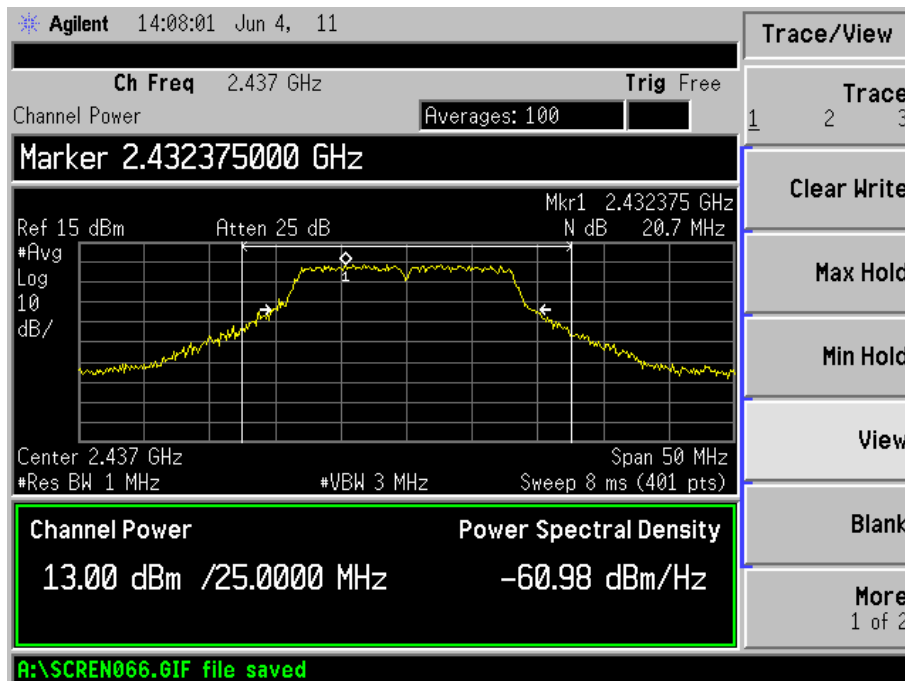


**For 802.11n HT20\_MCS 01 rate**

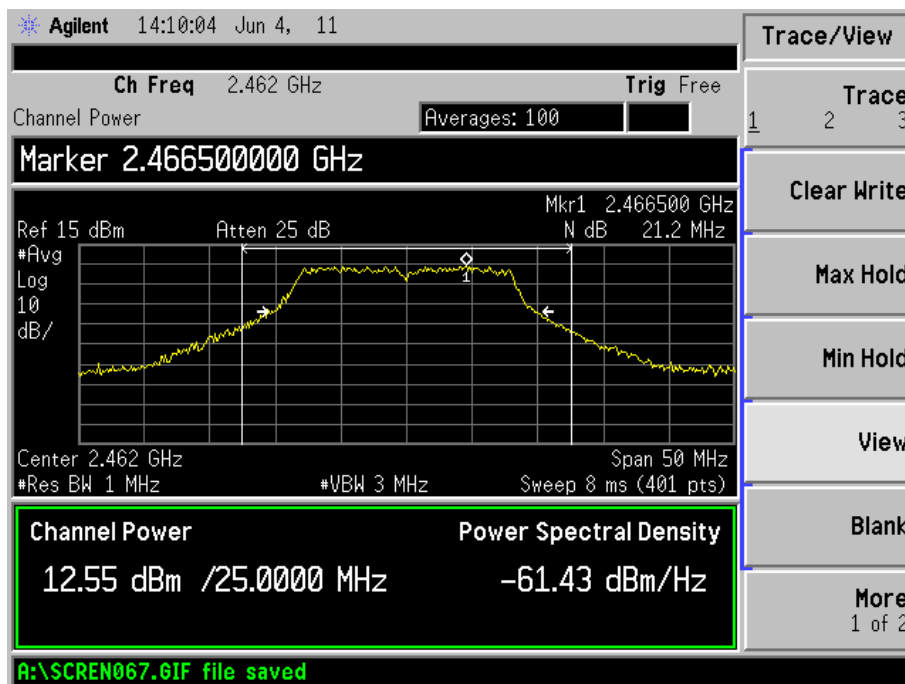
Low Channel:



Middle Channel:

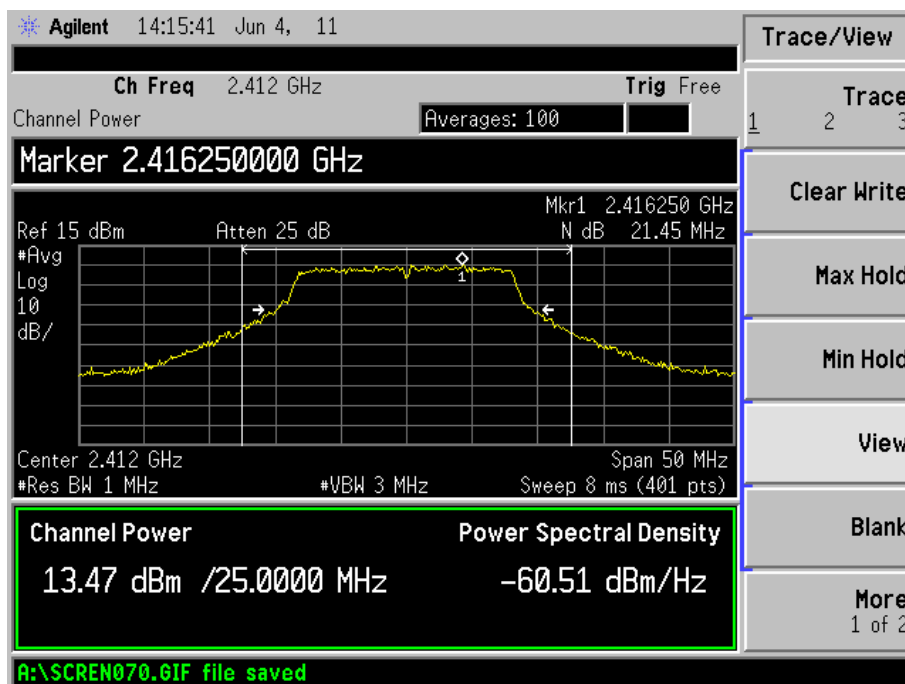


High Channel:

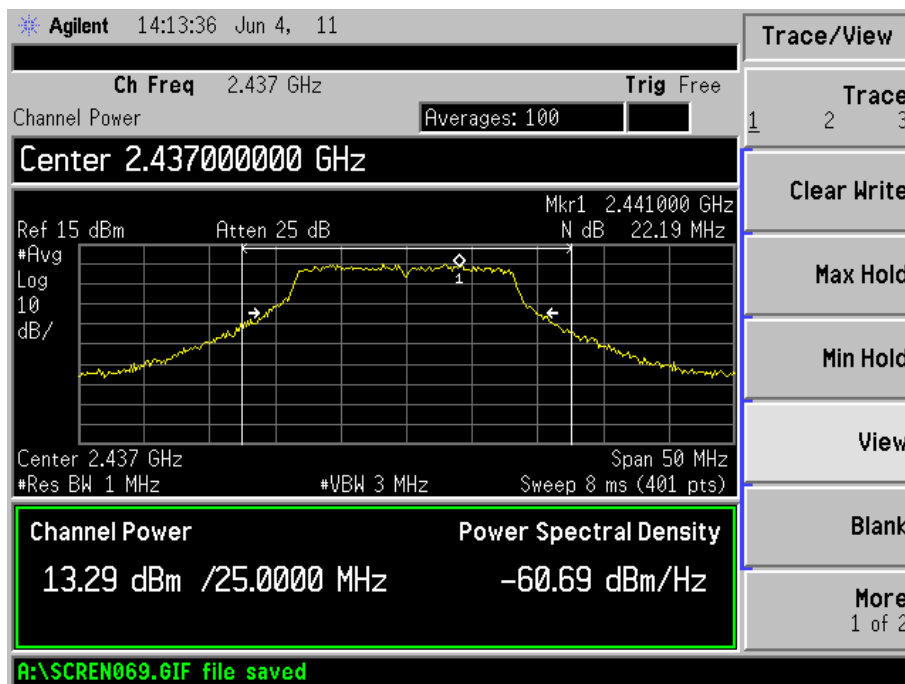


For 802.11n HT20\_MCS 07 rate

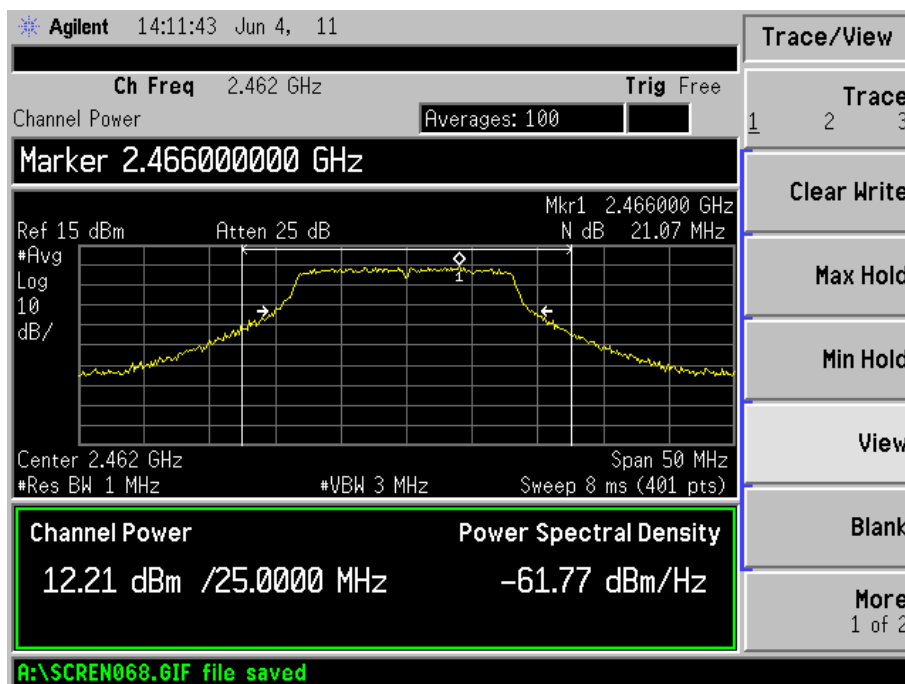
Low Channel:



Middle Channel:

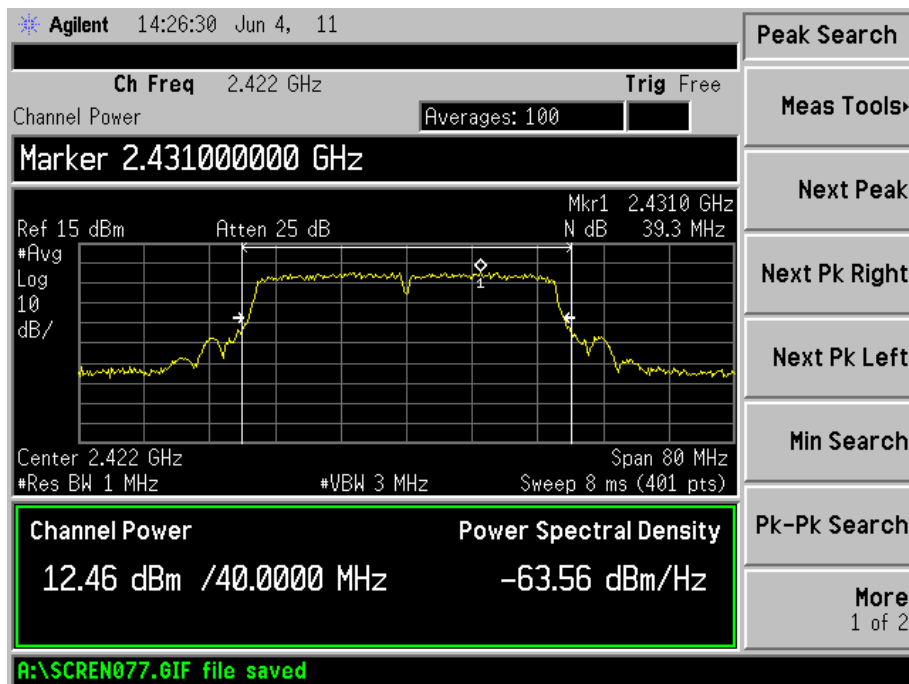


High Channel:

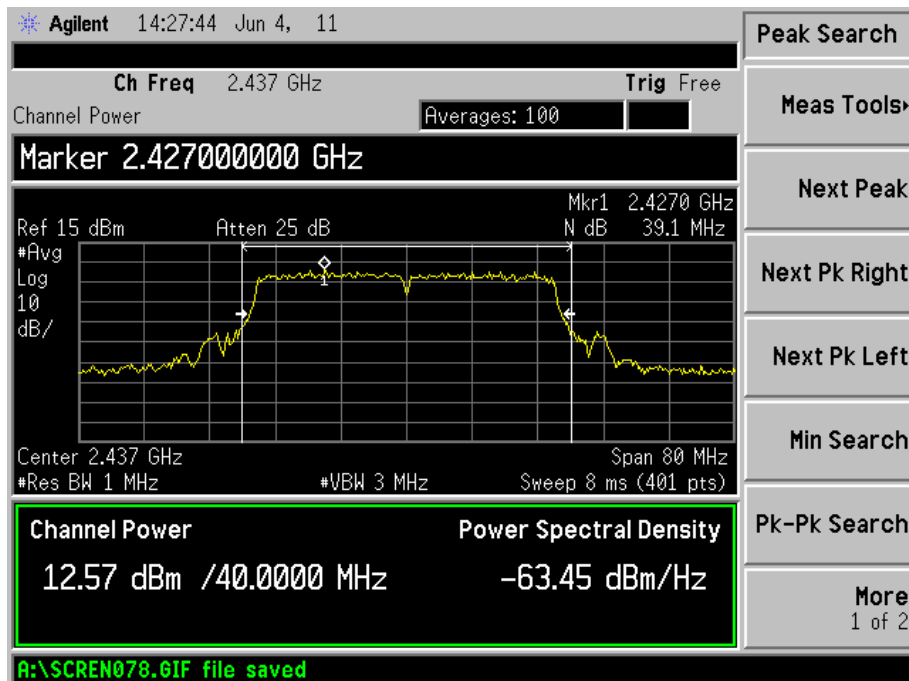


**For 802.11n HT40\_MCS 01 rate**

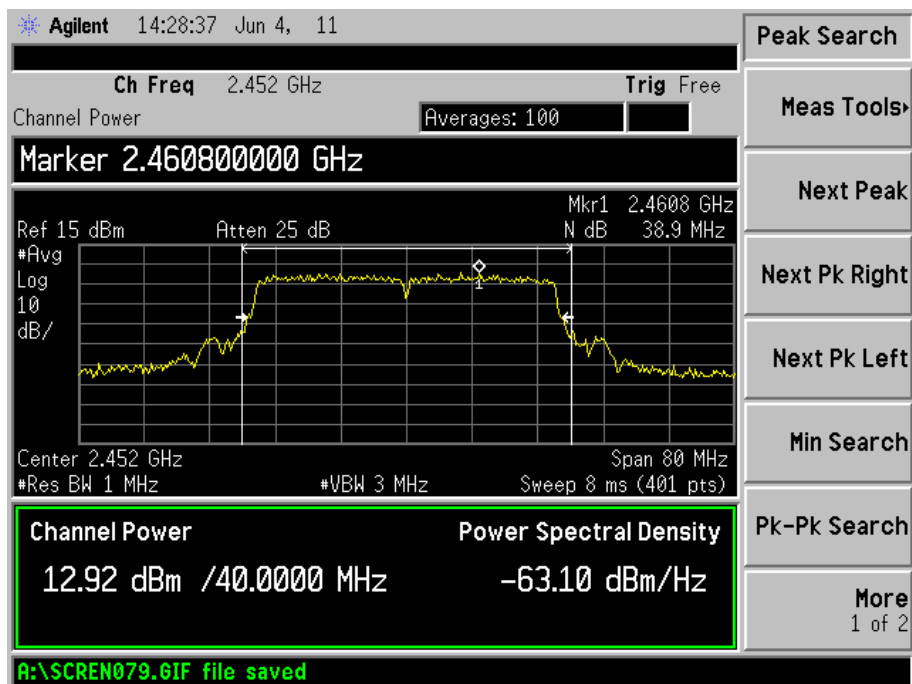
Low Channel:



Middle Channel:

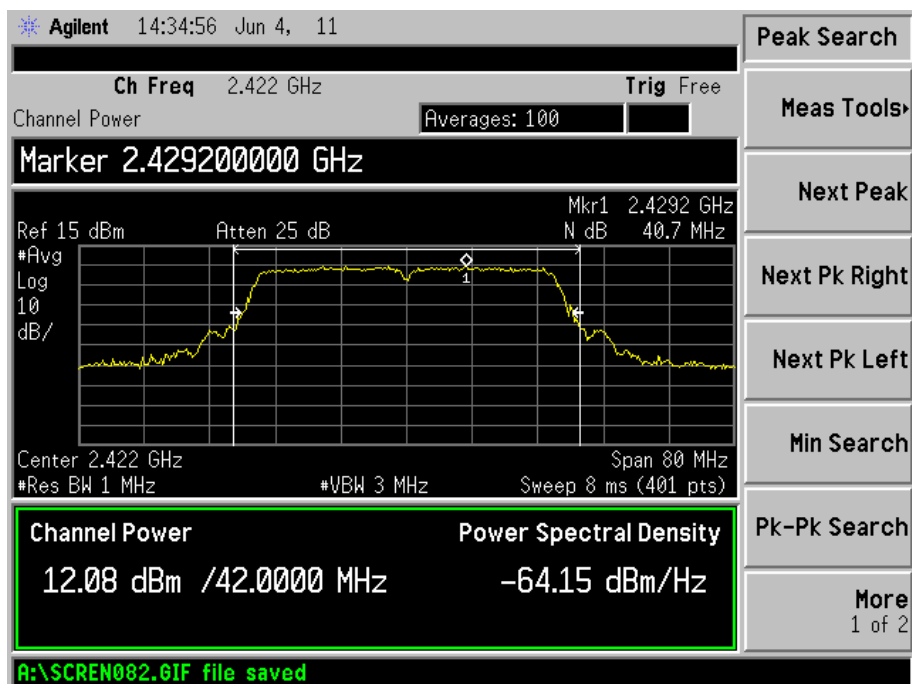


High Channel:

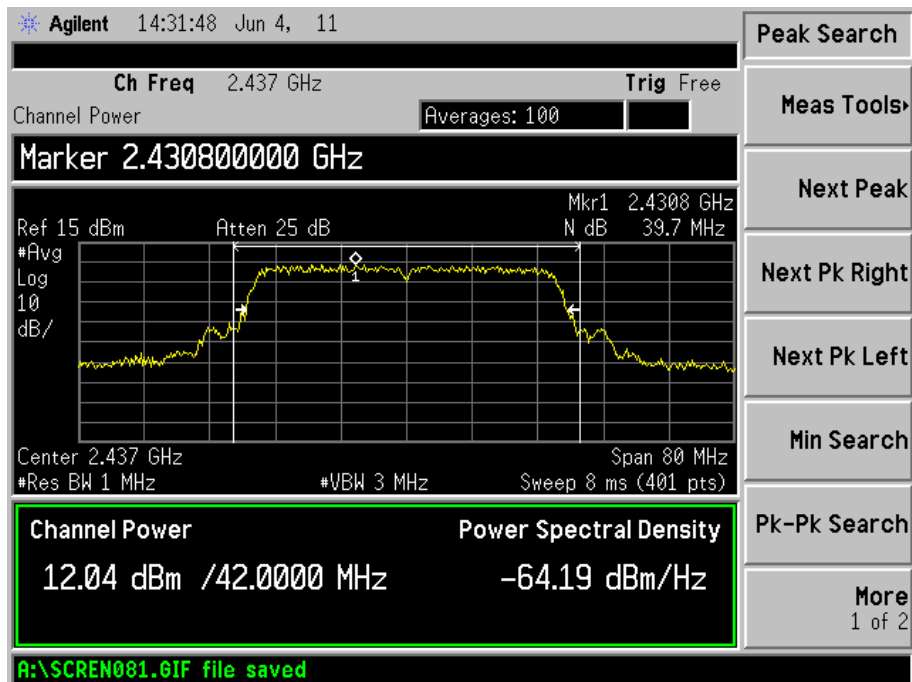


For 802.11n HT40\_MCS 07 rate

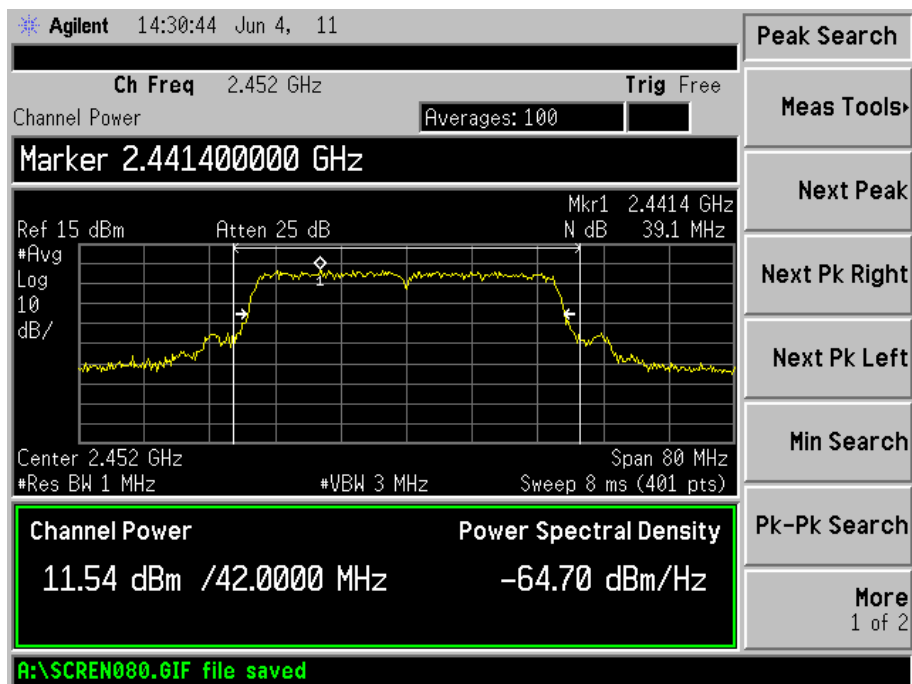
Low Channel:



Middle Channel:



High Channel:





## 8. FIELD STRENGTH OF SPURIOUS EMISSIONS

### 8.1 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  $\pm 5.10$  dB.

### 8.2 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.

### 8.3 Test Equipment List and Details

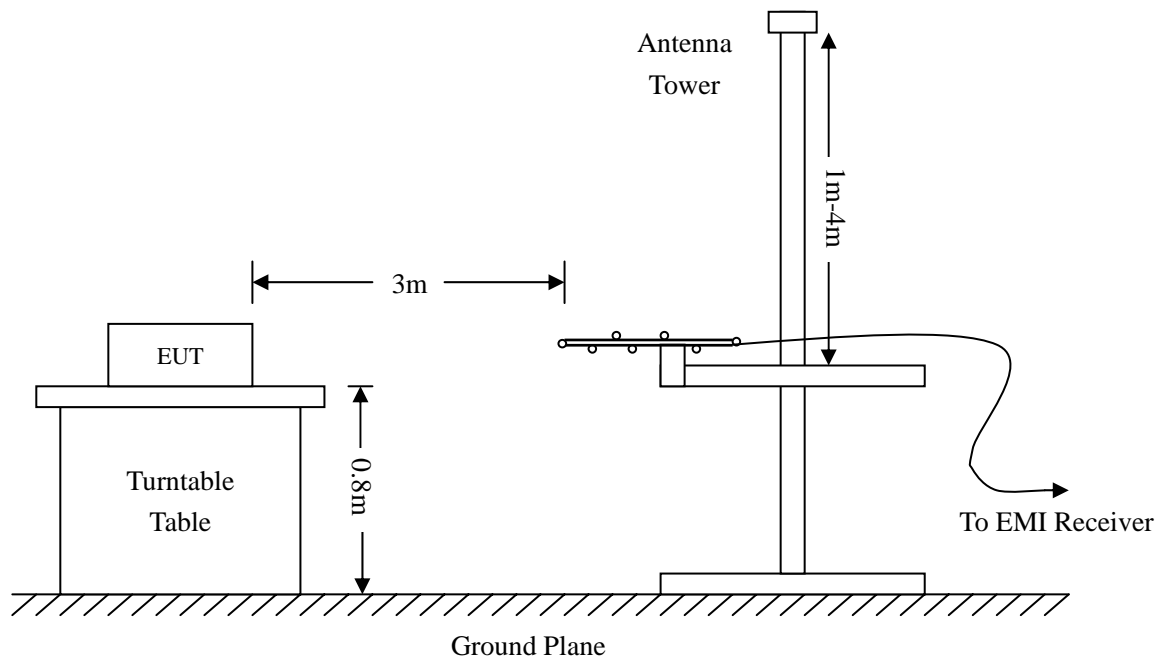
Description	Manufacturer	Model	Serial Number	Cal. Date	Due. Date
Spectrum Analyzer	R&S	FSP	836079/035	2010-12-20	2011-12-19
EMI Test Receiver	R&S	ESVB	825471/005	2010-12-20	2011-12-19
Positioning Controller	C&C	CC-C-1F	N/A	2010-12-20	2011-12-19
RF Switch	EM	EMSW18	SW060023	2010-12-20	2011-12-19
Pre-amplifier	Agilent	8447F	3113A06717	2010-12-20	2011-12-19
Pre-amplifier	Compliance Direction	PAP-0118	24002	2010-12-20	2011-12-19
Trilog Broadband Antenna	SCHWARZBECK	VULB9163	9163-333	2011-01-09	2012-01-08
Horn Antenna	ETS	3117	00086197	2011-01-09	2012-01-08

### 8.4 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.



## 8.5 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:

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

## 8.6 Environmental Conditions

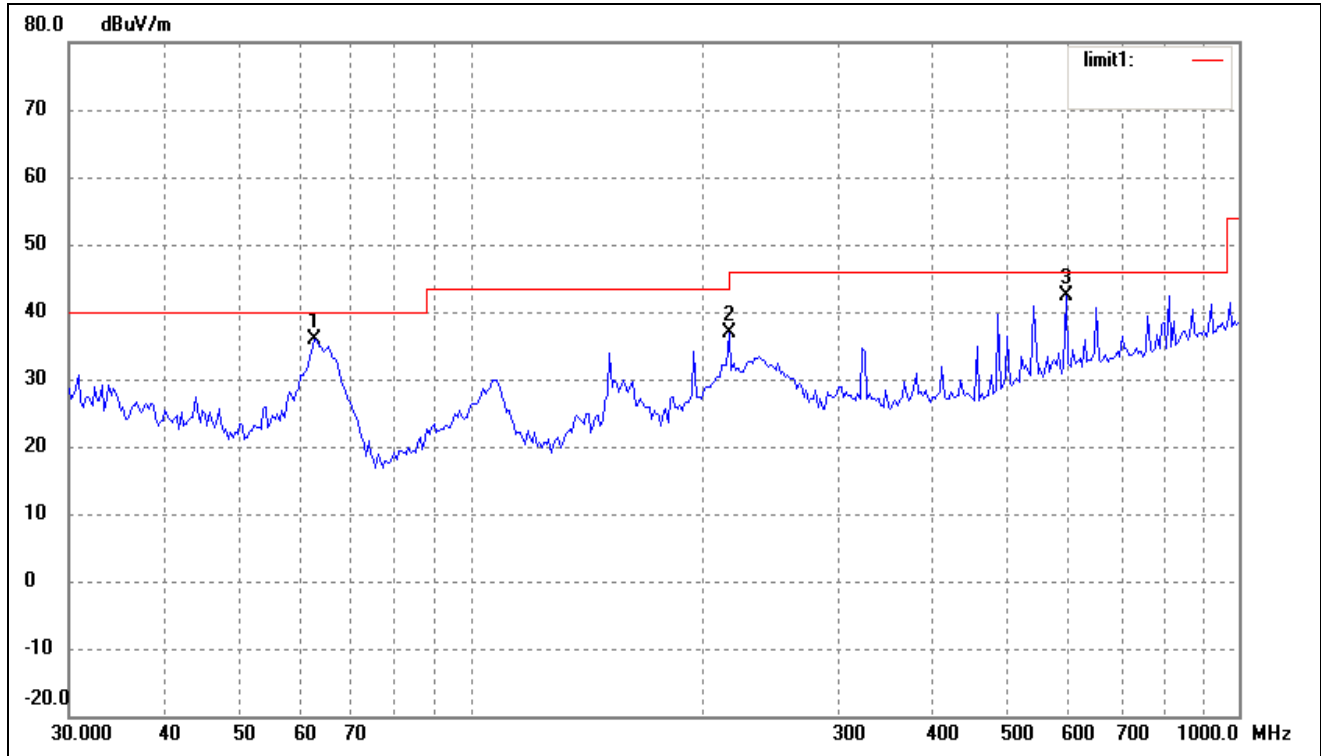
Temperature:	22° C
Relative Humidity:	52%
ATM Pressure:	1012 mbar

## 8.7 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:

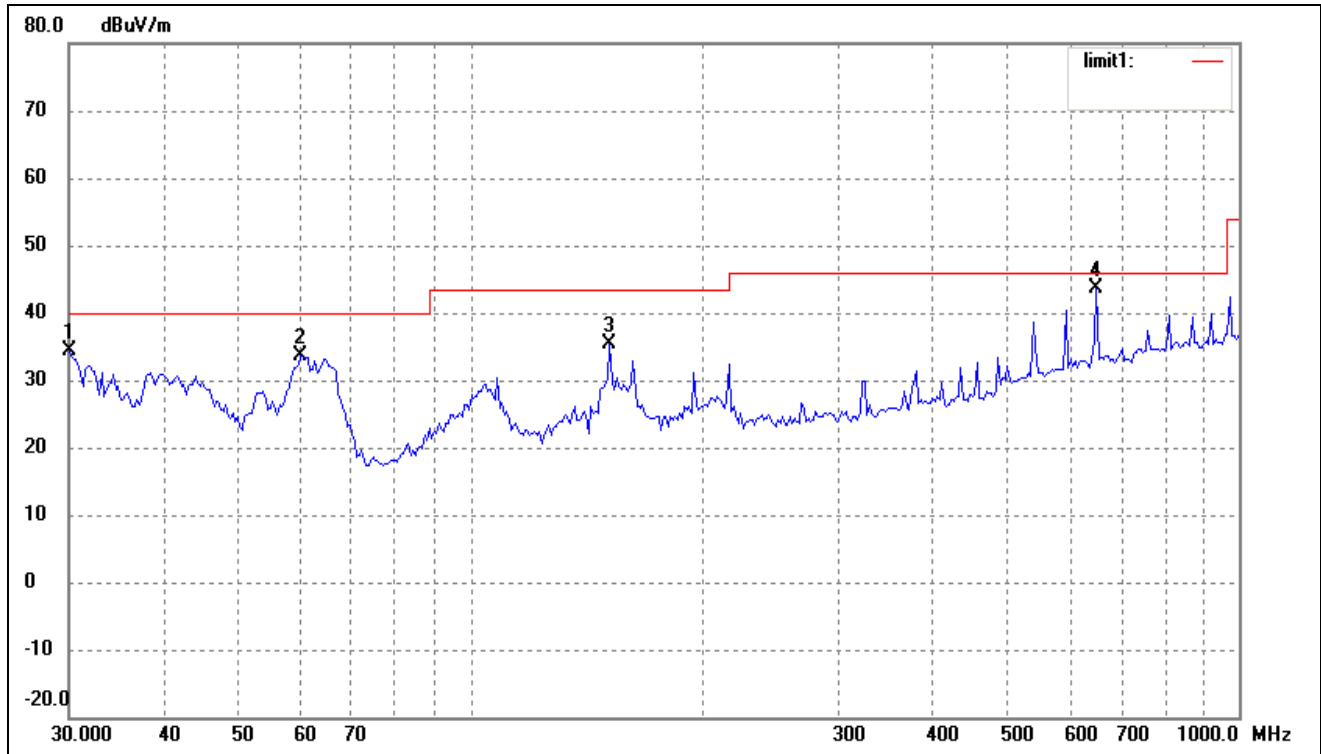
**-1.87dBμV at 810.2653MHz in the Horizontal polarization, Transmitting 802.11b High Channel test mode with, 30 MHz to 25 GHz, 3Meters**

*Note: this EUT was tested in 3 orthogonal positions and the worst case position data was reported.*

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

No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree ( ° )	Height (cm)	Remark
1	62.6507	29.33	6.50	35.83	40.00	-4.17	335	142	QP
2	216.7828	29.66	7.17	36.83	46.00	-9.17	360	100	peak
3	595.1329	25.90	16.55	42.45	46.00	-3.55	203	221	QP

Vertical



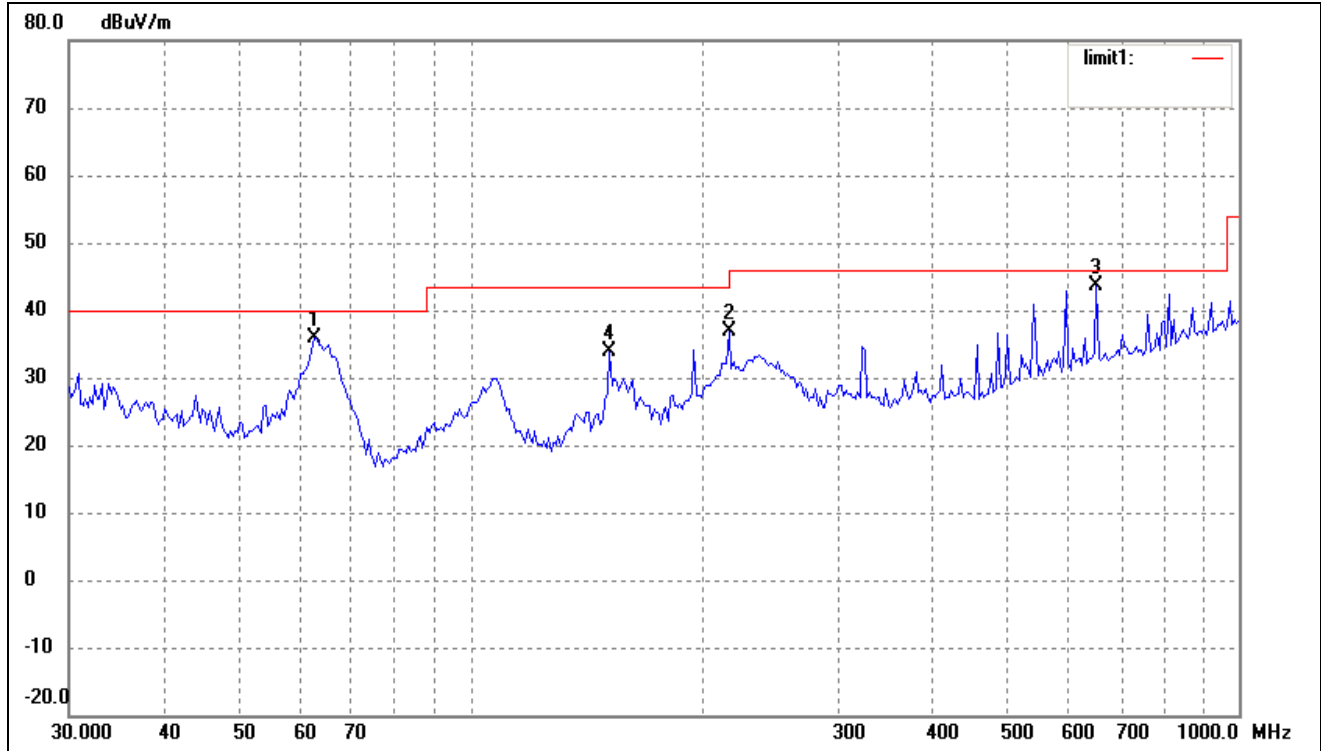
No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	( ° )	(cm)	
1	30.0000	27.57	6.77	34.34	40.00	-5.66	121	138	QP
2	60.0691	26.15	7.50	33.65	40.00	-6.35	360	100	peak
3	151.5972	31.28	4.15	35.43	43.50	-8.07	0	200	peak
4	651.9417	26.42	17.11	43.53	46.00	-2.47	113	208	QP

Spurious Emission From 30 MHz to 1 GHz

Test mode: Transmitting (802.11b) Middle Channel

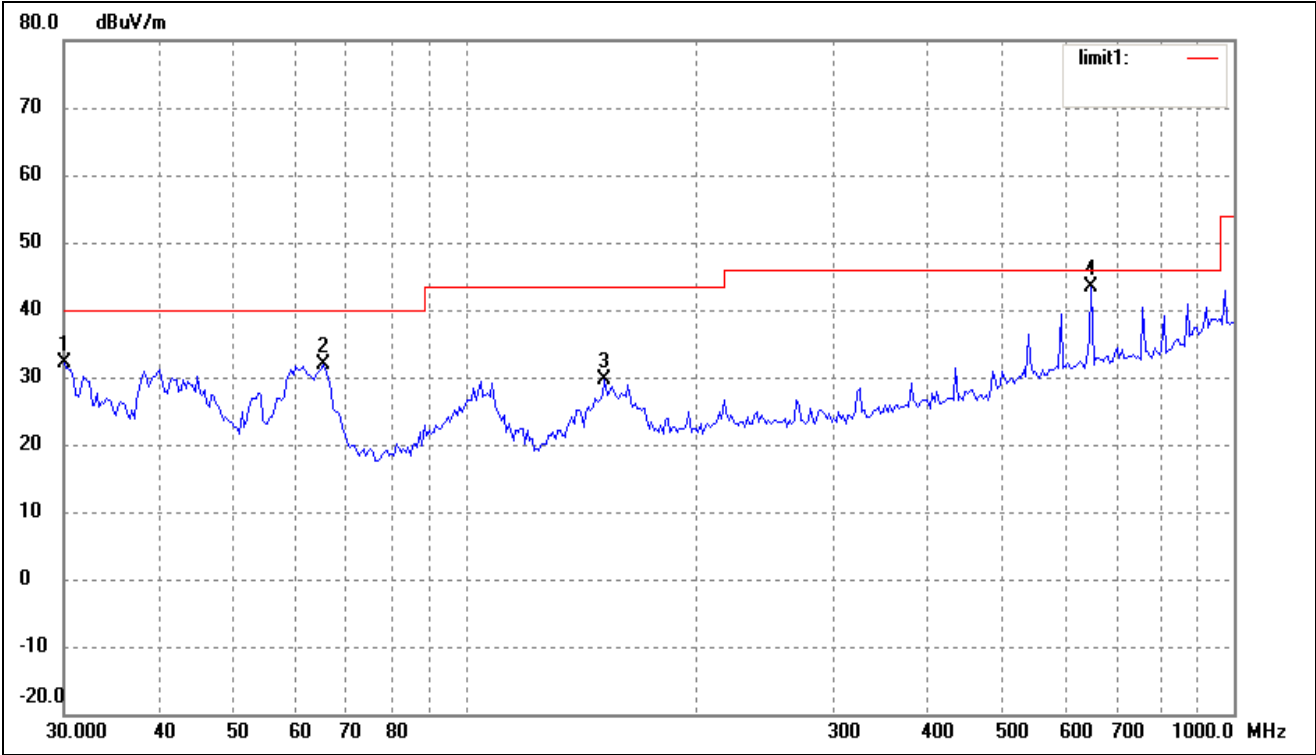
Comment:

Horizontal



No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree ( ° )	Height (cm)	Remark
1	62.6507	29.34	6.49	35.83	40.00	-4.17	106	115	QP
2	216.7828	29.66	7.17	36.83	46.00	-9.17	360	200	peak
3	651.9416	26.46	17.11	43.57	46.00	-2.43	203	124	QP
4	151.5971	29.75	4.15	33.90	43.50	-9.60	0	200	peak

Vertical



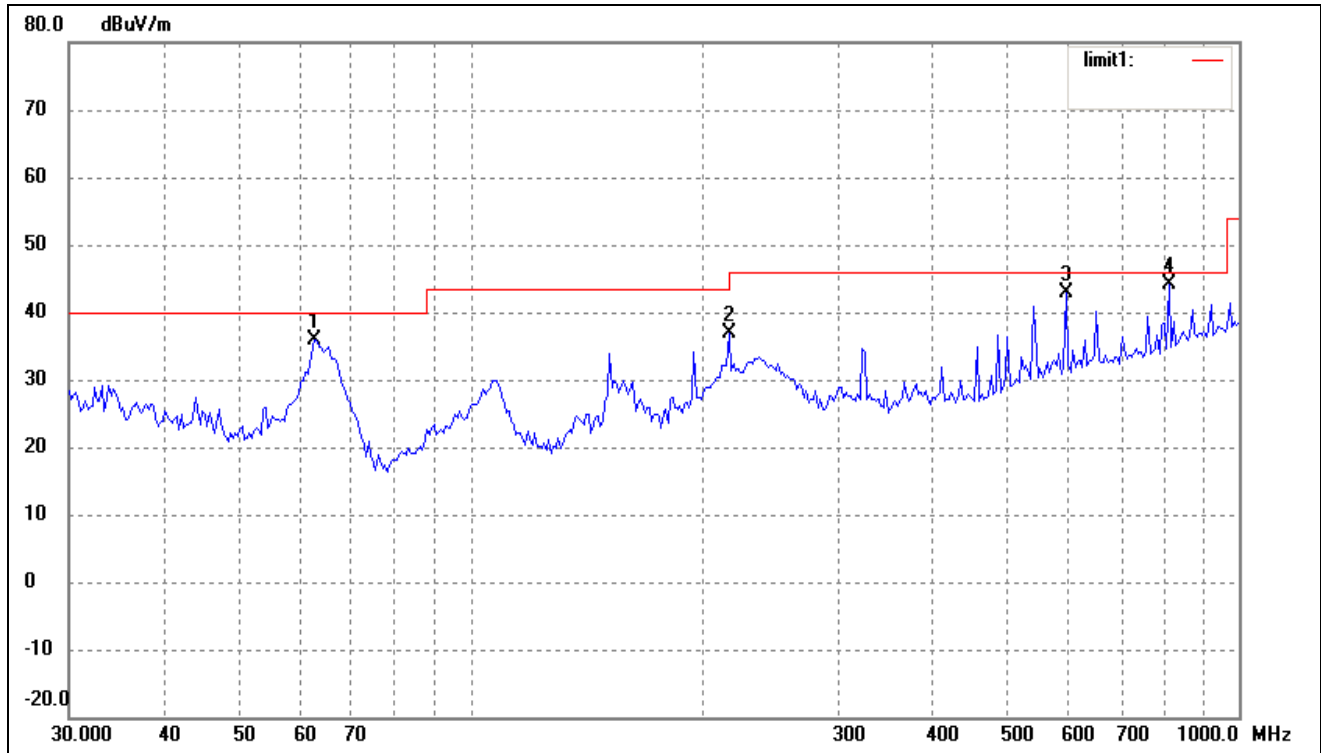
No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	( ° )	(cm)	
1	30.0000	25.43	6.77	32.20	40.00	-7.80	360	200	peak
2	65.3431	26.32	5.44	31.76	40.00	-8.24	0	100	peak
3	151.5971	25.45	4.15	29.60	43.50	-13.90	0	100	peak
4	651.9416	26.27	17.11	43.38	46.00	-2.62	223	120	QP

Spurious Emission From 30 MHz to 1 GHz

Test mode: Transmitting (802.11b) High Channel

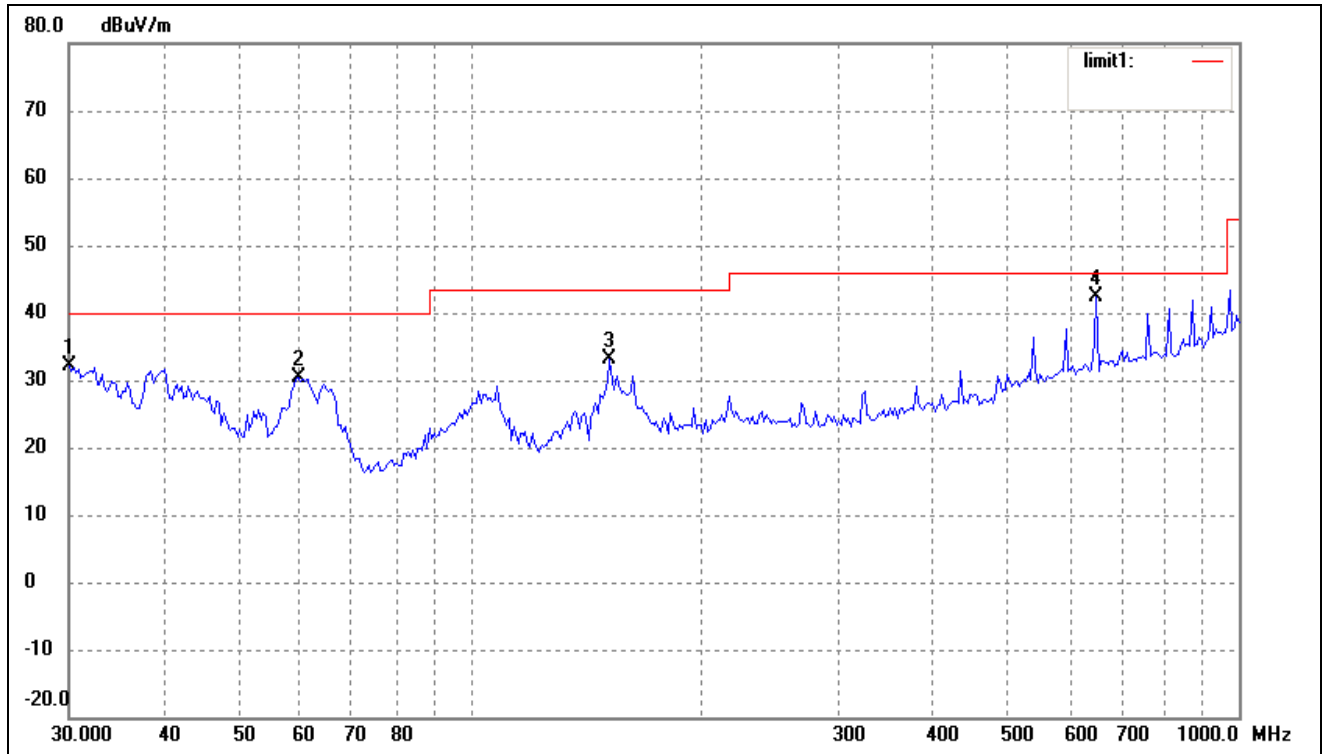
Comment:

Horizontal



No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree ( ° )	Height (cm)	Remark
1	62.6507	29.34	6.49	35.83	40.00	-4.17	336	204	QP
2	216.7828	29.66	7.17	36.83	46.00	-9.17	0	200	peak
3	595.1328	26.38	16.55	42.93	46.00	-3.07	254	108	QP
4	810.2653	24.93	19.20	44.13	46.00	-1.87	162	119	QP

Vertical



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	( ° )	(cm)	
1	30.0000	25.43	6.77	32.20	40.00	-7.80	0	200	peak
2	59.6492	22.81	7.55	30.36	40.00	-9.64	0	100	peak
3	151.5971	28.95	4.15	33.10	43.50	-10.40	360	200	peak
4	651.9416	25.27	17.11	42.38	46.00	-3.62	223	108	QP

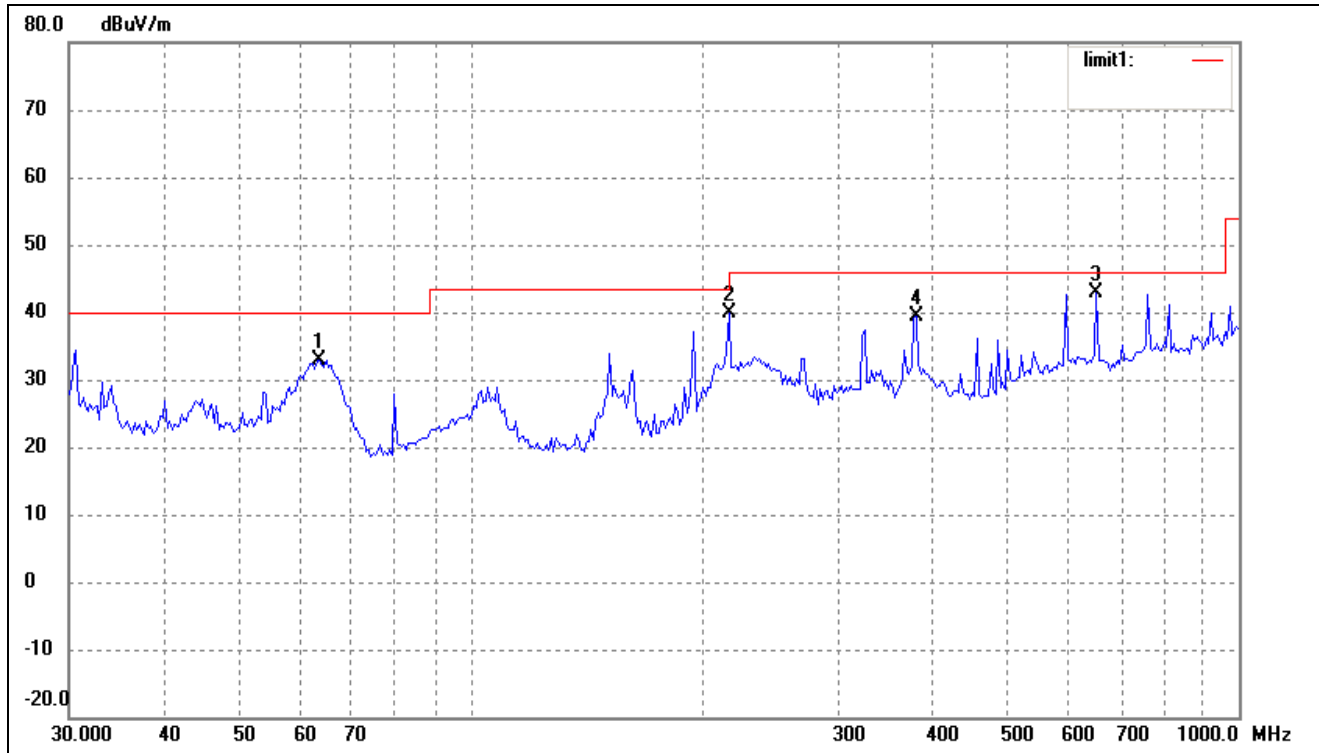


Spurious Emission From 30 MHz to 1 GHz

Test mode: Transmitting (802.11g) Low Channel

Comment:

Horizontal



No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree ( ° )	Height (cm)	Remark
1	63.5356	26.77	6.15	32.92	40.00	-7.08	360	100	peak
2	216.7828	32.67	7.17	39.84	46.00	-6.16	0	100	peak
3	651.9417	25.69	17.11	42.80	46.00	-3.20	220	102	QP
4	379.9141	28.07	11.20	39.27	46.00	-6.73	0	200	peak

Vertical



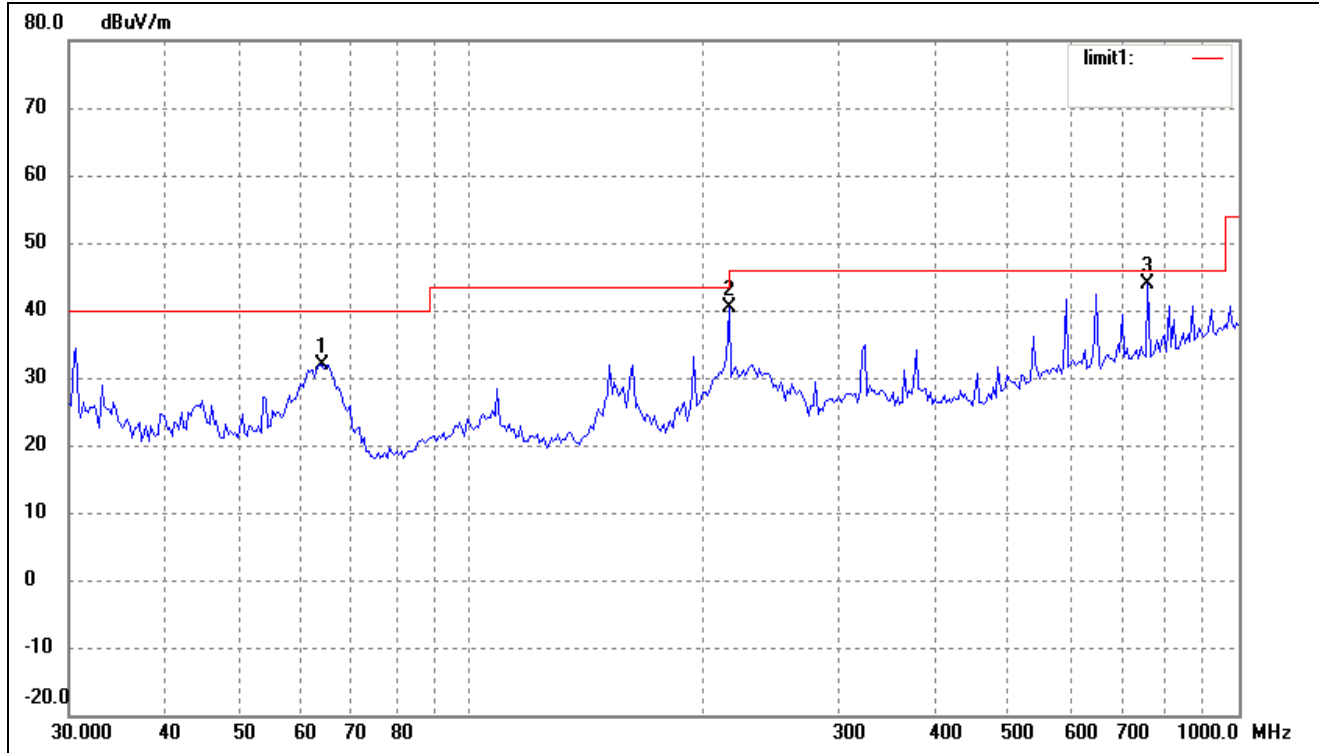
No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	( ° )	(cm)	
1	30.0000	28.20	6.77	34.97	40.00	-5.03	203	116	QP
2	60.4919	27.01	7.33	34.34	40.00	-5.66	334	120	QP
3	151.5971	31.23	4.15	35.38	43.50	-8.12	360	200	peak
4	651.9416	26.59	17.11	43.70	46.00	-2.30	109	117	QP

Spurious Emission From 30 MHz to 1 GHz

Test mode: Transmitting (802.11g) Middle Channel

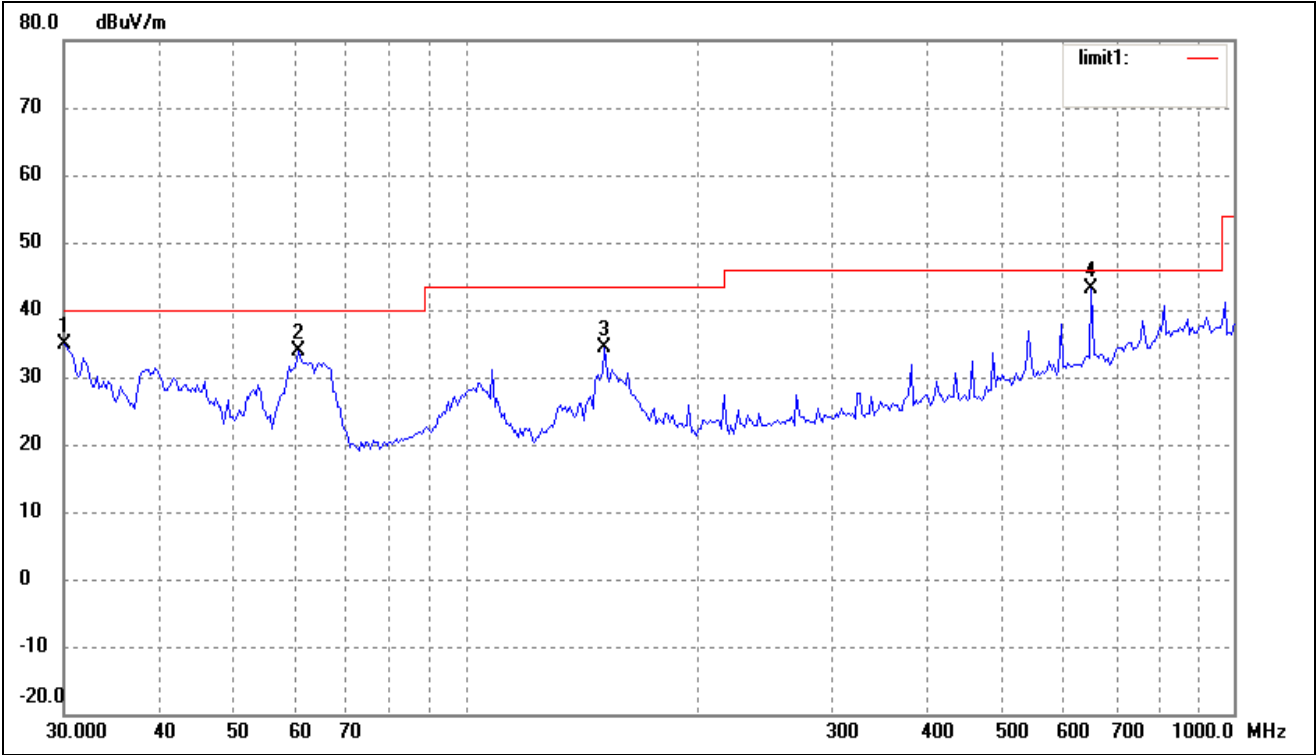
Comment:

Horizontal



No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree ( ° )	Height (cm)	Remark
1	63.9827	25.91	5.97	31.88	40.00	-8.12	360	200	peak
2	216.7828	33.20	7.17	40.37	46.00	-5.63	226	117	QP
3	760.7036	25.56	18.42	43.98	46.00	-2.02	309	201	QP

Vertical



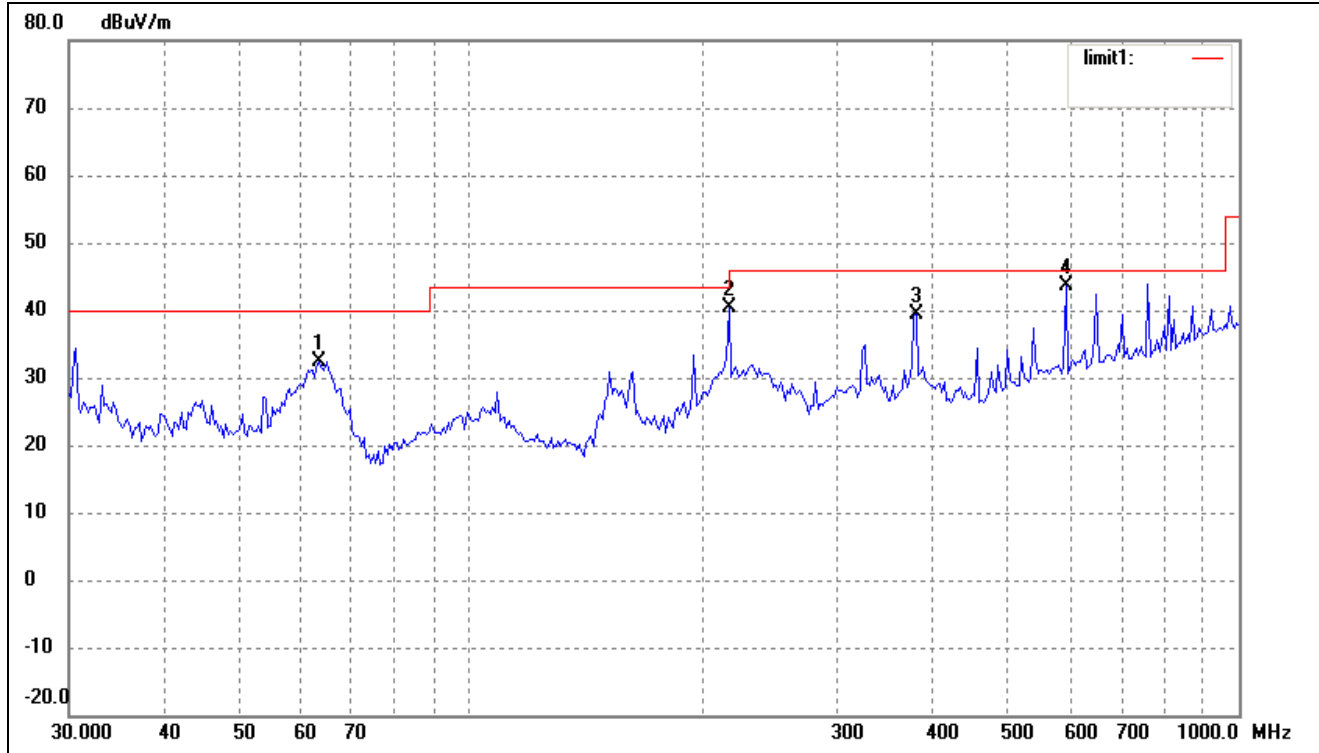
No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	( ° )	(cm)	
1	30.0000	28.14	6.77	34.91	40.00	-5.09	108	146	QP
2	60.4919	26.51	7.33	33.84	40.00	-6.16	360	200	peak
3	151.5971	30.23	4.15	34.38	43.50	-9.12	0	100	peak
4	651.9416	26.05	17.11	43.16	46.00	-2.84	116	209	QP

Spurious Emission From 30 MHz to 1 GHz

Test mode: Transmitting (802.11g) High Channel

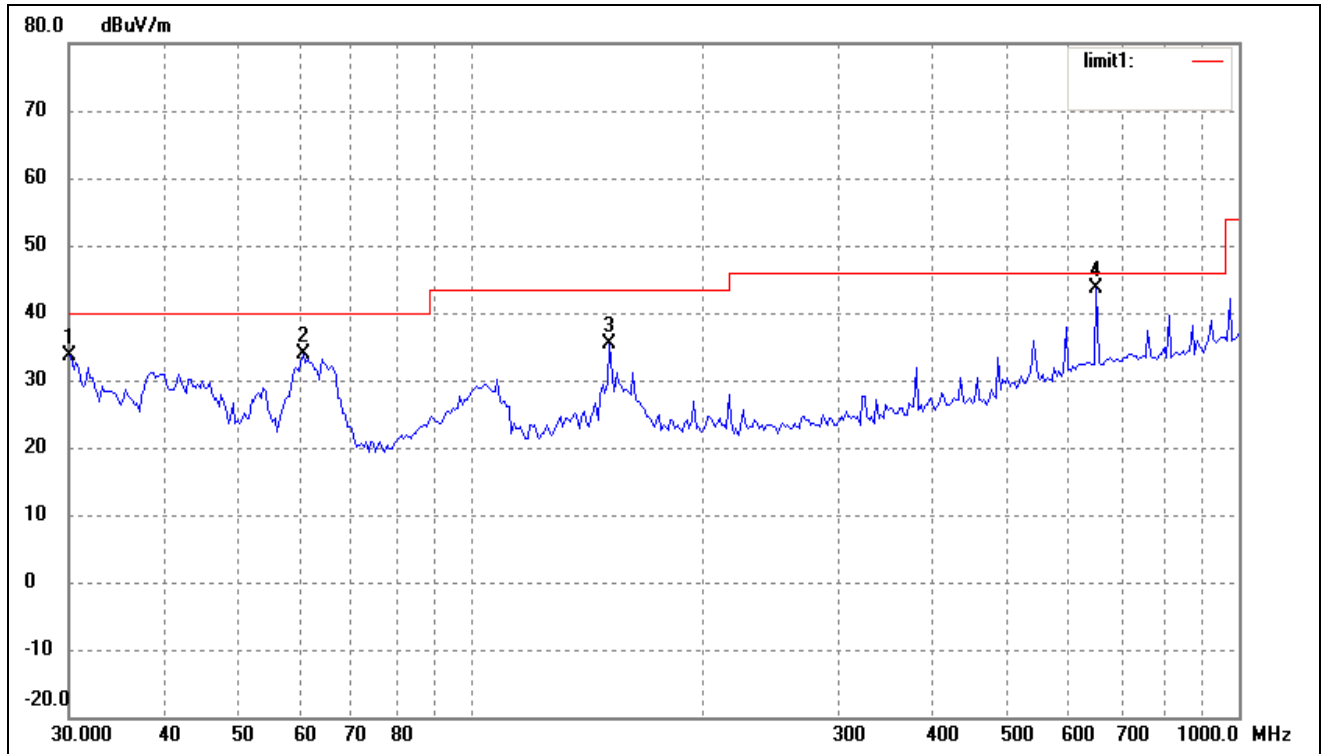
Comment:

Horizontal



No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree ( ° )	Height (cm)	Remark
1	63.5356	26.22	6.15	32.37	40.00	-7.63	0	100	peak
2	216.7828	33.20	7.17	40.37	46.00	-5.63	203	120	QP
3	379.9141	28.07	11.20	39.27	46.00	-6.73	360	100	peak
4	595.1328	27.13	16.55	43.68	46.00	-2.32	119	156	QP

## Vertical



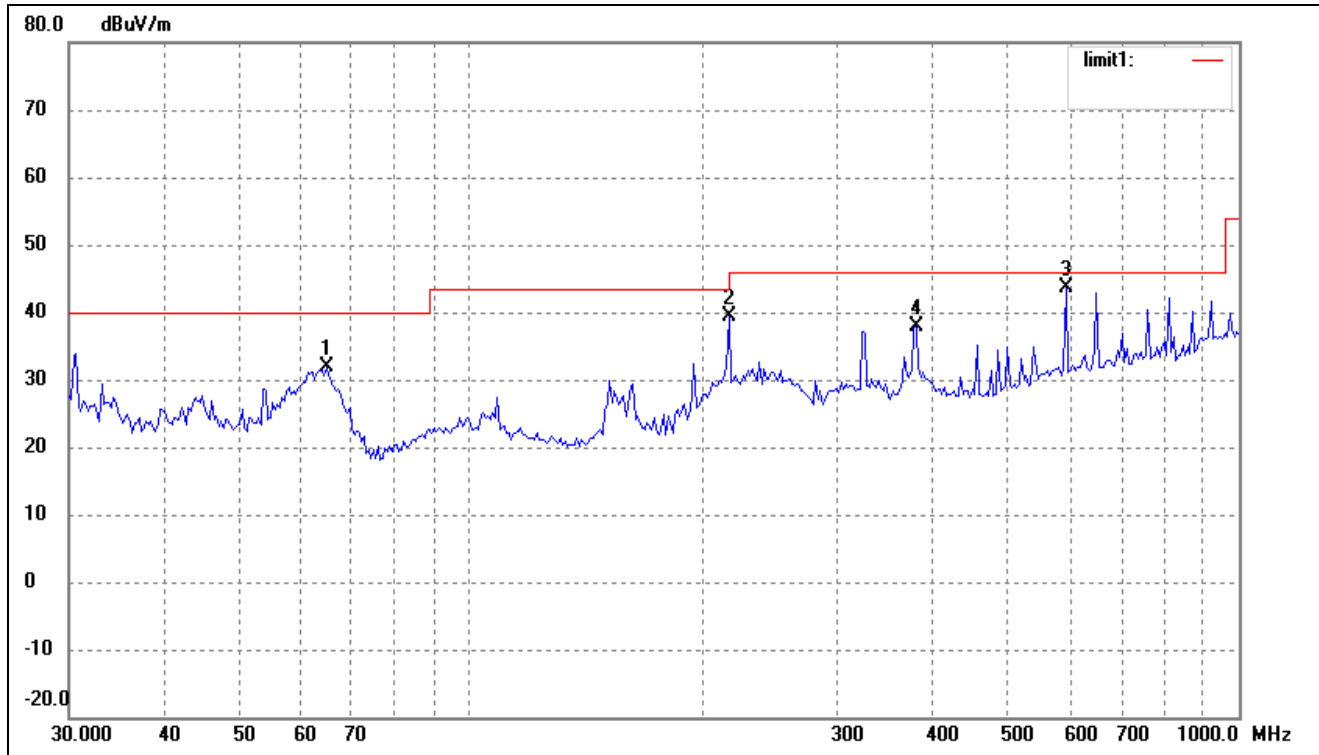
No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	( ° )	(cm)	
1	30.0000	26.85	6.77	33.62	40.00	-6.38	360	200	peak
2	60.4919	26.51	7.33	33.84	40.00	-6.16	0	100	peak
3	151.5971	31.23	4.15	35.38	43.50	-8.12	0	100	peak
4	651.9416	26.55	17.11	43.66	46.00	-2.34	119	208	QP

Spurious Emission From 30 MHz to 1 GHz

Test mode: Transmitting (802.11n HT20) Low Channel

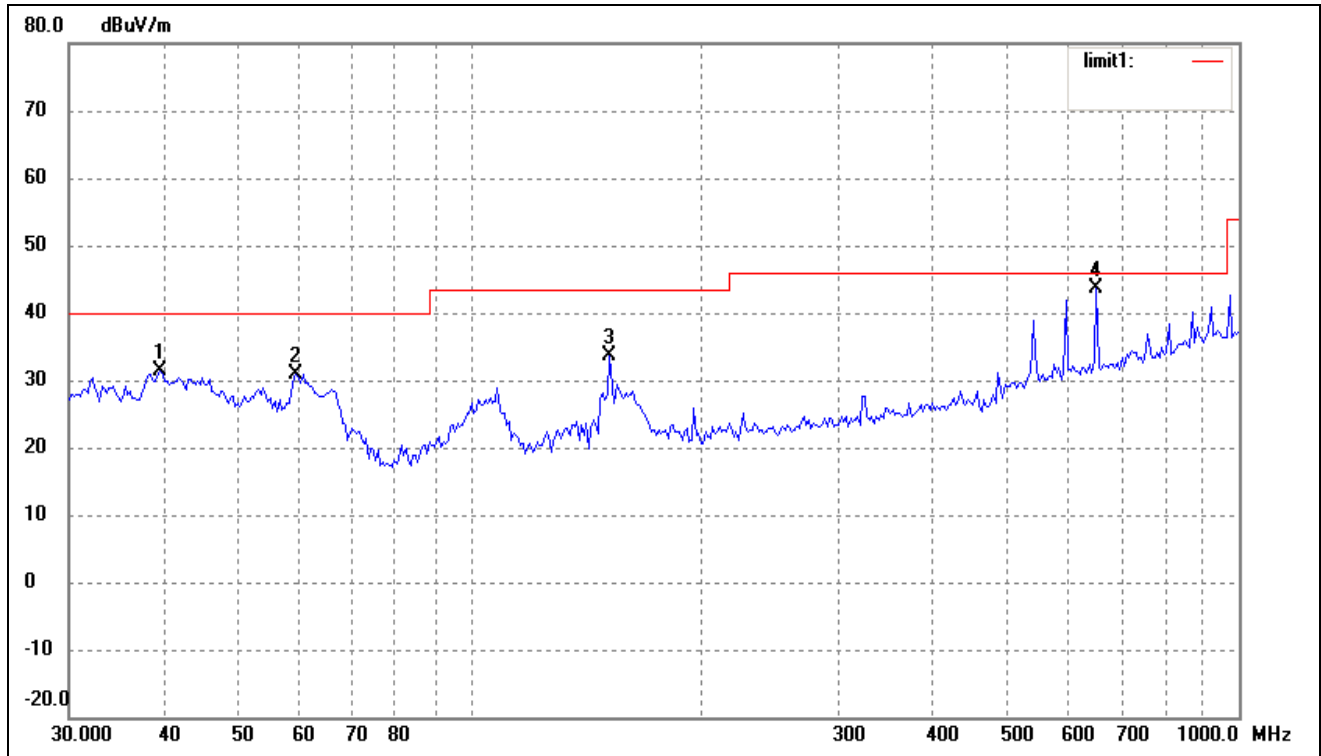
Comment:

Horizontal



No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree ( ° )	Height (cm)	Remark
1	64.8864	26.13	5.63	31.76	40.00	-8.24	360	100	peak
2	216.7828	32.20	7.17	39.37	46.00	-6.63	0	100	peak
3	595.1328	27.13	16.55	43.68	46.00	-2.32	203	120	QP
4	379.9141	26.57	11.20	37.77	46.00	-8.23	0	200	peak

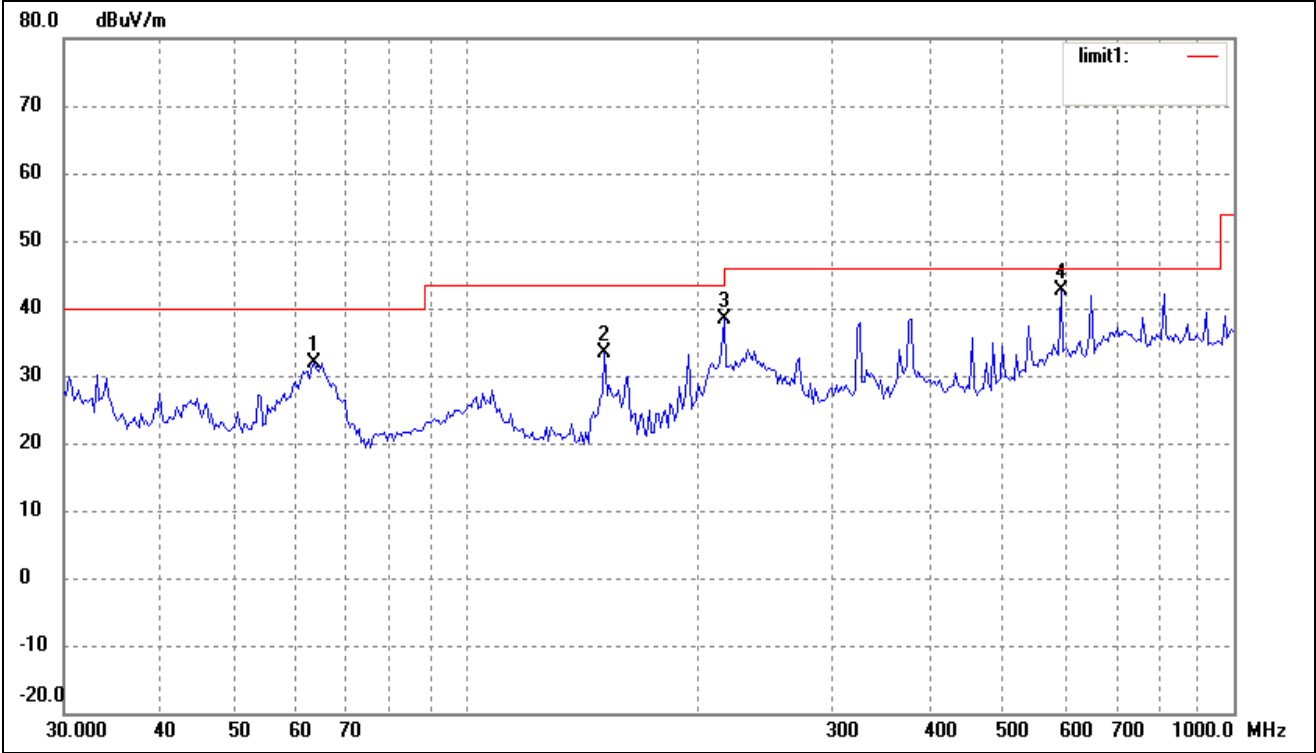
Vertical



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	( ° )	(cm)	
1	39.4371	23.38	7.99	31.37	40.00	-8.63	360	200	peak
2	59.2325	23.38	7.57	30.95	40.00	-9.05	0	200	peak
3	151.5971	29.49	4.15	33.64	43.50	-9.86	0	200	peak
4	651.9416	26.55	17.11	43.66	46.00	-2.34	108	157	QP

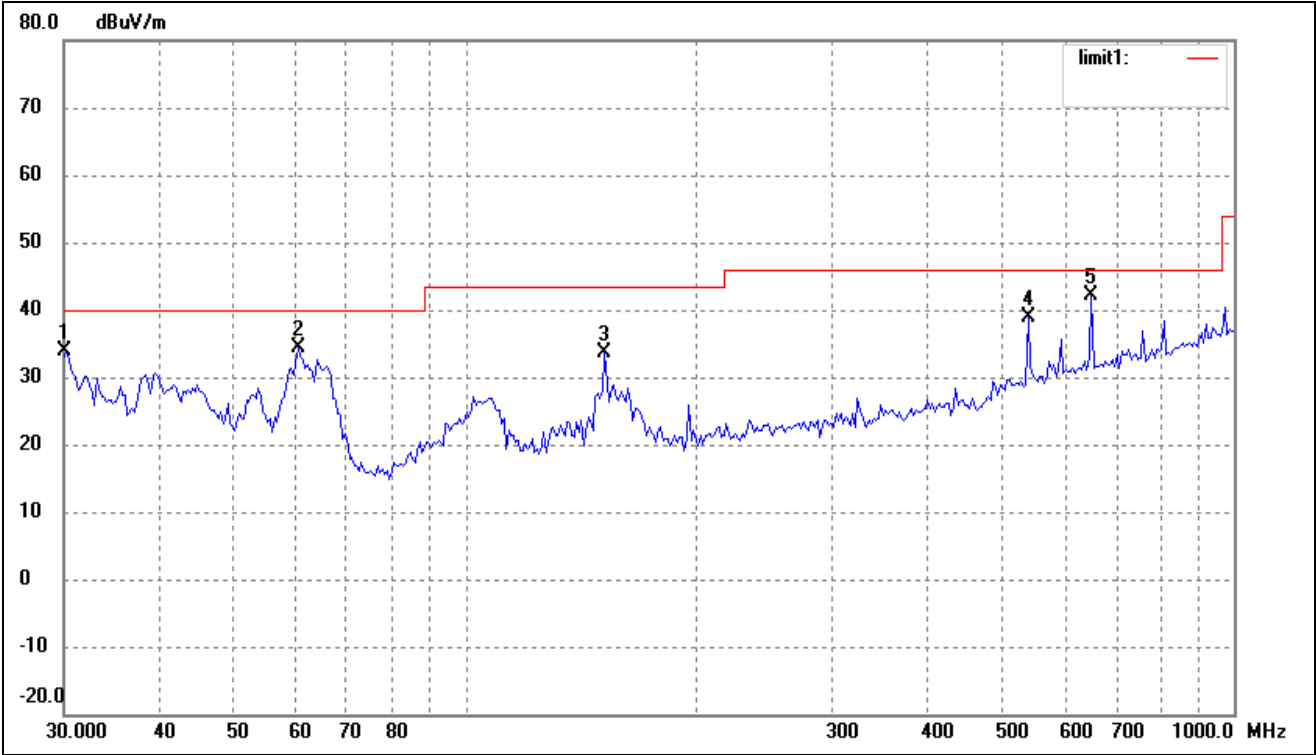


Spurious Emission From 30 MHz to 1 GHz  
Test mode: Transmitting (802.11n HT20) Middle Channel  
Comment:  
Horizontal



No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree ( ° )	Height (cm)	Remark
1	63.5356	25.72	6.15	31.87	40.00	-8.13	360	100	peak
2	151.5971	29.17	4.15	33.32	43.50	-10.18	0	100	peak
3	216.7828	31.17	7.17	38.34	46.00	-7.66	0	200	peak
4	595.1328	26.13	16.55	42.68	46.00	-3.32	226	108	QP

Vertical



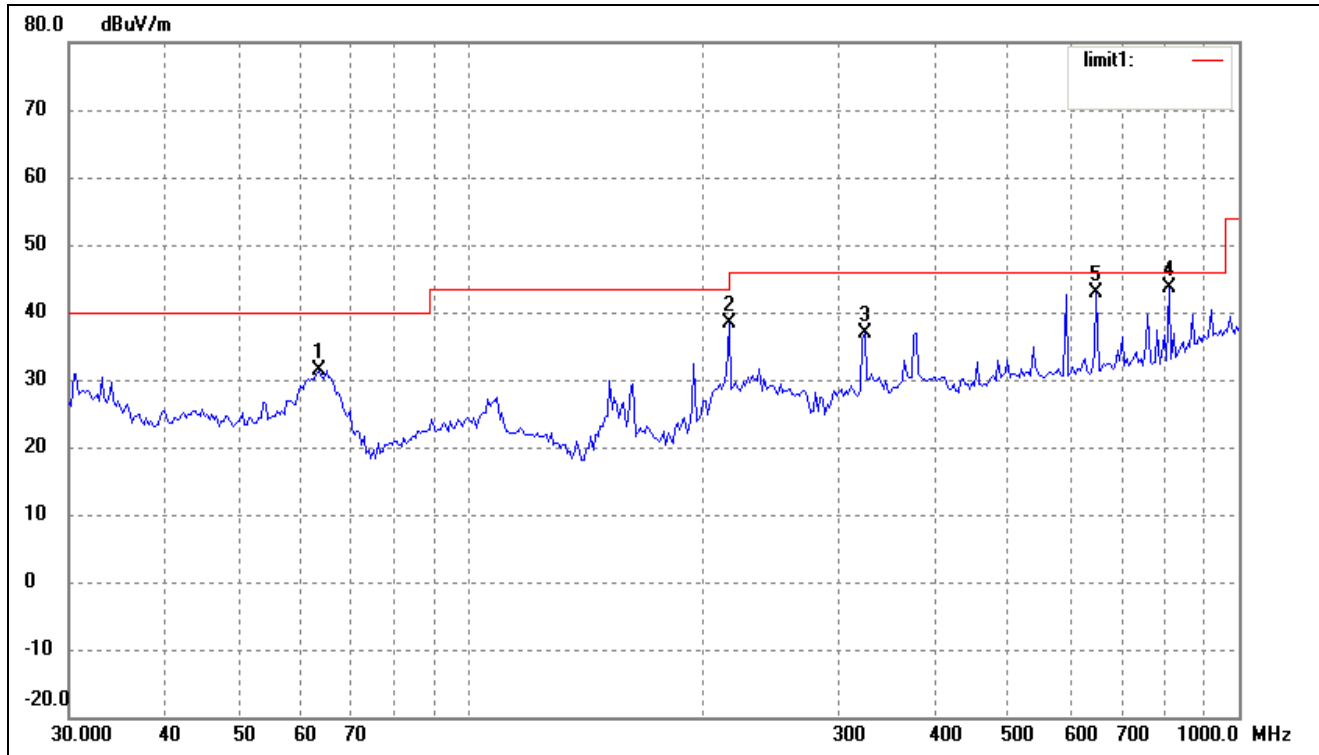
No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	( ° )	(cm)	
1	30.2110	27.13	6.77	33.90	40.00	-6.10	360	100	peak
2	60.4919	27.01	7.33	34.34	40.00	-5.66	204	121	QP
3	151.5971	29.49	4.15	33.64	43.50	-9.86	0	200	peak
4	539.4774	23.62	15.30	38.92	46.00	-7.08	0	100	peak
5	651.9416	25.05	17.11	42.16	46.00	-3.84	125	252	QP

Spurious Emission From 30 MHz to 1 GHz

Test mode: Transmitting (802.11n HT20) High Channel

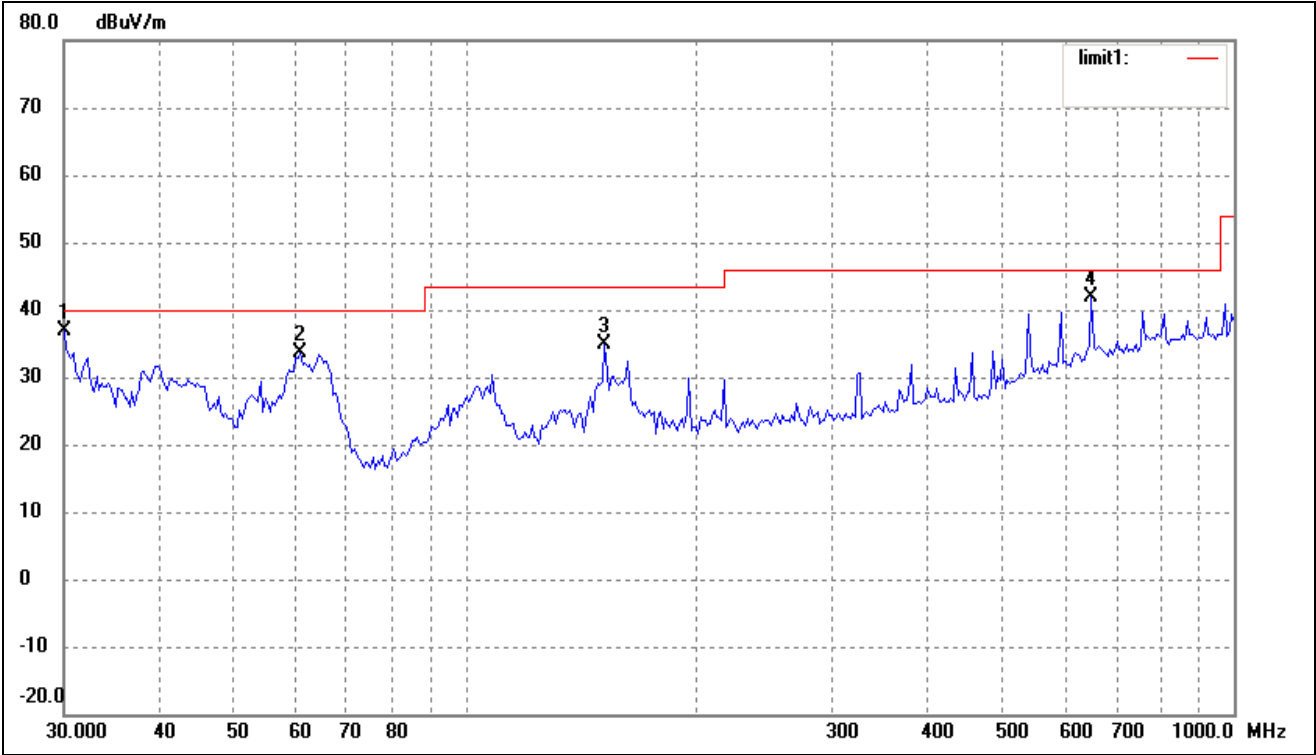
Comment:

Horizontal



No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree ( ° )	Height (cm)	Remark
1	63.5356	25.22	6.15	31.37	40.00	-8.63	360	100	peak
2	216.7828	31.20	7.17	38.37	46.00	-7.63	0	200	peak
3	325.5957	26.88	10.11	36.99	46.00	-9.01	360	200	peak
4	810.2653	24.36	19.20	43.56	46.00	-2.44	223	118	QP
5	651.9416	25.87	17.11	42.98	46.00	-3.02	109	221	QP

Vertical



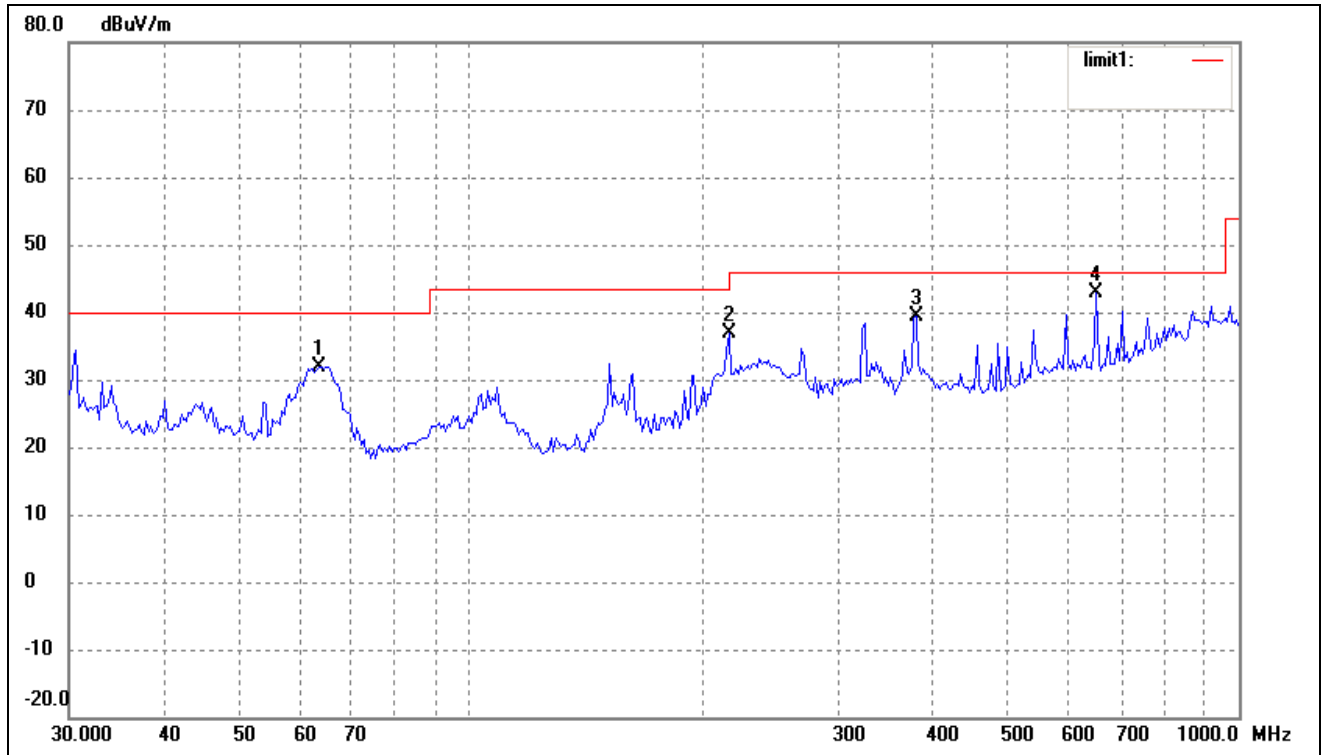
No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	( ° )	(cm)	
1	30.0000	30.21	6.77	36.98	40.00	-3.02	117	215	QP
2	60.9176	26.49	7.17	33.66	40.00	-6.34	360	100	peak
3	151.5971	30.80	4.15	34.95	43.50	-8.55	0	200	peak
4	651.9416	24.68	17.11	41.79	46.00	-4.21	223	109	QP

Spurious Emission From 30 MHz to 1 GHz

Test mode: Transmitting (802.11n HT40) Low Channel

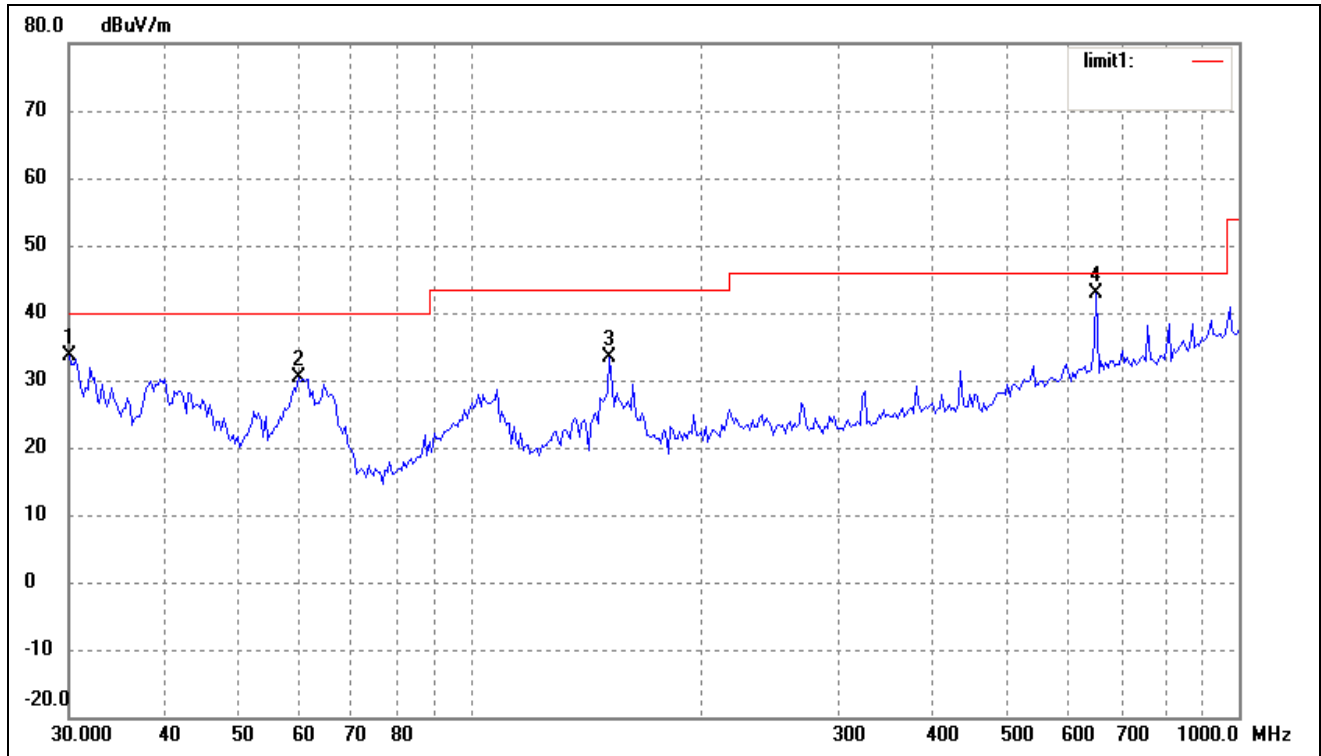
Comment:

Horizontal



No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree ( ° )	Height (cm)	Remark
1	63.5356	25.77	6.15	31.92	40.00	-8.08	360	100	peak
2	216.7828	29.67	7.17	36.84	46.00	-9.16	0	200	peak
3	379.9141	28.07	11.20	39.27	46.00	-6.73	0	200	peak
4	651.9416	25.69	17.11	42.80	46.00	-3.20	228	114	QP

## Vertical



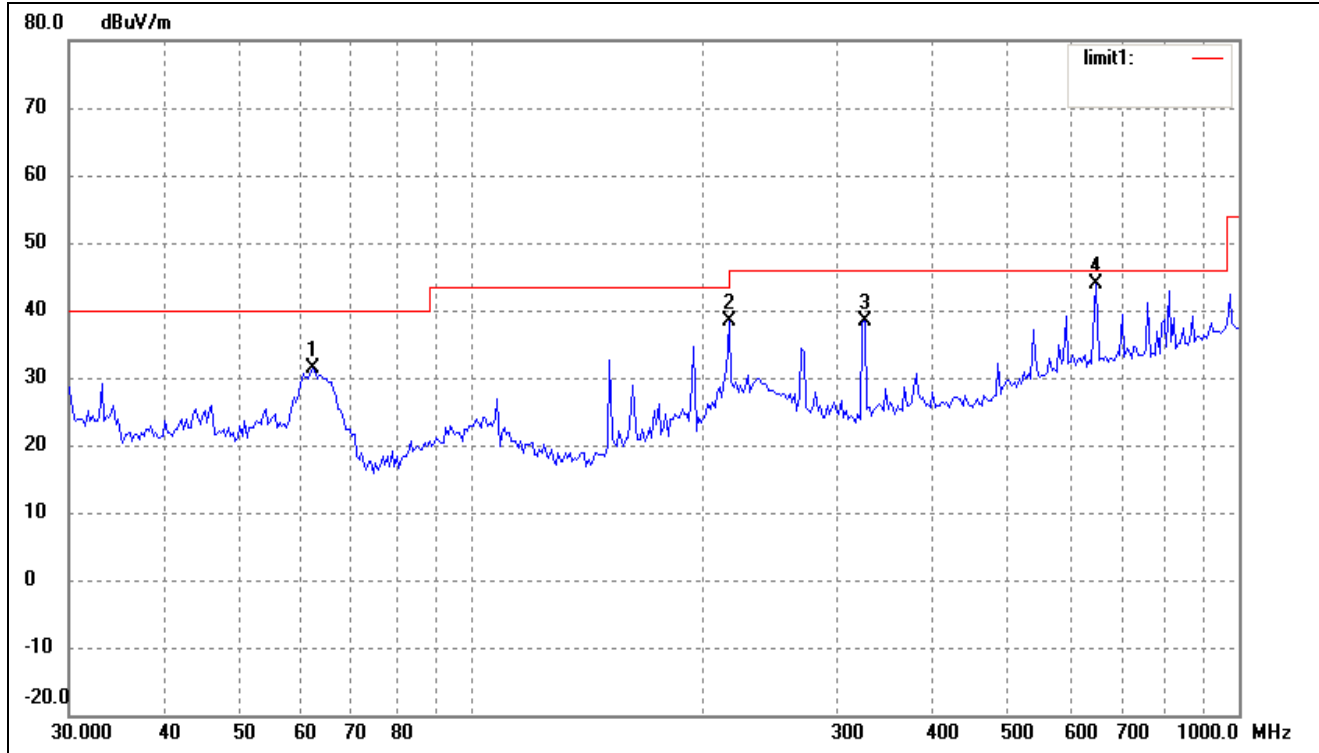
No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	( ° )	(cm)	
1	30.0000	26.87	6.77	33.64	40.00	-6.36	0	100	peak
2	59.6492	22.81	7.55	30.36	40.00	-9.64	0	200	peak
3	151.5971	29.25	4.15	33.40	43.50	-10.10	360	100	peak
4	651.9416	25.77	17.11	42.88	46.00	-3.12	120	154	QP

Spurious Emission From 30 MHz to 1 GHz

Test mode: Transmitting (802.11n HT40) Middle Channel

Comment:

Horizontal



No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree ( ° )	Height (cm)	Remark
1	62.2128	24.71	6.67	31.38	40.00	-8.62	360	200	peak
2	216.7828	31.17	7.17	38.34	46.00	-7.66	0	100	peak
3	325.5958	28.25	10.11	38.36	46.00	-7.64	0	100	peak
4	651.9417	26.78	17.11	43.89	46.00	-2.11	228	109	QP

Vertical



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	( ° )	(cm)	
1	30.0000	27.71	6.77	34.48	40.00	-5.52	208	126	QP
2	64.4330	27.05	5.81	32.86	40.00	-7.14	360	100	peak
3	151.5971	30.30	4.15	34.45	43.50	-9.05	0	200	peak
4	651.9416	26.16	17.11	43.27	46.00	-2.73	117	109	QP

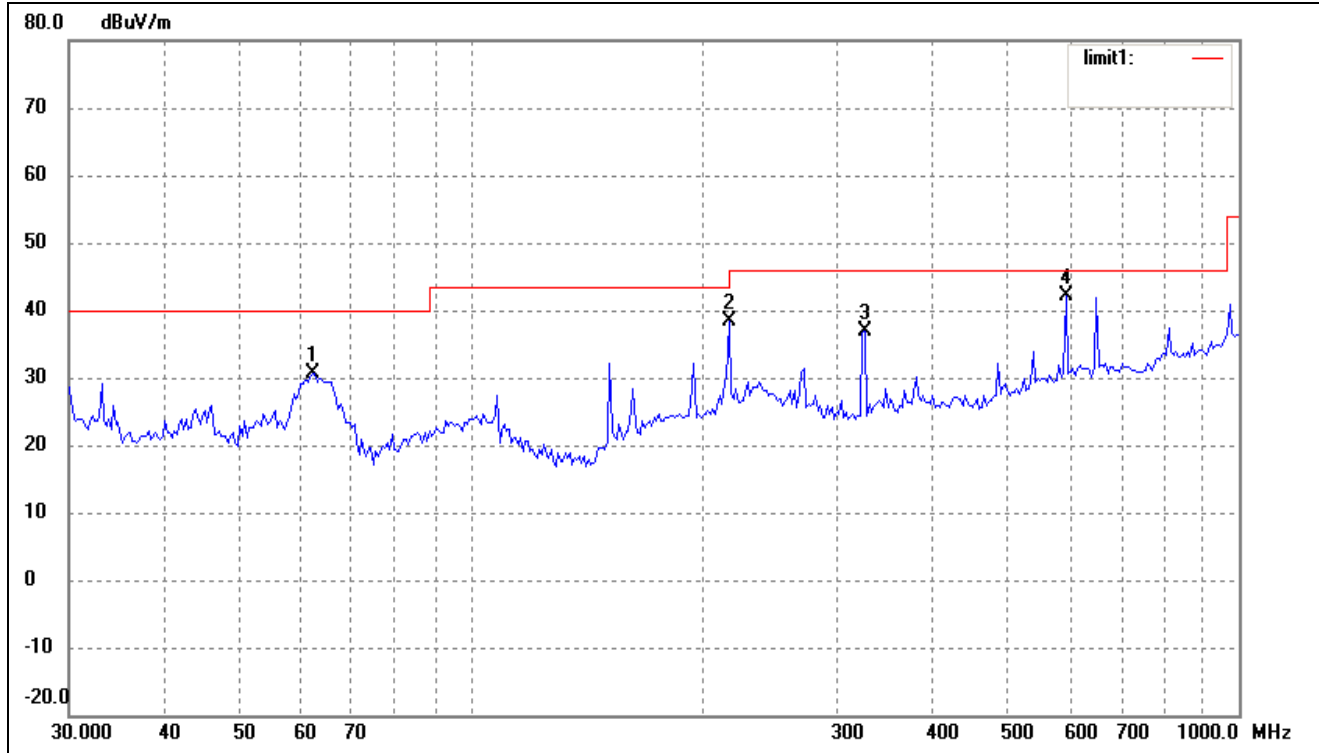


Spurious Emission From 30 MHz to 1 GHz

Test mode: Transmitting (802.11n HT40) High Channel

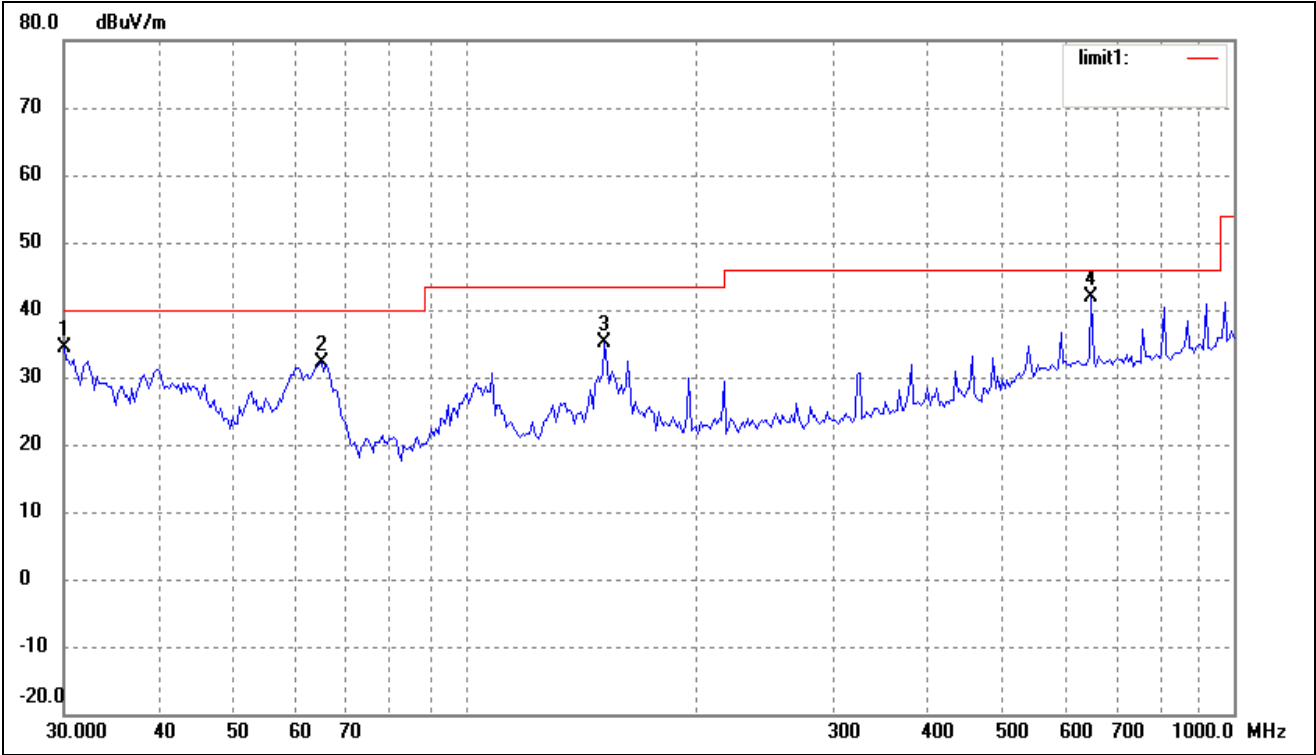
Comment:

Horizontal



No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree ( ° )	Height (cm)	Remark
1	62.2128	24.08	6.67	30.75	40.00	-9.25	360	200	peak
2	216.7828	31.17	7.17	38.34	46.00	-7.66	0	100	peak
3	325.5957	26.75	10.11	36.86	46.00	-9.14	360	200	peak
4	595.1328	25.61	16.55	42.16	46.00	-3.84	209	214	QP

Vertical



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	( ° )	(cm)	
1	30.0000	27.71	6.77	34.48	40.00	-5.52	207	115	QP
2	64.8864	26.40	5.63	32.03	40.00	-7.97	360	200	peak
3	151.5971	31.00	4.15	35.15	43.50	-8.35	0	100	peak
4	651.9416	24.85	17.11	41.96	46.00	-4.04	226	127	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	54.31	90	V	34.1	5.2	33.0	60.61	74	-13.39
4824.0	PK	56.43	270	H	34.1	5.2	33.0	62.73	74	-11.27
7236.0	PK	49.26	180	V	37.4	6.1	33.5	59.26	74	-14.74
7236.0	PK	50.34	45	H	37.4	6.1	33.5	60.34	74	-13.66
4824.0	AV	43.18	270	V	34.1	5.2	33.0	49.48	54	-4.52
4824.0	AV	44.29	90	H	34.1	5.2	33.0	50.59	54	-3.41
7236.0	AV	38.27	45	V	37.4	6.1	33.5	48.27	54	-5.73
7236.0	AV	39.67	60	H	37.4	6.1	33.5	49.67	54	-4.33
Middle Channel (1G to 25GHz)										
4874.0	PK	52.37	45	V	34.1	5.2	33.0	58.67	74	-15.33
4874.0	PK	56.48	270	H	34.1	5.2	33.0	62.78	74	-11.22
7311.0	PK	48.61	45	V	37.4	6.1	33.5	58.61	74	-15.39
7311.0	PK	50.37	180	H	37.4	6.1	33.5	60.37	74	-13.63
4874.0	AV	42.68	270	V	34.1	5.2	33.0	48.98	54	-5.02
4874.0	AV	44.84	90	H	34.1	5.2	33.0	51.14	54	-2.86
7311.0	AV	37.68	60	V	37.4	6.1	33.5	47.68	54	-6.32
7311.0	AV	39.45	45	H	37.4	6.1	33.5	49.45	54	-4.55
High Channel (1G to 25GHz)										
4924.0	PK	51.38	270	V	34.1	5.2	33.0	57.68	74	-16.32
4924.0	PK	55.79	45	H	34.1	5.2	33.0	62.09	74	-11.91
7386.0	PK	46.09	180	V	37.4	6.1	33.5	56.09	74	-17.91
7386.0	PK	49.27	45	H	37.4	6.1	33.5	59.27	74	-14.73
4924.0	AV	39.36	90	V	34.1	5.2	33.0	45.66	54	-8.34
4924.0	AV	43.21	270	H	34.1	5.2	33.0	49.51	54	-4.49
7386.0	AV	35.29	60	V	37.4	6.1	33.5	45.29	54	-8.71
7386.0	AV	38.64	60	H	37.4	6.1	33.5	48.64	54	-5.36

*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	53.29	90	V	34.1	5.2	33.0	59.59	74	-14.41
4824.0	PK	60.52	270	H	34.1	5.2	33.0	66.82	74	-7.18
7236.0	PK	49.63	180	V	37.4	6.1	33.5	59.63	74	-14.37
7236.0	PK	50.38	45	H	37.4	6.1	33.5	60.38	74	-13.62
4824.0	AV	42.53	270	V	34.1	5.2	33.0	48.83	54	-5.17
4824.0	AV	44.12	90	H	34.1	5.2	33.0	50.42	54	-3.58
7236.0	AV	36.28	45	V	37.4	6.1	33.5	46.28	54	-7.72
7236.0	AV	39.57	60	H	37.4	6.1	33.5	49.57	54	-4.43
Middle Channel (1G to 25GHz)										
4874.0	PK	54.27	45	V	34.1	5.2	33.0	60.57	74	-13.43
4874.0	PK	59.36	270	H	34.1	5.2	33.0	65.66	74	-8.34
7311.0	PK	48.15	45	V	37.4	6.1	33.5	58.15	74	-15.85
7311.0	PK	59.68	180	H	37.4	6.1	33.5	69.68	74	-4.32
4874.0	AV	41.06	270	V	34.1	5.2	33.0	47.36	54	-6.64
4874.0	AV	43.23	90	H	34.1	5.2	33.0	49.53	54	-4.47
7311.0	AV	35.47	60	V	37.4	6.1	33.5	45.47	54	-8.53
7311.0	AV	39.64	45	H	37.4	6.1	33.5	49.64	54	-4.36
High Channel (1G to 25GHz)										
4924.0	PK	55.28	270	V	34.1	5.2	33.0	61.58	74	-12.42
4924.0	PK	60.37	45	H	34.1	5.2	33.0	66.67	74	-7.33
7386.0	PK	51.67	180	V	37.4	6.1	33.5	61.67	74	-12.33
7386.0	PK	61.08	45	H	37.4	6.1	33.5	71.08	74	-2.92
4924.0	AV	42.36	90	V	34.1	5.2	33.0	48.66	54	-5.34
4924.0	AV	45.39	270	H	34.1	5.2	33.0	51.69	54	-2.31
7386.0	AV	34.28	60	V	37.4	6.1	33.5	44.28	54	-9.72
7386.0	AV	37.08	60	H	37.4	6.1	33.5	47.08	54	-6.92

*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	56.38	90	V	34.1	5.2	33.0	62.68	74	-11.32
4824.0	PK	59.67	270	H	34.1	5.2	33.0	65.97	74	-8.03
7236.0	PK	52.16	180	V	37.4	6.1	33.5	62.16	74	-11.84
7236.0	PK	58.67	45	H	37.4	6.1	33.5	68.67	74	-5.33
4824.0	AV	41.35	270	V	34.1	5.2	33.0	47.65	54	-6.35
4824.0	AV	45.29	90	H	34.1	5.2	33.0	51.59	54	-2.41
7236.0	AV	32.06	45	V	37.4	6.1	33.5	42.06	54	-11.94
7236.0	AV	34.28	60	H	37.4	6.1	33.5	44.28	54	-9.72
Middle Channel (1G to 25GHz)										
4874.0	PK	55.64	45	V	34.1	5.2	33.0	61.94	74	-12.06
4874.0	PK	58.69	270	H	34.1	5.2	33.0	64.99	74	-9.01
7311.0	PK	53.71	45	V	37.4	6.1	33.5	63.71	74	-10.29
7311.0	PK	57.81	180	H	37.4	6.1	33.5	67.81	74	-6.19
4874.0	AV	42.67	270	V	34.1	5.2	33.0	48.97	54	-5.03
4874.0	AV	44.62	90	H	34.1	5.2	33.0	50.92	54	-3.08
7311.0	AV	31.29	60	V	37.4	6.1	33.5	41.29	54	-12.71
7311.0	AV	33.52	45	H	37.4	6.1	33.5	43.52	54	-10.48
High Channel (1G to 25GHz)										
4924.0	PK	56.37	270	V	34.1	5.2	33.0	62.67	74	-11.33
4924.0	PK	59.62	45	H	34.1	5.2	33.0	65.92	74	-8.08
7386.0	PK	52.39	180	V	37.4	6.1	33.5	62.39	74	-11.61
7386.0	PK	56.15	45	H	37.4	6.1	33.5	66.15	74	-7.85
4924.0	AV	40.28	90	V	34.1	5.2	33.0	46.58	54	-7.42
4924.0	AV	43.61	270	H	34.1	5.2	33.0	49.91	54	-4.09
7386.0	AV	30.38	60	V	37.4	6.1	33.5	40.38	54	-13.62
7386.0	AV	34.18	60	H	37.4	6.1	33.5	44.18	54	-9.82

*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)										
4824.0	PK	55.42	90	V	34.1	5.2	33.0	61.72	74	-12.28
4824.0	PK	58.37	270	H	34.1	5.2	33.0	64.67	74	-9.33
7236.0	PK	51.36	180	V	37.4	6.1	33.5	61.36	74	-12.64
7236.0	PK	55.61	45	H	37.4	6.1	33.5	65.61	74	-8.39
4824.0	AV	41.54	270	V	34.1	5.2	33.0	47.84	54	-6.16
4824.0	AV	42.73	90	H	34.1	5.2	33.0	49.03	54	-4.97
7236.0	AV	31.29	45	V	37.4	6.1	33.5	41.29	54	-12.71
7236.0	AV	33.71	60	H	37.4	6.1	33.5	43.71	54	-10.29
Middle Channel (1G to 25GHz)										
4874.0	PK	54.52	45	V	34.1	5.2	33.0	60.82	74	-13.18
4874.0	PK	57.39	270	H	34.1	5.2	33.0	63.69	74	-10.31
7311.0	PK	52.43	45	V	37.4	6.1	33.5	62.43	74	-11.57
7311.0	PK	56.29	180	H	37.4	6.1	33.5	66.29	74	-7.71
4874.0	AV	40.59	270	V	34.1	5.2	33.0	46.89	54	-7.11
4874.0	AV	43.26	90	H	34.1	5.2	33.0	49.56	54	-4.44
7311.0	AV	30.85	60	V	37.4	6.1	33.5	40.85	54	-13.15
7311.0	AV	34.19	45	H	37.4	6.1	33.5	44.19	54	-9.81
High Channel (1G to 25GHz)										
4924.0	PK	45	45	V	34.1	5.2	33.0	58.67	74	-15.33
4924.0	PK	270	270	H	34.1	5.2	33.0	62.59	74	-11.41
7386.0	PK	45	45	V	37.4	6.1	33.5	61.61	74	-12.39
7386.0	PK	180	180	H	37.4	6.1	33.5	65.97	74	-8.03
4924.0	AV	270	270	V	34.1	5.2	33.0	47.64	54	-6.36
4924.0	AV	90	90	H	34.1	5.2	33.0	50.59	54	-3.41
7386.0	AV	60	60	V	37.4	6.1	33.5	41.56	54	-12.44
7386.0	AV	45	45	H	37.4	6.1	33.5	44.68	54	-9.32

*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.*

## 9. OUT OF BAND EMISSIONS

### 9.1 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.

### 9.2 Test Equipment List and Details

Description	Manufacturer	Model	Serial Number	Cal. Date	Due. Date
Spectrum Analyzer	R&S	FSP	836079/035	2010-12-20	2011-12-19
EMI Test Receiver	R&S	ESVB	825471/005	2010-12-20	2011-12-19
Positioning Controller	C&C	CC-C-1F	N/A	2010-12-20	2011-12-19
RF Switch	EM	EMSW18	SW060023	2010-12-20	2011-12-19
Pre-amplifier	Agilent	8447F	3113A06717	2010-12-20	2011-12-19
Pre-amplifier	Compliance Direction	PAP-0118	24002	2010-12-20	2011-12-19
Trilog Broadband Antenna	SCHWARZBECK	VULB9163	9163-333	2011-01-09	2012-01-08
Horn Antenna	ETS	3117	00086197	2011-01-09	2012-01-08

### 9.3 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.

### 9.4 Environmental Conditions

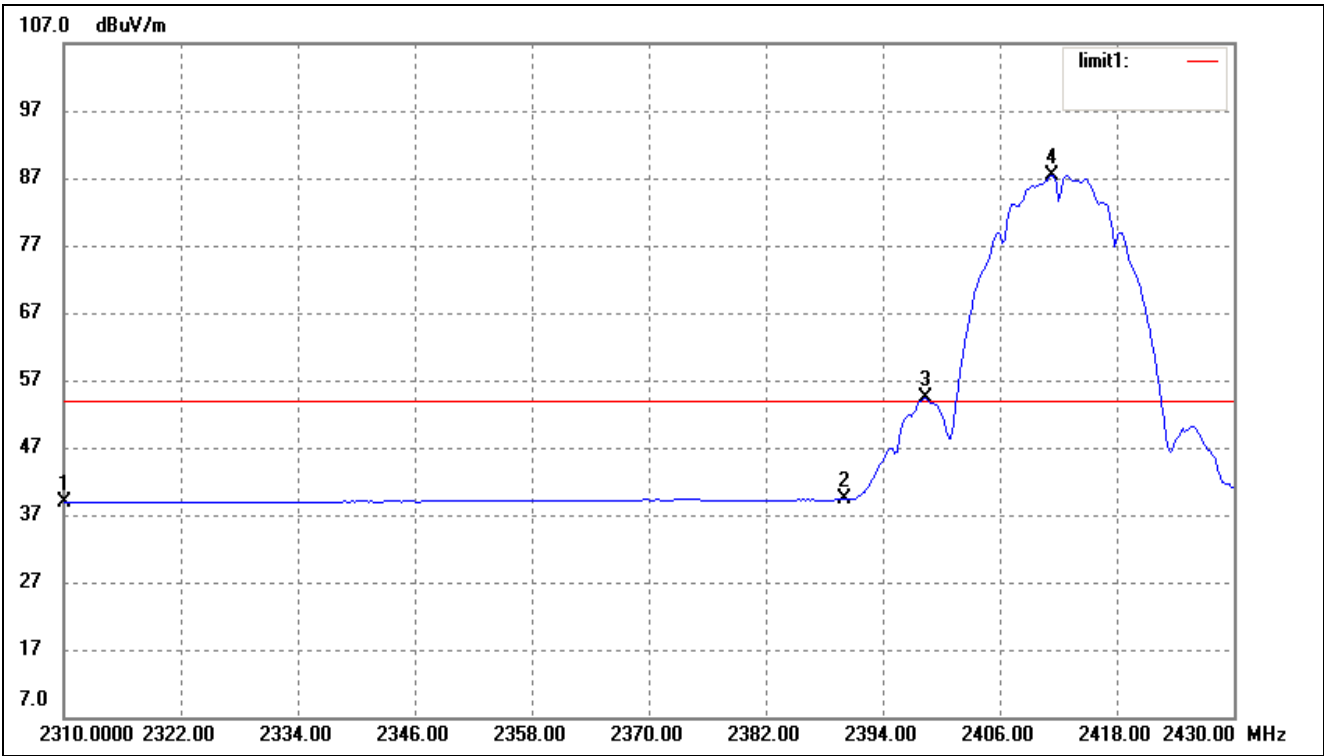
Temperature:	21° C
Relative Humidity:	54%
ATM Pressure:	1011 mbar

**9.5 Summary of Test Results/Plots**

Test mode	Frequency MHz	Limit dBuV /dB	Result
802.11b	2390.00	<54dBuv	Pass
	2398.32	>20dB	Pass
	2483.50	<54dBuv	Pass
802.11g	2390.00	<54dBuv	Pass
	2400.00	>20dB	Pass
	2483.50	<54dBuv	Pass
802.11n HT20	2390.00	<54dBuv	Pass
	2400.00	>20dB	Pass
	2483.50	<54dBuv	Pass
802.11n HT40	2390.00	<54dBuv	Pass
	2400.00	>20dB	Pass
	2483.50	<54dBuv	Pass

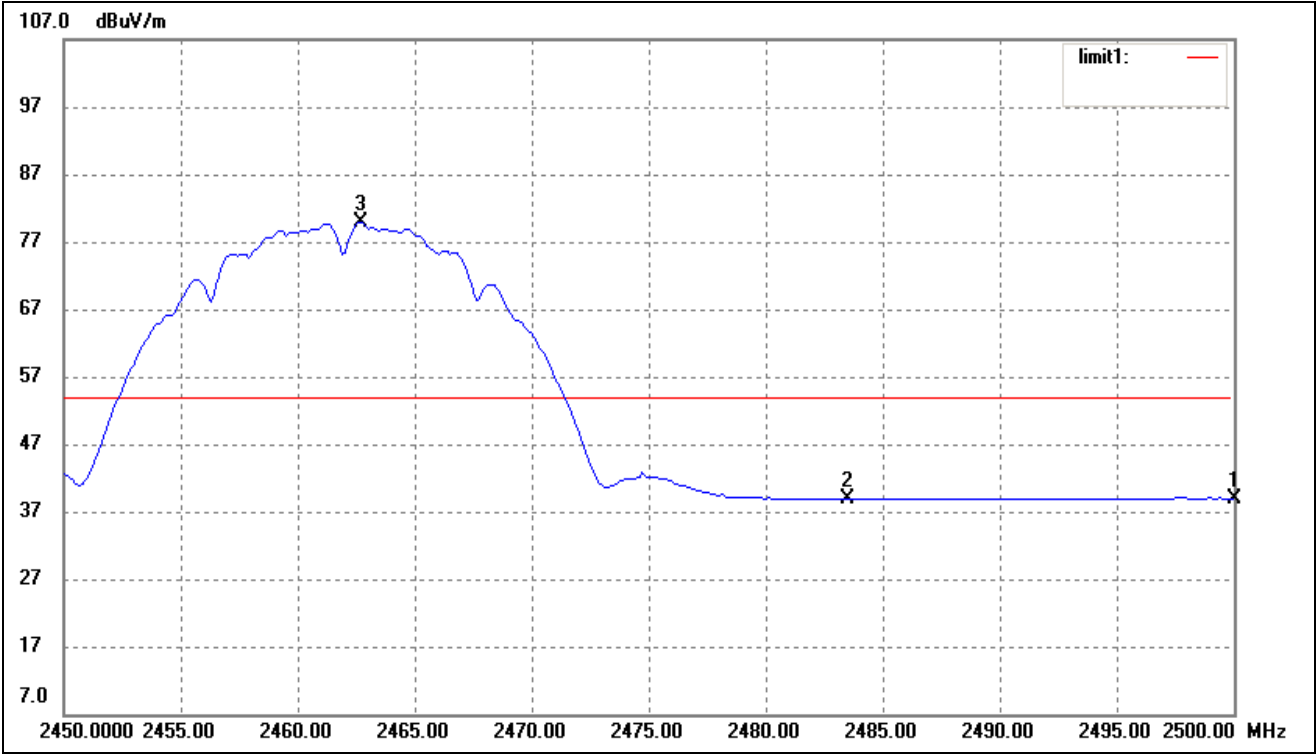


For 802.11b  
Lowest Bandedge



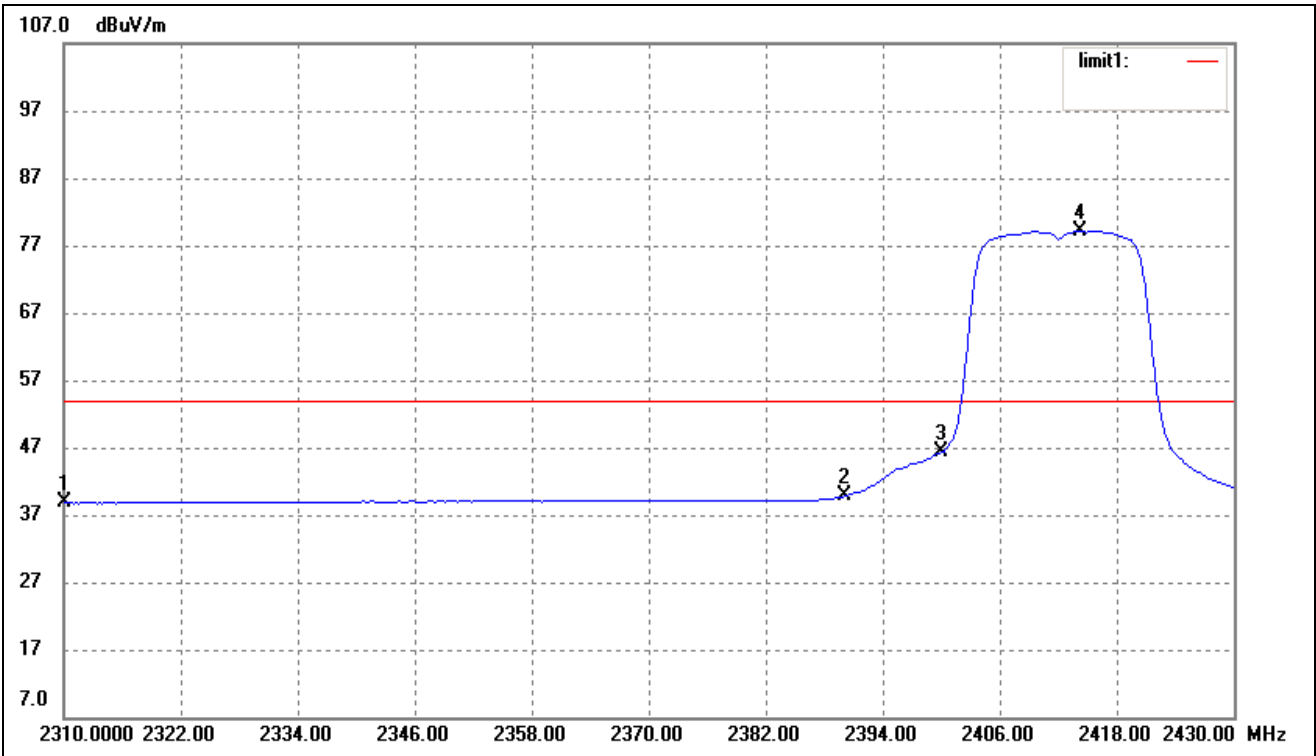
No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	( ° )	(cm)	
1	2310.000	36.30	2.49	38.79	54.00	-15.21	226	100	Ave
	2310.000	47.29	2.49	49.78	74.00	-24.22	226	100	peak
2	2390.000	36.64	2.66	39.30	54.00	-14.70	154	100	Ave
	2390.000	48.32	2.66	50.98	74.00	-23.02	223	100	peak
3	2398.320	51.62	2.69	54.31	/	/	/	/	Ave
4	2411.280	84.72	2.72	87.44	/	/	/	/	Ave

Highest Bandedge



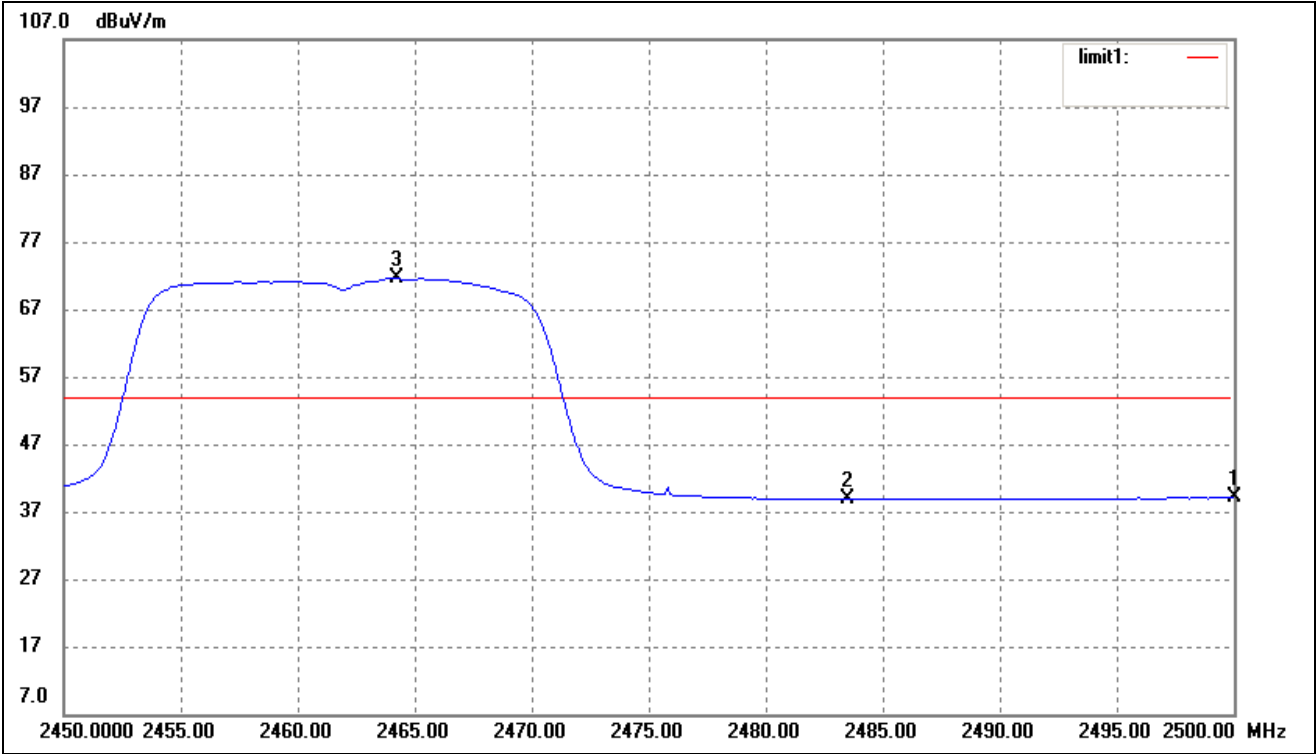
No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	( ° )	(cm)	
1	2500.000	36.05	2.92	38.97	54.00	-15.03	226	100	Ave
	2500.000	47.36	2.92	50.28	74.00	-23.72	305	100	peak
2	2483.500	35.95	2.87	38.82	54.00	-15.18	126	100	Ave
	2483.500	49.28	2.87	52.15	74.00	-21.58	116	100	peak
3	2462.700	76.95	2.83	79.78	/	/	/	/	Ave

For 802.11g  
Lowest Bandedge



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	( ° )	(cm)	
1	2310.000	36.28	2.49	38.77	54.00	-15.23	125	114	Ave
	2310.000	48.33	2.49	50.82	74.00	-23.18	360	200	peak
2	2390.000	37.18	2.66	39.84	54.00	-14.16	360	100	Ave
	2390.000	49.26	2.66	51.92	74.00	-22.08	135	100	peak
3	2400.000	43.61	2.69	46.30	/	/	/	/	Ave
4	2414.160	76.47	2.72	79.19	/	/	/	/	Ave

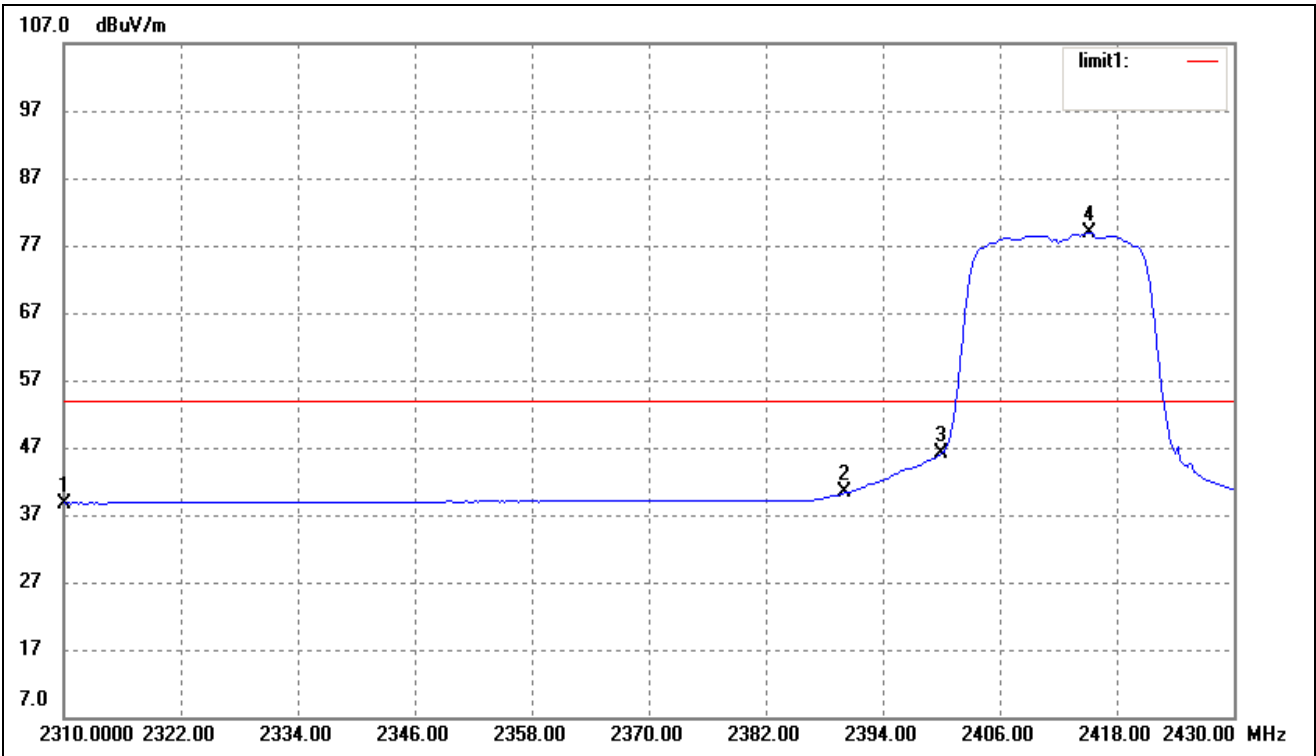
Highest Bandedge



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	( ° )	(cm)	
1	2500.000	36.11	2.92	39.03	54.00	-14.97	125	200	Ave
	2500.000	47.23	2.92	50.15	74.00	-23.85	250	100	peak
2	2483.500	36.00	2.87	38.87	54.00	-15.13	167	100	Ave
	2483.500	48.61	2.87	51.48	74.00	-22.52	116	100	peak
3	2464.200	68.75	2.84	71.59	/	/	/	/	Ave

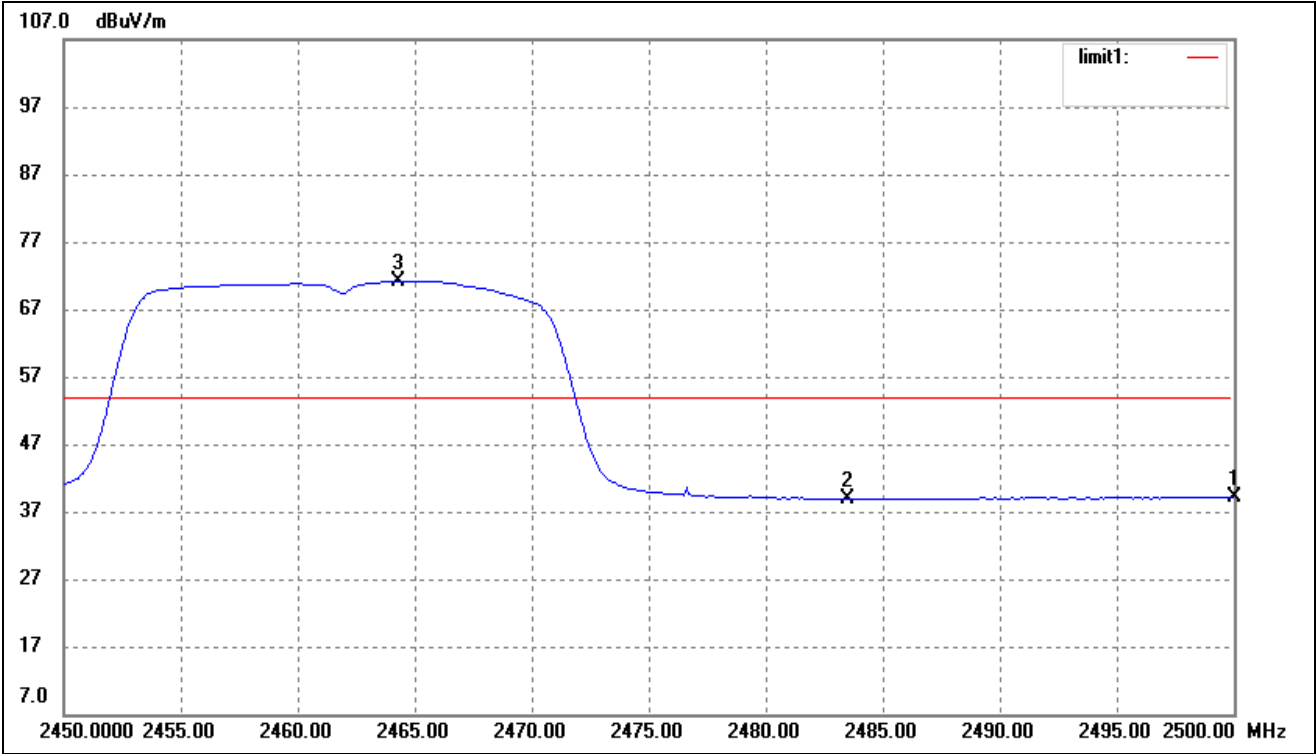
For 802.11n HT20

Lowest Bandedge



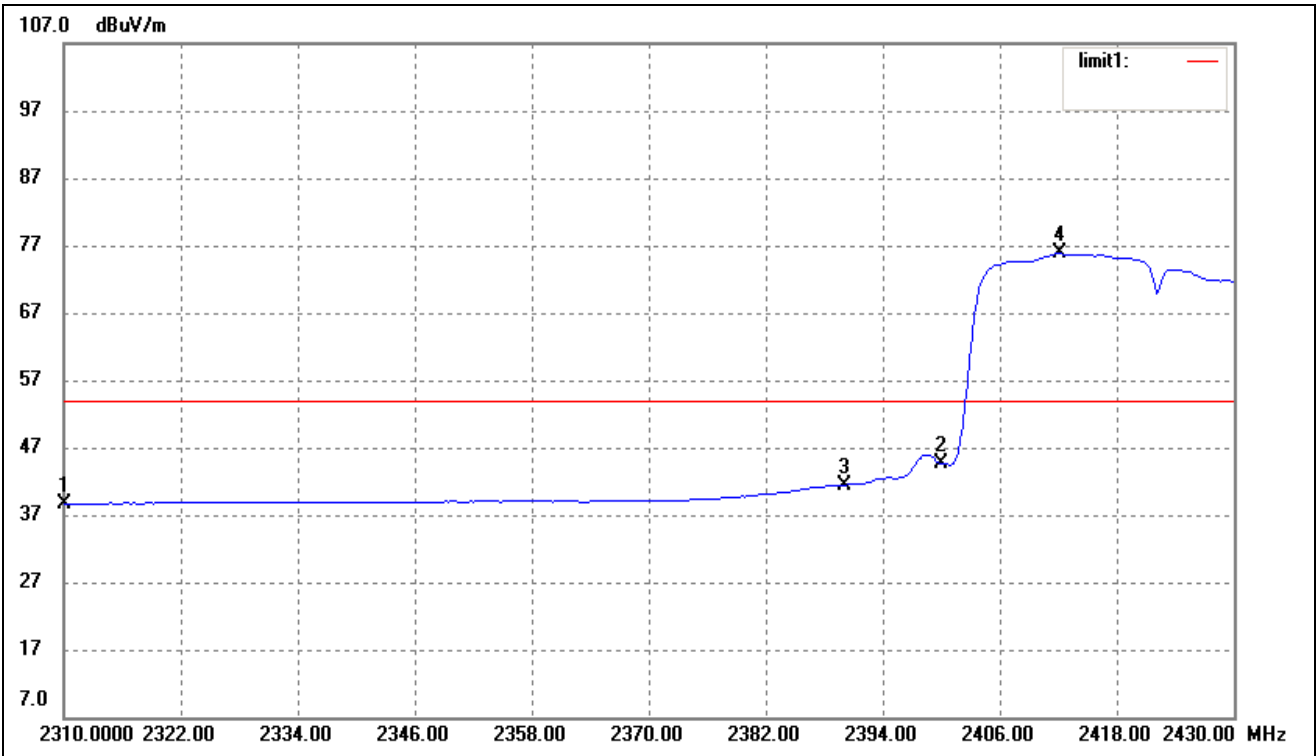
No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	( ° )	(cm)	
1	2310.000	36.26	2.49	38.75	54.00	-15.25	125	114	Ave
	2310.000	48.29	2.49	50.78	74.00	-23.22	360	200	peak
2	2390.000	37.63	2.66	40.29	54.00	-13.71	360	100	Ave
	2390.000	49.07	2.66	51.73	74.00	-22.27	135	100	peak
3	2400.000	43.43	2.69	46.12	/	/	/	/	Ave
4	2415.120	76.09	2.72	78.81	/	/	/	/	Ave

Highest Bandedge



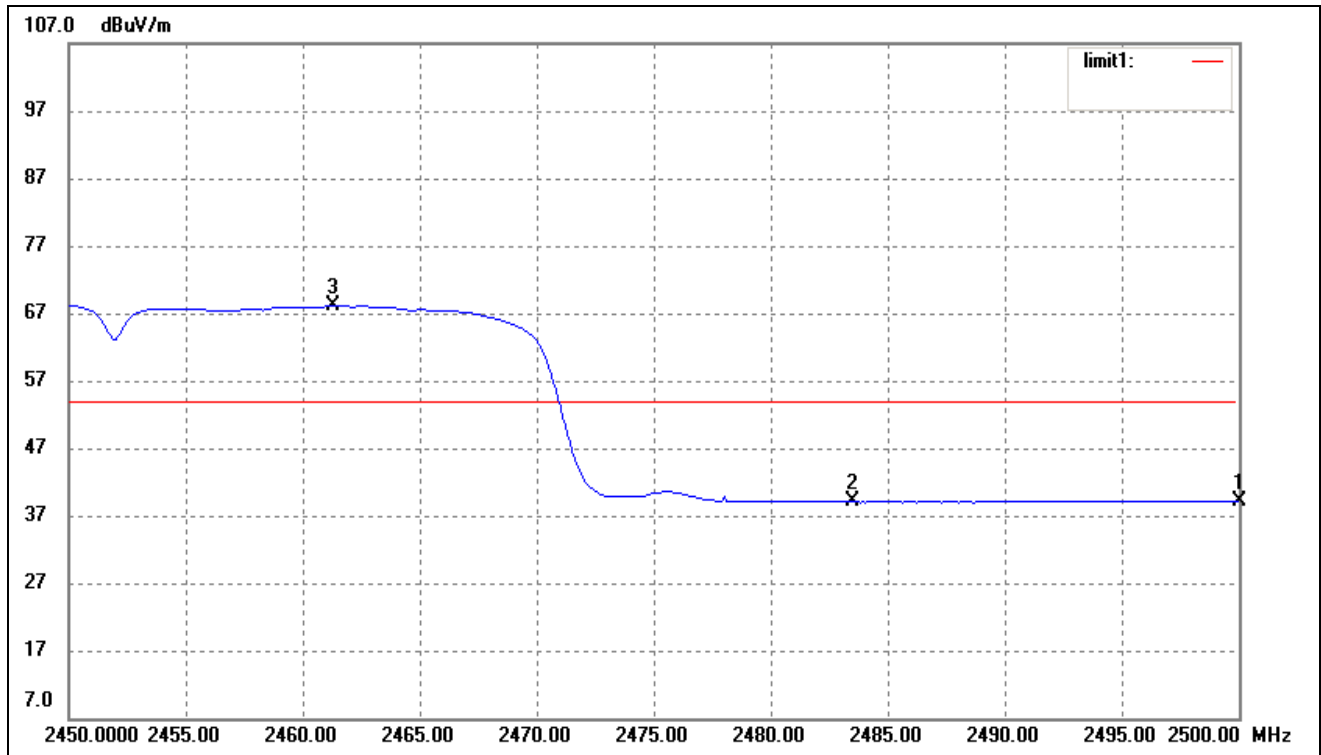
No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	( ° )	(cm)	
1	2500.000	36.15	2.92	39.07	54.00	-14.93	165	200	Ave
	2500.000	48.28	2.92	51.20	74.00	-22.80	231	100	peak
2	2483.500	36.08	2.87	38.95	54.00	-15.05	267	100	Ave
	2483.500	50.37	2.87	53.24	74.00	-20.76	109	200	peak
3	2464.300	68.39	2.84	71.23	/	/	/	/	Ave

For 802.11n HT40  
Lowest Bandedge



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	( ° )	(cm)	
1	2310.000	36.20	2.49	38.69	54.00	-15.31	134	100	Ave
	2310.000	48.05	2.49	50.54	74.00	-23.46	225	200	peak
2	2390.000	41.91	2.69	44.60	54.00	-9.40	209	100	Ave
	2390.000	50.46	2.69	53.15	74.00	-20.85	117	100	peak
3	2390.000	38.84	2.66	41.50	/	/	/	/	Ave
4	2412.240	73.05	2.72	75.77	/	/	/	/	Ave

## Highest Bandedge



No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree ( ° )	Height (cm)	Remark
1	2500.000	36.19	2.92	39.11	54.00	-14.89	237	100	Ave
	2500.000	48.18	2.92	51.10	74.00	-22.90	229	100	peak
2	2483.500	36.18	2.87	39.05	54.00	-14.95	202	100	Ave
	2483.500	49.37	2.87	52.24	74.00	-21.76	119	200	peak
3	2461.300	65.33	2.83	68.16	/	/	/	/	Ave

\*\*\*\*\* END OF REPORT \*\*\*\*\*