FCC Part 15C

Measurement and Test Report

For

ENCORE ELECTRONICS INC.

16483 Old Valley Blvd., La Puente, CA 91744, USA

FCC ID: YZ500000002

Report Concerns: Original Report	**Equipment Type:** Wireless N150 PCI-E Adapter
Model:	ENEWI-1XN45
Report No.:	STR11018113I
Test Date:	2011-01-15 to 2011-02-28
Issue Date:	2011-03-08
Tested By:	Galy He / Engineer
Reviewed By:	Lahm Peng / EMC Manager
Approved & Authorized By:	Jandy so/PSQ Manager
Prepared By:	**SEM.Test Compliance Service Co., Ltd** 3/F, Jinbao Commerce Building, Xin'an Fanshen Road, Bao'an District, Shenzhen, P.R.C.（518101） Tel.: +86-755-33663308 Fax.: +86-755-33663309 Website: www.semtest.com.cn

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:	ENCORE ELECTRONICS INC.
Address of applicant:	16483 Old Valley Blvd., La Puente, CA 91744, USA
Manufacturer:	Sun Rise Electronic Factory
Address of manufacturer:	LanYuan Road, ZengTian Industrial District, XinAn Community, ChangAn Town, DongGuan City, GuangDong Province, China

General Description of E.U.T

Items	Description
EUT Description:	Wireless N150 PCI-E Adapter
Trade Name:	ENCORE
Test Model:	ENEWI-1XN45
Adding Models:	ENEWI-1XN42, WE8188RE2, WE8188RE5
Rated Voltage:	DC3.3V By PCI
RF Output Power	Max. 6.8dBm
Antenna Gain:	2dBi / 5dBi
Frequency range:	2412-2462MHz for 11b/g/n(HT20) 2422-2452MHz for 11n(HT40)
Number of channels:	11 for 11b/g/n(HT20), 7 for 11n(HT40)
Channel Separation:	5MHz
Type of Antenna:	Detachable Antenna with reverse SMA connector
Size:	12.0x7.5x1.8 cm
For more information refer to the circuit diagram form and the user's manual.	

Note: The test data is gathered from a production sample, provided by the manufacture. The others models listed in the report have different appearance only of ENEWI-1XN45 without circuit and electronic construction changed, declared by the manufacturer.

1.2 Test Standards

The following report is prepared on behalf of the MONARCH MERCHANT LLC 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
Lenovo	PC	M2620V	11S30001652001037880BP
DELL	Monitor	170SC	CN-00V538-64180-065-OX95

1.7 EUT Cable List and Details

Cable Description	Length (M)	Shielded/Unshielded	With Core/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 ± 2.88 dB.

3.2 Test Equipment List and Details

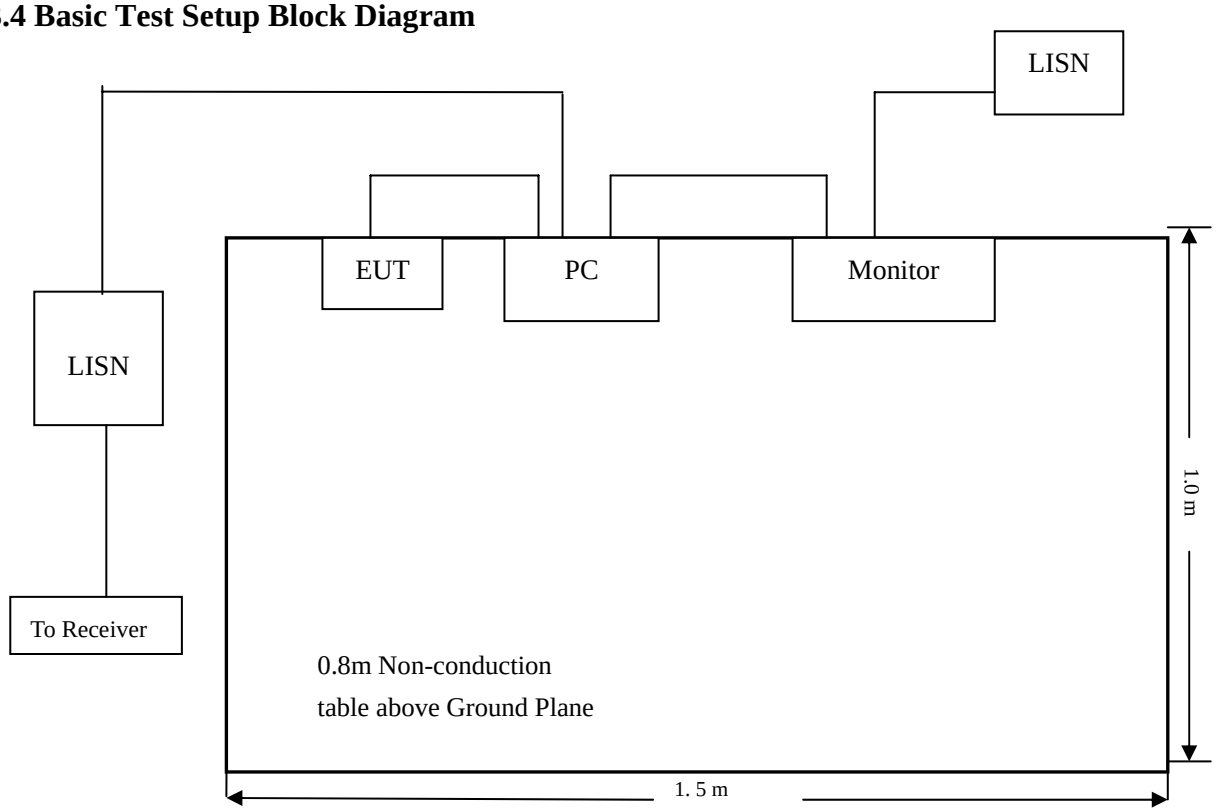
Description	Manufacturer	Model	Serial Number	Cal. Date	Due. Date
EMI Test Receiver	Rohde & Schwarz	ESPI	101611	2010-12-20	2011-12-19
L.I.S.N	Schwarz beck	NSLK8126	8126-224	2010-12-20	2011-12-19
Pulse Limiter	Rohde & Schwarz	ESH3-Z2	100911	2010-12-20	2011-12-19

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:

-8.95 dBµV at **0.43 MHz** in the **Line, Pk** Detector, 0.15-30MHz

3.7 Conducted Emissions Test Data

Plot of Conducted Emissions Test Data

Conducted Disturbance

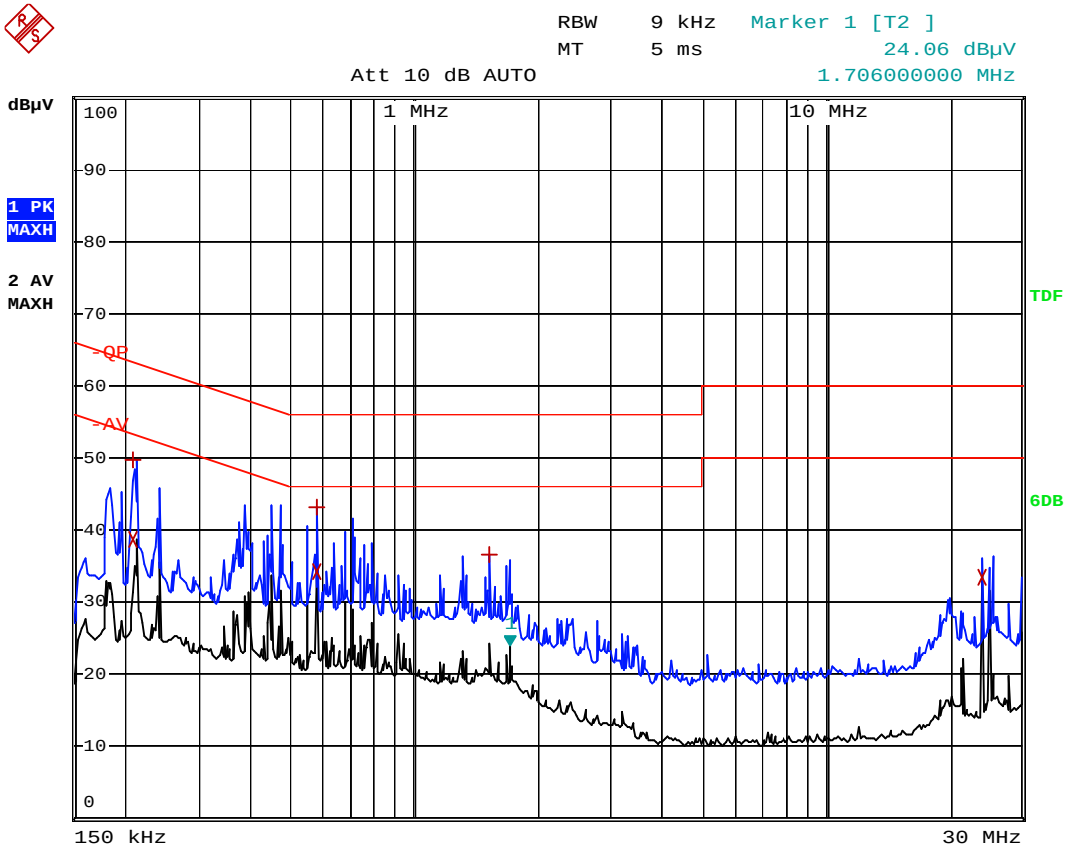
EUT: Wireless N150 PCI-E Adapter

M/N: ENEWI-1XN45

Operating Condition: Transmitting

Test Specification: N

Comment: DC 3.3V By PC



EDIT PEAK LIST (Prescan Results)			
Trace1:	-QP		
Trace2:	-AV		
Trace3:	---		
TRACE	FREQUENCY	LEVEL dBµV	DELTA LIMIT dB
1 Max Peak	210 kHz	49.81	-13.39
2 Average	210 kHz	38.64	-14.55
1 Max Peak	578 kHz	43.16	-12.83
2 Average	578 kHz	34.38	-11.61
1 Max Peak	1.53 MHz	36.72	-19.27
2 Average	23.982 MHz	33.55	-16.44

Plot of Conducted Emissions Test Data

Conducted Disturbance

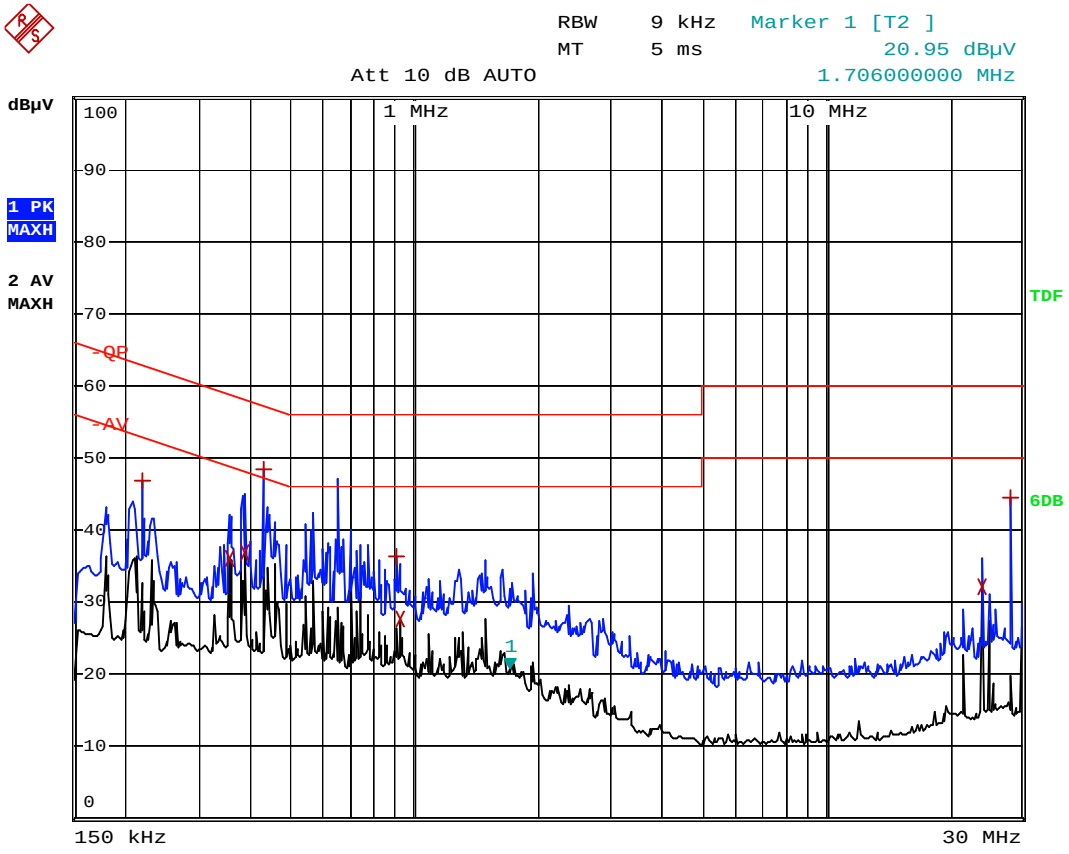
EUT: Wireless N150 PCI-E Adapter

M/N: ENEWI-1XN45

Operating Condition: Transmitting

Test Specification: L

Comment: DC 3.3V By PC



EDIT PEAK LIST (Prescan Results)			
Trace1:	-QP		
Trace2:	-AV		
Trace3:	---		
TRACE	FREQUENCY	LEVEL dBµV	DELTA LIMIT dB
1 Max Peak	218 kHz	46.87	-16.02
2 Average	354 kHz	36.09	-12.76
2 Average	386 kHz	36.96	-11.18
1 Max Peak	430 kHz	48.29	-8.95
1 Max Peak	902 kHz	36.36	-19.63
2 Average	926 kHz	27.80	-18.19
2 Average	23.986 MHz	32.04	-17.95
1 Max Peak	28.182 MHz	44.53	-15.46

4. §15.203 - ANTENNA REQUIREMENT

4.1 Standard Applicable

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

4.2 Test Result

This product has a detachable and unique 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

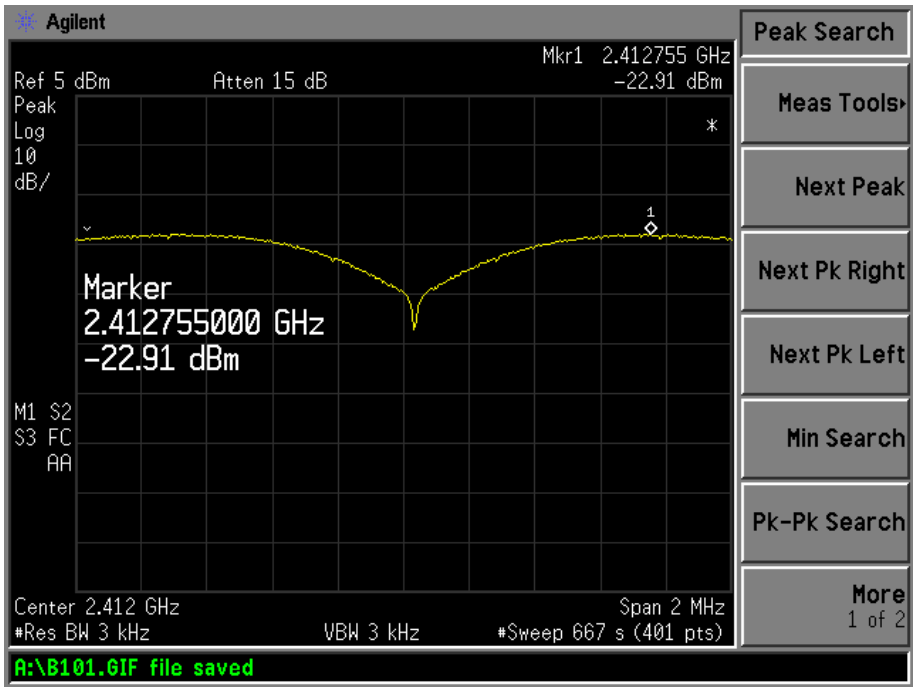
Temperature:	20° C
Relative Humidity:	54%
ATM Pressure:	1011 mbar

5.5 Summary of Test Results/Plots

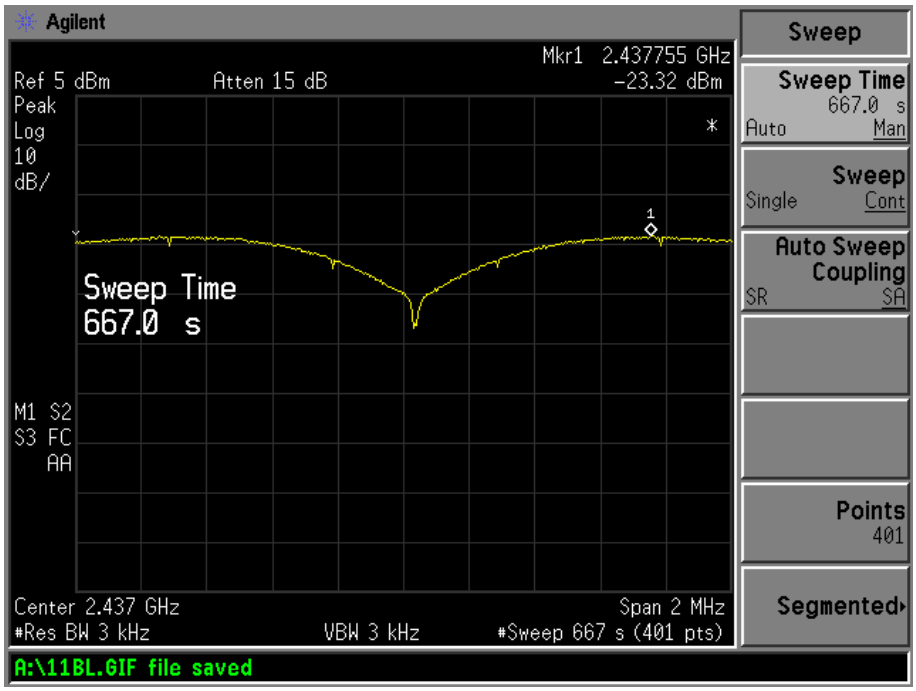
Test mode	Test channel	Reading dBm/3kHz	Limit dBm/3kHz
802.11b	Low channel (2412MHz)	-22.91	8
	Middle channel (2437MHz)	-23.32	8
	High channel (2462MHz)	-23.26	8
802.11g	Low channel (2412MHz)	-24.29	8
	Middle channel (2437MHz)	-24.78	8
	High channel (2462MHz)	-24.76	8
802.11n HT20	Low channel (2412MHz)	-26.16	8
	Middle channel (2437MHz)	-26.61	8
	High channel (2462MHz)	-26.52	8
802.11n HT40	Low channel (2412MHz)	-27.33	8
	Middle channel (2437MHz)	-27.73	8
	High channel (2462MHz)	-27.72	8

For 802.11b

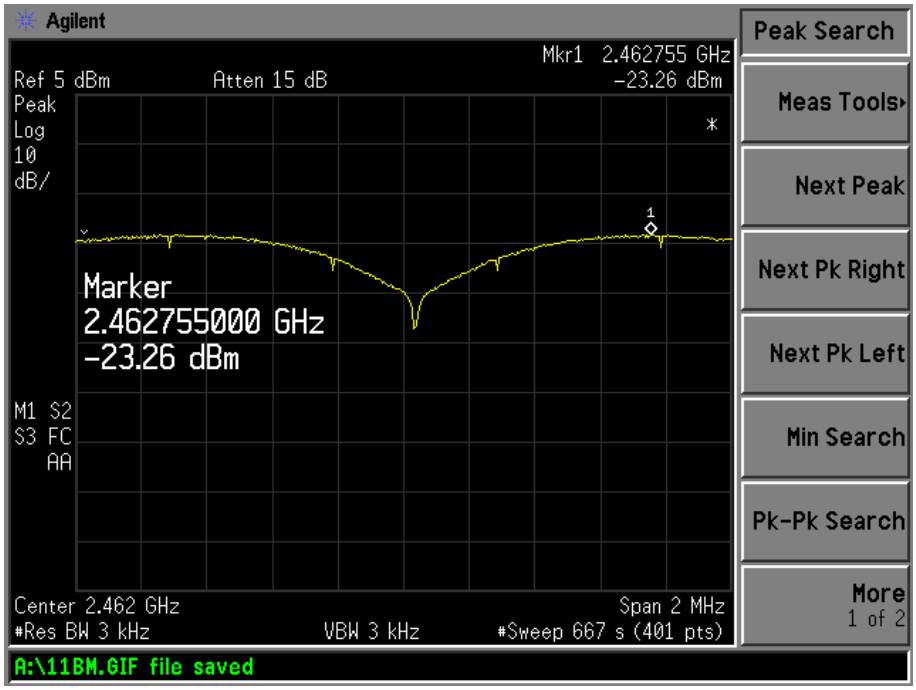
Low Channel:



Middle Channel:

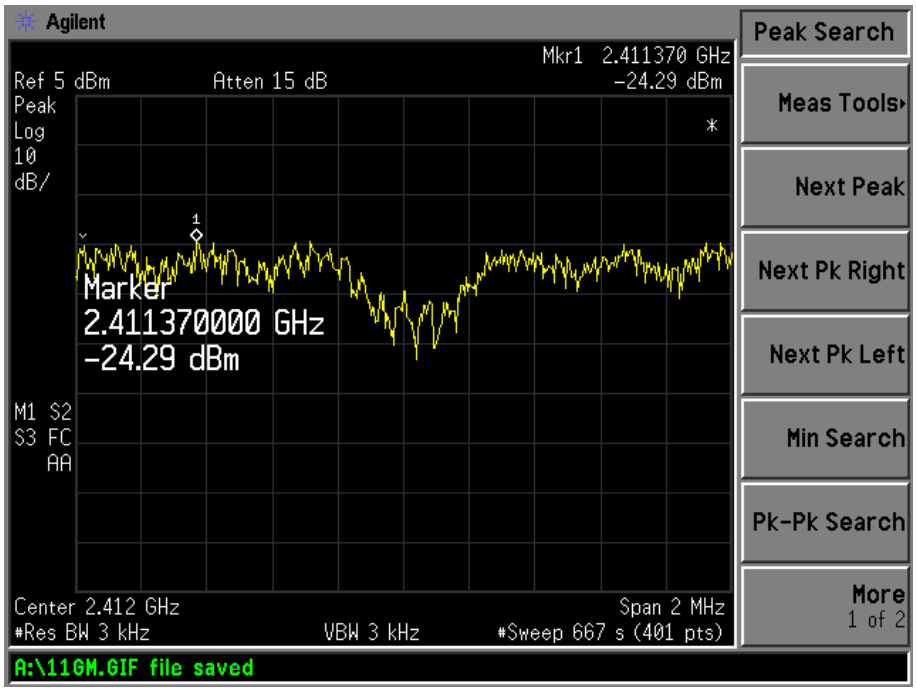


High Channel:

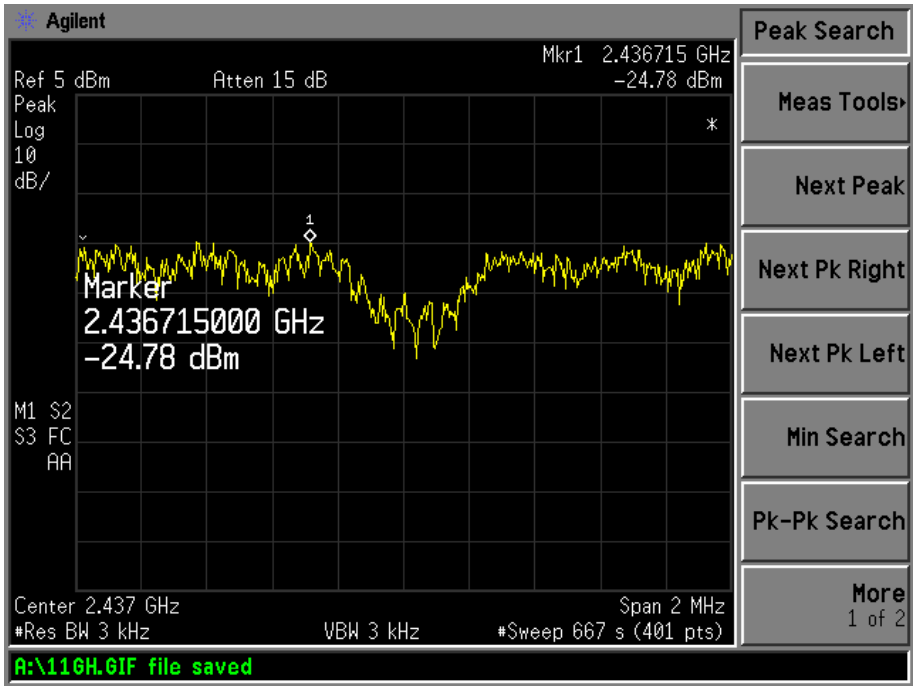


For 802.11g

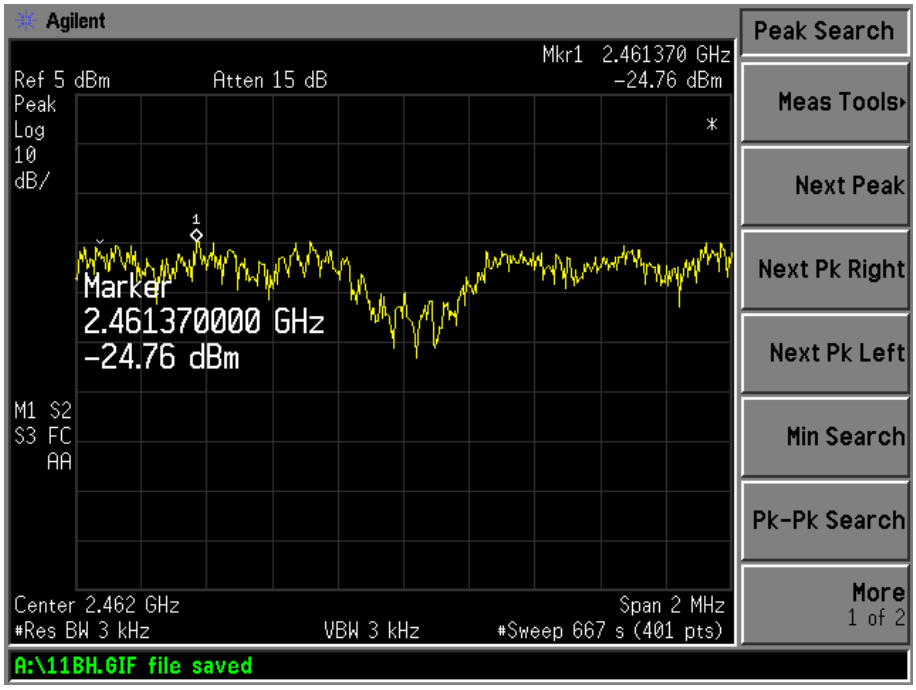
Low Channel:



Middle Channel:

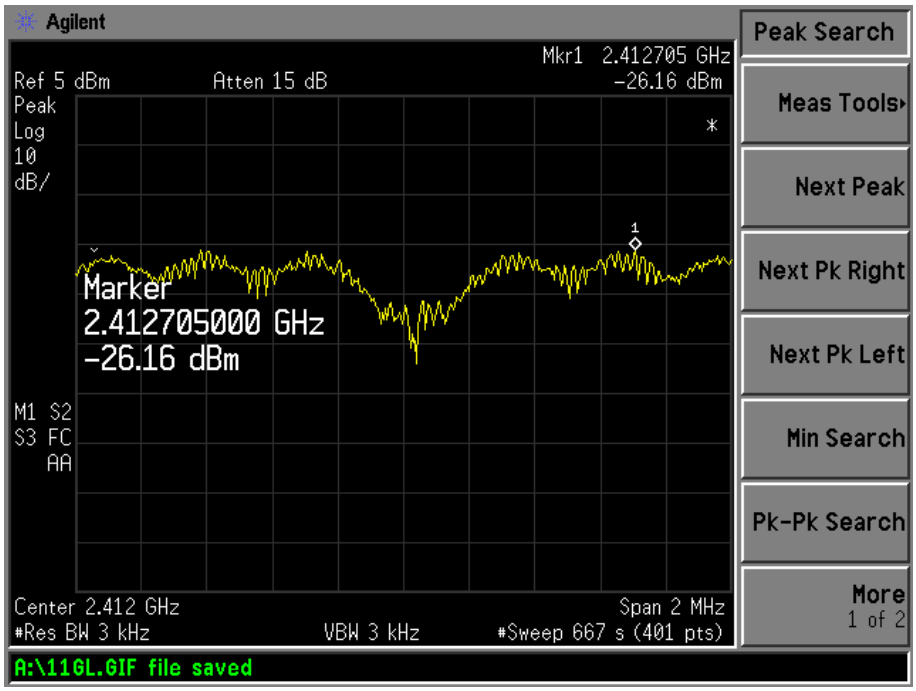


High Channel:

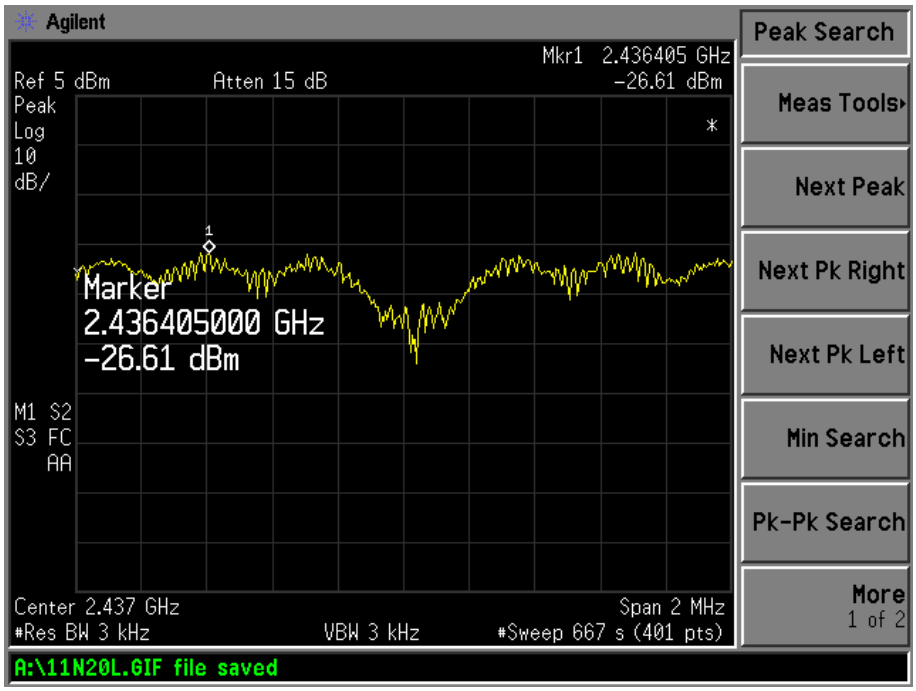


For 802.11n HT20

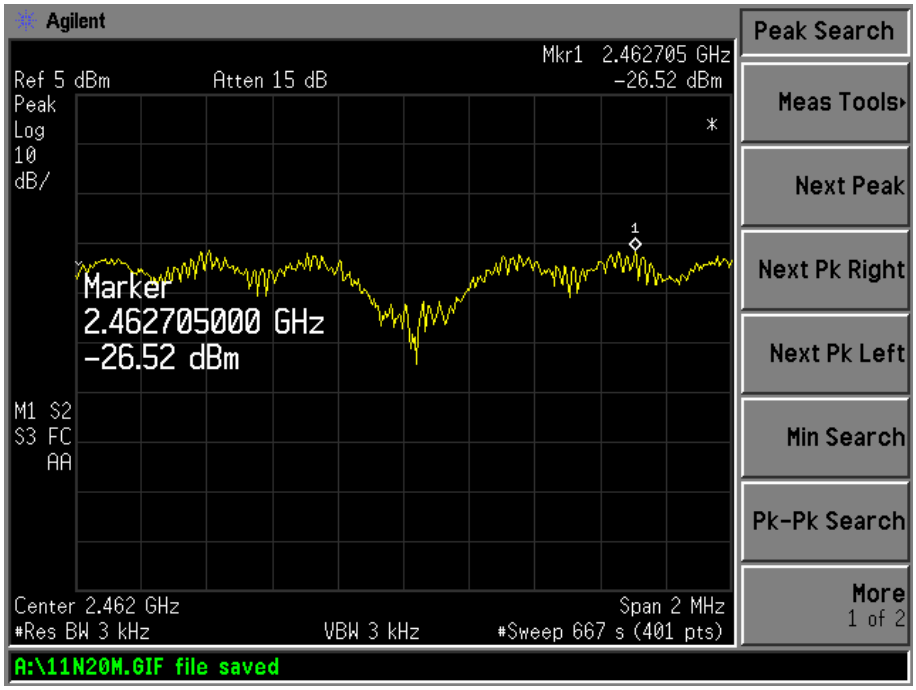
Low Channel:



Middle Channel:

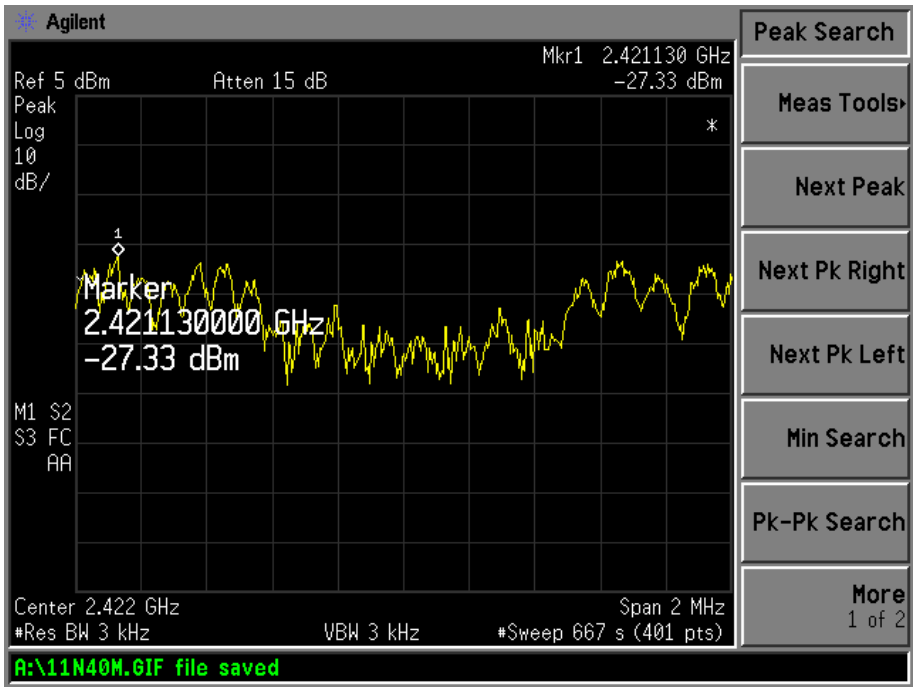


High Channel:

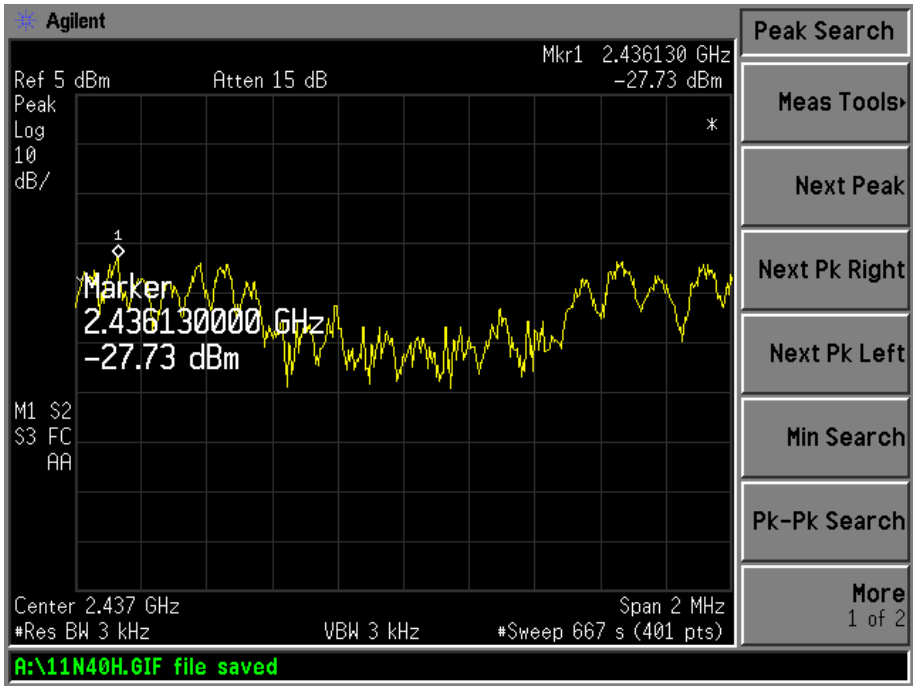


For 802.11n HT40

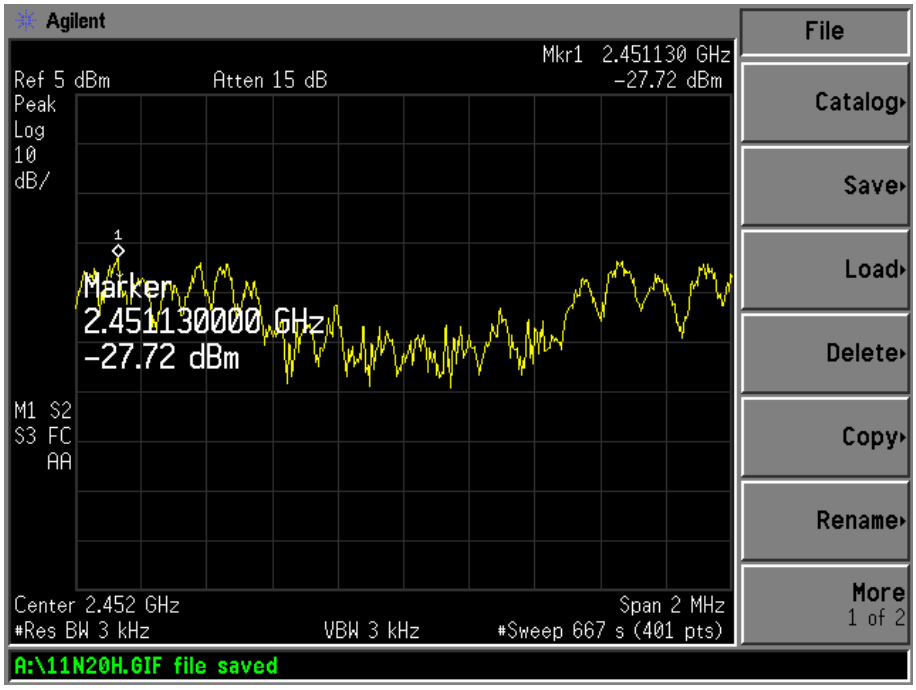
Low Channel:



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

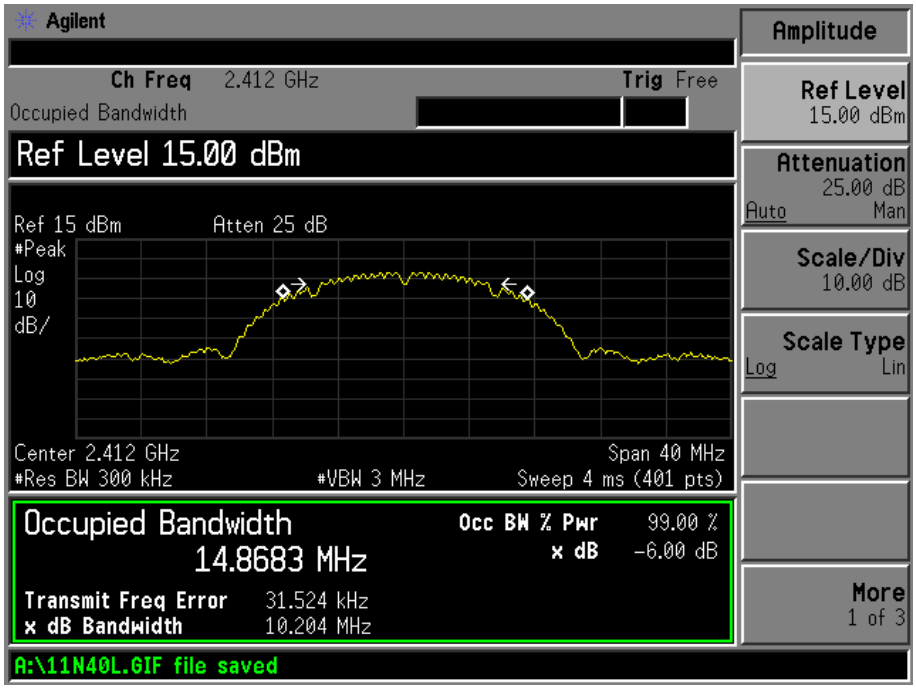
Temperature:	24° C
Relative Humidity:	53%
ATM Pressure:	1018 mbar

6.5 Summary of Test Results/Plots

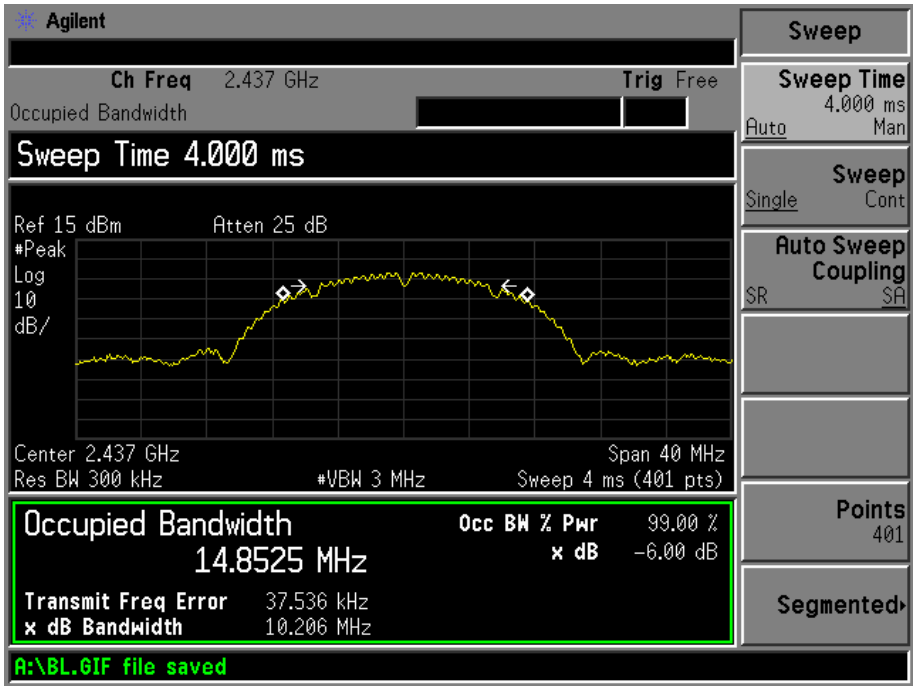
Test mode	Frequency MHz	6 dB Bandwidth kHz	Limit kHz
802.11b	2412	10204	500
	2437	10206	500
	2462	10195	500
802.11g	2412	16466	500
	2437	16550	500
	2462	15968	500
802.11n-HT20	2412	17475	500
	2437	17707	500
	2462	17728	500
802.11n-HT40	2422	36233	500
	2437	36333	500
	2452	36407	500

For 802.11b

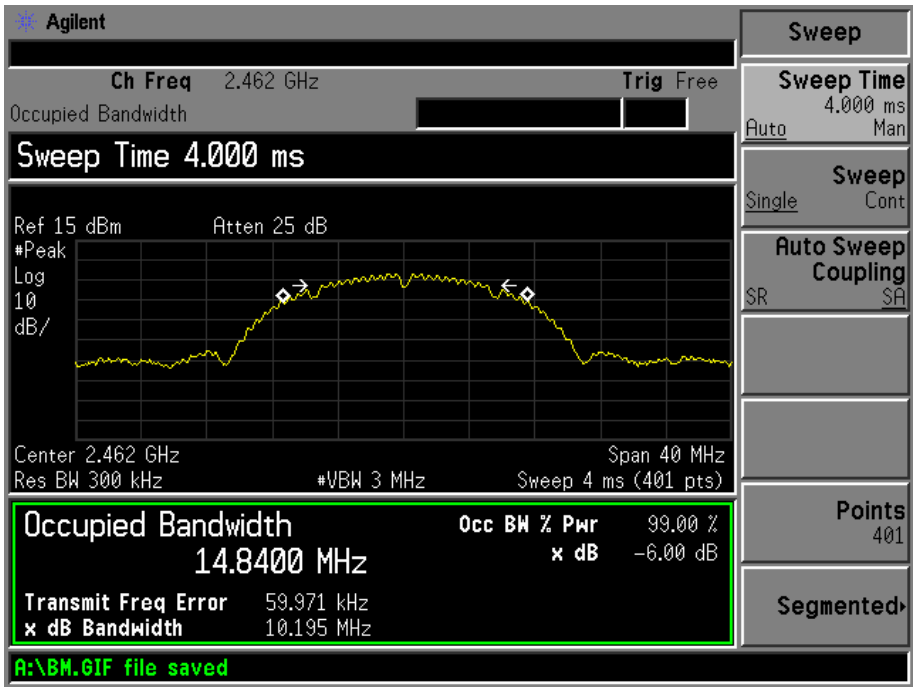
Low Channel:



Mid Channel:

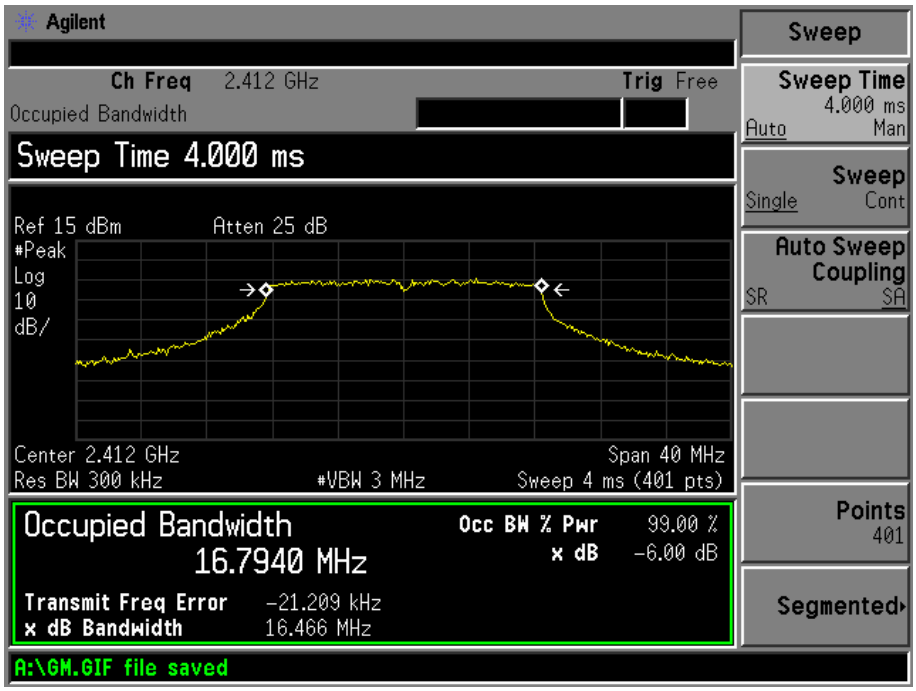


High Channel:

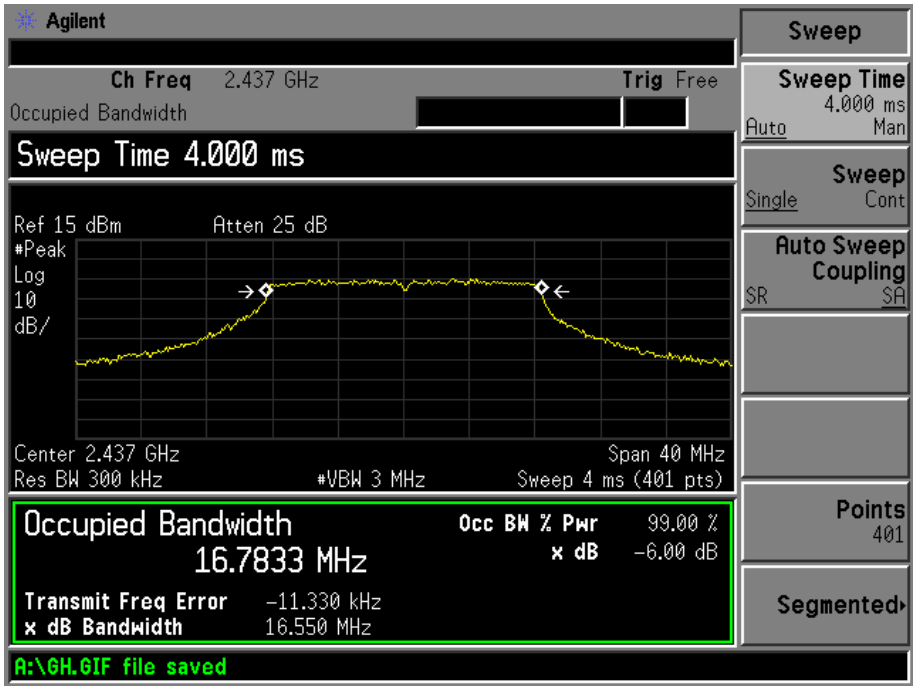


For 802.11g

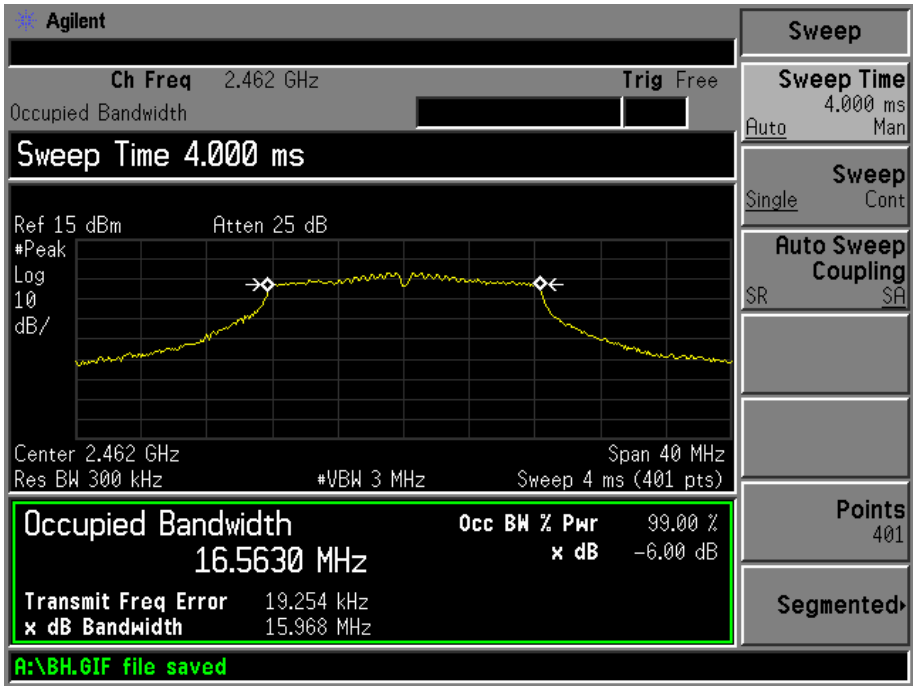
Low Channel:



Mid Channel:

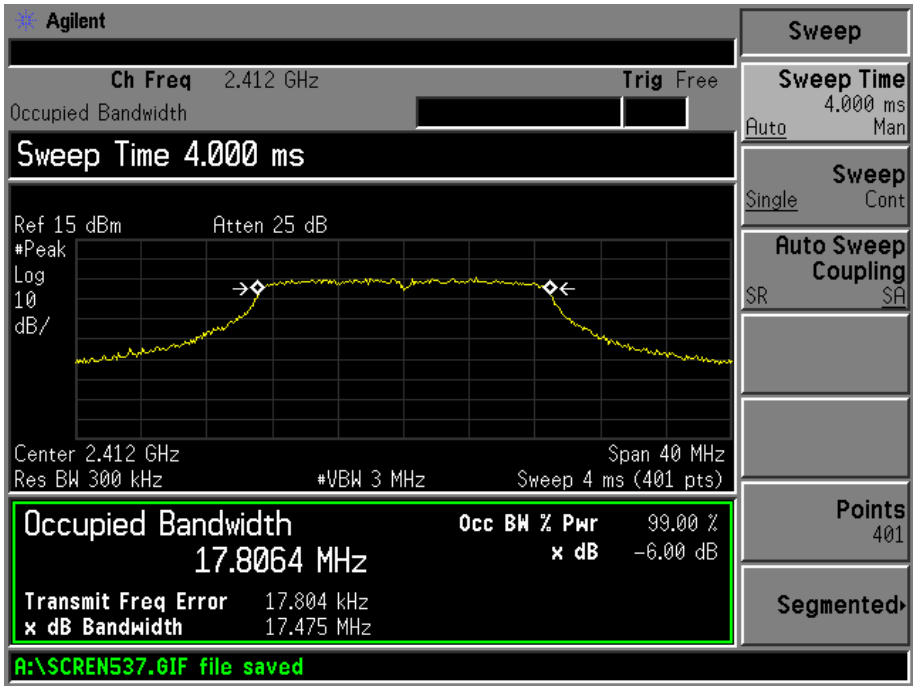


High Channel:

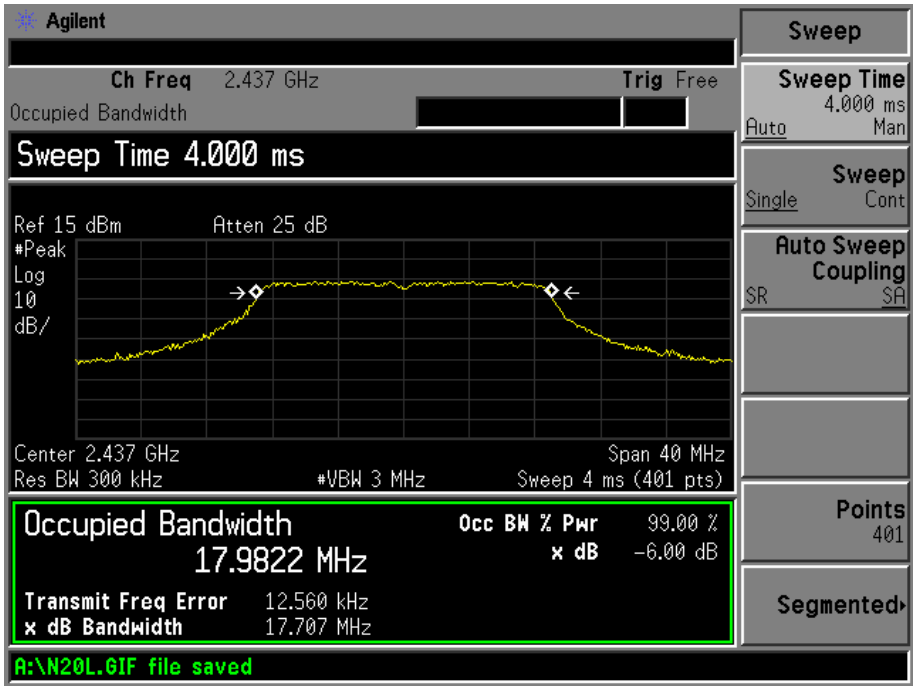


For 802.11n HT20

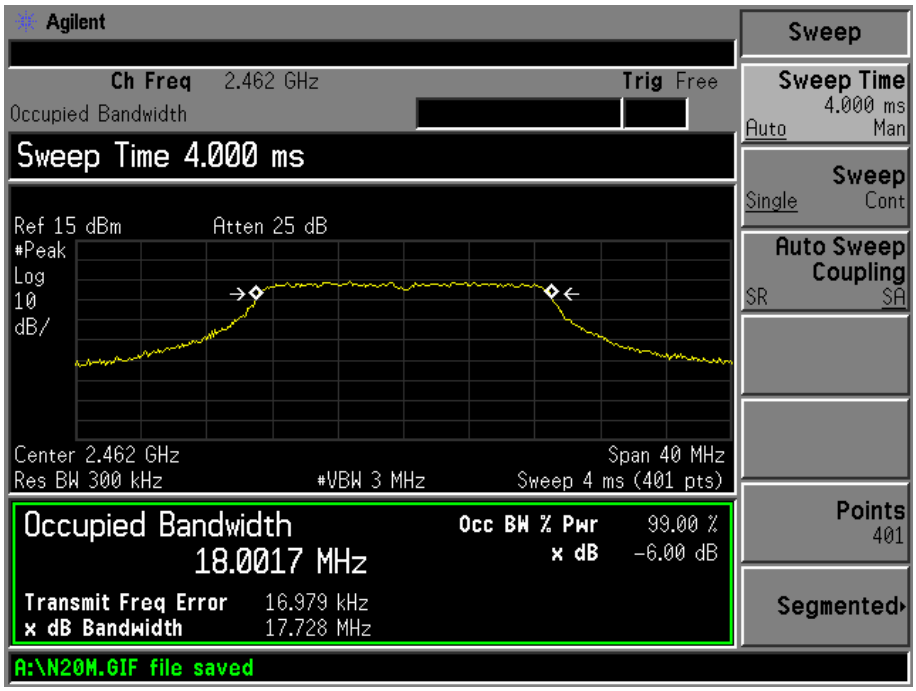
Low Channel:



Mid Channel:

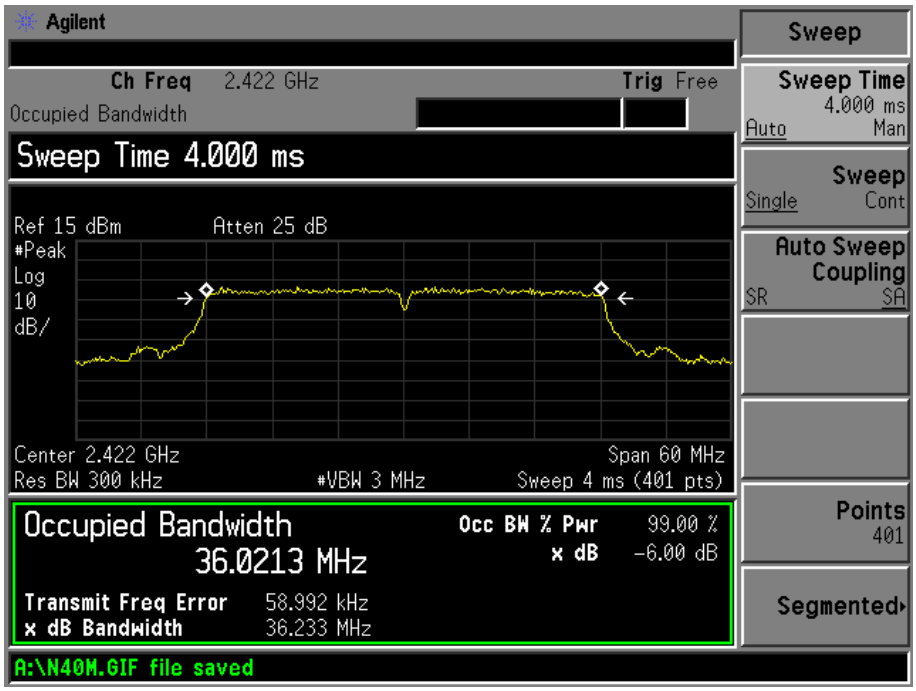


High Channel:

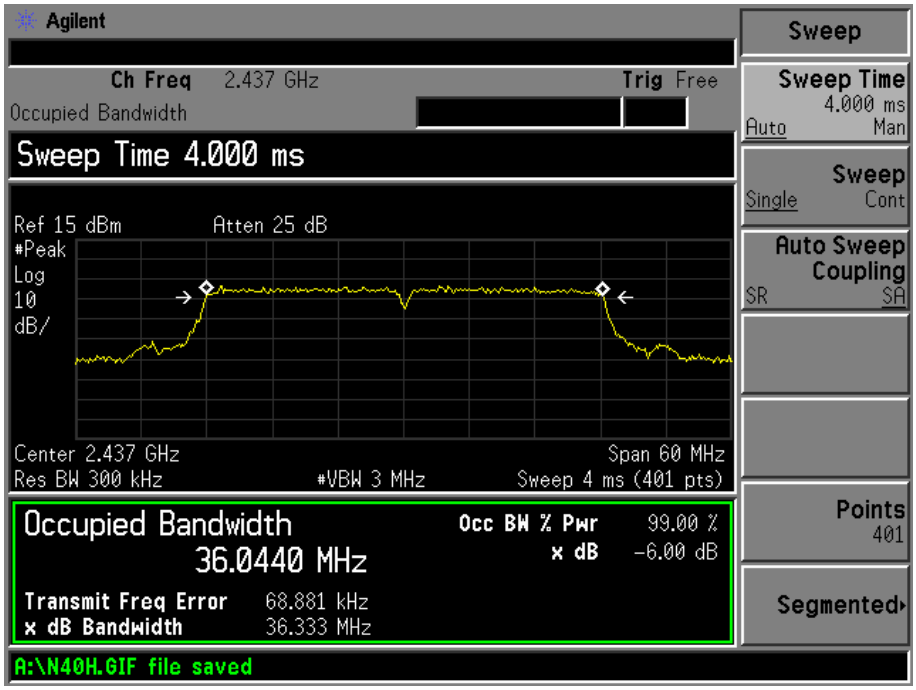


For 802.11n HT40

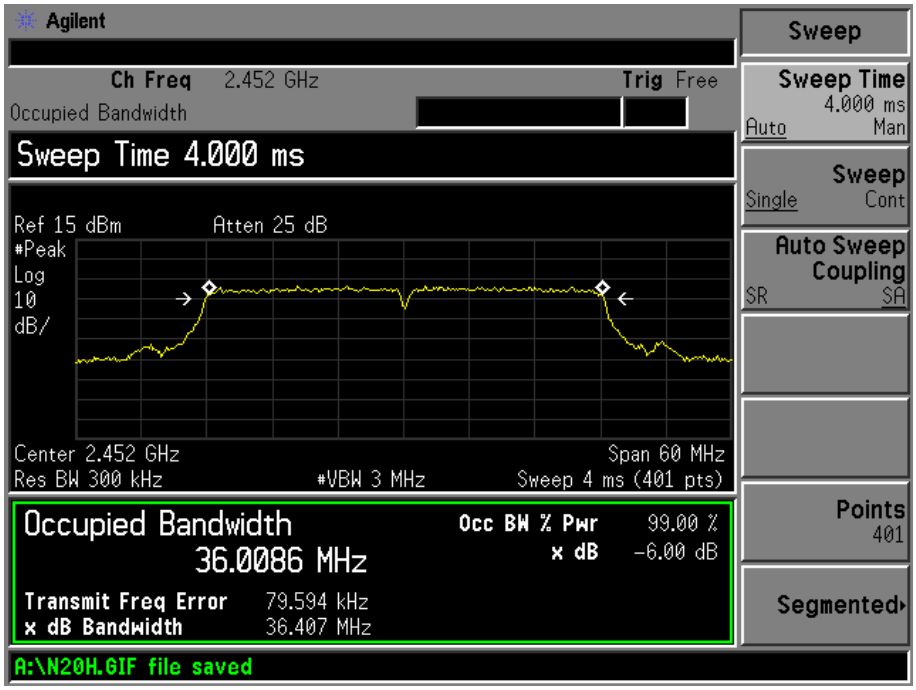
Low Channel:



Mid 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 $\geqslant$ 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

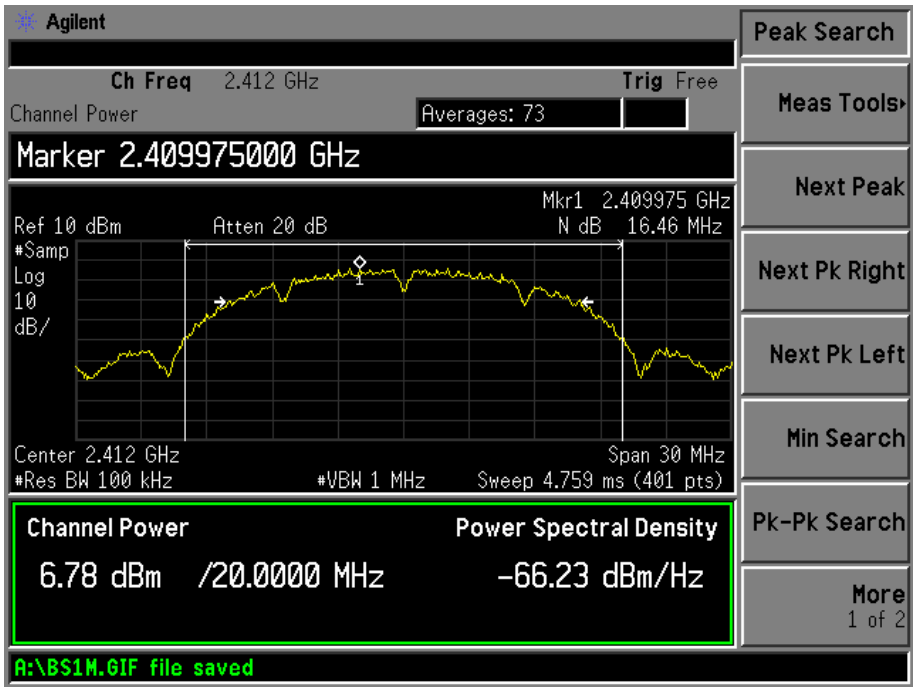
Temperature:	21° C
Relative Humidity:	55%
ATM Pressure:	1011 mbar

7.5 Summary of Test Results/Plots

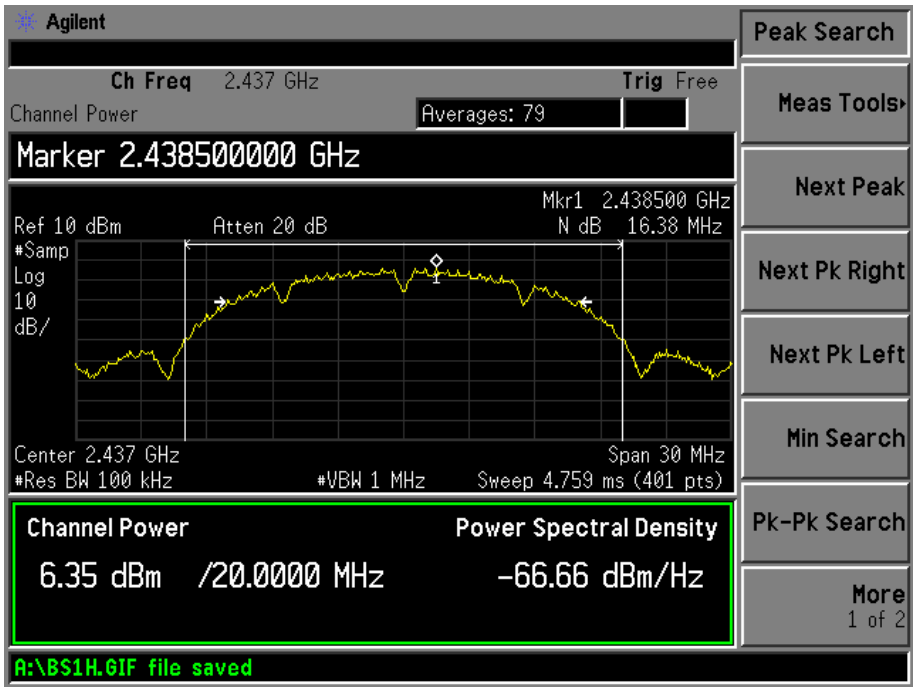
Test mode	Frequency MHz	Reading dBm	Output power W	Limit W
802.11b short (1M)	2412	6.78	0.004764	1
	2437	6.35	0.004315	1
	2462	6.24	0.004207	1
802.11b short (11M)	2412	6.80	0.004786	1
	2437	6.36	0.004325	1
	2462	6.25	0.004217	1
802.11b long (1M)	2412	6.37	0.004335	1
	2437	6.27	0.004236	1
	2462	6.17	0.00414	1
802.11b long (11M)	2412	6.75	0.004732	1
	2437	6.35	0.004315	1
	2462	6.21	0.004178	1
802.11g (6M)	2412	3.53	0.002254	1
	2437	2.95	0.001972	1
	2462	2.78	0.001897	1
802.11g (54M)	2412	3.26	0.002118	1
	2437	2.86	0.001932	1
	2462	2.74	0.001879	1
802.11n-HT20(0M)	2412	3.33	0.002153	1
	2437	1.86	0.001535	1
	2462	2.74	0.001879	1
802.11n-HT20(7M)	2412	3.30	0.002138	1
	2437	2.89	0.001945	1
	2462	2.72	0.001871	1
802.11n-HT40(0M)	2422	2.69	0.001858	1
	2437	2.47	0.001766	1
	2452	2.32	0.001706	1
802.11n-HT40(7M)	2422	2.58	0.001811	1
	2437	2.38	0.00173	1
	2452	2.24	0.001675	1

For 802.11b_1M short rate

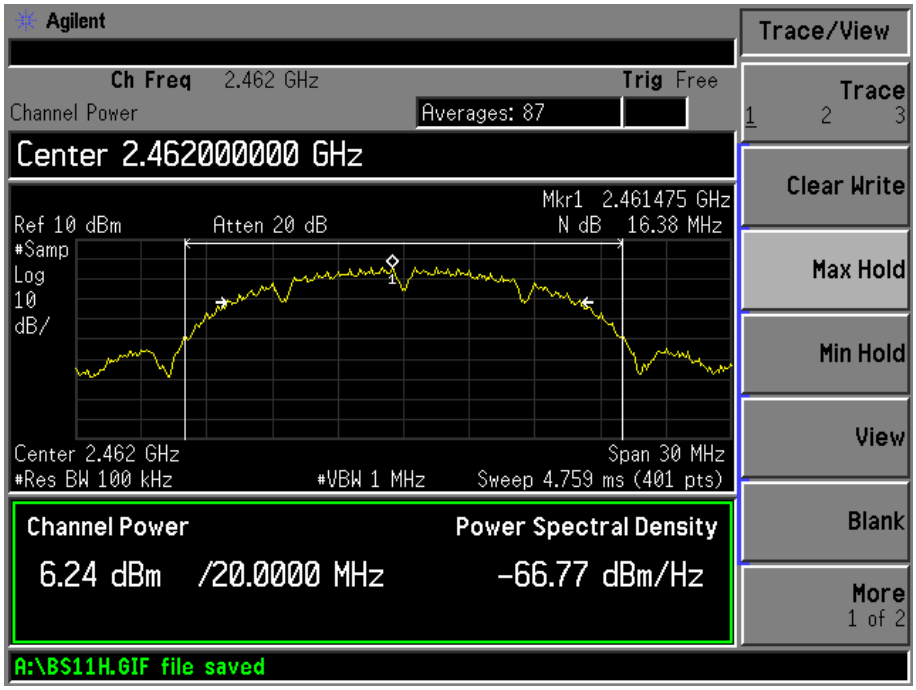
Low Channel:



Middle Channel:

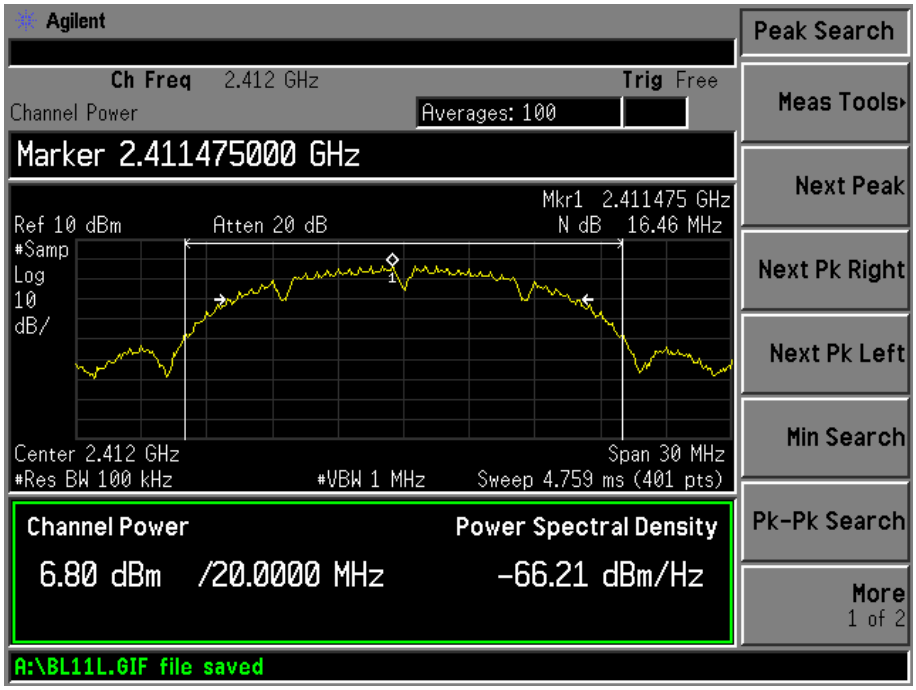


High Channel:

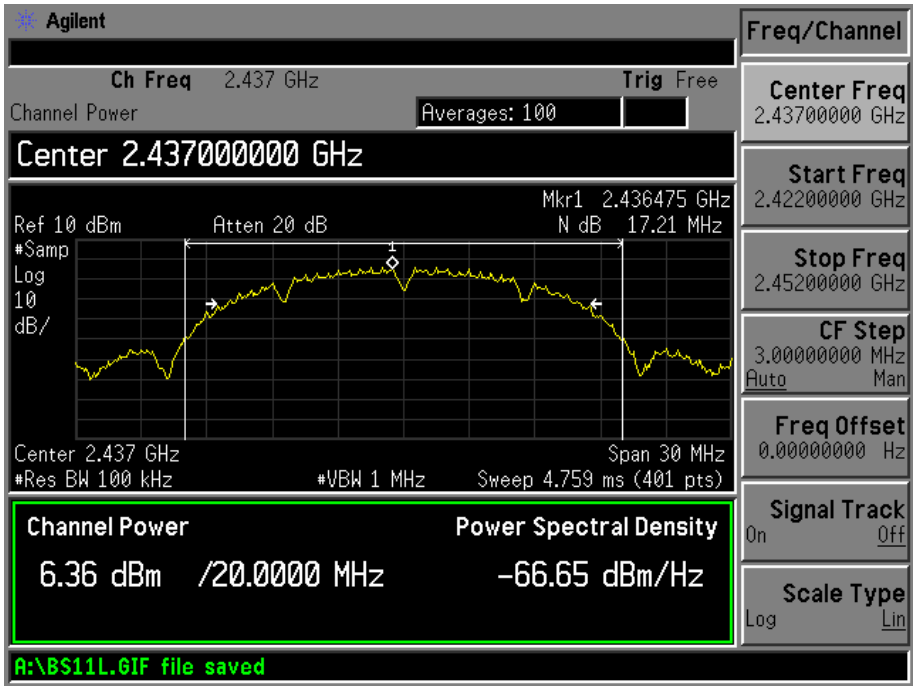


For 802.11b_11M short rate

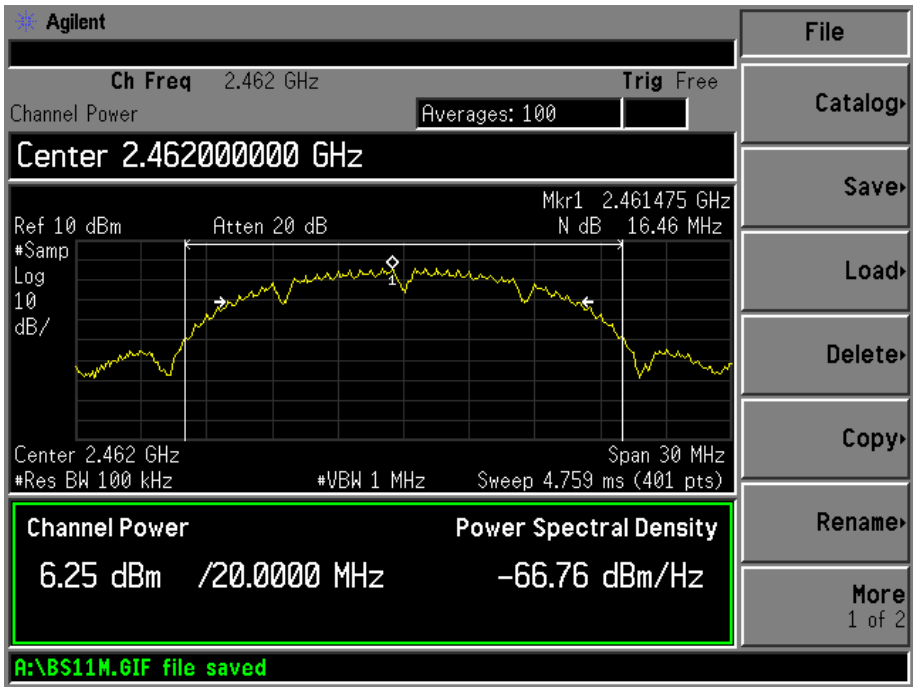
Low Channel:



Middle Channel:

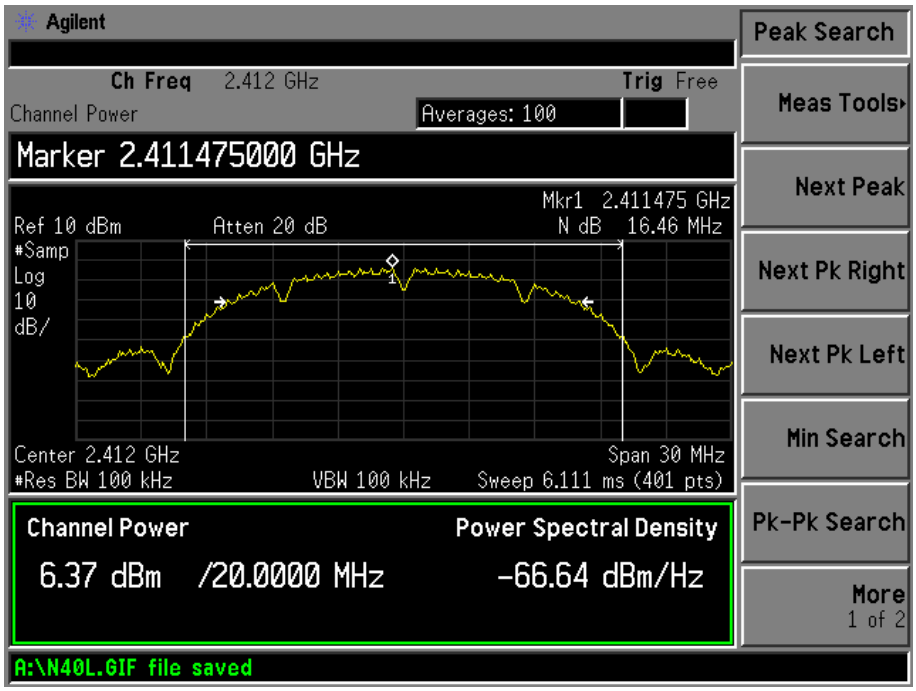


High Channel:

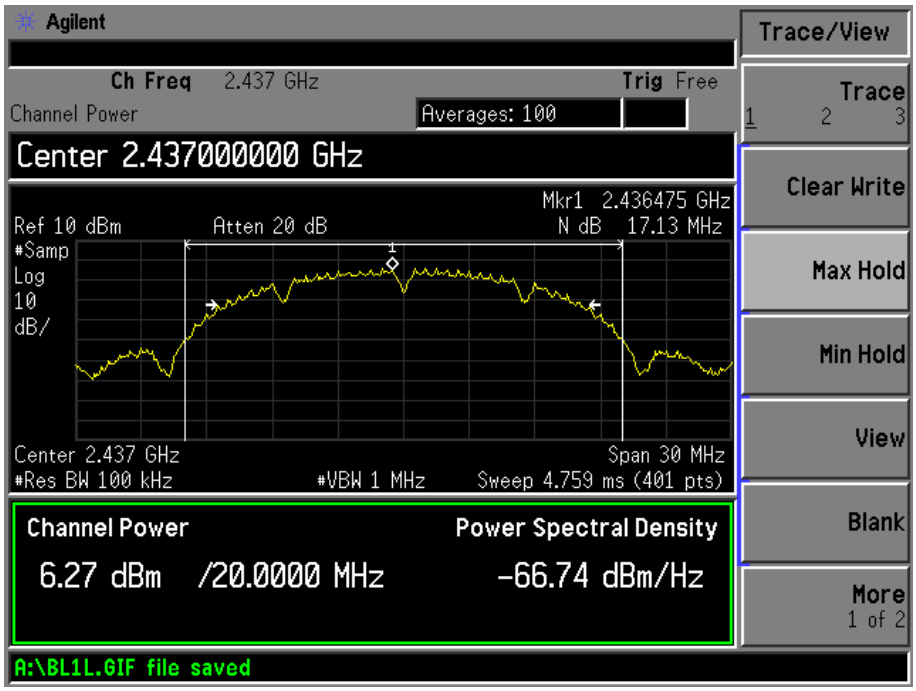


For 802.11b_1M Long rate

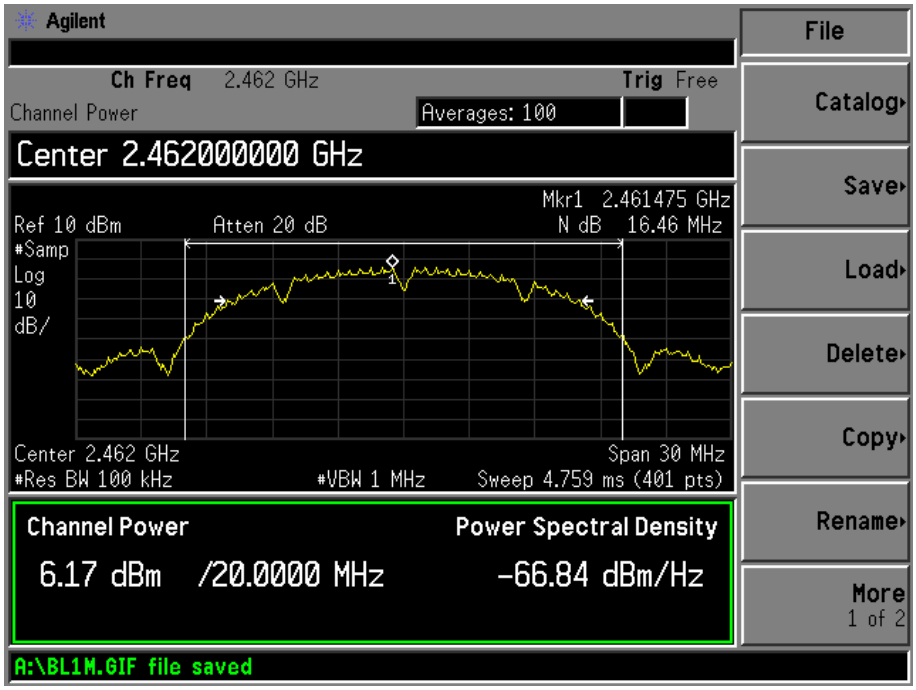
Low Channel:



Middle Channel:

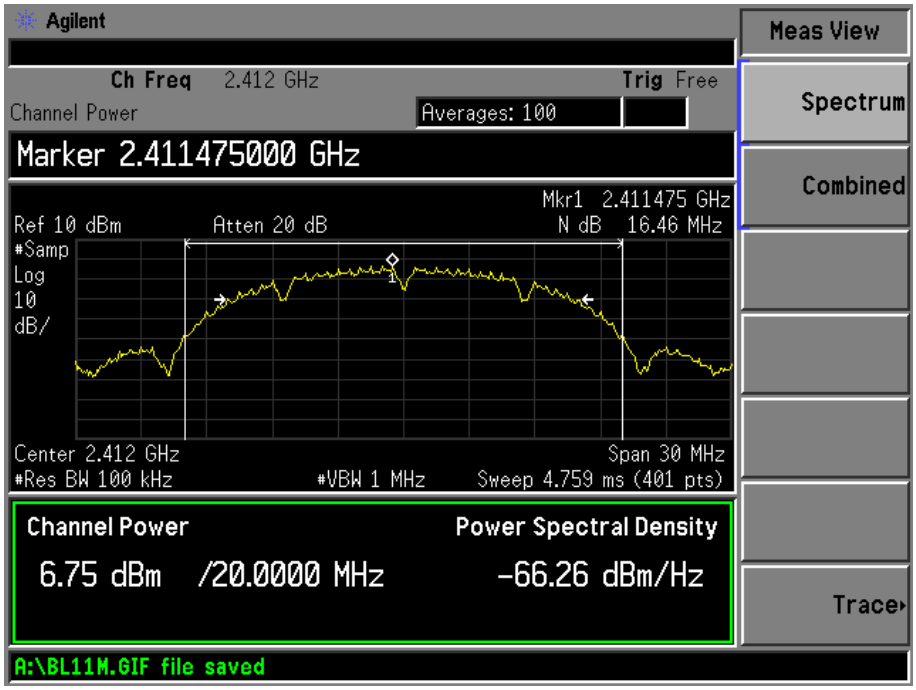


High Channel:

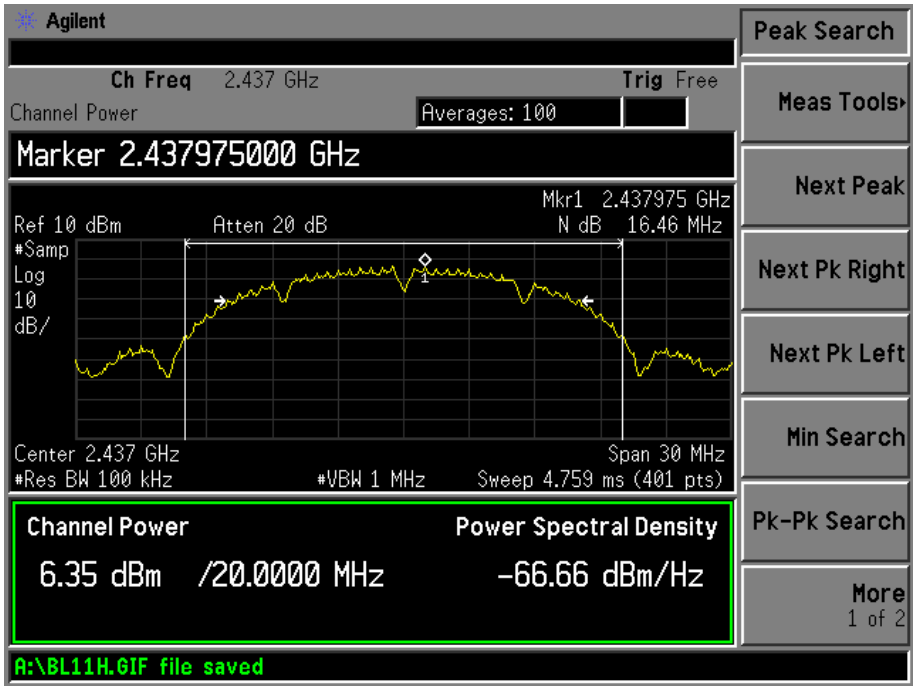


For 802.11b_11M Long rate

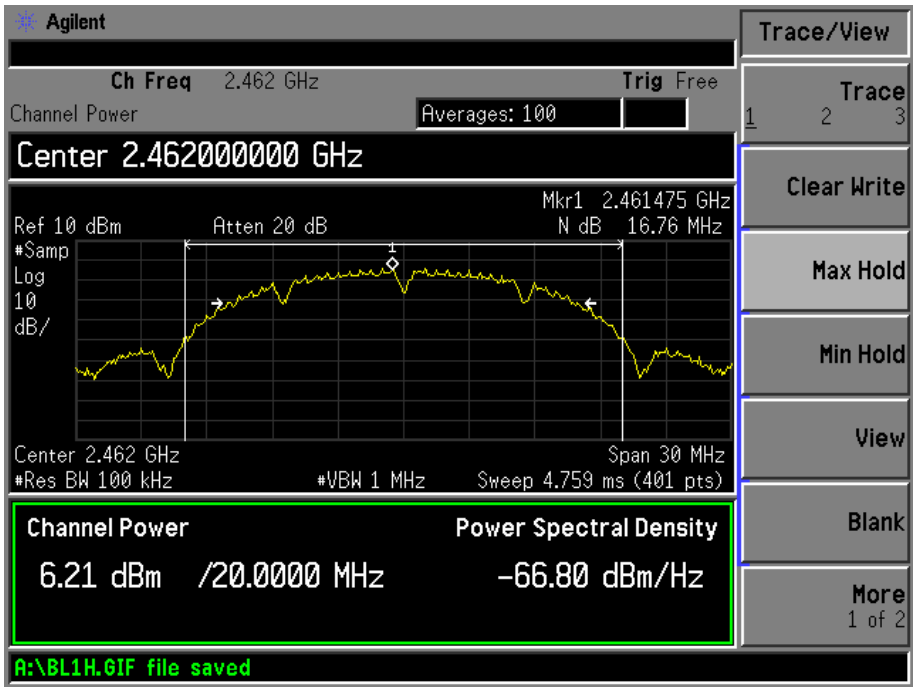
Low Channel:



Middle Channel:

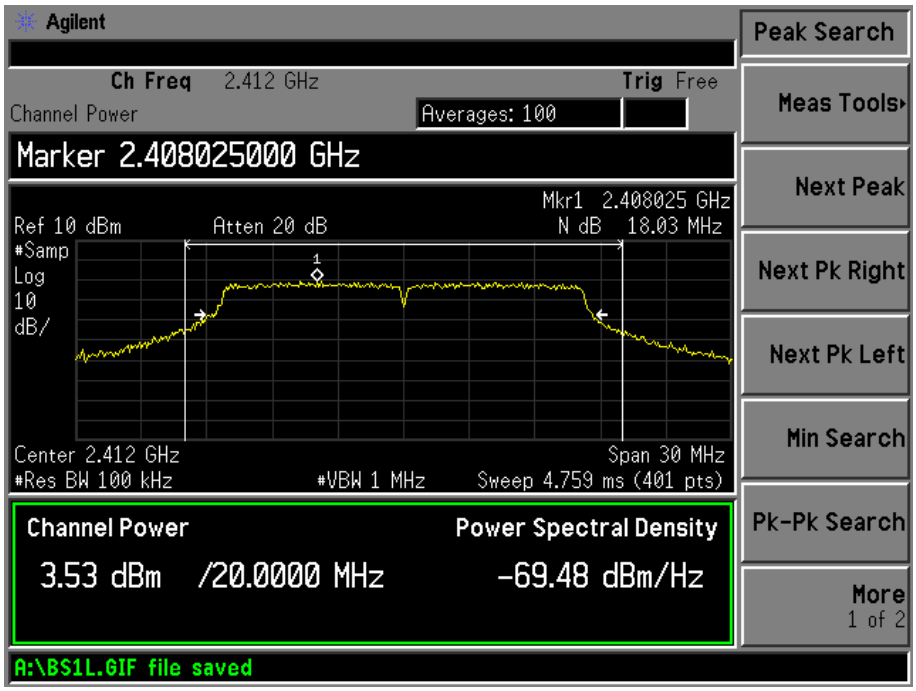


High Channel:

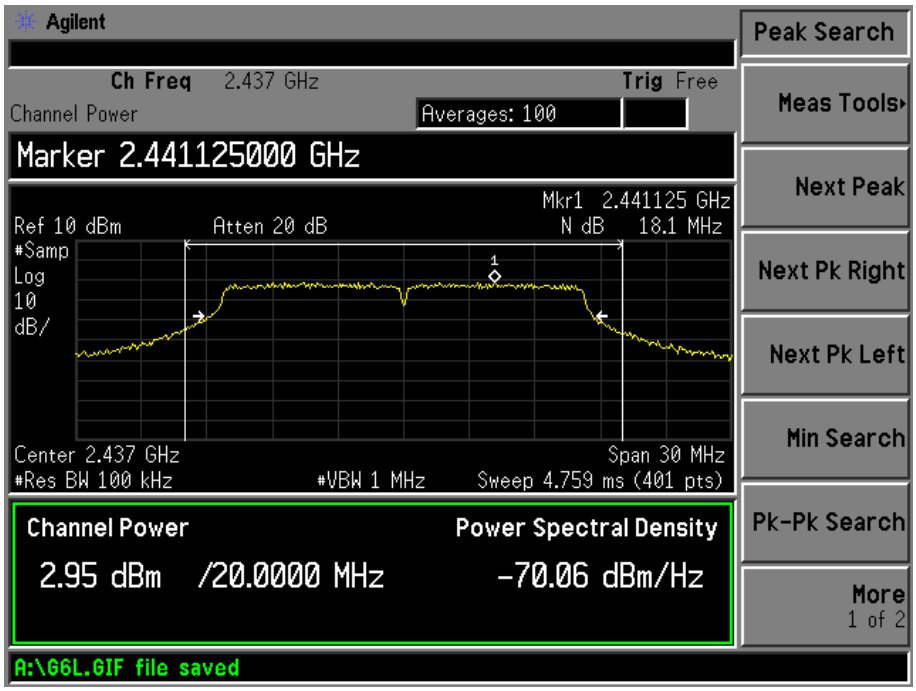


For 802.11g_6M rate

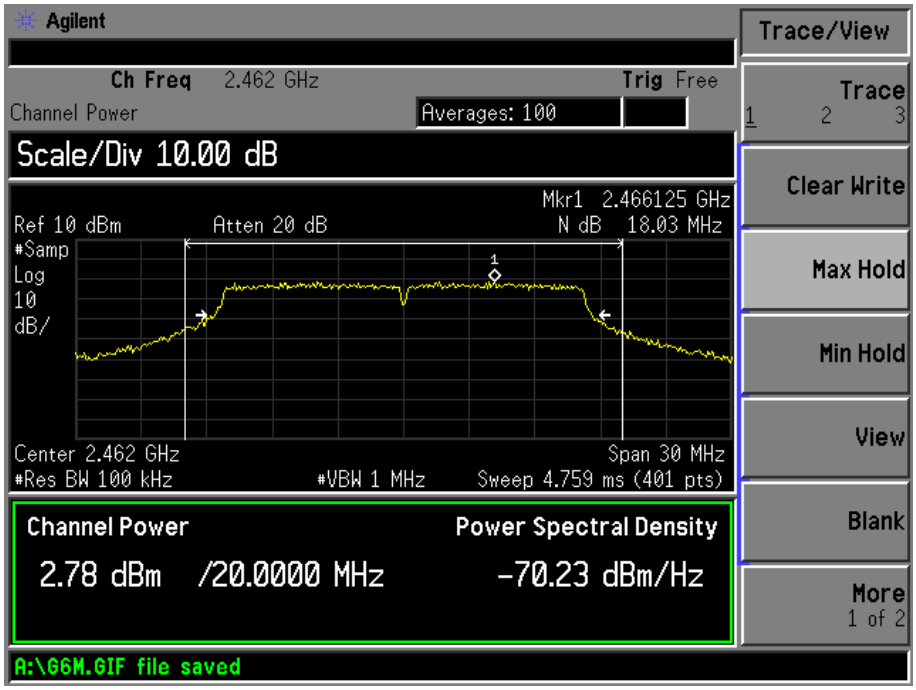
Low Channel:



Middle Channel:

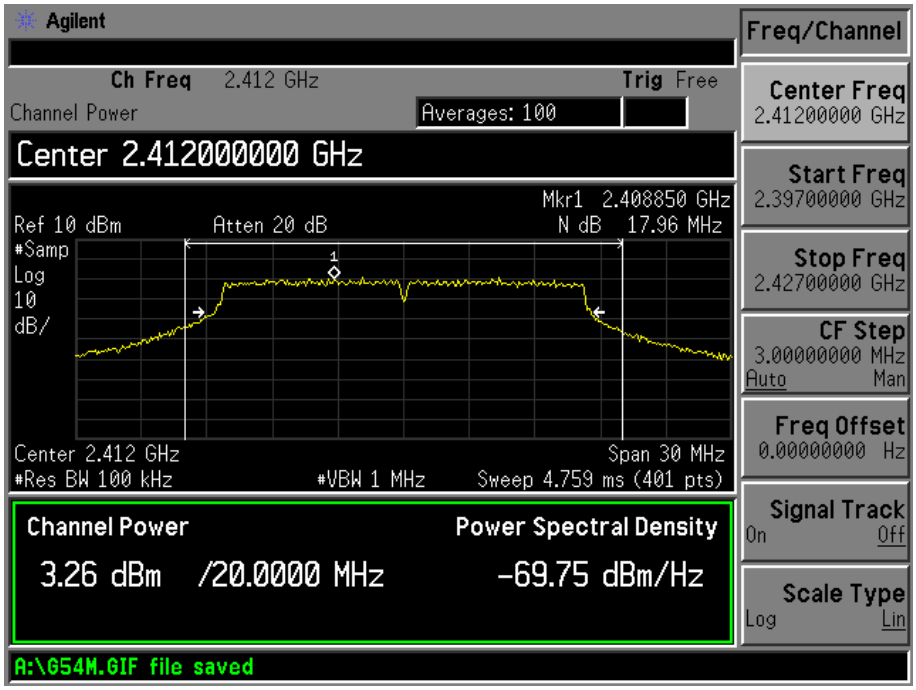


High Channel:

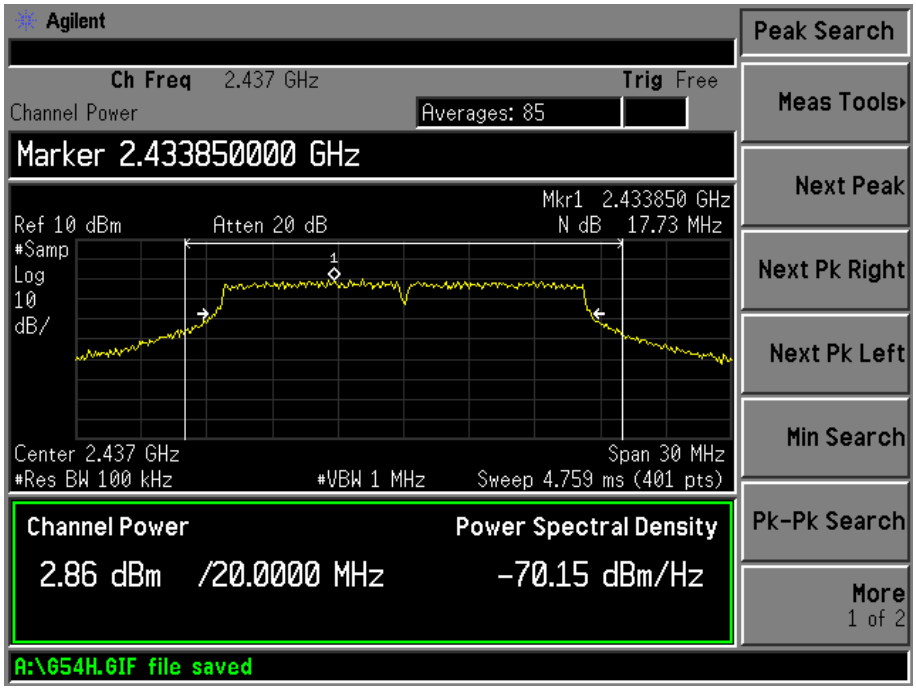


For 802.11g_54M rate

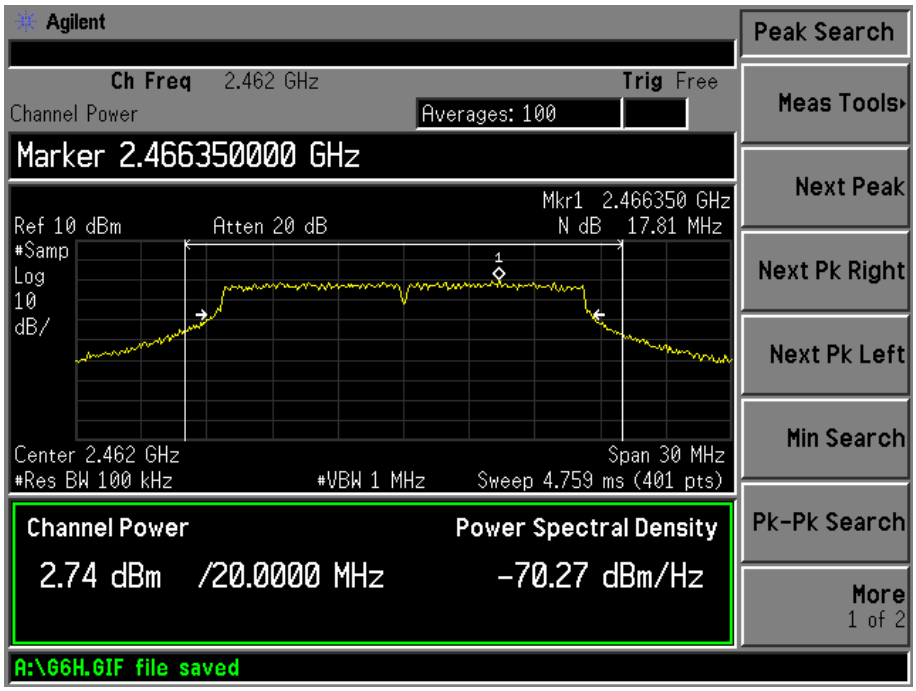
Low Channel:



Middle Channel:

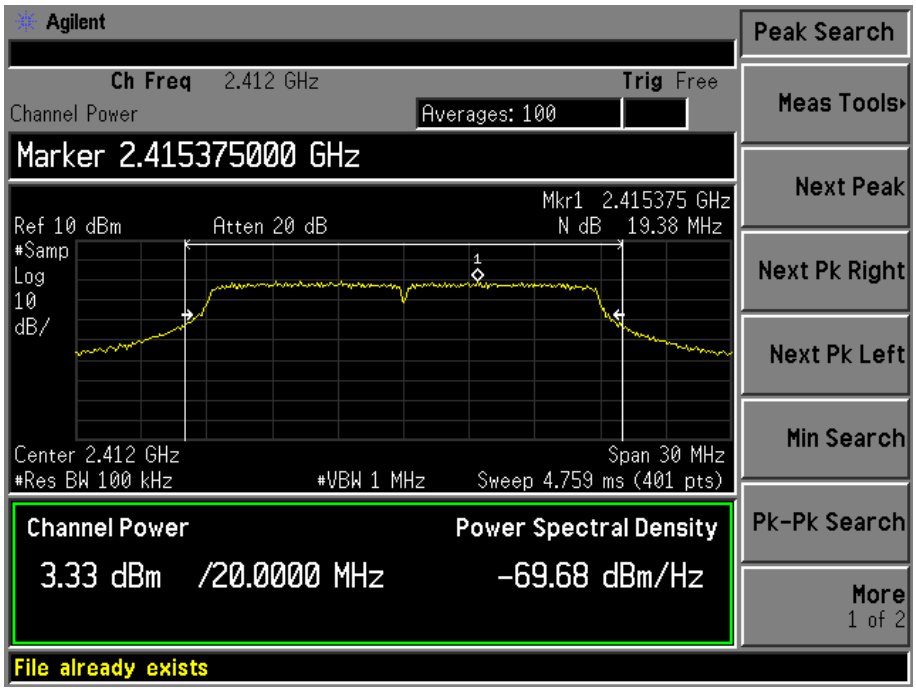


High Channel:

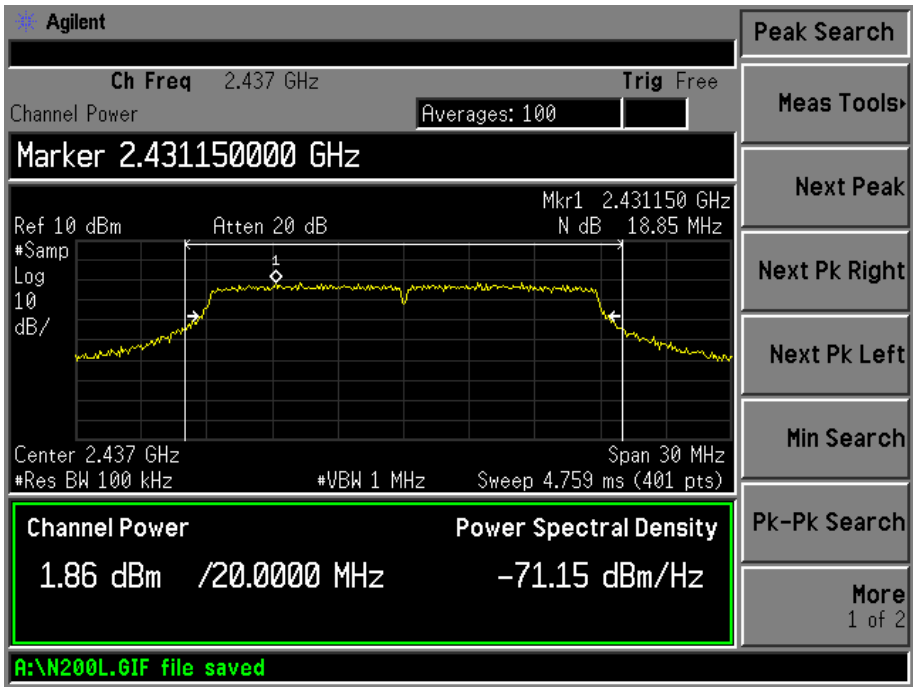


For 802. 11n HT20_0M rate

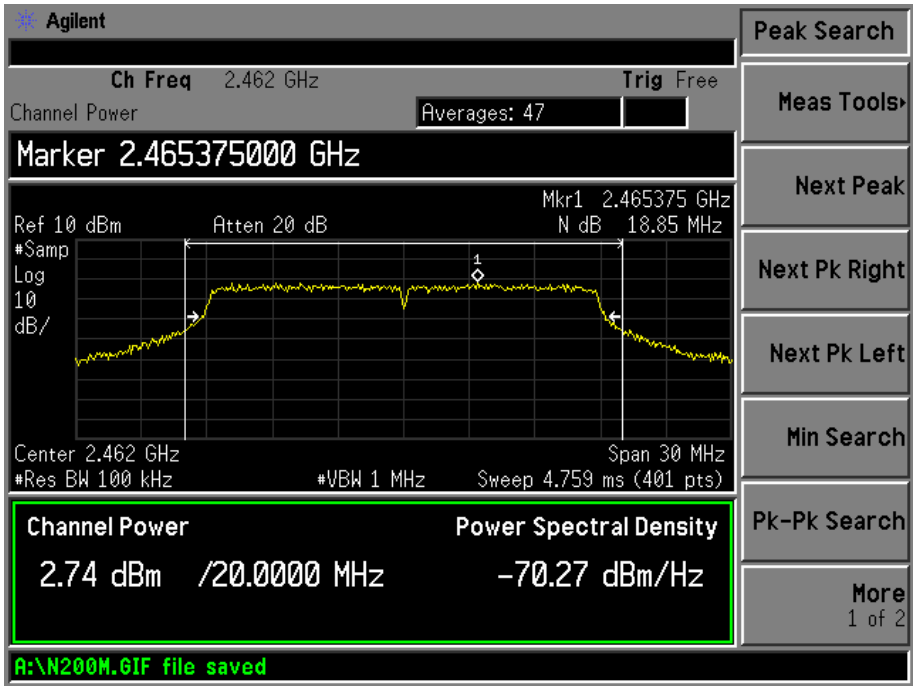
Low Channel:



Middle Channel:

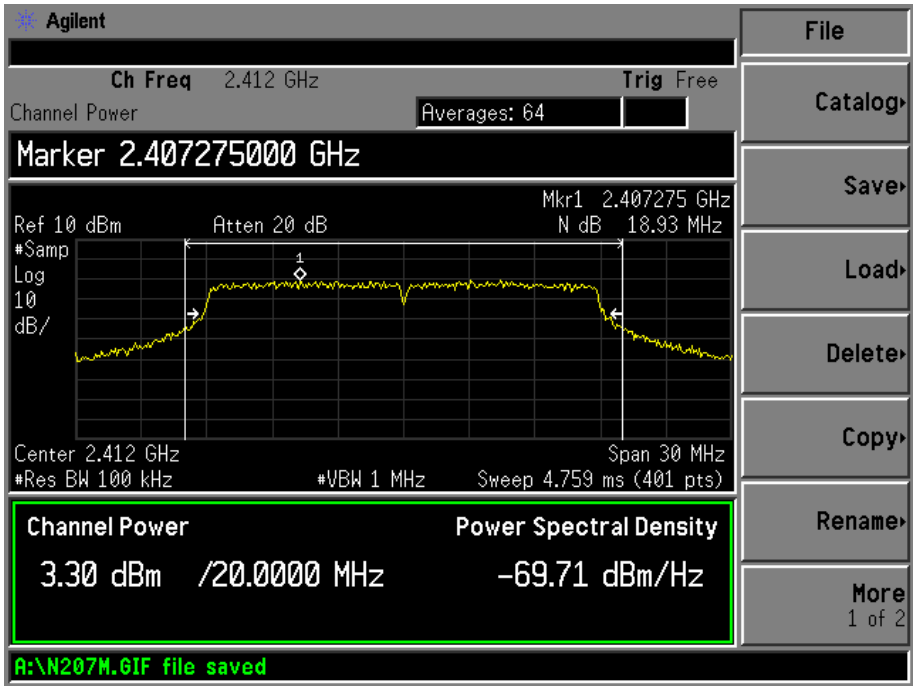


High Channel:

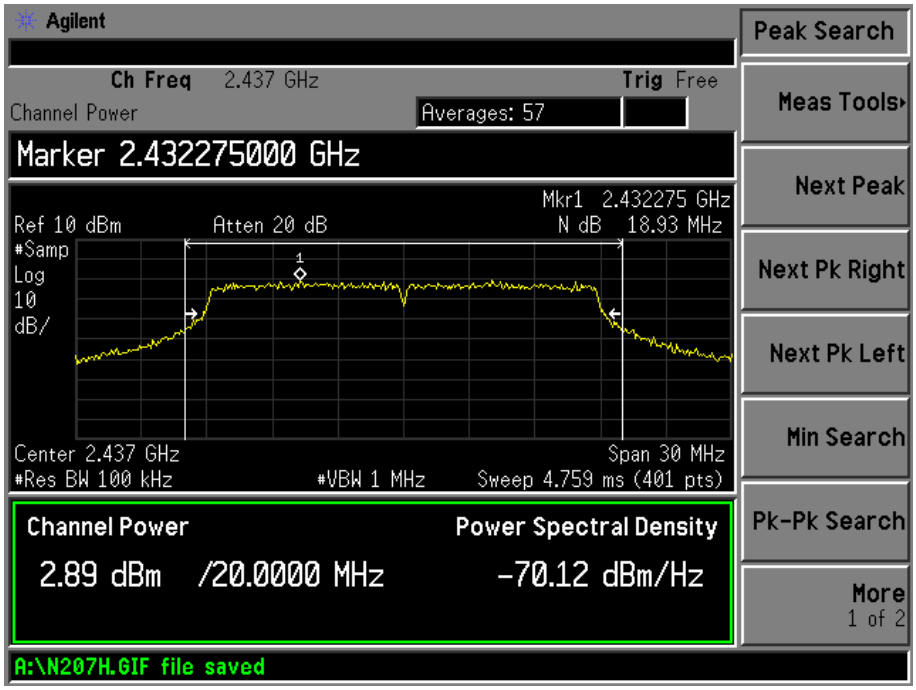


For 802.11n HT20_7M rate

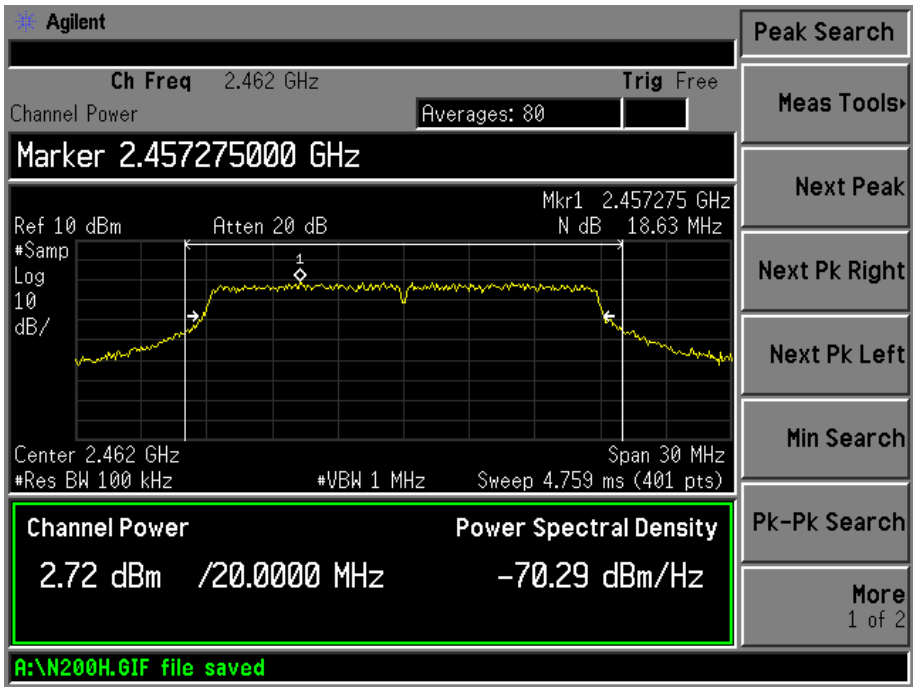
Low Channel:



Middle Channel:

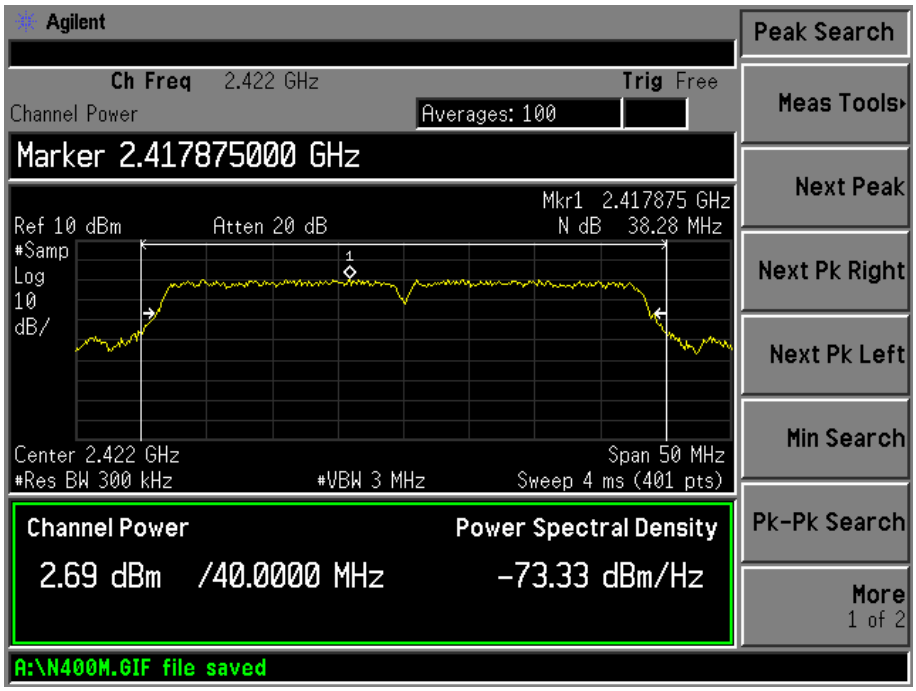


High Channel:

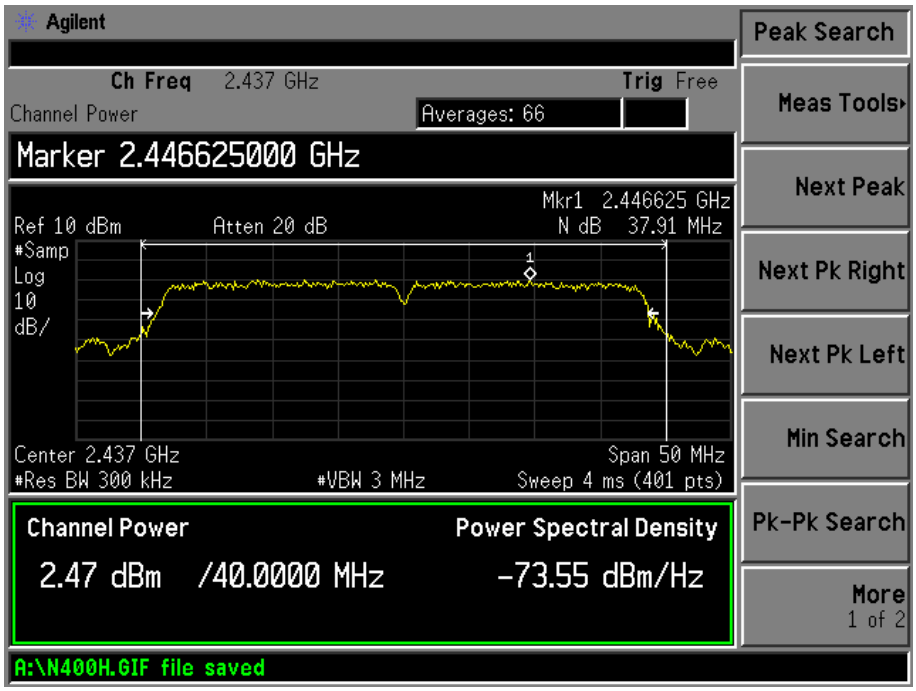


For 802.11n HT40_0M rate

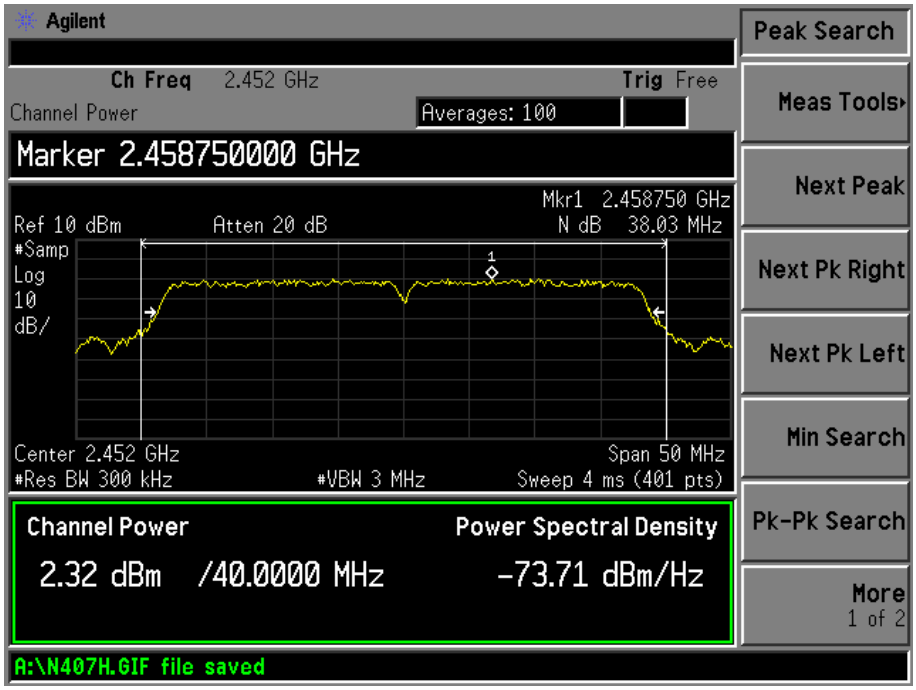
Low Channel:



Middle Channel:

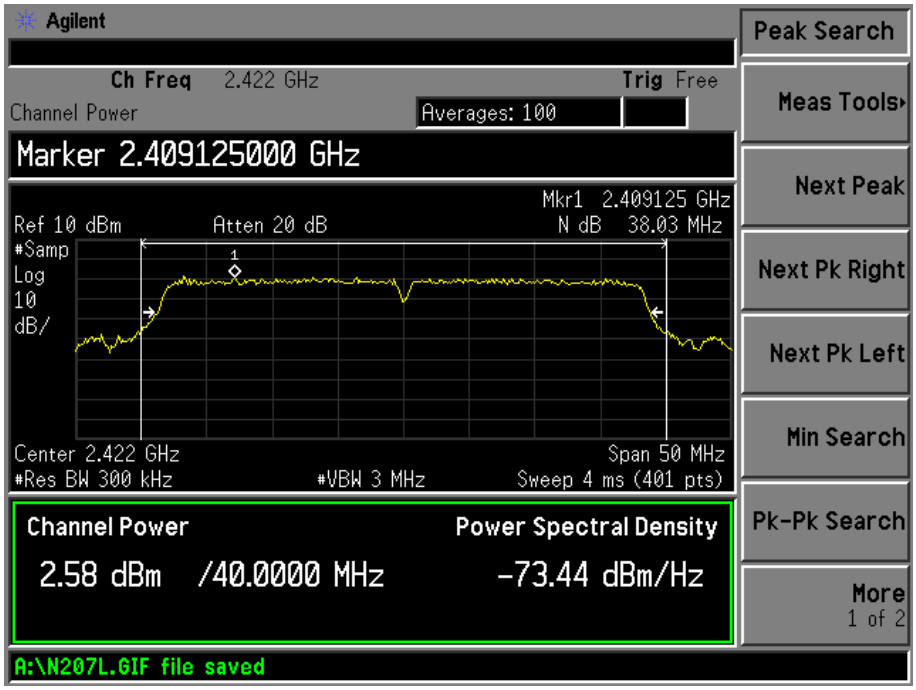


High Channel:

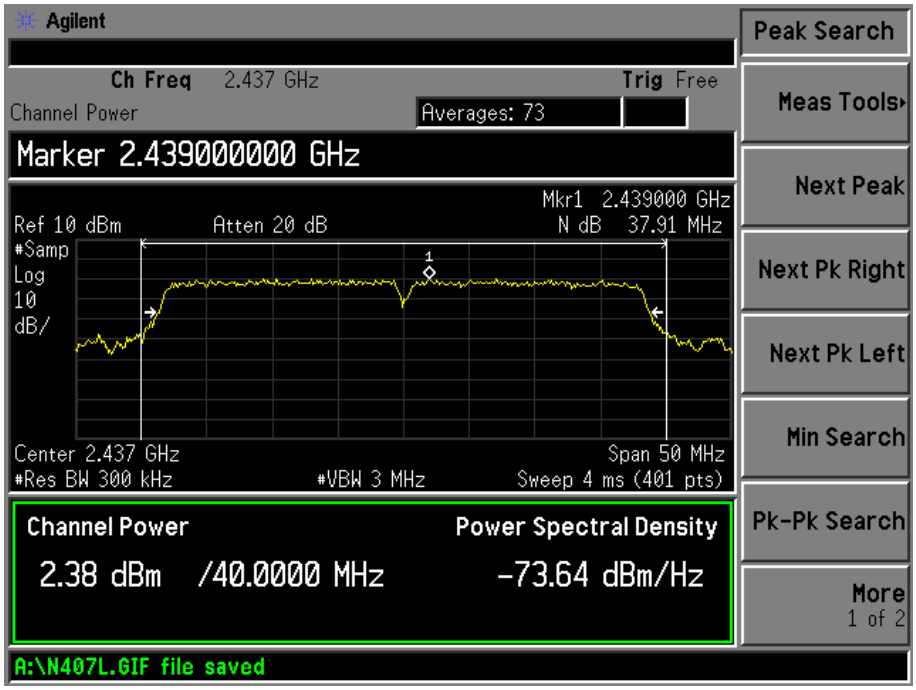


For 802.11n HT40_7M rate

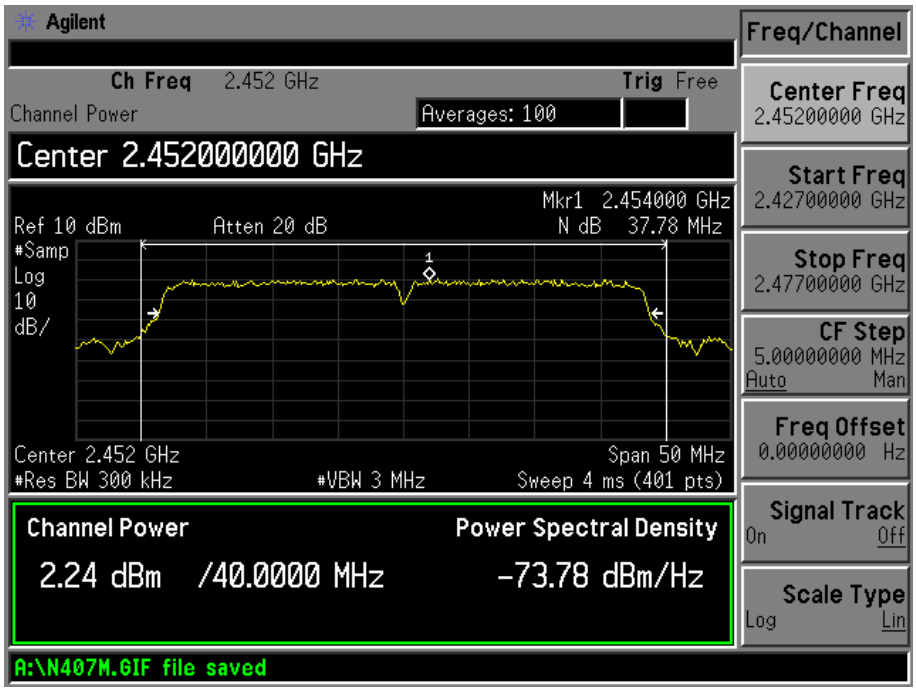
Low Channel:



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 ±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.

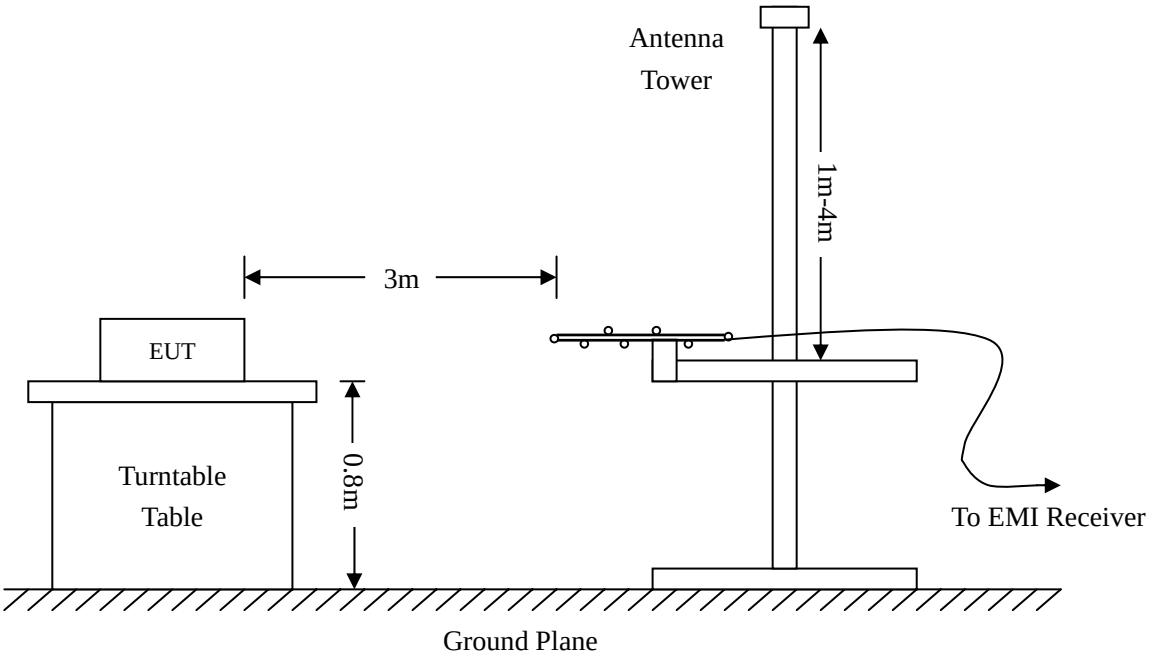
Emissions that fall in the restricted bands (15.205) must be less than 54dBuV/m otherwise the spurious and harmonics must be attenuated by at least 20dB.

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:

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

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

Margin = Corr. Ampl. – FCC Part 15 Limit

8.6 Environmental Conditions

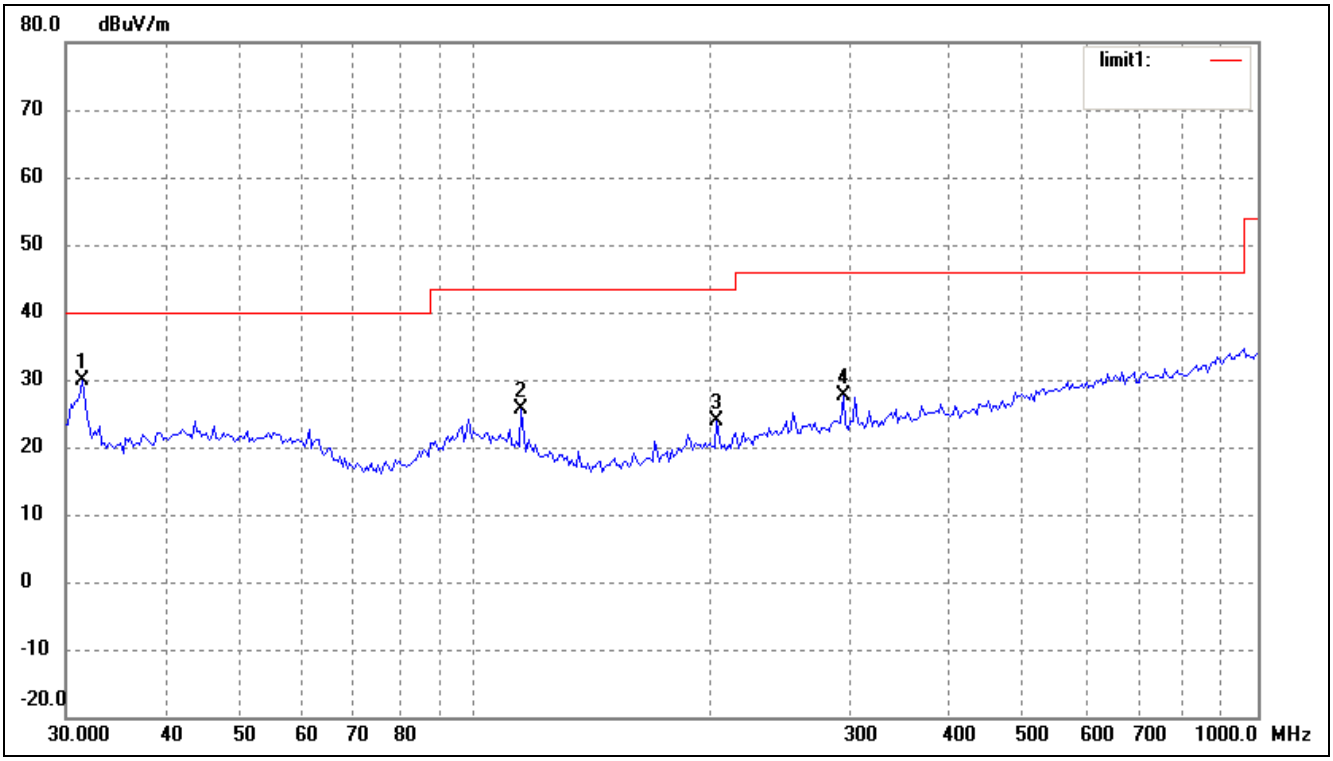
Temperature:	22° C
Relative Humidity:	52%
ATM Pressure:	1012 mbar

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:
-6.74dBμV at **108.2667 MHz** in the **Vertical** polarization, **Transmitting 802.11n HT20 Middle Channel** test mode with, **30 MHz to 25 GHz, 3Meters**

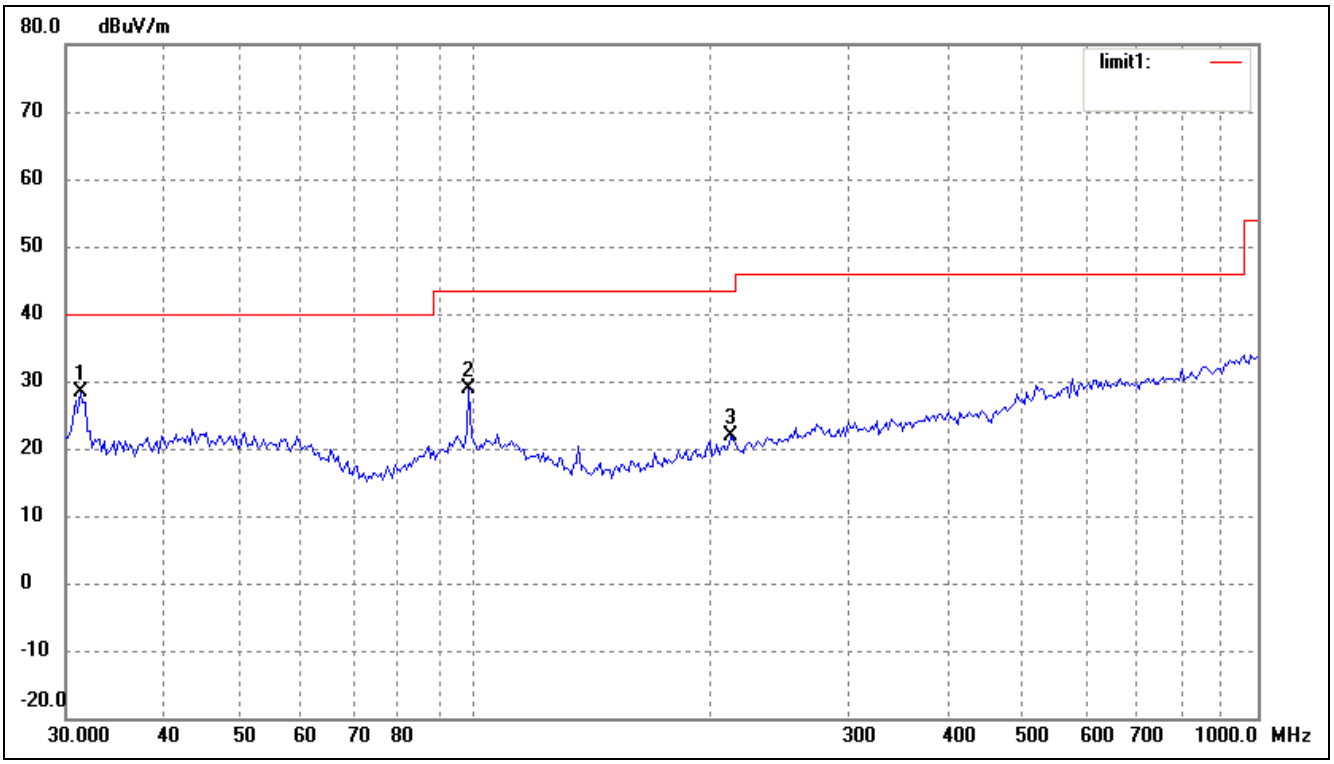
Note: *this EUT was tested in 3 orthogonal positions and the worst case position data was reported.*

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



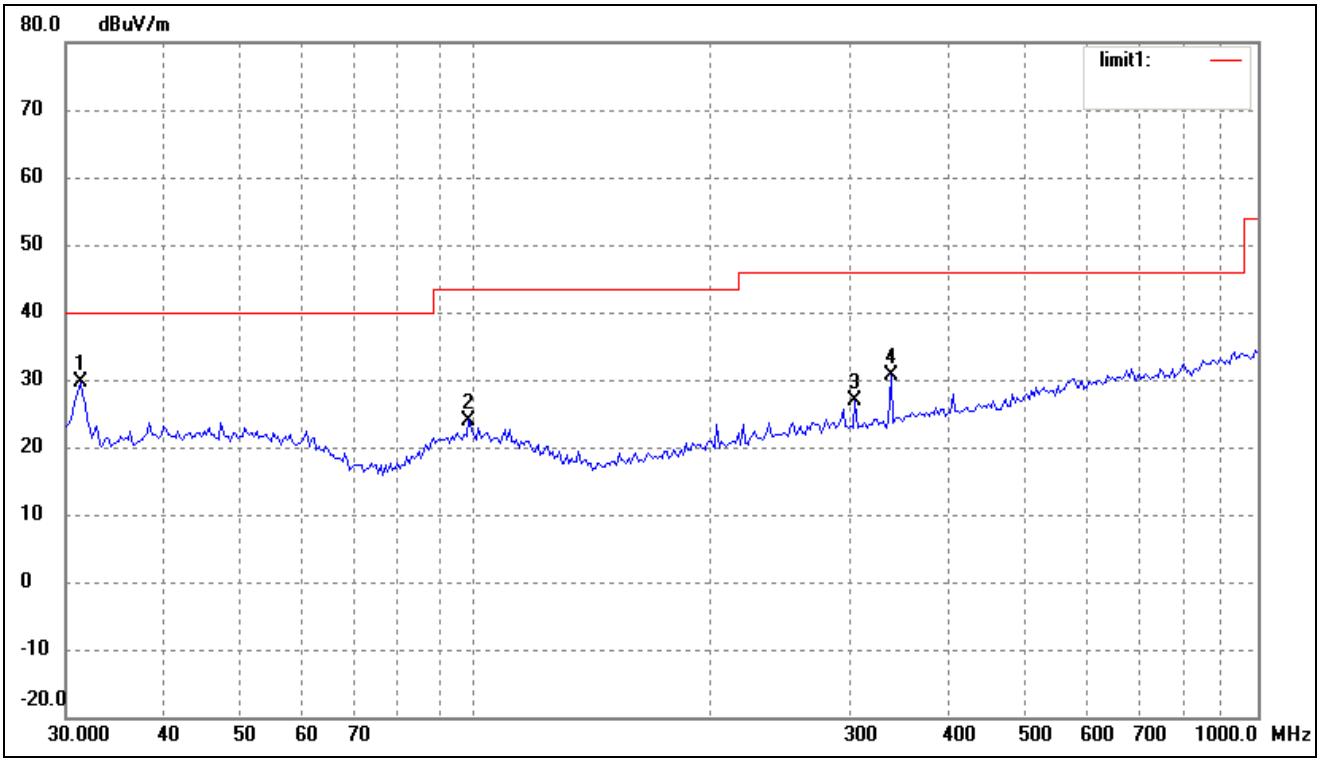
No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(°)	(cm)	
1	31.5095	23.17	6.62	29.79	40.00	-10.21	360	100	peak
2	114.5146	19.39	6.19	25.58	43.50	-17.92	360	100	peak
3	203.5228	18.16	5.80	23.96	43.50	-19.54	360	100	peak
4	295.1469	18.92	8.60	27.52	46.00	-18.48	360	100	peak

Vertical



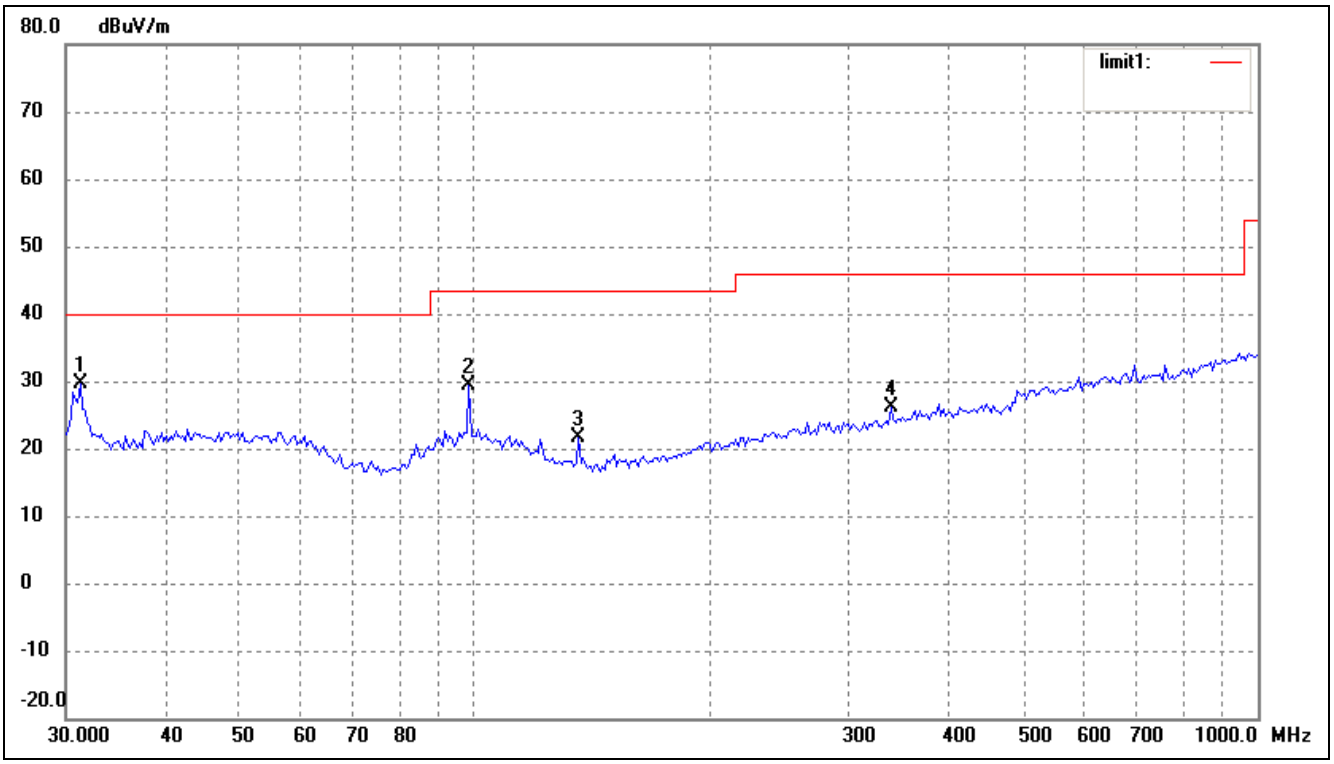
No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(°)	(cm)	
1	31.2893	21.87	6.62	28.49	40.00	-11.51	360	100	peak
2	98.1419	21.21	7.69	28.90	43.50	-14.60	360	100	peak
3	212.2695	15.84	6.08	21.92	43.50	-21.58	360	100	peak

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



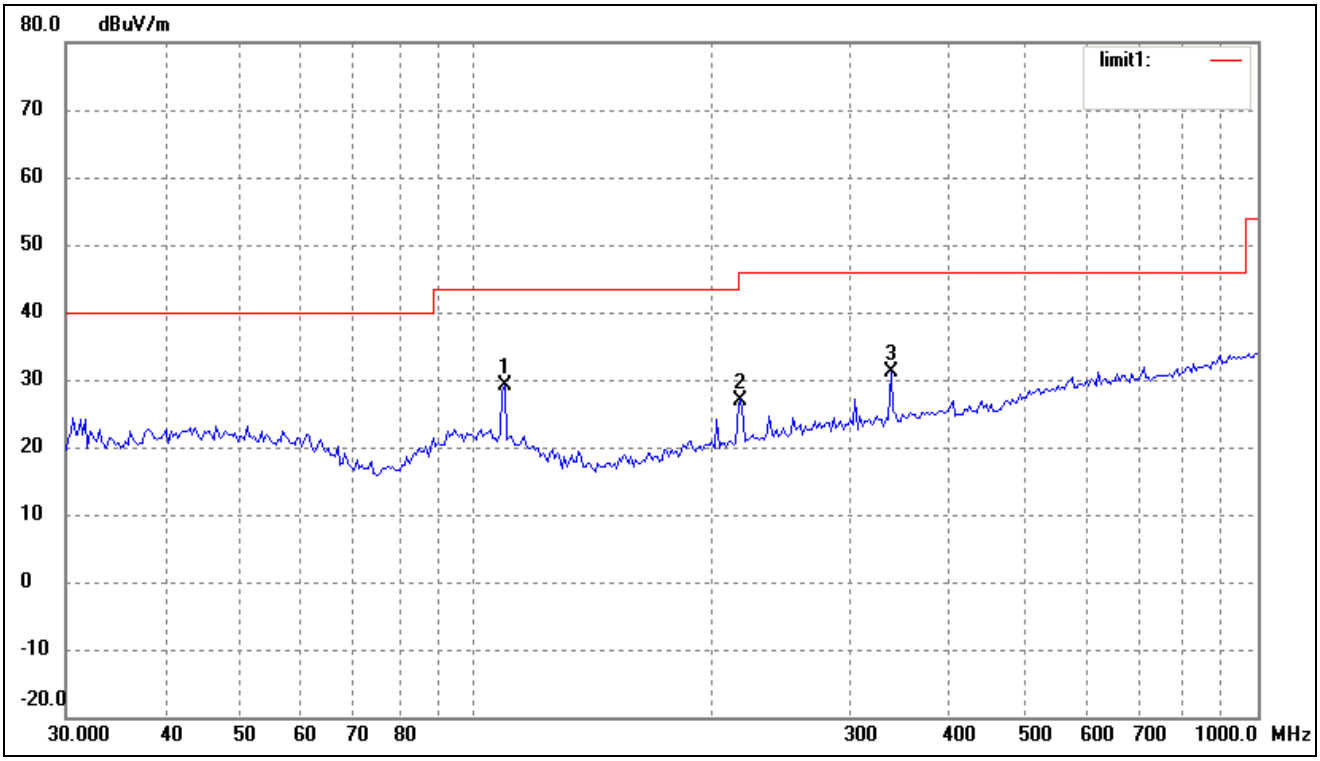
No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(°)	(cm)	
1	31.2893	22.95	6.62	29.57	40.00	-10.43	360	100	peak
2	98.1419	16.31	7.69	24.00	43.50	-19.50	360	100	peak
3	305.6800	18.22	8.70	26.92	46.00	-19.08	360	100	peak
4	339.5888	21.48	9.22	30.70	46.00	-15.30	360	100	peak

Vertical



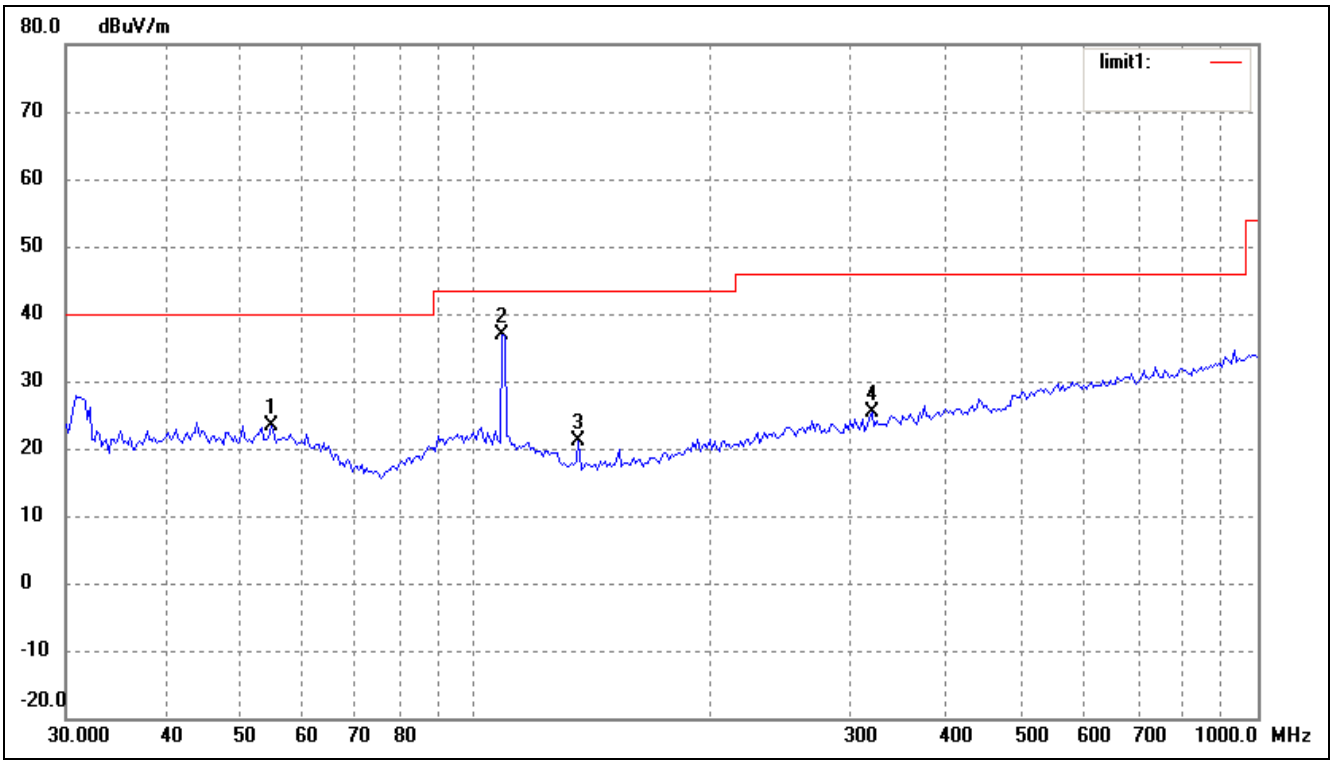
No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(°)	(cm)	
1	31.2893	22.90	6.62	29.52	40.00	-10.48	360	100	peak
2	98.1419	21.62	7.69	29.31	43.50	-14.19	360	100	peak
3	135.5062	18.10	3.51	21.61	43.50	-21.89	360	100	peak
4	339.5888	16.86	9.22	26.08	46.00	-19.92	360	100	peak

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



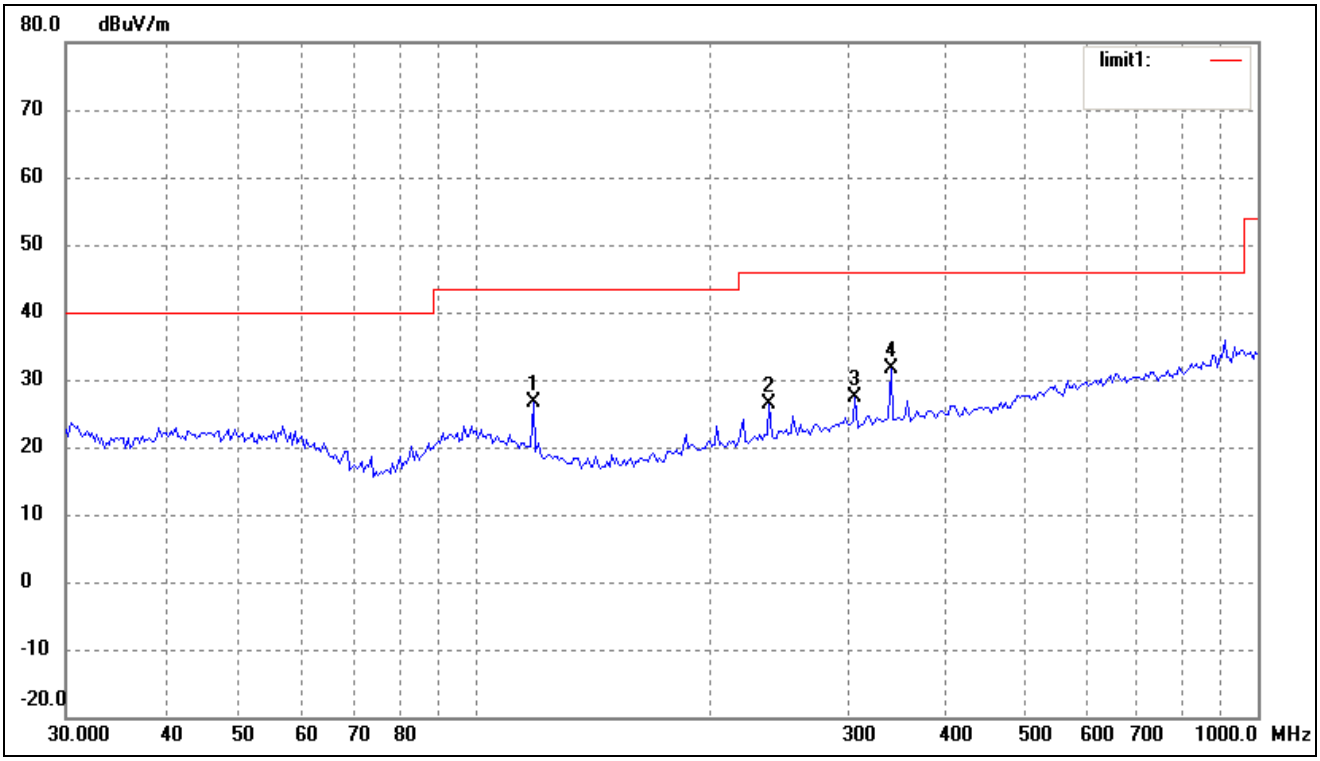
No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(°)	(cm)	
1	109.0286	22.08	7.03	29.11	43.50	-14.39	360	100	peak
2	218.3085	20.72	6.28	27.00	46.00	-19.00	360	100	peak
3	339.5888	21.86	9.22	31.08	46.00	-14.92	360	100	peak

Vertical



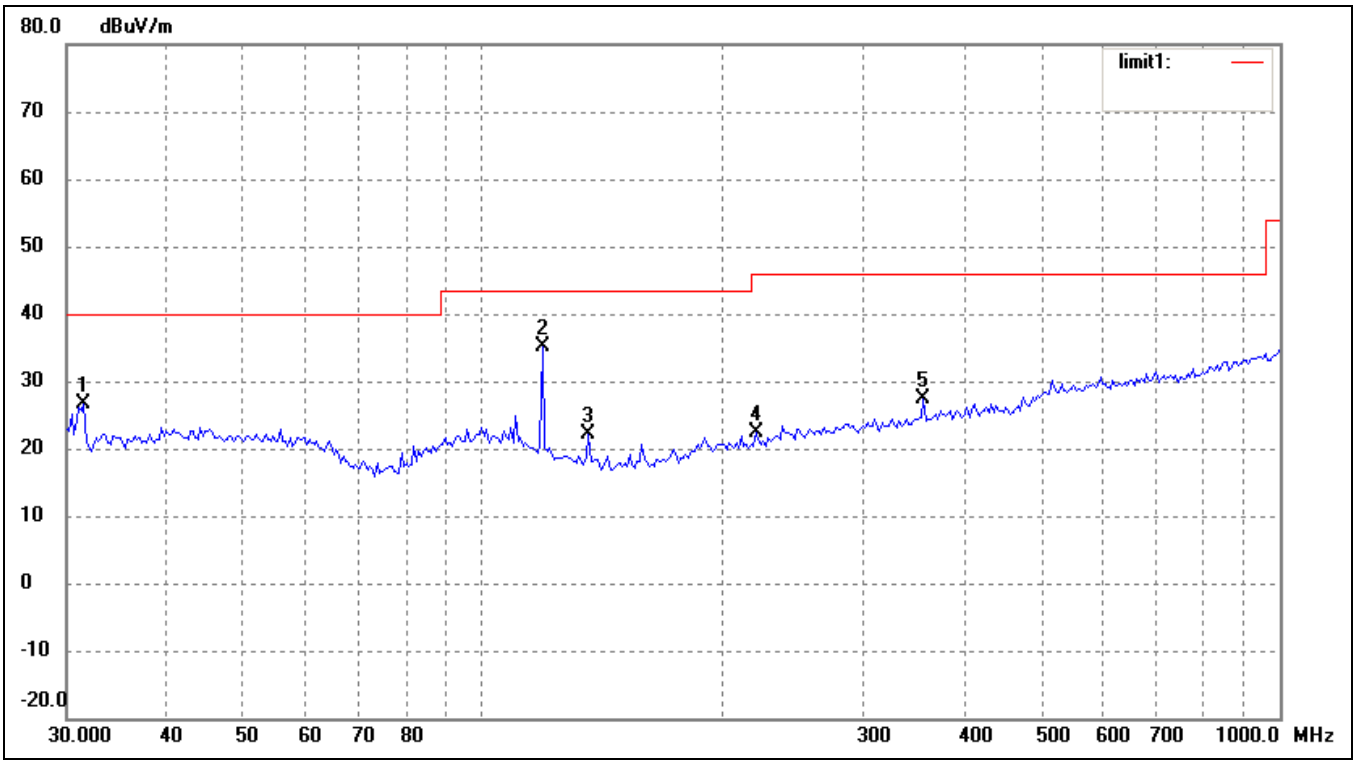
No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(°)	(cm)	
1	54.8348	15.92	7.47	23.39	40.00	-16.61	360	100	peak
2	108.2667	29.67	7.09	36.76	43.50	-6.74	360	100	peak
3	135.5062	17.59	3.51	21.10	43.50	-22.40	360	100	peak
4	321.0608	16.56	8.85	25.41	46.00	-20.59	360	100	peak

Spurious Emission From 30 MHz to 1 GHz
Test mode: Transmitting (802.11n-HT40) Middle Channel
Comment:
Horizontal



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(°)	(cm)	
1	118.6014	21.08	5.51	26.59	43.50	-16.91	360	100	peak
2	237.4760	19.04	7.30	26.34	46.00	-19.66	360	100	peak
3	305.6800	18.59	8.70	27.29	46.00	-18.71	360	100	peak
4	339.5888	22.50	9.22	31.72	46.00	-14.28	360	100	peak

Vertical



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(°)	(cm)	
1	31.5095	19.93	6.62	26.55	40.00	-13.45	360	100	peak
2	118.6014	29.58	5.51	35.09	43.50	-8.41	360	100	peak
3	135.5062	18.73	3.51	22.24	43.50	-21.26	360	100	peak
4	219.8449	16.10	6.33	22.43	46.00	-23.57	360	100	peak
5	356.6758	17.92	9.58	27.50	46.00	-18.50	360	100	peak

Antenna gain 2.0dBi

Spurious Emission above 1GHz

Test Mode: Transmitting (802.11b- Antenna gain 2.0dBi)

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	47.9	90	V	34.1	5.2	33.0	54.2	74	-19.8
4824.0	PK	46.6	270	H	34.1	5.2	33.0	52.9	74	-21.1
7236.0	PK	44.6	180	V	37.4	6.1	33.5	54.6	74	-19.4
7236.0	PK	42.1	45	H	37.4	6.1	33.5	52.1	74	-21.9
4824.0	AV	42.3	270	V	34.1	5.2	33.0	48.6	54	-5.4
4824.0	AV	40.2	90	H	34.1	5.2	33.0	46.5	54	-7.5
7236.0	AV	39.3	45	V	37.4	6.1	33.5	49.3	54	-4.7
7236.0	AV	35.2	60	H	37.4	6.1	33.5	45.2	54	-8.8
Middle Channel (1G to 25GHz)										
4874.0	PK	48.3	45	V	34.1	5.2	33.0	54.6	74	-19.4
4874.0	PK	46.8	270	H	34.1	5.2	33.0	53.1	74	-20.9
7311.0	PK	44.2	45	V	37.4	6.1	33.5	54.2	74	-19.8
7311.0	PK	42.6	180	H	37.4	6.1	33.5	52.6	74	-21.4
4874.0	AV	42.5	270	V	34.1	5.2	33.0	48.8	54	-5.2
4874.0	AV	40.5	90	H	34.1	5.2	33.0	46.8	54	-7.2
7311.0	AV	38.7	60	V	37.4	6.1	33.5	48.7	54	-5.3
7311.0	AV	35.1	45	H	37.4	6.1	33.5	45.1	54	-8.9
High Channel (1G to 25GHz)										
4924.0	PK	48.6	270	V	34.1	5.2	33.0	54.9	74	-19.1
4924.0	PK	47.4	45	H	34.1	5.2	33.0	53.7	74	-20.3
7386.0	PK	43.9	180	V	37.4	6.1	33.5	53.9	74	-20.1
7386.0	PK	41.9	45	H	37.4	6.1	33.5	51.9	74	-22.1
4924.0	AV	42.1	90	V	34.1	5.2	33.0	48.4	54	-5.6
4924.0	AV	40	270	H	34.1	5.2	33.0	46.3	54	-7.7
7386.0	AV	39.1	60	V	37.4	6.1	33.5	49.1	54	-4.9
7386.0	AV	35.5	60	H	37.4	6.1	33.5	45.5	54	-8.5

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

Spurious Emission Above 1GHz

Test Mode: Transmitting (802.11g- Antenna gain 2.0dBi)

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	48.9	90	V	34.1	5.2	33.0	55.2	74	-18.8
4824.0	PK	46.1	270	H	34.1	5.2	33.0	52.4	74	-21.6
7236.0	PK	44.6	180	V	37.4	6.1	33.5	54.6	74	-19.4
7236.0	PK	42.3	45	H	37.4	6.1	33.5	52.3	74	-21.7
4824.0	AV	39.9	270	V	34.1	5.2	33.0	46.2	54	-7.8
4824.0	AV	37.8	90	H	34.1	5.2	33.0	44.1	54	-9.9
7236.0	AV	36.5	45	V	37.4	6.1	33.5	46.5	54	-7.5
7236.0	AV	34.6	60	H	37.4	6.1	33.5	44.6	54	-9.4
Middle Channel (1G to 25GHz)										
4874.0	PK	49.3	45	V	34.1	5.2	33.0	55.6	74	-18.4
4874.0	PK	45.8	270	H	34.1	5.2	33.0	52.1	74	-21.9
7311.0	PK	44.3	45	V	37.4	6.1	33.5	54.3	74	-19.7
7311.0	PK	42.8	180	H	37.4	6.1	33.5	52.8	74	-21.2
4874.0	AV	40.2	270	V	34.1	5.2	33.0	46.5	54	-7.5
4874.0	AV	37.9	90	H	34.1	5.2	33.0	44.2	54	-9.8
7311.0	AV	36.1	60	V	37.4	6.1	33.5	46.1	54	-7.9
7311.0	AV	34.9	45	H	37.4	6.1	33.5	44.9	54	-9.1
High Channel (1G to 25GHz)										
4924.0	PK	49.6	270	V	34.1	5.2	33.0	55.9	74	-18.1
4924.0	PK	46	45	H	34.1	5.2	33.0	52.3	74	-21.7
7386.0	PK	44.5	180	V	37.4	6.1	33.5	54.5	74	-19.5
7386.0	PK	42.4	45	H	37.4	6.1	33.5	52.4	74	-21.6
4924.0	AV	40	90	V	34.1	5.2	33.0	46.3	54	-7.7
4924.0	AV	37.8	270	H	34.1	5.2	33.0	44.1	54	-9.9
7386.0	AV	36.6	60	V	37.4	6.1	33.5	46.6	54	-7.4
7386.0	AV	34.7	60	H	37.4	6.1	33.5	44.7	54	-9.3

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

Spurious Emission above 1GHz

Test Mode: Transmitting (802.11n-HT20- Antenna gain 2.0dBi)

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	48.3	90	V	34.1	5.2	33.0	54.6	74	-19.4
4824.0	PK	43.8	270	H	34.1	5.2	33.0	50.1	74	-23.9
7236.0	PK	42.7	90	V	37.4	6.1	33.5	52.7	74	-21.3
7236.0	PK	40.4	145	H	37.4	6.1	33.5	50.4	74	-23.6
4824.0	AV	38.8	270	V	34.1	5.2	33.0	45.1	54	-8.9
4824.0	AV	37.2	180	H	34.1	5.2	33.0	43.5	54	-10.5
7236.0	AV	35.9	45	V	37.4	6.1	33.5	45.9	54	-8.1
7236.0	AV	33.4	60	H	37.4	6.1	33.5	43.4	54	-10.6
Middle Channel (1G to 25GHz)										
4874.0	PK	47.9	45	V	34.1	5.2	33.0	54.2	74	-19.8
4874.0	PK	44.5	270	H	34.1	5.2	33.0	50.8	74	-23.2
7311.0	PK	42.6	246	V	37.4	6.1	33.5	52.6	74	-21.4
7311.0	PK	40.3	45	H	37.4	6.1	33.5	50.3	74	-23.7
4874.0	AV	39.4	270	V	34.1	5.2	33.0	45.7	54	-8.3
4874.0	AV	36.8	90	H	34.1	5.2	33.0	43.1	54	-10.9
7311.0	AV	35.4	45	V	37.4	6.1	33.5	45.4	54	-8.6
7311.0	AV	33.8	90	H	37.4	6.1	33.5	43.8	54	-10.2
High Channel (1G to 25GHz)										
4924.0	PK	48.2	270	V	34.1	5.2	33.0	54.5	74	-19.5
4924.0	PK	44.0	45	H	34.1	5.2	33.0	50.3	74	-23.7
7386.0	PK	42.7	360	V	37.4	6.1	33.5	52.7	74	-21.3
7386.0	PK	40.5	60	H	37.4	6.1	33.5	50.5	74	-23.5
4924.0	AV	38.9	90	V	34.1	5.2	33.0	45.2	54	-8.8
4924.0	AV	37.4	270	H	34.1	5.2	33.0	43.7	54	-10.3
7386.0	AV	35.6	70	V	37.4	6.1	33.5	45.6	54	-8.4
7386.0	AV	33.5	145	H	37.4	6.1	33.5	43.5	54	-10.5

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

Spurious Emission Above 1GHz

Test Mode: Transmitting (802.11n-HT40- Antenna gain 2.0dBi)

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	48.9	221	V	34.1	5.2	33.0	55.2	74	-18.8
4844.0	PK	45.5	270	H	34.1	5.2	33.0	51.8	74	-22.2
7266.0	PK	44.3	180	V	37.4	6.1	33.5	54.3	74	-19.7
7266.0	PK	40.3	45	H	37.4	6.1	33.5	50.3	74	-23.7
4844.0	AV	38.4	270	V	34.1	5.2	33.0	44.7	54	-9.3
4844.0	AV	35.6	190	H	34.1	5.2	33.0	41.9	54	-12.1
7266.0	AV	35.2	45	V	37.4	6.1	33.5	45.2	54	-8.8
7266.0	AV	32.4	360	H	37.4	6.1	33.5	42.4	54	-11.6
Middle Channel (1G to 25GHz)										
4874.0	PK	48.6	245	V	34.1	5.2	33.0	54.9	74	-19.1
4874.0	PK	45.2	270	H	34.1	5.2	33.0	51.5	74	-22.5
7311.0	PK	44.1	45	V	37.4	6.1	33.5	54.1	74	-19.9
7311.0	PK	40.5	180	H	37.4	6.1	33.5	50.5	74	-23.5
4874.0	AV	39	270	V	34.1	5.2	33.0	45.3	54	-8.7
4874.0	AV	36.1	90	H	34.1	5.2	33.0	42.4	54	-11.6
7311.0	AV	35.8	60	V	37.4	6.1	33.5	45.8	54	-8.2
7311.0	AV	32.1	145	H	37.4	6.1	33.5	42.1	54	-11.9
High Channel (1G to 25GHz)										
4904.0	PK	48.2	270	V	34.1	5.2	33.0	54.5	74	-19.5
4904.0	PK	44.9	45	H	34.1	5.2	33.0	51.2	74	-22.8
7356.0	PK	43.6	180	V	37.4	6.1	33.5	53.6	74	-20.4
7356.0	PK	39.7	265	H	37.4	6.1	33.5	49.7	74	-24.3
4904.0	AV	39.2	90	V	34.1	5.2	33.0	45.5	54	-8.5
4904.0	AV	36.3	270	H	34.1	5.2	33.0	42.6	54	-11.4
7356.0	AV	35.3	150	V	37.4	6.1	33.5	45.3	54	-8.7
7356.0	AV	32.7	260	H	37.4	6.1	33.5	42.7	54	-11.3

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

Antenna gain 5.0dBi

Spurious Emission above 1GHz

Test Mode: Transmitting (802.11b- Antenna gain 5.0dBi)

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	52.6	90	V	34.1	5.2	33.0	58.9	74	-15.1
4824.0	PK	50.9	270	H	34.1	5.2	33.0	57.2	74	-16.8
7236.0	PK	49.2	180	V	37.4	6.1	33.5	59.2	74	-14.8
7236.0	PK	46.4	45	H	37.4	6.1	33.5	56.4	74	-17.6
4824.0	AV	45.2	270	V	34.1	5.2	33.0	51.5	54	-2.5
4824.0	AV	43.5	90	H	34.1	5.2	33.0	49.8	54	-4.2
7236.0	AV	41.3	45	V	37.4	6.1	33.5	51.3	54	-2.7
7236.0	AV	39.4	60	H	37.4	6.1	33.5	49.4	54	-4.6
Middle Channel (1G to 25GHz)										
4874.0	PK	52.9	45	V	34.1	5.2	33.0	59.2	74	-14.8
4874.0	PK	51.2	270	H	34.1	5.2	33.0	57.5	74	-16.5
7311.0	PK	48.8	45	V	37.4	6.1	33.5	58.8	74	-15.2
7311.0	PK	46.2	180	H	37.4	6.1	33.5	56.2	74	-17.8
4874.0	AV	45.4	270	V	34.1	5.2	33.0	51.7	54	-2.3
4874.0	AV	43.8	90	H	34.1	5.2	33.0	50.1	54	-3.9
7311.0	AV	41.6	60	V	37.4	6.1	33.5	51.6	54	-2.4
7311.0	AV	39.2	45	H	37.4	6.1	33.5	49.2	54	-4.8
High Channel (1G to 25GHz)										
4924.0	PK	52.3	270	V	34.1	5.2	33.0	58.6	74	-15.4
4924.0	PK	50.8	45	H	34.1	5.2	33.0	57.1	74	-16.9
7386.0	PK	48.4	180	V	37.4	6.1	33.5	58.4	74	-15.6
7386.0	PK	45.6	45	H	37.4	6.1	33.5	55.6	74	-18.4
4924.0	AV	44.8	90	V	34.1	5.2	33.0	51.1	54	-2.9
4924.0	AV	43.2	270	H	34.1	5.2	33.0	49.5	54	-4.5
7386.0	AV	41.2	60	V	37.4	6.1	33.5	51.2	54	-2.8
7386.0	AV	39.0	60	H	37.4	6.1	33.5	49	54	-5.0

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

Spurious Emission Above 1GHz

Test Mode: Transmitting (802.11g- Antenna gain 5.0dBi)

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	53.5	90	V	34.1	5.2	33.0	59.8	74	-14.2
4824.0	PK	52.3	270	H	34.1	5.2	33.0	58.6	74	-15.4
7236.0	PK	49.5	180	V	37.4	6.1	33.5	59.5	74	-14.5
7236.0	PK	46.4	45	H	37.4	6.1	33.5	56.4	74	-17.6
4824.0	AV	44.6	270	V	34.1	5.2	33.0	50.9	54	-3.1
4824.0	AV	41.9	90	H	34.1	5.2	33.0	48.2	54	-5.8
7236.0	AV	42.2	45	V	37.4	6.1	33.5	52.2	54	-1.8
7236.0	AV	40.1	60	H	37.4	6.1	33.5	50.1	54	-3.9
Middle Channel (1G to 25GHz)										
4874.0	PK	53.9	45	V	34.1	5.2	33.0	60.2	74	-13.8
4874.0	PK	52.6	270	H	34.1	5.2	33.0	58.9	74	-15.1
7311.0	PK	49.2	45	V	37.4	6.1	33.5	59.2	74	-14.8
7311.0	PK	46.7	180	H	37.4	6.1	33.5	56.7	74	-17.3
4874.0	AV	45.1	270	V	34.1	5.2	33.0	51.4	54	-2.6
4874.0	AV	43.3	90	H	34.1	5.2	33.0	49.6	54	-4.4
7311.0	AV	41.9	60	V	37.4	6.1	33.5	51.9	54	-2.1
7311.0	AV	40.3	45	H	37.4	6.1	33.5	50.3	54	-3.7
High Channel (1G to 25GHz)										
4924.0	PK	54.1	270	V	34.1	5.2	33.0	60.4	74	-13.6
4924.0	PK	52.1	45	H	34.1	5.2	33.0	58.4	74	-15.6
7386.0	PK	48.6	180	V	37.4	6.1	33.5	58.6	74	-15.4
7386.0	PK	46.8	45	H	37.4	6.1	33.5	56.8	74	-17.2
4924.0	AV	44.8	90	V	34.1	5.2	33.0	51.1	54	-2.9
4924.0	AV	43.0	270	H	34.1	5.2	33.0	49.3	54	-4.7
7386.0	AV	41.5	60	V	37.4	6.1	33.5	51.5	54	-2.5
7386.0	AV	40.7	60	H	37.4	6.1	33.5	50.7	54	-3.3

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

Spurious Emission above 1GHz

Test Mode: Transmitting (802.11n-HT20- Antenna gain 5.0dBi)

Frequency MHz	Detector	Meter Reading dBuV	Direction Degree	Polar H / V	Antenna Loss dB	Cable loss dB	Amplifier dB	Correction Amplitude dBuV/m	Limit dBuV/m	Margin dB
Low Channel (1G to 25GHz)										
4824.0	PK	50.0	90	V	34.1	5.2	33.0	56.3	74	-17.7
4824.0	PK	47.1	270	H	34.1	5.2	33.0	53.4	74	-20.6
7236.0	PK	48.9	90	V	37.4	6.1	33.5	58.9	74	-15.1
7236.0	PK	46.1	145	H	37.4	6.1	33.5	56.1	74	-17.9
4824.0	AV	44.1	270	V	34.1	5.2	33.0	50.4	54	-3.6
4824.0	AV	41.9	180	H	34.1	5.2	33.0	48.2	54	-5.8
7236.0	AV	41.3	45	V	37.4	6.1	33.5	51.3	54	-2.7
7236.0	AV	39.5	60	H	37.4	6.1	33.5	49.5	54	-4.5
Middle Channel (1G to 25GHz)										
4874.0	PK	50.6	45	V	34.1	5.2	33.0	56.9	74	-17.1
4874.0	PK	46.8	270	H	34.1	5.2	33.0	53.1	74	-20.9
7311.0	PK	48.4	246	V	37.4	6.1	33.5	58.4	74	-15.6
7311.0	PK	46.6	45	H	37.4	6.1	33.5	56.6	74	-17.4
4874.0	AV	44	270	V	34.1	5.2	33.0	50.3	54	-3.7
4874.0	AV	42.2	90	H	34.1	5.2	33.0	48.5	54	-5.5
7311.0	AV	41.7	45	V	37.4	6.1	33.5	51.7	54	-2.3
7311.0	AV	40.3	90	H	37.4	6.1	33.5	50.3	54	-3.7
High Channel (1G to 25GHz)										
4924.0	PK	50.2	270	V	34.1	5.2	33.0	56.5	74	-17.5
4924.0	PK	47.3	45	H	34.1	5.2	33.0	53.6	74	-20.4
7386.0	PK	48.7	360	V	37.4	6.1	33.5	58.7	74	-15.3
7386.0	PK	46.3	60	H	37.4	6.1	33.5	56.3	74	-17.7
4924.0	AV	44.5	90	V	34.1	5.2	33.0	50.8	54	-3.2
4924.0	AV	42.3	270	H	34.1	5.2	33.0	48.6	54	-5.4
7386.0	AV	41.9	70	V	37.4	6.1	33.5	51.9	54	-2.1
7386.0	AV	40.5	145	H	37.4	6.1	33.5	50.5	54	-3.5

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

Spurious Emission Above 1GHz

Test Mode: Transmitting (802.11n-HT40- Antenna gain 5.0dBi)

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	45.3	221	V	34.1	5.2	33.0	51.6	74	-22.4
4844.0	PK	43.9	270	H	34.1	5.2	33.0	50.2	74	-23.8
7266.0	PK	44.9	180	V	37.4	6.1	33.5	54.9	74	-19.1
7266.0	PK	40.4	45	H	37.4	6.1	33.5	50.4	74	-23.6
4844.0	AV	41.9	270	V	34.1	5.2	33.0	48.2	54	-5.8
4844.0	AV	40.2	190	H	34.1	5.2	33.0	46.5	54	-7.5
7266.0	AV	39.4	45	V	37.4	6.1	33.5	49.4	54	-4.6
7266.0	AV	37.3	360	H	37.4	6.1	33.5	47.3	54	-6.7
Middle Channel (1G to 25GHz)										
4874.0	PK	44.9	245	V	34.1	5.2	33.0	51.2	74	-22.8
4874.0	PK	44.1	270	H	34.1	5.2	33.0	50.4	74	-23.6
7311.0	PK	40.1	45	V	37.4	6.1	33.5	50.1	74	-23.9
7311.0	PK	39.3	180	H	37.4	6.1	33.5	49.3	74	-24.7
4874.0	AV	42.3	270	V	34.1	5.2	33.0	48.6	54	-5.4
4874.0	AV	40.5	90	H	34.1	5.2	33.0	46.8	54	-7.2
7311.0	AV	39.2	60	V	37.4	6.1	33.5	49.2	54	-4.8
7311.0	AV	37.4	145	H	37.4	6.1	33.5	47.4	54	-6.6
High Channel (1G to 25GHz)										
4904.0	PK	45.2	270	V	34.1	5.2	33.0	51.5	74	-22.5
4904.0	PK	43.8	45	H	34.1	5.2	33.0	50.1	74	-23.9
7356.0	PK	40.7	180	V	37.4	6.1	33.5	50.7	74	-23.3
7356.0	PK	39.5	265	H	37.4	6.1	33.5	49.5	74	-24.5
4904.0	AV	41.8	90	V	34.1	5.2	33.0	48.1	54	-5.9
4904.0	AV	40.6	270	H	34.1	5.2	33.0	46.9	54	-7.1
7356.0	AV	39.4	150	V	37.4	6.1	33.5	49.4	54	-4.6
7356.0	AV	37.7	260	H	37.4	6.1	33.5	47.7	54	-6.3

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

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

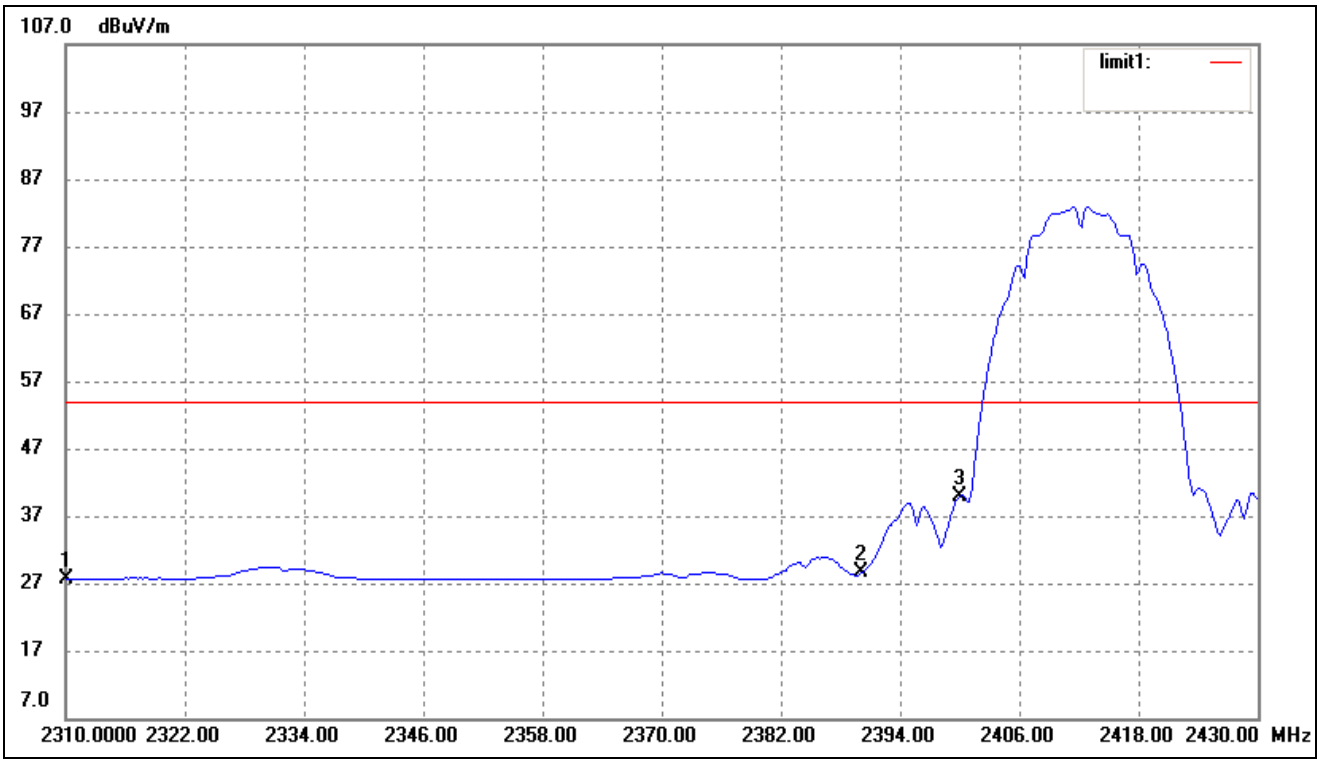
Temperature:	21° C
Relative Humidity:	54%
ATM Pressure:	1011 mbar

9.5 Summary of Test Results/Plots

Test mode	Frequency MHz	Limit dBuV /dB	Result
802.11b	2390.00	<54dBuv	Pass
	2400.00	>20dB ATT	Pass
	2483.50	<54dBuv	Pass
802.11g	2390.00	<54dBuv	Pass
	2400.00	>20dB ATT	Pass
	2483.50	<54dBuv	Pass
802.11n-HT20	2390.00	<54dBuv	Pass
	2400.00	>20dB ATT	Pass
	2483.50	<54dBuv	Pass
802.11n-HT40	2390.00	<54dBuv	Pass
	2398.56	>20dB ATT	Pass
	2400.00	>20dB ATT	Pass
	2483.50	<54dBuv	Pass

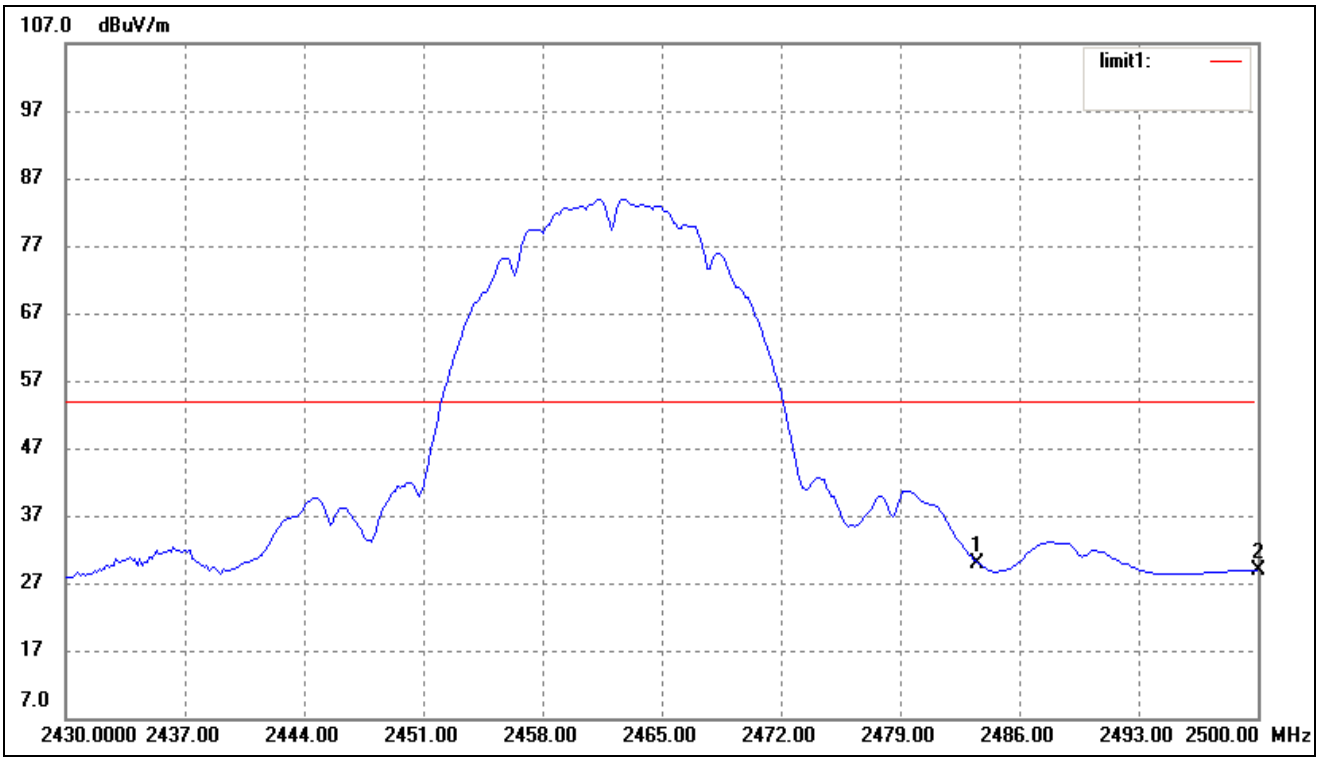
For 802.11b-Antenna gain 2.0dBi

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	32.34	-4.65	27.69	54.00	-26.31	235	100	Ave
	2310.000	43.22	-4.65	38.57	74.00	-35.43	235	100	peak
2	2390.000	33.02	-4.46	28.56	54.00	-25.44	268	100	Ave
	2390.000	45.96	-4.46	41.5	74.00	-32.5	268	100	peak
3	2400.000	44.24	-4.43	39.81	/	/	/	/	Ave

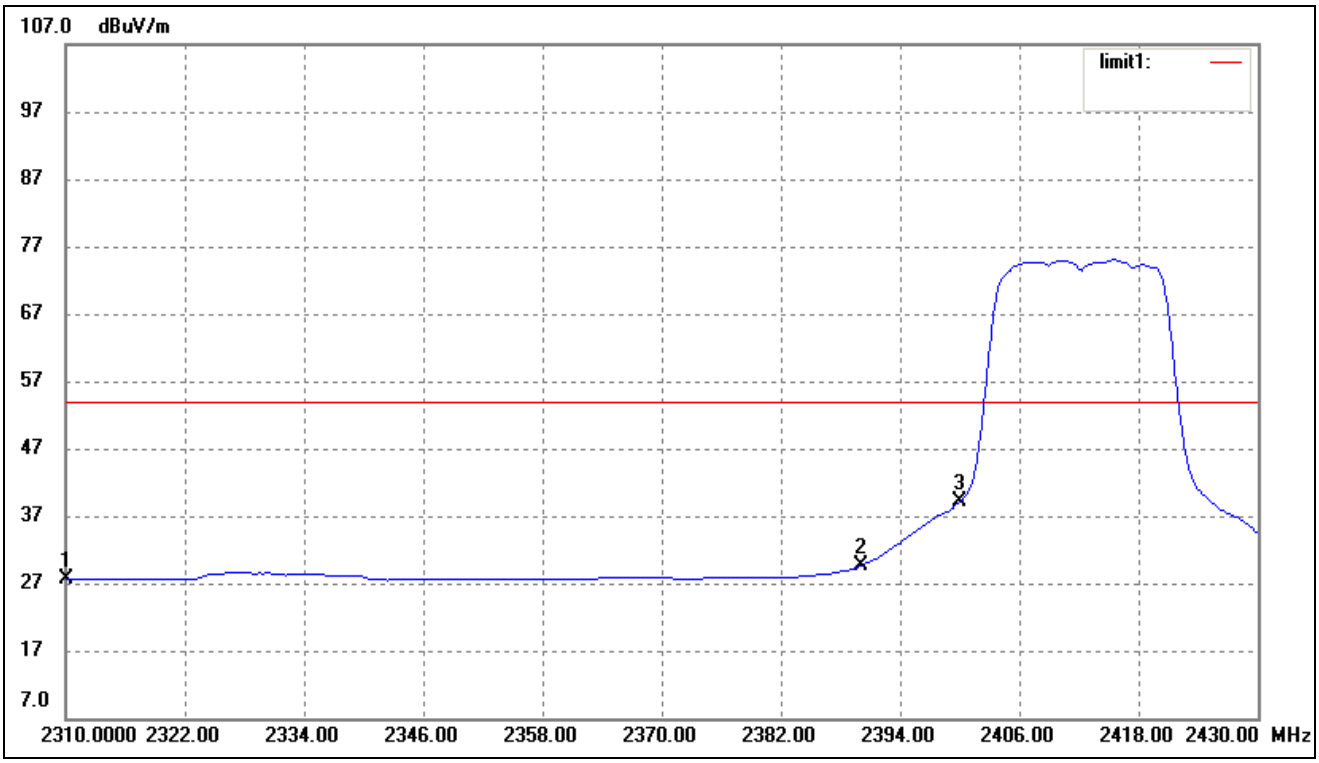
Highest Bandedge



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(°)	(cm)	
1	2483.500	34.13	-4.23	29.90	54.00	-24.10	325	100	Ave
	2483.500	45.66	-4.23	41.43	74.00	-32.77	325	100	peak
2	2500.000	33.10	-4.18	28.92	54.00	-25.08	284	100	Ave
	2500.000	42.51	-4.18	38.33	74.00	-35.67	284	100	peak

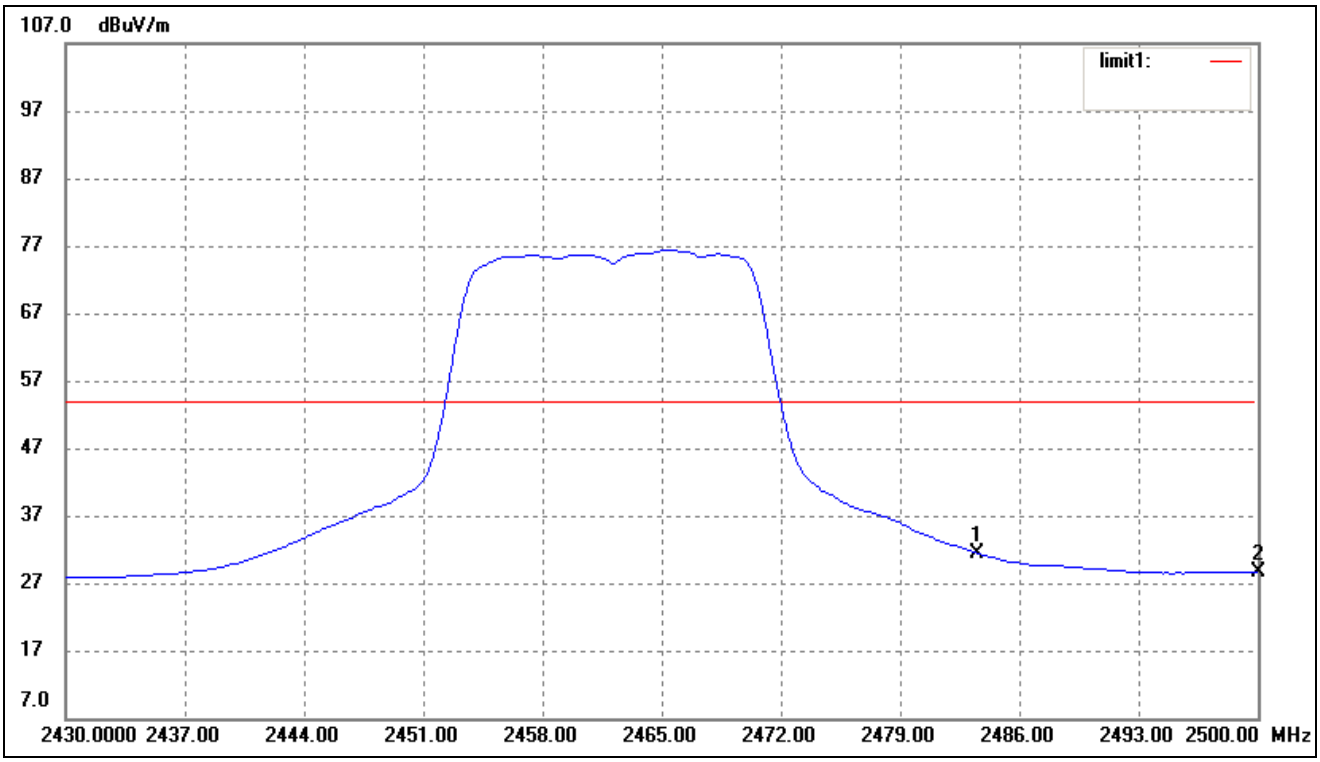
For 802.11g-Antenna gain 2.0dBi

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	32.29	-4.65	27.64	54.00	-26.36	334	100	Ave
	2310.000	39.85	-4.65	35.20	74.00	-38.8	334	100	peak
2	2390.000	34.14	-4.46	29.68	54.00	-24.32	305	100	Ave
	2390.000	40.24	-4.46	35.78	74.00	-38.22	305	100	peak
3	2400.000	43.53	-4.43	39.10	/	/	/	/	Ave

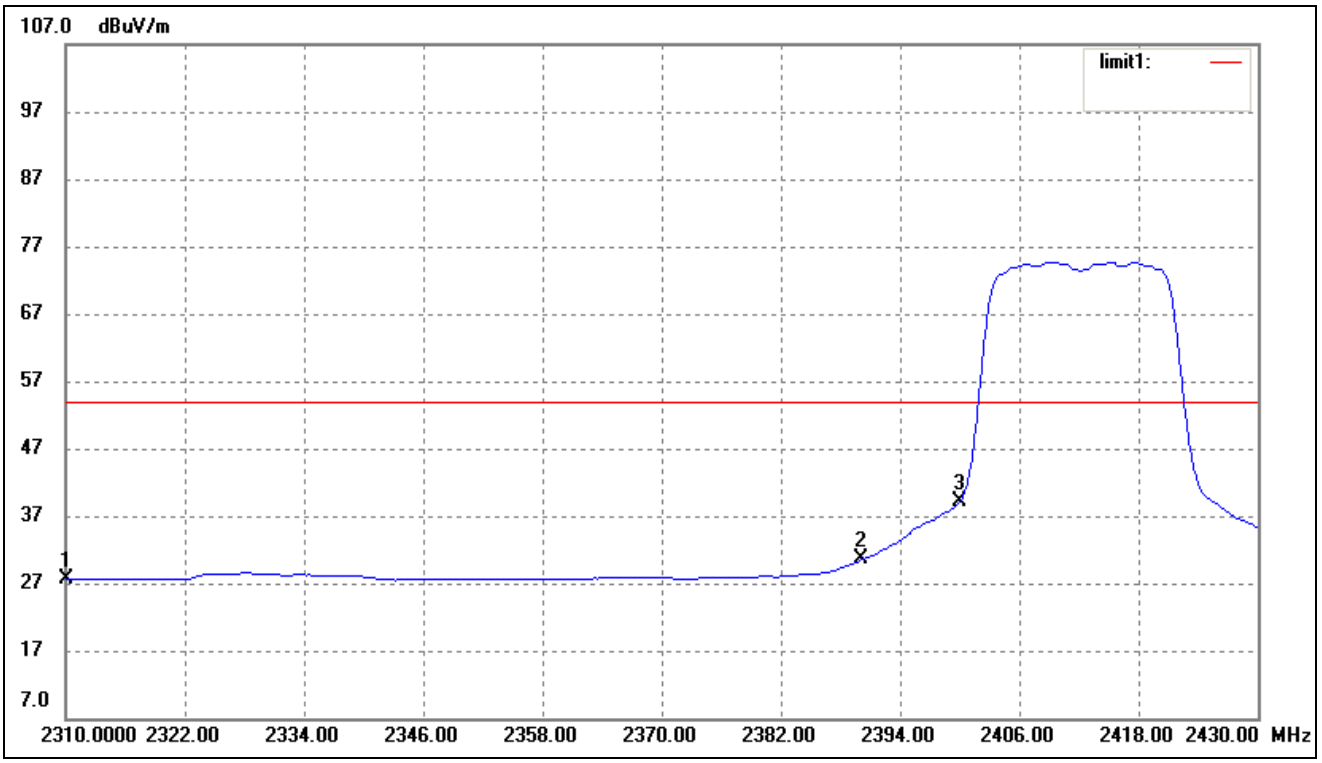
Highest Bandedge



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(°)	(cm)	
1	2483.500	35.58	-4.23	31.35	54.00	-22.65	165	100	Ave
	2483.500	42.69	-4.23	38.46	74.00	-35.54	165	100	peak
2	2500.000	32.72	-4.18	28.54	54.00	-25.46	203	100	Ave
	2500.000	43.15	-4.18	38.97	74.00	-35.03	203	100	peak

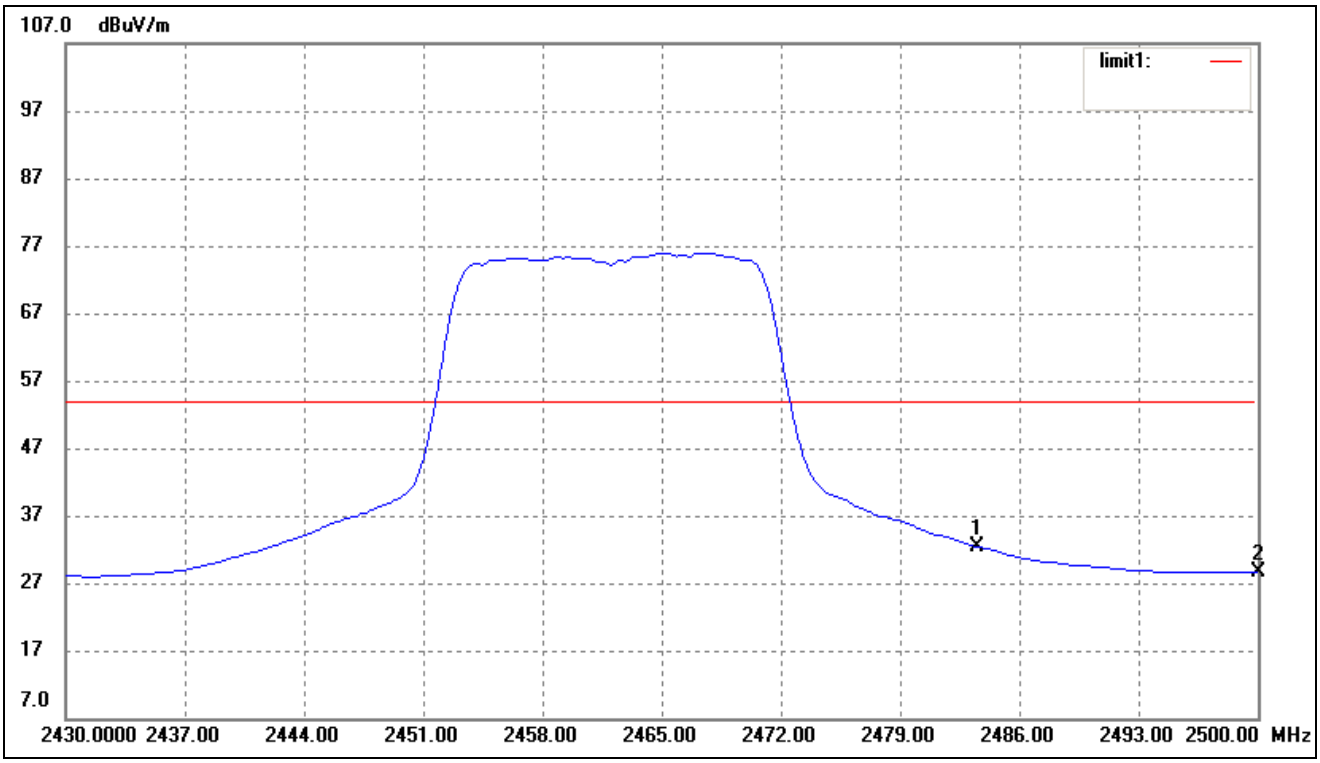
For 802.11n-HT20-Antenna gain 2.0dBi

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	32.28	-4.65	27.63	54.00	-26.37	235	100	Ave
	2310.000	43.56	-4.65	38.91	74.00	-35.09	235	100	peak
2	2390.000	35.05	-4.46	30.59	54.00	-23.41	210	100	Ave
	2390.000	46.85	-4.46	42.39	74.00	-31.61	210	100	peak
3	2400.000	43.63	-4.43	39.20	/	/	/	/	Ave

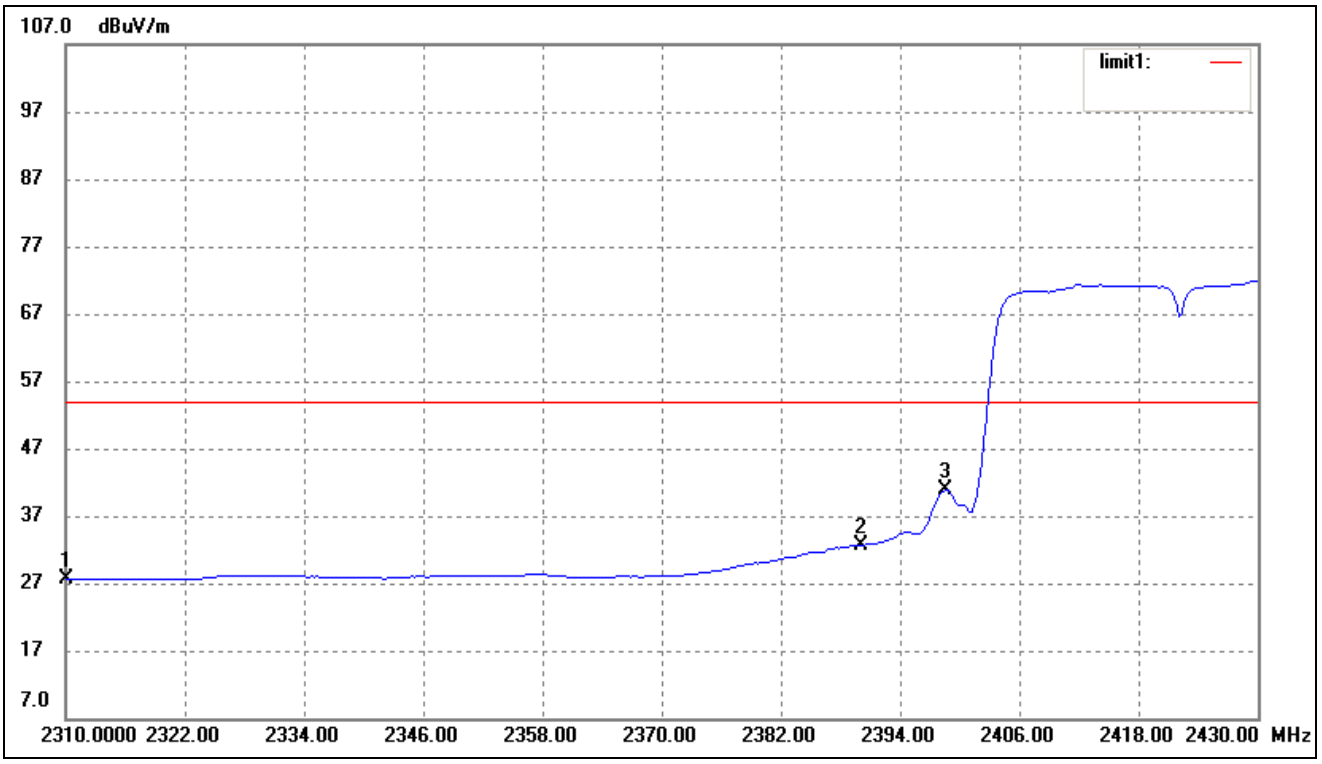
Highest Bandedge



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(°)	(cm)	
1	2483.500	36.56	-4.23	32.33	54.00	-21.67	182	100	Ave
	2483.500	44.62	-4.23	40.39	74.00	-33.61	182	100	peak
2	2500.000	32.73	-4.18	28.55	54.00	-25.45	196	100	Ave
	2500.000	40.98	-4.18	36.80	74.00	-37.20	196	100	peak

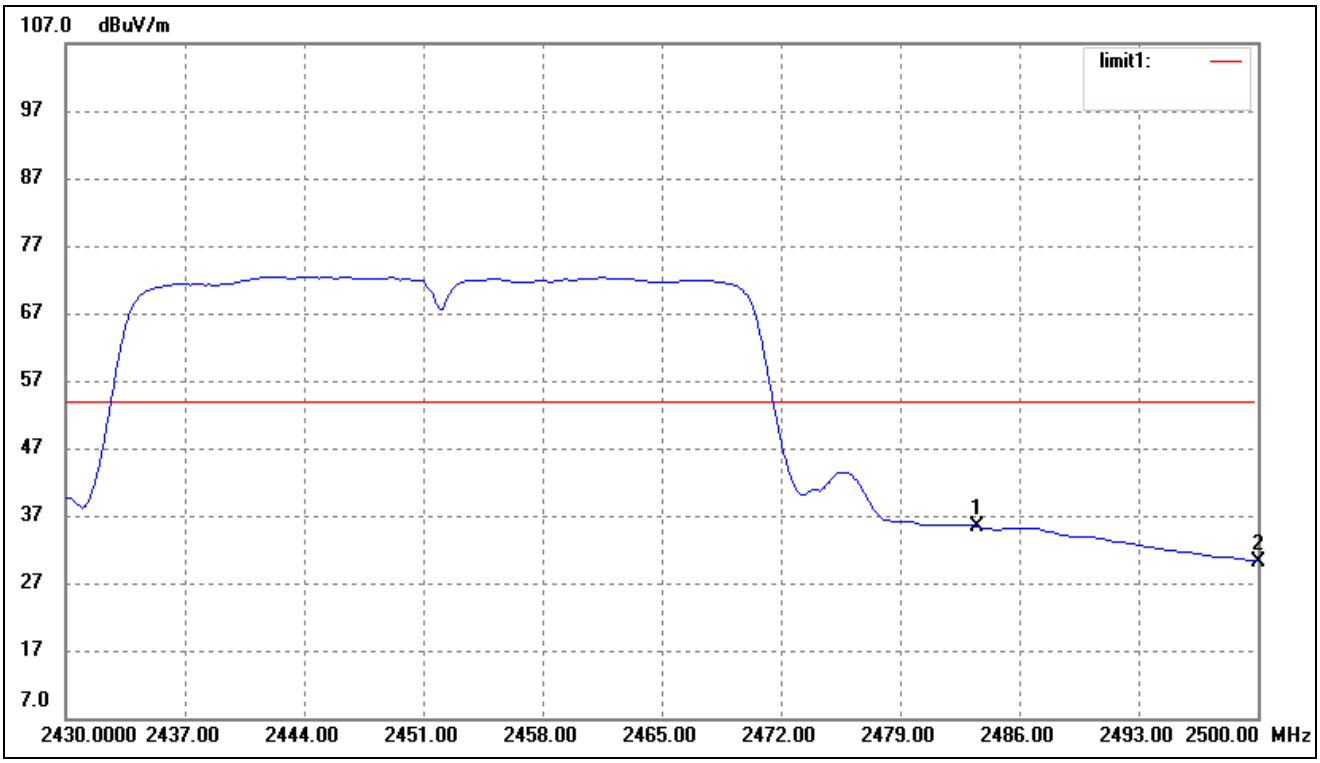
For 802.11n-HT40-Antenna gain 2.0dBi

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	32.27	-4.65	27.62	54.00	-26.38	340	100	Ave
	2310.000	44.16	-4.65	39.51	74.00	-34.49	340	100	peak
2	2390.000	37.16	-4.46	32.70	54.00	-21.30	325	100	Ave
	2390.000	46.22	-4.46	41.76	74.00	-32.24	325	100	peak
3	2398.560	45.22	-4.43	40.79	/	/	/	/	Ave

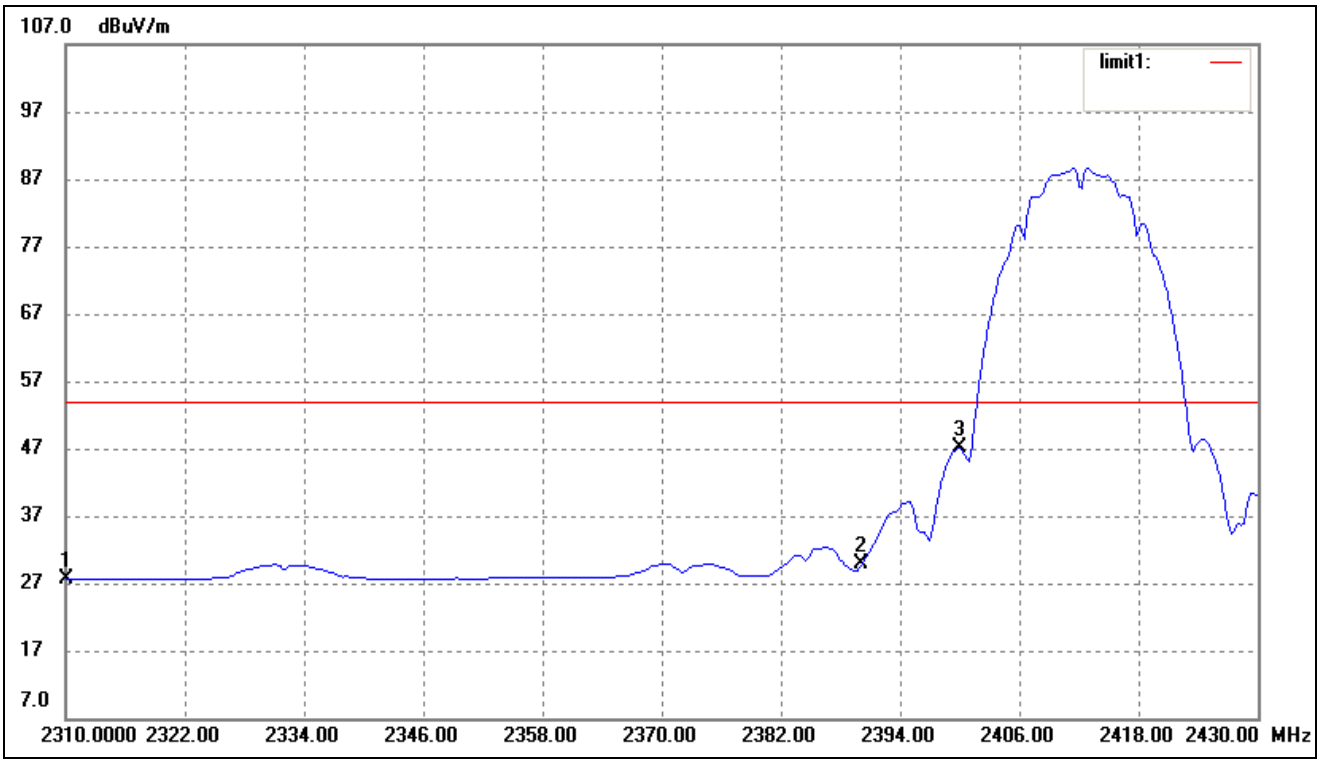
Highest Bandedge



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(°)	(cm)	
1	2483.500	39.53	-4.23	35.30	54.00	-18.70	305	100	Ave
	2483.500	48.21	-4.23	43.98	74.00	-30.02	305	100	peak
2	2500.000	34.41	-4.18	30.23	54.00	-23.77	226	100	Ave
	2500.000	45.75	-4.18	41.57	74.00	-32.43	226	100	peak

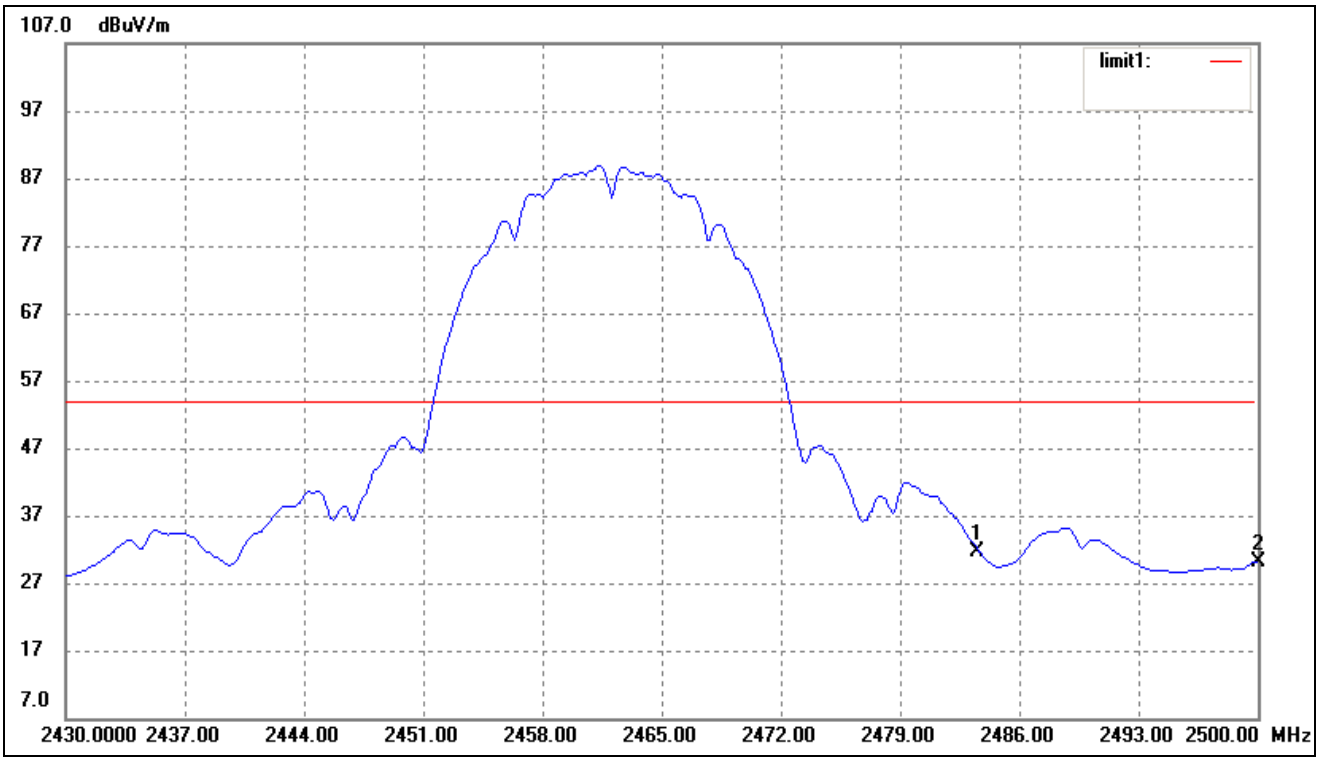
For 802.11b-Antenna gain 5.0dBi

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	32.19	-4.65	27.54	54.00	-26.46	324	100	Ave
	2310.000	41.65	-4.65	37.00	74.00	-37.00	324	100	peak
2	2390.000	34.39	-4.46	29.93	54.00	-24.07	250	100	Ave
	2390.000	45.78	-4.46	41.32	74.00	-32.68	250	100	peak
3	2400.000	51.48	-4.43	47.05	/	/	/	/	Ave

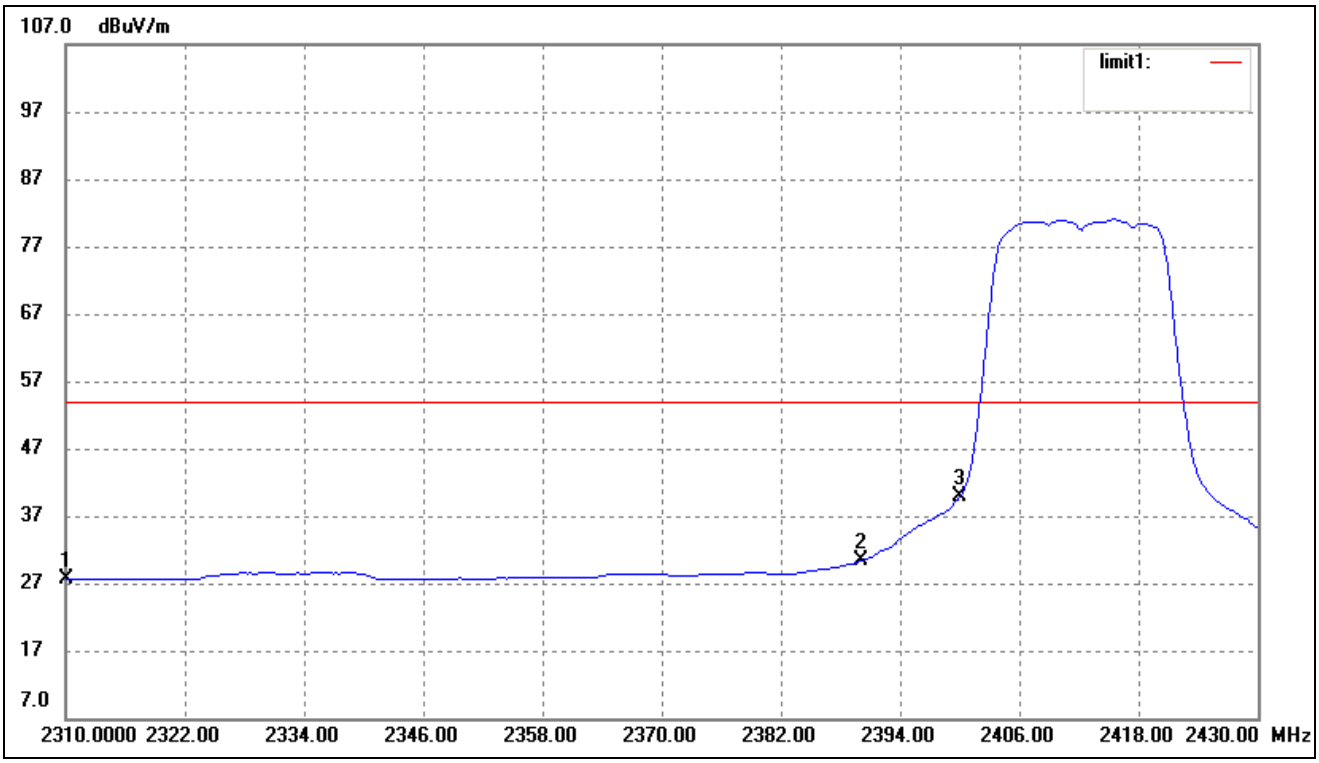
Highest Bandedge



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(°)	(cm)	
1	2483.500	35.93	-4.23	31.70	54.00	-22.30	265	100	Ave
	2483.500	41.55	-4.23	37.32	74.00	-36.68	265	100	peak
2	2500.000	34.36	-4.18	30.18	54.00	-23.82	223	100	Ave
	2500.000	42.53	-4.18	38.35	74.00	-35.65	223	100	peak

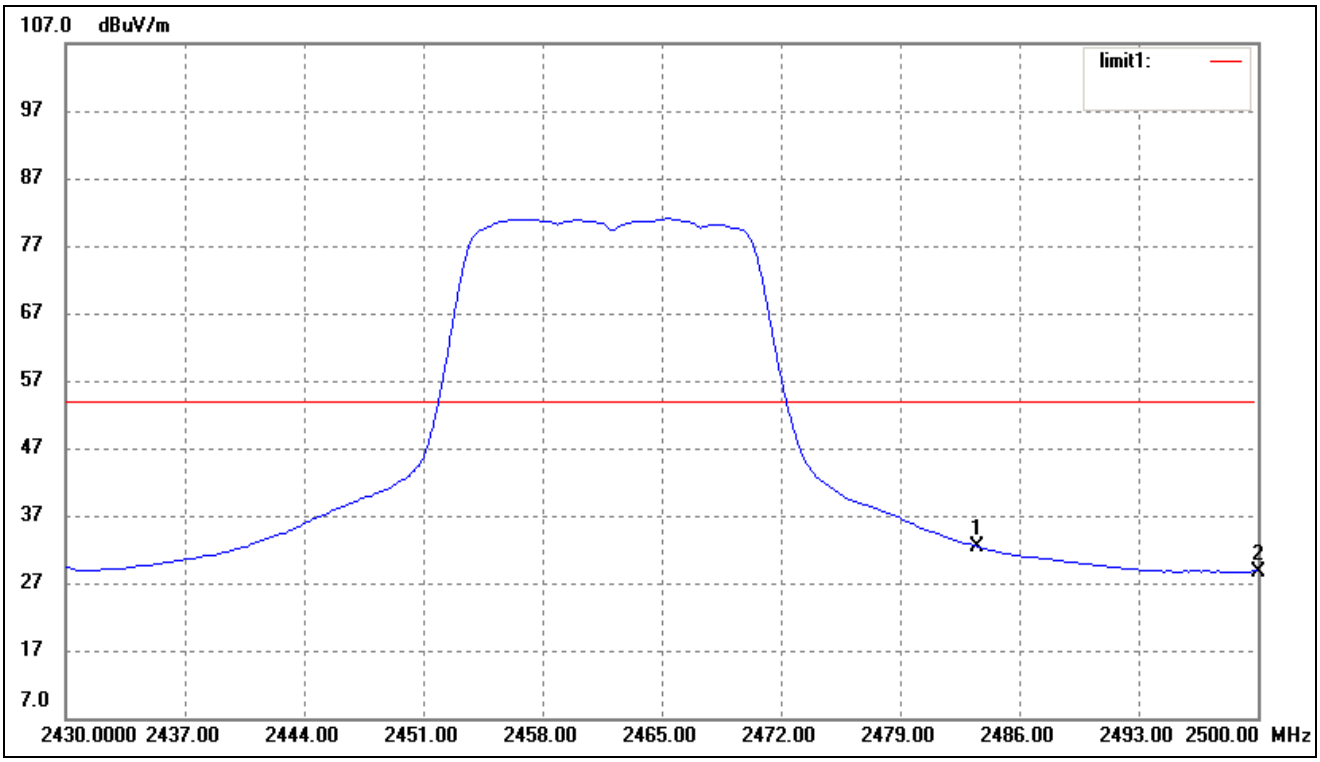
For 802.11g-Antenna gain 5.0dBi

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	32.21	-4.65	27.56	54.00	-26.44	241	100	Ave
	2310.000	43.15	-4.65	38.50	74.00	-35.50	241	100	peak
2	2390.000	34.95	-4.46	30.49	54.00	-23.51	350	100	Ave
	2390.000	45.91	-4.46	41.45	74.00	-32.55	350	100	peak
3	2400.000	44.26	-4.43	39.83	/	/	/	/	Ave

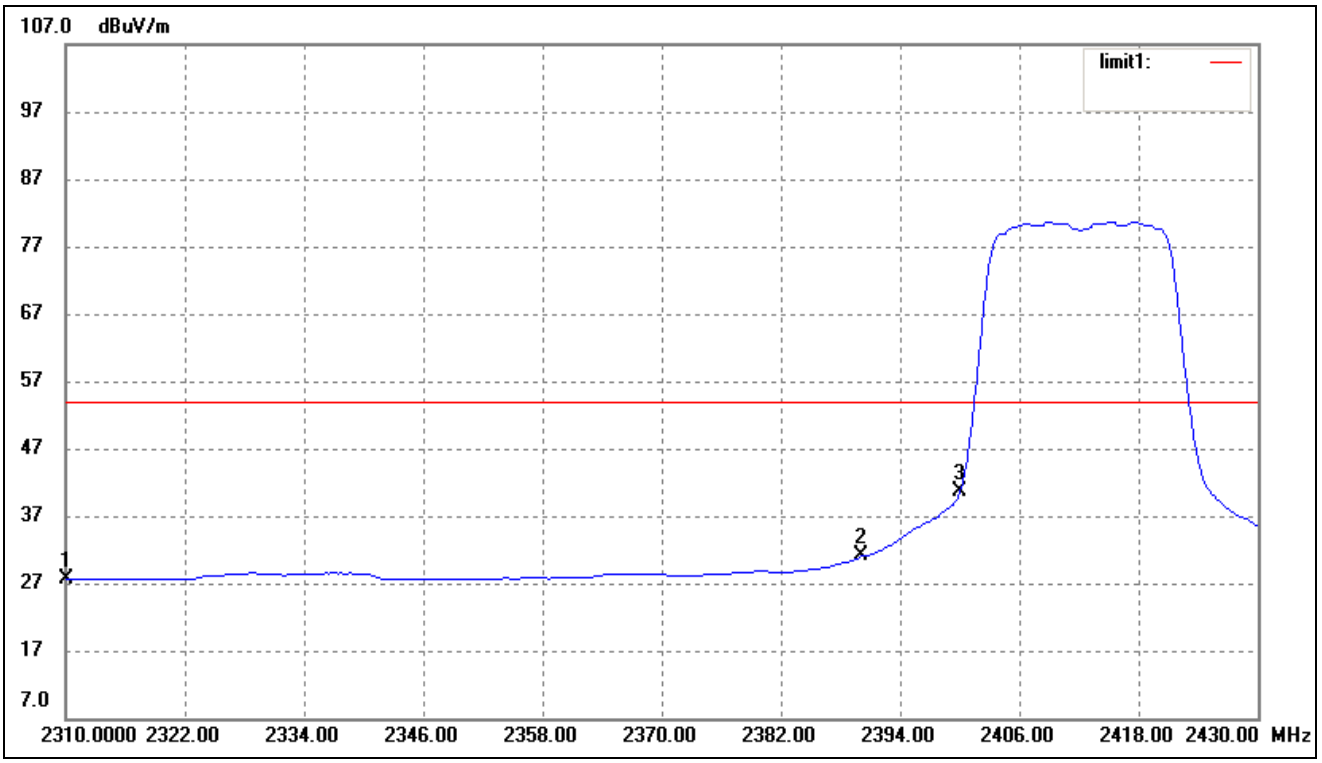
Highest Bandedge



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(°)	(cm)	
1	2483.500	36.49	-4.23	32.26	54.00	-21.74	325	100	Ave
	2483.500	48.22	-4.23	43.99	74.00	-30.01	325	100	peak
2	2500.000	32.90	-4.18	28.72	54.00	-25.28	140	100	Ave
	2500.000	43.56	-4.18	39.38	74.00	-34.62	140	100	peak

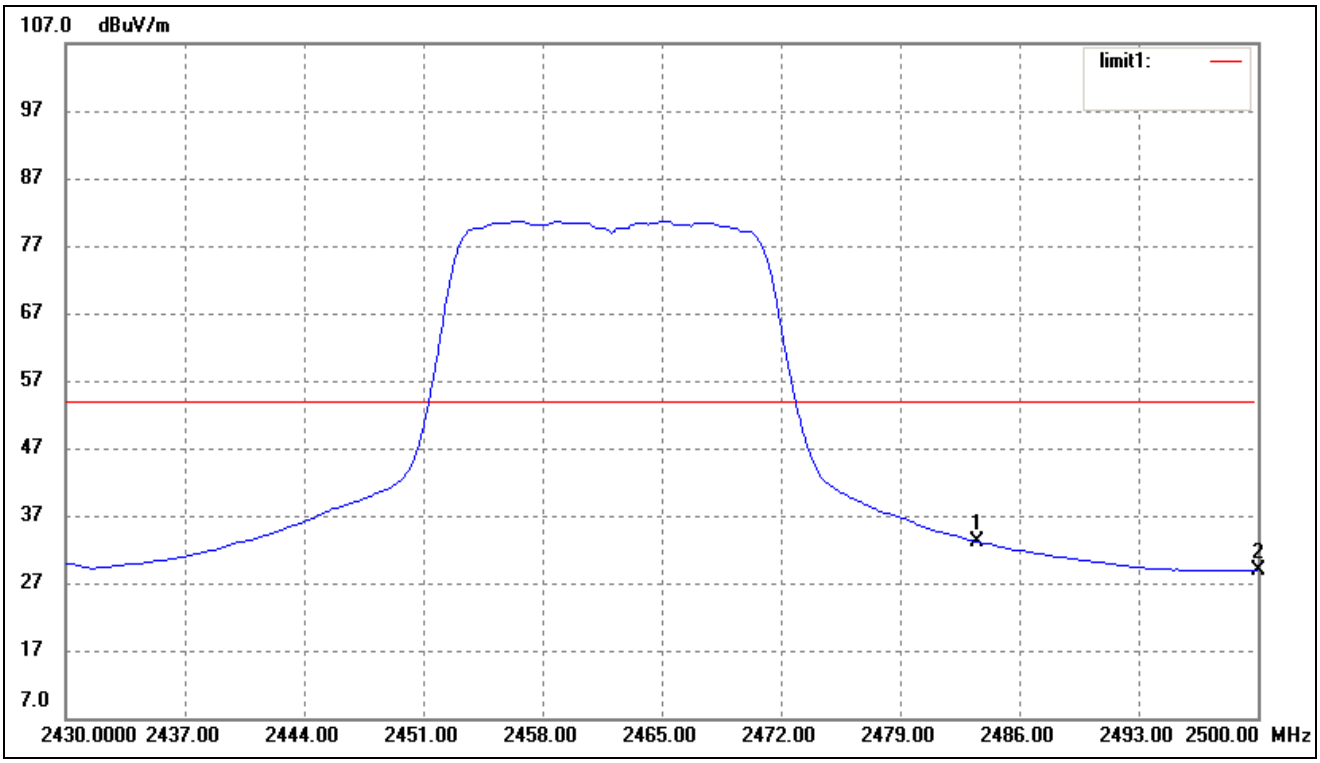
For 802.11n-HT20-Antenna gain 5.0dBi

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	32.23	-4.65	27.58	54.00	-26.42	310	100	Ave
	2310.000	45.16	-4.65	40.51	74.00	-33.49	310	100	peak
2	2390.000	35.49	-4.46	31.03	54.00	-22.97	269	100	Ave
	2390.000	47.28	-4.46	42.82	74.00	-31.18	269	100	peak
3	2400.000	45.05	-4.43	40.62	/	/	/	/	Ave

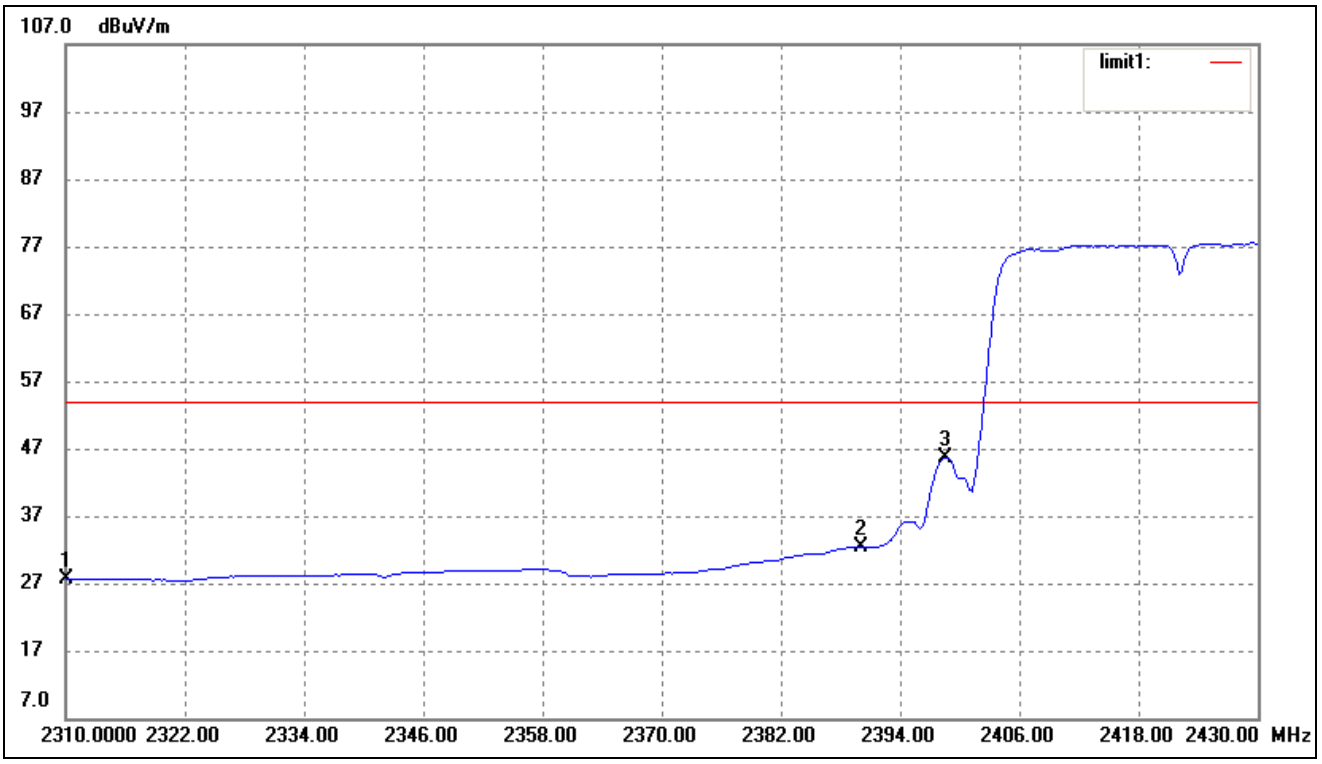
Highest Bandedge



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(°)	(cm)	
1	2483.500	37.29	-4.23	33.06	54.00	-20.94	310	100	Ave
	2483.500	45.18	-4.23	40.95	74.00	-33.05	310	100	peak
2	2500.000	32.94	-4.18	28.76	54.00	-25.24	285	100	Ave
	2500.000	44.95	-4.18	40.77	74.00	-33.23	285	100	peak

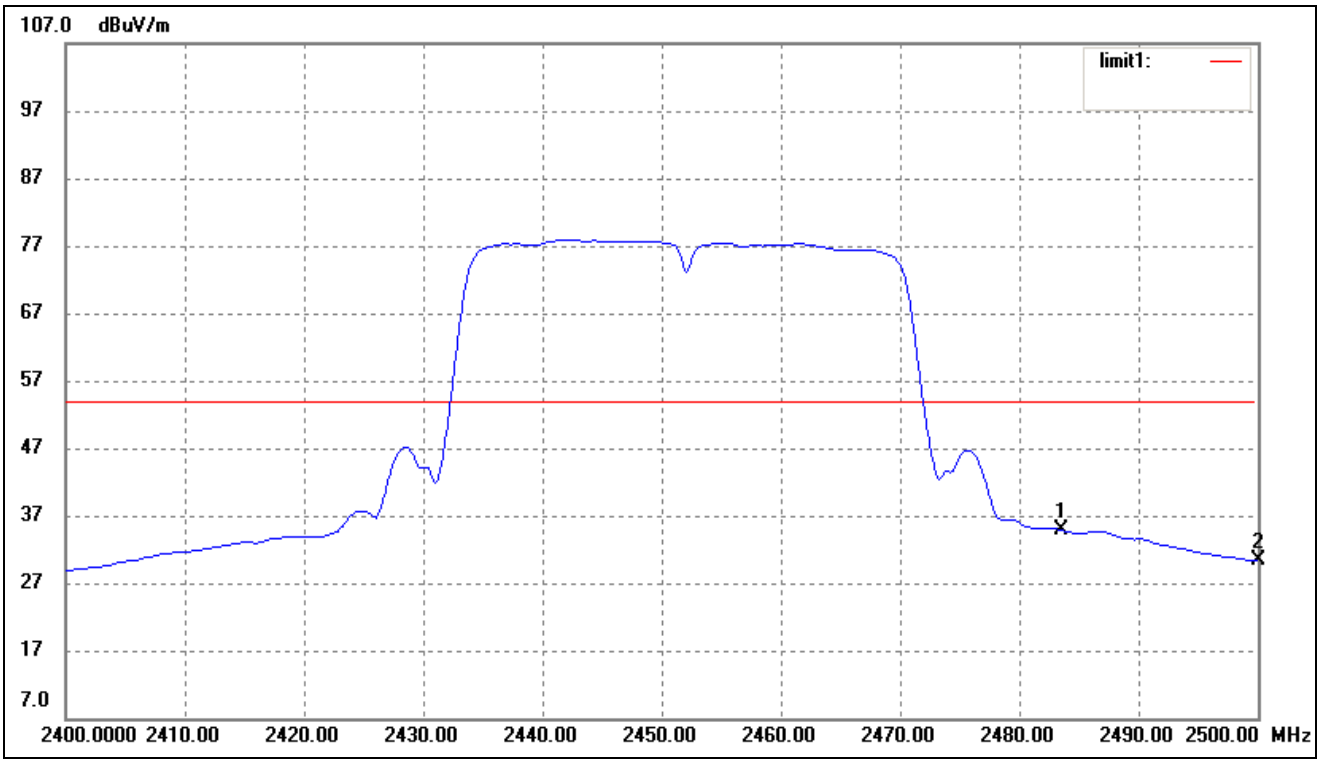
For 802.11n-HT40-Antenna gain 5.0dBi

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	32.17	-4.65	27.52	54.00	-26.48	332	100	Ave
	2310.000	40.11	-4.65	35.46	74.00	-38.54	332	100	peak
2	2390.000	36.73	-4.46	32.27	54.00	-21.73	150	100	Ave
	2390.000	42.69	-4.46	38.23	74.00	-35.77	150	100	peak
3	2398.560	50.07	-4.43	45.64	/	/	/	/	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	2483.500	38.99	-4.23	34.76	54.00	-19.24	240	100	Ave
	2483.500	46.33	-4.23	42.10	74.00	-31.9	240	100	peak
2	2500.000	34.44	-4.18	30.26	54.00	-23.74	287	100	Ave
	2500.000	42.51	-4.18	38.33	74.00	-35.67	287	100	peak

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