FCC Part 15C
Measurement and Test Report

For

Shanghai DareGlobal Technologies Co., Ltd.

22F, Info Tech Building, No.1555, Kongjiang Road, Shanghai

FCC ID: RS3A4001N

FCC Rules:	FCC Part 15C
Product Description:	ADSL2+Router WiFi 11n 2x2
Tested Model:	P.DG A4001N A-000-1A1-AE
Report No.:	STR13118375I
Tested Date:	2013-11-29 to 2013-12-03
Issued Date:	2013-12-04
Tested By:	Susan Su / Engineer
Reviewed By:	Lahm Peng / EMC Manager
Approved & Authorized By:	Jandy so / PSQ Manager

Prepared By:

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1. GENERAL INFORMATION

1.1 Product Description for Equipment Under Test (EUT)

Client Information

Applicant:	Shanghai DareGlobal Technologies Co., Ltd.
Address of applicant:	22F, Info Tech Building, No.1555, Kongjiang Road, Shanghai
Manufacturer:	ADB Broadband S.p.A.
Address of manufacturer:	Viale Sarca 222, 20126 Milano (MI) - Italy

General Description of EUT	
Product Name:	ADSL2+Router WiFi 11n 2x2
Trade Name:	/
Model No.:	P.DG A4001N A-000-1A1-AE
Adding Model(s):	P.DG A4000N A-000-1A1-AE
Rated Voltage:	DC 12V
Power Adapter Model:	MSP-C1000IC12.0-12W-US (Input: AC 100-240V, Output: DC 12V/1A)
Note: The test data is gathered from a production sample, provided by the manufacturer. The appearance of others models listed in the report is different from main-test model P.DG A4001N A-000-1A1-AE, but the circuit and the electronic construction do not change, declared by the manufacturer.	

Technical Characteristics of EUT	
Support Standards:	802.11b/g/n
Frequency Range:	2412-2462MHz, 2422-2452MHz
RF Output Power:	19.28 dBm (Conducted)
Data Rate:	1-11Mbps, 6-54Mbps, up to 150Mbps
Modulation:	CCK, BPSK, QPSK, 16QAM, 64QAM
Quantity of Channels:	11/7
Channel Separation:	5MHz
Antenna Type:	Integral Antenna
Antenna Gain:	5 dBi
Lowest Internal Frequency of EUT:	20MHz
Device Category:	Mobile Device

1.2 Test Standards

The following report is prepared on behalf of the Shanghai DareGlobal Technologies Co., Ltd. in accordance with FCC Part 15, Subpart C, and section 15.203, 15.205, 15.207, 15.209 and 15.247 of the Federal Communication Commissions rules.

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

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

1.3 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 public notice KDB 558074 for digital transmission systems shall be performed also.

1.4 Test Facility

- **FCC – Registration No.: 934118**
  Shenzhen SEM.Test Technology 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 934118.

- **Industry Canada (IC) Registration No.: 11464A**
  The 3m Semi-anechoic chamber of Shenzhen SEM.Test Technology Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 11464A.

1.5 EUT Setup and Test Mode

The EUT was operated in the engineering mode to fix the Tx frequency that was for the purpose of the measurements. All testing shall be performed under maximum output power condition, and to measure its highest possible emissions level, more detailed description as follows:

Test Mode List		
Test Mode	Description	Remark
TM1	802.11b	2412MHz, 2437MHz, 2462MHz
TM2	802.11g	2412MHz, 2437MHz, 2462MHz
TM3	802.11n-HT20	2412MHz, 2437MHz, 2462MHz
TM4	802.11n-HT40	2422MHz, 2437MHz, 2452MHz

Special Cable List and Details			
Cable Description	Length (m)	Shielded/Unshielded	With / Without Ferrite
Power Cable	1.5	Unshielded	Without Ferrite

Auxiliary Equipment List and Details			
Description	Manufacturer	Model	Serial Number
Notebook	SAMSUNG	R20	/

2. SUMMARY OF TEST RESULTS

FCC Rules	Description of Test Item	Result
§ 15.203; § 15.247(b)(4)(i)	Antenna Requirement	Compliant
§ 15.207(a)	Conducted Emission	Compliant
§ 15.247(e)	Power Spectral Density	Compliant
§ 15.247(a)(2)	6 dB Bandwidth	Compliant
§ 15.247(b)(3)	RF Output Power	Compliant
§ 15.209(a)(d)	Radiated Emission	Compliant
§ 15.247(d)	Band Edge (Out of Band Emissions)	Compliant

N/A: not applicable

3. Antenna Requirement

3.1 Standard Applicable

According to FCC Part 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.

3.2 Evaluation Information

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

4. Power Spectral Density

4.1 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.

4.2 Test Equipment List and Details

Description	Manufacturer	Model	Serial Number	Cal. Date	Due. Date
Spectrum Analyzer	Agilent	E4402B	US41192821	2013-03-28	2014-03-27
Attenuator	ATTEN	ATS100-4-20	/	2013-03-28	2014-03-27

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

4.3 Test Procedure

According to the KDB 558074, the test method of power spectral density as below:

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 analyzer center frequency to DTS channel center frequency.
3. Set the span to 1.5 times the DTS channel bandwidth.
4. Set the RBW ≥ 3 kHz.
5. Set the VBW ≥ 3 x RBW.
6. Detector = peak.
7. Sweep time = auto couple.
8. Trace mode = max hold.
9. Allow trace to fully stabilize.
10. Use the peak marker function to determine the maximum amplitude level.
11. If measured value exceeds limit, reduce RBW (no less than 3 kHz) and repeat.

4.4 Environmental Conditions

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

4.5 Summary of Test Results/Plots

Test Mode	Test Channel MHz	Chain 0 PSD dBm/3kHz	Chain 1 PSD dBm/3kHz	Chain 0 + Chain 1 dBm/3kHz	Limit dBm/3kHz
802.11b	2412	-6.265	/	/	8
	2437	-6.195	/	/	8
	2462	-5.857	/	/	8
802.11g	2412	-6.633	-5.966	/	8
	2437	-5.391	-6.514	/	8
	2462	-5.326	-6.648	/	8

Test Mode	Test Channel MHz	Chain 0 PSD dBm/3kHz	Chain 1 PSD dBm/3kHz	Chain 0 + Chain 1 dBm/3kHz	Limit dBm/3kHz
802.11n HT20 MCS0	2412	-8.279	-8.374	/	8
	2437	-7.068	-7.361	/	8
	2462	-7.819	-7.983	/	8
802.11n HT40 MCS0	2422	-10.890	-11.780	/	8
	2437	-8.394	-10.090	/	8
	2452	-11.060	-11.320	/	8

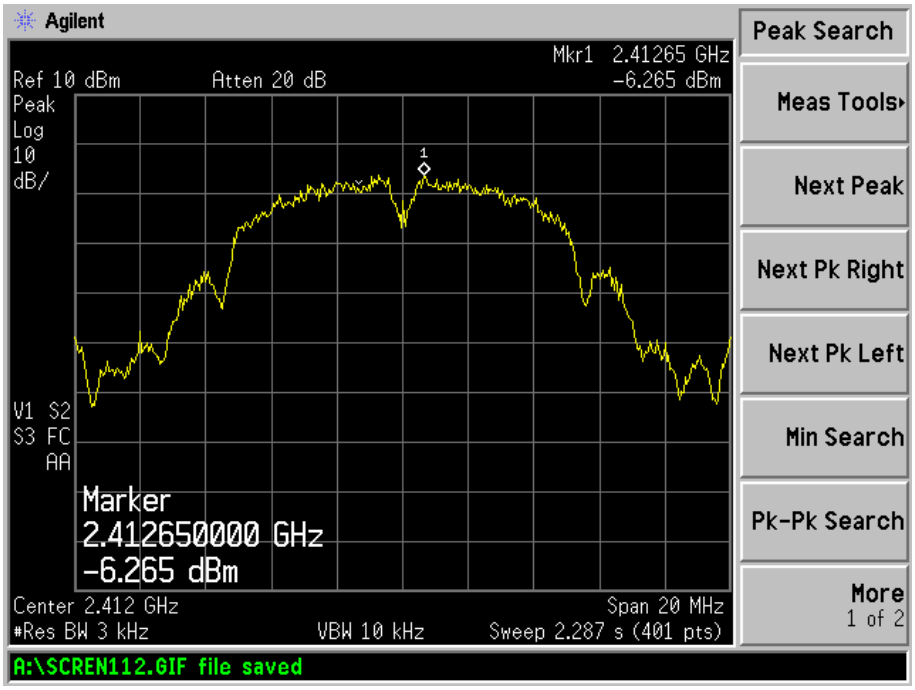
Test Mode	Test Channel MHz	Chain 0 PSD dBm/3kHz	Chain 1 PSD dBm/3kHz	Chain 0 + Chain 1 dBm/3kHz	Limit dBm/3kHz
802.11n HT20 MCS15	2412	-9.020	-10.010	-6.477	8
	2437	-7.299	-8.105	-4.673	8
	2462	-7.820	-9.025	-5.371	8
802.11n HT40 MCS15	2422	-11.160	-12.760	-8.876	8
	2437	-10.100	-11.960	-7.921	8
	2452	-11.990	-12.460	-9.208	8

Note: The EUT shall be simultaneous transmission at the chain 0 and chain 1 for the MCS15 mode of 802.11n HT20 or HT40, only transmission at chain 0 for 802.11b; all other mode shall be transmission only single chain (chain 0 or chain 1).

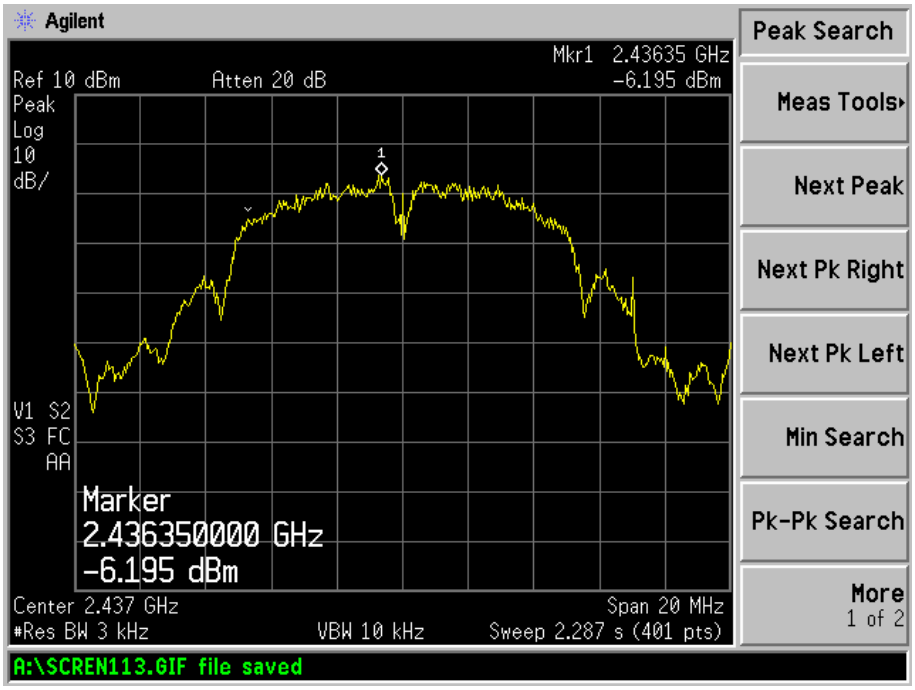
Please refer to the following test plots:

For chain 0

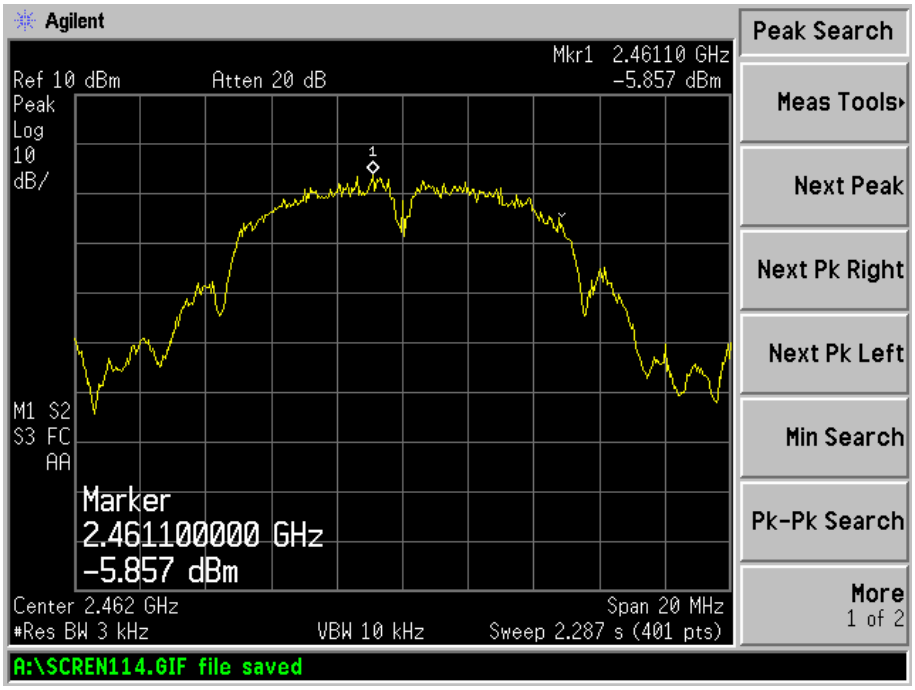
802.11b-Low Channel



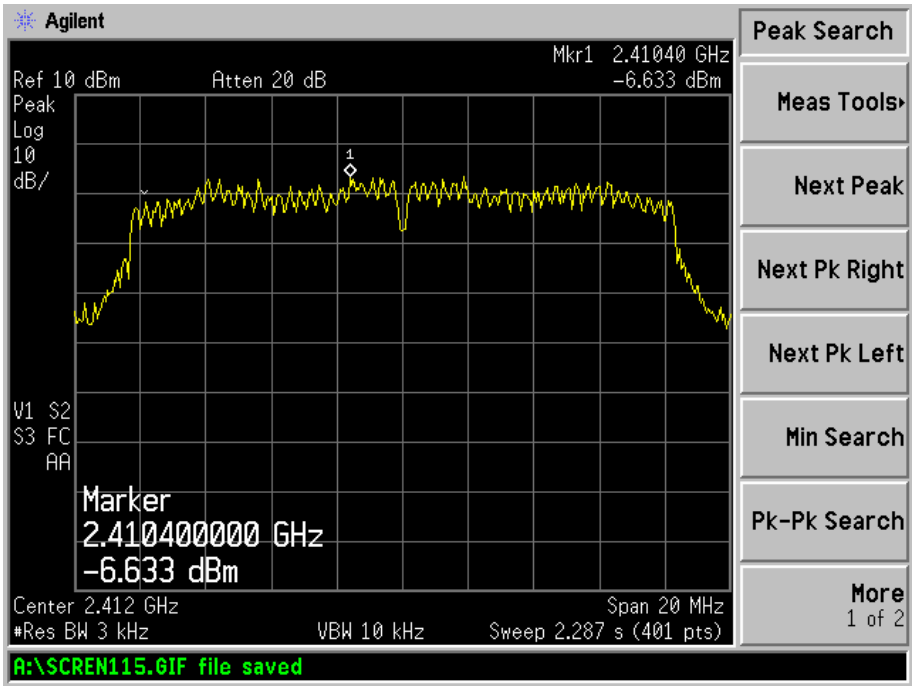
802.11b-Middle Channel



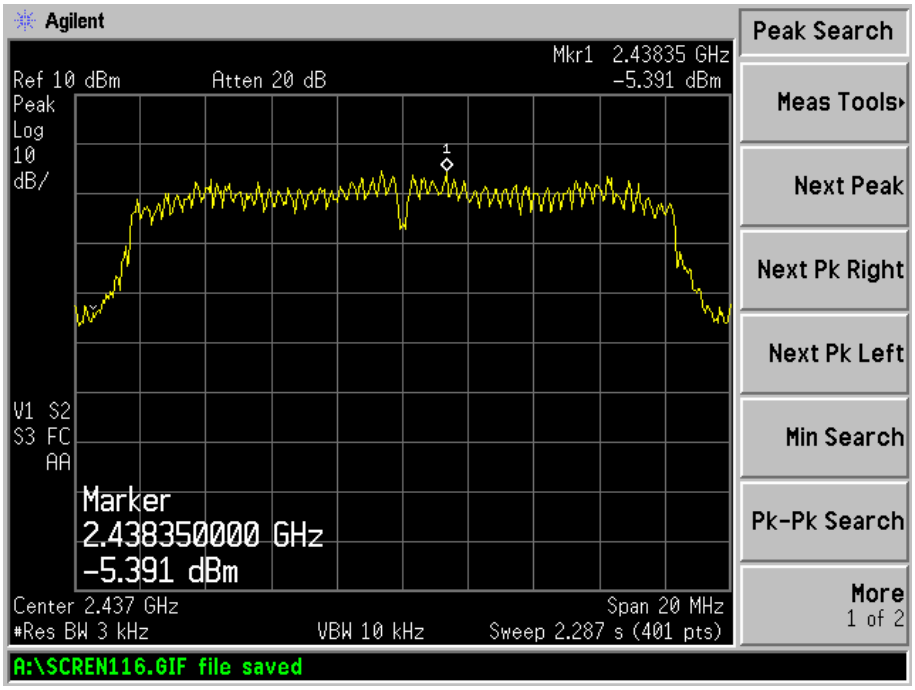
802.11b-High Channel



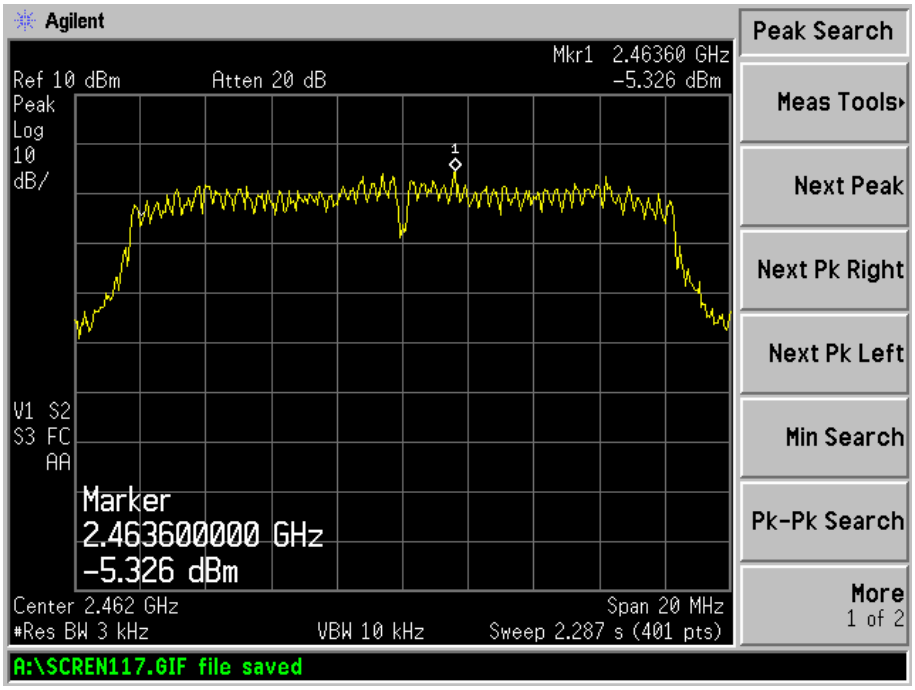
802.11g-Low Channel



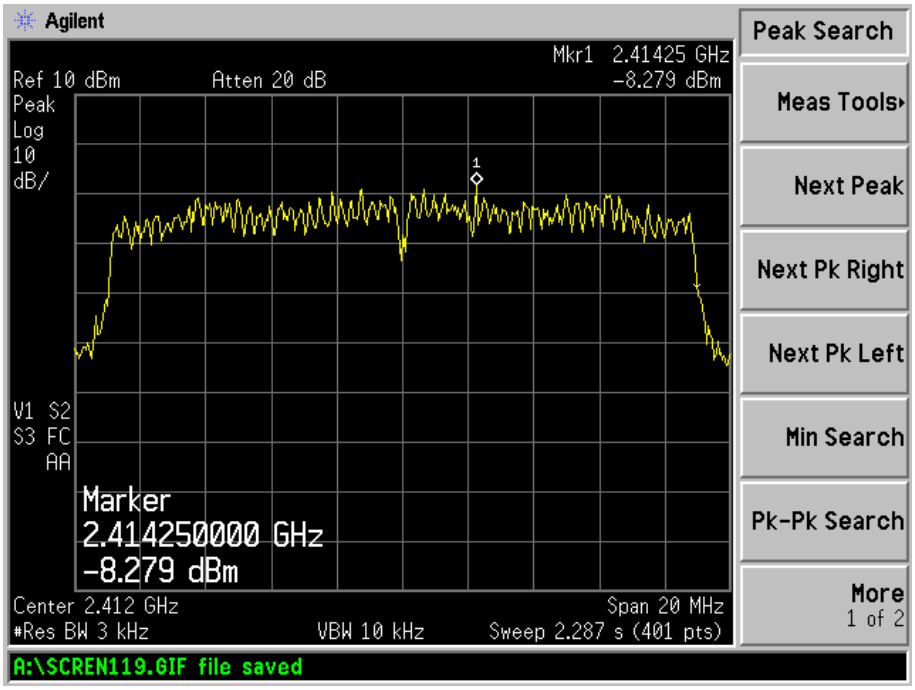
802.11g-Middle Channel



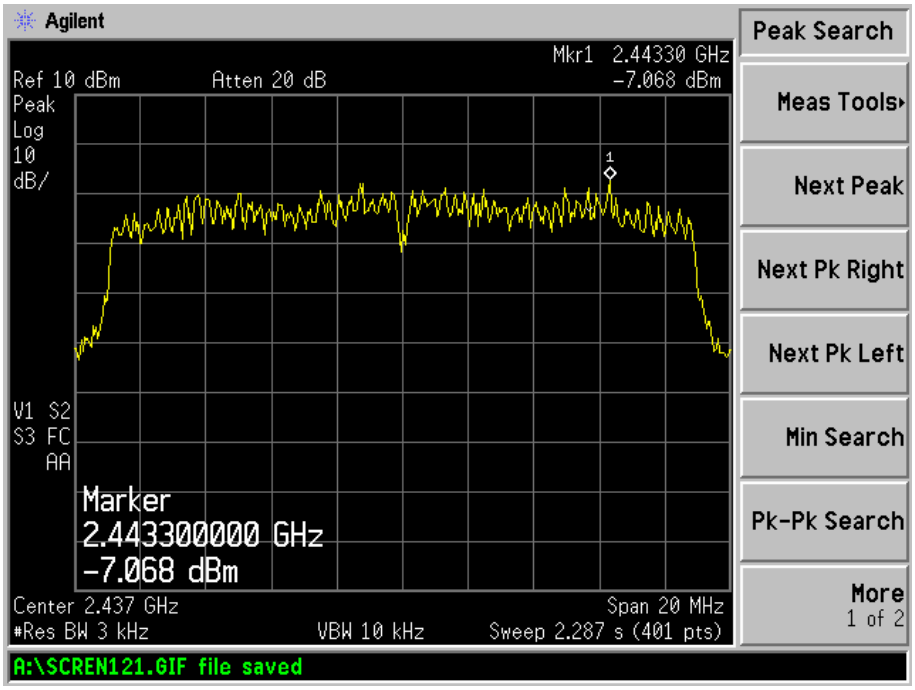
802.11g-High Channel



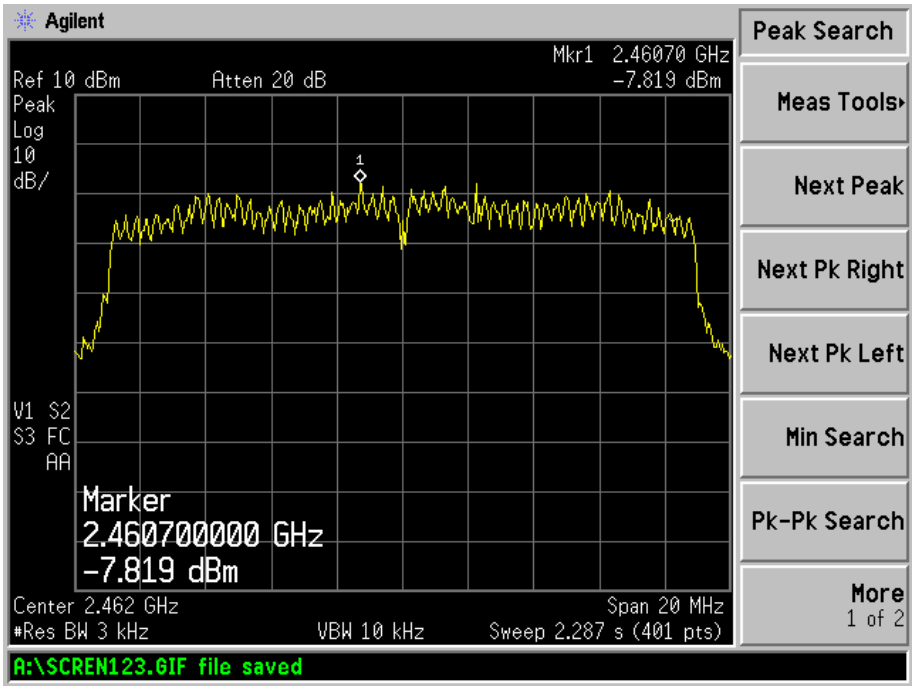
802.11n-HT20-MCS0-Low Channel



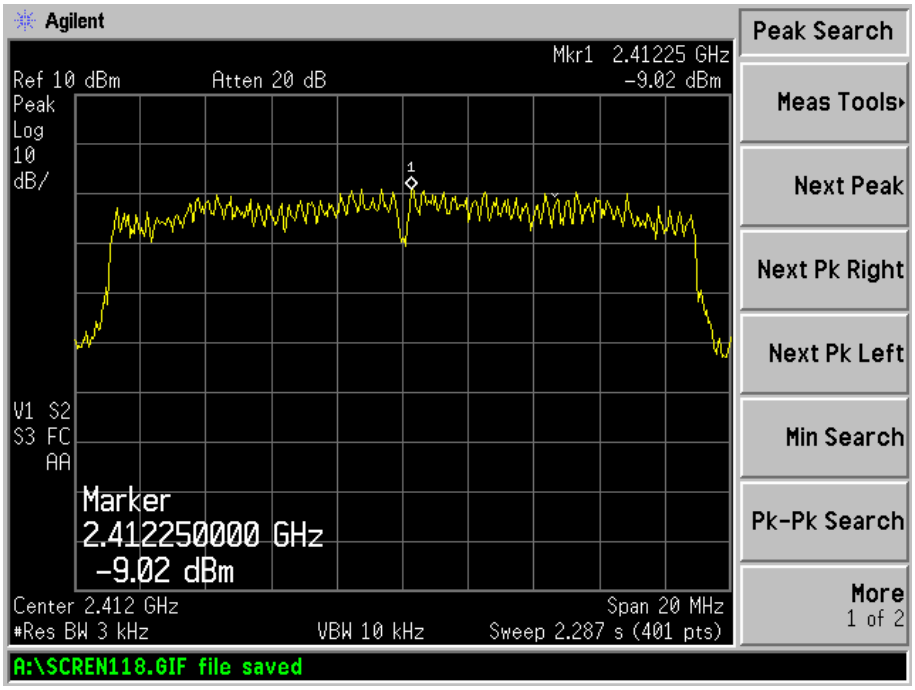
802.11n-HT20-MCS0-Middle Channel



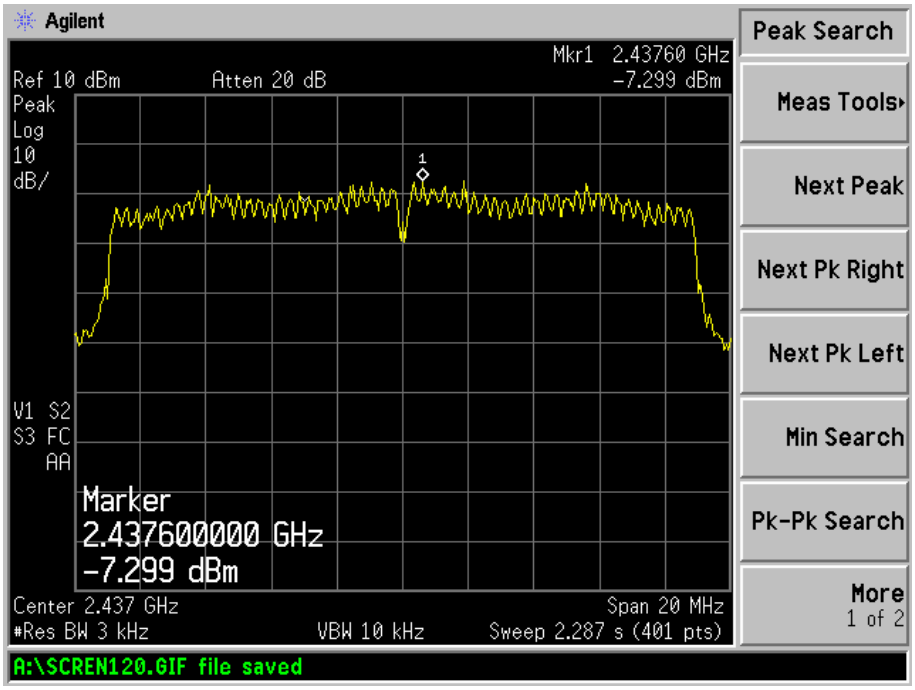
802.11n-HT20-MCS0-High Channel



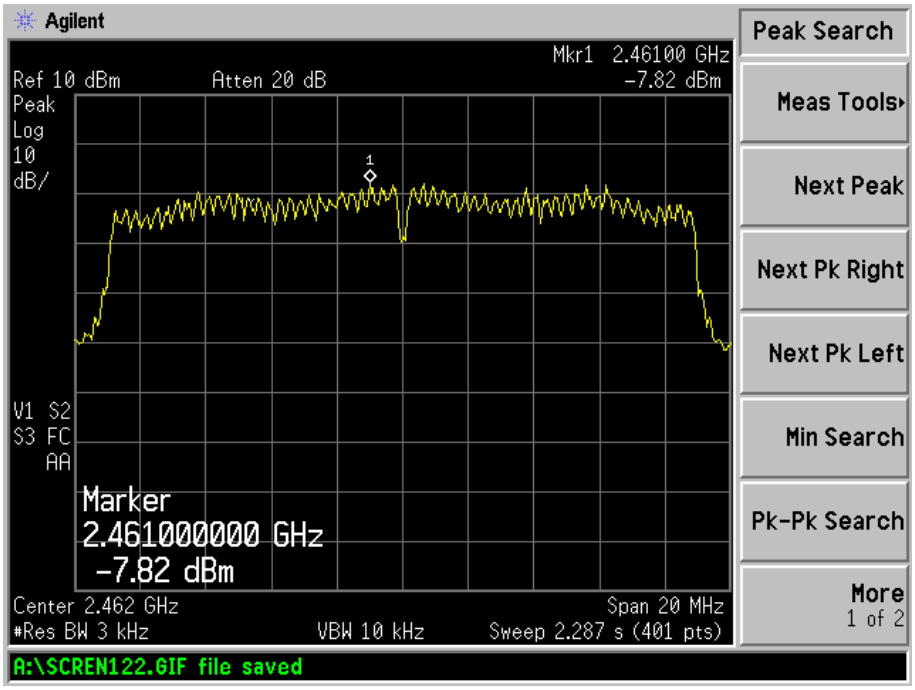
802.11n-HT20-MCS15-Low Channel



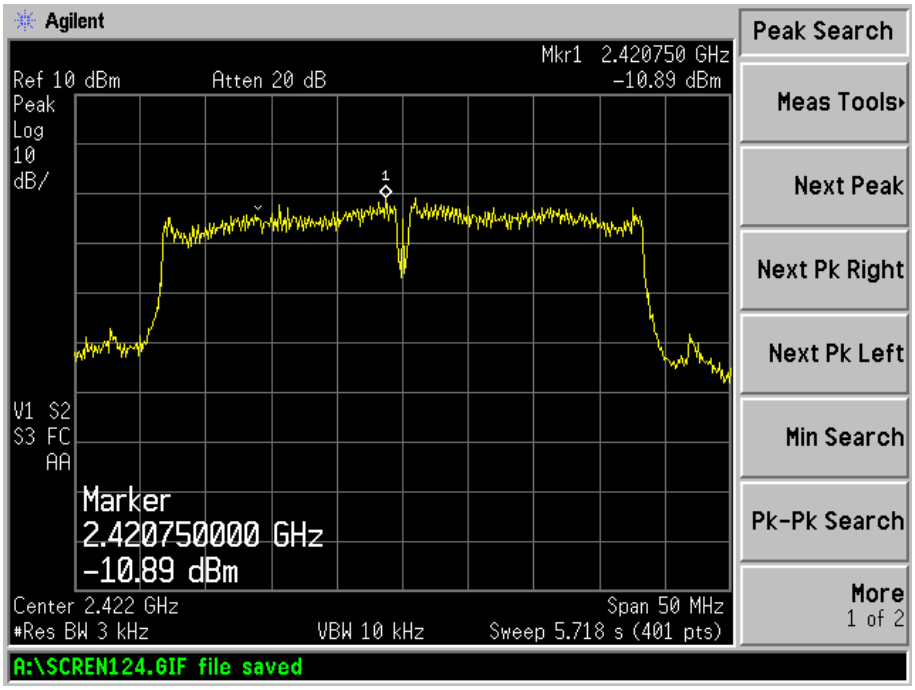
802.11n-HT20-MCS15-Middle Channel



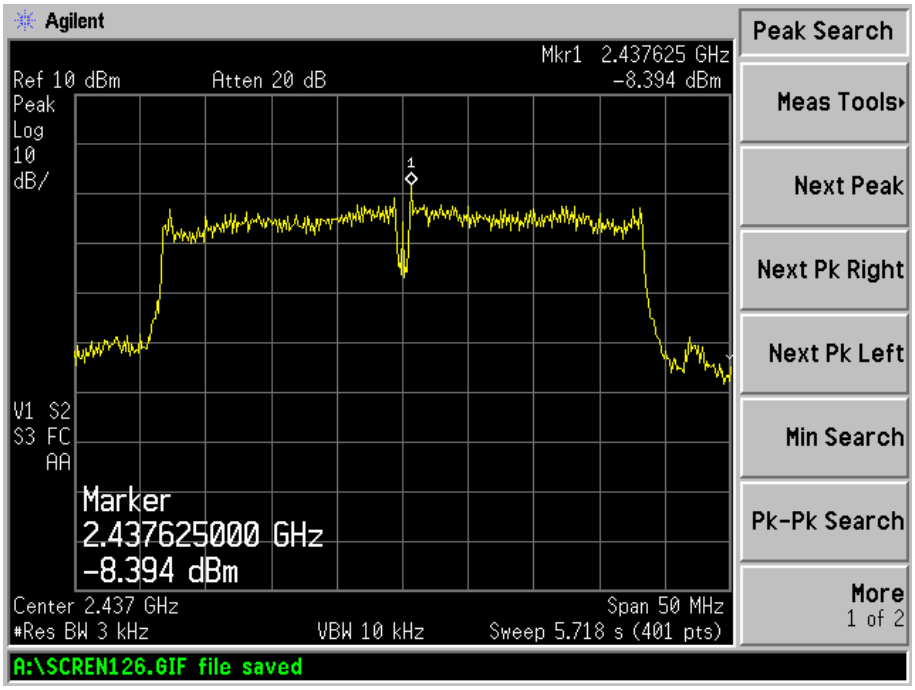
802.11n-HT20-MCS15-High Channel



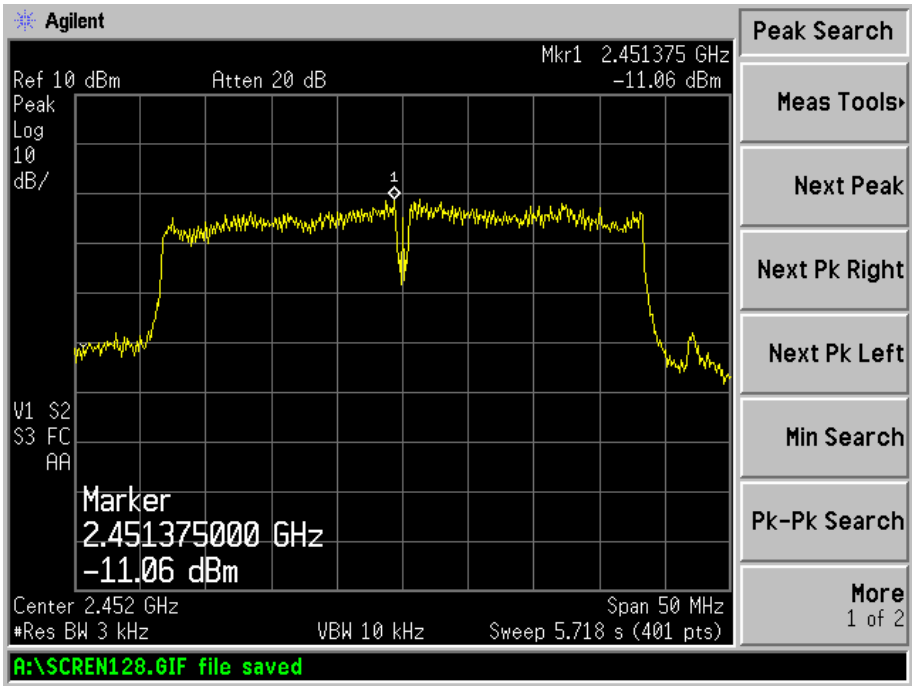
802.11n-HT40-MCS0-Low Channel



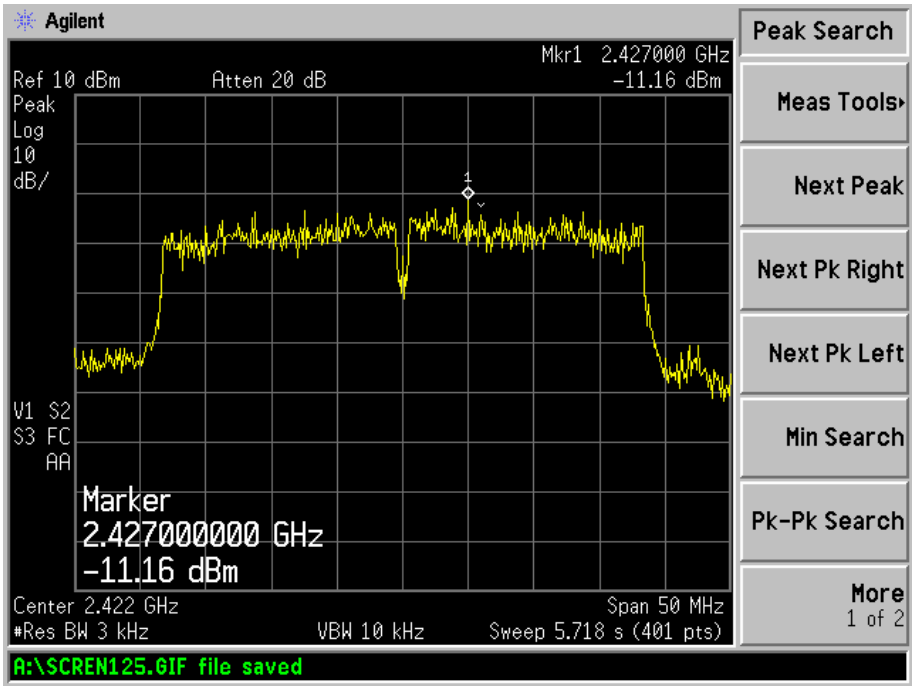
802.11n-HT40-MCS0-Middle Channel



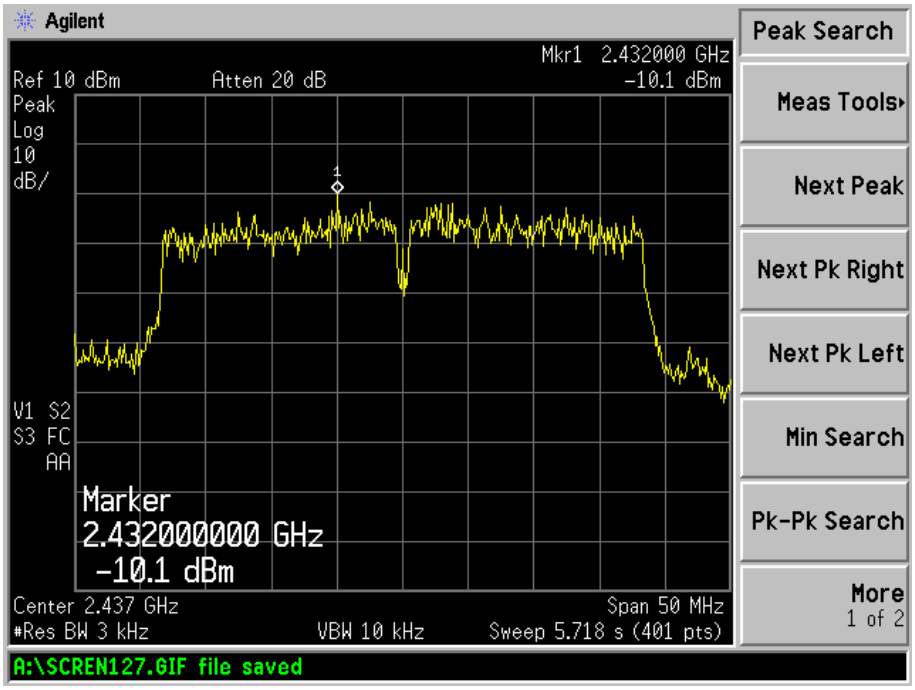
802.11n-HT40-MCS0-High Channel



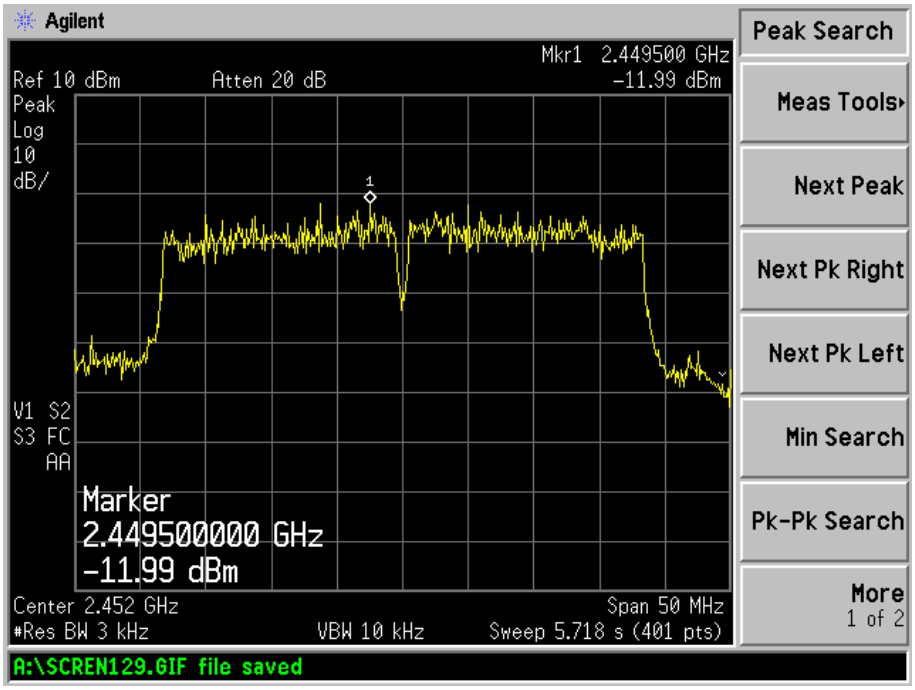
802.11n-HT40-MCS15-Low Channel



802.11n-HT40-MCS15-Middle Channel

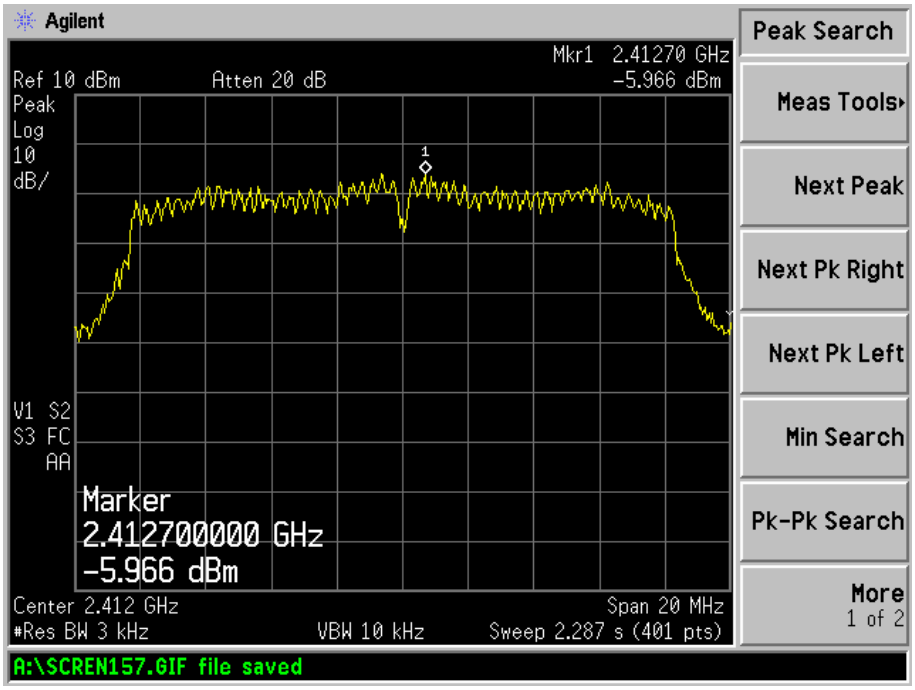


802.11n-HT40-MCS15-High Channel

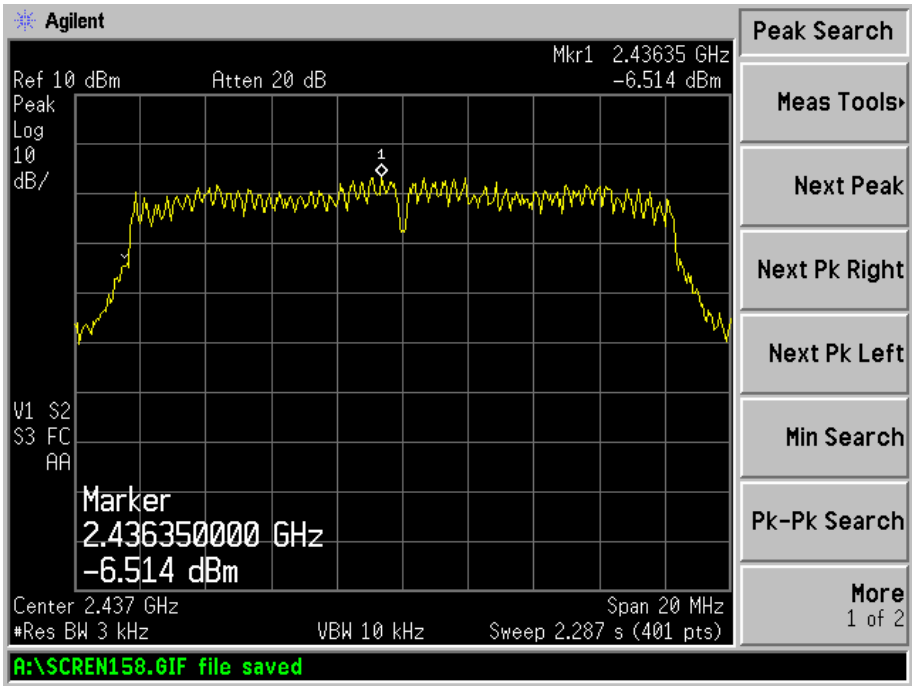


For chain 1

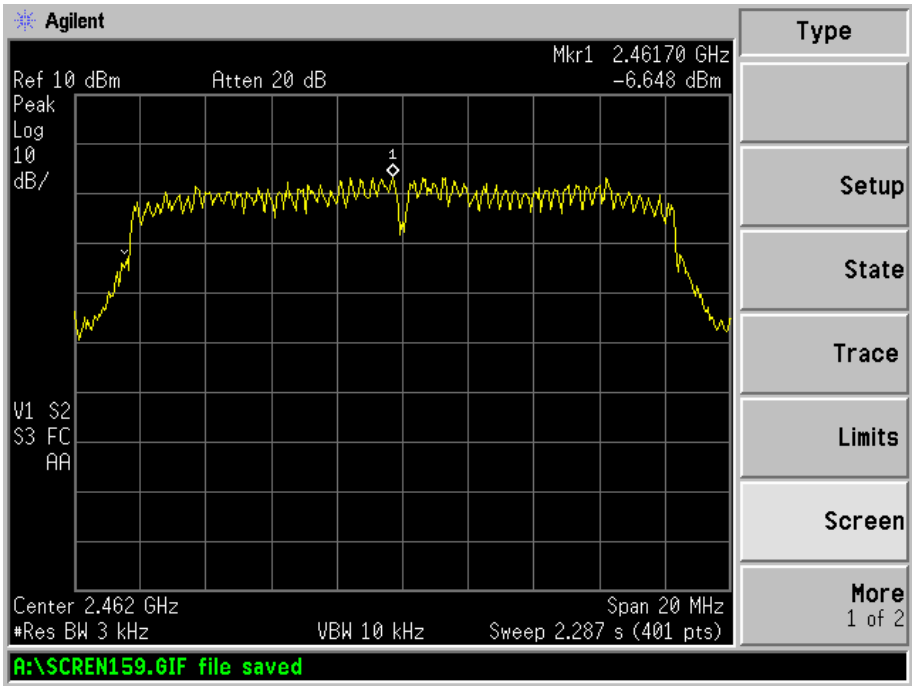
802.11g-Low Channel



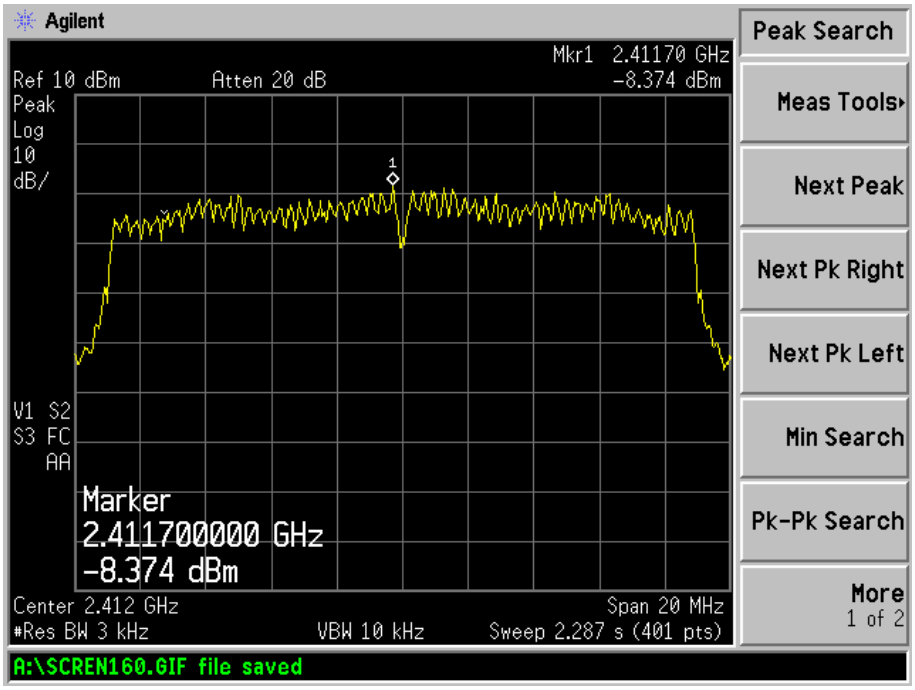
802.11g-Middle Channel



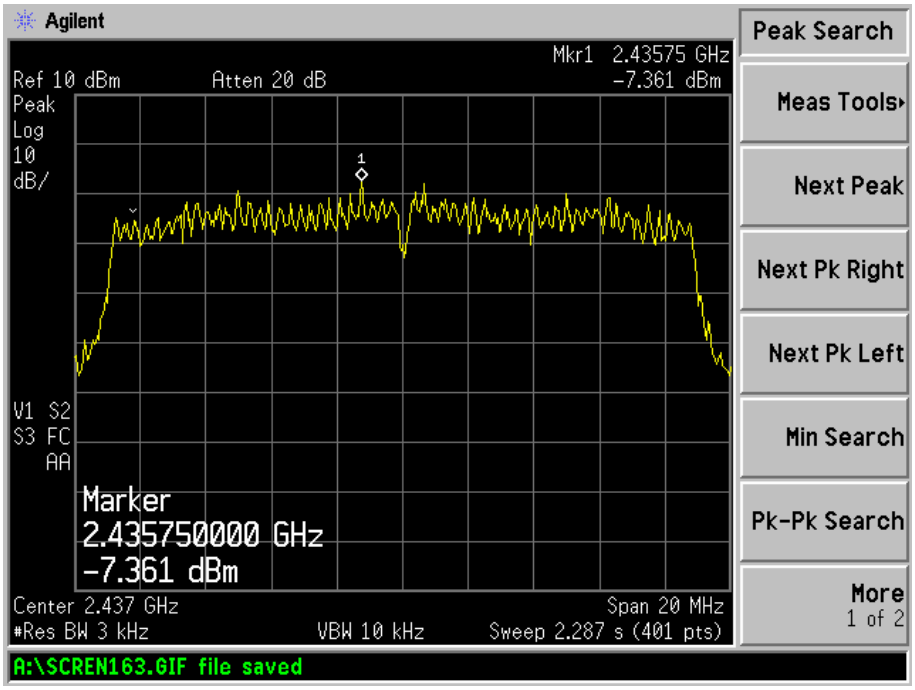
802.11g-High Channel



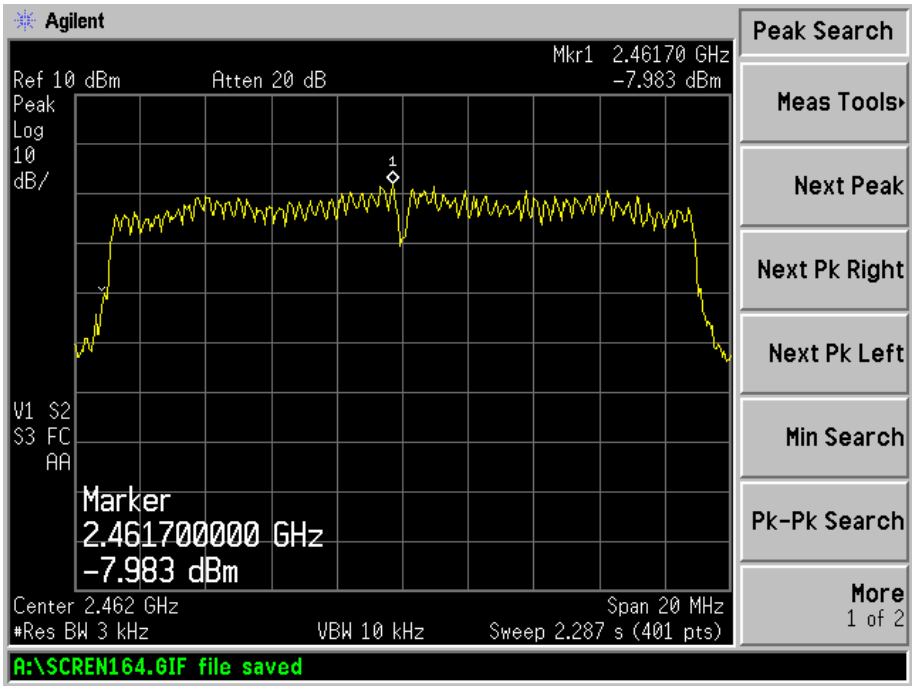
802.11n-HT20-MCS0-Low Channel



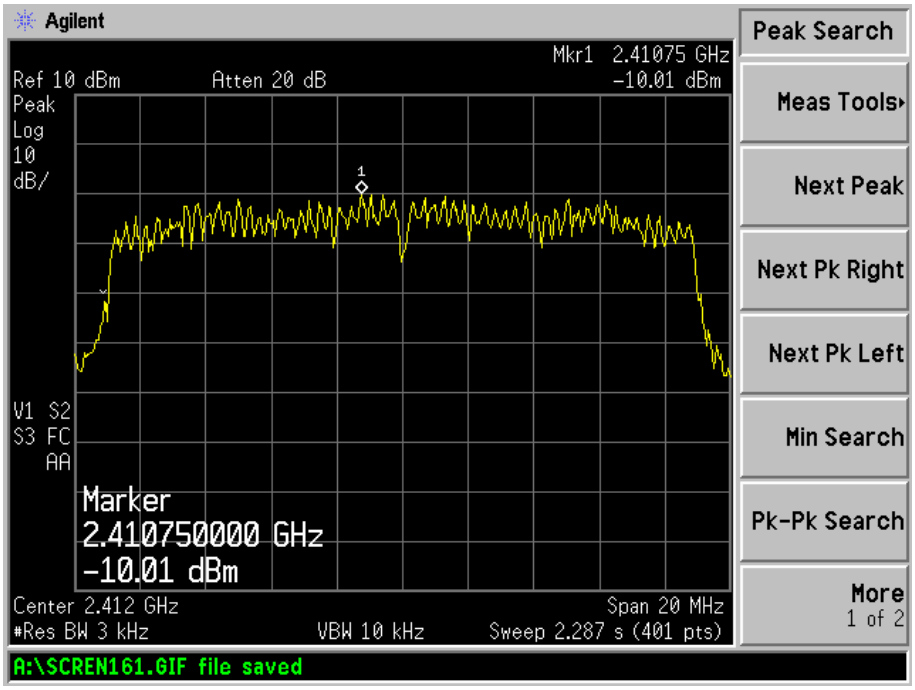
802.11n-HT20-MCS0-Middle Channel



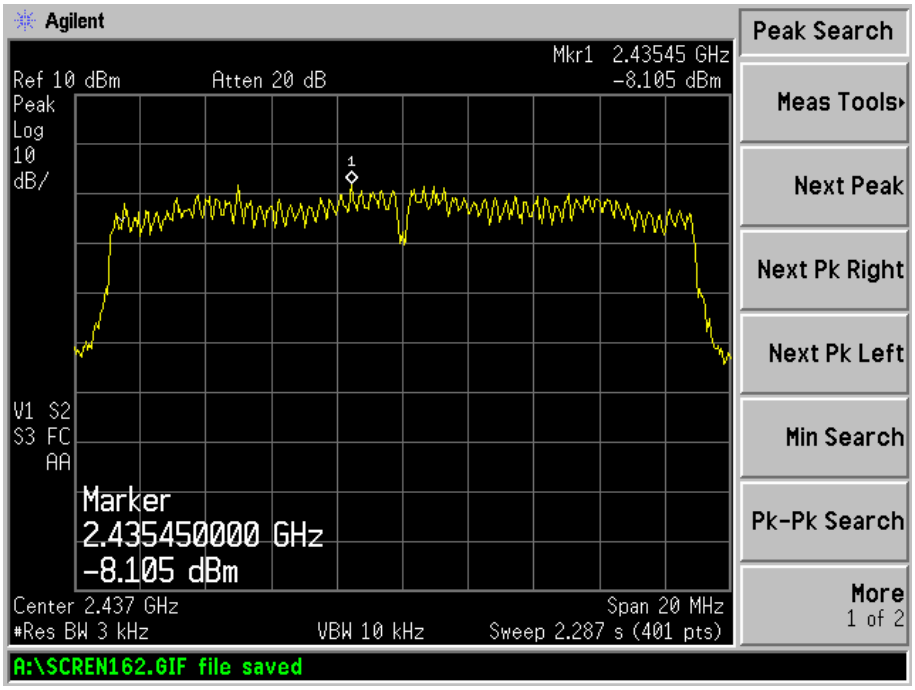
802.11n-HT20-MCS0-High Channel



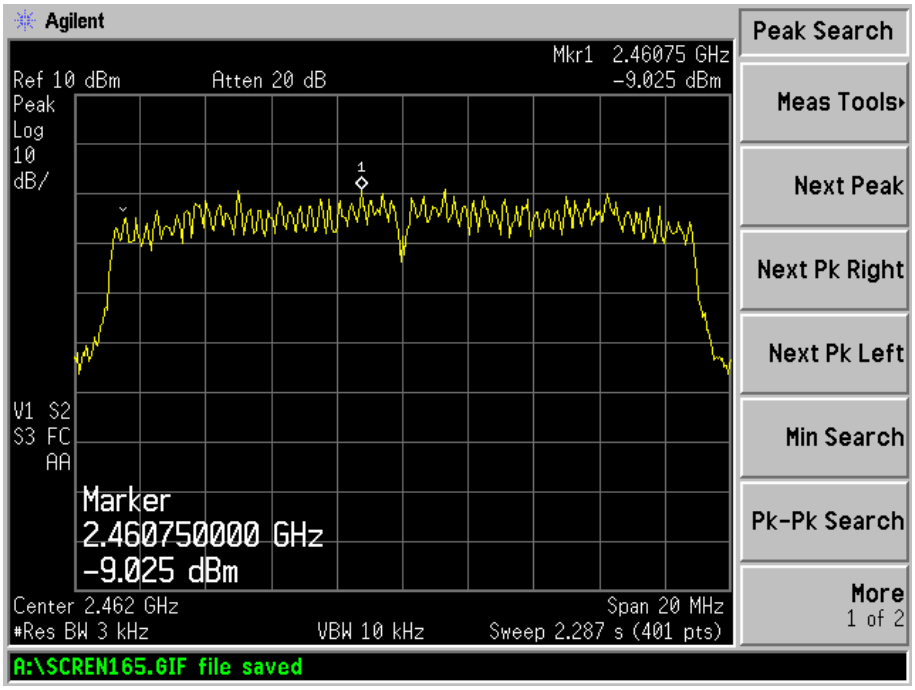
802.11n-HT20-MCS15-Low Channel



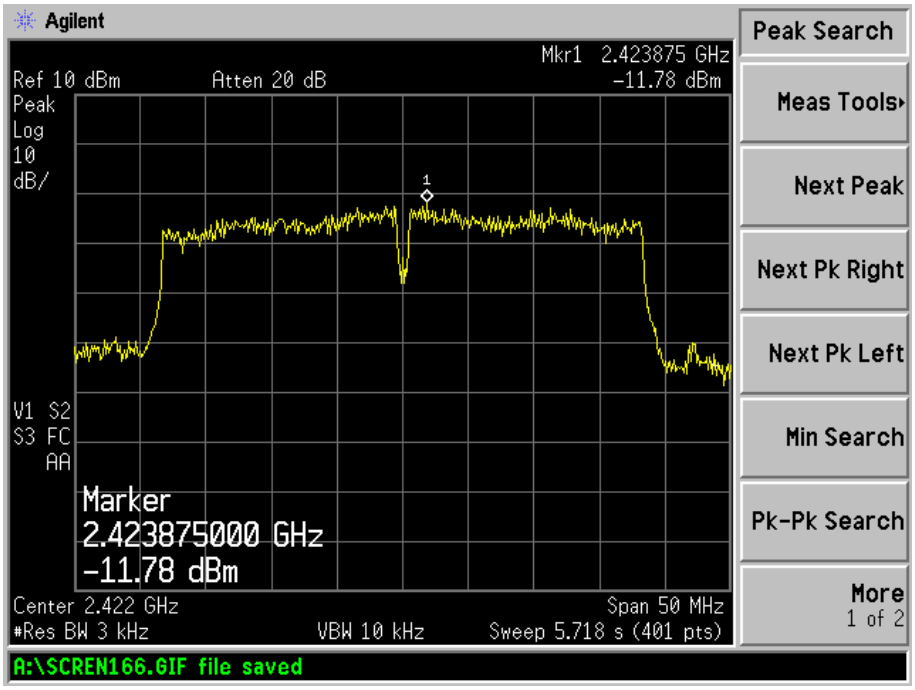
802.11n-HT20-MCS15-Middle Channel



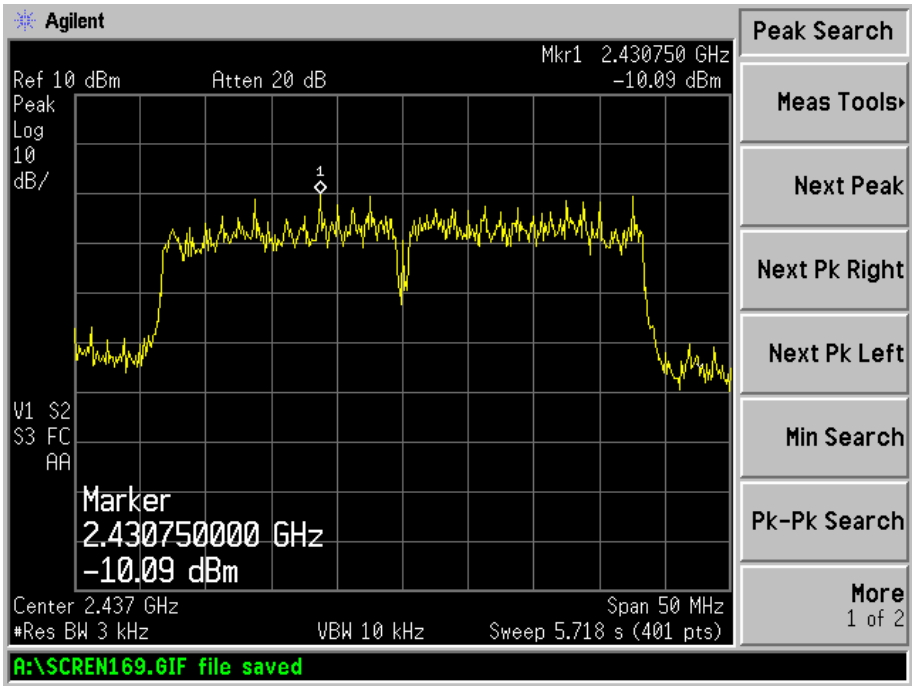
802.11n-HT20-MCS15-High Channel



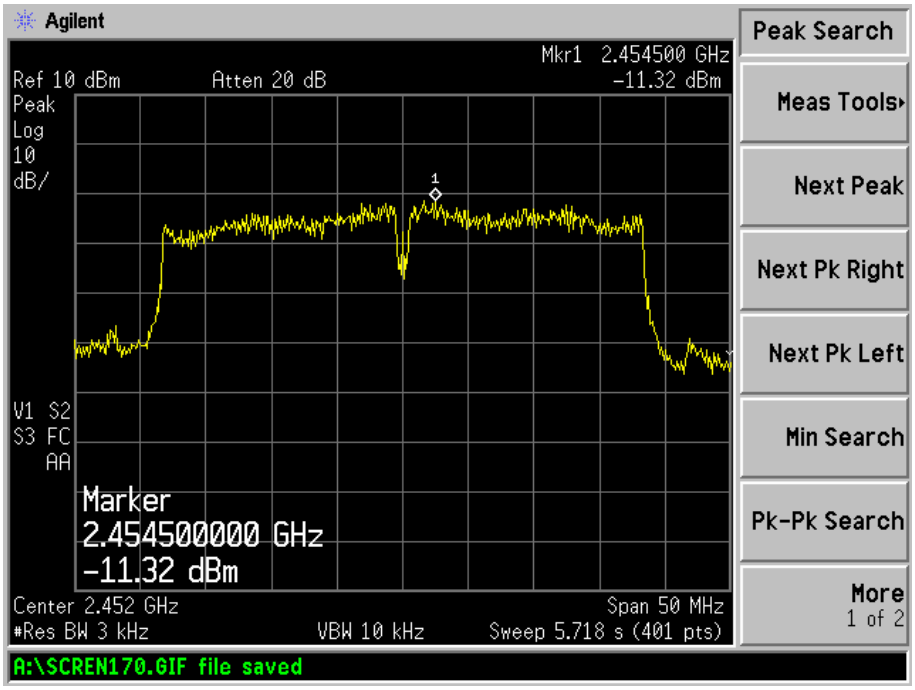
802.11n-HT40-MCS0-Low Channel



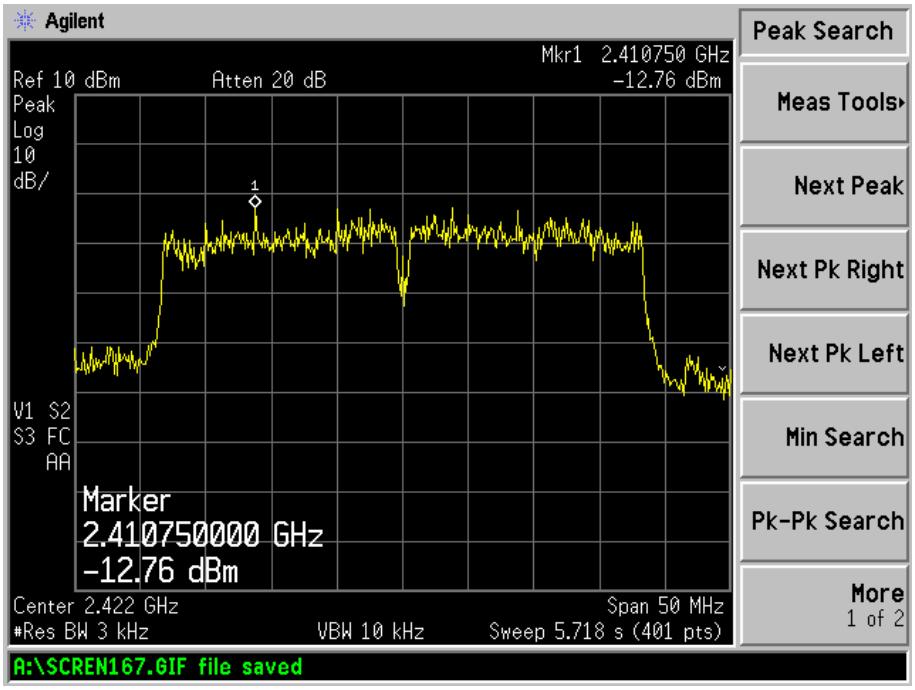
802.11n-HT40-MCS0-Middle Channel



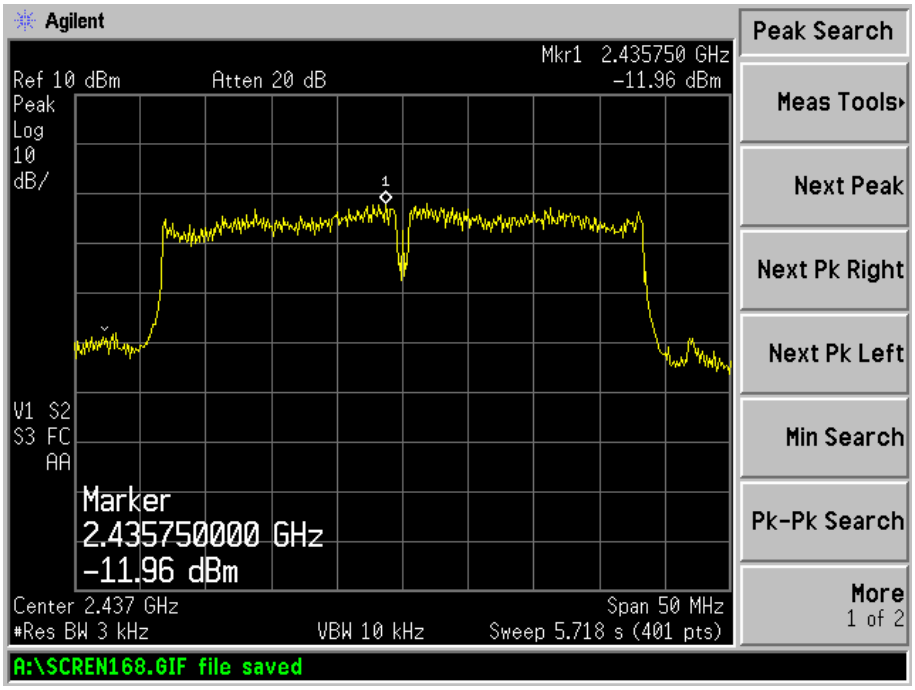
802.11n-HT40-MCS0-High Channel



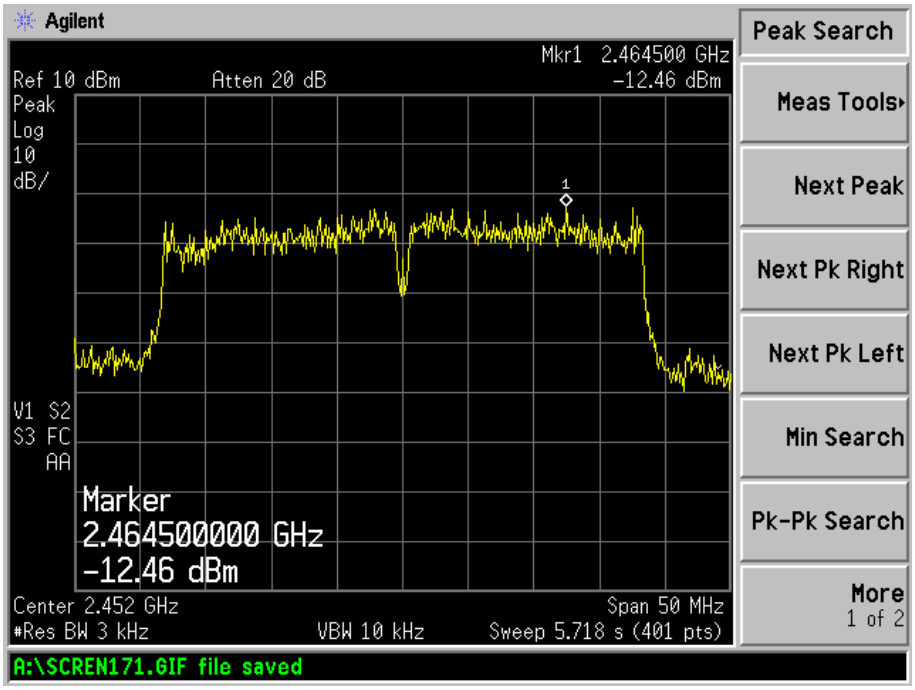
802.11n-HT40-MCS15-Low Channel



802.11n-HT40-MCS15-Middle Channel



802.11n-HT40-MCS15-High Channel



5. 6dB Bandwidth

5.1 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.

5.2 Test Equipment List and Details

Description	Manufacturer	Model	Serial Number	Cal. Date	Due. Date
Spectrum Analyzer	Agilent	E4402B	US41192821	2013-03-28	2014-03-27
Attenuator	ATTEN	ATS100-4-20	/	2013-03-28	2014-03-27

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 resolution bandwidth (RBW) = 1-5% or DTS BW, not to exceed 100 kHz.
3. Set the video bandwidth (VBW) ≥ 3 x RBW.
4. Detector = Peak.
5. Trace mode = max hold.
6. Sweep = auto couple.
7. Allow the trace to stabilize.
8. Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission..

5.4 Environmental Conditions

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

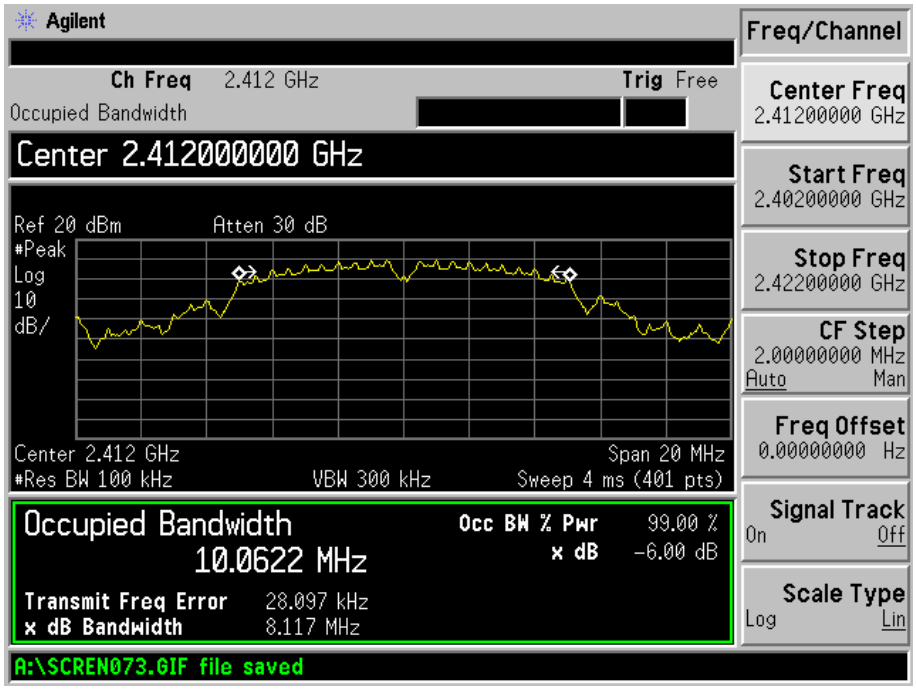
5.5 Summary of Test Results/Plots

Test Mode	Test Channel MHz	6 dB Bandwidth Chain 0 (kHz)	6 dB Bandwidth Chain 1(kHz)	Limit kHz
802.11b	2412	8117	/	500
	2437	7173	/	500
	2462	7161	/	500
802.11g	2412	14702	15085	500
	2437	14430	15168	500
	2462	15315	14502	500
802.11n-HT20	2412	16078	17605	500
	2437	15151	16973	500
	2462	16378	16660	500
802.11n-HT40	2422	36168	35738	500
	2437	35520	35729	500
	2452	35585	35678	500

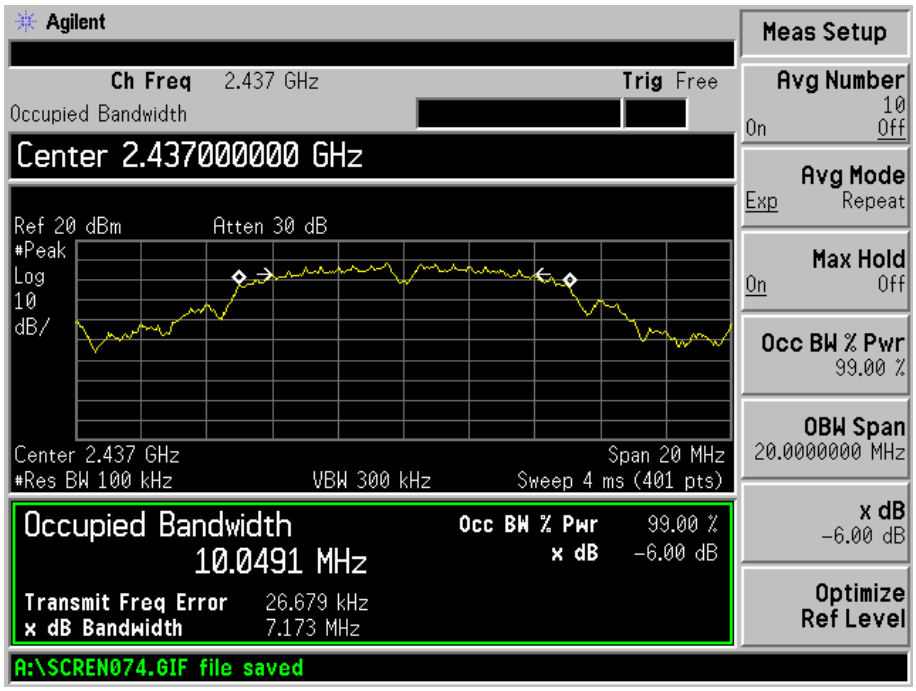
Please refer to the following test plots:

For chain 0

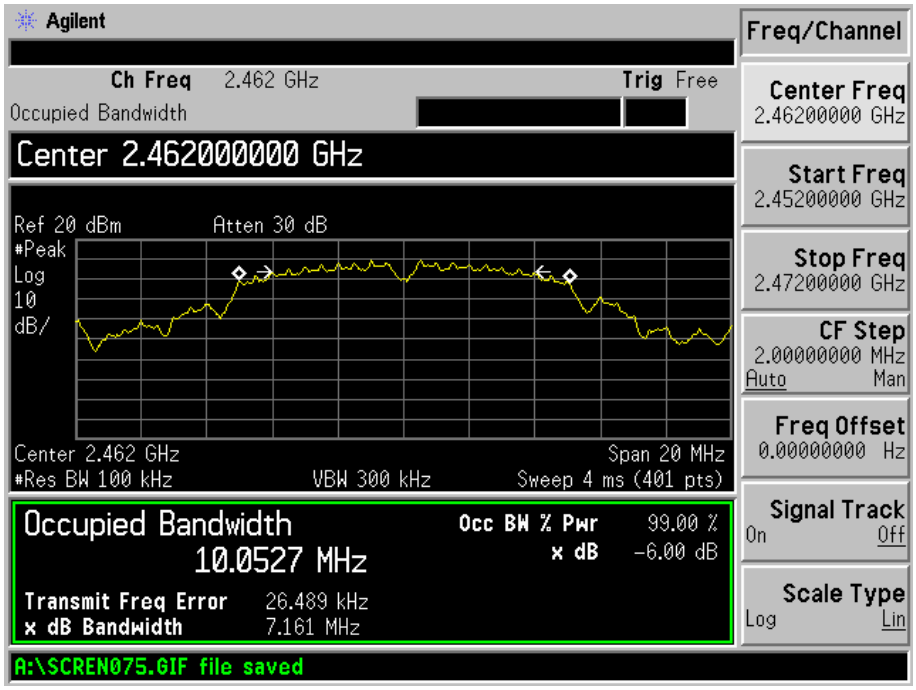
802.11b-Low Channel



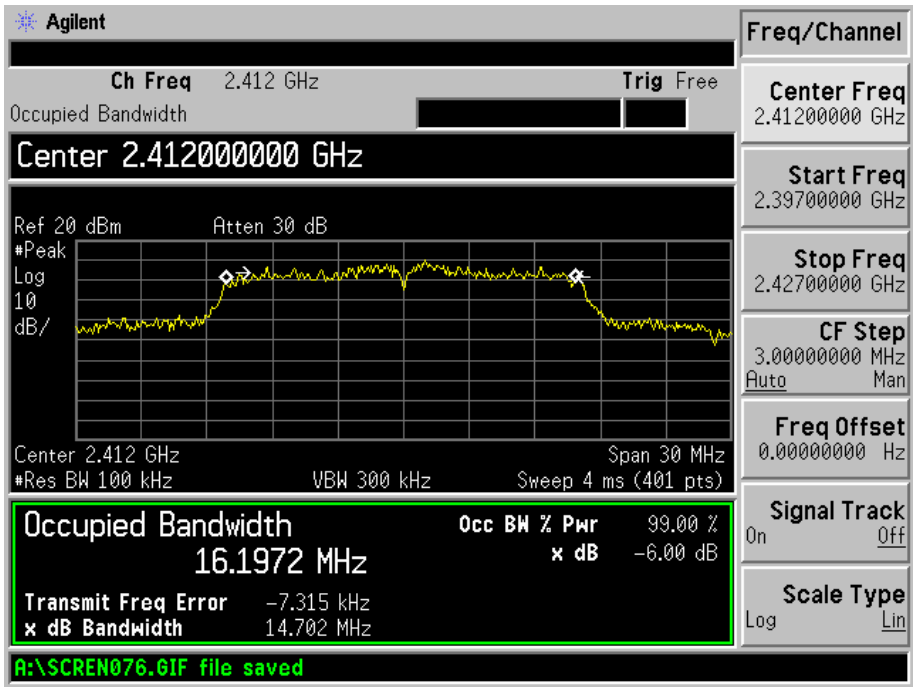
802.11b-Middle Channel



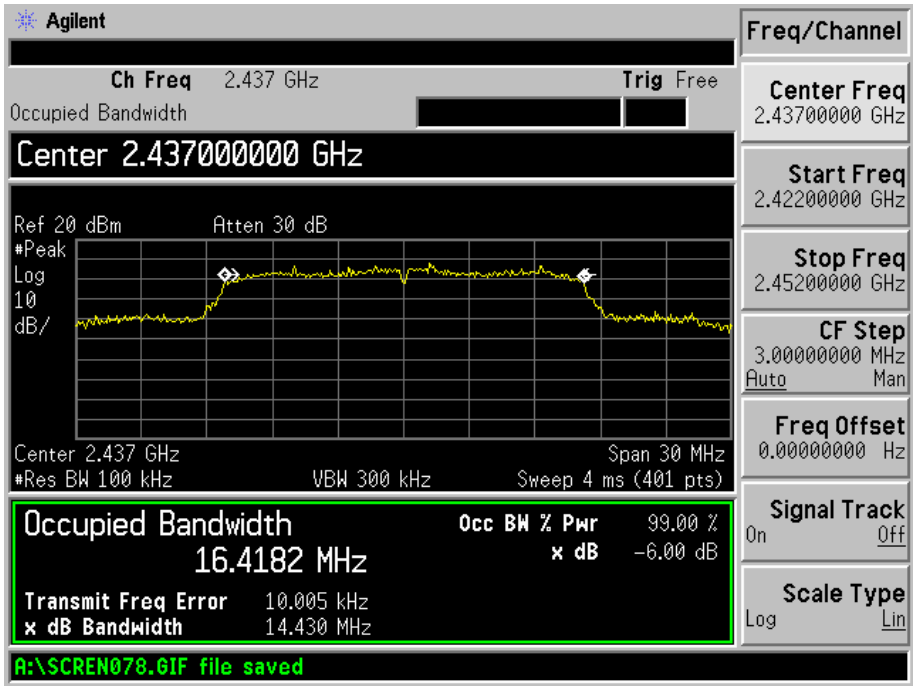
802.11b-High Channel



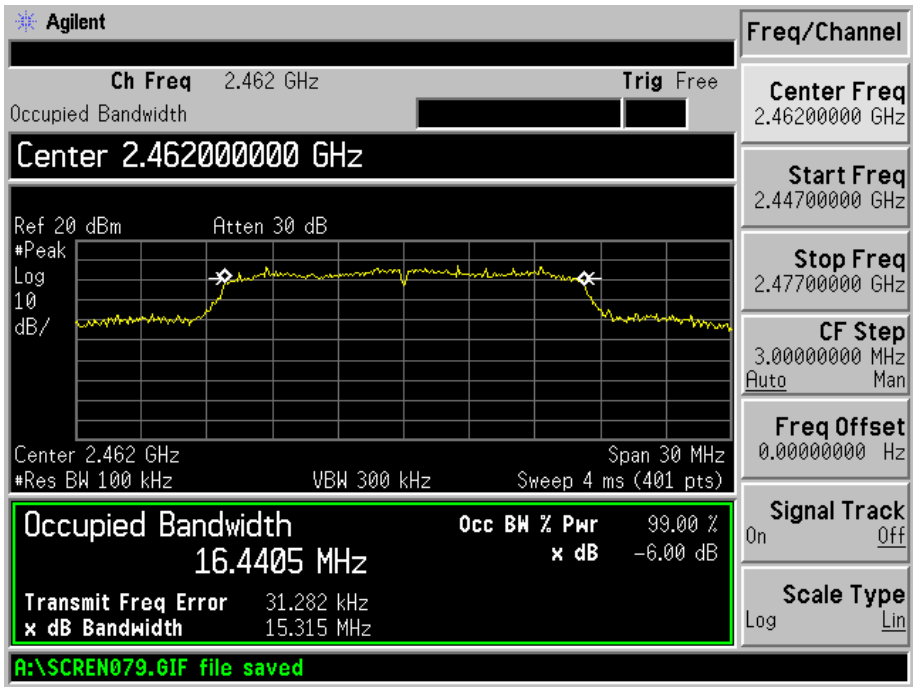
802.11g-Low Channel



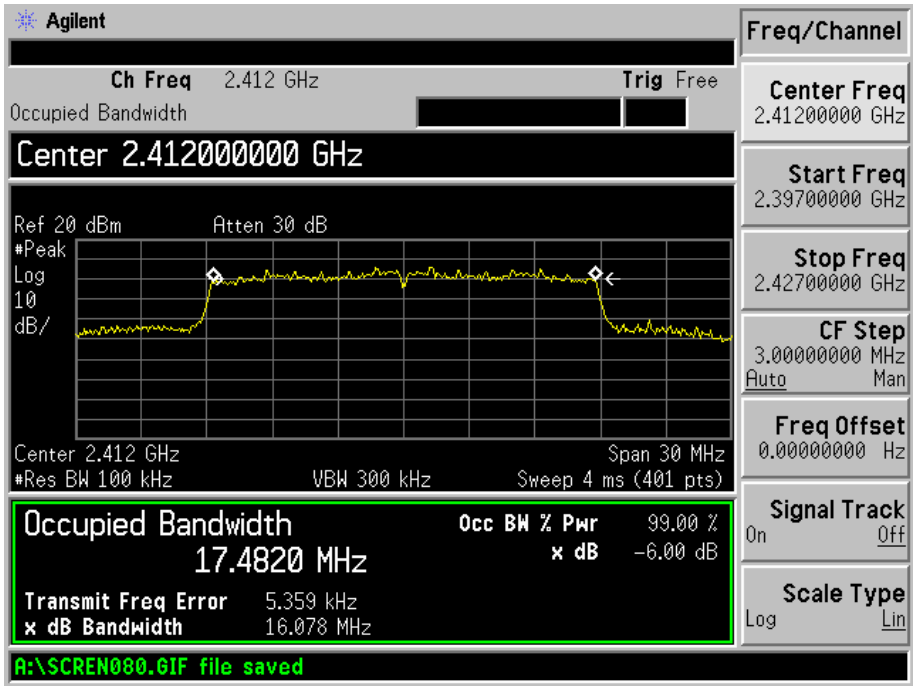
802.11g-Middle Channel



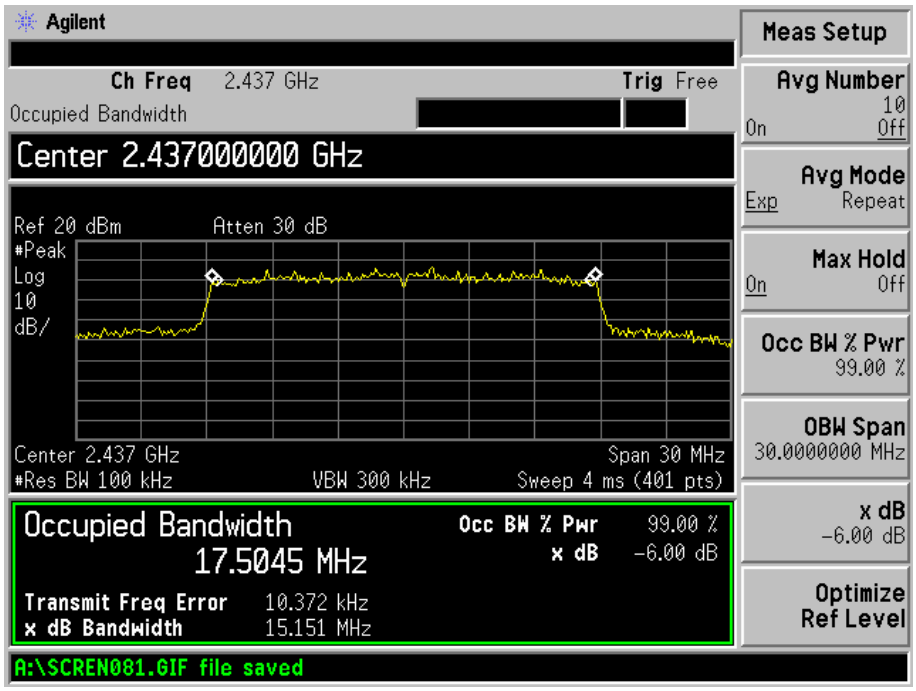
802.11g-High Channel



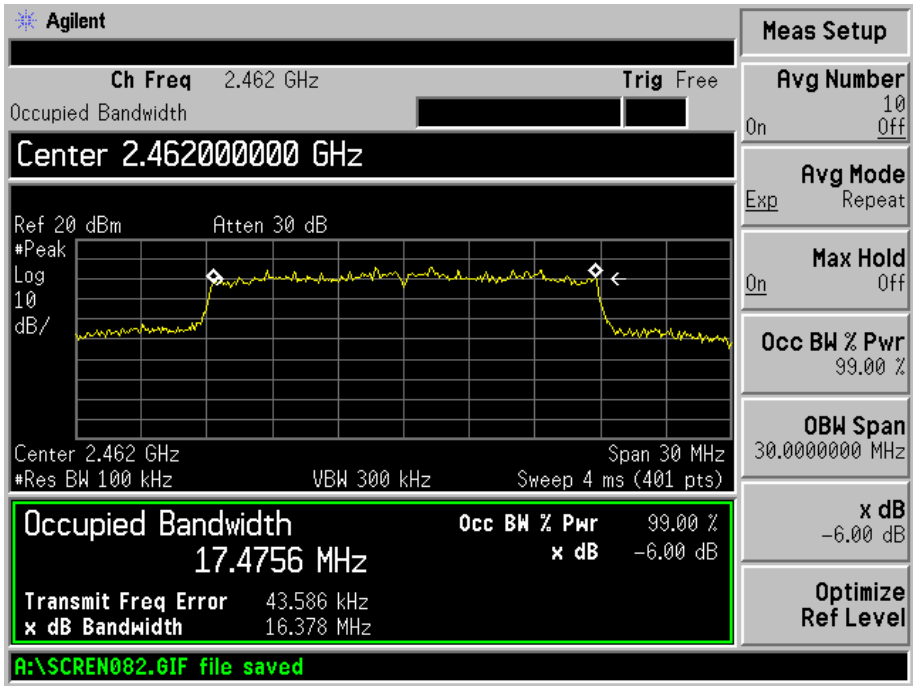
802.11n-HT20-Low Channel



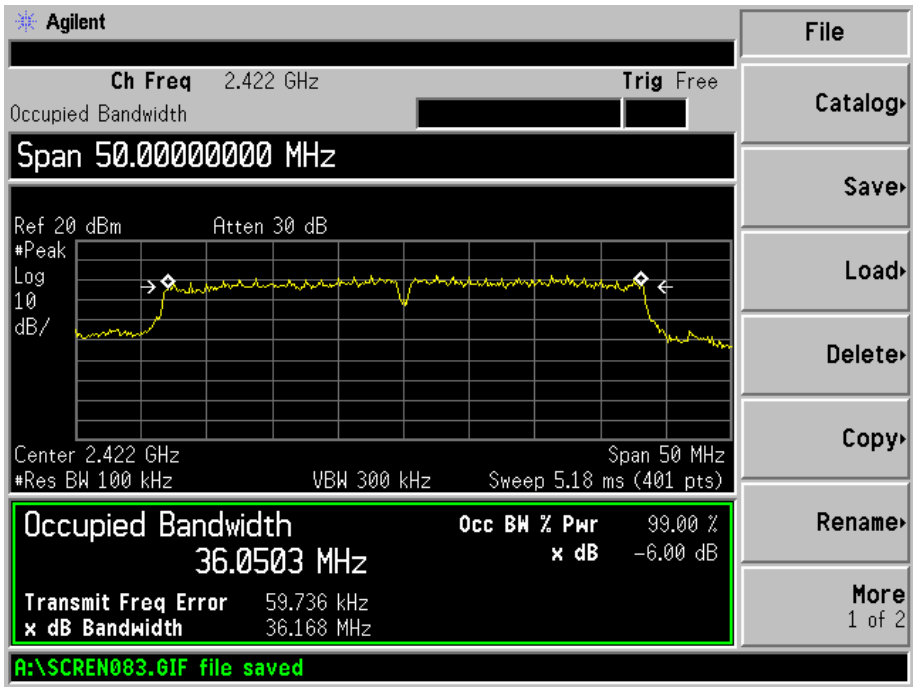
802.11n-HT20-Middle Channel



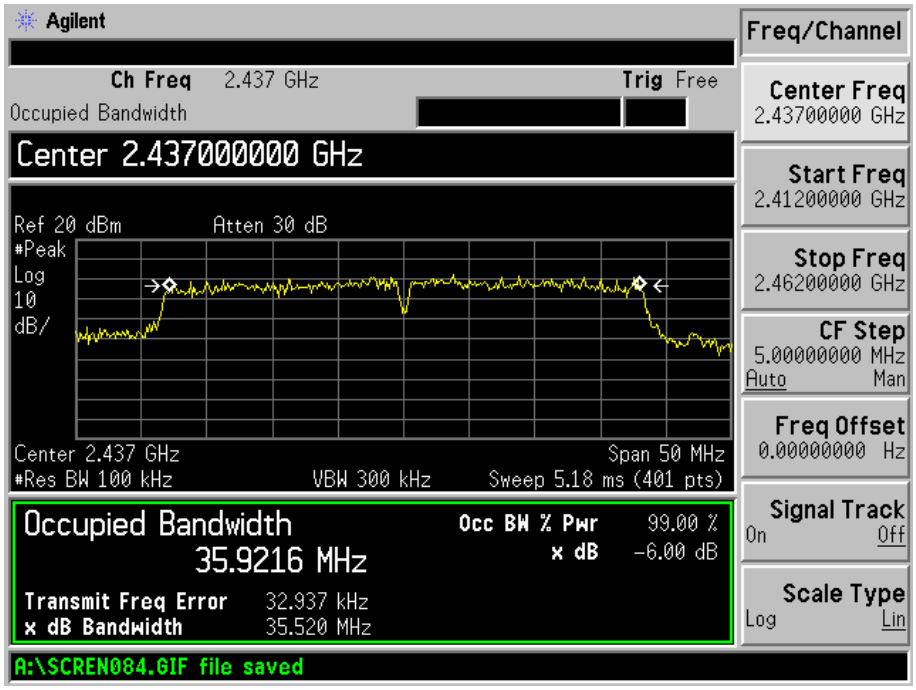
802.11n-HT20-High Channel



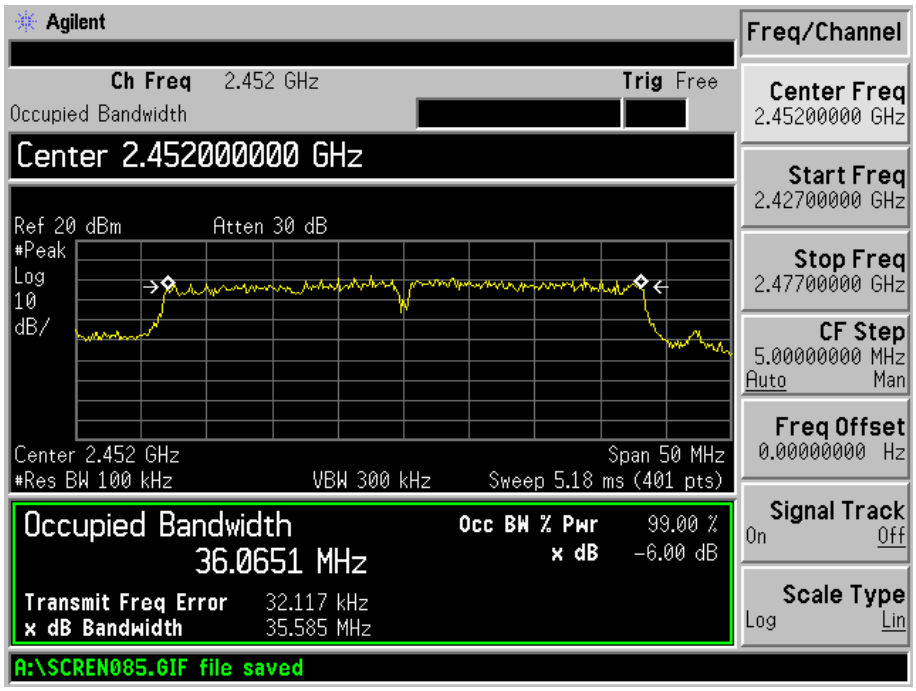
802.11n-HT40-Low Channel



802.11n-HT40-Middle Channel

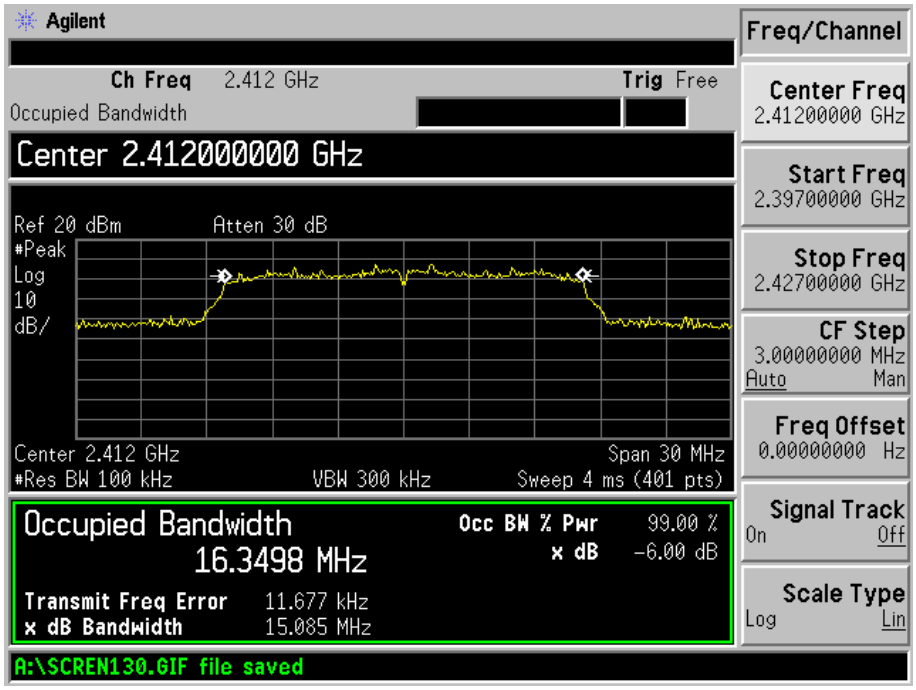


802.11n-HT40-High Channel

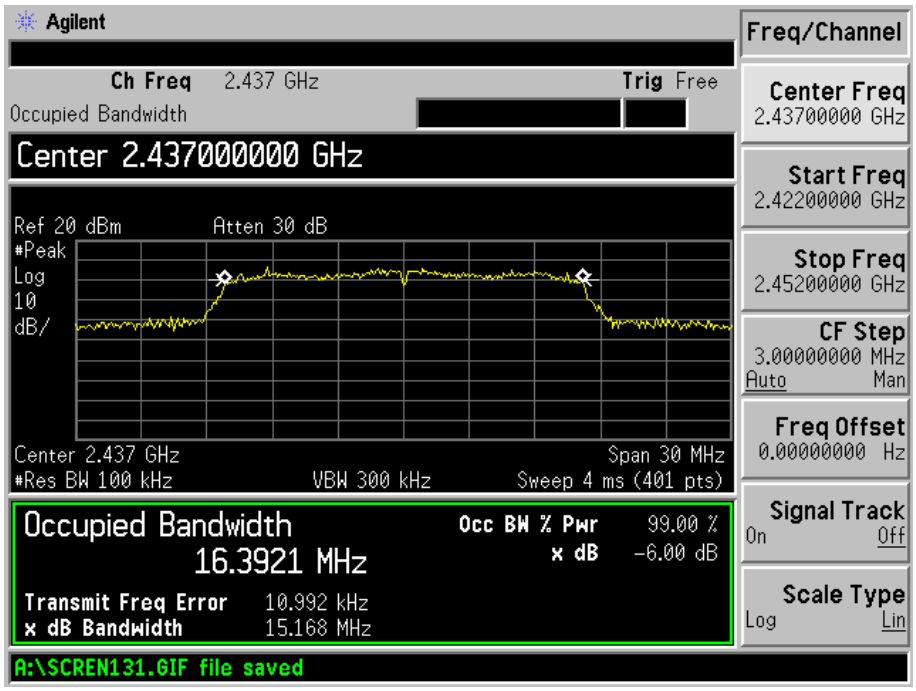


For chain 1

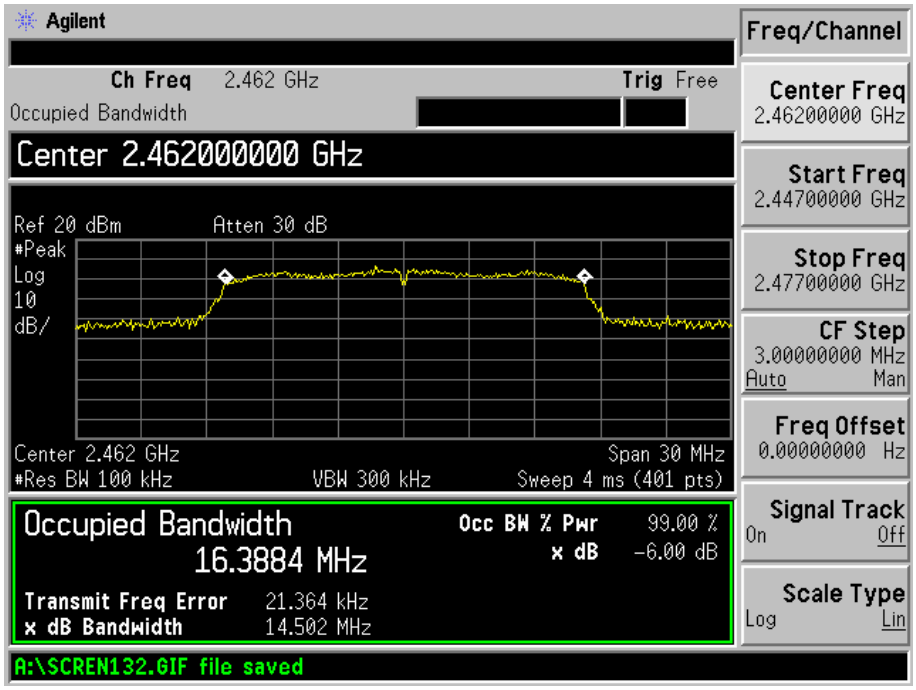
802.11g-Low Channel



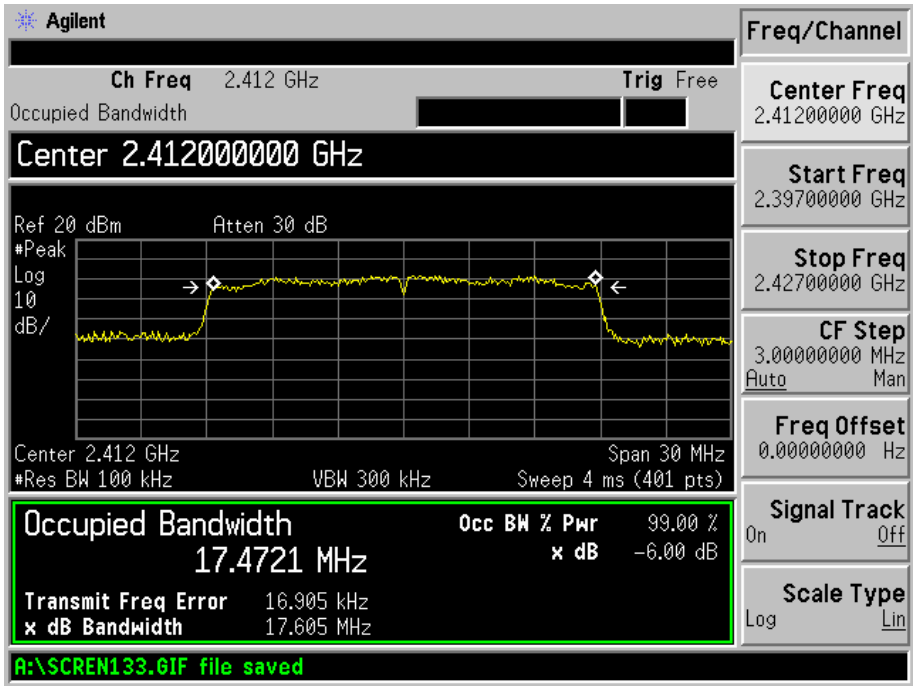
802.11g-Middle Channel



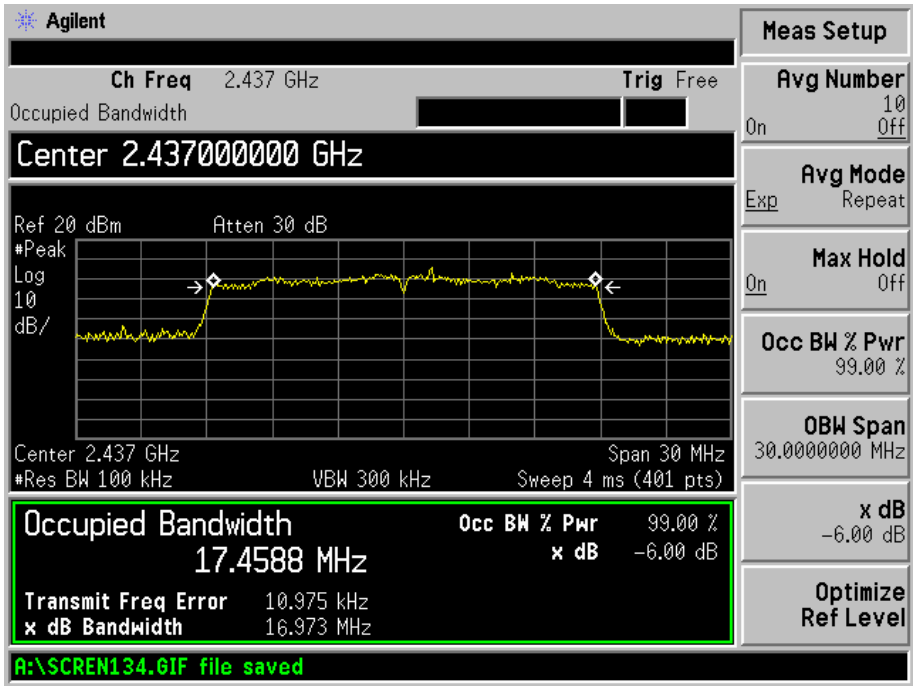
802.11g-High Channel



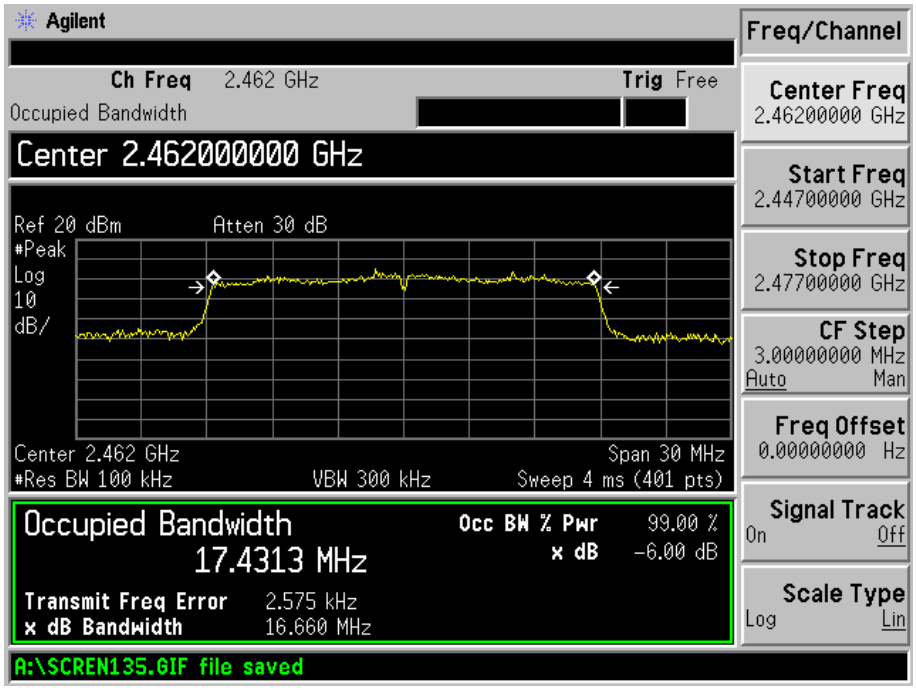
802.11n-HT20-Low Channel



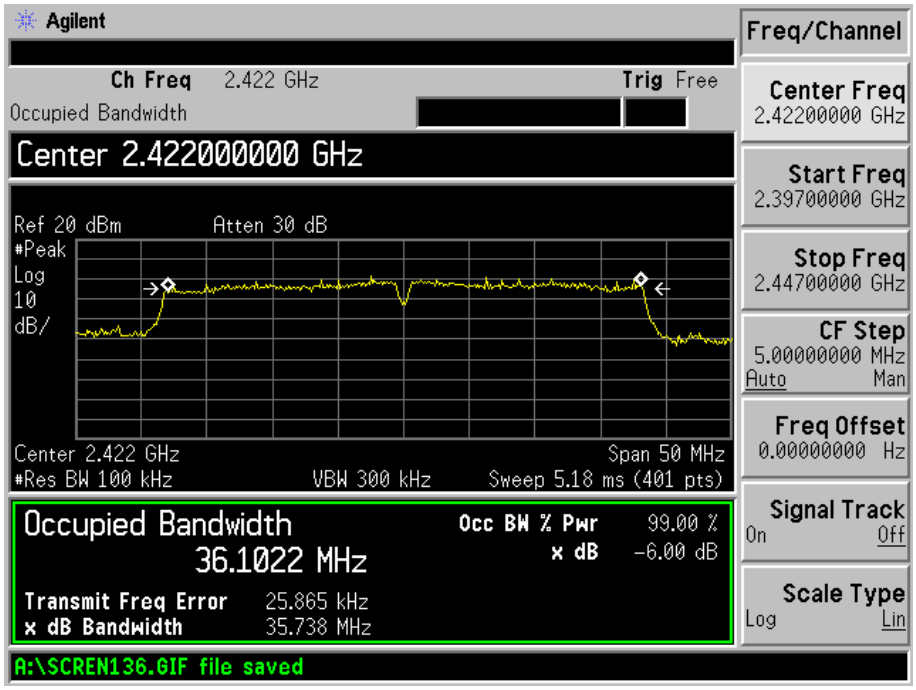
802.11n-HT20-Middle Channel



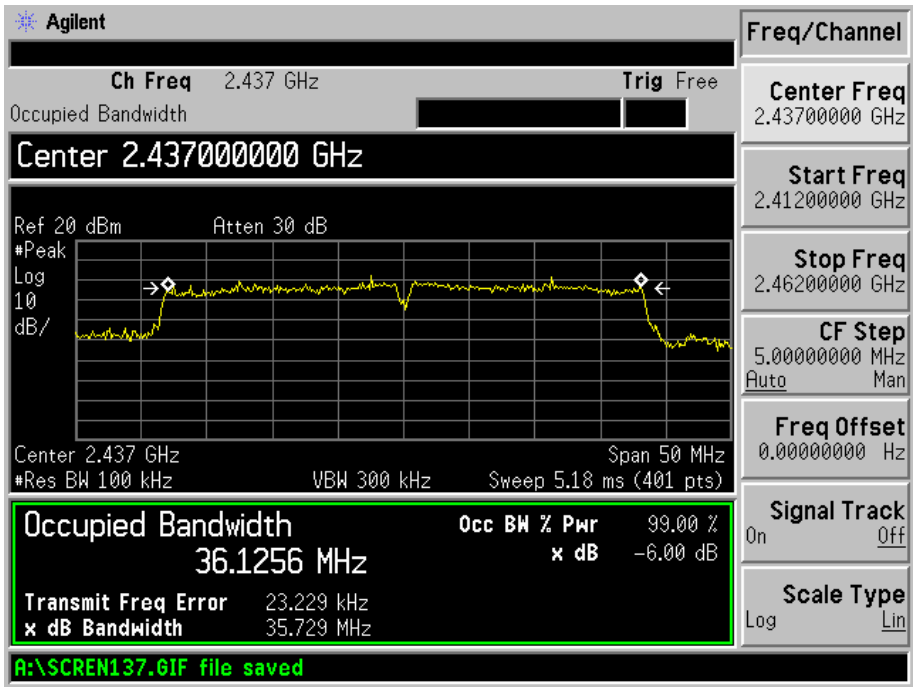
802.11n-HT20-High Channel



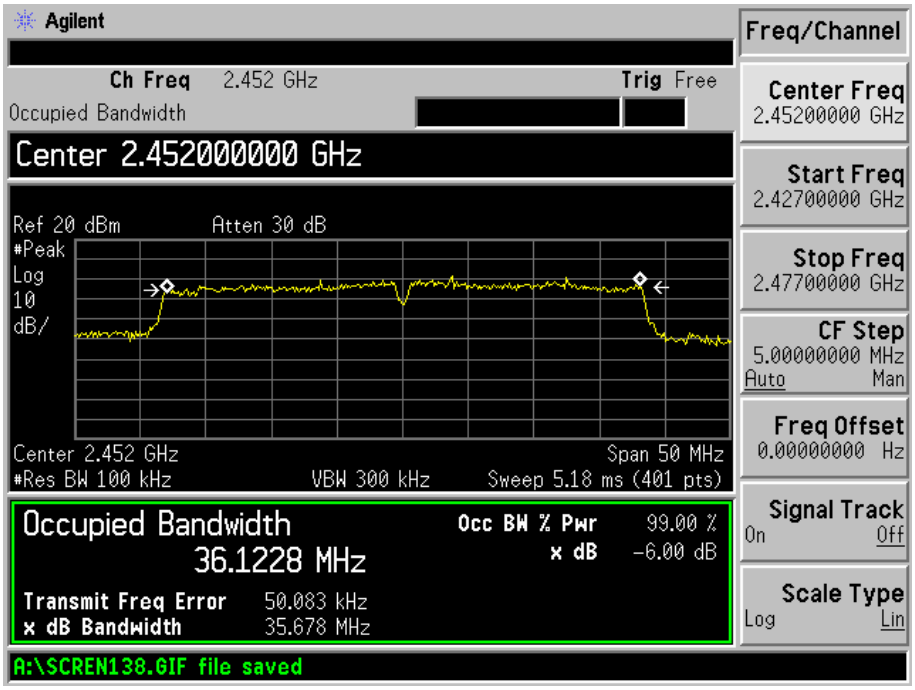
802.11n-HT40-Low Channel



802.11n-HT40-Middle Channel



802.11n-HT40-High Channel



6. RF Output Power

6.1 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.

6.2 Test Equipment List and Details

Description	Manufacturer	Model	Serial Number	Cal. Date	Due. Date
Spectrum Analyzer	Agilent	E4402B	US41192821	2013-03-28	2014-03-27
Attenuator	ATTEN	ATS100-4-20	/	2013-03-28	2014-03-27

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

6.3 Test Procedure

According to section 15.247(b)-power output of the KDB-558074 (2012),

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

6.4 Environmental Conditions

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

6.5 Summary of Test Results/Plots

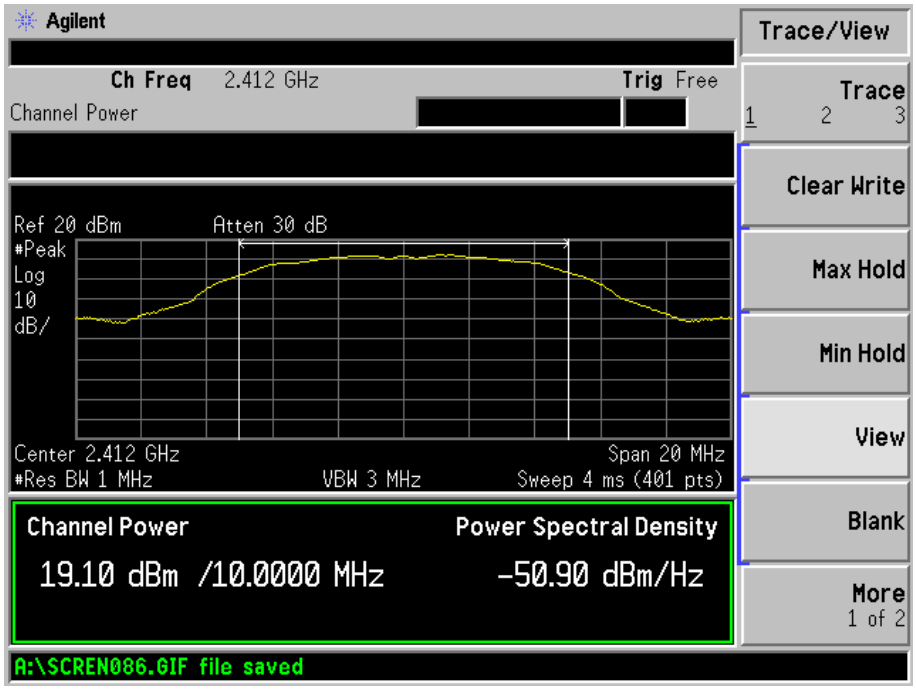
Test Mode	Frequency MHz	Reading Chain 0 dBm	Reading Chain 1 dBm	Output Power Chain 0 (mW)	Output Power Chain 1 (mW)	Total Power mW	Limit mW
802.11b 1Mbps	2412	19.10	/	81.2831	/	/	1000
	2437	19.24	/	83.9460	/	/	1000
	2462	19.15	/	82.2243	/	/	1000
802.11b 11Mbps	2412	18.86	/	76.9130	/	/	1000
	2437	19.13	/	81.8465	/	/	1000
	2462	19.03	/	79.9834	/	/	1000
802.11g 6Mbps	2412	18.20	18.72	66.0693	74.4732	/	1000
	2437	18.68	18.90	73.7904	77.6247	/	1000
	2462	18.50	19.12	70.7946	81.6582	/	1000
802.11g 54Mbps	2412	18.01	18.58	63.2412	72.1107	/	1000
	2437	18.33	18.60	68.0769	72.4436	/	1000
	2462	18.32	18.85	67.9204	76.7361	/	1000
802.11n HT20 MCS0	2412	17.10	17.72	51.2861	59.1562	/	1000
	2437	17.30	17.84	53.7032	60.8135	/	1000
	2462	17.24	17.72	52.9663	59.1562	/	1000
802.11n HT20 MCS15	2412	15.55	16.14	35.8922	41.1150	77.0072	1000
	2437	15.18	16.40	32.9610	43.6516	76.6126	1000
	2462	16.08	16.45	40.5509	44.1570	84.7079	1000
802.11n HT40 MCS0	2422	17.29	17.40	53.5797	54.9541	/	1000
	2437	17.62	18.01	57.8096	63.2412	/	1000
	2452	17.51	17.93	56.3638	62.0869	/	1000
802.11n HT40 MCS15	2422	14.09	14.26	25.6448	26.6686	52.3134	1000
	2437	14.79	14.96	30.1301	31.3329	61.4629	1000
	2452	14.19	14.64	26.2422	29.1072	55.3494	1000

Note: The EUT shall be simultaneous transmission at the chain 0 and chain 1 for the MCS15 mode of 802.11n HT20 or HT40, only transmission at chain 0 for 802.11b; all other mode shall be transmission only single chain (chain 0 or chain 1).

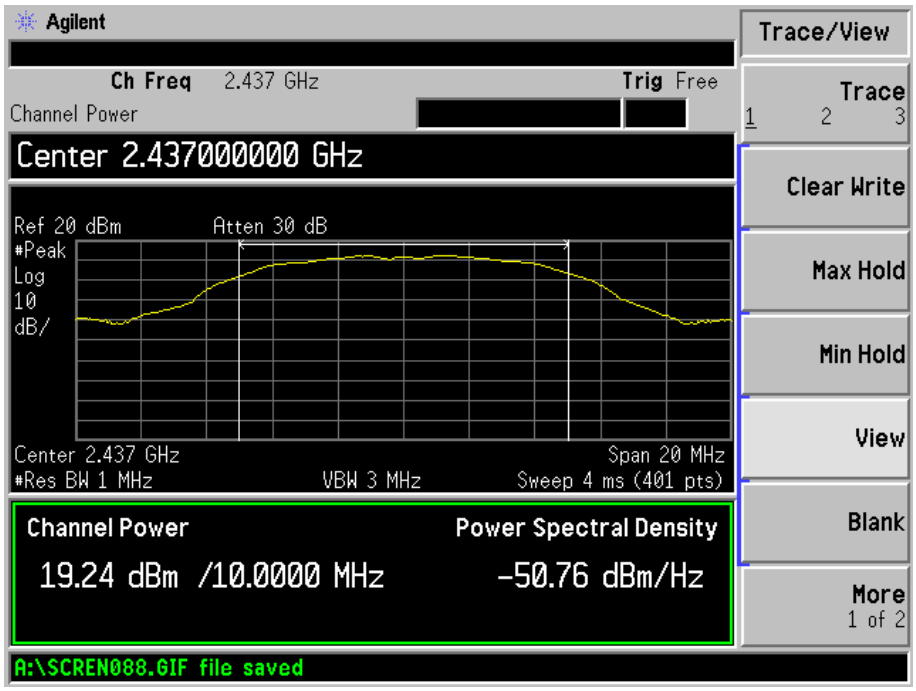
Please refer to the following test plots:

For chain 0

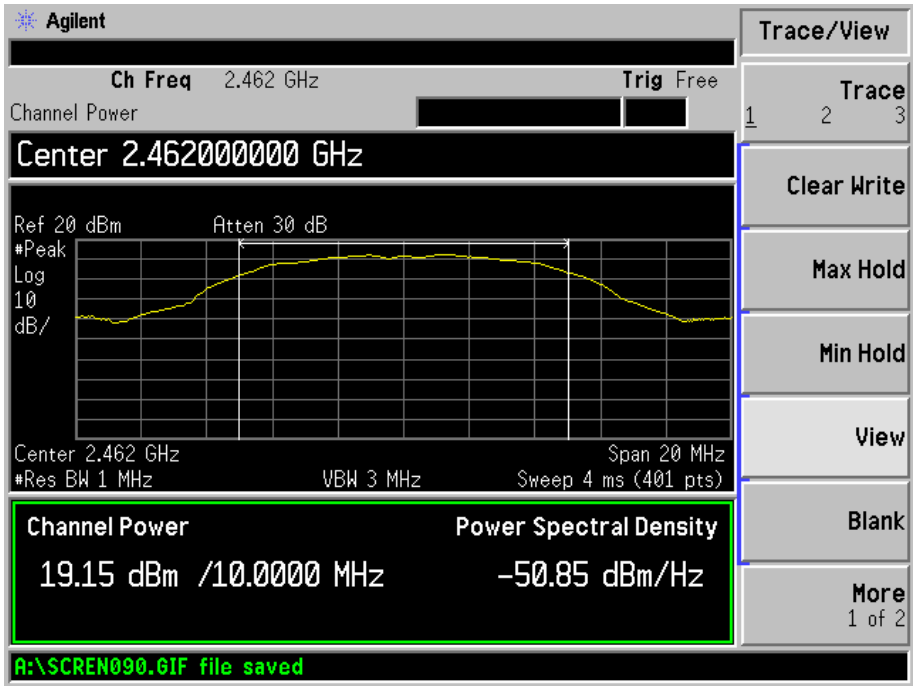
802.11b-1Mbps-Low Channel



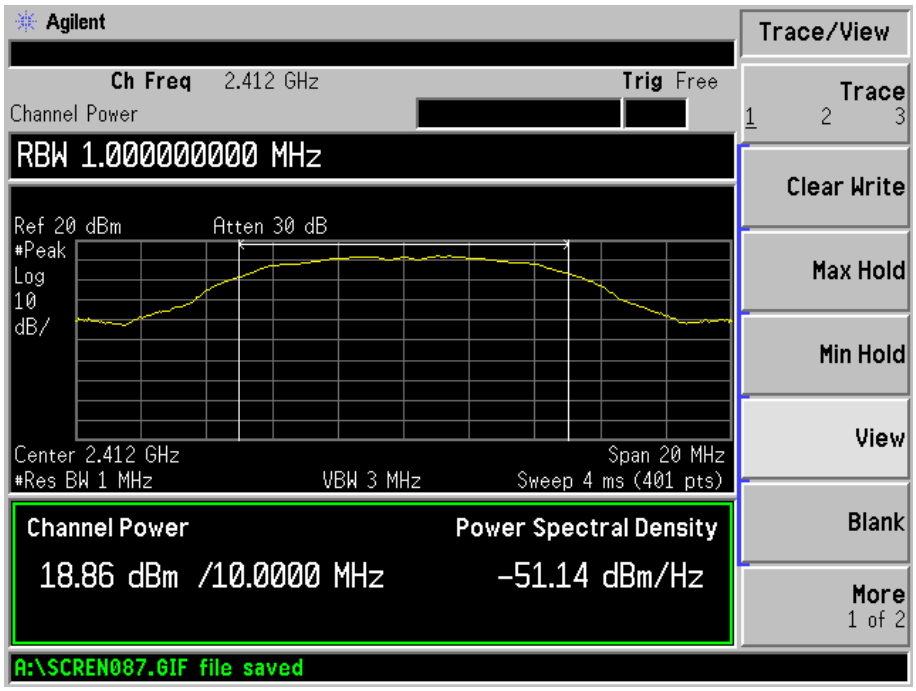
802.11b-1Mbps-Middle Channel



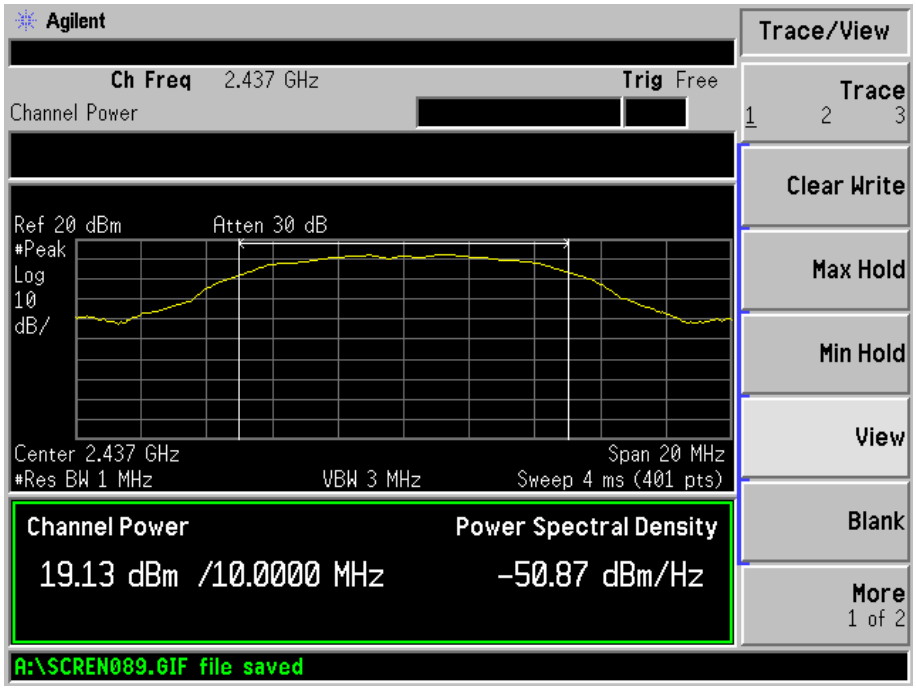
802.11b-1Mpbs-High Channel



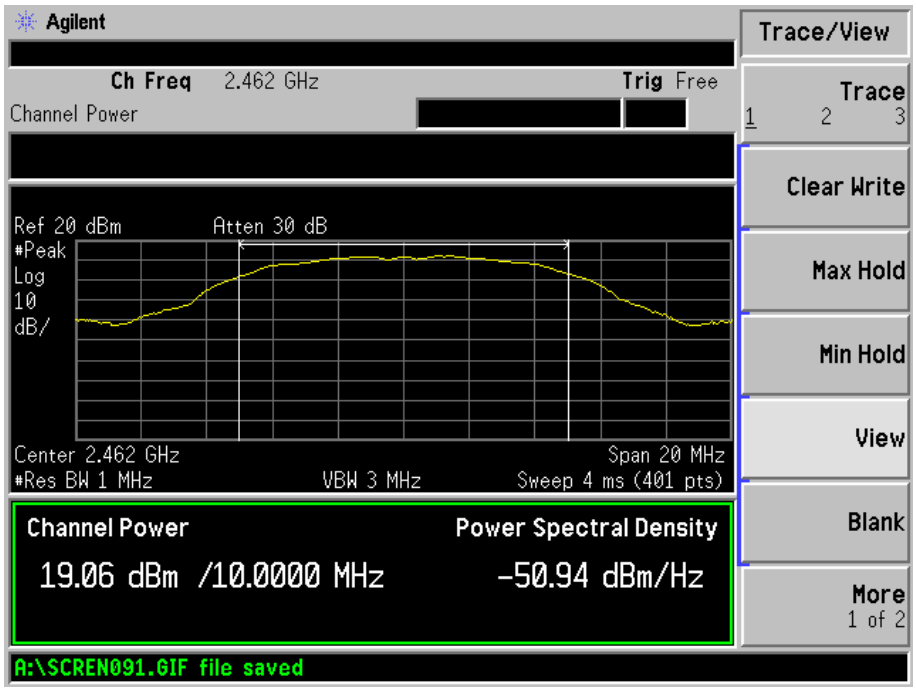
802.11b-11Mbps-Low Channel



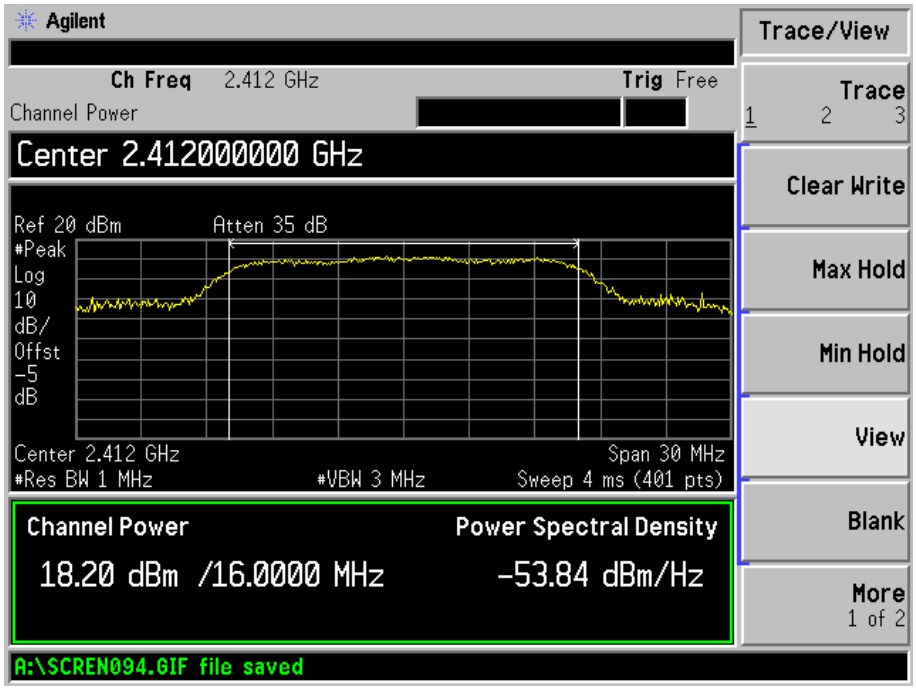
802.11b-11Mbps-Middle Channel



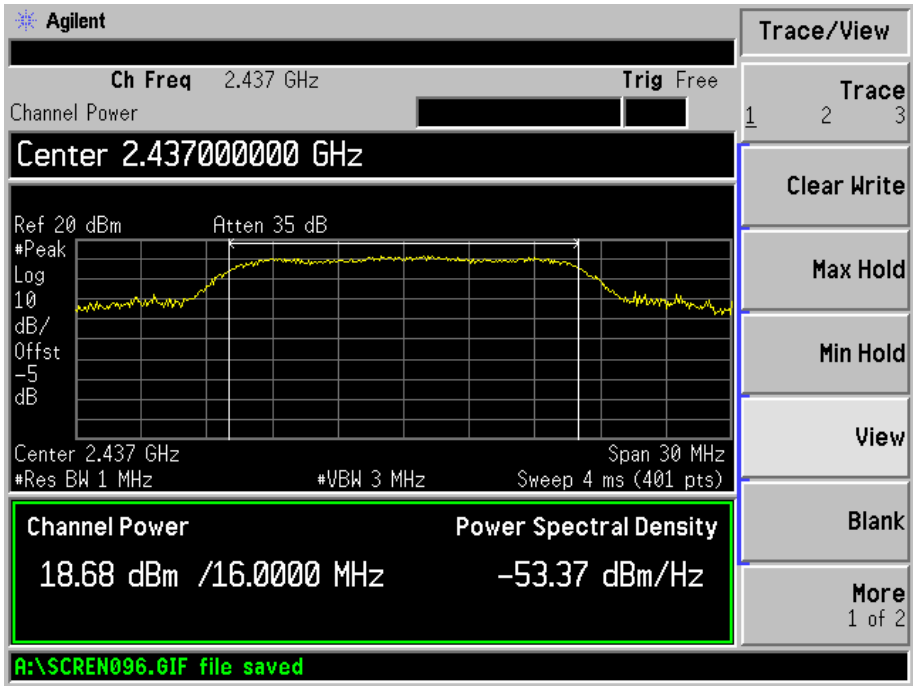
802.11b-11Mpbs-High Channel



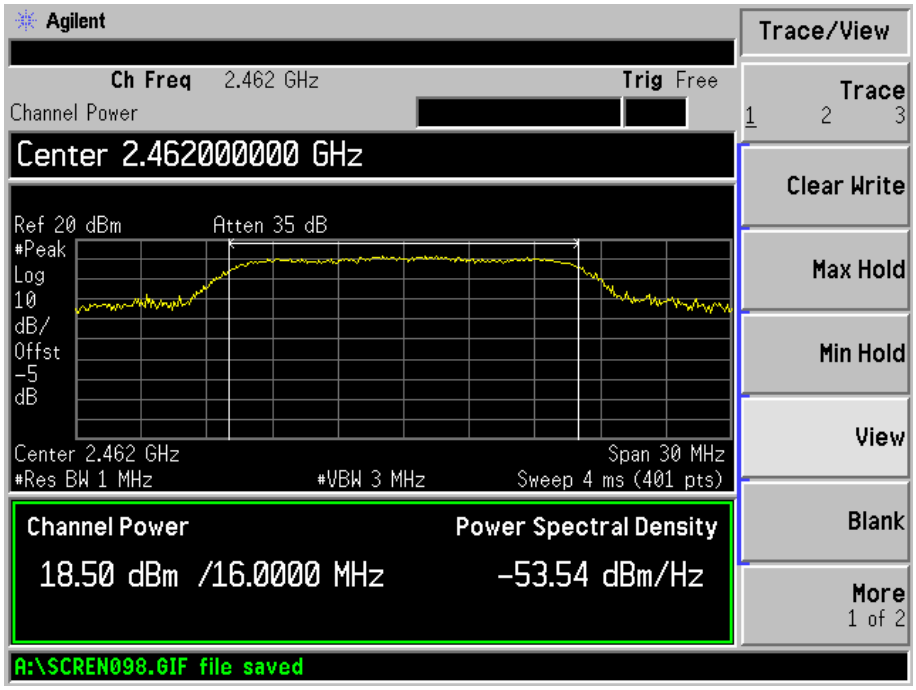
802.11g-6Mbps-Low Channel



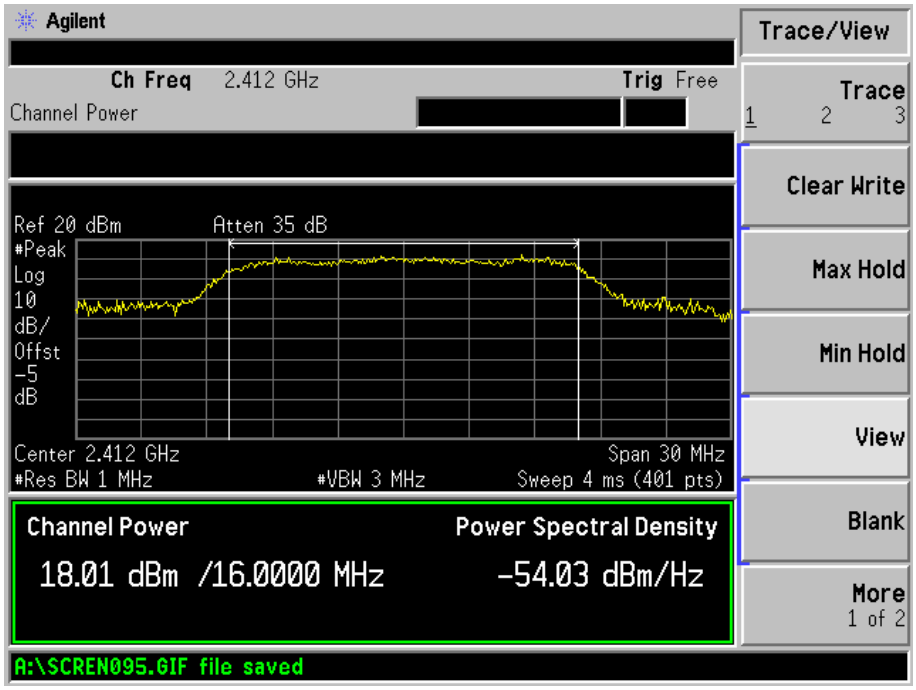
802.11g-6Mbps-Middle Channel



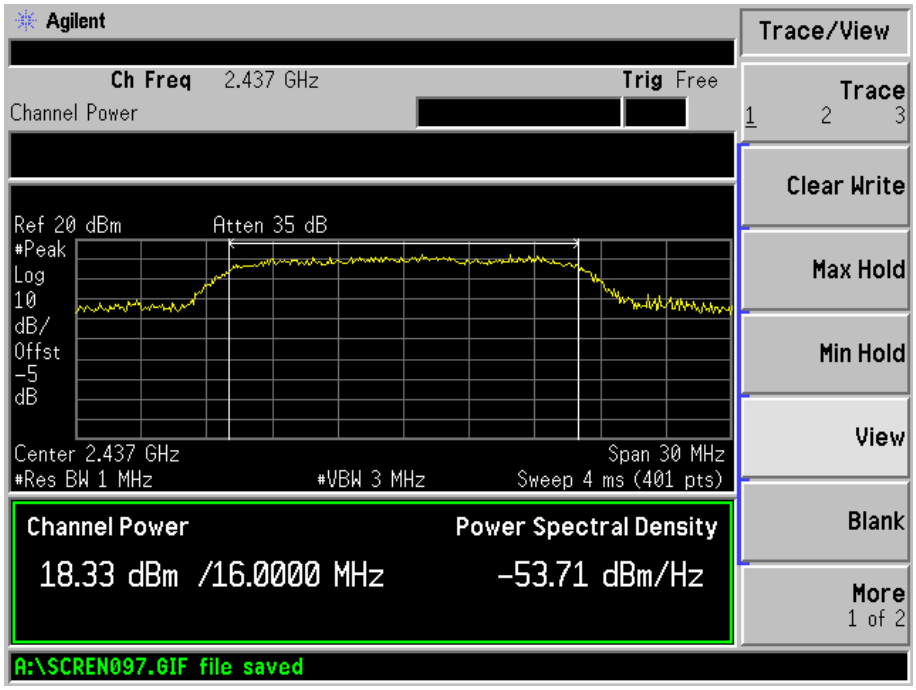
802.11g-6Mpbs-High Channel



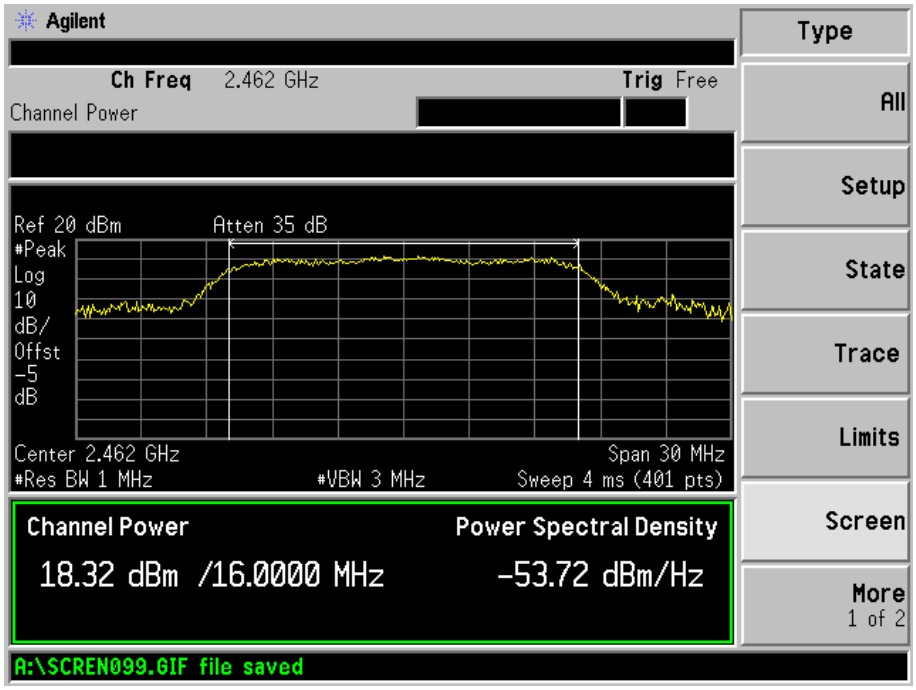
802.11g-54Mbps-Low Channel



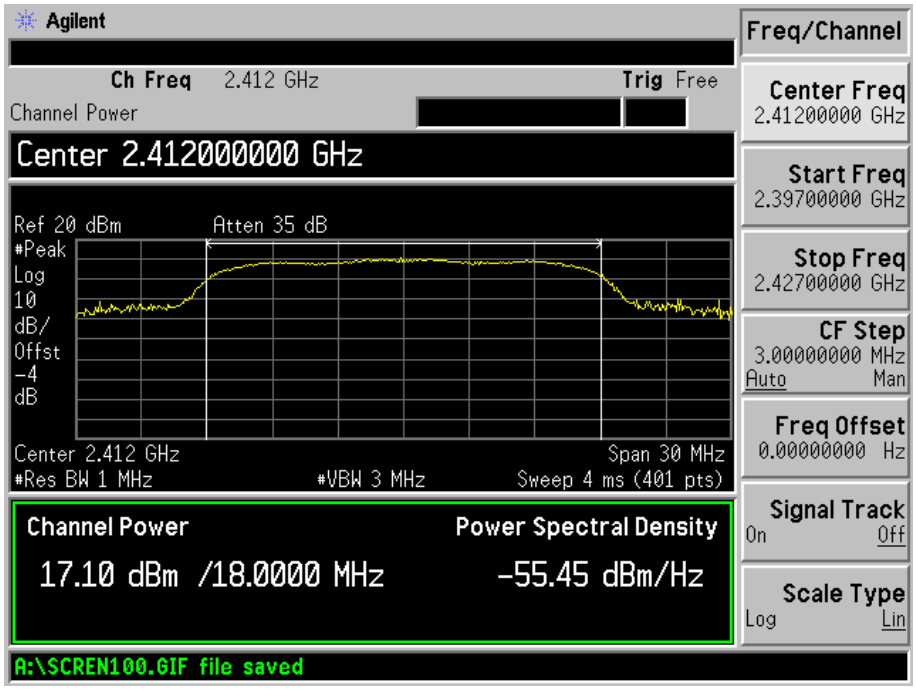
802.11g-54Mbps-Middle Channel



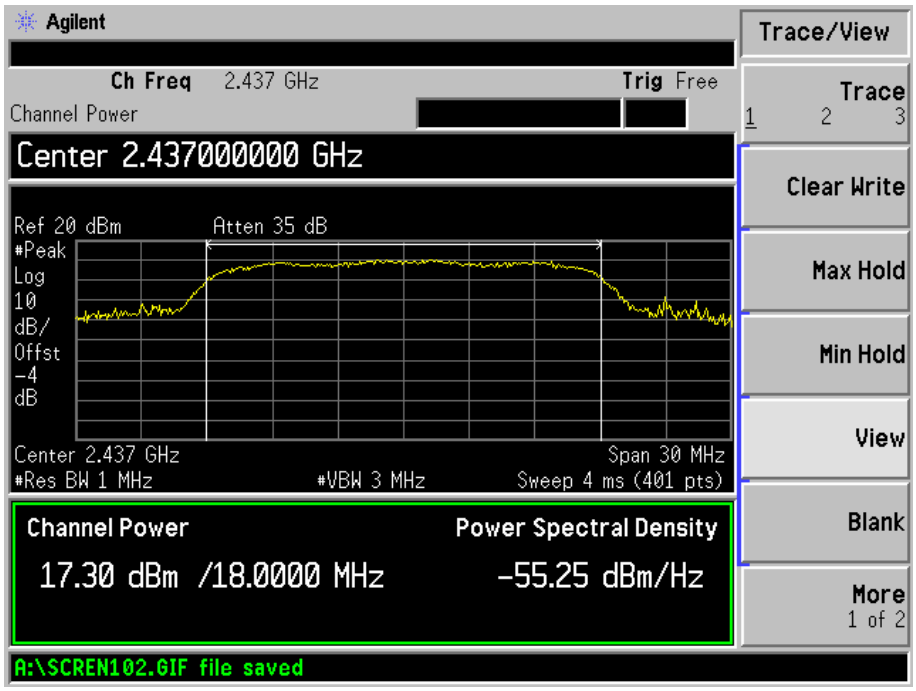
802.11g-54Mpbs-High Channel



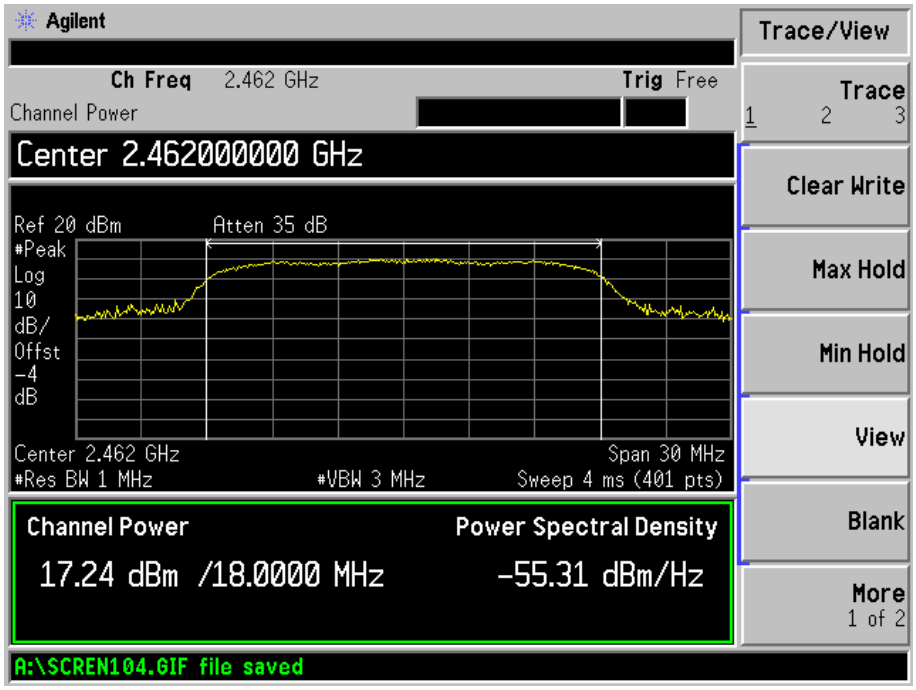
802.11n-HT20-MCS0-Low Channel



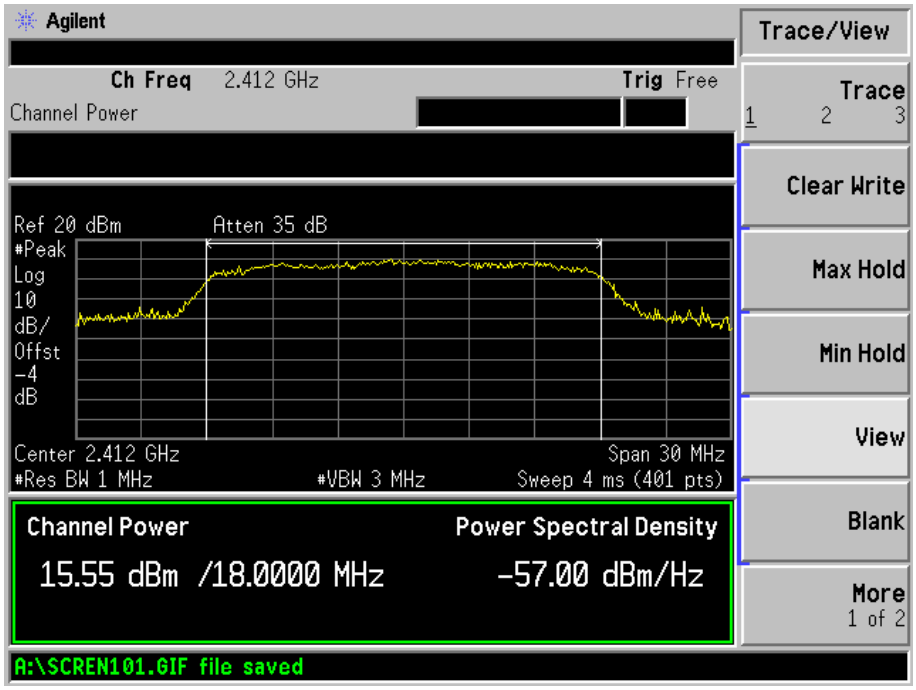
802.11n-HT20-MCS0-Middle Channel



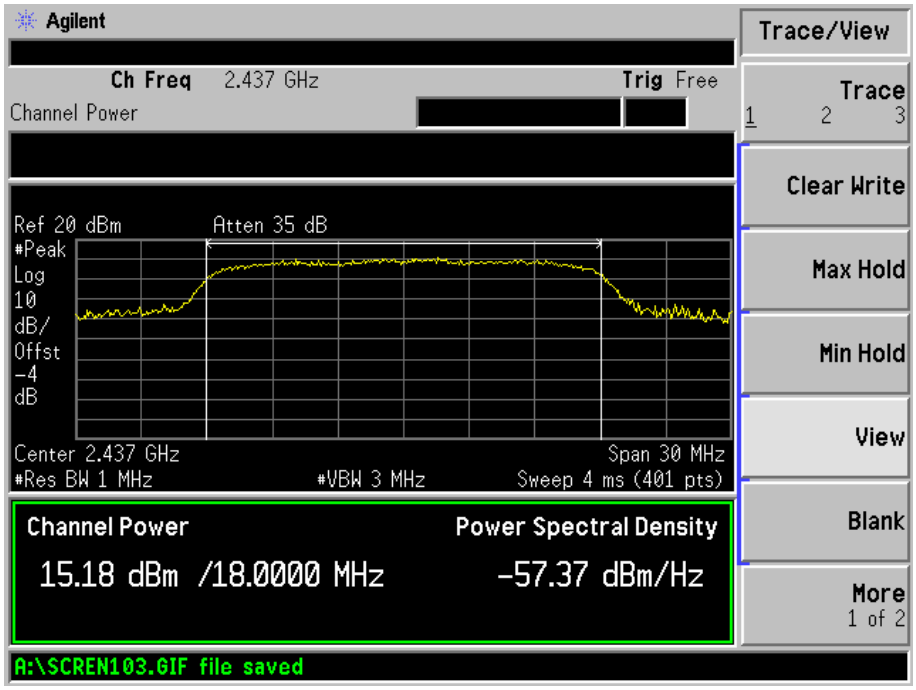
802.11n-HT20-MCS0-High Channel



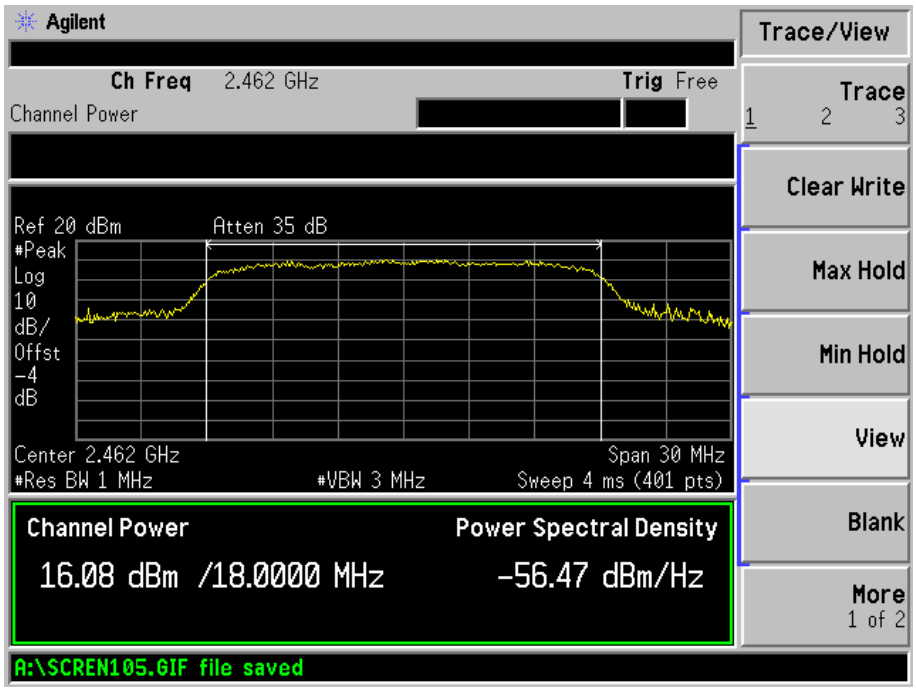
802.11n-HT20-MCS15-Low Channel



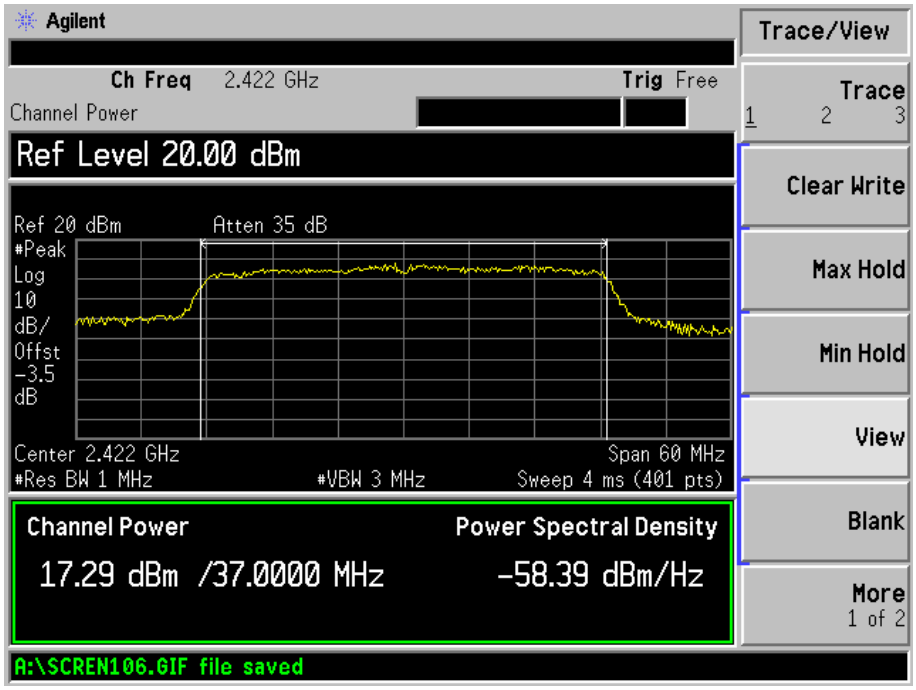
802.11n-HT20-MCS15-Middle Channel



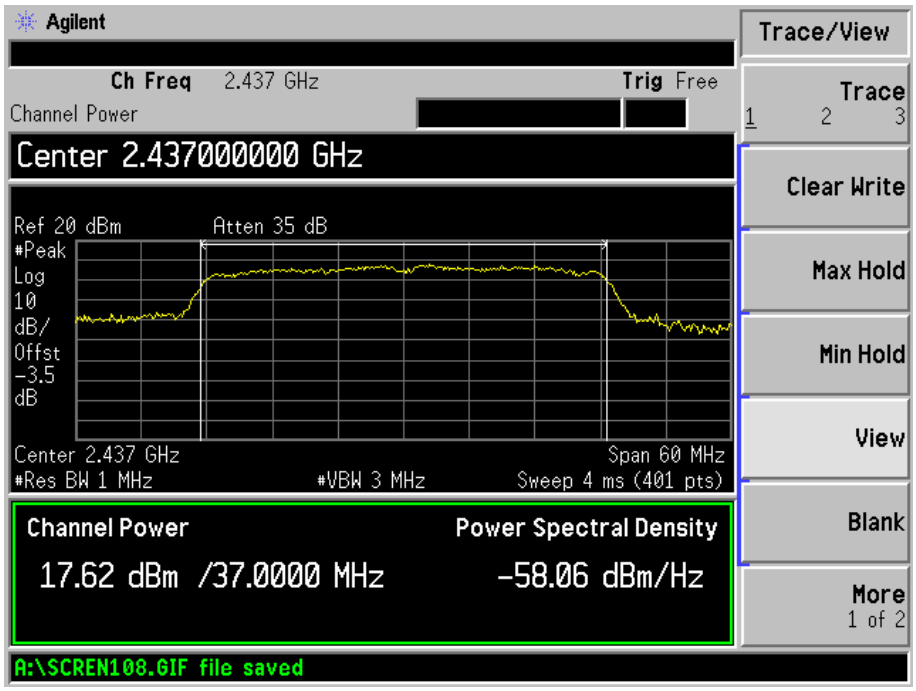
802.11n-HT20-MCS15-High Channel



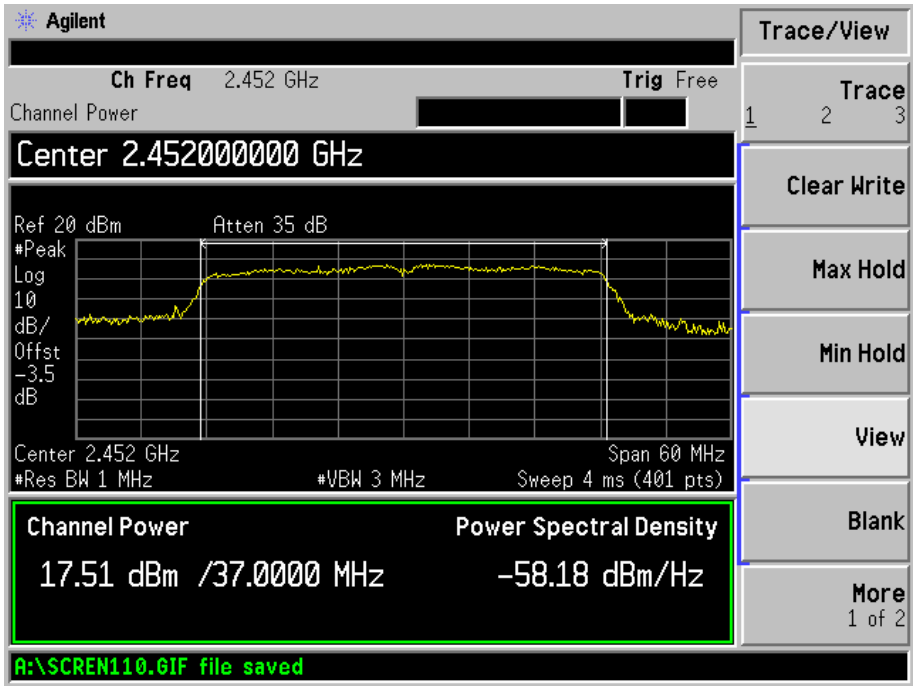
802.11n-HT40-MCS0-Low Channel



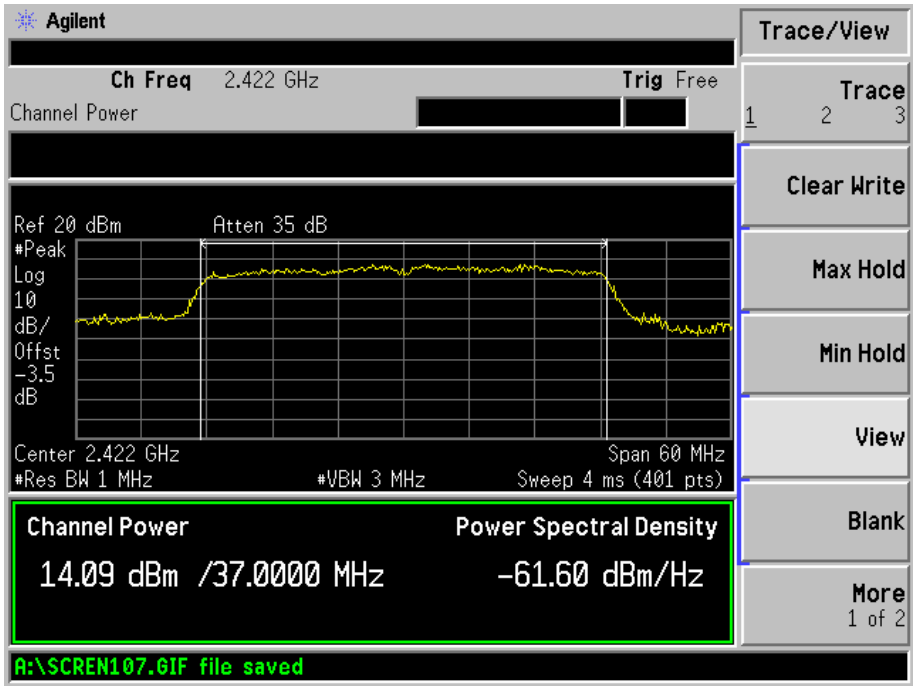
802.11n-HT40-MCS0-Middle Channel



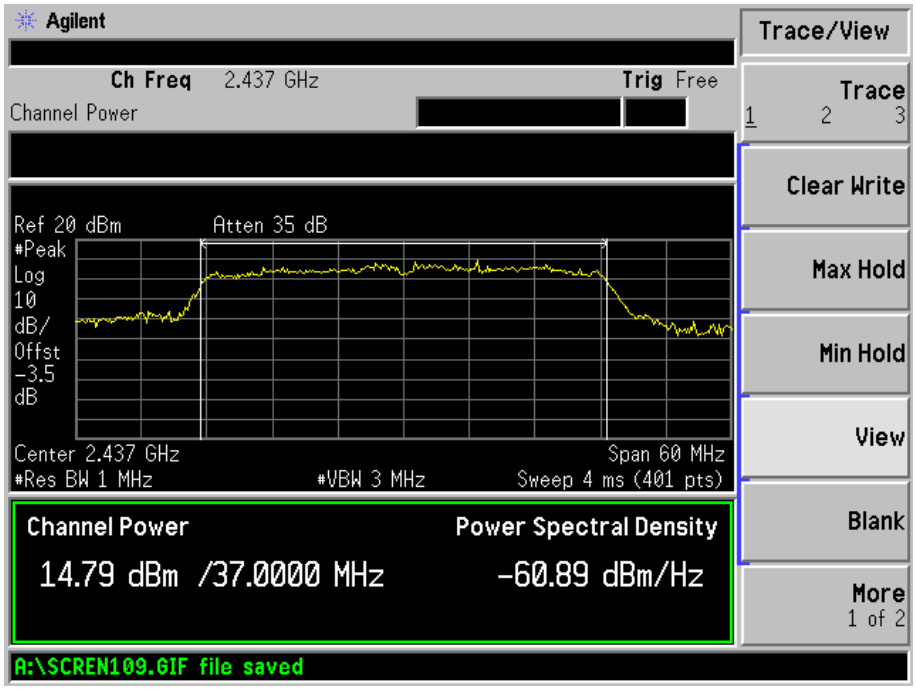
802.11n-HT40-MCS0-High Channel



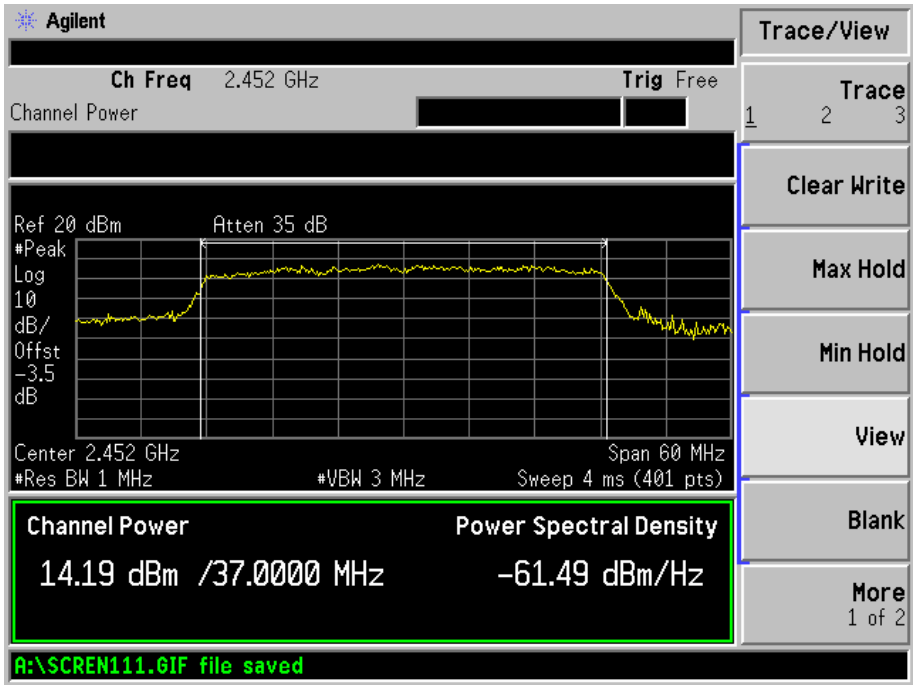
802.11n-HT40-MCS15-Low Channel



802.11n-HT40-MCS15-Middle Channel

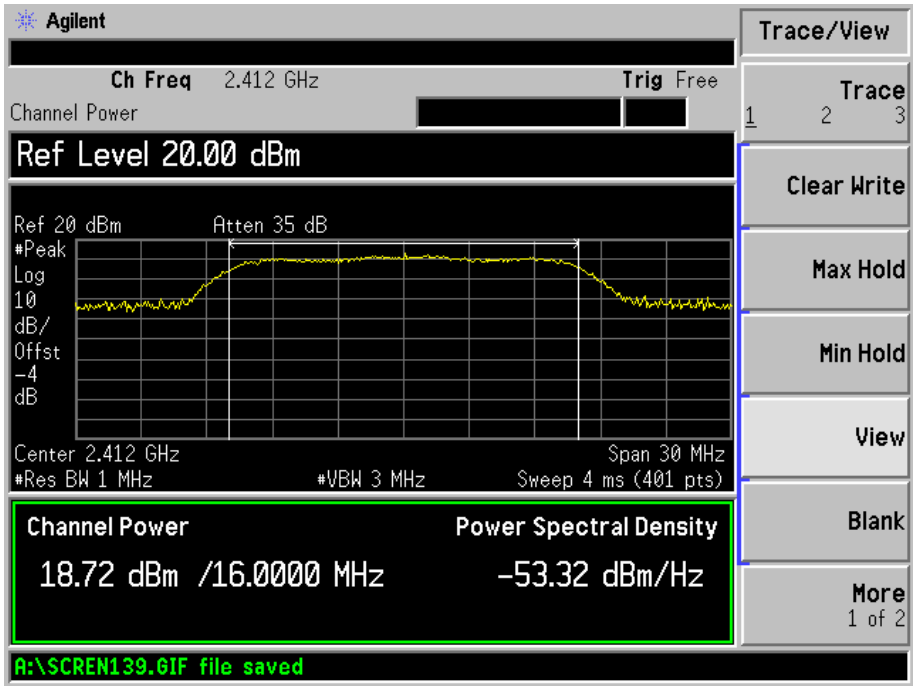


802.11n-HT40-MCS15-High Channel

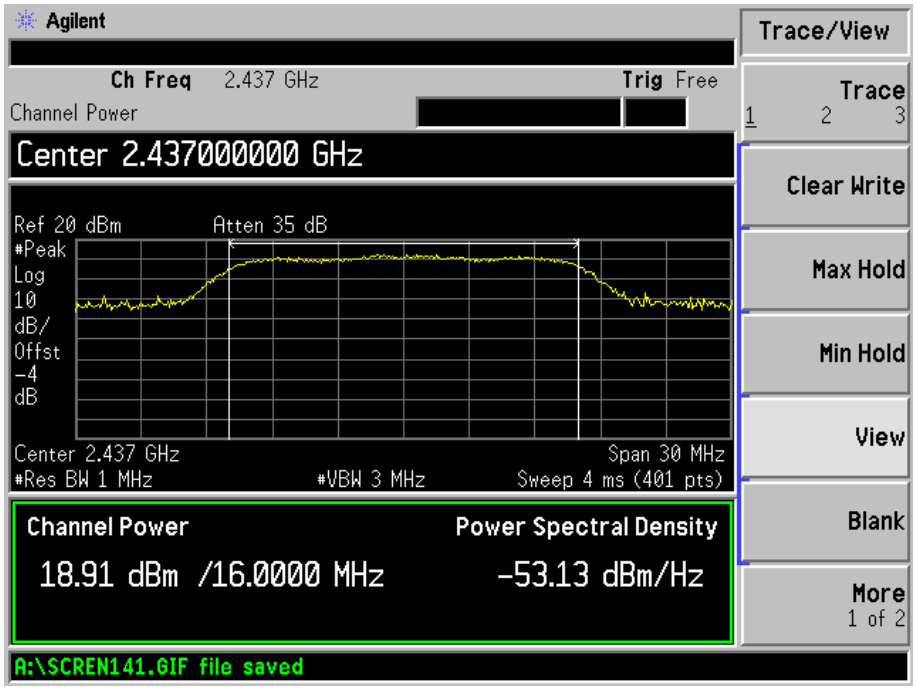


For chain 1

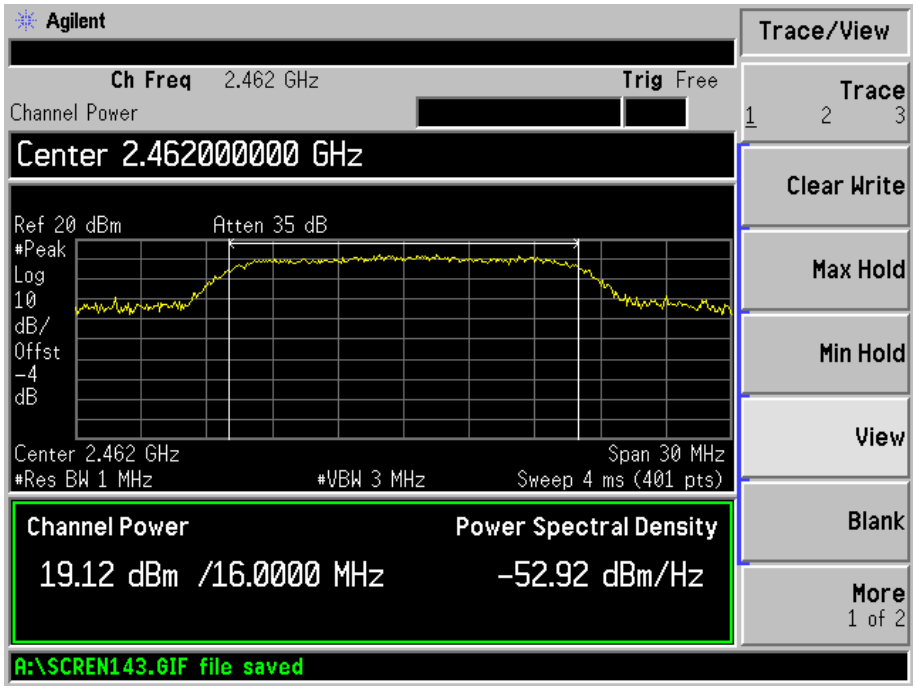
802.11g-6Mbps-Low Channel



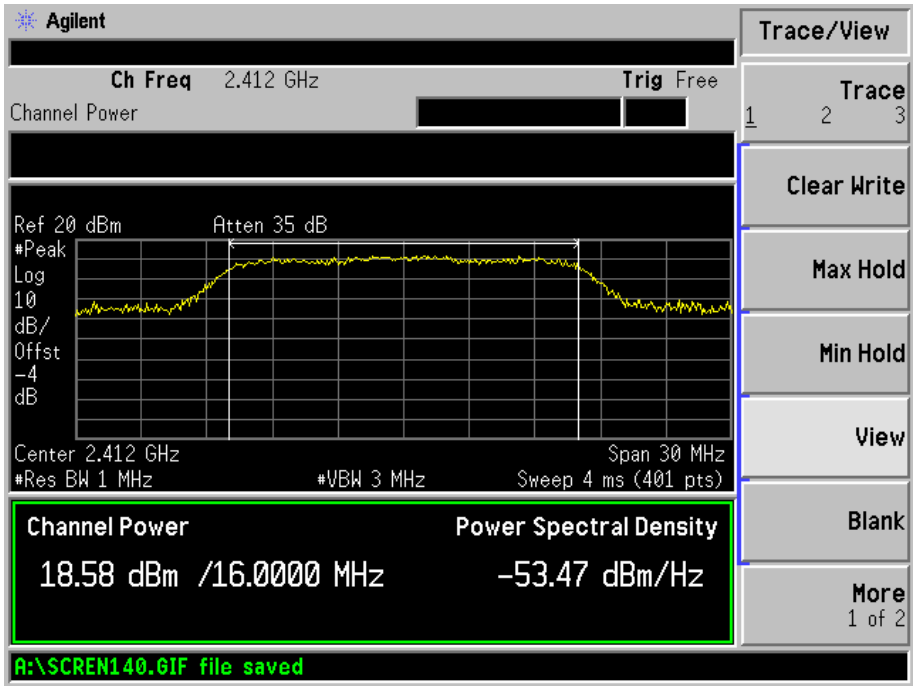
802.11g-6Mbps-Middle Channel



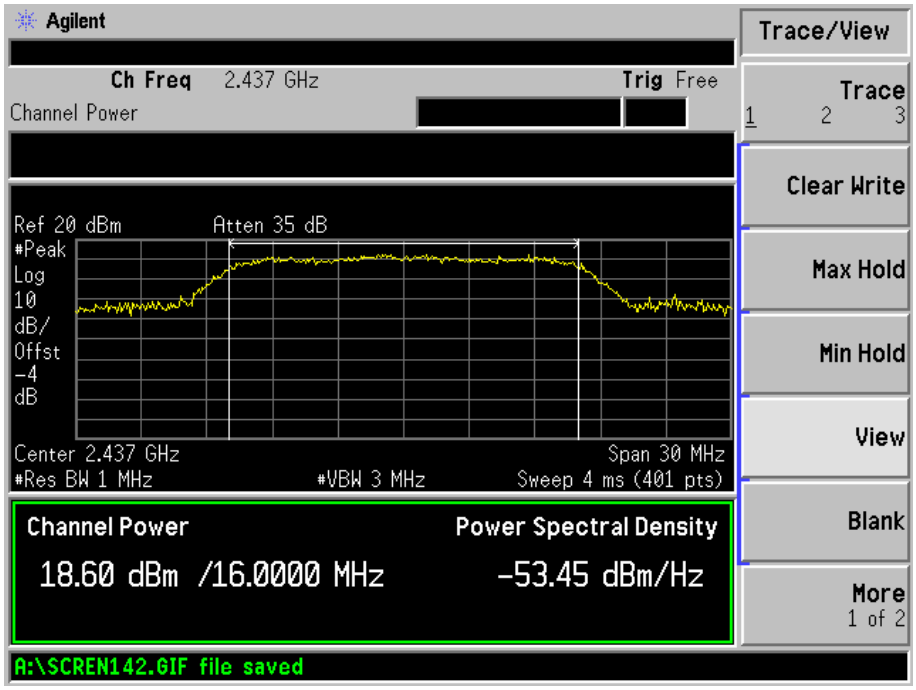
802.11g-6Mpbs-High Channel



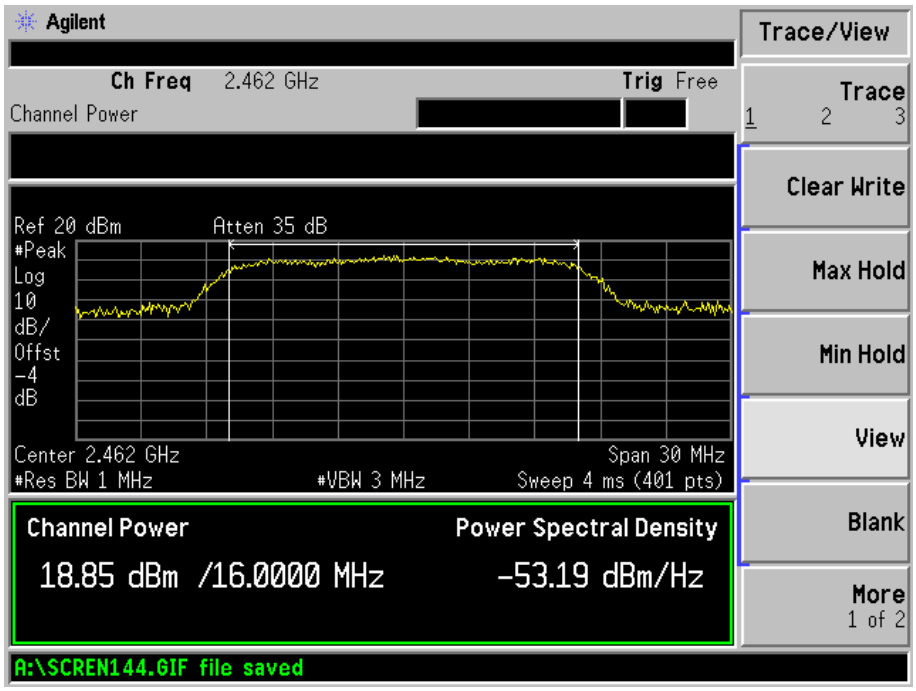
802.11g-54Mbps-Low Channel



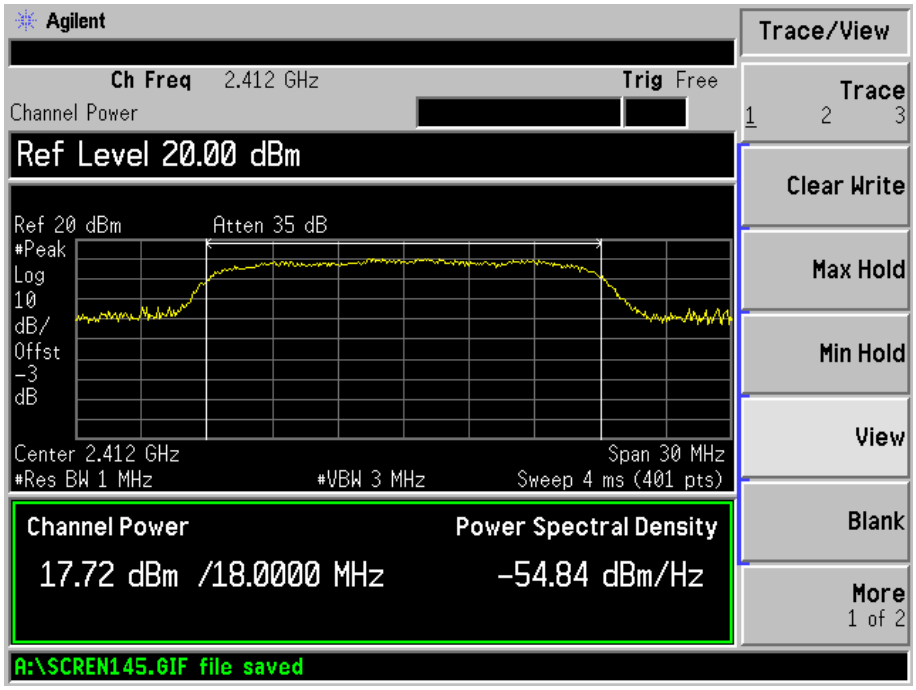
802.11g-54Mbps-Middle Channel



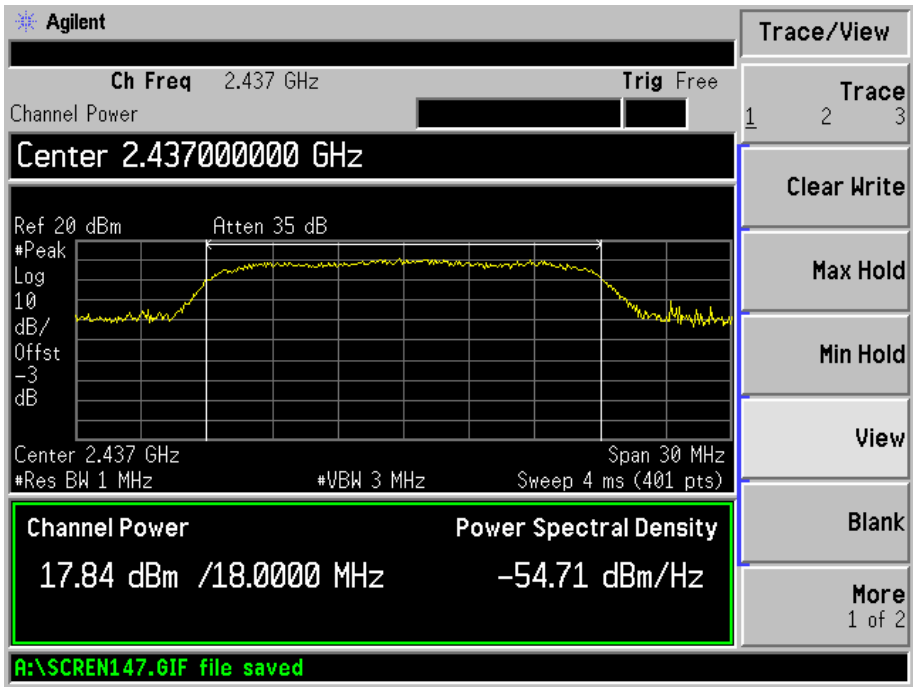
802.11g-54Mpbs-High Channel



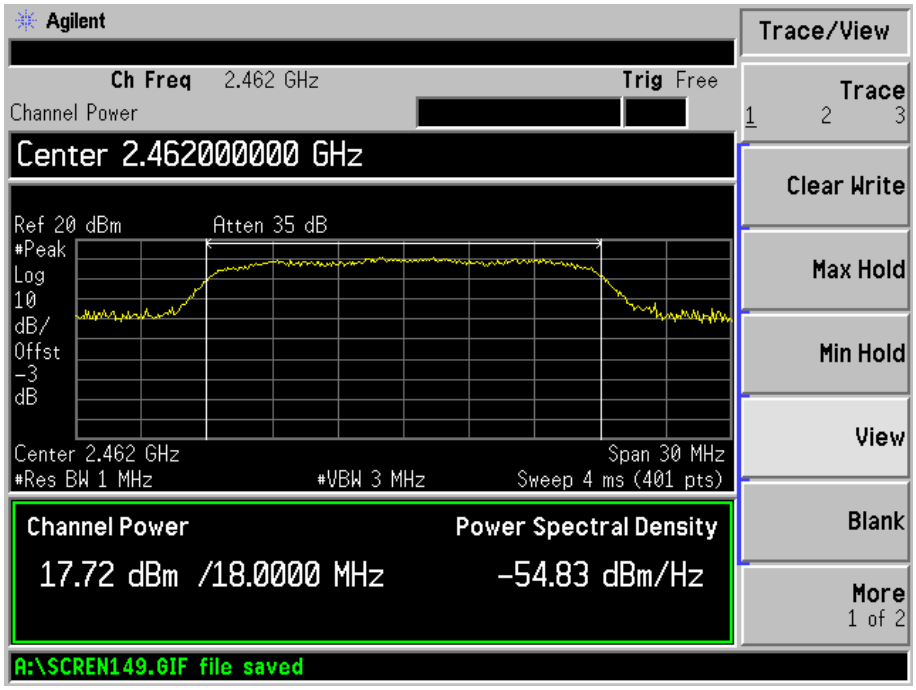
802.11n-HT20-MCS0-Low Channel



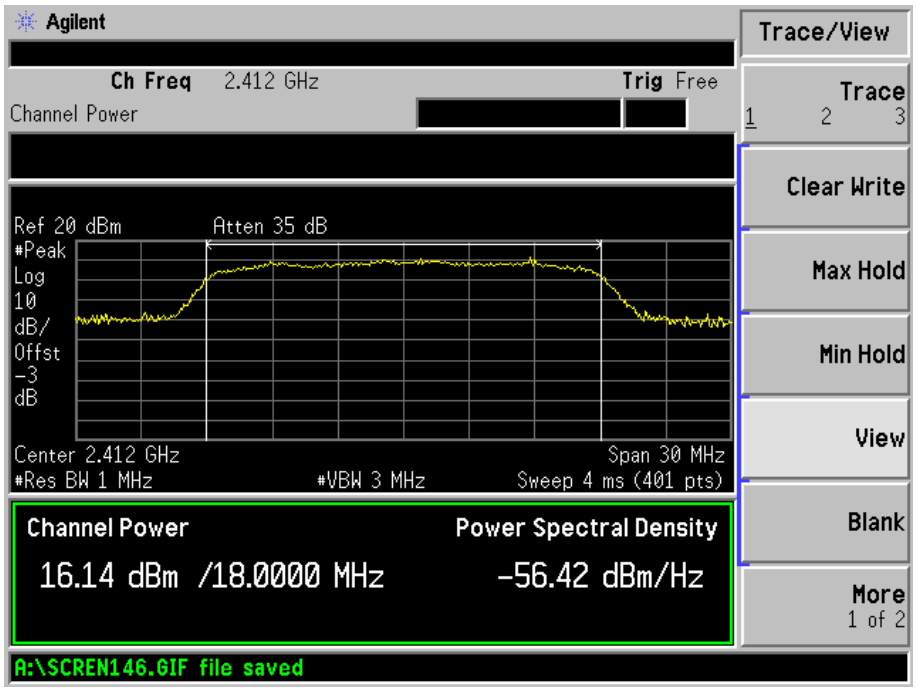
802.11n-HT20-MCS0-Middle Channel



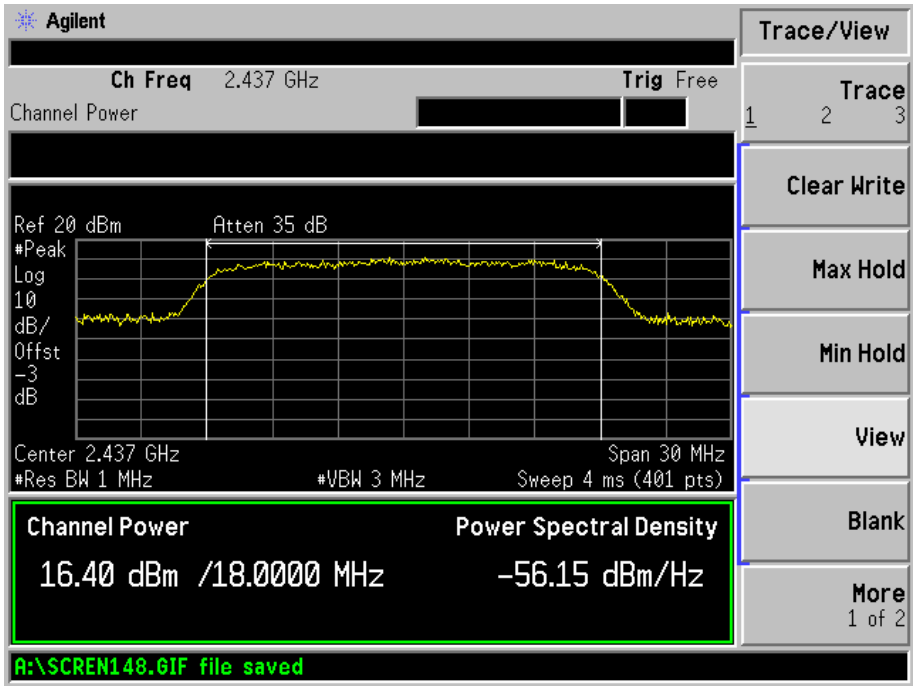
802.11n-HT20-MCS0-High Channel



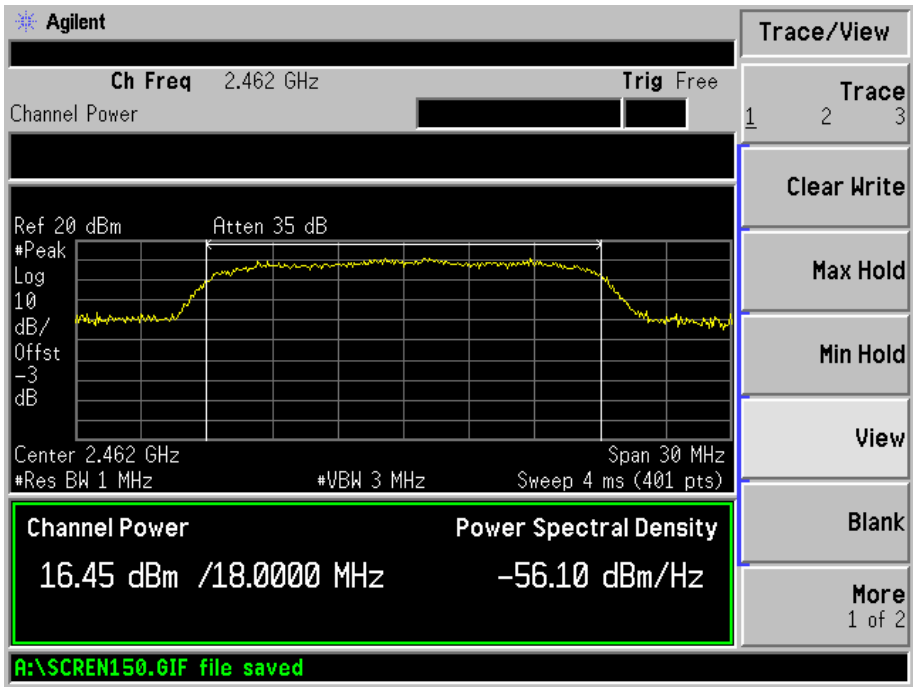
802.11n-HT20-MCS15-Low Channel



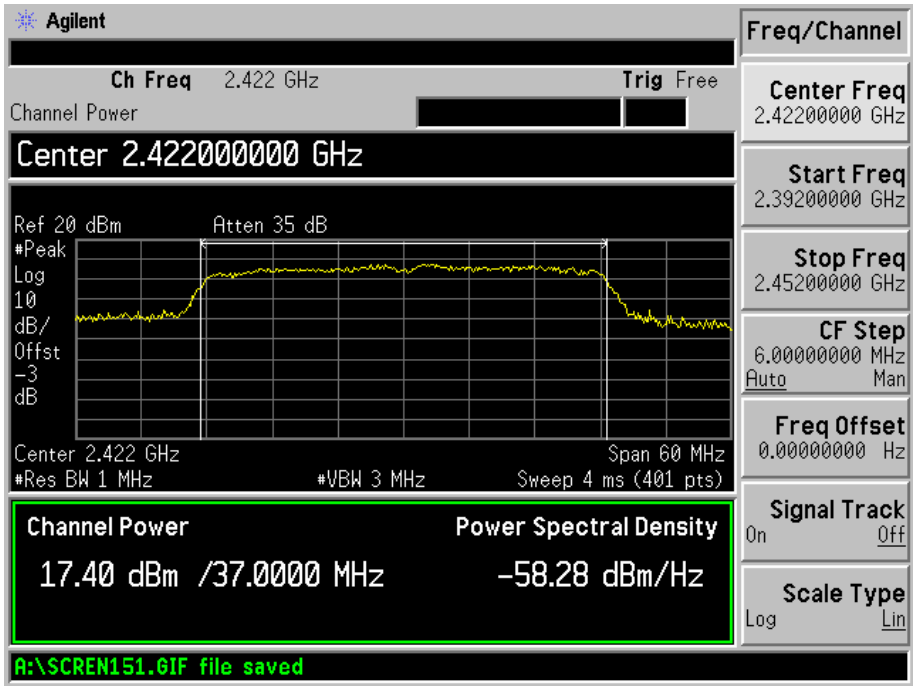
802.11n-HT20-MCS15-Middle Channel



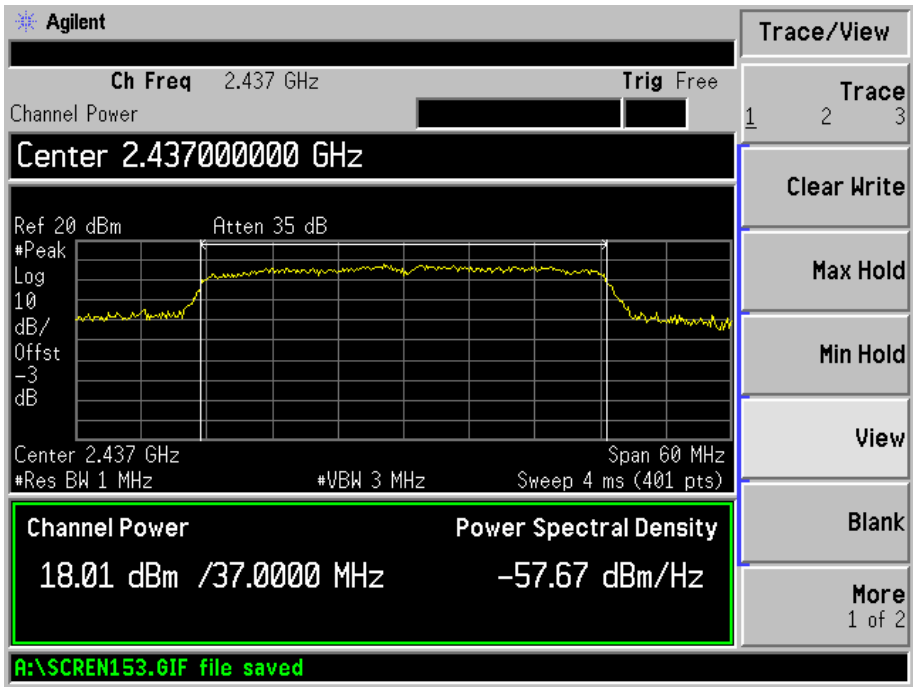
802.11n-HT20-MCS15-High Channel



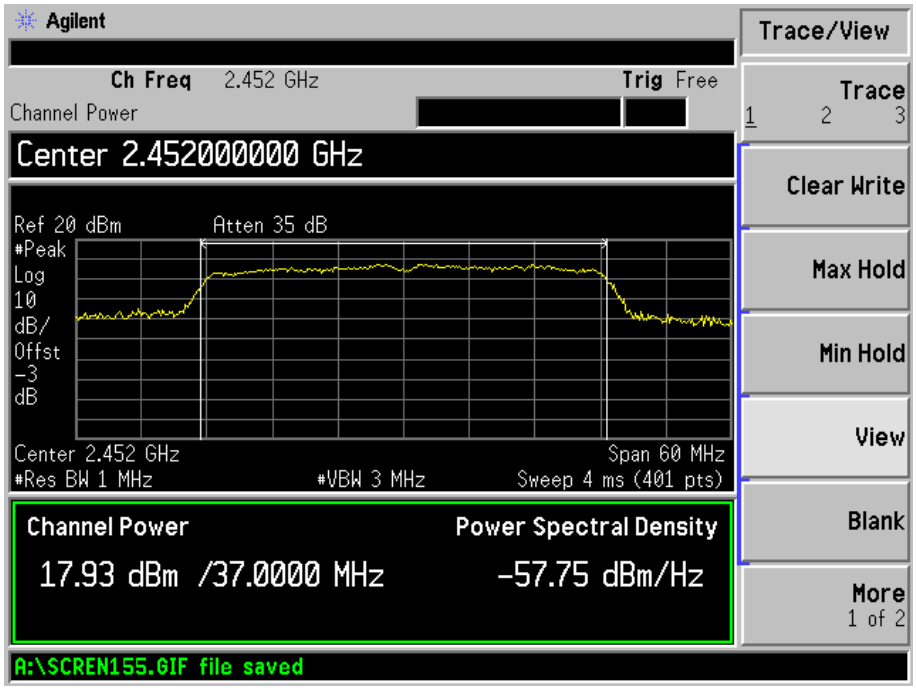
802.11n-HT40-MCS0-Low Channel



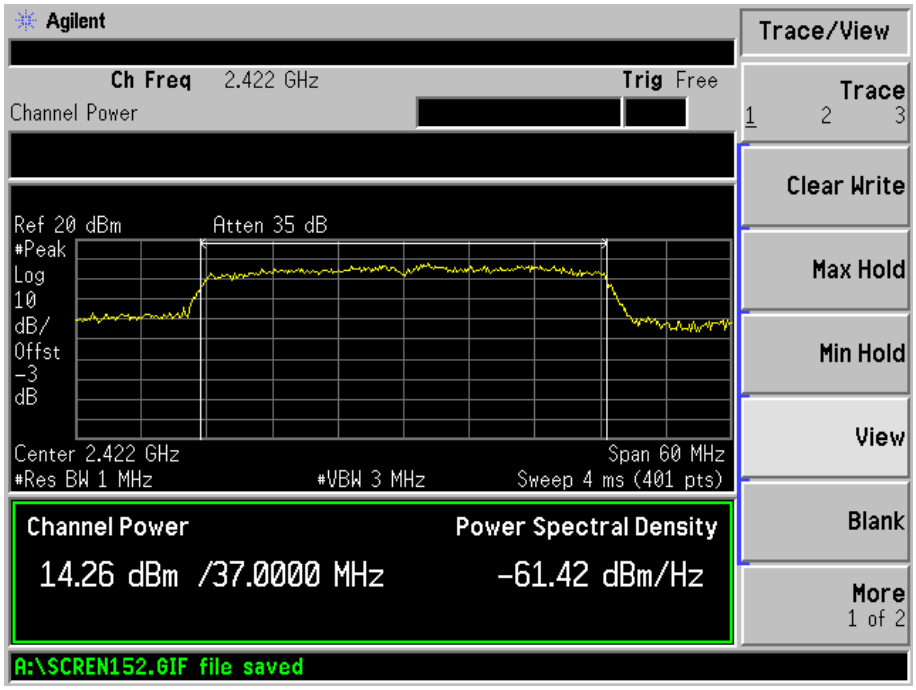
802.11n-HT40-MCS0-Middle Channel



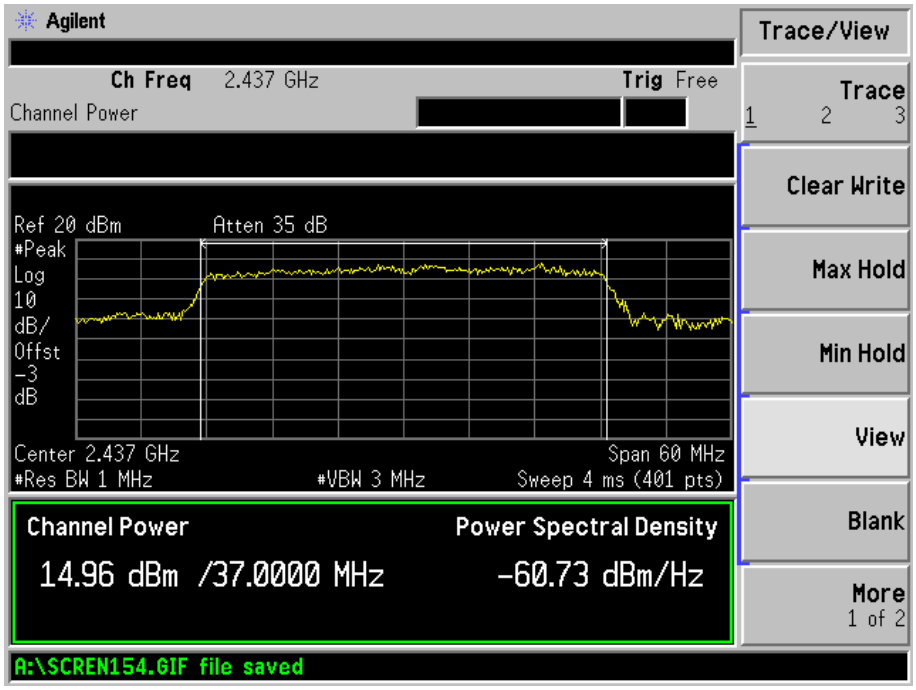
802.11n-HT40-MCS0-High Channel



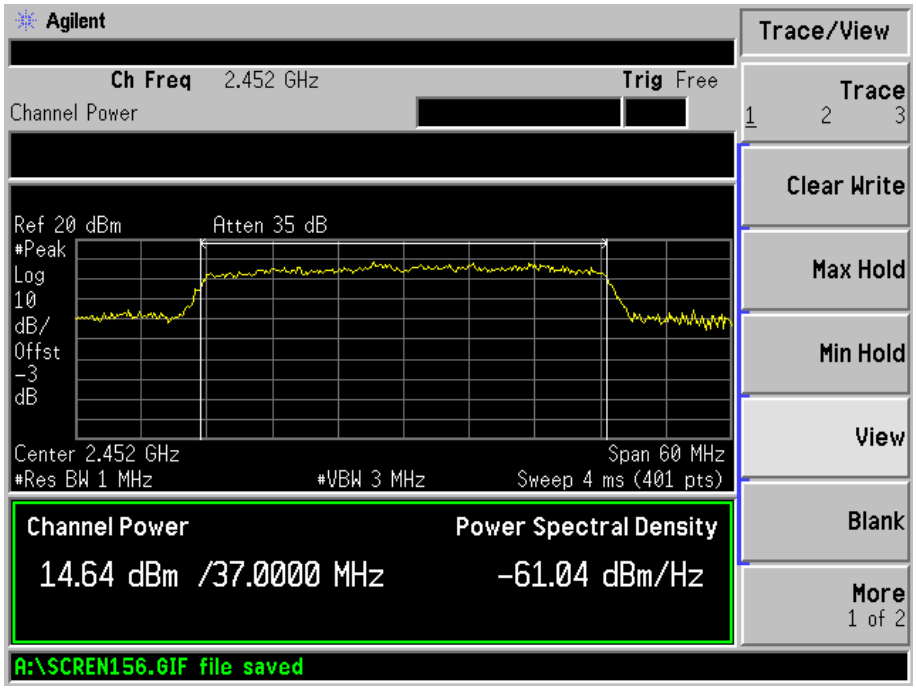
802.11n-HT40-MCS15-Low Channel



802.11n-HT40-MCS15-Middle Channel



802.11n-HT40-MCS15-High Channel



7. Field Strength of Spurious Emissions

7.1 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.

7.2 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. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a).

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. Spurious Radiated Emissions measurements starting below or at the lowest crystal frequency.

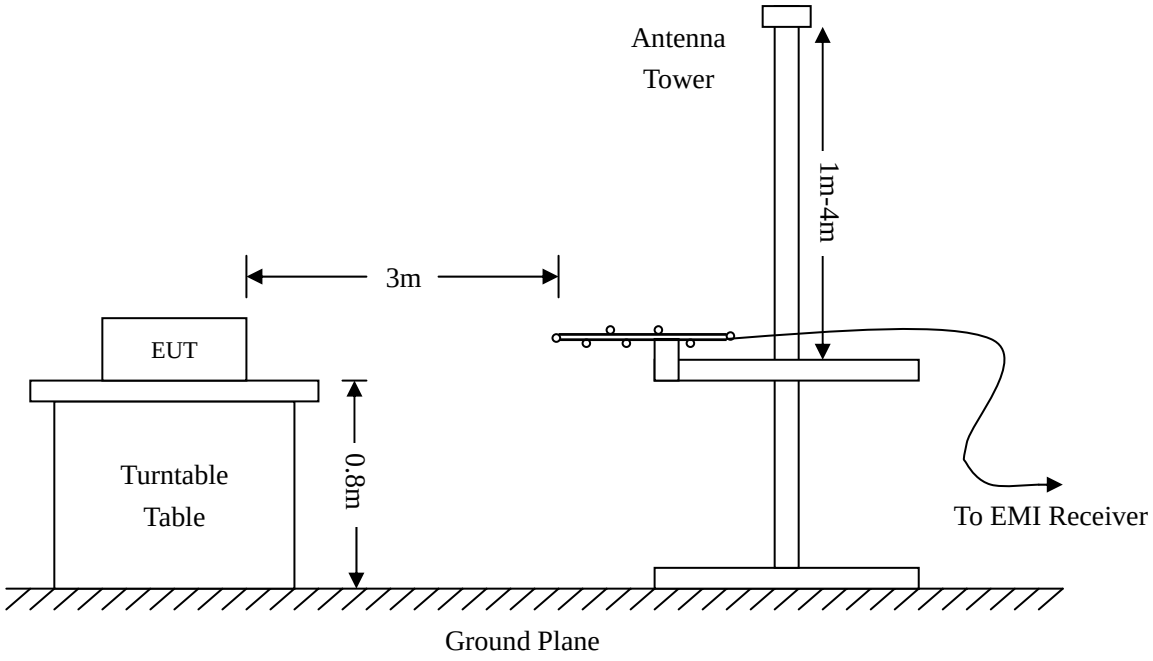
7.3 Test Equipment List and Details

Description	Manufacturer	Model	Serial Number	Cal. Date	Due. Date
Spectrum Analyzer	R&S	FSP	836079/035	2013-03-28	2014-03-27
EMI Test Receiver	R&S	ESVB	825471/005	2013-03-28	2014-03-27
Pre-amplifier	Agilent	8447F	3113A06717	2013-03-28	2014-03-27
Pre-amplifier	Compliance Direction	PAP-0118	24002	2013-03-28	2014-03-27
Trilog Broadband Antenna	SCHWARZBECK	VULB9163	9163-333	2013-02-25	2014-02-24
Horn Antenna	ETS	3117	00086197	2013-02-25	2014-02-24
Horn Antenna	ETS	3116B	00088203	2013-02-25	2014-02-24
Loop Antenna	SCHWARZECK	HFRA 5165	9365	2013-02-25	2014-02-24

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

7.4 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.



7.5 Corrected Amplitude & Margin Calculation

The Corrected Amplitude is calculated by 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

7.6 Environmental Conditions

Temperature:	25 °C
Relative Humidity:	52%
ATM Pressure:	1012 mbar

7.7 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:

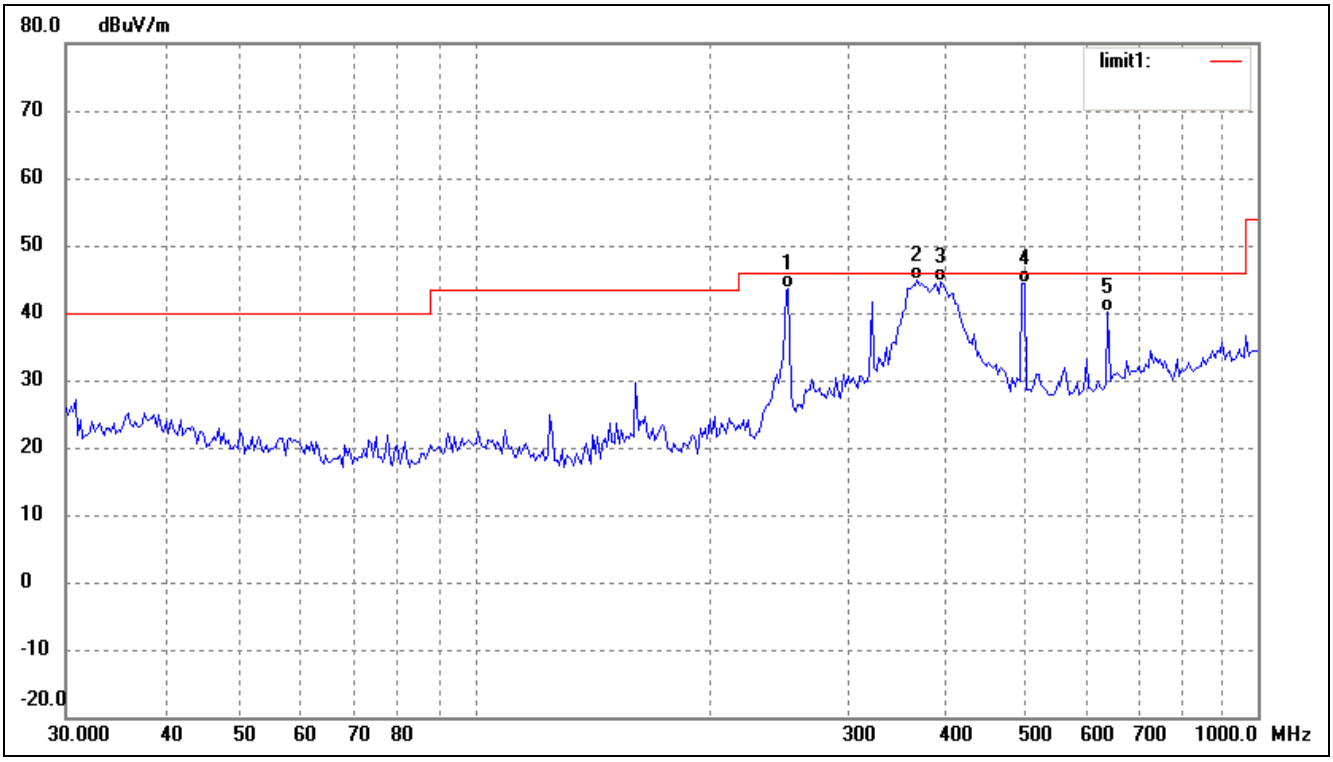
-0.69 dB at **364.2595 MHz** in the **Horizontal** polarization for **802.11b-Middle Channel**, **9kHz** to **25 GHz**, **3 Meters**

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

Plot of Radiated Emissions Test Data (30MHz to 1GHz)

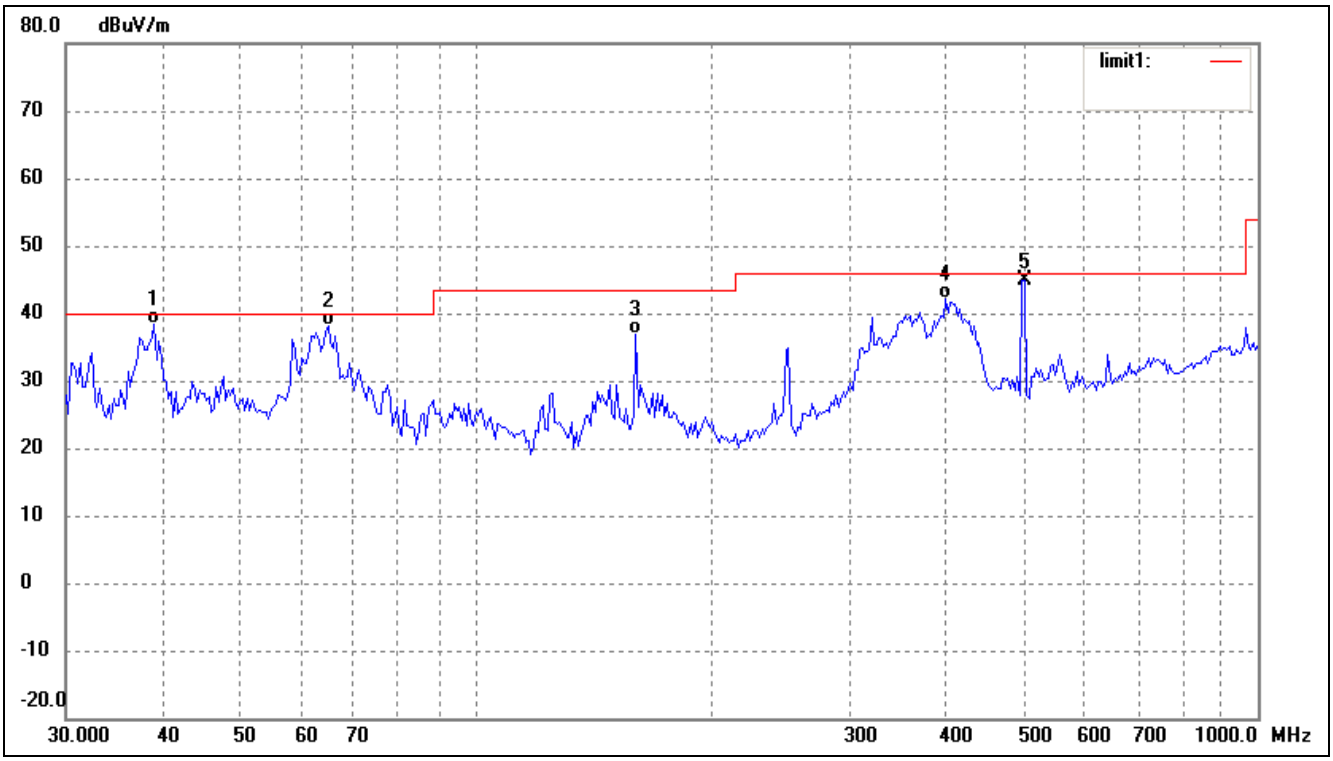
EUT: *ADSL2+Router WiFi 11n 2x2*
Tested Model: *P.DG A4001N A-000-1A1-AE*
Operating Condition: *802.11b Transmitting Low Channel-2412MHz*
Comment: *AC 120V/60Hz; adapter DC 12V*

Test Specification: *Horizontal*



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	Factor(dB)	(dBuV/m)	(dBuV/m)	(dB)	(•)	(cm)	
1	251.1804	36.21	7.34	43.55	46.00	-2.45	215	100	QP
2	366.8231	34.15	10.67	44.82	46.00	-1.18	360	100	QP
3	393.4723	33.40	11.24	44.64	46.00	-1.36	2	100	QP
4	502.9395	32.07	12.30	44.37	46.00	-1.63	15	100	QP
5	642.8613	25.03	15.14	40.17	46.00	-5.83	65	100	QP

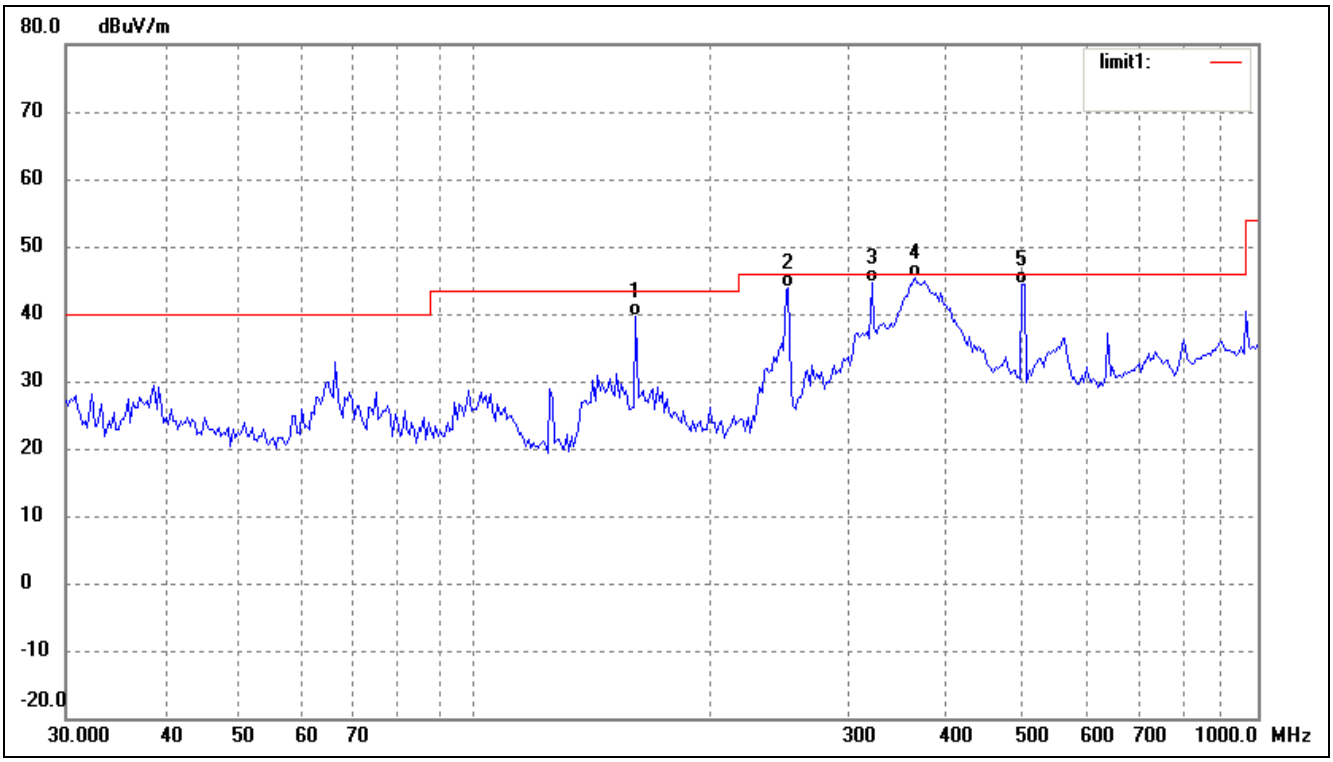
Test Specification: *Vertical*



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	Factor(dB)	(dBuV/m)	(dBuV/m)	(dB)	(•)	(cm)	
1	38.8879	28.86	9.50	38.36	40.00	-1.64	360	100	QP
2	64.8865	34.09	4.15	38.24	40.00	-1.76	24	100	QP
3	160.3457	33.15	3.65	36.80	43.50	-6.70	64	100	QP
4	399.0302	30.59	11.50	42.09	46.00	-3.91	35	100	QP
5	502.9395	32.53	12.30	44.83	46.00	-1.17	214	100	peak

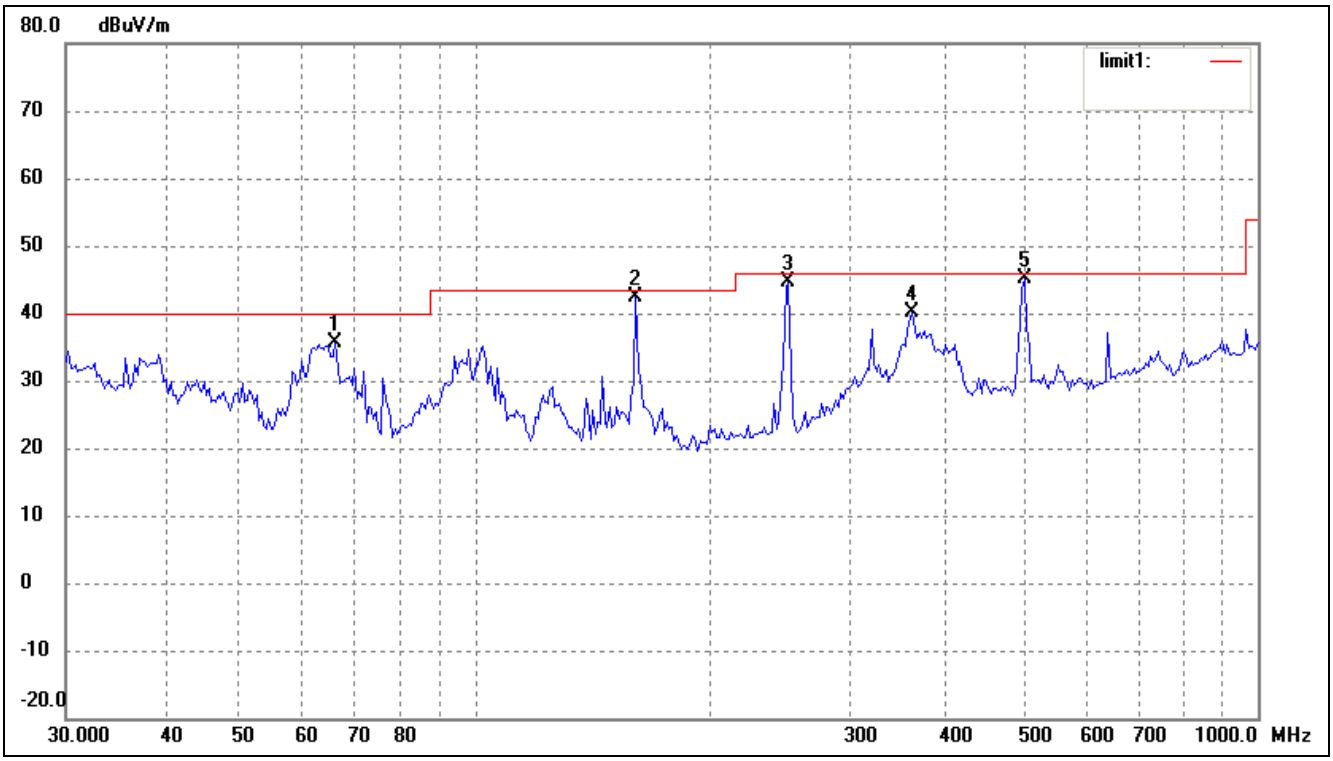
Operating Condition: *802.11b Transmitting Middle Channel-2437MHz*
Comment: *AC 120V/60Hz, adapter DC 12V*

Test Specification: *Horizontal*



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	Factor(dB)	(dBuV/m)	(dBuV/m)	(dB)	(•)	(cm)	
1	160.3457	35.91	3.65	39.56	43.50	-3.94	266	100	QP
2	251.1804	36.64	7.34	43.98	46.00	-2.02	31	100	QP
3	321.0608	34.14	10.46	44.60	46.00	-1.40	45	100	QP
4	364.2595	34.63	10.68	45.31	46.00	-0.69	360	100	QP
5	499.4247	32.29	12.18	44.47	46.00	-1.53	45	100	QP

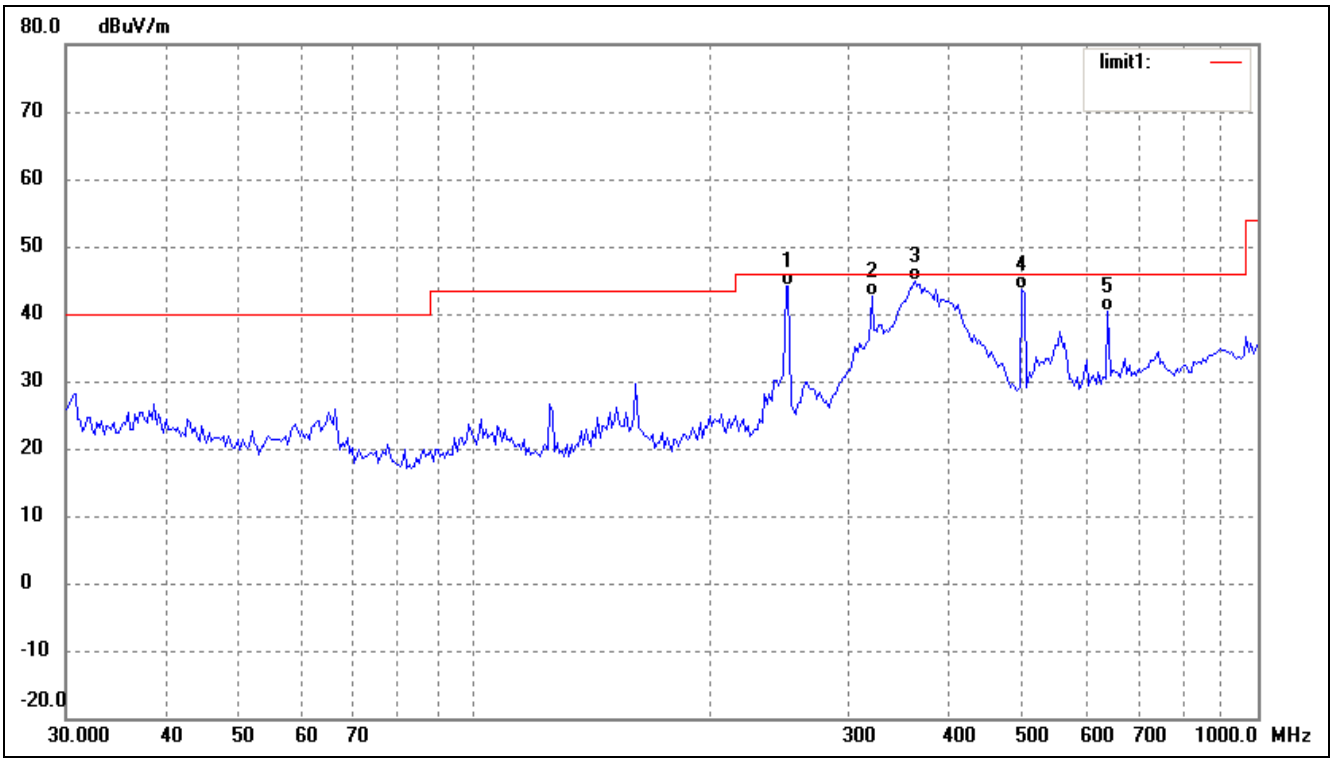
Test Specification: *Vertical*



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	Factor(dB)	(dBuV/m)	(dBuV/m)	(dB)	(•)	(cm)	
1	66.2662	31.97	3.71	35.68	40.00	-4.32	36	100	peak
2	160.3457	38.75	3.65	42.40	43.50	-1.10	24	100	peak
3	251.1804	37.24	7.34	44.58	46.00	-1.42	322	100	peak
4	361.7139	29.35	10.69	40.04	46.00	-5.96	25	100	peak
5	502.9395	32.88	12.30	45.18	46.00	-0.82	162	100	peak

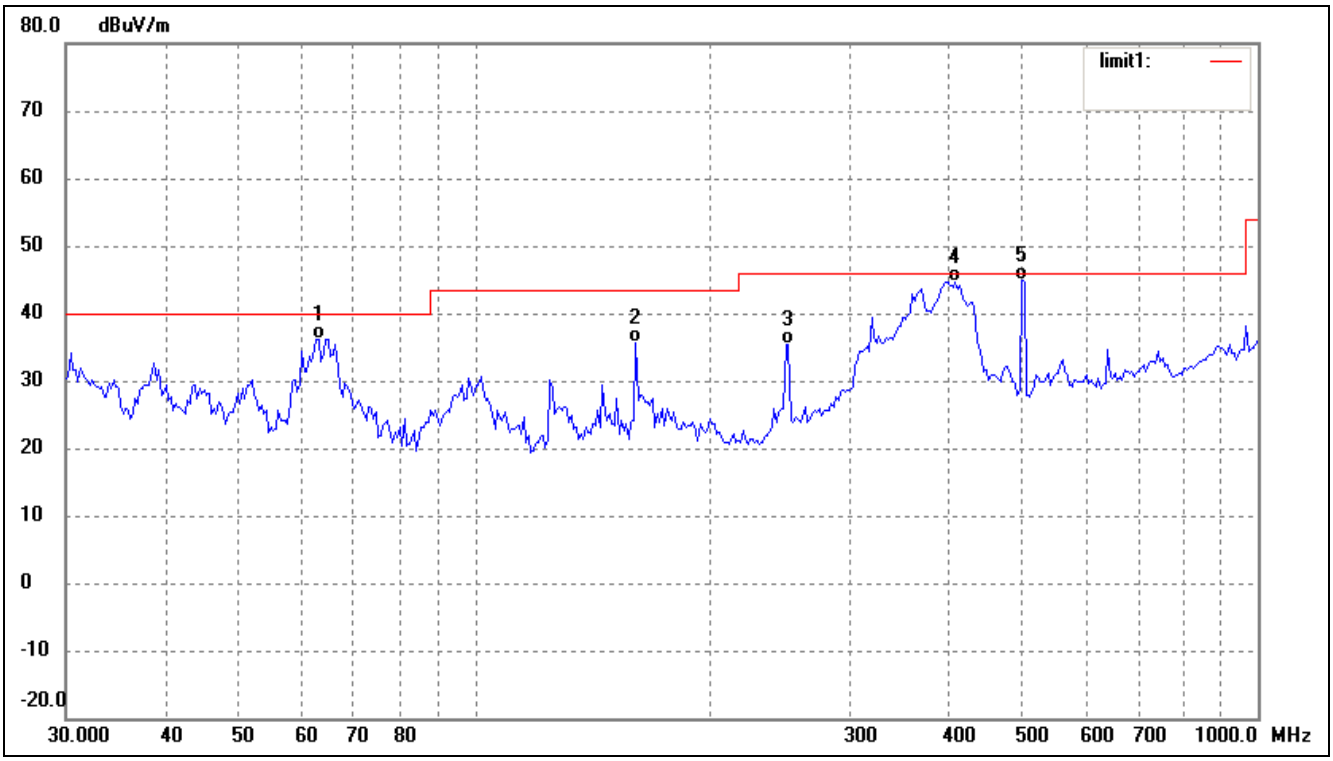
Operating Condition: *802.11b Transmitting Highest Channel-2462MHz*
Comment: *AC 120V/60Hz; adapter DC 12V*

Test Specification: *Horizontal*



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	Factor(dB)	(dBuV/m)	(dBuV/m)	(dB)	(•)	(cm)	
1	251.1804	36.75	7.34	44.09	46.00	-1.91	360	100	QP
2	321.0608	32.06	10.46	42.52	46.00	-3.48	255	100	QP
3	364.2595	34.13	10.68	44.81	46.00	-1.19	64	100	QP
4	499.4247	31.57	12.18	43.75	46.00	-2.25	125	100	QP
5	642.8613	25.35	15.14	40.49	46.00	-5.51	22	100	QP

Test Specification: *Vertical*

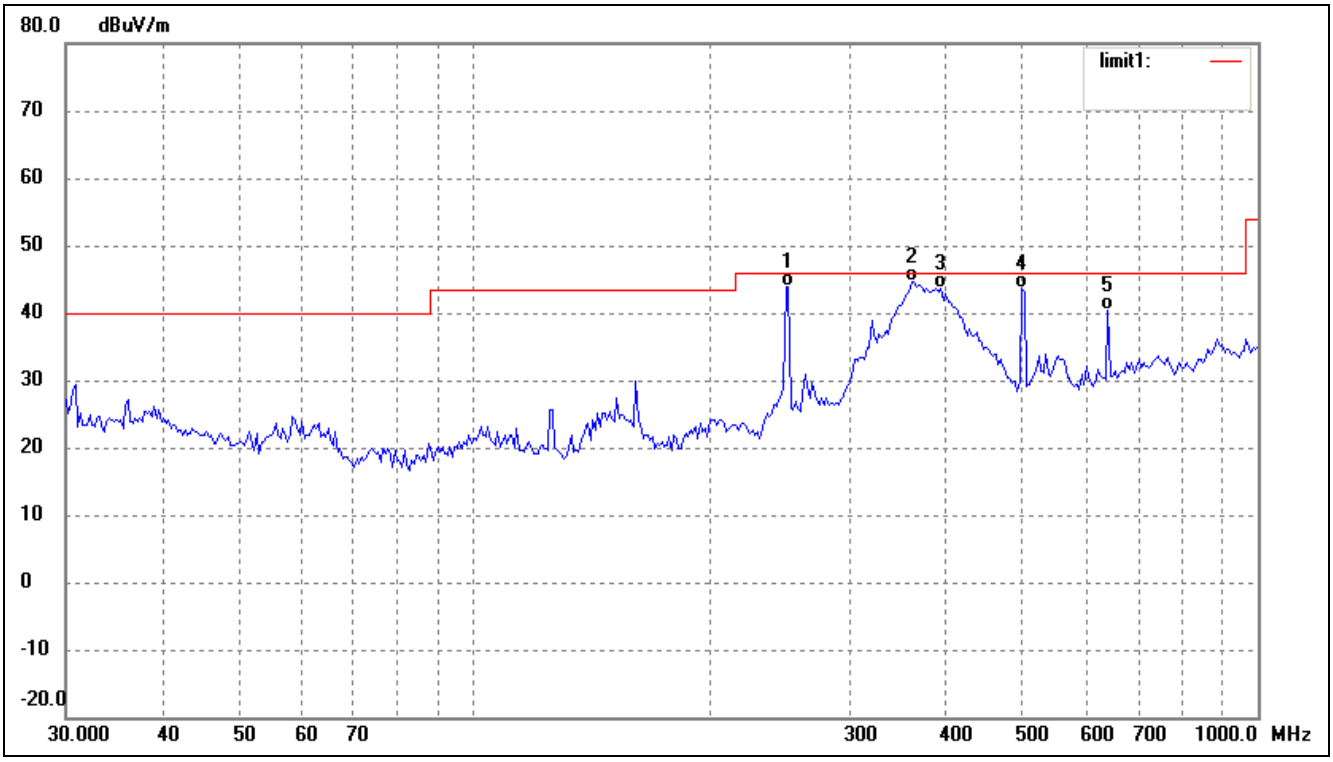


No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	Factor(dB)	(dBuV/m)	(dBuV/m)	(dB)	(•)	(cm)	
1	63.0916	31.54	4.71	36.25	40.00	-3.75	215	100	QP
2	160.3457	32.00	3.65	35.65	43.50	-7.85	270	100	QP
3	251.1804	28.13	7.34	35.47	46.00	-10.53	3	100	QP
4	410.3825	33.63	11.11	44.74	46.00	-1.26	91	100	QP
5	499.4247	32.80	12.18	44.98	46.00	-1.02	24	100	QP

Plot of Radiated Emissions Test Data (30MHz to 1GHz)

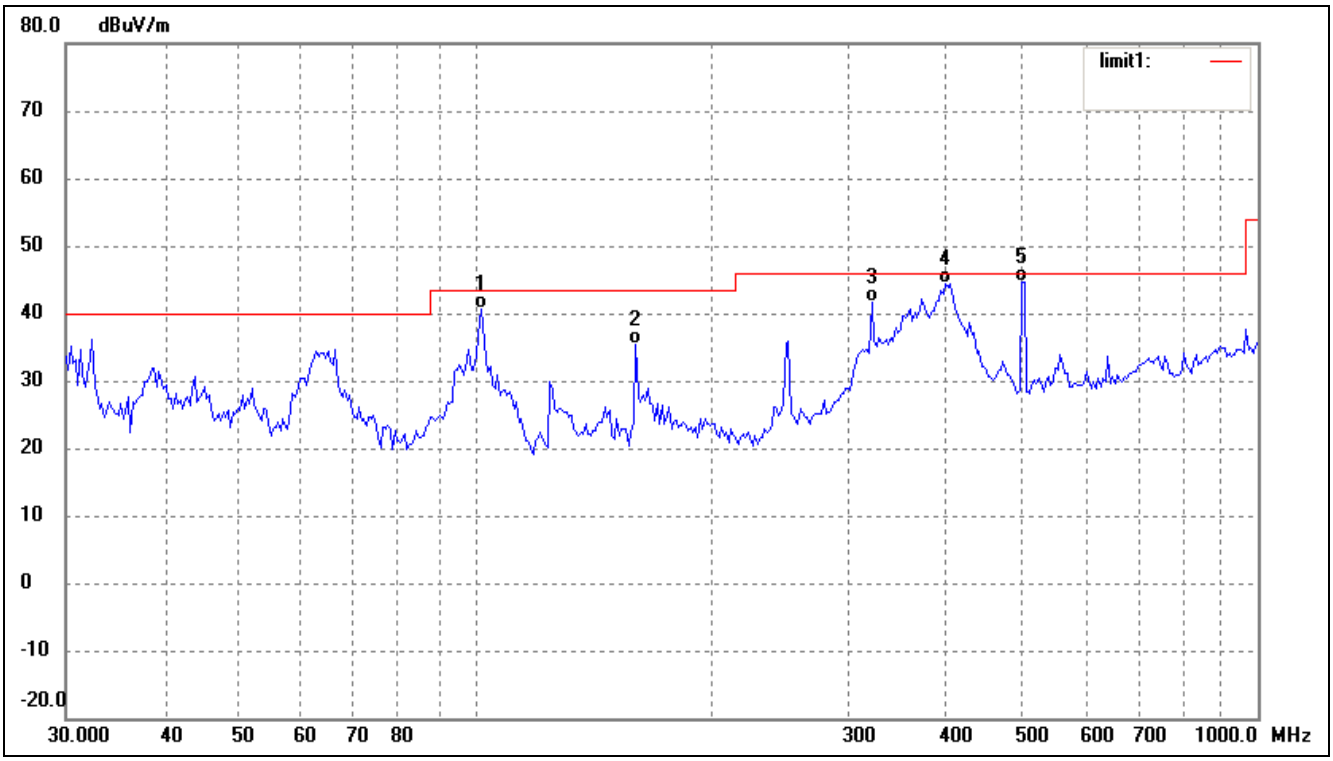
EUT: *ADSL2+Router WiFi 11n 2x2*
Tested Model: *P.DG A4001N A-000-1A1-AE*
Operating Condition: *802.11g Transmitting Low Channel-2412MHz*
Comment: *AC 120V/60Hz; adapter DC 12V*

Test Specification: *Horizontal*



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	Factor(dB)	(dBuV/m)	(dBuV/m)	(dB)	(•)	(cm)	
1	251.1804	36.65	7.34	43.99	46.00	-2.01	256	100	QP
2	361.7139	33.89	10.69	44.58	46.00	-1.42	305	100	QP
3	393.4724	32.44	11.24	43.68	46.00	-2.32	14	100	QP
4	499.4247	31.50	12.18	43.68	46.00	-2.32	25	100	QP
5	642.8613	25.17	15.14	40.31	46.00	-5.69	312	100	QP

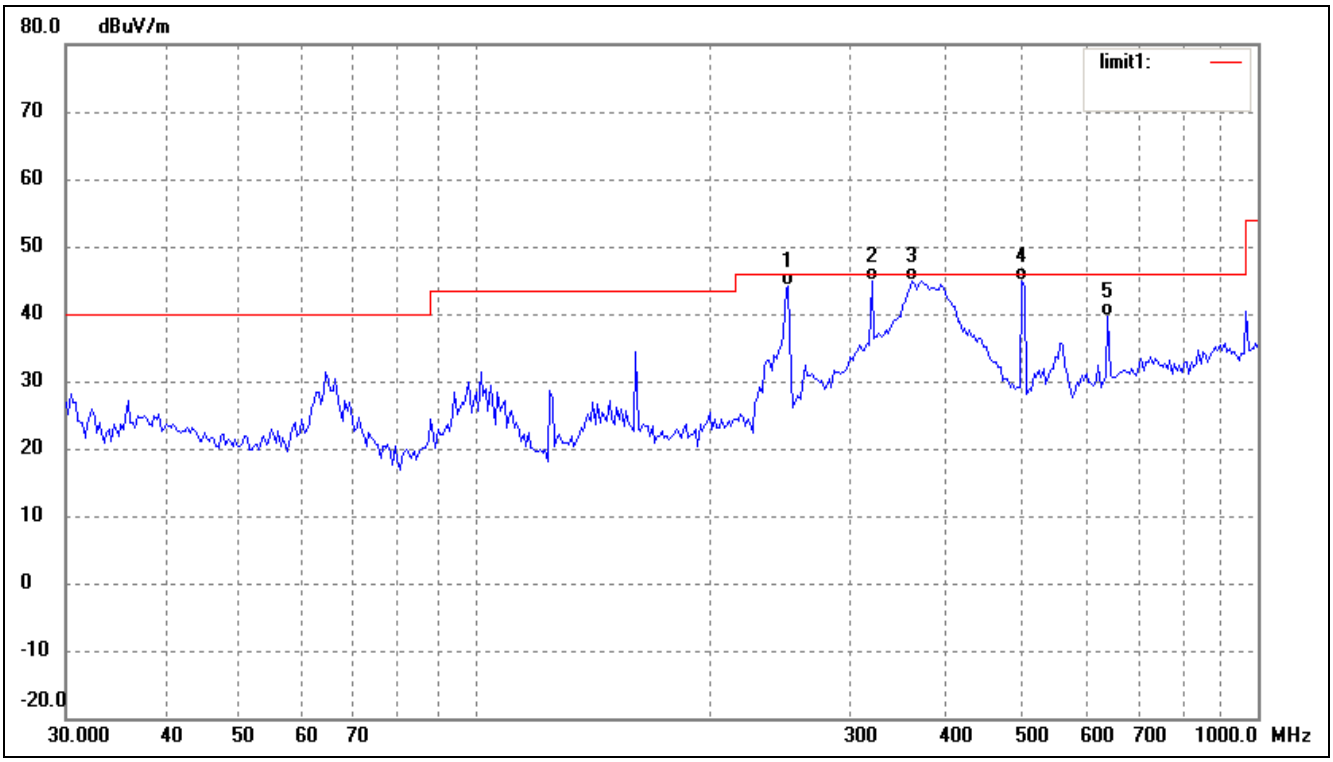
Test Specification: *Vertical*



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	Factor(dB)	(dBuV/m)	(dBuV/m)	(dB)	(•)	(cm)	
1	101.6443	33.97	6.67	40.64	43.50	-2.86	253	100	QP
2	160.3457	31.84	3.65	35.49	43.50	-8.01	36	100	QP
3	321.0608	31.16	10.46	41.62	46.00	-4.38	44	100	QP
4	399.0302	32.97	11.50	44.47	46.00	-1.53	51	100	QP
5	499.4247	32.42	12.18	44.60	46.00	-1.40	355	100	QP

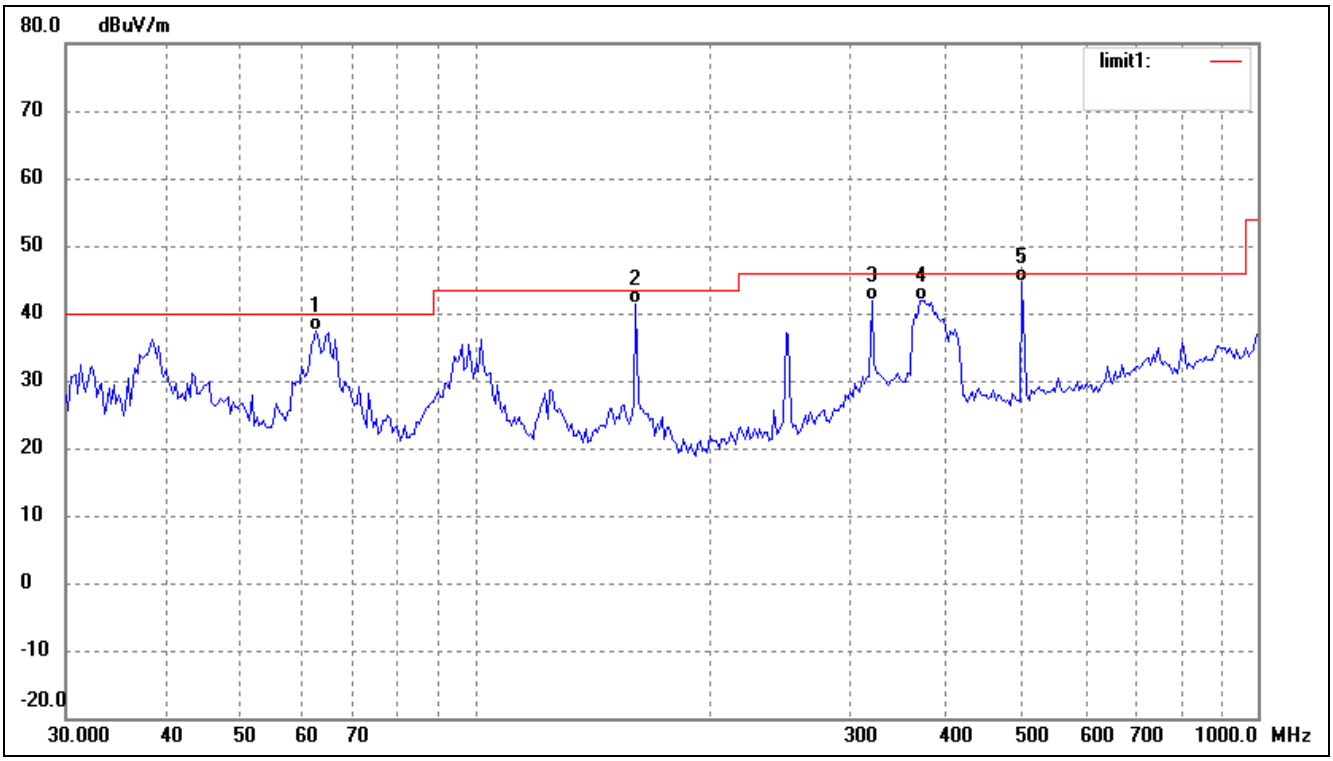
Operating Condition: *802.11g Transmitting Middle Channel-2437MHz*
Comment: *AC 120V/60Hz, adapter DC 12V*

Test Specification: *Horizontal*



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	Factor(dB)	(dBuV/m)	(dBuV/m)	(dB)	(•)	(cm)	
1	251.1804	36.88	7.34	44.22	46.00	-1.78	253	100	QP
2	321.0608	34.30	10.46	44.76	46.00	-1.24	48	100	QP
3	361.7139	34.29	10.69	44.98	46.00	-1.02	51	100	QP
4	499.4247	32.61	12.18	44.79	46.00	-1.21	262	100	QP
5	642.8613	24.49	15.14	39.63	46.00	-6.37	122	100	QP

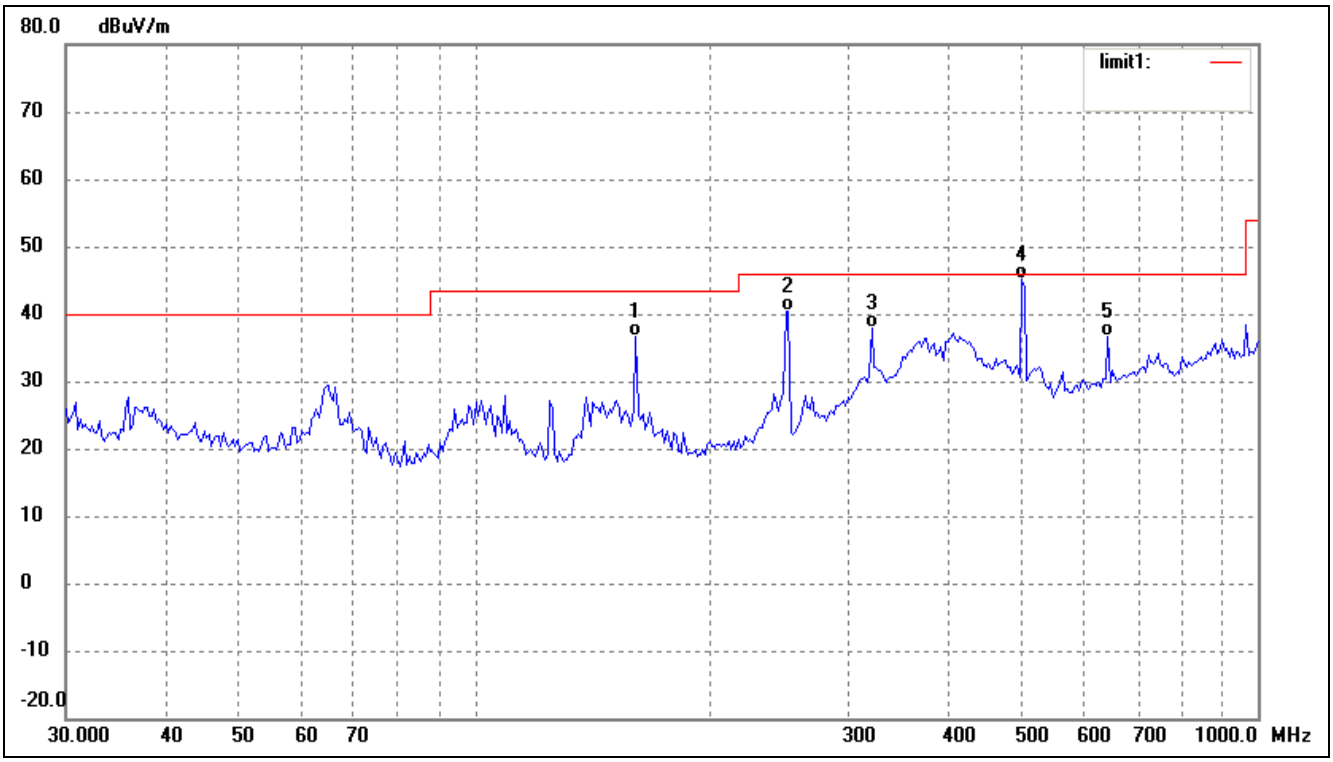
Test Specification: *Vertical*



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	Factor(dB)	(dBuV/m)	(dBuV/m)	(dB)	(•)	(cm)	
1	62.6507	32.59	4.85	37.44	40.00	-2.56	360	100	QP
2	160.3457	37.63	3.65	41.28	43.50	-2.22	25	100	QP
3	321.0608	31.31	10.46	41.77	46.00	-4.23	360	100	QP
4	372.0045	31.31	10.65	41.96	46.00	-4.04	360	100	QP
5	499.4247	32.34	12.18	44.52	46.00	-1.48	360	100	QP

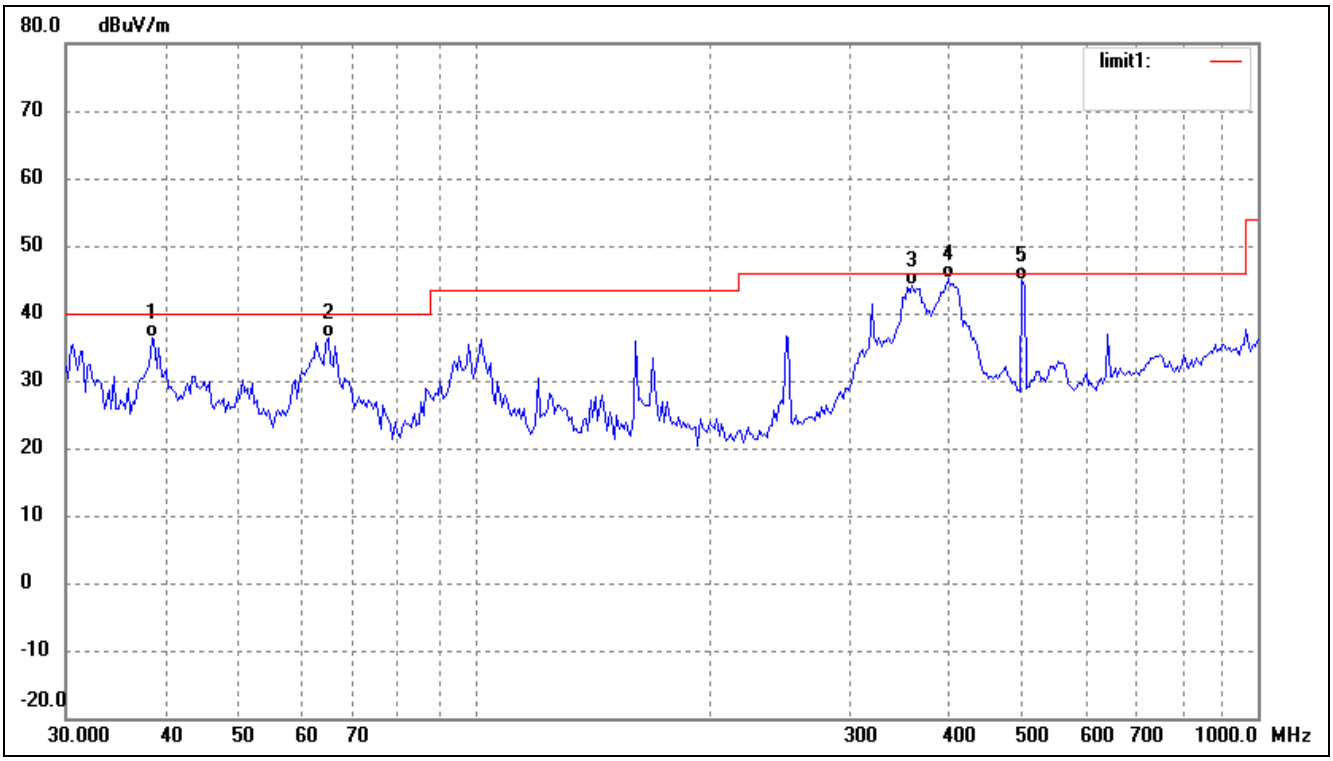
Operating Condition: *802.11g Transmitting Highest Channel-2462MHz*
Comment: *AC 120V/60Hz; adapter DC 12V*

Test Specification: *Horizontal*



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	Factor(dB)	(dBuV/m)	(dBuV/m)	(dB)	(•)	(cm)	
1	160.3457	32.93	3.65	36.58	43.50	-6.92	36	100	QP
2	251.1804	33.08	7.34	40.42	46.00	-5.58	25	100	QP
3	321.0608	27.36	10.46	37.82	46.00	-8.18	136	100	QP
4	499.4247	32.91	12.18	45.09	46.00	-0.91	52	100	QP
5	642.8613	21.50	15.14	36.64	46.00	-9.36	155	100	QP

Test Specification: *Vertical*

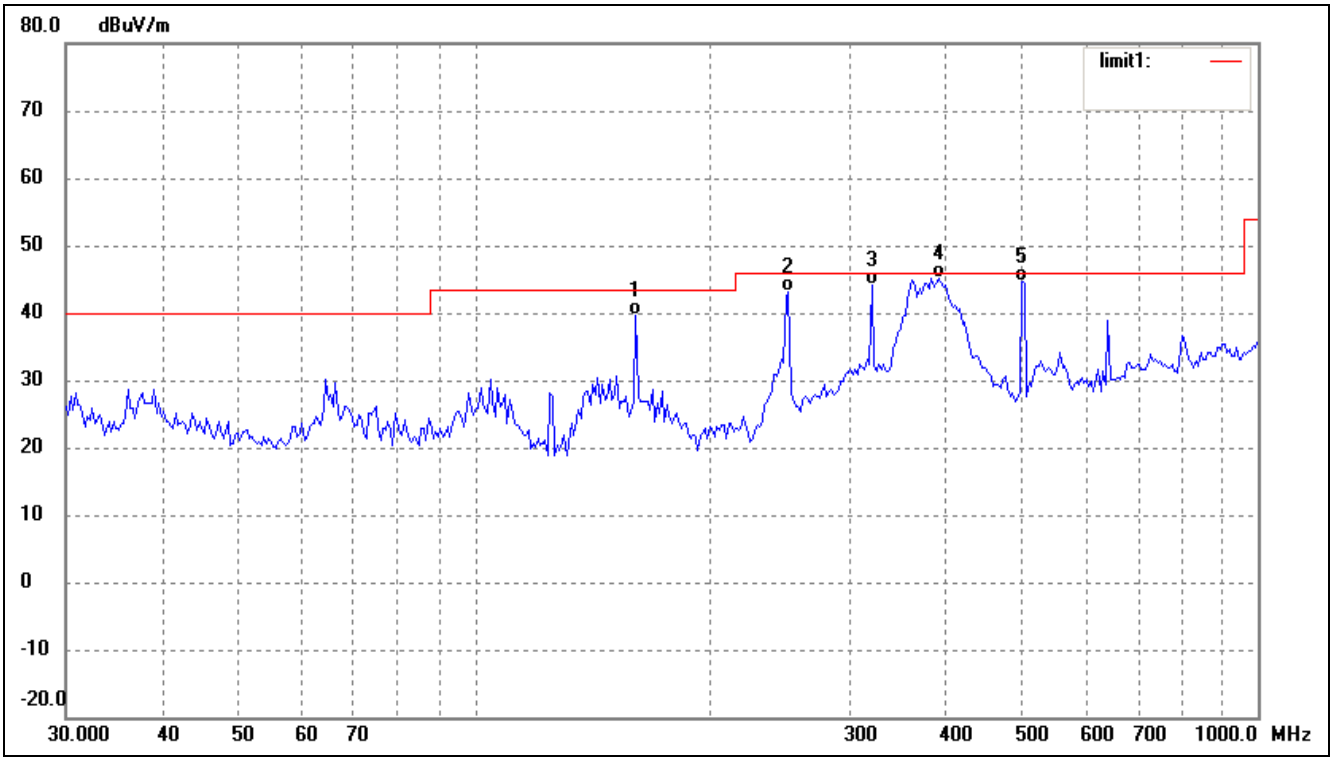


No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	Factor(dB)	(dBuV/m)	(dBuV/m)	(dB)	(•)	(cm)	
1	38.6161	26.90	9.46	36.36	40.00	-3.64	214	100	QP
2	64.8865	32.18	4.15	36.33	40.00	-3.67	23	100	QP
3	361.7139	33.44	10.69	44.13	46.00	-1.87	54	100	QP
4	401.8385	33.58	11.47	45.05	46.00	-0.95	15	100	QP
5	499.4247	32.81	12.18	44.99	46.00	-1.01	259	100	QP

Plot of Radiated Emissions Test Data (30MHz to 1GHz)

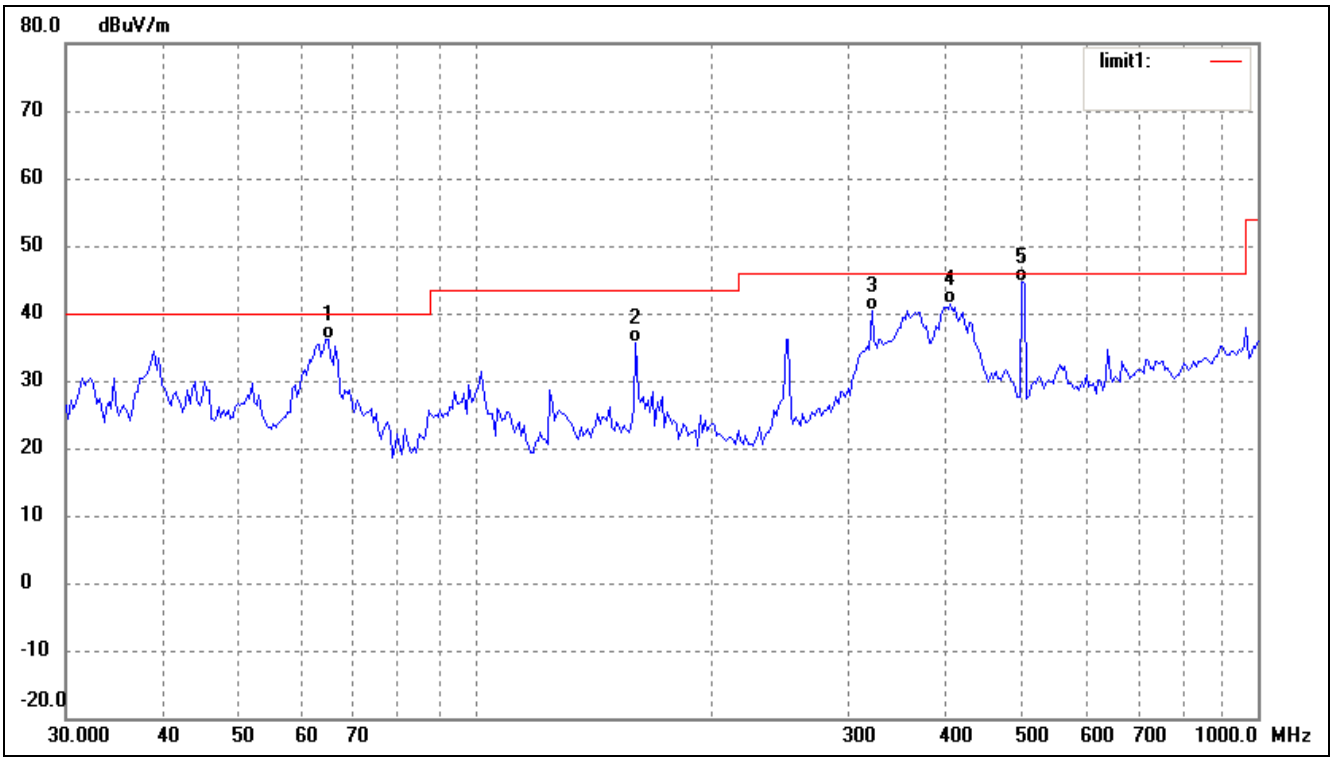
EUT: *ADSL2+Router WiFi 11n 2x2*
Tested Model: *P.DG A4001N A-000-1A1-AE*
Operating Condition: *802.11n/HT20 Transmitting Low Channel-2412MHz*
Comment: *AC 120V/60Hz; adapter DC 12V*

Test Specification: *Horizontal*



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	Factor(dB)	(dBuV/m)	(dBuV/m)	(dB)	(•)	(cm)	
1	160.3457	35.90	3.65	39.55	43.50	-3.95	145	100	QP
2	251.1804	35.71	7.34	43.05	46.00	-2.95	23	100	QP
3	321.0608	33.66	10.46	44.12	46.00	-1.88	265	100	QP
4	390.7226	34.08	11.12	45.20	46.00	-0.80	41	100	QP
5	499.4247	32.50	12.18	44.68	46.00	-1.32	52	100	QP

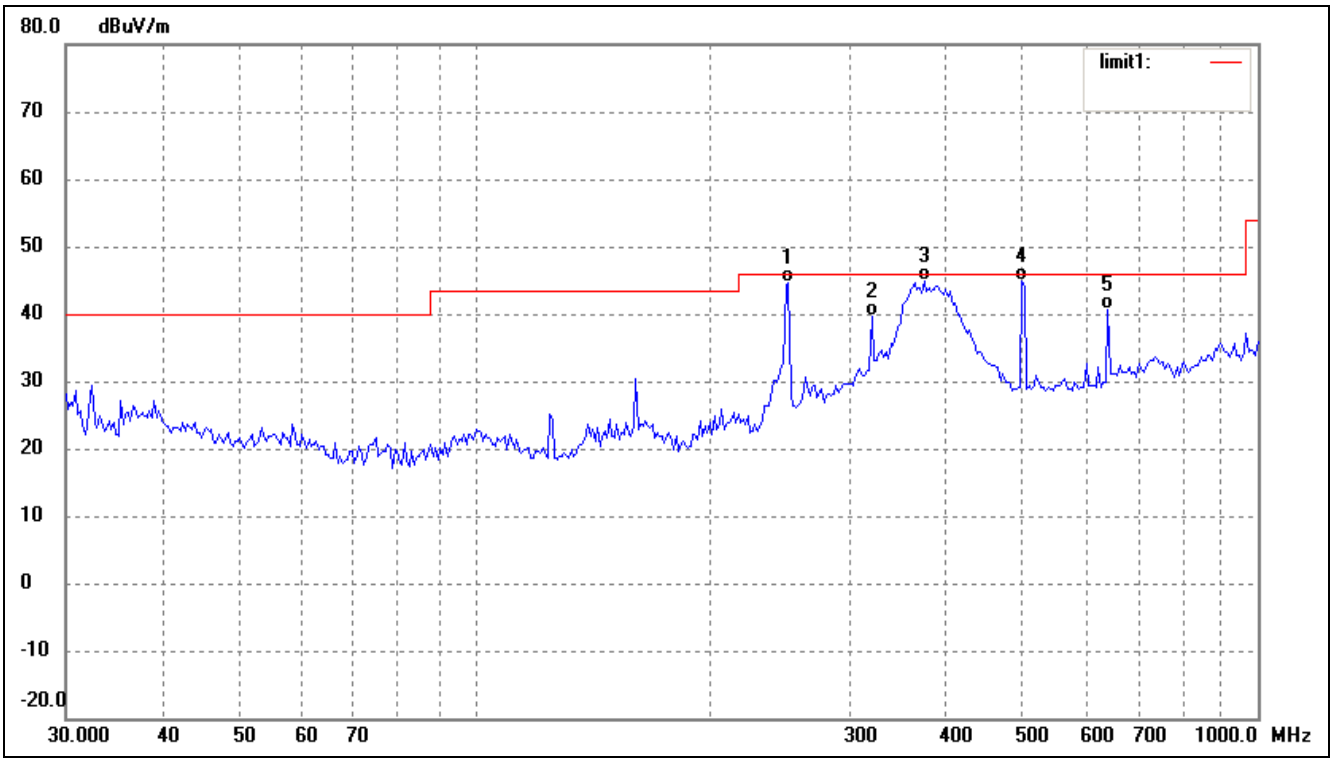
Test Specification: *Vertical*



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	Factor(dB)	(dBuV/m)	(dBuV/m)	(dB)	(•)	(cm)	
1	64.8865	31.90	4.15	36.05	40.00	-3.95	214	100	QP
2	160.3457	31.93	3.65	35.58	43.50	-7.92	52	100	QP
3	321.0608	29.97	10.46	40.43	46.00	-5.57	36	100	QP
4	404.6665	29.93	11.35	41.28	46.00	-4.72	246	100	QP
5	499.4247	32.35	12.18	44.53	46.00	-1.47	25	100	QP

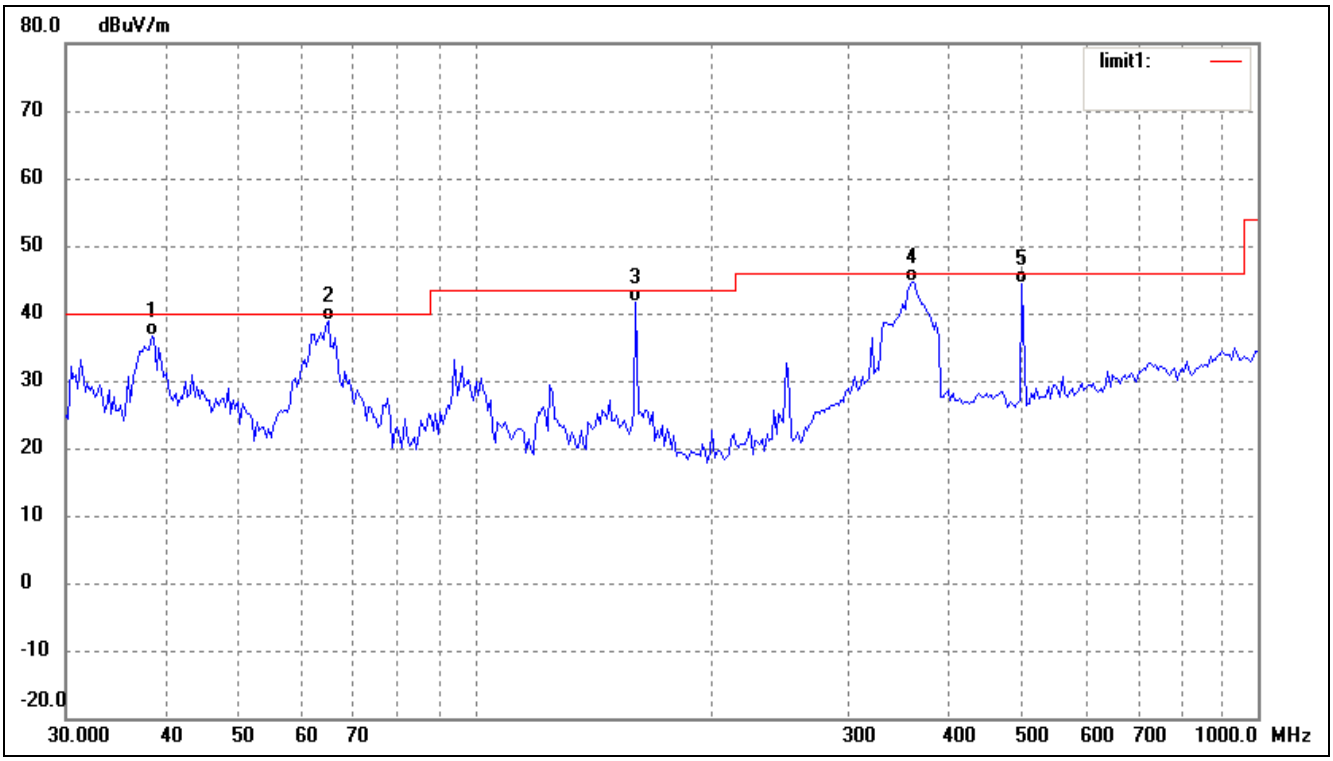
Operating Condition: *802.11n/HT20 Transmitting Middle Channel-2437MHz*
Comment: *AC 120V/60Hz, adapter DC 12V*

Test Specification: *Horizontal*



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	Factor(dB)	(dBuV/m)	(dBuV/m)	(dB)	(•)	(cm)	
1	251.1804	37.27	7.34	44.61	46.00	-1.39	360	100	QP
2	321.0608	29.20	10.46	39.66	46.00	-6.34	25	100	QP
3	374.6226	34.27	10.63	44.90	46.00	-1.10	14	100	QP
4	499.4247	32.70	12.18	44.88	46.00	-1.12	256	100	QP
5	642.8613	25.37	15.14	40.51	46.00	-5.49	33	100	QP

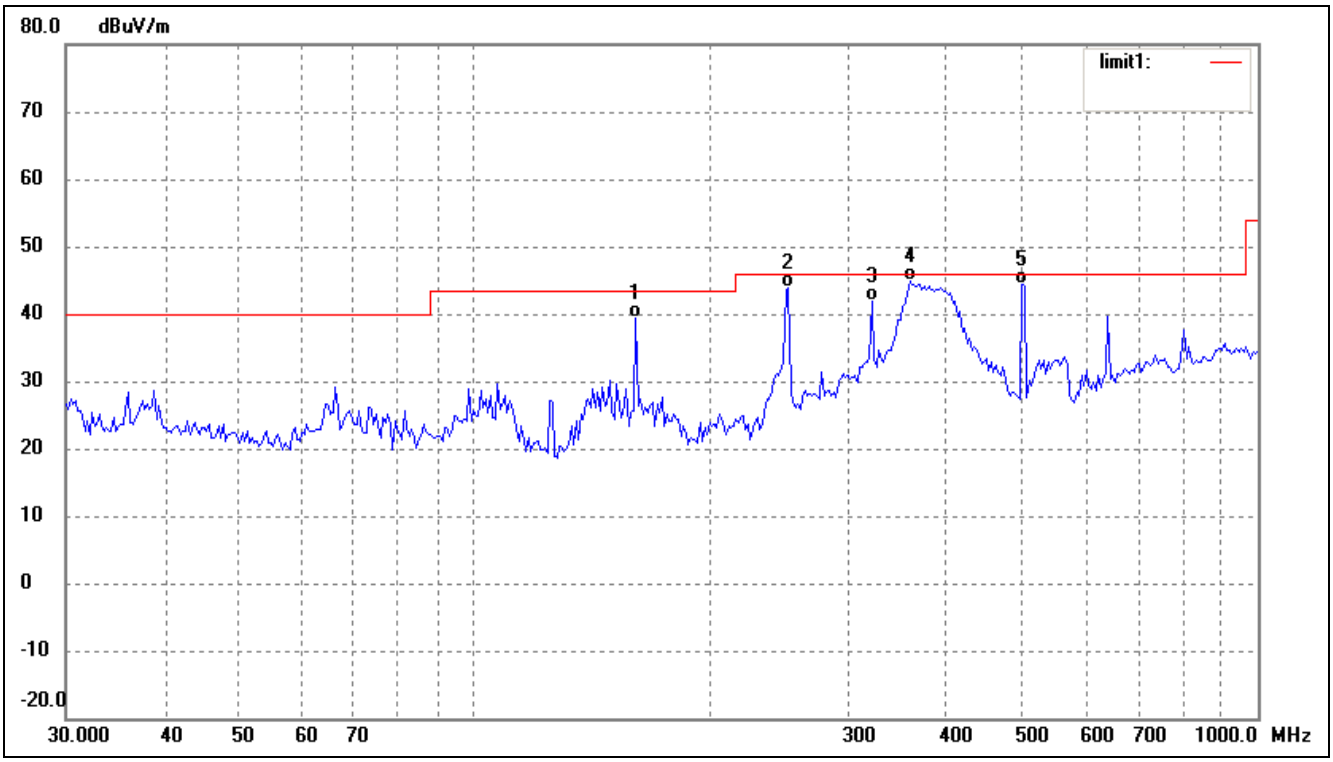
Test Specification: *Vertical*



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	Factor(dB)	(dBuV/m)	(dBuV/m)	(dB)	(•)	(cm)	
1	38.6161	27.28	9.46	36.74	40.00	-3.26	245	100	QP
2	64.8865	34.62	4.15	38.77	40.00	-1.23	36	100	QP
3	160.3457	38.08	3.65	41.73	43.50	-1.77	155	100	QP
4	361.7139	34.04	10.69	44.73	46.00	-1.27	24	100	QP
5	499.4247	32.25	12.18	44.43	46.00	-1.57	23	100	QP

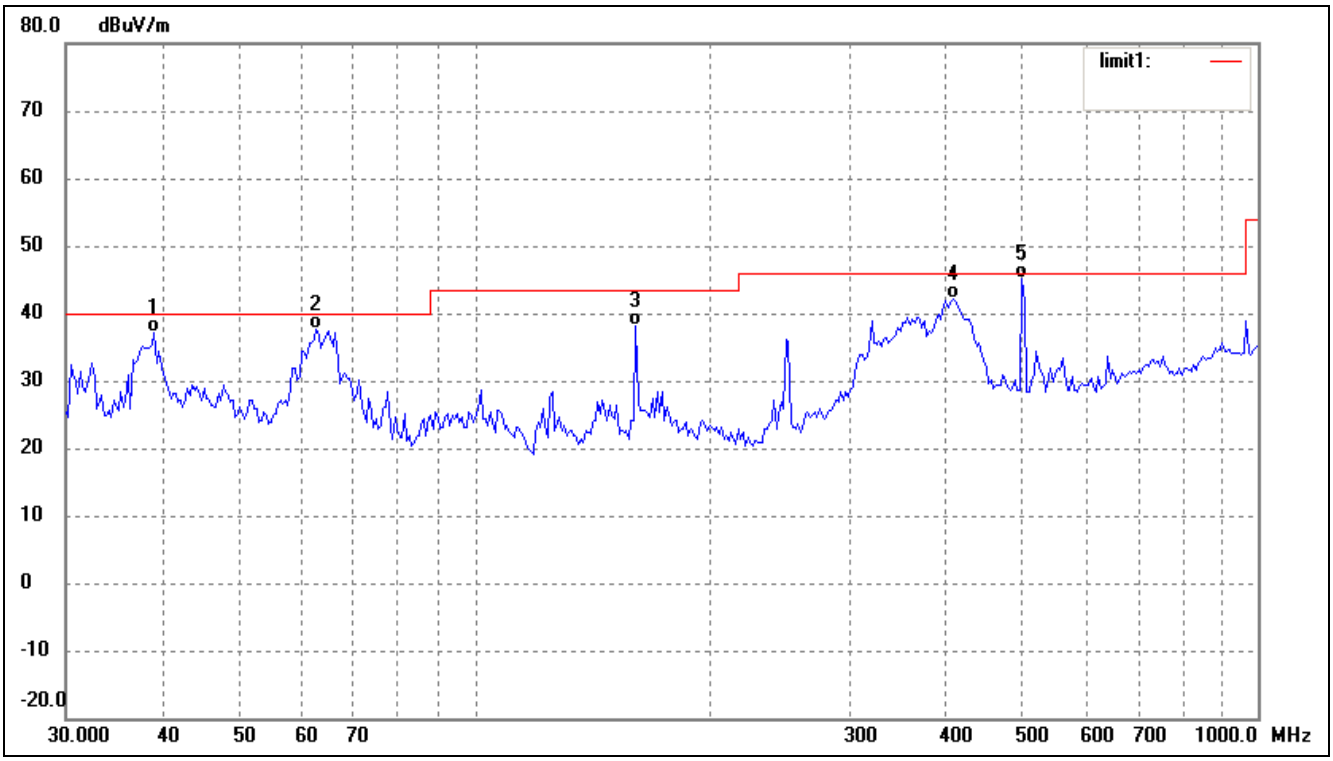
Operating Condition: *802.11n/HT20 Transmitting Highest Channel-2462MHz*
Comment: *AC 120V/60Hz; adapter DC 12V*

Test Specification: *Horizontal*



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	Factor(dB)	(dBuV/m)	(dBuV/m)	(dB)	(•)	(cm)	
1	160.3457	35.73	3.65	39.38	43.50	-4.12	253	100	QP
2	251.1804	36.42	7.34	43.76	46.00	-2.24	15	100	QP
3	321.0608	31.32	10.46	41.78	46.00	-4.22	48	100	QP
4	359.1860	34.10	10.68	44.78	46.00	-1.22	34	100	QP
5	499.4247	32.28	12.18	44.46	46.00	-1.54	125	100	QP

Test Specification: *Vertical*

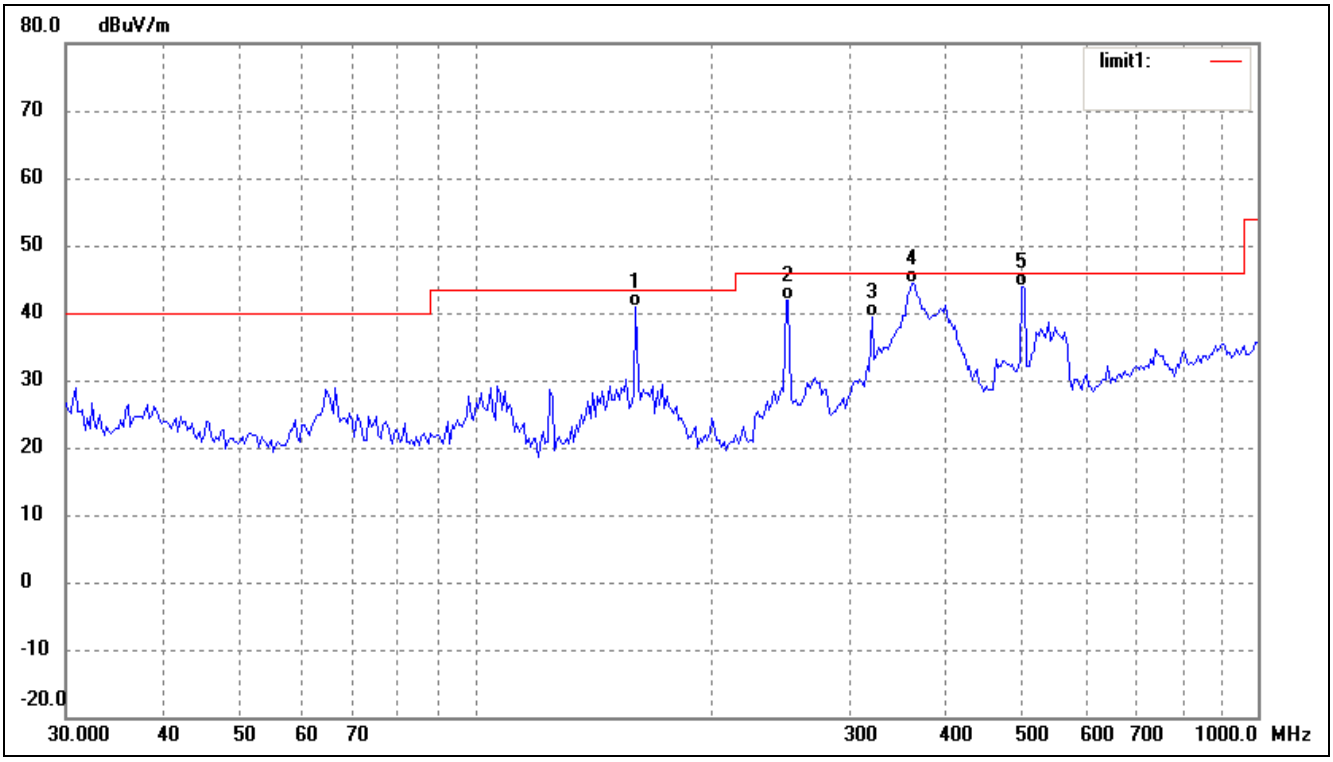


No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	Factor(dB)	(dBuV/m)	(dBuV/m)	(dB)	(•)	(cm)	
1	38.8879	27.53	9.50	37.03	40.00	-2.97	255	100	QP
2	62.6507	32.77	4.85	37.62	40.00	-2.38	360	100	QP
3	160.3457	34.51	3.65	38.16	43.50	-5.34	277	100	QP
4	407.5145	30.81	11.22	42.03	46.00	-3.97	45	100	QP
5	499.4247	32.90	12.18	45.08	46.00	-0.92	23	100	QP

Plot of Radiated Emissions Test Data (30MHz to 1GHz)

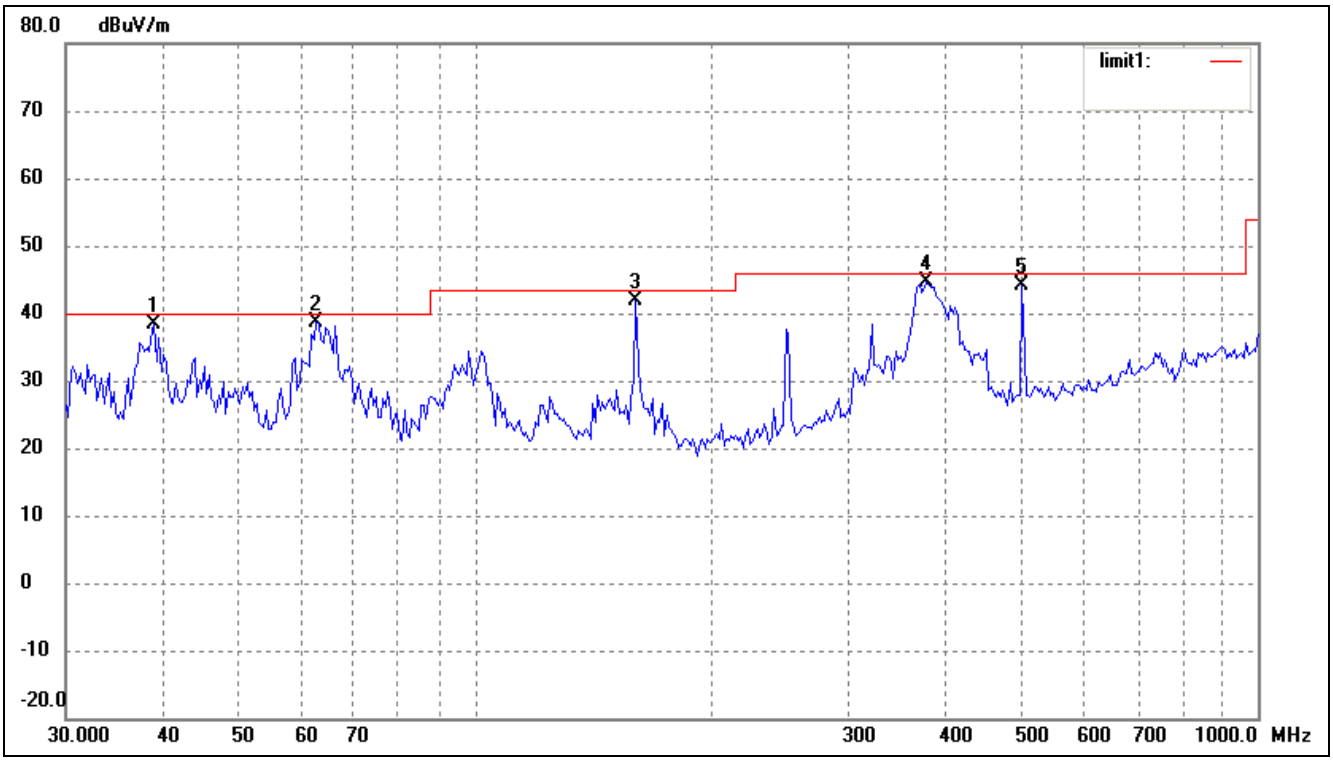
EUT: *ADSL2+Router WiFi 11n 2x2*
Tested Model: *P.DG A4001N A-000-1A1-AE*
Operating Condition: *802.11n/HT40 Transmitting Low Channel-2422MHz*
Comment: *AC 120V/60Hz; adapter DC 12V*

Test Specification: *Horizontal*



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	Factor(dB)	(dBuV/m)	(dBuV/m)	(dB)	(•)	(cm)	
1	160.3457	37.25	3.65	40.90	43.50	-2.60	360	100	QP
2	251.1804	34.58	7.34	41.92	46.00	-4.08	214	100	QP
3	321.0608	28.87	10.46	39.33	46.00	-6.67	28	100	QP
4	361.7139	33.58	10.69	44.27	46.00	-1.73	99	100	QP
5	499.4247	31.70	12.18	43.88	46.00	-2.12	12	100	QP

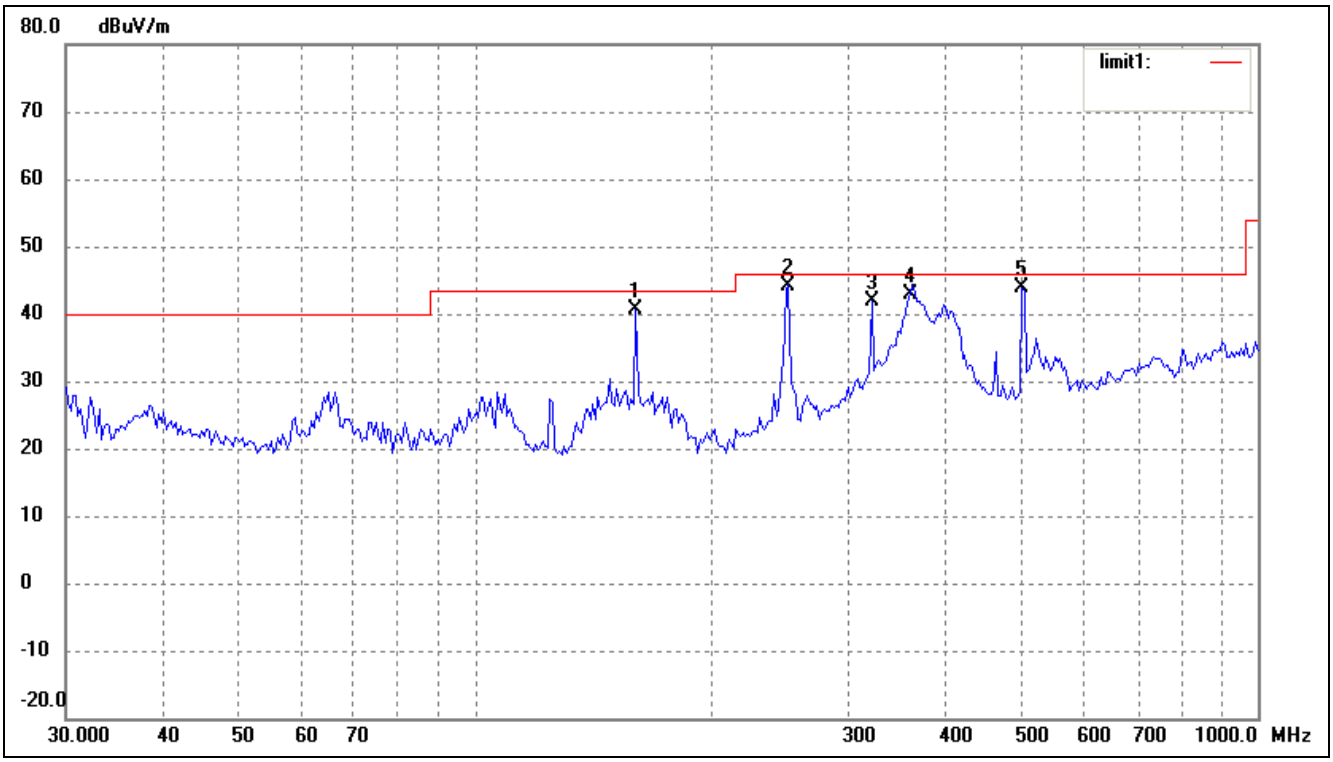
Test Specification: *Vertical*



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	Factor(dB)	(dBuV/m)	(dBuV/m)	(dB)	(•)	(cm)	
1	38.8879	28.87	9.50	38.37	40.00	-1.63	360	100	peak
2	62.6507	33.69	4.85	38.54	40.00	-1.46	25	100	peak
3	160.3457	38.17	3.65	41.82	43.50	-1.68	98	100	peak
4	377.2591	34.05	10.64	44.69	46.00	-1.31	48	100	peak
5	499.4247	32.03	12.18	44.21	46.00	-1.79	256	100	peak

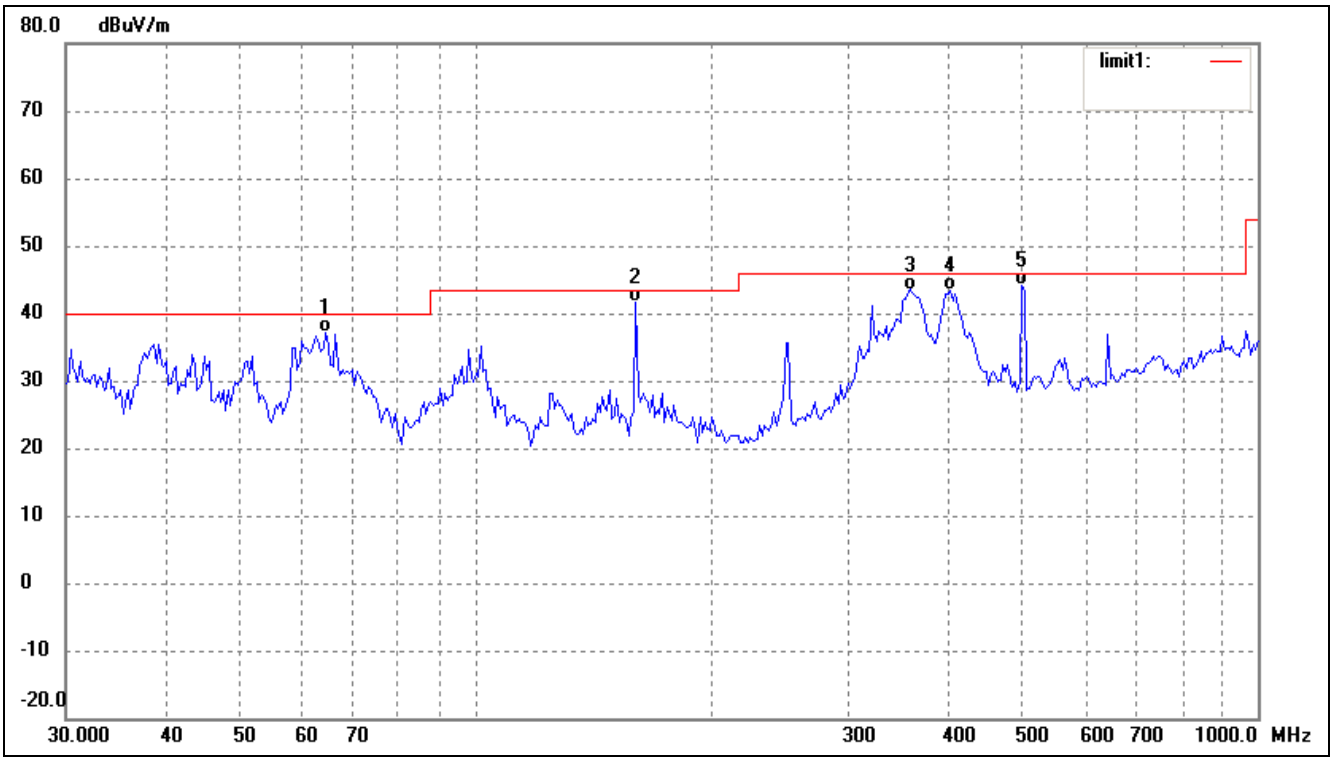
Operating Condition: *802.11n/HT40 Transmitting Middle Channel-2437MHz*
Comment: *AC 120V/60Hz, adapter DC 12V*

Test Specification: *Horizontal*



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	Factor(dB)	(dBuV/m)	(dBuV/m)	(dB)	(•)	(cm)	
1	160.3457	36.89	3.65	40.54	43.50	-2.96	360	100	peak
2	251.1804	36.91	7.34	44.25	46.00	-1.75	25	100	peak
3	321.0608	31.43	10.46	41.89	46.00	-4.11	48	100	peak
4	359.1860	32.32	10.68	43.00	46.00	-3.00	55	100	peak
5	499.4247	31.58	12.18	43.76	46.00	-2.24	24	100	peak

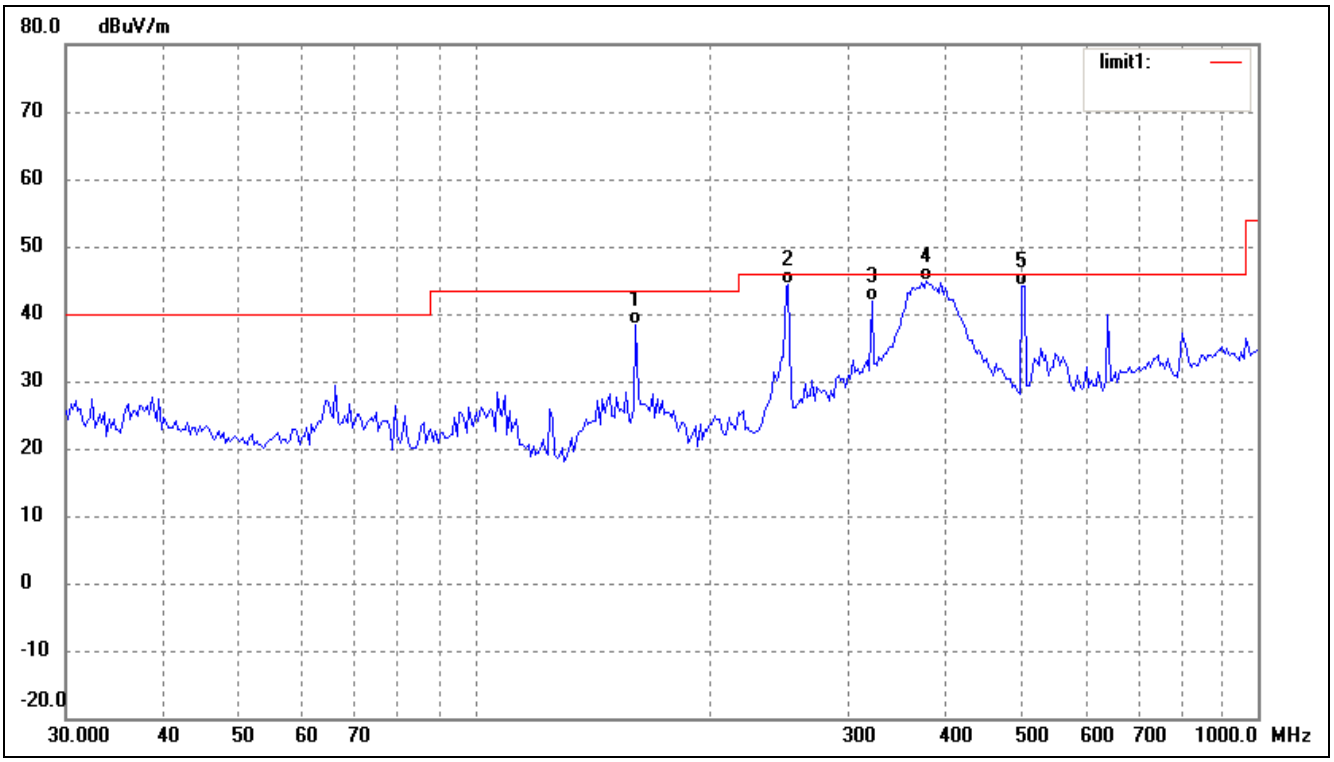
Test Specification: *Vertical*



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	Factor(dB)	(dBuV/m)	(dBuV/m)	(dB)	(•)	(cm)	
1	64.4331	32.88	4.29	37.17	40.00	-2.83	148	100	QP
2	160.3457	37.94	3.65	41.59	43.50	-1.91	24	100	QP
3	359.1860	32.82	10.68	43.50	46.00	-2.50	79	100	QP
4	404.6665	31.91	11.35	43.26	46.00	-2.74	248	100	QP
5	499.4247	32.03	12.18	44.21	46.00	-1.79	54	100	QP

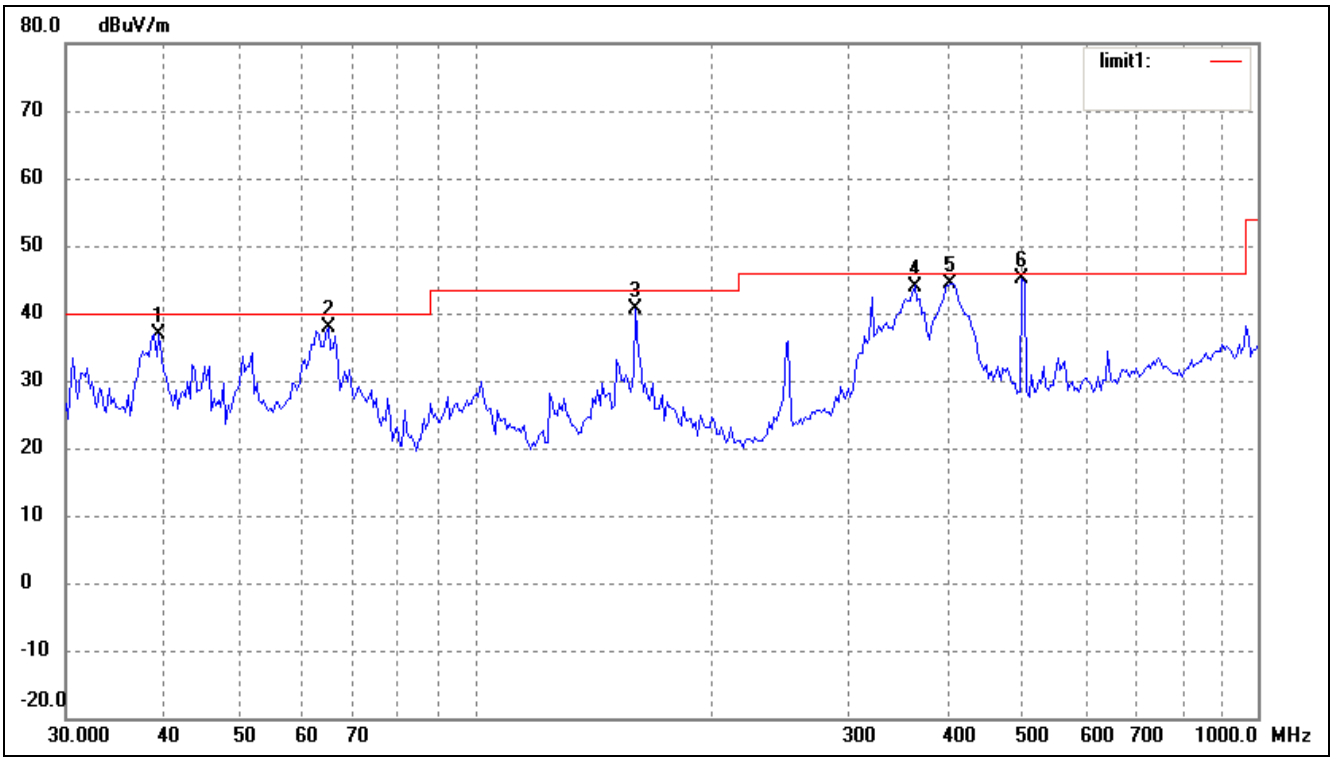
Operating Condition: *802.11n/HT40 Transmitting Highest Channel-2452MHz*
Comment: *AC 120V/60Hz; adapter DC 12V*

Test Specification: *Horizontal*



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	Factor(dB)	(dBuV/m)	(dBuV/m)	(dB)	(•)	(cm)	
1	160.3457	34.72	3.65	38.37	43.50	-5.13	360	100	QP
2	251.1804	37.04	7.34	44.38	46.00	-1.62	25	100	QP
3	321.0608	31.42	10.46	41.88	46.00	-4.12	360	100	QP
4	377.2591	34.24	10.64	44.88	46.00	-1.12	24	100	QP
5	499.4247	32.04	12.18	44.22	46.00	-1.78	360	100	QP

Test Specification: *Vertical*



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	Factor(dB)	(dBuV/m)	(dBuV/m)	(dB)	(•)	(cm)	
1	39.4372	27.37	9.60	36.97	40.00	-3.03	360	100	peak
2	64.8865	33.71	4.15	37.86	40.00	-2.14	89	100	peak
3	160.3457	37.01	3.65	40.66	43.50	-2.84	24	100	peak
4	364.2595	33.32	10.68	44.00	46.00	-2.00	278	100	peak
5	404.6665	33.02	11.35	44.37	46.00	-1.63	25	100	peak
6	499.4247	32.92	12.18	45.10	46.00	-0.90	26	100	peak

Plot of Radiated Emissions Test Data (30MHz to 1GHz)

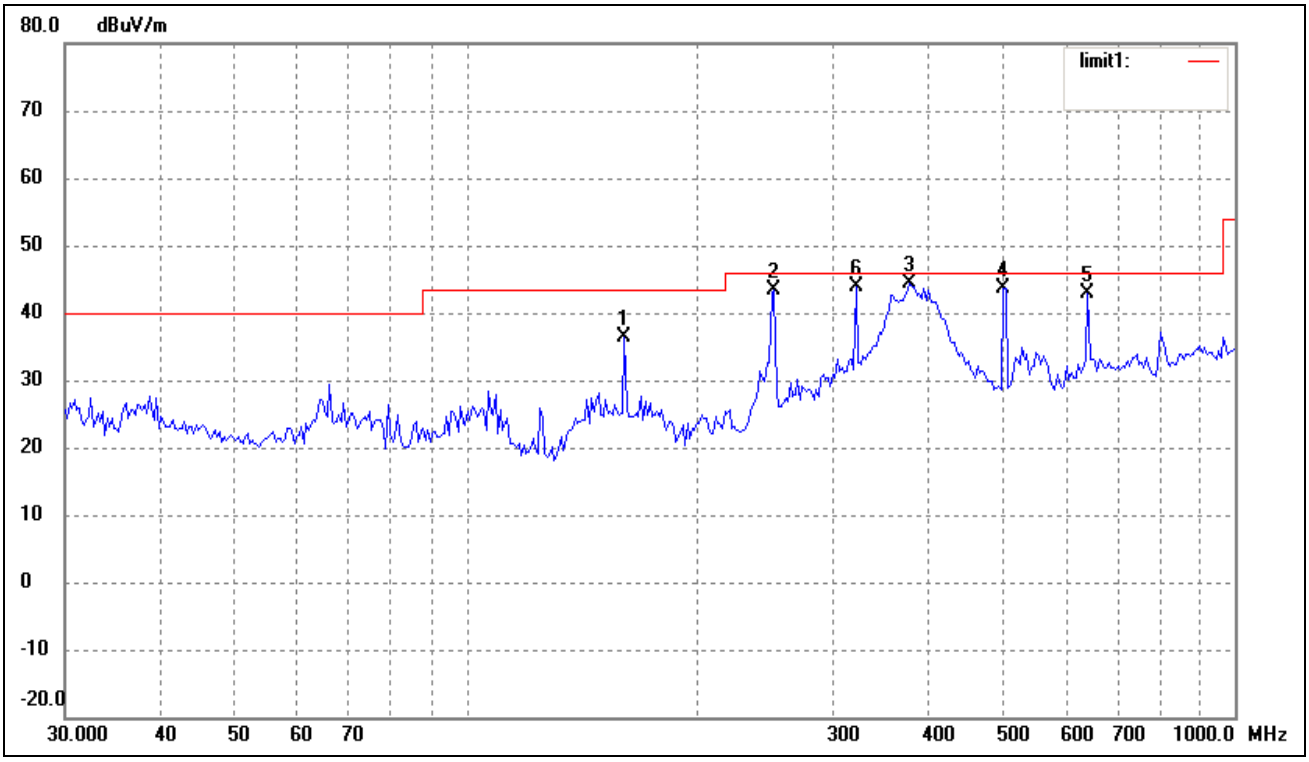
EUT: *ADSL2+Router WiFi 11n 2x2*

Tested Model: *P.DG A4001N A-000-1A1-AE*

Operating Condition: *802.11n/HT20 Transmitting Low Channel-2412MHz with two transmit chain*

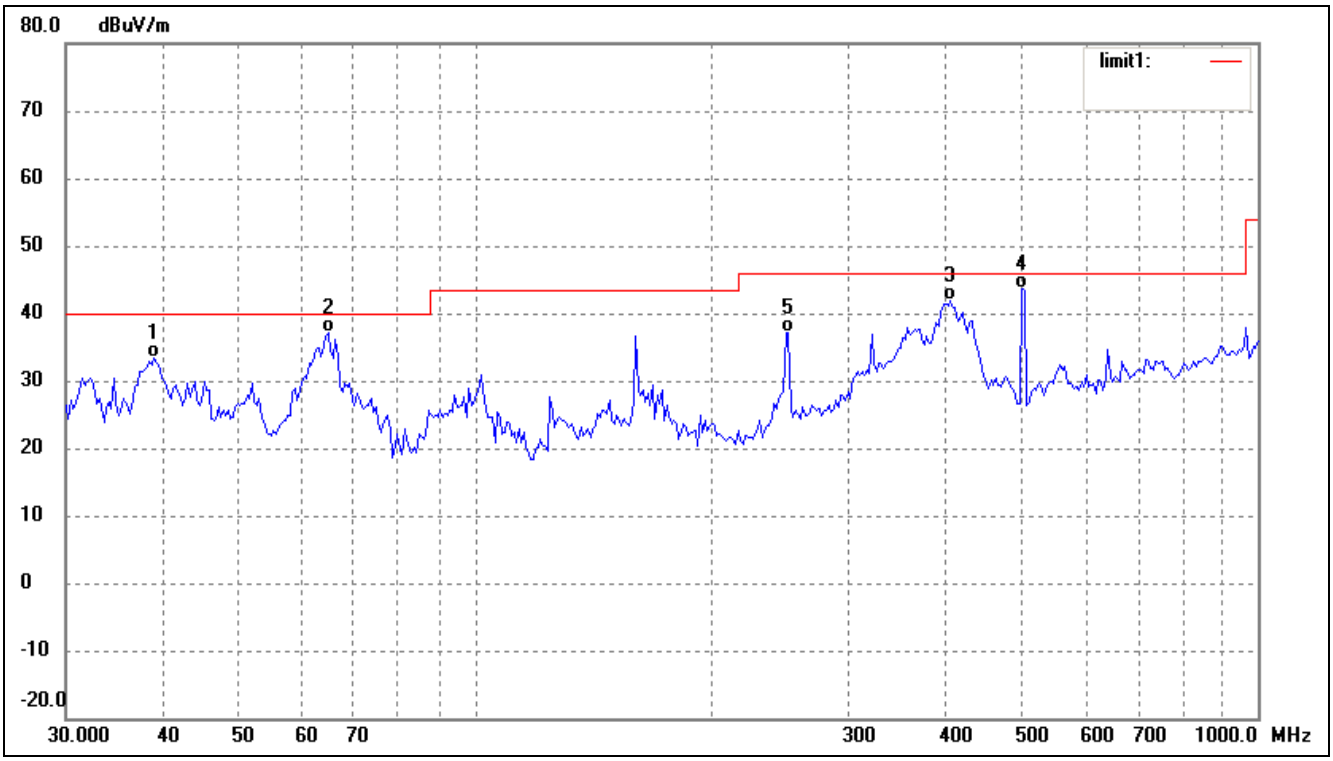
Comment: *AC 120V/60Hz; adapter DC 12V*

Test Specification: *Horizontal*



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	Factor(dB)	(dBuV/m)	(dBuV/m)	(dB)	(•)	(cm)	
1	160.3456	32.72	3.65	36.37	43.50	-7.13	360	100	QP
2	251.1803	36.04	7.34	43.38	46.00	-2.62	360	100	QP
3	377.2590	33.74	10.64	44.38	46.00	-1.62	360	100	QP
4	499.4246	31.54	12.18	43.72	46.00	-2.28	360	100	QP
5	642.8613	27.64	15.14	42.78	46.00	-3.22	360	100	QP
6	321.0607	33.42	10.46	43.88	46.00	-2.12	360	100	QP

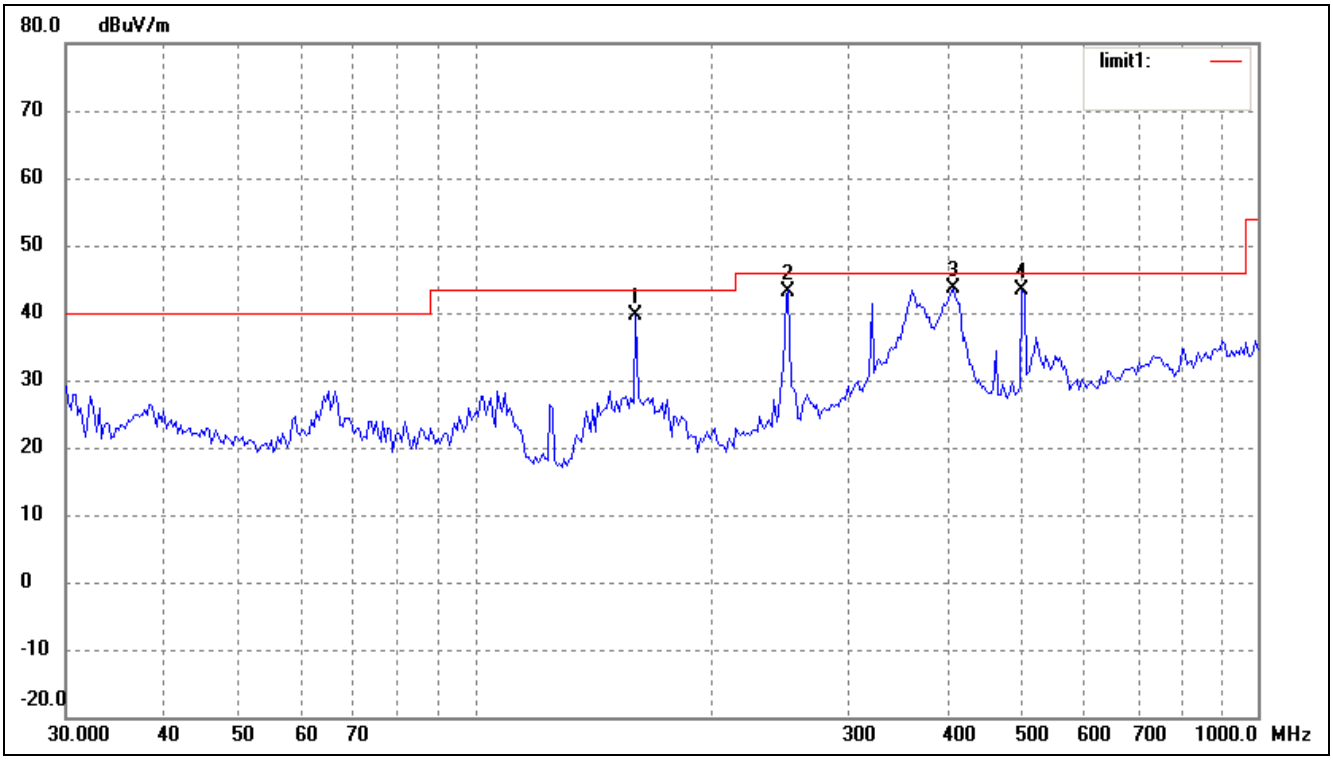
Test Specification: *Vertical*



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	Factor(dB)	(dBuV/m)	(dBuV/m)	(dB)	(•)	(cm)	
1	38.8879	23.76	9.50	33.26	40.00	-6.74	360	100	QP
2	64.8864	32.90	4.15	37.05	40.00	-2.95	360	100	QP
3	404.6664	30.43	11.35	41.78	46.00	-4.22	360	100	QP
4	499.4246	31.35	12.18	43.53	46.00	-2.47	360	100	QP
5	251.1803	29.71	7.34	37.05	46.00	-8.95	360	100	QP

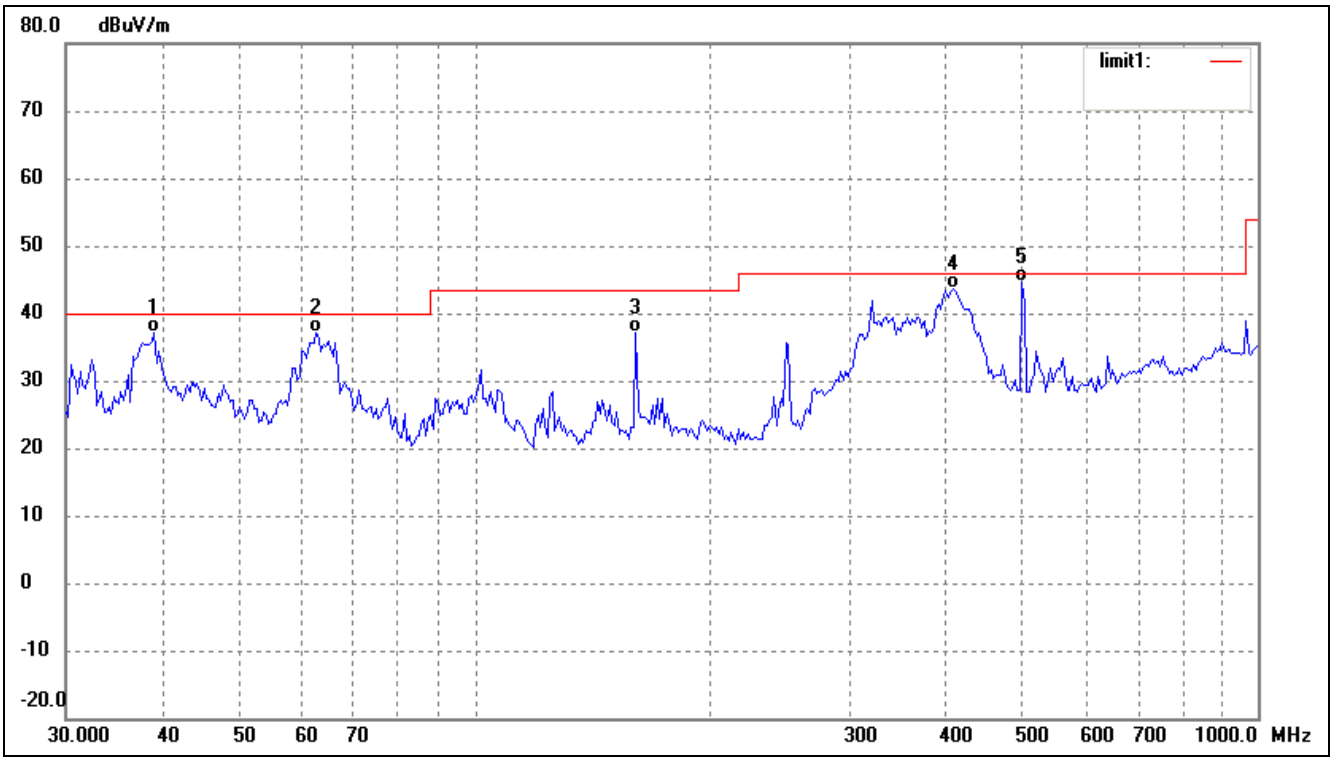
Operating Condition: *802.11n/HT20 Transmitting Middle Channel-2437MHz with two transmit chain*
Comment: *AC 120V/60Hz; adapter DC 12V*

Test Specification: *Horizontal*



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	Factor(dB)	(dBuV/m)	(dBuV/m)	(dB)	(•)	(cm)	
1	160.3456	35.89	3.65	39.54	43.50	-3.96	360	100	QP
2	251.1803	35.91	7.34	43.25	46.00	-2.75	360	100	QP
3	407.5144	32.35	11.22	43.57	46.00	-2.43	360	100	QP
4	499.4246	31.08	12.18	43.26	46.00	-2.74	360	100	QP

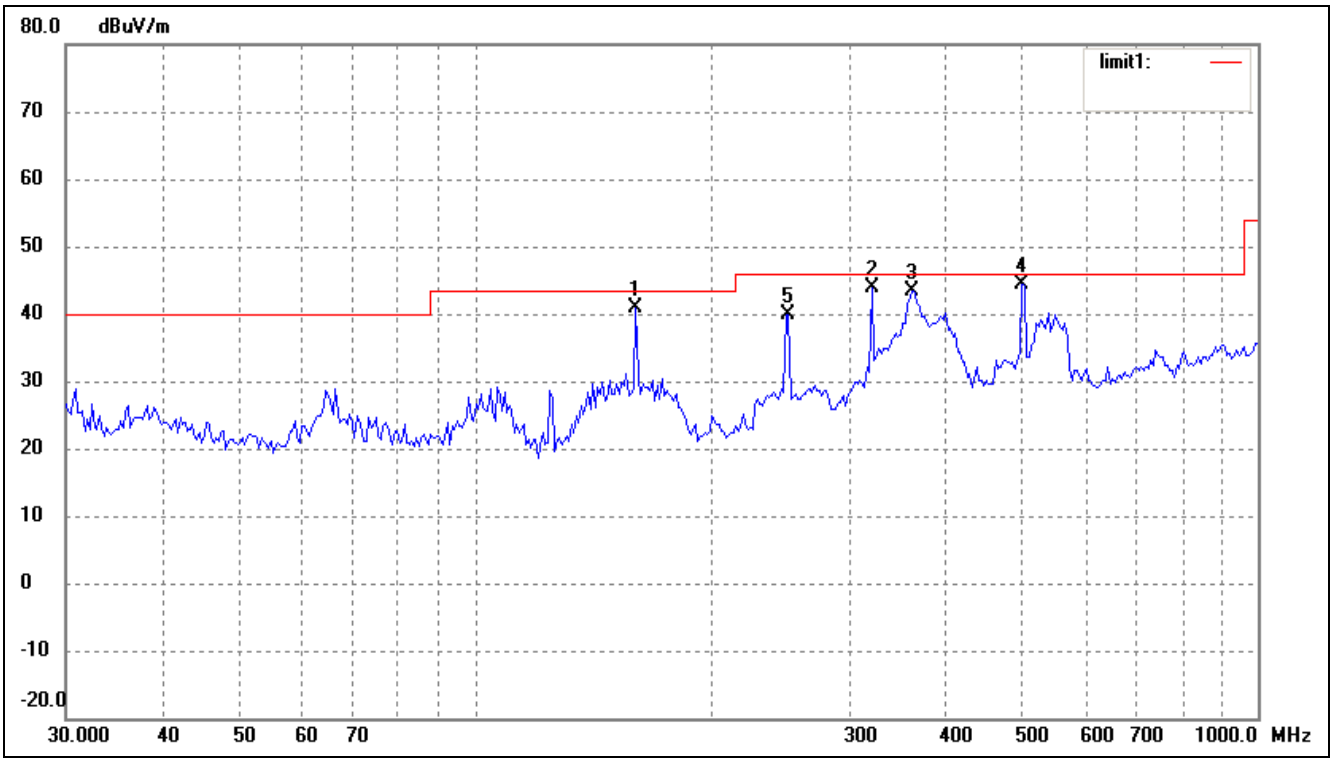
Test Specification: *Vertical*



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	Factor(dB)	(dBuV/m)	(dBuV/m)	(dB)	(•)	(cm)	
1	38.8879	27.53	9.50	37.03	40.00	-2.97	360	100	QP
2	62.6507	32.27	4.85	37.12	40.00	-2.88	360	100	QP
3	160.3456	33.51	3.65	37.16	43.50	-6.34	360	100	QP
4	407.5144	32.31	11.22	43.53	46.00	-2.47	360	100	QP
5	499.4246	32.40	12.18	44.58	46.00	-1.42	360	100	QP

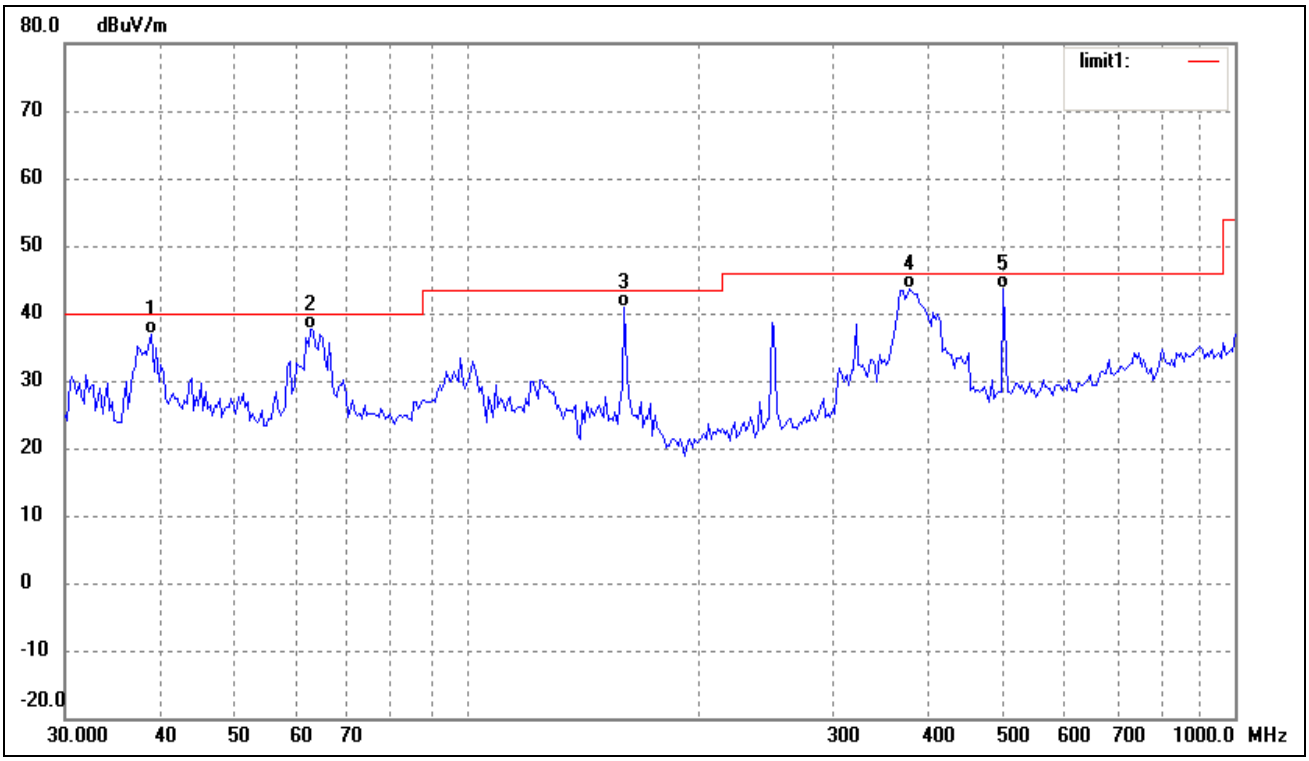
Operating Condition: *802.11n/HT20 Transmitting Highest Channel-2462MHz with two transmit chain*
Comment: *AC 120V/60Hz; adapter DC 12V*

Test Specification: *Horizontal*



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	Factor(dB)	(dBuV/m)	(dBuV/m)	(dB)	(•)	(cm)	
1	160.3456	37.25	3.65	40.90	43.50	-2.60	360	100	QP
2	321.0607	33.37	10.46	43.83	46.00	-2.17	360	100	QP
3	361.7139	32.58	10.69	43.27	46.00	-2.73	360	100	QP
4	499.4246	32.20	12.18	44.38	46.00	-1.62	360	100	QP
5	251.1803	32.58	7.34	39.92	46.00	-6.08	360	100	QP

Test Specification: *Vertical*



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	Factor(dB)	(dBuV/m)	(dBuV/m)	(dB)	(•)	(cm)	
1	38.8879	27.37	9.50	36.87	40.00	-3.13	360	100	QP
2	62.6507	32.69	4.85	37.54	40.00	-2.46	360	100	QP
3	160.3456	37.17	3.65	40.82	43.50	-2.68	360	100	QP
4	377.2590	33.05	10.64	43.69	46.00	-2.31	360	100	QP
5	499.4246	31.53	12.18	43.71	46.00	-2.29	360	100	QP

Plot of Radiated Emissions Test Data (30MHz to 1GHz)

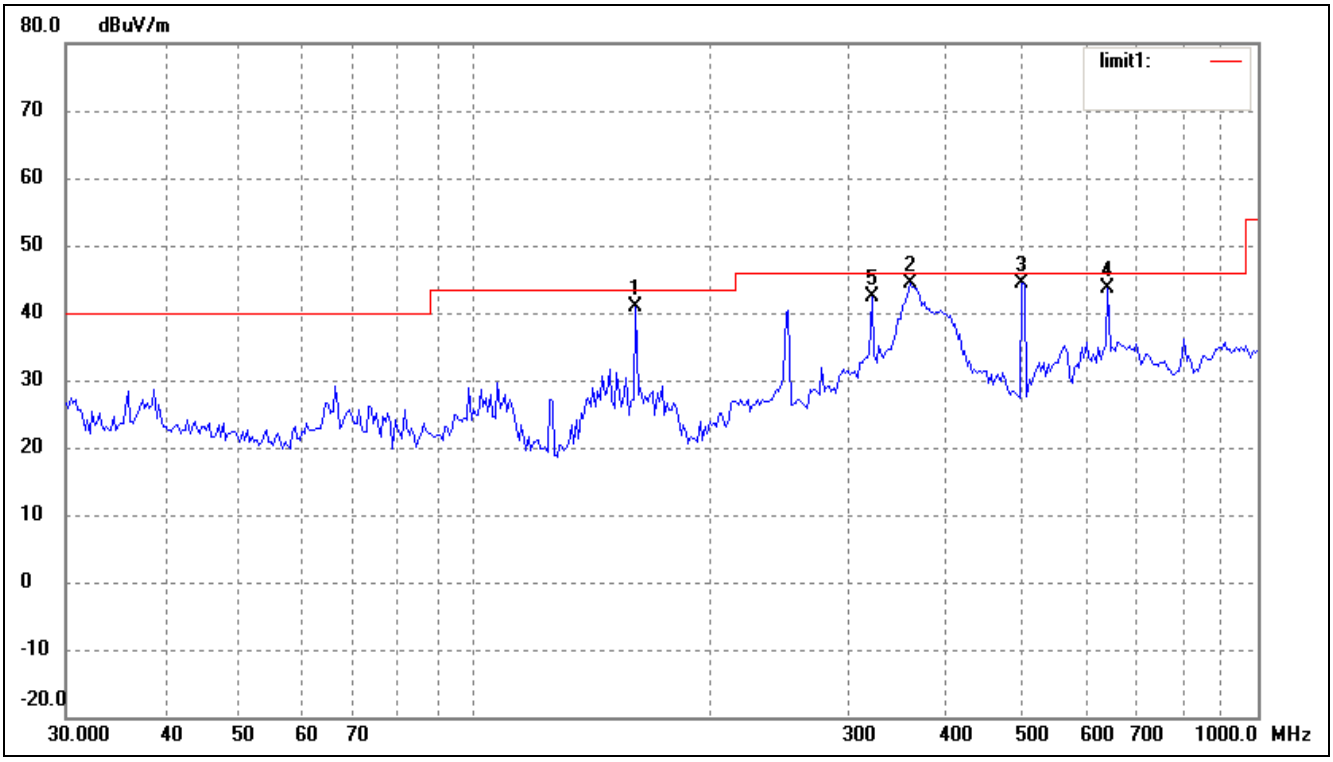
EUT: *ADSL2+Router WiFi 11n 2x2*

Tested Model: *P.DG A4001N A-000-1A1-AE*

Operating Condition: *802.11n/HT40 Transmitting Low Channel-2422MHz with two transmit chain*

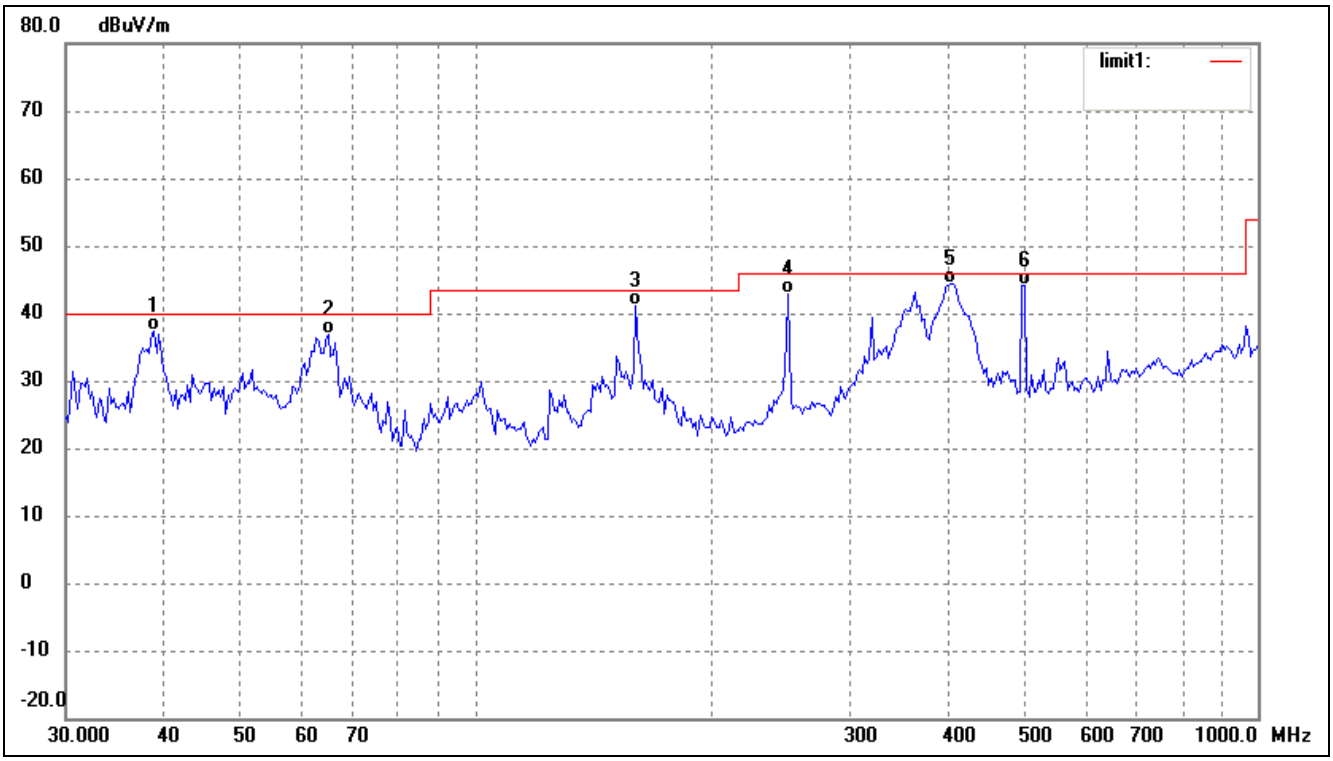
Comment: *AC 120V/60Hz; adapter DC 12V*

Test Specification: *Horizontal*



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	Factor(dB)	(dBuV/m)	(dBuV/m)	(dB)	(•)	(cm)	
1	160.3456	37.23	3.65	40.88	43.50	-2.62	360	100	QP
2	359.1859	33.60	10.68	44.28	46.00	-1.72	360	100	QP
3	499.4246	32.28	12.18	44.46	46.00	-1.54	360	100	QP
4	642.8613	28.57	15.14	43.71	46.00	-2.29	360	100	QP
5	321.0607	31.82	10.46	42.28	46.00	-3.72	360	100	QP

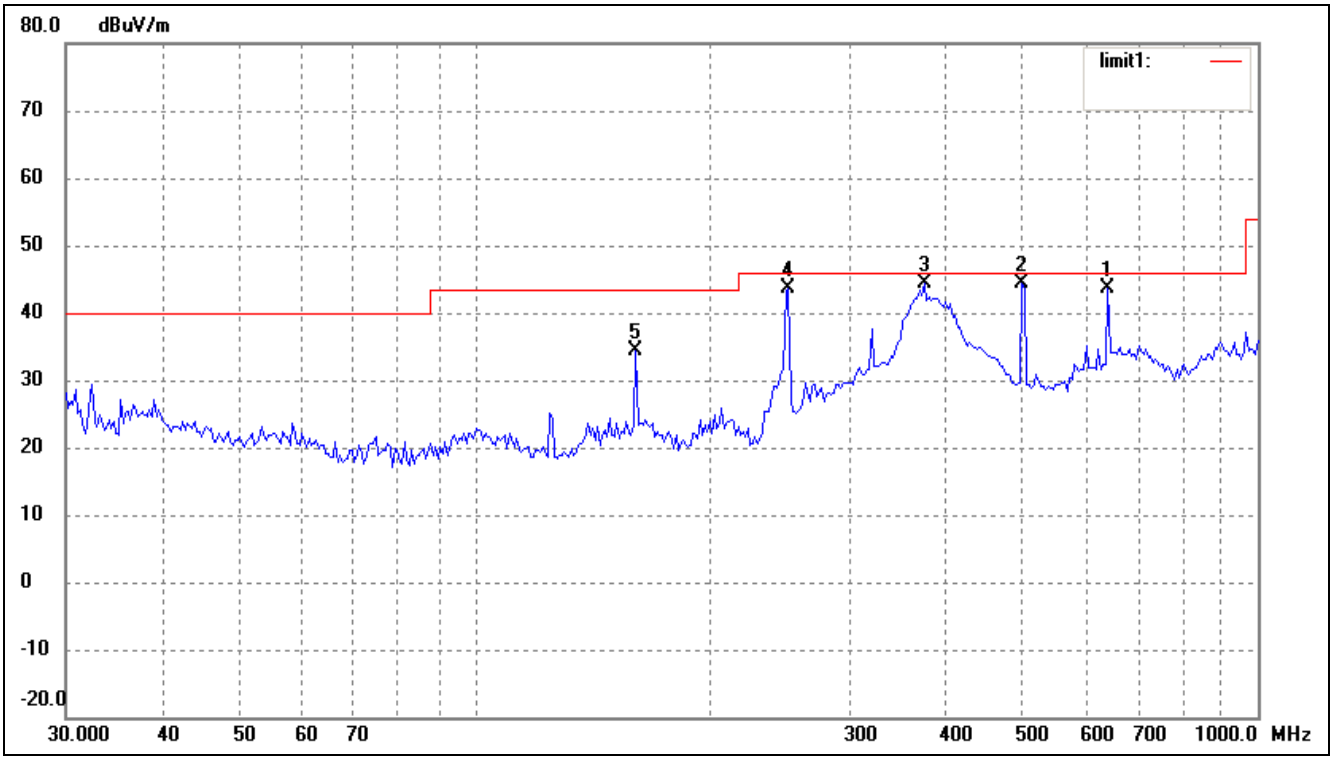
Test Specification: *Vertical*



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	Factor(dB)	(dBuV/m)	(dBuV/m)	(dB)	(•)	(cm)	
1	38.8879	27.81	9.50	37.31	40.00	-2.69	360	100	QP
2	64.8864	32.71	4.15	36.86	40.00	-3.14	360	100	QP
3	160.3456	37.51	3.65	41.16	43.50	-2.34	360	100	QP
4	251.1803	35.66	7.34	43.00	46.00	-3.00	360	100	QP
5	404.6664	33.02	11.35	44.37	46.00	-1.63	360	100	QP
6	502.9395	31.81	12.30	44.11	46.00	-1.89	360	100	QP

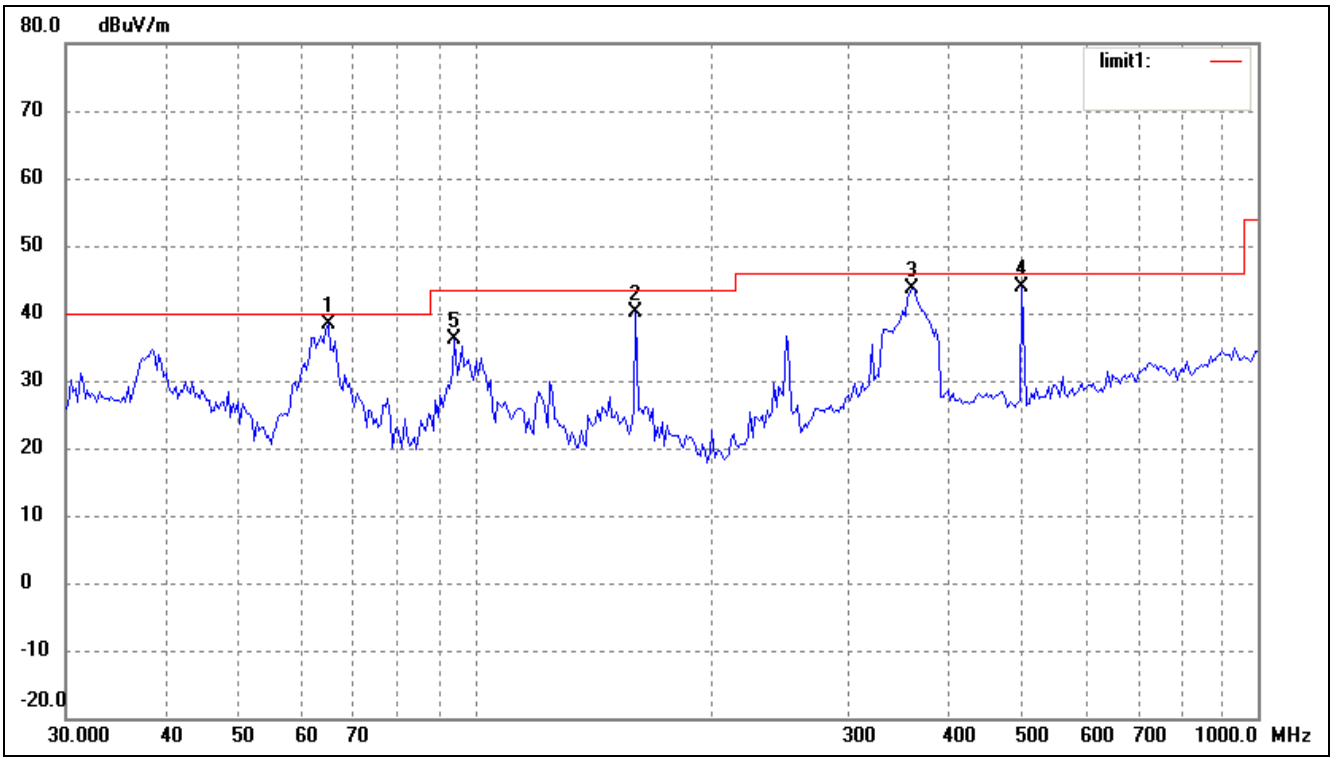
Operating Condition: *802.11n/HT40 Transmitting Middle Channel-2437MHz with two transmit chain*
Comment: *AC 120V/60Hz; adapter DC 12V*

Test Specification: *Horizontal*



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	Factor(dB)	(dBuV/m)	(dBuV/m)	(dB)	(•)	(cm)	
1	642.8613	28.37	15.14	43.51	46.00	-2.49	360	100	QP
2	499.4246	32.20	12.18	44.38	46.00	-1.62	360	100	QP
3	374.6225	33.76	10.64	44.40	46.00	-1.60	360	100	QP
4	251.1803	36.27	7.34	43.61	46.00	-2.39	360	100	QP
5	160.3456	30.81	3.65	34.46	43.50	-9.04	360	100	QP

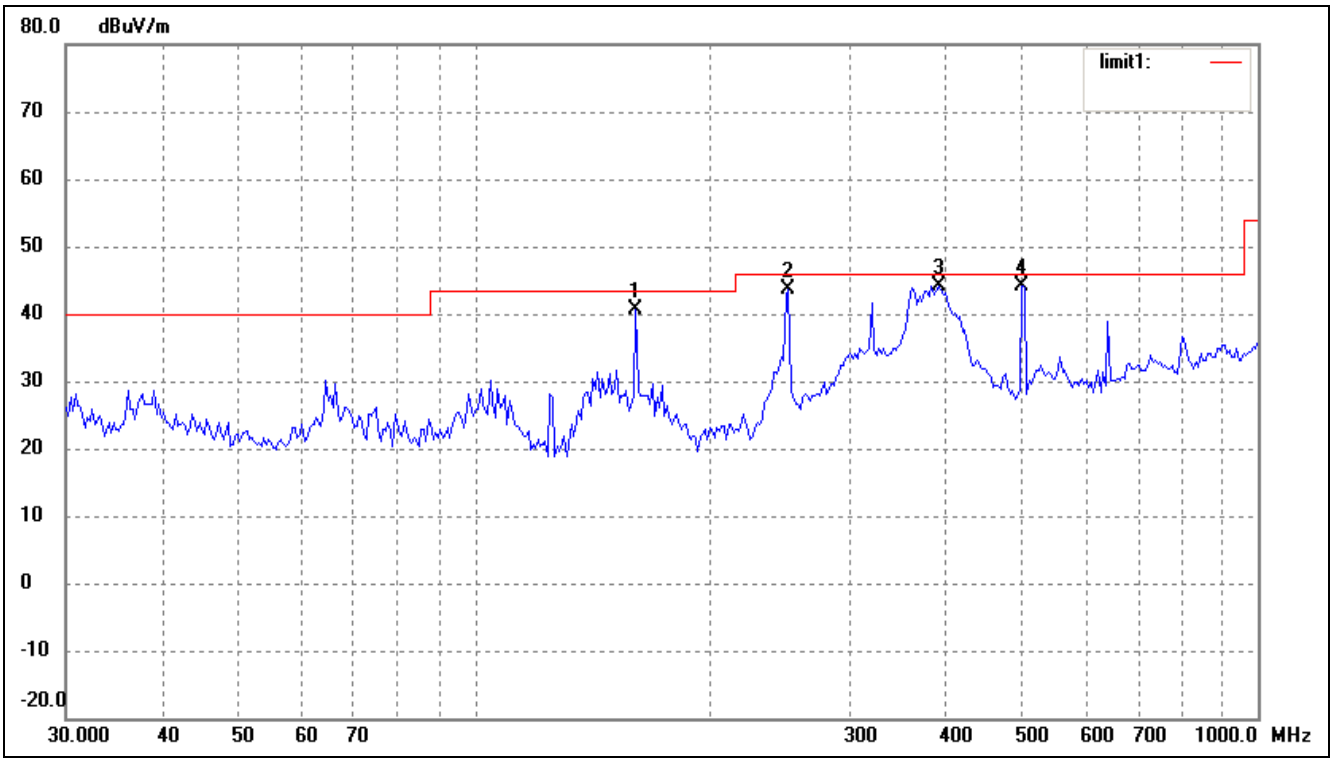
Test Specification: *Vertical*



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	Factor(dB)	(dBuV/m)	(dBuV/m)	(dB)	(•)	(cm)	
1	64.8864	34.12	4.15	38.27	40.00	-1.73	360	100	peak
2	160.3456	36.58	3.65	40.23	43.50	-3.27	360	100	peak
3	361.7139	33.04	10.69	43.73	46.00	-2.27	360	100	peak
4	499.4246	31.75	12.18	43.93	46.00	-2.07	360	100	peak
5	94.0978	30.66	5.37	36.03	43.50	-7.47	360	100	peak

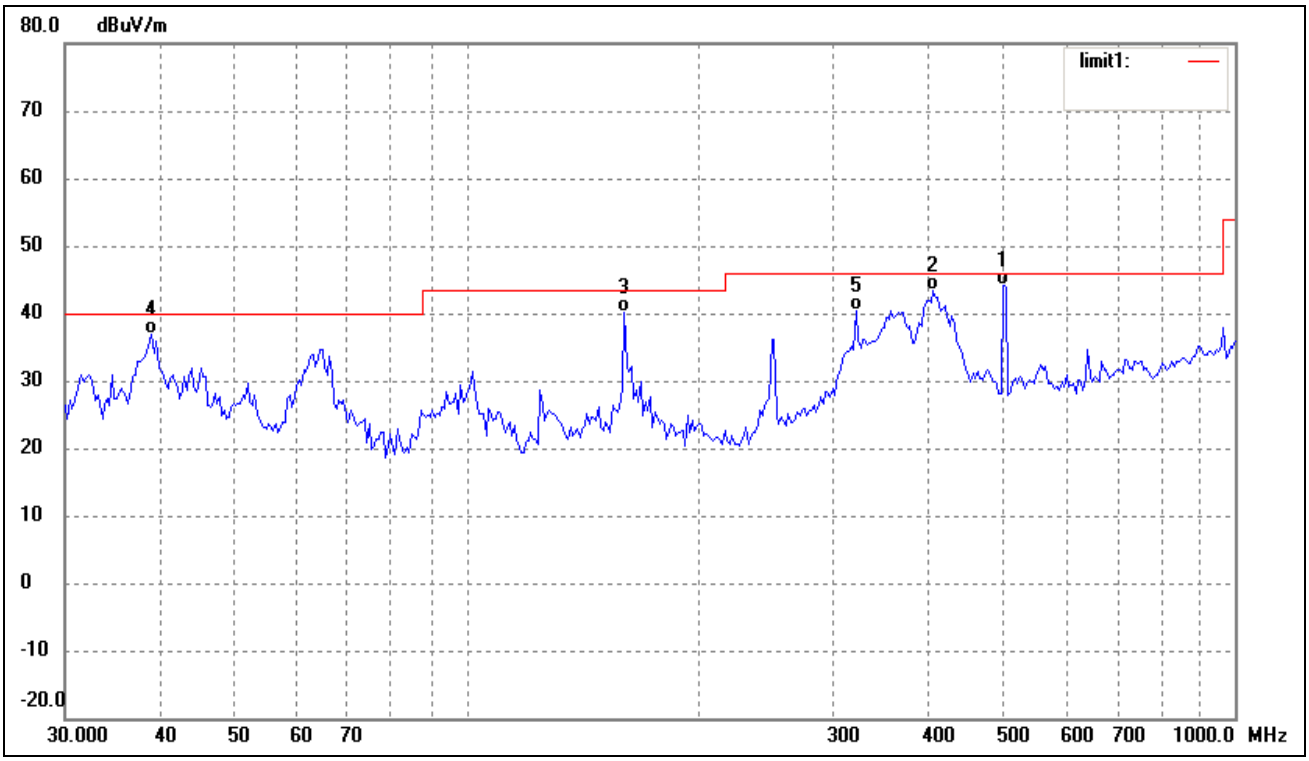
Operating Condition: *802.11n/HT40 Transmitting Highest Channel-2452MHz with two transmit chain*
Comment: *AC 120V/60Hz; adapter DC 12V*

Test Specification: *Horizontal*



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	Factor(dB)	(dBuV/m)	(dBuV/m)	(dB)	(•)	(cm)	
1	160.3456	36.90	3.65	40.55	43.50	-2.95	360	100	QP
2	251.1803	36.21	7.34	43.55	46.00	-2.45	360	100	QP
3	390.7225	33.08	11.12	44.20	46.00	-1.80	360	100	QP
4	499.4246	32.00	12.18	44.18	46.00	-1.82	360	100	QP

Test Specification: *Vertical*



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	Factor(dB)	(dBuV/m)	(dBuV/m)	(dB)	(•)	(cm)	
1	499.4246	31.85	12.18	44.03	46.00	-1.97	360	100	QP
2	404.6664	31.93	11.35	43.28	46.00	-2.72	360	100	QP
3	160.3456	36.43	3.65	40.08	43.50	-3.42	360	100	QP
4	38.8879	27.26	9.50	36.76	40.00	-3.24	360	100	QP
5	321.0607	29.97	10.46	40.43	46.00	-5.57	360	100	QP

Spurious Emissions Above 1GHz

Test Mode: 802.11b

Frequency	Reading	Correct	Result	Limit	Margin	Polar	Detector
(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	H/V	
Low Channel-2412MHz							
4824	65.17	0.57	64.60	74.00	-9.40	H	PK
4824	50.29	0.57	49.72	54.00	-4.28	H	AV
7236	52.49	3.69	48.80	74.00	-25.2	H	PK
7236	40.32	3.69	36.63	54.00	-17.37	H	AV
4824	59.92	0.57	59.35	74.00	-14.65	V	PK
4824	43.2	0.57	42.63	54.00	-11.37	V	AV
7236	50.62	3.69	46.93	74.00	-27.07	V	PK
7236	41.18	3.69	37.49	54.00	-16.51	V	AV
Middle Channel-2437MHz							
4874	64.37	0.64	63.73	74.00	-10.27	H	PK
4874	48.87	0.64	48.23	54.00	-5.77	H	AV
7311	53.7	3.75	49.95	74.00	-24.05	H	PK
7311	39.09	3.75	35.34	54.00	-18.66	H	AV
4874	57.97	0.64	57.33	74.00	-16.67	V	PK
4874	43.89	0.64	43.25	54.00	-10.75	V	AV
7311	51.12	3.75	47.37	74.00	-26.63	V	PK
7311	36.03	3.75	32.28	54.00	-21.72	V	AV
High Channel-2462MHz							
4924	63.58	0.72	62.86	74.00	-11.14	H	PK
4924	49.46	0.72	48.74	54.00	-5.26	H	AV
7386	52.34	3.81	48.53	74.00	-25.47	H	PK
7386	38.94	3.81	35.13	54.00	-18.87	H	AV
4924	57.03	0.72	56.31	74.00	-17.69	V	PK
4924	46.06	0.72	45.34	54.00	-8.66	V	AV
7386	46.98	3.81	43.17	74.00	-30.83	V	PK
7386	35.98	3.81	32.17	54.00	-21.83	V	AV

Test Mode: 802.11g

Frequency	Reading	Correct	Result	Limit	Margin	Polar	Detector
(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	H/V	
Low Channel-2412MHz							
4824	56.14	0.57	55.57	74.00	-18.43	H	PK
4824	37.9	0.57	37.33	54.00	-16.67	H	AV
7236	50.13	3.69	46.44	74.00	-27.56	H	PK
7236	39.17	3.69	35.48	54.00	-18.52	H	AV
4824	54.35	0.57	53.78	74.00	-20.22	V	PK
4824	39.48	0.57	38.91	54.00	-15.09	V	AV
7236	50.03	3.69	46.34	74.00	-27.66	V	PK
7236	39.09	3.69	35.40	54.00	-18.6	V	AV
Middle Channel-2437MHz							
4874	57.39	0.64	56.75	74.00	-17.25	H	PK
4874	44.97	0.64	44.33	54.00	-9.67	H	AV
7311	51.09	3.75	47.34	74.00	-26.66	H	PK
7311	39.63	3.75	35.88	54.00	-18.12	H	AV
4874	54.21	0.64	53.57	74.00	-20.43	V	PK
4874	40.47	0.64	39.83	54.00	-14.17	V	AV
7311	50.19	3.75	46.44	74.00	-27.56	V	PK
7311	39.23	3.75	35.48	54.00	-18.52	V	AV
High Channel-2462MHz							
4924	56.22	0.72	55.50	74.00	-18.5	H	PK
4924	42.46	0.72	41.74	54.00	-12.26	H	AV
7386	52.59	3.81	48.78	74.00	-25.22	H	PK
7386	40.09	3.81	36.28	54.00	-17.72	H	AV
4924	50.11	0.72	49.39	74.00	-24.61	V	PK
4924	37.71	0.72	36.99	54.00	-17.01	V	AV
7386	51.05	3.81	47.24	74.00	-26.76	V	PK
7386	39.56	3.81	35.75	54.00	-18.25	V	AV

Test Mode: 802.11n-HT20

Frequency	Reading	Correct	Result	Limit	Margin	Polar	Detector
(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	H/V	
Low Channel-2412MHz							
4824	51.81	0.57	51.24	74.00	-22.76	H	PK
4824	36.94	0.57	36.37	54.00	-17.63	H	AV
7236	49.12	3.69	45.43	74.00	-28.57	H	PK
7236	38.12	3.69	34.43	54.00	-19.57	H	AV
4824	53.64	0.57	53.07	74.00	-20.93	V	PK
4824	37.46	0.57	36.89	54.00	-17.11	V	AV
7236	48.27	3.69	44.58	74.00	-29.42	V	PK
7236	42.12	3.69	38.43	54.00	-15.57	V	AV
Middle Channel-2437MHz							
4874	58.69	0.64	58.05	74.00	-15.95	H	PK
4874	42.98	0.64	42.34	54.00	-11.66	H	AV
7311	50.38	3.75	46.63	74.00	-27.37	H	PK
7311	39.53	3.75	35.78	54.00	-18.22	H	AV
4874	52.15	0.64	51.51	74.00	-22.49	V	PK
4874	40.26	0.64	39.62	54.00	-14.38	V	AV
7311	50.88	3.75	47.13	74.00	-26.87	V	PK
7311	39	3.75	35.25	54.00	-18.75	V	AV
High Channel-2462MHz							
4924	55.25	0.72	54.53	74.00	-19.47	H	PK
4924	40.09	0.72	39.37	54.00	-14.63	H	AV
7386	52.3	3.81	48.49	74.00	-25.51	H	PK
7386	39.17	3.81	35.36	54.00	-18.64	H	AV
4924	50.15	0.72	49.43	74.00	-24.57	V	PK
4924	37.52	0.72	36.80	54.00	-17.2	V	AV
7386	50.73	3.81	46.92	74.00	-27.08	V	PK
7386	42.25	3.81	38.44	54.00	-15.56	V	AV

Test Mode: 802.11n-HT40

Frequency	Reading	Correct	Result	Limit	Margin	Polar	Detector
(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	H/V	
Low Channel-2422MHz							
4844	50.13	0.60	49.53	74.00	-24.47	H	PK
4844	37.82	0.60	37.22	54.00	-16.78	H	AV
7266	51.16	3.72	47.44	74.00	-26.56	H	PK
7266	39.3	3.72	35.58	54.00	-18.42	H	AV
4844	49.89	0.60	49.29	74.00	-24.71	V	PK
4844	39.28	0.60	38.68	54.00	-15.32	V	AV
7266	50.46	3.72	46.74	74.00	-27.26	V	PK
7266	38.4	3.72	34.68	54.00	-19.32	V	AV
Middle Channel-2437MHz							
4874	53.48	0.64	52.84	74.00	-21.16	H	PK
4874	43	0.64	42.36	54.00	-11.64	H	AV
7311	50.38	3.75	46.63	74.00	-27.37	H	PK
7311	40.03	3.75	36.28	54.00	-17.72	H	AV
4874	49.47	0.64	48.83	74.00	-25.17	V	PK
4874	37.98	0.64	37.34	54.00	-16.66	V	AV
7311	50.03	3.75	46.28	74.00	-27.72	V	PK
7311	40.67	3.75	36.92	54.00	-17.08	V	AV
High Channel-2452MHz							
4904	56.16	0.68	55.48	74.00	-18.52	H	PK
4904	47.52	0.68	46.84	54.00	-7.16	H	AV
7356	52.22	3.79	48.43	74.00	-25.57	H	PK
7356	42.77	3.79	38.98	54.00	-15.02	H	AV
4904	50.81	0.68	50.13	74.00	-23.87	V	PK
4904	42.41	0.68	41.73	54.00	-12.27	V	AV
7356	50.66	3.79	46.87	74.00	-27.13	V	PK
7356	39.02	3.79	35.23	54.00	-18.77	V	AV

Test Mode: 802.11n-HT20 with two transmit chain

Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Polar H/V	Detector
Low Channel-2412MHz							
4824	54.34	0.57	53.77	74.00	-20.23	H	PK
4824	39.93	0.57	39.36	54.00	-14.64	H	AV
7236	50.02	3.69	46.33	74.00	-27.67	H	PK
7236	38.93	3.69	35.24	54.00	-18.76	H	AV
4824	55.4	0.57	54.83	74.00	-19.17	V	PK
4824	39.4	0.57	38.83	54.00	-15.17	V	AV
7236	50.27	3.69	46.58	74.00	-27.42	V	PK
7236	39.1	3.69	35.41	54.00	-18.59	V	AV
Middle Channel-2437MHz							
4874	56.99	0.64	56.35	74.00	-17.65	H	PK
4874	46.92	0.64	46.28	54.00	-7.72	H	AV
7311	51.59	3.75	47.84	74.00	-26.16	H	PK
7311	40.52	3.75	36.77	54.00	-17.23	H	AV
4874	53.09	0.64	52.45	74.00	-21.55	V	PK
4874	41.17	0.64	40.53	54.00	-13.47	V	AV
7311	51.97	3.75	48.22	74.00	-25.78	V	PK
7311	40.43	3.75	36.68	54.00	-17.32	V	AV
High Channel-2462MHz							
4924	54.2	0.72	53.48	74.00	-20.52	H	PK
4924	41.5	0.72	40.78	54.00	-13.22	H	AV
7386	52.45	3.81	48.64	74.00	-25.36	H	PK
7386	40.15	3.81	36.34	54.00	-17.66	H	AV
4924	48.15	0.72	47.43	74.00	-26.57	V	PK
4924	36.54	0.72	35.82	54.00	-18.18	V	AV
7386	51.37	3.81	47.56	74.00	-26.44	V	PK
7386	39.64	3.81	35.83	54.00	-18.17	V	AV

Test Mode: 802.11n-HT40 with two transmit chain

Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Polar H/V	Detector
Low Channel-2422MHz							
4844	52.14	0.60	51.54	74.00	-22.46	H	PK
4844	39.55	0.60	38.95	54.00	-15.05	H	AV
7266	47.58	3.72	43.86	74.00	-30.14	H	PK
7266	40.25	3.72	36.53	54.00	-17.47	H	AV
4844	49.89	0.60	49.29	74.00	-24.71	V	PK
4844	40.28	0.60	39.68	54.00	-14.32	V	AV
7266	49.8	3.72	46.08	74.00	-27.92	V	PK
7266	40.77	3.72	37.05	54.00	-16.95	V	AV
Middle Channel-2437MHz							
4874	55.27	0.64	54.63	74.00	-19.37	H	PK
4874	44.74	0.64	44.10	54.00	-9.9	H	AV
7311	51.36	3.75	47.61	74.00	-26.39	H	PK
7311	40.19	3.75	36.44	54.00	-17.56	H	AV
4874	49.23	0.64	48.59	74.00	-25.41	V	PK
4874	37.73	0.64	37.09	54.00	-16.91	V	AV
7311	50.64	3.75	46.89	74.00	-27.11	V	PK
7311	41.51	3.75	37.76	54.00	-16.24	V	AV
High Channel-2452MHz							
4904	56.22	0.68	55.54	74.00	-18.46	H	PK
4904	46.56	0.68	45.88	54.00	-8.12	H	AV
7356	53.34	3.79	49.55	74.00	-24.45	H	PK
7356	42.72	3.79	38.93	54.00	-15.07	H	AV
4904	54.21	0.68	53.53	74.00	-20.47	V	PK
4904	44.1	0.68	43.42	54.00	-10.58	V	AV
7356	51.39	3.79	47.60	74.00	-26.4	V	PK
7356	40.12	3.79	36.33	54.00	-17.67	V	AV

Note: Testing is carried out with frequency rang 9kHz to the tenth harmonics, which above 5th Harmonics are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
The measurements greater than 20dB below the limit from 9kHz to 30MHz..

8. Out of Band Emissions

8.1 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. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a).

8.2 Test Equipment List and Details

Description	Manufacturer	Model	Serial Number	Cal. Date	Due. Date
Spectrum Analyzer	R&S	FSP	836079/035	2013-03-28	2014-03-27
EMI Test Receiver	R&S	ESVB	825471/005	2013-03-28	2014-03-27
Pre-amplifier	Agilent	8447F	3113A06717	2013-03-28	2014-03-27
Pre-amplifier	Compliance Direction	PAP-0118	24002	2013-03-28	2014-03-27
Trilog Broadband Antenna	SCHWARZBECK	VULB9163	9163-333	2013-02-25	2014-02-24
Horn Antenna	ETS	3117	00086197	2013-02-25	2014-02-24

8.3 Test Procedure

According to the KDB 558074, the band-edge radiated test method as follows:

Set span = wide enough to capture the peak level of the emission operating on the channel closest to the bandedge, as well as any modulation products which fall outside of the authorized band of operation (2310MHz to 2420MHz for low bandedge, 2460MHz to 2500MHz for the high bandedge)
RBW = 1MHz, VBW = 1MHz for peak value measured
RBW = 1MHz, VBW = 10Hz for average value measured
Sweep = auto; Detector function = peak/average; Trace = max hold

All the trace to stabilize, set the marker on the emission at the bandedge, or on the highest modulation porduct outside of the band, if this level is greater than that at the bandedge. Enable the marker-delta function, then use the marker-to-peak function to move the marker to the peak of the in-band emission. Those emission must comply with the 15.209 limit for fall in the restricted bands listed in section 15.205. Note that the method of measurement KDB publication number: 913591 may be used for the radiated bandedge measurements.

According to the DA 00-705, the band-edge conducted test method as follows:

Set span = wide enough to capture the peak level of the emission operating on the channel closest to the bandedge, as well as any modulation products which fall outside of the authorized band of operation (2380MHz to 2410MHz for low bandedge, 2470MHz to 2500MHz for the high bandedge)
RBW = 100kHz, VBW = 300kHz
Sweep = auto; Detector function = peak; Trace = max hold

All the trace to stabilize, set the marker on the emission at the bandedge, or on the highest modulation porduct outside of the band, if this level is greater than that at the bandedge. Enable the marker-delta function, then use the marker-to-peak function to move the marker to the peak of the in-band emission. Those emission must comply with the limit specified in this section (at least 20dB attenuation).

8.4 Environmental Conditions

Temperature:	23°C
Relative Humidity:	54%
ATM Pressure:	1011 mbar

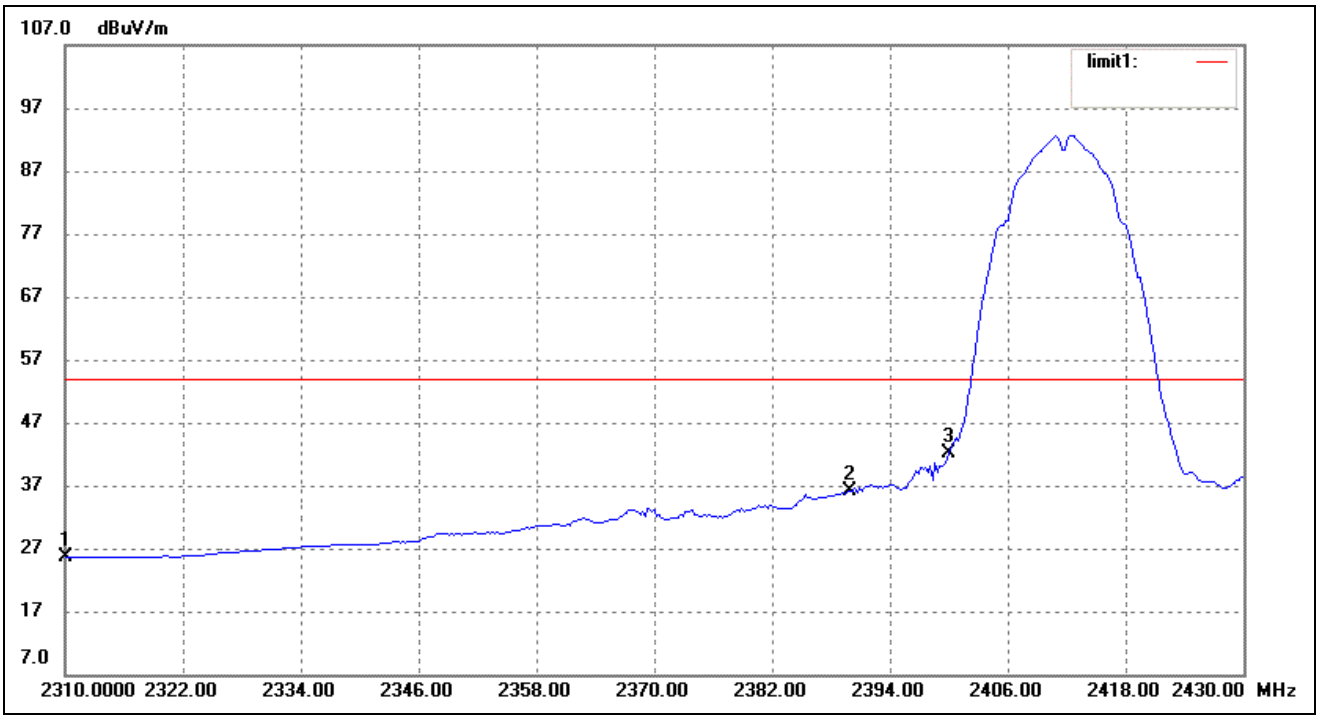
8.5 Summary of Test Results/Plots

Test Mode	Test Frequency MHz	Limit dBuV / dBc	Result
802.11b	2390.00	<54 dBuV	Pass
	2400.00	>20 dBc	Pass
	2483.50	<54 dBuV	Pass
802.11g	2390.00	<54 dBuV	Pass
	2400.00	>20 dBc	Pass
	2483.50	<54 dBuV	Pass
802.11n-HT20	2390.00	<54 dBuV	Pass
	2400.00	>20 dBc	Pass
	2483.50	<54 dBuV	Pass
802.11n-HT40	2390.00	<54 dBuV	Pass
	2400.00	>20 dBc	Pass
	2483.50	<54 dBuV	Pass

The edge emissions are below the FCC 15.209 Limits or complies with the 15.247(d) requirements.

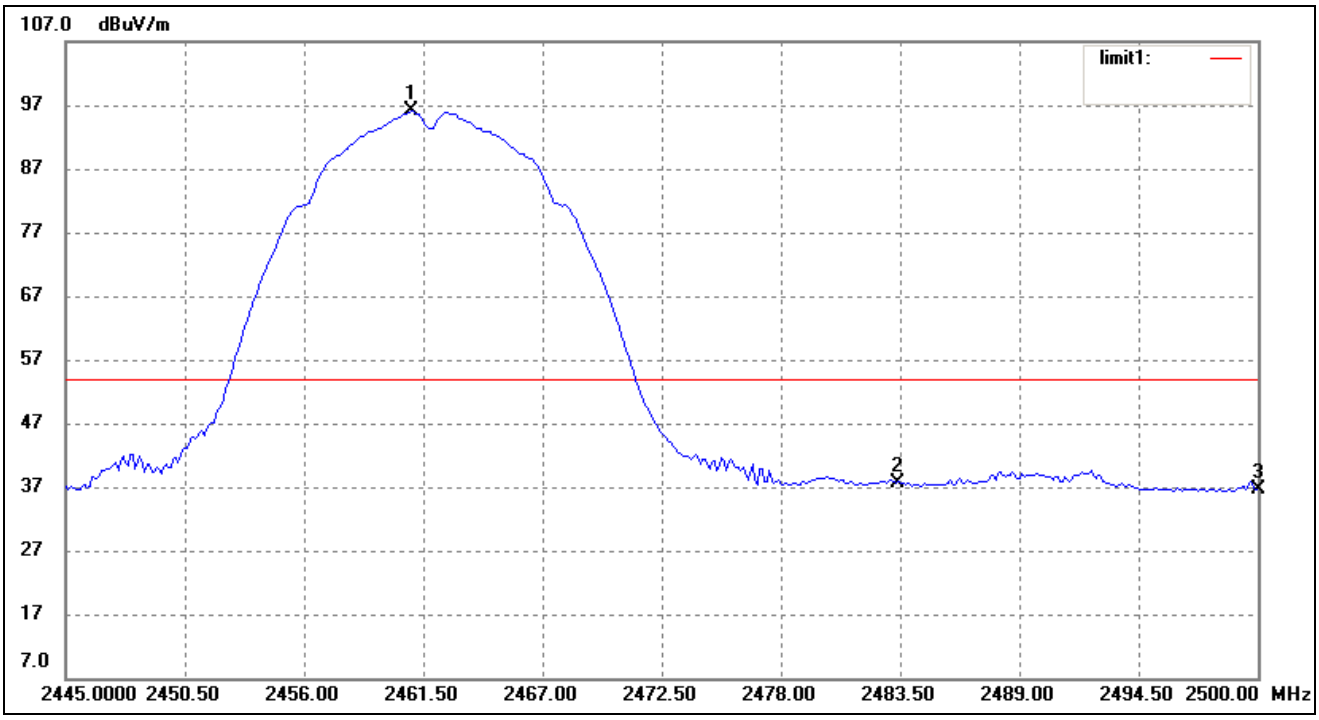
Please refer to the test plots as below.

802.11b-china 0-Lowest Bandedge



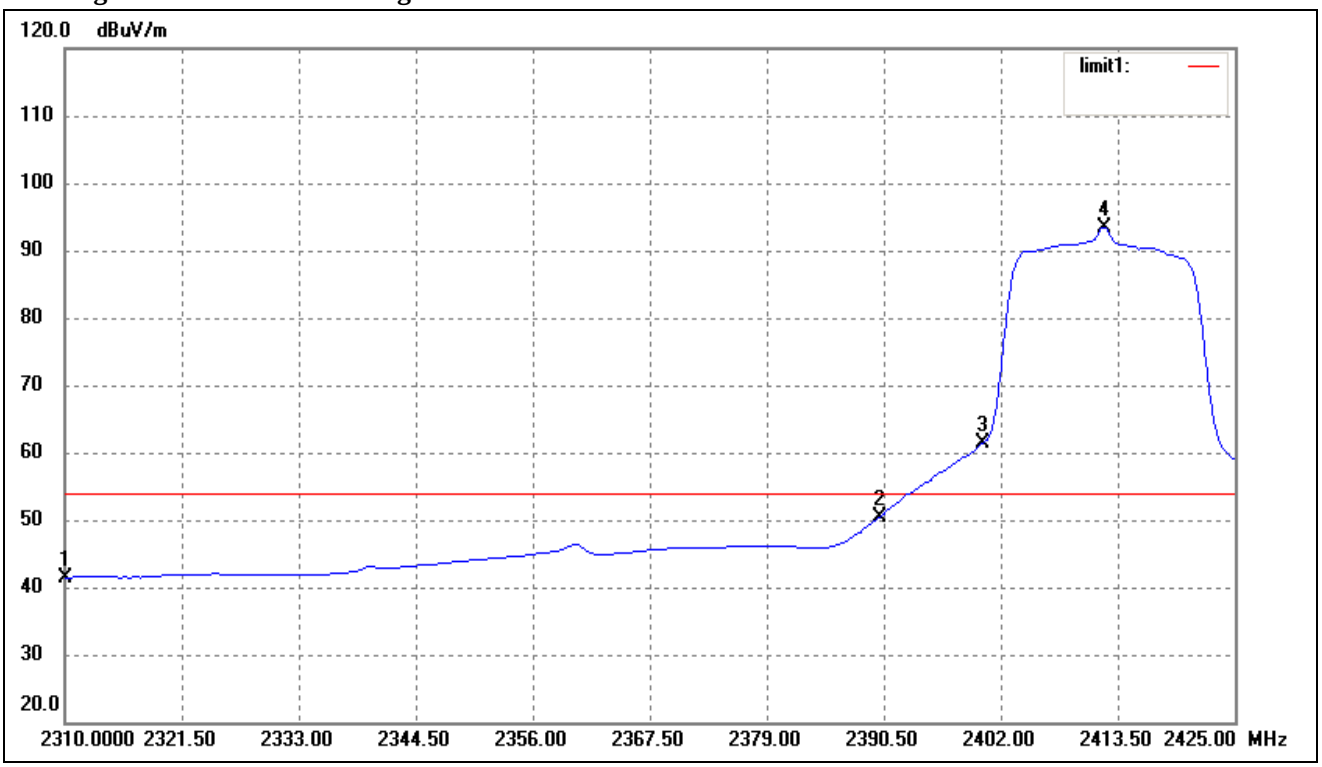
No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	
1	2310.000	29.30	-3.71	25.59	54.00	-28.41	Average Detector
	2310.000	41.38	-3.71	37.67	74.00	-36.33	Peak Detector
2	2390.000	39.72	-3.54	36.18	54.00	-17.82	Average Detector
	2390.000	52.26	-3.54	48.72	74.00	-25.28	Peak Detector
3	2400.000	45.65	-3.51	42.14	54.00	-11.86	Average Detector
	2400.000	56.04	-3.51	52.53	74.00	-21.47	Peak Detector

802.11b-chain 0-Highest Bandedge



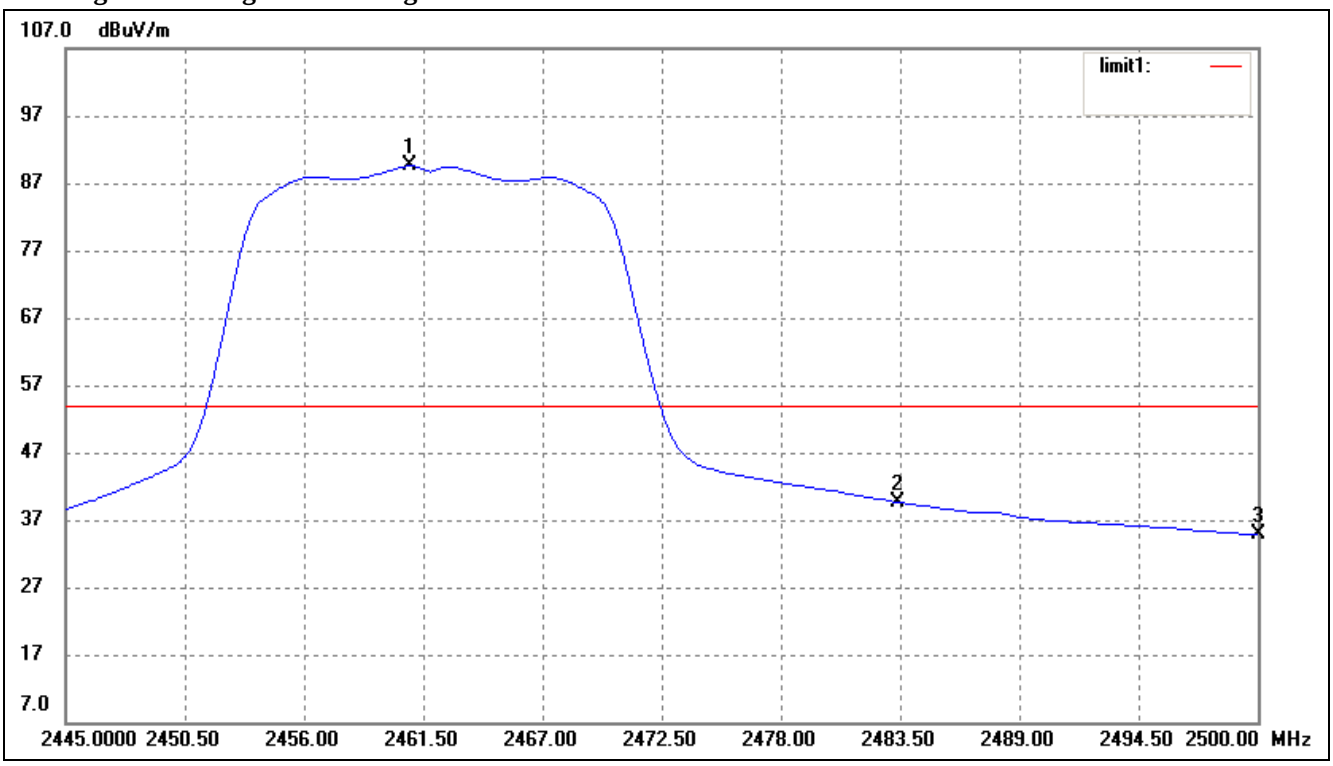
No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	
1	2461.043	99.42	-3.37	96.05	/	/	Average Detector
	2461.043	103.37	-3.37	100.00	/	/	Peak Detector
2	2483.500	Delta = 50.54dBc		37.75	54.00	-16.25	Average Detector
	2483.500			49.46	74.00	-24.54	Peak Detector
3	2500.000	39.88	-3.28	36.60	54.00	-17.40	Average Detector
	2500.000	51.52	-3.28	48.24	74.00	-25.76	Peak Detector

802.11g-chain 0-Lowest Bandedge



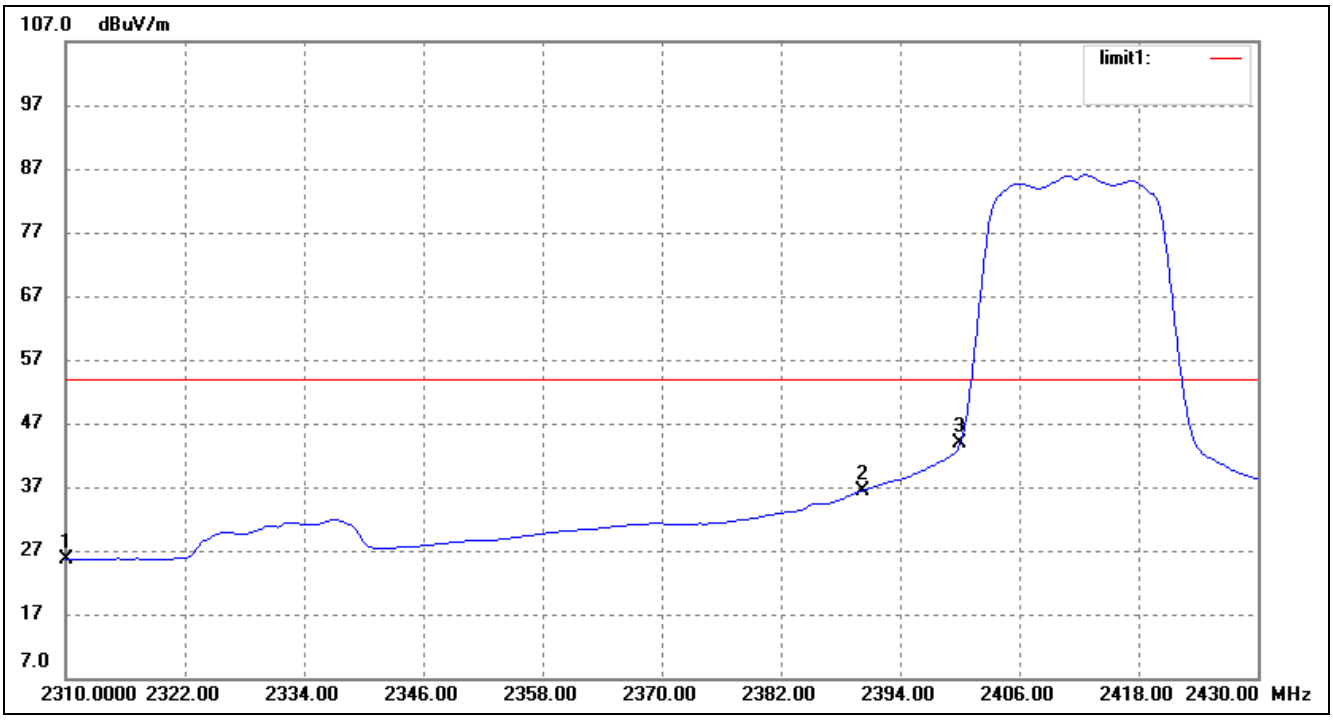
No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	
1	2310.000	48.51	-7.07	41.44	54.00	-12.56	Average Detector
	2310.000	62.23	-7.07	55.16	74.00	-18.84	Peak Detector
2	2390.000	57.37	-6.92	50.45	54.00	-3.55	Average Detector
	2390.000	77.09	-6.92	70.17	74.00	-3.83	Peak Detector
3	2400.000	68.28	-6.89	61.39	Delta = 32.01dBc		Average Detector
4	2412.120	100.26	-6.86	93.40			Average Detector

802.11g-chain 0-Highest Bandedge



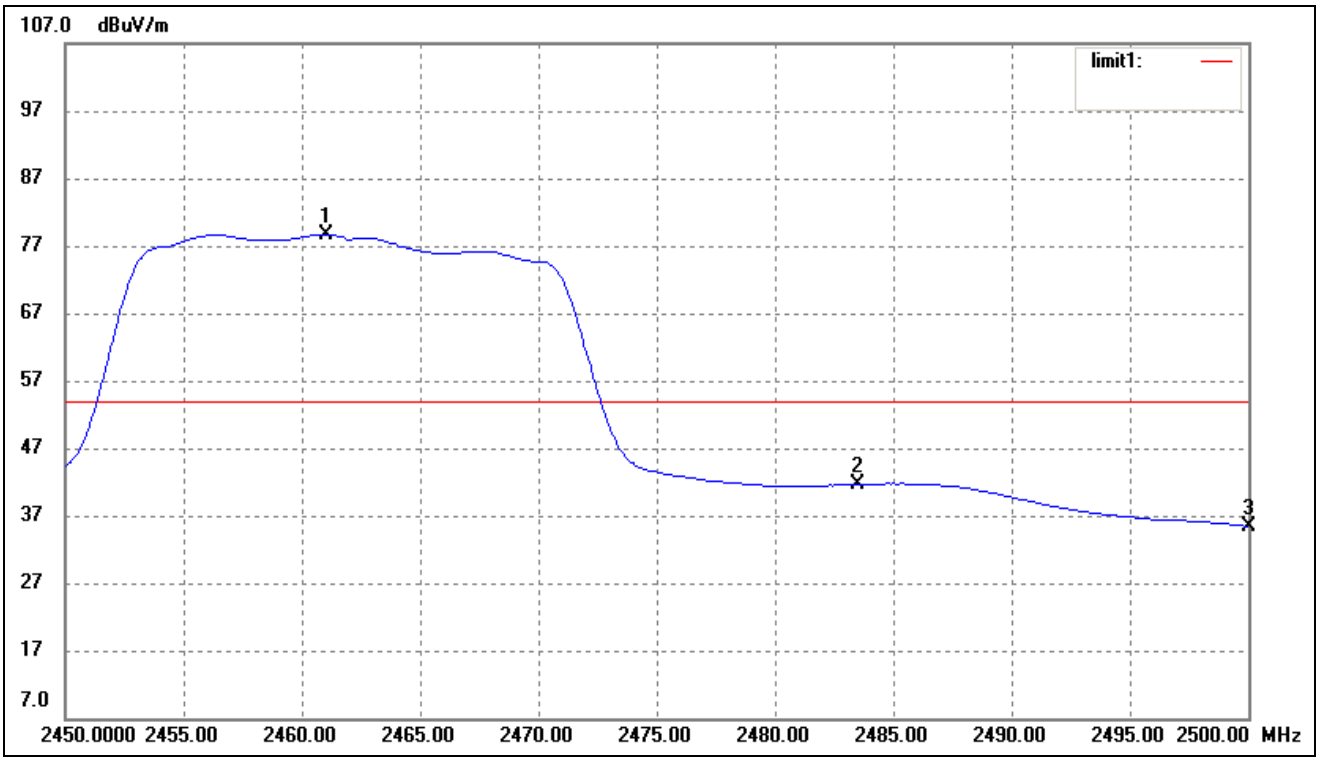
No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	
1	2460.934	92.93	-3.37	89.56	/	/	Average Detector
	2460.934	104.93	-3.37	101.56	/	/	Peak Detector
2	2483.500	Delta = 40.01dBc		39.59	54.00	-14.41	Average Detector
	2483.500			61.55	74.00	-12.45	Peak Detector
3	2500.000	38.12	-3.28	34.84	54.00	-19.16	Average Detector
	2500.000	51.62	-3.28	48.34	74.00	-25.66	Peak Detector

802.11g-chain 1-Lowest Bandedge



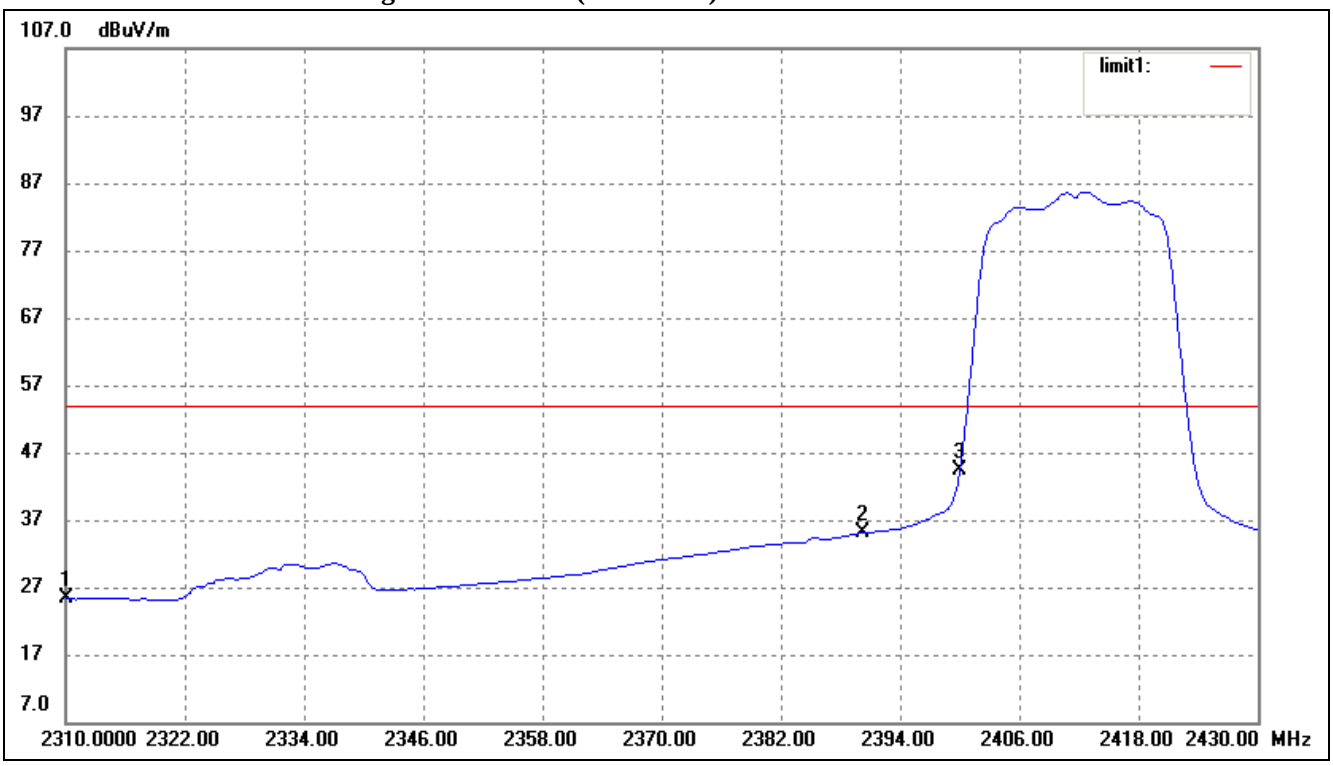
No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	
1	2310.000	29.27	-3.71	25.56	54.00	-28.44	Average Detector
	2310.000	41.78	-3.71	38.07	74.00	-35.93	Peak Detector
2	2390.000	39.97	-3.54	36.43	54.00	-17.57	Average Detector
	2390.000	60.71	-3.54	57.17	74.00	-16.83	Peak Detector
3	2400.000	47.27	-3.51	43.76	54.00	-10.24	Average Detector
	2400.000	72.34	-3.51	68.83	74.00	-5.17	Peak Detector

802.11g-chain 1-Highest Bandedge



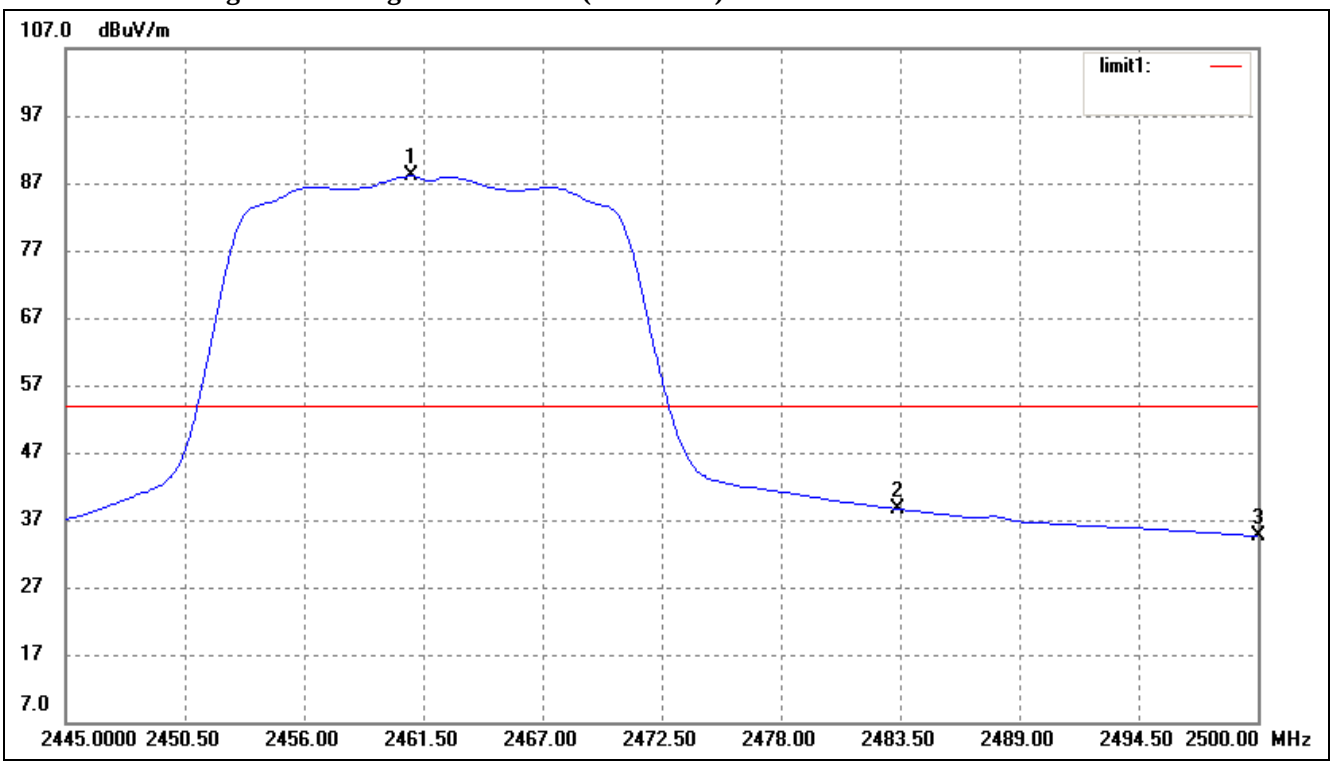
No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	
1	2461.000	82.07	-3.37	78.70	/	/	Average Detector
	2461.000	101.42	-3.37	98.05	/	/	Peak Detector
2	2483.500	Delta = 40.00 dBc		38.70	54.00	-15.30	Average Detector
	2483.500			58.05	74.00	-15.95	Peak Detector
3	2500.000	38.74	-3.28	35.46	54.00	-18.54	Average Detector
	2500.000	53.55	-3.28	50.27	74.00	-23.73	Peak Detector

802.11n-HT20-Lowest Bandedge with Chain 0 (worst case)



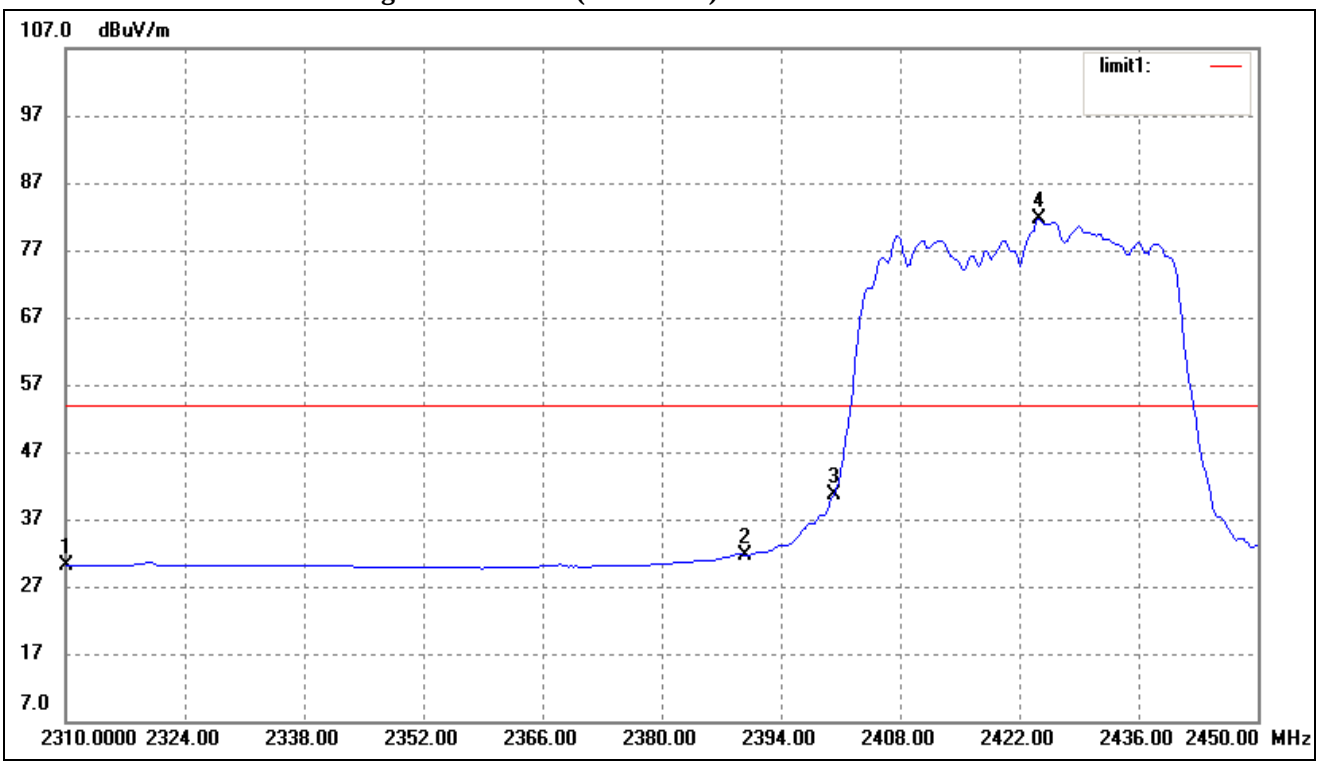
No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	
1	2310.000	29.02	-3.71	25.31	54.00	-28.69	Average Detector
	2310.000	41.35	-3.71	37.64	74.00	-36.36	Peak Detector
2	2390.000	38.62	-3.54	35.08	54.00	-18.92	Average Detector
	2390.000	57.79	-3.54	54.25	74.00	-19.75	Peak Detector
3	2400.000	47.98	-3.51	44.47	54.00	-9.53	Average Detector
	2400.000	68.06	-3.51	64.55	74.00	-9.45	Peak Detector

802.11n-HT20-Highest Bandedge with Chain 0 (worst case)



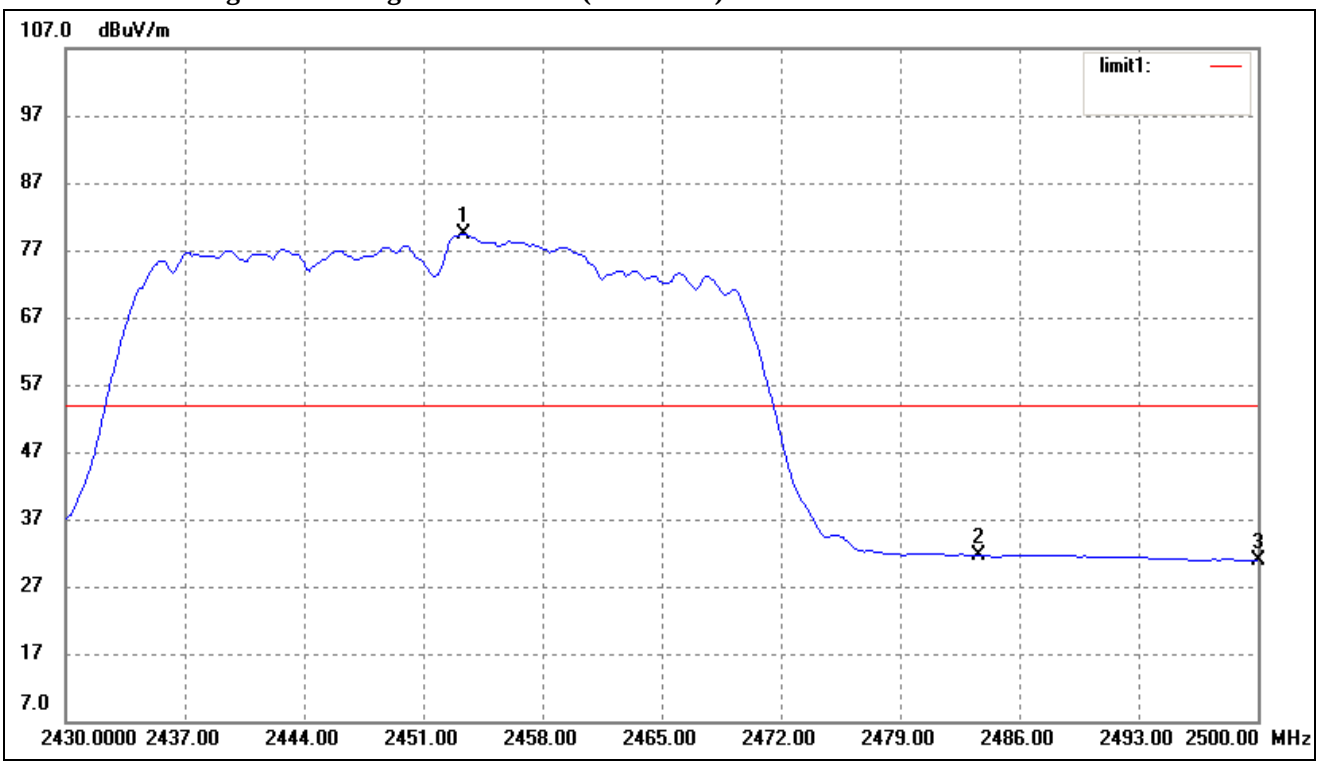
No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	
1	2461.043	91.45	-3.37	88.08	/	/	Average Detector
	2461.043	102.84	-3.37	99.47	/	/	Peak Detector
2	2483.500	Delta = 41.45dBc		38.59	54.00	-15.41	Average Detector
	2483.500			58.02	74.00	-15.98	Peak Detector
3	2500.000	37.92	-3.28	34.64	54.00	-19.36	Average Detector
	2500.000	2500.000	50.07	-3.28	46.79	74.00	Peak Detector

802.11n-HT40-Lowest Bandedge with Chain 0 (worst case)



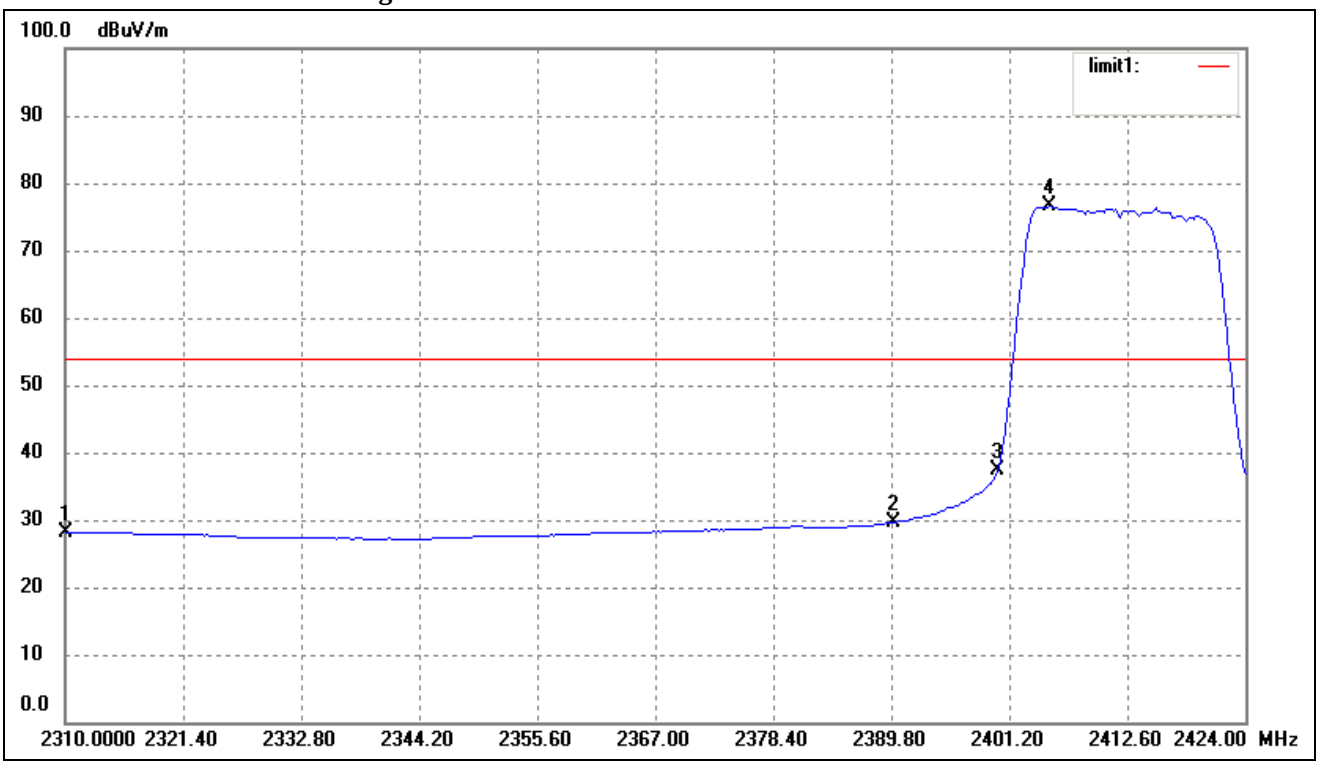
No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV/m)	Factor(dB)	(dBuV/m)	(dBuV/m)	(dB)	
1	2310.000	33.91	-3.71	30.20	54.00	-23.80	Average Detector
	2310.000	46.93	-3.71	43.22	74.00	-30.78	Peak Detector
2	2390.000	35.10	-3.54	31.56	54.00	-22.44	Average Detector
	2390.000	49.46	-3.54	45.92	74.00	-28.08	Peak Detector
3	2400.000	44.22	-3.51	40.71	Delta = 42.92 dBc		Average Detector
4	2424.240	85.08	-3.45	83.63			Average Detector

802.11n-HT40-Highest Bandedge with Chain 0 (worst case)



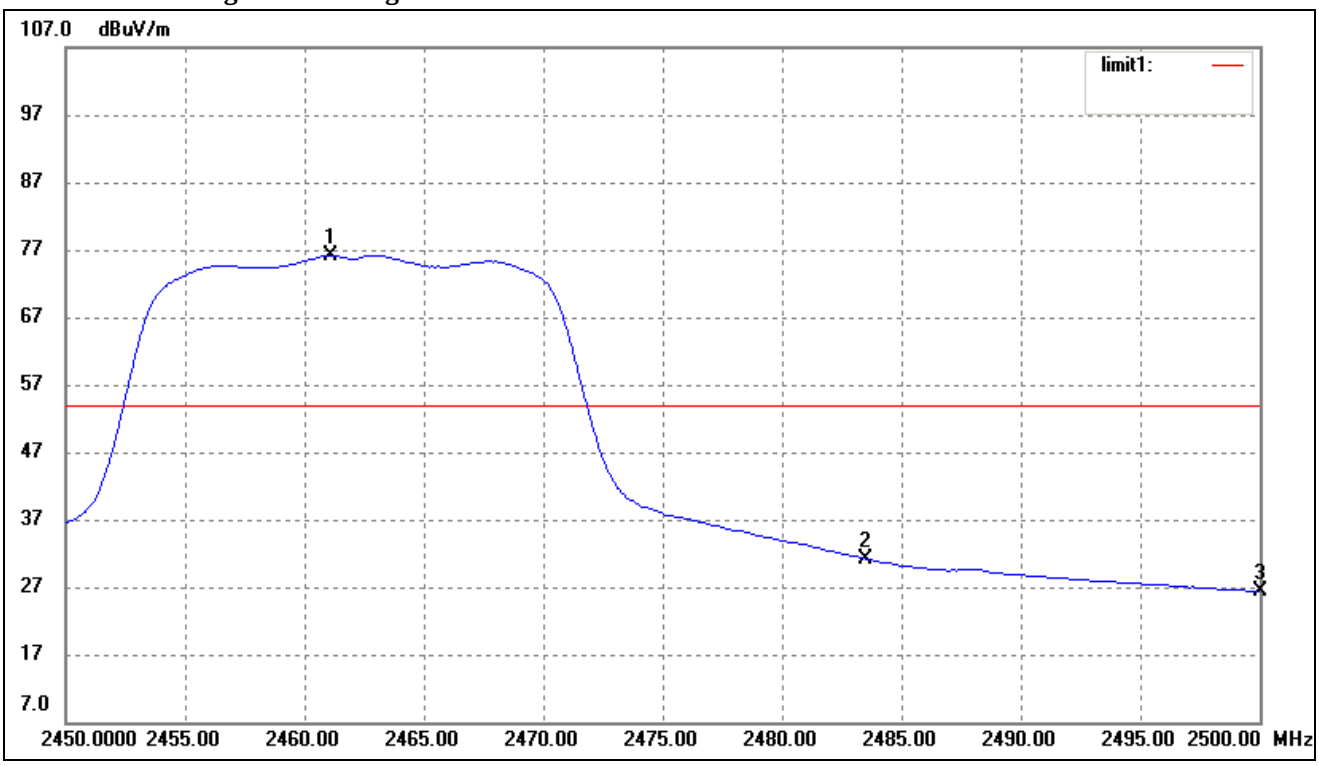
No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	
1	2453.380	82.78	-3.38	79.40	/	/	Average Detector
	2453.660	91.87	-3.38	88.49	/	/	Peak Detector
2	2483.500	Delta = 42.61 dBc		36.85	54.00	-17.15	Average Detector
	2483.500			45.94	74.00	-28.06	Peak Detector
3	2500.000	34.19	-3.28	30.91	54.00	-23.09	Average Detector
	2500.000	48.28	-3.28	45.00	74.00	-29.00	Peak Detector

802.11n-HT20 Lowest Bandedge with Two Transmit Chain



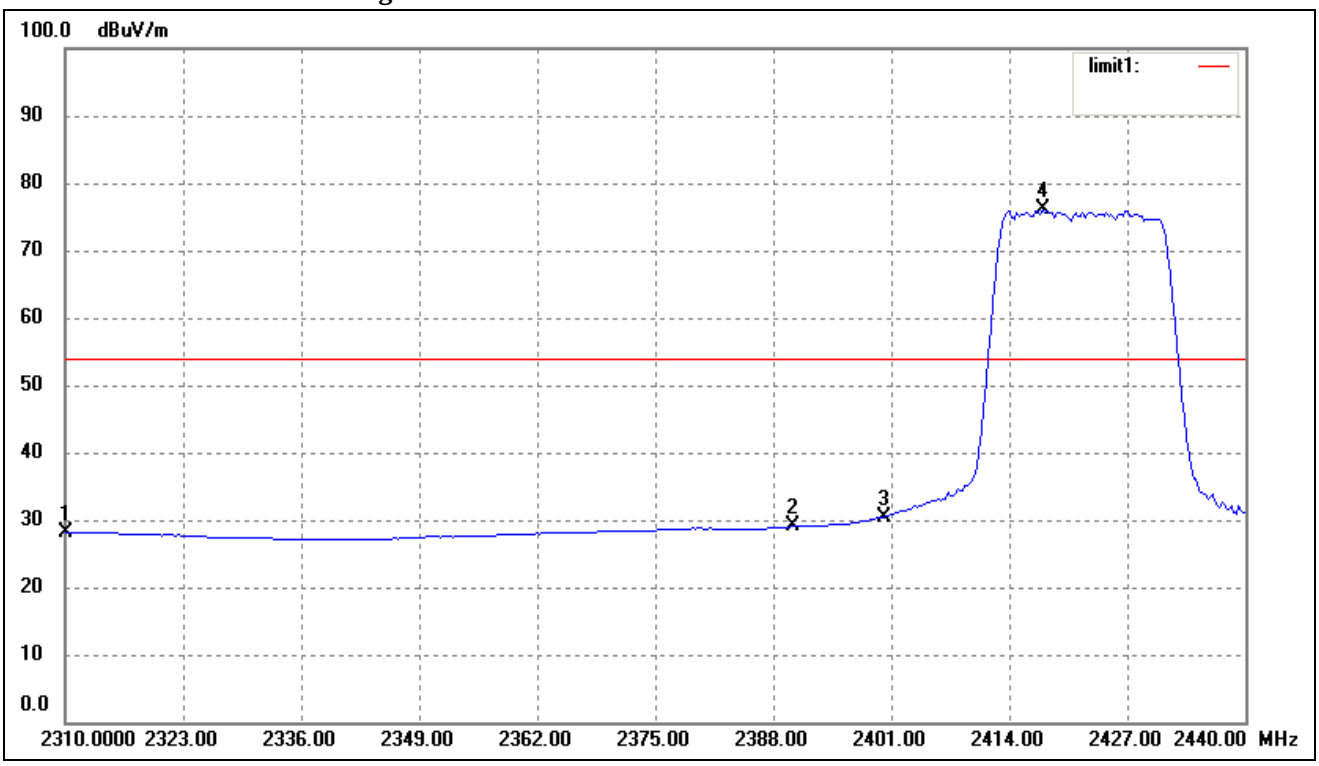
No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	
1	2310.000	31.88	-3.71	28.17	54.00	-25.83	Average Detector
	2310.000	46.12	-3.71	42.41	74.00	-31.59	Peak Detector
2	2390.000	33.18	-3.54	29.64	54.00	-24.36	Average Detector
	2390.000	46.19	-3.54	42.65	74.00	-31.35	Peak Detector
3	2400.000	40.93	-3.51	37.42	Delta = 39.09 dBc		Average Detector
4	2405.076	80.01	-3.50	76.51			Average Detector

802.11n-HT20 Highest Bandedge with Two Transmit Chain



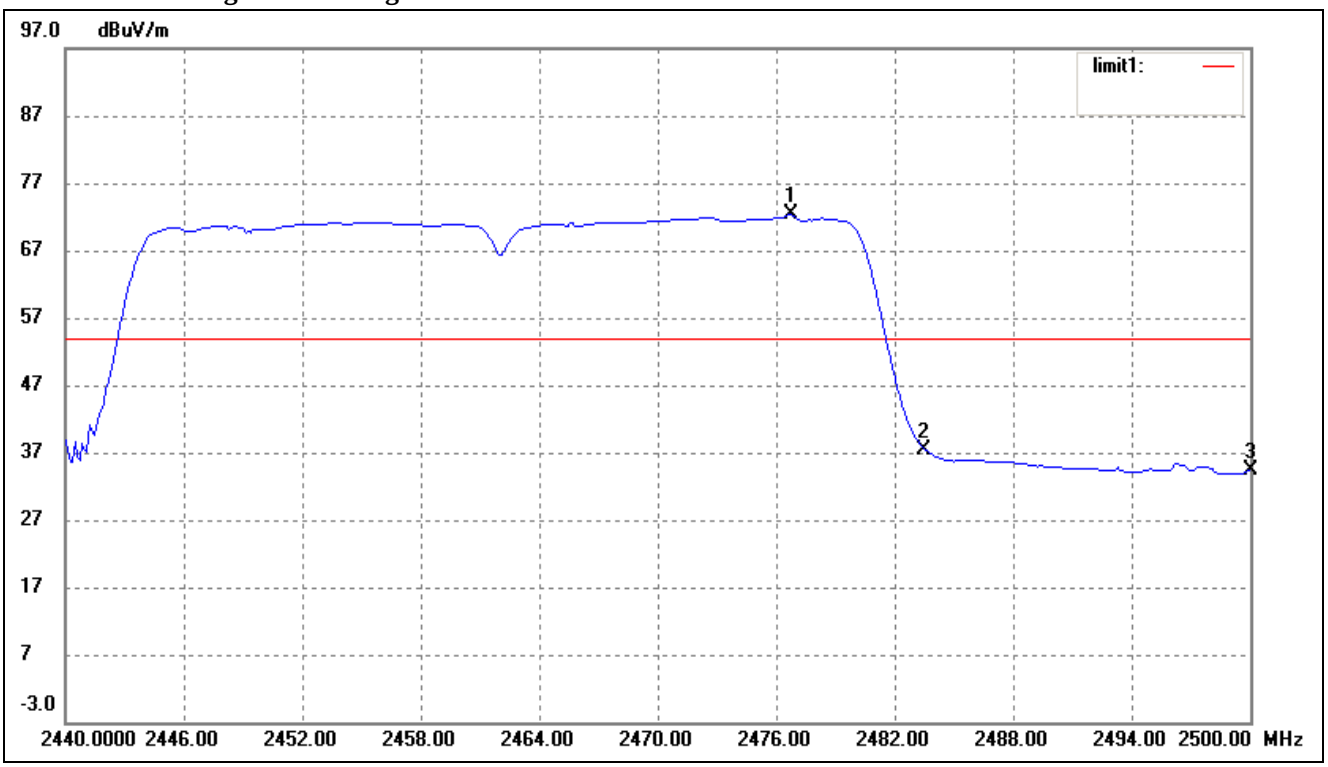
No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	
1	2461.100	88.01	-11.77	76.24	/	/	Average Detector
	2461.800	102.69	-11.77	90.92	/	/	Peak Detector
1	2483.500	Delta = 45.01 dBc		31.23	54.00	-22.77	Average Detector
	2483.500			50.56	74.00	-23.44	Peak Detector
2	2500.000	38.19	-11.78	26.41	54.00	-27.59	Average Detector
	2500.000	52.46	-11.78	40.68	74.00	-33.32	Peak Detector

802.11n-HT40 Lowest Bandedge with Two Transmit Chain



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	
1	2310.000	31.85	-3.71	28.14	54.00	-25.86	Average Detector
	2310.000	44.79	-3.71	41.08	74.00	-32.92	Peak Detector
2	2390.000	32.60	-3.54	29.06	54.00	-24.94	Average Detector
	2390.000	44.75	-3.54	41.21	74.00	-32.79	Peak Detector
3	2400.000	34.01	-3.51	30.50	Delta = 45.71 dBc		Average Detector
4	2417.640	79.68	-3.47	76.21			Average Detector

802.11n-HT40 Highest Bandedge with Two Transmit Chain



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	
1	2476.720	75.71	-3.27	72.44	/	/	Average Detector
	2455.720	91.53	-3.27	88.26	/	/	Peak Detector
2	2483.500	Delta = 35.03 dBc		37.41	54.00	-16.59	Average Detector
	2483.500			53.23	74.00	-20.77	Peak Detector
3	2500.000	37.62	-3.20	34.42	54.00	-19.58	Average Detector
	2500.000	46.53	-3.20	43.33	74.00	-30.67	Peak Detector

9. Conducted Emissions

9.1 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.

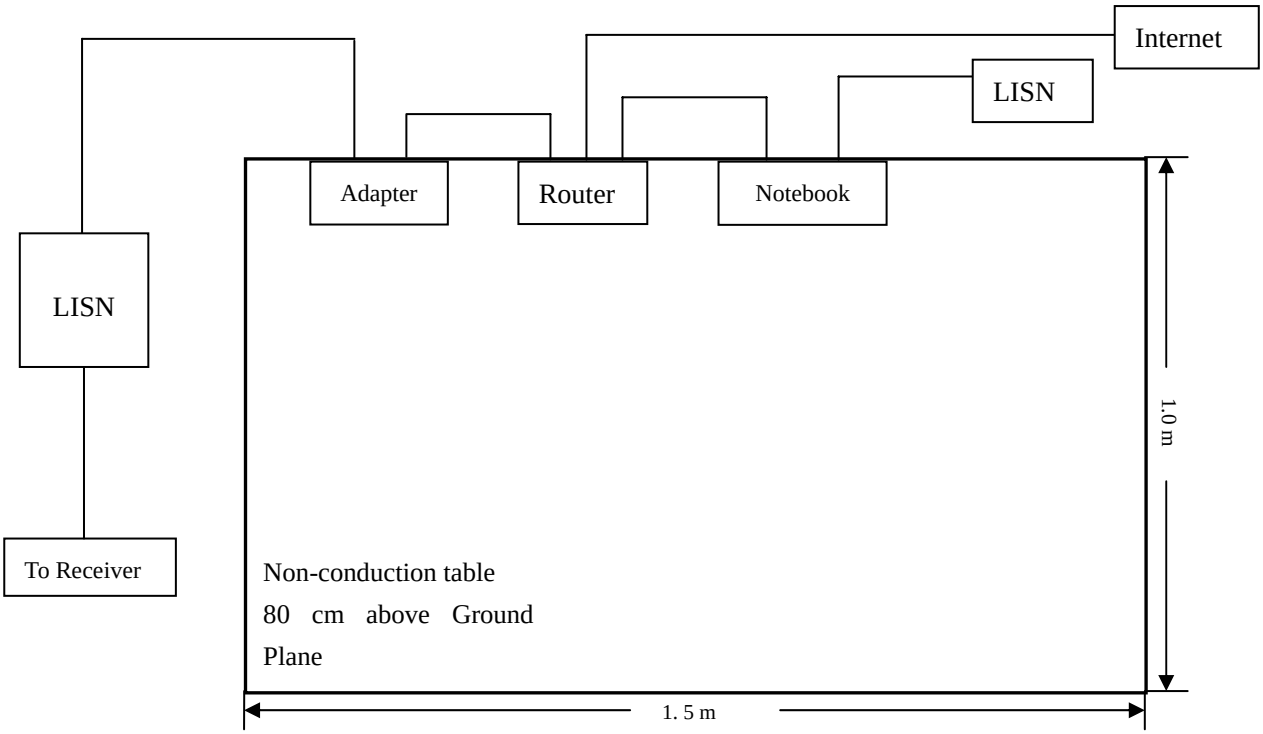
9.2 Test Equipment List and Details

Description	Manufacturer	Model	Serial Number	Cal. Date	Due. Date
EMI Test Receiver	Rohde & Schwarz	ESPI	101611	2013-03-28	2014-03-27
L.I.S.N	Schwarz beck	NSLK8126	8126-224	2013-03-28	2014-03-27
Pulse Limiter	Rohde & Schwarz	ESH3-Z2	100911	2013-03-28	2014-03-27

9.3 Test Procedure

The setup of EUT is according with per ANSI C63.4-2003 measurement procedure. The specification used was with the FCC Part 15.207 Limit.
The external I/O cables were draped along the test table and formed a bundle 30 to 40 cm long in the middle.
The spacing between the peripherals was 10 cm.

9.4 Basic Test Setup Block Diagram



9.5 Environmental Conditions

Temperature:	25 °C
Relative Humidity:	52%
ATM Pressure:	1012 mbar

9.6 Test Receiver Setup

During the conducted emission test, the test receiver was set with the following configurations:

Start Frequency ..... 150 kHz
Stop Frequency..... 30 MHz
Sweep Speed ..... Auto
IF Bandwidth..... 10 kHz
Quasi-Peak Adapter Bandwidth ..... 9 kHz
Quasi-Peak Adapter Mode ..... Normal

9.7 Summary of Test Results/Plots

According to the data in section 9.8, the EUT complied with the FCC Part 15.207 Conducted margin for a Class B device, with the *worst* margin reading of:

-2.68 dB at 0.154 MHz in the **Neutral** mode**, peak** detector, **0.15-30MHz**

9.8 Conducted Emissions Test Data

Plot of Conducted Emissions Test Data

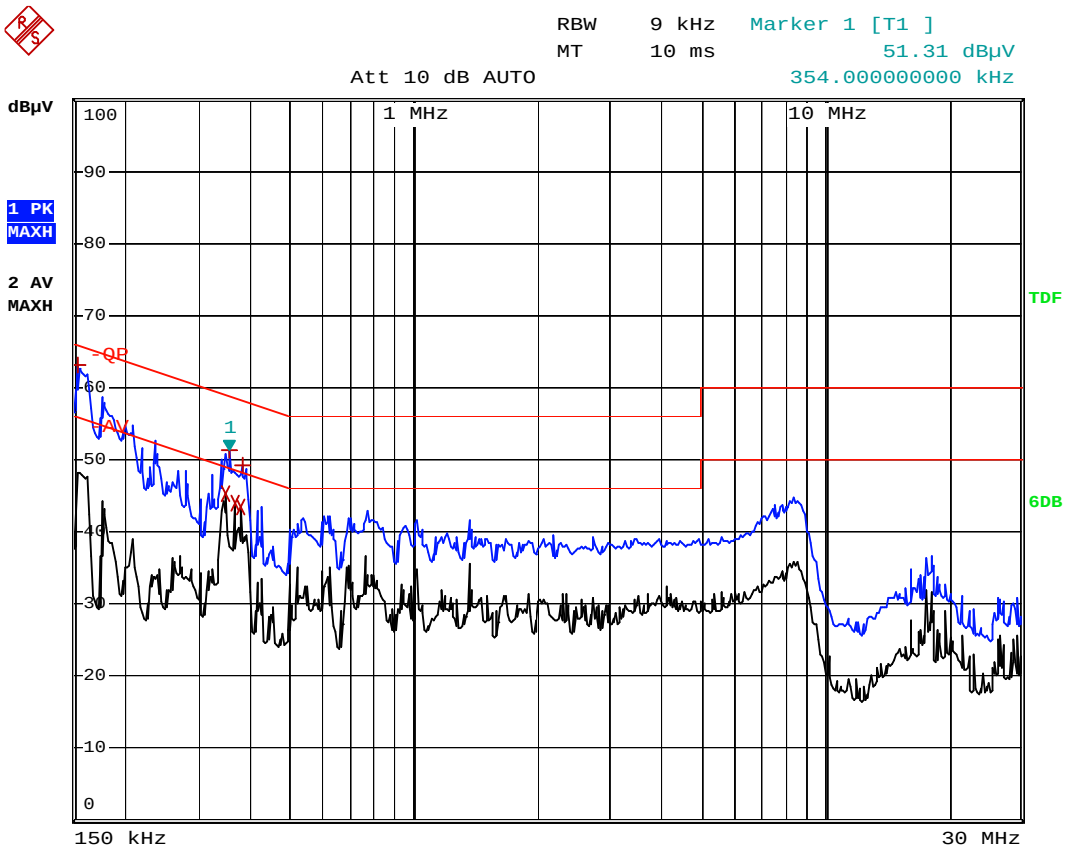
EUT: *ADSL2+Router WiFi 11n 2x2*

Tested Model: *P.DG A4001N A-000-1A1-AE*

Operating Condition: *Operating*

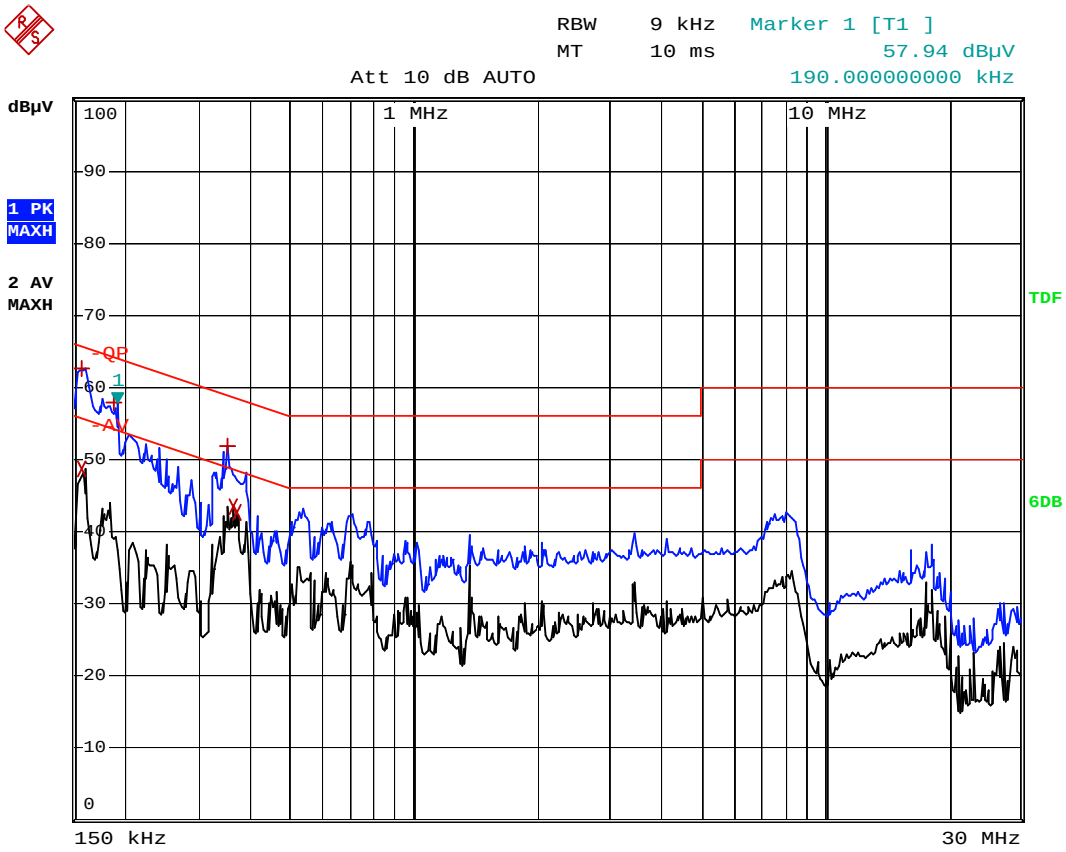
Comment: *AC 120V/60Hz; adapter DC 12V*

Test Specification: *Neutral*



EDIT PEAK LIST (Prescan Results)			
Trace1:	-QP		
Trace2:	-AV		
Trace3:	---		
TRACE	FREQUENCY	LEVEL dBµV	DELTA LIMIT dB
1 Max Peak	154 kHz	63.09	-2.68
2 Average	346 kHz	45.37	-3.68
1 Max Peak	354 kHz	51.31	-7.55
2 Average	366 kHz	44.05	-4.53
2 Average	378 kHz	43.44	-4.88
1 Max Peak	382 kHz	49.33	-8.89

Test Specification: *Line*



EDIT PEAK LIST (Prescan Results)			
Trace1:	-QP		
Trace2:	-AV		
Trace3:	---		
TRACE	FREQUENCY	LEVEL dBµV	DELTA LIMIT dB
1 Max Peak	158 kHz	62.54	-3.02
2 Average	158 kHz	48.59	-6.97
1 Max Peak	190 kHz	57.93	-6.09
1 Max Peak	350 kHz	51.93	-7.02
2 Average	362 kHz	43.43	-5.25
2 Average	370 kHz	42.53	-5.96

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